**Level IV Ecoregions of the Conterminous United States**

Metadata also available as

**Metadata:**

* [Identification\_Information](ftp://ftp.epa.gov/wed/ecoregions/us/Eco_Level_IV_US.htm#1)
* [Data\_Quality\_Information](ftp://ftp.epa.gov/wed/ecoregions/us/Eco_Level_IV_US.htm#2)
* [Spatial\_Data\_Organization\_Information](ftp://ftp.epa.gov/wed/ecoregions/us/Eco_Level_IV_US.htm#3)
* [Spatial\_Reference\_Information](ftp://ftp.epa.gov/wed/ecoregions/us/Eco_Level_IV_US.htm#4)
* [Entity\_and\_Attribute\_Information](ftp://ftp.epa.gov/wed/ecoregions/us/Eco_Level_IV_US.htm#5)
* [Metadata\_Reference\_Information](ftp://ftp.epa.gov/wed/ecoregions/us/Eco_Level_IV_US.htm#6)

*Identification\_Information:*

*Citation:*

*Citation\_Information:*

*Originator:* Western Ecology Division, US EPA, Corvallis, Oregon

*Publication\_Date:* 20110124

*Title:* Level IV Ecoregions of the Conterminous United States

*Geospatial\_Data\_Presentation\_Form:* vector digital data

*Publication\_Information:*

*Publication\_Place:* Corvallis, OR

*Publisher:*

U.S. EPA Office of Research & Development (ORD) - National Health and Environmental Effects Research Laboratory (NHEERL)

*Other\_Citation\_Details:* Size of Data: approx.

*Online\_Linkage:* [<ftp://ftp.epa.gov/wed/ecoregions/us/Eco\_Level\_IV\_US.zip>](ftp://ftp.epa.gov/wed/ecoregions/us/Eco_Level_IV_US.zip)

*Online\_Linkage:* [<http://www.epa.gov/wed/pages/ecoregions.htm>](http://www.epa.gov/wed/pages/ecoregions.htm)

*Larger\_Work\_Citation:*

*Citation\_Information:*

*Publication\_Date:* 2011

*Title:* Level III and IV Ecoregions of the Conterminous United States

*Description:*

*Abstract:*

Ecoregions 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. 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. The approach used to compile this map is based on the premise that ecological regions can be identified through the analysis of patterns of biotic and abiotic phenomena, including geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology. The relative importance of each characteristic varies from one ecological region to another. A Roman numeral hierarchical scheme has been adopted for different levels for 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 regions whereas the conterminous United States has 84 (U.S. Environmental Protection Agency, 2005). Level IV ecoregions are further subdivisions of Level III ecoregions. Methods used to define the ecoregions are explained in Omernik (1995, 2004), Omernik and others (2000), and Gallant and others (1989).   
Literature cited: Commission for Environmental Cooperation Working Group, 1997, Ecological regions of North America- toward a common perspective: Montreal, Commission for Environmental Cooperation, 71 p. Gallant, A. L., Whittier, T.R., Larsen, D.P., Omernik, J.M., and Hughes, R.M., 1989, Regionalization as a tool for managing environmental resources: Corvallis, Oregon, U.S. Environmental Protection Agency, EPA/600/3-89/060, 152p. Omernik, J.M., 1995, Ecoregions - a framework for environmental management, in Davis, W.S. and Simon, T.P., eds., Biological assessment and criteria-tools for water resource planning and decision making: Boca Raton, Florida, Lewis Publishers, p.49-62. Omernik, J.M., Chapman, S.S., Lillie, R.A., and Dumke, R.T., 2000, Ecoregions of Wisconsin: Transactions of the Wisconsin Academy of Science, Arts, and Letters, v. 88, p. 77-103. Omernik, J.M., 2004, Perspectives on the nature and definitions of ecological regions: Environmental Management, v. 34, Supplement 1, p. s27-s38.   
Comments and questions regarding the Level III and IV Ecoregions should be addressed to Glenn Griffith, USGS, c/o US EPA., 200 SW 35th Street, Corvallis, OR 97333, (541)-754-4465, email:griffith.glenn@epa.gov Alternate: James Omernik, USGS, c/o US EPA, 200 SW 35th Street, Corvallis, OR 97333, (541)-754-4458, email:omernik.james@epa.gov

*Purpose:*

Ecoregion maps assist managers of aquatic and terrestrial resources to understand the regional patterns of the realistically attainable quality of these resources.

*Supplemental\_Information:*

Electronic versions of ecoregion maps and posters, as well as other ecoregion resources are available at: [<http://www.epa.gov/wed/pages/ecoregions.htm>](http://www.epa.gov/wed/pages/ecoregions.htm).   
The fields ending with "KEY" are linked to style files containing color definitions for each level. L4\_KEY and L3\_KEY pertain to Ecoregions of the Continental United States, whereas L2\_KEY and L1\_Key relate to North American designations within the United States.   
This file differs from the previous version primarily in the addition of draft Level IV ecoregions of California, which may be subject to change. Some ecoregions along the California border in Oregon and Nevada were revised also. Except for the Great Lakes, waterbodies were merged with surrounding ecoregion polygons, especially along coastlines. A field called NA\_L3NAME was added to be consistent with the North America data.   
Level IV ecoregions are not complete for Arizona, as of January, 2011. The Arizona polygons are for Level III only and the field "US\_L4CODE" contains placeholder information derived from "US\_L3CODE".   
Ecoregions were digitized at 1:250,000 scale and are intended for large geographic extents (i.e. states, multiple counties, or river basins). Use for smaller areas, such as individual counties or a 1:24,000 scale map boundary, is not recommended.

*Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 20110124

*Currentness\_Reference:* Ongoing

*Status:*

*Progress:* Ongoing

*Maintenance\_and\_Update\_Frequency:* As needed

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -127.886770

*East\_Bounding\_Coordinate:* -65.345754

*North\_Bounding\_Coordinate:* 51.604869

*South\_Bounding\_Coordinate:* 22.896808

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* ISO 19115 Topic Category

*Theme\_Keyword:* biota

*Theme\_Keyword:* boundaries

*Theme\_Keyword:* environment

*Theme\_Keyword:* location

*Theme:*

*Theme\_Keyword\_Thesaurus:* EPA GIS Keyword Thesaurus

*Theme\_Keyword:* Biology

*Theme\_Keyword:* Conservation

*Theme\_Keyword:* Ecology

*Theme\_Keyword:* Ecosystem

*Theme\_Keyword:* Environment

*Theme\_Keyword:* Land

*Theme\_Keyword:* Natural Resources

*Theme:*

*Theme\_Keyword\_Thesaurus:* User

*Theme\_Keyword:*

US Ecoregion Levels III and IV, North American (CEC) Ecoregion Levels I, II, III

*Place:*

*Place\_Keyword:* Conterminous United States

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* United States

*Access\_Constraints:* None

*Use\_Constraints:* none

*Point\_of\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Marc Weber

*Contact\_Organization:*

U.S. Environmental Protection Agency, Office of Research & Development (ORD) - National Health and Environmental Effects Research Laboratory (NHEERL)

*Contact\_Position:* GIS Analyst

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 200 S.W. 35th St.

*City:* Corvallis

*State\_or\_Province:* OR

*Postal\_Code:* 97333

*Contact\_Voice\_Telephone:* (541) 754-4469

*Contact\_Electronic\_Mail\_Address:* weber.marc@epa.gov

*Contact\_Instructions:* [<http://www.epa.gov/>](http://www.epa.gov/)

*Native\_Data\_Set\_Environment:*

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.1.3000

*Cross\_Reference:*

*Citation\_Information:*

*Title:* useco\_rev4

*Data\_Quality\_Information:*

*Logical\_Consistency\_Report:*

Although ecoregion polygons and attributes have been checked for accuracy, some errors may remain. May 2010, updated small polygon coding errors along Columbia River between Oregon and Washington. January 2011, merged California and related revisions along the Nevada and Oregon borders into the contermious US data. Topology repaired. Waterbodies along coastlines were merged with surrounding ecoregion polygons to be consistent with the North America geodatabase.

*Completeness\_Report:*

Level IV ecoregions are not complete for Arizona, as of January, 2011. The polygons are for Level III only and the field "LEVEL4CODE" contains placeholder information derived from "LEVEL3CODE". Ecoregions were digitized at 1:250,000 scale and are intended for large geographic extents (i.e. states, multiple counties, or river basins). Use for smaller areas, such as individual counties or a 1:24,000 scale map boundary, is not recommended.

*Lineage:*

*Source\_Information:*

*Source\_Contribution:*

The state borders were derived from the dtl\_st.sdc on the ArcGIS DVD provided by ESRI. It was modified by removing Alaska and Hawaii polygons and all but the State field, adding some coastal islands based on imagery or NHDPlus areas, and restoring topology (removing internal gaps and small overlaps).

*Process\_Step:*

*Process\_Description:*

1) U.S.G.S. 1:250,000 topographic maps are used to delineate the ecoregions. The lines drawn are manually digitized or scanned to produce georeferenced electronic files. 2) All base maps are joined together and errors along the edges are resolved. 3) Topology is established and the maps are reviewed for accuracy, completeness, and conformity with the original lines. Corrections are made as needed and topology regenerated. 4) Attributes are added. 5) Maps are plotted for visual inspection by two individuals and necessary changes made. 6) Ecoregions from all available states are merged and dissolved to identify and correct inconsistencies. 7) Polygons of the corrected seamless ecoregion features are extended beyond the coastal borders. 8) State and Ecoregion datasets are intersected. 9) Topology errors removed.

*Process\_Step:*

*Process\_Description:* Metadata imported.

*Process\_Date:* 20110126

*Spatial\_Data\_Organization\_Information:*

*Direct\_Spatial\_Reference\_Method:* Vector

*Point\_and\_Vector\_Object\_Information:*

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* G-polygon

*Point\_and\_Vector\_Object\_Count:* 6913

*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Planar:*

*Map\_Projection:*

*Map\_Projection\_Name:* Albers Conical Equal Area

*Albers\_Conical\_Equal\_Area:*

*Standard\_Parallel:* 29.500000

*Standard\_Parallel:* 45.500000

*Longitude\_of\_Central\_Meridian:* -96.000000

*Latitude\_of\_Projection\_Origin:* 23.000000

*False\_Easting:* 0.000000

*False\_Northing:* 0.000000

*Planar\_Coordinate\_Information:*

*Planar\_Coordinate\_Encoding\_Method:* coordinate pair

*Coordinate\_Representation:*

*Abscissa\_Resolution:* 0.000001

*Ordinate\_Resolution:* 0.000001

*Planar\_Distance\_Units:* meters

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1983

*Ellipsoid\_Name:* Geodetic Reference System 80

*Semi-major\_Axis:* 6378137.000000

*Denominator\_of\_Flattening\_Ratio:* 298.257222

*Vertical\_Coordinate\_System\_Definition:*

*Altitude\_System\_Definition:*

*Altitude\_Resolution:* 0.000100

*Altitude\_Encoding\_Method:*

Explicit elevation coordinate included with horizontal coordinates

*Entity\_and\_Attribute\_Information:*

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* Eco\_Level\_IV\_US

*Attribute:*

*Attribute\_Label:* FID

*Attribute\_Definition:* Internal feature number.

*Attribute\_Definition\_Source:* ESRI

*Attribute\_Domain\_Values:*

*Unrepresentable\_Domain:*

Sequential unique whole numbers that are automatically generated.

*Attribute:*

*Attribute\_Label:* OBJECTID

*Attribute\_Definition:* Internal feature number.

*Attribute\_Definition\_Source:* ESRI

*Attribute\_Domain\_Values:*

*Unrepresentable\_Domain:*

Sequential unique whole numbers that are automatically generated.

*Attribute:*

*Attribute\_Label:* Shape

*Attribute\_Definition:* Feature geometry.

*Attribute\_Definition\_Source:* ESRI

*Attribute\_Domain\_Values:*

*Unrepresentable\_Domain:* Coordinates defining the features.

*Attribute:*

*Attribute\_Label:* US\_L4CODE

*Attribute\_Definition:* Code for Level IV Ecoregion (US)

*Attribute:*

*Attribute\_Label:* US\_L4NAME

*Attribute\_Definition:* Name for Level IV Ecoregion (US)

*Attribute:*

*Attribute\_Label:* US\_L3CODE

*Attribute\_Definition:* Code for Level III Ecoregion (US)

*Attribute:*

*Attribute\_Label:* US\_L3NAME

*Attribute\_Definition:* Name for Level III Ecoregion (US)

*Attribute:*

*Attribute\_Label:* NA\_L3CODE

*Attribute\_Definition:* Code for Level III Ecoregion (North America/CEC)

*Attribute:*

*Attribute\_Label:* NA\_L3NAME

*Attribute\_Definition:* Name for Level III Ecoregion (North America/CEC)

*Attribute:*

*Attribute\_Label:* NA\_L2CODE

*Attribute\_Definition:* Code for Level II Ecoregion (North America/CEC)

*Attribute:*

*Attribute\_Label:* NA\_L2NAME

*Attribute\_Definition:* Name for Level II Ecoregion (North America/CEC)

*Attribute:*

*Attribute\_Label:* NA\_L1CODE

*Attribute\_Definition:* Code for Level I Ecoregion (North America/CEC)

*Attribute:*

*Attribute\_Label:* NA\_L1NAME

*Attribute\_Definition:* Name for Level I Ecoregion (North America/CEC)

*Attribute:*

*Attribute\_Label:* STATE\_NAME

*Attribute\_Definition:* Name of State (US)

*Attribute:*

*Attribute\_Label:* EPA\_REGION

*Attribute\_Definition:* EPA Administrative Region

*Attribute:*

*Attribute\_Label:* L4\_KEY

*Attribute\_Definition:* US Level IV Code and Name for Legend, Match to Style

*Attribute:*

*Attribute\_Label:* L3\_KEY

*Attribute\_Definition:* US Level III Code and Name for Legend, Match to Style.

*Attribute:*

*Attribute\_Label:* L2\_KEY

*Attribute\_Definition:* NA Level II Code and Name for Legend, Match to Style.

*Attribute:*

*Attribute\_Label:* L1\_KEY

*Attribute\_Definition:* NA Level I Code and Name for Legend, Match to Style.

*Attribute:*

*Attribute\_Label:* Shape\_Leng

*Attribute:*

*Attribute\_Label:* Shape\_Area

*Attribute\_Definition:* Area of feature in meters squared.

*Attribute\_Definition\_Source:* ESRI

*Attribute\_Domain\_Values:*

*Unrepresentable\_Domain:* Positive real numbers that are automatically generated.

*Overview\_Description:*

*Entity\_and\_Attribute\_Overview:*

Entity Attribute Overview 1: Insert your overview in the database table 2e\_Citation

*Entity\_and\_Attribute\_Detail\_Citation:*

Citation 1: Insert your citations in the database table 2e\_Citation

*Metadata\_Reference\_Information:*

*Metadata\_Date:* 20110126

*Metadata\_Future\_Review\_Date:* 20150121

*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Organization\_Primary:*

*Contact\_Organization:* SRA/Raytheon Contractors to US EPA

*Contact\_Person:* Colleen Burch Johnson

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* c/o USEPA 200 SW 35th Street

*City:* Corvallis

*State\_or\_Province:* Oregon

*Postal\_Code:* 97333

*Contact\_Voice\_Telephone:* (541) 754-4454

*Contact\_Electronic\_Mail\_Address:* johnson.colleen@epa.gov

*Metadata\_Standard\_Name:* FGDC Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

*Metadata\_Time\_Convention:* local time