# Andrew J. Maguire

Curriculum Vitae, February 2022
andrew.j.maguire@jpl.nasa.gov

## EDUCATION

PhD in Natural Resources — August 2016 – December 2020
Department of Natural Resources and Society
University of Idaho, Moscow, ID
Advisors: Dr. Jan Eitel and Dr. Lee Vierling
Dissertation: *Assessing the Ecophysiological and Environmental Drivers of Chlorophyll Fluorescence in Boreal Ecosystems Toward Understanding Photosynthetic Function*

MS in Wildlife and Conservation Biology — September 2013 – December 2015
Department of Natural Resources and the Environment
University of New Hampshire, Durham, NH
Advisor: Dr. Rebecca Rowe
Thesis: *Space use and habitat affinities of the singing vole on the northern foothills of the Brooks Range, Alaska*

BA in Biology, Environmental Science — September 2007 – May 2011
Colby College, Waterville, ME
Study abroad with The School for Field Studies, QLD, Australia — June 2009 – August 2009

## PROFESSIONAL EXPERIENCE

Fellow, NASA Postdoctoral Program — January 2021 – *present*
Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

Research Assistant — June 2018 – January 2021
University of Idaho, McCall Outdoor Science School, McCall, ID

Visiting Researcher — August 2019
Norwegian University of Life Sciences (NMBU), Ås, Norway

Research Assistant — June 2016 – May 2018
University of Idaho, Moscow, ID

Visiting Naturalist — May 2016
Montana Natural History Center, Missoula, MT

Research Assistant — May 2013 – December 2015
University of New Hampshire, Durham, NH

Data and Research Technician — November 2012 – May 2013
1% For The Planet (*non-profit*), Waitsfield, VT

Conservation and Land Management Intern — March – August 2012
Bureau of Land Management, Arcata, CA

Database Developer, Inventory & Monitoring Assistant — June – December 2011
National Park Service, Fort Collins, CO

## PUBLICATIONS (*published, in press, accepted*)

Pierrat, Z.A., T.S. Magney, N.C. Parazoo, K. Grossmann, D.R. Bowling, U. Seibt, B. Johnson, W. Helgason, A. Barr, J. Bortnik, A. Norton, **A.J. Maguire**, C. Frankenberg, and J. Stutz. **2022**. Diurnal and seasonal dynamics of solar-induced chlorophyll fluorescence, vegetation indices, and gross primary productivity in the boreal forest. *Journal of Geophysical Research: Biogeosciences*, 127: e2021JG006588. *https://doi.org/ 10.1029/2021JG006588*

Nelson, P.R[*]., **A.J. Maguire[*]**, Z. Pierrat, E.L. Orcutt, D. Yang, S. Serbin, G.V. Frost, M.J. Macander, T.S. Magney, D.R. Thompson, J.A. Wang, S.F. Oberbauer, S. Vargas Zesati, S.J. Davidson, H.E. Epstein, S. Unger, P.K.E. Campbell, N. Carmon, M. Velez-Reyes, and K.F. Huemmrich. **2022**. Remote Sensing of Tundra Ecosystems using High Spectral Resolution Reflectance: Opportunities and Challenges. *Journal of Geophysical Research: Biogeosciences*, 127: e2021JG006697. *https://doi.org/10.1029/2021JG006697*

**PRN & **AJM** contributed equally*

**Maguire, A.J.**, J.U.H. Eitel, T.S. Magney, C. Frankenberg, P. Köhler, E.L. Orcutt, N.C. Parazoo, R. Pavlick, and Z.A. Pierrat. **2021**. Spatial covariation between solar-induced fluorescence and vegetation indices from Arctic-Boreal landscapes. *Environmental Research Letters*, 16(9): 095002 *https://doi.org/10.1088/1748-9326/ac188a*

Jennewein, J.S., J.U.H. Eitel, K. Joly, R.A. Long, **A.J. Maguire**, L.A. Vierling, W.A. Weygint. **2021**. Estimating integrated measures of forage nutritional quality for herbivores by fusing optical and structural remote sensing data. *Environmental Research Letters*, 16(7) *https://doi.org/10.1088/1748-9326/ac09af*

**Maguire, A.J.**, J.U.H. Eitel, K.L. Griffin, T.S. Magney, R.A. Long, L.A. Vierling, S.C. Schmiege, J.S. Jennewein, W.A. Weygint, N.T. Boelman, and S.G. Bruner. **2020**. On the functional relationship between fluorescence and photochemical yields in complex evergreen needleleaf canopies. *Geophysical Research Letters*, 47(9) *https://doi.org/10.1029/2020GL087858*

Eitel, J.U.H., K.L. Griffin, N.T. Boelman, **A.J. Maguire**, A.J.H. Meddens, J.E. Jensen, L.A. Vierling, S.C. Schmiege, and J.S. Jennewein. **2020**. Foliar remote sensing tracks daily radial tree growth dynamics of evergreen needleleaf trees throughout the growing season. *Global Change Biology*, 26(7): 4068-4078. *https://doi.org/10.1111/gcb.15112*

Russell, M.T., J.U.H. Eitel, **A.J. Maguire**, and T.E. Link. **2020**. Toward a novel laser-based approach for validating snow interception estimates. *Remote Sensing*, 12(7): 1146 *https://doi.org/10.3390/rs12071146*

**Maguire, A.J.**, J.U.H. Eitel, L.A. Vierling, D.M. Johnson, K.L. Griffin, N.T. Boelman, J.E. Jensen, H.E. Greaves, A.J.H. Meddens. **2019**. Terrestrial lidar scanning reveals fine-scale linkages between microstructure and photosynthetic functioning of small-stature spruce trees at the forest-tundra ecotone. *Agricultural and Forest Meteorology*, 269-270: 157-168. *https://doi.org/10.1016/j.agrformet.2019.02.019*

Eitel, J.U.H., **A.J. Maguire**, N.T. Boelman, L.A. Vierling, K.L. Griffin, J.E. Jensen, T.S. Magney, P.J. Mahoney, A.J.H. Meddens, C.A. Silva, O.S. Sonnentag. **2019**. Proximal remote sensing of tree physiology at northern treeline: Do late-season changes in the photochemical reflectance index (PRI) respond to climate or photoperiod? *Remote Sensing*

*of Environment*, 221: 340-350. https://doi.org/10.1016/j.rse.2018.11.022

**Maguire, A. J.** and R.J. Rowe. **2017**. Home range and habitat affinity of the singing vole on the North Slope of Alaska. *Arctic, Antarctic, and Alpine Research*, 49: 239-253. https://doi.org/10.1657/AAAR0016-035

## MANUSCRIPTS (*in review*, *in revision*, and *in preparation for submission by 12/31/2021*)

Weygint, W.A., J.U.H. Eitel, **A.J. Maguire**, L.A. Vierling, K.L. Griffin, N.T. Boelman, and J.E. Jensen. Determining the suitability of remotely sensed snow disappearance date as a proxy for the onset of tree wood growth in conifers at the forest-tundra ecotone. *in revision*.

Weygint, W.A., J.U.H. Eitel, L.A. Vierling, D.M. Johnson, C. Campbell, **A.J. Maguire**, and K.L. Griffin. Linkages Between Conifer Leaf Temperatures and Stem Radial Variations in Forests of the Intermountain West. *in preparation*.

Orcutt, E.L., *et al*. including **A.J. Maguire**. Utility of instantaneous and repeated airborne reflectance and fluorescence for predicting GPP in the ABoVE Domain. *in preparation* for *Environmental Research Letters*.

**Maguire, A.J.**, N.C. Parazoo, *et al*. Divergence among spaceborne observations of photosynthetic phenology across the pan-boreal domain. *in preparation*.

**Maguire, A.J.**, J.U.H. Eitel, E. Naesset, O.M. Bollandsås, *et al*. Linking seasonal soil temperature dynamics with remotely sensed canopy structure and terrain attributes at boreal forest-tundra ecotone sites. *in preparation*.

## DATA PRODUCTS

**Maguire, A.J.**, J.U.H Eitel, K.L. Griffin, S.C. Schmiege, S.G. Bruner, N.T. Boelman, and W.A. Weygint. 2020. Needle-level chlorophyll fluorescence and irradiance, AK and ID, 2017-2019. ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/1785

**Maguire, A.J.**, J.U.H Eitel, L.A. Vierling, N.T. Boelman, K.L. Griffin, J.S. Jennewein, and J.E. Jensen. 2020. Terrestrial lidar scanning of forest-tundra ecotone canopy and terrain structure. ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/1782

Eitel, J.U.H., **A.J. Maguire**, K.L. Griffin, N.T. Boelman, J.E. Jensen, S.C. Schmiege, and L.A. Vierling. 2020. ABoVE: Photochemical Reflectance and Tree Growth, Brooks Range, Alaska, 2018-2019. ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/1781

## PRESENTATIONS

**Maguire, A.J.**, N.C. Parazoo, Z.A. Pierrat, R. Cheng, P. Köhler, E.L. Orcutt, T.S. Magney, and C. Frankenberg. Divergence among spaceborne observations of photosynthetic phenology across the pan-boreal domain. Oral presentation at American Geophysical Union Fall Meeting, New Orleans, LA, December 2021.

Orcutt, E.L., C. Frankenberg, H. Chu, K.A. Arndt, E.S. Euskirchen, G.H. Gosselin, M. Helbig, **A.J. Maguire**, P. Marsh, G. Meyer, W. Oechel, R. Pavlick, W. Quinton, A.V. Rocha, C. Schulze, O. Sonnentag, D. Zona, and T.S. Magney. Footprints in the tundra: Considerations for linking remote sensing observations with flux tower data in the Arctic-Boreal Zone. Oral presentation at American Geophysical Union Fall Meeting, New Orleans, LA, December 2021.

Pierrat, Z.A., T.S. Magney, D.R. Bowling, U. Seibt, K. Grossmann, **A.J. Maguire**, J. Bortnik, B. Johnson, W. Helgason, A. Barr, C. Frankenberg, N.C. Parazoo, J. Stutz. Physical and ecophysiological controls on the relationship between solar-induced chlorophyll fluorescence and gross primary productivity across diurnal and seasonal scales in the boreal forest. Poster presentation at American Geophysical Union Fall Meeting, New Orleans, LA, December 2021.

Pierrat, Z.A., A. Norton, L.B. Monk, N.C. Parazoo, **A.J. Maguire**, K. Grossmann, T.S. Magney, A. Barr, B. Johnson, and J. Stutz. Radiative transfer and viewing geometry considerations for remote sensing as a proxy for carbon uptake in boreal ecosystems. Oral at American Geophysical Union Fall Meeting, New Orleans, LA, December 2021.

Weygint, W.A., J.U.H. Eitel, **A.J. Maguire**, L.A. Vierling, D.M. Johnson, C. Campbell, K.L. Griffin. Physiological linkages between conifer leaf temperatures and daily tree wood growth: Implications for thermal remote sensing products. E-lightning poster presentation at American Geophysical Union Fall Meeting, New Orleans, LA, December 2021.

**Maguire, A.J.** Tracking photosynthetic phenology in the boreal domain from space. Oral presentation at Jet Propulsion Laboratory 'Carbon Club' (virtual), November 4, 2021.

**Maguire, A.J.**, J.U.H. Eitel, T.S. Magney, C. Frankenberg, P. Köhler, E.L. Orcutt, N.C. Parazoo, R. Pavlick, and Z.A. Pierrat. Spatial covariation between solar-induced fluorescence and vegetation indices from Arctic-Boreal landscapes. Oral presentation at NASA ABoVE Science Team Meeting (virtual), May 2021.

Pierrat, Z.A., T.S. Magney, D.R. Bowling, U. Seibt, K. Grossmann, **A.J. Maguire**, J. Bortnik, B. Johnson, W. Helgason, A. Barr, C. Frankenberg, N.C. Parazoo, J. Stutz. A mechanistic explanation for linearity and non-linearity between SIF and GPP at varying temporal scales. Oral presentation at NASA ABoVE Science Team Meeting (virtual), May 2021.

Jensen, J.E., K.L. Griffin, J.U.H. Eitel, N.T. Boelman, L.A. Vierling, and **A.J. Maguire**. The influence of environmental variables on intra-seasonal radial stem growth dynamics at the Arctic forest-tundra ecotone using point dendrometers. Oral presentation at American Geophysical Union Fall Meeting (virtual), December 2020.

Jennewein, J.S., J.U.H. Eitel, K. Joly, R.A. Long, **A.J. Maguire**, L.A. Vierling, and W.A. Weygint. Estimating integrated measures of forage nutritional quality for herbivores in northcentral Alaska by fusing optical and structural remote sensing data. Oral presentation at American Geophysical Union Fall Meeting (virtual), December 2020.

**Maguire, A.J.**, J.U.H. Eitel, T.S. Magney, C. Frankenberg, E.L. Orcutt, N.C. Parazoo, R. Pavlick, Z.A. Pierrat, and P.A. Townsend. Mechanistic drivers of canopy-scale spatial patterns in solar induced fluorescence from boreal forests. Oral presentation at American Geophysical Union Fall Meeting (virtual), December 2020.

Orcutt, E.L., T.S. Magney, K.A. Arndt, E.S. Euskirchen, C. Florian, G.H. Gosselin, M. Helbig,

H. Ikawa, H. Kobayashi, **A.J. Maguire**, et al. The impact of spatial and temporal aggregation on the relationships among SIF, GPP, and hyperspectral reflectance using airborne data. Oral presentation at American Geophysical Union Fall Meeting (virtual), December 2020.

Pierrat, Z.A., A. Norton, N.C. Parazoo, **A.J. Maguire**, K. Grossmann, T.S. Magney, A. Barr, B. Johnson, and J. Stutz. Radiative transfer and viewing geometry considerations for the SIF/GPP relationship. Poster presentation at American Geophysical Union Fall Meeting (virtual), December 2020.

Weygint, W.A., J.U.H. Eitel, N.T. Boelman, J.E. Jensen, K.L. Griffin, **A.J. Maguire**, and L.A. Vierling. Determining the suitability of remotely sensed snow disappearance date as a proxy for the onset of stem radial growth in conifers at the forest-tundra ecotone. Poster presentation at American Geophysical Union Fall Meeting (virtual), December 2020.

**Maguire, A.J.** Optical signals and bioclimatic drivers of photosynthesis in evergreen needleleaf forests. Oral presentation at Jet Propulsion Laboratory 'Carbon Club' (virtual), July 9, 2020 (*invited*).

**Maguire, A.J.**, J.U.H. Eitel, T.S. Magney, and C. Frankenberg. Canopy solar induced chlorophyll fluorescence at the forest-tundra ecotone: Examining patterns and trends with CFIS, AVIRIS, and canopy illumination models. Poster at 6$^{th}$ ABoVE Science Team Meeting (virtual), June 2020.

J.U.H. Eitel, K.L. Griffin, N.T. Boelman, J.E. Jensen, A.J.H. Meddens, J.E. Jensen, L.A. Vierling, **A.J. Maguire**, S.C. Schmiege, and J.S. Jennewein. Remote sensing of intra-annual tree growth dynamics in a boreal forest. Oral presentation at American Geophysical Union Fall Meeting, San Francisco, CA, December 2019.

**Maguire, A.J.**, J.U.H. Eitel, K.L. Griffin, T.S. Magney, R.A. Long, N.T. Boelman, S.G. Bruner, J.S. Jennewein, J.E. Jensen, S.C. Schmiege, L.A. Vierling, and W.A. Weygint. Assessing the sensitivity of shoot-level chlorophyll fluorescence to scalable proxies of absorbed radiation in an evergreen needleleaf forest. Poster at American Geophysical Union Fall Meeting, San Francisco, CA, December 2019.

**Maguire, A.J.**, J.U.H. Eitel, L.A. Vierling, T.S. Magney, and K.L. Griffin. Toward an improved understanding of the mechanisms driving solar induced chlorophyll fluorescence across the structurally complex forest-tundra ecotone. Poster at NASA Terrestrial Ecology Science Team meeting, College Park, MD, September 2019 (*invited*).

**Maguire, A.J.** Toward an improved understanding of the mechanisms driving solar induced chlorophyll fluorescence across the structurally complex forest-tundra ecotone. Lightning talk at NASA Terrestrial Ecology Science Team meeting, College Park, MD, September 2019 (*invited*).

Eitel, J.U.H., **A.J. Maguire**, N.T. Boelman, L.A. Vierling, K.L. Griffin, J.E. Jensen, T.S. Magney, P.J. Mahoney, A.J.H. Meddens, C.A. Silva, and O.S. Sonnentag. Evaluating the potential of fall trends in photochemical reflectance index (PRI) time-series to improve understanding of climate change effects at northern treeline. Oral presentation at American Geophysical Union Fall Meeting, Washington, DC, December 2018.

Jensen, J.E., **A.J. Maguire**, R. Oelkers, L. Andreu, N.T. Boelman, R. D'Arrigo, K.L. Griffin, C.A. Silva, J.S. Jennewein, A.J.H. Meddens, M.T. Russell, L.A. Vierling, and J.U.H. Eitel.

Using aerial lidar to understand the role of climate and herbivory in shaping forest demographics at the Arctic forest-tundra ecotone. Oral presentation at American Geophysical Union Fall Meeting, Washington, DC, December 2018.

**Maguire, A.J.**, J.U.H. Eitel, K.L. Griffin, T.S. Magney, N.T. Boelman, L.A. Vierling, S.C. Schmiege, S.G. Bruner, J.E. Jensen, and E. Hiers. Assessing the sensitivity of chlorophyll fluorescence to complex canopy structure at the forest-tundra ecotone of North America: toward remotely sensing light use efficiency dynamics. Poster at American Geophysical Union Fall Meeting, Washington, DC, December 2018.

Russell, M.T., J.U.H. Eitel, **A.J. Maguire**, and T.E. Link. Novel laser-based approach for mapping snow interception at high spatial and temporal resolution. Poster at American Geophysical Union Fall Meeting, Washington, DC, December 2018.

Jensen, J. E., **A.J. Maguire**, R. Oelkers, L. Andreu, N.T. Boelman, R. D'Arrigo, K.L. Griffin, C.A. Silva, J.S. Jennewein, A.J.H. Meddens, M.T. Russell, L.A. Vierling, and J.U.H. Eitel. Towards lidar-based mapping of tree-age at the Forest Tundra Ecotone. Poster at NASA Arctic Boreal Vulnerability Experiment meeting, Seattle, WA, January 2018.

**Maguire, A.J.**, J.U.H. Eitel, L.A. Vierling, D.M. Johnson, K.L. Griffin, N.T. Boelman, J.E. Jensen, and A.J.H Meddens. 2018. Terrestrial lidar and chlorophyll fluorescence reveal structure-to-function relationships of spruce saplings at the forest-tundra ecotone. Poster at the NASA Arctic Boreal Vulnerability Experiment meeting, Seattle, WA, January 2018.

Jensen, J. E., **A.J. Maguire**, R. Oelkers, L. Andreu, N.T. Boelman, R. D'Arrigo, K.L. Griffin, J.S. Jennewein, A.J.H. Meddens, M.T. Russell, L.A. Vierling, and J.U.H. Eitel. Towards lidar-based mapping of tree age at the Forest Tundra Ecotone. Poster at American Geophysical Union Fall Meeting, New Orleans, LA, December 2017.

**Maguire, A.J.**, J.U.H. Eitel, L.A. Vierling, D.M. Johnson, K.L. Griffin, N.T. Boelman, J.E. Jensen, and E. Hiers. Using terrestrial lidar to elucidate structure-to-function relationships of spruce saplings at the forest-tundra ecotone. Poster at American Geophysical Union Fall Meeting, New Orleans, LA, December 2017.

**Maguire, A.J.**, N.T. Boelman, K.L. Griffin, J.E. Jensen, D.M. Johnson, L.A. Vierling, and J.U.H. Eitel. Characterizing the structural growth environment of successfully established spruce seedlings at northern treeline using lidar. Poster at Ecological Society of America meeting, Portland, OR, August 2017.

Eitel, J.U.H., N.T. Boelman, K.L. Griffin, L.A. Vierling, J.E. Jensen, **A.J. Maguire**, J.S. Jennewein, A.J.H. Meddens, and M.T. Russell. LiDAR, passive spectral, and ecophysiological approaches to link forest tundra ecotone structure and function. Poster at NASA Arctic Boreal Vulnerability Experiment meeting, Boulder, CO, USA, January 2017.

Jensen, J. E., **A.J. Maguire**, R. Oelkers, L. Andreu, N., Boelman, R. D'Arrigo, K. Griffin, J. Jennewein, A.J.H. Meddens, M. Russell, L. Vierling, and J.U.H. Eitel. 2017. Chasing Treeline: Reconstructing the history of the Forest-Tundra Ecotone using lidar-derived tree height. Poster at NASA Arctic Boreal Vulnerability Experiment meeting, Boulder, CO, USA, January 2017.

**Maguire, A.J.**, J.U.H. Eitel, L.A. Vierling, and A.J.H. Meddens. Evaluating relationships between seedling establishment and microtopography at the Forest-Tundra Ecotone using terrestrial lidar. Poster at NASA Arctic Boreal Vulnerability Experiment meeting, Boulder,

CO, USA, January 2017.

Meddens, A.J.H., L.A. Vierling, J.U.H. Eitel, J.S. Jennewein, and **A.J. Maguire**. Characterizing and evaluating the Arctic Digital Elevation Model product with LiDAR data for spatial modeling. Poster at NASA Arctic Boreal Vulnerability Experiment meeting, Boulder, CO, USA, January 2017.

## GRANTS & AWARDS

Future Investigators in NASA Earth and Space Science and Technology (FINESST) award September 2019-August 2021 (**$90,000**)

College of Natural Resources PhD Finishing Fellowship (**$10,588**), August 2019, University of Idaho (*declined*)

Travel Grant (**$700** each) ’17, ’18, ’19, & ’20. Grad. and Prof. Students Assoc., University of Idaho

College of Natural Resources Graduate Fellowship (in-state tuition waiver, **$4,653**), Fall 2018, University of Idaho

Summer Teaching Assistant Fellowship (**$3,150**), Summer 2014, University of New Hampshire

## TEACHING & MENTORING

**University of Idaho,** McCall Field Campus, McCall, ID

*Lead instructor*: Intro. to R: Data analysis and visualization (workshop, NRS 503), Sep 2019.
*Co-instructor*: Data visualization in R using ‘shiny’ and ‘ggplot2’ (workshop), Feb 2020.
*Co-instructor*: Intro. to R: Data analysis and visualization (workshop, NRS 503), Sep 2018.
*Teaching assistant*: Place-based Ecology (NRS 560). Masters-level course, Fall 2018.
*Mentoring*: William Weygint (MS student, December 2020 – *present*)
*Advising*: Place-based Ecology (NRS 560). Advised masters-level class research projects for three students, Fall 2019.

**Montana Natural History Center,** Missoula, MT

*Visiting Naturalist*: Taught $4^{th}$ – $5^{th}$ graders ecology during day long field trips, May 2016.

**University of New Hampshire,** Durham, NH

*Field Technician Mentor*: Managed and trained five technicians over three summers in small mammal ecology research at Toolik Field Station, AK, Jul 2013 – Jul 2015.
*Teaching Assistant*: Instructed two lab sections of Wildlife Ecol. at UNH, Sep – Dec 2013.

## OUTREACH

Guest presentation on NASA Earth science to $7^{th}$ grade class at Boerum Hill School for International Studies, Brooklyn, NY, June 2021 (virtual).

Guest lecture on applications of vegetation remote sensing to graduate level GIS and remote sensing class at Western Colorado University, February 2021 (virtual).

Featured research in scientific communication blog, March 2020. https://fieldnotes-mccall.blogspot.com/2020/03/how-much-do-trees-breathe.html?m=1

Instructed 15 high school biology students on integrating proximal remote sensing for tree ecophysiology, and global carbon cycle monitoring, October 2018 – February 2020, McCall, ID.

Instructed 50 high school students from the Nez Perce Reservation remote sensing and UAV applications of natural resource management (via NSF-funded project; PI: Karla Eitel), July 2018 & 2019, McCall, ID.

Public presentation of dissertation research at community event, April 2018, Moscow, ID.

## HONORS

*Outstanding graduate student*, Dept. of Natural Resources and Society, University of Idaho, 2020

## PROFESSIONAL SERVICE

Co-convener and Outstanding Student Presentation Award liason for session at American Geophysical Union Fall Meeting 2021 entitled, "Forest Ecophysiology: Forest Physiological and Ecological Processes from Molecules to Ecosystems"

American Geophysical Union Outstanding Student Presentation Award volunteer judge, 2021

Journal Reviewer:
*Remote Sensing of Environment*
*Global Change Biology*
*Journal of Geophysical Research: Biogeosciences*
*Environmental Research Letters*
*Remote Sensing*

Dept. Senator, Graduate and Professional Students Association, University of Idaho, Fall 2017

## PROFESSIONAL SOCIETY MEMBERSHIPS

American Geophysical Union. Member since 2017.

Ecological Society of America. Member since 2017.

## PROFESSIONAL DEVELOPMENT

Workshop on analytical techniques in spatial ecology September 2014
Smithsonian-Mason School of Conservation, Front Royal, VA

## TECHNICAL SKILLS

Programming and data analysis software:
R, QGIS, ArcGIS, Cyclone (lidar processing), CloudCompare (lidar processing)

Statistical modeling:

- Regression, Random Forest (machine learning)

Remote sensing (optical and structural):

- Analyzing airborne and spaceborne solar induced fluorescence (e.g., CFIS, TROPOMI) and spectral reflectance (e.g., AVIRIS-NG, MODIS) data products
- Processing and analyzing terrestrial and airborne lidar acquisitions

Field research:

- Terrestrial lidar scanning instruments
- Installation and maintenance of meteorological (air and soil) and ecophysiological (e.g., foliar spectroradiometers, point dendrometers, sap flux sensors) instruments
- Piloting UAVs for canopy imaging