(192)

Threat Assessment and Carbon Estimation in Bolgoda Lake Environs

Tharanga M.D.M.*, Kudavidanage E.P., Udayakumara E.P.N.

Sabaragamuwa University, Belihuloya, Sri Lanka
**tharangamohanthi@gmail.com*

Abstract

Threat assessment is a scientific process that is especially useful in conservation and management prioritisation. The nature conservancy's eco regional planning process to develop a conservation framework one such method that identifies "threat" as a key component. The study aims to use the above method to evaluate, Bolgoda an ecologically important wetland in Sri Lanka Bolgoda which spreads in 374 km^2. Sampling locations were systematically selected to assess direct and indirect threats. Panadura, Moratuwa, Bandaragama and Thalpitiya were the sampling locations. Panadura, Moratuwa, Kesbewa and Bandaragama DSDs were selected to Carbon Model. InVEST Carbon model was employed with a view to valuing carbon storage and mapping carbon storage as benefits with temporal characters of land cover changing in two points in time (Year 2000 to 2018). Data for the threat assessment was mainly collected by conducting a questionnaire (68) and field (8) surveys. Inputs for carbon model were prepared using USGS satellite data sets with ArcGIS™ 10.4 remote sensing software. Results disclosures that Moratuwa and Panadura semi urban areas are having intense threats. However, Invasive alien species, water and ground pollution, reducing of vegetation and loss of continuous habitats are the existing direct threats while indirect threats function as sources for direct threats i.e. Illegal land filling, solid waste dumping, unauthorised constructions, discharging industrial effluent and forest clearing. The questionnaire survey was analysed using SPSS™ 21 package. Satisfaction of community on conservation of Bolgoda is low (26.1%). With the traditionalism and their education level, their behavior with the environment is varying. In this study, vegetation cover was considered as an indicator of the habitat quality of Lake Environment. Land use change detection disclosures the declining of vegetation cover with the time (45.19%). InVEST models realised that forest cover has been declined resulted in diminishing carbon storage (26.25 mg C per pixel) and the habitat quality. Hence, this study provides scientific backing for the conservation on the lake system.

Keywords: InVEST, Threat, Carbon storage, Habitat quality, Bolgoda, Nature conservancy