

Wetlands estimation survey using DotS method: The case of Paya Indah Wetlands (PIW), Malaysia

ABSTRACT

Climate change poses a detrimental impact on the environment due to increasing carbon dioxide concentration in the atmosphere. In mitigating climate change, wetlands play a significant role in optimising the function of the earth's ecosystem for carbon sequestration and water resources rehabilitation. However, the effectiveness of wetlands management depends on an ecologically and statistically adequate dataset. Unfortunately, it is difficult for developing countries to implement area frame methods based on established sampling methods for data collection and monitoring. Thus, in this study, the dot sampling (DotS) method was adopted as it is simple, efficient, reliable and does not need a sample frame or high cost. DotS method uses the readily available platform, i.e., integration between Microsoft Excel-Macro (EM) and Google Earth (GE). This method systematically distributes the sample dots in GE's target area according to the locations generated by the EM. The field survey was then conducted at the sample dots of the target area in Paya Indah Wetlands (PIW) to ratify the site location. During the first stage, 72 dot sample locations were generated systematically, distributed across the target area, and 47 dot sample locations were located within the PIW. After the preparatory stage, 10 dot sample locations were eliminated. After the fieldwork inspection and evaluation, only 28 dot sample locations were selected as study stations. Hence, this study provides comprehensive data and examples applying the established DotS method with high reliability, accuracy, and rapidity in determining the number of study stations of wetlands. Based on the advantages, this study recommends the DotS method as a reliable survey method suitable for all study locations, especially in the ecology field. Applying the Dots methods as a surveying tool enables rapid land assessment in planning and suits the assessment of ex-mining constructed wetlands.