

BirdLife International Vietnam Programme
Institute of Ecology and Biological Resources and
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A Rapid Field Survey of Xin Man and Yen Minh Districts, Ha Giang Province, Vietnam



BirdLife International Vietnam Programme,
the Institute of Ecology and Biological Resources
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**A Rapid Field Survey of
Xin Man and Yen Minh Districts,
Ha Giang Province, Vietnam**

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1. Introduction

This report presents the results of a rapid field survey of Xin Man and Yen Minh districts, Ha Giang province, conducted by the BirdLife International Vietnam Programme and the Institute of Ecology and Biological Resources, as part of the Danida-funded project *Improved conservation planning through institutional strengthening in Cambodia, Laos and Vietnam*. The rapid field survey was carried out in cooperation with Ha Giang Provincial Forest Protection Department (FPD).

1.1 Aim and objectives

The aim of the rapid field survey was to assess whether or not Xin Man and Yen Minh districts qualified as Important Bird Areas (IBAs). IBAs are areas of international importance for bird conservation that meet internationally recognised criteria. IBAs are not only important for birds, but typically support a wide range of other important animal and plant species.

The specific objectives of the survey were to:

- collect data on the status and distribution of bird species in Xin Man and Yen Minh districts, particularly globally threatened and restricted-range species;
- collect data on the status and distribution of insect species in Xin Man and Yen Minh districts;
- collect data on the status and distribution of reptile and amphibian species in Xin Man and Yen Minh districts.

1.2 Study areas

The study areas were Xin Man (22°26' to 22°48'N by 104°20' to 104°39'E) and Yen Minh (22°52' to 23°16'N by 104°58' to 105°23'E) districts, Ha Giang province. In Xin Man district, six days were spent surveying predominantly forest habitats near Ban Xe village, Na Chi commune, which is situated in the south-west of the district and borders Tan Yen district, Yen Bai province, and Bac Ha district, Lao Cai province to the west. In Yen Minh district, nine days were spent surveying limestone forest and anthropogenic habitats on and around Mount Phu Tha Ca, which lies in Du Gia proposed nature reserve.

1.3 Itinerary

12 May 2002	Travelled to Ha Giang town
13 May 2002	Met with Ha Giang Provincial FPD and travelled to Xin Man district
14-19 May 2002	Surveyed in Na Chi commune
20 May 2002	Travelled to Yen Minh district
21-29 May 2002	Surveyed on Mount Phu Tha Ca, Du Gia commune
30 May 2002	Travelled to Ha Giang town and met with Ha Giang Provincial FPD
31 May 2002	Returned to Hanoi

2. Birds

2.1 Methods

Birds were surveyed by observation and identification of calls; observations were made continuously from 06h00 to 18h00 each day. Six days were spent surveying around Ban Xe village (22°30'N 104°28'E) in Na Chi commune, Xin Man district, where the principal habitat surveyed was mixed broadleaf evergreen and bamboo forest, at elevations between 900 and 1,350 m asl. In addition, short periods were spent surveying anthropogenic habitats around Ban Xe village, at elevations from 400 to 800 m asl.

An additional nine days were spent surveying on Mount Phu Tha Ca (22°57'N 105°09'E) in Du Gia commune, Yen Minh district, where the principal habitats surveyed were lower montane evergreen forest at elevations between 900 and 1,800 m asl, and upper montane evergreen forest at elevations above 1,800 m asl. Upper montane evergreen forest is distributed up to the peak of Mount Phu Tha Ca at 2,273 m asl. However, due to inclement weather and difficult terrain, it was not possible to survey at elevations above 1,950 m asl. In addition, a number of *ad hoc* records were made in anthropogenic habitats at elevations between 400 and 900 m asl.

2.2 Results

2.2.1 Xin Man district

Xin Man district is located 160 km south-west of Ha Giang provincial town. The rapid field survey concentrated on Na Chi commune. The highest point in this commune is a 1,400 m asl peak on the borders of Yen Bai, Lao Cai and Ha Giang provinces. On the Yen Bai side of this peak, the forest has been largely converted to agricultural land. On the Ha Giang side of this peak, closed canopy forest is largely restricted to elevations above 900 m asl; below this elevation, the forest has been severely degraded by selective timber extraction and converted into agricultural land. The forest in the north of the commune is less disturbed, due to the limestone topography. However, the recent installation of a high voltage electricity line has resulted in the loss of significant areas of forest. Observations made during the rapid field survey indicate that hunting pressure is quite high in the area: many local people possess guns, and frequently hunt wild pigs, muntjacs and certain bird species.

Due to the limited time available, only 52 bird species were recorded during the rapid field survey, most of which are common species (Appendix 1). However, three species are listed in the *Red Data Book of Vietnam*: Black-billed Magpie *Pica pica* (endangered), Wreathed Hornbill *Aceros undulatus* (threatened) and Grey Laughingthrush *Garrulax maesi* (threatened).

Key species accounts

[Wreathed Hornbill *Aceros undulatus*]

Two bills of Wreathed Hornbill (one adult and one juvenile) were photographed in the possession of local people in Nam Xai village, Na Chi commune. According to the hunter, the bills belonged to two of three birds hunted in 1994. The hunter reportedly encountered a flock of eight birds, from which he shot two adult females and one juvenile. The flock was encountered in an adjacent forest area in Bac Ha district, Lao Cai province, at an elevation of about 1,500 m asl. According to the range stated in Robson (2000), this is the first record of this species from Tonkin. Based on the extent of remaining habitat and the high hunting pressure, it is unlikely that the site supports a significant population of this species, if it is not already extinct.

Black-billed Magpie *Pica pica*

On 13 May 2002, two Black-billed Magpies were observed perching by the roadside in anthropogenic habitat at an elevation of 1,300 m asl. This is the first record of the species in Vietnam since 1999, when it was observed in Tra Linh district, Cao Bang province (Tordoff *et al.* 2000). In Vietnam, the

population of this species has undergone a severe decline in recent decades, which is believed to be a result of the widespread and uncontrolled use of pesticides.

Grey Laughingthrush *Garrulax maesi*

On 16 May 2002, a flock of 8 to 10 Grey Laughingthrushes was seen in bamboo forest at an elevation of 1,200 m asl. The birds were very vocal and came very close to the observer, in response to imitation of the bird's call.

Brown-cheeked Fulvetta *Alcippe poioicephala*

On 16 May 2002, a single bird was observed in bamboo forest at 1,200 m asl. This record represents a range extension from that given in Robson (2000). It is not, however, the first record from East Tonkin, as there exists a previous record from Ba Be National Park, Bac Can province (Hill 2000).

Key species not recorded

Common Pheasant *Phasianus colchicus*

In recent decades, there have been no confirmed field records of this species, which is listed in the *Red Data Book of Vietnam* (Anon. 1992) as rare. According to information supplied by Mr Hoang Van Hiep, the vice-director, Xin Man District FPD confiscated one Common Pheasant in June 2001 but it died after some days. The bird was caught by local people in Na Chi commune in forest adjoining Bac Ha district, Lao Cai province. According to the information the hunter gave to the FPD at the time, the bird may have come from forest in Bac Ha district, because it was the first time he had encountered it. During the survey, the rapid field survey team visited areas considered to be suitable for this species but were unable to find it.

2.2.2 Yen Minh district

Mount Phu Tha Ca is located within Du Gia proposed nature reserve, Yen Minh district, 90 km north-east of Ha Giang provincial town. Du Gia proposed nature reserve was established by Ha Giang Provincial People's Committee in 1994, and is now under the management of the provincial FPD. The topography of the nature reserve is dominated by a series of limestone mountains, the highest of which is Mount Phu Tha Ca at 2,273 m asl.

The broad valleys at the base of Mount Phu Tha Ca, at elevations between 400 and 600 m asl, are settled by members of the Hmong ethnic group, and are cultivated, mainly with maize. Above the cultivated areas, between 600 and 900 m asl, the forest has been entirely cleared and replaced by secondary vegetation. Lower montane evergreen forest is distributed at elevations between 900 and 1,800 m asl. From 900 to 1,500 m asl, most of the forest has been degraded by selective timber extraction, and most canopy trees have a diameter at breast height (dbh) of 0.5 to 1 m. Above 1,500 m asl, the forest canopy is closed with many big trees and an understorey dominated by bamboo. Upper montane evergreen forest is distributed at elevations from 1,800 m asl to the peak of Mount Phu Tha Ca. There are many waterfalls in the forest, which is quite dry from October to March.

A total of 87 bird species were recorded during the survey, all but one of which were identified to species level (Appendix 1). These species included one globally threatened species, Beautiful Nuthatch *Sitta formosa*, and eight species with range extensions from those given in Robson (2000). During a previous survey of Du Gia commune, Yen Minh district, in 2000, an additional 29 bird species not found during this survey were recorded (Vogel *et al.* in prep.). Therefore, the total number of species recorded in Du Gia commune to date stands at 116.

The bird community of Mount Phu Tha Ca is characteristic of montane evergreen forest in northern Vietnam but, as the rapid field survey concentrated on lower montane evergreen forest, the composition of the upper montane bird fauna remains largely unknown. The most frequently recorded species in lower montane evergreen forest included Golden-throated Barbet *Megalaima franklinii*, Red-headed Trogon *Harpactes erythrocephalus*, Grey-headed Canary Flycatcher *Culicicapa ceylonensis*, Mountain Bulbul *Hypsipetes mcclllandii*, Blue-winged Minla *Minla cyanouroptera*,

Grey-cheeked Fulvetta *Alcippe morrisonia*, Long-tailed Sibia *Heterophasia picoides*, Whiskered Yuhina *Yuhina flavicollis* and Black-throated Sunbird *Aethopyga saturata*.

The bird communities of anthropogenic habitats were dominated by common and widespread species, such as White Wagtail *Motacilla alba*, Barn Swallow *Hirundo rustica*, Red-rumped Swallow *H. daurica*, Common Tailorbird *Orthotomus sutorius*, Long-tailed Shrike *Lanius schach* and Oriental Magpie Robin *Copsychus saularis*.

Key species accounts

Beautiful Nuthatch *Sitta formosa*

On 24 May 2002, a single Beautiful Nuthatch was seen in a mixed feeding flock together with Grey-cheeked Fulvetta and Black-chinned Yuhina *Yuhina nigrimenta*. The flock was seen in lower montane evergreen forest at 1,600 m asl. Another single bird was seen on 26 May 2002, in upper montane evergreen forest, at an elevation of 1,850 m asl. The bird was in a mixed species flock, which also contained Velvet-fronted Nuthatch *Sitta frontalis*. At both localities the forest was relatively undisturbed, and the forest canopy was closed. Notably, there was no *Fokienia hodginsii* present in either of the forest areas where the species was recorded. This globally threatened species is listed in *Threatened Birds of Asia* (Birdlife International 2001) as vulnerable. The species is known from another site in Ha Giang province: Tay Con Linh proposed nature reserve.

Yellow-cheeked Tit *Parus spilonotus*

From 24 to 28 May 2002, several birds were seen per day. The bird seemed to be very common at elevations between 1,000 and 1,350 m asl, and was usually seen in degraded forest areas, either in small, single-species parties or in mixed species flocks. These records represent a range extension from that stated in Robson (2000). They are not, however, the first records from East Tonkin, as there exist a number of other records, including from Nui Pia Oac Nature Reserve, Cao Bang province, and Tay Con Linh proposed nature reserve (Tordoff *et al.* 2000, Vogel *et al.* in prep.).

Black-throated Tit *Aegithalos concinnus*

On both 25 and 26 May 2002, a pair of Black-throated Tit was seen in secondary forest at 1,300 m asl. The birds showed rufous caps, black throats and ear coverts and grey underparts (*A.c.talifuensis*). The birds were foraging together with flocks of Blue-winged Minla. These records represent a range extension from that stated in Robson (2000). They are not, however, the first records from East Tonkin, as the species has also been recorded at Nui Pia Oac Nature Reserve and Tay Con Linh proposed nature reserve (Tordoff *et al.* 2000, Vogel *et al.* in prep.).

Collared Finchbill *Spizixos semitorques*

Two birds were seen on 29 May 2002 in scrub at around 850 m asl. This record represents an extension to the altitudinal range of 1,200 to 1,500 m asl stated in Robson (2000).

Grey-cheeked Warbler *Seicercus poliogenys*

On 24 May 2002, a single Grey-cheeked Warbler was seen in lower montane evergreen forest at 1,750 m asl. The bird was feeding in a mixed flock together with several species of yuhina. This record represents a range extension from that stated in Robson (2000). It is not, however, the first record from East Tonkin, as the species has also been recorded at Ba Be National Park, Nui Pia Oac Nature Reserve and Tay Con Linh proposed nature reserve (Hill 2000, Tordoff *et al.* 2000, Vogel *et al.* in prep.).

Black-eared Shrike Babbler *Pteruthius melanotis*

On 26 May 2002, three Black-eared Shrike Babblers were seen at 1,350 m asl, in a mixed feeding flock including Whiskered Yuhina and Blue-winged Minla. This record represents a range extension from that given in Robson (2000). It is not, however, the first record from East Tonkin, as the species has also been recorded at Tay Con Linh proposed nature reserve (Vogel *et al.* in prep.).

Rufous-winged Fulvetta *Alcippe castaneiceps*

On 26 May 2002, a flock of five or six birds was seen in secondary growth at 1,300 m asl. This record represents a range extension from that given in Robson (2000). It is not, however, the first record from East Tonkin, as there are previous records from Nui Pia Oac Nature Reserve and Tay Con Linh proposed nature reserve (Tordoff *et al.* 2000, Vogel *et al.* in prep.).

Black-headed Sibia *Heterophasia melanoleuca*

On 25 May 2002, a flock of six Black-headed Sibilas was seen in lower montane evergreen forest, close to a waterfall, at an elevation 1,600 m asl. On the following day, two birds were recorded at 1,650 m asl, in a mixed flock, together with Sultan Tit *Melanochlora sultanea*. These records represent a range extension from that stated in Robson (2000). They are not, however, the first records from East Tonkin, as the species has also been recorded at Tay Con Linh proposed nature reserve (Vogel *et al.* in prep.).

Long-tailed Sibia *H. picoides*

Long-tailed Sibia was recorded on most days spent on Mount Phu Tha Ca. The species was usually encountered in flocks of five or six individuals, feeding noisily in flowering trees, at elevations between 1,000 and 1,700 m asl. These records represent a range extension from that stated in Robson (2000). They are not, however, the first records from East Tonkin, as the species has also been recorded at Na Hang proposed nature reserve, Tuyen Quang province, and Tay Con Linh proposed nature reserve (Hill 2000, Vogel *et al.* in prep.).

Golden Parrotbill *Paradoxornis verreauxi*

On 25 and 26 May 2002, two flocks of Golden Parrotbill were seen between 1,650 and 1,700 m asl. The birds were very active, moved quickly through the bamboo understory, and came close to the observer, in response to imitation of the bird's call. These records represent a range extension from that stated in Robson (2000). They are not, however, the first records from East Tonkin, as the species has also been recorded at Tay Con Linh proposed nature reserve (Vogel *et al.* in prep.).

Key species not recorded

Short-tailed Scimitar Babbler *Jabouilleia danjoui*

Short-tailed Scimitar Babbler is a restricted-range species, endemic to Vietnam and Laos (Stattersfield *et al.* 1998). Prior to 2000, the most northerly record of this species was from Cuc Phuong National Park, Ninh Binh province, in 1995 (O. B. C. Bulletin No. 21: 73). On 11 May 2000, an adult female was mist-netted at 1,400 m asl at Tay Con Linh proposed nature reserve (Le Manh Hung own data). According to Robson (2000), the species occurs in secondary forest and bamboo from 50 to 2,100 m asl; habitats that are present on Mount Phu Tha Ca. While several days were spent surveying such habitats during the survey, the species was not recorded. The species is listed in *Threatened Birds of Asia* (Birdlife International 2001) as near threatened.

2.3 Conclusions

Du Gia proposed nature reserve qualifies as an IBA because it meets the following criteria:

Criterion A1: The site regularly holds significant numbers of a globally threatened species, or other species of global conservation concern.

The results of this and previous surveys indicate that Du Gia proposed nature reserve supports a significant population of the globally vulnerable Beautiful Nuthatch. This is one of only four known populations of this species in Vietnam. The sites known to support populations are Hoang Lien Son-Sa Pa Nature Reserve, Lao Cai province, Tay Con Linh proposed nature reserve, Ha Giang province, and Van Ban district, Lao Cai province (Tordoff *et al.* 1999, 2002. Vogel *et al.* in prep.).

Criterion A3: The site is known or thought to hold a significant component of the group of species whose distributions are largely or wholly confined to one biome.

Of the 116 bird species recorded at Du Gia proposed nature reserve to date, 35 are restricted to the Sino-Himalayan Subtropical Forests Biome: Bay Woodpecker *Blythipicus pyrrhotis*, Golden-throated Barbet, Blue-throated Barbet *M. asiatica*, Asian Emerald Cuckoo *Chrysococcyx maculatus*, Orange-bellied Leafbird *Chloropsis hardwickii*, Indochinese Green Magpie *Cissa hypoleuca*, Grey Treepie *Dendrocitta formosae*, Maroon Oriole *Oriolus traillii*, Black-winged Cuckooshrike *Coracina melaschistos*, Small Niltava *Niltava macgrigoriae*, Beautiful Nuthatch, Yellow-cheeked Tit, Black-throated Tit, Collared Finchbill, Flavescent Bulbul *Pycnonotus flavescens*, Chestnut Bulbul *Hypsipetes castanotus*, Mountain Bulbul *H. maclellandii*, Black Bulbul *Hypsipetes leucocephalus*, Slaty-bellied Tesia *Tesia olivea*, White-tailed Leaf Warbler *Phylloscopus davisoni*, Grey Laughingthrush, Hwamei *Garrulax canorus*, Red-tailed Laughingthrush *G. milnei*, Red-billed Scimitar Babbler *Pomatorhinus ochraceiceps*, Streaked Wren Babbler *Napothera brevicaudata*, Red-billed Leiothrix, *Leiothrix lutea*, Spectacled Barwing *Actinodura ramsayi*, Blue-winged Minla, Grey-cheeked Fulvetta, Black-headed Sibia, Striated Yuhina *Yuhina castaniceps*, Black-chinned Yuhina *Y. nigrimenta*, Golden Parrotbill, Black-throated Sunbird and Streaked Spiderhunter *Arachnothera magna*.

3. Reptiles and amphibians

3.1 Methods

Although the rapid field survey concentrated mainly on birds and insects, the survey team also spent time looking for rare reptile and amphibian species. Wherever possible, specimens were captured, photographed and released. When specimen collection was necessary, specimens collected were stabilised by immersion in 10% formaldehyde for 8 to 10 hours and then stored in 60% or 70% ethanol.

3.2 Results

During the rapid field survey, a number of reptiles and amphibians species were recorded but most of them are common and widespread in Vietnam. The most interesting finding was a population of Vietnamese Salamander *Paramesotriton deloustali* in Xin Man district. Voucher specimens were collected, identified by herpetologists at the Institute of Ecology and Biological Resources (IEBR) and Fauna and Flora International (FFI), and stored at the zoological museum at IEBR.

On 17 May 2002, four Vietnamese Salamanders were collected in two different streams near Ban Xe village, Na Chi commune, Xin Man district. One specimen was collected at an elevation of 1,000 m asl, while the other three were collected at an elevation of 900 m asl. The colouration of the underside of the first specimen was brighter than that of the other three, and was determined to be a female by the herpetologists at IEBR.

Vietnamese Salamander is listed in the *2000 IUCN Red List of Threatened Species* (IUCN 2000) as vulnerable, and in the *Red Data Book of Vietnam* (Anon. 1992) as endangered. In addition, exploitation and utilisation of this species are strictly prohibited in Vietnam, following Decree No. 18/HDBT, dated 17 January 1992. Vietnamese Salamander is endemic to northern Vietnam, and its distribution includes Vinh Phuc, Thai Nguyen, Tuyen Quang, Bac Can, Lao Cai and Yen Bai provinces. The species often inhabits pools in streams, 0.5 to 1 m in depth, where stream flow is slow and the stream bed has a substrate of sand or stones. The breeding season of this species is from December to April.

3.3 Conclusions

These records of Vietnamese Salamander, extend the known distribution of this endemic species, and, also, highlight the significance of natural freshwater habitats in Xin Man district for biodiversity conservation.

4. Insects

4.1 Methods

The principal method used during the rapid field survey was transect sampling: using a handled net to collect insects along trails, in trees, on the ground or in cattle run-offs. Specimens were killed using chloroform and stabilised in 70% ethanol. Specimens were identified with the assistance of Dr Dang Thi Dap and other entomologists at IEBR, and are now stored at the zoological museum at IEBR.

4.2 Results

During the survey, a total of 257 insect specimens were collected, including representatives of 43 families and 13 orders (Appendix 2). To date, 79 species have been identified, most of which are beetles (Coleoptera) or butterflies (Lepidoptera). To date, most other specimens have only been identified to family level (Table 1).

The survey results indicate relatively low insect diversity in the study areas, especially in primary forest habitats above 1,300 m asl. However, these results might partly be explained by inclement weather and time constraints. A number of notable butterfly records were made, particularly of species collected at relatively high elevations: *Lethe kondoii*, *L. syrcis*, *L. gemina* and *Mycalesis francisca* were collected at 1,400 m asl, while *Heliophorus brahma* and *Celaenorrhinus aurivittatus* were collected at 1,300 m asl.

Key species accounts

***Troides aeacus* Felder (Papilionidae, Lepidoptera)**

This large butterfly has a wide distribution but is threatened in Vietnam by commercial collection for sale to overseas collectors. On 15 May 2002, one specimen was collected near Ban Xe village, Na Chi commune, Xin Man district, at an elevation of around 850 m asl. On 26 May 2002, another individual was observed on Mount Phu Tha Ca, Du Gia commune, Yen Minh district, at an elevation of 1,300 m asl.

***Dorcus titanus westermanni* Hope (Lucanidae, Coleoptera)**

In Vietnam, this species is threatened by commercial collection for sale to overseas collectors. Both the adult and larva of this large lucanid beetle live on tree-trunks. On 27 May 2002, two specimens were collected on a tree-trunk on Mount Phu Tha Ca, at an elevation of around 650 m asl.

***Eupatorus gracilicornis* Arrow (Scarabaeidae, Coleoptera)**

In Vietnam, this species of large scarab beetle is threatened by commercial collection for sale to overseas collectors. On 26 May 2002, one specimen was collected on Mount Phu Tha Ca, at an elevation of 1,300 m asl.

4.3 Conclusions

Three of the species recorded during this survey are expected to be included in the forthcoming revision of the *Red Data Book of Vietnam*: *Troides aeacus* Felder (vulnerable), *Dorcus titanus westermanni* Hope (endangered) and *Eupatorus gracilicornis* Arrow (endangered).

In both study areas, there is a need for further field surveys to be undertaken in other seasons, especially spring and summer, in order to more comprehensively evaluate insect diversity and community composition. Particular attention should be paid to limestone forest habitats on Mount Phu Tha Ca.

Table 1. Number of insect specimens collected and number of species identified

No.	Order/family	No. of Specimens Collected	No. of Species Identified
	Lepidoptera		
1	Lycaenidae	6	4
2	Riodinidae	4	2
3	Pieridae	9	7
4	Satyridae	17	9
5	Nymphalidae	4	3
6	Papilionidae	5	4
7	Amathusiidae	3	2
8	Danaidae	3	2
9	Hesperiidae	4	3
	Heteroptera		
10	family 1	6	0
	Coleoptera		
11	Cerambycidae	11	7
12	Cicindellidae	13	2
13	Scarabaeidae	31	9
14	Coccinellidae	2	1
15	Curculionidae	8	1
16	Lycidae	8	0
17	Discolomidae	2	1
18	Meloidae	5	2
19	Elateridae	4	0
20	Tenebrionidae	12	1
21	Pasalidae	22	0
22	Lucanidae	8	5
23	Chrysomelidae	16	7
	Hemiptera		
24	Reduviidae	2	1
25	Coreidae	1	1
26	Cydnidae	1	0
27	Pentatomidae	3	1
	Neuroptera		
28	Corydalidae	4	1
	Orthoptera		
29	Gryllidae	6	0
30	Acrididae	4	0
31	Tettigoniidae	3	0
	Homoptera		
32	Jassidae	1	0
33	Membracidae	1	0
	Mantodea		
34	family 1	1	0
	Odonata		
35	Coenagrionidae	1	0
36	Libellulidae	1	0
	Blattoptera		
37	Panesthiidae	5	1
	Dermaptera		
38	Carcinophoridae	2	1
	Hymenoptera		
39	Apidae	2	1
40	Formicidae	11	0
41	Vespidae	1	0
	Diptera		
42	Tabanidae	2	0
43	Musidae	2	1

5. Recommendations

5.1 Xin Man district

1. Future bird survey work in Xin Man district should concentrate on limestone forest areas near Ban Ngoi village, or on any other site where undisturbed forest habitats remain. Such areas may support a remnant population of Wreathed Hornbill or populations of other key species not recorded in the district to date. In addition, future bird survey work in Xin Man district should include forest edge and secondary forest habitats, which may support Common Pheasant.
2. In the short term, conservation measures should be implemented to control hunting of birds, particularly large and medium-sized birds, such as pheasants, barbets and pigeons. Such measures might include conducting conservation awareness activities, enforcing forest management regulations, and incorporating selective hunting restrictions into forest protection contracts.
3. In the longer term, habitat fragmentation and loss are the biggest threats to bird conservation in Xin Man district. This threat is particularly significant for forest-dependent species, as this habitat is being lost at the greatest rate, and most remaining areas are already degraded.
4. Xin Man District People's Committee should introduce appropriate measures to protect the remaining forest areas in the district, particularly those areas adjacent to Yen Bai and Lao Cai provinces. These measures should include strict controls on the conversion of forest into agricultural land.

5.2 Yen Minh district

1. Additional bird survey work is required at elevations above 1,950 m asl on Mount Phu Tha Ca, and at any other site that supports a continuous altitudinal gradient of relatively undisturbed forest habitats. In particular, future surveys should concentrate on areas on the Tung Ba commune side of Mount Phu Tha Ca, where the forest is reported to be in a good condition, and which may support populations of Short-tailed Scimitar Babbler and other key species not recorded at the site to date.
2. Additional studies are also required to investigate the habitat requirements of Beautiful Nuthatch. Based on the findings of these studies, it may be necessary to implement specific conservation measures for this species.
3. In the short term, conservation measures should be implemented to control hunting of birds as well as other taxa. Such measures might include conducting conservation awareness activities, enforcing forest management regulations, signing stewardship agreements with local communities, or incorporating selective hunting restrictions into forest protection contracts.
4. In the longer term, habitat fragmentation and loss are the biggest threats to bird conservation in Yen Minh district. The capacity of the management board of Du Gia proposed nature reserve should be strengthened with more staff, training and funds. Forest management at the site should focus on maintaining existing forest cover and controlling hunting.

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Appendix 1: List of bird species recorded in Xin Man and Yen Minh districts

No.	Common Name	Order, Family, Genus and Species	Site	Altitude Range (m)	Habitats	Notes
		Galliformes				
		Phasianidae				
1	Chinese Francolin	<i>Francolinus pintadeanus</i>	1	1,000	B	
		Piciformes				
		Picidae				
2	Speckled Piculet	<i>Picumnus innominatus</i>	2	1,350	C	
3	White-browed Piculet	<i>Sasia ochracea</i>	2	1,500	C	
4	Grey-capped Pygmy Woodpecker	<i>Dendrocopos canicapillus</i>	2	1,300	C	
5	Great Spotted Woodpecker	<i>D. major</i>	1	950	B	
		Megalaimidae				
6	Great Barbet	<i>Megalaima virens</i>	2	700-1,600	B,C	
7	Red-vented Barbet	<i>M. lagrandieri</i>	2	1,500	B,C	
8	Golden-throated Barbet	<i>M. franklinii</i>	1,2	600-1,200	B,C	
		Bucerotiformes				
		Bucerotidae				
9	[Wreathed Hornbill]	[<i>Aceros undulatus</i>]	1	n/a	n/a	T
		Trogoniformes				
		Trogonidae				
10	Red-headed Trogon	<i>Harpactes erythrocephalus</i>	2	1,550	C	
		Coraciiformes				
		Coraciidae				
11	Dollarbird	<i>Eurystomus orientalis</i>	1	600	A	
		Alcedinidae				
12	Common Kingfisher	<i>Alcedo atthis</i>	2	500	A	
		Halcyonidae				
13	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	2	500	A	
		Cuculiformes				
		Cuculidae				
14	Plaintive Cuckoo	<i>Cacomantis merulinus</i>	2	400	A	
		Centropodidae				
15	Greater Coucal	<i>Centropus sinensis</i>	1,2	400-600	A	
		Apodiformes				
		Apodidae				
16	Silver-backed Needletail	<i>Hirundapus cochinchinensis</i>	1	1,200	B	
17	Asian Palm Swift	<i>Cypsiurus balasiensis</i>	1	500-800	A	
18	Fork-tailed Swift	<i>Apus pacificus</i>	2	1,200	A,B	
19	House Swift	<i>A. affinis</i>	2	1,000	A,B	
		Strigiformes				
		Strigidae				
20	Collared Owlet	<i>Glaucidium brodiei</i>	2	1,000-1,750	C,D	
		Gruiformes				
		Rallidae				
21	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	2	500	A	
		Ciconiiformes				
		Accipitridae				
22	Black Kite	<i>Milvus migrans</i>	2	900	A	
23	Crested Serpent Eagle	<i>Spilornis cheela</i>	1,2	500-1,200	A,C	

No.	Common Name	Order, Family, Genus and Species	Site	Altitude Range (m)	Habitats	Notes
24	Shikra	<i>Accipiter badius</i>	1	1,000	B	
25	Hawk species	<i>A. sp.</i>	2	2,000	B	
		Falconidae				
26	Common Kestrel	<i>Falco tinnunculus</i>	1,2	500	A	
		Ardeidae				
27	Little Egret	<i>Egretta garzetta</i>	1	300	A	
		Passeriformes				
		Irenidae				
28	Orange-bellied Leafbird	<i>Chloropsis hardwickii</i>	1,2	800-1,250	B,C	
		Laniidae				
29	Long-tailed Shrike	<i>Lanius schach</i>	1,2	400-1,400	A	
		Corvidae				
30	Red-billed Blue Magpie	<i>Urocissa erythrorhyncha</i>	1,2	400-700	A	
31	Black-billed Magpie	<i>Pica pica</i>	1	1,300	A	E
32	Large-billed Crow	<i>Corvus macrorhynchos</i>	2	400	A	
33	Black-naped Oriole	<i>Oriolus chinensis</i>	2	500-900	A	
34	Maroon Oriole	<i>O. traillii</i>	1,2	1,000-1,350	B,C	
35	Grey-chinned Minivet	<i>Pericrocotus solaris</i>	1,2	300-1,600	B,C	
36	Scarlet Minivet	<i>P. flammeus</i>	1,2	1,000-1,350	B,C	
37	Bar-winged Flycatcher-shrike	<i>Hemipus picatus</i>	1,2	800-900	B,C	
38	White-throated Fantail	<i>Rhipidura albicollis</i>	2	1,350	C	
39	Black Drongo	<i>Dicrurus macrocercus</i>	2	400	A,B,C	
40	Ashy Drongo	<i>D. leucophaeus</i>	1,2	700-1,300	A,B,C	
41	Bronzed Drongo	<i>D. aeneus</i>	1,2	1,200-1,500	B,C	
42	Lesser Racket-tailed Drongo	<i>D. remifer</i>	1	1,000-1,200	B	
43	Spangled Drongo	<i>D. hottentottus</i>	2	1,200	C	
44	Common Iora	<i>Aegithina tiphia</i>	2	900-1,200	C	
		Muscicapidae				
45	Dark-sided Flycatcher	<i>Muscicapa sibirica</i>	2	1,250	C	
46	Snowy-browed Flycatcher	<i>Ficedula hyperythra</i>	2	1,350	C	
47	Large Niltava	<i>Niltava grandis</i>	1	1,050	B	
48	Small Niltava	<i>N. macgrigoriae</i>	1,2	800-1,300	B,C	
49	Hill Blue Flycatcher	<i>Cyornis banyumas</i>	1,2	1,000-1,350	B,C	
50	Grey-headed Canary Flycatcher	<i>Culicicapa ceylonensis</i>	1,2	1,000-1,700	B,C	
51	Oriental Magpie Robin	<i>Copsychus saularis</i>	1,2	400-500	A	
		Sturnidae				
52	Hill Myna	<i>Gracula religiosa</i>	1	900	C	
		Sittidae				
53	Velvet-fronted Nuthatch	<i>Sitta frontalis</i>	2	1,850	D	
54	Beautiful Nuthatch	<i>S. formosa</i>	2	1,600-1,850	C,D	VU,RE
		Paridae				
55	Great Tit	<i>Parus major</i>	1	500	C	
56	Yellow-cheeked Tit	<i>P. spilonotus</i>	2	1,000-1,350	C	RE
57	Sultan Tit	<i>Melanochlora sultanea</i>	1,2	1,600	B,C	
		Aegithalidae				
58	Black-throated Tit	<i>Aegithalos concinnus</i>	2	1,200-1,400	C	RE
		Hirundinidae				
59	Barn Swallow	<i>Hirundo rustica</i>	2	400-600	A	
60	Red-rumped Swallow	<i>H. daurica</i>	2	500	A	

No.	Common Name	Order, Family, Genus and Species	Site	Altitude Range (m)	Habitats	Notes
		Pycnonotidae				
61	Collared Finchbill	<i>Spizixos semitorques</i>	2	800-900	A	AE
62	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	1,2	300-450	A	
63	Sooty-headed Bulbul	<i>P. aurigaster</i>	1,2	400-900	A,B	
64	Puff-throated Bulbul	<i>Alophoixus pallidus</i>	2	1,300	B,C	
65	Mountain Bulbul	<i>Hypsipetes mcclllandii</i>	1,2	900-1,600	B,C	
		Zosteropidae				
66	Japanese White-eye	<i>Zosterops japonicus</i>	2	1,500	C	
		Cisticolidae				
67	Grey-breasted Prinia	<i>Prinia hodgsonii</i>	2	1,400	C	
		Sylviidae				
68	Slaty-bellied Tesia	<i>Tesia olivea</i>	2	1,750	C	
69	Mountain Tailorbird	<i>Orthotomus cuculatus</i>	1,2	1,200-1,600	A,B,C	
70	Common Tailorbird	<i>O. sutorius</i>	1,2	500-950	A,B	
71	Dark-necked Tailorbird	<i>O. atrogularis</i>	1	400	A	
72	White-tailed Leaf Warbler	<i>Phylloscopus davisoni</i>	2	1,400	C	
73	Grey-cheeked Warbler	<i>Seicercus poliogenys</i>	2	1,750	C	RE
74	Chestnut-crowned Warbler	<i>S. castaniceps</i>	2	1,400	C	
75	Grey Laughingthrush	<i>Garrulax maesi</i>	1	900-1,150	B	T
76	Black-throated Laughingthrush	<i>G. chinensis</i>	1	1,100	B	
77	Hwamei	<i>G. canorus</i>	2	600-900	A	
78	Red-tailed Laughingthrush	<i>G. milnei</i>	1,2	900-1,650	B,C	
79	Red-billed Scimitar Babbler	<i>Pomatorhinus ochraceiceps</i>	1	1,200	B	
80	Streaked Wren Babbler	<i>Napothera brevicaudata</i>	2	1,500	C	
81	Rufous-capped Babbler	<i>Stachyris ruficeps</i>	1	1,200	C	
82	Golden Babbler	<i>S. chrysaea</i>	2	1,600	C	
83	Grey-throated Babbler	<i>S. nigriceps</i>	2	1,400	C	
84	Striped Tit Babbler	<i>Macronous gularis</i>	1,2	1,000-1,600	B,C	
85	Silver-eared Mesia	<i>Leiothrix argentauris</i>	2	1,500	C	
86	Red-billed Leiothrix	<i>L. lutea</i>	2	1,550	C	
87	White-browed Shrike Babbler	<i>Pteruthius flavicapis</i>	2	1,350	C	
88	Black-eared Shrike Babbler	<i>P. melanotis</i>	2	1,600	C	
89	Blue-winged Minla	<i>Minla cyanouoptera</i>	2	1,000-1,800	C,D	
90	Rufous-winged Fulvetta	<i>Alcippe castaneiceps</i>	2	1,300	C	RE
91	Brown-cheeked Fulvetta	<i>A. poioicephala</i>	1	1,200	B	RE
92	Grey-cheeked Fulvetta	<i>A. morrisonia</i>	1,2	1,200-1,600	B,C	
93	Black-headed Sibia	<i>Heterophasia melanoleuca</i>	2	1,600	C	RE
94	Long-tailed Sibia	<i>H. picaoides</i>	2	1,350	C	RE
95	Striated Yuhina	<i>Yuhina castaniceps</i>	2	900	A,C	
96	Whiskered Yuhina	<i>Y. flavicollis</i>	2	700-1,300	A,C	
97	Black-chinned Yuhina	<i>Y. nigrimenta</i>	1,2	950-1,600	B,C	
98	White-bellied Yuhina	<i>Y. zantholeuca</i>	2	1,600	C	
99	Grey-headed Parrotbill	<i>Paradoxornis gularis</i>	1	1,000-1,300	B	
100	Golden Parrotbill	<i>P. verreauxi</i>	2	1,650	C	RE
		Nectariniidae				
101	Black-throated Sunbird	<i>Aethopyga saturata</i>	1,2	900-1,300	B,C	
102	Little Spiderhunter	<i>Arachnothera longirostra</i>	1,2	900-1,400	B,C	
103	Streaked Spiderhunter	<i>A. magna</i>	2	1,100-1,350	C	
		Passeridae				

No.	Common Name	Order, Family, Genus and Species	Site	Altitude Range (m)	Habitats	Notes
104	Eurasian Tree Sparrow	<i>Passer montanus</i>	1,2	200-500	A	
105	White Wagtail	<i>Motacilla alba</i>	1,2	200-700	A	
106	Grey Wagtail	<i>M. cinerea</i>	1,2	200-700	A	
107	White-rumped Munia	<i>Lonchura striata</i>	2	1,300	C	

Bird names, sequence and species limits follow Inskipp *et al.* (1996).

Site: 1= Na Chi commune, Xin Man district, 2 = Du Gia commune, Yen Minh district.

Habitats: A = Anthropogenic habitats, B = Mixed broadleaf evergreen and bamboo forest, C = Lower montane evergreen forest, D = Upper montane evergreen forest.

Notes: VU = Vulnerable as per BirdLife International (2001); E = Endangered, T = Threatened as per Anon. (1992); AE = Altitudinal extension, RE = Range extension from that stated in Robson (2000).

Appendix 2. List of insects collected in Xin Man and Yen Minh districts

No	Order, Family, Species	Site	Altitude range (m)	Habitats	Notes
	Lepidoptera				
	Amathusiidae				
1	<i>Stichopthalma fruhstorferi</i> Rober	1	300-900	A,B	
2	<i>S. howqua</i> Westwood	1	300-900	A,B	
	Danaidae				
3	<i>Euploea mulciber</i> Crammer	1	900	B	
4	<i>Tirumala septentrionis</i> Butler	1,2	300-900	A,B	
	Hesperiidae				
5	<i>Abraximorpha davidii davidii</i> (M.)	1	900	B	
6	<i>Celaenorrhinus aurivittatus</i> Moore	1	900-1300	B	
7	<i>Polytremis minuta</i>	2	1300	C	
	Lycaenidae				
8	<i>Curetis bulis</i> Westwood	2	700	A	
9	<i>Heliophorus brahma</i>	2	1300	C	
10	<i>Miletus actilochus</i> Fruhstorfer	1	900	B	
	Nymphalidae				
11	<i>Argyreus hyperbius</i> Linnaeus	1	900	B	
12	<i>Hypolimnas bolina</i> Linnaeus	2	600-700	A	
13	<i>Stibochiona nicea</i> Gray	1	900		
	Papilionidae				
14	<i>Achillides bianor</i> Crammer	1	300-900	A,B	
15	<i>Menelaides protenor</i> Crammer	1	300-900	A,B	
16	<i>Papilio memnon</i> Linnaeus	1	300-900	A,B	
17	<i>Troides aeacus</i> Felder	1,2	800-1300	B,C	V
	Pieridae				
18	<i>Appias indra</i> Moore	1	900	B	
19	<i>A. lycida</i> Crammer	1	300-900	A,B	
20	<i>Artogeia canidia</i> Sparrman	1	900	B	
21	<i>A. napi</i>	1	900	B	
22	<i>Ceporra nadina</i> Lucas	2	500-600	A	
23	<i>Eurema hecabe</i> Linnaeus	1,2	300-600	A	
24	<i>Hebomoia glaucippe</i> Linnaeus	2	500-600	A	
	Riodinidae				
25	<i>Abisara fylla</i> Doubl.	1	900	B	
26	<i>Zemeros fleguas</i>	1	900	B	
	Satyridae				
27	<i>Elymnias hypermnestra</i> Linnaeus	2	600-700	A	
28	<i>Lethe confuse</i> Aurioillius	1,2	600-900	A	
29	<i>L. gemina</i> Leech	1	900-1400	B	
30	<i>L. kondoii</i>	1	1400	B	
31	<i>L. syrcis</i>	1	900-1400	B	
32	<i>Mycalesis francisca</i> Crammer	1	900-1300	B	
33	<i>M. inopia</i> Fruhstorfer	1	900	B	
34	<i>Ragadia critias</i>	1	300-900	A,B	
35	<i>Ypthima iris</i>	1	300-900	A,B	
	Coleoptera				
	Cerambycidae				
36	<i>Chreonoma basaliss</i> Gahan	1	900	B	
37	<i>Diastocerra wallichi</i>	1	900	B	
38	<i>Monochonus</i> sp.	1	900-1000	B	
39	<i>Penthides flavus</i> Matsushita	1	900-1000	B	
40	<i>Psacothea hilaris</i>	2	1300	C	
41	<i>Rasalia feriei</i> Vulles	1	900	B	
42	<i>Xystrocera</i> sp.	1	900-1000	B	

No	Order, Family, Species	Site	Altitude range (m)	Habitats	Notes
	Chrysomelidae				
43	<i>Anisodera gulrrini</i> Baly	1	900-1300	B	
44	<i>Dercetina varipennis</i> (Jac.)	2	1300	C	
45	<i>Hoplazoma</i> sp.	1	900-1400	B	
46	<i>Lema coromandeliana</i> F.	2	700-1300	A,C	
47	<i>L. perplexa</i> Baly	2	1300	C	
48	<i>Licaria</i> sp.	2	700-1300	A,C	
49	<i>Thlaspida biramosa chinensis</i> Spaeth	1	900-1300	B	
	Cicindellidae				
50	<i>Cicindella aurulenta</i>	1	300-900	A,B	
51	<i>C.</i> sp.	1	300-900	A,B	
	Coccinellidae				
52	<i>Coccinella explanata</i>	1	900	B	
	Curculionidae				
53	<i>Tyloplaolis</i> sp.	1	900	B	
	Discolomidae				
54	<i>Hemiops</i> sp.	1	900-1400	B	
	Lucanidae				
55	<i>Dorcus titanus westermanni</i> Hope	2	700	A	E
56	<i>Lucanus lunatus</i> Weber	2	1300	C	
57	<i>Neolucanus latus</i>	1	900-1000	B	
58	<i>N. nitidus robustus</i>	1	1200	B	
59	<i>Nigidionus paryi</i> Bates	2	1300	C	
	Meloidae				
60	<i>Epicauta badeni</i> H.	1	900	B	
61	<i>E. gorhami</i> Marseul	1	900	B	
	Scarabaeidae				
62	<i>Anomala</i> spp.	1	900	B	
63	<i>Copris ochus</i> Motschulsky	2	600-700	A	
64	<i>Eupatorus gracilicornis</i> Arrow	2	1300	C	E
65	<i>Hoplia</i> spp.	1	900	B	
66	<i>Liatongus phanaeoides</i> W.	2	600-700	A	
67	<i>Melolontha masafumii</i> Nomura	1	900	B	
68	<i>Popilia</i> spp.	2	900	B	
69	<i>Trichogomphus mongol</i>	2	600-700	A	
70	<i>Xylotrupes gideon</i> L.	1	300	A	
	Tenebrionidae				
71	<i>Uloma</i> sp.	2	1300	C	
	Hemiptera				
	Pentatomidae				
72	<i>Eysacoris guttiger</i> Thunb.	1	900-1400	B	
	Napidae				
73	<i>Napis capsiformis</i> Germ.	1	900-1400	B	
	Reduviidae				
74	<i>Agriosphodrus</i> sp.	1	900-1000	B	
	Blattoptera				
	Panesthiidae				
75	<i>Panesthia spadica</i> Shiraki	2	1300	C	
	Dermoptera				
	Carcinophoridae				
76	<i>Anisolabis maritima</i> Gene	1	900-1000	B	
	Neuroptera				
	Corydalidae				
77	<i>Protohermes grandis</i> Thunb.	1	900-1400	B	
	Hymenoptera				
	Apidae				
78	<i>Bombus ardens</i> Smith	2	1300	C	

No	Order, Family, Species	Site	Altitude range (m)	Habitats	Notes
	Diptera				
	Musidae				
79	<i>Stomoxys calcitrans</i> L.	2	1300	C	

Insect names follow Ito *et al.* (1977), Kurosawa *et al.* (1985), Ueno *et al.* (1985), Hayashi *et al.* (1994), Mizunuma and Nagai (1994) and Osada *et al.* (1999).

Sites: 1= Xin Man district; 2= Yen Minh district

Habitats: A = Anthropogenic habitats, B = Mixed broadleaf evergreen and bamboo forest, C = Lower montane evergreen forest, D = Upper montane evergreen forest.

Notes: E = Endangered, V= Vulnerable as per Anon. (1992).