Great Lakes Commission
des Grands Lacs

Advancing Coastal Restoration Goals in the Great Lakes Region

The NOAA Habitat Priority Planner:
A Tool to Highlight Conservation Opportunities

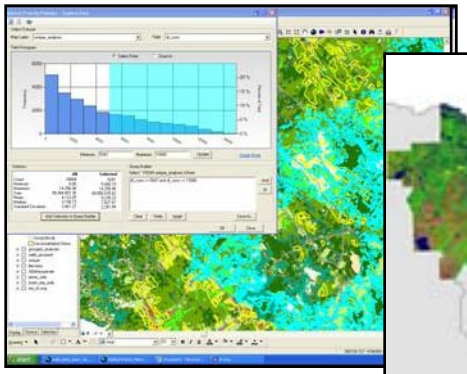
Richard Garcia, Senior Program Specialist
Great Lakes Commission

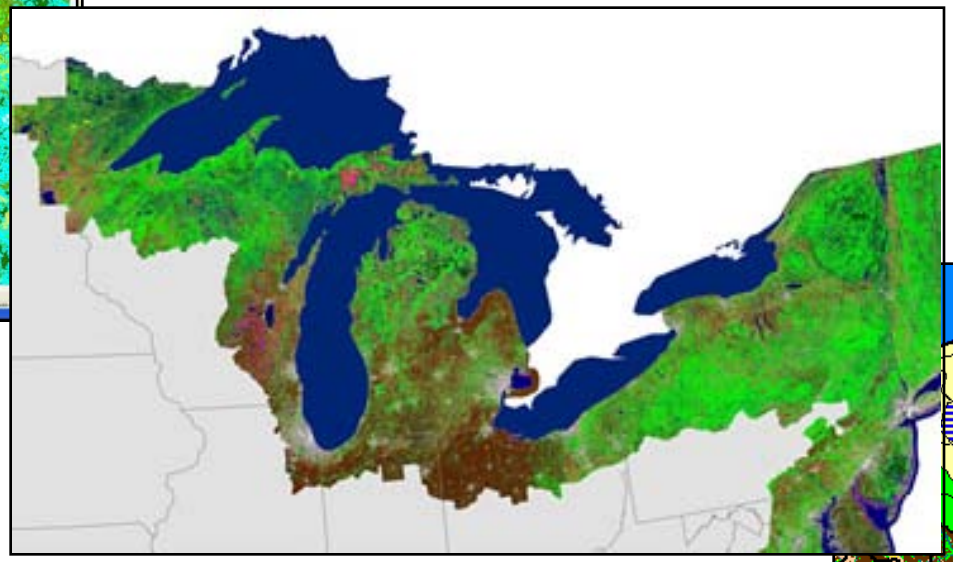
Project Background

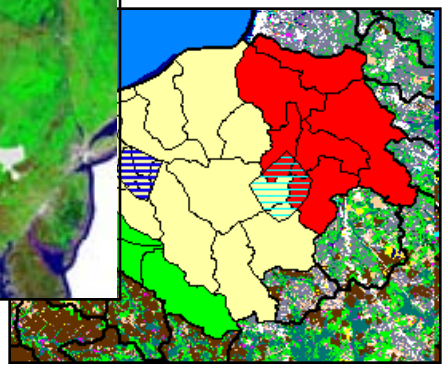
GLC/NOAA Joint Project Agreement

- Provide assistance with Great Lakes coastal zone management issues

- Provide access to tools and information







Project Background

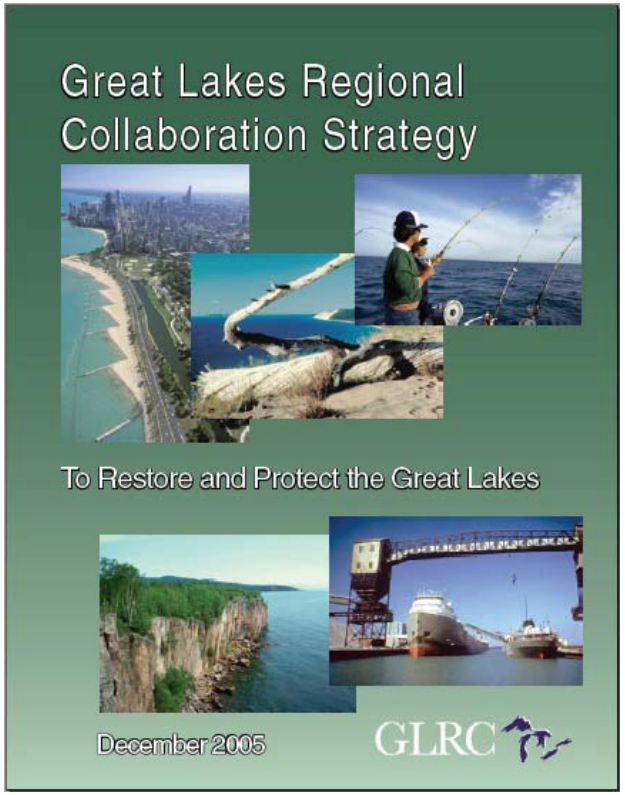
The Habitat Priority Planner Tool

- ESRI ArcGIS Toolbar
- Calculates basic ecological statistics
- Serves intermediate level GIS users
- Helps prioritize decisions about habitat concerns

Project Background

Great Lakes Regional Collaboration

- Partnership of key members of Great Lakes governments, tribes, and stakeholders
- Development of strategies to protect the Great Lakes
  - GLRC Wetlands subcommittee target to protect and restore 200,000 acres of wetlands



Project Background

Great Lakes Habitat Initiative

- Inventory of projects to protect and restore Great Lakes Habitat
- Two projects selected to demonstrate the functionality of the NOAA HPP Tool

http://gis.glin.net/habitat/

Objectives

Identify Areas for Wetlands Restoration

- Address goals of the GLRC
- Provide information to stakeholder groups on habitat prioritization outputs

Demonstrate Functionality of HPP

- Provides screening level assessment of habitat for restoration, conservation, and resource planning
  - Only intermediate level GIS knowledge necessary to utilize mapping and prioritization tools

Methods

Phase 1 – Establish Selection Criteria

- Investigate existing prioritization models
  - Michigan Department of Environmental Quality
    - Wetlands Restoration Prioritization Project

- Identifying Analysis Parameters
  - How to relate classified habitats to the landscape to create wetlands?
  - Use analytical model that is easily applied and adjustable
  - Provide method for cursory target setting and habitat planning

Methods

Phase 1 – Establish Selection Criteria

Criteria	Description	Selection
Proximity to existing wetlands	Positive correlation if site is located near existing wetland	Within 200 feet
Proximity to NHD stream features	Positive correlation if site is located near existing stream feature (Perennial class)	Within 100 feet
Proximity to SSURGO hydric soils	Positive correlation if site overlaps area of hydric soils	25-100% Overlap with hydric soils
Proximity to other habitat; Public and private conservation areas	Positive correlation if site is located near or within other habitat or conservation lands	25-100% Overlap with other habitat; Within 100 feet
Proximity to anthropogenic stressors	Negative correlation if site is located near C-CAP developed areas classes	Distance of at least 100 ft
Proximity to transportation network	Negative correlation if site is located near roads	Distance of at least 100 ft

Methods

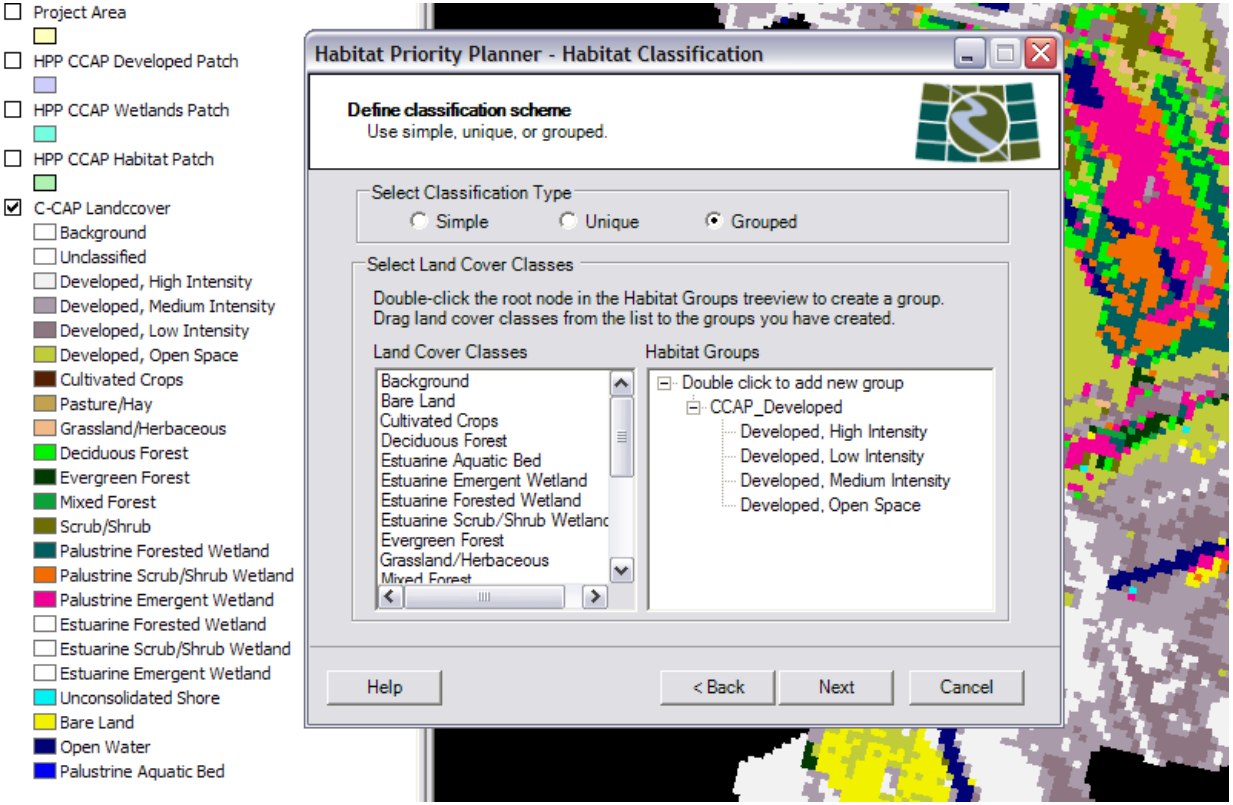
Phase 2 – Inventory Data for Analysis

- NOAA Coastal Change Analysis Program Land Cover
- Roads
  - State level road centerlines
- Wetlands
  - National Wetland Inventory
  - State level inventories
- Hydric Soils
  - National Resources Conservation Service SSURGO Soils Data
- Streams
  - USGS National Hydrography Data
- Conservation lands

HPP Processes

Module 1:Classifying Habitats

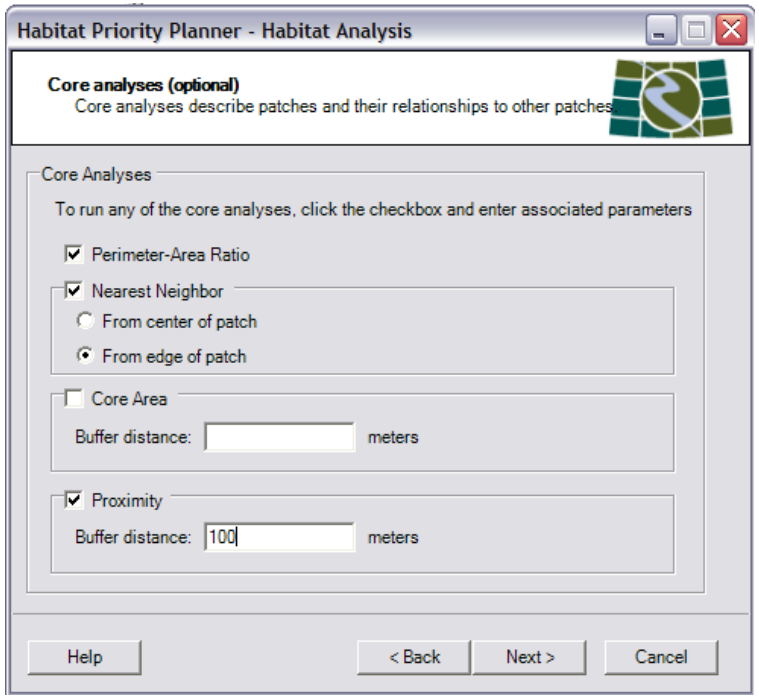
- C-CAP classes converted from 21 to 3 for this model
  - Wetlands
  - Habitat
  - Developed



HPP Processes

Module 2: Habitat Analysis

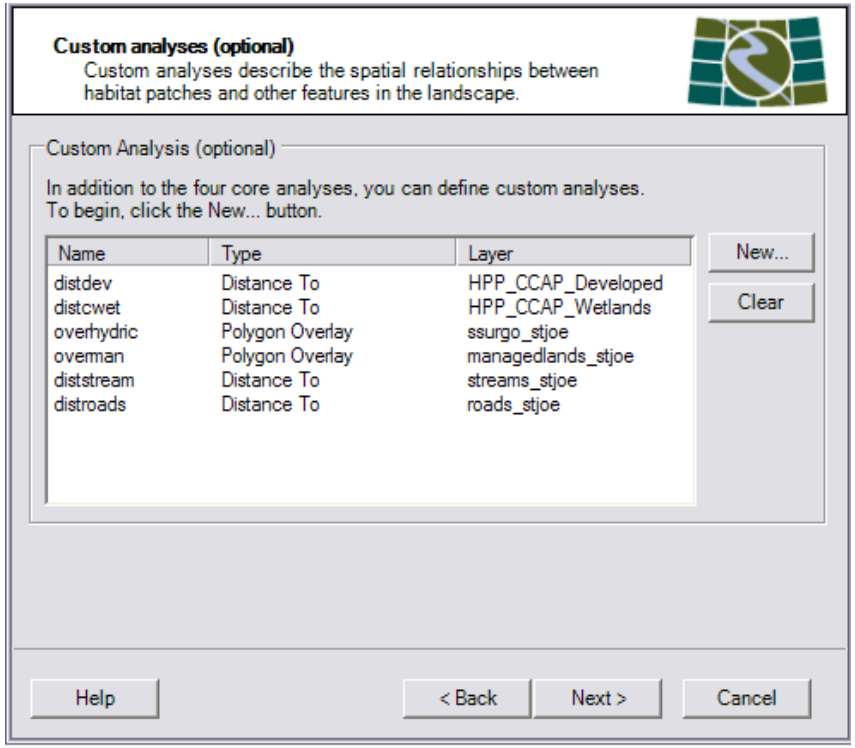
- HPP provides core ecological analyses
  - Defines how each habitat area relates to others in the same data set
  - Measures proximity of one habitat to another



HPP Processes

Module 2: Habitat Analysis

- HPP provides custom analytical operations to relate classified habitats to ancillary data.
  - Overlay
  - Distance to
  - Linear Distance
  - Count
  - Absence/Presence

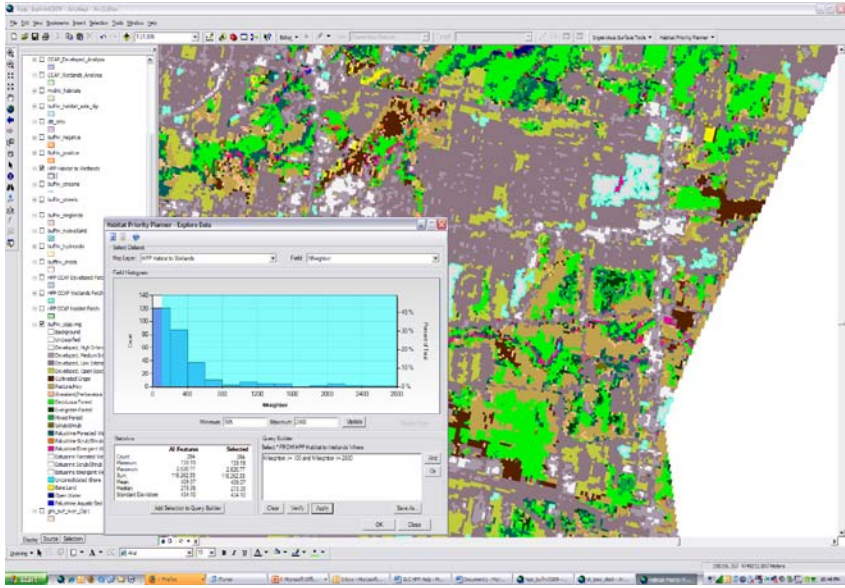


HPP Processes

Module 3: Data Exploration

- Querying results of the analysis to capture desired range of habitats
  - Range is easily identified using tools in HPP interface

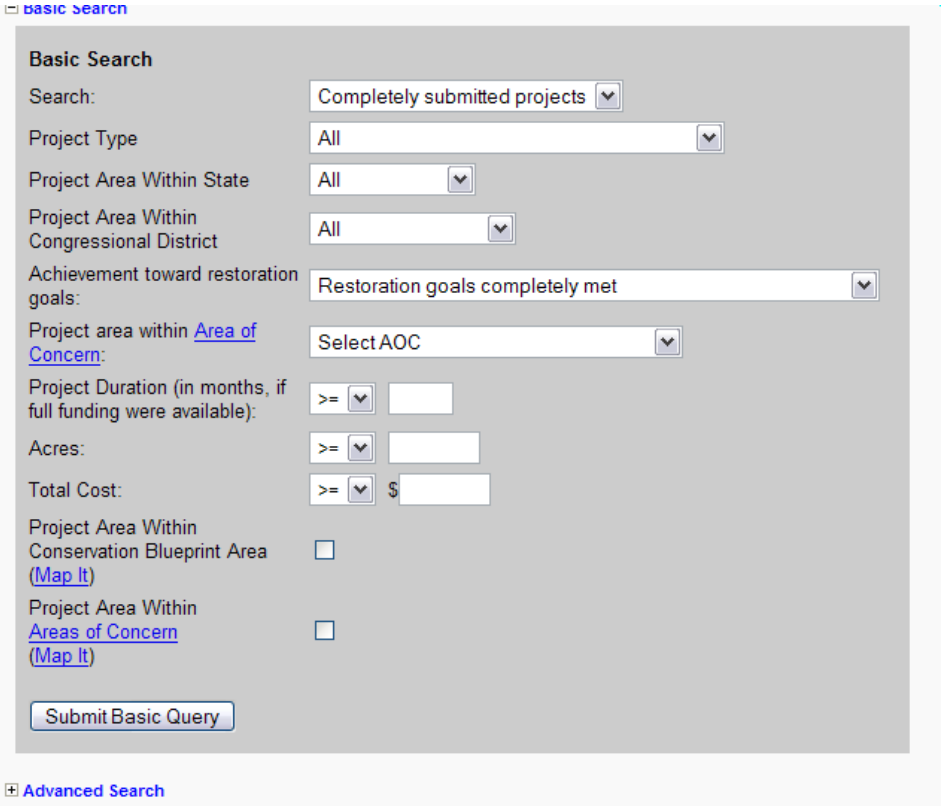
- Save final output for stakeholder review



Case Studies

Project Selection

- Query GLHI project database
  - Search for projects related to habitat, restoration, protection, and creation



St. Joseph River Habitat Restoration

Project Background:

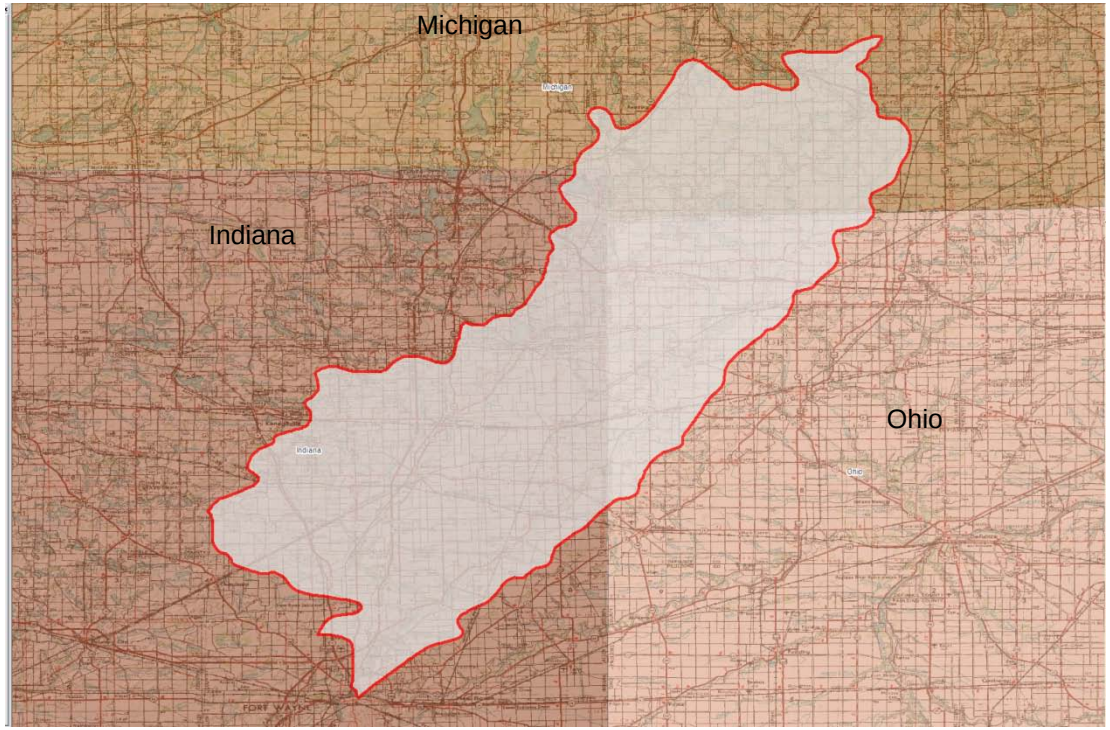
- Project type
  - To “restore or create” habitats resulting in a gain of habitat acres

- Estimated total acreage restored/created, enhanced/improved, or protected is 500 acres
  - This project targets habitat restoration of large, connected complexes of multiple wetland types and surrounding forested uplands.

St. Joseph River Habitat Restoration

GLHI Project Background

- 687,069 acre watershed
  - 73% Agriculture/Cultivated
  - 9% Wetlands
  - 11% Natural Habitat
  - 6% Developed

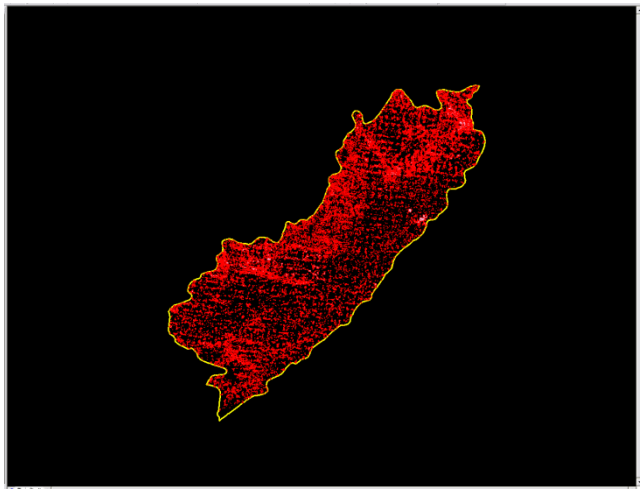


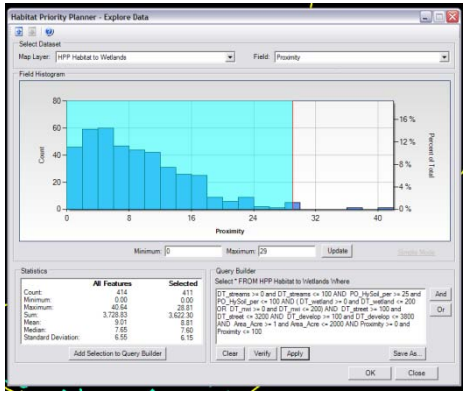
Results

Habitat Sites

- 23633 Potential Habitat sites to convert to Wetlands

- Input of all analytical criteria
  - Final list of 147 sites identified
  - Total of 2419 acres of potential conversion





Buffalo River Watershed Management

GLHI Project Background:

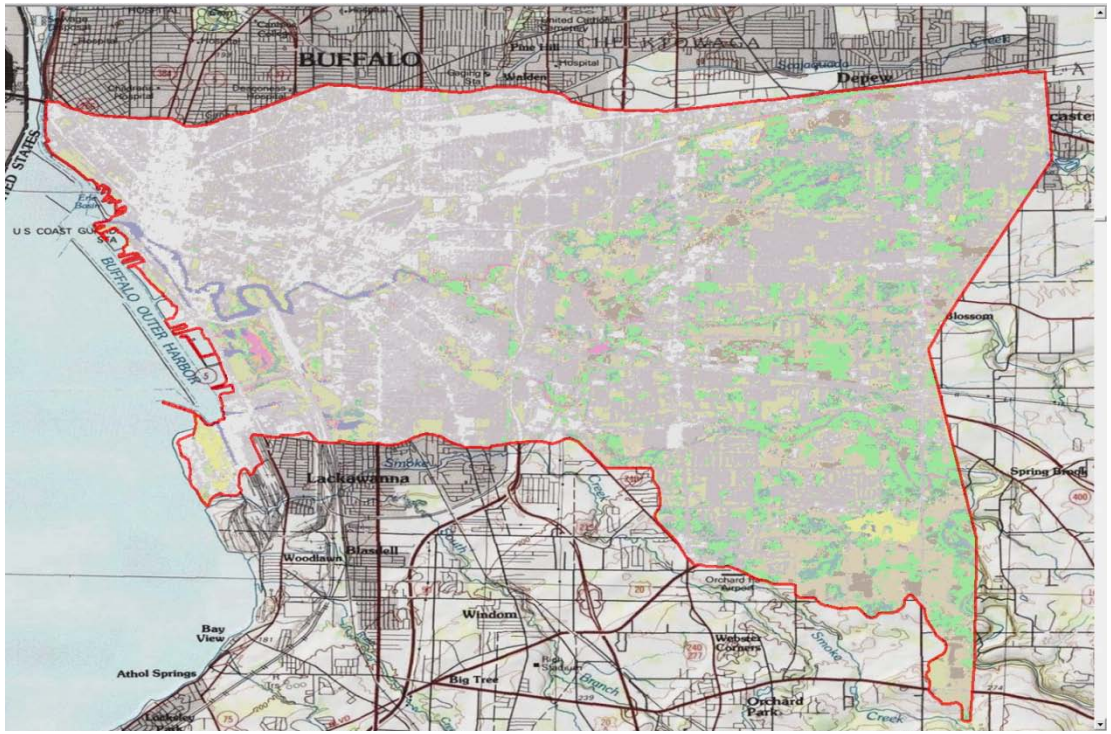
- To “restore or create” habitats resulting in a gain of habitat acres
  - Create habitats
  - Restore original functions of habitats

- Directly contributes to the GLRC Restoration Plan goals for:
  - Habitat preservation
  - Abatement of nonpoint and CSO sources of pollution.

Buffalo River Watershed Management

GLHI Project Background:

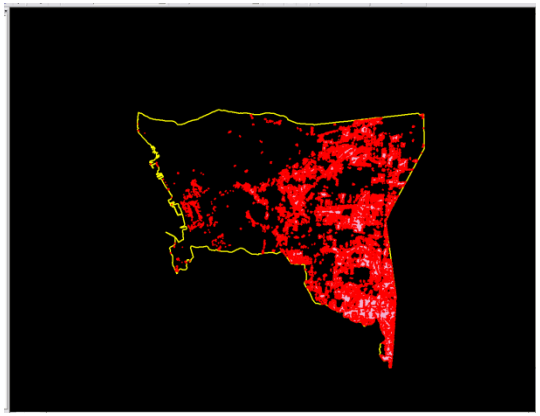
- 42,569 Acre Study Area
  - 71% Developed
  - 5% Wetlands
  - 22% Habitat/Agriculture



Results

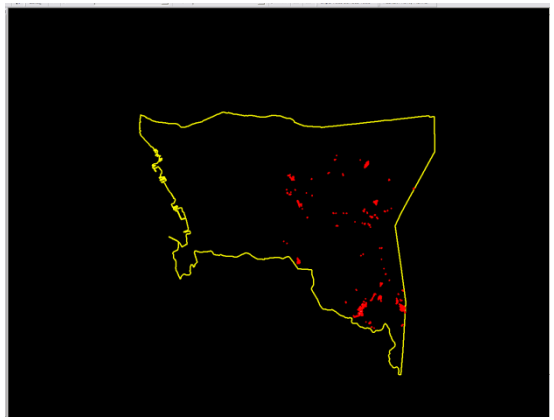
Wetland Restoration

9342 Acres



All Habitats

135 Acres



All Criteria

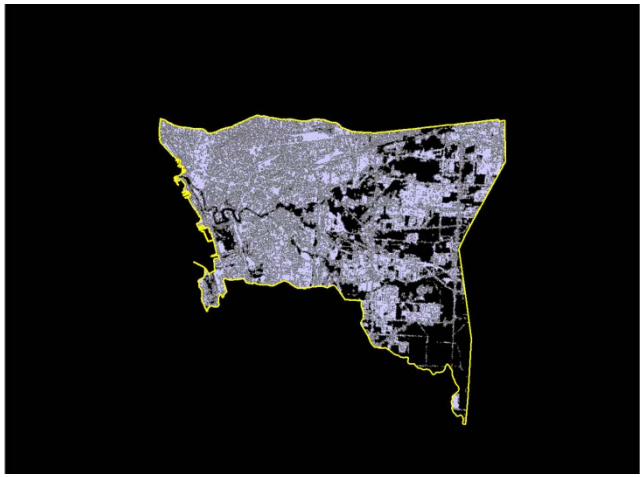
1416 Acres

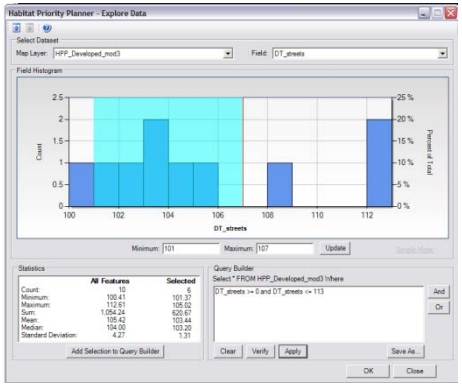
No Stressors

Results

Habitat Creation

- Developed Land to convert to Habitat or Wetlands
  - 30256 acres
- Input of subset of analytical criteria
  - Final list of 191 sites identified
  - 300 acres to investigate for conversion



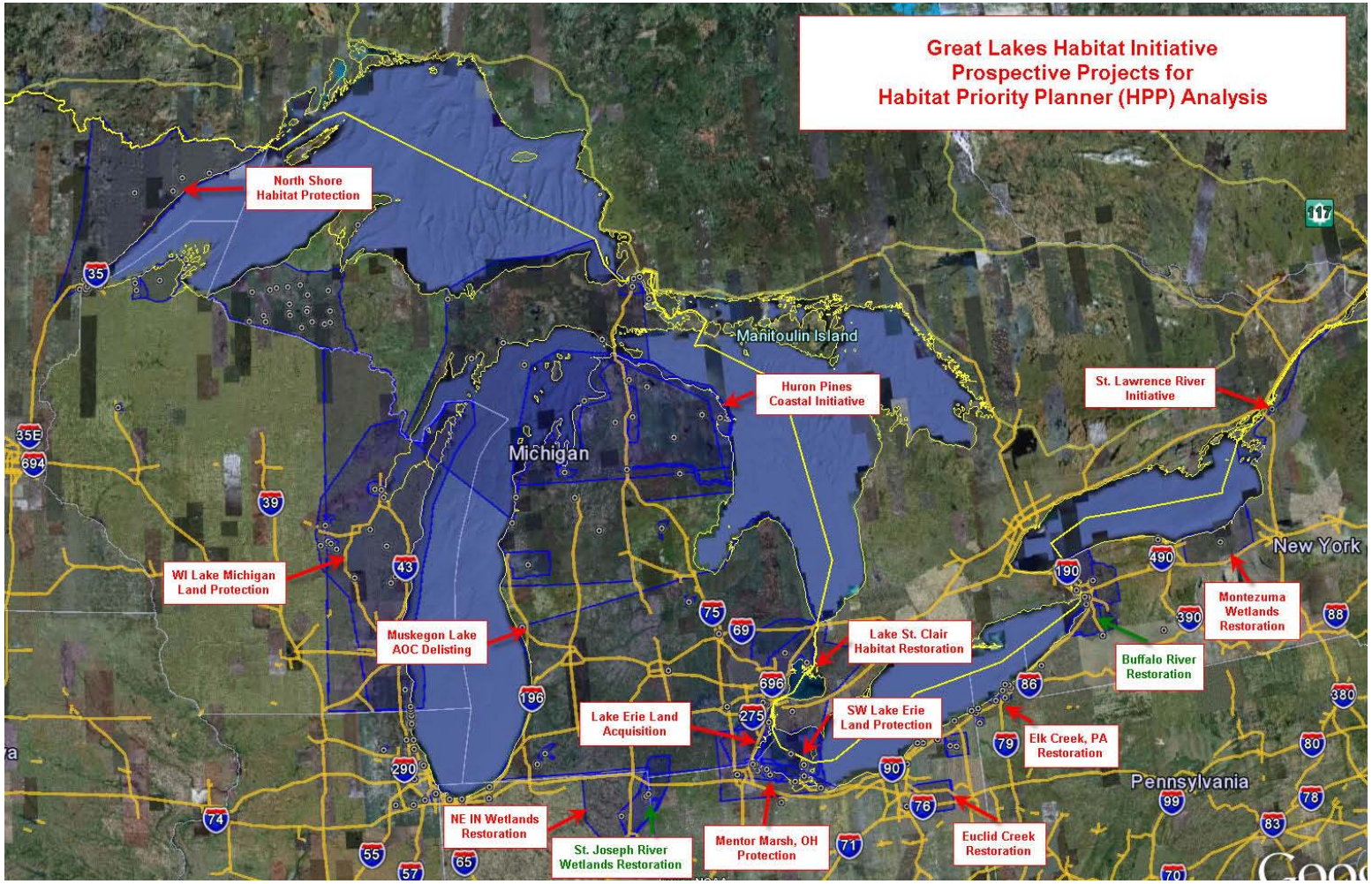


Summary

- Output met restoration targets listed in GLHI projects
  - Acreage identified to address GLRC goals

- Next Steps
  - Adjust criteria thresholds to refine site selection
  - Incorporate more localized data
  - Advance project planning and development
  - Build community support for stakeholder targets

Future Applications



Questions

NOAA Habitat Priority Planner

Download tool and documentation:

http://www.csc.noaa.gov/digitalcoast/tools/hpp.html

Great Lakes Habitat Initiative

http://gis.glin.net/habitat/

Richard Garcia
Great Lakes Commission
rgarcia@glc.org