# Using Traditional Knowledge and Beavers to Build Resilience to Climate Change in Wet Meadows on the Yakama Reservation

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**Abstract**: Beavers and beaver dams have long been recognized by Yakama tribal members to be a keystone species in streams, exerting a strong influence on hydrology, riparian vegetation, and fish and wildlife habitat. For example, beaver ponding can lower flood peaks, spread water on the floodplain, raise alluvial water tables, and temporarily store water for later release. However, based on the knowledge of Yakama tribal members and ground-based surveys, beaver populations are smaller and beaver dams less numerous that in past decades. This lack of beaver dams likely reduces the abundance and quality of cultural and natural resources in floodplain, meadow, and channel habitats.

In order to address this problem and restore tribal resources, the Yakama Nation Wildlife program has initiated a watershed restoration project based on low-tech, cost-efficient methods that mimic beaver dam effects. The project also entails translocating beavers into selected stream reaches and meadows. This work is supported by a beaver dam occupancy model for the entire Yakama Reservation developed by researchers at Utah State. This model provides estimates of potential beaver dam density, conflicts with human infrastructure, and restoration potential by stream reach. Additional information is provided by a climate change vulnerability assessment of Yakama Reservation meadows that highlights areas of past and projected future climate impacts on meadows. Using these models, results from a ground based assessment in 2011, and tribal knowledge the Yakama Wildlife will begin this project on several stream and meadow sites in 2018, and has secured funding for work through 2020.