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Enhancement and Integration of Natural Resource Information Systems in Support of Illinois' Comprehensive Wildlife Conservation Plan

(Project: T-17-P-1; Amendment #2)

Final Progress Report 2009

Project 2 – Mapping of Illinois Department of Natural Resources'
Owned, Managed, and Leased Properties

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Project 2 – Mapping of Illinois Department of Natural Resources’ Owned, Managed, and Leased Properties

Background

The Owned, Managed, and Leased Properties (OMLP) project was initiated in the fall of 2003 and is an on-going effort. The main tasks during the first two phases of the OMLP project, initiated under State Wildlife Grants T-03-P-001 and T-02-P-001, were to establish procedures and standards for data capture and management into a GIS framework, and to create a geospatial geodatabase for IDNR properties acquired with federal and dedicated funds (e.g. Habitat, Pheasant, Migratory Waterfowl Stamp and Furbearer funds). This early focus was needed as no way existed that would guide the planning of conservation practices allowable on those properties. Once the special funds’ properties are completed, mapping work will be continued on the remaining state properties.

The geodatabase created for the OMLP project contains property boundaries at the parcel level and has been designed with the capability of mapping outer extent property boundaries, interior parcel lines, easement boundaries, lease boundaries, and land use information. A large portion of the mapping project has involved the thorough researching of existing paper and database records for each property. Extensive paper records have been collected over the years and each file has to be reviewed for relevant and critical historical information concerning appropriate uses and limitations on conservation practices inherent in each property. Most properties consist of multiple parcels; some of the more complex properties have hundreds of parcels.

Under this proposal, the GIS mapping of the IDNR OMLP data will continue as work progresses on recording of all remaining properties into the standardized and accurate geodatabase structure that was developed during the first two phases of the mapping project. Properties that were prioritized lower in the immediate needs schedule will be mapped during this third Phase of the project. As part of this project, a procedure manual outlining methodology and associated protocols using ESRI’s ArcGIS software has been developed. This procedure manual will institutionalize the maintenance of the OMLP database and the inputting of new property acquisitions into the existing geodatabase. This will ensure that the OMLP information will be kept current and accurate, as existing IDNR staff will have their workloads adjusted to accommodate the OMLP database day-to-day housekeeping tasks. This institutionalization is critical to maintaining up-to-date property boundaries for the accurate tracking of conservation management practices on all IDNR owned and leased properties. The procedure manual will be updated as needed, during additional phases of this project.

To maximize its usefulness as information and planning tool, the OMLP database has been designed for integration with other agency databases. This will facilitate coordinated conservation management activity efforts within IDNR in support of the Comprehensive Wildlife Conservation Plan.

Procedures and Results

An OMLP GIS database with property boundaries and associated management information was created using ArcGIS software. Appendix A shows the basic design structure of the OMLP GIS database. 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. The OMLP geodatabase is housed on an IDNR computer in Springfield and managed by Charlie Foor. The geodatabase with IDNR properties completed through this third Phase of the project has been copied to a CD and provided to IDNR and USFWS with this report. Version 1.0 of the OMLP User Manual is also included on this CD. During subsequent phases of the project, additional properties will be added to the OMLP geodatabase.

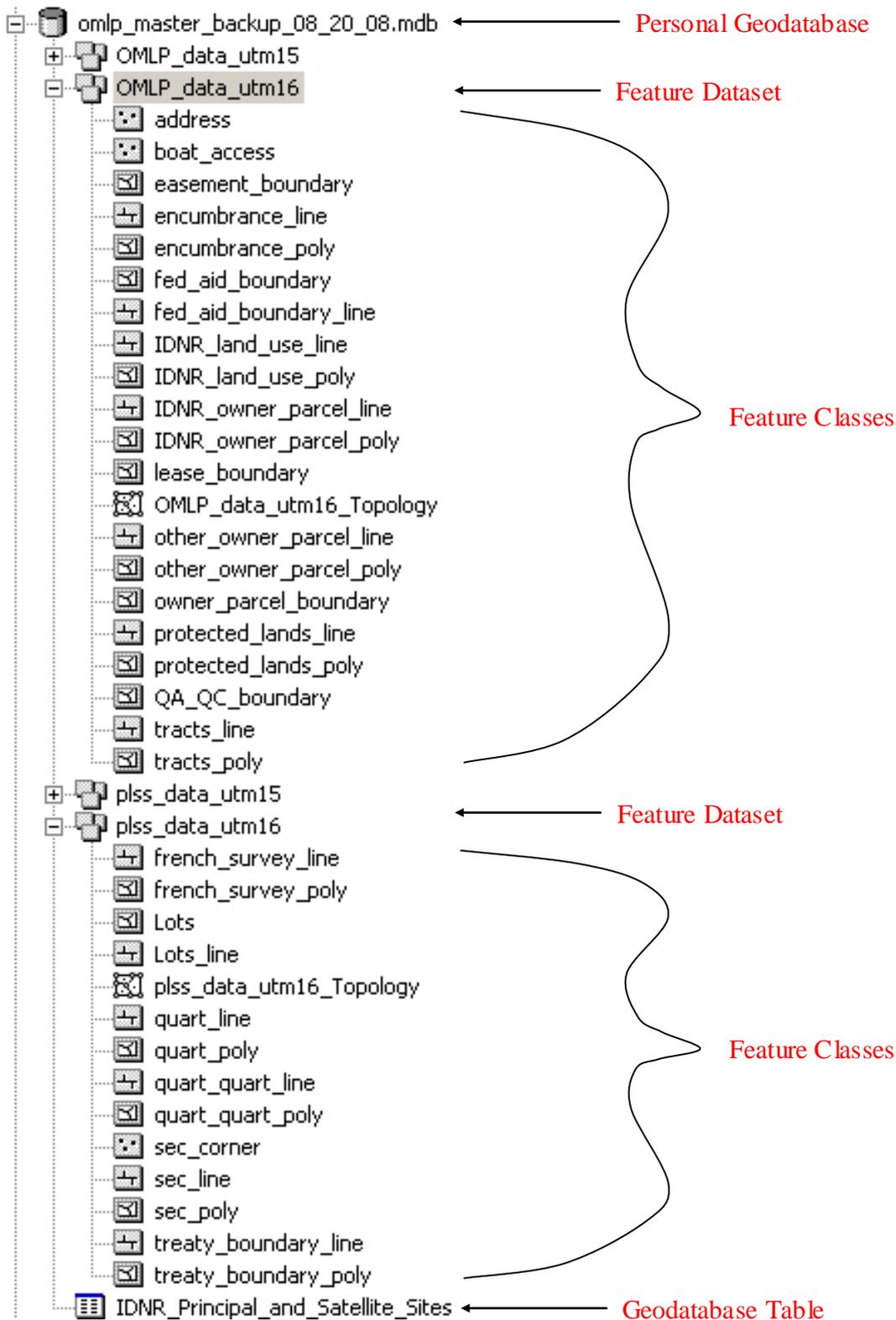
Each property required thoroughly researching existing paper and database records for relevant and critical historical information at the offices of IDNR in Springfield. Personnel had to become familiar with the organization and format of the property documents. A data source checklist for researching realty paper files for each site is listed in Appendix B. An outline for the OMLP input methodology is listed in Appendix C. A step-by-step procedure for accurately and consistently digitizing all aspects of each property has been developed and implemented (see User Manual, Version 1.0 included on CD). 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 geodatabase as well as updated versions of the user manual.

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. 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. 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.

The IDNR Land and Water Report for June 30, 2007 lists 338 conservation-related properties which the department owns, manages, or leases, including state parks (66), conservation areas (20), fish facilities (4), natural areas (112), fish and wildlife areas (47), wildlife areas (2), trails and greenways (5), memorials (1), boat access areas (7), recreation areas (5), forests (7), game propagation centers (3), tree nurseries (2), habitat areas (36), other departmental properties (17) and museum properties (4). A total of 146 IDNR sites (43%) have been completed by the end of this phase of the project, T-17-P-001. This includes 95 federal or special interest sites and 51 non-federal interest sites (Appendix D). Sixty-five sites were completed under T-03-P-001 and T-02-P-001 and 81 sites were completed under T-17-P-001. Appendix E lists the status and reason or issue for the 15 remaining federal interest sites not yet completed. The first priority during the next phase of the project (T-17-P-002) is to complete the remaining federal interest sites. Once all federal interest sites are completed, the next priority will be given to sites which fall within the 31 Conservation Opportunity Area's (COAs) and have not already been completed. A lot of time and effort will also be spent trying to complete the QA/QC process on the completed sites.

Appendix A: OMLP Geodatabase Structure

Source: GIS and Land Records: The ArcGIS Parcel Data Model by Nancy von Meyer, 2004.



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

- Lands Acquisition Database – Print land card report for each site. NOTE: 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 DOQ 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 Moles 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 – NOTE: Only need to look on microfilm if no paper copy is located. (microfilm machine is located in Kevin's office)
- Site files – NOTE: May contain more deeds than the deed file in central files. (by windows, on either side of the copier).
- Acquisition Plats – NOTE: 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 – NOTE: 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 - NOTE: 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 Land and Water Reserve. (INPC master files located 3rd floor central area by copier)
- Land and Water Report – Compare total acreage on in report to Access database report (land card). NOTE: If they do not match it raises a red flag.
- State Archives – NOTE: May need to go to the archives if no deed information was located in Realty files.
- County Recorders Office - NOTE: May need to go to the county recorder's office if no deed information was located in Realty files or the State Archives.

Appendix C: 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 fourth 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 be 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 two.
- 16 Both personal Geo-databases will be reconciled to 100% coincidence on a weekly basis by the SDE / Data Manager.

Appendix D: Completed IDNR Owned, Managed, and Leased Sites

- 1 Anderson Lake^{1 4 7 8}
- 2 [Apple River Canyon](#)
- 3 Argyle Lake⁹
- 4 Banner Marsh^{8 9}
- 5 Beaver Dam¹
- 6 [Berryville Shale Glade](#)
- 7 Big Bend^{2 4}
- 8 Big River⁹
- 9 Birkbeck³ **(New site as of 6-21-06)**
- 10 [Black Crown Marsh](#)
- 11 Bradford³
- 12 [Briscoe Mounds](#)
- 13 [Brown Barrens](#)
- 14 [Burnham Greenway](#)
- 15 Cache River^{4 7}
- 16 Campbell Pond^{1 4}
- 17 Chain-O-Lakes State Park^{1 9}
- 18 [Channahon](#)
- 19 [Chauncey Marsh](#)
- 20 Clifton³
- 21 Clinton Lake^{7 9}
- 22 Coffeen Lake^{8 9}
- 23 Copperhead Hollow
- 24 [Cypress Pond](#)
- 25 [Deer Pond](#)
- 26 [Des Plaines](#)
- 27 Des Plaines Game Propagation Center⁸
- 27 Dickson Mounds Museum
- 28 Donnelly⁸
- 29 Double "T"⁷
- 30 Dublin Highlands³
- 31 [Edward R. Madigan](#)
- 32 Emiquon⁴
- 33 Fort Massac⁹
- 34 Friends Creek²
- 35 [Fults Hill Prairie](#)
- 36 [Gebhard Woods](#)
- 37 [Giant City](#)
- 38 Gifford³ **(New site as of 6-21-06)**
- 39 [Goose Lake Prairie](#)
- 40 [Gooseberry Island](#)

- 41 Green River^{1 8}
- 42 [Guthrie Cave](#)
- 43 Hallsville³
- 44 [Harlem Hills](#)
- 45 [Harry "Babe" Woodyard](#)
- 46 Hegewisch Marsh⁶
- 47 Heidecke Lake Fish and Wildlife Area⁹
- 48 Hennepin-Hopper Lake^{6 7}
- 49 [Henry Allan Gleason](#)
- 50 Herschel Workman³
- 51 Hindsboro^{2 3}
- 52 [Hitts Siding Prairie](#)
- 53 Horseshoe Lake - Alexander^{1 8 9}
- 54 Hurricane Creek²
- 55 Iroquois County⁸
- 56 Iroquois Woods
- 57 [Jake Wolf Memorial Fish Hatchery](#)
- 58 James H. Helfrich Game Propagation Center⁸
- 59 Johnson-Sauk Trail⁹
- 60 Kankakee River⁹
- 61 [Kankakee River Dam](#)
- 62 Kickapoo⁹
- 63 Kidd Lake Marsh⁷ **(New site as of 6-21-06)**
- 64 Kinkaid Lake⁹
- 65 Lake DePue⁴
- 66 Lake Le-Aqua-Na⁹
- 67 Lake Murphysboro⁹
- 68 [Lake Renwick Heron Rookery](#)
- 69 Lincoln Trail⁹
- 70 Little Grassy Fish Hatchery⁹
- 71 Little Rock Creek² **(New site as of 6-21-06)**
- 72 [Long Run Seep](#)
- 73 Mackinaw River⁸
- 74 Manito³
- 75 [Manito Prairie](#)
- 76 Marshall^{1 7 8}
- 77 [Mason State Tree Nursery](#)
- 78 [Matthiessen](#)
- 79 Maytown³
- 80 Mazonia-Braidwood⁸
- 81 [McClure School Shale Glades](#)
- 82 Mermet^{1 8}

- 83 [Middle Fork](#)
- 84 Milk's Grove ² **(New site as of 6-21-06)**
- 85 [Millhurst Dam](#)
- 86 [Millhurst Fen](#)
- 87 Milroad Marsh ⁴
- 88 Mississippi Palisades ⁹
- 89 Momence Wetlands ⁹
- 90 [Moraine Hills](#)
- 91 [Moraine View](#)
- 92 Morrison-Rockwood ⁹
- 93 Mt. Vernon Game Propagation Center ⁸
- 94 Newton Lake ^{8 9}
- 95 [Old Plank Road](#)
- 96 Peabody River King ⁸
- 97 Perdueville ³
- 98 Pere Marquette ⁹
- 99 [Prairie Bluff](#)
- 100 Prairie Ridge – Jasper ¹¹
- 101 Prairie Ridge – Marion ¹¹
- 102 Pyramid ⁹
- 103 Randolph County ⁹
- 104 Ray Norbut ^{2 8}
- 105 Red Hills ⁹
- 106 Rice Lake ^{1 8}
- 107 Rock Cut ⁹
- 108 [Rockton Bog](#)
- 109 [Sahara Woods](#)
- 110 Saline County ⁹
- 111 Sam Dale Lake ¹
- 112 [Sam Parr](#)
- 113 Sand Prairie ³
- 114 Sand Ridge ² **(New site as of 6-21-06)**
- 115 Sangamon River ²
- 116 Sanganois ^{1 7 8}
- 117 Sangchris Lake ^{2 3 4 9}
- 118 Saybrook ³
- 119 Shabonna Lake ^{1 9}
- 120 Siloam Springs ^{9 10}
- 121 [Silver Springs](#)
- 122 Snakeden Hollow ⁸
- 123 [Sparks Pond](#)
- 124 Spring Lake ^{7 8 9}

- 125 [Starved Rock](#)
- 126 Stephen A. Forbes ^{1 9}
- 127 Steward ³
- 128 Ten Mile Creek ⁸
- 129 [Thorn Creek Woods](#)
- 130 [Trail of Tears](#)
- 131 [Tunnel Hill](#)
- 132 Turkey Bluffs ¹
- 133 Union County ^{1 8}
- 134 [Union State Tree Nursery](#)
- 135 Victoria ³
- 136 Walnut Point ^{9 10}
- 137 Washington County ⁹
- 138 [Weldon Springs](#)
- 139 Whitefield ³
- 140 Wildcat Hollow ²
- 141 William G. Stratton ⁹
- 142 [William W. Powers](#)
- 143 Willow Creek ²
- 144 [Wilmington Shrub Prairie](#)
- 145 Woodford ⁸
- 146 [Yorkville Prairie](#)

NOTE: Sites in [BLUE](#) indicate non-federal interest sites.

Priority Ranking of Federal Interest 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 Developments and Major Construction Project (Boat Access) with Federal Participation (DJ only)
- ¹⁰ Hunter Heritage Funds
- ¹¹ Land and Water Conservation Fund (LAWCON)

Appendix E: Status of Remaining Federal Interest Sites

<u>Site Name</u>	<u>Status</u>	<u>Reason/Issues</u>
Carlyle Lake ^{4 8 10}	In progress. IDNR ownership parcels and boundary completed.	Majority of this site is leased from the US Army Corp of Engineers (USACE). A great deal of time and effort was spent obtaining paper records from the USACE office in St. Louis, MO during this phase of the project. Need to determine the current lease boundary from agreements and maps. This site will be completed during the next phase of the project.
Eldon Hazlett ⁹	In progress. IDNR ownership parcels and boundary completed.	Majority of this site is leased from the US Army Corp of Engineers (USACE). A great deal of time and effort was spent obtaining paper records from the USACE office in St. Louis, MO during this phase of the project. Need to determine the current lease boundary from agreements and maps. This site will be completed during the next phase of the project.
Frinfrock ⁹ (New site as of 7-17-08)	Not started.	Newer site and just haven't completed yet. This site will be completed during the next phase of the project.
Havana Field Headquarters ⁹	Not started.	Haven't completed yet. This site will be completed during the next phase of the project.
Henderson Creek ¹⁰ (New site as of 7-17-08)	Not started.	Newer site and just haven't completed yet. This site will be completed during the next phase of the project.
Illini State Park ⁹	In progress.	This site will be completed during the next phase of the project.

Kaskaskia River ^{1 8}	In progress. Federally purchased parcels completed.	None, but site is very large and complex. This site will be completed during the next phase of the project.
LaSalle Lake ^{9 10}	In progress.	This site will be completed during the next phase of the project.
Lincoln Trail Homestead ⁹	In progress.	This site will be completed during the next phase of the project.
Mississippi River ^{2 4 5 7 8}	In progress.	Majority of this site is leased from the US Army Corp of Engineers (USACE). A great deal of time and effort was spent obtaining paper records from the USACE office in St. Louis, MO during this phase of the project. Need to determine the current lease boundary from agreements and maps. This site will be completed during the next phase of the project.
Rend Lake ^{8 9}	In progress.	Majority of this site is leased from the US Army Corp of Engineers (USACE). A great deal of time and effort was spent obtaining paper records from the USACE office in St. Louis, MO during this phase of the project. Need to determine the current lease boundary from agreements and maps. This site will be completed during the next phase of the project.
Putney's Landing ⁹	Not started.	Site leased from the US Army Corp of Engineers (USACE), Rock Island, IL office. CAN'T COMPLETE SITE UNTIL DETAILED LEASE INFO IS OBTAINED FROM USACE.

Shelbyville ^{8 9}

In progress. Owned parcels researched and digitized.

Majority of this site is leased from the US Army Corp of Engineers (USACE). A great deal of time and effort was spent obtaining paper records from the USACE office in St. Louis, MO during this phase of the project. Need to determine the current lease boundary from agreements and maps. This site will be completed during the next phase of the project.

Wayne Fitzgerald ⁹

In progress. IDNR ownership parcels and boundary completed.

Majority of this site is leased from the US Army Corp of Engineers (USACE). A great deal of time and effort was spent obtaining paper records from the USACE office in St. Louis, MO during this phase of the project. Need to determine the current lease boundary from agreements and maps. This site will be completed during the next phase of the project.

World Shooting Complex ⁹

Not started.

Haven't completed yet. This site will be completed during the next phase of the project.

Priority Ranking of Federal Interest 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 Developments and Major Construction Project (Boat Access) with Federal Participation (DJ only)

¹⁰ Hunter Heritage Funds

¹¹ Land and Water Conservation Fund (LAWCON)