ECOLOGICAL CLASSIFICATION
MARYS RIVER BASIN
NEVADA

Prepared for:

BUREAU OF LAND MANAGEMENT
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TROUT UNLIMITED
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WHITEHORSE ASSOCIATES
Logan, Utah

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EXECUTIVE SUMMARY

An ecological classification was applied to the Marys River basin in Elko County, Nevada. The focus of the ecological classification was riverine/riparian habitat (RRH). Marys River basin is about 513 square miles (328,218 acres) and contains about 1342.2 linear miles of stream, of which 237.1 miles is perennial. The ecological classification is hierarchical and consists of seven levels, ranging from broad classes based on general landscape characteristics to very refined levels based on 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

Forest Service, BLM and private owners manage the Marys River basin. Broad classes (Ecoregion, geologic district and subsection) were applied to the entire Marys River basin. Landtype and valley-bottom type were applied only to BLM and associated private lands in Marys River basin. The most refined classes (state, valley-bottom landform and riparian vegetation type) were applied to selected target streams managed mostly by the BLM, but including some private lands. Target streams are Marys River, Hanks Creek, Conners Creek, T Creek, Currant Creek, Wildcat Creek, Draw Creek, Meadow Creek, Cut Creek and Chimney Creek. The Marys River was further divided as the Lower Marys below the T Creek Confluence, Middle Marys between T Creek and Cut Creek confluence, and Upper Marys above Cut Creek.

Ecoregions (Omernik 1987) are based on factors that cause regional variation in ecosystems or on factors that integrate the causes of regional factors. The Marys River basin is part of the *Northern Basin and Range Ecoregion.*

Geologic districts are areas of distinctive rock types or parent materials that are generally associated with major structural features. Three geologic districts were identified in the Marys River basin: 1) *Metasedimentary;* 2) *Volcanic (flow)*; and 3) *Volcanic (tuff).*

Subsections associations are areas with distinctive geomorphic character. Subsections generally corresponded with geologic districts. Four subsections were identified in the Marys River basin: 1) *Metasedimentary fluvial land*; 2) *Volcanic (flow) glaciated land*; 3) *Volcanic (flow) fluvial land*; 3) *Volcanic (tuff) fluvial land*; and 5) *Volcanic (tuff) alluvial land*.

Subsections could have been further divided into landtype associations based on form, slope and position in the landscape. Landtype associations generally correspond with associations of upland soils and upland vegetation types. Landtype associations were not identified. Landtype associations commonly consist of several landtypes, defined by more specific position, soil and potential vegetation. Only the *valley-bottom landtype*, where riverine/riparian habitat (RRH) occurs, was delineated. The *valley-bottom landtype* is about 42,590 acres or 15 percent of BLM and associated private lands in Marys River basin.

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*. Ten (10) valley-bottom types were identified for BLM and associated private lands in Marys River basin.

Target streams included: 1) Marys River; 2) Chimney Creek; 3) Cutt Creek; 4) Meadow Creek; 5) T Creek; 6) Wildcat Creek; 7) Draw Creek; 8) Currant Creek; 9) lower Wild Horse Creek; 10) Hanks Creek; and 11) Conners Creek. The total length of target streams was about 209 linear miles. The valley-bottom of target streams made up about 13,457 acres or 15 percent of the total valley-bottom in BLM and associated private lands in the Marys River basin.

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 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). States were identified for two periods -- 1991 and 1995. Differences in state between the two periods were used to evaluate trend.

Valley-bottom landforms were mapped for target streams. Landforms included: channel, levee, floodplain, terrace, alluvial fan and wet depression. Soils tend to correlate with landform and valley-bottom type/state. Detailed maps of valley-bottom landforms were prepared from 1:24,000 scale aerial photos viewed at about 1:3,000 scale.

Riparian vegetation types were mapped for target streams from the same 1:24,000 scale aerial photos viewed at about 1:3,000 scale. Sixteen (16) riparian vegetation types and miscellaneous features were identified.

The condition of target streams was assessed using a riparian condition rating calculated from the distribution of states for areas of the valley-bottom and a stream condition rating calculated from the lengths of the stream. Condition ratings range from 25 (worst) to 100 (best). Classes for condition ratings were:

< 50	Very Poor
50-60	Poor
61 - 80	Fair
81 - 90	Good
91 - 100	Excellent

The average 1995 riparian condition rating for all target streams (66) indicates that the overall riparian condition class was fair. The 1995 riparian condition class for target streams varied from very poor to good. The average stream condition rating for all target streams (67) indicates that the overall stream condition was fair. The 1995 stream condition class for target streams ranged from very poor to good.