

**INVENTORY AND ASSESSMENT  
OF  
RIVERINE/RIPARIAN HABITATS  
ROCK CREEK BASIN  
NEVADA**

*Prepared for:*

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## EXECUTIVE SUMMARY

A hierarchical classification was applied to riverine/riparian habitat in Rock Creek basin. The survey area is 1,263 square miles (808,476 acres) and contains about 3,366 miles of stream, of which 262 miles is perennial.

The classification consists of seven hierarchical levels:

Ecoregion  
    Geologic District  
        Landtype Association  
            Landtype  
                Valley-bottom Type/State  
                    Landform  
                        Vegetation Type

Ecoregions (Omernik 1987) are based on factors that cause regional variation in ecosystems or on factors that integrate the causes of regional factors. The study area is in 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. Five geologic districts were identified: 1) Metasedimentary; 2) Volcanic/Rhyolite; 3) Volcanic/Tuff; 4) Volcanic/Basalt; and 5) Mixed Lacustrine Sediments.

Landtype associations are areas with distinctive geomorphic character. Landtype associations generally corresponded with geologic districts. Six landtype associations were identified: 1) Metasedimentary Mountains; 2) Rhyolite Hills; 3) Tuff Hills; 4) Tuff Basins; 5) Basalt Tablelands; and 6) Mixed Lacustrine Basin. These landtype associations encompass fluvial, alluvial and lacustrine landscapes.

Landtype associations can be further divided into landtypes based on form, slope and position in the landscape. Only the valley-bottom landtype, where riverine/riparian habitat (RRH) occurs, was delineated. The valley-bottom landtype is 201,845 acres or 25 percent of Rock Creek basin.

The valley-bottom landtype within a landtype association was further stratified as valley-bottom types (VBTs). VBTs were distinguished by the mechanism or relative effectiveness of geomorphic processes in shaping the valley-bottom. For example, the valley-bottom in the Metasedimentary Mountain landtype association was divided into: 1) Fluvial Basin VBT; 2) V-erosional Canyon VBT; and 3) V-depositional Canyon VBT. Seventeen VBTs were identified in the project area.

Target streams included: 1) Rock Creek; 2) Antelope Creek; 3) Willow Creek; and 4) Boulder Creek. The total length of target streams was 172.9 miles or 60 percent of perennial streams in Rock Creek basin. The valley-bottom associated with target streams made up about 20,289 acres or 2.5 percent of Rock Creek basin.

VBTs 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; 6) management factors (irrigation and channelization). Distinctive assemblages of riparian classes were correlated with VBT/State.

Landforms were mapped in the valley-bottom of target streams. Landforms included: channel, levee, floodplain, terrace and alluvial. Soils tend to correlate with landform and VBT/State. 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. About 20,289 acres of RRH was mapped from the 1:24,000 scale aerial photos viewed at about 1:3,000 scale. Twenty three riparian vegetation types and miscellaneous features were identified. Detailed maps of riparian vegetation types were prepared.

States of RRH were identified based on channel morphology. Changes in channel morphology (e.g. graded versus incised) result in changes in hydrologic attributes (e.g. depth to alluvial water) and potential riparian vegetation types. States were identified relative to a progression ranging from natural - typified by a graded, "fit" channel with stable, vegetated streambanks - to blown-out - typified by a non-graded, over-fit channel with unstable, unvegetated streambanks.

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 riparian condition rating for all target streams (48) indicates that the overall riparian condition was very poor. The class for specific tributaries varied from very poor to poor. The average stream condition rating for all target streams (59) indicates that the overall stream condition was poor. The class for specific tributaries ranged from very poor to fair.