Sandy River Basin -- Bull Run GIS

client:
City of Portland Bureau of Water Works

- *Ecotrust* developed a comprehensive geographic information system of the Sandy River Basin and the Bull Run watershed composed of a wide variety of physical and biological data.
- *Ecotrust* created a custom GIS training manual tailored to specific professional needs of Water Bureau staff.
- *Ecotrust* trained hydrologists, fisheries biologists, and several other Water Bureau staff in the use of GIS software and the Sandy River Basin geographic information system.

The City of Portland Bureau of Water Works contracted *Ecotrust* to develop a comprehensive geographic information system (GIS) of the Sandy River Basin -- with a particular focus on the Bull Run watershed -- and to train Bureau staff in the use and analysis of information pertaining to the Bull Run watershed.

Characterization of watersheds - is to identify dominant physical, biological, and human features or processes. The development of the Sandy River Basin GIS is integral to the Bureau's efforts to complete a characterization of dominant physical, biological and cultural features of the Bull Run watershed and greater Sandy River basin based on federal watershed assessment guidelines.

Ecotrust staff conducted a GIS needs analysis and worked closely with the Water Bureau to develop a list of specific data requirements. Nearly two hundred layers of spatial data were compiled from a vast number of public sources including USGS, BLM, Mt. Hood National Forest, EPA and Metro. The data themes in these layers include forest blowdown risk, salmonid distribution, forest seral stages, water flow gauging stations, ownership, tax lots, terrain, hydrography, barriers to fish migration, and many more natural, built, and political features.

Ecotrust staff enhanced several layers of data with additional characteristics of the Sandy Basin based on specific local knowledge of Bureau staff. *Ecotrust* also created new data layers by digitizing a local geological hazards map, using digital orthophotos to delineate reserve boundaries, and compiling and converting latitude and longitude locations of weather stations, flow stations and other water quality stations into a single comprehensive feature layer.

Ecotrust created a custom manual for training Water Bureau staff in the principles and application of GIS technology. *Ecotrust* conducted on-site, hands-on training for hydrologists, fisheries biologists, and several other Water Bureau staff in the use of ArcView and Spatial Analyst software using the Sandy Basin GIS. *Ecotrust's* GIS analysts also developed and presented a tailored training module using the Sandy Basin database to demonstrate how real-life challenges commonly encountered by Water Bureau staff could be addressed through spatial analysis. Additional technical assistance and staff training were completed on an individual basis, as the needs required.

The City of Portland Bureau of Water Works operates the water supply system that delivers high-quality drinking water to more than 840,000 people in the Portland metropolitan area. The primary water source is the Bull Run watershed located 26 miles east of downtown Portland in the Mt. Hood National Forest. The Run watershed lies within the Sandy River Basin.

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Sample Map: Bull Run Management Unit, within the Sandy Basin