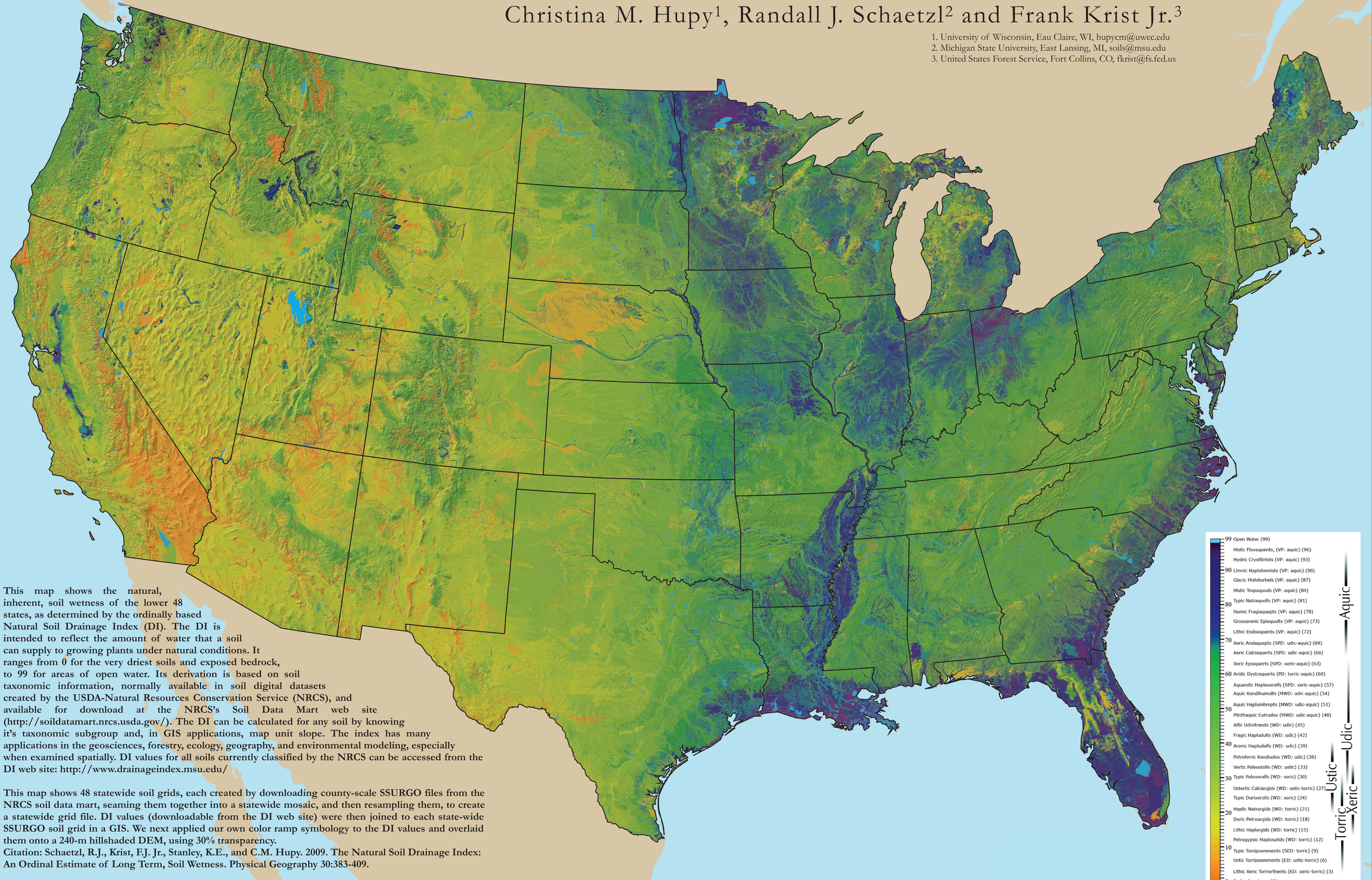
Landscape (Soil) Wetness Map of the Conterminous United States

Christina M. Hupy[1], Randall J. Schaetzl[2] and Frank Krist Jr.[3]

1. University of Wisconsin, Eau Claire, WI, hupycm@uwec.edu
2. Michigan State University, East Lansing, MI, soils@msu.edu
3. United States Forest Service, Fort Collins, CO, fkrist@fs.fed.us



This map shows the natural, inherent, soil wetness of the lower 48 states, as determined by the ordinally based Natural Soil Drainage Index (DI). The DI is intended to reflect the amount of water that a soil can supply to growing plants under natural conditions. It ranges from 0 for the very driest soils and exposed bedrock, to 99 for areas of open water. Its derivation is based on soil taxonomic information, normally available in soil digital datasets created by the USDA-Natural Resources Conservation Service (NRCS), and available for download at the NRCS's Soil Data Mart web site (http://soildatamart.nrcs.usda.gov/). The DI can be calculated for any soil by knowing it's taxonomic subgroup and, in GIS applications, map unit slope. The index has many applications in the geosciences, forestry, ecology, geography, and environmental modeling, especially when examined spatially. DI values for all soils currently classified by the NRCS can be accessed from the DI web site: http://www.drainageindex.msu.edu/

This map shows 48 statewide soil grids, each created by downloading county-scale SSURGO files from the NRCS soil data mart, seaming them together into a statewide mosaic, and then resampling them, to create a statewide grid file. DI values (downloadable from the DI web site) were then joined to each state-wide SSURGO soil grid in a GIS. We next applied our own color ramp symbology to the DI values and overlaid them onto a 240-m hillshaded DEM, using 30% transparency.

Citation: Schaetzl, R.J., Krist, F.J. Jr., Stanley, K.E., and C.M. Hupy. 2009. The Natural Soil Drainage Index: An Ordinal Estimate of Long Term, Soil Wetness. Physical Geography 30:383-409.