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Research Article

Ecology and breeding biology of *Prinia burnesii burnesii* (Blyth, 1844) in the Indus plains

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Abstract

The Rufous-vented Prinia (*Prinia burnesii burnesii*) is a near threatened grassland passerine bird. The current study aimed to document its bio-ecology and breeding biology. A sensitive camera was used to examine the feeding and breeding behavior. It primarily relied on insects as its main source of diet. Gleaning and probe were the main food capturing behaviors. A total of 33 nests were found, of which 30 were active. Of 33 nests, 21 were built on *S. spontaneum* grass, 10 on *S. munja* and two on *Prosopis juliflora* plants. All the nests were cup-shaped, built on plants with a mean height of 2.63±0.50 meters. The mean clutch size was 3.38±0.5. Both parents took part in nest building and chick rearing. Only female birds consistently incubated the eggs. Incubation and nestling periods lasted for 17±0.51 days (n=23, range=16-18) and 12±0.75 days (n=17, range=11-13), respectively. The total period from nest building to fledging counted for 37.4±1.01 days (n=17, range=36-39). The overall survival rate was 37%. Predation and clearance of grasslands for agricultural purposes are the main threats to its breeding success.

Keywords: *Prinia burnesii burnesii*, near threatened, gleaning, clutch size, incubation, predation

Introduction

Grasslands are one of the least protected biomes, with only 4.5% of the temperate grasslands, savannas, and shrublands under the protected area system (Brooks et al., 2004) and much less in Asia (BirdLife International, 2001). This has resulted in the loss of numerous grassland-dependent species (Ceballos et al., 2010; Haddad et al., 2015; White et al., 2000). As birds are important for environmental assessments and conservation planning, there is a need for a better ecological understanding of the role of avian community structure in conservation decision-making (Tabur & Ayvaz, 2010). Bio-ecological aspects of birds of Asian tropical areas are still poorly known (Robson, 2005).

Passerines are well-suited for their morphological studies due to their typical small bill size (except corvids) and a notable consistency in the structure of their jaw apparatus (Kalyakin, 2011). Both feeding and reproduction are vital activities across all bird species, essential for survival. The physiology and behavior of birds pose significant challenges, primarily the demands associated with acquiring food. The Rufous-vented Prinia (*Prinia burnesii burnesii*; Synonym: *Laticilla burnesii burnessi*) has its unique identification marks e.g., white sides on its head and cheeks, a pale horny bill, pale brown legs, and feet, and its deep rufous under tail coverts (Grimmett et al., 2008). In Pakistan, it spreads extensively across Punjab along the Indus, Jhelum, Chenab, Ravi, and Sutluj rivers and extends into South Sindh along the Indus. It is found from Dera Ismail Khan to Chashma Barrage near the flanks of the Indus, in its northern range in Khyber Pakhtunkhwa (Showler & Davidson, 1999).

The Indian subcontinent hosts three isolated populations of the species, with the nominate subspecies *Prinia brunesii brunesii* being found along the river Indus and its tributaries within Pakistan (Haider et al., 2022; Roberts, 1992) and neighboring North-West India (Collar et al., 1994). Another subspecies *P. b. cinerascence* (Walden) inhabits northeast India along the plains of Brahmaputra in Assam and Bangladesh, extending into certain tributaries of Ganges in Bangladesh westward to Bihar (Ripley, 1982). Whereas the third subspecies recently identified as *P. b. nipalensis* is documented Koshi Tappualong the Koshi River (Baral et al., 2007).

P. b. burnesii is one of the poorly known species. It is rapidly declining throughout its range because of habitat degradation, and it is currently considered near-threatened (Birdlife International, 2024; Haider et al., 2022). Three isolated populations of the species are present in the Indian subcontinent. To conserve the population of grassland birds, it is necessary to provide baseline information on their breeding biology, especially in undisturbed habitats and over extended period of times (Jones et al., 2010). Previously, there was no detailed description of the feeding and breeding biology of *P. b. burnesii* such as food composition, methods of feeding, nature of the nesting plants, nest composition, nest site characteristics and breeding season. The present study describes its detailed description of its feeding and breeding behavior.

Material and methods

Study area

The study was carried out in the grassland habitats along the River Ravi between 30°36'49" N, 72°32'37" E and 30°34'28" N, 72°14'10" E and along the River Chenab between 30°38'00" N, 71°48'35" E and 30°25'22" N, 71°31'14" E in Punjab Province, Pakistan. These are two of five rivers associated with Punjab Province. The alluvial conditions around these rivers provide suitable growing environment for tall grasses. These tall grasses such as *Saccharum spontaneum, S. munja, S. arundinaceum, Typha angustifolia* and *Phragmites karka* are present in patches around the riverbanks in different combinations. These are integral parts of habitats, inhabited by *P. b. burnesii*. It was identified with the help of field guide to Bird of Pakistan (Grimmett et al., 2008).

Foraging biology

Direct observation method was used instead of stomach content analysis to document the diet composition. Foraging records were collected at the study sites during January 2022 to December 2023. Microhabitat conditions such as feeding substrate, vertical height of foraging plants above ground level and foraging methods employed were recorded during each foraging attempt made by the bird. The substrate from which the bird takes food is termed foraging substrates like ground and plant substrate. We included organic matter including dead and drying leaves, fresh soil molds and dung piles into ground substrate. Fresh soil molds were made by wild mammals through digging around holes, while plant substrate includes trunk, branches, leaves, flowers, and fruits of plants.

Foraging behavior

Foraging behaviors were defined as follows: (i) Gleaning: standing or hopping bird picks the food item from the substrate (ii) Probe: concealed food is located by penetrating or lifting the substrate by bird’s beak only (iii) Sally: a bird flies from the perch, catches the flying or sedentary prey and returns back to the perch to feed on it (iv) Pounce: a bird flies from the perch and captures the prey item while landing on the ground. The method of gleaning was further classified into two categories depending on the actual location of the prey, i.e., gleaning from the plant and gleaning from the ground. Food handling techniques were defined as (i) Gulping: to swallow upon capture without any noticeable manipulation other than being held briefly by the bill, (ii) Tearing and gulping: to dissect the food into smaller pieces before engulfing (Remsen & Robinson, 1990). To represent the accurate feeding behavior of a bird, a minimum of 30 independent observations are recommended (Morrison, 1984), but in this study 404 observations were carried out to authenticate the feeding biology of *P. b. burnesii*.

Insect abundance

Insect abundance was measured by using sweep net and knock-down methods (Southwood, 1971). Concentrated efforts were made for random collection of the insects from feeding substrates. Data were collected twice in a month to estimate total abundance of the insects in the study sites. The insect prey preference by *P. b. burnesii* was calculated by converting observations of positively identified prey items into the proportion of the total feeding observations made.

Breeding biology

Although it was an easy approach to observe the birds with nesting material or food in the beak for nestlings to locate the nests, the study sites were scanned extensively in search of nests by establishing transects. As the species is naturally tamed to humans, least efforts were made to conceal the observers. The nests found were georeferenced using a global positioning system GPS device. Nests were monitored daily. Data about nesting plant, nesting plant height, nest height from ground, nest composition, clutch size, size and weight of eggs, incubation and nestling period, nest survival, breeding success and nestling diet composition were recorded. Keen observations regarding feeding and breeding biology were made. 10×50 Baigish and 15~17x28 MC Kenko binoculars were used for observations when required. Huawei Mate 10 Lite cell phone and Minolta mn67z digital camera were used to capture photos and videos during observations. The calls of the birds were also recorded by using the same equipment. Measurements of nests and eggs were taken by using Vernier caliper and simple ruler and eggs were weighed by using electrical balance.

Statistical analysis

The data were stored and statistically analyzed by using Microsoft Excel and R software version 4.3.1.

Results

Feeding

Current study revealed that although, the diet of *P. b. burnesii* consisted of insects but it is an omnivorous bird. Its diet is comprised of arthropods, molluscs, grass leaves and grains. Insects in the order Lepidoptera (Butterflies and moths), Coleoptera (Beetles and Weevils), Hymenoptera

(Wasps, bees, and ants) and Hemiptera (Aphids, cicadas, leafhoppers and planthoppers) comprised the largest proportion of the diet. Insects in the order Orthoptera (Grasshoppers. locusts and crickets) accounted for the lowest proportion. The arachnids consumed by *P. b. burnesii* were spiders. The mollusks eaten by *P. b. burnesii* were gastropods belonging to the order Littorinimorpha. The grains of the plants, Sesame (*Sesamum indicum*), Wheat (*Triticum vulgare*), Millet (*Pennisetum typhoidum*), Mung bean (*Vigna radiata*) and Fodder crop (*Sorghum vulgare*) were consumed by *P. b. burnesii* whenever available. These crops are cultivated in the fields at the edges of the grasslands regularly. *P. b. burnesii* were also seen to eat the leaves of *S. spontaneum* and *T. angustata* (Fig.1).

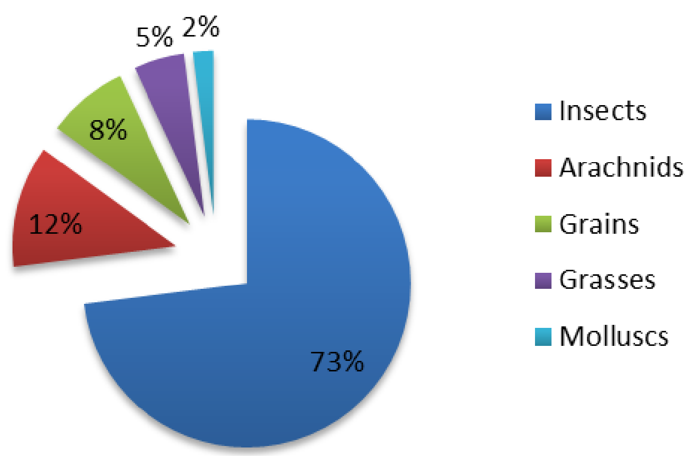

Figure 1. Feed composition of *P. b. burnesii* during the study period.

Foraging substrate, food capturing and handling techniques

P. b. burnesii preferred plant substrate for food capture. There was significant difference in the mean rates of selection of substrates for food capture (ANOVA; $F_{(2,36)}$ =33.2, p-value<0.01). Four food capturing techniques were employed by *P. b. burnesii* such as gleaning, probe, sally, and pounce. Gleaning was the main technique employed followed by probe (Fig. 2). There was significant difference among the mean rates of food capturing techniques used (ANOVA; $F_{(2,120)}$ = 109.2, p-value < 0.05). The food handling techniques used by *P. b. burnesii* were 'gulping' and 'tearing and gulping. There was significant difference among the mean rates of food handling techniques employed (Welch two sample t-test, t=13.62, df= 206, p-value < 0.05) (Fig. 2).

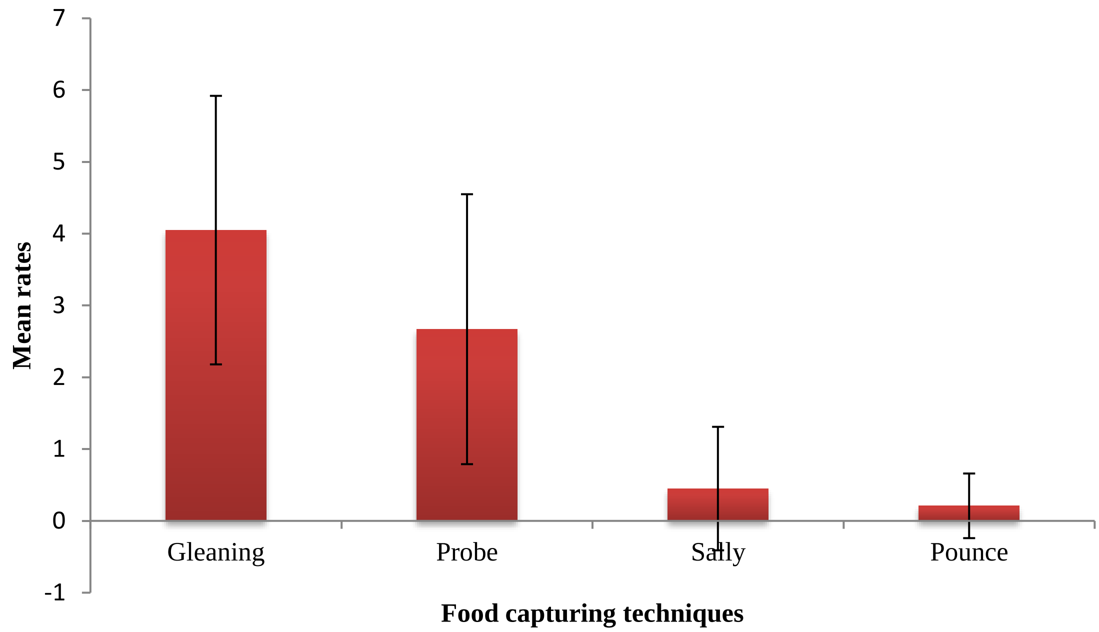

Figure 2. Mean rates of food capturing techniques employed by *P. b. burnesii*

Breeding

Nesting plants and nest composition

A sum of 33 nests was found during the study period. Of these 33, 21 nests were built among upright stems of *S. spontaneum* thickets, 10 on *S. munja* and 2 nests on branches of *P. juliflora*. Nest construction (n =23) completed in 3.1± 0.19 days. Both the parents took part in nest building on all occasions. All the nests were cup shaped. The nest material was the same for all the nests. Nests were made up of layers of thin straws of grasses lined with soft coarse grasses. The uppermost lining of the inner side of nests contained cotton like material obtained from the flowers of *S. spontaneum, T. angustifolia* and/or *Bombax ceiba.*

Breeding season

The breeding season of *P. b. burnesii* started with the territorial male calls being produced from mid of February, while first nest building activity was recorded in March, while the last nest of the year was built during September. The peak reproductive activity was observed in March, April, and May when the highest number of active nests were found. The second peak of breeding was observed in September (Fig. 3).

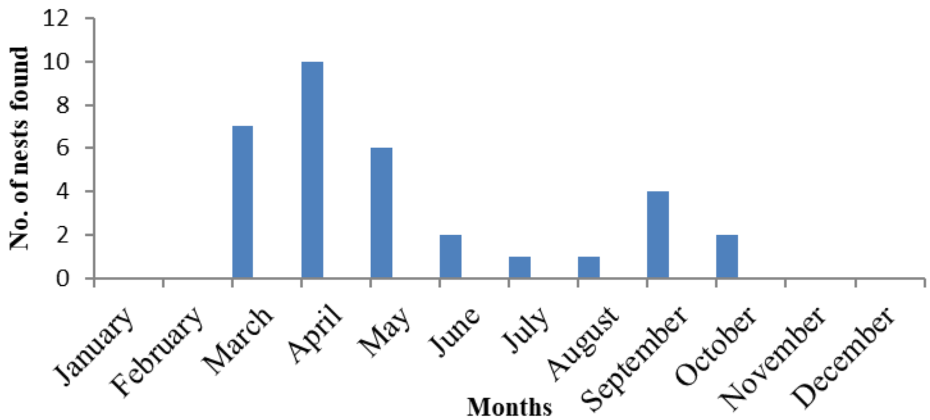

Figure 3. Breeding season of *Prinia burnesii burnesii.*

Nest and egg measurement

Nests were built in sites with dense and tall vegetation as compared to the surroundings. Although *P. b. burnesii* were often seen visiting nearby crop fields for feeding purposes, no nest was found in these crop plants. The mean height of nesting plants was 2.63±0.50 m (n=33) and mean height of the nests from the ground was 1.01±0.22 m (n=33). *S. munja*, *S. arundinaceum*, *S. spontaneum*, *T. angustifolia* and *P. karka* were dominant plants in the habitat of *P. b. burnesii* along with scattered *P. juliflora* plants where the nests were found. Nests were always found near the water body, i.e., river (wetlands). Mean depth of the nests (n=10) was 6.15±0.21 cm. Internal width (E/W), Internal width (N/S), External width (E/W) and External width (N/S) of nest, (n=10) were 4.01±0.21 cm, 4.33±0.22 cm, 8.53±0.54 cm and 9±0.52 cm, respectively (Table 1). The eggs were ovoid having pale green ground color with irregular purplish brown blotches distributed throughout. The mean length, width, and weight of the eggs (n=10) were 1.765±0.05 cm, 1.455±0.05 cm and 2.186±0.10 g, respectively (Table 2).

Table 1. Nest measurements of ten nests of *P. b. burnesii* in study sites.

No	GPS position	Depth (cm)	Internal width (E/W)	Internal width (N/S)	External width (E/W)	External Width (N/S)
1	30º31.83′N, 72º 9.73′E	6	3.9	4.2	7.6	8.6
2	30º34.368′N, 72º 9.622′E	6.2	4.0	4.4	8.9	8.8
3	30º34.351′N, 72º 9.694′E	6.5	4.4	4.8	9.5	10
4	30º34.342′N, 72º 9.724′E	5.9	3.8	4.1	8	8.4
5	30º34.338′N, 72º 9.735′E	6.3	4.0	4.3	9.0	9.5
6	30º34.314′N, 72º 9.848′E	6.1	4.0	4.2	8.2	8.7
7	30º34.44′N, 72º 14.10′E	6.2	4.1	4.3	8.5	8.8
8	30º33.55′N, 72º15.818′E	6.4	4.2	4.5	9	9.5
9	30º35.126′N, 72º26.814′E	5.8	3.5	3.9	8	8.5
10	30º36.286′N, 71º43.949′E	6.1	4.2	4.3	8.6	9.2
Average		6.15	4.01	4.33	8.53	9
SD		0.206	0.21	0.22	0.54	0.52

Table 2. Egg measurements of ten nests.

No.	Length (cm)	Width (cm)	Weight (g)
1	1.77	1.42	2.10
2	1.75	1.45	2.17
3	1.80	1.49	2.25
4	1.70	1.40	2.02
5	1.79	1.40	2.31
6	1.85	1.48	2.22
7	1.75	1.44	2.13
8	1.68	1.40	2.07
9	1.82	1.52	2.35
10	1.74	1.55	2.24
Average	1.765	1.455	2.186
SD	0.05	0.05	0.1

Clutch size, Incubation and Hatching

Mean clutch size was 3.38±0.5 (n = 23 nests, Range = 3-4 eggs). The eggs were laid down on consecutive days and incubation was started after completion of laying of all the eggs and all the eggs of a nest hatched within 24±1.6 hours (n= 23 nests, Range =23-25 hours). It was found that the mean incubation period consisted of 17.31±0.82 days (n=23, range=16-18 days). Only female partner incubated the eggs on all occasions. In the nests found in April and May, the female partner remained inside the nest to incubate the eggs for 63% of the total time observed, while 56% in the nests found in June, July, August and 60% in September and October. The male partner birds although remained in the vicinity of nesting sites but they visited the nests only 1.27±0.28 times during the whole incubation period and remained inside the nesting plants for 6±3.5 minutes (n=18 nests). The hatching success rate was 70.1%. (n=23 nests). Mean DSR during egg stage was 0.98.

Nestlings, parental care, and nestling survival

The nestling rearing period within the nest was 13.45±0.85 days. (Range=12.5-14.2). It was observed that the nestlings were fed 10.3±3.3 times per hour during the rearing period and every feeding visit lasted for 18.5± 6.3 seconds with an interval of 6.66±5.75 minutes (observations of 5 nests). The nests were always kept neat and clean by parental birds by engulfing the newborn's excreta. The nestling survival rate was recorded at 45%. Predation was the main cause of nest failure, while one nest with 3 nestlings was drowned during flood season (Fig. 4). No abandonment of any nest was observed during the study period. The nests where predation took place were quite intact without notable signs of deformation.

The eyes of nestlings were closed at hatching, and they were all naked. They began to open their eyes on day 5±1.1 (n=21 nests). The feathers were broken from the skin on day 6±1.5 (n=17 nests). The total time from nest building to fledging counted for 37.4±1.01 days (n=17, range=36-39) (Fig. 5). Mean daily survival rate for nestlings was 0.96 (Table 3).

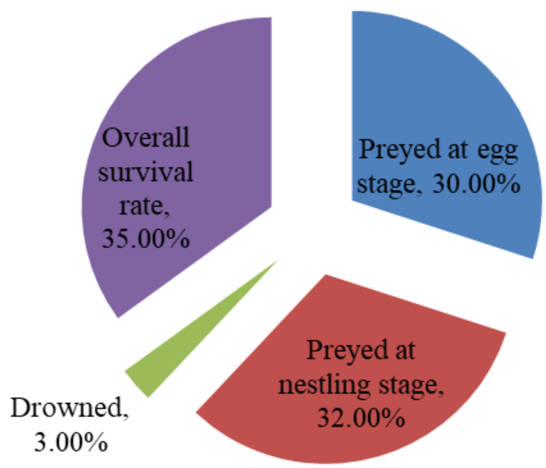

Figure 4. Fate of eggs/nestlings and survival rate.

Table 3. Breeding time duration

Sr. No.	Stage(s)	Duration (days)	Percentage
1	Nest building	2.5-3.5	8 %
2	Nest remained empty after construction and Egg laying	6-7	16 %
3	Incubation	16-18	43 %
4	Nestling/post-nestlings rearing within the nests	12-14	33 %

Figure 5. Photographs showing different breeding stages of *P. b. burnesii*. **a**. Eggs, **b**. Newly hatched nestlings **c**. 4-day old nestlings, **d**. post-nestling 8th day, **e**. fledgling 13th day, **f**. juvenile

Discussion

P. b. burnesii is usually a sedentary species (Roberts, 1992). (Ali & Ripley, 1987) stated that *P. b. burnesii* inhabits pure stands of long Sarkhan grass (*Saccharum*) or where mixed with tamarisks (*Tamarix dioica*) and acacias, near large rivers and their tributaries. (Roberts, 1992) described its preference to a habitat consisting of large expanses of *S. spontaneum* and *S. munja*, blended with

T. dioica in seasonal inundation regions, as well as extensive reed beds of mixed *T. angustifolia* and *P. karka*. (Roberts, 1992) also noted that this species has invaded the fringes of man-made, permanent lakes and seepage zones around irrigation head works away from Indus. Our findings are in line with the observations of these authors except that current study sites do not have the tamarisk plants (*T. dioica*) mentioned by (Ali & Ripley, 1987).

Current study revealed *P. b. burnesii* feeds on arthropods, molluscs, grains, and grasses, however larger portion of its diet comprised of insects (73%). (Baker, 1997) described that its diet only contained insects. In our findings, nestlings were fed with larvae/caterpillars (55%), moth/butterflies (26%), bugs (8%), beetles (6%) and un-identified items (4%). Birds are flexible in their foraging behavior from season to season and sometimes from year to year (Alatalo, 1982; Goss-Custard & Durell, 1983; Hutto, 1985; Paszkowski, 1982; Pettersson, 1983; Puttick, 1984; Sæther, 1982; Waugh & Hails, 1983; Willson, 1970). The same foraging behavior was noticed in *P. b. burnesii*. Its diet intake is based upon the seasonal availability of arthropods and grains. Pearson's correlation co-efficient showed that there was a strong positive relationship between availability and utilization of food items. There was significant positive correlation for the orders Lepidoptera ($r=0.88$, $p<0.05$), Coleoptera ($r=0.78$, $p<0.05$) and Hymenoptera ($r=0.85$, $p <0.05$) and no correlation for Orthoptera ($r=-0.10$, $p=0.38$). There was positive correlation for *Pennisetum typhoidum* ($r=0.62$, $p<0.05$), *Sesamum indicum* ($r=46$, $p<0.05$) but none for *Sorghum vulgare* ($r=0.1$, $p>0.05$).

It usually remains hidden while feeding on the ground in pairs between grasses. It was seen spending most of the time low between grassy tussocks and hopping between clumps. It moved in the grass with great agility. It also turned over dead leaves lying on the ground and displayed scavenging feeding behavior. According to (Roberts, 1992), they also pick up the food off the water surface. We did not observe this type of feeding behavior in *P. b. burnesii*. The birds kept on hopping on the ground while gleaning, just like small babblers. These birds even turned over the litter with the deft flicks of their bills. Occasionally they foraged within a couple of meters of humans (Roberts, 1992). Our observations are in accordance with the observations of (Roberts, 1992). We found that gleaning and probe were two main food capturing techniques employed by *P. b. burnesii*. Seasonal differences in feeding behavior have been reported for feeding rates (Baker & Baker, 1973; Erwin, 1985), locomotion rates (Baker & Baker, 1973) and foraging techniques (Craig, 1984; Pettersson, 1983). It is possible that this change in seasonal behavior might be due to alteration in food abundance and availability (Baker & Baker, 1973; Franzreb, 1984; Grubb, 1979; Puttick, 1984; Sabo & Holmes, 1983). Same was the case with *P. b. burnesii*, as for example, during flood season, its foraging technique of ground gleaning had never been observed instead it shifted to plant gleaning. Similarly, during December and January, it was observed that *P. b. burnesii* resorted to consuming grass leaves in response to a shortage of its typical insect diet. Bird species having similar morphological features and comparable body size tend to forage similarly (Alatalo, 1982; Pöysä, 1983), at least when food is not scarce (Franzreb, 1984). Same results were obtained with *P. b. burnesii* and other grassland birds such as *Prinia. socialis*, *P. inornata*, *Chrysomma altirostre* and *C. sinense.* These birds have similar morphological features and body size. Their foraging behavior was quite similar.

The overall 94% of nests were built among the center of the *S. spontaneum* and *S. munja* thickets, which indicates that *P. b. burnesii* is habitat specific. The observations of (Partridge, 1974) proved that habitat preference is a genetically determined factor, and environmental factors impact the evolution of mechanisms controlling the behavior. The nests were built more towards the center of the thickets, confined strictly to the interior, and supported well by surrounding stems. The possible adaptive significance of *P. b. burnesii* nesting in the center of the thickets is because of, **i**. It provides more support to the clutch size of 3 or 4 which needs stronger support and **ii**. The visits of parents are frequent to feed three or four chicks and a nest concealed in the center provides more protection against detection by predators. The nesting plant height and nest height from the ground play a key role in nest concealment, hence in protection from predators. Nest height and nest type were important physical covariates as in the research of (Brown & Collopy, 2008). Nests were found in sites having dense vegetation. Preference of more grass cover and ground cover might be due to abundant food availability, especially lepidopterans. The selection of nest sight is also important in understanding population dynamics because nest location can affect nest (Filliater et al., 1994; Gloutney & Clark, 1997; Martin, 1993) and cover around nest site can affect nest survival (Traylor et al., 2004). The important components for the success of nests are nest diameter, depth, height, and shade around nest. The factors highly correlated with these components are related to the nest's position on plant, including the cover in nest site. Quantifying differences between nesting and random sites has revealed patterns of habitat use that have improved survival of nests (Clark & Shutler, 1999). The availability of ample branching system in

S. spontaneum and *S. munja* for placing cup shape nests gives more protection and security as spotted by (Vijayan, 1984) in the Drongos.

Although the grassland studied had three other major plant species i.e., *S. arundinaceum*, *T. angustifolia* and *P. karka*, the *P. b. burnesii* selected only *S. spontaneum* and *S. munja* for nesting and showed high preference in preference test. It also used *P. juliflora* plant because of its architecture, canopy cover, and branching system as it provides better protection and concealment to the nests. The first basic nest defense strategy was the production of alarm calls, as was shown by yellow eyed babbler, studied by (Nirmala, 2015).

The nests found by (Doig, 1879) were composed of coarse grass while the inner side had finer grass. The external diameter of the nests was 100-125 mm and internal diameter was 62.5 mm. The average depth of the nests found by (Doig, 1879) was 37.5 mm. We took measurements of 10 nests. The average external diameter of 10 nests was 85-90 mm, while the average depth was 61.5 mm. Both findings are against the findings of (Doig, 1879).

Around February 15, at the beginning of spring, male *P. b. burnesii* birds start producing territorial calls at sunrise and evening times and nest building starts in March, after pair formation. The breeding season remains till the mid of October. Our study is concurrent with the description of two breeding seasons of *P. b. burnesii* i.e., pre-monsoon and post-monsoon, by (Doig, 1879). (Doig, 1879) found many nests being built in March in East Narra. He also found nests with eggs in July, August, and September. A nest was seen in Multan by Major J. Lindsey-Smith in the month of May and General R. M. Betham observed nests with eggs at Lahore and Ferozepur in September (Baker, 1922). Post monsoon breeding of *P. b. burnesii* in Pakistan was not confirmed before our work. According to the observation of (Roberts, 1992) both parents, they took part in the nest building process. Our studies are also in line with the findings of (Roberts, 1992) but contrary to the observations of (Ali & Ripley, 1987; Khan et al., 2014). They observed that only female participated in the nest building process. In our study, 63% nests were found in the thicket of *S. spontaneum* and 30% in the thicket of *S. munja* present in the habitats having moist mixed reed beds consisting of *T. angustifolia, S. arundinaceum* and *P. karka* which is according to the findings of (Doig, 1879; Khan et al., 2014; Ticehurst, 1923).

According to (Baker, 1922), the full complement of eggs was around 3 or 4. Their shape was blunt and ovoid. The ground color was white or pale greenish white and were thickly specked and spotted with dark reddish brown, profuse everywhere but even more so at the larger end and average length of 20 eggs was 17.2 mm and average width was 14.2 mm. We also found almost same results for length and width measurements of eggs. (Doig, 1879) observed the eggs on March 13, having pale green ground color. Large irregular purplish brown blotches were present on the eggs. While the nest found by him in July had eggs of quite a different type. These eggs had pale creamy ground color with large rusty blotches, mostly confined to the blunt end. In present work, the eggs had pale green ground color with irregular purplish brown blotches. Our observation coincides with the observation of (Doig, 1879) who found eggs with same color in the month of March.

Although adverse weather conditions, death of one or both parental birds, anthropogenic disturbance and nest parasitism etc. can cause failure of nests in the birds, predation in the most crucial factor responsible for the loss of 50% of the eggs and nestlings in some passerine bird species (Ricklefs, 1969). In our study we observed that 62% of the eggs/nestlings were preyed upon. Although the nests of *P. b. burnesii* were placed in the center of the thickets if grasses yet crows (*Corvus splendens*) were observed to attack the nests, especially during the nestling phase when parent birds were actively feeding the young ones and it was easy to locate the nests by following them. The other possible predators might be snakes, mongoose, and jackals.

It has been observed by many observers that *P. b. burnesii* desert their nests if approached by men during preliminary stages (Baker, 1922), but at later stages of incubation, both parents are overly concerned about and refuse to leave the nest vicinity when disturbed by human intruder (Roberts, 1992). We found that the parents never deserted their nests at any stage from the beginning of nest building process to the end of the rearing activity even if approached several times by us. This is because *P. b. burnesii* has adapted very well to the presence of human beings.

Conclusion

The current study provides comprehensive information on feeding and breeding biology *Prinia burnesii burnesii*. *P. b. burnesii* is a grassland specialist bird, so the presence of grasslands in the landscape is important for the conservation of this species. Anthropogenic activities, such as grass cutting for various purposes like thatching huts, mat formation, burning as fuel and cattle grazing, and the effects of fire, floods and predation prevail in its habitat. It has already been listed as near threatened, and it may become threatened if its habitat is no longer protected.

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