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REPORT OF THE WORKING GROUP: ON

VEGETATION DAMAGE

ABSTRACT

The report of the Working Group is presented. Activities since the last Congress are reviewed. Progress on goals of the working group is discussed. Recommendations concerning the next four years are suggested. The major accomplishment of the Working Group was the assemblage of a series of papers which high-light the "How-to-do-it aspects" of remote sensing for vegetation damage detection and assessment.

Introduction

In 1980, at the ISPRS Congress in Hamburg, Germany, a recommendation was passed concerning the structure and function of Working Groups in Commission VI. At that time it was recommended:

- a) to continue the existing Working Groups;
- b) to more clearly define the activities and names of the Working Groups, and
- c) to encourage integrated operational remote sensing activities within the Working Groups of Commission VII.

After the Hamburg meeting Commission President Louis Laidet renamed and renumbered the working group concerned with damage detection and evaluation. Accordingly, it became Working Group VII-II "Vegetation Damage in Agriculture and Forestry". President Laidet suggested that the terms of reference for the working group should include:

- "a) vegetation diseases detection and surveillance;
- b) forest diseases detection and surveillance;
- c) vegetation and forest risk evaluation (frost, floods, and fires ...), and
- d) inventories and mapping of vegetation damages".

Further, to add impact to the terms of reference on the Working Group, Resolution T.VII/2 at the XIVth Congress dealt with basic studies in remote sensing of vegetation damage assessment. At that time, the Congress recommended that:

- "a) Commission VII supports the concept of, and encourages organizations to become involved in basic studies of normal and stressed plants relative to spectral reflectance and emittance, and to relate these data to remote sensing data;
- b) growth truth should be more precisely defined, and these data should also recognize meteorological conditions, and
- c) when possible, remote sensing should be included as a component part of general vegetation damage research activities".

The final resolution (T.VII/3) dealing with vegetation damage and passed at the XIVth Congress dealt with the preparation of a manual for remote sensing of Vegetation Damage Assessment. In the resolution, the Congress recommended that

- "a) Commission VII supports and encourages the production of a Users' Manual for Remote Sensing of Vegetation Damage Detection and Assessment;
- b) the manual should provide ways of accuracy measurement, and
- c) Commission VII supports and encourages further publication of updated bibliographies dealing with vegetation damage detection and assessment".

Even though both of these resolutions directly or indirectly impact on the working group, Resolution T.VII/2 is in effect a public suggestion that could and should be acted upon by individuals or organizations. It would be up to individuals to bring the resolution to the attention of their own organization where they could be acted upon.

The other resolution (T.VII/3) has occupied the attention of the Working Group during the last four years (1980-1984). The resolution called for the production of a Users' Guide to the Application of Remote Sensing for Vegetation Damage Detection and Assessment.

Publication of a Users' Guide

As stated above, and in the spirit of the resolutions passed at the XIVth Congress, the preparation of a Users' Guide or Manual occupied the attention of the Working Group. After the Congress a selection of members of the working group was made: (a list is presented in Appendix A). The members were polled concerning the manual and how it should be approached. In an almost unanimous vote, it was decided to hold a Symposium on Remote Sensing for Vegetation Damage Assessment. However, a majority of the working group members also suggested that it would be better to hold the symposium in conjunction with another meeting, largely because of the depressed

economic situation existing in the world during the early 1980's.

Conveniently, the Chairman of the Working Group had been appointed Program Chairman of a proposed May 1983, "RNRF (Renewable Natural Resources Foundation) Symposium on Remote Sensing for Natural Resources Management" to be sponsored primarily by RNRF and the American Society of Photogrammetry. Because of the ASP connection, it became possible to hold sections of the proposed Symposium under the Auspices of Commission VII ISPRS. Accordingly ISPRS WG VII-II decided to hold the vegetation damage meeting in conjunction with the RNRF Symposium.

It was the intent of the RNRF Symposium to present a series of "How-to-do-it" tutorials on various aspects of remote sensing for natural resources management. The purpose of such a meeting was to present to resource managers techniques and guidelines for using remote sensing to solve problems and to reduce operational costs. The invited tutorials were not intended to be an iteration of new or reiteration of old research results, but instead, the tutorials were to be a synthesis of current knowledge into useable guidelines for operational remote sensing. The tutorials were to be supported by poster papers which would present new research results or illustrate the application of remote sensing to a specific problem.

It was also the intent of the Symposium to circumvent the criticism which arose out of the Commission VII meeting in Toulouse in 1982. At the general debate at the end of the Toulouse meeting, the Chairman of Working Group VII-4 commented on an issue identified at one of the sessions and suggested the 1984 Brazil Congress should discuss it. It was stated that:

"One complaint for example, is that much of what was presented at this Symposium is outdated material and methods and that we are just 'reinventing the wheel' - doing the same thing over and over again".

[p.392: Actes du Symposium International de la Commission VII de la Societe Internationale de Photogrammetrie et Teledetection.

Internat. Archives of ISPRS. Vol. 24-VII/2].

Hopefully the "how-to-do-it approach" and the tutorials would help avoid reinventing the wheel with the preparation of the Users' Guide. This feeling was reinforced by the rapporteurs at the Toulouse Symposium. It was conceded that the efforts necessary to convert scientific results into practical application were not sufficient or interesting enough to maintain attention of the researchers. Tutorials and "how-to-do-it approaches" appear necessary to bridge the gap between researchers and managers.

On May 25, 1983, at the "RNRF Symposium on the Application of Remote Sensing to Resource Management", held in Seattle, Washington, a tutorial panel was presented to symposium participants on Vegetation Damage. Five panalists, all members of the Vegetation Damage Working

Group presented different aspects of the discussion. Again, it is emphasized here that the basic discussion point was that of the "how-to-do-it" approach for the detection and analysis of vegetation damage using remote sensing techniques. The following is the list of the panelists and their topics of discussion:

- P. A. Murtha, "Vegetation Damage Detection and Assessment: The Photographic Approach".
- T.M. Lillesand, "The Digital Approach to Vegetation Damage and Assessment".
- W.M. Ciesla, "Aerial Mapping of Forest Insect and Disease Damage in the United States".
- K. Zirm, "Vegetation Damage: European Considerations".
- H.E. Nilsson, "Remote Sensing of Vegetation Damage, Plant Pathology Approaches and Crop Loss Assessment".

In addition to the tutorial presentations, there were 8 poster papers illustrating various aspects of vegetation damage detection and assessment.

The tutorial and poster papers have been published in the 784 page "Proceedings of the RNRF Symposium on the Application of Remote Sensing to Resource Management". The Proceedings were published by the American Society of Photogrammetry, 210 Little Falls Street, Falls Church, VA. 22046, U.S.A., and cost \$U.S. 25.00 plus \$1.00 domestic and \$3.00 foreign postage for RNRF and ASP members, and \$US 40.00 + postage for non-members. The 132 page section of the proceedings on vegetation damage constitutes the 1st Approximation of an International Users' Guide to the Application of Remote Sensing Vegetation Damage Detection and Assessment. Additional follow-up or continued participation by the Working Group will be determined by the reaction to the first approximation. That decision will be up to the deliberations of the working group.

Summary and Some Recommendations.

Based on the above report, the working group appears to have possibly accomplished its major mission during the four years since the XIVth Congress in Hamburg. The major resolution from that Congress concerning remote sensing and vegetation damage was related to the preparation of a Users' Manual for Remote Sensing and Vegetation Damage Detection and Assessment. At the "RNRF Symposium on the Application of Remote Sensing to Resource Management" a day long tutorial session was held on vegetation damage. The invited Tutorial speakers concentrated their attention on the "how-to-do-it approach" for using remote sensing for vegetation damage detection and assessment. The various Tutorial papers published as a group in the Proceedings constituted the 1st Approximation of the Users' Manual based on the remote sensing technology available in 1983. Obviously technological changes are going to impact on the 1st Approximation guidelines. Therefore it is recommended that:

"The 1st Approximation of the Users' Guide for remote sensing of vegetation damage, as published in the RNRF Symposium proceedings, be updated, where necessary, in the year preceding the XVIth ISPRS Congress".

It is recommended that:

"Some means be found to have the 2nd Approximation of the Users' Guide published as a separate publication".

Because of the known technological gap between the researcher and the resource manager, it is recommended that:

"The Working Group should continue to sponsor symposium or workshops dedicated towards reporting new research results as well as reporting on the effects of operational applications and presenting techniques to resource managers on how to apply remote sensing to vegetation damage detection and assessment."

Finally, in order to maintain a focus on the need for activity in the field of vegetation damage detection and assessment, it is recommended that:

"The ISPRS and Commission VII maintain a working group on vegetation damage, with a chairman nominated by the President of Commission VII after consultation with the previous chairman and members of the working group on vegetation damage".

Appendix A. List of members of the Working Group VII-II on
Vegetation Damage.

Chairman

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