

# Ecoregions of Wyoming

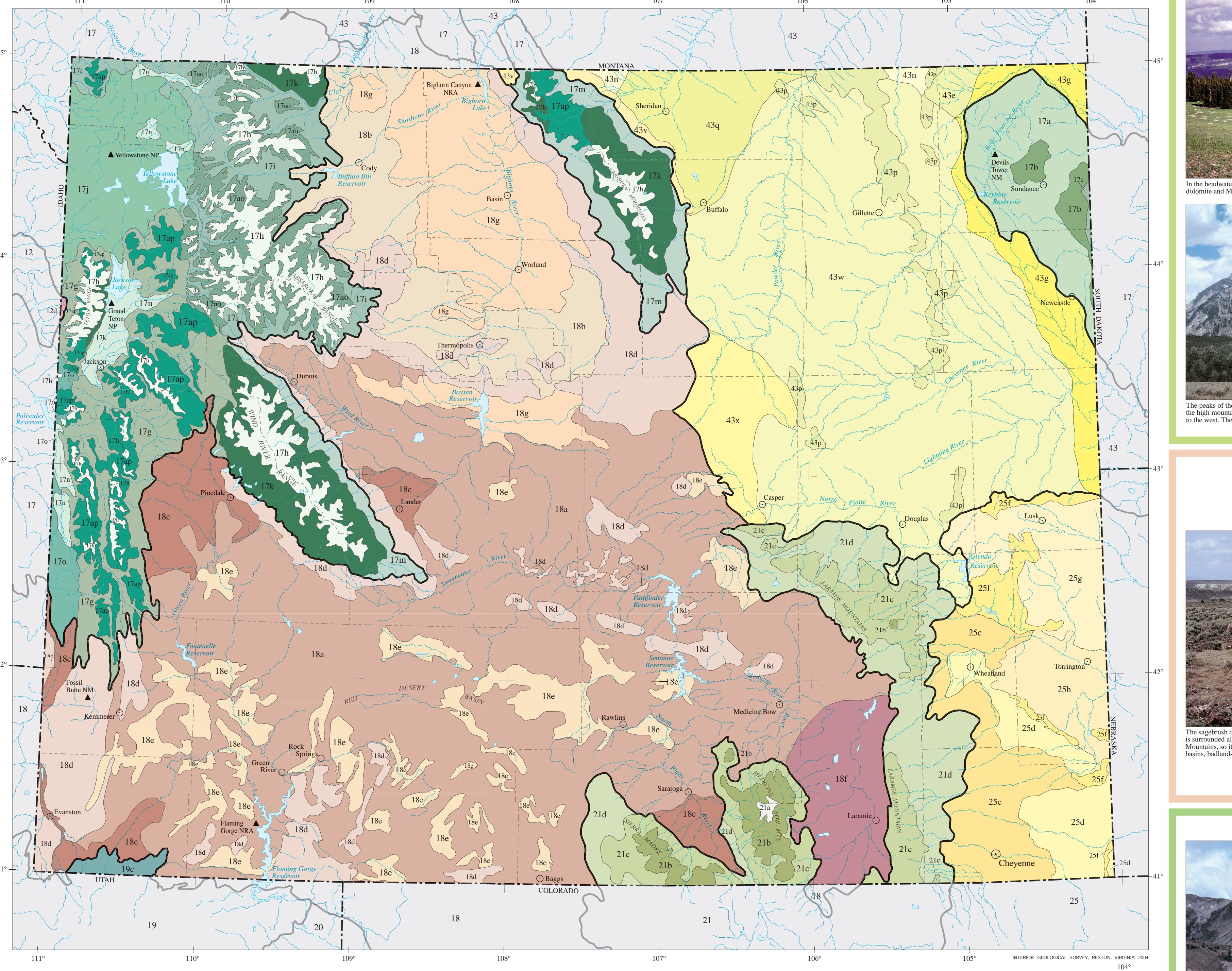
Ecoregions denote areas of general similarity in ecosystems and serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. By recognizing the spatial differences in the capacities and potentials of ecosystems, ecoregions stratify the environment by its probable response to disturbance (Bryce 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 area (Omenik 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 and integrity (Wiken, 1986; Omenik, 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 14 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], 2003). Level IV is a further subdivision of level III ecoregions. Explanations of the methods used to define the USEPA's ecoregions are given in Omenik (1995), Omenik and others (2000), Griffith and others (1994), and Gallant and others (1989).

Wyoming is made up of semiarid shrub- and grass-covered plains, alluvial valleys, volcanic plateaus, forested mountains, woodland- and shrubland-covered hills, glaciated peaks, lava fields, and wetlands. Ecological diversity is enormous. There are 7 level III ecoregions and 39 level IV ecoregions in Wyoming and many continue into ecologically similar parts of adjacent states. 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, 2003; Omenik, 1987). This poster is part of a collaborative project primarily between USEPA Region X, USEPA National Health and Environmental Effects Research Laboratory (Corvallis, Oregon), Wyoming Department of Environmental Quality (WDEQ), United States Environmental Agency (USEPA), National Resource Service (NRS), United States Department of the Interior-Bureau of Land Management (BLM), and United States Department of the Interior Geological Survey (USGS)-Earth Resources Observation Systems (EROS)-Earth 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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.



## 12. Snake River Plain

Dissected Plateaus-Teton Basin

## 17. Middle Rockies

Black Hills Foothills  
Black Hills Plateau  
Black Hills Core Highlands  
Mid-Elevation Sedimentary Mountains  
Alpine Zone  
Absaroka-Gallatin Volcanic Mountains  
Yellowstone Plateau

## 18. Wyoming Basin

Rolling Sagebrush Steppe

Bighorn Basin

Sub-Irrigated High Valleys

Foothill Shrublands and Low Mountains

Salt Desert Shrub Basins

Laramie Basin

Bighorn Salt Desert Shrub Basins

## 19. Wasatch and Uinta Mountains

Mid-Elevation Uinta Mountains

## 21. Southern Rockies

Alpine Zone

Subalpine Forests

Mid-Elevation Forests and Shrublands

Foothill Shrublands

Level III ecoregion County boundary State boundary

15 10 5 0 30 60 mi  
30 20 10 60 120 km  
Albers equal area projection Standard parallel 43° N & 45° N

PRINCIPAL AUTHORS: Shannen S. Chapman (Dynamac Corporation), Sandra A. Bryce (Dynamac Corporation), James M. Omenik (USEPA, retired), Donald G. Despain (USGS), Jeremy Zumbro (WDEQ), and Mark Conrad (WDEQ).  
COLLABORATORS AND CONTRIBUTORS: Dennis Knight (University of Wyoming, USFS), Jack Smith (WDEQ), Darren Schreder (NRS), Bill Daniels (BLM), Terry Bright (BLM), Jerry Freecon (USFS), and Jeffrey Comstock (Indus Corporation).  
REVIEWERS: Kurt King (WDEQ) and Myron Brooks (USGS, Wyoming).  
CITING THIS POSTER: Chapman, S.S., Bryce, S.A., Omenik, J.M., Despain, D.G., Zumbro, J., and Conrad, M., 2004, Ecoregions of Wyoming (color poster with map, descriptive text, summary tables, and photographs), Reston, Virginia, U.S. Geological Survey (map scale 1:1,400,000).

Map Source: USEPA, 2003



## 12. Snake River Plain

The Snake River Plain is a broad valley in the west. It is lower, drier, and less rugged than surrounding ecoregions. However, irrigation water is plentiful in most areas, and many alluvial valleys bordering the Snake River are irrigated cropland. Agriculture is the primary use of the agricultural areas and occasional barren lava fields, the sagebrush plains and low hills of the Snake River Plain are used for cattle grazing.

**12d. The Dissected Plateaus and Teton Basin**

The Dissected Plateaus and Teton Basin is a high, cold valley west of the Tetons Range. Its climate makes the natural vegetation is sagebrush steppe with mountain big sagebrush, Idaho fescue, slender wheatgrass, and bluebunch wheatgrass. Alluvium covers about 70 inches and averages 20-30 inches of annual streamflow. Irrigation comes from glacial meltwater. Potential natural vegetation is Douglas-fir forest. Today Douglas-fir and ponderosa pine are common, along with lodgepole pine and some open parkland with sagebrush and fur and understory. In riparian areas, cottonwood, willow, and Engelmann spruce are common. Logging, winter range, recreation, wildlife habitat, and water supply are major land uses.

Irrigated agriculture is extensive in the Dissected Plateaus and Teton Basin (12d). Breeding is limited to the base of the western foothills of the Teton Range.

A typical landscape in the Mid-Elevation Uinta Mountains can include Douglas-fir, lodgepole pine, and Ponderosa pine forests with open grassland areas.

Gullion, A., Weller, T.R., Larson, D.P., Omenik, J.M., and Hughes, R.M., 1989, Regionalization as a tool for managing environmental resources: Corvallis, Oregon, U.S. Environmental Protection Agency, EPA-600/R-89-060, 152 p.

Griffith, G.E., Omenik, J.M., Wilton, T.F., and Peterson, S.M., 1994, Ecoregions and subregions of Iowa—a framework for water quality assessment and management: Journal of the Iowa Academy of Science, v. 101, no. 1, p. 5-13.

Omenik, J.M., 1987, Ecoregions of the conterminous United States (map supplement): Annals of the Association of American Geographers, v. 77, no. 1, p. 1-20. Scale 1:500,000.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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 Wyoming, 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.

Wiken, E., 1986, Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Classification Series no. 19, 26 p.

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 USEPA (Baleys and others, 1994), the USEPA (Omenik, 1987, 1995), and the NRS (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