

Potential Archaeological Sites on Beaver Island, Michigan

Abstract

Using a given set of specific parameters that are input into a GIS spatial analysis, is it possible to predict potential Archaeological sites in each county within the State of Michigan? If so, a data model can be built to allow a singular county and its own distinct guidelines to calculate possible Historical sites within that county. A pilot study of Beaver Island in Charlevoix County is used to test this model using currently known Archaeological sites as a comparison to determine if the parameters and model are useful.

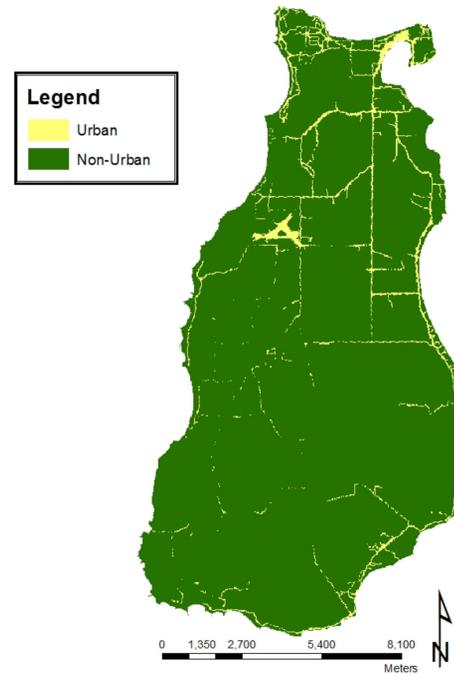
Methodology

First, a Charlevoix County 2011 Land Cover was converted in to a raster file then reclassified to represent all Non-Urban Land Cover as "1" and Urban Land Cover as "0". Second, a Charlevoix County Soil Cover all Arable soils were reclassified as "10" and Non-Arable soils were reclassified as "0". Next, using the Euclidean Distance tool on a Charlevoix County Wetland Inventory file, all raster cells were given a calculated distance from an inland water source; from those distances a reclassification was given to cells within 1000 meters as a "100" and anything further a "0". All three files were then stacked atop one another, calculating each files reclassified value. If the value equaled "0" then that area held no potential for an Archaeological site. If the value totaled "111" then there was a high probability that an Archaeological site would be present. Finally, the presently known Archaeological sites on Beaver Island were placed in the map via Google X, Y Coordinates to compare and contrast the results. With the help of the aforementioned techniques a data model was built using the same measurements and parameters to be used for other counties in the State of Michigan.

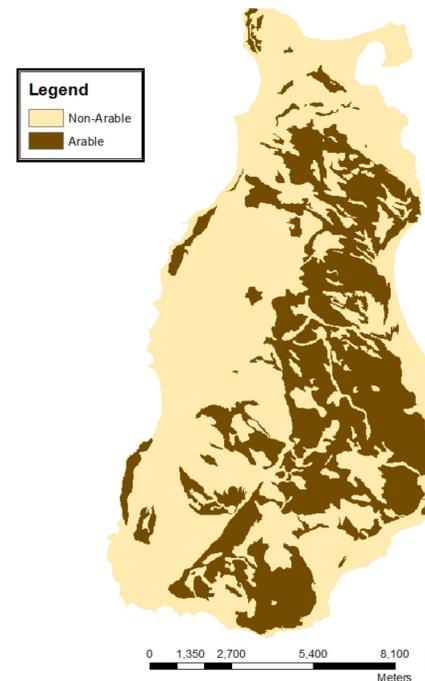
Conclusion

Of the total 37,104.75 acres that is Beaver Island, Michigan, 13,027.73 acres' total have a high possibility of containing an Archaeological site; about 35% of island, most of these areas being located on the western side of the island. Based on the ranking system used, this would mean that these high probability areas have no reported urban land cover, arable soils, and are within 1000m of a water source. The comparison of the currently known Archaeological sites and the prediction model shows that the model is 66% correct in that two of the three sites are located within the predicted high probability areas.

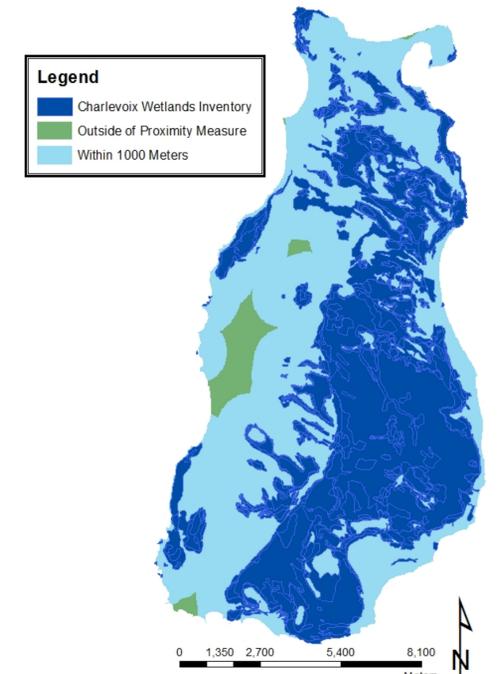
2011 Land Use



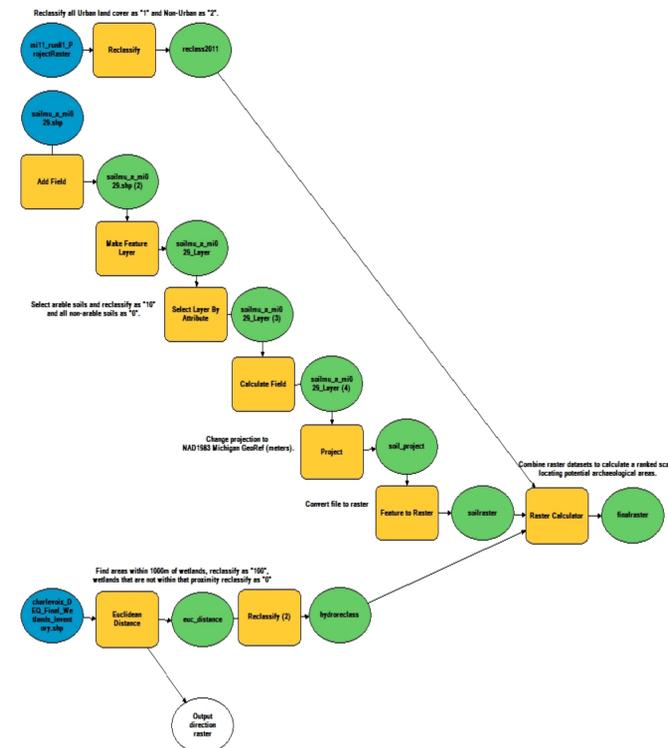
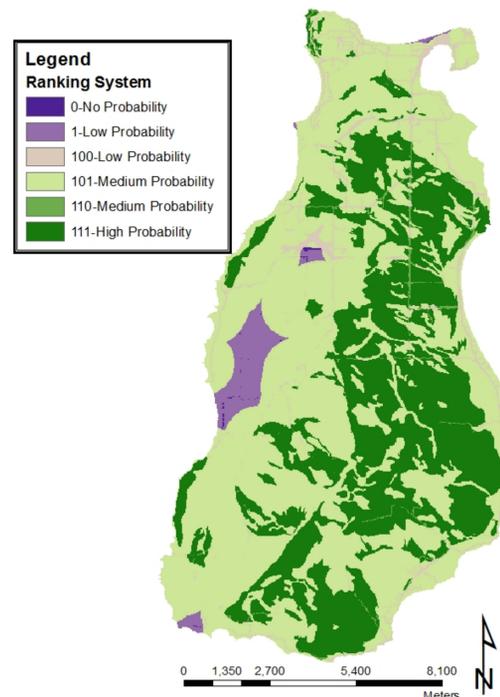
Soil Datum



Proximity to Island Hydrology



Potential Archaeological Areas



Known Sites and Potential Areas

