

Ecoregions of Mississippi

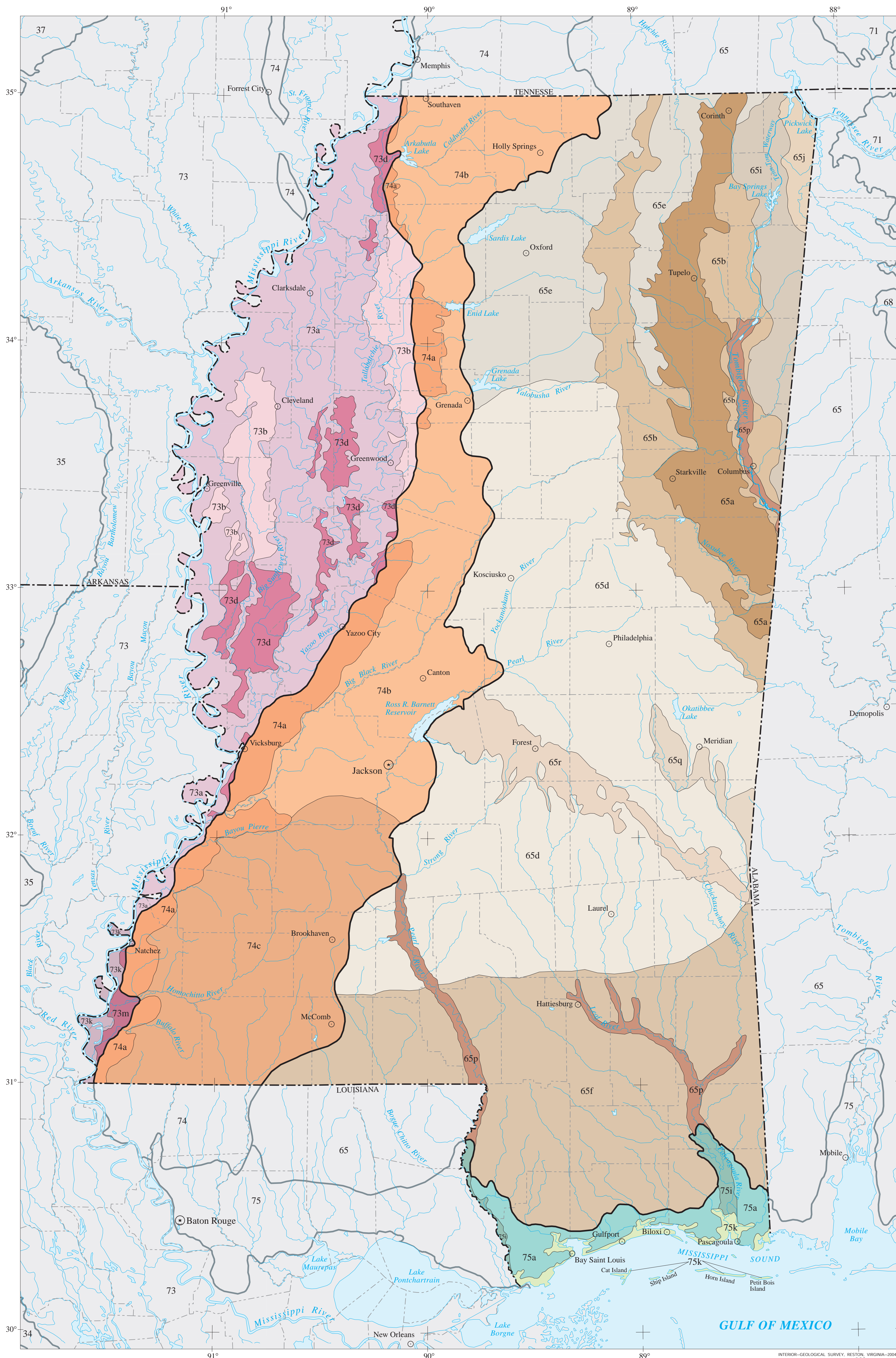
Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. By recognizing the spatial 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 areas (Omernik and others, 2000).

The approach used to compile this map is based on the premise that ecological regions are hierarchical and 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; 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] 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 Omernik (1995), Omernik and others (2000), and Gallant and others (1989).

Ecological and biological diversity within Mississippi is great. The state contains barrier islands and coastal lowlands, large river floodplain forests, rolling and hilly coastal plains with evergreen and deciduous forests, and a variety of aquatic habitats. There are 4 level III ecoregions and 21 level IV ecoregions in Mississippi and most continue into ecologically similar parts of adjacent states.

The level III and IV ecoregions on this poster were compiled at a scale of 1:250,000 and depict revisions and subdivisions of earlier level III ecoregions that were originally compiled at a smaller scale (USEPA 2003; Omernik 1987). This poster is part of a collaborative project primarily between USEPA Region IV, USEPA National Health and Environmental Effects Research Laboratory (Corvallis, Oregon), Mississippi Department of Environmental Quality (MDEQ), and the United States Department of Agriculture-Natural Resources Conservation Service (NRCS). Collaboration and consultation also occurred with the United States Department of Agriculture-Forest Service (USFS), United States Department of the Interior-Geological Survey (USGS), USGS Earth Resources Observation Systems (EROS) Data Center, United States Army Corps of Engineers (USACE), and with other State of Mississippi agencies.

The project is associated with an interagency effort to develop a common framework of ecological regions (McMahon and others, 2001). 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 USFS (Bailey and others, 1994), the USEPA (Omernik 1987, 1995), and the NRCS (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 Mississippi, where some agreement has



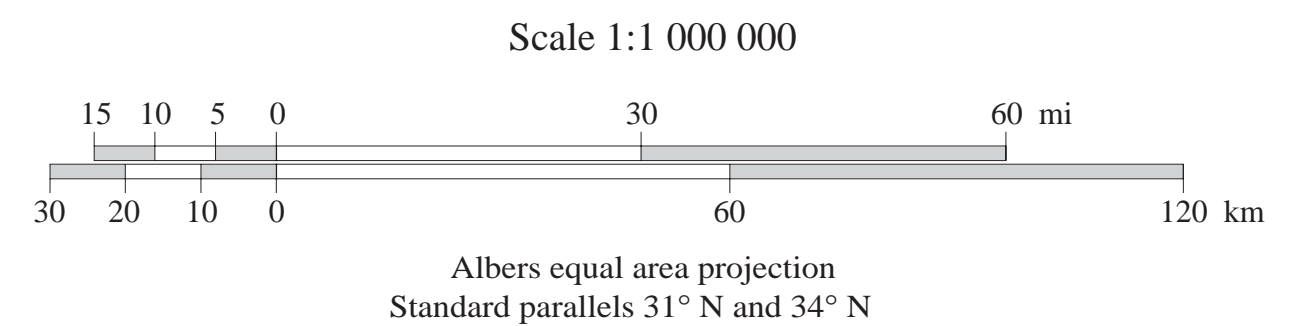
- 65 Southeastern Plains**
- 65a Blackland Prairie
 - 65b Flatwoods/Blackland Prairie Margins
 - 65d Southern Hilly Gulf Coastal Plain
 - 65e Northern Hilly Gulf Coastal Plain
 - 65f Southern Pine Plains and Hills
 - 65i Fall Line Hills
 - 65j Transition Hills
 - 65p Southeastern Floodplains and Low Terraces
 - 65q Buhrstone/Lime Hills
 - 65r Jackson Prairie

- 73 Mississippi Alluvial Plain**
- 73a Northern Holocene Meander Belts
 - 73b Northern Pleistocene Valley Trains
 - 73d Northern Backswamps
 - 73k Southern Holocene Meander Belts
 - 73m Southern Backswamps

- 74 Mississippi Valley Loess Plains**
- 74a Bluff Hills
 - 74b Loess Plains
 - 74c Southern Rolling Plains

- 75 Southern Coastal Plain**
- 75a Gulf Coast Flatwoods
 - 75i Floodplains and Low Terraces
 - 75k Gulf Barrier Islands and Coastal Marshes

- Level III ecoregion
- Level IV ecoregion
- - - County boundary
- - - State boundary



Literature Cited:

Bailey, R.G., Avers, P.E., King, T., and McNab, W.H., eds., 1994, Ecoregions and subregions of the United States (map) (supplementary table of map unit descriptions compiled and edited by McNab, W.H. and Bailey, R.G.); Washington, D.C., U.S. Department of Agriculture-Forest Service, scale 1:7,500,000.

Bryce, S.A., Omernik, J.M., and Larsen, D.P., 1999, Ecoregions - a geographic framework to guide risk characterization and ecosystem management: Environmental Practice, v. 1, no. 3, p. 141-155.

Commission for Environmental Cooperation Working Group, 1997, Ecological regions of North America - toward a common perspective: Montreal, Quebec, 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, 152 p.

McMahon, G., Gregonis, S.M., Waltman, S.W., Omernik, J.M., Thorson, T.D., Freeouf, J.A., Rorick, A.H., and Keys, J.E., 2001, Developing a spatial framework of common ecological regions for the conterminous United States: Environmental Management, v. 28, no. 3, p. 293-316.

Omernik, J.M., 1987, Ecoregions of the conterminous United States (map supplement): Annals of the Association of American Geographers, v. 77, no. 1, p. 118-125, scale 1:7,500,000.

Omernik, J.M., 1995, Ecoregions - a spatial 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 Sciences, Arts and Letters, v. 88, no. 2000, p. 77-103.

U.S. Department of Agriculture-Soil Conservation Service, 1981, Land resource regions and major land resource areas of the United States: Agriculture Handbook 296, 156 p.

U.S. Environmental Protection Agency, 2003, Level III ecoregions of the continental United States (revision of Omernik, 1987): Corvallis, Oregon, U.S. Environmental Protection Agency-National Health and Environmental Effects Research Laboratory, Map M-1, various scales.

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

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For additional information about ecoregions, see <http://www.epa.gov/wed/pages/ecoregions/ecoregions.htm>. Digital files of the Mississippi ecoregion boundaries can be downloaded from <ftp://ftp.epa.gov/wed/ecoregions/ms>.