

# CURRICULUM VITAE

University of Idaho

NAME: Jan U.H.Eitel

DATE: 01/04/2024

RANK OR TITLE: AssociateProfessor

DEPARTMENT: Natural Resources and Society

OFFICE LOCATION AND CAMPUS ZIP: McCall Field Campus

OFFICE PHONE: (208) 596 9277

FAX: (208) 8857952

EMAIL: jeitel@uidaho.edu

WEB: <https://www.uidaho.edu/cnr/faculty/eitel>

DATE OF FIRST EMPLOYMENT AT UI: 2009

DATE OF TENURE:

Idaho, Moscow, Idaho  
 2010 Science Faculty, McCall Outdoor Science School, University of Idaho Field Campus, McCall, Idaho  
 2010-2012 Research Scientist, Department of Forest Ecology and Biogeosciences, University of Idaho, Moscow, Idaho  
 2009-2010 Postdoctoral Scholar, Department of Forest Ecology and Biogeosciences, University of Idaho, Moscow, Idaho  
 2006-2008 Research and Teaching Assistant (PhD), Department of Forest Resources, University of Idaho, Moscow, Idaho  
 2006-2008 Research Assistant, Agricultural Research Service, Columbia Plateau Grassland Research Center, Pendleton, Oregon

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Eli Estey, PhD student, University of Idaho, major advisor, 2021-current  
 Joanna Jensen, PhD student, Columbia University, committee member, 2018-2023  
 Sarah Bruner, PhD student, Columbia University, committee member, 2020-2023  
 Amanda Villwock, MS student, University of Idaho, committee member, 2020-2023  
 William Weygint, MS student, University of Idaho, major advisor, 2020-2022  
 Josh Miller, MNR student, University of Idaho, major advisor, 2020-2021  
 Dylan Porter, MNR student, University of Idaho, major advisor, 2020-2021  
 Andrew Maguire, PhD student, University of Idaho, major advisor, 2016-2020  
 Micah Russell, PhD student, University of Idaho, major advisor, 2016-2020  
 Jyoti Jennewein, PhD student, University of Idaho, major advisor, 2016-2020  
 Heather Greaves, PhD student, University of Idaho, major advisor, 2013-2017  
 Sarah Gould Bruner, PhD student, Columbia University, committee member, 2019-current  
 Johanna Jensen, PhD student, Columbia University, committee member, 2016-current  
 Erik Boren, PhD student, University of Idaho, committee member, 2017-current  
 Marcy Carter, PhD student, University of Idaho, committee member, 2018-current  
 Sarah Sholes, PhD student, University of Idaho, committee member, 2020-current  
 Ryer Becker, PhD student, University of Idaho, committee member, 2019-current  
 Rachel Stein, PhD student, University of Idaho, committee member, 2019-current  
 Torrey Stephenson, MS student, University of Idaho, committee member, 2021-current  
 Heather Crawford, MS student, University of Idaho, committee member, 2020-current  
 Peter Stesinger, PhD student, University of Idaho, PhD committee member, 2014-2017  
 Vincent Janson, PhD student, University of Idaho, PhD committee member, 2015-2018  
 Troy Magney, PhD student, University of Idaho, major advisor, 2011-2015  
 Mark Corrao, PhD student, University of Idaho, PhD committee member, 2013-2015  
 Dan Krofcheck, PhD student, University of New Mexico, PhD committee member, 2011-2014  
 Dylan Porter, MNR student, University of Idaho, major advisor, 2020-current  
 Josh Miller, MNR student, University of Idaho, major advisor, 2020-current  
 Mark Shepard, MNR student, University of Idaho, major advisor, 2019-2020  
 Hali Goodch, MNR student, University of Idaho, major advisor, 2019-2020  
 Josh Heaton, MNR student, University of Idaho, major advisor, 2019-2020  
 Mitchell Gage, MNR student, University of Idaho, major advisor, 2019-2020  
 Sean Vance, MNR student, University of Idaho, major advisor, 2019-2020  
 Kate Job, MNR student, University of Idaho, major advisor, 2018-2019  
 Kailee McKinney, MNR student, University of Idaho, major advisor, 2020-current

Cesly Comer, M.S. student University of Idaho, major advisor, 2012-2015  
 Lindsay Gayson, M.S. student University of Idaho, committee member 2014 -2015  
 Matthew Yourek, M.S. student University of Idaho, committee member 2014 -2015  
 James Casey, M.S. student University of Idaho, committee member 2014 -2015  
 Dirk Anderson, M.S. student University of Idaho, major advisor, 2013 -2014  
 Ross Parsons, M.S. student University of Idaho, major advisor, 2013 2014  
 Lauren Smith, M.S. student major advisor, University of Idaho, 2012-2013

#### Visiting Scientists

Dr. Jingjue Jiang, Computer School, Wuhan University, A519, Wuhan, Hubei 430072, China  
 Jingshan Lue, Ph.D. candidate, College of Agriculture, Nanjing Agricultural University

#### Materials Developed:

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#### Courses Developed:

ENVS 411/511: Data Wizardry for Environmental Science (3 cr.), Fall 2021 -current  
 NRS 504: Introduction to Ecological data analysis (1 cr.), Fall 2021 current  
 NRS 560: Place-based ecology I (4 cr., 2 Sections) Fall 2010- current  
 NRS 566: Winter ecology (Place-based ecology II) (4 cr., 2 Sections) Spring 2022 current  
 NRS 504: Sociological Systems: An Integrated Approach (1 cr., 2 Sections) Fall 2019 -current  
 NRS 504: Sociological Systems: An Integrated Approach (1 cr., 2 Sections) Spring 2019 current  
 NRS 478/578: Optical and lidar remote sensing for natural resource professionals (3 cr.), Spring 2021  
 ENVS 404/504: Research Methods for Environmental Science (1 cr.), Fall 2021  
 NRS 564: Teaching environmental education in a winter environment (Place-based ecology II) (4 cr.)  
 NRS 566: N Eon i7l3mAr 0 Tdw 11.825 0 Td ( 8u0.253 0 28 >>BDC8 (-2 (t))TJ . (S )j14 Hp2 0 Td [(a)2 ( /P dDC8 (-2

Sustainable Forest Management: Remote Sensing Strategies for Assessing Soil Disturbance after Wildfire and Salvage Logging. *Forests*, 14(11), p.2218.

Zweifel, R., Pappas, C., Peters, R.L., Babst, F., Balanzategui, D., Basler, D., Bastos, A., Beloiu, M.,

accumulation by fusing spectral and textural information. *International Journal of Applied Earth Observation and Geoinformation*, 104, p.102592.

Tian, S., Zheng, G., Eitel, J.U.E., Zhang, Q. 2021. A Lidar-Based 3-D Photosynthetically Active Radiation Model Reveals the Spatiotemporal Variations of Forest Sunlit and Shaded Leaves. *Remote Sensing*, 13(5), 1002.

Eitel, J.U.H., Kevin L. Griffin, Natalie T. Boelman, Andrew J. Maguire\*, Arjan JH Meddens, Johanna Jensert, Lee A. Vierling, Stephanie C. Schiege\*, and Jyoti S. Sennewein\* 2020. Remote sensing tracks daily radial wood growth of evergreen needleleaf trees. *Global Change Biology*

Maguire, A.J.\*, Eitel, J.U.H., Griffin, K.L., Troy S. Magney, et al. 2020. On the Functional Relationship Between Fluorescence and Photochemical Yields in Complex Evergreen Needleleaf Canopies. *Geophysical Research Letters* 47, 9 (2020): e2020GL087858.

Davidson, S.C., Bohrer, G., Gurarie, E., LaPoint, S., Mahoney, P.J., Bodman, N.T., Eitel, J.U.H. et al. 2020. Ecological insights from three decades of animal movement tracking across a changing Arctic. *Science* 370, no. 6512 (2020): 712-715.

Russell, M.\*, Eitel, J.U.H., Andrew J Maguire\*, and Timothy E Link. 2020. Toward a

Eitel, J.U.H., Maguire, A.J., Boelman, N., Vörösmarty, L.A., Griffin, K.L., Jensen, J., Magney, T.S., Mahoney, P.J., Meddens, A.J., Silva, C., Sonnentag, O. 2019. Proximal remote sensing of tree physiology at northern treeline: Do late season changes in chlorophyll reflectance index (PRI) respond to climate or photoperiod? *Remote Sensing of Environment*, 221, 340-350.

Boelman, N., Liston, G.E., Gurarie, E., Meddens, A.J., Mahoney, P.J., Kirchner, P.B., Bohrer, G., Brinkman, T.J., Osgrove, C.L., Eitel, J.U.H., and Hebblewhite, M., 2019. Integrating snow science and wildlife ecology in Arctic-boreal North America. *Environmental Research Letters*, 14.

Mahoney, P.J., Liston, G.E., LaPointe, S., Gurarie, E., Mangione, B., Wells, A.G., Brinkman, T., Eitel, J.U.H., Hebblewhite, M., Nolin, A.W. and Boelman, N., 2018. Navigating snowscape-dependent responses of mountain sheep to snowpack properties. *Ecological Applications*, 28(3), 1715-1729.

Meddens, A.J., Vörösmarty, L.A., Eitel, J.U.H., Jennevein, J.S., White, J.C., & Wulder, M. A. 2018. Developing 5 m resolution canopy height and digital terrain models from WorldView and ArcticDEM data. *Remote Sensing of Environment*, 218, 174-188.

Ryer M. Becker, Robert F. Keefe, Nathaniel M. Anderson, Eitel, J.U.H. 2018. Use of lidar-derived landscape parameters to characterize alternative harvest scenarios in the Inland Northwest, *International Journal of Forest Engineering*. <https://doi.org/10.1080/14942119.2018.1497255>

Magney, T.S., Logan, B.A., Rich, J.S., Boelman, N.T., Eitel, J.U.H. 2019. 10.1016/j.rse.2019.06.016 -00030.5ney@uoregon.edu [mailto:2.95e36@uoregon.edu]





Magney, T. S., Eitel, K.B., Eitel, J.U.H., Schon, J., Jansen, V.S., Rittenburg, R., Aertig, L.A.  
2013. Keeping a (Digital) Eye on Our

Eitel, J.U.H., Long, D.S., Gessler, P.E. and Hunt, E.R., Jr. 2008. Combined Spectral Index to Improve Ground-Based Estimates of Nitrogen Status in Dryland Wheat. *Agronomy Journal*, 100: 1694-1702.

Eitel, J.U.H., Long, D. S., Gessler, P. E. and Smith A. M. S., 2007. Using insitu measurements to evaluate the new RapidEye satellite series for prediction of wheat nitrogen status. *International Journal of Remote Sensing* 28: 4183-4190.

Eitel, J.U.H., Gessler, P.E., Smith, A.M. and Robberecht, P. 2006. Suitability of existing and novel spectral indices to remotely detect water stress in *Populus* spp. *Forest Ecology and Management* 229: 170-182.

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Vierling, L.A., Eitel, J.U.H., Boelman, N.T., Griffin, K.L., Greaves,

Eitel, J.U.H., K.L. Griffin, N.T. Boelman, L.A. Vierling, J. Jensen, A.J. Maguire, and S. Schmiege. 2020. In situ Photochemical Reflectance Index and Tree Growth in Northern Alaska 2018-2019. ORNL DAAC, Oak Ridge, Tennessee, USA <https://doi.org/10.3334/ORNLDAAC/1781>

Maguire, A.J., Eitel, J.U.H., Vierling, L.A., Boelman, N.T., Griffin, K.L., Jennewein, J.S., Jensen, J.E. 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>

Maguire, A.J., J.U.H. Eitel, K.L. Griffin, S.C. Schmiege, S.G. Bruner, N.T. Boelman, W.A. Weyant. 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>

Greaves, H.E., Eitel, J.U.H., L. Vierling, N. Boelman, K. Griffin, T. Magee, and C. Prager. 2019. High-Resolution Vegetation Community Maps, Toolik Lake Area, Alaska, 2012-2015. ORNL DAAC, Oak Ridge, Tennessee, USA <https://doi.org/10.3334/ORNLDAAC/1690>

Greaves, H.E., L. Vierling, J.U.H. Eitel, N. Boelman, T. Magee ORNL Data (T) 4.6 (-) 20001 Tc 0.00em837 0 T, 9 Tw

dynamics: results from an experimental manipulation of foundation species in a temperate northeastern deciduous forest. *Ecological Society of America Canadian Society for Ecology & Evolution Annual Meeting*, 15 Aug. 2022, Montréal, Québec, Canada, Contribution Ta

Rachel M. Stein, Bastien Lecigne, J.U.H. Eitel, Janet L. Rachlow. Security at multiple scales: concealment and visibility both influence selection of a leporid. *American Society of Mammalogists*, June 17-21, Tuscon, Arizona. 001 Tc 0.004 Tw 5.1.9 59 .9 (e)-7001 Tw (mma)T(e)-1..458.9 (a)-5.8.

Eitel, J.U.H., Griffin, K.L., Boelman, N., Meddens, A.J., Jensen, J., Vierling, L.A., Maguire, A., Schmiege, S.C. and Jennewein, J.S. 2019. Remote sensing of interannual tree growth dynamics in a boreal forest. Oral presentation at the AGU Fall Meeting, December 9, San Francisco

Maguire, A., Eitel, J.U.H., Griffin, K.L., Magney, T.S., Long, R., Boelman, N., Bruner, S., Jennewein, J.S., Jensen, J., Schmiege, S.C. and Vierling, L.A. 2019. Assessing the sensitivity of shoot level chlorophyll fluorescence to scalable proxy of absorbed radiation in an evergreen needleleaf forest. Poster presentation at the AGU Fall Meeting, December 9, San Francisco

Eitel, K., Cohn, T., Severik, K., Eitel, J.U.H., Vierling, L., Uh, C., White Temple, E., Davis, M., Dixon, R., Carter, M. 2018. Integrating Cultural and Scientific Identities at DRONE Camp: an Indigenous Environmental Science Course for High School Students.

Jennewein, J.S., Honey, P., Meddens, A.J.H., Hebblewhite, M., Gilbert, S., Boelman, N., Frye, G., Joly, K., King-Jones, K., Julianus, E., Pragi, T., Seaton, K., Vierling, L.A., Eitel, J.U.H. 2018. Using Remotely Sensed Features of Habitat Structure to Assess Behavioral Thermoregulation of Alaskan Moose in Response to Increasing Temperatures. AGU Fall Meeting, December 10–14, Washington, D.C.

Jensen, J.E., A. Maguire, R. Oelkes, L. Andreu, N. Boelman, R. D'Argo, K. Griffin, C. Silva, J. Jennewein, A.J.H. Meddens, M. Redd, L. A. Vierling, and J.U.H. Eitel. 2018. Using aerial lidar to understand the role of climate and herbivory in shaping forest demographics at the Arctic forest-tundra ecotone. AGU Fall Meeting, December 10–14, Washington, D.C.

Maguire, A.J., Eitel, J.U.H., Griffin, K.L., Magney, T.S., Boelman, N.T., Vierling, L.A., Schmiege, S.C., Bruner, S.G., Jensen, J.E., Hiers, J. 2018. Assessing the sensitivity of ChlF to canopy structure at the forest-tundra ecotone toward remotely sensing light use efficiency and dynamics. AGU Fall Meeting, December 10–14, Washington, DC.

Schmiege, S.C., Griffin, K.L., Boelman, N., Bruner, S., Eitel, J.U.H. 2018. Vertical gradients in physiological function and pigment allocation at the Forest-Tundra Ecotone: Implications for scaling up leaf level carbon fluxes in white spruce stands. AGU Fall Meeting, 10–14 December, Washington D.C.

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Jensen, J. E., Maguire, A. J., Oelkers, R., Andreu, L., Bodman, N., D'Arrigo, R., Griffin, K., Jemewein, J., Medders, A. J. H., Russell, M., Vierling, L. A., Eitel, J. U. H. 2017. Towards lidar-based mapping of tree age at the Forest Tundra Ecotone AGU Fall Meeting, 11-15 December, New Orleans, LA.

Jenkinson, D. S., Hebblewhite, M., Meddens, A. J. N.,

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Using Airborne and Terrestrial Lidar to Estimate Biomass of Low-Stature Arctic Tundra Shrubs Canadian Remote Sensing Society Meeting, June 8-11 2015, St. John's Newfoundland

Höfe, B, Koenig, K., Griesbuam, L., Kler, A., Hämmerle, M., Eitel, J.U.H., Koma, Z. LiDAR Vegetation Investigation and Signature Analysis System (LVISA). Geophysical Research Abstracts, Vol. 17, EGU 2015-1537, EGU General Assembly 2015.

Magney, T.S., Eitel, J.U.H., Griffin, K., Zheng, G., Boelman, N., Logan, B., Greaves, H., Prager, C., Fortin, L., Oliver, R., Ma L., Vierling, L. Ground based remote sensing and physiological measurements provide insights into canopy optimization in arctic shrubs. AGU Fall Meeting, San Francisco, CA, December 2014

Greaves, H., Vierling, L.A., Eitel, J.U.H., Boelman, N., Magrey, T.S., Prager, C.

Ayaji, M., and Gibson, R2013. Qua

and SSSA International Annual Meetings Cincinnati, Ohio, 24 October 2012.

Krofcheck, D.J., Eitel, J.U.H., Vierling, L.A., Schulthes, U., Robinson, E., Litvak, M.E. 2012. Linking structural with functional changes in piñon-juniper woodland using a time series of satellite data and eddy covariance. ForestSA 2012, Corvallis, Oregon, 14 September 2012.

Eitel, J.U.H., Vierling, L.A., Magney, T.S. 2012. Suitability of a green scanning terrestrial laser scanner for mapping foliar biochemistry (oral presentation). Idaho NASA EPSCoR Annual Meeting, 2-3 October 2012.

Eitel, J.U.H., Vierling, L.A., Magney, T.S. 2012. Autonomously operating terrestrial laser scanner for monitoring forest ecosystems at a very high temporal resolution (oral presentation). SilviLaser 2012, Vancouver/Canada, 19 September 2012.

Magney, T.S., Eusden, S.A., Eitel, J.U.H., Vierling, L.A., Logan, B.A. 2012. Remote Estimation of Photosynthetic Efficiency Using a Green Terrestrial Laser Scanner. SilviLaser 2012, Vancouver/Canada, 16-19 September 2012.

Hudak, A.T., Strand, E.K., Vierling, L.V., Byrne, J., Eitel, J.U.H., Martinuzzi, S., Falkowski, M. 2012. Estimating aboveground forest carbon pools and fluxes from repeated field and LiDAR surveys. Canadian Fore

Eitel, J.U.H., Vierling, L.A., Litvak, M., Krofcheck, D., Stoscheck, L. 2011. Red-edge satellite information improves early stress detection in forests. 3rd Annual EPSCoR Tri-State Western Consortium Meeting, Santa Ana Pueblo NM, 7 April 2011.

Long, D.S., Eitel, J.U.H. 2011 Combined spectral indices for remote sensing of leaf chlorophyll content in a (Co)216790

## Patents

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## Grants and Contracts Awarded:

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|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2023- current | PI: Jason Karl, Co-PI: Jan Eitel: Acquisition of a UAS mounted aerial Lidar system to support agricultural and natural resources research USDA-NIFA, \$150,000                                              |
| 2023- current | PI: Jan Eitel: Tracking tree growth from space: Using thermal remote sensing to improve forest production estimates in a warming world NASA EPSCoR \$50,000                                                 |
| 2022– current | PI: Natalie Boelman, Co-PI: Jan Eitel: The future of the Forest Tundra Ecotone: A synthesis that adds interactions among snow, vegetation, and wildlife to the equation. NASA ABOVE \$211,426               |
| 2020– 2023    | PI: Elyn Enderlin, Co-PI: Jan Eitel: CryoIdaho: Building Idaho's Cryosphere Research Community through Analysis of Terrain Effects on Seasonal Accumulation and Melt of Snow and Ice NASA EPSCoR, \$750,000 |
| 2019– 2022    | PI: Jan Eitel: Toward an improved understanding of the mechanisms driving solar induced chlorophyll fluorescence across the structurally complex forest-tundra ecotone NASA Terrestrial Ecology, \$90,050   |



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|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2015– current | University of Idaho's ad hoc Unmanned Aircraft Systems Committee member                                                                                            |
| 2016          | NASA NESSF Carbon Cycle Ecosystems panel member, April 6, 2016, Washington, D.C.                                                                                   |
| 2014          | NASA Early Career Grants, Feb 10, 2014, external proposal reviewer<br>Faculty search committee member for UI McCall Outdoor Science School faculty                 |
| 2013          | NASA Terrestrial Ecology Peer Review Panel Member, Sept 17-20, 2013, Washington, D.C.                                                                              |
| 2010          | Member of the "Department of Interior Strategic Sciences Working Group" that was established in response to the Deep Water Horizon oil spill in the Gulf of Mexico |

#### Professional and Scholarly Organizations

|              |                                                         |
|--------------|---------------------------------------------------------|
| 2016-current | Terrestrial Laser Scanning International Interest Group |
| 2006-2008    | American Society of Agronomy                            |
| 2006-2008    | Crop Science Society of America                         |
| 2006-2008    | Soil Science Society of America                         |
| 2005-current | American Geophysical Union                              |
| 2013-current | AmericaView                                             |

#### Outreach Service:

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|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2023 | Invited speaker. NASA Earth to Sky Teacher Workshops, November 7, 2023                                                                                                                                                                                                                                        |
| 2023 | Invited speaker. Women's Climate Action Groups "Climate Conversations" event on January 7, McCall, ID                                                                                                                                                                                                         |
| 2023 | McCall High school English class guest speaker, March 13, 2023                                                                                                                                                                                                                                                |
| 2023 | McCall High school English class guest speaker, March 2023                                                                                                                                                                                                                                                    |
| 2021 | Invited speaker to the Ponderosa Speaker Series. Title of presentation: Global climate change and its effects on McCall', McCall, Idaho, April 22.                                                                                                                                                            |
| 2021 | Outreach activities focusing on climate change research with local AP English high school students, McCall Donnelly High School                                                                                                                                                                               |
| 2020 | Development of a web application that enables K-12 student to visualize and interact with daily tree growth data and environmental variables such as soil temperature, soil moisture, and air temperature ( <a href="https://jeitel.shinyapps.io/tree_growth/">https://jeitel.shinyapps.io/tree_growth/</a> ) |
| 2019 | Instructed high school students from the Nez Perce Reservation (Idaho) in remote sensing technology a                                                                                                                                                                                                         |

20, 2017, McCall, Idaho  
 2017 Helped prepare and deliver a 10 day summer camp with the goal to improve Native American student science identity through culturally relevant use of UAV technology for managing natural resources.

2016 Co-organizer and presenter of 'Terrestrial Laser Scanning for Ecology – New field technology to help measure and monitor vegetation structure' workshop, December 2, 2016 in Fremont, CA. <https://www.youtube.com/watch?v=Uj108m29Tm0>