

# HANDBOOK OF THE BIRDS OF INDIA AND PAKISTAN

*TOGETHER WITH THOSE OF BANGLADESH,  
NEPAL, BHUTAN AND SRI LANKA*

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AND  
S. DILLON RIPLEY

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860	Larger Goldenbacked Woodpecker, <i>Chrysocolaptes lucidus sultaneus</i> (Hodgson)	..	..	..	..	..	242
861	ssp <i>guttacristatus</i> (Tickell)	..	..	..	..	..	243
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## Order PASSERIFORMES

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866	Bluenaped Pitta, <i>Pitta nipalensis nipalensis</i> (Hodgson)	..	..	..	..	..	250
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868	Bluewinged Pitta, <i>Pitta moluccensis megarhyncha</i> Schlegel	..					253
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870	ssp <i>abbotti</i> Richmond	..	..	..	..	..	255
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## COLOUR PLATES

Synopsis numbers in brackets

(SE) = species extralimital (RE) = race extralimital

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D. V. COWEN

- 1 *Eurostopodus macrotis*, Great Eared Nightjar (669)
- 2 *Batrachostomus moniliger*, Ceylon Frogmouth (666)
- 3 *Chaetura gigantea*, Large Brownthroated Spinetail Swift (691)
- 4 *Harpactes fasciatus*, Malabar Trogan (711)
- 5 *Chaetura sylvatica*, Whiterumped Spinetail Swift (692)
- 6 *Clamator coromandus*, Redwinged Crested Cuckoo (569)
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PAUL BARRUEL

- 1 *Chaetura caudacuta*, Whitethroated Spinetail Swift (688)
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- 3 *Halcyon coromanda*, Ruddy Kingfisher (733)
- 4 *Apus melba*, Alpine Swift (693)
- 5 *Harpactes wardi*, Ward's Trogan (716)
- 6 *Alcedo hercules*, Blyth's kingfisher (721)
- 7 *Merops superciliosus*, Bluecheeked Bee-eater (747)
- 8 *Coracias garrulus*, European Roller (754)
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- 1 *Harpactes erythrocephalus*, Redheaded Trogan (715)
- 2 *Pelargopsis amauroptera*, Brownwinged Kingfisher (729)
- 3 *Upupa epops*, Hoopoe (765)
- 4 *Cypsiurus parvus*, Palm Swift (707)
- 5 *Caprimulgus asiaticus*, Indian Little Nightjar (680)
- 6 *Hemiprocn longipennis*, Crested Swift (709)
- 7 *Glaucidium cuculoides*, Barred Owlet (639)
- 8 *Tyto alba*, Barn Owl (606)
- 9 *Athene brama*, Spotted Owlet (650)
- 10 *Bubo zeylonensis*, Brown Fish Owl (631)

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DHRUV DIXIT

- 1 *Merops orientalis*, Small Green Bee-eater (750)
- 2 *Merops philippinus*, Bluetailed Bee-eater (748)
- 3 *Alcedo atthis*, Small Blue Kingfisher (723)
- 4 *Tockus birostris*, Grey Hornbill (767)
- 5 *Rhyticeros (plicatus) narcondami*, Narcondam Hornbill (773)
- 6 *Buceros bicornis*, Great Pied Hornbill (776)
- 7 *Anthracoceros coronatus*, Lesser Pied Hornbill (775)
- 8 *Halcyon smyrnensis*, Whitebreasted Kingfisher (736)
- 9 *Megalaima zeylanica*, Large Green Barbet (781)

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D. V. COWEN

- 1 *Halcyon pileata*, Blackcapped Kingfisher (739)
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- 3 *Pelargopsis capensis*, Storkbilled Kingfisher (730)
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- 5 *Ceryle rudis*, Lesser Pied Kingfisher (720)
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D. V. COWEN

- 1 *Loriculus vernalis*, Indian Lorikeet (567)
- 2 *Psittacula columboides*, Bluewinged Parakeet (564)
- 3 *Nyctornis athertoni*, Bluebearded Bee-eater (753)
- 4 *Eurystomus orientalis*, Broadbilled Roller (759)
- 5 *Megalaima rubricapilla*, Crimsonthroated Barbet (790)
- 6 *Merops leschenaulti*, Chestnutheaded Bee-eater (744)
- 7 *Megalaima viridis*, Small Green Barbet (785)

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J. F. IRANI

- 1 *Rhyticeros undulatus*, Wreathed Hornbill (772)
- 2 *Aceros nipalensis*, Rufousnecked Hornbill (771)
- 3 *Ptilolaemus tickelli*, Whitethroated Brown Hornbill (770)
- 4 *Megalaima flavifrons*, Yellowfronted Barbet (786)
- 5 *Picus squamatus*, Scalybellied Green Woodpecker (807)

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PAUL BARRUEL

- 1 *Dinopium shorii*, Himalayan Goldenbacked Threetoed Woodpecker (824)
- 2 *Picoides darjellensis*, Darjeeling Pied Woodpecker (838)
- 3 *Blythipicus pyrrhotis*, Redeared Bay Woodpecker (857)
- 4 *Sasia ochracea*, Rufous Piculet (800)
- 5 *Mulleripicus pulverulentus*, Great Slaty Woodpecker (828)
- 6 *Picus flavinucha*, Large Yellownaped Woodpecker (813)
- 7 *Megalaima franklinii*, Goldenthroated Barbet (787)
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- 9 *Indicator xanthocephalus*, Orangerumped Honeyguide (794)

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D. V. COWEN

- 1 *Picus chlorolophus*, Small Yellownaped Woodpecker (816)
- 2 *Dinopium javanense*, Indian Goldenbacked Threetoed Woodpecker (825)
- 3 *Dinopium benghalense*, Lesser Goldenbacked Woodpecker (821)
- 4 *Hemicircus canente*, Heartspotted Woodpecker (856)
- 5 *Picumnus innominatus*, Speckled Piculet (799)
- 6 *Chrysocolaptes lucidus*, Larger Goldenbacked Woodpecker (862)
- 7 *Dryocopus javensis*, Indian Great Black Woodpecker (830)

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J. P. IRANI

- 1 *Gecinulus grantia*, Paleheaded Woodpecker (827)
- 2 *Picoides himalayensis*, Himalayan Pied Woodpecker (837)
- 3 *Hypopicus hyperythrus*, Rufousbellied Woodpecker (833)
- 4 *Picus myrmecophoneus*, Little Scalybellied Green Woodpecker (808)
- 5 *Chrysocolaptes festivus*, Blackbacked Woodpecker (858)
- 6 *Picus canus*, Blacknaped Green Woodpecker (809)
- 7 *Picoides mahrattensis*, Yellowfronted Pied Woodpecker (847)
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DHRUV DIXIT

- 1 *Picoides auriceps*, Brownheaded Pied Woodpecker (842)
- 2 *Picoides canicapillus*, Greycrowned Pigmy Woodpecker (849)
- 3 *Picoides macei*, Fulvousbreasted Pied Woodpecker (845)
- 4 *Picus flavinucha*, Yellownaped Woodpecker (813)
- 5 *Micropternus brachyurus*, Rufous Woodpecker (803)
- 6 *Chrysocolaptes lucidus*, Larger Goldenbacked Woodpecker (861)
- 7 *Sasia ochracea*, Rufous Piculet (800)
- 8 *Dryocopus javensis*, Great Black Woodpecker (831)
- 9 *Jynx torquilla*, Wryneck (797a)

## CHANGES IN TERRITORIAL NAMES

The *Handbook* relies on observations made during the last hundred years, during which period many areas have changed their names and boundaries. The authors have striven to keep up with changes which have taken place during the writing and publication of the ten volumes, and hope the following notes will be helpful in interpretation. They should be supplemented by reference to atlases.

**ANDHRA PRADESH.** Until 1953 the northern half of Madras State, including the deltas of the Krishna and Godavari rivers and the arid hills of the Eastern Ghats, and the former Hyderabad State.

**ARUNACHAL PRADESH.** 'The Province of the Dawn.' The Himalayas east of Bhutan, including the Dafla, Abor, Miri and Mishmi hills. Before 1972 this area was the North-East Frontier Agency (NEFA), comprising the Kameng, Subansiri, Siang and Luhit frontier divisions.

**ASSAM.** Before 1947 this province included Arunachal Pradesh, Meghalaya, Mizoram and Nagaland (q.v.). In 1972 it was restricted to the Brahmaputra Valley.

**BANGLADESH.** Constituted in 1971, formerly East Pakistan. Besides the Brahmaputra plains it includes the Chittagong Hill Tracts in the south.

**BENGAL.** Prior to 1947 the Ganges-Brahmaputra delta area, later divided into Bangladesh (q.v.) and West Bengal.

**HARYANA.** The fertile plains area north and west of Delhi, formerly part of the Punjab (q.v.).

**HIMACHAL PRADESH.** 'The Snowy Province.' The Himalayan hill States were united under this name in 1948, and in 1966 the area was enlarged by the hill regions of the Punjab.

**KARNATAKA.** The official name of Mysore since 1973.

**LAKSHADWEEP.** The official name of the Laccadive Islands group since 1973.

**MEGHALAYA.** 'Cloud-land.' The Garo, Jaintia, Khasi and Cachar hill districts, constituted a separate State in 1972.

**MIZORAM.** The Lushai or Mizo Hills area, constituted a separate State in 1972.

**NAGALAND.** The Naga Hills area, constituted a separate State in 1962.

**NEFA.** Now Arunachal Pradesh, q.v.

**OUDH** (= Awadh). The eastern Gangetic plains, now part of Uttar Pradesh ('Northern Province'), the name given in 1950 to the United Provinces (of Agra and Oudh).

**PAKISTAN.** Before 1972 West Pakistan, including Sind, Baluchistan, Punjab (q.v.), the North-West Frontier Province and Bahawalpur.

**PUNJAB.** Prior to 1947 the whole of the northern plains area watered by the Indus, and its five tributaries namely Jhelum, Chenab, Ravi, Beas and Sutlej. Divided in 1947 into West Punjab (Pakistan) and East Punjab (India). In 1966 East Punjab was further divided into Punjab, Haryana and Himachal Pradesh (q.q.v.).

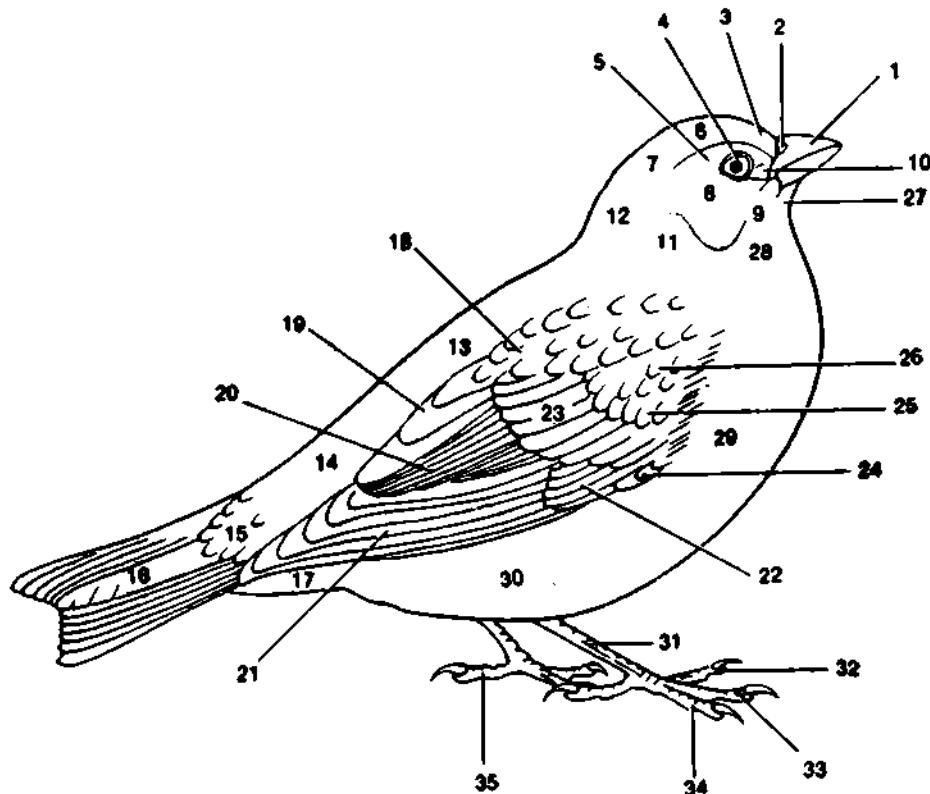
**SAURASHTRA** The union of States was merged with Bombay in 1956 and since 1960 has been part of Gujarat.

**SRI LANKA.** The official name of Ceylon since 1972.

**TAMIL NADU.** The name given to Madras State in 1969.

# Terms used in the description of a bird's plumage and parts

## Topography of a sparrow



1 Culmen	18 Scapulars
2 Nostril	19 Tertials
3 Forehead	20 Secondaries } (remiges)
4 Iris	21 Primaries }
5 Supercilium	22 Primary coverts
6 Crown	23 Greater coverts
7 Nape	24 Bastard wing (alula)
8 Ear-coverts	25 Median coverts
9 Malar region (malar stripe, moustache)	26 Lesser coverts
10 Lores	27 Chin
11 Side of neck	28 Throat
12 Hindneck	29 Breast
13 Back	30 Belly (abdomen)
14 Rump	31 Tarsus
15 Upper tail-coverts	32 Inner toe
16 Tail (rectrices)	33 Middle toe
17 Under tail-coverts	34 Outer toe
	35 Hind toe (hallux)

## ABBREVIATIONS

<b>Bull. BOC</b>	<i>Bulletin of the British Ornithologists' Club</i>
<b>CBCN</b>	<i>Ceylon Bird Club Newsletter</i>
<b>FBI</b>	<i>Fauna of British India, Birds</i>
<b>INB</b>	<i>Newsletter for Birdwatchers, India</i>
<b>J. Orn.</b>	<i>Journal für Ornithologie, Berlin</i>
<b>JBNHS</b>	<i>Journal of the Bombay Natural History Society</i>
<b>PZS</b>	<i>Proceedings of the Zoological Society, London</i>
<b>SF</b>	<i>Stray Feathers</i>
<b>SZ</b>	<i>Spolia Zeylanica</i>

### Abbreviated references to persons frequently quoted

<b>Abdulali or HA</b>	Humayun Abdulali
<b>Alexander</b>	W. B. Alexander
<b>Amadon</b>	Dean Amadon
<b>Baker</b>	E. C. Stuart Baker
<b>Biswas or BB</b>	Biswamoy Biswas
<b>Delacour</b>	Jean Delacour
<b>Donald</b>	C. H. Donald
<b>Gibson-Hill</b>	C. A. Gibson-Hill
<b>Hartert</b>	Ernst Hartert
<b>Hume</b>	A. O. Hume
<b>Inglis</b>	C. M. Inglis
<b>Jerdon</b>	T. C. Jerdon
<b>Jones</b>	A. E. Jones
<b>Legge</b>	Col. W. Vincent Legge
<b>Ludlow</b>	Frank Ludlow
<b>Magrath</b>	Major H. A. F. Magrath
<b>Marshall</b>	Cols. C. H. T. & G. F. L. Marshall
<b>Mayr</b>	Ernst Mayr
<b>Meinertzhagen</b>	Col. R. Meinertzhagen
<b>Murphy</b>	R. C. Murphy
<b>Osmaston or BBO</b>	B. B. Osmaston
<b>Peters</b>	J. L. Peters
<b>Phillips</b>	W. W. A. Phillips
<b>Ripley or SDR</b>	S. Dillon Ripley
<b>Sálim Ali or SA</b>	Sálim Ali
<b>Scully</b>	John Scully
<b>Stevens</b>	Herbert Stevens
<b>Stresemann</b>	Erwin Stresemann
<b>Ticehurst or CBT</b>	Claud B. Ticehurst
<b>Whistler or HW</b>	Hugh Whistler
<b>Whitehead</b>	Lt C. H. T. Whitehead

## Order CAPRIMULGIFORMES

For morphological details etc. see Stresemann, E., 1927-34, *Aves* : 826-8.

### Family PODARGIDAE : Frogmouths

Bill very wide at gape as in Nightjars but much larger; powerful, hard, curved, hooked at tip. Base of bill overhung by bristly feathers concealing the nostrils, which are narrow slits protected by membranes. For further details see Van Tyne, J. & Berger, A. J., 1959: 461; Serventy, D. L., 1964, Article 'Frogmouth' in Thomson, A. L. (ed.), *New Dict. Birds*, London & New York.

#### Genus BATRACHOSTOMUS Gould

*Batrachostomus* Gould, 1838, *Icones Avium*, pt. 2, pl. (17) and text.

Type, by monotypy, *Podargus auritus* J. E. Gray

Gape even wider than in Nightjars, with the corners swollen and enlarged. Nostrils concealed by conspicuous bristles projecting from the feathers at base of bill; tufts of similar feathers in front of the eyes, and ear-tufts. Wings rounded and short: 4th and 5th primaries (as.) subequal and longest, occasionally the 5th. Tarsus short; feet small and feeble with middle toe greatly elongated. No oil gland; a powder-down patch on either side of rump. Sexes dimorphic in coloration.

Genus Oriental and Australasian; represented in our area by two species with the same remarkable widely discontinuous Indo-Malayan distribution as e.g. the Lizard Hawks (*Aviceda*) cf. Ind. Hb. 1: 215, 218.

#### Key to the Species

- Scapulars with broad white patches; no white spots on wing-coverts ..... *B. hodgsoni*  
Scapulars without any white; round white spots on wing-coverts ..... *B. moniliger*

#### 666. Ceylon Frogmouth. *Batrachostomus moniliger* Blyth

*Batrachostomus moniliger* 'Layard' = Blyth, 1846, *Jour. Asiatic. Soc. Bengal* 18: 806 (Ceylon)

Baker, FBI No. 1635, Vol. 4: 381

Plate 44, fig. 2, facing p. 16

LOCAL NAMES. *Gembī-kata-bassā* (Sinhala); *Makkāchikkāta* (Malayalam).

SIZE. Myna ±; length c. 23 cm (9 in.).

FIELD CHARACTERS. An obliteratedively coloured nightjar-like bird with absurdly wide gape and broad, swollen, horny bill aptly suggestive of the name Frogmouth, and completely diagnostic.

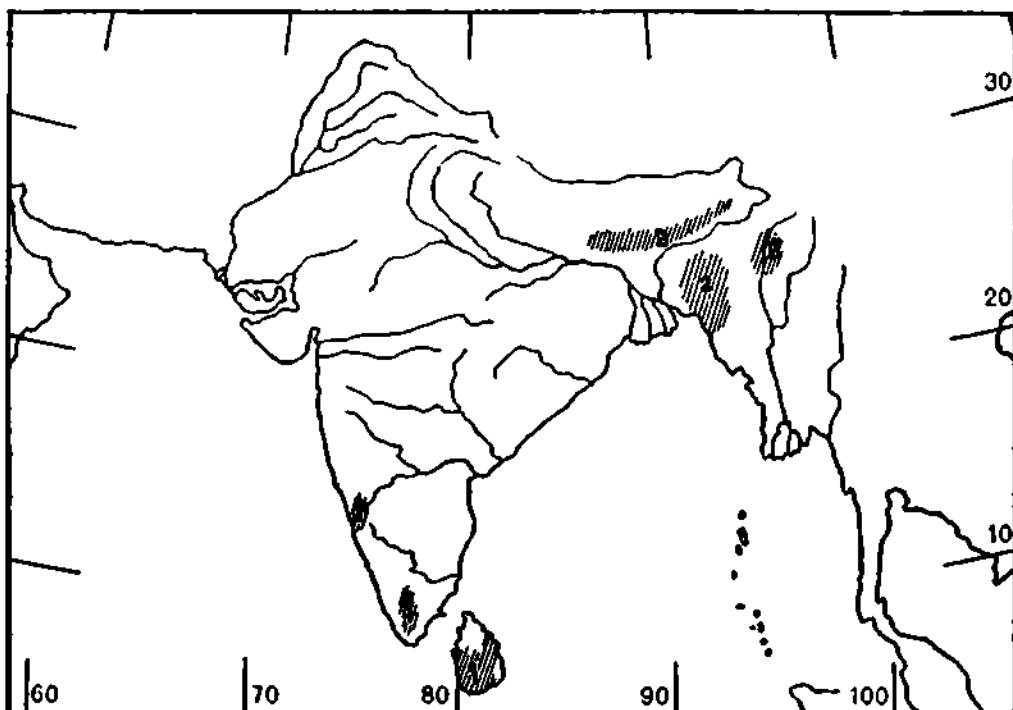
Male (adult) grey-brown, vermiculated and mottled with white, buff, brown, black, and chestnut.

## CAPRIMULGIFORMES

Female dull rufous overall; upper wing-coverts boldly spotted with black-edged white spots.

Young (immature). Narrowly barred above with brown.

**STATUS, DISTRIBUTION and HABITAT.** Resident. Apparently rare. The southern heavy-rainfall tracts of the Western Ghats from c. 15°N. lat. in N. Kanara dist. (Mysore) south to Trivandrum dist. (Kerala) up to c. 1200 m; Ceylon, throughout the forest areas up to c. 1800 m. Affects dense evergreen forest and secondary jungle with cane brakes etc.

*Batrachostomus*

■ Known distribution    1 *B. moniliger* (666).    2 *B. h. hodgsoni* (667).

**GENERAL HABITS.** Little known. Nocturnal; seldom seen in daytime unless flushed by chance. Spends the day in dense jungle perched across a branch (like a passerine bird) body tilted at a slight angle with the tail pointing downward, simulating a broken stump. On alarm stretches neck and head upwards, bill and rictal bristles pointing to sky, eyes closed to slits, thereby heightening its resemblance to a lichen-covered snag. Eludes detection further by remaining completely immobile even on very close approach by observer, while following his movements by almost imperceptibly screwing the head round as in an owllet. Wide gape and surrounding bristles suggest adaptation for hawking winged insects, but reported to take them chiefly on the ground or from branches.

**FOOD.** Moths, beetles, grasshoppers, etc.

**VOICE and CALLS.** Uncertain. Circumstantially described as commencing considerably after dark and variously as 'a soft, rapid *kooroo, kooroo, kooroo*' (Butler), 'a series of 10 - 15 low but rather rapid *who, whoo, whoo, whoo* notes' (Phillips), 'a fairly loud liquid chuckle *ahwoo* repeated monotonously every 2 or 3 seconds for 30 minutes or more at a stretch' (Sálim Ali). 'A bird which was kept under observation by C. E. Norris uttered a call

resembling the screech of a fishing reel running out fairly slowly' (Henry).

**BREEDING.** Season, apparently straggling, chiefly January to April; in Ceylon also September. Nest, a small pad, c. 6 cm in diameter, of moss, leaves, and twigs felted with down from the bird's underplumage, and camouflaged on the outside with bits of lichen and bark. Placed in the fork of a small tree or on a horizontal branch c. 2 to 5 metres off the ground. Egg, a singleton, large for the size of the layer, white, elliptical, fine-textured. Average size of 30 eggs  $29.9 \times 20.6$  mm (Baker). Both sexes share in incubation, the male chiefly sitting during daytime. Period of incubation and other facets of breeding biology unknown.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. Tarsus fully feathered in male; c. two-thirds in female.

Nestling covered with pure white down (T. R. Bell).

**MEASUREMENTS**

	Wing	Bill (from skull)	Tail
♂ ♀	119–127	21–23	100–110 mm (HW, SA)

Tarsus c. 15; width of gape 32–34 mm (Baker).

**COLOURS OF BARE PARTS.** Iris pale khaki or brownish buff ['yellow, or marbled yellow and grey'—Baker]. Bill pale horny, yellowish at gape and chin; mouth sulphur yellow; gullet pink. Feet dusky yellow; claws brownish.

### 667. Hodgson's Frogmouth. *Batrachostomus hodgsoni hodgsoni* (G. R. Gray)

*Otothrix hodgsoni* G. R. Gray, 1859, Proc. Zool. Soc. London: 101, pl. 152, Aves  
(Northern India = Darjeeling)

*Batrachostomus hodgsoni rupchandi* Koelz, 1954, Contrib. Inst. Regional Exploration,  
No. 1: 27 (Karong, Manipur)  
Baker, FBI No. 1633, Vol. 4: 378  
**Vol. 3, plate 39**

**LOCAL NAME.** Sumbong (Manipur Naga).

**SIZE.** Myna + ; length c. 27 cm (10½ in).

**FIELD CHARACTERS.** As for 666, q.v.  
See Key.

**Young** (immature). Like adult female but duller blackish brown; signs of the collar show very early. Iris dull brown; bill horny grey, pinkish above (Baker).

**STATUS, DISTRIBUTION and HABITAT.**  
Resident. Apparently rare. Sikkim  
(from extreme eastern Nepal?),

Bhutan, Assam hills north and south of Brahmaputra river, Nagaland, Manipur, Mirzo (?), East Pakistan (Tippera and Chittagong Hill Tracts), between c. 300 and 1800 m. Affects sub-tropical evergreen forest.

**Extralimital.** Hill of N. Burma (Chin, Kachin, etc.).



Head, ♂ x 1

## CAPRIMULGIFORMES

**GENERAL HABITS, FOOD, VOICE and CALLS.** More or less as in 666, but imperfectly known.

**BREEDING.** Season, April to July. Nest and site, as in 666. Eggs, normally 2 sometimes a singleton, white, elliptical. Average size of 30 eggs  $26.5 \times 17.6$  mm (Baker). Both sexes incubate, the male mostly during daytime. According to Baker both birds assist in making the nest, pulling the down from their lower plumage and welding it into the branch and then into the nest itself.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

Nestling covered with bright rufous down.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	126-141	17-18	c. 15-16	131-143 mm
		width at gape 29-32		

(Baker)

**COLOURS OF BARE PARTS.** Iris variegated grey, brown and yellow. Bill fleshy pink or yellowish horn. Feet pinkish flesh.

**Family CAPRIMULGIDAE: Nightjars or Goatsuckers**

For morphological details etc. see Stresemann, E., 1927-34, *Aves*: 827; Witherby *et al.*, 1938, 2 : 251; Baker, 1927, 4 : 358; Junge, G. C. A., 1964, Article 'Nightjar' in Thomson, A. L. (ed.), *New Dict. Birds*, London & New York.

Bill short, weak, flexible and with an enormous gape. Nostrils tubular. Wing long: 2nd primary (as.) generally longest. Family represented throughout the tropical and temperate regions of the world.

**Key to the Genera**

	Page
No ear-tufts; strong rictal bristles present..... <i>Caprimulgus</i>	7
Well developed erect ear-tufts; no rictal bristles..... <i>Eurostopodus</i>	4

**Genus EUROSTOPODUS Gould**

*Eurostopodus* Gould, 1838, April, Syn. Bds. Austr., app., (4) : 1. Type, by subsequent designation, *Caprimulgus guttatus* Vigors & Horsfield

*Lyncornis* Gould, 1838, Icones Avium, (2), pl. 14. Type, by monotypy, *Lyncornis cerviniceps* Gould

Distinguished from *Caprimulgus* by absence of rictal bristles and presence of ear-tufts or aigrettes consisting of a few elongated, erectile feathers just above and behind ear-coverts. Sexes alike. Represented by one species with two races within our limits.

**EUROSTOPODUS MACROTIS (Vigors): GREAT EARED NIGHTJAR****Key to the Subspecies**

Wing over 290 mm .....	<i>E. m. cerviniceps</i>
Wing under 290 mm .....	<i>E. m. bourdillonii</i>

668. *Eurostopodus macrotis cerviniceps* (Gould)

*Lyncornis cerviniceps* Gould, 1838, *Icones Avium*, (2), pl. 14 and text ('Said to be a native of China or the adjacent islands' = Trang, Peninsular Siam by designation of Robinson & Kloss, 1923, *Jour. Nat. Hist. Soc. Siam* 5: 140) Baker, FBI No. 1631, Vol. 4: 374

LOCAL NAME. *Din koo nah* (Assam).

SIZE. House Crow —; length c. 41 cm (16 in.).

FIELD CHARACTERS. A very large and handsome dark coloured nightjar with the characteristic mottled and vermiculated plumage of the family — grey, black, buff, and chestnut. Two prominent erectile ear-tufts on sides of head behind the eyes, and distinctive whistling call diagnostic. Sexes alike.

In overhead flight large size, long tail, and stately wing-beats particularly striking.

STATUS, DISTRIBUTION and HABITAT. Resident. Possibly local migrant in some areas: thus in NE. Cachar 'appears about beginning of August; very plentiful in August and September; disappears at the end of the rains' (James Inglis, 1877, SF 5: 17). Assam east and south of Brahmaputra river, Nagaland, Manipur, Mizo, East Pakistan (Tippera and Chittagong Hill Tracts). Affects evergreen and moist-deciduous biotope, from plains level to c. 1000 m alt.; commonest in foothills country.

EXTRALIMITAL. Southern Yunnan south through Burma and Malay Peninsula and Penang; SE. Thailand, South Vietnam.

GENERAL HABITS. Crepuscular and nocturnal. Roosts during daytime squatting belly to ground, or on a fallen log amongst scrubby undergrowth in a ravine; also in caves (Tenasserim, Burma). Issues forth at sundown heralded by the distinctive clear whistling calls, circling high above the forest tree-tops with the leisurely deliberate wing-beats of an owl. Descends lower as the dusk deepens, sailing swiftly a metre or two above ground on motionless wings like a harrier to hawk winged insects in a forest clearing; sometimes a loose party of 7 or 8 birds criss-crossing one another at different levels in the air.

FOOD. Moths, bugs, beetles, flying termites, and other insects captured on the wing.

VOICE and CALLS. In general pattern similar to 669 of Kerala; described by A. F. P. Christison as 'Pee-wheeo-wheeo-wheeo repeated a variable number of times, followed by a protracted quavering whistle ending in a cadence'. Uttered chiefly on the wing; sometimes repeated for several minutes while squatted on a tree-stump like a nightjar, the head shot forward with a jerk at each call.

BREEDING. Season, mainly January to April as far as known. Nest, none built. Egg, a singleton laid on the bare ground in thin forest or bamboo jungle under shelter of a bamboo clump or thick bush. Broad to long ellipse in shape, typical of the nightjars, pale yellowish cream to deepish rosy salmon (when fresh), variably marbled with pale grey and occasionally pale bright reddish. Average size of 6 eggs 42.1 x 30.5 mm (Baker). Share of the sexes in the domestic chores, and incubation period, unknown.

## CAPRIMULGIFORMES

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

## MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	292-317	c. 10-11	21-22	207-225 mm (Baker)

COLOURS OF BARE PARTS. Iris hazel to dark brown. Bill pale pinkish horny to pinkish brown, tip and culmen darker; gape flesh-coloured. Legs and feet fleshy brown to pale brown.

669. *Eurostopodus macrotis bourdilloni* (Hume)

*Lyncornis Bourdilloni* Anonymous = Hume, 1875, *Stray Feathers* 3: 302

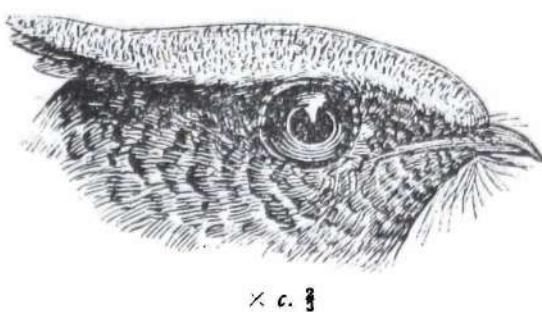
(Kalland, Khauni, Travancore)

Baker, FBI No. 1632, Vol. 4: 375

Plate 44, fig. 1, facing p. 16

LOCAL NAME. *Sāndhyā mūzhäkki* (Malayalam).

SIZE. House Crow — ; length c. 40 cm (15½ in.).



FIELD CHARACTERS. As of 668, q.v.  
See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Range curiously discontinuous and restricted [cf. *Batrachostomus moniliger* (666)] but absent in Ceylon. Known only from Kerala (Kottayam, Quilon, and Trivandrum dists.) and Goa (Valpoi?, JBNHS 73: 45). Sedentary and local; not uncommon where occurring.

Confined to evergreen and moist deciduous biotope, chiefly foothills jungle and up to c. 1000 metres.

GENERAL HABITS and FOOD. As in 668, q.v.

VOICE and CALLS. A beautiful loud, clear, rather supercilious-sounding ('wailing') double- or 3-noted whistle, *whi-wheeeew* uttered chiefly on the wing — the first syllable short and abrupt, the second very long and drawn-out. A third short undertone note preceding the call is often audible at close range. Heard mostly during the short interval between sunset and dark, and then again in a brief burst at earliest dawn before the birds retire for the day. Silent at night except for sporadic calls during moonlight. Several birds answer one another from different directions.

BREEDING. Season, January to May, chiefly February and March. No nest. Egg, a singleton, laid on the bare ground on a bush-covered broken hillside or in thin undergrowth in forest. The same site is said to be occupied year after year. Eggs very variable in colour and markings — from unmarked rich salmon-cream to the same blotched and speckled with chestnut; or cream, densely marbled with brown at one end and clouded with grey elsewhere. Average size of 40 eggs 40·0 × 28·8 mm (Baker).

MUSEUM DIAGNOSIS. Doubtfully distinguishable from 668 except by smaller size. Perhaps a little darker with less buff and more grey on the wings and upper-parts.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	274-285	20-22	c. 21	182-203 mm (HW, SA, Baker)

COLOURS OF BARE PARTS. Iris brown. Bill pinkish brown, nostrils and tips of both mandibles blackish brown. Legs pale pink; toes duskier; claws horny brown.

NOTE. Possibly some form of *Eurostopodus* occurs in the Andaman group of islands. It is claimed to have been seen on Southern Jolly Boy Island by a party including two competent and dependable observers, Dr Stoliczka and Mr Ball (Hume, 1874, SF 2: 162), but no specimen was collected, nor has been since.

Genus *CAPRIMULGUS* Linnaeus

*Caprimulgus* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 193. Type, by tautonomy,

*Caprimulgus europaeus* Linnaeus

Wing long and pointed: 2nd primary (as.) longest, 1st and 3rd slightly shorter. Tail long, graduated. Rictal bristles strong and numerous, generally white at base. Tarsus feathered in some species, naked in others. Sexes alike except that in some species the white patches in the wings and tail of the male are buff or rufous in the female.

Nightjars are soft-plumaged, long-winged, crepuscular and nocturnal birds with longish tails, very short legs and short soft bills with enormous gapes. Plumage overall mottled, vermiculated, barred and streaked with brownish buff, grey, rufous, black and white, blended in a remarkably obliterative or camouflaging pattern. The different species are usually difficult to identify in the field except by their calls chiefly heard in the breeding season, which are distinctive and specifically diagnostic. See Key to the Calls.

## Key to the Species

		Page
A	Greater part or whole of tarsus feathered; back with black streaks and spots .....	1
B	Tarsus almost naked .....	2
1	Four outer pairs of tail-feathers with subterminal white spots in male .....	<i>C. indicus</i> 8
	Two outer pairs of tail-feathers tipped white in male.....a	
a	A white spot on first three primaries in male; tarsi three-quarters feathered .....	<i>C. europaeus</i> 12
	A white spot on first four primaries in male; tarsi feathered all over .....	<i>C. macrurus</i> 16
2	Distinct but narrow black streaks on back..... <i>C. asiaticus</i> 21	
	No distinct black streaks on back..... b	
b	Outer tail-feathers tipped white in male, buff in female .....	
	..... <i>C. mahrattensis</i> 14	
	Outer tail-feathers all white except at tip in male; mottled throughout in female..... <i>C. affinis</i> 23	

## CAPRIMULGIFORMES

## Key to Nightjar Calls

	Page
Series of soft, rapid <i>kooroo, kooroo, kooroo</i> or <i>whoo, whoo, whoo, whoo</i> .....	
..... Ceylon Frogmouth (666)	1
Frequently repeated <i>pee-wheeeoo-wheeeoo-wheeeoo</i> .....	
..... Burmese Great Eared Nightjar (668)	5
Clear double- or 3-noted long-drawn whistle <i>whi-wheeeew</i> .....	
..... Kerala Great Eared Nightjar (669)	6
Long runs of quickly repeated loud <i>chuck-chuck-chuck</i> or <i>chuckoo-chuckoo-chuckoo</i> etc. ....	
..... Himalayan Jungle Nightjar (670)	8
As above, or alternatively runs of <i>Ük-krükroo</i> .. Indian Jungle Nightjar (671)	10
Oft-repeated <i>chuk'm chuk'm chuk'm</i> 'like exhaust-note of small gas engine'	
..... Ceylon Jungle Nightjar (672)	11
Steady whirring notes, and quick-repeated subdued <i>chuck-chuck-chuck</i> as of House Gecko .....	
..... Hume's European Nightjar (673)	12
Soft, long-continued <i>prrrrrrrrrr</i> like Bustard-Quail's drumming .....	
..... Sykes's or Sind Nightjar (674)	14
Loud, resonant <i>chaunk, chaunk, chaunk</i> like hammering on wooden plank .....	
..... Longtailed Nightjar (675)	16
<i>Chuck-chuck-chuck-chuckr-r-r-r</i> , like pelted stone skidding over ice .....	
..... Little Nightjar (680)	21
Single, sharp, penetrating <i>sweesh</i> (or <i>choo-ee</i> or <i>chwees</i> ) like sound of whiplash cutting air.....	
..... Franklin's Nightjar (682)	23

## CAPRIMULGUS INDICUS Latham: INDIAN JUNGLE NIGHTJAR

## Key to the Subspecies

A Upperparts paler; wing c. 172 to 198 mm.....	<i>C. i. indicus</i>
B Upperparts darker .....	1
I Smaller; wing c. 167 to 184 mm.....	<i>C. i. kelaarti</i>
Larger; wing c. 196 to 219 mm	
a More rufous, less grey .....	<i>C. i. hazarae</i>
b More grey, less rufous .....	<i>C. i. jotaka</i>

670. *Caprimulgus indicus hazarae* Whistler & Kinnear

*Caprimulgus indicus hazarae* Whistler & Kinnear, 1935, Jour. Bombay nat. Hist. Soc. 38: 37 (Abbottabad, Hazara, Himalayas)

*Caprimulgus indicus memnon* Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 27 (Blue Mountain, Lushai Hills)  
Baker, FBI No. 1626 (part), Vol. 4: 367

LOCAL NAMES. *Chhippák, Chhappi, Däbchiri, Däbnak* (for all nightjars — Hindi); *Tamor* (Lepcha); *Wapatshai* (all nightjars — Naga); *Dao chuk* (Cachari).

SIZE. Pigeon —; length c. 32 cm (12½ in.).

FIELD CHARACTERS. As for the Genus, q.v. Call diagnostic, see below; also keys to the Species and Subspecies, and Museum Diagnosis.

Female similar to male but tail-feathers mottled throughout and without the white tips. No white spots on primaries; these more or less indicated by smaller rufous spots or patches.

**STATUS, DISTRIBUTION and HABITAT.** Resident, local and altitudinal migrant. The entire Himalayas from Hazara dist. in NW. Pakistan eastward to NEFA (including Nepal, Sikkim, Bhutan). Assam hills north and south of Brahmaputra river, Nagaland, Manipur, Mizo, and East Pakistan; from the foothills to c. 3300 metres. Affects forest glades, and sparsely scrubbed ravines and hillsides contiguous with jungle.

*Extralimital.* Yunnan, Burma, Malay Peninsula — Peters.

**GENERAL HABITS.** Insectivorous, crepuscular, and nocturnal. Roosts in some shady spot during daytime squatted lengthwise on a bough, or on the ground among dry leaves and stones where its coloration obliterates it in an astonishing way. Emerges soon after sunset to hawk winged insects, flying about and sailing erratically above the forest or close to the ground in glades and clearings, performing agile aerial contortions in pursuit of prey. Is fond of squatting in the middle of cross-country earth tracks after dusk, its eyes gleaming ruby in the headlights of an oncoming car, and is adept at dodging clear by flip-flap zigzags when within an ace of being run over. Flight completely silent as in the likewise soft-plumaged owls except for an occasional smack of the wing-tips during the lightning twists and turns. In spite of the very short legs, occasionally runs for short distances, e.g. at the nest site, with a shuffling, waddling gait, often with the wings raised almost vertically back to back.

**FOOD.** Moths, bugs, beetles, and other winged insects captured in the air.

**VOICE and CALLS.** Calling commences as soon as dusk deepens to darkness and, with short breaks, is sustained more or less continuously through the night, ceasing only at dawn. Particularly vocal during moonlight nights in the breeding season. Call normally of two types: (1) a quick-repeated *chuck* (or *tuck*)-*chuck-chuck* (at c. 5 *chucks* in 2 seconds) in unbroken runs of 50 or more, (2) a less rapid *chuckoo-chuckoo-chuckoo* in runs of 3 to 14 (at the rate of about 3 in 2 seconds), the runs repeated monotonously again and again for 3 to 5 minutes at a stretch with an occasional miss of a beat or a pause of a second or two. The *chuckoo* calls sometimes end in a pleasant hollow-sounding *wowowowowowo* fading off in a series of 'intake' whistles reminiscent of an oil-engine conking out. This, according to one observer (A. E. Jones), is while the calling male is chasing another bird, 'probably its mate'.

A third call, *ük-krükroo*, common in the nominate peninsular race (671, q.v.), has curiously enough not been recorded in the Himalayan bird.

**BREEDING.** Season, March to June, principally April and May. No nest. Eggs, 2, white, marbled with primary markings of dark grey or greyish brown, and secondary markings of pale grey; quite different from those of the two other races of *indicus*! Average size of 100 eggs  $30 \cdot 7 \times 22 \cdot 7$  mm (Baker). Both sexes share incubation; incubation period *vide* Baker 16 to 17 days.

**MUSEUM DIAGNOSIS.** See Key to the Species; for details of plumage, Baker loc. cit. Separable from the nominate race (671), in a series, by the general tone of coloration being warmer and browner (less grey); markings on the back heavier; barring on the tail broader. Also, individuals tend to average larger in size.

## MEASUREMENTS

	Wing	Tail
♂ ♂	200–215	124–146 mm
♀ ♀	187–203	126–137 mm (HW, BB, SA)

COLOURS OF BARE PARTS. Iris deep brown. Bill pinkish brown, paler at base and gape. Feet fleshy brown.

671. *Caprimulgus indicus indicus* Latham

*Caprimulgus indicus* Latham, 1790, Index Orn. 2: 588 (India)  
Baker, FBI No. 1625, Vol. 4: 366

LOCAL NAMES. Same as for 670 where applicable. *Kāpoo* (Adivasi Bhils); *Ra chukoo* (Malayalam); *Dēbātā bindhani* (= God's carpenter—Oriya).

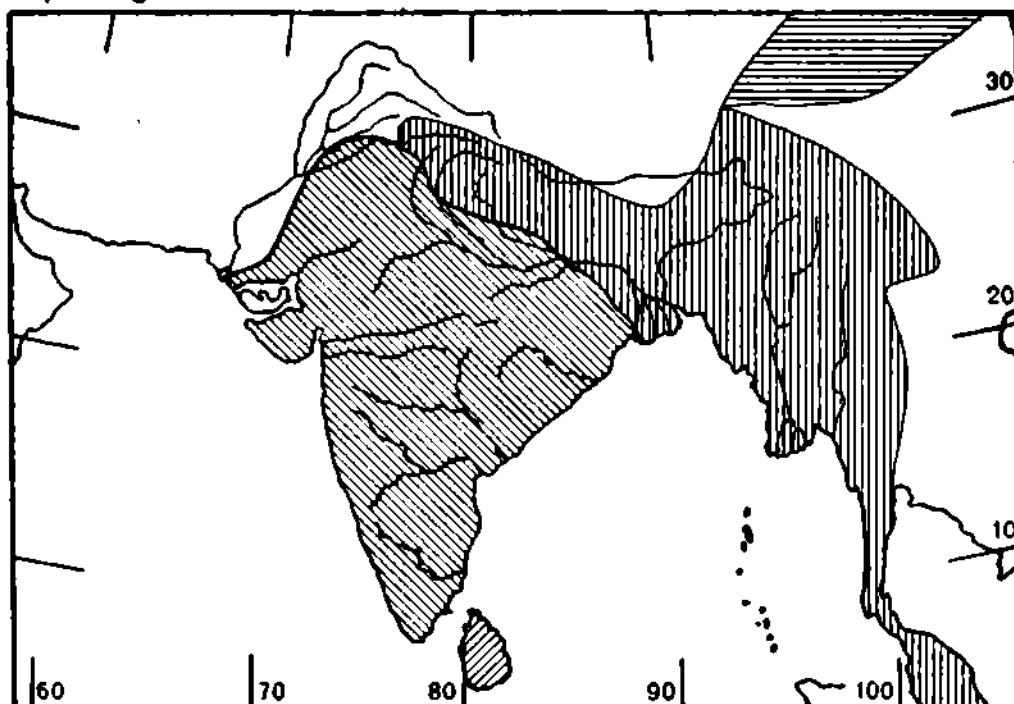
SIZE. Pigeon — ; length c. 29 cm (11½ in.).

FIELD CHARACTERS. As for the Genus, q.v. See keys to the Species and Subspecies, and Museum Diagnosis.

Female differs from male as in 670.

STATUS, DISTRIBUTION and HABITAT. Resident and partial local migrant. Practically all India south of the Himalayas including Kerala. Absent in W. Rajasthan, Kutch, and sub-Himalayan W. Pakistan. Affects open scrub, and dry- and moist-deciduous jungle; from plains level up to c. 2300 m in the peninsular and S. Indian hills. Teak plantations and mixed bamboo forest are favourite haunts.

*Caprimulgus indicus*



*C. i. hazarei* (670).

*C. i. kelaarti* (672).

*C. i. indicus* (671).

*C. i. jotaka* (RE).

**GENERAL HABITS and FOOD.** As in 670, q.v.

**VOICE and CALLS.** In addition to the two calls described under 670, peninsular birds commonly have a third call—a pleasant though rather mournful *ūk-krukroo*, monotonously repeated every two seconds or so, in unbroken runs of a quarter or half hour. It is resumed after a short pause, and continued thus more or less throughout the night, particularly in moonlight. Either the first two calls or the third are uttered at a time (by same or different individuals?); we have not heard one type of call being switched over to the other while a bird is calling. The significance of this alternative call in peninsular birds is not understood. In moonlight, in breeding season, calls all night in long unbroken runs—*chuck-chuck-chuck-chuck* etc.—at about two *chucks* per second, sounding in the distance singularly like the oil engine of a village flour mill.

**BREEDING.** *Season*, February to May, chiefly March and April. No nest. *Eggs*, 2, very similar to those of *C. m. atripennis* (676) and different from those of the Himalayan race; pale creamy to warm buff, spattered irregularly all over with blackish- or reddish brown spots. Laid on the bare ground on a stony hill slope, or in a ravine, sometimes but not always in the shade of a bush. Average size of 38 eggs  $30\cdot4 \times 21\cdot3$  mm (Baker). Both sexes incubate; incubation period undetermined, presumably as in the Himalayan race (670)—16 or 17 days.

**MUSEUM DIAGNOSIS.** See Key to the Species. Compared with *C. i. hazarae*, this race is greyer on the upperparts, more finely streaked on the back, and more narrowly barred on the tail. Juveniles are very different-looking, with much warm brick-rufous suffusion in the plumage.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	174–198	20–24	15–18	125–144 mm
♀ ♀	181–195	20–24	15–18	124–135 mm (SA, HW)

**COLOURS OF BARE PARTS.** Iris brown; fine circumorbital rim yellow. Bill horny brown, yellowish on commissure and gape. Feet pinkish brown; claws pale horny brown.

672. *Caprimulgus indicus kelaarti* Blyth

*Caprimulgus Kelaarti* Blyth, 1852 (1851), Jour. Asiat. Soc. Bengal 20: 175 (Ceylon)  
Baker, FBI No. 1627, Vol. 4: 368

**LOCAL NAMES.** *Bin bassā* (Sinhala); *Pādukāi kūruvi* (Tamil).

**SIZE.** Myna +; length c. 27 cm (10½ in.).

**FIELD CHARACTERS.** As for the Genus, q.v. See keys to the Species and Subspecies, and Museum Diagnosis.

Female differs from male as in 670.

**STATUS, DISTRIBUTION and HABITAT.** Race peculiar to Ceylon. Resident in the Hill Zone; locally distributed throughout the hills to over 6000 ft [c. 1800 m]. More common on the eastern or Uva aspects where the climate is drier (Phillips).

**GENERAL HABITS and FOOD.** As in 670, q.v.

**VOICE and CALLS.** Song described as far-carrying and reminiscent 'of the exhaust note of a small gas engine *chuk'm chuk'm chuk'm chuk'm . . .* repeated for many minutes at a time during the courting season. At close quarters this song has a curious resonant quality, the *chuk* being superimposed, as it were, upon a throbbing drone represented by the *m*. The courting male has also another note which sounds like *hōō hōō hōō hōōteter hōōteter . . .* uttered in flight with wings held high and steady, and tail widely expanded and canted to one side or the other, exposing the white tips of the four outer feathers' (Henry). Cf. *wowowowowowo* under 670.

**BREEDING.** Season, February/March to June/July. Eggs, 2, smaller replicas of those of the Indian bird (671); also laid without nest on bare stony ground in similar sites. Average size of 12 eggs  $28 \cdot 1 \times 20 \cdot 7$  mm (Baker).

**MUSEUM DIAGNOSIS.** See Key to the Species. Smaller than the nominate race (671) with the tail perhaps darker and more heavily barred.

#### MEASUREMENTS

	Wing	Tail
2 ♂♂	174–180	126 mm
1 ♀	174	116 mm
(HW)		

Weight 1 o? 69 g (SDR).

**COLOURS OF BARE PARTS.** As in 671.

672a. *Caprimulgus indicus jotaka* Temminck & Schlegel  
(See Appendix, p. 259)

#### 673. Hume's European Nightjar. *Caprimulgus europaeus unvini* Hume

*Caprimulgus unvini* Hume, 1871, Ibis: 406 (Agrore Valley and in the neighbourhood of Abbottabad. The specimens listed as types in the Cat. Bds. Brit. Mus. are from the former locality)

Baker, FBI No. 1619, Vol. 4: 359

**LOCAL NAMES** for all nightjars: *Chippāk*, *Chhdppā* (Hindi); *Chapāki* (Punjab Salt Range); *Patāk* (Rawalpindi dist.).

**SIZE.** Myna +; length c. 25 cm (10 in.).

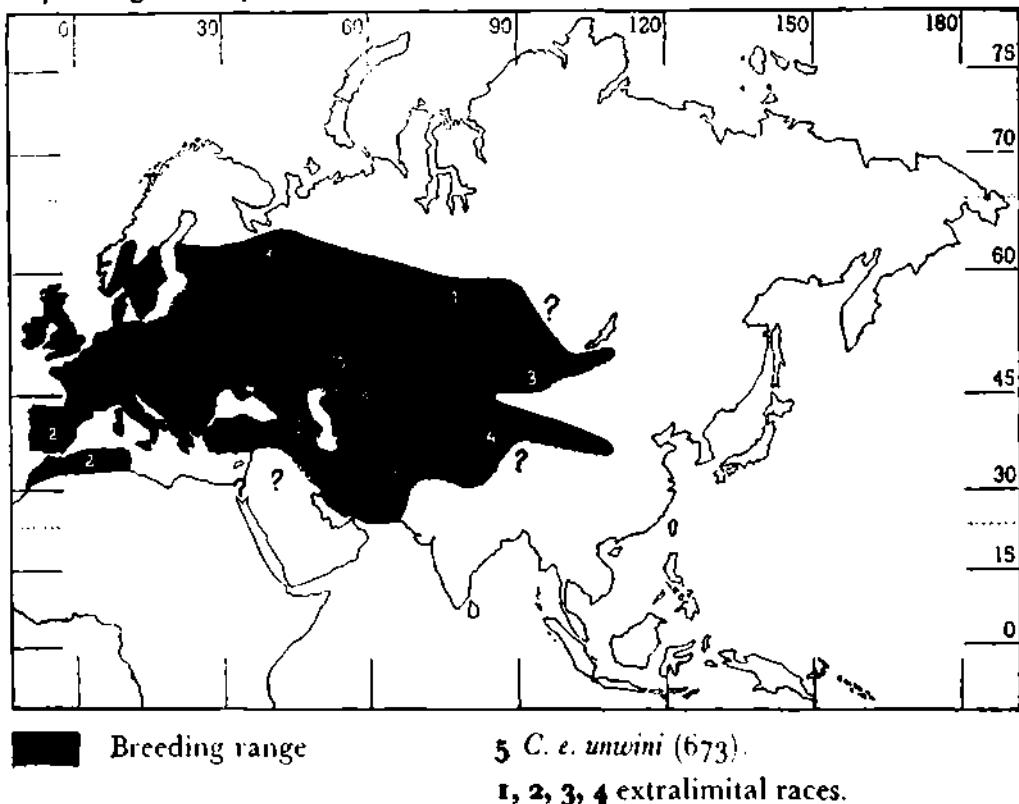
**FIELD CHARACTERS.** As for the Genus, q.v. A small greyish brown nightjar. See keys to the Species and Calls, and Museum Diagnosis.

Female similar to male but with no white on the tail; the white wing-bar is replaced by buff, sometimes whitish in centre sometimes profusely marked with dark brown.

**STATUS, DISTRIBUTION and HABITAT.** Summer visitor and passage migrant (April/May to August/September) to West Pakistan, breeding in the lower hills and valleys of the mountain ranges, between c. 1600 and 2800 m, in C. and N. Baluchistan (Kalat, Quetta, Ziarat, Chaman, etc.) and in the Afghan frontier areas (Peshawar and Rawalpindi dists., Kurram Valley, Thal, etc.) north to Gilgit. Probably also in Kashmir, but no breeding record east of Murree. Obtained at Skardu, Baltistan by Meinertzhagen in August (status?). Fairly common and abundant as a transient on autumn passage (c. September) in southern Makran, Sind, and Kutch which lie on the easternmost fringe of the known migration route from Afghanistan,

NW. Pakistan, etc. over Arabia to its winter quarters in Africa. The bulk evidently by-passes these areas on northward passage in spring (c. April) since the bird is rare in Sind at that season, and apparently absent in Kutch. Stragglers have been recorded in Jodhpur (Rajasthan) and Bombay City in October, and as far east as Gorakhpur in Uttar Pradesh (c. 83°E.) in January. Affects sparsely forested and open hillsides with *Dodonoea*, *Gymnosporia* and suchlike bushes.

***Caprimulgus europaeus***



**Extralimital.** Breeds also from the eastern shores of the Caspian Sea east to Kuldja and the Khangai Mountains, south to Persia and probably S. Afghanistan. Winters in eastern Africa from the Sudan south to Natal.

**GENERAL HABITS.** As in 670, q.v. In summer (on breeding ground) met with singly or in pairs; on autumn migration passage sometimes in loose parties or flocks of 6 to 20 (or more) roosting on stony scrubland in daytime, flying about erratically hawking winged insects at dusk, freely perching on telegraph posts and wires where available. On account of its swift and agile zigzag flight when chased, apparently is (or was, in the heyday of falconry?) much prized by the local sporting gentry in the Punjab as a quarry for trained hawks.

**FOOD.** Moths, crickets, grasshoppers, dung beetles (Ceridae) and other insects.

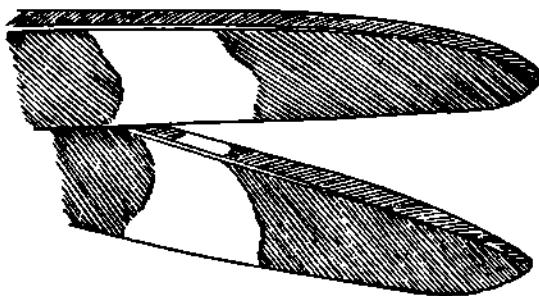
**VOICE and CALLS.** In summer described as a steady whirring note uttered both on the ground and from a bush or tree; call on the wing as very similar to that of Franklin's Nightjar (*C. a. monticola*), a sharp *choo-ee* or *sweeesh*. A low chuckle when flushed during daytime (H. W. Waite).

## CAPRIMULGIFORMES

While a transient on passage, an occasional quick-repeated rather subdued chuck-chuck-chuck-chuck etc. of the quality and volume of a House Gecko's call (*Hemidactylus*), but faster (SA).

**BREEDING.** Season, May to July, principally June. No nest. Eggs, 2, laid on bare ground on the side of a stony hill or ravine, under shelter of a bush; somewhat variable, chiefly white or pinkish white, spotted with black all over the surface, with underlying secondary blotches, scrawls and smears of pale lavender-grey. Unconfusable with eggs of *C. a. monticola* or *C. mahrattensis* often found in the same localities. Average size of 44 eggs  $29.9 \times 21.2$  mm (Baker). Share of the sexes in the domestic chores, and incubation period, unrecorded.

**MUSEUM DIAGNOSIS.** See Key to the Species. Differs from the nominate race of Europe (for description of whose plumages etc. see Witherby, 1938, 2: 254-6) in being slightly paler and greyer. The white marks on the first three primaries of the male extend further, reaching the shaft of the feathers and often extending to the outer web. Female greyer and sandier than in *europaeus*.



1st and 2nd primaries of ♂,  $\times c. 1$ .  
(After Hartert)

**Chick (in down).** 'Almost completely clothed with down. General colour pale isabelline, paler than in *europaeus*; dark spots on head, wings and thighs black not brown as in *europaeus*' (Ticehurst).

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	172-192	c. 9-10	c. 16-17	(117) 125-144 mm (Baker, SA)

**COLOURS OF BARE PARTS.** Iris dark brown. Bill black. Legs and feet fleshy- or reddish brown.

673a. **Egyptian Nightjar.** *Caprimulgus aegyptius arenicolor* Severtzov  
(See Appendix, p. 259)

674. **Sykes's Nightjar.** *Caprimulgus mahrattensis* Sykes

*Caprimulgus Mahrattensis* Sykes, 1832, Proc. Zool. Soc. London: 83 (Mahrattas [?])

Baker, FBI No. 1628, Vol. 4: 369

Plate 45, fig. 2, facing p. 32

**LOCAL NAMES.** *Chhippāk*, *Chhappa* (all nightjars — Hindi); *Shapkor* (Baluchi).

**SIZE.** Myna  $\pm$ ; length c. 23 cm (9 in.).

**FIELD CHARACTERS.** As for the Genus, q.v. A small sandy grey semi-desert haunting nightjar, finely vermiculated above with wavy bars of light brown. See Key to the Species.

Female similar to male but with the spots on primaries smaller and fulvous-tinged; tail-spots fulvous, often somewhat vermiculated with brown.

**STATUS, DISTRIBUTION and HABITAT.** Resident in W. Pakistan (Sind, Baluchistan [including coastal and central Makran], Afghan frontier districts); apparently only summer visitor (breeding) in some parts, e.g. Punjab Salt Range; in the plains and at moderate elevations up to c. 500 m in the arid hills. Breeds in Kutch; possibly also Saurashtra, Rajasthan and N. Gujarat. Widely but sparsely distributed in winter, straggling to W. Khandesh, Deccan (Ahmadnagar, Nasik), Konkan (Kalyan, Ratnagiri), south to N. Mysore (Belgaum). Recorded also from Simla and Delhi; not farther east than c. 77°E.<sup>1</sup> Affects environs of semi-desert cultivation, and stony wasteland cut up by dry torrent beds—sometimes sand dunes in pure desert dotted with sparse xerophytic bushes (*Capparis aphylla*, *Salvadora oleoides*, etc.) In winter frequently flushed in daytime from foot of grass tussocks on dried-up borders of jheels.

**Extralimital.** Afghanistan, SE. Iran.

**GENERAL HABITS.** As in 670 and other nightjars. 'More crepuscular than others of the genus; never sits on a tree' (T. R. Bell, c. 1905, Sind MS.). Sometimes found right out in rolling sandy desert, roosting in daytime in the shelter of a scraggy thorn bush topping a wind-rippled dune. In Sind has been observed coming out from the desert at dusk to hawk over a grassy swamp.

**FOOD.** Melolonthid beetles and other dusk-flying insects.

**VOICE and CALLS.** 'Very like that of a frog, heard after sunset' (Nicol Cumming, Baluchistan). 'A long-continued purr like that of a Bustard-Quail (*Turnix taigoor*) — prrrrrrrrr — but in a higher key, and softer. Always uttered when settled on ground' (T. R. Bell, Sind). A low, soft chuckle — cluck cluck — when flushed during daytime.

**BREEDING.** Season, overall February to August, mainly March to May. No nest. Eggs, 2, laid on bare stony ground in arid hummocky country or on salt-encrusted pâts or kâllâr in semi-desert in the shelter of a *Capparis* or suchlike bush; also on tamarisk-covered sandy aits in the Indus (in Sind). Ground colour greyish white mottled all over with dark grey or brownish grey, and with secondary clouds of pale grey. Readily distinguished from other nightjars' eggs by general pattern of coloration — densely mottled grey rather than definitely marked or spotted. Average size of 36 eggs 28.8 × 20.9 mm (Baker). Incubation evidently by both sexes; period undetermined.

**MUSEUM DIAGNOSIS.** See Key to the Species. For details of plumage see Baker, loc. cit. 'In females the white spots on the three outer primaries are smaller and more suffused with buff than in males, especially on the third feather; the two outer tail-feathers entirely lack the white tips of the male, and have a buffish spot on the outer feather, or the two outer feathers, or no spot at all' (Ticehurst).

**Chick (in down).** 'General colour whitish isabelline and so rather paler than *unwini* [673]; dark marks less pronounced than in *unwini*, but in the same positions' (Ticehurst).

<sup>1</sup> A. E. Osmaston's specimen from Gorakhpur, U.P. c. 83°E. (JBNHS 32: 541) is really a juvenile of *C. a. monticola* (vide Whistler, ibid. 38: 38), and Baker's record of a straggler in 'Purnea, W. Bengal' cannot be verified.

## CAPRIMULGIFORMES

## MEASUREMENTS

Wing	Bill (from skull)	Tarsus	Tail
c. 157–173	c. 18–20	c. 18–22	100–104 mm
Weight 1 ♂ 58, 1 ♀ 56 g (BNHS).			(Baker, SA)
COLOURS OF BARE PARTS. Iris dark brown. Bill brown, pinkish at base, gape, and on commissure. Legs and feet pale fleshy brown; claws black.			

## CAPRIMULGUS MACRURUS Horsfield: LONGTAILED NIGHTJAR

## Key to the Subspecies

Page

Smaller; wing under 190 mm .....	1
Larger; wing over 190 mm .....	2
1 Black streaks on crown largely confined to centre .....	<i>C. m. atripennis</i> 18
Black streaks on crown more widely scattered .....	<i>C. m. andamanicus</i> 20
2 Upperparts paler .....	<i>C. m. albonotatus</i> 16
Upperparts darker .....	<i>C. m. bimaculatus</i> 19

cf. Mees, G. F., 1977, Zool. Verh., No. 155: 1–49

675. *Caprimulgus macrurus albonotatus* Tickell*Caprimulgus Albonotatus* Tickell, 1833, Jour. Asiat. Soc. Bengal 2: 580  
(Dampara, Dholbhum, Bengal) [Now in Chaibasa dist., Bihar]*Caprimulgus nepalensis* Hartert, 1892, Cat. Bds. Brit. Mus. 16: 540 (*ex* Hodgson MS., a *nomen nudum* cited in synonymy of *C. albonotatus* by Hodgson, 1844, in Zool. Misc.: 82)*Caprimulgus macrourus hodgsoni* Baker, 1930, Fauna Brit. Ind., Bds., ed. 2, 7: 372.  
New name for *Caprimulgus nepalensis* Hartert, not available*Caprimulgus macrurus noctuvigilus* Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 26 (Bhadwar, Kangra dist., Punjab)  
Baker, FBI Nos. 1623–4, Vol. 4: 364–5LOCAL NAMES. *Ita kholi* (Assam); *Dao chuck* (Cachari); *Chupka* (all nightjars — Bihar).

SIZE. Pigeon ±; slenderer. Length c. 33 cm (13 in.).

FIELD CHARACTERS. As for the Genus, q.v. A medium-sized brownish buff forest nightjar of remarkably camouflaging plumage. See keys to Species and Subspecies, and Calls.

Female. Similar to male but with tips of outer tail-feathers pale yellowish buff instead of white as in the races *atripennis* and *aequabilis* (676, 677).

STATUS, DISTRIBUTION and HABITAT. Resident and partially migratory. The Himalayan foothills up to c. 1800 m altitude (locally to c. 2200 m) in summer, and the submontane tract (terai, bhabar, dun, and duar) from Punjab through Himachal Pradesh, Garhwal, Kumaon, Nepal, Sikkim, Bhutan, and NEFA; Assam north and south of Brahmaputra river, and northern Nagaland. Distribution on western side south of sub-Himalayan Punjab (N. Maharashtra etc.) uncertain. Occurs in appropriate



PLATE 44

1 *Eurostopodus macrotis*, Great Eared Nightjar (669). 2 *Batrachostomus moniliger*, Ceylon Frogmouth (666). 3 *Chaetura gigantea*, Large Brownthroated Spinetail Swift (691). 4 *Harpactes fasciatus*, Malabar Tropicbird (711). 5 *Chaetura sylvatica*, Whiterumped Spinetail Swift (692). 6 *Clamator coromandus*, Redwinged Crested Cuckoo (569). 7 *Centropus toulou*, Lesser Coucal (605) immature.



biotope in the Gangetic Plain east through Bihar to W. Bengal and E. Pakistan, Orissa and northern Andhra (in the E. Ghats) south to c. 18°N. lat. (Anantgiri), the population hereabouts being largely intermediate with the southern *atripennis* (676). Affects shady wooded nullahs in sal and moist-deciduous forest.

**GENERAL HABITS.** Crepuscular and nocturnal. Normally keeps singly or in pairs, squatting in daytime amongst dry leaves and debris in a shady nullah, astonishingly camouflaged in such surroundings. Occasionally a dozen or more birds may be flushed from a favourite spot, or be seen hawking in a rabble at dusk, like swallows, over a forest glade or clearing. Perches freely on trees, across a twig as well as lengthwise along a thicker bough, commonly calling from such positions or from the tip of a bare upright stem, silhouetted against the moonlit sky. Habitually squats in the middle of paths and forest roads, flying up and sailing around every now and again to hawk over the adjacent clearings in agile zigzag aerobatics, and sailing back to the same spot after each sortie. Sometimes even hovers in the air momentarily, and is capable of shuffling rapidly on the ground for a few paces when occasion demands. Rises abruptly from almost under an observer's foot, flying with silent wing flaps in front and squatting in his path again a short way ahead; will often do this repeatedly as the stroller advances. The eyes of the squatting bird gleam crimson-pink in the headlights of an oncoming car; it is expert at dodging clear in the nick of time by swift flip-flap turns and twists on the wing, but occasionally comes to grief.

**FOOD.** Moths, beetles, and other dusk- and night-flying insects. Among stomach contents the following specifically identified: *Catharsius sabaeus*, *Onitis philemon*, *Onthophagus bonasus*, *Apogonia carinata*, *Astycus lateralis*, *Tanytacus* sp., *Vespa orientalis*, *Opatrum* sp., coprid and carabid beetles, and hemipteran bugs (Mason & Lefroy, 1912).

**VOICE AND CALLS.** A distinctive, loud and resonant *chaunk, chaunk, chaunk, chaunk*, etc. reminiscent in the distance of heavy blows of a hammer or adze on a wooden plank; uttered from ground or tree. The calls are prefaced by hoarse croaks like a bullfrog's (*Rana tigrina*), the initial runs being of 2 to 4 quickly repeated *chaunks*, as if the bird was tuning up. The calling soon settles down to sustained runs of 50 *chaunks* or more each at the rate of about 5 *chaunks* in 4 seconds. With brief pauses, it is kept up almost incessantly from soon after dusk to dawn, the birds being particularly noisy during the breeding season.

**BREEDING.** Season, principally March to May. No nest built. Eggs, normally 2, laid in a scrubby nullah on the bare ground or a few dry leaves scraped together: pale creamy to deep rich salmon-buff, speckled and spotted with ashy grey and dull reddish brown. Average size c. 32 × 23 mm. Both sexes share in incubation; period undetermined.

**MUSEUM DIAGNOSIS.** See keys to the Species and Subspecies. In freshly killed birds three white or whitish bands on upperside of wing formed by the tips of greater, median, and longest lesser coverts conspicuous; in museum skins where wing cannot be pulled open, these less prominent.

**Young** (described from a juv. ♂, Nepal). Throat rufous; bars on abdomen and vent finer; tips of outer tail-feathers white on inner web and rufous on outer; spots on the primaries rufous (Biswas).

## CAPRIMULGIFORMES

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	207-228	20-24	19-21	146-179 mm (HW, SA, BB)

COLOURS OF BARE PARTS. Iris brown. Bill dark brown at tip, fleshy brown to reddish on base, commissure, and gape. Feet reddish to purplish brown; soles pinkish flesh.

676, 677. *Caprimulgus macrurus atripennis* Jerdon

*Caprimulgus atripennis* Jerdon, 1845, Ill. Ind. Orn., pl. 24  
(Eastern Ghats to west of Nellore)

*Caprimulgus macrurus aequabilis* Ripley, 1945 Bull. Brit. Orn. Cl. 65: 40  
(Trincomalee, NE. Ceylon)  
Baker, FBI No. 1620, Vol. 4: 361

LOCAL NAMES. All nightjars: *Askapprigādu* (Telugu); *Pādukāi kūrūvi, Pādūngi* (Tamil); *Rā kili, Rā chaunkan* (Malayalam).

SIZE. Pigeon —; slenderer. Length c. 28 cm (11 in.).

FIELD CHARACTERS. As for the Genus and 675, q.v. See Keys and Museum Diagnosis.

Female has tips of outer tail-feathers white as in male (*contra albonotatus*, q.v.).

STATUS, DISTRIBUTION and HABITAT. Resident. Peninsular India (S. Maharashtra, Andhra, Mysore, Tamil Nadu, Kerala) roughly south of lat. 18°N., the northern and southern populations grading into one another. Affects evergreen and moist-deciduous biotope — partial to shady nullahs in mixed bamboo forest and secondary scrub jungle; chiefly foothills and up to c. 2000 m.

GENERAL HABITS and FOOD. As in 675, q.v.

VOICE and CALLS. A loud liquid chuckling *Auroo* or *Averoo* repeated every 2 seconds or so in runs of 15 minutes plus, throughout moonlit nights (SA). Rendered by Henry (in Sri Lanka) as 'a curious grog, groggrog' and the 'song' as 'a loud coughing bark *quoffrr . . . quoffrr* (!) repeated at intervals throughout the night, especially in moonlight'.

BREEDING. Season, overall March to July; mainly March and April. In Sri Lanka February to May, chiefly April, with a secondary season in August-September. Eggs, 2 typical of the nightjars' broad ellipse. Cream or pale salmon-coloured ('pale coffee' — Betts) boldly blotched and spotted with black. Laid on bare ground in a scrub-covered nullah. Size c. 30 × 22 mm (Baker). Both sexes incubate; period undetermined. Chick (clad in cinnamon down) capable of crawling away and hiding under leaves on alarm almost from the time of hatching.

MUSEUM DIAGNOSIS. See Keys; for details of plumage, Baker loc. cit.

YOUNG (immature) like female but with primaries much more barred with rufous, the notches and bars almost entirely disappearing in old birds.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	168-189	20-24	16-19	121-133 mm (SA, HW, Koelz)

Weight 1 ♂ 74 g (SA).

COLOURS OF BARE PARTS. Iris brown; fine circumorbital ring yellow. Bill horny brown, yellowish on commissure and gape. Feet pinkish brown; claws pale horny brown.

### 678. *Caprimulgus macrurus bimaculatus* Peale

*Caprimulgus bimaculatus* Peale, 1848, U. S. Expl. Exped. 8: 170 (Singapore)

*Caprimulgus macrurus ambiguus* Hartert, 1896, Ibis: 373 (Malay Peninsula, Burma, Assam, and the eastern Himalayas. Restricted to southern Tenasserim by Kloss, 1918, Ibis: 95-6)

*Caprimulgus macrurus silvanus* Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 26 (Kohima, Naga Hills)  
Baker, FBI No. 1621 (part), Vol. 4: 363

LOCAL NAMES. None recorded.

SIZE. Pigeon ± ; slenderer. Length c. 33 cm (13 in.).

FIELD CHARACTERS. As for the Genus and 675, q.v. See Keys and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Southern Nagaland, Manipur, Mizo, and possibly the Chittagong Hill Tracts in E. Pakistan; from the foothills to c. 2400 m. Affects secondary scrub jungle, bamboo forest and open semi-cultivation.

## CAPRIMULGIFORMES

*Extralimital.* Burma and southern Yunnan, south to Tenasserim, Thailand and the Indochinese countries.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 675 and other races, qq.v. 'A chuckle resembling *Orch...orch, orch, orch* often precedes the usual *chaunking* call; another resembling *chock-a-chock* frequently uttered on the wing' (H. C. Smith, Burma).

**BREEDING.** Season, February to April, mainly March. Eggs, 2, normally pale yellowish creamy to warm pinkish buff, faintly blotched with lavender-grey or reddish grey. Average size of 60 eggs  $31.3 \times 22.6$  mm (Baker).

**MUSEUM DIAGNOSIS.** See Key to the Subspecies. Size as in *albonotatus* (675), but very dark in overall tone. Doubtfully distinct from *C. m. bimaculatus* of Malay Peninsula, Sumatra, etc.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	195-223	c. 9-10	c. 19-20	168-181 mm (Baker)

**COLOURS OF BARE PARTS.** As in 675.

679. *Caprimulgus macrurus andamanicus* Hume

*Caprimulgus andamanicus* Anonymous = Hume, 1873, Stray Feathers 1: 470

(Jolly Boys Island, Andaman Islands)

Baker, FBI No. 1622, Vol. 4: 363

**LOCAL NAMES.** None recorded.

**SIZE.** Pigeon — ; slenderer. Length c. 28 cm (11 in.).

**FIELD CHARACTERS.** As for the Genus and 675, qq.v. See Keys and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident; common in Middle and South Andaman Is. Apparently not yet recorded south of Macpherson Strait.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 675 and other races, qq.v. Roosts during daytime among leaves on the forest floor, flighting out at dusk to hawk over mangrove swamps (Abdulali, 1964, JBNHS 61: 536).

**BREEDING.** Season, chiefly March-April. Eggs, 2, yellowish buff to deep salmon, blotched and spotted with blackish. Average size of 32 eggs  $28.8 \times 21.9$  mm (Baker). Incubation by both sexes. 'Brooding bird when disturbed flew a few yards and kept moving about, raising wings and opening mouth' (Osmaston). If eggs removed, lays a second time within a yard or two of the same spot in 3 or 4 weeks, but not a third time (P. F. Wickham).

**MUSEUM DIAGNOSIS.** See Key to the Subspecies. Very similar to peninsular *atripennis* (676) but with the longitudinal black spots on crown more widely scattered and not confined to the centre. Pale markings on the wings usually more rufous.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	172-186	c. 10-11	16-17	125-130 mm (Baker)

COLOURS OF BARE PARTS. As in 676.

CAPRIMULGUS ASIATICUS Latham: INDIAN LITTLE NIGHTJAR

**Key to the Subspecies**

Larger: wing c. 138 to 158 mm, tail c. 96 to 119 mm.....

*C. a. asiaticus*

Smaller: wing c. 132 to 148 mm, tail c. 95 to 113 mm..*C. a. eidos*

680. *Caprimulgus asiaticus asiaticus* Latham

*Caprimulgus asiaticus* Latham, 1790, Index Orn. 2: 588 (India = Bombay)

*Caprimulgus asiaticus gurgaoni* Koelz, 1939, Proc. Biol. Soc. Washington 52: 80  
(Hattin, Gurgaon, Punjab [= Haryana])

Baker, FBI No. 1630, Vol. 4: 372

**Plate 46, fig. 5, facing p. 64**

LOCAL NAMES. As for other nightjars generally, qq.v. *Chāpka* (Hindi); *Dēshi chhāpo* (Gujarati).

SIZE. Myna ±; length c. 24 cm (9½ in.).

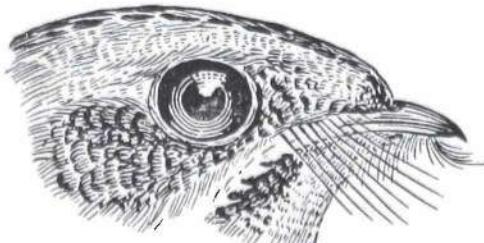
FIELD CHARACTERS. As for the Genus, q.v. A small-sized nightjar, narrowly but distinctly black-streaked above. Sexes alike. See Call; also Keys and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. The most abundant and widely diffused nightjar of our area. West Pakistan (Sind, Punjab, Waziristan) and the entire Indian Union south of the Himalayan submontane belt (Nepal terai, Sikkim and Bhutan duars?) throughout the Peninsula south to Kanyakumari and Rameswaram I., east to Assam (N. Cachar) and East Pakistan (Comilla). A specimen collected at Mipi in the Dibang Valley (c. 1500 m alt.), SE. Tibet, on 13.v.1913 by F. M. Bailey (JBNHS 24: 76). Mainly resident;

seasonal visitor to some parts. Local movements not yet worked out, the absence of calling during non-breeding season adding to the difficulties of investigation. Largely restricted to dry deciduous biotope; plains and hummocky foothills country; locally up to c. 1500 m in the outer Himalayas and peninsular hill ranges. Affects thin scrub jungle and fallow land with euphorbia hedges and thickets, and stony nullahs — usually in the neighbourhood of cultivation. Young forest plantations (teak etc.), and rambling jungly gardens in rural localities, are also favourite haunts.

Extralimital. Plains of Burma, southern Thailand, and southern Indo-chinese countries.

GENERAL HABITS. As of other nightjars, qq.v. Crepuscular and nocturnal; keeping in pairs or loose family parties, emerging from daytime retreat at



× c. 1

dusk, squatting in the middle of dusty cross-country roads or on milestones, fence posts and the like, and calling. Habitually squats in the middle of cart tracks and kutchha motor roads for dusting or as hunting bases.

**FOOD.** Moths (Heterocera), beetles (Coleoptera), bugs (Hemiptera) and other dusk-flying insects. Specifically recorded among stomach contents are dung beetles (*Onthophagus* spp.), water beetles (Dysticidae), and crickets (*Gryllus* spp.).

**VOICE and CALLS.** A familiar, rather ventriloquistic *chuck-chuck-chuck-chuck-r-r-r* usually uttered from some elevated perch such as a stake or stone. To those acquainted with icy conditions, call aptly reminiscent of a stone skipping along a frozen pond as in the game known as 'ducks and drakes'. Repeated monotonously with short breaks for hours on end, most vigorously after dusk and at early dawn, especially during the breeding season when two birds or more in the distance will frequently answer one another. Also particularly vocal during moonlight nights. While calling the whole bird 'vibrates' from head to tail. A low chuckle — *chük-chük* — during the silent (non-breeding) period, chiefly on the wing.

**BREEDING.** Season not well defined; chiefly between February and September, the peak periods variable locally. No nest built. *Eggs*, 2, laid on the bare ground in thin bamboo jungle or open scrub country — even in jungly compounds in mofussil towns; long cylindrical ovals, normally cream coloured or pale pink to salmon, spotted and blotched with reddish brown and inky purple. Average size of 100 eggs  $26.5 \times 19.9$  mm (Baker). Evidently both sexes share incubation; period undetermined.

**MUSEUM DIAGNOSIS.** See Keys; for details of plumage Baker, loc. cit.

As noted by Whistler (JBNHS 38: 38) there are at least three distinct colour phases — pale sandy, brown, and grey — apparently adapted ecologically, the pale sandy birds coming mostly from the north-west, the grey birds mostly from the Deccan, and the brown birds from other localities. The phases grade into each other, and there are so many exceptions besides that attributing subspecific significance to them is dubious. (Cf. Koelz's *C. a. gurgaoni* from the Punjab described by its author as 'very much paler throughout' than S. Indian birds.)

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	138-158	17-19	c. 20-22	96-119 mm (Baker, HW, SA)

Weight 1 ♂ 46, 1 ♂ 42 g (SA).

**COLOURS OF BARE PARTS.** Iris brown; fine circumorbital ring yellow. Bill horny brown, yellowish on commissure and gape. Legs and feet pinkish brown; claws pale horny brown.



681. *Caprimulgus asiaticus eidos* Peters

*Caprimulgus asiaticus eidos* Peters, 1940, Checklist of Birds of the World, 4: 211. New name for *Caprimulgus asiaticus minor* Parrot, 1907, Orn. Monatsb. 15: 170 (Vavuniya, Northern Ceylon). *Nec Caprimulgus minor* J. R. Forster Baker, FBI No. 1630 (part), Vol. 4: 372

LOCAL NAMES. All nightjars: *Bin bassā* (Sinhala); *Pādukāi kūrūvi*, *Kuruttu pākshi* (Tamil).

SIZE. Myna ±; length c. 24 cm (9½ in.).

FIELD CHARACTERS. As for the Genus q.v., and 680. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Doubtfully distinct from South Indian birds of the nominate race. 'Resident. Common and widely distributed in suitable scrub country throughout the Dry zone, but not so plentiful in the Wet zone. Ascends the hills to about 3000 ft (c. 1000 m) in some districts' (Phillips).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 680, q.v.

BREEDING. Season, January to October, but chiefly March to May, and again in September (Phillips). Eggs, 2, as in 680; size c. 27 × 20 mm.

MUSEUM DIAGNOSIS. Differs from south Indian birds only in smaller size; doubtfully also in tint of upperparts which seem somewhat darker and browner and colder in tone. But race perhaps redundant.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	132–148	18–19	18–22	95–113 mm (HW)

COLOURS OF BARE PARTS. As in 680.

682. Franklin's, or Allied, Nightjar. *Caprimulgus affinis monticola* Franklin  
*Caprimulgus monticolus* Franklin, 1831, Proc. Zool. Soc. London: 116  
(Ganges between Calcutta and Benares)

*Caprimulgus monticolus burmanicus* Baker, 1931, Bull. Brit. Orn. Cl. 51: 102  
(Upper Chindwin, Burma)  
Baker, FBI No. 1629, Vol. 4: 370

LOCAL NAMES. For all nightjars: *Chhippāk*, *Chhappa*, *Dābchiri* (Hindi); *Tamor* (Lepcha).

SIZE. Myna +; length c. 25 cm (c. 10 in.).

FIELD CHARACTERS. As for the Genus, q.v. See Key to the Species and Museum Diagnosis. When squatted, a buff-coloured V extending roughly from shoulders to half-way down back is conspicuous.

Female has no white on tail-feathers which are all barred throughout; spots in the middle of first four primaries rufous-buff *contra* white in male.

STATUS, DISTRIBUTION and HABITAT. Common and widely diffused, but rather local. The submontane Himalayas (terai, bhabar, duns, and duars) from W. Pakistan and Punjab eastward to Assam (including Nepal, Sikkim, and Bhutan), normally up to c. 1200 m alt. (Garhwal etc.), exceptionally

c. 1800 to 2400 (Simla hills — Jones, JBNHS 29: 286); also Assam south of Brahmaputra river, Nagaland, Manipur, Mizo and E. Pakistan. South through Rajasthan, Kutch, Saurashtra and Gujarat, eastward and southward throughout the peninsula to Bengal and Kerala. Mainly resident; described in many parts as summer visitor (April to July) or passage migrant (sometimes loose flocks of 7 or 8); thus in Rajasthan (Mt Abu), Punjab (Salt Range and Ambala dist.), Delhi State, Madhya Pradesh (Mhow neighbourhood), U.P. (Ghazipur dist.) and other localities. But local movements unclear, the absence of ringing data and of the bird's diagnostic calls during non-breeding season adding to the uncertainties. Affects bare, sparsely scrubbed hillsides cut up by nullahs with thorn scrub and stunted trees, and dry stony stream-beds interspersed with outscoured aits covered with pampas grass and thorny bushes. Also light deciduous forest and grassland with outcrops of sheet rock here and there, and thin jungle in the neighbourhood of cultivation.

*Extralimital.* Burma, Thailand.

**GENERAL HABITS AND FOOD.** Not significantly different from 670, 675, and other nightjars, qq.v. Crepuscular and nocturnal. Drinks regularly at forest pools on emergence from daytime retreat at sundown, flying over the water and dipping down to it like a swallow. Possibly water also conveyed to downy young by wetting underplumage in this way. Appears at dusk and flies high, sailing up and down over forest, cultivation, and dry watercourses, occasionally alighting on a tree-top or squatting on the ground.

**VOICE AND CALLS.** Distinctive and diagnostic: a loud, sharp and penetrating single note *sweesh* (rendered also as *choo-ee* or *chwees*) reminiscent of the sound of a whiplash cutting the air. Uttered at intervals of 4 or 5 seconds off and on all through the night from a perch as well as on the wing. The calls commence even before dark and often continue till after dawn in the breeding season; the birds particularly vocal on moonlight nights. A low chuckle when flushed during daytime. Another call, not heard by us or recorded by other observers, has been described by a reliable Madhya Pradesh ornithologist (E. A. D'Abreu, JBNHS 28: 806) as *wakh, wakh, wakh wakhoo*, apparently uttered in the breeding season. This call needs verification.

**BREEDING.** Season, overall March to August, chiefly March, April and May but the peak periods vary with locality. No nest built. Eggs, 2, laid on the bare ground in the shelter of a grass tuft in dry watercourses or scanty deciduous forest, and in similar locations: pale salmon pink to rich deep salmon, spotted and blotched with deep red and red-brown, with underlying marks of lavender-pink. Average size of 40 eggs  $30\cdot2 \times 22\cdot4$  mm (Baker). Both sexes share incubation; period undetermined.

**MUSEUM DIAGNOSIS.** See Key; for details of plumage Baker, loc. cit.

**Chick (in down).** Pinkish brown (H. W. Waite).

**MEASUREMENTS**

Wing	Bill (from skull)	Tarsus	Tail
17 ♂♂ 181-205 }	19-20	18-21	108-124 mm
23 ♀♀ 179-202 }			(HW, SA, BB)

**COLOURS OF BARE PARTS.** Iris dark brown; fine circumorbital ring dull yellow. Bill brownish black, paler at gape; mouth greyish pink. Legs and feet fleshy brown; claws black.

### Order APODIFORMES

For morphology and characters see Stresemann, E., 1927-1934, *Aves*: 834-9 (Macrochires); Witherby *et al.*, 1938, 2: 242; Baker, 1927, 4: 322 (Suborder Cypseli); Van Tyne, J. & Berger, A. J., 1959: 465.

See also David Lack, 1956, 'A Review of the Genera and Nesting Habits of Swifts.' *Auk* 73 : 1-32 ; and 1964 : Article 'Swift' in Thomson, A. L. (ed.), *New Dict. Birds*, London & New York.

### Family APODIDAE

#### Key to the Subfamilies

	Page
Wings extending beyond tail.....	Apodinae
Wings not extending beyond tail.....	Hemiprocninae

### Subfamily APODINAE: Swifts

#### Key to the Genera

A Shafts of tail-feathers spiny.....	<i>Chaetura</i>	33
B Shafts of tail-feathers not spiny		
1 Anterior toes with three phalanges each		
a All four toes directed forward, though first reversible.....	<i>Apus</i>	38
b Toes arranged in pairs, third and fourth outward, first and second (inner and hind) inward. Tail long and deeply forked..	<i>Cypsiurus</i>	56
2 Second toe with 3, third toe with 4 and fourth toe with 5 phalanges		
.....	<i>Collocalia</i>	25

### Genus COLLOCALIA G. R. Gray

*Collocalia* G. R. Gray, 1840, List Gen. Bds.: 8. Type, by original designation, *Hirundo esculenta* Linnaeus

For characters see Key (above). The genus contains the so-called 'Edible-nest Swiftlets' which build nests of inspissated saliva from the sublingual salivary glands which undergo a remarkable development during the nest-building season. The 'white' nests of certain species, which look like isinglass, are highly relished by the Chinese as an epicurean delicacy. As an article of commerce the best-quality ones fetch several times their weight in silver in eastern markets.

Many of the species and subspecies are very similar superficially and difficult to identify from museum skins alone. The group has been subjected to a succession of controversial taxonomical revisions and reshuffling adding in no small measure to the confusion and uncertainty in the prevailing and old published records. However, each species is believed to build a characteristic nest, and where more than one species inhabit the same cave it is claimed to be possible to differentiate them satisfactorily by the nests. See 'The Identification of Malaysian spp. of Swiftlets, *Collocalia*' by R. W. Sims (1961, *Ibis* 103a: 205-10) and 'The Identity of *Collocalia fuciphaga* (Thunberg)' by Lord Medway (1961, *ibid.*: 625-6); also 'Field characters

as a guide to the specific relations of swiftlets' by Lord Medway (1966, *Proc. Linn. Soc. London* 177 (2): 151-72).

For an admirable study of the ecology and breeding biology of certain *Collocalia* swiftlets in Sarawak see Lord Medway, 1962, *Ibis* 104: 45-66, 228-45.

### Key to the Species

	Page
A Uppertparts metallic blue-black; abdomen white; wing under 107 mm .....	<i>C. esculenta</i>
	32
B Upper plumage sooty brown; abdomen concolorous	
a Wing mostly over 125 mm; tarsus more or less feathered	
1 Tips of downy bases of mantle and rump feathers white; depth of tail fork 8-10 mm; tarsus sparsely feathered.....	<i>C. brevirostris</i>
2 Tips of downy bases of mantle and rump feathers mainly black; traces of white at top of downy area; tail almost square (depth of fork 2-3 mm); tarsus thickly feathered.....	<i>C. maxima</i>
28	
b Wing mostly under 123 mm; tarsus bare; tips of downy bases of mantle and rump feathers white	
3 Rump concolorous with back; wing mostly under 115 mm.....	<i>C. unicolor</i>
29	
4 Rump paler than back; wing mostly over 115 mm..	<i>C. fuciphaga</i>
	31

### COLLOCALIA BREVIROSTRIS (Horsfield): HIMALAYAN SWIFTLET

#### Key to the Subspecies

Smaller; wing c. 120-133 mm, mostly over 125 mm .....	<i>C. b. brevirostris</i>
Larger; wing c. 132-141 mm.....	<i>C. b. innoxinata</i>

### 683. *Collocalia brevirostris brevirostris* (Horsfield)

*Hirundo brevirostris* Horsfield, 1840, Proc. Zool. Soc. London: 155 (Assam)  
Baker, FBI No. 1609, Vol. 4: 348

LOCAL NAMES. None recorded.

SIZE. Sparrow— ; length c. 14 cm (5½ in.).

FIELD CHARACTERS. A small, slender, slightly fork-tailed brown swift with narrow but rather swallow-like wings. *Above*, dark brown with a noticeably paler rump; *below*, uniformly greyish brown. Sexes alike. Usually distinguishable in the air from other swifts as a *Collocalia* by the occasional interludes of a seemingly laboured pipistrelle-like fluttering while in normal hawking flight.

STATUS, DISTRIBUTION and HABITAT. Resident. The Himalayas from about 76°E. long. in Himachal Pradesh (Kangra, Dalhousie) eastward through Nepal, Sikkim and Bhutan to NEFA; also Assam hills north and south of Brahmaputra river, Nagaland, Manipur, Mizo, and E. Pakistan hills (?). From the foothills to c. 3600 m altitude.

EXTRALIMITAL. Burma, Thailand.

GENERAL HABITS. Gregarious; living in large colonies in dark underground limestone caves, spending most of the day on the wing hawking

insects high up over river valleys, defiles, etc. often in company with House Martins and other swifts. As characteristic of this genus the flight, which is rather slow for a swift, is punctuated from time to time by interludes of a pipistrelle-like fluttering. Roosts in enormous 'clusters', clinging like pipistrelles to the rough rock face inside caves and grottoes, or to old nests or their stubs, in a vertical position, head upwards. Din made by roosting birds also very reminiscent of the soft screeching of a colony of these small bats. The birds leave the roost well before dawn, often wandering considerable distances in the course of the day's foraging and making erratic appearances in far-flung areas. They do not return to the cave till well after dusk, except during the breeding season when rabbles constantly fly in and out all day long. The ease and suddenness with which the birds are evidently able to adapt their vision to the pitch-dark interior of a cave as they drop vertically from aloft and shoot in through a narrow fissure from the brilliant sunshine outside and find their way through dark caverns to their own nest among the hundreds of others, cheek by jowl, is quite astonishing; but this is no doubt largely effected by echo-location.

**FOOD.** Mainly dipterous and hymenopterous insects captured in the air. Drinks from surface of a pool by flying down to it at a tangent.

**VOICE and CALLS.** Apart from the conversational twittering *chit-chit* uttered at roost, has a low rattle-like call as of a knitting needle drawn across a few teeth of a wooden comb. It is this rattle-like call that serves in echo-location in dark caves (Medway).

**BREEDING.** *Season*, April to June. *Nest*, a tiny, unlined cup of agglutinated moss with the rim slightly sloping down from the vertical rock-wall to which it is attached like a bracket with the bird's inspissated saliva. Built in colonies close to and often touching one another, haphazard and in rows in angle of ceiling, not clustered together in 'villages' (cf. House Swift), the nests pock-marking large areas of the rock face or ceiling within dark grottoes. Diameter of cup c. 6 cm, depth inside c. 2 cm, with a slightly tapering pedestal below, c. 5 cm thick. The side of the nest adhering to the wall projects upwards giving increased purchase. (For a very good account of a nesting cave in Chakrata dist., U.P. see E. A. Glennie, 1944, JBNHS 44: 593-7.) *Eggs*, 2, white, ellipsoid, narrowing slightly at one end. Average size of 8 eggs 21.8 × 14.6 mm (Baker). Share of the sexes in incubation, and period, undetermined.

Copulation, as in some other swifts (cf. Alpine Swift), has been observed in the air, as well as at nest.

**MUSEUM DIAGNOSIS.** See Key to the Species. Differs from S. Indian *C. unicolor* in being somewhat larger, darker and glossier on upperparts, and with paler rump.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail central	outer
♂ ♀	120-133 <sup>1</sup>	8-9	[c. 8]	45-48	54-59 mm. (HW)

Wing 128-133, depth of tail fork 8-10 mm — Sims.

Weight (September) 2 ♂♂ 12.5, 13 g ; 1 ♀ 12 g (SDR).

**COLOURS OF BARE PARTS.** Iris brown. Bill black. Legs and feet brownish fleshy.

<sup>1</sup> In the great majority over 125 mm (Medway).

684. *Collocalia brevirostris innominata* Hume

*Collocalia innominata* Hume, 1873, Stray Feathers 1: 294 (Andaman Islands; type from Port Mouat, S. Andaman I.)

*Collocalia inopina* Thayer & Bangs, 1909, Bull. Mus. Comp. Zool. 52: 139  
(Mafuling, 5000 ft, Hupeh, China)

*Collocalia fusciphaga* [sic] *capnitis* Thayer & Bangs, 1909, Bull. Mus. Comp. Zool. 52: 139 (Hupeh Prov., China)  
Baker, FBI No. 1610, Vol. 4: 349

**LOCAL NAMES.** None recorded.

**SIZE.** Sparrow—; length c. 13 cm (5½ in.).

**FIELD CHARACTERS.** As for 683, q.v. Not distinguishable from it in the field, and only with difficulty in the hand. See Museum Diagnosis. Could be confused with Palm Swift (708) but is slightly larger and with a noticeable grey band across rump.

**STATUS, DISTRIBUTION AND HABITAT.** Probably a winter straggler to the Andaman Is., the type, collected at Port Mouat in S. Andaman, being the only definite record. Observed on Narcondam (lat. 13°26'N.) and 'they probably breed in the caves along the south coast of the island' (Osmaston, 1905, JBNHS 16: 621).

**Extralimital.** Central China (Hupeh Prov.), SW. Thailand, Malay Peninsula, Sumatra, but subspecies equivocal (see Medway, 1966: 163).

**GENERAL HABITS, FOOD.** Presumably as in 683.

**VOICE AND CALLS.** Unrecorded.

**BREEDING.** Extralimital. Nests 'black', of agglutinated moss etc. as in 683 and likewise inedible.

**MUSEUM DIAGNOSIS.** *Above* blackish brown, the crown and nape still darker, sometimes forming a distinct cap; rump usually paler and more grey with dark shaft-stripes. *Below*, greyish brown, the feathers with darker shaft-stripes.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	125–132	c. 4	c. 8	52–55 mm
Tail fork slight,	3–7 mm			(Baker)
Wing	132–141	depth of tail fork 8–10 mm — Sims!		

**COLOURS OF BARE PARTS.** Iris dark brown. Bill black. Legs and feet brownish black.

684a. **Indomalayan or 'Black-nest' Swiftlet.** *Collocalia maxima maxima*<sup>1</sup>  
Hume

*Collocalia maxima* Hume, 1878, Stray Feathers 6: 49 (Tenasserim)  
Baker, FBI No. 1609, Vol. 4: 348 (*C. b. brevirostris*)

**LOCAL NAMES.** None recorded.

**SIZE.** Sparrow—; length c. 14 cm (5½ in.).

**FIELD CHARACTERS.** As for *brevirostris* (683), q.v. Practically indistinguishable from it in the field, but slightly heavier build, proportionately broader wings and less forked tail suggestive. See Museum Diagnosis.

<sup>1</sup> Formerly *Collocalia lowi robinsoni* Stresemann.

**STATUS, DISTRIBUTION and HABITAT.** Eastern Bhutan and NEFA (?). Specimens (in British Museum) collected by F. Ludlow between c. 2100 and 3900 m alt.

*Extralimital.* East to Thailand, Vietnam, Malaya, Sumatra, Java, and Borneo.

**GENERAL HABITS, FOOD, VOICE and CALLS.** Not specifically recorded. Doubtless as in 683, by and large. Utters the rattle call for echo-location (Medway).

**BREEDING.** Data for our area lacking, but in Malaysia known to build 'black' nests, i.e. with an admixture of feathers in the cup of hardened white saliva, fixed to a cave wall.

**MUSEUM DIAGNOSIS.** Distinguishable from *C. b. brevirostris* (683) by proportionately broader wing, less deeply forked tail, and a thickly, *contra* sparingly, feathered tarsus.

#### MEASUREMENTS

	Wing	Tail
7 ♂ ♀	128-135	50-58 mm; furcation 11-15 per cent against 15-20 per cent in <i>brevirostris</i> (Medway, 1961, JBNHS 59: 149)

**COLOURS OF BARE PARTS.** As in 683.

### 685. Indian Edible-nest Swiftlet. *Collocalia unicolor* (Jerdon)

*Hirundo unicolor* Jerdon, 1840, Madras Jour. Lit. Sci. 11: 238 (Coonoor Pass)  
Baker, FBI No. 1608, Vol. 4: 346

**LOCAL NAMES.** *Wēhi lihiniya* (Sinhala); *Kudukaraya* (Veddah); *Sārāppākshi* (Malayalam).

**SIZE.** Sparrow - ; length c. 12 cm (4½ in.).

**FIELD CHARACTERS.** A tiny slender blackish brown swift with a slightly forked tail and the same peculiar rapidly-flapping pipistrelle-like flight as 683, q.v. Sexes alike. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. The coastal and Western Ghats strip from about Ratnagiri (c. 16°N. lat.) in S. Konkan (Maharashtra) southward through Goa, W. Mysore, W. Tamil Nadu, and Kerala, including the Nilgiri, Palni, Brahmagiri and associated hill ranges, and rocky offshore islets with natural caves and grottoes; from sea level to c. 2200 m altitude. Abundant also throughout Ceylon. Wandering over a considerable radius from its roosting and nesting caves during the day's foraging, making erratic appearances in distant localities.

**GENERAL HABITS.** As of 683, q.v. Huge colonies inhabit natural caves and grottoes in the cliffs of hills of the Western Ghats complex, and rocky islets on the Malabar coast. Swarms of the birds arrive in the gathering dusk, dropping from the sky like flurries of falling leaves and shooting in through the narrow fissures and 'skylights' leading into the underground caverns, with remarkable adroitness. They leave again in the darkness of early dawn announced only by the rush of wings, like waves on a sandy beach, as if to make way for the daytime occupants of the caves, the bats, just then returning from their nocturnal foraging.

**FOOD.** Chiefly dipterous, hemipterous and hymenopterous insects. About 80 per cent of the stomach contents of four examples taken in the roosting cave on Vengurla Rocks in February comprised two species of the harmful jassid 'mango-hopper' (*Ideocerus niveosparsus* and *I. atkinsoni*) obviously captured over the renowned mango orchards of Ratnagiri dist. on the opposite mainland. The rest of the food items included representatives of Hemiptera, Coleoptera, Odonata, Hymenoptera, Diptera and Trichoptera. (For a fuller list see Abdulali, 1942, JBNHS 43: 450.) In Ceylon, observed hawking insects at lights (over club house) and feeding its nestlings far into the night (E. Kershaw, June 1967, Ceylon Bird Club Newsletter).

**VOICE and CALLS.** As in 683, q.v. All through the night the roosting birds keep up a feeble but shrill clicking or twittering *chit-chit*, with distinct livelier choruses intermittently. 'Very harsh call-note, reminiscent of the Whiskered Tern' (R. S. P. Bates, MS.).<sup>1</sup>

**BREEDING.** *Season*, chiefly March to June in South India; March to September in Ceylon. *Nest*, as in 683 but whitish and less mixed with extraneous matter such as grass, moss, and feathers,<sup>2</sup> the attachment practically of pure coagulated saliva; thus of some gastronomic and commercial value. Often hundreds of nests clustered densely, 5 to 10 cm from one another in patches on the rock-wall or ceiling of dark grottoes. 'They look at a distance exactly like deep oyster shells with one side flattened, the saliva where it is smoothed down having a pearly appearance' (Vidal, 1881, SF 9: 44-8, q.v. for other details). The nests usually swarm with bugs, identified from the Vengurla colony as the Bed Bug, *Cimex rotundatus*. *Eggs*, 2, white, long blunt ovals. Average size of 80 eggs 20.9 × 13.5 mm (Baker).

**MUSEUM DIAGNOSIS.** Almost identical in coloration with Himalayan *C. b. brevirostris*, only a shade paler and less glossy on the upperparts and with rump concolorous with back (not paler). Smaller in size.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♀	113-117	c. 8-9	—	central outer 41-45 48-55 mm (HW, SA)

(*vide* Baker, Wing 105-115; tarsus c. 8-9 mm)

Weight 2 ♂♂ 11, 11g (SDR).

**COLOURS OF BARE PARTS.** Iris dark brown. Bill black. Legs and feet purplish black.

<sup>1</sup> The group of so-called 'grey' swiftlets are able to orientate in darkness by echo-location, evidently being the only birds in Asia to do so. See Novick, A., 1959, 'Acoustic orientation in the cave swiftlet' [this species in Ceylon], *Biol. Bull. Mar. Inst. Lab. Woods Hole* 117: 497-503.

<sup>2</sup> The sublingual salivary glands enlarge at nest-building time to provide the necessary cement and gradually regress to normal thereafter. It was believed, and still widely is, that the first built nest is comparatively free from admixture of grass, moss and feathers. The second, built after this one has been removed by the nest-gatherer, contains a greater quantity of extraneous matter and is less valuable, whereas the third (and sometimes fourth) is almost entirely 'black', mainly of agglutinated grass and feathers, and valueless for culinary or commercial purposes. Recent field studies, e.g. of Medway, suggest however that actually each species of swiftlet builds its characteristic type of nest, whether it is the first or second or third.

MISCELLANEOUS. Till about the turn of the century the right to collect the nests of this swiftlet for export to China was auctioned by the Government of Bombay, but the business was never considerable. From about Rs 200 to 250 per year around 1865, the realized fee dwindled to only Rs 41 in 1895. Thereafter the business appears to have faded out largely owing to decreasing returns, perhaps as a result of over-exploitation of the colonies, and the disproportionate risks and organization involved in collecting the nests. The main localities which supplied the nests were Vengurla Rocks (or Burnt Islands) off the Malvan coast (Maharashtra), and Pigeon Island (also known as Neträni or Niträn) off the coast of North Kanara (now in Mysore).

**686. Andaman Greyrumped or 'White-nest' Swiftlet.** *Collocalia fuciphaga inexpectata* Hume

*Collocalia inexpectata* Hume, 1873, Stray Feathers 1: 296, in text (Andaman Islands)  
Baker, FBI No. 1612, Vol. 4: 350

LOCAL NAMES. None recorded.

SIZE. Sparrow - ; length c. 12 cm ( $4\frac{3}{4}$  in.).

FIELD CHARACTERS. As of 685, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident and common in the Andaman Islands; evidently less so in the Nicobars. Colonies nesting in rock-caves by the shore on South Button, Neill, Chiriya Tapu, S. Cinque and other islands. Also observed on Car Nicobar.

GENERAL HABITS. As in 683 and other swiftlets. Hawks all day over mangroves, rubber plantations, forest, and cultivation.

FOOD, VOICE and CALLS. Not specifically recorded.

BREEDING. Season, chiefly March and April. Nest, white, opaque and translucent, of clear inspissated saliva with little or no admixture of extraneous matter; thus of the best edible and commercial quality. More or less half-cup shaped, c. 6 cm across  $\times$  1.5 cm deep; attached bracketwise close to one another to the rock wall in sea caves, in small colonies of a few nests to large ones of several hundred. Weight of each nest c. 14 g. Eggs, 2, white, long ovals with little or no gloss (Osmaston, 1906, JBNHS 17: 486). Average size of 48 eggs  $20\cdot2 \times 13\cdot6$  mm (Baker). Incubation period and other details of breeding biology unrecorded.

MUSEUM DIAGNOSIS. *Above*, blackish brown, darkest on crown, wings, and tail. A paler but ill-defined (sometimes obsolete) rump-band. *Below*, pale greyish brown, the feathers often dark-shafted.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	113-121	c. 4-5	c. 9	49-53 mm (Baker, HA)

Depth of tail fork 6-8 mm (Sims).

COLOURS OF BARE PARTS. Iris dark brown. Bill black. Legs and feet dark brown.

MISCELLANEOUS. High medicinal, dietetic and tonic (also aphrodisiac) properties are ascribed to the nests by the Chinese. Analysis by C. J. House showed the clear saliva nests ('white' nests) to be highly nitrogenous

material, containing nearly 50 per cent protein and 7½ per cent of mineral matter, mostly lime. [See article 'A description of the swifts (*Collocalia francica* [= *fuciphaga*] and *C. innominata*), the birds which build edible nests' by F. H. Giles, 1936, *Jour. Siam nat. Hist. Soc.* 10 (2), Supplement (November).]

**687. Beavan's or Whitebellied Swiftlet. *Collocalia esculenta affinis***  
Beavan

*Collocalia affinis* 'Tytler' = Beavan, 1867, *Ibis*: 318  
(Port Blair, South Andaman Island)  
Baker, FBI No. 1614, Vol. 4: 352

**LOCAL NAMES.** None recorded.

**SIZE.** The smallest of our swiftlets. Length c. 10 cm (4 in.).

**FIELD CHARACTERS.** As of 683 and 685, qq.v., but distinguishable by smaller size, glossy blue-black upperparts and white belly. Sexes alike.

**STATUS, DISTRIBUTION and HABITAT.** Resident and common in the Andaman and Nicobar Islands.

**GENERAL HABITS.** Gregarious, abundant, and tame. Flies freely in and out of residential bungalows and office buildings in the settlements while hawking, unmindful of the human inmates. Roosts and nests in small numbers or vast colonies in factory sheds, tool houses and the like. The congregation keeps up a continual sharp bat-like clicking and twittering, often quite deafening at confined close quarters. The birds cling in clusters to old nests as well as those in occupation, and to roughnesses on walls and ceiling boards — upside down (back horizontal with the ground) — sometimes two or three individuals on the same foothold. Their bodies heave up and down as if panting heavily, but the birds are evidently quite comfortable in this position, at times even preening themselves. Others fluttering around in search of a foothold will hang on to the legs or wing-tips of those already settled, and thus may soon form a cluster of half a dozen or more. Nest material (moss, lichens, etc.) is plucked from the boughs of lofty trees, while the bird hovers momentarily in its flight through the mossy branches.

**FOOD, VOICE and CALLS.** Not specifically recorded as different from other swiftlets. Has no echo-locating calls.

**BREEDING.** Season, December to April, principally February and March. Nest, 'black', inedible, and of no commercial value; made entirely of vegetable matter, e.g. moss, lichens, casuarina needles, coconut fibre, agglutinated with the birds' saliva. Shallow, flat-bottomed half-cups (c. 7 × 5 cm in outside diameter and c. 2 cm deep) attached like brackets to the substrate with brownish saliva; usually vast colonies in sawmill sheds, etc. clustered densely along wall near angle with ceiling, the nests often touching and built partly upon one another in a disorderly jumble. Eggs, 2, white, long, elliptical. Average size of 100 eggs 17·5 × 11·2 mm (Baker). Both sexes incubate; period undetermined. The birds relieve each other at the nest by seemingly violent supplanting, the relief clinging to the nest, nudging, pushing, and elbowing out the sitter and literally usurping its place. But the proceedings equivocal since sometimes two, and even three, birds will try to supplant a sitting bird in this way; then again, the relief



PLATE 45

1 *Chaetura caudacuta*, White-throated Spinetail Swift (688). 2 *Caprimulgus mahrattensis*, Sykes's Nightjar (674). 3 *Halcyon coromanda*, Ruddy Kingfisher (733). 4 *Apus melba*, Alpine Swift (693). 5 *Harpactes wardi*, Ward's Tropicbird (716). 6 *Alcedo hercules*, Blyth's Kingfisher (721). 7 *Merops superciliosus*, Blue-cheeked Bee-eater (747). 8 *Coracias garrulus*, European Roller (754). 9 *Merops apiaster*, European Bee-eater (746).



on being repulsed from one nest will successfully dislodge a brooding bird on another nest nearby and usurp its place on the eggs!

MUSEUM DIAGNOSIS. Tarsus naked; tail unsorked. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	91-100	c. 3-4	8-9	36-39 mm (Baker)

COLOURS OF BARE PARTS. Iris deep brown; bill, legs and feet black.

Genus CHAETURA Stephens

*Chaetura* Stephens, 1826, in Shaw's Gen. Zool. 13 (2): 76. Type, by subsequent designation, *Chaetura pelasgia* Stevens (sic) = *Hirundo pelagica* Linnaeus

*Raphidura* Oates, 1883, Bds. Burma 2: 6. Type, by monotypy, *Acanthylis leucopygialis* Blyth

*Indicapus* Mathews, 1918, Bds. Austr. 7: 265. Type, by original designation and monotypy, *Acanthylis sylvatica* Tickell

*Hirund-apus* Hodgson, 1837 (1836), Jour. Asiatic. Soc. Bengal 5: 780. Type, by original designation and monotypy, *Cypselus* (*Chaetura*) *nudipes* Hodgson  
Cf. Lack, D., 1956, Auk 73: 9-12, 26.

Characterized by the tail-feathers having rigid shafts the ends of which project as spines or needles for some distance beyond the web. Tarsi naked; all four toes forwardly directed as in *Apus*; claws strong and much curved. Wings very long and pointed: first primary (as.) longest.

Genus represented in the Ethiopian, Oriental, Australian and Holarctic regions. Three species within Indian limits.

Key to the Species

		Page
1	Larger. Wing over 180 mm ; colour of back paler than surrounding parts	
a	Webs of tail-feathers rounded at tips.....	C. caudacuta 33
b	Webs of tail-feathers drawn to a point at the tip.....	C. gigantea 96
2	Smaller. Wing under 130 mm. Centre of back not paler; abdomen white .....	C. sylvatica 97

CHAETURA CAUDACUTA (Latham): WHITETHROATED SPINETAILED SWIFT

Key to the Subspecies

Chin and throat pure white; wing over 195 mm.....	C. c. nudipes 33
Chin and throat smoky grey; wing under 185 mm.....	C. (c.) cochinchinensis 35
Throat dark smoky; brown on underparts much paler; upperparts less glossy.....	C. (c.) rupchandi 35

688. *Chaetura caudacuta nudipes* (Hodgson)

*Cypselus* (*Chaetura*) *nudipes* Hodgson, 1837 (1836), Jour. Asiatic. Soc. Bengal 5: 779  
(Nepal)

Baker, FBI No. 1603, Vol. 4: 340

Plate 45, fig. 1, facing p. 32

LOCAL NAME. *Silli-ang tifhi-timbo* (Lopcha).

**SIZE.** Bulbul ±; stouter. Length c. 20 cm (8 in.).

**FIELD CHARACTERS.** A large blackish brown swift with long narrow pointed bow-shaped wings and short tail. Underwing uniform blackish.

**Adult.** *Above*, glossy black except for back which is pale brown, whitish in the centre. *Below*, chin, throat, and under tail-coverts white. Rest of underparts dark brown with a whitish patch on each flank. Sexes alike.

**STATUS, DISTRIBUTION and HABITAT.** The entire Himalayas from Hazara dist. in W. Pakistan eastward through Nepal, Sikkim and Bhutan to NEFA, normally between c. 1250 and 4000 metres elevation. Rather uncommon everywhere; local and patchy. Affects the neighbourhood of crags and rock scarps.

**Extralimital.** SE. Tibet eastward to W. Yunnan and W. Szechuan.

**GENERAL HABITS.** Justly reputed to be one of the fastest fliers among birds. Keeps in small loose parties and flocks hawking insects individually high over river valleys and upland pastures ranging over enormous distances in the day's foraging. The birds dash about with seemingly unhurried and effortless strokes of the long narrow wings, and glide and swish round crags and contours at phenomenal speed. The wings produce a peculiar musical swishing sound as they hurtle through space, high overhead at one moment vanishing in the distance the next, like a jet fighter plane. They descend to hawk lower in cloudy weather, especially after a thunderstorm, and drink by stooping down to water at a tangent and scooping sips as they momentarily skim along above the surface on quivering wings. Roosts at night (presumably also nests) in colonies, clinging to rough rock walls within clefts and fissures — possibly also in hollow boles of trees.

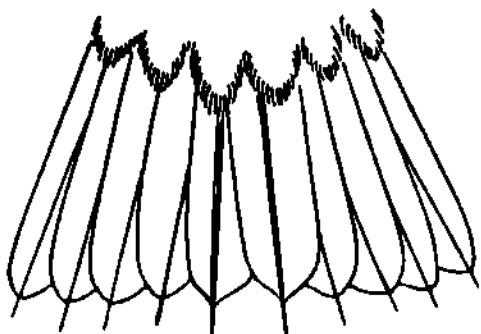
**FOOD.** Flying insects, chiefly Coleoptera, Hemiptera and Hymenoptera.

**VOICE and CALLS.** Loud, shrill and lively 'screams' uttered in flight, particularly at dusk, while a rabble is disporting itself in the air round the roosting cliff prior to retiring. 'When wounded they utter a screeching sound like *churr-r churr-r churr-r*' (Tytler, 1868, *Ibis*: 196).

**BREEDING.** Presumably more or less as in 691, q.v., in clefts of rock up in the mountains; possibly also within hollow tree-trunks. Nothing definitely known beyond that an oviduct egg (white, 31.2 × 22.4 mm) was obtained by Baker from a female he shot in N. Cachar on 14 April (1899).

**MUSEUM DIAGNOSIS.** See Key; for details of plumage Baker, loc. cit.

Differs from the palaeartic nominate race in being more glossy on crown and nape and lacking white on forehead. For description of plumages and structure (also bionomics) of the nominate race see Witherby, 1938, 2: 249-51.



× c. 1 (After Hartert)

## MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	196–209	7–8	c. 17	51–57 mm (Baker)

COLOURS OF BARE PARTS. Iris dark brown. Bill black. Legs and feet blackish purple or purple-slate; claws black.

689. *Chaetura cochinchinensis rupchandi* Biswas

*Chaetura cochinchinensis rupchandi* Biswas, 1951, Ardea 39: 320

(Hitaura, central upper Nepal Terai)

Baker, FBI No. 1603 (part), Vol. 4: 340

LOCAL NAMES. None recorded.

SIZE. Bulbul ± ; stouter. Length c. 20 cm (8 in.).

FIELD CHARACTERS. As of 688, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Range not known. Collected in central Nepal terai, c. 600 m. Apparently a lower-elevation form than 688.

GENERAL HABITS, FOOD, VOICE and CALLS. Presumably as in 688. Nothing specifically recorded beyond that 'it was observed from time to time in small flocks of about a dozen birds around Hitaura in the central dun [Nepal] during June–July; sometimes flying fairly low, within a few feet of the ground and parallel to it' (Biswas).

BREEDING. Unknown.

MUSEUM DIAGNOSIS. See Key.

## MEASUREMENTS

	Wing	Bill (from anterior edge of nostril)	Tail
♂ ♀	180–192	6–7	46–49 mm (Biswas)

COLOURS OF BARE PARTS. As in 688.

690. Whitethroated Spinetail Swift. *Chaetura cochinchinensis cochinchinensis* Oustalet

*Chaetura cochinchinensis* Oustalet, 1878, Bull. Soc. Philom. Paris (7) 2: 52

(Saigon, Cochinchina [= South Vietnam])

Baker, FBI No. 1604, Vol. 4: 342

LOCAL NAME. *Dao hadi gadeba* (Cachari).

SIZE. Bulbul ± ; stouter. Length c. 20 cm (8 in.).

FIELD CHARACTERS. As of 688, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Apparently common in Assam hills south of Brahmaputra river, Nagaland, Manipur, Mizo; probably also E. Pakistan hill tracts.

Extralimital. Burma, Malaysia, Indochinese countries.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 688.

**BREEDING.** Practically unknown. Baker took an oviduct egg from a female shot on 26 May. It was white and measured 28·1 × 21·0 mm.

**MUSEUM DIAGNOSIS.** Differs from *C. c. nudipes* in being darker both above and below, with the chin and throat grey instead of white.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂♀	183–184	c. 8	c. 16	48–49 mm (Baker)

**COLOURS OF BARE PARTS.** As in 688.

**691. Large Brownthroated Spinetail Swift. *Chaetura gigantea indica* Hume**

*Chaetura indica* Anonymous = Hume, 1873, Stray Feathers 1: 471

(Andaman Islands and southern India)

Baker, FBI No. 1605, Vol. 4: 343

Plate 44, fig. 3, facing p. 16

**LOCAL NAMES.** *Dao hadi gadeba* (Cachari); *Sārāppākshi* (Malayalam); *Wahi lihiniyā* (Sinhala).

**SIZE.** Myna ±; length c. 23 cm (9 in.).

**FIELD CHARACTERS.** A large blackish brown swift with long, narrow, pointed bow-shaped wings and short squarish tail with needles projecting from the feathers — noticeable in flight under favourable conditions. The white under tail-coverts contrasting with the very black-looking underparts, and high speed, are further suggestive clues.

**Adult.** *Above*, glossy metallic black except for centre of back which is pale brown. A black spot in front of each eye, and a white spot on either side of forehead. *Below*, chin and throat pale brown, under tail-coverts white. Rest of underparts dark brown with a white patch on the flanks above the thighs. Sexes alike.

**STATUS, DISTRIBUTION and HABITAT.** Resident ; described also as local migrant in some parts, but movements as yet not understood. Assam, Nagaland, Manipur and Mizo; E. Pakistan hill tracts; the Western Ghats strip from Goa and N. Kanara (c. 15°N. lat.) southward through W. Mysore, W. Tamil Nadu (including Nilgiri, Palni and associated hills) and Kerala; Ceylon; Andaman Islands, (Nicobars ?); from the seacoast to the mountain tops. Affects evergreen and moist-deciduous biotope.

**Extralimital.** Burma, Thailand, Indochinese countries.

**GENERAL HABITS.** Keeps in small parties of 4 or 5 birds or larger flocks ('rabbles') of up to 50 or more, spending the daylight hours on the wing, hawking in long back-and-forth sweeps high over forested valleys and grassy hilltops, flying at astonishing speed — here one moment, gone the next. Along with the Whitethroated Spinetail and Alpine Swift, reputed to be one of the fastest fliers among birds, estimates of 250–300 km per hour being mentioned. The wings produce a loud twanging sound ('as of a harp string') as the birds hurtle past overhead. The spines projecting from the tail-feathers, in addition to providing support when the bird is clinging to a vertical surface with both feet, possibly conduce to streamlining for

speed. In normal cruising flight, the tail is fairly spread out; when the bird is shot at with a gun and thoroughly scared, the tail is narrowed down to a point and the bird then streaks through space at a velocity that is truly spectacular. Usually descends to treetop height in the wake of a thunderstorm or to hawk insects fleeing from a forest fire or fired cultivation clearing. Drinks at rivers and pools in the evenings, several birds swooping down at a tangent simultaneously, 'leaving a series of longitudinal splashes on the surface like a shoal of flying fish taking wing' (F. N. Betts). Roosts at night in colonies clinging to roughnesses within the hollow boles of lofty ancient trees. Owing to its sustained speed and vast cruising radius, makes sporadic fleeting appearances in distant areas in the course of the day's foraging, causing some confusion as to its local status.

**FOOD.** Flying insects, mainly beetles (Coleoptera), bugs (Hemiptera), grasshoppers (Orthoptera), and ants and bees (Hymenoptera).

**VOICE and CALLS.** Loud, shrill 'screams', frequently uttered in flight, as in 688.

**BREEDING.** Hitherto recorded only in Kerala. *Season*, February to April. *Nest*, a depression in the earth and debris accumulated at the base, within the hollow boles of lofty over-mature trees such as *Vateria indica*, lined with dry leaves and straw — in humid forest. Entrance to 'chimney' provided by a natural or woodpecker hole often up to 15 metres above ground level. Normally only a single nest, or two or three, within each bole, not colonially. *Eggs*, 3 or 4, rarely 5, broad, elliptical, pure porcelain white becoming stained and discoloured during incubation. Average size of 100 eggs  $30 \cdot 7 \times 22 \cdot 2$  mm (Baker). Share of the sexes in the domestic chores, incubation period, and other facets of breeding biology unknown.

**MUSEUM DIAGNOSIS.** See Key to the Species; for details of plumage Baker, loc. cit.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail (to tip of spines)
♂ ♀	188-200	13-16	16-18	54-60 mm (Baker, HW, SA)

**COLOURS OF BARE PARTS.** Iris brown. Bill horny black; mouth greyish pink. Legs and feet greyish pink; claws horny brown.

**MISCELLANEOUS.** *Ectoparasites*. 'Some infested with a large flat tick nearly one-third inch long [species?], over 30 taken from one bird clinging to bases of stiff tail-feathers under lower tail-coverts' (A. L. Butler, 1899, JBNHS 12: 563).

'Infested with a parasite very like common house bug (*Cimex* sp.?) in appearance and smell' (H. R. P. Carter, 1873, SF 1: 473).

**692. Whiterumped Spinetail Swift. *Chaetura sylvatica* (Tickell)**

*Acanthylis sylvatica* Tickell, 1846, Jour. Asiatic Soc. Bengal 15: 284 (Central India, restricted to Maunbhumi by Whistler & Kinnear, 1935, JBNHS 38: 33)

Baker, FBI No. 1606, Vol. 4: 344

**Plate 44, fig. 5, facing p. 16**

**LOCAL NAME.** *Sārāppākshi* (all swifts — Malayalam).

**SIZE.** Sparrow — ; same as House Swift. Length c. 11 cm (4½ in.).

**FIELD CHARACTERS.** A small forest swift, black above with a broad white rump-band. *Below*, chin, throat, and breast greyish brown passing into white on lower abdomen and under tail-coverts. Sexes alike. Under aspect of wings in flight blackish. General effect very like House Swift (703) but white belly in addition to rump-patch diagnostic.

**STATUS, DISTRIBUTION and HABITAT.** Resident, but patchy and local, though quite abundant in certain localities. Also subject to considerable wandering; movements imperfectly understood. The lower Himalayas in Garhwal, Kumaon, and Sikkim (possibly continuous). Cachar (Assam), Manipur, Sylhet (E. Pakistan), W. Bengal, Chota Nagpur, Madhya Pradesh (west to Seoni and Chanda, in Maharashtra, c. 79–80°E. long.); the Western Ghats strip from about Goa and N. Kanara (c. 15°N. lat.) southward through W. Mysore, W. Tamil Nadu, and Kerala. Not in Ceylon or Andaman Is. Affects evergreen and moist-deciduous biotope; from plains level to c. 1700 m in the Himalayas, somewhat lower in the peninsular ranges.

**GENERAL HABITS.** Keeps in loose rabbles of 12 to 50 birds or so, hawking insects all day above forest or river valleys, and over grassy hilltops and hill cultivation clearings, but may turn up almost anywhere in forested country. Roosts at night in colonies, clinging within the hollow boles of rotten trees, the birds popping in and out through natural or barbet holes that provide entrance and exit.

**FOOD.** As in 691, chiefly flying beetles and bugs.

**VOICE and CALLS.** A twittering *chick-chick* like House Swift's uttered on the wing; rendered also as a 'rapidly-repeated *swicky-sweezy*' (Nichols).

**BREEDING.** Up to the present known only from the Western Ghats area. *Season*, February to May, chiefly March and April. *Nest*, a shallow half-cup composed of small lengths of thin dead twigs cemented together with the bird's saliva, without any lining, attached bracket-wise inside a hollow rotten tree-trunk from half a metre to 14 metres or so above the ground. Boles of dead Fishtail palms (*Caryota urens*) are favourite sites. Only a single nest or a couple normally found within the same 'chimney'. *Eggs*, 3 to 5, pure white, long blunt ovals, closely resembling those of *Collocalia*. Average size of 60 eggs 17·5 × 12·1 mm (Baker). Incubation period, and other facets of breeding biology, unknown.

#### MUSEUM DIAGNOSIS.

#### MEASUREMENTS

Wing	Bill (from skull)	Tarsus	Tail
♂♀ (107) 112–116	c. 7–8	c. 8–9	34–37 mm (Baker, HW, SA)

Weight 1 o? 13 g (SA).

**COLOURS OF BARE PARTS.** Iris brown. Bill blackish brown; mouth greyish pink. Legs and feet pinkish brown; claws blackish brown.

#### Genus *Apus* Scopoli

*Apus* Scopoli, 1777, Intr. Nat. Hist.: 483. Type, by tautonymy, *Hirundo apus* Linnaeus

Wings long, narrow, and pointed. Tarsus short and thickly feathered; all four toes bare and directed forwards, but first or hind toe reversible; equipped with

curved needle-sharp claws for clinging to rough vertical surfaces. Mouth very wide and deeply cleft. No rictal bristles. Represented by six species within our limits. (See David Lack, 1956, 'The species of *Apus*', *Ibis* 98: 34-62.)

### Key to the Species

		Page
<b>A</b>	No white on rump	
1	Abdomen white.....	<i>A. melba</i> 39
2	Abdomen blackish brown.....	<i>A. apus</i> 43
3	Abdomen much paler; general coloration hair-brown.....	<i>A. pallidus</i> 45
4	Abdomen black, the feathers edged with white.....	<i>A. acuticaudus</i> 46
<b>B</b>	White rump	
5	Tail deeply forked.....	<i>A. pacificus</i> 47
6	Tail even or nearly so.....	<i>A. affinis</i> 50

### APUS MELBA (Linnaeus): ALPINE SWIFT

#### Key to the Subspecies

		Page
Pale brown band across breast, white throat-patch.....	<i>A. m. melba</i>	39
Darker; breast-band wider, throat-patch smaller .....	<i>A. m. nubifuga</i>	40
Darker than the preceding; more black in body plumage..	<i>A. m. bakeri</i>	42

### 693. *Apus melba melba* (Linnaeus)

*Hirundo Melba* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 192 (Gibraltar)

Baker, FBI No. 1589 (part), Vol. 4: 324

Plate 45, fig. 4, facing p. 32

LOCAL NAMES. *Bādi ābābeel* (Hindi); *Pāhādi ābābeelo* (Gujarati).

SIZE. Bulbul +; stouter. Length c. 22 cm (8½ in.).

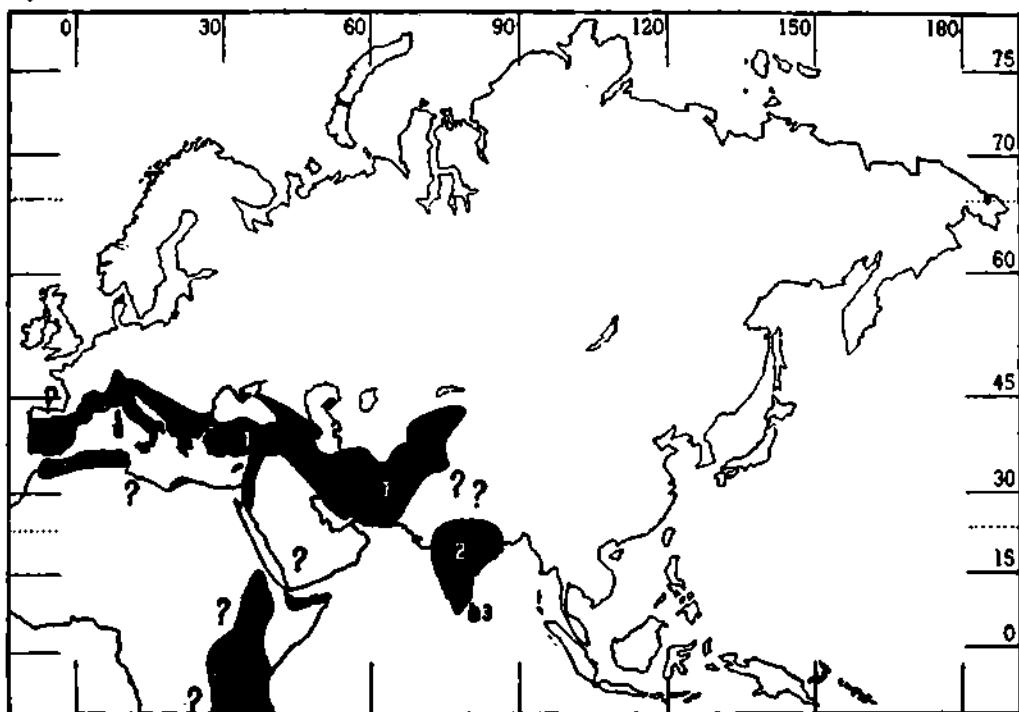
FIELD CHARACTERS. As for 694, q.v. A large sooty brown swift with white underparts and a brown pectoral band across breast. Sexes alike. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Recorded as a fairly common summer visitor (April to September) to Baluchistan in the Quetta neighbourhood, Kach, Ziarat, Chagai; as passage migrant on the Afghan frontier (Kohat, Chitral, etc.) from February to May and again in August-September. Winter specimens in BNHS collection from Saurashtra (Gujarat) and Mt Abu. Capricious season- and weather-dependent movements of Alpine Swifts, the vast radius they cover in the course of their daily foraging, and paucity of material to qualify sight records, make the status of the races, particularly of this one, rather enigmatical.

EXTRALIMITAL. 'Breeds in SE. Europe north to the Pyrenees and the Alps; Asia Minor, the Crimea, the Caucasus, Transcaspia, Turkestan . . . Winter quarters not known but recorded from Arabia, Uganda, and Damaraland and as a migrant in the Algerian Sahara' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 694, q.v.

BREEDING. Extralimital; not definitely recorded in our area, but probably breeds in the higher mountains of Baluchistan (W. Pakistan).

*Apus melba*

Breeding range

1 *A. m. melba* (693).2 *A. m. nubifuga* (694).3 *A. m. bakeri* (695).

For an excellent study of the ecology and breeding biology see M. Bartels (jr.), 1931, 'Beobachtungen an Brutplätzen des Alpenseglers — *Micropus melba melba* (L.)', *Jour. f. Ornithologie* 79: 1-28 (11 plates).

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.; for subspecies Key.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail central	tail outer	
♂♂	220-228	15-16	16-18	55-64	77-90	mm
♀♀	207-221	—	—	—	—	mm

(Witherby)

COLOURS OF BARE PARTS. As in 694.

694. *Apus melba nubifuga* Koelz

*Apus melba nubifuga* Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 25  
(Rathi, Kumaon)

*Apus melba dorabtatai* Abdulali, 1965, Journ. Bom. nat. Hist. Soc. 62: 156  
(hills and ghats near Bombay)

Baker, FBI No. 1589 (part), Vol. 4: 324

LOCAL NAMES. As for 693. *Säräppäkshi* (for all swifts — Malayalam).

SIZE. Bulbul + ; stouter. Length c. 22 cm (8½ in.).

FIELD CHARACTERS. A large streamlined sooty brown swift with very long, narrow, pointed wings, and slightly forked tail. Underparts white, with a brown pectoral band across breast; this, together with brown

under tail-coverts and brown-and-white underside of bow-shaped wings diagnostic in flight. Sexes alike.

Young (immature) has more definite whitish edging to the feathers of the brown parts, especially on the wings, breast-band, and under tail-coverts.

**STATUS, DISTRIBUTION and HABITAT.** Resident, but subject to seasonal local migration (chiefly during the monsoon) in addition to very extensive and wide-ranging daily foraging peregrinations. Movements not yet worked out. From c. 2200 m up in the Himalayas west to east (including Nepal, Sikkim, Bhutan, and NEFA) southward through the peninsula to Rameswaram I. and Kanyakumari; from Sind eastward to Assam and E. Pakistan. Chiefly based on hilly country with crags and precipices and old forts, but liable to make unpredictable fleeting appearances almost anywhere at any time. A vast colony inhabits the gigantic cliffs flanking the Jog Falls in Mysore, sharing the fissures and crevices with blue rock pigeons, the birds dwarfed to a swarm of midges as they hurtle around the valley in this Brobdingnagian setting.

**GENERAL HABITS.** Keeps in loose flocks or rabbles on the wing all day, dashing about at great speed hawking insects high up in the air over grassy or forested hillsides and precipitous cliffs and gorges, and shooting round the contours with a loud swish of the wings. Descends lower in overcast drizzly weather or in the wake of a thunderstorm, and to hawk insects fleeing from a forest fire or burning grassland or clearing. Shares the honours for speed with the larger Spinetails, as all who have tried to shoot specimens will readily concede! Roosts at night in clefts and fissures of rock-scars, clinging almost vertically to the rough surface with both feet. Has the characteristic habit of swifts of 'balling' up in the sky at sunset, often till well into the dark, in a close-packed rabble, wheeling and tumbling playfully to the accompaniment of shrill screams — the whirling mass moving hither and thither as if wafted by the wind, gradually disappearing from sight. On clear wintry evenings has been observed (SA) hawking at treetop height before sunset, rising higher and higher as the sun sank lower and below the horizon, evidently following insect prey into the warmth of the sunshine lingering in the upper air. The birds drink regularly at ponds or streams, a party skimming over the water with butterfly-like quivering of the wing-tips above the back, 'feathering' the surface from time to time as they scoop the draughts.

**FOOD.** Largely flies (Diptera), ants (Hymenoptera), beetles (Coleoptera) and bugs (Hemiptera) — all taken on the wing. Among the last, *Agnoscelis nubila* Fb., crammed in gullets and stomachs of specimens, has been specifically identified.

**VOICE and CALLS.** Short, shrill tremulous 'screams' 'chee-chee' etc. chiefly while balling in the air. Twittering noises while roosting (and nesting?) in fissures of cliffs.

**BREEDING.** Definitely known only in NW. Himalayas (Murree, Kashmir), Saptashring (Nasik dist., Maharashtra) and Gersoppa or Jog Falls (Mysore) but on circumstantial evidence, or putatively, also nests in many places elsewhere in the Western Ghats and peninsular hills with suitable rocky crags and precipices. Season, in the Himalayas evidently May-June; in

## APODIFORMES

Mysore December to February. *Nest*, a half-saucer shaped structure of straw and feathers agglutinated with the bird's saliva, stuck bracket-wise on a vertical rock face within a fissure in a rocky cliff; alternatively, a concave pad of the same material placed on a horizontal ledge in similar situations. *Nest material* (straw and feathers) chased and collected in mid-air as it floats on wind eddies. *Eggs*, normally 3, sometimes 2, rarely 4. Pure white, long narrow ovals measuring c.  $31 \times 19$  mm. Both sexes evidently share incubation; period c. 19–20 days (in the nominate race — Witherby). Copulation takes place in the air, the male and female with open motionless wings whirling round and round as one unit parachuting through space for 30 metres or so, then separating to fly away individually; evidently also at nest.

**MUSEUM DIAGNOSIS.** Differs from the nominate form in being somewhat smaller and darker, with a wider pectoral band and smaller throat-patch.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tail
♂♂	202–212	14–16	central      outer 59–63      73–79 mm
♀ ♀	198–206	14–16	58–61      72–76 mm (HW, SA)

**COLOURS OF BARE PARTS.** Iris dark brown. Bill black. Legs and feet blackish purple.

**NOTE.** Peninsular Indian birds (*nubifuga*) are normally darker than *melba* of southern Europe, but at the same time they are matched by some Himalayan examples considered to be migrants of the nominate form. A parallel case exists between the still darker birds of Ceylon (*bakeri*) and those of peninsular India. Allowing for the normal operation of Bergmann's Rule (decrease in size from north to south), the size differences are also not sufficiently clear-cut or suggestive for unequivocal racial identification of individual specimens when the races occur together. Our knowledge of the spatial foraging movements of these wide-ranging swifts is as yet too nebulous for a satisfactory evaluation of the races and their status within our limits.<sup>1</sup> Only a methodical collection of actually breeding birds from proved nesting sites can help to elucidate the position.

### 695. *Apus melba bakeri* Hartert

*Apus melba bakeri* Hartert, 1928, Novit. Zool. 34: 363 (Catton Estate, 4500 ft, Ceylon)  
Baker, FBI No. 1589a, Vol. 8: 680

**LOCAL NAME.** *Wéhi lihiniyá* (Sinhala).

**SIZE.** Bulbul +; stouter. Length c. 22 cm (8½ in.).

**FIELD CHARACTERS.** As for 694, q.v. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident in Ceylon. 'Plentiful, but locally distributed, in the hills to altitudes of over 7000 ft [c. 2100 m];

<sup>1</sup> See the communication by Abdulali, 1965 (JBNHS 62: 153–60) recording the occurrence of (putative) *A. m. tunetii* in India, and describing a new race of this swift, *A. m. dorabtatai*, from the Bombay Deccan (i.e. Poona, Nasik, Berar, etc.).

visits the lowland tanks at certain seasons for drinking purposes' (Phillips). Subject to considerable erratic movements, and the Ceylon and South Indian populations doubtless wandering into each other's domains in the course of the day's foraging or seasonally.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 694, q.v.

**BREEDING.** No nests actually taken in Ceylon, but strong circumstantial evidence of breeding in the rock precipices among the hills of the Central Province, Uva and Sabaragamuwa (W. E. Wait, G. M. Henry). *Season*, c. March–May.

**MUSEUM DIAGNOSIS.** Smaller and darker even than *A. m. nubifuga*, the wing given by the describer as 190–195 mm. However, 2 ♂♂ from Ceylon in the British Museum collection, though very dark in coloration, have wing 201–207 mm (HW). See Note, p. 42.

**COLOURS OF BARE PARTS.** As in 694.

#### 696. *Swift. Apus apus pekinensis* (Swinhoe)

*Cypselus pekinensis* Swinhoe, 1870, Proc. Zool. Soc. London: 435 (Pekin, China)  
Baker, FBI No. 1590, Vol. 4: 326

**LOCAL NAMES.** None recorded.

**SIZE.** Bulbul —; length c. 17 cm (6½ in.).

**FIELD CHARACTERS.** A typical swift with long, narrow, bow-shaped wings and moderately forked tail. Uniformly dark brown or sooty black, with whitish chin and throat and sometimes with a few pale crescentic marks on belly. Sexes alike.

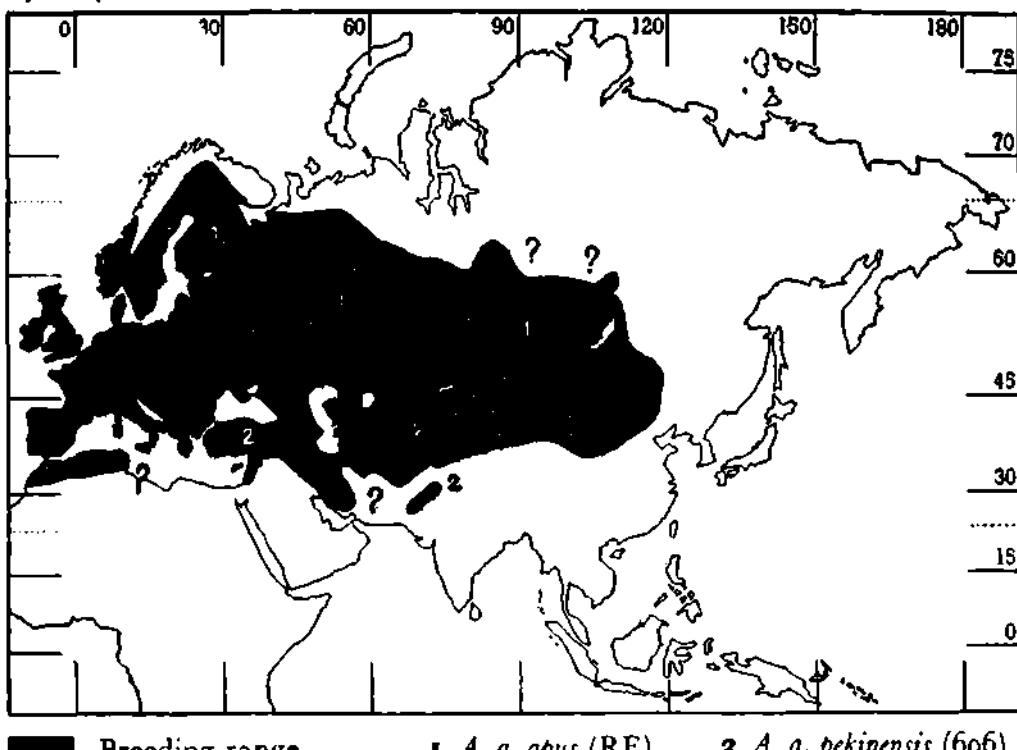
Young (immature) has the forehead whitish. Feathers of crown, belly, under tail-coverts, and leading edge of wing, margined with whitish.

**STATUS, DISTRIBUTION and HABITAT.** Breeding visitor to N. Baluchistan ('commonest swift near Quetta'), and northward along the Afghan frontier to Chitral and Gilgit. Also Ladakh, Baltistan, Kashmir and Himachal Pradesh (?); normally between c. 1500 and 3300 m, sometimes higher; obtained by Meinertzhagen in the Changchenmo, 14,800 ft (c. 4500 m) and observed at Tutyalak in the Indus Valley (Ladakh), 18,800 ft (c. 5730 m) in July, the latter presumably a foraging party from below; possibly partly resident in some of these areas. Wintering in small numbers in N. India; recorded from N. Cachar in Assam (Baker — regular or casual?), and stragglers from Andaman Is. (?), Maldives (Phillips), Saurashtra (Lavkumar, subspecies?).

**Extralimital.** 'Breeds in Cyprus, Asia Minor, Persia, Turkestan, NW. Mongolia and S. Manchuria, south to Palestine, Baluchistan, the Himalayas, Kansu and Chihili. Winters in India and in eastern Africa from the White Nile to the Kalahari Desert and Transvaal' (Peters).

**MIGRATION.** Arrives in its summer (breeding) quarters — N. Baluchistan, Chitral — beginning to mid April ; leaves in September.

**GENERAL HABITS.** Keeps in parties and scattered flocks, sometimes large rabbles, spending the entire daylight hours on the wing, hawking insects high up in the air or swooping in their pursuit close to the ground. In the early mornings, but more usually at dusk, indulges in the characteristic

*Apus apus*

communal 'balling' — a more or less compact rabble whirling round and round in the air, the disorderly revolving mass moving rapidly away as if wafted by the breeze, or mounting ever higher in the sky to disappear from view; this to the accompaniment of shrill lively 'screams'. Flight very fast, but less so than Alpine or Spine-tailed, with rapid quivering wing-beats, punctuated by spells of rocket-like gliding on stiffly open wings, with slight tilts and turns of the body and swishing wheeling movements. As summer visitor usually seen about cliffs in the mountains, roosting and nesting in rock fissures; but in extralimital areas commonly takes the place of House Swift (703), hawking over urban localities and normally nesting in buildings.



Left foot,  
x c. 1

**FOOD.** As in 694 (q.v.) and other swifts — insects, chiefly Coleoptera, Hemiptera, Diptera, and Hymenoptera.

**VOICE and CALLS.** 'A long-drawn harsh screaming *sweeer* or *sweeree*' (Witherby) uttered on the wing; in a discordant chorus when balling. Aerial nuptial (?) chases, but involving a trio instead of a pair commonly observed; its significance not fully understood. Copulation commonly takes place in mid-air as in Alpine Swift.

**BREEDING.** Owing to inaccessible cliff-sites apparently no nests taken within our limits, but circumstantial evidence of breeding in NW. Pakistan and Kashmir adequate. Season, May–June. Nest, presumably as in the nominate European form, a shallow cup of bits of straw, feathers and other rubbish hawked in the air and agglutinated together with the bird's saliva. Built in colonies on ledges within fissures of rock. Eggs, normally 3, sometimes 2 or 4, dull white, elongated ovals, c. 25 × 16 mm; laid at c. 48-hour

intervals; incubation period 18–19 days. (For details of breeding biology of nominate *apus*, see David Lack, 1956, *Ibis* 98: 606–19.)

MUSEUM DIAGNOSIS. ‘Similar to nominate *apus* but paler. Body plumage more brownish less blackish; wing feathers (especially secondaries) more greyish brown less blackish; forecrown paler, the pale area of throat more extensive and whiter’ (Vaurie, 1965). For description of plumages and structure etc. of the nominate race see Witherby, 1938, 2: 244–8.

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♀	160–180	c. 8	c. 10	66–77 mm (Baker)

Wing ♂♀ 165–176 mm (Hartert).

COLOURS OF BARE PARTS. Iris dark brown. Bill black. Legs and feet purplish brown.

#### 697. Pallid Swift. *Apus pallidus pallidus* (Shelley)

*Cypselus pallidus* Shelley, 1870, *Ibis*: 445 (Egypt)

*Cypselus murinus* A. & L. Brehm, 1855, *Vogelfang*: 46 (North Africa and southern Europe, Suit, Egypt). Not *Cypselus murinus* Voigt, 1831, which = *Cypsiurus parvus* (Lichtenstein)

Baker, FBI No. 1591, Vol. 4: 327

LOCAL NAMES. None recorded.

SIZE. Bulbul —; length c. 17 cm (6½ in.).

FIELD CHARACTERS. A typical swift with slender streamlined body, long, narrow bow-shaped wings, and moderately forked tail. Very like 696 but pale mousy- or hair-brown instead of blackish above, and even paler below (the feathers narrowly fringed whitish); whitish throat-patch diffusing at edges into surrounding brown. Sexes alike.

Pale coloration readily distinguishes it on the wing from Eastern Swift.

Young (immature) more squamated white and brown on underparts.

STATUS, DISTRIBUTION and HABITAT. A desert form occurring only in W. Pakistan as a scarce and apparently irregular winter visitor. Recorded from coastal Makran and Sind (Karachi, Hyderabad).

Extralimital. ‘Resident in Egypt, Palestine, Persia, S. Arabia and Sind; southern Sahara (Air)’ — Peters. Locally sympatric with 696.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 696, q.v.

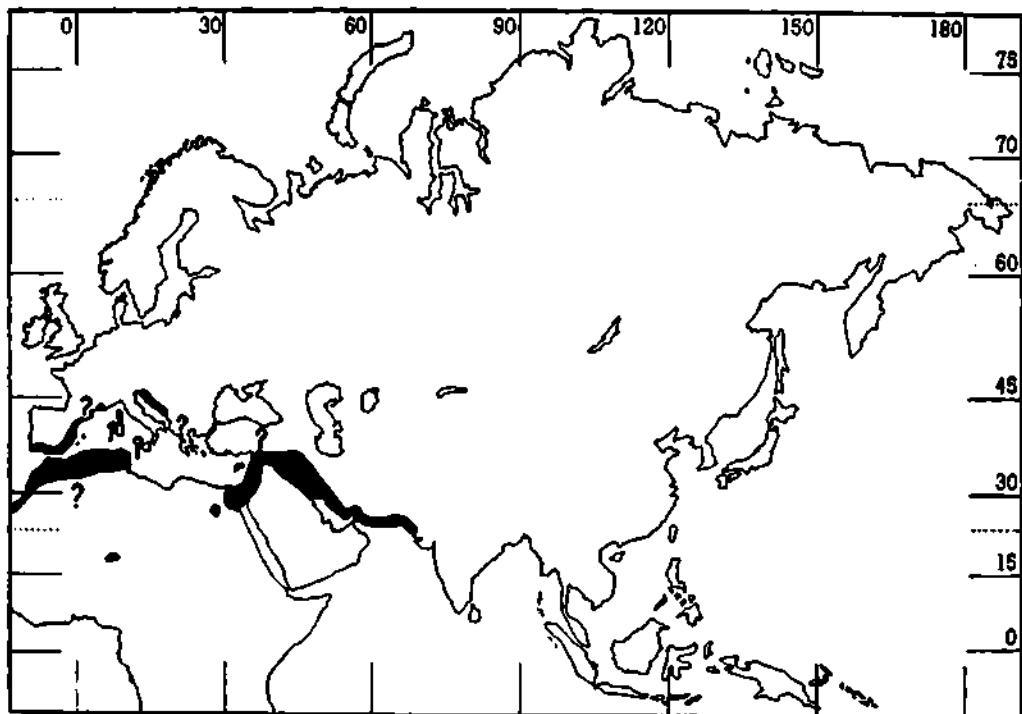
MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♀	162–170	c. 7	c. 9	65–70 mm (Baker)

24 ♂♀ from Egypt: Wing 164–171 mm (Meinertzhagen).

COLOURS OF BARE PARTS. Iris brown. Bill black. Legs and feet dull purplish brown.

*Apus pallidus*

■ Breeding range

**698. Darkbacked Swift. *Apus acuticauda* (Jerdon)**

*C. (ypselus) acuticauda* [sic] 'Blyth (MSS)' = Jerdon, 1864, Bds. India 2: 870. With reference to Vol. 1: 177, No. 99 (Nepal). Misprint for *acuticauda*.

*Cypselus acuticauda* Blyth, 1865, Ibis: 45 (Nepal)

*Apus acuticaudus rupchandi* Koelz, Contrib. Inst. Regional Exploration, No. 1: 26  
(Blue Mountain, Lushai Hills)  
Baker, FBI No. 1592, Vol. 4: 327

**LOCAL NAMES.** None recorded.

**SIZE.** Bulbul —; length c. 17 cm (6½ in.).

**FIELD CHARACTERS.** As of 696, q.v.; also with moderately forked tail.

**Adult.** *Above*, deep metallic black including rump. *Below*, chin and throat white streaked with black; under tail-coverts black; rest of underparts black squamated with white. Sexes alike.

In high overhead flight when rump not visible easily confused with white-rumped *A. pacificus* (699), which likewise has squamated underparts.

**STATUS, DISTRIBUTION and HABITAT.** Enigmatical. The type of the species was obtained in Nepal where not met with since. A single specimen shot at Port Blair on 30 July; its occurrence in the Andamans at that date considered very remarkable by Hume (1874, SF 2: 156). Known as breeding bird only in the Khasi Hills (Cherrapunji); presumably also breeds in Mizo hills.

**GENERAL HABITS.** Similar to 696 and 699, qq.v. Reported by Baker to keep in close proximity of its nesting cliffs while breeding, not making the far-ranging feeding forays of other swifts, and thereafter to disappear till the following nesting season.

**BREEDING.** Only known from the Khasi Hills, Assam, there restricted to the rocky cliffs and deep gorges around Cherrapunji facing the Sylhet plains — an area reputed for the world's heaviest rainfall. *Season*, end March to end April. *Nest*, similar to the Eastern Swift's (696), a shallow cup of grass, feathers, etc. agglutinated together with the bird's saliva and on to ledges of rock within fissures in cliffs — colonially. *Eggs*, 2 or 3, occasionally 4, white, long blunt ovals. Average size of 50 eggs  $26.0 \times 16.3$  mm (Baker). Both sexes reported to partake in nest-building and feeding the young. Share in incubation, and incubation period, undetermined.

**MUSEUM DIAGNOSIS.** The squamated effect of underparts is produced by white margins to the dull black feathers. Amount of this white very variable in adults (age-dependent?).

Nestling (partly fledged) has the white feather-margins on underparts very broad, and traces of pale edges to the scapulars, back, and wing-coverts (Baker).

For a review and discussion of the taxonomical status of *A. acuticaudus* and *A. pacificus*, of which he considers the former to be a subspecies, see D. Lack, 1956, *Ibis* 98: 36-8; *Auk* 73: 15 and *passim*.

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail (outer)
♂ ♀	167-174 (once 177)	c. 8	c. 16	70-74 mm (depth of fork c. 21-26 mm) (Baker)

**COLOURS OF BARE PARTS.** Iris deep brown. Bill black. Legs and feet fleshy white or pale plumbeous white (Baker).

#### APUS PACIFICUS (Latham): LARGE WHITERUMPED SWIFT

##### Key to the Subspecies

	Page
Large; wing over 160 mm.....	<i>A. p. pacificus</i>
Large; darker than the preceding with narrower white rump.....	47
.....	<i>A. p. kanoi</i>
Smaller; wing 160 mm or less.....	<i>A. p. leuconyx</i>
	50
	49

#### 699. *Apus pacificus pacificus* (Latham)

*Hirundo pacifica* Latham, 1801, Index Orn., Suppl., Iviii (new Holland = New South Wales *apud* Mathews); the *terra typica* has been fixed as the vicinity of Vladivostok by Domaniewski, 1933, Acta Orn. Mus. Zool. Polonici 1: 80  
Baker, FBI No. 1593, Vol. 4: 329

**LOCAL NAMES.** None recorded.

**SIZE.** Bulbul —; length c. 18 cm (7 in.).

**FIELD CHARACTERS.** A deeply fork-tailed swift, blackish brown above with a broad white rump-patch; squamated or mottled black and white below, with whitish chin and throat. Sexes alike.

## APODIFORMES

Easily confused with *A. acuticaudus* (698) in flight, but white rump (*v.* black) diagnostic.

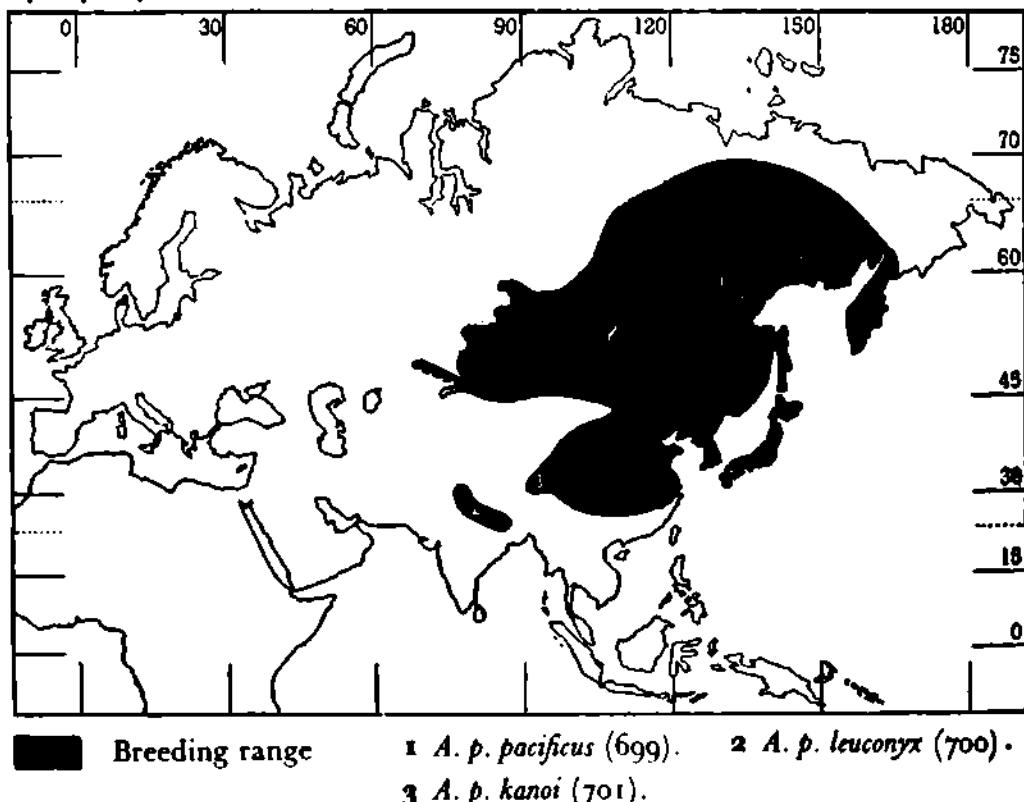
**STATUS, DISTRIBUTION and HABITAT.** From specimens collected, evidently a winter migrant or wanderer to Assam, Nagaland, Manipur, and Mizo (?); but status unclear owing to possible confusion in sight records with the other races, and even with *A. acuticaudus*.

**Extralimital.** Breeds in eastern Asia from the western Altai and Yakutsk east to Kainchatka and Korea; northern Mongolia and eastern China westward to Kansu and Szechuan. (For details see Vaurie, 1965, 2: 654.)

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in other swifts, e.g. 703.

**BREEDING.** Extralimital.

### *Apus pacificus*



**MUSEUM DIAGNOSIS.** See Key; for details of plumage, Baker, loc. cit.

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail (outer)
♂ ♀	168-195	c. 7	c. 10-11	72-81 mm (Baker)

For eastern Chinese birds La Touche, 1931-34 (2: 91) gives:

♂ ♂	182-198	c. 7	80-90 mm
♀ ♀	170-189	c. 13	{ 74-83 mm (depth of fork 23-33 mm)

**COLOURS OF BARE PARTS.** Iris dark brown. Bill black. Legs and feet dark purplish black (Baker).

700. *Apus pacificus leuconyx* (Blyth)

*Cypselus leuconyx* Blyth, 1845, Jour. Asiat. Soc. Bengal 14 (1): 212 (Calcutta)  
Baker, FBI No. 1595, Vol. 4: 331

**LOCAL NAMES.** None recorded.

**SIZE.** Sparrow ±; length c. 15 cm (6 in.).

**FIELD CHARACTERS.** As of 699, q.v. On a casual view in flight would pass for a House Swift (703), but for the forked tail. See Key to the Species.

**STATUS, DISTRIBUTION and HABITAT.** Status uncertain. Occurs in the breeding season along the outer Himalayas between c. 600 and 3600 m from Kashmir to NEFA including Nepal, Sikkim and Bhutan. Definitely known to breed round Murree, Mussoorie, Naini Tal and in the Khasi Hills (Shillong). Possibly also breeds elsewhere in the Himalayas and other hills south of Brahmaputra river, Manipur, Mizo and E. Pakistan hills. Movements in non-breeding season capricious and unpredictable even in areas of known abundance, e.g. northeastern Assam where 'flocks of hundreds one afternoon then not another bird to be seen again maybe for a week' (Hume). Easily missed in fine weather when hawking at great heights; more in prominence as forerunner of a storm and in overcast drizzly weather when it descends to lower levels, often seen in company with Alpine and House Swifts and swallows. Wanders far and wide in the Peninsula; has been reported from such far-flung localities as Andhra (Mulug), Saurashtra, Bombay City, Konkan, North Kanara (Karwar — 'large flocks occasionally during the rains' — Davidson, JBNHS 12: 47) and Malabar.

**GENERAL HABITS, and FOOD.** As in other swifts; during daytime almost ceaselessly on the wing hawking insects. Flying termites listed among stomach contents.

**VOICE and CALLS.** Not specifically described.

**BREEDING.** Season, apparently long-drawn, c. April to July. Nest, a half-cup of grass, bits of leaf, etc. cemented together with inspissated saliva, stuck against a slanting rock-face within a fissure in a high cliff; usually difficult of access. Built in small colonies or clusters. Utilizing nest of martin (*Delichon nipalensis*) has been recorded (Whymper). Eggs, 2 or 3, white, narrow, elongated, typical of swifts'. Average size of 11 eggs 22.7 × 15.0 mm (Baker). Share of the sexes in the domestic chores, and incubation period, unrecorded.

**MUSEUM DIAGNOSIS.** Differs from the nominate race (699) in being smaller and darker with a narrower white rump.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail (outer)
♂ ♀	147-160	c. 7	c. 11	65-71 mm (Baker)

**COLOURS OF BARE PARTS.** Iris brown. Bill black. Legs and feet purplish brown or purplish black (Ticehurst).

701. *Apus pacificus kanoi* (Yamashina)

*Micropus pacificus kanoi* Yamashina, 1942, Bull. Biogeogr. Soc. Japan 12 (2): 72  
 (Botel Tobago)

*Apus pacificus salimalii* Lack, 1958, Jour. Bombay nat. Hist. Soc. 55: 160-1  
 (Molo, Chu Valley, SE. Tibet)  
 Baker, FBI No. 1593 (part), Vol. 4: 329

**LOCAL NAMES.** None recorded.

**SIZE.** Bulbul —; length c. 18 cm (7 in.).

**FIELD CHARACTERS.** As of 699. See Key and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Not yet recorded but may occur in NEFA since it breeds in adjacent southeastern Tibet.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 699 and other swifts.

**BREEDING** in the lower Tsangpo Valley (SE. Tibet) at c. 3500 m in summer 'under the eaves of the larger houses and also in the lofty stone defence towers characteristic of the villages' (Ludlow, 1944).

**MUSEUM DIAGNOSIS.** As large as nominate *pacificus* (699), but almost identical with *leuconyx* in the other characters, viz. darker upperparts, decidedly narrower white rump, and much narrower white tips to feathers of underparts. Thus separable from *pacificus* by colour and from *leuconyx* by size.

**MEASUREMENTS.** Wing 5 ♂♂ 173-179 (mean 176) mm (Lack).

**COLOURS OF BARE PARTS.** As in 699.

## APUS AFFINIS (J. E. Gray): HOUSE SWIFT

## Key to the Subspecies

		Page
1	Tail square	
a	Crown brown, forehead more grey but no white and no trace of supercilium.....	<i>A. a. affinis</i> 51
b	Crown and forehead all brown.....	<i>A. a. nipalensis</i> 54
c	Crown grey-brown grading to whitish on forehead, often a trace of white supercilium.....	<i>A. a. galilejensis</i> 50
d	Head, tail and upper tail-coverts practically black.....	<i>A. a. singalensis</i> 54
2	Tail slightly but obviously forked.....	<i>A. a. subfurcatus</i> 55

702. *Apus affinis galilejensis* (Antinori)

*Cypselus Galilejensis?* Antinori, 1855, Naumannia: 307 (Sea of Galilee, Palestine)  
 Baker, FBI No. 1597, Vol. 4: 334

**LOCAL NAMES.** *Ābābel, Bābeelā* (Hindi); *Chāmro* (Sind).

**SIZE.** Sparrow; length c. 15 cm (6 in.).

**FIELD CHARACTERS.** As of 703, q.v. See Key to the Subspecies and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident and common in West Pakistan [Baluchistan (Quetta), Sind, W. Punjab (Dera Ghazi Khan)] except in the coldest months, c. November to February, when scarce or absent; presumably migrating then to warmer parts in peninsular India. But see remarks under Museum Diagnosis.

*Extralimital.* Morocco, Algeria, Tunisia and southern Sahara (Air); Syria, Palestine, Transcaspia and Persia (Peters). For details of range see Vaurie, 1965, 2: 649.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 703.

BREEDING. Season ill-defined; practically throughout the year excepting the coldest months. Nest and site as in 703. In Sind Ticehurst found small colonies under ledges of cliffs out in the desert (*Ibis*, 1923: 35). Eggs, 2, as of the Indian House Swift. Average size of 20 eggs  $22\cdot 4 \times 14\cdot 2$  mm (Baker).

MUSEUM DIAGNOSIS. Very similar to nominate *affinis* (703), also with short tail and a distinct contrast between colour of head and nape and colour of mantle. It is merely a larger and paler form of *affinis*, the palest parts of the head, namely the forehead and a short connected superciliary streak, tending to white. But recognizable with certainty only if a series of Palestine birds is compared with a series from south and central India. Individual specimens from W. Pakistan and NW. India are not always distinguishable in colour either from *galilejensis* or *affinis*, and moreover the complete gradation in size often makes subspecific allocation impossible. For a discussion see Whistler (JBNHS 38: 30), who suggests that under the circumstances *galilejensis* may be removed from the Indian list.

#### MEASUREMENTS

##### Palestine birds

		Wing	Tail
♂ ♀		132-138	40-46 mm

##### Punjab birds

9 ♂ ♂	125-134	39-44 mm
13 ♀ ♀	127-133	38-43 mm (HW)

COLOURS OF BARE PARTS. As in 703.

#### 703. *Apus affinis affinis* (J. E. Gray)

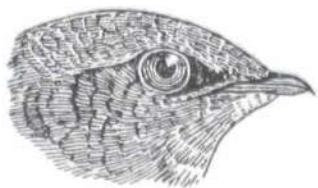
*Cypselus affinis* J. E. Gray, 1830, in Gray and Hardwicke's Ill. Ind. Zool. 1(2), pl. 35, f. 2 (No locality = Ganges)  
Baker, FBI No. 1596, Vol. 4: 332

LOCAL NAMES. *Abābeel*, *Bābeelā* (Hindi); *Pākoli* (Marathi); *Abābeelo* (Gujarati); *Sārāppākshi* (Malayalam).

SIZE. Sparrow; length c. 15 cm (6 in.).

FIELD CHARACTERS. A small smoky black swallow-like bird with conspicuous white rump, white throat, short square tail, and long narrow sickle-shaped wings. Usually seen in scattered rabbles dashing about in the air at great speed all day long, hawking insects over towns and villages, often in company with swallows. Sexes alike.

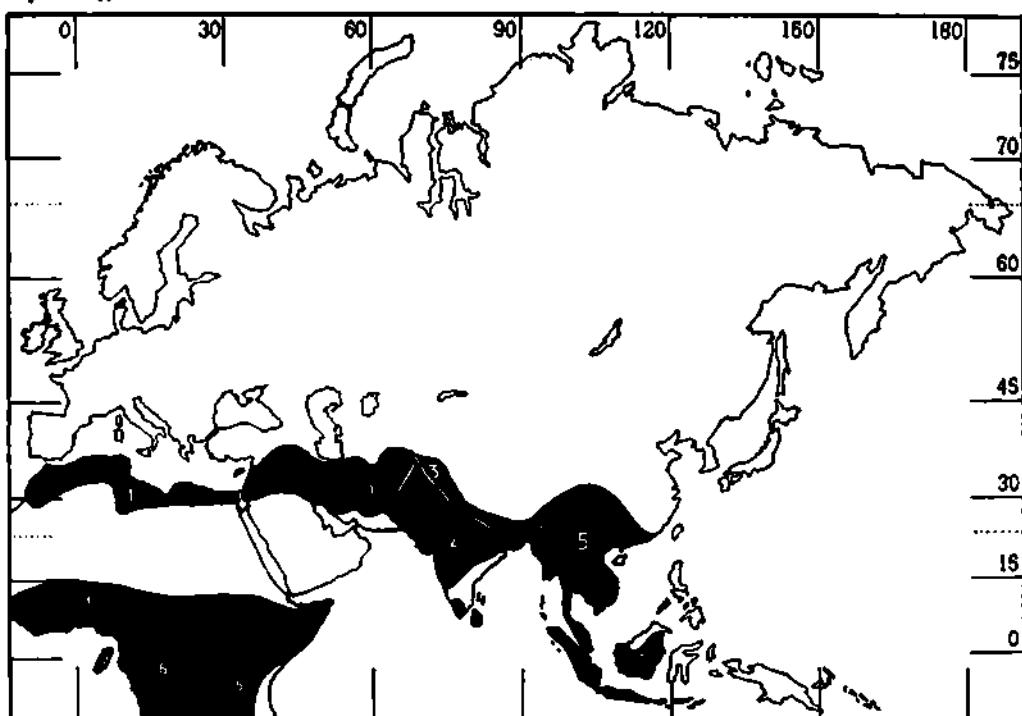
STATUS, DISTRIBUTION and HABITAT. Resident and common; in some areas locally migratory in the coldest months. All India from the Punjab to West Bengal, and south through the entire Peninsula with the possible exception of Kerala where the birds are



× c. 1

darker and seem more akin to the Ceylon race. Plains and up to c. 2000 m in the Himalayas and peninsular hills. Affects the neighbourhood of urban habitations, crumbling old forts and ruins, and cliffs.

*Apus affinis*



Breeding range

- Breeding range
- 1 *A. a. galileensis* (702).
- 2 *A. a. affinis* (703).
- 3 *A. a. nipalensis* (705).
- 4 *A. a. singalensis* (704).
- 5 *A. a. subfurcatus* (706).
- 6 *A. a. abyssinicus* (RE).
- 7 *A. a. bannermani* (RE).

**GENERAL HABITS.** Gregarious, predominantly aerial and rather parochial. In small parties and loose rabbles of up to 50 or a hundred birds or so; sometimes much larger aerial congregations or 'clouds', presumably then on local migration. Spends most of the day on the wing, usually keeping within a wide perimeter of the nest colonies or 'villages', the birds shooting into the nests from time to time as they circle around, sometimes more or less all in a body. Flight very swift (whence the name)—a few rapid quivering beats of the stiffly held narrow wings, followed by swooping glides, with much agile wheeling and twists and turns in pursuit of midges and other aerial insects. Shrill musical twittering squeals often accompany these manoeuvres. Flocks commonly seen disporting themselves in the evenings, 'balling' up in the sky obviously for fun, uttering shrill joyous screams; the milling rabble gradually wasting away in the distance or mounting higher and higher till almost out of sight. In a strong head wind, the wings are often turned steeply downwards like a sloping roof, the bird thus remaining suspended in mid-air for split seconds or even drifted backwards by the current but clearly enjoying the sport. Very sensitive to low temperatures, the majority, especially in the northern parts, abandon their breeding areas for three

or four of the coldest months. The paucity of tiny flying insects up in the frigid atmosphere may, however, be an important contributory factor.

*Courtship.* Nest-based birds frequently disport themselves of an evening — pairs or trios flying at speed in close formation, almost wing to wing, in and out of verandas etc. below the nest clusters, twittering shrilly the while. The flight now is a butterfly-like fluttering with the wings raised in a 'V' above the back, only their tips vibrating rapidly. The exact significance of these triangular 'chases' is not understood.

*FOOD.* Midges (Diptera), tiny flying bugs and beetles (Hemiptera, Coleoptera), winged ants (Hymenoptera), air-borne spiders (Araneida), etc. all captured in mid-air.

*VOICE and CALLS.* Shrill spirited musical screams, uttered chiefly on the wing. Rendered as 'a very rapid siksiksiksik—sik-sik—siksiksiksik all pitched on the same note' and variants of this (M. D. Lister). A shrill *chuck-chrrrr* started by one bird in the roost and promptly taken up as a chorus by its neighbours, sometimes passing as a wave, or as repeated waves, through the entire colony. Usually heard early in the morning before the birds leave their dormitory; sometimes also after retiring into it at dusk (A. Razack).

*BREEDING.* *Season*, practically all year except the coldest months, namely c. November to February, the peak periods (apparently two) varying locally. *Nest*, basically a globular untidy mass of grass and feathers cemented together with the birds' saliva, very variable in shape. Usually attached under the eaves of houses or in the angle of the ceiling and wall, or under an arched gateway, bridge and the like. Built in colonies, small or large, the nests stuck in disorderly fashion one upon another in a conspicuous conglomerated mass; each has a separate entrance, in some cases merely a slit between the wall and the nest. Old mosques and ruins are favoured, and the so-termed 'nest villages' are often sited in the midst of congested noisy bazaars with people and traffic moving within a few metres of the birds flying in and out. The nests are repaired and used year after year, and where unmolested the 'villages' tend to become traditional, some being known to be occupied for over eighty years. In areas of all-year residence nests used as dormitories during non-breeding season. Occasionally single nests are built, or a pair of swifts will usurp the mud nests of Wiretailed, Redrumped and Cliff Swallows, adapting them to their own use by a copious lining of tell-tale feathers. *Eggs*, 2 or 3, rarely 4, pure white longish ovals; laid at intervals of 2 or 3 days, in some cases even up to 7 days. Average size of 100 eggs  $22.2 \times 14.2$  mm (Baker). Both sexes take part in building the nest, incubation (?) and tending the young, who leave the nest between 37 and 43 days of hatching. Incubation period 18–26 days (Razack)<sup>1</sup>. Brooding begins with the first egg, often resulting in considerable disparity in the growth of the nestlings. They are fed on boluses of tiny insects brought in the parents' gullet. All nest material is also collected in the air.

*MUSEUM DIAGNOSIS.* Crown light brown paling to greyish on forecrown and forehead; upper tail-coverts and tail dark brown. Tail slightly forked when freshly moulted. For description of plumage see Baker, loc. cit.; for a discussion on the Indian races, Whistler (JBNHS 38: 30); Abdulali (ibid. 62: 523–8).

<sup>1</sup> Razack, K. M. A., 1968. 'Some Observations on the Biology of the House Swift, *Apus affinis* (Gray).' Ph.D. thesis, M. S. University, Baroda.

## MEASUREMENTS

	Wing	Tail
♂ ♀	122-135	37-44 mm (Baker, HW, HA)
Bill (from feathers) 6-7 mm; tarsus c. 9-10 mm (Baker).		

Weight 1 ♂ 21 g (SA).

COLOURS OF BARE PARTS. Iris brown. Bill horny black; mouth pink. Legs and feet pinky brown; claws horny black (SA).

704. *Apus affinis singalensis* Madarász

*Apus singalensis* Madarász, 1911, Ann. Hist.-Nat. Mus. Nat. Hungar. 9: 420, pl. 16 f. 4 (Ceylon)

Baker, FBI No. 1598 (part), Vol. 4: 334

LOCAL NAMES. *Wéhi lihiniyā* (Sinhala); *Sárappákshi* (Malayalam); *Forika* (Maldivean).

SIZE. Sparrow; length c. 15 cm (6 in.).

FIELD CHARACTERS. As of 703, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; Ceylon and possibly Kerala. Plentiful but locally distributed in all zones throughout the Island to over 1200 m; patchily and rather capriciously in Kerala. Sight recorded in Maldives Is. (Phillips, JBNHS 60: 580); subspecies unconfirmed. Keeps chiefly in the neighbourhood of big rock-masses in the foothills and low country.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 703.

BREEDING. Season, April to September, chiefly March to July. Breeding biology as in 703.

MUSEUM DIAGNOSIS. Distinguished from peninsular *affinis* (703) by blacker coloration: head, tail and upper tail-coverts all practically black, almost the same colour as mantle. Rump-patch white as in 703 and other races. Kerala birds are also blacker than *affinis* and evidently belong to the Ceylon population.

## MEASUREMENTS

	Wing	Bill (from skull)	Tail
♂ ♀	127-133	11-12	42-45 mm (HW, HA)

Weight 1 ♂ 24 g; 1 ♀ 23 g (SDR).

COLOURS OF BARE PARTS. As in 703.

705. *Apus affinis nipalensis* (Hodgson)

*Cypselus Nipalensis* Hodgson, 1836, Jour. Asiatic Soc. Bengal 5: 780

(Central region of Nepal)

Baker, FBI No. 1598, Vol. 4: 334

LOCAL NAME. *Bátási* (Nepali).

SIZE. Sparrow; length c. 15 cm (6 in.).

**FIELD CHARACTERS.** As of 703, q.v. See Key to the Subspecies and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident, subject to seasonal local and altitudinal movements. Nepal, Sikkim, Bhutan and western Assam (Kamrup dist.) to c. 2000 m.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 703.

**BREEDING.** Season, chiefly April to July. Apparently less colonial than *affinis* at least when nesting in buildings; the 'villages' usually smaller, and usurpation of individual swallow nests commoner. Colonies may be larger when sited on cliffs, but this not specifically recorded. Average size of 10 eggs  $21 \cdot 9 \times 14 \cdot 4$  mm (Baker).

**MUSEUM DIAGNOSIS.** Darker than *affinis* with the head all brown, not paling to greyish on forehead or forecrown. Upperparts, excepting white rump-patch, sooty black slightly glossed with green.

**MEASUREMENTS**

		Wing	Tail
16	♂ ♀	129-139	42-49 mm (Biswas)

**COLOURS OF BARE PARTS.** As in 703.

**706. *Apus affinis subfurcatus* (Blyth)**

*Cypselus subfurcatus* Blyth, 1849, Jour. Asiatic Soc. Bengal 18 (2): 807 (Penang)  
Baker, FBI No. 1599, Vol. 4: 335

**LOCAL NAME.** *Dao hadi* (Cachari).

**SIZE.** Sparrow; length c. 15 cm (6 in.).

**FIELD CHARACTERS.** As of 703, q.v. See Key to the Subspecies and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident, with the usual seasonal local movements. Assam (excluding Kamrup dist.) to c. 1200 m, south through Nagaland, Manipur, Mizo Hills (?); East Pakistan.

**Extralimital.** Southern China from Yunnan to Fukien, south to Burma, Malay Peninsula, Thailand and the Indochinese countries. Indonesian islands.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 703.

**BREEDING.** Season, in Assam April to July, chiefly May and June. 'A purely cliff-breeding bird, [in Assam] some of the colonies being of great size, numbering one or even two hundred pairs of birds. . . . The nests on cliffs are nearly all of the strong, well made half-cup type' (Baker). Eggs 2 or 3; average size of fifty  $22 \cdot 7 \times 14 \cdot 9$  mm.

**MUSEUM DIAGNOSIS.** Darker than *affinis* with head, tail, and upperparts (except for white rump) all practically black and without contrast. Matches *singalensis* (704) in colour, but is larger on the average and with a longer, slightly forked tail.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	130-142	c. 6	c. 9-10	44-47 mm (Baker)

Outer tail-feathers 4-7 mm longer than the central ones.

COLOURS OF BARE PARTS. As in 703.

### Genus CYPSIURUS Lesson

*Cypsiurus* Lesson, 1843, Echo du Monde Savant, Ann. 10, 2me sem.: 134. Type, by monotypy, *Cypselus ambrosiacus* Temminck = *Cypselus parvus* Lichtenstein

Small swifts with deeply forked tails. Toes arranged in pairs, the 3rd and 4th toes outward, the 1st and 2nd (inner and hind) inward.

#### CYPSIURUS PARVUS (Lichtenstein): PALM SWIFT

##### Key to the Subspecies

Paler; depth of tail-fork exceeding 28 mm.....*C. p. balasiensis*

Darker; depth of tail-fork less than 26 mm.....*C. p. infumatus*

#### 707. *Cypsiurus parvus balasiensis* (J. E. Gray)

*Cyp.(selus) Balasiensis* [sic] J. E. Gray, 1829, in Griffith's Anim. Kingdom 7: 60 (India, restricted to Calcutta by Baker, 1927, Fauna 4: 336, re-restricted to Balasore district, north-eastern Orissa, by Ripley, *Synopsis*, 2nd ed., p. 201, 1982)

*Cypselus palmarum* J. E. Gray, 1830, in Gray and Hardwicke's Ill. Ind. Zool. 1(2), pl. 35, figs. 1a and 1b (No locality = Cawnpore)  
Baker, FBI Nos. 1600, 1601, Vol. 4: 336; 338

#### Plate 46, fig. 4, facing p. 64

LOCAL NAMES. *Tādi ābābeel*, *Tālchatta*, *Patta deuli* (Hindi); *Tālcharāi*, *Bāthāsi* (Bengal); *Shimri* (Marathi); *Tād ābābeelo* (Gujarati); *Ambāttān kātti* (Tamil); *Pāndāpākshi*, *Pāndāhākki* (Kannada); *Pānāmpākshi* (Malayalam); *Wéhi lihiniyā* (Sinhala); *Ulāvārā kūruvi* (Tamil, Ceylon).

SIZE. Sparrow — ; slimmer. Length c. 13 cm (5 in.).

FIELD CHARACTERS. A slim, plain sooty grey swift, with narrow, deeply forked tail. In flight the long slender curving wings reminiscent of a miniature bow with the body set in it for an arrow. Tail-fork very conspicuous when bird banking in flight. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident practically throughout our area south of the Himalayas [excluding the range of the eastern *infumatus* (708)] and Ceylon. Patchy in Rajasthan and Gujarat. Absent in West Pakistan. Chiefly plains; locally in the hills to c. 1000 m. Affects open country and cultivation dotted with palm trees. Occurrence everywhere closely associated with palms, especially the *tād* or palmyra (*Borassus flabellifer*), and locally the betelnut palm (*Areca catechu*).

GENERAL HABITS. Gregarious and aerial like House Swift, but usually more scattered; rarely seen in close-packed rabbles. Spends the day on the wing hawking insects high up in the air or close to the ground, almost invariably in the proximity of palmyra palms; sometimes a colony may even be based on a single palmyra palm, or a small cluster, with no others for miles around. Flight swift and arrowy with agile twists and turns in pursuit of prey, accompanied by lively twittering screams. This particularly when a party is sporting around the roosting place near sunset. Roosts in furrows on the underside of a downhanging palmyra leaf, clinging in an upright

position. Courtship chases as in House Swift (703), sometimes involving three and even four birds. Copulation in mid-air as in most other swifts.

**FOOD.** Winged ants and other hymenopterous insects, tiny bugs and beetles (Hemiptera, Coleoptera), etc., taken in the air.

**VOICE and CALLS.** A shrill, joyous, triple twittering scream *tititee*, uttered on the wing.

**BREEDING.** Season, practically throughout the year, the peak periods varying locally. Nest, a flimsy half-saucer c. 10 mm deep and 40 mm in diameter, of vegetable down (e.g. *Calotropis*, *Salmalia*, etc.) agglutinated together with the bird's saliva; attached bracketwise within a furrow on the underside of a drooping palmyra frond with the supporting 'apron' of inspissated saliva and feathers stretching upward for c. 8 cm behind the nest like a screen or backdrop. This apron used by growing young to cling to when the cup gets too small to contain them. Nest sometimes built near mid-rib under arching areca frond. Eggs, normally 2 occasionally 3, pure white elongated pointed ovals, typical of swifts. Average size of 50 eggs  $18.2 \times 11.5$  mm (Baker). Both sexes take part in collecting floating vegetable down in the air and in building the nest. Share in incubation, and period, unrecorded.

**MUSEUM DIAGNOSIS.** See Key to the Subspecies.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂♀	113-122	7-8	8-9	central 60-68 mm outer (HW, SA)

**COLOURS OF BARE PARTS.** Iris brown. Bill dark horny brown; mouth pinkish grey. Legs, feet and claws pinkish brown.

708. *Cypsiurus parvus infumatus* (Sclater)

*Cypselus infumatus* Sclater, 1865, Proc. Zool. Soc. London: 602  
(Banjermassing, Borneo)

Baker, FBI No. 1602, Vol. 4: 338

Plate 46, fig. 4, facing p. 64

**LOCAL NAME.** *Dao hadi kashiba* (Cachari).

**SIZE.** Sparrow — ; slimmer. Length c. 13 cm (5 in.).

**FIELD CHARACTERS.** As of 707. See Key to the Subspecies, and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. Assam south of Brahmaputra river, Nagaland, Manipur, Mizo hills, Tripura, East Pakistan. Plains and up to c. 600 m. Sight recorded (subspecies?) in NEFA (Subansiri area) — Betts, JBNHS 53: 411.

**Extralimital.** Burma, Thailand, and Vietnam; Hainan I. Malay Peninsula, Tambelan Is., Sumatra, Java, Bali, Billiton and Borneo (Peters).

**GENERAL HABITS.** Similar to 707, but keeps more to open clearings in forest, and is somewhat less dependent on palm trees. In their absence commonly roosts and nests in the thatching of roofs in tribal villages, flying in and out of the houses fearlessly within grabbing distance of the inmates.

**FOOD, VOICE and CALLS.** As in 707.

**BREEDING.** Season, chiefly March to August in the plains; April to June in the hills. Nest as in 707 but commonly built under projecting eaves or in the roofs of village houses thatched with grass, bamboo leaves, and palm leaves. Sometimes under large downhanging leaves of palms, e.g. the Tok palm (*Livistona jenkinsiana*) in compounds, frequently within hand reach. Eggs 2 or 3; average size of fifty  $17 \cdot 1 \times 11 \cdot 7$  mm (Baker).

**MUSEUM DIAGNOSIS.** Differs from *batasiensis* (707) in being darker, with a shorter, less deeply forked tail. *Above*, blackish brown, the wing-quills and tail almost black with a slight gloss. *Below*, dark brown, sometimes slightly paler and greyish on chin and throat.

**MEASUREMENTS.** Wing ♂ ♀ 113–126 mm (Baker).

**COLOURS OF BARE PARTS.** As in 707.

#### Subfamily HEMIPROCNINAE

Differs from swifts of the subfamily Apodinae in the character of the tarsi and feet which superficially resemble swallows'. Hind toe not reversible, and unlike other swifts the birds are capable of perching like a true passerine.

#### Genus HEMIPROCNE Nitzsch

*Hemiprocne* [nominative plural] Nitzsch, 1829, Obs. Av. Arter. Carot. Comm.: 15 and note. Type, by subsequent designation, *Cypselus longipennis* Temminck  
= *Hirundo longipennis* Rafinesque

Sincipital plumes long and erectile forming a frontal crest. Tail long and deeply forked. Wings when folded reach nearly to end of tail. Sexes dimorphic in plumage and young unlike adult. There is a patch of silky down feathers on each flank.

Only a single species and race within our limits.

#### 709. Crested Swift. *Hemiprocne longipennis coronata* (Tickell)

*Hirundo Coronata* Tickell, 1833, Jour. Asiatic Soc. Bengal 2: 580

(Jungles of Borabhum and Dholbhumi)

*Hemiprocne longipennis dryas* Ripley, 1950, Proc. Biol. Soc. Washington 63: 101

(Juna Rajpipla, South Gujarat)

Baker, FBI No. 1616, Vol. 4: 354

Plate 46, fig. 6, facing p. 64

**LOCAL NAMES.** *Dao hadi ko* (Cachari); *Tājdār ābābeel* (Hindi); *Wēhi lihiniyā* (Sinhala); *Chōtāliyo ābābeelo* (Gujarati); *Sārāppākshi* (Malayalam).

**SIZE.** Bulbul ±; length c. 23 cm (9 in.).

**FIELD CHARACTERS.** A slender blue-grey swallow-like bird with a prominent backward curving frontal crest, erected when perched.

**Male.** *Above*, bluish grey glossed with green. *Below*, chin, throat and sides of face chestnut; breast ashy grey, passing into white on abdomen and under tail-coverts.

**Female,** similar but lacking the chestnut on the face and throat.

Flight, and appearance on wing, very like palm swift, but larger size, white underparts and more



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deeply forked tail distinguish it. At rest the tail, narrowed to a spike, projects between the crossed wing-tips.

**STATUS, DISTRIBUTION and HABITAT.** Resident; rather patchily distributed and subject to some seasonal local movements. All along the base of the Outer Himalayas (up to c. 1000 m) and throughout the Indian Union except the more treeless parts of Punjab, Rajasthan, and Gujarat (Kutch). Occurs also in Nepal (lowlands, bhabar and dun), East Pakistan, and Ceylon (lowlands and hills to c. 1200 m). Absent in West Pakistan. Affects well-wooded areas of deciduous forest — teak, *Anogeissus*, *Boswellia*, etc. — preferably in broken foothills country.

**Extralimital.** Extends through Burma south to central Tenasserim, Thailand and the Indochinese countries. Other races in the Indonesian islands.

**GENERAL HABITS.** Keeps in loose parties of 6 to 8, occasionally larger flocks, wheeling in wide circles hawking insects high above the tree-tops in open deciduous forest, uttering their distinctive calls. Comparatively parochial, seldom wandering as far afield as some other swifts in the course of their foraging. Flight very like Palm Swifts, much slower than is typical of the family though accompanied by the same nimble twists and turns and graceful evolutions in pursuit of insect prey. Settles from time to time near the tips of leafless trees to rest and preen, perching bolt upright with the crest raised. Dips at speed to drink from the surface of forest pools, rising again in a graceful curve.

**FOOD.** Flying insects — Hemiptera, Coleoptera, etc.

**VOICE and CALLS.** A harsh but not unpleasant double note *ti-chuk, ti-chuk* or *whit-tuck, whit-tuck* reminiscent of the scolding notes of the Shikra hawk — uttered chiefly in flight. A trisyllabic *kip-kee-kep*, middle syllable much emphasized, given frequently from a perch (Lowther). Call also described as resembling a parakeet's scream (Nichols).

**BREEDING.** *Season*, December to July, varying with locality. Chiefly January to March/April in the Peninsula; March to May and again September in Ceylon. *Nest*, a ridiculously tiny and shallow half-saucer c. 50 × 30 mm across, and 10–12 mm deep in the middle. Made of scales or flakes of papery bark, more or less uniform in size and shape, and small feathers, agglutinated together with the birds' saliva; attached bracketwise to the side of a thin horizontal branch, 20 to 50 mm in diameter, near the top of a leafless tree, 4 to 18 m above the ground. Nest practically invisible from below or merely as a small knot in the branch. *Egg*, a singleton, glossless white with a faint bluish tinge when fresh; elongated oval, obtuse at both ends, filling the diminutive nest completely. Average size of 29 eggs 23·7 × 17·1 mm (Baker). Both birds partake in nest-building, incubation, and feeding the young. Incubation period undetermined. The incubating bird perches upright on the branch against the nest puffing out its breast and abdomen feathers to cover the egg and nest. The nestling, clad in grey down, remains rigid and immobile in the nest with its bill pointing slightly upward, simulating to perfection a lichen-covered snag cf. *Hemipus* (1065) and *Tephrodornis* (1070). Older young in mottled juvenile plumage perches more or less upright by nest, like incubating adult, with head, neck and bill extended upward and crest raised, thus becoming extraordinarily camouflaged. [For good accounts of the breeding biology see H. Whistler, JBNHS 34:

## TROGONIFORMES

772-7 (photos); J. K. Stanford and H. C. Smith, *ibid.* 39: 125-6; E. H. N. Lowther, *ibid.* 39: 116-24 (photos).]

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

Young (immature). *Above*, feathers finely edged with pure white with broad subterminal bands of pale brownish grey. Scapulars and innermost secondaries broadly grey-white at the ends, with very fine brown subterminal lines. *Below*, feathers edged with white and sub-edged blackish.

MOULT. Postjuvenile moult apparently does not include primaries and coverts, secondaries and greater coverts, tertaries and tail. Except for these unmoulted parts, first-year male agrees with adult male. A complete moult in autumn in which the body plumage is usually changed well before the wings and tail. There appears to be a partial body moult in spring (Whistler).

Nothing is known about the patch of silky downy feathers on the flanks or the curious decomposed edges to the tertaries which in some examples show up as a conspicuous patch.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail	
				central	outer
14 ♂♂	141-156	11-12	7-9	40-47	110-135 mm
10 ♀♀	148-160	11-13	7-9	40-46	124-127 mm (HW, SA)

Baker gives for ♂♀ Wing 151-165 mm.

COLOURS OF BARE PARTS. Iris brown. Bill horny black; mouth greyish pink. Legs and feet pinkish brown; claws blackish brown.

## Order TROGONIFORMES

For morphological details see Stresemann, E., 1927-34, *Aves* : 833; Baker, 1927 FBI 4: 314 (Sub-order Trogones).

## Family TROGONIDAE: Trogons

For description see Van Tyne, J., and Berger, A. J., 1959: 469; Eugene Eisenmann, 1964. Article 'Trogon' in Thomson, A. L. (ed.) *New Dict. Birds*, London & New York.

## Genus HARPACTES Swainson

*Harpactes* Swainson, 1833 (1832-33), Zool. Ill. (2), 3: 107 (in key). Diagnosis only, no type or included species. Species added, Swainson, 1837, Classif. Bds. 2: 337

Type, by subsequent designation, *Trogon malabaricus* Gould

Bill short, strong and wide; tip of culmen boldly hooked and toothed. Nostrils and base of bill well covered with bristles; cheeks partly naked. Feet small; tarsi feeble, half feathered. Tail long, the rectrices broad and squarely truncated in adult, pointed in young; of 12 broad feathers, the outer three pairs steeply graduated. Wing rounded, of 10 primaries; inner primaries and secondaries very short. Body plumage soft and dense; skin very thin.

## Key to the Species

		Page
A	Belly red in males, cinnamon in females.....	<i>H. fasciatus</i> 61
B	Belly red in both sexes.....	<i>H. erythrocephalus</i> 64
C	Belly geranium pink in males; primrose yellow in females....	<i>H. wardi</i> 66

## HARPACTES FASCIATUS (Pennant): TROGEN

## Key to the Subspecies

	Page
Head and foreneck grey, not black or blackish.....	<i>H. f. fasciatus</i> 63
Head and neck black, not grey.....	<i>H. f. malabaricus</i> 61
Similar to last but paler, especially on back; white of wing barrings more extensive.....	<i>H. f. legerli</i> 61

710. *Harpactes fasciatus legerli* Koelz

*Harpactes fasciatus legerli* Koelz, 1939, Proc. Biol. Soc. Washington 52: 79  
(Foot of Mahendragiri, Orissa)

Baker, FBI No. 1585 (part), Vol. 4: 317

Cf. Sálim Ali, 1949, JBNHS 48: 806-8

LOCAL NAME. *Kufni chiri* (Hindi).

SIZE. Myna ±, with longer tail; overall length c. 31 cm (12 in.).

FIELD CHARACTERS. As of 711, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Southern Gujarat (Surat Dangs) and northern Maharashtra (Khandesh) south to c. lat. 20°N., eastward, presumably over the Satpura trend, through Madhya Pradesh (Bastar dist.) to Chota Nagpur and Orissa (Mahendragiri); from plains level to c. 1200 m. Affects moist-deciduous and semi-evergreen forest.

GENERAL HABITS, FOOD, VOICE and CALLS. As in Malabar Tropic (711).

BREEDING. As in 711.

MUSEUM DIAGNOSIS. Differs from *H. f. malabaricus* (711) in being larger and brighter coloured.

Male. Head (and breast) greyish black v. deep sooty black in 711. Upperparts bright yellowish brown, less suffused with chestnut, particularly on upper tail-coverts.

Female. Above, upper back darker with an olive tinge (more or less concolorous with head), contrasting strongly with bright rufous-orange of rump and upper tail-coverts.

Females from S. Gujarat are somewhat intermediate between the Kerala population and that of eastern Madhya Pradesh and Orissa.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
14 ♂♂	130-142	20-21	15-17	155-184 mm
8 ♀♀	125-135	19-21	15-17	143-176 mm (SA)

COLOURS OF BARE PARTS. As in *malabaricus* (711).

711. *Harpactes fasciatus malabaricus* (Gould)

*Trogon Malabaricus* Gould, 1834, Proc. Zool. Soc. London, pt. 2: 26 (Malabar Coast)  
Baker, FBI No. 1585, Vol. 4: 317

Plate 44, fig. 4, facing p. 16

LOCAL NAMES. *Kufni chiri* (Hindi); *Kārnā* (Marathi); *Kākārmē hākki* (Kannada); *Theekkkā* (Malayalam).

SIZE. Myna ±, with longer tail; overall length c. 31 cm (12 in.).

**FIELD CHARACTERS.** A brilliantly coloured bird with a relatively long, broad and curiously square-ended tail.

**Male.** Head, neck and breast sooty black. Back yellowish brown; wings blackish with fine wavy white barring. Underparts brilliant crimson-pink divided from black breast by a prominent white gorget.

**Female** duller, with the underparts orange-brown instead of crimson-pink.

**STATUS, DISTRIBUTION and HABITAT.** Resident. Peninsular India in the Western Ghats complex, south of the range of *legerli* (710), i.e. south of c. 20°N.—through Maharashtra, Goa, Mysore, Tamil Nadu, and Kerala; from plains level to c. 1500 m. Sight records from Andhra — Amrabad Plateau c. 700 m, Nallamalai Hills (SA, JBNHS 37: 136) and Sankrametta c. 1200 m (Vishakhapatnam dist., La Personne, ibid. 38: 28). Affects evergreen and moist-deciduous forest.

**GENERAL HABITS.** Essentially a forest bird with a preference for secondary moist-deciduous and mixed bamboo jungle. Arboreal, sluggish, and somewhat crepuscular, often hunting till well after sunset. Usually keeps singly or in widely separated pairs perched bolt upright and inert on low branches and tree-stumps for long periods, sallying out occasionally after winged insects. Seemingly possesses an uncanny knack of always keeping the dull coloured back turned to the observer. The broad truncated tail, as broad as the body, then looks like a strip of bark or a dry leaf, camouflaging the bird in an astonishing way. The peculiar mewing calls are usually the first indication of its presence in any patch of jungle. Has a curious habit, when alarmed or apprehensive and preparing to fly off, of bending forward and expanding and flicking up the tail every little while to the accompaniment of a low mewing twitter. In the initial spurt of taking wing, flutters or spins rapidly from side to side like a dove suddenly frightened, the pointed primaries and expanded tail screwing this way and that in the precipitate action. Jerky 'saw-toothed' braking movements before alighting also recall a dove's. Flits from one vantage point in the forest to another, the tail frequently flicked open and shut as it goes, flashing the white lateral feathers. Captures flying insects on the wing, turning and twisting in the chase with the graceful agility of a Paradise Flycatcher. Will sometimes cling laterally to tree-trunks and branches to snatch an insect, or hover momentarily in front of a bunch of leaves to do so; occasionally also swoops to the ground in the quest.

**FOOD.** Caterpillars, beetles, grasshoppers, cicadas and other insects; also leaves and berries.

**VOICE and CALLS.** A throaty, rather abrupt musical *mew* or *cue* (of near oriole quality) usually in runs of 3 (*cue-cue-cue*) — sometimes 4 and even 5 — either quickly repeated or unhurriedly and deliberately. A low rolling creak, *krr-r-r-r*, when alarmed or apprehensive.

**BREEDING.** *Season*, chiefly February to May. *Nest*, an unlined natural hollow in or on top of a broken tree-stump in deep forest, usually under 6 m from the ground. A flimsy stick-nest like a dove's has been reported (JBNHS 39: 24). *Eggs*, 2 to 4, pale ivory white, glossy, unmarked, rather spherical. Average size of 30 eggs 26.7 × 23.4 mm (Baker). Evidently both sexes partake in incubation; period unrecorded.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. Differs from the nominate race of Ceylon (712) in the male having a much darker sooty black head and breast *v.* leaden grey-black. No difference in female.

Young (immature) male has crimson of underparts replaced by pinkish salmon or buffy brown (as in female), variegated with red. Primaries, secondaries and some of the lesser coverts are evidently retained from juvenile plumage, as is also the tail. Juvenile rectrices narrower; central pair not squarely truncated but with normal rounded tips, and lacking the black terminal band.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
16 ♂♂	122-129	20-23	13-15	156-180 mm
10 ♀♀	122-131	20-21	13-15	162-167 mm (SA, HW)

Weight 2 ♂♂ 62, 64; 2 ♀♀ 60, 64 g (Rensch, SA)

**COLOURS OF BARE PARTS.** Iris dark brown; orbital and sub-orbital skin bright cobalt blue. Bill blue, black on culmen and tips of both mandibles; mouth pink. Legs and feet pale blue; claws horny brown.

### 712. *Harpactes fasciatus fasciatus* (Pennant)

*Trogon fasciatus* Pennant, 1796, Indian Zool.: 4, pl. 5 (Ceylon)

*Harpactes fasciatus parvus* Deraniyagala, 1954, Admin. Rep. of the Dir. Nat. Museums Ceylon, for 1953. Pt. iv, Educ., Sci., and Art (E): E9 (Thanni arripu, N.P., Ceylon)  
Baker, FBI No. 1584, Vol. 4: 316

**LOCAL NAMES.** *Gini kurullā, Nawa nila kurullā, Ranwan kondea* (Sinhala).

**SIZE.** Myna  $\pm$ , with longer tail; overall length c. 31 cm (12 in.).

**FIELD CHARACTERS.** As of 711, q.v. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Race peculiar to Ceylon. Resident. Moderately plentiful in forest areas throughout the Island to over 1800 m; more plentiful in the Wet zone rain-forests than elsewhere (Phillips).

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 711. Observed plunging in pool from overhanging branch to bathe (CBCN, July 1972: 37).

**BREEDING.** Season, March to June, chiefly March and April. Nest and eggs as in Malabar Trogon (711), the latter even more spherical, measuring c. 25  $\times$  24 mm.

**MUSEUM DIAGNOSIS.** Slightly smaller than *malabaricus* (711) with a shorter tail, actually and comparatively. Head and breast of male paler, a leaden grey-black *v.* sooty black in the former. No significant colour difference in females of the two. For details of plumage see Baker, loc. cit.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂♀	118-126	20-21	13-15	139-152 mm (HW)

**COLOURS OF BARE PARTS.** As in 711.

**HARPACTES ERYTHROCEPHALUS (Gould): REDHEADED TROGON****Key to the Subspecies**

	Page
<b>Smaller: Wing 143–148 mm . . . . .</b>	<i>H. e. erythrocephalus</i> 66
<b>Larger: Wing 142–168 mm . . . . .</b>	<i>H. e. hodgsonii</i> 64

713, 714. *Harpactes erythrocephalus hodgsonii* (Gould)

*Trogon (Harpactes) Hodgsonii* Gould, 1838, Monogr. Trogonidae, List of pl. No. 34 (Nepal). Restricted by Biswas to Hitaura, Chisapani Garhi Province, Nepal

*Harpactes erythrocephalus helenae* Mayr, 1941, Ibis: 495

(Nyetmawhka, 8500 ft, Myitkyina dist., Upper Burma)

Baker, FBI No. 1586 (part), Vol. 4: 318

**Vol. 3, plate 39**

**LOCAL NAMES.** *Süda sohāgin* ♂, *Kūchkūchia* ♀ (Bengal); *Hāmēshā piyārā* (Hindi); *Sakvor* (Lepcha).

**SIZE.** Myna +, with longer tail; overall length c. 35 cm (13½ in.).

**FIELD CHARACTERS.** Male. Head, neck and breast deep crimson, sometimes with traces of a white breast band. Back and upperparts chiefly rusty brown. Wing-coverts and tertaries finely vermiculated black and white. Long, broad, truncated square-ended tail black and white. Underparts brighter and lighter crimson.

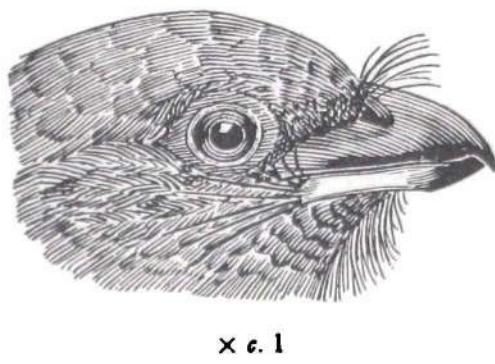
Female. Head, neck and breast dull orange-brown; rest as in male including crimson underparts.

In both sexes the white in the outer tail-feathers and whitish wing-patch are conspicuous, particularly in flight.

**STATUS, DISTRIBUTION and HABITAT.** Resident. The Himalayas from Kumaon through Nepal, Sikkim, Bhutan and Arunachal; terai, duars and up to c. 2400 ft. Also the central Assam hill ranges (Khasi, Garo, etc.), Nagaland and Manipur. The form in the last two needs confirming. Affects dense tropical secondary evergreen and mixed bamboo jungle.

**Extralimital.** Extends into Upper Burma, northern Shan States and western Yunnan.

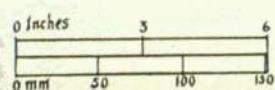
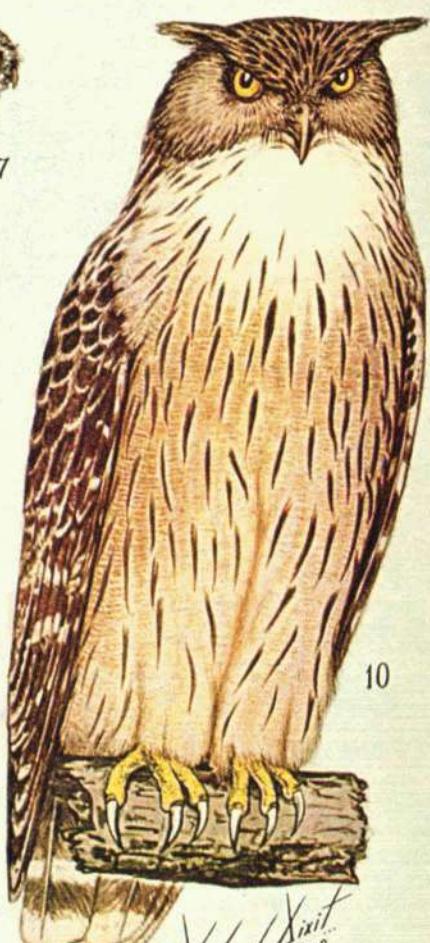
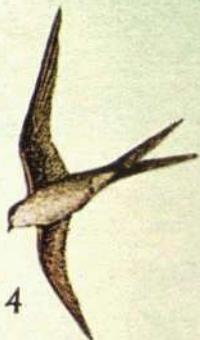
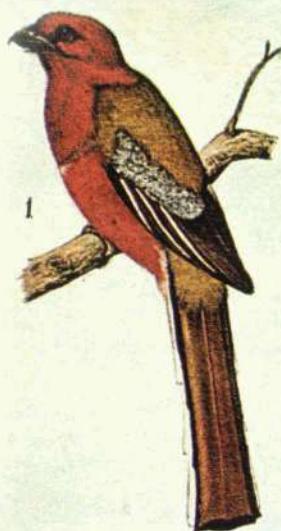
**GENERAL HABITS.** Very similar to Malabar Trogons (711), q.v. Silent, sluggish, and rather crepuscular. Perching upright on snags and tree-stumps along shady jungle paths below the foliage canopy, occasionally making sorties after flying insects and making for a new perch after each capture.



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#### PLATE 46

- 1 *Harpactes erythrocephalus*, Redheaded Tropic (715). 2 *Pelargopsis amauroptera*, Brownwinged Kingfisher (729). 3 *Upupa epops*, Hoopoe (765). 4 *Cypsiurus parvus*, Palm Swift (707). 5 *Caprimulgus asiaticus*, Indian Little Nightjar (680). 6 *Hemiprocne longipennis*, Crested Swift (709). 7 *Glaucidium cuculoides*, Barred Owlet (639). 8 *Tyto alba*, Barn Owl (606). 9 *Athene brama*, Spotted Owlet (650). 10 *Bubo zeylonensis*, Brown Fish Owl (631).



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1980



Right foot,  $\times c. 1$ 

**FOOD.** Insects and larvae; green grasshoppers, beetles and stick insects (Phasmidae) commonly found among stomach contents. Also eats leaves and berries.

**VOICE and CALLS.** Usually very silent. An abrupt mewing *cue* as in 711, of rich oriole quality, uttered deliberately and unhurriedly, usually 5 or 6 times, sometimes up to 10; the series repeated every minute or so. 'A single croak as it flew out to capture an insect or seek another perch' (Betts).

**BREEDING.** *Season*, April to July, chiefly May and June. *Nest*, an unlined natural hollow in a rotten tree-trunk, or a deserted woodpecker hole, c. 1·5 to 5 m up, usually in dense jungle. *Eggs*, 3 or 4, spherical, buff-coloured, highly glossed. Average size of 80 eggs 28·6  $\times$  24 mm (Baker). Both sexes incubate; period unrecorded.

**MUSEUM DIAGNOSIS.** Differs from the nominate race (715) of East Pakistan and Lower Burma in being larger and deeper coloured, with a smaller Wing/Bill index<sup>1</sup> (Biswas).

**Young (immature).** *Above*, wing-coverts black, broadly edged with buff; inner secondaries black, barred on the outer webs and tipped with buff. *Below*, from throat to vent buff or buffy white.

Nestling described by Hume, 1881, SF 9: 246.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	142–164	18–22	18–20	176–207 mm
♀ ♀	144–168	19–22	18–20	180–201 mm
(BB, SA, SDR, Stresemann, Mayr)				

Weight ♂♂ 85–110 g; 1 ♀ 76 g (SA, SDR).

**COLOURS OF BARE PARTS.** Iris dull red to crimson; orbital skin purplish blue. Bill: upper mandible lavender- or purplish blue, blackish on ridge of culmen and tip; lower mandible purplish at gape, rest black. Legs and feet brownish flesh or light purple.

## TROGONIFORMES

715. *Harpactes erythrocephalus erythrocephalus* (Gould)

*Trogon erythrocephalus* Gould, 1834, Proc. Zool. Soc. London, pt. 2: 25 (Rangoon)  
 Baker, FBI No. 1586 (part), Vol. 4: 318  
 Plate 46, fig. 1, facing p. 64

**LOCAL NAMES.** *Süda sohāgin* ♂, *Küchükchia* ♀ (Bengal).

**SIZE.** Myna +, with longer tail; overall length c. 35 cm (13½ in.).

**FIELD CHARACTERS.** As of 713, q.v. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. East Pakistan (Chittagong and Tippera hill tracts), Tripura, Mizo Hills (?); from the foothills to c. 1800 m. Affects evergreen jungle.

**Extralimital.** Extends into Lower Burma south to Tenasserim, and NW. Thailand.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 713. Call described as 'rather plaintive, of 6 to 10 notes on a monotone *tyaw--tyaw*, *tyaw* . . . at c. 2 per second' (Smythies, JBNHS 44: 226).

**BREEDING.** Season, nest, eggs and breeding biology as in 713.

**MUSEUM DIAGNOSIS.** Slightly smaller and less richly coloured than *hodgsonii* with a larger Wing/Bill index

**MEASUREMENTS**

	Wing	Bill (from skull)	Tail
7 ♂♀	143-148	21-22	177-201 mm (BB)

**COLOURS OF BARE PARTS.** As in 713.

716. **Ward's Trogan.** *Harpactes wardi* (Kinnear)

*Pyrotrogon wardi* Kinnear, 1927, Bull. Brit. Orn. Cl. 47: 112  
 (Seingkhu Valley, 8000 ft, Burma)

Not in Baker, FBI

Plate 45, fig. 5, facing p. 32

**LOCAL NAMES.** None recorded.

**SIZE.** Pigeon  $\pm$ , with longer tail; overall length c. 38 cm (15 in.).

**FIELD CHARACTERS.** Appreciably larger than Redheaded Trogan.

**Male above,** dark vinous red (or maroon-crimson) appearing almost black in shady forest, but crimson-pink graduated lateral tail-feathers conspicuous in flight. Central tail-feathers black, squarely truncated at tip. **Below,** throat and breast dark vinous red like head; rest of underparts rich crimson-pink.

**Female** dark olive-brown on head, back, throat and breast. Rest of underparts orange primrose-yellow. Tail as in male but lateral feathers pale primrose-yellow instead of pink.

**STATUS, DISTRIBUTION and HABITAT.** Resident at fairly high elevations in the eastern Himalayas, between c. 1500 and 3000 m, from the Mishmi Hills westward through NEFA and Bhutan to at least c. 90°40'E. (Shamgong Dzong). Affects the lower storey and evergreen under-growth and bamboo in tall subtropical hill forest of *Quercus*, *Castanopsis*, etc.

**Extralimital.** Upper Burma; North Vietnam.

**GENERAL HABITS.** Typical of the trogons, see 711. Keeps singly or in separated pairs. Has the same fussy fluttering flight when sallying to capture a winged insect or shifting from one perch to another.

**FOOD.** Insects — moths, stick insects (Phasmidae), grasshoppers, bugs, etc. — and berries. 'Large seeds, probably acorns' (Stanford).

**VOICE and CALLS.** Little known; normally very silent. One call of male described as 'a soft *kew-kew-kew-treee* at intervals' and another (alarm?) note as *whirr-ur* (Smythies).

**BREEDING.** No nest recorded as yet, but specimens collected in central Bhutan on 5 and 8 April had fully mature gonads, the distended oviduct of one female indicating that she was laying.

**MUSEUM DIAGNOSIS.** Supplementing the Field Characters (q.v.) the male has velvety black lores, lateral edge of forehead, and ring around eye. Upper wing-coverts and innermost secondaries black, very finely vermiculated with grey. A large concealed white patch at base of secondaries. Outer webs of primaries 2–6 finely edged with white. In museum skins (in the closed wing) these edges superficially look very like white shafts to the primaries.

**Female.** Forehead, especially in front of eyes, bright primrose-yellow; wing-coverts and innermost secondaries finely vermiculated golden brown. White edges of primaries 2–6, and patch at base of secondaries, as in male.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
6 ♂♂	167–177	17–19 (2 msd.)	17–18 (2 msd.)	218–233 mm
5 ♀♀	169–175	18–19 (4 msd.)	18 (2 msd.)	210–228 mm

(Mayr, SA, SDR)

Weight 2 ♂♂ 115, 120 g; 2 ♀♀ 120, 120 g (SA).

**COLOURS OF BARE PARTS.** Iris ♂ ♀ reddish brown; orbital skin azure blue. Bill ♂ red; ♀ horny brown, pink for c. 1 cm laterally at base of lower mandible. Legs and feet ♂ ♀ pinkish flesh colour; claws pale pinkish horny.

## Order CORACIIFORMES

For morphological details see Stresemann, E., 1927-34, *Aves*: 828-31 (= Orders Coraciidae, Halcyonidae, Meropidae, Upupidae); Baker, 1927, FBI 4: 1; Thomson, A. L. (ed.), 1964, *New Dict. Birds*, London & New York (article 'Coraciiformes').

## Family ALCEDINIDAE: Kingfishers

For description see Van Tyne, J., and Berger, A. J., 1959: 470; Baker, 1927, FBI 4: 245; Thomson, A. L., 1964, article 'Kingfisher', *New Dict. Birds*, London & New York.

## Key to the Genera

		Page
A	Plumage black and white.....	<i>Ceryle</i>
B	Plumage not black and white.....	1
1	Tail shorter than bill.....	a
	Tail longer than bill.....	b
a	Toes three.....	<i>Ceyx</i>
	Toes four.....	<i>Alcedo</i>
b	Bill compressed, culmen flattened and grooved on either side.....	<i>Pelargopsis</i>
	.....	89
	Bill not compressed, culmen rounded and not grooved....	<i>Halcyon</i>
		87

## Genus CERYLE Boie

*Ceryle* Boie, 1828, Isis von Oken 21, col. 316. Type, by subsequent designation, *Ceryle rudis* (Gm.) = *Alcedo rudis* Linnaeus

Bill long and compressed, the culmen slightly curved, flattened or rounded above, with a groove on either side. Wings rather pointed: first primary (as.) a little shorter than second; either 2nd or 3rd primary the longest. Tail longer than culmen. Plumage of all the Indian representatives black and white.

## Key to the Species

		Page
Back barred; wing over 160 mm.....	<i>C. lugubris</i>	68
Back more streaked than barred; wing under 150 mm.....	<i>C. rudis</i>	70

## CERYLE LUGUBRIS (Temminck): PIED KINGFISHER

## Key to the Subspecies

Darker above. White bars on feathers of upperparts narrower.....	<i>C. l. guttulata</i>
Paler above. White bars on feathers of upperparts wider.....	<i>C. l. continentalis</i>

717. *Ceryle lugubris continentalis* Hartert

*Ceryle lugubris continentalis* Hartert, 1900, Novit. Zool. 7: 534 (Sikkim)  
Baker, FBI No. 1532 (part), Vol. 4: 248

LOCAL NAMES. *Māchhi baag* (Hindi, Dun); *Jāl butara* (Chamba); *Ung-ka-zhu* (Lepcha).

SIZE. House Crow ±; length c. 41 cm (16 in.).

**FIELD CHARACTERS.** A large, crested black-and-white kingfisher with cross-barred back.

**Male.** *Above*, prominent erectile crest black, spotted and streaked with white; wings and tail blackish grey, boldly spotted and barred with white. A broad white half-collar on nape. *Below*, white; a broad pectoral band of black spots mixed with rufous-brown; flanks, sides of abdomen and under tail-coverts barred with blackish.

**Female** similar, but with under wing-coverts and axillaries pale rusty or cinnamon clearly noticeable in flight.

**Young** (immature) like female.

**STATUS, DISTRIBUTION and HABITAT.** Resident. The Himalayas from Kashmir through Himachal Pradesh, Garhwal, Kumaon, Nepal and Sikkim to western Bhutan; from the terai locally to c. 2000 m; sometimes extending into the adjacent plains. Partial to well-wooded spots at the junction of rocky torrential feeder streams with main rivers.

**GENERAL HABITS.** Not abundant, and rather local and parochial; usually very wary and difficult to approach. Keeps in pairs, perched together or separately on rocks or snags at the edge or amidst a torrent overlooking a swirling pool; only rarely at lakes (e.g. in Kashmir Valley) and tarns. Haunts a favourite beat of river day after day. Perches upright and still; bobs or 'pumps' head from time to time, raising the crest and switching up the tail almost double over the back. Dives obliquely into the water from the fishing post to capture its prey near the surface; does not normally hover and plunge vertically from the air in the spectacular manner of the smaller Pied Kingfisher (719). Flight swift and stately, with deliberate wing-beats, usually low over the rushing water.

**FOOD.** Fish up to 15 or 18 cm long. Alleged to do much damage to trout in Kashmir streams and is greatly persecuted on that account.

**VOICE and CALLS.** Normally very silent. Occasionally utters a single sharp *click*. 'More rarely a loud hoarse grating sound repeated rapidly several times' (Osmaston). 'A loud *ping* similar to one of the calls of the Redwattled Lapwing' (Whistler).

**BREEDING.** *Season*, chiefly March and April. *Nest*, a horizontal tunnel dug into a vertical stream-bank sometimes over a metre and a half long, ending in a widened egg-chamber. Unlined but soon becoming strewn with smelly cast-up fish bones. *Eggs*, 4 or 5, white, roundish; average size of 20 eggs 38.5 × 32.5 mm (Baker). Share of the sexes in excavating nest-tunnel and incubation, and incubation period, unknown.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. Differs from the East Himalayan *guttulata* (718) in being paler. Back and upper wing-coverts less blackish, the white spots on the feathers of these areas being larger — more like bars, less like spots. There is also a slight increase in the amount of white on the outer feathers of the crest, making it look less black.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
10 ♂♂	177-186	68-80	12-14	103-114 mm
10 ♀♀	178-195	69-75	13-15	98-112 mm (BB, SA, Fleming)

**COLOURS OF BARE PARTS.** ' Iris almost black. Bill black with pale grey on almost the whole of basal half. Legs and feet greyish olive; claws dark horny with whitish tips; pads light brownish white ' (Biswas).

718. *Ceryle lugubris guttulata* Stejneger

*Ceryle guttulata* Stejneger, 1892, Proc. U.S. Nat. Mus. 15: 294, in text (India and China, here restricted to Ningpo, China). New name for *Alcedo guttata* Vigors, 1831, not *Alcedo guttata* Boddaert, 1783

Baker, FBI No. 1532 (part), Vol. 4: 248

Cf. Ali, Sálim and Ripley, S. D., 1948, JBNHS 48: 15

**LOCAL NAME.** *Dao natu meberang gadeba* (Cachari).

**SIZE.** House Crow ±; length c. 41 cm (16 in.).

**FIELD CHARACTERS.** As of 717, q.v. In flight along a forest stream in dense shade looks remarkably large and uniformly blue-grey above with prominent white nuchal collar and sharply contrasting black crown. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** The Eastern Himalayas from central Bhutan eastward through NEFA; Assam hills north and south of Brahmaputra river, Nagaland, Manipur and East Pakistan hills; foothills and up to c. 1800 m. Affects rapidly flowing rocky streams and torrents, and the larger rivers in the foothills.

**Extralimital.** Eastward through China, north to the Tsin-ling Mts. and southern Chihili; south through Burma to Tenasserim; Thailand and North Vietnam.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 717.

**BREEDING.** Season, nest, eggs and breeding biology as in 717.

**MUSEUM DIAGNOSIS.** Differs from the West Himalayan *continentalis* in being darker, more slaty, with the white spots on the back and upper wing-coverts smaller and less like bars. Forehead and crest darker black with smaller white stippling and streaks.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
1 ♂	189	80	—	114 mm
3 ♀ ♀	180-187	72-75	15-16	109-110+ mm (SA, SDR)

Weight 2 ♀ ♀ 230, 280 g (SA).

**COLOURS OF BARE PARTS.** As in 717.

**CERYLE RUDIS** (Linnaeus): LESSER PIED KINGFISHER

**Key to the Subspecies**

Upperparts paler; white spotted with black.....*C. r. leucomelanura*

Upperparts darker; black spotted with white, and black spotting on flanks more extensive.....*C. r. travancoreensis*

719. *Ceryle rudis leucomelanura* Reichenbach

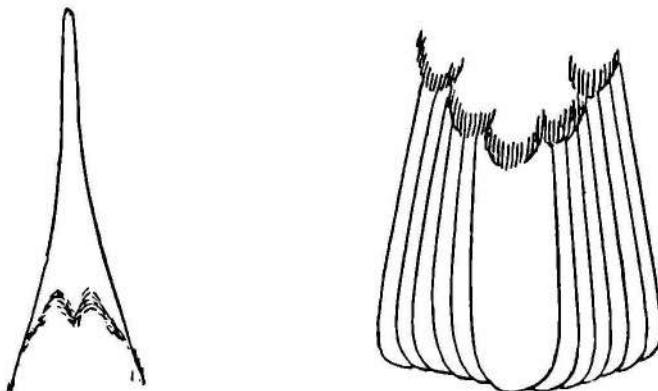
*Ceryle leucomelanura* Reichenbach, 1851, Handb. spec. Orn.: 21, pl. ccix b, f. 3488  
(Ceylon)

Baker, FBI No. 1531, Vol. 4: 246

LOCAL NAMES. *Koryala*, *Kilkila* (Hindi); *Kingar* (Sind); *Kirkiria* (Kutch); *Kābdro kālkāliyo* (Gujarati); *Kārōna* (Bihar); *Chitla kirkila* (Madhya Pradesh); *Phāṭka māchhrāṅga*, *Karikata* (Bengal); *Hōr kola tōnch*, *Sufaid tōnt*, *Duddru* (Kashmir); *Kallapu pilihuduwa*, *Gōmera pilihuduwa* (Sinhala); *Meenkotti* (Tamil); *Inrui gna* (Kacha Naga); *Dao natu meberang* (Cachari); *Ngārakpi*, *Wākrek* (Manipuri).

SIZE. Myna +; length c. 31 cm (12 in.).

FIELD CHARACTERS. A speckled and barred black-and-white kingfisher with the typical stout dagger-shaped bill (black). Readily identified by

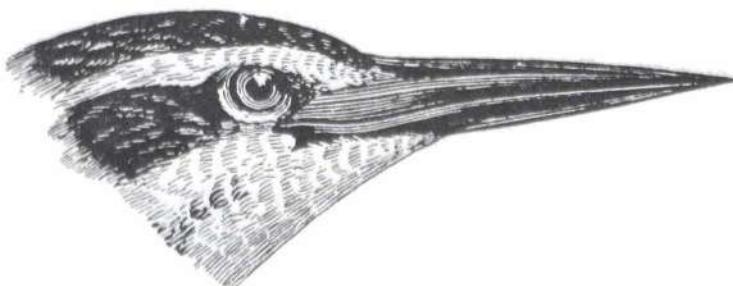


Bill from above, and tail,  $\times c. \frac{1}{2}$   
(After Hartert)

its spectacular habit of 'standing on its tail' in mid-air, hovering over water.

Male. *Above*, forehead, crown and nuchal crest black, finely streaked with white. Supercilium and collar on hindneck white. A broad black streak through eye to ear-coverts. *Below*, white, with a double black gorget across breast.

Female more or less similar but with only a single gorget, broken in the middle.



$\times c. \frac{1}{2}$

STATUS, DISTRIBUTION and HABITAT. Resident and rather sedentary. Common. Practically throughout the Indian Union (excepting Kerala —

see 720), Nepal, Sikkim, Bhutan. Both Pakistans (including Baluchistan and NWF. district). Ceylon. From sea level to c. 1800 m in Kashmir and the Himalayas and peninsular hills. Affects every kind of stagnant fresh water — sluggish rivers, streams and canals, jheels, irrigation reservoirs, village tanks and flooded ditches — in open country. Occasionally also tidal creeks and intertidal rock pools on the seashore.

*Extralimital.* Westward through Afghanistan, eastward to Vietnam. Burma south to Tenasserim; Thailand.

**GENERAL HABITS.** Usually keeps in pairs; sometimes singly and periodically in family parties of 4 or 5. Commonly seen perched together or separately on a rock or stake near water, flicking up its tail and bobbing, or 'pumping', the head every little while. Its most outstanding characteristic is the spectacular mode of hunting. Flies 8 or 10 metres up back and forth over a placid stream or other suitable water, bill pointing downward and intently scanning the depths. The bird checks itself abruptly from time to time and remains poised in mid-air 'standing on its tail' bill pointing straight downwards, facing the wind with rapidly hovering wings, to investigate a promising patch or some movement below. When a fish is sighted within striking depth, the bird turns over and hurls itself headlong with wings closed — a veritable bolt from the blue — momentarily vanishing under the surface. It presently reappears with the quarry firmly gripped between the mandibles, and makes for a nearby perch where the struggling victim is battered into submission and bolted down head foremost. Small prey is swallowed in the air.

**FOOD.** Mainly fish; supplemented with tadpoles and aquatic insects.

**VOICE AND CALLS.** A sharp, lively *chirruk chirruk* uttered chiefly on the wing.

**BREEDING.** Season, staggered practically over the entire year (except perhaps the rainiest months) varying locally; chiefly February to April. Nest, a horizontal tunnel c. 7 or 8 cm in diameter excavated in vertical earth banks of streams and rivers, often 1·5 metres or more in length, ending in a widened egg-chamber. It is usually unlined, but almost invariably littered with smelly cast-up fish bones. Eggs, normally 5 or 6, pure white, roundish ovals with a glossy texture. Average size of 100 eggs 29·9 × 21·4 mm (Baker); of 15 from Kashmir 30·3 × 23·6 (BBO). Both sexes partake in excavating the nest, incubation (?) and feeding the young. Incubation period undetermined. In Kashmir the nest-tunnels are used by the birds for roosting in winter (B. T. Phillips, JBNHS 46: 94).

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	133-142	66-68	10-12	66-70 mm
♀ ♀	139-141	61-70	10-13	65-75 mm
(SA, HW, CBT)				

**COLOURS OF BARE PARTS.** Iris brown. Bill brownish black, paler at chin; mouth pink. Legs, feet and claws brownish black.

**MISCELLANEOUS.** Normal flying speed timed over a 3-mile route 31 miles (49+ km) per hour (C. H. Donald, JBNHS 33: 204).

720. *Ceryle rudis travancoreensis* Whistler & Kinnear

*Ceryle rudis travancoreensis* Whistler & Kinnear, 1935, Jour. Bombay nat. Hist. Soc. 37: 760 (Travancore)  
 Baker, FBI No. 1531 (part), Vol. 4: 246  
 Plate 48, fig. 5, facing p. 112

LOCAL NAME. *Pülli ponmän* (Malayalam).

SIZE. Myna +; length c. 31 cm (12 in.).

FIELD CHARACTERS. As of 719, q.v. Distinctly blacker and more contrastingly ' pied '. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Extreme SW. Tamil Nadu (Nagercoil dist.) and Kerala north to Kozhikode (c. 11°15'N.). Affects the coastal backwaters and the larger placid streams in the low country, and hills (rare) to at least c. 1400 m (Munnar). Quite common at Periyar Lake (JBNHS 68: 110).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 719.

BREEDING. Season, principally November to April. Breeding biology as in the Indian subspecies (719).

MUSEUM DIAGNOSIS. Differs from *leucomelanura* (719) in being much darker, giving the general impression of being black above spotted with white rather than white spotted with black. The extent of the white marking, moreover, is much smaller and the spots less pure white, tending to smoky grey. Black spotting on flanks generally more extensive.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
3 ♂♂	133-139	68-69	11	67-71 mm
1 ♀	140	70	—	71 mm (SA, HW)

COLOURS OF BARE PARTS. As in 719.

Genus *ALCEDO* Linnaeus

*Alcedo* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 115. Type, by subsequent designation, *Alcedo ispida* Linnaeus. (Swainson, 1821 (1820-21), Zool. Ill. 1: text to pl. 26)

Bill long and compressed; culmen very slightly curved, with the ridge rounded above, not flattened, and with a slight groove on either side. Wing long and pointed: first primary (as.) long, 3rd or 4th longest. Tail rounded; shorter than bill. Feet very weak. Plumage never pied black and white; always with much green or blue on upperparts.

## Key to the Species

		Page
A	Size large; wing over 80 mm.....	<i>A. hercules</i> 74
B	Size small; wing under 80 mm.....	1
1	Ear-coverts blue in adults.....	<i>A. meninting</i> 78
	Ear-coverts ferruginous in adults.....	<i>A. atthis</i> 74

721. **Blyth's Kingfisher.** *Alcedo hercules* Laubmann*Alcedo grandis* Blyth, 1845, Jour. Asiatic Soc. Bengal 14 (1): 190 (Darjeeling).Not *Alcedo grandis* Gmelin, 1788*Alcedo hercules* Laubmann, 1917, Verh. Orn. Ges. Bayern 13: 105. New name for*Alcedo grandis* Blyth, preoccupied

Baker, FBI No. 1542, Vol. 4: 258

Plate 45, fig. 6, facing p. 32

LOCAL NAME. *Dao natu dedao* (Cachari).

SIZE. Myna —; length c. 20 cm (8 in.).

FIELD CHARACTERS. Superficially very like Common or Small Blue Kingfisher (722-724) qq.v., but appreciably larger. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident. Rare. Sikkim, Bhutan and east through NEFA. Assam (Cachar, Sylhet), Nagaland, Manipur; East Pakistan. Duars and foothills up to c. 1200 m. Affects shady streams in dense evergreen jungle.

Extralimital. Burma (Chin Hills, Prome-Arakan hills). North Vietnam; Hainan I.

GENERAL HABITS. Apparently not very different from its smaller congener on the whole, but little known beyond that it is rare, keeps singly, and haunts deeply shaded fast-flowing forest streams. Perches low down in overhanging bushes rather than on conspicuous vantage points, and is shy and difficult to observe.

FOOD. Fish and aquatic insects.

VOICE and CALLS. A loud but soft replica of the note of the Small Blue Kingfisher (723) *vide* Baker.

BREEDING. Season, March to June, principally April and May. Nest, a horizontal tunnel dug into the steep bank of a forest stream or ravine, c. 8 cm in diameter and usually between 45 and 70 cm long, ending in a widened egg-chamber. Most holes are smelly with a considerable amount of insect and fish remains littered in the egg-chamber and along the tunnel. Eggs, 4 to 6, glossy, white, roundish ovals. Average size of 45 eggs 26.1 x 21.7 mm; both sexes incubate (Baker).

MUSEUM DIAGNOSIS. See Key to the Species; for details of plumage Baker, loc. cit.

## MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	95-102	48-55	c. 11	45-47 mm (Baker)

COLOURS OF BARE PARTS. Iris blood red. Bill black, base of lower mandible in ♀ reddish; mouth blood red. Legs and feet coral-red.

## ALCEDO ATTHIS (Linnaeus): SMALL BLUE KINGFISHER

## Key to the Subspecies

		Page
A	Larger and paler in tone, with colour of upperparts more green, less blue.....	<i>A. a. pallasi</i> 75
B	Smaller .....	1
1	Darker in tone, with colour of upperparts more blue, less green.....	<i>A. a. taprobana</i> 77
	Upperparts intermediate in tone but nearer to <i>pallasi</i> in colour.....	<i>A. a. bengalensis</i> 76

722. *Alcedo atthis pallasii* Reichenbach

*Alcedo Pallasii* Reichenbach, 1851, Handb. spec. Orn.: 3, pl. cccxcii, figs. 3043-6  
(Siberia)

Baker, FBI No. 1535, Vol. 4: 253

LOCAL NAMES. *Chhotā kilkilā*, *Nitā* or *Nikā māchhrālā* (Hindi); *Kolā tōn̄h*, *Chhotā tōn̄t*, *Tūntū* (Kashmiri); *Narian shid* (Baluchi).

SIZE. Sparrow +; length c. 18 cm (7 in.).

FIELD CHARACTERS. A dapper little blue-and-green kingfisher with brilliant blue back and rump (conspicuous in flight) and deep rust coloured underparts; short stumpy tail and long, straight, pointed black bill. Other points to confirm its identity are: lores and a band through eye black; chin and throat white; cheeks and ear-coverts rusty-red ending in a white patch on side of neck; a broad greenish blue streak from lower mandible to side of neck. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Partly resident, partly migratory, apparently extralimital as well as local. Status not satisfactorily worked out. West Pakistan (Baluchistan, Sind, Chitral, NW. Frontier districts, Punjab), Kashmir (rare straggler in Ladakh), Himachal Pradesh, northern Uttar Pradesh, Rajasthan (Jodhpur), northern Madhya Pradesh, northern Bihar. Breeding so far proved only in Kashmir where it is exceedingly common. Normally from plains level to c. 1850 m; once observed at 3100 m in Lahul, Himachal Pradesh (Whistler, 1925, *Ibis*: 193). Affects streams, canals, rush-fringed tributary channels, ponds, roadside ditches, etc.

Extralimital. Western Siberia and Transcaspia to Iran, Afghanistan and Turkestan.

MIGRATION. No ringing data. In winter very common in Sind (where the resident form is evidently *bengalensis*), arriving c. mid October departing by end April (Ticehurst, 1923, *Ibis*: 32). Common in Baluchistan (plains and valleys) November to May, and some reported to breed. Winter visitor to central Makran arriving about August, then largely frequenting the coastal mangroves.

GENERAL HABITS. Usually met singly or in pairs perched on some favourite stake or bund on the edge of water. Very tame and confiding, particularly in Kashmir, freely perching on house-boats within arm's length of the inmates, or on an arching reed overhanging water, to keep a lookout for little fishes rising near the surface. While thus occupied, bill pointing downwards, jerkily bobs its head up and down, turning it from side to side and flicking up the stumpy tail to the accompaniment of a subdued click. Suddenly nose-dives with a splash and disappears under, presently to emerge with a small fish held crosswise in the bill. Flies off with the quarry at top speed to another perch some distance away where the struggling victim is battered into submission and swallowed head foremost. Darts swiftly over the water with quick wing-beats from one vantage point to another or when chasing off an intruder from its favourite beat, uttering sharp squeaky notes. Occasionally will also hover 2 or 3 metres above the water in the manner of the Pied Kingfisher and plummet on the quarry from the air.

**FOOD.** Small fish, tadpoles and aquatic insects. Once observed carrying a frog about 4 cm long into nest tunnel (Magrath).

**VOICE and CALLS.** A shrill piping or trilling *chicchee*, *chicchee* or *chichicchee* as it dashes along above the water.

**BREEDING.** Season in Kashmir chiefly April and May; once September, on circumstantial evidence (Magrath, JBNHS 21: 661). Nest, a horizontal tunnel c. 5 cm in diameter burrowed into the vertical earth bank of a stream or channel, from 25 to 100 cm long, terminating in a widened egg-chamber c. 13–16 cm across. An evil stench invariably pervades the nest due to remains of fish and other food littered about. Eggs, 5 to 7 glossy white, rather spherical ovals. Average size of 37 eggs  $21\cdot2 \times 17\cdot6$  mm (Osmaston, Kashmir). Both sexes share in excavating the nest, incubation, and feeding the young. Incubation period unrecorded; given as 19–21 days for the European race *ispida* (Witherby).

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.; for description of plumages and structure (also bionomics) of the allied European race *ispida*, Witherby, 1938, 2: 275–6. *A. a. pallasii* differs from both *bengalensis* and *taprobana* in being larger, paler on the underparts and less deep vivid blue and green above.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	71–75	39–48	9–11	31–34 mm
♀♀	72–77	45–46	9–10	34–36 mm (HW, CBT)

Weight 3 ♂♂, 1 ♀? 26–29 g (Paludan).

**COLOURS OF BARE PARTS.** Iris hazel brown. Bill black or blackish horny; gape and base of lower mandible pale salmon reddish in female and immature male. Legs and feet coral-red.

#### 723. *Alcedo atthis benghalensis* Gmelin

*Alcedo bengalensis* Gmelin, 1788, Syst. Nat. 1 (1): 450 (Bengal)

Baker, FBI No. 1533, Vol. 4: 250

Plate 47, fig. 3, facing p. 80

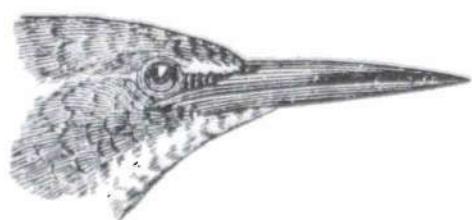
**LOCAL NAMES** *Chhōtā kilkilā*, *Nikā* or *Nitā māchhrālā* (Hindi); *Shāreefān* (Bihar); *Khāndya* (Marathi); *Lagothi* (Gujarati); *Chhōtā māchhrāngā* (Bengali); *Ung chin* (Lepcha); *Dao natu kashiba* (Cachari).

**SIZE.** Sparrow +; length c. 18 cm (7 in.).

**FIELD CHARACTERS.** As of 722, q.v.

See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident; common. West Pakistan (Sind, Punjab) and the northern sub-continent including the Himalayan terai, Nepal, Sikkim and Bhutan lowlands, Assam, Manipur and East Pakistan, south to c.  $20^{\circ}$ N. lat. whereabouts it meets and intergrades with the southern *taprobana* (724). Plains and peninsular hills, occasionally to



x c. 3

c. 1800 m. Also Andaman and Nicobar islands. Affects streams, canals, village ponds, flooded roadside ditches, etc. in open country; also intertidal rock pools on the seashore, and mangroves.

*Extralimital.* A large part of SE. Asia including Burma, Thailand, the Indochinese countries, Malay Peninsula and islands, and the Philippines.

GENERAL HABITS, FOOD, VOICE AND CALLS. As in 722.

BREEDING. Season, chiefly March to June. Nest, eggs, and breeding biology as in 722. Average size of 40 eggs  $20.9 \times 17.6$  mm (Baker).



Right foot,  
x c. 1

MUSEUM DIAGNOSIS. Smaller (except the northernmost populations) and brighter coloured than *pallasii*; like it usually more green less blue than *taprobana*. Odd non-breeding examples of the last two, especially from intermediate areas, impossible to place with certainty due to individual as well as seasonal variation in amount of blueness and greenness. Except in comparable series, this character not sufficiently reliable for subspecific determination. Situation further obscured by possible intermingling of races under stress of factors such as drought, causing local migration in search of fish food.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	68-76	42-46	8-10	30-37 mm
♀♀	69-74	43-45	9-10	30-34 mm
(SA, BB, Koelz)				

Weight 2 ♀♀ 25, 25 g (Diesselhorst).

COLOURS OF BARE PARTS. As in 722.

#### 724. *Alcedo atthis taprobana* Kleinschmidt

*Alcedo ispida* var. *taprobana* Kleinschmidt, 1894, Orn. Monatsb. 2: 126 (Ceylon)  
Baker, FBI No. 1534, Vol. 4: 252

LOCAL NAMES. *Mäl pilihuduwa* (Sinhala); *Meenkotti* (Tamil); *Nild buchegdalu* (Telugu); *Podi ponmān* (Malayalam).

SIZE. Sparrow +; length c. 18 cm (7 in.).

FIELD CHARACTERS. As of 722, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; common. Peninsular India south of the arbitrarily fixed boundary at 20°N. lat. (around which it intergrades with *bengalensis*), and Ceylon. Plains and hills to c. 1800 m. Affects streams, irrigation channels, ponds, roadside ditches, etc. in open country.

GENERAL HABITS, FOOD, VOICE. As in 722.

BREEDING. Season, February to September in S. India, chiefly March-April; November to June in Ceylon. Nest and eggs as in 722. Five eggs in S. India and 3 to 5 in Ceylon form the normal clutch. Average size of 48 eggs  $20.4 \times 17.2$  mm (Baker).

MUSEUM DIAGNOSIS. Compared with *bengalensis* (723) this subspecies has the upperparts markedly blue in colour v. green in the former. There is no consistent difference in size, and the variability in the amount of blueness and greenness, unless

in comparable series, makes some individual non-breeding examples difficult to determine subspecifically.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	67-73	41-45	8-9	29-32 mm
♀ ♀	69-73	43-45	8-9	30-33 mm
Weight 1 ♀ 23 g (SA).				(SA, HW, SDR)

COLOURS OF BARE PARTS. As in 722.

## ALCEDO MENINTING (Horsfield): BLUE-EARED KINGFISHER

## Key to the Subspecies

	Page
Bars of forehead and crown always tipped greenish blue <i>A. m. coltarti</i>	78
Bars of forehead and crown deep purplish blue . . . . . <i>A. m. phillipsi</i>	79
Bars of forehead and forecrown as well as nape greenish blue . . . . . <i>A. m. rufigaster</i>	80

725. *Alcedo meninting coltarti* Baker

*Alcedo Asiatica* Swainson, 1821, Zool. Ill. I, pl. 50 ('Some part of India' = Bengal)

Not *Alcedo asiatica* Menschen, 1787, Mus. Geversianum: 54, no. 262

*Alcedo meninting coltarti* Baker, 1919, Bull. Brit. Orn. Cl. 39: 39 (Saddya, Assam)

*Alcedo laubmanni* Mathews, 1925, Bull. Brit. Orn. Cl. 46: 21. New name for *Alcedo asiatica* Swainson, preoccupied

Baker, FBI No. 1540, Vol. 4: 256

Plate 48, fig. 6, facing p. 112

LOCAL NAMES. Unrecorded; evidently not differentiated from 723 and 724.

SIZE. Sparrow; length c. 16 cm (6 in.).

FIELD CHARACTERS. A forest representative of the Small Blue Kingfisher (723), very similar to it but slightly smaller and much darker coloured above — deep purplish blue — with *blue* ear-coverts instead of ferruginous. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident. Nepal, Sikkim, Bhutan, NEFA (?), Assam, Nagaland, Manipur, East Pakistan, West Bengal, Orissa. Also the humid Western Ghats strip in Goa, Mysore, Tamil Nadu (Nilgiri Hills) and Kerala, but the subspecific identity of this population needs confirmation; may be closer to *phillipsi* of Ceylon. In general less common than Small Blue Kingfisher; affects small hill-streams in evergreen or heavy bamboo forest to c. 1000 m, occasionally to c. 1500 m. Prefers densely shaded spots.

EXTRALIMITAL. Burma, Thailand, and the Indochinese countries.

GENERAL HABITS. Very like those of the Small Blue Kingfisher (723) but almost exclusively confined to forest. Keeps singly, perched quietly on low herbage overhanging a shaded rocky streamlet, bobbing its head and jerking up the tail from time to time. Drops vertically on its prey with a splash, often going completely under. Presently reappears with a small fish, and usually flies off with it to a nearby perch.

**FOOD.** Mainly fish and aquatic insects.

**VOICE AND CALLS.** Like 723 but somewhat sharper.

**BREEDING.** Season, in the northern parts of its range April to August, chiefly May and June; in Kerala c. January. Nest, a horizontal tunnel, as in 723, drilled into the bank of a forest stream, up to 1·5 m in length ending in a widened egg-chamber c. 12 cm in diameter. Eggs, normally 5 to 7, sometimes 8, glossy white rather spherical, similar to those of *A. a. bengalensis*. Average size of 50 eggs 20·3 × 17·6 mm (Baker). Breeding biology unrecorded.

**MUSEUM DIAGNOSIS.** Distinguished from *Alcedo a. bengalensis* (723) by its deeper blue upperparts, blue ear-coverts and lack of white neck-patches. For details of plumage see Baker, loc. cit., but as pointed out by Ticehurst (JBNHS 34: 472), anterior crown tinged with cerulean blue, not greenish.

**YOUNG** (immature) has the cheeks and ear-coverts rufous, sometimes with a blue line under them. Bill reddish, with whitish tip.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	62-74	43-45	c. 9	28-30 mm
Weight 1 ♂ 25, 1 ♀ 28 g (SA).				(Baker, SA)

**COLOURS OF BARE PARTS.** Iris brown. Bill: upper mandible blackish or horny brown, lower brownish orange; gape and mouth orange-coral. Legs, feet and claws orange-coral.

726. *Alcedo meninting phillipsi* Baker

*Alcedo meninting phillipsi* Baker, 1927, Bull. Brit. Orn. Cl. 47: 72

(Cocoawatte Estate, Ceylon)

Baker, FBI No. 1537, Vol. 4: 255

**LOCAL NAMES.** Same as for 724; evidently not differentiated from it.

**SIZE.** Sparrow; length c. 15 cm (6 in.).

**FIELD CHARACTERS.** As of 725, q.v. See Museum Diagnosis.

**STATUS, DISTRIBUTION AND HABITAT.** Resident (?); very scarce. Ceylon; possibly also the humid Western Ghats strip of the Indian peninsula (cf. 725). In Ceylon affects 'a few secluded waters in the Dry zone and occasionally ascends streams into the lower foothills to nearly 2000 ft' (c. 600 m) — Phillips.

**GENERAL HABITS, FOOD, VOICE AND CALLS.** As in 725.

**BREEDING.** Not recorded in Ceylon.

**MUSEUM DIAGNOSIS.** Distinguished from *coltarti* (725) by deeper royal blue upperparts, with the spots on the wing-coverts large and conspicuous. Ferruginous underparts also darker.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tail
2 ♂♂	69, 71	44, 52	29, 30 mm (HW)

'Wing ♂ 65-71; bill (from feathers) 35-48 mm. In nearly all the wing is over 67 mm and the bill over 40 mm' (Baker).

COLOURS OF BARE PARTS. As in 725.

726a. *Alcedo meninting rufigaster* Walden

*Alcedo rufigaster* Walden, 1873, Ann. & Mag. Nat. Hist. 12 (4): 487  
 (South Andaman Island)  
 Baker, FBI No. 1541, Vol. 4: 257

LOCAL NAMES. None recorded.

SIZE. Sparrow; length c. 15 cm (6 in.).

FIELD CHARACTERS. As of 725, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. South and Middle Andaman Is. More abundant here than *A. a. bengalensis*, keeping to small forest streams and narrow mangrove-fringed tidal creeks 'occasionally venturing out to the fishing stakes at their mouths' (W. Davison).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 725.

BREEDING. Season, all nests found by Osmaston between June 25 and July 15, thus apparently a late breeder (JBNHS 17: 162); tunnels in banks of forest streams as in 725. Eggs, 5, also similar — glossy, white, broad ovals. Average size of 40 eggs 20·3 × 17·6 mm (Baker).

MUSEUM DIAGNOSIS. Differs from the other races in being distinctly paler. Blue of back and rump paler, with less of a purple tint. Bars on the head not only less deep and less purple but with a distinct greenish tinge (Baker, 1918, BBOC 39: 39–40). According to him the easiest race to distinguish, but later workers have found it doubtfully separable from *coltarti*!

MEASUREMENTS

	Wing	Bill (from skull)	Tail
♂ ♀	63–71	43–47	27–30 mm (HW, Baker)

COLOURS OF BARE PARTS. As in 725.

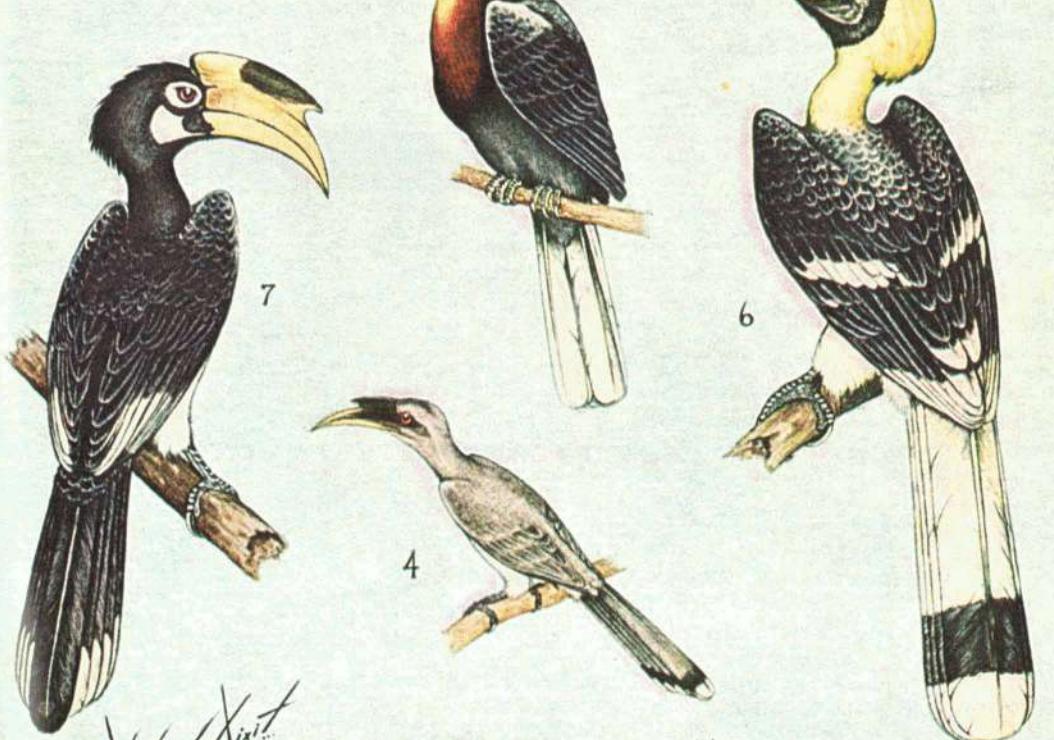
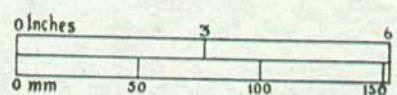
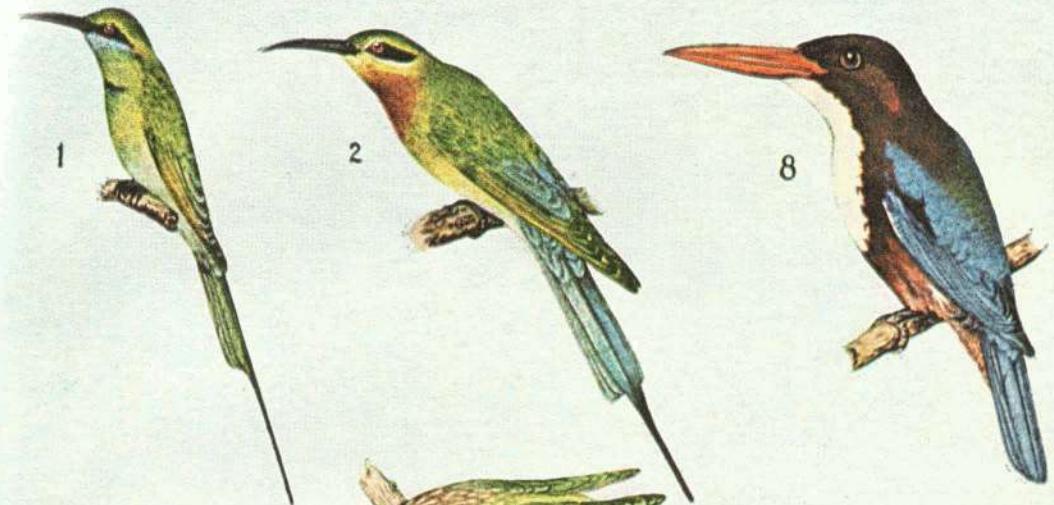
Genus *Ceyx* Lacépède

*Ceyx* Lacépède, 1799, Tabl. Ois.: 10. Type, by monotypy, *Alcedo tridactyla* Pallas = *Alcedo erithaca* Linnaeus (species added, Daudin, in Buffon, 1802, Hist. Nat. (ed. Didot) 14: 287)

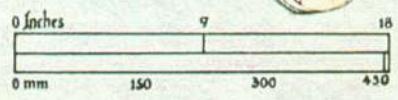
Bill intermediate in form between *Alcedo* and *Halcyon*, less compressed than in the former, not grooved; culmen straight and slightly flattened. Foot with only 3 toes, the inner or second wanting. Tail very short and rounded. First primary (as.) very long, reaching almost to tip of wing.

PLATE 47

- 1 *Merops orientalis*, Small Green Bee-eater (750). 2 *Merops philippinus*, Bluetailed Bee-eater (748). 3 *Alcedo atthis*, Small Blue Kingfisher (723). 4 *Tockus birostris*, Grey Hornbill (767). 5 *Rhyticeros (plicatus) narcondami*, Narcondam Hornbill (775). 6 *Buceros bicornis*, Great Pied Hornbill (776). 7 *Anthracoceros coronatus*, Lesser Pied Hornbill (775). 8 *Halcyon smyrnensis*, Whitebreasted Kingfisher (736). 9 *Megalaima zeylanica*, Large Green Barbet (781).



J. Kruv Dixit  
1980





**CEYX ERITHACUS (Linnaeus): THREE TOED KINGFISHER****Key to the Subspecies**

- Crown paler and more lilac.....*C. e. erithacus*  
 Crown darker and more ferruginous.....*C. e. macrocarus*

**727. *Ceyx erithacus erithacus* Linnaeus**

*Alcedo erithaca* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 115 (Bengala)

Baker, FBI No. 1544, Vol. 4: 260

**Plate 48, fig. 4, facing p. 112**

**LOCAL NAMES.** *Meni ponmān* (Malayalam); *Rāng pilihuduwa* (Sinhala); *Sinna meenkotti* (Tamil).

**SIZE.** Sparrow—; length c. 13 cm (5 in.).

**FIELD CHARACTERS.** A diminutive resplendent kingfisher with dark purple-blue or lilac mantle, brilliant amethyst back and rump, orange-yellow underparts and bright coral-red bill and legs. A deep blue patch on either side of neck and a rufous patch on underwing conspicuous — the latter only in flight. Sexes alike.

**Young** (immature) much duller, with the underparts less yellow and often washed with brownish.

**STATUS, DISTRIBUTION and HABITAT.** Resident, dispersing widely during the rainy season with the advent of suitable conditions. Thus, a regular SW. monsoon (breeding) visitor to many areas, then also turning up sporadically in unexpected localities. Movements not worked out. Nepal eastward through N. Bengal, Sikkim,<sup>1</sup> Bhutan and NEFA; Assam, Nagaland, Manipur, Mizo Hills and East Pakistan — bhabar, duars and foothills. Also the humid Sahyadris or Western Ghats and their outliers from a little north of Bombay (limit not established) southward through Goa, W. Mysore, W. Tamil Nadu (Nilgiris etc.) and Kerala — foothills and up to c. 1000 m — and Ceylon. Affects shady jungle streamlets and trickles in foothills country, in moist-deciduous and evergreen biotope.

**Extralimital.** Burma, Malay Peninsula, Thailand, the Indochinese countries, SE. China; Hainan and Sumatra Is.

**GENERAL HABITS.** Similar to those of the Small Blue (723). Keeps singly to secluded rocky nullahs or puddles in forest, perched quietly on some shaded rock or snag, darting off like a bullet on the close approach of an observer, its brilliant plumage flashing momentarily in the dappled sunlight, as the bird vanishes round the next bend.

Often reported dashing into walls and glass windows of buildings and getting killed.

<sup>1</sup> The Bombay Natural History Society's collection contains a specimen (♂) of the Malaccan subspecies, *Ceyx e. rufidorsus* Strickland, collected in the Sikkim terai by C. M. Inglis on 22.vii.1909, labelled in the collector's own handwriting. This form ranges 'throughout the Malaysian subregion in Mindoro and Tawitawi islands in the Philippines, and Lombok, Sumbawa and Flores in the Indo-Australian archipelago' (R. W. Sims, 1959, *Jour. Linn. Soc. London*, Vol. 44). How the bird reached the Sikkim terai seems a mystery. The possibility should not be overlooked that this is a rare polytypic mutant, a phenotype of reddish *rufidorsus* type appearing in wild typical *erithacus* population. (For particulars of the specimen see Abdulali, 1964, JBNHS 61 : 439.)

A facet of curious agonistic behaviour and territorial fighting between two males (?) just arrived in their monsoon breeding quarters observed by SA as follows: Both birds perched upright on a horizontal branch in a low bush c. 20 cm apart, facing in opposite directions. Bird A slowly dipped body to horizontal, neck and bill outstretched in front, and lifted it (like 'dips' in gymnastics); B responded with similar gestures but always alternately (the two never dipping together), the dips slow and deliberate, about one per second (or 2 in 3 secs.) and thus about 15 times. Suddenly, without warning, A rushed at B seemingly trying to grab his feet from below. B whipped round just in time to seize the aggressor's bill in his own and held him thus, suspended and fluttering beneath his perch for perhaps a half-second. On release, A settled on another perch one metre away, slightly above but still parallel with B and facing in the opposite direction as before. The alternate 'slow motion' dips were resumed by both and continued for a couple of minutes. Then A made another sudden onslaught on B and was again thwarted and held momentarily dangling as before. Exactly the same manoeuvres were repeated a third time, after which the birds darted away down the nullah at some disturbance, but one bird still chasing the other.

**FOOD.** Small fish, insects and crustaceans. Frequently flies down to the ground to pick up its prey.

**VOICE and CALLS.** A squeaky *chicchee* or *chichicchee* very like that of the Small Blue only shriller; uttered chiefly while darting off.

**BREEDING.** Season, in the northern parts of its range chiefly April and May; in SW. India the monsoon months July to September; in Ceylon February to April and in July. Nest, a horizontal tunnel c. 4 cm in diameter and up to a metre in length, ending in a widened egg-chamber. Drilled into a vertical earthen bank of a forest nullah, but frequently also away from water, e.g. in a roadside cutting. Eggs 4 or 5, rarely even 6 or 7; white, glossy, somewhat less rounded than of most kingfishers. Average size of 30 eggs 18.9 × 15.6 mm (Baker). Other details of breeding biology unrecorded.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.; for subspecies Key.

**MEASUREMENTS**

	Wing	Bill	Tarsus	Tail
♂ ♀	53-61	32-37 (from skull)	c. 7-8	21-24 mm (Baker, SDR, SA)

**COLOURS OF BARE PARTS.** Iris: adult crimson, immature brown. Bill and feet coral-red or bright vermillion.

727a. *Ceyx erithacus rufidorsus* Strickland  
(See Appendix, p. 260)

728. *Ceyx erithacus macrocarus* Oberholser

*Ceyx tridactylus macrocarus* Oberholser, 1917, Bull. U.S. Nat. Mus., No. 98: 24

(Great Nicobar Island, Nicobar Islands)

Baker, FBI No. 1545, Vol. 4: 262

**LOCAL NAMES.** None recorded.

**SIZE.** Sparrow — ; length c. 13 cm (5 in.).

**FIELD CHARACTERS.** As of 727, q.v. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Andaman and Nicobar Is.; rare in the former. Subspecific identity of Andaman birds unclear; they may belong to the nominate Indo-Burmese population ('Breeding visitor (?)' Abdulali, JBNHS 64: 174).

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 727.

**BREEDING.** The only indication from the Andamans is the record of a bird observed excavating a nest-tunnel in dense forest below Mt Harriet, on 27 May (Osmaston, JBNHS 17: 162). Nothing known from the Nicobars.

**MUSEUM DIAGNOSIS.** Differs from *erithaeus* (727) in having the head a much deeper rufous. According to the describer the black spot on the forehead is lacking or much reduced.

**MEASUREMENTS and COLOURS OF BARE PARTS** as in 727.

#### Genus *PELARGOPSIS* Gloger

*Pelargopsis* Gloger, 1842 (1841), Hand u. Hilfsb. Naturg.: 338. Diagnosis only, no type nor included species. Species added, Cabanis and Heine, 1860, Mus. Hein., Th. 2:

156-7. Type, *Alcedo javana* Boddaert

*Ramphalcyon* Reichenbach, 1851, Handb. spec. Orn.: 16. Type, by subsequent designation, *Alcedo capensis* Linnaeus

Contains large-sized kingfishers with a very large and powerful bill. Culmen flattened and perfectly straight, with a well-marked groove on either side. Wing rounded: first primary (as.) equal to tenth; 3rd or 4th longest or subequal. Tail much longer than bill; slightly rounded.

#### Key to the Species

	Page
Wings and tail brown.....	<i>P. amauroptera</i> 83
Wings and tail blue or green.....	<i>P. capensis</i> 84

#### 729. Brownwinged Kingfisher. *Pelargopsis amauroptera* (Pearson)

*Halcyon amauropterus* Pearson, 1841, Jour. Asiatic. Soc. Bengal 10 (2): 635  
(Calcutta, India)

Baker, FBI No. 1546, Vol. 4: 263

Plate 46, fig. 2, facing p. 64

**LOCAL NAME.** *Guriāl* (Bengali).

**SIZE.** Pigeon  $\pm$ ; overall length, including the large bill, c. 36 cm (14 in.).

**FIELD CHARACTERS.** A large salt-water kingfisher with an enormous red bill. Head, neck and underparts brownish yellow; mantle and tail dark brown; back and rump bright pale blue, particularly conspicuous in flight. Sexes alike.

**STATUS, DISTRIBUTION and HABITAT.** Resident; not uncommon locally near the sea coast. Southern West Bengal and East Pakistan, occasionally wandering up muddy rivers to Sylhet, and in southern Assam (Cachar). Orissa (Chandbali—JBNHS 71: 304. 1974). Affects tidal rivers, creeks, and mangrove swamps; rarely beyond tidal limits.

**Extralimital.** Extends southward through coastal Arakan, Tenasserim, and the Malay Peninsula to the Langkawi Islands.

**GENERAL HABITS.** Keeps singly or in pairs. An exclusively coastal species, restricted to salt and brackish waters. 'Has the habit of plunging into the

surf and settling on the sand while it secures its prey, allowing the waves to break over it' (J. C. Hopwood, JBNHS 21: 1209).

**FOOD.** Mainly fish and crustaceans.

**VOICE and CALLS.** A harsh grating cry, frequently uttered.

**BREEDING.** Very little known within our limits. Baker reports two nests in March and April — the usual kingfisher tunnels in steep banks of muddy streams in Sylhet, c. 30 and 60 cm long and c. 10 cm in diameter. *Eggs*, 4(?), white, roundish, measuring about 34 × 28 mm.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

**Young (immature).** Feathers of sides and back of neck, breast, and flanks narrowly edged with dusky brown, giving a finely barred appearance to these parts.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	141–160	70–82	18–19	86–98 mm (Baker)

**COLOURS OF BARE PARTS.** Iris brown; eyelids brick red. Bill crimson or scarlet-crimson, dark blackish brown at tip. Legs and feet scarlet.

**PELARGOPSIS CAPENSIS (Linnaeus): STORKBILLED KINGFISHER**

**Key to the Subspecies**

		Page
A	Crown ochraceous, not contrasting with nuchal collar..	<i>P. c. intermedia</i>
B	Crown some shade of grey or brown, contrasting with more yellowish nuchal collar.....	1
1	Head much darker brown.....	<i>P. c. capensis</i>
	Head much paler brown.....	<i>P. c. osmastoni</i>

**730. *Pelargopsis capensis capensis* (Linnaeus)**

*Alcedo capensis* Linnaeus, 1766, Syst. Nat., ed. 12, 1: 180 (Cape of Good Hope = Chandernagor, *fide* Stresemann, 1952, Ibis 94: 517–21)

*Alcedo gurial* Pearson, 1841, Jour. Asiat. Soc. Bengal 10 (2): 633  
(Midnapore, Bengal, India)

Baker, FBI No. 1548, Vol. 4: 265

Plate 48, fig. 3, facing p. 112

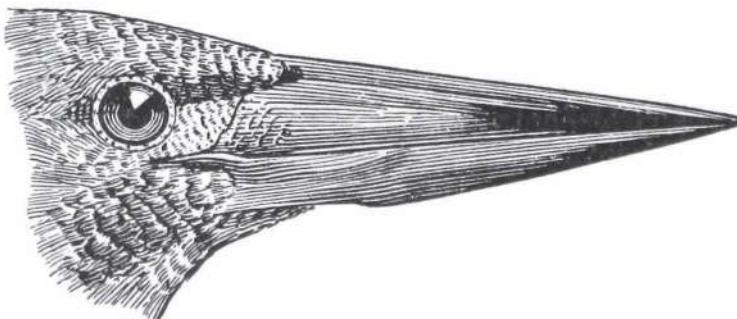
**LOCAL NAMES.** *Bādā kilkila* (Hindi, M.P.); *Tunnak* (Mirshikars, Bihar); *Gūriāl* (Bengali); *Bādāmi kourillā* (Hindi, Oudh); *Watturā ānduwā, Māhā pilihuduwa* (Sinhala); *Meenkotti, Kukuluppan* (Tamil); *Kākkā ponmān* (Malayalam).

**SIZE.** Pigeon ±; overall length, including large bill, c. 38 cm (15 in.).

**FIELD CHARACTERS.** A freshwater kingfisher distinguished by its great size and enormous blood-red dagger-shaped bill. *Above*, head dark greyish brown; rest of upperparts brilliant pale greenish blue with a yellowish collar on hindneck. *Below*, chin and throat whitish; rest of underparts ochraceous buff (brownish yellow). Sexes alike.

**Young (immature).** Finely barred as in 729, the bars broader on breast than elsewhere, forming a broad pectoral band.

**STATUS, DISTRIBUTION and HABITAT.** Resident; locally common. All India east and south of a line from the Gulf of Cambay to Dehra Dun. The lower Himalayas in the terai, bhabar and dun of Uttar Pradesh, Nepal and Sikkim, duars of Bengal and foothills of Bhutan; Assam, Nagaland, Manipur; East Pakistan; Ceylon. Lowland and foothills, occasionally following the streams up to c. 1200 m. Affects large, placid, heavily shaded forest streams; also irrigation channels in well-wooded country, and *Pandanus*-lined coastal backwaters (e.g. in Kerala).



× c.  $\frac{1}{2}$

**GENERAL HABITS.** Keeps singly or in separated pairs, sitting hidden and motionless for long periods up in a leafy branch of a tree overhanging a forest stream, uttering its loud cackling call; occasionally darting down to seize some prey. Does not normally hover over water and plunge like Pied Kingfisher. Except when coursing down a nullah, much oftener heard than seen. In Bengal and Assam frequently perches on telegraph wires overlooking *bheels* and ditches.

**FOOD.** Fish, frogs, lizards, mice and young birds — sometimes marauded out of tree-holes. Also crabs, water beetles and other manageable animals.

**VOICE and CALLS.** Very noisy. Has a loud raucous shrieking 'laugh' *Ké-ke-ke-ke-ke*, etc. with explosive accent on the initial *ké*; this uttered with a bobbing up and down of the head and flicking of the tail till it almost touches the back. Also a pleasant contented-sounding song or soliloquy *peer, peer, pür* frequently repeated, delivered from a shady perch.

**BREEDING.** Season, overall January to August/September varying locally and also much staggered; chiefly April and May in the northern parts and Assam, February–March in Kerala, January to May and again August–September in Ceylon. Nest, the usual unlined chamber at the end of a horizontal tunnel drilled into the steep earth bank of a stream; up to a metre or more in length and c. 10 cm in diameter. An unusual nest c. 5 m up in a rotten tree stem has been recorded. Eggs, 4 or 5, white, glossy, rounded ovals as typical of the kingfishers. Average size of 30 eggs 36·6 × 31·2 mm (Baker). Presumably both sexes share in excavating the tunnel, incubation, and feeding the young, but this not specifically recorded. Period of incubation unknown. Curious behaviour has been observed in the breeding season of a pair charging full tilt repeatedly from a perch some distance opposite into a crack in a brick wall with the point of the bill, accompanied by the loud raucous calls. This 5 or 6 hours each day for several weeks, ultimately achieving a number of small purposeless cavities c. 8 to 10 cm across and 10 to 12 cm deep! (For particulars see K. K. Neelakantan, JBNHS 49: 553–4.)

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	147-163	84-93	17-20	94-110 mm (SA, HW, BB, Koelz)
♀♀	155-168	86-94	17-20	95-105 mm

Ceylon and S. Indian birds are smaller in keeping with the normal Bergmann trend.

COLOURS OF BARE PARTS. Iris deep brown. Bill dark blood-red, changing to black at tip; darker at base and brightest on gonys. Legs and feet coral-red; claws dusky.

731. *Pelargopsis capensis osmastoni* (Baker)

*Ramphalcyon capensis osmastoni* Baker, 1934, Nidif. Bds. Ind. Empire 3: 416, footnote  
(Andaman Islands)

*Pelargopsis capensis shekarii* Abdulali, 1964, Jour. Bombay nat. Hist. Soc. 61: 415  
(Chiria Tapoo, South Andaman)  
Not in Baker, FBI

LOCAL NAMES. None recorded.

SIZE. Pigeon ±; overall length, including large bill, c. 38 cm (15 in.).

FIELD CHARACTERS. As of 730, q.v. See Key to the Subspecies, and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; fairly common. Andaman Islands. Affects mangrove-bordered tidal creeks.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 730.

BREEDING. Presumably as in 730, but no specific data.

MUSEUM DIAGNOSIS. Differs from *capensis* (730) in being paler and smaller with a relatively larger bill. Crown much paler (even than in Burmese birds — *burmanica*), almost whitish brown, contrasting less strongly with the ochraceous nuchal collar. Upper wing-coverts less blue.

MEASUREMENTS

♂♀ Wing 141-156; bill (from feathers) 78-85 mm (Baker, Abdulali).

COLOURS OF BARE PARTS. As in 730.

732. *Pelargopsis capensis intermedia* Hume

*Pelargopsis intermedia* Hume, 1874, Stray Feathers 2: 166. Southern Nicobars; restricted to Galatea Bay, Great Nicobar Island, by Oberholser, 1909, Proc. U.S. Nat. Mus. 35: 666

Baker, FBI No. 1547, Vol. 4: 264

LOCAL NAMES. None recorded.

SIZE. Pigeon ±; overall length, including large bill, c. 38 cm (15 in.).

**FIELD CHARACTERS.** As of 730, q.v. See Key to the Subspecies and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident; fairly common. Nicobar Islands, but its occurrence on Car Nicobar or anywhere besides Little and Great Nicobar not yet authenticated. Affects swampy mangrove forest, tidal creeks and the seashore.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 730.

**BREEDING.** No data.

**MUSEUM DIAGNOSIS.** Differs from *capensis* (730) in having the crown ochraceous like the nuchal collar, presenting no contrast with it.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	150–153	74–80	c. 15	92–98 mm (Baker, Abdulali)

**COLOURS OF BARE PARTS.** As in 730.

**Genus HALCYON Swainson**

*Halcyon* Swainson, 1821 (1820–21), Zool. Ill. 1, text to pl. 27. Type, by original designation, *Alcedo senegalensis* Linnaeus

Bill large, rather broad at base; culmen straight, rounded above without any distinct groove at the side. In one species (*chloris*) lower mandible much more curved upwards. Wing rounded: 3rd primary (as.) generally the longest. Tail moderate, longer than culmen, slightly rounded at end.

**Key to the Species**

		Page
A	Bill black.....	<i>H. chloris</i> 95
B	Bill red .....	1
1	No white on primaries.....	<i>H. coromanda</i> 87
	Primaries white at base.....	a
a	Head and neck chestnut.....	<i>H. smyrnensis</i> 89
	Crown black with a white collar.....	<i>H. pileata</i> 94

**HALCYON COROMANDA (Latham): RUDDY KINGFISHER**

**Key to the Subspecies**

Smaller; much paler below.....	<i>H. c. coromanda</i>
Larger; much darker below.....	<i>H. c. mizorhina</i>

**733. *Halcyon coromanda coromanda* (Latham)**

*Alcedo coromanda* Latham, 1790, Index Orn. 1: 252 (Coromandel, India)

Baker, FBI No. 1555, Vol. 4: 273

Plate 45, fig. 3, facing p. 32

**LOCAL NAME.** *Dao natu gajao* (Cachari).

**SIZE.** Myna +; length c. 26 cm (10½ in.).

**FIELD CHARACTERS.** A cinnamon-coloured kingfisher with a white rump conspicuous in flight, and bright red bill and feet. **A d u l t.** *Above*, head,

neck, mantle light rufous-chestnut or cinnamon, overlaid with a red-violet or opal bloom. Middle of lower back, and rump, white tinged with pale blue or violet. *Below*, rufous, varying in depth, paler on chin and throat. Bill and feet bright red. Sexes alike.

**Young** (immature). *Above*, darker browner chestnut than in adult and lacking the violet bloom; rump and upper tail-coverts deeper blue. *Below*, chin albescent; rest of underparts darker rufous, the feathers from throat to abdomen edged with black. Bill largely black with an orange-red tip; feet dull dirty reddish.

**STATUS, DISTRIBUTION and HABITAT.** Resident; perhaps commoner than is apparent. The sub-Himalayan terai and duars from Nepal through Sikkim and Bhutan; Assam north and south of Brahmaputra river, Nagaland and Manipur; W. Bengal and East Pakistan (Sunderbans and hill tracts). Apparently subject to sporadic (or regular?) wide-ranging movements. A specimen has been obtained in Tamil Nadu (Chingleput dist.) in November, and the species is regularly taken at lights on certain mountain ridges and passes (e.g. Jatinga, N. Cachar) on dark monsoon nights suggesting definite migration passage; but these movements as yet enigmatical. (For particulars see Sálim Ali, JBNHS 59: 129-30.) Similar nocturnal falls also recorded in lighted bungalows, and regularly at lighthouses and lightships in the Straits of Malacca in the autumn months, October to December (Robinson & Chasen, 1927, 1: 102). Affects mangrove swamps and the neighbourhood of heavily wooded rivulets and pools in evergreen jungle, up to c. 1800 m.

**Extralimital.** Extends south through Burma and Malay Peninsula to northern Johore; southeastern China, Thailand, the Indochinese countries, and NE. Sumatra.

**GENERAL HABITS.** Shy and retiring. Keeps singly or in pairs to dense secondary evergreen tangles and cane brakes, occasionally dashing past as a cinnamon flash through the jungle. Oftener heard than seen, and its habits little known specifically.

**FOOD.** Fish, crabs, beetles, grasshoppers and other insects; doubtless also other animal items.

**VOICE and CALLS.** Of the same pattern as the Whitebreasted Kingfisher's (735-8) but louder, more musical, and less tinny.

**BREEDING.** *Season*, mainly March-April. *Nest*, the usual kingfisher tunnel bored horizontally into an overgrown ravine bank in evergreen jungle; c. 45 to 100 cm long and c. 5 cm in diameter, ending in a comparatively small egg-chamber. Sometimes also nests in holes in tree-trunks quite high up. *Eggs*, normally 5 occasionally 6, white glossy, rounded ovals. Average size of 30 eggs 27.3 x 23.2 mm. Both sexes incubate (Baker). Incubation period and other facets of breeding biology unknown.

**MUSEUM DIAGNOSIS.** For further details of plumage see Baker, loc. cit.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	106-121	60-63	18-19	60-71 mm (Baker, BB, SA)

**COLOURS OF BARE PARTS.** Iris dark brown. Bill red, darker at base, pinker and paler at tip. Legs and feet pinkish red to coral-red.

734. *Halcyon coromanda mizorhina* (Oberholser)

*Entomothera coromanda mizorhina* Oberholser, 1915, Proc. U.S. Nat. Mus. 48: 645  
 (North Andaman Island)  
 Baker, FBI No. 1556, Vol. 4: 274

LOCAL NAMES. None recorded.

SIZE. Myna +; length c. 26 cm (10½ in.).

FIELD CHARACTERS. As of 733, q.v. See Museum Diagnosis.

In gloomy tidal forest 'the colour of the bird resembles that of the dry leaf of the mangrove *Rhizophora mucronata*' (Abdulali).

STATUS, DISTRIBUTION and HABITAT. Resident, Andaman Islands. Not uncommon on North Andaman, but scarce elsewhere. Also observed on Barren and Southern Jolly Boy islands (Hume, 1874, SF 2: 169-70). Not recorded in the Nicobars. Affects dense mangrove swamps.

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing specifically described; presumably as in 733.

BREEDING. No data.

MUSEUM DIAGNOSIS. Differs from the Indian *coromanda* (733) in being much darker rufous above, entirely overlaid by a brilliant purple-violet sheen. Below also much darker, with a variable amount of violet bloom on foreneck and breast.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	112-122	57-60	c. 16-17	78-81 mm (Baker)

COLOURS OF BARE PARTS. As in 733.

**HALCYON SMYRNENSIS (Linnaeus): WHITEBREASTED KINGFISHER**

**Key to the Subspecies**

	Page
A Bright blue to blue-green above.....	1
B More purplish blue above.....	2
1 Larger; underparts paler.....	<i>H. s. smyrnensis</i> 89
Smaller; underparts darker.....	<i>H. s. fusca</i> 90
2 Larger; underparts deep chocolate.....	<i>H. s. saturatior</i> 93
Smaller; underparts paler.....	<i>H. s. perpulchra</i> 92

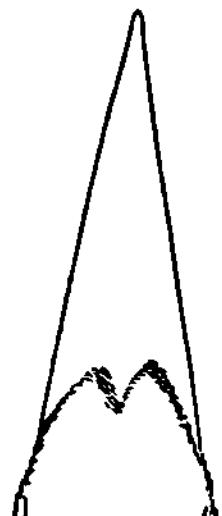
735. *Halcyon smyrnensis smyrnensis* (Linnaeus)

*Alcedo smyrnensis* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 116 (Africa and Asia = Smyrna, ex Albin)

Baker, FBI No. 1550, Vol. 4: 268

LOCAL NAMES. *Kilkila*, *Kourilla* (Hindi); *Neela māchhrāla* (Himachal Pradesh); *Dalēl* (Sind); *Kālkāliyo* (Gujarati); *Aspi chidok* or *Aspanachidok* (Baluchi = 'he who chatters at horses').

## CORACIIFORMES



Bill from above,  
x c. 3  
(After Hartert)

**SIZE.** Myna +; length c. 28 cm (c. 11 in.).

**FIELD CHARACTERS.** As of 736, q.v. See Key to the Subspecies and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident; common and widespread. West Pakistan (Baluchistan, Sind, Punjab) and NW. India (Kashmir, Rajasthan, N. Gujarat with Kutch and Saurashtra) roughly west of a line from the Gulf of Cambay to Dehra Dun; intergrades with *fusca* (736) around the eastern parts of its range. Habitat as in the Indian subspecies.

**Extralimital.** Extends westward through Iran and Iraq to Asia Minor, south to Arabia.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 736.

**BREEDING.** Season, in W. Pakistan, Kashmir and NW. Gujarat, overall March to July, varying with local conditions. Nest and eggs (c/5 or 6) as in the Indian race (736). Average size of 30 eggs 29·4 × 26·2 mm (Baker).

**MUSEUM DIAGNOSIS.** For description of plumage see Baker, loc. cit. Differs from *fusca* in having the scapulars, mantle and tail greener, not so blue; rump usually paler blue; head and underparts often, but not always, paler. There is, however, no constant difference in colour between the two races, and the slightly larger size of northwestern birds as compared with Ceylonese and southern peninsular examples is clinal and in keeping with Bergmann's Rule.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	118-128	60-67	16-19	77-93 mm (Baker, SA)

**COLOURS OF BARE PARTS.** As in 736.

736. *Halcyon smyrnensis fusca* (Boddaert)

*Alcedo fusca* Boddaert, 1783, Table Pl. enlum.: 54 (Malabar Coast ex Daubenton, Pl. enlum. no. 894)

*Halcyon generosa* Madarász, 1904, Ann. Mus. Nat. Hungar. 2: 85 (Ceylon)  
Baker, FBI No. 1551, Vol. 4: 269

Plate 47, fig. 8, facing p. 80

**LOCAL NAMES.** *Kilkila*, *Kourilla* (Hindi); *Tānki* (Bihar); *Sandabuk māchhrāṅga* (Bengal); *Lālī māchh sorāi* (Assam); *Kālkāliyo* (Gujarat); *Khāndya* (Marathi); *Lakmukha*, *Buchegadu* (Telugu); *Vichuli*, *Meenkotti* (Tamil); *Ponmān* (Malayalam); *Pilihuduwā* (Sinhala).

**SIZE.** Myna +; length c. 28 cm (c. 11 in.).

**FIELD CHARACTERS.** A brilliant turquoise-blue kingfisher with deep chocolate-brown head, neck and underparts. Chin, throat, and centre of breast glistening white forming a conspicuous 'shirt-front'. A large white wing-patch, prominent in flight, and long, heavy, pointed coral-red bill and red legs are further clues to its identity. Sexes alike. Upperparts highly

variable seasonally and in different lights as well as individually, sometimes appearing quite green at other times bright blue.

**STATUS, DISTRIBUTION and HABITAT.** Resident; common; subject to local movements, some nocturnal and suggestive of regular migration. Frequently taken at lights at certain periods during the monsoon in places where absent at other seasons (cf. Ruddy Kingfisher, 733). Perhaps our most widely distributed kingfisher. All India east and south of the range of 735, from the sub-Himalayan tracts (including those of Nepal and Sikkim) south throughout the Peninsula, and Ceylon. Intergrades with the eastern *perpulchra* (737) in eastern Madhya Pradesh and northern Andhra, but boundaries of the races equivocal. Penetrates considerable distances into the Himalayas locally up to c. 2300 m; also to about the same altitude in the peninsular and Ceylon hills. Less dependent on water than other kingfishers, and found in a very wide range of habitats, often very far away from it in dry deciduous forest. Affects wet paddyfields, flooded borrow-pits and roadside ditches, village tanks, *kutcha* wells, canals, streams, and the sandy seashore. Gardens in towns and fish-curing yards are favourite haunts.

**GENERAL HABITS.** Keeps singly or in separated pairs, perched upright on a fence-post, telegraph wire or branch surveying its surroundings for crawling prey, often well away from water. While thus perched, swings the downhanging tail back and forth accompanied by a jerky bobbing or pumping up and down of the head from time to time. Normally stoops to the ground like a shrike to seize its quarry in the bill, flying up with it to another perch nearby where, if too large or lively, it is purposefully battered to pulp before being bolted down. Each bird usually has a staked-out feeding territory which is actively defended against interlopers. On approach of the breeding season the male sings obstreperously for considerable periods, chiefly in the early morning, from a favourite exposed tree-top, usually within earshot of other males similarly performing. The singing bird sits bolt upright with the tail turned in under the perch, stiffly flicking open his wings from time to time for a second or two, deliberately flaunting the conspicuous white wing-patches; this even when no other bird is present nearby. Pair-formation behaviour and courtship display not properly studied, but the distinctive wing pattern evidently plays an important part in the proceedings. 'When inviting copulation, the female uttered a prolonged *kit-kit-kit-kit* etc. (like the agitated chattering of Redvented Bulbul) accompanied by a shivering of the partly open wings (as in food-begging) before the male perched a few centimetres away' (SA).

**FOOD,** small animals; fish only a secondary item. Largely insects — grasshoppers, crickets, mantises, scarab and other beetles including the aquatic Dysticidae; ants and winged termites emerging from the ground. Has been observed capturing locusts and dragonflies on the wing (Whitehead, JBNHS 20: 957). Crabs — *Ocypode* on the sandy seashore, *Paratellphusa* in flooded paddyfields inland; scorpions and centipedes; frogs and lizards (*Mabuia*, *Calotes*, etc.), mice and birds — fledgling sparrows, adult white-eye and munias, and once a downy Redwattled Lapwing chick recorded. Predominantly a terrestrial feeder but individuals occasionally become a nuisance at fish hatcheries and ornamental goldfish ponds.

**VOICE AND CALLS.** Normal call well described as 'a loud defiant rattling [or cackling] laugh' (Nichols), uttered chiefly when taking wing. Song, a long-drawn tremulous musical whistle *Kililili* repeated again and again from a tree-top for long periods, each phrase ending in a detached harsh undertone like the *peep* of a snipe, audible only at close range.

**BREEDING.** Season, overall January to August, varying locally; mainly April to July, somewhat earlier in Ceylon and S. India. Nest, a tunnel bored in the steep bank of a (usually) dry nullah or roadside cutting, or in the side of a dry ditch, *kutcha* well or borrow-pit; usually sloping slightly upwards, c. 7 cm in diameter and from c. 50 cm to a metre or more long. It ends in a widened egg-chamber, unlined but usually becoming littered with bones and foul-smelling cast-up remains of prey brought for the young. Fresh, occupied tunnels recognizable by the double tracks of loose earth left by the birds' feet as they shuffle in and out. Digging of tunnel in a vertical bank initiated by both birds tilting with the bill into the earth in full flight, one after the other in quick succession until a circular indentation is made to afford foothold for the bird to cling, supported by open wings pressed against the wall, and continue the digging (cf. *Pelargopsis capensis*, 730). Eggs, 4 to 7, normally 5 or 6, pure white spherical ovals, c. 29 × 26 mm. Both sexes share in excavating the nest-tunnel, incubation, and feeding the young. Incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. The Indian *fusca* differs from nominate *smyrnensis* (735) in being usually more blue less green on the upperparts, but this variable seasonally and individually; centre of back generally a deeper blue; chocolate-brown parts slightly deeper in shade.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	113–124	56–63	15–16	72–83 mm (SA, HW, BB)

Weight 3 ♂♂ 78–83 g (GD, SDR); 1 ♂ 79 g (SA).

**COLOURS OF BARE PARTS.** Adult. Iris brown. Bill brownish orange-red to deep coral-red; mouth orange-brick colour or coral-red. Legs and feet dusky orange to coral-red (brighter on hind tarsus and soles); claws blackish brown. Nestling. Bill dull yellow and blackish.

#### 737. *Halcyon smyrnensis perpulchra* Madarász

*Halcyon perpulchra* Madarász, 1904, Ann. Mus. Nat. Hungar. 2: 85 (Singapore).  
*Halcyon (Entomobius) smyrnensis fokiensis* Laubmann & Götz, 1926, Verh. Orn. Ges. Bayern 17: 42 (Foochow, Fohkien)  
 Baker, FBI No. 1551 (part), Vol. 4: 269

**LOCAL NAMES.** *Sandabuk māchhrāngā* (Bengal); *Lāli mlchh sorāi* (Assam); *Dao natu gophu* (Cachari).

**SIZE.** Myna +; length c. 28 cm (c. 11 in.).

**FIELD CHARACTERS.** As of 736, q.v. See Key to the Subspecies and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident; common; subject to local movements. From eastern Madhya Pradesh and northern Andhra [where it intergrades with *fusca* (736)], Orissa and eastern Bihar, eastward through W. Bengal, Bhutan foothills, Assam, Nagaland, Manipur and East Pakistan.

**Extralimital.** Burma, Thailand, Malay Peninsula, Indochinese countries, S. and E. China; Hainan and Formosa.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 736.

**BREEDING.** Season, in Assam chiefly March to June. Nest and eggs as in 736.

**MUSEUM DIAGNOSIS.** Underparts slightly paler than in *fusca* but subspecies doubtfully distinct from it, and separable chiefly with 'the eye of faith'!

**MEASUREMENTS,** within the range of *fusca* but somewhat on the smaller side.

**COLOURS OF BARE PARTS.** As in 736.

### 738. *Halcyon smyrnensis saturatior* Hume

*Halcyon saturatior* Hume, 1874, Stray Feathers 2: 168, in text: 531 (Andaman Islands)  
Baker, FBI No. 1553, Vol. 4: 270

**LOCAL NAMES.** None recorded.

**SIZE.** Myna +; length c. 28 cm (11 in.).

**FIELD CHARACTERS.** As of 736, q.v. See Key to the Subspecies and Museum Diagnosis.

'In flight the white wing-patches more conspicuous than in Indian birds' (Abdulali, JBNHS 61: 542).

**STATUS, DISTRIBUTION and HABITAT.** Resident. Very common and abundant in the Andaman Islands, especially on South and Middle Andamans. Not recorded in the Nicobars. Affects sea coast, mangrove swamps, and forest clearings, frequently far into the interior.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 736.

**BREEDING.** Season, mainly April and May. Nest and eggs (normally 3, sometimes 4) as in the Indian bird. Average size of 60 eggs 30.2 × 26.4 mm (Baker).

**MUSEUM DIAGNOSIS.** Chocolate-brown of head, neck and underparts distinctly darker than in 736.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tail
1 ♂	133	72	86 mm
2 ♀ ♀	128, 129	64, 70	82, 83 mm (Grubh)

♂ ♀ Wing 123-134; bill (from feathers) 54-63 mm (Baker).

**COLOURS OF BARE PARTS.** As in 736.

739. **Blackcapped Kingfisher.** *Halcyon pileata* (Boddaert)

*Alcedo pileata* Boddaert, 1783, Table Pl. enlum.: 41 (China, ex Daubenton, Pl. enlum., no. 673)

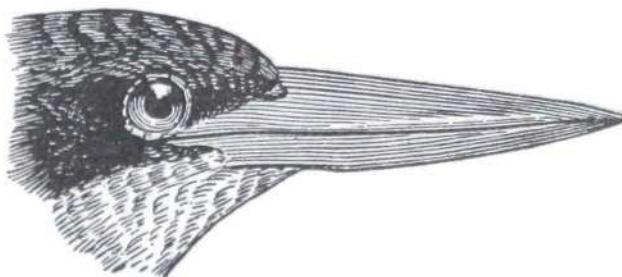
Baker, FBI No. 1554, Vol. 4: 271

Plate 48, fig. 1, facing p. 112

LOCAL NAMES. *Ablāk tānki* (Mirshikars, Bihar); *Kourilla* (Hindi; generally for all kingfishers).

SIZE. Myna +; length c. 30 cm (12 in.).

FIELD CHARACTERS. A medium-sized kingfisher with bright coral-red bill and a large whitish wing-patch (as in Whitebreasted), conspicuous in flight. Readily identified also by its pale rusty underparts including underside of wings. Upper plumage looks black until sunshine transforms it to brilliant purple-blue.



× c.  $\frac{1}{2}$

Adult. *Above*, crown velvety black, separated from dark mantle by a prominent white collar on hindneck. Upperparts deep cobalt blue. *Below*, pale rusty buff. Sexes alike.

Young (immature) has numerous black striations running from lower mandible to neck; feathers across breast edged with black.

STATUS, DISTRIBUTION and HABITAT. Resident and locally migratory. Primarily a maritime kingfisher, not common but frequent on the western seaboard from about Bombay southward, Ceylon (rare), and up the eastern coast of the Peninsula through the Godavari delta, Sunderbans and East Pakistan (Chittagong, common), and beyond. Also the Andaman and Nicobar Islands. Affects the seashore and mangrove swamps, often ascending the creeks and estuaries for considerable distances above tidal limits. Sporadically penetrates much deeper inland along the larger rivers and their feeders (up to c. 1000 m); as such, collected and/or observed in Gonda dist. (Uttar Pradesh), Monghyr, Madhubani, Tirhut (Bihar), Dumagudiem (Andhra), Bharatpur (Rajasthan), N. Lakhimpur (Assam), Naga Hills north of Manipur (SF 11: 45), and elsewhere.

Extralimital. Extends through Burma, Thailand, Malay Peninsula and islands, the Indochinese countries, China (north to Kansu, Shansi and Chihili), Korea, Hainan, Philippine and Indonesian islands (Borneo, Sumatra, etc.).

GENERAL HABITS. Similar to the Whitebreasted Kingfisher (736) but much less terrestrial in its hunting and less noisy, usually flying off silently. Keeps singly and has a number of alternative fixed hunting posts in a feeding territory, occupying them day after day. Seldom wanders far from the

seacoast though not an exclusively salt-water species like the Brownwinged Storkbill (729). Dives obliquely from a perch for fish or stoops to the ground like a shrike to take crawling prey.

**FOOD.** Chiefly fish, frogs and crabs, but also insects — crickets, grasshoppers, beetles, etc. — and presumably lizards and other small animals.

**VOICE and CALLS.** A cackling laugh like the Whitebreasted Kingfisher's, but shriller and quite distinctive. Song undescribed.

**BREEDING.** Very few nests taken within Indian limits — in Lakhimpur dist. of Assam, Kerala (*Nidif.* 3: 423) and Mysore (Shamoon Abdulali, JBNHS 45: 607), the last containing 2 hatchlings and 2 eggs on 5 May. Nest, the usual horizontal kingfisher tunnel, a metre or so deep, drilled into the bank of a stream in wooded country. Extralimital season given as May to July, and normal clutch as 4 or 5 eggs — white, spherical ovals. Average size of 46 eggs 29·6 × 26·3 mm (Baker).

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	127-133	57-65	c. 15	83-88 mm (Baker)

**COLOURS OF BARE PARTS.** Iris dark brown. Bill deep coral-red. Legs and feet dark red.

**HALCYON CHLORIS (Boddaert): WHITECOLLARED KINGFISHER**

**Key to the Subspecies**

		Page
A	Underparts pure white.....	1
B	Underparts sullied with buff.....	2
1	Smaller: wing under 108 mm..... <i>H. c. humii</i>	96
	Larger: wing over 109 mm..... <i>H. c. vidali</i>	95
2	A very broad buffy white supercilium to the nape.... <i>H. c. occipitalis</i>	98
	Supercilium absent or obsolete..... <i>H. c. davisoni</i>	97

**740. *Halcyon chloris vidali* Sharpe**

*Halcyon vidali* Sharpe, 1892, Cat. Bds. Brit. Mus. 17: 217 (in key): 278

(Ratnagiri and Kelsi Creek, South Konkan, India)

Baker, FBI No. 1558, Vol. 4: 276

Plate 48, fig. 2, facing p. 112

**LOCAL NAME.** *Kāyāl ponmān* (Malayalam).

**SIZE.** Myna ±; length c. 24 cm (9½ in.).

**FIELD CHARACTERS.** As for 741, q.v. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident; rare and little known. Authenticated only from a small area on the west coast in Ratnagiri dist. (Maharashtra) c. 120 km south of Bombay whence the subspecies originally described. Reported occurrence in coastal Kerala quite probable but not yet confirmed by specimens. Frequents thick mangrove swamps fringing the estuaries of the tidal creeks.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 741. Feeds at low tide on the exposed mudflats, on crabs, mud-skippers (*Periophthalmus*) and orthopterous insects.

**BREEDING.** Not recorded.

**MUSEUM DIAGNOSIS.** Differs from *humii* (741) in being generally brighter and paler blue on the wings and more consistently green on the back; ear-coverts green with no trace of black; black nuchal band generally absent; white collar broader.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	110–116	42–49	c. 16	70–73 mm (Baker)

**COLOURS OF BARE PARTS.** As in 741.

741. *Halcyon chloris humii* Sharpe

*Halcyon humii* Sharpe, 1892, Cat. Bds. Brit. Mus. 17: 217 (in key): 281, pl. 8 (Siam to the Malay Peninsula and Sumatra; type from Jaram, Selangor, Malay Peninsula, *fide* Oberholser, 1919, Proc. U.S. Nat. Mus. 55: 373)

Baker, FBI No. 1557 (part), Vol. 4: 275

**LOCAL NAMES.** None recorded.

**SIZE.** Myna ±; length c. 24 cm (9½ in.).

**FIELD CHARACTERS.** A medium-sized maritime kingfisher with a black bill.

**Adult.** *Above*, crown and upperparts greenish blue; a prominent white nuchal collar running into the pure white underparts. A black band

(generally present) from eye to eye encircling the crown behind; a short white supercilium and a white patch under the eye. *Below*, from throat to vent white. Sexes alike.

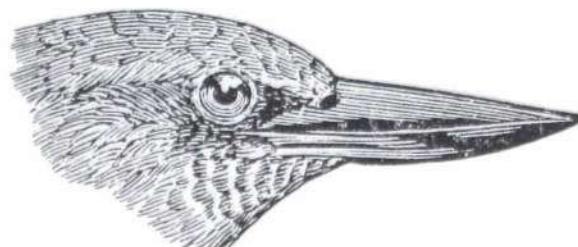
Young (immature) has the breast feathers edged with dusky producing a barred effect; white collar and underparts sometimes

tinged with fulvous, more prominently on flanks and vent.

**STATUS, DISTRIBUTION and HABITAT.** Resident; common. The Sunderbans and coastal areas of West Bengal, Orissa and Bangladesh. Affects mangrove swamps; also *churr* lands in the neighbourhood of villages in 24-Parganas.

**Extralimital.** Coasts of Burma, Malay Peninsula, Tioman Archipelago; NE. Sumatra.

**GENERAL HABITS.** Generally similar to Whitebreasted Kingfisher (736); like it also often found far from water since not entirely dependent on aquatic food. A bold and noisy species frequently hanging round fishermen dragging their nets for the fleeing or rejected sprats. 'The flight is curiously hesitant and weak; they look more like a cuckoo-shrike than a kingfisher in flight' (J. K. Stanford).



× c. ½

**FOOD.** Fiddler and other crabs, mudskippers (*Periophthalmus*) taken on tidal mudflats at ebb; grasshoppers, crickets and other orthopterous insects; lizards, centipedes. Once observed flying up to mud nest of termites 6 metres up in tree and pecking at it (feeding?) while hovering momentarily (SA).

**VOICE and CALLS.** Particularly vocal in the morning. Harsh, unmusical cries of the timbre of the Black Bulbul's (*Hypsipetes*), described as *krek-krek-krek-krek*, in the breeding season. Excessively noisy during courtship, the birds of a pair chasing each other from tree to tree with 'loud raucous laughter'.

**BREEDING.** *Season*, March to August, chiefly April and May. *Nest*, a hole up in a tree-trunk or one excavated in a carton or mud nest of tree ants, often a live one; sometimes in a termite mound. Frequently in kampongs and orchards adjoining villagers' huts. *Eggs* 3 or 4, white, roundish ovals. Average size c. 29 × 24 mm. Evidently both sexes dig the nest-hole, incubate, and feed the young. Incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. This subspecies (*humii*) has the upperparts very blue, in some examples practically without any green tinge; ear-coverts all blue; black nuchal band usually absent.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	96-107	40-47	c. 15	62-65 mm (Baker)

**COLOURS OF BARE PARTS.** Iris deep brown. Bill: upper mandible and terminal third of lower black or deep greenish black; basal two-thirds of lower mandible pinkish or yellowish white. Legs and feet slaty black or plumbeous.

### 742. *Halcyon chloris davisoni* Sharpe

*Halcyon davisoni* Sharpe, 1892, Cat. Bds. Brit. Mus. 17: 217 (in key): 282

(Aberdeen, South Andaman)

Baker, FBI No. 1560, Vol. 4: 278

**LOCAL NAMES.** None recorded.

**SIZE.** Myna ±; length c. 24 cm (9½ in.).

**FIELD CHARACTERS.** As for 741, q.v. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident; common. Andaman and Coco islands. Recorded on Great and Little Cocos, Little Button, Strait Is., Stewart Sound, Port Cornwallis and elsewhere in the groups. Affects the sea coast, mangrove swamps, tidal creeks, and some distance inland, there keeping to gardens and edges of forest.

**GENERAL HABITS, VOICE and CALLS.** As in 741.

**FOOD.** Mainly crabs, fish, grasshoppers and other insects.

**BREEDING.** *Season*, principally April-May. *Nest*, a hole excavated in an earth-bank, 30 cm or so deep; occasionally in a termite mound or in the upturned roots of a fallen tree, or a hollow in a tree-trunk (Osmaston, JBNHS 17: 163). *Eggs*, 3 or 4 as in 741. Average size of 30 eggs 29·3 × 24·5 mm (Baker).

## CORACIIFORMES

**MUSEUM DIAGNOSIS.** Differs from *humii* (741) in having the underparts sullied with buff; ear-coverts dark and mixed with black; black nuchal band narrow but practically always present; white hind-collar bordered below with dark brownish green; faint sub-barring of tail-feathers more noticeable.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	96-108	38-41	c. 14-15	63-72 mm (Baker, Grubb)
Bill from skull 1 ♂ 52, 1 ♀ 50 mm (Grubb).				

**COLOURS OF BARE PARTS.** As in 741.

### 743. *Halcyon chloris occipitalis* (Blyth)

*Todiramphus occipitalis* Blyth, 1846, Jour. Asiatic Soc. Bengal 15: 23, note; 51  
(Nicobar Islands)

Baker, FBI No. 1559, Vol. 4: 277

**LOCAL NAMES.** None recorded.

**SIZE.** Myna ±; length c. 24 cm (9½ in.).

**FIELD CHARACTERS.** As of 741, q.v. See Museum Diagnosis.

**STATUS, DISTRIBUTION AND HABITAT.** Resident; common. Nicobar Islands. Recorded on Car Nicobar, Camorta, Nancowry, Trinkut and throughout the group. Affects mangrove swamps, tidal creeks, coconut groves, etc.

**GENERAL HABITS, FOOD, VOICE AND CALLS.** As in 741.

**BREEDING.** Season, February to April. Nest and eggs as in 741 and 742.

**MUSEUM DIAGNOSIS.** General tone of plumage very dark; the crown very green. Differs from the other races also in being much more fulvous on abdomen and vent; fulvous patch above eye continued back as a broad supercilium to nape, meeting above the black band.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	105-113	40-48	14-15	65-72 mm (Baker)
4 ♂ ♂	104-117	51-53	—	72-79 mm
4 ♀ ♀	109-112	50-53	—	71-74 mm (Grubb)

**COLOURS OF BARE PARTS.** As in 741.

### Family MEROPIDAE: Bee-eaters

For description see Van Tyne, J., and Berger, A. J., 1959: 473; Baker, 1927, FBI 4: 232; Thomson, A. L., 1964, Article 'Bee-eater', *New Diet. Birds*, London & New York.

#### Key to the Genera

	Page
Breast and throat feathers not elongated..... <i>Merops</i>	99
Breast and throat feathers elongate, loose and coloured differently from the surrounding plumage..... <i>Nyctyornis</i>	111

## Genus MEROPS Linnaeus

*Merops* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 117. Type, by tautonymy, *Merops apiaster* Linnaeus (*Merops*, prebinomial specific name in synonymy)

Cf. Marien, D., 1950, JBNHS 49: 151-64

Bill long, slender, curved throughout; culmen ridged; both mandibles pointed. Legs and feet feeble, syndactyle, the outer or 4th toe united to the 3rd or middle toe as far as the last joint; 2nd and 3rd toes united up to the basal joint only. Wings long, pointed: 1st primary (as.) minute, 2nd primary longest. Tail of 12 feathers, the middle pair long, pointed, and usually projecting beyond the rest.

## Key to the Species

	Page
A Middle pair of tail-feathers usually not longer than, and nearly similar in shape to the lateral.....	<i>M. leschenaulti</i>
B Middle pair of tail-feathers much longer than the lateral, attenuated and pointed	
1 Throat yellow .....	<i>M. apiaster</i>
2 Throat green .....	<i>M. orientalis</i>
3 Throat chestnut	
a Tail and rump green.....	<i>M. superciliosus</i>
b Tail and rump blue.....	<i>M. philippinus</i>

## MEROPS LESCHENAULTI Vieilliot: CHESTNUTHEADED BEE-EATER

## Key to the Subspecies

Smaller.....	<i>M. l. leschenaulti</i>
Larger.....	<i>M. l. andamanensis</i>

744. *Merops leschenaulti leschenaulti* Vieillot

*Merops Leschenaulti* Vieillot, 1817, Nouv. Dict. d'Hist. Nat. 14: 17  
(Java, *errone* = Ceylon)

Baker, FBI No. 1528, Vol. 4: 240

Plate 49, fig. 6, facing p. 128

LOCAL NAMES. *Lälsir pättinga* (Hindi); *Kurumini kurullā* (Sinhala); *Kattālan kūrūvi, Panchānkam* (Tamil); *Veli tāttā* (Malayalam).

SIZE. Bulbul ±; length c. 21 cm (8½ in.).

FIELD CHARACTERS. A slim grass-green bird with slender, curving, pointed black bill; similar to Small Green Bee-eater (750) but with crown, hindneck and upper back bright cinnamon-chestnut; chin and throat yellow bordered by a rufous and black gorget. Central rectrices scarcely projecting beyond tail. Sexes alike.

YOUNG (immature) has the head green, concolorous with lower back; rufous of upper back much mixed with green; rufous-and-black gorget ill-defined; bill smaller.

STATUS, DISTRIBUTION and HABITAT. Resident. Widely but locally distributed, emigrating from heavy rainfall areas during the monsoon months c. June to October. The submontane tracts of the Himalayas (terai, duar,

bhabar, and dun) from about Dehra Dun eastward through Kumaon, Nepal, Sikkim, W. Bengal and Bhutan, Assam, Nagaland, Manipur, East Pakistan, Orissa. Also the Western Ghats complex from about Goa southward (including western Mysore, western Tamil Nadu, and Kerala), and Ceylon; normally up to c. 1500 m. Less frequent, or locally absent, in the central, eastern and southeastern parts of the Peninsula, but likely to turn up on passage in almost any forested area. Affects the neighbourhood of streams in mixed deciduous forest country.

*Extralimital.* Burma, Malay Peninsula, Yunnan, Thailand, the Indo-chinese countries.

**GENERAL HABITS.** Keeps in parties of 8 to 30 birds or so, perching on bare branches near the top of forest trees or on telegraph wires where available, one bird or several together launching out in the air from time to time to hawk insects, circling back to the base. Flight fast — a few rapid wing-beats followed by a graceful glide. In common with many other insectivorous birds, and other bee-eaters, drinks and bathes on the wing, splashing on the surface while flying low over water or dipping down to it from an overhanging perch, thereafter settling nearby to shuffle the feathers and preen. Has communal roosts in favourite trees in open forest where the birds converge at sundown. Much noise and flying around in a rabble takes place, and settling and resettling as individuals try to supplant others from coveted position in the huddle along a leafy branch. Observed actually taking small fish by dropping from overhanging perch (P. L. Samy, *in epist.*).

**FOOD.** Winged insects — bees, dragonflies, ants, termites, etc. Occasionally butterflies snapped up in the air with a little click of the bill, the discarded wings floating to the ground as the bird flies on after the capture.

**VOICE and CALLS.** Almost indistinguishable from those of the large green bee-eaters (747, 748), qq.v.

**BREEDING.** *Season*, overall February to June, most generally March and April. *Nest*, a horizontal tunnel drilled into the shelving sandy bank of a stream or in sandy level ground at a gently downward-sloping angle; up to c. 2 metres long ending in a widened egg-chamber. Though not colonial, e.g. like Sand Martins, often several nests scattered in a restricted area like rat-holes, a metre or two from one another. *Eggs*, 5 or 6, pure white, roundish ovals. Average size of 200 eggs 21·7 × 19·0 mm (Baker). Both sexes share in digging the tunnel, incubation, and feeding the young. Incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. Post-nuptial moult complete; apparently no spring moult. Freshly moulted birds have the back dark green (♀ pale blue) and the crown and nape rich chestnut-brown. Although the central feathers hardly project beyond the tail, they are quite different in shape from the lateral rectrices, approximating to the condition that obtains in juveniles of Bluetailed and Small Green Bee-eaters (748, 750).

#### MEASUREMENTS

		Wing	Bill (from skull)	Tarsus	Tail
15	♂ ♂	105-111	35-40	c. 9-10	76-84 mm
19	♀ ♀	104-109	35-40	c. 9-10	77-84 mm

(BB, HW, SA, Koelz)

Marien (JBNHS 49: 154) gives

	Wing	Bill (from feathers)	Tail
32 ♂♂	104-113 (107·4)	25-32 (28·6)	78-85 mm (80·9)
29 ♀♀	100-112 (106·0)	26-30 (28·0)	75-84 mm (79·6)

Weight 3 ♀♀ 24-33 g (Diesselhorst, SA).

COLOURS OF BARE PARTS. Iris crimson. Bill horny black; mouth greyish pink. Legs, feet and claws blackish brown.

#### 745. *Merops leschenaulti andamanensis* Marien

*Merops leschenaulti andamanensis* Marien, 1950, Jour. Bombay nat. Hist. Soc. 49: 155

(Port Blair, Andaman Island)

Baker, FBI No. 1528 (part), Vol. 4: 240

LOCAL NAMES. None recorded.

SIZE. Bulbul ±; length c. 21 cm (8½ in.).

FIELD CHARACTERS. As of 744, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; common. Great and Little Coco, and Andaman Islands. Not recorded in the Nicobars. Seldom met away from forest; occasionally in clearings. Frequents the neighbourhood of streams and roads running through forest, and well-wooded gardens.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 744.

BREEDING. Season, nest, eggs, etc. as in 744. Clutches reportedly smaller, 'of 3 to 5 eggs' (Osmaston).

MUSEUM DIAGNOSIS. Differs from the nominate subspecies (744) in being larger, with longer wing, bill and tail. No difference in plumage.

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tail
14 ♂♂	107-115 (111·2)	26-34 (31·0)	81-94 mm (88·5)
8 ♀♀	107-112 (108·7)	29-32 (30·4)	85-97 mm (90·1)

(Marien)

Recent specimens from Middle and South Andamans give

	Wing	Tail
4 ♂♂	110-115 (113)	84-90 mm (86·25)
2 ♀♀	109-112 (110·5)	86-88 mm (87)

(Abdulali)

COLOURS OF BARE PARTS. As in 744.

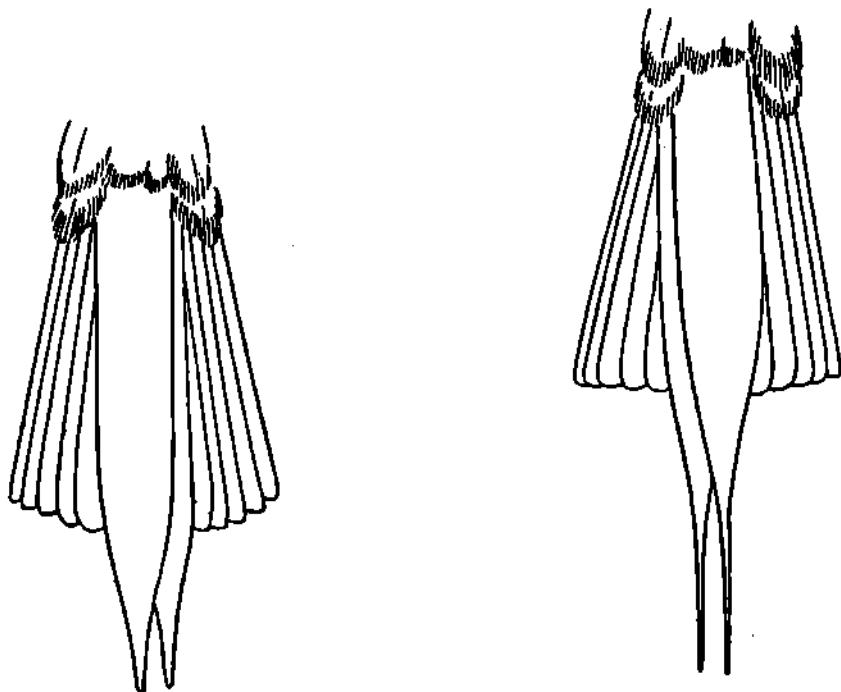
746. European Bee-eater. *Merops apiaster* Linnaeus

*Merops Apiaster* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 117 ('Europa australi; oriente')  
 Baker, FBI No. 1522, Vol. 4: 233  
 Plate 45, fig. 9, facing p. 32

LOCAL NAMES. *Bādā hārriāl* (Hindi); *Tūleri kāv*, *Rodabubru* (Kashmiri).

SIZE. Myna +; length c. 27 cm (10½ in.).

FIELD CHARACTERS. A typical bee-eater, multicoloured, with long, slender, curving pointed black bill and projecting pin-feathers in tail.



Tail of *M. apiaster*,  $\times$  c. ½

(After Hartert)

Tail of *M. s. persicus*,  $\times$  c. ½

Adult. *Above*, mantle chestnut and yellow; tail blue-green, the narrow tips black. *Below*, cheeks and throat bright clear yellow separated from blue-green breast and abdomen by a narrow black gorget. Sexes alike.

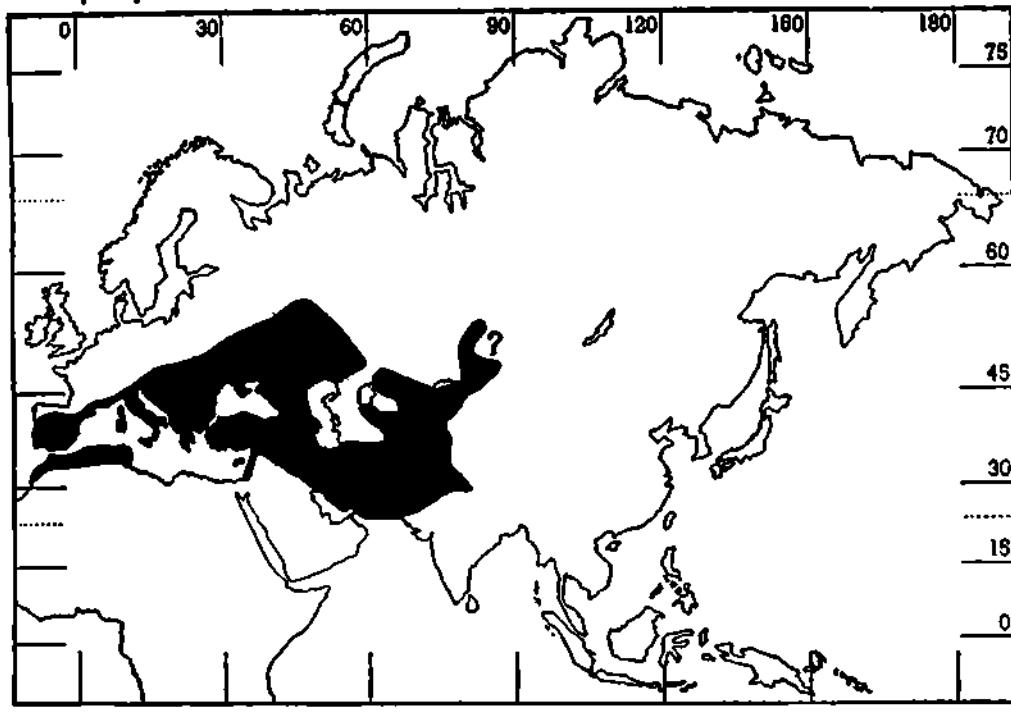
Young (immature) has very little chestnut on head or neck; scapulars pale green- or blue-grey, the tips almost white; chestnut of wings replaced by chestnut-grey; underparts paler and duller.

STATUS, DISTRIBUTION and HABITAT. Breeding visitor to Kashmir, chiefly in the Vale, arriving in April or early May, departing in September. Breeds also in Baluchistan (Quetta area) to c. 1800 m, and in the Kurram Valley between c. 900 and 2100 m. Elsewhere in NW. India and Pakistan mainly a passage migrant, recorded in Gilgit, Chitral, Himachal Pradesh, Garhwal, Punjab, Sind, and eastern Rajasthan. Once in Tamil Nadu (Salem dist.), specimens, February 1952 (Basu Roy, JBNHS 65 : 776), once in the Maldives Is. — a party of three birds staying on between January and March 1959; status unknown (W. W. A. Phillips, JBNHS 60 : 580). Affects open country, low foothills and cultivation, and environs of lakes.

Extralimital. Breeds from the Iberian Peninsula, S. France, N. Italy, Yugoslavia, Romania, S. Russia, the Aral Sea and W. Siberia, south to

(including islands in the Mediterranean Sea) Morocco, Tunisia, Palestine. Winters in Africa as far south as Cape Province; also in S. Arabia. Occurs on the eastern Atlantic islands during migration; casual in C. and N. Europe (Peters).

*Merops apiaster*



■ Breeding range

MIGRATION. No ringing data. Recorded as passing through Kohat (33°37'N., 71°30'E.), northern West Pakistan, in April and early May, re-passing in August–September (Whitehead, 1909, *Ibis*: 250). Arrives in Chitral end May, most birds passing on northward (Perreau, JBNHS 19: 917); in coastal Makran early April, in N. Baluchistan throughout April, re-passing southward in August (Ticehurst, JBNHS 31: 878).

GENERAL HABITS. In Kashmir (summer, breeding) keeps in pairs or small communities. Perches on telegraph wires or bushes in exposed situations, darting out now and again to seize a dragonfly or wasp often from as much as twenty metres away, swooping upwards at the end to snap up the quarry with a little click of the mandibles, the bird circling round with the capture back to its perch. Here the victim is vigorously battered to pulp before being swallowed or carried to the nest. Flight graceful, undulating, a few rapid wing-beats alternated with fast glides — very swift when in pursuit.

FOOD. Dragonflies (Odonata), bees, hornets, and other Hymenoptera including the fierce yellow wasp *Polistes hebraeus*; occasionally butterflies (Lepidoptera), all taken on the wing. Sometimes becomes a serious nuisance to bee-keepers by preying on their hive bees.

VOICE and CALLS. A pleasant, rather liquid trill *tre, tre*, etc., uttered on the wing and from a perch.

**BREEDING.** Season, principally June and July. Nests singly or in communities of a few pairs, widely spaced. Nest, a horizontal tunnel c. 6–9 cm in diameter and up to 2 m deep, ending in a widened egg-chamber c. 23 cm across; usually littered with remains of beetles and winged insects. Excavated in steep banks or cliffs of soft alluvial clay at a slightly upward angle; the holes noted as usually facing east. Eggs, 5 or 6 (c. 7–9 reported), pure white spherical ovals, glossy. Average size of 23 Kashmir eggs 25.8 × 21.9 mm (Osmaston). Both sexes share in digging the nest-tunnel and feeding the young; evidently also in incubation. Incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.; for description of plumages and structure (also bionomics), Witherby, 1938, 2: 263–5; for remarks on moult, Marien, JBNHS 49: 156.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail central	outer
♂ ♂	144–156	37–44	12–14	108–120	87–96 mm
♀ ♀	138–148	—	—	—	(Witherby)

Weight 7 ♂ ♀ 45–56 (av. 49.7) g (Paludan).

**COLOURS OF BARE PARTS.** Iris crimson or red. Bill horny black. Legs and feet brown.

**747. Bluecheeked Bee-eater. *Merops superciliosus persicus* Pallas**

*Merops persica* Pallas, 1773, Reise Russ. Reich 2: 708 (Shores of the Caspian Sea)  
Baker, FBI No. 1527, Vol. 4: 239

Plate 45, fig. 7, facing p. 32

**LOCAL NAMES.** *Wādō trāklo* (Sind); *Bādā pātringa* (Hindi); *Haur mūrgh* (= rain bird, Brahui); *Kurru* (Baluchi); *Bādā hājāmdā* (Kutch); *Mōtō pātrāngiyo* (Gujarati).

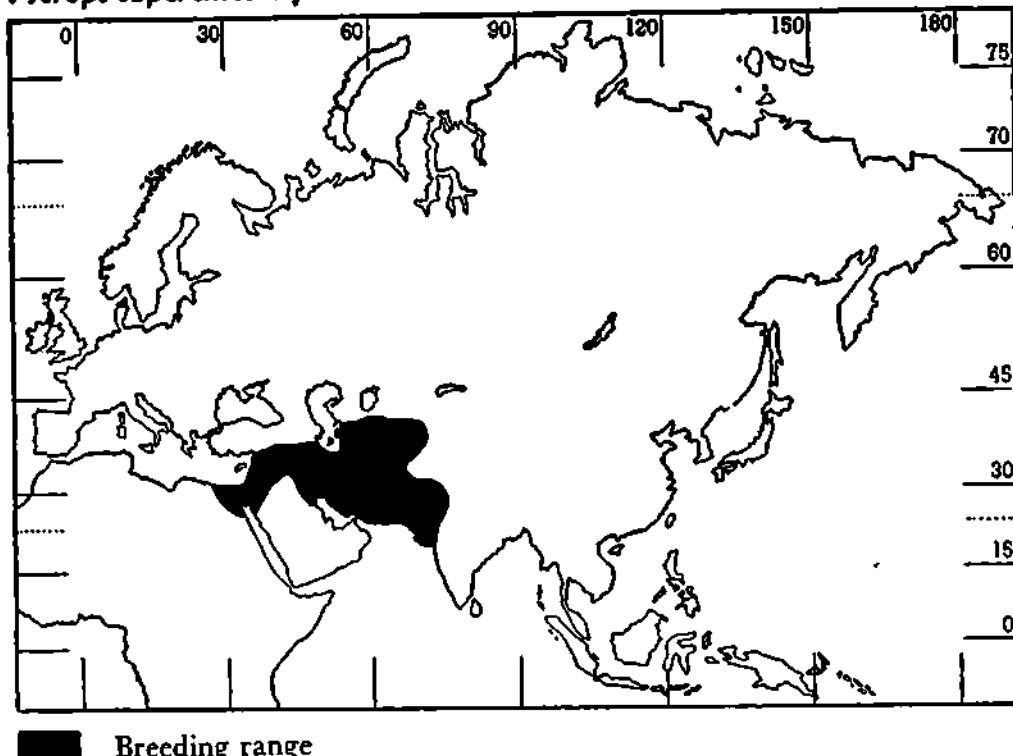
**SIZE.** Bulbul ±; length from tip of bill to tip of tail-pins c. 31 cm (12 in.).

**FIELD CHARACTERS.** A bright green bird with slender, slightly curved black bill and projecting pin-feathers in the tail. Readily distinguished from the commoner, more familiar Little Green Bee-eater (750) by larger size; a pale chestnut patch on throat; a broad black streak from base of bill backward through eye to ear-coverts; and a conspicuous white and blue-green cheek-patch below it. Rump and tail green (v. blue in 748). Sexes alike.

More 'stately' flight and sailing, rufous underwing, and call, further distinguish it from Little Green in the air.

**STATUS, DISTRIBUTION and HABITAT.** Resident in small numbers locally in the more arid northwestern parts of the subcontinent, but numbers vastly augmented in summer by extralimital breeding visitors in West Pakistan (Baluchistan, Sind, northwestern Punjab) and NW. India (western Rajasthan, Saurashtra, Delhi). In some areas (e.g. NW. Punjab, Delhi and Dehra Dun (?)) breeding range overlaps with Bluetailed Bee-eater (748). Affects the neighbourhood of jheels and tanks and sandy seashores.

**Extralimital.** Breeds elsewhere in Palestine, Iran, Transcaspia and W. Turkestan, south to Egypt and Iraq. Migrates over Arabia and the Nile Valley, wintering in tropical and southern Africa.

*Merops superciliosus persicus*

■ Breeding range

**MIGRATION.** No ringing data. Observed as follows:

*Gilgit.* Passes through southward late in autumn — November (Scully, SF 10: 101).

*Baluchistan.* Arrives early April from a western direction, bulk follows later during the month or in early May; many remain to breed in coastal and central Makran and the Quetta area, others pass on eastward. Repasses through during the second half of August (Ticehurst, JBNHS 31: 878).

*Sind.* Arrives middle to late April or early May, apparently from a western direction. Some remain to breed others pass on, the passage sometimes continuing into early June. Return passage commences in late August or early September with many young birds in evidence; continues through October and early November (K. R. Eates, JBNHS 40: 756-9).

*Kutch.* Outward passage in September; inward not observed (SA).

*Saurashtra.* Arrives on the coast in May (Dharmakumarsinhji, JBNHS 46: 723-4).

*Maharashtra* (Bombay area). Passes through in April-May; repasses September-October, the flocks often mixed with the Bluetailed *M. philippinus* (SA).

Migrates during the night chiefly between the hours of dusk and dawn ('dusk to midnight and c. 4·30 to 9·30 a.m.'—Eates) in loose sprawling flocks. Passage high overhead in the dark revealed by the trilling contact calls of the birds. Evidently feeds and rests during daytime.

**GENERAL HABITS.** As in 746 (q.v.) and other bee-eaters. Keeps in pairs or small flocks near water — *dhands* or *jheels*, irrigation reservoirs and canals, etc. Invariably perches on telegraph wires where available. Launches out in the air every now and again in pursuit of winged insects, circling back

gracefully to the base after each capture. Flight, as in other bee-eaters, swift — a few rapid wing-beats followed by a glide.

**FOOD.** Dragonflies, bees, wasps (see under 748).

**VOICE and CALLS.** Resembling those of the European Bee-eater (746), a musical interrogative *tetew?* (repeated); in the distance sounding very much like the *pettigrew* of Redvented Bulbul (SA). These also used as contact calls during migration flight.

**BREEDING.** Season, April to August, principally May and June. *Nest*, the usual underground tunnel (1 to 2 metres long) burrowed in gently sloping sand *bhitis* or mounds — sometimes almost flat ground — in semi-desert tracts, or in a shelving sandy seashore above tide mark; colonially, often up to a hundred pairs or more together, the holes scattered a metre or so apart. *Eggs*, 4 or 5, white, roundish ovals. Average size of 100 eggs  $26.2 \times 20.9$  mm (Baker). Both sexes share in excavating nest-tunnel, incubation (?) and feeding the young. Incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.; for comments on moult, Marien, JBNHS 49: 150-1.

Differs from Bluetailed Bee-eater (748) chiefly in its rump and tail being more bronze-green less blue, and cheeks more conspicuously white and blue-green. Chestnut patch on throat and breast much smaller and paler.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	146-160	35-44	11-12	central 135-148 outer 88-90 mm (Baker)

6 ♂ ♀ ad. Wing 151-162 mm; weight 45-53 (av. 48.3) g (Paludan).

**COLOURS OF BARE PARTS.** Iris reddish brown to deep crimson. Bill horny black. Legs and feet fleshy plumbeous to dark brown.

**748. Bluetailed Bee-eater. *Merops philippinus philippinus* Linnaeus**

*Merops philippinus* Linnaeus, 1766, Syst. Nat., ed. 12, 1: 183, errata at end of volume; name for *Merops* 5th sp. (Philippine Islands)

*Merops Javanicus* Horsfield, 1821, Trans. Linn. Soc. London 13 (1): 171 (Java)

Baker, FBI No. 1526, Vol. 4: 237

Plate 47, fig. 2, facing p. 80

**LOCAL NAMES.** *Bādā pātringa* (Hindi); *Dorla* (Mirshikars, Bihar); *Jeeva khates* (Assamese); *Komu passeriki* (Telugu); *Vēlītāttā* (Malayalam); *Shale* (Nicobarese); *Kurumini kurullā*, *Nathāl kurullā*, *Ranillā*, *Ambeyā* (Sinhala); *Kattālan kūrūvi*, *Pdn-chānkām* (Tamil).

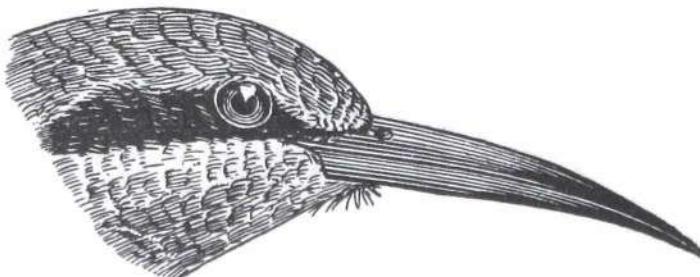
**SIZE.** Same as Bluechecked Bee-eater (747).

**FIELD CHARACTERS.** As of 747, q.v., but rump and tail bright *blue*, clearly seen in good light, especially in the flying bird. Sexes alike. See Museum Diagnosis.

Young (immature) paler and duller coloured than adult, especially on throat and breast.

**STATUS, DISTRIBUTION and HABITAT.** Resident and locally migratory, frequently moving with Bluechecked Bee-eater, but position very unclear.

Breeds in W. Pakistan in NW. Punjab (where breeding in some areas overlaps with 747) and northern India through Uttar Pradesh, Bihar, Bengal and Assam; patchily throughout the Peninsula south to Mysore. Also in Nepal (lowlands) and East Pakistan. Winters in the southern parts of its breeding range southward to Ceylon,<sup>1</sup> and in the Coco, Andaman and Nicobar Islands. Affects more wooded, less arid country than 747 and like it keeps to the neighbourhood of water — jheels, tanks, streams, coastal backwaters, etc.



$\times c. 1$

*Extralimital.* Breeds elsewhere in Burma, Yunnan, Thailand, northern Malay Peninsula and the Indochinese countries. Winter visitor to the Indonesian islands and the Philippines.

**GENERAL HABITS.** Very similar to Bluecheeked Bee-eater (747). Loose flocks sometimes fly around over forest clearings hawking insects like swallows, or perch on the tips of tall trees and bamboos at the edge of forest whence to launch their aerial forays. On the West Coast the birds often hunt far out over estuaries and backwaters, considerable distances from land.

**FOOD.** Winged insects, mainly dragonflies, wasps and bees. Of the latter the following have been specifically identified in stomachs: *Apis indica* and *A. florea*, *Rhynchium bengalense*, *Sphex lobatus*, *Vespa orientalis*, *Polistes hebraeus*, the leaf-cutting bee *Megachile carbonaria* and the carpenter bee *Xylocopa dissimilis* (Mason & Lefroy, 1912). On occasion also takes moths, beetles, bugs and bluebottle flies, *Musca vomitoria* (?). Predation on hive bees sometimes makes it a serious nuisance to bee-keepers.

**VOICE AND CALLS.** Close to the Little Green Bee-eater's (750) but louder and lower in key and unmistakable with it; more akin to the notes of the Chestnutheaded species.

**BREEDING.** *Season*, March to June, principally April and May. *Nest*, the usual tunnel in a vertical river bank or sandy cliff, usually up to 2 metres long. Nests colonially, often a hundred pairs or more together. *Eggs*, 5 to 7 normally 6, white, roundish ovals. Average size of 100 eggs  $23 \cdot 2 \times 20 \cdot 1$  mm (Baker).

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.; for comments on moult, Marien, JBNHS 49: 150-1.

Differs from Bluecheeked Bee-eater (747) chiefly in its rump and tail being bright cerulean blue instead of bronze-green; whitish blue-green cheek-patch much smaller and less conspicuous; chestnut patch on throat and breast much larger and darker.

<sup>1</sup> Breeding recorded for the first time at Kumana, Eastern Province, April 1962 (C. E. Norris, JBNHS 60: 259).

## MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail central	outer	
♂ ♀	121-135	36-41	12-13	126-145	84-86 mm	(Baker)
5 ♂♂	133-139	45-48	11-13	130-141	— mm	
6 ♀♀	126-131	43-46	—	115-136	— mm	(BB, SA, HW)

COLOURS OF BARE PARTS. As in 747.

MEROPS ORIENTALIS Latham: SMALL GREEN BEE-EATER  
Key to the Subspecies

		Page
1	Paler. Head and neck with merely a golden sheen.... <i>M. o. beludschicus</i>	108
2	Darker	
a	Head and neck only tinged with rufous..... <i>M. o. orientalis</i>	109
b	Upperparts of head and neck wholly ferruginous..... <i>M. o. birmanus</i>	110
c	Nape and hindneck with a more pronounced golden bronze sheen..... <i>M. o. ceylonicus</i>	111

749. *Merops orientalis beludschicus* Neumann

*Merops viridis beludschicus* Neumann, 1910, Orn. Monatsb. 18: 80

(Sarbac, Persian Baluchistan)

Baker, FBI No. 1525, Vol. 4: 236

LOCAL NAMES. *Nando trāklo*, *Atedan* (Sind).

SIZE. Sparrow ±; length bill-tip to tip of tail-pins c. 21 cm (8 in.).

FIELD CHARACTERS. As of 750, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, subject to seasonal and altitudinal local movements. West Pakistan in Baluchistan [Makran, Sibi Plain, Quetta Valley (occasional; recorded November and January)], the Punjab districts, and Sind. Possibly extends into northern and western Rajasthan. Some Kutch and northern Gujarat examples are indistinguishable from this pale race (possibly migrants ?). Affects open semi-desert country in the neighbourhood of cultivation, and grazing land.

EXTRALIMITAL. Southeastern Iran.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the Indian race (750).

BREEDING. Season, March to June, principally April and May. Nest and eggs (c/5 or 6) as in 750.

MUSEUM DIAGNOSIS. Much paler than the nominate subspecies of peninsular India (750); paler blue on throat and with merely a golden sheen on head and nape rather than rufous tint.

MEASUREMENTS

	Wing	Bill (from skull)	Tail
♂ ♀	91-95	29-32	{ 120-133 (♂) mm 108-114 (♀) mm

Central tail-feathers exceed outer by 51-63 mm in males, 33-43 mm in females (Ticehurst).

Weight 3 ♂♂ 19-20 g ; 3 ♀♀ 18-27 g (Paynter).

COLOURS OF BARE PARTS. As in 750.

750. *Merops orientalis orientalis* Latham

*Merops orientalis* Latham, Index Orn., Suppl.: xxxiii (India = Pondichery *vide*

Stresemann, 1952, Ibis 94: 515)

Baker, FBI No. 1523, Vol. 4: 234

Plate 47, fig. 1, facing p. 80

LOCAL NAMES. *Pātringa*, *Hārrial* (Hindi); *Bānspāti* (Bengal); *Tai lingi*, *Veda raghu*, *Pātūr*, *Pātēri* (Marathi); *Nāno pātrāngiyo* (Gujarati); *Chhōta hājāmdā* (Kutch); *Chinna passeriki* (Telugu); *Vēli tāttā* (Malayalam).

SIZE. Sparrow ±; length bill-tip to tip of tail-pins c. 21 cm (8 in.).

FIELD CHARACTERS. A slender grass-green bird tinged with reddish brown on head and hindneck, with the central pair of tail-feathers projecting as blunt pins beyond tail. Chin and throat verditer blue bordered below by a black gorget. Slender, long slightly curved black bill. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident, with marked seasonal local movements — withdrawing from wet areas during the monsoon and from northern areas in winter. Throughout the Indian subregion excluding W. Pakistan (*beludschicus*), eastern Assam (*birmanus*) and Ceylon (*ceylonicus*). Also occurs in Nepal, Sikkim and Bhutan at the lower elevations. Plains and up to c. 1500 m in the Himalayas and peninsular hills (to c. 2000 m in the Nilgiris). Affects open country interspersed with light forest and cultivation. Less tied up with the presence of water — ponds, jheels, etc. — than Blue-cheeked and Bluetailed Bee-eaters. On the seacoast shows a marked preference for the sandy zone immediately above high tide mark.

GENERAL HABITS. Keeps in loose parties and flocks of 15 to 20 or more, usually perched along telegraph wires, or on fence-posts and dead branches; frequently on the bare ground, sometimes on the backs of grazing cattle. Launches aerial sallies after winged insects, flying with a few rapid flaps followed by graceful swallow-like glides on open motionless wings. Snaps up the quarry in mid-air with an agile upward swoop and circles back to the base where it is whacked against the perch before being swallowed. Has communal roosts in leafy trees (e.g. neem — *Melia*) or bamboo clumps, where large numbers congregate at sunset. Much noise and bustle prevail before the birds finally retire for the night. There is constant bickering and supplanting of occupants of coveted perches in the centre of the huddled rows, and every now and again for no apparent reason the entire concourse 'explodes' to fly around in a confused rabble, accompanied by much excited trilling, the birds gradually settling again. Is a late riser and frequently to be seen in the mornings clumped in little groups along the perch, all facing the same way, head tucked under the wing, fast asleep till well after sunrise. Is fonder of dust-bathing than its larger congeners (747-8), which bathe chiefly by dipping in water on the wing.

FOOD. Mainly Hymenoptera — ants, bees and wasps; also moths, butterflies, small beetles (e.g. *Mylocerus* spp.), dragonflies, termites, and other winged insects. In bee-keeping districts preys largely on the two common

hive bees *Apis indica* and *A. florea*, thus sometimes becoming a serious nuisance.

**VOICE AND CALLS.** A pleasant jingling tree-tree-tree or teerp-teerp-teerp etc. punctuated from time to time by a tit-tit-tit; uttered chiefly on the wing, but also while perched.

**BREEDING.** Season, overall February to June varying locally. Nest a tunnel c. 3–4 cm in diameter bored horizontally in an earth mound or sandy cutting, or in the sides of a borrow-pit and the like; often driven obliquely in almost flat sandy ground, singly or in a scattered colony. Tunnels usually from half a metre to two metres long ending in a widened egg-chamber; unlined but often littered with chitinous insect remains. Eggs, 4 to 7, commonly 6, pure white roundish ovals. Average size of 100 eggs 19·3 × 17·3 mm (Baker). From the marked disparity in growth of young in the same brood, eggs possibly laid at longer intervals than 24 hours, incubation commencing from the first egg. Apparently both sexes incubate as they also tend the young. Incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

Post-juvenile moult complete. No spring moult, and post-nuptial moult complete. Wear turns many green feathers blue, especially the tertaries.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail (central)
♂ ♂	92–99	28–33	9–10	112–141 mm
♀ ♀	91–94	30–33	8–10 (84)	107–126 mm (SA, HW)
		(from feathers)		(outer)
♂ ♂	89–97 (av. of 20, 93·6)	20–25 (av. of 25, 23·2)	—	68–74 mm (av. of 19, 71·2)
♀ ♀	89–95 (av. of 22, 91·4)	19–26 (av. of 27, 22·6)	—	65–74 mm (av. of 24, 70·4) (Marien)

Weight 1 ♂ 18 g (Rensch); 1 ♀ 15 g (SA).

**COLOURS OF BARE PARTS.** Iris claret or crimson. Bill brownish black; mouth pink. Legs and feet yellowish brown; claws horny brown.

#### 751. *Merops orientalis birmanus* Neumann

*Merops viridis birmanus* Neumann, 1910, Orn. Monatsb. 18: 80

(Myingan [= Myingyan], Irawaddy River, Burma)

Baker, FBI No. 1524, Vol. 4: 236

Plate 47, fig. 1, facing p. 80

**LOCAL NAME.** *Hāridl sorāi* (Assam).

**SIZE.** Sparrow ±; length bill-tip to tip of tail-pins c. 21 cm (8 in.).

**FIELD CHARACTERS.** As of 750, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Eastern Assam east of Cachar; lowlands.

*Extralimital.* Burma (including Shan States), Yunnan, Thailand, Indo-chinese countries (excluding North Vietnam)—Peters.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 750.

BREEDING. Season, chiefly April and May. Nest and eggs, as in 750 but 'full clutch seems to be 5 more often than 6' (Baker).

MUSEUM DIAGNOSIS. Differs from the nominate Indian subspecies (750) in having the upper head, hindneck and upper back ferruginous; the upper plumage is generally darker and the flanks more ferruginous.

#### MEASUREMENTS

Wing ♂ ♀ 93–99 mm (Baker).

COLOURS OF BARE PARTS as in 750.

### 752. *Merops orientalis ceylonicus* Neumann

*Merops orientalis ceylonicus* Whistler, 1944, Spolia Zeylanica 23: 223  
(Kalawewa, Ceylon)

Baker FBI No. 1523 (part), Vol. 4: 234

LOCAL NAMES. *Kurumini kūrullā* (Sinhala); *Kattālan kūrūvi, Panchānkam* (Tamil).

SIZE. Sparrow ±; length bill-tip to tip of tail-pins c. 21 cm (8 in.).

FIELD CHARACTERS. As of 750, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Common resident. Widely distributed and abundant throughout the low-country Dry zone (under c. 300 m), especially in the sandy tracts round the coast in the northwest and southeast. Affects the same biotope as in the Peninsula.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 750.

BREEDING. Season, April to July, chiefly during June and July. Nest and eggs as in the Indian bird.

MUSEUM DIAGNOSIS. Not very distinct from peninsular birds (750) but in a comparable series shows a more pronounced golden sheen on nape and hindneck; throat and moustachial streak bluer; black gular band wider and heavier; bill stouter and longer.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail (central)
9 ♂♂	92–95	34–36	9–10	114–138 mm
2 ♀♀	91	33,34	10	108 mm (HW)

Weight 1 ♂ 17 g (SDR).

COLOURS OF BARE PARTS. As in 750.

### Genus *NYCTYORNIS* Jardine & Selby

*Nyctyornis* Swainson MS., Jardine & Selby, 1830, Ill. Orn. 2, Addenda, sign. D2  
Type, by diagnosis, *Merops amictus* Temminck

Feathers of throat and centre of breast greatly lengthened and brightly coloured. Bill stronger and deeper than in *Merops*; ridge of culmen flattened, with a hollow on either side; nostrils covered by plumes. Wings long: first primary (as.) about two-thirds length of third which is the longest. Tail long, slightly graduated, with the central feathers not attenuated or projecting.

**753. Bluebearded Bee-eater. *Nyctyornis athertoni athertoni***  
**(Jardine & Selby)**

*Merops athertoni* Jardine & Selby, 1830, Ill. Orn. 2, pl. 58 and text (India = Bangalore)

*Bucia nipalensis* Hodgson, 1836, Jour. Asiatic Soc. Bengal 5: 361 (Nepal)

*Nyctyornis athertoni bartletti* Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 25 (Keitum, Lushai Hills)

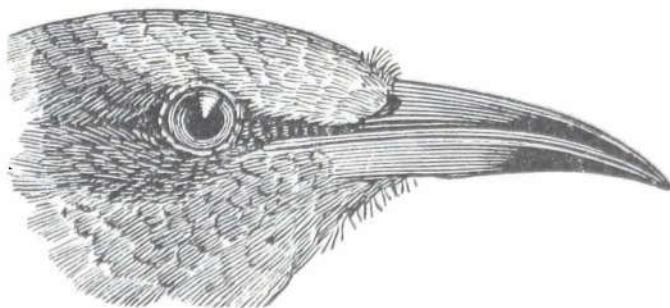
Baker, FBI No. 1529, Vol. 4: 242

**Plate 49, fig. 3, facing p. 128**

**LOCAL NAMES.** *Bukay chera* (Nepal); *Sang rhyok* (Lepcha); *Dao hukuru* (Cachari); *Kāttu vēlitātā* (Malayalam).

**SIZE.** Pigeon ±; slimmer. Length c. 36 cm (14 in.).

**FIELD CHARACTERS.** A large green bee-eater with long, slender, slightly curved black bill. *Above*, grass-green with pale greenish blue forehead. *Below*, middle of throat and of the deep verditer upper breast light blue, the feathers lengthened and forming the 'beard' which is conspicuous in profile especially when the bird is calling. Rest of underparts reddish buff streaked with broad green shaft-stripes. Tail square-cut with no projecting pin-feathers; looks triangular in flight like Large Green Barbet's. Sexes alike.



**× c. 1**

**STATUS, DISTRIBUTION and HABITAT.** Resident; local and scattered. The Lower Himalayas (westernmost records, specimens, from 'Kalesar forest, SE. Punjab' and Kotgarh, H.P. [c. 31°18'N., 77°29'E.] — H. W. Waite, JBNHS 39: 861). Normally in the terai, bhabar, duns and duars and up to c. 1700 m, from about Dehra Dun eastward through U.P., Nepal, Sikkim, Bhutan; also Assam north and south of Brahmaputra river, Nagaland, Manipur, Mizo and East Pakistan. The Western Ghats complex (to c. 1700 m in the Nilgiris) from Khandesh southward through Surat Dangs (?), Maharashtra, western Mysore, western Tamil Nadu and Kerala. Andhra, Madhya Pradesh, Orissa, Bihar and W. Bengal. Affects secondary evergreen and moist-deciduous forest biotope, especially broken foothills country with overgrown ravines etc.; occasionally forest clearings with a few scattered trees.

**Extralimital.** Burma, Thailand, and the Indochinese countries. Also Hainan Island (subspecies ?).

**GENERAL HABITS.** Arboreal. Rather sluggish compared to the smaller bee-eaters. Usually keeps in pairs and is very shy, rarely returning to the same place whence disturbed. Launches aerial sallies after passing insects



PLATE 48

- 1 *Halcyon pileata*, Blackcapped Kingfisher (739). 2 *Halcyon chloris*, Whitecollared Kingfisher (740).  
3 *Pelargopsis capensis*, Storkbilled Kingfisher (730). 4 *Ceyx erithacus*, Threetoed Kingfisher (727).  
5 *Ceryle rudis*, Lesser Pied Kingfisher (720). 6 *Alcedo meninting*, Blue-eared Kingfisher (725).

from a look-out post in a leafy tree-top, sailing back to its base after each capture and battering the victim against the perch before swallowing it. Flight steeply undulating, very like Large Green Barbet's — a few flaps followed by a downward dip with wings closed.

**FOOD.** Insects, chiefly bees, wasps, dragonflies and beetles. Has been occasionally observed at nectar-bearing flowers, e.g. *Erythrina* and *Salmalia* (for nectar or insects?).

**VOICE and CALLS.** Hoarse guttural croaks or chortles *kor-r-r*, *kor-r-r*, etc. reminiscent of the notes that preface the *kutroo* calls of the Green Barbet (780-82), but deeper in tone. Not specially loud, but audible at a surprising distance. When calling the 'beard' stands away conspicuously from the throat and breast.

**BREEDING.** *Season*, overall February to August, varying locally; chiefly April and May. *Nest*, a horizontal tunnel c. 5 to 6 cm in diameter and 1·5 to 3 metres long bored into precipitous outscoured alluvial banks of forest ravines and streams, or in landslips and roadside cuttings in hilly country; sometimes 6 to 8 metres up the face, at others fairly low down. Tunnel ends in a widened egg-chamber, unlined but usually littered with a quantity of chitinous insect remains which also get copiously scattered outside below the entrance-hole. *Eggs*, 4 to 6, pure white, roundish and with a fair gloss — closely resembling those of Whitebreasted Kingfisher (736). Average size of 50 eggs 30 × 28 mm (Baker).

Excavation often commences a month or more before actual laying of eggs. Both sexes take part, and later also in incubation (?) and feeding the young. Incubation period undetermined.

Snakes frequently take refuge in the nests, therefore caution is recommended when inserting the hand to examine the contents — *experto crede!*

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

**Young** (immature) exactly like adult in plumage only somewhat smaller in size and with usually a shorter bill.

Has a single complete moult (post-nuptial) between May and October. Post-juvenile moult occurs about the same time (Marien, JBNHS 49: 164).

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	133-143	50-56	18-19	127-137 mm
♀ ♀	132-140	47-57	18-19	127-137 mm (SA, HW, BB)

Weight 2 ♂ ♂ 85, 93 g; 1 ♀ 84 g (SA, Paynter).

**COLOURS OF BARE PARTS.** Iris bright golden orange. Bill horny brown, grey at chin and on basal half of lower mandible; mouth greyish pink. Legs and feet pale yellowish sage-green; claws horny brown.

#### Family CORACIIDAE: Rollers or Blue Jays

For description see Van Tyne, J., and Berger, A. J., 1959: 474; Baker, E. C. S., 1927, FBI 4: 221; Thomson, A. L., 1964, Article 'Roller', *New Dict. Birds*, London & New York.

## Key to the Genera

	Page
Bill compressed; breadth at gape about half the length of culmen .....	<i>Coracias</i> 114
Bill short, broad and swollen at base; breadth at gape about equal to culmen .....	<i>Eurystomus</i> 120

## Genus CORACIAS Linnaeus

*Coracias* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 107. Type, by subsequent designation,  
*Coracias garrulus* Linnaeus

Bill rather long, compressed, and with the culmen slightly curved; nostrils elongate and exposed; gape with strong rictal bristles.

The genus extends throughout Europe and a great part of Asia and Africa.

## Key to the Species

Lower plumage pale blue throughout.....	<i>C. garrulus</i> 114
Breast rufous, abdomen and lower tail-coverts blue....	<i>C. benghalensis</i> 116

754. **Kashmir Roller.** *Coracias garrulus semenowi* Loudon & Tschudi

*Coracias garrulus semenowi* Loudon & Tschudi, 1902, Orn. Jahrb. 13: 148  
 (Transcaspia)

Baker, FBI No. 1516, Vol. 4: 222

Plate 45, Fig. 8, facing p. 32

LOCAL NAMES. *Nilā krāsh* (Kashmir); *Sābzārāsh* (Brahui); *Kashmīri nilkānt* (Gujarat).

SIZE. Pigeon; length c. 31 cm (12 in.).

FIELD CHARACTERS. A brightly coloured bird, chiefly blue and brownish rufous, with biggish head and stout bill. Easily distinguished on the wing from the commoner 'Blue Jay' by its blue-black flight feathers (v. banded dark-and-light blue) and by its uniformly light blue breast and underparts (v. blue restricted to abdomen and vent). Sexes alike.

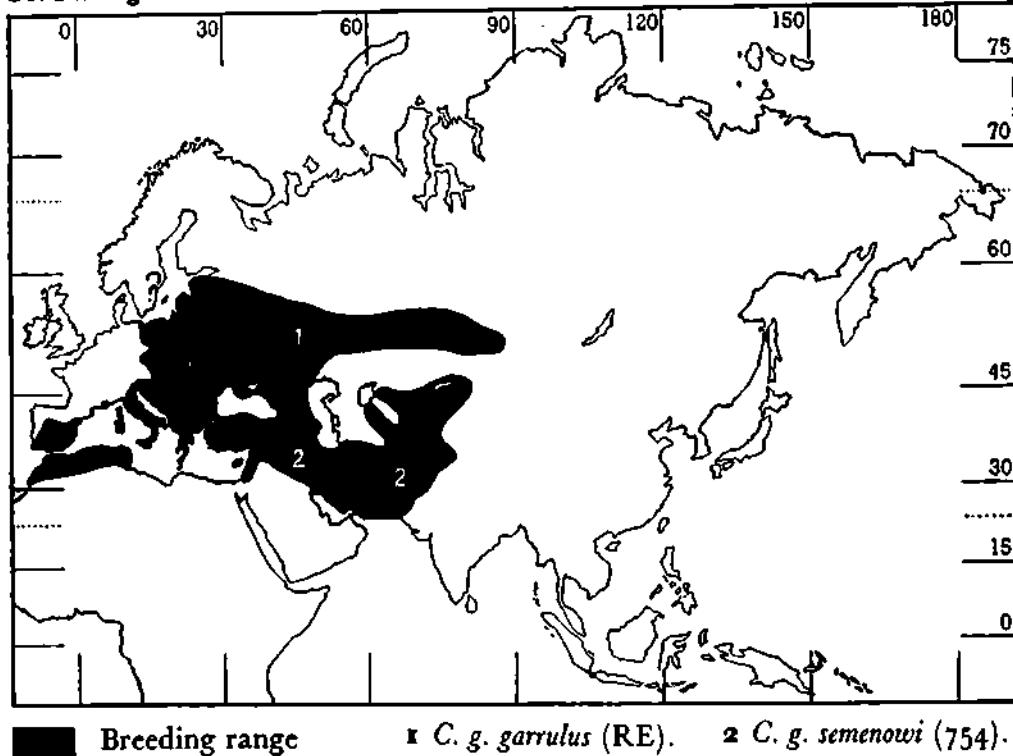


Young (immature) like adult but paler and duller. Wing-quills tipped browner; the blue of the coverts dull and pale.

STATUS, DISTRIBUTION and HABITAT. Breeds in Baluchistan (?), NWF. districts of W. Pakistan, Gilgit, and Kashmir between c. 1700 and 2200 m altitude (straggler recorded at c. 3200 m).

(After Hartert) Migrates to Arabia and presumably Africa in autumn, commonly passing through Sind, Rajasthan and northern Gujarat (Kutch, Saurashtra). Occasionally straggling then as far east as Seoni dist. in Madhya Pradesh (Lakhnad on 79°30'E.—SA) and south through Maharashtra (Dhulia, Khandala, Bombay) to Mysore (Karwar, 14°50'N.). In its Indian breeding range affects lightly wooded parkland and cultivated areas such as are characteristic of the Vale of Kashmir.

Extralimital. Breeds also in Transcaspia, Turkestan, and the western Tien Shan south to Iran (thence westward to Iraq and perhaps the Jordan Valley (Peters)). Winters in Arabia; possibly also in Africa though this subspecies not yet proven there *vide* Meinertzhagen (1954: 296).

*Coracias garrulus*

Breeding range

▀ *C. g. garrulus* (RE).    xx *C. g. semenowi* (754).

**MIGRATION.** No ringing data. In spring arrives in N. Baluchistan, Peshawar district, Chitral, Gilgit and Kashmir between end March and May, the majority of birds passing through, some remaining to breed. Return (autumn) passage through these areas occurs in August–September. Plentiful on autumn passage in an ENE.–WSW. direction through Sind, Punjab (Lahore dist.), Rajasthan, Kutch and northern Gujarat between mid August and early October. Spring passage evidently follows a different route by-passing these areas. Not noted in Kutch at that season, nor in Sind ‘except, only once, on 14 May’ (Ticehurst).

Migrates during daytime, chiefly in the morning before noon, but also later throughout the day. The birds travel individually in a steady stream, strung out one behind another at about half-minute intervals over a very wide front, flying at a height of 100 to 150 metres with unhurried purposeful wing-beats.

**GENERAL HABITS.** Met with singly or in pairs perched on telegraph wires, posts or dead trees commanding an uninterrupted view of the surroundings. Pounces on quarry on the ground either disposing of it on the spot or flying back with it to the perch. Habits largely as of the Northern Roller (755, q.v.) including the extravagant noisy aerobatic nuptial display. Flight rather sluggish, with deliberate wing-strokes very like a crow’s in silhouette.

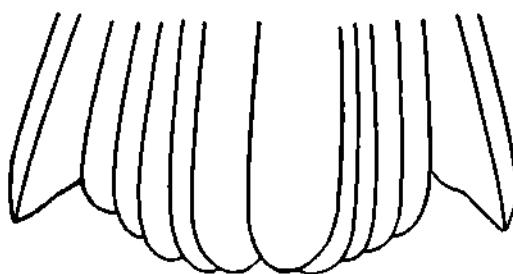
**FOOD.** Beetles, mole crickets (*Gryllotalpa*), grasshoppers and other large insects taken on the ground; occasionally in the air. Also lizards and frogs, the latter forming a considerable proportion of the food brought to the young.

**VOICE AND CALLS.** Harsh grating screams uttered chiefly during the aerial display; occasionally from perch. Birds very noisy in breeding season:

**BREEDING.** Season, chiefly May to July. Nest, a natural hollow in an ancient poplar, willow or chenar tree, or in a clay or conglomerate cliff. Unlined, but often bestrewn with chitinous remains of beetles etc. Eggs, 5 or 6, pure white, glossy, rather elongate ovals; sometimes speckled with small brown spots of unknown origin easily removed by washing. Average size of 16 Kashmir eggs  $36.3 \times 29.0$  mm (Osmaston). Both sexes incubate and feed the young; incubation period undetermined; in nominate race 18–19 days (Witherby). When one bird is brooding its mate keeps guard nearby, swooping with harsh grating squawks at intruders into the proximity.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.; for description

of plumages and structure (also bionomics) of the nominate (European) race, Witherby, 1938, 2: 269–72. Differs from the latter in being paler coloured above and below. Frontal feathers almost white; underparts paler, blue rather than greenish blue. More easily distinguished in juvenile and adult winter plumage. ‘The lateral pair of tail-feathers fall short of the middle pair by



Tail of adult,  $\times c. \frac{1}{2}$  (After Hartert)

17–24 mm. It migrates through in its juvenile dress’ (Ticehurst).

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	180–210	30–35	25–26	122–135 mm (Baker)

Weight ♂ 164, ♀ 120 g (SA).

Kashmir birds, *sic* Baker, are very large compared with those from Iran, Afghanistan, Baluchistan and Punjab.

**COLOURS OF BARE PARTS.** Iris pale brown to hazel brown. Bill brownish black to black. Legs and feet dull yellow.

#### CORACIAS BENGHALENSIS (Linnaeus): INDIAN ROLLER Key to the Subspecies

		Page
1	Under wing-coverts pale blue	
a	Nuchal collar absent or obsolete.....	<i>C. b. benghalensis</i> 116
b	A well-defined deep red collar on the hindneck.....	<i>C. b. indica</i> 118
2	Under wing-coverts deep blue.....	<i>C. b. affinis</i> 119

#### 755. *Coracias benghalensis benghalensis* (Linnaeus)

*Corvus benghalensis* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 106 (Benghála, i.e. Madras *sic* Biswas, 1961, Bull. zool. Nomencl. 18: 217–18; fixed at Tulin, Purulia district, West Bengal by Biswas’s Neotype designation as per ICZN Ruling [Opinion 663]; see Bull. zool. Nomencl. 20: 195–6, April 1963)

Baker, FBI No. 1517, Vol. 4: 224

#### Vol 3, Plate 40

**LOCAL NAMES.** *Nilkānti*, *Sābzāk* (Hindi); *Nilkāntha* (Bengali); *Tās*, *Chāsh* (Marathi); *Dēshi nilkdāt* (Gujarat); *Pālā pittā* (Telugu); *Kāttu kadei*, *Pāl kārūvi* (Tamil); *Nila krāsh* (Kashmir); *Kangashk* (Baluchi); *Chāri* (Sind).

**SIZE.** Pigeon; length c. 31 cm (12 in.).

**FIELD CHARACTERS.** A striking Oxford-and-Cambridge blue bird with biggish head, heavy rather crow-like bill, rufous-brown coloured breast, and pale blue abdomen and vent. An obsolete reddish brown collar on hind-neck. In flight the dark and pale blue portions of the wings flash as brilliant bands. Sexes alike.

**STATUS, DISTRIBUTION and HABITAT.** Resident, subject to little understood seasonal local movements; common. West Pakistan (Baluchistan, Sind, Punjab) and all continental India along the Himalayan submontane tract (up to c. 1500 m — Dharamsala; Garhwal). A specimen collected at c. 3700 m in NW. Nepal (Lowndes, JBNHS 53: 36), and one in Bhutan at c. 2500 m (Ludlow, 1937, *Ibis*: 487) eastward through Nepal, south through the plains to an arbitrary boundary at 20°N. latitude where it intergrades with *indica*. Intergrades with *affinis* in Nepal east of c. 85°E. longitude, NE. Bihar, Sikkim, northern and eastern Bengal, and W. Assam (Garo Hills). Affects open cultivation, gardens, groves of mango and other trees near villages; also light deciduous forest.

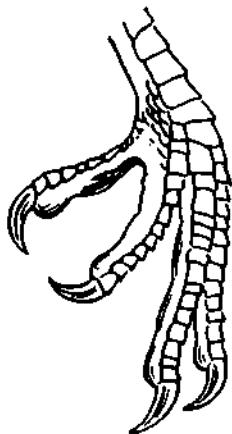
*Extralirital.* Eastern Arabia, southern Iran, Iraq.

**GENERAL HABITS.** Keeps singly or in pairs perched on telegraph wires, fence posts, earth clods in ploughed fields, and bare trees commanding a clear view of the surroundings and movements of creeping prey. On perch, swings tail slowly up and down as in Blackwinged Kite, Forest Wagtail and Little Green Bee-eater. Pounces lazily — almost parachutes down to the

ground from time to time to seize its quarry, disposing of it on the spot or flying leisurely with it back to the same perch or across to another nearby where the victim is battered before swallowing. Has been observed to pick up small fish neatly from near surface of water (SA) and occasionally to plunge for it like a kingfisher, completely submerging for a moment (Delme-Radcliff, JBNHS 20: 225; Dalgliesh, ibid. 20: 853; Tiwary, ibid. 34: 578). This evidently an individual idiosyncrasy. Has a very noisy and spectacular display during the breeding season, sometimes both birds of a pair participating. The bird rockets up in the air vertically, flaps about erratically in steep wave-crests and performs a series of fantastic evolutions — tumbling, somersaulting, nose-diving, looping the loop and rolling from side to side to the

accompaniment of loud raucous screams, its brilliant plumage flashing in the sun. These extravagant antics and playful dives sometimes directed at quietly perched female, at other times apparently in self-exhilaration.

**FOOD.** Largely insects — beetles, locusts, crickets — sometimes (e.g. moths, winged ants and termites) taken in the air. Also frogs, lizards, occasionally small snakes and field mice, and rarely even young birds. Scorpions also recorded. Among stomach contents analysed at Pusa (Bihar) the following insects were frequently recorded: *Gryllotalpa africana*, *Gryllodes melanoccephalus*, *Myrmecocystus setipes*, *Chrotogonus* spp., ants (*Camponotus compressus*), and beetles and grubs of various kinds (*Trox*, *Opatrum*, etc.). Is, on balance, a highly beneficial species to agriculture by virtue of the vast



Left foot,  $\times$  c. 1

quantities of insect pests it destroys. (For details of food items see Mason & Lefroy, 1912: 155-7.)

**VOICE and CALLS.** A loud, raucous *kāk* (or *chāck*)-*kāk-kāk-kāk* etc. uttered from a perch; varied and drawn out into excited discordant screeches and shrieks during aerial display, and by way of 'war cries' when chasing off intruders in its territory. 'Independently-hunting young birds mew like cats' (Mrs M. D. Wright).

**BREEDING.** Season overall March to June/July, principally March and April. Nest, an untidy collection of grass, straw, rags and rubbish in a natural hollow in a rotten tree-trunk or bough at moderate heights, or in the trunk of a palmyra palm; sometimes in a hole in the outer wall or under the roof of a dilapidated building. Eggs, 3, sometimes 4, rarely 5; pure white, glossy, roundish ovals. Average size of 50 eggs  $34.3 \times 28.1$  mm (Baker). Both sexes incubate and feed the young; incubation period 17-19 days, mostly 18 (B. S. Lamba).

**MUSEUM DIAGNOSIS.** See Key to the Subspecies; for details of plumage, Baker, loc. cit.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	178-201	39-49	25-29	117-140 mm (HW, SA, BB)

Weight 1 ♂ 166 g ; 2 ♀ ♀ 166, 176 g (Paynter).

There is no consistent difference in the size of the sexes, but in keeping with the normal trend (Bergmann's Rule) a gradual increase in size from south to north.

**COLOURS OF BARE PARTS.** Iris brown; rim round eye dull orange. Bill brownish black; mouth sulphur-yellow and pink. Legs and feet dirty brownish yellow; claws black.

756. *Coracias benghalensis indica* Linnaeus

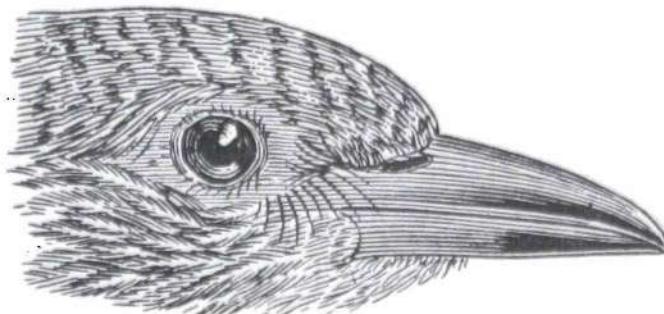
*Coracias indica* Linnaeus, 1766, Syst. Nat., ed. 12, 1: 159

(East Indies = Ceylon, ex Edwards)

Baker, FBI No. 1518, Vol. 4: 226

**LOCAL NAMES.** *Tās*, *Chāsh* (Marathi); *Pälā pittā* (Telugu); *Kāttu kadei*, *Päl kūruvi* (Tamil); *Panamkākkā* (Malayalam); *Dunkāwa*, *Dunkāwuluwā*, *Dumbonā* (Sinhala); *Panamkāddai*, *Kōttai-kili* (Tamil — Ceylon).

**SIZE.** Pigeon; length c. 31 cm (12 in.).



**FIELD CHARACTERS.** As of 755, q.v. See Key to the Subspecies and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident, with some local movement. Common. Indian peninsula south of 20°N. lat. (around which it intergrades with *benghalensis* [755]), and Ceylon; low country and locally up to c. 1000 m. Laccadive Is. (Burton, JBNHS 41 : 597). Maldives Is. (Gan, Addu Atoll, November 1968 — Flt Lt J. L. Gregory, *in epist.*). Affects open cultivation, groves of trees in the neighbourhood of habitations, and light forest — in deciduous biotope.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in the Northern Roller (755).

**BREEDING.** Season, in South India (e.g. Kerala) January to March/April; in Ceylon March to June, chiefly March and April. Nest and eggs as in 755. Average size of 24 eggs from Kerala and Ceylon given by Baker as 35.2 × 27.7 mm.

**MUSEUM DIAGNOSIS.** Differs from *benghalensis* in being slightly smaller, darker and more greenish above, with a deeper-coloured more pronounced nuchal collar.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	170–190	41–49	24–26	109–132 mm (SA, HW)

**COLOURS OF BARE PARTS.** As in 755.

### 757. *Coracias benghalensis affinis* Horsfield

*Coracias affinis* Horsfield, 1839 (1840), Proc. Zool. Soc. London pt. 7: 164 (Assam)  
Baker, FBI No. 1519, Vol. 4: 226

**LOCAL NAMES.** *Katnas*, *Konsa* (Assam); *Daogatang* (Cachari); *Takral* (Lepcha).

**SIZE.** Pigeon; length c. 31 cm (12 in.).

**FIELD CHARACTERS.** As of 755, q.v. See Key to the Subspecies and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident, subject to seasonal local movements; common. Nepal, Sikkim, Bhutan, Assam, Nagaland, Manipur, Mizo (?), East Pakistan. Plains, duars and foothills to c. 600 m.

Intergrades with *benghalensis* in Nepal (around c. 85°E. long.), NE. Bihar, Sikkim, northern and eastern Bengal and western Assam (Garo Hills).

Affects cultivation, light forest and clearings.

**Extralimital.** Burma south to Tenasserim, Yunnan, Thailand, Indo-chinese countries.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 755.

**BREEDING.** Season, principally April and May. Nest and eggs as in 755. Average size of 30 eggs 34.7 × 27.9 mm (Baker).

**MUSEUM DIAGNOSIS.** Much darker and deeper coloured than *benghalensis* or *indica*. Under wing-coverts deep purple-blue; rufous-brown underparts with a strong purplish blue flush; streaks on throat brilliant small-blue instead of whitish; pale blue on underparts confined to vent and under tail-coverts.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	184–204	30–36	26–28	118–137 mm (Baker)

**COLOURS OF BARE PARTS.** Iris brown; edge of eyelids and bare skin in front and behind eye orange-yellow. Bill almost black. Legs and feet dull yellowish brown (Baker).

Genus **EURYSTOMUS** Vieillot

*Eurystomus* Vieillot, 1816, Analyse: 37. Type, by monotypy, *Rolle des Indes*, Buffon  
= *Coracias orientalis* Linnaeus.

Cf. Ripley, S. D., 1942, Proc. Biol. Soc. Washington 55: 169-76

Meise, W., 1950, Jour. Bombay nat. Hist. Soc. 49: 305-6

Deraniyagala, P. E. P., 1951, Spolia Zeylanica 26: 155-7

Bill short, broad, and very stout; width at gape about equal to length of culmen; terminal quarter compressed; upper mandible strongly hooked. Nostrils exposed; no rictal bristles. Wing long and pointed: 2nd primary (as.) longest. Tail almost square.

**EURYSTOMUS ORIENTALIS** (Linnaeus): BROADBILLED ROLLER

Key to the Subspecies

	Page
1 A pronounced blue wash on the primaries and secondaries; wing-tail ratio 47-51 per cent.....	<i>E. o. cyanicollis</i> 120
2 Very dark blackish crown and cheeks, blackish blue ear-coverts; lower parts intense blue	
a Wing average 200 mm.....	<i>E. o. laetior</i> 122
b Wing average 183 mm; skull narrower.....	<i>E. o. irisi</i> 123
3 Bill larger; culmen about 27-30 mm.....	<i>E. o. gigas</i> 123

758, 761. *Eurystomus orientalis cyanicollis* Vieillot

*Eurystomus cyanicollis* Vieillot, 1819, Nouv. Dict. d'Hist. Nat. 29: 425 ('les Indes')  
= Chandernagor, Bengal, *fide* Stresemann, 1952, Ibis 94: 511, 519)

*Eurystomus calonyx* Sharpe, 1890, Proc. Zool. Soc. London: 551 (Himalayan terai from Kumaon to Darjeeling and upper Assam)

*Eurystomus orientalis abundus* Ripley, 1942, Proc. Biol. Soc. Washington 55: 170  
(Nanking, China). New name for *calonyx* Sharpe

Baker, FBI No. 1520 (part), Vol. 4: 228

Vol. 3, plate 40

**LOCAL NAMES.** *Tak rel vong* (Lepcha); 'Dollar Bird' (English, substantive).

**SIZE.** Pigeon; length c. 31 cm (12 in.).

**FIELD CHARACTERS.** A dark greenish brown and purple blue-black Roller with blackish head and very broad orange-red bill and legs. A large pale blue roundish patch on wing (the 'dollar') particularly conspicuous in flight. Sexes alike.

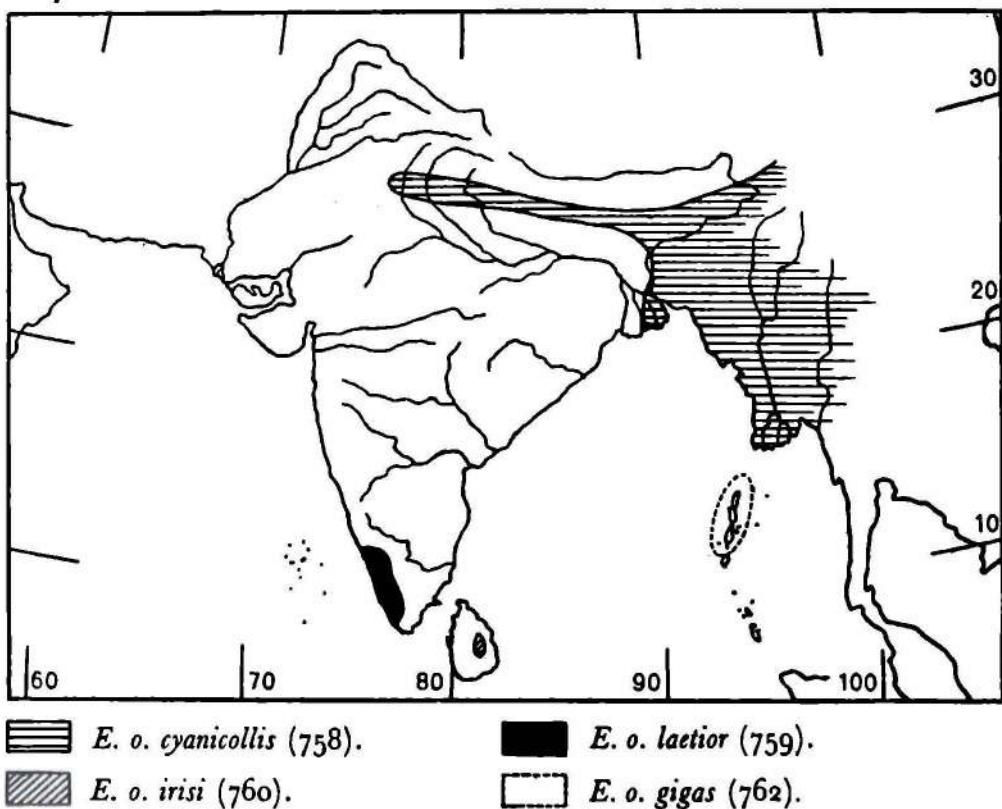


**STATUS, DISTRIBUTION and HABITAT.** Resident; not common. The Himalayan submontane tract normally from Garhwal (westernmost record Ambala dist. [Waite, JBNHS 39: 861]) eastward through Nepal, Sikkim, Bhutan and NEFA; Assam, Nagaland, Manipur, East Pakistan. From plains level (terai, duars and duns) to c. 1000 m. Affects heavy secondary tropical

Bill from  
above, x c. ½  
(After Hartert)

evergreen jungle, and forest clearings for cultivation with scattered standing trees.

*Eurystomus orientalis*



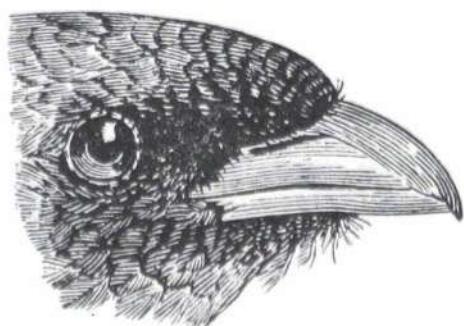
Distributional range

*Extralimital.* Northern Burma northward to the lower Amur (Siberia) and Manchuria. South in winter to Malay Peninsula, Thailand, Indochinese countries, S. China, Japan, and many Indo-Malaysian islands.

**GENERAL HABITS.** Keeps singly or in pairs — occasionally small loose parties — to heavy forest or its immediate environs (clearings etc.) perched

on the topmost branches of tall dead trees for long periods. Makes short sorties now and again after passing insects, performing curious evolutions in mid-air in their pursuit and usually returning to its base after each capture. Less sluggish than Blue Jay, and markedly crepuscular. Active in the morning and evening, commonly hunting till late into the dusk. Takes insects on the wing; occasionally pounces on creeping prey on the ground. Flapping flight more rapid and direct than Blue Jay's. Follows

insects, e.g. winged termites, to considerable heights, hawking in wide circles — a few deliberate wing-flaps followed by long stretches of gliding. Has a spectacular aerial nuptial display similar to the Blue Jay's (755) q.v.,



x c. 1

consisting of shooting vertically skyward and nose-diving in steep wave-crests, rolling from side to side, and other fantastic aerobatics kept up for several minutes at a time.

**FOOD.** Chiefly insects: crickets, beetles, flying termites, etc. Also lizards, and doubtless other small animals.

**VOICE and CALLS.** On the whole very silent. Occasionally utters a raucous *chack-chack* repeated every second or two, alternated from time to time by a quicker-repeated chattering croak *chack-chack-chack-chack*.

**BREEDING.** Season, March to May. Nest, an unlined natural hollow, or a barbet- or woodpecker hole in a lofty tree-trunk (such as *Salmania* or *Tetrameles*) standing near the edge or in the midst of a forest clearing, frequently 15 or 20 m up. The same hole is often occupied in successive years, but whether by the same or a different pair is unproven. Eggs, 3 or 4, white spherical ovals measuring c. 36 × 28 mm. Both sexes incubate and feed the young; period of incubation undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.; for subspecies Key.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
8 ♂♂	178–198	27–33	20 (1)	93–102 mm
6 ♀♀	184–196	30–35	—	90–100 mm (BB, SA)

Weight 1 ♀ (March) 172 g; 1 ♂ (August) 120 g — Paynter.

**COLOURS OF BARE PARTS.** Iris dark brown; edges of upper eyelid and orbital skin dusky vermillion. Bill, legs and feet deep vermillion with black on tip of bill; claws black; soles vermillion (Biswas).

#### 759. *Eurystomus orientalis laetior* Sharpe

*Eurystomus laetior* Sharpe, 1890, Proc. Zool. Soc. London: 551 (Forests of Malabar, the Nilgiris and Ceylon, restricted to Eridge, Travancore)

Baker, FBI No. 1520 (part), Vol. 4: 228

Plate 49, fig. 4, facing p. 128

**LOCAL NAMES.** *Pūlūppōrūkki* (Tamil); *Kāttu pānamkākka* (Malayalam).

**SIZE.** Pigeon; length c. 31 cm (12 in.).

**FIELD CHARACTERS.** As in 758. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident; rather rare and patchily distributed: Kerala north to Wynad (Malabar dist.), W. Mysore (Coorg dist.) and western Tamil Nadu (Nilgiri dist.). Affects cultivation clearings in heavy evergreen and semi-evergreen forest, neglected overgrown rubber and coffee plantations, etc.; low country and foothills up to c. 500 m.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in the Himalayan subspecies (758), q.v.

**BREEDING.** Season, September to May, chiefly March and April. Nest, eggs, and breeding biology as in 758.

**MUSEUM DIAGNOSIS.** Differs from the disjunct Himalayan population *cyanicollis* (758) in being a brighter, more intense blue on the underparts, with a markedly blacker head (crown and face).

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
6 ♂♂	194-205	33-36	19-21	99-106 mm (HW, SA)

COLOURS OF BARE PARTS. Iris brown. Bill orange-red, blackish brown at tip; palate and gape pale sulphur-yellow, gullet greyish pink. Legs and feet orange-red or coral-red; claws blackish brown (SA).

760. *Eurystomus orientalis irisi* Deranitagal

*Eurystomus orientalis irisi* Deraniyagala, 1951, Admin. Rept. of the Dir. Nat. Museums, Ceylon, for 1950, Pt. iv, Educ., Sci. and Art (E): E14 (Maha-oya, Ceylon) Baker, FBI No. 1520 (part), Vol. 4: 228

LOCAL NAMES. *Pūlūppōrūkki* (Tamil); *Kes kavuda* (Sinhala).

SIZE. Pigeon; length c. 31 cm (12 in.).

FIELD CHARACTERS. As in 758. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Very rare resident; nearly extinct. In all only about twelve records known from the Island in a century or more, the latest after a lapse of 60 years. This, a breeding pair, possibly two of the very last birds in existence, was shot by an unspeakable museum collector in February 1950, since when no more have been reported!

GENERAL HABITS, FOOD, VOICE and CALLS. Not recorded; presumably as in 758 and the Kerala subspecies.

BREEDING. Season, 'February and March' (Phillips).

MUSEUM DIAGNOSIS. Differs from the Kerala population only in having a shorter wing; no difference in coloration.

## MEASUREMENTS

4 ♂♂ Wing 178-188 mm; Bill (from skull) 29-30 mm (Meise, SA).

	Wing	Tarsus	Tail
1 ♂	182*	18	98 mm
1 ♀	180	17	97 mm

(Deraniyagala)

\* Type of *E. o. irisi*

COLOURS OF BARE PARTS. As in 759.

762. *Eurystomus orientalis gigas* Stresemann

*Eurystomus orientalis gigas* Stresemann, 1913, Novit. Zool. 20: 297 (in key), 299 (Rutland Island, Andaman Islands)  
Baker, FBI No. 1521, Vol. 4: 231

LOCAL NAMES. None recorded.

SIZE. Pigeon; length c. 31 cm (12 in.).

FIELD CHARACTERS. As in 758. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; fairly common and widely distributed: Andaman Islands including Narcondam. Affects clearings in high evergreen forest.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 758 and other races, qq.v.  
**BREEDING.** Unrecorded.

**MUSEUM DIAGNOSIS.** Differs from Himalayan *cyanicollis* (758) only in having a much larger bill; also slightly larger measurements. No difference in coloration.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	184-205	27-30	c. 21	106-112 mm (Baker)
5 ♂♂	192-198	35-38 (from skull)	19-21	105-110 mm
1 ♀	199	35	19	103 mm (Grubh)

Weight 1 ♂ 165 g ; 1 ♀ 145 g (Grubh).

**COLOURS OF BARE PARTS.** As in 758 and other races.

**Family UPUPIDAE : Hoopoes**

For description see Van Tyne, J., and Berger, A. J., 1959: 476; Stresemann, E., 1927-34, *Aves* : 831-2; Baker, E. C. S., 1927, FBI 4: 307; Thomson, A. L., 1964, Article 'Hoopoe', *New Dict. Birds*, London & New York.

**763. Genus UPUPA Linnaeus**

*Upupa* Linnaeus, 1758, *Syst. Nat.*, ed. 10, 1: 117. Type, by monotypy, *Upupa epops* Linnaeus

An ample erectile fan-shaped crest with the posterior feathers longest. Bill long, slender and decurved from the base; tongue very short. Wing rounded, of 10 primaries. Tail moderately long; 10 rectrices only. Tarsus short, scutellated behind; foot imperfectly syndactyle, 3rd and 4th toes joined at the base.

**UPUPA EPOPS Linnaeus: HOOPOE**

**Key to the Subspecies**

		Page
1	Hinder feathers of crest with white subterminal spots; general colour paler, less rufous	
a	Paler.....	U. e. <i>epops</i> 124
b	Darker.....	U. e. <i>saturata</i> 127
2	Hinder feathers of crest normally with no white spots; general colour darker, more rufous	
c	Lighter in colour; slightly larger.....	U. e. <i>longirostris</i> 128
d	Darkest and most rufous; slightly smaller.....	U. e. <i>ceylonensis</i> 128

*Upupa epops epops* Linnaeus

*Upupa Epops* Linnaeus, 1758, *Syst. Nat.*, ed. 10, 1: 117 (*Europae sylvis* = Sweden)  
Baker, FBI No. 1579, Vol. 4: 308

**LOCAL NAMES.** *Hüdhüd* (Hindi); *Satut* (Kashmir); *Sükdüdü* (Himachal Pradesh); *Mürgh-i-Suleimān* (Baluchi); *Kātkāto* (Sind); *Lachar ghak* (Pushtu); *Khatōla, Navah* (Madhya Pradesh); *Seen körka* (Halbi, Bastar Dist.).

**SIZE.** Myna; length c. 31 cm (12 in.) to tip of long slender bill.

**FIELD CHARACTERS.** A fawn coloured bird with prominent black-and-white zebra markings on back, wings and tail. A prominent black-and-white-tipped crest, full and fan-shaped when erected, falling to a point behind the head when folded. Long, slender, gently decurved bill. Sexes alike.



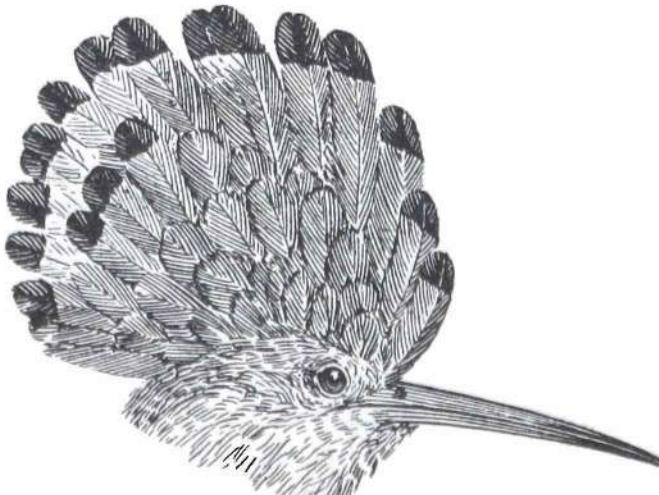
Tail  $\times c. \frac{2}{3}$  (After Hartert)

Young (immature) duller and paler above, browner below.

**STATUS, DISTRIBUTION and HABITAT.** Resident or breeding summer visitor in West Pakistan (Baluchistan, Punjab and NWF. districts, Chitral) and in Kashmir, Ladakh, Baltistan, Himachal Pradesh, Garhwal and Kumaon; foothills and up to *c.* 4600 m. Winters south (*c.* September to March)—numbers greatly augmented

by extralimital immigrants — through Sind, Rajasthan, Gujarat, Madhya Pradesh, Uttar Pradesh and Bihar; plains and hills. Possibly farther south in the Peninsula where there is a confusing intermingling of the races in winter. Affects open country, cultivation, light forest, and the neighbourhood of villages and habitations, in deciduous biotope.

**Extralimital.** Breeds also in Europe and Asia from S. Sweden to SW. Siberia and Kirghiz Steppe, south to NW. Africa, Palestine, Iraq, Iran, and the Altai; Mediterranean islands; occasionally England. Winters also in N. Africa and Arabia.



$\times c. \frac{2}{3}$

**MIGRATION.** No ringing data. Continuing observations of mountaineers indicate that at least some extralimital migration occurs directly across the Himalayas. Reported frequently (subspecies ?) at high altitudes, notably at *c.* 6400 m by the first Mount Everest Expedition in September (Wollaston, *Ibis*, 1922: 504) and on Pomori Glacier, *c.* 5790 m in Nepal in May (Biswas, JBNHS 58: 116).

Arrives in its breeding areas between early March and early April; departs August-September, a few birds wintering in the warmer lower valleys (e.g. in Kashmir and northern Baluchistan).

**GENERAL HABITS.** Keeps singly or in pairs, often widely separated when feeding; in loose parties of 8 to 25 or more when freshly arrived on migration. Curious unexplained behaviour often observed at this time, of individual birds or 3s and 4s together, flying around as if demented, flitting crazily from branch to branch, crest erected and tail expanded from time to time, fluttering, twisting and turning in and out through branches and tree-trunks in slow erratic butterfly-like flight. Partial to lawns and meadows and dusty cart tracks for feeding and dust-bathing. Runs about actively with a quail-like, somewhat waddling gait, probing here and there in loose sandy soil or damp earth with bill partly open like forceps. When thus digging, crest furled to a point projecting behind, making the bird's head look like a miniature pickaxe; the crest is fanned out momentarily each time the bird settles after a short flight, and on the least excitement. Given to much territorial fighting in the breeding season: rival cocks advance at one another uneasily with crests erected and bill pointing downward, almost touching the ground. They suddenly seize each other's bill tips in a straight line as if to maintain a safe distance between themselves. Thus locked, the combatants flutter down from the branch and disengage to continue jabbing at each other on the ground until one of them retreats.

**FOOD.** Entirely insectivorous: largely underground grubs and pupae of beetles (Coleoptera); crickets (Gryllidae); earwigs (Forficulidae); locusts and grasshoppers (Acrididae); surface caterpillars of many species (*Agrotis*, *Opatrium*, etc.); ant-lions (*Myrmeleo*); ants and termites. Mole-crickets (*Gryllotalpa africana*) and 'bherwa' (*Schizodactylus monstrosus*) feature largely among the food items brought to the young. For details of some stomach analyses in an intensely cultivated area see Mason & Lefroy, 1912: 172-3. They point to the great usefulness of the species as a destroyer of agricultural pests.

**VOICE AND CALLS.** Song, a deep mellow *hoo-po* or *hoo-po-po* (or *hud-hud-hud*) with a peculiar ventriloquial quality; repeated again and again at about 3-second intervals — in the breeding season often for 10 or 15 minutes at a stretch. This call is very similar to that of Himalayan Cuckoo, *Cuculus saturatus* (580) and rather confusing in localities where both species occur together. However the cuckoo's is usually distinguishable by its four notes *hud-hud-hud-hud* against the hoopoe's two or three. When calling, the bird lowers and bobs its head, bill pointing downward almost flush with breast, tail depressed and turned in under the perch as if the bird were trying to make both its ends meet! At other times head jerked forward with each successive *hud* as in a dog barking, the crest raised and lowered from time to time. A subdued harsh *ca-aw* when fighting; rasping croaks and hisses when agitated; a wheezing note by female while being fed by her mate and as a preliminary to inviting copulation by tilting forward and raising her posterior.

**BREEDING.** Season, late March to early June, principally April and May. Nest, a hollow or split in a tree-trunk, or hole in a mud or stone wall of a village house; occasionally lined scantily with grass, leaves, wool, feathers and rubbish which become fouled and matted into an evil-smelling mess with the birds' droppings as incubation proceeds. Eggs, 5 to 7, pale skim-milk blue when fresh soon turning to a pale dirty greenish grey and further discoloured by contact with the filthy nest lining. Average size of 26 Kashmir

eggs 26.2 × 17.6 mm (Osmaston). Incubation by female alone who is a very close sitter and fed by the male within the nest throughout the period — 15 to 17 days, mostly 16 (B. S. Lamba). Both sexes feed the young. The nestlings deliberately squirt their foul-smelling liquid faeces against an intruder as a means of defence.

MUSEUM DIAGNOSIS. See Key to the Subspecies; for details of plumage, Baker, loc. cit.; for plumage phases and structure (also bionomics), Witherby, 1938, 2: 266-9.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	140-153	53-63	22-24	98-109 mm
♀ ♀	136-148	50-58	—	—

(Witherby)

Weight 9 ♂ ♀ 60-73 g (SA).

COLOURS OF BARE PARTS. Iris brown. Bill horny brown or horny black, paler (flesh colour) at gape and base of lower mandible; mouth pale flesh. Legs and feet greyish- or slaty brown.

#### 764. *Upupa epops saturata* Lönnberg

*Upupa epops saturata* Lönnberg, 1909, Ark. Zool. 5, no. 9: 29

(Kjachta, southern Transbaicalia)

Baker, FBI No. 1580, Vol. 4: 310

LOCAL NAME. *Dao hu dup* (Cachari).

SIZE. Myna; length c. 31 cm (12 in.) to tip of long slender bill.

FIELD CHARACTERS. As in 763 q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident and/or breeding visitor in the Tibetan facies of the High Himalayas in Nepal, Sikkim, Bhutan and NEFA (?) above c. 1700 m; recorded up to c. 4400 m in summer and once at c. 5000 m in October. Migrates in winter to the plains in Nepal, Bihar, W. Bengal, Orissa and East Pakistan. Affects openly wooded country.

EXTRALIMITAL. Eastern Siberia and Manchuria southward over Mongolia and northern China, to Yunnan, Kwangtung, and Fohkien (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in the European (nominate) subspecies (763).

BREEDING. Season, April to June. Nest, eggs and breeding biology as in 763.

MUSEUM DIAGNOSIS. Very similar to nominate *epops* (763), only a trifle darker on back and wings; also darker and more brown, less vinous, on breast. But race not very distinct and of questionable validity.

MEASUREMENTS

♂ ♀ Wing 123-164 (mostly over 140). Bill (from feathers) 39-55 mm (Baker).

15 ♂ ♀ Wing 141-155 (av. 149) mm — Stresemann, BB.

Weight 4 ♂ ♀ 59-72 g (SA, Paynter).

COLOURS OF BARE PARTS. As in 763.

## CORACIIFORMES

765. *Upupa epops ceylonensis* Reichenberg

*Upupa ceylonensis* Reichenbach, 1853, Handb. spec. Orn., Scansoriae: 320, pl. DCCV, f. 4036 (Ceylon)

*Upupa indica* Reichenbach, 1853, Handb. spec. Orn., Scansoriae: 320

(Bengal, Nepal, Nilghiris and Tenasserim). Not *Upupa indica* Latham

*Upupa epops orientalis* Baker, 1921, Bull. Brit. Orn. Cl. 42: 29. New name for *U. indica* Reichenbach, not *Upupa indica* Latham. (Ambala [Punjab] fixed as type locality by Baker, 1927, Fauna 4: 311, *in errore* = Nilgiri Hills, hereby restricted)

Baker, FBI Nos. 1581, 1582, Vol. 4: 311, 312

Plate 46, fig. 3, facing p. 64

**LOCAL NAMES.** *Hūdhūd* (Hindi, Marathi); *Hūdhūd* or *Ghanti tāknō* (Gujarati); *Konda pitta*, *Kireetam pitta*, *Kukudu guwa* (Telugu); *Poruwā kurullā* (Sinhala); *Chāval kūrūvi* (Tamil); *Uppooppān* (Malayalam).

**SIZE.** Myna; length c. 31 cm (12 in.) to tip of long slender bill.

**FIELD CHARACTERS.** As in 763. See Key to the Subspecies and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Breeds in the Himalayas in a lower altitudinal zone than 764 (normally below c. 1500 m), in Nepal, Bihar, northern West Bengal, Sikkim and Bhutan; south through western Uttar Pradesh, central India, western Madhya Pradesh, Gujarat, Maharashtra, Andhra, Tamil Nadu, Mysore, Kerala and Ceylon. Affects open country, light deciduous forest, cultivated areas, and the neighbourhood of habitations: plains and hills to c. 1700 m.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in the nominate race (763), q.v.

**BREEDING.** Season, locally variable: chiefly April to June in northern India, January to March/April in the south, March to May and occasionally August in Ceylon. Nest, eggs, and breeding biology as in 763. Size of eggs (c/4-7) c. 25 × 17 mm.

**MUSEUM DIAGNOSIS.** See Key to the Subspecies. Smaller, darker and more rufous than the other races. Breast with hardly any tint of vinous; rufous of head and crest deep and rich; subterminal white patches on crest feathers absent or obsolete.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	120-143 (mostly under 135)	51-63	20-22	83-99 mm (SA, HW)

Weight 7 ♂ ♀ 48-62 g (SA).

**COLOURS OF BARE PARTS.** As in 763.

766. *Upupa epops longirostris* Jerdon

*Upupa longirostris* Jerdon, 1862, Bds. India 1: 393 (Burma)

Baker, FBI No. 1583, Vol. 4: 312

**LOCAL NAMES.** *Songārābā*, *Sangairābā* (Manipur).

**SIZE.** Myna; length c. 31 cm (12 in.) to tip of long slender bill.

**FIELD CHARACTERS.** As in 763. See Museum Diagnosis.



PLATE 49

- 1 *Loriculus vernalis*, Indian Lorikeet (567) ♂. 2 *Psittacula columboides*, Bluewinged Parakeet (564).  
3 *Nyctyornis athertoni*, Bluebearded Bee-eater (753). 4 *Eurystomus orientalis*, Broadbilled Roller (759).  
5 *Megalaima rubricapilla*, Crimsonthroated Barbet (790). 6 *Merops leschenaulti*, Chestnutheaded  
Bee-eater (744). 7 *Megalaima viridis*, Small Green Barbet (785).



**STATUS, DISTRIBUTION and HABITAT.** Resident and locally migratory: Assam, Nagaland (?), Manipur and East Pakistan; plains and up to c. 1600 m. Affects grassland, open deciduous forest glades, bamboo and light scrub jungle, cultivated areas and waste land.

**Extralimital.** Burma, Thailand, Indochinese countries, Malay Peninsula, Sumatra (Peters).

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 763, q.v.

**BREEDING.** Season, February to May, chiefly March and April. Nest, eggs (c/5 or 6) and breeding biology as in the nominate race (763). Average size of 50 eggs 24.9 × 17.9 mm (Baker).

**MUSEUM DIAGNOSIS.** Paler in colour than *ceylonensis* (765) and with a proportionately longer bill on average.

MEASUREMENTS	Wing	Bill (from feathers)	
♂ ♀	136–158	42–66 (mostly over 50)	mm (Baker)

**COLOURS OF BARE PARTS.** As in 763.

### Family BUCEROTIDAE: Hornbills

For description see Van Tyne, J., and Berger, A. J., 1959: 478; Stresemann, E., 1927–34, *Aves*: 832–3; Baker, E. C. S., 1927, FBI 4: 282; Bannerman, D. A., 1964, Article 'Hornbill' in Thomson, A. L. (ed.), *New Dict. Birds*, London & New York. Moult: Females renew all remiges and rectrices synchronously in the nest-hole, while the body moult is inactive. Males have a different moult pattern.

#### Key to the Indian Genera

		Page
A Casque large in adults, as high as, or higher than the upper mandible		
1 Casque broad, concave on top, ending anteriorly in two points	<i>Buceros</i>	143
.....		
2 Casque compressed, ridge-like, ending in a single point.. <i>Anthracoceros</i>		139
B Casque moderate, small or absent		
3 Casque low, broad and rounded above, composed of transverse ridges .....	<i>Rhyticeros</i>	137
4 No casque but a few oblique ridges on sides of base of upper mandible .....	<i>Aceros</i>	135
5 Casque small and compressed, the upper ridges curving down in front .....	<i>Ptilolaemus</i>	139
6 Casque small, compressed and pointed or wanting; no ridges on sides of bill .....	<i>Tockus</i>	129

#### Genus TOCKUS Lesson

*Tockus* Lesson, 1830, *Traité d'Orn.*, livr. 4: 252. Type, by subsequent designation, *Buceros erythrorhynchus* Brisson, i.e. Temminck

Casque either absent or when present small and compressed, terminating anteriorly in a point. Bill considerably curved and carinate above. Eyelids furnished with long bristly eyelashes, as in the family. Tail long and graduated in the Indian forms.

#### Key to the Species

Bill with small, keel-shaped casque.....	<i>T. birostris</i>	130
Bill with no casque.....	<i>T. griseus</i>	131

767. Grey Hornbill. *Tockus birostris* (Scopoli)

*Buceros birostris* Scopoli, 1786, Del. Flor. et Faun. Insubr., fasc. 2: 87  
(Coromandel, India)

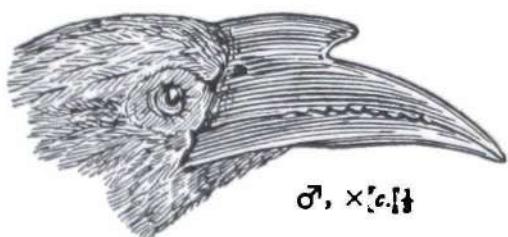
*Tockus birostris pergriseus* Koelz, 1939, Proc. Biol. Soc. Wash. 52: 79 (Lahore, Punjab)  
Baker, FBI No. 1575, Vol. 4: 301

## Plate 47, fig. 4, facing p. 80

LOCAL NAMES. *Dhānmār*, *Dhānd*, *Dhānēl*, *Lāmdār*, *Chālōtrā*, *Dhānēsh* (Hindi); *Selagilli* (Hindi, Saugar, M.P.); *Puttial dhānēsh* (Bengali); *Rundu mūkkūla guwa*, *Sūpanāti*, *Kommu kasiri* (Telugu); *Munu mūkkūla kākā*, *Irawakke* (Tamil); *Chilōtrō* (Gujarati); *Bhinās* (Marathi).

SIZE. Kite ±; length c. 61 cm (24 in.).

FIELD CHARACTERS. A clumsy brownish grey bird with a heavy curved blackish bill surmounted by a peculiar pointed protuberance or casque; long black-and-white-tipped graduated tail, the pattern particularly conspicuous when tail spread in alighting. Sexes alike, but casque in female smaller.



Young (immature) like adult but has no casque, thus could be mistaken

for *T. griseus* (768) in passing. Bill almost wholly yellow; white tips to primaries lacking.

STATUS, DISTRIBUTION and HABITAT. Resident, moving locally subject to fruiting seasons. Throughout the better wooded parts along the base of the Himalayas up to c. 1000 m (recorded at 1400 m in Kumaon [Bhim Tal]) from West Pakistan Punjab (Lahore, Sialkot) eastward through Nepal to northern W. Bengal;<sup>1</sup> southward throughout the Peninsula, plains and hills, excepting the more arid parts of Rajasthan and Gujarat (Kutch), and the heavy-rainfall areas of Kerala. Absent in Assam, East Pakistan, and Ceylon. Confined to deciduous biotope. Affects open but fairly well-wooded country with a scattering of *Ficus* trees; roadside avenues, groves and rambling gardens, in the neighbourhood of cultivation and habitations.

GENERAL HABITS. Largely arboreal, but will occasionally descend to the ground and hop about with vertically cocked tail to pick fallen fruit. Similarly also for winged termites emerging from rain-sodden ground, the birds taking each insect in the bill-tip and jerking the upraised bill to transfer the morsel to the gullet; they may also spring up a few centimetres now and again to snatch the quarry in the air. Keeps in pairs or small parties of 5 or 6, feeding on fruiting trees such as banyan and peepul (*Ficus* spp.) in company with mynas, green pigeons, bulbuls and other frugivorous birds; larger assemblages — 30 or more — where food is abundant. On alarm the gathering breaks up into small parties which scatter in different directions flying in follow-my-leader style, uttering weird squeals. Flight undulating and noisy — a few rapid flaps followed by a dipping glide and sailing with the wing-tips strongly upturned. Recorded dust-bathing regularly (Hoffmann, CBCN Aug. 1980: 12).

<sup>1</sup> Biswas (JBNHS 58: 117) supports the distinctness of *T. b. pergriseus* Koelz (here synonymized). He confirms that northern Indian birds are consistently less brown and more grey than from the southern Peninsula.

**FOOD.** Largely fruit, especially wild figs (*Ficus* spp.), berries and flower petals (e.g. *Bauhinia*); also insects (beetles, mantids, grasshoppers, wasps, etc.) and lizards, mice and other small animals. Recorded eating the poisonous fruits of the Yellow Oleander (*Thevetia nerifolia*), extracting and devouring parakeet nestlings from a tree-hole, and taking fish avidly in captivity.

**VOICE and CALLS.** Normal note a shrill monotonous kite-like squeal *wheeee*, frequently uttered. Also has a variety of loud cackling and squealing conversational notes *k-k-k-ka-ē*; while uttering these tail depressed or doubled under perch and swung slowly back and forth.

**BREEDING.** *Season*, overall March to June, the principal periods varying locally. *Nest*, a natural hollow in an old tree-trunk or bough c. 3 to 8 m up, sometimes enlarged to suit. After the female enters, the hollow is walled up with a mixture of wet mud collected by the male outside, and her own excreta and 'casts' by the female within, she (mostly) using her bill as trowel for the plastering. A narrow slit is left in the wall through which the male feeds his mate throughout the incubation period. After the eggs hatch and the young are about a week (?) old, the wall is broken down to release the female and then rebuilt with a narrow opening as before. Through this both parents feed the squabs till they are fully fledged. The wall is then broken down to let them out (whether by the parents, or chicks, or both?). Female evidently moult her wing-quills during her incarceration, but this needs further study. Excreta of imprisoned female and chicks ejected directly through the narrow slit with considerable force. *Eggs*, normally 2 or 3, rarely 4, dull glossless white, becoming stained and dirty during incubation. Average size of 30 eggs 41·9 × 30·0 mm (Baker). Incubation period undetermined.

For more detailed accounts of the nesting habits see E. F. Hall, 1918, JBNHS 25: 503-5; E. H. N. Lowther, 1942, ibid. 43: 389-401.

**MUSEUM DIAGNOSIS.** See Key to the Species; for details of plumage Baker, loc. cit.

#### MEASUREMENTS

	Wing	Bill (from posterior base of casque)	Tarsus	Tail
♂ ♀	196-228	81-105	42-46	237-297 mm (Baker, HW, BB, SA)

**COLOURS OF BARE PARTS.** Iris brownish orange to red (♂), brown (♀). Bill slaty black on basal portion including casque, waxy yellow or creamy white on culmen, tips, and most of lower mandible; palate pale yellowish flesh, gullet dark slate. Legs and feet plumbeous to slaty black; claws black.

**MISCELLANEOUS.** Both adults and squabs widely persecuted and slaughtered for food and alleged medicinal properties. Popularly believed to cure after-childbirth pains in women. A broth prepared of the entire bird, feathers and all, is administered internally, in addition to bathing the patient with a decoction of it.

#### TOCKUS GRISEUS (Latham): MALABAR GREY HORNBILL

##### Key to the Subspecies

- Underparts grey; central pair of tail-feathers all or nearly all black ..... *T. g. griseus*
- Underparts paler grey; central pair of tail-feathers with broad white tips ..... *T. g. gingalensis*

768. *Tockus griseus griseus* (Latham)

*Buceros griseus* Latham, 1790, Index Orn. 1: 147 (New Holland = Malabar)

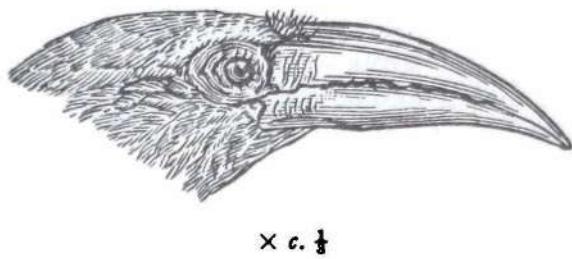
Baker, FBI No. 1576, Vol. 4: 303

LOCAL NAMES. *Kaldal hākki* (Kannada); *Kuzhi vezhāmbāl* (Malayalam).

SIZE. Kite ±; length c. 59 cm (23 in.).

FIELD CHARACTERS. A plain brownish slaty grey hornbill without any casque on bill. Head, crest, throat and breast streaked with whitish.

Nasal plumes and broad supercilia extending far backwards, whitish. Wing-quills black, with broad white tips to some of the primaries. Tail glossy black with broad white tips to all rectrices except the two central pairs. Sexes alike but for bill colour, q.v.



STATUS, DISTRIBUTION and HABITAT. Resident. Confined to the heavy-rainfall Western Ghats or Sahyadri strip from about Bombay and Khandala south through southern Maharashtra, Goa, western Mysore (Malnaad), western Tamil Nadu (Nilgiri, Palni, and associated hills), and Kerala; from plains level to c. 1600 m. Affects rather open evergreen and moist-deciduous forest especially where abounding in *Ficus* trees; apparently the ecological counterpart here of the Grey Hornbill of deciduous country, the two species overlapping in some intermediate zones.

GENERAL HABITS. Very similar to 767, q.v. Keeps in pairs or small flocks of 6 to 20 or more, feeding in *Ficus* trees in company with other frugivorous birds and keeping up an almost incessant clamour of harsh croaks, chuckles and inane 'laughter', the flocks flying from tree to tree in follow-my-leader fashion. For a good note on behaviour of young being hand-reared see H. Abdulali, JBNHS 50: 403-4. Dipping flight in silhouette very reminiscent of Bluebearded Bee-eater or Himalayan Barbet (SA, JBNHS 72: 46).

FOOD. *Ficus* figs, drupes and berries; also insects, lizards and other small animals.

VOICE and CALLS. Shrill squeals and raucous cackling 'reminiscent of the loud protestations of a domestic chicken held up by its legs' (SA). 'Kyah, kyah, kyah ad lib.' (Davison).

BREEDING. Season, January to early April, chiefly February-March. Nest, eggs (c/3 or 4) and breeding biology as in 767. Average size of 50 eggs 41.8 × 30.3 mm (Baker). Foraging male on return with supply taps outside nest 'window'. Offers berries regurgitated one by one and shifted up to his bill-tip.

MUSEUM DIAGNOSIS. See Keys to the Species and Subspecies.

In first-year bird primaries more narrowly pointed, rectrices narrower than in adult. Distinguished from adult also by paler coloration with a fulvous tinge about the vent; all wing-coverts conspicuously edged with fulvous; wing-quills edged with pale grey except the outer primaries which are conspicuously marked with white.

MISCELLANEOUS. Parasitized by the ticks *Haemaphysalis spinigera* and *H. turturis* (Rajagopalan, JBNHS 69: 62).

## MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	205-220	100-110 (depth c. 40)	44-45	219-235 mm (Baker)

Wing 3 ♂ ♂ 205-218; 9 ♀ ♀ 185-195 mm (Koelz, SA).

COLOURS OF BARE PARTS. Adult male : Iris red-brown; orbital skin black. Bill horny yellow with a brownish red tinge on all but tip. Legs and feet greenish slate to greyish sage-green; claws black. Adult female : Bill waxy yellow with irregular brownish slate patches along culmen and at base of lower mandible. Rest as in ♂. Immature : Iris grey to brown. Bill pale yellow; commissure, gape, a patch on either side of lower mandible, and a triangular patch on culmen (near forehead) brownish slate colour.

769. *Tockus griseus gingalensis* (Shaw)

*Buceros gingalensis* Shaw, 1811, Gen. Zool. 8(1): 37 (Ceylon)

Baker, FBI No. 1577, Vol. 4: 304

LOCAL NAMES. *Kandettā* (Sinhala); *Irattei chondu kūruvi* (Tamil).

SIZE. Kite - ; length c. 59 cm (23 in.).

FIELD CHARACTERS. As in 768. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; Ceylon. Fairly common throughout the forests of the low country; seasonally (September-October) in the hills to c. 1200 m.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 768, q.v. 'A loud *kāā . . kāā . . kā kā kā kā* . . or sometimes *kuk . . . kuk-kuk-kuk ko ko kokoko* which is answered by its mate in similar tones' (Henry).

BREEDING. Season, April-May, occasionally in July. Nest, eggs, and breeding biology as in 768.

MUSEUM DIAGNOSIS. Differs from the Malabar population (768) in being much paler grey below and with much more white on the outer tail-feathers, the three outer pairs becoming pure white in old birds.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	192-215	101-110	38-41	210-226 mm
♀ ♀	191-202	82-89	37-41	186-213 mm (HW, SDR)

Weight 1 ♂ 238 g (SDR).

COLOURS OF BARE PARTS. Iris: ♂ red; ♀ brown. Bill: ♂ horny white with a black patch at base of upper mandible, and another indistinct patch beneath lower mandible; ♀ horny black with a long sharply defined white patch on lower portion of upper mandible. Legs and feet greenish plumbeous.

Genus *PTILOLAEMUS* Ogilvie-Grant

*Ptilolaemus* Ogilvie-Grant, 1892, Cat. Bds. Brit. Mus. 17: 349 (in key), 392. Type, by subsequent designation, *Buceros tickelli* Blyth. (Richmond, 1902, Proc. U.S. Nat. Mus. 24: 711)

Throat well feathered. Casque small, compressed and sharp-edged. Feathers of head normal, lengthened posteriorly and forming a full crest. Sexually dimorphic.

770. Whitethroated Brown Hornbill. *Ptilolaemus tickelli austeni* (Jerdon)*Anorhinus [sic] austeni* Jerdon, 1872, Ibis: 6 (Asalu, Cachar Hills)

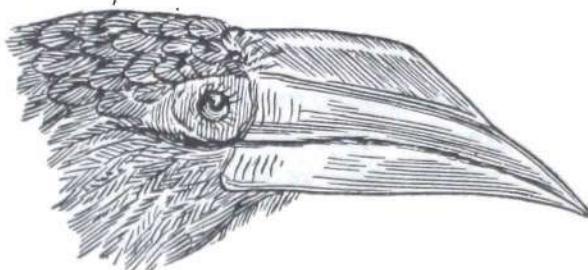
Baker, FBI No. 1573, Vol. 4: 298

Plate 50, fig. 3, facing p. 160<sup>1</sup>LOCAL NAME. *Dao yung lai* (Cachari).

SIZE. Kite +; length ♂ c. 76 cm (30 in.), ♀ smaller.

FIELD CHARACTERS. A medium-sized hornbill chiefly dark brown above, bright rufous below, with a small sharp-edged yellowish casque on the culmen. Cheeks, throat and sides of neck white; foreneck pale rufous. Tail long, graduated, black and broadly tipped with white excepting the middle pair of rectrices which are all brown and without white tips.

Female has sides of neck concolorous with crown. Below more grey-brown, less rufous, with no rufous on foreneck or upper breast. Colour of bill as in male.

× c.  $\frac{1}{2}$ 

STATUS, DISTRIBUTION and HABITAT. Not uncommon where occurring, but distribution imperfectly known. Assam hills south of the Brahmaputra and Luhit rivers, Nagaland (?), Manipur (?); plains, foothills and to c. 1000 m alt. Affects evergreen forest.

GENERAL HABITS. Keeps in noisy cackling flocks of 8 to 10 birds — often up to 20 or more — to the tops of lofty forest trees, feeding in company with Pied Hornbills and other frugivorous birds. Very restless, constantly moving about in the branches or flying from tree to tree in follow-my-leader style, the birds launching one by one and maintaining their individual distance in the air. Flight, as of the family — a few rapid wing-beats followed by sailing with the wing-tips upcurved, again a few flaps, and so on — but comparatively noiseless.

FOOD. Wild figs, drupes, and berries; also insects, and doubtless lizards and other small animals.

VOICE and CALLS. Loud croaks, chuckles and squeals similar to those of the Pied Hornbills (774, 775), but somewhat less harsh.

BREEDING. Season, chiefly April to June. Nest, a hollow in a tree at comparatively low heights (4 to 8 or 9 m), sometimes higher. Partially walled up with the bird's excrement and pulp of fruits etc. as usual, with the incubating female within who is fed by the male through the narrow opening throughout her incarceration. Eggs, 3 or 4, white, but becoming stained and dirty

<sup>1</sup> The illustration is of a male of the closely similar nominate race (with all tail-feathers white-tipped) only known from Tenasserim, Lower Burma.

during incubation. Average size of 24 eggs  $48 \cdot 8 \times 34 \cdot 2$  mm (Baker). Period of incubation undetermined; reported by local Nagas as 24 days.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	312-337	121-135	c. 50	281-297 mm (Baker)

COLOURS OF BARE PARTS. Iris dull brown. Bill and casque dull wax-yellow, reddish yellow on sides near base; orbital skin bluish white or bright blue ('pale yellow' [?]) — Baker). Legs dull horny green, dirty yellow at sides; claws dusky black.

Genus ACEROS J. E. Gray

*Aceros* J. E. Gray, 1844, Zool. Misc.: 85. Type, by monotypy, *Aceros nipalensis* = *Buceros nipalensis* Hodgson

Distinguished by absence of a true casque though basal portion of culmen thickened and sometimes showing an incipient protuberance. Sides of upper mandible near base grooved or ridged in adult. Cheeks, chin and throat naked. Tail long and graduated. Feathers of head long, loose and hair-like forming a bushy crest. Sexually dimorphic.

771. Rufous-necked Hornbill. *Aceros nipalensis* (Hodgson)

*Buceros nipalensis* Hodgson, 1829, Asiat. Res. 18 (1): 178, 2 pls. (Nepal)

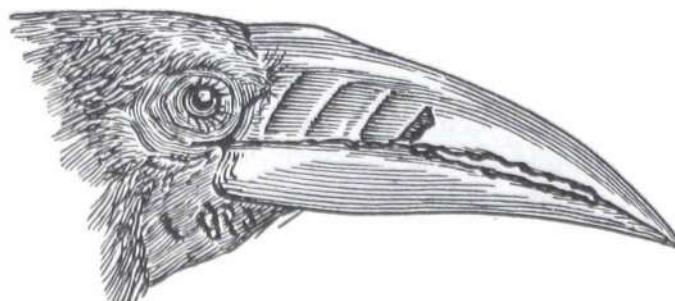
Baker, FBI No. 1570, Vol. 4: 294

Plate 50, fig. 2, facing p. 160

LOCAL NAMES. *Dao yun y gajao* (Cachari); *Kolep* (Lepcha).

SIZE. Vulture; length c. 122 cm (48 in.).

FIELD CHARACTERS. Male. Head (with bushy mop-like crest), neck, and breast rufous, changing to maroon on abdomen and blackish maroon farther down. Rest of upper plumage black, glossed with dark green. Outer primaries tipped white. Terminal half of long graduated tail white. Heavy horn-shaped yellow bill without casque; vertically ridged with



$\times c. \frac{1}{4}$

blackish on sides of upper mandible. Cheeks, chin, and throat naked, bright scarlet; naked patch round eye blue.

Female all black, but with outer primaries white-tipped as in male, and terminal half of tail also white.

Young (immature) like adult, sex for sex, but with much smaller bill, and without the lateral ridges.

STATUS, DISTRIBUTION and HABITAT. Himalayan foothills to c. 1800 m elevation, Nepal eastward through Sikkim, Bhutan and NEFA. North-eastern Assam (Cachar), Nagaland, Manipur, Mizo Hills, East Pakistan

(Chittagong Hill Tracts). Affects tall evergreen forest; not uncommon patchily, but reportedly disappearing from many areas consequent on steady felling of primeval forest.

*Extralimital.* Hills of Burma south to Tenasserim, northern Thailand and Indochinese countries.

**GENERAL HABITS.** Chiefly arboreal and frugivorous. Occasionally descends to the ground to pick fallen fruit, moving in ungainly shuffling hops. Keeps in pairs or small parties of four or five to tall forest on hillsides, sailing majestically across deep wooded valleys — 3 or 4 rapid, noisy 'full' wing-flaps followed by a glide on flat outstretched pinions for 3 or 4 seconds, and so on. Has a curious habit of diving with closed wings for some distance from time to time to make long swooping dips in its flight like a woodpecker. The male has a bizarre nuptial display accompanied by loud discordant roars and cackles. Perched on a bough 'head thrown back, red hair on end, his gular skin inflated and his bill held erect and wide open. His wings hang loosely and slightly quivering, whilst every now and then his long tail is jerked up until it almost touches the head' he shows off thus to his mate (Baker).

**FOOD.** Large drupes and berries swallowed entire; the fruits of *Dysoxylon* sp. and nutmegs (*Myristica*) are especially favoured; in one case 18 large nutmegs in stomach, complete with mace, weighing 98 g (SA).

**VOICE and CALLS.** A variety of loud roars, croaks and cackles. Male has a short 'bark' reminiscent of the distant stroke of an axe upon a sapling; female's bark slightly different in tone. Frequently uttered by a pair in irregular duets, then easilymistakable in the distance for two woodcutters chopping alternately and sometimes striking almost together.

**BREEDING.** *Season*, chiefly April and May. *Nest*, a natural hollow in a lofty tree-trunk in forest, between 10 and 30 m up; walled up by the female from within with her own excreta and viscid pulp of figs and other fruit remains; possibly supplemented with mud by the male from outside (as in 767). She leaves a narrow slit or window through which she is fed by her mate throughout the incubation period. The same hollow is used year after year. *Eggs*, 1 or 2, white, with a coarse texture. Average size of 12 eggs 59.2 × 43.1 mm (Baker). Incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	445–470	215–240	c. 74	395–458 mm
♀♀	434–440	188–200	—	— (Baker)
		(from posterior edge of culmen)		
1 ♂	467 (chord)	226	72	433 mm
1 ♀	445 (chord)	c. 207	64	405 mm (SA)

Weight 1 ♂ 2.5 kg; 1 ♀ 2.27 kg.

**COLOURS OF BARE PARTS.** Iris deep reddish orange ( $\sigma^1$ ), claret ( $\varphi$ ); orbital skin brilliant sky blue. Bill yellowish ivory; lateral ridges on upper mandible (up to 8) black. Gular skin (pouch) brilliant orange-scarlet criss-crossed with fine brown creasing; fleshy pads at sides of base of lower mandible deep purplish violet connected by a narrow band across the orange gular skin. These colours differ slightly in details in the sexes and/or ages. Legs, feet and claws black.

Genus *RHYTICEROS* Reichenbach

*Rhyticeros* Reichenbach (1849), Av. Syst. Nat. pl. L. No species; generic details only. Species added, Bonaparte, 1854, Ateneo Italiano 2: 312. Type, by subsequent designation, *Buceros plicatus* Latham, i.e. Forster

Casque small, rounded and corrugated in appearance, composed of plates the upper edges of which form alternate ridges and furrows. Chin and throat naked forming a pouch capable of great inflation. Feathers of crown long and loose forming a shaggy crest. Sexually dimorphic.

772. **Assam Wreathed Hornbill.** *Rhyticeros undulatus ticehursti* Deignan

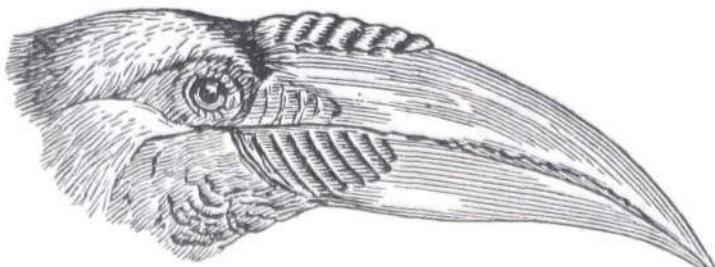
*Rhyticeros undulatus ticehursti* Deignan, 1941, Auk 58: 397 (Huai Oi, 14 km north of the Ban Pak Li, Nan Province, Thailand)

Baker, FBI No. 1567 (part), Vol. 4: 291

Plate 50, fig. 1, facing p. 160

**LOCAL NAMES.** *Mah do la* (Assamese); *Dao rai* (Cachari).

**SIZE.** Vulture  $\pm$ . Overall length  $\sigma^1$  c. 114 cm (45 in.); female, with shorter bill, c. 98 cm (38 in.).



$\times c. \frac{1}{2}$

**FIELD CHARACTERS.** A large black hornbill with entirely white tail.

**Male.** Forehead, crown, and nape deep chestnut passing into black on hindneck. Sides of head and neck, and foreneck, buffy white. Tail all white; rest of plumage glossy black. Bill pale yellow; naked throat-patch bright yellow.

**Female.** All black except tail which is wholly white.

In high overhead flight jet black body and underwing, white neck, dark crown, and all-white tail are diagnostic of the male. On a nearer view the very bright yellow throat-pouch, puffed and sticking out like a goitre, is

distinctive. All-black body contrasting with all-white tail makes the female unmistakable.

**STATUS, DISTRIBUTION and HABITAT.** Bengal duars, Bhutan foothills, NEFA, Assam, Nagaland, Manipur, Mizo, and East Pakistan. From plains level to c. 2400 m. Affects forest and edges of clearings in tropical evergreen biotope. Not uncommon, but usually very shy due to persecution by locals almost everywhere for its flesh and feathers.

**Extralimital.** Burma, Thailand, Indochinese countries and Malay Peninsula north of the Isthmus of Kra; Mergui Archipelago.

**GENERAL HABITS.** Mainly arboreal and frugivorous. Keeps in pairs and small parties, gathering in some numbers where food is plentiful. Has a particularly noisy flight, 'a rhythmic beat sounding like the puffing pant of a steam locomotive' (SDR) audible at great distances. Flight—a few full wing-flaps followed by sailing and punctuated with occasional 'whooshing' dives with closed wings to lose height, resulting in undulations as in a wood-pecker. Flight noted as noiseless in damp rainy weather (Stevens). Like other large hornbills has a very punctual time schedule of daily feeding circuits and roosting flights. Large numbers congregate at sunset, flying high in irregular follow-my-leader style over fixed routes for roosting in selected patches of giant bamboo or tall thinly foliated trees.

**FOOD.** Large drupes, wild figs and berries; also lizards and other small animals. The morsel is jerked up in the air from the bill-tip, caught in the open gullet and swallowed entire.

**VOICE and CALLS.** Perhaps less noisy than most other large hornbills. Male utters a short raucous grunt from a perch, his tail drooping, bill jerked skywards to the vertical at each call and then lowered again. This repeated from six to a dozen times in succession — a ludicrously mechanical performance.

**BREEDING.** *Season*, chiefly April and May. *Nest*, a natural hollow in a lofty tree-trunk usually at a great height — 25 or 30 m. Breeding biology similar to that of other large hornbills, e.g. Great Pied (776) q.v. *Eggs*, 2, white, coarse textured. Average size of 25 eggs 63 × 43·2 mm (Baker). Incubation period unknown.

#### MUSEUM DIAGNOSIS

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	458–505	202–219 (♂) 178–198 (♀)	60–70	300–330 mm
				(Baker)

**COLOURS OF BARE PARTS.** **Male.** Iris orange-red to blood-red; orbital skin dull red to brick-red. Bill wax-yellow, tinged with dull orange at base; corrugations at base of both mandibles dark reddish in the furrows; casque dull yellow with dark reddish furrows. Gular skin bright yellow to orange-yellow with a broad transverse black band, generally interrupted in the middle. Legs and feet greenish- to blackish slate. **Female.** Iris brown or grey-brown. Bill yellow without reddish tinge. Gular skin bright dark blue with transverse black band as in male.

773. **Narcondam Hornbill.** *Rhyticeros (plicatus) narcondami* (Hume)

*Rhytidoceros narcondami* Hume, 1873, Stray Feathers 1: 411 (Narcondam Island)  
 Baker, FBI No. 1569, Vol. 4: 293  
 Plate 47, fig. 5, facing p. 80

LOCAL NAMES. Unrecorded.

SIZE. Kite +; length ♂ c. 66 cm (26 in.), ♀ somewhat smaller.

FIELD CHARACTERS. A medium-sized black hornbill with white tail.

Male. Head and neck rufous; throat a little paler. Tail white; rest of plumage black, glossed with dark green.

Female. All black excepting tail which is white as in male.

STATUS, DISTRIBUTION and HABITAT. Endemic; resident. Narcondam Island (Andamans). Was common and fairly plentiful 50 years ago. In 1905 total 'world' population estimated by B. B. Osmaston at about 200 individuals, all confined to an area of less than 3 square miles (JBNHS 16: 620-1). Reported in April 1969 to be still plentiful on the island (B. R. Grubh). Estimated population 400 birds (Hussain). Affects high forest covering the lower slopes of the central peak (c. 700 m) down to the coast.

GENERAL HABITS and FOOD. Osmaston and Grubh both found them noisy and fearless, feeding exclusively on wild figs. Among other fruit items identified, *Anamirta cocculus* and *Bassia latifolia*. Flight heavy and slow (Hume).

VOICE and CALLS. 'Loud ka-ka-ka-ka-ka with tone quality of domestic fowl's cackle. Often 3 or 4 birds sitting in a single tree calling' (Grubh).

BREEDING. Season commences February; in full swing March/April. Nest-holes chiefly high up in tree-trunks of *Tetrameles nudiflora*, *Salmalia insignis*, *Parishia insignis* etc.; many as low as 2 metres and exposed. Eggs 2, earthy brown in colour. Size c. 33 × 45 mm weighing c. 28 g (S. A. Hussain).

MUSEUM DIAGNOSIS. Bill apparently varies considerably with age in regard to the furrows as well as its total length; proportionately to the depth it is shorter in female than in male.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	303-305	121-126	46-50	195-198 mm
♀ ♀	285-287	—	—	180-182
	(from feathers)			(Baker)
	(from skull)			
4 ♂♂	305-322	119-123	41-44	187-205 mm
3 ♀ ♀	295 (3)	100-109	39-42	c. 180-189 mm
Weight 4 ♂♂	700-750 g			
	;			
3 ♀ ♀	600-750 g.			

(Grubh)

COLOURS OF BARE PARTS. Iris: ♂ brilliant orange-red with a fine circle of pale yellow next the pupil; ♀ dark olive-brown with the same thin circle of pale yellow. Orbital skin rich slate blue; gular skin same colour, in places lighter almost white. Bill waxy yellow: furrows of casque light brown, of a pinkish shade near base. Legs and feet black; soles yellow (C. P. Cory, JBNHS 14: 372, and coloured plate).

Genus ANTHRACOCEROS Reichenbach

*Anthracoceros* Reichenbach (1849), Av. Syst. Nat., pl. xlvi. No species: generic details only. Type, by subsequent designation, *Buceros malabaricus* Gmelin

*Hydrocissa* Bonaparte, 1850, Conspl. Av. 1: 90. Type, by subsequent designation,  
*Buceros monoceros* Shaw = *Buceros coronatus* Boddaert

Casque very high and large, sharp-edged and projecting in front, broader and carried back above crown behind, the upper outline curved parallel with commissure. Orbital skin and a patch on either side of throat bare; chin and middle of throat feathered. Tail long and graduated. Wings short and rounded. The sexes differ only in the coloration and size of bill, and shape of casque.

#### Key to the Species

	Page
Outer tail-feathers all white; casque compressed and flat on the sides .....	<i>A. coronatus</i> 142
Outer tail-feathers black with white tips; casque convex on the sides .....	<i>A. malabaricus</i> 140

#### 774. *Anthracoceros malabaricus malabaricus* (Gmelin)

*Buceros malabaricus* Gmelin, 1788, Syst. Nat. 1 (1): 359

(India = Chandernagor, *apud* Baker)

Baker, FBI No. 1565, Vol. 4: 288

LOCAL NAMES. *Hay tuk tek ee*, *Kāo dhānēsh* (Assam); *Dao yung kashiba* (Cachari).

SIZE. Vulture —; length ♂ c. 89 cm (35 in.), ♀ somewhat smaller.

FIELD CHARACTERS. A large black and white (or pied) hornbill with black neck, white underparts and ponderous wax-yellow and black bill surmounted by a high ridge-like casque ending in front in a single point. Outer tail-feathers black, only white at the ends.

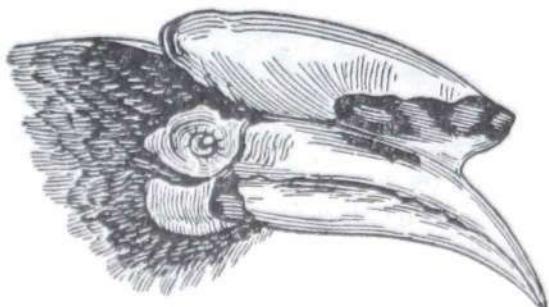
See Key to the Species.

Female similar but smaller, with a different colour pattern on bill.

STATUS, DISTRIBUTION and HABITAT. Resident subject to local movements dependent chiefly on food supply (fruiting seasons).

From about Kalesar, Punjab (Waite, JBNHS 39: 862), and Dehra Dun and the Siwalik range in Kumaon ('occasional winter visitor to New Delhi' — Frome, JBNHS 47: 288) eastwards through U.P., Nepal and Sikkim terai, Bengal duars, Bhutan and NEFA foothills; Assam north and south of the Brahmaputra, Nagaland, Manipur, Mizo Hills (?), East Pakistan; Bihar, Orissa, eastern Andhra and eastern Madhya Pradesh (Bastar dist.). Apparently overlapping with *coronatus* in eastern Chota Nagpur (South Bihar) and adjacent hilly forests of Orissa and W. Bengal, but no hybrids known. Affects open forest in moist-deciduous and evergreen biotope, also groves of large mango and suchlike trees around habitations; from plains level to c. 350 m.

EXTRALIMITAL. Extreme northern Burma. The rest of Burma south to Tenasserim and northern Malay Peninsula together with Thailand, the



♂, × c. 4

Indochinese countries and SE. China are inhabited by the slightly smaller equivocal subspecies *leucogaster*.

**GENERAL HABITS.** Arboreal and mainly frugivorous. Keeps in noisy parties of 4 or 5 or small flocks of 8 to 10; larger congregations on fruit-laden trees (*Ficus* etc.) in company with Grey hornbills, green pigeons and other fruit-eaters. Flight less noisy than of the larger hornbills — a few quick flaps alternated with sailing, wing-tips upcurved and tail expanded, the birds moving from tree to tree in follow-my-leader style. Feeds a good deal on the ground, individuals and small parties not uncommonly seen hopping about to pick fallen fruit or seize creeping prey; food picked up in bill-tip, jerked into the air, caught in gullet and swallowed. Very fond of dust-bathing (Primrose, JBNHS 27: 950). Also takes termites from termite mounds, deftly picking up the tiny insects one by one in the point of the enormous bill; flying termites occasionally hawked in mid-air by ludicrous ungainly sorties. Becomes exceedingly tame and makes an amusing pet when hand-reared from nestling, flying about loose and coming to be fed; but is a tyrant in the aviary and will kill and devour any small bird.

**FOOD.** Wild figs, drupes and berries (*Ficus*, *Melanoxyton*, etc.). 'Passionately fond of live fishes which it catches in shallow pools. Fish bones found in stomachs of several shot' (Inglis in Hume, SF 5: 20-21). Also marauds nestling birds from tree-holes, and takes lizards, snakes, and any other small animal that can be come by.

**VOICE and CALLS.** A variety of loud shrill squeals and raucous cackles. Described as 'inane screams between the protestations of a dak bungalow chicken seized by the cook and the squeals of a three-quarters grown pup receiving punishment' (SA). A 'rapid, piercing kak-kak, kak-kak' (R. L. Fleming).

**BREEDING.** Season, principally April and May. Nest and breeding biology as in 767 and 776, qq.v. Eggs, 2 or 3, white, smaller replicas of those of the Great Pied Hornbill (776), with a somewhat smoother texture. Average size of 18 eggs 49.9 × 34.9 mm (Baker). Period of incubation undetermined.

**MUSEUM DIAGNOSIS.** See Key to the Species.

**JUVENILE.** 'A dull edition of the adult with but little gloss on the black parts of the plumage. Area round eyes and sides of chin bare as in adults. Casque smaller and of different shape. Tail-feathers narrower. Black marks on casque not so extensive' (Ticehurst, JBNHS 36: 935 — for *A. m. leucogaster*). No indication of casque when 2 months old; casque estimated to mature at 7 to 9 months of age (E. P. Gee, ibid. 36: 751), but the point needs elucidation.

#### MEASUREMENTS

	Wing	Bill (from forehead)	Tarsus	Tail
♂ ♂	294-315 (once 336)	159-170	60-68	259-318 mm
♀ ♀	280-301	136-146	c. 60	259-290 mm

(Baker, SA, SDR)

**COLOURS OF BARE PARTS. Male.** Iris red-brown to blood-red; orbital skin bluish white to pale purplish blue; naked throat-patch duller, more fleshy blue. Bill and casque wax-yellow, a black patch running from the fore part of the casque to the centre of the join between the casque and the upper mandible; extreme bases

of casque and bill, and commissure, black. Legs and feet dull dark slate or greenish slate. Female. Iris brown or grey-brown. Whole fore part of casque, top and upper part of upper mandible, and commissure, black; bold black streaks on lower mandible, the amount of black variable but always more extensive than in male.

**775. Lesser Pied Hornbill. *Anthracoceros coronatus coronatus* (Boddaert)**

*Buceros Coronatus* Boddaert, Table Pl. enlum.: 53 (Malabar)

Baker, FBI No. 1564, Vol. 4: 286

Plate 47, fig. 7, facing p. 80

**LOCAL NAMES.** *Dhān chiri* (Hindi); *Suleimani mūrghi* (Deccani); *Dhānēsh* (U.P.); *Bagma dhānēsh* (Bengal); *Kūchlä khā* (Orissa); *Wayerā* (Marathi); *Kanari* (Konkan); *Peshta gonda* (Gond); *Poruwā kandetta* (Sinhala); *Irattei chondu kūruvi* (Tamil); *Vēzhāmbāl* (Malayalam).

**SIZE.** Vulture —; length ♂ c. 92 cm (36 in.), ♀ somewhat smaller.

**FIELD CHARACTERS.** A large black and white (or pied) hornbill with black neck, white underparts and ponderous wax-yellow and black bill surmounted by a high ridge-like casque ending in front in a single point. Very similar to 774 but with the outer tail-feathers all white. See Key to the Species.

Female similar but smaller, and with the bare parts somewhat differently coloured.

**STATUS, DISTRIBUTION and HABITAT.** Resident; subject to local movements governed by food supply (fruiting seasons). Extreme western part of W. Bengal bordering Chota Nagpur and Orissa (where it partly overlaps the range of *A. malabaricus*), Andhra and Madhya Pradesh. The western side of the Peninsula, chiefly the wooded country inland along the foot of the Ghats, from about Ratnagiri (south of Bombay) through Goa, W. Mysore (Malnaad) and W. Tamil Nadu (Nilgiri dist.) and Kerala. Ceylon ('very local but fairly plentifully distributed in the more secluded forest areas of the Dry zone' — Phillips). Affects open forest in evergreen and moist-deciduous biotope; plains and foothills to c. 300 m. Also groves of large mango, *Ficus* and suchlike trees around forest villages.

**GENERAL HABITS, FOOD, VOICE and CALLS.** Almost identical with 774, q.v.

**BREEDING.** Season, in the Peninsula chiefly March and April; in Ceylon April to July. Nest, breeding biology, and eggs as in 774. Clutch size and incubation period undetermined. Size of eggs c. 55 × 38 mm.

**MUSEUM DIAGNOSIS.** See Key to the Species.

**MEASUREMENTS**

	Wing	Bill (from forehead)	Tarsus	Tail
♂ ♂	315–342	216–227 (from gape)	c. 65	295–335 mm
♀ ♀	295–328	126–166	c. 61	—

Weight 1 ♀ 1000 g (SA).

(Baker, SA)

**COLOURS OF BARE PARTS.** Male. Iris orange-red to red; orbital skin black or blue-black. Bill wax-yellow, black at base of true bill and of casque; also on terminal half or two-thirds of the latter. Bare throat-patch flesh coloured (yellowish pink). Legs and feet slaty grey, greenish grey or dark grey. Female. Iris brown or

blue-brown; orbital skin, cheek-pads and gular skin pinkish creamy white. Bill creamy white: terminal two-thirds of casque, and patch at base of lower mandible, black (SA). Bill with the black less in extent, and absent on the back of the casque. Rest as in the male.

### Genus *BUCEROS* Linnaeus

*Buceros* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 104. Type, by subsequent designation,

*Buceros rhinoceros* Linnaeus

Size large. Bill very large, stout, and much curved; casque large and broad, covering more than basal half of culmen, the sides flat and vertical behind, the top overhanging in front. Posterior edge of casque broad and rounded, projecting over the head behind; its upper surface flat or slightly convex posteriorly, concave in front terminating in two lateral points, blunted in old males. Feathers of neck and nape loose and long, but not forming a real crest. Chin feathered; small orbital patch naked. Tail long and rounded. Sexes alike in plumage.

### 776. Great Pied Hornbill. *Buceros bicornis homrai* Hodgson

*Buceros homrai* Hodgson, 1832, Jour. Asiat. Soc. Bengal 1: 251 (Nepal)

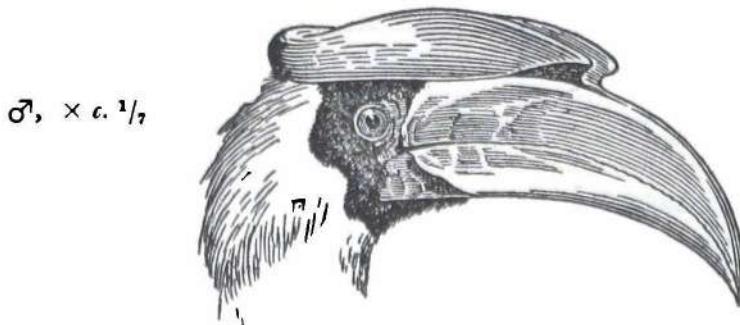
Baker, FBI No. 1563, Vol. 4: 284

Plate 47, fig. 6, facing p. 80 and Vol. 1, plate 16

LOCAL NAMES. *Homrāi* (Nepal); *Bānrāo* (Hindi, Kumaon); *Kugrong*, *Kudong* (Lepcha); *Gārūdā* (Kannada); *Gārūd* (Marathi); *Malāmōrākki* (= 'mountain-shaking'), *Vēzhāmbāl*, *Komban vēzhāmbāl* (Malayalam); *Rāj dhānēsh* (Bengal); *Rāj dhānēsh*, *Hivāng* (Assam); *Daoyung* (Cachari); *Inrui go* (Kacha Naga).

SIZE. Vulture; length ♂ to tip of bill c. 130 cm (52 in.), ♀ somewhat smaller.

FIELD CHARACTERS. A large black-and-white hornbill with enormous horn-shaped yellow-and-black bill surmounted by a ponderous concave-topped casque, broadly U-shaped when viewed from the front. Face, back,



underparts and wings black, the last with double white bars. Neck, lower abdomen, upper and under tail-coverts and tail white, the last with a broad black subterminal band.

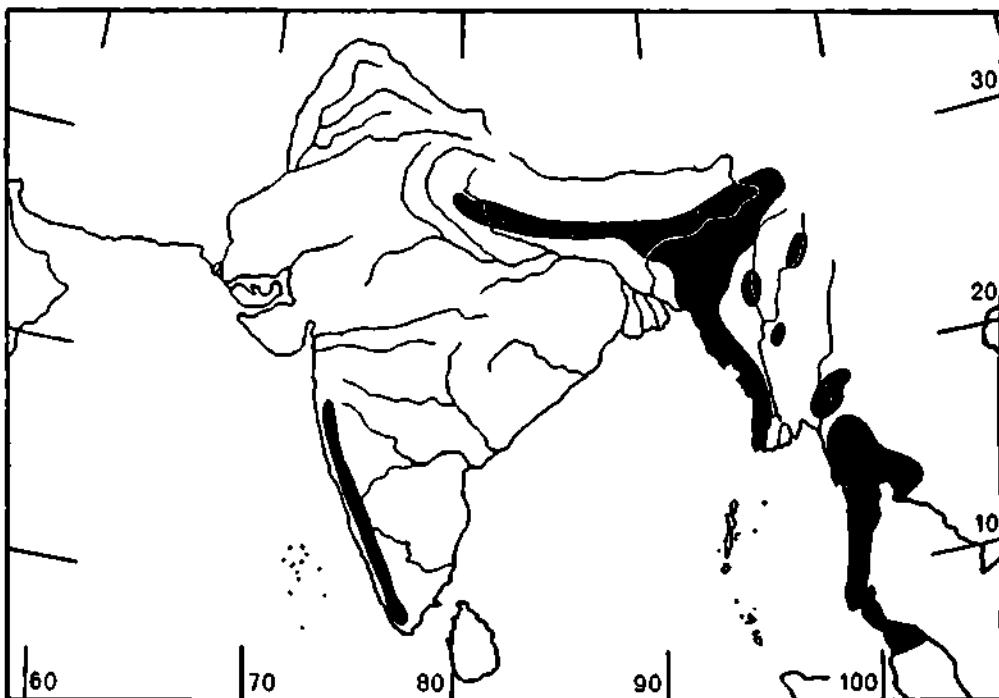
The white neck and wing-bars, and black band in the white tail, are diagnostic in flight.

Female similar, but slightly smaller and with smaller bill and casque (see colours of bare parts).

Young in early stage without casque, but rudiments of it appear when about six months old.

**STATUS, DISTRIBUTION AND HABITAT.** Resident; subject to local movements governed by food supply (fruiting seasons). The Sahyadri or Western Ghats complex from about Khandala ( $18^{\circ}\text{N}.$ ,  $74^{\circ}\text{E}.$ ) in Maharashtra south through Goa, western Mysore (Malnaad), western Tamil Nadu (Nilgiri and associated hills), and Kerala; curiously enough absent in Ceylon. A disjunct population in the lower Himalayas from Kumaon eastward through Nepal, Sikkim, Bhutan, NEFA, Assam, Nagaland, Manipur, Mizo and East Pakistan (Chittagong Hill Tracts). Affects evergreen and moist-deciduous forest, from plains level to c. 1500 m in the Ghats and Assam hills; to c. 2000 m in the Himalayas.

#### *Buceros bicornis*



■ Distributional range

**Extralimital.** Burma, Thailand, Malay Peninsula, Indochinese countries and Sumatra.

**GENERAL HABITS.** Largely arboreal and frugivorous; occasionally descending to the ground and hopping about to pick up fallen fruits. Keeps in pairs or small parties of 3 to 5; gatherings of 30 or more at lavishly fruiting banyan or peepul (*Ficus*) and suchlike trees, and also at roosting sites. Once a congregation of '150 to 200 birds' in SE. Bhutan lowlands (C. F. Hamilton, personal communication). Moves along boughs by quick ungainly but buoyant sideways hops, bouncing lightly to a higher or lower perch from one branch to another. Covers enormous feeding circuits in the course of the day and is remarkably punctual in its visits to the various trees; also in its roosting habits, the birds usually following the same routes day after day as to a fixed time-table. Flight laboured and very noisy — 3 or 4 deliberate flaps punctuated by spells of sailing on outspread wings with upcurved tips, and

expanded tail. Flight silhouette differs from that of *Aceros* (771) which has fuller and quicker wing-strokes, more like the smaller Grey hornbills (767, 768). Loud scraping noise produced by the pinions, both in flapping and gliding, audible at considerable distances. Is usually very wary and difficult to approach due to persecution by local tribals for its flesh (adults, and squabs taken from nest), considered by Hume 'far superior to any fowl or pheasant'. This, added to the increasing destruction of its native rain-forest habitats, especially in its peninsular range, is producing a marked decline in its numbers. Occasionally flies at great heights and for considerable distances across forest-clad valleys. Arrives at roost punctually about sunset by the same route day after day, the birds following one another strung out irregularly 20 to 100 metres apart. Roosts among the topmost branches of lofty thinly foliaged trees, the individuals not clumped together but distributed over several neighbouring trees in a grove, 3 or 4 birds in each tree a few metres above or below one another, each constantly changing position till late in the dusk. They sleep with the neck pulled into the shoulders and bill pointing at an upward angle.

**FOOD.** Chiefly wild figs (*Ficus*), nutmegs (*Myristica*) and drupes of various species, some of very large size. Also miscellaneous animal items—lizards, snakes, rats, and nestling birds marauded from tree-holes. When too large to manage, the struggling victim is battered into submission, then flicked up in the air from the bill-tip, caught in the gullet and bolted down.

**VOICE and CALLS.** Deep hoarse grunts and resounding 'barks' and roars. A very loud reverberating *tok* repeated at slow but regular intervals, with the neck stretched vertically up and bill pointing to the sky. Particularly noisy at the commencement of the breeding season.

**BREEDING.** *Season*, March–April in the Himalayas; February to April in SW. India. *Nest*, an unlined natural hollow in a giant forest tree such as *Calophyllum tomentosum* or *Cullenia excelsa*, and other lofty species, between 18 and 25 m up. Entrance walled up chiefly by the female herself from within, with an amalgam of her dung and remains of figs, bits of leaves and sticks possibly supplemented with wet mud brought by the male, as in Grey Hornbill, the plaster drying to the consistency of sun-baked clay. A narrow slit is left in the wall through which the male feeds the female throughout the period of her self-incarceration, and through which she, and later the squabs, shoot out their excreta with some force. Location of nest often betrayed by these excreta and remains of food littered on the ground below. When chicks about a fortnight (?) old, the wall is broken down (by ?), the female makes her exit and thereafter both parents forage for the young. Usually the wall is rebuilt as before. Female moult her rectrices and remiges while imprisoned within, but details of the process need further study and elucidation. *Eggs*, usually 2 sometimes only 1, (rarely 3, *fide* Baker); coarse-textured, white or creamy white, becoming stained and dirty during incubation. Average size of 44 eggs  $65 \cdot 1 \times 45 \cdot 3$  mm (Baker). Period of incubation undetermined; said to be c. 31 days. If unmolested the same site is used year after year, tending to become almost traditional.

**MUSEUM DIAGNOSIS.** The white feathers of the foreneck and wing-bands are often tinged with bright yellow due to the bird's habit of smearing them with an oily lipoid exudation from the uropygial gland while preening.

**MEASUREMENTS**

	Wing	Bill (from forehead)	Tarsus	Tail
♂♀	500-552	330-375	73-75	380-432 mm

Longest casque 192; widest 106; highest 56 mm. (Baker)

**COLOURS OF BARE PARTS.** Male. Iris blood-red. Bill and casque yellow, tinged with red at tip and with orange in middle; front and back of casque black, together with ridge of bill just in front of casque. Female. Iris pearly white. Back of casque red. In both sexes circumorbital skin fleshy pink; eyelids black. Legs and feet greenish plumbeous (Whistler).

**Order PICIFORMES**

For morphological details etc. see Stresemann, E., 1927-34, *Aves*: 839-43; Baker E. C. Stuart, 1927, FBI 4: 2; Witherby *et al.*, 1938, 2: 276.

**Family CAPITONIDAE: Barbets**

For description see Van Tyne, J., and Berger, A. J., 1959: 481; Dorst, Jean, 1964, Article 'Barbet' in Thomson, A. L. (ed.), *New Dict. Birds*, London & New York. For some aspects of taxonomy and relationships, see Goodwin, Derek, 1964, *Ibis* 106: 198-220.

**Genus MEGALAIMA G. R. Gray**

*Megalaima* G. R. Gray, 1842, Appendix to List Gen. Bds.: 12. Type, by original designation and monotypy, *Bucco grandis* Gmelin = *Bucco virens* Boddaert

Prevailing colour green. Bill stout; culmen rounded, somewhat arched but never keeled. Nostrils either covered with plumes and bristles or exposed; base of bill completely surrounded by rictal bristles of moderate length, in some species long and reaching almost or quite to tip of bill. A naked orbital patch usually present. Wings rounded. Tail square or graduated. Sexes alike.

**Key to the Species**

		Page
I Under tail-coverts red.....	<i>M. virens</i>	147
II Under tail-coverts green		
A Second primary shorter than tenth		
1 Head, neck and breast brown, streaked paler		
a A large naked orbital space (orange), extending to gape....	<i>M. zeylanica</i>	150
b Naked space smaller, not extending to gape		
i Wing over 110 mm, orbital space yellow.....	<i>M. lineata</i>	153
ii Wing under 105 mm, orbital space blackish.....	<i>M. viridis</i>	155
2 Head and neck with bright colours		
c Chin and throat blue or bluish green		
iii Anterior crown red; forehead red.....	<i>M. asiatica</i>	158
iv Forehead golden yellow, occiput green.....	<i>M. flavifrons</i>	157
d Chin and throat yellow and grey.....	<i>M. franklinii</i>	157
e Chin, throat and whole head green.....	<i>M. australis</i>	160
B Second primary (as.) longer than eighth		
3 Throat yellow, cheeks blackish.....	<i>M. haemacephala</i>	163
4 Throat orange, cheeks blue.....	<i>M. rubricapilla</i>	161

## MEGALAIMA VIRENS (Boddaert): GREAT BARBET

## Key to the Subspecies

Colour of head blue without any green tinge

- |   | Page                             |
|---|----------------------------------|
| 1 General coloration palest; yellow-streaked hindneck collar well developed ..... | <i>M. v. marshallorum</i><br>147 |
| 2 Darker, more richly coloured; pale streaks on hindneck few.....                 | <i>M. v. magnifica</i><br>149    |
| 3 Darkest, most richly coloured; with a greater amount of black on culmen .....   | <i>M. v. mayri</i><br>149        |

777. *Megalaima virens marshallorum* Swinhoe

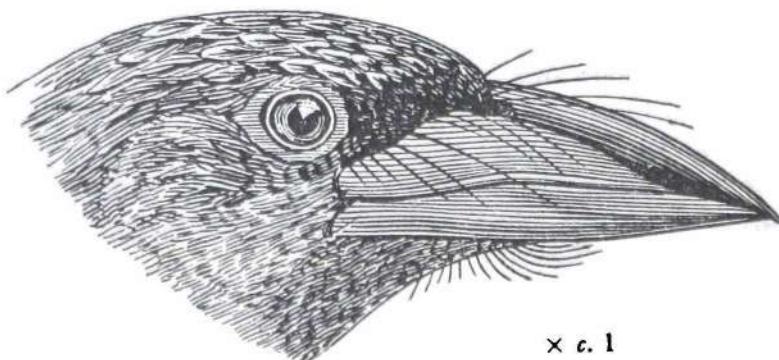
*Megalaima marshallorum* Swinhoe, 1870, Ann. Mag. Nat. Hist. 6 (4): 348 (Himalayas)  
Baker, FBI No. 1427, Vol. 4: 106

## Vol. 3, plate 41

LOCAL NAMES. *Traiho* (Hindi, Himachal Pradesh); *Mewli* (Mussooree); *Nyahul*, *Newāl* (Nepal); *Kun nyong* (Lepcha).

SIZE. Myna +; length c. 33 cm (13 in.).

FIELD CHARACTERS. A gaudily coloured rather clumsy arboreal bird with heavy ungainly yellow bill surrounded by prominent bristles at base. *Above*,



x c. 1

maroon-brown with violet blue-black head; *below*, olive-brown, blue, and yellow with a bright scarlet patch under the tail (coverts). Sexes alike. Dipping woodpecker-like flight and expanded triangular tail proclaim it as a barbet.

STATUS, DISTRIBUTION and HABITAT. Common resident, with seasonal altitudinal movements. From Murree and the Salt Range in Rawalpindi dist., W. Pakistan, eastward in the Himalayas through Kashmir, Himachal Pradesh, Garhwal and Kumaon to western Nepal where it intergrades with *magnifica* (778); between c. 1000 and 3000 m in summer, at lower elevations and in the foothills in winter. Affects moist temperate forest.

GENERAL HABITS. Keeps singly or in small feeding parties of 5 or 6 to tall trees, but will descend into lower bushes where fruits attract, and even venture into opener hill orchards and cultivation environs. Gatherings of up to 30 or more frequently collect in large fruiting trees. In spite of its gaudy coloration becomes astonishingly camouflaged amongst the foliage and is difficult to see when silent, as mostly in winter, since it usually selects the topmost branches and sits quite motionless. Has a habit, when alarmed

or suspicious, of dropping like a stone from a tree overhanging a hillside into the valley below before making across to the opposite side. In summer the forest-clad hillsides and valleys resound with its endless wailing choruses, yet even then the bird is seldom seen except in flight. Flight swift and strong — a few rapid flaps followed by a drop with wings closed producing sweeping undulations as in a woodpecker. The wings produce a whirring noise like a green pigeon's, as the birds flit from one fruiting tree to its neighbour.

**FOOD.** Chiefly fruit — drupes and berries; insects — beetles, cicadas, flying termites, hornets — captured in clumsy aerial sorties from tree-tops. Flower petals, e.g. rhododendron, avidly eaten, the whole flower being first revolved and crushed in the mandibles and compacted into boluses of crumpled petals.

**VOICE and CALLS.** A mournful wailing *piho*, *piho* or *piāo*, *piāo* (*pihow*) of great volume and far-reaching quality, uttered monotonously and incessantly (about 30 times per minute) throughout the day in irregular choruses by several scattered birds. Calling commences with a husky, halting *piho* as if the performer was clearing his throat in preparation. A bird will call from the same perch for an hour or more at a stretch punctuated only by momentary pauses. While calling the beak is tightly closed, the throat swells gradually almost to the size of a golf ball and deflates and inflates in a very curious way. The mechanics of the process needs investigation. A rapidly repeated gull-like *gyok gyok gyok* and a harsh *karr-r* (Magrath); occasion and significance of these calls not suggested.

Duetting is common: one bird (?) repeats *tūk*, *tūk*, *tūk* (rather like a Coppersmith barbet but faster) at about two per second; its partner (♂?) accompanies this with a perfectly timed *pihow*, *pihow*, *ad nauseam*. Both these calls sometimes also given solo. Particularly noisy at sunset when the valleys resound with their wailing from all sides.

(For a good account of habits, food and nesting see Dodsworth, P. T. L., 1911, JBNHS 31: 681-4.)

**BREEDING.** Season, April to July; earlier at lower elevations, later higher up. Nest, an unlined hollow in the bole or upright bough of a forest tree 3 to 5 m up, occasionally much higher; usually excavated by the birds themselves — sometimes a disused woodpecker hole. Diameter of entrance c. 8 cm, of egg-chamber c. 18 cm; shaft normally quite deep — between 30 and 45 cm. Eggs, 3 or 4, white, longish ovals. Average size of 25 eggs 34.0 × 24.9 mm (Baker). Share of the sexes in incubation, and period, undetermined. Both parents feed the nest-young.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, FBI 4: 104 and loc. cit.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	146-152	c. 46	c. 23	100-109 mm (Baker)
10 ♂♂	140-148	42-48	—	92-105 mm
4 ♀ ♀	139-143	45-51	—	93-98 mm (BB)

**COLOURS OF BARE PARTS.** Iris dark brown or reddish brown. Bill yellow on proximal half, black on distal half of culmen and distal quarter of sides of upper mandible (tip white in many examples), yellowish grey on middle part of culmen, pale greenish yellow elsewhere. Legs and feet greenish slaty; claws horny black with greenish slaty bases; pads white (Biswas).

778. *Megalaima virens magnifica* Baker

*Megalaima virens magnifica* Baker, 1926, Bull. Brit. Orn. Cl. 47: 43 (Machi, Manipur)  
Baker, FBI No. 1428 (part), Vol. 4: 107

Plate 51, fig. 8, facing p. 176

**LOCAL NAME.** *Daokunt laima* (Cachar').

**SIZE.** Myna +; length c. 33 cm (13 in.).

**FIELD CHARACTERS.** As of 777. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** The Himalayas east of western Nepal — Sikkim, Bhutan, NEFA. Also Cachar, Nagaland, Manipur, and East Pakistan in the Chittagong Hill Tracts; from c. 1000 to 3000 m. Affects subtropical evergreen and moist temperate forest.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 777, q.v.

**BREEDING.** Season, chiefly April and May. Nest and eggs as in 777. Full clutch said by Baker to be of '2 or 3 eggs, never 4'. Average size of 30 eggs 34·9 × 24·3 mm (Baker).

**MUSEUM DIAGNOSIS.** Similar to *M. v. marshallorum* (777) but much more deeply and richly coloured both above and below.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	141–145	39–45	c. 32	93–96 mm (Baker)
4 ♂♂	140–149	45–48	30–36	98–111 mm
3 ♀ ♀	139–145	45–49	32–39	95–107 mm (SA)

Weight 3 ♂♂ 250–295 g; 3 ♀ ♀ 192–206 g (SA).

**COLOURS OF BARE PARTS.** As in 777. Noted also as: Iris brownish crimson. Bill yellow at base, slightly greenish anteriorly; a broad horny black band, c. 5 mm wide, along ridge on terminal three-fourths of culmen. Legs and feet olive-plumbeous; claws horny black (SA).

779. *Megalaima virens mayri* Ripley

*Megalaima virens mayri* Ripley, 1948, Proc. Biol. Soc. Washington 61: 100  
(Dreyi, Mishmi Hills, NE. Assam)  
Baker, FBI No. 1428 (part), Vol. 4: 107

**LOCAL NAMES.** None recorded.

**SIZE.** Myna +; length c. 33 cm (13 in.).

**FIELD CHARACTERS.** As of 777. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. Assam in the Mishmi Hills above c. 1200 m, in wet subtropical and temperate forest.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 777, q.v.

**BREEDING.** Season, Nest, Eggs, etc. Not specifically described; doubtless as in the other races.

**MUSEUM DIAGNOSIS.** Similar to *M. v. magnifica* (778) but much darker.

**MEASUREMENTS and COLOURS OF BARE PARTS** as in the other races.

### MEGALAIMA ZEYLANICA (Gmelin): LARGE GREEN BARBET

Cf. Mukherjee, A. K., 1952, Bull. Brit. Orn. Cl. 72: 34-6

Rand, A. L. and Fleming, R. L., 1957, Fieldiana: Zoology 41 (1): 87-8

#### Key to the Subspecies

	Page
A Darker and richly coloured.....	<i>M. z. zeylanica</i>
B Paler and less richly coloured	
a Brown on both upper and lower parts more extensive; breast-streaks very faint .....	<i>M. z. inornata</i>
b Brown on upper and lower parts less extensive; breast-streaks broader and wider.....	<i>M. z. caniceps</i>

#### 780. *Megalaima zeylanica caniceps* (Franklin)

*Bucco caniceps* Franklin, 1831 (1830-31), Proc. Zool. Soc. London (1): 121 ('On the Ganges between Calcutta and Benares, and the Vindhyan Hills between the latter place and Gurrah Mundela on the Nerbudda')

*Thericleyx zeylanicus kangrae* Whistler & Kinnear, 1934, Jour. Bombay nat. Hist. Soc. 37: 516 (Ranital, 2000 ft, Kangra)  
Baker, FBI No. 1430, Vol. 4: 110

**LOCAL NAMES.** *Bādā bāsāntā* (Hindi and Bengali); *Jokārē pākhi* (Bengal); *Kūtūmra* (Deccan); *Kūdrūṅga*, *Gummā* (M.P.); *Kotūr* (U.P.); *Sunterar* (Bihar); *Kūtūrgā* (Marathi).

**SIZE.** Myna +; length c. 27 cm (10½ in.).

**FIELD CHARACTERS.** A dumpy stout-billed grass-green arboreal bird. Head, neck, upper back and upper breast brown, streaked with whitish; lower breast and abdomen pale green. Under surface of tail bluish. A conspicuous naked orange-coloured patch around eye extending to base of bill. Sexes alike.

Persistent *kūt̄roo* calls and noisy dipping flight distinctive.

**YOUNG** (immature) similar to adult but obsoletely streaked and overall much paler and duller.

**STATUS, DISTRIBUTION and HABITAT.** Resident. The lower western Himalayas (up to c. 800 m) from Kangra in Himachal Pradesh to Kumaon (U.P.) and western Nepal terai (to c. 300 m). Continental India west to Mt Abu and Gujarat, east through Madhya Pradesh and northern Maharashtra to Bihar, W. Bengal (straggling as far as Calcutta), and Orissa south to Godavari R. The races intergrade into one another and borderline cases are difficult to place. Affects well-wooded moist and dry deciduous country, often frequenting roadside avenues and entering gardens within city limit.

Has become conspicuously common and abundant in New Delhi during the last forty years due to increase in wooded gardens and roadside avenues with large *Ficus* and other fruit-bearing trees in the process of the city's development as India's metropolis. But is not a new arrival in the area as often believed, being described as 'common' in the (Old) Delhi environs even in 1893 (J. Moray Brown in *Stray Sport*).

**GENERAL HABITS.** Arboreal and eminently frugivorous. Usually keeps singly or in small loose feeding parties, but gatherings of 20 and more frequently collect on a large fruit-laden banyan or peepul tree in company with mynas, bulbuls, green pigeons and other frugivorous species. Rather silent in winter, but waxes extremely noisy with the hot weather, the jungle then resounding with its monotonous but characteristic calls throughout the day. As soon as one bird begins calling it is promptly and unfailingly joined by a second, followed maybe by a third and a fourth and more within earshot, to sustain the uneven chorus *ad nauseam*. The sudden report of a gun will often start off several birds calling at once. The typical barbet flight is noisy and dipping, a few rapid wing-beats followed by a short downward glide.

**FOOD.** *Ficus* figs, and a large variety of drupes and berries; flower petals, e.g. *Bauhinia*, and flower nectar (*Erythrina*, *Salmalia*, etc.). Occasionally does damage to tomatoes in kitchen gardens. Also takes insects — beetles, flying ants, etc. in awkward aerial sorties from tree-tops, and has been recorded devouring a lizard.

**VOICE AND CALLS.** Monotonous, almost incessant throughout the hotter parts of the day especially in the summer months. Calling begins with a harsh *kr-r-r-r*, *kr-r-r-r* and settles down to a steady unvarying *kütroo*, *kütroo*, *kütroo* or *kütrük*, *kütrük*, *kütrük* (or *pocock*, *pocock*, etc.); it is promptly joined by other birds within earshot and continued as an uneven chorus.

**BREEDING.** Season, February to June, chiefly March to May. Nest, a hole in a rotten vertical branch or tree-stem usually excavated by the birds themselves, at heights between c. 3 and 15 metres. Eggs, normally 3 — occasionally 2 or 4 — pure white longish ovals. Average size of 30 eggs 29.3 × 22.3 mm (Baker). Laid on bare wood at bottom of shaft or on a scanty bed of chips fortuitously accumulated within during excavation. Both sexes work at drilling the hole; share in incubation, incubation period, and other facets of breeding biology undetermined.

**MUSEUM DIAGNOSIS.** Nostrils exposed; rictal and chin bristles well developed. Wings short and rounded; tail graduated. For details of plumage see Baker, loc. cit.; for subspecies Key.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	116-123	31-35	29-30	74-79 mm (Baker)
12 ♂♂	115-127	32-39	30-33	71-79 mm
7 ♀ ♀	113-123	33-41	29-33	72-77 mm (SA)

**COLOURS OF BARE PARTS.** Iris brown to Indian red; orbital skin bright orange (paler and more yellow in non-breeding season). Bill orange-brown, darker at tip

and on culmen (non-breeding), reddish orange (breeding); mouth pale pink. Legs and feet lemon-yellow; claws dusky.

781. *Megalaima zeylanica inornata* Walden

*Megalaima inornata* Walden, 1870, Ann. Mag. Nat. Hist. 5 (4): 219 (Malabar)

Baker, FBI No. 1431, Vol. 4: 110

Plate 47, fig. 9, facing p. 80

LOCAL NAMES. *Kütürgā* (Marathi); *Kütür häkki* (Kannada); *Gandu karnam* (Telugu).

SIZE. Myna +; length c. 27 cm (10½ in.).

FIELD CHARACTERS. As of 780. See Key to the Subspecies and Museum Diagnosis.



STATUS, DISTRIBUTION and HABITAT. Resident. Western India from about the Godavari river in Maharashtra south through Goa and Mysore to Coorg district. Habitat as in 780.

GENERAL HABITS, FOOD, VOICE and CALLS. As in *caniceps* (780), q.v. A minor pest of coffee plantations in Mysore, avidly devouring the ripe 'cherries', often involving appreciable loss to the growers.

BREEDING. Season, chiefly March, April and May. Nest and eggs (c/2-4) as in the other races. Average size of 18 eggs 30·5 × 21·8 mm (Baker).

MUSEUM DIAGNOSIS. Differs from the Kerala and Ceylon population (782) in having the brown extending further on to the breast and back. General plumage paler and duller with the streaks on the breast narrow and confined to the pale shafts. Pale specks on wing-coverts wanting; streaks on head and upper back less conspicuous.

MEASUREMENTS and COLOURS OF BARE PARTS. As in *M. z. caniceps* (780).

Weight 1 ♂ 123 g (SA).

782. *Megalaima zeylanica zeylanica* (Gmelin)

*Bucco Zeylanicus* Gmelin, 1788, Syst. Nat. 1 (1): 408 (Ceylon)

Baker, FBI No. 1429, Vol. 4: 108

LOCAL NAMES. *Kütür häkki* (Kannada); *Gandu karnam* (Telugu); *Küttūruvān* (Malayalam); *Pollos kottōruwā*, *Gäbbäl kottēruwa* (Sinhala); *Kütür*, *Kukkuruvān* (Tamil).

SIZE. Myna +; length c. 27 cm (10½ in.).

FIELD CHARACTERS. As of 780, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Kerala and southern Tamil Nadu, mostly in the moist-deciduous low country and foothills, sometimes up to c. 1200 m. Ceylon — widely distributed and plentiful throughout the lowlands and lower hills to c. 1500 m. Habitat as in the other races.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 780, q.v.

**BREEDING.** *Season*, in Kerala chiefly February to April; in Ceylon February to October, 'chiefly March–April and again during September and October' (Phillips). *Nest* and *eggs* (normally c/3) as in the other races. Average size of 18 eggs  $30.9 \times 23.7$  mm (Baker).

**MUSEUM DIAGNOSIS.** Differs from the adjacent subspecies *inornata* (781) in having the chin, throat and breast rather darker brown and more conspicuously streaked with pale shaft-streaks. It is also slightly smaller.

**MEASUREMENTS** (of Ceylon birds)

	Wing	Bill (from skull)	Tarsus	Tail
7 ♂♂	106–113	30–33	27–29	61–69 mm
8 ♀♀	110–118	32–36	27–29	63–71 mm (HW)

Weight 1 ♂ 87 g (SDR).

**COLOURS OF BARE PARTS.** As in *M. z. caniceps* (780).

**MEGALAIMA LINEATA** (Vieillot): LINEATED BARBET

**Key to the Subspecies**

Darker ..... *M. l. rana*

Paler ..... *M. l. hodgsoni*

Cf. Ripley, S. D., 1950, *tom. cit. infra*: 101–2 (ranges of forms in Nepal).

783. *Megalaima lineata rana* Ripley

*Megalaima zeylanica rana* Ripley, 1950, Proc. Biol. Soc. Washington 63: 101

(Bajora, Dailekh dist., west Nepal)

Baker, FBI No. 1432 (part), Vol. 4: 111

**LOCAL NAMES.** *Kūdūrta, Khotoor* (Nepal); *Bādā bāsāntā, Kotūr* (U.P.).

**SIZE.** Myna +; length c. 28 cm (11 in.).

**FIELD CHARACTERS.** As of 784. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. The Himalayan submontane tract from the edge of the terai and through the foothills up to c. 1000 m; from Kumaon (Dehra Dun dist.) to west-central Nepal. Apparently replaces the subspecies *hodgsoni* in west-central Nepal at levels above the terai. Affects moist-deciduous biotope.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in *M. l. hodgsoni* (784), q.v.

**BREEDING.** *Season*, end March to middle June: most eggs in first half April. *Nest* and *eggs* (c/2–4) as in 784.

**MUSEUM DIAGNOSIS.** Very similar to *M. l. hodgsoni*; originally described as larger and darker.<sup>1</sup>

**MEASUREMENTS**

	Wing	Bill (from skull)	Tail
8 ♂♂	128–135	34–36 (4 msd.)	78–82 mm (4 msd.)
8 ♀♀	128–142	34–37 (4 msd.)	77–85 mm (4 msd.)

(BB, Fleming)

<sup>1</sup> But not readily distinguishable; validity of the subspecies considered equivocal by some authorities.

COLOURS OF BARE PARTS. As in *M. l. hodgsoni*.

784. *Megalaima lineata hodgsoni* Bonaparte  
Bonaparte

*Megalaima hodgsoni* Bp. = Bonaparte, 1850, Conspl. Av. 1: 144 (Nepal, restricted to Simra, central Nepal, by Ripley, 1950, Proc. Biol. Soc. Washington 63: 102)

*Thereiceryx lineatus intermedius* Baker, 1918, Bull. Brit. Orn. Cl. 39: 19  
(Pahpoon, Burma)

*Megalaima lineata kutru* Mukherjee, 1952, Bull. Brit. Orn. Cl. 72: 36  
(Chahala, Simlipal Hills, Orissa)  
Baker, FBI No. 1432, Vol. 4: 111  
Vol. 3, plate 41

LOCAL NAMES. *Kūdūrta*, *Khotoor* (Nepal); *Dang kun nyong* (Lepcha); *Daō tūkra* (Cachari); *Inruikūrū* (Kacha Naga).

SIZE. Myna +; length c. 28 cm (11 in.).

FIELD CHARACTERS. A dumpy stout-billed grass-green arboreal bird, very similar to Green Barbet (780) but much more broadly pale-streaked above and below; naked yellow patch around eye much smaller and less conspicuous, not extending to the gape. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident. West-central Nepal (where it apparently occurs at lower levels than *rana*), east through northern Bihar, West Bengal, Sikkim, Bhutan, Assam, Manipur, and East Pakistan from c. 800 m down to the terai, duars and the lowlands, and south to the Orissa hills. Affects moist-deciduous biotope frequenting light secondary forest as well as well-wooded gardens, roadside avenues of *Ficus* trees, etc.

Extralimital. Burma, Thailand, the Indochinese countries and Malay Peninsula.

GENERAL HABITS. Very similar to Green Barbet (780 and races), from which it is seldom differentiated in the field by casual birdwatchers. Keeps singly or in loose feeding parties on fruiting *Ficus* and suchlike trees in company with other frugivorous birds. Extremely noisy in the hot weather, its resounding choruses, joined in by several birds within earshot of each other, continued practically without intermission throughout the day, with occasional bursts during moonlight nights as well. Flight, as typical of the barbets, noisy, rather heavy and dipping.

FOOD. Mainly fruits of all kinds [including *phālsa* (*Grewia*) in low bushes and strawberries on the ground]; flower nectar (e.g. *Salmalia* and *Erythrina*); insects — termites, larvae and grubs — and small animals such as lizards and tree-frogs on occasion.

VOICE and CALLS. Very similar to the Green Barbet's and doubtfully recognizable as different when casually heard. On a critical listening-in perhaps rather mellower and softer, sounding more like *kōtūr*, *kōtūr*, *kōtūr* than *kūtrū* or its other renderings (see 780); also a variety of guttural chuckles expressive of anger, agitation and other emotions. Baker describes 'a loud musical whistle apparently only used to call together scattered members of a family flock', which we have not heard.

BREEDING. Season, end March to mid June, the peak periods varying locally. Nest, a hole cut into a rotten branch or snag at heights between 3

and 12 metres; diameter c. 8 cm, depth up to 50 cm ending in a widened egg chamber. Eggs, 2 to 4, white, elongated ovals averaging c. 32 × 23 mm. Laid on the bare wood or a scanty bed of fortuitously fallen-in chips. Both sexes share in excavating the hole, incubation, and feeding the young. Period of incubation undetermined: estimated to be 14 or 15 days.

MUSEUM DIAGNOSIS. Very similar to *M. z. caniceps* (780) but with much broader pale streaks above and below. Pale spots and striations on upperparts confined to extreme upper back. Bare patch round eye smaller and separated from base of bill by a broad line of feathers. Differs from *M. l. rana* (783) in being slightly smaller (?) and paler.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	123–137	30–33	29–30	82–86 mm (Baker)

A large series from Nepal, Bhutan and Buxa duars ♂ ♀ Wing 119–139 mm (Ticehurst).

Weight 1 ♂ 139 g ; 2 ♀ ♀ 149, 170 g (Paynter).

COLOURS OF BARE PARTS. Iris brown; eyelids and orbital skin deep yellow. Bill horny yellow, culmen and tip darker. Legs and feet fleshy yellow to orange-yellow.

785. Small Green Barbet. *Megalaima viridis* (Boddaert)

*Bucco viridis* Boddaert, 1783, Table Pl. enlum.: 53

(Mahe, India ex Daubenton, pl. 870)

Baker, FBI No. 1434, Vol. 4: 113

Plate 49, fig. 7, facing p. 128

LOCAL NAME. *Chhotā bāsānthā* (Hindi).

SIZE. Myna ±; length c. 23 cm (9 in.).

FIELD CHARACTERS. A dumpy grass-green bird very similar to and easily confused with Large Green Barbet (781) but white cheek-stripe diagnostic even at a distance.

Above, crown and nape dark brown with a blackish band running backward from eye, a short white supercilium, and a broad white stripe from the lores through the ear-coverts. Below, chin and throat whitish; breast whitish streaked with brown; abdomen and vent pale green. Naked orbital patch much smaller than in 781 and blackish brown (*v.* orange). Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident; common. The Sahyadri or Western Ghats complex (including Nilgiri and Palni hills) from Kerala northward to about the Narbada river; extends east in southern peninsular India to the Shevaroy and Chitteri hills (Tamil Nadu). Evergreen and moist-deciduous biotope, from plains level to c. 1500 m (the commonest barbet at Mahableshwar). Occurs up to c. 1800 m in the Nilgiris, occasionally to 2300 m. Affects wooded country; also gardens and groves in the neighbourhood of towns, villages and cultivation.

GENERAL HABITS. Very similar to the larger Green Barbets, *M. zeylanica* and *M. lineata*, qq.v. Usually keeps in pairs and small parties, but 20 to 30 birds or more will collect on a fruit-laden banyan or peepul tree to feast in company with bulbuls and other frugivorous birds. Is of a quarrelsome disposition and given to continual bickering and fighting with its fellow

feasters. Frequently clings to trunks and boughs of trees, climbing up like a woodpecker.

**FOOD.** Mainly fruit, especially *Ficus* figs, but it is also largely insectivorous. Often makes serious raids on kitchen gardens and orchards. Alleged to cause considerable waste in S. Indian coffee estates by guzzling the ripe 'cherries' and scattering the valuable seeds or 'berries', but extent of damage unduly exaggerated. Regularly takes insects on tree-trunks, and flying termites in mid-air by clumsy aerial sorties from tree-tops. Is also fond of flower nectar—*Erythrina*, *Grevillea*, *Bombax*, etc., and may be incidental in their cross-pollination.

**VOICE AND CALLS.** Calling starts with a loud explosive *prrr-mrr* (c. one second). Notes confusingly like the larger Green Barbets' (qq.v.), perhaps slightly higher in key but hardly distinguishable unless heard side by side. Also sounds more like *pūcock*, *pūcock*, *pūcock*, etc. (c. two per second) than the *kūtroo*, *kūtroo* of the former. Particularly obstreperous in the breeding season, calling incessantly from dawn till dusk, some individuals often continuing far into or throughout moonlit nights. As soon as one bird begins calling a second some distance away promptly chimes in, followed by a third and a fourth and so on till the forest resounds with an almost deafening uneven chorus. Occasionally utters a single note *tük*, very like the Copper-smith's (792).

**BREEDING.** *Season*, overall December to June; principally between December and March in the southern part of its range. *Nest*, similar to that of the other Green Barbets—a hole in a rotten branch or snag excavated by the birds themselves, almost any height from the ground between 2 and 10 metres; occasionally higher. It is not unusual to find several holes in the same tree, in some cases leading to the same chamber and apparently drilled in different years. *Eggs*, usually 3, sometimes 2 or 4; pure white regular ovals as characteristic of the barbets. Average size of 30 eggs 26.2 × 20.3 mm (Baker). Frequently two broods are raised. Both sexes incubate and feed the young, at first by regurgitation and when older on entire berries. Incubation period 14–15 days; fledging period c. 36 days (S. A. Yahya).

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. Has a complete post-nuptial moult and no spring moult. Worn birds are paler in colour especially on crown and breast, the latter becoming much whiter with the wearing off of the brown margins to the feathers.

**Young** (immature) like adult but the streaking on head and breast less well-defined and head rather paler.

#### MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	97–113	24–29 (from skull)	c. 27	65–70 mm (SA, HW, Koelz)

Average of Wing 19 ♂ ♀ 103 mm. There is no significant difference in size between birds from the northern and southern parts of the range.

Weight 16 ♂ ♀ 71–90 (av. 80.5) g—Grubh.

**COLOURS OF BARE PARTS.** Iris chestnut-brown to dark brown; eyelids and circumorbital skin slaty brown or slaty black. Bill brownish flesh colour, browner on culmen, plumbeous at gape; mouth pinkish grey. Legs and feet greenish grey; claws horny brown.

**MISCELLANEOUS.** Parasitized by thick *Haemaphysalis spinigera* (Rajagopalan, JBNHS 69: 62).

786. **Yellowfronted Barbet.** *Megalaima flavifrons* (Cuvier)*Bucco flavifrons* Cuvier, 1817 (1816), Règne Anim.: 428, note 2

(Ceylon. Based on Levaillant, Ois. de Paradis, pl. 55)

Baker, FBI No. 1440, Vol. 4: 120

Plate 50, fig. 4, facing p. 160

LOCAL NAMES. *Mūkalāng kottōruwā* (Sinhala); *Kūtūr, Kukkuruvān* (Tamil).

SIZE. Myna —; length c. 21 cm (8½ in.).

FIELD CHARACTERS. Similar to Green Barbet (782) but slightly smaller: dark grass-green above with golden yellow forehead and verditer-blue face and throat. Below, pale green, the breast feathers boldly scalloped with emerald-green, producing a scaly pattern. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Endemic to Ceylon. Plentiful but locally distributed in the low-country Wet zone and in parts of the Dry zone (especially in the Eastern Province). Generally abundant in the hills to c. 2000 m. Affects forest.

GENERAL HABITS. Similar to Green Barbet (782), q.v.

FOOD. Mainly *Ficus* figs, and various drupes and berries. Does considerable damage to fruit in orchards, of which it is a minor pest. Occasionally also takes animal food — insects, lizards, etc.VOICE and CALLS. The call which resounds in the forest 'commences with a rolling and ascending *kowowowowowo* and changes to *kuiār, kuiār, kuiār . . .* repeated many times; it is always answered by the performer's mate [?] from perhaps a hundred yards away' (Henry). Cf. 785.

BREEDING. Season, not well defined; breeds practically throughout the year but chiefly March to May and again during August and September (Phillips). Nest and eggs (c/2 or 3) as in Green Barbet, the latter pure white and oval with a smooth texture. Average size of 38 eggs 26·6 × 20·7 mm (Baker); apparently laid at intervals of more than 24 hours judging from the disparity in the nestlings.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	87-93	21-25	22-25	52-58 mm (HW)

Weight 2 ♂♂ 57, 60 g (SDR).

COLOURS OF BARE PARTS. Iris light red. Bill greenish horn colour, darker about the nostrils. Legs and feet greenish or bluish.

787. **Goldenthroated Barbet.** *Megalaima franklinii franklinii* (Blyth)*Bucco Franklinii* Blyth, 1842, Jour. Asiat. Soc. Bengal 11 (1): 167 (Darjeeling)

Baker, FBI No. 1444, Vol. 4: 124

Plate 51, fig. 7, facing p. 176

LOCAL NAMES. *Bānbāsi, Bāghbāsi* (Nepali); *Daoyēala* (Cachari).

SIZE. Myna; length c. 23 cm (9 in.).

FIELD CHARACTERS. A dumpy grass-green barbet with crimson and bright golden crown, grey ear-coverts, and a broad black supercilium from bill to

nape. Chin and throat golden yellow with an orange spot on each side of base of bill near gape. Sexes alike.

**STATUS, DISTRIBUTION and HABITAT.** Resident. The Himalayas from Central Nepal eastward through Sikkim, Bhutan and NEFA. Also Cachar, Nagaland, Manipur and Mizo hills; East Pakistan in the Chittagong Hill Tracts. Affects forested hillsides normally between c. 600 and 2400 m. Inhabits a higher altitudinal zone in summer than the Bluethroated Barbet.

**Extralimital.** Northern Burma, southern Yunnan, northern and central Vietnam and northern Laos (Peters). Other races in Thailand and Malay Peninsula.

**GENERAL HABITS.** Not appreciably different from the Green and Bluethroated barbets, qq.v. Arboreal, noisy, and gregarious when feeding on fruit-laden trees.

**FOOD.** Mainly fruit; occasionally insects.

**VOICE and CALLS.** Variously rendered: a wailing *peeyu, peeyu*, etc. reminiscent of the calls of the Great Barbet (777) but somewhat higher pitched, reiterated monotonously for considerable periods. A single note *wowk* (*ow* as in owl) preceded by an undertone *pk* or *pük* audible only at close quarters, thus actually *pük-wowk*, repeated for many minutes at a stretch in intermittent runs. Calling begins with a rolling *krrr-krrr* and settles down to a monotonous *pükwowk, pükwowk, pükwowk*—*ad nauseam*.

**BREEDING.** Season, April to June, mostly during May. Nest, the usual barbet hole in a dead tree-stump or rotten branch between 2 and 5 m up, excavated by the birds themselves. Eggs, 3 or 4, white, rather long to broad blunt ovals. Average size of 50 eggs 27.4 × 21.1 mm (Baker). Both sexes share in drilling the hole, incubation, and feeding the young. Period of incubation undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit..

#### MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	97-109	23-28	24-28	59-68 mm
		(from skull)		(SA, BB, Stresemann)

Weight 6 ♂♂ 79-101 g ; 5 ♀♀ 72-94 g (SA, Paynter).

**COLOURS OF BARE PARTS.** Iris brown. Bill black, greyish at base of both mandibles. Legs and feet greenish slate; pads dull yellow.

### 788. Bluethroated Barbet. *Megalaima asiatica asiatica* (Latham)

*Trogon asiaticus* Latham, 1790, Index Orn. 1: 201 (India = Calcutta *fide* Baker)  
*Cyanops rubescens* Baker, 1896, Novit. Zool. 3: 257 (Highest ranges in the east of the Cachar Hills). (Erythristic form)

Baker, FBI No. 1436, Vol. 4: 116

Vol. 3, plate 41

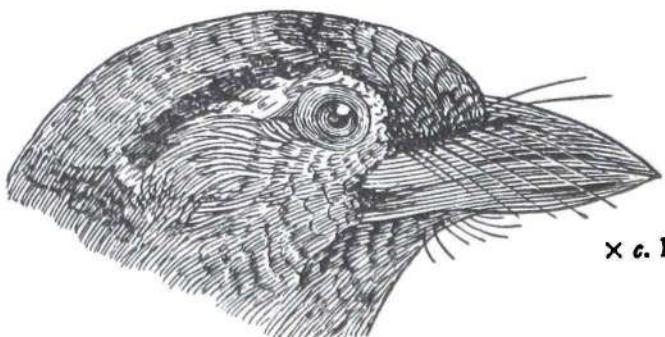
**LOCAL NAMES.** *Bādā bāsān̄th bairi*, *Bādā benebo*, *Korul* (Bengal); *Kattak* (Lepcha); *Ruturki*, *Bāsān̄thā* (Nepal); *Hütürü* (Himachal Pradesh); *Daō tükra gadeba* (Cachar); *Tuktukra sorāi* (Assam).

**SIZE.** Myna; length c. 23 cm (9 in.).

**FIELD CHARACTERS.** A gaudy grass-green barbet with verditer-blue chin and throat. Forehead crimson, then yellowish, followed by a black band across

vertex. Crown behind this crimson, with a black streak on either side running back to nape. A short supercilium and feathers round eye, ear-coverts, chin and throat, verditer-blue. A crimson speck on either side at base of lower mandible; a crimson patch at base of throat on either side. Base of bill surrounded by conspicuous black bristles. Sexes alike.

The subspecies described and illustrated by Stuart Baker (Fauna 4: 119) as *Cyanops asiatica rubescens* from the Khasi and Cachar hills, Manipur etc. and sporadically met with also in Bhutan and elsewhere in the eastern Himalayas is merely a variant of the nominate form. It is 'Similar to *C. asiatica asiatica* but with the upper parts suffused with crimson; the under parts flecked and streaked with crimson, though in varying degree and generally less so in females than in males'.



**STATUS, DISTRIBUTION and HABITAT.** Resident; common. The lower Himalayas from W. Pakistan Punjab (Rawalpindi dist.) and Kashmir eastward through Himachal Pradesh, U.P., Nepal, Sikkim, Bhutan and NEFA. Also Bengal (common in Calcutta City), Assam, Nagaland, Manipur, Mizo Hills and East Pakistan; from plains level to c. 2000 m. In the Himalayas occupies a lower altitudinal zone in summer than Goldenthroated Barbet (787). Affects well-wooded country — light deciduous and evergreen forest and groves of trees (especially *Ficus*) around villages and in urban gardens.

**Extralimital.** Extends south to Burma and the northern Shan States. Other races in Yunnan, Thailand, Indochinese countries and Borneo.

**GENERAL HABITS.** Not appreciably different from those of the Large and Small Green barbets, qq.v.

**FOOD.** Mainly fruits; occasionally mantises and other large insects which are whacked limp against the perch before swallowing.

**VOICE and CALLS.** Casually almost indistinguishable from those of Large Green Barbet (780); critically, softer and in a somewhat higher key, sounding more like *pükürük*, *pükürük* (3 syllables) more rapidly repeated than *pocock* or *kütrük* (2 syllables) of the former; often ends in a rippling *kür-rrr*. In the distance sometimes strangely reminiscent of the rattling call of Red Spurfowl (275), q.v., but less loud and more 'nutty'. Song also described as *hoot' toodoodoo . . . .* repeated *ad nauseam*, the first note lower, the three others rapidly uttered (Desfayes). Indulges in the same irregular duets and choruses, confused and made still noisier by both the species often calling together in the same locality.

**BREEDING.** Season, overall March to June/July, varying with altitude. Nest, the typical barbet hole excavated in a dead tree-trunk or decaying branch, between 2 and 8 metres up. When in a horizontal branch the

entrance-hole is on the underside. Approved sites are used year after year, but whether by the same or a different pair is not known. Evidently a fresh entrance-hole is cut at each occupation. Eggs, 3 or 4, white. Average size of 40 eggs  $27\cdot8 \times 20\cdot5$  mm (Baker). Both sexes share all the domestic chores; period of incubation undetermined.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

Young (immature). Duller replica of adult, the crimson forehead and crown intermixed with dull green and blackish. Nestlings have the whole upper head dull green.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	102-112	26-30 (once 32)	27-30	60-68 mm (once 74)
♀ ♀	100-109	27-30	27-30	60-68 mm (BB, SA, SDR)

Weight 13 ♂ ♀ 62-100 g (SA, Paynter).

COLOURS OF BARE PARTS. Iris reddish brown; fine rim round eye brownish salmon colour or orange-yellow. Bill pale greenish horn, black on culmen and anterior half of upper mandible, horny black on sides of anterior third of lower mandible. Legs and feet sage green or greenish slaty; claws horny brown; pads greyish white.

789. Indian Blue-eared Barbet. *Megalaima australis cyanotis* (Blyth)

*Bucco cyanotis* Blyth, 1847, Jour. Asiatic Soc. Bengal 16 (1): 465 (Arakan)

*Cyanops australis invisa* Deignan, 1941, Auk 58: 398 (Pang Makhram Phong, foot of Doi Pha, Sakaeng, Siam)

*Cyanops robustirostris* Baker, 1896, Jour. Bombay nat. Hist. Soc. 10: 356, pl. F  
(North Cachar Hills)

Cf. Ripley, S. D., 1953, *Ibis* 95: 547-8  
Baker, FBI No. 1443, Vol. 4: 123

LOCAL NAME. *Daò tükra kashiba* (Cachari).

SIZE. Sparrow +; length 17 cm (6½ in.).

FIELD CHARACTERS. A small bright grass-green barbet distinguished chiefly by its gaudy multicoloured head-pattern. 'Whiskers' (pectoral bristles) projecting beyond tip of bill. Lores, forehead and forecrown black, the feathers fringed with pale blue; hindcrown cobalt blue. Ear-coverts pale verditer-blue with a crimson patch above and another below. Chin and throat pale verditer-blue. An area below eye mixed yellow and bright red divided from chin by a black moustachial stripe. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident. E. Nepal, Sikkim, northern Bengal, Bhutan, Assam, Nagaland, Manipur, Mizo (?), East Pakistan (Chittagong Hill Tracts); terai, duars, and foothills up to c. 1200 m. Affects thick evergreen forest.

EXTRALIMITAL. Burma south to northern Tenasserim, Thailand, and the Indochinese countries.

GENERAL HABITS. Similar to those of the Crimsonbreasted Barbet or Coppersmith (792), q.v., though more restricted to heavy jungle. Usually seen singly, perched on the very summit of some tall tree whence it keeps calling for hours at a time (Davison).



PLATE 50

1 *Rhyticeros undulatus*, Wreathed Hornbill (772). 2 *Aceros nipalensis*, Rufous-necked Hornbill (771).  
3 *Ptilolaemus tickelli*, Whitethroated Brown Hornbill (770). 4 *Megalaima flavifrons*, Yellowfronted Barbet (786). 5 *Picus squamatus*, Scalybellied Green Woodpecker (807).



**FOOD.** Mainly fruits; occasionally some insects.

**VOICE and CALLS.** A peculiar, somewhat harsh metallic double note *koo-turr, koo-turr* or *too-rook, too-rook* unlike that of any other barbet, but closer in pattern to that of the Green, endlessly repeated.

**BREEDING.** Season, April, May and early June. Nest, the typical barbet excavation in a dead tree-trunk or branch, usually in dense forest. Eggs 2 to 4, white; probably laid at longer than 24-hour intervals. Average size of 40 eggs  $24.5 \times 18.3$  mm (Baker). Both sexes share all the domestic chores. Period of incubation undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

Young (immature) has the whole head green, washed with blue on throat and sides of head.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂♀	77-85	18-21	c. 21	45-50 mm (Baker)

Weight 5 ♂♀ 32-38 g (Paynter).

**COLOURS OF BARE PARTS.** Iris dark brown or reddish brown. Bill dark horny brown, yellowish green on base and gape, black on culmen and tip. Legs and feet dull green, or yellowish green to slaty green.

**MEGALAIMA RUBRICAPILLA (Gmelin): CRIMSONTHROATED BARBET**

**Key to the Subspecies**

- Chin, throat, supercilium, and suborbital patch crimson.....
- ..... *M. r. malabarica*.
- Chin, throat, supercilium, and suborbital patch orange .....
- ..... *M. r. rubricapilla*

790. *Megalaima rubricapilla malabarica* (Blyth)  
*malabarica* (Blyth)

*Bucco malabaricus* Blyth, 1847, Jour. Asiatic Soc. Bengal 16 (1): 465 (Malabar)

Baker, FBI No. 1448, Vol. 4: 129

**Plate 49, fig. 5, facing p. 128**

**LOCAL NAMES.** *Tökōji* (Telugu); *Ālēkili* (Malayalam).

**SIZE.** Sparrow +; length c. 17 cm ( $6\frac{1}{2}$  in.).

**FIELD CHARACTERS.** A dumpy little grass-green barbet very like the Coppersmith (792) but with chin, throat, foreneck and upper breast crimson (in addition to forehead and forecrown), the last streaked with black. A crimson patch below eye and a similar speck on cheek. Sexes alike.

**STATUS, DISTRIBUTION and HABITAT.** Resident; common but local. The Western Ghats complex from about Goa (Savantwadi, c.  $16^{\circ}\text{N}.$ ) south through Kerala, including the Nilgiris, Palnis, and W. Mysore (Malnaad); low country, foothills and up to c. 1200 m. Restricted to evergreen biotope, here being the ecological counterpart of the Coppersmith of more deciduous facies.

**GENERAL HABITS.** Except for its adaptation to an evergreen biotope, not appreciably different from the better known Coppersmith (792), q.v. Its moister habitat coincides with that of Small Green Barbet in the same way as the Coppersmith's does with that of *M. zeylanica* (782). Gregarious in non-breeding season. Very numerous in south Indian coffee estates where *Ficus* trees are grown as shade, consorting with green pigeons, mynas and other frugivorous birds to feed on the figs. In flight from treetop to treetop mistakable for lorikeet, with similar rapid fluttering when alighting.

**FOOD.** Wild figs, drupes and berries; doubtless also insects on occasion but this not specifically recorded.

**VOICE and CALLS.** Indistinguishable from Coppersmith's — a metallic *tük . . tük* or *tünk . . tünk* etc. repeated monotonously for many minutes; perhaps a trifle softer and also quicker in tempo.

**BREEDING.** Season, January to March. Nest and eggs (normally 2, sometimes 3) indistinguishable from those of Crimsonbreasted Barbet (792). Average size of 10 eggs  $24.7 \times 17.7$  mm (Baker). Incubation by both sexes; period 14–15 days, fledging c. 36 days (S. A. Yahya).

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

**Young (immature).** Like adult but duller, with the whole head green or only with yellow traces of the crimson patches of adult. Young indistinguishable from that of the nominate subspecies of Ceylon (791).

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	78–88	15–18	17–20	35–39 mm
Weight 1 ♂? 38 g (SA).				(SA, Baker)

**COLOURS OF BARE PARTS.** Iris brown. Bill: upper mandible horny brown; lower pale flesh colour at chin, plumbeous at gape and sides except near terminal portion which is brownish; mouth greyish pink. Legs and feet coral pink; claws horny brown.

**MISCELLANEOUS.** Parasitized by tick *Haemaphysalis spinigera* (Rajagopalan, JBNHS 69: 62).

#### 791. *Megalaima rubricapilla rubricapilla* (Gmelin)

*Bucco rubricapillus* Gmelin, 1788, Syst. Nat. 1 (1): 408 (Ceylon)  
Baker, FBI No. 1449, Vol. 4: 130

**LOCAL NAMES.** *Mäl kottoruwa* (Sinhala); *Sinna kukkuruvän* (Tamil).

**SIZE.** Sparrow +; length c. 17 cm (6½ in.).

**FIELD CHARACTERS.** Similar to Crimsonthroated Barbet (790) but with chin, throat, supercilium and patch below eye orange-yellow instead of crimson. Crimson patch on foreneck, and rest of underparts, as in 790. Sexes alike.

**STATUS, DISTRIBUTION and HABITAT.** Subspecies endemic to Ceylon. Plentiful throughout the Wet zone and in many areas in the Dry zone and lower hills to c. 1300 m (Phillips). Affects openly wooded country with a scattering of *Ficus* trees.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 790, q.v. The sustained, monotonous calling is described by Henry as 'sometimes a slow *wok, wok, wok . . .*, but more often a rapid, throbbing *pop op op op op op*, *pop op op op op op op*

*op op . . .*, usually in 6-syllabled beats, but sometimes in 4 or 5 syllables'.

BREEDING. Season, December to September, chiefly March and April (Phillips). Nest and eggs (2 or 3) as in 792. Average size of 10 eggs  $25.1 \times 18.1$  mm (Baker).

MUSEUM DIAGNOSIS. See Field Characters and Key to the Subspecies.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	75-83	16-18 (from skull)	18-20	33-38 mm (HW)
Weight	1 ♂ 36 g ; 2 ♀ ♀ 32, 39 g (SDR).			

COLOURS OF BARE PARTS. Iris red-brown. Bill black. Legs and feet coral red (Baker).

792. **Crimsonbreasted Barbet or Coppersmith.** *Megalaima haemacephala indica* (Latham)

*Bucco indicus* Latham, 1788, Index Orn. 1 (1): 205 (India)

*Bucco luteus* Lesson, 1830, Traité d'Orn. 3: 163 (Pondicherry)

*Xantholaema haemacephala confusa* Koelz, 1939, Proc. Biol. Soc. Washington 52: 78  
(Londa, Bombay State)

Baker, FBI Nos. 1446, 1447, Vol. 4: 127, 128

**Vol. 3, plate 41**

LOCAL NAMES. *Kāṭphōrā*, *Tambayat*, *Bāsānth lisora*, *Chhōta bāsānth* (Hindi); *Chhōta bāsānthā bāuri*, *Bhāgirāth* (Bengal); *Phouk bāsānth* (Bihar); *Bāsānth sorāi* (Assam); *Hetuluka* (Nowgong, Assam); *Jūktūk*, *Sonār*, *Tāmbāt* (Marathi); *Tūktūkiyo* (Gujarati); *Tōkōji*, *Kāmsāli pitta* (Telugu); *Chempukotti* (Malayalam); *Māl kottōruwā* (Sinhala); *Sinna kukuruvān* (Tamil).

SIZE. Sparrow +; length c. 17 cm ( $6\frac{1}{2}$  in.).

FIELD CHARACTERS. A small dumpy grass-green barbet with yellow throat, crimson breast and forehead, and green-streaked yellowish underparts. Short, truncated tail, distinctly triangular in flight-silhouette. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident; common and very widely distributed. Practically throughout the Indian Union (including Assam and Manipur), both Pakistans, Nepal, Sikkim, Bhutan (terai and lowlands),



x c. 1

and Ceylon; plains and foothills to c. 2000 m in dry- and moist-deciduous biotope. Rare in the arid portions of Sind, Punjab, Rajasthan and Kutch. Largely replaced in the heavy-rainfall areas of the southern Western Ghats by *M. r. malabarica* (790). Affects the lightly wooded countryside, roadside avenues and groves of trees (especially *Ficus* species) near villages and cultivation, and in urban gardens and compounds.

Extralimital. Southern Yunnan, northern Malaya, Thailand and the Indochinese countries. Other races in the Philippine and Indonesian islands.

**GENERAL HABITS.** Like other barbets entirely arboreal and eminently frugivorous. Keeps solitary or in pairs and parties of a dozen or so — sometimes large gatherings of up to a hundred or more on abundantly fruiting *Ficus* trees — in company with bulbuls, mynas, green pigeons and other fruit-eaters. Fond of sunning themselves in the morning on bare top branches of tall trees in between spells of feeding, sitting inert or flitting about to perch near one another. Comparatively silent in winter, its calls becoming ubiquitous as the hot season waxes; particularly vocal during the hotter parts of the day. A spell of rain or cold immediately silences the birds. Flight straight, with rapid flaps, rather like a finch in distant silhouette particularly when several are flying off together from a tree-top as after sunning.

**FOOD.** Banyan, peepul and other wild figs; various drupes and berries. Occasionally moths and flying termites captured in clumsy aerial sorties.

**VOICE AND CALLS.** A loud rather metallic *tük* (or *tünk*) . . . *tük* . . . *tük* and so on, reminiscent of a distant coppersmith hammering on his metal. Repeated monotonously for long periods, the tempo varying with the prevailing emotion from about twice a second to three in two seconds. Has been timed as fast as 108 to 121 *tüks* per minute and repeated 204 times without a break. When the spacing is correct, sounds exceedingly like the time-signal pips of All-India Radio! The calls usually start with a very subdued *tük* and steadily work up to an even pitch in volume and tone. The bird's beak remains shut: a patch of bare skin on either side of the throat inflates like a rubber bulb and collapses with each *tük*, the feathers of the crimson breast-patch standing out like a short beard; the whole body, especially tail, is jerked and the head bobbed and turned from side to side producing a curious ventriloquistic effect.

**BREEDING.** Season, overall November to June, mainly February to April; in Ceylon, December to September, mainly from February; often two broods raised in quick succession. Nest, a shaft excavated in a dead or decaying softwood branch or snag (*Moringa*, *Erythrina*, *Pongamia*, *Salmalia*, etc.) c. 25–80 cm deep — usually c. 40 cm — ending in a slightly widened chamber. Eggs, 2 to 4, normally 3, glossless white, longish ovals. Laid on bare wood at bottom of shaft. Average size of 100 eggs 25·2 × 17·5 mm (Baker). Both sexes share all the domestic chores. Period of incubation undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

Young (immature) similar to adult but the green is duller and rather greyish in tint. Forehead, crown, and nape uniform with rest of upperparts, i.e. lacking the red, black, and grey of the adult. Yellow above and below eye paler; black behind eye and ear-coverts, and on moustachial streak, duller and less extensive. Chin and throat greyish white tinged with yellow round the chin and sides. Breast greyish green merging into the streaking of the lower breast and flanks.

**Moult.** Post-nuptial complete; no spring moult. Post-juvenile moult presumably complete as first-year bird indistinguishable from adult. Wear (caused partly by the birds constantly scraping in and out of roosting and nesting holes) produces a great change in the plumage, the upperparts looking bluish green rather than yellowish green as in fresh plumage, thus offering tempting scoops to enterprising creators of new subspecies!

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	78-84	16-20	17-21	33-38 mm
♀ ♀	75-83	17-20	18-21	30-37 mm (SA, HW)

Weight 10 ♂ ♀ 32-47 g (SA, SDR, Paynter).

**COLOURS OF BARE PARTS.** Iris brown; eyelids (rim) coral-red. Bill dark horny brown or black; mouth pale pinkish grey. Legs and feet coral-red; claws black; pads yellowish.

### Family INDICATORIDAE: Honeyguides

For description see Van Tyne, J., and Berger, A. J., 1959: 482; Stresemann, E., 1927-34, *Aves*: 840-1; Baker, E. C. S., 1927, FBI 4: 131; Friedmann, Herbert, 1964, Article 'Honeyguide' in Thomson, A. L. (ed.), *New Dict. Birds*, London and New York.

Represented by three genera and eleven species in Africa; only a single species within Indian limits, and one in Malaysia.

(See 'The Honey-guides' by Herbert Friedmann, 1955, United States Nat. Mus. Bulletin 208, pp. vii + 292, Washington.)

### Genus INDICATOR Stephens

*Indicator* Stephens, 1815, in Shaw's Gen. Zool. 9 (1): 131. Type, by tautonymy, *Indicator Sparrmanii* Stephens = *Cuculus indicator* Sparrman

Bill short, stout, and well curved. Tail-feathers twelve in our only species. Wing long and pointed, with nine primaries only. Ventral feather-tract forked on the throat but not on each side of the breast.

### INDICATOR XANTHONOTUS Blyth: HONEYGUIDE

#### Key to the Subspecies\*

Paler; forehead orange-yellow..... *I. x. xanthonotus*

Darker; yellow of forehead restricted posteriorly..... *I. x. fulvus*

\* Distinctness of *radcliffei* from nominate *xanthonotus* unconfirmed for want of additional specimens from the type locality.

### 793. *Indicator xanthonotus radcliffei* Hume

*Indicator radcliffei* Hume, 1870, Ibis: 528 (Kalabagh, Hazara dist., W. Punjab)  
Baker, FBI No. 1450 (part), Vol. 4: 131

**LOCAL NAMES.** None recorded.

**SIZE.** Sparrow; length c. 15 cm (6 in.).

**FIELD CHARACTERS.** As in 794, q.v.

**STATUS, DISTRIBUTION and HABITAT.** Presumably resident; very rare and sporadic. The Western Himalayas from the Afghan frontier (Hazara, Bannu, Murree), eastward to Garhwal, Kumaon and possibly western Nepal (but no specimens). From c. 1500 to 3000 m, possibly moving altitudinally with seasons. Affects coniferous and dry deciduous forest with cliffs and rock scarps. May possibly range above tree-line.

The type of *radcliffei* was collected in June 1867 since when the bird has been observed perhaps not more than half a dozen times but no more specimens procured; the last seen was on 2.iv.1923 by Whistler at Truin, Dharmasala, c. 2900 m in oak forest (*Quercus semecarpifolia*).

**GENERAL HABITS, FOOD, VOICE and CALLS.** Very little known. Sits upright and motionless among top branches of trees in a dove-like attitude, head sunk on breast, plumage rather puffed out and wings drooping (Magrath, JBNHS 19: 153-4).

**BREEDING.** Unknown.

**MUSEUM DIAGNOSIS.** Distinctness of this population from nominate *xanthonotus* unconfirmed due to lack of specimens.

**MEASUREMENTS and COLOURS OF BARE PARTS.** As in *xanthonotus* (794).

#### 794. *Indicator xanthonotus xanthonotus* Blyth

*Indicator xanthonotus* Blyth, 1842, Jour. Asiatic Soc. Bengal 11 (1): 116 (Darjeeling)

Baker, FBI No. 1450, Vol. 4: 131

Plate 51, fig. 9, facing p. 176

**LOCAL NAMES.** None recorded.

**SIZE.** Sparrow; length c. 15 cm (6 in.).

**FIELD CHARACTERS.** A sparrow-like olive-brown bird with a rather stout finch-like bill and glistening orange-yellow forehead and cheeks. Middle of back pure yellow; lower back and rump orange-yellow conspicuous when the bird sits, as is its habit, with the wings partly drooping at the sides; also contrasting strongly with dark upperparts in flight. Upper tail-coverts and tail blackish brown; under tail-coverts black, scalloped paler.

Female more or less similar.

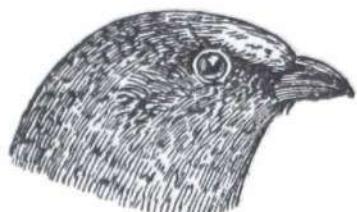
**STATUS, DISTRIBUTION and HABITAT.** Resident. Evidently not uncommon, but easily overlooked. The Himalayas from east-central Nepal (Baglung dist.—Fleming) eastward through Sikkim, Bhutan and Arunachal (?), from c. 1500 to 3500 m. Also observed (ssp.?) in Garhwal (Valley of Flowers—Hussain, JBNHS 75: 487). Affects mixed broad-leaf and conifer forest in the neighbourhood of bee-nesting cliffs and rock-scarsps. May possibly range above tree-line.

**GENERAL HABITS.** As in 793 and 795, but little known. Nothing known as to whether this species guides humans and other melliphagous animals to live bees' nests as its congeners and relations are reputed to do in Africa.

**FOOD.** Bees and probably other hymenoptera, taken in the air by clumsy flycatching sallies in the manner of a bulbul (Smythies). Also clings like a wood-pecker to combs of rock bees when the bees are absent (e.g. in winter). Feeds predominantly on wax from abandoned combs, even on pieces fallen to ground below. Gizzards of specimens contained beeswax almost exclusively, but also some insect remains.

**VOICE and CALLS.** See under 795.

**BREEDING.** *Season.* The only positive indication is provided by a female collected in Nepal on May 7 (1962) with the largest of three developed ovarian follicles measuring 8 mm. Its dilated oviduct, moreover, showed that the bird



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had laid (Diesselhorst, 1968). Presumably brood-parasitic on barbets like other honeyguide species in Africa, but breeding biology little known in India. However, a remarkable mating system, described as 'Resource-based non-harem polygyny', revealed by recent studies in E. Nepal. A male holds a bees' comb as his territory throughout the year. Copulates with females visiting comb to feed during the breeding season, April–May. Males without territory apparently seldom have a chance of mating (Cronin Jr., Edward, in *Living Bird* 1976).

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

**Female.** Similar to male but slightly smaller and duller : rump-patch sulphur yellow (*v.* bright orange-yellow); yellow areas on forehead, crown, and sides of throat paler and less extensive.

**MEASUREMENTS**

	Wing	Bill	Tarsus	Tail
♂♂	92–97	8–9	13–15	54–61
♀♀	82–92	c. 9	13–14	53–55
(from feathers)				(Friedmann, SA)

Bill from skull 3 ♂♂ 11·5–12 mm, 2 ♀♀ 11–12 mm.

Weight 4 ♂♂ 29–34, 3 ♀♀ 26–29, 3 ♂♂ 28–31 g (SA, SDR, Diesselhorst)

**COLOURS OF BARE PARTS.** 'Iris dark brown; bare circumocular area very pale green. Bill yellow, somewhat dusky terminally; at the base of both the maxilla and the mandible, as well as on the chin, black bristles are present, none present above the large, swollen, triangular nostrils. Tarsi and toes pale greenish horny' (Friedmann).

### 795. *Indicator xanthonotus fulvus* Ripley

*Indicator xanthonotus fulvus* Ripley, 1951, Postilla, no. 6, Feb. 28: 2

(Pfutsero, eastern Naga Hills, Assam)

Baker, FBI No. 1450 (part), Vol. 4: 131

**LOCAL NAME.** *Mephi tsu kelie para* (= the bird that eats bees, Naga) — SDR.

**SIZE.** Sparrow; length c. 15 cm (6 in.).

**FIELD CHARACTERS.** As in 794, q.v. Reminiscent of a flycatcher when perched on a tree-top. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Eastern NEFA, NE. Assam (Margherita area), Nagaland, Manipur; above c. 1500 m and at least to 2100 m, possibly higher and moving altitudinally with season. Affects denser and wetter forest than 793 and 794.

**Extralimital.** Northeastern Burma.

**GENERAL HABITS.** As in 793 and 794.

**FOOD.** As in 794.

**VOICE and CALLS.** An occasional single *weet* uttered on the wing during the aerial flycatching sallies (Smythies, *Ibis* 1949: 645).

**BREEDING.** Unknown.

**MUSEUM DIAGNOSIS.** Darker than nominate *xanthonotus*; more blackish both above and below, with the yellow of the forehead more restricted posteriorly.

**MEASUREMENTS**

	Wing	Bill	Tail
1 ♂	90	11	57 mm
1 ♀	86	10	56 mm
(from skull)			(SDR)

**COLOURS OF BARE PARTS.** 'Iris brown. Bill yellowish horn, distal half of upper mandible and lower mandible brown. Feet greyish brown' (SDR).

## Family PICIDAE

For description see Van Tyne, J., and Berger, A. J., 1959: 484; Stresemann, E., 1927-34, *Aves* : 841-3; Baker, E. C. S., 1927, FBI 4: 3-4; Joachim Steinbacher, 1964, Article 'Woodpecker' in Thomson, A. L. (ed.), *New Dict. Birds*, London & New York.

## Key to the Subfamilies

		Page
I	Shafts of tail-feathers stout and rigid.....	Picinae
II	Shafts of tail-feathers soft and flexible	
A	Nostrils concealed by feathers.....	Picumninae
B	Nostrils not concealed by feathers but partly covered by a membrane.....	Jynginae

## Subfamily JYNGINAE: WRYNECKS

## Genus JYNX Linnaeus

*Jynx* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 112. Type, by monotypy, *Jynx torquilla* Linnaeus

Bill of moderate length conical, compressed, pointed; nostrils large, near the culmen, not covered by plumes but partially by a membrane. Plumage soft, brownish grey in colour, minutely speckled. Wing pointed. Tail more or less square, about three-quarters length of wing or more; rectrices soft and flexible.

## JYNX TORQUILLA Linnaeus: WRYNECK

## Key to the Subspecies

		Page
Largest, pale above, sparingly spotted.....	<i>J. t. torquilla</i>	168
Brownish, with markings conspicuous and more blackish on nape and back; darker ochre on throat.....	<i>J. t. chinensis</i>	170
Underparts more vermiculated and barred rather than spotted.....	<i>J. t. himalayana</i>	170

796. *Jynx torquilla torquilla* Linnaeus

*Jynx Torquilla* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 112 (Europe = Sweden)  
Baker, FBI No. 1423, Vol. 4: 99

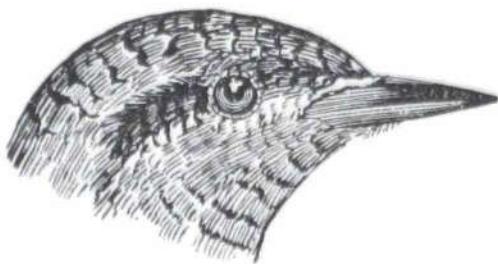
LOCAL NAMES. *Gārdān eyengtha* (Hindi); *Meda nulingadu* (Telugu).

SIZE. Bulbul - ; length c. 19 cm ( $\frac{7}{8}$  in.).

FIELD CHARACTERS. A slim, silvery grey-brown bird, streaked, speckled and vermiculated with black and fulvous above. Below, whitish with arrow-head markings producing a finely cross-barred pattern. Tail with 3 or 4 conspicuous dark bands. Sexes alike.

Deceptively sparrow-like, particularly in flight. On a flashing glimpse alsomistakable for Great Reed Warbler in the appropriate habitat.

STATUS, DISTRIBUTION and HABITAT. Winter visitor (c. September to March) to West Pakistan (Baluchistan, Sind, Punjab), Nepal terai, and

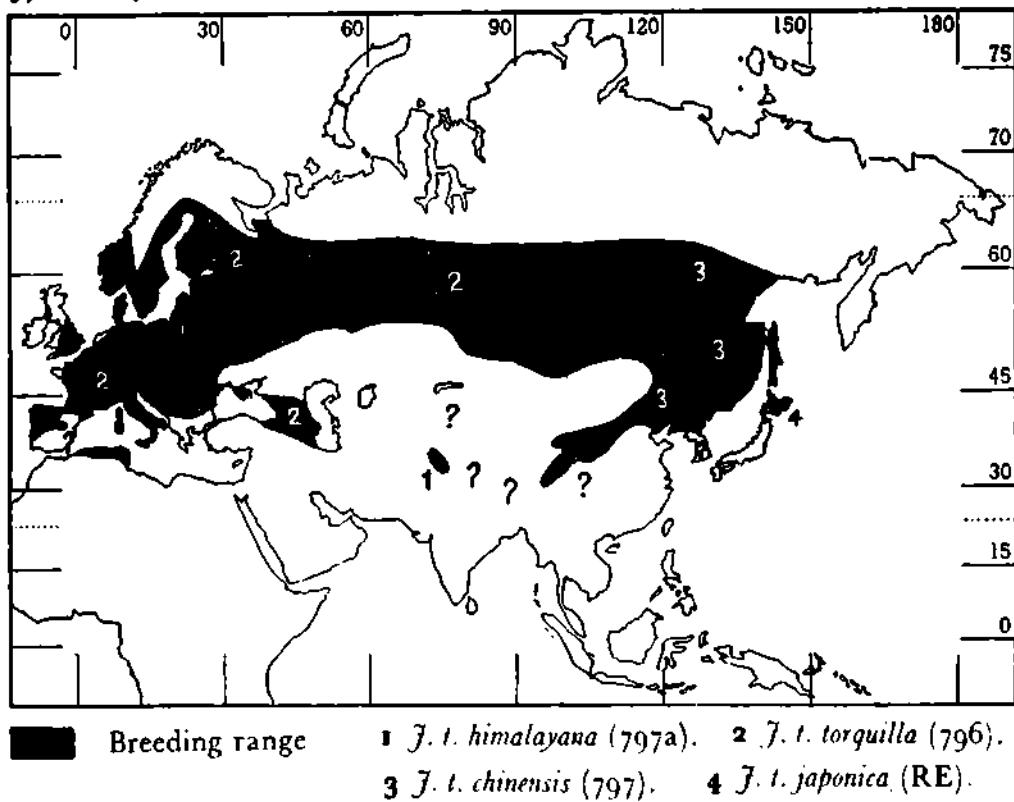


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through U.P., Rajasthan, Gujarat, Maharashtra and western central India south to Kerala (Jackson, 1967, JBNHS 64: 368). Precise subspecific determination of winter specimens often equivocal, and of sight records impossible. Recorded as passage migrant in many localities. Affects semi-desert, stunted thorn jungle, open deciduous scrub country and cultivation.

*Extralimital.* 'Breeds in Europe and W. Asia from S. England, N. Scandinavia, Finland, Russia and W. Siberia north to lat. 64°N. on the Yenisey and east to Lake Baikal, south to the Pyrenees, the Alps, Yugoslavia, Bulgaria, the Caucasus and Tien Shan. Winters in the Mediterranean region, Africa south to the Equator, and India' (Peters).

#### *Jynx torquilla*



**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 797a, q.v.

**BREEDING.** Extralimital.

**MUSEUM DIAGNOSIS.** For description of plumages and structure (also bionomics) see Witherby, 1938, 2: 292-6.

Differs from *J. t. chinensis* (797) in being paler, less brown above, with the dark markings on nape, back, and scapulars brownish rather than blackish. Below, paler on throat and upper breast, the spots and vermiculations on the underparts being finer, less coarse.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	83-91	14-17	19-20	61-71 mm
♀ ♀	83-91	--	--	-- mm (Witherby)

Wing 30 ♂ ♂ (Sweden) 84-94 (av. 89) mm — Vaurie.

**COLOURS OF BARE PARTS.** Iris hazel brown. Bill, legs and feet pale brownish horn colour.

797. *Jynx torquilla chinensis* Hesse

*Jynx torquilla chinensis* Hesse, 1911, Orn. Monatsb. 19: 181

(China, Tsingtao, Shantung)

Baker, FBI No. 1424 (part), Vol. 4: 100

**LOCAL NAMES.** *Gārdān eyengtha* (Hindi); *Meda nulingadu* (Telugu); *Daō gogu* (Cachari).

**SIZE.** Bulbul —; length c. 19 cm (7½ in.).

**FIELD CHARACTERS.** As in 796. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Winter visitor (c. September to March–April) to eastern India including Sikkim, Bhutan, Assam and Manipur; also East Pakistan. Winter ranges of the populations not worked out. Affects open scrub country and cultivation environs.

**Extralimital.** Breeds from the southern end of Lake Baikal, N. Manchuria and the Amur south to N. Szechuan and the Yangtze Valley. Winters in India, Burma, Thailand, S. China and northern Indochinese countries (Peters).

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 797a, q.v.

**BREEDING.** Extralimital.

**MUSEUM DIAGNOSIS.** Differs from nominate *torquilla* (796) in being darker: browner above with the dark markings on nape, back, and scapulars usually better defined and more blackish, less brownish; darker ochre on throat and upper breast, the vermiculations and spots on the underparts averaging slightly coarser (Vaurie).

**MEASUREMENTS**

Wing 20 ♂♂ 82–87 (av. 85·5) mm — Vaurie.

**COLOURS OF BARE PARTS.** As in 796.

797a. *Jynx torquilla himalayana* Vaurie

*Jynx torquilla himalayana* Vaurie, 1959, Amer. Mus. Novit., No. 1963: 9

(Inshan, Wardwan Valley, Kashmir)

Baker, FBI No. 1423 (part), Vol. 4: 99

**Plate 54, fig. 9, facing p. 240**

**LOCAL NAME.** *Viri mōt* (Kashmir).

**SIZE.** Bulbul —; length c. 19 cm (7½ in.).

**FIELD CHARACTERS.** As in 796. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Breeds in the NW. Himalayas from the Kurram Valley (?) to Chitral, Gilgit, Ladakh, Baltistan, Kashmir and Himachal Pradesh from c. 1500 to 3300 m; arriving in March–April, leaving c. September. In summer frequents the better wooded portions of bottom valleys with orchards etc., and edges of the thinner mixed forests. Winters south in the plains; but the winter ranges of the populations overlap extensively and have not been worked out. Specimen, Sambalpur dist., Orissa (JBNHS 76: 162).

**Extralimital.** Probably extends to Badakhshan and southern Tadzhikistan.

**GENERAL HABITS.** Keeps singly or in pairs: transient 'invasions' may erupt locally for a day or two on migration. Is fairly common in appropriate

habitats in winter, but apt to be overlooked due to its drab sparrow-like appearance and unobtrusive behaviour. A bird ringed in Saurashtra in October 1960 was recaptured in the same locality the following year almost to the date (Shivrajkumar, JBNHS 58: 807). Though a member of the woodpecker family, feeds more on ground than on trees. Clings to upright stems and branches, where its coloration is remarkably obliterative, as well as perches crosswise like a true passerine. Picks ants etc. off branches and from crevices of bark, but does not 'drum' like woodpecker. Hops about on the ground with tail partially cocked, like Indian Robin, picking ants and crawling insects: frequently flushed in open scrubland while thus engaged. Flies up into a branch or bush when disturbed, soon descending again to resume feeding. Dipping flight, habit of twitching the wings upon alighting, and general behaviour very finch-like. When surprised within its nest-hole or handled, has a comical way of stretching neck and bill upwards, erecting forehead feathers, and screwing neck continuously from side to side like a clockwork toy, whence the name 'Wryneck'. This apparently an agonistic posture to deter would-be enemies: but the bird makes no sound nor any attempt to peck.

**FOOD.** Chiefly ants and their eggs and pupae. In an intensively cultivated area in Bihar, stomachs of 8 examples found crammed almost exclusively (up to 500 in a single stomach) with the ant *Phidole malinsi*, with a few examples of *Camponotus compressus* and the weevil *Myllocerus discolor*, picked up mostly in cotton fields (Mason & Lefroy, 1912).

**VOICE and CALLS.** Only occasionally heard in winter, more commonly in spring and summer: a shrill, quick-repeated and rather nasal *chewn, chewn, chewn* (4 or 5 times, at c. 3 per second) of a timbre between the notes of Common Myna and Goldenbacked Woodpecker. This usually the first indication of the bird's presence in a locality (SA). In summer (breeding?) 'a loud plaintive note of several syllables *teer-teer-teer-teer* repeated very quickly about 18 times, audible for a long distance — reminiscent of the distant call of an angry kestrel' (Whistler).

**BREEDING.** Season, (in Kashmir) chiefly May-June. Nest, a tiny natural hollow or slit in a willow, mulberry or chenar tree and the like at varying heights. The most favoured sites are evidently disused borings of the Brown-fronted Woodpecker with apertures small enough to exclude interloping mynas and starlings. Self-excavation of holes, as reported, needs confirmation. Eggs, 6 to 8, white, slightly glossed, oval, somewhat pointed at the small end. Average size of 13 Kashmir eggs  $21 \cdot 1 \times 15 \cdot 5$  mm (BBO). Share of the sexes in incubation, and period, undetermined. Young fed largely on ants, ants' eggs and pupae dug out of the ground and conveyed in overflowing beakfuls by both parents.

**MUSEUM DIAGNOSIS.** Differs from 796 and 797 in being more vermiculated on the lower breast, abdomen and flanks: the markings broader, less arrow-shaped, and tending to coalesce, giving the abdomen a barred rather than spotted appearance.

#### MEASUREMENTS

Wing 12 ♂♂ 81-90 (av. 86) mm — Vaurie.

Weight 20 ♂♀ (possibly mixed subspecies) 30-39 (av. 34) g — SA.

**COLOURS OF BARE PARTS.** Iris brown. Bill brownish flesh colour; gape yellowish cream; mouth pale pink. Legs and feet greyish leaf-green; claws dusky.

## Subfamily PICUMINAE: PICULETS

## Key to the Genera

	Page
Toes four; orbital region feathered.....	<i>Picumnus</i>
Toes three; orbital region naked.....	<i>Sasia</i>

Genus *PICUMNUS* Temminck

*Picumnus* Temminck, 1825, Pl. col., livr. 62, text to pl. 371. Type, by subsequent designation, *Picus minutissimus* (Gmel.) Temm., pl. enl. 786, f. I = *Picumnus buffoni* Lafresnaye

Bill conical, compressed, and pointed; tip of upper mandible slightly wedge-shaped. Nostrils and angle of chin concealed by dense plumes with black bristles projecting beyond. Circumorbital area feathered. Body plumage soft, lax and lengthened. Wings and tail rounded. Toes four.

## PICUMNUS INNOMINATUS Burton: SPECKLED PICULET

## Key to the Subspecies

Upperparts brighter, more tinged with orange; head paler tinged with green .....	<i>P. i. innominatus</i>
Upperparts duller, with less orange tint; head darker and more grey .....	<i>P. i. malayorum</i>

798. *Picumnus innominatus innominatus* Burton

*Picumnus innominatus* Burton, 1836 (1835), Proc. Zool. Soc. London (3): 154  
(Himalayas = Sikkim)

*Vivia innominata simlaensis* Ticehurst, 1933, Bull. Brit. Orn. Cl. 54: 20 (Murree)  
Baker, FBI No. 1416, Vol. 4: 92

LOCAL NAMES. *Wiwi* (Nepal); *Dangchim* (Lepcha); *Daoja gadaiya tiriling* (Cachari).  
SIZE. Sparrow —; length c. 10 cm (4 in.).

FIELD CHARACTERS. A diminutive woodpecker with short, soft, rounded black-and-white tail.

Male. *Above*, back and mantle bright yellow-olive; forecrown black-and-orange; a broad blackish olive band behind eye and down side of neck bordered above and below by conspicuous whitish bands; a dark moustachial stripe under the lower band. *Below*, yellowish white with bold black spots coalescing into bars on posterior flanks.

Female. Similar to male but with the whole crown yellow-olive, concolorous with back.

STATUS, DISTRIBUTION and HABITAT. Resident. The Himalayas from about Abbottabad and Murree in W. Pakistan (c. 73°E.) eastward through Kashmir, Himachal Pradesh, Garhwal, Kumaon, Nepal, Sikkim, northern Bengal



One of central pair of rectrices,  $\times$  c. 1  
(After Hartert)



$\times$  c. 1

(Darjeeling dist.) and Bhutan to Assam north and west of Brahmaputra R., and in the Khasi Hills: plains, foothills and up to c. 2000 m (recorded up to c. 3000 m in NW. Himalayas). Affects low jungle and tangled brushwood with bamboos, in moist-deciduous and semi-evergreen biotope. In the Himalayas and Assam habitat largely coincident with that of Rufous Piculet (800, 801).

**GENERAL HABITS.** Keeps singly or in pairs. Commoner than it appears to be, but liable to be overlooked amongst the restless itinerant hunting parties of tits, warblers, nuthatches and small timelines, etc. with which it usually associates. May be picked out by its typical 'triangular' woodpecker shape and its habit of working as a detached outrider of the flock, chiefly on the end-twigs of trees and shrubs, frequently on stems of low bushes close to the ground. Creeps energetically along or in circles around thin branches like a nuthatch, clinging on the underside back to the ground, tapping persistently now and again in true woodpecker style — producing a surprisingly big noise for such a small bird. Also perches crosswise like a passerine, and has been observed to hover like a sunbird in front of a sprig to take a spider. In one phase of the courtship the male chases the female, scuttling forwards and 'in reverse' in little jerky spurts round and round a branch. Flight strong and direct with fewer of the typical woodpecker dips and undulations.

**FOOD.** Mainly ants and their eggs and pupae.

**VOICE and CALLS.** A sharp *spit, spit* frequently repeated. A persistent mechanical drumming *brr-r-r, br-r-r-r* with the bill on a bamboo stem or dead snag of a branch, repeated at regular intervals. Rather sonorous and remarkably loud and far-reaching for a bird of this size; given chiefly, but not only in the breeding season and serving to advertise the presence of individuals to one another.

**BREEDING.** Season, principally April and May. Nest, a hole drilled by the birds themselves in a hollow bamboo or rotten branch or stem of a small tree one to five metres up, often used for more than one year; entrance-hole barely 2.5 cm in diameter, chamber about 15 cm deep and 6 or 7 cm wide at the end. Eggs, 3 or 4, white, rather glossy, roundish ovals. Average size of 30 eggs 14.8 × 12 mm (Baker). Both sexes share in excavating the nest (?), incubation, and feeding the young. Period of incubation undetermined; presumed by Baker to be 11 days.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

**Young (immature).** A dull edition of the female. See Field Characters.

Differs from the eastern and S. Indian subspecies *malayorum* (799) in having the upper plumage bright golden yellow; underparts strongly washed with yellow and less heavily spotted with black.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	54-61	12-14	13-14	29-35 mm (BB, SDR, SA)

Weight 4 ♂ ♀ 10.5-12.5 g (Diesselhorst, SA).

**COLOURS OF BARE PARTS.** Iris brown or reddish brown. Bill dark slaty black or plumbeous, paler at tip. Legs and feet dull plumbeous.

799. *Picumnus innominatus malayorum* Hartert

*Picumnus innominatus malayorum* Hartert, 1912, Vög. pal. Fauna 2: 937  
 (Gunong Ijau, Perak, Malaya)

*Picumnus innominatus avunculorum* Hartert, 1912, Vög. pal. Fauna 2: 937  
 (Kotagiri, Nilgiri Hills)

Baker, FBI No. 1417, 1418, Vol. 4: 94  
 Plate 52, fig. 5, facing p. 208

LOCAL NAME. *Märämkotti* (Malayalam).

SIZE. Sparrow —; length c. 10 cm (4 in.).

FIELD CHARACTERS. As in 798. See Museum Diagnosis.

General effect and coloration reminiscent of Thickbilled Flowerpecker, *Dicaeum agile* (1892).

STATUS, DISTRIBUTION and HABITAT. Resident. The Western Ghats complex (including Nilgiri, Palni and associated hills) from about Goa and Belgaum (c. 16°N.) south through western Mysore (Malnaad) and Kerala, Andhra (Eastern Ghats), eastern Madhya Pradesh (Bastar dist.), Orissa (hill tracts), southern Bengal (Khulna Sunderbans), East Pakistan (hill tracts), Mizo (?), Manipur, Nagaland, Assam east of Brahmaputra R., and eastern NEFA (Mishmi Hills): foothills and up to c. 2000 m. Affects moist-deciduous and semi-evergreen secondary jungle and mixed bamboo forest. In SW. India habitat coincident with that of Great Black (830) and Larger Goldenbacked (862) woodpeckers.

EXTRALIMITAL. Eastern Burma, southern Shan States, Thailand, Malay Peninsula, Vietnam, Laos, Sumatra, Borneo (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 798, q.v.

BREEDING. Season, in SW. India January to March; elsewhere evidently somewhat later — March–April. Nest, eggs and breeding biology as in the nominate subspecies.

MUSEUM DIAGNOSIS. Upperparts duller and paler than in *innominatus* (798); crown somewhat darker, with the dark centres to the feathers more pronounced. Underparts, excepting throat, rather more heavily spotted and with a paler yellow wash.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	57–62	11–12	12–14	30–35 mm (SA, HW, Koelz)

COLOURS OF BARE PARTS. As in 798.

Genus *SASIA* Hodgson

*Sasia* Hodgson, 1836, Jour. Asiatic. Soc. Bengal 5: 778. Type, by original designation, *Sasia ochracea* Hodgson

Differs from *Picumnus* in having only three toes (first, or inner hind-toe wanting), and a naked circumorbital patch. Tail even shorter than in *Picumnus*; culmen slightly more rounded.

*SASIA OCHRACEA* Hodgson: RUFOUS PICULET

Key to the Subspecies

- Darker above; underparts deep ferruginous.....*S. o. ochracea*  
 Paler above; underparts orange-rufous.....*S. o. reichenowi*

800. *Sasia ochracea ochracea* Hodgson

*Sasia ochracea* Hodgson, 1836, Jour. Asiatic Soc. Bengal 5: 778 (Nepal)  
Baker, FBI No. 1419, Vol. 4: 95

Plate 51, fig. 4, facing p. 176 and Plate 54, fig. 7, facing p. 240

LOCAL NAMES. *Sasya* (Nepal); *Chim, Chin pho* (Lepcha).

SIZE. Sparrow —; length c. 9 cm ( $3\frac{1}{2}$  in.).

FIELD CHARACTERS. A diminutive, dumpy, stub-tailed bird, very unlike the conventional woodpecker.

Male. Deep rufous and olive overall, with rufescent golden forehead, a short broad white supercilium (above and behind eye), and stumpy black tail.

Female similar but lacking the yellow forehead, which is almost concolorous with the crown.

STATUS, DISTRIBUTION and HABITAT. Resident; not uncommon, but unobtrusive and easily overlooked. The Himalayas from Garhwal eastward through Kumaon, Nepal, Sikkim, Bhutan, NEFA, and Assam in the Dibrugarh area: duns, foothills, and locally up to c. 2100 m. Affects mixed semi-evergreen and deciduous secondary scrub- and bamboo jungle.

GENERAL HABITS. Keeps singly or in pairs, frequently in marginal association with the quick-moving itinerant hunting parties of small insectivorous birds. Active and restless. Flits about in brushwood, clinging to and spiralling up bamboo culms and looping creeper stems etc. with quick jerky movements, busily tapping with its bill like a nuthatch or tit every now and again for minutes at a time, making an inordinately loud noise. Also perches crosswise on a twig like a passerine. Sometimes hops amongst the debris of decaying bamboo stems and mulch on the ground with its absurd little tail cocked up like a wren's. Has not been recorded 'drumming'.

FOOD. Insects: chiefly ants and their eggs and pupae.

VOICE and CALLS. 'A querulous miniature of its larger brethren, uttered both in flight and while climbing' (Baker).

BREEDING. Season, not properly determined: eggs taken between May 25 and July 2. Nest, a tiny hole (c. 2·5 cm in diameter) drilled fairly low down in a decaying hollow bamboo, in mixed scrub- and bamboo jungle. Eggs, 3 or 4, white, rather glossy roundish ovals, indistinguishable from those of Speckled Piculet. Average size of 12 eggs  $15\cdot9 \times 12\cdot7$  mm (Baker). Other facets of breeding biology unknown.

MUSEUM DIAGNOSIS. Differs from the Burmese population (801) in being much darker more olive above, with deep ferruginous underparts.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	52-55	12-15	14-15	22-24 mm (SA, SDR, BE)

Weight 1 o? 10 g (SA).

COLOURS OF BARE PARTS. Iris red; circumorbital skin crimson in ♂, pale magenta in ♀. Bill: upper mandible black, lower pale grey. Legs and feet yellowish brown.

801. *Sasia ochracea reichenowi* Hesse

*Sasia ochracea reichenowi* Hesse, 1911, Orn. Monatsb. 19: 181

(Burma, type from Thayetchaung, Tenasserim)

*Sasia ochracea querulivox* Baker, 1926, Bull. Brit. Orn. Cl. 47: 43

(Tipperah Hills, eastern Bengal)

*Sasia ochracea ferruginea* Koelz, 1952, Jour. Zool. Soc. India 4: 44

(Kohima, Naga Hills)

Baker, FBI Nos. 1420, 1421, Vol. 4: 96, 97

LOCAL NAME. *Dao jagadaiya kashiba gajao* (Cachari).

SIZE. Sparrow —; length c. 9 cm (3½ in.).

FIELD CHARACTERS. As in 800. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; not uncommon, but unobtrusive and easily overlooked. Assam south of Brahmaputra R., Nagaland, Manipur, Mizo dist. and East Pakistan (hill tracts): plains level to c. 1700 m. Affects mixed semi-evergreen and deciduous secondary scrub-and bamboo jungle.

EXTRALIMITAL. Burma, S. Shan States, N. Tenasserim, N. and E. Thailand, Laos and Vietnam.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 800, q.v. A sharp, high-pitched *tsik* similar to the call of *Ceyx* or *Pnoepyga* (Heinrich).

BREEDING. Season, March to June. Nest and eggs (c/3 or 4) as in 800. Nest-holes usually drilled low down in decaying bamboos, occasionally in branches of small trees. Average size of 40 eggs 15·3 × 12·2 mm (Baker). Courtship display described as 'very pretty and quite typical of the family. The little female crouches against a bamboo or trunk of a tree and the little male then flutters on to the same a foot or two above her, at once running rapidly backward towards her; arrived where she is, he then drops a few feet and runs up to her, seems to skip over her and run up the bamboo, and then go through all the procedure again, perhaps once or twice, perhaps half a dozen times before anything further takes place. All the time the head and neck of both birds are twisted backwards and forwards, and volleys of little squeaks are uttered, growing louder and louder until the finale is reached' (Baker).

MUSEUM DIAGNOSIS. Differs from nominate *ochracea* (800) in being much paler and less olive above, with orange-rufous underparts (*v. deep ferruginous*).

MEASUREMENTS and COLOURS of BARE PARTS. As in 800.

## Subfamily PICINAE: WOODPECKERS

## Key to the Genera

	Page
I Primaries spotted or banded	
A Nostrils concealed by feathers	
a Toes mostly four	
1 Mantle wholly or partly green; back not barred.....	Picus 181
2 Mantle black and white	
i Nasal ridge less than half length of bill and nearer commissure than culmen at base.....	<i>Hypopicus</i> 210

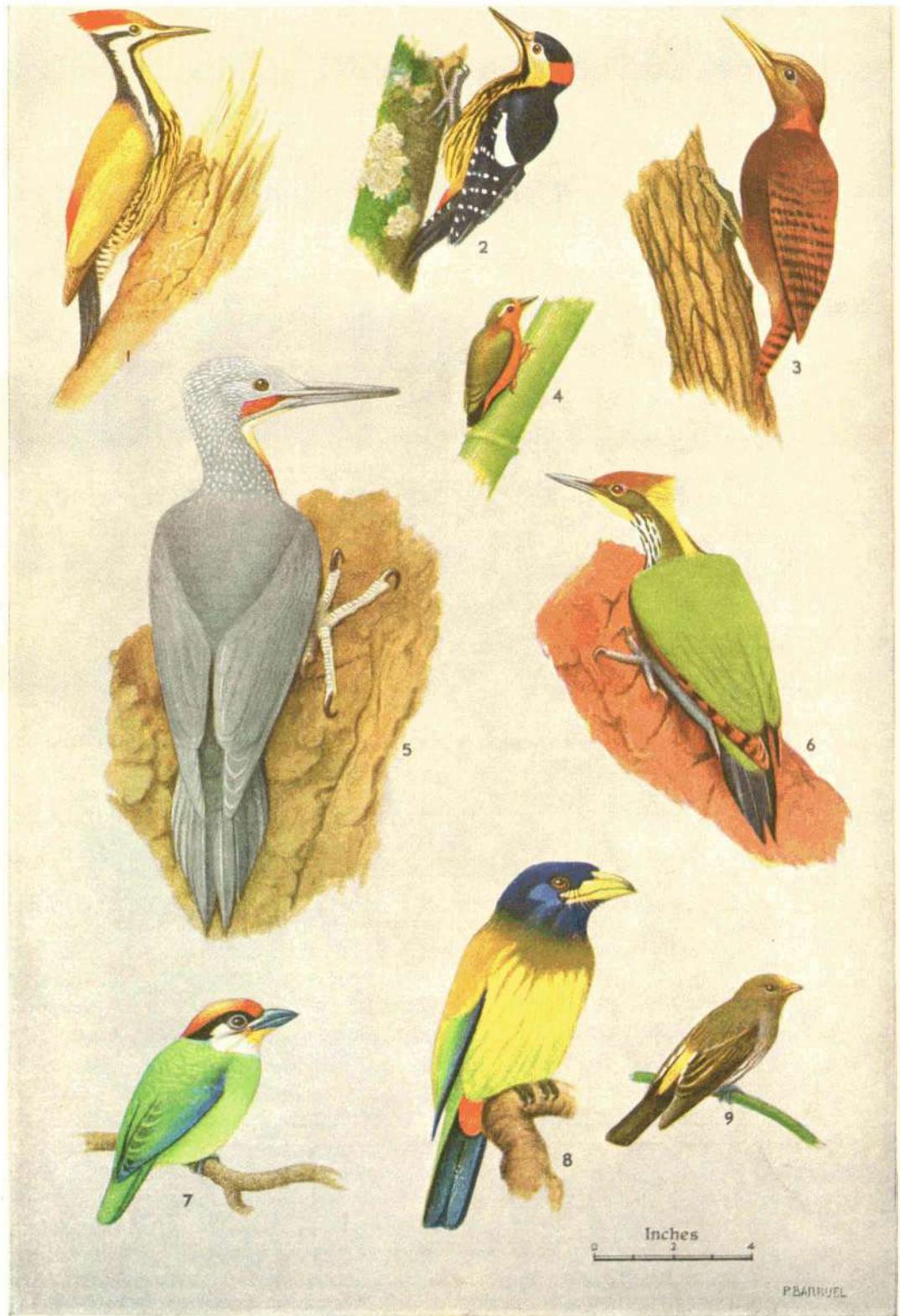


PLATE 51

1 *Dinopium shorii*, Himalayan Goldenbacked Threetoed Woodpecker (824)♂. 2 *Picoides darjellensis*, Darjeeling Pied Woodpecker (838)♂. 3 *Blythipicus pyrrhotis*, Redeared Bay Woodpecker (857)♂. 4 *Sasia ochracea*, Rufous Piculet (800)♂. 5 *Mulleripicus pulverulentus*, Great Slaty Woodpecker (828)♂. 6 *Picus flavinucha*, Large Yellownaped Woodpecker (813)♂. 7 *Megalaima franklinii*, Goldenthroated Barbet (787)♂. 8 *Megalaima virens*, Great Barbet (778). 9 *Indicator xanthonotus*, Orangerumped Honeyguide (794)♂.

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# WOODPECKERS

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Page

ii Nasal ridge half or more than half length of bill and about half-way between culmen and commissure.....	<i>Picoides</i>	177
b Toes three		
3 Mantle green or red.....	<i>Gecinulus</i>	212
B Nostrils exposed		
c Mantle rufous or crimson, more or less banded		
4 Culmen nearly straight, tip truncated.....	<i>Blythipicus</i>	237
5 Culmen curved, tip pointed.....	<i>Micropternus</i>	177
d Mantle golden-olive or crimson, not banded		
6 Hallux large, about half length of second toe.....	<i>Chrysocolaptes</i>	239
7 Hallux small, about one-third length of second toe or lacking.....	<i>Dinopium</i>	195
<b>II Primaries without spots or bands</b>		
C Inner secondaries with large spots; wing under 105 mm..	<i>Hemicircus</i>	235
D No spots on inner secondaries; wing over 180 mm		
e Plumage nearly all ashy grey.....	<i>Mulleripicus</i>	206
f Plumage mostly black.....	<i>Dryocopus</i>	208

## Genus **MICROPTERNUS** Blyth

*Micropternus* Blyth, 1845, Jour. Asiat. Soc. Bengal 14 (1): 194. Type, by original designation, *Picus badius* Raffles

Bill curved above, without nasal ridge; chin-angle nearer to tip of bill than to gape; nostrils rounded and exposed. Wing rounded. Tail-feathers pointed, the outer pair just exceeding tail-coverts in length. First toe very short, with very small claw; third and fourth toes subequal.

### **MICROPTERNUS BRACHYURUS** (Vieillot): RUFOUS WOODPECKER

#### Key to the Subspecies

A Feathers of throat with longitudinal streaks		
a Larger and paler.....	<i>M. b. humei</i>	177
b Smaller and darker.....	<i>M. b. phaioceps</i>	178
B Feathers of throat scaly patterned.....	<i>M. b. jerdonii</i>	179

#### 802. *Micropternus brachyurus humei* Kloss

*Micropternus brachyurus humei* Kloss, 1918, Ibis: 109 (Rohilkand; restricted by Baker, 1921, JBNHS 28 (1): 133; corrected by Whistler & Kinnear to Kumaon bhabar, ibid. 37: 291)

Baker, FBI No. 1390, Vol. 4: 64

**LOCAL NAMES.** None specifically recorded. *Kālphōra* for all woodpeckers (Hindi); *Kāth thokrā* (Bengali); *Sūtār* (Marathi).

**SIZE.** Myna ±; length c. 25 cm (10 in.).

**FIELD CHARACTERS.** As in 804. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. The lower Himalayas from about Dehra Dun — Garhwal, Kumaon and possibly western Nepal: terai and foothills up to c. 1000 m. Affects sal forest and mixed secondary and bamboo jungle, in subtropical and moist-temperate biotope.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 804, q.v.

BREEDING. Season, chiefly April to June. Nest, eggs and breeding biology as in the Southern subspecies (804).

MUSEUM DIAGNOSIS. The largest of the three Indian races. Upperparts paler, less bay than in the other two; head greyer. Sides of head, chin and throat much paler, the squamation on the last being in the nature of chestnut and buff streaks as in *phaioceps* (803) v. dark chocolate and whitish scalloping in *jerdonii*.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tail
7 ♂♂	129-145	31-33	66-73 mm (Whistler)

COLOURS OF BARE PARTS. As in 804.

803. *Micropternus brachyurus phaioceps* Blyth

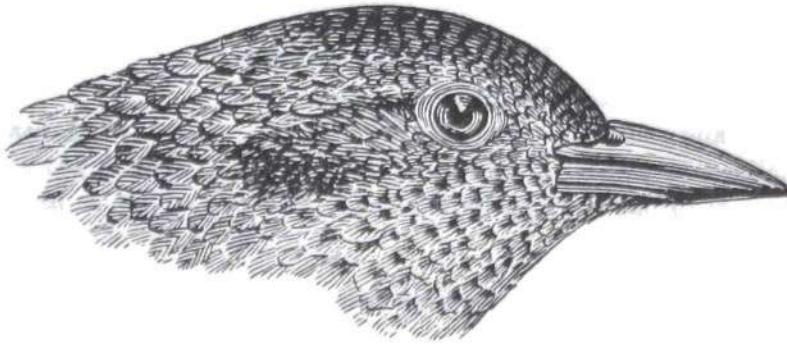
*Micropternus phaioceps* Blyth, 1845, Jour. Asiatic Soc. Bengal 14 (1): 195 (Arrakan)  
[near Calcutta *vide* Ticehurst, JBNHS 35: 32]

*Micropternus brachyurus mesos* Kloss, 1918, Ibis: 109 (Cuttack, Orissa)  
Baker, FBI Nos. 1389, 1391. Vol. 4: 63, 65  
Plate 54, fig. 5, facing p. 240

LOCAL NAME. *Daoja gadaiya tunti* (Cachari).

SIZE. Myna ±; length c. 25 cm (10 in.).

FIELD CHARACTERS. As in 804. See Museum Diagnosis.



× c. 1

STATUS, DISTRIBUTION and HABITAT. Resident; locally common. From Nepal (west-central ?) eastward through Sikkim, Bhutan, Assam, Nagaland, Manipur, and East Pakistan. West Bengal, Bihar, Orissa, eastern Madhya Pradesh (Balaghat and Bastar dists.) and south in northern Andhra to c. 18°N. (Anantgiri). Terai, duars, plains and foothills up to c. 1500 m; commoner below c. 700 m than above. Affects sal and secondary mixed forest with bamboo, in moist-deciduous biotope.

Extralimital. Extends through Burma (including the Shan States), and Thailand.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 804, q.v.

BREEDING. Season, chiefly April and May. Nest, eggs and breeding biology as in *jerdonii* (804).

MUSEUM DIAGNOSIS. Differs from *humei* in being slightly smaller, with a shorter bill on average. Upperparts slightly darker (more bay), but otherwise very similar to *humei* including the squamation on the throat which is more in the nature of longitudinal streaks than scalloping.

## MEASUREMENTS

		Wing	Bill (from skull)	Tarsus	Tail
Central Nepal	4 ♂♂	130-133	30-31	—	61-68 mm
	4 ♀♀	127-131	28-31	—	65-68 mm (Biswas)
Sikkim & Assam	36 ♂♂	119-130	26-30	—	— mm (Ticehurst)
Bastar & Orissa	2 ♂♂	122-126	28-29	23-25	65-67 mm
	3 ♀♀	121-126	26-29	21-22	58-65 mm (SA)

Weight 1 ♂ 102 g (SA); 1 ♀ 113 g (Scully).

COLOURS OF BARE PARTS. As in 804.

804: *Micropternus brachyurus jerdonii* (Malherbe)

*Phaiopicus jerdonii* Malherbe, 1849, Rev. et Mag. Zool. 1 (2): 535  
(Indian Peninsula; restricted to Travancore)

*Micropternus brachyura lanka* Kloss, 1918, Ibis: 108 (Ceylon)

*Micropternus brachyurus kanarae* Koelz, 1950, Amer. Mus. Novit., No. 1452: 5  
(Londa, Belgaum dist., Bombay)

Baker, FBI No. 1392, Vol. 4: 65 (= *gularis*)

LOCAL NAMES. *Chempān mārāmkotti* (Malayalam); *Dūmburu korellā* (Sinhala); *Mārāmkotti*, *Thachchan kūrāvi* (Tamil).

SIZE. Myna ±; length c. 25 cm (10 in.).

FIELD CHARACTERS. A chestnut-rufous woodpecker, narrowly cross-barred with black on upperparts, wings and tail. Feathers of throat pale-edged producing a scaly or scalloped pattern. Male distinguished from female by a crescent-shaped crimson patch of feathers under the eye. See Museum Diagnosis.

Young (immature). More heavily barred than adult both above and below, the bars on the underparts crescentic in shape on breast and abdomen.

STATUS, DISTRIBUTION and HABITAT. Resident; locally common. From about the Tapti R. in Gujarat south through western Maharashtra, Mysore, western Tamil Nadu (also Shevaroy Hills), Kerala and Ceylon; wooded plains and foothills up to c. 1000 m. Affects secondary jungle mixed with bamboo, in moist-deciduous biotope.

GENERAL HABITS. Goes about in pairs and is usually met with in jungle abounding in carton nests of tree ants with which it is closely associated. Frequently seen hammering away and digging into such ants' nests, while

clinging to them or from an adjoining perch. Comes out after a bout of digging on to a neighbouring branch (sitting across it like a passerine) picking out the ants from its plumage and swallowing them. The head of the bird, abdomen and tail-tip are usually besmeared with a strong-smelling resin, often with numerous ants' heads sticking to the tail. The origin of this resin is not quite clear. Much given to drumming, but on the whole rather silent vocally.

**FOOD.** Mainly ants and their pupae, of which *Cremastogaster* spp., *Phidole malinsi* and *Oecophylla smaragdina* have been commonly identified. The first perhaps forms the staple food item; as many as 2600 *Cremastogaster subnuda* have been counted in a single stomach (Mason & Lefroy, 1912). Occasionally takes fruit, especially wild figs (*Ficus*), and flower nectar (*Erythrina*, *Salmalia*); has been observed clinging to a smooth banana stem, puncturing it near the base of the leaves and sucking the sap.

**VOICE AND CALLS.** A high-pitched nasal *keenk, keenk, keenk* almost invariably repeated 3 times (rarely 4), very similar to one of the commoner notes of the Common Myna and of the same timbre.

Drums (evidently male only) frequently and regularly in the breeding season, sporadically and half-heartedly at other times. The drumming consists of a series of very rapid 'vibratory' hammering with the bill on a tree-trunk or bamboo to which the bird is clinging upright. It starts softly and works up to a reverberating crescendo of sound audible a quarter kilometre away. The bursts, of 10–12 strokes each, are repeated every 10 or 15 seconds. After each burst the drummer turns his head round purposefully to right and left as if expecting a response, and often gets it from another performer in the distance. Often drums at the same spot for over quarter of an hour, thereafter flying off to resume from elsewhere within its territory (?). The drumming is not interpolated with any vocal calls: it is given chiefly till the morning warms up, and again in the cooling afternoon until sunset. Flight undulating, typical of the woodpeckers — a few rapid wing-beats followed by a long dipping bound with wings closed to sides.

**BREEDING.** Season, principally February to end April; in Ceylon March to June. Nest, normally a hollow excavated in a 'live' oval-shaped carton nest of tree ants (*Cremastogaster*, *Plagiolepis*, etc.) made of a blackish papier-mâché-like substance commonly in trees 4 or 5 metres from the ground. Usually a lateral entrance-hole c. 5 cm in diameter gives access to the hollowed-out interior, leaving a wall about 25 mm thick all round the chamber. Only occasionally nests in tree-holes like a conventional wood-pecker. Eggs, 2 or 3, white, unglossed, slightly longish ovals. Average size of 10 eggs 28·1 × 20·1 mm (Baker). Both sexes share in excavating the nest: share in incubation, period, and other details unknown. The eggs, incubating bird and chicks, even when newly hatched and naked, remain unmolested by the otherwise ferocious insects, the immunity being doubtless derived through the acrid 'anty' smell acquired by the birds and contents of the nest from physical contact with, and a diet of, the ants. This is a subject for closer investigation.

**MUSEUM DIAGNOSIS.** Distinguished from both *humei* and *phaioceph* by the squamation on throat being dark chocolate and whitish (v. chestnut and buff), the squamation being more in the nature of scalloping than of longitudinal streaks. There is a

slight decline in size from the northern parts of its range southward to Kerala and Ceylon.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	117-134	26-30	c. 24	61-65 mm
♀♀	117-130	27-30	c. 24	60-65 mm
				(SA, HW, Koelz)
Kerala birds:				
4 ♂♂	117-121	26-29	—	60-63 mm
2 ♀♀	117-120	27-28	—	62-63 mm
				(SA)
Ceylon birds:				
9 ♂♂	115-122	26-30		
6 ♀♀	116-122	25-28		
		(HW)		

Weight 4 ♂ ♀ 95-108 g (SA).

COLOURS OF BARE PARTS. Iris brownish red. Bill: upper mandible horny black, lower mandible white, horny at base; mouth greyish pink. Legs and feet bluish green; claws black.

Genus *PICUS* Linnaeus

*Picus* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 112. Type, by subsequent designation,  
*Picus viridis* Linnaeus

Nostrils concealed by harsh plumes. Culmen slightly curved: a nasal ridge (obsolete or distinct) nearer to the culmen than to commissure at base of bill. Foot with 4 toes, the outer front toe longer than the outer hind toe. Tail less than two-thirds length of wing, strongly graduated, the outermost feathers shorter than their coverts. Sexually dimorphic in details.

## Key to the Species

	Page
A Lower parts streaked; male with crimson, female with black cap	
Tail barred throughout.....	<i>P. squamatus</i> 181
Tail not barred throughout .....	<i>P. myrmecophoneus</i> 184
B Lower parts practically uniform; crown crimson and occiput black in male, both black in female .....	<i>P. canus</i> 186
C Lower parts striped on throat only; a golden yellow nuchal collar .....	<i>P. flavinucha</i> 190
D Lower parts barred; a yellow nuchal spot.....	<i>P. chlorolophus</i> 192

*PICUS SQUAMATUS* Vigors: SCALYBELLIED GREEN WOODPECKER

## Key to the Subspecies

Darker; under plumage feathers with broad dark brown edges..	<i>P. s. squamatus</i>
Much paler; edges of feathers of under plumage very narrow and pale.....	<i>P. s. flavirostris</i>

806.<sup>1</sup> *Picus squamatus flavirostris* (Menzbier)

*Gecinus flavirostris* Menzbier, 1886, Bull. Soc. Imp. Nat. Moscou 62 (1): 439  
 (Murghab, Transcaspia)

*Gecinus gorii* Hargitt, 1887, Ibis: 75 ('In Afghania meridionali')  
 Baker, FBI No. 1338, Vol. 4: 8

**LOCAL NAMES.** None recorded.

**SIZE.** Pigeon +; length c. 35 cm (14 in.).

**FIELD CHARACTERS.** As in 807. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** West Pakistan in the wooded NE. Baluchistan hills between c. 1300 and 3300 m (Zhob Valley, Ziarat, Quetta, and in Chagai dist.), in juniper, oak and poplar forest.

**Extralimital.** Transcaspia to Afghanistan.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 807, q.v.

**BREEDING.** Favourite nesting localities in Chagai dist., Baluchistan, reported as Hazarganj Reserved Forest on Chiltan, Mari Chak Reserved Forest, Barshor and Surkhab valleys, and Kaisar jungle near Nushki 'which appears to be the western limit of this race in Baluchistan' (A. F. P. Christison MS.). Season curiously enough not mentioned though he found nests in pistachio, chilghuza, wild apricot, mulberry, juniper, willow, and even tamarisk scrub. In the last case the nest was '5 ft below ground level where the root was exposed in a nullah bank 7 ft from the bed'. No clutch size, description or measurements of eggs given!

**MUSEUM DIAGNOSIS.** Differs from nominate *squamatus* (807) in being much paler everywhere, with the pale markings broader and the dark markings narrower — especially the brown squamations on the underparts. Lower plumage much suffused with yellow.

**MEASUREMENTS and COLOURS OF BARE PARTS** as in 807.

807. *Picus squamatus squamatus* Vigors

*Picus squamatus* Vigors, 1831 (1830–31), Proc. Zool. Soc. London (1): 8  
 (Himalayas, restricted to Simla-Almora dist. by Ticehurst & Whistler, 1924, Ibis: 471)

Baker, FBI No. 1337, Vol. 4: 7

Plate 50, fig. 5, facing p. 160

**LOCAL NAMES.** *Tuktola* (Himachal Pradesh); *Koel makōts* (Kashmir).

**SIZE.** Pigeon +; length c. 35 cm (14 in.).

**FIELD CHARACTERS.** A medium-sized green woodpecker with pale underparts boldly scalloped with black.

**Male.** *Above*, crown and crest crimson; a broad whitish supercilium bordered above and below with black lines; whitish cheeks and a prominent black moustachial streak. Upper plumage dull grass-green with a bright yellow rump. *Below*, throat and breast pale greyish; rest of underparts greenish white with scale-like black markings.

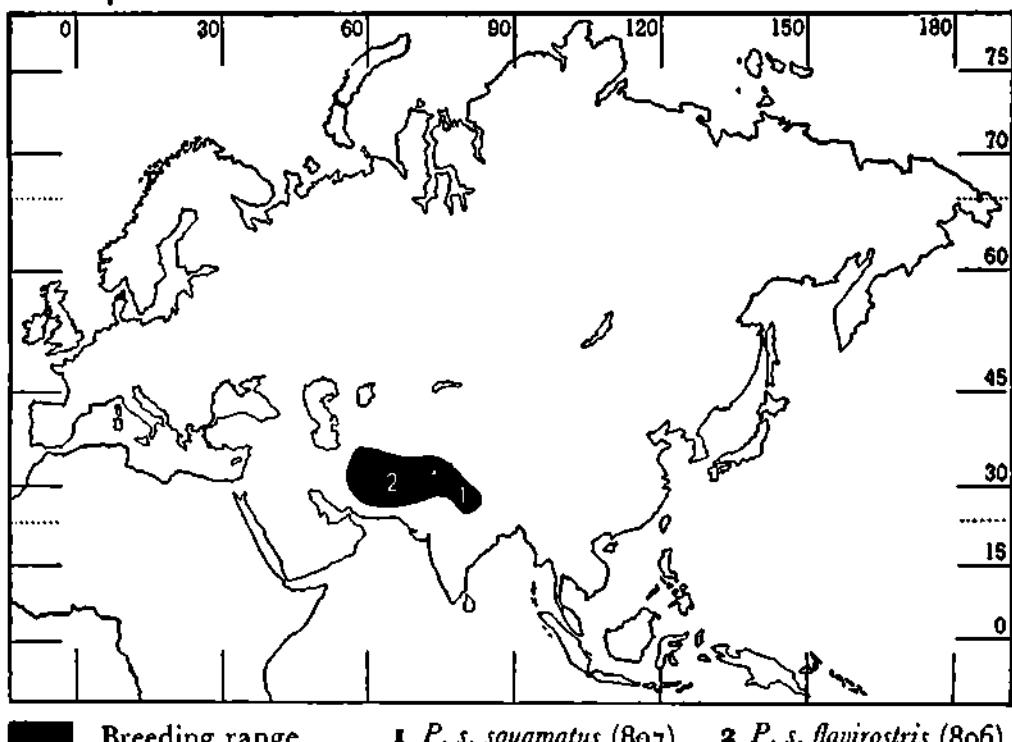
<sup>1</sup> Synopsis No. 805, *Picus viridis bamburensis* (Zarudny), expunged as extralimital.

**Female.** Similar to male but somewhat duller and less green. Crimson of crown replaced by black, speckled with leaden grey.

**Young (immature)** like female, but with the breast feathers also squamated like the abdomen though less boldly.

**STATUS, DISTRIBUTION and HABITAT.** Resident. Common and fairly abundant; subject to slight winter-summer altitudinal movement: Western Himalayas from Chitral and Gilgit through Kashmir, Baltistan, Punjab Salt Range, Himachal Pradesh, Garhwal and Kumaon to central Nepal (Langtang Valley, Manangbhot); between c. 1000 and 3300 m. Affects open evergreen mixed oak and pine hill forest and the neighbourhood of clearings; frequents orchards near Srinagar and in other valleys in winter.

***Picus squamatus***



**GENERAL HABITS.** Typical of the woodpeckers. Keeps in pairs, normally seen clinging to trunks of trees (occasionally to rocks and cliffs), the stiff pointed tail pressed against the bark functioning as the third leg of a tripod. Works its way up in a series of jerky spurts, directly or in spirals — occasionally sliding back in reverse to re-investigate — tapping with the bill from time to time to stampede insects lurking in the crevices and locate hidden pupal galleries of wood-boring beetles. The long, worm-like barbtipped tongue enables the grubs to be skewered out of the holes and crannies. Commonly descends to the ground, hopping about rather uncomfortably to pick up ants and termites which form a considerable proportion of its diet. These tiny insects are picked up in the tips of the mandibles. Flight swift and undulating, consisting of 4 or 5 rapid noisy flaps followed by a long dipping glide or bound.

**FOOD.** Mainly ants and termites, and larvae and pupae of wood-boring beetles. Also berries, especially in winter.

**VOICE and CALLS.** A wild, ringing, rather melodious double-noted *klee-gu* or *pea-cock*; occasionally a single long-drawn nasal *cheenk* or *peer* repeated every 10 or 15 seconds for many minutes continuously. In addition to these vocal sounds, produces a loud mechanical drumming by very rapid, 'vibratory' hammering with its bill on a selected 'sounding board' on a dead tree-trunk or branch. The male drums chiefly in the breeding season, evidently to advertise his territory.

**BREEDING.** Season, March to June, principally April and May. Nest, a circular hole about 6 cm across usually chiselled out in a large tree-trunk 2 to 6 metres from the ground — sometimes up to 15 metres or more — turning down into a vertical shaft 15 to 30 cm deep ending in a widened egg-chamber. Eggs, 5 or 6, white, broad ovals. Average size of 50 eggs  $31 \times 22.6$  mm (Baker). Share of the sexes in excavation of nest-hole and incubation, and incubation period, unrecorded.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. *Above*, darker than the Transcaspian subspecies (806). *Below*, greyish white, less suffused with yellow, and with broader more prominent blackish scaly markings.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	155–172	27–33	c. 27	127–136 mm (Baker)

Weight 1 ♂ 185 g; 1 ♀ 170 g (Paludan).

**COLOURS OF BARE PARTS.** Iris in two rings, the inner red or crimson-pink, the outer paler pink. Bill horny yellow: dark at tip, more yellow on base of lower mandible. Legs dull yellowish green or greenish plumbeous.

### 808. Little Scalybellied Green Woodpecker. *Picus myrmecophoneus* Stresemann

*Picus myrmecophoneus* Stresemann, 1920, Verh. Orn. Ges. Bayern 14: 289 (Himalaya and Central India). New name for *Picus striolatus* Blyth, preoccupied

*Brachylophus xanthopygaeus* 'Hodgs.' = J. E. & G. R. Gray, 1846, Cat. Spec. Mamm. Bds. Nepal and Tibet: 117 ex Hodgson in Gray, 1844, Zool. Misc.; *nomen nudum* quoted in synonymy of *Gecinus striolatus* (Blyth), preoccupied

*Picus vittatus dehrae* Baker, 1926, Bull. Brit. Orn. Cl. 46: 69 (Dehra Dun)

*Picus vittatus dawae* Van Tyne & Koelz, 1936, Occ. Papers Mus. Zool. Univ. Michigan, No. 334: 3 (Bhadwar, Kangra dist., Punjab, British India)<sup>1</sup>

Baker, FBI No. 1339, Vol. 4: 10

Plate 53, fig. 4, facing p. 224

**LOCAL NAMES.** (For all woodpeckers) *Mārāmkotti* (Malayalam); *Kerellā* (Sinhala); *Mārāmkotti*, *Thachchan kūruvi* (Tamil).

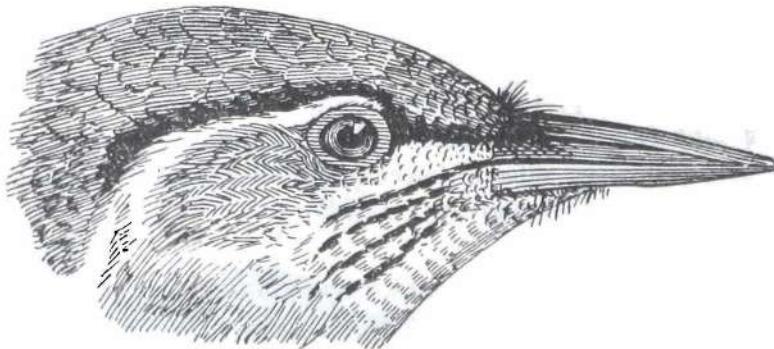
**SIZE.** Myna +; length c. 29 cm ( $11\frac{1}{2}$  in.).

**FIELD CHARACTERS.** A medium-sized typical woodpecker with stout chisel-shaped bill and stiff, pointed wedge-shaped tail.

<sup>1</sup> Biswas (JBNHS 58: 124) considers this a valid race.

**Male.** *Above*, grass-green, with bright yellow rump; tail greenish brown, faintly and imperfectly barred with whitish. Crown and crest crimson; an orange-and-black patch on nape; a prominent white supercilium from eye backwards, bordered above by a black line; ear-coverts pale grey-brown; cheeks greyish white streaked with black. *Below*, pale greenish fulvous boldly scalloped or squamated with black; chin and throat fulvous-grey streaked with white.

**Female** similar but with crown and crest black instead of crimson.



$\times c. 1$

**STATUS, DISTRIBUTION and HABITAT.** Resident; fairly common locally, more or less throughout the Peninsula and Assam, east of a line from about Ambala to Mt. Abu; north to the Himalayan terai and foothills (up to c. 1700 m — rarely) from Punjab eastward through U.P., Nepal, Sikkim (?) and Bhutan (?). Also Ceylon (Dry zone) and East Pakistan. Semi-evergreen and moist-deciduous biotope. Affects sal, and mixed bamboo and deciduous forest, keeping to open secondary jungle, teak and other forest plantations, etc. (in S. India very partial to rubber plantations); from plains level to c. 1800 m in the peninsular and Ceylon hills.

**Extralimital.** Burma, SW. Thailand, Cambodia and South Vietnam.

**GENERAL HABITS.** Typical woodpecker; very similar in habits to 807, q.v. Perhaps feeds more commonly on the ground than most other woodpeckers.

**FOOD.** Largely ants and termites taken on the ground; also pecks at dry cattle dung for beetle larvae etc.; flower nectar when available (e.g. *Erythrina*, *Salmania*); has been observed bibbing juice from a date palm tapped for toddy.

**VOICE and CALLS.** Normally rather silent. A single-syllabled 'mild falsetto note' (Nichols), like that of 807, but seldom uttered. Also the characteristic mechanical drumming with the bill on a tree-trunk or bough.

**BREEDING.** *Season*, overall January to June, varying with locality — chiefly March, April and May on the mainland; April to September in Ceylon. *Nest*, a circular hole c. 5 cm across, cut in the bole of a tree turning downward into a vertical shaft up to c. 50 cm deep and ending in an expanded chamber. Nest-holes normally between 4 and 8 metres from the ground. *Eggs*, 3 to 5, pure white, broad ovals laid on the bare wood at the bottom of the shaft. Average size of 30 eggs 26.2 × 20.1 mm (Baker). Both sexes share in excavating the nest, incubation and feeding the young. Period unrecorded.

**MUSEUM DIAGNOSIS.** There is great individual variation in the size of bill and tail, partly due to wear, and also in plumage coloration. The latter is largely the result of abrasion which produces a peculiar silvery frosted appearance on the back. There is no spring moult in this species.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	124–138 (once 142)	28–38	22–26	76–97 mm
♀ ♀	124–134	25–35	21–26	78–93 mm (HW, SA)

Weight 1 ♂ 111 g (GD); 1 ♀ 98 g (SDR).

**COLOURS OF BARE PARTS.** Iris pinkish white with inner ring of brownish red. Bill horny slate, pale yellow on sides of lower mandible excepting tip; mouth greyish pink. Legs and feet greyish sage-green; claws horny.

**PICUS CANUS** Gmelin: BLACKNAPED GREEN WOODPECKER

**Key to the Subspecies**

		Page
A Underparts green		
a Above darker and more green; no bronze or golden sheen; below darker and greener.....	<i>P. c. sanguiniceps</i>	186
b Above lighter with a strong bronze sheen; below more tinged with yellow.....	<i>P. c. hessei</i>	188
B Underparts grey; rectrices very pale, no black .....	<i>P. c. sordidior</i>	189

809. *Picus canus sanguiniceps* Baker

*Picus canus sanguiniceps* Baker, 1926, Bull. Brit. Orn. Cl. 46: 70. New name for *Picus occipitalis* Vigors, preoccupied (Himalayas, Simla-Almora dist.)

Baker, FBI No. 1343, Vol. 4: 13

Plate 53, fig. 6, facing p. 224

**LOCAL NAMES.** None recorded.

**SIZE.** Pigeon ±; length c. 32 cm (12½ in.).

**FIELD CHARACTERS.** A largish green woodpecker with the typical stiff wedge-shaped tail and stout chisel-pointed bill.

**Male.** *Above*, dark green, tinged on the rump with bright yellow. Wing-quills dark brown with white bars; tail black, imperfectly barred paler. Forehead and forecrown crimson; hindcrown, occipital crest and nape black. Sides of head, including ear-coverts and supercilium grey, the last bordered above by a black line. *Below*, chin and throat greyish ashy, with a black malar stripe from lower mandible down each side. Rest of underparts dull yellowish olive-green, greyer on abdomen.

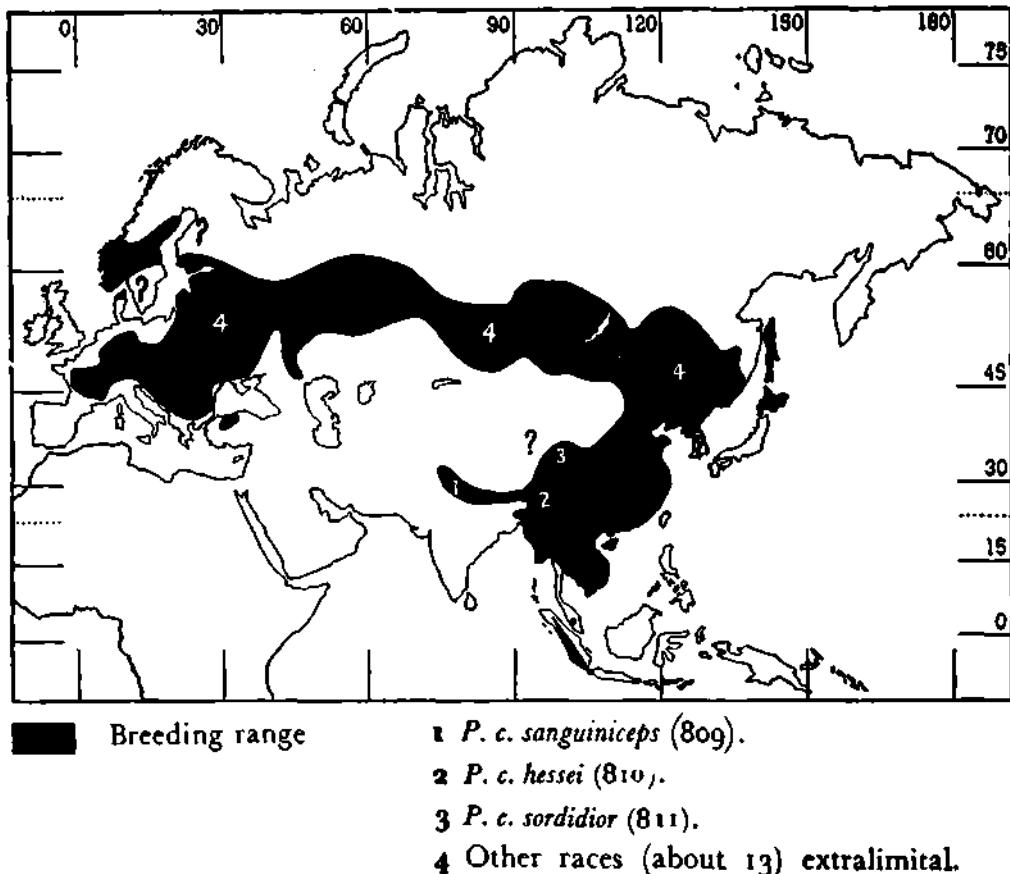
**Female**, like male but with whole forehead, crown and nape black, streaked with grey.

**Young** (immature), like female but duller, the tail-feathers more definitely barred. Underparts also more or less barred with whitish.

**STATUS, DISTRIBUTION and HABITAT.** Resident: common. The western Himalayas from Punjab (Murree) eastward through Himachal Pradesh, Garhwal and Kumaon to central Nepal (where it intergrades with 810). From the terai up to c. 2400 m, in moist subtropical and temperate forest biotope.

The species, in many geographical races, is widely distributed in Europe and Asia.

*Picus canus*



**GENERAL HABITS.** Typical of the woodpeckers and very similar to those of 807, q.v.

**FOOD.** Mainly ants and termites often taken on the ground, the termites being hacked out of ant-hills; also larvae and pupae of wood-boring beetles. Berries chiefly in winter; flower nectar as supplementary food in season.

**VOICE and CALLS.** A nutty, high-pitched, rather musical *peeek, peeek, peeek, peeek*, repeated in runs almost invariably of 4 or 5, fading out on the last note. Male drums frequently in the breeding season, commencing well before sunrise. Rattle loud but soft in tone — reminiscent of the dampened ring of an automatic telephone — in bursts two to three seconds long each, repeated every 10 to 15 (or 20) seconds. The drumming is punctuated more or less regularly from time to time by the vocal calls. The performance is given day after day from the same ' sounding board ' near the top of a bare tree, and is sometimes kept up for over an hour in the early morning. Also has the typical chattering alarm cry of the family.

**BREEDING.** Season, principally May and June. Nest, the normal circular woodpecker cutting in a tree-trunk between 2 and 8 metres up, often under one metre. Recorded as low as 15 cm with the nest-chamber — in this case a natural hollow — actually below ground level. Eggs, 4 or 5, pure white broad ovals. Average size of 28 eggs  $29.5 \times 22.8$  mm (Baker). Both sexes share in excavating the hole and feeding the young; evidently also in incubation. Period of incubation undetermined.

**MUSEUM DIAGNOSIS.** Differs from the east Himalayan *P. c. hessei* (810) in being larger and a purer green in coloration, less yellowish or bronze; it is also more heavily marked on the occiput. For subspecific determination only fresh-plumaged birds (after the complete post-nuptial moult) are useful since in worn dress abrasion gives a greyish cast to the feathers which is apt to be misleading. First-year birds are readily identified by the long first primary being rounded at the tip.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tail
Birds from Western Himalayas & Nepal:			
♂♂	157-165	46-49	— mm
	(av. 160.6)*		(Greenway) <sup>1</sup>
* Size of sample not stated			
Birds from Central Nepal:			
9 ♂♂	145-152	40-44	98-108 mm
9 ♀♀	145-154	38-44	100-116 mm (BB)

Weight 5 ♂♂ 147-156; 6 ♀♀ 143-162 g (GD).

Central Nepal population intermediate between *sanguiniceps* and *hessei*.

**COLOURS OF BARE PARTS.** Iris crimson-brown. Bill horny black, plumbeous at gape. Legs and feet plumbeous slightly tinged with olive, or bluish slaty; claws horny brown; pads greyish white.

#### 810. *Picus canus hessei* Gyldenstolpe

*Picus canus hessei* Gyldenstolpe, 1916, Orn. Monatsb. 24: 28

(Pak Koh and Den Chai, northern Siam)

*Picus canus gyldenstolpei* Baker, 1918, Bull. Brit. Orn. Cl. 39: 19

(Sadiya, north Lakhimpur, Assam)

Baker, FBI No. 1344, Vol. 4: 15

**LOCAL NAMES.** Mong chok (Lepcha); Dao ja gadaiya (Cachari).

**SIZE.** Pigeon ±; length c. 32 cm (12½ in.).

**FIELD CHARACTERS.** As of 809. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. The eastern Himalayas from central Nepal (where it intergrades with *sanguiniceps*) eastward through Sikkim, Bhutan and NEFA: terai, duars and foothills up to c. 2100 m. Also Assam, Nagaland, Manipur, Mizo and Bangladesh (hill tracts). Specimen, Puri dist., Orissa (JBNHS 75: 924). Affects rather open mixed forest with bamboo in semi-evergreen biotope.

<sup>1</sup> Greenway, J. C., 1940: 'Oriental forms of *Picus canus*.' Auk 57: 550-60.

*Extralimital.* The upper Chindwin area of Burma (Peters).

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 809, q.v.

**BREEDING.** Season, chiefly May and June. Nest, eggs and breeding biology as in 809.

**MUSEUM DIAGNOSIS.** Differs from *sanguiniceps* in being smaller and having a strong golden or bronze sheen on the upper plumage; underparts also generally more yellow.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
<b>Birds from North Cachar, Chin Hills, Naga Hills:</b>				
	140-149	38-40	—	— mm (Greenway)
	(av. 143.2)*			
<b>* Size of sample not stated</b>				
<b>Birds from Sikkim and Bhutan:</b>				
4 ♂♂	136-149	40-42	28-29	100-116 mm
7 ♀♀	140-150	36-40	26-32	99-110 mm (SA)

Weight 1 ♀ 137 g (Majumdar).

**COLOURS OF BARE PARTS.** As in 809.

### 811. *Picus canus sordidior* Rippon

*Picus canus sordidior* Rippon, 1906, Bull. Brit. Orn. Cl. 19: 32  
(Yangtze River, W. Yunnan)

*Gecinus guerini kogo* Bianchi, 1906, Bull. Brit. Orn. Cl. 16: 69  
(Bartschou, affluent fl. Nomu-tschu, tribut. fl. Mekong sup.)  
Not in Baker, FBI

**LOCAL NAMES.** None recorded.

**SIZE.** Pigeon ±; length c. 32 cm (12½ in.).

**FIELD CHARACTERS.** As of 809. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** 'Very common in the Tsangpo Valley below Lihing' (Ludlow, 1944, *Ibis*: 368) in southeastern Tibet adjoining the Siang and Luhit Frontier Divisions of NEFA, and may occur within our limits. Has been collected between c. 2900 and 3550 m altitude. Affects fairly open conifer and deciduous forest.

*Extralimital.* Western China in provinces of Kansu and Sikang (Peters).

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 809, q.v. Feeds much on the ground, taking fruits and berries as well as insects. Some of the specimens collected by Ludlow had been feeding on the fruits of an *Actinidia* shrub and their intestines were dyed indigo-blue as a result.

**BREEDING.** Unrecorded.

MUSEUM DIAGNOSIS. Distinguished from *hessei* by the crown being conspicuously streaked with black, the black streaks coalescing to form a black patch on the nape.

## MEASUREMENTS

	Wing	Bill (from skull)
6 ♂♂	149-156	42-44 mm
1 ♀	152	42 mm (Kinnear)

COLOURS OF BARE PARTS. As in 809.

**PICUS FLAVINUCHA** Gould: **YELLOWNAPE WOODPECKER**

**Key to the Subspecies**

- Smaller; a yellowish gloss on the green of the upperparts.....
- ..... *P. f. flavinucha*
- Much larger; no yellowish gloss on upperparts..... *P. f. kumaonensis*

812. *Picus flavinucha kumaonensis* (Koelz)

*Chrysophlegma flavinucha kumaonensis* Koelz, 1950, Amer. Mus. Novit., No. 1452: 4  
(Kathgodam, Naini Tal dist., U.P.)  
Baker, FBI No. 1353 (part), Vol. 4: 23

LOCAL NAMES. None recorded.

SIZE. Pigeon ±; length c. 33 cm (13 in.).

FIELD CHARACTERS. As of 813. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Garhwal and Kumaon in Uttar Pradesh, from about Dehra Dun to western Nepal (possibly): foothills and up to c. 1700 m. Affects sal and oak forest.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 813, q.v. In common with several other woodpecker species has the curious habit of digging parallel rows of small shallow holes or 'craters' round the stems of smooth-barked trees, like the American Sapsuckers (*Sphyrapicus* spp.). See A. E. Osmaston, JBNHS 24: 363-6.

BREEDING. Season, nest, eggs, etc. as in the nominate race.

MUSEUM DIAGNOSIS. Differs from *flavinucha* (813) in lacking the yellowish flush in the green of the upperparts and having the rufous bars on the primaries much wider. Is also larger in size: Wing over 180 mm; tail over 131 mm (Biswas).

COLOURS OF BARE PARTS. As in 813.

813. *Picus flavinucha flavinucha* Gould

*Picus flavinucha* Gould, 1834 (1833), Proc. Zool. Soc. London (1): 120  
(Himalayas, Darjeeling)

*Picus flavinucha marianae* Biswas, 1952, Ibis 94: 213  
(Mount Victoria, Chin Hills, upper Burma)  
Baker, FBI No. 1353, Vol. 4: 23

Plate 51, fig. 6, facing p. 176 and Plate 54, fig. 4, facing p. 240

LOCAL NAMES. *Mong kli ong* (Lepcha); *Daaja gadaiya* (Cachari).

SIZE. Pigeon ±; length c. 33 cm (13 in.).

**FIELD CHARACTERS.** A largish yellow-green woodpecker with rufous-banded dark brown wings and a conspicuous golden yellow nuchal crest, sometimes erected fanwise under excitement. Tail black, unbarred; underparts olive-grey.

Male has the chin and throat bright lemon yellow; foreneck rich brown streaked with white.

Female similar to male but with the chin and throat rufous brown instead of yellow.

**STATUS, DISTRIBUTION and HABITAT.** Resident. Nepal, Sikkim, Bhutan, NEFA, Assam, Nagaland, Manipur, Mizo and Bangladesh (hill tracts). West Bengal, Bihar and Orissa (Simlipal Hills). Visakhapatnam dist., E. Ghats (JBNHS 73: 394). From plains level to c. 2400 m in the Himalayas locally; preferential zone between c. 700 and 1500 metres. Affects open mixed evergreen and deciduous forest; partial to edge of cultivation clearings in foothills country.

**Extralimital.** Burma and southern Shan States. Widely distributed in other races in SE. Asia.

**GENERAL HABITS.** Keeps in separated pairs or scattered family parties of 4 or 5, often in close association with racket-tailed and other drongos with no ulterior motive apparent on either side! Feeds a great deal on the ground and rarely high up in trees.

**FOOD.** Ants, termites and grubs and wood-boring beetles, e.g. *Haplo-cerambyx spinicornis*, a destructive borer of the sal tree (*Shorea robusta*).

**VOICE and CALLS.** 'A fairly loud, plaintive *pee-ū . . . pee-ū* (high/falling)'—Lister. A single metallic *chēnk*; when disturbed and flying off a rich 'laugh' rather like that of the Great Black Woodpecker (830) but less loud and more musical (SA).

**BREEDING.** Season, March to May. Nest, the usual shaft inside the bole of a tree with a round lateral entrance-hole 7 or 8 cm across, cut at heights of 3 to 5 or 6 metres from the ground. Eggs, 3 or 4, white, broad ovals. Average size of 40 eggs 28.8 × 22.2 mm (Baker). Both sexes share in excavating the hole, incubation, and feeding the young. Incubation period undetermined. Courtship, described by Baker, as follows: Birds of a pair continually chase one another with a little squeaking cry, finally alighting on a tree. Female crouches [on a branch ?] close against the bark. Male approaches her backwards, 'his head thrown right over his rump with beak held up and crest very widely expanded'. After getting within a few inches of her he sidles across to the other side and repeats the same action, the female squeaking and shivering with excitement during the entire performance. After a few repetitions of this manoeuvre copulation takes place. Details not very clear and needing amplification.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

'Juvenile male like adult above but the crest paler yellow; gular streak pale yellow; chin and throat white spotted with black; rest of underparts as adult but belly greyer' (Ticehurst).

#### MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	163-177	40-45	27-32	114-127 mm
♀ ♀	166-173	37-42 (from skull)	29-30	113-135 mm (SA, BB)

Weight 5 ♂♂ 172–198 g; 3 ♀♀ 165–174 g (SA).

COLOURS OF BARE PARTS. Iris brownish crimson. Bill pale bluish grey, darker at base and gape, ivory colour at tips of both mandibles. Legs and feet greyish sage-green or plumbeous; claws plumbeous.

### PICUS CHLOROLOPHUS Vieillot: SMALL YELLOWNAPED WOODPECKER

#### Key to the Subspecies

		Page
<b>A</b>	Larger; wing over 125 mm	
a	Wing mostly under 142 mm.....	<i>P. c. chlorolophus</i> 193
b	Wing mostly over 142 mm.....	<i>P. c. simlae</i> 192
<b>B</b>	Smaller; wing under 125 mm	
c	Brighter above, with a distinct bronze wash on the wings.....	<i>P. c. chlorigaster</i> 194
d	Darker above, with no bronze wash on the wing.....	<i>P. c. wellsi</i> 195

#### 814. *Picus chlorolophus simlae* Meinertzhagen

*Picus chlorolophus simlae* Meinertzhagen, 1924, Bull. Brit. Orn. Cl. 44: 54 (Dehra Dun)  
Baker, FBI No. 1347, Vol. 4: 18

LOCAL NAMES. None recorded.

SIZE. Myna +; length c. 27 cm (10½ in.).

FIELD CHARACTERS. As of 815. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. The lower Himalayas from Punjab (Dharmasala) through Himachal Pradesh, Garhwal, Kumaon and Nepal to an arbitrary boundary (the Arun Valley) at c. 87°E. long. Intergrades with *chlorolophus* over a considerable area from eastern Kumaon to east-central Nepal. Terai, bhabar and foothills, locally to c. 2100 m. Affects evergreen and moist-deciduous jungle.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 815, q.v.

BREEDING. Season, nest, eggs, etc. as in *chlorolophus*. Average of 4 eggs taken near Naini Tal 25·5 × 19·15 mm (Baker).

MUSEUM DIAGNOSIS. Like nominate *chlorolophus* but somewhat larger and with the nuchal crest usually a paler lemon-yellow v. orange-yellow. But the differences in size and colour between the West Himalayan and East Himalayan populations follow a continuous cline, hence the need for an arbitrary boundary as above.

#### MEASUREMENTS

♂♀ Wing 138–150 mm (mostly above 142) — Baker.

Central Nepal birds (from the intergrading area) give:

	Wing	Bill (from skull)	Tail
8 ♂♂	135–146	30–33	96–104 mm
3 ♀♀	136–138	29–30	98–102 mm (Biswas)

Weight 1 ♂ 81 g; 2 ♀♀ 75, 83 g (Diesselhorst).

COLOURS OF BARE PARTS. As in 815.

815. *Picus chlorolophus chlorolophus* Vieillot

*Picus chlorolophus* Vieillot, 1818, Nouv. Dict. d'Hist. Nat. 26: 78 (Bengal)  
Baker, FBI No. 1346, Vol. 4: 17

LOCAL NAMES. None recorded.

SIZE. Myna +; length c. 27 cm (10½ in.).

FIELD CHARACTERS. A medium-sized yellowish green woodpecker with a golden yellow nuchal crest.

Male. *Above*, forehead, supercilia (continued behind to meet at nape) and a moustachial streak crimson; crown olive-green; nuchal crest golden yellow. Upper plumage bright yellowish green; wing-quills largely green and maroon-red. Tail brownish black with the central feathers edged bronze-green. *Below*, chin and throat brown, barred with whitish; breast olive-brown; rest of underparts barred brown and white.

Female. Similar to male but no crimson on forehead or malar stripe; crimson restricted to a short broad line from behind the eye to nape.

Young (immature) dull coloured above without any crimson on head. Underparts barred olive and white throughout.

STATUS, DISTRIBUTION and HABITAT. Resident. The lower Himalayas from about the Arun Valley in Nepal (c. 87°E.) eastward through Sikkim, Bhutan and NEFA. Assam, Nagaland, Manipur, Mizo, East Pakistan (hill tracts), lower Bengal, Bihar (Lohardaga). Terai, duars and foothills; locally to c. 2000 m. Affects mixed deciduous and evergreen secondary jungle.

Extralimital. Northern Burma and northern Shan States.

GENERAL HABITS. Typical woodpecker. Usually keeps in pairs, often in association with other woodpecker species or as a member of the itinerant mixed hunting parties of drongos, minivets, flycatchers, babbler and other insectivorous birds in forest. Commonly descends to the ground to pick ants etc.

FOOD. Insects, chiefly ants and termites; larvae and pupae of wood-boring and dung beetles. Berries as secondary food.

VOICE and CALLS. Advertising call (?) a plaintive, rather mournful-sounding, nasal single note *cheenk*, lasting c. ½ to 1 second—reminiscent of call of Black Bulbul—repeated monotonously every 15 to 30 seconds, often for 10 minutes or more at a stretch, while the bird is clinging motionless to a bare branch at the top of a forest tree. At each call the bill is raised to an angle of c. 45°, and head turned from side to side as if expecting a response, and yellow nape fluffed out into prominence. This call is given by both sexes. Other calls have been described as 'a most peculiar trill of 5 or more ascending notes,mistakable for some kind of cuckoo's', and a loud *quaaa* at intervals (Desirée Proud). Drums on wood in addition to the vocalizations.

BREEDING. Season, April-May. Nest, the usual woodpecker hole c. 5 cm in diameter in a dead or decaying tree-trunk, turned down into a vertical shaft up to 30 cm or more in depth and ending in a widened egg-chamber; no lining. The holes are often under 2 or 3 metres from the ground, but may be as high as 15 or 20. Eggs, 3 to 5, white, broad ovals. Average size of 50 eggs 24·3 × 19·0 mm (Baker). Both sexes share in excavating the hole, incubation, and feeding the young; incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. Differs from West Himalayan *simlae* in averaging somewhat smaller with the nuchal crest bright orange-yellow *v.* pale lemon-yellow.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	126-142	21-28	c. 22-23	74-94 mm (Baker)

**COLOURS OF BARE PARTS.** Iris brownish crimson; bare skin round eye slaty plumbeous. Bill: upper mandible and tip of lower horny brown; upper mandible at gape, and basal portion of lower mandible, pale green. Legs and feet greenish plumbeous; claws brown.

816. *Picus chlorolophus chlorigaster* Jerdon

*Picus chlorigaster* Jerdon, 1844, Madras Jour. Lit. Sci. 13 (2): 139 (Southern India)

Baker, FBI No. 1349, Vol. 4: 19

Plate 52, fig. 1, facing p. 208

**LOCAL NAME.** *Märdmkotti* (Malayalam).

**SIZE.** Myna +; length c. 27 cm (10½ in.).

**FIELD CHARACTERS.** As of 815. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. The Sahyadri or Western Ghats complex from the Narbada river (W. Khandesh, Surat Dangs) south to Kerala, including the Nilgiris, Palnis and associated hills in western Mysore (Malnaad). Extends east to the Shevaroy and Nallamalai hills, and thence northward in the Eastern Ghats to northern Andhra (Anantgiri, Lamasinghi) and Orissa (Mayurbhanj), in appropriate semi-evergreen and moist-deciduous biotope. From plains level to c. 1800 m; commoner in the foothills. Affects secondary jungle and mixed teak and bamboo forest. Partial to rubber and coffee plantations.

**GENERAL HABITS.** As in the other races, cf. 815.

**FOOD.** Ants and grubs; occasionally berries. Stomachs examined in a forest plantation area contained predominantly adults and larvae of *Cremastogaster* sp. (Formicidae), and larvae of *Hapalia machaeralis* (Pyralidae), a harmful defoliator of teak (*Tectona grandis*).

**VOICE and CALLS.** Usually silent on the wing. A single sharp mournful note *cheenk* or *cheeank* as in 815. One described by Betts as 'a single sharp *chak*' is possibly a variant rendering of the same.

**BREEDING.** Season, overall January to May, chiefly March and April. Nest, the usual woodpecker hole excavated by the birds in the trunk or vertical branch of a forest tree, between about 5 and 7 metres from the ground. Frequently bored under one of the large plate-shaped fungi that project like brackets from the trunks of dead trees in damp localities. Often the entrance-hole is quite low down and hidden under the porch-like projection. Eggs, normally 2, exceptionally 3, white, blunt ovals. Average size of 12 eggs 25·8 × 18·8 mm (Baker). Breeding biology as in 815. Period of incubation undetermined.

MUSEUM DIAGNOSIS. Differs from nominate *chlorolophus* in being smaller and much darker green above. Breast more or less spotted with white in all but the oldest birds. Extent of crimson on head much greater in both sexes; yellow on nuchal crest less in extent and much paler.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	120-128	26-32	20-24	78-89 mm
♀ ♀	119-128	26-30	20-23	77-84 mm (SA, HW, Koelz)

Weight 4 ♂♂ 57-74 g ; 3 ♀ ♀ 62-70 g (SA).

COLOURS OF BARE PARTS. Iris crimson. Bill horny brown or brownish black, yellow at sides of base, especially of lower mandible; mouth pink. Legs and feet greyish or dusky olive-green; claws horny.

817. *Picus chlorolophus wellsi* Meinertzhagen

*Picus chlorolophus wellsi* Meinertzhagen, 1924, Bull. Brit. Orn. Cl. 44: 56 (Ceylon)  
Baker, FBI No. 1350, Vol. 4: 20

LOCAL NAMES. *Kondé kāhā kerellā* (Sinhala); *Mārāmkotti, Thachchan kūrūvi* (Tamil).

SIZE. Myna ±; length c. 25 cm (10 in.).

FIELD CHARACTERS. As of 815. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Endemic in Ceylon. Well distributed, in small numbers, throughout the low-country Wet zone (commonest in the foothills), and in some areas of the adjoining Dry zone; in the hills to c. 1800 m.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 815 and other Indian subspecies. 'Its call is a loud, harsh scream *queer*, very reminiscent of one of the notes of the Indian Pitta' (Henry).

BREEDING. Season, February to July, chiefly March and April as in S. India. Nest and eggs as in *chlorigaster*, the latter approximately same size.

MUSEUM DIAGNOSIS. Differs from South Indian *chlorigaster* in being slightly smaller and with the upperparts a darker tinge of green, lacking most of the golden bronze sheen on the wings.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
1 ♂	118	26	20	80 mm
5 ♀ ♀	115-123	24-25	19-20	78-86 mm (Whistler)

'Wing from 111 mm in ♀ ♀ to 125 mm in ♂♂; "culmen" from 20 mm in ♀ ♀ to 25 in ♂♂' (Meinertzhagen).

Weight 1 ♀ 67 g (SDR).

COLOURS OF BARE PARTS. As in 816.

## Genus DINOPIUM Rafinesque

*Dinopium* Rafinesque, 1814, Principes Fondamentaux de Somiologie: 2 of cover. Type, by monotypy, *Dinopium (Picoides) erythronotus* Rafinesque based on 'le picoïde à dos rouge' = *Picus javanensis* Ljungh

Bill about same length as head; culmen slightly curved; nasal ridge not much developed, close to culmen; nostrils exposed. Hallux or inner hind-toe very small or absent; third and fourth toes about equal in length. Wings and tail proportionately longer than in *Micropternus*; outer tail-feathers longer than upper tail-coverts. A red occipital crest in both sexes; in male crown also red, in female black spotted with white.

### Key to the Species

	Page
<b>A Toes three</b>	
1 A single black line down the centre of the throat.....	<i>D. javanense</i> 202
2 Two black lines down the sides of the throat divided by a brownish space .....	<i>D. shorii</i> 202
<b>B Toes four</b> .....	<i>D. benghalense</i> 196

### DINOPIUM BENGHALENSE (Linnaeus): LESSER GOLDENBACKED WOODPECKER

#### Key to the Subspecies

1 Throat streaked with black and white		
a Back golden yellow .....	<i>D. b. benghalense</i> 197	
b Back lemon-yellow.....	<i>D. b. dilutum</i> 196	
2 Throat spotted black and white		
c Back orange-yellow.....	<i>D. b. puncticolle</i> 199	
d Back golden olive-yellow.....	<i>D. b. tehminae</i> 199	
e Back darker, duller with a more olive wash; underparts creamy buff rather than white.....	<i>D. b. jaffnense</i> 200	
f Back mostly red.....	<i>D. b. psarodes</i> 201	

### 818. *Dinopium benghalense dilutum* (Blyth)

*Br.(achypternus) aurantius* var. *Br.(achypternus) dilutus* Blyth, 1849, Cat. Bds.

Mus. Asiat. Soc.: 56 (Sind)

*Brachypterus benghalensis girensis* Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 23 (Sasan, Junagadh)

Baker, FBI No. 1396, Vol. 4: 69

LOCAL NAME. *Drakhan* (= carpenter, Sind).

SIZE. Myna +; length c. 29 cm (11½ in.).

FIELD CHARACTERS. As of 819. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; common but local. West Pakistan in Baluchistan, Sind, NW. frontier districts and southwest Punjab, possibly east to about Ferozepore (c. 74°E.); also Mt Abu and parts of W. Rajasthan; intergrading with adjoining races.<sup>1</sup> Affects dry deciduous and thorn forest; partial to avenues of sheesham and babool trees, and date

<sup>1</sup> The subspecific differences in this woodpecker follow a continuous cline. Moreover, the birds are subject to considerable individual variation in respect of the features upon which subspecific diagnosis is based. Therefore boundaries are difficult to assign, and in many intergrading areas only a certain percentage of extreme cases can be definitely identified.

groves along roads and canals, in and around villages, and urban gardens and compounds.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 819, q.v.

BREEDING. Season, chiefly March and April. Nest, eggs and breeding biology as in 819 and other races. Old gnarled tamarisks and babool and sheesham trees are favoured for nest sites.

MUSEUM DIAGNOSIS. Crest very long. Differs, sex for sex, from nominate *benghalensis* (819) in having the upperparts a much paler yellow with obsolete white spotting and indistinct dark flecking to the feathers; shoulders black with conspicuous white spotting; rump black. White of underparts purer and more extensive on chin, throat and foreneck, which are streaked with black.

MEASUREMENTS

	Wing	Bill (from feathers)
♂ ♀	142-147	28-37 mm (Baker)

COLOURS OF BARE PARTS. As in 819.

819. *Dinopium benghalense benghalense* (Linnaeus)

*Picus benghalensis* Linnaeus, 1758, Syst. Nat., ed. 10, I: 113

(Bengala = Chandernagor *vide* Stresemann, 1952, Ibis 94: 517)

*Brachypterus benghalensis palliolatus* Van Tyne & Koelz, 1936, Occ. Papers Mus. Zool. Univ. Michigan, No. 334: 2 (Bhadwar, 2000 ft, Kangra dist., Punjab)  
Baker, FBI No. 1394, Vol. 4: 67

LOCAL NAMES. All woodpeckers *Kālphōra* (Hindi); *Khidree* (Bastar, M.P.); *Sona kaktola* (M.P., Saugor); *Vādrāngi pitta* (Telugu).

SIZE. Myna +; length c. 29 cm (11½ in.).

FIELD CHARACTERS. Male. Above, crown and occipital crest crimson; upper plumage chiefly golden yellow and black. Below, white streaked with black, more boldly on breast. Chin, throat, and sides of head black, finely streaked and stippled with white.

Female similar to male but with forecrown black, stippled with white like the throat, and only the occipital crest crimson.

Young (immature) like female but duller and browner, and without the white stippling on crown or forehead.

STATUS, DISTRIBUTION and HABITAT. Resident; the commonest and most widely distributed woodpecker in the subcontinent as a whole. Punjab, Uttar Pradesh, Nepal lowlands, Bihar, W. Bengal, Assam, Manipur (?), East Pakistan, Orissa, northern Andhra (south to about Godavari river), Madhya Pradesh, Rajasthan, Gujarat and northern Maharashtra. Intergrades with *dilutum* in Punjab and with *puncticolle* around its southern limits (see footnote, p. 196). Plains, foothills and up to c. 1000 m (c. 1700 m — Dharamsala) in dry- and moist-deciduous biotope. Affects every type of wooded country: light forest, forest plantations, groves of mango, palmyra (*Borassus*) palms and other trees about villages and cultivation, urban compounds, roadside avenues, etc.

**GENERAL HABITS.** Typical of the woodpeckers. Keeps in pairs or family parties, frequently with the mixed hunting associations of various insectivorous species, the woodpeckers following one another from tree to tree and clinging vertically with an upward glide to the trunks and boughs. Creeps up in short jerky spurts, directly or in spirals, tapping spasmodically with the bill to stampede lurking insects or locate hidden pupal galleries of wood-boring beetles. Will occasionally slide back 'in reverse gear' to re-investigate some promising crevice it has missed. Flight undulating, swift and noisy, consisting of a few rapid flaps followed by a long dipping bound with wings pressed to the sides; usually accompanied by a shrill, chattering 'laugh'. Commonly descends to the ground and hops about picking up ants and crawling insects.

**FOOD.** Insects and larvae, predominantly ants, picked off tree-trunks and boughs, and on the ground. Fruits and berries: has been observed clinging to a half-ripe mango on a tree, digging into the flesh and swallowing morsels. Also takes flower nectar regularly — *Erythrina*, *Salmalia*, *Acrocarpus*, *Grevillea* recorded. Among stomach contents analysed from an intensively cultivated area in Bihar the following insects identified in quantity: ants (Formicidae — *Cremastogaster subnuda*, *Camponotus compressus*, *Oecophylla smaragdina*, *Phidole malinsi* (?), *Meranoplus bicolor*, *Myrmecocystus setipes*); weevils (Curculionidae — *Myllocerus discolor*, *Astycus lateralis*), beetles (Tenebrionidae — *Mesomorpha villiger*, *Derosphaerus rugicollis*), geometrid caterpillars, and once a centipede and spider (Mason & Lefroy, 1912).

**VOICE and CALLS.** A loud, high-pitched cackling 'laugh', rather like the Whitebreasted Kingfisher's but less emphatic and more tinny. Drums on stems and boughs of trees in rather muffled bursts — *drr-r-r-r-r-r* — of 2 or 3 seconds duration, chiefly during the breeding season as advertisement. Nest-young emit a screechy hissing to deter a human intruder, while the parents flit distractedly from branch to branch in the vicinity, pecking viciously on the substrate in anger and frustration.

**BREEDING.** Season, February to July, chiefly March and April. Excavation often commences a month or more before egg-laying. Two successive broods sometimes raised. Nest, a neat round hole (*c.* 7 or 8 cm across) leading to the shaft and widened egg-chamber, usually cut between 3 and 6 metres from the ground, occasionally 10 or more. Mango, *Albizzia*, *Erythrina* and other softwood trees, and stems of coconut and palmyra palms usually selected; sometimes a horizontal branch with entrance on the underside. Eggs, normally 3, china white with a glossy surface. Average size of 50 eggs  $28 \cdot 1 \times 20 \cdot 9$  mm (Baker). Both sexes share all the domestic chores; period of incubation undetermined. Despite nest-sanitation practised by the parents, nests usually foul-smelling.

**MUSEUM DIAGNOSIS.** Upperparts rich golden yellow; rump black; shoulders black with conspicuous creamy white spotting; chin, throat and breast black, streaked with white; white of lower parts pure.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂♀	136-148	31-43	23-27	89-93 mm (SA)

Weight 11 ♂♀ 89-121 (aver. 100·3) g — SA.

No consistent size difference in the sexes.

**COLOURS OF BARE PARTS.** Iris reddish brown; circumorbital skin sage green. Bill horny black; mouth slaty pink or greyish pink. Legs and feet greyish leaf-green; claws slaty.

### 820. *Dinopium benghalense puncticolle* (Malherbe)

*Picus (Brachypternopicus) puncticollis* Malherbe, 1845, Rev. Zool.: 404

(India = slopes of the Nilgiri Hills)

Baker, FBI No. 1395, Vol. 4: 69

**LOCAL NAMES.** *Sōn pāthi sūtār* (Marathi). Woodpeckers in general: *Märämkotti*, *Tachchan kūrūvi*, *Mānu potukū* (Tamil); *Vädrängi pitta* (Telugu).

**SIZE.** Myna +; length c. 29 cm (11½ in.).

**FIELD CHARACTERS.** As of 819. See Museum Diagnosis.

Distinguished from the very similar Threetoed Goldenback (825), especially in flight, by its *black* lower back and rump *v.* crimson.

**STATUS, DISTRIBUTION and HABITAT.** Resident; common. Peninsular India south of the range of 819 (excluding Kerala), north to about Godavari R. in the east and Rajasthan in the west (but see footnote, p. 196). Affects dry- and moist-deciduous biotope, plains and hills to c. 1200 m—light forest, roadside avenues, mango topes around villages and cultivation, wooded urban gardens and compounds, coconut, date and palmyra groves, etc.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 819, q.v.

**BREEDING.** Season, chiefly March–April. Nest, eggs (c/3) and breeding biology as in the nominate subspecies.

**MUSEUM DIAGNOSIS.** Upperparts golden yellow, intermediate between *dilutum* and *benghalense*; rump black; shoulders partly black with conspicuous creamy white spotting; chin, throat and breast black, with small white triangular spots; white of lower plumage pale creamy white.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
9 ♂♂	138–146	35–41	24–28	82–89 mm
11 ♀♀	137–146	37–40	25–26	80–92 mm
Weight 1 ♀	132 g (SA).			(HW)

**COLOURS OF BARE PARTS** as in 819.

**MISCELLANEOUS.** Parasitized by the ticks *Haemaphysalis spinigera* and *H. turturis* (Rajagopalan, JBNHS 69: 62).

### 821. *Dinopium benghalense tehminae* (Whistler & Kinnear)

*Brachypterus benghalensis tehminae* Whistler & Kinnear, 1934, Jour. Bombay nat.

Hist. Soc. 37: 293 (Rajampara, 1350 ft, Panthalam Hills, Travancore)

*Brachypterus benghalensis woodi* Koelz, 1939, Proc. Biol. Soc. Washington 52: 78  
(Jagalbed, Bombay State)

Baker, FBI No. 1395 (part), Vol. 4: 69

Plate 52, fig. 3, facing p. 208

**LOCAL NAMES.** All woodpeckers: *Märämkotti* (Malayalam).

**SIZE.** Myna +; length c. 29 cm (11½ in.).

**FIELD CHARACTERS.** As in 819. See Museum Diagnosis.

Distinguished from the very similar Threetoed Goldenback (825), especially in flight, by its black lower back and rump *v.* crimson.

**STATUS, DISTRIBUTION and HABITAT.** Resident; common. West coast of India southward from c. 16°N. through Goa, western Mysore (Malnaad) and Kerala; low country and foothills, locally up to c. 1000 m. Affects light forest, wooded urban and rural compounds, fruit gardens surrounding the backwater homesteads, and rubber, cashew, and coconut plantations, etc.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 819 and other races, qq.v.

**BREEDING.** Season, February–March and July–August; possibly staggering through the intervening months. Nest, eggs (c/3) and breeding biology as in 819.

**MUSEUM DIAGNOSIS.** Upperparts rich golden olive-yellow; black of rump much restricted and obscured by an olive wash; black of shoulders practically obscured by golden olive wash, the spots small or obsolete and yellowish cream in colour. Chin, throat and breast black with fine white spotting and barring; white of lower plumage with a creamy buff tinge.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
6 ♂♂	136–151	39–43	25–26	86–95 mm
8 ♀♀	138–149	39–41	23–25	85–94 mm (HW)

**COLOURS OF BARE PARTS.** Iris brown, brownish crimson, or crimson. Bill slaty brown (horny black), greyish laterally at base of lower mandible; mouth greyish pink. Legs and feet greenish grey; claws horny brown.

### 822. *Dinopium benghalense jaffnense* (Whistler)

*Brachypternus benghalensis jaffnensis* Whistler, 1944, Spolia Zeylanica 23: 206

(Illuppaikkadavai, Ceylon)

Baker, FBI No. 1397, Vol. 4: 70

**LOCAL NAMES.** *Pita rāng kerellā* (Sinhala); *Märämkotti*, *Thachchan kūrūvi* (Tamil, Ceylon).

**SIZE.** Myna ±; length c. 28 cm (11 in.).

**FIELD CHARACTERS.** As of 819; slightly smaller. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Race endemic in Ceylon. Moderately plentiful in the Jaffna peninsula and well-wooded areas to the north of Puttalam and Trincomalee; less common in the inland northern forest area, north of Kekirawa (North Central Province). Southwards, it meets and intergrades with the Redbacked Woodpecker (823)—Phillips. Largely a bird of open coastal areas.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 819 and the other peninsular races. See Museum Diagnosis.

**BREEDING.** Season, 'about April' (Wait). Nest, eggs, etc. doubtless as in 819 and 823, but very little definitely recorded.

**MUSEUM DIAGNOSIS.** Differs from peninsular *puncticollis* (820) in the darker and duller tint of the upperparts with their more olive wash both on mantle and wings,

and by the smaller and more 'arrow-headed' spots on the wing-shoulders. Lower plumage creamy buff (*v.* white) with more heavily defined black markings from lower breast to under tail-coverts. Also by smaller size and lighter, more pointed bill. Very close to the Kerala population (821); separable from it chiefly on size and bill.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
7 ♂♂	130-138	34-39	24-25	78-85 mm
6 ♀♀	132-135	35-36	23-24	75-85 mm (HW)

COLOURS OF BARE PARTS. As in 821.

823. *Dinopium benghalense psarodes* (A. Lichtenstein)

*Picus psarodes* A. Lichtenstein, 1793, Catalogus rerum rarissimarum Hanburgi: 18  
(‘Ostindien’, restricted to Ceylon by Meise, 1950, Ardea 38: 187)

*Picus erithronothos* Vieillot, 1818, Nouv. Dict. d’Hist. Nat. 26: 73  
(Java, *errore* = Ceylon)

Baker, FBI No. 1398, Vol. 4: 71

LOCAL NAMES. *Pita rātu kerellā* (Sinhala); *Märämkotti*, *Thachchan kūrūvi* (Tamil, Ceylon).

SIZE. Myna +; length c. 28 cm (11 in.).

FIELD CHARACTERS. Similar, sex for sex, to the Goldenbacks (e.g. 819, 822) but with crimson replacing golden yellow in the upper plumage. Confusable with Ceylon Crimsonbacked Woodpecker (863), but slightly smaller size, brighter red back, bolder black and white markings on sides of head, shorter darker coloured bill, and different call-notes, diagnostic.

STATUS, DISTRIBUTION and HABITAT. Race endemic in Ceylon; the commonest woodpecker in the island. Plentiful throughout the well-wooded hills to c. 1700 m; also throughout the lowlands except the forested coastal area north of Puttalam, Kekirawa and Trincomalee where it meets and intergrades with the goldenbacked *jaffnense* (822)—Phillips. Affects coconut plantations, wooded gardens and open jungle; avoids heavy forest.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 822, and in 819 and other peninsular races.

BREEDING. Season, overall December to September, chiefly March to June and August-September. Nest, eggs (c/3) and breeding biology as in 819 and other races. Average size of 13 eggs 29 × 21.3 mm (Baker).

MUSEUM DIAGNOSIS. See Key to the Subspecies and Field Characters. Black on sides of head and lower plumage greater in extent, and white less than in the golden-backed races; white markings on chin and throat confined to spots or narrow bars.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
12 ♂♂	135-141	35-39	23-24	83-90 mm
11 ♀♀	130-140	32-40	24-25	77-93 mm
Weight 1 ♀	97 g (SDR).			(HW, SDR)

COLOURS OF BARE PARTS. As in 821.

**824. Himalayan Goldenbacked Threetoed Woodpecker. *Dinopium shorii shorii* (Vigors)**

*Picus shorii* Vigors, 1832 (1830–31), Proc. Zool. Soc. London (1): 175 (Himalayas)  
Baker, FBI No. 1401, Vol. 4: 74  
Plate 51, fig. 1, facing p. 176

LOCAL NAMES. None recorded.

SIZE. Pigeon ±; length c. 31 cm (12 in.).

FIELD CHARACTERS. A largish goldenbacked woodpecker with crimson crown and occipital crest (♂), crimson rump and black tail. Hindneck black, the black continued forward as a black stripe to behind eye; a prominent white supercilium to nape; a broad white band down either side of neck. Black moustachial streaks continued as a double line down centre of throat, with the intervening space pale brown. Below, breast and underparts buffy white boldly streaked and scalloped with black.

Female similar to the male but with forehead and forecrown brownish black instead of crimson; crown and crest black with long white streaks.

STATUS, DISTRIBUTION and HABITAT. Resident; from Garhwal eastward through Nepal, Sikkim, Bhutan and NEFA. Also Nagaland, Manipur and East Pakistan (hill tracts). Locally not uncommon in the Himalayan terai, bhabar, duars and foothills, up to c. 700 m. Co-existing with *Dinopium benghalense*, but evidently more narrowly restricted to climax forest and less adaptable than *benghalense* to conditions created by increasing deforestation, therefore less widespread. Affects tall deciduous and semi-evergreen forest.

Extralimital. Chin and Kachin hills, Arakan Yomas and Burmese hill ranges south to Thayetmyo (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in other goldenbacked woodpeckers (cf. 819). Nothing specifically recorded.

BREEDING. Season, not definitely known; eggs have been taken apparently only thrice, all in the first half of April. Nest, the typical woodpecker boring in a tree-trunk. Eggs, 3 (sometimes 2 ?), white. Average size of 8 eggs 29·9 × 20·8 mm (Baker).

MUSEUM DIAGNOSIS. Hallux (inner hind-toe) absent. See Key to the Species.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
7 ♂♂	154–159	39–44	—	96–104 mm
7 ♀♀	152–164	37–41 (from skull)	—	99–104 mm (Biswas)

Baker gives

(from feathers)

♂ ♀	146–162	32–36	23–24	95–103 mm
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Weight 1 ♀ 101 g (Diesselhorst).

COLOURS OF BARE PARTS. Iris dark brown, reddish brown or crimson (age ?). Bill dark slaty or blackish. Legs and feet plumbeous or greenish brown; claws slaty; pads yellowish grey.

**DINOPIUM JAVANENSE (Ljungch): INDIAN GOLDENBACKED  
THREETOED WOODPECKER**

**Key to the Subspecies**

- |   |                          |
|---|--------------------------|
| Larger.....   | <i>D. j. intermedium</i> |
| Smaller, with an olive wash on the yellow upperparts..... | <i>D. j. malabaricum</i> |
| .....   |                          |

825. *Dinopium javanense malabaricum* Whistler & Kinnear

*Dinopium javanense malabaricum* Whistler & Kinnear, 1934, Jour. Bombay nat. Hist. Soc. 37: 294 (Manantoddy, Wynad). New name for *Picus rubropygialis* auct., not of Malherbe, 1845

Baker, FBI No. 1400, Vol. 4: 73

Plate 52, fig. 2, facing p. 208

LOCAL NAMES. *Mānu tolachhi* (Telugu); *Mārām tolachhi, Thachchan kūrūvi* (Tamil); *Mārāmkotti* (all woodpeckers, Malayalam).

SIZE. Myna +; length c. 28 cm (11 in.).

FIELD CHARACTERS. Superficially rather similar to Kerala Goldenbacked Woodpecker (821), also with crimson crown and occipital crest in male, but golden olive of upperparts mixed with orange or scarlet, and lower back and rump crimson (*v.* black). A white supercilium to nape; sides of head boldly striped black and white. *Below*, buffy white with a black stripe down middle of chin and throat and prominent black scalloping or scale-like markings on breast and abdomen.

Female similar to male but crown and occipital crest black instead of crimson, and stippled with white.

May be confused in the field also with *Chrysocolaptes l. chersonesus* (862)—also with red rump—but its slightly smaller size and black nape (*v.* white in 862) are diagnostic. The calls of the two are also distinct.

STATUS, DISTRIBUTION and HABITAT. Range almost completely coincident with that of 821: southwestern India southward from c. 16°N. through Goa, western Mysore (Malnaad), western Tamil Nadu (Nilgiri and Palni Hills) and Kerala; low country and hills up to c. 2300 m. Affects moist-deciduous and evergreen forest, especially in the foothills—more humid facies than usual with 821.

The species *javanense*, like the several other Indo-Malayan elements in the fauna of the heavy-rainfall areas of southwestern India, has a remarkably disjunct range, the nearest related population in Assam (826) being separated from *malabaricum* by a gap of more than 1500 km.

GENERAL HABITS. Typical woodpecker. Keeps in pairs, often associated with mixed hunting parties of wood shrikes, racket-tailed drongos, and other insectivorous birds in forest.

FOOD. Ants, grubs of beetles, and other insects.

VOICE and CALLS. A rather weak tinny scream, quite distinct from the call of the commoner Goldenbacked (821). Also drums on wood like most other woodpeckers, particularly during the breeding season.

BREEDING. Season, overall January to April–May, chiefly February and March. Nest, the usual hole excavated in a tree-trunk or branch from under 2 metres to 10, normally below 5 m. Eggs, 2 or 3, white, oval, unmarked. Average size of 15 eggs  $29.4 \times 20.4$  mm (Baker). Breeding biology not specifically recorded; presumably as in 821. Incubation period undetermined.

MUSEUM DIAGNOSIS. Differs from the spatially separated Assam–Burma subspecies (826) in its somewhat smaller size, and a strong olive wash in the golden colour of the upper plumage.

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	135-143	31-32	22-24	87-95 mm
♀ ♀	137-143	27-32	22-24	83-94 mm (HW, SA)

COLOURS OF BARE PARTS. Iris reddish brown to brownish red. Bill slaty brown, grey at chin, gape and base of lower mandible; mouth greyish pink. Legs and feet greenish grey or greyish green; claws slaty brown.

MISCELLANEOUS. Parasitized by tick *Haemaphysalis spinigera* (Rajagopalan, JBNHS 69: 62).

826. *Dinoptium javanense intermedium* (Blyth)

*Picus (Tiga) intermedius* Blyth, 1845, Jour. Asiat. Soc. Bengal 14 (1): 193 (Nepal, Assam, . . . Tenasserim = Arakan, *vide* Baker, 1919. Restricted to Ramree Island by Robinson & Kloss, 1923, Jour. Nat. Hist. Soc. Siam 5: 187)

Baker, FBI No. 1399, Vol. 4: 72

LOCAL NAMES. None recorded.

SIZE. Pigeon +; length c. 30 cm (12 in.).

FIELD CHARACTERS. As of 825. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Assam south of Brahmaputra R., Nagaland (?), Manipur, Tipperah and East Pakistan. Affects moist-deciduous biotope — plains and foothills forest, and wooded country around habitations.

EXTRALIMITAL. Burma north of c. 10°N., Shan States, Thailand and the Indochinese countries.

GENERAL HABITS, FOOD, VOICE and CALLS. Typical woodpecker. Similar to 825 and other species, qq.v.

BREEDING. Season, March to June, chiefly March and April. Nest, the usual woodpecker hole in a tree-trunk. Eggs, normally 3, white. Average size of 12 eggs 29 × 19.1 mm (Baker).

MUSEUM DIAGNOSIS. Differs from *malabaricum* (825) in being slightly larger and purer golden on the upperparts, lacking the olive wash.

## MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	136-165	27-30	23-24	89-102 mm (Baker)

COLOURS OF BARE PARTS. Iris brown or hazel. Bill almost black, brownish or plumbeous on the basal half. Legs and feet dull brownish green.

Genus *GECINULUS* Blyth

*Gecinulus* Blyth, 1845, Jour. Asiat. Soc. Bengal 14 (1): 192. Type, by monotypy, *Picus grantia* Horsfield

Only three toes present, the hallux or inner hind-toe lacking. Bill short, compressed; culmen blunt, nearly straight; nasal ridge obsolete. Nostrils close to base of bill; nasal plumes short. Tail-feathers broad, not acuminate; outer pair longer than coverts but much shorter than the rest, which are regularly graduated. Crest short, inconspicuous.

827. **Paleheaded Woodpecker.** *Gecinulus grantia grantia* (Horsfield)

*Picus (Chrysonotus) Swainson*) *Grantia* Horsfield, 1840 (1839), Proc. Zool. Soc. London (7): 165 (Assam)

*Gecinulus grantia aristus* Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 22  
(Himuntha, Lushai Hills)

Baker, FBI No. 1356, Vol. 4: 27

Plate 53, fig. 1, facing p. 224

LOCAL NAMES. *Ka ter* (Lepcha); *Koria* (Dafla).

SIZE. Myna +; length c. 25 cm (10 in.).

FIELD CHARACTERS. Male. *Above*, forehead and sides of head pale golden olive-brown; sides of neck and nape golden olive-yellow. A crimson-pink patch on crown. Rest of upper plumage dull crimson, including secondary wing-quills; primaries brown barred with buff; tail brown and crimson. *Below*, chin and throat dull olive-yellow merging into dark brownish olive of rest of underparts.

Female similar, only lacking the crimson-pink patch on crown.

Young (immature) like female but dark brown on mantle and very dark chocolate-brown on breast, flanks and abdomen.

STATUS, DISTRIBUTION and HABITAT. Resident; not uncommon but rather local. From eastern Nepal through Sikkim, Bhutan and all Assam to extreme eastern NEFA, Nagaland, Manipur, Mizo and East Pakistan (hill tracts); plains and foothills up to c. 1000 m, occasionally somewhat higher. Affects bamboo and mixed secondary forest in moist-deciduous biotope; very partial to bamboo jungle.

Extralimital. Chin Hills, Burma.

GENERAL HABITS. A noisy woodpecker, usually seen singly or in pairs hunting actively on moderate sized tree-trunks and particularly on large bamboos; also on fallen decaying logs, rarely even on the ground.

FOOD. Insects, chiefly ants and grubs of beetles.

VOICE and CALLS. Contact call a nasal *chaik-chaik-chaik . . .* 5 or 6 times in succession, commencing loud and slow, increasing in tempo, then growing fainter and fading out. Also utters a loud, harsh castanet-like rattling *kéréké-kéréké-kéréké* etc. (or *cheréké-cheréké-cheréké*), reminiscent of a tree pie or jay — this evidently a cry of agitation or concern (?). Both these calls are similar in pattern to those of the Red-eared Bay Woodpecker (857) and apt to be confusing. Has not specifically been recorded drumming.

BREEDING. Season, chiefly March to May. Nest, a hole cut by the birds in a rotten tree-stump or bole, usually fairly low down — from 1 to 6 m. Apparently the same shaft with new entrance-holes is used in successive years, but whether by the same or a different pair is not known. Eggs, 3, white. Average size of 24 eggs 25.7 × 19.2 mm (Baker). Period of incubation undetermined.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	125-134	25-27	23-24	79-87 mm (Baker, SA)

**COLOURS OF BARE PARTS.** Iris reddish brown. Bill bluish ivory, pale plumbeous near base. Legs and feet olive; claws horny brown.

### Genus MULLERIPICUS Bonaparte

*Hemilophus a Mulleripicus* Bonaparte, 1854, Ateneo Italiano 2: 122 (Consp. Volucr. Zygodact.: 7). Type, by monotypy, *Picus pulverulentus* Temminck

Size very large. No crest; feathers of crown short, harsh and scaly. Bill large: culmen curved at base then straight; tip compressed and chisel-shaped. Nasal ridge well developed, near culmen, extending almost to tip. Nostrils large, rounded, covered with plumes. Feet and claws large; hallux well developed; fourth toe shorter than third. Wings and tail long; tail-feathers very strong and pointed, the outer pair just extending beyond the coverts. Only a single species within our limits.

### MULLERIPICUS PULVERULENTUS (Temminck): GREAT SLATY WOODPECKER

#### Key to the Subspecies

- Lighter grey; malar stripe scarlet..... *M. p. harterti*
- Darker grey particularly on the lower parts; malar stripe crimson .....
- ..... *M. p. mohun*

### 828. *Mulleripicus pulverulentus mohun* Ripley

*Mulleripicus pulverulentus mohun* Ripley, 1950, Proc. Biol. Soc. Washington 63: 103  
(Jamu Ghat, Bheri River, western Nepal)

Baker, FBI No. 1411 (part), Vol. 4: 86

Plate 51, fig. 5, facing p. 176

**LOCAL NAMES.** None recorded.

**SIZE.** House Crow +; length c. 51 cm (20 in.).

**FIELD CHARACTERS.** As of 829, q.v. See Key to the Subspecies and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident: Uttar Pradesh (from about Simla c. 77°E.) eastward through Nepal, Sikkim, Bhutan, Arunachal and Assam north of Brahmaputra R.; terai, duars, foothills and up to c. 1000 m, occasionally to 2000 m. Affects climax sal and tropical semi-evergreen forest; sometimes overgrown clearings with a scattering of tall-primeval trees—almost park-like country.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 829, q.v.

**BREEDING.** Season, nest, eggs and breeding biology as in 829.

**MUSEUM DIAGNOSIS.** Differs from *harterti* (829) of Assam-Burma in being darker slaty, especially on the underparts, and in the moustachial stripe of the male being crimson v. scarlet.

**MEASUREMENTS and COLOURS OF BARE PARTS.** As in 829.

### 829. *Mulleripicus pulverulentus harterti* Hesse

*Mulleripicus pulverulentus harterti* Hesse, 1911, Orn. Monatsh. 19: 182  
(Type from Pya, upper Chindwin River, Burma)

Baker, FBI No. 1411 (part), Vol. 4: 86

**LOCAL NAME.** *Daaja gadaiya ko gadeba* (Cachari).

**SIZE.** House Crow +; length c. 51 cm (20 in.).

**FIELD CHARACTERS.** A large woodpecker overall slaty grey with buffy yellow chin, throat and foreneck. Male has a short broad crimson moustachial stripe which the female lacks.

**Young** (immature) like female but darker and duller slate with the underparts more profusely spotted with pale dots.

**STATUS, DISTRIBUTION and HABITAT.** Resident. Assam south of Brahmaputra R., Mishmi Hills, Nagaland (?), Manipur, and East Pakistan in the hill tracts; in moist-deciduous and evergreen climax foothills forest.

**Extralimital.** Burma south to N. Tenasserim, Thailand and the Indo-chinese countries.

**GENERAL HABITS.** Almost invariably keeps in small parties of 3 to 6 in tall dense forest as well as thinned-out stands of giant trees in overgrown clearings. The individuals scatter to feed in neighbouring trees, maintaining contact with one another by short querulous notes between the bouts of powerful tapping as they scuttle jerkily up and around the boles and branches. The birds fly from one patch of the forest to another in sprawling follow-my-leader style through the tree-tops or high above the forest canopy. Flight stately and unhurried with slow deliberate wing-beats, reminiscent (in silhouette) of a crow flying to roost, with but little of the usual wood-pecker bounds and undulations.

**FOOD.** Insects: chiefly larvae and pupae of wood-boring beetles, e.g. *Haplocerambyx*.

**VOICE and CALLS.** A very loud, rather raucous but not unpleasant cackle in flight. A single loud querulous note intriguingly like something between the bleat of a goat and the bark of a dog! (SA). Besides the vocalizations has a powerful reverberating mechanical drumming with the bill, audible at a great distance.

**BREEDING.** *Season*, March to May. *Nest*, the typical woodpecker hole usually high up (often 25 m or more) in the lofty unbranched bole of a dipterocarp or suchlike giant tree, often a dead or decaying one. Hole c. 10 cm in diameter extending several centimetres horizontally before turning down for 30 cm or so and widening into the egg-chamber. *Eggs*, normally 3 or 4, white and strikingly large; laid on the bare wood without any lining. Average size of 14 eggs 39.1 × 29.4 mm (Baker). Both sexes share in excavating the hole, incubation, and feeding the young. Period of incubation undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. Differs from *mohun* (828) of Nepal, Sikkim, etc. in being a paler slaty grey with the moustachial stripe of the male orangy crimson or scarlet v. deep crimson.

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	221–245	60–69	39–41	134–162 mm (Baker)

**COLOURS OF BARE PARTS.** Iris dark hazel-brown to reddish brown; circumorbital skin slaty. Bill pale slaty white, sometimes tinged with blue; culmen and tip blackish. Legs and feet dark slaty, sometimes tinged with bluish or greenish.

## Genus DRYOCOPUS Boie

*Dryocopus* Boie, 1826, Isis von Oken, Bd. 2, col. 977. Type, by monotypy, *Picus martius* Linnaeus

Structurally very similar to *Mulleripicus* but with a well-marked nuchal crest: feathers of crown normal — not short, harsh and scaly. Bill shorter than in *Mulleripicus* with the nasal ridges farther from culmen though still nearer to it at base of bill than to commissure. Only a single species within our limits.

## DRYOCOPUS JAVENSIS (Horsfield): GREAT BLACK WOODPECKER

## Key to the Subspecies

- |                           |                        |
|---------------------------|------------------------|
| Belly and rump white..... | <i>D. j. hodgsonii</i> |
| Plumage wholly black..... | <i>D. j. hodgei</i>    |

830. *Dryocopus javensis hodgsonii* (Jerdon)

*Malacolophus (Hemilophus) Hodgsonii* Jerdon, 1840, Madras Jour. Lit. Sci. 11 (1):

215, pl. 2 (Indian peninsula: restricted type locality Telicherry)

Cf. Ali, Sálim, 1951, JBNHS 49: 787

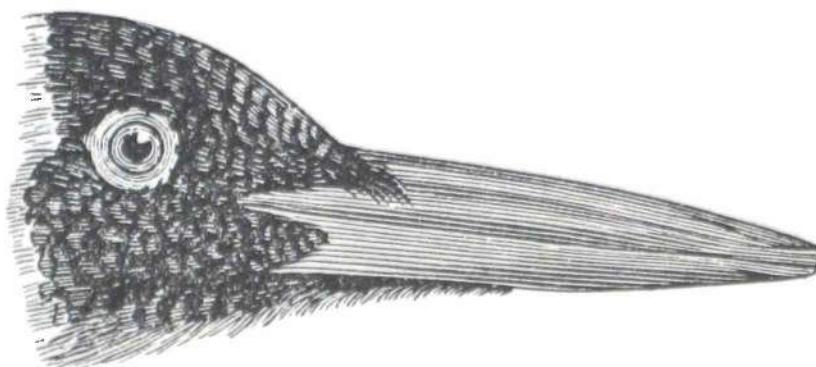
Baker, FBI No. 1414, Vol. 4: 90

Plate 52, fig. 7, facing p. 208

LOCAL NAMES. *Bhainsa khidree* (= buffalo woodpecker — Bastar dist., M.P.); *Kakkā märämkotti* (Malayalam).

SIZE. House Crow +; length c. 48 cm (19 in.).

FIELD CHARACTERS. A magnificent large black woodpecker with conspicuous white rump, and white underparts from breast down.



× c. 1

Male with brilliant crimson forehead, crown, nuchal crest, and cheeks. Female similar, but with the crimson confined to nape only.

STATUS, DISTRIBUTION and HABITAT. Resident. The humid Sahyadri or Western Ghats complex from Kerala northward to the Tapti river (c. 21°N.), through W. Tamil Nadu (Nilgiris), W. Mysore (Malnaad, including Coorg), Goa, W. Maharashtra (north to Khandesh) and S. Gujarat (Surat Dangs). Also procured in Bastar dist. (c. 82°E.), eastern Madhya Pradesh, therefore possibly extending right across the central peninsula along the



## PLATE 52

- 1 *Picus chlorolophus*, Small Yellownaped Woodpecker (816) ♀. 2 *Dinopium javanense*, Indian Golden-backed Threetoed Woodpecker (825) ♀. 3 *Dinopium benghalense*, Lesser Goldenbacked Woodpecker (821) ♂. 4 *Hemicircus canente*, Heartspotted Woodpecker (856) ♀ left. 5 *Picumnus innominatus*, Speckled Piculet (799) ♂. 6 *Chrysocolaptes lucidus*, Larger Goldenbacked Woodpecker (862) ♂. 7 *Dryocopus javensis*, Indian Great Black Woodpecker (830) ♂.



Satpura mountain trend. This needs investigation. Not uncommon, but very local, in the heavy-rainfall zone north to Goa; thinly distributed, rare or sporadic elsewhere in its range — plains, foothills and up to c. 1200 m elevation. Affects climax and secondary forest in evergreen and moist-deciduous biotope. Partial to mixed bamboo jungle and to lofty natural shade trees in coffee and cardamom plantations in SW. India. Very sensitive to deforestation and disturbance by humans, soon forsaking localities where lumbering is in progress or the forest has been felled. Thus many gaps in its present range doubtless due to disappearance of appropriate habitats.

*Extralimital.* Represented in Burma by the closely similar subspecies *feddeni* (Plate 54) with scarlet-crimson (*v.* deep crimson) crown and nape.

**GENERAL HABITS.** Typical of the woodpeckers and very similar to those of the Great Slaty (829). Keeps in noisy pairs or loose family parties of 3 or 4 chiefly to large forest trees. Flight stately and unhurried, with deliberate wing-beats reminiscent of a crow's or blue jay's in silhouette.

**FOOD.** Chiefly ants (*Camponotus* and others), termites, and grubs and pupae of wood-boring beetles. Stomach of one example contained numerous small honey-bees (*Apis florea*) taken from a comb in a tree hollow; the bird's forehead and chin feathers were clotted with honey.

**VOICE AND CALLS.** A wild resounding metallic single note *chiant*, uttered by both sexes, every 2 or 3 seconds 3 or 4 times in succession, both while clinging to a tree-trunk and in flight from one part of the forest to another. A short ringing laugh or chuckle uttered on the wing, reminiscent of the cry of the Malabar Grey Hornbill (768). In addition a loud, resonant, far-carrying mechanical drumming like a burst of machine-gun fire, particularly in the breeding season, evidently to advertise its presence and territory: this responded to in like manner by other birds in the distance.

**BREEDING.** Season, principally January to March. Nest, the usual wood-pecker hole, c. 14 cm in diameter, excavated in rotten trunks of large branchless trees at heights between c. 8 and 16 metres from the ground. The shaft and egg-chamber are often up to 50 or 60 cm deep. Eggs, normally 2, sometimes said to be 3 or 4, white broad ovals, measuring c. 35 × 23 mm. Both sexes take part in excavating the nest, incubation (?) and feeding the young. Incubation period undetermined. The squabs are greatly relished as food by the locals in Bastar dist., Madhya Pradesh, and eagerly sought; hence, probably, its rarity and inordinate shyness in that area.

**MUSEUM DIAGNOSIS.** See keys to the Species and Subspecies.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	213-225	63-69	37-43	139-165 mm
♀ ♀	212-226	59-65	36-39	130-170 mm (SA)

**COLOURS OF BARE PARTS.** Iris yellowish white (adult ♂ ♀), or pearl grey (imm.). Bill horny slate, paler on sides of lower mandible. Legs and feet greyish slate; claws horny brown.

831. *Dryocopus javensis hodgei* (Blyth)*Mulleripicus hodgei* Blyth, 1860, Jour. Asiatic Soc. Bengal 29: 105 (Andaman Islands)

Baker, FBI No. 1415, Vol. 4: 91

Plate 54, fig. 8, facing p. 240

LOCAL NAMES. None recorded.

SIZE. Pigeon +; length c. 38 cm (15 in.).

FIELD CHARACTERS. A large black woodpecker similar to 830 but smaller, with the black duller and more brownish and no white in the plumage. Forehead, crown, crest, and moustachial patch crimson in male: only hindcrown and nape in female.

STATUS, DISTRIBUTION and HABITAT. Resident; fairly common. Andaman Islands, in high evergreen forest.

GENERAL HABITS. Very like 830, q.v. Frequents lofty trees in high forest. Each individual has two or three favourite dead stumps to which it repairs two or three times daily to drum at intervals on dead wood, producing an extraordinarily loud rattle audible for a mile or more and usually answered from several other parts of the forest (Butler, JBNHS 12: 560). Evidently descends to the ground on occasion to feed on ants etc. like other woodpeckers.

FOOD. Not specifically recorded; presumably as in 830.

VOICE and CALLS. 'A loud chattering *kuk-kuk-kuk* (or *kik-kik-kik*) ending with a whistling *kui*' (HA).

BREEDING. Season, February–March. Nest, a hole drilled in a dead tree-trunk or large branch between c. 6 and 14 m up, in fairly open forest (BBO and Wickham). Eggs, 2, white. Average size of twelve 33·4 × 23·3 mm (Baker). No other particulars recorded.

MUSEUM DIAGNOSIS. See key to the Subspecies and Field Characters.

## MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	180–190	41–47	32–33	130–147 mm
		(from feathers)		(Baker, HA)

COLOURS OF BARE PARTS. Iris creamy white to pale bright yellow. Bill plumbeous black; tip paler and translucent. Legs and feet greenish or plumbeous black.

831a. Black Woodpecker. *Dryocopus martius khamensis* (Buturlin)  
(See Appendix, p. 260)

## Genus HYPOPICUS Bonaparte

*Hypopicus* Bonaparte, 1854, Conspectus Volucr. Zygodact., No. 62: 8. Type, by original designation, *Picus hyperythrus* Vigors

Crest obsolete. Bill slender, compressed and truncated; culmen straight and angulate, with a short nasal ridge extending close down to commissure for rather less than half length of bill. Nostrils basal with short nasal plumes. Gony long; chin angle close to gape and concealed by bristles. Fourth toe (outer posterior) slightly longer than 3rd (outer anterior). Outermost pair of rectrices shorter than tail-coverts.

## HYPOPICUS HYPERYTHRUS (Vigors): RUFOUMBELLIED WOODPECKER

## Key to the Subspecies

Smaller; wing 126 mm or less..... *H. h. hyperythrus*Larger; wing 126 mm or more; red on head extends behind ear-coverts..... *H. h. marshalli*

832. *Hypopicus hyperythrus marshalli* (Hartert)

*Dryobates hyperythrus marshalli* Hartert, 1912, Vög. pal. Fauna 2 (7): 926 (Murree)  
Baker, FBI No. 1359, Vol. 4: 31

LOCAL NAMES. None recorded.

SIZE. Bulbul ±; length c. 20 cm (8 in.).

FIELD CHARACTERS. As of 833. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. The western Himalayas from Kashmir and Ladakh eastward through Punjab and Himachal Pradesh to Kumaon, where it intergrades with the nominate race. Affects subtropical pine and moist temperate forest (horse-chestnut, silver fir, etc.), above c. 1600 m; breeding up to c. 3000 m.

GENERAL HABITS, FOOD. As in 833, q.v.

VOICE and CALLS. Described as a long rattling, but not loud, cry, running down at the finish. ' May be likened to the rapid running down of the works of a small clock with a broken mainspring or to the rapid running out of a large fishing reel ' (Magrath, JBNHS 19: 153).

BREEDING. Season, April–May. Nest and eggs (c/4 or 5 ?) as in 833. Average size of 13 eggs from Murree and the Galis 24·3 × 18·2 mm (Baker). Breeding biology as in 833.

MUSEUM DIAGNOSIS. Differs from nominate *hyperythrus* (833), sex for sex, in being larger. Also the male has the crimson on sides of neck and head more extensive.

MEASUREMENTS

	Wing	Bill (from feathers)
♂ ♀	126–136	25–27 mm (Baker)

COLOURS OF BARE PARTS. As in 833.

833. *Hypopicus hyperythrus hyperythrus* (Vigors)

*Picus hyperythrus* Vigors, 1831 (1830–31), Proc. Zool. Soc. London (1): 23 (Himalayas, restricted to the eastern Himalayas by Hartert, 1912)

*Dryobates hyperythrus sikkimensis* Ticehurst & Whistler, 1924, Ibis: 473 (Sikkim)

*Dryobates hyperythrus minakorum* Meise, 1934, Abh. Ber. Mus. Dresden 18 (2): 53 (Tatsienlu, Szechuan = Kangting, Sikang, China)

*Dryobates hyperythrus heinrichi* Stresemann & Heinrich, 1940, Mitt. Zoolog. Mus. Berlin 24 (2): 235 (Mt Victoria, Chin Hills)

*Hypopicus hyperythrus haemorrhous* Koelz, 1952, Jour. Zool. Soc. India 4: 44 (Karong, Manipur)

*Hypopicus hyperythrus henoticus* Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 22 (Mawryngkneng, Khasi Hills)

Baker, FBI No. 1358, Vol. 4: 30

Plate 53, fig. 3, facing p. 224

LOCAL NAME. *Daaja gadaiya ko gajao* (Cachari).

SIZE. Bulbul ±; length c. 20 cm (8 in.).

**FIELD CHARACTERS.** A practically uncrested black-and-white and chestnut woodpecker.

**Male.** *Above*, crown and nape crimson. Upper plumage, to rump, broadly barred black and white; wings and tail black, largely spotted and barred with white. *Below*, chin grey; throat, sides of neck and underparts bright chestnut; under tail-coverts pale crimson.



♂,  $\times c. 1$

**Female.** Crown and nape black spotted with white; rest as in male.

**Young (immature).** Like female but barred with dusky on underparts.

**STATUS, DISTRIBUTION and HABITAT.** Resident. Eastern Kumaon and Nepal eastward in the Himalayas through Sikkim, Bhutan, and NEFA. Cachar, Nagaland, Manipur, Mizo and East Pakistan (hill tracts), from  $c.$  800 to 4100 m. Affects pine, moist temperate and subtropical forest—rhododendron, oak, horse-chestnut, etc.

**Extralimital.** Northern Burma hills to western Yunnan and Sikang; northern Thailand.

**GENERAL HABITS.** A quiet woodpecker keeping singly or in separated pairs, frequently in association with roving bands of insectivorous birds in Himalayan forest, usually working fairly high up on the trunks of large trees.

**FOOD.** Ants, grubs of beetles, and other insects. Has been observed catching white butterflies at chestnut flowers by Whistler.

**VOICE and CALLS.** As in 832. Drumming on dead stumps commonly indulged in by both sexes.

**BREEDING.** *Season*, April–May. *Nest*, the typical woodpecker hole bored 5 to 6 m or so up in a tree-trunk. *Eggs*, clutch-size undetermined: believed to be 4 or 5, white. Average of 15 eggs  $22.2 \times 16.5$  mm (Baker). Evidently both sexes incubate; other particulars unrecorded.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.; for subspecies Key.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	114–122	23–28	19–22	69–87 mm (SA)

Weight 10 ♂♂ 42–53 g; 6 ♀ ♀ 42–50 g (SA, GD).

**COLOURS OF BARE PARTS.** Iris reddish brown. Bill: upper mandible black, lower greenish yellow. Legs and feet blackish grey (SDR).

#### Genus *PICOIDES* Lacépède

*Picooides* Lacépède, 1799, Tabl. Ois. : 7. Type, by subsequent designation, *Picus tridactylus* Gmelin, i.e. *Picus tridactylus* Linnaeus

*Dendrocopos* Koch, 1816, Syst. baierischen Zool. 1: xxvii, 72, pl. 1A, f. a. Type, by subsequent designation, *D. major* = *Picus major* Linnaeus

*Dryobates* Boie, 1826, Isis von Oken, Bd. 2, col. 977. Type, by monotypy, *Picus pubescens* Linnaeus

*Leiopicus* Bonaparte, 1854, Ateneo Italiano 2: 123. Type, by monotypy, *Picus mahrattensis* Latham

*Yungipicus* Bonaparte, 1854, Ateneo Italiano 2: 123. Type, by monotypy, *Picus hardwickii* Jerdon

Cf. Greenway, J. C., 1947, Proc. New England Zool. Club 24: 93. Voous, K. H., 1947, Limosa 20: 1-142. Delacour, J., 1951, Auk 68: 50.

Very close to *Hypopicus* but bill comparatively stouter with a nasal ridge on each side extending over more than half its length and equidistant between culmen and commissure; gony sharply angulate. General coloration black or brown spotted and barred with white, and with crimson here and there. Wing long, pointed or slightly rounded. Outer hind toe longer than outer front toe. Crest more or less rudimentary.

#### Key to the Species

	Page
I Toes four	
A Back all black	
1 Lower parts not streaked	
a Scapulars black	
i Under tail-coverts crimson contrasting with fulvous or grey abdomen.....	<i>P. himalayensis</i> 216
ii Under tail-coverts and abdomen crimson.....	<i>P. major</i> 213
b Scapulars white.....	<i>P. assimilis</i> 215
2 Lower parts streaked	
c Larger, wing over 120 mm.....	<i>P. darjellensis</i> 218
d Smaller, wing under 110 mm.....	<i>P. cathpharius</i> 219
B Back barred with white	
3 Crown and occiput crimson in male, black in female	
e Wing under 113 mm.....	<i>P. macei</i> 224
f Wing over 113 mm.....	<i>P. atratus</i> 223
4 Crown umber-brown, occiput crimson and yellow in male, dull yellow in female.....	<i>P. auriceps</i> 221
5 Whole crown yellow .....	<i>P. mahrattensis</i> 226
6 Very small, length about 160 mm	
g Crown brown .....	<i>P. nanus</i> 231
h Crown ashy grey.....	<i>P. canicapillus</i> 228
II Toes three; back black streaked with white.....	<i>P. tridactylus</i> 234

#### 834. Great Spotted Woodpecker. *Picoides major stresemanni* (Rensch)

*Dryobates major stresemanni* Rensch, 1924, Abh. Ber. Mus. Dresden 16 (2): 38  
(Tsalila, on the Yunnan-Sikang border)

*Dryobates cabanisi stephensi* Baker, 1926, Bull. Brit. Orn. Cl. 46: 70  
(Lichiang Range, Yunnan)  
Baker, FBI No. 1362, Vol. 4: 34

LOCAL NAMES. None recorded.

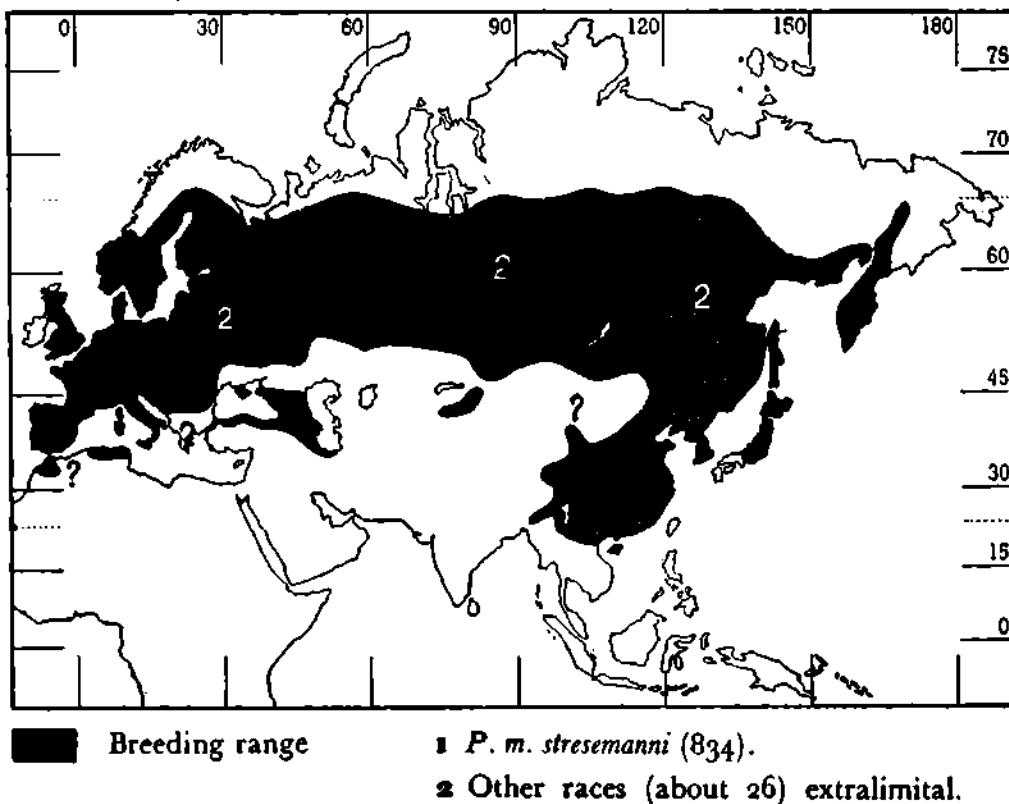
SIZE. Myna; length c. 24 cm (9 in.).

**FIELD CHARACTERS.** A medium-sized woodpecker, very similar to the Garhwal Pied (837), q.v., but with crown black (*v. crimson*) in male. See Key to the Species and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. Cachar dist. (Assam), Nagaland, Manipur and Mizo (?), between c. 2000 and 3000 m, in oak, pine and subtropical wet forest.

**Extralimital.** Western China in western Szechuan, eastern Sikang etc., extending north to c. 33° and southward into northern Burma (Peters).

### Picoides major



**GENERAL HABITS, FOOD, VOICE and CALLS.** Nothing specifically recorded in our limits.

**BREEDING.** Season unrecorded though *sive* Baker it breeds in Cachar and Manipur; presumably March and April as in adjacent northern Burma. *Nest* and *eggs* (c/3) as in 837. Average size of 12 Burmese eggs 27.6 × 19.6 mm (Baker).

**MUSEUM DIAGNOSIS.** Very similar to *P. himalayensis* (837) with the upperparts almost identical. Differs from it in having the crown black in male, the crimson confined to the occiput; crimson of under tail-coverts extending to abdomen.

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	130–138	26–31	c. 20–21	79–87 mm (Baker)

**COLOURS OF BARE PARTS.** Iris crimson. Bill: upper mandible blackish lead colour, lower mandible paler lead colour. Legs brownish green (Baker).

835. Sind Pied Woodpecker. *Picoides assimilis* (Blyth)

*Picus assimilis* 'Natterer' = Blyth, 1849, Jour. Asiat. Soc. Bengal 18 (2): 803  
(Himalayas, Rawal Pindi)

*Picus scindeanus* 'Gould MS.' = Horsfield & Moore, 1858, (1856-1858), Cat. Bds.  
Mus. E. I. Co. 2: 671, (Shikarpore, Sind)  
Baker, FBI No. 1363, Vol. 4: 35

LOCAL NAMES. *Gihan* (Brahui); *Tukok* (Baluchi); *Burdi tokeri* (S. Kalat).

SIZE. Myna —; length c. 22 cm (8½ in.).

FIELD CHARACTERS. A medium-sized black and white woodpecker, very similar to the Kashmir Pied (836) but with the scapulars glistening white instead of black, making the shoulder-patches larger and even more prominent. Below, chin, breast and abdomen white; lower abdomen, vent and under tail-coverts crimson. Crown and occiput crimson in male, black in female.

STATUS, DISTRIBUTION and HABITAT. Resident; fairly common but local. West Pakistan (Baluchistan, Sind, W. Punjab west of Jhelum R., including Peshawar dist.). Generally at low elevations in comparatively arid areas, but recorded at c. 1600 m in the Salt Range, and at c. 2200 m in Khwaja Amran Range, Baluchistan (Christison). Affects babool and tamarisk jungle in riverain tracts (often among sand-dunes), euphorbia and thorn scrub in semi-desert biotope, and sheesham (*Dalbergia*) and other tree plantations in canal-irrigated desert colonization areas.

Extralimital. SE. Iran.

GENERAL HABITS. Typical woodpecker. Partial to seeking food near the ground on fallen trees and branches, euphorbia stems, wooden stakes, fence-posts and the like.

FOOD. Mainly ants, termites and grubs of beetles.

VOICE and CALLS. *Toi-whit, toi-whit, toi-whit* rapidly repeated (Whistler) at rest and in flight. A frequently uttered *tr-r-r-r* (T. R. Bell). In the breeding season, especially, both sexes drum in intermittent bursts at frequent intervals on a selected rotten branch, producing an inordinately loud rolling or kettle-drum effect.

BREEDING. Season, principally March and April. Nest, the usual woodpecker hole drilled in a babool, *kandi* (*Prosopis*), *Salvadora persica*, tamarisk or suchlike tree, between 1 and 4 metres from the ground. Eggs, 3 or 4, white. Average size of 12 eggs 22·2 × 17·0 mm (Baker). Both sexes evidently share all the domestic chores. Period of incubation undetermined.

MUSEUM DIAGNOSIS. See Field Characters and Key to the Species.

## MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	112-120	22-25	c. 20	67-73 mm (Baker)
7 ♂♂	114-123	28-31	—	71 (1) mm
8 ♀ ♀	111-120	24-27	—	65-70 (4) mm (CBT, HW)

COLOURS OF BARE PARTS. Iris brown to crimson. Bill dark slaty grey or bluish plumbeous, paler on lower mandible. Legs and feet greyish plumbeous.

**PICOIDES HIMALAYENSIS (Jardine & Selby): HIMALAYAN PIED WOODPECKER****Key to the Subspecies**

- Paler below, more grey than fulvous.....*P. h. albescens*  
 Darker below, more rufous or fulvous.....*P. h. himalayensis*

**836. *Picoides himalayensis albescens* (Baker)**

*Dryobates himalayensis albescens* Baker, 1926, Bull. Brit. Orn. Cl. 46: 70

(Goona [?], Kashmir)

Baker, FBI No. 1361, Vol. 4: 34

**LOCAL NAMES.** *Hör koel, Makōts, Koel kükir* (Kashmir); *Turkān* (Chamba).

**SIZE.** Myna ±; length c. 25 cm (9½ in.).

**FIELD CHARACTERS.** As of 837. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident, fairly common; subject to some seasonal altitudinal movement. The Safed Koh and western Himalayas from the Afghanistan frontier through Chitral, Gilgit, Kashmir, northern Punjab and Himachal Pradesh. Between c. 1700 and 3300 m in summer; usually below c. 2000 m in winter. Where occurring together, generally occupies a higher zone than *P. auriceps* (842) or *P. macei* (845). Affects fir, oak, rhododendron and mixed hill forest with a predilection for chestnut trees for nesting.

**Extralimital.** Nuristan, NE. Afghanistan (Paludan).

**GENERAL HABITS.** Typical woodpecker. Keeps in pairs. Works energetically up and around tree-trunks and along the sides and undersurface of moss-covered branches in jerky spurts, occasionally sliding back a few spurts in 'reverse gear' to re-investigate a promising spot. Along with several other Himalayan woodpeckers has been observed to drill rows of neat small holes in parallel rings round the stems of medium-sized trees, a few centimetres apart, like the New World sapsuckers. The significance of this habit needs study.

**FOOD.** Insects, chiefly grubs of beetles collected from under the bark or moss. Largely also seeds of various conifers, e.g. the Chir pine (*Pinus longifolia*). Plucks and wedges the cones in a cleft of bark or in angle between stem and branch, hacks them open with the bill (often months before they would mature and open naturally), and extracts the seeds; also kernels of walnuts, hazelnuts and acorns treated in the same way.

**VOICE and CALLS.** 'A volley of loud ringing cries uttered in flight' (Bates). 'A persevering tri-tri-tri-tri-tri' (Paludan). Both sexes, moreover, drum on dead tree-stems etc. — especially during the breeding season.

**BREEDING.** *Season*, April to June. By mid June most first broods have flown from the nest. *Nest*, the usual woodpecker boring in the main trunk or on the underside of a large sloping bough, between 2 and 15 m from the ground. The trees most commonly selected are pine, cherry, apricot, willow and chestnut, the last being preferred wherever available. *Eggs*, 3 to 5 — mostly 4 — pure white, glossy. Average size of 28 eggs 26·2 × 19·0 mm (Baker). Both sexes share in excavating the nest-hole, incubation and tending the young. Incubation period undetermined.

MUSEUM DIAGNOSIS. Sex for sex similar to *P. h. himalayensis* (837) but much paler below; chin, throat and breast white or greyish white, and entire underparts much less fulvous. White bars on the tail somewhat broader and purer white.

## MEASUREMENTS

	Wing	Bill (from feathers)	
♂ ♀	127-136	28-32	mm (Baker)

Wing 3 ♂♂ 132-137; 5 ♀♀ 128-133 mm. Weight 3 ♂♂ 72-74 g; 6 ♀♀ 59-67 g (Paludan).

COLOURS OF BARE PARTS. As in 837.

837. *Picoides himalayensis himalayensis* (Jardine & Selby)

*Picus himalayensis* Jardine & Selby, 1836, in Jardine's Ill. Orn. 3, Sig. D., pl. 116

and text (Mussoorie, 6500 feet)

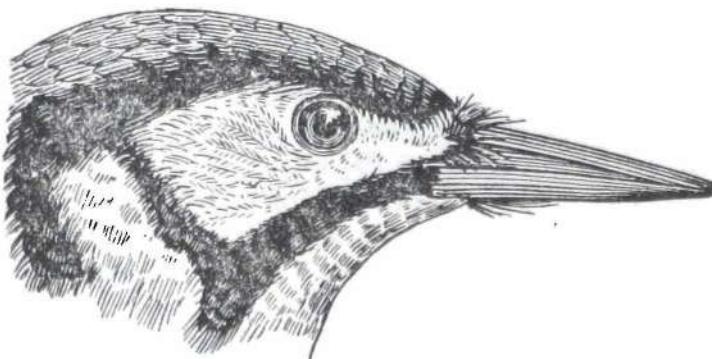
Baker, FBI No. 1360, Vol. 4: 32

Plate 53, fig. 2, facing p. 224

LOCAL NAMES. None recorded.

SIZE. Myna ±; length c. 25 cm (9½ in.).

FIELD CHARACTERS. A medium-sized pied woodpecker.



♂, × c. 1

Male. Above, crown and crest crimson; lores, a narrow supercilium, cheeks and ear-coverts whitish with a broad black moustachial streak below extending to sides of neck. Back and upperparts black with a prominent white elongate patch on each shoulder and small white spots and barring on the wing-quills. Below, fulvous, paler on chin and throat, darker on breast and abdomen; under tail-coverts crimson.

Female. Similar but with crown and occiput black instead of crimson.

Young (immature). Like female but darker below with faint streaks or narrow dark edges to the feathers. Crown in ♂ crimson tipped with black.

STATUS, DISTRIBUTION and HABITAT. Resident, fairly common; subject to some seasonal altitudinal movement. The Garhwal, Kumaon and western Nepal Himalayas between c. 1000 and 3000 m : commonest above c. 2000 m. Affects hill forest of fir, oak, rhododendron, etc.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 836, q.v.

**BREEDING.** Season, chiefly April and May. Nest, eggs and breeding biology as in 836.

**MUSEUM DIAGNOSIS.** See keys to the Species and Subspecies; for details of plumage Baker, loc. cit.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	123-135	29-33	c. 23-24	77-85 mm (Baker)

**COLOURS OF BARE PARTS.** Iris brown or red-brown. Bill: upper mandible almost black, lower mandible plumbeous grey, blackish at tip. Legs and feet dull green or greenish brown.

**838, 839. Darjeeling Pied Woodpecker. *Picoides darjellensis darjellensis* (Blyth)**

*Picus (Dendrocopos) darjellensis* Blyth, 1845, Jour. Asiatic Soc. Bengal 14 (1): 196  
(Darjeeling and Nepal)

*Dendrocopos darjellensis fumidus* Ripley, 1951, Postilla, Yale Peabody Mus., No. 6: 3  
(Mt Japvo, Naga Hills, Assam)<sup>1</sup>

*Dendrocopos darjellensis diatropus* Koelz, 1954, Contrib. Inst. Regional Exploration,  
No. 1: 22 (Blue Mountain, Lushai [Mizo] Hills)  
Baker, FBI No. 1364, Vol. 4: 36  
Plate 51, fig. 2, facing p. 176

**LOCAL NAME.** *Sadyer mong prek* (Lepcha).

**SIZE.** Myna ±; length c. 25 cm (9½ in.).

**FIELD CHARACTERS.** A medium-sized pied woodpecker. Back entirely black; middle tail-feathers black, outer barred with white. Underparts yellowish fulvous, streaked with black; vent and under tail-coverts light crimson. Hindcrown and nape crimson in male, black in female.

**STATUS, DISTRIBUTION and HABITAT.** A high-elevation woodpecker. Resident between c. 1700 and 3500 m even in winter; in summer up to c. 4000 m. From west-central Nepal eastward through Sikkim, Bhutan and NEFA. Assam in the higher hills of Cachar dist., Nagaland, Manipur and Mizo. Affects pine, oak, rhododendron and subtropical wet forest.

**Extralimital.** N. Burma, Shan States and N. Vietnam.

**GENERAL HABITS.** Typical woodpecker. Keeps singly or in pairs. Hunts high up on moss-covered tree-trunks and branches amongst the canopy foliage, frequently in association with the itinerant bands of small insectivorous birds. Also searches for food on decaying storm-blown trees bestrewing the forest floor.

**FOOD.** Larvae of beetles and other insects.

<sup>1</sup> Re-examination of the type series of 839, *Picoides darjellensis fumidus* (Ripley) from Naga-land compared with material from Nepal within a year, shows that the sole difference is a darker, more smoky colour on the lower breast. This is probably clinal, and it seems unwise to maintain the subspecies on this single colour difference (SDR).

**VOICE and CALLS.** Little and unsatisfactorily recorded. 'An occasional low *puk . . . puk*' (Lister), and the characteristic drumming, chiefly in the breeding season.

**BREEDING.** *Season*, April–May. *Nest*, the typical woodpecker boring in a tree-trunk, 1 or 2 metres up, in dense forest commonly between c. 2000 and 3000 m alt. *Eggs*, 2 to 4, white. Average size of 20 eggs 27·8 × 19·8 mm (Baker). Details of breeding biology not recorded.

**MUSEUM DIAGNOSIS.** See Key to the Species; for details of plumage Baker, loc. cit.

**Young** (both sexes) in early phase like female, with the crown black. In a later phase immature male has entire crown tipped with orange-red or crimson.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	123–135	31–35	22–25	76–86 mm
Weight (winter)	5 ♂♂ 70–80 g; 5 ♀♀ 61–73 g.			(SA, SDR)

**COLOURS OF BARE PARTS.** Iris reddish brown to crimson; orbital skin slaty grey. Bill plumbeous, blackish on upper mandible. Legs and feet dull green or greenish plumbeous; claws horny.

### PICOIDES CATHPHARIUS (Blyth): CRIMSONBREASTED PIED WOODPECKER

#### Key to the Subspecies

		Page
A	Crimson on breast absent or obsolete.....	<i>P. c. cathpharius</i>
B	Crimson on breast well marked.....	<i>P. c. ludlowi</i>
C	Crimson on breast developed into a full gorget.....	<i>P. c. pyrrhothorax</i>

#### 840. *Picoides cathpharius cathpharius* (Blyth)

*Picus (Dendrocopos) cathpharius* 'Hodgson' = Blyth, 1843, Jour. Asiatic Soc. Bengal 12 (2): 1006 (Darjeeling)  
Baker, FBI No. 1365, Vol. 4: 37  
Plate 53, fig. 8, facing p. 224

**LOCAL NAMES.** None recorded.

**SIZE.** Bulbul –; length c. 18 cm (7 in.).

**FIELD CHARACTERS.** A smallish pied woodpecker, superficially a smaller replica of 838.

**Male.** *Above*, back and tail black, the latter with the outer feathers barred whitish. Crimson of hindcrown and occipital crest extending to entire sides of neck. *Below*, also streaked with black as in Darjeeling Pied, but underparts darker and more fulvous with a diffuse crimson patch on breast. Under tail-coverts fulvous, streaked with black, edged and tipped with crimson.

**Female.** Like male but with the entire crown black; sides of neck whitish, faintly tinged with crimson.

Young (immature) male like female but with the whole crown more or less tipped with crimson.

**STATUS, DISTRIBUTION and HABITAT.** A high-elevation woodpecker with a more or less overlapping altitudinal range with *P. darjellensis* (838) both summer and winter. Nepal eastward through Sikkim, Darjeeling dist., Bhutan, and NEFA; from c. 700 to 4000 m in moist-deciduous and evergreen forest — oak, rhododendron, etc.

**GENERAL HABITS.** Not appreciably different from 838, q.v. Behaviour rather like a tree-creeper's, flying from dead tree to dead tree and searching each methodically.

**FOOD.** Insects and grubs. Also nectar of flowers, e.g. rhododendron, procured by the 'short-cut' method, i.e. boring hole at base of corolla (SA).

**VOICE and CALLS.** 'Loud for the size — a rather monotonous *chip* uttered at intervals when searching a tree, and rather more quickly when flying' (Cranbrook). 'Occasional rather soft, clear *pwik*' (Lister).

**BREEDING.** Season, April–May. Nest (in dense tree jungle) and eggs (c/2–4) typical of the woodpeckers. Average size of 12 eggs 23·3 × 16·8 mm (Baker). Breeding biology not specifically recorded.

**MUSEUM DIAGNOSIS.** See Field Characters, and keys to the Species and Subspecies.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	97–103	18–21	17	57–66 mm (remarkably consistent!) (SA, BB, SDR, Stresemann)

Weight (winter) 1 ♂ 35 g; 2 ♀ ♀ 26, 28 g (SA).

**COLOURS OF BARE PARTS.** Iris brown or reddish brown. Bill pale plumbeous, darker on culmen and tip. Legs and feet plumbeous or greenish plumbeous.

#### 840a. *Picoides cathpharius ludlowi* (Vaurie)

*Dendrocopos cathpharius ludlowi* Vaurie, 1959, Amer. Mus. Novit., No. 1946: 23

(Tsera; Pome, 'southeastern Tibet' = southeast Sikang)

Not in Baker

**LOCAL NAMES.** None recorded.

**SIZE.** Bulbul —; length c. 18 cm (7 in.).

**FIELD CHARACTERS.** As of 840. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Valley of the Po Tsangpo, SE. Tibet, between c. 95°5' and 95°15'E., therefore doubtless encroaching into our limits in that sector of NEFA.

**GENERAL HABITS, FOOD, VOICE and CALLS.** Nothing specifically recorded.

**BREEDING.** Unrecorded.

**MUSEUM DIAGNOSIS.** Similar to *cathpharius* and *pyrrhotorax* (840, 841) in having the ear-coverts bordered posteriorly with red in both sexes, very broadly so in the male. Red patch on breast much more well marked and under tail-coverts much redder than in nominate *cathpharius* (Vaurie).

**MEASUREMENTS and COLOURS OF BARE PARTS.** As in 840.

841. *Picoides cathpharius pyrrhothorax* (Hume)*Picus pyrrhothorax* Hume, 1881, Stray Feathers 10: 150

(Aimole, eastern Manipur Hills)

*Dendrocopos cathpharius cruenticeps* Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 22 (Sangau, Lushai Hills)  
Baker, FBI No. 1366, Vol. 4: 38LOCAL NAME. *Khupi woiru* (Angami Naga).

SIZE. Bulbul —; length c. 18 cm (7 in.).

FIELD CHARACTERS. As of 840. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Assam hills south of Brahmaputra R. (Khasi and Cachar), Nagaland, Manipur and Mizo hills, above c. 1300 m. In mixed deciduous, tropical semi-evergreen and subtropical wet forest.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 840.

BREEDING. Unknown.

MUSEUM DIAGNOSIS. Male differs from that of nominate *cathpharius* (840) in having a broad crimson gorget on foreneck and upper breast, and under tail-coverts nearly all crimson; black striations on underparts also broader.Female like ♀ *cathpharius* but with more crimson on upper breast and under tail-coverts.

## MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	97-101	16-17	c. 15	59-60 mm (Baker)

COLOURS OF BARE PARTS. Iris lac-red. Bill leaden dusky, paler at base of lower mandible. Legs and feet dull sap-green (Hume).

## PICOIDES AURICEPS (Vigors): BROWNHEADED PIED WOODPECKER

## Key to the Subspecies

Larger; wing c. 114-121 mm.....*P. a. auriceps*Smaller; wing c. 105-115 mm.....*P. a. incognitus*842. *Picoides auriceps auriceps* (Vigors)*Picus auriceps* Vigors, 1831 [Apr. 6], (1830-31), Proc. Zool. Soc. London (1): 44

(Simla, restricted by Baker, 1921, JBNHS 28: 97)

*Picus brunnifrons* Vigors in Gould, 1831, Century of Birds, Himalayan Mts, text to pl. 52 (Hilly districts of India = Simla *vide* Rand & Fleming, 1956, tom. cit.)

Baker, FBI No. 1370, Vol. 4: 42

Plate 54, fig. 1, facing p. 240

LOCAL NAMES. None recorded.

SIZE. Bulbul; length c. 20 cm (8 in.).

FIELD CHARACTERS. A smallish pied woodpecker.

Male. *Above*, forehead and forecrown umber-brown; occipital crest golden yellow in front, crimson behind; a broad brown moustachial streak extending down side of neck. Upperparts brownish black, transversely barred with white. *Below*, fulvescent white, longitudinally streaked with

black; middle of abdomen tinged with yellow, lower abdomen and under tail-coverts crimson-pink.

**Female.** Like male but without the golden yellow and crimson on occiput.

**Young (immature)** like female but duller and more grey below. Crown umber-brown, each feather centred with yellow.

**STATUS, DISTRIBUTION and HABITAT.** Resident, locally common. Baluchistan, and from the Afghan frontier and Chitral eastward along the Himalayas through Punjab, Kashmir, Himachal Pradesh, Garhwal and Kumaon to western Nepal (to c. 81°E.); from c. 700 to 3300 m in open dry and moist temperate and pine forest — partial to oaks, deodars, and mixed stands.

**Extralimital.** NE. Afghanistan (Nuristan).

**GENERAL HABITS.** Typical woodpecker. Common at most west-Himalayan hill stations, freely frequenting gardens and orchards. A pair has been observed roosting nightly during September on top of a veranda pillar in a P.W.D. Rest House, and a single bird in a nest-box in a hill garden for several weeks in February. The curious habit of drilling sapsucker-like holes in horizontal rings round medium-sized tree-stems has been noted also in this species: cf. 812 and 836 (A. E. Osmaston, JBNHS 24: 364).

**FOOD.** Insects, caterpillars and grubs. Also considerable quantities of seeds of Chir pine (*Pinus longifolia*), and pulpy fruit, e.g. mulberry (*Morus*), pear, apricot, etc.

**VOICE and CALLS.** 'A peculiar rather shrill and long cry at short intervals, reminiscent of the alarm call of *Halcyon smyrnensis*' (Scully). 'Note resembles that of *Hypopicus hyperythrus*' (Magrath). 'Drums for considerable periods during March–April' (Desirée Proud).

**BREEDING.** Season, chiefly April and May, sometimes into June. Nest-hole mostly under 8 metres from the ground; occasionally higher. Eggs, normally 4, rarely 5, white. Average size of 50 eggs 23·4 × 17·4 mm (Baker). Both sexes feed the nest-young; other facets of breeding biology not recorded.

**MUSEUM DIAGNOSIS.** See keys to the Species and Subspecies, and Field Characters; for details of plumage Baker, loc. cit.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	112–118	21–24	18–20	68–73 mm (Baker)

**COLOURS OF BARE PARTS.** Iris brown (♀) to crimson (ad. ♂). Bill bluish horny, darker on culmen, paler at base of lower mandible. Legs and feet dull greyish green.

**843. *Picoides auriceps incognitus* (Scully)**

*Picus incognitus* Scully, 1879, Stray Feathers 8: 246 (Valley of Nepal)

*Dendrocopos auriceps conoveri* Rand & Fleming, 1956, Fieldiana, Zool. 39: 1  
(15 miles west of Tansen, West Nepal, 5500 ft alt.)

Baker, FBI No. 1370 (part), Vol. 4: 42

**LOCAL NAMES.** None recorded.

**SIZE.** Bulbul; length c. 20 cm (8 in.).

**FIELD CHARACTERS.** As for 842. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident; fairly common. Nepal, eastward from around 81°30'E. (Dailekh dist.) to the region of Kathmandu; from c. 700 to 2400 m, occasionally higher and evidently breeding to c. 3000 m. In open dry and moist temperate and pine forest.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 842.

**BREEDING.** Season, nest and eggs as in *auriceps*.

**MUSEUM DIAGNOSIS.** Similar to nominate *auriceps* but smaller. In both sexes fore-crown more fulvous, less brownish, and streaking on breast slightly more conspicuous. Some females are brighter yellow, more golden less brownish on nape than females of *auriceps*, but this difference not constant.

**MEASUREMENTS.** Wing: 14 ♂♂ (Nepal) 105–115 (av. 109·9) mm against 19 ♂♂ (Simla) 114–121 (av. 117·4) mm — Vaurie.

Weight (summer) 3 ♂♂ 38–44 g; 3 ♀♀ 38–40 g (Diesselhorst).

**COLOURS OF BARE PARTS.** As in 842.

#### 844. Stripebreasted Pied Woodpecker. *Picoides atratus* (Blyth)

*Picus atratus* Blyth, 1849, Jour. Asiatic Soc. Bengal 18 (2): 803 (Tenasserim)

Baker, FBI No. 1369, Vol. 4: 41

**LOCAL NAMES.** None recorded.

**SIZE.** Bulbul ±; length c. 21 cm (8 in.).

**FIELD CHARACTERS.** A smallish pied woodpecker, very similar to Fulvous-breasted Pied (845), also with crimson crown and crest in male, black in female. Barely distinguishable from it in the field by its whiter sides of head and neck and more boldly black-streaked underparts. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Khasi and Cachar hills, Nagaland (?), and hills of eastern Manipur; up to c. 2000 m. Probably also Mizo and East Pakistan hill tracts. Affects open pine and oak forest, and stunted trees on mountainsides and ridges.

**Extralimital.** Chin Hills, Arakan Yomas, Karen hills, S. Shan States, Tenasserim, N. Thailand and Laos (Peters). In the Mt Victoria region ranges between 1400 and 2800 m altitude; much commoner above 2000 m than below (Heinrich).

**GENERAL HABITS.** Typical woodpecker. Very similar to *P. auriceps* (842).

**FOOD.** Chiefly insects and grubs of beetles etc.

**VOICE and CALLS.** A shrill descending whinny as characteristic of the small woodpeckers (Deignan). A curious creaking, grating sound (by ♂) very like that produced by two rough pieces of wood — trunks or branches of trees — when pressed by wind and rubbing slowly against each other (Hume).

**BREEDING.** Season, end March to early May. Nest, the typical woodpecker hole cut in a small tree standing in a cultivation clearing in forest, usually under 4 metres from the ground. Eggs, 4 or 5, white. Average size of 22 eggs 21·3 × 16·9 mm (Baker). A curious habit observed by Baker at one nest was of both male and female sitting on the eggs at the same time. How general this habit may be is not known.

**MUSEUM DIAGNOSIS.** Very similar to *P. macei* (845); differs from it, sex for sex, in having the sides of the head and neck, chin, throat and foreneck more white, less fulvous. Underparts from throat to vent boldly streaked with black, with only a faint indication of barring on the flanks. Black band on hindneck and upper back usually broader.

Young (immature) of both sexes have the feathers of the crown black, tipped, with crimson.

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	114-122	24-26	18-19	65-72 mm (Baker)

Weight ♂ ♀ c. 42-52 g (Hume).

**COLOURS OF BARE PARTS.** Iris brown (♀) to lac-red (♂). Bill greenish horny, darker on culmen and tip. Legs and feet dusky leaden or plumbeous green.

#### PICOIDES MACEI (Vieillot): FULVOUSBREASTED PIED WOODPECKER

##### Key to the Subspecies

Breast faintly streaked; middle tail-feathers all black.... *P. m. macei*

Breast boldly spotted; middle tail-feathers barred with white....

..... *P. m. andamanensis*

#### 845. *Picoides macei macei* (Vieillot)

*Picus Macei* Vieillot, 1818, Nouv. Dict. d'Hist. Nat. 26: 80 (Bengal)

*Picus analis* 'Temm.' = Bonaparte, 1850, Conspl. Av. 1: 137 (Java)

*Picus Westermani* Blyth, 1870, Ibis: 163 ('Himalaya' restricted to Simla by Biswas, 1961, JBNHS 58: 131)

*Dendrocopos macei humei* Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 22 (Mawryngkneng, Khasi Hills)

Baker, FBI No. 1368, Vol. 4: 39

Plate 54, fig. 3, facing p. 240

**LOCAL NAMES.** None recorded.

**SIZE.** Bulbul — ; length c. 19 cm (7½ in.).

**FIELD CHARACTERS.** A smallish pied woodpecker, with white-barred black back; bright crimson crown and crest in male, black in female. Very similar to Stripebreasted Pied (844), q.v.; confusion with it likely in the restricted Manipur area of Assam where both occur together. *Macei* has the throat and foreneck uniform pale rufous-brown and only the breast faintly black-streaked; *atratus* has the entire underparts, except chin, boldly striated with black.

**STATUS, DISTRIBUTION and HABITAT.** Resident. Common. The Himalayas from c. Murree eastward through Kashmir (?), Himachal Pradesh, U.P., Nepal, Sikkim, Bhutan and NEFA. Assam hills south of Brahmaputra R., Cachar, Nagaland, Manipur, Mizo, East Pakistan, W. Bengal, Orissa south to c. 18°N. lat. in northern Andhra (Sankrametta). Affects all types of open forest and wooded country, plain and hill, up to c. 2000 m altitude (recorded at c. 2800 m in Nepal — Proud).



PLATE 53

- 1 *Gecinulus grantia*, Paleheaded Woodpecker (827). 2 *Picoides himalayensis*, Himalayan Pied Woodpecker (837)♂. 3 *Hypopicus hyperythrus*, Rufousbellied Woodpecker (833). 4 *Picus myrmecophoneus*, Little Scalybelled Green Woodpecker (808). 5 *Chrysocolaptes festivus*, Blackbacked Woodpecker (858). 6 *Picus canus*, Blacknaped Green Woodpecker (809). 7 *Picoides mahrattensis*, Yellowfronted Pied Woodpecker (847). 8 *Picoides cathpharius*, Crimsonbreasted Pied Woodpecker (840). 9 *Pitta cyanea*, Blue Pitta (871). 10 *Pitta sordida*, Hooded Pitta (869).

MM 10 20 30 40 50



*Extralimital.* Northern Burma east to the Hukawng Valley and Bhamo.  
**GENERAL HABITS.** Typical woodpecker. Usually met with in pairs but frequently also in family parties of 3 or 4 working up the same small tree-stem directly or in spirals one behind the other, tapping the bark at intervals, occasionally sliding back a few centimetres in 'reverse gear' to re-investigate a spot. On large bamboos, to which it is partial, the tapping is loud enough to betray its presence a hundred metres away.

**FOOD.** Chiefly insects and grubs; also some seeds and berries.

**VOICE AND CALLS.** 'A not very powerful *pik . . . pik* at intervals while feeding; when excited at an intruder's proximity a shrill, rapid *pik-pipipipi-pipipipipi*' (Lister). A very gentle drumming (Proud).

**BREEDING.** Season, April–May. Nest-hole usually cut in a small tree standing in open well-wooded country or a cultivation clearing in forest, usually between 1 and 3 metres up. Eggs, normally 3, sometimes 4 or 5. Average size of 20 eggs  $22.2 \times 16.4$  mm (Baker). Both sexes share in excavating the hole, incubation, and feeding the young. Incubation period undetermined.

**MUSEUM DIAGNOSIS.** See Key to the Species; for details of plumage Baker, loc. cit.

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	100–112	21–24	17–18	60–68 mm (Baker)

Weight (winter) ♂♂ 43–48 g; ♀♀ 38–44 g (SDR). Summer: 2 ♂♂ 48, 48 g; 4 ♀♀ 41–52 g (Diesselhorst).

There is a continuous cline in size of wing and bill from the western Himalayas (largest) to eastern Assam, Bengal, etc. (smallest) thus

		Wing	Bill	Tail
Western Himalayas	5 ♂♂	114–120	27–30	66–71 mm
Nepal	11 ♂♂	110–116	28–29 (5)	62–66 (5) mm
Eastern Himalayas	8 ♂♂	104–110	23–28	54–63 mm
Eastern Ghats, Bengal, etc.		102–106	23–25	58–61 mm

On the basis of larger size, and also minor differences in coloration, some authorities prefer to recognize *P. m. westermanni* (Blyth) as the discrete West Himalayan population.

**COLOURS OF BARE PARTS.** Iris reddish brown. Bill: upper mandible blackish horny, pale slaty at base; lower mandible pale slaty, blackish at tip. Legs and feet greenish slaty; pads white (Biswas).

#### 846. *Picoides macei andamanensis* (Blyth)

*Picus andamanensis* Blyth, 1859, Jour. Asiatic Soc. Bengal 28: 412, note  
(Port Blair, Andaman Islands)  
Baker, FBI No. 1373, Vol. 4: 45

**LOCAL NAMES.** None recorded.

**SIZE.** Bulbul —; length c. 18 cm (7 in.).

**FIELD CHARACTERS.** A smallish pied woodpecker, black above barred and spotted with white and in tail; crown and nape dark grey tipped with

crimson. *Below*, chin and throat white; rest fulvous brown, boldly spotted with black on breast; under tail-coverts crimson.

**F**emale. Similar to male but with the crown deep brown and without any crimson.

**STATUS, DISTRIBUTION and HABITAT.** Resident; fairly common. Andaman Islands — scattered over the different islands of the group. Affects fairly open jungle and the neighbourhood of cultivation. Not recorded in the Cocos or Nicobars.

**GENERAL HABITS.** Typical woodpecker. Keeps singly or in pairs, sometimes family parties of 5 or 6, following one another from tree to tree, hunting high up on the branches or near the ground on shrubs in the undergrowth.

**FOOD.** Mainly insects and grubs.

**VOICE and CALLS.** Very similar in character to that of *P. auriceps* (842) though feebler (Davison). Also recorded drumming while clinging motionless to the top of some tall dead tree stump in jungle (A. L. Butler).

**BREEDING.** *Season*, January to March. *Nest-hole* bored in trunks and branches, often with the entrance on the underside, 1 to 5 metres up. Around Port Blair apparently *Pithecelobium saman* trees in gardens and avenues are most favoured. *Eggs*, up to 3 — frequently only a singleton — white, broad ovals. Average size of 30 eggs  $21\cdot2 \times 16\cdot3$  mm (Baker). Other facets of breeding biology not recorded.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. Differs from nominate *macei* (845) in being smaller and having the breast and foreneck boldly marked with round spots and central tail-feathers barred with white (*contra* all black).

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	94–101	17–20	17–18	55–60 mm (Baker)

**COLOURS OF BARE PARTS.** Iris brown. Bill: upper mandible blackish or horny brown, bluish towards base; lower mandible plumbeous, darker at tip. Legs and feet greenish plumbeous (Hume).

#### 847. Yellowfronted Pied Woodpecker. *Picoides mahrattensis* *mahrattensis* (Latham)

*Picus Mahrattensis* Latham, 1801, Index Orn., Suppl., xxxi (India = Mahratta country ex Gen. Syn., Suppl. 2: 142, No. 7)

*Picus Aurocristatus* Tickell, 1833, Jour. Asiatic Soc. Bengal 2: 579 (Jungles of Borabhum and Dholbhumi)

*Dendrocopos mahrattensis pallescens* Biswas, 1951, Amer. Mus. Novit., No. 1500: 8 (Lucknow, U.P., India)

*Dendrocopos mahrattensis koelzi* Biswas, 1951, Amer. Mus. Novit., No. 1500: 10 (Aripo, northwestern Ceylon)

Baker, FBI No. 1374, Vol. 4: 46

Plate 53, fig. 7, facing p. 224

**LOCAL NAMES.** For woodpeckers in general: *Kāiphōra* (Hindi); *Vaddrangi pittā* (Telugu); *Mārāmkotti* (Malayalam); *Chitla kakkola* (Saugor dist., M.P.); *Kaudyā sūtār* (Marathi).

**SIZE.** Bulbul —; length c. 18 cm (7 in.).

**FIELD CHARACTERS.** A smallish pied woodpecker, brownish black above irregularly spotted with white, also on wings and tail. Forehead and crown brownish yellow; small occipital crest scarlet. *Below*, chin, throat and fore-neck white; rest of underparts fulvous streaked with brown, and with a prominent bright scarlet patch on abdomen.

**Female** similar to male but with the entire crown golden brown without any scarlet in it.

**Young (immature).** Like female but darker, duller, and more profusely streaked below.

**STATUS, DISTRIBUTION and HABITAT.** Resident. One of the commonest and most widely distributed of our woodpeckers: from Indus river in Sind and Punjab eastward across and along the base of the Himalayas through Nepal (lowlands) to Assam (rare) and East Pakistan; southward throughout the Peninsula, and Ceylon. Affects all types of lightly wooded country from arid semi-desert to moist-deciduous biotope; plains, foothills, and up to c. 1300 m, occasionally to c. 2000 m (Nilgiris and Palnis)—prosopis, babool and euphorbia jungle, gardens, mango groves, roadside avenues, etc. Avoids evergreen forest.

**Extralimital.** Represented in Burma (south to Toungoo) by the paler subspecies *blanfordi*.

**GENERAL HABITS.** Typical woodpecker. Keeps in pairs, sometimes family parties of 3 or 4, frequently with the mixed roving bands of insectivorous birds. The individuals follow one another from tree to tree alighting low down on a trunk and scuttling upward in jerky spurts, directly or in spirals, tapping the bark from time to time to dislodge lurking insects from the cracks. A curious creaking sound as of two branches rubbing together in a strong wind, produced by rapidly vibrating the bill against a decayed branch or dry stump allegedly for the same purpose (and apparently distinct from drumming) has been described (E. H. N. Gill, JBNHS 30: 274). Flight characteristic of woodpeckers — swift and undulating: a series of rapid flaps followed by a dipping bound with the wings closed.

**FOOD.** Mainly insects and larvae. Stomach analyses have shown termites, ants, beetles, moths, geometrid and buprestid larvae and other caterpillars, lac insects (*Tachardia lacca*), weevils (*Myllocerus* spp. and *Amblyrrhinus poricollis*), etc. Dragonflies have been observed brought for nest-young. Also eats pulpy fruits, e.g. *Ficus*, and nectar, e.g. of *Salmania*, *Erythrina* and *Firmiana colorata* flowers.

**VOICE and CALLS.** A sharp *click*, *click* or *clickr-r-r-r* frequently uttered; this evidently a note of concern, e.g. when approaching a nest under observation. A single *chuck* repeated at intervals as contact note between a pair while feeding in adjacent trees. In addition, drums with bill on dead trees (in semi-desert areas even on dry euphorbia stems)—a muffled *dr-r-r-r-r* . . . in bursts of 1 to 2 seconds during the breeding season.

**BREEDING.** *Season*, in India overall February to May, varying locally, but most general in March–April; in Ceylon March to July (Phillips). *Nest*, the usual woodpecker hole in a tree-trunk or branch, dead or living, 1 to 10 metres from the ground, usually under 4 metres. Trees selected mostly medium-sized mango, babool, kandi (*Prosopis spicigera*), peeloo

(*Salvadora persica*), ber (*Zizyphus jujuba*) and suchlike. Diameter of hole c. 4 cm going horizontally in for 5 or 6 cm then turning downward for c. 15 to 40 cm and ending in a widened egg-chamber. Eggs, normally 3, white, glossy, slightly elongate ovals; laid on the bare wood without any lining. Average size of 24 eggs 22.2 × 16.4 mm (Baker). Both sexes share all the domestic chores. Period of incubation undetermined. Nesting bird, when conscious of an observer's proximity, alights on far side of the stem some distance above its hole, slides jerkily down backwards and sideways, and surreptitiously pops into the hole.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

North Indian birds (*eurocristatus* auct.) have rather longer wings and more white on upperparts than south Indian examples; the latter, moreover, have somewhat blacker brown and richer red underparts. However, there is a continual cline in size from north to south with much overlapping in measurements over extensive intermediate areas; the colour differences also are not constant, so that the amount of white above and dark below is only just appreciable in series. Ceylon birds are inseparable from S. Indian. There seems no advantage in recognizing more than one subspecies in the subcontinent.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	94-110	21-28	15-21	54-64 mm (SA, HW)

Weight 2 ♂♂ 32, 34 g ; 5 ♀♀ 32-37 g ; 11 ♂♀ 32-38 (aver. 34.6) g (SA, MD).

COLOURS OF BARE PARTS. Iris brown to reddish brown. Bill plumbeous, horny brown on culmen; mouth greyish pink. Legs, feet and claws horny grey or slate colour.

[For an excellent paper on the tongue mechanism of this and some other Indian woodpeckers, see Joachim Steinbacher, 1934, 'Untersuchungen über den Zungenapparat indischer Spechte', *Jour. f. Orn.* 82 (3): 399-408.]

#### PICOIDES CANICAPILLUS (Blyth): GREYCROWNED PIGMY WOODPECKER

##### Key to the Subspecies

	Page
Crown ashy grey; underparts streaked	
a Upper tail-coverts barred black and white.....	P. c. canicapillus
b Upper tail-coverts black	
1 Occupit in male wholly red.....	P. c. semicoronatus
2 Red on occiput confined to a streak on either side..	P. c. mitchellii

Cf. Greenway, J. C., 1934, *Auk* 60: 564-74.

Biswas, B., 1950, *Proc. Zool. Soc. Bengal* 3 (1): 1-37.

#### 848. *Picoides canicapillus mitchellii* (Malherbe)

*Picus mitchellii* Malherbe, 1849, *Rev. et Mag. Zool.* (2), 1: 530 (Nepal)

Baker, FBI No. 1377, Vol. 4: 50

LOCAL NAMES. None recorded.

SIZE. Sparrow —; length c. 14 cm (5½ in.).

**FIELD CHARACTERS.** Broadly as of 849. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. The lower Himalayas from Murree (Rawalpindi dist.) eastward through N. Punjab, Himachal Pradesh, Garhwal, Kumaon and Nepal; from the terai up to c. 1700 m. Affects openly wooded country and scattered trees in cultivation, in tropical dry- and moist-deciduous and subtropical pine forest biotope. Intergrades with *semicoronatus* (849) in Nepal.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in *P. n. hardwickii* (852), q.v.

**BREEDING.** Season, chiefly April–May. Nest and eggs (c/4 or 5) as in 849.

**MUSEUM DIAGNOSIS.** See Key to the Subspecies. Upper back and innermost secondaries barred with white.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	85–89	17–18	14–15	40–47 mm
♀ ♀	84–94	17–18	14–15	42–50 mm (Biswas)

Weight (summer) 3 ♂♂ 20–24 g; 2 ♀♀ 21–22 g (GD); (spring) 1 ♀ 27 g (SA).

**COLOURS OF BARE PARTS.** As in 849.

**849. *Picoides canicapillus semicoronatus* (Malherbe)**

*Picus semicoronatus* Malherbe, 1849 (1848–9), Bull. Soc. Nat. Moselle, 5e cahier: 22 in text (Himalayas = Darjeeling)

*Dendrocopos nanus gigantisculus* Koelz, 1952, Jour. Zool. Soc. India 4: 44

(Mawryngkneng, Khasi Hills)

Baker, FBI No. 1376, Vol. 4: 49

Plate 54, fig. 2, facing p. 240

**LOCAL NAME.** *Daaja gadaiya mēbērang* (Cachari).

**SIZE.** Sparrow –; length c. 14 cm (5½ in.).

**FIELD CHARACTERS.** A diminutive pied woodpecker.

**Male.** *Above*, forehead and crown ashy grey; short occipital crest scarlet, surrounded by black. A broad whitish supercilium from behind eye continued as a wide band down sides of neck. Upper back black; wings, lower back, and rump black broadly barred with white. Upper tail-coverts and two central pairs of rectrices black; lateral rectrices more or less barred with white. *Below*, chin and throat whitish streaked with ashy; rest of underparts fulvous-brown, streaked with black.

**Female** similar to male but scarlet of hindcrown replaced by black.

**STATUS, DISTRIBUTION and HABITAT.** Resident; fairly common. Nepal (where it intergrades with *mitchellii*) through Darjeeling dist., Sikkim, Bhutan and northern Assam (intergrading with *canicapillus* in Cachar and Nagaland); terai, duars, foothills and up to c. 1700 m — occasionally to 2000 m. Affects open oak forest and mixed secondary jungle.

**GENERAL HABITS, FOOD, VOICE and CALLS.** Very similar to *P. n. hardwickii* (852), q.v.

**BREEDING.** Season, chiefly April–May. Nest, a shaft c. 10 to 20 cm deep bored in a thin branch between c. 5 and 10 m up in open forest. Tiny

entrance-hole, c. 3 to 4 cm in diameter, drilled mostly on the underside of sloping or horizontal branches. Eggs, 4 or 5, white, glossy, roundish ovals. Average size of 30 eggs  $18.6 \times 14.4$  mm (Baker). Both sexes share in drilling the nest-hole, incubation, and tending the young. Period of incubation not definitely ascertained; believed by Baker to be 12 or 13 days.

MUSEUM DIAGNOSIS. See Key to the Subspecies. Upper back and central rectrices unbarred black, upper tail-coverts usually so; if any white present on latter, confined to a few feathers only.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	80-90	16-18	13-16	38-46 mm
♀ ♀	82-91	16-19	14-15	39-48 mm (Biswas)

Weight (spring) 1 ♀ 27 g — SA.

COLOURS OF BARE PARTS. Iris biscuit coloured or greyish brown ('reddish brown' — Biswas). Bill horny brown, plumbeous on c. basal two-thirds of lower mandible. Legs and feet olive-plumbeous; claws horny brown.

850. *Picoides canicapillus canicapillus* (Blyth)

*Picus canicapillus* Blyth, 1845 (after 12 July), Jour. Asiatic Soc. Bengal 14 (1): 197

(Arrakan; type from Ramree Island)

Baker, FBI No. 1379, Vol. 4: 51

Plate 54, fig. 2, facing p. 240

LOCAL NAMES. *Daoja gadaiya kashiba*, *Daoja gadaiya mēbērang* (Cachari).

SIZE. Sparrow —; length c. 14 cm ( $5\frac{1}{2}$  in.).

FIELD CHARACTERS. Broadly as of 849. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Manipur, Mizo, Tripura and East Pakistan (hill tracts); plains, foothills and up to c. 1700 m. Affects thin open forest in tropical semi-evergreen biotope.

Extralimital. Burma, Thailand and the Indochinese countries.

GENERAL HABITS, FOOD, VOICE and CALLS. Very similar to *P. n. hardwickii* (852), q.v.

BREEDING. Season (April-May), nest and eggs (c/4 or 5) as in 849.

MUSEUM DIAGNOSIS. See Key to the Subspecies. Differs from *semicoronatus* (849) in having the upper tail-coverts barred, and central rectrices spotted with white. Scarlet of occiput confined as a streak on either side as in *mitchellii* (848).

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	80-94	16-19	13-16	34-46 mm
♀ ♀	80-92	16-19	13-16	39-45 mm (once 49) (Biswas)

COLOURS OF BARE PARTS. As in 849.

**PICOIDES NANUS (Vigors): PYGMY WOODPECKER**  
**Key to the Subspecies**

	Page
Crown brown; upper tail-coverts barred black and white	
a Underparts unstreaked or very indistinctly so.... <i>P. n. gymnoptthalmus</i>	233
b Underparts distinctly streaked	
1 Paler; crown very pale, streaks on underparts pale and diffused	
..... <i>P. n. nanus</i>	231
2 Darker; streaks on underparts coarse and dark.... <i>P. n. hardwickii</i>	231
3 Darkest; crown dark brown, streaks on underparts very fine and light..... <i>P. n. cinereigula</i>	233

**851. *Picoides nanus nanus* (Vigors)**

*Picus nanus* Vigors, 1832 (1831-2), Proc. Zool. Soc. London (1): 172 (Himalayas)

*Tungipicus hardwickii brunneiceps* Baker, 1926, Bull. Brit. Orn. Cl. 61: 42

(Udaipur-Jodhpur road, near Jelwara, Rajputana)

Baker, FBI No. 1381, Vol. 4: 53 (= *brunneiceps*)

**LOCAL NAMES.** None recorded.

**SIZE.** Sparrow —; length c. 13 cm (5 in.).

**FIELD CHARACTERS.** As of 852. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. From Rawalpindi dist. in W. Pakistan (Kahuta, c. 73°27'E. — Whistler, JBNHS 22: 626) eastward through Uttar Pradesh, Rajasthan, Nepal terai, Bihar, W. Bengal and East Pakistan, south to Orissa; foothills, terai, and plains. Affects light secondary forest and groves of mango and other trees around cultivation.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in *P. n. hardwickii* (852), q.v.

**BREEDING.** Season, principally February to early April. Nest and eggs (c/3 or 2) as in 852.

**MUSEUM DIAGNOSIS.** See Key to the Subspecies. Differs from *P. n. hardwickii* (852), sex for sex, in being much paler overall with the crown almost yellowish brown; more white in upperparts, especially on upper tail-coverts; underparts paler with pale brown streaks.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	74-81	15-17	13-15	35-39 mm
♀ ♀	76-83	15-17	13-14	36-42 mm (Biswas)

**COLOURS OF BARE PARTS.** As in 852.

**852. *Picoides nanus hardwickii* (Jerdon)**

*Picus (Dendrocopos) Hardwickii* Jerdon, 1844, Madras Jour. Lit. Sci. 13 (2): 138

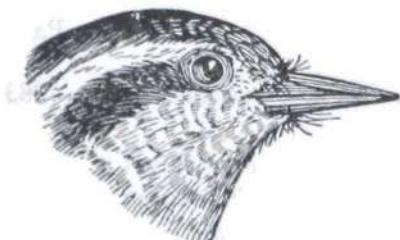
(Southern India = Goomsoor, Ganjam)

Baker, FBI No. 1380, Vol. 4: 52

**LOCAL NAME.** *Chitta suruti pachhi* (Telugu).

**SIZE.** Sparrow —; length c. 13 cm (5 in.).

**FIELD CHARACTERS.** A diminutive brown and white woodpecker.



× c. 1

**Male.** Upperparts barred dark brown and white; crown umber brown with a narrow scarlet streak on either side of occiput. A conspicuous broad white stripe from above eye down sides of neck. *Below*, brownish white streaked with blackish.

**Female.** Similar to male but lacking the scarlet streaks on sides of hindcrown.

**STATUS, DISTRIBUTION and HABITAT.** Resident; fairly common locally. All peninsular

India (excluding the range of *cinereigula* in the southwest) northward to the southern limit (undefined) of *nanus* in Gujarat through Madhya Pradesh and east to Orissa. Intergrades with *nanus* in Saurashtra and over a large part of Madhya Pradesh and Orissa, and with *cinereigula* in Coorg dist., Mysore. Affects light deciduous and bamboo forest, secondary jungle, and groves of trees in and around cultivation; plains and foothills up to c. 1200 m.

**GENERAL HABITS.** Usually keeps in pairs, frequently in association with the roving bands of small insectivorous birds such as nuthatches, tits, flycatchers and warblers. Actions and behaviour very like a nuthatch, for which it may casually be mistaken. Partial to woody stems of shrubs close to the ground; also to slender overhanging branches and bare topmost twigs of tall forest trees. Hardly ever seen on large tree-trunks or boughs. Creeps actively along and around a twig like a nuthatch tapping energetically with the bill as it progresses, and hops or flits from one twig to another like a sparrow. Flight rather sparrow-like, lacking the characteristic bounds and undulations of its larger relatives. May often be seen sunning itself in the early morning on the topmost bare twigs of tall forest trees, clinging inert for long periods. Has been observed roosting at night in the crotch of a leafless upright twig in a small tree at an angle of c. 45°.

**FOOD.** Chiefly insects and grubs. Stomach analyses showed ants (*Camponotus compressus*, *Oecophylla smaragdina*, *Cremastogaster subnuda*), bees (*Apis florea*), weevils (*Tanymecus* spp.), various elatids, caterpillars, and geometrid and buprestid larvae (Mason & Lefroy, 1912). Also eats pulp of fruits and berries (*Ficus* figs, *Buchanania latifolia* drupes) and of *mhowa* flowers (*Madhuca indica*), and flower-nectar, e.g. of *Salmalia malabarica*, *Erythrina indica* and spp. and *Butea monosperma*. Often has pollen adhering to chin and forehead feathers suggesting its implication in cross-pollination.

**VOICE and CALLS.** An occasional feeble, mousy *clickr-r-r* (contact call?) while creeping along the twigs. A soft but far-carrying drumming, usually on a bare end-twigs at the top of some large tree overlooking the surrounding jungle.

**BREEDING.** Season, February to July, chiefly March and April, varying locally. Nest, a tiny hole, under 3 cm in diameter, drilled in a small dead branch between 2 and 12 metres up, in open forest or a mango grove; it leads down 5 to 10 cm to a somewhat widened unlined egg-chamber. In horizontal branches the entrance-hole is placed on the underside. Eggs, 3 or 4, white, glossy, roundish ovals measuring c. 18 × 14 mm. Both sexes

share in excavating the nest, incubation, and feeding the young. Incubation period undetermined.

MUSEUM DIAGNOSIS. See Key to the Subspecies; for details of plumage Baker, loc. cit.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	74-80	14-16	13-15	33-40 mm
♀ ♀	75-81	14-16	13-15	34-40 mm (SA, BB)

Weight 1 ♀ 15 g (SA).

COLOURS OF BARE PARTS. Iris pale lemon-yellow; eyelids and circumorbital skin magenta. Bill horny grey, dusky on culmen; mouth greyish pink. Legs and feet dark slate or purplish brown; claws brown.

853. *Picoides nanus cinereigula* (Malherbe)

*Picus cinereigula* Malherbe, 1849, Rev. et Mag. Zool. (2), 1: 531

(Mádras = Alleppy, Travancore)

Baker, FBI No. 1380 (part), Vol. 4: 52

LOCAL NAME. *Märdämkotti* (for all woodpeckers — Malayalam).

SIZE. Sparrow —; length c. 13 cm (5 in.).

FIELD CHARACTERS. As for 852. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; fairly common locally. From Coorg dist. in Mysore (where it intergrades with *hardwickii*) and the Nilgiris and Palnis, southward through Kerala. Affects secondary jungle in deciduous and semi-evergreen biotope; from plains level to c. 1200 m.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 852, q.v.

BREEDING. Season, January to March. Nest, eggs and breeding biology not specifically recorded; doubtless as in 852.

MUSEUM DIAGNOSIS. See Key to the Subspecies. Intermediate between *hardwickii* of peninsular India and *gymnophthalmus* of Ceylon: upperparts brown rather than black, but darker than in *hardwickii*; crown very dark; streaking below, though definite, is so fine and light that in some specimens the underparts appear almost unicolorous dirty white.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	71-76	15-17	13-14	33-37 mm
♀ ♀	71-77	15-16	12-13	32-36 mm (SA, BB)

COLOURS OF BARE PARTS. As in 852.

854. *Picoides nanus gymnotphalmus* (Blyth)

*Picus gymnotphalmus* Blyth, 1849, Jour. Asiatic Soc. Bengal 18 (2): 804 (Ceylon)

Baker, FBI No. 1382, Vol. 4: 54

LOCAL NAMES. *Mäl kerellä*, *Chuti kerellä* (Sinhala); *Siru märdämkotti* (Tamil).

**SIZE.** Sparrow —; length c. 13 cm (5 in.).

**FIELD CHARACTERS.** As of 852. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Subspecies endemic in Ceylon. Plentiful but locally distributed, throughout the lowlands and in the hills to over c. 1200 m. Affects secondary dry- and moist-deciduous jungle, neglected overgrown plantations, etc.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 852, q.v.

**BREEDING.** Season, February to June; occasionally in October and December (Phillips). Nest and eggs (c/2 or 3) as in *hardwickii*, the latter measuring c. 16 × 14 mm.

**MUSEUM DIAGNOSIS.** See Key to the Subspecies. Differs from *hardwickii* (852) in having the upperparts sooty black throughout (*v.* sooty brown), this difference particularly conspicuous on the crown. Underparts dirty white, faintly washed with yellowish fulvous and practically unstreaked.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	72-77	14-17	13-15	33-37 mm
♀ ♀	74-77	14-15	13-14	33-35 mm (Biswas)

Weight 1 ♂ 15 g ; 1 ♀ 17 g (SDR).

**COLOURS OF BARE PARTS.** As in 852.

### 855. Threetoed Woodpecker. *Picoides tridactylus funebris* Verreaux

*Picoides funebris* J. Verreaux, 1870, Nouv. Arch. Mus. Hist. Nat. Paris, 6 Bull.: 33

(Mountains of Chinese Tibet = Sikang)

Not in Baker, FBI

**LOCAL NAME.** Nakpo tungta (Tibetan).

**SIZE.** Myna ±; length c. 23 cm (9 in.).

**FIELD CHARACTERS.** A medium-sized black and white woodpecker with no trace of crimson in the plumage, even in male. *Above.* Crown yellow in male, black in female; upperparts black with narrow broken white streaks. *Below,* chin, throat, foreneck to upper breast white; rest of underparts almost entirely black with small white flecks. Outer tail-feathers narrowly barred with white.

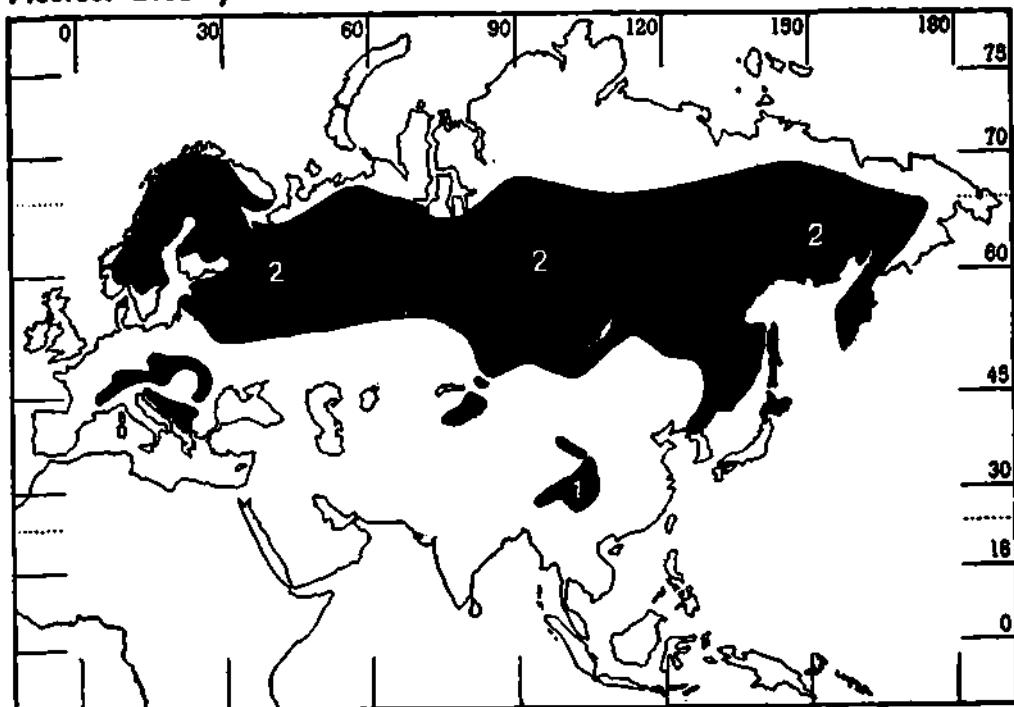
**STATUS, DISTRIBUTION and HABITAT.** Moderately common in conifer and deciduous forests in Kongbo and Takpo districts of SE. Tibet adjoining NEFA, therefore probably occurs also within our limits. Collected by Frank Ludlow at between c. 3300 and 4000 m, June to September (*Ibis* 1944: 369).

**Extralimital.** Western China in provinces of Kansu, Sikang, Szechuan and Yunnan (Peters).

**GENERAL HABITS, FOOD, VOICE and CALLS.** Tame and very silent. Has 'a low single note' (Ludlow).

**BREEDING.** Not recorded in our limits.

**MUSEUM DIAGNOSIS.** Toes only three. *Funebris* differs from all other subspecies of *P. tridactylus* in being much blacker, especially on the underparts.

*Picoides tridactylus*

■ Breeding range

1 *P. t. funebris* (855).2 Other Eurasian races (about 7)  
extralimital.

## MEASUREMENTS

	Wing	Bill (from skull?)
3 ♂♂	130	31-33 mm
4 ♀♀	124-130	29-31 mm (Kinnear)

COLOURS OF BARE PARTS. Not recorded.

## Genus HEMICIRCUS Swainson

*Hemicircus* Swainson, 1837, Classif. Bds. 2: 306Type, by monotypy, *H. concretus* Pl. col. 90 = *Picus concretus* Temminck

Bill straight, laterally compressed towards tip; nasal ridge well marked, beginning at base about halfway between culmen and commissure and extending half the distance to tip; nostrils covered with plumes. Feet very large; hallux well developed; fourth toe longer than third. Tail very short, barely exceeding tail-coverts and only about one-third length of wing. Rectrices rounded at the end, the outer pair distinctly shorter than the rest.

The genus differs from all Indian woodpeckers in that the hyoid horns are curved round the right bulbus oculi. For a comparative study of the tongue of this and some other Indian woodpeckers see Steinbacher, J., 1934, *Jour. f. Orn.* 82(3): 399-408.

Cf. Ali, Sálim, 1951, JBNHS 49: 786.

856. Heartspotted Woodpecker. *Hemicircus canente canente* (Lesson)

*Picus canente* Lesson, 1830, Cent. Zool.: 215, pl. 73 (Pegu)

*Picus cordatus* Jerdon, 1840, Madras Jour. Lit. Sci. 11 (1): 211

(Forests of Malabar and in the Wynnaad)

Baker, FBI Nos. 1409, 1410, Vol. 4: 84, 85

## Plate 52, fig. 4, facing p. 208

LOCAL NAME. *Pülli märämkotti* (Malayalam).

SIZE. Sparrow +; length c. 16 cm (6½ in.).

FIELD CHARACTERS. A smallish, squat, black and buff woodpecker with short, very slender neck, large crested head, and a strikingly short and broad rounded tail.

Male. *Above*, forehead, crown, and crest black, the first two minutely speckled with white. Back black with a broad buff band on either side (wing-coverts and tertaries) marked with heart-shaped black spots; rump buffy white. *Below*, chin, throat, foreneck and sides of neck buffy white; rest of underparts dusky olive and black.

Female similar to male but has the forehead and crown buffy white; crest black as in ♂.

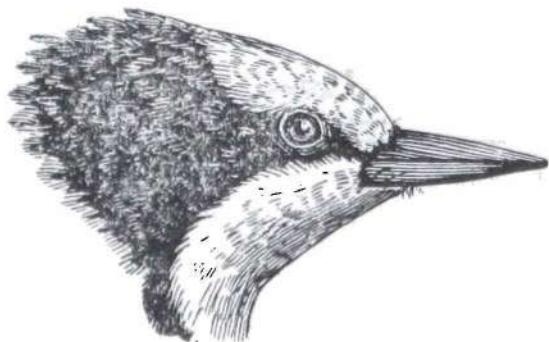
Young (both sexes) like ♀ but much darker below, being, in the earlier stages, blackish brown or chocolate with no olive tinge.

STATUS, DISTRIBUTION and HABITAT. Resident; sparsely distributed, but locally not uncommon.

The Sahyadri or Western Ghats complex (including Nilgiri and Palni hills) from Kerala northward through Mysore, Goa and Maharashtra to the Tapti river (c. 21°N. lat., S. Gujarat) and Khandesh. Thence eastward across the forested hill tracts of Madhya Pradesh (the Satpura trend) through Chanda and Bastar districts, Orissa, W. Bengal, East Pakistan, Assam south of Brahmaputra river, and Manipur; plains, foothills and up to c. 1300 m. Affects moist-deciduous and secondary evergreen forest biotope. Partial to teak and bamboo jungle, and to shade trees in S. Indian coffee plantations.

Extralimital. Burma, Malay Peninsula, Thailand (chiefly lowlands of the eastern provinces) and southern Indochinese countries (Peters).

GENERAL HABITS. Keeps singly or in pairs, commonly amongst the mixed hunting parties of small insectivorous birds. Like the pygmy woodpeckers hunts on thin terminal branches up in tall trees rather than on the trunks and boughs. Creeps actively up, along, and around the twigs with jerky bobbing movements, very like some mechanical toy, tapping repeatedly with its bill here and there to dislodge insects from the cracks, occasionally digging into rotten wood with energy and determination. The constantly uttered squeaky calls give the first indication of its presence in a tree or grove. Commonly perches crosswise on twigs like a passerine bird, a habit which, combined with the large crested head, attenuated neck and stumpy



♀, × c. 1

rounded tail identifies its silhouette a long way off. Flight weak and undulating, an exaggerated caricature of the characteristic bounding flight of the woodpecker family.

**FOOD.** Ants, termites, grubs, and other insects.

**VOICE and CALLS.** A squeaky chattering scream (or long drawn *chur-r*) frequently repeated. A characteristic rather pleasant — sharp but not loud — *twee, twee, twee*, sometimes strung out into a trill of 7 or 8 notes (Betts). A harsh jerky call somewhat like the wryneck's (SA). A thin, plaintive *su-sie* uttered with the head stiffly lowered and repeated 10 or 12 times, each *su-sie* accompanied by a bow or bob; a sharp double-*tchlik-tchlik* given in flight (K. K. Neelakantan). The individual interpretation of these calls has not been attempted. Also recorded drumming during the breeding season.

**BREEDING.** Season, chiefly November to April. Nest, a tiny hole c. 3 to 4 cm in diameter drilled in a dead branch usually between 3 and 4 metres up, sometimes considerably higher. It passes obliquely downward to a depth of 15 or 20 cm or so, into a somewhat widened egg-chamber. Nests in Kerala recorded in rotting wooden fence-posts adjacent to a used plantation footpath 1 to 1.5 metres from the ground. Eggs 3, sometimes only 2, white, unmarked, measuring about 24 × 18 mm. Other facets of breeding biology not recorded.

**MUSEUM DIAGNOSIS.** There is no difference in coloration between birds from western India and the Assam-Burma population. There is, however, a continuous cline in size from south-west to north-east as shown by Sálim Ali (loc. cit.), but no advantage is to be gained by upholding the smaller Kerala race *cordatus* hitherto recognized.

Both sexes have a tuft of bristly feathers in the middle of the back invariably clotted with a viscid resinous substance with a decidedly pleasant smell. The origin and purpose of this peculiar feature, which disappears in preserved skins, calls for investigation.

#### MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	92-103	20-25	17-20	28-37 mm
♀ ♀	85-98	17-21 (from skull)	16-19	28-38 mm (SA, HW)

Weight 2 ♂♂ 35, 38 g; 1 ♀ 30 g (SA).

**COLOURS OF BARE PARTS.** Iris olive-brown. Bill dark horny brown; mouth greyish pink. Legs, feet and claws blackish slate or brownish black.

**MISCELLANEOUS.** Parasitized by tick *Haemaphysalis spinigera* (Rajagopalan, JBNHS 69: 62).

#### Genus *BLYTHIPICUS* Bonaparte

*Blythipicus* Bonaparte, 1854, Ateneo Italiano 2: 124. (Separately paged reprint, Conspl. Volucr. Zygodact. 1854: 9.) Type, by subsequent designation,  
*Picus* (i.e. *Hemicircus*) *rubiginosus* Swainson

Bill long and stout, the culmen angulate and almost straight. Nasal ridge strongly developed, nearer to culmen than to commissure. Nostrils exposed. Chin angle about halfway between gape and tip of bill. Wing rounded: primaries just exceeding secondaries in length. Outer pair of rectrices longer than coverts. Hind toe well developed; fourth toe a little longer than third.

**857. Redeared Bay Woodpecker. *Blythipicus pyrrhotis pyrrhotis***  
 (Hodgson)

*Picus Pyrrhotis* Hodgson, 1837, Jour. Asiat. Soc. Bengal 6: 108 (Nepal)

*Blythipicus pyrrhotis porphyreus* Koelz, 1954, Contrib. Inst. Regional Exploration,  
 No. 1: 23 (Nongpoh, Khasi Hills)

*Blythipicus pyrrhotis pyrrhopittra* Koelz, 1954, Contrib. Inst. Regional Exploration,  
 No. 1: 23 (Karong, Manipur)  
 Baker, FBI No. 1383, Vol. 4: 55  
**Plate 51, fig. 3, facing p. 176**

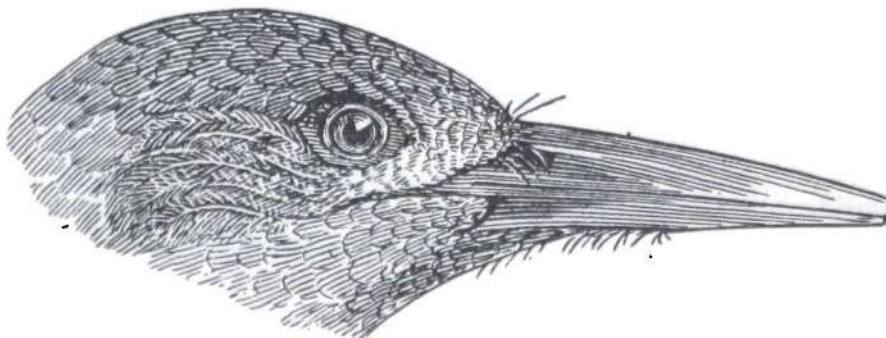
**LOCAL NAMES.** *Fi-ing* (Lepcha); *Dao gadaiya gajao* (Cachari).

**SIZE.** Pigeon —; length c. 27 cm (11½ in.).

**FIELD CHARACTERS.** A medium-sized barred rufous and black woodpecker with a prominent scarlet cross-band on nape extending to sides of neck behind the ear-coverts, and greenish yellow bill.

**Female.** Similar to male but without the scarlet nape-band. Could casually be mistaken for Rufous Woodpecker (803), but larger size, greenish yellow bill, and evergreen forest habitat diagnostic.

**Young (immature).** Underparts duller than in female, but everywhere faintly barred with rufous. Head, nape, and sides of neck blackish with broad chestnut median streaks.



x c. 1

**STATUS, DISTRIBUTION and HABITAT.** Resident. From central Nepal eastward through Sikkim, Bhutan and NEFA. Also Assam hills south of the Brahmaputra, Nagaland, Manipur, Mizo and East Pakistan (hill tracts); plains, duars, foothills and up to c. 2000 m. Affects dense evergreen climax forest and adjacent secondary jungle with bamboo.

**Extralimital.** Burma, northern Thailand, North Vietnam.

**GENERAL HABITS.** Almost always met with in pairs — rarely 3 or 4 together. Keeps fairly low down in bamboo thickets and undergrowth in dense forest, avoiding the open parts. Hops on the ground feeding among the roots and clinging to the bases of stems and decaying stumps, its presence usually betrayed only by its distinctive calls, or when flushed from the ground. Less commonly hunts also on higher trunks and branches.

**FOOD.** Mainly white ants, and beetle larvae.

**VOICE and CALLS.** An unmusical but not unpleasant *chake, chake, chake, chake* uttered slowly and deliberately four or five times, falling off in loudness as increasing in tempo towards the end. A loud chattering when flushed from undergrowth, *kererē-kererē-kererē* (rendered by Smythies as a 'harsh

strident *churra-cha-churra-cha-churra*') uttered while flying agitatedly from tree-trunk to tree-trunk around the intruder, accompanied by an excited flicking of the wings on alighting.

BREEDING. Season, principally May and June. Nest, the typical wood-pecker hole in a living or dead tree-trunk or stump in heavily wooded ravines etc., normally between 1 and 4 metres from the ground. Eggs 3, sometimes 2 or 4, white, long ovals. Average size of 25 eggs  $29\cdot7 \times 21\cdot2$  mm (Baker). Both sexes take part in drilling the nest-hole, incubation, and feeding the young. Incubation period undetermined.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. Breast in adult has a rusty wash, in juvenile dull earthy brown.

#### MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	145-153	48-54	29-30	82-98 mm
♀ ♀	137-151	45-51	—	c. 82-85 mm (SA, BB, Stresemann)

Weight 1 ♂ 170 g ; 1 ♀ 155 g (SA).

COLOURS OF BARE PARTS. Iris dull crimson; orbital skin olive-brown. Bill greenish yellow, more greenish at base of lower mandible. Legs and feet and claws horny brown.

#### Genus CHRYSOCOLAPTES Blyth

*Chrysocolaptes* Blyth, 1843, Jour. Asiatic Soc. Bengal 12 (2) : 1004. Type, by subsequent designation, *C. strictus* = *Picus strictus* Horsfield

Bill long and straight. Nasal ridges strongly developed, commencing at base of bill and about half-way between commissure and culmen. Nostrils long and expanded. Feet exceptionally strong with the hallux well developed; claws long and strong. Outer tail-feathers slightly exceeding coverts in length.

#### Key to the Species

		Page
1	Crown of male red, of female yellow; back black.....	<i>C. festivus</i> 239
2	Crown of male red, of female spotted with white; back golden olive.....	<i>C. lucidus</i> 242

#### CHRYSOCOLAPTES FESTIVUS (Boddaert): BLACKBACKED WOODPECKER

#### Key to the Subspecies

Larger and paler; forehead white; white centres of chest feathers more pronounced.....	<i>C. f. festivus</i>
Smaller and darker; much more blackish on upperparts; black borders of feathers on lower parts broader.....	<i>C. f. tantus</i>

#### 858. *Chrysocolaptes festivus festivus* (Boddaert)

*Picus festivus* Boddaert, 1783, Table Pl. enlum.: 43 (Goa ex Daubenton, pl. 696)

Baker, FBI No. 1403, Vol. 4: 77

Plate 53, fig. 5, facing p. 224

LOCAL NAMES. None recorded.

**SIZE.** Pigeon —; length c. 29 cm (12½ in.).

**FIELD CHARACTERS.** A medium-sized woodpecker rather like the Golden-backed (819) on a casual glimpse.

**Male.** *Above*, crown and crest crimson. Sides of hindneck white, running down to unite in a prominent white V on middle of upper back. Lower back and tail black. Upperparts of wings golden olive. *Below*, cheeks, chin, throat and foreneck fulvous-white with five narrow longitudinal black streaks. Rest of underparts buffy white, the feathers edged with black forming a bold scaly pattern on breast.

When only the head and neck of the bird are visible from behind a tree-trunk the 5-striped pattern on the white cheeks and throat (*v.* black streaked with white in Goldenbacked Woodpecker [819]) is diagnostic.

**Female.** Similar to male but crown and crest golden yellow instead of crimson.

**STATUS, DISTRIBUTION and HABITAT.** Resident; widely but sparsely distributed everywhere: practically all peninsular India with the exception of Sind, western Rajasthan, Kutch and most of Saurashtra in the west, and Assam and E. Pakistan in the east, thus roughly between longitudes 72° and 88°E., and south of latitude 28°N. Affects deciduous forest — low country and foothills with scrub and scattered trees.

**GENERAL HABITS.** Keeps singly or in pairs — sometimes trios (with the single young of the year?) — in open deciduous tree and bamboo forest. Feeds on tree-trunks as well as ground; partial to charred patches where the grass has been recently burnt. In non-breeding season roosts at night in disused nest-holes in tree-trunks, each bird occupying one of the several usually chiselled out one above the other 30 to 60 cm apart, in successive years. Whether the 'apartments' are occupied on an 'ownership' basis by birds themselves raised in the same hole, and whether the same individuals occupy the same hole night after night, are interesting points for investigation.

**FOOD.** Chiefly ants and grubs of wood-boring beetles.

**VOICE and CALLS.** A loud chattering 'laugh' similar to the Golden-back's, particularly to that of the Larger, *C. lucidus* (860-62), but different in timbre; the two confusable if heard independently and at different times. 'A rapidly repeated unmetallic *kwirri-rr-rr-rr-rr* uttered in runs of 6 or 7 every few minutes' (K. K. Neelakantan).

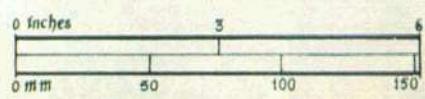
**BREEDING.** Season, overall November to March, varying locally. Nest, the typical woodpecker hole chiselled out in a tree stem between 2 and 7 metres from the ground. A fresh hole is excavated each year so that often four or more holes may be found in the same stem one above the other in apartment-house fashion, though only the latest is occupied for nesting.

#### PLATE 54

- 1 *Picoides auriceps*, Brownheaded Pied Woodpecker (842).
- 2 *Picoides canicapillus*, Greycrowned Pigmy Woodpecker (849).
- 3 *Picoides macei*, Fulvousbreasted Pied Woodpecker (845).
- 4 *Picus flavigula*, Yellownaped Woodpecker (813).
- 5 *Micropternus brachyurus*, Rufous Woodpecker (803).
- 6 *Chrysocolaptes lucidus* Larger Goldenbacked Woodpecker (361).
- 7 *Sasia ochracea*, Rufous Piculet (800).
- 8 *Dryocopus javensis*, Great Black Woodpecker (831).
- 9 *Jynx torquilla*, Wryneck (797a).



Krun Dixit  
1980





Holes usually distinctive — pear- or 'horse-collar'-shaped rather than circular as in most woodpeckers, measuring c. 11 × 8 cm in diameter and 25–30 cm deep. Eggs, normally a singleton, rarely 2, white, unmarked. Average size of 5 eggs 31·2 × 24·1 mm. Both sexes share in excavating the hole and all other domestic chores. Incubation period undetermined.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

Young (immature). Crown and crest flame-coloured in male; black, spotted with white in female.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	152–162	44–54	30–31	72–85 mm
♀ ♀	149–158	43–51	26–30	72–81 mm (SA, HW)

COLOURS OF BARE PARTS. Iris creamy orange to crimson (brown in young birds); circumorbital skin pale flesh colour. Bill slaty or brownish black. Legs and feet greenish plumbeous; claws horny brown.

859. *Chrysocolaptes festivus tantus* Ripley

*Chrysocolaptes festivus tantus* Ripley, 1946, Spolia Zeylanica 24: 214  
(Embilipitiya, Ceylon)

Baker, FBI No. 1403 (part), Vol. 4: 77

LOCAL NAMES. *Māhā-rāng kērellā* (Sinhala); *Mārāmkotti*, *Thachchan kūruvi* (Tamil).

SIZE. Pigeon —; length c. 29 cm (12½ in.).

FIELD CHARACTERS. As for 858. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Subspecies endemic in Ceylon. Locally distributed in small numbers, in a few well-wooded areas in the North Central Province in the northern half of the island, and in the Hambantota and Embilipitiya districts of the Southern Province (Phillips).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 858, q.v.

BREEDING. Season, January to March; occasionally in September. Nest, frequently drilled in decaying trunks of coconut palms near villages, and eggs (c/1 or 2) as in 858.

MUSEUM DIAGNOSIS. Differs from the Indian population (858) in being smaller and darker. Black stripes on chin and throat noticeably broader, as are also the black borders to the feathers on breast and abdomen.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
1 ♂	150	52	29	75 mm
2 ♀ ♀	144, 147	49 (1) (from feathers)	28 (1)	76, 79 mm (HW, SDR)
		43 (1)		

COLOURS OF BARE PARTS. As in 858.

**CHRYSOCOLAPTES LUCIDUS (Scopoli): LARGER GOLDENBACKED WOODPECKER**

Whistler has drawn attention to the fact that in this species the top of the bill has on each side, between the nasal groove and the culmen ridge, a series of fine transverse ridges closely resembling the match-striker found on old-fashioned silver match-boxes. The function of this feature needs investigation.

**Key to the Subspecies**

		Page
<b>A</b>	Back golden yellow or olive, only rump crimson	
1	Back more gold, less olive	
a	Smaller..... <i>C. l. guttacristatus</i>	243
b	Larger..... <i>C. l. sultaneus</i>	242
2	Back dark, more olive, less gold..... <i>C. l. chersonesus</i>	244
<b>B</b>	Back as well as rump crimson..... <i>C. l. stricklandi</i>	245

**860. *Chrysocolaptes lucidus sultaneus* (Hodgson)**

*Picus Sultaneus* Hodgson, 1837, Jour. Asiat. Soc. Bengal 6: 105 (Nepal, restricted to Simra, central Nepal, Ripley, 1950, JBNHS 49: 380)  
Baker, FBI No. 1405, Vol. 4: 80

**LOCAL NAMES.** None recorded.

**SIZE.** Pigeon; length c. 33 cm (13 in.).

**FIELD CHARACTERS.** As in 861. See Key to the Subspecies and Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Resident. Garhwal and Kumaon east to central Nepal where the population intergrades with *guttacristatus* (861). Affects evergreen forest: terai, duns and up to c. 1600 m.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 861, q.v.

**BREEDING.** Season, nest, eggs and breeding biology as in 861.

**MUSEUM DIAGNOSIS.** Differs from adjoining *guttacristatus* (861) in being larger, with a comparatively larger bill.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	172-190 (aver. 180·5)	50-64 (mostly 60 or over)	30-31	92-102 mm  (Baker)

Central Nepal birds (intermediate) give:

		(from skull)		
5 ♂♂	171-180 (aver. 175)	56-62	—	80-100 mm
3 ♀♀	174-180 (aver. 177·5)	53-58	—	98-99 mm  (Biswas)

Weight (spring) 3 ♂♂ 188-233 g; 3 ♀♀ 182-195 g (Diesselhorst).

**COLOURS OF BARE PARTS.** As in 861.

861. *Chrysocolaptes lucidus guttacristatus* (Tickell)

*Picus Guttacristatus* Tickell, 1833, Jour. Asiat. Soc. Bengal 2: 578  
 (Jungles of Borabhum and Dholbhumi)

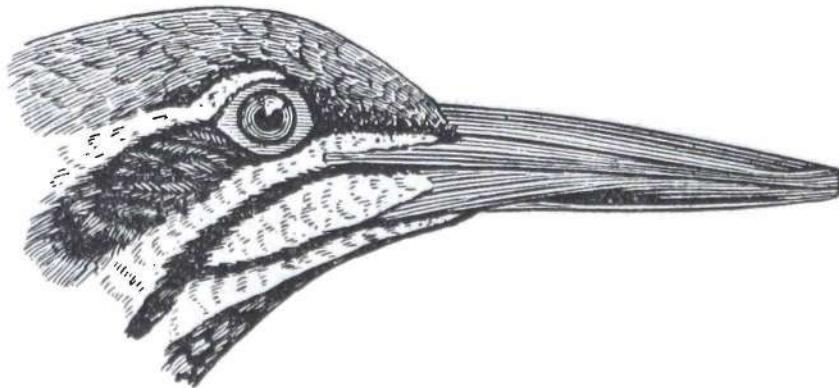
*Indopicus delesserti* Malherbe, 1849 (1848-9), Mém. Acad. Nat. Metz 30: 343  
 (India, restricted to Calcutta by Ripley)  
 Baker, FBI No. 1404, Vol. 4: 78  
**Plate 54, fig. 6, facing p. 240**

**LOCAL NAMES.** *Tashi-on-bau* (Lepcha); *Daoja gadaiya* (Cachari).

**SIZE.** Pigeon; length c. 33 cm (13 in.).

**FIELD CHARACTERS.** A medium-sized goldenbacked woodpecker.

**Male.** *Above*, crown and crest crimson; nape and hindneck white. Back and mantle golden olive; rump crimson; upper tail-coverts and tail black. *Below*, buffy white as in *festivus* (858) but with foreneck and breast very dark, the scaly pattern looking more like white spots on a black background. Cheeks and chin white; two black stripes on either cheek meeting on sides of throat and continuing; a fifth broader black stripe down centre of chin and foreneck (see figure).



♂, × c. 1

**Female** similar to male but with the crown and crest black, stippled with white.

Casually confusable, sex for sex, with Himalayan Threetoed Goldenback (824), but different pattern of the black throat-stripes diagnostic, q.v.

**Young** (immature) has crown and crest as in female, the male first acquiring the crimson occipital crest and later the crimson crown.

**STATUS, DISTRIBUTION and HABITAT.** Resident; fairly common in the appropriate biotope. East-central Nepal eastward through Sikkim, Bhutan, NEFA and Assam; Nagaland, Manipur, Mizo, East Pakistan, W. Bengal, Bihar, Orissa, eastern Andhra (Vaisakhapatnam Ghats), south to Bastar dist. in eastern Madhya Pradesh. Affects well-wooded moist-deciduous and semi-evergreen forest areas, especially in broken foothills country; chiefly below c. 700 m, sparingly up to 1600 m.

**Extralimital.** Burma, Shan States, Thailand south to the Lankawi Islands; S. Vietnam.

**GENERAL HABITS.** Typical woodpecker. Keeps in noisy pairs, occasionally family parties, flying swiftly from tree to tree with the characteristic

bounds and undulations, alighting low on a trunk and working upwards in jerky spurts and spirals. Seldom, if ever, feeds on the ground. Very agile in dodging behind tree-trunks to escape observation, and could thus be easily missed unless first seen alighting. Usually shows no more of itself from behind the stem than the head and neck, when the pattern of the stripes on cheeks and foreneck is a useful pointer to its identity. A pair has been observed hawking winged termites in company with drongos, launching out in the air, hovering like a Pied Kingfisher clumsily, making half a dozen captures in the bill and returning to the tree (Hume quoting Capt. Fielden, SF 3: 64-5).

**FOOD.** Insects, grubs, etc. Also nectar, e.g. of *Salmania* and *Erythrina* flowers, as a subsidiary item.

**VOICE AND CALLS.** A discordant trilling 'laugh' or scream, rather like that of the commoner Goldenbacked Woodpecker (819) but shriller and more 'tinny', uttered chiefly in flight. Also drums energetically in the breeding season.

**BREEDING.** Season, chiefly March to May. Nest, the typical woodpecker hole in a tree-trunk, vertically oval in shape rather than circular, 2 to 5 metres up, in practically every type of wooded country — mango groves near villages or within humid forest. The same cavity is often used for many successive years, with fresh entrances cut each time all leading to the same chamber, but whether by the same or other birds is not known. Eggs, 4 or 5, white, unmarked. Average size of 40 eggs  $30.0 \times 22.1$  mm (Baker). Period of incubation, *fide* Baker, 14 to 15 days, and fledging period 24 to 26 days.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. Differs from West Himalayan *sultaneus* (860) in being slightly smaller with a comparatively smaller bill.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	157-178	43-56	30-31	85-97 mm (Baker)
4 ♂♂	165-172	48-50	31-33	90-97 mm
4 ♀♀	168-173	47-49	31-32	88-90 mm (SA)

**COLOURS OF BARE PARTS.** Iris creamy orange or fawn colour. Bill horny brown or black, plumbeous at gape and base of lower mandible. Legs and feet greenish plumbeous; claws horny brown.

862. *Chrysocolaptes lucidus chersonesus* Kloss

*Chrysocolaptes strictus chersonesus* Kloss, 1918, Ibis: 113 (Johore, Malaya)

*Chrysocolaptes guttacristatus socialis* Koelz, 1939, Proc. Biol. Soc. Washington 52: 78  
(Jagalbed, Bombay Presidency)

Baker, FBI No. 1406, Vol. 4: 80

Plate 52, fig. 6, facing p. 208

**LOCAL NAMES.** For woodpeckers in general: *Mārdiktotti* (Malayalam); *Thachchan kūvi* (Tamil).

**SIZE.** Pigeon ±; length c. 31 cm (12½ in.).

**FIELD CHARACTERS.** As of 861. See Museum Diagnosis.

May be confused with the superficially similar Threetoed Woodpecker (825)—also crimsonbacked—but the slightly larger size, white hindneck (*v.* black), and distinctive cheek markings will distinguish this bird.

**STATUS, DISTRIBUTION and HABITAT.** Resident; not uncommon in the appropriate biotope. Kerala and northward along the Western Ghats complex (including the Nilgiri and Palni hills) through Mysore, Goa, Maharashtra and Gujarat to the Tapti river, and Khandesh; from plains level up to c. 1800 m. Affects evergreen and moist-deciduous biotope; partial to scrub and mixed secondary jungle in the moist intermediate zone; rare or absent in the coastal belt.

**Extralimital.** Extreme southern part of Malay Peninsula, Singapore island, Riau Archipelago, Sumatra, western and central Java (Peters).

This is one more example (cf. Great Pied Hornbill [776]) of the fact that birds of the same species at the extremities of the 'Indo-Malayan horseshoe', i.e. Ceylon-India-Burma-Malaya, are closely alike.

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 861, q.v. Has been observed roosting at night on a bare branch at an angle of 45° to the trunk, squatted along it as when searching for food, but completely 'frozen'.

**BREEDING.** Season, overall December to March. Nest, similar to that of Blackbacked Woodpecker (858), a pear-shaped or vertically oval hole c. 8 cm wide in a tree-trunk at heights between 2 and 20 metres, running in horizontally at first, then turning to vertical for 30 cm or so and ending in a slightly bulbous chamber. The lower edge of the entrance-hole is usually bevelled off into a slope. Eggs, normally a singleton, very rarely 2, white, unmarked, measuring c. 28 × 20 mm.

**MUSEUM DIAGNOSIS.** Differs from *guttacristatus* (861) in being somewhat smaller, with the upperparts more olive, less golden, making them appear decidedly darker. The crimson of the rump usually extends slightly further up the back.

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	149–158	42–52	30–31	77–91 mm
♀ ♀	147–157	41–50	27–30	80–89 mm (SA, HW)

Weight 2 ♀ ♀ 163, 164 g (SA).

**COLOURS OF BARE PARTS.** Iris cream colour with a pinkish tinge (more precisely, a fine outer ring reddish, inner ring pinkish cream colour). Bill dark horny brown, plumbeous at chin; mouth slaty pink. Legs and feet greyish green or greenish plumbeous; claws dark horny brown.

**863. *Chrysocolaptes lucidus stricklandi* (Layard)**

*Brachypterus Stricklandi* Layard, 1854 (June), Ann. Mag. Nat. Hist. 13 (3): 449  
(Gillymale, Ceylon)

*Indopicus Carlotta* Malherbe, 1854 (July), Rév. et Mag. de Zool., ser. 2, 6: 379  
(Ceylon)

Baker, FBI No. 1407, Vol. 4: 81

**LOCAL NAMES.** For woodpeckers in general: *Mukalāng kērellā* (Sinhala); *Mārdamkotti, Thachchan kūrūvi* (Tamil).

**SIZE.** Myna +; length c. 29 cm (11½ in.).

**FIELD CHARACTERS.** As of 861, sex for sex, but with entire back crimson instead of rump only. See Museum Diagnosis.

May be confused with the superficially similar Redbacked Woodpecker (823); distinguishable from it by the deeper crimson back and wings, longer and paler coloured bill, and more high-pitched and tinny call-note.

**STATUS, DISTRIBUTION and HABITAT.** Subspecies endemic in Ceylon. Moderately plentiful, but locally distributed, throughout the forests and well-wooded areas of the lowlands and hills to over 2100 m (Phillips).

**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 861, q.v.

**BREEDING.** Season, October to April; chiefly December and January. Nest and eggs (c/l to 3) as in 861.

**MUSEUM DIAGNOSIS.** Differs from *guttacristatus* (861) and *chersonesus* (862) in having the whole back crimson (*v.* rump only), and the wings rather duller crimson instead of golden or olive-yellow. The black on the head is greater in extent, and the white less.

#### MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	142-150	42-45 (from feathers)	30-31	90-95 mm (Baker)
4 ♂ ♂	145-149	46-49	27-30	80-83 mm
3 ♀ ♀	148	45-47 (from skull)	27-28	79-82 mm (HW)

Weight 1 ♀ 138 g (SDR).

**COLOURS OF BARE PARTS.** Iris yellowish white, yellow, buff, or buff with an outer reddish ring. Bill horny brown or plumbeous brown at base, paling towards tip where it is almost white and tinged with green in the centre. Legs and feet dull greenish brown or greenish slate (Baker).

#### Order PASSERIFORMES

For morphology and characters see Stresemann, E., 1927-34, *Aves*: 843-4; Baker, E. C. S., 1922, FBI 1: 10-17; for general account Thomson, A. L. (ed.), 1964, *New Dict. Birds*, London and New York (Article 'Passeriformes'). In almost all Passeriformes the order of wing (primaries) moult is strictly descending. This widespread mode seems to be primitive (Stresemann).

#### Family EURYLAIMIDAE: Broadbills

For description see Van Tyne, J. and Berger, A. J., 1959: 486; Baker, E. C. S., 1926, FBI 3: 459-60; Mackworth-Praed, C. W., 1964, Article 'Broadbill' in Thomson, A. L. (ed.) *New Dict. Birds*, London and New York.

#### Key to the Indian Genera

	Page
Tail shorter than wing.....	<i>Serilophus</i>
Tail longer than wing.....	<i>Psarisomus</i>

#### Genus SERILOPHUS Swainson

*Serilophus* Swainson, 1837, Classif. Birds 2: 262. Type, by monotypy, '*S. lunatus*' Zool. Tr. 1, pl. 25' = *Eurylaimus lunatus* Gould

Plumage very soft and lax. Tail much graduated. Wings rounded, much longer than tail. Secondaries and inner primaries truncated and emarginate at the ends of

the shafts. Rictal bristles present. Bill broad and flat, comparatively small, with sides of upper mandible straight, not overhanging near gape. Nostrils rounded, exposed, at base of culmen. Scutellation of tarsus in front almost obsolete; inside of tarsus covered with an undivided lamina. Sexually dimorphic.

864. **Collared Broadbill.** *Serilophus lunatus rubropygius* (Hodgson)

*Raya Rubropygia* Hodgson, 1839, Jour. Asiatic Soc. Bengal 8: 36 (No locality = Nepal)  
Baker, FBI No. 1334, Vol. 3: 470

**Vol. 10, plate 103**

LOCAL NAMES. *Rai suyā* (Nepali); *Rab kyul* (Lepcha); *Dao hungari* (Cachari).

SIZE. Bulbul  $\pm$ ; length c. 19 cm ( $7\frac{1}{2}$  in.).

FIELD CHARACTERS. A sluggish arboreal ashy grey bird with a short recumbent crest overhanging the nape. Lower back chestnut. Wings black

with contrasting chestnut, blue, and white markings. Tail black, graduated, the lateral rectrices white-tipped. Prominent yellow skin around eye.

Female. Similar to male, but with a demi-gorget of white-tipped feathers on either side of neck.

STATUS, DISTRIBUTION and HABITAT. Resident; Nepal eastward through Bhutan and

NEFA. Assam, Nagaland, Manipur, Mizo and East Pakistan (hill tracts): terai, plains, foothills and up to c. 1700 m. In tropical semi-evergreen and evergreen biotope. Affects sal and mixed secondary tree and bamboo jungle.

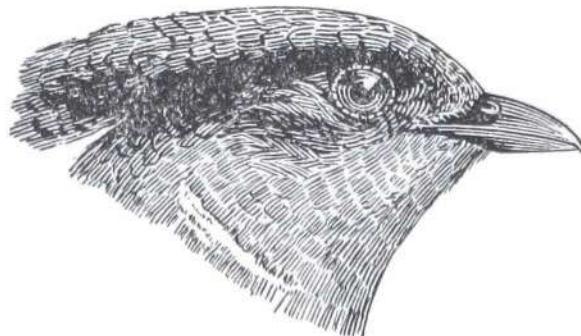
Extralimital. Arakan, Chin Hills, and northern and western Burma.

GENERAL HABITS. Arboreal and somewhat crepuscular. Keeps in parties of 5 to 20 or so to the better wooded parts, the individuals loosely together. Very active in the morning and at dusk, but also hunts lethargically during the day. Tame and confiding to the point of stupidity, even after being fired at. Perches very erect, the tail kept well down and frequently twitched. Takes insects off the branches and foliage of trees in clumsy but agile fluttering sallies. Bounces lightly from branch to branch using the wings as a parachute — an action reminiscent of the Common Wood Shrike.

FOOD. Grasshoppers, mantises and other insects. Tiny land shells have been found crammed in a stomach dissected.

VOICE and CALLS. A soft rather musical whistle, and a low *chir-r-r-r* uttered both at rest and in flight have been described. Also a loud mouse-like squeaking when alarmed.

BREEDING. Season, March to May or June. Nest, a bulky untidy ball c. 15 cm in diameter of coarse grass, weeds or moss bound together with black hair-like roots, with a round lateral entrance c. 5 cm across overhung by a porch — rather like an enlarged sunbird's nest. Lined with broad bamboo or grass leaves and draped on the exterior with spiders' egg-cases



♀,  $\times c. 1$

etc., an untidy 'beard' of loose material dangling below. Suspended by a slender attachment from a branch or bamboo twig, normally 2 to 4 metres up, almost invariably overhanging some trickle or pool in a ravine; usually quite conspicuous. Eggs normally 5, sometimes 4, white tinged with pale creamy pink or claret, usually speckled with minute reddish brown or purplish black dots, more densely at the broad end. Average size of 100 eggs  $23\cdot6 \times 17\cdot3$  mm (Baker). Both sexes partake in building the nest, incubation, and feeding the young. Incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

Young (immature) described from a single juvenile as similar to adult but chestnut of rump extending farther up on to mantle; grey of head and hindneck also faintly washed with chestnut; silvery white marks on sides of neck indicated, but less broad and clear (Garthwaite & Ticehurst, JBNHS 39: 559).

**MEASUREMENTS**

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	83-88	15-17	c. 21	66-71 mm (SDR, SA)

Weight (winter) 2 ♀ ♀ 33, 35 g (SDR).

**COLOURS OF BARE PARTS.** Iris brown; orbital skin bright yellow. Bill: upper mandible blue with pale edges and tip; lower mandible blue at base, yellowish green on gonys. Legs and feet bright yellowish green; claws plumbeous.

**Genus PSARISOMUS Swainson**

*Psarisomus* Swainson, 1837, Classif. Birds 2: 261. Type, by monotypy, '*P. dalhousiae* Wilson, Ill. Zool.' = *Eurylaimus dalhousiae* Jameson

Bill broad and flat; edge of upper mandible straight, not overhanging. No rictal bristles, but loral feathers directed forward. Tail longer than wing; steeply graduated, the outermost feathers being about one-third the length of the middle. Wing rounded; 3rd or 4th primary (as.) longest. Scutellations of tarsus indistinct on outer front, obsolete on inside. Sexes alike.

**865. Longtailed Broadbill. *Psarisomus dalhousiae dalhousiae* (Jameson)**

*Eurylaimus dalhousiae* Jameson, 1835, Edinburgh New Philos. Jour. 18: 589

(Northern India, probably near Simla)

Baker, FBI No. 1335, Vol. 3: 472

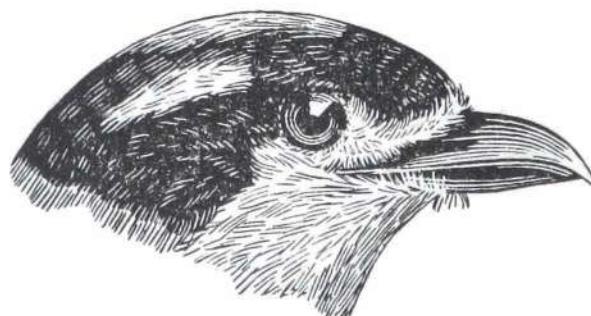
**Vol. 10, plate 103**

**LOCAL NAMES.** *Rai-i* (Nepal); *Dang-mo-mith*, *Dang-mit-pho* (Lepcha); *Dao hangari raja* (Cachari).

**SIZE.** Bulbul +; length c. 27 cm ( $10\frac{1}{2}$  in.).

**FIELD CHARACTERS.** A showy grass-green arboreal bird with a longish graduated tail largely bright blue above, black below. Bright yellow chin and throat produced up sides of neck as a collar broken behind. Crown black with an oblong yellow spot on either side, and a bright blue patch in the centre. A white patch on the black underside of wings prominent in flight. Sexes alike.

Young (immature) like adult, but has no blue on head, and chin and throat greenish yellow.



$\times c. 1$

**STATUS, DISTRIBUTION and HABITAT.** Resident, subject to seasonal local movements. The Himalayas from Garhwal (Mussooree) through Kumaon, Nepal, Sikkim, Bhutan and NEFA; south through Assam, Nagaland, Manipur, Mizo and East Pakistan (hill tracts); in tropical and subtropical evergreen biotope from terai and plains level to  $c.$  2000 m. Affects

mixed forest and secondary growth with bamboo, riverain jungle, etc.

**Extralimital.** Burma, Thailand and the Indochinese countries. The species extends to Malaysia, Sumatra and Borneo.

**GENERAL HABITS.** Arboreal and sociable. Keeps in flocks of 15 to 30, moving about in the foliage canopy or middle storey in forest in sprawling follow-my-leader style from tree to tree. Flight-silhouette when overhead, as well as upright stance when perched, and habit of fluttering in front of sprigs to take insects and spiders, very reminiscent of the minivets (*Pericrocotus*), though actions more sluggish. When perched upright switches tail like a shrike. Often launches out to take a winged insect in the air, flying on to another perch after the capture. Like the Collared Broadbill is stupidly tame and trusting even after being fired at and several of the flock killed. Close hunting association with Haircrested and other drongos has been frequently observed, the drongos swooping upon any moths or other winged insects flushed from the foliage by the fluttering broadbills.

**FOOD.** Large black ants, bugs (Hemiptera), green grasshoppers and other orthopterous insects, and spiders.

**VOICE and CALLS.** A distinct loud sharp whistle *tseeay, tseeay, tseeay* repeated continuously 5 to 8 times with little change in pitch, usually in flight. Silent while feeding except for an occasional single note *tseeay* or *sweet*.

**BREEDING.** *Season*, April–May–June. *Nest*, a well-made pear-shaped pouch of bamboo leaves, grass, roots, moss and creeper stems, etc. with a ragged ‘beard’ of loose material hanging from the bottom, and decorated on the outside with spiders’ egg-cases, scraps of green moss, etc. Overall length including suspension and beard  $c.$  1 metre; size of globe containing egg-chamber  $c.$  25 × 15 cm. Suspended by a thin pliant attachment from branches usually overhanging wooded ravines, 2 to 10 metres from the ground. Telegraph lines spanning forested nullahs appear to be favourite sites, the nest being suspended well out along the open wire, away from any vegetation, and very conspicuous. *Eggs*, 5 or 6, variable in coloration — white to salmon-pink blotched with pale brick-red, brick-pink, or deep rich red-brown, and secondary lilac-grey markings. Average size of 200 eggs 27·4 × 19·4 mm (Baker). Both sexes take part in building the nest, incubation, and evidently also in feeding the young. Incubation period undetermined.

## MUSEUM DIAGNOSIS

## MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	103–116	21–23	28–30	116–132 mm
♀ ♀	96–105	21–24	28–30	116–127 mm (BB, SA)

The apparent sexual dimorphism in wing-length can be verified only by measuring many more correctly sexed specimens.

Weight 1 ♀ (winter) 67 g (SDR).

COLOURS OF BARE PARTS. Iris brown or khaki; fine circumorbital rim greenish yellow. Bill sage-green: upper mandible bluish at gape; underside of lower mandible pinkish orange at chin and basal two-thirds, bluish green at tip. Legs and feet sage-green; claws horny brown.

## Family PITTIDAE: Pittas

For description see Van Tyne, J., and Berger, A. J., 1959: 497; Baker, E. C. S., 1926, FBI 3: 441; Mackworth-Praed, C. W., 1964, Article 'Pitta' in Thomson, A. L. (ed.), *New Dict. Birds*, London & New York.

## Genus PITTA Vieillot

*Pitta* Vieillot, 1816, Anal. nouv. orn.: 42. Type, by subsequent designation, *Corvus brachyurus* Linnaeus

Wing with ten primaries, the first (as.) very long and reaching almost to tip of wing. Tail of twelve feathers, very short; feathers of crown very full and erectile, forming a short thick crest, not apparent unless the bird is excited. Tarsus exceptionally long and strong, the anterior surface entire and smooth.

## Key to the Species

		Page
A	Lower plumage plain fulvous.....	<i>P. nipalensis</i> 250
B	Lower plumage cross-barred.....	<i>P. cyanea</i> 256
C	Lower plumage marked with brilliant crimson	
a	Breast and abdomen grey.....	<i>P. sordida</i> 254
b	Breast and abdomen fulvous or buff	
1	Under wing-coverts black.....	<i>P. moluccensis</i> 253
2	Under wing-coverts with a large patch of white.....	<i>P. brachyura</i> 252

866. Bluenaped Pitta. *Pitta nipalensis nipalensis* (Hodgson)

*Paludicola nipalensis* Hodgson, 1837, Jour. Asiat. Soc. Bengal 6: 103 (Nepal)

Baker, FBI No. 1317, Vol. 3: 444

Vol. 10, plate 103

LOCAL NAME. *Dao bni yegashi* (Cachari).

SIZE. Quail +; length c. 25 cm (10 in.).

FIELD CHARACTERS. A dumpy stub-tailed terrestrial bird, largely blue and greenish brown above, plain fulvous below. Nape and hindneck bright blue; tail brown tinged with green.

Female. *Above*, similar to male but hindcrown rufous-fulvous instead of blue, and hindneck green. *Below*, like male but throat usually more whitish.

In low cross-flight from one thicket to another, silhouette very like a waterhen's (*Amaurornis*).

**STATUS, DISTRIBUTION AND HABITAT.** Resident, subject to seasonal dispersal movements, largely altitudinal. Central Nepal eastward through Sikkim, W. Bengal (Darjeeling dist.), Bhutan and NEFA. Assam, Nagaland, Manipur, Mizo, and East Pakistan (hill tracts). From plains level and duars up to c. 2000 m. Affects tropical and subtropical secondary evergreen and bamboo jungle, and densely overgrown clearings.

**Extralimital.** Arakan Yomas, northern Burma, North Vietnam.

**GENERAL HABITS.** Almost entirely terrestrial, and a great skulker. Keeps singly or in separated pairs in dense shrubbery, flicking aside the fallen leaves or digging into the mulch with its stout bill for food. Progresses on the ground in swift long hops, like a rat in a hurry, and on a fleeting glimpse could easily be mistaken for one. Ventures on to the edge of forest paths etc. in the early mornings and at dusk, withdrawing precipitately into the undergrowth on alarm.

**FOOD.** Ants, beetles, and other insects, grubs, worms, lizards and various small animals.

**VOICE AND CALLS.** 'A magnificent double whistle, uttered both on the ground and when on a tree, most often in the early mornings and late evenings' (Baker). Baker also records 'a very soft chuckle' between a feeding pair.

**BREEDING.** Season, April to August, chiefly May and June. Nest, a large oblong domed structure like a Rugby football in shape, of loosely put-together bamboo leaves, coarse roots and grass, with entrance at one end. Placed on the ground in the base of a bamboo clump or other dense bush; sometimes a couple of metres or so up in the forking branch of a tree. Eggs, normally 4, sometimes 5 or even 6; rather spherical, glossy china white sparingly spotted with primary markings of reddish brown and secondary ones of lilac or lavender-grey. Average size of 100 eggs 29.5 × 22.4 mm (Baker). Both sexes share in building the nest, incubation, and feeding the young. Incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. Underparts considerably variable in depth of coloration in male, some individuals having a beautiful fulvous-pink flush on throat and foreneck. Many, but not all, Assam and Manipur birds have black centres to the scapulars and feathers of back, rump and upper tail-coverts, absent in topotypical birds from Nepal and Sikkim.

**Nestling.** Above, dark brown, each feather with a large central patch of pale fulvous and blackish edges. Below, very pale fulvous-pink, the feathers of chin, throat, and foreneck with obsolete dark edges. Feathers of rest of underparts with black bases and narrow black borders, the former showing everywhere but most boldly on breast and flanks (Baker).

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	116-129	22-26	51-59	61-68 mm (Baker)
4 ♂♂	120-124	30-31 (2)	—	56-65 (2) mm
3 ♀♀	122-127	—	—	— mm

(SDR, Heinrich, Stresemann)

**COLOURS OF BARE PARTS.** Iris brown; eyerim pale salmon. Bill horny brown, paler at tip. Legs and feet brownish flesh; claws paler.

867. **Indian Pitta.** *Pitta brachyura brachyura* (Linnaeus)

*Corvus brachyurus* Linnaeus, 1766, Syst. Nat., ed. 12, 1: 158 (Moluccas = Ceylon)

*Pitta brachyura pulchra* Koelz, 1939, Proc. Biol. Soc. Washington 52: 77

(Bhadwar, Kangra, Punjab)

Baker, FBI No. 1323, Vol. 3: 453

**Vol. 10, plate 106**

**LOCAL NAMES.** *Naordng* (Hindi); *Shumcha* (Bengal); *Polānki pittā* (Telugu); *Āru-māni kūrūvi*, *Thōttā källān*, *Kāthēlāchi* (Tamil); *Kōvi* (Malayalam); *Avichchiyā* (Sinhala); *Dao bui yegashi* (Cachari).

**SIZE.** Quail ±; length c. 19 cm (7½ in.).

**FIELD CHARACTERS.** A gaudily coloured stub-tailed thrushlike terrestrial bird — green, bright blue, black, white and fulvous with crimson-pink abdomen, vent, and under tail-coverts. In flight a round white patch near tip of wings conspicuous. Sexes alike.

Young (immature) has the crown darker, the feathers edged with black; back very dark, much duller and browner than in adult; underparts duller and browner with but little pink on belly and vent.

**STATUS, DISTRIBUTION and HABITAT.** Resident, with far-ranging seasonal migratory and dispersal movements not properly worked out. Practically the entire subcontinent including Assam, Manipur and East Pakistan, from the sub-Himalayas to Kanyakumari (excluding Sind and the more arid parts of Rajasthan); low country and foothills, occasionally up to 1700 m. Breeds over a wide area in northern and central India from about Kangra (Punjab) in the west to Cachar (Assam); sporadically elsewhere, e.g. Gir forest (Saurashtra) and Bombay environs. Mainly an abundant southwest monsoon or winter visitor and/or passage migrant in peninsular India. Winter visitor also to Ceylon from c. October to March–April. Affects scrub jungle, semi-cultivation and patches of light deciduous and evergreen forest. One unprecedented sight record near Islamabad, Pakistan, 17.vi.1978 (JBNHS 75: 924–5).

**MIGRATION.** Vast numbers are observed on regular passage all about the same time but not in flocks every year — locally almost to the date — through south and peninsular India northward in May and June, heralding the advance of the SW. monsoon; in the opposite direction, towards Ceylon, in September–October marking the end of the rainy season. Details of the movements have not yet been studied.

**GENERAL HABITS.** Mainly terrestrial, but roosts in low trees. Hops about on the ground like a thrush, rummaging amongst the dead leaves and digging into the wet earth with the bill for insects and grubs. On disturbance flies up into a branch with a whirr of wings, sitting motionless, only the stumpy tail wagging very slowly and deliberately up and down like some mechanical toy.

**FOOD.** Insects, grubs and worms. In the neighbourhood of villages commonly fly maggots pecked out from human excreta.

**VOICE and CALLS.** A loud clear double whistle *wheeet-tieu* or *wieet-piyou* uttered mostly in the early morning and late evening; throughout the day

in cloudy overcast weather. The calling bird pulls itself upright and jerks its head well back as when swallowing water; it is jerked forward again with the concluding *tieu* — an action altogether very like the crowing of a cock. The calls are repeated at the rate of 3 or 4 in 10 seconds, and sometimes kept up for 5 minutes or more at a stretch, several birds answering one another in the distance. A variant of this call is a single long-drawn *wheeeew*, similarly answered by others. Has, in addition, several harsh monosyllabic *chees* and *mews*.

**BREEDING.** Season, May to August. Nest, a large globular structure, c. 20 cm long × 15 cm wide, of twigs, roots, grass, etc. with the entrance at one end. It is placed in the forked branch of a small tree usually between 3 and 4, but sometimes even 8 or 9 metres from the ground; rarely on the ground itself in scrub jungle, under shelter of a bush. Eggs 4 to 6, glossy china white with sparse spots, specks and occasionally fine hair lines of dull or dark purple. Average size of 50 eggs 24·7 × 21·2 mm (Baker). Both sexes evidently take part in all the domestic chores. Incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit. Undergoes complete post-nuptial moult in August-September; has no spring moult.

#### MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♀	101-111	22-26	35-39	36-40 mm
	(from skull)			(Baker, SA, HW)

Weight 2 ♂♂ 57, 65 g (Rensch); 25 ♂♀ 47-66 g (aver. 55·5) — SA.

**COLOURS OF BARE PARTS.** Iris brown. Bill brown with orange tinge, brighter orange at gape and on basal half of lower mandible; mouth brownish, yellow, and pink. Legs and feet pinkish flesh colour; claws duskier.

**MISCELLANEOUS.** Parasitized by tick *Haemaphysalis spinigera* (Rajagopalan, JBNHS 69: 62). Vast numbers killed for food on southern Tamil Nadu coast during migration, especially autumn. On return migration (northward) from Ceylon the birds are attracted to the lights of residential buildings on foggy nights, as many as ten sometimes being taken in one particular Rest House (Ella) during a single evening (CBCN April 1982).

#### 868. Bluewinged Pitta. *Pitta moluccensis megarhyncha* Schlegel

*Pitta megarhyncha* Schlegel, 1863, Vög. Ned. Ind., Pitta: 32 (Banka)

Baker, FBI No. 1322, Vol. 3: 452

Vol. 10, plate 104

**LOCAL NAMES.** None recorded.

**SIZE.** Quail; length c. 23 cm (9 in.).

**FIELD CHARACTERS.** A brightly coloured dumpy stub-tailed terrestrial bird. Very like the nominate race of S. Burma (illustrated), but larger and with a larger bill.

**Adult.** *Above*, whole crown fulvous-brown; lores, cheeks, ear-coverts, a stripe over eye, and a broad band round back of head black; a dark brown coronal stripe from forehead to nape. Upper back and mantle dull green; rump, upper tail-coverts and smaller upper wing-coverts ultramarine blue. A white patch on black primaries, particularly conspicuous in flight. *Below*,

ruddy buff with a broad bright crimson stripe down abdomen, vent, and under tail-coverts. Sexes alike.

Young (immature) has the feathers of head margined with black; back dull brownish green; underparts duller and browner, with little or no indication of the crimson abdominal stripe.

**STATUS, DISTRIBUTION and HABITAT.** An eminently migratory pitta, chiefly extrazonal. Only a single record within our area: a specimen collected in March 1925 in East Pakistan — Barisal, 22°41'N., 90°20'E. (Whistler, JBNHS 37: 222), doubtless on migration.

*Extrazonal.* Southern Burma (Tenasserim), Malay Peninsula, Sumatra.

**GENERAL HABITS.** More or less as in Indian Pitta (867). Frequents thin tree jungle with sparse undergrowth, mangrove swamps, gardens and plantations, etc.

**FOOD.** Ants and their larvae, other insects, grubs and land shells.

**VOICE and CALLS.** A fine clear double note, constantly uttered in the morning and evening from high tree-tops; often all day and also during moonlit nights (Davison, SF 6: 241).

**BREEDING.** Extrazonal. Breeding biology as of the pittas in general.

**MUSEUM DIAGNOSIS.** See Key to the Species and Field Characters.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	114-120	29-34	39-41	40-43 mm (Baker)

Weight 4 oz. (= c. 113 g) — Davison.

**COLOURS OF BARE PARTS.** Iris dark brown. Bill black. Legs and feet dark fleshy; claws more whitish.

**PITTA SORDIDA (F. L. S. Müller): HOODED OR GREENBREASTED PITTA**

**Key to the Subspecies**

Brighter and paler above and below..... *P. s. cucullata*

Darker both above and below..... *P. s. abbotti*

**869. *Pitta sordida cucullata* Hartlaub**

*Pitta cucullata* Hartlaub, 1843, Rev. Zool.: 65 (Malacca)

Baker, FBI No. 1325, Vol. 3:455

Plate 53, fig. 10, facing p. 224

**LOCAL NAME.** *Phattim pho* (Lepcha).

**SIZE.** Quail; length c. 19 cm (7½ in.).

**FIELD CHARACTERS.** A multicoloured, largely green, dumpy, stub-tailed terrestrial bird. *Above*, crown and nape rich rufous-brown; lores, checks, ear-coverts, chin, throat and collar surrounding the head black. Mantle, back, and rump dark glossy bluish green; upper tail-coverts and a patch on wing-shoulder (lesser coverts) bright ultramarine blue; primaries black with a prominent white patch; tail black tipped with blue. *Below*, breast and sides of body pale greenish blue; abdomen black; lower abdomen, vent and under tail-coverts bright crimson. Sexes alike.

Young (immature) like adult but with the crimson of abdomen and vent pale.

**STATUS, DISTRIBUTION and HABITAT.** Chiefly resident, but with some seasonal altitudinal and dispersal movements. The Himalayas from the adjacent plains through the terai, duars and foothills up to c. 2000 m — Uttar Pradesh, Nepal, Bihar, Sikkim, West Bengal, Bhutan and NEFA. Assam, Nagaland, Manipur, Mizo and East Pakistan (hill tracts). Affects subtropical moist deciduous and evergreen secondary forest and scrub jungle.

*Extralimital.* Burma, Malaysia, and the Indochinese countries.

**GENERAL HABITS, and FOOD.** As in Indian Pitta (867), q.v.

**VOICE and CALLS.** Described by Baker as 'a loud musical whistle'.

**BREEDING.** *Season*, chiefly April–May–June. *Nest*, like that of 867, a loosely put-together oval ball of bamboo leaves, lined with grass and leaves. Normally placed on the ground in thick cover, e.g. under bamboo clumps etc. in dense secondary jungle. *Eggs*, 4 or 5, indistinguishable from those of Indian Pitta (867), q.v. Average size of 50 eggs  $27.1 \times 21.0$  mm (Baker). Both sexes share in building the nest, incubation, and presumably also tending the young. Incubation period undetermined.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

**Nestling.** Brown of crown rather duller; black of chin, sides of head and narrow collar also duller; upperparts brown washed with green; upper tail-coverts dull pale greenish blue; tail dark brown washed with green; lesser wing-coverts dull green with narrow brown rims; median coverts white, with greenish brown concealed bases and very narrow brown margins; greater coverts dull green; quills as in adult but duller; throat brownish white; rest of underparts dull brown, paling to pink on abdomen, vent and under tail-coverts (Baker).

#### MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	109–119	20–22	38–42	39–42 mm (Baker)
9 ♂♂	108–118	25–27	—	37–41 mm
4 ♀ ♀	110–118	25–26	40 (1)	37–40 mm (BB, SA)

Weight ♂♂ 2–2.5 oz. (= c. 57–71 g) — Davison.

**COLOURS OF BARE PARTS.** Iris dark brown; eyelids plumbeous. Bill black; mouth brownish fleshy. Legs and feet dark slate; claws yellowish grey.

#### 870. *Pitta sordida abbotti* Richmond

*Pitta abbotti* Richmond, 1902, Proc. U.S. Nat. Mus. 25: 298 (Nicobars)  
Baker, FBI No. 1326, Vol. 3: 457

**LOCAL NAMES.** None recorded.

**SIZE.** Quail; length c. 19 cm (7½ in.).

**FIELD CHARACTERS.** As of 869. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Endemic in the Great and Little Nicobar islands. Keeps to the ground in heavy forest.

**GENERAL HABITS, FOOD, VOICE and CALLS.** Nothing specifically recorded as different from 869 and other pittas, though reported to perch less in trees and keep more to the ground than Indian Pitta.

**BREEDING.** Not recorded.

**MUSEUM DIAGNOSIS.** Differs from *P. s. cucullata* (869) in being darker above and below, lighter blue on upper tail- and wing-coverts and having a dark median line on crown. White patch on primaries much smaller and confined to six feathers instead of seven.

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	103-110	22	40	39 mm
		(from gape) 27		(Richmond)

**COLOURS OF BARE PARTS.** Iris dark brown. Bill black; gape pale orange. Legs and feet pale brownish fleshy (Richmond).

**871. Blue Pitta. *Pitta cyanea cyanea* Blyth**

*Pitta cyanea* Blyth, 1843, Jour. Asiatic Soc. Bengal 12: 1008 (Arrakan)

Baker, FBI No. 1320, Vol. 3: 448

Plate 53, fig. 9, facing p. 224

**LOCAL NAME.** *Daobui gatanglili* (Cachari).

**SIZE.** Quail +; length c. 23 cm (9 in.).

**FIELD CHARACTERS.** A brightly coloured pitta largely blue overall.

**Male.** *Above*, forehead and crown greenish grey changing to scarlet on short nuchal crest; a broad black streak from bill through eye to nape; a black median streak on crown; black moustachial streaks on either side of whitish throat; upperparts and tail blue. A white patch at base of black flight-quills, concealed at rest prominent in flight. *Below*, pale blue (yellowish on breast) spotted and brokenly barred with black.

**Female** differs from male chiefly in having the upperparts dull brownish suffused with pale blue, changing gradually to pure blue on rump, upper tail-coverts, and tail.

**Young** (immature) like female but retains the fulvous tips to wing-coverts and often shows faint signs of barring above.

**STATUS, DISTRIBUTION and HABITAT.** Resident, and seasonal local migrant; extent and details of movements not yet worked out. Nowhere common: the lower eastern Himalayas in Bhutan and NEFA. Also Assam, Nagaland, Manipur, Mizo, and East Pakistan (hill tracts); chiefly plains, duars and foothills, sparingly up to c. 2000 m. Affects dank ravines and scrubby under-growth in mixed tree and bamboo forest in evergreen biotope.

**Extralimital.** Burma south to Tenasserim, and Thailand. The species extends to the Indochinese countries.

**GENERAL HABITS.** Largely as in Indian Pitta (867), q.v. Keeps singly on the ground in undergrowth, hopping about, turning over or flicking aside the dry leaves like a thrush, and digging into the damp soil with its bill for

food. When alarmed disappears into cover by long swift jumps like some small rodent, or flies up into a tree whence it soon descends again.

**FOOD.** Ants and other insects, grubs, land snails, etc.

**VOICE and CALLS.** 'A clear, full double whistle' (Davison).

**BREEDING.** *Season*, principally May–June–July. *Nest*, as of Indian Pitta — an oval ball of loosely put-together bamboo leaves, roots and rubbish c. 30 × 25 cm with the entrance-hole at one end; placed on the ground or sometimes on top of a rock or dead tree-stump in a moist overgrown ravine or scrub and bamboo jungle. *Eggs*, normally 4 or 5, glossy white, broad ovals as characteristic of the pittas, speckled, spotted or blotched variably from pale reddish to deep purple-black. Average size of 50 eggs 27·6 × 20·9 mm. Breeding biology and incubation period not recorded.

**MUSEUM DIAGNOSIS.** For details of plumage see Baker, loc. cit.

'*Nestling*' (= juvenile?). *Above* brown, the head almost black, each feather with a fulvous centre, bright and broad on crown and nape reduced to dull narrow lines on back; wing-coverts with terminal fulvous spots; rump and upper tail-coverts bluish; tail blue. *Below*, chin and throat white, each feather narrowly edged with black; breast and underparts dark brown, each feather broadly streaked with fulvous; centre of abdomen and under tail-coverts almost white (Baker).

**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	106–116	22–24	43–45	57–62 mm (Baker)

**Weight** ♂ ♀ 3·5–4·25 oz. (= c. 99–120 g) — Davison.

**COLOURS OF BARE PARTS.** *Adult.* Iris dark reddish brown; eyelids plumbeous. Bill black; mouth dusky fleshy. Legs pinkish flesh colour. *Juvenile* ('nestlings and young birds' — Baker). Bill fleshy scarlet; culmen and base mottled with horny brown. Legs and feet paler than in adult.



## APPENDIX

p. 12

**672a. *Caprimulgus indicus jotaka* Temminck & Schlegel**

*Caprimulgus jotaka* Temminck and Schlegel, in Siebold's

Fauna Jap., Aves, 1847, p. 37, pl. 12 ♂, pl. 13 ♀

(Japan)

*Caprimulgus innominata* [sic] Hume, Stray Feath. 3,

1875, p. 318, note

(Near Meegui, Tenasserim)

Baker, FBI No. 1626, Vol. 4: 367

**SIZE and FIELD CHARACTERS.** As of 670, q.v., but darker and greyer.

**STATUS, DISTRIBUTION and HABITAT.** Presumably a winter visitor. Uncommon? A specimen taken at sea north of Andaman Is. (JBNHS 67: 331) and another near Port Blair (ibid. 69: 125). A third at Phuntsholing, Bhutan (ibid. 68: 451).

**Extralimital.** SE. Siberia, China, Japan. Wintering in Indonesia, Malay peninsula, Java, Sumatra, Borneo.

**MEASUREMENTS**

	Wing	Bill	Tarsus	Tail
* 2 ♂♂	213, 213	22 (from skull) 11.5 (from feathers)	14, 16	130, 143 mm (SA, HA)

p. 14

**673a. Egyptian Nightjar. *Caprimulgus aegyptius arenicolor* Severtzov**

*Caprimulgus aegyptius* Lichtenstein, 1823, Verz. Doubl. Zool. Mus. Berlin: 59  
(Upper Egypt)

**SIZE.** Myna; length c. 25 cm (10 in.).

**FIELD CHARACTERS.** Very similar to *Caprimulgus mahrattensis* (674). *Above*, uniform pale sandy, lightly vermiculated on wings and head. *Below*, same colour faintly streaked with blackish; a white chin-spot. White spots on primaries confined to inner webs. Sexes nearly alike; two outer rectrices of male with buff tips; these obsolete in female.

**STATUS and DISTRIBUTION.** Believed to breed in N. Baluchistan. A specimen collected at Robat on the Baluchistan-Iran-Afghanistan frontier on 12 April 1939 and another seen (A. F. P. Christison, JBNHS 43: 483).

**Extralimital.** Breeds in Transcaspia, Turkestan, Afghanistan, E. and S. Iran, N. Egypt and Sudan (Peters).

**MEASUREMENTS.** Wing 197-218 mm (Meinertzhagen). Tail c. 130 mm (HA).

p. 82

**727a. Malay Threetoed Forest Kingfisher.** *Ceyx erithacus rufidorsus*  
Strickland

*Ceyx rufidorsa* Strickland, 1846 (1847), Proc. Zool. Soc. London, pt. 14, p. 99 (Malacca)

**FIELD CHARACTERS.** Overall as 727, but upperparts uniformly rufous washed with lilac. See Museum Diagnosis.

**STATUS, DISTRIBUTION and HABITAT.** Aberrant straggler? A single specimen from the Sikkim terai in BNHS collection (Abdulali, 1964, JBNHS 61 : 439).<sup>1</sup>

**Extralimital.** This form ranges through most of the Philippines and Malaysian subregion and the Indo-Australian archipelago (R. W. Sims, 1959, *Jour. Linn. Soc. London*, Vol. 44).

**MUSEUM DIAGNOSIS.** 'Above red washed with lilac, heaviest on head and rump; below deep yellow, strongest across the breast; chin and upper throat white washed with yellow; wing-coverts like the back; primaries and secondaries black; first primary and the secondaries edged with rufous; wing lining yellow. Iris dark brown; bill and feet red. Wing 58; tail 23; culmen from base 40; tarsus 8; middle toe with claw 16' (Hachisuka).

<sup>1</sup> How the bird reached the Sikkim terai seems a mystery. However, the possibility should not be overlooked that this is a rare polytypic mutant, a phenotype of reddish *rufidorsus* type appearing in a wild population of typical *erithacus*.

p. 210

**831a. Black Woodpecker.** *Dryocopus martius khamensis* Buturlin

*Picus khamensis* Buturlin, 1909, Annuaire Mus. Zool. Acad. Sci.,

St Petersbourg, 13 (1908) : 229

('eastern slope of the great plateau of Tibet')

Not in Baker, FBI

**SIZE.** House Crow +; length c. 46 cm (18 in.).

**FIELD CHARACTERS.** A large all-black woodpecker, similar to 831. Male with slightly crested crimson crown; female with restricted crimson patch on back of head. Eyes pale yellow.

**STATUS, DISTRIBUTION and HABITAT.** Resident in the Tsangpo valley (SE. Tibet) between c. 93° and 95°E., in conifer forest between c. 2800 and 3800 m. Presumably also occurring in adjoining Arunachal Pradesh.

**Extralimital.** The species (in several races) ranges over continental Europe eastward to Kamchatka and W. China.

**GENERAL HABITS, etc.** Those of the family.

**MUSEUM DIAGNOSIS.** 'Similar to nominate *martius* but darker, purer black, and slightly more glossy in fresh plumage; bill proportionately shorter and averaging weaker. Wing length 15 ♂♂ 246–260 (251.5) mm' (Vaurie, *Bds. Pal. Fauna*, 2 : 697).

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