Creating a GIS Database for Pre-Contact Archaeological Sites in the Red Cedar River Valley

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Abstract

The Red Cedar River is located in western Wisconsin, flowing southward from its headwaters in Sawyer County through Washburn, Barron, and Dunn Counties until joining the Chippewa River near Dunnville. For the past 125 years, considerable archaeological research has been conducted along the Red Cedar River and its tributaries. The purpose of this project was to create a geographic information system (GIS) database in order to consolidate this archaeological data into a uniform format. GIS allows for the analysis of relationships between site location and environmental variables (e.g., hydrology and plant communities). A total of 278 sites, ranging in age from Paleo-Indian (~12,000 yrs BP) to Proto-Historic, have been digitized into this database. Future research will be greatly facilitated by the spatial analysis capabilities provided by this project.

Introduction

The goal of archaeology is to reconstruct and explain past cultures. Crucial to this process is understanding spatial relationships between past humans and various components of their environments. For the past 125 years, archaeological research has been conducted along the Red Cedar River and its tributaries. Despite the amount of research conducted, the culture history of this area is still poorly understood because the accumulated data was never synthesized in a manner that allowed spatial relationships to be easily examined. The objective of this project was to create a Geospatial Information Systems (GIS) database to facilitate investigation of the distribution of pre-contact American Indian sites. GIS is a georeferenced database that allows for the storing, analysis, and management of data and its associated attributes. GIS is becoming an essential tool for archaeologists, because of its ability to analyze and present spatial information. Formerly, such analysis was conducted by working with a series of individual maps, trying to make connections from one map to another. This GIS database will enable researchers to quickly explore relationships between sites and environments, something that has formerly been impossible.

Methods

Site data were compiled from surveys conducted by Dr. Barth and from the Archaeological Site Inventory which is housed at the Wisconsin Historical Society in Madison. Site locations were digitized from paper maps onto digital raster graphics (DRG) using ArcMap. A DRG is a digital version of the topographic map georeferenced in this case by the Department of Natural Resources of Wisconsin.

Once site information was joined with site location, environmental attributes were extrapolated from environmental layers, such as elevation, distance from water, and associated pre-settlement vegetation.

Site information was entered into Microsoft Excel and was later converted into a format that could be joined with the georeferenced sites in ArcMap.

In summary, GIS allows any layer and all layers to be added at the same time. This map combines the last three into one.

Summary

An archaeological GIS was created for the Red Cedar River.

- A total of 278 sites were digitized and described
- Information for each site included: time period, inferred vegetation, and hydrology
- Environmental data included: elevation, pre-settlement vegetation, and hydrology

References


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