

Changes in land management strategies, resulting physical functionality changes, and their connection to water quality and ecological functionality: A case study of Maggie Creek, NV

Wildlife and aquatic habitats are dependent on the development of riparian area management strategies. Land management strategies consider certain basic ecological and economic relationships. These relationships are functions of riparian and terrestrial ecosystems, which include growth and reproduction of plant communities, dependency of aquatic and terrestrial wildlife on riparian areas, hydrologic and geomorphic conditions and processes, soils, sediment, recovery rates, upland conditions, recreation and domestic uses, and water quality and quantity. Disruption of the natural water cycle can lead to many hydrologic alterations. Maggie Creek, a major tributary to the Humboldt River, is located in north-central Nevada. This area has had a history of grazing, mining, and agricultural land use disturbances. Disturbance occurring within the watershed and/or adjacent to the stream corridor has had a causal effect. This has resulted in temporarily and/or permanently altering one or more characteristics of the stream's function, which depends on vegetation composition, soils and geomorphology and hydrology. Water quality and biological communities are also impacted. To address the aquatic impacts from environmental stressors, it is important to understand the interconnectivity of a system, and recognize the fundamental changes to the water cycle, water quality, aquatic and terrestrial ecology and stream form and function. This study assesses stream function and biophysical alterations at a local scale and provides adaptive management alternatives using the Proper Functioning Condition (PFC) protocol.