Restoration Prioritization and Prediction Model (RePP)

This project was funded by the Minnesota Environment and Natural Resources Trust Fund,
as recommended by the Legislative-Citizen Commission on Minnesota Resources

SUMMARY:

In 2008, Ecological Strategies worked with 5 Twin Cities metropolitan counties (Hennepin, Carver, Dakota, Scott and Washington) and the MN Dept of Natural Resources to give planners and communities a tool for informing decisions about locations of ecological restoration opportunities and what restoration should happen there. The RePP Model, a GIS-based tool, identifies potential restoration sites and: 1) prioritizes these based on an explicit set of criteria and 2) uses statistical analysis of environmental variables associated with high quality natural areas to help identify target communities for potential restoration sites. The RePP Model uses GIS datasets including Minnesota Land Cover Classification (MLCCS), soils, topography, and other spatial data. The model was initially developed and applied in two smaller project areas and refined for this larger application.

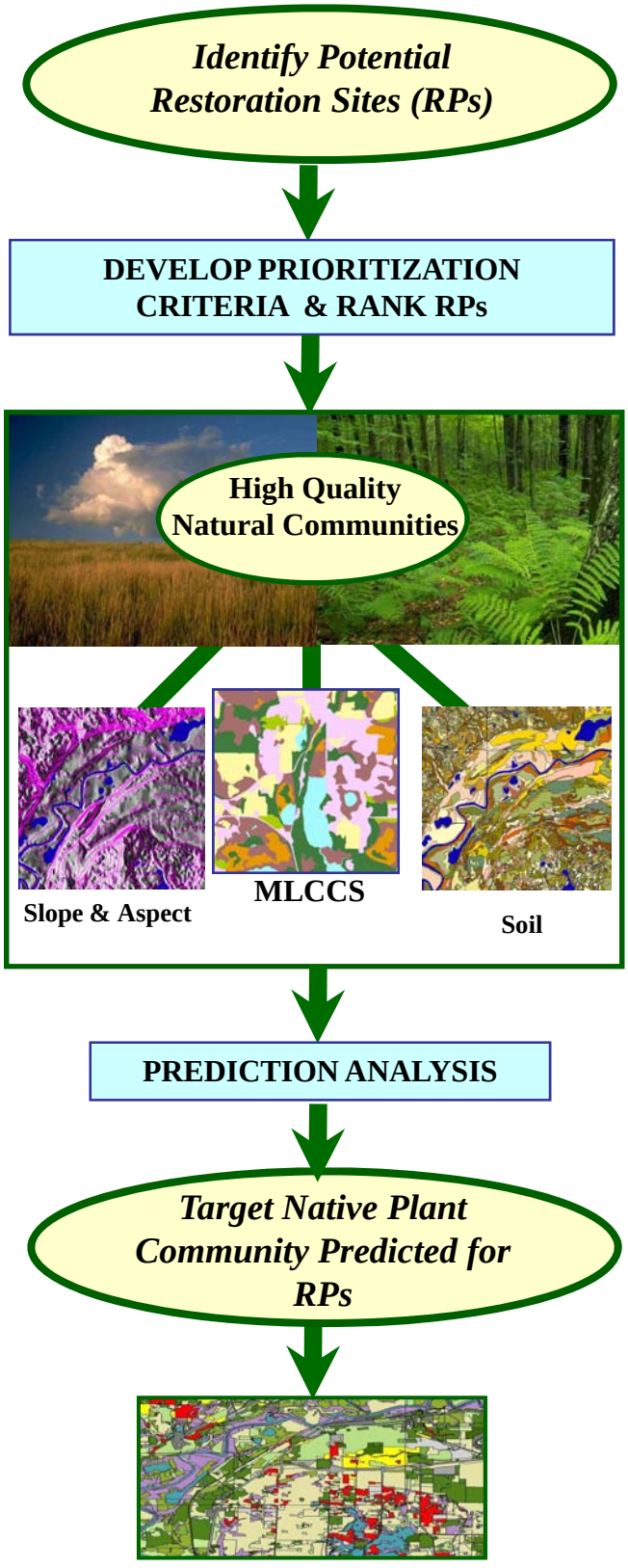
INTRODUCTION:

One of the primary goals of natural resources preservation is to protect, buffer and connect existing natural areas. In most cases, buffering and connectivity will be achieved only by restoring natural communities in areas where they have been eliminated. However, it is difficult to determine which lands best serve these functions, especially when working over large areas. To help address this issue we created a GIS-based tool to identify high priority restoration sites.

METHODS:

Identify restorable sites

Potential Restorable sites (RPs) were all MLCCS polygons that were not native plant communities, or were unsuitable for restoration because of high levels of impervious cover or disturbance.

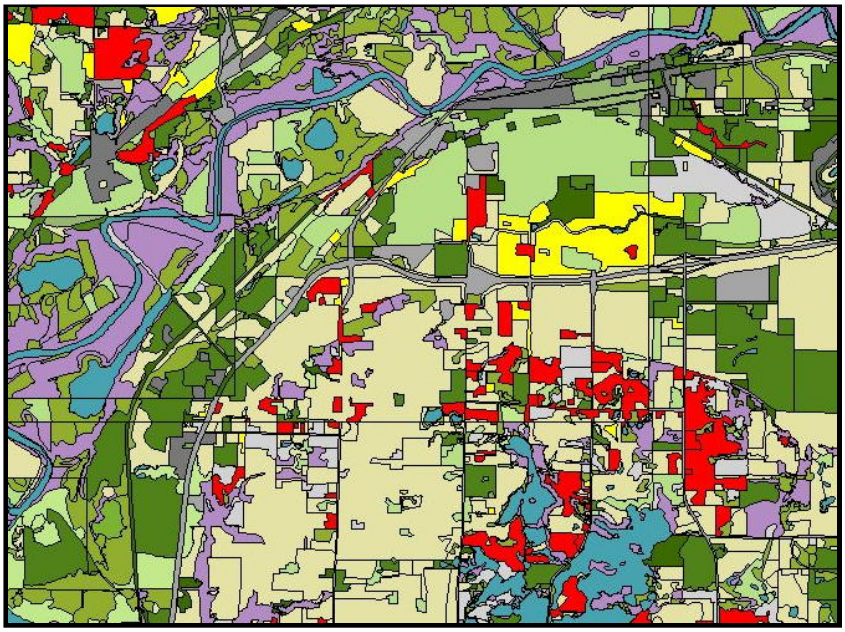


Restoration Prioritization and Prediction Model (RePP)

Restoration Sites Prioritized

Legend

- Rank = 1 high priority
- Rank = 2 medium priority
- Rank = 3 low priority
- Forest
- Prairie & old field
- Floodplain forest
- Lakes & Rivers
- Roads & Impervious



[1]Map created to give a general idea of how restoration sites might be prioritized.

METHODS continued:

Prioritization Criteria

Prioritization Criteria were developed to rank RPs based on a literature review and the input of local experts. The ranks were designed to be flexible so that the ranking criteria can be weighted differently, depending on the specific goals of the government agency or community.

Prediction Analysis

MLCCS, slope, aspect and soil features associated with existing high quality natural communities were analyzed statistically to identify potential restoration sites in the project area. These analyses were then applied to predict target communities for restoration on restorable sites.

PRODUCTS:

The primary product of the application of the tool is a GIS-based database and shapefile (or map) identifying restoration sites and their priority rankings. The tool also provides guidance on what plant community should be restored on the restoration sites, based on the statistical analyses. The shapefile and workshop handout materials are available at:

ftp://ftp.dnr.state.mn.us/pub/gisftp/barichar/restoration_model/

CONTACTS:

Carolyn Carr, Ecological Strategies, LLC
ccarr@ecologicalstrategies.com
612-721-6021
Dave Thill, Hennepin County Env. Services
david.thill@co.hennepin.mn.us
612-348-0124
Bart Richardson, MN DNR
bart.richardson@dnr.state.mn.us
651-259-5796