MAPPING OF *Melaleuca leucodendron* DISTRIBUTION IN SETIU TERENGGANU USING REMOTE SENSING AND GIS

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By

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Research Report submitted in partial fulfillment of
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LIST OF ABBREVIATION

BRIS	Beach Ridges Interspersed with Swales
ERDAS	Earth Resources Data Analysis System
GCP	Ground Control points
GIS	Geographic Information System
GPS	Global Positioning System
ISODATA	Iterative Self-Organizing Data Analysis Technique
Landsat TM	Land Satellite Thematic Mapper
MACRES	Malaysia Center for Remote Sensing
MMU	Minimal Mapping Units
MRSO	Malaysia Rectified Skewed Orthomorphic
RMSE	Root Means Square Error
RSO	Rectified Skewed Orthomorphic
SPOT	*Satellite Pour I'observation de la Terra*
US	United State
USDA	The United State Department of Agriculture

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ABSTRACT

Remote sensing technology and GIS can successfully increase the performance in various type of study such as forestry, agriculture and managing development of certain area without going to the area. In this study, this technology was used to detect the distribution of *Melaleuca leucodendron* or locally known as Gelam and other land cover area. The study area are rich with diverse type of vegetation and rural residential. Satellite image (SPOT-5) captured on 15th March 2006 with medium resolution was used for the Gelam distribution area and was analyzed and classified using 'Maximum Likelihood Classifier' (MCL) with 90% of overall accuracy. From the results, eight classes of land cover were differentiating with band combination of 4, 3 and 2. There are 'Gelam', 'Water bodies', 'Mixed mangrove', 'High vegetation', 'Low vegetation', 'Rubber and Oil palm', 'Swamp' and 'Open area'. In this study, a total of 37600.511 ha were classified as classes of the area. The area covered 98.93% of the image. Gelam area cover 10.5% of the total area with the area extent is 3965.6 ha. Gelam distributed mostly on Loamy Sand soil texture and with an acidic soil.

PEMETAAN TABURAN POKOK GELAM
***(Melaleuca leucodendron)* DI SETIU, TERENGGANU**
DENGAN MENGGUNAKAN TEKNIK PENDERIAAN JARAK JAUH

ABSTRAK

Teknologi Penderiaan Jarak Jauh telah berjaya meningkatkan kemampuan kajian dalam pelbagai bidang seperti perhutanan, pertanian dan pengurusan pembangunan sesuatu kawasan. Dalam kajian ini, teknologi ini telah digunakan bagi menentukan kawasan taburan spesies *Melaleuca leucodendron* atau dikenali sebagai pokok Gelam. Kawasan kajian adalah kawasan yang kaya dengan pelbagai jenis tumbuhan dan sedikit penempatan luar bandar. Imej satelit (SPOT-5) bertarikh 15hb Mac 2006 dengan resolusi sederhana telah digunakan untuk menentukan taburan pokok Gelam dan telah dianalisis dan dispesifikasikan dengan menggunakan 'Maximum Likelihood Classifier' (MCL) dengan ketepatan keseluruhan adalah 90%. Dari keputusan yang diperolehi, sebanyak lapan kelas litupan tanah telah dapat ditentukan dengan kombinasi band 4, 3 dan 2. Mereka adalah 'Gelam', 'Water bodies', 'Mixed mangrove', 'High vegetation', 'Low vegetation', 'Rubber and Oil palm', 'Swamp' dan 'Open area'. Dalam kajian ini, sebanyak 37600.5 ha telah dikelaskan. Kawasan tersebut adalah 98.9% daripada keseluruhan kawasan. Taburan pokok Gelam memenuhi 10.5% daripada keseluruhan kawasan kajian dengan keluasan 3965.6 ha. Taburan Gelam tertumpu kepada kawasan pasir berloam dengan tanah berasid.