Title:
Developing historical analogs of riparian habitat conditions for the Yakima River Ecosystem Diagnosis and treatment (EDT) Model

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The Ecosystem Diagnosis and Treatment model requires the input of approximately 45 physical/biological correlates for each defined reach for both current (patient) and historic (template) conditions. For the Yakima and Klickitat basins, this translates to about 40000 to 11000 correlate values, respectively, for each basin. This paper discusses how reach analogs may be used as surrogates to approximate selected geomorphic and habitat correlates for template stream reaches, thereby expediting the process of populating the EDT model. Reach analog categories within the Teanaway drainage basin and extending to the end of the Kittitas reach of the Yakima River were classified using conditions related to geology, hydrology (stream order and drainage basin size), fluvial geomorphology (gradient, general confinement, and geomorphic units), and land cover (vegetation and land use). Historical information was developed for each reach analog, including a descriptive historical narrative, template conditions timeline, map portfolio of historical channel and land cover changes, as well as probable impacts to EDT correlate conditions. Historical sources including historic maps, aerial photographs, local history accounts, ground photographs and General Land Office survey records. These sources were used to estimate template conditions for the analog reaches, including landscape conditions and stresses, vegetation patterns, fire histories, and land use changes and patterns, also distinguishing between upland and riparian uses and modifications. The resulting historical condition summaries and map portfolios were then used to develop cause-condition-effect relationships of historical activities to probable effects to EDT correlates, as well as help verify the potential application of pristine patient analog reaches as surrogates for template conditions.