Building evidence for conservation globally

Journal of Threatened Taxa

Open Access

10.11609/jott.2023.15.12.24291-24450
www.threatenedtaxa.org

26 December 2023 (Online & Print)
15(12): 24291–24450
ISSN 0974-7907 (Online)
ISSN 0974-7893 (Print)

ISSN 0974-7907 (Online); ISSN 0974-7893 (Print)

Publisher
Wildlife Information Liaison Development Society
www.wild.zooreach.org

Host
Zoo Outreach Organization
www.zooreach.org

43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Registered Office: 3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Ph: +91 9385339863 | www.threatenedtaxa.org
Email: sanjay@threatenedtaxa.org

For Focus, Scope, Aims, and Policies, visit https://threatenedtaxa.org/index.php/JoTT/aims_scope
For Article Submission Guidelines, visit https://threatenedtaxa.org/index.php/JoTT/about/submissions
For Policies against Scientific Misconduct, visit https://threatenedtaxa.org/index.php/JoTT/policies_various

continued on the back inside cover

Cover: The critically endangered *Lilium polyphyllum* in watercolour and acrylics. © Aishwarya S Kumar.

Journal of Threatened Taxa | www.threatenedtaxa.org | 26 December 2023 | 15(12): 24357–24367
ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)
https://doi.org/10.11609/jott.8260.15.12.24357-24367
#8260 | Received 06 November 2022 | Final received 05 December 2023 | Finally accepted 12 December 2023
OPEN ACCESS
COMMUNICATION

A review of Baya Weaver *Ploceus philippinus* (Linnaeus, 1766) (Aves: Passeriformes: Ploceidae): ecological and conservation status

Yusufkhan Pathan [1] & **Arvindgiri Goswami** [2]

[1,2] Biology Department, M.V.M. Science & Home Science College, Saurashtra University, Rajkot, Gujarat 360005, India.
[1] pathanyn4@gmail.com (corresponding author), [2] arvindgirigoswami@gmail.com

Abstract: Baya Weaver *Ploceus philippinus* is a highly social and gregarious bird of the family Ploceidae that has been recently listed as 'Least Concern' by the IUCN Red List of Threatened Species. In India, four species of genus *Ploceus* are reported to date. This study focused on the appearance, distribution, diet specificity, nesting ecology, mating behaviour, and physiological responses to seasonal changes of *P. philippinus*. Populations have declined due to poor cultivation practices by farmers, rapid urbanization, and industrialization that have resulted in habitat loss. Weaver birds also face threats due to natural predators such as birds, and from insect damage to chicks, eggs, and nests.

Keywords: Diet specificity, Least Concern, mating behaviour, nesting ecology, threats, Weaver Bird.

Editor: H. Byju, Coimbatore, Tamil Nadu, India. **Date of publication:** 26 December 2023 (online & print)

Citation: Pathan, Y. & A. Goswami (2023). A review of Baya Weaver *Ploceus philippinus* (Linnaeus, 1766) (Aves: Passeriformes: Ploceidae): ecological and conservation status. *Journal of Threatened Taxa* 15(12): 24357–24367. https://doi.org/10.11609/jott.8260.15.12.24357-24367

Funding: SHODH- ScHeme Of Developing High Quality Research, Education Department, Gujarat State.

Competing interests: The authors declare no competing interests.

Author details: PATHAN, Y. is a research scholar at Saurashtra university, Rajkot. He has been working on the avian diversity and ecology of Baya Weaver for the last five years and has an interest in study of ornithology and conservation of birds. DR. A. GOSWAMI is associate professor of Zoology at Biology Department, M.V.M Science and home science college, Rajkot. His area of specialization includes fisheries ecology, avifaunal ecology and aquatic biodiversity.

Author contributions: YP explore the research articles and draft the manuscript. A. Goswami supervised and finalized a manuscript.

Acknowledgements: YP was supported by SHODH fellowship, Govt. Of Gujarat. The authors are thankful to Dr. K.J. Ganatra, Principal of the M.V.M Science & Home Science College, Rajkot for providing necessary permissions and support during research work.

INTRODUCTION

Baya Weaver *Ploceus philippinus* is a docile, intelligent, and gregarious sparrow-sized bird that is popularly known for excellent nest-weaving skills (Quader 2006). In 1760, the French zoologist Mathurin Jacques Brisson included a description of the Baya Weaver in his book of ornithology that was based on a specimen that he believed had been collected in the Philippines. Linnaeus (1766) provided a brief description of the Baya Weaver, citing the elongated description of Brisson, and repeated the locality as the Philippines. More than a century later, Hartert (1902) realized that the Baya Weaver does not occur in the Philippines and suggested the type locality should be Ceylon (Sri Lanka). This species is now placed in the genus *Ploceus* that was introduced by the French naturalist Georges Cuvier in 1816. India is home to four *Ploceus* (Lack 1954, 1968; Grewal et al. 2016; Grimmett et al. 2016): Black-breasted Weaver *P.* benghalensis, Streaked Weaver *P. manyar*, Finn's Weaver *P. megarhynchus*, and Baya Weaver *P. philippinus*. There are many works on nesting and population ecology (Quader 2005, 2006; Borges et al. 2002; Raju 2009; Pandian & Ahimas 2018; Kumar et al. 2018; Pandian 2022), but a combined review has not been prepared to date. This review provides baseline information about the nesting, mating, and population ecology, in addition to conservation status.

MATERIAL AND METHODS

Available literature was scrutinised for the ecological and conservation studies of Baya Weaver *P. philippinus*. Old articles were obtained from the Biodiversity Library and open source/online publications. References were collected from various institute libraries and recognised web-based literature. For the present study, 78 articles and books were screened for Baya Weaver studies including aspects such as nesting, mating, population ecology, and conservation status.

Appearance

Female and nonbreeding male: A male and female looks similar in nonbreeding season males exhibit brighter and more vibrant colours during the breeding season (Inskipp et al. 2011). The non-breeding male Baya Weaver boasts a yellow head cap, adorned with fine darker shaft streaks, while its mantle feathers exhibit a central brown hue complemented by distinct yellow margins. The tail and wings are dark brown with lighter margins. On the tertials, margins of the outer vanes are buffy to rusty while they are yellow-olive on the secondaries forming an unobtrusive wing panel. The throat is light brown, the breast yellow and the belly is light yellowish to whitish while the flanks are rather buffy. In addition, tarsi and toes are horn-coloured (Stiels & Schidelko 2013).

Breeding male: The males assumed bright golden yellow plumage on the crown, nape, breast, and sides of the neck. The bill was pale yellow in the non-breeding season but turned blackish in April and became black between May and October (Narasimhacharya et al. 1988).

Distribution in India: Andhra Pradesh, Bihar, Chhattisgarh, Goa, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, and West Bengal, Gujarat (Arigela et al. 2021).

Wider distribution: Java & Sumatra (Indonesia) (Wood 1926), Pakistan, Bangladesh, Thailand, Malaysia, and Sri Lanka (Ali & Ripley 1999), and Afghanistan (Stiels & Schidelko 2013).

Food preference: *P. philippinus* feeds on wider varieties of herbs as annotated in the Table 1. These birds forage in flocks for grains in cultivated fields and sometimes this bird is considered an agricultural pest (Sengupta 1974; Kale et al. 2014) but, in contrast, they also feed on different insects which are causing damage to the cultivated crops (Arigela et al. 2021).

Nesting ecology of *P. philippinus*

Nest construction pattern and its stages: The Baya Weaver *P. philippinus*, has been considered an architectural genius for the delicate craftsmanship of building intricate pendant nests. The nest of *P. philippinus* is pendulous, suspended to leaf tips, mono-storied, stalked, and retort shaped with a central nesting chamber and long vertical tube that leads to a side entrance to the chamber (Venkataramani 1981). Wood (1926) mentioned that weaver birds instead of building a nest once or twice in a year they reuse the old nest by repairing it, Raju (2009) reported that male Weaver birds constructed a new nest because of old ones may fall along with the leaf during an annual leaf fall. The Weaver bird rarely constructs a stalk-less nest because such nests are hardly ever excepted by the female weaver bird (Sharma 1995). There are five stages in the construction of a nest initial attachment, roof and egg/brood chamber, antechamber, entrance, and entrance tube (Raju 2009). Nest building was initiated by winding strands of grass around a selected twig until

Table 1. Details about the food specificity of *Ploceus philippinus*.

	Plant type	Family	Scientific name
1	Herb	Poaceae	*Acrachne racemosa* (B. Heyne ex Roth) Ohwi
2	Herb	Poaceae	*Alloteropsis cimicina* (L.) Stapf
3	Herb	Poaceae	*Arundinella pumila* (Hochst. ex A. Rich.) Steud.
4	Herb	Poaceae	*Arundinella setosa* Trin.
5	Herb	Poaceae	*Brachiaria eruciformis* (Sm.) Griseb.
6	Herb	Poaceae	*Brachiaria remota* (Retz.) Haines
7	Herb	Poaceae	*Brachiaria semiundulata* (Hochst. ex A. Rich.) Stapf
8	Herb	Poaceae	*Cyrtococcum trigonum* (Retz.) A. Camus
9	Herb	Poaceae	*Dactyloctenium aegyptium* (L.) Willd.
10	Herb	Poaceae	*Diplachne fusca* (L.) P. Beauv. ex Roem. & Schult.
11	Herb	Poaceae	*Echinochloa colona* (L.) Link
12	Herb	Poaceae	*Echinochloa crus-galli* (L.) P. Beauv.
13	Herb	Poaceae	*Echinochloa esculenta* (A. Braun) H. Scholz
14	Herb	Poaceae	*Echinochloa frumentacea* Link
15	Herb	Poaceae	*Echinochloa oryzoides* (Ard.) Fritsch
16	Herb	Poaceae	*Echinochloa picta* (J. Koenig) P.W. Michael
17	Herb	Poaceae	*Echinochloa stagnina* (Retz.) P. Beauv.
18	Herb	Cyperaceae	*Eleocharis dulcis* (Burm. f.) Trin. ex Hensch.
19	Herb	Poaceae	*Eleusine coracana* (L.) Gaertn.
20	Herb	Poaceae	*Eleusine indica* (L.) Gaertn.
21	Herb	Poaceae	*Eriochloa fatmensis* (Hochst. & Steud.) Clayton
22	Herb	Poaceae	*Eriochloa procera* (Retz.) C.E. Hubb.
23	Herb	Poaceae	*Hymenachne amplexicaulis* (Rudge) Nees
24	Herb	Juncaceae	*Juncus bufonius* L.
25	Herb	Juncaceae	*Juncus effusus* L.
26	Herb	Juncaceae	*Juncus inflexus* L.
27	Herb	Juncaceae	*Juncus prismatocarpus* R.Br.
28	Herb	Poaceae	*Leptochloa chinensis* (L.) Nees
29	Herb	Poaceae	*Leptochloa panicea* (Retz.) Ohwi
30	Herb	Poaceae	*Leptochloa uniflora* Hochst. ex A. Rich.
31	Herb	Poaceae	*Oryza rufipogon* Griff.
32	Herb	Poaceae	*Oryza sativa* L.
33	Herb	Poaceae	*Panicum brevifolium* L.
34	Herb	Poaceae	*Panicum curviflorum* Hornem.
35	Herb	Poaceae	*Panicum humile* Steud.
36	Herb	Poaceae	*Panicum miliaceum* L.
37	Herb	Poaceae	*Panicum notatum* Retz.
38	Herb	Poaceae	*Panicum paludosum* Roxb.
39	Herb	Poaceae	*Panicum repens* L.
40	Herb	Poaceae	*Panicum sparsicomum* Nees ex Steud.,
41	Herb	Poaceae	*Panicum sumatrense* Roth
42	Herb	Poaceae	*Paspalum distichum* L.
43	Herb	Poaceae	*Paspalum scrobiculatum* L.
44	Herb	Poaceae	*Pennisetum glaucum* (L.) R. Br.
45	Herb	Poaceae	*Sacciolepis indica* (L.) Chase
46	Herb	Poaceae	*Sacciolepis myosuroides* (R. Br.) Chase ex E.G. Camus & A. Camus
47	Herb	Poaceae	*Setaria geminata* (Forssk.) Veldkamp
48	Herb	Poaceae	*Setaria intermedia* Roem. & Schult.
49	Herb	Poaceae	*Setaria italica* (L.) P. Beauv.
50	Herb	Poaceae	*Setaria pumila* (Poir.) Roem. & Schult.
51	Herb	Poaceae	*Setaria punctata* (Burm. f.) Veldkamp
52	Herb	Poaceae	*Setaria verticillata* (L.) P. Beauv.
53	Subshrub	Solanaceae	*Solanum diphyllum* L.
54	Herb	Poaceae	*Sorghum bicolor* (L.) Moench
55	Herb	Poaceae	*Sorghum halepense* (L.) Pers.
56	Herb	Poaceae	*Sporobolus coromandelianus* (Retz.) Kunth
57	Herb	Poaceae	*Sporobolus diandrus* (Retz.) P. Beauv.
58	Herb	Poaceae	*Triticum aestivum* L.
59	Herb	Poaceae	*Triticum turgidum* L. subsp. *dicoccum* (Schrank ex Schübl.) Thell.
60	Herb	Poaceae	*Urochloa deflexa* (Schumach.) H. Scholz
61	Herb	Poaceae	*Urochloa distachya* (L.) T.Q. Nguyen
62	Herb	Poaceae	*Urochloa kurzii* (Hook. f.) T.Q. Nguyen
63	Herb	Poaceae	*Urochloa maxima* (Jacq.) R.D. Webster
64	Herb	Poaceae	*Urochloa mutica* (Forssk.) T.Q. Nguyen
65	Herb	Poaceae	*Urochloa panicoides* P. Beauv.
66	Herb	Poaceae	*Urochloa ramosa* (L.) T.Q. Nguyen
67	Herb	Poaceae	*Urochloa reptans* (L.) Stapf
68	Herb	Poaceae	*Urochloa setigera* (Retz.) Stapf
69	Herb	Poaceae	*Urochloa trichopus* (Hochst.) Stapf

Subramanyam (2017), Surender et al. (2018), Arigela (2021), Pandian (2022).

firm support was secured. A bunch of strands was then woven to form a 'wad' which was further expanded into an initial ring. The initial ring was then built up to form a helmet-shaped nest. Gradually, an egg chamber was added to the helmet and, at this stage, the bird's nest-building activity slowed down. Nest building only continued if the partially completed nest was accepted by the female weaver bird, Once the nest was accepted, a long entrance tube was added marking the completion of nest construction (Narasimhacharya et al. 1987).

Nest building material: The nest-building material used by this bird may vary according to the locality in India. Most often they use herbs of the family Poaceae as a nest-building material (Table 2). Baya weaver also preferred to build nests close to the power cable, roads and human dwellings (Pandian 2022).

Nest orientation: Borges et al. (2002) reported that the orientation of most of the nests is towards the east, while very few nests are oriented towards the south and north direction and no single nest oriented to west direction. Mean nest-entrance orientation was generally opposite to wind direction so as to be least affected by the south-west monsoon wind (Davis 1971; Pandian 2021a). It was reported that 40% of nest colonies in Rajasthan (Sharma 1990) and 89% of nests in Tindivanam taluka (Pandian & Ahimas 2018), 70% nests towards the east in Villupuram district and 81% of nests in Arakkonam taluka, Tamil Nadu (Pandian 2022) were oriented towards the east probably to protect their nests from the battering south-west monsoon winds.

Nesting platforms: In India, there is a wide variety of plants available to serve the purpose of nesting platforms for the *P. philippinus* (Ali & Ambedkar 1957; Ambedkar 1958). Availability of nesting materials, surrounding biological environment, temperature, light intensity, humidity, etc., restrict the nest selection of birds (Asokan et al. 2008). Psychic factor such as photoperiodic sensitivity also influence the nest site selection (Welty 1982). A regional bias seems to exist in the choice of certain plant species for nesting by the weaver bird, one of the reasons proposed for such a choice is the protection against intruders provided by the different plant species (Borges et al. 2002). A taking priority over the availability of food and nesting fibres has considered as a primitive factor for selection of nesting site. (Davis 1974). The nesting sites in the fields were always located near a water supply such as irrigation wells, rivers, lakes, ponds, and sewage stagnant water, and in urban areas underneath shady trees (Kumar et al. 2018; Pandian 2022). The apparent bias in the selection of plant species observed in various regions of the subcontinent raises the question of whether this reflects a genuine preference or is simply a consequence of their widespread occurrence in the region. The bird's selection criteria for nesting plants may involve choosing those with tall, sturdy, unbranched trunks, and a crown of swaying fronds. This choice not only provides protection against intruders, rain, and wind but also serves as a means of seeking attention from female weaver birds (Davis 1974). Among the various preferred nesting platforms (Table 3), some of them are also used for roosting and foraging. These birds move in flock to the sugarcane crops and *Prosopis juliflora* for roosting and foraging purposes (Pandian 2021b).

Mating Behaviour

Mate and nest choice: In many species of weaverbirds, males display their nests to females, suggesting that females may use nests for mate choice (Quader 2005). After the completion of the nest up to the wad stage, females arrive and visit several nests before pairing. Female choice of mates has been presumed to be based largely on the color; material and quality of the available nest (Collias & Collias 1964b, 1984; Crook 1960; Narasimhacharya et al. 1987). Female choice of the site may be influenced by both wind direction and safety from predation (Quader 2003). Most helmets were never made into complete nests and hence nest completion is a good indicator of female choice (Quader 2006). Ambedkar (1964) and Crook (1964) reported that the nest at a higher height is safer from predation than lower-heightened nests. Nest height is believed to be an important influence on nesting success in birds (Martin 1993) within tree nesting species, predation tends to decrease with height (Cresswell 1997; Schmidt & Whelan 1999). Both males and females are polygamous. Males usually build partial nests and complete them only after courting females (Ali et al. 1956). The male may build another helmet to attract another female. If a helmet is not accepted by any female the male often tears it down and builds a new one in its place (Abdar 2013). Quader (2006) found that several aspects of nest location (tree type, diameter of branch, nest height) and nest architecture (fibre thickness) predict direct benefit to females when nesting date and year are statistically controlled.

Breeding season: The Baya Weaver breeds during the rainy season (monsoon) in the Indian subcontinent (Ali & Ripley 1987). The breeding period of the Baya Weaver is largely based on seasonal changes and the availability of the diet. Food availability is preferably dependent on environmental factors such as temperature and rainfall and its ultimate cause to control seasonal breeding (Baker 1938; Immelmann 1971).

Physiological Responses to seasonal changes: The reproductive activity stimulates responses to the photoperiod (Thapliyal & Saxena 1964; Singh & Chandola 1981) as increasing day length during the pre-monsoon season. The stimulation of gonadotropic hormones in *P. phillipinus* such as leutinizing hormone (LH) and testosterone level varies in response to day length (Thapliyal & Saxena 1964; Stokkan & Sharp 1980)

Table 2. Annotated list of the nest building material used by *P. philippinus*.

	Habit	Family	Scientific Name
1	Subshrub	Poaceae	*Arundo donax* L.
2	Shrub	Poaceae	*Bambusa bambos* (L.) Voss
3	Tree	Arecaceae	*Borassus flabellifer* L.
4	Tree	Arecaceae	*Caryota urens* L.
5	Herb	Poaceae	*Chrysopogon zizanioides* (L.) Roberty
6	Tree	Arecaceae	*Cocos nucifera* L.
7	Herb	Cyperaceae	*Cyperus alopecuroides* Rottb.
8	Herb	Cyperaceae	*Cyperus articulatus* L.
9	Herb	Cyperaceae	*Cyperus corymbosus* Rottb.
10	Herb	Cyperaceae	*Cyperus digitatus* Roxb.
11	Herb	Cyperaceae	*Cyperus exaltatus* Retz.
12	Herb	Cyperaceae	*Cyperus pangorei* Rottb.
13		Arecaceae	*Dypsis lutescens* (H.Wendl.) Beentje & J. Dransf.
14	Herb	Poaceae	*Echinochloa crus-galli* (L.) P. Beauv.
15	Herb	Poaceae	*Echinochloa esculenta* (A. Braun) H. Scholz
16	Herb	Poaceae	*Echinochloa frumentacea* Link
17	Herb	Poaceae	*Echinochloa oryzoides* (Ard.) Fritsch
18	Herb	Poaceae	*Echinochloa picta* (J. Koenig) P.W. Michael
19	Herb	Poaceae	*Echinochloa stagnina* (Retz.) P. Beauv.
20	Herb	Cyperaceae	*Eleocharis dulcis* (Burm. f.) Trin. ex Hensch.
21	Herb	Poaceae	*Eleusine coracana* (L.) Gaertn.
22	Herb	Poaceae	*Eleusine indica* (L.) Gaertn.
23	Herb	Poaceae	*Eragrostis atrovirens* (Desf.) Trin. ex Steud.
24	Herb	Poaceae	*Eragrostis gangetica* (Roxb.) Steud.
25	Herb	Poaceae	*Eragrostis japonica* (Thunb.) Trin.
26	Herb	Poaceae	*Eragrostis nutans* (Retz.) Nees ex Steud.
27	Herb	Poaceae	*Eragrostis riparia* (Willd.) Nees
28	Herb	Poaceae	*Eragrostis tenuifolia* (A. Rich.) Hochst. ex Steud.
29	Herb	Poaceae	*Eriochloa fatmensis* (Hochst. & Steud.) Clayton
30	Herb	Poaceae	*Eriochloa procera* (Retz.) C.E. Hubb.
31	Herb	Poaceae	*Ischaemum afrum* (J.F. Gmel.) Dandy
32	Herb	Poaceae	*Oryza sativa* L.
33	Herb	Poaceae	*Pennisetum glaucum* (L.) R. Br.
34	Tree	Arecaceae	*Phoenix sylvestris* (L.) Roxb.
35	Herb	Poaceae	*Phragmites karka* (Retz.) Trin. ex Steud.
36	Herb	Poaceae	*Pogonatherum paniceum* (Lam.) Hack.
37	Tree	Arecaceae	*Roystonea regia* O.F.Cook
38	Herb	Poaceae	*Saccharum spontaneum* L.
39	Herb	Poaceae	*Saccharum officinarum* L.
40	Herb	Poaceae	*Sacciolepis interrupta* (Willd.) Stapf
41	Herb	Poaceae	*Setaria verticillata* (L.) P. Beauv.
42	Herb	Poaceae	*Sorghum bicolor* (L.) Moench
43	Herb	Poaceae	*Sorghum halepense* (L.) Pers.
44	Herb	Poaceae	*Sorghum nitidum* (Vahl) Pers.
45	Herb	Poaceae	*Sporobolus diandrus* (Retz.) P. Beauv.
46	Herb	Poaceae	*Thysanolaena latifolia* (Roxb. ex Hornem.) Honda
47	Herb	Poaceae	*Triticum aestivum* L.
48	Herb	Poaceae	*Triticum turgidum* L. subsp. *dicoccum* (Schrank ex Schübl.) Thell.
49	Herb	Typhaceae	*Typha angustifolia* L.
50	Herb	Typhaceae	*Typha domingensis* Pers.
51		Typhaceae	*Typha elephantina* Roxb.
52	Herb	Poaceae	*Urochloa maxima* (Jacq.) R.D. Webster
53	Herb	Poaceae	*Urochloa mutica* (Forssk.) T.Q. Nguyen
54	Herb	Poaceae	*Urochloa panicoides* P. Beauv.
55	Herb	Poaceae	*Urochloa trichopus* (Hochst.) Stapf
56	Tree	Arecaceae	*Wodyetia bifurcata* A.K. Irvine

Borges et al. (2002), Arigela (2021), Pandian (2022).

as its concentration increases during the month of April and May and highest between June and September (Narasimhacharya et al. 1987). The expression of gonadotropin inhibiting hormone is high on short days when the duration of nocturnal melatonin is increased, and low on long days when the duration of nocturnal melatonin is decreased (Ubuka et al. 2005). The environmental factors also contributed to the ecological significance via accompanying pre-breeding sexual changes and behaviour (Morley 1943; Sharp et al. 1986). A pre-nuptial molt occurred between March and June and a post-nuptial molt between October and November (Narasimhacharya et al. 1987). The lightning of the bill color starts to cause in August and its turns to a complete straw color in November and depigmented their plumage to the non-breeding type (Rani et al. 2007; Pandey & Bhardwaj 2015). The alteration in night light as a bright light during the night alters the resting pattern

Table 3. Detail about the nesting platforms preferred by the *P. philippinus* among the various part of the countries.

	Type of plant	Host plant	No. of nest	Locality	Reference
1	Unbranched Trees	*Borassus flabellifer*	247	Tindivanam Taluk, Villupuram District, Tamil Nadu, India	Pandian (2018)
2		*Cocos nucifera*			
3		*Phoenix sylvestris*			
4	Branched trees	*Casuarina equisetifolia*	12		
5		*Ficus benghalensis*			
6		*Azadirachta indica*			
7		*Morinda tinctoria*			
8		*Prosopis juliflora*			
9		*Pithecellobium dulce*			
10	Shrubs	*Phyllanthus reticulatus*	7		
11		*Securinega leucopyrus*			
12	Twiner	*Cissampelos pareira*	3		
13	Herb	*Ruellia prostrata*	1		
14	Power cables		4		
15	Unbranched Trees	*Acacia nilotica*	--	Western ghat, Maharashtra, India	Abdar (2013)
16		*Cycas sphaerica*	--	Jalantrakota reserve forest	Raju (2009)
17		*Cocos nucifera*	244	Agricultural study plot at Chorao an island in the Mandovi estuary in Goa, India.	Borges et al. (2002)
18		*Eucalyptus sp.*	136		
19		*Careya arborea*	2		
20		*Saccharum sp.*	3		
21		*Bambusa sp*	3		
22		*Borassus flabellifer*	--	Nagapattinam and Tiruvarur District of Tamil Nadu, India.	Asokan et al (2008)
23		*Cocos nucifera*	--		
24		*Phoneix psuilla*	--		
25		*Acacia Nilotica*	286	Nanded, Maharashtra, India	
26		*Prosopis Juliflora*	14		
27		*Azadirachta Indica*	18		
28		*Ziziphus mauritiana*	41		
29		*Acacia Karroo*	39		
30		*Mgifera Indica*	1		
31		*Dalbergia Sisooroxh*	13		
32		*Cocos Nucifera*	6		
33		*Ficus Religiosa*	17		
34		*Borassus fabellife*	8304	Tindivanam, Tamil Nadu, India	Pandian (2022)
35		*Phoenix sylvestris* (Arecaceae)	1083		
36		*Cocos nucifera* (Arecaceae)	1277		
37		*Prosopis julifora* (Fabaceae)	186		
38		*Morinda tnctoria* (Rubiaceae)	64		
39		*Casuarina equisetfolia*	102		
40		*Phyllanthus retculatu*	31		
41		*Vachellia nilotca* (Fabaceae)	41		
42		*Azadirachta indica* (Meliaceae)	39		
43		*Flueggea leucopyrus*	38		
44		*Ficus benghalensis (Fabaceae)*	58		

	Type of plant	Host plant	No. of nest	Locality	Reference
45	Unbranched Trees	*Lantana camara (Verbanaceae)*	113	Tindivanam, Tamil Nadu, India	Pandian (2022)
46		*Pithecellobium dulce (Fabaceae)*	12		
47		*Senna siamea*	10		
48		*Chromolaena odorata (Asteraceae)*	8		
49		*Ficus religios*	3		
50		*Leucaena leucocephela (Fabaceae)*	8		
51		*Albizia lebbeck (Fabaceae)*	21		
52		*Cortaderia selloana (Poaceae)*	12		
53		*Passifora foetda (Passiforaceae)*	1		
54		*Tamarindus indica (Tamarindus)*	1		
55		*Ehereta pubescens (Boraginaceae)*	3		
56		*Ziziphus oenopolia (Ramnaceae)*	1		
57		*Cocculus carolinu*	1		
58		*Solanum trilobatum (Solanaceae)*	1		
59		*Musa paradisiaca (Musaceae)*	1		
60		*Moringa oleifera (Moringaceae)*	4		
61	Crop	*Cereal grain crop*	7477		Pandian (2022)
62		*Sugarcane*	1641		
63		*Pulses & oil seeds*	767		
64		*Fallow lands*	381		
65		*Casuarina groves*	568		
66		*Residental area*	173		
67		*Flower crops*	106		
68		*Other groves*	273		
69	Abnormal nest supporting plant	*Borassus fabellifer- female*	3682		Pandian (2022)
70		*Borassus fabellifer- male*	2272		
71		*Cocos nucifera*	776		
72		*Phoenix sylvestris*	452		
73		*Morinda tnctoria*	43		
74		*Prosopis julifora*	73		
75		*Vachellia nilotica*	11		
76		*Azadirachta indica*	15		
77		*Ficus benghalensis*	90		
78		*Flueggea leucopyrus*	10		
79		*Lantana camara*	7		

Arigela (2021), Abdar (2012), Pandian (2018), Abdar (2013), Raju (2009), Borges et al. (2002), Asokan et al. (2008), Pandian (2022).

of this bird it induced a fragmented activity in the early phase of night and enhancement at late night instead of the actual onset of the day (Raap et al. 2015; Touitou et al. 2017; Kumar et al. 2018). The midnight activity increases in presence of bright light due to advancement in the endogenous clock function as the suppression level of melatonin and increased body temperature (Kumar et al. 2002; Jong et al. 2015; Kumar et al. 2018). An endogenous clock system sensitive to light enables the bird to synchronize its physiological activities at the appropriate time of the day and time of the year (Kumar & Follett 1993a; Kumar et al. 1996).

Clutch size and coloration: The female lay 2–4 white eggs and incubates them for 14–17 days. (Ali & Ambedkar 1957). Two eggs per nest were observed by Venkatramani (1981) and Sharma (1995).

Image 1. Sexual dimorphism and nesting of *Ploceus philippinus*. A—Flock of male and female | B—Male with host plant | C—Nesting over irrigation well | D & E—Nesting on host plant | F—Nest weaving by male bird. © Authors.

Threats

Pandian (2021b) reported that farmers are the prime reason behind the declining population of the *Ploceus philippinus* in India. They burn herbs and shrubs under nest supporting trees and by clearing grasses around irrigation wells which may cause the scarcity of the nesting substrata for the *P. philippinus*. Individuals of *Rufous treepie* damage the nest of the weaver birds by driving a circular hole over the nest and predating the egg and chicks and it is also damaged by other bird species such as *Corvus splendens*, *Corvus macrorhynchos*, *Dicrurus macrocercus*, and *Eudynamys scolopaceus* (Ali 1931; Pandian 2021a, 2022). Ali et al. (1957) observed that the predation by House Crow *Corvus splendens* (Passeriformes: Corvidae) is very common. Pandian (2022) reported that 1,050 nests had fallen during their study period among various sites in Tamil Nadu, it has been found that total of 25 eggs and 18 dead chicks were spread near fallen nests may due to various biotic and abiotic factors as suggested by Ali et al. (1957), Collias & Collias (1959, 1962), and Pandian (2021b). Rapid urbanization and industrialization have resulted in declining areas of cultivation up to 20%, particularly cereal crops, thus causing lack of food grains and insect fauna to *P. philippinus* (Pandian 2018). The presence of heavy metal contamination in excreta has indicated that it might have a negative impact on the abundance of Baya Weaver in Punjab state (Sidhu & Kler 2021). *Ploceus philippinus* has most recently been assessed for The IUCN Red List of Threatened Species in 2016 as 'Least Concern' (Birdlife International 2016).

CONCLUSION

This study provides information about appearance, food specificity, nesting ecology, and mating behaviour of the *P. philippinus*. It is found that a small sparrow sized weaver bird shows sexual dimorphism in appearance. They mostly prefer a wider variety of herbs species in their diet as it perennially found during all seasons but highly flourish during cold season. Along with the food availability some physiological changes bring a seasonal breeding bird. These birds are famous for their nest weaving practices, it can be considered as a nidificate architect. Species specific studies and detailed knowledge of local bird population can greatly help in effective management measures, as several scientific aspects covered by the many initiators among diverse countries. It can help to bridge gaps in knowledge and benefit the future survival of a population of *P. philippinus* in the threatened environment. However, this review could act as a baseline for further research on ecology of *P. philippinus*.

REFERENCES

Abdar, M.R. (2013). Nesting Ecology of Baya Weaver *Ploceus Philippinus* (Linnaeus): Passeriformes pp 75–80. In: Jadhav, B., U. Jadhav & U. Bagde. *Current Trends in Life Sciences*. Lambert Academy Publishing, Saarbrücken, Germany, 209 pp.

Ali, S. & S.D. Ripley (1987). *Birds of India and Pakistan.* Oxford University Press, New Delhi, 737 pp.

Ali, S. & V.C. Ambedkar (1957). Further notes on Baya, *Ploceus philippinus* (Linn.). *Journal of the Bombay Natural History Society* 54(3): 491–502.

Ali, S. (1931). The nesting habits of the Baya (*Ploceus philippinus*). *Journal of the Bombay Natural History Society* 4(4): 947–964.

Ali, S., Vijayakumar & V.C. Ambedkar (1956). Notes on the Baya weaver Bird. *Journal of the Bombay Natural History Society* 53: 381–389.

Ambedkar, V.C. (1958). Notes on the Baya breeding season. *Journal of the Bombay Natural History Society* 55(1): 100–106.

Ambedkar, V.C. (1964). *Some Indian Weaver Birds: A Contribution to their Breeding Biology.* University of Bombay, Bombay, 75 pp.

Arigela, R.K., R.K. Singh, N. Siddabathula, K. Prasad & B.S. Yadav (2021). Botanical view of the Baya Weaver's choices in India. *Species* 22(70): 420–430.

Asokan, S., M.S. Ali & R. Nagarajan (2008). Studies on nest construction and nest microclimate of the Baya Weaver, *Ploceus philippinus* (Linn.). *Journal of Environmental Biology* 29: 393–396.

Baker, J.R. (1938). The relation between latitude and breeding seasons in birds. Proceedings of the *Zoological Society of London* 108: 557–582.

BirdLife International (2016). *Ploceus philippinus*. The IUCN Red List of Threatened Species 2016: e.T22719005A94606190. Accessed on 08 July 2022. https://doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22719005A96006190.en

Borges, S.D., M. Desai & A.B. Shanbhang (2002). Selection of nest platforms and the differential use of nest building fibers by the Baya Weaver *Ploceus philippinus* Linn. *Tropical Biology* 15: 17–25. https://doi.org/10.1080/03946975.2002.10531164

Brisson, M.J. (1760). *Ornithology, or a methodical synopsis showing the division of birds into orders*. Vol. 3. Joannes-Baptista Bauche, Paris, 734 pp.

Brisson, M.J. (1st ed.) (1760). *Ornithology, or method containing the division of birds into orders, sections, genera, species and their varieties. To which has been added an exact description of each species, with the citations of the authors who have dealt with them, the names they have given them, those given to them by different nations, and the common names*. Cl. Jean-Baptiste Bauche, Paris, 4: 576 pp.

Collias, N.E. & E.C. Collias (1962). An experimental study of the mechanisms of nest building in a weaver bird. *The Auk* 79: 568–595.

Collias, N.E. & E.C. Collias (1964). The development of nest building behavior in a weaver bird. *The Auk* 81: 42–52.

Collias, N.E & E.C. Collias (1964b). Evolution of nest-building in the weaverbirds. *University of California Publications in Zoology* 73: 1–162.

Collias, N.E. & E.C. Collias (1959). Breeding behaviours of the Black-headed Weaver bird, *Textor cucullatus graueri* (Hartert), in the Belgian Congo. Proceedings of the First Pan-African Ornithological Congress, Ostrich, Suppl. No. 3: 233–241.

Collias, N.E. & E.C. Collias (1984). Nest building and bird behaviour. Princeton, NJ: Princeton University Press, 358 pp.

Cresswell, W. (1997). Nest predation: the relative effects of nest characteristics, clutch size and parental behaviour. *Animal Behaviour*

53(1): 93–103.

Crook, J.H. (1960). Studies on the reproductive behavior of the Baya Weaver bird *Ploceus philippinus* (Linn.). *Journal of the Bombay Natural History Society* 57(1): 1–44.

Crook, J.H. (1964). *The evolution of social Organisation and visual communication in the weaver birds (Ploceinae)*. Brill – book. 178 pp.

Cuvier, G. (1816). *The Animal Kingdom distributed according to its organization: to serve as a basis for the natural history of animals and an introduction to comparative anatomy (in French), 3rd edition, Vol. 1*. Déterville, Paris, 383 pp.

Davis, T.A. (1971). Variation in nest structure of the common weaver birds *P. philippinus* of India. *Forma et functio* 4: 225–239.

Davis, T.A. (1974). Selection of nesting trees and the frequency of nest visits by Baya weaver bird. *Journal of the Bombay Natural History Society* 71(3): 356–366.

Grewal, B., S. Sen., S. Singh., N. Devasar & G. Bhatia (2016). *A pictorial field guide to birds of India, Pakistan, Nepal, Bhutan, Sri Lanka and Bangladesh*. Om Book International, Noida, 792 pp.

Grimmett, R., C. Inskipp & T. Inskipp (1998). *Birds of the Indian Subcontinent, 1st edition*. Christopher Helm, A & C Black, London, 888 pp.

Grimmett, R., C. Inskipp & T. Inskipp (2016). *Birds of the Indian Subcontinent: India, Pakistan, Sri Lanka, Nepal, Bhutan, Bangladesh and the Maldives*. Bloomsbury Publishing, India, 448 pp.

Hartert, E. (1902). On birds from Pahang, eastern Malay Peninsula. *Novitates Zoologicae* 9: 537–580. https://doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22719005A94606190.en

Immelmann, K. (1971). Ecological aspects of periodic reproduction. *Avian biology* 1: 341–389.

Inskipp, C., R. Allen., T. Inskipp & R. Grimmett (2011). *Birds of the Indian Subcontinent*. United Kindom: Christopher Helm, 528 pp.

Jong, M., L. Jeninga, J.Q. Ouyang, K. Oers, K. Spoelstra & M.E. Visser (2015). Dose-dependent responses of avian daily rhythms to artificial light at night. *Physiology and Behavior* 155: 172–179.

Kale, M.A., N. Dudhe, R. Kasambe & P. Bhattacharya (2014). Crop Depredation by Birds in Deccan Plateau, India. *International Journal of Biodiversity* 2014: 8. https://doi.org/10.1155/2014/947683

Kumar, J., S. Malik., S.K. Bhardwaj & S. Rani (2018). Bright light at night alters the perception of daylength in Indian weaver bird (*Ploceus philippinus*). *Journal of Experimental Zoology Part A: Ecological and Integrative Physiology* 329(8–9): 488–496.

Kumar, V. & B.K. Follett (1993a). The nature of photoperiodic clock in vertebrates. Proceeding Zoological Society of Calcutta, J.B.S. Haldane Commemoration Volume: 217–227.

Kumar, V., S. Singh, M. Misra, S. Malik & S. Rani (2002). Role of melatonin in photoperiodic time measurement in the migratory redheaded bunting (*Emberiza bruniceps*) and the nonmigratory Indian weaver bird (*Ploceus philippinus*). *Journal of Experimental Zoology* 292: 277–286.

Lack, D. (1954). *The natural regulation of animal numbers*. Oxford University Press, Oxford, 343 pp.

Lack, D. (1968). *Ecological adaptations for breeding in birds*. Methuen and Co., London, 409 pp.

Linnaeus, C. (1766). *The system of nature through the three kingdoms of nature, according to classes, orders, genera, species, with characters, differences, synonyms, places, Vol 1,* 12th edition reformed. Lawrence Salvius, Holmiae, 532 pp.

Martin, T.E. (1993). Nest predation among vegetation layers and habitat types: revising the dogmas. *The American Naturalist* 141(6): 897–913.

Mohanathan, P. & A. Preston (2018). Nesting behavior of the Baya weaver bird, *Ploceus philippinus* (Linnaeus) (Passeriformes: Ploceidae) in rural Tamil Nadu, India. *International Journal of Ecology and Environmental Sciences* 44(1): 33–42.

Morley, A. (1943). Sexual behaviour in British birds from October to January. *IBIS International journal of avian science* 85: 132–158.

Narasimhacharya, A.V.R.L. (1987). Investigations on hormonal factors integument and certain aspects of breeding biology of the male Indian baya weaver bird *Ploceus philippinus* l. Ph.D. thesis, Department of Bio Science, Sardar Patel University, 215 pp.

Narasimhacharya, A.V.R.L., V.C. Kotak & P.J. Sharp (1988). Environmental and hormonal interactions in the regulation of seasonal breeding in free-living male Indian baya weaver birds (*Ploceus philippinus*). *Journal of Zoology* 215(2): 239–248.

Pandey, R.K. & S.K. Bhardwaj (2015). Photoperiodic regulation of seasonal responses in Indian weaver bird (*Ploceus philippinus*). *Biological Rhythm Research* 46(4): 483–495.

Pandian, M. & P. Ahimaz (2018). Nesting behavior of the Baya Weaver Bird, *Ploceus philippinus* (Linnaeus) (Passeriformes: Ploceidae) in rural Tamil Nadu, India. *International Journal of Ecology and Environmental Sciences* 44(1): 33–42.

Pandian, M. (2018). Baya Weaver Bird: Nest colonies and abnormal nests of *Ploceus philippinus* in Tindivanam Taluk, Tamil Nadu, India. Bird-o-soar. In: *Zoo's Print* 33(12): 15–27.

Pandian, M. (2021a). Nesting habits of Baya Weaver *Ploceus philippinus* (Linnaeus, 1776) in rural Arakkonam Taluk, Vellore district, Tamil Nadu, India. *Journal of the Bombay Natural History Society* 118: 03–17.

Pandian, M. (2021b). Incidences of White-rumped Munia occupying the nest of Baya Weaver in Villupuram District, Tamil Nadu. Bird-o-soar 65, In: *Zoo's Print* 36(1): 07–09.

Pandian, M. (2022). Nesting habits of the Baya Weaver *Ploceus philippinus* (Linnaeus, 1766) in the agricultural landscape of Tindivanam, Tamil Nadu, India. *Journal of Threatened Taxa* 14(5): 20970–20987. https://doi.org/10.11609/jott.7762.14.5.20970-20987

Quader, S. (2003). Nesting and mating decisions and their consequences in the Baya Weaverbird *Ploceus philippinus*. PhD Thesis. Graduate School, University of Florida, 116 pp.

Quader, S. (2005). Elaborate Nests in a Weaver birds: Arole for female choice? *Ethology* 111: 1073–1088.

Quader, S. (2006). Sequential settlement by nesting male and female Baya weaverbirds *Ploceus philippinus*: the role of monsoon winds. *Journal of Avian Biology* 37:396–404.

Raap, T., R. Pinxten & M. Eens (2015). Light pollution disrupts sleep-in free-living animals. *Science Reports* 5(8): 13557.

Raju, A.J.S. (2009). Nesting behaviourof the Baya Weaver bird, *Ploceus philippinus* (Ploceidae) and the life-cycle of the Plains Cupidbutterfly, *Chilades pandava* (Lycaenidae) with thered-listed *Cycas sphaerica* and *C. beddomei* (Cycadaceae). *Journal of Threatened Taxa* 1(8): 429–433. https://doi.org/10.11609/JoTT.o21735.429-33

Rani, S., S. Singh & V. Kumar (2007). Photoperiodism, pineal clock and seasonal reproduction in the Indian weaver bird (*Ploceus philippinus*). *Journal of Ornithology* 148(2): 601–610.

Schmidt, K.A. & C.J. Whelan (1999). Nest placement and mortality: is nest predation a random event in space and time? *The Condor* 101(4): 916–920. https://doi.org/10.2307/1370089

Sengupta, S. (1974). The Common Baya (*Ploceus philippinus*) - a serious pest of agriculture. *Current Science* 43: 24–125.

Sharma, S.K. (1990). Orientation of nest colonies by Baya Weaver Birds. *Journal of the Bombay Natural History Society* 87(3): 454–455.

Sharma, S.K. (1995). A study of abnormal nests of Baya weaver bird *Ploceus philippinus* (Linn.) in Rajasthan. *Journal of the Bombay Natural History Society* 92(1): 67–76.

Sharp, P.J., R. Massa, L. Bottoni, V. Lucini, R.W. Lea, I.C. Dunn & V. Trocchi (1986). Photoperiodic and endocrine control of seasonal breeding in grey partridge (Perdix perdix). *Journal of Zoology* 209(2): 187–200. https://doi.org/10.1111/j.1469-7998.1986.tb03575.x

Sidhu, S.K. & T.K. Kler (2021). Assessment of Heavy Metal Contamination in Excreta of Baya Weaver Bird (*Ploceus philippinus*) from Three Districts of Different Zones of Punjab. *Bulletin of Environmental Contamination and Toxicology* 106(5): 799–804.

Singh, S. & A. Chandola (1981). Photoperiodic control of seasonal reproduction in a tropical weaver bird. *Journal of Experimental Zoology* 216: 293–298.

Stiels, D. & K. Schidelko (2013). Records of Indian' Baya Weaver *Ploceus philippinus* (Linnaeus, 1766) and Hooded Wheatear *Oenanthe monacha* (Temminck, 1825) from Afghanistan (Aves:

Passeriformes). *Bonn Zoological bulletin* 62(2): 171–176.

Stokkan, K.A. & P.J. Sharp (1980). Seasonal changes in the concentrations of plasma luteinizing hormone and testosterone in willow ptarmigan (*Lagopus lagopus lagopus*) with observations on the effects of permanent short days. *General and Comparative Endocrinology* 40: 109–115.

Surender G., R.V. Vasudeva, S.S Mahesh, R.S. Tripati & K. Swamy (2018). Unusual Depredatory Birds in Sunflower and Sorghum. *Entomology Ornithology Herpetology: Current research* 7: 291. https://doi.org/10.4172/2161-0983.1000291

Thapliyal, J.P. & R.N. Saxena (1964). Absence of a refractory period in the common Weaver bird. *The Condor* 66: 199–208.

Touitou, Y., A. Reinberg & D. Touitou (2017). Association between light at night, melatonin secretion, sleep deprivation, and the internal clock: Health impacts and mechanisms of circadian disruption. *Life Sciences* 173: 94–106.

Ubuka, T., G.E. Bentley, K. Ukena, J.C. Wingfield & K. Tsutsui (2005). Melatonin induces the expression of gonadotropin-inhibitory hormone in the avian brain. *Proceedings of the National Academy of Sciences of the United States of America* 102: 3052–3057.

Kumar, V., N. Jain & B.K. Follett (1996). The photoperiodic clock in black headed buntings (Emberizamelanocephala) is mediated by a self-sustaining circadian system. *Journal of Comparative Physiology* A 179: 59–64.

Venkataramani, K. (1981). Nests of weaver birds on telegraph wires. *Newsletter for Birdwatchers* 21: 18.

Welty, C.J. (1982). *The Life of Birds*. W.B. Saunders Co., New York, 754 pp.

Wood, C.A. (1926). The nest of the Baya Weaver bird. *The Auk* 43(3): 295–302. https://doi.org/10.2307/4075422

Journal of Threatened Taxa is indexed/abstracted in Bibliography of Systematic Mycology, Biological Abstracts, BIOSIS Previews, CAB Abstracts, EBSCO, Google Scholar, Index Copernicus, Index Fungorum, JournalSeek, National Academy of Agricultural Sciences, NewJour, OCLC WorldCat, SCOPUS, Stanford University Libraries, Virtual Library of Biology, Zoological Records.

NAAS rating (India) 5.64

Print copies of the Journal are available at cost. Write to:
The Managing Editor, JoTT,
c/o Wildlife Information Liaison Development Society,
43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore,
Tamil Nadu 641006, India
ravi@threatenedtaxa.org

Journal of Threatened Taxa

www.threatenedtaxa.org

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

December 2023 | Vol. 15 | No. 12 | Pages: 24291–24450
Date of Publication: 26 December 2023 (Online & Print)
DOI: 10.11609/jott.2023.15.12.24291-24450

Articles

Communications

Short Communications

Publisher & Host

WILD zoo reach
Zoo Outreach Organisation

Threatened Taxa