Kim Gerard Mattson mailto:mattson@EcosystemsNorthwest.com

189 Shasta Av
Mount Shasta, CA 96067
530-926-4136

Education:

Ph.D. in ecology, U of Georgia, Institute of Ecology. Dissertation: Detrital carbon dynamics following forest harvests in Southern Appalachians.

B.S. in biology, U of Minnesota

Areas of specialization:

Grant development, environmental protection and program management organizations. Environmental regulation/policy, ecosystem management, modeling, research/written syntheses, water rights, surface and groundwater, fish, forests, climate change, carbon.

Experience:

- **Entrepreneur/startup owner of Ecosystem Northwest,** a natural resources consulting firm, in Mt. Shasta, California. I have managed over 150 projects and over 100 employees. Clients include 60 % federal government, 10 % each of watershed councils, private forest firms, and Indian tribes/non-profits, and stakeholders. Projects include natural resource surveys and written assessments, applied research, syntheses. Focus areas are carbon cycling in forests and carbon sequestration, climate change adaptation, salmonid and aquatic habitat surveys, science support for large restoration programs http://www.ecosystemsnorthwest.com./

- **Environmental Planner / District Biologist** California Department of Transportation, District 04, Oakland, CA. I guided engineer staff regarding potential risks to environmental resources and consulted on ways to avoid, minimize, and/or mitigate impacts of road and transportation projects. I prepared CEQA and NEPA analyses, permit applications, specifications for construction contact. I consulted with US FWS on Biological Opinions as needed. I also worked with local agencies such as Coastal Commission, local transit authorities. I performed site and field visits, delineated wetlands per Corps protocols, verify waters of the US or State, surveyed for sensitive animal and plant species, reviewed stream crossings for fish passage, and ensured compliance to specifications such as Migratory Bird Treaty Act and others.

- **Director of an environmental department of a federally recognized tribe** in northern California. I managed eight environmental programs that were entirely grant funded. I doubled the funding stream to over $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 maintain certification as a California ELAP certified lab. My department advised the tribe on natural resource issues and conducted a variety of monitoring programs in surface and ground water, forest health, invasive species, land acquisition, and resources development

Example Projects:

- **Project manager** of environmental/ecological projects ranging from field surveys, restoration projects, to science-based analyses. Projects required adapting generic survey protocols to specific field conditions and training survey teams to successfully conduct surveys under adverse conditions and time constraints.
- **Consulting with other experts** in the field and coordinating with private landowners over issues of access, protection of property and landowner rights, and data use.
- **Business development**: researching, marketing, and contract negations on all projects

- **Design of field data collection projects**: 3,000 miles stream habitat and fish, soil carbon studies, special species inventories, wetlands delineation, forest inventories. Have successfully developed specific field needs for a variety of projects.
- **Written analyses**: watershed inventory of conditions, relationship to environmental regulations, and strategies and prioritizations for management of multiple objectives. Am highly successful in presenting field data in meaningful ways to help answer questions and pose new conceptual ideas.
- **Effectiveness monitoring** of restoration projects and recommendations of opportunities. In the Shasta River Effectiveness Monitoring project I was highly successful in gaining landowner support for 24 plots we had to access. Also, this project helped to open doors for more work on a previous difficult area for government-sponsored research.
- **CEQA/NEPA, water regulations, environmental policy** preparation, review, and comment. Experience with projects in both Oregon and California.
- **Carbon studies** of current storage in forests and potential for sequestration in soils. This is a particular area of strength. Have served on national review panels for grant funding and have received nationally competitive grants.
- **Peer-reviewed publications**, project reviews and syntheses, issues summaries. .

Research Professional Ecological Experience:

- Adjunct Biology Professor College of the Siskiyous, Weed, CA.
- Assistant Professor of Forest Science (courtesy). Oregon State University.
- Research Assistant Professor of Forest Resources. University of Idaho.
- Research Assistant Professor of Biology. West Virginia University.
- Research Assistant LTER Coweeta Hydrologic Lab, University of Georgia.

Professional Development

- **Current member of professional organizations**: American Fisheries Society and American Geophysical Union, Society of American Foresters.
- **Past member of professional organizations**: Ecological Society of America, International Association for Ecology, Soil Science Society, Northwest Forest Soils, Council on Forests Engineers.
- **Certifications, training, awards**: Certified in wetlands delineation per US Army Corps Engineers; Forest carbon verification certification California Air Resources Board; National Partners in Conservation Award from US Dept. of Interior 2014;Section 7 and Scientific Take Permits for fish in California and Oregon; California Fish Passage Workshop; Watershed Restoration Workshop; Survey and Manage Amphibian Workshop; Certified as Watershed Analyst State of Washington; Certified as Level II stream surveyor US Forest Service; Certified as Senior ecologist Ecological Society of America; Services Award from US Forest Service for synthesis work with Nat. Acidic Precip. Assmt. Program.

Selected Written Documents:

Mattson, K.G. and W.T. 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.

Mattson, KG. 2008. Effectiveness monitoring of restoration projects in the Shasta Basin. Prepared on behalf of the Shasta Resource Conservation District for the California Department of Fish and Game. http://www.ecosystemsnorthwest.com/pdf_downloads.html

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.

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.

Mattson KG. 1995. CO_2 efflux from coniferous forest soils: comparisons of measurement methods and effects of added nitrogen. In: R. Lal, J. Kimble, E. Levine and B.A. 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.

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

Over 100 other reports (for examples of watershed assessments, stream survey reports) see: http://www.ecosystemsnorthwest.com/writ_syn.html

Presentations to Professional Groups:

2012 Surface and ground water studies, Quartz Valley Ind. Res. To Klamath Basin Mgt Prog.
2011 Water quality work by Quartz Valley Ind. Res. To Scott Watershed Information Forum.
2007 Increased biological response in small streams with forest harvests. Soc. Am. For. Portland, and to Am. Fisheries Soc. National Meetings, San Francisco.
2005 Riparian zones, shade, and stream productivity. Council of For. Eng. meetings, Fortuna, CA
2005 Riparian areas. Invited talk to Council of Forest Engineers, Redding, CA and Arcata Ca

Description of Services of Performed by Dr. Mattson and Ecosystems Northwest

Compliance Review/Regulatory Consultation
Preparation and review of NEPA documents, CEQA, TMDL development, Clean Water Act, Public Water Supply Supervision, Water Rights, and Integrated Regional Water Management plan development.

Project Management for Biological Assessments
Mattson is capable of designing, supervising, and managing scientific field projects including surveys, restoration, and monitoring. Data collection, analysis, with written reports prepared to the highest standards.

Stream Surveys
Since formation, Ecosystems Northwest has completed stream surveys for fish habitat, physical channel, riparian function, fish distribution surveys, and effectiveness of restoration projects. Collectively Ecosystems Northwest has surveyed 3,000 miles of streams in Oregon, Washington, and California. Mattson has personally performed over 300 miles of river and stream surveys.

Watershed Assessments and other Analyses
Ecosystems Northwest was the lead on four watershed assessments (Rickreall, Marys River, Quartz Creek, Mercer Berry) and has contributed to the Middle Fork Willamette River. Other assessments include Effectiveness Monitoring of Restoration in the Shasta Basin, Flood Effects in the Breitenbush Basin, and Riparian Conifer Regeneration in the Siuslaw Nat. Forest.

Modelling Ecosystem Processes
Several models have been parameterized including Ecosystem Treatment and Diagnosis (EDT), a fish habitat model for rivers, electrofishing depletion models, HElwest, an elk habitat model. Mattson also has constructed his own forest carbon models.

Data Collection and Research
Mattson has a Ph.D. in ecology, has performed field research since 1980, and has published in the peer-reviewed literature on topics such as forest ecosystems and watershed processes. Mattson approaches projects with a research perspective and understands well the role of data collection, quality control, statistic al analyses, and the generation of information.

Carbon Budgets for Forests
Through field measurements and modeling, carbon accumulations can be estimated for forests of the Pacific Northwest. Such estimates can help in determining strategies for carbon credits, particularly in soils. Areas of experience include Northern California, Oregon, and Southeast Alaska.

Fungi and Non-vascular Plant Surveys

Surveyed BLM lands in southwest Oregon for fungi and non-vascular plants using controlled-intuitive entries with species collections for laboratory confirmations. Riparian plant surveys along the Shasta River as part of a monitoring program. Mattson has taught field natural history courses at College of the Siskiyous in Weed, CA where plants are covered for three major ecosystems in California.

Wildlife Surveys

Northern Goshawk surveys have been conducted in central Oregon for the Bureau of Land Management. Surveys used taped calls broadcast at a grid design. Mattson also conducts wildlife surveys as part of the Field Natural History course he teaches at College of the Siskiyous.

Professional Review

Mattson has reviewed and commented on a variety of documents including CEQA documents in California, scientific take permit applications for both Oregon and California, peer-reviewed manuscripts for scientific journals, and served on national review panels for USDA grants program.