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HABITAT USE OF DIURNAL WATER FOWL IN ANNAIWILUNDAWA RAMSAR WETLAND OF NORTHWESTERN OF SRI LANKA

by

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DECLARATION

"The work described in this thesis was carried out by me under the supervision of Dr (Mrs) W.A.D. Mahaulpatha, Senior Lecture Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Nugegoda and a report on this has not been submitted in whole or in part to any university or any other institution for another Degree/Diploma".

05-05-2015 .....

Date

.....

Signature

DECLARATION

I certify that the candidate has incorporated all corrections, amendments and additional recommended by the examiners.

W.A.D. Mahaulpatha ..... 28.04.2015 .....

Signature Date

Supervisor

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ABSTRACT

Waterfowl constitute an integral part of wetland ecosystems and they are bio indicators of wetland ecosystems, because they quickly respond to any changes in vegetation composition and water level fluctuation as compared to other animals. Hence diurnal habitat use of waterfowl at three reservoirs of the Annaiwilundawa Ramsar site of Northwestern Sri Lanka were studied from October 2009 to September 2012 to better understand habitat requirements of waterfowl in wetlands and provide information for conservation and management of crucial site. The day was divided in to three time periods as morning (dawn hrs - 10:30 hrs); midday (10:31 hrs – 14.30 hrs) and evening (14:31 hrs - dusk) and the diurnal activities and habitat use of waterfowl were recorded using "Focal animal sampling method" and the "Scan sampling method". Waterfowl were observed through a 15~60 x 25 spotting scope and 25 x 45 binocular. Variation of waterfowl densities with available habitat type and seasonal variation of waterfowl densities were analyzed. Any event causing the waterfowls to alter their behaviour was recorded as a disturbance. Only three waterfowl species, namely Lesser Whistling Duck, Cotton Pygmy Goose and Garganey were recorded during the study period. Densities of Lesser Whistling

Duck and Garganey did not vary significantly within the three reservoirs (respectively $\chi 2$ = 3.672, df= 2, p=1.59 and $\chi 2$ = 0.241, df= 1, p=0.594). But density of Cotton Pygmy Goose varied significantly among the three reservoirs ($\chi 2$ =10.460, df = 2, p = 0.005).The densities of waterfowls (three species together) showed clear seasonal variation ($\chi 2$ = 7.939, df = 3, p =0.047) with highest density in Northeast Monsoon Season and lowest in South West Monsoons. When the reservoirs were completely dry waterfowls completely abandoned the wetland. Density of Cotton Pygmy Goose varied significantly with available open water percentage (r = 0.382, p = 0.028, df = 33), micro invertebrates densities (r = 0.615, p = 0.044, df = 11) as well as water depth (r =0.500, df =33, p=0.03). But densities of Garganey and Lesser whistling duck did not show significant correlation with these parameters. Garganey numbers showed a significant decrease during the three year study period ($\chi 2$ =8.372, df = 2, p = 0.015). Resident waterfowl as well as Garganey used this wetland as resting ground and it was observed that the greatest threat faced by this very important Ramsar site is the irregular fluctuation of the water level. This had a huge effect specifically on the migratory waterfowl Garganey. Therefore, if the Annaiwilundawa Ramsar wetland is to be preserved as an important habitat for the migrating waterfowl the management should take every precaution to maintain water level of at least 40-80 cm though out the year.

Key words: Diurnal waterfowl, Annaiwilundawa Ramsar wetland, Cotton Pygmy Goose, Garganey, Lesser whistling duck, Habitat use