Full Name [redacted]

10/13/2018

id. 11350421

Original submission

10/13/2018

Email Address	[redacted]
Professional Title	**Wetland Program Specialist**
Organization	[redacted]
Do you meet all of the requirements for the Biological Science category?	**Yes**
Enter your courses that fulfill the 9 credits in Ecology	**Resource Ecosystems - 2.0, UC Berkeley, 1989** **Forest Ecology - 4.0, UC Berkeley, 1990** **Agroecology - 3.0, UC Berkeley, 1985**
Enter your courses that fulfill the remaining 6 credits in Biological Science	**Plant physiology -3.5, UC Berkeley, 1985** **Soil Microbiology+Lab -3.0, UC Berkeley, 1986** **General Biology - 4.0, UC Berekeley, 1984**
If any of your courses in this category do not have titles that appropriately indicate the course content, please provide additional explanation.	n/a
Do you meet all of the requirements for the Physical Science category?	**Yes**

Enter your courses that fulfill the 6 credits in soils, hydrology, and/or climate science	**Morphology of Soils - 4.0, UC Berkeley, 1985** **Forest Influences - 3.0, UC Berkeley, 1986**
Enter your courses that fulfill the 9 remaining credits in the Physical Science category	**General Geology - 4.0, UC Berkeley, 1985** **Soil Chemistry - 2.0, UC Berkeley, 1985** **Introduction to Physics - 4.0, UC Berkeley, 1984**
If any of your courses in this category do not have titles that appropriately indicate the course content, please provide additional explanation.	**Forest Influences was a Forest Hydrology class with the notable Paul Zinke at UC Berkeley**
Do you meet all of the requirements for the Resource Management and Conservation Category?	**Yes**
Enter your courses that fulfill the 3 credits in ecological dimensions	**Forest Watershed Management - 2.0, UC Berkeley, 1988** **Wildland Ecosystems - 2.0, UC Berkeley 1984**
Enter your courses that fulfill the 3 credits in human dimensions	**Natural Resource Sociology - 3.0, UC Berkeley 1990**
Enter the courses that fulfill the remaining 6 credits in the Resource Conservation and Management category.	**Land Use Planning - 2.0, UC Berkeley, 1985** **Introduction to Political Economy of Natural Resources, 3.0, UC Berkeley 1985** **Range Management + Lab - 4.0, UC Berkeley, 1986**

If any of your courses in this category do not have titles that appropriately indicate the course content, please provide additional explanation.	n/a
Do you meet all of the requirements for the Quantitative Science Category?	**No, I need to use the PLAR provision for this category**
How many credits are you missing in the Quantitative Science category?	**3**
Enter your courses that go towards the 6 credits in inventory, monitoring, and/or assessment (or enter N/A if not applicable).	**Forest Photogrammetry - 3.0, UC Berkeley 1986** **Introd to Probability and Statistics - 4.0, UC Berkeley, 1984**
Enter your courses that go towards the 3 remaining credits in the Quantitative Science category (or enter N/A if not applicable).	**Six week summer field tour soils mapping intensive- 8.0 - UC Davis, 1987** **Advanced ArcGIS for Productivity, Juniper GIS Services, March 5-7, 2013, 24 hrs (1.5credits)**
If any of your courses in this category do not have titles that appropriately indicate the course content, please provide additional explanation.	n/a

Describe the specific ways in which you have acquired the equivalent knowledge of missing courses needed to fulfill this category.	**I have been using Arc GIS since 1992 when I entered work at the US Forest Service, at the time Arc Map 1.0. I have taken several I used extensively in Watershed analysis, to create new layers and query for statistical purposes, create landslide hazard maps and riparian analysis. I am now using ArcMap and ArcCatalog 10.2 and lidar and GPS extensively for wetland mapping. I also learned forest mensuration while a Soil Science trainee for the Siskiyou National Forest, and plant sampling while working with the Native plant team, where we created a pilot monitoring project for decommissioned roads. I also took semi-annual trainings is stream and lake monitoring survey methods while at the US forest Service 1992-1998.**
Do you meet all of the requirements for the Ecological Restoration Category?	**Yes**
Enter your courses that fulfill the 6 credits in Ecological Restoration.	**Constructed Wetlands Workshop (SERNW 1998) (8 hrs). (This conference also qualified for 1.75 CEUs of credit) .56 credits** **Tidal Marsh Processes and Restortation (SERNW 2001) (8 hrs = .56 credits** **Shoreline Processes Dept of Ecology Coastal WA Trainings 12 hrs = .84** **Designing Compensatory Mitigation and Restoration Projects, dept of Ecology Coastal WA, Lacey, WA 12/9-10/2009, (14 hours) .99 credits** **Rapid Biotic and Ecosystem Response Restoration Pacific Rivers Council, Florence, OR4/14-15/1994 (16 hrs) 1.12 credits** **Historical Reconstructions to Develop Stream Ecosystem Restoration Projects, Florence ORApril 28-29, 1994 (16 hrs) 1.12 credits** **Natural Processes for Restoration of Drastically Disturbed Sites, Chilliwack, BC 11/21/-22/2102, 14 hrs , .99 credits** **Region 6 Bioengineering Workshop Oct 19-22, 1992 (24 hrs) 1.7 credits** **SERNW Bioengineering Workshop Port Angeles, WA Oct 2013 (14 hrs) .99**

f any of your courses in this category do not have titles that appropriately indicate the course content please provide additional explanation.	**Shoreline processes covered physical and ecological processes involved in beach and shoreline stabilization and restoration.**

Upload Transcripts

UC_Berkeley_Masters_Transcript.pdf

UCBerkeleyBachelorsTranscript.pdf

UCDavisTranscript.pdf

Provide a brief description of your professional-level experience that satisfies the 5-year full time equivalent.	[redacted]

Upload CV/Resume

[redacted]

Check Project #1 to enter project details.	**Project #1**
Project #1: Name	**Beckler Road Decommissioning and road stormproofing**
Project #1: Location	**Beckler River Watershed, Skykomish Ranger District, WA**
Project #1: Stage of Project	**Implementation**
Project #1: Objectives	**Restore sediment regimes and disturbance regimes in the watershed. Improve spawning and rearing habitats by increasing riparian cover and reconnecting floodplains . Sediment regimes had been impacted by increased silt and sand and gravel delivery from 100 year rain on snow events, impacting spawning habitats for listed salmonids. Disturbance regimes were affected by the scouring and lack of riparian vegetation stabilizing streambank.**

Project #1: Project Description	**At the time I was hired at the Skykomish RD as the soil scientist and watershed specialist, every arterial road in the watershed had one or more blowouts in a major 100 year rain on snow event, delivering silts, sands and gravel to the main Beckler River and its side channels. We began a multiyear project of decommissioning logging roads that were abandoned and no longer needed to reduce sediment delivery, as well as stormproofing roads that needed to remain in the watershed. We also initiated a public decision environmental document process called Access and Travel Management to reduce the road inventory via these decommissionings.**
Describe how your project aligns with SER standards and principles of ecological restoration.	**To better understand the reference conditions, a watershed analysis was conducted in order to prioritize decommissioning projects, and stormproofing projects and guide our work via multi-year watershed planning. Our analysis included identifying historic and reference conditions, identifying refugia and healthy habitats in the watershed (pools and riparian cover remained, and spawning surveys showed fish were using) , and where sediments were unstable (ArcGIS analysis and channel stability surveys) , where riparian areas lacking cover due to logging and LWD delivery to channels had been greatly reduced by streamside logging. (Arc GIS, serial aerial photography and stream habitat surveys) Reference conditions were being studied by the forest watershed team using reference reaches. By restoring stream crossings using bioengineering techniques following road removal, we were aiming to restore LWD delivery rates, however, understanding that this process would take at least 50-100 years, but the work we were doing would be the investment in that future. While we didn't have SER standards and principles at the time(we were really working off the predecessor documents and trainings) , we did essentially examine the key ecosystem attributes as we planned our decommissioning and revegetation efforts, and targetted our work to remove threats, or work in areas where threats were lower or non-existent, and aimed to re-establish linkages and connectivity in the watershed. Our goals were focussed on restoring ecosystem processes of sediment and large wood delivery, biotic inputs to streams, and natural disturbance regimes. Secondary goals were to maintain and restore suite of native plant species in the watershed and ensure all the plant materials were native to maintain food webs.**

Project #1: Describe your role in the project.	**I was project team lead. I conducted analysis and worked on a team to create a risk matrix to prioritize our decommissioning work. I conducted all the GIS analysis and road surveys in a team with the project engineer and designed the specifications for culvert removals, and sidecast pulling. I worked with the engineers to ensure the culvert removals completely removed sediment from the proper channel width to prevent further sediment delivery and undermining of the reestablished streambanks. I created bioengineering specifications and conducted all phases of planning for these projects. I contracted for bioengineering streambank slopes to restore riparian areas and oversaw those contracts. I served as contracting officer's representative, overseeing the heavy equipment conducting the actual decommissioning work, and also the contracts for revegetation, and seed collection and grow contracts and monitoring contracts. I coordinated all the survey and manage activities related to these projects and environmental documentation needed. I established and contracted for monitoring of all the decommissioning projects.**

Upload Project #1 Supporting Information (Optional)

[redacted]

Check Project #2 to enter project details.	**Project #2**
Project #2: Name	**Coho Creek Wetland Restoration Plan**
Project #2: Location	**Coho Creek Subwatershed, Quilceda Creek Watershed, Snohomish Basin, Tulalip, WA**
Project #2: Stage of Project	**Planning and Design**
Project #2: Objectives	**Restore floodplain and wetland hydrologic connectivity to streams, restore hydrologic regimes to wetland areas that have been ditched and drained, maintain and restore habitat connectivity for wildlife and aquatic species in the subwatershed, build on existing potentials for restoration, rather than create wetlands within ecological deserts.**

Project #2: Project Description	**I developed a Watershed based wetland mitigation/restoration plan for over 200 acres of wetland creation and wetland restoration and enhancement. For this project I assessed potentially impacted wetlands and wetland creation/rehabilitation sites using the WA State credit and debit system which assesses key functions and services of wetland areas to estimate the ecological value of the wetland creation, enhancement and rehabilitation projects. I also developed a watershed scale compensation planning framework to assess watershed needs, analyze historic and current aquatic resource losses, and threats to aquatic resources. I also updated a previous watershed planning document to update aquatic resource goals and objectives and developed a prioritization strategy for selecting future mitigation/restoration activities. The planning framework also developed preservation objectives. I invited and coordinated public and private stakeholder input to develop this planning framework. I then designed specific wetland creation, wetland rehabilitation, enhancement and preservation projects throughout the watershed area, based on current wetland inventory, and assessment of current conditions in the subwatershed, to remove roads, ditches and restore stream floodplain and wetland connectivity to streams. This plan serves as a roster of projects for implementation under the in lieu fee program.**
Describe how your project aligns with SER standards and principles of ecological restoration.	**This project focussed on restoring key ecosystem attributes of restoring hydrologic connections in the watershed, with the goal of restoring wetlands to their historic conditions, which are well documented in the fragmented portions of wetlands, and the hydric soils remaining on site. With the site ditched and drained and with roads cutting wetland areas into fragments, the restoration plan seeks to reconnect these pieces to each other and to the hydrologic source. The restoration plan also seeks to create habitat and food web connectivity and maintain migration corridors in the watershed. Because this subwatershed has a high restoration potential due to its forested and with a good suite of native species at all canopy levels, and due to the presence of beaver at the site, it is expected that this project will acheive 4 stars with high resiliency and characteristic biota present. Some management to maintain protection from invasive species may be required for the site, and due to beaver while restored areas recover and grow to where they can withstand beaver activity..**

Project #2: Describe your role in the project.	**While at the Tulalip Tribes in my current employment as wetland program specialist, I developed this watershed based mitigation plan, for planned future impacts to wetlands within the Tribes' city development area. I conducted the wetland inventory, wetland assessment and scoring of functional values and services ratings, and developed wetland creation, wetland restoration and rehabilitation, and enhancement and preservation wetlands plan to replace the potentially impacted wetland values and services in the watershed. I developed a Compensation planning framework for the accompanying In Lieu Fee program document, by using a prior Quilceda Creek watershed plan, and coordinating input from stakeholder organizations in the watershed to update the plan, including watershed characterization, and watershed analysis of historic and current resource losses, threats, goals and objectives for the watershed, and prioritization strategy for mitigation(restoration activities) I then designed specific wetland creation, wetland rehabilitation, enhancement and preservation projects throughout the watershed area, based on current wetland inventory, and assessment of current conditions in the subwatershed, to remove roads, ditches and restore stream floodplain and wetland connectivity to streams. I used ArcGIS extensively to design specific wetland creation, wetland rehabilitation, enhancement and preservation projects throughout the watershed area, based on current wetland inventory, and assessment of current conditions in the subwatershed, to remove roads, ditches and restore stream floodplain and wetland connectivity to streams.**

Upload Project #2 Supporting Information (Optional)

Compensation_Planning_Framework_Revised_Mar_2010_NWS_2009_00050_SO.pdf

Check Project #3 to enter project details	**Project #3**
Project #3: Name	**Watershed Restoration Effectiveness Monitoring Protocol and Pilot study**
Project #3: Location	**Beckler River Watershed, Skykomish River Basin**
Project #3: Stage of Project	**Monitoring, Documentation, Evaluation, and Reporting**
Project #3: Objectives	**Document effectiveness of restoration activities on a watershed basis**

Project Description	**The US Forest Service Mt Baker Snoqualmie National Forest, created a watershed restoration monitoring protocol and implemented the pilot for the protocol as one of several forests selected. A watershed team developed the protocol into a document that was selected by USFS Region 6 for a pilot monitoring protocol. Our forest then implemented the pilot. We chose a paired watershed study to test the protocol, using data compiled from a watershed analysis to select the paired watersheds. Following the initial stream habitat and channel stability surveys we contracted for continuation of the protocol pilot habitat surveys via a 5 year stream monitoring cooperative agreement to document baseline watershed conditions prior to restoration work initiated in the watershed. Our Forest was selected for a National FS Rise to the Future Fisheries award for this work. The Forest later published the final of theEffectiveness monitoring protocol in October 2000. I am attaching the final protocol and the MBS copy that documents my participation.**
Describe how your project aligns with SER standards and principles of ecological restoration.	**Our project sought to understand the actual effectiveness of the restoration efforts undertaken in the Forest, and to determine which variables could actually show measurable changes at the watershed or subwatershed scale. In order to document these changes, in the pilot we established baselines, and sought determine if changes could be measured in key ecosystem attributes including species composition, physical conditions, structural diversity (pool riffle habitat ratios and in stream LWD per mile among others) because these were key habitat features essential to healthy populations of salmon, given that measuring salmon spawning numbers and survival can be highly variable in the environments due to many different variables involved. While the SER standards did not exist at this time, restoration efforts on the forest were focussed on restoring processes and the ability of the system to sustain itself with little intervention. Monitoring evaluated many of the parts of the recovery wheel, focussing on physical conditions, structural diversity and species composition, as well as removing threats.**
Describe your role in the project.	**I co- lead the team that developed the protocol, coordinating all the meetings, and synthesized all the team contributions into a document that was selected by USFS Region 6 for a pilot monitoring protocol. I then implemented the pilot. I created a paired watershed study to test the protocol, using data I had compiled for a watershed analysis to select the paired watersheds. I conducted the initial stream habitat and channel stability surveys and contracted for continuation of the protocol pilot habitat surveys. I oversaw a 5 year stream monitoring cooperative agreement to document baseline watershed conditions prior to restoration work. Our Forest was selected for a Rise to the Future Fisheries award for this work, in which I collaborated with other watershed scientists and worked directly under the Forest Fisheries Program Manager to achieve. The Forest later published the final of the Effectiveness monitoring protocol in October 2000. I am attaching the final protocol and the MBS copy that documents my participation.**
Upload Project #3 Supporting Information (Optional)	