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| **Project Name** | Eastside Type N Riparian Effectiveness Project (ENREP) (CWA Project) |
| **Workplan (Rule Group) Critical Questions Addressed** | • Are riparian processes and functions provided by Type Np buffers maintained at levels that meet FPHCP resource objectives and performance targets for shade, stream temperature, LWD recruitment, litterfall, and amphibians?*<br>• Do different types of Type N channels explain the variability in the response of Type N channels to forest practices?<br>• What is the effect of buffering or not buffering spatially intermittent stream reaches in Type Np streams?<br>*Litterfall and amphibians are not included in the Study Design. |
| **Project Elements** | Change in stream flow, canopy closure, water temperature, suspended sediment transport, large wood loading, upland canopy conditions, and aquatic life following harvest on Type N streams. Harvest effects on downstream Type F waters where treatment effects can be isolated. |
| **Responsible SAG and Project Manager** | SAG: SAGE<br>Project Manager: Anna Toledo |
| **CMER Scientist(s) and Principal Investigator(s)** | CMER Scientist(s): Rachel Rubin<br>Principal Investigators: Timothy Link, University of Idaho; Charles Hawkins, Utah State University |
| **Status/Phase** | Implementation of Study Design:<br>• Springdale and Tripps basins: Completion of two years of pre-harvest, harvest year, and one year of post-harvest data collection.<br>• Blue Grouse basin: Completion of three years of pre-harvest and harvest year data collection. Monitoring at Blue Grouse was extended for one year to allow for two full years of post-harvest data collection.<br>• Fish Creek and Coxit basins: Completion of two years of pre-harvest data collection. Harvest is scheduled for summer 2023.<br>• Data collection includes: biophysical variables, including streamflow, wetted channel extent, suspended sediment concentrations, stream shade, riparian forest mensuration, large wood loading, temperature, and stream cross sections, aquatic life (benthic macroinvertebrates), and habitat. |
| **Expenditures through FY 22** | FY15-FY19: $944,876 (includes ENREP TWIG Participation and UCUT ENREP Scientist)<br>FY20: $474,753<br>FY21: $701,179<br>FY22: $440,335<br>Total expenditures through FY22: $2,561,143 |
| **Project Timeline** | FY18-FY25: Implementation<br>FY26: Data analysis and final report development<br>FY27-FY28: Final report review and revisions |

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| **Complementary Projects and Project Sequencing** | Westside Type N Experimental Buffer Treatment Project in Hard Rock and Soft Rock Lithologies (completed), Type F and N Extensive Eastside – Temperature, Eastside Type N Forest Hydrology (completed), Eastern Washington Riparian Assessment Project Phase I and II (completed), Bull Trout Overlay Temperature, Solar Radiation/Effectiveness, Eastside Type F Riparian Effectiveness, Westside Type N Buffer Characteristics, Integrity, and Function (BCIF) |
| **Project Summary and Purpose** | |
| This project will help inform if, and to what extent, the prescriptions found in the Type N Riparian Prescriptions Rule Group (Np streams) are effective in protecting water quality and some riparian functions, particularly as they apply to sediment and stream temperature in eastern Washington. The discharge regime of headwater streams influences a number of functions including water temperature and sediment transport. Although the effect of forest management on discharge has been studied for more than half a century, it is not possible to fully predict management-related changes in discharge timing or magnitude, because of the large variability in headwater attributes and functions and relative paucity of research on the colder and drier eastside systems. | |
| **Project Objectives** | |
| The objectives are to inform Policy of the quantitative changes in FPHCP-covered resources, water quality, and aquatic life coincident with forest harvest activities in eastern Washington, and to determine if and how observed changes are related to activities associated with forest management. | |

**Budget***

| FY22 | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 | Total |
|---|---|---|---|---|---|---|---|
| $600,730 | $606,744 | $656,703 | $581,370 | $489,632 | $330,688 | $276,442 | $3,542,309 |

* August 10, 2022 Board-approved budget. Funding approved for FY22-FY23. Budget beyond FY23 are estimates only.

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| **Project Name** | Eastside Timber Habitat Evaluation Project (ETHEP) |
| **Workplan Critical Question Addressed** | Will application of the prescriptions result in stands that achieve eastside FPHCP objectives (forest health, riparian function, and historical disturbance regimes)? |
| **Project Elements** | Eastside forest health, riparian function, disturbance regimes, timber habitat types. |
| **Responsible SAG and Project Manager** | SAG: SAGE<br>Project Manager: Anna Toledo |
| **CMER Scientist(s) and Principal Investigator(s)** | CMER Scientist: Rachel Rubin<br>Principal Investigator(s): Rachel Rubin<br>Project Team: Ben Spei, Rachel Rubin, Mark Kimsey, Mark Teply, Charles Goebel |
| **Status/Phase** | The study design is currently in SAGE review, and is expected to be delivered to CMER in December 2022. |
| **Expenditures through FY22** | Current expenditures only include CMER staff time |
| **Project Timeline** | FY22-FY23: Study Design development and approval<br>FY24-FY25: Implementation, final report writing and approval<br>Project timeline will be refined following study design approval. |
| **Complementary Projects and Project Sequencing** | Eastside Disturbance Regime Literature Review Project, Eastside LWD Literature Review Project, Eastside Temperature Nomograph Project, Eastern Washington Riparian Assessment Project (EWRAP), Eastside Modeling Evaluation Project (EMEP), Bull Trout Habitat Prediction Models, Bull Trout Overlay Temperature Project, Solar Radiation/Effective Shade Project, Eastside Type F Riparian Effectiveness Monitoring Project (BTO add-on). |

**Project Summary and Purpose**

Washington's Forest Practices Rules for non-federal forestlands in eastern Washington use a Timber Habitat Type (THT) system to apply riparian rule prescriptions along fish-bearing (Type S and Type F) and perennial non-fish-bearing (Type Np) streams (WAC 222-30-022). This system defines THTs according to three elevation zones: <2500 feet ("Ponderosa Pine"), 2500-5000 feet ("Mixed Conifer"), and >5000 feet ("High Elevation"). The riparian harvest rules specify different leave tree requirements for each THT.

Elevation bands alone, however, likely oversimplify the factors that drive forest stand development in eastern Washington and further oversimplify *riparian* forest stand development in particular. While there is coarse correlation between elevation band and climatic regime and, in turn, stand composition and structure (as introduced by Daubenmire and Daubenmire (1968), the landform, underlying geology, aspect, and parent material also influences soil moisture regimes at the watershed scale (e.g., Franklin and Dyrness 1973, Lillybridge et al. 1995, Williams et al. 1995). Forest vegetation is further influenced at the riparian scale via fine-scale differences in valley form, gradient, and groundwater-surface water interaction that affect microclimate, soil development, and water availability (Kovalchik and Clausnitzer 2004). These constructs show riparian stands express the influence of many factors besides just elevation.

Results from Phase II of the Eastern Washington Riparian Assessment Project (EWRAP; Schuett-Hames 2015) demonstrate the need for this further work. The author determined potential climax species for 103 riparian sites in eastern Washington using Cooper et al. (1991) and Kovalchik and Clausnitzer (2004) and found that the distribution of these riparian forest vegetation "series" can span the THT elevational zones. That is, some of the forest vegetation series were found above *and* below 2500 feet in elevation. Schuett-Hames' finding is compelling evidence that elevation is not the only influence on forest stand development. Further, this finding also suggests that leave tree requirements based on elevation alone could be, at times, be mismatched to factors dictating stand development at a given site. This finding supports the need to improve the existing framework toward one that is

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| more ecologically and silviculturally meaningful.<br>The purpose of this project is to develop an ecologically meaningful and reliable framework for applying riparian harvest rules along Type S and Type F streams in eastern Washington. |
| **Project Objectives** |
| Objective 1: Develop a framework for applying riparian harvest rules in eastern Washington based on the FPHCP functional objectives and performance targets (Schedule L-1, Appendix N).<br>Objective 2: Test the preferred framework(s) for characterizing eastside riparian forests using data collected in the field. |

**Budget***

| FY23 | FY24 | FY25 | Total |
|---|---|---|---|
| $196,000 | $160,521 | $162,000 | $518,521 |

*August 10, 2022 Board-approved budget. Funding approved for FY22-FY23. Budget beyond FY23 are estimates only.