

EMILY FAIRFAX, PhD

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ECOHYDROLOGY

BEAVERS

CLIMATE CHANGE

EDUCATION

Ph.D. Geological Sciences, University of Colorado Boulder (2015 – 2019)
Certificate in Hydrologic Sciences
Certificate in College Teaching
NDSEG Fellow

B.A. Physics & Chemistry (*double major*), Carleton College (2010 – 2014)
cum laude

APPOINTMENT HISTORY

University of Minnesota, Twin Cities
Department of Geography, Environment, and Society
Assistant Professor of Physical Geography (2023 – present)
McKnight Land Grant Professor (2025 – present)

Saint Anthony Falls Laboratory
Affiliated Faculty (2023 – present)

California State University Channel Islands
Department of Environmental Science and Resource Management
Assistant Professor (2019 – 2023)

Utah State University
Department of Watershed Sciences
Courtesy Adjunct Assistant Professor (2021 – 2023)

University of Colorado Boulder
Department of Geological Sciences
Lecturer (2019)
ASSETT Fellow (2018 – 2019)
NDSEG Fellow (2015 – 2018)

UNAVCO
Professional Development Instructor (2019)
RESESS Graduate Fellow (2018)

Los Alamos National Laboratory
Systems Engineer (2014 – 2015)



RESEARCH

► Honors and Awards

McKnight Land Grant Professorship. University of Minnesota. (2025-2027)

G.K. Gilbert Award for Excellence in Geomorphological Research. For “Smokey the Beaver: beaver-dammed riparian corridors stay green during wildfire throughout the western United States”. American Association of Geographers (AAG) Geomorphology Section. (2024)

Fellow. Walton Family Foundation: Environment Program (2023-2026)

Faculty Excellence in Research, Scholarly, and Creative Activities Award. College of Arts and Sciences. California State University Channel Islands. (2021)

► Peer Reviewed Publications

* = undergraduate student supervised

** = graduate student supervised

*** = postdoc supervised

† = co-first authorship. Both authors contributed equally

Published

14. ***Moravek, J., **Connaughton, A., **Kirksey, K., **Miller, J., **Fairfax, E.** (2025) Using beaver capacity models – the importance of local knowledge. *Restoration Ecology*.
<https://doi.org/10.1111/rec.70135>
13. ***Wan, L., **Fairfax, E.**, Maher, K. (2025) Factors influencing surface water accumulations in beaver pond complexes across the Western United States. *Nature Communications Earth and Environment*. <https://doi.org/10.1038/s43247-025-02573-x>
12. ***Moravek, J., Brashares, J., Girotto, M., Spivak, R., Kerr, A., Molod, A., Freier, S., Johnson, R., **Fairfax, E.**, Ruhl, A. (2025, *in press*) Maximizing the potential benefits of beaver restoration for fire resilience and water storage. *Ecological Applications*.
11. ***Baker, N., Larsen, D., **Fairfax, E.**, Muscott, A., Shapiro, B., Crump, S. (2025, *in press*). Ancient sedimentary DNA shows more than 5000 years of continuous beaver occupancy in Grand Teton National Park. *Ecosphere*.
10. Hayley, G., Al-Chokhachy, R., Wheaton, J., MacFarlane, W., Jordan, C., Murphy, B., Shahverdian, S., Bennet, S., Bouwes, N., Fryirs, K., Brierley, G., Ciotti, D., Bailey, P., Bartlet, K., Belletti, B., Bizzi, S., Brasington, J., Camp, R., **Fairfax, E.**, Jimenez, J., Maestas, J., Mandish, T., McNamara, A., Miller, S., Marizot, B., Perle, M., Piegay, H., Reid, H., Reynolds, L., Saunders, W., Shallcross, A., Skidmore, P., Smith, R., Terrier, B., Wathen, G., Weber, N. (2025, *in press*) Principles of Riverscape Health. *WIREs Water*.
<https://doi.org/10.1002/wat2.70028>
9. **Fairfax, E.**, Westbrook, C. The Ecology and Evolution of Beavers: Ecosystem Engineers that Ameliorate Climate Change. (2024). *Annual Review of Ecology, Evolution, and Systematics*. <https://doi.org/10.1146/annurev-ecolsys-102722-122317>
8. **Fairfax, E.**, Whipple, A., Wheaton, J., *Osorio, B., *Miller, J., *Kirksey, K., *Perez, N., Jordan, C.E. (2024) [Beaver-Modified Riverscapes Withstand Megafires in the Rocky Mountain](#)



- [Region, USA](#). In Biogeomorphic Responses to Wildfire in Fluvial Ecosystems. Special Papers – Geological Society of America. [https://doi.org/10.1130/2024.2562\(07\)](https://doi.org/10.1130/2024.2562(07))
7. **Fairfax, E.**, Clinton, N., Zhu, E., Maiman, S., Shaikh, A., Macfarlane, W., Wheaton, J., Ackerstein, D., Corwin, E. (2023). [EEAGER: a neural network for finding beaver complexes in aerial and satellite imagery](#). Journal of Geophysical Research: Biogeosciences. <https://doi.org/10.1029/2022JG007196>
 6. Norman, L., Lal, R., Wohl, E., **Fairfax, E.**, Gellis, A., Pollock, M. (2022) [Natural Infrastructure in Dryland Streams Create Wetland Sinks that Mitigate Climate Risk](#). Science of the Total Environment. <https://doi.org/10.1016/j.scitotenv.2022.157738>
 5. Jordan, C. E.† & **Fairfax, E.†**. (2022), [Beaver: The North American Freshwater Climate Action Plan](#). WIREs Water. doi: 10.1002/wat2.1592
 - French Translation: https://www.sauvonsleau.fr/upload/docs/application/pdf/2022-11/castor_un_plan_daction_pour_le_climat_en_eau_douce_-_traduction.pdf
 4. **Fairfax, E.** & *Whittle, A. (2020), [Smokey the Beaver: beaver-dammed riparian corridors stay green during wildfire throughout the western USA](#). Ecological Applications. doi:10.1002/eap.2225
 3. **Fairfax, E.** & Brown, M. R. M. (2019), [Increasing Inclusion and Accessibility in Undergraduate Geology Labs Through Scenario-Based TA Training](#). Journal of Geoscience Education. DOI: 10.1080/10899995.2019.1602463
 2. **Fairfax, E.** & Small, E. E. (2018), [Using remote sensing to assess the impact of beaver damming on riparian evapotranspiration in an arid landscape](#). Ecohydrology 11(7). doi:10.1002/eco.1993
 1. **Fairfax, E.** & Steinzig M. (2016) [A Summary of Failures Caused by Residual Stresses](#). Residual Stress, Thermomechanics & Infrared Imaging, Hybrid Techniques and Inverse Problems, Volume 9. Conference Proceedings of the Society for Experimental Mechanics Series. doi.org/10.1007/978-3-319-21765-9_26

► Published Data

* = undergraduate student supervised

2. **Fairfax, E.** & *Whittle, A. (2020): Google Earth Path Files of Beaver Dams and Ponds in Laramie Ranger District, Medicine Bow Routt National Forest, WY. PANGAEA, <https://doi.pangaea.de/10.1594/PANGAEA.913923>
1. **Fairfax, E.** & *Whittle, A. (2019): Normalized Differenced Vegetation Index (NDVI) of riparian areas with and without beaver damming within wildfire perimeters in Western US. PANGAEA, <https://doi.pangaea.de/10.1594/PANGAEA.900944>

► Invited Speaking

140. (upcoming) River Restoration Northwest Annual Symposium. Keynote Speaker. Beavers. February 2026
139. (upcoming) MN GIS/LIS Consortium Fall Conference. Keynote Speaker. Beavers. October 2025
138. (upcoming) Beasts and Brews - Wisconsin. Beavers. October 2025

137. Isle a la Cache Museum. Smokey the Beaver. September 2025
136. Okanagan Nation Alliance. siwłk^w (Water) Webinar. Beaver Mimicry. July 2025
135. Humane Society of Huron Valley. Beaver Coexistence in Washtenaw County. July 2025
134. Harney Watershed Council. Beavers in the Harney Basin. July 2025
133. Journey Museum and Black Hills Flyfishers. Beavers: Architects of Resilience. June 2025
132. The Beaver Institute. Beaver Science Speaker Series. Beavers as Architects of Climate Resilience. June 2025
131. Midwest Beaver Summit. Keynote Speaker. Beavers in the Midwest. June 2025.
130. Yampa Basin Rendezvous. Plenary Keynote Speaker. Beavers in Colorado: drought and wildfire resilience. May 2025.
129. University of California Climate Stewards Program. Beavers and Fire in California. May 2025
128. Peel Compton Foundation – Osage Park After Dark. Keynote Speaker. April 2025
127. Michigan State University Earth and Environmental Sciences Distinguished Speaker Series. Beavers as Architects of Climate Resilient Natural Infrastructure. April 2025
126. Theodore Roosevelt Conservation Partnership. Beavers, BDAs, and Megafires. April 2025
125. BTAA / Big Ten GIS Conference 2025. Keynote Speaker. Beavers and Remote Sensing. April 2025
124. Oklahoma Conservation Commission, the Grand River Dam Authority, Cherokee Nation, and the Illinois River Watershed Partnership. Beaver and BDA Restoration Talk and Workshop. April 2025
123. Washington County Water Consortium. Beavers in Minnesota – science, benefits, and conflict management. April 2025.
122. Practical Water Wisdom / Itasca Waters. Beaver dams, ponds, and effects. April 2025
121. Minnesota Coalition of Lake Associations. Beavers in Minnesota – science, benefits, and conflict management. March 2025
120. Cuyahoga Valley National Park 50th Anniversary. Keynote Speaker. Beavers in the Valley. March 2025
119. (*postponed due to federal funding cuts*) FEMA. Chew on this – beavers as hazard mitigation. Early 2025.
118. UMN EEB Seminar Series. Beavers as Climate Change Mitigators. February 2025
117. (*postponed due to federal funding cuts*) U.S. Forest Service SCIENCEx Webinar. Riparian Fuels Treatment Panelist. Winter 2024/25
116. AGU Conservation Ecohydrology Session. Invited Speaker. Beavers and Fire. December 2024
115. UMN Spatial Forum. Lightning Talk on Beavers. November 2024
114. Land Trust Alliance. Beavers as Natural Allies. November 2024.
113. BeaverCON. *Keynote Speaker*. How, Where, and Why Beaver Wetlands Are Fire Resistant. October 2024
112. Peninsula Open Space Trust. Beavers in California. October 2024.
111. New Mexico State Legislature. Testimony on Beavers and Wildfire. September 2024.
110. US Fish and Wildlife Service. Nature-Based Solutions in Arid Lands. September 2024.

109. Midwest Beaver Summit. Beavers: Droughts and Floods. August 2024
108. US EPA. Climate-Fire-Water Webinar Series. Beavers. July 2024.
107. Healthy Headwaters Alliance. Beavers and Wildfire Resilience. June 2024.
106. Université de Lyon. Réseau Rivières Webinar. June 2024.
105. Creature Conserve. Beavers and Climate Change. June 2024.
104. USFWS Process Based Restoration Training. Beavers and Fire. June 2024.
103. Siseebakwet Lakeshore Association Spring Meeting. Beavers in MN. June 2024.
102. Boulder Watershed Collective. Guided field tour to Lefthand Canyon beaver complex. May 2024
101. Beaver Girl Book Launch. Webinar with Cassie Promo-Steele. May 2024.
100. University of Wisconsin Eau Claire Earth Science Seminar Series. May 2024.
99. Minnesota Native Plant Society. Beavers in Minnesota. April 2024
98. International Association for Geomorphology. Geomorphology Day Webinar. March 2024.
97. US Fish and Wildlife Service Southwest Region. Webinar on Beavers in Dryland Environments. March 2024.
96. Carleton College Biology Colloquium. Beavers in the Great Lakes Region. March 2024
95. Accepted Gopher Days at the University of Minnesota. March 2024.
94. UC Climate Stewards Program. Beavers and Climate Resilience in California. March 2024
93. Partnership for River Restoration in the Upper Midwest Annual Meeting Post-Meeting Workshop. Beavers 101. February 2024.
92. Partnership for River Restoration and Science in the Upper Midwest Annual Symposium Keynote Speaker. Beavers in the Upper Midwest. February 2024
91. University of Georgia and Walton Family Foundation. Nature-based Solutions and Natural Infrastructure Network Design Workshop. January 2024.
90. Minnesota Department of Natural Resources. Science and Fisheries Annual Meeting. Beavers in Minnesota. November 2023
89. Luckiamute Watershed Council. Sips and Science – Smokey the Beaver. November 2023
88. Northern Arizona University. Forestry Colloquium. November 2023
87. Climatebase. Beavers as a nature-based solution. November 2023
86. Women Advancing River Research. Beavers: The Original Log Transformation. October 2023
85. Tehipite Chapter of the Sierra Club Meeting. Beavers in the Sierras. October 2023.
84. Front Range Community College. Science and Society Guest Speaker. September 2023
83. North Santiam Watershed Council. Beavers and Climate Change. September 2023.
82. Midwest Beaver Summit. Beavers and Climate Change. September 2023.
81. Workshop on Science for Trout Stream Restoration in the Great Lakes Region. Beavers. August 2023.
80. Alberta Beaver Symposium. Keynote Speaker. July 2023
79. Water Advisory Committee of Orange County. Beavers. July 2023
78. Carleton College Beaver Festival. The Science of Beavers and Coexistence. May 2023.
77. Oregon State Senate. Expert Testimony on HB 3464. May 2023.

76. California Department of Fish and Wildlife. Beavers and LT-PBR for Fish. April 2023.
75. Oregon State Legislature. Expert Testimony on HB 3464. March 2023
74. NOAA Riverscape Restoration Workshop. MC and Panel Facilitator. March 2023.
73. Front Range Community College. Science and Society Guest Speaker. March 2023
72. HalfMoon Education. Beavers and Ecological Restoration: Issues and Solutions. March 2023
71. Society of Ecological Restoration Western Canada Journal Club. Q&A about Beavers and NIDS. February 2023.
70. River Restoration Northwest Annual Symposium. Plenary Speaker. February 2023 (*live session missed due to illness, recorded slides provided*)
69. Scott River Watershed Informational Forum. Beavers and Fire. February 2023.
68. Castoro Cellars Winery / SLO Beaver Brigade. February 2023
67. Santa Barbara Permaculture Network. Beavers in California. January 2023
66. Audubon Canyon Ranch Conservation Science Intensive. Panelist on Careers in Conservation. January 2023.
65. NPR Science Friday Book Club. Beavers and Beaverland. January 2023
64. California Academy of Sciences and The Nature Conservancy Convening on Grasslands. December 2022. Beavers Restoring Lost Connections. December 2022.
63. Camarillo Rotary Club. Beavers in Ventura County. November 2022
62. Pacific Trust Forest Council. Beavers in California. November 2022
61. Deloitte. Green Teams Webinar: Western United States. November 2022.
60. California State University Chico. Biology Seminar Series. October 2022
59. Georgetown University. Environmental Metrology and Policy Program Colloquium Series. October 2022
58. California Governor's Office of Planning and Research California Fifth Climate Change Assessment Roundtable. Panelist on Natural Waters and Biodiversity. October 2022
57. UC Climate Stewards Program: Oakland Zoo. Beavers and Wildfire. September 2022
56. Climatebase Fellowship Program Seminar. Nature-based solutions. September 2022
55. Wildnote Lunch and Learn. All about beavers. September 2022.
54. Ventura River Watershed Meeting. Beavers in Coastal California. August 2022.
53. Audubon Canyon Ranch Conservation Science Intensive. Panelist on Careers in Conservation. June 2022.
52. Estes Valley Watershed Coalition. Beavers and Wildfire. June 2022.
51. California Water Quality Monitoring Council. Beavers, fire, and water quality. May 2022.
50. Sierra Club and Corvallis-Benton County Public Library. Beavers and Wildfire. May 2022
49. Audubon Canyon Ranch. Science Webinar Series. Beavers and Climate Change. April 2022
48. Front Range Community College. Careers in Geosciences Panel. April 2022.
47. Utah State University. Watershed Sciences Colloquium. April 2022.
46. Université du Québec à Montréal. Ecology and Evolution Seminar Series. April 2022.
45. Northern Illinois University. Geoscience Department Colloquium. March 2022.
44. Pacific Northwest Aquatic Monitoring Partnership Remote Sensing Forum. Beavers and

Remotely Sensed Ecohydrology. March 2022.

43. UC ANR Climate Steward Program for the Oakland Zoo. Beavers in California. March 2022

42. California Native Plant Society Mt. Lassen Chapter. Beavers and Fire. March 2022.

41. American Fisheries Society Colorado and Wyoming Chapter Annual Meeting. Plenary Presentation. Beavers and Megafire in the Rocky Mountains. March 2022.

40. Central Coast Bioneers. Guided Nature Walk and Talk About Beavers. February 2022.

39. Boulder County Audubon Society. [Q&A Beavers and Climate Change](#). February 2022

38. Scott Watershed Informational Forum. Beavers and Wildfire. February 2022.

37. Oklahoma Wildlife Society Annual Meeting. Smokey the Beaver. February 2022.

36. River Restoration Northwest. Remote Sensing of Beaver Dams Workshop. February 2022

35. The Nature Conservancy South Dakota. Annual Fundraiser Keynote. December 2021.

34. Santa Barbara Permaculture Network. Dinner Talk at The Farmer and The Cook. November 2021.

33. Santa Ynez Valley Natural History Society. Beavers in California and the Santa Ynez River. November 2021.

32. ASWM Members Webinar. [Megafires Be Dammed](#). October 2021

31. [Colorado Beaver Summit](#). [Beavers and wildfire](#). October 2021

30. WestFAST (Western States Federal Agency Support Team) Webinar. [Wildfires and Droughts be Dammed](#). October 2021.

29. The Nature Conservancy South Dakota Annual Banquet. October 2021. *Declined due to State of California travel restrictions per AB 1887.*

28. Audubon Canyon Ranch Conservation Science Intensive. Panelist on Careers in Conservation. July 21st, 2021

27. Audubon Canyon Ranch Conservation Science Intensive. Panelist on Careers in Conservation. July 14th, 2021

26. [World Environment Day Webinar](#). [Beavers and Climate Change](#). June 3rd, 2021

25. Earth Day Beaver Trivia and Q&A Panelist. Beaver Believers. April 24th, 2021.

24. [Natural Areas Association](#). [Beaver and Fire Symposium](#). April 22nd, 2021.

23. [California Beaver Summit](#). [Keynote Speaker](#). [Beavers and wildfire](#). April 9th, 2021.

22. Los Padres Forest Watch and Beaver Believers Q&A Panel. April 8th, 2021

21. Fire Ecology and Management. Point Blue Conservation Science. April 8th, 2021

20. Beavers and Fire for the Rogue Riverkeepers. March 30th, 2021.

19. Expert Testimony on HB2844 for the Oregon State Legislature. March 18th, 2021.

18. [California Fire Science Webinar Series](#). [Smokey the Beaver](#). March 16th, 2021

17. [ASWM Beaver Restoration Webinar](#). [Beaver Restoration for Climate Resiliency](#). March 10th, 2021

16. University of Colorado Boulder Gamification Community of Practice Presentation – Gamifying Your Classroom. March 2nd, 2021

15. Beavers and Climate Change Panelist and Presenter for San Luis Obispo Beaver Brigade and Beaver Believers. February 21st, 2021

14. Beavers and Climate Change Panelist and Presenter for Scott River Watershed and Beaver Believers. January 21st, 2021
13. [California Naturalist Program Seminar \(CONES\) – Smokey the Beaver](#). January 19th, 2021
12. [NOAA Monster Seminar Jam – Smokey the Beaver](#). January 14th, 2021
11. [Oxford Real Farming Conference: Farming and Climate Change – How Beavers Can Help](#). January 10th, 2021
10. [University of Nevada Reno Ecology and Evolutionary Biology Colloquium](#). Nov 12th, 2020
9. [CSUCI Mathematics Colloquium](#). October 26th, 2020
8. Beavers and Climate Change Panelist for Friday Harbor Film Festival and Beaver Believers. October 21st, 2020
7. [Bark! Smokey the Beaver](#). October 15th, 2020
6. Beavers and Climate Change Panelist for Beaver Coalition and Beaver Believers. October 5th, 2020
5. [AGU H3S and CUAHSI Panel on Scientific Communication at Conferences](#). June 26th, 2020
4. [Beavers without Borders](#). BeaverCON 2020. March 3rd, 2020
3. [Smokey the Beaver: Can Beaver Dams Help Protect Riparian Vegetation During Wildfire?](#) Webinar for the U.S. Forest Service. January 28th, 2020
2. [Dam Big Data](#). CSUCI Computer Science Colloquium. October 15th, 2019.
1. [Beavers: the other professional engineer](#). AEG (Association of Environmental and Engineering Geologists) Mile High Chapter Meeting. May 14th, 2019.

► Conference Presentations

* = *undergraduate student supervised*

** = *graduate student supervised*

*** = *postdoc supervised*

45. *Kirksey, K., **Fairfax, E.** How public opinion of beaver reintroduction varies in different countries. 10th International Beaver Symposium, Inverness, Scotland. Sept 2025
44. *Connaughton, A., **Fairfax, E.** Beavers and phenology: A case study in the Kenai National Wildlife Refuge, Alaska. 10th International Beaver Symposium, Inverness, Scotland. Sept 2025
43. **Alves, M., Young, J., **Fairfax, E.** Evaluating Beaver Translocation Methods and Measures of Success in North America and Europe. 10th International Beaver Symposium, Inverness, Scotland. Sept 2025
42. *Denton, M., **Fairfax, E.** Incorporating human-beaver conflict potential into urban beaver restoration models. 10th International Beaver Symposium, Inverness, Scotland. Sept 2025
41. ***Moravek, J., Cook, V., **Alves, M., Wilson, K., **Fairfax, E.** Dams for defense: Beavers as a nature based solution to adapt to more severe drought and wildfire. 10th International Beaver Symposium, Inverness, Scotland. Sept 2025
40. VanBuren, C., **Fairfax, E.** Mapping beaver contributions to ecosystem services priorities across sectors and scales. 10th International Beaver Symposium, Inverness, Scotland. Sept 2025

2025

39. **Fairfax, E.**, **Arlt, A., *Denton, M., **Miller, J., ***Moravek, J. Beaver-driven wildfire resistance: generalizability, mechanisms, and predictability. 10th International Beaver Symposium, Inverness, Scotland. Sept 2025
38. **Fairfax, E.**, Funk, A., Marrs, A. Beaver mimicry for drought and fire resilience: accelerating implementation through science and policy collaboration. 10th International Beaver Symposium, Inverness, Scotland. Sept 2025
37. ***Baker, N., **Fairfax, E.**, Larsen, D. Reconstructing Sierra Nevada paleoecosystems in the context of beaver engineering with sedimentary ancient DNA. AGU Annual Fall Meeting 2024. December 2024.
36. ***Wan, L., **Fairfax, E.**, Fang, K., Maher, K. Surface Water Area in Beaver Complex Wetlands Across the American West: Mapping, Clustering, and Influencing Factors. AGU Annual Fall Meeting 2024. December 2024.
35. **Fairfax, E.**, Riesgraf, A., ***Baker, N., Andruss, M. Where, When, and Why Beaver Wetlands Resist Burning During Wildfires. AGU Annual Fall Meeting 2024. December 2024. *Invited Speaker.*
34. *Denton, M., **Fairfax, E.**, Wildfire Resilience Around Beaver Dam Analogs. AGU Annual Fall Meeting 2024. December 2024.
33. **Fairfax, E.**, Beavers and Wildfire. BeaverCON 2024. *Keynote Speaker.* October 2024
32. **Fairfax, E.** Beavers as Wildfire Mitigation. National Conference on Ecological Restoration. Albuquerque. April 2024.
31. **Fairfax, E.**, *Osorio, B., *Miller, J., *Kirksey, K. Fire Resistance of Beaver Wetlands Across Latitudes and Landscapes. AGU Annual Fall Meeting 2023. December 2023.
30. Baker, N., **Fairfax, E.**, Larsen, D., Shapiro, B., Crump, S.E. Ancient Sedimentary DNA Shows 5000 Years of Continuous Beaver Occupancy in Grand Teton National Park. AGU Annual Fall Meeting 2023.
29. *Osorio, B., *Miller, J., *Hirahara, A., *Kirksey, K., *Connaughton, A., *Perez, N., *Segnitz, J., **Fairfax, E.** 30-Years of Beaver Damming on Lake Superior's Islands: A Remote Sensing Perspective. AGU Annual Fall Meeting 2023.
28. Clinton, N., **Fairfax, E.**, Zhu, E., Maiman, S., Shaikh, A., Ackerstein, D., Corwin, E. (2023) Application of EEAGER to Beaver (*Castor canadensis*) Conservation in California. AGU Annual Fall Meeting 2023.
27. **Fairfax, E.** OOS 13-3 - Smokey the beaver: how beaver ecosystem engineering mitigates wildfire. (2023) Ecological Society of America Annual Meeting.
26. **Fairfax, E.**, Whipple, A., Jordan, C.E., Wheaton, J., *Osorio, B., *Miller, J., *Kirksey, K., *Perez, N. (2023) Beaver-Modified Riverscapes Resist Burning During Megafires. Invited Presentation for River Restoration Northwest Annual Symposium 2023.
25. Rongstad, B., Gold, A., Newman, N., Ratcliffe, C., **Fairfax, E.**, Schaecher, A., Boyd, K., Okochi, C., Littrell, M., Maryboy, N., Begay, D., Valdez, S., Stein, J. (2022) Using Storytelling to Connect Diverse Communities with Science Topics Through Informal Education Experiences. AGU Annual Fall Meeting 2022.
24. **Fairfax, E.**, Clinton, N., Zhu, E., Maiman, S., Shaikh, A., Ackerstein, D., Corwin, E. (2022)

- EEAGER: a model that detects beaver-created wetlands in satellite and aerial imagery. AGU Annual Fall Meeting 2022.
23. *Osorio, B., *Miller, J., **Fairfax, E.** (2022), Dam the Wildfires: Beaver Response to the 2020 Colorado Megafires. SACNAS Annual Meeting in Puerto Rico.
 22. **Fairfax, E.**, Clinton, N., Zhu, E., Maiman, S., Shaikh, A., Ackerstein, D., Corwin, E. EEAGER: a neural network model for finding beaver complexes in satellite and aerial imagery. GSA Annual Fall Meeting 2022.
 21. Zhu, E., Clinton, N., **Fairfax, E.**, Maiman, S., Shaikh, A., Ackerstein, D., & Corwin, E. (2022), EEAGER: a neural network for finding beaver complexes in imagery. BeaverCON 2022.
 20. Jordan, C. E.†, & **Fairfax, E.†**. (2022), Beaver: The Freshwater Climate Action Plan. BeaverCON 2022.
 19. **Fairfax, E.**, *Osorio, B., *Kirksey, K., and *Miller, J. (2022) Megafires Be Dammed: can beaver-created fire refugia persist through extreme wildfire events?, BeaverCON 2022.
 18. **Fairfax, E.** Beaver-Supported Drought and Fire Resilience. Arkansas River Basin Water Forum 2022.
 17. **Fairfax, E.**, *Osorio, B., and *Kirksey, K. (*upcoming, postponed until 2022 due to COVID-19*) Ribbons of Refugia: beavers create and maintain highly-connected, fire-resistant patches of riparian habitat. Invited Presentation for AFS Annual Meeting. *Session postponed for COVID-19.*
 16. Quinlan, K., Brown, M.R.M., **Fairfax, E.** Groundwater dynamics and contributions within the Ashley-Brush Basin, Utah. GSA Annual Fall Meeting 2021
 15. *Kirksey, K., and **Fairfax, E.** One year of beaver modifications to a large sandy river: a case study in central California, GSA Annual Fall Meeting 2021
 14. **Fairfax, E.**, *Osorio, B., and *Kirksey, K. (2021) Megafires Be Dammed: can beaver-created fire refugia persist through extreme wildfire events?, Invited Presentation for GSA Annual Fall Meeting 2021
 13. Jordan, C.E., Bouwes, N., Wheaton, J., and **Fairfax, E.** (2021) Partnering with Beavers in Low-Tech Process-Based Watershed Restoration. National Conference on Ecosystem Restoration 2021.
 12. **Fairfax, E.** and *Whittle, A. (2019) Smokey the Beaver: Can Beaver Dams Help Protect Riparian Vegetation During Wildfire?, AGU Annual Fall Meeting 2019
 11. **Fairfax, E.** (2019) How Can You Talk About Your Research and Tell a Story Without Saying Any Words? With a Little Bit of Patience and Whole Lot of Felt: Lessons Learned from Creating and Sharing an Elevator Video, AGU Annual Fall Meeting 2019
 10. **Fairfax, E.** (2018) Roll a Water Check! Using Games to Teach Hydrology. AGU Annual Fall Meeting 2019
 9. **Fairfax, E.** and E. E. Small. (2018) Over, Under, or Through: How the leakiness of a beaver dam influences groundwater-surface water interactions, AGU Annual Fall Meeting 2018
 8. **Fairfax, E.** and M. R. M. Brown. (2018), Increasing Inclusion and Accessibility in Undergraduate Geology Labs Through Scenario-Based TA Training, AGU Annual Fall Meeting 2018
 7. M. R. M. Brown. and **Fairfax, E.** (2018), Assessing Accessibility Climate: What under- graduates

think about accessibility in the geoscience classroom, AGU Annual Fall Meeting 2018

6. *Whittle, A., & **Fairfax, E.** (2018), Beaver Ponds are a Major Contributor to Surface Water Storage in the Medicine Bow-Routt National Forest, Laramie Ranger District, WY, USA. AGU Annual Fall Meeting 2018
5. **Fairfax, E.** (2018), Roll a Water Check! Using Game-Based Learning to Correct Common Alternate Conceptions of the Hydrologic Cycle. Center for STEM Education 10th Annual Symposium, Boulder, CO.
4. **Fairfax, E.** and E. E. Small. (2017), The Role of Beaver Ponds in Maintaining Vegetation Health During Droughts: A Case Study at Susie Creek and Maggie Creek, NV, GSA Fall Meeting Abstracts 2017
3. **Fairfax, E.** and E. E. Small. (2016), Hyporheic Exchange in a Stream Dammed by Beaver: A 1D Simulation with Spatial Energy Head Gradients and Heterogeneous Hydraulic Conductivity as Drivers, AGU Fall Meeting Abstracts 2016
2. **Fairfax, E.** and E. E. Small. (2016), 1D Simulation of Hyporheic Exchange in a Stream Dammed by Beaver, GSA Fall Meeting Abstracts
1. **Fairfax, E.**, et al. (2015), PBO H2O: Monitoring the Terrestrial Water Cycle with reflected GPS signals recorded by the Plate Boundary Observatory Network, AGU Fall Meeting Abstracts.

► Grant Funding

External Funds (Total: \$2,676,458; \$2,629,458 PI/co-I, \$47,000 senior personnel)

Fairfax, E. Understanding interactions between beavers and Mnomen (wild rice). Wisconsin DNR in collaboration with the Great Lakes Indian Fish and Wildlife Commission. (\$196,327). *Primary Investigator*

Fairfax, E. Designing Interactive Hands-On Beaver Restoration Training. Walton Family Foundation. (\$71,000). *Primary Investigator*

Fairfax, E. Developing a Hydraulic Model for Beaver Dams and Dam Analogs. Walton Family Foundation. (\$129,000). *Primary Investigator*

Fairfax, E. Building the BeaverLab: an outdoor artificial stream facility for understanding beaver and beaver mimicry impacts. Broad Reach Fund (\$150,000). *Primary Investigator*

Piovia-Scott, J. and **Fairfax, E.** Collaborative Research: PACSP - Testing beaver-based resilience for freshwater habitat and species across precipitation gradients. (2026-2031) National Science Foundation. (\$251,000 to Fairfax of \$1,500,000). *Co-Investigator*

Fortson, L, Trouille, L., **Fairfax, E.**, Lintott, C., Noe, R., Blickhan, S., Salvatore, M., Guralnick, R., Denslow, M. NSF-CSSI: Collaborative Research: Frameworks: Building the Twenty-first Century Citizen Science Framework to Enable Scientific Discovery Across Disciplines. (2025-2029). National Science Foundation. (\$447,595 to Fairfax of \$2,140,536). *Co-Investigator*.

Fairfax, E. and Burkman, P., Inventory of beaver and other semi-aquatic furbearers to inform harvest management decisions at Apostle Islands National Lakeshore. (2025-2028). National Park Service Inventory Program. (\$47,133 to Fairfax of \$75,214 proposal). *Primary Investigator*.

Kendig, A. Expanding the Application of Minnesota's Wetland Monitoring Data. (2025-2028). MN

- Legislative-Citizen Commission on Minnesota Resources (LCCMR). (\$47,000 to UMN of \$318,000 proposal). *Senior Personnel.*
- Fairfax, E.** and Riesgraf, A. Feasibility Assessment of Minimally Invasive Tracking Tags on Beavers. (2024) Christine Stevens Wildlife Award via Animal Welfare Institute. (\$15,000) *Primary Investigator.*
- Fairfax, E.,** Piovita-Scott, J., Clinton, S., Burnett, A., Kennedy, J. (2024-2028). NSF DISES RCN: A North American Beaver Knowledge Network. National Science Foundation: DISES. (\$500,000). *Primary Investigator*
- Fairfax, E.** Beavers and Wildfire Knowledge Sharing Initiative. (2024-2025) Theodore Roosevelt Conservation Partnership. (\$86,000). *Primary Investigator*
- Fairfax, E.** Remote sensing assessment of beaver dam analogs in Alberta, Canada. (2024-2026) Mistakiis Institute. (\$23,000). *Primary Investigator*
- Fairfax, E.** (2024-2025). Remote Sensing Estimate of Beaver Occupancy, Habitat Quality, Water Storage & Carbon Storage in the Harney Basin, Oregon. Harney County Watershed Council. (\$63,230) *Primary Investigator*
- Fairfax, E.** (2024-2026). Beaver habitat selection in California. The Nature Conservancy. (\$142,673) *Primary Investigator*
- Fairfax, E.** (2023-2024). Developing a Beaver-Based Restoration Plan for Drought and Wildfire Resilience in the Scott River Watershed, California. Resources Legacy Fund via Scott River Watershed Council. (\$35,000). *Primary Investigator*
- Fairfax, E.** (2022). Net Primary Productivity and Carbon Sequestration at Doty Ravine LT-PBR Site. USFWS and American River Conservancy. (\$9000). *Research Contract, Primary Investigator.*
- Fairfax, E.,** and Wheaton, J. (2022-2025) River Restoration and Beaver-Based Restoration Effects on Fire Behavior, Water Storage, and Carbon Storage in CA and OR. US Fish and Wildlife Service (via Utah State University) (\$115,000). *Primary Investigator.*
- Fairfax, E.** (2022) Beavers, Climate Change, and Ecosystem Resilience. Special Project Renewal. Biodiversity First! (\$27,000. *Primary Investigator.*
- Fairfax, E.** (2022-2024) Project Mayfield. Assessment of Beaver Relocation Policies and Practices. Ackerstein Sustainability. (\$100,000). *Primary Investigator.*
- Fairfax, E.** (2021-2022) Project Beverly: Beavers - A Nature-Based Solution for Climate Change. Ackerstein Sustainability. (\$18,000). *Primary Investigator.*
- Fairfax, E.** (2020-2021) Beavers, Climate Change, and Ecosystem Resilience. Special Project. Biodiversity First! (\$18,725). *Primary Investigator.*
- Fairfax, E.** (2020). Remote Sensing to Identify Beaver Dams in Priority Areas in Newfoundland and Labrador, Canada. World Wildlife Fund Canada Special Project. (\$5000). *Primary Investigator.*
- Fairfax, E.** (2018) AWG (Association for Women Geoscientists) Takken Student Research Presentation Travel Award (\$500). *Primary Investigator.*
- Fairfax, E.** (2018) RESESS (Research Experience in Solid Earth Science for Students) Geological Sciences Graduate Fellowship (\$7000). *Primary Investigator.*
- Fairfax, E.** (2017) GSA (Geological Society of America) Rocky Mountain Section Travel Grant (\$75). *Primary Investigator.*

Fairfax, E. (2017) GSA (Geological Society of America) Graduate Student Research Grant, Geological Society of America: Drought Buffering in Riparian Areas Along Susie Creek, Nevada: The Role of Beaver Damming (\$2100). *Primary Investigator*.

Fairfax, E. (2015-2018) National Defense Science and Engineering Graduate Fellowship (NDSEG), Army Research Office, Air Force Office of Research, and ASEE (\$169,500).

Internal Funds (\$279,974)

Fairfax, E. (2025-2027) Hubachek Wilderness Research Fund. Disturbance and Resilience in the Northwoods: mapping relationships between beavers, wildfires, and wilderness. (\$80,000)

Fairfax, E. (2025) Faculty Early Innovator Fund: Beaver Innovations. UMN Technology Commercialization Office. (\$10,000)

Fairfax, E. (2024) Field Course Funds. Department of Geography, Environment, and Society. (\$5000)

Fairfax, E. (2024) Field Course Funds. Department of Geography, Environment, and Society. (\$2000)

Fairfax, E. and Patsch, K. (2022). Data without Borders: Establishing a Collaborative Cross-Border Environmental Drone and GIS Research Program in Todos Santos, Baja California Sur, Mexico. IRA Funding for Overseas Program. (\$42,319)

Fairfax, E. (2022-2023). Modeling How River Restoration Can Influence Wildfire Spread Behavior. (\$6675)

Fairfax, E. (2021-2022) Undergraduate Research Funding via HSI-SMART: STEM Model for Research and Teaching Undergraduate-Intervention Program (*PI David Gillespie, \$2.5M award*) (\$26,200)

Fairfax, E. (2021). Acoustics as a Proxy for River Restoration Status. CSUCI Center for Integrative Studies. (\$1524)

Fairfax, E. (2021). Climate Change Be Dammed – the role of beavers in a warming arctic. CSUCI Summer SURF Student Research Program. (\$14,000)

Fairfax, E. (2020-2021) Undergraduate Research Funding via HSI-SMART: STEM Model for Research and Teaching Undergraduate-intervention Program (*PI David Gillespie, \$2.5M award*) (\$26,200)

Fairfax, E. (2020) Teaching and Learning Innovations Fellowship. CSUCI. (\$19,292)

Fairfax, E. (2020) Your B.S. isn't BS: ESRM Speaker Series (ESRM 496). CSUCI Instructionally Related Activities Fund. (\$6,800)

Fairfax, E. and Patsch, K. (2019). Data without Borders: Establishing a Collaborative Cross-Border Environmental Drone and GIS Research Program in Todos Santos, Baja California Sur, Mexico. CSUCI Faculty Research & Development Mini-grant. 2019-2020. (\$7,979)

Blackwood, E., **Fairfax, E.**, and Patsch, K. (2019). In a Repository Far, Far Away: Using virtual reality to bridge the gap between Santa Rosa Island data and the people who care about it. CSUCI Faculty Research & Development Mini-grant. 2019-2020. (\$7,990)

Fairfax, E. and Patsch, K. (2019). I See CI: Virtual Reality Exploration of Santa Rosa Island. CSUCI Summer SURF Student Research Program. (\$14,000)

Fairfax, E. (2018) Undergraduate Research Mentorship Grant, CU Boulder Department of

Geological Sciences: ET Across Beaver-Dammed Landscapes. (\$1000)

Fairfax, E. (2018) United Government of Graduate Students Travel Grant (\$500)

Fairfax, E. (2018) Conference Travel Grant, CU Boulder Department of Geological Sciences (\$800)

Fairfax, E. (2018) Penny E. Patterson Graduate Research Grant, CU Boulder Department of Geological Sciences: Using the Leakiness of Beaver Dams to Assess their Function in a Landscape (\$1095)

Fairfax, E. (2018) Undergraduate Research Mentorship Grant, CU Boulder Department of Geological Sciences: Surface Water Storage in Beaver Ponds (\$1000)

Fairfax, E. (2017) University of Colorado Graduate School Travel Grant (\$300)

Fairfax, E. (2017) Birkeland Graduate Scholarship Research Grant, CU Boulder Department of Geological Sciences: Using Remote Sensing to Evaluate the Role of Beaver Ponds in Buffering the Effects of Drought on Nearby Riparian Vegetation (\$1500)

Fairfax, E. (2016) Conference Travel Grant, CU Boulder Department of Geological Sciences (\$800)

Fairfax, E. (2016) Spetzler Research Grant, CU Boulder Department of Geological Sciences: Beaver Dam Shallow Subsurface Hydrology (\$2000)

Fairfax, E. (2016) Undergraduate Research Mentorship Grant, CU Boulder Department of Geological Sciences: Beaver Dam Catalogue (\$1000)

► Student Mentorship and Advising

Postdocs Supervised

Nevé Baker. University of Minnesota. Primary Advisor. Co-Advised with Ellen Wohl (CSU)

- NSF EAR Postdoctoral Fellow. Reconstructing the role of beavers in driving Holocene landscape evolution and resilience in the Sierra Nevada range, California. (*March 2024 – present*)

Jessie Moravek. University of Minnesota in collaboration with The Nature Conservancy.

- Mapping and Modeling Beaver Influences on Water, Ecosystems, and Climate Change Now and in the Future in California, USA. (*August 2024 - present*)

Luwen Wan. Stanford. Secondary Advisor. Co-Advised with Kate Maher.

- Surface Water Area in Beaver Complex Wetlands Across the American West: Mapping, Clustering, and Influencing Factors (*August 2023 - present*)

Graduate Students Supervised

Mickki Garrity. University of Minnesota. Dept. of Natural Resources Science and Management, and American Indian Studies. Co-Advised with Michael Dockry

- **Ph.D.** – Beaver and Wild Rice Relationships (2023 – present)

Alyssa Connaughton. University of Minnesota. Dept. of Geography, Environment, and Society.

- **Ph.D.** Beavers and Disturbance (*thesis title TBD*) (2024 – present)

Keitreice Kirksey. University of Minnesota. Dept. of Geography, Environment, and Society.

- **PhD.** Beavers and People (*thesis title TBD*) (2024 – present)

Joe Miller. University of Minnesota. Dept. of Geography, Environment, and Society.

- **M.S.** Geospatial Influences of Beavers (*thesis title TBD*) (2024 – present)

Molly Alves. Utah State University Dept of Wildland Resources. Co-Advised with Julie Young

- **M.S.** - Best Practices in Beaver Relocation: a synthesis of literature, case studies, and practitioner knowledge (2022 – present)

Graduate Thesis Committee Member / Thesis Reviewer

Matthew Land. University of Minnesota. Dept. of Applied Economics.

- **M.S.** – The Effect of Teaching Experience on Student Performance: Evidence from Elementary and Middle School Students in Wisconsin (2024). *Successfully defended*

Bridgette Timm. University of Minnesota. Dept. of Conservation Science.

- **PhD** – Beaver occupancy and use of the Twin Cities (2024 – present)

Sandy Wong. University of Minnesota. Dept. of Geography, Environment, and Society.

- **M.S.** - *Quercus douglasii* resilience to extreme drought across complex topography in California (2023 – 2025). *Successfully defended*

Jessica Sikora. Northern Illinois University. Dept. of Biological Sciences

- **M.S.** - Spatial Analysis of Beaver Impoundment Impacts on Riverscapes in Restored Tallgrass Prairie. (2022 – 2023). *Successfully defended*

Devin Baumer. Utah State University. Dept. of Watershed Sciences

- **M.S.** – Impacts of Beaver on Bridge Creek, OR (2022 – present)

Jeff Anderson. Utah State University. Dept. of Watershed Sciences

- **PhD** – Can LT-PBR restoration by the people, for the people, overcome limiting factors to sockeye food-fishery declines? (2022 – present)

Facundo Smufer. University of Quebec Montreal. Dept. of Biology.

- **M.S.** – Carbon balance of boreal beaver ponds. (2022 – 2023). *Successfully defended*

Other Graduate Student Mentorship

Rachel Torres. University of California Santa Barbara. Dept. of Environmental Science and Management.

- Future Faculty Partner Program. NSF HSI AGEP Program. (2022 – 2023)

Undergraduate Research Assistants Supervised

Beaver Dam Hydrology

Nichole Jacquez. *UMN* (2025-present)

Elena Voda. *UMN* (2025-present)

Ari Lawrence. *UMN* (2025-present)

Jonah Docter-Loeb. *Carleton College* (2024)

Martha Denton. *UMN*. (2024-present)



Michelle Andruss. <i>UMN</i>	(2024)
Ashley Johnson. <i>UMN</i> .	(2023-2024)
Anika Tripathi. <i>UMN</i> .	(2023-2024)
Grace Renk. <i>UMN</i> .	(2023-2024)
Sara Gobana. <i>UMN</i> .	(2023-2024)
Lucy Lipscomb. <i>UMN</i> .	(2023)
Andrew Hirahara. <i>CSUCI</i> .	(2023-2024)
Jessie Segnitz. <i>UCLA</i> .	(2022-2023)
Connor Murphy. <i>Sonoma State</i> .	(2022)
Joe Miller. <i>CSUCI</i> .	(2021-2024)
Viviana Celeya. <i>CSUCI</i> .	(2020-2022)
Natalie Perez. <i>CSUCI</i> .	(2020-2022)
Rhianna Torres. <i>CSUCI</i>	(2020-2022)
Brandon Osorio. <i>CSUCI</i> .	(2020-2023)
Adrian Castro. <i>CSUCI</i> .	(2021-2022)
Cooper Lienhart. <i>Cal Poly</i> .	(2020-2022)
Keitreice Kirksey. <i>CSUCI</i> .	(2020-2022)
Ramie Klocko. <i>CSUCI</i> .	(2020-2021)
Jocelyn Adao. <i>CSUCI</i> .	(2020-2021)
Sizzinette Hernandez. <i>CSUCI</i> .	(2020-2021)
Kyle Ball. <i>CSUCI</i> .	(2019-2020)
Jaquie Lazeau. <i>CSUCI</i> .	(2019-2020)
Andrew Whittle. <i>CU Boulder</i> .	(2017-2019)
Sean Will. <i>CU Boulder</i> .	(2018)
Alexis Ahlert. <i>CU Boulder</i> .	(2017)
Danya Abelhameid	(2017)
Sage Basiri. <i>CU Boulder</i> .	(2017)
Connor Jansen. <i>CU Boulder</i> .	(2017)
Claire Czarnecki. <i>CU Boulder</i> .	(2016)

Virtual Reality and Field Accessibility

Emily Orsborn. <i>CSUCI</i> .	(2020)
April Hoberg. <i>CSUCI</i> .	(2020)
Alyssa Connaughton. <i>CSUCI</i> .	(2019-2020)
Jenny Shirhall. <i>CSUCI</i> .	(2019-2020)
Jen Bays. <i>CSUCI</i> .	(2019-2020)

Data Visualization

Jenny Shirhall. <i>CSUCI</i> .	(2019)
Nikolette Dussault-Martin. <i>CSUCI</i> .	(2019)
Alyssa Connaughton. <i>CSUCI</i> .	(2019)

REU / CUREs Program Involvement

UMN UROP Mentor	(2024 – present)
UMN CLA Dean's First-Year Research And Creative Scholars Program.	(2023 – 2024)
CSU Channel Islands Summer SURF	(2020, 2021)
Research Experiences in Solid Earth Sciences for Students (RESESS)	(2017, 2018, 2019)
Geo-Launch Pad	(2018, 2019)
Research Experiences for Community College Students (RECCS)	(2018)

TEACHING

► Teaching Experience

University of Minnesota

GEOG 3431: Plant and Animal Geography
GEOG 3900 / 5900: Environmental Data Analysis
GEOG 3900: Data Visualization
GEOG 8280: Biogeography Seminar

River Restoration Northwest Short Course

The Big Picture: using free, publicly available remote sensing tools to monitor changes in riparian areas over space and time. Instructor Spring 2023.

Partnering with Beaver: Part 2. Co-Instructor. Fall 2023

Portland State University and River Restoration Northwest

Partnering with Beaver: Part 1 (*part of Professional Certificate in River Restoration*); Co-Instructor. Fall 2021.

California State University Channel Islands

ESRM 100: Introduction to Environmental Science and Resource Management
ESRM 203: Environmental Statistics (including programming in R)
ESRM 303: Data Visualization and Climate Communication
ESRM 328: Introduction to GIS (Geographic Information Systems)
ESRM 331: Geomorphology and Hydrology
ESRM 400: Analytics Studio
ESRM 463: Water Resources Management
ESRM 496: Speaker Series

University of Colorado Boulder

GEOL 1010: Introduction to Geological Sciences
GEOL 2001: Planet Earth (Teaching Assistant)
GEOL 4241: Geomorphology (Teaching Assistant)

UNAVCO RESESS and GeoLaunchPad Internships

Research Skill Development
Professional Communication Skills

Field and Off-Campus Programs

- 3-Day River Restoration Northwest Field Short Course in Washington, USA. Partnering with Beaver Field Course. (upcoming, 2025)
- 3-Day Field Trip to the University of Minnesota Cloquet Forestry Center. For GEOG 3900/5900 Environmental Data Analysis and GEOG 8280: Biogeography Seminar (2024)

- 1-Day Field Trip to Beaver + Wildfire Case Study Sites for Federal Agency Partners. Sponsored by the Theodore Roosevelt Conservation Partnership. (2024)
- 3-Day Field Trip to the University of Minnesota Cloquet Forestry Center. For GEOG 3431: Plant and Animal Geography (2024)
- 2-Week Study Abroad Program in Todos Santos, Baja California Sur, Mexico. UNIV 392: Data Without Borders. Partnership with Colorado State University. (2023)
- 3-Day Field Short Course in Oregon/Washington, USA. Partnering with Beaver Field Course (*part of Professional Certificate in River Restoration*). (2023)
- 3-Day Field Trip to Santa Rosa Island, CA, USA. For ESRM 328: Introduction to GIS. (2019)

► **Technical Workshop Lead or Co-Lead**

Salmonid Restoration Federation Annual Meeting. Remote Sensing for River Restoration Session Co-Organizer. (upcoming, April 2025)

University of Oklahoma, the Oklahoma Conservation Commission, the Grand River Dam Authority, and the Illinois River Watershed Partnership. Beaver and BDA How-To Field Workshop. (upcoming, April 2025)

Partnership for River Restoration and Science in the Upper Midwest. Beavers and Beaver Management. (February 2024)

Salmonid Restoration Federation Annual Meeting. Remote Sensing for River Restoration Session Co-Organizer. (April 2023)

California Process Based Restoration (CalPBR) Network. Remote Sensing Workshop. Co-Lead. (April 2023)

River Restoration Northwest Symposium. Remote Sensing of Beaver Complexes. (Feb 2023)

NOAA BWET: Using iNaturalist to Teach About Ecohydrology – a workshop on Santa Cruz Island for Oxnard School District K12 educators. (May 2022)

CSUCI Plot-A-Thon. Using R to Analyze and Visualize Data. (Feb 2022)

River Restoration Northwest Symposium. Remote Sensing of Beaver Complexes. (Feb 2022)

BLM Gunnison, CO Field Office and EcoMetrics. Identifying and Monitoring Riparian Corridors with Remote Sensing for Targeted Beaver-Based Restoration and Fire Resilience. (Dec 2021)

Methow Beaver Project. Monitoring Riparian Condition Around Beaver Complexes and BDAs Using Remote Sensing. (Sept 2021)

CSUCI Plot-A-Thon. Using R to Analyze and Visualize Data. (March 2021)

► **Professional Development Participation**

Full Courses

T.L.C.: Teaching for Learning Continuity. CSU Channel Islands. (2021)

URGE (Unlearning Racism in Geoscience) CU Boulder Pod. (2021)

THRIVE Online Educator Training. CSU Channel Islands.	(2020)
Equity in STEM for All Genders. CIRTL.	(2018)
Addressing Implicit Bias in STEM. CIRTL.	(2018)
Practicing Scientific Teaching. CU Boulder.	(2018)
Evidence-Based Teaching. CIRTL.	(2018)
Teaching and Learning in Geoscience. CU Boulder.	(2017)
Pedagogy in Environmental Science. CU Boulder.	(2017)

Workshops and Short Courses

60+ hours focused primarily on equity, accessibility, and technology in higher education

COMMUNITY ENGAGEMENT

► Organization Advising and Working Relationships

[The Beaver Trust](#): Scientific Advisory Board Member. (2020 – 2023)

[The Beaver Coalition](#): Science and Technical Information Committee (STIC)

- Member (2020 – 2022)
- Chair (2022 – 2023)

[SLO Beaver Brigade](#): Partner Scientist. (2020 – present)

[Biodiversity First!](#): Project Scientist. (2020 – 2023)

[California Process-Based Restoration Network](#)

- Research & Monitoring Lead (2022 – 2023))
- Member (2022 – present)

[The Beaver Institute](#)

- National Beaver Working Group: Research & Monitoring Group Member (2022 – present)
- BeaverCON 2024 Field Trip Planning Committee (2023 – present)
- Board Member – Scientific Advisor (2024 – present)

[California Department of Fish and Wildlife Beaver Restoration Program](#):

- Technical Advisory Group Member: (2023 – present)

► Public Outreach Presentations

[Guided Beaver Nature Walks](#). Atascadero, CA.

- | | |
|---------------------------------|---------------------------------|
| > Three walks on June 27, 2020. | > One walk on March 26, 2021 |
| > One walk on Aug 2, 2020. | > One walk on July 25, 2021 |
| > Two walks on October 23, 2020 | > One walk on October 1, 2021 |
| > One walk on February 26, 2021 | > One walk on February 25, 2022 |

Virtual Presentation for 4H Hiking Club New Jersey. May 2020

[Public research talk for CSUCI Library Lecture Series at Camarillo Public Library](#). Smokey the Beaver: Can Beavers Prevent Wildfires? Scheduled March 2020, cancelled due to COVID-19

[Public research talk for CSUCI Library Lecture Series at Ojai Public Library](#). Smokey the Beaver: Can Beavers Prevent Wildfires? October 2019

[Lens on Climate Change](#) Mentor and Interviewee. 2018, 2019

► Creative Pieces

[Finding a Home](#). Digital Art. 87 Beavers Project. (2020)

[What do beavers have to do with wildfire?](#) Stop-Motion Animation. (2019)

[#HaikuYourResearch](#). Poetry. (2018)

► Outreach Workshop Lead

Make Your Own Stop-Motion Animation! Workshop Creator and Facilitator for We Are Water / CIRES Education and Outreach (2021, 2022)

► Research Inclusion In Museum Displays and Art Galleries

Research in High Desert Museum, Bend OR. Exhibit: [Dam it! Beavers and Us](#). Jan 30th – October 3rd, 2021

Research in Mt. Shasta Sission Museum. Exhibit: Water – Shasta's Liquid Gold. 2021-2023

Research in Art Gallery by Suzanne Husky for Frieze Los Angeles 2022. Exhibit: Dam Beaverly Hills! Feb 17th – 20th, 2022

MEDIA COVERAGE

► Video, Documentary, and Television Media Coverage

35. (in production) PBS. [Resolve to Solve](#). 2025

34. PBS Newshour. [Tipping Point - The Mighty Mississippi](#). (2025)

33. Google. [EEAGER](#). (2025)

32. PBS. Newshour. [Why engineers are turning to beavers for insights into managing water resources](#). (2025)

31. NBC & Affiliate Stations. [Coverage of BeaverCON 2024](#). (2024)

30. PBS This American Land. [Smith Island, The Benefits of Beavers, Mississippi](#) (2024)

29. NBC. [Beavers and AI](#) (aired on 214 stations nationwide). (2024)

28. PBS. [Dynamic Planet: Fire](#). (2024)

27. LA Times Today. [Yes, beavers can help stop wildfires. And more places in California are embracing them](#). (2024)

26. CBS Sacramento. [A look at beaver's important role in California's wildfire resistance](#). (2024)

25. Mutual of Omaha's Wild Kingdom. [Eager Beavers](#). (2023)

24. Great Lakes Now. [Beavers in the Great Lakes Ecosystem](#). (2023)

23. Global News Canada. [Wildlife advocacy group urging B.C. to stop beaver trapping related to wildfire mitigation](#). (2023)

22. CBS Sunday Morning. [Beavers and Beaverland](#). (2023)

21. ABC7 News. ['Nature's Fighter' Baby beaver spotted in Palo Alto excites experts](#). (2023)

20. MTM News Missoula. [A Wilder View: Smokey the Beaver? Meet nature's firefighters](#). (2023)

19. NTR Wetenschap / Focus Science. [Probleembeavers](#). (2023)

18. Idaho News 6 / KIVI TV. [The fight against wildfire has an unsung hero: the beaver](#) (2023)



17. PBS. [Changing Planet. Episode 1](#). (2023)
16. The List. [Changing Planet and Beavers](#). (2023)
15. ABC News. [Beavers, Drought, and Fire in the Colorado River Basin](#). (2023)
14. BBC. [Our Changing Planet. Episode 1](#). (2023)
13. PBS and KQED. Above the Noise. [How Can Beavers and Humans Collab to Save the Planet?](#) (2022)
12. The Weather Channel. [Climate Solutions: Learning From Beavers](#). (2022)
11. The Weather Network. [Why beavers are a good ally in the fight against climate change](#). (2022)
10. LA Times Today. [California says the beaver can be superhero in fighting climate change](#). (2022)
9. Vox. [Why beavers matter as the planet heats up](#). (2022)
8. CBS Morning Show. [Scientists use beavers to create drought and fire-resistant landscapes](#) (2022)
7. ABC10. [Here is how beavers are helping in California's firefight](#). (2022).
6. True Facts. [True Facts About the Beaver](#). (2022)
5. Grist. [How a beaver boom is reshaping floods and fire](#). (2022)
4. PBS Overview. [Want to solve wildfires and droughts? Leave it to BEAVERS!](#). (2021)
3. Oregon Public Broadcasting. [Oregon Field Guide: Beavers and Wildfire](#). (2021)
2. KEYT, CBS LA, affiliate networks. [CSUCI study shows beavers can help prevent wildfires](#). (2020)
1. Yale Climate Connections. [Creative Climate Communication: 4 Scientists, 4 Approaches](#). (2019)

► Radio and Podcast Coverage

56. Minnesota Public Radio. [As nature's ecosystem engineers, beavers could help fight effects of climate change](#). (2025)
55. Terrestrials (RadioLab for Kids). [The Builders: How Beavers Mend Our Planet](#). (2025)
54. TreeNote – Utah NPR / KUER. [Nature's Ecological Heroes](#). (2025)
53. Western Governor's Association Podcast. [Leave it to Beavers: How Nature's Engineers are Helping Us Mitigate Disaster](#). (2025)
52. NPR Mountain West. [As wildfires get more intense, researchers say beavers have a role to play in confronting the crisis](#). (2024)
51. iHeartRadio: Wake Up Call. [Unexpected Allies Join California's Wildfire Defense](#). (2024)
50. Yale Climate Connections. [Beavers can help reduce damage caused by wildfires](#). (2024)
49. KUNM. [Beavers could be the key to fighting climate change in the Southwest](#). (2024)
48. Life with Fire Podcast. [The Beaver Episode](#). (2024)
47. South Dakota Public Broadcasting. [Research shows beavers protect landscapes from wildfires](#). (2024)
46. South Dakota Public Broadcasting. [In The Moment: How humans and beavers build hydro-infrastructure](#). (2024)
45. CBS LA / KNX. California Beavers and Wildfires. (2024)
44. The Lodge Cast. [Fighting Megafires with Beavers](#). (2024)
43. Boise State Radio / Mountain West News Bureau. [Even during intense wildfires, beaver-dammed waterways provide major wildfire protection](#). (2024)



42. 630CHED (Alberta). [Beaver Benefits and Google EEAGER Model](#). (2024)
41. CBC As It Happens. [Spying on Beavers](#). (2024)
40. Brains On. [How do animals build their homes?](#) (2023)
39. KALW. [A secret weapon against wildfire returns](#). (2023)
38. KVTA Radio. Beavers in California (live). (2023)
37. CBS LA / KNX. Baby beavers in the Bay Area (live). (2023)
36. German Public Radio. Forschung Aktuell. [Beavers: Reintroduction helps salmon and reduces wildfire risk](#). (2023)
35. NPR Morning Edition. [How beavers are helping restore wetlands and create buffers against wildfires](#). (2023)
34. Science Journal for Kids - Ask a Scientist. [Dr. Emily Fairfax, Beaver Scientist](#) (2023)
33. Science Vs. Podcast. [I'll Be Dammed: Beavers Fighting Wildfire](#) (2023)
32. BBC The Forum. [The Dam Builders](#). (2023)
31. For The Love of Weather Podcast. [Dr. Emily Fairfax on Nature's Rockstars – the Beavers](#). (2023)
30. Bunsen and Beaker's SciChat. [Come talk about beavers!](#) (2022)
29. KCRW Greater LA. [Boosting beaver populations could help CA fight climate change](#). (2022)
28. CBC Canada. The Current. [An unlikely ally in the face of wildfire and droughts: the humble beaver](#). (2022)
27. KQED / NPR Bay Forum. [Leave it to the Beaver, Nature's 'Climate-Solving Hero'](#). (2022)
26. KCBS San Francisco. Beavers and Climate Change Live Interview. (2022)
25. Golden State Naturalist Podcast. [Beavers!](#) (2022)
24. KUNC / KNPR / KUNM / Boise State Public Radio / other local NPRs. [In the face of climate change, beavers are engineering a resistance](#). (2022)
23. KCBX / NPR Central Coast News Update. [Newsom Proposed Beaver Funding](#). (2022)
22. NPR Morning Edition. [Beavers can teach researchers a thing or two about improving wildfire resistance](#). (2022)
21. Talk + Water. [The Ecohydrology of Beavers](#). (2022)
20. The Water Table Podcast. [Beavers, BDAs, & Riverscape Restoration for Climate Resilience](#). (2021)
19. Oregon Public Broadcasting. [Could 'Smokey Beaver' help fight wildfires?](#) (2021)
18. NPR Science Friday. [Beavers Build Ecosystems of Resilience](#). (2021)
17. NPR All Things Considered. [To improve wildfire resistance, researchers look to beavers](#). (2021)
16. KUNC / NPR Northern Colorado. [Even Colorado's Largest Wildfire Was No Match for Beavers](#). (2021)
15. KCLU / NPR Ventura & Santa Barbara. [Four Legged Firefighters? South Coast Researcher Says Beavers Play Role in Creating Fire Breaks for Wildfires](#). (2021)
14. Lodge Cast Podcast via The Beaver Trust. [Fighting Fire With Beavers](#). (2021)
13. Methow Beaver Project Podcast. Beavers and Wildfire. (2021)
12. KCBX / NPR Radio Central Coast. [Beavers aid in climate battle, local experts fight to protect species in California](#). (2021)
11. KCRW / NPR Radio Los Angeles "Press Play". [Beavers to prevent wildfires? Conservationists are enlisting the help of these buck-toothed rodents](#). (2021)
10. KBOO / NPR Radio Portland. [Special program on beavers for Earth Day](#). (2021)
9. KCBX / NPR Radio Central Coast. [Beavers can help fight drought and fire say Central Coast](#)



[experts at CA Beaver Summit](#). (2021)

8. KQED / NPR Radio Bay Area. Beavers and wildfire. (2021)

7. KVTA Radio. Beavers and wildfire. (2020)

6. Artemis: Hunt to Eat. [Beaver Believers \(!\) with Emily Fairfax](#). (2020)

5. Water Talk. [Beaver Hydrology and Management](#). (2020)

4. Ask a Scientist. [Dr. Emily Fairfax - Beavers](#). (2020)

3. SciPod. [Oh Dam Look, That Beaver Just Put Out A Forest Fire!](#) (2019)

2. Curiosity Hour. [Emily Fairfax, PhD](#). (2019)

1. The Irrelevant Information Podcast. [Beavers](#). (2019)

► Written and Online Media Coverage

[Frequent features](#) on Martinez Beavers: Worth a Dam. (2018 – present)

[Frequent features](#) on SLO Beaver Brigade. (2019 – present)

Wikipedia article: [“Environmental Impacts of Beavers”](#)

Wikipedia article: [“Beaver”](#)

Wikipedia article: [“Emily Fairfax”](#)

203. Parents Magazine. [Pixar’s Newest Film ‘Hoppers’ Asks, ‘What if you could talk to animals?’](#) (2025)

202. MPR / Cloquet Pine Journal / Bemidji Press / others. [As nature’s ecosystem engineers, beavers could help fight effects of climate change](#). (2025)

201. Mongabay. [When does beaver reintroduction make sense?](#) (2025)

200. Eos. [What makes beaver ponds bigger?](#) (2025)

199. CBC. [How beavers could help fight wildfires](#). (2025)

198. CP24 / CTVNews.ca. [Beavers could help prevent wildfires, researchers say](#). (2025)

197. Maven’s Notebook. [Strategically bringing back beavers could support healthy and climate resilient watersheds](#). (2025)

196. Cosmos Magazine. [Bringing back beavers builds better biomes](#). (2025)

195. The Cool Down. [Researchers uncover wildfire protection strategy hiding in plain sight — and it starts with an overlooked species](#). (2025)

194. The Conversation. [Restaurar el patrón natural de los fuegos ayudaría a conservar los ecosistemas y evitar incendios peligrosos](#). (2025)

193. Science Magazine. [Beavers are poised to invade and radically remake the Arctic](#). (2025)

192. SkyHiNews. [Field of dreams: Restoring Rocky Mountain National Park’s Kawuneeche Valley](#). (2025)

191. National Geographic. [Could beavers be the secret to winning against wildfires?](#) (2025)

190. Tahlequah Daily Press. [Beavers key players in river ecosystem restoration](#). (2025)

189. Powell Tribune. [Leave it to beavers](#). (2025)

188. KSBY California’s Central Coast. [Beavers helping the Central Coast against drought, wildfires, and flooding](#). (2025)

187. biographic. [It’s time for nature’s fire brigade](#). (2025)



186. Walton Family Foundation. [Nature does work – if you let it.](#) (2025)
185. Vermont Public Radio. [Vermonters work to broker peace deal with beavers.](#) (2025)
184. Steamboat Magazine. [Beavers: A Dam Renaissance.](#) (2025)
183. The New York Times. [Czech Dam Project Was Stalled by Bureaucracy. Beavers Built Their Own.](#) (2025)
182. The Los Angeles Times. [It's Good to Be a California Beaver. Again.](#) (2025)
181. National Parks Conservation Association. [If You Build It.](#) (2024)
180. Eos. [Arctic Beavers Advance North and Accelerate Permafrost Thaw.](#) (2024)
179. Canada's National Observer. [Beavers are the unsung heroes of wildfire prevention.](#) (2024)
178. Urban Milwaukee. [Do you believe in beavers?](#) (2024)
177. Wild Earth Guardians. [Beavers are having a moment.](#) (2024)
176. La Presse. [Des Castors Pour Protéger la Biodiversité / Beavers Protect Biodiversity.](#) (2024)
175. NPR Mountain West. [As wildfires get more intense, researchers say beavers have a role to play in confronting the crisis.](#) (2024)
174. The Crestone Eagle. [Beavers in the SLV: Why you should start giving a dam about this keystone species.](#) (2024)
173. iHeartRadio: Wake Up Call. [Unexpected Allies Join California's Wildfire Defense.](#) (2024)
172. Yale Climate Connections. [Beavers can help reduce damage caused by wildfires.](#) (2024)
171. KUNM. [Beavers could be the key to fighting climate change in the Southwest.](#) (2024)
170. Sonoma County Gazette. [Can beavers help Sonoma County lower wildfire risk?](#) (2024)
169. CBS Sacramento / CNN / others. [A look at beaver's important role in California's wildfire resistance.](#) (2024)
168. The Colorado Sun. [The dam-building beaver now plays critical role in fighting wildfires.](#) (2024)
167. Audubon Magazine. [In the Arctic, Beavers are Climate Winners. Should We Let Them Take Over?](#) (2024)
166. The Los Angeles Times. [Yes, beavers can help stop wildfires. And more places in California are embracing them.](#) (2024)
165. The Atascadero News. [Atascadero unveils interpretive panels celebrating local beaver population.](#) (2024)
164. BBC. [The US is bringing back nature's best firefighters: beavers.](#) (2024)
163. Cottage Life. [A researcher is using artificial intelligence to track beaver populations from space.](#) (2024)
162. Mother Jones. [Beavers Are Finally the Good Guy, and Scientists Want to Know More.](#) (2024)
161. CBC. As It Happens. [How artificial intelligence can help beavers fight floods, droughts and wildfires.](#) (2024)
160. Bay Nature. [Believing in the Power of Beavers.](#) (2024)
159. WIRED. [Spying on Beavers From Space Could Help Save California.](#) (2023)
158. Eos. [Beavers Have Engineered Ecosystems in the Tetons for Millennia.](#) (2023)
157. CBS Bay Area. [California reintroduces beavers into Plumas County waterway to renew ecosystems; 1st such release in nearly 75 years.](#) (2023)
156. The New York Times. [Leave it to beavers? Not if you're a wolf.](#) (2023)
155. Global News Canada. [Wildlife advocacy group urging B.C. to stop beaver trapping related to wildfire mitigation.](#) (2023)



154. Seattle Times / others. [At beaver summit, role of hefty rodents praised in climate change fight](#). (2023)
153. Chicago Tribune. [At 1st Midwest Beaver Summit, role of the hefty rodents praised in wetland restoration, climate change fight](#). (2023)
152. Los Angeles Times. [Baby beaver sighting brings hopes of comeback for California's little climate superheroes](#). (2023)
151. La Depeche. [Pourquoi les castors sont de puissants alliés contre les incendies en Amérique du Nord](#). (2023)
150. NRDC. [Partnering with Beavers to Adapt to Climate Change](#). (2023)
149. Slate. [Hot Dam. A radical, beaver-filled idea to improve city parks](#). (2023)
148. Isthmus. [Leave it to the beavers](#). (2023)
147. The Tribune. [Off-roaders damage SLO County beaver dam as battle over Salinas River Brews](#). (2023)
146. EarthSky. [Parachuting beavers created a fire-resistant wetland](#). (2023)
145. Yale Climate Connections. [Beavers fight climate change, one wetland at a time](#). (2023)
144. New Times SLO. [As local beavers rebuild their dams after a brutal winter, the SLO Beaver Brigade seeks to rebuild their population on the Central Coast](#). (2023)
143. The Guardian. [California shores up beaver protection in nod to their 'ecological benefit'](#). (2023)
142. AP News / CBS / others. [California aims to tap beavers, once viewed as a nuisance, to help with water issues and wildfire](#). (2023)
141. The Columbia Valley Pioneer. [Wetland Hero Helps Mitigate Climate Change](#) (2023)
140. The Tyee. [How BC Will Restore Wetlands with Beavers](#). (2023)
139. Reasons To Be Cheerful. [To Restore Watersheds, Think Like a Beaver](#). (2023)
138. e-Know.ca / The Nelson Daily / Castlegar Source. [Wetland hero helps Kootenay scientists mitigate climate change](#). (2023)
137. New Times SLO. [SLO Beaver Brigade builds momentum with festival, "Whale Tail" grant](#). (2023)
136. Phys.org. [Beaver ponds with deeper sediments store more nitrogen, simple mapping reveals](#). (2023)
135. Hollywood Soapbox. ["Changing Planet" has returned: this time with an ecohydrologist](#). (2023)
134. Yahoo News / Albuquerque Journal. ["Changing Planet" revisits vulnerable ecosystems responding to climate change](#). (2023)
133. ABC News. [How beavers could help the Colorado River survive future droughts](#). (2023)
132. Publico. [The trail of beavers discovered near Portugal. Will they come back?](#) (2023)
131. GSA Speaking of Geoscience. [EEAGER – the search for beavers](#). (2023)
130. BBC. [How beavers are reviving wetlands](#). (2023)
129. LiveScience. [Why do beavers build dams?](#) (2023)
128. Eos. [Scientists EEAGER-ly Track Beavers Across Western United States](#). (2023)
127. SFGate. [Beavers are Making a Comeback in the San Francisco Bay Area](#). (2022)
126. Scientific American. [How Water Cycles Can Help Prevent Disastrous Floods and Drought](#).

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125. Boston Globe. [Let beavers get busy fighting fires – and climate change.](#) (2022)
124. Landscape Architecture Magazine. [Building Back Beaver.](#) (2022)
123. The Globe and Mail. [Hot dam: beavers could be North America’s secret weapon against the climate crisis.](#) (2022)
122. Global Water Forum. [Harvesting water in arid lands, don’t forget your NIDS \(Natural Infrastructure in Dryland Streams\).](#) (2022)
121. elDiario.es. [El roedor convertido en héroe climático: Estados Unidos planea usar castores para combatir la sequía y los incendios / Rodent-turned-climate-hero: US plans to use beavers to fight drought and fires.](#) (2022)
120. Nature. Outlook: [Smarter ways with water.](#) (2022)
119. Salt Lake Tribune. [This Utah animal is helping landowners fight wildfires, climate change and drought.](#) (2022)
118. On Land Magazine. [How Low-Tech Ecosystem Engineers Can Rewater the West.](#) (2022)
117. Ensia. [What does forest restoration in the U.S. southwest look like in the age of climate change?](#) (2022)
116. NASA News. [Beaver Dams Protect Landscapes from Wildfire Effects.](#) (2022)
115. Biohabitats. [Bear in Mind the Beaver.](#) (2022)
114. The Conversation / Phys.org / Yahoo News / others. [Beavers can do wonders for nature – but we should be realistic about these benefits extending to people.](#) (2022)
113. The Weather Network. [Why beavers are a good ally in the fight against climate change.](#) (2022)
112. LA Times Today. [California says the beaver can be superhero in fighting climate change.](#) (2022)
111. KCRW Greater LA. [Boosting beaver populations could help CA fight climate change.](#) (2022)
110. Washington Post. [Beavers offer natural solution to fighting wildfires.](#) (2022)
109. CBC Canada. The Current. [An unlikely ally in the face of wildfire and droughts: the humble beaver.](#) (2022)
108. Mother Jones. [Beavers are finally getting the rebrand they deserve.](#) (2022)
107. Los Angeles Times. [When it comes to fighting climate change, California says consider the beaver.](#) (2022)
106. New York Times. [It Was War. Then, a Rancher’s Truce With Some Pesky Beavers Paid Off.](#) (2022)
105. San Francisco Chronicle. [Why this underappreciated rodent is one of California’s best chances to fight climate change.](#) (2022)
104. Vox. [Why beavers matter as the planet heats up.](#) (2022)
103. CBS News. [From pest to protector: How beavers are helping fight climate change.](#) (2022)
102. ABC10. [Letting Beavers Be Beavers – Here’s how beavers are helping in California’s firefight.](#) (2022)
101. Science News. [Relocated beavers helped mitigate some effects of climate change.](#) (2022)
100. Los Angeles Times / others. [Op-Ed: Want to fight climate change and drought at the same](#)



[time? Bring back beavers.](#) (2022)

99. Vox. [Beavers are heat wave heroes.](#) (2022)

98. E&E News / POLITICO / Scientific American. [The beaver emerges as a 'climate-solving hero'.](#) (2022)

97. KUNC. [In the face of climate change, beavers are engineering a resistance.](#) (2022)

96. KSJD. [Modern-day trappers are using beavers to fight the effects of drought.](#) (2022)

95. Grist. [Your New Neighbor Flooded Your Yard – Now What?](#) (2022)

94. KCBX News Update. [Newsom Proposed Beaver Funding.](#) (2022)

93. Golden Gate Audubon Society. [The Birds and the Beavers.](#) (2022)

92. The Colorado Sun. [Opinion: Give the job of wildfire prevention to nature's architects.](#) (2022)

91. Sierra Magazine. [We Don't Deserve Beavers: meddlesome beavers are cleaning up superfund sites.](#) (2022)

90. Oregon Public Broadcasting. [Scientists believe beavers can build resilience in Northwest waterways.](#) (2022)

89. Calaveras Enterprise. [‘Smokey the Beaver’ and the role furry aquatic critters play in preventing wildfire spread.](#) (2022)

88. United Nations Environment Programme Press Release / various outlets. [Number of wildfires to rise by 50% by 2100 and governments are not prepared, experts warn.](#) (2022)

87. Scientific American. [Beaver Dams Help Wildfire-Ravaged Ecosystems Recover Long after Flames Subside.](#) (2022)

86. Popular Science / Phys.org / The Conversation / others. [What beavers, nature's engineers, can teach us about managing water.](#) (2022)

85. California Sun. [5 Questions With...Jennifer Fearing.](#) (2022)

84. Oregon Public Broadcasting. [2021: Must Watch Original Videos.](#) (2021)

83. Newsweek (Japan). *(title translated)* [Wildfires in Colorado, USA. Only beaver habitats escaped big fires.](#) (2021)

82. Forest News. [Low-Tech Restoration for Forest Health.](#) (2021)

81. VC Reporter. [“A big web of water on the landscape” | Are beavers our new firefighters?](#) (2021)

80. Ojai Valley News. [Who ya gonna call? Beavers are drought-busters.](#) (2021)

79. Oregon Public Broadcasting. [Could ‘Smokey Beaver’ help fight wildfires?](#) (2021)

78. California State University News. [In a Dry State Part 3: Opening the Floodgates.](#) (2021)

77. California State University News. [In a Dry State Part 2: Tapped Out](#) (2021)

76. Discover Magazine. [Beavers Chip in on Landscape Engineering.](#) (2021)

75. Audubon Rockies. [Beavers Offer Help for Western Waters.](#) (2021)

74. NPR Science Friday. [Beavers Build Ecosystems of Resilience.](#) (2021)

73. NPR All Things Considered. [To improve wildfire resistance, researchers look to beavers.](#) (2021)

72. KUNC / NPR Northern Colorado. [Even Colorado's Largest Wildfire Was No Match for Beavers.](#) (2021)



71. The Narwhal. [Life In the Heart of B.C.'s Brutal Summer Drought](#). (2021)
70. KCLU. [Four Legged Firefighters? South Coast Researcher Says Beavers Play Role in Creating Fire Breaks for Wildfires](#). (2021)
69. Real Vail. [Colorado Beaver Summit fosters climate, drought solutions](#). (2021)
68. Kamloops iNFOnews. [Beavers may have untapped wildfire fighting skills](#). (2021)
67. BBC Future Planet. [The beavers returning to the desert](#). (2021)
66. The Sacramento Bee. [A dry California creek bed looked like a wildfire risk. Then the beavers went to work](#). (2021)
65. The Independent. [How a group of beavers prevented a wildfire and saved California a million dollars](#). (2021)
64. San Francisco Chronicle. [Beaver are nature's firefighters. So why is California killing them?](#) (2021)
63. KCBX. [Beavers aid in climate battle, local experts fight to protect species in California](#). (2021)
62. Summit Daily News. [Get Wild: Beavers are the answer](#). (2021)
61. NRDC. [How the Eager Beaver Helps Protect the Planet](#). (2021)
60. Bay Nature. [An Illustrated Guide to Bay Area Nature](#). (2021)
59. Channel Magazine. [Fighting wildfires with the help of beavers](#). (2021)
58. Wildfire Today. [Beavers Can Affect Wildfires](#). (2021)
57. Sierra Magazine. [Beavers are Firefighters Who Work for Free](#). (2021) – *Note: this was selected to be featured in the 2022 The Best American Science and Nature Writing book.*
56. KCBX. [Beavers can help fight drought and fire say Central Coast experts at CA Beaver Summit](#). (2021)
55. Grist. [It's International Beaver Day – and dam time we celebrate it](#). (2021)
54. Science News. [Simple hand-built structures can help streams survive wildfires and drought](#). (2021)
53. The Guardian. [Beaver believers: Native Americans promote resurgence of 'nature's engineers'](#). (2021)
52. Estuary Magazine. [Beavers Make Good Neighbors](#). (2021)
51. The Last Word on Nothing. [The Semiaquatic Martyrs of East Foster Creek](#). (2021)
50. aeon. [Evolution's Engineers](#). (2021)
49. Bozeman Magazine. [Can beavers help Montana mitigate future wildfires?](#) (2020)
48. BBC Wildlife. [Beavers' activities can create oases and limit spread of US wildfires](#). (2020)
47. Bark!. [A Tale of Two Streams](#). (2020)
46. Fire Adapted Network. [If fire were an animal, it would be a beaver](#). (2020)
45. KEYT. [CSUCI study shows beavers can help prevent wildfires](#). (2020)
44. New Times SLO. [SLO County Beaver Brigade raises awareness of beavers in the Salinas River](#). (2020)
43. The Atascadero News & Paso Robles Press. [SLO Beaver Brigade Sets the Stage for Academic Research](#). (2020)

42. Wildlife Society. [Beavers create fire-resistant forest patches](#). (2020)
41. The Register-Guard. [Smokey Beaver?](#) (2020)
40. Le Monde. [Les castors font barrage aux feux de forêt](#). (2020)
39. Nature Daily Briefing. [Why beavers make great firefighters](#). (2020)
38. National Geographic. [How beavers became North America's greatest firefighter](#). (2020)
37. National Association of Science Writers. [Let beaver's do the work: fighting wildfire one dam at a time](#). (2020)
36. Edible Magazine Ojai and Ventura County. [Dammed if They Don't](#). (2020)
35. Edible Magazine Ojai and Ventura County. [Tour a Stream with a Beaver Expert](#). (2020)
34. Popular Science. [Beavers might be making the arctic melt even faster](#). (2020)
33. Natural Resources Defense Council (NRDC): Rockies Dispatch. [The Humble Beaver: troublemaker or climate superhero?](#) (2020)
32. University of California Cooperative Extension Forestry. [From being an engineer to researching nature's engineers](#). (2020)
31. The Confluence. [From being an engineer to researching nature's engineers](#). (2020)
30. Medium. [God Dam: Why Rivers Need Beavers](#). (2020)
29. Climate Ready Missoula. [Ecosystems and Wildfire](#). (2020)
28. Global Weather and Climate Center. [Relationship between beavers and wildfire](#). (2020)
27. San Francisco Estuary Magazine. [Beaver dams may offer wildfire protection to western watersheds, in addition to providing better-known benefits such as groundwater recharge, wetland and habitat creation, and riparian restoration](#). 2020
26. Landscape Architecture Magazine. [Smokey the Beaver](#). (2020)
25. Clark Fork Coalition. [Beaver Habitat Surveys in Western Montana](#). (2020)
24. Eos. [Finding Wildfire's Fingerprint in the Atmosphere](#). (2020)
23. NASA Landsat Science News. [Smokey the Beaver? Beaver Dams and Wildfire](#). (2019)
22. Eos. [Are beavers nature's "little firefighters?"](#). (2019)
21. Colorado Arts and Sciences Magazine. [Instructors improve accessibility of geology](#). (2019)
20. Ojai Valley News. [Wildfire? Drought? Leave it to Beavers](#). (2019)
19. USGS and NPS. [Fire History of the Jemez Mountains](#). (2019)
18. Mountain West News. [Scientists turn to video, art, graphics to convey data](#). (2019)
17. Yale Climate Connections. [Four scientists make creativity a key to communicating their research](#). (2019)
16. The Singing Wilderness. [What do beavers have to do with wildfire?](#) (2019)
15. The Coloradan Magazine. [Emily Fairfax wants you to appreciate beavers](#). (2019)
14. The Verge. ['Dam good' video shows how beavers could fight fires](#). (2019)
13. Edge Effects Magazine. [How a beaver became a twitter star](#). (2019)
12. Cottage Life Magazine. [PhD student's creative video shows how beavers help prevent fires](#). (2019)
11. The Kids Should See This. [Beaver dams and wildfire, a stop motion demonstration](#). (2019)

10. Lake Superior Magazine. [Smokey the Beaver?](#) (2019)
9. ClimateCrocks.com. [What do beavers have to do with wildfire?](#) (2019)
8. cnBeta.com. [A cute video showing how beavers fight wildfires raises attention on twitter.](#) (2019)
7. LangweileDich.net. [Stopmotion zeigt positive Nebeneffekte von Biber-Dämmen.](#) (2019)
6. LetemSvětém Applem. [Twitter válčuje naučné stop-motion video. Mrkněte na něj i v.](#) (2019)
5. Beavers and Brush. Beavers: [California's Missing Keystone to Mitigate Wildfire Risk.](#) (2019)
4. CU Arts and Sciences Magazine. [CU Boulder's geoscientists, ranked world's best, show-case rock-it science.](#) (2019)
3. Eos. [Can you express your science in 17 syllables?](#) (2018)
2. CU Boulder Today: [Drones, beaver dams help community college students get involved in research.](#) (2018)
1. Earth Magazine. [Beavers preserve wetlands in water-stressed areas.](#) (2017)

PROFESSIONAL SERVICE

► Campus Leadership

California State University Channel Islands: Justice and Equity With an Environmental Lens (JEWEL) Student Club Faculty Advisor. (2020-2022)

► Committee Membership

University of Minnesota Saint Anthony Falls Laboratory:

- Spring Student Awards Committee (2024)

University of Minnesota Department of Geography, Environment, and Society:

- Diversity, Equity, and Inclusion Committee. (2023-2024)
- Undergraduate Education Policy Committee. (2023-2024)
- PPFP Postdoc to Tenure Track Biogeography Search Committee (2023-2024)
- CLA Assembly Representative (2024 – present)
- Merit Committee (2024 – present)
- Graduate Education Policy Committee (2024-present)

California State University Channel Islands:

- Faculty Search Committee: Librarian. (2021)
- Curriculum Committee. (2019-2023)
- Faculty Search Committee: ESRM (2022-2023)

California Beaver Summit Planning Committee. (2021)

University of Colorado Boulder: Hydrologic Sciences Committee Member. (2018-2019)

University of Colorado Boulder Dept of Geology: Colloquium Committee Member. (2016-2019)

► One-Time Events (Workshops, Panels, Session Organizer, etc.)

Oral Session Co-Organizer. Ecological Society of America Annual Meeting (2023)
 NOAA Riverscape Restoration Workshop MC. (2023)
 Media and Outreach Training Workshop for the National Beaver Working Group (2022)
 AGU Outstanding Student Presentation Award Judge (2019, 2023, 2024)
 Building Educational Computer Games – Faculty Workshop: Creator/Facilitator (2019)
 Gamifying Your Class - Faculty Workshop: Workshop Creator and Facilitator. (2019)
 Accessibility & Inclusion Training for Teaching Assistants, Organizer/Facilitator. (2018, 2017)
 Panelist. Professional & Educational Developers Learning Community. CU Boulder (2018)
 Advisory Board Graduate Student Poster Session Organizer (2018)
 Geological Society of American Annual Fall Meeting Student Volunteer (2017)

► Peer Reviewer

Alberta Conservation Association	Monographs
Biodiversity and Conservation	Legislative-Citizen Commission on Minnesota Resources
Ecography	MITAC
Ecohydrology	Natural Resources Forum
Ecological Indicators	NSERC
Ecological Restoration	NSF Environmental Sustainability Division
Ecosphere	NSF Hydrologic Sciences Division
GSA Special Papers	Remote Sensing in Ecology and Conservation
Hydrologic Processes	River Research and Applications
Journal of Geophysical Research: Biogeosciences	Scientific Reports
Journal of Geoscience Education Research	Southwestern Naturalist
Journal of the American Water Resources Association	Wetlands
Journal of Wildlife Management and Wildlife	

► Professional Society Membership

American Geophysical Union	(2015 – present)
American Association of Geographers	(2023 – present)
Geological Society of America	(2015 – present)
Ecological Society of America	(2020 – present)
The International Association for Geoscience Diversity	(2016 – present)
National Association for Geoscience Teachers	(2016 – present)
Association for Women Geoscientists	(2016 – 2024)
American Fisheries Society	(2021 – 2023)
Salmonid Restoration Federation	(2022 – present)
SACNAS	(2023 – present)