

A new species of *Liocichla* (Aves: Timaliidae) from Eaglenest Wildlife Sanctuary, Arunachal Pradesh, India

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This paper describes a new bird species of the genus *Liocichla* discovered near Eaglenest Wildlife Sanctuary in western Arunachal Pradesh, India. While the taxon most closely resembles *L. omeiensis*, an endemic of China, the many points of difference in plumage, size and vocalisations indicate a new species. The known population is very small and only three (breeding?) pairs responded to song playback in May 2006. The plumage and the vocalisations are distinctive and therefore the paucity of records suggests a small and highly localized population.

1. A new species of *liocichla*

1.1 The genus *Liocichla*

Liocichlas are an Asian babbler genus hitherto comprising three allopatric species. Red-faced *Liocichla* *Liocichla phoenicea* (Gould, 1837) [formerly Crimson-winged Laughingthrush *Garrulax phoeniceus*] is widely distributed from north-eastern India to north-western Vietnam through northern Myanmar, southern Yunnan (China), north-western Thailand and northern Laos (Ali & Ripley 1987; Dickinson 2003). Emei Shan *Liocichla* *Liocichla omeiensis* Riley, 1926 (also spelt Omei Shan) was for long thought to be confined to the Emei Shan Mountain in Sichuan (China) though recent observations have extended its range north-westward and southward (BirdLife International 2006). Steere's *Liocichla* *Liocichla steerii* Swinhoe, 1877 is endemic to Taiwan (Dickinson 2003). The genus was erected by Swinhoe (1877) while describing *L. steerii*, which he said was, "...in general characters a *Liiothrix* [sic], but with the stronger legs and shorter wings of a *Garrulax*..." Though not uncommon, *L. omeiensis* is classified as Vulnerable (BirdLife International 2001) because of its localized distribution and attractiveness to the bird trade. The other two species are not at risk.

1.2 Discovery of the Eaglenest taxon

On 12.i.1995, while birdwatching in Eaglenest Wildlife Sanctuary (27°02'–09'N 92°18'–35'E; 200–3,300 m), West Kameng district, Arunachal Pradesh, India, I had brief views of a pair of *liocichlas* which did not fit any description in Ali & Ripley (1987). My next sighting was of a flock on 3.i.2005 in the same locality. I saw them a second time on the same day and again on the next. From my field sketch Dhananjai Mohan identified the bird as *L. omeiensis* using MacKinnon & Phillipps (2000), though it was not clear whether the bird was identical or merely very similar. The nearest record of *L. omeiensis* is over 1,000 km from Eaglenest. Pratap Singh, Dhananjai Mohan and I obtained mist-netting permits from the Forest Department, but failed to see the birds during two spells of observation, 23–28.i.2005 and 5–10.v.2005. I renewed my efforts on 21.v.2006 and finally netted a bird on 25.v.2006,

releasing it in the same area on the same day after obtaining photographs and detailed notes on its plumage. The similarities between the Eaglenest taxon and *L. omeiensis* suggest that they are closely related, but the many differences in plumage and vocalisations—especially song—indicate a new species and therefore I propose to name it:

Bugun *Liocichla* *Liocichla bugunorum* sp. nov.

2. Description of the new species

2.1 Holotype and associated material

The holotype is the bird from which a few feathers were obtained and which is the subject in a series of photographs presented in this paper. The holotype was captured, photographed, measured and released on 25.v.2006 at Lama Camp (27°15'71"N 92°46'01"E) near Eaglenest Wildlife Sanctuary, Arunachal Pradesh, India. Rectrices from the distinctive tail, which distinguish it from its congeners, one secondary flight feather from the wing and the photographs included here have been deposited in the collection of the Bombay Natural History Society, Mumbai, India (D.B. No. 3/2006, Reg. No. 28981).

2.2 Diagnosis

The new species, an obvious *Liocichla* (including the marked *Leiothrix*-like jizz), has the overall colour olive with a black cap, prominent orange-yellow lore (between the eye and the upper mandible, not including the forehead) and yellow post-ocular spot (Pic. 4), and patches of golden yellow, crimson and white on the wing (Pic. 1). The olive is greyer above (Pic. 6) and bright yellowish on the breast (Pic. 9). The closed tail is blackish above and flame-coloured below with a prominent orange-red tip (Pics. 10 & 12). The bird is very different from the sympatric Red-faced *Liocichla* but more similar to the other two species, especially *L. omeiensis* (Pic. 2). This latter species has a grey cap, less prominent lore and post-ocular markings, grey underparts, and an olive tail with black bars above (Pic. 11) and just a hint of red on the underside with yellow tips to the outer rectrices (Pic. 15). *L. steerii* shares the brighter underparts and, to an extent, the prominent lores of



Pic. 1. The holotype of **Bugun Liocichla Liocichla bugunorum** sp nov. It was photographed on 25.v.2006 at Lama Camp just outside the boundaries of Eaglenest Wildlife Sanctuary, Arunachal Pradesh, India. The overall colour of the bird is olive which tends to look greener in the shade (see Pic. 6) and neutral grey in bright light (a camera flash for instance). This is probably a male bird.

L. bugunorum but its wing pattern, tail and cap are very different.

2.3 Description of the holotype

Overall: Olive; the duller greyish-olive above (Pic. 6) appears greener in the shade and greyer in bright light (including camera flash—Pic. 1); a grey band separates the yellow-olive of the chin from the brighter yellow-olive of the breast (Pics. 1, 3 & 8); the bright colour of the breast fades into dull olive grey on the lower abdomen.

Head: The black feathers of the cap are erectile (Pics. 3–4); the ear coverts are grey while the rest of the sides of head including the chin and a crescent behind the ear are different shades of brighter olive (Pic. 3); a prominent triangular orange-yellow loreal patch and a bright yellow post-ocular streak (against upper half of eye) give a spectacled appearance (Pic. 3); the two striking features are separated by a black area about half the diameter of the eye.

Wing: There is extensive golden yellow at the base of remiges (with some reddish tinge), on adjacent coverts and along the

lower edge of the closed wing (Pics. 1 & 6); there are 17 remiges with nine primaries (Pic. 7); the sixth primary is the longest but the seventh and eighth are only a little shorter (Pic. 7); the tips of remiges vary from acute (first primary) to flat (last secondary); the remiges have black shafts (any white on the shaft in the photos being camera flash highlights) and are mostly slaty-black with the amount of yellowish-olive increasing inwards from the first primary; all the secondaries have a crimson drop on their outer edges, close to the tip, which form the sub-terminal crimson patch on the closed wing; all the remiges are tipped white, the secondaries more prominently (Pic. 8); the yellow on the primaries is narrower than that on the secondaries but extends further along the outer web resulting in the yellow lower edge of the closed wing (Pic. 1). The secondaries also have a white streak between the crimson drop and the golden-yellow at the base.

Tail: Square-tipped central tail feathers with outer rectrices progressively shorter resulting in a graduated appearance; the holotype had nine tail feathers; Pic. 12 clearly shows that

some feathers are missing; the tail is mostly blackish above with indistinct darker bars (Pics. 6 & 10); the tips of the outer feathers have some olive; all the feathers end in a spray of orange-red barbs, which emerge as a tuft at the point of the shaft (Pics. 10, 12 & 13); the underside of the tail (Pics. 12 & 14) is spectacularly colourful—the outer two pairs are flame-coloured while the inner feathers progressively become more olive (with some black barring) and finally black (Pic. 12); the shafts change from brownish to bright yellow in the outer third of the tail; the outer pair of undertail coverts are black with broad red terminal edges and bright yellow lateral margins while the inner pair lacks the yellow.

Bare parts: The eyes are dark reddish-brown; the bill is pale translucent horn in colour distally and darker and more opaque in the basal half (Pic. 3); the legs and feet are flesh coloured.

Measurements: The total length was measured with the squirming bird stretched out and hence should be treated as approximate. Other measurements were taken with the bird held more securely and with Vernier calipers and hence are accurate to a millimeter or better. Total length 220 mm (approx.); bill: skull to tip 14 mm, along gape 18.5 mm, maximum depth 6 mm; wing chord 85 mm; tarsus 32 mm; tail 95 mm.

2.4 Other individuals

Another bird “Bird #2” had been netted earlier on 21.v.2006 in the same area (within 10 m of where the holotype was netted) but escaped after only a few photographs had been taken. It differed from the holotype in the duller yellow-olive on its wings, much duller copper-red on underside of tail, no red in undertail coverts and in having broad yellow tips to tail feathers. The colours of the bare parts of Bird #2 were as of the holotype. Bird #2 has been depicted in some photos in this work.

Though the two birds were not sexed, the plumage differences between the holotype and Bird #2 are perhaps due to their differing sex. All the birds seen in May 2006 (breeding season at 2,300 m) were in pairs, while small flocks were seen in January 2005. Furthermore, the holotype was distinguishable in the field on account of its missing tail feathers and I never saw it outside that area nor did I see any other “male” in that area. These two factors suggest that the two netted birds were an adult (breeding?) pair and not an adult-subadult combination. The plumage differences between the two—bright red on the ventral side of the tail of the holotype being replaced by fainter red or yellow in Bird #2, and the duller wings of the latter suggest that the holotype is a male and Bird#2 a female. It may be noted that the male and female labels in the photo captions are enclosed in quotes, indicating that proper sexing was not carried out.

During observations on 3.i.2005 I had noted a second reddish wing patch at the base of the remiges (as had Fredrik Ellin in March 2006, *verbally*), similar to that in *L. omeiensis*, but this was not seen on any bird in May 2006. The crimson at the base of remiges in *L. omeiensis* has been reported to abrade by Hewston (2004) who also claims that if present the second wing patch is an easier means of sexing a bird but the constant difference in tail colour is more reliable in this respect. Pic. 1 does show a reddish tinge on the golden-yellow base of remiges.

2.6 Vocalisations

The song of *L. bugunorum* was first noted by Ellin and Peter Schmidt at Lama Camp on 24.iii.2006. Subsequently, at the same location on 9.iv.2006 Margaret Widdowson, Michael Catsis and I recorded the song on tape and played it back to call the birds out. Pic. 16 displays sonograms of four different vocalisations. The bottom-right portion of the montage shows them juxtaposed for comparison. The vocalisations may be

Pic. 2. *Liocichla omeiensis* male (Natural History Museum, Tring, U.K.). Note the lack of any yellow-olive on the grey underparts, and the barely noticeable pale eye markings.



Pic. 3. *L. bugunorum* holotype (left) and Bird #2 (right). The holotype and Bird #2 are probably male and female, respectively. The crests of both sexes are erectile.



transcribed as: **16.A** “weee-keew” **16.B** “yu-weee-keew” **16.C** “wieu.u-wee.i-tuu.i-tuu.uw-tu.oow”, these notes on a descending scale, slightly slurred and inflected at the end **16.D** “weei.u-tuuu.i-tuu.uw-tu.oow”, these notes similar to the last four of 16.C but higher in pitch and more stressed. The initial consonant is barely audible in all these notes.

All the notes are fluty, usually with a terminal inflection and quite distinctive. The vocalisations 16.A–16.C are part of a longer sequence of a bird responding to song playback on 9.iv.2006. 16.C is similar to that described by Ellin & Schmidt (*pers. comm.*) and is probably the “normal” song. However, the song can start from any of the five notes and end at any subsequent note but always with the notes in that sequence. 16.D was the bird’s preferred response to playback in May 2006; it is similar to 16.C but higher in frequency and missing the first note. 16.A seems to be a subset of 16.B with a minor variation.

2.7 Similar species

L. bugunorum is very different in plumage from the sympatric *L. phoenicea*. It has a mixture of features of the other two *liocichlas* though it seems to be closer both vocally and visually to *L. omeiensis*.

The principal morphological differences between *L. omeiensis* and *L. bugunorum* are listed in Table 1. The latter is about 10% larger in size in all measurements, except the bill which is smaller. However, it must be noted that with just a single specimen I have no information on the intra-specific variations of these values. *L. bugunorum* has a black cap vis-à-vis grey with dark brown forehead in *L. omeiensis*; two clearly separated features straddling the eye vis-à-vis a somewhat broken eye-ring—including a large, bright, orange-yellow triangular lore spot vis-à-vis most of the lores being dark

brown; forehead black vis-à-vis brownish; crescent behind ear coverts olive vis-à-vis reddish-brown; bright yellow-olive underparts vis-à-vis grey; mostly blackish uppertail with indistinct darker bars vis-à-vis olive with black bars; underside of tail (essentially the underside of the two outermost tail feathers) flame-coloured vis-à-vis olive with a faint reddish tinge; tips of outer rectrices have orange-red tips vis-à-vis broad yellow tips.

L. steerii differs from *L. bugunorum* in having a grey crown streaked with white, a differently shaped pre-ocular spot, grey rump contrasting with olive back, an olive upper tail with white tip and lack of red in under tail coverts.

Sonograms of *L. omeiensis* and *L. steerii* from recordings in Scharringa 2006 are shown in Pic. 17 and 18, respectively. Another version of the *L. omeiensis* song has been transcribed as “w’yii-i-w’yii-u-w’yiiwi-w’yii-u” (BirdLife International 2003). The *L. omeiensis* recordings in the British Library Sound Archives and others provided by Per Alström are similar to those in Pic. 17. The vocalisations of *L. steerii* are clearly different from those of *L. bugunorum*. *L. omeiensis* vocalisations have a similar quality to those of *L. bugunorum* but the individual notes of the latter are simpler, i.e. with less modulation vis-à-vis multiple peaks, and more rounded vis-à-vis sharper structures, and the notes of the song descend farther in pitch.

3. Ecology

3.1 Sight records of the species

Prior to May 2006 *L. bugunorum* had been seen on:

- i. 12.i.1995. A pair in late afternoon at Lama Camp, Location 1. (Fig. 2).
- ii. 3.i.2005, 15:00 hrs., 2,320 m. A flock of six with *Cutias Cutia nipalensis* at Lama Camp, Location 1.
- iii. 3.i.2005, 15:45 hrs., 2,250 m. A flock of four with Red-headed Laughingthrushes *Trochalopteron erythrocephalus*¹ at Lama Camp, Location 2 (Fig. 2).
- iv. 4.i.2005, 15:15 hrs. A flock of six at location of sighting iii.
- v. 24.iii.2006, 06:00 hrs. A pair at Lama Camp, Location 2 (Ellin, *pers. comm.*).
- vi. 24.iii.2006, 07:30 hrs. A singing pair, close to sighting v (by Ellin & Schmidt, *pers. comm.*)
- vii. 5.iv.2006, 07:00 hrs. More than two birds with Blue-

¹ Rasmussen & Anderton 2005.



Pic. 4. *L. bugunorum* holotype “male” (top) and Bird #2 “female” (bottom).

winged Laughingthrushes *Trochalopteron squamatum*¹ at Location 3 (Fig. 2) and on 7.iv.2006, 11.00 hrs., over three birds with Red-headed Laughingthrush and Bar-throated Minla *Minla strigula* between Locations 1 & 2 (Marques 2006; Ritschard 2006).

- viii. 8.iv.2006, 07:00 hrs., 2,060 m. A flock of four, 2 km above Bompu, 27°04'32"N 92°24'07.6" (Simon Allen, Michael Catsis, Margaret and William Widdowson, and I).
- ix. 9.iv.2006, 07:00 hrs. A singing pair, Lama Camp, Location 2 (observers of viii).

3.2 Habitat and habits

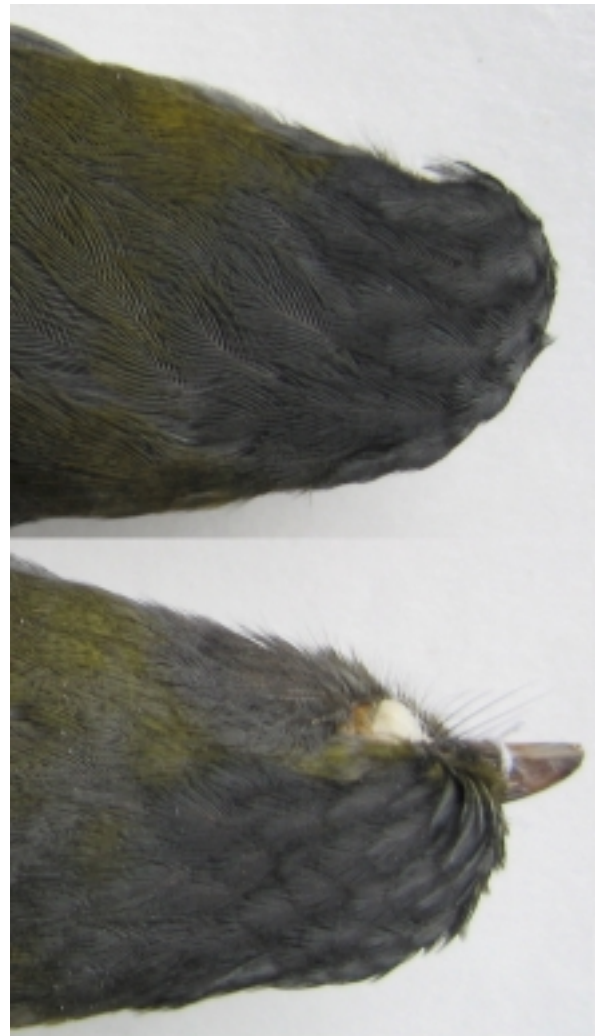
All sightings except one have been on heavily disturbed hillsides (2,060–2,340 m) with dense shrubbery and small to medium sized trees (remnants after extraction of tall timber). Only the Bompu sighting was at the edge of primary forest. Clearly, the species can exist in disturbed areas and utilize a variety of vegetation types. This is more or less identical to the habitat preference of *L. omeiensis* (BirdLife International 2003). In both cases, this versatility regarding habitat usage is somewhat at odds with the small, highly localised population. *L. bugunorum* has been observed at all heights—from the ground to the canopy of tall trees (30 m), hopping on the ground, working through the undergrowth, in tangled vines and even tree-creeping like *Cutia nipalensis*.

L. bugunorum have been observed in flocks of 2–6 birds in January. In April, they were seen in pairs as well as in small flocks. In May, all sightings were of pairs. They have been seen by themselves or in the company of, variously, *C. nipalensis*, *T. erythrocephalus*, *T. squamatus* and *Minla strigula*.

While they frequent dense shrubbery they seem not to be particularly shy and a substantial fraction of the sightings have been in exposed situations.

During the week starting 21.v.2006 three pairs of birds responded to song playback—one (Pair 1) right at the Phua Rung camp site, another (Pair 2) about 400 m lower down the ravine, and the third (Pair 3) at Location 2 (Fig. 2). Pair 1 readily responded to playback on most days, especially early in the morning and in the afternoon. On the first day, the birds approached quite close, moving about in shrubbery just a few meters from the audio-player. However, after the first capture / escape there was a noticeable increase in their aversion to showing themselves openly and after the first couple of days they mostly called back from the top of a nearby tree, almost never descending to the undergrowth. Pair 2 responded strongly to playback on the first two attempts, coming in from about 150 m away to investigate, but on subsequent days confined themselves to an occasional response from far away. Pair 3 always responded to playback but they rarely approached closer than 50 m from the observers. Therefore, while playback seems to be a good tool

Pic. 5. *L. omeiensis* male (top) and female (bottom). Note the grey crown unlike the black crown of *L. bugunorum*. (Photo: Nigel Collar. Specimen courtesy: Natural History Museum, Tring, U.K.)



¹ Rasmussen & Anderton 2005.



Pic. 6. *L. bugunorum* holotype “male”. The upper plumage is dull greyish-olive.. This photo also shows a reddish tinge on the golden secondaries (see text).

for drawing out birds, the intensity of the response varies between individuals and perhaps on the relative locations of the audio-player and the centre of their territory. The male of Pair 1 (the holotype) lacked two of its outermost right-side rectrices, which made it readily distinguishable in the field. I never saw this bird anywhere else and no other male was seen in its area. I also never saw or heard more than one pair of birds at a time at any of the three locations. While one cannot make a definitive statement in the absence of individually marked birds, these observations are consistent with pairs inhabiting well-defined territories.

The first two pairs inhabited the same ravine separated by about 400 m distance (along the slope) and c. 100 m alt.. The third pair frequented the adjacent ravine about 300 m away. These pairs readily responding to playback, at least initially, and vocalised on their own several times daily. Therefore, the lack of vocalisations including response to playback from other areas with similar habitat is surprising.

The only numbers one can put against the population are four birds near Bompou on 8.iv.2006 and the ten separate individuals seen on 3.i.2005 near Lama Camp. Despite repeated attempts at finding the birds using tape playback in May 2006 I encountered only three (breeding?) pairs near Lama Camp and none near Bompou. While the population is unlikely to be just 14 birds, clearly, the species is far from numerous.

Pair 1 (May 2006) were observed feeding on small berries one morning. On another day, they were seen exploring the tangled vines on a tree and feeding (insects or vegetable matter?)

4. Discussion

4.1 Taxonomic status

Evaluating the relative status of taxa is not easy (Helbig et al. 2002), especially when all other congeners are allopatric. Visually and aurally, *L. bugunorum* is most similar to *L. omeiensis* but there are many points of difference between them: in vocalisations, ten features of plumage, and size (Table 1). While future surveys may extend their ranges towards each other the balance of probability of finding intermediate populations, showing a cline in all the above differences is low. Furthermore, *L. bugunorum* differs from *L. omeiensis* and from *L. steerii* in its plumage as much as the latter differ between themselves. *L. omeiensis* was elevated from subspecies (of *L. steerii*) to species (Cheng 1987). These factors make a strong case for assigning specific rank to the Eaglenest taxon.

4.2 Status and conservation

L. bugunorum is presently known only from Eaglenest. The species may eventually be discovered in adjacent Bhutan and also further east in central and eastern Arunachal Pradesh but the fact remains that despite being spectacularly colourful and quite distinctive in both plumage and vocalisations the species was unknown to science until now. Choudhury (2003) did not encounter this species while surveying Eaglenest for birds over many visits across several years, which suggests that the population, even in Eaglenest, may not be large.

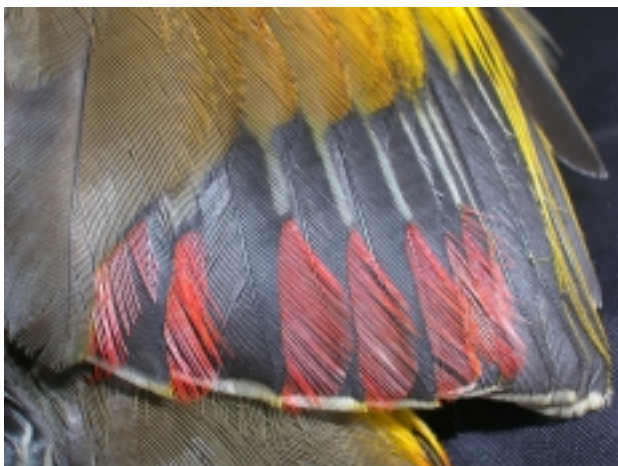
All sightings of *L. bugunorum* except one have been in Lama Camp, a heavily logged tract, within the Bugun community forest area just outside Eaglenest Wildlife Sanctuary; the one exception falls inside the boundaries of



Pic. 7. Spread-out upper wings of *L. bugunorum* holotype "male" (top) and Bird #2 "female" (bottom)



Pic. 8. Progressive close-ups of the upper wing pattern of *L. bugunorum* holotype "male"



Eaglenest. Eaglenest is part of the much larger Kameng protected area complex spread over 3,500 km² of contiguous closed canopy forest in East and West Kameng districts of Arunachal Pradesh and adjacent Assam covering an altitudinal range of 50–3,300 m, the largest such area in western Arunachal. Eaglenest (218 km²) and Sessa (100 km²) sanctuaries are a small critical constituent of the complex since all the high altitude areas (> 2,000 m; where *L. bugunorum* has been seen) of the Kameng complex lie within them. Furthermore, Eaglenest is a microcosm of the entire complex as it contains within itself all altitudes and vegetation types between 100–3,300 m.

Eaglenest has remained largely untouched despite lack of efforts towards its conservation. The Eaglenest Biodiversity Project (Athreya 2005, 2006; and references therein) has focused on bringing together the Forest Department and the local Bugun community into protecting the area jointly. The Buguns are keen on preserving the area to attract birdwatchers to augment their community finances. We are also looking at ways and means of reducing the community's dependence on forest timber for fuel and construction.

A more potent threat to the area has been the plan to build a major highway through Eaglenest, passing right through Lama Camp, with



Pic. 9. *L. bugunorum* holotype "male". Both sexes have yellow-olive underparts, brightest on the breast and fading into a duller shade on the belly.

Pic. 10. (below) *L. bugunorum* holotype "male". The upperside of tail is predominantly black with indistinct darker bars. The fraction of olive green increases towards the outer rectrices.



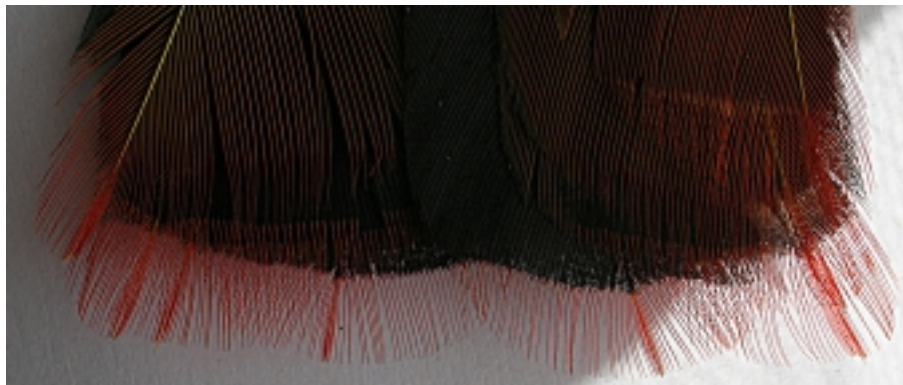
Pic. 11. *L. omeiensis* male. The barring on the uppertail is more prominent as the ground colour is lighter.



Pic. 12. (right) *L. bugunorum* holotype "male". The pattern on right-most feather makes it the counterpart of the third outer feather on the left suggesting that two feathers on the right are missing. The odd count suggests that a third feather may also be missing.



Pic. 13. (left) *L. bugunorum* holotype "male". The terminal orange-red barbs form a denser tuft at the location of the shaft. The terminal section of the shafts are yellowish.

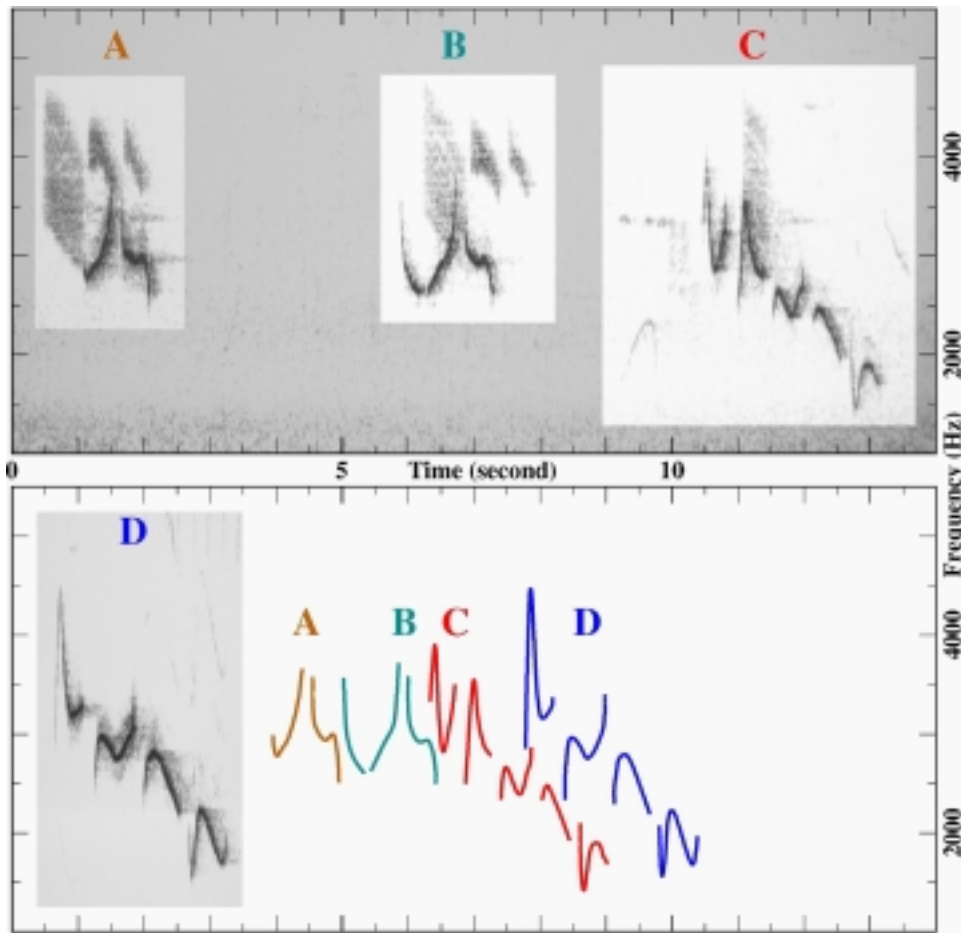




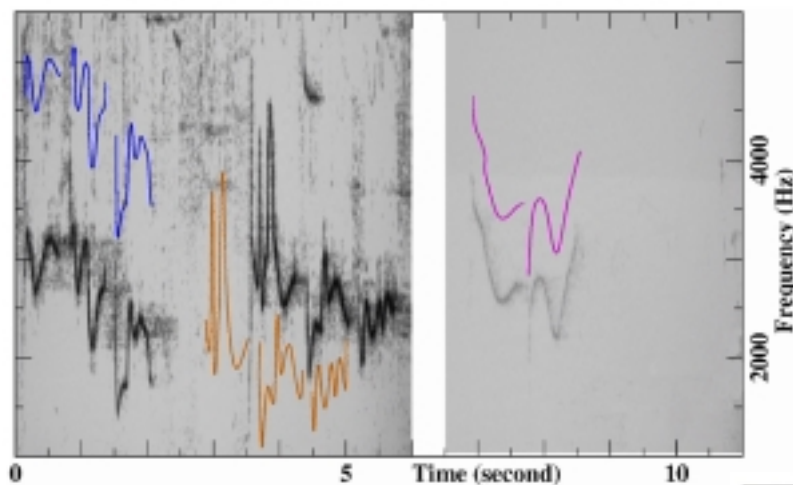
Pic. 14. *L. bugunorum* holotype “male” (top) and Bird #2 “female” (right). The closed underside of tail appears as a solid sheet of orange-red flame in the “male”. The blue shade in the “female” undertail coverts is a camera flash artifact – the actual colour is black.



Pic. 15. *L. omeiensis* male (top) and female (right). The ground colours are duller than in *L. bugunorum* but the terminal bands on the tail feathers are broader.

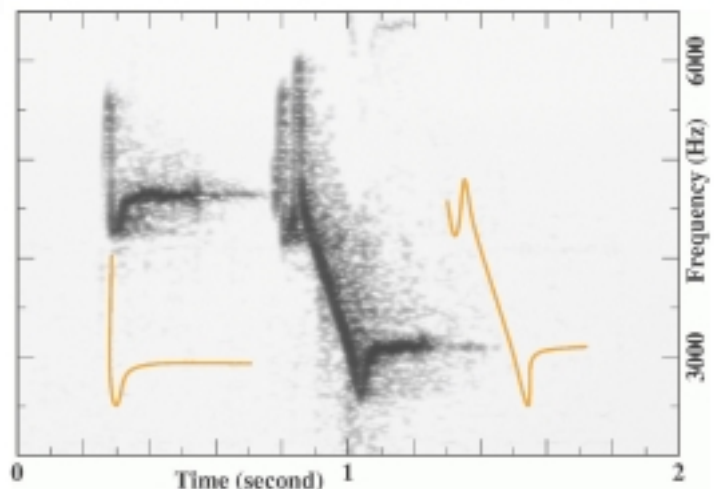


Pic. 16. This montage of sonograms displays four different vocalisations of *L. bugunorum*. All were in response to tape playback though sonogram C (red) is very similar to the un-elicited song of the bird. The bottom right collection depicts colour coded tracings of the same four vocalisations for easy inter-comparisons—they retain the temporal and frequency scale and are faithful reproductions of the ridges on the sonograms. The diffuse 3-note structures seen in sonograms A (brown) and B (cyan) are interlopers produced by a nearby Streaked Laughingthrush *Trochalopteron lineatum*¹, as is the similar single diffuse spur sitting above the second note of C (red). A, B, and C were part of a sequence from the same bird but the display transfer functions have been modified to minimize the contamination due to *T. lineatum*. The notes are very fluty, their quality distinctive when once heard, and usually have an inflected tail.



Pic. 17. Sonograms of *L. omeiensis* from (Scharringa 2006). The temporal and spectral scales are as in Pic. 16. The overall quality of the notes are somewhat similar but look and sound quite different. The colour tracings of the ridges show the overall structure of the vocalisations but have been shifted in time and frequency from the actual ridges for clearer delineation.

Pic. 18. Sonogram of *Liocichla steerii* from recordings in Scharringa (2006). The call is at a higher frequency than that of *L. bugunorum*. The colour tracing and spectral scale of the plot is the same as for the previous sonograms but time axis is greatly magnified.



¹ Rasmussen & Anderton 2005.

unpredictable consequences for the *L. bugunorum* population. The birds survive in the Lama Camp scrub but, clearly, they do not thrive, which suggests (unknown) ecological obstacle(s) to an increase in their population; a busy highway could well push this spectacular bird into local extirpation, which could also be extinction.

4.3 On the lack of a full specimen

Given the very small known population, I felt it would be inappropriate to collect a specimen, especially as that would have affected one of only three known (breeding?) pairs. So only some feathers which had worked loose (after the photographs were taken) were collected as type material. Should the census planned for next season indicate a larger population, steps will be taken to obtain a full specimen after seeking permission from the appropriate authorities.

One could have described the taxon only after collecting a specimen after the census but several factors argued against a delay:

- i. publicity from the formal description of a new and spectacular bird species would significantly facilitate our ongoing conservation efforts at Eaglenest;
- ii. the areas where the birds have been seen are the subject of litigation over the construction of a major highway;
- iii. our efforts at conservation-oriented ecotourism resulted in a surge in visitors last season and a new taxon whose description is only hinging on the collection of a specimen may tempt a visitor into an illegal collection effort disrupting the small population there as well as prejudice the authorities against the ecotourism effort; and
- iv. I have enough material to satisfy the technical requirements of description of a new species according to the International Commission for Zoological Nomenclature.

4.4 Etymology

All observations of this taxon, except the first, were carried out during field work under the Eaglenest Biodiversity Project (Athreya 2005, 2006). Local community participation and development have been the cornerstones of our conservation efforts there and Mr Indi Glow of the Bugun tribe has played a very critical role throughout the project. Furthermore, all sightings of the taxon except one have been in Bugun community forest. It gives me great pleasure to acknowledge the contribution of Mr. Indi Glow and others by naming the new taxon after their Bugun tribe. The word Bugun (both 'u' rhyme with "put") is a masculine term used by the community to refer to themselves. It is believed to mean "people of the valley = valley dwellers" but the etymology is uncertain and its origins may lie in another language. The specific name *bugunorum* [= (*Liocichla*) of the Buguns] is the invariable genitive plural of the latinised noun *Bugunus*.

Acknowledgements

Dorje Raptan, while netting the bird, and Nigel Collar, during the preparation of this manuscript, made crucial contributions to this work. Nigel also provided photos and measurements of the two *L. omeiensis* in the Natural History Museum, Tring, U.K. After my initial sightings Fredrik Ellin

and Peter Schmidt provided the major breakthrough by identifying the song of the species. Goutam Narayan, Nandita Hazarika, Vidya Athreya, Aasheesh Pittie, Mike Catsis, Simon Allen, William and Margaret Widdowson, Herman Mays, Mathias Ritschard, Aniruddha Belsare and Neelim Khaire helped at various stages. David Normand helped in getting the Latin correct. Jelle Scharringa, Mike Catsis, Cheryl Tipp (British Library Sound Archives) and Per Alström provided cuts of *L. omeiensis* vocalisations for comparison. A special thanks to Dhananjai Mohan and Pratap Singh for their contribution, and an apology – they traversed the subcontinent at short notice to mist-net the bird in January 2005. Unfortunately, the call I had recorded earlier, that they used, proved to be not of the *Liocichla* but of a *Leiothrix* in the same bush—I wish things had turned out otherwise! The Forest Department of Arunachal Pradesh has been very supportive of our work at Eaglenest and patient and liberal with our several requests for mist-netting this bird since January 2005. The Eaglenest Biodiversity Project, during which the new taxon was observed in detail, was supported by grants from the Rufford-Maurice-Laing Foundation (U.K) and Ford Foundation/Winrock, India. Comments and suggestions from the referees, Edward Dickinson, Pamela Rasmussen and Jochen Martens, were of great help—any shortcomings of this paper are in spite of their efforts. Dr Rasmussen strongly disapproved of naming a new species without a full specimen but nonetheless was kind enough to review the manuscript. My thanks to everyone!

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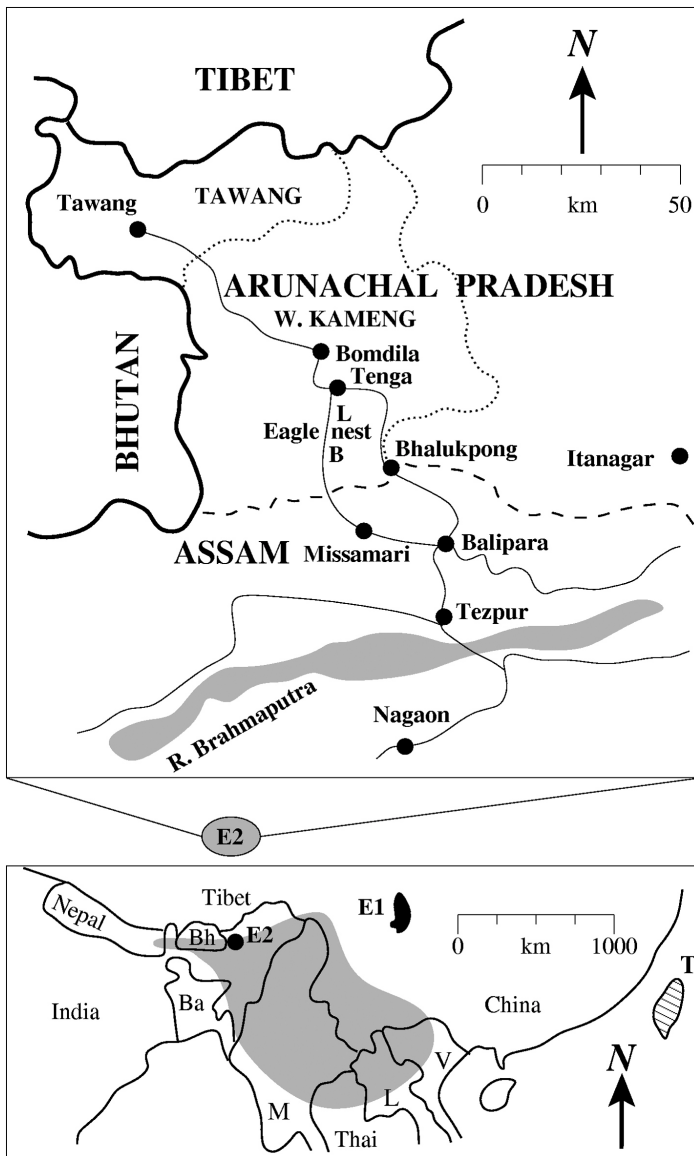


Figure 1. The bottom panel (adapted from BirdLife International 2006) shows the known ranges of the four species of *Liocichla*. The abbreviations are Bangladesh (Ba), Bhutan (Bh), Laos (L), Eaglenest (E2), Emei Shan and its neighbouring areas (E1), Taiwan (T), Thailand (Thai) and Vietnam (V). *L. steerii* is endemic to Taiwan; *L. omeiensis* is confined to E1; Bugun *Liocichla* is known only from E2; the grey-shaded area delineates the range of Red-faced *Liocichla*. The upper panel provides a more detailed view of the Eaglenest area. The Bugun *Liocichla* has been recorded from Lama Camp (L) and Bompou (B), which lie along the Eaglenest road north and south of the Eaglenest ridge, respectively.

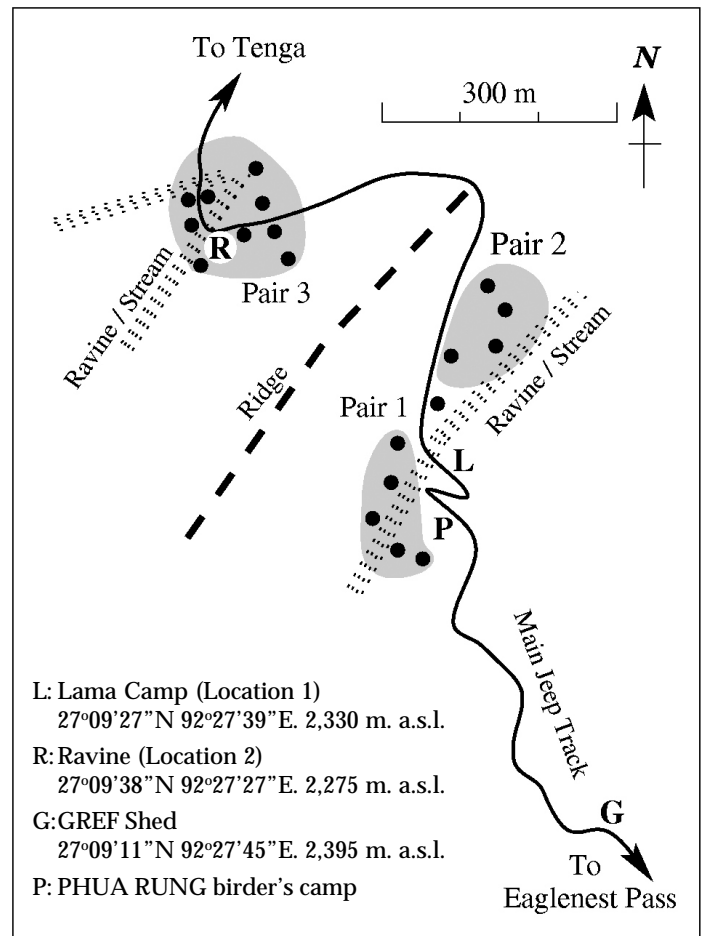


Figure 2. Lama Camp area, outside Eaglenest Wildlife Sanctuary. The dots in the grey-shaded areas denote the approximate locations of sightings of the three pairs of Bugun *Liocichla* seen in May 2006. All the other sightings, except the one near Bompou (27°04'32"N 92°24'07.6"E, 2,060 m. a.s.l.) have also been in this area.

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Table 1. Principal morphological differences between *L. omeiensis* and *L. bugunorum*

Morphological part	<i>L. omeiensis</i>	<i>L. bugunorum</i>
Crown	Grey	Black
Forehead	Bright brown	black
Crescent behind ear coverts	Reddish-brown	Bright olive
Eye markings	Pale-yellow broken eyering	Two separate prominent spots – a large triangular orangish-yellow loreal spot and a bright yellow post-ocular streak.
Breast	Neutral grey	Bright yellow-olive
Underside of tail – “male”	Just a hint of reddish	Bright orange-red
Outer tail, below – “male”	prominent yellow tips	Concolorous with rest of feather
Underside of tail “female”	1. grey with just a hint of olive 2. Broad white tips	1. olive with a strong shade of copper 2. narrow yellow tips
Uppertail	Olive with black bars	Mostly black with indistinct darker bars
Red tip to tail	Not on outer feathers	On all feathers
Total length	205 mm	approx. 220 mm
Bill from skull	17 mm	14 mm
Tarsus	30 mm	32 mm
Wing (curved)	77 mm	85 mm
tail	85 mm	95 mm

Nigel Collar provided the measurements (except total length, which was obtained from BirdLife International 2006) and photographs of two specimens of *L. omeiensis* in the Natural History Museum, Tring, U.K. The *L. omeiensis* plumage description is based on these photos and on MacKinnon & Phillipps (2000). It may be noted that the measurements are based on just one individual of each species.

The Bugun Liocichla was discovered during the field visits of the Eaglenest Biodiversity Project. Ramana Athreya initiated this project in November 2003 to improve the long-term conservation prospects of Eaglenest wildlife sanctuary. The three principle components of the conservation strategy include (i) documenting the flora and fauna (ii) identifying the factors which can affect their long-term survival and (iii) co-opting the local communities (Bugun and Sherdukpen tribes) in the conservation effort. The last component necessarily involves understanding the socio-economic needs of the two communities, their dependence on forest resources and identifying alternatives to non-sustainable exploitation of such resources. Generating employment and community revenue from ecotourism has so far been the focus of the community initiative.

The first phase of the project was completed recently and the targets achieved (to a greater or lesser extent) included basic inventories of some of the fauna of Eaglenest, demonstrating the ecotourism potential and convincing the local communities that conservation of Eaglenest can yield economic benefits. In the coming years the project will continue to carry out faunal inventories and community-organised ecotours, while expanding into nature/conservation education, understanding and reducing the dependence of the communities on forest resources and employment of local people in forest protection roles in partnership with the Forest Department.

Participation in the project is open to anyone with time, skill, resources and motivation. In fact, so little is known of the biodiversity of the area that skill is not a critical requirement – even people with minimal skills can contribute significantly towards the project goals.

Professional and amateur ornithologists may be interested in the Vacations-for-Conservation programme being organised as part of this project. Under this scheme, the project organises non-profit vacations in Eaglenest for naturalists. In return, the participants are expected to help with the faunal documentation. The participants get an opportunity to enjoy an inexpensive, organised vacation with experienced co-coordinators in a spectacular wilderness. The project gains human resources at no extra cost for the documentation work. The activity generates local employment and the local communities earn some revenue as a whole.

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