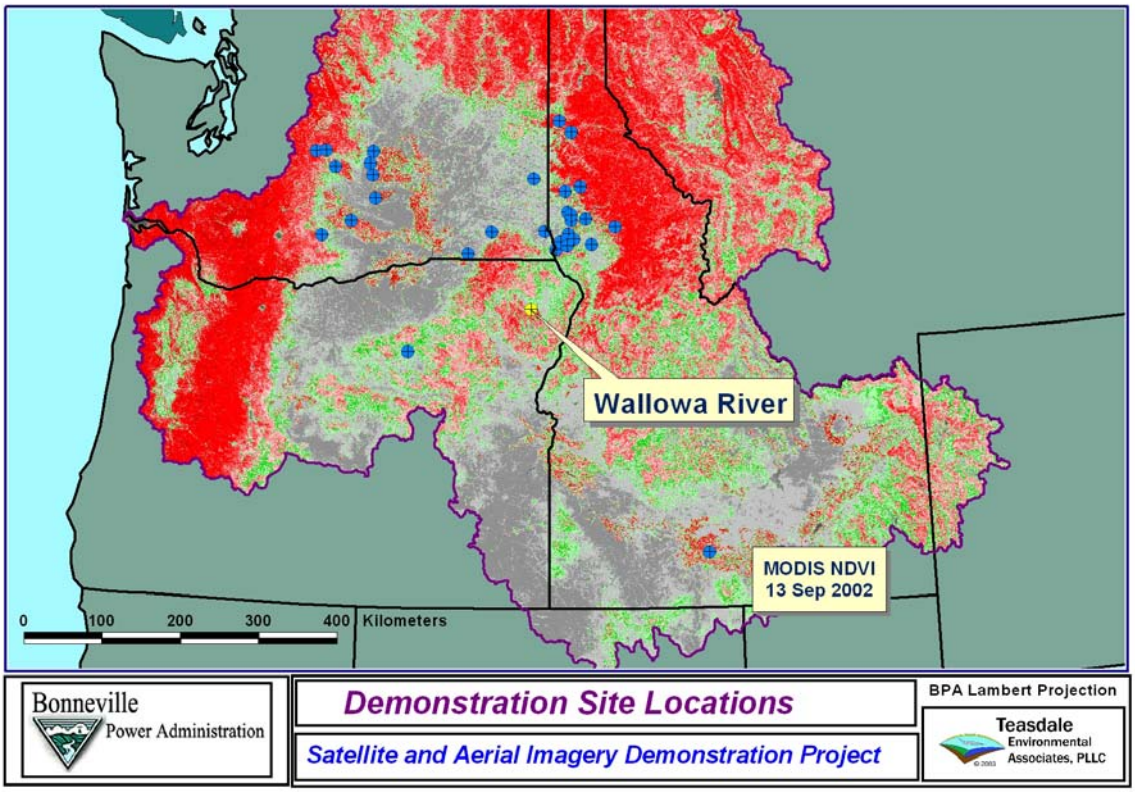
Wallowa River Demonstration Site	
Location	**Enterprise and Joseph, WA**
Water body	**Wallowa River**
Ecological Provenance	**Blue Mountain**
Subbasin Name	**Grande Rhonde**
BPA Hydrologic Unit Code ID	**5042**
Hydrologic Unit Code, 6th Level	**170601050501**
Watershed Name	**Wallowa, OR**



Unique Characteristics

The Wallowa River below Wallowa Lake near Joseph and Enterprise OR is an alluvial stream at relatively high elevation (3000 to 4000 feet) compared to other streams in this dataset. The natural channel has a relatively low width to depth ratio and moderate slope (1%). It best matches Rosgen channel type E3, though some reaches exhibit characteristics of type C3. Numerous diversions serve irrigated agriculture and residential land use. Wallowa Lake is an ultraoligotrophic natural lake with extreme clarity.

Satellite imagery for this site include Landsat 5, Landsat 7 and ASTER. Digital aerial color infrared aerial imagery was acquired on October 9, 2002. Ancillary data includes topographic DRG's, DOQ's, watershed boundaries and national land cover data. The imagery and supporting data reveal the characteristics of riparian vegetation and stream channel. Visible color images of the outlet of the lake show bottom materials to an extraordinary depth.

Objectives

The primary purpose was to acquire very high-resolution digital aerial imagery of the Wallowa River through the agricultural area from the town of Wallowa to Wallowa Lake. Several tributaries were also imaged. The imagery is being used to support conservation and water quality planning work. A secondary objective was to observe land cover characteristics of the Wallowa watershed in ASTER and Landsat imagery.

Results

Many deciduous trees and shrubs could be easily identified distinguished from conifers in the early October aerial imagery because of autumn color changes. Stream channel morphology could be characterized in the aerial imagery. Irrigation diversions and wastewater facilities were also observed. Bottom structure in Wallowa lake could be observed in the aerial imagery to great depth (estimated greater than 10 meters). The alignment of channelized tributaries through irrigated lands were difficult to delineate directly from the October the aerial imagery because of low flows.

A comparison of 1990 and 2002 Landsat and ASTER imagery showed minor changes in the extent of irrigated agricultural lands along the Wallowa River. Wallowa Lake consistently showed very little reflectance in the infrared band, indicating very low suspended solids concentration and high water quality.