**Crystal A. Kolden**

Assistant Professor, Management of Complex Systems, Gallo Management Program

University of California, Merced, 5200 N Lake Road, Merced, CA 95343 (775) 287-9211

ckolden@ucmerced.edu  http://www.pyrogeographer.com  Twitter: @pyrogeog

**SUMMARY**

I am a Pyrogeographer and fire scientist with over 20 years of experience implementing GIS, remote sensing, and spatial analysis in fire ecology and management, including fire science research, education, and outreach. I am a Certified Fire Ecologist by the Association of Fire Ecology.

**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**

2020 – present Assistant Professor, College of Engineering, Univ. of California, Merced

2017 – 2020 Associate Professor, College of Natural Resources, Univ. Idaho

2010 – 2016 Assistant Professor of Geography, 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 (70 refereed articles, *h-index*: 25, *i10-index*: 42)**

Krawchuck, M.A., G. Meigs, J. Cartwright, J. Coop, R. Davis, A. Holz, **C.A. Kolden**, A.H.J. Meddens. In press. Disturbance refugia within mosaics of forest fire, drought, and insect outbreaks. *Frontiers in Ecology and the Environment.*

Goss, M., D.L. Swain, A. Sarhadi, **C.A. Kolden**, J.T. Abatzoglou, A.P. Williams, N.S. Diffenbaugh. 2020. Climate change is increasing the risk of extreme autumn wildfire conditions across California. *Environmental Research Letters*. https://doi.org/10.1088/1748-9326/ab83a7

Jansen, V.S.\*, **C.A. Kolden**, H.E. Greaves, J.U. Eitel. 2019. Lidar provides novel insights into the effect of pixel size and grazing intensity on measures of spatial heterogeneity in a native bunchgrass ecosystem. *Remote Sensing of Environment*. https://doi.org/10.1016/j.rse.2019.111432

Stenzel, J.\*, K. Bartowitz, M. Hartmann, J.A. Lutz, **C.A. Kolden**, A.M.S. Smith, B. Law, M. Swanson, A. Larson, W. Parton, T. Hudiburg. 2019. Fixing a snag in estimating carbon emissions from wildfire. *Global Change Biology.* https://doi.org/10.1111/gcb.14716

Martinez, A.J.\*, A.J.H. Meddens, **C.A. Kolden**, A.T. Hudak. An assessment of fire refugia importance criteria ranked by land managers. *Fire*, 2, 27. https://doi.org/10.3390/fire2020027

McWethy, D.B., T. Schoennagel, P.E. Higuera, M. Krawchuk, B.J. Harvey, E.C. Metcalf, C. Schultz, C. Miller, A.L. Metcalf, B. Buma, A. Virapongse, J.C. Kulig, R.C. Stedman, Z. Ratajczak, C.R. Nelson, **C.A. Kolden**. 2019. Rethinking resilience to wildfire. *Nature Sustainability*. https://doi.org/10.1038/s41893-019-0353-8

**Kolden, C.A.** 2019. We’re not doing enough prescribed fire to reduce wildfire risk in the western US. *Fire*, 2, 30. https://doi.org/10.3390/fire2020030

Steady, W.D., R.P. Feltrin, D.M. Johnson, A.M. Sparks, **C.A. Kolden**, A.F. Talhelm, J.A. Lutz, L. Boschetti, A.T. Hudak, A.S. Nelson, A.M.S. Smith. 2019. The Survival of Pinus ponderosa Saplings Subjected to Increasing Levels of Fire Behavior and Impacts on Post-Fire Growth. *Fire* 2, 23.https://doi.org/10.3390/fire2020023

Haugo, R.D., B.S. Kellogg, C.A. Cansler, **C.A. Kolden**, K.B. Kemp, J. Robertson, K.L. Metlen, N.M. Vaillant, C.M. Restaino. 2019. The Missing Fire: Quantifying human exclusion of wildfire in Pacific Northwest forests, USA. *Ecosphere*, 10, e02702. doi.org/10.1002/ecs2.2702

Martinez, A.J.\*, A.J.H. Meddens, **C.A. Kolden**, E.K. Strand, A.T. Hudak. 2019. Characterizing persistent unburned islands within the Inland Northwest. *Fire Ecology* 15: 20. https://fireecology.springeropen.com/articles/10.1186/s42408-019-0036-x

**Kolden, C.A.** and C. Henson. 2019. A Socio-Ecological Approach to Mitigating Wildfire Vulnerability in the Wildland Urban Interface: A Case Study from the 2017 Thomas Fire. Fire, 2, 9. https://doi.org/10.3390/fire2010009

Kliskey, A., J.T. Abatzoglou, L. Alessa, **C.A. Kolden**, D. Hoekema, B. Moore, S. Gilmore, G. Austin. 2019. Planning for Idaho’s Waterscapes: A review of historical drivers and outlook for the next 50 years. Environmental Science and Policy, 194, 191-201. https://doi.org/10.1016/j.envsci.2019.01.009

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

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. 2019. Drought and land use caused globally unprecedented extreme fires in Mediterranean Chile. *Ambio*. https://doi.org/10.1007/s13280-018-1084-1

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., **C.A.** **Kolden,** S.J. Prichard, R.W. Gray, P.F. Hessburg, J.K. Balch. 2018. Recognizing Women Leaders in Fire Science. *Fire* 1, 30. https://doi.org/10.3390/fire1020030

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 Wagtendonk, 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 Wagtendonk, 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](http://dx.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 (Enhyrda 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.,** andJ. 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.

**SUBMITTED MANUSCRIPTS**

Abatzoglou, J.T., C. Smith, D. Swain, T. Ptak, and **C.A. Kolden**. Population exposure to pre-emptive de-energization aimed at averting wildfires in Northern California. In review at *Environmental Research Letters.*

Bowman, D.M.J.S., **C.A. Kolden**, J.T. Abatzoglou, F.H. Johnston, G.R. van der Werf, and M. Flanigan. In review at *Nature Reviews Earth and Environment*. Vegetation fires in the Anthropocene.

Lutz, J.A., S. Struckman, T.J. Furniss, C.A. Cansler, S.J. Germain, L.L. Yocom, D.J. McAvoy, C.A. Kolden, A.M.S. Smith, M.E. Swanson, A.J. Larson. The importance of large-diameter trees to woody biomass and surface fuel following reintroduced fire. In review at *Ecological Processes*.

McCarley, T. R.\*, **C. A. Kolden**, A. M. S. Smith, A. T. Hudak, J. Kreitler, N. M. Vaillant. In revision for *Remote Sensing of Environment*. Burn severity products for ecological applications: limitations and suggestions for progress.

Partelli Feltrin, R., A.M.S. Smith, H.C. Adams, **C.A. Kolden**, and D. Johnson. Short- and long-term effects of fire on stem hydraulics in Pinus ponderosa saplings. In review at *Plant, Cell, & Environment.*

Yeatman, D.M.\*, **C.A. Kolden**, A.M.S. Smith, J.E. Force. In revision for *International Journal of Wildland Fire.* How much canopy cover in the home ignition zone facilitates loss of homes during timbered wildland-urban interface fires?

**REPORTS AND NON-REFEREED PUBLICATIONS**

Montecito Fire Protection District and 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>

Santa Barbara County and GeoElements, LLC (C. Henson, **C. Kolden**, D. Kerr, S. Beckman). 2018. Community Wildfire Protection Plan for East Goleta Valley and San Marcos Pass, California.

**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.

Montecito Fire Protection District and GeoElements, LLC (C. Henson, **C. Kolden**, D. Kerr, S. Beckman). 2016. Community Wildfire Protection Plan for Montecito, California.

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 Anakatuvuk 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**

2019 Mid-Career Award, University of Idaho

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**

**Total funding: $9,910,151**

Lead PI for **$3,390,127** in funding, Co-Investigator for additional **$6,520,024**

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| --- | --- | --- |
| 2019-20232018-20212017-20182016-20192016-20182015-20202014-20192014-20172013-20162013-20142013-20152012-20132012-20142012-2013201220112011-20142009-20132008-20132008-20102009-20102009200720062006200620042003 | Source, Title, RoleScoping grant: Coupling Earth observation data and ecohydrological modeling to predict disturbance-induced runoff and sedimentation for municipal water quantity and quality planning, NASA (**Co-PI**)Deploying CERT: Integrating satellite and field measures for improved grazingland management at ranch scales, USDA-CIG  **(Co-PI)**Expanding a web-based tool for adaptive rangeland management in Oregon and Idaho, USDA, **(Lead PI)**Determining the ecological importance of wildfire refugia for post-fire management in the northwestern United States, JFSP, **(Co-PI)**Towards improved quantification and prediction of post-fire recovery in conifers, JFSP, **(Lead PI, as advisor to doctoral student researcher)**NSF Hazards SEES: Advancing Resilience to Compounding Disasters: An Integrated Natural-Human Systems Assessment of Wildfire Vulnerability, National Science Foundation (**Lead PI)**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)**USGS Northwest Climate Science Center: Disappearing refugia: identifying trends and resilience in unburned islands under climate change **(Lead PI)**USFS Western Wildlands Environmental Threat Assessment Center: Pole Creek wildfire burn severity assessment **(Lead PI)**USFS Pacific Northwest Research Station: Indices associated with wildland fire part II: management contributions to megafires (**Lead PI)**Murdock Trust Foundation Partners in Science Program: The relative influence of wildfire and invasive species on land cover change (**Lead PI)**Idaho NSF EPSCoR REU program: Identifying remote methods for monitoring aspen regeneration following prescribed fire (**Lead PI)**NW Climate Science Center (graduate student support): Disaggregating wildfire severity and climate change influences on land cover change in the Pacific Northwest (**Lead PI**)Joint Fire Science Program: Northern Rockies Fire Science Network, Implementation Phase (**Co-PI)**Idaho NSF EPSCoR: Collaborative Development of a Climate Change Curriculum for Classrooms in the Intermountain West- Additional Support for Community Colleges (**Lead PI)** Joint Fire Science Program: Northern Rockies Fire Science Network, Planning Phase (**Co-PI, UI Lead)**NASA Global Climate Change Education (GCCE) Program: Collaborative Development of a Climate Change Curriculum for Classrooms in the Intermountain West (**Co-I**)USGS Global Climate Change Office: Climate Impacts on Burn Severity in three forest ecoregions of the U.S.’, USGS Global Change Research (**Co-PI**)USGS Global Climate Change Office: Coastal Ecosystem Responses to Influences from Land and Sea (**Co-I**)Joint Fire Science Program: Understanding climate impacts on fuels management (**Co-PI**)Joint Fire Science Program: Fire and Climate Change in the Western US: A new synthesis for land management (**Funded Collaborator**)Aldo Leopold Wilderness Research Institute: Determining regional characteristics of Wildland Fire Use thresholds based on climate and fire danger (**Co-PI**)Clark University, Marsh Institute, Geller Research Fellowship Brigham Young University Charles Redd Center for Western Studies Public Programming Grant University of Nevada, Reno, Instructional Enhancement GrantUniversity of Nevada, Reno, Reynolds School of Journalism GrantAssociation of Pacific Coast Geographers, Margaret Trussell Research GrantUniversity of Nevada, Reno, Graduate Students Association Research Grant | Amount$150,000$661,118$55,000$256,829$25,000$2,775,000$254,724 [UI Portion: $193, 229]$362,811$19,623$22,535$15,000$5,000$58,784$399,451$44,874$263,533$547,727$634,888$1,381,000$271,800$197,119$70,000$2,000$1,100$533$2,500$1,000$2,400 |

**INVITED KEYNOTE AND PLENARY PRESENTATIONS**

**Kolden, C.A. “**Wildfire resilience across ecosystems under climate change,” Invited Keynote Speaker, Western Forestry Graduate Research Symposium, Oregon State University, Corvallis, OR, April 24, 2020. (Cancelled – COVID)

**Kolden, C.A.** “What does wildfire resilience look like?” Advancing WUI Resilience, NFPA, San Francisco, CA, March 3-4, 2020.

**Kolden, C.A.** “Wildfire disasters locally and globally: learning from global trends to plan for future bushfires in Tasmania.” Invited keynote speaker, University of Tasmania panel and public lecture on 2019 Tasmania bushfires, February 27, 2019, Hobart, Tasmania.

**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 (last 3 years only)**

2020. Invited seminar, Univ. of Arizona, Dept of Geography, April 2020 (cancelled)

2020. Invited seminar, UCLA Geoscience Colloquium series, January 2020

2019. Invited seminar, UC Merced MCS program, November 2019

2019. Invited seminar, Missoula Fire Lab Seminar Series, May 15, 2019

2019. Invited seminar, Washington State University School of Environment, March 2019

2019. Invited seminar, UC Merced College of Engineering, March 2019

2019. Invited seminar, The Fire Centre seminar series, University of Tasmania, Hobart, Tasmania, Australia, February 2019

**CONFERENCES AND WORKSHOPS ORGANIZED**

Organizer and Panelist, Wildfire Risk to Portland Water Bureau Municipal Watersheds, Portland, OR, May 5-7, 2019

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

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

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

* November 2019 - January 2020 – Australia bushfires

[PRI Interview with NPR’s Steve Curwood](https://www.pri.org/stories/2019-11-12/california-must-learn-fight-fire-prescribed-fire-experts-say)

[NPR Science Friday with Ira Flatow](https://www.sciencefriday.com/segments/australia-fires-climate-change/)

[Interview in Washington Post](https://www.washingtonpost.com/weather/2020/01/09/too-late-leave-australias-advice-surviving-bush-fire-when-surrounded/)

[Interview in NYT](https://www.nytimes.com/interactive/2020/01/02/climate/australia-fires-map.html)

[Interview in The Verge](https://www.foodandwaterwatch.org/news/australian-bush-fires-may-get-even-worse)

* [Interview with Deseret News](https://www.deseret.com/indepth/2019/10/29/20937319/california-fires-2019-natural-disaster-zones)
* May 2019 - my [**paper on prescribed fire in *Fire***](https://www.mdpi.com/2571-6255/2/2/30/htm) in collaboration with Climate Central
     [Climate Central Reporting](https://www.climatecentral.org/news/report-the-burning-solution-prescribed-burns-unevenly-applied-across-us)
​     [Interview with PBS Newshour Weekend](https://www.pbs.org/newshour/show/with-rise-in-wildfires-prescribed-burns-may-be-a-solution)
     [Interview in the Sacramento Bee](https://www.sacbee.com/news/state/california/fires/article230481684.html)
     [Interview in the LA Times](https://www.latimes.com/politics/la-na-pol-wildfire-mitigation-prescribed-burn-west-20190529-story.html)
     [Interview with NBC San Diego](https://www.nbcsandiego.com/news/local/More-Prescribed-Burning-Could-Reduce-Wildland-Fire-Impact-Study-Finds--510598051.html)
     [Interview with Popular Science](https://www.popsci.com/wildfire-smoke-public-health#page-3)
     [Article in Southerly Mag](https://southerlymag.org/2019/05/28/if-we-dont-burn-it-nature-will-georgia-blazes-old-fears-leads-nation-in-prescribed-fire/)
     [Interview with the Lewiston Tribune](https://lmtribune.com/northwest/wildfire-study-prescribed-burns-underused-in-west/article_c737f1af-dad5-5f66-925a-6cce25389119.html)
     [Article in NJ.com News outlet](https://www.nj.com/news/2019/06/the-threat-of-a-destructive-wildfire-in-south-jersey-is-growing-is-enough-being-done-to-prepare.html)
     [Radio interview with Utah Public Radio](https://www.upr.org/post/not-enough-fire-our-forests-study-suggests)
     [Radio Interview with NPR Atlanta WABE](https://www.wabe.org/why-the-southeast-is-ahead-of-the-west-on-a-key-way-to-fight-wildfires/%22%20%5Ct%20%22_blank)
     [Radio Interview with Public News Service](https://www.publicnewsservice.org/2019-06-07/environment/study-west-should-look-to-southeasts-prescribed-burn-model/a66716-1)
* January 2019 Tasmania bushfires:
     [Talking point in The Mercury (Hobart) (link is to a reproduction as original is behind a paywall)](https://firecentre.org.au/an-americans-view-of-tassie-fires/)
     [Interview with the Launceston Examiner](https://www.examiner.com.au/story/5895714/were-always-going-to-be-working-in-a-novel-environment-fighting-fire-with-a-global-science/)
     ABC Radio Hobart Morning Show interview with Ryk Goddard

 ABC Radio Hobart Morning Show interview with Leon Compton
    [Seminar given at the University of Tasmania Fire Centre, February 2019](https://firecentre.org.au/event/wildfire-disasters-locally-and-globally-learning-from-global-trends-to-plan-for-future-bushfire-in-tasmania-dr-crystal-a-kolden/)     [Interview in NYT](https://www.nytimes.com/2019/01/29/climate/global-warming-extreme-weather.html)     [Women in Fire Science article in National Tribune](https://www.nationaltribune.com.au/a-diversity-of-voices-is-vital-in-the-bushfire-fight/)

* Related to the November 2018 California Fires:
     [NYT Op-ed](https://www.nytimes.com/2018/11/16/opinion/sunday/what-the-dutch-can-teach-us-about-wildfires.html?action=click&module=Opinion&pgtype=Homepage)
     [Guardian Op-ed](https://www.theguardian.com/environment/2018/nov/14/wildfire-survival-california-nature-trees)     [Interview with PRI's The World with Marco Werman](https://www.pri.org/file/2018-11-20/learning-dutch)
​     [AP Article interview (picked up by multiple outlets across the US)](https://www.nytimes.com/aponline/2018/11/14/us/ap-us-northern-california-wildfire-death-toll-.html)     [NOVA interview](https://www.pbs.org/wgbh/nova/article/california-wildfires-signify-new-era)
     [Wired interview](https://www.wired.com/story/how-california-needs-to-adapt-to-survive-future-fires/)
     [PBS Newshour Interview](https://www.pbs.org/newshour/science/why-mega-wildfires-are-happening-in-november)
     [Mashable article on Montecito, CA](https://mashable.com/article/wildfire-california-montecito-resistance/#hy3sYWJbCiqL)
     [Mashable article on Camp Fire](https://mashable.com/article/trump-california-fires-tweet-wrong-science/#uHoYsSL09Zq0)
     [Playboy article](https://www.playboy.com/read/smoke-signals-in-the-aftermath-of-the-california-fires-a-new-battle-arises)
     Al Jazeera English Interview (TV)
     [Radio News Australia Interview](https://www.abc.net.au/radionational/programs/breakfast/one-of-worst-wildfires-in-californias-history/10486746) (Radio)
* October 16, 2018: [Brief note in Popular Science on the dangers of wildfire research](https://www.popsci.com/wildfire-firefighting-fieldwork)Public lecture on future wildfire and climate change in Santa Barabara 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](https://www.nytimes.com/2018/10/12/science/wildfire-biodiversity.html?action=click&module=Well&pgtype=Homepage&section=Science)
* August 30, 2018: Podcast discussion with Water Deeply on wildfires and clean water
* August 8, 2018: [Op-ed in the Guardian on California wildfires](https://www.theguardian.com/environment/2018/aug/07/california-wildfires-megafires-future-climate-change)
* June 10, 2017: [Interview with Idaho's Post Fall Register about fire borrowing](http://www.postregister.com/articles/news-daily-email-todays-headlines/2017/06/09/simpson-introduces-fire-borrowing-bill)
* November 8, 2016: Invited seminar/outreach, High Desert Museum of Natural History, Bend, OR,
* August 13, 2016: [Interview with HCN on fire and climate change](https://www.hcn.org/articles/the-wests-new-normal-another-long-season-of-volatile-wildfires)
* June 19, 2016: [Interview with the Guardian on fire risk reduction in CA](http://www.theguardian.com/sustainable-business/2016/jun/19/bark-beetle-california-forests-trees-electricity-drought)
* September 23, 2015 - [Interview with NWPR about wildfire consequences](http://nwpr.org/post/fire-may-be-out-above-ground-not-below)
* September 11, 2015 - [Article on cascading consequences of wildfire from Rocky Barker at the Idaho Statesman related to our work](http://www.idahostatesman.com/news/local/environment/fires/article41568168.html)
* August 29, 2015 - [Article on the new NSF project in the Moscow Pullman Daily News](http://bit.ly/1ib0twI)
* August 25, 2015 - [Article on my new NSF grant on increasing community wildfire resilience in the Spokesman Review](http://www.spokesman.com/stories/2015/aug/25/grant-will-help-map-northwest-wildfire-threats/)
* September 23, 2015 - [Interview with NWPR about wildfire consequences](http://nwpr.org/post/fire-may-be-out-above-ground-not-below)
* September 11, 2015 - [Article on cascading consequences of wildfire from Rocky Barker at the Idaho Statesman related to our work](http://www.idahostatesman.com/2015/09/11/3980048_as-big-wildfires-becomes-routine.html?rh=1)
* August 29, 2015 - [Article on the new NSF project in the Moscow Pullman Daily News](http://bit.ly/1ib0twI)
* August 25, 2015 - [Article on my new NSF grant on increasing community wildfire resilience in the Spokesman Review](http://www.spokesman.com/stories/2015/aug/25/grant-will-help-map-northwest-wildfire-threats/)
* July 5, 2013 - [An op-ed I wrote for the Washington Post on responsible building in wildfire-prone areas.](http://www.washingtonpost.com/opinions/arizona-fire-deaths-show-no-one-should-die-for-a-house/2013/07/05/1c14eaf2-e343-11e2-aef3-339619eab080_story.html)
* July 3, 2013 - [Interview on Minnesota Public Radio about wildfires](http://minnesota.publicradio.org/display/web/2013/07/02/daily-circuit-rethinking-wildfires)
* June 19, 2013 - [Interview with Michael Kodas about wildfire policy in the US](http://www.onearth.org/article/fighting-more-forest-fires-is-a-bad-idea)
* April 8, 2011 - [Article I wrote on using climate information for the Wildland Fire Lessons Learned Center](http://www.pyrogeographer.com/uploads/1/6/4/8/16481944/wfllc_kolden_rxfire.pdf)
* April 2011 - [Podcast with Wildland Fire Lessons Learned Center on Fire and Climate relationships](http://www.wildfirelessons.net/uploads/Crystal%20Kolden.mp3)

**CONSULTING**

Imternational Wildfire Consultants, LLC, California Fire Risk assessment for XLGS (2019)

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

GeoElements, LLC, Post-Thomas fire assessment for Montecito Fire Protection District (2018)

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

\*\*Fire Ecology and Management, FOR 326 (FA19)

\*\*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)

**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 2020)

Raquel Partelli Feltrin, Ph.D. Natural Resources (expected 2020)

Kristina Bartowitz, Ph.D. Natural Resources (expected 2021)

Jeff Stenzel, Ph.D. Natural Resources (expected 2021)

Stephen Fillmore, Ph.D., Natural Resources (expected 2022)

Raquel Partelli Feltrin, Ph.D. Natural Resources (University of Idaho, 2020)

Joshua Clark, M.S. Natural Resources (University of Idaho, 2020)

Anthony Martinez, M.S. Natural Resources (University of Idaho, 2019)

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)