

# Curriculum Vitae

(Updated 08/24)

Sigrid C. Resh

Research Assistant Professor  
College of Forest Resources and Environmental Science  
Michigan Technological University, Houghton, MI 49931

Phone: (906) 487-1139  
email: scresh@mtu.edu

**Research Interests:** invasive species ecology and management, ecological sustainability and restoration

## Educational Background:

**Post-Doctoral Fellow** (1/00 to 5/01), CSIRO (Commonwealth Scientific and Industrial Research Organisation), Forestry and Forest Products Division, CRC, Hobart, Tasmania, AU. *Eucalyptus* biomass partitioning and carbon balance.

**Ph.D.** 1999, Forest Ecology (Department of Forest Sciences), Colorado State University, Fort Collins, Colorado. Dissertation title: "Nitrogen-fixing Tropical Trees Sequester Soil Carbon"

**M.S.** 1994, Resource Economics (Department of Forestry), Michigan State University, East Lansing, MI. Thesis title: "Assessing the Availability of Timberland for Harvest in the Lakes States"

## Professional Experience:

**Keweenaw Invasive Species Management Area (KISMA) Coordinator** (9/15-present), College of Forest Resources and Environmental Science, Michigan Technological University. Invasive species control, outreach and education, information development and dissemination; grant writing; collaboration with 21 partner organizations; budget development, reporting to funding agencies, and proposal development.

**Research Assistant Professor** (2/09-present), College of Forest Resources and Environmental Science, Michigan Technological University, Houghton, MI 49931. Responsibilities include: Research idea development, collaboration, and implementation, and research proposal writing; grant management, reporting, and successful completion of granted projects; teaching; academic committee service, and graduate student advising.

**Summer Undergraduate Research Fellowship (SURF) Coordinator** (1/19-8/20), Pavlis Honors College, Michigan Technological University. Responsibilities included: providing presentations to guide students on how to find a mentor and how to construct a proposal, obtaining faculty reviewers across all campus disciplines for 40+ proposals, ranking reviews and making decisions on student awardees, contacting awardees, and arranging/attending four professional development workshops for awardees in June.

**Consulting** (3/07-5/07), USDA Forest Service Northern Institute of Applied Carbon Science (NIACS). Developed information for, implemented, and launched webpage for NIACS--<http://nrs.fs.fed.us/niacs/>

**Consulting** (11/04 to 12/05), USDA Forest Service Rocky Mountain Research Station and Colorado State University. Responsible for organizing a workshop and writing a synthesis paper on chipping and mastication in Colorado Forests.

**Consulting** (3/03 to 10/04), USDA Forest Service Rocky Mountain Region 2. Responsible for data compilation, writing, and editing of parts of the Current Landscape Condition for the Bighorn, Grand Mesa, Uncompahgre, Gunnison, and San Juan National Forests as a component of the Species Conservation Project Terrestrial Ecosystem Assessments. Also helped develop the protocol for creating the assessments for current landscape condition.

## Teaching Experience:

**Co-Instructor for Capstone FW4811 and FW4830** (9/17 to present), advise student groups on projects involving invasive species.

**Co-Instructor for Senior Communication Class** (11/18 to 12/18), provided lectures and assignments related to applied proposal funding sources, writing, and budget preparation

**Guest Lecturer** (on-going) for Integrated Field Practicum, Natural Resource Policy, Restoration Ecology, Isotopes in Ecology, Soil Biogeochemistry.

**Instructor of Forest Ecology** (9/07 to 12/07), School of Forest Resources and Environmental Science.

**Instructor for USDA Forest Service National Advanced Silviculture Program (5/07).** Prepared and presented information on forest ecosystem carbon and nutrient dynamics, productivity, and landscape ecology for a portion of this forest manager silviculture certification program

**Instructor of Forest Ecology (1/03 to 12/03),** Department of Forest Sciences, Colorado State University. Independently developed course curriculum for junior-level class with 60 students enrolled. Lecture topics related to forests included: climate, hydrology, carbon cycling and allocation, regeneration, structure and growth, genetics, soil, fire ecology, disturbance, productivity, nutrient biogeochemistry, spatial and temporal scales of forests, and restoration ecology.

**Instructor of General Ecology (8/99 to 12/99),** Department of Forest Sciences, Colorado State University. Lecture topics included biomes, energy budgets, population ecology, ecophysiology, community and ecosystem ecology, and global ecology for the same fundamentals of ecology class discussed below with enrollment of 100 students.

**Co-Instructor of General Ecology (1/99 to 5/99),** Department of Forest Sciences, Colorado State University. Independently developed course curriculum for half the lectures of a sophomore-level fundamentals of ecology course with 110 enrolled students. Lecture topics included biomes, hydrology, energy budgets, species diversity, ecosystem productivity, nutrient cycling, and foodwebs. Wrote exams; presented lectures using computer presentation software, slides, and overheads; managed class web page.

### ***Publications:***

**Resh, SC.** In preparation for spring 2025 submission. Repeated cutting can control giant and Japanese knotweeds.

**Resh, SC, A Camp, E Byrne, C Webster.** In preparation. Legacy Impact of Invasive *Berberis thunbergii* Removal Methods on Native Species Community Recovery. *Invasive Plant Science and Management*.

Dolinski, L, T Bal, C Webster, **SC Resh.** 2024. Assessing the Utility of a Native Pathogenic Fungus as a Biocontrol Alternative to Herbicide on Invasive Buckthorns in Forests of Upper Michigan. **Natural Areas Journal** 44(2):57-64;

Young KR, E Alata, RA Chimner, RB Boone, G Bowser, L Bourgeau-Chavez, B Fuentealba, J Gilbert, JA Ñaupari, MH Polk, **SC Resh,** C Turin, and M Zarria-Samanamud. 2023. Ecological Dynamism and Livestock Governance in a Peruvian National Park. **Land** 12(11): 2051; <https://doi.org/10.3390/land12112051>

Chimner, RA, **SC Resh,** JA Hribljan, M Battaglia, L Bourgeau-Chavez, G Bowser, EA Lilleskov. 2022. Mountain Wetland Soil Carbon Stocks of Huascarán National Park, Peru. In review to **Frontiers in Plant Science**.

Chimner, RA, R Boone, G Bowser, L Bourgeau-Chavez, B Fuentealba, J Gilbert, JA Ñaupari, M. Polk, **S Resh,** C Turin, KR Young, M Zarria-Samanamud. 2020. Andes, Bofedales, and the Communities of Huascarán National Park, Peru. **Wetland Science and Practice** 37: 246-254.

Mosier, SL, ES Kane, D Richter, E Lilleskov, MF Jurgensen, AJ Burton, **SC Resh.** 2017. Interactive effects of climate change and fungal communities on wood-derived carbon in forest soils. **Soil Biology and Biochemistry** 117: 297-309.

Gollany, HT, BD Titus, DA Scott, H Asbjornsen, **SC Resh,** RA Chimner, DJ Kaczmarek, LFC Leite, ACC Ferreira, KA Rod, J Hilbert, MV Galdos, ME Cisz. 2015. Biogeochemical Research Priorities for Sustainable Biofuel and Bioenergy Feedstock Production in the Americas. **Environmental Management** 56(6):1330-1355.

Schrank, AJ, **SC Resh,** WJ Previat, and RA Chimner. 2015. Characterization and classification of vernal pool vegetation, soil, and amphibians of Pictured Rocks National Lakeshore. **The American Midland Naturalist** 174(1): 161-179.

Chimner, RA and **SC Resh.** 2014. Water Sources of Riparian Bur Oak Using Stable Water Isotopes in Homestead National Monument, Nebraska. **Natural Areas Journal** 34(1):56-64.

**Resh, SC**, AJ Schrank, WJ Previante, and RA Chimner. 2013. Vernal pool assessment in Pictured Rocks National Lakeshore in a dry year. **Natural Resource Technical Report NPS/PIRO/NRTR—2013/766**. National Park Service, Fort Collins, Colorado.

**Resh, SC**, L Joyce, MG Ryan. 2008. Fuel Treatments by Mulching—A Synthesis of the Ecological Impacts. **USDA-Forest Service, Rocky Mountain Research Station report**.

**Resh, SC**, M Battaglia, D Worledge, and S Ladiges. 2003. Coarse root biomass for eucalypt plantations in Tasmania, Australia: sources of variation and methods for assessment. **Trees: Structure and Function** 17:389-399.

Rothe, A, Cromack, K Jr, **Resh, S**, Makineci, E, and Son, Y. 2002. Soil carbon and nitrogen changes under Douglas-fir with and without red alder. **Soil Science Society of America Journal** 66:1988-1995.

**Resh, SC**, D Binkley, and JA Parrotta. 2002. Greater soil carbon sequestration under nitrogen-fixing tree species compared with *Eucalyptus* species. **Ecosystems** 5:217-231.

Kaye, J, **SC Resh**, MW Kaye, and RA Chimner. 2000. Nutrient and carbon dynamics in a replacement series of *Eucalyptus* and *Albizia* trees. **Ecology** 81:3267-3273.

Smith, FW and **SC Resh**. 1999. Age-related changes in production and below-ground carbon allocation in *Pinus contorta* forests. **Forest Science** 45:1-9.

Binkley, D and **SC Resh**. 1999. Rapid changes in soils following *Eucalyptus* afforestation in Hawaii. **Soil Science Society of America Journal** 63:222-225.

### **Pending Research Grants:**

**2024. Resh, SC** (Principal), Expanding KISMA Core Relevancy to Recreators and Gardeners, Sponsored by: Michigan Dept of Natural Resources, Requested: \$105,000. (April 1, 2025 - March 31, 2026).

**2024. Resh SC** (Principal), KISMA Invasive Species Treatments and Outreach for Priority Terrestrial Areas, Sponsored by: US Dept of Agriculture, Requested: \$92,547, (May 1, 2025 - April 30, 2027).

**2024. Cassel, N., SC Resh** (co-PI, Principal at Tech) et al., A collaborative approach to protecting Michigan's Upper Peninsula National Forest lands, Sponsored by: Upper Peninsula Resource Conservation & Development Council through National Fish and Wildlife Federation America the Beautiful Challenge), Requested: \$25,000, (January 1, 2025 - April 30, 2027).

**2024. Bal, T, SC Resh** (co-PI), Practical Field Applications of Fungal Biocontrol of Buckthorn, Sponsored by: US Dept of the Interior/US Fish and Wildlife Service(FWS), Requested: \$464,596 (September 1, 2024 – August 31, 2027).

### **Awarded Research Grants:**

**2024. Resh, SC** (Principal), AIS Prevention for KISMA with boat wash outreach and AIS education, Sponsored by: US Dept of Agriculture, Requested: \$23,000 (May 1, 2024 – April 30, 2026).

**2023. Resh, SC** (Principal), Expanding KISMA's Terrestrial and Aquatic Invasive Species Programming Through Targeted Outreach and Removal, Sponsored by: Michigan Dept of Natural Resources, Requested: \$75,000. (April 1, 2024 - March 31, 2025).

**2023. Resh, SC** (Principal), Goats Managing Buckthorn on Community Recreational Trail System, Sponsored by: US Dept of Agriculture, Requested: \$50,000. (May 1, 2023 - April 30, 2025).

**2023. Resh, SC** (Principal), Vander Bilt, D., Chimner, R. A. (Co-Principal), Prioritizing and Restoring Landscapes in Michigan's Keweenaw Peninsula, Sponsored by: US Dept of Agriculture, Requested: \$200,000. (May 1, 2023 - April 30, 2025). (Awarded).

**2023. Resh, S** (Principal), AIS outreach and portable boat wash support for KISMA, Sponsored by: US Dept. of Agriculture, Requested: \$20,000, Sponsor Share: \$20,000, Total Project Value: \$25,000. (July 2023 – June, 2024). (Awarded).

- 2023.** Bal, T. L. (Principal), **Resh, S.** (Co-Principal), Stone, A., Advancing Mycobiocidal Techniques for Buckthorn Management, Sponsored by: University of Michigan-Michigan Space Grant Consortium, Requested: \$4,000. (May 10, 2023 - May 9, 2024). (Awarded).
- 2023.** **Resh, S.** (Principal), Maintaining KISMA Core Capacity for Invasive Species Outreach and Management, Sponsored by: Michigan Dept of Natural Resources, Requested: \$60,000. (May 1, 2023 - April 30, 2024). (Awarded).
- 2022.** Baugher, C, N Cassel, **SC Resh** (co-PI, Principal at Tech) et al., Expanding Phragmites Management in Michigan's Upper Peninsula, Sponsored by: Upper Peninsula Resource Conservation & Development District, Requested: \$71,003, Sponsor Share: \$62,594, Total Project Value: \$62,594. (September 1, 2021 - April 30, 2024). (Awarded). **EPA-GLRI 2021.** Total funds of \$665,221 with subaward to Tech.
- 2022.** **Resh, S.** (Principal), Continuing KISMA priority invasive species control and outreach with partners and community, Sponsored by: **US Dept of Agriculture**, Requested: \$50,000, Sponsor Share: \$50,000, Total Project Value: \$62,847. (April 1, 2022 - March 31, 2024). (Awarded).
- 2022.** Bowser, G, RB Boone, RA Chimner, AB Taber, KR Young with **Resh, SC** (Co-Principal), CNH-RCN: Andes Bofedales and Cattle: The Impacts of Changing Hydrology and Glacial Retreat on Community Livelihoods in Peru's Cordillera Blanca, Sponsored by: **NSF.** \$499,992 to Colorado State University with subaward to Tech, Requested: \$95,343, Sponsor Share: \$95,343, Total Project Value: \$95,343. (August 1, 2016 - July 31, 2023). (Awarded).
- 2022.** **Resh, S.** (Principal), AIS outreach and portable boat wash support for KISMA, Sponsored by: Grand Portage Band of Lake Superior Chippewa and NPS, Requested: \$15,500, Sponsor Share: \$15,500, Total Project Value: \$18,512. (June 1, 2022 - June 15, 2023). (Awarded).
- 2022.** **Resh, S.** (Principal), Expanding KISMA's Reach Across Both Aquatic and Terrestrial Ecosystems, Sponsored by: **Michigan Dept of Natural Resources**, Requested: \$60,000, Sponsor Share: \$60,000, Total Project Value: \$76,401. (June 1, 2022 - May 31, 2023). (Awarded).
- 2021.** Cassell, N, (Principal), **Resh, S.** (co-PI, Principal at Tech) et al. Upper Peninsula European frog-bit detection initiative, Sponsored by: Upper Peninsula Resource Conservation & Development District, Requested: \$40,944, Sponsor Share: \$39,544, Total Project Value: \$44,844. (May 1, 2021 - April 30, 2023). (Awarded).
- 2021.** Watkeys, Matt (PI), **Resh, SC.** (Co-PI, Principal at Tech), Vander Bilt, D. Central UP Knotweed Risk Analysis and Treatment Prioritization and Comparison, Sponsored by: **DNR: Michigan Invasive Species Grant Program** Total funds of \$232,600 to Alger Conservation District with subaward to Tech, Requested: \$121,558, Sponsor Share: \$121,558, Total Project Value: \$135,068. (April 1, 2021 - March 31, 2023). (Awarded).
- 2021.** **Resh, S.** (Principal), AIS outreach and portable boat wash support for KISMA, Sponsored by: US Dept of the Interior, Requested: \$12,673, Sponsor Share: \$12,673, Total Project Value: \$15,135. (May 1, 2021 - April 30, 2022). (Closed).
- 2021.** **Resh, SC (PI).** KISMA core objectives implementation and targeted outreach to the residents of Houghton. **Michigan Technological University.** \$75,000. 6/1/21 – 5/31/22.
- 2020.** Burton, A. J. (Principal), **Resh, S.** (Co-Principal), Cavaleri, M. A. (Co-Principal), Liu, F. (Co-Principal), Wolfe, J. D. (Co-Principal), MRI: Acquisition of an Isotope Ratio Mass Spectrometer for using stable isotopes to study complex ecological systems, Sponsored by: National Science Foundation, Requested: \$327,067, Sponsor Share: \$327,067, Total Project Value: \$467,239. (August 1, 2020 - July 31, 2022). (Closed).
- 2020.** **Resh, S.** (Principal), Continuing Treatments for Priority Invasive Plant Species within the KISMA Tri-County Area, Sponsored by: US Dept of Agriculture, Requested: \$40,000, Sponsor Share: \$48,000, Total Project Value: \$60,708. (April 1, 2020 - March 31, 2022). (Closed).

- 2020.** Chimner, R. A. (Principal), **Resh, S.** (Co-Principal), Replanting the Pilgrim River wetlands to enhance ecosystem function, Sponsored by: US Dept of Agriculture, Requested: \$100,264, Sponsor Share: \$100,264, Total Project Value: \$125,330. (January 1, 2020 - December 31, 2021). (Awarded).
- 2020.** **Resh, S.** (Principal), Growing KISMA community engagement with outreach education and treatment continuation, Sponsored by: Michigan Dept of Natural Resources, Requested: \$104,979, Sponsor Share: \$60,000, Total Project Value: \$74,660. (June 11, 2020 - March 31, 2021). (Closed).
- 2019.** **Resh, S.** (Principal), Chimner, R. A. (Co-Principal), Edson, C. (Co-Principal), Purple Loosestrife Control in the Keweenaw Invasive Species Management Area (KISMA), Sponsored by: US Dept of Agriculture, Requested: \$40,000, Sponsor Share: \$40,000, Total Project Value: \$50,405. (June 1, 2019 - May 31, 2021). (Closed).
- 2019.** **Resh, S.** (Principal), Michigan Tech and U.S. Forest Service KISMA Agreement, Sponsored by: US Dept of Agriculture, Requested: \$4,001, Sponsor Share: \$4,000, Total Project Value: \$6,304. (June 1, 2019 - May 1, 2021). (Closed).
- 2019.** **Resh, S.** (Principal), Storer, A. J. (Co-Principal), Webster, C. R. (Co-Principal), Bal, T. L. (Co-Principal), Chimner, R. A. (Co-Principal), Tree Planting for EAB Mitigation on Community Trails, Sponsored by: US Dept of Agriculture, Requested: \$100,000, Sponsor Share: \$100,000, Total Project Value: \$127,154. (November 1, 2018 - October 31, 2020). (Awarded).
- 2019.** **Resh, S.** (Principal), Reinvigorating KISMA: Improved Collaborative Planning and Control of Invasive Species, Sponsored by: Keweenaw Land Trust, Requested: \$50,163, Sponsor Share: \$50,163, Total Project Value: \$57,460. (October 3, 2019 - March 31, 2020). (Closed).
- 2018.** **Resh, S.** (Principal), Michigan Tech and U.S. Forest Service KISMA Agreement, Sponsored by: US Dept of Agriculture, Requested: \$7,692, Sponsor Share: \$7,692, Total Project Value: \$11,992. (May 1, 2018 - May 1, 2020). (Closed).
- 2017.** **Resh, S.** (Principal), Reinvigorating KISMA: Improved Collaborative Planning and Control of Invasive Species, Sponsored by: Keweenaw Land Trust, Requested: \$165,388, Sponsor Share: \$165,388, Total Project Value: \$227,412. (March 29, 2017 - March 31, 2020). (Closed).
- 2017.** **Resh, S.** (Principal), Webster, C. R. (Co-Principal), Targeted Control of Invasive Plants on Recreational Trail System: Demonstration, Education, and Implementation, Michigan Tech and U.S. Forest Service KISMA Agreement, Sponsored by: US Dept of Agriculture, Requested: \$47,957, Sponsor Share: \$47,957, Total Project Value: \$61,375. (May 1, 2017 - March 31, 2019). (Closed).
- 2016.** Chimner, R. A. (Principal), **Resh, S.** (Co-Principal), CNH-RCN: Andes Bofedales and Cattle: The Impacts of Changing Hydrology and Glacial Retreat on Community Livelihoods in Peru's Cordillera Blanca, Sponsored by: Colorado State University, Requested: \$65,921, Sponsor Share: \$65,921, Total Project Value: \$65,921. (June 1, 2016 - May 31, 2021). (Closed).
- 2015.** **Resh, SC (PI)**, E Kane, MF Jurgensen. Wood it matter: Tracing isotopically labeled wood into the soil. **REF seed grant through Michigan Tech.** \$24,000. 2015-2017.
- 2011.** **Resh, SC (PI)**, E Kane, E Lilleskov, D Richter and MF Jurgensen. Interactive Effects of Climate Change and Decomposer Communities on the Stabilization of Wood-Derived Carbon Pools: Catalyst for a New Study. **U.S. Department of Energy.** \$149,397. 2011-2014.
- 2009.** Chimner, RA, **SC Resh (co-PI)**. Assessing vernal pools of Pictured Rocks National Lakeshore by determining distribution, abundance, and ecological significance. **National Park Service.** \$18,615. 2009-2011.
- 2007.** Bolli JM, RA Chimner, G Eckart, **SC Resh (co-PI)**. Analyzing water isotopes to determine impacts of burning in a mesic burr oak forest. **National Park Service.** \$21,000. 2007-2009.

2006. Ryan, MG, CC Rhoades, M Rocca, **SC Resh (co-PI)**. A regional assessment of the ecological effects of chipping and mastication fuels reduction and forest restoration treatments. **Joint Fire Science**. \$350K. 2006-2009.

### **Participant on Funded Research Grants:**

Halvorsen, K, PI, co-PIs: H Asbjornsen, R Chimner, C Moseley, D Shonnard. **Collaborator: SC Resh**. OISE-PIRE: Sustainability, Ecosystem Services, and Bioenergy Development across the Americas. NSF PIRE, \$4,841,735. 2012-2017. (Closed).

Shonnard, DR, PI, co-PIs: RP Donovan, KE Halvorsen, BD Solomon, and SR Sweitz. **Collaborator: SC Resh RCN-SEES**: A Research Coordination Network on Pan American Biofuels Bioenergy Sustainability. NSF-RCN. \$749,996. 2011-2015. (Closed).

### **Declined Research Grants**

2023. **Resh, SC. (Principal)**, Building on past terrestrial invasive species treatment and outreach successes across KISMA, Sponsored by: US Dept of Agriculture, Requested: \$100,000. (May 1, 2024 - April 30, 2026).

2023. Cassel, N., **SC Resh (co-PI, Principal at Tech)** et al., A multi-CISMA proactive approach to safeguard Upper Peninsula hemlock, Sponsored by: Upper Peninsula Resource Conservation & Development Council through the Michigan Invasive Species Grant Program, Requested: \$37,851, (May 1, 2024 - April 30, 2026). EPA-GLRI 2021. Total funds of \$?? with subaward to Tech.

2023. Cassel, N., **SC Resh (co-PI, Principal at Tech)** et al., Life after Phragmites: Building coastal resilience across Michigan's Upper Peninsula, Sponsored by: Michigan State University Extension through the National Oceanic and Atmospheric Administration's *Transformational Habitat Restoration and Coastal Resilience Grants*, Requested: \$still determining, (October 1, 2024 - September 30, 2027).

2022. Wendell, D., **Resh, SC. (co-PI, Principal at Tech)**, Relating Genetic and Phenotypic Variability to Improve Differentiating Introduced and Native Phragmites, Sponsored by: Oakland University, Requested: \$58,535. (May 1, 2023 - April 30, 2026). (Pending).

2022. **Resh, SC (PI)**. OECD Cooperative Research Program. 9/01/23-11/30/23. (Declined).

2021. Wolfe, J. D. (Principal), Chimner, R. A. (Co-Principal), **Resh, S. (Co-Principal)**, Riparian restoration on the lower reaches of the Pilgrim River, Sponsored by: US Dept of Agriculture, Requested: \$109,246. (April 1, 2022 - November 1, 2023). (Declined).

2021. Wolfe, J. D. (Principal), Chimner, R. A. (Co-Principal), **Resh, S. (Co-Principal)**, Riparian restoration on the lower reaches of the Pilgrim River, Sponsored by: National Fish and Wildlife Foundation, Requested: \$126,111. (May 1, 2022 - June 30, 2023). (Declined).

2021. Chimner, RA, G Bowser, KR Young, C Turin, R Boone, Senior Personnel: MH Polk, L Bourgeau-Chavez, **SC Resh**, JA Ñaupari. DISES: Ecosystem services and pastoralism in changing Andean landscapes. NSF-DISES. \$1,600,000. 7/1/2021 – 6/30/2026. (Declined).

2020. Bal, T. L. (Co-Principal), Chimner, R. A. (Principal), **Resh, S. (Co-Principal)**, COLLABORATIVE Research: AccelNet: People Pollinators and Place (P3): A global convergence network of networks spanning conservation boundaries across a changing world, Sponsored by: National Science Foundation, Requested: \$233,518. (October 1, 2020 - September 30, 2023). (Declined).

2020. **Resh, S. (Principal)**, Biocontrol implementation and monitoring for knotweed, Sponsored by: US Dept of Agriculture, Requested: \$50,000. (May 1, 2021 - April 30, 2023). (Declined).

2020. Liu, T. (Principal), **Resh, S. (Co-Principal)**, Monitoring the Distribution of Glossy Buckthorn using Deep Learning Techniques and Multi-view Satellite Images, Sponsored by: US Dept of Agriculture, Requested: \$49,109. (April 1, 2021 - March 31, 2023). (Declined).

2020. Bal, T. L. (Co-Principal), **Resh, S. (Principal)**, Wolfe, J. D. (Co-Principal), Protecting the hemlock of Michigan's Upper Peninsula, Sponsored by: Upper Peninsula Resource Conservation & Development District, Requested: \$37,056. (February 1, 2021 - January 31, 2023). (Declined).

2020. Burton, A. J. (Principal), **Resh, S. (Co-Principal)**, Cavaleri, M. A. (Co-Principal), Liu, F. (Co-Principal), Wolfe, J. D. (Co-Principal), MRI: Acquisition of an Isotope Ratio Mass Spectrometer for using stable isotopes to study complex ecological systems, Sponsored by: National Science Foundation, Requested: \$344,224. (August 1, 2020 - July 31, 2022). (Tabled).

2020. Huckins, C. J. (Co-Principal), Webster, C. R. (Co-Principal), Bal, T. L. (Co-Principal), Chimner, R. A. (Co-Principal), **Resh, S. (Co-Principal)**, Liu, F. (Co-Principal), Brzeski, K. E. (Co-Principal), Wolfe, J. D. (Principal),

- Riparian restoration on the lower reaches of the Pilgrim River, Sponsored by: US Dept of Agriculture, Requested: \$175,009. (April 1, 2021 - July 30, 2022). (Declined).
- 2020.** Chimner, RA, G Bowser, KR Young, C Turin, R Boone, **Senior Personnel:** MH Polk, L Bourgeau-Chavez, **SC Resh**, JA Ñaupari. CNH2-L: Ecosystem services and pastoralism in changing Andean landscapes. **NSF-CNH2.** \$1,576,354. 7/1/2020 – 6/30/2025. (Declined).
- 2019.** Flaspohler, D. J. (Co-Principal), **Resh, S. (Co-Principal)**, Handler, R. M. (Co-Principal), Schelly, C. L. (Principal), CNH2-L: Assessing linkages among socio-technological provisioning systems and integrated socio-ecological systems to enhance community resilience, Sponsored by: National Science Foundation, Requested: \$1,274,060. (September 1, 2019 - August 31, 2023). (Declined).
- 2019. Resh, S. (Principal)**, Grimm, A. G. (Co-Principal), Knotweed risk analysis site prioritization and treatment comparisons in two Central UP CISMAs, Sponsored by: Alger Conservation District, Requested: \$169,523. (April 1, 2020 - March 31, 2023). (Declined).
- 2018.** Flaspohler, D. J. (Co-Principal), **Resh, S. (Co-Principal)**, Handler, R. M. (Co-Principal), Schelly, C. L. (Principal), Assessing linkages among socio-technological provisioning systems and integrated socio-ecological systems to enhance community resilience, Sponsored by: National Science Foundation, Requested: \$0. (September 1, 2019 - September 1, 2023). (Declined).
- 2018.** Urban, N. R. (Co-Principal), Flaspohler, D. J. (Co-Principal), **Resh, S. (Co-Principal)**, Handler, R. M. (Co-Principal), Schelly, C. L. (Principal), CNH-L: Coupled Natural-Human Systems for Sustainable and Sustained Rural Communities: Quantification and Comparison of Linked Infrastructure-Ecosystem-Governance Systems, Sponsored by: National Science Foundation, Requested: \$1,234,471. (January 1, 2019 - December 31, 2021). (Declined).
- 2018.** Chimner, R. A. (Co-Principal), **Resh, S. (Co-Principal)**, Brooks, C. (Co-Principal), Grimm, A. G. (Principal), Advancing Physiochemical Control and Surveillance of Invasive Knotweeds in Michigan, Sponsored by: Michigan Dept of Natural Resources, Requested: \$232,380. (March 1, 2019 - February 28, 2021). (Declined).
- 2018.** Chimner, R. A. (Principal), **Resh, S. (Co-Principal)**, Edson, C. (Co-Principal), Replanting the Pilgrim River Wetlands to Enhance Ecosystem Function, Sponsored by: US Dept of Agriculture, Requested: \$96,423. (January 1, 2019 - December 31, 2020). (Declined).
- 2017.** Schmierer, J. M. (Co-Principal), **Resh, S. (Co-Principal)**, Kelly, M. (Principal), Establishing an ORV/ATV Invasive Species Decontamination Station in the Western U.P., Sponsored by: Michigan Dept of Natural Resources, Requested: \$0. (May 1, 2018 - April 30, 2021). (Declined).
- 2017.** Chimner, R. A. (Co-Principal), **Resh, S. (Co-Principal)**, Brooks, C. (Co-Principal), Bourgeau-Chavez, L. L. (Co-Principal), Grimm, A. G. (Principal), Innovative EDRR Methods for Invasive Knotweeds in the KISMA, Sponsored by: Michigan Dept of Natural Resources, Requested: \$0. (March 1, 2018 - February 28, 2021). (Declined).
- 2015. Resh, SC**, RA Chimner, and CR Webster. 2015. Developing targeted non-chemical control strategies for an emerging invasive species in the Keweenaw, giant and Japanese knotweed. MI DEQ Coastal Zone Management. \$110,250. (Declined).
- 2015. Resh, SC** and CR Webster. 2015. Unraveling knotweed in the Keweenaw. MIDNR—Michigan Invasive Species Grants Program. \$141,817. (Declined).
- 2014.** Chimner, R. A. (Principal), **Resh, S. (Co-Principal)**, CNH-L: Andes Bofedales and Cattle: Coupled Human and Natural Systems under Glacial Retreat in the High Andes, Sponsored by: Colorado State University, Requested: \$338,852. (June 1, 2015 - May 31, 2020). (Declined).
- 2014. Resh, SC**, E Lilleskov, E Kane, AJ Burton, M Jurgensen, and D Richter. 2014 Interactive effects of climate change and decomposer communities on the stabilization of wood-derived carbon in soils: a continuation. DOE Environmental System Science. \$499,998. (Declined).
- 2014.** Bowser, G, E Sagas, A Taber, RA Chimner, K Young. (co-PIs), **SC Resh**, R Boone, D Swift, and J Klein (Collaborators/Senior Personnel). 2014. NSF CNH-L: Andes, Bofedales and Cattle: Coupled Human and Natural Systems under Glacial Retreat in the High Andes. \$1,779,152. (Declined).
- 2014. Resh, SC** and J Hribljan. Using Soil Carbon Fractions to Determine Land Use Sustainability. REF seed grant (2014) through Michigan Tech. (Declined).
- 2013. Resh, SC**, E Kane, E Lilleskov, D Richter, MF Jurgensen, and W Parton. Interactive Effects of Climate Change and Decomposer Communities on the Stabilization of Wood-Derived Carbon Pools: A continuation. NASA-ROSES. (Declined).

### ***Conferences/workshops (presentation or host):***

- poster presentation entitled “Natural Solutions: Development and Deployment of a Native Polypore as a Myco-biocontrol on Invasive Buckthorn Sprouts” (authors of poster: A Stone\*, **SC Resh**, L Dolinski\*, C Webster, T Bal) presented at the Natural Area Association Conference September 6, 2022, Duluth, MN, USA
- virtual workshop organizer and presenter: Keweenaw Invasive Species Management Area (KISMA) Workshop for community and partner education on invasive species management. Oral presentation entitled “KISMA knotweed management” presented at KISMA Workshop, April 2, 2020, Houghton, MI, USA
- oral presentation entitled “Soil sustainability of bioenergy feedstocks across the Americas” and participation at NSF-PIRE workshop, May, 2017, Eugene, Oregon, USA.
- oral presentation entitled “Soil Sustainability with Bioenergy Production” and participation at NSF-PIRE workshop July 18-21, 2014, Belem, Brazil.
- poster presentation entitled “Stabilization of Wood-Derived Carbon in Soils: Catalyst for a new study” (authors of poster: **SC Resh**, E Kane, D Richter, and S. Mosier) and participation at DOE TES/SBR joint investigators meeting May 6-7, 2014, Potomac, MD, USA.
- poster presentation entitled “Stabilization of Wood-Derived Carbon in Soils: Catalyst for a new study” (authors of poster: **SC Resh**, E Kane, D Richter, and S Mosier) and participation at North American Forest Soils Conference, June 17-21, 2013, Whitefish, MT, USA.
- poster presentation entitled “Stabilization of Wood-Derived Carbon in Soils: Catalyst for a new study” (authors of poster: **SC Resh**, E Kane, and D Richter) and participation at DOE TES/SBR joint investigators meeting May 13-15, 2013, Potomac, MD, USA.
- oral presentation entitled “Belowground Carbon Dynamics” and participation at NSF-RCN workshop May 29-31, 2012, Merida, Mexico.
- poster presentation entitled “Vernal pool assessment in Pictured Rocks National Lakeshore in a Dry year” (authors of poster: **AJ Schrank**, **SC Resh**, WJ Previat, and RA Chimner) at Western Great Lakes Resource Management Conference, April 17-18, 2012., Ashland, WI, USA.

### ***Invited Speaker Presentations:***

- April 17, 2024 30 min. in-person presentation UP Invasive Species Conference, “Why Not Knot: remote sensing detection and treatment testing of invasive knotweeds.” (~30 people).
- April 11, 2024 20 min. virtual NotMIspecies Webinar, “Untangling the knot: identifying effective detection and treatment regimes for invasive knotweeds” (~200 people).
- March 23, 2024 1 hour virtual presentation for annual Native Plant Symposium, “Recruiting Nurseries in the Battle Against Invasive Plant Species” (71 people).
- February 28, 2024 30 min in-person presentation for MN Forest Health State Partners meeting in Roseville, MN, “Using a Native Fungus to Control Common and Glossy Buckthorn: Experiments Showing Effectiveness and Refining Application Methods.” (~40 people).
- January 25, 2023, 15 min in-person presentation for the Michigan Invasive Species Coalition Annual Meeting lightning talks “Manual knotweed management,” Gaylord, MI, USA
- April 26, 2022, 1.5-hour in-person presentation for the Michigan Forest Products Council on forest diversity and invasive species. Houghton, MI, USA
- February 9, 2022, 1.5-hour presentation via zoom “Don't Plant That, Plant This: Choosing Good Garden Plants and Avoiding Troublemakers” sponsored by the Wild Ones Keweenaw Chapter.
- February 6, 2021, Wisconsin-Upper Michigan Key Club District Leadership Conference. 30-minute virtual presentation on identification and management of invasive species for high school student leadership projects.
- June 20, 2019, Lake Superior Stewardship Initiative teacher training workshop, Copper Country ISD CTE Center. Presentation title: “Invasive Species: Agents of Ecosystem Change” for a 1-day workshop where I led both in-class and field tour components. Hancock MI, USA
- May 14, 2019, Hilary Sproule Master Gardener Project, Carnegie Museum. Presentation title: “Common Buckthorn and Other Backyard Woody Invasives” for 30-minute presentation time slot. Houghton, MI, USA.
- March 17, 2018, Native Plant Symposium, Carnegie Museum. Presentation title: “Plants to Avoid in Landscaping and Gardening” for 40-minute presentation time slot. Houghton, MI, USA.



June 22, 2017, Keweenaw Historical Society, Eagle Harbor Township Hall. Presentation title: “Invasive Species Yoga: Relax We Can Do It” for a 1.5-hour time slot. Eagle Harbor, MI, USA.

June, 2016, Lake Superior Stewardship Initiative teacher training workshop, Michigan Tech Campus.  
Presentation titles: “Invasive Species the Big Picture” and “The Good, the Bad, and the Ugly” for a 2-hour timeslot followed by 2-hour field tour. Houghton, MI, USA

### **Graduate Students:**

Ph.D. student—Michelle Cisz (Co-advised with Rod Chimner, graduated December 2020)

Masters students

Lindsey Dolinski (graduated December 2021)

Samantha Mosier (graduated May 2015)

Committees

Vikranth Madeppa Kalappa Doddaman, Master of GIS, intended graduation Spring 2023

Chad Jacobson, Master of Forestry Plan C, graduated December 2008

### **Service:**

#### **Professional**

- Member, Ford Center Tree Planting Committee, CFRES (fall 2021-present)
- Reviewer of Ecosystem Science Center student proposals (2009-present)
- Reviewer of SURF proposals (2010-2018)
- Judged campus-wide Three Minute Thesis (3MT) competition held on Oct. 12, 2016
- Judged posters for the Graduate Research Colloquium (2013), ESC Research Symposium (2015 and 2018), and Western UP Science Fair (2016)
- Charter Revision Committee (Dec. 2013-April 2014)
- SFRES Council Representative for the Non-Tenure-Track Faculty (2013-2014)
- SFRES Council Alternative Rep. for the Non-Tenure-Track Faculty (2012-2013)
- Reviewed manuscripts for: *Plant and Soil*, *Global Change Biology*, *Forest Ecology and Management* (2013, 2014, 2015), *Ecosystems* (2013), *Annals of Forest Science* (2017), *Ecological Processes* (2019, 2020)

#### **Community**

- Led a day-long invasive species pulling and native seeding fieldtrip for ~100 Houghton-Portage Township 7<sup>th</sup> graders (September 2013, 2015, 2016, 2017, 2018)
- Volunteer in local middle school to assist with various science related activities to advance understanding and broaden students’ perspectives (2006 – present)

### **Awards:**

- 2018 Hammer’s Endowed Field Equipment Fund (\$875)

### **Professional Memberships:**

- Phi Beta Kappa, National Honors Society
- Natural Areas Association
- Midwest Invasive Plant Network
- North American Invasive Species Management Association