

An investigation on the water requirement of Mighan desert wetland

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Abstract

Mighan desert wetland as a fragile and valuable ecosystem in a desert area has been affected by climatic and landuse changes during recent decades. It experienced severely diminished water input and because of this we tried to estimate its water requirement based on ecological indices so it can provide its functions as an important habitat. We also tried to compare our estimation with previous hydrological water requirement investigations. In this research we used Landsat satellite images and integrated approach in water requirement estimation and showed the wetland water surface area changes during 1998 to 2016 (March). Our results indicated decreasing trend in wetland wet surface during the study period as its decreased more than 18.79 km². Based on habitat requirements of the Gray Crane (*Grus grus*) and also vegetation density and surface area in the Mighan wetland we found that it can be sustained in case of the wetland water surface increase up to 113 km². With such level of water surface, wetland can provide different micro habitats for its living dwellers and also will be sustain in the future.

Keywords: Mighan wetland, Ecological water requirements, Ecological variables, Common crane, SWI, NDVI.