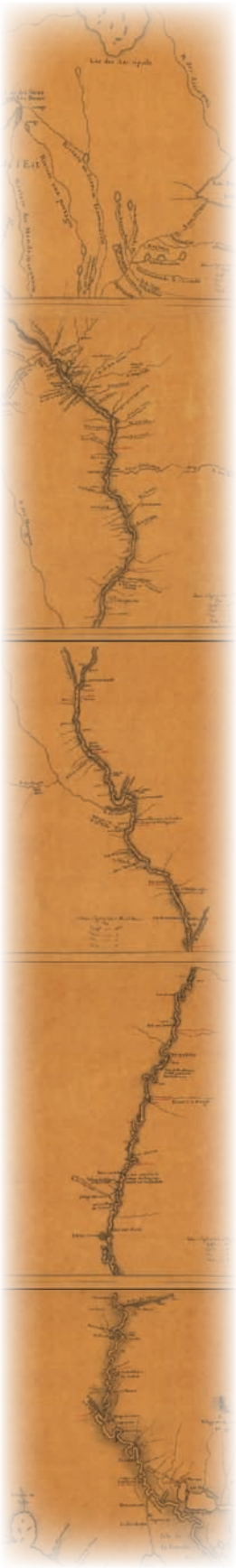


EXECUTIVE SUMMARY

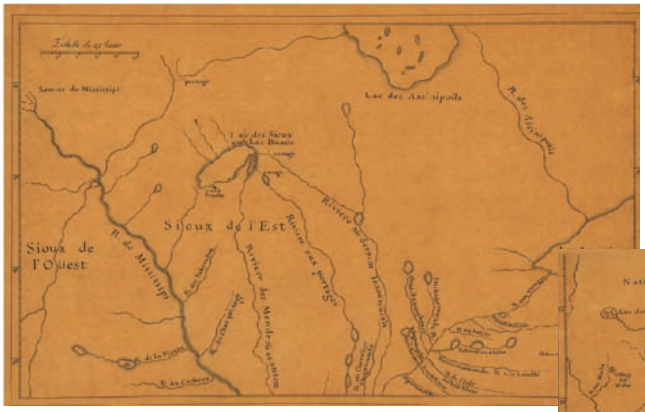
This report assesses the feasibility of conducting a Hydrogeomorphic Method (HGM) evaluation of ecosystem restoration and management options for the Upper Mississippi River System (UMRS). Objectives of the report are to: 1) identify the availability of historic data for use in developing HGM matrix models for the historic UMRS ecosystem, 2) identify the availability of current data for understanding changes to the UMRS ecosystem from historic condition, 3) identify current technology and expertise needed to develop HGM models and maps, and 4) assess the feasibility of developing HGM evaluations for the entire UMRS.

The HGM process of evaluating ecosystem restoration and management options relies heavily on eight types of data, most of which requires geospatial digital information usable in an ArcGIS/ArcMAP format. These data include historic and current information about: 1) soils, 2) geomorphology, 3) topography/elevation, 4) hydrology/flood frequency, 5) aerial photographs and cartography maps, 6) land cover and vegetation communities, 7) presence and distribution of key plant and animal species, and 8) physical anthropogenic features. A questionnaire asking about availability of these HGM data was sent to key staff of the U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service, and other resource agencies and groups within the St. Paul, Rock Island, and St. Louis Districts of the USACE. In addition to the questionnaire, many other individuals familiar with GIS databases and historical biological information were contacted and a thorough review of published literature also was conducted.

The discovery and understanding of the geospatial and biological data from this feasibility study indicates that most of the data needed to conduct an HGM evaluation for the UMRS are available. Fortunately, all of the basic data for soils, geomorphology, topography, and hydrology are available for the broad river regions of the UMRS and further, historic information on vegetation/ecological communities are present, at least to

some extent. Some data are more detailed and extensive (e.g., soils) than others (e.g., topographic surveys at < 5-foot contours) and some limitations occur. Also, data are most complete for the Mississippi and Illinois River floodplain regions and less available for the navigable tributary reaches of the Kaskaskia, Black, St. Croix, and Minnesota rivers.

This report concludes that an HGM evaluation for the UMRS is possible with existing geospatial and ecological data sets. This conclusion depends on refinement, spatial reference conversion, collation, and geo-referencing of certain GIS data sets. The HGM evaluation should be divided into project work plans and time schedules by UMRS ecoregions, not by political or physical boundaries. These ecoregion evaluations then should be compiled by major river area within an entire UMRS systemic framework to form comprehensive evaluation and understanding of ecosystem conservation needs and strategy under the Navigation and Environmental Sustainability Program (NESP) Forest Management Project. A complete HGM evaluation for the UMRS probably can be done in 3-5 years, given certain caveats. Currently, an HGM evaluation for the southern UMRS (Mississippi River floodplain from Cairo, IL to the confluence of the Missouri and Mississippi rivers) is being conducted. This evaluation will be completed in FY08 and will be a foundation to continue comprehensive HGM evaluations from the south to the north along the Mississippi River and then expansion to the Illinois River and major navigable tributaries.



Guillaume, 1702