Level III and IV Ecoregions of Iowa

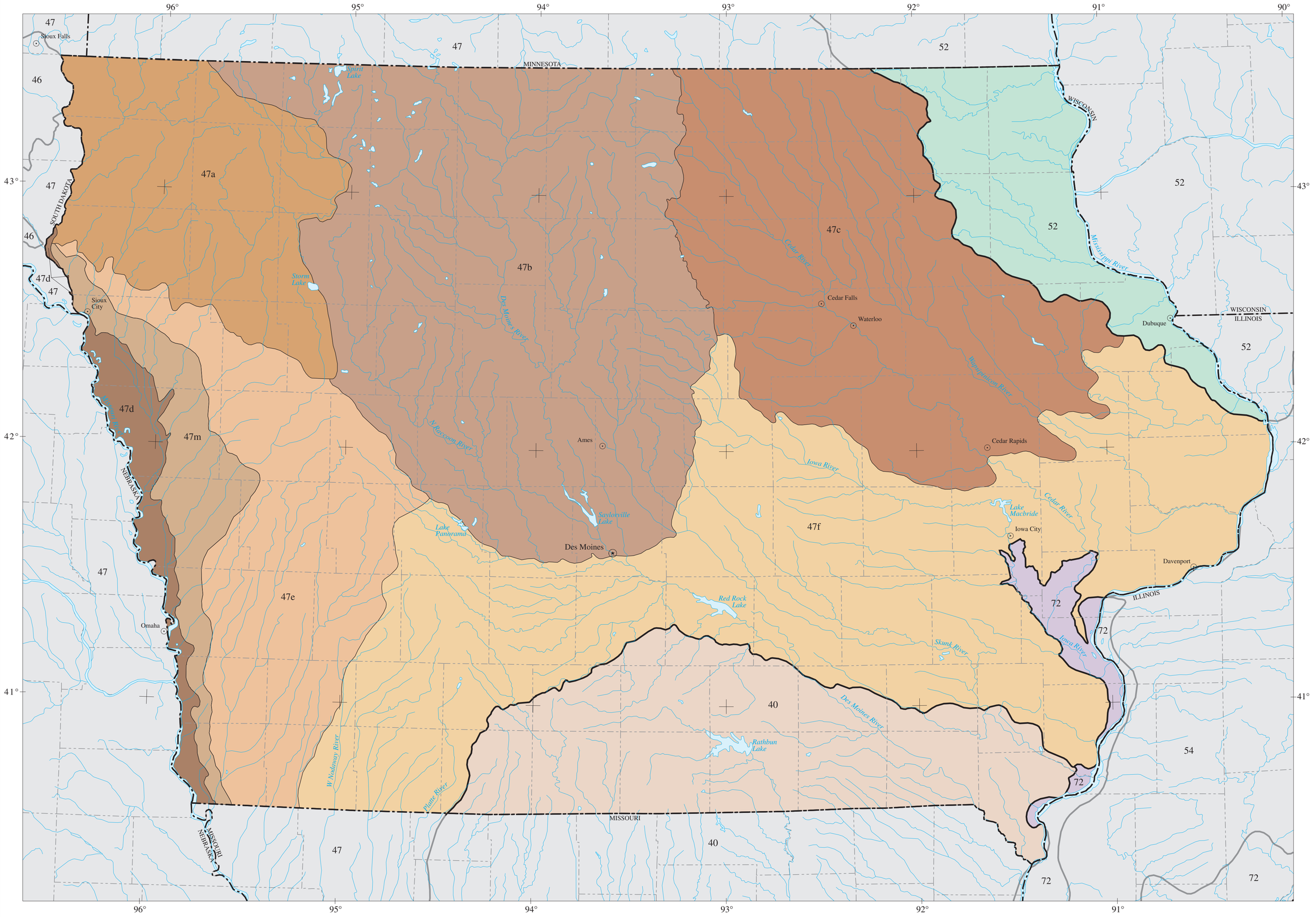
James M. Omernik[1], Glenn E. Griffith[2], Thomas F. Wilton[3], Suzanne M. Pierson[4], and Jeffrey A. Comstock[4]

[1] U.S. Environmental Protection Agency
Corvallis, Oregon 97333

[2] USDA, NRCS
Corvallis, Oregon 97333

[3] Iowa Department of Natural Resources,
Environmental Protection Division
Des Moines, IA 50319

[4] OAO, Corporation
Corvallis, Oregon 97333



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. Ecoregions are directly applicable to the immediate needs of state agencies, including the selection of regional stream reference sites, the development of biological criteria and water quality standards, and the establishment of management goals for nonpoint-source pollution. They are also relevant to integrated ecosystem management, an ultimate goal of many federal and state resource management agencies.

The approach used to compile this map of Iowa is based on the premise that ecological regions can be identified through the analysis of the patterns of biotic and abiotic phenomena that 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 and level II divide the North American continent into 15 and 52 regions, respectively (Commission for Environmental Cooperation Working Group 1997). At level III, the continental United States contains 104 regions (United States Environmental Protection Agency [U.S. EPA] 1999). Level IV is a further subdivision of the level III ecoregions. Explanations of the methods used to define the U.S. EPA's ecoregions are given in Omernik (1995), Griffith and others (1994), and Gallant and others (1989).

The Level III and IV Ecoregions of Iowa map was compiled at a scale of 1:250,000; it depicts revisions and subdivisions of earlier level III ecoregions that were originally compiled at a smaller scale (U.S. EPA 1999; Omernik 1987). Compilation of this map was part of a collaborative project (1991-1993) primarily between the U.S. EPA Environmental Research Laboratory-Corvallis, U.S. EPA Region VII, and the Iowa Department of Natural Resources to subdivide ecoregion 47, the Western Corn Belt Plains. Subsequent to that project, some minor revisions were made to boundaries in western Iowa to conform to ecoregion mapping projects in South Dakota (Bryce and others 1998) and Nebraska. Level III ecoregions 40, 52, and 72 have not yet been subdivided in Iowa. Comments regarding this map of Iowa ecoregions should be addressed to James Omernik, U.S. EPA - NHEERL, 200 SW 35th Street, Corvallis, OR 97333, (541) 754-4458, email: omernik@mail.cor.epa.gov, or to Glenn Griffith, USDA-NRCS, 200 SW 35th Street, Corvallis, OR 97333, (541) 754-4465, FAX: (541) 754-4716, email: glenn@mail.cor.epa.gov.

Literature Cited:

Bryce, S.A., Omernik, J.M., Pater, D.E., Ulmer, M., Schaar, J., Freeouf, J., Johnson, R., Kuck, P., and Azevedo, S.H., 1998, Ecoregions of North Dakota and South Dakota, (2 sided color poster with map, descriptive text, summary tables, and photographs): Reston, VA, U.S. Geological Survey, scale 1:1,500,000.

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.

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

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.

U.S. Environmental Protection Agency, 1999, 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.

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

40 Central Irregular Plains

47 Western Corn Belt Plains
- 47a Northwest Iowa Loess Prairies
- 47b Des Moines Lobe
- 47c Iowan Surface
- 47d Missouri Alluvial Plain
- 47e Loess Hills and Rolling Prairies
- 47f Southern Iowa Rolling Loess Prairies
- 47m Western Loess Hills

52 Paleozoic Plateau ("Driftless Area")

72 Interior River Lowland

Level III ecoregion
Level IV ecoregion
County boundary
State boundary

SCALE 1:1,000,000

15 10 5 0 30 60 mi
30 20 10 0 60 120 km

Albers Equal Area Projection

gg/jc //disk/jory1/data/jobs/j375.jim.ia/zaml/ia_eco.aml //feathers/ecoregions/jobs/j375.jim.iawa/ia_eco_v1.ai