

Notes on foraging behaviour and vocalization of the Bugun Liocichla *Liocichla bugunorum*

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The Bugun Liocichla *Liocichla bugunorum* is a point-endemic and remains one of India's least-known birds. Since its description in 2006 (Athreya 2006), most literature has focused on its discovery, distribution, and conservation significance (Allen & Catsis 2007; Peterson & Papes 2007). Relatively little has been documented about its natural history. During filming and field observations in the Singchung Bugun Village Community Reserve in May 2024 (Fig. 1), we made a series of observations relating to its feeding behaviour, use of a particular fruiting tree, foraging in undergrowth, and vocalisations.



Fig. 1. A map of Singchung Bugun Village Community Reserve, situated in the West Kameng district, Arunachal Pradesh, north-eastern India.

Our observations were made over 12 consecutive days between 03 and 14 May 2024, largely along trekking trails within the reserve. Although the work was not originally designed as a structured ecological study, repeated observations at the same feeding locations allowed us to document patterns that appeared consistent across days. We used direct visual observation through photography and videography to document the presence and behaviour of the Bugun Liocichla.

Preference for fruiting *Heptapleurum hypoleucum* trees

The Bugun Liocichla is known to feed on small berries, insects, and possibly other vegetable matter (Athreya 2006; Collar et al. 2020; BirdLife International 2024), but specific food plants have not been documented. During our study, birds were often seen feeding on the fruits of *Heptapleurum hypoleucum*.

We repeatedly saw Bugun Liocichlas visiting fruiting individuals of *Heptapleurum hypoleucum*, a tree species with its range in north-eastern India and South East Asia (Upadhyaya & Mir 2021). These are tall canopy-forming trees and there were two fruiting trees of this species in our study area [1, 2]. There were also six individuals of this species that were not fruiting. These trees were also being used by other birds including Beautiful Sibia *Heterophasia pulchella*, Rusty-fronted Barwing *Actinodura egertoni*, Whiskered Yuhina *Yuhina flavicollis*, Striated Bulbul *Alcurus striatus*, and Grey-winged Blackbird *Turdus bouboul*. However, the Bugun Liocichla repeatedly returned to the same trees over multiple days, suggesting that these fruiting trees formed an important part of its local foraging network.



[1] A *Heptapleurum hypoleucum* tree in Singchung Bugun Village Community Reserve. All photos: Vijay Bedi



[2] A close up of the same tree ([1]) showing the fruiting pattern.

After realizing this preference on the first day itself, we monitored three focal trees specifically during our study duration and noted whether Bugun Liocichlas visited them. Our observations stretched the entire day light, from 0700 to 1800h, and we used hourly interval to record its presence. The species did not use the trees continuously throughout the day, but visited the trees on occasions. We used both sight and aural detections. Each

hour-band was considered as ‘visited’ if the birds were present in any of the three focal trees. Across the 12 days of the study period, the total number of days when an hour-band was visited was obtained to get a single value for every hour-band.

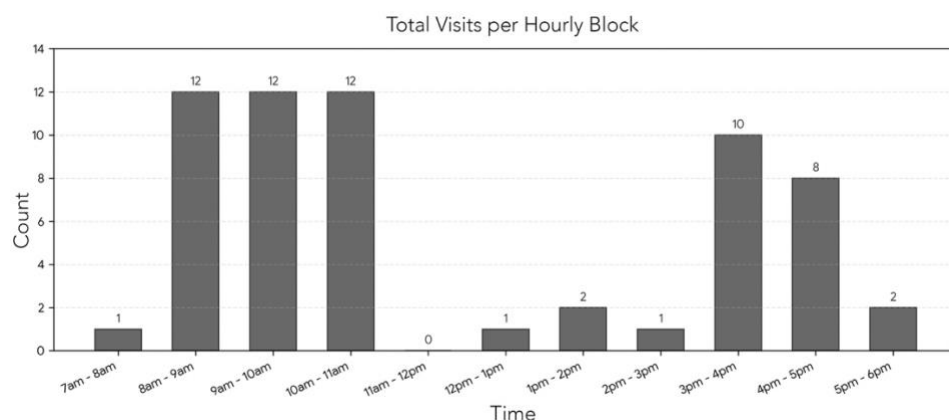


Fig. 2. Bar chart showing the number of visits to the focal trees for each hour-band between 07:00 h and 18:00 h over the 12-day observation period.

Every day, Bugun Liocichla visited the focal trees in at least five hour-bands, and at most seven hour-bands. As expected, activity peaked during the morning between 0800 h and 1100 h, when birds were recorded almost daily (Fig. 2). A secondary peak occurred during the late afternoon between 1500 h and 1700 h. In contrast, activity during midday and early morning was very limited.

Despite this regularity, visit frequency was uniform across days, with some days showing relatively higher activity (e.g., Days 5, 8, and 10 with 7 visits) and others showing slightly lower activity (e.g., Days 4, 9, 11, and 12 with 5 visits). Overall, this pattern suggests regular site use with moderate temporal variation, indicating that while the species reliably returns to the feeding trees every day, the intensity of use fluctuates across the time of the day.

Hence, repeated use of the same trees suggests that fruiting *Heptapleurum* trees may represent a locally important food resource. However, whether this temporal pattern applies more broadly across the species' habitat, or whether it reflects preference for this particular tree species alone, remains unclear. Our observations only indicate that, at least during the study period, these trees were used predictably and repeatedly by the birds.

Foraging behaviour on fruiting trees

Very little is known about the foraging behaviour of the Bugun Liocichla. It is known to forage in pairs or small flocks, on the ground, working through low undergrowth, creeping in tangled vines, or even clambering on trunks in manner of *Cutia nipalensis*. It has been observed at all levels in vegetation, from ground to the canopy of tallest trees (Athreya 2006; Collar et al. 2020; BirdLife International 2024). In our study, individual birds usually spent about 60 to 90 seconds in the focal tree, moving through branches while picking fruits before flying off to nearby vegetation. Birds often approached a fruit cluster, paused briefly, and selectively picked individual ripe fruits rather than feeding indiscriminately. In all observed feeding events, birds selected black ripe fruits while ignoring nearby green or semi-ripe fruits [3, 4]. Out of the 71 independent visual observations, 24 instances (34%) involved active fruit consumption. During all feeding events, individuals consistently selected ripe fruits (black in colour) and avoided unripe or semi-ripe fruits (green), even when these were available in close proximity, suggesting a strong preference based on visual assessment of fruit maturity.



[3] Bugun Liocichla feeding on the fruits of *Heptapleurum hypoleucum* tree.



[4] Bugun Liocichla feeding on the black pulp of fruit of *Heptapleurum hypoleucum* tree.

The birds usually fed by nipping at the fruit pulp while the fruit remained attached to the branch. Occasionally they detached fruits before feeding. Unlike some frugivorous birds, they did not appear to swallow whole fruits. Feeding continued even during light rain, when several other species were also active in the same trees.

Although we cannot estimate the overall importance of fruits in the species' diet, these observations confirm that ripe fruits of *Heptapleurum hypoleucum* are actively consumed and possibly selected based on fruit maturity.

Use of undergrowth and feeding on beetles

Bugun Liocichlas were repeatedly found foraging in dense patches of Stinging nettle *Urtica dioica* along trails and forest openings. The birds frequently moved low through the undergrowth, hopping between stems and apparently inspecting the undersides of leaves. Closer inspection of the leaves revealed that the leaves had several leaf beetles (Family: Chrysomelidae), particularly beetles resembling *Calligrapha* sp. [5]. These beetles typically remained hidden beneath leaves or at the junction of leaf stalks and stems, locations that likely provided shelter from rain and predators.



[5] Beetle *Calligrapha* sp. hiding under the leaf of Stinging nettle *Urtica dioica*

Later, we observed Bugun Liocichlas probing beneath leaves and extracting beetles directly from these concealed positions [6]. Feeding in nettle patches was especially frequent during early morning and late afternoon, broadly matching the periods of increased activity at fruiting trees. These observations suggest that dense undergrowth rich in arthropods may be an important foraging habitat for the Bugun Liocichlas, in addition to the canopies of fruiting trees.



[6] Bugun Liocichla foraging for beetles hiding under the leaf of Stinging nettle *Urtica dioica*

Rusty-fronted Barwings were repeatedly observed using the same nettle patches and the same fruiting trees. Both species also occurred together in mixed-species flocks on several occasions. Whether this reflects overlap in diet, shared foraging strategies, or simply similar habitat preferences remains uncertain, but the association was consistent enough to be noteworthy. Athreya (2006) did not list this species in the list of birds that are considered associate species of the Bugun Liocichla.

A short, high-frequency vocalization

The Bugun Liocichla's primary vocalization song consist of descending, flute-like phrases, transcribed as *wien'u-wee'i-tuu'i-tuu'uw-tu'oow* and a higher-pitched variant, *weei'u-tuuu'i-tuu'uw-tu'oow*. These phrases are characterized by a clear tonal quality and a downward-slurred inflection, both diagnostic for the species. In addition to the longer sequences, abbreviated or shorten versions have been documented, including “*weee-keew*” and “*yu-weee-keew*” (Athreya 2006). These appear structurally similar to the primary phrases but exhibit reduced complexity and duration. There are several recordings or sonograms of its typical song and its variants in citizen science media archives (Macaulay Library 2026; Xeno Canto 2026).

Presumed to be females are known to contribute a distinct, dry-sounding call, transcribed as “*trrrr-trii-trii*” (Athreya 2006). Macaulay Library did not have any such recordings. Xeno Canto recordings are not downloadable for aural comparison but from the notes given by the recordists, they presumably have one or two of this type of calls, however, sonograms are not clear. During our recordings, we also documented a shorter and sharper vocalisation that differed noticeably from the described song phrases (Fig. 3). Subsequent to our recording, Sudip Simha and Micah Rai also obtained such a recording two years later (Simha 2025).

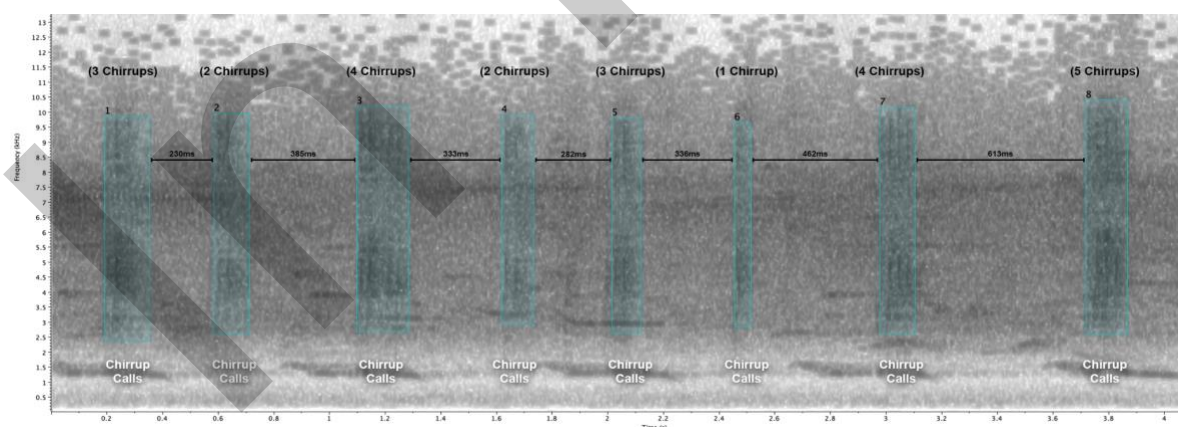


Fig 3. A portion of six chirrup calls of Bugun Liocichla showing time duration between every chirrup call in milliseconds.

This call consisted of rapid “chirrup”-like notes repeated singly or in short sequences. They extended to much higher frequencies than the primary song whistles, reaching roughly 9000 Hz, whereas the better-known song phrases are concentrated largely between about 2000–4000 Hz. The chirrup calls were brief, often separated by fractions of a second, and occurred in sequences of one to five notes. Their behavioural context remains unclear, although we presumed, they may represent short-range communication calls used within dense vegetation. However, it was also

produced by multiple individuals when they were presumably mobbing a lizard at the bottom of a tree (Simha 2025). Hence, these calls could be multi-purpose.

Discussion

Our observations add some simple but important natural-history details to little known ecology of Bugun *Liocichla*. In particular, the repeated use of fruiting *Heptapleurum* trees, selective feeding on ripe fruits, and regular foraging in nettle undergrowth rich in beetles together suggest that the species depends on a combination of fruiting trees and insect-rich shrub layers.

Protection of insect-rich microhabitats, preservation of mature fruiting trees, and prevention of forest fragmentation will be critical to ensuring long-term food security for the Bugun *Liocichla*. The species has survived in community forests and this community reserve setup by the Bugun community houses almost the entire global population of this species. Hence, engaging local communities in monitoring and safeguarding key feeding sites could strengthen conservation outcomes, given that much of the species' known range lies within community-managed forests.

Much about the species' ecology remains unknown, particularly seasonal changes in diet, breeding-season food requirements, and wider habitat use. Nevertheless, even simple repeated field observations can help improve understanding of this elusive species and contribute towards its long-term conservation.

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