

**ECOLOGICAL CLASSIFICATION
SWAN RIVER BASIN
MONTANA**

Prepared for:

**PLUM CREEK TIMBER
COLUMBIA FALLS, MONTANA**



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EXECUTIVE SUMMARY

An ecological classification was conducted for Swan River basin in northwest Montana. The basin is 408,630 acres with a stream network totaling about 1,257 linear miles. The ecological classification provides a framework and descriptive attributes from which interpretations regarding habitats and the effects of land uses can be interpreted.

The framework is an ecological classification that facilitates analysis from several perspectives. Hierarchical levels include ecoregion, geologic district, subsection, landtype association, landtype, habitat type and riparian landtype. Descriptive attributes include elevation, slope, aspect, annual precipitation and ownership. Descriptive attributes can be summarized for any combination of the hierarchical layers.

The Swan River basin falls within a single ecoregion (Northern Rockies) and geologic district (Precambrian Sedimentary). Three (3) subsections were discriminated by geologic structure: 1) Alpine glacial sedimentary scarp slope; 2) Alpine glacial sedimentary dip slope; and 3) Continental glacial sedimentary valley. Eleven (11) Landtype associations were identified by the Flathead National Forest and group landtypes with distinctive erosion potential and sediment delivery efficiency. Landtypes were identified as part of an Order III Land System Inventory in the northern Rocky Mountains of northwest Montana (Martinson and Basko 1983) and from an Order IV survey of landtypes in the Mission Mountain Wilderness. A total of 46 Order III and IV landtypes were combined into eleven (11) more general landtype classes. Sirucek (1994) developed a map of habitat types (described by Pfister et al. 1977) from empirical models, forest stand data and an existing layer of forest structural classes. Twelve (12) major habitat types and twenty six (26) minor habitat types were identified. Riparian landtypes are defined by valley-bottom gradient, dominant streambed materials and dominant vegetation community type. They were mapped and described for Forest Service lands in the Flathead National Forest (Sirucek and Bachurski 1995). In a cost-share agreement with Plum Creek Timber, the Flathead National Forest also extended the riparian landtype mapping to private lands in the Swan River basin and to the Mission Mountain wilderness.

A Geographical Information System (GIS) was used to compile hierarchical map layers, plot maps and to output map data summaries. Maps, descriptions and data summaries are provided for each hierarchical level. Digital GIS map layers have also been provided to Plum Creek Timber and to the Flathead National Forest.