



*Maine*

### ***1. Organizational Approach to GIT:***

The Department of Conservation's (DOC) (<http://www.state.me.us/doc/index.html>) Maine Forest Service (MFS) uses GIT for a broad spectrum of forest issues and applications. Maine has over 17.5 million acres of forested land, of which 96% is privately owned. Maine has the most private forest land of any state in the nation. MFS, with approximately 140 employees, provides forest protection, forest health monitoring, forest policy development and oversight, and technical assistance to owners of these private forested lands. DOC's Bureau of Parks and Lands manages the forested lands owned by the state. MFS has a full-time GIS Coordinator who assists the MFS's three divisions: Forest Health and Monitoring (FHM), Forest Policy and Management (FPM), and Forest Protection (FPD) in the use of GIT in an ever-expanding role to assess and monitor forest conditions within the state. Most GIS work is conducted and/or coordinated by the GIS Coordinator (Programmer Analyst - GIS) located in Augusta with assistance from field staff. All nine Ranger Districts of FPD, six foresters of FPM, and one entomologist of FHM have ArcView licenses. Additionally, all field staff either have or have access to a GPS receiver. The benefits of GIS use were strongly demonstrated to help respond and recover after the 1998 ice storm, which caused damage on over 11 million acres of forest land. While there had been previous efforts to secure funding for a dedicated person for GIS, ice storm assessment and recovery work increased the demand and justification to establish and fund a GIS position. A key benefit of using GIS today is to help MFS make and communicate informed decisions about Maine's forests. Key GIT issues include meeting demand for GIS products, providing sufficient training to accomplish desired results, and ensuring that staff utilize this technology to more effectively accomplish their missions.

### ***2. GIT Applications and Data Utilized:***

MFS's GIS use grew significantly as a result of the ice storm damage assessment in 1998. One of the first roles of the newly hired GIS Coordinator was to address the heightened concern about and risk of **wildland fire**, and specifically to document the increased incidence of fuel buildup on the ground. MFS provided maps to towns in the damage foot print, and each town provided information about the fuel on the ground. The maps and data were compiled and compared with information from aerial photos, and the overall results were distributed widely. Forest landowners use the maps and information in their land management plans. Today, all three divisions utilize GIS products through work conducted by the GIS Coordinator or field staff. There has been limited use of remote sensing other than aerial photography and available digital orthophotography, though there is strong interests in using satellite imagery to inventory fuels to help address wildland fire needs, including on a real time basis. MFS uses GPS extensively for several applications, including locating individual forest lands as part of **forest assessment** efforts and locating wildland fire resources, such as fire stations and equipment. These data are then used with GIS to determine appropriate routing to an incident. GPS also is used in legal and regulatory matters, such as locating and documenting arson and other fires, **water quality** problems, and issues involving **private lands** such as timber trespass. Problem areas, patterns and risks can be identified with GIS, and in turn addressed, such as allocating resources in proportion to documented needs.

The Forest Policy and Management Division (<http://www.state.me.us/doc/mfs/fpmhome.htm>) provides assistance and education to the public and landowners. Field foresters use GIS to assist in enforcing the rules of the Forest Practices Act (i.e., determining clearcut size, location, and separation distances), and assessing **water** quality, shoreland zoning, and watershed analysis pertaining to forest operations. Other GIS projects include assisting **private landowners**, watershed councils, and other agencies and groups in **wildlife** efforts, such as the restoration of the Atlantic Salmon in Maine, and **educating** landowners to make informed decisions about Maine's forests.

The Forest Health and Monitoring Division (<http://www.state.me.us/doc/mfs/idmhome.htm>) assesses insect and disease infestations and general **forest health**. Aerial surveys combined with ground plots allow FHM staff to map the extent and degree of infestation, detect and monitor current and potential insect, disease, and other environmental stresses on the forest; and report on forest health information to the affected publics. GIS projects include enforcing state and federal quarantine laws (i.e., for Hemlock Woolly Adelgid, Gypsy Moth, European Larch Canker, White Pine Blister Rust), assisting the city of Portland in studying mosquito populations (West Nile Virus), and assisting towns in Casco Bay (i.e., Freeport, Harpswell) to determine the extent of the browntail moth population for controlling and spraying. Historical spatial (and associated spray) information pertaining to the spruce budworm infestation and management efforts of the 1970's and 1980's is being incorporated into GIT.

The Forest Protection Division's (<http://www.state.me.us/doc/mfs/ffchome.htm>) primary objective is to provide **fire** and resource protection to Maine's forested land. Most of MFS's staff is located in this Division. It includes forest rangers whose primary role is to conduct fire prevention, training and assistance, detection, pre-suppression, suppression, and resource protection and law enforcement of all forestry statutes. GIS projects include georeferencing current and historical fire occurrence data (1967 - 2000). Older fire data (pre-1967) will also be incorporated as it becomes digitally available. By understanding the location and source of the fires, geographic patterns are becoming recognized and used to help allocate staffing based on these patterns, risk and needs. FPD is in the initial stages of incorporating the complaints (ranging from boughs/tips to burning to timber theft) database into GIS.

The GIS Coordinator also actively provides GIS assistance through MFS to the Northeastern Forest Fires Protection Commission (NFFPC) (<http://www.nffpc.com>), which is the fire compact for the six New England states, New York and the Provinces of New Brunswick, Quebec and Nova Scotia. NFFPC's mission is to coordinate the sharing of Compact agency information, technology and resources in order to prevent and control forest fires in an effective, efficient manner throughout the Compact area. There is increasing attention to homes that are being built in "wildland" areas or the wildland-urban interface (WUI), where fire risk is higher and fuels are more likely to ignite. Aided by the GIS Coordinator through MFS and with USDA Forest Service funding, the Compact is using GIS to analyze fire occurrence, fire values, and fire hazards in the WUI within each state and across the Compact region.

### ***3. Statewide and Other GIT Linkages:***

MFS partners include other state agencies, local governments, USDA Forest Service, Atlantic Salmon Commission, and NFFPC. Statewide, GIT coordination and information is provided by Maine's Office of Geographic Information Systems (MEGIS) (<http://apollo.ogis.state.me.us>). MEGIS was created by statute and has been operational from within the Bureau of Information Services (BIS) of the Department of Administration and Financial Services since 1994, and before that, in the Department of Conservation since 1985. Maine has several groups important to statewide GI/GIT coordination, including the Executive Council for GIS (GIS EC), which oversees the operation of MEGIS and development of a statewide GIS. A GIS Technical Committee and various subcommittees aid the Council. In addition, a GIS Steering Committee was established by statute in 2001 to help design an approach to assist municipalities in developing and using GIS to track development and promote smart growth. The GIS Coordinator attends technical subcommittee meetings relating to forestry issues. The Maine GIS Users Group (MEGUG) (<http://www.megug.org>) is a users group with broad membership that exists with the purpose of encouraging coordinated development and effective use of GI/GIT. MEGIS works on behalf of GIS Executive Council agencies, including DOC, to publish geographic data and metadata. These data layers and associated metadata are available for downloading from MEGIS's website. MFS's GIS Coordinator participates in the GIS Technical Committee, various subcommittees and MEGUG when he has time available and can attend meetings that don't conflict with his internal work and schedule.

