

CLASSIFICATION OF THE TERENGGANU MANGROVE FORESTS USING LARGE SCALE AERIAL PHOTOGRAPHS

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Introduction

This study applies aerial photo interpretation techniques to survey and map and delineate the small and fragmented mangrove forest of Terengganu. Mangrove forest is one of the most important and productive ecosystems found along coastal zones and islands in the East Coast of Peninsular Malaysia. Vast areas of mangrove forests are destroyed every year, directly and indirectly as a result of human activities. Areas must be allocated for conservation purposes to protect our mangrove ecosystem. There are now many tools that can provide better baseline information than in the past. These include remote sensing, a geographic information system and environmental impact assessment techniques (Umali et al. 1986). The panchromatic black and white aerial photographs were used to identify the species group of mangrove forest, to delineate their distribution and to quantify their coverage.

Materials and Methods

Basically the study involved two main components namely interpretation of aerial photographs and field survey. The other material acquired to support the photo interpretation is a topographic map, series L7030, sheet number 4461 (Cukai), with the scale of 1:50,000 (Survey and Mapping Department, 1990) and Kemaman Land cover map (Agriculture Department, 1990). Data analysis for photo interpretation is done manually in the laboratory with mirror stereoscopes. The group species of mangrove forests were classified into several classes based on tone and texture element in photo interpretation (Ibrahim and Hashim, 1990). The mangrove forests type cover area was estimated using planimeter instrument. The accuracy assessment was carried out on the provisional map to check the correctness of features and field checking did mangrove forest type delineation. After the field check, an adjustment was made in the aerial photo interpretation result of the provisional map and to produce the

final mangrove forests type map. For easy retrieval and updating, all data will be input into a Geographic Information System (GIS).

Results and Discussion

From the aerial photo interpretation and field checking in Pulau Sekeping, it was found that ten classes of mangrove forests cover could be determined. They are *Rhizophora* (mature), *Rhizophora* (young), *Avicennia/Sonneratia* mixed mangrove forest, mixed *Bruguiera* Forest, *Rhizophora/Bruguiera* forest, mixed *Ceriops* forest, *Lumnitzera* forest, mixed *Rhizophora* forest and *Bruguiera/Avicennia* forest. The total extent of mangrove forests in Pulau Sekeping is about 127.6 ha. The *Rhizophora* (mature) occupied 38.9%, *Rhizophora* (young) 4.3%, *Avicennia/Sonneratia* 15.3%, mixed mangrove forest 30.6%, mixed *Bruguiera* forest 2.2%, *Rhizophora/Bruguiera* forest 7.6%, mixed *Ceriops* forest 3%, *Lumnitzera* forest 1.3%, mixed *Rhizophora* forest 2.5% and *Bruguiera/Avicennia* forest 0.6%. Further photo interpretation will also be done at another places in district of Kemaman, Terengganu. Presently, we have standardise our photo interpretation techniques and expected to finish the lab analyses in June 1999. We hope to finish this project by the end of September the year 1999 and submit a complete report mapping of mangrove forests in the district of Kemaman, Terengganu by the end of 1999.

Conclusions

Our preliminary results demonstrate that aerial photo interpretation techniques can be used to obtain detail information that can be used to support jurisdictional determinations of mangrove forests. It can be used to reduce the time needed for simple and fast thematic mapping and tracing of mangrove forests in general.

References

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