

Lower Owyhee Watershed Assessment

Appendix A. Notes on mapping

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1. Description of how maps were created

The information included as maps in this assessment came from many different sources. The earth's surface is part of a sphere. Maps are flat. There are many different ways of orienting and shaping, "projecting", the spherical surface onto the flat plane. Our brains are capable of taking the landmarks which we recognize and correctly interpreting how the other features are related. However, for comparative purposes it is nice to have all data on paper in a similar projection.

Since the state of Oregon uses the "Oregon Lambert" projection, that is the projection used for the outline of the lower Owyhee subbasin on most of the maps. The other features which were available in the Oregon Lambert projection were the rivers and the highways. The rivers, highways and outline of the lower Owyhee subbasin make up the base map. This is the map that serves as the background on which other information like vegetation can be charted. There are computer programs to create maps using available "coverages", digitized information about where features are located. The programs used in this assessment were ArcGIS for Windows and GRASS for Linux. The original projections of a coverage (map of one characteristic) can be "reprojected" so they match the orientation of the base map. Some of the maps in this assessment were created entirely within ArcGIS combining this available information from different sources.

The Oregon Lambert projection of the base map of the lower Owyhee subbasin was created in GRASS and saved as an image. Adobe Photoshop 7.0 was used to combine maps from different sources. The highways, Owyhee reservoir, and to a lesser extent the rivers on the base map were used to orient other maps to the Oregon Lambert projection of the base map. Using the transform options in Adobe Photoshop,

a scan of the 1998-99 Oregon Department of Transportation highway map was combined with this base map. This second base map using highways as main features makes finding familiar features easier. For most maps edited in Adobe Photoshop, this new map which located the lower Owyhee subbasin in relation to its surroundings served as the base map.

All maps created in Grass were imported into Adobe Photoshop for final editing.

The map showing the location of perennial streams was adapted from the *Oregon Atlas & Gazetteer*. In this instance the subbasin outline was oriented to the map. The perennial streams were identified from a careful examination of the USGS topographic maps that cover the region of the lower Owyhee subbasin (Figure A.1).

The map of all of Malheur County was adapted from the 1999 Rand McNally Road Atlas and oriented to the Oregon Lambert projection base map.

The township and range map (Figure A.2) was superimposed on other maps to locate items given the township and range information.

Maps from the Southeastern Oregon Resource Management Plan were imported from the pdf file, enlarged, rotated, and fit to the Oregon Lambert projection base map.

Maps from the Dry Creek geographic management area assessment were oriented to the Oregon Lambert projection base map.

2. Sources of map data (not footnoted on maps)

a. Oregon Geospatial Enterprise Office

Coverages from the Oregon Geospatial Enterprise Office. 2006. Oregon Geospatial Data Clearinghouse. <http://gis.oregon.gov/DAS/IRMD/GEO/alphalist.shtml>.

Last accessed 8/6/06.

Counties. orcnty24.zip

Highways. 2006. This data layer includes all state owned or maintained highways, connections, frontage roads, temporary traveled routes and located lines. ODOT, 1:24,000. hwynet2006.zip

Hydrologic Units - 4th Field. Hydrologic Units,1:24,000. hydro_units_4th.zip

Land, Public Ownership. 2004. ODF, 1:24000. pubown.zip.

Rivers (orrivers). EPA, 1:250,000. orrivers.zip

303d Streams - 2002. DEQ, 1:100,000. streams303d_02.zip.

Vegetation/Species. Idaho F&W GAP vegetation, 1:100,000. gap_vegetation.zip.

Last accessed 11/21/06

Township/Range (Figure A.2)

b. Zip codes:

U.S. Census Bureau. 2006. Cartographic Boundary Files: Census 2000 5-Digit AIP Code Tabulation Areas (ZCTAs). Oregon - zt41_d00_shp.zip (1,683,390 bytes). Accessed 7/20/2006. <http://www.census.gov/geo/www/cob/z52000.html>

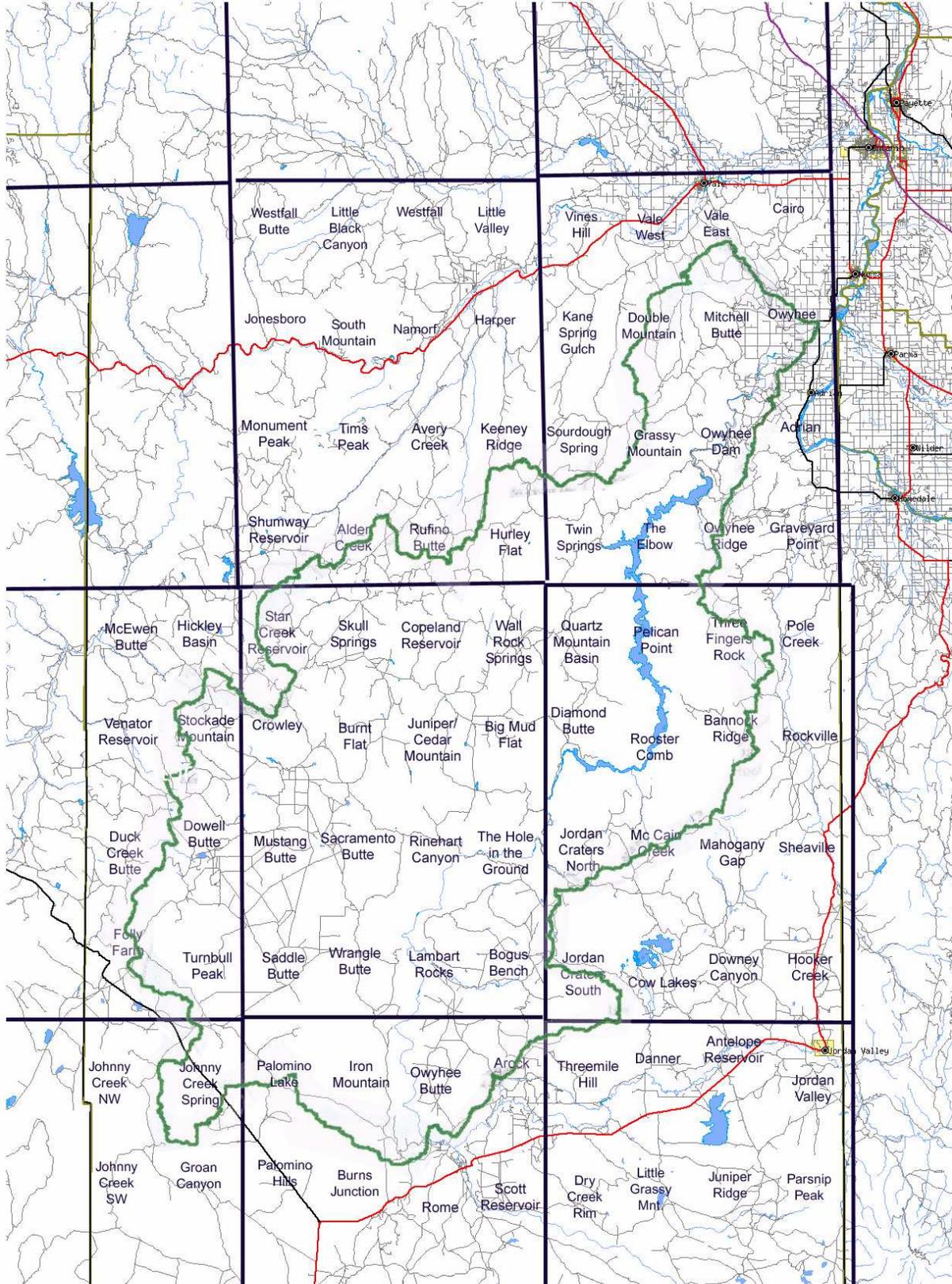


Figure A.1. USGS quadrangle maps in the lower Owyhee subbasin.

3. USGS topographic maps:

- | | | |
|--------------------|-----------------------|------------------------|
| Alder Creek | Johnny Creek Spring | Rufino Butte |
| Arock | Jordan Craters North | Sacramento Butte |
| Bannock Ridge | Jordan Craters South | Saddle Butte |
| Big Mud Flat | Keeney Ridge | Shumway Reservoir |
| Bogus Bench | Lambert Rocks | Skull Spring |
| Burnt Flat | McCain Creek | Star Creek Reservoir |
| Cedar Mountain | Mitchell Butte | Stockade Mountain |
| Copeland Reservoir | Mustang Butte | The Elbow |
| Crowley | Owyhee | The Hole in the Ground |
| Diamond Butte | Owyhee Butte | Three Fingers Rock |
| Double Mountain | Owyhee Dam | Threemile Hill |
| Dowell Butte | Owyhee Ridge | Turnbull Peak |
| Duck Creek Butte | Palomino Lake | Twin Springs |
| Folly Farm | Pelican Point | Wall Rock Springs |
| Grassy Mountain | Quartz Mountain Basin | Wrangle Butte |
| Hurley Flat | Rinehart Canyon | |
| Iron Mountain | Rooster Comb | |

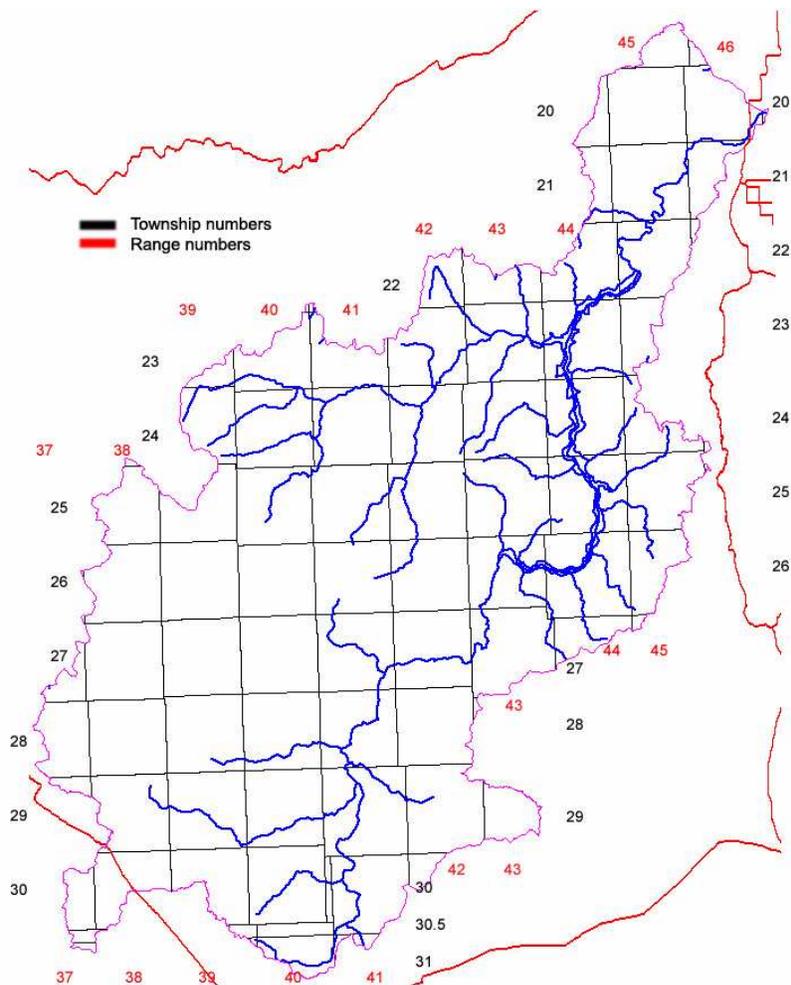


Figure A.2. Township and range numbers in the lower Owyhee subbasin.