

# Restoration Highlights

## Society for Ecological Restoration Northwest Chapter



No. 3, February 2012

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### A Geomorphic Restoration Approach for Steelhead Habitat in an Incised System with Floodplain Loss

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The South Fork Stream flows through the disturbed glacial fluvial trough at J-Bar Ranch, in the Blue Mountains of Washington State. The stream was relocated several times, previous to 1996, by landowners to accommodate their

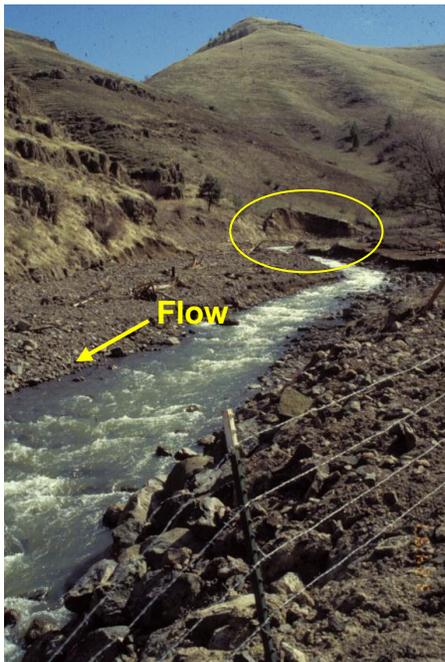


Figure 1. Post flood damage, 1996.

winter feeding operations and to protect their hayshed and a county bridge. During the high flow event of 1996, a colluvial mass wasting event<sup>1</sup> shifted the stream towards left bank (downstream orientation) threatening the wintering hayshed with a high likelihood of flanking the bridge.

In 1997, a priority 3 type geomorphic restoration was designed and implemented to address: floodplain re-establishment, bedload transport, steelhead habitat, native riparian plant community, and re-alignment with the county bridge. A priority 3 type restoration is characterized by using tall incised banks to rebuild both the floodplain and bankfull channel. The correct dimension, pattern, and planform have to be designed to meet the goals of natural channel stability and restoration.

Fourteen years since implementation, the project has met the goals for restoration and fish habitat. The following are some current attributes as of 2010.

- Steelhead juvenile population increased 500%
- Five steelhead redds have been naturally established
- Streambank erosion has been arrested



**Figure 2. View of meander, five years after reconstruction.**

- Dimension, pattern, and longitudinal profile have remained stable and consistent with no discernible signs of accelerated streambank erosion.

The reconstruction and streambank stabilization components for this 600 foot reach were \$10,200 (1997 cost) before planting. As of 2011, 14 years after reconstruction and riparian planting, this reach has consistently improved both in physical and biological structure and diversity. This project was designed by the Natural Resources Conservation Service, funded by Bonneville Power Administration and managed by the Asotin County Conservation District.

1. Colluvium material is a general term applied to a loose, usually heterogeneous, and incoherent mass of soil or rock material, sometimes a combination, that is not of stream origin. It is usually at the base of a steep slope or cliff and it is not of recent alluvium (stream deposited material including floodplains and so forth) origins. Colluvium material is what is most associated with mass wasting at steep slopes adjacent to rivers (new source to river); that is, material in-place that is mass wasting into a stream and is of new contribution. Mass wasted material that becomes active in the alluvial channel eventually becomes alluvium as opposed to colluvium.



**Figure 3. In 2006: ten years and four floods after reconstruction.**

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