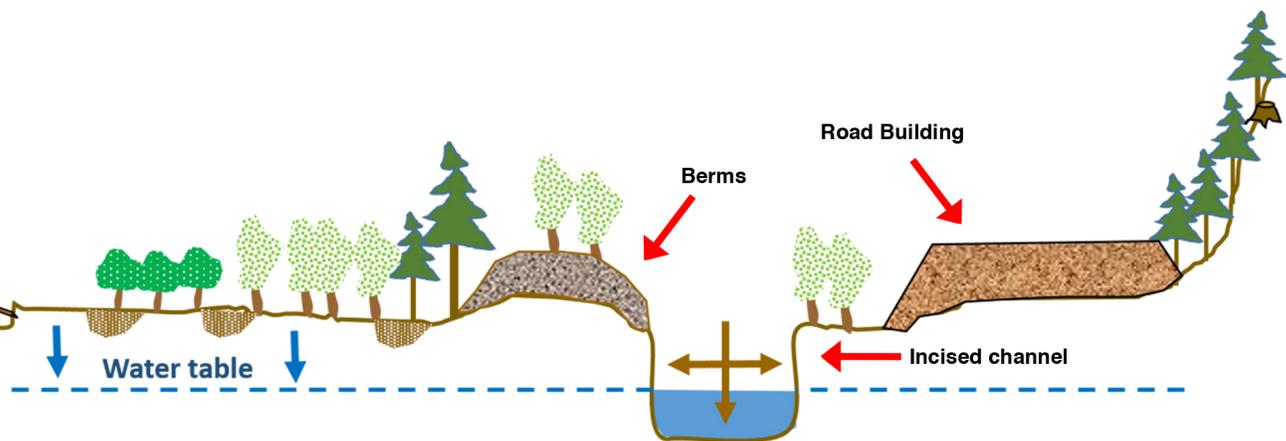


Stage 0 Design Approach to Floodplain Restoration



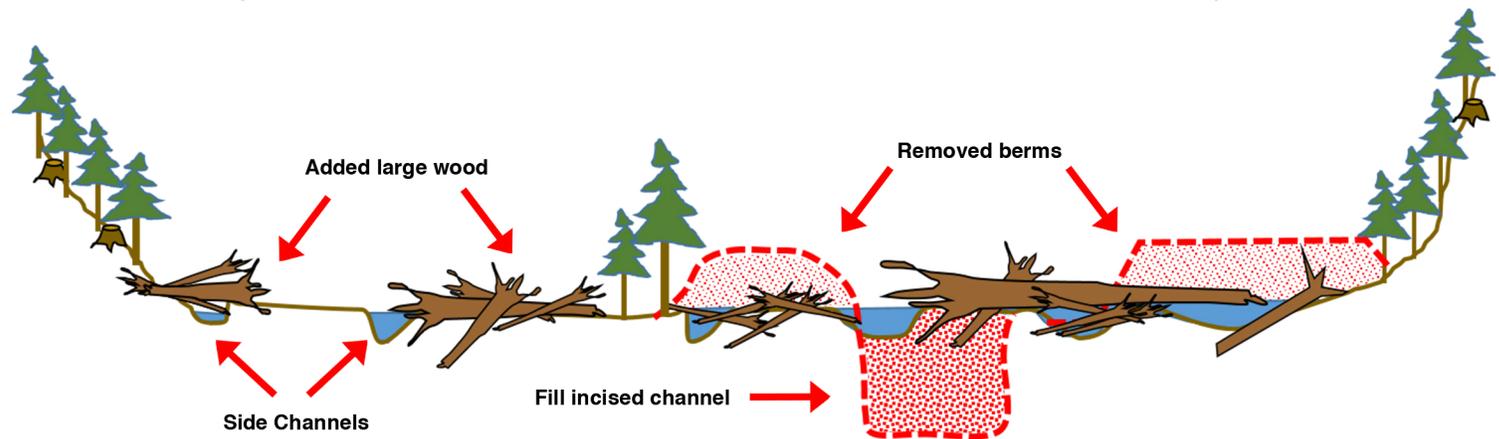
Background

Historically, valley bottoms in low gradient river valleys were complex depositional zones for sediment, wood, and nutrients from upstream areas. These conditions created and maintained braided channel networks with abundant gravels, wood, and deep pools needed to support diverse fish, wildlife, and vegetation communities. Land management practices over the last century (dams, roads, urban and rural development, agriculture, berm placement, in-stream wood removal, and harvest of timber) have channelized rivers, disconnected valley bottoms, lowered water tables, altered vegetation communities, and negatively impacted native fish and wildlife.



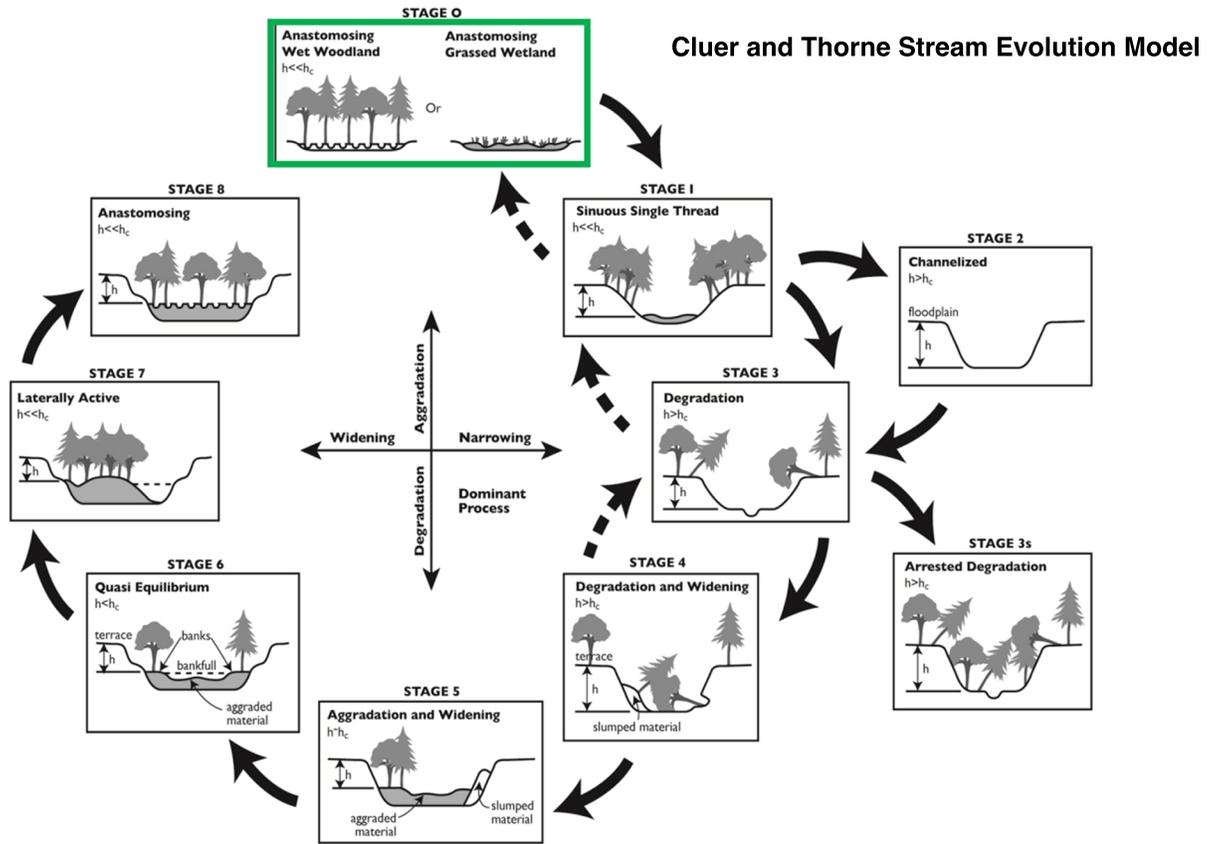
Restoration

Traditional approaches to valley bottom restoration have largely focused on working within incised channels and engineering stable channels to reconnect side channels. Recently, an alternative approach developed over time by US Forest Service specialists and community partners working in Oregon has instead focused on restoring river processes that encourage deposition and the development of complex habitat over time. This is typically accomplished by filling previously incised channels with sediment removed from stream-side berms, old road beds or natural deposits and adding high volumes of large wood. This approach creates a well-connected valley bottom and allows the river to shape braided channel networks in response to environmental drivers like floods, and biological drivers such as riparian forest development and beaver damming.

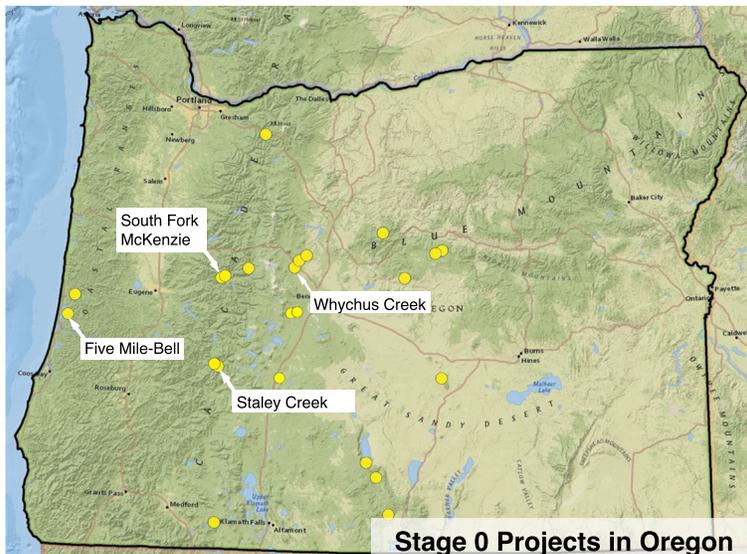


Stage 0 Restoration

This new approach to river restoration is well described in the literature by Cluer and Thorne (2013) as Stage 0 of the Stream Evolution Model. Their research shows that in wide, low-gradient river valleys, an anastomosing or braided channel network that is regularly flooded better represents historical conditions prior to widespread human disturbance. Their research also shows that habitat and ecosystems benefit significantly increase within the more complex, braided stages (Stage 0 and Stage 8) of the model.



Oregon Stage 0 Projects



Stage 0 Projects in Oregon

Stage 0 restoration projects have been implemented at 20 sites in Oregon. To date, projects have exclusively been implemented on US Forest Service land and range in size from large rivers (South Fork McKenzie River) to small meadow creeks. Early results show that projects have created dynamic and complex habitats.

The next challenge for restoration practitioners and research partners will be to evaluate the linked physical and ecological responses to Stage 0 restoration. Several monitoring projects are underway on the South Fork McKenzie River, Staley Creek (Middle Fork Willamette River), Whychus Creek (Deschutes River) and Five Mile Creek/Bell Creek complex (Coastal).