Survey of the avifauna of Giang Man proposed nature reserve, Quang Binh province, Vietnam

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Between late October and mid-November 2016, we made the first avifaunal survey in Nui Giang Man proposed nature reserve, Quang Binh province, Vietnam. Despite exceptionally adverse weather conditions, 101 avian species were recorded, several of which should now be considered threatened in Vietnam, e.g. Indochinese Wren Babbler *Rimator danjoui*, Wreathed Hornbill *Rhyticeros undulatus* and Silver-eared Mesia *Leiothrix argentauris*. Our survey led to a number of altitudinal range extensions, along with the first documented records of ten species for northernmost Central Annam. Our work highlights the serious gaps in the basic avifaunal understanding of the northern Annamite avifauna as well as the requirement for additional basic field inventories across this under-sampled region.

INTRODUCTION

The Nui Giang Man proposed nature reserve (henceforth Giang Man) lies in the northern Annamite mountains (Annam Highlands) on the Vietnamese side of the border with Laos near the boundary of Ha Tinh and Quang Binh provinces, Vietnam. The proposed reserve (central coordinates 17.983°N 105.667°E) includes significant areas of lowland evergreen and lower montane evergreen forest (Tordoff et al. 2004). The area in southern Ha Tinh province lies almost entirely below 1,000 m, while the highest point in northern Quang Binh province is Mount Bai Dinh (approximately 2,050 m). However, because the boundary of Giang Man has not yet been finalised and agreed, it is not clear whether or not this mountain lies within the proposed nature reserve (Tordoff et al. 2004). If Giang Man's boundaries are confirmed as presently proposed, it will straddle two avifaunal regions, with the Ha Tinh section in southernmost North Annam and the Quang Binh section in the northernmost part of Central Annam as shown in Robson (2008).

Giang Man was included on a proposed list of 'Special-Use Forests' prepared for discussion at a national conference about this forest classification scheme held at Cuc Phuong National Park in November 1997. The area of Giang Man proposed at that time was 60,000 ha, and the Special-Use Forest category to which it was allocated was that of a nature reserve (Tordoff *et al.* 2004). However, to date—20 years later—an investment plan has not yet been prepared for Giang Man and, although a management board has been established, it is under the control of the Minh Hoa District People's Committee with a core area of only 19,824 ha (Nui Giang Man Management Board 2016).

Due to its location in a remote international border area and the steep, rugged nature of the landscape, to date only one cursory biodiversity survey has been carried out at Giang Man; this was led by Fauna and Flora International in 2007 and was focused exclusively on gibbons (Rawson *et al.* 2011). No avifaunal survey has been carried out although Giang Man is located in the vicinity of four Important Bird Areas in north Central Annam: Vu Quang, Ke Go, Khe Net and Phong Nha (Tordoff 2002).

In the face of the rapid decline of biodiversity in Vietnam over the last two decades, there is an urgent requirement to document and preserve the remaining flora and fauna before they decline still further.

STUDY AREA AND METHODS

Between 24–26 October 2016, while logistical preparations were being made, our rapid survey commenced in areas around the Cha Lo border checkpoint (17.679°N 105.765°E) between Vietnam and Laos at an altitude of about 300 m. The habitat here includes degraded lowland evergreen forest to the north and limestone forest to the west, separated by a large stream and road (formerly the 'Ho Chi Min trail'). From 27 October to 9 November, we set up camp (location about 17.790°N 105.702°E) in Quang Binh province at about 1,200 m and surveyed all trails around the campsite. The habitat here remains fairly intact and is dominated by lower montane evergreen forest. Small stands of bamboo are scattered across the area surveyed. The Laos border lay to the west of the campsite beyond fairly steep rocky cliffs that made the approach challenging. Unfortunately, heavy rains during most of our stay prevented us from reaching higher altitudes and from exploring other sites further to the north of the proposed nature reserve.

Mist-netting activities (using 12 m nets with a maximum of 20 nets open during daylight hours, usually from 06h00 to 17h00), observations and photography were carried out on a daily basis and were concentrated within 2-3 km of the campsite. Nocturnal species were mostly identified by calls during night-time. Birds caught in mist-nets were measured (bill length, tail length, tarsus length, wing length and body length) and weighed, and the following data recorded as far as possible: body moult, rectrix or remix moult, absence or presence of a brood patch, age and sex. Blood samples for DNA analysis were collected by brachial venipuncture before releasing birds. In the case of rare unexpected mortalities—seven birds (see Appendix 1)-mostly due to the onset of sudden heavy rain, specimens were collected and prepared as dry skins. Skin specimens are deposited at the Zoology Museum of the Institute of Ecology and Biological Resources (IEBR) in Hanoi. The field work (including the collection of the seven skins) was carried out under permission No.2097 of Quang Binh Provincial Agriculture and Rural Development Department and was directly supervised by the Quang Binh Provincial Forest Protection Department and Giang Man proposed nature reserve staff.

RESULTS AND DISCUSSION

A total of 101 avian species were recorded inside the proposed nature reserve, 55% of which were documented with tangible evidence, i.e. specimens and/or images (Appendix 1). We documented the first records for north Central Annam of ten species and clarified the status of several other rare and threatened species in this region (see species accounts).

At least 15 of the species recorded have been identified as migrants; some of these, e.g. Siberian Thrush *Geokichla sibirica*, Orange-headed Thrush *G. citrina*, Eyebrowed Thrush *Turdus obscurus*, Dark-sided Flycatcher *Muscicapa sibirica*, Asian Brown Flycatcher *M. dauurica* and Red-throated Flycatcher *Ficedula* *albicilla*, may also winter in the area as the survey period fell towards the end of the autumn migration season.

Despite an absence of ground-level snares set by illegal trappers, we did not record any Phasianidae, including *Arborophila* partridges. The presence of Silver Pheasant *Lophura nycthemera* at the site is reported by a local guide (Cuong H. P. pers. comm.), but we did not observe or hear any during the survey.

Surprisingly, no pigeons and doves were recorded during the survey, although the habitat appeared to be very suitable for several common species, including Thick-billed Green Pigeon *Treron curvirostra*, Eastern Spotted Dove *Spilopelia chinensis* (in the more open surroundings) and Grey-capped Emerald Dove *Chalcophaps indica*. Members of this family are often targeted by local hunters (Cuong H. P. pers. comm.) and the presence of several villages within less than a day's hike from our research site means that we cannot discount the possibility of these species having been trapped out.

However, we noted a fair abundance of *Psilopogon* barbet species: namely Red-vented *P. lagrandieri*, Green-eared *P. faiostrictus* (recorded at 1,200 m, an unusually high altitude), Golden-throated *P. franklinii* and Moustached *P. incognitus* (a first record for north Central Annam) Barbets. Our images of Golden-throated Barbet identify the local population as subspecies *auricularis*, with an allblack band through the eyes, a violet wash on the lower ear-coverts, a mostly yellow throat with dark borders, and a narrow blue lower throat. This subspecies was previously mentioned only from South Laos and South Annam (Robson 2008).

CONSERVATION PRIORITIES

Giang Man is located mainly along the national border between Vietnam and Laos, with fairly strict control exercised by Vietnamese army border patrols. Most habitat above 700 m is still intact, with fairly large trees that are thought to be the preferred haunts of threatened mammal species such as gibbons, as well as large and medium-sized birds such as hornbills and magpies. During the survey, sound-recordings of at least two groups of Southern Whitecheeked Gibbon *Nomascus siki* were made between 27 October and 7 November 2016 on days when the weather was good, mainly between 06h30 and 07h00. The Southern White-cheeked Gibbon is a near-endemic primate species of Vietnam and is currently listed as Endangered (Rawson *et al.* 2011, IUCN 2017).

Our records of large groups of Wreathed Hornbill *Rhyticeros undulatus* (see species accounts) and of White-winged Magpie *Urocissa xanthomelana* confirm that the habitat and forest quality in Giang Man remain good, even though it experiences low levels of hunting and logging pressure from the roughly 2,000 people living in 13 villages around the proposed reserve. However, we detected some old mechanical incision marks in big trees and other signs of previous selective logging along the trails at 1,200 m. This implies that the area is no longer pristine and has previously been disturbed by local logging activities. Rangers based in the area encounter two to three incidents of poaching a year, typically of Phasianids (Cuong H. P. pers. comm.). However, local people have been known to cross the Laos–Vietnam border secretly using trails inside the nature reserve and this activity may cause further disturbance to the flora and fauna of the area.

In addition to the fauna, Giang Man still supports a fairly large number of rare and threatened plant species: Fujian Cypress *Fokienia hodginsii* (found above 1,100 m) is present in the form of several large individual trees along trails at around 1,200 m. According to district staff directly overseeing the proposed nature reserve, about 200 big trees remain, mainly from 1,200 to 1,400 m (Cuong H. P. pers. comm.).

The establishment of the official nature reserve with clearly demarked boundaries will be an important prerequisite for the conservation of biodiversity as Giang Man is currently still only a proposed nature reserve and under district management. Official confirmation of the reserve would raise its management status to the provincial level, giving it much-needed access to a larger management board, additional staff capacity and improved funding.

SPECIES ACCOUNTS

Green-eared Barbet Psilopogon faiostrictus

On 3 November 2016 a bird was observed in a fruiting tree with other barbets at around 1,200 m. It was seen close to the much larger Red-vented Barbet and the streaking on the breast and head along with the green auricular patch were clearly seen; apparently an altitudinal range extension for the species (Robson 2008).

Moustached Barbet Psilopogon incognitus eurous

On 4 November 2016 a bird was observed in a fruiting tree at 1,200 m where other barbets were also occasionally seen. The bird's head was predominantly green, with only a slight bluish hue to the throat and particularly to the auriculars; the crown was completely green with a small reddish frontal spot and a faint reddish suffusion on the hindcrown. The black eye-stripe was extremely thick and pronounced compared with the narrower black moustachial stripe, which is in agreement with some photographic material depicting this species but is not as shown by Robson (2008). Confusion with Blue-throated Barbet *P. asiaticus* can be ruled out as that species lacks a moustachial stripe and should always show some blue and more red on the crown. This is apparently the first record for north Central Annam (Robson 2008).

Wreathed Hornbill Rhyticeros undulatus

On the morning of 28 October 2016 a large group of about 30 individuals was observed at about 1,300 m, flying out of a distant fruiting tree. On the next morning, the group (including both males and females) returned, perched in the same tree and was photographed. This is one of few recent records of a large group of this species in Vietnam after its sudden decline in the last few years. Hunting, logging of big trees and general habitat loss are the main drivers of the decline of this species. Fortunately, this species was included in Vietnam Government Decree 160 in Vietnam's penal code 241 on wildlife protection (Nguyen *et al.* 2015).

Siberian Thrush Geokichla sibirica

A total of about 30 individuals was seen and photographed on almost every fair-weather day during the survey, mostly between 1,100 and 1,200 m. Individuals showing female-type plumage dominated, but a few adult males were also present, along with a number of very scaly immature males. Adult males typical of both subspecies *sibirica* and *davisoni* were studied at length, with a very dark *davisoni* male showing only narrow white vent bars, another presumable *davisoni* with only a narrow white hindbelly area adjoining the scaly vent, and a full *sibirica* male with an extensive white belly wedge extending almost to the lower breast. The birds may have been late migrants or—more likely—wintering in the area. Robson (2008) mentions the species for Central Annam, but this probably refers to a sighting at the southernmost end of Bach Ma National Park (Robson *et al.* 1993).

Chestnut-bellied Nuthatch Sitta cinnamoventris

One individual occasionally joined a mixed flock that roamed through our camp (1,200 m) at about 08h00 on dry mornings, always high up and moving fast. Images were taken on one occasion. The altitude appears to be at about the lower limit of the occurrence of this species. This is a new record for Central Annam, although its occurrence here is perhaps unsurprising as it has been recorded in

adjacent areas of Laos only 85 km away at Na Pe (Harrap & Quinn 1996, Robson 2008).

Green-backed Tit Parus monticolus yunnanensis

Only four birds were seen at 1,200 m during almost two weeks, so the species was seemingly uncommon. Robson (2008) does not mention this species for North or Central Annam.

Black-headed Bulbul Brachypodius atriceps

On 27 October 2016 two birds were observed at about 300 m by a river as we ascended to our campsite; images were obtained. This appears to be a first record for northernmost Central Annam (Robson 2008).

Chestnut-flanked White-eye Zosterops erythropleurus

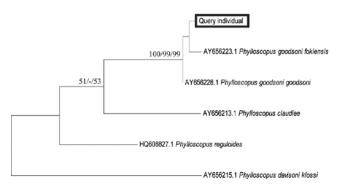
Flocks of 30–40 birds were well observed at 1,200 m on five occasions roaming through the canopy. These flocks were apparently monospecific as no other *Zosterops* species were seen to join them. This appears to be the first record for Central Annam (Robson 2008).

Hartert's Leaf Warbler Phylloscopus goodsoni

Several birds were seen and heard at about 1,200 m and one was mistnetted on 4 November 2016. As they gave both their multisyllabic call notes and courtship songs, it was recognised in the field that these birds were definitely members of the Blyth's Leaf Warbler P. reguloides complex (see Rheindt 2006), but it was unclear if they were resident [Southern] Blyth's Leaf Warblers P. reguloides or wintering Claudia's Leaf Warblers P. claudiae or Hartert's Leaf Warblers *P. goodsoni*—the latter two possible migrants from China. Given that Kloss's Leaf Warbler P. ogilviegranti (see subsequent account) was also present at the same altitude and that members of the Blyth's complex are often the higher-altitude replacement for Kloss's Leaf Warblers, it seemed probable that these birds were winter visitors. After the fieldwork, we carried out mitochondrial cytochrome-b sequencing on the DNA sample collected at IEBR (using primers L13653 [5-TAGGATCTTTCGCCCTATC-3] and H14296 [5-TTGTTTGATCCTGTTTCGTG-3] as per PCR conditions described in Li et al. (2006). BLAST results of the trimmed 488bp-long sequence obtained yielded a 100% match to P. goodsoni goodsoni samples. Lower matching scores for P. claudiae and P. reguloides were obtained in BLAST and results from our phylogenetic tree analysis (Figure 1) and pairwise sequence divergence comparisons (Table 1) conclusively identify this sample as a Hartert's Leaf Warbler P. goodsoni. This is the second confirmed record of this species in Vietnam and the first for Central Annam (Le et al. 2012). We suspect that all 'Blyth's-like' leaf warblers recorded by us at Giang Man were wintering P. goodsoni from China. Northern Vietnam may well turn out to be one of the main wintering grounds for this species.

Kloss's Leaf Warbler Phylloscopus ogilviegranti

This species's distinctive jumbled courtship song was heard with certainty on one day at around 1,200 m, but the bird was unresponsive to playback. Later silent individuals that conformed to the visual identification marks of this species were seen briefly but not conclusively enough to accept them as visual records. Given that only a single song encounter was conclusive, it is unclear which subspecies was involved—the resident *klossi* or a wintering bird from China, either subspecies *ogilviegranti* or subspecies *disturbans* (Rheindt 2006). Robson (2008) and other less recent sources use older taxonomic arrangements which unite Kloss's Leaf Warbler with other taxa into a more widespread umbrella species—White-tailed Leaf Warbler *P. ogilviegranti*. Our record clarifies the identity of the taxon occurring in northern Central Annam as Kloss's Leaf Warbler (see del Hoyo & Collar 2017). **Figure 1.** Phylogram of GenBank samples of the Blyth's Leaf Warbler complex and our query individual. Major nodes are annotated with maximum likelihood, maximum parsimony and neighbour-joining values. All tree search methods were run with 1000 bootstrap replicates in Mega 7.0.21. Maximum likelihood was run using the Hasegawa-Kishino-Yano model and invariant site treatment whilst maximum parsimony was run with missing data treated by partial deletion and tree-bisection-reconnection as the tree search mode.



0.0100

Table 1. Matrix of raw pairwise sequence divergences between taxaof the Blyth's Leaf Warbler complex. Comparison conducted on Mega7.07 using 1000 bootstrap replicates.

	Query individual	AY656228.1 Phylloscopus goodsoni goodsoni	AY656223.1 Phylloscopus goodsoni fokiensis	HQ608827.1 Phylloscopus reguloides	
AY656228.1 Phylloscopus goodsoni goodsoni	0.004				
AY656223.1 Phylloscopus goodsoni fokiensis	0.006	0.006			
HQ608827.1 Phylloscopus reguloides	0.055	0.055	0.059		
AY656213.1 Phylloscopus claudiae	0.058	0.053	0.056	0.062	

Bianchi's Warbler Phylloscopus valentini

Three individuals were mist-netted, showing yellow wing-bars and a fair amount of white on the two outermost rectrices, but identification as Bianchi's Warbler *P. valentini* mostly relied on the diagnostic *diu* call note which they almost invariably uttered on release. Several survey participants are very conversant with the vocal identification of this warbler species and were able to conclusively rule out all other species (see Rheindt 2006). In addition, two or three unidentifiable, silent warblers of similar appearance were seen in mixed flocks at about 1,200 m, and although their identification as *valentini* seems very likely based on the captured birds, other similar species cannot be ruled out. This is the first record of Bianchi's Warbler for Central Annam (Robson 2008).

Indochinese Wren Babbler Rimator danjoui parvirostris

Two or three of this shy species were seen in the field and one individual was mist-netted at about 1,200 m in the early morning of 29 October 2016; another was caught two days later. The species was only heard in the early morning on three days when the weather was fair, during a period of almost two weeks at this site, and sound recordings were obtained. The morphology of the individuals collected matched *R. d. parvirostris*, which differs significantly from *R. d. danjoui* populations in South Annam (Robson 2008).

This restricted-range species has become rarer and more threatened in Vietnam following habitat loss and is currently listed as Near Threatened (BirdLife International 2017).

House Sparrow Passer domesticus indicus

On 26 October 2016 a flock of five birds was seen in Cha Lo village at the margin of Giang Man, alongside Eurasian Tree Sparrow *Passer montanus*. This represents a large range extension of this invasive species to the remote hilly border between Vietnam and Laos. Robson (2008) did not include this species for North or Central Annam.

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REFERENCES

- BirdLife International (2017) Species factsheet: *Rimator danjoui*. Accessed at http://www.birdlife.org on 02/10/2017.
- Harrap, S. & Quinn, D. (1996) *Chickadees, tits, nuthatches and treecreepers*. Princeton: Princeton University Press.
- del Hoyo, J. & Collar, N. J. (2014) *HBW and BirdLife International illustrated checklist of the birds of the world*, 1. Barcelona: Lynx Edicions.
- del Hoyo, J. & Collar, N. J. (2016) *HBW and BirdLife International illustrated* checklist of the birds of the world, 2. Barcelona: Lynx Edicions.
- del Hoyo, J. & Collar, N. (2017) Kloss's Leaf-warbler *Phylloscopus ogilviegranti*. In: J. del Hoyo, A. Elliott, J. Sargatal, D. A. Christie & E. de Juana, eds. *Handbook* of the birds of the world alive. Barcelona: Lynx Edicions. Accessed at http:// www.hbw.com/node/1343941 on 02/10/2017.
- IUCN (2017) Southern White-cheeked Gibbon. Accessed at http://www. iucnredlist.org/details/39896/0 on 02/10/2017.

- Le M. H., Robbins, M. B., Rice, N. H. & Garcia-Trejo, E. A. (2012) Survey of the avifauna at Muong Nhe Nature Reserve, Dien Bien province, Vietnam. *Forktail* 28: 101–106.
- Li S. H., Li J. W., Han L. X., Yao C. T., Shi H., Lei F. M. & Yen C. (2006) Species delimitation in the Hwamei *Garrulax canorus*. *Ibis* 148(4): 698–706.
- Nguyen T. C., Le M. H., Nguyen Q. T. & Dang H. P. (2015) An identification book of endangered, precious and rare species prioritised for protection in Vietnam. Hanoi: Thanh Nien Publishing House.
- Nui Giang Man Management Board (2016) The annual activity report to the Minh Hoa District People's Committee, Quang Binh province. Unpublished technical report. (In Vietnamese.)
- Rawson, B. M., Insua-Cao, P., Nguyen M. H., Van N. T., Hoang M. D., Mahood, S., Geissmann, T. & Roos, C. (2011) *The conservation status of gibbons in Vietnam*. Hanoi: Fauna & Flora International/Conservation International.
- Rheindt, F. E. (2006) Splits galore: the revolution in Asian leaf warbler systematics. *BirdingASIA* 5: 25–39.
- Robson, C., Eames, J., Cu N. & Van La T. (1993) Further recent records of birds from Viet Nam. *Forktail* 8: 25–52.
- Robson, C. (2008) A field guide to the birds of South-East Asia. London: New Holland.
- Tordoff, A. W. (2002) *Directory of important bird areas in Vietnam: key sites for conservation*. Hanoi: BirdLife International in Indochina and the Institute of Ecology and Biological Resources.
- Tordoff, A. W., Tran Q. B., Nguyen D. T. & Le M. H., eds. (2004) Sourcebook of existing and proposed protected areas in Vietnam. Second edition. Hanoi: BirdLife International in Indochina and the Ministry of Agriculture and Rural Development.

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Appendix 1.

Avian species recorded in the proposed Giang Man nature reserve between 24 October and 9 November 2016. Key: Relative abundance: A = common (more than 10 individuals per day), F = fairly common (5–10 individuals per day), U = uncommon (fewer than 5 individuals per day), R = rare (only occasionally encountered), X = single record. Evidence: C = collected, P = image obtained, S = sight record only. Species shown in **bold** are first records for the area. Taxonomy follows del Hoyo & Collar (2014, 2016).

Species	Relative abundance	Evidence	Comments	Species	Relative abundance	Evidence Comments
White-browed Piculet Sasia ochracea	U	С	1 trapped and released	Common Kingfisher Alcedo atthis	U	S
Grey-capped Woodpecker Picoides canicapillus	U	S		Mountain Scops Owl Otus spilocephalus	R	S
Bay Woodpecker Blythipicus pyrrhotis	U	S		Collared Owlet Glaucidium brodiei	R	S
Red-vented Barbet Psilopogon lagrandieri	U	Р		Mountain Imperial Pigeon <i>Ducula badia</i>	U	S
Green-eared Barbet <i>Psilopogon faiostrictus</i>	U	Р		Plaintive Cuckoo <i>Cacomantis merulinus</i>	Х	S
Golden-throated Barbet <i>Psilopogon franklinii</i>	U	Р		Crested Serpent Eagle Spilornis cheela	U	S
Moustached Barbet Psilopogon incognitus	U	S	First for north Central Annam	Crested Goshawk Accipiter trivirgatus	U	S
Wreathed Hornbill Rhyticeros undulatus	F	Р		Black Eagle Ictinaetus malaiensis	U	Р
Red-headed Trogon <i>Harpactes erythrocephalus</i>	U	С, Р	1 trapped and released	Long-tailed Broadbill Psarisomus dalhousiae	F	S

Species	Relative abundance	Evidence	Comments	Species	Relative abundance	Evidence	Comments
Asian Fairy Bluebird <i>Irena puella</i>	U	S		Black-crested Bulbul Pycnonotus flaviventris	F	S	
Blue-winged Leafbird Chloropsis moluccensis	F	S		Stripe-throated Bulbul Pycnonotus finlaysoni	F	Р	
Greyish-crowned Leafbird <i>Chloropsis lazulina</i>	F	Р		Red-whiskered Bulbul Pycnonotus jocosus	U	S	
Long-tailed Shrike <i>Lanius schach</i>	U	S	Migrant	Sooty-headed Bulbul Pycnonotus aurigaster	U	Р	
White-winged Magpie <i>Urocissa xanthomelana</i>	F	Р		Puff-throated Bulbul <i>Alophoixus pallidus</i>	F	Р	
Large-billed Crow Corvus macrorhynchos	F	Р		Ashy Bulbul Hemixos flavala	U	Р	
Ashy Woodswallow <i>Artamus fuscus</i>	F	S		Mountain Bulbul Ixos mcclellandii	А	С	4 trapped and released
Grey-chinned Minivet <i>Pericrocotus solaris</i>	F	S		Chestnut-flanked White-eye Zosterops erythropleurus	F	S	Migrant; first for Central Annam
Scarlet Minivet <i>Pericrocotus flammeus</i>	F	Р		Asian Stubtail <i>Urosphena squameiceps</i>	U	C	2 trapped and released
White-throated Fantail <i>Rhipidura albicollis</i>	F	S		Slaty-bellied Tesia <i>Tesia olivea</i>	U	С, Р	3 trapped and released
Grey-headed Canary Flycatcher <i>Culicicapa ceylonensis</i>	F	Р	Migrant	Mountain Tailorbird Phyllergates cucullatus	F	S	
Greater Racquet-tailed Drongo <i>Dicrurus paradiseus</i>	U	S		Dark-necked Tailorbird Orthotomus atrogularis	F	Р	
Blue Rock Thrush <i>Monticola solitarius</i>	U	S	Migrant	Yellow-browed Warbler Phylloscopus inornatus	F	S	Migrant
Blue Whistling Thrush <i>Myophonus caeruleus</i>	U	С	1 trapped and released	Hartert's Leaf Warbler Phylloscopus goodsoni	R	С	First for Central Annam
Orange-headed Thrush <i>Geokichla citrina</i>	U	С	Migrant; 3 trapped and released	Kloss's Leaf Warbler Phylloscopus ogilviegranti	F	S	First for north Central Annam
Siberian Thrush Geokichla sibirica	F	Р	First for north Central Annam	Bianchi's Warbler Phylloscopus valentini	U	С	First for Central Annam; 5 trapped, 1 collected (IEBR.2016.82)
Eyebrowed Thrush Turdus obscurus	U	Р	Migrant	Grey-cheeked Warbler Phylloscopus poliogenys	F	С	2 trapped, 1 collected (IEBR.2016.86)
Lesser Shortwing Brachypteryx leucophris	U	C	1 collected (IEBR.2016.85)	Rufous-faced Warbler Abroscopus albogularis	A	С, Р	1 trapped and released
Dark-sided Flycatcher Muscicapa sibirica	F	Р	Migrant	Black-throated Laughingthrush <i>Garrulax chinensis</i>	Х	S	
Asian Brown Flycatcher <i>Muscicapa dauurica</i>	F	S	Migrant	Rufous-cheeked Laughingthrush Garrulax castanotis	Х	S	
Red-throated Flycatcher Ficedula albicilla	U	S	Migrant	Buff-breasted Babbler Trichastoma tickelli	F	S	
White-gorgeted Flycatcher Anthipes monileger	F	С, Р	4 trapped and released	White-browed Scimitar Babbler Pomatorhinus schisticeps	U	с	2 trapped and released
Verditer Flycatcher <i>Eumyias thalassinus</i>	U	S	Migrant	Indochinese Wren Babbler Rimator danjoui	R	С	2 trapped and released
Small Niltava <i>Niltava macgrigoriae</i>	A	C	5 trapped and released	Streaked Wren Babbler Turdinus brevicaudatus	U	S	
White-tailed Flycatcher Cyornis concretus	U	С	2 trapped and released	Eyebrowed Wren Babbler Napothera epilepidota	U	С	1 trapped and released
Oriental Magpie Robin Copsychus saularis	F	S		Pygmy Cupwing Pnoepyga pusilla	U	S	
White-rumped Shama <i>Kittacincla malabarica</i>	U	S		Golden Babbler Cyanoderma chrysaeum	F	С	3 trapped, 1 collected (IEBR.2016.80)
White-tailed Blue Robin Myiomela leucura	A	С	1 trapped and released	Grey-throated Babbler Stachyris nigriceps	A	с	4 trapped, 1 collected (IEBR.2016.87)
Slaty-backed Forktail Enicurus schistaceus	U	Р		Spot-necked Babbler Stachyris strialata	U	S	(12011.2010.07)
Common Myna Acridotheres tristis	A	Р		Pin-striped Tit Babbler Mixornis gularis	F	Р	
Chestnut-bellied Nuthatch Sitta cinnamoventris	U	Р	First for Central Annam	Wixornis guiaris White-browed Shrike Babbler Pteruthius aeralatus	U	с	2 trapped and released
Velvet-fronted Nuthatch Sitta frontalis	F	Р		Pterutnius aeraiatus Black-eared Shrike Babbler Pteruthius melanotis	U	Р	
Green-backed Tit Parus monticolus	Х	Р	First for Central Annam	Chestnut-fronted Shrike Babbler	U	S	
Sultan Tit Melanochlora sultanea	F	Р		Pteruthius aenobarbus Black-browed Fulvetta	U	P	
Barn Swallow <i>Hirundo rustica</i>	A	S	Migrant	Alcippe grotei Grey-cheeked Fulvetta	A	c	5 trapped, 1 collected
Black-headed Bulbul <i>Brachypodius atriceps</i>	Х	Р	First for north Central Annam	Alcippe morrisonia		-	(IEBR.2016.81)

Relative abundance	Evidence	Comments
F	C	5 trapped, 1 collected (IEBR.2016.83)
U	Р	
F	Р	
F	С, Р	2 trapped and released
U	S	
Х	Р	
	abundance F U F F F U	abundanceEvidenceFCUPFPFC, PUS

Species	Relative abundance	Evidence	Comments
Little Spiderhunter Arachnothera longirostra	U	S	
Streaked Spiderhunter Arachnothera magna	U	Р	
White Wagtail <i>Motacilla alba</i>	F	Р	Migrant
Grey Wagtail <i>Motacilla cinerea</i>	F	S	Migrant
House Sparrow Passer domesticus	F	Р	First for Central Annam
Eurasian Tree Sparrow Passer montanus	A	S	