

RESOLUTION NO. 2006-106

RESOLUTION BY THE FINANCE AND HUMAN RESOURCES COMMITTEE AUTHORIZING THE GRANT APPLICATION FOR THE 2007-2008 WISCONSIN COSTAL MANAGEMENT PROGRAM (WCMP) AND WAIVER OF BIDDING REQUIREMENTS AND A CONTRACT BETWEEN RACINE COUNTY AND JILL HAPNER d.b.a. GEOBOTANY SYSTEMS, TO PROVIDE WETLAND RESTORATION INVENTORY DATA THAT CAN BE INCLUDED IN THE RACINE COUNTY SMART GROWTH PLAN

To the Honorable Members of the Racine County Board of Supervisors:

BE IT RESOLVED by the Racine County Board of Supervisors that an application for a WCMP grant is authorized and approved.

BE IT FURTHER RESOLVED by the Racine County Board of Supervisors that said application that is attached hereto as "Exhibit A" and incorporated herein shall provide that Jill Hapner shall provide services that will provide Racine County with GIS wetland restoration inventory data.

BE IT FURTHER RESOLVED that the Racine County Board of Supervisors authorize Corporation Counsel to prepare a contract with necessary and appropriate terms and conditions with GeoBotany Services, subsequent to the grant award.

BE IT FURTHER RESOLVED by the Racine County Board of Supervisors that any two of the County Executive, the County Clerk and/or the County Board Chairman are authorized to execute any contracts, agreements or other documents necessary to carry out the intent of this resolution.

Respectfully submitted,

1st Reading \_\_\_\_\_

FINANCE AND HUMAN RESOURCES COMMITTEE

2nd Reading \_\_\_\_\_

BOARD ACTION

\_\_\_\_\_  
Peter L. Hansen, Chairman

Adopted \_\_\_\_\_

For \_\_\_\_\_

Against \_\_\_\_\_

Absent \_\_\_\_\_

\_\_\_\_\_  
Karen A. Nelson, Vice-Chairman

VOTE REQUIRED: Majority

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Thomas Pringle, Secretary

Prepared by:  
Corporation Counsel

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David J. Hazen

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6 Q. A. Shakoor, II  
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9 Van H. Wanggaard  
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12 Pamela Zenner-Richards  
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16 **INFORMATION ONLY**  
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18 **WHEREAS**, the grant application is for a specific project proposal being  
19 conducted by a private vendor – GeoBotany Systems/Jill Hapner, for the creation of a  
20 geodatabase wetland restoration inventory in Racine county; and  
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22 **WHEREAS**, the vendor has received grants for other coastal counties in  
23 Wisconsin and the inventory format used by this vendor is the preferred method  
24 accepted by the DNR and Regional Biologists; and  
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26 **WHEREAS**, the results of this inventory will be incorporated into the Racine  
27 County Multi-Jurisdictional Comprehensive Plan that is presently underway.  
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<b>1. Type of Project (check one):</b>	<input type="checkbox"/> Coastal Land Acquisition <input checked="" type="checkbox"/> Coastal Wetland Protection and Habitat Restoration <input type="checkbox"/> Nonpoint Source Pollution Control <input type="checkbox"/> Coastal Resources and Community Planning <input type="checkbox"/> Great Lakes Education <input type="checkbox"/> Public Access and Historic Preservation
<b>2. Project Title: RACINE COUNTY GIS WETLAND RESTORATION INVENTORY</b>	
<b>3. Organization applying:</b> Racine County Land Conservation Department	<b>5. Primary County where project is located:</b> Racine County
<b>4. Contact Person and Address:</b> Jill Hapner _____ 10120 N. Foxkirk Circle _____ Mequon, Wisconsin 53097 _____ Phone: (262) 242-7398      Fax: (262) 242-1455 Email: jhapner@wi.tr.com	<b>6. Other Counties where project is located:</b> Completed in Ozaukee, Sheboygan, Manitowoc, and Kewaunee Counties; currently underway in Door and the Lake Superior Counties. <b>7. Congressional District #: 1</b> <b>8. State Senate District #: 21, 22, 28</b> <b>9. State Assembly District #: 61, 62, 63, 66, 83</b>
<b>10. Total Project Cost: \$ 43,400</b>	
<b>11. WCMP Share: \$ 21,000</b>	<b>13. WCMP Percent: % 49</b>
<b>12. Applicant Share: \$ 22,400</b>	<b>14. Applicant Percent: % 51</b>
<b>15. Brief Summary of the Project (300 word maximum, use this page only). Include (1) Project Description and (2) Project Outcomes:</b>	
<p><b><u>Project Description:</u></b></p> <p>This project will develop a Geographic Information System (GIS) that will be utilized to inventory and provide the capability to assess and monitor approximately 300 wetland restoration projects in Racine County. A comprehensive GIS database will be created for the wetlands using existing digital map layers and non-digitized attribute information located in paper files. The resulting geodatabase can be seamlessly used with adjacent WCMP-funded County wetland restoration inventories to provide a landscape, and most importantly a coastal watershed-level, assessment.</p>	
<p><b><u>Project Outcomes:</u></b></p> <p>The geodatabase will be used as a tool to answer basic inventory questions and produce informative maps. Various agencies in the state continue to construct small wetlands on Wisconsin private land. Many times, this acreage is reported in duplicate or triplicate due to the cooperation of these agencies and combination of funding opportunities. A GIS inventory will eliminate this multiple reporting, yielding absolute wetland restoration acreage and location. This project will model the Ozaukee, Sheboygan, Manitowoc, Kewaunee, Door, and Lake Superior County wetland restoration inventories, which were recently funded in part by WCMP. These methods can continue to be used to accurately map thousands of small wetland restorations statewide. The resulting wetland restoration acreage will be added to the state's inventory for a more accurate measurement of wetland area as well as provide fine-scale quality assurance for the National Resource Inventory.</p> <p>The resulting geodatabase will facilitate selection of research sites, encouraging students and wetland scientists to conduct studies in the restored areas. This fieldwork is critical for thorough assessment as well as management and is not currently conducted by resource managers due to budget constraints. The geodatabase will therefore allow coordinated efforts between institutions and agencies to collect valuable restoration site data, as recently demonstrated in Ozaukee County. The resulting summaries describing vegetation, wildlife, soils and hydrology can be stored in the geodatabase and shared readily with resource managers. Without a common database management system, vital information from individual field studies may be lost.</p>	

**1. Problem:** Concisely state the problem or issue that this proposal addresses. Include important background information.

Government agencies and non-government organizations have constructed approximately 300 wetlands in Racine County over the past 2 decades, and their efforts are continuing, with additional wetlands appearing on the Racine County landscape each year. Wetland restoration goals include: providing wildlife habitat, increasing biodiversity, reducing soil erosion, filtering pollutants and sediments, improving water quality, and providing storm water storage.

Unfortunately, the data on these wetland restoration sites is often vague, inconsistent, and primarily only available in paper files scattered in several locations. Many restoration projects are recorded in duplicate or triplicate due to the cooperation of multiple agencies in funding a single project. This makes accurate reporting of even the number of sites as well as total acreage and their geographic distribution problematic. The typical existing files for these wetland restorations describe only the plans and designs for the restorations, and seldom include any "as built" description of the wetland area that actually resulted from the project. Wisconsin Department of Natural Resources (WDNR) has recently developed a plan to track *future WDNR-funded* wetland restorations. However, knowledge of geographic location and characteristics of future as well as thousands of existing sites funded by *multiple* agencies over the past twenty years state-wide are key to future restoration strategy and planning.

Most of these newly restored wetlands are not included in the Wisconsin Wetland Inventory and lack comprehensive functional assessment or any monitoring of development of their wetland characteristics due to their small size, unmapped fragmented geographic locations, and potential transient existence. Spot checks by resource managers and sporadic field studies by scientists and graduate students have revealed concerns for inadequate hydrology and invasion of exotic plant species in some sites, whereas other sites have developed and maintained diverse native plant communities.

**2. Project Description:** Address all of the issues listed below as they relate to your project.

- a. Describe the project for which funding is requested.
- b. Describe how this project is part of an integrated effort or approach.

a. This project will develop a Geographic Information System (GIS) that will be utilized to inventory and provide the capability to assess and monitor approximately 300 small wetland restoration projects in Racine County. A comprehensive GIS database will be created for the wetlands using existing digital map layers and non-digitized attribute information located in paper files. Geographically referenced data from these sources are more efficiently stored and effectively analyzed using a GIS. Through data query, analysis and statistical modeling, the GIS will be used as a tool to answer basic inventory questions and produce informative maps.

b. The U.S. Fish and Wildlife Service (USFWS), Natural Resources Conservation Service (NRCS), Wisconsin Department of Natural Resources (WDNR), County Conservation Departments, and various conservation organizations in the state continue to construct small wetlands primarily on Wisconsin private land. Many times, this acreage is reported in duplicate or triplicate due to the cooperation of these agencies and combination of funding opportunities. A GIS inventory will create a shared geodatabase, eliminating this multiple reporting by yielding absolute wetland restoration acreage. This project will model the completed Ozaukee, Sheboygan, Manitowoc, and Kewaunee County wetland restoration inventories, which were funded in part by the Wisconsin Coastal Management Program. These methods can potentially be used to accurately inventory thousands of small wetland restorations statewide. The resulting wetland restoration acreage will then be added to the state's inventory for a more accurate measurement of State wetland area as well as provide fine-scale quality assurance for the National Resource Inventory.

The GIS will facilitate selection of research sites, encouraging students and wetland scientists to conduct studies in the project areas. This fieldwork is critical for thorough assessment as well as management and is not currently conducted by resource managers due to budget constraints. The GIS will therefore allow coordinated efforts between agencies to collect project site data. The resulting summaries describing vegetation, wildlife, soils and hydrology can be stored in the GIS and shared readily

shared with resource managers. Without a common database management system, vital information from individual field studies may be lost. This study will focus on low cost and labor techniques utilizing readily available information. Other counties in the area can easily replicate this effort. The GIS will be updated by County Conservation Departments as new digital aerial photography is collected, allowing ready distribution of continual current wetland restoration information and maps to interested parties.

**3. Impact on Coastal Resources:** Address all of the issues listed below as they relate to your project.

- a. Describe the extent to which the problem, need or priority will be addressed by the project.
- b. Describe how this project addresses a high priority need as identified in state-recognized plans (such as Wisconsin Great Lakes Strategy, remedial action plans, basin plans, Lakewide Management Plans, State Hazard Mitigation Plan, and county Land and Water Conservation Plans) or priorities of regional organizations such as the Council of Great Lakes Governors.
- c. Describe the extent to which the project permanently addresses the problem or need.
- d. Describe the extent to which the project leverages other technical or financial resources.
- e. Describe the measurable results (give estimated benefits for all that apply). Use the suggested indicators listed below, or others as appropriate to your type of project.

Type of Project	Suggested Indicators
Coastal Land Acquisition	<ul style="list-style-type: none"> <li>• Acres protected</li> <li>• Linear feet of coastline acquired</li> <li>• Type of habitat or ecosystem acquired</li> </ul>
Wetland Protection and Habitat Restoration	<ul style="list-style-type: none"> <li>• Acres of habitat restored or protected</li> <li>• Endangered species protected</li> <li>• Type of habitat or ecosystem protected or restored</li> </ul>
Nonpoint Source Pollution Control	<ul style="list-style-type: none"> <li>• Reduction in pounds of P delivery</li> <li>• Reduction in tons of soil erosion/sedimentation</li> <li>• Miles of vegetative buffer</li> </ul>
Great Lakes Education	<ul style="list-style-type: none"> <li>• Number of people trained</li> <li>• Projected audience</li> </ul>
Coastal Resources and Community Planning	<ul style="list-style-type: none"> <li>• Number of municipalities included in a plan</li> <li>• Population affected by the plan</li> <li>• Land area covered by the plan</li> <li>• Type of coastal resource protected</li> <li>• Ordinances developed</li> </ul>
Public Access and Historic Preservation	<ul style="list-style-type: none"> <li>• Linear feet of coastline made accessible</li> <li>• Population affected</li> </ul>

a. An inventory of these small wetlands will assist in the identification of design improvements, establish a basis for monitoring development of landscape function over time, facilitate access to research sample sites, and promote exchange of information and comparisons between sites. To be effective in promoting conservation, the inventory will be made available for review, customizing and updating to those individuals implementing management policies. This inventory will facilitate agency access to valuable information concerning the number, size, age, geographic location, and ownership of over 300 acres of restored wetland habitat in Racine County. At present, wetland functions such as: providing wildlife habitat and storm water storage, increasing plant diversity and water quality, and decreasing soil erosion are difficult to measure. The GIS-based inventory will allow on-screen general assessment as well as systematic field checks to identify protection or management needs, as it is currently being used in Ozaukee County.

b. The past three Presidential Administrations have embraced the "no net loss" policy with each administration setting goals of restoring thousands of wetland acres by 2007. To meet the intended goal, wetland restoration programs were funded, however, precise claims of net increases are not reliable due to statistical uncertainties resulting from gross estimations from participating agencies. This project will continue to develop a detailed multi-agency database yielding absolute basin counts and acreage, which will aid in tracking wetland gains.

Mapping existing restored wetlands will enable cooperative effort between the public and private sectors and facilitate restoration efforts, guided by a watershed-based inventory of existing wetlands, may prioritize placement of varying sizes and environmentally responsible economic growth, which is a mission of the Council of Great Lakes Governors. Future types of wetlands in the landscape to achieve desired ecosystem services.

c. Wetland restoration is a new science, therefore, these project sites can be considered experimental. As a result of the newly developed organization, the sites will lend themselves more easily to research and monitoring, providing beneficial information to the field of restoration ecology. Given the current state of the files, even finding the wetland restoration sites, or just assembling current information on landowners and contacts, are daunting tasks for any researcher who would want to monitor or use these sites to answer habitat quality questions. The GIS will facilitate selection of research sites, encouraging students and wetland scientists at UW-Milwaukee and other institutions to work with funding agencies to conduct studies in the restored areas. This fieldwork is critical for thorough assessment as well as management that are not currently being conducted by resource managers due to budget constraints. The GIS database will therefore allow coordinated efforts between agencies to collect project site data. The resulting summaries describing vegetation, wildlife, soils and hydrology can be stored in the GIS and shared readily with resource managers. Without a common database management system, vital information from individual field studies may be lost.

This study will focus on low cost and labor techniques utilizing readily available information. Other counties in the state can easily replicate this effort. The geodatabase will record all wetlands restored through government wetland restoration funds over the past 20 years and can be updated annually by County Conservation Departments, allowing ready distribution of continual current wetland site information and maps to involved agencies.

d. This inventory will facilitate agency access to valuable information concerning the number, size, age, geographic location, and ownership of more than 300 acres of restored wetland habitat in the Racine County region and can be combined with existing inventories developed for Ozaukee, Sheboygan, Manitowoc, Kewaunee, Door, and the Lake Superior Counties to provide a broader coastal watershed analysis of wetland restoration. Future restoration efforts, guided by a watershed-based inventory of existing wetlands, may enable strategic implementation of the conservation program funding by prioritizing placement of varying sizes and types of wetlands in the landscape to achieve desired ecosystem services.

e. The shared GIS database will encourage communication and cooperative efforts by the USFWS, NRCS, WDNR, County LWCD's, researchers, and landowners. The project will continue efforts to inventory small, Wisconsin coastal wetland restorations initiated recently by WCMP. Multi-county data concerning the number, size, age, geographic location, and ownership of thousands of acres of wetland restorations will yield valuable information for the field of restoration ecology and for future wetland basin placement. Developing a comprehensive inventory of these wetland restorations will allow an evaluation of those site designs that provide the greatest landscape function.

According to studies conducted in wetland restorations recorded in Ozaukee County's inventory, more than half of the sites are ephemeral wetlands, providing valuable storm water storage and breeding habitat for anurans. Ozaukee County field survey results indicate that many of the restored basins provide habitat for more than 32 Species of Greatest Conservation Need (SGCN) as identified by the WDNR. WCMP-funded mapping of these small, restored wetlands has revealed patterns indicating restored habitat "stepping stones" for movement of many SGCN throughout the Wisconsin coastal landscape.

#### 4. Methodology and Timetable

- a. Provide a task description, including a timeline and major milestones.
- b. Provide a list of work products or deliverables.
- c. Describe how the project will encourage public participation and how the final product will be distributed (as appropriate).
- d. For Public Access projects, please describe how the project incorporates planning for lake level changes.

Existing digitized Racine County map layers including land use, municipality, and Wisconsin Wetland Inventory will be collected and combined with 1-foot resolution color digital 3002 orthophotographs. This data will then be layered into ArcGIS™ 9.1 GIS software. With the aid of the hard files, each wetland will be located on the county aerial photos and digitized to create polygon and point shapefiles.

An attribute table will be created for each wetland containing information derived from the hard files such as: original and current landowner name and address; township, range, and section numbers; year of construction; restoration program name, and funding agency or agencies. Additional wetland site information measured from the aerial imagery such as: geographic coordinates, perimeter, wetland area, as well as distance to the nearest road and established wetland will also be entered into each attribute table. This will enable users to query the wetlands by any one or combination of these attributes.

**TIMETABLE:**
1<sup>st</sup> Quarter Benchmarks (July/Aug/Sept 2007)

Collect existing digital map layers, convert to a shared coordinate system, and layer the maps into the GIS. Locate all hard files.

2<sup>nd</sup> Quarter benchmarks (Oct/Nov/Dec 2007)

Locate project wetlands on ortho-photographs and digitize boundaries (polygon file map). Manually enter hard file information into attribute tables.

3<sup>rd</sup> Quarter benchmarks (Jan/ Feb/Mar 2008)

Continue to locate project wetlands on ortho-photographs and digitize boundaries (polygon file map). Manually enter hard file information into attribute tables. Create point file map and link tables.

4<sup>th</sup> Quarter benchmarks (Apr/May/June 2008)

Measure and record distance values from aerial orthophotos and pertinent map layers. Locate and record geographic coordinates. Create GIS meta-data files. Compose written report and submit all work products to the Wisconsin Coastal Management Program and supporting agencies.

Written and digital copies of a Final Program Summary (including wetland restoration inventory map) will be delivered to WCMP and cost-share agencies. ArcGIS point and polygon shapefiles with metadata will also be delivered on CDROM. Upon request, interested parties can obtain copies of the written report and digital map inventory by contacting the individual Racine County Land Conservation Departments and Land Information Offices respectively.

Contracted work will be performed by Jill Hapner (GeoBotany Systems, Senior Biologist). Additional assistance will be given by Art Kitchen (USFWS), Gerald Hebard (NRCS), Marty Johnson (WDNR), and the Racine County Planning & Development and Land Conservation Staff.

**5. Project Budget**

- a. Provide a breakdown of the proposed project budget using the following table. WCMP Grant projects totaling \$60,000 or less require a 50% match. Projects larger than \$60,000 require a 60% match.

Activity	Match	WCMP Request	Total
Personnel	\$15,250	\$20,000	\$35,250
Data License Fees	\$ 2,500		\$ 2,500
Travel and Supplies	\$ 3,500		\$ 3,500
<b>Totals</b>	<b>\$21,250</b>	<b>\$20,000</b>	<b>\$41,250</b>

**6. Budget Description**

- Describe, in detail, the commitment of nonfederal matching funds.
- Describe the composition and source of the matching funds.

**Nonfederal Cost-Share**

Racine County Land & Water Conservation Department:	
(150hrs. @ \$35.00/hr.= \$5,250)	\$ 5,250
Racine County Land Information Office:	
(20hrs. @ \$35.00/hr.= \$700, Data license fees \$2,500)	\$ 3,200
GeoBotany Systems:	
(Travel, software, supplies = \$3,500; 120 hrs. @ \$60.00/hr.= \$7,200)	\$10,700
Wisconsin Dept. of Natural Resources:	
(50hrs. @ \$35.00/hr.= \$1,750)	\$ 1,750
<b>Total Nonfederal Cost-share Match</b>	<b>\$20,900</b>

**Federal Cost-Share**

Wisconsin Coastal Management Program:	
(Personnel = \$21,000)	\$20,000
Natural Resources Conservation Service:	
(4 hrs. @ \$25.00/hr.= \$100)	\$ 100
US Fish & Wildlife Service:	
(1 Staff Days \$250)	\$ 250
<b>Total Federal Cost-share Match</b>	<b>\$20,350</b>

**7. Bonus objectives.** Address all of the issues listed below as they relate to your project.

- a. Build partnership alliances with other organizations or agencies
- b. Develop exceptional marketing, outreach or education strategies
- c. Encourage coast-wide projects or solutions

**OBJECTIVE a: Building partnership alliances with other organizations:**

The multi-county coastal GIS database will encourage continued communication and cooperative efforts by the interagency wetland team including USFWS, NRCS, WDNR, Racine County Land Conservation Department and other participating/interested agencies. The project will continue efforts to inventory Wisconsin coastal wetland restorations initiated recently by Ozaukee, Sheboygan, Manitowoc, Kewaunee, Door, and the Lake Superior Counties. Multi-county data concerning the development of wetland restorations will yield valuable information for the field of restoration ecology and for managing coastal resources.

The National Resource Inventory (NRI) has requested copies of the completed coastal wetland restoration inventories to assist their NRI work (e.g. Quality Assurance). The inventories will also be shared with the Wisconsin Wetland Inventory to provide fine-scale data concerning small wetland restorations.



**OBJECTIVE b: Developing exceptional marketing/outreach/education strategies:**

The products and results of the project will be shared with supporting/participating agencies and summarized in a link to the County website and local news releases will also assist in disseminating project information. Any published scientific studies utilizing the GIS will acknowledge the grant funds that provided the tool. Racine County will also offer poster presentations describing this project during the County Fair. The inventory will promote communication between the restoration agencies and participating landowners.

**OBJECTIVE c: Encouraging coast-wide projects:**

These methods have recently produced an informative inventory of Ozaukee, Sheboygan, Manitowoc, and Kewaunee County's small wetland restorations, are currently in use by Door and the Lake Superior Counties. The methods can also be used in any additional Wisconsin coastal counties where an effort is being made to revert drained farmland to wetland habitat. Within the next 2 years, a seamless, complete coastal county wetland restoration inventory can be realized, providing valuable information for future restoration strategy. Budget constraints limit the labor and time-intensive fieldwork necessary to assess and monitor restoration sites. By utilizing remote sensing and GIS technology, significant information can be obtained by a single individual, saving time and money.