



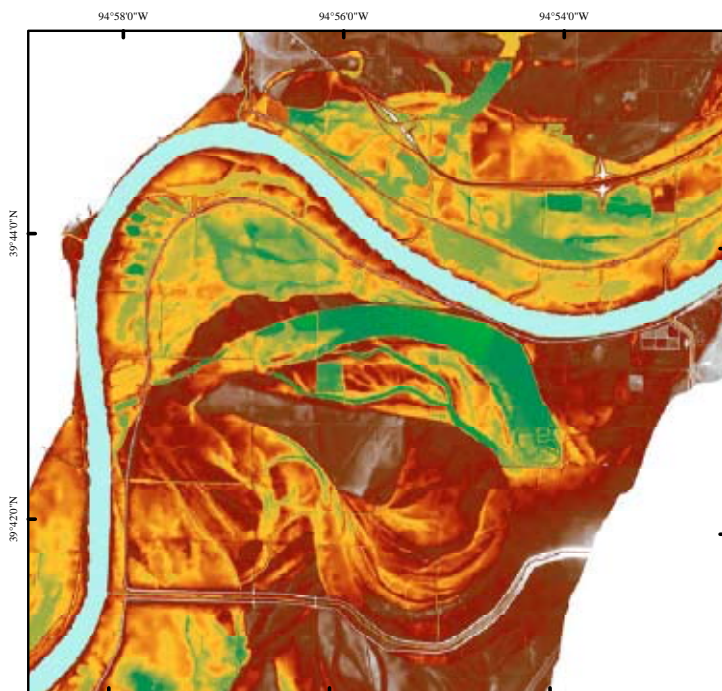
Columbia Environmental Research Center
Publication Brief

New Land Classification Framework Aids Missouri River Management

The Land Capability Potential Index (LCPI) is a method for landowners and public agencies to determine suitability of land for various uses, and could serve as a possible guide for land-management decisions. The LCPI is a simple, systematic index of relative flooding and wetness potential of Missouri River valley-bottom lands. It was constructed by integrating available land-surface elevation, hydrologic, hydraulic, and soils datasets between river miles 423 and 670 within the states of Nebraska, Iowa, Kansas, and Missouri.

The potential for valley-bottom lands to support various land uses—agricultural, urban, recreational, or ecological—primarily depends on how surface- and ground-water interact with land-surface elevations. These interactions are mediated by soils and underlying surficial geologic materials that affect drainage or retention of water. The distribution and retention of water are the factors that are most likely to be manipulated to achieve traditional social uses or ecological restoration of valley-bottom lands.

The LCPI estimates relative wetness based on intersecting water-surface elevations, interpolated from measurements or calculated from hydraulic models, with a high-resolution land-surface elevation dataset. The potential for wet areas to retain or drain water is assessed using soil-drainage classes that are estimated from saturated hydraulic conductivity of surface soils.



Terrain mapping that delineates areas with convex, concave, and flat parts of the landscape provides another means to assess tendency of landscape patches to retain surface water.

The U.S. Geological Survey developed the LCPI in partnership with the U.S. Fish and Wildlife Service Rainwater Basin Joint Venture, Nebraska Game and Parks Commission, and The Nature Conservancy's Missouri River Program.

Jacobson, R.B., Chojnacki, K.A., and Reuter, J.M., 2007, Land Capability Potential Index (LCPI) for the Lower Missouri River Valley: U.S. Geological Survey Scientific Investigations Report 2007–5256, 19 p.

Download the report—<http://pubs.usgs.gov/sir/2007/5256>
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