Illinois
Natural History Survey

Development and Expansion of the Natural Resource Data and Information Systems in Support of the Illinois Comprehensive Wildlife Conservation Plan
(Project: T-03-P-001)

Project Completion Report 2006

Liane Cordle, Kevin Cummings, Leon Hinz, Ann Holtrop, Chris Phillips, Tari Tweddale, and John Epifanio

Submitted to ·

Illinois Department of Natural Resources
One Natural Resources Way
Springfield, Illinois 62702

Illinois Natural History Survey
1816 South Oak Street
Champaign, Illinois 61820

March 2007

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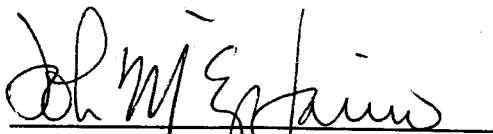(Project: T-03-P-001)

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John Epifanio
Principal Investigator

David L. Thomas, Chief

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Development and Expansion of the Natural Resource Data and Information Systems in Support of the Illinois Comprehensive Wildlife Conservation Plan

(Project: T-03-P-001)

Project 1: **Enhance and Integration of Resource Information Systems to Support Wildlife Planning**

Job 1.1 *Update the Biotics 4 information system*

Project Investigator: Chris Phillips

Status: Task Completed

> Biotics 4 is the information system used by the Illinois Department of Natural Resources, Natural Heritage Database Program to track all locational data and descriptive information on state and federally listed threatened and endangered species, natural areas, nature preserves, and other high quality features. The data within Biotics 4 are a critical component of Illinois, state Comprehensive Wildlife Habitat Conservation plan, and necessary for all stages including development, implementation, and monitoring.

> The Natural Heritage Database Program originally used a database system called the Biological and Conservation Database (BCD) to track significant resources throughout the state. BCD was a DOS-based relational database with very little spatial capabilities. In order to utilize more current and powerful software and integrate spatial tracking, the Database Program upgraded to the Oracle-based Biotics 4 (Biological Tracking and Conservation System) database in February 2003. Biotics 4, which was developed by NatureServe, combines geographic information systems (GIS) and powerful relational database technologies to organize, map, and analyze data about T&E species, natural communities, natural areas, and other significant natural resources.

<u>**Job 1.2**</u>　　**_Update and Locate New Threatened and Endangered Faunal Species Records_**

Project Investigator: Chris Phillips

Status: Task Completed

Just over 65% of the Element Occurrence Records have been evaluated or field surveyed, entered in an Excel spreadsheet and a FileMaker Pro database at INHS and sent to the Database entry staff in Springfield (see Table below).

Group	Original Number of Records to Survey/ Evaluate	Number Records Surveyed/ Evaluated to Date	Number Records Verified to Date	Number of records remaining to Survey	Number Supp. Sites Surveyed to Date	Number Supp. Sites Verified to Date
Invertebrates						
Crayfish	21*	20	12	1	0	
Isopods/ amphipods	14**	11	3	3	0	
Snails	1	1	0	0	0	
Insects	40	27	10	13	0	
Mussels	120	55	5	65	0	
Fish	141	106	48	35***	12	12
Amphibians	46	22	16	24	36	15
Reptiles	130	58	11	72	29	4
Birds	572	460	27	112	182	59
Mammals						
Bats	52	20	12	32	20	20
Other Mammals	45	0	0	45		
Totals	1182	780	144	402	279	110

 * 8 of these records were found to be based on misidentified specimens- should be removed from the database

** 7 of these records were found to be based on misidentified specimens- should be removed from the database

*** these remaining sites are all large river sites and will not be sampled during this job

Project 2: **Develop the mussel database as part of the Fisheries Analysis System (FAS) and link to existing INHS museum collections**

Job 2.1 *Develop the mussel database as part of the Fisheries Analysis System (FAS) and link to existing INHS museum collections*

Project Investigator: Kevin Cummings

Status: Task Completed

One of the first tasks in developing the comprehensive wildlife plan/strategy is to identify the distribution and abundance of key wildlife species and to document the extent and condition of their habitats. One of the wildlife groups requiring protection are freshwater mussels. Freshwater mussels are possibly the most endangered aquatic biota in the U.S. Thus, increasing our understanding of these organisms is essential for their protection and management. The development of a web-based freshwater mussels database for use by IDNR field staff was the focus of this job. We have developed a database and interface for web-based access to abundance and distribution data on Illinois freshwater mussels. We are in the process of testing the database and related applications with field staff and other appropriate personnel. We have also met and worked with the IDNR *Ad Hoc* Mussel committee to initiate development of standard sampling protocols as a prerequisite for developing a "Mussel Index of Biotic Integrity".

Results, Benefits, and Deliverables:
A web accessible mussel database for use by IDNR field staff has been completed. We have linked this database to the INHS Mollusk collection and 11 other museum collection including but not limited to the Field Museum of Chicago, the Smithsonian, the University of Michigan, the Ohio State University and others. The database is currently in ARC-IMS. We have developed and are testing data entry and report capabilities for IDNR field staff. Work continues and will continue on the development of field data collection protocols and fine-tuning the web-based interface. This database can be queried on a variety of fields and output results include the raw data and species distribution maps (see Figs. 1 & 2). This database is now up and running on-line at:
http://spatial.inhs.uiuc.edu/maps/working/viewer.htm
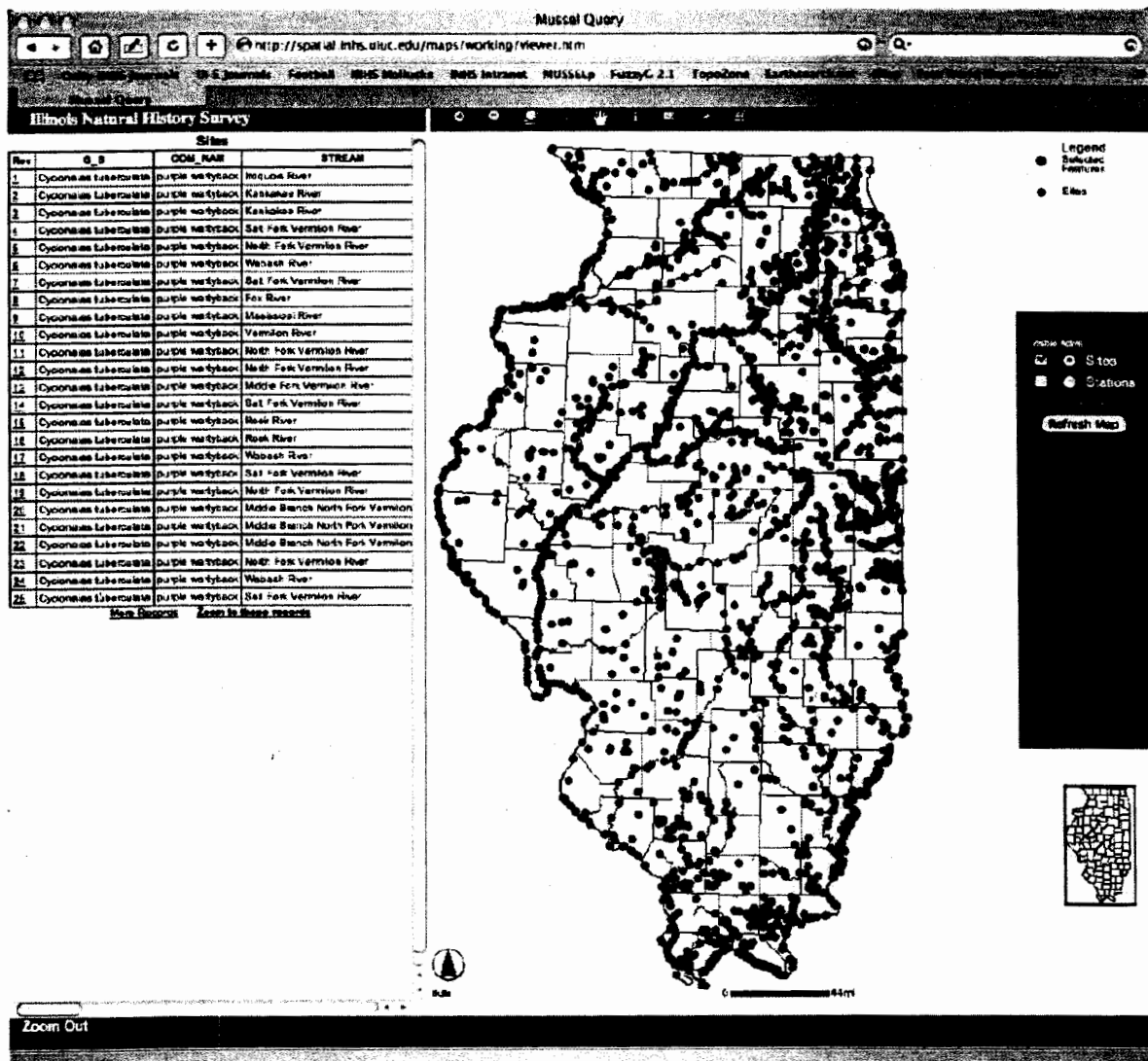
User name: mussel
Password: ill*moll

Fig. 1 Screen shot of a search for records of the Illinois threatened purple wartyback (Cyclonaias tuberculata). Red dots indicate where the purple wartyback has been found in Illinois and adjacent waters. Searches can be restricted by date, river collector, or number of other fields.

Fig. 2 Screen shot of a search for records of the Illinois threatened purple wartyback (Cyclonaias tuberculata). Red dots indicate where the purple wartyback has been found alive since 1980.

Project 3: **Conservation Mapping in Support of the Comprehensive Wildlife Conservation Plan and Wildlife Conservation Strategies**

Job 3.1 *Conservation Mapping – Special Funds Habitat Purchase*
Job 3.2: *GIS of State Owned, Managed and Leased Properties*

Project Investigators: Tari Tweddale and Liane Cordle

Status: Project Completed

Background

The Illinois Department of Natural Resources (IDNR) has database records describing their land holdings, but no single GIS data layer exists that is of sufficient integrity and completeness to be relied upon in a statewide conservation planning effort. Further, specific purchases with federal and dedicated funds, often as components of larger properties, are not documented in a spatial context that could be used for planning and assessment. The lack of a comprehensive database of owned, managed, and leased properties under IDNR management presented a significant obstacle to identifying habitat conservation strategies for the state. Full documentation of these properties and integration of this information into GIS and the planning process would allow the IDNR to better address the conservation needs of the state.

The development of conservation plans and strategies requires a sound knowledge of current management activities on lands that the IDNR owns, leases, or manages. Properties are often acquired because they are high quality, provide critical habitat, or are known to contain populations of species of critical conservation need. In Illinois, various local, state and federal agencies have implemented a wide variety of conservation practices in the form of conservation easements, land acquisition, and management on these lands to advance conservation efforts. Because of the diverse sources of funds, lands often are encumbered with restrictions on use, management plans predicated upon the intent of the funding agency, and agency goals and objectives. Thus, a fundamental component to a successful planning and implementation effort is developing and maintaining spatially explicit and detailed knowledge of land management in terms of ownership, funding source, management goals, actions, and restrictions.

The objective of this project was to develop and expand the mapping of IDNR owned, managed and leased properties (OMLP) in support of conservation planning, implementation, and assessment as part of the Comprehensive Wildlife Conservation Plan (CWCP). This work is a component of a grant funded by the State Wildlife Grant Program of the U.S. Fish and Wildlife Service.

Procedures and Results

A GIS database with property boundaries and associated management information was created using ArcGIS software. The geodatabase is a parcel-based mapping system with legal boundary descriptions obtained mainly from paper records housed and maintained in the Office of Realty and Environmental Planning at the IDNR office in Springfield. While many properties have fully documented boundary descriptions, some property acquisitions (generally those prior to the mid 1960s) were difficult to fully document and were therefore digitized using best available information or legal description.

Each property required thoroughly researching existing paper and database records for relevant and critical historical information at the offices of IDNR in Springfield. Personnel had to become familiar with the organization and format of the property documents. A data source checklist for researching realty paper files for each site is given in Appendix A.

A procedure for accurately and consistently digitizing aspects of each property has been developed and implemented. Facilities for mapping outer extent property boundaries as well as corner monument markers, interior parcel lines, right-of-way and easement extents, and historical boundary change information have been built into the OMLP GIS data management system. An outline for the input methodology is given in Appendix B and details for creating boundaries using the Public Land Survey System are listed in Appendix C. The methodology and procedure process is continuously changing as new properties are completed and new data sources are made available. These changes and updates will be incorporated in the additional phases of the OMLP Project.

Federal Geographic Data Committee (FGDC) compliant metadata has been created for the GIS data layers and will be updated as necessary as additional phases of the OMLP project are completed in the future. An initial quality assurance, quality control (QA/QC) methodology was developed to insure the data created meets the accuracy standards defined in the OMLP project data input methodology. Changes and updates to the QA/QC methodology will be incorporated in the additional phases of the OMLP Project.

OMLP properties purchased with federal or special funds were the focus of Task 1. These sites were assigned first priority for inclusion in the database. Of the 69 federal and special interest sites (Appendix D), a total of 53 (Appendix E) have been completely researched and digitally mapped, and research of the paper records at IDNR has been completed for the remaining 16 sites. Of the sites not yet digitally mapped, most currently have incomplete paper records and three sites are pending acquisition by IDNR. Most of the remaining sites contain a portion of land that is leased from a either a private company or other agency (i.e. Army Corps of Engineers, Central Illinois Public Service, Illinois Power Company) and managed by IDNR. The legal descriptions for these sites (which can be difficult to obtain for some of the older sites) need to be obtained from the

leasing agency in order to complete the paper records and digitize the site (work on these sites is being continued in the next phase of the project). QA/QC has been completed for 2 sites and is continuing in the next phase of the OMLP project.

The database has been designed to accommodate the inclusion of additional IDNR owned, managed, and leased properties that were not included in Task 1, with the goal of creating a complete GIS database of state owned, managed or leased conservation-related properties (Task 2). Changes and updates to the GIS database will be incorporated in the additional phases of the OMLP Project.

The OMLP project is an on-going effort and is continuing beyond the Phase 1 work reported in this document. In Phase 2 additional properties are being researched and mapped. Digitizing methodology and procedures, QA/QC methodology and procedures, metadata, database fields, forms, and tables are being further refined and developed as necessary as the work continues.

The four deliverables outlined for Phase 1 of the project are described below. The database, metadata, and related information have been copied to compact disc (CD) and provided to IDNR and USFWS.

1. *Digital databases that can be used to create maps of federal and special funds property acquisitions.*
   The OMLP geodatabase is housed on an IDNR computer in Springfield and managed by Charlie Foor. The geodatabase with the properties completed in Phase 1 has been copied to a CD and provided to IDNR and USFWS. During subsequent phases of the project, additional properties are being digitized into the database.

2. *Standards for digitizing and metadata for federal and special funds property mapping.*
   Appendix B outlines digitizing standards used for this phase of the project. Metadata is included on the CD provided to IDNR and USFWS. Some of the metadata provided on the CD will be modified as needed as work continues in the next phase of the project.

3. *Expanded state lands database that includes fields needed to describe the properties.*
   Fields needed to describe the properties have been incorporated into the geodatabase as needed (see geodatabase on accompanying CD). For example, new feature classes such as easements, nature preserves, and land and water reserves have been incorporated. This process is on-going as other properties are added to the database and will be enhanced and refined in subsequent phases of the project.

4. *Database forms and tables used to incorporate field site evaluations and reporting needed to ensure that properties are used for intended purposes.* Forms and tables have been incorporated into the database (see geodatabase on accompanying CD). As subsequent phases of the project continue, the forms and tables will be adapted as necessary.

Appendix A: Data Source Checklist for Researching Realty Paper Files for Each Site

- ☐ Lands Acquisition Database – Print land card report for each site. <u>NOTE</u>: Check report to determine if parcels acquired prior to 6-30-65 are lumped together. If so, then extra effort will be required to determine if all conveyances are found.

- ☐ Check list of DOQQ sites produced by Bob Sandidge in OREP to see if georeferenced CAD files based on DOQQ's have been created.

- ☐ Checking list of sites produced by Don Mole in OREP to see if georeferenced or survey grade GPS CAD files have been created.

- ☐ Check list of sites which have completed or partially completed Project Land Maps.

- ☐ Realty Central File Index - All correspondence and documents for each parcel reflecting entire acquisition process (list is in a binder in Kevin's office, files on individual parcels are in central copier area - moving shelves)

- ☐ Realty Central Files – Deed file. Check Central File Index to determine what has been microfilmed. (in central copier area – moving shelves)

- ☐ Microfilm of Acquisition Files – <u>NOTE</u>: Only need to look on microfilm if no paper copy is located. (microfilm machine is located in Kevin's office)

- ☐ Site files – <u>NOTE</u>: May contain more deeds than the deed file in central files. (by windows, on either side of the copier).

- ☐ Acquisition Plats – <u>NOTE</u>: If prepared by B.L. Sandidge in 1997, or after, or by Don Moles, there should be a CAD file. If reference to land survey then plat of survey should be in the file. (by windows in labeled cabinet)

- ☐ Boundary Maps – <u>NOTE:</u> Scale is an indication of accuracy. Compare date of map to acquisition date to determine if it is up to date. (by windows, next to acquisition plats)

- ☐ Plats of Survey Index and File – Any large maps or surveys that were conducted for a site. (in cabinets and tubes in drafting room)

- ☐ Technical Reference Materials – Check index content and determine if file contains helpful information. (in drafting room)

- ☐ ORC Paper or Microfiche files for Federal Funds Acquisition Records - <u>NOTE</u>: only need to look on microfiche if no paper copy is located. (3rd floor central copier area and SE corner)

- [ ] Nature Preserve and Land and Water Reserve Dedications - Only need to get documents and legal descriptions if a site contains a Nature Preserve and Later and Water Reserve. (in central copier area – moving shelves)

- [ ] Land and Water Report – Compare total acreage on in report to Access database report (land card). <u>NOTE</u>: If they do not match it raises a red flag.

- [ ] State Archives – <u>NOTE</u>: May need to go to the archives if no deed information was located in Realty files.

- [ ] County Recorders Office - <u>NOTE</u>: May need to go to the county recorders office if no deed information was located in Realty files or the State Archives.

Appendix B: OMLP Input Methodology Outline

1. All property data will be created from UTM NAD83 DOQQs or from CADD data developed from survey grade GPS or existing survey work.
2. Property data will be constructed from 1.) PLSS TRS data adjusted to the DOQQs by sight when corners are clearly visible on the DOQQ, 2.) measured from distances acquired from original GLO plats, or 3.) extrapolated from corners on the DRGs as a last resort.
3. All relevant OREP and Fed Aid documents will be reviewed as a part of the pre-input procedure for each site or property. Copies of deeds and other relevant documents will be made by the site technician.
4. A site technician will be assigned to each site or property to carry out all research and data input tasks for that site from beginning to completion.
5. All ownership parcels will be researched and digitized within each property boundary for all Fed Aid associated properties.
6. The complete exterior boundaries of all ownership parcels for a property will be topologically coincident and be used to construct the finished site or property boundary.
7. A scale of 1:3,000 will be used for all heads-up digitizing on DOQQ-based work. This is especially important for the placement of PLSS-TRS section corners and the creation of boundaries created by tracing road centerlines or stream centerlines.
8. The OMLP Geo-databases are constructed in the UTM meter projection, using the NAD83 datum, with one database in UTM Zone 16 and another based in UTM Zone 15. This was done to maximize accuracy and transferability into more accurate coordinate systems in the future.
9. Please refer to the itemized list of research documents for a detailed account of the research trail pursued for each site.
10. The first priority for the OMLP project will be to digitize all ownership parcels, property boundaries, use parcels, and federally defined project boundaries for all sites where federal funds were used to purchase parcels.
11. The second priority will involve digitizing sites where "special funds" were used to purchase parcels.
12. The third priority will be to digitize all sites with federal interest but not federal purchased.
13. A forth priority will be to digitize any sites that DNR manages but does not own and that has federal interests.
14. Backups of personal Geo-databases (both Champaign and Springfield) must done daily. One backup copy should go to a designated location on the DNR network hard drives and one backup should go to CD for storage off site.
15. Proposed changes to one of the personal Geo-databases must be relayed to SDE / Data Manager ASAP so that the changes can be oked and then applied to the other database, maintaining 100% capability between to two.
16. Both personal Geo-databases will be reconciled to 100% coincidence on a weekly basis by the SDE / Data Manager.

(Created February 3, 2004 by Charlie Foor)

Appendix C. Procedure to Create PLSS Sections, Quarter Sections, and Quarter-Quarter Sections

Task: Create New Feature
Target: Section corners
Label the section corners by clicking on the sketch tool and place points in the appropriate location

Task: Create 2-point line feature
Target: Section lines
Click on the sketch tool and click on one corner, then double-click on a second corner to make one section line. Repeat this for all four section lines. Be sure that the snapping is set to Section corners.
***If the section is adjacent to one that has already been digitized, use the existing section line instead of making a new one on top of the old.

Task: Create New Feature
Target: Section Poly
Use the edit tool to select all four section lines. Click on the construct features button on the topology toolbar. Be sure to **UNCHECK** the box for "Consider existing features of the target layer in the current extent". And click OK

Task: Create New Feature
Target: Quarter Lines
If any of the section lines are shared with an area that has already been digitized, **UNSELECT** those lines, (you will use the existing lines in order to avoid duplicates). With the section lines still selected, choose copy and paste from the edit menu to paste them into the Quarter Line layer. Select one line and click on the "split" tool under the editor toolbar. Split the line by 50 percent. Repeat for the remaining lines. With the snapping set to quarter line end, draw in the cross lines to divide the section into four quarters. After these lines are drawn, split them both by 50%.

If you wish, the Township, Range, and Section fields can be filled in on the section and quarter poly attribute tables now.

Task: Create New Feature
Target: Quarter Poly
Use the edit tool to select all quarter lines. Click on the construct features button on the topology toolbar.

Task: Create New Feature
Target: Quarter-quarter Lines
If any of the quarter lines are shared with an area that has already been digitized, UNSELECT those lines. With the quarter lines still selected, choose copy and paste from the edit menu to paste them into the Quarter-Quarter Line layer. Select one line and click on the "split" tool under the editor toolbar. Split the line by 50 percent. Repeat for each of the remaining lines. With the snapping set to quarter-quarter line end, draw in the cross lines to divide each quarter into quarter-quarters. After these lines are drawn, split them each by 50%.

Task: Create New Feature
Target: Quarter-quarter Poly
Use the edit tool to select all quarter-quarter lines. Click on the construct features button on the topology toolbar.

Appendix D: IDNR Owned, Managed, and Leased Site s with Federal Interest

1. Anderson Lake Conservation Area (a.k.a West Point Wildlife Refuge) [1,4,7,8]
2. Baldwin Lake State Fish and Wildlife Area (a.k.a Kaskaskia River Area) [1,8]
3. Banner Marsh State Fish and Wildlife Area [8,9]
4. Beaver Dam State Park [1]
5. Big Bend Fish and Wildlife Area [2,4]
6. Bradford Pheasant Habitat Area/ Hennepin Canal [3]
7. Burris Habitat Area (a.k.a. Hurricane Creek NA) [2]
8. Cache River [4,7]
9. Campbell Lake (a.k.a. Little Muddy River Project Area) [1,4]
10. Carlyle State Fish and Wildlife Area [4,8]
11. Chain-O-Lakes State Park [1,9]
12. Clifton Pheasant Habitat Area [3]
13. Clinton Lake Recreation Area [7,9]
14. Coffeen Lake Fish and Wildlife Area [8,9]
15. Des Plaines Game Propagation Center [8]
16. Donnelly Fish and Wildlife Area [8]
17. Dublin Highlands Habitat Area (a.k.a. Elroy Pheasant Habitat Area) [3]
18. Eastern Prairie Fringed Orchid Land Acquisition [6]
19. Double "T" State Fish and Wildlife Area (a.k.a. Fulton County Goose Management Area) [7]
20. Emiquon National Wildlife Refuge [4]
21. Friends Creek Regional Park / Ankrom Addition [2]
22. Green River State Wildlife Area (a.k.a. Lee County Conservation Area) [1,8]
23. Hallsville Pheasant Habitat Area at Clinton Lake [3]
24. Hegewisch Marsh (a.k.a.Calumet Open Space Reserve) [6]
25. Helfrich Game Propagation Center [8]
26. Hennepin-Hopper Lake [6,7]
27. Herschel Workman Habitat Area [3]
27. Herschel Workman Habitat Area - Addition [3]
28. Hindsboro Habitat Area [2,3]
29. Horseshoe Lake Conservation Area [1,8,9]
30. Iroquois County Conservation Area [8]
31. Kaecker Sand Hill Habitat Area [3]
32. Lake DePue/Donnelly FWA [4]
33. Mackinaw Fish and Wildlife Area [8]
34. Manito Pheasant Habitat Area [3]
35. Marshall State Fish and Wildlife Area (a.k.a. Marshall County Refuge and Recreation) [1,7,8]
36. Marshall State Fish and Wildlife Area (Sparland Unit) [7]

37 Marshall State Fish and Wildlife Area (a.k.a. Spring Branch Refuge) [1,8]
38 Marshall State Fish and Wildlife Area (Duck Ranch Unit) [7]
39 Maytown Pheasant Habitat Area [3]
40 Mazonia-Braidwood Fish and Wildlife Area [8]
41 Mermet Lake Conservation Area [1,8]
42 Milroad Marsh Fish & Wildlife Area [4]
43 Mississippi Fish and Wildlife Area [2,4,5,7,8]
44 Mt. Vernon Game Propagation Center [8]
45 Newton Lake Fish and Wildlife Area [8,9]
46 Peabody / River King Fish and Wildlife Area [8]
47 Perdueville Pheasant Habitat Area @ Morraine View [3]
48 Ray Norbut State Fish & Wildlife Area [2,8]
49 Rend Lake State Fish and Wildlife Area [8,9]
50 Rice Lake Conservation Area [1,8]
51 Sam Dale Lake Conservation Area (a.k.a. Wayne County Conservation Lake) [1]
52 Sangamon County State Fish and Wildlife Area [2]
53 Sanganois Fish and Wildlife Area [1,7,8]
54 Sangchris Lake State Park [2,3,4,9]
55 Saybrook Habitat Area [3]
56 Shabonna Lake [1,9]
57 Shelbyville State Fish and Wildlife Area [8]
58 Snakeden Hollow Fish and Wildlife Area [8]
59 Spring Lake State Fish and Wildlife Area [7,8,9]
60 Stephen A. Forbes State Park (a.k.a. Marion County Lake) [1,9]
61 Steward Pheasant Habitat Area (a.k.a. Shabbona Lake PHA) [3]
62 Ten Mile Creek Fish and Wildlife Area [8]
63 Turkey Bluffs (a.k.a. Mary's River Area Land Acquisition) [1]
64 Union County Conservation Area [1,8]
65 Victoria Pheasant Habitat Area [3]
66 Whitefield Habitat Area [3]
67 Wildcat Hollow State Forest [2]
68 Willow Creek Habitat Area [2]
69 Woodford County Conservation Area [8]

Priority Ranking of Sites
[1] IDNR Lands with Federal Interest (PR/DJ)
[2] Illinois Habitat Fund
[3] State Pheasant Fund
[4] State Migratory Waterfowl Stamp Fund
[5] State Furbearer Fund
[6] Non-DNR owned Lands with Federal Interest (Land Rights)
[7] IDNR Lands with Federal Interest - (NAWCA)
[8] 100% Wildlife and Fish Eligible Sites
[9] Lake Development and Major Construction Project (Boat Access) with Federal Participation (DJ only)

Appendix E: Federal Interest Sites Completed as of February 28, 2005

1. Anderson Lake Conservation Area (a.k.a West Point Wildlife Refuge) [1,4,7,8]
2. Banner Marsh State Fish and Wildlife Area [8,9]
3. Beaver Dam State Park [1]
4. Bradford Pheasant Habitat Area/ Hennepin Canal [3]
5. Burris Habitat Area (a.k.a. Hurricane Creek NA) [2]
6. Cache River [4,7]
7. Campbell Lake (a.k.a. Little Muddy River Project Area) [1,4]
8. Clifton Pheasant Habitat Area [3]
9. Des Plaines Game Propagation Center [8]
10. Donnelly Fish and Wildlife Area [8]
11. Double "T" State Fish and Wildlife Area [7] (a.k.a. Fulton County Goose Management Area)
12. Dublin Highlands Habitat Area (a.k.a. Elroy Pheasant Habitat Area) [3]
13. Emiquon National Wildlife Refuge [4,6,7]
14. Green River State Wildlife Area (a.k.a. Lee County Conservation Area) [1,8]
15. Hallsville Pheasant Habitat Area at Clinton Lake [3]
16. Helfrich Game Propagation Center [8]
17. Herschel Workman Habitat Area [3]
17. Herschel Workman Habitat Area - Addition [3]
18. Hindsboro Habitat Area [2,3]
19. Horseshoe Lake Conservation Area [1,8,9]
20. Iroquois County Conservation Area [8]
21. Kaecker Sand Hill Habitat Area [3]
22. Lake DePue/Donnelly FWA [4]
23. Mackinaw Fish and Wildlife Area [8]
24. Manito Pheasant Habitat Area [3]
25. Marshall State Fish and Wildlife Area (a.k.a. Marshall County Refuge and Recreation) [1,7,8]
26. Marshall State Fish and Wildlife Area (Sparland Unit) [7]
27. Marshall State Fish and Wildlife Area (a.k.a. Spring Branch Refuge) [1,8]
28. Marshall State Fish and Wildlife Area (Duck Ranch Unit) [7]
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31. Mermet Lake Conservation Area [1,8]
32. Milroad Marsh Fish & Wildlife Area [4]
33. Mt. Vernon Game Propagation Center [8]
34. Peabody / River King Fish and Wildlife Area [8]
35. Perdueville Pheasant Habitat Area @ Morraine View [3]
36. Ray Norbut State Fish & Wildlife Area [2,8]

37 Rice Lake Conservation Area [1,8]
38 Sam Dale Lake Conservation Area (a.k.a. Wayne County Conservation Lake) [1]
39 Sangamon County State Fish and Wildlife Area [2]
40 Sanganois Fish and Wildlife Area [1,7,8]
41 Saybrook Habitat Area [3]
42 Shabonna Lake [1,9]
43 Snakeden Hollow Fish and Wildlife Area [8]
44 Stephen A. Forbes State Park (a.k.a. Marion County Lake) [1,9]
45 Steward Pheasant Habitat Area (a.k.a. Shabbona Lake PHA) [3]
46 Ten Mile Creek Fish and Wildlife Area [8]
47 Turkey Bluffs (a.k.a. Mary's River Area Land Acquisition) [1]
48 Union County Conservation Area [1,8]
49 Victoria Pheasant Habitat Area [3]
50 Whitefield Habitat Area [3]
51 Wildcat Hollow State Forest [2]
52 Willow Creek Habitat Area [2]
53 Woodford County Conservation Area [8]

Priority Ranking of Sites
[1] IDNR Lands with Federal Interest (PR/DJ)
[2] Illinois Habitat Fund
[3] State Pheasant Fund
[4] State Migratory Waterfowl Stamp Fund
[5] State Furbearer Fund
[6] Non-DNR owned Lands with Federal Interest (Land Rights)
[7] IDNR Lands with Federal Interest - (NAWCA)
[8] 100% Wildlife and Fish Eligible Sites
[9] Lake Development and Major Construction Project (Boat Access) with Federal Participation (DJ only)

Project 4: *Ecological Classification of Rivers for Environmental Assessment and Management:* Stream Attribution and Model Preparation

Job 4.1: *Ecological Classification of Rivers for Environmental Assessment and Management:* Stream Attribution and Model Preparation

Status: FINAL REPORT SUBMITTED MARCH 2005 – CAE Technical Report 05/04

Budgets and Expenses

Project 1: **Enhance and Integration of Resource Information Systems to Support Wildlife Planning**

Final expenses for Project 1 through April 15, 2007:

Category	Allocation	Expenses
Personnel - Salary and Wages	39,713	39,713
Benefits	1,764	1,764
Travel	18,090	18,090
Commodities	6,888	6,888
Equipment	2,768	2,768
Contractual	107,934	107,934
Direct Costs	177,157	177,157
Indirect Costs	35,340	35,340
TOTAL (Direct + Indirect)	212,588	212,588

Project 2: Develop the mussel database as part of the Fisheries Analysis System (FAS) and link to existing INHS museum collections

Final expenses for Project 2 through September 30, 2006:

Category	Allocation	Expenses
Personnel - Salary and Wages	25,000	22,400
Benefits	7,178	6,513
Travel	500	225
Commodities	823	510
Equipment	6,000	5,912
Contractual	5,500	9,400
Direct Costs	45,001	45,000
Indirect Costs	9,000	9,000
TOTAL (Direct + Indirect)	54,001	54,000

Project 3: Conservation Mapping in Support of the Comprehensive Wildlife Conservation Plan and Wildlife Conservation Strategies

Job 3.1 *Conservation Mapping – Special Funds Habitat Purchase*
Job 3.2: *GIS of State Owned, Managed and Leased Properties*

Final expenses for Project 3 through September 30, 2006:

Category	On-campus (598177)		Off-campus (598176)	
	Allocation	**Expenses**	**Allocation**	**Expenses**
Personnel - Salary and Wages	66,312	66,393	20,960	21,538
Benefits	20,418	20,143	4,638	5,015
Travel	1,000	1,190	1.000	42
Commodities	-	-	-	-
Equipment	-	-	-	-
Contractual	-	-	-	4
Direct Costs	87,730	87,727	26,598	26598
Indirect Costs	17,546	17,545	5,320	5,320
TOTAL (Direct + Indirect)	105,276	105,272	31,918	31,918

Project 4: *Ecological Classification of Rivers for Environmental Assessment and Management: Stream Attribution and Model Preparation*

Final expenses for Project 4 through September 30, 2006:

Category	Allocation	Expenses
Personnel - Salary and Wages	70,932	75,694
Benefits	20,401	20,139
Travel	5,000	3,103
Commodities	7,000	4,640
Equipment	--	--
Contractual	900	660
Direct Costs	104,233	104,236
Indirect Costs	20,847	20,847
TOTAL (Direct + Indirect)	125,084	125,087

Budget Summary – All Projects

Final expenses for All Projects through April 15, 2007

Category	Allocation	Expenses
Personnel - Salary and Wages	222,917	225,738
Benefits	54,399	53,574
Travel	24,591	22,650
Commodities	14,711	12,038
Equipment	8,768	8,680
Contractual	114,334	117,998
Direct Costs	440,719	395,718
Indirect Costs	88,053	88,052
TOTAL (Direct + Indirect)	528,867	528,865