Reprinted from

Symposium on

Machine Processing of

Remotely Sensed Data

June 27 - 29, 1979

The Laboratory for Applications of
Remote Sensing

Purdue University
West Lafayette
Indiana 47907 USA

IEEE Catalog No.
79CH1430-8 MPRSD

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APPLICATIONS OF LANDSAT DATA FOR RESOURCE INVENTORIES ON FEDERAL LANDS IN THE WESTERN UNITED STATES

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The U.S. Bureau of Land Management (BLM) and NASA have been involved in a program over the past three years to evaluate the applicability of utilizing Landsat digital data for the inventory and mapping of natural resources on BLM managed lands in the Western U.S. As part of this program, a 1,215,000 hectare (3 million acre) area in southwestern Idaho is currently being analyzed to obtain an inventory of wildland vegetation for rangeland management. Within this area approximately 101,250 hectares (250,000 acres) are being studied for soils using digital data obtained from Landsats 2 and 3. The current results of this soils effort will be discussed.

The area selected for the soils study site is both topographically and geologically diverse. Elevations range from about 700 meters (2300 feet) in the lowlands around the Snake River plain to over 2,135 meters (7000 feet) in the mountain and plateau areas to the southwest. Precipitation ranges from about 15.2 cm (6 in) in the lower areas to over 35.5 cm (14 in) in the higher terrain. The area consists of soils that have been derived from granitic and volcanic bedrock, fluvial and lacustrine sediments, loess, and alluvial fan deposits. Changes in natural vegetation in this area can be correlated generally to changes in soil type. Field investigations have been conducted to correlate the spectral classification with representative soils at various test sites. The spectral soil characteristics identified by Landsat data may serve as a useful tool in expediting the work of field crews. This information also may be applicable to other types of broad resource planning.