A new bird species from Eastern Himalayan Arunachal Pradesh – India's biological frontier

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Arunachal Pradesh (26°28′–29°30′N and 91°30′–97°30′E; 83,743 sq. km) in Northeast India is arguably the richest terrestrial biodiversity region of the country. Over the last five years, Arunachal has witnessed a spate of discoveries of hitherto unknown species and new range records of wild vertebrates. A new bird species, the Bugun Liocichla *Liocichla bugunorum*, has recently been described from the state[1]. We discuss the significance of this discovery and draw attention to the uncertain future of Arunachal's impressive biodiversity.

Uniquely located in the Eastern Himalayan biodiversity hotspot, Arunachal harbours the world's northernmost tropical rainforests[2], and is home to nearly half of the flowering plants[3] and bird species known from India[4]. Arunachal's rich diversity of life is associated with a wide altitudinal gradient (100 to over 6000 m) and a range of forest types from lowland tropical evergreen forests to temperate and alpine areas. In part due to the low human density (13 per sq. km), large areas of forest (81% of the geographical area) still remain[5,6]. Arunachal is a predominantly tribal state with a rich diversity of peoples, including 26 tribes and over 100 sub-tribes, each with distinct linguistic, cultural and social identities.

Owing presumably to its remote location and difficult mountainous terrain, the rich wildlife of Arunachal has remained relatively less explored and studied. After the pioneering avifaunal surveys in the State by Salim Ali along with Ripley[7], floral and faunal inventorying was undertaken by the State Forest Research Institute, the Botanical Survey of India and the Zoological Survey of India[3,8]. More recently, the Northeastern Regional Institute of Science and Technology and the Northeastern Hill University have documented vegetation diversity, structure and dynamics in the region[9–12].

It is largely in the last decade that wildlife research and exploration began to gather momentum in Arunachal[4,13–17], led by Indian researchers of non-governmental and governmental research institutions such as the Nature Conservation Foundation and the Wildlife Institute of India. Herpetofaunal surveys yielded several new species, range extensions and first records for India[18,19]. A survey of pheasants led to the discovery of a new subspecies of the Sclater's monal *Lophophorus sclateri arunachalensis*[20]. More recent records of large mammals in Arunachal, such as the leaf deer *Muntiacus putaoensis*[21] and the black barking deer *M. crinifrons*[22] (which were so far not reported from the Indian subcontinent), drew renewed national attention to the state's biodiversity. Surveys in the state over the last five years continued to report new records and range extensions of large mammals[16,23,24], and the region's position as one of the world's last remaining frontiers for biological exploration was cemented with the recent discovery and description of the Arunachal macaque *Macaca munzala*, a primate new to science[25].

There is exciting news from the state yet again – the discovery and description of a new bird species, the Bugun Liocichla *Liocichla bugunorum* (Figure 1)[1]. This strikingly coloured Asian babbler (family Timaliidae) is congeneric with three other species; the widely distributed Red-faced Liocichla *L. phoenicea* occurring from northwest Vietnam to northeast India, the Emei Shan Liocichla *L. omeiensis* in China, and the Steere's Liocichla *L. steerii* in Taiwan[1]. The Bugun Liocichla has been reported from the Eagle's Nest Wildlife Sanctuary (27°02′–09′, 92°18′–35′; 200–3300 m) in western Arunachal Pradesh, where it is sympatric with the Red-faced Liocichla, and is so far known to be restricted to altitudes between 2000 and 2350 m. The species has been recorded predominantly from open-canopied, degraded hill forests with dense shrubs and few small trees[1]. Despite occurring in relatively open habitats, the species remained unnoticed, possibly due to its rarity. So far only three presumed breeding pairs of the Bugun Liocichla have been recorded.

The Bugun Liocichla, morphologically and vocally, is closest to the Emei Shan Liocichla, though it differs significantly from all the other congeneric species in size, plumage and vocalization. Although the idea of species itself continues to be fuzzy and is a subject of considerable academic debate, the species concept remains a central theme in biology[26,27]. Genetic analyses in the future would help evaluate the taxonomic position of the Bugun Liocichla from the viewpoint of the phylogenetic species concept[26], and throw light on the evolutionary patterns of speciation within this group of babblers.

Notwithstanding the importance of this discovery, the future of the Bugun Liocichla and of Arunachal's other impressive wildlife and their habitats remains uncertain. A loss of more than 400 sq. km of forest over a period of a decade has been estimated to have recently occurred in the state[6]. Given that most of the region is forested and of relatively high biodiversity value, most developmental projects are seen to be in conflict with conservation. A proposed highway through Eagle's Nest, for instance, is currently a subject of litigation, and could potentially threaten, amongst other wildlife, the small population of the Bugun Liocichla[1]. Finding a balance between the needs of conservation and the developmental needs and aspirations of the people of the state is a major challenge.

The state, with 80% of the population being agriculturists, remains relatively less developed with few economic opportunities for the local communities. There

Figure 1. The Bugun Liocichla *Liocichla bugunorum*, a new bird species reported from western Arunachal Pradesh. (Photograph courtesy: Ramana Athreya.)

has been rapid socio-economic change over the last 50 years, from zero urban population in 1961 to 26% in 2001, increased literacy from 7 to 55%, high decadal growth rate compared to the rest of India, and increased immigration of outsiders[5]. Communities are undergoing rapid transition, and the intensifying linkages with regional markets are bringing about a change in economic aspirations and needs. Till 1996, Arunachal was largely dependent on timber extraction for revenue, which was stopped due to a ban by the Supreme Court. Paradoxically, the continuing lack of livelihood opportunities has meant continued high dependence on natural resources[16,28,29]. Hunting has been an integral part of local cultures, but appears to be no longer sustainable[29,30]. As it forms linkages with the larger illegal wildlife trade, hunting is leading to the empty forest syndrome in many areas, where forests may appear intact but most of the wildlife populations are heavily depleted or lost[29].

Given the limited income opportunities, developmental projects are often viewed as immediate sources of revenue for the state and ephemeral employment for the people (mostly in the form of contracts or labour). With the proposed development of several big dams in Arunachal, there have been strong debates regarding the value or need for large-scale developmental projects in Arunachal's fragile landscape[31]. There is no easy answer to the conservation–development dilemma that the state is facing. Appropriate valuation of Arunachal's biodiversity and ecosystem services and adequate financial compensation to the state and local communities for keeping their forests intact may be one alternative to large scale developmental projects that are environmentally damaging.

Arguably the most important underlying cause of the uncertain status of biodiversity in Arunachal is the non-involvement of local communities in conservation. There is little incentive or opportunity for the local communities to help protect wildlife. This is particularly unfortunate from a conservation viewpoint, given that 62% of the forest land in Arunachal is under community ownership. The resources available with the state for promoting conservation, conservation-linked incentive programmes and alternate livelihood sources for local communities are meagre in comparison to the disproportionately rich biodiversity that the state harbours.

More recently, small-scale efforts are being undertaken towards promoting community-based conservation[28,29]. It is noteworthy that the discovery of Bugun Liocichla was made as part of a project that aims to integrate the local *Bugun* tribe with conservation efforts through community-based ecotourism[28]. The bird has in fact been named in acknowledgement of the contribution of the local tribe to its discovery. Thus, while a beginning has been made, we believe that providing the state with adequate resources for conservation and community-involvement in conservation needs to become a national priority.

At a time when conservation news is mostly associated with the loss of species and habitats, and the age of species discovery is considered to be over, any new species description is exciting. Discoveries such as that of the Bugun Liocichla generate public interest and help focus attention on important biodiversity areas such as Arunachal Pradesh. The state in particular, has largely been neglected by wildlife biologists in the past, continues to be neglected by the media, and remains on the margins of national consciousness. The discovery of Bugun Liocichla is particularly significant, given that the last new bird species reported from mainland India was the Rusty-throated Wren Babbler *Spelaeornis badeigularis* (earlier called the Mishmi Wren-babbler), described from the Mishmi Hills, Arunachal Pradesh way back in 1948. The fact that despite fairly comprehensive avifaunal documentation of Arunachal's birds, an altogether new species has just been reported, guarantees that there is much wildlife still to be discovered in the state, and, indeed, much work to be done to conserve it.

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