# Trend of Changes of Species Diversity Indices of Waterbirds and its Relationship with the Water Surface of Parishan Wetland in Fars Province

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**Abstract**

Parishan International Wetland is one of the most important freshwater wetlands in Iran, which is on the list of endangered wetlands (Montreux) due to its complete drying up and habitat changes. This research was carried out in 2018 and 2019 to investigate changes in species diversity of waterbirds and their relationships with water surface in PIW. Semi-winter census data were collected from the Department of Environmental, Iran. Data were analyzed using the Species Diversity and Richness (SDR-IV) software. Species diversity indices including (Shannon-Wiener and Simpson D), species richness (Margalef and Minhinick) and evenness (Pielou and Simpson E) were calculated in a period of 31 years from 1998 to 2018. Trend of changes of the wetland reservoir surface and land use have been investigated, using satellite images. Results showed that diversity indices had an increasing trend during the years 1988 to 2001 and a decreasing trend from 2001 to 2018. Diversity indices reached lowest value in 2012 with the decrease of the wetland catchment area. The average values of 5-year period of all indices from 1989 to 2008 did not differ significantly, but apart from the Minhinick index, other indices in the period of 2009-2013 and 2014-2018 had significantly lower values. ($P<0.5$). The wetland reservoir surface had been increasing from 1988 to 2000. From 2001 to 2018, except for the years 2005 to 2007, the trend was decreasing and from 2009, it has had almost no water areas. It was suggested that increasing the surface and depth of the wetland, diversity of incoming water resources, determining the ownership of the surrounding lands, implementation of monitoring programs, evaluation of operational plans and training of stakeholders are the most important strategies to restore biodiversity of wetland waterbirds.

**Keywords:** Biodiversity, Parishan Wetland, Waterbirds, Species Richness, Restore Wetland.