

**ECOLOGICAL CLASSIFICATION
WINNEMUCCA PROJECT AREA
NEVADA**

Prepared for:

**Winnemucca BLM District
Winnemucca, Nevada**



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EXECUTIVE SUMMARY

An ecological classification was applied to the lands managed by the BLM in the Winnemucca District in northern Nevada. The focus of the ecological classification was riverine/riparian habitat in 32 target watersheds. The project area is about 9,568 square miles (6,123,331 acres). Target watersheds comprise about 626,694 acres (10.2 percent) of the project area and about 2,799 linear miles of stream, of which 467 miles (17 percent) is perennial.

The ecological classification is hierarchical and consists of seven levels, ranging from broad classes based on general landscape characteristics to very refined classes of valley-bottom landform and riparian vegetation types. Levels of the hierarchical classification are:

Ecoregion
 Geologic District
 Subsection
 Valley-bottom Type
 State
 Valley-bottom Landform
 Riparian Vegetation Type

Broad classes (Ecoregion, geologic district and subsection) were applied to the entire project area. Landtype and valley-bottom type were applied only to target watersheds. The most refined classes (state, valley-bottom landform and riparian vegetation type) were applied only to target streams where large-scale aerial photos were available.

Ecoregions (Omernik 1987) are based on factors that cause regional variation in ecosystems or on factors that integrate the causes of regional factors. The project area includes parts of the *Northern Basin and Range Ecoregion* and the *Snake River Basin/High Desert Ecoregion*. Bailey (1994) classified most of the project area as the *Northwest Basin and Range Section* of the *Intermountain Semi-Desert Province* and the *Lahontan Basin Section* of the *Intermountain Semi-Desert and Desert Province*.

Geologic districts are areas of distinctive rock types or parent materials that are often associated with major structural features. Five (5) geologic districts were identified in the project area: 1) *Metasedimentary*; 2) *Volcanic*; 3) *Granitic*; 4) *Alluvial*; and 5) *Lacustrine*.

Subsections are areas with distinctive geomorphic character that often correspond with geologic districts. Seven subsections were identified in the project area: 1) *Metasedimentary fluvial lands*; 2) *Volcanic fluvial lands*; 3) *Volcanic plateau lands*; 4) *Granitic glacial lands*; 5) *Granitic fluvial lands*; 6) *Alluvial lands*; and 7) *Lacustrine lands*.

The valley-bottom landtype corresponds with the drainage network and includes both alluvial and fluvial deposits. The valley-bottom landtype was delineated for the watersheds of target streams. The *valley-bottom landtype* is about 91,473 acres (14.6 percent) of target watersheds.

The valley-bottom landtype within a subsection was further stratified as valley-bottom types. Valley-bottom types were distinguished by the mechanism and relative effectiveness of geomorphic processes in shaping the valley-bottom. For example, the valley-bottom in the *Metasedimentary fluvial* subsection was divided into: 1) *Metasedimentary fluvial basin*; 2) *Metasedimentary V-erosional canyon*; and 3) *Metasedimentary V-depositional canyon*. Twenty one (21) valley-bottom types were identified in target watersheds.

Target streams included: 1) Bartlett Creek; 2) Big Creek (Pine Forest); 3) Chicken Creek; 4) Cold Springs Creek; 5) Coleman Creek; 6) Cottonwood Creek (Granite Mountains); 7) Crowly Creek; 8) Denio Creek; 9) Donnelly Creek; 10) Granite Creek (Granite Range); 11) Happy Creek; 12) House Creek; 13) Indian Creek (Santa Rosa Range); 14) Jackson Creek; 15) Log Cabin Creek; 16) Mahogany Creek; 17) Mary Sloan Creek; 18) McDermitt Creek; 19) North Fork Battle Creek; 20) Paiute Creek; 21) Pole Creek (Snowstorm Mountains); 22) Raster Creek; 23) Red Mountain Creek; 24) Riser Creek; 25) Rock Creek (Montana Mountains); 26) Rock Creek Sonoma Mountains; 27) Rodeo Creek; 28) Snow Creek; 29) South Fork Little Humboldt River; 30) Summer Camp Creek; 31) Upper Leonard Creek; and 32) Washburn Creek.

Valley-bottom types for target streams were further divided into states (i.e. condition classes). States were identified based on channel morphology and ranged from near natural to severely disturbed. Key attributes for identifying states included: 1) channel elevation relative to that of valley-bottom landforms (i.e. graded versus not graded); 3) bank stability and canopy cover; 4) extent of streambars; 5) impoundment; and 6) management factors (i.e. channelization).

Valley-bottom landforms were mapped for target stream reaches. Landforms included: *channel, levee, floodplain, terrace, alluvial fan, lake terrace, glacial basin, glacial moraine, glacial outwash; and lake/reservoir basin*. Soils tend to correlate with landform and valley-bottom type/state. Where streambanks cut “higher and dryer” landforms, such as terrace and alluvial fan, they are inherently less stable than where streambanks are cut in “lower and wetter” landforms, such as levee and floodplain. Detailed maps of valley-bottom landforms were prepared from 1:6,000 scale aerial photos viewed at about 1:1,200 scale.

Riparian vegetation types were mapped for target stream reaches from the same 1:6,000 scale aerial photos viewed at about 1:1,200 scale. Twenty one (21) riparian vegetation types and miscellaneous features were identified. Community physiognomy (e.g. trees, shrub, herbaceous) and apparent water regime (e.g. seasonally flooded) were key factors used to identify riparian vegetation types that generally correlate with valley-bottom type, state and valley-bottom landform. The distribution of riparian vegetation types reflects the existing condition of riverine/riparian habitat.

Two condition ratings were calculated. A riparian condition rating was calculated from the distribution of states, weighted by areas of the valley-bottom. A stream condition rating was calculated from the distribution of states, weighted by lengths of stream. Condition ratings range from 0 (worst) to 100 (best). Classes for condition ratings are:

| | |
|---------|-----------|
| < 25 | Very Poor |
| 25-50 | Poor |
| 50 - 75 | Fair |
| >75 | Good |

The riparian condition rating for target streams varied from 1 (very poor) to 100 (good). The average riparian condition rating for all target streams (64) indicates that the overall riparian condition class was fair. The stream condition rating for target streams ranged from 0 (very poor) to 100 (good). The average stream condition rating for the 32 target streams (66) indicates that the overall stream condition was fair.