

KRISTINA YOUNG

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EDUCATION and TRAINING

Updated: March 2022

2021-present	Extension Assistant Professor Utah State University Extension, Grand County, UT Supervisor: Justen Smith
2017-2021	Ph.D., Ecology & Evolutionary Biology University of Texas at El Paso, El Paso, TX Graduate Research Assistant, Advisor: Anthony Darrouzet-Nardi
2015-2017	M.S., Forestry Department Northern Arizona University, Flagstaff, AZ Graduate Research Assistant, Advisor: Matthew Bowker
2006-2010	B.A., Biological Sciences, Botany University of Montana, Missoula, MT Minor in Wildland Restoration, Advisor: Ragan Callaway

PROFESSIONAL EXPERIENCE

2017-2021	Science Moab Engagement Initiative Founder & Director of a science engagement nonprofit (sciencemoab.org) Supervised 7 employees, raised & managed >\$150,000
2017-2019	Grand Canyon Trust, Utah Forest Program Wyss Scholar, Supervisor: Mary O'Brien
2011-2014	U.S. Geological Survey, Southwest Biological Science Center Biological Science Technician, Supervisor: Erika Geiger
2010-2011	National Park Service, Sonoran Desert Inventory & Monitoring Network Biological Science Technician
2009	National Park Service, Grand Canyon Vegetation Department AmeriCorps Vegetation Intern

PUBLICATIONS

Summary: 10 publications (5 as lead author) [Google Scholar](https://scholar.google.com/citations?user=...): >166 total citations, *h*-index = 6, *i10*-index = 6.

In review

Weber, B., Belnap, J., Burkhard, B., Barger, N., Chaudhary, V., Darrouzet-Nardi, A., Eldrige, D., Faist, A., Ferrenberg, S., Havrilla, C., Huber-Sannwald, E., Oumarou, M., Maestre, F., Reed, S., Rodriguez-Caballero, E., Tucker, C., **Young, K.E.**, Yuanming, Z., Yunge, Z., Xiaobing, Z. In Review. What is a biocrust? A refined, contemporary definition for a broadening research community. *Biological Reviews*.

Osborne, B., Bestelmeyer, B., Currier, C., Homyak, P., Throop, H., **Young, K.E.**, Reed, S.C. In Review. The consequences of climate change for dryland biogeochemistry. *New Phytologist*.

Published

- 10 **Young, K.E.**, Ferrenberg, S., Reibold, R., Reed, S.C., Swenson, T., Northen, T., Darrouzet-Nardi, A. 2021. Vertical movement of soluble carbon and nutrients from biocrusts to subsurface mineral soils. *Geoderma*. doi.org/10.1016/j.geoderma.2021.115495
- 9 **Young, K.E.**, Reed, S.C., Ferrenberg, S., Faist, A., Winkler, D., Cort, C., Darrouzet-Nardi, A. 2020. Incorporating Biogeochemistry into Dryland Restoration. *BioScience*. doi.org/10.1093/biosci/biab043
- 8 Antoninka, A., Faist, A., Rodriguez-Caballero, E., **Young, K.E.**, Chaudhary, V.B., Condon, L.A.,

- Pyke, D.A. 2020. Biological soil crusts in ecological restoration: emerging research and perspectives. *Restoration Ecology*. doi.org/10.1111/rec.13201
- 7 **Young, K.E.**, Bowker M.A., Reed, S.C., Duniway, M., Belnap, J. 2019. Temporal and abiotic fluctuations may be preventing successful rehabilitation of soil-stabilizing biocrust communities. *Ecological Applications*. doi:10.1002/eap.1908
 - 6 Rudgers, J.A., Dettweiler-Robinson, E., Belnap J., Green, L.E., Sinsabaugh, R.L., **Young, K.E.**, Cort, C.E., Darrouzet-Nardi, A. 2018. Are fungal networks key to dryland primary production? *American Journal of Botany*. doi.org/10.1002/ajb2.1184
 - 5 Winkler, D.E., Backer, D.M., Belnap, J., Bradford, J.B., Butterfield, B.J., Copeland, S.M., Duniway, M.C., Faist, A.M., Fick, S.E., Jensen, S.L., Kramer, A.T., Mann, R., Massatti, R.T., McCormick, M.L., Munson, S.M., Parr, S.D., Pfennigwerth, A.A., Pilmanis, A.M., Richardson, B.A., Samuel, E., See, K., **Young, K.E.**, Reed, S.C. 2018. Beyond traditional ecological restoration on the Colorado Plateau. *Restoration Ecology*. doi.org/10.1111/rec.12876
 - 4 Wertin, T., **Young, K.E.**, Reed, S.C. 2018. Spatially explicit patterns in a dryland soil respiration and their relationships with climate, whole plant photosynthesis, fine root biomass, and soil carbon and nitrogen pools. *Oikos*. doi.org/10.1111/oik.04935
 - 3 Hoover, D., Wilcox, K., **Young, K.E.** 2018. Are experimental trends and rainfall variability influencing our understanding of ecological sensitivity to drought? *Ecosphere*. doi.org/10.1002/ecs2.2088
 - 2 **Young, K.E.**, Reed, S.C. 2017. Spectrally monitoring the biocrust moss *Syntrichia caninervis*' response to altered precipitation regimes. *Scientific Reports*. doi.org/10.1038/srep41793
 - 1 **Young, K.E.**, Grover, H.S., Bowker, M.A. 2016. Altering Biocrusts for an Altered Climate, *New Phytologist*. doi.org/10.1111/nph.13910

GRANTS and FELLOWSHIPS

Summary: 11 awards; **Total:** \$256,000

2022-2023	Western Integrated Pest Management (IPM) Center. EcoRestore: Creating an online portal of state-specific IPM information for Arizona & Utah. \$11,000 PI: Elise Gornish. Total: \$30,000
2021-2022	Alfred P. Sloan Foundation. A grant for the <i>Science on Screen</i> © program that enables participating organizations to host live community events that pair scientists with popular movies. \$7,000
2021-2022	Bjorkman Foundation. A grant to develop the School to Science program, connecting Grand County High School students with scientists for job training opportunities. \$4,000
2021-2022	Society for Science. STEM Action Grant, a grant to feature and monetarily compensate Indigenous scientists and knowledge-holders to appear on the Science Moab radio show. \$5,000
2021-2022	American Society for Cell Biology. Public Engagement Grant, a grant for the Science Certification program that gives outdoor recreation guides trainings in place-based science. \$35,000
2021-2022	City of Moab. Community Contributions, a grant for educational materials. \$2000
2020-2021	Alfred P. Sloan Foundation. A grant for the Science on Screen© program that enables participating organizations to host live community events that pair scientists with popular movies. \$8,500
2020-2023	Community Foundation of Utah's Social Investors Forum. A grant to develop the School to Science program, connecting Grand County High School students with scientists for job training opportunities. \$35,000
202-2021	Grand County Economic Development Grant. A grant to develop the Science Certification program to help diversify tourist offerings in Grand County, UT. \$2,000
2020-2021	Bjorkman Foundation. A grant to develop the School to Science program,

connecting Grand County High School students with scientists for job training opportunities. \$3,000
2016-2017 **Wyss Foundation.** Conservation Leaders in the American West. \$48,000

SELECTED POPULAR PRESS

ARTICLES AUTHORED

- 2019 **Young, K.E.** Science contributor about dryland ecology for the Science Column at Forbes.com (forbes.com/sites/kristinayoung1)
- 2018 **Young, K.E.** Reconciling with a Drier Desert. Feature. *The Dust Magazine*
- 2018 **Young, K.E.** This Shutdown is Hurting Good Science. Commentary. *High Country News* (reprinted in *Mother Jones*)
- 2018 **Young, K.E.** Defunding science for the Colorado River has consequences. Commentary. *Salt Lake Tribune* (reprinted in the *Moab Times Independent*)
- 2017 **Young, K.E.** #MyScicomm Series: Kristina Young on SciComm and founding the Science Moab radio show. *Ecological Society of America Science Communication Blog*
- 2016 **Young, K.E., Antoninka, A., Chuckran P.F, Grover, H.S., Doherty, K.D., Bowker, M.A.** Restoring the Living Skin of the Earth: Biocrusts in Dryland Restoration. *Society for Ecological Restoration Newsletter*. 30, 3

PRINT, RADIO INTERVIEWS

- 2021 Live interview, "Morning Show" KSL Radio. Interview about post-fire landscapes. Aug 19th
- 2021 Moab Sun News, "[Local scientist and nonprofit founder takes on new community role](#)", by Rachel Fixsen. Aug 30

TECHNICAL PUBLICATIONS

- 2017 **Young, K.E., Bowker, M.A.** Field Guide to Biological Soil Crusts of Bandelier National Monument

WORKING GROUPS

- 2021-present **Post-Fire Recovery Working Group**
Leader: Kristina Young, USU Extension
Membership: 12 members from academic institutions, non-profits, state agencies and federal agencies
- 2016-present **Completing the Dryland Puzzle**
Leaders: Matthew Bowker, NAU, Jayne Belnap, USGS, Nicole Barger, CU Boulder, Anita Antoninka NAU
Membership: 12 members from academic institutions around the world

AWARDS and HONORS

- 2020 **COMPASS Scientist Sentinel**, a nine-month program to support emerging leaders at the intersection of science, communication, and policy
- 2019 **BYU Redd Center for Western Studies Public Programming Award**, an award for increasing science access on the Colorado Plateau through the radio show Science Moab. \$1,500
- 2018 **BYU Redd Center for Western Studies Public Programming Award**, an award for increasing science access on the Colorado Plateau through the radio show Science Moab. \$2,000
- 2018 **Society of Ecological Restoration Southwest Chapter Student Registration Scholarship**, a scholarship to attend the 2018 SER SW meeting. \$100
- 2018 **BLM UT Youth Program Award**, an award from the Utah Bureau of Land Management to attend the Colorado Plateau Native Plant Program meeting. \$300

- 2017 **Wally Covington Travel Award**, a travel award from the Northern Arizona University School of Forestry. \$800
- 2016 **Kay and Irene Hafen Scholarship**, academic scholarship from the Northern Arizona University School of Forestry. \$1,500
- 2012 **Star Award**, for outstanding work in the Department of Interior. \$300
- 2011 **AmeriCorps Education Award**, for service with AmeriCorps. \$1,000
- 2006 **Cal Murphy Academic Merit Scholarship**, received from the University of Montana for academic achievement. \$1,000
- 2006 **Davidson Honors College**, chosen for academic excellence

INVITED CONFERENCE TALKS

- 2021 **Ecological Society of America Annual Meeting**. Virtual. "Using biogeochemical insights to restore drylands now and into the future".
- 2018 **Ecological Society of American Annual Meeting**. New Orleans, LA, USA. "The trouble with putting it back together: Research gaps in dryland restoration".

CONTRIBUTED PRESENTATIONS

Oral (Presenter: 12, Co-Author: 12, Undergraduate/Technician Mentee[†]: 1, Total: 24)

- 2022 **Ecological Society of America**. Montreal, Canada. Providing place-based science education and communication tools to outdoor recreation guides can increase guide's perceived ability to communicate science to clients. Presenter: Kristina Young
- 2022 **Ecological Society of America**. Montreal, Canada. Unexpected resistance of biocrust communities to altered precipitation regimes highlights other environmental factors interacting with precipitation. Presenter: Kristina Young
- 2022 **Ecological Society of America**. Montreal, Canada. What is a biocrust? A refined, contemporary definition for a broadening research community. Presenter: Matthew Bowker
- 2020 **Ecological Society of America**. Virtual. Plant, soil, and biocrust processes controlling nitrogen movement in dryland soils. Presenter: Anthony Darrouzet-Nardi
- 2020 **Ecological Society of America**, Virtual. Biocrusts are the most influential soil surface stabilizing force in drylands. Presenter: Matthew Bowker
- 2019 **Colorado Plateau Biennial Conference of Science & Management**. Flagstaff, AZ. How do plants affect soil microbial communities across drylands? Presenter: Maddison Casillas
- 2019 **Biocrust 4**. Melbourne, Australia. Examining the contribution of biological soil crusts to subsurface soil fertility. Presenter: Kristina Young
- 2019 **Ecological Society of America**. Louisville, KY. Testing the fungal loop hypothesis for nitrogen movement from biocrusts to plants in dryland ecosystems. Presenter: Anthony Darrouzet-Nardi
- 2019 **Botanical Society of America, Botany 2019**. Tucson, Arizona. Biocrust assemblages and restoration potential in Organ Pipe Cactus National Monument. Presenter: Anita Antoninka
- 2019 **Research Experiences for Undergraduates Presentation**. El Paso, TX. Nitrogen fixation in biological soil crust. Presenter: Mikaela Hoellrich[†]
- 2019 **Soil Ecology Society Meeting**. Toledo, OH. The fungal loop hypothesis for nitrogen movement from biocrusts to plants in dryland ecosystems. Presenter: Anthony Darrouzet-Nardi
- 2018 **Society of Ecological Restoration – Southwest Chapter**. Flagstaff AZ. Restoring With the Right Species: Testing How Species Assemblage Influences Functional. Presenter: Kristina Young
- 2018 **Society of Ecological Restoration - European Conference**. Reykjavik, Iceland. Restoring biocrusts: a general strategy and an overview of emerging results. Presenter: Matthew Bowker
- 2018 **Ecological Society of America**. New Orleans, LA. Beyond traditional ecological restoration on the Colorado Plateau. Presenter: Daniel Winkler
- 2018 **Ecological Society of America**. New Orleans, LA. Ecological responses to extreme climatic events: Linking theory, observations, and experiments. Presenter: David Hoover
- 2018 **European Geophysicist Union**. Vienna, Austria. N transfer from biocrusts to dryland plants driven by water and N availability. Presenter: Eva Dettweiler- Robinson
- 2017 **European Geophysicist Union**. Vienna, Austria. Interactions between soil texture, water, and nutrients control patterns of biocrust species assemblage. Presenter: Kristina Young

- 2017 **Colorado Plateau Native Plant Program**. Monticello, UT. Attempts to restore biological soil crust and stabilizing eroding soils in Bandelier National Monument, NM. Presenter: Kristina Young
- 2016 **Soil Science Society of America**. Phoenix, Arizona. Rehabilitating biocrusts and understanding the influence of seasonality on the actively eroding Pinyon-Juniper mesa-top soils in Bandelier National Monument, NM. Presenter: Kristina Young
- 2016 **Biocrust 3**. Moab, UT. Can and should we merge our biocrust rehabilitation efforts with the assisted migration of biocrust. Presenter: Kristina Young
- 2016 **Ecological Society of America**. Fort Lauderdale, FL. Rehabilitating biocrusts and understanding the influence of seasonality on the actively eroding Pinyon-Juniper mesa-top soils in Bandelier National Monument, NM. Presenter: Kristina Young
- 2015 **Biennial Conference of Science and Management on the Colorado Plateau and Southwest Region**. Flagstaff, AZ. Using Biological Soil Crust for Soil Stabilization and Restoration in Bandelier National Monument. Presenter: Kristina Young
- 2015 **Ecological Society of America**. Baltimore, MD. Biological soil crusts and global change: Spectrally monitoring moss responses to future climate change scenarios. Presenter: Kristina Young
- 2015 **Colorado Plateau Native Plant Program Retreat**. Rio Mesa Field Station, UT. Focusing on systems for biocrust restoration; A National Monument case study. Presenter: Kristina Young

Poster (Lead Author: 2, Co-Author: 3, Undergraduate/Technician Mentee[†]: 2, Total: 5)

- 2019 **American Geophysicists Union**. San Francisco, CA. Expanding the Mission of Rural Science: The role of the 500 Women Science Pod in Southeast Utah. Presenter: Kristina Young
- 2019 **American Geophysicists Union**. San Francisco, CA. Determining the contribution of surface soil organisms to subsurface soil fertility and CO₂ efflux in a semi-arid desert. Presenter: Kristina Young
- 2019 **SER2019: 8th World Conference on Ecological Restoration**. Cape Town, South Africa. Opportunities for success: the future of ecological restoration on the Colorado Plateau. Presenter: Daniel Winkler
- 2019 **Colorado Plateau Biennial Conference of Science & Management**. Flagstaff, AZ. Biocrust optimization of net carbon to varied precipitation pulses. Presenter: Megan Starbuck[†]
- 2017 **Northern Arizona University Undergraduate Symposium**. Flagstaff, AZ. Maximizing cyanobacterial filament depth for biocrust cultivation. Presenter: Michael Morton[†]

MEETINGS & SESSIONS ORGANIZED

- 2022 **Co-Organizer** - Canyon Country Working Group. "RADical Restoration: Learning from Successes & Failures". Moab, UT
- 2019 **Co-Organizer** - Canyon Country Working Group. Inaugural regional meeting for >60 land managers, non-profits, and academics engaged in ecological restoration in SE Utah. Moab, UT
- 2018 **Co-Organizer & Moderator** - Ecological Society of America INSPIRE Session, "Over The Top Or Over-Reaction? The Science And Management Of Extreme Events In Dry Systems". New Orleans, LA
- 2016 **Lead Organizer & Moderator** - Ecological Society of America IGNITE Session, "The Heartbeat of Drylands: Broad scale changes to a pulse dynamic system". Fort Lauderdale, FL
- 2015 **Co-Organizer** - Biennial Conference of Science and Management on the Colorado Plateau and Southwest Region, Biological Soil Crust Special Session. Flagstaff, AZ

WORKSHOPS ORGANIZED

- 2021 **Co-Organizer** – USU Forestry Extension. Pack Creek Fire Workshop. Moab, UT

PROFESSIONAL/PUBLIC PRESENTATIONS

- 2022 **Presenter**, Grand County Small Scale Workshop, Extension Highlights
- 2022 **Presenter**, Soil Regen Summit, "Understanding the Desert's Living Skin"
- 2022 **Presenter**, USU Integrated Pest Management Workshop, Noxious Weeds of Grand County
- 2021 **Presenter**, USU Forestry Extension, Pack Creek Fire Workshop, Recovery Post-Fire
- 2021 **Presenter**, Arches National Park Leave No Trace Hotspot, Science Behind Off-Trail Travel.
- 2020 **Presenter**, Natural History Museum of Utah, Research Quest Live Q & A.
- 2019 **Presenter**, Grand Staircase Escalante Partnership Community Lecture Series, Dryland Research in southern Utah.
- 2019 **Presenter**, Youth Garden Project Grand County High School, careers in science.
- 2018 **Presenter**, USU's Utah Master Naturalist Program, Biocrust Ecology & Natural History.
- 2018 **Presenter**, Moab Bureau of Land Management Field Office, Brown Bag Lecture Series.
- 2017 **Presenter**, Mushroom Cultivation & Application Course, Biological soil crust rehabilitation.
- 2016 **Co-Presenter**, Society of Ecological Restoration Restoring, The Living Skin of the Earth: Biocrusts in Dryland Restoration at Northern Arizona University.
- 2016 **Presenter**, New Mexico State Office Bureau of Land Management, Brown Bag Lecture Series.

TEACHING EXPERIENCE

University Courses

- 2022 **Co-Instructor**, Course: Wild Rockies: Conservation Across Boundaries, Wild Rockies Field Institute, University of Montana. *Planned for Summer 2022*
- 2019 **Guest Lecture**, Course: Plant Ecology, University of Texas at El Paso
- 2016 **Guest Lecture**, Course: Intro to Soil Science, Northern Arizona University

Curriculum Development

- 2021 **Co-Creator**, Science Moab Engagement Initiative, day-long curriculum to teach ecology, biocrust, geology, and communication principles to outdoor recreation guides
- 2018 **Co-Creator**, Canyonlands Research Center & U.S. Geological Survey, of a 2-day course on biological soil crust ecology for high school students.

Professional/Public Instruction

- 2021 **Instructor**, Science Moab, biological soil crust module for Science Certified outdoor recreation guide training.
- 2019 **Co-Instructor**, Bureau of Land Management, biological soil crust workshop, a 3-day workshop for BLM employees to learn about biocrust ecology and management.
- 2018 **Instructor**, Natural History Museum of Utah, a course on biological soil crust for K-12 teachers who teach in biological disciplines.
- 2017 **Co-Instructor**, Bureau of Land Management, biological soil crust workshop, a 3-day workshop for BLM employees to learn about biocrust ecology and management.
- 2015 **Instructor**, Natural History Museum of Utah, a course on biological soil crust for K-12 teachers who teach in biological disciplines.
- 2011 **Instructor**, USGS, "Biological Soil Crust 101", a course covering the biology, ecology, and taxonomy of biological soil crusts to USGS co-works, supervisors, post-Doctorates, and Bureau of Land Management employees.
- 2009 **Co-Instructor**, Student Conservation Association Alternative Spring Break Program, instructed college students on dryland restoration techniques.

PROFESSIONAL SERVICE

Reviewer/Editor

2021-present **Review Editor**, *Frontiers in Environmental Science | Drylands*
2017-present **Reviewer**: *Ecology, Biogeosciences, New Phytologist, Geoderma, Plant and Soil, Remote Sensing of Environment, Ecosphere, Science of Total Environment, Aeolian Research, PeerJ, Kansas Academy of Science*

Membership/Committees

2021-present **Board Member**, Society of Ecological Restoration SW Chapter, Utah Representative
2021-present **Board Member**, Ecological Society of American SW Chapter, Vice-Chair
2017-present **Member**: Ecological Society of American, Society for Ecological Restoration, Association of Natural Resource Extension Professionals, Society for Range Management, Utah Native Plant Society, Epsilon Sigma Phi, National Association County Agricultural Agents

AFFILIATIONS

2021-present USU Ecology Center
2017-2019 USGS Southwest Biological Science Center

OUTREACH & SYNERGISTIC ACTIVITIES

2019 **Contractor**, Inclusive Community Consulting, a team that educates and advocates for equity in organizations.
2019 **Lead Organizer & Moderator**, Science for Guides, an event with informal science talks aimed at informing recreation guides in Moab, UT about science relevant to guiding professions.
2019 **Co-Lead**, Union of Concerned Scientists Local Leaders Program, a leadership development initiative focused on strengthening science advocacy skills.
2018 **Creator & Organizer**, Science Moab on Tap, informal science communication and outreach events held at a local bar in Moab, UT. Aimed at engaging those often not involved with science.
2018 **Co-Founder**, 500 Women Scientists Moab Pod, a chapter of a national organization that promotes science literacy, outreach, and women's roles in STEM.
2017 **Co-Founder**, Use-Rs Group, a group that meets to discuss current topics and techniques in statistics and the statistical software R.
2017 **Creator, Producer & Host**, KZMU's Science Moab, a weekly science outreach radio show exploring research and management occurring on the Colorado Plateau.
2016 **Co-Organizer**, Moab Festival of Science, a festival celebrating science and engaging the community with science in Moab, Utah.
2013 **Volunteer**, Utah Division of Wildlife Moab Field Office, endangered fish monitoring trips
2013 **Volunteer**, Beacon After School Program, teaching elementary school children about biological soil crust.
2012 **Volunteer**, Grand Canyon National Park, revegetating native plants & removing invasive tamarisk.

