

JESSICA J. MITCHELL

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University of Montana Spatial Analysis Lab

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PROFESSIONAL PREPARATION

IDAHO STATE UNIVERSITY, Pocatello, ID

Ph.D., Engineering and Applied Sciences – Geosciences (2011)

Applications in LiDAR and Hyperspectral remote sensing to improve the characterization of low-height sparse vegetation ecosystems

IDAHO STATE UNIVERSITY, Pocatello, ID

M.S., Geographic Information Science (2007)

Spectral and spatial detection limits of leafy spurge (*Euphorbia Esula* L.): Sensor comparisons and matched filtered behavior

UNIVERSITY OF MARYLAND, Baltimore County, MD

B.S., Geography and Environmental Systems (2001)

Independent research in collaboration with Baltimore Ecosystem Studies: anthropogenic inputs and heavy metal concentrations along roadside soil gradients

UTAH STATE UNIVERSITY, Logan, UT

National Environmental Policy Act (NEPA) Certification (2004)

Natural Resource and Environmental Policy Program WETLAND

WETLANDS TRAINING INSTITUTE, Kalispell, MT

Wetland Delineation Certification (2003)

APPOINTMENTS AND POSITIONS

Director, University of Montana Spatial Analysis Lab, 2018 - Present

Research Faculty, Department of Ecosystem and Conservation Science, University of Montana, 2018 - Present

Assistant Professor, Appalachian State University, Department of Geography, 2014 - 2018

Co-Director, Computer Visualization Lab, College of Arts and Sciences, Appalachian State University (2014 - 2018)

Visiting Assistant Professor, University of Delaware, Department of Geosciences, 2013 - 2014

Affiliate Research Associate, Boise State University (formerly Idaho State University), Boise Center Aerospace Lab, 2011 - Present

Visiting Instructor, University of North Carolina Wilmington, 2012 - 2013

Postdoctoral Associate (Joint Appointment), Idaho State University, Boise Center Aerospace Lab and the Department of Energy, Idaho National Lab, Unmanned Vehicle Technologies, 2011

Ph.D. Research Fellow, Geosciences Department, College of Engineering, Idaho State University, 2007 - 2010

Graduate Research Assistant, Geosciences Department, Boise Center Aerospace Lab, Idaho State University, 2005 - 2007

Environmental Planner, Biota Research and Consulting, Inc., Jackson, Wyoming, 2002-2005 (full-time); 2006 - 2012 (contract)

Environmental/Transportation Planner, Edwards and Kelcey, Baltimore, Maryland, 2001 - 2002

PEER REVIEWED PUBLICATIONS, DATASETS, AND BOOK CHAPTERS

- Huang, X., Wang, S., Yang, D., Hu, T., Chen, M., Zhang, M., Zhang, G., Biljecki, F., Lu, T., Zou, L. and Wu, C.Y., Park, Y. M., Li, X., Liu, Y., Fan H., Mitchell, J., Li, Z. and Hohl, A., 2023. Crowdsourcing Geospatial Data for Earth and Human Observations: A Review. *Journal of Remote Sensing*. <https://doi.org/10.34133/remotesensing.0105>
- Huang, X., Yang, D., He, Y., Nelson, P., Low, R., McBride, S., **Mitchell, J.** and Guarraia, M., 2023. Land cover mapping via crowdsourced multi-directional views: The more directional views, the better. *International Journal of Applied Earth Observation and Geoinformation*, 122, p.103382. <https://doi.org/10.1016/j.jag.2023.103382>
- SanClements, M.D., Record, S., Rose, K.C., Donnelly, A., Chong, S.S., Duffy, K., Hallmark, A., Heffernan, J.B., Liu, J., **Mitchell, J.J.** and Moore, D.J., 2022. People, infrastructure, and data: A pathway to an inclusive and diverse ecological network of networks. *Ecosphere*, 13(11), p.e4262. <https://doi.org/10.1002/ecs2.4262>
- Farella, M.M., Barnes, M.L., Breshears, D.D., **Mitchell, J.**, van Leeuwen, W.J. and Gallery, R.E., 2022. Evaluation of vegetation indices and imaging spectroscopy to estimate foliar nitrogen across disparate biomes. *Ecosphere*, 13(3), p.e3992. <https://doi.org/10.1002/ecs2.3992>
- Robb, B.C., Olsoy, P.J., **Mitchell, J.J.**, Caughlin, T.T., Delparte, D.M., Galla, S.J., Fremgen-Tarantino, M.R., Nobler, J.D., Rachlow, J.L., Shipley, L.A. and Forbey, J.S., 2021. Near-infrared spectroscopy aids ecological restoration by classifying variation of taxonomy and phenology of a native shrub. *Restoration Ecology*, p.e13584. <https://doi.org/10.1111/rec.13584>
- Styers, D.M., Schafer, J.L., Kolozsvary, M.B., Brubaker, K.M., Scanga, S.E., Anderson, L.J., **Mitchell, J.J.** and Barnett, D., 2021. Developing a flexible learning activity on biodiversity and spatial scale concepts using open-access vegetation datasets from the National Ecological Observatory Network. *Ecology and Evolution*, 11(9), pp.3660-3671. <https://doi.org/10.1002/ece3.7385>
- Mcdade, B.*, Martin, D.J., Van De Gevel, S.L. and **Mitchell, J.**, 2020. Impacts of the Hemlock Woolly Adelgid (*Adelges tsugae*) on Headwater Stream Large Woody Debris Loads in the Southern Appalachian Mountains. *Southeastern Geographer*, 60(1), pp.65-86. <https://doi.org/10.1353/sgo.2020.0005>
- Dashti, H., Poley, A., F Glenn, N., Ilangakoon, N., Spaete, L., Roberts, D., Enterkine, J., N Flores, A., L Ustin, S. and **Mitchell, J.**, 2019. Regional Scale Dryland Vegetation Classification with an Integrated Lidar-Hyperspectral Approach. *Remote Sensing*, 11(18), p.2141. <https://doi.org/10.3390/rs11182141>
- Dashti, H., Glenn, N.F., Ustin, S., **Mitchell, J.J.**, Qi, Y., Ilangakoon, N.T., Flores, A.N., Silván-Cárdenas, J.L., Zhao, K., Spaete, L.P. and de Graaff, M.A., 2019. Empirical Methods for Remote Sensing of Nitrogen in Drylands May Lead to Unreliable Interpretation of Ecosystem Function. *IEEE Transactions on Geoscience and Remote Sensing*. <https://doi.org/10.1109/TGRS.2018.2889318>
- J. J. Mitchell**, N. F. Glenn, K. M. Dahlin, N. T. Ilangakoon, H. Dashti, and M. C. Maloney*, "Integrating Hyperspectral and LiDAR Data in the Study of Vegetation.," in *Hyperspectral Remote Sensing of Vegetation* (Volume I), II Ed., P. S. Thenkabail, J. G. Lyon, and A. Huete, Eds. London, New York: CRC Press- Taylor and Francis group, 2018, p. 449.
- Ilangakoon, N.T., Glenn, N.F., Dashti, H., Painter, T.H., Mikesell, T.D., Spaete, L.P., **Mitchell, J.J.** and Shannon, K., 2018. Constraining plant functional types in a semi-arid ecosystem with waveform lidar. *Remote Sensing of Environment*, 209, pp.497-509. <https://doi.org/10.1016/j.rse.2018.02.070>

- Glenn, N.F., L.P. Spaete, R. Shrestha, A. Li, N. Ilangakoon, **J. Mitchell**, S.L. Ustin, Y. Qi, H. Dashti, and K. Finan. 2017. *Shrubland Species Cover, Biometric, Carbon and Nitrogen Data, Southern Idaho, 2014*. ORNL DAAC, Oak Ridge, Tennessee, USA. [dataset]
<https://doi.org/10.3334/ORNLDAAC/1503>
- Olsoy, P.J., **Mitchell, J.**, Glenn, N.F. and Flores, A.N., 2017. [Assessing a Multi-Platform Data Fusion Technique in Capturing Spatiotemporal Dynamics of Heterogeneous Dryland Ecosystems in Topographically Complex Terrain](#). *Remote Sensing*, 9(10), p.981.
- Mitchell, J.** and McDade, B.* 2017. Direct and Remote Sensing. In J. Pine (Ed.) *Technology in Emergency Management*, 2nd edition, NJ: Hoboken, John Wiley & Sons, Inc.
- Li, A., Zhao, W., **Mitchell, J.**, Glenn, N., Germino, M., Sankey, J. and Allen, R. 2017. [Aerodynamic roughness length estimation with lidar and imaging spectroscopy in a shrub-dominated dryland](#). *Photogrammetric Engineering and Remote Sensing*, 83 (6), 415 – 427.
- Mitchell, J.** and McDade, B.* Direct and Remote Sensing. In J. Pine (Ed.) *Technology in Emergency Management*, 2nd edition, NJ: Hoboken, John Wiley & Sons, Inc., January 2017 contract deadline.
- Mitchell, J.**, Glenn, N., Anderson, M. and Hruska, R., 2016. [Flight Considerations and Hyperspectral Image Classifications for Dryland Vegetation Management from a Fixed-wing UAS](#). *Environmental Management and Sustainable Development*, 5(2), 41-57.
- Mitchell, J.J.**, Shrestha, R., Spaete, L.P. and Glenn, N.F., 2015. [Combining airborne hyperspectral and LiDAR data across local sites for upscaling shrubland structural information: Lessons for HyspIRI](#). *Remote Sensing of Environment*, 167, pp.98-110.
- Olsoy, P., **Mitchell, J.**, Glenn, N., Levia, D., and Clark, P. 2015. [Estimation of big sagebrush leaf area index with terrestrial laser scanning](#), *Ecological Indicators*, 61 (2), 815-821.
- Li, A., Glenn, N. F., Olsoy, P. J., **Mitchell, J. J.**, & Shrestha, R. 2015. [Aboveground biomass estimates of sagebrush using terrestrial and airborne LiDAR data in a dryland ecosystem](#). *Agricultural and Forest Meteorology*, 213, 138-147.
- Mitchell, J.**, Moore, C., and Glenn, N. 2013. [Single and multi-date Landsat classifications of basalt to support Soil Survey efforts](#), *Remote Sensing*, 5(10), 4857-4899.
- Hruska, R., **Mitchell, J.**, Anderson, M. and N. Glenn, N, Halford, A. and Baun, C. 2012. [Radiometric and geometric analysis of hyperspectral imagery acquired from an Unmanned Aerial Vehicle \(UAV\)](#), *Remote Sensing*, 4, 2736-2752.
- Mitchell, J.**, Glenn, N., Sankey, T., Derryberry, D. and Germino, M. 2012. [Hyperspectral remote sensing of sagebrush canopy nitrogen](#), *Remote Sensing of Environment*, 124, 217-223.
- Mitchell, J.**, Glenn, N., Sankey, T., Derryberry, D., Anderson, M. and Hruska, R. 2012. [Spectroscopic detection of Nitrogen concentrations in sagebrush: implications for hyperspectral remote sensing](#), *Remote Sensing Letters*, 3 (4), 285-294.
- Glenn, N., Sankey, T., Spaete, L. and **Mitchell, J.** 2011. [Errors in LiDAR-derived shrub height and crown area on sloped terrain](#), *Journal of Arid Environments*, 75 (4), 377-382.
- Spaete, L. P., Glenn, N. F., Derryberry, D. R., Sankey, T. T., **Mitchell, J.J.**, and Hardegree, S. P. 2011. [Vegetation and slope effects on accuracy of a LiDAR-derived DEM in the sagebrush steppe](#), *Remote Sensing Letters*, 2 (4), 317-326.
- Mitchell, J.**, Glenn, N., Sankey, T., and Derryberry, D., Anderson, M. and Hruska, R. 2011. [Sagebrush canopy height and shape estimations using small footprint LiDAR](#), *Photogrammetric Engineering and Remote Sensing*, 77 (5), 521 – 530.
- Mitchell, J. J.**, and Glenn, N. F. 2009. [Matched filter subpixel abundance estimates in mixture-tuned](#)

[matched filter classifications of leafy spurge \(*Euphorbia esula* L.\)](#). *International Journal of Remote Sensing*, 30(23), 6099-6119.

Mitchell, J., and Glenn, N. F. 2009. [Leafy Spurge \(*Euphorbia esula*\) Classification Performance Using Hyperspectral and Multispectral Sensors](#), *Rangeland Ecology and Management*, 62: 16-27.

PLANS AND REPORTS (PRIMARY EDITOR/AUTHOR)

Smith, H., Mitchell, J and Campbell, T. August 2014. Focal Habitat Feature Identification Project Report and Mapping for Teton County, Wyoming.

[Gros Ventre Campground Rehabilitation: Environmental Assessment/ Assessment of Effect](#). May 2009. Prepared for the National Park Service.

Mitchell, J. and Glenn, N. February 2009. Predictive mapping of cheatgrass (*Bromus tectorum*) with MaxEnt. Prepared for Idaho Bureau of Land Management, Boise, Idaho.

Rope, R. and Mitchell, J. February 2009. Anomaly detection analysis using cumulative growing degree day. Prepared for Idaho Bureau of Land Management, Boise, Idaho.

North Highway 89 Pathway Project Environmental Assessment prepared for Teton County, WY, National Elk Refuge, and Federal Transit Administration. February 2009.

National Park Service. 2004. [Fire Management Plan Environmental Assessment: Grand Teton National Park, WY](#). Prepared for the National Park Service

Reigel, C. J, Campbell, T. M., and Mitchell, J. J., 2003. [Jackson Hole Roadway and Wildlife Crossing Study](#). Biota Research and Consulting, Inc. and the Jackson Hole Wildlife Foundation, Jackson, Wyoming.

PRESENTATIONS

Yang D, Huang X, Nelson P, Low R, McBride S, Mitchell J. *A Meta-Learning Framework for Characterizing and Accessing Training Data for GLOBE Observer Program Land Cover Protocols*. 2022 AGU Fall Meeting, Chicago, December 12th -16th, 2022. Poster Presentation.

Yang D, Huang X, Nelson P, Low R, Mitchell J, McBride S. *Assessing the Accuracy of Land Cover Mapping Using Multi-Directional Views GLOBE Observer Images*. 2022 Pecora Annual Meeting. Denver, October 23 – 28, 2022. Invited Oral Presentation.

Yang D, Mitchell J, Farella M, Liu T, Ryan R, and Nancy Glenn. *Biodiversity Sensing: A NEON-based Approach toward a Regional Understanding of Spatial Vegetation Diversity in Northeastern U.S.* 2021 ESA Annual Meeting, August 2nd – 6th Virtual, 2021. Poster Presentation.

Yang D, Mitchell J, Rock R, Xu R, Tolbaske C, Hart M. *Spatial Vegetation Diversity Patterns from Stands to Regional Scales Incorporating Airborne Observatory Platform (AOP) Datasets with Satellite Data in Northeastern U.S.* 2020 AGU Annual Meeting, December 1st – 17th, 2020. Poster Presentation.

Farella, Martha M., Barnes, M., Breshears D. D., van Leeuwen, W. J.D., Mitchell, J. J., and Gallery, R. E. *High resolution landscape scale predictions of collective soil functioning*. 2021 AGU Fall Meeting 13-17 December, New Orleans, LA., USA.

Mitchell, J., Rock, R. and Shafron, E. *Mapping Techniques for Ventenata detection in Montana*. North American Invasive Species Management Association (NAISMA) 2021 Annual Conference (online), September 27 – 30, 2021.

Styers, D.M., J.L. Schafer, M.B. Kolozsvary, S.E. Scanga, K.M. Brubaker, L.J. Anderson, and J.J. Mitchell, and D. Barnett. *Teaching biodiversity and spatial scale concepts using open-access vegetation*

- datasets from the National Ecological Observatory Network (NEON)*. Presented at the Association of Southeastern Biologists Annual Meeting (online), March 24-26, 2021.
- Yang, D., Mitchell, J., Xu, R. *Enhancing Vegetation Biodiversity Estimates Based on Environmental Similarity across Scales: An Open-Source Strategy*. 2020 AGU Fall Meeting 1-17 December, San Francisco, CA, USA.
- Mitchell, J. *Spatial Analysis Lab Introductions and Invasive Grass Species Mapping*. Montana Weed Control Association (MWCA) 2021 Annual Conference January 15, 2021 Great Falls, MT, USA.
- Scanga, S., Styers, D., Anderson, L., Brubaker, K., Kolozsvary, M., Schafer, J., Barnett, D., Machado, J-L., Madritch, M., and Mitchell, J., 2019. *Macroscale Ecology in the Classroom: An EREN Partnership Using NEON Data*. The Northeast Natural History Conference. Springfield, MA, USA.
- Yang, D. and Mitchell, J.J., 2019, December. *Forest Mosaics: Spatial Vegetation Diversity Patterns from Stands to Regional Scales Incorporating Airborne Observatory Platform (AOP) Datasets with Satellite Data in Eastern US*. 2019 AGU Fall Meeting 9-13 December, San Francisco, CA, USA.
- Mitchell, J., Anderson, L., Scanga, S. E., Styers, D., Brubaker, K., Kolozsvary, M., Schafer, J., Machado, J-L, Madritch, Barnett, D., Hart, M and Tobalske, C. 2019. *Leveraging NEON Data to Investigate Remote Sensing of Biodiversity Variables*, 2019 NSF Macrosystems Biology PI Meeting, 15-17 May, Boulder, CO, USA.
- Dashti, H., Glenn, N.F., Ustin, S., Qi, Y., Ilangakoon, N., Mitchell, J., Flores, A.N. and De Graaff, M.A., 2018, December. *Remote sensing of canopy nitrogen content in drylands: challenges and solutions*. AGU Fall Meeting
- Mitchell, Jessica. *Remote Sensing for Heritage Program Applications*. 2018. National Heritage West Conference, 30 October, Fallen Leaf, CA, USA.
- Jessica Mitchell, Andrew Poley, Megan Maloney, Nayani Ilangakoon, Hamid Dashti, Yi Qi, Lucas Spaete, Susan Ustin, and Glenn, N. *Toward regional shrub biomass and uncertainty mapping in the western US using airborne lidar and imaging spectroscopy*. SilviLaser 2017, 10-12 October, Virginia Tech, Blacksburg, VA, USA.
- Mitchell, J., Glenn, N., Ilangakoon, N. *An overview of lidar for characterizing shrub structure in the western US*. 2016. US Regional Association of the International Association of Landscape Ecology 2016 Meeting, 3-7 April, Asheville, NC, USA.
- Mitchell, J., Glenn, N., Dashti, H., Finan, K., Spaete, L. and Flores, A. *A canopy level investigation of specific leaf area spectral responses from sagebrush shrublands in Reynolds Creek Experimental Watershed, Idaho, USA*. 2015. NASA Carbon Cycle and Ecosystems Joint Science Workshop, 20-24 April, College Park, MD, USA.
- Mitchell, J., Olsoy, P., Forbey, J., Glenn, F., Burgess, M., Rachlow, J. and Shipley, L. *Predicting forage foodsacpes with spectroscopy and unmanned aerial vehicle (UAV) imagery*. 2013 AGU Fall Meeting, 9-13 December, San Francisco, CA, USA.
- Mitchell, J., Shrestha, R., Spaete, L., and Glenn, N. *Combined airborne LiDAR and spectral satellite data for three-dimensional fuels mapping in sagebrush-steppe*. 2013 NASA HyspIRI workshop, 29-30 May, Greenbelt, MD, USA.
- Mitchell, J., Spaete, L., Glenn, N., Olsoy, P., Shrestha, R. and Glenn, N. *Optimal airborne Lidar and hyperspectral combination methods for improved quantification of sparse, low height vegetation cover*. 2013 ASPRS Annual Conference: Confluence by the Bay – A Gathering of Geospatial Insights, 24-28 March, Baltimore, MD, USA.
- Mitchell, J. J., Glenn, N. F., Anderson, M. O. and Hruska, R. C. *Unmanned aerial vehicle (UAV) hyperspectral remote sensing for dryland vegetation monitoring*. 2012 Whispers 4th Workshop on

Hyperspectral Image and Signal Processing: Evolution in Remote Sensing. Shanghai, China.

Mitchell, J., Hruska, R., Anderson, M., and Glenn, N. *HyspIRI validation with unmanned aerial vehicle remote sensing*, 2011 NASA HyspIRI Science Workshop, 23-25 August 2011, Washington, DC, USA.

Mitchell, J., Glenn, N.F., Sankey, T., Anderson, M.O., Hruska, R., *Hyperspectral remote sensing of sagebrush canopy nitrogen*, 34th International Symposium on Remote Sensing of Environment, Sydney, Australia, April 2011.

Student Fellowships and Awards

NEON Early Career Travel Award –Ecological Society of America, \$1,500, Di Yang, NEON Summit, Earth Lab, University of Colorado Boulder, Boulder, Colorado, October 15-16, 2019.

Microsoft Azure AI Compute Grant for incorporating citizen science into monitoring long-term biodiversity dynamics, Di Yang, 2019.

NASA Develop National Program, Megan Maloney, NASA Goddard Space Flight Center. Summer 2018
SAFE Student Grant, \$1700 Megan Maloney, Hughlene and Bill Frank Endowment, The College of Arts and Sciences Dean's Office. 2017 Summer Support.

Graduate Research Associate Mentoring Program (GRAM), Mitchell, J. \$24,000 in graduate student support of faculty research (August 2015 – May 2017).

North Carolina Space Grant Consortium Undergraduate Research Scholarship, \$5,000, Lauren Anderson. 2014 Summer Support.

WORKSHOPS

PI Jessica Mitchell (University Montana), **Broadening the Use of NASA Datasets by the Species Distribution Modeling Community**, January 6th, 11th, 13th, 20th and Feb. 3rd, 4th, 2022. NASA Understanding User Needs to Broaden Outside Use of NASA Data (UNBOUND) Program (21-TWSC21-0005; Grant No. 80NSSC21K1984).

PI Jessica Mitchell (University of Montana), invited instructor: Ryan Rock, [Introduction to Lidar Workshop](#), presented at the Big Sky GeoCon, April 6, 2021 and April 4, 2022.

PI and instructor: Jessica Mitchell (University Montana), invited instructors: Laurel Andersen (Ohio Wesleyan University), Michael Madritch (Appalachian State University), Megan Jones (NEON), *Macrosystems Biology Workshop II: Mapping Biodiversity Indicators with NEON Data*, October 2019, Swathmore College, 10 Ecological Research as Education Network (EREN) 10 Participants for 3 days.

PI and instructor: Jessica Mitchell (University Montana), invited instructors: Laurel Andersen (Ohio Wesleyan University), Michael Madritch (Appalachian State University), David Barnett (NEON), [Macrosystems Biology Workshop I: Calculating Diversity Metrics with NEON Field Data](#), July 2018, Appalachian State University, 10 Ecological Research as Education Network ([EREN](#)) 10 Participants for 3 days.

PI and instructor: Nancy Glenn (Boise State), invited instructors: Jessica Mitchell (Appalachian State University),), Dar Roberts (UC Santa Barbara), Yi Qi (UC Davis), Nathan Leisso (NEON), [Mapping Species Composition \(foliar chemistry\) and Soil Properties with Properties with Spectroscopy](#), August 2016, Boise State University, NSF-NEON, 25 students for 3 days.

TRAINING

2017 Lidar Full Waveform Lidar Analysis, *NSF NEON Workshop, Blacksburg, Va.*

2015 CAMO UnScrambler Chemometrics and Multivariate Analysis for Spectroscopy Data, *Camo Inc., Newark, NJ.*

- 2013 Ecosystem Demography Modeling Workshop, *Moorcroft Laboratory Harvard University, Lawrence Berkeley National Lab, Berkeley, CA.*
- 2007 Subsurface science intensive (i.e., subsurface architecture, vadose zone processes, microbial and geochemical processes for in situ remediation, contaminant fate and transport, geophysical data collection and interpretation), *Inland Northwest Research Alliance*
- 2003 NEPA: Assessing Cultural Resource Impacts, *National Park Service, Grand Teton National Park, Moose, WY*
- 2000 Preparation and presentation of policy reports for Maryland Transportation Commission Smart Growth Task Force (Intern Fellowship), *Maryland Department of Transportation*

SERVICE AND AWARDS

The Montana Land Cover Working Group, Lead member, 2020-2022

NASA Surface, Biology and Geology (SBG) Technical Working Group, Member, 2018

NSF Macrosystem Biology PI Meeting Organizing Committee, Member, 2018-2020

The Montana Elevation Working Group, Advisor, 2018-2020

NSF Division of Environmental Biology Proposal Reviewer, October 2017, Feb., 2021, March 2022

Division of Integrative Organismal Systems Core Programs Proposal Reviewer, Feb. 2021

NASA Earth and Space Science Fellowship (NESSF) Proposal Reviewer, April 2017

NSF Geography and Spatial Sciences Proposal Reviewer, November 2016

NASA Carbon Cycle Science Review Panelist, Artic / Boreal and Tropical Forests programs, October, 2016

Invited Special Symposia Convener, US Regional Association of the International Association of Landscape Ecology 2016 Meeting, April 3-7, Asheville, NC. Session: LiDAR Techniques for Advancing Applications in Landscape Ecology.

Sessions Moderator (Technical and Commercial), 2013, ASPRS Annual Conference: Confluence by the Bay – A Gathering of Geospatial Insights, March 24-28th, Baltimore, MD

Peer-Reviewer, Great Basin Landscape Conservation Cooperative (GBCC) proposal round (1) National Science Foundation Proposal, Geography and Spatial Sciences Program (1) PLOS ONE (1), International Journal of Remote Sensing (4), Digital Earth (2), Journal Applied Remote Sensing (3), Precision Agriculture (2), Native Plant Journal (1), Remote Sensing of Environment (2), Remote Sensing (2), Environmental Management (1), IEEE JSTARS (2), Remote Sensing in Ecology and Conservation (1), Canadian Journal of Remote Sensing (1), European Journal of Forest Research (1), PEERJ (1)

Dissertation Committee Member, Marie Johnson, PhD Candidate, A Multidimensional Framework to Estimate Ecosystem Resilience to Forest Fire

Poster Award, 2010, ASD and IEEE Reflectance Spectroscopy Symposium, Boulder, CO

Most Helpful Faculty & Staff Award, Appalachian State University, 2015 - 2016

Dissertation Committee Member, Martha Gebhardt, PhD in Natural Resource Management, University of Arizona: Shrub encroachment alters ecosystem processes: Linking imaging spectroscopy and microbial biogeochemistry, August 2020.

Thesis Committee Member, Brecken Robb, MS in Biology, Boise State University, August 2020.

Thesis Committee Chair, Megan Maloney, MA in Geography, Appalachian State University: [A comparison of methods for scaling field data for use in mapping dryland ecosystem vegetation with airborne imaging spectroscopy](#), August 2017

Thesis Committee Member, James Balcombe, MA in Geography, Appalachian State University: Structure-from-motion based vegetation modeling and shade estimation, May 2015

Thesis Committee Member, Michael Orefice, MS in Geology, University of Delaware: Quantifying geomorphic change to a point bar in response to high flow events using terrestrial lidar, White Clay Creek, DE. June, 2015

Dissertation Committee Member, Farzana Atique, PhD in Transportation Engineering, University of Delaware: Copula Vine Approach in Pipe Condition Monitoring, May 2014

PROFESSIONAL AFFILIATIONS

American Society of Photogrammetry and Remote Sensing

American Geophysical Union

Association of American Geographers

Society of Rangeland Management

Ecological Society of America

American Forestry Association

Montana Association of Geographic Information Professionals