**Relative Abundance of *Dendrocygna javanica* in Heterogeneous Lakes Of Malaysia**

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**INTRODUCTION**

*Dendrocygna javanica* (Lesser whistling duck) mostly occurs in flocks and inhabit freshwater wetlands such as ponds, reservoirs, lakes, and marshes that dominated with aquatic vegetation. These habitats are rich in aquatic vertebrates (fishes and amphibians) and invertebrates which are major diet components of Lesser whistling ducks. (Martins *et al*., 2017, Tellkamp, 2004; Zakaria and Rajpar, 2014; BirdLife, 2016). It is found that *D. javanica* spent more time vigilant to search suitable productive foraging and safe breeding site (Casas *et al*., 2009; Wang *et al*., 2011) and impoverish individual condition or physiological status (Strasser and Heath, 2013; Rehnus *et al*. 2014). Hence, the main objective of the study was to ascertain the relative abundance of Lesser Whistling Duck (*Dendrocygna javanica*) among 14 heterogeneous lakes of Paya Indah Wetland Reserve, Malaysia for better conservation and future management activities.

**Materials and Methods**

***Study Site:*** This study was carried out at 14 lakes of Paya Indah Wetland Reserve, Malaysia. The study area is located within 101°10′ to 101°50′ longitude and 2°50′ and 3°00′ latitude. These 14 lakes vary in size, vegetation structure and composition depending upon water depth, water quality, inflow and outflow of water.

***Relative Abundance and Diet Composition*:** The relative abundance of *D. javanica* was examined using the scan through method from strategic places. The observations were made using the spotting scope and binoculars from a blind location (*i.e*., from hideout to avoid disturbance), since they are shy species. The data was collected from March 2016 to October 2016.Population ecology parameters such as Aquatic Plants (AP), Aquatic Invertebrates (AIV), Aquatic Vertebrates (AV), Terrestrial Plants (TP), Terrestrial Vertebrates (TV), and Terrestrial Invertebrates (TIV) were determined in each lake. The methodology was followed as described by Martinez *et al*. (2006).

**Results**

***Relative Abundance of Lesser Whistling Duck* in 14 lakes*:***

One-Way ANOVA and Tukey’s (HSD) tests were applied to examine the significant differences in *D. javanica* relative abundance among the 14 lakes of Paya Indah Wetland Reserve, Malaysia. The results revealed that the mean relative abundance of *D. javanica* among the lakes was significantly different, *i.e*. F13, 70 = 173.33, P < 0.05 (Table 1).

**Table 1:** Comparison of mean relative abundance of *D. javanica* among 14 heterogeneous lakes of Paya Indah Wetland Reserve, Malaysia

|  |  |
| --- | --- |
| **Name of Lakes** | **Mean Relative Abundance** |
| Belibis *L1* | 114.33 a |
| Resam *L9* | 2.6667 b |
| Grebe *L8* | 2.3333 b |
| Teratai *L10* | 2.3333 b |
| Senduduk *L6* | 2.0000 b |
| Typha1*L13* | 1.8333 b |
| Rusiga *L12* | 1.5000 b |
| Typha2*L14* | 1.0000 b |
| Tunira *L5* | 0.8333 b |
| Sendayan *L7* | 0.5000 b |
| Kemoning *L11* | 0.1667 b |
| Seroja *L2* | 0.0000 b |
| Telipok *L3* | 0.0000 b |
| Drift Wood *L4* | 0.0000 b |

Standard Error (SE ±)for Comparison = 3.2505; Critical Value for Comparison = 11.289; the mean values in columns with same letter are not significant at P = 0.05

Visual and scan observation revealed that *D. javanica* is a gregarious omnivorous species, mostly preferred to forage in open water column through dabbling, dipping, skimming, and even some time half diving in water column. It was observed that *D. javanica* preferred the area where submerged and emerged aquatic plants occurred, *i.e*., *E. dulcis*, *P. lanuginosum, Utricularia* spp., *Potamogeton* spp. .

**DISCUSSIONS**

The results of this study showed that *D. javanica* prefers to forage and loaf in the lake area dominated with aquatic vegetation such as Water Chestnut–*E. dulcis,* Lotus–*N. nucifera,* Marsh Sedge–*S. purpurascens*, Wooly Waterlily–*P. lanuginosum*, Spike Water–milfoil–*M. spicatum*, Common Duck Weed–*S. minima* and Smooth Cordgrass–*Spartina alterniflora*. This highlighted that aquatic vegetation composition is the key factors which play an important role in the habitat selection of the *D. javanica. i.e*., aquatic vegetation cover played an important role in the distribution of prey resources which is the major diet of *D. javanica* in the wetland ecosystem (Zharikov and Skilleter, 2002). This could be that, the aquatic vegetation is rich in food sources, *i.e*. invertebrates (insects and gastropods), fishes (carps and cat fishes), amphibians (frogs and salamanders), invertebrates (such as worms, gastropods and insects) and having shallow water level (Martins *et. al*., 2017; Hansson *et al*., 2010; Rajpar and Zakaria, 2011; Kreakie *et al*., 2012). In addition, the heterogeneity of aquatic vegetation also provides shelter from weather and predators. Moreover, higher relative abundance of lesser whistling ducks was observed in submerged vegetation and emergent vegetation along the edges in shallow water (Nummi *et al*., 1994; Mitchell and Perrow, 1998; Noordhuis *et al.,* 2002). The reason was that, they preferred to forage in submerged vegetation for food items. Based on the findings of the current study it is concluded that *D. javanica* prefers wide range of aquatic habitats, to satisfy their daily requirements such as food, habitat, shelter, and roosting sites.

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