

Crystal A. Kolden

Associate Professor, Department of Forest, Rangeland, and Fire Sciences, University of Idaho
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EDUCATION

Ph.D., Geography, Clark University, Worcester, MA, 2010
M.S., Geography, University of Nevada, Reno, 2005
A.B. *cum laude*, History, Cornell University, Ithaca, NY, 1999

PROFESSIONAL APPOINTMENTS

2017 to present Associate Professor, College of Natural Resources, Univ. Idaho
2011 – 2016 Assistant Professor of Geography, Univ. Idaho
2010 – 2011 Research Faculty, Univ. Idaho
2007 – 2010 Landscape Ecologist, US Geological Survey, Anchorage, AK
2004 – 2012 Affiliate Research Scientist, Desert Research Institute, Reno, NV
2003 – 2006 Fire Ecologist, USDA Forest Service, Washington Office

REFEREED PUBLICATIONS

(# - indicates equal contribution, * - indicates student advisee)

Refereed Publications (59 refereed articles, *h-index*: 21, *i10-index*: 32)

- Martinez, A.J., A.J.H. Meddens, **C.A. Kolden**, E.K. Strand, A.T. Hudak. Characterizing persistent unburned islands within the Inland Northwest. *Fire Ecology*. Accepted.
- Blomdahl, E., **C.A. Kolden**, A.H.J. Meddens, and J.A. Lutz. 2019. The importance of small fire refugia in the central Sierra Nevada, California, USA. *Forest Ecology and Management*. <https://doi.org/10.1016/j.foreco.2018.10.038>
- Smith, A.M.S.; **C.A. Kolden**, D.M.J.S. Bowman. 2018. Biomimicry can help humans to co-exist sustainably with fire. *Nature Ecology & Evolution*. <https://doi.org/10.1038/s41559-018-0712-2>
- Smith, A.M.S.; **Kolden, C.A.**; Prichard, S.J.; Gray, R.W.; Hessburg, P.F.; Balch, J.K. 2018. Recognizing Women Leaders in Fire Science. *Fire* 1, 30. <https://doi.org/10.3390/fire1020030>
- Bowman, D.M.J.S., A. Moreira-Muñoz, **C.A. Kolden**, R.O. Chávez, A.A. Muñoz, F. Salinas, A. González-Reyes, R. Rocco, F. de la Barrera, G.J. Williamson, F.H. Johnston, N. Borchers, J.T. Abatzoglou. 2018. Drought and land use caused globally unprecedented extreme fires in Mediterranean Chile. *Ambio*. <https://doi.org/10.1007/s13280-018-1084-1>
- Meddens, A.H.J., **C.A. Kolden**, J.A. Lutz, A.M.S. Smith, C.A. Cansler, J.T. Abatzoglou, G.W. Meigs, W.M. Downing, M.A. Krawchuk. 2018. Fire refugia: What are they and why do they matter for global change? *BioScience*. <https://doi.org/10.1093/biosci/biy103>
- Abatzoglou, J.T., A.P. Williams, L. Boschetti, M. Zubkova, **C.A. Kolden**. 2018. Global patterns of interannual climate-fire relationships. *Global Change Biology*. <https://doi.org/10.1111/gcb.14405>
- Jansen, V.S.* , **C.A. Kolden**, H. Schmalz. 2018. The development of near real-time biomass and cover estimates for adaptive rangeland management using Landsat 7 and Landsat 8 surface reflectance products. *Remote Sensing*. <http://www.mdpi.com/2072-4292/10/7/1057/htm>

- Kolden, C.A.**, and J.T. Abatzoglou. 2018. Spatial distribution of wildfires ignited under katabatic- versus non-katabatic winds in Mediterranean southern California USA. *Fire*. 1(2), 19; <https://doi.org/10.3390/fire1020019>
- Sparks, A.M.*, A.F. Talhelm, R.P. Feltrin, A.M.S. Smith, D.M. Johnson, **C.A. Kolden**, L. Boschetti. 2018. An experimental assessment of the impact of drought and fire on western larch mortality, injury, and recovery. *International Journal of Wildland Fire*. doi.org/10.1071/WF18044
- Abatzoglou, J.T., J.K. Balch, B.A. Bradley, and **C.A. Kolden**. 2018. Human-related ignitions concurrent with high winds promote large wildfires across the US. *International Journal of Wildland Fire*. doi.org/10.1071/WF17149
- McCarley, T.R.*, A.M.S. Smith, **C.A. Kolden**, and J. Kreitler. 2018. Evaluating the mid-infrared bi-spectral index for improved assessment of low-severity fire effects in a conifer forest. *International Journal of Wildland Fire*. doi.org/10.1071/WF17137
- Sparks, A.M.*, Kolden, C.A., Smith, A.M., Boschetti, L., Johnson, D.M. and Cochrane, M.A., 2018. Fire intensity impacts on post-fire temperate coniferous forest net primary productivity. *Biogeosciences*, 15(4), p.1173. <https://doi.org/10.5194/bg-15-1173-2018>
- Hanan, E., C. Tague, J. Choate, M. Liu, **C.A. Kolden**, and J.C. Adam. 2018. Accounting for disturbance history in models: using remote sensing to constrain carbon and nitrogen pool spin-up. *Ecological Applications*. <https://doi.org/10.1002/eap.1718>
- Meddens, A.H.J., **C.A. Kolden**, J.A. Lutz, J.T. Abatzoglou, and A.T. Hudak. 2018. Spatiotemporal patterns of unburned areas within fire perimeters in the northwestern United States from 1984 to 2014. *Ecosphere* 9(2):e02029. <http://doi.org/10.1002/ecs2.2029>
- Kolden, C. A.**, T. M. Bleeker*, A. M. S. Smith, H. M. Poulos, A. E. Camp. 2017. Fire effects on historical wildfire refugia in contemporary wildfires. *Forests*, 8, 400.
- Zimbleman*, E. G., R. F. Keefe, E. K. Strand, **C. A. Kolden**, A. M. Wempe. 2017. Hazards in Motion: Development of Mobile Geofences for Use in Logging Safety. *Sensors*, 17.
- Abatzoglou, J. T., **C. A. Kolden**, A. P. Williams, J. A. Lutz, A. M. S. Smith. 2017. Climatic influences on interannual variability in regional burn severity across western US forests. *International Journal of Wildland Fire*, 26(5), <http://doi.org/10.1071/WF16165>.
- McCarley, T.R.*, **C.A. Kolden**, N.M. Vaillant, A.T. Hudak, A.M.S. Smith, J. Kreitler. 2017. Landscape-scale Quantification of Fire-induced Change in Canopy Cover Following Mountain Pine Beetle Outbreak and Timber Harvest. *Forest Ecology and Management*, 391, 164-175. <http://dx.doi.org/10.1016/j.foreco.2017.02.015>
- McCarley, T.R.*, **C.A. Kolden**, N.M. Vaillant, A.T. Hudak, A.M.S. Smith, B.M. Wing, B. Kellogg, J. Kreitler. 2017. Multi-temporal LiDAR and Landsat quantification of fire-induced changes to forest structure. *Remote Sensing of Environment*, 191, 419-432.
- Bowman, D.M.J.S., G.J. Williamson, J.T. Abatzoglou, **C.A. Kolden**, M. Cochrane, and A.M.S. Smith. 2017. Human population vulnerability to globally extreme wildfires. *Nature Ecology and Evolution*, 1, 0058. doi:10.1038/s41559-016-0058.
- Smith, A.M.S., A.F. Talhelm, D.M. Johnson, A. M. Sparks, **C.A. Kolden**, K.M. Yedinak, K. Apostol, W.T. Tinkham, J.T. Abatzoglou, J. A. Lutz, A.S. Davis, K.S. Pregitzer, H. D. Adams, R. L. Kremens. 2017. Impacts of fire radiative energy density doses on *Pinus contorta* and *Larix occidentalis* seedling physiology and mortality. *International Journal of Wildland Fire*, 26(1) 82-94 <http://dx.doi.org/10.1071/WF16077>
- Sparks, A.M.*, A. M. S. Smith, A. F. Talhelm, **C. A. Kolden**, K. M. Yedinak, D. M. Johnson. 2017. Impacts of fire radiative flux on mature *Pinus ponderosa* growth and vulnerability to

- secondary mortality agents. *International Journal of Wildland Fire*, 26(1) 95-106
<http://dx.doi.org/10.1071/WF16139>
- Meddens, A.J.H., **C.A. Kolden**, and J.A. Lutz. 2016. Detecting unburned areas within wildfire perimeters using Landsat and ancillary data across the northwestern United States. *Remote Sensing of Environment* 186: 275-285. doi:10.1016/j.rse.2016.08.023
- Vaillant, N.M., **C.A. Kolden**, and A.M.S. Smith. 2016. Assessing landscape vulnerability to wildfire in the USA. *Current Forestry Reports*, doi:10.1007/s40725-016-0040-1
- Sparks, A.M.*, **C.A. Kolden**, A.F. Talhelm , A.M.S. Smith , K.G. Apostol, D.M. Johnson , and L. Boschetti. 2016. Spectral indices accurately quantify changes in seedling physiology following fire: towards mechanistic assessments of carbon dynamics following wildfire. *Remote Sensing* 8(7), 572. doi:10.3390/rs8070572.
- Abatzoglou, J.T., **C.A. Kolden**, J.K. Balch, and B.A. Bradley. 2016. Controls on interannual variability in lightning-caused fire activity in the western US. *Environmental Research Letters* 11 (2016) 045005. doi:10.1088/1748-9326/11/4/045005
- Hicke, J.A., A.J.H. Meddens, C.D. Allen, and **C.A. Kolden**. 2016. Recent tree mortality in the western United States from bark beetles and forest fires. *Forest Science* 62: 141-153.
- Smith, A.M.S., A.F. Talhelm, **C.A. Kolden**, B.A. Newingham, H.D. Adams, J.D. Cohen, K.M. Yedinak, R.L. Kremens. 2016. The ability of winter grazing to reduce wildfire size and fire-induced plant mortality was not demonstrated: A comment on Davies et al. (2015). *International Journal of Wildland Fire*. doi:10.1071/WF15163
- Smith, A.M.S.#, **C.A. Kolden**#, T.B. Paveglio#, M.A. Cochrane, M.A. Mortiz, A.D. Kliskey, L. Alessa, A.T. Hudak, C.M. Hoffman, J.A. Lutz, D.M.J.S. Bowman, L.P. Queen, S.J. Goetz, L. Boschetti, P.E. Higuera, M. Flannigan, K.M. Yedinak, E.K. Strand, J.W. Van Wagtenonk, and B.J. Stocks. 2016. The Science of Firescapes: Achieving Fire Resilient Communities. *Bioscience* 66(2): 130-146.
- Smith, A.M.S., A.M. Sparks*, **C.A. Kolden**, J.T. Abatzoglou, A.F. Talhelm, D.M. Johnson, L. Boschetti, J.A. Lutz, K.G. Apostol, K.M. Yedinak, W.T. Tinkham, and R.L. Kremens. 2016. Towards a new paradigm in fire severity research using dose-response experiments. *International Journal of Wildland Fire*. doi:10.1071/WF15130
- Jansen, V.S.*, **C.A. Kolden**, R.V. Taylor, and B. Newingham. 2016. Quantifying Livestock Effects on Bunchgrass Vegetation with Landsat ETM+ Data Across a Single Growing Season. *International Journal of Remote Sensing*, 37(1): 150-175, DOI:10.1080/01431161.2015.1117681
- Kolden, C.A.**, A.M.S. Smith, and J.T. Abatzoglou. 2015. Limitations and utilization of Monitoring Trends in Burn Severity products for assessing wildfire severity in the USA. *International Journal of Wildland Fire*. <http://dx.doi.org/10.1071/WF15082>
- Kolden, C.A.**, J.T. Abatzoglou, J.A. Lutz, C.A. Cansler, J.T. Kane, J.W. Van Wagtenonk, and C.H. Key. 2015. Climate contributors to forest mosaics: ecological persistence following wildfire. *Northwest Science* 89(3).
- Olsen, P.M.*, **C.A. Kolden**, and L. Gadamus. 2015. Developing marine habitat suitability models from remotely-sensed data and traditional ecological knowledge. *Remote Sensing* 7(9), 11863-11886; doi:[10.3390/rs70911863](https://doi.org/10.3390/rs70911863)
- Pierce, J., and **C.A. Kolden**. 2015. The hilliness of U.S. cities. *Geographical Review* 105(4): 581-600.

- Barbero, R., J.T. Abatzoglou, N. Larkin, **C.A. Kolden**, and B.J. Stocks. 2015. Climate change presents increased potential for very large fires in the contiguous United States. *International Journal of Wildland Fire*. Online July 17, 2015. <http://dx.doi.org/10.1071/WF15083>
- Barbero, R., J.T. Abatzoglou, **C.A. Kolden**, K. Hegewisch, N. Larkin, and H. Podschwit. 2015. Multiscalar influence of weather and climate on megafires in the eastern United States. *International Journal of Climatology*.
- Birch, D.* , P. Morgan, **C.A. Kolden**, J.T. Abatzoglou, G.K. Dillon, A.T. Hudak, and A.M.S. Smith. 2015. Vegetation, topography and daily weather influenced burn severity in central Idaho and western Montana forests. *Ecosphere* 6(1): art17.
- Bowen, E., A. Miles, **C.A. Kolden**, M.T. Tinker, J. Bodkin, J. Saarinen. 2015. Effects of wildfire on sea otter (*Enhydra lutris*) immune function. *Marine Mammal Science* 31: 191-210.
- Morrison, K.D.* and **C.A. Kolden**. 2015. Modeling the impacts of wildfire on runoff and pollutant transport from coastal watersheds to the nearshore environment. *Journal of Environmental Management*, 151: 113-123. doi:10.1016/j.jenvman.2014.12.025
- Morrison, K.D.* and **C.A. Kolden**. 2014. Development of a Historical Multi-Year Land Cover Classification Incorporating Wildfire Effects. *Land*, 3(4), 1214-1231.
- Smith, A.M.S.#, **C.A. Kolden**#, W.T. Tinkham#, A. Talhelm, A. Kliskey, L. Alessa, J.D. Marshall, R.F. Keefe, J.W. Anderson, and J.R. Gosz. 2014. Remote sensing of vegetation vulnerability in terrestrial ecosystems. *Remote Sensing of Environment*, 154: 322-337.
- Birch, D.* , P. Morgan, **C.A. Kolden**, A. Hudak, and A.M.S. Smith. 2014. Is proportion burned severely related to daily area burned? *Environmental Research Letters*, 9(6), 064011.
- Hicke, J.A., A.J.H. Meddens, C.D. Allen, and **C.A. Kolden**. 2013. Carbon stocks of trees killed by bark beetles and wildfire in the western United States. *Environmental Research Letters* 8(3), 035032.
- Abatzoglou, J.T., **C.A. Kolden**. 2013. Relationships between climate and macroscale area burned in the western United States. *International Journal of Wildland Fire*. <http://dx.doi.org/10.1071/WF13019>
- Bowlick, F.J.* , **C.A. Kolden**. 2013. Effects of an Introductory Geography Course on Student Perceptions of Geography at the University of Idaho. *Journal of Geography in Higher Education*. doi:10.1080/03098265.2013.801068
- Kolden, C.A.**, and J. Rogan. 2013. Mapping wildfire burn severity in the Arctic tundra: novel approaches for an extreme environment. *Arctic, Antarctic and Alpine Research* 45(1): 64-76.
- Kolden, C.A.**, J.A. Lutz, C.H. Key, J.T. Kane, and J.W., van Wagtendonk. 2012. Mapped versus actual burned area within wildfire perimeters: characterizing the unburned. *Forest Ecology and Management*, 286: 38-47.
- Ray, L.A., **C.A. Kolden**, and F.S. Chapin III. 2012. Developing fire management strategies from traditional ecological knowledge in the absence of local science. *Ecology and Society* 17(3): 37. <http://dx.doi.org/10.5751/ES-05070-170337>.
- Owen, G., J. McLeod, **C.A. Kolden**, D. Ferguson, and T.J. Brown. 2012. Predictive Forecasting in wildland fire management: a social network analysis of the southwestern U.S. *Weather, Climate and Society* 4(2): 90-102.
- Kolden, C.A.**, J.T. Abatzoglou. 2012. Climate and Vegetation Influences on Fire Impacts in Alaskan Boreal Forest: Implications for Carbon and Fire Management. *Fire Ecology* 8(1): 98-113.

- Lutz, J., C.H. Key, **C.A. Kolden**, J.T. Kane, and J.W. Van Wagtendonk. 2011. Fire frequency, area burned, and severity: A quantitative approach to defining a normal fire year. *Fire Ecology* 7(2): 51-65.
- Abatzoglou, J.T., and **C.A. Kolden**. 2011. Relative Importance of Weather and Climate on Wildfire Growth in Interior Alaska. *International Journal of Wildland Fire* 20(4) 479-486.
- Abatzoglou, J.T. and **C.A. Kolden**. 2011. Climate change in western US deserts: potential for increased wildfire and invasive annual grasses. *Rangeland Ecology and Management*, September 2011, Vol. 64, No. 5, pp. 471-478
- Kolden, C.A.** and T.J. Brown. 2010. Beyond Wildfire: Perspectives of Climate, Managed Fire and Policy in the U.S.A. *International Journal of Wildland Fire* 19(3): 364-373.
- Jones, B., **C.A. Kolden**, R. Jandt, J.T. Abatzoglou, F. Urban, and C. Arp. 2009. Fire behavior, weather, and burn severity of the 2007 Anaktuvuk River tundra fire, North Slope, Alaska. *Arctic, Antarctic, and Alpine Research*. 41(3): 309-316.
- Kolden, C.A.** and P.W. Weisberg. 2007. Assessing accuracy of manually-mapped wildfire perimeters in topographically dissected areas. *Fire Ecology* 3(1): 22-31.
- Kolden, C.A.**, and T.J. Weigel. 2007. Fire risk in San Diego County, California: A weighted Bayesian model approach. *The California Geographer* 47: 1-17.

BOOK CHAPTERS

- Abatzoglou, J.T., **C.A. Kolden**, J.F.C. DiMento, P.M. Doughman, and S. Nespor. 2014. 'Climate Change Impacts: Global and Local Views.' Chapter 3 in J.F.C. DiMento and P.M. Doughman, eds., *Climate Change: What it means for us, our children, and our grandchildren*, MIT Press, Cambridge, MA, 2nd edition.

REPORTS AND NON-REFEREED PUBLICATIONS

- GeoElements, LLC (C. Henson, **C. Kolden**, D. Kerr, S. Beckman). 2018. A defensible community? A retrospective report of Montecito Fire District's wildland fire program during the 2017 Thomas Fire. October 23, 2018. 72 pp. <https://bit.ly/2r30WaH>
- Kolden, C.A.** 2017. Disappearing refugia: Identifying trends and resilience in unburned islands under climate change. Final report to the USGS Northwest Climate Science Center. Project Agreement #G14AP00177. August 1, 2017.
- Larkin, N.K., J.T. Abatzoglou, R. Barbero, **C.A. Kolden**, D. McKenzie, B. Potter, E.N. Stavros, E.A. Steel, and B.J. Stocks. Future megafires and smoke impacts. Final report to the Joint Fire Science Program. Project #11-1-7-4. September 30, 2015.
- Kolden, C.A.** 2015. Understanding Geospatial Data Products for Assessing Landscape Fire Severity and Effects: MTBS products and future directions. Briefing Report. 6pp.
- Kern, A., E. McLain, S. Honwad, and **C.Kolden**. 2014. University of Idaho Intermountain Climate Education Network. Final Report for NASA Global Climate Change Education Program. 25pp.
- Kolden, C.A.**, J.T. Abatzoglou, and T.J. Brown. 2012. Developing fuel treatments for a future climate: best practices and use of climate projections. 26pp.

- Brown, T.J., **C.A. Kolden**, and J.T. Abatzoglou. 2012. Assessing fuels treatments in southern California National Forests in the context of climate change. Final Project Report for Joint Fire Science Program. 21pp.
- Jandt, R.R., E.A. Miller, D.A. Yokel, M.S. Bret-Harte, and **C.A. Kolden**. 2012. Findings of Anaktuvuk River Fire Recovery Study, 2007-2011. BLM Report.
- Kolden, C.A.**, J.T. Abatzoglou, and T.J. Brown. 2010. The changing potential for wilderness fire in the 21st century. CEFA Report 10-03. 65pp.
- Kolden, C.A.** 2010. *Characterizing Alaskan Wildfire Regimes through Remotely Sensed Data: Assessments of Large Area Pattern and Trend*. Doctoral dissertation, Clark University. 123pp.
- Abatzoglou, J.T., **C.A. Kolden**, T.J. Brown, and C. Miller. 2008. Intermodel comparison of projected climate-induced changes in extreme fire danger for the northern Rockies. Extended abstract for *Proceedings of The '88 Fires: Yellowstone and Beyond, Jackson, WY, Sept 22-27, 2008*.
- Kolden, C.A.** and T.J. Brown. 2008. *Using climate information for fuels management*. CEFA Report 08-01. 58pp.
- Brown, T.J. and **C.A. Kolden**. 2007. The science of fire: new technologies at the Desert Research Institute make a difference in wildland fire management. *Wildland Firefighter* September 2007.
- Henson, C. and **C.A. Kolden**. 2007. *Vandenberg Air Force Base Fire Management Plan*. Adaptive Management Services Enterprise Team, 21pp.
- Kolden, C.A.**, J. Uyehara, and C. Henson. 2007. *Final Report: Fire Effects for Threatened, Endangered and Invasive Species, Vandenberg Air Force Base, California*. Adaptive Management Services Enterprise Team, 27pp.
- Henson, C., and **C.A. Kolden**. 2007. *Final Report: Fire Hazard Assessment of the Upper Ojai and Bell Canyon communities, Ventura County*. Adaptive Management Service Enterprise Team, 14pp.
- Kolden, C.A.** and T.J. Brown. 2006. *Wildfire Risk in the Lake Tahoe Basin: Current Issues and Perspectives*. UNR Reynolds School of Journalism. 22pp.
- Kolden, C.A.** 2005. *Climate Impacts on Escaped Prescribed Fire Occurrence in California and Nevada*. M.S. Thesis, University of Nevada, Reno. 158pp.
(http://www.cefa.dri.edu/Publications/cak_thesis.pdf)
- Kolden, C. A.** and T. J. Brown. 2005. Utilization of climate information in prescribed fire. In *Proceedings of the EastFIRE Conference*, George Mason University, May 11-13, 2005, Fairfax, Va.
- Brown, T.J., B.A. Morehouse, and **C.A. Kolden**. 2005. Developing sustainable partnerships between fire scientists and decision-makers. In *Proceedings of the EastFIRE Conference*, George Mason University, May 11-13, 2005, Fairfax, Va.
- Kolden, C.A.** and T. J. Brown. 2003. Climate Impacts on Prescribed Fire. In *Proceedings of the 5th Symposium on Fire and Forest Meteorology and the 2nd International Wildland Fire Congress*. November 16-20, 2003, Orlando, Fl.

AWARDS AND HONORS

2018 Visiting Scholar Award, University of Tasmania

2014 University of Nevada, Reno, College of Science Young Alumni Award

- 2009 USGS STAR (Special Thanks for Achieving Results) Award
- 2009 NASA-MSU Professional Enhancement Award
- 2005 Best Master's degree-level paper, Biogeography Specialty Group, Association of American Geographers Annual Meeting
- 2005 Best Graduate Paper, California Geographical Society Annual Meeting
- 2005 Best Graduate Poster, Univ. of Nevada, Reno, College of Science Annual Poster Competition
- 2005 Best Graduate Poster in the Sciences, Univ. of Nevada, Reno, Graduate Students' Association Annual Poster Competition
- 2003 President's Award for Outstanding Paper by a Master's Student; Association of Pacific Coast Geographers Annual Meeting
- 2003 Outstanding Graduate Student; Univ. of Nevada, Reno, Graduate Students' Association

GRANTS

Lead PI for **\$3,390,127** in funding, Co-Investigator for additional **\$4,879,727**

	<u>Source, Title, Role</u>	<u>Amount</u>
2018-2021	Deploying CERT: Integrating satellite and field measures for improved grazingland management at ranch scales, USDA-CIG (Co-PI)	\$661,118
2017-2018	Expanding a web based tool for adaptive rangeland management in Oregon and Idaho, USDA, (Lead PI)	\$55,000
2016-2019	Determining the ecological importance of wildfire refugia for post-fire management in the northwestern United States, JFSP, (Co-PI)	\$256,829
2016-2018	Towards improved quantification and prediction of post-fire recovery in conifers, JFSP, (Lead PI, as advisor to doctoral student researcher)	\$25,000
2015-2020	NSF Hazards SEES: Advancing Resilience to Compounding Disasters: An Integrated Natural-Human Systems Assessment of Wildfire Vulnerability, National Science Foundation (Lead PI)	\$2,775,000
2014-2019	The Nature Conservancy Priscilla Bullitt Collins Trust: Restoring grasslands through adaptive livestock management: Development and deployment of remote-sensing based tools for forage forecasting and utilization (Co-PI, UI Lead)	\$254,724 [UI Portion: \$193, 229]
2014-2017	USGS Northwest Climate Science Center: Disappearing refugia: identifying trends and resilience in unburned islands under climate change (Lead PI)	\$362,811

2013-2016	USFS Western Wildlands Environmental Threat Assessment Center: Pole Creek wildfire burn severity assessment (Lead PI)	\$19,623
2013-2014	USFS Pacific Northwest Research Station: Indices associated with wildland fire part II: management contributions to megafires (Lead PI)	\$22,535
2013-2015	Murdock Trust Foundation Partners in Science Program: The relative influence of wildfire and invasive species on land cover change (Lead PI)	\$15,000
2012-2013	Idaho NSF EPSCoR REU program: Identifying remote methods for monitoring aspen regeneration following prescribed fire (Lead PI)	\$5,000
2012-2014	NW Climate Science Center (graduate student support): Disaggregating wildfire severity and climate change influences on land cover change in the Pacific Northwest (Lead PI)	\$58,784
2012-2013	Joint Fire Science Program: Northern Rockies Fire Science Network, Implementation Phase (Co-PI)	\$399,451
2012	Idaho NSF EPSCoR: Collaborative Development of a Climate Change Curriculum for Classrooms in the Intermountain West-Additional Support for Community Colleges (Lead PI)	\$44,874
2011	Joint Fire Science Program: Northern Rockies Fire Science Network, Planning Phase (Co-PI, UI Lead)	\$263,533
2011-2014	NASA Global Climate Change Education (GCCE) Program: Collaborative Development of a Climate Change Curriculum for Classrooms in the Intermountain West (Co-I)	\$547,727
2009-2013	USGS Global Climate Change Office: Climate Impacts on Burn Severity in three forest ecoregions of the U.S.', USGS Global Change Research (Co-PI)	\$634,888
2008-2013	USGS Global Climate Change Office: Coastal Ecosystem Responses to Influences from Land and Sea (Co-I)	\$1,381,000
2008-2010	Joint Fire Science Program: Understanding climate impacts on fuels management (Co-PI)	\$271,800
2009-2010	Joint Fire Science Program: Fire and Climate Change in the Western US: A new synthesis for land management (Funded Collaborator)	\$197,119

2009	Aldo Leopold Wilderness Research Institute: Determining regional characteristics of Wildland Fire Use thresholds based on climate and fire danger (Co-PI)	\$70,000
2007	Clark University, Marsh Institute, Geller Research Fellowship	\$2,000
2006	Brigham Young University Charles Redd Center for Western Studies Public Programming Grant	\$1,100
2006	University of Nevada, Reno, Instructional Enhancement Grant	\$533
2006	University of Nevada, Reno, Reynolds School of Journalism Grant	\$2,500
2004	Association of Pacific Coast Geographers, Margaret Trussell Research Grant	\$1,000
2003	University of Nevada, Reno, Graduate Students Association Research Grant	\$2,400

INVITED KEYNOTE AND PLENARY PRESENTATIONS

- Kolden, C.A.** “Extreme fires globally: the new ‘normal’?” National Wildfire Litigation Conference, April 27-29, 2018, San Diego, CA, Invited Panelist Presenter.
- Kolden, C.A.** “Managing for forest resilience under global change: the power of fire refugia.” Restoring the West Conference 2017: What’s working, what’s not? October 17-18, Logan, UT. Invited Plenary Speaker.
- Kolden, C.A.** “Future Fire.” Wildland Fire Workshop, 41st Intertribal Timber Council Annual Symposium. June 26-27, 2017, Yakima, WA. Invited Plenary Speaker.
- Kolden, C.A.** “Climate drivers of forest pattern: development of wildfire refugia.” University of Montana Plum Creek Distinguished Lecture Series and Northwest Scientific Association Annual Meeting, March 26-28, 2014, Missoula, Montana. Invited Plenary Speaker.
- Kolden, C.A.** “Let’s Talk about Climate: Understanding impacts and Opportunities for the 21st century.” Western Farm Management Extension Committee Annual Meeting, January 4-6, 2012, Kauai, HI. Invited Keynote Speaker.
- Kolden, C.A.** “Climate change impacts on humans: Translating Science to fire management.” Presidential Plenary, Association of Pacific Coast Geographers Annual Meeting, October 13-15, 2010, Coeur d’Alene, Idaho. Invited Plenary Speaker.
- Abatzoglou, J.T., and **C.A. Kolden**. “Climate change implications for fire and invasive species across American deserts.” Fire and Invasive Species in American Deserts Workshop, December 8-10, 2008, Reno, Nev. Invited Plenary Speaker.

INVITED TALKS

2017. Invited national speaker seminar, Northern Arizona University School of Forestry seminar series, Flagstaff, AZ, October 2017

2016. Invited seminar/outreach, High Desert Museum of Natural History, Bend, OR, November 8, 2016
2016. Invited presentation, Upper Columbia United Tribes Climate Resiliency Workshop, Spokane, WA, October 23, 2016
2016. Invited seminar, School of Environment, Washington State University, October 2016
2016. Invited seminar, Department of Natural Resources and Environmental Sciences, University of Nevada, Reno, March 2016 (declined)
2015. Invited Seminar, Northern Arizona University College of Forestry (declined due to maternity leave)
2012. Invited Seminar, University of Montana College of Forestry, Missoula, MT, November 2012.
2011. Invited Seminar, University of Idaho Department of Geography, April 2011.
2010. “Fire, Forest Carbon, and Climate Change: The Science.” Public Interest Environmental Law Conference, February 25-28, 2010, Eugene, OR.
2009. Invited Seminar, University of Idaho College of Natural Resources, March 2009.
2008. Invited Speaker, USGS Alaska Burn Severity Workshop, February 2008
Invited Speaker, UNR Geography Department Colloquium, February 2008
Invited Speaker, USFS Fuels Management Conference, Reno, NV, February 2008.
2006. Invited Speaker, Society of American Foresters Reno chapter, April 2006
Invited Speaker, UNR Journalism School Tahoe Fire Risk Workshop, April 2006
2005. Invited speaker, Desert Research Institute Visiting Dignitaries Field Trip, June 2005

SUBMITTED PROFESSIONAL PRESENTATIONS

(Last 5 years only, first-author or primary presenter only):

Kolden, C.A. et al. “Refugia under fire: the impacts of climate change on wildfire refugia persistence and resilience.” 102nd Ecological Society of America Annual Meeting, Portland, OR, August 5-11, 2017.

CONFERENCES AND WORKSHOPS ORGANIZED

Organizer and Panelist, Wildfire Risk to Seattle Public Utilities Municipal Watersheds, North Bend, WA, November 5-6, 2018

Co-organizer and overview lecture, Big Wood River Valley Fire Resilience Workshop (co-hosted by UI and the Sun Valley Institute for Resilience), Hailey, ID, June 6-8, 2017

PHOENIX: The Fire STC; Identifying Grand Challenges in Fire Science and Education (Co-organizer and Presenter), Workshop at University of Idaho, Moscow, ID, April 17-18, 2014

Integrating Climate Science and Climate Change into Your Courses, Workshop at College of Western Idaho, Nampa, ID, April 26, 2013

Workshop on Integrating climate change into fuels management (Organizer and Presenter), Association for Fire Ecology 5th International Fire Ecology and Management Congress, Portland, OR, December 3, 2012

Northwest Climate Education Resources Workshop (Organizer and Presenter), Moscow, ID, June 18-22, 2012

Workshop on fire/climate information (Organizer and Presenter), Palm Springs, CA, October 2011

Summer ICE Net climate change education Workshop II (Co-organizer and presenter), McCall Outdoor Science School, McCall, ID, August 1-4, 2011

Summer ICE Net climate change education Workshop I (Co-organizer), McCall Outdoor Science School, McCall, ID, June 23-26, 2011

Field Workshop on Remote Sensing of Burn Severity in Alaska (Organizer), Fairbanks, AK, August 8-13, 2009

Inaugural Nevada Wildland Fire Science and Outreach Conference (Conference Coordinator), May 25, 2006

MEDIA AND OUTREACH ACTIVITIES

Related to the November 2018 Fires:

[NYT Op-ed](#)

[Guardian Op-ed](#)

[Interview with PRI's The World with Marco Werman](#)

[AP Article interview \(picked up by multiple outlets across the US\)](#)

[NOVA interview](#)

[Wired interview](#)

[PBS Newshour Interview](#)

[Mashable article on Montecito, CA](#)

[Mashable article on Camp Fire](#)

[Playboy article](#)

Al Jazeera English Interview (TV)

[Radio News Australia Interview](#) (Radio)

October 16, 2018: [Brief note in Popular Science on the dangers of wildfire research](#)

Public lecture on future wildfire and climate change in Santa Barbara County, CA, October 18, 2018

Public presentation of post-Thomas Fire analysis results for Montecito Fire District, CA, October 17, 2018

October 12, 2018: [Article in the NYT on our BioScience paper](#)

August 30, 2018: Podcast discussion with Water Deeply on wildfires and clean water

August 8, 2018: [Op-ed in the Guardian on California wildfires](#)

June 10, 2017: [Interview with Idaho's Post Fall Register about fire borrowing](#)

Invited seminar/outreach, High Desert Museum of Natural History, Bend, OR, November 8, 2016

August 13, 2016: [Interview with HCN on fire and climate change](#)

June 19, 2016: [Interview with the Guardian on fire risk reduction in CA](#)

September 23, 2015 - [Interview with NWPR about wildfire consequences](#)

September 11, 2015 - [Article on cascading consequences of wildfire from Rocky Barker at the Idaho Statesman related to our work](#)

August 29, 2015 - [Article on the new NSF project in the Moscow Pullman Daily News](#)

August 25, 2015 - [Article on my new NSF grant on increasing community wildfire resilience in the Spokesman Review](#)

Fire as a Teacher, Invited Outreach Seminar, Malcolm M. Renfrew Interdisciplinary Colloquium, University of Idaho, Moscow, ID February 4, 2014

Moscow Science on Tap Speaker, Moscow, ID, May 21, 2013

September 23, 2015 - [Interview with NWPR about wildfire consequences](#)

September 11, 2015 - [Article on cascading consequences of wildfire from Rocky Barker at the Idaho Statesman related to our work](#)

August 29, 2015 - [Article on the new NSF project in the Moscow Pullman Daily News](#)

August 25, 2015 - [Article on my new NSF grant on increasing community wildfire resilience in the Spokesman Review](#)

July 5, 2013 - [An op-ed I wrote for the Washington Post on responsible building in wildfire-prone areas.](#)

July 3, 2013 - [Interview on Minnesota Public Radio about wildfires](#)

June 19, 2013 - [Interview with Michael Kodas about wildfire policy in the US](#)

April 8, 2011 - [Article I wrote on using climate information for the Wildland Fire Lessons Learned Center](#)

April 2011 - [Podcast with Wildland Fire Lessons Learned Center on Fire and Climate relationships](#)

CONSULTING

GeoElements, LLC, Fire Risk Mapping for Community Wildfire Protection Plans (2012-present)

USFS, Fire Behavior Analysis for Nevada Test and Training Range (2007-2008)

USFS, Fire Risk and Invasive Species Assessment of Vandenberg Air Force Base (2006-2007)

USFS, Fire Behavior Analysis for Grand Canyon National Park (2006)

USFS, Fire Behavior Analysis for Bell Canyon, California (2006)

TEACHING AND ADVISING

(indicates new course that I developed)**

Courses Taught as Sole Instructor at the University of Idaho:

Undergraduate

**As the World Burns: Fire on Earth, CORS 235 (FA17)

Introduction to Spatial Analysis for Natural Resource Management, FOR 375 (SP17, SP18)

Physical Geography (FA10, SP12)

**Physical Geography (online course), (SP14)

Senior Capstone Experience, (SP14, FA14, SP15)

**Advanced Remote Sensing (FA12)

Graduate

GIS for Fire Ecology and Management, REM 510 (SP17)

**Seminar: Professional Development (SP12)

Instruction in Geography/Higher Education (SP12, FA12, SP13)

**Seminar: Ecosystem Vulnerability (SP15)

**Advanced Remote Sensing (FA12)

Courses Taught as Sole Instructor at the University of Nevada, Reno and Truckee Meadows Community College (Nevada System of Higher Education):

Undergraduate

Physical Geography (FA10, SP12)

**Geospatial Technologies: Mapping and Measuring Earth (FA05, SP06)

Other:

FARSITE Fire behavior and fuels modeling short courses (USFS, 2005)

Graduate Students Advised:Completed (as major professor)

Vincent Jansen, Ph.D. Natural Resources (University of Idaho, 2018)
Carrie Minerich, M.S. Natural Resources (University of Idaho, 2018)
Aaron Sparks, Ph.D., Natural Resources (University of Idaho, 2017)
Devin Yeatman, M.S. Natural Resources (University of Idaho, 2017)
Ryan McCarley, M.S. Geography (University of Idaho, 2016)
John Kannady, M.S. Geography (University of Idaho, 2016)
Tyler Bleeker, M.S. Geography (University of Idaho, May 2015)
Vincent Jansen, M.S. Environmental Science (University of Idaho, May 2014)
Katherine Morrison, M.S. Geography (University of Idaho, May 2014)
Patrick Olsen, M.S. Geography (University of Idaho, May 2014)
Forrest Bowlick, M.S. Geography (University of Idaho, May 2012)

Current (as major professor)

Josh Picotte, Ph.D., Natural Resources (expected 2022)

Graduate committee member

Eloise Zimbleman, Ph.D. Natural Resources (expected 2019)
Raquel Partelli Feltrin, Ph.D. Natural Resources (expected 2019)
Anthony Martinez, M.S. Natural Resources (expected 2019)
Kristina Bartowitz, Ph.D. Natural Resources (expected 2021)
Jeff Stenzel, Ph.D. Natural Resources (expected 2021)
Stephen Fillmore, Ph.D., Natural Resources (expected 2022)
Seth Gorelik, M.S. Geography (University of Idaho, 2017)
Donovan Birch, M.S. Forest Resources (University of Idaho, 2013)
Christine Droske, M.S. Forest Resources (University of Idaho, 2012)
Benoit Parmentier, Ph.D. Geography (Clark University, 2011)

Postdoctoral Fellows mentored:

Aaron Sparks (2017)
Arjan Meddens (2013-2017)
R. Justin Hougham (2012-2013)

Curriculum Materials Developed:

University of Idaho Physical Geography Online Course Website
University of Idaho Physical Geography Laboratory Manual
University of Nevada, Reno Physical Geography Lab Exercises
Climate Science Matrix and associated resources (www.icenetmatrix.com)

SERVICE ACTIVITIES

Editorial Board: *Fire*

Peer Review: *Proceedings of the National Academy of Sciences*, *PlosOne*, *Forest Ecology and Management*, *Remote Sensing of Environment*, *Ecosystems*, *International Journal of Wildland Fire*, *Remote Sensing*, *Ecosphere*, *The California Geographer*, *Fire Ecology*, *Professional Geographer*

Major Committee Assignments

University of Idaho:

Faculty Affairs Committee, 2017-2019

Forest, Rangeland, and Fire Sciences Faculty Search Committee, 2017-2018

Forest, Rangeland, and Fire Sciences Faculty Search Committee, 2016-2017

Geography Dept. Faculty Search Committee, 2014-2015

Geography Dept. Faculty Search Committee (2), Spring 2014

Geography Dept. Seminar Series Committee member, Spring 2013

Geography Dept. Graduate Admissions Chair, 2013-2014

Geography Dept. Graduate Admission Committee, 2012

Department of Forest, Range, and Fire Science Assistant Professor search committee, 2013-2014

Department of Forest, Range, and Fire Science Instructor search committee, 2012

Department of Geography Chair Search Committee, 2011-2012

Search Committee for J. Hicke employee, 2011

Search Committee for ICE Net post-doctoral associate, 2011

Desert Research Institute, Reno, NV, Post-doctoral fellow search committee, 2013

Steering Committee, American Meteorological Society Fire and Forest Meteorology Committee, 2007-present

Field Trip Organizer, APCG Annual Meeting, Coeur d'Alene, ID 2010

Association for Fire Ecology

Board Member 2009-2010

Conference Committee 2007-2010

Student representative and membership committee chair, 2003-2006

Student Association for Fire Ecology, National chapter, 2002-2005

Co-chair of National chapter board, 2003-2004

Secretary of National chapter board, 2002-2003

Founder and Co-chair of UNR chapter, 2002-2004

Volunteers chair, 2003

Member of UNR Geography Department Faculty Search Committee, 2003