



New Mexico

1. Organizational Approach to GIT:

The Energy, Minerals and Natural Resources Department's (EMNRD) Forestry Division (<http://www.emnrd.state.nm.us/forestry/Index.htm>) is a strong user of GIT. Division GIT applications are at an individual application level, though EMNRD and the Division are moving in the direction of an enterprise-wide approach. The Technical Program Administrator serves as a focal point for GIT in the Division. Other Division personnel are learning to use GIS, but this usage is a minor role within the context of their regular duties. The Division's use of GIT focuses on private lands applications, as the State Lands Office is responsible for administering the 9 million acres of State Trust lands in New Mexico (<http://www.nmstatelands.org/Start.asp>). One GIS data server has been established in EMNRD, and MapGuide is being used to serve data to those not in GIT positions, but in periodic need of maps. Most Division GIT needs are met internally; however, the University of New Mexico's Earth Data Analysis Center (EDAC) has assisted the Division with a number of projects on a contract basis (<http://edac.unm.edu/>). This typically occurs when timing is critical and money is available to ease the load on the Division's sole dedicated GIT staff person, who also has other technology duties. The Technology Program Administrator has many roles, including but not limited to: development and maintenance of networked division-wide database management applications and data; maintenance of the Division's web site; hardware and software recommendations, training of Division personnel on use of software and equipment; development of GIT standards within the Division for data creation and storage; and development of GIT projects, general maps, and GIS analysis. GIS is currently in use in the Division's Santa Fe office, as well as its seven field offices. The scientific analyses provided by GIT use has allowed for improved decision-making processes for fuel reduction and fire suppression. The main problems facing the Division are the lack of time and money required to adequately train field staff. Scheduled work loads for GIT projects can exceed existing staff capabilities, especially during the busy fire season. Additionally, the maintenance of Division GIT hardware and software is difficult, given limitations in funding and trained staff.

2. GIT Applications and Data Utilized:

The Division uses GIT for several applications. It is currently working on compiling the geographic locations for all **fire** occurrences on state and private lands, and timber sales and cost-share projects on **private lands**, with the long range goal of supplying these coordinates to cooperators for improved management. This data will assist the Division in the analysis of current and historic program activities in relation to those occurring elsewhere by providing a spatial relationship to separate activities that could be linked for better management. For example, all timber harvest permit applications on private lands must be reviewed for culturally sensitive areas prior to the permit being granted, and would be facilitated by mapping these areas in relation to the planned harvest area. Other agencies that would benefit from such data sharing include the Natural Resource Conservation Service (NRCS), the New Mexico Environment Department, the U.S. Fish and Wildlife Service (USF&WS), and the U.S. Forest Service.

GIT has become an integral part of the Division's Fire Program, and is used for fire suppression on state and private lands. The Division maintains a database of fires as they happen, and uses GPS units to locate most fires. This allows maps to be easily created for all fire locations in the state at any given time. EDAC has also provided a platform to investigate the use of high-resolution airborne infrared imagery to provide crucial information to firefighting teams for forest fires. The Fire Perimeter Location System (FPLS) is a University of New Mexico Affiliated Research Center project, partnering EDAC, NASA, Kestrel Corporation, and the Division. One test flight was made in the summer of 2001, and it is anticipated that additional test flights will be made in 2002. The Division currently uses 1-meter and 5-meter digital orthophotos and 5-meter satellite imagery for its fire efforts. The Inmate Work Camp Program uses GPS

for measuring several project parameters, from acres thinned to miles of fire break constructed. LANDSAT and LIDAR are components in a fuel hazard mitigation model project currently in the investigation stage by the University of New Mexico Affiliated Research Center.

The Timber Management Program is increasing its use of GIT for **state lands** applications by applying GPS to many timber sale inspections. At present, GIS is being used on a limited basis for administration and project tracking in the Four Corners Sustainable Forestry program to evaluate continued project development. Furthermore, potential award of a grant proposal for the Four Corners program will provide for the use of GIS analysis in researching and following economic development of community-based forest enterprises in New Mexico, in response to an increase in the removal of small diameter material from the forests. This involves GIS analysis of several parameters, including business locations, available small timber material, and transportation distances for raw materials and finished products. Raw material would be located in a GIS from public and/or private lands under consideration for harvest in the business proposal.

The Division acquires statewide data from EDAC's Resource Geographic Information System (RGIS), which is the state's primary GI clearinghouse, as described below (<http://rgis.unm.edu>). These data include U.S. Geological Survey (USGS) digital raster graphics (DRGs), Space Imaging digital orthophotos, TIGER vector data and Bureau of Land Management (BLM) Public Land Survey System (PLSS) data. All available 1-meter digital orthophotos are being acquired under contract with EDAC as part of six forest district profiles (compressed files). Uncompressed digital orthophotos are being purchased in a statewide initiative and distributed to agencies for the cost of storage media only.

Currently, the Division uses ArcView™ 3.2 GIS in all its offices, including field offices. EMNRD is acquiring additional ESRI licenses, including ArcInfo™, and some upgrades to ArcGIS™ 8.0 are being made in the Forestry and the Mining and Minerals Divisions. The Santa Fe office also has Spatial Analyst™, Image Analyst™ and ArcPress™ software programs. With the assistance of EDAC, vector and raster data was compiled in user-friendly ArcView™ forest district profiles for the six areas of the state. With this move, all data used and created by the Division will be projected in NAD83, UTM Zone 13, a standard which is in the process of being adopted statewide. The Division uses Trimble GeoExplorer 3 GPS units, Garmin GPS II and GPS III+ units, and a DeLorme Earthmate receiver. In addition, Palm computing devices that have GPS capabilities are being explored for cost-effective data gathering of timber sale inspections, initial attack fires, landowner site visits, timber inventory and accomplishment reporting.

3. Statewide and Other GIT Linkages:

Though no authorized lead GI/GIT office, coordinator, or director exists, New Mexico has active coordination efforts underway and the RGIS Program at the University of New Mexico serves as the informal statewide lead for GI/GIT. RGIS was established in 1988 to enhance GI/GIT use and to provide a data clearinghouse (<http://rgis.unm.edu>). Located at the Earth Data Analysis Center (EDAC), RGIS has conducted the majority of GI/GIT coordination, dissemination and related educational and outreach programs in the state since then. New Mexico has two primary GI/GIT coordinating groups, the New Mexico Geographic Information Council (NMGIC) and the GIS Advisory Committee (GISAC). NMGIC is a non-profit organization (<http://nmgic.unm.edu/>) that provides several coordination functions, including as a users group. The GIS Advisory Committee (GISAC) is a part of the Information Technology Commission's (ITC) Task Force to study GIS and prepare recommendations for future coordination activities (<http://rgis.unm.edu/gisac.htm>). As mentioned above, the Forestry Division receives project assistance from EDAC. In addition, the Division's Technology Program Administrator is a member of NMGIC and represents the Division in forestry matters.

The RGIS Program at the Earth Data Analysis Center, University of New Mexico is recognized as the primary clearinghouse for statewide GI (<http://rgis.unm.edu>). RGIS is an FGDC-registered clearinghouse node and hosts metadata collections for other sites, including local governments such as the City of Santa Fe and McKinley County.