Curriculum Vitae

KIM GERARD MATTSON
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EDUCATION

Ph.D. Ecology

University of Georgia, Athens, Georgia. 3/1986
Dissertation: Detrital carbon budget following clearcutting hardwood forests in the Southern Appalachians. Relevant coursework: statistics, population ecology, aquatic ecology, energetics, modeling, watershed hydrology, forest soils, advanced soil fertility, micro-climatology, plant physiological ecology, nutrient cycling, and environmental law.

B.S. Biology

University of Minnesota, St Paul, Minnesota. 6/1978
Relevant Coursework: ecology, physiology, genetics, biochemistry, behavior, field biology, communities, zoology, plant physiology, chemistry, calculus, statistics, computer programming, physics, organic chemistry, microbiology, anthropology, history, geography, literature, composition, art, Spanish.

WORK EXPERIENCE

Owner and Operator

Ecosystems Northwest **6/1994 – present**
Mount Shasta, California
Consulting has been my major employment since 1994. I started an ecological consulting firm to combine my training and research experience for services in the field of ecology, environment, and biology. I collect, analyze, and interpret scientific information to clients to aid them decision making and management of their natural resources. I also perform or prepare marketing, proposals, budgets, designs, and management strategies. Recently I have added to my services verifications for forest or soil carbon offsets and professional manuscript editing. Ecosystems Northwest has completed 150 projects for a wide variety of clients: federal and state governments, tribes, universities, non-profits, corporations, and individuals. Projects have included over 100 field surveys, 4 watershed analyses, and projects of stream restoration, statistical analyses of large data sets, running environmental models, performing literature summaries, and written syntheses. I have hired over 100 employees—7 Ph.Ds., 15 M.S., 80 B.S., 20 high school students, and 6 displaced timber workers.
Recent Contracts to: Jianwei Zhang, US Forest Service jianwei.zhang2@usda.gov ; Jenniffer Bakke, Manulife jbakke@manulife.com

Environmental Planner

California Department of Transportation **9/2014 – 5/2015**
District 4 Oakland, California
I provided environmental reviews for Caltrans projects as a district biologist/environmental planner in District 4 Bay Area. I participated in Project Design Team meetings and provided guidance on what types of permits and other protective practices that needed to be followed during the construction of transportation projects. I prepared or reviewed permits, consulted

with regulatory agencies regarding endangered species, and provided guidance to design engineers about minimization and avoidance of negative environmental effects of the construction projects as required by law. I prepared or directed contracting consultants to prepare permit applications, biological assessments as bases for biological opinions, I consulted with agencies on the need for mitigations and I set up survey projects. I wrote contract specifications for construction bids. I performed a variety of field reviews of sites at pre-construction, during construction, post construction. I prepared a variety of written documents and worked with GIS and the CNDDB data bases describing the extent and know distributions of sensitive species.
Supervisor: Frances Malamud-Roam frances.p.malamud-roam@usace.army.mil

Environmental Director
Quartz Valley Indian Reservation 7/2011 – 5/2014
Fort Jones, California
Director of the Environmental Department of the Quartz Valley Indian Reservation, a federally recognized tribe in northern California. I managed eight environmental programs that served the tribe and beyond. The programs were entirely grant funded, and I secured approximately $500,000 per year from agencies such as the Environmental Protection Agency, US Fish and Wildlife Service, Bureau of Reclamation, Bureau of Indian Affairs, US Forest Service, and California Department of Fish and Wildlife. I directed a staff of four permanent and up to six seasonal employees, both tribal and non-tribal. I supported the tribe on environmental issues by designs of monitoring programs of stream chemistry and ground water, preparation, and review of compliance documents (NEPA/CEQA), development of policy positions (Scott Valley water diversions, land acquisition, fish spawning habitat). I provided training to tribal members in technical fields (QA/AC, GIS, WQX, remote collection arrays, flow measures, ELAP laboratory procedures). I represented tribal interests by participation on advisory groups (surface and groundwater, fish, watershed councils, Tribal Advisory Committees to state and federal agencies—e.g., California Water Plan, State Water Board Irrigated Lands Advisory Committee, EPA RTOC, KBMP). The department was in flux when I was hired, but during my tenure, I reconciled the public perception, high staff turnover, and instituted improved budget and data procedures. I embarked on a land-acquisition program that would have increased the tribes land holdings by over 10-fold. I performed a variety of scientific tasks such as statistical and GIS analyses of our field data arrays, laboratory analysis of drinking and surface waters, designs for a stream gaging station with a GOES satellite transmitter, reviews of wide variety of studies, syntheses, preparation of writing assessments and publications. I interpreted scientific findings into policy and decision support.

Research Assistant Professor
University of Idaho 11/1988 - 6/1994
Moscow, Idaho
I performed basic research for 5 years in ecology, forest carbon cycling, and acidic deposition effects on forests, and soils. For the first 2+ years, I was stationed at the US EPA Lab Western Ecology Division in Corvallis OR (see below), and for the last three years I was stationed at the Department of Forest Science at Oregon State University, Corvallis, OR. For my three years of work at OSU, I initiated a research program in collaboration with the Oregon Transect Ecosystem Research (OTTER) to examine nitrogen cycling and detrital carbon cycling at one of their forest sites. I also designed studies to measure root respiration to separate heterotrophic and autotrophic respiration. I collaborated with other OSU researchers on a recovery and soil

processes on a recently de-glaciated site in the Northern Cascades. I collaborated with a third group in a laboratory design of a soil carbon efflux model to test methodological errors in equipment used to measure carbon dioxide efflux from soils. I was PI or co-PI on NSF, USDA, and EPA grants totaling over $500,000. I was first author or co-author on seven manuscripts from this work.
Collaborating researchers: Richard Waring (OSU, retired) richard.waring@oregonstate.edu, James Trappe (OSU, retired), Mike Newton (OSU, retired/passed), John Marshall (Swedish Univ of Ag Sciences), Mark Nay (retired), Ari Jumponen (Kansas State) ari@ksu.edu

Visiting Cooperative Scientist (from U of Idaho)
Environmental Protection Agency 11/1988 - 8/1991
Corvallis, Oregon
At EPA for the first two years, I served on the Synthesis and Integration team at the EPA Western Ecology Lab in Corvallis, from 1998 to 1991 and funded through the University of Idaho on a Cooperative Agreement. My duties were to run my own project budgeted for my salary, assistants, travel, and limited field work. I was tasked as lead author and responsible to produce several synthesis and integration reports for the EPA and Forest Service funded research into the effects of acidic deposition on North American Forests as part of the North American Acidic Deposition Assessment Program (NAPAP). Our research team had to organize and make sense of a fast-track program where the questions were still emerging and evolving. Laboratory studies with their short-term and artificial conditions had to be reconciled with field studies that suffered from uncontrolled conditions. We addressed contradictions and identified evidence of personal and professional bias. These results had to be reviewed considering both scientific and policy questions. I introduced meta-analytical techniques to assessing disparate studies. For field results we provided guidance on ways to separate acidic deposition effects from the effects of natural growth declines from stand closure.
Collaborators: Robert Lackey, Robert.Lackey@oregonstate.edu; Charles Peterson, Greg Reams, Beverly Law bev.law@oregonstate.edu. National US FS supervision: Ann Bartuska

Research Assistant Professor
West Virginia University 8/1986 - 11/1988
Morgantown, West Virginia
I was a non-tenure track researcher in the Department of Biology where I garnered my own research funds and taught biology courses. I lectured general biology courses to classes of over 120 students. I was awarded research grants to study carbon cycling in woody debris and soils in forests under a variety of stress and management regimes. I collaborated with scientists at the Cooper's Rock Experimental Forest of West Virginia University, the US Forest Service Fernow Experimental Forest in Parsons, West Virginia, and with researchers at Dartmouth University and their research projects in the White Mountains of New Hampshire. I managed six assistants on three research projects and budgets spanning over 2 years. I published findings in peer-reviewed literature.
Collaborating researchers: Gerald Lang, Joseph Yavitt jby1@cornell.edu, Mary Beth Adams, William Reiners.

Graduate Research Assistant
University of Georgia **9/1980 - 8/1986**
Athens, Georgia
I performed graduate research as part of the Long-term Ecology Research site at the Coweeta Hydrologic Lab in Otto, North Carolina while attending the Institute of Ecology at the University of Georgia. I researched detrital carbon dynamics to test hypotheses of how forest process detrital carbon and how disturbance affects the processes. I researched the questions, defended research plans, and designed a field study to statistically test hypotheses. I carried out a four-year research project, managed 8 field assistants, analyzed data, presented findings in scientific meetings and published results in peer-reviewed literature.
Collaborating researchers/advisors/fellow students: Wayne Swank, Lindsay Boring, Carl Jordan cfjordan@uga.edu, Bob Buschbacher rbusch@ufl.edu, Florencia Montagnini florencia.montagnini@yale.edu

Pollution Control Specialist
Minnesota Pollution Control Agency **6/1978 - 8/1980**
Roseville, Minnesota
I performed field surveys of streams as receiving waters for small permitted surface water discharges. I measured stream water quality, physical habitat, and discharge types. Results were used as part of a decision tool to fund upgrades to wastewater treatment plant with Federal Clean Water Act dollars. I worked independently in the field and managed my schedule and work products. I met with a variety of waste dischargers and consulted with them on the receiving waters and nature of the discharge. I was responsible for recommending designated classes of stream waters that received waste discharge. The classes the stream received then determined the level of funding eligible for dischargers for upgrades under the Clean Water Act.
Team mate: Paul C. Marsh fish.dr@nativefishlab.net

Field Research Assistant
University of Minnesota **7/1975 - 5/1978**
St Paul, Minnesota
I collected field data on nesting and rearing success of a wild turkey population introduced to southeastern Minnesota. I tracked up to 30 individual wild turkey using radio-telemetry. I collaborated with researchers from the University of Minnesota and the Minnesota Department of Natural Resources. I was second author of my first peer-reviewed, published paper. I worked independently in the field while the principal investigator was finalizing his dissertation. I was responsible for the daily data collection. I also designed and set up winter, rocket-trapping sites to capture new individuals for radio transmitters.
Collaborator: William F. Porter (retire/deceased)

JOB RELATED TRAINING

ISO 14064 verification training 2023.
Land Ecosytems Carbon Modeling Northern Arizona Univ, 2019
Soil carbon verification certificate Carbon Action Reserve, 2019
Carbon offset lead verifier for forests and urban forests, California Air Resources Board, 2014.
Wetlands delineations Corps 404, 2014
Endangered Species Act Caltrans, CA 2014

Plants of Northern California 2005
Salamanders of PNW 1999
GIS programming, 1998
Fungi 1997
Washington watershed analysis, 1995.
Environmental Law and NEPA 1981

AFFILIATIONS

Society of American Foresters
Forest Vegetation Conference attendee
American Geophysical Union
American Fisheries Society
Salmonid Restoration Federation
Soil Science Society of America
Ecological Society of America Certified Senior Ecologist
International Ecological Association

PROFESSIONAL PUBLICATIONS

Zhang, J, M Busse, L Wang, D Young, and K Mattson. 2023. Wildfire loss of forest soil C and N: do pre-fire treatments make a difference? Science of the Total Environment: 854 (2023) 158742. https://doi.org/10.1016/j.scitotenv.2022.158742

Zhang, J, DS Page-Dumroese, MF Jurgensen, M Busse, and KG Mattson. 2023. Coarse woody debris and carbon stocks in pine forests after 50 years of recovery from harvesting in northeastern California. Forests 14:623. https://doi.org/10.3390/f14030623

Zhang, J, J Zhang, K Mattson, and K Finley. 2020. Effect of silviculture on carbon pools during development of a ponderosa pine plantation. Forests 11, 997: https://doi.org/10.3390/f11090997

Mattson, KG and J Zhang. 2019. Forests in northern Sierra Nevada of California, USA, store large amounts of carbon in different patterns. Ecosphere 10(6): e02778.10.1002/ecs2.2778 https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.2778

Jumpponen, A, K Mattson, J Trappe, R Ohtonen. 2018. Effects of established willows on primary succession on Lyman Glacier forefront, North Cascade Range, Washington, U.S.A.: Evidence for simultaneous canopy Inhibition and soil facilitation. / Artic and Alpine Research 30:31-39.

Han, Y, J Zhang, KG Mattson, W Zhang, and TA Weber. 2016. Sample sizes to control error estimates in determining soil bulk density in California forest soils. Soil Science Society of America Journal 80(3):756-764.

Mattson, KG. and WT Swank. 2014. Woody debris decomposition following clearcutting at Coweeta Hydrologic Laboratory. Pp 118-133, ch 7, in: W.T. Swank and J.B. Webster, editors. Long-term Response of a Forested Watershed Ecosystem. Oxford University Press.

McDowell NG, JD Marshall, J Qi, K Mattson. 1999. Direct inhibition of maintenance respiration in western hemlock roots exposed to ambient carbon dioxide concentrations. Tree Physiology 19:599-605.

Jumpponen A, H Vare, KG Mattson, R Ohtonen, and J M Trappe. 1999. Characterization of 'safe sites' for pioneers in primary succession on recently deglaciated terrain. J. of Ecology 87:98-105.

Lu S, KG Mattson, J Zaerr, and J Marshall. 1998. Root respiration of Douglas-fir seedlings: Effects of N concentration. Soil Biol. Biochem. 30:331-336.

Jumpponen A, KG Mattson, J Trappe. 1998. Mycorrhizal functioning of Phialocephala fortinii with Pinus contorta on glacier forefront soil: interactions with soil nitrogen and organic matter. Mycorrhiza 7:261-265.

Qi J, JD Marshall, and KG Mattson. 1997. High soil carbon dioxide concentrations inhibit root respiration of Douglas-fir. New Phytologist. 128: 435-442.

Mattson KG. 1995. CO2 efflux from coniferous forest soils: comparisons of measurement methods and effects of added nitrogen. In: R Lal, J Kimble, E Levine and BA Stewart, eds. Soils and Global Change. CRC Press, Boca Raton. Pp: 329-341.

Nay SM, KG Mattson, and BT Bormann. 1994. Biases of chamber methods for measuring soil CO2 efflux demonstrated with a laboratory apparatus. Ecology 75:2460-2463.

Entry JA, KG Mattson, and W Emmingham. 1993. Effects of soil nitrogen on mineralization of 2,4-D and atrazine in pasture soils. Biology and Fertility of Soils 16:179-182.

Mattson KG and HC Smith. 1993. Changes in detrital organic matter following forest cutting in West Virginia. Soil Biology and Biochemistry 25:1241-1248.

Mattson KG, WT Swank, and JB Waide. 1987. Decomposition of woody debris following clearcutting in the Southern Appalachians. Canadian Journal of Forest Research 17:712-721.

Porter WF, GC Nelson, and KG Mattson. 1983. Effects of winter conditions on reproduction in a wild turkey population. Journal of Wildlife Management 47:281-290.

EPA, Peer-reviewed Documents

Entry JA, KG Mattson, and MB Adams. 1993. Carbon balance in forest ecosystems: response to nitrogen. In: Carbon Cycling in Boreal Forests and Sub-Arctic Ecosystems. TS Vinson and TP Kolchugina, eds. USEPA Office of Research and Development, Washington, D.C. EPA/600R-93/084. Pp: 155-166.

Mattson KG, LY Arnaut, GA Reams, SP Cline, CE Peterson, and RJ Vong. 1990. Response of forest trees to sulfur, nitrogen, and associated pollutants. USEPA Environmental Research Laboratory, Corvallis, OR. EPA/600/3-90/074. 134 p.

Reams GA, WG Warren, RJ Vong, M Bohm, KG Mattson, and LY Arnaut. 1990. Extent and magnitude of recent changes in forest condition and the role of air pollution and non-air pollution factors. USEPA Environmental Research Laboratory, Corvallis, OR. EPA/600/3-90/042. 152 p.

Peterson CE, KG Mattson, and RJ Mickler. 1989. Seedling response to sulfur, nitrogen, and associated pollutants. USEPA Environmental Research Laboratory, Corvallis, OR. EPA/600/3-89/081. 104 p.

Other publications or documents

Mattson, KG, P Van Susteren, JT Titus, MM Mattson, and D LaPlante. 2022. Carbon sequestration on Midpen lands: literature review and carbon management opportunities for Midpeninsula Regional Open Space District, San Gregorio Watershed, CA. Prepared by Ecosystems Northwest, Mount Shasta, CA.

Mattson, K, P Van Susteren, and J Thrupp Titus. 2017. Climate change adaptation plan: Cortina Rancheria, Kletsel Dehe Band of Wintun Indians. Williams, CA. Prepared by Ecosystems Northwest, Mount Shasta, CA.

Beckmann JJ and KG Mattson. 2012. 2012 investigations of bacterial concentrations in streams associated with cattle grazing in wilderness areas of the Klamath National Forest. Quartz Valley Indian Reservation Environmental Department. http://www.qvir.com/uploads/2/8/6/9/2869254/usfs_grazing_study_2012_final.pdf

Sluss R, S Schafer, M Bennett, C Kelley, and K Mattson. 2011. Quartz Valley Indian Reservation water quality and monitoring report 2011. Quartz Valley Indian Reservation Environmental Department. http://www.qvir.com/uploads/2/8/6/9/2869254/usfs_grazing_study_2012_final.pdf

Mattson, KG. 2008. Effectiveness Monitoring of Restoration in the Shasta Basin. Report to the California Department of Fish and Game on behalf of the Shasta Resources Conservation District.

Runyon, J, T Grubert, J Allen, J Reed, V Rogers, and K Mattson. 2002. Lower Middle Fork Willamette River Watershed Assessment. Prepared for the Middle Fork Willamette Watershed Council. 140 pp. plus appendices.

Mattson, K, and A Gallagher. 2001. Rickreall watershed assessment. Prepared for Rickreall Watershed Council, Dallas, OR 130 pp. plus appendices.

Mattson K, J Runyon, S Fernald, A Gallagher, R Johnson, K Snyder, S Eden, and R Zybach. 1999. Marys River Watershed Preliminary Assessment. Marys River Watershed Council, Philomath, OR. 146 pp. plus appendices.

Mattson K, S Coveny, B Johnson, J Means, W Weaver, T Williamson, J Reams, and B Rosenbaum. 1998. Quartz Creek and Minor Tributaries Watershed Analysis. Blue River Ranger District, Blue River, OR. 125 pp.

Andrus C, K Mattson, and J Runyon. 1996. Mercer/Berry Watershed Analysis. Siuslaw Nat For, Corvallis, OR. 129 pp.

Mattson KG, CK Hayes, L Flynn. 1982. Dredge and fill activities in Minnesota's waters and wetlands: impacts, extent, and management. Interagency and Section 208 Report. Minnesota Pollution Control Agency, Roseville, MN 61 pp.

Over 100 other reports have been prepared such as stream surveys and fish use surveys.

ADDITIONAL AWARDS AND ACTIVITIES

- Caltrans Certificate of Completion Keinfelder, Inc. and Ecosystems Northwest Mentor-Protégé pairing. 2023.
- US Department of Interior, Partners in Conservation award, January 2014. Presented at US DOI headquarters in Washington DC.
- Affiliate board member Shasta Valley Resource Conservation District, 2008-2014.
- Representative Tribal Advisory Committee for the California State Water Plan 2010-2014.
- Served as a panel member to the July 2009 Soil Processes Grant Review Panel for the USDA CSREES competitive research grants in Washington DC.
- Chairman (2004-2009) for Friends of the Rink, a citizens' volunteer group that supports the Siskiyou Ice Rink http://www.siskiyourink.org/ Level III coach by USA Hockey 2006-2009.
- Adjunct Instructor of Field Natural History for College of the Siskiyous 2002-2008. Member of Sustainable Communities Visioning Group for College of the Siskiyous. 2002-2008
- Board member to Mount Shasta Bioregional Ecology Center 2000-2008.
- Ecological Advisor to Yreka Creek Greenway Committee 2000-2002.
- Certificate of Appreciation for Services on Synthesis and Integration documents while working at the EPA 1991.

PROFESSIONAL REFERENCES

Dr. Robert Lackey Oregon State University Professor of Fisheries and Political Science 530-737-0569 Email Address: Robert.Lackey@oregonstate.edu

Dr. James Trappe Oregon State University and US Forest Service (retired). 541-758-0461 trappej@ucs.orst.edu

Dr. Ari Jumpponen Kansas State Univ. Division of Biology 785-532-6751 air@ksu.edu

Dr. Jianwei Zhang, Pacific Southwest Research Lab, US Forest Service, Redding CA. 530-226-2550 jianwei.zhang2@usda.gov

Dr. Robert Buschbacher Univ of Florida, Tropical Cons, rbusch@ufl.edu 352-658-5638

Dr. Florencia Montagnini, Yale School of Env, florencia.montagnini@yale.edu 203-436-4221