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Bureau of Land Management

Interior Columbia Basin Supplemental Draft Environmental Impact Statement

Appendix 2 - GIS Data and Databases

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Interior Columbia Basin Ecosystem Management Project
Supplemental Draft Environmental Impact Statement

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ICBEMP Supplemental Draft EIS

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This appendix contains an introduction; data and analysis; documentation, management, and data sharing; and a summary. Those sections are followed by a table that lists all the data layers, also called themes, in the Geographic Information System (GIS) for the Interior Columbia Basin Ecosystem Management Project (ICBEMP).

Introduction

This appendix has been adapted from Information System chapter (Gravenmier et al. 1997) of the *Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins* (Quigley and Arbelbide 1997).

Regional land use planning requires tools that are more sophisticated than those typically used for landscape and resource analysis. Traditionally, maps, graphs, charts, and diagrams have been used to analyze and visualize the natural environment. Today, Geographic Information Systems (GISs) provide the tools and techniques that allow regional projects to be accomplished in a highly efficient, integrated, and accurate manner.

A GIS is especially well-suited to deal with spatial and temporal issues (problems of dimension, space, and time). Without advanced computer technology, software, and trained and experienced individuals, the volume of data collected in support of the ICBEMP would have been much more difficult. GIS provided the means to dynamically model and analyze living systems throughout the project area in ways that were impractical only a decade ago.

The ICBEMP is the largest interagency database development effort undertaken to date by the agencies involved, covering more than 144 million acres. A Spatial Analysis Team was established to manage data and support the analytical needs of the ICBEMP. This team was comprised of Bureau of Land Management (BLM), Forest Service, and contracted personnel who were located in Walla Walla, Washington and Portland, Oregon. The interagency group was charged with collecting available GIS data, capture of new data, and analysis to support the project's *Scientific Assessment* and EISs. The Spatial Analysis Team was also responsible for the documentation and distribution of data to project personnel, federal agencies, tribal governments, the general public, and other interested parties.

Data and Analysis

More than 180 different GIS data layers or themes were compiled or created in support of the ICBEMP *Scientific Assessment* and the development of the EISs. The data compiled includes spatial (geographic) layers of information and tabular data which may link to spatial layers. The focus of the data development effort was to gather data that were captured in a consistent manner and mapped continuously across the project area.

The ICBEMP worked with the field offices of the federal agencies to consistently map subwatersheds, watersheds and subbasins at a scale of 1:100,000 for the project area. This data layer became key for data summary and analysis. Several data layers were compiled from individual administrative units of the BLM and Forest Service and then aggregated to build continuous data across the Basin. These data sets were: grazing allotments, recreation opportunity spectrum classes, management area categories (aggregations of individual land use allocations), administrative units, key salmonid presence / absence and status, vegetative plot information, and stream reach inventory data.

Major data providers included individual administrative units of the Forest Service, BLM, U.S. Fish and Wildlife Service, Environmental Protection Agency, U.S. Geological Survey, U.S. Bureau of Mines, Bonneville Power Administration, universities, state agencies, and non-governmental organizations.

Information that was gathered specifically for this project was either scanned or digitized once a manuscript of the data was created. These digital data sets were then attributed and brought into the GIS. Further attribution, error checking, and analysis took place before it was placed into the corporate (master) data structure. These checks included manual inspection against other sources of data and logic checks both within the data set and with other GIS data sets. Errors, inconsistencies, and anomalies were resolved with the help of field specialists or by other means.

Analysis of data occurred in GIS and in the relational database environment. GIS analysis used two data architectures: vector (lines, polygons, and points) and raster (matrices or grids). Some of the data were created in vector form (such as ownership boundaries

captured from a map), while other data were created in raster form. Vector data were sometimes converted to raster data for analysis.

Table 1 lists the data themes, databases, and the scales at which the data were collected. The data layers were derived from source maps, photos, or transfer media ranging from 1:12,000 to 1:4,000,000 in scale or were gathered from alternate existing sources. Data continue to be updated as time allows and new sources of information are determined.

In the analysis of the affected environment and environmental consequences for the alternatives, a variety of systems and methods were used to examine and evaluate the large quantities of existing and derived data. GIS played a key role in tying the Columbia River Basin Successional Model (CRBSUM) vegetative outputs to various strata such as the management regions, Resource Advisory Councils / Provincial Advisory Councils, and subwatersheds. Conventional databases were essential to synthesizing, summarizing, and reporting information.

Documentation, Management, and Sharing of Data

In a project such as the ICBEMP, where many cooperators shared data obtained from many sources, documentation of data is a necessity. Documentation of data, often referred to as metadata or data about data, is in the process of becoming standardized within the federal government. In 1994, Executive Order 12906 gave the Federal Geographic Data Committee (FGDC), currently chaired by the Secretary of the Interior, direction to establish the National Spatial Data Infrastructure (NSDI) including the "technology, policies, standards and human resources necessary to acquire, process, store, distribute, and improve utilization of geospatial data." Part of that order calls for standardized documentation of data. Each agency must use the standard developed by the FGDC (FGDC Content Standard for Digital Geospatial Metadata) to document new data it collects or produces.

At the time initial planning began for the ICBEMP, the FGDC metadata standard was in early draft form. The project adopted the metadata standard previously developed by the Northwest Forest Plan effort. The resulting metadata are generally compatible but less extensive than what is described in the 1994 FGDC standard. The project plans to transition to the FGDC standards in the near future.

For management of metadata, SPUDD (Spatial Unified Data Dictionary), an Access database application, was used. SPUDD was developed by Forest Service and BLM personnel for use in the Northwest Forest Plan effort and was enhanced during this project. This system will be migrated to another metadata system in order to become compliant with the FGDC metadata standards.

The ICBEMP began to release spatial data and maps to the public and government agencies in November 1994. Unlike previous projects, the data and maps were made available while the project data were being analyzed. A brief policy paper was prepared to provide interested individuals with the data release objectives, the processes for completing requests for data and maps, and cost information. Data, metadata, and map products can be downloaded from the project web site at http://www.icbemp.gov/spatial.

Summary

It must be remembered that the ICBEMP data have been gathered, for the most part, across a large area, for a specific broad-scale purpose. Much of the data, while being adequate for the broad-scale needs of the project, may not be suitable for use at the fine scale, site-specific level project. The expense of gathering data of higher resolution (which met project-level analysis requirements) for the entire project area and aggregating it to the broad-scale level was too great to justify both in cost and time with the fixed amount of resources available. A limited number of data were collected at finer scales and aggregated across the Basin. These data layers vary in accuracy and resolution. The remainder of the project data were derived from broad general maps, or were captured through intensive, large-scale photo interpretation means and high resolution image processing. The importance of using and understanding the metadata to determine the appropriate use of ICBEMP GIS data and databases cannot be overstated. Many of the GIS themes created or collected by the ICBEMP may be used in mid-scale analyses, and for project level work where no finer resolution data exist. Additional information on data documentation and analysis processes used can be found in Gravenmier et al. (1997).

Table 1. Interior Columbia River Basin Ecosystem Management Project (ICBEMP) Geographic Information System (GIS) Data, Databases, and Models (as of 10/13/99).

Theme Name	Extent[1]	Scale/Resolution
Aquatic Group		
Aquatic Basins	Assessment Area	1:100,000
Benthic Invertebrates	Omernick[2] Regions 9-12, 15	variable
Stream Reaches with Habitat Survey Data	Assessment Area	1:100,000
Atmospheric Group		
Air Pollution-Non-Attainment Areas	Landscape Characterization Area	variable
Air Quality-Lake Monitoring Sites	Landscape Characterization Area	nearest second
Air Quality Monitoring Sites for NADP	Landscape Characterization Area	nearest second
Air Quality Monitoring Sites for NDDN	Landscape Characterization Area	nearest second
Air Quality-Point Source Emissions	Landscape Characterization Area	nearest second
Air Quality-Snowpack Monitoring Sites	Landscape Characterization Area	nearest minute
Air Quality-Source Emissions by County	Landscape Characterization Area	county
Class One Airsheds	Assessment Area	1:24,000 to 1:100,000
Climate-Average Dew Point	Assessment Area	2 kilometers
Climate-Average Maximum Temperature	Assessment Area	2 kilometers
Climate-Average Minimum Temperature	Assessment Area	2 kilometers
Climate-Average Yearly Temperatures	Assessment Area	2 kilometers
Climate-Total Solar Radiation	Assessment Area	2 kilometers
Climate-Total Yearly Precipitation	Assessment Area	2 kilometers
Climate-PRISM Precipitation Data	Landscape Characterization Area	500 meters
Weather-Extreme Winds (Grid)	Landscape Characterization Area	5 minutes
Weather-Extreme Winds (Vector)	Landscape Characterization Area	5 minutes
Weather-Freeze Potential	Landscape Characterization Area	2 kilometer
Weather-Lightning Frequency (Grid)	Landscape Characterization Area	10 kilometer
Weather-Lightning Frequency (Vector)	Landscape Characterization Area	point +/- 5 kilometer
Weather-Monthly Winds (Grid)	Landscape Characterization Area	5 minutes
Weather-Monthly Winds (Vector)	Landscape Characterization Area	5 minutes
Weather-Palmer Drought Severity Index	Landscape Characterization Area	broadscale
Weather-Rain Days	Landscape Characterization Area	nearest second
Weather-Rain on Snow	Landscape Characterization Area	2 kilometer
Weather-30 Year Average Winds by Month (Grid)	Landscape Characterization Area	5 minutes
Weather-30 Year Average Winds by Month (Vector)	Landscape Characterization Area	5 minutes
Cultural Group		
Dams	Idaho/Montana/Oregon/Washington	nearest 10 seconds
Dams-from Army Corps of Engineers and State	Idaho/Montana/Oregon/Washington	nearest 10 seconds
Stream and River Diversions	Assessment Area	1:100,000
Existing Scenic Integrity (DEIS)[3]	Assessment Area	1 kilometer
Road Density (Predicted)	Landscape Characterization Area	1 kilometer
Roads-Broadscale-1:1,000,000	Western North America	1:1,000,000

Roads-Broadscale-1:2,000,000	Assessment Area	1:2,000,000
Roads-Subsample	Assessment Area	1:24,000 to 1:100,000
Scenic Integrity (ASMNT)	Assessment Area	subwatershed
Sense of Place (Columbia River Basin)	Assessment Area	1:500,000
Sense of Place (3 Selected Areas)	Three Selected Areas	1000 acres
Streets-California/Northern (TIGER)	Northern California	1:100,000
Streets-Idaho (TIGER)	Idaho	1:100,000
Streets-Montana (TIGER)	Montana	1:100,000
Streets-Nevada (TIGER)	Nevada	1:100,000
Streets-Oregon/East (TIGER)	Eastern Oregon	1:100,000
Streets-Utah (TIGER)	Utah	1:100,000
Streets-Washington/East (TIGER)	Eastern Washington	1:100,000
Streets-Wyoming (TIGER)	Wyoming	1:100,000
Utility Corridors	Eleven Western states	unknown
Utility Corridors-Energy Sources	Eleven Western states	unknown
Demographic Group		
Census Blockgroups-SEA	Socioeconomic Assessment Area (SEA)	1:100,000
Census Blockgroups-California	California	1:100,000
Census Blockgroups-Idaho	Idaho	1:100,000
Census Blockgroups-Montana	Montana	1:100,000
Census Blockgroups-Nevada	Nevada	1:100,000
Census Blockgroups-Oregon	Oregon	1:100,000
Census Blockgroups-Utah	Utah	1:100,000
Census Blockgroups-Washington	Washington	1:100,000
Census Blockgroups-Wyoming	Wyoming	1:100,000
Census Tracts	Socioeconomic Assessment Area	1:100,000
Isolated Timber Dependent Areas	Assessment Area	1:2,000,000
Mill Towns-from 100k Towns	Assessment Area	1:100,000
Populated Places-1:100,000 (polygon)	Socioeconomic Assessment Area	1:100,000
Populated Places DCW-1:1,000,000 (polygon)	Assessment Area	1:1,000,000
Towns-1:100,000 (point)	Socioeconomic Assessment Area	1:100,000
Towns DCW-1:1,000,000 (point)	Western North America	1:1,000,000
Urban/Rural Classes	Assessment Area	1 kilometer
Disturbance Group		
Disturbance-Current Fire Regime	Landscape Characterization Area	1 kilometer
Disturbance-Fire History Study Sites	Landscape Characterization Area/Canada	nearest minute
Disturbance-Historical Fire Regime	Landscape Characterization Area	1 kilometer
Disturbance-Fire Locations	Landscape Characterization Area	point data
Human Ecological Interaction (BLM/FS)	Assessment Area	1 kilometer
Risk of Human Ecological Interaction (Trends)	Assessment Area	1 kilometer
Rural Population/Wildland Interface Areas	Landscape Characterization Area	1 kilometer
Rural Population/Wildland Interface Fire Risk	Landscape Characterization Area	1 kilometer
Societal Risk to/from Ecological Integrity	Assessment Area	1 kilometer

Table 1. Interior Columbia River Basin Ecosystem Management Project (ICBEMP) Geographic Information System (GIS) Data, Databases, and Models (as of 10/13/99). (continued)

Theme Name	Extent	Scale/Resolution
Fisheries Group		
Anadromous Fish Hatcheries	Assessment Area	point data
Hydrology Group		
Aquatic Assessment Boundary	Assessment Area	1:250,000
Columbia River Basin Assessment Boundary	Assessment Area	1:250,000
Columbia River Basin Boundary	Assessment Area	1:250,000
Columbia River Basin-U.S. Portion	Assessment Area	1:100,000
Consultation Watersheds (Section 7 ESA)	Idaho/Oregon	1:500,000
Critical Watersheds-American Fisheries Society	Oregon	unknown
High Priority Watersheds (Section 7 ESA)	Assessment Area	1:126,720 to 1:250,000
Inland Native Fish Strategy Boundary (Forest Service)	Assessment Area	1:100,000
Interior Columbia River Basin	Assessment Area	1:100,000
Lakes 1:100,000, Enhanced	Assessment Area	1:100,000 to
1:2,000,000		
Lakes and Reservoirs 2M-Broadscale	Assessment Area	1:2,000,000
Lakes Classified by Water Quality Clusters	Assessment Area	1:100,000 to 1:250,000
NURE Stream Sediment Geochemistry-Part 1	Idaho/Montana	200 meters
NURE Stream Sediment Geochemistry-Part 2	Idaho/Montana/Oregon	200 meters
NURE Stream Sediment Geochemistry-Part 3	Oregon/Washington	200 meters
Ocean	Western U.S. and Canada, Northwestern Mexico	1:1,000,000
PACFISH Boundaries (BLM/FS Lands)	Assessment Area	1:100,000
Pollutant Sources-Water (CERCLA Sites)	Assessment Area	1:24,000
Pollutant Sources-Water (NPDES)	Assessment Area	1:24,000
Pollutant Sources-Water (RCRA)	Assessment Area	1:100,000
Pollutant Sources-Water (TRI)	Assessment Area	1:24,000
Priority Watersheds-PACFISH/Bull Trout/EIS	Idaho/Oregon/Washington	1:500,000
River Reach Banks and Water Bodies	Assessment Area	1:100,000
River Reaches Modified for ICBEMP (Pt 1)	Assessment Area	1:100,000
River Reaches Modified for ICBEMP (Pt 2)	Assessment Area	1:100,000
River Reaches Modified for ICBEMP (Pt 3)	Assessment Area	1:100,000
River Reaches Modified for ICBEMP (Pt 4)	Assessment Area	1:100,000
Rivers-1:2,000,000	Assessment Area and Western Oregon/Washington	1:2,000,000
Streams at 250k from National Marine Fisheries Service	Idaho/Montana/Oregon/Washington	1:250,000
Subbasins/Watersheds/Subwatersheds (Vector)	Landscape Characterization Area	1:100,000
Subbasins/Watersheds/Subwatersheds (Grid)	Assessment Area	1 kilometer
U.S. Geological Survey Subbasins (4th-field HUCs)	Assessment Area	1:250,000
Water Quality Impairment-Lakes (303d and 305b)	Assessment Area	1:100,000
Water Quality Impairment-Streams (303d and 305b)	Assessment Area	1:100,000

Minerals/Geology Group		
Bedrock Background Base Metal Content	Landscape Characterization Area	200 meters
Bedrock Iron-Aluminum-Magnesium Content	Landscape Characterization Area	200 meters
Bedrock Phosphate Content	Landscape Characterization Area	200 meters
Bedrock Potassium Content	Landscape Characterization Area	200 meters
Cascade Volcano Hazards-Annual 1 cm Ash Probability	Assessment Area except Wyoming/Utah	1:2,000,000
Cascade Volcano Hazards-Annual 10 cm Ash Probability	Assessment Area except Wyoming/Utah	1:2,000,000
Cascade Volcano Hazards-Annual 100 cm Ash Probability	Assessment Area except Wyoming/Utah	1:2,000,000
Cascade Volcano Proximal Hazards	Assessment Area	2 kilometers
Horizontal Earthquake Acceleration Probability	Landscape Characterization Area	5 kilometers
Low-Temperature Geothermal Sites	Assessment Area states except Wyoming	1:24,000
Major Lithology	Landscape Characterization Area	200 meters
Mineral Deposit Permissive/Favorable Areas (MPFA) 1 of 2	Assessment Area	1 kilometer
Mineral Deposit Permissive/Favorable Areas (MPFA) 2 of 2	Assessment Area	1 kilometer
Mineral Deposit Permissive/Favorable Areas-Phosphate	Landscape Characterization Area	200 meters
Mineral Deposits	Assessment Area	1:24,000 to 1:100,000
Mineral Development Interest Area (MDIA)	Assessment Area	1:500,000
Mineral Industry Locator System	Assessment Area	1:24,000 to 1:100,000
Mineral Production Facilities	Assessment Area	1:24,000 to 1:100,000
Mining Claim Density-Idaho	Idaho	1:500,000
Mining Claim Density-Montana	Montana	1:500,000
Mining Claim Density-Nevada	Nevada	1:500,000
Mining Claim Density-Oregon	Oregon	1:500,000
Mining Claim Density-Utah	Utah	1:500,000
Mining Claim Density-Washington	Washington	1:500,000
Mining Claim Density-Wyoming	Wyoming	1:500,000
Mining Related Hazard Potential	Assessment Area	1:24,000 to 1:100,000
Potential Bat Habitat	Landscape Characterization Area	200 meters
Relative Bedrock Calcium Content	Landscape Characterization Area	200 meters
Sand and Gravel Permissive Tracts	Landscape Characterization Area	200 meters
Physiographic Group		
.5 Km Digital Elevation Model (DEM)	Landscape Characterization Area	500 meters
90 Meter Digital Terrain Model (DTM)	Assessment Area	90 meters
Bailey's Ecoregions	U.S.	1:3,500,000
Biophysical Environment-Regional	Landscape Characterization Area	1 kilometer
Biophysical Environment-Coarse	Landscape Characterization Area	1 kilometer
Ecological Reporting Units (ASMNT)	Assessment Area	1:100,000
Ecological Reporting Units (DEIS)	Assessment Area	1:100,000
Ecological Reporting Units by Subwatershed (ASMNT)	Landscape Characterization Area	1:100,000
Ecological Reporting Units by Subwatershed (DEIS)	Landscape Characterization Area	1:100,000
Franklin/Dyrness[4] Physiographic Provinces	Oregon/Washington	1:4,000,000
Landscape Characterization Boundary	Landscape Characterization Area	1:500,000

Table 1. Interior Columbia River Basin Ecosystem Management Project (ICBEMP) Geographic Information System (GIS) Data, Databases, and Models (as of 10/13/99). (continued)

Theme Name	Extent	Scale/Resolution
Omernik Ecoregions	Assessment Area	1:2,500,000
Photo Interpretation Subsample Areas	Landscape Characterization Area	1:24,000
Soil Susceptibility to Disturbance Stress	California/Idaho/Montana/Nevada/Oregon/Utah/Washington/Wyoming	1:250,000
Subsample Boundaries	Assessment Area	1:100,000
Subsections	Landscape Characterization Area	1:500,000
Valley Bottom Settings-Subsample Polygons	Subsamples	1:100,000
Political Group		
BLM Administrative Unit Boundaries	Assessment Area	1:500,000
BLM Planning Units	Idaho/Oregon/Washington	1:1,000,000
1-km Ownership/Administrative Unit (SDEIS)	Assessment Area	1 kilometer
County Boundaries-1:100,000	California/Idaho/Montana/Nevada/Oregon/Utah/Washington/Wyoming	1:100,000
County Boundaries-1:2,000,000	U.S.	1:2,000,000
Current Recreation Opportunity Spectrum (DEIS)	Assessment Area	1 kilometer
Eastside and Upper Columbia EIS Boundary	Assessment Area	1:100,000
Eastside EIS Boundary	Assessment Area	1:100,000
Indian Reservations	Landscape Characterization Area	1:2,000,000
Management Area Categories-Idaho	Idaho	1:24,000 to 1:1,000,000
Management Area Categories-Montana	Montana	1:24,000 to 1:1,000,000
Management Area Categories-Nevada	Nevada	1:24,000 to 1:1,000,000
Management Area Categories-Oregon	Oregon	1:24,000 to 1:1,000,000
Management Area Categories-Utah	Utah	1:24,000 to 1:1,000,000
Management Area Categories-Washington	Washington	1:24,000 to 1:1,000,000
Management Area Categories-Wyoming	Wyoming	1:24,000 to 1:1,000,000
Management Regions/Classes (DEIS)	Assessment Area	1 kilometer
National Forest Boundaries	Landscape Characterization Area	1:100,000
Natural Areas (ASMNT)	Assessment Area	1:24,000 to 1:500,000
Natural Areas (SDEIS)	Assessment Area	1:24,000 to 1:500,000
Ownership-California	California	1:100,000
Ownership-Idaho	Idaho	1:100,000
Ownership-Montana	Montana	1:126,720
Ownership-Nevada	Nevada	1:100,000
Ownership-Oregon	Oregon	1:100,000
Ownership-Utah	Utah	1:100,000
Ownership-Washington	Washington	1:100,000
Ownership-Wyoming	Wyoming	1:100,000
Potential Unroaded Areas-SBI (Proprietary)	Assessment Area	5 minutes
Proposed Alternative 7 Reserves	Assessment Area	1 kilometer

Provincial Level Planning Boundaries-FEMAT	California/Oregon/Washington	1:250,000
Range (Grazing) Allotments-Idaho	Idaho	1:24,000 to 1:126,720
Range (Grazing) Allotments-Montana	Montana	1:24,000 to 1:126,720
Range (Grazing) Allotments-Nevada	Nevada	1:24,000 to 1:126,720
Range (Grazing) Allotments-Oregon	Oregon	1:24,000 to 1:126,720
Range (Grazing) Allotments-Utah	Utah	1:24,000 to 1:126,720
Range (Grazing) Allotments-Washington	Washington	1:24,000 to 1:126,720
Range (Grazing) Allotments-Wyoming	Wyoming	1:24,000 to 1:126,720
RARE II and WSA (FS/BLM Unroaded)	Assessment Area	1:500,000
Recreation Opportunity Spectrum-Idaho	Idaho	1:24,000 to 1:250,000
Recreation Opportunity Spectrum-Montana	Montana	1:24,000 to 1:250,000
Recreation Opportunity Spectrum-Nevada	Nevada	1:24,000 to 1:250,000
Recreation Opportunity Spectrum-Oregon	Oregon	1:24,000 to 1:250,000
Recreation Opportunity Spectrum-Utah	Utah	1:24,000 to 1:250,000
Recreation Opportunity Spectrum-Washington	Washington	1:24,000 to 1:250,000
Recreation Opportunity Spectrum-Wyoming	Wyoming	1:24,000 to 1:250,000
State Boundaries	Assessment Area	1:100,000
State Parks	Assessment Area	1:2,000,000
Tribal Areas of Interest	Assessment Area	1:1,000,000
Tribal Ceded Land	Assessment Area	1:1,000,000
Tribal Court of Claims Boundaries	Assessment Area	1:4,000,000
Tribal Culture Areas	California/Idaho/Montana/Nevada/Oregon/Utah/Washington/Wyoming	General Indication
Upper Columbia EIS Boundary	Assessment Area	1:100,000
Wild and Scenic Rivers	Landscape Characterization Area	1:2,000,000
Wilderness	Landscape Characterization Area	1:24,000 to 1:2,000,000
Wilderness Study Areas	Assessment Area	1:24,000 to 1:126,720
Species Group		
Centers of Biodiversity-Animals	Assessment Area	1:2,000,000
Centers of Biodiversity-Plants	Assessment Area	1:2,000,000
Centers of Endemism/Rarity-Animals	Assessment Area	1:2,000,000
Centers of Endemism/Rarity-Plants	Assessment Area	1:2,000,000
Hot Spots of Biodiversity	Assessment Area	1:2,000,000
Hot Spots of Endemism/Rarity	Assessment Area	1:2,000,000
Species Ranges-Amphibian Species (ASMNT)	Assessment Area	1:2,000,000
Species Ranges-Bird Species (ASMNT)	Assessment Area	1:2,000,000
Species Ranges-Carnivore Species (ASMNT)	Assessment Area	1:2,000,000
Species Ranges-Invertebrate Species (ASMNT)	Assessment Area	1:2,000,000
Species Ranges-Mammal Species (ASMNT)	Assessment Area	1:2,000,000
Species Ranges-Reptile Species (ASMNT)	Assessment Area	1:2,000,000
Terrestrial Group		
Terrestrial Linkages	Assessment Area	1:100,000
Natural Heritage Data (Sensitive data; not releasable.)	Landscape Characterization Area	point data

Table 1. Interior Columbia River Basin Ecosystem Management Project (ICBEMP) Geographic Information System (GIS) Data, Databases, and Models (as of 10/13/99). (continued)

Theme Name	Extent	Scale/Resolution
Vegetation Group		
Gradient Analysis-*Abies lasiocarpa*	Landscape Characterization Area	2 kilometer
Gradient Analysis-*Amelanchier alnifolia*	Landscape Characterization Area	2 kilometer
Gradient Analysis-*Artemisia tridentata*	Landscape Characterization Area	2 kilometer
Gradient Analysis-*Pinus ponderosa*	Landscape Characterization Area	2 kilometer
Gradient Analysis-*Pinus ponderosa/Symphoricarpos albus*	Landscape Characterization Area	2 kilometer
Gradient Analysis-*Prunus virginiana*	Landscape Characterization Area	2 kilometer
Gradient Analysis-*Thuja plicata/Clintonia uniflora*	Landscape Characterization Area	2 kilometer
Gradient Analysis-*Vaccinium membranaceum/V. globulare*	Landscape Characterization Area	2 kilometer
Kuchler's Potential Natural Vegetation-Polygon	Assessment Area	1:3,168,000
Kuchler's Potential Natural Vegetation-Point	Assessment Area	1:3,168,000
Lifeform	Landscape Characterization Area	1 kilometer
Vegetation-Current Midscale Subsample-Parts 1 thru 5	Subsamples	1:12,000 to 1:31,680
Vegetation-Historical Midscale Subsample-Parts 1 thru 5	Subsamples	1:12,000 to 1:31,680
Vegetation-Historical Oregon/Washington 1930s	Oregon/Washington	1:500,000
Vegetation And Disturbance CRBSUM Group		
Carbon Stress Index-Current/Historical (ASMNT)	Landscape Characterization Area	2 kilometers
CRBSUM Alternative Prescription Assignments (DEIS)	Assessment Area	1 kilometer
CRBSUM Alternatives Vegetation (DEIS)	Assessment Area	1 kilometer
CRBSUM Current and Historical Potential Vegetation (DEIS)	Assessment Area	1 kilometer
CRBSUM Current and Historical Vegetation (DEIS)	Assessment Area	1 kilometer
CRBSUM Current Potential Vegetation Types (ASMNT)	Landscape Characterization Area	1 kilometer
CRBSUM Current Vegetation Cover Types (ASMNT)	Landscape Characterization Area	1 kilometer
CRBSUM Current Vegetation Structural Stages (ASMNT)	Landscape Characterization Area	1 kilometer
CRBSUM Historical Potential Vegetation Types (ASMNT)	Landscape Characterization Area	1 kilometer
CRBSUM Historical Vegetation Cover Types (ASMNT)	Landscape Characterization Area	1 kilometer
CRBSUM Historical Vegetation Structural Stages (ASMNT)	Landscape Characterization Area	1 kilometer
CRBSUM Prescription Vegetation (DEIS) Parts 1 thru 5	Assessment Area	1 kilometer
Net Primary Productivity-Current/Historical (ASMNT)	Landscape Characterization Area	2 kilometers
Nutrient Availability Index-Current/Historical (ASMNT)	Landscape Characterization Area	2 kilometers
Water Stress Index-Current/Historic (ASMNT)	Landscape Characterization Area	2 kilometers
Attribute Files Linked to Subbasins, Subwatersheds, Oregon Counties		
Alternative Composite Ecological Trends	Assessment Area	subbasin
Alternative Management Emphases	Assessment Area	subbasin
Bailey's[5] Ecoregion Provinces by Subwatershed	Landscape Characterization Area	1 kilometer

Bailey's Ecoregion Sections by Subwatershed	Landscape Characterization Area	1 kilometer
Biophysical Classification for Subwatersheds	Landscape Characterization Area	1 kilometer
Biophysical Setting-Regional by Subwatershed	Landscape Characterization Area	1 kilometer
Boundary and Elevation Information for Subwatersheds	Landscape Characterization Area	1 kilometer
Clusters and Integrity-Subbasin	Assessment Area	1:100000
Counties-Economic Attributes (ASMNT)	Socioeconomic Assessment Area	county
County Economic Summaries-Evaluation of Alternatives	Socioeconomic Assessment Area	county
CRBSUM Current Vegetation by Subwatershed (ASMNT)	Landscape Characterization Area	1 kilometer
CRBSUM Forest and Range Cluster Groups	Assessment Area	subbasin
CRBSUM Historical Potential Vegetation by Subwatershed (ASMNT)	Landscape Characterization Area	1 kilometer
CRBSUM Historical Vegetation by Subwatershed (ASMNT)	Landscape Characterization Area	1 kilometer
Dominant Potential Vegetation Groups (ASMNT)	Assessment Area	subwatershed
Ecoregion Subsections by Subwatershed	Landscape Characterization Area	1 kilometer
Landscape Subbasin Groups	Assessment Area	subbasin
Management Priority-Alternative 5 (DEIS)	Assessment Area	subbasin
Ownership Pattern by Subwatershed (ASMNT)	Assessment Area	subwatershed
Physiognomic Groups by Subwatershed	Assessment Area	subwatershed
Population Classes by Subwatershed	Assessment Area	1:100000
Road Density (Predicted) by Subwatershed	Landscape Characterization Area	subwatershed
Slope by Subwatershed	Landscape Characterization Area	1 kilometer
Subwatershed Setting	Assessment Area	1:100000
Stream Reach Information	Assessment Area	1:100000
Watershed Characterization-Subbasin/Subwatershed	Landscape Characterization Area	subbasin/subwatershed
Weather-1989, by Subwatershed	Landscape Characterization Area	subwatershed
Wildfire Occurrence/Intensity Risk	Assessment Area	subbasin/subwatershed
Databases		
Aquatic Integrity Measures Database	Assessment Area	watershed
Vegetation and Management Clusters Database	Assessment Area	subwatershed
Ecodata Plot Inventory Database (1940s-1994)	Assessment Area	0.10 acre
Endemism and Biodiversity Database	Assessment Area	
Hardy and Burgan Fire and Fuels Database[7]	Assessment Area	
Fish, Subbasin Presence/Absence Database	Assessment Area	subbasin
Fish Species Assemblage Database	Assessment Area	watershed
Key Salmonid Current Status Database	Assessment Area	subwatershed
Fine Scale Attribute Plot Database	Assessment Area	0.10 acre
Mills Database	Assessment Area	
Noxious Weeds Database	Idaho/Montana/Oregon/Washington/Wyoming	county
Species-Environment Relations Database	Assessment Area	
Valley Bottom Settings Database-Subsample	Assessment Area	subwatershed

Table 1. Interior Columbia River Basin Ecosystem Management Project (ICBEMP) Geographic Information System (GIS) Data, Databases, and Models (as of 10/13/99). (continued)

Theme Name	Extent	Scale/Resolution
Models and Related Model Files		
Vegetation Dynamics Development Tool (VDDT)	N/A	N/A
Management Prescription Data Files for VDDT	Assessment Area	
Management Scenario Files for VDDT	Assessment Area	

Abbreviations used in this table:
NADP = U.S. National Atmospheric Deposition Program
NDDN = National Dry Deposition Network
PRISM = Precipitation-elevation Regressions on Independent Slopes Model
TIGER = Topologically Integrated Geographic Encoding and Referencing System
DCW = Digital Chart of the World
BLM/FS = Bureau of Land Management/Forest Service
ESA = Endangered Species Act
NURE = National Uranium Resource Evaluation
PACFISH = Pacific Anadromous Fish Strategy
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
NPDES = National Pollutant Discharge Elimination System
RCRA = Resource Conservation and Recovery Act
TRI = Toxics Release Inventory
HUC = Hydrologic Unit Code
SBI = Sierra Biodiversity Institute
FEMAT = Forest Ecosystem Management Assessment Team
RARE II = Roadless Area Review and Evaluation 2
WSA = Wilderness Study Area
CRBSUM =Columbia River Basin Succession Model

[1] Extents: Assessment area (CRBA) - assessment area of the Interior Columbia Basin Ecosystem Management Project. The area is comprised of Eastern Oregon and Washington, most of Idaho, and parts of Montana, Utah, Nevada and Wyoming. Landscape Characterization Area - larger than the CRBA; includes more of Idaho, Montana, Utah, Nevada, Wyoming and some of California. Socioeconomic Assessment Area - also larger than the CRBA; follows county lines.

[2] Omernick, J.M. 1987. Ecoregions of the Conterminous United States. Annals of the Association of American Geographers. 77:118-125.

[3] Where multiple or similar versions of the same data set occur, each is denoted with an abbreviation of the ICBEMP document for which the dataset was used: ASMNT = *Assessment of Ecosystem Components*, DEIS = *Draft Environmental Impact Statement,* or SDEIS = *Supplemental Draft Environmental Impact Statement*. In general, the SDEIS is an update of the DEIS.

[4] Franklin, J.F.; Dyrness, C.T. 1973. Natural Vegetation of Oregon and Washington. Gen. Tech. Rep. PNW-GTR-8. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.

[5] Bailey, Robert G. 1995. Description of the Ecoregions of the United States. 2nd ed. revised and expanded. Misc. Pub. 1391. Washington, DC: U.S. Department of Agriculture, Forest Service. 108 p. + United States (Ecoregions) map; 1:7,500,000.