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APPLICATION OF LANDSAT AND OTHER DIGITAL DATA IN MAPPING SITE WRITEUP AREAS

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ABSTRACT

A cooperative project of the EROS Data Center and the Bureau of Land Management explored the feasibility of using Landsat multispectral scanner (MSS) data and digitized ancillary data for pre-inventory mapping of units called site writeup areas (SWA). Landsat MSS data were employed in developing a plant community type map of the 594,000 hectare (1.5 million acre) Grass Creek Resource Area (GCRA) near Worland, Wyoming.

Digital terrain data, obtained from the Defense Mapping Agency, were used to improve the vegetation classification. The twenty-one class vegetation map, digital terrain data, digitized soils boundaries, and digitized administrative boundaries were entered into a geographically-referenced data base for the GCRA. All input images were registered to a common Universal Transverse Mercator system with 50 meter grid cells.

An application model was developed to merge and integrate the digital data for mapping soil/vegetation landscapes in the GCRA. In this approach, soil types are aggregated to dominant range sites and then merged with administrative boundaries to form pre-SWA polygons. Vegetation classes are aggregated within range site groups, according to eight sets of decision rules, to form "vegetation groups". These groups are indicators of ecological (successional) stages of the natural vegetation. Finally, the pre-SWA maps are overlaid with "vegetation groups" to map SWA units greater than specified minimum mapping area. The final step can be accomplished either by: (1) displaying the raster data and manually mapping SWA polygons; or (2) by merging the two raster files and plotting the SWA polygons with computerized plotting routines.

This poster session is designed to show the flow of digital data into a geographic information system, to present the application model employed in mapping SWAs, and to exhibit products prepared for field evaluation and use. The project results demonstrate the potential for merging Landsat-derived vegetation information, soils boundaries and ancillary data for mapping soil/vegetation landscapes of significance to land management agencies. Costs of establishing the digital data base and the map products are explained.