

## ABUNDANCE, DIVERSITY AND RICHNESS OF BIRDS IN DIFFERENT DAYS AFTER TRANSPLANTATION OF PADDY CULTIVATED IN CAUVERY DELTAIC REGION IN TAMIL NADU

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**Abstract :** In this study total count method was adopted to obtain abundance, diversity and richness of birds in paddy fields of Cauvery deltaic region in Tamil Nadu from December 2011 to March 2012. A total of 24 species from 10 different families were observed. Among them Common Myna, Little Egret and Indian Pond Heron were the predominant species, whereas Common Kingfisher and Common Redshank were poorly represented. The maximum abundance, diversity and richness of birds were recorded during 30 to 60 days after transplantations, whereas the minimum was during 91-120 Days After Transplantations (DAT). The results suggest that the number of birds depends on the availability of the prey/pest species and suitable micro habitats.

### INTRODUCTION

Avian community is widely recognized as good bio-indicators of the quality of the ecosystems (Ali 1949; Graber and Graber 1976; Parasharya and Borad 2011). On the whole, 1299 species of resident and migratory birds were recorded from the Indian subcontinent (Parasharya and Borad 2011). Though the agricultural landscape forms 60% of the total land available, check list of birds utilizing such landscape is scanty (Dhindsa, et al., 1988, 1991). Toor et al. (1986) recorded 240 species of birds from intensively cultivated state like Punjab where forest cover area is less than five percent. However there are some crop specific bird sites available. Borad et al. (2000) listed 67 species of birds feeding on crop residues of paddy in central Gujarat. Most recently Sunder and Subramanya (2010) have reviewed bird use of rice field in the Indian Subcontinent and have listed 351 species (27% of species of the subcontinent).

Loss of habitat and changes in agro-ecosystem form the greatest threat to most of the Indian birds (Parasharya and Borad 2011). Destruction of their natural habitat and changes in agro-ecosystem lead to slow vanishing of these birds (Gopalakumar and Kaimal 2008). Of late there is an awareness to study the disappearing birds in a wider scale. Collective checklist of birds have also been compiled, especially from wetlands, forests and agricultural fields

in Tamil Nadu. So far no comprehensive attempt has been made in Vallam Village, Nagapattinam district in Tamil Nadu which is called Granary of South India. Hence, a survey around paddy field was carried out to document bird species abundance, diversity and richness in different days after transplantation of paddy.

### STUDY AREA

The present investigation was conducted at about 480 hectare in Vallam village, Tharangambadi taluk, Nagapattinam district, 11° 05'21" N latitude and 79° 44'49" E longitude in the Cauvery Delta of Tamil Nadu, India. The study area is dominated with agricultural lands irrigated by river Manjalar and its tributaries as the major perennial water resources.

### MATERIAL AND METHODS

To estimate the bird population total count method was used (Weller 1975, Sivasubramanian 1992, Urfi 2005). The diversity (Shannon Wiener Index; Shannon and Wiener 1949) and species richness was computed using Diversity and Richness Software 2.65. The birds were identified by using NIKON binocular (7"X50") and standard field guides (Ali and Ripley 1987, Grimmet et al. 1999). The bird survey was carried after two hours of sunshine, and normally from 06.00 to 09.00 am. Care was taken to avoid double count



by watching the birds' direction of flight and landing in case they are disturbed by predators. The birds recorded in the study area were classified in to various foraging classes based on (Ali 1969).

## RESULTS

### Abundance, Diversity and Richness of Birds in Paddy Field

Abundance of birds recorded in the paddy field is summarized in table 1. During the survey (December 2011 - March 2012), 24 species of birds were observed. The total population was maximum (207) during December 2011 and the minimum (45) in March 2012. Among the species Common Myna, Little Egret and Indian Pond Heron were the predominant species, whereas Common Kingfisher and Common Redshank observed only a few in numbers. Shannon -Wiener Index was estimated to

know the diversity of birds and the results are given in table 2. The maximum diversity was recorded in December 2011 ( $H'=2.853$ ) followed by March 2012 ( $H'=2.769$ ), whereas the minimum was recorded in February 2012 ( $H'=2.648$ ). The bird species richness goes with abundance trend. The maximum richness was recorded in December 2011 with 23 species followed by January 2012 with 19 species and the minimum was in March 2012 with 16 species (Table 2).

### Abundance, Diversity and Richness of Birds Recorded During Different Days After Transplantation (DAT)

A total of 24 species from 10 different families were observed. The number of birds observed during different days after transplantations (DAT) was given in table 3. The result indicates that except Indian Pond Heron, Asian Koel, Wood Sandpiper, Common

Table 1: Abundance of birds in different fields of paddy in Vallam village from December 2011 to March 2012.

S. No.	Bird species <sup>a</sup>	Scientific Name <sup>b</sup>	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012
1	Asian Koel	<i>Eudynamis scolopacea</i>	4	0	4	0
2	Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i>	5	3	0	0
3	Black Drongo	<i>Dicrurus macrocercus</i>	13	10	3	3
4	Blue Rock Pigeon	<i>Columba livia</i>	16	9	3	3
5	Blue-tailed Bee-eater	<i>Merops philippinus</i>	5	0	0	0
6	Common Kingfisher	<i>Alcedo atthis</i>	0	2	0	0
7	Common Myna	<i>Acridotheres tristis</i>	31	23	9	3
8	Common Redshank	<i>Tringa totanus</i>	4	0	0	0
9	Common Sandpiper	<i>Actitis hypoleucos</i>	5	3	3	3
10	Common Snipe	<i>Gallinago gallinago</i>	9	2	3	3
11	House Crow	<i>Corvus splendens</i>	15	8	13	3
12	Indian Cuckoo	<i>Cuculus micropterus</i>	4	0	0	0
13	Indian Pond Heron	<i>Ardeola grayii</i>	22	0	3	0
14	Jack Snipe	<i>Lymnocyptes minimus</i>	5	3	3	3
15	Large-billed Crow	<i>Corvus macrorhynchos</i>	4	18	10	2
16	Little Egret	<i>Egretta garzetta</i>	26	4	4	3
17	Red-vented Bulbul	<i>Pycnonotus cafer</i>	4	9	3	3
18	Red-wattled Lapwing	<i>Vanellus indicus</i>	4	5	3	0
19	Rose-ringed Parakeet	<i>Psittacula krameri</i>	10	5	3	3
20	Rufus Tree pie	<i>Dendrocitta vagabunda</i>	4	5	2	3
21	Scaly-breasted Munia	<i>Lonchura punctulata</i>	6	9	2	3
22	White-breasted Water hen	<i>Amaurornis phoenicurus</i>	4	8	4	3
23	Wood Sandpiper	<i>Tringa glareola</i>	5	3	0	3
24	Yellow-wattled Lapwing	<i>Vanellus malarbaricus</i>	5	5	0	3
		Total	207	133	76	45

<sup>a</sup>Birds are arranged in column two based on alphabets

<sup>b</sup>Scientific name of the birds followed as per Grimmet et al. (1999)

