Abstract

Land degradation in agricultural farms is mainly manifested through loss of ecosystem services such as pollination. In Kenya, farmers knowledge of pollination is limited, many farmers lump pollinators together with insect pests and do not explicitly manage to conserve them, although pollinators may contribute substantially to yields at no cost to the farmer (FAO, 2007). Insect pollinators of crops and wild plants are threatened worldwide by pesticide use and the spread of disease and parasites (Adam, J. V. et al. 2012; Potts, S. G. et al. 2010). This research is multidisciplinary in approach, it used the niche theory and ecosystem functions concepts to determine the status of insect pollinators in agro-ecosystems of Mua Hills location. The aim of this research was to determine the diversity and abundance of pollinator insects for their role in ecosystem function (pollination) and increase of passion fruit yield. The diversity and abundance of insect pollinators was found to be least in horticultural land use type and this was attributed to the use of agro-chemicals. This research is an issue of environmental management because it focuses on natural patch land use type for sustainable use of agro-ecosystems to avoid decline of pollinators. It advocates for conservation of the environment and management of carpenter bee (Xylocopa spp) because it is an efficient pollinator of passion fruit thus makes farming more profitable through higher yield of the crop. The findings from this research are aimed to help the subsistence farmers achieve good produce in passion fruit farming. The study promotes the conservation of insect biodiversity within the existing land use types to improve pollination of horticultural crops.