

Chapter 6: Resource Assessment

Minnesota has more than 16 million acres of forests. Foresters' day-to-day work of planting, thinning, and harvesting this huge patchwork of lands would be impossible without a continuous, large-scale effort to record the constant natural and human-caused changes that occur. This is the job of DNR Forestry's resource assessment staff.

Many Tools

More than one kind of information is needed to manage forests, and no single tool is adequate for providing that information. Policymakers need strategic inventory information that describes broad statewide conditions and trends. Field foresters, on the other hand, require information on individual stands of trees and what actions have been taken or planned for particular tracts. For both kinds of inventory, some data can only be collected on the ground, some can be more economically gathered from the air, and some are most efficiently obtained from earth-orbiting satellites.

Walking the Woods

Summer and winter, spring and fall, inventory foresters with pocket computers and global positioning system (GPS) location gear travel the woods gathering data for



Photo: Minnesota DNR

An inventory forester uses a glass prism to find out if a tree belongs in the sample.

the **Forest Inventory and Analysis (FIA)** system. Run by the U.S. Forest Service, FIA has been America's strategic forest inventory system since the 1930s.

In Minnesota, DNR handles fieldwork for FIA and for the federal **Forest Health Monitoring** system, both of which are based on a grid of permanent, intensively measured field plots. Minnesota's innovative approach to strategic inventory, particularly its use of satellites, helped point the way to changes now taking effect nationwide in these flagship programs.

Aerial Photos

Aerial photography has been a standard forest inventory tool for 70 years. DNR Forestry's aerial photography program provides state, federal, county, and private foresters with valuable information on the structure and pattern of forest vegetation. Color infrared film helps interpreters distinguish vegetation types. Photos are turned into digital images and made available to the public on DNR's Airphotos Online Web site (www.dnr.state.mn.us/airphotos).



Photo: Minnesota DNR

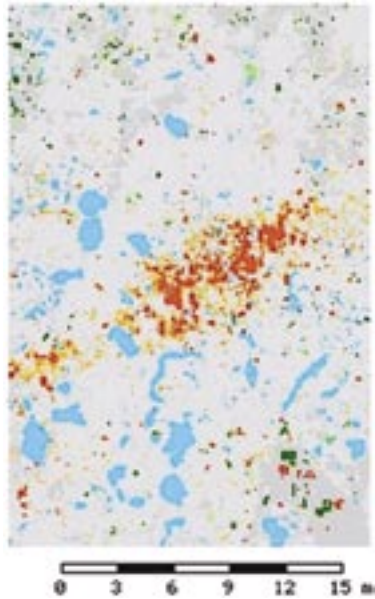
High-resolution aerial photos reveal details of vegetation.

The Interagency Information Cooperative was created by the Minnesota Legislature in 1995 to provide a central resource for developing and sharing data on Minnesota forest resources. Members include the DNR, Land Management Information Center, Minnesota Association of County Land Commissioners, U.S. Forest Service, and University of Minnesota. Visit www.iic.state.mn.us for more information.

Ecological Classification System. Years ago, forest management focused on logging, and resource assessment focused on trees. Today we value the spectrum of benefits a forest provides, including recreation and ecological integrity as well as timber. As a result, old ways of describing forests—revolving around tree species, size, and other characteristics—are no longer sufficient.

To meet new needs, DNR staff now classifies Minnesota lands under the Ecological Classification System (ECS), a nationwide system that considers a variety of characteristics of an area, including climate, geology, topography, hydrology, soils, and vegetation. Under the ECS, land is divided into categories at various levels of resolution. From largest to smallest, they are domain, division, province, section, subsection, land-type association, land type, and land-type phase.

In the short term, DNR Forestry plans to use ECS classifications to guide management of trees and other forest plant life. In the longer term, the classifications will figure into activities for other areas as well, including fire management, private landowner advising, and recreation planning.

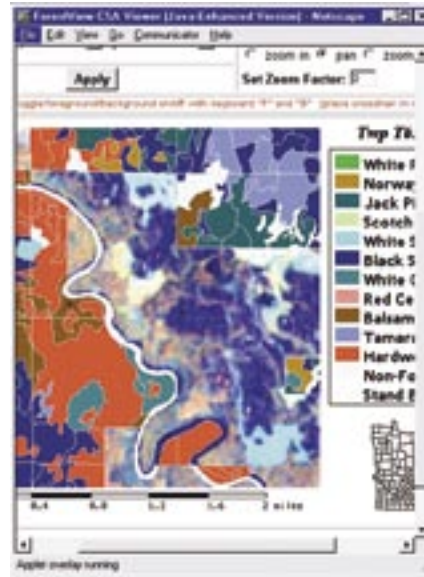


A 1995 satellite image shows a swath of wind damage (red and orange) near Lake Itasca.

Images From Space

DNR Forestry is helping to research and develop the application of space-based remote sensing to forestry. Satellite images can be used to detect changes in the forest. A mapped instance of change may be as small as two acres. Images potentially could be used in programs that monitor forest harvesting practices and detect impact of forest harvests on waterways and other sensitive ecosystems.

Results of classification efforts in Minnesota are available as maps, databases, and in the new *Field Guide to the Native Plant Communities of Minnesota: The Laurentian Mixed Forest Province*. For more information see www.dnr.state.mn.us/ecological_services/pubs_plants.html.



ForestView and other Internet resources present current Minnesota forestry data to all interested persons.

Keeping Taxpayers Informed

DNR has a responsibility to keep all citizens informed of the condition of the more than 5 million acres of land it manages. The Web-based information system ForestView (www.ra.dnr.state.mn.us/forestview/fvj.html), developed by DNR and the University of Minnesota, puts the state's entire **Cooperative Stand Assessment** management inventory—the main source of information on DNR-managed forest lands—online, giving every member of the public access to detailed inventory data. A parallel system displays DNR Forestry's timber harvesting plans at www.dnr.state.mn.us/forestry/harvesting/plans.html, and allows for public comment on them. These systems are unique in the United States in the degree of public involvement in forest management they provide.