Illinois

1. Organizational Approach to GIT:

The Illinois Division of Forest Resources (http://dnr.state.il.us/conservation/forestry/index.htm) was a part of the Office of Resource Conservation (ORC) of the Illinois Department of Natural Resources (DNR) (http://dnr.state.il.us/) until recently. However, the Division was merged with other units within ORC in 2002 due to a combination of recent budget cuts, an early retirement program, and an ORC restructuring based on regional management, rather than a centralized approach. This restructuring has resulted in increased autonomy for ORC's five regions, and a reliance on ORC for forestry and other matters. The former forestry division has been incorporated into a new Division of Resource Protection and Stewardship. It is comprised of the Forest Ecology, Habitat Development, Natural Areas, and Biodiversity Sections. The Forest Ecology Section has only three staff, none of whom are using GIT at this time, though several parts of DNR have used GIT since the 1980's. It is expected that up to 100 of ORC's nearly 400 staff will retire before January 2003, including two Forest Ecology Section staff and the current State Forester. Future staffing of the Forest Ecology Section is uncertain due to a current hiring freeze. All field forestry personnel in ORC are supervised by Regional Resource Managers and are not located in the new Division of Resource Protection and Stewardship.

The Forest Ecology Section and ORC's field foresters have access to extensive expertise in the use of GIT through other parts of ORC and DNR more generally. Although the Forest Ecology Section does not have any GIT staff, ORC has three GIS professionals who are available to all forestry personnel on a wide variety of projects. Currently the GIS Program Manager for ORC's Technical Support Section provides technical guidance and support regarding GIT for all of ORC. It is anticipated that the Technical Support Section will hire a forestry information program manager in the future when funds are available to aid GI activities throughout ORC, including the Forest Ecology Section. In addition to the GIS Program, the District Forester in ORC Region 5 has developed GIS applications and protocols that may become a template for the rest of ORC.

All ORC foresters have access to GIS through their offices or at any of five regional GIS offices, which are equipped with GIS workstations, medium format plotters, and GPS units. There are no policies related to the use of GIT by the Forest Ecology Section, although GI protocols have existed within ORC for over five years. Benefits realized through GIT use include increases in the speed and efficiency of accessing data. An example is that some field foresters directly access GIS databases, while they previously had to access such data through a central database manager at DNR headquarters. The primary issue challenging the Forest Ecology Section at this time is the overall authorization and funding for staff hiring. Although use of GIT is encouraged and general training is offered in the use of GIS and GPS technology, there is presently no effort to provide GIT training and education for ORC forestry field staff or Forest Ecology Section staff in its usage for forestry applications. As a result, without additional staffing or contractual arrangements, staff interested in developing and using forestry GIT applications must acquire this knowledge on their own.

2. GIT Applications and Data Utilized:

The Division of Resource Protection and Stewardship uses GIS and GPS for several applications, such as maintaining lease information on agricultural lands within state properties, mapping threatened and endangered **wildlife** species occurrence, mapping Illinois Natural Areas Inventory sites (which have high quality natural communities on **state** and **private lands**), and mapping or locating other **natural resources** features. Several other parts of ORC use GIT as well. For example, ArcView™ and GPS are used with available data from DNR for several applications, including **forest assessment** and **wildlife**. ORC also uses GIS and GPS for statewide **ecosystem** based planning and management, including using

GPS to delineate boundaries of nature preserves. Although there are no GIT applications used by all foresters, a pilot version of a GIS-based **state lands** management system has been developed and is being utilized by selected staff. This system will link to other conservation mapping efforts of the department.

In addition, David Allen, a Region Five District Forester in ORC is using GIS, GPS and digital orthophotos to track planned and completed forest management activities on **state** and **private** lands in a five county district in southeastern Illinois. He has also used GIS, GPS and digital orthophotos for **fire** applications, such as planning and executing prescribed burns and maintaining historic records of burn locations. In addition, post burn evaluations are conducted to determine how well a particular burn meets objectives. GIS data used include ArcView™ shape files for property boundaries and management unit boundaries, as well as additional shape files from selected practices such as forest stand improvement; timber harvests; tree planting and fire histories. Benefits of this District Office level GIS management system include improved accuracy and efficiency in calculating acreage and producing high quality maps for management planning. ArcView™ tables can be linked to Paradox databases to provide additional information such as landowner name, address, phone number, and plan date. These databases also track practice planning and completion dates, and the amount of cost share received from various programs. This system also provides more efficient access to information about a particular property, allows data from districts to be merged and used at the regional or statewide level, and enables data to be easily summarized by county or geographic unit, such as a watershed.

Furthermore, this District Office retains an ORC wildlife biologist who is involved in an effort to incorporate data from both forestry and wildlife GIS databases. Southern Illinois University will be using some of these data to investigate spatial patterns to evaluate effectiveness of current incentive programs and adoption of new ones. Recently, integrated planning efforts between ORC foresters and wildlife biologists, and the Natural Resource Conservation Service (NRCS) have resulted in the development of a **habitat** restoration plan for land enrolled in the Wetland Reserve Program (WRP). The locations and outline of the **wetlands** were delineated using GPS and were then imported into ArcView™ to facilitate planning for the layout of forest and open land management areas. GIS allowed sharing of data and made it easier to visualize restoration alternatives, in addition to providing much higher quality maps.

It is anticipated that this District Office GIS management system will serve as a model for other ORC districts across the state. However, adoption of this system throughout ORC is hampered by the tremendous time commitment required to learn how to use the software and to digitize the information into the databases, as well as needed hardware upgrades to use GIS software and manage data.

DNR includes some of the earliest and currently has the most extensive use of GIT of any agency in Illinois state government, and is the leading natural resources agency in the state. DNR was involved in the Illinois Gap Analysis Program (GAP) for **wildlife** habitat and was the lead agency in the acquisition of statewide digital orthophotos (http://www.isgs.uiuc.edu:/nsdihome/ISGSindex.html). In addition, DNR's Natural History Survey created the Illinois **Land Cover** Database using LANDSAT Thematic Mapper (TM) imagery. (http://www.inhs.uiuc.edu/igis/illinois/index.htm). These data are used for assessment of forest cover, as base maps for more detailed mapping, and other activities. Other DNR entities also use GIS, including the Office of Realty and Environmental Planning (OREP), the Office of Mines and Minerals (OMM), the Office of Water Resources (OWR), and the Office of Scientific Research and Analysis, which contains the state's scientific surveys and the State Museum. These scientific surveys are the Natural History Survey (NHS), the State Water Survey (SWS) and the Geological Survey (ISGS). GIT programs and research under these parts of DNR include **watershed** management, mine permitting, hazardous waste, impact review, archeology, and **education**.

3. Statewide and Other GIT Linkages:

Two entities share responsibility for GIT coordination in Illinois. DNR has been the authorized statewide

GIT coordinating organization in Illinois according to legislation enacted in 1995 that also created the Illinois Geographic Information Council (ILGIC) (http://dnr.state.il.us/OREP/ilgic/toc.htm). It stipulated that ILGIC is hosted and staffed by DNR, which has a designated coordinator who serves as the lead GIT contact for the state. The Illinois Technology Office (ITO) (http://www.state.il.us/tech/) works with teams comprised of staff from multiple state agencies and outside advisors to collaboratively define strategic directions and put new applications in use. ITO has staff working on various GIS web-enabled applications. ILGIC has worked closely with ITO since it was created, and the administrative location of ILGIC is now in transition from DNR to ITO. Two additional in-state GIT groups that coordinate with ILGIC include the Illinois GIS Association (ILGISA) and the Illinois Mapping Advisory Committee (IMAC). Currently, there is no direct linkage between ORC or the Forest Ecology Section and these groups.

The DNR Geospatial Data Clearinghouse (http://www.isgs.uiuc.edu:/nsdihome/ISGSindex.html) is a gateway to GIS dataand imagery for Illinois. Over 100 available data sets and documentation (metadata) are available, including: geology, water resources, nature preserves, wildlife areas, land use, political boundaries, roads, U.S. Census Bureau information, Public Land Survey, Digital Raster Graphics files, and 1998/99 digital orthophotos. It serves as a prototype for the state. Additionally, Inside Illinois (http://WWW.STATE.il.us/state/inside/) was developed in ITO and provides a growing selection of GI, maps, and interactive mapping capabilities, as well as a GIS tutorial.