e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

MORPHOMETRIC STUDY OF BAYA WEAVER (*PLOCEUS PHILIPPINUS)* NEST IN SHEKHAWATI REGION OF RAJASTHAN (INDIA)

Dr. Arindam Basu*1, Dr. Shiv Prakash Dhand*2, Dr. Partap Singh*3

*1R.N Ruia Govt College Ramgarh Shekhawati, India.

*2Aryan Mahila Mahavidalaiya Ranoli Sikar, India.

*3Govt Dungar College Bikaner, India.

DOI : https://www.doi.org/10.56726/IRJMETS63658

ABSTRACT

Baya Weaver (*Ploceous philippinus)* is intelligent and docile bird. This bird is famous for its beautiful and docile nests hanging on various platforms of different trees. An attempt was made to study morphometry of Baya weaver hanging from various places on various tree in in study area this area is commonly known as Shekhawati region and semi-arid in geographic condition, this region include Sikar and Jhunjhunu in Rajasthan. Seven variables namely suspension, nest length, brood chamber, nest depth, threshold entrance tube and weight were taken and measured of both complete and incomplete nest. The statistical analysis apply on these parameter, one-way ANOVA showed that complete nest differed insignificantly [$p<0.05$] from that of incomplete ones. A total of 33nests (7 Complete and 26 incomplete) were studied.

Keywords: Baya Weaver, Morphometry, Nest Length, Brood Chamber, ANOVA.

I. INTRODUCTION

Baya weaver (*Ploceous philippinus*) is a found across whole India and Southeast Asia. This bird is found in grasslands and scrub forests and is also associated with open cultivation. Three basic subspecies are mainly inhibiting in India, *Ploceous philippinus* commonly found throughout in India. This bird has been famous for their retort shaped nest. The nest are construct from fine fibers of leaves and branches the nest colonies are usually found on thorny trees like *Posopis cineraria*, *Ziziphu zuzuba* ,*Clotrpis procera*. Nest are built near water body in cultivate area and grassland.

Earlier studies on the breeding biology of the Baya weaver have only recorded coconut palms as nesting platforms on the west coast of India, except for rare instances of nesting on exposed overhanging power lines or telecommunication wires (Ambedkar, 1970; Betts, 1952; Davis, 1971; Kirkpatrick, 1952). Our study is an attempt the morphometric characteristics of **Baya weaver nests.**

The Baya weaver is a sexually dimorphic polygamous sparrow like intelligent bird, the adult male differs from sparrow in having brown streaks, thick bill and short rounded tail; during breeding season many changes in male body golden yellow plumage on the breast and head. male bird prepare nest and female examine it if nest select by female male complete it and mating takes place but in some unfavorable condition male prepare abnormal nest this abnormality seen in brood chamber, entrance tube and suspension of nest. We compare both complete and incomplete nest with various parameters.

STUDY AREA:

The study was conducted during July to September 2024 at Sikar and Jhunjhunu district and its near Villages, of Rajasthan. The study area is agricultural lands. The vegetation is dominated grass and scrubs and the main crop of this area is Bajara, Moong and Mooth. The prominent plant species found in this area are *Azadirachta indica, Ficus religiosa,, Acacia nilotica, Prozopis cineraria* and *Ziziphus zuzuba* .A number of colonies were observed on *Acacia nilotica* in agriculture fields (PLATE-3). After the breeding season the nests were abandoned by the birds, some of abandoned nests were collected from the fields and measurements were taken in the laboratory by measuring scale (PLATE-1a and b) on the basis of the presence or absence of the entrance tube, the nests were grouped in two categories namely complete and incomplete nests. Total weight of each nest was weighed by an electronic balance with ±0.01gaccuracy (TABLE-1).

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

II. MATERIALS AND METHODS

During the field explorations in the month July to September in years 2023-2024, we recorded the data on nest morphomerty the field. In these explorations, we also observed and recorded various nest parameter of Baya Weaver for food, nest building materials, various villages of Sikar and Jhunjhunu districts. The plants which were used by Baya weaver were photographed and identified with the help of flora volume and from the herbarium of Botany department of Dungar College Bikaner. Nikon DSLR cameras with telephoto Lens nikkor70-300 and nikkon200-500 were used to take photographs in the field. Photographs were captured especially when male bird involved in the nest building. The breeding behavior of Baya weaver was also documented. Based on the Baya weaver calls and forage movements, the nesting sites were located in the fields, water bodies PLATE-2).

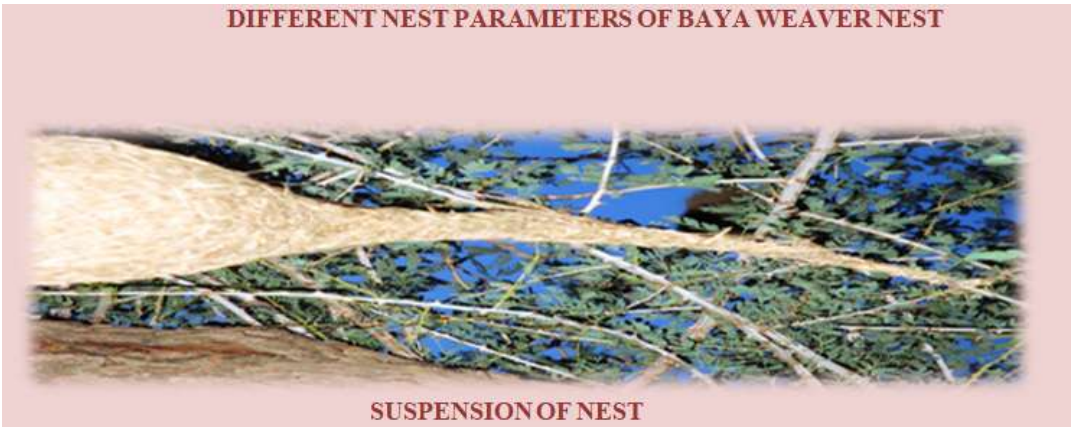

Figure 1:

Figure 2: Type of nest parametere

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

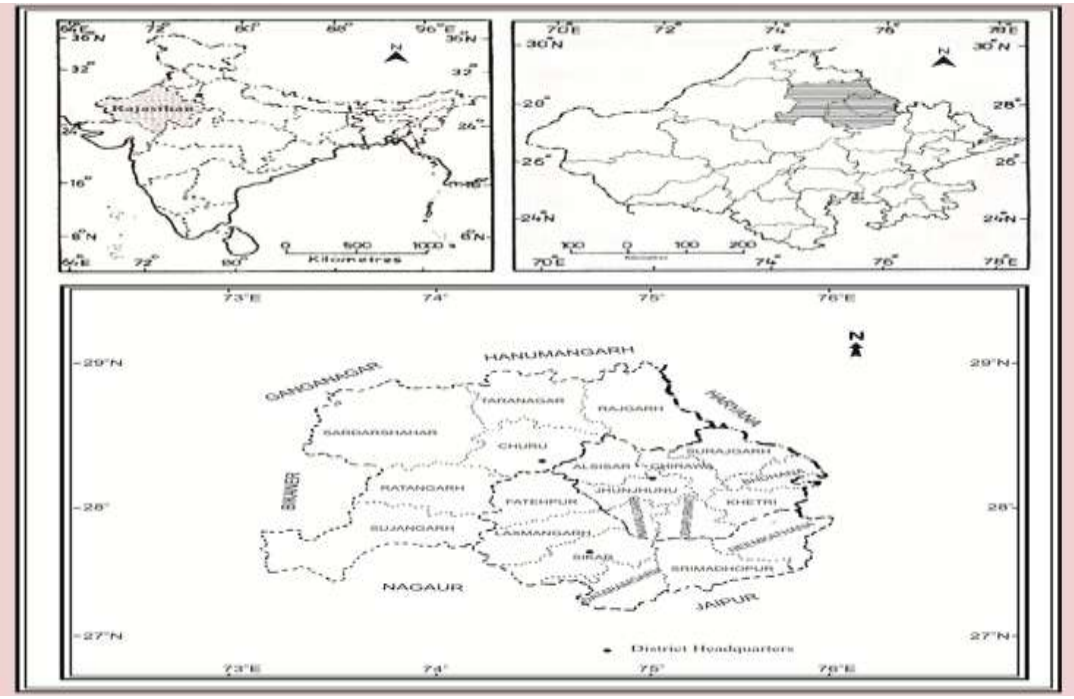

Figure 3: Study Area Map

Table 1: Complete Nest Morphometry Of Various Parameters

Complete Nest	Nest 15	Nest 27	Nest 23	Nest 29	Nest 30	Nest 31	Nest 32
Suspension(mm)	45	56	130	125	10	88	**180**
Nest length(mm)	490	364	226	425	248	498	**310**
Brood chamber(mm)	60	56	98	67	60	67	**69**
Nest depth(mm)	132	110	130	153	100	142	**145**
Threshold(mm)	65	40	67	50	28	48	**39**
Entrance Tube(mm)	65	48	66	55	45	64	**60**
Weight (gm)	**72.2**	**37.4**	**58.6**	**47.5**	**20.4**	**41.1**	**26.9**

Table 2: Incomplete Nest Morphometry Of Various Parameters (Inmm)

Incomplete	Nest 1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	28	24	25	26	33
Suspension	110	67	75	114	27	25	50	85	60	49	67	76	54	205	48	28	230	90	17	57	60	110	60	10	34	48
Nest length	210	243	234	204	170	140	155	220	132	170	128	218	330	250	261	188	149	230	217	173	190	260	234	250	278	220
Brood chamber	73	73	75	70	45	64	66	78	70	75	70	65	70	75	78	74	62	85	71	94	54	56	71	78	68	78
Nest depth	98	115	88	90	148	118	87	138	73	110	62	110	175	123	123	80	90	126	90	110	52	145	85	117	113	92
Threshold	59	56	75	48	55	56	68	58	78	67	62	67	56	60	68	65	58	64	50	76	66	58	58	50	66	65
Entrance Tube	68	57	65	50	45	38	56	52	75	57	68	56	60	55	74	72	56	60	64	67	72	51	51	59	69	62
Weight	45.8	54.7	27.6	25.1	41.2	27.5	16.4	64.3	13.2	43.4	13.1	33.3	99.4	56.1	78.2	40.3	16.1	70	54.8	26.3	9.7	52.5	42.3	49.8	54.3	51.6

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

Table 3: P Values For Test Of Siginificance Between Complete And Incomplete Nest Stastistically Siginificant (One –Way Anova)

Parameter	Value	Significant/ Insignificant
Suspension	0.32362	**Insignificant**
Nest length	0.99787	**Insignificant**
Brood chamber	0.36339	**Insignificant**
Nest depth	0.70769	**Insignificant**
Threshold	0.70502	**Insignificant**
Entrance Tube	0.29453	**Insignificant**
Weight	**0.14991**	**Insignificant**

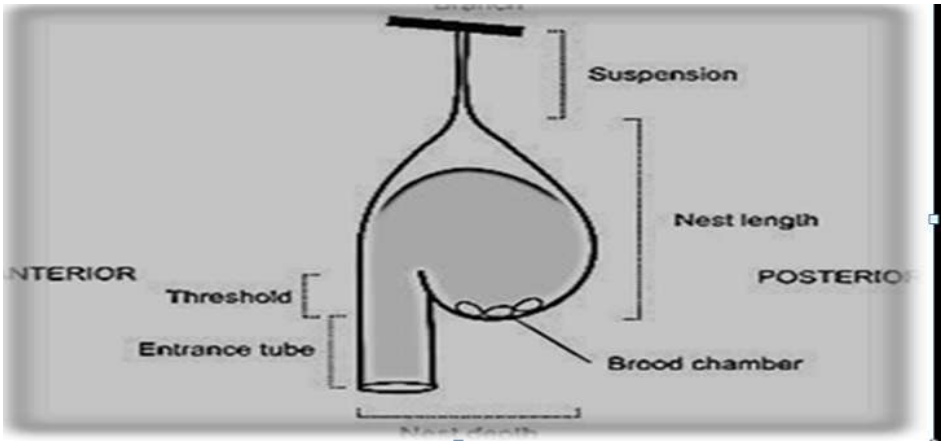

Figure 4 -A: Nest Structure And Measurement

Figure 4-B: Nest Measurement Scale

Figure 5: Nest Drawing

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

Figure 6: Nest Colony Drawing

III. RESULT AND DISCUSSION

In our study area total 33 nest observed these nest are two types complete and incomplete nest. The number of Complete nest are 07 and incomplete are 26 in numbers nest measurements were taken these nests by fine measuring scale in field without disturbance of birds like suspension, nest length, brood chamber, threshold, entrance tube (in mm) and weight of nest measure by digital weight with fine accuracy (in gm). All measurements arrange in tables-1 and 2 and apply ONE-WAY ANOVA of variance and calculate value online by software.

We observe in complete nest highest suspension 180mm and lowest is 10mm in our area maximum length of nest in area are 490mm n size while minimum size of nest 310mm brood chamber size is constant in complete nest and its average range are in between 98mm to 60mm in size. Highest depth of nest is 153mm (TABLE-1) and (PLATE-2)

In Incomplete nest various parameters of nest highest suspension of nest is 230mm and lowest are only 17mm there is a big difference in these parameters maximum size of length in these nest are 330mm while lowest is 128mm, brood chamber size range in between 54mm to 85mm in size there is sight difference and entrance tube length of nest are 52mm to 69mm (TABLE-2). Weight of incomplete nest is 99.40gm and minimum are 9.4gm.

Calculate all complete and incomplete parameter of nest by online software and compare these data with p-values and find final result these parameters indicate that complete nest is significant for birds for survival while incomplete nest in insignificant for bird activity like matting development of chick and environmental condition (TABLE-3)

IV. CONCLUSION

Variance in nest structure is depend on the geographical condition of surrounding environmental condition like vegetation, grassland availability of food materials resources of water , rainfall no of male in a colony and anthropogenic activity of human and surround birds. Large entrance tube useful for bird it make difficult to reach predator eggs and chicks. Suspension of nest make safe nest from adverse environmental con

V. REFERENCE

[1] Ambedkar V.C (1970) Nests of Baya (*Ploceious philippinus*) Linn.on telegraph wires, Journal of Bombay Nat. His. Soc., 66:624.
[2] Betts FN (1952) Bird nesting on telegraphic wires Journal of Bombay Nat. His. Soc.51:271.
[3] Davis .TA (1971a) Baya weaver bird nesting on human habituation. Journal of Bombay Nat. His.Soc, 68:246-248.
[4] Kirkptrick. KM (1952) Baya (*Ploceious philippinus*.Linn) nest of nest on telegraph wire Journal of Bombay Nat. His. Soc 52:657.
[5] Quaders (2006) what makes a good nest? Benefits of nest choice female baya weaver (*Ploceious philippinus*) The Auk 123(2):475-475.
[6] ANOVA software calculator plus Tukay HSD.