

Table 38 Riparian – Water bodies

	DATA OPTION 1: Airborne Laser Scanning	DATA OPTION 2: Radarsat, TerrsarX or ALOS Palsar
<i>Spatial Dimensions</i>		
Area to cover	Can be up to 1000km ² or more	Up to 3600 km ²
Mapping unit	0.5m to 10m	5m -60mm
Positional accuracy	Within 5m or less dependent on GPS base station used	Dependent on geo-referencing process
<i>Temporal Dimensions</i>		
When	User controlled	Approx 11 am
How often	User controlled	Minimum every 4 days
Variable to map	Water bodies (land cover)	Water bodies (land cover)
Environmental Restrictions	Cloud cover	Scale to map Incidence angle/topography
Processing technique	Streambed mapping (object-based image analysis)	Radar data processing and calibration Backscatter correlation modelling, classification and image segmentation
(Output)	Ground and canopy return extraction, interpolation and ground and canopy mapping (projected plant cover) over streambed. Raster or image surface of vegetation overhang	Landcover type map
Resources – Hardware and Software	PC Image processing software GIS with image analysis capabilities.	PC Image processing software with radar image analysis capabilities, including sub-pixel mapping techniques.
Resource – Personnel	Trained and experienced in ALS mapping and object-based image analysis. Knowledge of area to be	Trained in radar data processing. Knowledge of area to be mapped
References: Note these are some example references	Arroyo et al. (2010) Johansen et al. (2010)	

Arroyo, L. A., Johansen, K., Armston, J. and Phinn, S. (2010). "Integration of LiDAR and QuickBird imagery for mapping riparian biophysical parameters and land cover types in Australian tropical savannas." Forest Ecology and Management, 259(3), 598-606.

Johansen, K., Arroyo, L. A., Armston, J., Phinn, S. and Witte, C. (2010). "Mapping riparian condition indicators in a sub-tropical savanna environment from discrete return LiDAR data using object-based image analysis." Ecological Indicators, 10(4), 796-807.