

Lorene Lynn | Red Mountain Consulting, LLC

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(907) 354-5444 | lorene.lynn@rmcalaska.com

EDUCATION:

University of Alaska Fairbanks School of Natural Resources and Agricultural Sciences
Master of Science: Plant, Animal, and Soil Science 2009
Thesis: *Impacts of Coastal Erosion on Soil Properties of the Beaufort Sea Coast, Alaska*
Advisors: Dr. Chien-Lu Ping, Torre Jorgenson, Dr. Norman Harris, Dr. Mingchu Zhang

University of Alaska Fairbanks School of Natural Resource Management
Bachelor of Science, Plant, Animal, and Soil Science 2006
Undergraduate Thesis: *Seasonal Variation of Sugar Level in Three Varieties of Carrot (Daucus carota L.)*

PROFESSIONAL CERTIFICATIONS and APPOINTMENTS:

Certified Professional Soil Scientist (CPSS #322282)

Certified Ecological Restoration Practitioner (CERP #0190)

Chair, North Slope Science Initiative (NSSI) Science Technical Advisory Panel (STAP), 2015—Present

WORK EXPERIENCE:

- 2016 – Present **Red Mountain Consulting, LLC.** **Palmer, AK**
Owner/Principal. Red Mountains Consulting (RMC) opened in April 2016. Core competencies include tundra rehabilitation, ecological restoration, soil survey, permafrost characterization, wetland delineation, natural resource and mining reclamation planning, agency consultation, field monitoring, and regulatory compliance and reporting.
- 2008 – 2016 **HDR Alaska, Inc.** **Palmer/Anchorage, AK**
Soil Scientist/Restoration Ecologist and Project Manager. Provide natural resource management studies and recommendations for projects which include wetland delineations (over 3,000 acres), functional assessments, and mitigation recommendations; comprehensive soil mapping for large-scale projects; and tundra rehabilitation projects including planning, ensuring compliance with agency permits, and management of rehabilitation sites. Specialize in description, sampling, and analysis of soil and permafrost including morphological, physical, biological, and chemical attributes; soil survey; environmental site assessment; and agency consultation.
- 2008 **Natural Resource Conservation Service (NRCS)** **Homer, AK**
Soil Scientist. Studied, investigated, and mapped soils in Western Alaska and Kodiak Island from the standpoint of soil morphology, genesis, landscape position and distribution including soil physical, chemical, and biological properties and processes and their adaptation to use and management in resource development and community planning and for improving the quality of the environment.
- 2006 – 2008 **University of Alaska Fairbanks** **Fairbanks, AK**
Graduate Research Assistant. Described and collected soils from Southeast, Southcentral, Interior, and Arctic Coastal Plain of Alaska over the course of two years. Performed chemical and physical laboratory analysis of soil and permafrost samples collected along the Beaufort Sea coast of Alaska for analysis in predicting impacts of coastal erosion.
- 2007 **NRCS** **Delta Junction, AK**
Earth Team Volunteer. Described and mapped soils near Delta Junction and Salcha using morphological soil properties, landscape position and distribution, soil physical, chemical, and biological properties and processes.
- 2005 **U.S. Fish and Wildlife Service** **Anchorage, AK**
Biological Sciences Technician. Conducted fish habitat assessment by delineating and describing stream channel and habitat attributes.

PUBLICATIONS AND PRESENTATIONS:

L. A. Lynn. 2018. Trenches in Permafrost: Anthropogenic Acceleration of Thaw. International Meeting of the Soil Science Society of America, San Diego, CA, November 2018.

L. A. Lynn. 2018. Wetland Enhancement, Edible Plants, and Education in Utqiagvik, Alaska. SWS-PNW and Society for Ecological Restoration Northwest Joint Meeting, Spokane, WA, October, 2018.

Vaughn, K. L., **L. A. Lynn**, and 19 more. 2017. State of Gender Parity in Soil Science. International Annual Meeting of the ASA-CSSA-SSSA, Tampa, FL, October 2017.

Lynn, L. A. 2017. Arctic Tundra Disturbance: Recovery on a Fragile Landscape. International Annual Meeting of the ASA-CSSA-SSSA, Tampa, FL, October 2017.

Lynn, L. A. 2015. Successful and Not-so-Successful Tundra Revegetation Techniques. International Annual Meeting of the ASA-CSSA-SSSA, Minneapolis, MN, November 2015.

Lynn, L. A. 2014. Frozen Soils: An exploration of permafrost. Delivered 3 times: to Alaska Association of Environmental Professionals (AAEP), to BPXA's Scientific Seminar series, and to EPA staff.

Weindorf, D.C., Y. Zhu, P. McDaniel, M. Valerio, **L. Lynn**, G. Michaelson, M. Clark, and C.L. Ping. 2012. Characterizing soils via portable x-ray fluorescence spectrometer: 2. Spodic and Albic horizons. *Geoderma* 189-190:268-277.

Lynn, L. A. 2012. Progress of tundra rehabilitation in Alaska's arctic. American Geophysical Union Annual Meeting, San Francisco, CA, December 2012.

Lynn, L. A. 2011. Tundra rehabilitation in Alaska's arctic. International Annual Meeting of the ASA-CSSA-SSSA, San Antonio, TX, October 2011.

Lynn, L. A. 2009. Evidence in support of a limnic subgroup in the Gelisol order of US Soil Taxonomy. International Annual Meeting of the ASA-CSSA-SSSA, Pittsburgh, PA, November 2009.

Lynn, L. A., C.L.Ping, G.J. Michaelson, and M.T. Jorgenson. 2008. Soil properties of the eroding coastline at Barter Island, Alaska. Proceedings of the Ninth International Conference on Permafrost. International Permafrost Association (NICOP), Fairbanks, Alaska.

Lynn, L. 2007. Nutrient transformation and gas flux along the eroded coastline, arctic Alaska. International Annual Meeting of the ASA-CSSA-SSSA, New Orleans, LA, November 2007.

Lynn, L., C.L. Ping, G. Michaelson, T. Jorgenson. 2007. Pedological investigation along the eroding Beaufort Sea coast, Alaska. Annual Meeting of the Arctic Division of the AAAS, Anchorage, Alaska, September 2007.

Kanevskiy, M., E. Stephani, D. Fortier, T. Jorgenson, **L. Lynn**, G. Michaelson, C.L. Ping, Y. Shur. 2007. Ground ice of Beaufort Sea coastal plain, Alaska. Annual Meeting of the Arctic Division of the American Association for the Advancement of Science (AAAS), Anchorage, Alaska, September 2007.

Lynn, L. 2007. Carbon flux from melted permafrost cores. Annual Meeting of the Arctic Research Consortium of the United States (ARCUS) Forum, Washington, D.C., May 2007.

Ping, C., Dou, F., Fortier, D., Jorgenson, T., Kanevskiy, M., **Lynn, L. A.**, Michaelson, G. J., Shur, Y. L., 2006. Pedological properties of the eroding coastline along the Beaufort Sea, Alaska. Fall Meeting American Geophysical Union (AGU), San Francisco, CA, December 2006.

PROJECT EXPERIENCE:

Project Manager/Restoration Ecologist, Granite Construction, AK. Lorene is writing a restoration plan and will manage field execution for expansion of a material site within the boundaries of the Kenai National Wildlife Refuge. This innovative restoration of 40 acres will meet the highest standards of restoration in alignment with Refuge goals. It will include creation of ponds, wetlands, and blended topography with the goal that the site will eventually support a vegetation community similar to that found in the surround undisturbed land. Field trials for fungal inoculation to promote vegetation recovery will be conducted in collaboration with Sustainable Earth Research LLC.

Project Manager/Restoration Ecologist, Hilcorp Alaska, LLC, AK. Lorene wrote and implemented the restoration plan for a former gas exploration pad within the Kenai National Wildlife Refuge. This precedent-setting work will set the stage for hundreds of acres of restoration work that will eventually be conducted during removal of oil and gas facilities inside the Refuge. She provided on-site oversight of dirt work and site preparation activities as well as provided revegetation plantings, monitoring, and reporting.

Project Manager/Restoration Ecologist, Hilcorp Alaska, LLC, AK. Lorene provided a restoration plan, monitoring services, and agency reporting for a temporary gravel pad within a State Game Refuge in West Cook Inlet in compliance with state and federal requirements. Lorene provided agency consultation and guidance for an additional area of disturbance to prevent discharge of sediments into adjacent wetlands. Lorene has performed multiple preliminary wetland determinations at properties held by Hilcorp on the Kenai Peninsula and West Cook Inlet.

Project Manager/Affiliate Professor, Arctic Slope Native Association (ASNA) and Iisaġvik College, Iisaġvik (Barrow), AK: Lorene designed and guided construction of an educational edible plants botanical garden and cultural heritage center. She applied her knowledge of tundra ecology, permafrost, and soil properties to successfully grow a wide variety of plants in the center of the village for this innovative project. She guides youth labor crews, designs outreach materials including an interactive website, and has created a unique, collaborative environment amongst tribal leaders, Native Corporations, and local governmental and non-governmental entities.

Project Manager/Soil Scientist, BP North Slope Tundra Rehabilitation, BP, AK. Lorene managed BP's North Slope tundra rehabilitation program and continues work writing rehabilitation plans and monitoring reports and managing on-time submittal for HDR and other contractors to appropriate agencies; maintaining clear records and a tracking system of all projects and maps, required reports, and contractor reporting obligations; and conducting rehabilitation activities and monitoring for various sites. Site inspections are conducted on rehabilitation activities and monitoring annually. She has organized and hosted an annual agency tundra rehabilitation meeting in conjunction with ConocoPhillips, Shell, and ExxonMobil and organized an external advisory panel meeting and tour evaluating BP's North Slope rehabilitation research.

Soil Scientist, Assessment Inventory and Monitoring (AIM), BLM/UAA Center for Conservation Science, 40-Mile Mining District and NPRA, AK. Lorene is surveying and describing soils and surface stability according to the BLM Assessment Inventory and Monitoring (AIM) protocol over an area encompassing nearly 400,000 square miles.

Project Manager/Tundra Ecologist, Winter Road Tundra Damage Rehabilitation and Monitoring, Malamute Energy Inc., AK. Lorene wrote a supplemental rehabilitation plan for winter road tundra damage to address incongruencies in the original plan and to make the goals realistic, achievable, and in alignment with agency management goals. She performed on-site monitoring, agency consultation, and reporting.

Project Manager/Soil Scientist, Property Restoration, Aurora Communications International, AK. Lorene completed a property assessment where a private landowner had violated the Clean Water Act by discharging fill into wetlands and Cook Inlet. Based on a prior wetland delineation and recommended remedial actions, Lorene created a plan to efficiently, economically, and practically implement measures to prevent further erosion of the coastline, re-route waters into wetland areas, and slow erosion in existing drainages to the satisfaction of the EPA and USACE.

Project Manager/Wetland Scientist, Wetland Delineations and Functional Assessments, Multiple Private Clients, AK. Lorene performs wetland delineations and wetland functional assessments as part of permit requirements from the USACE for proposed development in, or adjacent to, wetlands. She advises the clients on permit application procedures and mitigation design.

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Project Manager/Environmental/Soil Scientist, Beach Lake Trails Management Plan, Land Design North, AK. Provided analysis of environmental conditions, vehicular access and utility corridor, and existing transportation facilities for use in updating the Master Plan of Beach Lake Park in Chugiak/Eagle River. The purpose of the master plan was to update the existing plan that was over 40 years old and provide guidance for future recreational development and land use decision specific to the study area of 1,800 acres.

Project Manager/Soil Scientist, Reclamation Plan, PacRim Coal Chuitna Mine, AK. Lorene prepared the soils handling and revegetation portion of the reclamation plan for the 1000-acre mine. Tasks included evaluating hydrologic, wetland, geologic, and soils data for each vegetation community, to create a soils handling plan that includes managing large quantities of peat material, and coordinating with mine engineers to create the most practicable topographic contours and manage hydrologic gradients. The reclamation plan addresses agency and landowner interests and addresses options for compensatory mitigation credits with proposed reclamation activities.

Project Manager/Soil Scientist, Tundra Rehabilitation, NANA Oilfield Services, AK. Lorene provided a tundra rehabilitation plan for an oil spill along the Dalton Highway as part of compliance with ADEC and ADNDR regulations. She provided on-site tundra rehabilitation assessment, tundra treatment, and monitoring services for four years or until agency agreement is reached on completion of remedial action and necessary treatment is completed.

Environmental/Soil Scientist, Point Thomson 3rd Party EIS, ExxonMobil, AK. Provided subject matter expertise on soils and permafrost, physiography, stratigraphy, geomorphology, and seismicity sections of the third-party EIS for the ExxonMobil Point Thomson Sand Reservoir on the North Slope of Alaska in compliance with NEPA.

Environmental/Soil Scientist, West Dowling Road Phase II, DOT&PF, AK. Calculated compensatory mitigation using the Anchorage Debit-Credit Methodology and prepared permits for mitigation requirements for West Dowling Road extension. Compensatory mitigation is required by the USACE and EPA for unavoidable impacts to wetlands.

Wetlands Technical Lead, MSB Comprehensive Wetlands Management Plan, Matanuska-Susitna Borough, AK. Developed a Wetlands Management Plan to coordinate and facilitate wetland protection via four key areas: (1) wetland mapping and assessment, (2) wetlands permitting, (3) wetlands mitigation banking, and (4) voluntary wetlands protection. Developed wetlands ordinances that would implement the measures in the wetland management plan, including the establishment of a future permitting program for non-federal jurisdictional wetlands.

Environmental/Soil Scientist, Rapid Wetland Assessment Model, Alaska Department of Transportation and Public Facilities (DOT&PF), AK. Created an Alaska-specific wetland functional assessment method by modifying the Montana Wetland Assessment Method. The U.S. Army Corps of Engineers (USACE) will use this wetland assessments method in geographic areas for which no other accepted method exists. Composed the sections on flood attenuation, sediment/nutrient/toxicant retention and removal, and sediment/shoreline stabilization, provided technical review for the document, and acted as project coordinator.

Team Lead/Soil Scientist, Popovich Nose Soils Mapping, Usibelli Coal Mine (UCM), Healy, AK. Designed and conducted a soil survey of 445 acres: reviewed previous soil surveys from nearby areas; used GIS to pre-map soils based on vegetation-geomorphological relationships; and completed a field soil survey of the area according to standard methods found in the Soil Survey Manual (USDA-NRCS) as part of the environmental baseline studies in support of an Alaska Surface Mining Control and Reclamation Act (SMCRA) permit application for Usibelli Coal Mine, Inc. Popovich Nose area.

Soil Scientist, Soils Mapping, Chuitna Coal Mine, AK. Provided soils mapping for 1,000 acres in response to the preferred infrastructure corridor; defined mapping areas for the road and mine facilities; drew and coded polygons for soils, wetlands, and vegetation using existing standards; recommended sites for field verification; explained any polygons with hydric soils that were not mapped as wetlands; and submitted maps and a brief memorandum summarizing approach, methods, and results of the mapping.

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TRAINING SYNOPSIS:

Swift Water Rescue
NSTC and H₂S Hazard Awareness
MSHA Part 48B 24-hour Training
Ft. Knox Mine Light Duty S.O.P.
40-hour Wetland Delineation (USACE)
National Highway Institute (NHI 142052c) NEPA and Transportation Decision Making
Wilderness First Aid
CPR/Standard First Aid
Alaska Willow Identification

PROFESSIONAL AFFILIATIONS AND ACTIVITIES:

North Slope Science Initiative (NSSI) Science Technical Advisory Panel (STAP), Chair 2015 – Present
Soil Horizons, Associate Editor, 2013 – 2016
American Water Resources Association, Alaska Section, Secretary, 2011 – 2015
Soil Science Society of America, Industry and Consulting Subcommittee Member, 2006 – Present
Association of Polar Early Career Scientists, Member, 2009 – 2014
American Geophysical Union, Member, 2006 – Present
Association of Women Soil Scientists (AWSS), Member, 2006 – Present
International Permafrost Association, Member, 2009 – Present
Union of Concerned Scientists (UCS), Member, 2007 – Present
National Society of Consulting Soil Scientists, Internet Communications Committee Chair 2008 – 2011
Permafrost Young Researchers Network, Executive Committee Member, 2007 – 2011
Comprehensive Planning Team Member, Lazy Mtn. Community Council 2002 – 2008
Timber Industry Rep., MSB Real Property Asset Management Board, 2002 – 2008
Member at Large, MSB Parks, Recreation, and Trails Board, 2008 – 2010
Lazy Mountain Special Land Use District (SpUD) Planning Member 2008 – 2010

SKILLS:

HTML coding and website design
MS Office Suite
ARC GIS
ERDAS Imagine