Table 4 The remotely sensed variable Mangrove (SPECIES, DENSITY, BIOMASS) and the listing of data types, processing requirements and costs for mapping and monitoring this variable using several suitable types of remotely sensed data. MMU: Minimum mapping unit; GRE: Ground resolution element

	DATA OPTION 1: Landsat ETM	**DATA OPTION 2: Airborne hyperspectral data**
Spatial Dimensions		
Area to cover	185km x 185km per scene	Up to 1000km^2
Mapping unit	15m panchromatic 30m multi-spectral	0.5m – 5m
Positional accuracy	Depends on level of georeferencing	Dependent on Georeferencing process
Temporal Dimensions		
When	Approx 9.45am	User defined
How often	every 16 days	User defined (can be < 1 day)
Variable to map	Mangrove (species, density, biomass)	Mangrove (species, density, biomass)
Environmental Restrictions	For mangrove vegetation which covers several areas. Cloud cover Mangrove fringe can be narrow, smaller then pixel size	For mangrove vegetation which covers several areas. Strong winds, Cloud cover
Processing technique **(Output)**	Image classification or feature detection (Vegetation type map and target features) Note: The ability to map specific targets will depend on their growth form and extent.	Image classification or feature detection (Vegetation type map and target features) Note: The ability to map specific targets will depend on their growth form and extent.
Resources – Hardware and Software	PC Image processing software GIS with image classification module (e.g. Arc-View Image Analyst)	PC Image processing software with Hyperspectral analysis capabilities, including sub-pixel mapping techniques.
Resource – Personnel	Trained in image classification	Trained in hyperspectral data processing.

	Experience with Landsat data Knowledge of area to be mapped	Knowledge of area to be mapped
Estimated task and times	Image pre-processing (1 day) Image classification to Mangrove cover (15 days per scene) Field/Photo verification for a select number of sample sites: (8 days) Map output production: (2 days) Total = 26 days per scene	Image pre-processing (1 day) Image classification mapping to Mangrove Types (10 days per site) Field/Photo verification for a select number of sample sites: (4 days) Map output production: (2 days) Total = 17 days per site (several 100 sites make up landsat scene)
Estimated Cost Note that these are estimates are flexible	Data acquisition: Image data = $1950 Aerial Photos (10) = $90/frame to acquire or less to hire from Dept. of Natural Resources Ancillary data (topo sheets)= $200 Processing = 28 days of technical officer @ $875/day= $24500 Total = $26650 Note: This assumes software have been purchased	Data acquisition: Image data = $20000 Processing = 17 days of technical officer @ $875/day= $14875 Total = $34875 Note: This assumes software have been purchased