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Mapping leafy spurge communities from aerial photography

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Landowners, managers, and administrators have expressed the need for more information on the inventory and assessment of leafy spurge. These needs have been expressed in the form of three questions. (1) Where is the leafy spurge located? (2) How many acres are there? (3) What is the cost of an inventory? To help answer these questions a study was started to determine the feasibility of mapping leafy spurge communities using aerial photography.

This study is one phase of a larger, overall research study¹ in progress at the U.S. Forest Service, Rocky Mountain Forest and Range Experiment Station (Fort Collins, Colorado and Rapid City, South Dakota) that is looking at the inventory and analysis of leafy spurge sites. This feasibility study utilizes quantitative ground data and remote sensing techniques to: (1) Develop a quantitative approach to leafy spurge community description; (2) Determine the feasibility of mapping areas for leafy spurge infestations; and (3) Determine select soil-site relationships of leafy spurge.

Dick Myhre is working on the techniques for using aerial photography to locate and map leafy spurge infestations (Objective 2). Myhre was previously with the Rocky Mountain Station and has recently been reassigned to a Forest Pest Management unit, the Methods Application Group in Fort Collins, Colorado.

The test is comparing photo scales (1:16,000; 1:24,000; and 1:32,000), film types (color and color-IR), and seasons (peak flowering and fall coloration) to determine the combination(s) best suited for large area surveys. The aerial photography and ground data used in the study were acquired in the Devils Tower, Wyoming area.

Results of this study will be used to recommend scale/film/season combinations for inventories, accuracy and cost trade-offs between medium and small scale photo surveys, and the amount of accuracy that can be obtained for acreage estimates. The anticipated final product from this phase of the study (Objective 2) should be a users guide/handbook covering aerial photo specifications for acquiring photography, photo interpretation techniques, training aids (color stereo photos), photo interpretation aids, etc.

If time and money are available, this work should be completed by spring 1984.

¹ An abstract of the overall study, "Inventory and Analysis of Leafy Spurge Sites" by R.E. Francis, M.J. Morris, R.J. Myhre, D.L. Noble, and P.W. Skinner appears in the proceedings of "In-Place Resource Inventories: Principles and Practices", a national workshop, Orono, Maine, published by Society of American Foresters, Washington, D.C., 1982.