

# Notable bird records from Bawangling National Nature Reserve, Hainan Island, China

CHAN BOSCO PUI LOK, LEE KWOK SHING, ZHANG JIAN-FENG and SU WEN-BA

Bird surveys, include the use of camera traps, were conducted in Bawangling National Nature Reserve, Hainan province, China, during 1998–2005. A total of 143 species were recorded in the reserve and its immediate environs, including three new records for the island (Slaty-backed Forktail *Enicurus schistaceus*, Yellow-cheeked Tit *Parus spilonotus* and Mountain Tailorbird *Orthotomus cuculatus*), two threatened species (Hainan Partridge *Arborophila ardens* and Hainan Leaf Warbler *Phylloscopus hainanus*) and two Near Threatened species (Japanese Paradise-flycatcher *Terpsiphone atrocaudata* and Yellow-billed Nuthatch *Sitta solangiae*). Other notable records included the endemic Hainan Peacock Pheasant *Polyplectron katsumatae* and a number of endemic races (e.g. Silver Pheasant *Lophura nycthemera whiteheadi*, Black-browed Barbet *Megalaima oorti faber*, Indochinese Green Magpie *Cissa hypoleuca katsumatae* and Orange-headed Thrush *Zoothera citrina aurimacula*), some of which were photographed, apparently for the first time.

## INTRODUCTION

The tropical island of Hainan is surrounded by the South China Sea, and is the southernmost province of China, with a land area of c.33,600 km<sup>2</sup>. In 1998, BirdLife International identified Hainan as an Endemic Bird Area (EBA 142) of critical priority, with

four restricted-range species now considered to be globally threatened or Near Threatened: White-eared Night Heron *Gorsachius magnificus* (Endangered), Hainan Partridge *Arborophila ardens* (Vulnerable), Hainan Leaf Warbler *Phylloscopus hainanus* (Vulnerable) and Yellow-billed Nuthatch *Sitta solangiae* (Near Threatened: Stattersfield *et al.* 1998, BirdLife

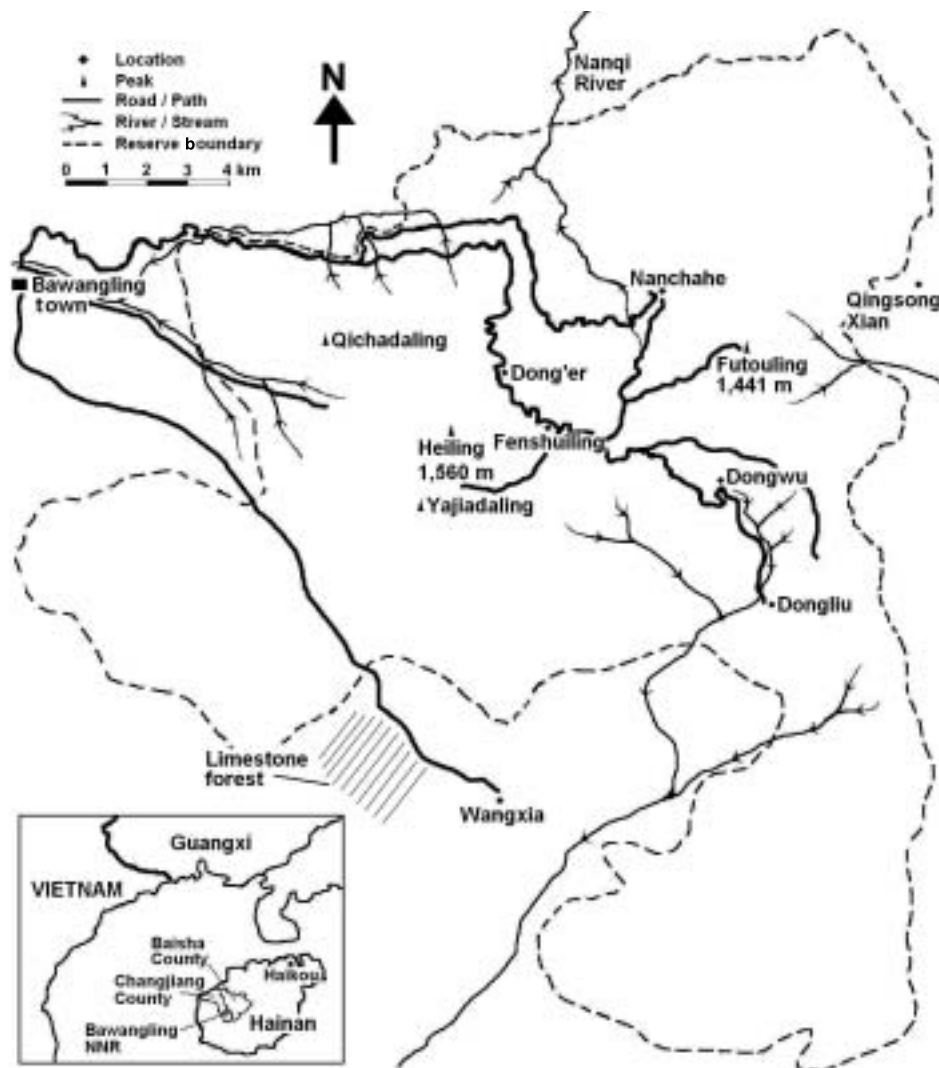


Figure 1. Map showing location of Bawangling National Nature Reserve and sites mentioned in text, Hainan, China.

International 2004a). Hainan also supports 46 endemic subspecies, some of which have been suggested as deserving elevation to full species status (e.g. Goodwin 1964, Stattersfield *et al.* 1998, BirdLife International 2003, Kilburn 2004a, 2004b).

Despite its global importance, the avifauna of Hainan remains poorly known with few published studies (Tang Ziying and Li Zhixun 1957, Shaw Tsenhwang and Hsu Weishu 1966, Cheng Tso-hsin and Tan Yaokuang 1973, Guangdong Institute of Entomology and Zhongshan University 1983), and fewer still available to non-Chinese readers (e.g. Swinhoe 1870, Hartert 1910, King and Liao Weiping 1988, Olsson *et al.* 1993). In the last ten years, little new information has been published, except studies on endemic galliforms (Gao Yuren 1991, 1999, Liang Wei *et al.* 2003), understory forest birds (Zou Fasheng and Chen Guizhu 2004), and a report of a brief birding trip (Kilburn 2004b).

## STUDY SITE

Bawangling National Nature Reserve (BNNR; 18°57'–19°11'N 109°03'–109°17'E) lies in west Hainan c.220 km from the provincial capital of Haikou (Fig. 1). A reserve of c.67 km<sup>2</sup> with the best-preserved forest was established in 1980 to protect rare fauna and flora, including Hainan Partridge, Hainan Peacock Pheasant *Polyplectron katsumatae*, and most importantly, the last confirmed population of the rarest ape on earth: the endemic Hainan gibbon *Nomascus (nasutus) hainanus*. In autumn 2003, the reserve was enlarged more than four-fold to encompass a large area of selectively logged and regenerating forest in the south and south-west, giving a new total area of c.300 km<sup>2</sup>.

BNNR has one of the best remaining tropical forests in China, and has recently been identified as an Important Bird Area (IBA) in the Indo-Burmese Forests (F06) (BirdLife International 2003, 2004b). The reserve comprises a series of low mountains, with the highest peak, Heiling (ling = range), at 1,560 m. The vegetation types include tropical lowland and hillside rainforest and montane broadleaf forest. Although past logging concessions have destroyed much lowland forest, extensive primary and selectively logged hillside forest can still be found above 700 m. The best-preserved forest sits along the western foothills of Futouling (1,441 m), at the north-eastern side of the reserve, where Hainan Gibbon occurs. Remnant lowland old-growth forest, retained either as linear buffer strips along streams or forest blocks, can be found as low as 350 m. BNNR has a tropical seasonal climate with mean annual temperature of 21.3°C and mean annual rainfall of 1,660 mm.

## METHODS

In 1998, 2003, 2004 and 2005, biologists from Kadoorie Farm and Botanic Garden (KFBG), an environmental charity based in Hong Kong, and its local partners visited BNNR and the nearby Wangxia limestone forest. During 3–7 April 1998, a KFBG-led biodiversity survey team conducted a rapid survey in

secondary forest and human-modified landscape around Bawangling Town (140 m), in primary forest around Dong'er substation (1,100 m), in primary forest of the reserve's core area en route from Fenshuiling (1,050 m) to Nanchahe substation (520 m), as well as in the disturbed primary limestone forest of the nearby Wangxia area (70–605 m) (Kadoorie Farm and Botanic Garden 2001). Various members of the KFBG biodiversity team visited BNNR in October and December 2003, May, July, October and December 2004, and January 2005, during which a large area of the reserve was covered and birds were recorded. Between April and September 2003, six sets of infra-red auto-triggered cameras were installed in the reserve, as part of an on-going KFBG South China mammal survey. Trapping effort mainly focused on old-growth forest on Futouling and its periphery, including primary forest in the Dong'er and Nanchahe areas, as well as disturbed/secondary forest in the Dongwu area. During all surveys, bird records were collated from combined efforts of line transect and fixed-point observations at vantage points in different habitats, a combination which proved effective in maximising the number of species encountered in a habitat mosaic. Night surveys were also conducted when team members camped inside old-growth forest. Photographs of some rare and/or threatened forest bird species were taken during the camera-trap survey, some of which appear to represent the first photographs of wild, live specimens of the species/races. IUCN Red List status follows BirdLife International (2004a).

### Captions to plates on opposite page

**Plate 1.** Camera-trap photograph of Hainan Partridge *Arborophila ardens*, Dong'er area (c.1,000 m), 21 May 2003.

**Plate 2.** Camera-trap photograph of Hainan Peacock Pheasant *Polyplectron katsumatae*, Dongwu area (c.1,000 m), 8 April 2003.

**Plate 3.** Camera-trap photograph of Silver Pheasant *Lophura nycthemera* (endemic race *whiteheadi*), Dong'er area (c.1,000 m), 20 May 2003.

**Plate 4.** Black-browed Barbet *Megalaima oorti* (endemic race *faber*), Nanchahe area (1,100 m), 19 October 2003.

**Plate 5.** Camera-trap photograph of Blue-rumped Pitta *Pitta soror* (endemic race *douglasi*), Dong'er area (c.1,000 m), 19 May 2003.

**Plate 6.** Hainan Leaf Warbler *Phylloscopus hainanus*, Fenshuiling (1,000 m), 25 October 2003.

**Plate 7.** Grey Laughingthrush *Garrulax maesi* (endemic race *castanotis*), Dongwu area (1,000 m), 22 September 2004.

**Plate 8.** Eyebrowed Wren Babbler *Napothera epilepidota* (endemic race *hainanus*), Nanchahe area (700 m), 14 July 2004.



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## RESULTS

In total, 143 species were recorded from BNNR and the nearby Wangxia limestone forest between 1998 and 2005 (see Appendix). Notes on the more significant records are given below.

### HAINAN PARTRIDGE *Arborophila ardens*

Vulnerable. Camera-trap photographs of this endemic partridge were taken at c.1,000 m in the Dong'er area (Plate 1). Individuals and their calls were frequently recorded in all forest areas within the reserve, including the eastern side of Futouling facing Qingsong Xian, and including in selectively logged forest. Birds were seen as low as c.600 m in the Qichadaling area. The species is a very rare resident in hillside forest at 600–1,200 m on Hainan Island (Cheng Tso-hsin 1987, BirdLife International 2004a).

### HAINAN PEACOCK PHEASANT *Polyplectron katumatae*

This endemic taxon is regarded as a valid species by some authors (e.g. Inskipp *et al.* 1996, MacKinnon and Phillipps 2000, Madge and McGowan 2002) and as an insular race of the Grey Peacock Pheasant *P. bicalcaratum* by others (e.g. Meyer de Schauensee 1984, Cheng Tso-hsin 1987, Gao Yuren 1999, Sibley and Monroe 1990). It was regularly photographed (including a family of three) by camera traps in forest at c.1,000 m in the Dongwu area (Plate 2). The species was also observed in primary hillside forest at 800–1,000 m in the Dong'er and Nanchahe areas. Reserve staff reported that it occurs in shrubby forest-edge habitat in the Nanchahe area down to c.550 m. It is considered very rare in the remaining hill forests of south-west Hainan (Cheng Tso-hsin 1987, MacKinnon and Phillipps 2000).

### SILVER PHEASANT *Lophura nycthemera* (endemic race *whiteheadi*)

Camera-trap photographs were regularly taken in primary forest at c.1,000 m in the Dong'er area (Plate 3). On 12 October 2004, a group of at least three individuals was observed foraging in selectively logged primary forest at c.400 m in the Dongyi area. Another foraging group was seen in secondary forest in the Qichadaling area (c.500 m) on 26 January 2005. The distinctive feathers of this subspecies, with bold black markings, were also found in the eastern side of Futouling, facing Qingsong Xian and in Wangxia limestone forest. Reserve staff reported that the species is widespread throughout forested areas of the reserve, down to c.300 m.

### BLACK-BROWED BARBET *Megalaima oorti* (endemic race *faber*)

This endemic taxon may warrant specific status (Goodwin 1964, Kilburn 2004b; but see Collar 2004). It was frequently recorded in forest areas at 400–1,100 m (Plate 4), and its characteristic call was one of the dominant sounds in the forest. The species was previously considered a rare resident in China (Cheng Tso-hsin 1987), but it has been recorded from many forest areas throughout South China in recent years (Lee Kwok Shing *et al.* in prep.) and this particular race is also widespread in forest on Hainan.

### ORIENTAL DWARF KINGFISHER *Ceyx erithacus*

This species was observed and photographed in a rocky forest stream at c.600 m in the Nanchahe area on 6 April 2004. On 15 May 2004, a call heard by a forest streamlet at c.600 m, believed to be of this species, was recorded on the eastern side of Futouling facing Qingsong Xian. This species, considered as a very rare resident restricted to Hainan and southern Yunnan in China (Cheng Tso-hsin 1987), is possibly at risk in the country. Only one individual was previously recorded during the KFBG biodiversity surveys in 15 forest areas across Hainan between 1998 and 2004 (Lee Kwok Shing *et al.* in prep.).

### BLUE-RUMPED PITTA *Pitta soror* (endemic race *douglasi*)

Numerous camera-trap photographs of this elusive species were taken in primary forest in the Dong'er and Nanchahe areas at 700–1,100 m (Plate 5). In October 2003, adults and juveniles were regularly seen along a ridge in primary forest at c.900 m in the Nanchahe area. A juvenile with a streaked breast and reddish bill was flushed in selectively logged forest at c.950 m in the Qichadaling area on 16 May 2004. An adult was seen by a small stream in mature forest at c.800 m in the Nanchahe area on 5 December 2004. On 24 January 2005, feathers of this species was also found in the Wangxia limestone forest at c.850 m. This species is considered very rare in China (Cheng Tso-hsin 1987).

### JAPANESE PARADISE-FLYCATCHER *Terpsiphone atrocaudata*

Near Threatened. Individuals were seen in limestone forest at Wangxia at 140 m on 5 April 1998 and at 500 m on 6 April 1998.

### SLATY-BACKED FORKTAIL *Enicurus schistaceus*

On 3 April 1998, one bird was seen inside the core area near Fenshuiling at 1,100 m. On 5 December 2004, one bird was seen by a stream on the border of the reserve near Bawangling town at c.400m. These are the first records for Hainan (see Guangdong Institute of Entomology and Zhongshan University 1983, Cheng Tso-hsin 1987, MacKinnon and Phillipps 2000).

### YELLOW-BILLED NUTHATCH *Sitta solangiae* (endemic race *chientfengensis*)

Near Threatened. This species was frequently recorded in limestone forest at Wangxia and in the core area of BNNR. It is known from only three or four widely disjunct areas in Vietnam, Laos and Hainan Island in China (BirdLife International 2004a).

### YELLOW-CHEEKED TIT *Parus spilomotus*

A total of five birds were seen: four recorded near Bawangling town at 150 m on 5 April 1998 and one in the Dong'er core area at 1,100 m on 6 April 1998. These are the first records for Hainan (see Guangdong Institute of Entomology and Zhongshan University 1983, Cheng Tso-hsin 1987, MacKinnon and Phillipps 2000).

### SULTAN TIT *Melanochlora sultanea*

This species was frequently recorded in the forested core area of the reserve, and appears to be quite

common in BNNR. This species may be at risk in China owing to the continued degradation of mature forests. Despite being reported to occur throughout coastal South China, the species has only been recorded in four forest sites on Hainan Island during the KFBG biodiversity surveys in 54 forest areas across South China between 1997 and 2004 (Lee Kwok Shing *et al.* in prep.). It is considered uncommon in China (Cheng Tso-hsin 1987).

#### MOUNTAIN TAILORBIRD *Orthotomus cuculatus*

On 6 and 7 April 1998, a total of five birds were recorded at 1,100 m in the Dong'er area and at 70 m in limestone forest at Wangxia. These are the first records for Hainan (see Guangdong Institute of Entomology and Zhongshan University 1983, Cheng Tso-hsin 1987, MacKinnon and Phillipps 2000).

#### HAINAN LEAF WARBLER *Phylloscopus hainanus*

Vulnerable. This endemic warbler was recorded frequently and photographed in broadleaf forest above 800 m in BNNR (Plate 6). It was more noticeable in disturbed or secondary forest. It is considered locally common at 600–1,500 m but it is only known from seven localities in Hainan (BirdLife International 2004a).

#### GREY LAUGHINGTHRUSH *Garrulax maesi* (endemic race *castanotis*)

The insular race *castanotis* is very distinctive and may better be treated as a full species (see Inskipp *et al.* 1996, Kilburn 2004b). Camera-trap photographs of this taxon were taken in all forest areas (including secondary forest) within the reserve (Plate 7), and the species's characteristic calls were regularly heard throughout the reserve above c.300 m. It is considered an uncommon resident in China (Cheng Tso-hsin 1987).

#### EYEBROWED WREN BABBLER *Napothera epilepidota* (endemic race *hainanus*)

This secretive species was photographed in primary forest along a rocky stream at c.700 m in the Nanchahe area (Plate 8). A pair approached the observers giving alarm calls, possibly suggesting the presence of a nest in the vicinity. This species is considered very rare in China (Cheng Tso-hsin 1987).

## DISCUSSION

### Composition of the bird fauna

BNNR has wide altitudinal range and a large area has been selectively logged. Consequently it has a mosaic of habitat types supporting a diverse avifauna. During our surveys, the most frequently encountered species in old-growth forest included Black-browed Barbet, Mountain Bulbul *Hypsipetes mcclllandii*, Chestnut Bulbul *Hemixos castanonotus*, Black Bulbul *Hypsipetes leucocephalus*, Puff-throated Bulbul *Alophoixus pallidus*, Thick-billed Green Pigeon *Treron curvirostra*, Grey-cheeked Fulvetta *Alcippe morrisonia*, Grey-chinned Minivet *Pericrocotus solaris*, Rufous-capped Babbler *Stachyris ruficeps*, Crested Goshawk *Accipiter trivirgatus*, Hainan Blue Flycatcher *Cyornis hainanus* and

Fork-tailed Swift *Apus pacificus*. Species such as Light-vented Bulbul *Pycnonotus sinensis*, House Swift *Apus affinis*, Grey-chinned Minivet, Grey-cheeked Fulvetta and Asian Palm Swift *Cypsiurus balasiensis* dominated the more disturbed habitats.

Amongst the species recorded were the endemic Hainan Partridge, Hainan Peacock Pheasant and Hainan Leaf Warbler. The endemic subspecies of Black-browed Barbet, Blue-rumped Pitta, Greater Racket-tailed Drongo *Dicrurus paradiseus johni*, and Grey Laughingthrush were found to be common in BNNR. Many large-bodied forest species were recorded, notably *Treron* and *Ducula* pigeons, Lesser Yellow-nape *Picus chlorolophus*, Greater Yellow-nape *P. flavinucha*, Red-headed Trogon *Harpactes erythrocephalus*, and Indochinese Green Magpie *Cissa hypoleuca*, which are difficult to see elsewhere in South China (Lee Kwok Shing *et al.* in prep.).

Our survey did not cover freshwater habitats in the lowlands; thus the status of a number of rare riverine specialists known from Hainan, such as Blyth's Kingfisher *Alcedo hercules* (Near Threatened), Brown Fish Owl *Ketupa zeylonensis*, Great Thick-knee *Esacus recurvirostris*, River Lapwing *Vanellus duvaucelii* and White-eared Night Heron *Gorsachius magnificus* (Endangered) could not be determined. In addition, we did not record a number of forest specialists, notably Red-breasted Parakeet *Psittacula alexandri*, Brown Wood Owl *Strix leptogrammica*, Large-tailed Nightjar *Caprimulgus macrurus*, Pale-capped Pigeon *Columba punicea*, Orange-breasted Green Pigeon *Treron bicincta*, White-bellied Green Pigeon *T. sieboldii*, Green Imperial Pigeon *Ducula aenea*, Jerdon's Baza *Aviceda jerdoni*, Rufous-bellied Eagle *Hieraaetus kienerii*, White-winged Magpie *Urocissa whiteheadi*, Ratchet-tailed Treepie *Temnurus temnurus*, and Hill Myna *Gracula religiosa*. While many of these species have not been seen in Hainan for several decades, possibly reflecting the effects of hunting and habitat degradation, local people reported sightings of some of these species in recent years. Further surveys will doubtlessly add additional species to the reserve's list, and more work is clearly needed to reveal the true ornithological value of this site.

### Conservation

The reserve, together with surrounding hills, in particular the Wangxia limestone forest, can be considered an important hotspot for forest birds of the northern Indochina region. However, prior to the establishment of the reserve a large part of it had been selectively logged, and some of the lower slopes have been cleared for establishing monoculture plantations (e.g. pines *Pinus* spp.) and grazing land. With a long tradition of hunting and gathering forest products, the increasing local ethnic-minority population continues to put pressure on the reserve. Poaching, forest encroachment and other types of disturbance remain to be controlled despite intensive enforcement effort. In addition, knowledge, equipment and facilities for effective enforcement and conservation are lacking amongst the relevant staff owing to a shortage of funding. Although Wangxia has the best-preserved limestone forest on the island (KFBG, unpublished data), it has yet to be included in the protected area

system. The national logging ban on natural forest has not completely halted illegal tree-felling for subsistence and small-scale trade, such that these activities continue to threaten the integrity of this fragile ecosystem. There may be, however, a brighter future for BNNR. KFBG, together with other NGOs, research institutes and the provincial authority, are working with the reserve management to improve the reserve's capacity for managing the forest ecosystem and controlling incompatible activities, and a conservation strategy is being formulated to preserve limestone forest habitat on the island.

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- Chan Bosco Pui Lok and Lee Kwok Shing, Kadoorie Farm and Botanic Garden, China Programme, Lam Kam Road, Tai Po, N.T., Hong Kong. Email: scbt@kfbg.org
- Zhang Jian-feng, Bawangling National Nature Reserve Management Office, Changjiang County, Hainan, China, 572722.
- Su Wen-ba, Hainan Provincial Forestry Department, Wildlife Conservation Centre, 80 Haifu Road, Haikou, Hainan, China 570203.

## APPENDIX

Birds recorded at Bawangling National Nature Reserve, 1998–2005

| Species  | Status | Town | Dong'er | Core Area | Wangxia area | 2003–2005 | Altitude (m)             |
|--|--------|------|---------|-----------|--------------|-----------|--------------------------|
| CHINESE FRANCOLIN <i>Francolinus pintadeanus</i>             |        |      | 2       |           | 3            | *         | 100–1,100                |
| HAINAN PARTRIDGE <i>Arborophila ardens</i>                   | VU     |      |         | 1         | 2            | *         | 600–1,200                |
| RED JUNGLEFOWL <i>Gallus gallus</i>                          |        |      |         |           |              | *         | 500–1,100                |
| SILVER PHEASANT <i>Lophura nycthemera</i>                    |        |      |         | 2         |              | *         | 400–1,050                |
| HAINAN PEACOCK PHEASANT <i>Polyplectron katsumatae</i>       |        |      |         |           |              | *         | 800–1,000                |
| GREY-CAPPED PYGMY WOODPECKER <i>Dendrocopos canicapillus</i> |        |      |         | 3         | 2            | *         | 500–1,100                |
| LESSER YELLOWNAPE <i>Picus chlorolophus</i>                  |        |      |         | 1         |              | *         | 1,050                    |
| GREATER YELLOWNAPE <i>Picus flavimucha</i>                   |        |      |         |           |              | *         | 800–1,100                |
| GREY-HEADED WOODPECKER <i>Picus canus</i>                    |        |      |         |           |              | *         | 1,100                    |
| BAY WOODPECKER <i>Blythipicus pyrrhotis</i>                  |        |      |         | 2         |              | *         | 400–1,100                |
| BLACK-BROWED BARBET <i>Megalaima oorti</i>                   |        |      | 5       | 33        | 7            | *         | 400–1,100                |
| RED-HEADED TROGON <i>Harpactes erythrocephalus</i>           |        |      |         | 4         |              | *         | 1,000–1,100              |
| DOLLARBIRD <i>Eurystomus orientalis</i>                      |        |      |         |           | 1            | *         | 100                      |
| COMMON KINGFISHER <i>Alcedo atthis</i>                       |        |      |         |           | 1            | *         | 100                      |
| ORIENTAL DWARF KINGFISHER <i>Ceyx erithacus</i>              |        |      |         |           |              | *         | 600                      |
| WHITE-THROATED KINGFISHER <i>Halcyon smyrnensis</i>          |        |      |         |           | 1            | *         | 100                      |
| BLACK-CAPPED KINGFISHER <i>Halcyon pileata</i>               |        | 1    | 1       |           |              |           | 150–1,100                |
| BLUE-BEARDED BEE-EATER <i>Nyctornis atheroni</i>             |        |      |         |           |              | *         | 600–1,000                |
| LARGE HAWK CUCKOO <i>Hierococcyx sparverioides</i>           |        |      | 2       | 3         | 5            |           | 100–1,000                |
| HODGSON'S HAWK CUCKOO <i>Hierococcyx fugax</i>               |        |      | 1       | 2         |              |           | 1,000–1,100              |
| INDIAN CUCKOO <i>Cuculus micropterus</i>                     |        |      | 1       | 3         | 1            | *         | 100–1,100                |
| DRONGO CUCKOO <i>Surniculus lugubris</i>                     |        |      | 1       | 1         | 1            | *         | 100–1,100                |
| GREEN-BILLED MALKOHA <i>Phaenicophaeus tristis</i>           |        |      |         |           |              | *         | 200–600                  |
| GREATER COUCAL <i>Centropus sinensis</i>                     |        | 3    |         |           | 1            | *         | 100–400                  |
| LESSER COUCAL <i>Centropus bengalensis</i>                   |        |      |         |           | 1            |           | 100                      |
| GERMAIN'S SWIFTLET <i>Collocalia germani</i>                 |        |      |         |           |              | *         | 400                      |
| WHITE-THROATED NEEDLETAIL <i>Hirundapus caudacutus</i>       |        | 10   |         |           |              |           | 150                      |
| SILVER-BACKED NEEDLETAIL <i>Hirundapus cochinchinensis</i>   |        | 26   | 1       | 2         |              |           | 150–1,100                |
| ASIAN PALM SWIFT <i>Cypsiurus balasensis</i>                 |        | 15   |         | 4         | 5            | *         | 100–1,100                |
| FORK-TAILED SWIFT <i>Apus pacificus</i>                      |        | 10   | 60      | 30        | 50           | *         | 100–1,100                |
| HOUSE SWIFT <i>Apus affinis</i>                              |        | 60   | 50      |           | 30           | *         | 100–1,100                |
| ORIENTAL BAY OWL <i>Phodilus badius</i>                      |        |      |         |           |              | *         | 1,200<br>(tape-recorded) |
| MOUNTAIN SCOPS OWL <i>Otus spilocephalus</i>                 |        |      |         | 1         |              | *         | 1,000                    |
| COLLARED SCOPS OWL <i>Otus bakkamoena</i>                    |        |      |         | 2         |              | *         | 1,000                    |
| COLLARED OWLET <i>Glaucidium brodiei</i>                     |        |      | 1       | 1         | 1            | *         | 300–1,100                |
| ASIAN BARRED OWLET <i>Glaucidium cuculoides</i>              |        |      |         | 4         | 1            | *         | 100–1,100                |
| UNIDENTIFIED LARGE OWL                                       |        |      |         | 1         |              |           | 1,050                    |
| UNIDENTIFIED MEDIUM-SIZED OWL                                |        |      |         |           |              | *         | 1,000                    |
| GREY NIGHTJAR <i>Caprimulgus indicus</i>                     |        |      |         | 11        |              |           | 1,100                    |
| ORIENTAL TURTLE DOVE <i>Streptopelia orientalis</i>          |        |      |         |           |              | *         | 300–600                  |
| SPOTTED DOVE <i>Streptopelia chinensis</i>                   |        |      |         |           | 3            | *         | 100–300                  |
| BARRED CUCKOO DOVE <i>Macropygia unchall</i>                 |        |      |         |           | 2            | *         | 500–1,000                |
| EMERALD DOVE <i>Chalcophaps indica</i>                       |        |      |         | 1         |              | *         | 500–1,050                |
| THICK-BILLED GREEN PIGEON <i>Treron curvirostra</i>          |        |      | 7       | 4         |              | *         | 400–1,100                |
| MOUNTAIN IMPERIAL PIGEON <i>Ducula badia</i>                 |        |      | 5       | 5         |              | *         | 600–1,100                |
| ORIENTAL HONEY BUZZARD <i>Pernis ptilorhynchus</i>           |        |      |         |           |              | *         | 300                      |
| BLACK KITE <i>Milvus migrans</i>                             |        |      |         |           | 2            | *         | 100–400                  |
| CRESTED SERPENT EAGLE <i>Spilornis cheela</i>                |        |      | 1       |           | 1            | *         | 100–1,100                |
| CRESTED GOSHAWK <i>Accipiter trivirgatus</i>                 |        |      | 3       | 4         | 5            | *         | 100–1,100                |
| SHIKRA <i>Accipiter badius</i>                               |        | 2    |         | 1         | 3            | *         | 100–600                  |
| CHINESE SPARROWHAWK <i>Accipiter soloensis</i>               |        |      |         |           | 1            |           | 550                      |
| MOUNTAIN HAWK EAGLE <i>Spizaetus nipalensis</i>              |        |      |         | 1         |              | *         | 1,050                    |
| BLUE-RUMPED PITTA <i>Pitta soror</i>                         |        |      |         |           |              | *         | 700–1,100                |

| Species   | Status | Town | Dong'er | Core Area | Wangxia area | 2003–2005 | Altitude (m) |
|---|--------|------|---------|-----------|--------------|-----------|--------------|
| SILVER-BREASTED BROADBILL <i>Serilophus lunatus</i>         |        |      |         | 3         |              | *         | 600–1,100    |
| ORANGE-BELLIED LEAFBIRD <i>Chloropsis hardwickii</i>        |        |      | 5       |           | 1            | *         | 100–1,100    |
| BROWN SHRIKE <i>Lanius cristatus</i>                        |        |      |         |           | 1            |           | 200          |
| LONG-TAILED SHRIKE <i>Lanius schach</i>                     |        |      |         | 1         |              | *         | 200–1,000    |
| RED-BILLED BLUE MAGPIE <i>Urocissa erythrorhyncha</i>       |        |      |         |           |              | *         | 1,100        |
| INDOCHINESE GREEN MAGPIE <i>Cissa hypoleuca</i>             |        |      |         | 1         |              | *         | 1,050        |
| GREY TREEPIE <i>Dendrocitta formosae</i>                    |        |      |         | 2         |              | *         | 400–1,050    |
| MAROON ORIOLE <i>Oriolus traillii</i>                       |        |      |         | 1         |              |           | 1,050        |
| LARGE CUCKOOSHRIKE <i>Coracina macei</i>                    |        |      |         | 1         |              | *         | 1,050        |
| BLACK-WINGED CUCKOOSHRIKE <i>Coracina melaschistos</i>      |        |      |         | 1         |              |           | 1,050        |
| GREY-CHINNED MINIVET <i>Pericrocotus solaris</i>            |        |      | 13      | 23        |              | *         | 500–1,100    |
| SCARLET MINIVET <i>Pericrocotus flammeus</i>                |        | 2    | 1       |           | 10           | *         | 150–1,100    |
| WHITE-THROATED FANTAIL <i>Rhipidura albicollis</i>          |        |      |         | 13        |              | *         | 1,050        |
| CROW-BILLED DRONGO <i>Dicrurus annectans</i>                |        |      |         | 2         |              |           | 1,000–1,100  |
| BRONZED DRONGO <i>Dicrurus aeneus</i>                       |        |      |         | 1         |              | *         | 1,050        |
| GREATER RACKET-TAILED DRONGO <i>Dicrurus paradiseus</i>     |        |      |         | 2         |              | *         | 400–1,050    |
| BLACK-NAPE MONARCH <i>Hypothymis azurea</i>                 |        |      |         |           | 2            | *         | 150–400      |
| JAPANESE PARADISE-FLYCATCHER <i>Terpsiphone atrocaudata</i> | NT     |      |         | 3         |              |           | 150–500      |
| LARGE WOODSHRIKE <i>Tephrodornis gularis</i>                |        |      |         | 1         |              | *         | 1,050        |
| BLUE ROCK THRUSH <i>Monticola solitarius</i>                |        | 2    |         |           |              | *         | 150–500      |
| ORANGE-HEADED THRUSH <i>Zoothera citrina</i>                |        |      |         |           |              | *         | 600          |
| EURASIAN BLACKBIRD <i>Turdus merula</i>                     |        |      |         |           |              | *         | 200          |
| JAPANESE THRUSH <i>Turdus cardis</i>                        |        |      |         |           |              | *         | 600–800      |
| EYEBROWED THRUSH <i>Turdus obscurus</i>                     |        |      |         | 2         |              |           | 1,050        |
| PALE THRUSH <i>Turdus pallidus</i>                          |        |      |         |           |              | *         | 800          |
| ASIAN BROWN FLYCATCHER <i>Muscicapa dauurica</i>            |        |      |         |           |              | *         | 300          |
| NARCISSUS FLYCATCHER <i>Ficedula narcissina</i>             |        |      |         |           |              | *         | 1,100        |
| MUGIMAKI FLYCATCHER <i>Ficedula mugimaki</i>                |        |      | 1       | 5         | 2            |           | 500–1,100    |
| RED-THROATED FLYCATCHER <i>Ficedula parva</i>               |        |      |         |           |              | *         | 300          |
| HAINAN BLUE FLYCATCHER <i>Cyornis hainanus</i>              |        |      |         | 1         |              | *         | 1,050        |
| PALE BLUE FLYCATCHER <i>Cyornis unicolor</i>                |        |      |         |           | 2            | *         | 500–1,000    |
| RUFIOUS-TAILED ROBIN <i>Luscinia sibilans</i>               |        |      |         |           |              | *         | 600          |
| ORANGE-FLANKED BUSH ROBIN <i>Tarsiger cyanurus</i>          |        |      |         | 1         |              |           | 1,050        |
| ORIENTAL MAGPIE ROBIN <i>Copsychus saularis</i>             |        |      |         |           | 1            | *         | 100          |
| WHITE-RUMPED SHAMA <i>Copsychus malabaricus</i>             |        |      |         |           |              | *         | 300          |
| WHITE-TAILED ROBIN <i>Myiomela leucura</i>                  |        |      |         | 1         |              | *         | 1,000        |
| SLATY-BACKED FORKTAIL <i>Enicurus schistaceus</i>           |        |      | 1       |           |              | *         | 400–1,100    |
| WHITE-CROWNED FORKTAIL <i>Enicurus leschenaulti</i>         |        |      |         | 2         |              | *         | 600–1,100    |
| YELLOW-BILLED NUTHATCH <i>Sitta solangiae</i>               | NT     |      |         |           | 2            | *         | 100–1,000    |
| GREAT TIT <i>Parus major</i>                                |        |      |         |           | 2            | *         | 500          |
| YELLOW-CHEEKED TIT <i>Parus spilonotus</i>                  |        | 4    | 1       |           |              | *         | 150–1,100    |
| SULTAN TIT <i>Melanochlora sultanea</i>                     |        | 4    |         |           |              | *         | 150–1,100    |
| BARN SWALLOW <i>Hirundo rustica</i>                         |        |      | 10      |           |              | *         | 200–1,100    |
| LIGHT-VENTED BULBUL <i>Pycnonotus sinensis</i>              |        | 8    | 31      |           | 6            | *         | 100–1,100    |
| PUFF-THROATED BULBUL <i>Alophoixus pallidus</i>             |        |      |         | 2         | 11           | *         | 500–1,100    |
| CHESTNUT BULBUL <i>Hemixos castanonotus</i>                 |        |      | 4       | 22        | 30           | *         | 500–1,100    |
| MOUNTAIN BULBUL <i>Hypsipetes mcllellandii</i>              |        |      |         | 38        | 1            | *         | 540–1,100    |
| BLACK BULBUL <i>Hypsipetes leucocephalus</i>                |        |      | 2       | 16        | 2            | *         | 500–1,100    |
| ZITTING CISTICOLA <i>Cisticola juncidis</i>                 |        |      |         |           | 1            |           | 550          |
| YELLOW-BELLIED PRINIA <i>Prinia flaviventris</i>            |        |      |         | 5         |              | *         | 200–1,050    |
| PLAIN PRINIA <i>Prinia inornata</i>                         |        |      | 6       | 2         |              |           | 500–1,100    |
| JAPANESE WHITE-EYE <i>Zosterops japonicus</i>               |        | 4    |         |           | 4            | *         | 100–600      |
| MOUNTAIN TAILORBIRD <i>Orthotomus cuculatus</i>             |        |      | 2       |           | 3            |           | 100–1,100    |
| COMMON TAILORBIRD <i>Orthotomus sutorius</i>                |        |      |         |           |              | *         | 300          |
| DUSKY WARBLER <i>Phylloscopus fuscatus</i>                  |        |      |         | 1         |              | *         | 200–1,100    |
| PALLAS'S LEAF WARBLER <i>Phylloscopus proregulus</i>        |        |      |         |           |              | *         | 1,000        |
| YELLOW-BROWED WARBLER <i>Phylloscopus inornatus</i>         |        |      |         | 1         |              | *         | 200–1,050    |



| Species   | Status | Town | Dong'er | Core Area | Wangxia area | 2003–2005 | Altitude (m) |
|---|--------|------|---------|-----------|--------------|-----------|--------------|
| BLYTH'S LEAF WARBLER <i>Phylloscopus reguloides</i>             |        |      |         |           |              | *         | 900          |
| HAINAN LEAF WARBLER <i>Phylloscopus hainanus</i>                | VU     |      |         | 1         |              | *         | 800–1,050    |
| RUFIOUS-FACED WARBLER <i>Abroscopus albogularis</i>             |        | 1    |         |           |              |           | 150          |
| LESSER NECKLACED LAUGHINGTHRUSH <i>Garrulax monileger</i>       |        |      |         |           |              | *         | 400–1,100    |
| GREATER NECKLACED LAUGHINGTHRUSH <i>Garrulax pectoralis</i>     |        |      |         | 14        |              | *         | 400–1,100    |
| GREY LAUGHINGTHRUSH <i>Garrulax maesi</i>                       |        |      |         | 4         |              | *         | 300–1,100    |
| BLACK-THROATED LAUGHINGTHRUSH <i>Garrulax chinensis</i>         |        |      |         |           |              | *         | 400          |
| HWAMEI <i>Garrulax canorus</i>                                  |        |      |         |           |              | *         | 500–650      |
| LARGE SCIMITAR BABBLER <i>Pomatorhinus hypoleucos</i>           |        |      | 1       |           |              | *         | 300–1,110    |
| STREAK-BREASTED SCIMITAR BABBLER <i>Pomatorhinus ruficollis</i> |        |      |         | 1         | 1            | *         | 300–1,100    |
| EYEBROWED WREN BABBLER <i>Napothera epilepidota</i>             |        |      |         |           |              | *         | 700          |
| RUFIOUS-CAPPED BABBLER <i>Stachyris ruficeps</i>                |        |      | 3       | 2         | 20           | *         | 300–1,100    |
| SPOT-NECKED BABBLER <i>Stachyris striolata</i>                  |        |      |         |           |              | *         | 700          |
| WHITE-BROWED SHRIKE BABBLER <i>Pteruthius flaviscapis</i>       |        |      |         | 1         | 3            | *         | 500–1,000    |
| CHESTNUT-FRONTED SHRIKE BABBLER <i>Pteruthius aenobarbus</i>    |        |      |         | 1         |              |           | 1,000        |
| BLUE-WINGED MINLA <i>Minla cyanouroptera</i>                    |        |      |         |           |              | *         | 1,100        |
| DUSKY FULVETTA <i>Alcippe brunnea</i>                           |        |      | 1       |           |              | *         | 400–1,100    |
| GREY-CHEEKED FULVETTA <i>Alcippe morrisonia</i>                 |        |      | 10      | 92        | 50           | *         | 300–1,100    |
| WHITE-BELLIED YUHINA <i>Yuhina zantholeuca</i>                  |        |      |         | 1         | 1            | *         | 400–1,100    |
| GREY-HEADED PARROTBILL <i>Paradoxornis gularis</i>              |        |      | 2       | 2         | 20           | *         | 500–1,100    |
| PLAIN FLOWERPECKER <i>Dicaeum concolor</i>                      |        |      |         |           |              | *         | 500          |
| FIRE-BREASTED FLOWERPECKER <i>Dicaeum ignipectus</i>            |        |      |         |           | 3            | *         | 100–600      |
| SCARLET-BACKED FLOWERPECKER <i>Dicaeum cruentatum</i>           |        |      |         | 5         |              | *         | 300–1,050    |
| OLIVE-BACKED SUNBIRD <i>Nectarinia jugularis</i>                |        |      |         | 1         | 2            | *         | 200–1,100    |
| FORK-TAILED SUNBIRD <i>Aethopyga christinae</i>                 |        |      |         |           |              | *         | 300          |
| WHITE WAGTAIL <i>Motacilla alba</i>                             |        |      |         |           |              | *         | 300          |
| YELLOW WAGTAIL <i>Motacilla flava</i>                           |        |      |         |           |              | *         | 300          |
| GREY WAGTAIL <i>Motacilla cinerea</i>                           |        |      | 1       |           |              | *         | 300–1,100    |
| RICHARD'S PIPIT <i>Anthus richardi</i>                          |        |      |         |           |              | *         | 300          |
| OLIVE-BACKED PIPIT <i>Anthus hodgsoni</i>                       |        |      | 4       |           | 8            | *         | 100–1,100    |
| WHITE-RUMPED MUNIA <i>Lonchura striata</i>                      |        |      |         |           |              | *         | 300          |
| SCALY-BREASTED MUNIA <i>Lonchura punctulata</i>                 |        |      | 4       |           | 2            | *         | 500–1,100    |
| LITTLE BUNTING <i>Emberiza pusilla</i>                          |        | 1    |         |           |              | *         | 150          |

**Key**

Columns 3–6 give number of individuals seen in April 1998 (Kadoorie Farm and Botanic Garden 2001). Asterisks in column 7 indicate records made in October and December 2003, May, July, October and December 2004, and January 2005. Altitudinal range refers to all observations. VU = Vulnerable, NT = Near Threatened.