

DRAFT 2

Ecoregions of Montana

Second Edition

Eceregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources; they are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. By recognizing the spatial differences in the capacities and potentials of ecosystems, ecoregions stratify the environment by its probable response to disturbance (Byrce and others, 1999). These general purpose regions are critical for structuring and implementing ecosystem management strategies across federal agencies, state agencies, and nongovernment organizations that are responsible for different types of resources within the same geographical areas (Omernik and others, 2000).

The approach used to compile this map is based on the premise that ecological regions can be identified through the analysis of the spatial patterns and the composition of biotic and abiotic phenomena that affect or reflect differences in ecosystem quality (Wilken, 1986; Omernik, 1987, 1995). These phenomena include geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology.

The relative importance of each characteristic varies from one ecological region to another regardless of the hierarchical level. A Roman numeral hierarchical scheme has been adopted for different levels of ecological regions. Level I is the coarsest level, dividing North America into 15 ecological regions. Level II divides the continent into 52 regions (Commission for Environmental Cooperation Working Group, 1997). At level III, the continental United States contains 104 ecoregions and the conterminous United States has 84 ecoregions (United States Environmental Protection Agency (USEPA), 2000). Level IV is a further subdivision of level III ecoregions. Explanations of the methods used to define the USEPA's ecoregions are given in Omernik (1995), Omernik and others (2000), and Griffith and others (1994).

The second edition of "Ecoregions of Montana" revises many ecoregion polygon assignments that appeared in the first edition (Woods and others, 1999). These changes were made after research in Idaho (McGrath and others, 2002) recognized the Idaho Batholith as a separate level III ecoregion (Ecogion 16), limited the Northern Rockies (15) to strongly marine-influenced areas, and transferred the Montana Valley

and Foothill Prairies (formerly Ecogion 16) to another level III ecoregion, the Middle Rockies (17). The second edition also modifies a few level IV ecoregion lines along Montana's western border so that ecoregions shared by Montana and Idaho will edge match. In addition, it updates ecoregion names so that they are consistent with the most recent ecoregion work in area (Chapman and others, 2003). However, it is important to note that although many polygon assignments and a few ecoregion names have changed between the first and second editions, nearly all level IV ecoregion line positions are identical on the two editions.

The level III and IV ecoregion map on this poster was compiled at a scale of 1:250,000 and depicts revisions and subdivisions of earlier level III ecoregions that were originally compiled at a smaller scale (USEPA, 2000; Omernik, 1987). This poster is part of a collaborative project primarily between USEPA Region VIII, USEPA National Health and Environmental Effects Research Laboratory (Corvallis, Oregon), Montana Department of Environmental Quality (MDEQ), United States Department of Agriculture-Forest Service, United States Department of Agriculture-Natural Resources Conservation Service (formerly Soil Conservation Service), United States Department of the Interior-Bureau of Land Management, and United States Department of the Interior-U.S. Geological Survey-Earth Resources Observation Systems (EROS) Data Center.

The project is associated with an interagency effort to develop a common framework of ecological regions. Reaching that objective requires recognition of the differences in the conceptual approaches and mapping methodologies applied to develop the most common ecoregion-type frameworks, including those developed by the U.S. Forest Service (Bailey and others, 1994), the USEPA (Omernik, 1987, 1995), and the Natural Resources Conservation Service (U.S. Department of Agriculture-Soil Conservation Service, 1981). As each of these frameworks is further refined, their differences are becoming less discernible. Regional collaborative projects such as this one in Montana, where agreement has been reached among multiple resource management agencies, are a step toward attaining consensus and consistency in ecoregion frameworks for the entire nation.

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