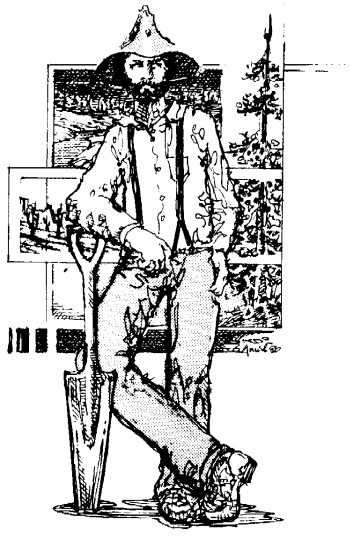
ECOLOGICAL CLASSIFICATION
CUB RIVER BASIN
UTAH AND IDAHO

Prepared for:

Cub River Watershed Management Group



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EXECUTIVE SUMMARY

An ecological classification was applied to the the Cub River basin in Utah and Idaho to facilitate studies of water quality. The project area is about 222 square miles (142,270 acres) and contains a stream network that is 358.4 linear miles, of which 91.8 miles (25.6 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
Vegetation Type

Broad classes (Ecoregion, geologic district, subsection, valley-bottom type and state) were applied to the entire project area. Valley-bottom landforms were not mapped or described. Vegetation types were mapped along the main course of streams in target subbasins (City, Cherry, Cub, High, Spring, Maple, Sugar, Foster, Carter and Worm Creeks).

Ecoregions (Omernik 1987) are based on factors that cause regional variation in ecosystems or on factors that integrate the causes of regional factors. The Cub River basin includes parts of the *Northern Basin and Range* and *Wasatch and Uinta Mountains Ecoregions*.

Geologic districts are areas of distinctive rock types or parent materials that are often associated with major structural features. Two (2) geologic districts were identified in the project area: 1) *Sedimentary (calcareous);* and 5) *Unconsolidated.*

Subsections are areas with distinctive geomorphic character that often correspond with geologic districts. Four (4) subsections were identified in the project area: 1) *Sedimentary (calcareous) alpine glacial lands;* 2) *Sedimentary (calcareous) fluvial lands; 3) Unconsolidated aeolian lands;* 4) *Unconsolidated alluvial lands; and* 5) *Unconsolidated lacustrine lands.*

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 *Sedimentary fluvial lands* was divided into: 1) *cascade/basin*; 2) *V-erosional canyon*; and 3) *V-depositional canyon*. Twelve (12) valley-bottom types were identified. Stream attributes for valley-bottom types are summarized for the Cub River basin and subbasins.

Valley-bottom types were further divided into states (i.e. condition classes) based on interpretation of 1:40,000 scale NAPP aerial photos dated 1987. 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). The length of stream is summarized by state for the Cub River basin and subbasins.

Vegetation types were mapped for main courses of target streams from the same aerial photos. Fourteen (14) vegetation and miscellaneous types were identified. Community physiognomy (e.g. trees, shrub, herbaceous) and apparent water regime (e.g. seasonally flooded) were key factors used to identify 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.

A stream condition rating was calculated for the Cub River basin and subbasins from the distribution of stream states. Possible stream condition ratings range from 0, indicating very poor condition, to 100, indicating excellent conditions. The average condition rating (weighted by stream length) for the Cub River basin is 79. Condition ratings for subbasins ranged from 55 for Worm Creek subbasin to 100 for Carter Creek subbasin.