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CURRENT POSITION

Professor of Environment & Sustainability and Biology. Western Colorado University, Gunnison, CO. 2020-.

EDUCATION

Ph.D. Department of Botany, University of Wisconsin Madison. Madison, WI. 2005.
Dissertation: *Environmental Determinants of Subalpine Treelines in the Southern Rockies*.
Advisor: Dr. Thomas J. Givnish.
B.A. with Honors. Biology, University of California Santa Cruz. Santa Cruz, CA. 1995.

COURSES TAUGHT AT WESTERN

First Year Seminar (HWTR 100), Studies in Biology (BIOL 120), Environmental Biology (BIOL 130), Environmental Biology Lab (BIOL 135), Science of Sustainability and Resilience (ENVS 301), Ecology (BIOL 301), Ecology Lab (BIOL 302), Rocky Mountain Flora (BIOL 353), Environmental Monitoring (ENVS 390), Independent Study (ENVS 392, BIOL 397), Applied Sustainability (ENVS 400), Natural History of the Gunnison Basin (ENVS 420), Watersheds of the World (ENVS 430), Forest Ecology (BIOL 481), Biology Senior Seminar (BIOL 495), Internship in Environmental Studies (ENVS 499), Science of Environmental Management (ENVS 611), Master's Project Development (ENVS 690), Master's Project and Portfolio (ENVS 694).

PRIOR TEACHING EXPERIENCE

Associate Professor of Environment & Sustainability and Biology. Western Colorado University, Gunnison, CO. 2017-2020.
Assistant Professor of Environment & Sustainability and Biology. Western Colorado University, Gunnison, CO. 2012-2017.
Visiting Professor of Biology and Environmental Studies. Western Colorado University, Gunnison, CO. 2008-2012.
Instructor. Wildlands Studies, California State University, Monterey Bay, CA. Six-week, upper-division undergraduate field study programs: Utah, Bolivia, Chile. 2006, 2009.
Affiliate Faculty. Department of Forest, Rangeland, & Watershed Stewardship and Graduate Degree Program in Ecology, Colorado State University, Ft. Collins, CO. 2007-2008.
Teaching Assistant, Ecology Laboratory Coordinator. Departments of Botany and Zoology, University of Wisconsin Madison. Madison, WI. 2000-2004.

POSTDOC AND PRIOR RESEARCH EXPERIENCE

Postdoctoral Research Ecologist. USDA Forest Service Rocky Mountain Research Station, Fort Collins, CO, & Mountain Studies Institute, Silverton, CO. 2007-2008.

Plant Ecology Consulting and Contract Employment. Amigos de Valles Caldera, Earthworks Institute, Keystone Restoration, New Mexico Natural Heritage Program, Quivira Coalition, Steve Vrooman Restoration, UW Madison Hawai'ian Ecosystems Change project, Valles Caldera Trust. 2005-2011.

Field Biologist. Craighead Wildlife-Wildlands Institute. Missoula, MT. 1995-1999.

PEER-REVIEWED PUBLICATIONS

Coop, J.D., S.A. Parks, C.S. Stevens-Rumann, S.D. Crausbay, P.E. Higuera, M.D. Hurteau, ... & K.C. Rodman. 2020. Wildfire-driven forest conversion in western North American landscapes. *BioScience* 70, 659-673.

Krawchuk M.A., G.W. Meigs, J.M. Cartwright, J.D. Coop, R. Davis, A. Holz, C. Kolden, A.J. Meddens. 2020. Disturbance refugia within mosaics of forest fire, drought, and insect outbreaks. *Frontiers in Ecology and the Environment* 18, 235-244.

Downing, W.M., M.A. Krawchuk., J.D. Coop, G.W. Meigs, S.L. Haire, R.B. Walker, E. Whitman, G. Chong, C. Miller, and C. Tortorelli. 2020. How do plant communities differ between fire refugia and fire-generated early-seral vegetation?. *Journal of Vegetation Science* 31, 26-39.

Walker, R.B., J.D. Coop, W.M. Downing, M.A. Krawchuk, S.L. Malone, and G.W. Meigs. 2019. How much forest persists through fire? High-resolution mapping of tree cover to characterize the abundance and spatial pattern of fire refugia across mosaics of burn severity. *Forests* 10, 782.

Ferrenberg, S., P. Wickey, and J.D. Coop. 2019. Ground-dwelling arthropod community responses to recent and repeated wildfires in conifer forests of northern New Mexico, USA. *Forests* 10, 667.

Coop, J.D., T.J. DeLory, W.M. Downing, S.L. Haire, M.A. Krawchuk, C. Miller, M.A. Parisien, and R.B. Walker. 2019. Contributions of fire refugia to resilient ponderosa pine and dry mixed-conifer forest landscapes. *Ecosphere* 10, e02809.

Mattson, L.R., J.D. Coop, M.A. Battaglia, A.S. Cheng, J.S. Sibold, and S. Viner. 2019. Post-spruce beetle salvage drives short-term surface fuel increases and understory vegetation shifts. *Forest Ecology and Management* 427: 348-359.

Downing, W.M., M.A. Krawchuk, G.W. Meigs, S.L. Haire, J.D. Coop, R.B. Walker, E. Whitman, G. Chong, and C. Miller. 2019. Influence of fire refugia spatial pattern on post-fire recovery in Oregon's Blue Mountains. *Landscape Ecology* 34: 771-792.

Magee, P.A., J.D. Coop, and J.S. Ivan. 2019. Thinning treatments alter avian occupancy in piñon-juniper woodlands. *The Condor: Ornithological Applications* 121:1, duy008.

Walker, R.B., J.D. Coop, S.A. Parks, and L. Trader. 2018. Fire regimes approaching historic norms reduce wildfire-facilitated conversion from forest to non-forest. *Ecosphere* 9, e02182.

Malone, S. L., A.W. Schoettle, and J.D. Coop. 2018. The future of subalpine forests in the Southern Rocky Mountains: Trajectories for *Pinus aristata* genetic lineages. *PloS one* 13, e0193481.

Coop, J.D, T.A. Grant, P.A. Magee, and E. Moore. 2017. Mastication treatment effects on vegetation and fuels in piñon-juniper woodlands of central Colorado, USA. *Forest Ecology and Management* 396: 68-84.

Haire, S.L., J.D. Coop, and C. Miller. 2017. Characterizing spatial neighborhoods of refugia following large fires in northern New Mexico, USA. *Land* 6, 19.

Schoettle, A.W., and J.D. Coop. 2017. Range-wide conservation of *Pinus aristata*: a genetic collection with ecological context for proactive management today and resources for tomorrow. *New Forests* 48, 181-199

Krawchuk, M.A., S.L. Haire, J.D. Coop, M.A. Parisien, E. Whitman, G. Chong, and C. Miller. 2016. Topographic and fire weather controls of fire refugia in forested ecosystems of northwestern North America. *Ecosphere* 7, 12.

- Coop, J.D., S.A. Parks, S.R. McClernan, and L.M. Holsinger. 2016. Influences of prior wildfires on vegetation response to subsequent fire in a reburned southwestern landscape. *Ecological Applications* 26: 346-354.
- Whitman, E., E. Batllori, M.A. Parisien, C. Miller, J.D. Coop, M.A. Krawchuk, G.W. Chong, and S.L. Haire. 2015. The climate space of fire regimes in north-western North America. *Journal of Biogeography* 42: 1736-1749.
- Coop, J.D., Barker, K.J., Knight, A.D., and J.S. Pecharich. 2014. Aspen (*Populus tremuloides*) stand dynamics and understory plant community changes over 46 years near Crested Butte, Colorado, USA. *Forest Ecology and Management* 318: 1-12.
- Coop, J.D. and A.W. Schoettle. 2011. Fire and high-elevation, five-needle pine (*Pinus aristata* and *P. flexilis*) ecosystems in the southern Rocky Mountains: what do we know? Pp.164-173 in: Keane, R.E., D.F. Tomback, M.P. Murray, and C.M. Smith, eds. *The Future of High-elevation, Five-needle White Pines in Western North America: Proceedings of the High Five Symposium*. Proceedings RMRS-P-63. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO.
- Coop, J.D., R.T. Massatti, and A.W. Schoettle. 2010. Subalpine vegetation pattern three decades after stand-replacing fire: effects of landscape context and topography on plant community composition, tree regeneration, and diversity. *Journal of Vegetation Science* 21: 472-487.
- Coop, J.D. and A.W. Schoettle. 2009. Post-wildfire regeneration of Rocky Mountain bristlecone (*Pinus aristata*) and limber pine (*Pinus flexilis*). *Forest Ecology & Management* 257: 893-903.
- Coop, J.D. and T.J. Givnish. 2008. Constraints on tree seedling establishment in montane grasslands of the Valles Caldera, New Mexico. *Ecology* 89: 1101-1111.
- Coop, J.D. and T.J. Givnish. 2007. Spatial and temporal patterns of recent forest encroachment in montane grasslands of the Valles Caldera, New Mexico, U.S.A. *Journal of Biogeography* 34: 914-927.
- Coop, J.D. and T.J. Givnish. 2007. Gradient analysis of reversed treelines and grasslands of the Valles Caldera, Jemez Mountains, New Mexico. *Journal of Vegetation Science* 18: 43-54.
- Coop, J.D., C.D. Hibner, A.J. Miller, and G.H. Clark. 2005. Black bears forage on army cutworm moth aggregations in the Jemez Mountains, New Mexico. *The Southwestern Naturalist* 50: 278-281.

ORGANIZED SESSIONS AND SYMPOSIA (last 5 years)

Wildfire-driven forest conversion in western North American landscapes: emerging science and implications for resilience and adaptation. Organized session at the US International Association of Landscape Ecology Annual Meeting. Fort Collins, CO. April 8, 2019 (*Co-organized with Dr. Sean Parks, ALWRI, RMRS, and Dr. Camille Stevens-Rumann, Colorado State University*).

The Fourth Gunnison Sage-grouse Summit: Research, Management, and Collaboration in a Post-Listing Era. March 9-11, 2016. Gunnison, CO. (*20th ENVS Spring Symposium, Western Colorado University. Co-organized with Dr. Corrie Knapp, MEM, and Dr. Patrick Magee, NES, WCU*).

PRESENTATIONS, WEBINARS, AND WORKSHOPS (last 5 years)

Reforestation or reorganization? How landscape context and climate can inform post-fire decision making. The forest may not return: Research and management for uncertain times. Invited presentation, Ecological Society of America Annual Meeting, Virtually Anywhere, August 3-6, 2020.

Invited keynote for the Ecosystem Resilience Workshop: Ecosystem Resilience and Change in Uncertain World. Co-hosted by the Center for Climate Adaptation Science and Solutions and the Southwest Climate Adaptation Science Center. Virtual workshop May 5 & 6, 2020.

- Wildfire-driven forest conversion in western North America: emerging ecological consequences and conservation implications of changing fire regimes and climate. Presentation at the University of Lleida, Lleida, Spain. December 4, 2019.
- Wildfire-driven forest conversion in western North America: emerging ecological consequences and conservation implications of changing fire regimes and climate. Presentation at CREAM Ecological and Forestry Applications Research Centre, Barcelona, Spain. November 20, 2019.
- Wildfire-driven forest conversion in western North America: emerging ecological consequences and conservation implications of changing fire regimes and climate. Presentation at University of Granada, Granada, Spain. October 24, 2019.
- Contributions of fire refugia to resilient ponderosa pine and dry mixed-conifer forest landscapes. Webinar for the Southwest Fire Science Consortium. October 16, 2019.
- Restored fire regimes reduce forest vulnerability to high-severity fire. Presentation at Biligiriranganatha Swamy Temple Wildlife Sanctuary, India. May 25, 2019.
- Restored fire regimes reduce forest vulnerability to high-severity fire. Presentation at Bandipur National Park, India. May 24, 2019.
- Wildfire-driven forest conversion in western North America: emerging ecological consequences and conservation implications of changing fire regimes and climate. Presentation at the Ashoka Trust for Research in Ecology and the Environment. Bangalore, India. May 23, 2019.
- Wildfire-driven forest conversion in western North America: emerging ecological consequences and conservation implications of changing fire regimes and climate. Presentation at the G.B. Pant National Institute for Himalayan Environment and Sustainable Development. Almora, India. May 20, 2019.
- Post-fire trajectories in ponderosa pine ecosystems: refugia, resilience, and conversion. Seminar for Department of Forest and Rangeland Stewardship, Colorado State University. April 11, 2019.
- Landscape context and climatic influences on post-fire trajectories in southwestern ponderosa pine forests. US International Association of Landscape Ecology Annual Meeting. Fort Collins, CO. April 8, 2019.
- Forest type conversion and post-fire dynamics of Gambel oak: a view from the southern tip of the Rockies (*invited presentation*). Gambel Oak Webinar Symposium. November 13, 2018.
- Sagebrush, change, and climate in the Upper Gunnison Basin (*invited presentation*). Sagebrush Workshop. August 8, 2018. Gunnison, CO.
- Fire refugia promote forest resilience (*invited presentation*). Fire Continuum Conference. May 22, 2018. Missoula, MT.
- Fire refugia promote forest resilience (*invited presentation*). USFS Reforestation – TSI Workshop. February 21, 2018. Missoula, MT.
- Modelling fire-driven forest dynamics with differential equations (*invited seminar*). Western Colorado University Math Seminar. November 15, 2017. Gunnison, CO.
- Effects of altered fire regimes: resilience, resistance, and regime shifts in ponderosa pine ecosystems (*invited seminar*). Natural Resources of the West, Colorado Mesa University. October 24, 2017. Grand Junction, CO.
- Fire, succession, type conversion, and regime shift in Southwestern forests (*invited oral presentation*). 2017 Natural Areas Conference. October 10-12, 2017. Ft. Collins, CO
- Fuels treatments and ecological values in piñon-juniper woodlands: Vegetation, birds, and modeled fire behavior. Southwest Fire Science Consortium Webinar. March 1, 2017.
- Fire-vegetation interactions over repeated burning in the Jemez Mountains: Type conversions, successional trajectories, and management prospects (*invited oral presentation*). 3rd Southwest Fire Ecology Conference. November 28-December 2, 2016. Tucson, AZ.

HEASC Best Practices in First Year Experiences in Sustainability Webinar (*invited panelist*). November 17, 2016.

Identifying and mitigating social-ecological tradeoffs: ecological impacts and modeled fire behavior in piñon-juniper fuels treatments (*invited oral presentation*). Piñon-juniper symposium. October 12-14, 2016. Albuquerque, NM.

Identifying and mitigating social-ecological tradeoffs: ecological impacts and modeled fire behavior in piñon-juniper fuels treatments. *Departmental seminar*, Natural and Environmental Sciences, Western Colorado University. October 7, 2016. Gunnison, CO.

Southwest FireCLIME Workshop (*invited participant*, Landscape Impacts of Fire and Climate Change workshop). September 12-14, 2016. Albuquerque, NM.

Identifying and mitigating social-ecological tradeoffs: fuel treatments, fire hazard, and obligate avifauna in piñon-juniper woodlands (*contributed oral presentation*). North American Congress for Conservation Biology. July 17-20, 2016. Madison, WI.

Field Tour: Fuels Treatments and Ecological Values in PJ Woodlands. (*field trip* with >50 managers and researchers, organized through the Southern Rockies Fire Science Network). June 8, 2016. Cañon City, CO.

Identifying and mitigating social-ecological tradeoffs: fuel treatments, fire hazard, and obligate avifauna in piñon-juniper woodlands (*invited oral presentation*). Society for American Foresters Colorado/Wyoming joint meeting. May 12-14, 2016. Gunnison, CO.

Sagebrush changes in the Upper Gunnison Basin over 25 years (*invited oral presentation*). Fourth Gunnison Sage-Grouse Summit. March 9-11, 2016. Gunnison, CO.

Mastication treatments in piñon-juniper woodlands: fuels, vegetation, and bird responses to a no-analog disturbance (*invited oral presentation*). 6th International Fire Ecology and Management Congress. November 16-20, 2015. San Antonio, TX.

Tracking two decades of vegetation change across the sagebrush landscapes of the Upper Gunnison Basin, Colorado: linking field re-measurements, remote sensing, and climate data (*contributed poster presentation*). 2015 Rocky Mountain Biological Laboratory Poster Symposium. September 4, 2015. Gothic, CO.

Influences of previous wildfires on change, resistance, and resilience to reburning in a montane Southwestern landscape. *Extended abstract*, pp. 273-276 in: Keane, R.E., M. Jolly, P. Parsons, and K. Riley. Proceedings of the large wildland fires conference. May 19-23, 2014. Missoula, MT. RMRS-P-73. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station Fort Collins, CO. 345 p.

The end of the world as we know it: thresholds of resilience and transformation in ecological systems (*invited seminar*). High Country Conservation Advocates Environmental Possibilities Series. August 23, 2015. Crested Butte, CO.

Tracking two decades of vegetation change across the sagebrush landscapes of the Upper Gunnison Basin, Colorado: linking field re-measurements, remote sensing, and climate data (*contributed poster presentation*). 9th International Association for Landscape Ecology World Congress. July 5-10, 2015. Portland, OR.

RECENT RESEARCH FUNDING

Research Joint Venture Agreement, Western Colorado University and the Aldo Leopold Wilderness Research Institute, USDA Forest Service. 2020-. Contrasting Historical and Contemporary Fire Regimes. \$50,000 to Western (PI).

Challenge Cost Share Agreement, Western Colorado University and the USDA Forest Service, Grand Mesa, Uncompahgre, and Gunnison National Forests. Development and facilitation of an adaptive management group for the Taylor Park EA. 2019-. \$125,000 to Western (Co-PI).

Research Joint Venture Agreement, Western Colorado University and the Gunnison Field Office of the Bureau of Land Management, 2017-. North Powderhorn project. \$18,000 to Western to support graduate student research.

Research Joint Venture Agreement, Western Colorado University and the Aldo Leopold Wilderness Research Institute, USDA Forest Service. 2016-2021. Determinants of Tree Persistence and Recovery under Changing Fire Regimes. \$107,000 to Western (PI).

Challenge Cost Share Agreement, Western Colorado University and the USDA Forest Service, Grand Mesa, Uncompahgre, and Gunnison National Forests. 2016-2017. WSCU Snowshoe Hare and Lynx Study. \$5000 to Western to support MEM student project.

Cost Reimbursable Agreement, Western Colorado University and the Aldo Leopold Wilderness Research Institute, USDA Forest Service. 2015-2020. Data Analysis and Interpretation. \$198,000 to Western (PI).

Colorado Parks and Wildlife Habitat Partnership Program, 2014. Assessing Change in Sagebrush Vegetation in the Gunnison Basin. \$15,000 to Western (PI).

Joint Fire Science Program, 2013. Integrating Fuels Treatments and Ecological Values in Piñon-Juniper Woodlands: Fuels, Vegetation, and Avifauna as Metrics of Effectiveness (PI). \$193,000 to Western.

USGS GAP, 2013. Incorporating potential habitat refugia in conservation planning using GAP data and approaches (Co-PI). \$50,000.

Great Northern Landscape Conservation Cooperative, 2013. Identification of fire refugia in Rocky Mountain ecosystems of the U.S. and Canada: Development and application of the refugium concept for biodiversity conservation over large spatial and temporal scales (Co-PI). \$127,000.

Research Joint Venture Agreement, Western Colorado University and the USDA Forest Service Rocky Mountain Research Station, 2010-2015. Ecology and Stand Structure of *Pinus aristata* (Rocky Mountain Bristlecone Pine). \$10,000 to Western.

Thornton Research Award, Western Colorado University, for faculty-directed research: 2010, 2014, 2015; for student directed research: 2013, 2014, 2016, 2017, 2018. \$38,000 total all projects.

Professional Development Grant, Center for Teaching Excellence, Western Colorado University. 2008, 2010, 2011, 2012.

PROFESSIONAL SERVICE

Ad Hoc Reviewer: *American Journal of Botany*, *Ecological Applications*, *Ecological Restoration*, *Ecosphere*, *Fire Ecology*, *Forest Ecology and Management*, *Global Change Biology*, *Journal of Applied Ecology*, *Journal of Biogeography*, *Journal of Forest Research*, *Journal of Vegetation Science*, *Landscape Ecology*, *Natural Areas Journal*, *Oecologia*, *Plant Ecology*, *PLoS One*, *Quaternary Research*

Gunnison Climate Working Group, 2011-2015.

Mountain Roots Food Project, Board of Directors, 2012-2015.

Sisk-a-dee Gunnison Sage-Grouse Conservation Board of Directors 2010-2016.

WCU Biology Thornton Research Fund Committee, 2012-present.

WCU Convocation Fund Committee, 2012-2019.

WCU ENVIS Council, 2009-present.

WCU ENVIS Spring Symposium Coordinator, 2011-2016.

WCU Faculty Senate, Faculty Senator for the School of Environment and Sustainability. 2018-2019.

WCU faculty advisor for Organics Guild (student agriculture club), 2014-2016.

WCU MEM Science Coordinator, 2015-2019.

WCU SGA Sustainability Fund Grant Committee, 2008-2019.

WCU Sustainability Action Committee 2008-2018: Chair, 2014, 20-by-20 Subcommittee Chair 2011-2013, Outreach & Education Subcommittee, 2009-2010.

MEDIA

Integrating Fuels Treatments and Ecological Values in Piñon-Juniper Woodlands. Video hosted by Southern Rockies Fire Science Network, 2016.

Gunnison Country Times, monthly series of guest commentaries on climate change, 2017.

Think Radio Presents Think Planet. Radio/web interview, 2019.

AWARDS

Alumni Award for Excellence *For excellence and creativity in teaching and mentorship, and service to the campus community.* Western Colorado University. 2013, 2014, 2015, 2018.