RESOURCE NOTES

Forest Vegetation Information System

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Background

The Forest Vegetation Information System (FORVIS) is a system for storage, retrieval, and analysis of both tabular and spatial data about forest lands. The focus of the system is the management of attribute data about vegetation polygons and about associated land management events. The system provides data management and analytical capabilities for inventorying and monitoring vegetation on forested uplands. Using the full capability of the system, FORVIS data:

- describes existing vegetation;

- classifies sites relative to current condition, potential vegetation, and site productivity;

- provides data to run forest growth and forest structure models;

- provides inputs to wildlife habitat models;

- describes landscapes;

- quantifies forest products;

- aids developing silviculture or forest restoration treatments; and

- provides a record of treatments and disturbance events.

Discussion

An accurate map of the existing vegetation is an essential part of the system. The basis for data collection and storage is the forest stand (or polygon) - a mapped unit of existing vegetation. Each polygon is given a unique identifier and all data are linked to the map via the polygon identifiers. Resource management applications depend on the GIS for analytical and reporting capabilities which bring together FORVIS and non-vegetation data such as legal description, elevation, land use allocations, watershed delineations, hydrography, and ownership.

FORVIS allows broad, general vegetation descriptions where funds for inventory are limited and where resource value is low. It also allows more detailed descriptions of species attributes, forest structure, and understory vegetation where the resource values warrant. The system accommodates three sources or levels of data describing vegetation. The sources are (1) photo interpretation, (2) walkthrough survey, and (3) plot measurements (stand examinations). The presumption is that data interpreted from aerial photographs is inherently less detailed than data derived from measuring vegetation on sample plots. Walkthrough data are estimated or observed while visiting the site but lack a rigorous sampling of the vegetation.

When plot measurements are taken, projections of temporal change and vegetation treatment effects are possible using the U.S. Forest Service's Forest Vegetation Simulator and Stand Visualization System (FVS). The data are formatted and organized for direct input to FVS. There is a table for selected calculated (output) data elements from FVS.

FORVIS includes data about vegetation treatments and events. The purpose of these data is to track vegetation treatment history, treatment needs, vegetation survey history (including regeneration surveys) and disturbance events (fire, wind, insects, and disease).

FORVIS uses Informix as the database managing software and ArcView as the geographic information system (GIS) software. The program is menu driven. Menus offer the options to query, add, update, and delete items in the database.

The FORVIS extension to the ArcView graphical user interface provides enhancements to the standard ArcView menu bar. The extension allows access to the full functionality of the FORVIS program. You may edit, update, add, and delete data from all tables without exiting ArcView.

FORVIS enhances, integrates, and expands the functions found in several manual and automated processes used by field offices in forest management. Before the implementation of computers, stand examination data or stand inventories were manually summarized and the data stored in file cabinets. In the past 20 years, each BLM State organization has used some version of an automated system, usually referred to as a stand information system, for processing stand examination data. Some systems were on the BLM mainframe computer, some were on the U.S. Forest Service mainframe computer. Some offices developed personal computer systems. Most automated capability is no longer maintained or was lost in the BLM Modernization move to UNIX. The FORVIS database is a repository for the data from the paper records or the various automated efforts of the past. FORVIS increases automated functions for management of BLM forest

land beyond the timber emphasis of the past.

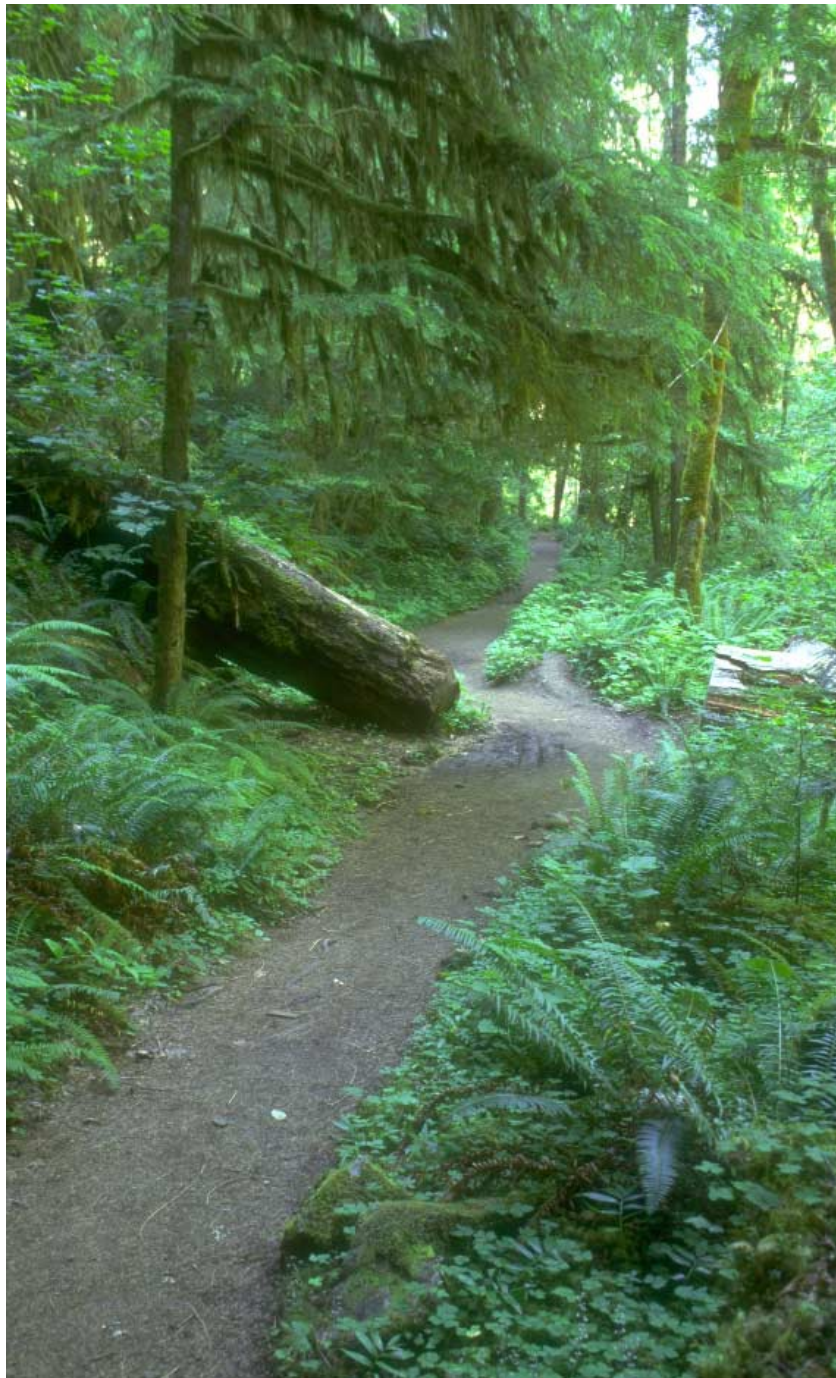Prior to the advent of GIS, foresters manually maintained a Timber Atlas with maps and codes describing the forest in terms useful for producing timber products. The ArcView extension for FORVIS provides an automated version of the timber atlas.

A user group identified the data requirements and functions needed.

FORVIS was prototyped at the National Science and Technology Center. Following the prototype review, a beta version for the UNIX operating system was developed. The beta version was tested in Montana, New Mexico, and Colorado. The user group reviewed the beta version, made data element changes, and requested development of a version for the MICROSOFT NT operating system now used by BLM. The NT version will be completed in fiscal year 2001.

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