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E7.4-10372
CR-137069

TYPE I PROGRESS REPORT

January 1 - February 28, 1974

- a. Land Use Management in Minnesota #283.
- b. Joseph E. Sizer (ST-360).
- c. There have been no changes in the rate of receipt of standing order materials and retrospective requests.
- d. Wildlife Habitat Change and Seasonal Cultivation

The use of ERTS-1 imagery as a tool in wildlife management evolved from the periodic mapping of plowed ground. The cultivated class of agricultural land was defined by aggregating the periodic plowed ground maps. To date, we have mapped the plowed ground conditions in seven study townships in West Central Minnesota. The seven study townships were selected by personnel from the Minnesota Department of Natural Resources (DNR) and maps have been prepared for the fall, 1972, spring, 1973 and fall, 1973 plowing periods.

In the next reporting period, we will be involved in the completion of spring 1974 plowed ground maps and we will carry out a user evaluation of the product. Mr. Thomas Isley, DNR Wildlife and Game Biologist, is cooperating in the user evaluation. In a recent meeting with Mr. Isley, the structure of the evaluation was defined. In order to satisfy user questions concerning the ERTS-1 based maps of cultivated land, the evaluation will consider cost, timeliness of data, accuracy of interpretation, interpreter variance, and locational accuracy. The test area will be expanded to include four additional townships from South Central Minnesota. These additional townships will be mapped for comparison with DNR maps made from existing 35 mm, light aircraft, photography. This comparison of ERTS-1 based maps with the DNR maps will answer the questions of accuracy of interpretation and locational accuracy. The degree of interpreter variance will be analyzed using interpreters with a range of experience with ERTS-1 materials. This phase will be completed in approximately six weeks; at which time, Mr. Isley will cooperate in the preparation of a technical report that will evaluate the ERTS-1 products in terms of DNR's needs.

The projected cost comparisons provided in the Type II report of January 20, 1974 will be redone. Preliminary evaluation of the cost comparisons by DNR personnel indicates that, while some details disagree with their figures, the total cost comparisons are very close.

DNR has also expressed interest in a future application of ERTS-1 imagery for use in the mapping of residual snow cover.

(E74-10372) LAND USE MANAGEMENT IN MINNESOTA Progress Report, 1 Jan. - 28 Feb. 1974 (Minnesota State Planning Agency, St. Paul.) 3 p HC \$4.00

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Twin Cities Metropolitan Land Use Mapping with ERTS-1 Imagery

One of the major problems of mapping metropolitan development with ERTS imagery is the detection threshold of fringe area development. With the imagery used thus far we have been able to map built-up areas with densities of 20 units per 40 acre cell (about 2 acre lots).

We have recently received several dates of high quality color combined images and are attempting to lower the detection threshold by copying 2" x 2" slides of very small areas (about 1:1 ratio) and projecting these at 1:62,500 or 1:24,000 scales on topographic maps. Initial evaluation indicates that more detail is discernable from these slide projections than when larger image areas are copied on slides and enlarged by a greater factor in the projection. The optimal season(s) will be defined and revision of the urban fringe areas will be carried out in the next reporting interval.

Once the fringe area is remapped, the accuracy will be evaluated and if adequate, a final map will be produced. Maps of land use change in the metropolitan growth area will then be attempted using the Metropolitan Council's land use map based on 1966, low level, photography.

The use of large scale topographic maps, where available, has proven more efficient than county highway maps. The geometry of the ERTS images corresponds more closely with the topographic maps than the county highway maps, allowing a reduction in the time required for image registration and adjustment.

- f. No technical reports or papers have been completed in this reporting time interval.
- h. No changes have been made in the standing order form.
- i. ERTS image description form is attached.
- j. One data request was filed on 2/1/74.
- k. No budgetary changes are foreseen at this time.
- l. No personnel changes have occurred.

ERTS IMAGE DESCRIPTOR FORM

(See Instructions on Back)

DATE March 15, 1974

PRINCIPAL INVESTIGATOR Sizer, Minn. - S.P.A.

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