

HANDBOOK OF THE BIRDS OF INDIA AND PAKISTAN

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

SÁLIM ALI
AND
S. DILLON RIPLEY

Volume 2
MEGAPODES TO CRAB PLOVER
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257a	Tamil Nadu Jungle Bush Quail, <i>Perdicula asiatica vellorei</i> Abdulali & Reuben
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(RE) = race extralimital

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- 5 *Arborophila mandellii*, Redbreasted Hill Partridge (273)
- 6 *Francolinus pictus pictus*, Southern Painted Partridge (241)
- 7 *Francolinus gularis*, Swamp Partridge (247)
- 8 *Arborophila rufogularis rufogularis*, Rufousthroated Hill Partridge (270)
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- 10 *Arborophila atrogularis*, Whitecheeked Hill Partridge (272)
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PAUL BARRUEL

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- 7 *Galloperdix lunulata*, Painted Spurfowl (278)
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G. M. HENRY

- 1 *Tragopan blythii blythii*, Greybellied Tragopan (288)
- 2 *Tragopan temminckii*, Temminck's Tragopan (289)
- 3 *Pucrasia macrolopha macrolopha*, Koklas Pheasant (305)
- 4 *Gallus lafayettii*, Ceylon Red Junglefowl (302)
- 5 *Catreus wallichii*, Chir Pheasant (307)
- 6 *Tragopan melanocephalus*, Western Horned Pheasant (285)
- 7 *Syrmaticus humiae humiae*, Mrs Hume's Pheasant (308)
- 8 *Gallus sonneratii*, Grey Junglefowl (301)
- 9 *Crossoptilon crossoptilon harmani*, Elwes's Eared Pheasant (292)

COLOUR PLATES

Plate 23, facing page 112

JOHN HENRY DICK

- 1 *Tetraophasis szechenyii*, Pheasant-Grouse (233)
- 2 *Polyplectron bicalcaratum*, Peacock-Pheasant (310)
- 3 *Gallus gallus spadicus*, Red Junglefowl (300)
- 4 *Coturnix chinensis*, Bluebreasted Quail (253)
- 5 *Turnix tanki blansfordii*, Yellowlegged Button Quail (315)
- 6 *Coturnix coromandelica*, Blackbreasted or Rain Quail (252)
- 7 *Lophura leucomelana hamiltonii*, Whitecrested Kaleej Pheasant (293)
- 8 *Lophura leucomelana lineata*, Burmese Silver Pheasant (297 RE)

Plate 24, facing page 128

JOHN HENRY DICK

- 1 *Rallus striatus albiventer*, Bluebreasted Banded Rail (329)
- 2 *Porphyrio porphyrio poliocephalus*, Purple Moorhen (349)
- 3 *Rostratula benghalensis*, Painted Snipe (429)
- 4 *Hydrophasianus chirurgus*, Pheasant-tailed Jaçana (358)
- 5 *Amaurornis phoenicurus chinensis*, Chinese Whitebreasted Waterhen (343)
- 6 *Gallinula chloropus indica*, Moorhen (347)
- 7 *Metopidius indicus*, Bronzewing Jaçana (359)
- 8 *Fulica atra atra*, Coot (350)
- 9 *Heliopais personata*, Masked Finfoot (351)
- 10 *Gallicrex cinerea cinerea*, Kora or Watercock (346)

Plate 25, facing page 160

PAUL BARRUEL

- 1 *Rallus aquaticus korejewi*, Turkestan Water Rail (327)
- 2 *Rallina fasciata*, Redlegged Banded Crake (331)
- 3 *Rallina euryzonoides amauoptera*, Slatylegged Banded Crake (332)
- 4 *Crex crex*, Corncrake (334)
- 5 *Rallina canningi*, Andaman Banded Crake (333)
- 6 *Porzana porzana*, Spotted Crake (338)
- 7 *Amaurornis bicolor*, Elwes's Crake (341)
- 8 *Porzana parva parva*, Little Crake (335)
- 9 *Porzana pusilla pusilla*, Baillon's Crake (337)
- 10 *Porzana fusca zeylonica*, Southern Ruddy Crake (340)
- 11 *Amaurornis akool akool*, Brown Crake (342)
- 12 *Turnix suscitator taigoor*, Indian Bustard-Quail (318)
- 13 *Turnix sylvatica dussumieri*, Little Bustard-Quail (313)

Plate 26, facing page 176

DENNIS F. MARLE

- 1 *Grus nigricollis*, Blacknecked Crane (321)
- 2 *Anthropoides virgo*, Demoiselle Crane (326)
- 3 *Grus monacha*, Hooded Crane (322)
- 4 *Grus leucogeranus*, Siberian Crane (325)
- 5 *Grus grus liffordi*, Common Crane (320)
- 6 *Choriotis nigriceps*, Great Indian Bustard (354)
- 7 *Chalamydota undulata macqueenii*, Houbara Bustard (355)
- 8 *Otis tarda orientalis*, Little Bustard (353)
- 9 *Sypheotides indica*, Lesser Florican (357)
- 10 *Eupodotis bengalensis bengalensis*, Bengal Florican (356)

Plate 27, facing page 208

C. J. F. COOMBS

- 1 *Haematopus ostralegus ostralegus*, Oystercatcher (360)
- 2 *Vanellus leucurus*, Whitetailed Lapwing (362)

- 3 *Vanellus vanellus*, Peewit (364)
- 4 *Vanellus gregarius*, Sociable Plover (363)
- 5 *Pluvialis squatarola*, Grey Plover (371)
- 6 *Vanellus malabaricus*, Yellow-wattled Lapwing (370)
- 7 *Charadrius asiaticus asiaticus*, Caspian Sand Plover (376)
- 8 *Pluvialis apricaria apricaria*, Golden Plover (372)
- 9 *Charadrius hiaticula tundrae*, Eastern Ringed Plover (378)
- 10 *Charadrius alexandrinus alexandrinus*, Kentish Plover (381)
- 11 *Charadrius leschenaultii*, Large Sand Plover (374)

Plate 28, facing page 224

DENNIS F. HARLE

- 1 *Numenius phaeopus phaeopus*, Whimbrel (385)
- 2 *Limosa limosa limosa*, Blacktailed Godwit (389)
- 3 *Limosa lapponica lapponica*, Bartailed Godwit (391)
- 4 *Tringa erythropus*, Dusky Redshank (392)
- 5 *Tringa terek*, Avocet-Sandpiper (400)
- 6 *Limnodromus semipalmatus*, Snipebilled Godwit (403)
- 7 *Calidris canuta canuta*, Knot (412)
- 8 *Gallinago minima*, Jack Snipe (410)
- 9 *Calidris alba*, Sanderling (414)
- 10 *Gallinago solitaria solitaria*, Eastern Solitary Snipe (404)
- 11 *Calidris alpina alpina*, Dunlin (420)
- 12 *Calidris ruficollis*, Eastern Little Stint (415)
- 13 *Calidris testacea*, Curlew-Sandpiper (422)

Plate 29, facing page 256

JOHN HENRY DICK

- 1 *Charadrius mongolus atrifrons*, Lesser Sand Plover (384)
- 2 *Pluvialis dominica fulva*, Eastern Golden Plover (373)
- 3 *Charadrius dubius jerdoni*, Little Ringed Plover (380)
- 4 *Vanellus spinosus duvaucelii*, Spurwinged Lapwing (369)
- 5 *Vanellus indicus atronuchalis*, Redwattled Lapwing (368)
- 6 *Himantopus himantopus himantopus*, Blackwinged Stilt (430)
- 7 *Numenius arquata orientalis*, Curlew (388)
- 8 *Vanellus cinereus*, Greyheaded Lapwing (365)

Plate 30, facing page 272

JOHN HENRY DICK

- 1 *Tringa ochropus*, Green Sandpiper (397)
- 2 *Tringa glareola*, Wood or Spotted Sandpiper (398)
- 3 *Calidris temminckii*, Temminck's Stint (417)
- 4 *Calidris subminuta*, Longtoed Stint (418)
- 5 *Tringa stagnatilis*, Marsh Sandpiper (395)
- 6 *Tringa hypoleucos*, Common Sandpiper (401)
- 7 *Tringa totanus eurhinus*, Redshank (394)
- 8 *Gallinago gallinago gallinago*, Fantail Snipe (409)
- 9 *Tringa nebularia*, Greenshank (396)
- 10 *Scotopax rusticola rusticola*, Woodcock (411)

Plate 31, facing page 304

DENNIS F. HARLE

- 1 *Eurynorhynchus pygmeus*, Spoonbilled Sandpiper (423)
- 2 *Limicola falcinellus falcinellus*, Broadbilled Sandpiper (424)
- 3 *Philomachus pugnax*, Ruff (426)
- 4 *Phalaropus lobatus*, Rednecked Phalarope (428)
- 5 *Phalaropus fulicarius*, Grey Phalarope (427)

COLOUR PLATES

xiii

- 6 *Recurvirostra avosetta*, Avocet (432)
- 7 *Cursorius cursor cursor*, Creamcoloured Courser (439)
- 8 *Dromas ardeola*, Crab Plover (434)
- 9 *Cursorius coromandelicus*, Indian Courser (440)
- 10 *Cursorius bitorquatus*, Jerdon's Courser (441)
- 11 *Glareola pratincola maldivarum*, Large Indian Pratincole (443)

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 Dafia, 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.).

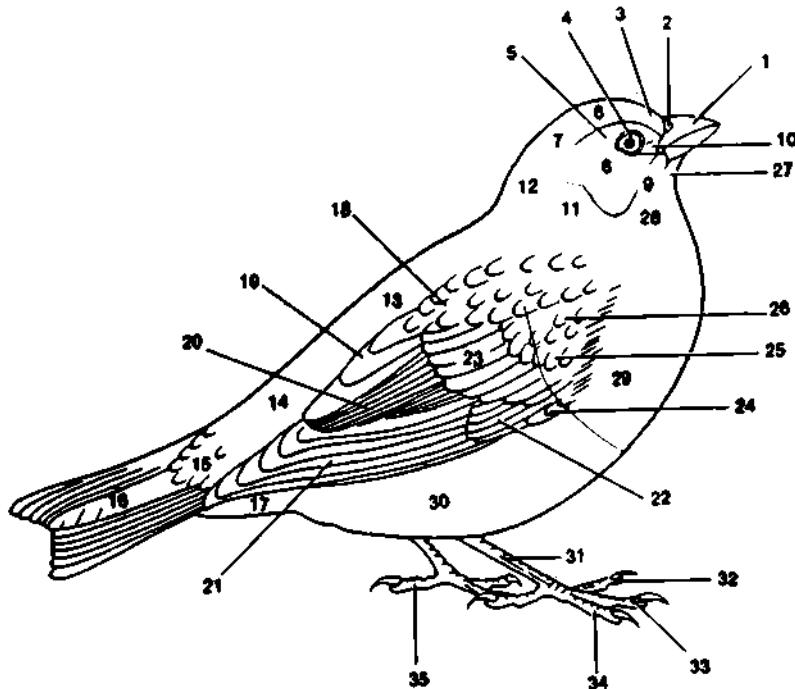
SAURASHTRA The union of States was merged with Bombay in 1956 and since 1960 has been part of Gujarat.

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 Tertiaries |
| 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

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

Abbreviated references to persons frequently quoted

Abdulali or HA	Humayun Abdulali
Baker	E. C. Stuart Baker
Bates	Lt Col. R. S. P. Bates
Biswas or BB	Biswamoy Biswas
Blanford	W. T. Blanford
Henry	G. M. Henry
Hume	A. O. Hume
Jerdon	T. C. Jerdon
Kinnear	Sir Norman B. Kinnear
Lowther	E. H. N. Lowther
Ludlow	Frank Ludlow
Meinertzhagen	Col. R. Meinertzhagen
Osmaston	B. B. Osmaston
Phillips	W. W. A. Phillips
Ripley or SDR	S. Dillon Ripley
Sálim Ali or SA	Sálim Ali
Ticehurst or CBT	Claud B. Ticehurst
Whistler or HW	Hugh Whistler

In records of weights the seasons are:

autumn	September, October
winter	November — March
spring	April
summer	May — August

References to the Appendix are indicated by an asterisk (*)

Order GALLIFORMES

(For anatomical details see Stresemann, 1927-1934, Aves: 754; Witherby, 1941, 5: 208-9; Baker, 1928, 5: 279-80.)

Family MEGAPODIIDAE: Megapodes

Contains birds closely related to the pheasants, junglefowl, etc. (Fam. Phasianidae), many of whose natural characters they share. Remarkable for their reptile-like nesting habits, laying their eggs in holes in the ground or in scraped-together mounds of sand and humus, leaving them to hatch by the heat of the sun and/or decomposition of the vegetable matter. Young pass through natal down stage within egg; born with full juvenal plumage and able to fly and fend for themselves. Confined chiefly to the Australasian Region, only a single genus and species occurring within our limits in the Nicobar Islands.

(For Ontogeny and Evolution of the family see George A. Clark, Jr., 1964, *Postilla* 78: 1-37.)

Genus MEGAPODIUS Gaimard

Megapodius Gaimard, 1823, Bull. Gen. Univ. Annon. Nouv. Sci. 2: 450

Type, by subsequent designation, *Megapodius freycinet* Gaimard

Bill moderate. Nostrils large, oval, longitudinally elongate. Legs and feet very large and powerful; tarsus in front broadly scutellated. Claws long and straight; hindclaw longest. Wings short and rounded: 5th primary (as.) longest; 1st subequal with 10th; secondaries as long as primaries. Tail short and rounded; of 12 feathers. Sexes alike. Represented by one species in two races within our limits, only in the Nicobar Islands.

MEGAPODIUS FREYCINET Gaimard

Key to the Indian Subspecies

Paler in colour, wing 228-250 mm. *M. f. nicobariensis*

Darker in colour, wing 215-230 mm. *M. f. abbotti*

225. North Nicobar Megapode. *Megapodius freycinet nicobariensis* Blyth

Megapodius nicobariensis Blyth, 1846, Jour. Asiatic Soc. Bengal 15: 52

(Nicobar Islands)

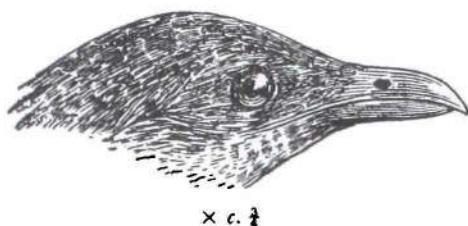
Baker, FBI No. 1994, Vol. 5: 437

Plate 19, fig. 12, facing p. 16

LOCAL NAME. *Kongah* (Nicobars).

SIZE. Domestic hen —; length c. 43 cm. (16 in.).

FIELD CHARACTERS. A terrestrial brown bird like a jungle-hen with conspicuously large feet. Above, including wings and tail rufescent brown



Below, only chin and foreneck greyish brown without any grey tinge.

STATUS, DISTRIBUTION and HABITAT. Resident. Fairly common in the Nicobar group of islands lying north of the Sombrero Channel except Chowra and Car Nicobar where not yet recorded, and Great and Little Nicobar occupied by the next race *M. f. abbotti*, q.v. According to Seymour-Sewell (JBNHS 28: 982) occurs (subspecies?) also in the Cocos Is. north of the Andamans, and possibly, on circumstantial evidence, in the Little Andamans. These claims need confirming. Affects undergrowth in dense forest fringing the sandy shores of the islands above spring tide high-water mark.

GENERAL HABITS. Keeps in pairs or in fairly large parties or droves of adults and young mixed, including quite small chicks, running about and feeding in undergrowth like junglefowl, and calling noisily to one another. Partly nocturnal. Is a fast runner, and when disturbed trusts to its legs for escape rather than wings although capable of strong flight. Will sometimes take shelter up in the branches of trees like junglefowl.

FOOD. Land snails, seeds, vegetable matter, insects, etc. In the stomach of a specimen shot on Tillanchang I., Hume found sand, fragments of quartz, and specimens of *Scarabus plicatus* and one of *Helicina zelabori*. Of the former the largest was about three-quarters of an inch long and contained the animal (SF 2: 72). Newly hatched chicks grew up in captivity entirely on termites (JBNHS 12: 21).

VOICE and CALLS. Contact calls: a loud cackling note syllabilized by Davison as *kuk-a-kuk-kuk* repeated quickly several times. V. Ball (SF 1: 82) mentions 'a peculiar guttural crow reminiscent of the croaking of bull frogs which may be represented by the syllables *kiouk, kiouk, kok, kok, kok, etc. ad infinitum*'.

BREEDING. *Season*, not definite; more or less throughout the year. *Nest*, a mound of scraped-together sand, leaves and vegetable matter up to 1.5 metres high and 10 metres or more in circumference usually built inside forest a few metres from the edge of the sandy shore above high-tide mark. *Eggs*. Number laid by each hen not ascertained. They are long ellipses in shape and enormous for the size of the bird, the weight of six being more or less equal to that of the layer. Colour: some shade of pink when newly laid, changing as incubation progresses to dull buff or ochre-brown, and eventually to uniform dull whitish. Average size of 84 eggs $82 \cdot 6 \times 52 \cdot 3$ mm. (Baker). Said to be excellent eating when fresh. The eggs are laid at intervals of several days each, possibly by several females in the same mound since as many as 20, in all stages from quite fresh to almost hatching, have

with an olive tinge, the head largely ashy grey with red facial skin showing through. *Below*, chin and throat pale grey; rest of underparts greyish brown. Sexes alike.

Young (immature). Head and neck rufescent brown like back and without the underlying red skin showing on sides of face. white. Rest of underparts rufous

been dug out from a single mound. Evidently the egg is first deposited on the mound and then a hole dug by the parent into which it is rolled and covered up to a depth of a metre or metre and a half. The eggs are incubated by the heat generated by the decomposing humus. Period of incubation not known. The fully developed precocious chick kicks itself out of the egg and out of the mound like a turtle hatchling, and is capable of running strongly and flying when only a few hours old. It feeds for itself independently of its parents from the time it is born. The breeding biology of this megapode is very imperfectly known. It is also not known whether the bird is monogamous, or polygamous, or promiscuous.

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

Chick (size of quail). 'Uniform snuff brown all over, everywhere densely feathered, even about the throat and neck, and with the feathers of the forehead and back of the neck much longer, *actually* and not merely *relatively*, than in the adult; no bare space in front of or round the eye, no tail developed, only a large bunch of sur-like feathers, but the wings large, strong, and well-formed, the bill very short. One such bird measured 5·5 inches [*c.* 14 cm.] in length and had a wing of 4 inches [101·5 mm.]; tarsus 1·1 [*c.* 26 mm.]; bill at front [exposed culmen ?] 0·3 [*c.* 5 mm.].' (Hume, SF 2: 277).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♀	228-250	<i>c.</i> 23·5-26	<i>c.</i> 59-68	69-88 mm.

Weight: ♂♂ 21-34 oz. (595-964 gm.); ♀♀ 30-36 oz. (850-1021 gm.) (Baker)

COLOURS OF BARE PARTS. Iris light to dark brown; eyelids red. Skin of lores, sides of head and neck showing through cherry-red to bright brick-red or mauve-pink. Bill greenish- or yellowish horny, paler along commissure. Legs and feet greenish horny, darker in front and more red or brick-red on the back.

226. **South Nicobar Megapode.** *Megapodius freycinet abbotti* Oberholser
Megapodius nicobariensis abbotti Oberholser, 1919, Proc. U.S. Nat. Mus. 55: 401
 (Little Nicobar Island)

Baker, FBI No. 1995, Vol. 5: 439

LOCAL NAME. *Kongah* (Nicobars).

SIZE. About the same as the last.

FIELD CHARACTERS. A brown ground bird like a jungle-hen with conspicuously large feet. Similar to but somewhat darker than 225 (see Museum Diagnosis).

STATUS, DISTRIBUTION AND HABITAT. Great and Little Nicobar Islands lying south of the Sombbrero Channel.

GENERAL HABITS, BREEDING, etc. Not different from the preceding subspecies. 4 eggs each taken from two separate mounds by B. B. Osmaston average 83·1 × 50·8 mm. (Baker).

MUSEUM DIAGNOSIS. Darker than *M. f. nicobariensis* above and below, the primaries especially being darker on the outer webs and contrasting less with the inner webs.

MEASUREMENTS. ♂♀ Wing 215-230 mm.

COLOURS OF BARE PARTS. As in 225.

GALLIFORMES

Family PHASIANIDAE: Pheasants, Partridges, Quails, etc.

Comprises the so-called 'Game Birds' which have formed a valuable food resource for man from earliest times, and of which the domestic fowl is the most familiar representative. The family is characterized by its terrestrial habit with stout unfeathered legs for progress on ground; hind tarsus usually furnished with one or more pointed spike-like spurs or blunt protuberances, in the male only or in both sexes. Hallux or hind toe always present *contra* Turnicidae (Bustard-Quails). Unlike megapodes, claws short, blunt, and very strong for scratching the ground for food. Wings short and rounded: first primary (as.) more or less equal in length to the last (10th). Contour feathers with well-developed aftershaft.

The majority lay their eggs on the ground in open scrapes with no or scanty lining. Young nidifugous; born covered with down and able to run about within a short time of hatching out.

(Important references:

Beebe, W., 1918-1922, *A Monograph of the Pheasants*, 4 vols., London

Delacour, J., 1951, *The Pheasants of the World*, London)

Key to the Genera

Adult males

	Page
A Feathers of tail, or tail-coverts, with large metallic ocelli.....	1
B No ocellations on tail or tail-coverts.....	2
1 Wing over 480 mm.....	<i>Pavo</i> 122
Wing under 480 mm.....	<i>Polyplectron</i> 120
2 Wing over 200 mm.....	a
Wing under 200 mm.....	b
a Tail longer than wing.....	I
Tail shorter than wing.....	II
I A fleshy erect comb on the crown.....	<i>Gallus</i> 102
No comb or crest but well-developed ear-tufts.....	<i>Crossoptilon</i> 92
No fleshy comb on crown, no ear-tufts.....	a ¹
a ¹ Tail slightly longer than wing.....	b ¹
Tail much longer than wing.....	b ²
b ¹ Sides of head feathered.....	<i>Pucrasia</i> 111
Sides of head unfeathered.....	<i>Lophura</i> 93
b ² No occipital crest; first primary longer than tenth.....	<i>Syrmaticus</i> 119
Occipital crest; first primary shorter than tenth.....
.....	<i>Catreus</i> 116
II Plumage of males metallic.....	<i>Lophophorus</i> 87
Plumage of males not metallic.....	<i>Tetraophasis</i> 16
b Tail and wing equal.....	<i>Tragopan</i> 79
Tail longer than wing.....	III
Tail shorter than wing.....	IV
III Tail-feathers numbering 14.....	<i>Ithaginis</i> 74
Tail-feathers numbering 20-22.....	<i>Tetraogallus</i> 10
IV First primary shorter than tenth.....	a ³
First primary equal to or longer than tenth.....	a ⁴

	Page
a ³ Tail-feathers numbering 10.....	<i>Ophrysia</i> 73
Tail-feathers numbering 14.....	<i>b³</i>
b ³ Spurs on tarsi.....	<i>Galloperdix</i> 66
No spurs on tarsi.....	<i>Bambusicola</i> 64
a ⁴ Size small, wing under 120 mm.....	<i>b⁴</i>
Size moderate, wing over 120 mm.....	<i>b⁵</i>
b ⁴ First primary longer than fourth.....	<i>Coturnix</i> 37
First primary between seventh and tenth.....	<i>Perdicula</i> 44
b ⁵ Tail-feathers numbering 12.....	<i>Ammoperdix</i> 8
Tail-feathers 16-18.....	<i>Perdix</i> 34
Tail-feathers 14.....	<i>c¹</i>
c ¹ Tarsus half clad.....	<i>Lerwa</i> 6
Tarsus naked.....	<i>d¹</i>
d ¹ Tail less than half length of wing.....	<i>Arborophila</i> 55
Tail more than half length of wing.....	<i>c¹</i>
e ¹ Flanks boldly barred.....	<i>Alectoris</i> 17
Flanks not barred.....	<i>Francolinus</i> 20

Adult females

A Feathers of head bushy, or elongated at crown, nape or ear-coverts.....	1
B Feathers of head neither bushy nor elongated.....	2
1 Extensive area around eye (other than orbital ring) or side of face unfeathered	<i>a</i>
Sides of face feathered.....	<i>b</i>
a Tarsi partly feathered.....	<i>Lophophorus</i> 87
Tarsi unfeathered.....	<i>I</i>
I Wing 300 mm. or over.....	<i>Pavo</i> 122
Wing under 300 mm.....	<i>a¹</i>
a ¹ Tail of 14-18 feathers.....	<i>b¹</i>
Tail of 20-24 feathers.....	<i>b²</i>
b ¹ Tail exceeds wing by 70 mm. or more.....	<i>Catreus</i> 116
Tail shorter than wing or only slightly longer.....	<i>c¹</i>
c ¹ Crown grey	<i>Ithaginis</i> 74
Crown not grey	<i>Lophura</i> 93
b ² Tail with brownish spots or small, ill-defined, blackish, dullly metallic ocelli.....	<i>Polyplectron</i> 120
Ocelli not present.....	<i>Crossoptilon</i> 92
b Primaries longer than secondaries	<i>Pucrasia</i> 111
Primaries same length as secondaries.....	<i>Tragopan</i> 79
2 Extensive area around eye (other than orbital ring) or side of face bare of feathers.....	<i>c</i>
Sides of face feathered.....	<i>d</i>
c Wing over 250 mm.....	<i>Tetraogallus</i> 10
Wing under 250 mm.....	<i>II</i>
II Feathers of hindneck and mantle lanceolate.....	<i>Gallus</i> 102
Feathers not lanceolate.....	<i>a²</i>
a ² Wing small, 180 mm. or less.....	<i>Galloperdix</i> 66
Wing larger, 190 mm. or more.....	<i>b²</i>

	Page
b ⁴ Rump mottled sandy brown and black.....	<i>Syrmaticus</i> 119
Rump pale grey.....	<i>Tetraophasis</i> 16
d Wing under 120 mm.....	III
Wing 120-210 mm.....	IV
III First, second, or third primary longest.....	<i>Coturnix</i> 37
Fourth, fifth, or sixth primary longest.....	a ³
a ³ First primary equal to or longer than tenth.....	<i>Perdicula</i> 44
First primary shorter than tenth.....	<i>Ophrysia</i> 73
IV About one-half of tarsi feathered.....	<i>Lerwa</i> 6
Tarsi not feathered.....	a ¹
a ⁴ Outer primaries graduated.....	b ⁴
Outer primaries not graduated.....	b ⁵
b ⁴ Primaries graduated on inner web only.....	<i>Ammoperdix</i> 8
Primaries graduated on inner and outer webs.....	<i>Alectoris</i> 17
b ⁵ Tail of 16-18 feathers.....	<i>Perdix</i> 34
Tail of 14 feathers.....	c ¹
c ¹ Tail short, about one-half length of wing.....	<i>Arborophila</i> 55
Tail long, equal to about two-thirds length of wing or more.....	d ¹
d ¹ Third or fourth primary longest.....	<i>Francolinus</i> 20
Fifth primary longest.....	<i>Bambusicola</i> 64

Genus LERWA Hodgson

Lerwa Hodgson, 1837, Madras Jour. Lit. Sci. 5: 300

Type, by monotypy and tautonomy, *Perdix lerwa* Hodgson

Contains a single Himalayan species with no races. Wing short but pointed; second primary (as.) usually longest, 1st and 3rd being subequal and only slightly shorter. Secondaries comparatively long reaching to within c. 25 mm. of wing tip. Tarsus short, feathered for over half its length in front. Tail of 14 feathers, slightly rounded at end. Sexes coloured alike, but male has a well-developed spur on hind tarsus with sometimes a second incipient one.

227. Snow Partridge. *Lerwa lerwa* (Hodgson)

Perdix lerwa Hodgson, 1833, Proc. Zool. Soc. London, pt. 1: 107

(Northern region of Nepal)

Baker, FBI No. 1993, Vol. 5: 433

Plate 20, fig. 3, facing p. 32

LOCAL NAMES. *Lerwa* (Bhutea); *Janguria* (Kumaon); *Quoir* or *Kur monal* (Garhwal); *Gulâbi bhair*, *Ter tilor* (Bashahr); *Bârf ka tilor* (Kulu); *Biju* (Chamba); *Pârahûl* (Hazara).

SIZE. Partridge +; length c. 38 cm. (15 in.).

FIELD CHARACTERS. A gregarious close-barred high-altitude partridge with bright red legs and bill. Above, closely barred black and white. Below,



x c. 1

largely deep chestnut, broadly streaked with whitish on abdomen and flanks. Under tail-coverts chestnut, streaked with black and tipped with whitish. Sexes alike.

Young (first year). *Above*, mottled dull brown and buffy white with conspicuous white shafts showing on scapulars and innermost secondaries, particularly in flight. *Below*, mottled pale brown and buffy white, with white streaks on breast and flanks.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident and common though local, in a narrow altitudinal zone between c. 3000 and 5000 metres along the entire Himalayas from NW. Pakistan through Nepal, Sikkim and Bhutan to our extreme NE. Frontier. Seldom descends as low as 2500 m. and that only in very severe winters. Affects alpine pastures, open hillsides above the tree-line covered with grass, lichens, ferns and rhododendron bushes with scattered snow patches. Its characteristic facies is less bare and stony than the Snowcock's, q.v.

Extralimital. Afghanistan, S. Tibet, W. China.

GENERAL HABITS. Keeps in family parties of 6 to 8, adults and young, or coveys of up to 20 birds or more. When flushed rises silently straight up for a metre or two but with a great whirring and clapping of wings, flying away fast and strongly, the covey scattering. Where not much persecuted, tame almost to the point of stupidity, allowing themselves to be approached and fired at again and again till the entire covey may be wiped out. This trait, in conjunction with their palatability, is doubtless responsible for the considerable decline in their numbers in parts of their west Himalayan range.

FOOD. Lichen, moss, seeds and vegetable shoots, along with which a quantity of grit is swallowed. Presumably insects are also taken.

VOICE and CALLS. 'Breeding call very similar to that of the grey partridge of the plains' (A. E. Osmaston). A low whistle of alarm when covey approached, frequently repeated in a shriller tone when approached closer (R. Meinertzhagen).

BREEDING. *Season*, as so far recorded, May to July. *Nest*, a scrape on the ground under cover of a rock or bush sometimes well lined with moss and leaves, at other times practically without lining. Usually well concealed, but the cock bird rather gives it away by calling and strutting about in its vicinity (S. L. Whymper). *Eggs*, 3 to 5, or possibly 6, smaller replicas of those of the Snowcock — glossless pale clear buff or yellowish buff to dirty dark grey-buff, finely freckled and blotched with reddish all over. Average size of 50 eggs 54.6 x 35.4 mm. (Baker). Period of incubation and share of the sexes unknown. Male believed to be monogynous and to assist in tending the chicks.

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

Chick (in down). *Above*, chestnut-brown, a blackish mark down the centre of the back and on the thighs. Centre of crown and nape, round the eye, and posterior cheeks velvety black; remainder of head, throat and sides of neck soft silvery white. *Below*, pale buff to chestnut buff.

There is a striking similarity in the downy chick to that of the Blood Pheasant (*Ithaginis cruentus*). Only in the former the tarsus is feathered for half its length and the bill black; in *Ithaginis* the tarsus is bare throughout and bill orange-yellow (Meinertzhagen, 1927, *Ibis*: 625 and coloured plate).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	180–205	18–20	38–40	118–138 mm. (Baker)

Weight 16 oz. (454 gm.) to 22 oz. (c. 624 gm.) once 25 oz. (c. 709 gm.) — Hume.

COLOURS OF BARE PARTS. Iris brownish red or blood red. Bill bright coral red. Legs and feet orange-red to deep red, deepest and brightest in the breeding season.

Genus AMMOPERDIX Gould

Ammoperdix Gould, 1851, Bds. Asia 6(3): pl. 4, 5, and text. Type, by subsequent designation, *Perdix heyi* Temminck (Reichenbach, 1853 (1852), Av. Syst. Nat. 28)

Tail of 12 feathers, short, not exceeding half length of wing. Wing rounded, 3rd or 4th primary (as.) longest; 1st, 2nd, 5th and 6th graduated. Tarsi strong and fairly long, without spurs, but male occasionally has a small knob or incipient spur on one or both legs. Bill with a distinct cere, brighter in colour than rest of bill. Sexes differently coloured.

Represented by one species in West Pakistan.

228. Seesee Partridge. *Ammoperdix griseogularis griseogularis* (J. F. Brandt)

Perdix griseogularis J. F. Brandt, 1843, Bull. Acad. Imp. Sci. St. Petersb., Physico-Math. Cl. 1: col. 365 (Transcaspia and Persia; restricted type locality, Persia *apud* Hartert, 1921, Vög. pal. Fauna 3: 1916)

Baker, FBI No. 1975, Vol. 5: 405

Plate 19, fig. 3, facing p. 16

LOCAL NAMES. *Sisu* (Baluchi); *Seesee* (Sind, Punjab); *Tihu* (Persian); *Kuckie* (Attock, Campbellpur).

SIZE. Partridge — ; length c. 26 cm. (c. 10 in.).

FIELD CHARACTERS. A small sandy grey-brown, concealingly desert-coloured partridge. **M a l e.** Head and foreneck ashy grey. A white band from lores through eye and ear-coverts ending posteriorly in a rufous patch, bordered above and below by black lines. The black line above (supercilium) broader and stretching from across forehead backward to nape. Outer tail-feathers conspicuously chestnut. Underparts pinkish buff, horizontally streaked on flanks with black and chestnut. Orange bill, yellow legs.



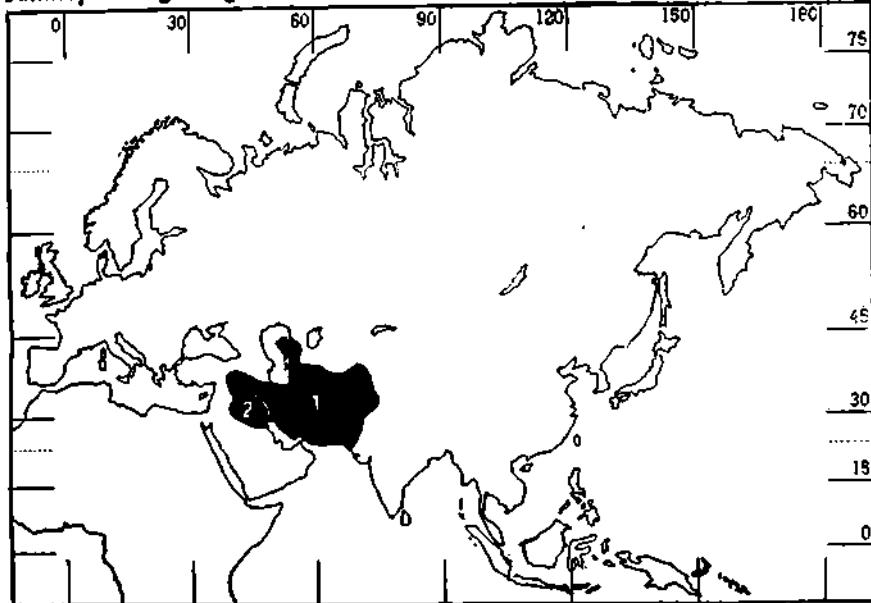
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Female. Sandy grey like male but without the grey head and black-and-white bands, and with no dark streaks on flanks.

STATUS, DISTRIBUTION and HABITAT. Resident and locally common in West Pakistan — Baluchistan, NW. Frontier Province, Punjab (Salt Range), and Sind (Kirthar Hills). Affects dry stony bare or lightly-scrubbed foothills up to about 2000 metres elevation (normally much lower), broken up by rocky outcrops and bluffs of sun-baked mud and nullahs and ravines. Also the edge of scattered cultivation in the smaller valleys.

Extralimital. Iran to Afghanistan, north to Bokhara.

Ammoperdix griseogularis



Distributional range

1 *A. g. griseogularis* (228).

2 *A. g. ter-meuleni* (RE).

GENERAL HABITS. Keeps in coveys of 20 birds or more, collecting in larger numbers to drink at water-holes. Very active in the early mornings and at dusk, sheltering from the midday heat in crevices and fissures — in Baluchistan often in the *karez* pits or openings to the underground water-channels. More often seen abroad at midday during the cold season. Astonishingly agile on its legs, sprinting away at great speed over boulders and rough broken ground, flying only when suddenly come upon or hard pressed. Abundant in the remoter areas and refreshingly tame and confiding where not persecuted, often seen running about like domestic chickens on the sites of deserted villages and encampments whence the herdsmen have moved to higher pastures in spring, pecking at horse- and mule-dung for food, and dust-bathing on the paths. When flushed on a hillside the birds invariably fly downhill, the wings producing the characteristic high-pitched squeaking *see-see* noise, as of a badly oiled bearing, which has given the bird its name. They provide good sport with the gun, but due to their concealing coloration in the broken terrain they frequent, and the habit

GALLIFORMES

of taking refuge in fissures when winged, are often difficult to retrieve without the aid of a dog. The superiority of their flesh over that of the chukor was already recorded in the Emperor Jehangir's Memoirs in the 17th century.

FOOD. Seeds and vegetable shoots, and doubtless also insects. Whistler found stomachs of specimens fully crammed with the small serrated trefoil-like leaves of *Trigonella occulta* Del. which grows sparsely in their stony habitat.

VOICE AND CALLS. A soft *chuck-chuck* uttered as contact note between members of a covey. On approach of breeding season male said to call at all hours of the day from an exposed rock or suchlike situation, like chukor but with a different note (not intelligibly described). The loud onomatopoeic double whistle produced by the wings is wrongly described as its call by Baker. The birds utter an alarm note when flushed which also needs proper description.

BREEDING. Season, March to June, chiefly April and May. Nest, a mere scrape in the ground, sometimes sparsely lined with grass and a few feathers, either sheltered under a rock or unprotected in the open. Nests have been recorded on the cornice of a deserted building and on the roof of a temporarily unoccupied house! Eggs, 8 to 16 (once 28!) pointed broad ovals, fairly glossy, creamy white or ivory-white to pale buff in colour, unmarked. Average size of 70 eggs $34\cdot8 \times 25\cdot5$ mm. (Baker). The male is believed to be monogynous, but SA has observed a wild cock paying assiduous court to two hens a couple of metres from each other, first running round one with the wing on that side drooped and trailing, and then round the second female in the same way. Males are pugnacious and, in the wild state, fight fiercely in the breeding season. They are, however, less prized by fanciers as fighting birds than the chukor.

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	123-139	c. 11-12·5	32-34	60-68 mm.
♀ ♀	123-133	11-12	31-33	59-62 mm. (Baker)

Weight (♂♂) 7 to 8 oz. (c. 198-227 gm.) — Hume.

COLOURS OF BARE PARTS. Iris bright yellow, orange, orange-brown, dull red, or light brown. Bill orange, dusky on culmen, in some orange horny; cere orange or orange-red (brownish in non-breeding season). Legs and feet dingy wax yellow, greenish yellow, or dusky yellow; claws pale brown.

Genus TETRAOGALLUS J. E. Gray

Tetraogallus J. E. Gray, 1832, in Hardwicke's Ill. Ind. Zool. 2(11), pl. 46. Type, by monotypy, *Tetraogallus nigellii* J. E. Gray (not *Lophophorus nigelli* Jardine & Selby) = *Tetraogallus himalayensis* G. R. Gray

Contains the Snowcocks superficially like gigantic Grey Partridges. Wing rounded; first primary (as.) about equal to 6th; second primary longest. Tail well graduated, equal to about two-thirds of the wing. Tarsus short, feathered at the base and armed with a spur. A naked space behind eye. Sexes alike or differing slightly.

Genus confined to the mountains of central Asia from Asia Minor to western China.

Key to the Species

- | | Page |
|--|------|
| A Lower breast and abdomen dark grey..... <i>T. himalayensis</i> | 13 |
| B Lower breast and abdomen white with black streaks..... <i>T. tibetanus</i> | 11 |

TETRAOGALLUS TIBETANUS Gould

Key to the Subspecies

- | | | |
|--|--------------------------|----|
| A Paler and more sandy on the head, nape and back | <i>T. t. tibetanus</i> | 11 |
| B Darker and more fulvous on the head, nape and back..... | <i>T. t. centralis</i> | 13 |
| C Darkest, less sandy or fulvous on the head, nape and back..... | <i>T. t. aquilonifer</i> | 12 |

229. Tibetan Snowcock. *Tetraogallus tibetanus tibetanus* Gould

Tetraogallus Tibetanus Gould, 1854 (1853), Proc. Zool. Soc. London, pt. 21: 47
 (Tibet, type from Ladakh)
 Baker, FBI No. 1990, Vol. 5: 429

LOCAL NAMES. *Utar utar* (Turki); *Hailik* (Mongol); *Ganmo* (Tangut).

SIZE. Large domestic hen +; length c. 51 cm. (20 in.).

FIELD CHARACTERS. A stout, dumpy, high-altitude game bird reminiscent of a huge, overgrown Grey Partridge. *Above*. Head and neck dark grey; sides of forehead, ear-coverts, and throat white. Back largely sandy grey and blackish grey, finely vermiculated and streaked with buff. Rump, upper tail-coverts, and central tail-feathers rufous; rest of tail blackish brown with rufous tips. A conspicuous white wing-patch (on secondaries). *Below*, largely white: throat and upper breast unmarked, followed by a grey band separating them from rest of underparts which are broadly streaked with black, the streaks broadest on flanks and lower abdomen. Reddish legs. Sexes only differing slightly.

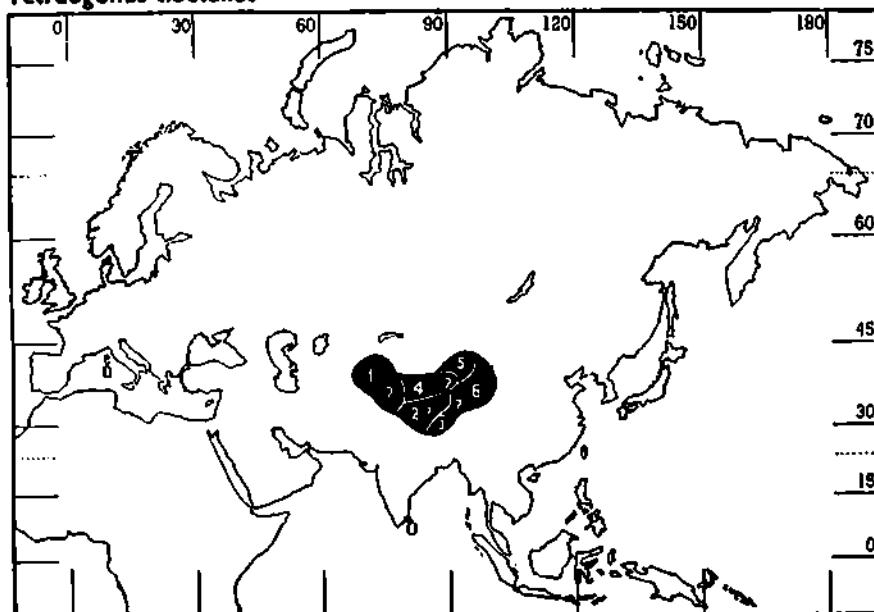
Young (immature). *Above*, paler; white supercilium more conspicuous than in adult. *Below*, chin and throat white; no distinct pectoral band. Breast grey mottled with brown and buff. Abdomen and flanks white without the black streaks.

STATUS, DISTRIBUTION and HABITAT. Resident in the western Himalayas (Ladakh and Rupshu) up to c. 5800 m. elevation in summer, down to between 4000 m. and 3000 m. in winter or still lower under heavy snowfall. Meinertzhagen (*Ibis* 1927: 629) never met with it in the same range of hills in eastern Ladakh as *T. himalayensis*. Affects alpine pastures with snow patches, stony sparsely grass-covered ridges, etc. above tree-line.

EXTRALIMITAL. 'Parirs, and W. Tibet from Kashgar and Yarkand to Nanda Devi' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. Not markedly different from those of the better known Himalayan Snowcock, *Tetraogallus himalayensis*, q.v. According to F. Ludlow, it has calls of three different kinds: (1) a subdued chuckling which gradually becomes louder and louder until it reaches a kind of climax, (2) a whistle, and (3) a call strangely reminiscent of that of the Curlew.

GALLIFORMES

Tetraogallus tibetanus

- Distributional range 1 *T. t. tibetanus* (229). 2 *T. t. centralis* (231).
 3 *T. t. aquilonifer* (230). 4 *T. t. tschimenensis* (RE).
 5 *T. t. przewalskii* (RE). 6 *T. t. henrici* (RE).

BREEDING. Season, May to July. Nest and Eggs (4 to 7) as in Himalayan Snowcock. Average size of 16 eggs $63 \cdot 8 \times 44 \cdot 1$ mm. (Baker).

MUSEUM DIAGNOSIS. For detailed description of plumage see Baker, loc. cit.; for coloured illustration of chick in down, Meinertzhagen, *Ibis* 1927, pl. 15; for a note on moult, D. Marien, 1951, *Amer. Mus. Novit.*, No. 1518: 18.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	255-276	28-32	62-65	170-192 mm. (Baker)

COLOURS OF BARE PARTS. Iris hazel. Bill cornelian yellow; nostrils magenta to dull carmine. Orbital region orange. Legs and feet bright pale vermillion; claws horn to orange-vermillion (Meinertzhagen).

230. **Sikkim Snowcock.** *Tetraogallus tibetanus aquilonifer*
R. & A. Meinertzhagen

Tetraogallus tibetanus aquilonifer R. & A. Meinertzhagen, 1926, Bull. Brit. Orn. Cl. 46: 99 (Interior of Sikkim)
Baker, FBI No. 1992, Vol. 5: 432
Plate 21, fig. 10, facing p. 64

LOCAL NAMES. *Hrak-pa* (Bhutea); *Lapeha kengmo* (or *kongmo*) (South Tibet).

SIZE AND FIELD CHARACTERS. As for 229.

STATUS, DISTRIBUTION AND HABITAT. Resident. The Nepal and Sikkim Himalayas to western Bhutan between c. 4500 and 5500 m., descending somewhat lower in winter. Affects alpine pastures and bare rocky sparsely scrubbed ridges above tree-line — Tibetan plateau country.

Extralimital. Adjacent parts of southern Tibet.

GENERAL HABITS etc. As in 232, q.v.

BREEDING. Not specifically recorded.

MUSEUM DIAGNOSIS. See Key to the Subspecies.

MEASUREMENTS, AND COLOURS OF BARE PARTS as in 229.

231. Central Tibetan Snowcock. *Tetraogallus tibetanus centralis* Sushkin

Tetraogallus tibetanus centralis Sushkin, 1926, Bull. Brit. Orn. Cl. 47: 37

(Tang-la Pass, Tang-la Range, central Tibet)

Baker, FBI No. 1991, Vol. 5: 430

LOCAL NAMES. Not recorded.

SIZE AND FIELD CHARACTERS. As for 229.

STATUS, DISTRIBUTION AND HABITAT. Resident. Abor and Mishmi Hills in the North East Frontier Agency tract, from c. 3500 metres up. Affects rocky stony hillsides, gorges and sparsely scrubbed ridges above tree-line.

Extralimital. Northeastern and central Tibet.

GENERAL HABITS etc. As in 232, q.v.

BREEDING. Season, April to August, chiefly May and June. Nest, a natural or scraped hollow among stones and boulders or under the shelter of a rock, usually lined with dead leaves and grass; according to Baker and his correspondents 'invariably placed on the leeward side of a hill, often within a few yards of the crest'. Eggs, normally 4 to 6, sometimes 7, like those of the Himalayan Snowcock (232), apparently somewhat more heavily spotted at the smaller than the larger end. Average size of 140 eggs 62·6 x 43·2 mm. (Baker). Cock believed to be monogynous, not assisting in incubation but keeping watch near the nest and giving loud whistle of alarm on approach of danger. Two or three hens with their newly hatched broods reported joining together in one party.

MUSEUM DIAGNOSIS. See Key to the Subspecies.

MEASUREMENTS

Wing ♂♂ 270–280; ♀♀ 260–270 mm. (Sushkin).

COLOURS OF BARE PARTS. As in 229.

232. Himalayan Snowcock. *Tetraogallus himalayensis himalayensis*

G. R. Gray

Tetraogallus himalayensis G. R. Gray, 1843 (1842), Proc. Zool. Soc. London: 105 (Himalayas). New name for the bird figured in Jardine & Selby, Ill. Orn., pl. 141

as *Lophophorus nigelli* not *L. nigelli* id., op. cit., pl. 76

Baker FBI No. 1989, Vol. 5: 426

Plate 21, fig. 11, facing p. 64

LOCAL NAMES. *Kulla*, *Lupu*, *Baera* (W. Nepal); *Huinwal* (Kumaon); *Jer monal* (hills N. of Mussooree); *Leep* (Kulu); *Galaond* (Chamba); *Gleund* (Kangra); *Kabak*, *Gura kakov*, *Ram chakor* (Kashmir); *Kabk-i-ddra* or *kouk-i-zarreen* (Persian, Afghanistan).

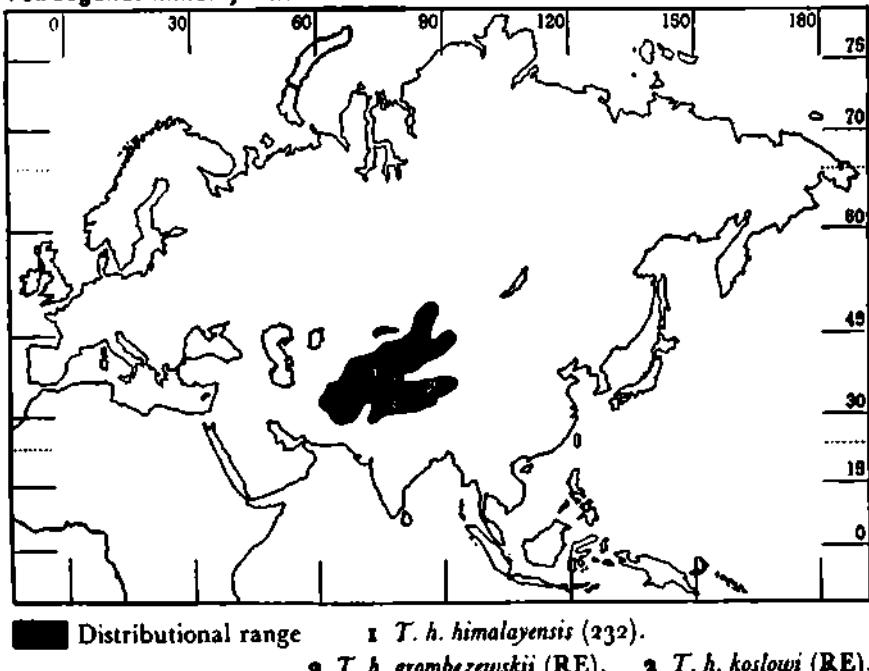
SIZE. Large domestic hen +; larger than 229. Length of ♂ c. 72 cm. (28 in.).

FIELD CHARACTERS. Like 229, reminiscent of a gigantic Grey Partridge, largely grey, white, chestnut and black streaked and vermiculated plumage. The white throat, separated by a broken chestnut collar from the dark grey underparts, and white under tail-coverts, are diagnostic points. In overhead flight against a bright sky, trailing edge of wings translucent white.

STATUS, DISTRIBUTION and HABITAT. Resident. Western Himalayas — Kashmir, Ladakh, montane Punjab, Himachal Pradesh, Garhwal, Kumaon, western Nepal — between 4000 and 5500 metres altitude in summer, descending to 2400 m. or lower in severe winters. Like the Tibetan Snowcock affects steep alpine pastures near the snow line and bare stony ridges above the limit of tree growth.

Extrazonal. Tian Shans, Pamirs, and eastern Afghanistan.

Tetraogallus himalayensis



GENERAL HABITS. Usually keeps in pairs, or parties of 3 to 5, though coveys of over 20 birds frequently observed. The birds shoot down the hillsides in the early morning to drink, and slowly work their way upwards feeding as the day warms up, scratching the ground and digging vigorously with their stout bills. They hardly ever fly uphill or flap their wings in flight except just before alighting. When alarmed the bird invariably runs uphill with a waddling goose-like gait, its coloration blending to perfection with the barren environment. The partly erected tail is jerked now and again in the moorhen manner, flashing the white under coverts. It mounts a rock before taking off, plummeting at great speed straight down a steep hillside or round its contours or across a ravine, often travelling long distances

without a single wing-beat, the wind whining through the pinions. They are noisy birds, continually uttering clucking calls as they feed, and shrill cackles of alarm when flushed, as well as on the wing.

FOOD. Chiefly bulbous roots and tubers, and green vegetable matter including grass shoots, along with which a good deal of grit is swallowed. *Artemisia* leaves, *Ephedra* berries and heads of a rye-like grass (Koelz).

VOICE and CALLS. In breeding season cock particularly noisy. He utters a loud prolonged penetrating whistle or pipe of 4 (or 5) notes rising in scale and repeated with great persistence from a rock or mound. It has rather the cadence of the Common Green Pigeon's call and can be readily imitated to decoy the birds. Another call, described by B. B. Osmaston, begins with *kuk, kuk* repeated about a dozen times, gradually quickening and rising in scale 'until the last high-pitched notes follow each other so rapidly as to remind one of the acceleration of a ping-pong ball'.

BREEDING. Season, April to June. Nest a scratched-out hollow usually unlined, among stones and boulders quite in the open or under shelter of a ledge of rock. Normally on the leeward side of a hill, protected from the prevailing wind and rain. Eggs, 5 to 7, rarely 8, fine-textured, broad to long ovals, varying from pale yellowish stone to rich reddish buff, scantily scattered over with small blotches and specks of red-brown, characteristically more numerous at the *smaller* end. Average size of 68 eggs 65.4 × 45.4 mm. (Baker). Incubation believed to be by female alone, period (in incubator) 27–28 days. Incubating female has two brood-patches, one on either side between the thighs. 'In breeding season females get badly mauled by the cock, the crown often being quite bare of feathers and the skin bruised and red' (Meinertzhagen). Cock evidently monogynous. When courting he pursues the hen in a crouching position with his tail held vertically in the air (A. E. Osmaston). His neck ruff and tail are expanded, displaying the white under tail-coverts prominently. He then walks slowly round the hen with lowered head. At intervals he makes a dash for a rock or mound which he ascends, throws his head well back and gives his wild 5-noted whistle (Meinertzhagen).

MUSEUM DIAGNOSIS. See Key to the Species; for details of plumage Baker, loc. cit.; for a note on moult, D. Marien, 1951, *Amer. Mus. Novit.*, no. 1518: 17.

Chick (in down). 'Upper parts stone grey richly variegated, with black tips and subterminal pale buff markings, making no definite pattern. Head very pale creamy buff, tipped with black and having four black lines from base of bill (1) along the side of the crown, (2) over the eye, (3) beneath the eye, and (4) as moustachial streak, all more or less blending behind the eye and ear-coverts. Underparts white, greyish white on breast and flanks. Legs and feet horny yellow, bill black, iris olive-brown' (Ticehurst). For coloured illustration see Meinertzhagen, *Ibis* 1927: pl. 15.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	280–312	28–33	62–64	173–193 mm. (Baker)

Weight ♂♂ 4 to 6½ lb. (c. 1.80–3 kg.); ♀ ♀ 3 to 4 + lb. (1.36–1.80 + kg.).

COLOURS OF BARE PARTS. Iris hazel; bill olive horn-brown. Legs and feet dull vermillion; post-orbital region vermillion shading to orange (Meinertzhagen).

MISCELLANEOUS. One of the less attractive peculiarities of the Snowcock as a game bird is the strong and disgusting stench it often emits within only a couple of hours of being killed, possibly due to some food it has eaten. This however in no way affects the flavour of its flesh, which is excellent. Its high-altitude domicile and the rugged steepness of the ground it frequents call for considerable stamina and soundness of limb in hunting the bird.

Genus *TETRAOPHASIS* Elliot

Tetraophasis Elliot, 1871, Monogr. Phasian. 1: xix, pl. 21 and text. Type, by original designation and monotypy, *Lophophorus obscurus* J. Verreaux

Bill stout; edge of upper mandible overhanging lower. Wing rounded: 4th to 6th primaries (as.) subequal and longest, 4th or 4th and 5th slightly longer. First primary between 8th and 9th. A tuft of silky down-like feathers under the wing. Tail of 18 feathers, rather long, rounded, about three-quarters length of wing. Tarsus stout; of male with one spur, of female without. Otherwise sexes alike.

Only two forms known, from Tibet and China, of which one enters the fringe of our territory in NE. Assam.

233. **Pheasant-Grouse.** *Tetraophasis szechenyii* Madarász

Tetraophasis Szechenyi Madarász, 1885, Zeitschr. f. ges. Orn. 2: 50, pl. 2
(Szii-csuan = Szechwan or eastern Tibet)

Not in Baker, FBI

Plate 23, fig. 1, facing p. 112

LOCAL NAMES. *Kwa-kwa-dzi kuling* (Tibetan); *Hua-we-tzu* (Chinese).

SIZE. Length c. 64 cm. (25 in.).

FIELD CHARACTERS. A large, plain coloured pheasant of the size and shape of the Koklas (*Pucrasia*). *Above.* Crown brownish grey narrowly streaked with black. Hindneck and upper back dark brown; lower back and rump grey, the feathers narrowly edged darker. *Below.* Chin and throat rust coloured (fawn). Upper breast dark grey, rest of underparts browner grey; feathers of lower plumage edged with rusty, and with rusty and chestnut spots. Outer tail-feathers with black-and-white tips. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Common in eastern Tibet, only just entering our northeastern border in the Upper Subansiri and Siyom drainage areas of NEFA (the North East Frontier Agency). Affects rocky ravines with plenty of cover, in fir forest and rhododendron scrub in the alpine zone between c. 3350 and 4600 metres altitude.

EXTRALIMITAL. 'E. Tibet and SW. China in provinces of Szechuan and Yunnan' (Peters).

GENERAL HABITS. Keeps in family parties of 4 to 6 birds. When disturbed in forest seeks refuge in trees where it 'freezes' and becomes difficult to detect. When flushed in open country where it has frozen on the observer's approach, it rises with a whirr of wings and shoots downhill into the nearest forest with the speed of a Koklas.

FOOD. Crop contents examined by Ludlow consisted of small roots, bulbs, and green leaves.

VOICE and CALLS. According to Ludlow, has a loud harsh series of notes difficult to describe. On the whole a quieter bird than *Crossoptilon*, which inhabits the same biotope and is very noisy.



PLATE 19

1 *Francolinus f. asiae*, Indian Black Partridge (238). 2 *Francolinus p. pondicerianus*, Southern Grey Partridge (246). 3 *Ammoperdix griseogularis*, Seesee Partridge (228). 4 *Francolinus p. phayrei*, Phayre's Burmese Francolin (243). 5 *Arborophila mandelli*, Redbreasted Hill Partridge (273). 6 *Francolinus p. pictus*, Southern Painted Partridge (241). 7 *Francolinus gularis*, Kyah or Swamp Partridge (247). 8 *Arborophila r. rufogularis*, Rufoustthroated Hill Partridge (270). 9 *Perdix h. hodgsoniae*, Tibetan Partridge (249). 10 *Arborophila atrogularis*, Whitecheeked Hill Partridge (272). 11 *Alectoris g. chukar*, Chukor (236). 12 *Megapodius f. nicobariensis*, Nicobar Megapode (225). 13 *Bambusicola f. hopkinsoni*, Assam Bamboo Partridge (274).

BREEDING. Not recorded within our limits, and little known. Ludlow found chicks in E. Tibet in late May, June, and July, and Schäfer in August, indicating that season much protracted.

[Good accounts from E. Tibet by E. Schäfer (*Jour. Orn.*, 1934, 82(4): 490-2, and Sonderheft, 1938: 82); also F. Ludlow (*Ibis*, 1944: 382-3).]

MUSEUM DIAGNOSIS. For details of plumage see Hartert, E., 1921-22, *Vög. pal. Fauna* 3: 1895-6.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
2 ♂♂	216-226	32-34.5	—	142-151 mm.
3 ♀♀	203-221	28.5-32	51 (1)	129-133 mm. (R. M. de Schauensee)

COLOURS OF BARE PARTS. Iris chestnut-brown. Bill blackish. Legs and feet reddish brown.

Genus ALECTORIS Kaup

Alectoris Kaup, 1829, Skizz. Entw.-Gesch. Eur. Thierw.: 180, 193. Type, by monotypy, *Perdix petrosa* auct. not of Gmelin = *Perdix barbara* Bonnaterre

Contains partridges of moderate size with red legs and almost uniform upper plumage, but with the flanks boldly barred with black. Wing short and rounded: first primary (as.) equal to 5th or 6th; 3rd primary longest. Tail of 14 feathers slightly rounded, equal to about two-thirds length of wing. Tarsus long and well developed; armed in male with a small spur. Otherwise sexes alike.

Genus well represented throughout Europe, N. Africa and W. and C. Asia.

ALECTORIS CHUKAR¹ (J. E. Gray)

Key to the Subspecies

	Page
A Paler everywhere, above and below.....	<i>A. c. pallescens</i>
B Darker	1
1 Crown conspicuously red-brown; pink of upper back very bright....	<i>A. c. koroviakovi</i>
.....Crown not so conspicuously red-brown, and pink of upper back duller	<i>A. c. chukar</i>

234. Persian Chukor. *Alectoris chukar koroviakovi* (Zarudny)

Caccabis kakelik koroviakovi Zarudny, 1914, *Orn. Mitt.* 5: 55

(Mountains of Birdjan, eastern Persia, Persian Baluchistan)

Baker, FBI No. 197, Vol. 5: 404

LOCAL NAME. *Kâkk* (Persian, Baluchi).

SIZE AND FIELD CHARACTERS. As of 236, q.v.

STATUS, DISTRIBUTION AND HABITAT. Resident. Common in West Pakistan (Baluchistan) and Sind (Kirthar Range and outlying spurs) between c. 1000 and 3500 m. elevation. Affects barren rocky hillsides and ravines sparsely

¹ Cf. Watson, G. E., 1962, *Ibis* 104: 353-67; *Evolution* 16(1): 11-19.

dotted with stunted grass and bushes. Occasionally small numbers in thick juniper forest in northern Baluchistan (Ticehurst).

Extralimital. 'Eastern Persia from lat. 37°30'N. southward' (Peters).

GENERAL HABITS, FOOD, VOICE, etc. As in 236.

BREEDING. *Season*, May-June. *Nest* and *Eggs* as in 236. Average size of 50 eggs 39.0×29.3 mm.

MUSEUM DIAGNOSIS. See Key to the Subspecies. Breast generally a clearer purer grey than in *A. c. chukar*.

MEASUREMENTS. Wing ♂♀ 140-156 mm. (Baker); 148-164 mm. (Ticehurst).

COLOURS OF BARE PARTS. As in 236.

235. Northern Chukor. *Alectoris chukar pallescens* (Hume)

Caccabis pallescens Hume, 1873, in Henderson & Hume, *Lahore to Yarkand*: 283
(Karbu, Ladakh)

Baker, FBI No. 1974, Vol. 5: 404

LOCAL NAMES. *Chukor* (Hindi); *Keklik* (Turki); *Käkov* (Kashmiri); *Zarkar* (Pushtu).

SIZE AND FIELD CHARACTERS. As of 236, q.v.

STATUS, DISTRIBUTION and HABITAT. Resident at altitudes between c. 1500 to 4000 metres from about the Wakhan region of Afghanistan (lat. c. 37°N.) south through Chitral, Gilgit, and Baltistan to N. Kashmir and Ladakh where it merges with 236, replacing it in the drier portions. Affects bare stony hillsides and ravines, and the neighbourhood of terraced cultivation.

Extralimital. Eastern Turkestan and Yarkand.

GENERAL HABITS, FOOD, VOICE, etc. As in 236.

BREEDING. *Season*, from about beginning of May to end July. *Nest* and *eggs* as in 236. Full clutch 8 to 14. Average size of 36 eggs 43.6×31.7 mm. (Baker).

MUSEUM DIAGNOSIS. See Key to the Subspecies. The palest of the three forms occurring in Indian limits.

MEASUREMENTS. Wing ♂♀ 158-172 mm. (Baker).

COLOURS OF BARE PARTS. As in 236.

236. Chukor Partridge. *Alectoris chukar chukar* (J. E. Gray)

Perdix Chukar J. E. Gray, 1830, in Hardwicke's Ill. Ind. Zool. 1(2): 54 (India). No exact locality given but Srinagar in Dehra Dun district, U.P. (not Kashmir) accepted as the type locality by Hellmayr, 1929, Field Mus. Nat. Hist. publ.,

Zoology Ser., 17: 136)

Baker, FBI No. 1972, Vol. 5: 402

Plate 19, fig. 11, facing p. 16

LOCAL NAMES. *Chukor* (Hindi); *Käkov* (Kashmir); *Châkru* (Chamba).

SIZE. Grey Partridge +; length c. 38 cm. (15 in.).

FIELD CHARACTERS. A large sleek and plump pinkish grey-brown partridge with rufous tail and conspicuous rib-like bars on flanks in buff and black. A black band running across forehead back through the eyes and

down sides of neck to meet in a gorget, or ' necklace ', on upper breast enclosing the buffy to glistening white cheeks, chin and throat. Crimson bill and legs. Sexes alike; female somewhat smaller and lacking the spur on tarsus.

Young (immature). Dull brownish grey. Upperparts spotted with white; underparts dirty brownish white with faint brown bars. Head rufescent brown. Tail grey with mottled bars of black and white, the outer feathers tinged with rufous.

(For downy chick see Museum Diagnosis.)

STATUS, DISTRIBUTION and HABITAT. Resident. Throughout the western Himalayas between c. 1200 and 5000 metres elevation, east to central Nepal, excluding the ranges of 234 and 235, qq.v. Also Punjab Salt Range. Affects barren, stony sparsely scrub-covered hillsides, boulder-strewn ravines, and the neighbourhood of terrace-cultivated river valleys.

GENERAL HABITS. Normally keeps in parties of 4 or 5 birds to steep bare hillsides with a scanty sprinkling of *Rubus*, *Berberis*, and such-like scrub, and often in the neighbourhood of terraced cultivation. Coveys of 50 or more, adults accompanied by young of the year, are not uncommon in autumn and winter when the birds descend from the highest levels. Several coveys may collect together to drink at the few and far-between springs and water-holes in the barren hills an hour or two after sunrise, or to feed in the freshly sown wheat and barley fields, gradually working their way up the flanking hill-slopes as the day gets warmer. They are very fast and strong on the wing, but the flight is not sustained. When flushed, a covey scatters, the birds sticking to the contours of the hillside wherever possible and invariably flying downhill with great velocity. They afford excellent sport with the gun, but the steep and rugged nature of the terrain makes their pursuit an exhausting business. The only chance of making a decent bag is to get the birds driven over in the neighbourhood of the drinking-places where they concentrate. They then give a large variety of shots as they sweep the contours or hurtle through space high overhead across a ravine from a high spur to lower ground. Dr Ticehurst records that in a good year three guns shot 700 birds in two mornings in this way in Baluchistan. They are excellent for the table.

FOOD. Bulbous roots, grain, and green vegetable matter including shoots of grass, wheat and barley; also insects, especially termites. A quantity of grit is always taken with the food.

VOICE and CALLS. The cock has a rattling gamey crow uttered from an exposed rock or other eminence in the early morning and late evening with a particularly challenging ring in the breeding season. It is a loud chuckling, far-reaching, *Käk-käk-käk*, *käwäk-käk*, *käwäk-käk*, *käwäk-käk*, etc., reminiscent of something between the calls of the Grey Partridge and the Guineafowl. To Hume's ear the call sounded as ' I'm here, I'm here; who's dead, who's dead; oh lor, oh lor '.

An interesting study, ' Voice and Social Behaviour of the Chukar Partridge ', has been made on captive as well as wild birds in the areas of their introduction in the U.S.A. (Stokes, A. W., 1961, *The Condor* 63(2): 111-27). Fourteen different calls have been classified based on their association with alarm, social contact, agonistic, and sexual situations. The one here described

fits what is classed the commonest 'rally call'. Throughout the year this rally call serves to reunite scattered birds; during the breeding season it is an aggressive call to advertise a dominant male and to repel intruders. The paper¹ also discusses pair formation, courtship, and various behaviour patterns.

BREEDING. Season, early April to mid July depending on altitude. Nest, a scrape or hollow in the ground under shelter of a rock or bush, or at the base of a grass tussock on rugged hillsides. Sometimes without lining at other times lined with leaves, bents, and rubbish. Eggs normally 7 to 12, but up to 20 have been found in a single nest, possibly the product of two hens. Pale yellowish or greyish stone colour or *café-au-lait* with light reddish freckles scattered all over the surface. Average size of 250 eggs 43·0 x 31·4 mm. (Baker). Believed to be monogynous and most of the incubating to be done by the hen.

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

Chick (in down). 'A broad band from bill over crown to nape chestnut, outlined in dark brown; from base of bill a broad creamy white superciliary streak surmounting a narrow dark brown one. On the dorsum a broad median chestnut band, and on each side of it a narrow creamy white streak. Wings and back of thighs girdled brown and cream. Underparts creamy grey; a short dark brown moustachial streak from base of bill' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	146-180	19-21	41-52	78-105 mm. (Baker)

Weight ♂♂ 19-27 oz. (c. 540-765 gm.); ♀ ♀ 13-19 oz. (c. 370-540 gm.) — Hume.

COLOURS OF BARE PARTS. Iris brown, yellowish or orange; eyelids (rim) coral-crimson. Bill coral red to crimson, dusky on culmen and near nostrils. Legs and feet coral red to crimson; claws and spur dusky brown.

MISCELLANEOUS. Has been introduced into every state in the U.S.A. including Alaska and Hawaii on a fairly large scale, principally since 1935. The bird has established itself successfully in ecologically suitable areas in 11 or 12 of the states. It breeds freely, and under scientific management withstands considerable hunting pressure, having now become a favourite game bird with American sportsmen.

Taken young and hand-reared chukor become exceedingly tame, moving freely about the house following the inmates and boldly attacking strangers and stray dogs. Cocks are highly pugnacious. Chukor fighting is a popular public sport on high days and holidays in NW. Pakistan and India, and considerable wagers change hands over the mains.

Genus FRANCOLINUS Stephens

Francolinus Stephens, 1819, in Shaw's Gen. Zool. 11(2): 316. Type, by tautomy, *Francolinus vulgaris* Stephens = *Tetrao francolinus* Linnaeus

Wing short and rounded, about one-quarter to one-third longer than tail: 3rd or 4th primary (as.) longest, 5th and 6th a little shorter. Tail of 14 feathers. Legs

¹ See also another by the same author, 'Sexual and agonistic behaviour in the Chukar Partridge (*Alectoris graeca*)'. *Animal Behaviour* 11(1): 121-34. 1963.

stouter and longer than in *Perdix*, furnished with a spur in the male, sometimes very small or rudimentary. Sexes alike in some species, dimorphic in others.

Genus well represented in tropical Africa and Asia.

Key to the Species

		Page
A	Quills transversely barred or spotted with buff on both webs.....	1
B	Quills without transverse bars or spots.....	2
1	No submarginal buff band on scapulars	<i>F. pintadeanus</i> 28
	Scapulars with a conspicuous buff submarginal band.....	a
	a Males with chestnut collar and females with chestnut nuchal patch.....	<i>F. francolinus</i> 21
	No chestnut collar or patch.....	<i>F. pictus</i> 25
2	Breast buff with narrow cross-bars.....	<i>F. pondicerianus</i> 29
	Breast brown with longitudinal white stripes.....	<i>F. gularis</i> 33

FRANCOLINUS FRANCOLINUS (Linnaeus)

Key to the Subspecies

A	Darker	<i>F. f. asiae</i> 22
B	Much paler.....	<i>F. f. henrici</i> 21
C	Darkest of all, with much black both above and below.....	<i>F. f. melanonotus</i> 24

237. South Persian Black Partridge. *Francolinus francolinus henrici* Bonaparte

Francolinus henrici Bonaparte, 1856, Compt. Rend. Acad. Sci. Paris 42: 882 (Sind)
Baker, FBI No. 1977, Vol. 5: 410

LOCAL NAMES. *Kārō līlār* (Sind); *Taru* (Pushtu); ♂ *Siyāghwār*, ♀ *Shānz* (Baluchi).

SIZE AND FIELD CHARACTERS. As of 238, q.v.

STATUS, DISTRIBUTION AND HABITAT. Resident. West Pakistan — Las Bela (?), Sind, Chitral (to c. 1200 m. alt.). More abundant in Upper Sind than in Lower. Affects grass and tamarisk jungle bordering canals and cultivation.

GENERAL HABITS, FOOD, VOICE AND CALLS. As of 238.

BREEDING. Season, much protracted: March to May, with evidently a second burst from August to October. Nest and eggs as in 238. Average size of 30 eggs 39·0 × 31·7 mm. (Baker).

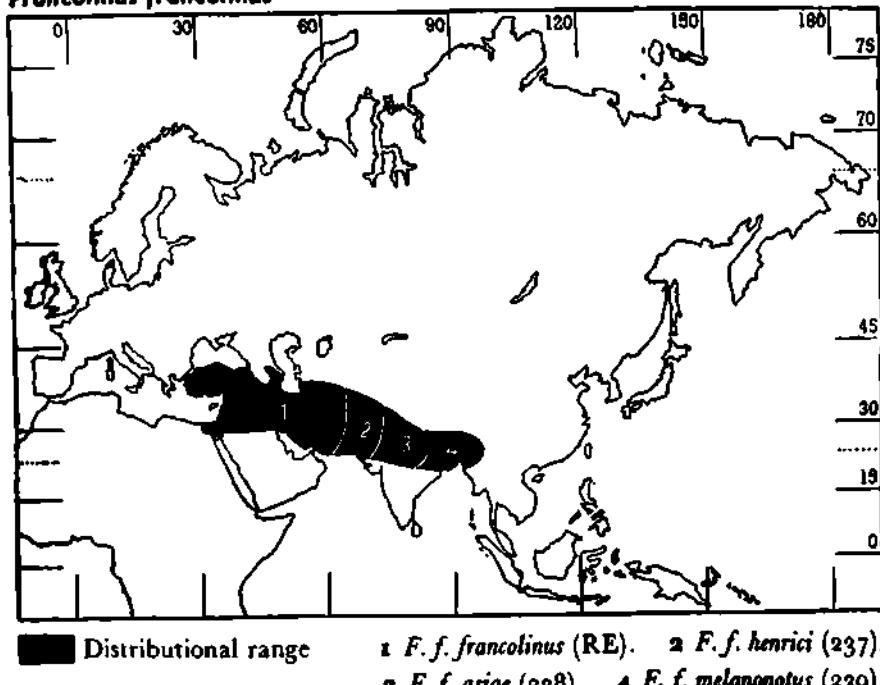
MUSEUM DIAGNOSIS. Both sexes much paler than 238, but with under tail-coverts of male darker chestnut than in *F. f. asiae* and normally with no trace of barring.

Chick (in down). 'Upperparts pale creamy buff, from base of bill down centre of crown a broad chocolate-brown line; a short narrow line behind eyes, a long narrow one over the eyes, and one from base of bill below the eyes, brown; three broad parallel brown lines on dorsum, and a broken one over thighs. Underparts cream white; wings creamy buff, mottled with brown' (Ticehurst).

This description is of a chick of *F. f. arabistanicus* (= *henrici*).

MEASUREMENTS. Wing ♂♂ 148–163; ♀ ♀ about 150 mm.

COLOURS OF BARE PARTS. As in 238.

Francolinus francolinus**238. Indian Black Partridge. *Francolinus francolinus asiae* Bonaparte**

Francolinus asiae Bonaparte, 1856, Compt. Rend. Acad. Sci. Paris 42: 882 (Asia).

Restricted to Gurgaon by Baker, 1922, Jour. Bom. nat. Hist. Soc. 28:849)

Francolinus francolinus parkerae Van Tyne & Koelz, 1936, Occas. Pap. Mus. Zool. Univ. Mich., no. 334: 1 (Arsu, Kulu, Punjab)

Baker, FBI No. 1976, Vol. 5: 408

Plate 19, fig. 1, facing p. 16

LOCAL NAMES. *Kāla teetār* (Hindi); *Tetra, Kālo tetra* (Garhwal); *Kais teetār* (Nepal).

SIZE. Grey Partridge ±; length c. 34 cm. (13 in.).

FIELD CHARACTERS. A plump, stub-tailed game bird.

Male. Largely jet black, scalloped, spotted and barred above with white and fulvous. The glistening white cheek-patches, chestnut collar, jet black underparts with chestnut belly and under tail-coverts are further pointers.

Female. *Above*, more or less like male but paler and browner, with no white cheek patches or chestnut collar, only a dull chestnut patch on nape. *Below*, chin and throat buffy white; rest of underparts and flanks wavy-barred and scalloped black and white. Vent and under tail-coverts chestnut.

Young (immature). Like richly coloured female but with the supercilia blackish and cheeks white. Rufous nuchal patch darker. Breast black profusely spotted with white.

STATUS, DISTRIBUTION and HABITAT. Resident. Kashmir and northern India along the foothills to central Nepal (eastward of which merging with

the darker Assam race *melanonotus* becomes noticeable), Punjab, U.P., Bihar, West Bengal. Roughly south to a line from Deesa (Gujarat) to Gwalior (Madhya Pradesh), thence through Sambalpur to the Chilka Lake in Orissa (lat. c. 20°N.). Up to c. 2000 metres altitude in Nepal and to c. 2500 m. in the Simla area; normally below c. 1200 m. Affects well-watered tracts — high grass and tamarisk jungle bordering rivers and canals with alternating patches of cultivation, especially millets and sugarcane. Tea gardens and their environs form favourite haunts in the Himalayan foothills.

GENERAL HABITS. Keeps singly or in scattered pairs and parties of 3 to 5. Leaves thicker cover to feed in the more open crops and grassland chiefly in the morning and late afternoon, sauntering about at the edge of cover tail slightly cocked as in the moorhen — a peculiarity seldom observed in the Grey Partridge. Rests and roosts in thick cover of tall grass clumps or sugarcane fields and not up in branches of trees like Grey Partridge, though often mounting into them for calling. Flushes readily except where much harried when it trusts to its legs for escape, running ahead of the hunter or line of beaters, breaking cover with a loud whirr of wings only when near the end of a field, and flying away swiftly and strongly with rapid wing-beats punctuated with glides. Seldom flies high except when breaking back overhead in a beat, and usually not more than 300 or 400 metres before alighting again and continuing to run on. When walked up with a line of beaters the birds provide excellent sport with the gun. They are very good eating but rather dry to the taste.

FOOD. Omnivorous. Grass and weed seeds, cereal grains, shoots, leaves, tubers, fallen berries and wild figs (*Ficus*), and larvae and insects of all kinds, particularly termites and their eggs, and various coleoptera and orthoptera; once a small mouse (Emperor Jehangir's Memoirs); in the neighbourhood of villages often also human excreta. (For specific analyses of stomach contents see Mason & Lefroy, 1912, Mem. Agri. Dept. India, Entom. Ser. 3: 235–43. Also Faruqi, Gardiner Bump *et al.*, 1960, Jour. Bom. nat. Hist. Soc. 57(2): 354–62.)

VOICE and CALLS. A cheery high-pitched *chik* (or *klick*) . . . *cheek-cheek-keraykek* uttered by the cock from a termite mound, branch or other eminence particularly in the morning and evening far into the dusk, but at all hours of the day during the breeding season. The call is a curious blend of the harsh and the musical and has a peculiar far-reaching and ventriloquistic quality. It is repeated at intervals of 15 seconds or so, several birds answering one another from all directions. It has been phonetically rendered in many variants, as *Shir-därem-shäkräk* ('I have milk and a little sugar') by the Mogul emperor Babar, as *Sübhän-léri-qüdrät* ('Omnipotent, thy power') by U.P. Muslims, and as *Lehsän-piäz-ädräk* ('Garlic, onion, ginger') by more down-to-earth gourmets! The spirited call, with neck upstretched, ends with an up-and-down waggle of the tail.

BREEDING. Season, very protracted: March to October, varying somewhat in different parts of its range. Nest, a shallow depression scraped in the ground and lined with grass. Placed amongst the roots of tall plumed grass tussocks and bushes, or in tamarisk scrub, grassland or millet fields, sometimes well-concealed, sometimes in absurdly exposed situations. Eggs, 6 to 9 (in Sind usually 4 — T. R. Bell), fine textured, very broad ovals sometimes

pointed at the small end; coloured from yellowish olive to warm olive-brown or sienna-brown. Average size of 100 eggs $37\cdot8 \times 31\cdot3$ mm. (Baker). Cock monogynous. Incubation by hen alone; period 18-19 days.

MUSEUM DIAGNOSIS. Darker than *F. f. henrici*, paler than *F. f. melanonotus*. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	145-168	c. 22-26	c. 45-50	77-110 mm.
♀ ♀	138-167	—	—	—

Weight ♂♂ 10-20 oz. (c. 283-566 gm.); ♀ ♀ 8-17 oz. (c. 227-482 gm.) — Hume. Average weight of birds trapped near Delhi in January (1962): 19 ♂♂ 17 oz. (c. 482 gm.); 18 ♀ ♀ 15 oz. (c. 424 gm.) — G. Bump.

COLOURS OF BARE PARTS. Iris brown or hazel-brown. Bill black or dark horny brown; tip of lower mandible whitish. Legs and feet reddish brown to orange-red or brick-red; claws black or horny brown.

Chick (in down). Undescribed, but see 237.

[An experiment is currently in progress by the U.S. Government's Fish and Wildlife Service to introduce Indian francolins as game birds into certain ecologically equivalent areas in N. America. In this connexion the Special Scientific Report — Wildlife No. 81, 1964, entitled 'A Study and Review of the Black Francolin and the Gray Francolin' by Gardiner & Janet W. Bump is an informative and instructive document.]

239. Assam Black Partridge. *Francolinus francolinus melanonotus* Hume

Francolinus melanonotus Hume, 1888, Stray Feathers 11: 305
(Sylhet, Cachar, Garo and Khasi Hills, and the Assam Valley)

Baker, FBI No. 1978, Vol. 5: 411

LOCAL NAMES. *Tetri sorai*, *Mechenteri* (Assam); *Urenbi* (Manipur); *Dao chirree* (Cachar); *Inrui jirip* (Kacha Naga); *Voh chirree* (Mikir).

SIZE and FIELD CHARACTERS. As of 238, q.v.; much darker.

STATUS, DISTRIBUTION and HABITAT. Eastern Nepal, through Bhutan duars and Assam, Manipur, and East Pakistan; up to c. 2000 metres altitude. Affects the vast stretches of tall grassland on alluvial river banks in the foothills of the Himalayas, and the Surma and Brahmaputra valleys.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 238.

BREEDING. Season, April to July/August varying locally with break of rains or firing of the grass. Nest, a shallow scrape with a flimsy pad of grass and leaves, occasionally quite well made, placed close to an ant-hill or bush on the edge of tall grassland or a *bheel*. Eggs, 4 to 6 like those of the Indian race. Average size of 150 eggs $37\cdot0 \times 31\cdot5$ mm. (Baker). Some birds believed to have two successive broods.

MUSEUM DIAGNOSIS. See Key to the Subspecies. Both sexes considerably darker than *F. f. aiae*. Male. Above, feathers centred very dark, almost blackish brown, with the paler edges narrow and dark rufous. White bars on posterior upperparts also very narrow. Below, the white spots oval instead of round, becoming still longer-shaped on lower breast. Under tail-coverts unbarred deep chestnut. Female. Breast more heavily barred with black than in Indian birds.

Chick (in down). Markings similar to those described for *henrici* q.v. 'but the whole coloration so much darker that one would hardly suppose the two to belong to one species' (Ticehurst).

MEASUREMENTS. Wing ♂♀ 143–155 mm. (Baker).
Weight ♂♂ 10–20 oz. (c. 285–570 gm.); ♀♀ 8–17 oz. (c. 228–480 gm.) — Hume.

COLOURS OF BARE PARTS. As in 238, but legs and feet very bright deep red in breeding season.

FRANCOLINUS PICTUS (Jardine & Selby)

Key to the Subspecies

		Page
A	Paler; bright, pale rufous below.....	<i>F. p. pallidus</i>
B	Darker; dull, earthy rufous below.....	<i>F. p. pictus</i>
C	Darkest; heavily marked with black below.....	<i>F. p. watsoni</i>

240. Northern Painted Partridge. *Francolinus pictus pallidus* (J. E. Gray)

Perdix hepburnii var. *pallida* J. E. Gray, 1831, in Gray & Hardwicke, Ill. Ind. Zool. 1(8): pl. 55 (Odypore = Udaipur)
Baker, FBI No. 1980, Vol. 5: 414

LOCAL NAMES. *Titūr, Chitūr* (Bombay); *Kala titūr* (Marathi).

SIZE. Grey Partridge; length c. 31 cm. (12 in.).

FIELD CHARACTERS. Rather like a female Black Partridge. *Above*, brownish black spotted, scalloped, and finely barred with white. Supercilium and face pale chestnut. No chestnut collar in male or nuchal patch in female as in Black Partridge. *Below*, black heavily spotted with white; centre of abdomen and vent rufous. Throat chestnut in male, whitish (usually but not always) in female; otherwise sexes more or less alike, both without spurs.

When flying away from observer, white-spotted plumage, black outer tail-feathers and rich rufous in the typically cambered wings are diagnostic points.

Young (immature). Like female, with black arrow-shaped marks on the pale buffy flanks and lower breast.

STATUS, DISTRIBUTION and HABITAT. Resident, subject to local movements governed by food supply and water; spreading out widely in the monsoon when both abundant. South of range of Black Partridge in Gujarat (excepting Kutch), southern Uttar Pradesh and northern Madhya Pradesh, chiefly low and plateau country. Believed to hybridize with Black Partridge where their ranges meet. On the whole affects drier facies than Black Partridge, but better watered than the thorny xerophytic habitat of the Grey.

Keeps to undulating grassland and cultivation bordered and interspersed with patches of scrub jungle and bushes (such as *Calycoteras*, *Diospyros* and *Zizyphus*) and with vegetation-bordered streams and water channels between the hummocks.

GENERAL HABITS. Almost invariably met with in scattered pairs; sometimes family parties of parents and 3 or 4 grown young, not in coveys. Like the Black Partridge active in the early mornings and late afternoons, retiring

into cover during the heat of the day, except in cloudy, overcast and drizzly weather. Shares with Black Partridge the peculiarity of carrying its tail partly cocked as it runs about. Is an inveterate skulker and, particularly where much harried, will frequently squat in cover till almost trampled by a line of noisy beaters, breaking back immediately they have passed on. Will often lie low in a bush even in spite of prolonged and seemingly futile beating. Normally rises with a loud whirr of wings, but on such occasions will usually sneak out noiselessly when search abandoned, and dash to safety, leaving the hunter nonplussed. Roosts in trees as well as on the ground in forms canopied by arching grass.

FOOD. Cereal grains mostly gleaned in stubbles, weed and grass seeds, tender shoots of grass and crops and other green matter, berries and drupes (e.g. *Zizyphus*); termites and other insects and their eggs and larvae. Around villages often also human excreta. A quantity of grit always present in stomachs.

VOICE and CALLS. Normally more silent than Black Partridge. In breeding season a high-pitched, rather ventriloquistic click . . . cheek-cheek-keray very similar to that of the Black, almost indistinguishable from it. Calls from a tree stump, mound, or other elevated station once every 20 seconds or so, frequently for over 15 minutes at a stretch. Usually answered by another bird in the distance. After a bout of challenges from one perch, flies off to another 50 or 100 metres away for a further session, returning thereafter to the original stance or to a third one in the neighbourhood to resume calling; thus doubtless effectively patrolling its breeding territory. When calling the neck is merely stretched up and forward (not vertically), this unaccompanied by any drooping, expanding, erecting or jerking of wings or tail. Whether female also calls, as asserted by some locals, unproven, but two calling birds in breeding season were observed to have whitish throats as in female !

BREEDING. Season, normally commences with the break of the SW. monsoon rains in June and continues till September or October, but in central India April, May, and June have also been reported (Whitehead, 1911, JBNHS 21 : 168). Nest, a scrape or slight hollow in the ground, sparsely lined with grass and leaves; usually in standing crops or sugarcane fields, or in a patch of grass and scrub jungle. Eggs, 4 to 8, normally up to 6, very like those of the Black Partridge — some shade of olive-brown. Average size of 29 eggs 35.7 x 29.5 mm. (Baker). Cock believed to be monogynous; incubation by hen alone ; period unrecorded.

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

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
5 ♂♂	140-149	23-26	37-45	65-68 mm.
5 ♀♀	140-151	21-24	41-46	64-69 mm. (SA)

Wing ♂♀ 131-146 mm. (Baker).

COLOURS OF BARE PARTS. Iris orange-brown. Bill dark brown to black; base and gape horny white. Legs and feet brownish orange (yellow in immature); claws horny brown.

241. Southern Painted Partridge. *Francolinus pictus pictus*
(Jardine & Selby)

Perdix picta Jardine & Selby, 1828, Ill. Orn. 1: sig. G, pl. 50 (Bangalore, India)
Baker, FBI No. 1979, Vol. 5: 412

Plate 19, fig. 6, facing p. 16

LOCAL NAME. *Kakera kozhi* (Tamil).

SIZE and FIELD CHARACTERS. As of the northern race, 240 q.v. Darker.
(See Museum Diagnosis.)

STATUS, DISTRIBUTION and HABITAT. Resident, shifting locally with conditions of rainfall and drought. The Peninsula north to the range of 240 — roughly lat. 20°N. which, for convenience, may be arbitrarily fixed as the boundary between the races. Individual specimens from this area difficult to assign racially. Does not occur in the evergreen hygrophytic tracts of Kerala and Mysore. Affects semi-moist undulating grassland intermixed with scrub and cultivation, as described under 240.

GENERAL HABITS, FOOD, VOICE, etc. As in 240. In the Bombay area the staple food between November and January is paddy gleaned in the stubbles, with a greater proportion of insects thereafter. Of the latter the following identified in stomach contents: black ants (*Camponotus* sp.), the beetles *Aulacophora foveicollis* and *Pseudoblabps mellyi*, and the bug *Aspongopus janus* (H. Abdulali, 1964, JBNHS 61(2): 449).

BREEDING. As in 240.

MUSEUM DIAGNOSIS. See Key to the Subspecies. Difference in shade of rufous of abdomen and vent obvious only in series; individual specimens often impossible to place racially.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	132-148	c. 24-27	c. 40	66-89 mm. (Baker)

Weight ♂ ♀ 8.5 to 12.7 oz. (c. 242-340 gm.) — Hume.

COLOURS OF BARE PARTS. As in 240.

242. Ceylon Painted Partridge. *Francolinus pictus watsoni* Legge

Francolinus Watsoni Legge, 1880, Birds of Ceylon 3: 745 (Wellemade, Ceylon)
Baker, FBI No. 1979 (part), Vol. 5: 412

LOCAL NAMES. *Ussa watuwā*, *Pun kukkanā*, *Manā kukkanā* (Sinhala); *Kauthāri* (Tamil).

SIZE and FIELD CHARACTERS. As of 240; much darker.

STATUS, DISTRIBUTION and HABITAT. Resident; endemic in Ceylon. Affects *mano*-grass, scrub and bracken country in the foothills (and up to about 1200 m. elevation) of the Dry zone only in Uva Province (Henry). 'Now (1952) very scarce on the patanas or grasslands of the Uva hills, but still fairly plentiful in the "park country" of the adjoining lowlands around Bibile and Nilgala' (Phillips).

GENERAL HABITS, FOOD, VOICE, etc. As of 240, q.v.

BREEDING. Curiously enough no nest yet taken in Ceylon, but from circumstantial evidence probably breeds between March and June. A specimen collected on 18 February already showed slightly enlarged gonads (SDR).

MUSEUM DIAGNOSIS. See Key to the Subspecies. Differs from nominate *pictus* in much darker brown tint of upperparts with spotting on back of neck and white edging of mantle and scapulars much reduced. Underparts also much more heavily marked with black, being in the female more definitely barred than in south Indian birds.

MEASUREMENTS AND COLOURS OF BARE PARTS as in 241.

243. Burmese Francolin. *Francolinus pintadeanus phayrei* (Blyth)

Perdix Phayrei Blyth, 1843, Jour. Asiatic Soc. Bengal 12(2): 1011 (Arrakan)

Baker, FBI No. 1981, Vol. 5: 415

Plate 19, fig. 4, facing p. 16

LOCAL NAME. *Kabo urenbi* (Manipur).

SIZE. Grey Partridge + ; length c. 33 cm. (13 in.).

FIELD CHARACTERS. Heavier head and thicker neck distinguish it from Black Partridge in silhouette.

Male. *Above*, crown dark brown bordered longitudinally on each side by a rufous-brown band. A broad white band along side of face from lores through ear-coverts, bordered above and below by narrower black bands, the upper continuing across the forehead. Rest of upperparts black spotted with white, with some dull chestnut about the wing shoulders. Lower back and rump (black) and upper tail-coverts (greyish brown) finely barred with white. *Below*, chin and throat white; rest black heavily spotted with white, the spots increasing in size to coalesce as bars on lower abdomen. Under tail-coverts pale chestnut.

Female. *Above*, sides of head buff with broken brown superciliary and cheek stripes. Rest of upperparts largely brown with pale ill-defined spots, bars, and vermiculations. *Below*, largely buff, closely barred with blackish on foreneck and upper breast, decreasing towards abdomen and thigh-coverts. Under tail-coverts dull chestnut.

Young (immature). Like female but duller. Neck and back pale-streaked; eye-streak and moustachial streak absent or obsolete.

STATUS, DISTRIBUTION and HABITAT. Resident and common in SE. Manipur State, in the Kabaw and Manipur Valleys. (For particulars of specific localities within the area see Higgins, 1934, JBNHS 37: 93.) Affects low oak scrub in the foothills, and grassy openings in Dipterocarp forest in undulating country. Common in drier localities.

EXTRALIMITAL. Arakan, Pegu, eastern Burma south to N. Tenasserim, Shan States, Yunnan, eastern Indochinese countries from Tonkin to Cambodia, Hainan Island (Peters). The nominate race in SE. China.

GENERAL HABITS. Keeps singly or in scattered twos and threes; not in flocks or coveys, though sometimes many in the same neighbourhood. Is a stronger flier than Black Partridge but an inveterate skulker and difficult to dislodge from cover without a dog; thus oftener heard than seen. When

flushed will sometimes take refuge in a high tree till the trouble has passed. Less widely distributed in Manipur than the Black (*F. f. melanonotus*), but shares with it the same facies wherever found.

FOOD. Seeds, shoots, and insects.

VOICE and CALLS. Uttered from tree-stump or branch up to c. 3 m. high. An unusually resonant (for partridge) five-noted challenge apparently given throughout the year, mostly in the early mornings and at dusk when several birds may be heard calling simultaneously. Particularly vociferous during the breeding season. Call variously rendered as *Ke kai, ke kai, ke karr* (Baker), *Kai kai, kee kai, kee kurr* (Swinhoe) and *Kak kak kuich, ka ka* (Wardlaw-Ramsay). These renderings give little idea of the call itself, but some indication of the rhythm, the last according to Higgins being the nearest. The call is adequately expressed by the words 'Do be quick papa' (Wickham).

BREEDING. No record from within Indian limits. Season (in Burma) March to September. Nest, like that of the Black Partridge, a scrape lined with grass at the foot of a thick bush in scrub-and-bush jungle. Eggs, 3 to 7, commonly 4 or 5, warm cream colour, sometimes faintly tinged with olive. Average size of 84 eggs 35.3 x 28.7 mm. (Baker).

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	132-151	23-25	c. 42-44	c. 60-70 mm. (Baker)

Weight 10-14 oz. (c. 284-397 gm.).

COLOURS OF BARE PARTS. Iris reddish brown to dark brown; eyelids dull greenish or livid green. Bill black, horny at base of lower mandible. Legs and feet orange-yellow to yellowish or reddish brown, much brighter in breeding season; paler and more yellow in female.

FRANCOLINUS PONDICERIANUS (Gmelin)

Key to the Subspecies

	Page
A Darker; centre of throat ochraceous.....	<i>F. p. pondicerianus</i>
B Paler; centre of throat creamy-white.....	<i>F. p. interpositus</i>
C Palest; plumage generally more grey and less chestnut.....	<i>F. p. mecranensis</i>

244. Baluchistan Grey Partridge. *Francolinus pondicerianus mecranensis* Zarudny & Härm's

Francolinus (Ortygornis) pondicerianus mecranensis Zarudny & Härm's, 1913, Orn. Monatsb. 21: 53 (Valley of the Rud-i-Sarbas river, Persian Baluchistan)
Baker, FBI No. 1985, Vol. 5: 422

LOCAL NAMES. *Achho teetär* (Sind); *Tauzarai* (Pushtu); *Kapinja* (Baluchi).

SIZE and FIELD CHARACTERS. As of 246, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Resident. West Pakistan (Baluchistan to c. 1200 m. alt.); western Sind; N.W.F. Province; west of Indus river. Affects stony semi-desert country with sparse thorn scrub bordering dry ravines etc., especially in the neighbourhood of cultivation.

Extralimital. Southern Afghanistan, southern Iran, eastern Arabia (Muscat) (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in the nominate race (246).

BREEDING. Season, March to May. Nest and eggs as in 246. Average size of 81 eggs 34.0×26.0 mm. (Baker).

MUSEUM DIAGNOSIS. See Key to the Subspecies. Chestnut in upperparts very pale, less in extent, confined chiefly to scapulars and wings. Throat-patch white or whitish; surrounding white spaces broader and whiter than in the other races. Breast only faintly tinged with ochraceous.

MEASUREMENTS. Wing ♂♂ 141–149; ♀♀ 137–139 mm. Bill (from feathers) 19–23 mm. (Baker).

COLOURS OF BARE PARTS. As in 246, somewhat paler.

245. North Indian Grey Partridge. *Francolinus pondicerianus interpositus* Hartert

Francolinus pondicerianus interpositus Hartert, 1917, Novit. Zool. 24: 288 (Oudh)

Francolinus pondicerianus prepositus Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 31 (Kotla, Kangra dist., Punjab)

Francolinus pondicerianus paganus Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 31 (Sihor, Saurashtra)

Francolinus pondicerianus titar Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 31 (Ramanujganj, Surguja)
Baker, FBI No. 1948, Vol. 5: 421

LOCAL NAMES. *Teetär, Rám teetär, Sáféd teetär, Göra teetär* (Hindi); *Jirusti* (Punjab); *Khyr* (Bengal); *Tauzari* (Pushtu).

SIZE and FIELD CHARACTERS. As of 246, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Resident. Eastern Sind, E. Punjab, Rajasthan and northern India east to Bihar and W. Bengal. From the Himalayan terai south to a line of what may be called 'subspecific or racial balance' — from Poona to Kakinada. Affects dry open grass and thorn-scrub country in the neighbourhood of villages and cultivation, up to c. 500 metres altitude.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the nominate race (246).

BREEDING. Season, chiefly March to September, but nests locally and sporadically in other months also. Nest and eggs as in 246. Baker gives average size of 90 eggs as 32.4×25.6 mm., therefore slightly smaller than that of *F. p. pondicerianus*!

MUSEUM DIAGNOSIS. See Key to the Subspecies. More grey less brown than the south Indian (nominate) race. Bars on upperparts very pale fulvous, almost white on scapulars and inner secondaries. Throat-patch creamy white rather than ochraceous. Lower parts paler; breast less rufous.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	144–160	23–29	36–45	80–94 mm.
♀♀	134–146	23–26	37–46	79–91 mm. (SA)

COLOURS OF BARE PARTS. As in 246.

246. South Indian Grey Partridge. *Francolinus pondicerianus pondicerianus* (Gmelin)

Tetrao pondicerianus Gmelin, 1789, Syst. Nat. 1(2): 760 (Pondicherry, India)

Francolinus pondicerianus ceylonensis Whistler, 1941, Ibis: 319 (Illuppaikkadavai, northern Ceylon)

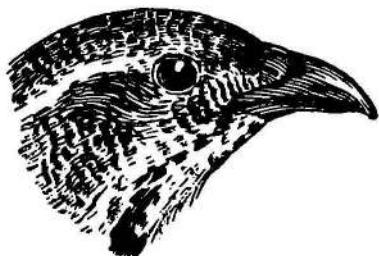
Baker, FBI No. 1983, Vol. 5: 419

Plate 19, fig. 2, facing p. 16

LOCAL NAMES. *Safed teetar* (Hindi); *Gowjal hakki* (Kannada); *Kawanga* (Telugu); *Kondari, Kauthari* (Tamil); *Kozhi kata* (Malayalam); *Ussa watuwā* (Sinhala); *Chittur* (Marathi).

SIZE. Half-grown village hen ± ; length c. 33 cm. (13 in.).

FIELD CHARACTERS. A squat, stub-tailed game bird largely greyish brown, rufous and chestnut above, mottled, barred, and vermiculated with buff and black. *Below*, pale buff and rufous, narrowly cross-barred on fore-neck and upper breast and finely pencilled or vermiculated on abdomen and flanks with black. A prominent yellowish rufous throat patch enclosed within a black gular loop. Tail largely chestnut, particularly conspicuous when bird flying away from observer. Sexes alike, but cock somewhat larger with a sharp spur, occasionally double, on each leg.



× c. 1

Young (immature). Like adult but with less rufous on forehead. Throat-patch paler, its enclosing black border obsolete.

STATUS, DISTRIBUTION and HABITAT. Resident. Southern peninsular India south of range of 245, and Ceylon (NW. coastal islands and Jaffna peninsula). Affects dry undulating plains and eroded plateau country with xerophytic thorn scrub, especially in the neighbourhood of villages and scattered cultivation of jowar, bajra, lentils and other dry-season crops.

Was introduced in the Andaman Islands in 1890 where it has since established itself in fair strength in the Port Blair neighbourhood.

GENERAL HABITS. Met with in pairs and family parties or coveys of 4 to 8 birds sauntering about with a jaunty upright carriage, digging and scratching the ground with bill and feet in fallow fields, pecking at cattle dung for food, or dust-bathing on cross-country earth tracks. On alarm the covey scurries off, running swiftly from bush to bush, surreptitiously squatting in ones and twos in different thickets. They are very fast on their legs and loth to take wing unless hard pressed. While individuals will rise with an explosive whirr of wings when approached, and scatter in different directions, others will keep dodging from bush to bush till out of danger. Flight swift with rapid beats of the short cambered wings alternated with spurts of gliding; seldom high up in the air except when breaking back over a line of beaters. After a short flight of 50 or 100 metres the bird alights, continuing to run immediately on touching down so that on approaching the bush wherein it apparently took cover the observer finds it mysteriously vanished, only to be seen running on a long way ahead. Roosts at night in pairs or

family groups up in small thorny trees, or squatting on the ground within dense thorn bushes such as *Capparis* or *Zizyphus*. When flushed by a dog will often take refuge up in a thorny tree. When much harried will squat tight in a thicket and refuse to leave despite noisy shouts and stone-throwing. To escape a trained falcon SA has seen one dive into a thorn bush and refuse to budge even when bush set alight and itself all but roasted alive !

FOOD. Weed seeds, cereal grains, shoots of grass and crop plants, berries and drupes (e.g. *Lantana*, *Zizyphus jujuba* and *oenoplia*, and *Capparis aphylla*) and insects (e.g. grasshoppers, termites, maggots); on village outskirts commonly human excreta. Among unusual food items is recorded a snake (*Boiga trigonata*) c. 18·5 cm. long (Soman, 1962, JBNHS 59(2): 653). For seasonal analyses of crop contents of N. Indian birds see Faruqi, Bump, et al., 1960, JBNHS 57(2): 277-300. Can subsist for long periods without drinking where dew available. Often seen miles away from water without apparent need for commuting to it like sandgrouse.

VOICE and CALLS. Commonest call of cock commences with two to four subdued clucks or chuckles rising in intensity, followed by a ringing, high-pitched, spirited challenge — käteetär käteetär käteetär etc. quickly repeated. Normal call of female a high-pitched monosyllabic *tee tee tee* repeated several times; also a musical *kila kila kila* similar to one of the cock's calls but softer. A third, less challenging call also commonly heard — *kateela kateela kateela* — is evidently the combined duetting of a mated pair. Alarm call of both sexes: a very sharp high-pitched agitated *kirrr . . . kirrr . . . kirrr* (i as in sit) characteristically uttered when bird flushed off nest or when leading small chicks. For details of the various calls see Himmatsinhji, 1959, JBNHS 56(3): 632-3.

BREEDING. Season, in the Peninsula more or less throughout the year, principally April to September; in Ceylon c. April to July. Nest, a scrape in the ground lined with grass and leaves, under a clod, tuft of grass or bush in a ploughed field or in open scrub jungle. Eggs, 4 to 8 or 9, broad ovals, pale buff in coloration. Average size of 100 eggs 34·5 × 26·1 mm. (Baker). Cock monogynous. Incubation solely by hen; period 18-19 days. Chicks tended by both parents. A brood observed attended by 3 adults (SA).

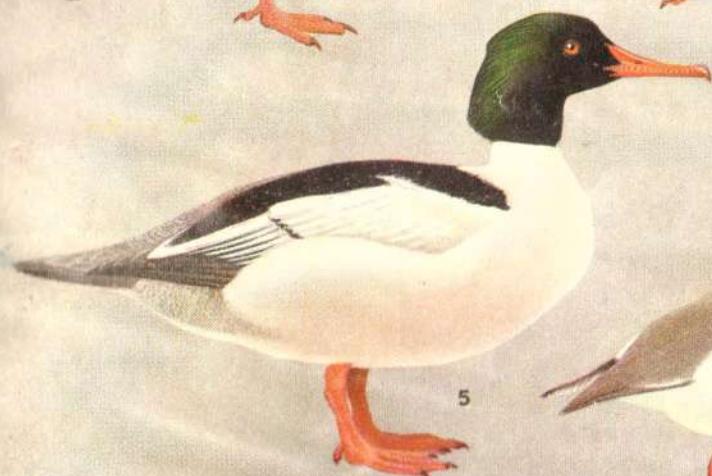
MUSEUM DIAGNOSIS. Throat-patch *yellowish rufous* v. creamy or whitish in the other two races. See Key to the Subspecies; for details of plumage Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	142-161	22-24	44-46	81-91 mm.
♀ ♀	142-146	21-23	41-42	(Baker) .
Weight (subspecies ?) ♂♂ 9-12 oz. (c. 255-340 gm.); ♀ ♀ 7-11 oz. (c. 200-312 gm.)				
—Hume.				

COLOURS OF BARE PARTS. Iris hazel-brown. Bill dusky plumbeous, paler and fleshy at base. Legs and feet dull red.

MISCELLANEOUS. Cocks very pugnacious and largely kept by fanciers as fighting birds. A strain reportedly found in Andhra (?) and known as 'Hyderabadi teetar' is claimed to be considerably larger, heavier, and more robust than normal birds and most highly prized. Partridge fights are a popular sport in many parts of the country and large sums of money change



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P. BARRUEL

PLATE 20

1 *Tragopan satyra*, Satyr Tragopan (286). 2 *Arborophila t. torqueola*, Common Hill Partridge (267). 3 *Lerwa lerwa*, Snow Partridge (227). 4 *Ithaginis c. affinis*, Blood Pheasant (282). 5 *Mergus m. orientalis*, Goosander or Common Merganser (121). 6 *Ibidorhyncha struthersii*, Ibisbill (433).

hands on the bouts. When taken as chick and hand-reared, becomes exceedingly tame, following its master about like a dog, calling at his command, and coming over long distances when summoned.

Is hardy, adaptable, and a prolific breeder and has recently been introduced by the U.S.A. Department of the Interior, Fish and Wildlife Service as an exotic game bird into ecologically equivalent semi-desert areas of the southwestern States, where it bids fair to succeed. For details of the experiment see 'A Study and Review of the Black Francolin and the Gray Francolin' by Gardiner & Janet Bump. Special Scientific Report — Wildlife No. 81, 1964.

Illicit wholesale year-round netting and trapping for urban markets has decimated local Grey Partridge populations in many areas in recent years.

247. Swamp Partridge or Kyah. *Francolinus gularis* (Temminck)

Perdix gularis Temminck, 1815, Pig. et Gall. 3 : 401, 731 (Vicinity of Calcutta)

Francolinus gularis ridibundus Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1 : 31 (Kalnahi, U.P.)

Baker, FBI No. 1982, Vol. 5: 417

Plate 19, fig. 7, facing p. 16

LOCAL NAMES. *Kyah*, *Khyr*, *Kaijah* (Bengal); *Bhil titri* (N. Bihar); *Koi*, *Koi sorai*, *Koira* (Assam); *Bheel teetar*, *Gul teetar* (Cachar and Sylhet); *Hoi koli* (Plains Miri).

SIZE. Grey Partridge + ; length c. 37 cm. (15 in.).

FIELD CHARACTERS. A large and conspicuously long-legged partridge. *Above*, crown and nape brown; supercilium and a broader band below eye through ear-coverts buff. Upperparts brown with rufous-brown patches; transversely barred with buff as in Grey Partridge. Tail largely chestnut with pale tips. *Below*, chin, throat and foreneck rusty red. Rest of underparts brown with broad white longitudinal streaks edged with black. Under tail-coverts pale rufous. Sexes alike, but male with a spur on each leg.

STATUS, DISTRIBUTION and HABITAT. Resident. Terai and alluvial north Indian plains from W. Nepal and Uttar Pradesh through N. Bihar, W. Bengal and Assam. East Pakistan (Sylhet, Chittagong, Sunderbans (part)). Affects heavy *ekra* and *nal* grass (*Arundo karka* Roxb.) jungle in low-lying swampy tracts subject to seasonal flooding adjacent to the larger rivers of the Ganges and Brahmaputra systems. Exceptionally found on the Cherrapunji plateau, c. 1200 m. altitude.

Owing to draining of the *chaurs* and swamps in many of its terai habitats, the species is becoming scarce where formerly abundant.

GENERAL HABITS. Keeps in pairs or coveys of 5 or 6 birds to swampy ground, wading about through mud and shallow water. Where water too deep for this, clammers up the reed stems like Purple Moorhen (*Porphyrio*) and makes its way thus to reach drier ground. Is a confirmed runner and difficult to flush except with elephant or line of beaters. Rises clumsily with a flutter and whirr, with loud chuckles and cackling, unlike other francolins, but flies swiftly and strongly. Roosts in thorny trees growing in swampy grass jungle and on breakdown reeds in flooded areas. Cocks very pugnacious; fighting like game cocks but using bills more than spurs. Many

shot birds carry more or less heavy scars about neck and breast — evidence of encounters with rivals.

FOOD. Omnivorous: weed seeds, grain, shoots of mustard, paddy and other crops, and insects. Baker found tiny shellfish in the crop of one. Feeds in and on the edge of marshes and neighbouring cultivation, particularly sugarcane fields. Comes out to feed in the open in the mornings and evenings in paddyfields, especially when the crop is ripening.

VOICE and CALLS. 'A loud *kaw-care*' (R. L. Fleming). 'An occasional loud *qua, qua, qua* ascending in tone' (A. E. Osmaston). 'A rather harsh *chuckeroo chuckeroo chuckeroo*' (Tickell), preceded by several chuckles and croaks as if bird clearing its throat in preparation. Pattern of crowing rather similar to that of Grey Partridge to which it seems more closely related than to Black. When calling stands very erect with neck upstretched.

BREEDING. Season, February to May — chiefly March and April. Nest, usually well-built pad of weeds and rank grass c. 5-10 cm. thick and c. 20-30 cm. across with a deepish hollow for the eggs. Placed a few centimetres above water or mud level on breakdown reeds etc. in dense undergrowth and cane brakes on partially submerged islets; occasionally on drier edges of swamps. Eggs, 4-5, or 6, shaped like other francolins', bright pale buff or stone colour with small reddish freckles and blotches all over, or chiefly at larger end. Average size of 48 eggs 39.4 × 30.0 mm. (Baker).

Cock believed to be monogynous. Incubation only by hen; period unrecorded.

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

Chick in down undescribed. When two months old 'got white arrow-shaped streaks bordered with brown on the breast, and the feathers of the back were barred and crossed with buff; also the throat became a pale rufous' (Inglis, of chicks hatched in captivity. JBNHS 28: 287).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	162-186	c. 21-23	c. 60-70	101-127 mm. (Baker)

Weight ♂ c. 18 oz. (510 gm.), ♀ somewhat less (Hume).

COLOURS OF BARE PARTS. Iris brown, crimson-brown or crimson; eyelids dull livid green or plumbeous-green. Bill black, horny white at tip. Legs and feet orange-yellow to dull red; redder in male, and brighter in both sexes in breeding season. Male with short blunt spurs; female sometimes with rudimentary ones.

MISCELLANEOUS. Much favoured as a fighting bird in parts of Assam, large sums of money being wagered on mains between champion cocks. Many fighting birds hand-reared from eggs incubated and hatched in a cloth tied round human owner's body for the necessary warmth and kept so day and night throughout the incubation period, a practice now apparently dying out.

Genus PERDIX Brisson

Perdix Brisson, 1760, Orn. 1: 26, 219. Type, by tautonymy, *Perdix cinerea* Brisson = *Tetrao perdix* Linnaeus

Wing rounded: first primary (as.) between 7th and 8th in length, 4th primary usually longest. Tail very slightly graduated, rather more than half length of wing;

of 16 feathers in *P. hodgsoniae*, 18 in some other species. Tarsus strong, bare, without spur. Sexes alike.

The genus extends throughout the Palaearctic Region, only one species just entering our limits.

PERDIX HODGSONIAE (Hodgson)

Key to the Subspecies

Nuchal collar broad and dark chestnut in colour.....*P. h. hodgsoniae*

Nuchal collar narrow and of paler chestnut-yellow.....*P. h. caraganae*

248. Ladakh Partridge. *Perdix hodgsoniae caraganae* R. & A. Meinertzhagen

Perdix hodgsoniae caraganae R. & A. Meinertzhagen, 1926, Bull. Brit. Orn. Cl. 46: 86
(Shushal, 15,000 ft, Eastern Ladakh)

Baker, FBI No. 1988, Vol. 5: 425

LOCAL NAME. *Chak pa* (Ladakhi).

SIZE AND FIELD CHARACTERS. As for 249, q.v.

STATUS, DISTRIBUTION AND HABITAT. Resident at high elevations, c. 4250-5200 metres. Ladakh (Pangkong Lake, Takhum, Puga, Shushal, Polakonka Pass), and Kumaon (near Gangotri). Affects Tibetan Gorse (*Caragana*) patches along the shores of Pangkong Lake and in most valleys of eastern Ladakh. Also similar facies in high Kumaon.

GENERAL HABITS, FOOD, VOICE AND CALLS. As of the nominate race, 249. 'Difficult to flush, but if driven to the end of the patch in which they live, they will sit close. When they rise they make very much the same noise as the English Partridge' (Meinertzhagen).

BREEDING. Meinertzhagen found a clutch of 11 fresh eggs near Shushal, c. 4575 m. on 13 June, and took oviduct eggs from specimens collected on 7th and 17th June.

MUSEUM DIAGNOSIS. See Key to the Subspecies. Generally paler than *P. h. hodgsoniae*, with the dark brown markings of upperparts replaced largely by chestnut markings.

MEASUREMENTS AND COLOURS OF BARE PARTS. As in 249.

249. Tibetan Partridge. *Perdix hodgsoniae hodgsoniae* (Hodgson)

Sacra Hodgsoniae Hodgson, 1857, Jour. Asiatic Soc. Bengal 25: 165 and pl. (Tibet)

Baker, FBI No. 1986, Vol. 5: 423

Plate 19, fig. 9, facing p. 16

LOCAL NAMES. *Sakpha* (E. Tibet); *Rhakpa* (C. Tibet); *Che tra* (Kongo Tibet); *Rare wah* (Nepal).

SIZE. Grey Partridge; length c. 31 cm. (12 in.).

FIELD CHARACTERS. A high-altitude partridge reminiscent of the familiar Grey of the plains. Above, head patterned with prominent white eyebrows running across chestnut forehead; chestnut ear-coverts with a black cheekpatch below. A dull chestnut collar at base and sides of hindneck.

Upperparts buffy grey barred with blackish on upper back, vermiculated on lower. Lateral tail-feathers largely chestnut. *Below*, underparts white, unmarked on chin and throat, barred with black on breast, more broadly with chestnut-brown on flanks. Lower abdomen and under tail-coverts buff. Scapulars, tertaries, and wing-coverts narrowly streaked and barred with buff. Sexes alike.

Young (immature). *Above*, without any blue-grey tinge, and chestnut absent everywhere. Crown, cheeks and ear-coverts dark brown with white apical spots. *Below*, dull earthy buff with pale striations and indefinite narrow blackish bars.

STATUS, DISTRIBUTION and HABITAT. Just crosses the Tibetan border into northernmost west-central and central Nepal, and Sikkim; possibly also in the NEFA area. Locally not uncommon; in summer between c. 3600 and 5600 m. altitude, in winter generally below 4000 m. but rarely as low as 2800 m. Affects typical Tibetan plateau country and rocky hillsides with scattered furze bushes (*Caragana spinosa*) and dwarf juniper and rhododendron scrub. Found in grass and bush cover about crops and yak pastures in the Tsangpo valley.

Extralimital. Adjoining portions of the Tibetan plateau.

GENERAL HABITS. Keeps in coveys of 10 to 15 birds. Usually not very wild; reluctant to fly, trusting to its legs for escape. Coveys 'explode' with a whirr of wings when flushed, the birds scattering in ones and twos in different directions, shrilling and gliding downhill like chukor whenever they have the choice. The coveys break up into pairs for breeding in March/April.

FOOD. Seeds, shoots, roots of moss (?), and presumably insects.

VOICE and CALLS. Normal call, uttered mostly in the mornings and evenings, a rattling *Scherrrrreck* — *scherrrrreck* etc. (Schäfer). When flushed and going off a shrill *chee, chee, chee, chee, chee* (Fleming), presumably the same as has been described by Bailey as exactly like the creaking of the lid of a (wicker) lunch basket.

BREEDING. Within our limits apparently recorded only in Ladakh (*caraganae*). *Season*, May to July. *Nest*, a scrape in the ground under a boulder or bush, lined with grass; about 20–22 cm. in diameter and hardly large enough to hold a full clutch. *Eggs*, normally 8 to 10 (rarely up to 14); long ovals — proportionately longer than any francolin's — dark brownish buff sometimes tinged with olive. Average size of 150 eggs 37·6 × 27·2 mm. (Baker).

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	155–165	c. 15–17	c. 40–43	c. 86–91 mm.
♀ ♀	149–155 (Kinnear)			(Baker)

Weight c. 1 lb. (c. 450 gm.) — Hodgson.

COLOURS OF BARE PARTS. Iris brown or red-brown; orbital skin deep velvety crimson in breeding season, dull reddish crimson at other times. Bill pale horny green. Legs and feet pale greenish brown.

Genus *COTURNIX* Bonnaterre

Coturnix Bonnaterre, 1791, Tabl. Encycl. Méth. Orn., pt. 1: 87, 216.

Type, by tautonymy, 'Caille' = *Tetrao coturnix* Linnaeus

Excalfactoria Bonaparte, 1856, Compt. Rend. Acad. Sci. Paris 42: 881. Type, by tautonymy, *Tetrao chinensis* Linnaeus (*Coturnix excalfactoria* Temminck in synonymy)

Small partridge-like birds with short and rounded to comparatively long and pointed wings correlated with sedentary or migratory habit. Tail short, of 8 to 12 soft feathers. Bill small and slender. Tarsus strong, of moderate length, unspurred. Toes 4 contra 3 in *Turix* (Button Quails). Sexes differing slightly in coloration; in one Indian species markedly so.

The genus occurs in the Palaearctic, Ethiopian, Oriental, and Australasian Regions. Three species in India, one chiefly migratory, two more or less sedentary.

Key to the Species

	Page
A Third primary longest.....	<i>C. chinensis</i>
B First or second primary longest.....	1
1 Outer webs of primaries barred with buff.....	<i>C. coturnix</i>
Outer webs of primaries unbarred.....	<i>C. coromandelica</i>

COTURNIX COTURNIX (Linnaeus)

Key to the Subspecies

Feathers of chin lengthened and bristly.....	<i>C. c. japonica</i>
Feathers of chin normal; black in males, creamy-buff in females.....	<i>C. c. coturnix</i>

250. Grey Quail. *Coturnix coturnix coturnix* (Linnaeus)

Tetrao Coturnix Linnaeus, 1758, Syst. Nat., ed. 10, 1: 161 (Europe, Asia, Africa).

Restricted type locality, Sweden, ex Fn. Svec.)

Baker, FBI No. 1950, Vol. 5: 372

Plate 21, fig. 3, facing p. 64

LOCAL NAMES. *Batér, Bādā batér, Ghāgus batér* (Hindi); *Bātēro, Batēra* (Sind); *Kurrak, Srapok* (Baluchistan); *Bhatri* (Bengal); *Gundri* (Orissa); *Daobui kashiba* (Cachar); *Bota sorāi* (Assam); *Soibol or Sorbol* (Manipur); *Lovva, Bādā ganga, Gurganj* (locally in Maharashtra); *Barli, Sipale hākki* (Mysore); *Gogari yellichi* (Telugu); *Kāta* (Malayalam).

SIZE. Partridge — ; length c. 20 cm. (8 in.).

FIELD CHARACTERS. A plump and squat pale brown partridge-like bird with conspicuous buff spear-shaped streaks and irregular mottling and barring of reddish brown and black above in both sexes.

Male. *Below.* Chin and a line down centre of throat black. Two dark bands (sometimes indistinct) curving up from base of throat to ear-coverts. Breast rufous-buff with glistening pale buff shaft-streaks; flanks brown longitudinally streaked with black; rest of underparts creamy white.

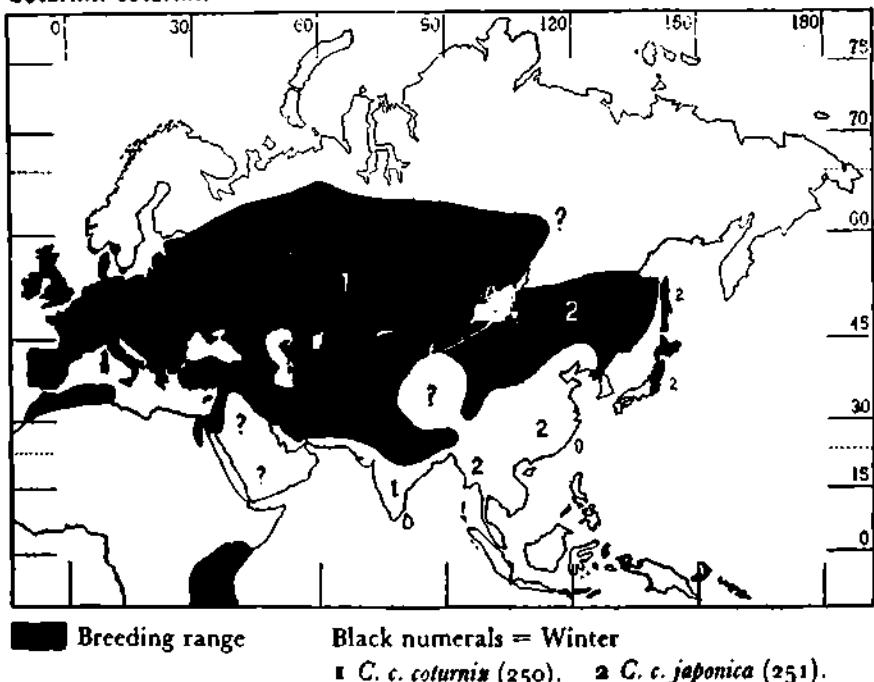
Female. *Below.* Chin and throat creamy buff; breast spotted with blackish.

Young (immature). Like female; somewhat duller.

STATUS, DISTRIBUTION and HABITAT. Partly resident, partly winter visitor. Breeds in both Pakistans, Kashmir (up to c. 2500 m. alt.) east through Bihar and W. Bengal, south at least to Madhya Pradesh (Hoshangabad) and southern Maharashtra (Satara). Breeding in Manipur, *vide* Baker, not confirmed. Birds collected there in winter are intergrades with *C. c. japonica* (Higgins, JBNHS 37: 299). Strongly augmented by influx of migrants from outside in winter and then spreads out over our entire area south to Kanyakumari. Very abundant locally, but numbers variable year to year. In great numbers in Nepal Valley mid October to mid December (Scully). Affects standing crops (e.g. cotton, young wheat, gram, millets, lucerne), paddy stubbles, and grassland, chiefly in flat and undulating country.

Extralimital. 'Breeds in Europe from lat. 65°N. south to the islands in the Mediterranean Sea, and in N. Africa. In W. Asia east to Lake Baikal, from lat. 61°N., south to Asia Minor, Persia, Afghanistan and India to the Deccan. Winters in northern tropical Africa to Senegal, Lake Chad and Somaliland, in Arabia, and the plains of India' (Peters).

Coturnix coturnix



MIGRATION. No ringing data. Recorded observations indicate that passage, both inward and outward, takes place through northwest Pakistan (Chitral, Peshawar, Kohat, Kurram, etc.) in autumn (September-October; even end August) and spring (end of March to early May). Evidently this is the main through migration route, the birds dispersing east and south in the Peninsula after arrival, and concentrating in the northwest again for return migration in astonishingly large numbers. They travel during the night in successive flocks of 30 to 40 or 100 or in enormous swarms of many thousand strong. One such was observed by Hume standing on top of Benog

hill (c. 2300 metres) near Mussooree (U.P.) on a moonlit night in April, the birds sweeping close over his head with the sound of rushing wind, uttering their unmistakable call.

GENERAL HABITS. Usually keeps in pairs, not coveys like Bush Quail, but numbers may concentrate in a patch where feeding is good. Thus in NW. Pakistan and Kashmir, particularly in spring when most crops have been harvested and only a few are still standing, hundreds may be put up from a single field by walking through. When flushed, the bird rises almost vertically for a few feet with the typically partridge whirr of wings and a squeaky whistling note flying low on rapidly vibrating wings straight and fast for a couple of hundred metres before dropping into the crops again. A peculiarity repeatedly observed, and cashed in on by experienced sportsmen, is that when two birds a few metres apart rise more or less simultaneously and are flying away in the same direction, sooner or later one will try to cut across the other. If fire is withheld till the right moment it is often possible to secure both birds with the same shot (*experto crede*).

Large bags are made in NW. India (e.g. Punjab) at the appropriate seasons by walking the fields with a line of beaters. Fifty couple in a morning to a single gun is nothing exceptional especially where the birds have been previously decoyed into the neighbouring fields with the aid of a caged call-bird, as is frequently done.

FOOD. Paddy, millets, and other grain, grass- and weed seeds, and insects — ants, caterpillars, beetles, aphids, etc. Grubs of *Hypera variabilis* have been identified in stomach contents (Husain & Bhalla, 1937, JBNHS 39: 841).

VOICE and CALLS. A loud clear whistling note followed rapidly by two short ones, popularly described as 'a very liquid *Wet-mi-lips*'. Uttered chiefly in the morning and evening, and sometimes also during the night. A squeaky whistle when flushed.

BREEDING. Season, in India overall March to July varying with locality; most commonly March and April. Nest, a scrape in the ground practically without lining; sometimes lined with scanty leaves and grass. Usually well concealed in standing crops or grassland. Eggs, 6 to 11 and even 13, but usually 6 to 8. Variable in colour, from yellowish buff to deep yellowish brown or reddish brown, speckled and blotched with some shade of dark or chestnut-brown. Average size of 100 Indian eggs 29.7 × 22.8 mm. (Baker).

MUSEUM DIAGNOSIS. See Key to the Subspecies. For description of plumage Baker, loc. cit.; for more details Witherby, 1941, 5: 252-4.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	110-115	14-16	c. 26-27	31-38 mm.
♀ ♀	107-116	14-16	26-30	36-44 mm. (SA, HW)

Wing ♂ ♀ 100-117 mm. (Baker).

Weight ♂ ♀ 3.60-4.60 oz. (c. 86-120 gm.).

COLOURS OF BARE PARTS. Iris bright hazel to deep brown. Bill bluish, greyish, or brownish horny darker on tip and culmen. Legs and feet pale fleshy to fleshy brown.

MISCELLANEOUS. Highly relished as a delicacy throughout its overall range, and hundreds of thousands, or millions, netted and shot for food year after year all along the migration routes since early historical times. That the world population does not show any *marked* decline notwithstanding is an indication of the bird's extraordinary fecundity and resilience to predation pressure.

Quail are also very extensively netted for the market particularly in parts of W. Pakistan and northwestern India although in some states commercial netting is now prohibited by law. The birds are kept alive in darkened underground pits for fattening and served up as required. In Hume's day, i.e. in the last quarter of the 19th century, quails were available at Re. 1 to Rs. 2·50 per hundred, and even until before the last war (1938) 16 to 24 to the rupee was quite a fair price.

Much prized in W. Pakistan and N. India as a fighting bird. Large prices are paid for champion cocks and considerable wagers are won and lost on the mains. As part of the conditioning and training the owner constantly carries his bird about in one hand and dances it on the palm of the other, the bend-stretch of the legs being believed to strengthen them for the bouts.

251. Japanese Grey Quail. *Coturnix coturnix japonica* Temminck & Schlegel

Coturnix vulgaris japonica Temminck & Schlegel, 1849, in Siebold, Fauna Jap., Aves:

103, pl. 61 (Japan)

Baker, FBI No. 1951, Vol. 5: 374

LOCAL NAMES. *Sorbol* (Manipur); *Bota sorai* (Assam).

SIZE and FIELD CHARACTERS. As of 250; not distinguishable from it unless in the hand. (See Museum Diagnosis.)

STATUS, DISTRIBUTION and HABITAT. Winter visitor in small numbers to Assam south of Brahmaputra river. Birds collected in Manipur in winter are intergrades with the nominate race.

Extralimital. Breeds in Sakhalin and the Japanese islands. In winter to S. China, Siam, Indochina, Formosa, Hainan (Peters).

MIGRATION. No data.

HABITS and FOOD. Nothing specifically recorded as different from 250.

VOICE and CALLS. According to Prjevalsky the Japanese race easily distinguished from nominate (250) by its voice. Call notes of male in spring described as consisting of 'some deep hollow sounds, several times repeated in quick succession'. This call does not appear to be known in the Grey Quail unless it be the same as the 'saint gurr-gurr-gurr, not unlike the purring of a cat' quoted from Naumann in Witherby (5: 251), which is apparently only a subdued and secondary call.

BREEDING. Extralimital; not different from 250.

MUSEUM DIAGNOSIS. Male differs from male of nominate *coturnix* in having no black on chin and throat and no upcurving black bands. These parts and sides of head light brick-red. Upperparts more brightly coloured than in 250. Elongated winter feathers of malar region and throat replaced in spring (breeding plumage) by rounded short red feathers.

Female also has feathers of cheeks and chin long and pointed forming a regular little beard in winter. In spring difficult to distinguish from female *C. c. colurnix*. For details of plumage see Hartert, 1921-2: 1943.

MEASUREMENTS. Wing ad. ♂ 98-102; ♀ 100-106 mm. (Hartert).

COLOURS OF BARE PARTS. As in 250.

MISCELLANEOUS. Has been domesticated in Japan as a table delicacy, for its meat and eggs, within the last 50 years or so by selection from quails formerly kept for song. Quail-breeding is now a flourishing minor industry. The birds are kept perpetually under artificial light like battery hens, and with special feeding and care, good females lay from 250 to 300 eggs per year. They begin to lay when only 35-60 days old, and continue non-stop for 8-12 months thereafter. For details and techniques see Yoshimaro Yamashina, 1961, JBNHS 58(1): 216-22.

252. Blackbreasted or Rain Quail. *Colurnix coromandelica* (Gmelin)

Tetrao coromandelicus Gmelin, 1789, Syst. Nat. 1(2): 764 (Coromandel Coast)

Baker, FBI No. 1952, Vol. 5: 375

Plate 23, fig. 6, facing p. 112

LOCAL NAMES. *China bātér* (N. India); *Chinagā bātér* (Gujarat); *Chānak* (Nepal); *Kādai* (Tamil); *Chinna yellichi* (Telugu); *Pun watuwā, Wil watuwā* (Sinhala); *Kāta* (Malayalam). Generally not distinguished from Grey Quail except by professional netters.

SIZE. Grey Quail — ; length c. 18 cm. (7 in.).

FIELD CHARACTERS. Very similar to Grey Quail (250) q.v., but smaller.

Male with dark marks on face and throat more jet-black contrasting strongly with white cheeks. Upper breast black (sometimes also centre of abdomen). Flanks boldly black streaked.

Female indistinguishable from female 250 except on smaller size. For identification in the hand see Key to the Species.

STATUS, DISTRIBUTION and HABITAT. More or less restricted to the Indian subregion. Resident and nomadic or locally migratory during SW. monsoon, spreading out widely over otherwise parched areas with availability of grass cover and food. Practically all India and both Pakistans. Chiefly plains, but also peninsular hills and up to c. 2000 m. in the Himalayas. Occasional winter visitor to Ceylon. Affects grass-and-scrub jungle, open moist grass-land, standing crops, and paddy stubbles, etc.

Extrazonal. Burma, including the Shan States.

GENERAL HABITS. Keeps singly or in scattered pairs — only rarely 5-8 together — and nowhere found in such large concentrations as Grey Quail in spring and autumn though local populations, e.g. in south India, tend to swell somewhat by seasonal influx from other areas. Exact nature and extent of such movements unknown. Habits and food similar to those of Grey Quail; is more partial to grass seeds and millet.

VOICE and CALLS. Distinct, and unmistakable for that of 250 — a double-noted musical *which-which*, *which-which*, etc. repeated every half-second or so in runs of 3 to 5 calls. Uttered by male chiefly in early mornings and late evenings, but throughout the day in cloudy overcast weather; also

sporadically during moonlit nights in the breeding season. A short squeaky whistling note when flushed.

BREEDING. Season, overall March to October, straggling into December, varying with locality and moisture conditions. Nest and eggs similar to those of Grey Quail, the latter merely smaller. Average size of 150 eggs $27\cdot 4 \times 20\cdot 8$ mm. (Baker). Cock monogynous. Only the hen incubates; period 18-19 days. Both parents tend young.

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

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	93-96	12-14	23-26	29-32 mm.
♀♀	90-97	12-14	23-27	28-31 mm. (SA, HW)

Baker gives Wing ♂♀ 83-92 mm.

Weight ♂♀ 2·2-3 oz. (c. 64-85 gm.) — Hume.

COLOURS OF BARE PARTS. Iris hazel to deep brown. Bill black (breeding) or horny black, paler at base (non-breeding and immature). Legs and feet fleshy or fleshy grey (more pink in breeding season).

MISCELLANEOUS. Cock rated by some as a better fighting bird than the larger Grey Quail.

COTURNIX CHINENSIS (Linnaeus)

Key to the Subspecies

- | | |
|---|---------------------------|
| Paler; back of male not suffused with blue-grey and having pale shaft-stripes | <i>C. c. chinensis</i> |
| Darker; back of male suffused with blue-grey and having no pale shaft-stripes..... | <i>C. c. trinkutensis</i> |

253. Bluebreasted Quail. *Coturnix chinensis chinensis* (Linnaeus)

Tetrao chinensis Linnaeus, 1766, Syst. Nat., ed. 12, 1: 277 (China and the Philippines
= Nanking, China, ex Edwards)

Baker, FBI No. 1948, Vol. 5: 369

Plate 23, fig. 4, facing p. 112

LOCAL NAMES. *Khair butai*, *Kaneli* (Nepal); *Gobal butai* (Oudh); *Gurru* (Bengal); *Daobui majungbi* (Cachar); *Sorbol* (Manipur); *Pandara wutuwā* (Sinhala).

SIZE. Grey Quail — ; c. 14 cm. ($5\frac{1}{2}$ in.).

FIELD CHARACTERS. A diminutive dark quail with bright yellow legs and the sexes very differently coloured.

Male. *Above*, forehead, supercilium and sides of neck slaty blue, Rest of upperparts brown as in Grey Quail, streaked, mottled, and barred with buff, reddish brown and black. *Below*, throat and upper breast with bold black and white marking of Grey Quail pattern. Lower breast and flanks slaty blue; abdomen and under tail-coverts rich chestnut.

Female. Like female Grey Quail but breast and flanks barred with blackish instead of being longitudinally streaked.



× c. 1

Young male with no blue along forehead. Underparts duller slaty blue, barred with black on sides of head and neck. Chestnut of abdomen restricted to centre, or wanting.

STATUS, DISTRIBUTION and HABITAT. Resident; widely but sparsely and patchily distributed, in small numbers. Evidently with some nomadic movements dependent on rainfall; described in some areas as monsoon visitor. Occurs roughly east and south of a line from Bombay to Simla. Commoner on the eastern side of the subcontinent, viz. N. Orissa, Bihar, W. Bengal, E. Pakistan — perhaps commonest in Assam and Manipur. Baker's statement that it is a common breeding bird in Kerala ('Travancore and the Malabar coast') to Bombay is certainly not true today. Plentiful in Ceylon (lowlands and hills to c. 1800 metres up). Chiefly plains, but in suitable facies also up to c. 2000 m. in the S. Indian hills. Affects swampy grassland and grazing grounds at the end of the rains, and occasionally snipe marshes. Also heavy grass along roadsides, in secondary scrub on abandoned cultivation, on the edges of paddyfields, and in tea gardens at the foot of the hills in Assam.

Extrazonal. East to SE. China and south through the Malay Peninsula, Siam, and Indochina; Hainan and Formosa. Introduced into Mauritius and Réunion (Peters).

MIGRATION. No definite data.

GENERAL HABITS. More partial to wetter terrain than any other quail. Keeps in pairs or small family parties. Usually flushes singly dropping into the grass after a short flight and difficult to put up a second time without a dog. Believed to have a strong scent: 'My spaniel always used to get very keen when they were about' (Cyril Hopwood, Burma).

FOOD. Chiefly grass seeds and millets; also small insects especially termites.

VOICE and CALLS. A soft *tir-tir-tir* when flushed. In Malaya another call, not often heard, described as 'a weak peeping whistle not unlike the call of the Great Eared Nightjar (*Eurostopodus*)', also reminiscent of one of the Plaintive Cuckoo (*Cacomantis*)' — G. C. Madoc. 'Cock occasionally utters a tiny crow resembling a miniature imitation of the brain-fever bird's note' (F. Finn).

BREEDING. Season indefinite, and variable in different areas: in Assam principally June to August; in S. India March-April; in Ceylon recorded as May, August-September, and December-January. Nest, a natural hollow or scrape in the ground lined sparsely with leaves and grass, or without lining, placed in a clump of short grass close to thicker cover. Eggs, 4 to 8, normally 5 to 7, glossy broad ovals usually well pointed at the small end; pale grey or green drab, pale olive-yellow or olive-clay colour to rich sienna brown. Many finely but sparsely stippled and speckled with black all over. Average size of 100 eggs 24.5 x 19.0 mm. (Baker). Cock evidently monogynous. Incubation by hen alone; period c. 16 days. Both parents tend the young.

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

Chick (in down). 'The whole body and head, above and below, brown with the following exceptions which are buff: coronal streak and a streak on either side of

GALLIFORMES

the crown; tips of the wings, sides of the head, chin and throat. The brown of the underparts is rather paler than that above, and is somewhat dusty in tint' (Baker).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	65-78	10-11	20-22	c. 25 mm.
♀ ♀	66-67	—	—	— (Baker)

Weight 1½ to 2 oz. (c. 43-57 gm.). 1 ♀ (Ceylon) 36 gm.— SDR.

COLOURS OF BARE PARTS. Iris ♂ bright vermillion-red to deep crimson, rarely a bright vinous pink; ♀ brown. Bill black, the edge, gape, and gonys slaty. Legs and feet bright yellow, soles paler; claws brownish.

MISCELLANEOUS. 'Far superior to Grey Quail as a table delicacy' (J. C. Higgins, Manipur).

254. Nicobar Bluebreasted Quail. *Coturnix chinensis trinkutensis*
(Richmond)

Excalfactoria trinkutensis Richmond, 1902, Proc. U.S. Nat. Mus. 25: 310
(Trinkut Island, Nicobar group)
Baker, FBI No. 1949, Vol. 5: 371

LOCAL NAME. *Mul* (Car Nicobar).

SIZE AND FIELD CHARACTERS. As of the nominate race (253), q.v., but see Key to the Subspecies.

STATUS, DISTRIBUTION AND HABITAT. Resident. The Nicobar group of islands: Car Nicobar, Trinkut, Camorta. Possibly also others not yet explored.

GENERAL HABITS, FOOD, VOICE, etc. Nothing specifically recorded as different from 253.

BREEDING. Unknown.

MUSEUM DIAGNOSIS. Male. Adult differs from *C. c. chinensis* in being much darker generally. Back suffused with the slaty blue of the breast, and the pale shaft-streaks absent or obsolete.

Female darker and more richly coloured than in 253. Ground colour of upper-parts grey rather than brown. Underparts completely barred.

MEASUREMENTS. ♂ ♀ Wing c. 70; bill (from feathers) c. 10 mm.

COLOURS OF BARE PARTS. As in 253.

Genus PERDICULA Hodgson

Perdicula Hodgson, 1837, Bengal Sport. Mag. 9: 344. Type, by original designation,
Perdicula rubicola Hodgson = *Perdix asiatica* Latham

Cryptoplectron Streubel, 1842, in Ersch & Gruber, Allg. Encycl., sect. 3, 16: 291.
Type, by monotypy, *Coturnix erythrorhyncha* Sykes

In many respects closer to Partridges than Quails though of small size like latter. Bill short and thick; culmen very convex. Wing short, rounded: first primary (as.) equal to 8th; fourth primary longest. Tail of 12 feathers, of about half length of wing. Tarsus as long as middle toe with claw and armed with a short blunt spur.

Genus peculiar to the Indian subregion.

	Key to the Species		
A	First primary equals eighth	1	
B	First primary equals tenth	2	
1	Inner webs of primaries brown throughout.....	<i>P. asiatica</i>	45
	Inner webs of primaries mottled or barred with buff.....	<i>P. argoondah</i>	48
2	Upper surface brown with black spots.....	<i>P. erythroryncha</i>	51
	Upper surface slaty grey with black bars and spots.....	<i>P. manipurensis</i>	53

PERDICULA ASIATICA (Latham)**Key to the Subspecies**

A	Upperparts brown blotched with blackish; buffy shaft-streaks of scapulars contrasting with rest of plumage.....	<i>P. a. asiatica</i>	45
B	Upperparts darker; buffy shaft-streaks of scapulars reduced in extent so that these parts do not contrast so strongly with the rest of the plumage.....	<i>P. a. ceylonensis</i>	48
C	Upperparts paler, more sandy brown.....	<i>P. a. punjaubi</i>	47
D	Upperparts with deep reddish tint.....	<i>P. a. vidali</i>	48
E	Upperparts paler than A with no reddish tint; chin and throat dark chocolate-brown (<i>contra</i> chestnut)	<i>P. a. vellorei</i>	341

255. Jungle Bush Quail. *Perdicula asiatica asiatica* (Latham)*Perdix asiatica* Latham, 1790, Index Orn. 2: 649 (Mahratta region, India)

Baker, FBI No. 1953, Vol. 5: 377

Plate 21, fig. 1, facing p. 64

LOCAL NAMES. *Lowwa* (Hindi); *Vana läväri* (Gujarat); *Juhar* (Manbhumi); *Auri-connai* (Santhal); *Girza pitta* (Telugu); *Käri lowya* (Kannada); *Vari kädä* (Malayalam).

SIZE. Grey Quail — ; c. 17 cm. (6½ in.).

FIELD CHARACTERS. A squat and plump little partridge-like bird.

Male. *Above* fulvous-brown, streaked and mottled with black and buff. A prominent buff-and-chestnut superciliary stripe from forehead and down sides of neck. *Below* white, closely barred with black. Chin and throat bright chestnut.

Female. *Above* like male. *Below*, pale pinkish rufous with bright chestnut throat-patch as in male. (See also Museum Diagnosis.)

Young (immature). Paler; less rufous more brown overall and finely streaked above and below with creamy white.

STATUS, DISTRIBUTION and HABITAT. Resident. Gujarat (excepting Kutch), Maharashtra (excepting S. Konkan), Madhya Pradesh, Bihar, Orissa, Andhra, Madras, Mysore. Boundaries between the races not properly worked out. Plains and up to c. 1250 metres in the hills especially around terraced cultivation. Affects grass-and-scrub jungle and open secondary forest in deciduous biotope, seldom entering standing crops.

The species absent in Sind, W. Rajasthan, E. Pakistan, and Assam.

GENERAL HABITS. Keeps in coveys of 6 to 20. When resting in daytime or roosting at night the birds form themselves into 'squares', squatting



x c. 1

bunched together under a bush all facing outward. The covey suddenly 'explodes', rising with a great whirr of wings when almost trodden upon and dispersing in all directions. These explosions are apt to prove disconcerting when one is tensely tracking dangerous game such as a wounded tiger in forest! The birds drop in the undergrowth after a short flight, and the covey soon re-unites with the aid of the soft whistling rally calls. The coveys troop down to drink in the mornings and evenings in more or less single file, and shift from one feeding ground to another in like manner, using the same little paths or tunnels formed in the matted and bent-over grass day after day. Cocks pugnacious in breeding season.

As a game bird it usually forms a minor but useful supplement to the small game shooter's mixed bag. Though not difficult to bring down with a shotgun they can account for an unwarranted number of misses by the fluster they cause by exploding when least expected, and the failure of the sportsman to fix his eye on one bird at a time when so many are simultaneously scurrying off in different directions. To those familiar with the American Bobwhite Quail this habit will be very reminiscent.

FOOD. Grass- and weed seeds, bajra and other millets, lentils (*moong*), and small insects especially termites. A quantity of grit usually found in stomachs. Sometimes springs up a couple of inches to pluck grass or millet seeds from a growing culm, a number of birds together thus engaged presenting a comical sight.

VOICE and CALLS. Rallying call when a covey has got scattered: a soft musical whistling *whi-whi-whi-whi-whi* etc. by members from different directions. In breeding season cocks constantly challenge with harsh grating notes as of drongos 'arguing' at the onset of their breeding season: *chee-chee-chuck, chee-chee-chuck*, etc.

BREEDING. Season, not well defined; ranges between August and April. Nest, a shallow scrape in the ground lined with grass, at the base of a grass tussock in scrub jungle. Eggs, 4-8 creamy white. Average size of 140 eggs (mixed races and possibly also including eggs of *P. argoondah*) 25.4 x 19.5 mm. (Baker). Cock believed to be monogynous. Hen only incubates; period 16-18 days.

MUSEUM DIAGNOSIS. This (nominate) race is a dark, blackish-looking bird quite clearly differentiated from the red birds (*vidali*) found below the Western Ghats in South Konkan, as well as from the grey or sandy coloured bird (*punjaubi*) found in other parts of the Indian range of the species.

Some adult females have a faint indication of black and white barring on lower throat and breast. This is not to be confused with the truly black-and-white feathers found irregularly on juvenile males which have moulted some of their juvenile feathers.

For description of chick in down and juvenile plumage see under *P. a. punjaubi*. Comparative stages of *P. a. asiatica* differ from it only in being a darker, blackish brown in tone, emphasizing the subspecific difference between it and *punjaubi*.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂ (ad.)	81-88	13-17	24-30	34-41 mm.
♀ ♀ (ad.)	80-88	13-16	23-31	32-41 mm. (SA, HW)

Weight 2-2·85 oz. (c. 57-82 gm.) — Hume.

COLOURS OF BARE PARTS. Iris light to orange-brown. Bill horny- or slaty black, greyer on lower mandible and base of commissure. Legs and feet dull yellowish or dusky orange; claws brownish flesh colour.

256. Punjab Jungle Bush Quail. *Perdicula asiatica punjaubi* Whistler
Perdicula asiatica punjaubi Whistler, 1939, Bull. Brit. Orn. Cl. 59: 76 (Ambala, Punjab)
 Baker, FBI No. 1953 (part), Vol. 5: 377

LOCAL NAME. *Lowwa* (Hindi).

SIZE AND FIELD CHARACTERS. As of 255, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION AND HABITAT. Resident. Kashmir, Punjab, Himachal Pradesh, Uttar Pradesh. Plains and up to c. 1200 metres elevation. Affects dry scrub-and-bush country.

GENERAL HABITS, FOOD, VOICE AND CALLS. As of 255.

BREEDING. Season, mainly August through October. Nest and eggs as in 255.

MUSEUM DIAGNOSIS. Differs from the nominate race (255) in its markedly paler coloration. Male (adult). *Above*, paler, more sandy brown with conspicuous pale barring on rump, upper tail-coverts, and tail. Dark blotching on scapulars and tertaries less extensive and conspicuous. *Below*, black bars, as a rule, narrower and so not appearing quite so black.

Female (adult). Upper plumage similarly paler; the dark blotching of the scapulars and tertaries less extensive.

First-winter birds and even the juveniles are similarly paler.

Chick (in down). 'From base of bill over crown, down centre of back to tail, a broad chestnut band edged on each side with dark brown; outside this from base of bill a broad ochraceous supra-orbital stripe reaching nape and surmounting a narrow dark brown superciliary stripe; ear-coverts and a short moustachial streak dark brown. Rest of upperparts dappled rusty brown and light brown; underparts ochraceous-grey' (Tiechurst).

Young (immature). 'Sexes alike. A broad band down the centre of the crown brown, edged with blackish brown; a broad fulvous-white supercilium from the lores to the posterior edge of the ear-coverts; cheeks and ear-coverts dark brown with whitish shaft-streaks. Upper plumage warm sandy brown, the feathers of the hind-neck, upper back and wing-coverts with conspicuous fulvous shaft-streaks and broken blackish bars, the shaft-streaks becoming broader on the scapulars and the bars becoming black patches on their inner webs. Primaries dark brown mottled and streaked with sandy fulvous; secondaries, tertaries, and tail warm sandy brown with fulvous shafts and mottled, speckled and barred with fulvous and blackish brown. Lower plumage vinous buff, the chin, throat and breast with shining white shaft-streaks.'

'This juvenile plumage seems to be moulted rather gradually during the first winter, giving place to the respective adult male and female plumages. As in other game birds the outer two or three juvenile primaries, more pointed in character than those that will succeed them, are apparently retained to the first post-nuptial moult, but they are not always easy to recognize' (Whistler).

MEASUREMENTS AND COLOURS OF BARE PARTS. As in 255.

257. Konkan Jungle Bush Quail. *Perdicula asiatica vidali*
Whistler & Kinnear

Perdicula asiatica vidali Whistler & Kinnear, 1936, Jour. Bom. nat. Hist. Soc. 38: 686
(Kelsi, South Konkan)

Baker, FBI No. 1953 (part), Vol. 5: 377

LOCAL NAME. *Lowwa* (Marathi).

SIZE and FIELD CHARACTERS. As of 255, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Resident. Malabar coast from about Bombay south to Mallapuram (Malabar dist., Kerala) and Kodaikanal, Palni Hills. Plains and up to c. 1500 m. elevation. Affects dry scrub-and-bush country.

Race in S. Kerala needs confirming. Exact boundaries between the races not properly worked out.

GENERAL HABITS, FOOD, VOICE and CALLS. As of 255.

BREEDING. Season not well defined. Practically all months; perhaps more concentrated between July and February. Nest and eggs as in 255.

MUSEUM DIAGNOSIS. Both adult and immature birds differ from the nominate race (255) in the deep reddish tinge of the whole upper plumage, which is even more particularly marked on the crown. In adult males, moreover, the black barring of the lower plumage is broader than in nominate *asiatica*.

MEASUREMENTS and COLOURS OF BARE PARTS. As in 255.

257a. Tamil Nadu Jungle Bush Quail. *P. a. vellorei**

258. Ceylon Jungle Bush Quail. *Perdicula asiatica ceylonensis*
Whistler & Kinnear

Perdicula asiatica ceylonensis Whistler & Kinnear, 1936, Jour. Bom. nat. Hist. Soc. 38: 686 (Cocoawatte, Ceylon)

Baker, FBI No. 1953 (part), Vol. 5: 377

LOCAL NAMES. *Pandara watuwā*, *Wil watuwā* (Sinhala); *Kādai* (Tamil).

SIZE and FIELD CHARACTERS. As of 255, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Endemic. Resident in the low-country Dry zone. Fairly plentiful in a small area of grassy jungle country to SE. of the Uva hills, bounded roughly by the Mahaweli-ganga to the NE., the foothills of the Uva ranges and the Kumbukkan river in the SW. Occasional in the low hills round Passara' (Phillips).

GENERAL HABITS, FOOD, VOICE and CALLS. As of 255.

BREEDING. Season, 'about March and April' (Phillips). Nest and eggs as in 255.

MUSEUM DIAGNOSIS. Upper plumage of both sexes much darker throughout than in the nominate race (255); the black blotching and pale shaft-streaks of the scapulars reduced in extent so that these parts do not contrast so strongly with the rest of the plumage. The chestnut throat-patch is also far darker than in *P. a. asiatica*.

MEASUREMENTS and COLOURS OF BARE PARTS. As in 255.

PERDICULA ARGOONDAH (Sykes)

Key to the Subspecies

		Page
A	Upperparts brown.....	<i>P. a. argoondah</i> 49
B	Upperparts much paler than those of the nominate form.....	<i>P. a. meinertzhageni</i> 49
C	Upperparts bright brick red.....	<i>P. a. salimalii</i> 50

259. Rajasthan Rock Bush Quail. *Perdicula argoondah meinertzhageni*
Whistler

Perdicula argoondah meinertzhageni Whistler, 1937, Bull. Brit. Orn. Cl. 58: 19
(Nasirabad, Rajputana)

Baker, FBI No. 1954 (part), Vol. 5: 379

LOCAL NAME. *Lowwa* (Hindi).

SIZE AND FIELD CHARACTERS. As of 260, q.v. See Key to the Subspecies, and Museum Diagnosis.

STATUS, DISTRIBUTION AND HABITAT. Resident. From Hariana (SE. Punjab) and Uttar Pradesh across Rajasthan and N. Gujarat to Kutch and Saurashtra, and east to western and northern Madhya Pradesh. Affects stony, sparsely thorn-scrubbed country in semi-desert facies.

GENERAL HABITS, FOOD, VOICE AND CALLS. As of 260.

BREEDING. Season extends practically throughout the year but more general between September/October and January/February. Nest and eggs as in 260.

MUSEUM DIAGNOSIS. Differs from the nominate race (260) in being much paler in coloration. The barring on the lower plumage of the male is less heavy in appearance, as the black bars are individually narrower.

Chick (in down): 'Crown and nape brown, barred with black, the feathers of the forecrown with pale shafts; supercilium extending beyond ear-coverts pale creamy fulvous; ear-coverts and cheeks mixed buffy brown and dark brown. Remainder of upper plumage earthy brown the feathers speckled and broadly barred with black, and with fulvous shaft-streaks, these markings becoming obsolescent on the rump and upper tail-coverts. Primaries, secondaries, tertaries and tail warm sandy brown, barred and freckled on both webs with brownish black, the tertaries with broad fulvous shaft-stripes and black blotches on the inner webs. Chin vinous-buff; remainder of lower plumage fulvous-buff, the throat, breast, and to a less extent the flanks, barred with blackish brown, the feathers with white shafts.'

'Young (immature). The juvenile plumage of *P. argoondah* differs from that of *P. asiatica* in one most marked detail. Instead of being roughly unicolorous below with shining white streaks, the throat and breast are barred with blackish, thereby superficially resembling the adult male. This explains why in this species one meets numbers of immature females which seem to have a mixture of male and female feathers below. The warm vinous-buff of the female underparts is, in these birds, mixed with barred black-and-white feathers which are remnants of the juvenile plumage. On the other hand in *asiatica* the birds with mixed vinous-buff and black and white barred underparts are young males exchanging the vinous-buff juvenile plumage for the adult black and white bars. Thus, in the case of *argoondah* the black and white bars are juvenile feathers; in the case of *asiatica* they are adult feathers.'

'The distinction is interesting and important, and essential to an understanding of the two species' (Whistler).

MEASUREMENTS AND COLOURS OF BARE PARTS. As in 260.

260. Deccan Rock Bush Quail. *Perdicula argoondah argoondah* (Sykes)

Coturnix Argoondah Sykes, 1832, Proc. Zool. Soc. London: 153 (Dukhun)

Baker, FBI No. 1954 (part), Vol. 5: 379

Plate 21, fig. 2, facing p. 64

LOCAL NAMES. *Lowwa* (Hindi and Marathi); *Lawunka* (Telugu); *Sinna kāda* (Famil). Commonly not differentiated from Jungle Bush Quail, and names indiscriminately used for both.

SIZE. Grey Quail — ; c. 17 cm. (6½ in.).

FIELD CHARACTERS. A squat and plump quail.

Male easily confusable with Jungle Bush Quail (255) except for absence of buff superciliary stripe, and dull brick-red instead of bright chestnut throat-patch.

Female distinguished from 255 chiefly by absence of red throat-patch. Chin whitish. Throat and underparts warm vinaceous- or pinkish buff.

STATUS, DISTRIBUTION and HABITAT. Resident. Peninsular India from about Berar south through the Deccan to Madras. How much further south not known. Affects dry stony scrub-and-bush country.

Exact boundaries between the races not properly worked out, nor the exact status of the species *P. asiatica* and *P. argoondah inter se*. In many areas their distributions overlap, but on the whole this species will be found in drier and stonier facies than *P. asiatica* which prefers thicker-scrubbed country and open deciduous forest.

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing specifically recorded as different from *P. asiatica* except habitat preference.

BREEDING. Season, undefined, practically throughout the year, varying with locality. Principal months March-April and August to November. Nest, as of Jungle Bush Quail, a scrape in the ground lined with grass, at the base of a thorn bush or grass tussock, or under protection of a rock. Eggs, 4 to 8, generally 5 or 6, creamy white, indistinguishable from those of 255. Average size of 100 eggs (mixed races and possibly also including eggs of *P. asiatica*) 25·6 × 20·1 mm. (Baker). Cock believed to be monogynous. Hen alone incubates; period 16-18 days.

MUSEUM DIAGNOSIS. In the species *asiatica* inner webs of the primaries in adults unmarked; in *argoondah* barred or mottled with fulvous in most (but not all) specimens. This character must therefore be used with great caution, particularly since the juvenile primaries in both species are normally marked on the inner web.

Young (immature). For description see under race *meinertzhageni* (259).

Chick (in down). Undescribed. Presumably as of *meinertzhageni*, q.v.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	82-89	13-16	25-27	44-47 mm.
♀ ♀	82-86	14-16 (from skull)	24-25	40-47 mm. (SA)

Weight 6·3 ♂ 60-74 (av. 66); 4 ♀ ♀ (av. 60·25) gm. — BNHS.

COLOURS OF BARE PARTS. Iris light to orange-brown. Bill horny or slaty black, greyer on lower mandible and at base of commissure. Legs and feet dull yellowish or dusky orange; claws brownish flesh colour.

261. Mysore or Laterite Rock Bush Quail. *Perdicula argoondah salimalii* Whistler

Perdicula argoondah salimalii Whistler, 1943, Jour. Bom. nat. Hist. Soc. 44: 208

(Marikanive, Mysore)

Baker, FBI No. 1954 (part), Vol. 5: 379

LOCAL NAME. *Kempa lowya* (Kannada).

SIZE and FIELD CHARACTERS. As of 260, q.v. See Key to the Subspecies. **STATUS, DISTRIBUTION and HABITAT.** Resident. East-central Mysore, lat. c. 14°N. (Chitaldrug district). Extent of range not known. Affects stony laterite and *moorum*, scraggy grass-covered country, where its coloration matches the soil remarkably.

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing specifically recorded as different from 260.

BREEDING. *Season, Nest, and Eggs.* Not recorded; presumably as in 260. Specimens in breeding condition taken in January.

MUSEUM DIAGNOSIS. **Male (adult).** Whole upper plumage, wings, and tail bright brick-red, agreeing with the colour of the forehead in the nominate race (260). Forehead and a line above the buff superciliary streak unmarked; rest of upper plumage irregularly barred with black and dark brown, and streaked and mottled with buff as typical of this species. Lower plumage similar to that of *P. a. argoondah* (260), but slightly warmer in tint; washed with brick-red on flanks, lower abdomen and under tail-coverts.

Female (immature). Upperparts as in ad. ♂ (above), but dark barring largely absent; the buff shaft-streaks terminate in triangular buff spots, more conspicuous on mantle, scapulars, and tertaries. Lower plumage warm buff tinged with brick-red, the throat and breast irregularly barred with dark brown.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
2 ♂♂ ad.	80-85	13-14	23-27	38-41 mm. (HW, SA)

COLOURS OF BARE PARTS.

As in 260.

PERDICULA ERYTHRORHYNCHA (Sykes)

Key to the Subspecies

- | | |
|------------------------|-----------------------------|
| Darker and larger..... | <i>P. e. erythrorhyncha</i> |
| Paler and smaller..... | <i>P. e. blewitti</i> |

262. Painted Bush Quail. *Perdicula erythrorhyncha erythrorhyncha* (Sykes)

Coturnix erythrorhyncha Sykes, 1832, Proc. Zool. Soc. London: 153
(Karli Valley, North Konkan)
Baker, FBI No. 1955, Vol. 5: 381

Plate 21, fig. 5, facing p. 64 and Vol. 3, plate 37

LOCAL NAMES. *Kokni lowwa* (Hindi); *Kädai* (Tamil); *Meni käda* (Malayalam).

SIZE. Grey Quail — ; length c. 18 cm. (7 in.).

FIELD CHARACTERS. A dark but brightly coloured quail with conspicuous deep red bill and legs diagnostic even in flight.



♂, x c. 1

Male. *Above*, olive-brown finely streaked with white and boldly spotted or blotched with black. A narrow white band running backward from forecrown down sides of blackish head and nape. *Below*, a conspicuous white throat-patch bordered by a narrow black loop. Rest of underparts chestnut, mottled boldly with black and white on flanks.

Female. Upperparts more or less as in male. Head and throat dull rufous lacking the white throat-patch and head stripe. Underparts rufous, lightly blotched with black on flanks.

STATUS, DISTRIBUTION and HABITAT. Resident. The Western Ghats strip of country from about Khandala south through Kerala, including the associated hill ranges in Coorg, Mysore, and adjoining Salem district of Madras (Shevaroy Hills), between c. 600 and 2000 metres elevation. Affects tall grass and broken foothills country interspersed with cultivation; also thin scrub on open hillsides along the edge of forest in moist-deciduous biotope.

GENERAL HABITS. Similar to the other Bush Quails (255, 260). Keeps in coveys of 6 to 15 birds which troop out to feed in the opener patches in the mornings and evenings, then also commonly seen dusting themselves on the sides of jungle paths and cart tracks. When flushed, the covey scatters in all directions, the birds tumbling into the undergrowth after a short flight. They begin their rally calls to each other almost at once, and soon work their way back through the bushes to re-unite.

FOOD. Grass- and weed seeds, grain, shoots, and small insects, especially termites. A quantity of grit is swallowed with the food.

VOICE and CALLS. A short whistle like that of Grey Quail when flushed. Rally calls: very soft whistles, something like those of *Perdicula asiatica* in runs of about two seconds' duration, repeated every couple of seconds or so, 'rising gradually till it reaches a certain pitch which note is repeated a few times and then dies down more rapidly. This is also the female's usual call' (A. M. Primrose). It is syllabified as *tu-tu-tu-tu-tutu-tutu-tutu* (Davison), and has a curious ventriloquistic quality. Breeding call of cock a pleasant triple note *kirikee*, *kirikee*, etc. The birds can be readily decoyed by means of caged call birds or an imitation of their calls, the approaching bird answering the challenge every few yards as he advances.

BREEDING. Season not well defined, variable locally, and covering most months of the year. Nest, a scrape in the ground, sometimes lined with a little grass; placed at the root of a bush or grass clump. Eggs, 4 to 7 and up to 10; creamy buff to *café-au-lait* with a fair gloss, indistinguishable from those of the Jungle Bush Quail. Average size of 140 eggs 25.4 × 19.5 mm. (Baker). Male evidently monogynous. Incubation by female alone; period 16–18 days. Both parents tend the young. The chicks fly at a very early age, even when still down-clad mites scarcely bigger than bumble-bees.

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

Chick (in down) inadequately described. 'With three stripes of a light cream colour extending down their backs' (Miss Cockburn, Nilgiris).

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	81-87	14-16	23-25	40-44 mm.
♀ ♀	81-86	14-16	c. 24	33-45 mm. (SA, HW)
	(once 92)			

Weight ♂ ♀ 2.4 to 3.1 oz. (c. 70-85 gm.) — Hume.

COLOURS OF BARE PARTS. Iris light yellow-brown or hazel-brown. Bill, legs and feet deep red; in young birds duller red or brownish red.

263. Northern Painted Bush Quail. *Perdicula erythrorhyncha blewitti*
(Hume)

Microperdix Blewitti Anonymous = Hume, 1874, Stray Feathers 2: 512 (Raipur)
Baker, FBI No. 1956, Vol. 5: 382

LOCAL NAMES. *Sirsee lownwa* (Mandla, Balaghat, Chanda—Madhya Pradesh);
Huker (Bengal); *Huker gundri* (Santhali).

SIZE. Grey Quail — ; length c. 16 cm. (6½ in.).

FIELD CHARACTERS. As for 262, q.v. See Key to the Subspecies, and
Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident in an area north and east
of the range of the nominate race (262), viz. eastern Maharashtra (Bhandara,
Chanda dists.), eastern Madhya Pradesh (Mandla, Balaghat, Bastar dists.,
etc.), Bihar, Orissa, and W. Bengal. Affects forest tracts and scrub jungle in
low hilly deciduous biotope, up to c. 1000 metres elevation.

GENERAL HABITS, FOOD, VOICE and CALLS. As of 262. ‘During the season
of courtship the male utters a single loud note often repeated’ (R. Thompson).

BREEDING. Season, extended and ill defined as in 262, Nest and eggs
similar to those of *P. e. erythrorhyncha*.

MUSEUM DIAGNOSIS. Male distinguished from 262 by much broader white
sincipital band (i.e. on front part of head, between forehead and crown), narrower
black forehead, and black on chin being absent or obsolete. Brown greyish wash
on breast stronger and coming lower down. More white on feathers of flanks.

Female paler and duller than ♀ 262.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	76-84	13-14	c. 26	39-44 mm. (Baker)

Weight ♂ ♀ 1.85 to 2.3 oz. (c. 50-70 gm.) — Hume.

COLOURS OF BARE PARTS. Iris brown. Bill, legs and feet coral red.

PERDICULA MANIPURENSIS Hume

Key to the Subspecies

Upper surface boldly marked with black.....*P. m. manipurensis*

Upper surface faintly marked with black.....*P. m. inglisi*

264. Assam Painted Bush Quail. *Perdicula manipurensis inglisi*
(Ogilvie-Grant)

Microperdix inglisi Ogilvie-Grant, 1909, Jour. Bom. nat. Hist. Soc. 19: 1 and pl.
(Goalpara, Assam)

Baker, FBI No. 1958, Vol. 5: 384

LOCAL NAME. *Kāla goondri* (Goalpara, Assam).

SIZE. Grey Quail ± ; length c. 20 cm. (7½ in.).

FIELD CHARACTERS. As for 265, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Resident; local and parochial. Northern W. Bengal (duars) and Assam north of Brahmaputra river, from about Jalpaiguri to Sadiya. Affects damp grassland and scrub jungle especially in nullahs, in moist-deciduous foothills country.

GENERAL HABITS, FOOD, VOICE and CALLS. As of 265.

BREEDING. Nothing recorded except that adults showed signs of breeding (Goalpara, Assam) in the beginning of March, and a fully fledged young one was obtained on 11 January (C. M. Inglis).

MUSEUM DIAGNOSIS. Male differs from the nominate race (265) in being rather paler and less boldly marked with black above and below.

Female. Paler and more grey than ♀ *P. m. manipurensis*, with the black markings on lower plumage less conspicuous.

Young (immature). Browner than adult but more heavily marked with black. Bill dark grey, pale at tip and base of lower mandible. Legs and feet flesh colour.

MEASUREMENTS as in 265.

COLOURS OF BARE PARTS. Iris brown. Bill dark grey, lighter and sometimes tinged with yellow at base. Legs and feet orange-red, somewhat paler on hind tarsus; claws light brown.

265. Manipur Painted Bush Quail. *Perdicula manipurensis manipurensis* Hume

Perdicula manipurensis Hume, 1881, Stray Feathers 9: 467 (Bases of the hills in the southeastern portion of the Manipur plain)

Baker, FBI No. 1957, Vol. 5: 383

Plate 21, fig. 4, facing p. 64

LOCAL NAMES. *Lanz sorbol* (= 'trap quail'), *Sorbol amubā* (= 'black quail') — Manipur.

SIZE. Grey Quail ±; length c. 20 cm. ($7\frac{1}{2}$ in.).

FIELD CHARACTERS. Overall effect, especially underparts, reminiscent of a miniature Black Partridge.

Male. *Above.* Forehead and sides of face rufous-chestnut, with a fine white line through eye. Upperparts dark slaty grey barred throughout and boldly blotched in the scapular region with velvety black. *Below,* chin and throat rufous-chestnut. Neck and upper breast ashy grey spotted with black. Rest of underparts rufous-buff, greyer on flanks, each feather with a bold black cross formed by a shaft-streak and a broader transverse band. Under tail-coverts black spotted with white.

Female duller and paler with no rufous on head. Rufous of underparts replaced by pale greyish buff, particularly pale on centre of chin and throat.

STATUS, DISTRIBUTION and HABITAT. Resident. Manipur and the Assam hill ranges south of Brahmaputra river: Cachar, Khasi, Naga, etc., hills up to c. 1000 m. elevation. Chittagong Hill Tracts, Bangladesh. Affects moist tall elephant-grass covered areas; in the Manipur Valley sometimes bogs and swamps. Not very rare but easily passed over till its characteristic call learnt and recognized. Believed to be getting scarcer in Manipur since c. 1930 (J. C. Higgins).

GENERAL HABITS. Keeps in coveys of 5 or 6. Lives in tall grass, is shy, and therefore seldom seen. Comes out into burnt grass patches with new

shoots sprouting, in the early morning and late afternoon. In flight and behaviour a typical bush quail.

FOOD. Grass seeds, wild lentils, ants and other insects.

VOICE and CALLS. Described from a captive female as 'a clear, softly whistled *whit-it-it-it-t-t*, each *it* slightly higher in tone till they tend to run into one another at the end. Repeated 3 or 4 times, becoming louder and higher each time' (Powell Connor).

BREEDING. Little known. Apparently only a single nest so far taken (13 May) on a grassy plateau surrounded by evergreen forest on the Manipur-Cachar border — a hollow scraped in the ground among grass roots. It contained 4 eggs exactly like those of *Perdicula erythrorhyncha* (262) but whiter. They measured c. 30 × 24 mm.

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	80-86	14-15	c. 25-26	45-52 mm.

Weight ♂ ♀ 2½ to 2¾ oz. (c. 64-78 gm.) — Baker.

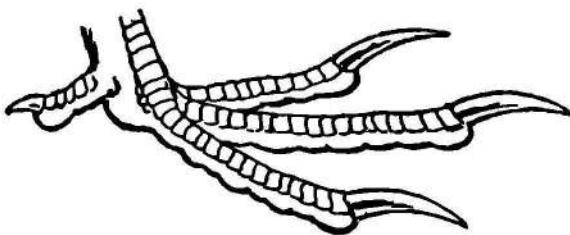
COLOURS OF BARE PARTS. Iris dark brown or hazel. Bill dark grey, yellowish at base. Legs and feet orange-red to deep vermillion; claws light brown.

MISCELLANEOUS. Claimed by one experienced sportsman (J. C. Higgins, Manipur) to be better for the table than any other game bird, surpassing florican, garganey teal or junglefowl in the delicacy of its all-white flesh.

Genus ARBOROPHILA Hodgson

Arborophila Hodgson, 1837, Madras Jour. Lit. Sci. 5: 303. Type, by monotypy
'*Perdix olivacea* Latham' = *Perdix torqueola* Valenciennes

Superficially typical partridges but differing from both *Francolinus* and *Perdix* in habits and important structural details. There is a supra-orbital row of bones in the skull extending from the lachrymal to the post-orbital process such as is found in the Tinamous of the Neotropical Region. Tarsus comparatively longer than in francolins, without spurs, about equal in length to middle toe with claw. Claws on anterior toes long and straight. Wing short and rounded: first primary (as.) between 8th and 10th in length; 4th and 5th primaries subequal and longest. Tail of 14 soft feathers equal to about half length of wing.



Foot, × c. 1

The genus, containing the Hill Partridges, ranges from the western Himalayas right across to eastern Assam and through the Indochinese and Indomalayan regions.

Key to the Species

		Page
A	No chestnut on flanks.....	<i>A. atrogularis</i> 62
B	Feathers of flanks more or less chestnut.....	1
1	Breast chestnut.....	<i>A. mandellii</i> 63
	Breast brownish or grey.....	a
a	Crown olive-brown.....	<i>A. rufogularis</i> 59
	Crown chestnut or olive-brown with black spots.....	<i>A. torqueola</i> 56

ARBOROPHILA TORQUEOLA (Valenciennes)

Key to the Subspecies

A	Breast brownish; crown olive-brown with black spots	<i>A. t. torqueola</i> (♀) 57
B	Breast grey, crown chestnut.....	1
1	Sides of neck more or less chestnut.....	<i>A. t. batemani</i> 59
	No chestnut on sides of neck.....	a
a	Abdomen pure white.....	<i>A. t. torqueola</i> (♂) 57
	Abdomen rufescent.....	<i>A. t. millardi</i> 56
	Rufous of abdomen richer and darker.....	<i>A. t. interstincta</i> 58

266. Simla Hill Partridge. *Arborophila torqueola millardi* (Baker)

Arboricola torqueola millardi Baker, 1921, Bull. Brit. Orn. Cl. 41: 101 (Koteghur)
Baker, FBI No. 1960, Vol. 5: 388

LOCAL NAMES. *Roli, Rám chukra* (Himachal Pradesh); *Peura, Bán teetár* (Hindi).

SIZE. Grey Partridge —; length c. 28 cm. (11 in.).

FIELD CHARACTERS. As for 267, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, Himachal Pradesh and Punjab Himalayas, in Chamba, Kangra, Simla, etc. between c. 1550 and 3000 metres elevation, occasionally to c. 4000 m. Affects forest broken up by ravines and *khuds* with heavy evergreen undergrowth.

GENERAL HABITS, FOOD, VOICE and CALLS. As of the nominate race (267).

Putative call described by Whistler (in the Simla hills c. 1800–2300 m. alt.) as 'a very gentle, melancholy, poor or *pheaw* — at closer quarters sounding more like *quaaw*'. Heard throughout May, June and early part of July.

BREEDING. Season evidently, as in 267, April to June, the only nest recorded of this subspecies having the full clutch of 9 eggs completed on 2 May. Nest (in this case) a scraped-out hole in a bank, domed over with grass. Eggs. Average size of above clutch 44·0 × 32·2 mm. (Whistler).

MUSEUM DIAGNOSIS. Male (adult) differs from *A. t. torqueola* (267) in having the chestnut of the crown less bright and darker. Breast paler, less pure grey, and tinged with ashy. Abdomen nearly always strongly suffused with rufous.

Female (adult) differs from ♀ 267 in having the chestnut of the throat much paler, and the breast paler and much more rufous-grey.

Chick (in down), c. 1 day old. 'A broad band of chestnut from base of bill (where it is pinched in) to near the nape where it is 12·5 mm.; a broad buff supercilium extending down the side of the neck. A blackish brown streak from posterior corner of the eye broadening out over the ear-coverts. Back, to extremity of body, dark brown mottled lightly with red-brown. Side of body, including wing, mottled dark and lighter red-brown. Chin and throat pale buff. A band across breast dark brown mottled with buff and grey which also spreads along the flanks. Abdomen pale buff.

'Bill: upper and lower mandibles yellow except across the nostrils where it is horn. Legs and feet dusky yellow. Iris deep reddish brown' (A. E. Jones).

MEASUREMENTS. Wing ♂♂ 150-161; ♀♀ 144-155 mm. (Baker).

COLOURS OF BARE PARTS. As in 267.

267. Common Hill Partridge. *Arborophila torqueola torqueola*
(Valenciennes)

Perdix torqueola Valenciennes, 1826 (1825), Dict. Sci. Nat., éd. Levrault, 38: 435
(Bengal)

Baker, FBI No. 1959 (part), Vol. 5: 386

Plate 20, fig. 2, facing p. 32

LOCAL NAMES. *Peura, Bān teetār* (Hindi. Kumaon, Garhwal, Nepal, etc.); *Kohumbut* (Lepcha); *Pao-er* (Mishmi); *Daobui* (Cachar); *Duboi* (Nowgong, Assam).

SIZE. Grey Partridge —; length c. 28 cm. (11 in.).

FIELD CHARACTERS. A dumpy, short-tailed olive-brown partridge.

Male. *Above.* Crown and nape bright chestnut, the latter spotted with black. Narrow forehead and broad supercilium black. A black-spotted chestnut line under supercilium. Cheeks black. Ear-coverts bright chestnut. A ring of bare crimson skin round eye. Upperparts golden olive-brown finely barred or scalloped with black and broadly mottled with chestnut and black. *Below,* chin, throat and neck black, the last with white streaks. Breast grey, separated from foreneck by a white band. Rest of underparts grey and white, with broad chestnut streaks and white drops on flanks. Vent rufous-white with black bars. Under tail-coverts black and white.

Female. *Above*, similar but with the crown brown, streaked with black. *Below*, chin and throat rufous, spotted with black. Breast brownish, separated from throat by a chestnut instead of white band.

Young (immature) male like adult ♂ but with the supercilia absent or obsolete. No chestnut on flanks; only a little on wing-coverts. Underparts spotted with white from breast to vent.

STATUS, DISTRIBUTION and HABITAT. Resident. The Himalayas from Garhwal through Nepal, Sikkim, and Bhutan to extreme eastern Assam north of Brahmaputra river (NE. Frontier Agency Tract) from c. 1500 to 4000 metres elevation. Affects ravines, khuds, and hillsides where not too steep and clad in dense forest of *banj* oak (*Quercus incana*), laurel, and other evergreen trees and shrubs.

Extralimital. SE. Tibet.

GENERAL HABITS. Gregarious. Keeps in coveys of 5 to 10 birds in dense undergrowth, scratching for food amongst the rich mulch and humus on the forest floor. Trusts to its legs for escape, but when suddenly come upon

or flushed by a dog, will fly strongly, manoeuvring dexterously through the maze of tree-trunks and other obstacles, and often take refuge up in a leafy branch. Roosts at night in trees, the covey sitting huddled together along a branch. Once flushed, and especially after being fired at, the bird difficult to flush a second time, either scuttling away through the undergrowth or lying low under leaves and bushes till danger has passed.

FOOD. Seeds, shoots, berries, insects, grubs, and tiny molluscs.

VOICE and CALLS. A single low mournful whistle, c. 1½ seconds long, repeated every two or three seconds, reminiscent of the awkward intake effort of a schoolboy learning to whistle. This repeated slowly two or three times and followed by a series of three to six mellow double whistles in ascending scale, vaguely reminiscent of the hawk-cuckoo. They have been rendered (SA) as *bobwhite*, *bobwhite*, *bobwhite*, or *do-eat*, *do-eat*, *do-eat* (first syllable short, second prolonged). Frequently one bird (♀?) leads off with a shrill continuous *kwikwikwikwik* etc. by way of invitation and accompaniment; a second (♂?) promptly joins in with the crescendo *bobwhite* calls, the duet ending rather abruptly when the climax is reached. The birds answer one another from different directions and are particularly vocal in the mornings and evenings.

BREEDING. Season, April to June/July, earlier at lower elevations, later at higher. Nest, from a rough scrape in the ground sparsely lined with grass, to a deeper cup well padded with same. Placed in dense ringal or scrub undergrowth in forest. Eggs, normally 3 to 5 but a clutch of 9 has been taken; pure china-white, glossy and with a fine texture. Average size of 60 eggs 40·6 × 31·9 mm. (Baker).¹ No other data on breeding biology recorded.

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

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	144–160	c. 19–21 (from feathers)	c. 41–45	c. 60–80 mm.
♀ ♀	c. 140–150	c. 21–23 (from skull)		

(SA)

Weight ♂ ♀ 8–13·6 oz. (c. 227–383 gm.)—Hume. 1 ♂ 400 gm.—SA.

COLOURS OF BARE PARTS. Iris brown to crimson-brown; orbital skin dusky pink to crimson-red. Bill dark brown to black. Legs and feet olive-brown to livid grey.

268. Assam Hill Partridge. *Arborophila torqueola interstincta* Ripley

Arborophila torqueola interstincta Ripley, 1951, Postilla, Yale Peabody Museum, No. 6: 1
(Mt Zephu, 93 miles E. of Kohima, eastern Naga Hills, Assam)

Baker, FBI No. 1959 (part), Vol. 5: 386

LOCAL NAME. *Inrui whip* (Naga).

SIZE and FIELD CHARACTERS. As for 267, q.v. See Key to the Subspecies.

¹ Average size of 13 eggs in Brit. Mus. collection 43·6 × 33·3 mm. (Harrison & Parker, 1966, JBNHS 63 : 749).

STATUS, DISTRIBUTION and HABITAT. Resident. Assam south of Brahmaputra river, in the Upper Chindwin drainage area of the Naga Hills. Presumably also the Barail and higher hill ranges of north Cachar and north Manipur. Affects wet temperate forest between c. 2200 and 2600 metres alt.

Extralimital. Upper Burma (Chindwin river drainage area).

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing specifically recorded as different from 267. 'The birds were silent during our stay on the mountain [Mt Zephu at c. 2400 m.] in late November and early December, only occasional low calls being heard' (Ripley).

BREEDING. Unknown.

MUSEUM DIAGNOSIS. Differs from the nominate race, *A. t. torqueola*, in being more richly and darkly coloured, and more heavily barred.

MEASUREMENTS and COLOURS OF BARE PARTS. As in 267.

269. **Kachin Hill Partridge.** *Arborophila torqueola batemani* (Ogilvie-Grant)

Arboricola batemani Ogilvie-Grant, 1906, Bull. Brit. Orn. Cl. 16: 68

(Tiddim, near Fort White, Chin Hills)

Baker, FBI No. 1961, Vol. 5: 389

LOCAL NAMES. *Wogam, Gam toung* (Kachin).

SIZE and FIELD CHARACTERS. As for 267, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Presumably this is the race that occurs in the hills of south Manipur. Needs verification.

Extralimital. Burma (Chin and Kachin Hills).

BREEDING. Not recorded in Indian limits.

MUSEUM DIAGNOSIS. Male (adult). Differs from the nominate race (267) in having the sides of the neck largely or entirely chestnut. Chin, throat, and neck more frequently marked with white. Chestnut on scapulars and inner secondaries darker, duller, and greater in extent.

Female similar to ♀ *A. t. torqueola* but generally more rufous on upperparts.

MEASUREMENTS and COLOURS OF BARE PARTS. As in 267.

ARBOROPHILA RUFOGULARIS (Blyth)

Key to the Subspecies

Rufous throat with a band of black below.....*A. r. rufoangularis*

No black band below rufous throat*A. r. intermedia*

270. **Rufousthroated Hill Partridge.** *Arborophila rufoangularis rufoangularis* (Blyth)

Arboricola rufoangularis Blyth, 1850, Jour. Asiatic. Soc. Bengal 18: 819 (Darjeeling)

Baker, FBI No. 1962, Vol. 5: 390

Plate 19, fig. 8, facing p. 16

LOCAL NAMES. *Puro* (Kumaon); *Kohumbut* (Lepcha); *Pokhu* (Dafla).

SIZE. Grey Partridge —; length c. 27 cm. (10½ in.).

FIELD CHARACTERS. A dumpy short-tailed olive-brown partridge like 267.

Male. *Above*, forehead grey; crown olive-brown stippled with black. Long supercilia greyish white. Sides of face white, speckled with black except on white moustachial stripe running from lower mandible to below dark brown ear-coverts. Small naked red patch round eye. Upperparts golden olive-brown, spotted with black on rump and upper tail-coverts. Scapulars and wing-coverts chestnut with large grey and black drops. *Below*, chin, throat, and sides of neck (almost meeting in a collar behind) rufous, spotted with black. A broad band of ferruginous-red with a narrow black line below it separating foreneck from slaty grey breast. Anterior flanks slaty grey broadly streaked with deep orange-chestnut and with white drops; posterior flanks brown with black crescentic spots.

Female has fewer black spots on chin and throat, and more white drops on breast and abdomen.

Young (immature) male. Throat unspotted, much paler than in adult. Underparts smoky slate colour with numerous white spots scattered all over.

STATUS, DISTRIBUTION and HABITAT. Resident. Kumaon (U.P.) and through Garhwal, Nepal, Sikkim, and Bhutan east to the Mishmi Hills (Assam) between c. 1000 and 2400 m. elevation, optimally c. 1500–1800 m., sometimes descending to c. 700 m. in winter. Occupies a lower altitudinal zone than the species *torquata*, but occasionally their ranges overlap at the seam. Affects dense secondary scrub on abandoned cultivation, and heavy undergrowth in evergreen hill forest.

GENERAL HABITS. Similar to those of 267. Keeps in coveys of 6 to 12 in non-breeding season. Usually not shy, but an inveterate runner and difficult to flush without a dog. Looks deceptively large, almost the size of hen kaleej when it flies in the open, but as small as quail when creeping through thickets.

FOOD. Weed-seeds, fallen berries, shoots, insects and grubs, and small molluscs.

VOICE AND CALLS. ‘A beautiful clear loud double whistle, a sound like *Wheea-whu*, repeated constantly and slightly ascending in scale with each repetition. It is a very loud ringing cry and can be heard at a long distance even in heavy jungle where sound carries so short a way. It is uttered principally in the breeding season in the early mornings and evenings, and once heard can never be forgotten’ (Baker). This call, however, is putatively attributed by J. C. Higgins (Manipur) to *A. atrogularis* (272). He adds that its repetition 2 or 3 times is followed by a series of 3 short sharp whistles *whu-whu-whu* in an ascending scale. A mournful descending whistle, commonly uttered in late afternoon. Occasionally given at close intervals, gradually increasing in frequency and working up in scale until a sort of climax is reached. This is apparently a threatening or territorial call indulged in by two birds approaching each other through forest, and climaxing when the rivals close together (Ripley).

BREEDING. *Season*, from c. April in the lower hills to end July in the higher ranges. *Nest*, a hollow scraped in the ground in undergrowth more or less well lined with grass and leaves, sometimes domed over with growing grass. *Eggs*, normally 4 or 5 (up to 8 recorded by Baker), china-white as in 267. Average size of 91 eggs in the Brit. Mus. collection 39.9 × 30.3 mm. (Harrison & Parker, 1966, JBNHS 63: 749). No other data available.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for subspecies Key. Chick (in down). *Above*, a broad reddish brown stripe on each side from the forecrown passing above the eye, including the sides of the crown, to nape, the stripes of the two sides meeting anteriorly on the forecrown. Ear-coverts and a distinct collar black; remainder of upper plumage chocolate-brown. *Below*, chin, throat and upper breast brownish cream; breast and flanks chocolate-brown, paler than in upper plumage; abdomen brownish cream (Biswas, 1960, JBNHS 57: 305).

Young (first plumage). *Above* as in adult but duller, with crown vermiculated instead of spotted with black. *Below*, flanks vermiculated brown and black. Centre of breast and abdomen paler and whitish (Baker).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	138-149	18-19	40-44	50-56 mm.
♀ ♀	(126) 131-142			(Baker, SDR, H. Stevens)

Weight ♂ ♀ 7-10½ oz. (c. 200-300 gm.) — Hume.

COLOURS OF BARE PARTS. Iris brown or red-brown; ocular skin pinkish red or dull crimson. Bill dark brown. Legs and feet pinkish red to dull coral-red; claws horny.

271. Arakan Hill Partridge. *Arborophila rufogularis intermedia* (Blyth)

Arboricola intermedia Blyth, 1856, Jour. Asiatic Soc. Bengal 24: 277 (Arrakan).

Arborophila rufogularis tenebrum Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 30 (Tura Mountain, Garo Hills).

Baker, FBI No. 1963, Vol. 5: 391

LOCAL NAMES. *Daobui*, *Daobuiyégashi* (Cachar); *Inrui whip* (Naga); *Duboi* (Assam).

SIZE AND FIELD CHARACTERS. As for 270, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION AND HABITAT. Resident; locally not uncommon, but rarely seen and its abundance difficult to detect till its call known. Assam east and south of Brahmaputra river, through Manipur, Mizo (Lushai Hills), and Chittagong Hill Tracts (East Pakistan). Affects dense undergrowth and shady nullahs in evergreen hill forest between c. 600 and 1800 metres elevation. In identical biotope as *torquata* where their altitudinal ranges overlap.

Extralimital. Arakan Yomas, Chin and Kachin Hills of Burma.

GENERAL HABITS, FOOD, VOICE AND CALLS. As of the nominate race (270).

BREEDING. Season, overall April to August, chiefly May and June. Nest, the typical hollow scraped in the ground in dense evergreen undergrowth, lined either sparsely or thickly and compactly with grass and leaves; sometimes canopied by growing grass. Eggs, reportedly 3 to 6, china-white as of the genus. Average size of 150 eggs 39.2 × 29.8 mm. (Baker). Male evidently monogynous; does not incubate but assists in tending the chicks. Incubation period c. 20-21 days (Baker).

MUSEUM DIAGNOSIS. Male. Similar to *A. r. rufogularis* but spots on crown larger and a deeper black. *Below* spots on chin and throat so close together that

these parts appear almost black. Lower margin of rufous throat meeting slaty grey of breast without any intervening black line. Abdomen generally paler slate.

Female like that of 270, but with no black band below chestnut throat. More black-spotted on chin and throat, but less densely than in male.

Young (immature). Like adult but with breast, abdomen and flanks profusely spotted with white. Chin and throat rather rufous. Legs, orbital and gular skin dull yellowish.

Young (in first plumage). Above like adult but duller. Crown vermiculated rather than spotted with black. Below, flanks vermiculated with brown and black. Centre of breast and abdomen paler and whitish.

Chick (in down). Above, bright chestnut-brown. Supercilium and cheeks pale buffy brown; a dark brown line from eye dividing the two. Below dingy white.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	138-148	c. 18-19	c. 37-42	52-60 mm.
♀ ♀	134-143	—	—	(Baker)

Weight, ♂ ♂ 12-13 oz. (c. 340-370 gm.) — Hume.

COLOURS OF BARE PARTS. Iris brown; orbital and gular skin red. Bill black, reddish at gape. Legs red; claws horny. In breeding season the reds much brighter and more vivid.

272. Whitecheeked Hill Partridge. *Arborophila atrogularis* (Blyth)

Arboricola atrogularis Blyth, 1850, Jour. Asiatic Soc. Bengal 18(2): 819

(Assam, Sylhet, and Arrakan)

Arborophila atrogularis rupchandi Koelz, 1953, Jour. zool. Soc. India 4: 155

(Bhutan at Menoka, Assam)

Baker, FBI No. 1965, Vol. 5: 393

Plate 19, fig. 10, facing p. 16

LOCAL NAMES. *Pewa* (Sylhet); *Duboi*, *Dubore* (Assam); *Sdn batái* (Chittagong); *Daobui*, *Daoboi yigashi* (Cachar); *Inrui whip* (Naga).

SIZE. Grey Partridge —; length c. 28 cm. (11 in.).

FIELD CHARACTERS. A dumpy short-tailed olive-brown forest partridge.

Male and Female. Above, forehead and supercilium grey; crown olive-brown; nape rufous, broadly spotted with black. A black line below supercilium from lores to above cheeks. Cheeks white, running behind into rufous buff ear-coverts. Upperparts light olive-brown stippled and barred with black. Scapular region barred and mottled with black and rufous. Below, chin, throat, and foreneck black diffusing through black-and-white into grey of breast and flanks. Flanks grey, without any chestnut marks but with white drops posteriorly. Centre of abdomen whitish. Under tail-coverts rufescent, edged with white, spotted with black.

STATUS, DISTRIBUTION and HABITAT. Resident. Assam (Dibrugarh dist., Dafla, Miri, Mishmi hills), and south of Brahmaputra river in the Khasis and all along the Valley to the western slopes of the Garos. Also Naga Hills, Manipur, Mizo, Tripura, and adjoining East Pakistan (Sylhet, Tippera,

and Chittagong Hill Tracts) from the foothills at almost plains level to c. 1500 metres elevation. Commoner below c. 750 m. than above. Affects wet undergrowth in less dense evergreen forest than *A. torqueola* or *A. rufogularis*, as well as bamboo jungle.

Extralimital. Upper Burma (Chin and Kachin Hills, Arakan).

GENERAL HABITS AND FOOD. As of 267 and 270, qq.v. Gregarious. Keeping in pairs or scattered coveys of 5 to 8, flushing one at a time and only when almost underfoot, thereby giving the false impression of being solitary birds.

VOICE AND CALLS. 'Often heard, especially towards dusk — a rolling whistle *whew, whew* repeated many times, and winding up with a sharper and more quickly uttered *whew*' (Cripps). In breeding season 'a very beautiful, loud, clear double whistle audible at very great distances' (Baker). Both these presumably refer to the same thing. Cf. also Higgins under 270. Rally call: a very soft and mellow whistle from different directions when a covey is scattered.

BREEDING. Season, March-April at plains level, to June-July at higher elevations. Nest, a hollow scratched in the ground under scrub in grassland or bamboo jungle, usually well padded with grass and leaves. Eggs, overall 3 to 7; normal clutch 4 or 5. Rather glossy china-white as typical of the genus. Average size of 42 eggs in the Brit. Mus. collection 37.0 x 28.3 mm. (Harrison & Parker, 1966, JBNHS 63: 750). Other data on breeding biology not available.

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	135-147	18-20	c. 42-44	c. 60-65 mm.
♀ ♀	126-130			

(Baker)

Weight ♂ ♀ 7-11 oz. (c. 200-312 gm.) — Hume.

COLOURS OF BARE PARTS. Iris brown or red-brown. Bill ♂ black, ♀ dark brown. Orbital and gular skin bright pink; brilliant deep red in breeding season. Legs and feet ♂ dull orange to bright orange-red, or red in breeding season; in ♀ dull wax yellow to same tinged with red.

273. Redbreasted Hill Partridge. *Arborophila mandellii* Hume

Arborophila Mandellii Hume, 1874, Stray Feathers 2: 449 (Bhutan Duars)

Baker, FBI No. 1966, Vol. 5: 395

Plate 19, fig. 5, facing p. 16

LOCAL NAME. *Pao-er* (Chulikatta Mishmi).

SIZE. Grey Partridge —; length c. 28 cm. (11 in.).

FIELD CHARACTERS. A typical dumpy hill partridge.

Male and Female. *Above*, crown and nape dull chestnut-brown. Dark grey superciliar stripes from eyes continued behind to meet on upper hindneck. A small white moustachial streak. Lower hindneck (all round) and upper back reddish chestnut with black spots. Rest of upperparts olive, spotted and narrowly scalloped with black. *Below*, chin and throat pale olive-chestnut separated from deep chestnut upper breast by a double gorget of

black and white. Lower breast to vent grey marked on flanks with chestnut and white. Under tail-coverts olive with white spots and rufous mottling.

STATUS, DISTRIBUTION and HABITAT. Resident. Sikkim and Bhutan duars, and Assam hills north of Brahmaputra river east through NEFA. Occupies an altitudinal zone between c. 350 and 2450 metres, possibly somewhat higher. Affects dense undergrowth in evergreen forest.

Extralimital. Presumably SE. Tibet.

GENERAL HABITS, FOOD. Nothing specifically recorded.

VOICE and CALLS. Putatively a loud, rich, long-drawn *quack* followed by a series of ascending double notes leading to a climax. Similar in pattern to call of *A. torqueola* (267), but distinct (SA).

BREEDING. The only reliably known nest was taken at c. 2400 m. alt. in Sikkim on 3 June. It contained 4 fresh eggs measuring about 43 × 33 mm. (Baker). No other data available.

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

Feathers of upper-back and interscapular region finely barred with black. Lower margin of rufous throat sharply demarcated from breast by a black line with a white one above it. See also Key to the Species.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	133-145	19-20	43-45	56-58 mm. (Baker)

COLOURS OF BARE PARTS. Iris brown to red-brown. Bill black. Legs and feet reddish.

Genus *BAMBUSICOLA* Gould

Bambusicola Gould, 1863 (1862), Proc. Zool. Soc. London: 285. Type, by subsequent designation, *Perdix thoracica* Temminck

In its long tail and structure closer to *Galloperdix*; in coloration and general appearance to *Arborophila*.

Claws of moderate length and curved as in *Francolinus*. Tarsus long and strong, considerably longer than middle toe and claw; furnished with a spur, sometimes also in female. Tail of 14 feathers, well graduated, equal to more than three-quarters length of wing. Wing rounded: fifth primary (as.) longest, 2nd equal to 10th, first much shorter. Sexes alike.

Range: Assam, N. Burma to China and Formosa. Only one species and race within Indian limits.

274. Assam Bamboo Partridge. *Bambusicola fytchii hopkinsoni* Godwin-Austen

Bambusicola hopkinsoni Godwin-Austen, 1874, Proc. Zool. Soc. London: 44
(Khasia Hills, Assam)

Bambusicola fytchii rincheni Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 30
(Sangau, Lushai Hills)

Baker, FBI No. 1946, Vol. 5: 366
Plate 19, fig. 13, facing p. 16

LOCAL NAMES. *Da bui loi* (Cachar); *Wākrek* (Manipur. *wā* = bamboo, *krek* = the 'scream' of the bird as it flushes).

PLATE 21



SIZE. Grey Partridge +; length c. 35 cm. (14 in.).

FIELD CHARACTERS. A comparatively long-tailed rufous-brown partridge. *Above*, crown and nape rufous-brown. Face rufous-buff with a broad rufescent white supercilium to nape, and a broad dark rufous-brown (or blackish) line below it behind eye. Upperparts grey-brown, broadly streaked with chestnut and spotted with blackish chestnut in scapular region; vermiculated with grey-brown on lower back, rump, and tail. Wing quills chestnut-brown. Tail barred brown and buff. *Below*, chin, throat, and foreneck rufous-buff. Breast chestnut, spotted and streaked with white and grey. Rest of underparts buff, with large black heart- or half-moon shaped spots except on centre of abdomen and vent. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident. Assam hills south of Brahmaputra river from above Margherita in Lakhimpur through Patkai, Naga, Cachar, Khasi, Jaintia, Garo, and Mizo (Lushai) hills, and Manipur. East Pakistan (Sylhet, Chittagong Hill Tracts). Affects open scrub jungle bordering rice fields and pastureland in foothills country, sometimes venturing a few miles out in the adjacent plains. In Manipur in low oak and willow scrub along banks of streams, mixed with elephant grass and *Rubus* thickets, etc. Partial to patches of a wild cardamom-like plant (known as *pullei* in Manipuri and *tārapāt* in Assamese — *Alpinia* sp.) in which large numbers usually found. Normally at low elevations, but sometimes ascending to c. 2000 metres. In spite of its substantive name not predominantly restricted to bamboo forest.

Extralimital. Burma (Chin Hills, northern Arakan Yomas).

GENERAL HABITS. Keeps in coveys of 5 or 6, presumably old birds and their last brood, which break up into pairs about March. Cocks thereafter very noisy, flying up every now and then with a flutter of wings to a mound or tree stump from early dawn, crowing challenges two or three times, then dropping to earth. The birds come out in the open morning and evening to scratch for food, seldom straying far from water (streams etc.). Flight recorded as diagnostically different from that of Black Partridge found in the same terrain, often side by side. Flushes when almost trodden on, flies a few metres and tumbles suddenly into the tall grass. Occasionally takes refuge in trees.

FOOD. Buds, shoots, seeds, grain, berries, and insects (grasshoppers, crickets, termites, ants, grubs, etc.).

VOICES and CALLS. Crow of cock somewhat 'similar to call of Black Partridge but less shrill and high pitched: *Che-chirree-che-chirree, chirree, chirree, chirree*'. Another observer (J. C. Higgins, Manipur) finds this chatter more like *Pishup, pishup, pishup, pishup, pishup*, and so on indefinitely. According to P. F. Wickham (Burma) it sounds 'as if most of the covey were shouting, and like the English partridge they generally "scream" a bit when put up by dogs or walked up by the guns'. Apparently the female also utters 'discordant squawks' in the nature of crowing.

BREEDING. Season, chiefly March through May. Nest, a scrape in the ground padded with grass and leaves, placed in scrub, bamboo jungle or grassland. Eggs, 4–6, creamy buff to deep warm buff, unspotted, fine textured and hard-shelled. Average size of 200 eggs 40.2×29.6 mm. (Baker). Cock believed to be monogynous, taking no part in incubation but helping to tend the young. Hen a close sitter; period of incubation 18–19 days.

GALLIFORMES

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	141-156	18-20	c. 44-47	85-112 mm. (Baker)

Weight ♂♂ 10-14 oz. (c. 285-400 gm.); ♀ ♀ c. 12 oz. (c. 340 gm.) — Hume.

COLOURS OF BARE PARTS. Iris hazel or yellow-hazel. Bill dark horny brown, paler at tip and on lower mandible. Legs and feet greenish brown; claws bluish. Spurs whitish horny.

MISCELLANEOUS. As a game bird provides excellent sport if walked up with beaters and a couple of dogs. It is plentiful within its range, easily flushed, and has a quick getaway and straight and strong flight. Best season's bag recorded in Manipur 128 birds (1928-9). Best day's bags to 2 guns, 20, 23, and 27 birds along with other small game (J. C. Higgins).

Genus *GALLOPERDIX* Blyth

Galloperdix Blyth, 1844, Jour. Asiatic Soc. Bengal 13(2): 936, note.

Type, by monotypy, *P. speciosa* = *Tetrao speciosus* Gmelin

Contains the Spurfowl, exactly midway between junglefowl and partridge in appearance; like a small hen but with a partly ridge-like tail, i.e. not laterally compressed. Wing short and rounded: first primary (as.) shortest, 5th or 6th longest or subequal. Tail of 14 feathers, slightly graduated, about two-thirds to three-quarters length of wing. Tarsus long and strong, with 2, 3, or sometimes 4, spurs on each leg in male; 1 or 2 in female. No wattle or comb as in junglefowl (*Gallus*), but a patch of brick-red naked skin round eye, much brighter in breeding season. Sexes dimorphic.

Genus endemic to peninsular India and Ceylon.

Key to the Species

Males

A	Breast chiefly chestnut or rufous.....	<i>G. speciosa</i>	67
B	Breast buff with black spots.....	<i>G. leucolaema</i>	70
C	Breast chiefly white.....	<i>G. bicolorata</i>	71

Females

A	Breast chestnut with black tips to the feathers.....	<i>G. speciosa</i>	67
B	Breast ochraceous-brown.....	<i>G. leucolaema</i>	70
C	Breast chestnut without black tips.....	<i>G. bicolorata</i>	71

GALLOPERDIX SPADICEA (Gmelin)

Key to the Subspecies

Males

A	General colour chestnut; crown brown.....	<i>G. s. speciosa</i>	67
B	General colour bright chestnut; crown blackish.....	<i>G. s. stewarti</i>	68
C	General colour greyish-chestnut; paler everywhere.....	<i>G. s. aurina</i>	68

Females

A	Above grey with only a faint rufous tinge.....	<i>G. s. speciosa</i>	67
B	Above rufous-grey; darker generally.....	<i>G. s. stewarti</i>	68
C	Above very pale with no rufous tinge.....	<i>G. s. aurina</i>	68

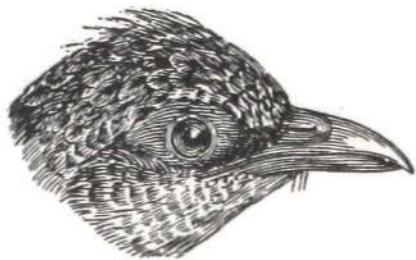
275. **Red Spurfowl.** *Galloperdix spadicea spadicea* (Gmelin)

Tetrao spadiceus Gmelin, 1789, Syst. Nat. 1(2): 759 (Madagascar, ex Sonnerat,
error = India)

Baker, FBI No. 1940, Vol. 5: 358

LOCAL NAMES. *Chhoti jängli mürghi* (Hindi, Madhya Pradesh); *Chakotri, Kokatri, Kastoor* (Marathi); *Chokhārā* (Gujarati); *Sarawa kozhi* (Tamil); *Terra kodi, Jita kodi* (Telugu).

SIZE. Grey Partridge +; $\frac{1}{2}$ grown village hen —. Length c. 36 cm. (14½ in.).



♂, × c. 1

FIELD CHARACTERS. A reddish brown, longer tailed partridge-like bird.

Male. Above, crown dark brown, paler and greyer on face and neck. Upperparts rufous-chestnut with black and rufous vermiculations and greyish brown scalloping. Below, rufous chestnut scalloped with greyish brown. Chin whitish brown. 2 to 4 pointed spurs on each leg. A naked brick-red patch round eye.

Female. Above, forehead sandy brown; crown and nape blackish brown. Upperparts greyish or sandy with rufous tinge, finely barred with black. Below, chin and throat whitish. Breast and flanks pale rufous-chestnut, spotted with black. A naked reddish patch round eye. One or two pointed spurs on each leg.

Young (immature). Male like adult female but more richly and deeply coloured, with more black in proportion to buff and rufous.

STATUS, DISTRIBUTION and HABITAT. Resident. Uttar Pradesh and West Nepal terai. Widely scattered over peninsular India south of the Gangetic Plain in Gujarat (north to c. Palanpur), Madhya Pradesh, southern Bihar, Orissa, Maharashtra, Andhra, Madras (including Nilgiris), Mysore (including Coorg) and northern Kerala (Wynaad). Affects stony, scrubbed foot-hills country and bamboo jungle cut up by watercourses and overgrown with brushwood in dry- and moist-deciduous biotope, normally below c. 1000 metres altitude. In S. India, quite numerous in coffee estates and lantana patches, even close to villages.

GENERAL HABITS. Keeps in pairs or small parties of 3 to 5 to scrubby undergrowth in broken country scratching amongst the mulch for food. Is shy and wary and a great skulker, often heard than seen, scuttling away on the least alarm, dodging from cover to cover, generally running uphill whenever it has the choice. Very fast on its legs, and reluctant to fly except when hard pressed. Roosts at night in trees and will also take refuge in the leafy branches of one when suddenly come upon. Seldom flies far and usually only to 'hedge-hop', thus placing more thickets between itself and the observer and continuing to run again as soon as it touches down, tail open fanwise and carried partly erect. Very parochial; addicted to favourite beats where may be found day after day. Overgrown ruins of jungle forts

are favourite haunts. The birds usually rummage under low thorn thickets seldom venturing out into the open except on forest paths, and edge of harvested fields bordering forest, in the early mornings and evenings.

FOOD. Seeds, tubers, berries and drupes (e.g. *Zizyphus* and *Lantana*), land molluscs, and insects, especially termites. A quantity of grit is usually swallowed.

VOICE and CALLS. A loud cackling *kuk-kuk-kuk-kukaak* like domestic hen after she has laid an egg when suddenly come upon and flushed. The cock has a peculiar chuckle-like crow — a quick-repeated rattling *k-r-r-r-kwek*, *kr-kr-kwek*, *kr-kr-kwek*, etc. reminiscent of the calls of a guineafowl. Its Marathi name *Kökätri* is distantly onomatopaeic.

BREEDING. Season, overall January to June varying with local conditions, but eggs may be found practically throughout the year. Nest, a shallow depression scraped in the ground in dense bamboo or scrub jungle, sometimes sparsely lined with leaves and grass. Eggs, commonly 3 to 5, buff coloured, very like small eggs of the village *murghi*. Average size of 44 eggs 40.4×29.5 mm. (Baker). Cock monogynous. Does not incubate but assists in tending the young. Period of incubation unknown. Hen timid, readily deserting nest and eggs on disturbance. When brood of chicks disturbed, both parents become quite distracted, floundering about as though *in extremis*, while chicks freeze and become completely invisible among the dead leaves.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for subspecies Key. A feature unrecorded in published descriptions is the tuft of somewhat elongated feathers on crown in both sexes, often raised into a crest in life.

Chick (in down). Undescribed.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
13 ♂♂	153–165	22–26	43–52	120–143 mm.
9 ♀♀	140–160	21–26	43–46	105–123 mm. (SA, HW)

Baker gives Wing ♂♂ 145–166; ♀♀ 134–163 mm.

Weight ♂♂ 11–16 oz. (c. 284–454 gm.) — Wm. Davison, Mysore.

COLOURS OF BARE PARTS. Iris yellow-brown to hazel-brown; naked orbital skin brick-red in ♂, duller red in ♀. Bill horny brown, reddish at base, paler on lower mandible. Legs reddish brick or reddish brown, sometimes with a greenish tinge; spurs horny.

276. Aravalli Red Spurfowl. *Galloperdix spadicea caurina* Blansford

Galloperdix spadicea var. *caurina* Blansford, 1898, Fauna Brit. Ind., Bds. 4: 107

(Mt Abu, Southern Rajputana)

Baker, FBI No. 1942, Vol. 5: 361

LOCAL NAME. *Chhoti jangli mürghi* (Hindi).

SIZE and FIELD CHARACTERS. As for 275, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Aravalli Hills in southern Rajasthan (Sirohi, Udaipur). Common about Mt Abu; most plentiful

between c. 450 and 900 m. elevation. Intergrades with the nominate race around Hathidhara in Banaskantha (Gujarat). Birds from Asirgarh in Madhya Pradesh (c. 21°30'N., 76°20'E.) much greyer and closer to this form (D'Abreu, JBNHS 35: 219). Affects scrub and bamboo foothills jungle.

GENERAL HABITS, FOOD, VOICE and CALLS. As of the nominate race (275).

BREEDING. Season, May and June recorded, but probably also other months. Nest and eggs as in 275.

MUSEUM DIAGNOSIS. See Key to the Subspecies.

Male. Above, chestnut centres to feathers much paler; grey margins (scalloping) wider. Below, much paler than 275.

Female. Above, black barring almost absent. Below, chestnut much paler, the scalloping paler grey; black markings greatly reduced.

MEASUREMENTS as quoted by Baker from G. King, Wing 154–173 mm. Whether *cavirina* is in fact larger than the nominate race, as thus suggested, needs confirming.

COLOURS OF BARE PARTS. As in 275.

277. Travancore Red Spurfowl. *Galloperdix spadicea stewarti* Baker

Galloperdix spadicea stewarti Baker, 1919, Bull. Brit. Orn. Cl. 40: 18

(Aneichardi, Travancore)

Baker, FBI No. 1941, Vol. 5: 360

Vol. 1, plate 7

LOCAL NAMES. *Mullan kōzhi* (Malayalam); *Saravoo kōzhi*, *Chākūtī kōzhi* (Tamil).

SIZE AND FIELD CHARACTERS. As for 275, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Kerala excluding Wynnaad. Common. Affects lantana scrub on abandoned forest clearings, under-growth in bamboo forest, etc. in moist-deciduous biotope: foothills and up to c. 1250 metres elevation.

GENERAL HABITS, FOOD, VOICE and CALLS. As of the nominate race (275).

BREEDING. Season irregular: January to April, and September–October recorded, but probably also breeds in other months excepting those of the heaviest monsoon (June–August). Nest and eggs indistinguishable from those of the nominate race, the latter averaging slightly larger and paler. Average size of 36 eggs 41·3 × 30·4 mm. (Baker).

MUSEUM DIAGNOSIS. See Key to the Subspecies.

Male. Above bright chestnut-rufous with the pale scalloping absent or obsolete. Vermiculations on lower back entirely absent; on rump and upper tail-coverts almost so. Below, chestnut very rich, extending to vent.

Female. Above and below, much more richly and brightly coloured than in 275.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
6 ♂♂	153–164	22–25	49–55	116–136 mm.
2 ♀♀	148–150	20–21	41(1)	91–118 mm. (SA)

Baker gives Wing ♂♂ 145–161; ♀♀ 148–150 mm.

COLOURS OF BARE PARTS. As in 275. Legs and feet sometimes salmon-pink or orange-coral; claws and spurs horny brown.

278. **Painted Spurfowl.** *Galloperdix lunulata* (Valenciennes)

Perdix lunulata Valenciennes, 1825, Dict. Sci. Nat., éd. Levrault, 38: 446 (Bengale)
Baker, FBI No. 1943, Vol. 5: 362

Plate 21, fig. 7, facing p. 64

LOCAL NAMES. *Askal, Kainjer* (Orissa); *Hutkah* (Gondi); *Kalkodi* (Tamil); *Jittā kōdi* (Telugu).

SIZE. Grey Partridge; length c. 32 cm. (12½ in.).

FIELD CHARACTERS. A partridge-like bird distinguished from francolins by longer tail and very distinctive coloration.

Male (adult). *Above*, forehead and crown metallic greenish black, stippled with white elongate drops. Sides of head, and neck all round, black with broader white spots. No crest or bare orbital skin as in *G. spadicea*. Upperparts chestnut marked with black-bordered white eye-spots or ocelli; replaced by fine black stippling, or absent, on lower back. Scapulars and some wing-coverts metallic green. Tail blackish, faintly glossed with green. *Below*, breast and anterior abdomen buff, with triangular black stippling. Posterior abdomen, flanks, and under tail-coverts chestnut, the former with black-edged white spots, the last black-tipped.

Female (adult). *Above*, forehead, supercilia and sides of head dark chestnut. Crown black with chestnut shaft-stripes. A chestnut-buff moustachial stripe from gape. Upperparts including wings dark brown tinged with olive. *Below*, chin, throat, and cheeks buff, mottled with chestnut. Rest of underparts olivaceous brown, paler and yellower on breast.

Young (immature) male like adult female but duller. *Above*, much freckled and barred with dull black and rufous-brown. *Below*, more earthy brown and much freckled with buff.

STATUS, DISTRIBUTION and HABITAT. Resident. Continental and peninsular India south of the Gangetic Plain, roughly south of the rivers Sindh (in Gwalior dist., M.P.), Yamuna (Jumna) and Ganga (Ganges). Not in Rajasthan or Gujarat or in the coastal strip west of the Western Ghats. Commoner in the central and eastern parts of the Peninsula than western. Range largely overlaps and/or jigsaws confusingly with that of *G. spadicea*, but as a rule this species more addicted to drier rockier foothills and broken terrain covered with dense, impenetrable thorn scrub (e.g. *Anogeissus*, *Acacia*, *Mimosa*, *Bridelia*) and bamboo jungle, up to c. 1000 metres elevation. Partial to grassy hill crests and ridges in such.

GENERAL HABITS. Keeps in pairs or family parties of 3 to 5, or 6. Is even a greater skulker than Red Spurfowl. Extremely reluctant to fly unless really hard pressed or fired at while scuttling through the undergrowth — then only to 'hedge-hop' a few yards over the thickets and continue sprinting immediately on alighting. After this, almost impossible to flush a second time, the bird taking refuge in some hole or fissure of rock and refusing to budge in spite of much din and beating of bushes. Very swift on its legs, clucking as it runs on disturbance, with tail spread and partly erect, hopping from rock to rock on a steep hillside with agility. Thus the best way to shoot them is to walk along the crest of a scrub-covered ridge with a beater about 20 yards below on either side. On disturbance the bird will invariably run uphill to the open ridge and then launch in the air to hurl itself down the opposite slope offering fairly easy shots.

FOOD. Seeds, tubers, berries and drupes (e.g. *Zizyphus oenoplia*, *Lantana*, *Ficus* spp.), tiny land molluscs, and insects — especially termites. Also flowers of *mhowa* (*Bassia latifolia*) in season.

VOICE and CALLS. Male when flushed utters 'a curious bubbling, half-scolding clucking note' (Pitman). Male has 'a fine cackling sort of call very fowl-like' (Jerdon). 'A peculiar loud *chur, chur, chur*, rapidly repeated, anything but fowl-like' (Blewitt) !

BREEDING. Season overall January to June, principally February to early May. Possibly also in other months locally, e.g. August in the Deccan (Sparrow). Nest, a scrape in the ground lined with grass and leaves, placed deep under a boulder or root, or on a bed of dry bamboo leaves in the heart of a clump, usually well concealed. Eggs, 3 or 4, sometimes 5, pale buff, very like small eggs of the country fowl. Average size of 25 eggs 40.9 × 29.3 mm. (Baker). As in *G. spadicea* both parents tend the brood assiduously and indulge in distraction displays to lead off the intruder from the 'frozen' and perfectly camouflaged chicks. Incubation evidently by female alone; period unknown.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. Coloration on wings of adult males very variable, and apparently unconnected with age. In some examples amount of metallic green on wing-coverts so great that the chestnut is visible only on their outer half (viewed *en masse*), and even then a considerable part of the feathers is glossy green. In other examples wing-coverts practically all chestnut with the metallic green confined to inconspicuous tips on many of the feathers. There is similar variation in amount of metallic green of scapulars and central back, but in all cases the white spotting on these persists.

Chick (in down). *Above*, light chestnut-rufous; darkest on head and a broad dorsal line. *Below*, dull pale earthy brown, more chestnut on throat, breast, thighs, and vent.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂ ad.	148–167	22–25	40–45 (4 msd.)	111–129 mm.
♀♀ ad.	132–157	21–23	36–44 (3 msd.)	99–128 mm. (SA, HW)

Baker gives Wing ♂♂ 144–161; ♀♀ 138–159 mm.

Weight ♂♂ 9–10 oz. (c. 255–285 gm.); ♀♀ 8–9 oz. (c. 226–255 gm.) — Hume.

COLOURS OF BARE PARTS. Iris hazel brown. Bill horny brown, paler at chin. Legs and feet greyish olive-brown: claws and spurs horny brown. Spurs in ♂ 1 to 3, generally 2 on each leg, sometimes 3 on one 2 on the other. In ♀ generally 1 on each leg.

279. Ceylon Spurfowl. *Galloperdix bicalcarata* (J. R. Forster)

Perdix bicalcarata J. R. Forster, 1781, Ind. Zool.: 25, pl. 14 (Ceylon)
Baker, FBI No. 1944, Vol. 5: 363

Plate 21, fig. 6, facing p. 64

LOCAL NAMES. *Haban kukkanā* (Sinhala); *Sinna kāttu kōzhi* (Tamil).

SIZE. Grey Partridge + or half-grown village fowl. Length c. 34 cm. (13½ in.).

FIELD CHARACTERS. 'The cock with his white-spangled black foreparts and dark chestnut hinderparts, is unmistakable' (G. M. Henry).

Male (adult). *Above*, forehead, crown, nape and hindneck black with white shaft-stripes; naked red orbital skin. Rest of upperparts black and chestnut with white shaft-stripes and elongated spots. Lower back and rump chestnut, finely vermiculated with black. Upper tail-coverts and tail black. *Below*, chin white; throat and sides of head white, streaked with black. Sides of breast, and flanks, black broadly streaked with white. Breast and anterior abdomen white; posterior abdomen and under tail-coverts blackish with whitish spots.

Female (adult). Crown blackish; forehead and sides of head paler; naked orbital skin red, chin whitish. Rest of plumage above and below dull chestnut, vermiculated with black except on breast.

STATUS, DISTRIBUTION and HABITAT. Species endemic to Ceylon. Resident. Locally distributed in the forests throughout the Wet zone, in parts of the Eastern and Uva Provinces (Dry zone), and in the hills to c. 2000 metres (Phillips). Not uncommon in the more densely forested parts of its range both in the low country and the hills.

GENERAL HABITS. Nothing recorded as specifically different from the Indian species.

FOOD. Seeds, fallen berries, termites and other insects, and predominantly *Strobilanthes* ('*nillu*') seeds in flowering years.

VOICE and CALLS. 'A peculiar ringing cackle consisting of series of three-syllabled whistles, each series on a higher note than the preceding one and the last dropping suddenly to the starting note: *yuhuhu, yuhuhu, yuhuhu, yuhuhu, yuhuhu, yuhuhéyyu*. This cackle is uttered by the male and is replied to by other males in the neighbourhood in similar strains, so that for some minutes at a time, and several times during the morning, the welkin rings with their music' (G. M. Henry).

BREEDING. Season, during the northeast monsoon — November to March; also occasionally July to September. Nest, as in the Indian species, a slight scrape in the ground under shelter of a rock or bush. Eggs, normally 2, but up to 5 recorded; cream or warm buff in colour, exactly like those of a village hen. Average size of 18 eggs 40·6 × 29·7 mm. (Baker). Cock monogynous and very pugnacious.

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

Chick at first 'clothed in rather uniform dark brown down. Each sex quickly develops its distinctive plumage, but the white streaks and spots of the young male are relatively fewer and larger than in the adult' (G. M. Henry).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	157-174	c. 22	54-57	121-130 mm.
♀ ♀	143-150	—	—	— (Baker)
<i>Whistler (Avifaunal Survey of Ceylon) gives for</i>				
2 ♂ ♂	158	25, 27 (from skull)	52, 54	107, 118 mm.

Weight ♂♂ 11-13 oz. (c. 312-368 gm.); ♀♀ 7-10 oz. (c. 200-312 gm.) — Hart.

COLOURS OF BARE PARTS. Iris brownish yellow or brownish red; orbital skin red, paler in ♀. Bill, legs, and feet red, paler in ♀. Males usually with two spurs on each leg, the upper one longer. In the two males measured by Whistler upper spurs 16 and 27.5 mm.; lower 13 and 17.5 mm. respectively. Most females have one or two spurs on both legs; in some they are missing on one leg.

Genus OPHRYSSIA Bonaparte

Ophryssia Bonaparte, 1856, Compt. Rend. Acad. Sci. Paris 43: 414. Type, by original designation and monotypy, *Rollulus superciliosus* J. E. Gray

Very little known and correct taxonomic position equivocal. Wing short: first primary (as.) shorter than tenth; fifth or sixth longest. Tail of 10 feathers, well rounded, nearly equal to wing in length; this feature reminiscent of *Galloperdix*. Bill short and stout, rather as in *Ithaginis* or *Perdicula*. Tarsus short but strong. Plumage long, lax and lanceolate, being in these respects similar to the Blood Pheasants (*Ithaginis*). Forehead feathers bristle-shafted and stiff as in *Ithaginis* and *Perdicula*. Sexes dimorphic.

Contains a single species known only from the Kumaon Himalayas, now apparently extinct.

280. Mountain Quail. *Ophryssia superciliosa* (J. E. Gray)

Rollulus superciliosus J. E. Gray, 1846, Knowsley Menagerie, 1: 8, pl. 16
(India = Mussoorie)
Baker, FBI No. 1939, Vol. 5: 356
Plate 21, fig. 8, facing p. 64

LOCAL NAMES. Not recorded.

SIZE. Grey Partridge — ; length c. 25 cm. (10 in.).

FIELD CHARACTERS. A smallish relatively long-tailed slaty brown partridge with conspicuous red bill and feet.

Male. *Above*, face black with a white patch in front of eye and another behind. Forehead and prominent broad supercilium white, bordered above and below with black. Crown greyish brown streaked with black. Upperparts dark slaty olive-brown streaked with black. Wings browner and lighter. *Below*, chin and throat black, bordered by a conspicuous white looping band from cheeks; under tail-coverts black, barred with white. Rest of underparts like back.

Female. *Above*, face pinkish grey. A small white eyebrow, and white patch in front and behind eye as in male. A broad black band on either side of crown. Upperparts including wings, cinnamon-brown broadly black-streaked on nape and neck, and with triangular black spots on back and the rest. *Below*, pale vinaceous-brown streaked with chestnut and black from lower throat down. Flanks and vent vermiculated with brown and black.

STATUS, DISTRIBUTION and HABITAT. Status unknown. Not recorded anywhere extralimital. Presumably once endemic; now most probably extinct. Was known only from the Western Himalayas between c. 1650 m. (Jharipani above Dehra Dun) and c. 2100 metres elevation — Banog, Badhraj behind Mussooree, and Sher-ka-danda near Naini Tal. Last specimen procured at

the latter place in 1876 since when thorough combing of its known habitats and others of identical ecology has failed to rediscover the bird. In all less than a dozen specimens (actually 10) exist in world museums, and its biology is completely unknown.

GENERAL HABITS. Was found in coveys of 5 or 6 in patches of long grass and brushwood on steep hillsides. Flew reluctantly when almost trampled on, heavily and for short distances, soon pitching into the grass again.

FOOD. Grass seeds; probably also insects and berries.

VOICE and CALLS. Contact note when covey feeding: 'low, short, quail-like'. Alarm note when disturbed: 'a shrill whistle'.

BREEDING. Unknown.

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

MEASUREMENTS of the 5 examples in the British Museum:

	Wing	Tail
3 ♂♂	85, 86, 93	76, 78, (damaged) mm.
2 ♀♀	87, 91	64, 65 mm. (SA)

Bill (from feathers) 11·5; tarsus 29 mm. (Baker).

COLOURS OF BARE PARTS. '♂ Bill coral red; legs and feet dull red. ♀ Bill dusky red, lower mandible brightest; legs dull red; eyelids black with a small white spot at the corner' (Hutton).

Genus *ITHAGINIS* Wagler

Ithaginis Wagler, 1832, Isis von Oken, col. 1228. Type, by monotypy, *Phasianus cruentus* Hardwicke and *Phasianus gardneri* Hardwicke

(The former is the ♂, the latter the ♀ of the same bird.)

Cf. Delacour, J., 1951, *The Pheasants of the World*, London. (Genera of pheasants.)

Plumage generally very soft and lax, the feathers lanceolate in shape. A soft, mop-like crest in both sexes. Wing short and rounded: first primary (as.) shorter than or nearly equal to tenth; fifth and sixth primaries about equal, and longest. Tail long, of 14 graduated feathers. Tarsi long and stout, furnished with several spurs in the male; reduced to knobs in female. Bill short, stout and curved, very grouse-like in character, reminiscent also of *Perdicula*. A small naked orbital patch. Sexes markedly dimorphic.

Only a single High Himalayan species within our limits.

ITHAGINIS CRUENTUS (Hardwicke)

Key to the Subspecies

	Males	Page
A Forehead black	1	
B Forehead crimson	2	
1 Crimson of tail-feathers wholly lacking in two outer pairs	<i>I. c. affinis</i>	77
Crimson of tail-feathers wholly lacking in outer pair only	<i>I. c. cruentus</i>	75
2 Anterior ear-coverts and gorget black	<i>I. c. kusneri</i>	78
Anterior ear-coverts yellowish with black edges; no gorget	<i>I. c. tibetanus</i>	78

	Females	Page
A Sides of head light ochre.....	<i>I. c. affinis</i>	77
B Sides of head rufescent ochre.....	<i>I. c. cruentus</i>	75
C Sides of head rich chestnut.....	<i>I. c. kuseri</i>	78
D Sides of head rufous.....	<i>I. c. tibetanus</i>	78

281. Nepal Blood Pheasant. *Ithaginis cruentus cruentus* (Hardwicke)

Phasianus cruentus Hardwicke, 1821, Trans. Linn. Soc. London 13(1): 237

(Mountains of Nepal)

Baker, FBI No. 1936 (part), Vol. 5: 352

LOCAL NAMES. *Chilime, Chilmili, Seremin, Selmung* (Nepal).

SIZE. Domestic fowl; length c. 46 cm. (18 in.).

FIELD CHARACTERS. Male, a brightly, almost gaudily coloured large partridge-shaped bird, overall grey above, apple-green below, streaked with yellow, with a full mop-like crest. A bright red naked orbital patch bordered by black. Forehead black; chin and throat crimson. Upper breast splashed with crimson ('blood stains'). Crimson splashes also on wing shoulders, upper and lower tail-coverts, and in tail.

Young male less brilliantly coloured, with red bill. Orbital skin and cere fleshy grey.

Female. Overall bright rufous-brown, finely vermiculated. Forehead, face, and throat light ochre or rufescent cinnamon, contrasting strongly with ashy grey crest and nape.

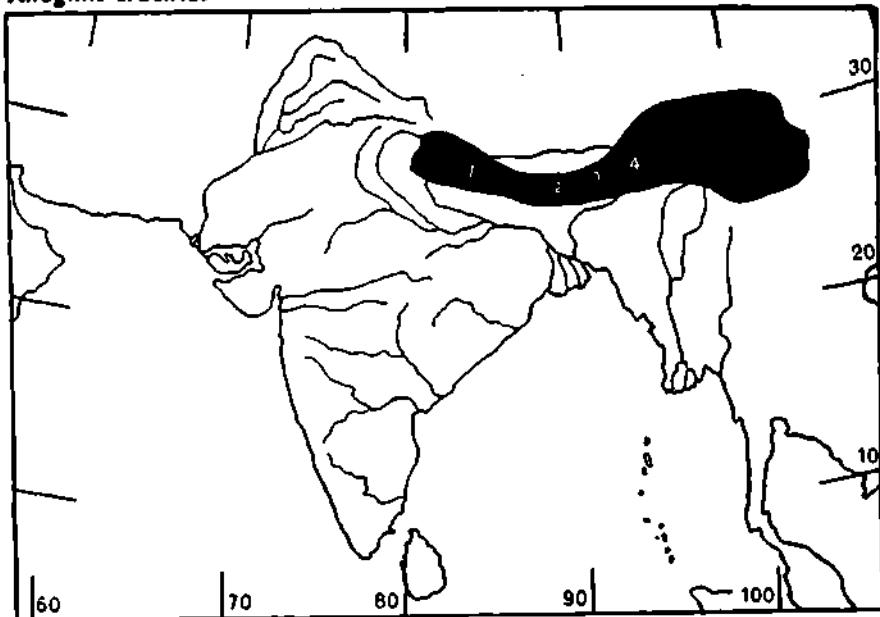
STATUS, DISTRIBUTION and HABITAT. Resident. Common and abundant in the High Himalayas in central and eastern Nepal seasonally up and down with the snowline between c. 3600 and 4300 metres altitude; occasionally somewhat lower in severe winters. Affects steep pine forest, dwarf rhododendron, and dense ringal bamboo and juniper scrub, often interspersed with snow patches.

GENERAL HABITS. As a species found at higher elevations, even in winter, than any other Himalayan pheasant. Gregarious; usually in coveys of 5 to 10, sometimes up to 30 and more. A swift and strong runner with an upright partridge-like carriage, loth to take wing even after a member of a covey has been shot at. Like all mountain partridges, invariably runs uphill and flies downhill. Feeds in the opener patches, scratching the ground like domestic fowl, often digging deep into the snow with its short, stout, grouse-like bill. Tame and fearless to the point of stupidity, the members of a covey coming out inquisitively to a fluttering companion that has been shot, and allowing bird after bird to be killed by the ambushed hunter.

FOOD. Almost exclusively moss, fern and pine shoots, and lichens.

VOICE and CALLS. Rallying call of scattered covey: a long, high-pitched squeal something like a kite's. 'A short monosyllabic note of alarm' (Blanford).

BREEDING. Little recorded in wild state beyond Hodgson's statement that the loose nest of grass and leaves is placed on the ground in grass and bushes. Season, April-May. Several observers have noted parents (various races) accompanied by small chicks in June and early July. Eggs, 5 to 12, pinkish buff profusely speckled and blotched with rich brown. Incubation

Ithaginis cruentus

Distributional range within Indian limits

1 *I. c. cruentus* (281).
2 *I. c. affinis* (282). 3 *I. c. tibetanus* (283). 4 *I. c. kuseri* (284).

Other races extralimital E. of 4, and N. to c. 38°.

period 29 days (Delacour). Male apparently monogynous in aviaries, but in wild state two cocks (race *tibetanus*) assiduously attending on a single hen have been observed by Sheriff (*Ibis* 1944: 381) on three separate occasions and according to local Tibetans the species is both polygynous and polyandrous.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; Delacour: 50. Chick (in down). 'Loral and malar streaks, circle around eye, large infrauricular spot and line extending backward around the nape, centre of crown and wide nuchal band brownish black; remainder of head, throat and neck pale grizzled grey; lower neck and entire body dull rufous, with slender black tips, except on underparts, where the rufous is paler and purer' (Delacour).

Close similarity with chick of Snow Partridge (*Lerwa lerwa*) stressed by Meinertz-hagen (*Ibis*, 1927: 625 and coloured pl. xv). In *Ithaginis* chick tarsus bare throughout, bill orange-yellow; in chick of *Lerwa* tarsus feathered for half its length, bill black.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	193-214	c. 22-23	c. 72-77	164-178 mm.
♀ ♀	190-195	—	—	— (Baker)
♂ ♀	194-228	11 (from nostril)	66-76	164-178 mm. (Delacour)

Weight ♂♂ 1 lb. 1 oz. to 1 lb. 4 oz. (c. 482-568 gm.).

The spurs in ♂♂ vary from 1 to 3 and are not always the same on both legs.

COLOURS OF BARE PARTS. ♂: Iris yellowish brown; orbital skin bright scarlet or salmon-crimson. Bill horny black, scarlet on cere, edges of base of lower mandible, and gape. Legs, feet, and spurs scarlet like orbital skin; claws horny black. Soles of feet very bright orange-crimson. ♀: Iris brighter yellowish brown; orbital patch, smaller and paler than in ♂. Bill horny brown at base, orange-red at tip. Legs, feet, claws, and soles as in ♂. No spurs.

MISCELLANEOUS. The plumage has a musty repulsive odour even when bird freshly killed. Stuart Baker considered its flesh ' excellent for the table ', but even with the locals it ranks as greatly inferior to other pheasants. Meinertzhagen feelingly described it as ' disgusting '. The flavour no doubt varies with the nature of the food upon which the bird has been chiefly subsisting at the time.

282. Sikkim Blood Pheasant. *Ithaginis cruentus affinis* Beebe

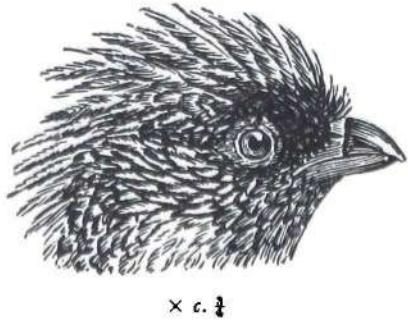
Ithaginis cruentus affinis Beebe, 1912, Zoologica 1: 191 (British Sikkim)

Baker, FBI No. 1936 (part), Vol. 5: 352

Plate 20, fig. 4, facing p. 32

LOCAL NAMES. Same, Semo, Soomoong pho (Lepcha).

SIZE AND FIELD CHARACTERS. As for 281, q.v. See Key to the Subspecies STATUS, DISTRIBUTION and HABITAT.



dense ringal bamboo and juniper scrub near the snow-line.

GENERAL HABITS, FOOD, VOICE AND CALLS. As of the nominate race (281).

BREEDING. Nothing specifically recorded as different from Nepal birds.

MUSEUM DIAGNOSIS. Compared with the Nepal Blood Pheasant (281), male *affinis* has the forecrown without crimson; the throat with a little crimson but black showing through it; crimson on breast much reduced; a little more green on the flanks. The absence of crimson on the outer tail-feathers, as mentioned in Beebe's original description, does not always apply. Female *affinis* less grey on crest and nape than in 281.

No size difference between the Nepal and Sikkim populations.

MEASUREMENTS of Sikkim specimens:

Wing: 21 ♂♂ ad. 196–220 (aver. 209·4); 12 ♀♀ ad. 187–205 mm. (aver. 195·0) mm. (SA).

COLOURS OF BARE PARTS. As in 281.

283. Tibetan Blood Pheasant. *Ithaginis cruentus tibetanus* (Baker)

Ithagenes [sic] *tibetanus* Baker, 1914, Bull. Brit. Orn. Cl. 35: 18 (Sela Range, 13,000 ft, above Tawang, eastern Bhutan-Tibet boundary [= NEFA])
Baker, FBI No. 1938, Vol. 5: 355

LOCAL NAME. *Seri* (Tibet).

SIZE and FIELD CHARACTERS. As for 281, q.v. but with forehead crimson instead of black. (See Key to the Subspecies and Museum Diagnosis.)

STATUS, DISTRIBUTION and HABITAT. Resident. 'Extremely common in eastern Bhutan in summer from 11,000 to 14,500 ft' (c. 3350 to 4400 metres — Ludlow, *Ibis* 1937: 499). Also in Kameng (and Subansiri?) Frontier Division of NEFA. Moves altitudinally with the seasons; in autumn and winter down to c. 2750 m. Its western boundary is probably the Jo Dürshi or Black Mountain range in central Bhutan between the 90th and 91st meridian — the watershed of the Manas and the Sankosh rivers. Affects dwarf rhododendron scrub near the snow-line.

Extralimital. Adjacent parts of SE. Tibet.

GENERAL HABITS, FOOD, VOICE and CALLS. As of the nominate race (281). BREEDING. Unknown.

MUSEUM DIAGNOSIS. Male. *Above*, crest greyer, less white than in 281; posterior ear-coverts grey and white. Feathers of forehead and face, above and below the eyes, red instead of black. Rectrices whitish grey. *Below*, feathers of breast with much more red, as in *kusneri* (284).

Female. Resembles *I. c. cruentus*, but darker and more strongly vermiculated below. Similar also to *I. c. kusneri* (284) but a shade more rufous and with the shaft-streaks on the underside more pronounced. Some females show scarlet feathers on the throat and sides of head.

MEASUREMENTS. ♂ Wing 197; bill (from feathers) 17.7; tarsus 59.7; tail 176.5 mm. (Baker).

COLOURS OF BARE PARTS. Bill black; orbital skin apparently orange; legs brilliant crimson-red, soles paler, claws black (Baker).

284. Mishmi Blood Pheasant. *Ithaginis cruentus kusneri* Beebe

Ithaginis kusneri Beebe, 1912, Zoologica 1: 190 (Yunnan)
Baker, FBI No. 1937, Vol. 5: 354

LOCAL NAMES. *Chiku* (Mishmi); *Siri, Seto* (Tibet).

SIZE and FIELD CHARACTERS. As for 281, q.v., but with forehead crimson instead of black. (See Key to the Subspecies and Museum Diagnosis.)

STATUS, DISTRIBUTION and HABITAT. Resident. Abor and Mishmi Hills of Siang and Luhit Frontier Divisions, NEFA, between c. 2500 and 4500 metres altitude. Its western boundary with *tibetanus* (283) lies somewhere between the 92nd and 93rd meridians (Ludlow, *Ibis* 1944: 381). Affects the rhododendron scrub zone to its highest limit.

Extralimital. SE. Tibet east to Yunnan (Shweli-Salween divide).

GENERAL HABITS, FOOD, VOICE and CALLS. As of the nominate race (281). 'It is one of the loveliest, stupidest, tamest and most unappetising game birds I have ever shot. We got specimens with our catapults, and this,

probably, is the most sporting weapon to use, for Kuser's Blood Pheasant is only a shade wilder than a barn-door fowl' (F. Ludlow, *Ibis* 1944: 382).

BREEDING. A nest with 3 fresh eggs recorded at c. 3000 m. altitude in the Upper Dibang Valley, end April. In a depression in the ground under a bamboo (F. M. Bailey).

MUSEUM DIAGNOSIS. Male. Differs from *I. c. tibetanus* (283) in the still greater extent of red and black colours. Forehead, throat, and breast almost pure crimson-red. Supercilia, ear-coverts, sides of head, and neck, wholly black. A broad black band (gorget) between red of throat and of breast.

Female, similar to *tibetanus* but slightly darker and redder, often washed with red on breast. Face and cheeks bright reddish brown (Delacour).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	197-210	c. 19	55-60	147-171 mm.
♀ ♀	184-190	—	—	—

COLOURS OF BARE PARTS. Iris yellow or light brown: orbital skin yellow, tinged with orange behind eye. Bill black, with scarlet cere and nostril. Legs and feet scarlet; claws dark brown; spurs black-tipped or all black (Baker).

Genus TRACOPAN Cuvier

Tragopan Cuvier, 1829, Règne Anim., nouv. éd., 1: 479. Type, by monotypy, *Melagris satyrus* Linnaeus

Contains the so-called Horned Pheasants, with the shape, proportions and carriage of partridges and a great deal of resplendent crimson in the plumage of the males.

Wings rounded: first primary (as.) shortest; 4th and 5th subequal and longest. Bastard wing (alula) well-developed. Tail of 18 feathers steeply graduated, more or less equal to wing in length. Bill short and stout; feathers of forehead almost reaching to nostril. Legs very powerful; armed with a short blunt spur on tarsus. An occipital crest of lengthened feathers in male, and two long subcylindrical brightly coloured fleshy horns, one above each eye, erected in courtship display. A brilliantly coloured and patterned apron-shaped gular wattle or bib fully developed in breeding season, also expanded in display. Sides of head and throat naked and brightly coloured in all species except *T. satyrus* (286), in which they are thinly feathered.

The genus ranges throughout the Himalayas from Kashmir to eastern China, four species occurring within our limits.

Key to the Species

		Page
Males		
A	Below crimson with black-edged white spots.....	<i>T. satyrus</i> 82
B	Below black with white spots.....	<i>T. melanoleucus</i> 80
C	Breast crimson-red; abdomen smoky or sepia-grey.....	<i>T. blythii</i> 84
D	Below crimson, feathers centred with pearl-grey.....	<i>T. temminckii</i> 86
Females		
A	Upper plumage streaked with white.....	<i>T. melanoleucus</i> 80
B	Upper plumage streaked with fawn or buff.....	I
1	No crimson on shoulder of wing.....	<i>T. temminckii</i> 86
	Shoulder of wing tinged with crimson.....	a

	Page
a General tint paler and more buff; black markings fewer.....	82
General tint darker and black markings predominating.....	84
..... <i>T. blythii</i>	84

285. Western Horned Pheasant. *Tragopan melanocephalus* (J. E. Gray)

Phasianus Melanocephalus J. E. Gray, 1829, in Griffith, Anim. Kingd. 8 (Aves, 3):
29 (Almorah, India)

Baker, FBI No. 1932, Vol. 5: 345

Plate 22, fig. 6, facing p. 80

LOCAL NAMES. *Jewar* (Garhwal); *Jaghi, Jaghi* (Bashahr); *Sing monal* (NW. Himalayas); *Figurana ♂, Budal ♀* (Kulu, Mandi, Suket); *Fulgar ♂, Fulgari ♀* (Chamba); *Sondus ♂, Soldes ♀* (Kashmir).

SIZE. Large village hen; length c. 71 cm. (28 in.).

FIELD CHARACTERS. **M a l e.** A brilliantly coloured, white-spotted red and black giant partridge. *Above.* Crown black, with recumbent red-tipped occipital crest. Face naked bright red. Upperparts including wing-coverts and tertaries finely vermiculated buffy grey and black, and with round black-bordered white spots or ocelli. Neck (all round) red. Tail mottled buff and black, with irregular black bars and tips. *Below,* naked throat deep blue; foreneck and upper breast bright light red. Rest of underparts black, ocellated with white and irregularly smeared with red; flanks and abdomen mottled with brown and black.

F e m a l e. General effect grey instead of rufous-brown as in ♀ *T. satyra* (286). *Above* brownish grey; head and neck tinged with rufous, rest of upperparts irregularly streaked and spotted with black and white. *Below*, vermiculated grey and dark brown, spotted with fulvous on throat, and broadly streaked and splodged with white on the paler and greyer abdomen and flanks.

Y o u n g (immature) male like female, but the marks below more rounded, less spatulate in shape. At an older stage also like female 'but larger, higher on the legs, with a variable amount of black on the head and of red on the neck, and a number of white spots, surrounded with black, on the upper back and underparts' (Delacour).

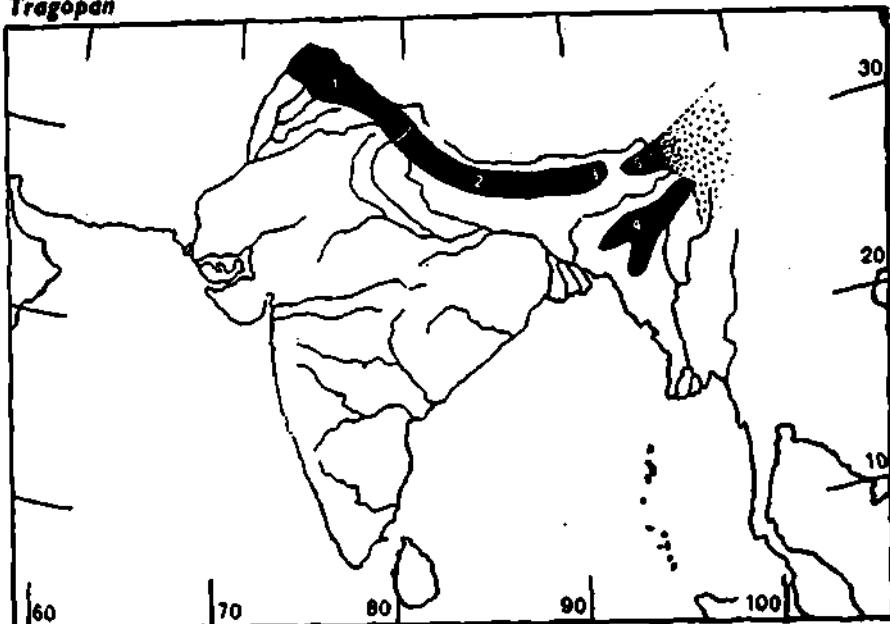
STATUS, DISTRIBUTION and HABITAT. Resident. From Swat in northern West Pakistan (Duber Valley, W. of Indus R., c. 73°E.) through Kashmir, the Punjab Himalayas and Himachal Pradesh to Garhwal and Kumaon (?) seasonally between c. 1350 (winter) and 3600 metres altitude; normally breeding above c. 2400 m. Affects dense undergrowth of rue and ringal bamboo in hill forest.

GENERAL HABITS. More or less common to the genus. Seen singly or in pairs, sometimes small family parties in non-breeding season. In out-of-the-way places where comparatively free from persecution sometimes feeds in company with Chir, Kalij, and Koklas pheasants in open glades or forested hill slopes, particularly whence the snow has just melted. Normally very shy and wild; skulking away through thick undergrowth on the least



PLATE 22

- 1 *Tragopan b. blythii*, Greybellied Tragopan (288). 2 *Tragopan temminckii*, Temminck's Tragopan (289). 3 *Puerasia m. macrolopha*, Koklas Pheasant (305). 4 *Gallus lafayettii*, Ceylon Junglefowl (302). 5 *Catreus wallichii*, Chir Pheasant (307). 6 *Tragopan melanocephalus*, Western Tragopan (285). 7 *Syrmaticus h. humiae*, Mrs Hume's Pheasant (308). 8 *Gallus sonneratii*, Grey Junglefowl (301). 9 *Crossoptilon c. harmani*, Elwes's Horned Pheasant (292).

Tragopan

Range within Indian limits

- 1 *T. melanocephalus* (285).
- 2 *T. satyra* (286).
- 3 *T. blythii moluccensis* (287).
- 4 *T. blythii blythii* (288).
- 5 *T. temminckii* (289).

disturbance or flying up and concealing itself most effectively in densely foliated branches of trees where it also roosts at night. Like all Himalayan pheasants difficult to observe in wild state. Most details of its biology obtained from captivity in which it thrives well and breeds freely given adequate care and facilities. Stages of the cock's bizarre but beautiful display thus described by Delacour (loc. cit.: 60). (1) Struts round hen with wing on near side lowered and partly spread, shoulder on far side raised, slanting upper part of body towards her for better exhibition. This is the manoeuvre common to the domestic cock and all other pheasants. (2) Rushes suddenly with partly spread wings, with or without erection of horns or expanding of throat-wattle (bib). (3) Stops suddenly with most of the lower plumage fluffed out. The half-spread wings move slowly up and down, with wrist-edges well out from body and tips pressed inward and downward; head and neck shaken spasmodically until the horns and wattle are spread out to their utmost. The lappet is expanded and retracted with astonishing ease and rapidity. The bird soon reassumes a normal posture, walks off, picks up food, only to start displaying again in a moment.

FOOD. Largely fresh leaves, e.g. of oak (*Quercus*), sometimes taken up in the trees; shoots of ringal bamboo, roots, seeds, acorns, berries and insects.

VOICE AND CALLS. When alarmed a succession of wailing cries not unlike those of a young lamb or kid: *waa, waa, waa*, each *waa* uttered slowly and distinctly at first, and more rapidly as the bird is hard pressed and about to

take wing. On approach of breeding season ♂ calls at intervals throughout the day, more often at dusk and daybreak (every 5 or 10 minutes, sometimes longer) from the bough of a tree or other elevated position such as a fallen tree-trunk or boulder. Similar to alarm-call but much louder and a single energetic, far-carrying *wee* at a time, not unlike the bleating of a lost goat. This curious cry has also been described as 'something between a kid's bleat and the cry of a wild goose' (Hume & Marshall).

'The love-call of the male tragopan [apparently the genus] is a resounding and far-reaching *way! weeah! oo-ah! OO-aaaah!*' (Delacour).

BREEDING. Poorly known in the wild state. Season, mentioned as June. Nest, of sticks with grass lining either on the ground in thick undergrowth, e.g. of ringal bamboo, or in a tree: 'about 10 ft from the ground' being recorded. Eggs, in captivity 3 to 6, laid every other day; pale buff to reddish brown feebly freckled with dark brown, averaging c. 63 x 42 mm. in size. Cock monogynous; assists in tending the chicks. Incubation entirely by hen; period about 28 days.

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

Chick (in down). Like that of *Tragopan satyra* (286) q.v., but greyer.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	255-290	17-20	78-97	220-250 mm.
♀ ♀	225-250	15	65	190-200 mm. (Delacour)

Weight ♂ ♂ 4 lb. to 4 lb. 12 oz. (c. 1.80-2.15 kg.) — Baker; ♀ ♀ 2 lb. 12 oz. to 3 lb. (c. 1.25 - 1.40 kg.) — Whistler.

COLOURS OF BARE PARTS. ♂ Iris brown. Bill black, tip horny. Bare skin of face bright red with lines of small blue spots below eyes. Throat [naked] deep blue; cheeks blue-green; lappet purplish blue down centre, pink on margins, with pale blue indentations. Fleshy horns blue. Legs pink to whitish grey, according to season (Delacour).

The lappet, when not in use, shrivels up and becomes quite insignificant.

286. Crimson Horned Pheasant or Satyr Tragopan. *Tragopan satyra* (Linnaeus)

Meleagris Satyra Linnaeus, 1758, Syst. Nat., ed. 10, I: 157

(Bengal, ex Edwards, pl. 116, error — Nepal¹)

Baker, FBI No. 1931, Vol. 5: 343

Plate 29, Fig. 1, facing p. 32

LOCAL NAMES. *Lungi* (Hindi, Garhwal, Kumaon); *Monal* (Nepal); *Omo*, *Bop* (Bhutan); *Tarhyak* (Lepcha); *Chamdong* (Tibet).

SIZE. Village hen; length ♂ c. 68 cm. (27 in.), ♀ c. 59 cm. (23 in.).

FIELD CHARACTERS. Male. Head, recumbent crest, and a loop round the deep blue semi-naked throat-patch, black. A crimson streak on either side

¹ or Darjeeling dist., Bengal? See Biswas, 1960, JBNHS 57: 360, footnote.



barred and blotched with black and buff. Pale shaft-stripes on crown. Shoulder of wing tinged with crimson. *Below*, chin and throat whitish; breast and abdomen like back but paler, mottled with large ill-defined whitish shaft-spots. Tail rufous-brown, irregularly barred with black and buff.

Young (immature) ♂ like female, but less richly coloured. When assuming adult plumage presents a patchy appearance with red and ocellated feathers distributed irregularly on underparts.

STATUS, DISTRIBUTION and HABITAT. Resident. Garhwal, Nepal, Sikkim, Bhutan and adjoining parts of NEFA. Western and eastern limits, as presently known, roughly the Alaknanda river in Garhwal (*c.* 79°30'E.) and 'Darrang' north of Brahmaputra river, in Assam. (More likely somewhere in the Kameng Frontier Division [Mon Yul area?] where the altitudes and biotope are more appropriate.) Affects oak, deodar and rhododendron forest in *khuds* and on steep hillsides with scrubby undergrowth and ringal bamboo, between *c.* 2400 and 4250 metres elevation; down to *c.* 1800 metres in severe winters.

GENERAL HABITS and FOOD. As of 285, q.v. Stomachs of 13 birds from Lachung (Sikkim) examined by Meinertzhagen in December all contained a leaf and a fern believed to be *Diplazium* and *Polypodium*.

VOICE and CALLS. 'A loud pitched *wak* repeated several times' (H. Stevens). 'An arresting loud *kya, kya, kya* like the bleating of a goat kid' (SA). Each bleat repeated at appropriate intervals.

BREEDING. Little known in the wild state. *Season*, apparently May-June. *Nest*, an untidy jumble of sticks placed up in the branches of a tree in forest. *Eggs*, 2 to 4 (?) reddish buff, freckled all over with deeper brick-red. Size *c.* 65 × 42 mm.

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

Chick (in down). *Above*, 'Side of head and supercilium dirty buffish white, dark-tipped on ear-coverts; crown from bill ferruginous. Upperparts ferruginous-brown with darker tips and paler bases, but no distinct pattern. Tail ferruginous. *Below*, chin and throat buffish white; rest of underparts same, with faint dark tips and tinged with rust on sides and on thighs' (Ticehurst).

MEASUREMENTS

Wing 15 ♂♂ ad. 260-277 (aver. 268·5 mm.); 7 ♀♀ ad. 216-245 (aver. 229·5 mm.) — (Schäfer, Stevens, SA).

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	245-285	14-16	85-95	250-345 mm.
♀♀	215-235	11	66	195 mm. (Delacour)

of crest. General plumage, above and below, rich orange-crimson, olive-brown on back and rump, sprinkled all over with round black-bordered white spots or ocelli. Shoulder of wing crimson; rest of wing dark brown mottled with buff; tail black.

Female. *Above* rufous- or ochreous-brown, vermiculated,

Tail proportionately longer than in other tragopans.

Weight ♂♂ 3 lb. 8 oz. to 4 lb. 10 oz. (1.60-2.10 kg.); ♀♀ 2 lb. 4 oz. to 2 lb. 10 oz. (c. 1-1.20 kg.) — Hume.

COLOURS OF BARE PARTS. ♂ Iris brown. Bill black. Bare skin of throat dark blue; lappet-blue in middle, pale green on margins, with four or five triangular scarlet patches on each side. Fleshy horns blue. The lappet extends to a length of 100 mm. and the horns to 75 mm. during display. Legs pink.

♀ Iris brown; orbital skin bluish. Bill horn brown. Legs whitish grey (Delacour).

TRAGOPAN BLYTHII (Jerdon)

Key to the Subspecies

Males

Paler; red of the breast forming a very broad gorget.... *T. b. blythii*

Darker; red of the breast forming a very narrow gorget only.....

T. b. molesworthi

287. Tibetan Greybellied Tragopan. *Tragopan blythii molesworthi* Baker

Tragopan blythii molesworthi Baker, 1914, Bull. Brit. Orn. Cl. 35: 18

(Dengen La, 8000 ft, Tibet)

Baker, FBI No. 1934, Vol. 5: 349

LOCAL NAME. *Bop* (Tibet).

SIZE. Village hen; length ♂ c. 68 cm. (27 in.).

FIELD CHARACTERS. As of the nominate race (288) q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Resident. Rare. Apparently only three specimens known. Eastern Bhutan (where it overlaps the range of *T. satyra*) and presumably adjoining parts of NEFA east to the Mishmi Hills, from c. 1800 to 3300 metres elevation. Reported to keep to the thickest scrub and ringal undergrowth in high forest, and very hard to get a glimpse of though not shy (Col. J. Chatterton).

Extralimital. Adjacent parts of SE. Tibet.

GENERAL HABITS and FOOD. As of the nominate race.

VOICE and CALLS. Brig. A. L. M. Molesworth, who obtained the type specimen, says 'it was sitting in a clump of bamboos making a noise like a leopard' (!).

BREEDING. Unknown.

MUSEUM DIAGNOSIS. Male, differs from ♂ of the nominate race (288) in having the entire upperparts darker, the maroon ocelli browner, and the buff vermiculations narrower and less distinct; the white spots smaller though equally numerous. Below, red of breast confined to a comparatively narrow gorget descending only a short way below the neck on to the breast. Rest of lower parts much paler grey than in *blythii*, the light centres scarcely distinguishable from the surrounding parts of the feather.

Female, differs from ♀ of the nominate subspecies 'in having the whole upper plumage darker, the blackish marks being larger and deeper coloured, the grey-brown markings much deeper grey and less brown, ear-coverts subtipped rufous, rufous-centred cheek-feathers, rump and upper tail-coverts greyer and not

quite so reddish in general tone. On the underside, the rufous edges of feathers of breast and abdomen deeper' (Biswas, 1968, JBNHS 65: 216-17 and coloured plate).

MEASUREMENTS

1 ♂ Wing 250; bill ('from front') 19; tarsus 76, middle toe and claw 76; tail 195 mm. (Baker).

1 ♀ (in flesh) Wing 232; bill (from skull) 33; tail 155 + mm. (Biswas).

COLOURS OF BARE PARTS. ♂ unrecorded; presumably as in the nominate race. ♀ 'Iris dark brown, edges of eyelids lemon yellow. Maxilla black but brown at base; mandible very pale horny. Legs and feet brownish horny; claws horny; pads white' (Biswas).

288. Greybellied Tragopan. *Tragopan blythii blythii* (Jerdon)

Ceriornis Blythii Jerdon, 1870, Proc. Asiatic Soc. Bengal: 60 (Hills at the head of the Assam Valley, i.e. Henema, Naga Hills, Assam)

Tragopan blythii rupchandi Koelz, 1954, Contrib. Inst. Regional Exploration No. 1: 29 (Blue Mountain, Lushai Hills)

Baker, FBI No. 1933, Vol. 5: 347

Plate 22, fig. 1, facing p. 80 (There should not be any blue adjoining the yellow gular patch as shown.)

LOCAL NAMES. *Hur huria* (Assam and Miri); *San sorai* (Assam, Sadiya); *Gnu* (Angami Naga); *Aghah* (Sema Naga); *Aogho* (Chang Naga); *Chingtho* (Kuki).

SIZE. Village hen; length ♂ c. 68 cm. (27 in.), ♀ c. 59 cm. (23 in.).

FIELD CHARACTERS. A large oversized partridge, the male with much brilliant red in plumage, and conspicuous white ocelli on back.

Male. *Above*, forehead, crown, a patch down either side of neck, and feathers round the naked orange-yellow face, black. Broad supercilia to nape, hindcrown, neck, upper back, and wing shoulders bright crimson. Rest of upper plumage brown, tinged with red and contrastingly marked with numerous white and maroon ocelli. *Below*, feathers round the naked yellow gular patch, black. Adjacent upper breast bright crimson followed by smoky grey lower breast and belly, the feathers centred paler grey. Flanks and thighs mottled black and buff and splashed with crimson as on vent.

Female. Rather like ♀ *T. satyra*, but paler. *Above*, black narrowly barred, blotched and stippled with rufous and vermiculated with buff. Tail paler and more rufous. *Below*, mottled, stippled and spotted with dark brown, rufous, and greyish white. Centre of abdomen, and vent, more uniform grey.

Young (immature) male like female but acquiring red on the neck at the first spring moult.

STATUS, DISTRIBUTION and HABITAT. Resident, but like other pheasants moving up and down altitudinally with season and supply of favourite foods. Assam south of the Brahmaputra river, in the Patkai, Naga, and Barail hill ranges south through Manipur and Mizo (Lushai Hills) from c. 1800 metres up. Affects thick undergrowth in heavy evergreen forest.

Extralimital. The Chin Hills and adjacent mountain ranges of western and northern Burma.

GENERAL HABITS, and FOOD. As of 285, q.v.

GALLIFORMES

VOICE and CALLS. 'A very loud challenging *gnau, gnau* by the male' (R. S. Bedi, *in epist.*). Displaying cock utters a 'goch . . . goch . . . goch' repeated often, punctuated by short pauses; reminiscent of 'roar' of Great Pied Hornbill but much softer. Two cocks answer each other from the distance, the second joining in soon after the first begins. These 'challenges' and 'counter-challenges' are kept up for some time (Gerd Heinrich, Mt Victoria).

BREEDING. No authentic record in wild state. Eggs (in captivity) pale buff, finely and lightly freckled and spotted with brown, averaging 58.5 × 44 mm. (Delacour). Clutch size?

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

Chick (in down). Similar to *T. satyra*, but lighter in colour.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	260–265	c. 10	82–94	180–220 mm.
♀ ♀	230–245	—	—	—

(Baker)

Bill from skull of a ♂ collected by SDR in the Naga Hills measured 25.5 mm. He remarks that the measurement given by Delacour (*op. cit.*, 1951: 68) as 15 mm. is presumably for nostril to tip rather than culmen, as stated. In view of this, Baker's 'c. 10 mm.' seems even more misleading.

COLOURS OF BARE PARTS. ♂ Iris brown. Bill horny brown. Bare face golden yellow. Horns light blue. Lappet yellow, bordered with blue. Legs pink or reddish.

♀ Iris brown. Bill horny. Orbital skin yellowish. Legs fleshy brown (Delacour).

One spur on each leg in ♂ up to c. 190 mm. long and of a 'bright azure blue colour' in life (*vide* G. Damant in Hume, SF 7: 473).

289. Temminck's Tragopan or Chinese Crimson Horned Pheasant.

Tragopan temminckii (J. E. Gray)

Satyrus Temminckii J. E. Gray, 1831, in Hardwicke's Ill. Ind. Zool. 1(9): pl. 50. (No locality; the type in the British Museum is from 'China' = Szechuan *apud* Baker,

1928, Fauna, 5: 350.)

Baker, FBI No. 1935, Vol. 5: 350

Plate 22, fig. 2, facing p. 80

LOCAL NAMES. *Bop* (Tibet); *Oua oua ky*; *Ko ky, Kiao ky, Sin tsiou ky, Tso-chi* (Chinese).

SIZE. Village hen; length c. 64 cm. (25 in.).

FIELD CHARACTERS. Male. *Above* and *below* bright crimson like Satyr Tragopan (286), with round black-bordered pearl-grey spots or ocelli on upperparts. Head, borders of face, and loop round throat-patch similarly black. Differs from 286 chiefly in having the face naked bright cobalt blue in addition to the throat patch, and large triangular (or diamond-shaped) pearl-grey spots replacing white ocelli on underparts.

Female. *Above*, rufous to greyish brown strongly mottled with blackish, with whitish arrow-shaped marks. Tail like back, but with the markings forming irregular bars. *Below*, chin and throat whitish, with black lines.

Rest of underparts light brown with large whitish shaft-spots and black blotches.

Young (immature) male. Like female, but larger, with some black and red on the head, and red on neck and upper breast.

STATUS, DISTRIBUTION AND HABITAT. Resident. Luhit Frontier Division of NEFA (Mishmi Hills, Upper Dibang and Tsangpo valleys, etc.), between c. 2100 and 3500 m. altitude. The Subansiri-Manas watershed postulated as the dividing line between this species and *T. satyra* which occurs on the East Bhutan frontier (F. Ludlow, *Ibis* 1944: 379). Like the other tragopans affects thick undergrowth in evergreen forest on steep hillsides.

Extralimital. Adjacent mountains of SE. Tibet; N. Yunnan, Szechuan, Shensi and Hupeh; NE. Burma (Chin Hills etc.).

GENERAL HABITS, FOOD, VOICE AND CALLS. Largely as in 285, q.v. Little known in wild state. Apparently even more unsocial than other tragopans, and very arboreal. Usually seen solitary, and never more than 2 or 3 together. In uninhabited regions, common and very tame (F. M. Bailey).

BREEDING. Not authentically known. Eggs (in captivity) comparatively small for the genus, averaging 54 × 40 mm.; buff, speckled and freckled with brown (Delacour).

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

Chick (in down). 'Lores and crown bright rufous-green, changing to darker chestnut-brown on back and tail-tuft; circle round eye, sides of head, and ear-coverts bright pale fulvous-rufous; below pale dull fulvous' (Baker). 'Differs mostly from *satyra* in being smaller' (Delacour).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	225-265	15-16	70-80	185-230 mm.
♀ ♀	220-225	15	70	175 mm. (Delacour)

Weight ♂ c. 3½ lb. (1.60 kg.) — F. M. Bailey.

COLOURS OF BARE PARTS. ♂: Iris brown. Bill black, tip horny. Bare face and chin bright blue. Horns greenish blue. Lappet dark blue spotted all over with pale blue and eight arrow-shaped scarlet marks on each side. Legs pinkish to reddish. ♀: Iris brown. Bill horny. Orbital skin bluish. Legs fleshy grey (Delacour).

Genus *LOPHOPHORUS* Temminck

Lophophorus Temminck, 1813, Pig. et Gall. 2: 355. Type, by monotypy, *Lophophorus refulgens* Temminck = *Phasianus impejanus* Latham

Face more or less naked and highly coloured. Bill long and greatly curved, upper mandible much overlapping lower at the tip as well as along edges. Tarsi and feet very powerful and heavy, the former feathered above and with a short shiny spur. Wing much rounded: first primary (as.) shortest; fifth and sixth coequal and longest. Tail of 18 feathers, shorter than wing, fairly rounded; flat as in partridge, not laterally compressed as in junglefowl.

The genus contains heavily built dumpy Himalayan pheasants shaped like snowcock but distinguished by the highly resplendent plumage of the males. Two species occur within our limits.

Key to the Species

		Page
Males		
A	Crest composed of feathers with naked shafts and spatulate ends.....	<i>L. impejanus</i> 88
B	Crest composed of short curly feathers.....	<i>L. sclateri</i> 90
Females		
A	Lower back buff barred with black.....	<i>L. impejanus</i> 88
B	Lower back and rump pale earthy-white with narrow bars of brown.. <i>L. sclateri</i> 90

290. **Impayan or Himalayan Monal Pheasant.** *Lophophorus impejanus* (Latham)

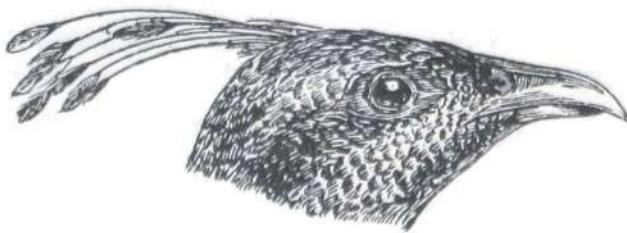
Phasianus impejanus Latham, 1790, Index Orn. 2: 632 (India = Sikkim, type locality fixed by Meinertzhagen, 1952, Bull. Brit. Orn. Cl. 72: 85)

Lophophorus chambanus Marshall, 1884, Ibis: 421, pl. 10 (Chamba)
Baker, FBI No. 1928, Vol. 5: 335
Plate 21, fig. 9, facing p. 64

LOCAL NAMES. *Sunāl*, *Suna mūrgh* ♂, *Hām* ♀ (Kashmir); *Nilgur* (Chamba); *Munāl*, *Nil* ♂, *Karēri* ♀ (Kulu); *Munāl*, *Ghar munāl*, *Ratia kawan*, *Ratnal*, *Ratkāp* (NW. Himalayas); *Datiya* (Kumaon and Garhwal); *Dāngān*, *Dafé* (Nepal); *Fo dong* (Lepcha); *Chamdong* (Bhutea, Sikkim); *Pia padir* (Mishmi); *Būp* (Bhutanese).

SIZE. Large domestic hen +; length c. 72 cm. (28 in.).

FIELD CHARACTERS. A stout, dumpy Himalayan pheasant. *Above*, resplendent metallic, bronze-green, purple, and blue with a large white rump-patch and crest of wire-like spatula-tipped metallic green feathers. Tail cinnamon-rufous, short, broad, more or less square-cut. *Below*, velvety jet black. When flushed, the wild ringing shrieks, the chestnut wings and the broad white rump-patch are diagnostic.



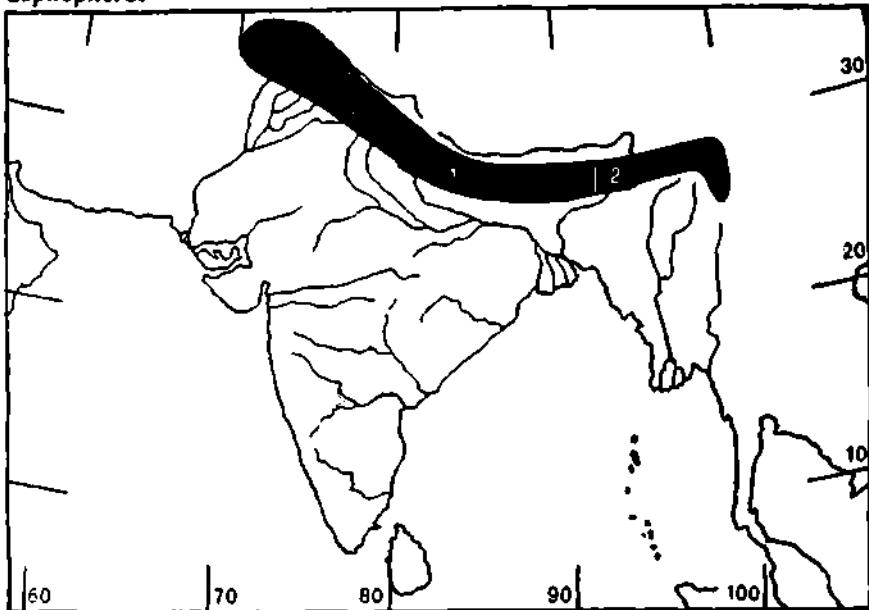
♂, × c. ½

Female. Brown, mottled and streaked with paler and darker brown, with a short tuft on head and white throat. In flight looks brown with much white in tail.

Young (immature) male. Like female, but more mottled with black above, and with black and rufous below. Older juveniles have some black spots on throat and occasionally a few metallic feathers on upperparts.

STATUS, DISTRIBUTION and HABITAT. Resident. The Himalayas between c. 2600 and 5000 m. altitude from eastern Afghanistan through NW. Pakistan, Kashmir, Punjab, Himachal Pradesh, Kumaon, Garhwal, Nepal, Sikkim to about the eastern frontier of Bhutan. Somewhere between c. 92° and 93°E. long. it meets the species *L. sclateri* (291) (*vide* Ludlow, *Ibis* 1944: 376).* Affects high oak, rhododendron, and deodar (*Cedrus deodara*) forest interspersed with open glades and sheep pastures, and precipitous hillsides with grass and weeds growing on the narrow ledges.

Lophophorus



■ Range within Indian limits

1 *L. impejanus* (290).

2 *L. sclateri* (291).

GENERAL HABITS. Keeps singly or in parties of 3 or 4 consisting of a cock and two or three hens, or all of the same sex, which dig for food vigorously with their powerful bills on the edge of alpine pastures often in deep snow. When flushed, rises with a loud flutter of wings, the bird invariably planing steeply downhill with wild ringing cries. When suddenly come upon in forest, especially if accompanied by small chicks, it flies up with much cackling into the thickly foliaged branches of a deodar or pine tree and freezes, the sober-coloured hen in particular then becoming astonishingly obliterated. In courtship the cock droops his chestnut wings, spreads out and erects his tail like a turkey cock, jerking it up over the back from time to time as he struts around the seemingly unconcerned hen. A variant of the 'dance' observed as follows: Cock and hen scratching and feeding on flat terrace on hillside. Hen uttered her 'call note' (?) several times. Upon this the cock, feeding some little distance away, ran to her with wings raised high above the back, tail spread, neck- and body-feathers fluffed out, displaying resplendence of plumage in the morning sun to best advantage. He thus moved quickly to and fro in front of her for a few seconds while she stood quietly

looking on; then abruptly closed his wings and tail, turned about, and ran back to his feeding place (G. S. Rodon, JBNHS 12: 573). The cock also indulges in a spectacular courtship flight, leaping straight up into the air from a steep hillside, moving slowly with wings held high above line of back, tail partly spread and the white rump conspicuously displayed.

FOOD. Grass- and flower seeds, roots, tubers, shoots, berries (e.g. *Crataegus microphylla*), and insects and their larvae, dug up often from under deep snow.

VOICE and CALLS. Call- and alarm notes a wild, ringing whistle reminiscent of the Curlew. Usually uttered from a rock on a precipitous slope, after which the bird planes steeply down the *khud*-side to another perch often far below.

BREEDING. Season, April to June. Nest, a scrape in the ground under shelter of a rock or fallen tree-trunk in undergrowth on a steep hillside, hidden by grass or ferns, etc. Eggs, 4 to 6 pale yellowish or reddish buff, freckled and spotted with reddish brown. Average size of 74 eggs $63\cdot5 \times 44\cdot9$ mm. (Baker). Incubation period unrecorded. Cock apparently polygynous, but its biology in the wild state very little known.

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

Chick (in down). 'Crown dark rufous; a short line back from base of culmen, lores, three short lines on the face, ear-coverts and sides of the occiput black; eyebrows and facial area buff; mantle and wing-down grizzled rufous, back and rump chocolate, with two pairs of lateral buff lines, the outer pair often partly merged with the ventral colouring; loral line buffy cream; chin and throat smoky white; sides of throat darker; remainder of underparts dirty buffy white, flanks darker' (Delacour).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail	Crest
♂ ♂	289-320	c. 50-54	c. 70-80	215-235	75-88 mm.
♀ ♀	259-287	—	—	—	(Baker)

Middle toe and claw: ♂ 71, ♀ 77 mm. (Delacour).

Weight ♂ ♂ 4 lb. 6 oz. to 5 lb. 4 oz. (c. 1.98-2.38 kg.); ♀ ♀ 4 lb. to 4 lb. 12 oz. (c. 1.80-2.15 kg.) — Hume.

COLOURS OF BARE PARTS. ♂ Iris brown; circumorbital skin bright azure to almost royal blue. Bill horny blackish with a greyish white band (c. 3 mm. wide) along both edges of culmen. Legs and feet olive-brown, each scale on tarsus and toes finely margined with black; soles of feet greenish brown; claws and spurs horny black. ♀ Circumorbital skin paler blue; ridge of culmen more brown less black. Otherwise as in ♂.*

291. *Sclater's or Mishmi Monal Pheasant.* *Lophophorus sclateri* Jerdon

Lophophorus sclateri Jerdon, 1870, Ibis: 148 (Mishmi Hills)

Baker, FBI No. 1929, Vol. 5: 337

LOCAL NAMES. *Tratta, Poa padoi* (? Mishmi); *Pui di* (Chulikatta Mishmi); *Padd* (at Pachakshiri).

SIZE. As of 290.

FIELD CHARACTERS. Male. Very like the Himalayan Monal (290), but somewhat duller and less resplendent, and without crest; the crown covered with short curly or frizzled metallic blue-green feathers instead. White of rump much more extensive and including upper tail-coverts. Tip of tail broadly white making the cinnamon appear like a wide band across white tail.

Female. Similar to ♀ 290 but with rump and upper tail-coverts conspicuously pale greyish white. Tail black, broadly tipped with white and with some narrow whitish bars.

Young (immature). See under Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. NEFA east of c. the 92nd-93rd meridians (where it meets *L. impejanus*, *vide* Ludlow, *Ibis* 1944: 376), through the Kameng, Subansiri, Siang, and Luhit Frontier Divisions, between c. 3000 and 4000 metres altitude. Affects silver fir (*Abies*) forest with dense rhododendron undergrowth.

Extrazonal. Contiguous parts of SE. Tibet, eastward to NE. Burma and Yunnan.

GENERAL HABITS. As of Himalayan Monal (290), q.v. Very parochial, occupying the same haunts day after day (Cranbrook). 'Very noisy in the evenings. When chased by dog refused to fly until nearly caught, when they would fly into a tree and remain there while the dog barked below. Our dog actually caught one' (F. M. Bailey).

FOOD. As in 290. Among crop contents specifically mentioned are '*Polygonum* seeds and heads of some thistle or hard-headed flowers' (Cranbrook).

VOICE and CALLS. Alarm calls described as shrill, harsh, rather plaintive, 'a mixture between that of a peacock and a guineafowl' — a single cry uttered repeatedly by a sentinel from an overlooking rock on a steep hillside (Cranbrook). A wild ringing whistle like that of *L. impejanus* but 'distinct in tone' (F. Ludlow).

BREEDING. Unknown. Males collected by Ludlow on 14 May all had enlarged testes c. 25 mm. in length. One female with a large-yolk ovarian egg; another with a large incubation patch.

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

Young (immature) male. Described from a specimen collected by F. Kingdon Ward at the Tsangpo Po-Tsangpo confluence c. 2700 metres altitude (Feb. 1924): 'Differs from adult female in the darker colour of the mantle, the paler, more white colour of the lower back, rump and upper tail-coverts and in the greater amount of cinnamon on the tail-feathers which colour is entirely absent from an adult (♀) from the Tsangpo, but present in slight frecklings in a bird from the Mishmi country and figured in *Proc. Zool. Soc.*, 1879, pl. ii. The upper side of this young male is narrowly barred with faint cinnamon bands instead of frecklings. On the breast and neck the black feathers of the adult are beginning to appear and a few metallic feathers to show on the head' (N. B. Kinnear, 1934, JBNHS 37: 367).

MEASUREMENTS

	Wing	' Culmen '	Tarsus	Tail
♂	317	38	73	223 mm.
♀	280	32	71	185 mm.

Middle toe and claw ♀ 75 mm.

F. Ludlow's specimens gave: Wing 4 ♂♂ 298-303; 2 ♀♀ 285-287 mm.

(Delacour)

Width of white tips of central tail-feathers (in 2 cases) 19.5 and 22.5 mm. In Mishmi birds upper tail-coverts clear and unstreaked white, whereas birds from Yunnan appear to have more black central streaks on the feathers (SDR).

COLOURS OF BARE PARTS. ♂ Iris brown. Bill horny orange-yellow, darker at tips. Facial area bright blue. Legs greenish brown. ♀ Bill yellowish. Legs and feet brown. Spurs often present (Delacour).

Genus *CROSSOPTILON* Hodgson

Crossoptilon Hodgson, 1838 (Oct.), Jour. Asiatic Soc. Bengal 7: 864. Type, by monotypy and tautonomy, *Phasianus crossoptilon* Hodgson

Contains large heavy pheasants about the size of the Monal with the ear-coverts prolonged and sticking out behind the head like two small horns or ears whence their popular name of 'Eared Pheasants'. Sides of head naked, covered with bright red papillae. Wings rounded and cambered as typical of the Phasianidae: first primary (as.) short; 5th and 6th equal and longest. Tail compressed, of 20-24 very broad feathers at base, with the webs very soft, broad and decomposed, the long central drooping ones reminiscent of ostrich plumes. Legs powerful, with short blunt spurs on tarsi of male. Sexes alike in coloration; male slightly larger.

As presently known, only one species and race enters the fringe of our northern limits in NEFA.

292. Elwes's Eared Pheasant. *Crossoptilon crossoptilon harmani* Elwes

Crossoptilon harmani Elwes, 1881, Ibis: 399, pl. 13 (Eastern Tibet, about 150 miles east of Lhasa)

Baker, FBI No. 1930, Vol. 5: 339

Plate 22, fig. 9, facing p. 80

LOCAL NAME. *Cha-nga* (Tibet).

SIZE. Large domestic hen +; about that of Monal Pheasant. Length c. 72 cm. (28 in.).

FIELD CHARACTERS. Overall ashy blue-grey with broad laterally compressed tail, the longer arching disintegrated central feathers reminiscent of ostrich plumes. *Above*, sides of head naked, deep scarlet. Crown from forehead to nape velvety black. Elongated ear-tufts (coverts) projecting beyond, and a band across nape white. Upperparts deep ashy grey, darker (blackish) on neck, paler on rump and upper tail-coverts. Tail metallic blue-black glossed with green, blue, and purple. *Below*, chin and throat white contiguous with the nape-band and forming a ring. Rest of underparts ashy grey, deep and glossy on breast, white down centre of foreneck and abdomen. Sexes alike in coloration; male larger.

STATUS, DISTRIBUTION and HABITAT. Very plentiful wherever found. Extreme northern fringes of the Siang, Subansiri, and Luhit (?) Frontier Divisions of NEFA, normally between c. 3000 and 5000 metres altitude; rarely as low as 2400 m. Affects the edges of grassy hill slopes abutting on rhododendron and juniper scrub.

Extralimital. Contiguous parts of SE. Tibet north of the main Himalayan axis from c. long. 91°33' in the Tsangpo valley and c. 92°30' in the Subansiri basin eastward to the Salween valley (c. 31°N., 95°30'E.) where it apparently meets the nominate race (Ludlow, Ibis 1944: 378).

GENERAL HABITS. Keeps in flocks of 5 to 10 birds to dwarf rhododendron jungle whence they come out to feed in the grassy clearings in the morning and evening. Reluctant to fly. When disturbed invariably scurries uphill and into the nearest bushes, and almost impossible to flush without the aid of a dog. It then flies up into a tree if available, otherwise shoots downhill and for considerable distances. Where unmolested becomes astonishingly tame, coming to monasteries in the remoter areas to be fed by the lamas, and even eating out of their hands.

FOOD. As of the Monal — seeds, shoots, roots, tubers, fallen berries (e.g. of mountain ash) in autumn; also insects and their larvae.

VOICE and CALLS. Uttered chiefly in the early mornings. Loud, harsh and distinctive, resembling that of a guineafowl but much louder and more resonant; clearly audible from over a mile away and a sure indication of the presence of the bird in a locality even when not seen. Also has a single note like a heron's squawk (Ludlow).

BREEDING. Only a single doubtful record within Indian limits of eggs brought to Stuart Baker by local Abors in the Mishmi Hills (26 May). In SE. Tibet Ludlow found three nests. One (23 May) placed under a fallen fir tree, was composed of bark and rotten pulp of the tree and lined with moss. It contained 9 cream coloured, unspotted eggs averaging 55.5 x 42.0 mm. in size. (Eggs 'greyish green' *vide* Delacour.) F. M. Bailey found broods of newly hatched chicks in SE. Tibet on 18 July, about which time also a larger chick was obtained. Male evidently monogynous.

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

Chick (c. 14 days old). 'Crown velvety black; upper plumage dull black changing to dark ashy grey on the rump and upper tail-coverts; the wings are vermiculated with reddish bars, and the coverts have broad reddish shaft-streaks. White on the head as in the adult, the ear-tufts showing distinctly. Upper breast and flanks black, the feathers centred and edged fulvous. Lower breast and abdomen dirty white, vent and under tail-coverts dull ashy grey tipped with white. Tail-feathers blue-black glossed with blue, showing green in some lights (Baker). 'Iris brown; bill horn coloured, paler below; legs reddish brown' (Bailey).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♀ ad.	292-331	c. 40-44	87-93	457-559 mm.
Spur short, c.	15-20 mm.			(Baker)

COLOURS OF BARE PARTS. Iris brown to orange-brown. Bill light reddish horny. Naked facial skin scarlet. Legs and feet scarlet.

* Genus *LOPHURA* Fleming

Lophura Fleming, 1822, Philos. Zool. 2: 230. Type, by monotypy,
Phasianus ignitus [Shaw]

Gennaeus Wagler, 1832, Isis von Oken, col. 1228. Type, by monotypy,
Phasianus nycthemerus Linnaeus

Cf. Delacour, J., 1949, *Ibis*: 188-220.

Contains the Kaleej and Silver Pheasants, most closely allied to junglefowl in morphology and behaviour. Wing rounded: first primary (as.) short; 2nd equal to 9th or 10th in length; 5th and 6th primaries longest. Tail compressed, 'roof-shaped';

of broad arching sickle-shaped feathers in the male. Bill strong; of moderate size. Face naked, brightly coloured, the skin covered with tiny papillae. Tarsi stout, armed with a long sharp spur on each leg in male, exceptionally also in female. Sexes dimorphic: female without elongated sickle-shaped feathers in tail.

Within our limits only one species, in 5 (or 6) races, occurs in the Himalayas and Assam hills, ranging eastward through Burma and the Indochinese subregion to S. China and Hainan Island.

LOPHURA LEUCOMELANA (Latham)

Key to the Subspecies

	Males	Page
A	Crest white or very pale brown.....	<i>L. l. hamiltonii</i> 94
B	Crest black.....	1
I	Plumage entirely black above and below.....	<i>L. l. moffitti</i> 101
	Plumage not entirely black above and below.....	a
a	Upper plumage wholly black, breast whitish.....	<i>L. l. melanota</i> 98
	Upper plumage black, feathers with pale edges and rump barred white; breast largely whitish.....	<i>L. l. leucomelana</i> 97
	Upper plumage black, rump boldly barred with white; breast black.....	<i>L. l. lathami</i> 99
	Upper plumage finely marked with black and white; breast black.....	<i>L. l. williamsi</i> 101
	Females	
A	Underparts paler.....	<i>L. l. hamiltonii</i> 94
B	Underparts darker.....	1
I	Central tail-feathers well mottled.....	a
	Central tail-feathers not much mottled.....	b
a	Feathers of upper plumage with pale contrasting edges.....	<i>L. l. leucomelana</i> 97
	Feathers of upper plumage with pale edges barely showing.....	<i>L. l. melanota</i> 98
b	Central tail-feathers plain hair brown.....	<i>L. l. moffitti</i> 101
	Central tail-feathers darker chestnut-brown.....	<i>L. l. lathami</i> 99
	Central tail-feathers paler chestnut-brown.....	<i>L. l. williamsi</i> 101

293. Whitecrested Kaleej Pheasant. *Lophura leucomelana hamiltonii* (J. E. Gray)

Phasianus Hamiltonii J. E. Gray, 1829, in Griffith's Anim. Kingd. 8 (Aves, 3): 27
(India; the type probably came from Nepal, *fide* N. B. Kinnear, *in litt.*)

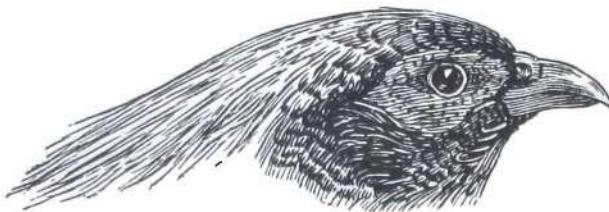
Baker, FBI No. 1918, Vol. 5: 320

Plate 23, fig. 7, facing p. 112

LOCAL NAMES. *Kaleej*, *Kükéra*, *Kalesur ♂*, *Kälā mürghā ♂*, *Kalesi ♀* (Hindi); *Kölsa* (Himachal Pradesh).

SIZE. Domestic fowl; length c. 65-73 cm. (25-29 in.).

FIELD CHARACTERS. An obvious first cousin of domestic and jungle fowl.



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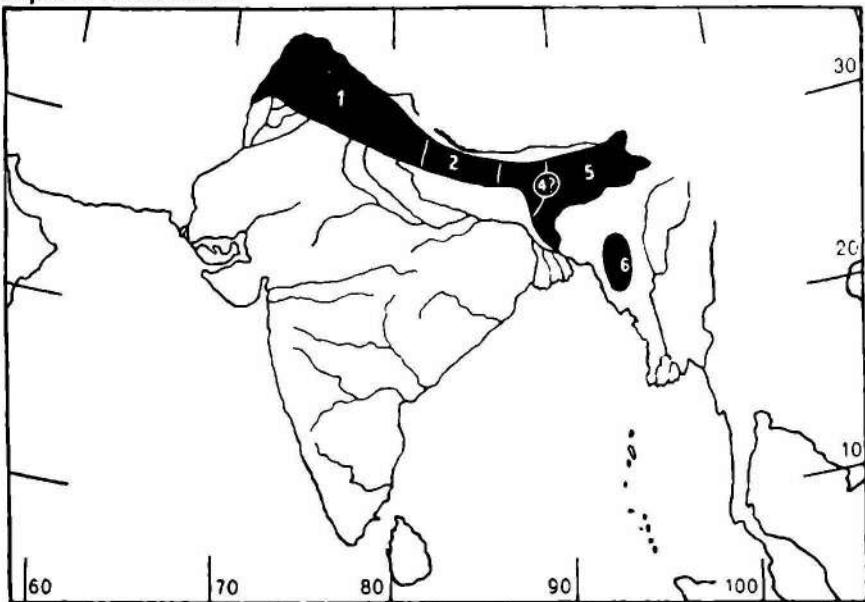
Male. Above black, glossed with steel blue, the rump feathers broadly edged with white. Tail glossy black and brown, of broad arching sickle-shaped feathers. Long white hairy recumbent crest; naked scarlet face. Below, chiefly brownish grey; the feathers pointed or lanceolate on breast.

Female, chiefly reddish brown with pale scaly markings (scalloping); recumbent crest brown, naked patch round eye scarlet. Tail black, not arching or pointed; central feathers rufous-brown with pale vermiculations.

(For immature, and downy chick, see Museum Diagnosis.)

STATUS, DISTRIBUTION and HABITAT. Resident. Western Himalayas from east of the Indus river through part of the NW. frontier districts of W. Pakistan, southern Kashmir (outer lower slopes of Pir Panjal), Punjab, Himachal Pradesh, Garhwal and Kumaon to $c. 83^{\circ}30'E.$ long. in west-central Nepal (near Baglung — Fleming). Affects all kinds of forest (sal, oak, spruce, rhododendron, etc.) with heavy scrub undergrowth. Partial to the neighbourhood of water and terraced cultivation, between $c. 400$ m. in the foothills and 3600 metres. Descends somewhat lower from the highest elevations in severe winters.

Lophura leucomelana



■ Range within Indian limits

■ *L. l. hamiltonii* (293).

■ *L. l. leucomelana* (294).

■ *L. l. melanota* (295).

■ *L. l. lathami* (296).

■ *L. l. moffitti* (297).

■ *L. l. williamsi* (298).

GALLIFORMES

GENERAL HABITS. Keeps in pairs or small family parties which come out to feed in the open in the early mornings and afternoons, on kutch forest tracks and firelines, and in freshly sown fields. In foothills country frequently found in association with Red Junglefowl to which its behaviour and general ecology are very similar. Like the junglefowl too it is a strong flier and gives good sport with the gun, both species often getting up in the same beats. Roosts at night in trees, several birds clumped together along a branch.

FOOD. Grain, seeds, shoots, insects and their larvae, and small reptiles. In crops of specimens in Garhwal the following identified: acorns of *banj* oak (*Quercus incana*) minus outer husk, ripe fruits of *Pyrus pashia* and *Rosa moschata*, green stems of *Viscum japonicum*, pods of *Desmodium tiliaceum*, bulbils of *Dioscorea* sp., and ripe seeds of *Nyctanthes arbor-tristis*; in the vicinity of travellers' *paroas* (camp sites) and habitations, human excreta (A. E. Osmaston).

VOICE and CALLS. The crowing is described as 'a loud whistling chuckle or chirrup'. In breeding season male makes a peculiar drumming noise like shaking or flapping a thick piece of cloth in the wind, 'produced partly by rapid vibrations of the wings and partly by the vocal organs' (A. E. Jones). Both sexes cluck in soft undertone when scratching among the thickets for food. When flushed gives vent to a series of guineapig-like squeaks and chuckles (Whistler).

BREEDING. Season, between March and June varying with altitude. Nest, a crude collection of leaves and rubbish in a shallow scrape in the ground under shelter of an overhanging tuft of grass or ringal bamboo, or stone, on a jungly hillside. Eggs 6 to 9, and up to 15, pale cream or buffy white to warm reddish buff, very similar to eggs of domestic fowl. Average size of 100 eggs 49.5 x 37.0 mm. (Baker). Incubation entirely by hen; period 24–25 days. Uncertain whether in the wild state cock monogynous or polygynous. Observations in support of both have been recorded. Courtship display of the characteristic pheasant pattern: the cock struts round a hen in a half-circle with the wing on near side expanded and drooped, the opposite one being slightly raised at the elbow to slant the back towards the hen, who usually seems quite uninterested.

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

Chick (in down). 'Head and upper back chestnut with a dark line from eye to nape as in all species of the genus. Upperparts dark brown with two broad lateral whitish buff bands. Underparts whitish. Wing mottled brown and buff. Legs reddish flesh.'

'Young (immature). Dark brown, the head more rufous; ear-coverts blackish. Upper plumage freckled with black, each feather with a subterminal black and a terminal rufous-buff border. Underparts lighter, the feathers with a terminal whitish spot' (Delacour).

As in all subspecies of *leucomelana* young cocks assume adult plumage in their first year.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	225–250	23–30	75–80	230–350 mm.
♀ ♀	203–215	20–25	65–70	205–215 mm. (Delacour)

Weight ♂♂ 2 lb.-2 lb. 6 oz. (910-1080 gm.); ♀♀ 1 lb. 4 oz. to 2 lb. 4 oz. (564-1024 gm.) — Hume.

COLOURS OF BARE PARTS. Iris brown or orange-brown. Bill greenish white, dusky at tip. Orbital skin vermillion to crimson with slight black feathering. Legs and feet livid white to pale olive-brown or slaty brown.

294. Nepal Kaleej Pheasant. *Lophura leucomelana leucomelana* (Latham)

Phasianus leucomelanos Latham, 1790, Index Orn. 2: 633 (India, restricted type locality Nepal, *apud* Baker, 1928, op. cit.: 322)

Phasianus Nipalensis Hodgson, 1827 (Dec.), Quart. Oriental Mag. Rev. and Regist. 8, (Sci.): 44 (Nepal)

Gennaeus fockelmanni Ghigi, 1913, Riv. ital. Ornitol. 2: 192 (no locality)

Cf. Rand, A. L., & Fleming, R. L., 1952, Fieldiana, Zool., 41: 62

Baker, FBI No. 1919, Vol. 5: 322

LOCAL NAMES. *Kalik käliej* (Parbutia); *Rechabo* (Nepal).

SIZE. Domestic fowl; slightly smaller than 293. Length c. 60-68 cm. (23-26 in.).

FIELD CHARACTERS. Male. Like Whitecrested Kaleej (293) but with the crest glossy blue-black. Above, lower back, rump, and upper tail-coverts glossy blue-black the feathers narrowly (*v.* broadly) edged with white. Wing-coverts with more white than in 293. Below, chin and foreneck darker and more glossy; rest of underparts more whitish.

Female differs from ♀ 293 in being redder and more richly coloured, the grey feathers of the underparts conspicuously dark centred and producing a scaly or scalloped effect. Naked orbital skin scarlet as in male.

STATUS, DISTRIBUTION and HABITAT. Resident. Nepal from about the Ghaghra river (c. 81°15'E.) eastward to about the Arun (c. 87°15'E.), but range imperfectly known; from c. 400 metres in the foothills to c. 3660, the last being the highest elevation recorded (Khumbu, E. Nepal. May — Biswas). Fairly common in the mountains surrounding the duns and Nepal valley. Affects forest with heavy scrub undergrowth; partial to the neighbourhood of water and terraced cultivation. Reportedly occupying a higher zone in Nepal than Red Junglefowl.

[An enigmatical record (specimen ♂, December 1924 (JBNHS 30: 917) from Mussooree, U.P. (c. 30°25'N., 78°0'E.) — possibly an escape from some Maharaja's local pheasantry?]

GENERAL HABITS. As of 293, q.v. 'At end of March cocks collect in open places and challenge other cocks. They make the most extraordinary noises, and appear to dance round in circles. Usually 3 or 4 cocks dancing and fighting, with half a dozen or more hens nearby' (Mrs Proud). More details lacking.

BREEDING. Season, c. April through June; information meagre. Eggs. Seven vicariously collected from two clutches described by Baker as warm buff in colour and varying in size from 46·1 × 27·7 mm. to 53·0 × 39·0 mm. A cock observed in company with two hens and about a dozen tiny chicks (Mrs Proud). Suggesting polygyny?

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

Chick (in down). 'Head chestnut, paler on the forehead and behind the eye; a dark streak from the eye down the neck; centre of back chocolate-brown with broad lateral bands of pale buff; sides dull chestnut; chin and throat yellowish white, remainder of lower parts pale yellowish grey' (Baker).

According to Delacour immatures and downy chicks as in 293, but slightly richer in colour.

MEASUREMENTS

Wing 7 ♂♂ 216-236 mm. (aver. 227.5); 7 ♀♀ 198-211 (aver. 206) mm. Bill (from forehead) ♂♀ c. 35-37 mm.; tarsus c. 75-80; tail ♂♂ c. 250-305 mm.

Weight ♂♂ 1 lb. 12 oz. to 2 lb. 8 oz. (c. 795-1140 gm.) — Hume.

COLOURS OF BARE PARTS. As in 293.

295. Blackbacked Kaleej Pheasant. *Lophura leucomelana melanota* (Hutton)

Euplocomus melanotus 'Blyth' = Hutton, 1848, Jour. Asiatic Soc. Bengal 17(2): 694, in text (Darjeeling)

Baker, FBI No. 1920, Vol. 5: 323

LOCAL NAME. *Kar rhyak* (Lepcha).

SIZE. Same as 294; length c. 60-68 cm. (23-26 in.).

FIELD CHARACTERS. Male. *Above*, glossy black with violet, green, and purple reflections, the feathers scalloped with velvety black. White shafts of feathers conspicuous only on blue-black mantle. Crest and tail somewhat shorter than in 294. *Below*, chin and throat blackish brown paling towards breast. Feathers of breast long and lanceolate, white with brown bases producing a broadly streaked effect. Centre of abdomen and vent brown. Under tail-coverts and thighs blackish.

Female similar to Nepal Kaleej (294) but darker richer brown with narrow whitish scalloping. Crest and upper back brighter chestnut than nape.

STATUS, DISTRIBUTION and HABITAT. Resident. Eastern Nepal from about Arun river c. 87°15'E. long. (Mai khola or valley) eastward through Darjeeling district and Sikkim to about the Mo Chu or Sankosh (Gadadhar) river in W. Bhutan c. 89°45'E. long.; between c. 100 metres in the foothills and c. 2700, chiefly c. 600 to 1800 m. Affects densely overgrown steep gullies on the hill slopes; partial to thick cover in the proximity of running water and terraced cultivation.

GENERAL HABITS. As of 293, q.v., and Red Junglefowl. Pairs or small parties come out to scratch for food at the edge of forest clearings, freshly sown fields, and jungle tracks, in the mornings and evenings.

FOOD. As in 293. Among food items specified by Gammie (Sikkim) are tops of several nettles and ferns, and fruit, especially of *Polygonum molle* and the yellow raspberry, *Rubus flavus*.

VOICE and CALLS. When suddenly alarmed and taking wing a sharply repeated *koorchi koorchi koorchi*. In breeding season, when two rival cocks advance towards each other a threatening *koor koor* followed by 'attacking note' *waak waak*. Sometimes answering each other's calls in the jungles (Gammie). One flushed by dog and flying away downhill, as usual, emitted

a 'whistling psee-psee-psee-psee unlike anything expected from a pheasant' (M. D. Lister).

BREEDING. Season, March to May. Nest, a scrape in the ground lined with dry grass and bamboo leaves, amongst dense undergrowth in gullies, etc. Eggs, 6 or 7, buff coloured, glossy broad ovals. Average size of 61 eggs $48 \cdot 7 \times 37 \cdot 3$ mm. (Baker).

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

MEASUREMENTS

♂♀ Wing 215-240; tail 238-300 mm. (Delacour).

A series collected by Ernst Schäfer in Sikkim gives: Wing 6 ♂♂ 233-248 (aver. 238·7); 6 ♀♀ 211-222 (aver. 215·0) mm. — Stresemann.

Weight ♂♂ 2 lb. 6 oz. to 2 lb. 12 oz. (c. 1080-1150 gm.); ♀♀ 1 lb. 14 oz. to 2 lb. 4 oz. (c. 848-1025 gm.) — Hume.

COLOURS OF BARE PARTS. Iris hazel to orange-brown. Orbital skin scarlet-crimson. Bill greenish horny, black at base, paler at tip. Legs and feet slaty or greenish brown.

296. Blackbreasted Kaleej Pheasant. *Lophura leucomelana lathami* (J. E. Gray)

Phasianus lathami J. E. Gray, 1829, ex Griffith, Cuvier, Anim. Kingd. 8 (Aves, 3): 26
(Sylhet)

Gallophasianus Horsfieldii G. R. Gray, 1845, Gen. Bds. 3: 498, col. pl. 127 (no locality)
Baker, FBI No. 1921, Vol. 5: 324

LOCAL NAMES. *Mathūra* (Chittagong, Tippera, Goalpara); *Modūra* (Sylhet and Cachar Plains); *Dorik*, *Dirrik*, *Dürūg* (Garo Hills); *Deodip* (Cachari); *Dorik* (Dibrugarh); *Vohēp* (Kuki); *Inruitip* (Naga); *Wāba* (Manipur); *Lēko* (Bhutan).

SIZE. Same as 294; length c. 60-68 cm. (23-26 in.).

FIELD CHARACTERS. Male resembles Nepal Kaleej (294) but breast entirely black glossed with steel blue and purple, the feathers rounded not lanceolate. Upperparts glossy blue-black with purple sheen, except for broad white fringes, or crescentic barring, on lower back and rump as in 294. Higher on the legs, with the black crest more upright, and tail shorter and straighter.

Female. 'Differs from *melanota* (295) in its more upright crest, its shorter tail, with central rectrices very finely and inconspicuously streaked with black, which appears plain chestnut, its buffy brown throat, the narrower and usually paler borders to the feathers which are rather indistinct on the mantle, and the longer legs' (Delacour).

Young (immature) male like female, as above, but generally darker with contrasting white or pale buff edging to the feathers. 'Cocks take two or even three moults before acquiring the full plumage' (Baker).

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Eastern Bhutan, Assam hills north of Brahmaputra river (NEFA), Garo, Khasi, Cachar, Naga and Patkai Hills; Manipur, Sylhet, Chittagong (E. Pakistan). From c. 100

to 2600 metres elevation. Affects dense undergrowth in forest; partial to gullies in the neighbourhood of water and cultivation.

Extralimital. Eastward to Irrawaddy river, south through NW. Chin Hills and northern Arakan to c. Akyab.

GENERAL HABITS. As of the other kaleejes, e.g. 293. Is a swift and obstinate runner and almost impossible to flush without a dog unless suddenly surprised. Thus affords poor sport with the gun although perhaps is just as difficult to shoot on the ground as it scurries through the undergrowth giving only fleeting glimpses of itself between bushes and the snappiest of snapshots. Active during mornings and evenings; rests during midday up on low bough of a tree.

FOOD. Like other kaleejes, omnivorous. Bamboo seeds, fallen figs of the various wild *Fici*, and white ants are favourite items. Has been observed darting to and fro picking up winged termites emerging from the ground, and even fluttering up a few feet in the air after them in ungainly sorties. Small snakes and lizards also recorded, as well as human excreta near habitations — lumber camps etc.

VOICE and CALLS. Contact call between members of a scattered feeding party in cover, a low clucking *kurr-kurr-kurrchi-kurr* (Baker). Male crows, particularly in breeding season, from roosting perch in tree in the evening soon after ascending, and early morning before descending to feed. Unlike junglefowl, usually silent during the day. Challenges rival cocks by 'quickly and repeatedly beating together the tail above his back, and also by beating the wings against his ribs. In the former case the sound is very loud and sharp, lasting a second or two. When drumming against sides noise much lower and softer, and continued for some seconds or even minutes' (Cripps). The duration as described seems rather exaggerated, but the details are obviously of the 'cloth-flapping' drumming as in 293, q.v.

BREEDING. Season, February to October, chiefly April-May and July-August. Nest and eggs as in 293, q.v., and the other kaleejes. Cock evidently monogynous and assists in tending the young. But according to another reliable observer (F. N. Betts), cock invariably accompanied by two and sometimes three hens! ('Progressive polygyny'?). Incubation by female alone. Period 20-21 days (Baker); 23-24 days (Delacour).

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

Chick (in down). 'Head chestnut with black coronal streak; a dark chestnut streak from the eye, below which the buff is paler; median body-stripe rich chestnut-brown; sides and underparts of body ashy or ashy buff with an ill-defined chestnut band on the breast' (Baker).

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	211-253	34-40	76-96	210-295 mm.
		Crest c. 76 and up to 90 mm.; spurs up to c. 25 mm.		
♀ ♀	203-230	33-35	68-76	190-228 mm.
Weight ♂♂ 2 lb. 4 oz. to 3 lb. 12 oz. (c. 1025-1700 gm.); ♀ ♀ c. 715-750 gm.				(Baker, SA)

COLOURS OF BARE PARTS. As in other races. Legs and feet plumbeous or brown, sometimes with pinkish tinge. Spurs sometimes pale jade colour.

297. **Williams's Kaleej Pheasant.** *Lophura leucomelana williamsi* (Oates)*Gennaeus williamsi* Oates, 1898, Man. Game Bds. India, pt. 1: 342

(Kalewa, Chin Hills, Upper Burma)

Baker, FBI No. 1922, Vol. 5: 326

Plate 23, fig. 8, facing p. 112

LOCAL NAMES. *Tit* (Burmese); *Rak* (Arakan).

SIZE. Same as 294; length c. 60–68 cm. (23–26 in.).

FIELD CHARACTERS. Resembles *L. l. lathami* (296) in shape, q.v.

Male. Above: Crest black; head, neck, back and mantle grey (caused by numerous tiny bars and vermiculations of white or buffy white on a black background). Lower back, rump and upper tail-coverts black, boldly barred with white as in *lathami*. Tail black with narrower white barring. Below, completely black.

Female. Very like ♀ *lathami* but paler [in this like ♀ *hamiltonii* (293)] with the central pair of rectrices chestnut, the others black or nearly black irregularly barred with white.

Young (immature) and Chick (in down). Unknown.

STATUS, DISTRIBUTION and HABITAT. Not yet recorded in our limits but possibly extending into SE. Manipur and Mizo (Lushai Hills) from the contiguous Chin Hills area.

Extralimital. 'The Chin Hills, Lower and Upper Chindwin north to Niva and Wawabin, and Eastern Manipur (?); south to the north-eastern parts of the Arakan Yomas' (Delacour).

GENERAL HABITS. In the Chin Hills recorded in non-breeding season in parties of up to 20 males and females together, affecting opener forest mixed with bamboo in the proximity of water. In this facies its lighter plumage is as concealing as the darker coloration of the other kaleejes in the sombre evergreen cover they frequent.

FOOD, VOICE and CALLS. Nothing recorded as different from other races.

BREEDING. Unrecorded within our limits.

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

MEASUREMENTS. Wing ♂♂ 223–247; ♀♀ 206–220 mm. (Delacour).

COLOURS OF BARE PARTS. As in 296.

298. **Moffitt's Kaleej Pheasant.** *Lophura leucomelana moffitti* (Hachisuka)*Gennaeus moffitti* Hachisuka, 1938, Bull. Brit. Orn. Cl. 58: 19 (No locality)

Not in Baker, FBI

LOCAL NAMES. Unrecorded.

SIZE. Same as 294; length c. 60–68 cm. (23–26 in.).

FIELD CHARACTERS. 'Male. Entirely black with steel blue reflections on the breast and upperparts. It has the black back of *melanota* and the black breast of *lathami*, but the breast feathers are lanceolate in shape with faint white shaft-streaks; in this character and in its general shape it stands nearer to *melanota* than to *lathami*. Soft parts as in *melanota*.

'Female. Like *melanota* but the throat plain buff and the central rectrices finely peppered as in *lathami*, not vermiculated' (Delacour).

STATUS, DISTRIBUTION and HABITAT. Unknown. Named from an aviary specimen of unknown provenance imported into California through a

Calcutta bird dealer in 1934. Has bred true in captivity. Only a single wild example (σ^1) so far obtained: Pe Chu valley, central Bhutan (c. 27°30'N., 90°E.), June 1965 (by K. S. Ranjitsinhji of Wankaner).

MUSEUM DIAGNOSIS: See Field Characters.

MEASUREMENTS. Wing 242, tarsus 72, tail c. 284 mm. (SA).

COLOURS OF BARE PARTS. Not recorded.

Genus *GALLUS* Brisson

Gallus Brisson, 1760, Orn. 1: 26, 166. Type, by tautonymy, '*Gallus*' = *Phasianus gallus* Linnaeus

Cf. Delacour, J., 1948, *Ibis*: 462-4.

Contains four species of the true junglefowl confined to the Indomalayan sub-region of which three occur within our limits, the fourth, *G. varius*, restricted to Java and neighbouring islands eastward. Males of all three Indian species furnished with a fleshy crest or comb, and two fleshy lobes or wattles hanging from each side of the throat. Wings rounded: first primary (as.) shorter than 10th; 5th primary longest. Tail sharply compressed laterally, of 14 feathers, the central ones greatly lengthened and with pliant shafts so that they droop in a graceful sickle-shaped curve. Feathers of neck (hakkles) and of rump long and lanceolate. Legs long and powerful: tarsus longer than middle toe with claw and armed (in σ^1) with a long and sharp spur.

Key to the Species

Males

		Page
A	Neck-hakkles blackish with golden bars or spots.....	<i>G. sonneratii</i>
B	Neck-hakkles red or golden-red with no spots.....	1
1	Breast black	<i>G. gallus</i>
	Breast reddish orange.....	<i>G. lafayettii</i>

Females

A	Breast white, each feather edged with brown.....	<i>G. sonneratii</i>
B	Breast rufous-brown with pale shaft-lines.....	<i>G. gallus</i>
C	Breast mottled brown and black and white.....	<i>G. lafayettii</i>

GALLUS GALLUS (Linnaeus)

Key to the Subspecies

Neck-hakkles much pointed and more golden yellow on the terminal third	<i>G. g. murghi</i>
Neck-hakkles less pointed and deeper golden red on the terminal third	<i>G. g. spadiceus</i>

299. Indian Red Junglefowl. *Gallus gallus murghi* Robinson & Kloss

Gallus ferrugineus murghi Robinson & Kloss, 1920, Rec. Ind. Mus. 19: 14, 15
(Chirala, Gaya District, Bihar)

Gallus gallus gallina Koelz, 1954, Contrib. Inst. Regional Exploration,
No. 1: 29 (Kotla, Kangra)

Baker, FBI No. 1903, Vol. 5: 295

LOCAL NAMES. *Jāngli mūrgha*, *Bān mūrgha*, *Lāl mūrgha* ♂, *Jāngli mūrghi*, *Bān mūrghi* ♀ (Hindi, N. India, Bengal); *Lāl raan kōmbda* (Marathi); *Bān kūkūr* (Assam);

Terra ädävi kodi (Telugu); *Käitu kozhi* (Tamil, Malayalam); *Natsa pia*, *Nagseya*, *Nag tse ja* (Bhutea); *Pazok chi*, *Tangkling* (Lepcha); *Kächäri* (Bhutan); *Gera gogür ♂*, *Kürü ♀* (Gondi); *Ganga* (Orissa); *Daono* (Cachar); *Voh* (Kuki); *Inrui* (Kacha Naga).

SIZE. Domestic village fowl; length ♂ c. 66 cm. (26 in.); ♀ c. 43 cm. (17 in.).

FIELD CHARACTERS. Both sexes closely resemble the Game Bantam domestic breed.

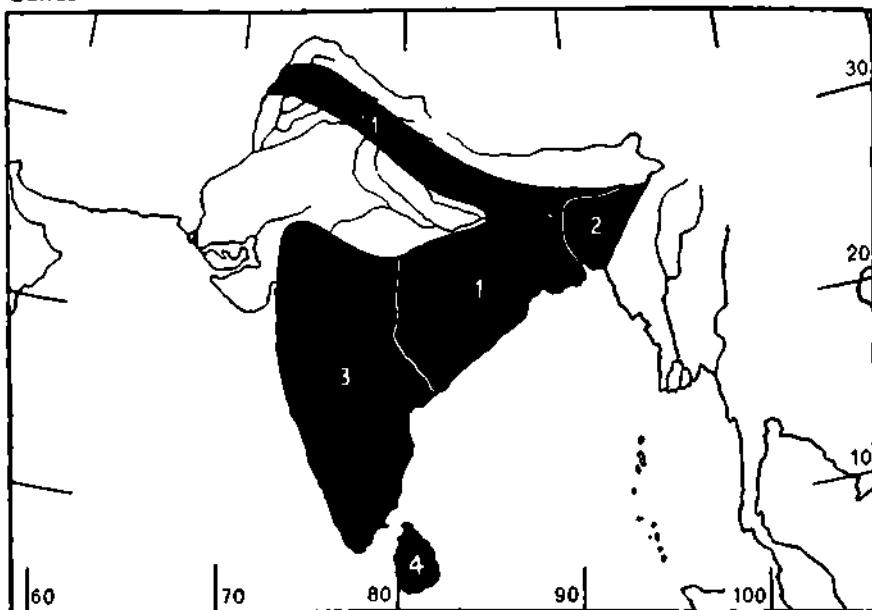
Male. *Above*, chiefly glossy deep orange-red with long yellowish neck-hackles and similarly elongated lanceolate feathers on rump. Broad, laterally compressed metallic black tail with long arching sickle-shaped central feathers. *Below* chiefly blackish brown.

Female. *Above*, crown dull rufous. Forehead and supercilia bright chestnut continued below to meet in a loop on foreneck. Rest of upperparts reddish brown, finely vermiculated with buff and black. *Below*, pale-shafted light rufous-brown.

Young (immature) male. Neck-hackles less developed, paler, and more conspicuously black-centred.

For chick in down see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Outer Himalayas, chiefly foothills and terai but locally up to c. 2000 m. elevation, from northeastern West Pakistan through Kashmir eastward to Assam excluding easternmost NEFA (Mishmi Hills, see *G. g. spadicea*). Southward through ecologically suitable parts of Uttar Pradesh, Madhya Pradesh, Bihar, Orissa, West Bengal, Assam and E. Pakistan. Exact boundaries imperfectly known, but on the eastern side stretches south at least to the latitude of Rajahmundry (c. 17°N) on both banks of Godavari river (NE. Andhra). In the Mahadeo Hills and Mandla district of Madhya Pradesh both this and *G. sonneratii* occur together around the foot of Pachmarhi (c. 22°30'N., 78°25'E.) and about half way up the ghat. Above this, and on the Pachmarhi plateau and surrounding hills, the Grey Junglefowl completely replaces the Red. Hybrids with *G. sonneratii* have been collected at Bheraghat in Madhya Pradesh. On the western side Jerdon, *fide* Blansford, recorded it in the Rajpipla Hills (western extremity of the Satpura Range in Gujarat) about a hundred years ago. More recently (1929) observed by a reliable naturalist (C. McCann) in the outliers of the W. Ghats near Bombay. Also reported from Khandala, W. Ghats (c. 18°45'N., 73°25'E.) and we have seen a cockerel artificially hatched from wild eggs allegedly collected in that area. Both the above localities are well within the range of *G. sonneratii*, and the Red Junglefowl must at best be extremely rare here. Crosses between the two species frequently occur in their narrow zone of contact. As first pointed out by Forsyth and repeatedly remarked since, its distribution in India by and large coincides in a striking way with that of the Sal tree (*Shorea robusta*) and the Swamp Deer (*Cervus duvaucelii*), although largely due to human interference the latter has now disappeared from many of its former habitats. This parallel conterminousness of ranges is graphically seen, e.g. in Madhya Pradesh where Teak (*Tectona grandis*) of the dry deciduous forests is replaced by Sal in the moist-deciduous and semi-evergreen eastern parts as the predominant tree species. The former biotope is occupied by the Grey, the latter by the Red Junglefowl. Affects moist-deciduous forest

Gallus

Range within Indian limits 1 *G. g. murghi* (299).
 2 *G. g. spadiceus* (300). 3 *G. sonneratii* (301). 4 *G. lafayettii* (302).

Extralimital races E. and S. of 2.

and bamboo and scrub jungle interspersed with patches of cultivation and clearings, especially in hummocky foothills country.

GENERAL HABITS. Keeps in small parties usually a cock and 4 or 5 hens. Comes out in the open in the early mornings and late afternoons, to glean and scratch about for food, retiring into the surrounding undergrowth during the heat of the day. Very shy and wild, skulking away through the thickets on the least alarm. Commonly seen on cart-tracks or firelines running through forest, picking at cattle droppings or gleaning any grain that may have fallen from passing carts. When suddenly come upon the bird rises with a good deal of fluster and cackling, as characteristic of its domestic cousin, often flying up into the branches of a tree, sitting motionless and concealed among the foliage, and slipping away noiselessly when it feels the coast clear. They are fast fliers and afford good sport with the gun over dogs or when driven out by beaters, giving a wide variety of snap shots as they cross a fireline high above the forest canopy or hurtle through the tangle of shrubs and tree-trunks lower down. When flushed in a beat in tall forest and feeling cornered the bird 'chimneys' almost vertically in a series of remarkable zigzags, turning this way and that as it rises to escape through a gap in the leaf canopy high overhead.

FOOD. Grain of all kinds, shoots of grass and crops, tubers, fruits and berries (e.g. *Ficus* and *Zizyphus*), insects (especially grasshoppers and termites), grubs and maggots; occasionally lizards, and doubtless also small snakes, and human excreta near lumber camps, etc. Bamboo seeds highly prized, and large numbers of fowl will collect to feed where there is a flush. Has been observed to raise larger and earlier broods in years of abundant

bamboo flowering. A quantity of grit is always swallowed with the food. In the Ruby Mines District rubies and elsewhere in Burma sapphires have been found in gizzards.

VOICE and CALLS. Crow of cock very similar to that of domestic Bantam, but somewhat shriller and with a more abrupt ending. Uttered principally at dawn and before sunrise, and also again before sunset while the birds are preparing to roost up in some tree or bamboo clump. It is usually prefaced by a noisy rapping of the wings against the sides and promptly answered by other cocks in the vicinity. Hens have the same range of alarm and conversational cackling and clucking notes as domestic fowls, but unlike the latter do not loudly advertise the laying of an egg.

The Mogul emperor Jehangir, after describing the Red Junglefowl¹ with his characteristic meticulousness, mentions a peculiarity overlooked by later writers. He says: 'One of the peculiarities of these birds is that if they are caught by the feet and turned upside down wherever they are taken they make no sound and remain silent contrary to the domestic fowl which makes an outcry.'

BREEDING. Courtship display characteristic of the family Phasianidae, as commonly seen in the domestic fowl: the cock fluffs out his feathers, expanding and stiffly drooping the wing on the side of the hen till it almost scrapes the ground, raising the closed wing on the opposite side at the shoulder so as to slant the back towards her and running round her in a semicircle with partly lowered head, then pivoting round to repeat the manoeuvre in the reverse direction. *Season*, mainly March to May; but odd clutches may be found from January to October. *Nest*, a scrape in the ground lined with dry grass and bamboo leaves amongst dense undergrowth in forest. *Eggs*, 5 or 6, very like those of the domestic fowl, varying in coloration from pale buff to pale reddish brown. Average size of 150 eggs 45·3 × 34·4 mm. (Baker). Cock apparently monogynous, but to some extent evidently also practising 'progressive polygamy' — not of the 'harem' type. Assists in tending the chicks (of the latest hen?). Incubation by hen alone; period 20–21 days.²

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

Chick (in down). 'From base of bill through eyes and down sides of neck, a black line; over this a broad line of pale buffish brown; from base of comb down crown, neck, and dorsum to tail a broad black line outlined on dorsum by a creamy streak on each side; wings chestnut; breast and thighs pale buffish brown; rest of underparts creamy white' (Ticehurst, 1926. Described from a downy chick of *Gallus g. gallus*).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	203–244	18–22	c. 70–80	300–380 mm.
♀ ♀	177–196	—	—	145–165 mm.

Spur ♂ c. 25 mm., occasionally up to 50 mm. Small spurs sometimes present also in ♀.

¹ *Tūzuk-e-Jehāngīr* or Memoirs of Jehangir written by himself between c. A.D. 1605 and 1627 and translated from the Persian in two volumes by A. Rogers and H. Beveridge, 2: 226.

² For further details of ecology and breeding biology see Collias, Nicholas E. & Elsie C. Collias, 1967, 'A field study of the Red Junglefowl in north-central India.' *The Condor* 69(4): 360–86.

Weight c. 2 to 3 lb. (910–1360 gm.) — Baker; ♂♂ 1 lb. 12 oz. to 2 lb. 4 oz. (c. 800–1020 gm.); ♀♀ 1 lb. 2 oz. to 1 lb. 10 oz. (c. 485–740 gm.) — Hume.

COLOURS OF BARE PARTS. ♂ Iris reddish brown or orange-red. Comb and wattles scarlet-crimson; lappets white or pinkish. Bill reddish at base; upper mandible brown, lower pale horn. Legs, feet and spurs slaty brown. ♀ Iris brown. Comb scarlet-crimson. Bill yellowish or pale fleshy at base; upper mandible brown, lower pale horn. Legs, feet and claws slaty brown.

MISCELLANEOUS. Rensch (1932) and others have deduced that India was the original centre of domestication, therefore the Indian species *Gallus gallus* and not *Gallus varius* of Java must be considered the true ancestor of the domestic fowl. Date of domestication uncertain, but evidently the junglefowl already figured as a domestic bird in the Harappa and Mohen-jodaro civilizations c. 2500 B.C., and in Egypt and China as early as 1500–1400 B.C.

300. Burmese Red Junglefowl. *Gallus gallus spadiceus* (Bonnaterre)

Perdix spadicea Bonnaterre, 1791, Table Encycl. Méth. 1: 208 (Malacca)

Baker, FBI No. 1904, Vol. 5: 298 (= *G. bankiva robinsoni*)

Plate 23, fig. 3, facing p. 112

LOCAL NAME. *Taw kyet* (Burmese).

SIZE and FIELD CHARACTERS. As of 299, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Eastern Mishmi Hills, NEFA. Affects undergrowth in moist-deciduous and semi-evergreen jungle, interspersed with patches of cultivation and clearings.

Extralimital. SW. Yunnan, Burma, Siam (except the eastern parts), N. Laos, Malaya, N. Sumatra (Delacour).

GENERAL HABITS, FOOD, VOICE and CALLS. As in the Indian race (299).

BREEDING. Nothing specifically recorded as different from 299. Season in the Mishmi Hills unrecorded; in Burma principal months for eggs March to May.

MUSEUM DIAGNOSIS. Male differs from *G. g. murghi* in having the upper plumage a deeper red with the neck-hackles less attenuated, less orange or yellow at the tips, and with the dark central streaks reduced. Ear lappets smaller, usually red or deep fleshy pink, not white or pinkish as in 299.

MEASUREMENTS and COLOURS OF BARE PARTS (excepting lappets) as in the Indian *G. g. murghi*.

301. Grey Junglefowl. *Gallus sonneratii* Temminck

Gallus Sonneratii Temminck, 1813, Pig. et Gall. 2: 246

(India = Eastern Ghats near Madras, restricted by Whistler & Kinnear, 1936, Jour. Bom. nat. Hist. Soc. 38: 682)

Phasianus indicus Leach, 1815, Zool. Miscellany, 2, pl. 61: 6

(India, restricted to Madras)

Gallus sonneratii wangyeli Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 29
[Oria (Mt Abu), Sirohi]

Baker, FBI No. 1905, Vol. 5: 298

Plate 22, fig. 8, facing p. 80

LOCAL NAMES. *Jangli mûrgha* ♂, *Jangli mûrghi* ♀ (Hindi); *Kômri* (Mt Abu); *Geora kûr* (Maria Gond); *Kâtu kôzhi* (Malavalam, Tamil); *Parda kômri* (Gondi),

Chanda dist.); *Rākhi rān kōmbdā* ♂ (Marathi); *Jāngli murgho* (Gujarati); *Raan kōmbdi* (Deccan); *Kattu kozhi* (Tamil); *Tella ädävi kodi* (Telugu); *Köli, Käd köli* (Kannada).

SIZE. Domestic fowl; length ♂ c. 60–80 cm. (24–32 in.), ♀ c. 46 cm. (18 in.).

FIELD CHARACTERS. General effect as of domestic fowl, but cock with distinctly longer tail.

Male (breeding). *Above*, white-streaked dark grey with glossy purple-black wing quills and long arching, sickle-shaped tail. Neck-hackles (forming a cape), upper back, and mantle, tipped or spangled with peculiar shiny orange or golden yellow sealing-wax like spots and streaks. No elongated lanceolate plumes on rump as in Red. *Below* blackish grey, broadly white-streaked on breast; uniform brownish grey on abdomen; tinged with rusty red on flanks.

In non-breeding plumage, neck-hackles and sickle-shaped rectrices replaced by shorter dull blackish feathers. Comb becomes much reduced.

Female. *Above*, crown and neck speckled brown, the feathers streaked and scalloped paler. Rest of upperparts finely mottled blackish brown and buff, and narrowly streaked with white. *Below*, chin and throat whitish. Rest of underparts white, boldly scalloped with black on upper breast. Normally without, rarely with rudimentary, exceptionally with well-developed spurs — once over 2·5 cm.

Young (immature) male like adult female but more rufous, more boldly blotched and barred; soon showing grey feathers. Tail black.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Species peculiar to peninsular India almost to the extreme south; not extending to Ceylon. South of a line roughly from Mt Abu (c. 24°30'N., 73°E.) in the west to Pachmarhi (c. 22°30'N., 78°25'E.) in Madhya Pradesh; thence to Polavaram (c. 17°15'N., 81°45'E.) in Andhra near the mouth of the Godavari river with local eastward extensions from it: thus southern Rajasthan, Madhya Pradesh, Andhra, Gujarat, Maharashtra, Madras, Mysore, and Kerala. Frequently hybridizes with Red Junglefowl in their zones of contact. Affects all types of forest from secondary dry deciduous to moist-evergreen. Chiefly broken foothills country, commonly up to c. 1500 metres in the Satpura and Eastern and Western Ghats complex, and to the highest sholas, c. 2400 m., in the Nilgiris (Dodabetta) and Kerala ranges (Anaimudi peak). Partial to mixed bamboo jungle and the neighbourhood of forest villages and cultivation; in the south particularly to abandoned *taungya* clearings and neglected tea, coffee, and rubber plantations overgrown with lantana tangles.

GENERAL HABITS. Similar to those of the Red Junglefowl (299), q.v. Keeps singly or in pairs or small parties of 5 or 6, the sexes either mixed or segregated. Large numbers collect in areas of periodical food abundance such as where bamboos or *karvi* (*Strobilanthes* = *Karvia*) are seeding. Usually very shy and timid. When emerging into the open to feed in the morning and late afternoon seldom strays far from cover, scuttling headlong into it with outstretched neck and drooping tail on the least suspicion. Where unmolested, however, becomes quite inured to human proximity, feeding around forest villages and in fields even while being ploughed. Such conditions unfortunately are fast disappearing. Roosts up in trees or

bamboo clumps, several birds perched together along a branch or arching culm.

FOOD. Grain, shoots of grass and crops, tubers, berries (e.g. *Zizyphus*, *Lantana*, *Streblus asper*) gleaned on the ground or plucked from low bushes, windfallen wild figs (*Ficus bengalensis*, *F. glomerata*, and other species) from underneath the trees, insects, especially grasshoppers and termites, and small reptiles (lizards, and doubtless snakes). Also fly maggots and human excreta (probably ingested with them) near human habitations. Bamboo and *Strobilanthes* seeds when cyclically available attract very large numbers of junglefowl to the seeding areas.

VOICE and CALLS. Crow of cock a curious halting, grating and rather unmusical *kük-kä-kürra-kük* or *kück-käyä-käyä-kück*. It ends in a low *kyükün-kyükün* repeated slowly and softly and audible only at close range. Cocks (in breeding season only?) often indulge in a bout of all-round crowing before dawn, when still quite dark, which is joined in by others from far and near. After this there is a lull for a couple of hours till light enough for them to descend from the roosting perch, preceded by another round of crowing. In daytime the call is normally uttered from an ant-hill or fallen log, and usually prefaced by a loud rapping of the wings against the sides. A loud, bellicose, challenging *klick . . . kluck-kluck* repeated monotonously every few seconds from a more or less fixed position, maybe for over a quarter of an hour at a stretch, is sometimes emitted by a cock. Exact significance of these calls not understood. There is a sensible difference in timbre between the crow of Kerala birds and those from the Mt Abu area which, moreover, are somewhat paler in coloration.

BREEDING. Season, chiefly February to May, somewhat earlier in the south, but locally more or less throughout the year. Nest and eggs similar to those of the Red Junglefowl, the latter sometimes with a few dark freckles of brown or reddish brown. Normal clutch 3 to 5 or 6, though 6 to 10 have been recorded. Average size of 60 eggs $46\cdot3 \times 36\cdot5$ mm. (Baker).

Cock apparently monogynous, but evidently practising progressive polygyny, pairing with individual hens as they become physiologically mature. Incubation by hen alone; period 20-21 days.

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

Chick (in down). 'Similar to that of the Red Junglefowl but the lateral bands almost white and the sides and lower parts dull grey' (Baker).

Female (immature) in first feather plumage 'closely resembles adult ♀, but the shaft streakings of the upper plumage and the lanceolate markings of the lower are as a whole much less distinctly defined. The black stippling on the wings and tail also tends to coalesce into barring on the edges of the tertaries and tail-feathers' (Whistler).

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	220-255	32-36	70-80	314-390 mm.
♀ ♀	190-215	30-33	60-67	100-170 mm. (Delacour & SA)

Weight ♂ ♂ 1 lb. 12 oz. to 2 lb. 8 oz. (790-1136 gm.); ♀ 1 lb. 9 oz. to 1 lb. 12 oz. (705-790 gm.) — Hume & Baker.

COLOURS OF BARE PARTS. ♂ Iris dusky chrome-yellow or orange-brown. Bill yellowish flesh colour, dark horny brown on culmen. Comb and wattles bright crimson. Legs and feet yellow, or pale yellow and magenta; claws horny brown, spurs darker. ♀ Iris, bill and legs as in ♂. Rudimentary comb and bare facial skin brick-red or dull crimson.

MISCELLANEOUS. The spangled neck-hackles of the cock are much prized in the U.S.A. for making artificial flies for trout fishing. The lucrative demand resulted in large-scale smuggling abroad of these feathers by unscrupulous businessmen, and a serious depletion of Grey Junglefowl populations, particularly in some of the south Indian districts. Tightening up of Customs vigilance has helped to mitigate the vandalism, but only partially. Fortunately for its preservation, however, the species breeds freely in captivity, and it is to be hoped that before long this industry will be sufficiently developed in America to meet their local demand for hackles and relieve pressure on our indigenous wild stocks.

Among the many methods practised in the different parts of the country for capturing Grey Junglecocks, an unconvincing but nevertheless highly successful one is for a number of persons to throw a wide ring round a cock in fairly open scrub country and chase him to attrition from bush to bush. In his panic the bird evidently prefers to trust to his legs rather than fly, and is soon tired out and secured.

302. Ceylon Red Junglefowl. *Gallus lafayettii* Lesson

Gallus Lafayettii Lesson, 1831, Traité d'Orn., livr. 7: 491 (Ceylon)

Gallus lafayettii xanthimaculatus Deraniyagala, 1955, Admin. Rept. of the Dir. Nat. Museums, Ceylon, for 1954, Pt. IV, Educ., Sci. & Art (E): E5
(Mankulam, N.P., Ceylon)

Baker, FBI No. 1906, Vol. 5: 300

Plate 22, fig. 4, facing p. 80

LOCAL NAMES. *Weli kukkulā* ♂, *Weli kikkili* ♀ (Sinhala); *Kattu kōli* (Tamil).

SIZE. Domestic fowl; length ♂ c. 66–72 (26–28 in.) including long tail; ♀ c. 36 cm. (14 in.).

FIELD CHARACTERS. Male differs from Indian Red Junglecock chiefly in having the breast reddish orange instead of black. Feathers at base of naked throat rich violet-purple. Comb larger, crimson-red broadly centred by a yellow patch; shaped like an inverted pear in profile and only slightly crenated. Secondaries of wing purple-black instead of chestnut.

Female. Above chiefly rufous-brown and rufous-buff, finely vermiculated with black. Wings (primaries and secondaries) pale brown mottled with black and buff to produce several broad and distinctive black and buff bands. Below, upper breast, sides of lower breast, and flanks, vermiculated black and rufous-brown and streaked with rufous-buff. Rest of underparts largely black-streaked white.

Young (immature) cock resembles adult ♀ but has the black-centred yellow neck-feathers and upperparts mixed with red. **Below:** breast rufous-red, belly dull black (Delacour).

STATUS, DISTRIBUTION and HABITAT. Endemic and peculiar to Ceylon. Locally plentiful in the jungles throughout the Island. Resident in all zones, from sea level to the highest mountains.

GENERAL HABITS. As of the Indian species (299), q.v. Very shy and wary in the neighbourhood of villages and roads, but tame and unafraid in remoter areas where unmolested.

FOOD. As in the Indian species, grain, weed-seeds, berries, insects (especially grasshoppers and termites), and small animals such as lizards. Bamboo and *Strobilanthes* seeds when available are particularly favoured.

VOICE and CALLS. The cock's crow 'is a staccato, musical, ringing chick, chaw-choyik — the terminal *it* being higher in scale than the rest. It is uttered with the head somewhat depressed and the beak jerked sharply up at each syllable' (Henry). This has also been aptly rendered as 'tsek . . . George Joyce'. When challenging a rival the crowing is generally prefaced by a 'vigorous clapping of the wings together above the back (*sic*), from 3 to 4 claps' (Henry). This sound, easily imitated by slapping the trousered thighs, frequently lures a cock to the ambushed hunter and to his doom. Hen's cackle a high-pitched metallic kwikkuk, kwikkukkuk . . . Besides these both sexes have a hard cackling *clock, clock* and a lower *chock, chock* (Delacour).

BREEDING. Commonly up to c. 1600 metres elevation. Season practically throughout the year, but chiefly December through April, and then again August-September. Nest, a bed of dry leaves in a scrape in the ground between the buttressed roots of a large forest tree, but more commonly up to 3 or 4 metres above in the fork of a tree-trunk, or on top of a broken stump, in cardamom jungle or other dense undergrowth. Eggs, normally 3 to 5 (up to 9 recorded), pale cream, peppered all over with minute light brown or purplish brown specks. More commonly thus stippled than in the Indian species. Average size of 48 eggs 46.3 x 34.5 mm. (Baker).

Crosses freely in captivity with both *Gallus gallus* and *G. sonneratii*, producing fertile hybrids.

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

Chick (in down). Similar to *G. gallus* (299) but the markings darker; bands on sides of head and neck blackish (Delacour).

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
8 ♂♂ ad.	228-239	34-39	69-82	290-338 mm.
3 ♀♀ ad.	187-195	30-32	57-63	108-118 mm. (Whistler)

Delacour gives the range as:

	Wing	Tail
♂♂	216-240	230-400 mm.
♀♀	170-180	c. 110 mm.

Weight ♂♂ 1 lb. 12 oz. to 2 lb. 8 oz. (c. 790-1140 gm.) — Baker; ♀♀ 1 lb. 2 oz. to 1 lb. 6 oz. (c. 510-625 gm.) — Hume.

COLOURS OF BARE PARTS. ♂ Iris light golden yellow. Face, throat, and wattles livid or purplish red; comb bright red with large interior yellow patch. Bill brownish red, paler on lower mandible and tip. Legs and feet wax-yellow to pale yellowish

brown. ♀ Iris olive-yellow. Bill dark brown above, yellowish below. Legs and feet brownish yellow.

Genus *PUCRASIA* G. R. Gray

Pucrasia G. R. Gray, 1841, List Gen. Birds, ed. 2: 79. New name for *Eulophus* Lesson 1836 (not of E. L. Geoffroy 1762). Type, by monotypy, *Satyrus macrolopha* Lesson.

Head and face in both sexes fully feathered and with a well-developed occipital crest. In male two long tufts of metallic black plumes on either side of crest springing from above ear-coverts, erected in display. Wing less rounded than in most pheasants: 1st primary (as.) considerably shorter than 2nd; 2nd primary equal in length to 8th; 4th primary slightly the longest. Body feathers mostly lanceolate in both sexes. Upper tail-coverts almost as long as tail. Tarsus a little longer than middle toe and claw; armed with a spur in male. Sexes dimorphic in coloration.

Only one Himalayan species within our limits.

PUCRASIA MACROLOPHA (Lesson)

Key to the Subspecies

Males

		Page
A	Sides and flanks principally grey.....	1
1	No red nuchal collar.....	<i>P. m. macrolopha</i>
	A red nuchal collar.....	<i>P. m. biddulphi</i>
B	Sides and flanks principally black.....	<i>P. m. nipalensis</i>
C	Sides and flanks principally chestnut.....	<i>P. m. castanea</i>

Females

A	Outer pairs of tail-feathers with black markings more or less following contour of feathers.....	113
B	All except outermost pair with black markings forming bars.....	<i>P. m. biddulphi</i>
C	All except outermost pair chiefly chestnut on the outer web, and blackish, white-tipped on the inner.....	<i>P. m. nipalensis</i>
D	Tail chiefly blackish brown (not rufous-chestnut); central feathers greyish brown.....	<i>P. m. castanea</i>

303. Chestnutmantled Koklas Pheasant. *Pucrasia macrolopha castanea* Gould

Pucrasia castanea Gould, 1855 (1854), Proc. Zool. Soc. London: 99 (Kafiristan)
Baker, FBI No. 1914, Vol. 5: 313

LOCAL NAMES. None recorded.

SIZE. Domestic fowl; length ♂ c. 58–64 cm. (22–25 in.); ♀ c. 52–56 cm. (20–23 in.).

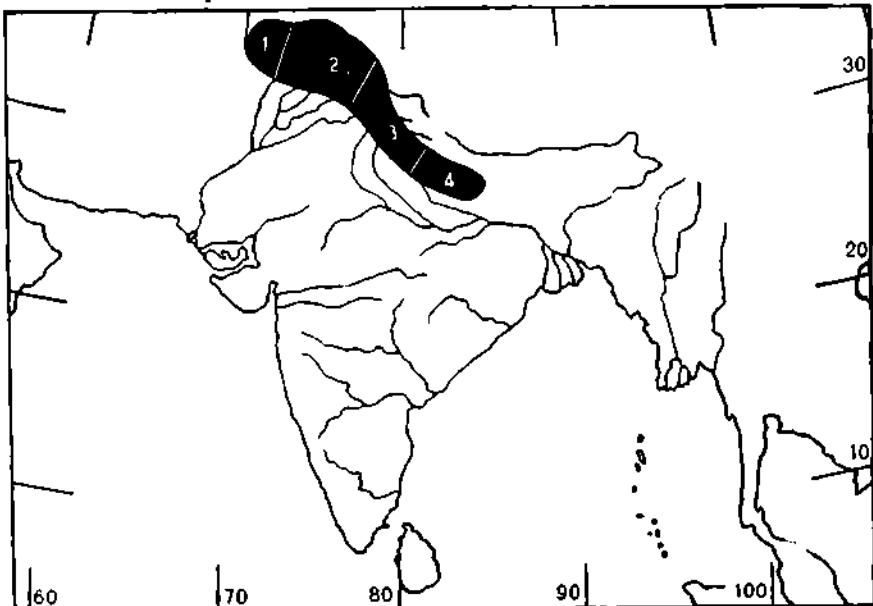
FIELD CHARACTERS. As for the common Koklas (305), q.v., but neck all round, upper back, breast, and flanks chestnut, and middle of abdomen brownish black in male. Tail largely sooty black with practically no chestnut. For female see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Lower Chitral west of Kunar river in NW. Pakistan, the localities particularized being the Pattison and Asreth

valleys, and the valley behind Qila Drosh (H. T. Fulton, JBNHS 16: 61). Possibly also across the river in the southwestern portion of Hindu Rai range. Affects sides of wooded nullahs in oak (*Quercus*) and deodar (*Cedrus*) forest, from c. 1000 to 2300 m. altitude in winter, and up to c. 3400 m. in summer.

Extralimital. Adjacent mountain ranges of Kafiristan and Nuristan (Afghanistan).

Pucrasia macrolopha



■ Range within Indian limits

1 *P. m. castanea* (303).

2 *P. m. biddulphi* (304). 3 *P. m. macrolopha* (305). 4 *P. m. nipalensis* (306).

GENERAL HABITS, FOOD, VOICE and CALLS. Little recorded; presumably as of 305. 'The call, usually uttered in the mornings, is a *kük-ürük-ürük* very much resembling the call of the junglefowl but with a hint of the Black Partridge' (J. A. S. Roper, JBNHS 34: 1062). Another observer (Fulton) also remarks on the similarity of its call *kök-kök-kök . . . kokrás* to the crow of the Red Junglecock when heard in the distance. Particularly noisy during March and April.

BREEDING. Poorly known. 'Eggs are laid during May. The nesting site is usually placed on a ledge on some difficult piece of cliff towards the top of a nala' (Roper).

PLATE 23

- 1 *Tetraophasis szechenyii*, Pheasant-Grouse (233).
- 2 *Polyplectron bicalcaratum*, Peacock-Pheasant (310).
- 3 *Gallus g. spadiceus*, Red Junglefowl (300).
- 4 *Coturnix chinensis*, Bluebreasted Quail (253).
- 5 *Turnix t. blanfordii*, Yellowlegged Button Quail (315).
- 6 *Coturnix coromandelica*, Blackbreasted or Rain Quail (252).
- 7 *Lophura I. hamiltonii*, Whitecrested Kaleej Pheasant (293).
- 8 *Lophura I. lineata*, Burmese Silver Pheasant (297 RE).



John H. Dick

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

Female. 'Resembles *macrolopha*, but paler and greyer; general colour of the tail blackish brown not rufous-chestnut as in *macrolopha*; central tail-feathers greyish brown' (Delacour).

MEASUREMENTS.

σ^1 Wing c. 240; bill (from feathers) c. 25; tarsus c. 43; tail c. 178. Crest up to 104 mm.; spur c. 10 mm. (Baker).

Two birds obtained by Paludan in Afghanistan (Nuristan) measure σ^1 Wing 252, tail 232 mm.; Q Wing 228 mm.

COLOURS OF BARE PARTS. Not recorded.

304. **Kashmir Koklas Pheasant.** *Pucrasia macrolopha biddulphi* Marshall

Pucrasia biddulphi Marshall, 1879, Ibis: 461 (Kashmir)

Pucrasia macrolopha bethelae R. L. Fleming, 1947, Fieldiana, Zool., 31: 93 (Manali)

Baker, FBI No. 1912, Vol. 5: 312

LOCAL NAMES. *Pids* (Kashmir); *Kukrola* (Chamba).

SIZE. Domestic fowl; length σ^1 c. 61 cm. (24 in.); Q c. 53 cm. (21 in.).

FIELD CHARACTERS. As of the common Koklas (305), q.v. See Key to the Subspecies, and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Northern Kashmir south-east to Chamba (Himachal Pradesh) and Kulu (Punjab) north to the Rohtang Pass, from c. 2000 to 3400 metres altitude. Intergrades with *castanea* in the west and *macrolopha* in the east. Affects wooded slopes and nullahs in oak and conifer forest.

GENERAL HABITS, FOOD, VOICE and CALLS. As of 305.

BREEDING. Season, May-June. Nest and eggs as in nominate *macrolopha*. Average size of 28 eggs 50·9 x 37·8 mm. (Baker).

MUSEUM DIAGNOSIS. Male. Differs from *macrolopha* (305) in being slightly darker above, with the chestnut of the foreneck extending to hindneck. Below, chestnut underparts darker and more mixed with black; black edging to feathers of upper breast usually narrower.

Female has the black markings on outer tail-feathers in bars, not longitudinal streaks as in 305.

MEASUREMENTS and COLOURS OF BARE PARTS. As in 305. Baker gives for σ^1 wing 233-249 mm.

305. **Koklas Pheasant.** *Pucrasia macrolopha macrolopha* (Lesson)

Satyrus macrolophus Lesson, 1829, Dict. Sci. Nat., ed. Levrault, 59: 196

(Bengal, error = Almora Hills, Kumaon)

Baker, FBI No. 1911, Vol. 5: 310

Plate 22, fig. 3, facing p. 80

LOCAL NAMES. *Kaklis*, *Koklis* (Simla to Almora); *Pohris* (Kumaon and Garhwal); *Rhewklier* (Kangra).

SIZE. Domestic fowl; length σ^1 c. 61 cm. (24 in.), Q c. 52 cm. (21 in.).

FIELD CHARACTERS. A medium-tailed Himalayan pheasant.



♂, $\times c.$ $\frac{1}{2}$

Male. *Above*, silver-grey streaked with black. Head fully feathered, metallic green. A brown recumbent occipital crest with long, metallic green horn-like tufts of plumes projecting behind on either side of it. A prominent white patch on either side of upper neck. Tail chestnut-brown, of medium length, pointed and wedge-shaped but not downcurving as in kaleej or junglecock. *Below*, largely deep bright chestnut.

Female. *Above*, mottled black-and-brown, finely streaked with buff. Crown chestnut-buff with shorter crest and no ear-tufts. *Below*, throat creamy white. Rest of underparts pale buff streaked with blackish, narrowly on breast broadly on posterior flanks. Under tail-coverts chestnut, spotted with white.

Chick (in down). Unknown.

STATUS, DISTRIBUTION and HABITAT. Resident. Southern Kashmir (Jammu), Himachal Pradesh, Kumaon and Garhwal to W. Nepal, between c. 1500 and 4000 metres; at the lower elevations in winter. Intergrades with *biddulphi* on the west and north, and with *nipalensis* on the east. Affects wooded ravines and steep hillsides, in oak and conifer forest with heavy scrub and ringal bamboo undergrowth.

GENERAL HABITS. As typical of most Himalayan pheasants; perhaps oftener met with singly or in pairs. Though not gregarious, several birds frequently haunting a particular hillside, and often the same forested nullah, day after day. Lies close in cover and difficult to flush without a dog. Rockets upwards when flushed and then shoots down the *khud* at great speed.

FOOD. Shoots, buds, tubers, leaves (e.g. of maidenhair and other ferns), berries, acorns, seeds, and insects.

VOICE and CALLS. Crow of cock, from which the species derives its popular name, a loud ringing but unmusical *kok-kok-kok . . . kokrds* (or *pokrds*). A variant has also been accurately rendered as *khwa-ka-kak*. Uttered principally in the early morning and evening, but also at other times of the day in cloudy overcast weather, and particularly in the breeding season. A number of cocks will 'explode' in a bout of crowing upon any sudden loud report such as the firing of a gun or a peal of thunder — a peculiarity reminiscent of the Peacock.

BREEDING. In courtship display the cock puffs out his body feathers, erects the long black ear-tufts with the brown crest between them, and struts about in the proximity of the hen. *Season*, April through June. *Nest*, a scrape

in the ground roughly lined with sticks, leaves and grass, concealed under dense bushes or rocks. Eggs 5 to 7, though clutches of 8 and 9 have been recorded (Osmaston, Hume). Pale yellowish stone-colour or pale to rich deep buff, with spots, specks, and blotches of reddish brown. Average size of 68 eggs $51\cdot3 \times 37\cdot5$ mm. (Baker). Cock believed to be monogynous. Hen alone incubates; period 20–21 days. Chicks, as in most Phasianidae, able to fly in a very few days after hatching, while still little more than tiny balls of fluff.

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	215–244	c. 24–29	c. 63–69	221–277 mm.
♀ ♀	180–218	—	—	172–195 mm.

Crest in ♂ up to 100 mm.; ear-tufts up to 120 mm.; spur 10–19 mm. (Baker). Weight ♂♂ 2 lb. 8 oz. to 3 lb. 2 oz. (c. 1135–1415 gm.); ♀ ♀ 2 lb. 4 oz. to 2 lb. 8 oz. (c. 1025–1135 gm.) — Whistler.

COLOURS OF BARE PARTS. Iris dark brown. Bill horny brown to black sometimes tinged with greenish or purplish. Legs and feet dark bluish or purplish grey.

306. Nepal Koklas Pheasant. *Pucrasia macrolopha nipalensis* Gould

Pucrasia Nipalensis Gould, 1855 (1854), Proc. Zool. Soc. London; 100
(Nepal and Bhutan = Nepal)
Baker, FBI No. 1913, Vol. 5: 312

LOCAL NAME. *Pokrās* (Nepal).

SIZE. Domestic fowl; same as 305. Length ♂ c. 61 cm. (24 in.), ♀ c. 52 cm. (21 in.).

FIELD CHARACTERS. As for the common Koklas (305), q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Resident. From W. Nepal (where it intergrades with nominate *macrolopha*) eastward at least to long. $83^{\circ}49'E.$ (Tukucha), an extension of c. 160 km. from Jumla whence Hodgson last reported it a hundred years ago (R. L. Fleming, JBNHS 50: 661).¹ Complete absence of the species in the eastern Himalayas enigmatical, particularly as it reappears farther east in Yunnan and other parts of China, and Mongolia. Affects wooded nullahs and dense scrub-covered, often precipitous, hillsides in oak and conifer forest, between c. 2000 and 4500 m. altitude.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 305 and other races, q.v.

BREEDING. Unrecorded. Presumably same as 305.

MUSEUM DIAGNOSIS. 'Male. Differs from *macrolopha* [305] in having the feathers of the back, rump, sides, and flanks black, more or less edged with grey; wing-coverts black edged with buff or rufous; sides and back of neck, and upper mantle black, strongly marked with chestnut; tail dark chestnut.'

¹ Dr Biswas informs us that Jumla has always been a popular bird market to which live birds are brought for sale from long distances. Therefore the actual provenance of Hodgson's specimens is uncertain.

'Female. Similar to *macrolopha* but redder all over; tail-feathers except the outermost, chestnut on the outer webs, blackish with white tips on the inner webs and with well-marked subterminal black bands' (Delacour). Plumage subject to much individual variation.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
1 ♂	229	27	62	203 mm.
1 ♀	212	29	55	166 mm.
3 other ♂♂ wing	216, 226, 232 mm.			(R. L. Fleming)
Baker gives for ad. ♂♂ Wing 208–228, bill (from feathers) 23–26, tarsus c. 66, crest 68–91 mm.				

COLOURS OF BARE PARTS. As in 305.

Genus *CATREUS* Cabanis

Catreus Cabanis, 1851, in Ersch & Gruber, Allg. Encycl., sect. 1, 53: 221. Type, by monotypy, *Phasianus wallichii* Hardwicke

Closely allied to *Phasianus* but differing from it in the possession of a long narrow occipital crest of hair-like plumes. Wing rounded: 1st primary (as.) shorter than 10th; 5th primary longest. Tail long and pointed, not compressed, of 18 feathers, the central pair very long about four or five times the length of the outermost. Tarsus strong, armed with a well-developed spur in male; occasional and rudimentary in female. Sexes only slightly dimorphic.

Contains a single species confined to the western and central Himalayas.

307. Chir Pheasant. *Catreus wallichii* (Hardwicke)

Lophophorus (Phasianus) Wallichii Hardwicke, 1827, Trans. Linn. Soc. London 15: 166
(Almorah Hills)

Baker, FBI No. 1910, Vol. 5: 307

Plate 22, fig. 5, facing p. 30

LOCAL NAMES. *Chihr*, *Chir* (Nepal, Kumaon, Garhwal); *Bunchil*, *Herril* (hills north of Mussooree); *Chaman* ♂, *Chamani* ♀ (Kulu, Chamba); *Reear* (Kashmir, in Pir Panjal and Kazinag ranges); *Rehar* (Darg, NW. Pakistan).

SIZE. Large domestic fowl. Length ♂ c. 90–118 cm. (36–46 in.); ♀ c. 61–76 cm. (24–30 in.).

FIELD CHARACTERS. A long-tailed West Himalayan pheasant reminiscent of an English hen pheasant.

Male. *Above*, top of head and long narrow backward projecting crest blackish brown, edged paler. A bright crimson naked orbital patch. Upper-parts chiefly buffy white and pale rusty, closely barred with black. Pointed tail buffy grey and chestnut, broadly barred with black and ashy grey. *Below*, chiefly buffy white, conspicuously barred on lower breast and flanks. Centre of abdomen blackish.

When planing down a hillslope the general colour pattern, rounded wings, and partly open barred and graduated tail are strangely reminiscent of a gigantic Common Babbler (*Turdoides caudatus*).

 δ , $\times c. \frac{1}{2}$

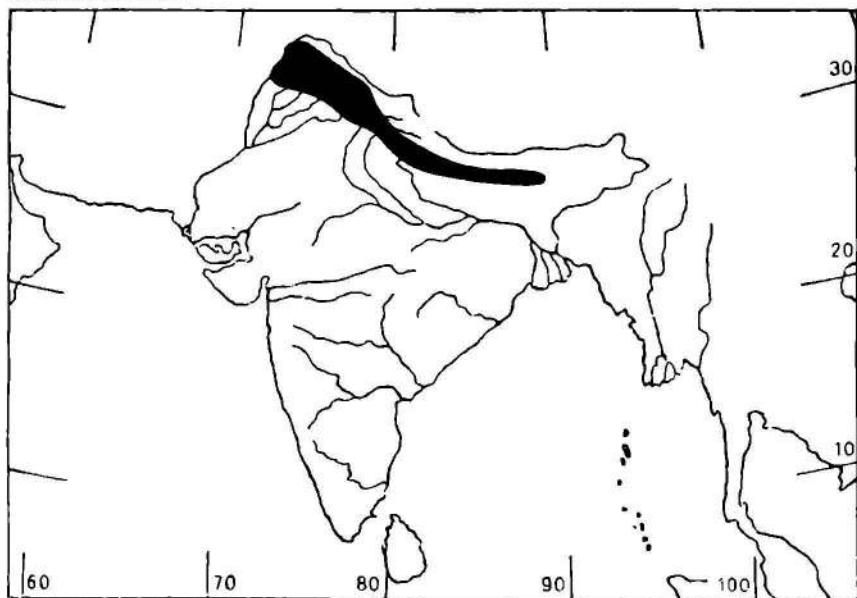
Female. Similar in general effect, but smaller with more chestnut in her underparts and facial patch brick-red rather than bright crimson.

Young (immature). Like female but duller, less boldly marked and lacking the crest.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, with practically no seasonal altitudinal movement. The Himalayas between c. 1400 and 3500 metres alt. from Hazara in NW. Pakistan through Kashmir, the Punjab, Himachal Pradesh, Garhwal, and Kumaon to at least the 84th meridian in west-central Nepal (Pokhara). Affects steep rugged hillsides in oak forest, covered with long grass and *Berberis* scrub, and cut up by wooded ravines and hollows.

Catreus wallichii



■ Distributional range

GENERAL HABITS. Keeps in coveys of 5 or 6 which feed on the open hillsides well hidden among the undergrowth. Is an extreme skulker with a marked predilection for running away uphill rather than taking to wing. Lies very close in cover and almost impossible to flush without a dog till almost trodden on, especially so after being once fired at. When flushed it usually hurtles down the khud at terrific speed with wings pulled in at the sides.

The covey usually remains loosely together when feeding, the birds rising more or less at the same time and giving the experienced hunter a chance to bring off a quick right and left. Silent during daytime but very noisy before retiring for the night; also before daybreak when still quite dark, prior to descending from the trees to feed.¹ The birds roost in company in patches of oak forest lining or overhanging gullies, their progress towards the sleeping places in the evening being betrayed by a series of clamorous squeaks and chuckles which must surely render them vulnerable to poachers and predators.

FOOD. Roots and tubers dug out of the ground, seeds and berries, and grain when available. Also insects and grubs. Reported not to eat grass or leaves like other pheasants, but Whistler has found leaves of rue in the crops of birds shot.

VOICE AND CALLS. Crow, of both sexes, uttered early morning and at dusk, a distinctive loud and far-reaching *chir-a-pir, chir-a-pir, chir, chir, chirwa, chirwa*, and so on. In addition, various clucks and chuckles to express contentment, alarm and other emotions are also emitted.

BREEDING. Courtship display of cock of the lateral pattern as familiar in the jungle and domestic cocks and common to most Phasianidae. Season, principally late April to early June. Nest, a scrape or depression roughly lined with a few leaves and grass at the foot of a boulder on a rugged hillside in open oak or chir pine forest, usually well concealed by overhanging grasses etc. Eggs, 9-14, dull creamy white to pale grey-buff, sparsely and irregularly freckled and blotched with light reddish brown. Average size of 48 eggs $53\cdot 4 \times 39\cdot 3$ mm. (Baker). Cock evidently monogynous; assiduous in tending the young. Incubation by hen alone; period c. 26 days.

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

Chick (in down). 'Centre of crown chocolate-brown; a narrow black line from posterior corner of eye to ear-coverts, where it expands, and then, narrowing again, continues back down side of neck. Rest of head creamy buff, paling on lower face; lower neck and upper parts grizzled grey with dark chocolate shoulder spots; anterior half of wing and entire centre of back (which has two lateral lines of pale grey), chin and throat creamy white; remainder of underparts more greyish. This downy plumage is unlike that of any other pheasants, and more like certain partridges' (Delacour).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	235-270	25-29	74-78	450-580 mm.
♀ ♀	225-245	24-27	60-63	320-470 mm. (Delacour)

Weight ♂ ♂ 3 lb. 4 oz. to 3 lb. 12 oz. (c. 1475-1700 gm.); ♀ ♀ 2 lb. 12 oz. to 3 lb. (c. 1250-1360 gm.) — Whistler.

COLOURS OF BARE PARTS. Iris golden hazel to orange-brown; orbital skin ♂ bright crimson, ♀ duller or brick-red. Bill pale yellowish brown or pale bluish horny. Legs and feet plumbeous or greyish brown, sometimes fleshy brown.

¹ Delacour's statement based on Wilson that they usually sleep on the ground (p. 205) may be only partially true.

Genus *SYRMATICUS* Wagler

Syrmaticus Wagler, 1832, Isis von Oken, col. 1229. Type, by monotypy, *Phasianus reevesii* J. E. Gray

Long-tailed pheasants resembling *Catreus* in shape but without a crest. Wing rounded: 1st primary (as.) between 7th and 10th in length. Face bare in male, feathered in female. Tail not compressed; of 16 or 18 very long and strongly graduated feathers. Tarsi long and stout, armed with well-developed spurs in male, often showing as rudimentary knobs even in female. Sexes dimorphic.

Genus represented by only a single species and subspecies within our eastern limits.

308. **Mrs Hume's Barredback Pheasant.** *Syrmaticus humiae humiae* (Hume)

Callophasis humiae Hume, 1881, Stray Feathers 9: 461 (Manipur)

Baker, FBI No. 1907, Vol. 5: 303

Plate 22, fig. 7, facing p. 80

LOCAL NAMES. *Loiningkoi* or *noiningkoi* (*l* and *n* interchangeable — Manipur); *Nongin* (Chiru — a hill tribe in Manipur).

SIZE. Large domestic fowl; length ♂ c. 90 cm. (36 in.); ♀ c. 60 cm. (24 in.).

FIELD CHARACTERS. A long straight-tailed pheasant like the Chir but male much brighter coloured and lacking the crest. *Above*, head, neck (all round), and rump glistening steel blue, the last narrowly scalloped with white. Bare facial skin bright crimson. Back and mantle rich golden bay colour, scalloped with black. Conspicuous broad white bars on scapulars, and two narrower white ones on wing (white edging to coverts). Tail long, narrow-pointed, grey with several narrow chestnut-and-black cross bands. *Below*, chin, throat and foreneck glossy steel blue. Lower breast like back, changing to deep chestnut on abdomen and flanks.

Female. *Above*, head reddish brown, crown streaked with black. Bare red patch round eye much smaller than in ♂. Rest of upperparts chiefly sandy brown, streaked, mottled, and barred with black. Tail mainly chestnut, shorter and less pointed than ♂, the graduated rectrices broadly barred with black and tipped white. *Below*, chiefly sandy greyish brown and sandy rufous, sparsely black-spotted on upper breast, barred with pale grey on lower breast and flanks.

Young (immature) male like ad. female but duller.

STATUS, DISTRIBUTION and HABITAT. Rare and patchy; very little known. Manipur, Patkai, Naga, and Mizo (Lushai) hills, between c. 900 and 2000 m. elevation. Specific localities mentioned: *Manipur*. Ukhrul (25°N., 94°25'E.), just below c. 1800 metres; Heika, c. 1500 m.; valley of Thoubal river, a tributary of Manipur river, at c. 900 m.; Irang valley (Higgins, JBNHS 37: 89); *Naga Hills*. Manipur side of Kohima-Imphal valley south of Karong (25°18'N., 94°5'E.); hills south of Jessami village c. 50 km. ESE. of Kohima (25°40'N., 94°8'E.) (Ripley, JBNHS 50: 479). Affects mixed open forest interspersed with grass and bracken patches on steep rugged hillsides.

Extrazonal. Contiguous parts of northern Burma, west of Irrawaddy river (Chin Hills etc.).

GENERAL HABITS, FOOD, VOICE and CALLS. Very poorly known. Published field notes scanty; not suggesting any significant difference from Chir (307). Alarm note a subdued muttering *bük-bük-bük-bük-bük* (G. Heinrich, Chin Hills). 'They rise with an easily recognisable chuckle' (Wickham, U. Burma). A distinctive clucking while running away through undergrowth (Blandy).

BREEDING. No authentic information since eggs mostly obtained vicariously through local tribals. *Season*, April and May. *Nest* and site apparently similar to Chir's. *Eggs*. Full clutch believed to be of 6 to 10, creamy to rosy white. Average size of 43 eggs (presumed authentic) $48 \cdot 7 \times 35 \cdot 3$ mm. (Baker). Incubation period and other details unknown.

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	206-225	25-29	58-66	400-535 mm.
♀ ♀	198-210	20-25	55-60	c. 200 mm. (Delacour)

Weight ♂ '2 lb. 6 oz. (c. 1080 gm.); spur 8·3 to 17·7 mm.' (Baker).

COLOURS OF BARE PARTS. Iris brown to orange; orbital skin deep crimson. Bill greenish horny, darker on base and culmen, paler at tip. Legs and feet dull light brown. In ♀ smaller orbital patch red.

Genus POLYPLECTRON Temminck

Polyplectron Temminck, 1813, Pig. et Gall. 2: 363. Type, by monotypy, *Polyplectron chinquis* = *Pavo bicalcaratus* Linnaeus

Contains smallish pheasants reminiscent of spurfowl, of grey, grey-brown or buff plumage with metallic coloured eye-spots or ocelli on the wings and tail. First primary (as.) shortest; 2nd shorter than 10th; 6th primary generally longest. Inner secondaries almost as long as primaries. Tail of moderate length, of 20 to 24 graduated feathers; much rounded, and fan-shaped when open; central rectrices considerably longer than the others. Sides of the face nearly or quite naked. Tarsi much longer than middle toe and claw; in males usually armed with two (sometimes one or three) sharp-pointed spurs on each. Sexes slightly dimorphic; female smaller, duller and with fewer ocelli.

Represented in the northeastern parts of our area by one species in two races.

POLYPLECTRON BICALCARATUM (Linnaeus)

Key to the Subspecies

- General colour more buffy-brown..... *P. b. bicalcaratum*
- General colour more grey and less buff..... *P. b. bakeri*

309. Bhutan Peacock-Pheasant. *Polyplectron bicalcaratum bakeri* Lowe

Polyplectron bicalcaratum bakeri Lowe, 1925, Ibis: 477 (Bhutan)

Baker, FBI No. 1901, Vol. 5: 291

LOCAL NAMES. *Munowwar, Deyodahuk, Deoderik* (Assam); *Deodurrug* (Garo); *Dao dip, Dao dai dip, Mejoor* (Cachar); *Burruminrui* (Kacha Naga); *Katmör* (Chittagong).

SIZE. Domestic hen. Length ♂ c. 64 cm. (25 in.); ♀ c. 48 cm. (19 in.).

FIELD CHARACTERS. Male. *Above*, head and neck brownish buff with a short frowzly crest of upstanding hair-like feathers. Rest of upperparts mainly greyish brown spotted on back and finely barred on rump and upper tail-coverts with whitish. Mantle, wing-coverts, and tail 'studded' or 'embossed' with brilliant violet green-blue, white-rimmed eye-spots or ocelli, larger and more elongated near tips of rectrices. *Below*, chin and throat whitish. Rest of underparts like back, the whitish barring on breast and flanks more defined. On under surface of tail the ocelli show up as black spots.

Female. Similar but smaller, duller and with shorter tail. Crest-feathers less hair-like. Ocelli less brilliant on mantle feathers, obsolete on the shorter rectrices. Whitish on throat more extensive.

Young (immature) male. Like female.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Duars and normally up to c. 1200 m. alt. in Sikkim, N. Bengal (Darjeeling and Jalpaiguri dists.), Bhutan and adjoining NEFA in the Daula Hills (Kameng and Subansiri Frontier Divisions). The birds of the Mishmi Hills, further east, are darker and may belong to an undescribed race. Occurs also in Assam hills in Lakhimpur district (Dibrugarh) and south of Brahmaputra river through Sylhet (E. Pakistan), Cachar, Nagaland and Manipur. Chittagong examples intermediate but closer to nominate *bicalcaratum* (310). Affects dense evergreen forest.

GENERAL HABITS. Rather reminiscent of Spurfowl. Keeps singly or in pairs. A great skulker and extremely swift on its legs, keeping to dense undergrowth and seldom giving a glimpse of itself. Difficult to find and almost impossible to flush even with a dog.

FOOD. Grain, seeds, berries, wild figs, insects, grubs, snails and other small animals. Bamboo seeds when available, and white ants are especially relished.

VOICE and CALLS. A deep guttural *hoo* rapidly repeated about seven times, and soft chuckling notes (Baker). 'Commonest call *ok-kok-kok-kok* not unlike that of cock English pheasant' (Higgins). In captivity several calls described by Delacour (p. 287) among which 'a sort of warbling song as the cock fully displays to the hen', consisting of a long, continuous flow of little chirps, up and down in scale, rising and falling, and lasting several minutes until the hen has moved away.

BREEDING. Display of cock beautiful and spectacular. He begins by running round hen with tail partly fanned and wings spread and drooping. Presently he sinks low in front of her till his breast rests on the ground. The tail and wings are raised and fully spread out fanwise to flaunt the brilliant metallic ocelli, his head meanwhile partly hidden among the fluffed-out plumage. Hen usually seems uninterested during this performance, but sometimes she responds by an inferior display of a similar pattern, whereupon copulation takes place. *Season*, March to June — chiefly April and May. *Nest*. A shallow scrape or natural depression roughly lined with a few dry leaves, invariably well hidden under dense vegetation. *Eggs*, normally 2; rarely 3, 4, and even 5, pale cream colour to rich chocolate-buff, more

or less stippled all over with white. Average size of 40 eggs 46.5×35.9 mm. (Baker).

Cock evidently monogynous. Incubation by hen alone; period c. 21 days. According to Baker, when the downy chicks begin to run about they generally keep close behind the mother under her tail, which is spread out like an umbrella over them.

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

Chick (in down). *Above*, dark chestnut with two faint darker streaks down the sides of the back with broad streaks of buff outside them. *Below*, pale buff; a dark spot on each wing (Baker).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	210-240	22-25	75-80	350-400 mm.
♀ ♀	175-215	18-20	65-70	230-255 mm. (Delacour)

Weight ♂♂ 1 lb. 4 oz. to 2 lb. (c. 568-910 gm.) — Baker.

COLOURS OF BARE PARTS. ♂ Iris white to pearl grey. Facial skin yellowish flesh colour, sometimes more reddish. Bill creamy flesh colour, black at tip and on culmen. Legs and feet dark slaty or greenish plumbeous to blackish. ♀ Iris brown, grey-brown, or grey. Facial skin dull flesh-coloured. Legs and feet paler than in ♂.

310. Burmese Peacock-Pheasant. *Polyplectron bicalcaratum bicalcaratum* (Linnaeus)

Pavo bicalcaratus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 156 (China, restricted type locality Tonkin or Yunnan *vide* Stresemann, 1952, Ibis 94: 510 = Yunnan)

Baker, FBI No. 1900, Vol. 5: 289

Plate 23, fig. 2, facing p. 112

LOCAL NAME. *Katmōr* (Chittagong, E. Pakistan).

SIZE. Domestic hen. Length ♂ c. 64 cm. (25 in.); ♀ c. 48 cm. (19 in.).

FIELD CHARACTERS. As for 309 q.v., see Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Resident. Chittagong Hill Tracts, E. Pakistan. The birds here somewhat intermediate between the two races but closer to nominate *bicalcaratum*. Affects dense evergreen jungle; foothills and up to c. 1200 metres elevation.

EXTRALIMITAL. Burma (Chin and Kachin Hills) east to W. Tonkin, south to S. Tenasserim, Thailand and central Laos.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 309.

BREEDING. Not specifically recorded within Indian limits. Same as in 309.

MUSEUM DIAGNOSIS. Differs from *bakeri* (309) in both sexes being more brownish buff less grey in coloration. Most of the whitish markings are replaced by buff.

MEASUREMENTS and COLOURS OF BARE PARTS as in 309.

Genus *Pavo* Linnaeus

Pavo Linnaeus, 1758, Syst. Nat., ed. 10, 1: 156. Type, by tautonymy, *Pavo cristatus* Linnaeus

Contains the familiar Peafowl distinguished by their erect occipital crest of feathers and the resplendent plumage of the cocks with greatly lengthened upper tail-coverts.

Tail in both sexes of 20 feathers, long and graduated; normally concealed by the ocellated train in the male. Under tail-coverts downy as in Adjutant Stork. Wings rounded: first primary (as.) shorter than 10th. Tarsus very long and strong, armed with a spur in the cock.

The genus is found in the Indochinese and Indomalayan subregions.

Key to the Species

	Page
A Crest-feathers ending in spatulate, half-moon shaped drops.....	<i>P. cristatus</i>
.....	123
B Crest-feathers ending in points.....	<i>P. muticus</i>
	126

311. Indian Peafowl. *Pavo cristatus* Linnaeus

Pavo cristatus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 156

('India orientali, Zeylona' = India)

Baker, FBI No. 1897, Vol. 5: 282

Vol. 1, plate 6

LOCAL NAMES. *Mör*, *Manjür*, *Mayūra* (Hindi); *Mayür* (Bengali); *Mür* (Sind); *Mör ♂*, *Ländör ♀* (Maharashtra); *Manja ♂*, *Mania ♀* (Orissa); *Mabja* (Bhutea); *Mongyung* (Lepcha); *Moira* (Assamese); *Wähong* (Manipur); *Dode* (Garo); *Mäytil* (Malayalam, Tamil); *Monāra* (Sinhala); *Nemäli* (Telugu); *Nävili* (Kannada); *Mör ♂*, *Dhél ♀* (Gujarat).

SIZE. Domestic turkey. Length ♂ c. 92–122 cm. (40–46 in.) without train, c. 2 to 2·25 metres in full plumage; ♀ c. 86 cm. (38 in.).

FIELD CHARACTERS. Familiar and almost universally known. The fan-shaped crest of spatula-tipped wire-like feathers together with the brilliant glistening blue neck and breast, and the sweeping metallic bronze-green train, boldly ocellated with purplish black-centred coppery discs or eye-spots, make the cock unmistakable. Lower back light bronze-green narrowly scalloped with black. Scapulars and outer surface of wings close-barred with black and buff. A good deal of chestnut in wings (primaries and their coverts).

Female. Somewhat smaller, similarly crested but without the sweeping train. *Above*, head and nape rufous-brown. Rest of upperparts brown, faintly mottled paler. *Below*, lower neck metallic green instead of blue; breast buffy brown glossed with green; abdomen buffy white. Primaries brown with no chestnut as in male.

Young (immature) male. Like adult female but with the primaries largely chestnut.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, locally up to c. 1800 m. elevation (rarely even 2000 m.) in the outer Himalayas and peninsular hills, practically throughout the subcontinent south and east of the Indus river, including Jammu and southern Kashmir. Eastward to about Lakhimpur district in Assam (c. 95°E.), thence south through Nagaland, Manipur, Mizo (Lushai Hills), and Chittagong west and south to the extreme tip of the Peninsula. Also indigenous and resident in Ceylon where locally plentiful in the low-country Dry zone. Introduced and now fairly established with a semi-feral status in parts of Sind (W. Pakistan), e.g. Hyderabad, Mirpurkhas, Umarkot and Sehwan areas. Very common and abundant

in Gujarat and Rajasthan and locally wherever protected on religious or sentimental grounds. Introduced successfully also in the Port Blair area and elsewhere in the Andaman Is. In wild state affects moist- and dry-deciduous forest in the neighbourhood of streams. Where semi-feral, found in the precincts of villages and cultivation, in close association with man.

GENERAL HABITS. Keeps in small flocks or droves consisting usually of a cock and 3 to 5 hens. After the breeding season segregated parties of adult males and of females with their immature broods are more common. In the wild state the birds emerge cautiously into forest clearings, and ploughed or newly sown fields in the early mornings and late afternoons to scratch the ground for food. An hour or so after sunrise they troop down to the water to drink, tripping gingerly over the dry leaves, craning their necks at every step and peering inquisitively through the bushes with the utmost circumspection. The birds also drink at dusk before retiring to roost. They spend the heat of the day in impenetrable thickets of lantana and the like. Peafowl are possessed of phenomenally keen eyesight and hearing and are excessively wary and wide awake at all times, ducking their heads and slinking away through the undergrowth on the least suspicion. The cock's cumbrous-looking train, carried horizontally a few inches above ground, is apparently no impediment to swift progress through the thickest cover. The birds prefer to trust to their legs for escape, running one behind the other when driven by beaters, and seldom take to wing except when flushed by a dog or to cross some open river-bed or ravine. They rise with a loud flapping of wings, even an old cock with his long, heavy train rocketing almost vertically to clear the tree-tops. When properly launched they fly fast and strongly with rapid flaps and glides and dextrous twists and turns to avoid tree-trunks and other obstacles.

When surprised in the open with a brood of small chicks, the hen pulls out the family to safety with amazing adroitness, crouching low with neck outstretched to take full advantage of every little dip and unevenness in the ground for concealment as she swiftly makes for cover in a manner inconceivable for so large a bird.

Peafowl roost at night in tall trees; the jungle resounds with their loud and ugly *may-awe* calls at dusk and early dawn before the birds descend to feed. They often call from the roost also during the night, and the crashing of a tree or a sudden clap of thunder is sure to release an immediate burst of responsive caterwauling by all the cocks in the neighbourhood. Cocks are quick to detect the presence of the larger cats on the prowl and herald the marauders' progress through the forest with loud warning alerts which are taken up by other cocks and by langur monkeys.

FOOD. Omnivorous. Seeds, grain, lentils, groundnuts, tender shoots of crops, flower-buds, berries and drupes (e.g. *Carissa*, *Lantana*, *Zizyphus*), wild figs (*Ficus glomerata* and other species), centipedes, scorpions, lizards, small snakes (once c. 20 cm. long), insects (e.g. locust hoppers, beetles, caterpillars), worms and grubs have all been more or less regularly found in crops and stomachs. In and around villages also human excreta. In areas where it is semi-feral and abundant it is destructive to cereal and groundnut crops in the highest degree, and a veritable scourge to the small farmer, vying with the sacred monkeys in the work of devastation.

VOICE and CALLS. Normal 'crow' of cock a loud and harsh metallic trumpet-like *may-awe* shrieked several times, varying in pitch. Also a series of short, gasping screams *ká-ān . . . ká-ān . . . ká-ān* (or *cain . . . cain . . . cain* pronounced as in French) repeated 6 to 8 times rapidly with an inane pumping action of the head and neck, well likened to 'something between the screams of a hysterical old woman and the bray of a donkey'. Alarm call when suspicious and agitated a double-syllabled brassy *kok-kok* or *cain-kok*, and variations of the same. This commonly uttered by a hen with neck-feathers fluffed out like a bottle brush and repeated intermittently for many minutes, especially when leading a brood of chicks.

BREEDING. The display or 'dance' of the cock consists of erecting and fully fanning out the ocellated train which is slightly tilted and arched forward. His half-open chestnut wings are drooped at the sides and go through a continuous shaking or quivering. In this posture he faces the hen (or hens), and with legs partly flexed struts and prances from one foot to the other in mincing steps as if stalking her — an action reminiscent of the holding manoeuvre, with arms stretched out, in the Indian game of *Āta-Pāta*. From time to time he goes through violent paroxysms of shivering the erected train, the quills producing a 'zissing' sound, and thus slowly pivots round to exhibit his posterior — the greyish under tail-coverts and black rump surmounted by the radiating glistening white shafts of the fanned-out train. The hen usually appears completely unconcerned during all these amorous antics, but she occasionally responds with an inferior imitation of the cock's movements. (A cock once observed interrupting his full display to chase off a rival intruding too near the coterie.) *Season*, in the northern and central part of its range chiefly after the break of the rains in June, continuing through September; in southern India chiefly April and May; in Ceylon chiefly January to March. *Nest*, a scrape in the ground, sometimes unlined at others roughly so with sticks, grass, and leaves. Usually well concealed in thorny undergrowth (e.g. *Lantana*, *Zizyphus*). Semi-feral birds often nest in ancient forts and ruined buildings, and frequently even on the flat roofs of houses in a village. *Eggs*, 4 to 6, broad, blunt ovals pale cream or *café au lait* to buff in colour, with a finely pitted surface. Average size of 100 eggs $69\cdot7 \times 52\cdot1$ mm. (Baker). Cock progressively polygynous. Female alone incubates; period c. 28 days. An exceptional case of a cock incubating a clutch of 5 eggs by himself for a week until all the eggs gradually disappeared, is recorded by Yuvraj Shivraj-kumar of Jasdan (1956, JBNHS 54: 464).

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for a note on moult, Marien, D., 1951, Amer. Mus. Novit., no. 1518: 20-1.

Chick (in down). 'Pale buff; a dark brown mark across the nape from one eye to the other; back darker rufous-brown; wing pale dull chestnut mottled with brown' (Baker).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail	Train
♂ ♂	440-500	40-44	140-155	400-450	1400-1600 mm.
♀ ♀	400-420	37-40	120-130	325-375	— mm. (Delacour)

Weight ♂ ♂ 9 lb. to 11 lb. 4 oz. (c. 4-6 kg.); ♀ ♀ 6-9 lb. (c. 2.75-4 kg.) (Baker).

COLOURS OF BARE PARTS. Iris dark hazel brown. Bare facial skin livid white. Bill dark horny, darkest along culmen and at tip. Legs and feet greyish brown to dark horny brown; claws blackish.

MISCELLANEOUS. The peacock is considered sacred in Hindu mythology as the vehicle of the god Kartikeya the son of Lord Shiva and his consort Parvati, and a brother of elephant-headed Ganesha. It is, besides, a subject of voluminous folklore throughout the country. For an account of its place in mythology and Sanskrit literature and poetry see Thaker, J. P., 1963, *Pavo* 1(1): 1-18.

The long ocellated feathers of the peacock's train are shed after the breeding season and picked up and collected in large quantities by villagers for export chiefly to Europe and America, and for being made up locally into fans and other gaudy gimcracks. The export has now been prohibited as a measure of protection for the species, a step perhaps unnecessary considering that the trade was almost entirely confined to *dropped* feathers available in marketable quantities only in areas where the birds are already well protected by sentiment and therefore abundant enough to make the collection of the feathers economically worth while. An average adult cock's full train contains about 200 + feathers (2 counted 206, 210).

In 1963 the peacock was officially designated as the National Bird of India.

312. Burmese or Green Peafowl. *Pavo muticus spiceri* Shaw & Nodder

Pavo spiceri Shaw & Nodder, 1804, Nat. Misc. 16: pl. 642 (India)

Baker, FBI No. 1898, Vol. 5: 284

Vol. 1, plate 16

LOCAL NAMES. *Pegu majura* (Calcutta bird dealers); *Wähong* (Manipur).

SIZE. Same as Indian Peafowl (311), q.v.

FIELD CHARACTERS. Male readily distinguished from Indian peacock by overall green (*v.* blue) coloration. Crest upstanding, pointed (not fan-like), of lanceolate shot blue-green feathers. Bare facial skin blue and yellow. Neck and breast glistening bronze-green and purple finely scalloped with black. Train more tinged with copper-bronzy violet in certain lights.

Female. More or less similar to male but without train. Upper tail-coverts as long as tail, golden green cross-barred with pale rufous mottling.

Young (immature) male like adult female (above), but with the lower back greenish bronze instead of brownish black.

STATUS, DISTRIBUTION and HABITAT. Resident. North Cachar and Manipur (now very rare or almost extinct), Mizo (Lushai Hills), and Chittagong Hill Tracts (E. Pakistan); plains level to c. 1000 metres elevation. Recently recorded from Jalpaiguri district, W. Bengal, where possibly run wild from imported ancestors (Daniel, J. C., 1957, *J. Bengal nat. Hist. Soc.* 29: 11). Affects dense forest, keeping to the neighbourhood of streams and shifting cultivation.

Extralimital. Adjoining W. Burma, probably east to Irrawaddy river.

GENERAL HABITS. As in the Indian bird. Owing to persecution, excessively shy and wild everywhere.

FOOD. As in 311.

VOICE and CALLS. An equally far-carrying *dow-aww*, *aww-aww*, *dow-aww* uttered with head well raised up; sometimes actually while displaying. A peculiar *tak-tak-ker-r-r-r-oo-oo*, *ker-r-r-roo* while walking about in search of a companion that had been shot (H. C. Smith).

BREEDING. 'Dance' similar to that of 311. Copulation followed when a hen quietly approached an *ex parte* displaying cock. He gave a loud scream on seeing her, made a rush at her with drooping train, and held her down by the head with his bill. After the act she walked away, and he soon resumed strutting and showing off as before (G. M. Inglis). Season, chiefly January through April, but July to September also recorded. Nest and eggs as in 311, the latter—3 to 6 in a normal clutch—indistinguishable from those of the Indian bird, but pointed eggs said to be commoner. Average size of 36 eggs $72\cdot7 \times 53\cdot5$ mm. (Baker). Cock progressively polygynous (or promiscuous?). Incubation by hen alone; period 26–28 days.

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

Chick (in down). *Above*, crown and a streak from occiput to near ear blackish brown; sides of head and throat lemon-yellow; occiput and rest of neck (all round) brownish buff, browner on hindneck; a dusky streak from nape to below ear-coverts. Back sepia-brown. Down on wings rufous-brown, feathers pale Indian red tinged with yellow and marked with black except at tip; markings on primaries lighter. Tail brown. *Below*, breast brownish buff; remainder of lower plumage pale lemon yellow; sides of thighs pale rufous-yellow. Iris greyish brown. Bill creamy yellow purer yellow above the nostrils, reddish in front of nail. Legs and feet yellow, reddish between the scutae in front of tarsus; claws pink; soles of feet yellower than the rest (Inglis).

A 14-day old chick flew on to the roof of a small house. Crest became noticeable 23 days after hatching. When a month old body feathers started appearing. Already at $1\frac{1}{2}$ months the chicks began showing off. When $2\frac{1}{2}$ months old they commenced getting metallic feathers on the back and sides of neck (Inglis).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail	Train
♂ ♂	460–540	42–45	160–170	400–475	1400–1600 mm.
♀ ♀	420–450	40–43	135–145	400–450	— mm.
(Delacour, for nominate race)					

Weight ♂ ♂ 8½ to 11 lb. (c. 3·85–5 kg.) — Baker.

COLOURS OF BARE PARTS. Iris dark brown or hazel brown. Orbital skin bluish green; naked cheeks yellow to pale orange. Bill dark horny brown darker at tip, paler at base. Legs and feet dark grey-brown or horny brown; claws blackish.

Order GRUIFORMES

(For anatomical details see Stresemann, E., 1927–34, *Aves* (Turnices: 759, Ralli: 763, Heliornithes: 765, Otides: 774, Grues: 772)

Baker, E. C. Stuart, 1922–30, *Fauna Brit. India* (Hemipodii, 5: 440, Grallae, 6: 1
[Fulicariinae: 1, Grues: 48, Otides: 59])

Family TURNICIDAE: Bustard-Quails

Genus TURNIX Bonnaterre

Turnix Bonnaterre, 1791, *Tabl. Encyc. Méth., Orn.*, pt. 1: lxxii, 5. Type, by a subsequent designation, *Tetrao gibraltaricus* Gmelin = *Tetrao syriacus* Desfontaines

Contains small ground birds superficially very like true quail (to which they are only distantly related), but readily distinguished in the hand by the absence of the hind toe or hallux. Called Hemipodes or Bustard-Quail on account of the three-toed bustard-like foot. They differ from true quail also in the absence of a crop.

Family remarkable for its breeding biology. Females polyandrous, larger than males and more brightly coloured, sharing this reversal of the normal condition in birds with the Painted Snipe and a few other species. Widely distributed in the Old World. Represented by three species and several races in our area.

Key to the Species

		Page
A	Breast barred across with black or white or quite black in the centre	<i>T. suscitator</i> 192
B	Breast never barred or black in the centre.....	1
1	Central tail-feathers lengthened; dark marking on sides of breast and flanks V-shaped.....	<i>T. sylvatica</i> 128
	Central tail-feathers not lengthened; dark breast markings rounded	<i>T. tanki</i> 129

313. Little Bustard-Quail. *Turnix sylvatica dussumieri* (Temminck)

Hemipodius Dussumieri Temminck, 1828, Pl. col., livr. 76, pl. 454, f. 2 (Bengale)

Baker, FBI No. 2009, Vol. 5: 450

Plate 25, fig. 13, facing p. 160

LOCAL NAMES. *Ginwa lowwa*, *Chhota lowwa*, *Ddbki* (Hindi); *Chhoto bđdr* (Bengal); *Tura shimej* (Mathura); *Tirra gändri* (Santhali); *Libbie* (Purnea); *Derwi* (Ratnagiri); *Chinna* or *Telladabba gändla* (Telugu); *Sen gändla* (Orissa); *Chhoto sdwandi* (Assam); *Sorböl* (Manipur); *Daoduma kashiba* (Cachar); *Inruibuma gejeba* (Naga); *Tutu batra* (Sind).

SIZE. Bush Quail --. Length ♂ c. 13 cm. (5½ in.), ♀ slightly larger.

FIELD CHARACTERS. An unmistakable quail and one of our tiniest game birds. Distinguished from the two other three-toed species by its smaller size and distinctly pointed little tail. *Above*, crown blackish brown with a whitish median line or 'centre parting'. Hindneck ferruginous scalloped with buff. Upperparts irregularly barred rufous and black. *Below*, white or whitish excepting breast which is brownish buff with black-and-chestnut spots on its sides.

SEXES more or less alike; female slightly larger. For young (immature) see Museum Diagnosis.

PLATE 24

- 1 *Rallus s. albicanter*, Bluebreasted Banded Rail (329).
- 2 *Porphyrio p. poliocephalus*, Purple Moorhen (349).
- 3 *Rorstrata benghalensis*, Painted Snipe (429).
- 4 *Hydrophasianus chirurgus*, Pheasant-tailed Jacana, breeding (358).
- 5 *Amazurornis p. chinensis*, Chinese Whitebreasted Waterhen (343).
- 6 *Gallinula c. indica*, Moorhen (347).
- 7 *Motopidius indicus*, Bronzewing Jagana (359).
- 8 *Fulica a. atra*, Coot (350).
- 9 *Heliosperis personata*, Masked Finfoot (351).
- 10 *Gallinex c. cinerea*, Kora or Water-cock, breeding (346).



John H. Diers

STATUS, DISTRIBUTION and HABITAT. Resident, but also seasonally nomadic in parts. From c. 2400 metres elevation in the outer Himalayas (including Nepal and Sikkim) southward through the Peninsula (hill and plain) to Kerala. In the west, Kutch, Rajasthan and Sind (in the last apparently a rains visitor), north to the Punjab Salt Range, at least to c. 72°E. Eastward it extends through the Assam Valley to Dibrugarh and Sadiya; also Khasi, Cachar, and Naga hills. Manipur, Mizo (Lushai Hills) ?, Tripura, and East Pakistan in Sylhet, Tippera and Chittagong, plains and hill tracts. Affects grass-and-scrub jungle bordering cultivation and grassland.

Extralimital. Burma (including Shan States). The species, in numerous other races, is found from S. Spain south and east through Africa to the Indochinese subregion, Formosa, Java, and the Philippines.

GENERAL HABITS and FOOD. As of the genus; see under 318.

VOICE and CALLS. 'Drumming' of female similar to 318, but softer and less loud. It is a remarkable mixture of a purr and a coo uttered with the plumage fluffed, the bird 'turning and twisting about in the same way as an old cock pigeon' (E. A. Butler).

BREEDING. Season ill defined. Practically all year but chiefly during the rains. Nest, as in 318 — a scrape in the ground sparsely lined with grass, in scrub jungle. Eggs, normally 4, greyish white finely speckled and sometimes blotched with yellowish brown, reddish brown, or black — similar to those of 318. Average size of 60 eggs 21.3 x 17.3 mm. (Baker). Hen polyandrous; incubation and care of the young by cock alone. Period of incubation c. 12 days (10 according to locals in Cachar).

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

Young (immature). Above, reddish brown, becoming brighter rufous on the nuchal region, indistinctly barred with blackish brown and spotted with white, especially on wing-coverts. Below, breast paler buff than in adult, spotted with black.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	61-71	c. 10-11	c. 18-20	c. 31-37 mm.
♀ ♀	73-75			(Baker)

Weight ♂ ♀ 1½ to 1¾ oz. (c. 36-43 gm.)

COLOURS OF BARE PARTS. Iris light yellow to straw colour. Bill plumbeous white to plumbeous. Legs and feet pale fleshly white to pale blue-grey.

TURNIX TANKI Blyth

Key to the Subspecies

- | | |
|--------------------------------|-------------------------|
| Larger; wing over 90 mm..... | <i>T. t. blanfordii</i> |
| Smaller; wing under 90 mm..... | <i>T. t. tanki</i> |

314. Indian Yellowlegged Button Quail. *Turnix tanki tanki* Blyth

Turnix tanki Blyth, 1849, Jour. Asiatic Soc. Bengal 12: 180. No locality — Bengal, based on drawing by Buchanan Hamilton [Not *Turnix maculatus* Vieillot — synonym of *Turnix maculosa* (Temminck)]

Baker, FBI No. 2005, Vol. 5: 454

LOCAL NAME. *Lourie* (N. India); *Bâdar* (Bengal); bustard-quails usually not distinguished specifically.

SIZE. Bush Quail ±. Length ♂ c. 15 cm. (6 in.); ♀ slightly larger.

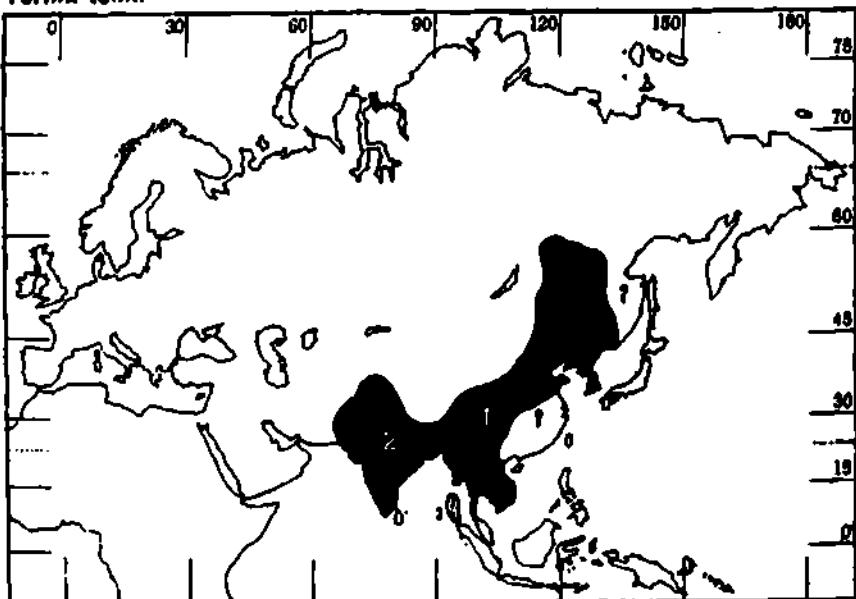
FIELD CHARACTERS. Male. *Above*, crown blackish mixed with rufous and buff, with a paler median line ('centre parting'). Supercilia and sides of head buff. Upperparts greyish brown, irregularly cross-barred and vermiculated with black (obsolete in old birds). Wing-coverts buff spotted with black. *Below*, chin and throat whitish. Rest of underparts pale buff, darker and rusty brownish on middle of breast, conspicuously black-spotted on sides of breast.

Female. Similar but slightly larger, and with a broad orange-rufous half-collar on back and sides of neck.

In flight, away from observer, this chestnut collar and whitish underparts are diagnostic. Both sexes distinguishable also by bright yellow legs and bill! (See fig. of very similar 315, Plate 23, facing p. 112.)

STATUS, DISTRIBUTION and HABITAT. Resident (?) practically throughout the subcontinent from c. 1200 metres up in the outer Himalayas (locally c. 2000 m.) southward through the Peninsula, plain and hill, to Madras and Kerala; and from Sind and Kohat in W. Pakistan across to E. Pakistan and Assam north of Brahmaputra river. South of the Brahmaputra it is, according to Baker, replaced by the race *blanfordii* (315), but exact limits and

Turnix tanki



■ Distributional range 1 *T. t. blanfordii* (315). 2 *T. t. tanki* (314).

status of the two races hereabouts difficult to define. Evidently nomadic (or migratory ?) in semi-desert areas, e.g. Punjab, Rajasthan, Sind and NW. Pakistan, its movements depending upon the rains and availability of suitable grass cover. Does not extend to Ceylon, but occurs in the Andaman Is. and more commonly Nicobars (Teressa, Camorta, Car Nicobar), apparently this race and not the Burmese *blanfordii* as might be expected.¹

¹ Three recent specimens from the Nicobars agree with the Indian population in size, but are described as 'much darker above with little or no rufous. The rufous collar of the ♀ is also much darker' (Abdullah, H., 1967, JBNHS 64(2): 158).

Affects grassland, preferably damp spots, intermixed with low scrub, and growing crops of millet etc.

GENERAL HABITS, FOOD, VOICE and CALLS. As of the genus; see under 318. Sometimes associates closely with the Bustard-Quail (318), so much so that in one instance specimens of both species together were secured in the same shot! (SA). Has been frequently taken at lights at night (on migration?).

BREEDING. Season, March to November, but chiefly after the break of the SW. monsoon rains in June — particularly August and September. Nest, as in 318 a scrape in the ground in grassland, sometimes completely arched over by the growing grass, looking like a domed structure with a lateral entrance. Eggs, 4 in a normal clutch also similar to those of 318 in shape, coloration, and markings. Average size of 60 eggs 22.8×17.9 mm. (Baker). Female polyandrous with a breeding biology more or less identical with 318.

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

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	71-84	c. 14	c. 23	c. 26 mm.
♀♀	79-93	14-15	25-28	c. 30-40 mm. (Baker, SA)

Weight ♂ ♀ c. $1\frac{1}{2}$ to $1\frac{1}{2}$ oz. (c. 36-43 gm.) — Hume.

COLOURS OF BARE PARTS. Iris pale straw colour to white. Bill fleshy white or greyish white tinged with yellow at base; sometimes brownish on culmen. Legs, feet and claws yellow, sometimes with an orange tinge.

**315. Burmese Yellowlegged Button Quail. *Turnix tanki blanfordii*
Blyth**

Turnix Blanfordii Blyth, 1863, Jour. Asiatic. Soc. Bengal 32: 80 (Burma and Arrakan,
type from Thayetmyo)

Baker, FBI No. 2004, Vol. 5: 453 (= *maculatus*)

Plate 23, fig. 5, facing p. 112

LOCAL NAMES. *Daoduma gajao* (Cachar); *Inruibuma ghéhérba* (Naga).

SIZE. Bush Quail ±. Length ♂ c. 16 cm. ($6\frac{1}{2}$ in.), ♀ slightly larger.

FIELD CHARACTERS. As for 314, q.v. Slightly larger and with barring on back somewhat more pronounced.

STATUS, DISTRIBUTION and HABITAT. Resident (?) or seasonal [winter?] visitor: Assam south of Brahmaputra river, Nagaland, Manipur, Mizo (Lushai Hills), E. Pakistan?. Up to c. 2000 m. elevation. Affects grassland intermixed with low scrub, and growing crops of millet etc.

Extralimital. Burma, Thailand, Yunnan, Cochinchina, Manchuria.

GENERAL HABITS, FOOD, VOICE and CALLS. As of the genus; see under 318.

BREEDING. Season, mainly May to August but odd nests more or less throughout the year. Nest and eggs, indistinguishable from those of 318, and breeding biology in general identical. Average size of 100 eggs 25.5×20.8 mm. (Baker).

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

MEASUREMENTS

Wing ♂♂ 92–96 mm., ♀♀ 97–105 mm. (Baker). Weight 1 ♀ 63 gm. (Ripley)

COLOURS OF BARE PARTS. As in 314.

TURNIX SUSCITATOR (Gmelin)

Key to the Subspecies

		Page
A	Upper plumage very dark and boldly marked with black and, to a less extent, with rufous.....	1
B	Upper plumage decidedly paler.....	2
1	A well-marked rufous collar on female..... <i>T. s. leggei</i>	135
	No rufous collar on female..... <i>T. s. plumbipes</i>	132
2	General tint of upper plumage pale rufescent..... <i>T. s. taigoor</i>	133
	General tint of upper plumage pale isabelline..... <i>T. s. bengalensis</i>	132

316. Northern Bustard-Quail. *Turnix suscitator plumbipes* (Hodgson)

Coturnix Plumbipes 'Parbattiah' = Hodgson, 1837, Bengal Sport. Mag. 9:346 (Nepal)
Baker, FBI No. 1997, Vol. 5: 445

LOCAL NAMES. *Sansorai* (Assam); *Daoduma* (Cachar); *Inruibuma* (Kacha Naga);
Vohbubum (Kuki); *Timokpho* (Lepcha); *Tinisk* (Bhutea).

SIZE. Bush Quail ±. Length ♂ c. 15 cm. (6 in.), ♀ slightly larger.

FIELD CHARACTERS. In general as for the Indian race *taigoor* (318).

STATUS, DISTRIBUTION and HABITAT. Resident. Nepal, northern Bihar, Bengal and Sikkim duars, east through Assam and E. Pakistan (Sylhet, Tippera, Chittagong Hill tracts); from plains level to c. 2400 metres elevation. Intergrades with *taigoor* (318) in southern Bihar and with *bengalensis* (317) in lower W. Bengal. Affects grassland and scrub jungle.

EXTRALIMITAL. Burma (N. Arakan).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 318, q.v.

BREEDING. Season, more or less throughout the year with two principal flushes: April-May and August-September. Nest and eggs as in 318. Average size of 60 eggs 24·9 × 20·2 mm. (Baker). Female polyandrous with same breeding biology as 318.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. See Key to the Subspecies.

MEASUREMENTS

Wing ♂♂ 77–90 mm.; ♀♀ 92–98 mm. (Baker).

Weight ♂♂ 1·6 to 2 oz. (c. 43–57 gm.); ♀♀ 1·5 to 2·56 oz. (43–72 gm.) —
Hume.

COLOURS OF BARE PARTS. As in 318.

317. Lower Bengal Bustard-Quail. *Turnix suscitator bengalensis* Blyth

Turnix bengalensis Blyth, 1852 (1849), Cat. Bds. Mus. Asiat. Soc.: 256, in text
(Lower Bengal)

Turnix suscitator isabellinus Robinson & Baker, 1928, Bull. Brit. Orn. Cl. 48: 62
(Calcutta)

Baker, FBI No. 2000, Vol. 5: 448 (= *isabellinus*)

LOCAL NAMES. *Gulu*, *Gundra* (Hindi); *Gulu* (Bengal).

SIZE. Bush Quail ±. Length ♂ c. 15 cm. (6 in.); ♀ slightly larger.

FIELD CHARACTERS. In general as for 318, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Lower Bengal in the 24-Parganas, Hooghly and Nadia districts. Possibly also the adjacent E. Pakistan districts of Khulna and Jessore. Intergrades with *taigoor* in southern Bihar and with *plumbipes* north of Nadia district (Bengal) and in southern East Pakistan. Affects grassland and scrub jungle, often entering compounds and jungly gardens on the outskirts of Calcutta city.

GENERAL HABITS, FOOD and CALLS. Nothing specifically recorded as different from 318.

BREEDING. Season, apparently restricted to the monsoon months, June to September. Nest and eggs as in 318. Average size of 16 eggs 23·8 × 19·1 mm. (Baker).

MUSEUM DIAGNOSIS. See Key to the Subspecies. As compared with *taigoor* (318), very pale, the general tint being more isabelline less rufous. White lines on upperparts very fine. Underparts rufous and dark in relation to upper.

MEASUREMENTS

Wing ♂ 77 mm., ♀ 83–84 mm. (Baker).

COLOURS OF BARE PARTS. As in 318 and the other races.

318. Indian Bustard-Quail. *Turnix suscitator taigoor* (Sykes)

Hemipodius Taigoor Sykes, 1832, Proc. Zool. Soc. London: 155 (Dukhun)

Baker, FBI No. 1998, Vol. 5: 447

Plate 25, fig. 12, facing p. 160

LOCAL NAMES. *Gulu*, *Gundlu*, *Gundra*, *Salui gundra* (Hindi); *Kalada* ♂, *Pured* ♀ (Telugu); *Ankadik* ♂, *Kurung kadik* ♀ (Tamil); *Durwa* (Ratnagiri); *Karechakki* (Kannada).

SIZE. Bush Quail ±. Length ♂ c. 15 cm. (6 in.); ♀ slightly larger.

FIELD CHARACTERS. Superficially a typical little quail with a distinctive white eye. In flight, prominent pale buff patches on wing-shoulders are good pointers to its identity.

Male. *Above.* Crown dark brown with an indistinct pale central streak or 'parting'. Sides of head white, stippled with black. Rest of upperparts

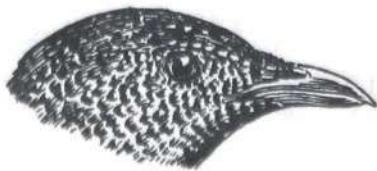
variegated rufous-brown, black, and white, with the wing-coverts boldly spotted with black and buff. *Below,* chin and throat whitish; rest of underparts rusty buff banded with black on foreneck and breast.

Female. Somewhat larger and more richly coloured. *Above* like male.

Below, rusty buff. Chin, throat, foreneck and centre of breast black; sides of breast and anterior flanks barred with black.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident (nomadic in the rains?). From Punjab in the west, the whole of continental and peninsular India south of the range of *plumbipes*, i.e. roughly south of 23°N. lat. Possibly also Sind in W. Pakistan whence not yet recorded. Plains level to c. 2500 m.



♀, x c. 1

elevation. Replaced in Ceylon by the race *leggei* (319). Affects grassland and scrub jungle bordering villages and cultivation, and open light deciduous forest.

GENERAL HABITS. Though common and generally distributed, nowhere found so numerically concentrated as the true quails often are. Normally met with singly; occasionally pairs, rarely also small parties. Sedentary; haunting the same spots day after day. A great skulker, flushed with difficulty only when almost trodden on. Flies low in the typical quail manner but with a softer *whirr* of wings, and tumbles headlong into the tangled under-growth after a short 'hedge-hopping' flight. When undisturbed, walks about quietly under the thickets, scratching and turning over the mulch for food. The presence of the birds in appropriate shrubbery is usually first revealed by the circular little scrapes dotted about in the mulch where they have been busily rummaging and dust-bathing.

FOOD. As in all other bustard- and button quails, grass- and weed seeds, grain, green shoots and small insects, e.g. termites and black ants. Among the last, *Camponotus compressus* has been identified. In captivity 'whole butterflies two inches across the wings' (F. Finn).

VOICE and CALLS. A loud drumming uttered by the pugnacious and polyandrous hen as a challenge to rival Amazons and in order to advertise her position to an eligible cock. The *drr-r-r-r-r-r* sounds very much like a two-stroke motorcycle engine in the distance. It runs for 15 seconds or more at a burst, and in the breeding season may be heard at all hours of the day and also through the night. It is usually prefaced by 3 or 4 deep, long-drawn *groos* (about 3 in two seconds) audible at closer range and reminiscent of the harsh timbre of the Red Turtle Dove (*Streptopelia tranquebarica*). There is also a more subdued but equally far-carrying booming call *hoon-hoon-hoon-hoon* (or *oof, oof, oof* — Inglis) sometimes heard for five seconds or more at a stretch. It is uncertain by which sex and under what conditions this is produced. Presumably it is the same call which Baker described as starting with the bird in a semi-erect sitting position 'but gradually lowering her breast to the ground with outstretched wings, and blowing herself out with each boom until she looked like a little feather balloon'.

BREEDING. Season, practically throughout the year, chiefly June to October. Nest, a scrape or depression in the ground in grassland, scrub jungle or crops, lined with grass and with the growing grasses arching over to form a bower, leaving a lateral entrance; sometimes the scrape is unlined. Eggs, almost invariably 4, greyish white profusely speckled and blotched with reddish brown or blackish purple; broad, obtuse ovals in shape with a highly glossed surface. Average size of 60 eggs 24.7×19.4 mm. (Baker). Incubation period 13–16 days. Female polyandrous, evidently not promiscuous but practising successive polyandry. She battles with rival hens for the possession of a cock and does the courting. After the eggs are laid she loses interest and goes in search of a new mate. The cock settles down to incubate them and later rears the chicks all by himself. In this he displays great solicitude, indulging in the 'broken wing' trick and other diversionary antics when faced by would-be predators. How many clutches a hen lays in the course of a season has not been ascertained, and there are many other points in the accepted version of the breeding biology that need

elucidation. A detailed comparative study of the Indian bustard-quails (Turnicidae) is commended to field ornithologists.

MUSEUM DIAGNOSIS. See Baker, loc. cit., and Key to the Subspecies.

Chick in down (newly hatched). *Above*, dark chestnut-buff, with pale buff and black crescentic marks on back; a dark (blackish) coronal streak; a broad white line from lores through eye to nape; wings with a pale and a dark bar. *Below*, pale whitish buff; inside of thighs chestnut.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	72-85	c. 15	c. 22-23	c. 35-37 mm.
♀ ♀	77-90	15-17	22-25	33-41 mm. (SA, HW)

COLOURS OF BARE PARTS. Iris white, occasionally yellowish. Bill bluish slate, darker on culmen, dark brown at base. Legs and feet slate or leaden grey.

319. Ceylon Bustard-Quail. *Turnix suscitator leggei* Baker

Turnix javanica leggei Baker, 1920, Bull. Brit. Orn. Cl. 43; 9 (Cocowattee, Ceylon)
Baker, FBI No. 1996, Vol. 5: 442

LOCAL NAMES. *Bola watuwā* (Sinhala); *Kādai* (Tamil).

SIZE. Bush Quail ±. Length ♂ c. 15 cm. (6 in.); ♀ slightly larger.

FIELD CHARACTERS. In general as for 318, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Race endemic in Ceylon. Common in all zones, lowlands and hills up to c. 1500 m. Affects grass and scrub country.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 318.

BREEDING. Season, practically throughout the year with two main flushes: January to March and July-August. Nest and eggs as in the Indian races but clutch size usually smaller — of 3 eggs instead of 4. One observer, T. S. U. De Zylva, records c/5 as common (CBCN, July 1978: 39). Average size of 47 eggs 23.3 × 19.1 mm. (Baker).

MUSEUM DIAGNOSIS. As compared with *taigoor*, upperparts darker and duller brown, besides a rufous collar in female. *Below*, abdomen and vent a darker richer chestnut.

MEASUREMENTS

Wings ♂♂ 76-84 mm., ♀ ♀ 81-90 mm. (Baker, HW).
Weight 8 ♂♂ 35-52 (av. 46). 7 ♀ ♀ 47-68 (av. 60.7) gm. — BNHS

COLOURS OF BARE PARTS. As in 318.

Family GRUIDAE: Cranes

(For morphology see Stresemann, 1927-34, Aves: 772-3; Baker, 1929, 6: 49;
Witherby, 1940, 4: 449; Van Tyne & Berger, 1959, p. 428.)

Key to the Genera

- | | | |
|---|---------------------|-----|
| A Head and neck feathered throughout..... | <i>Anthropoides</i> | 146 |
| B Head and neck not feathered throughout..... | <i>Grus</i> | 135 |

Genus GRUS Pallas

Grus Pallas, 1766, Misc. Zool.: 66. Type, by tautonymy, *Ardea grus* Linnaeus

In this genus of cranes crown bare in adults but sides of head and neck feathered excepting in the Sarus (*G. antigone*), which has almost the entire head and neck naked.

Head and neck fully feathered in young of all species. Wings long and wide: 3rd primary (as.) usually longest; inner secondaries lengthened and considerably exceeding the primaries. Tail short, rounded to almost square. Tibia naked on lower half; toes short, strong, with short blunt claws. Sexes alike in plumage.

Cranes have exceptionally powerful, stentorian voices made possible by the specialized structure of the trachea or windpipe — abnormally lengthened, convoluted and coiled — which functions as a highly efficient resonating organ.

All the species in India are Palaearctic migrants except the Sarus.

Key to the Species

		Page
A	Plumage white	<i>G. leucogeranus</i>
	Plumage not white	1
1	Whole head and upper neck unfeathered.....	<i>G. antigone</i>
	Crown of head unfeathered.....	a
a	Head, throat and upper neck white, fore part of crown black....	<i>G. monacha</i>
	140
	Throat and upper neck blackish, tail blackish.....	<i>G. nigricollis</i>
	Throat slaty grey with broad band of white from behind eye down sides of neck.....	<i>G. grus</i>
		139
		136

320. Eastern Common Crane. *Grus grus lilfordi* Sharpe

Grus lilfordi Sharpe, 1894, Cat. Bds. Brit. Mus. 23: 250 (Type locality fixed by Whistler & Kinnear, 1936, Jour. Bom. nat. Hist. Soc. 38: 695, Jhelum River near Jelalpur, Punjab)

Baker, FBI No. 2034, Vol. 6: 50

Plate 26, fig. 5, facing p. 176

LOCAL NAMES. *Küranch*, *Kürch* (Hindi); *Koonj* (Sind); *Külam*, *Külang* (Deccan, Andhra).

SIZE. Goose ± . Standing c. 140 cm. (c. 4½ ft) to top of head.

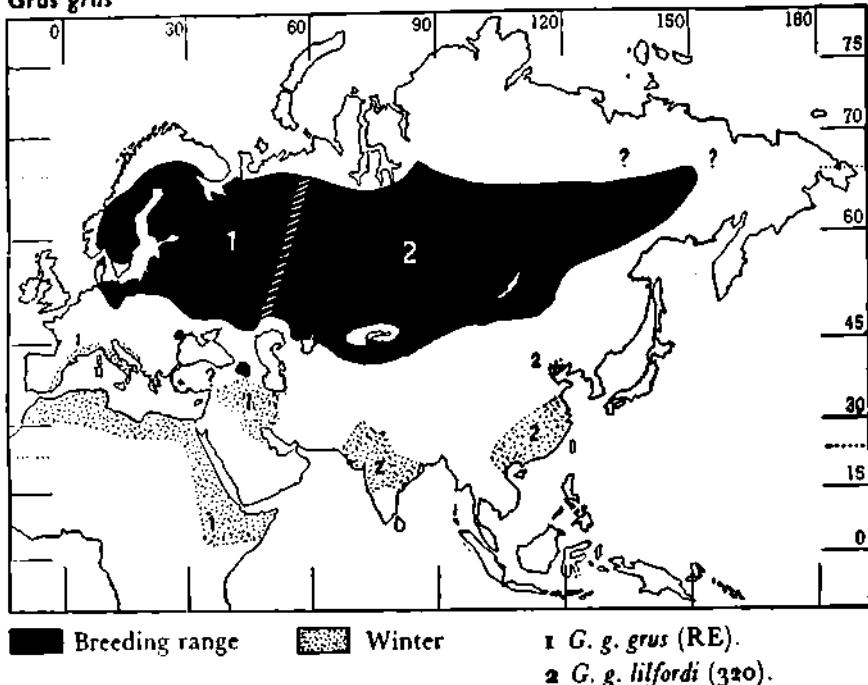
FIELD CHARACTERS. A large, tall stork-like grey bird with black flight-feathers and long neck and legs. Head and upper neck blackish with a dull red naked patch on nape. A prominent broad white band running from behind eye down sides of slaty-black upper neck. Tail concealed by a mass of drooping curly brownish grey plumes (elongated tertaries). Sexes alike.

Young (immature). Overall rufous-isabelline due to the grey body-feathers being edged with this colour. Whole crown and neck clothed with rusty feathers. Residual traces of this plumage occasionally seen in some of our winter visitors.

STATUS, DISTRIBUTION and HABITAT. Winter visitor, principally September-October to March-April. Commonest and most abundant in the northwestern parts of the subcontinent: Sind, Rajasthan, Gujarat, Punjab, Uttar Pradesh, diffusing eastward to Bihar, Orissa and West Bengal, and south through Madhya Pradesh and northern Andhra. Overflying Nepal Valley on migration but halting only in the terai and duns. Occasionally straggling farther east and south, thus recorded from Lakhimpur and Cachar in Assam, and the Bombay Deccan to c. 18°N.

lat. Doubtless straggles somewhat farther south exceptionally, but unrecorded from Mysore where the Demoiselle is a more or less regular winter visitor. Affects fields of winter crops, e.g. wheat and gram, sandy river-beds, etc.

Grus grus



Extralimital. Breeds in Transbaikalia on Tarei-nor (*c.* 43°20'N., 117°E.) and the Onon and Argun rivers; probably from the basin of the Yenisey eastward. Winters in China, Hainan I., and N. India (Peters); Burma (Smythies).

MIGRATION. No ringing data. Observations scanty but indicating arrival in NW. Pakistan in August-September directly overflying the Sased Koh Range of Afghanistan (*c.* 3800 m.) rather than its western shoulder which is considerably lower. Also large flocks overflying Kurram Valley, between 3rd week February and end of March but rarely halting (Rattray, Whitehead). Enormous numbers (possibly mixed with Demoiselle cranes) in long successive wavy lines and echelons, one upon another, also commonly observed on northward migration (SSE.-NNW.) flying at tremendous heights across the Great Rann of Kutch from the 2nd week of March, chiefly after forenoon when thermals available. The concourse of birds spirals upwards on the currents to greater heights then breaks up into V-shaped echelons or wavy diagonal lines, glides more or less horizontally for a mile or so, swirling up once more to regain height, and so on for as far as the eye can reach. Also recorded on northward migration in March through Baluchistan (Delme-Radcliffe) and over Lahore (A. J. Currie). Passage in smaller lots continues through April to at least mid May in the northernmost areas; then recorded over Dharamsala and the Dholi Dhar

Range (c. 4600 m.). Earliest dates recorded in 8 years for incoming migrants overflying the Salt Range in Rawalpindi dist., 15 August; average 25 August (Waite).

GENERAL HABITS. In its winter quarters keeps in large flocks often of several hundred strong, either by itself or in association with the Demoiselle (326) of very similar status and habits. The birds spend the warmer parts of the day, and all night, massed together on open sandbanks of rivers, preening themselves or standing on one leg with neck twisted round and head nestling in the feathers of the back. But there are always a number of sentinels ceaselessly keeping vigil who sound the alert on the least suspicion, so that despite the sleepy spectacle a gathering presents it is impossible to take the birds by surprise. The din of a great concourse taking to the air on alarm, accompanied by the high-pitched calls in varying keys, has been well likened to the distant roar of the sea. From this safe refuge the flocks fly out morning and evening to cultivation within easy reach and do havoc to newly sown and ripening crops especially wheat and gram. They fly in wide V-formation with neck and legs outstretched and heavy flapping of the broad wings punctuated with glides.

The birds circle over the feeding ground before alighting to make sure that the coast is clear, volplaning down in half spirals with legs dangling, as in a vulture arriving at a carcase, and braking vigorously to land.

The *koonj* ranks high as a sporting bird both for its delicate flesh and for the skill, patience and hard work entailed in circumventing it.

FOOD. Chiefly vegetarian. Shoots of grass and cereal crops, tubers, grain, insects and small reptiles. Particularly fond of the young pods of arhar dal (*Cajanus indicus*), and of groundnut (*Arachis hypogaea*) which is vigorously dug out of the soil. Said to do great damage to watermelons grown in the dry river-beds in the Punjab, jabbing into them with the pointed bill.

VOICE and CALLS. A loud, sonorous high-pitched trumpeting *krook-krook* carrying enormous distances. Uttered in varying keys and clearly audible even when the birds are no more than tiny midges up in the sky. Along with the honking of geese it is a sound that bears a peculiar exhilaration for the sportsman's ear.

BREEDING. Extralimital. Season, May-June. Nest, an untidy heap of vegetable matter in a swamp. Eggs, two, greyish olive to greenish brown.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for a fuller account of the biology of the very similar, only somewhat darker nominate race, Witherby, 1940, 4: 449-55.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	533-608	105-118	225-258 mm.	192-205 mm. (Baker)

Weight 9½-13 lb. (4.3-5.9 kg.) — Hume.

COLOURS OF BARE PARTS. Iris orange-red to red-brown or crimson. Bill dingy green, paler and yellower towards tip. Legs and feet black; soles paler and browner.

321. **Blacknecked Crane.** *Grus nigricollis* Przevalski*Grus nigricollis* Przevalski, 1876, Mongol. i Strana Tangut 2: 135 (Koko-nor)

Baker, FBI No. 2036, Vol. 6: 52

Plate 26, fig. 1, facing p. 176

LOCAL NAME. *Kutung* (Ladakh).

SIZE. Sarus crane (323) ±.

FIELD CHARACTERS. A tall grey bird like the Common Crane (320) but with black head and neck. Lores and entire crown naked and dull red instead of merely a nape patch. A small patch of white feathers below and behind eye instead of the broad white band down side of neck. Drooping curving plumes concealing tail black *contra* brownish grey in Common Crane. Sexes alike; female slightly smaller.

STATUS, DISTRIBUTION and HABITAT. Rare and very restricted: Ladakh (summer); Apa Tani valley, Subansiri Frontier Division, NEFA (winter), E. Bhutan (Biswas, November 1973). Affects high-altitude lake environs in Tibetan Plateau facies (*c.* 4300 to 4600 metres) in summer; open fallow paddyfields and swampy land (*c.* 1500 m. alt) in winter. No other records within our limits.

Extralimital. 'Breeds about the lakes of high central Asia from Ladakh to Koko-nor. Recorded in winter from Yunnan and Tonkin (= N. Vietnam)'—Peters.

MIGRATION. 'Every year (from time immemorial *vide* the local inhabitants) a flock varying between 20 and 40 birds arrives in the Apa Tani valley about mid-November and leaves again in a body about the end of February' (F. N. Betts, 1954, JBNHS 52: 605).

GENERAL HABITS. Reported to be very sedentary in the Apa Tani valley, never leaving its confines. Not molested by the local inhabitants and unafraid of them, but excessively shy of anyone not in tribal dress. The birds become restless before outward migration in February-March then suddenly bursting into choruses of trumpeting while feeding, first one bird then another, also starting to prance and caper.

FOOD. Only fallen grain recorded, but presumably as Common Crane's.

VOICE and CALLS. Loud and trumpet-like, resembling the Sarus Crane's but somewhat higher in pitch.

BREEDING. Courtship of same pattern as the Sarus's and other cranes' consisting of mutual bowing, prancing, leaping, posturing and trumpeting (see under 323). Season, chiefly May-July. Putative localities in Ladakh mentioned by B. B. Osmaston Tso Kar and Tso Moriri lakes (*c.* 4600 m. alt.) and swamps near Shushal (*c.* 4300 m.) in which neighbourhoods pairs were observed in summer, and two old nests found by Meinertzhagen. According to local Ladakhis, *vide* Meinertzhagen, the birds arrive in their breeding haunts *c.* last week in May, and leave again *c.* October. Nest, a huge and deep pad of vegetation on marshy ground. In the Manasarowar region of W. Tibet SA found a fresh egg laid directly on a spongy grass-covered semi-floating hump or 'islet' in a treacherous bog, 25 June. Eggs, 2 in a normal clutch, greenish grey or olive-grey with faint crude splodges of reddish brown all over, denser at the broad end. Average size of 12 eggs 101.2 × 64.1 mm. (Baker). Incubation period unknown.

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	625-668	124-137	223-252	234-247 mm. (Baker)

COLOURS OF BARE PARTS. Iris yellow. Bill horny grey or horny green, more yellow towards the tip. Legs and feet black (F. Ludlow).

322. Hooded Crane. *Grus monacha* Temminck

Grus monacha Temminck, 1835, Pl. col., livr. 94, pl. 555 (Hokkaido and Korea)

Baker, FBI No. 2035, Vol. 6: 51

Plate 26, fig. 3, facing p. 176

LOCAL NAME. *Woinmal* (= like a Sarus — Manipur).

SIZE. Considerably smaller than Sarus; Demoiselle Crane ±. Standing c. 90 cm. (3 ft) high.

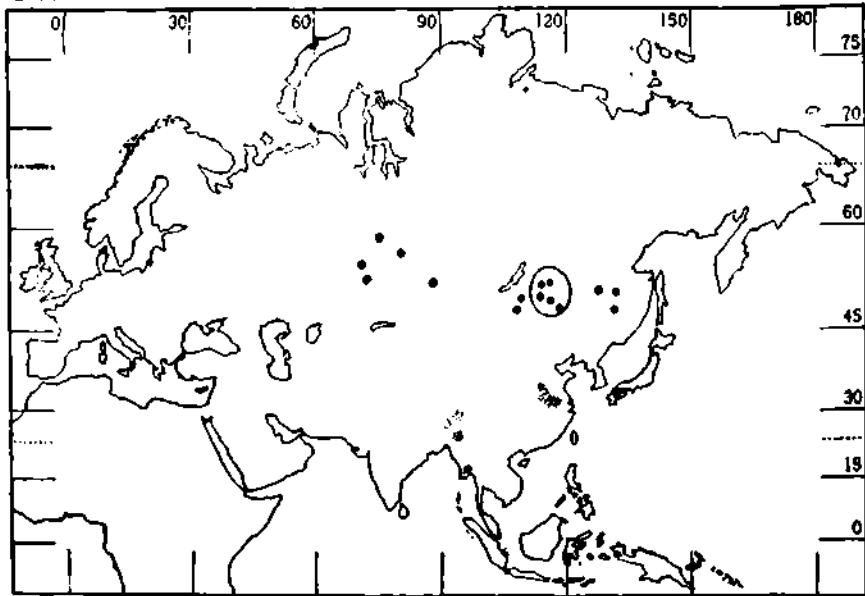
FIELD CHARACTERS. An elegant dark slaty grey crane with distinctive white head and about three-quarters of the neck — the 'hood'. Lores, forehead and forecrown naked, the last red (brighter in breeding season), overgrown with black bristly feathers. Sexes alike.

In the distance the white head and brown-toned upperparts are striking features.

YOUNG (immature). Paler grey. Head well covered with bristly feathers: whitish on forehead with a black patch on either side, grey with black shafts on crown, black on lores.

STATUS, DISTRIBUTION and HABITAT. Vagrant. Only one definite record within our limits: a young bird shot in North Cachar (December 1899).

Grus monacha



Breeding areas



Wintering areas

by Baker who saw several other examples on two occasions on the Subansiri river, N. Lakhimpur district, Assam (NEFA). Apparently winter visitor to Manipur in small numbers (Higgins) but its occurrence and status there need confirming.

Extralimital. Breeding range not definitely known. Recorded with uncertain status in SE. Siberia from Lake Baikal to the Amur, south to NW. Mongolia and Ussuriland; also in Korea and Japan. Winters in China south to the Yangtse Valley (Peters). No reliable record as yet from Burma.

GENERAL HABITS. Haunts open plains and marshes. Apparently not numerous anywhere, and keeping only in small parties even when migrating.

FOOD, VOICE and CALLS. Nothing specifically recorded as different from other cranes, e.g. 320.

BREEDING. Extralimital and very little known.

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♀	510-545	92-110	208-220	155-180 mm. (Baker)

COLOURS OF BARE PARTS. ' Iris yellow. Bill greenish tinged with red towards the base. Legs and feet dull reddish ' (Blyth); horny black (Hartert).

GRUS ANTIGONE (Linnaeus)

Key to the Subspecies

- | | |
|-----------------------|-----------------------|
| A white collar,..... | <i>G. a. antigone</i> |
| No white collar,..... | <i>G. a. sharpii</i> |

323. Indian Sarus Crane. *Grus antigone antigone* (Linnaeus)

Ardea Antigone Linnaeus, 1758, Syst. Nat., ed. 10, 1: 142 (Asia = Farther India, as restricted by Hartert, 1921)
Baker, FBI No. 2038, Vol. 6: 55

LOCAL NAMES. *Sārus* (Hindi); *Khur sang* (Assam).

SIZE. Vulture +; standing the height of a man to top of head, c. 156 cm. (5 ft.).

FIELD CHARACTERS. The largest of our Indian cranes. A huge long-legged, long-necked grey bird with naked red head and upper neck. Sexes alike; female slightly smaller.

Young (immature). Rather brownish grey overall, with the whole head and neck covered with short rusty buff or cinnamon-brown feathers.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, moving locally with conditions of drought and flood, throughout the northern parts of the subcontinent south of the Himalayas (including Nepal terai), from Sind and Punjab eastward through Uttar Pradesh, Bihar and northern Bengal (duars) to W. Assam. Has been seen in Kashmir Valley, c. 1700 m. — (A. E. Ward, 1907, JBNHS 17: 945). This is about the highest elevation recorded though in suitable places up to c. 1650 m. below Dharamsala it is

apparently more frequent (Hingston, 1921, JBNHS 27: 571). South through eastern Rajasthan, Gujarat and northern Madhya Pradesh, diffusing decreasingly south to a diagonal line roughly from Surat (*c.* 21°N.) on the west to the Godavari delta (*c.* 16°30'N.) on the east. Most numerous in Gujarat, eastern Rajasthan, and the Gangetic Plain — almost everywhere protected by popular sentiment. Affects open cultivated well-watered plains, marshland, and jheels.

GENERAL HABITS. Normally seen in pairs; sometimes family parties consisting of parents with one, or two, young of the previous brood. At certain seasons, e.g. late winter, also in loose congregations of 60 to 70, or more (once *c.* 150), adults and adolescent young. These congregations, attended by a great deal of trumpeting, prancing, and mutual display, are more social 'gatherings of the clan' than integrated flocks, pairs and parties breaking away from time to time for their normal avocations. The bird rises off the ground rather heavily but when well launched flies strongly with powerful rhythmic strokes of the broad splayed wings. Usually only short commuting flights between the feeding ground and the midday resting place on the edge of some jheel or river, and at seldom more than treetop height, but on rare occasions as if to prove the rule the birds will soar and circle aloft in the heavens just like migratory cranes, apparently with no object other than for fun. Sarus pair for life; the faithfulness and devotion of the couple to each other have become legendary in India, and popular sentiment is responsible for the universal protection which the bird enjoys. It is seldom molested by the local inhabitants and, contrary to its migratory congeners, exhibits surprising tameness everywhere.

FOOD. Perhaps less vegetarian than our other cranes. Largely a fish-eater depending on availability. Other animal items include crustaceans, frogs, lizards, locusts, grasshoppers and other large insects. Vegetarian items: grain gleaned in the stubbles, tubers and corms of aquatic and marsh plants, green shoots of grasses and cereals, groundnut pods, etc. Occasionally does considerable local damage to newly sown crops.

VOICE AND CALLS. A very loud sonorous far-carrying trumpeting, usually as a duet by paired birds, both from the ground and on the wing. As soon as one bird starts its mate invariably answers and joins in. The duetting is uttered with neck fully upstretched by both birds, bills pointing to the sky, body feathers fluffed and shuffled, and kept up for half a minute or more. The calls serve variously as a display of affection between the pair, an alarm-signal and warning, a greeting, a summons for help, and as a means of maintaining contact between distant pairs. They may be heard during the night as well as in daytime.

BREEDING. Courtship display during breeding season exceedingly animated, spectacular and also somewhat ludicrous; mutually performed like the duetting, though female sometimes less active. The male usually gives the cue by suddenly flicking his wings half open, bowing, giving a little leap, dipping and pumping his forepart up and down, throwing up his head and trumpeting loudly. This invitation to dance is promptly taken up by the female. For the next two or three minutes the two birds go through a bout of vigorous curtseying, prancing, capering and wildly leaping at, around, and away from each other as if completely demented,

duetting all the time. In the midst of all this activity the female sometimes crouches invitingly, legs partly flexed, and copulation takes place. More often, however, the dance dies down as it began, the birds presently resuming their normal activities. *Season*, ranges overall from July to December and even to March, but chiefly during the four monsoon months ending October. *Nest*, a huge pile of reeds, rushes, and straw, about a metre in diameter at the top, placed on a bund in the midst of flooded paddyfields, or on a hummock islanded in a swamp or jheel. *Eggs*, normally 2, greenish- or pinkish white in colour, sometimes spotted and blotched with brown or purple; inner membrane bright orange. Average size of 100 eggs 104.4×64.3 mm. (Baker). Nest-building, incubation and care of young shared by both sexes, though male chiefly does the watch and ward. Period 28 days (Alipore Zoo, Lahiri, JBNHS 53: 131). The Mogul emperor Jahangir (reigned A.D. 1605-27), whose Memoirs contain some remarkably accurate observations on the Sarus, gives the interval between laying of 2 eggs as 48 hours, and incubation period as 34 days (see Sálim Ali, JBNHS 32: 57-60).

Post-natal imprinting of vital commands on a newly hatched chick described by Sálim Ali (JBNHS 55: 166-8). Before leaving nest on suspicious approach of a human, the brooding parent sounded the alert — a short, subdued, staccato *kor-r-r*, obviously also a command to the hatchling to freeze. On chick continuing to fidget and cheep, parent stalked back to nest, repeated the *kor-r-r* note, at the same time administering a gentle peck to the chick. Upon this the chick immediately stopped cheeping and froze. In another pair of Sarus, flanking on either side and leading away a pair of older downy chicks from suspected danger, the same *kor-r-r* command was given by a parent as soon as suitable marshy land and cover were gained, resulting in magical disappearance of the chicks. After careful search one chick discovered lying doggo half submerged in a puddle at the base of a grass tussock while one of the parents gave the 'broken-wing' distraction display, interpolating its agitated trumpeting with *kor-r-r* note commanding the chicks to continue lying doggo.

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

Chick (in down). Entirely covered. *Above*, head, neck (and throat) pale isabelline; from base of hindneck two broad lines of dark brown, enclosing a paler brown median stripe, run to tail; a large buffish spot opposite base of each wing; wings cinnamon-brown, tip buffish white. *Below*, lower neck, sides of breast and belly, vent and thighs darker isabelline; centre of breast and belly white (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	670-685	172-182	c. 310-355	255-263 mm.
♀♀	625-645	—	—	—

(Baker)

Weight 15 lb. 1 oz. to 17 lb. 6 oz. (c. 6.80-8 kg.) — Hume.

COLOURS OF BARE PARTS. Iris orange. Bill pale greenish horny with dark tip. Bare skin of crown and lores ashy green; papillose skin of head and neck orange-red, deeper and brighter in breeding season. Legs and feet fleshy red to red.

324. Burmese Sarus. *Grus antigone sharpii* Blanford

Grus (Antigone) sharpii Blanford, 1895, Bull. Brit. Orn. Cl. 5: 7 (Burma)
 Baker, FBI No. 2039, Vol. 6: 56
 Vol. 1, plate 16

LOCAL NAMES. *Khur sang* (Assam); *Woinu, Woinuren* (Manipur).

SIZE. As of 323; standing the height of a man.

FIELD CHARACTERS. As for Indian Sarus (323), q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Resident. Assam east of Kamrup district (c. 91–92°E.), south to Manipur. Affects the neighbourhood of lakes, swamps and large rivers.

Extralimital. Burma, Thailand, Cambodia, Laos, Vietnam. Sparingly recorded from northern Malay Peninsula (Perlis and Perak).

GENERAL HABITS, FOOD, VOICE and CALLS. As in the Indian race, but much shier and wilder everywhere due to lack of sentimental protection.

BREEDING. Season, July-September. Nest and eggs as in 323. Average size of 15 eggs 102·5 × 64·9 mm. (Baker).

MUSEUM DIAGNOSIS. Plumage overall darker than in the Indian bird. No ring of white feathers at base of neck. Inner secondaries practically same colour as back.

MEASUREMENTS. Wing ♂♀ 600–675 mm. (Baker).

COLOURS OF BARE PARTS. As in 323.

325. Siberian or Great White Crane. *Grus leucogeranus* Pallas

Grus Leucogeranus Pallas, 1773, Reise Russ. Reichs 2: 714 (Swamps bordering the Ischim, Irtych, and Ob rivers)

Baker, FBI No. 2037, Vol. 6: 53

Plate 26, fig. 4, facing p. 176

LOCAL NAMES. *Kare khar* (NW. Pakistan); *Tunhi, Chini kūlāng* (Uttar Pradesh); *Burmuch* (Bihar). Alternative English name 'Snow-wreath'.

SIZE. Common Crane (320) ±. Standing c. 140 cm. (c. 4½ ft) to top of head.

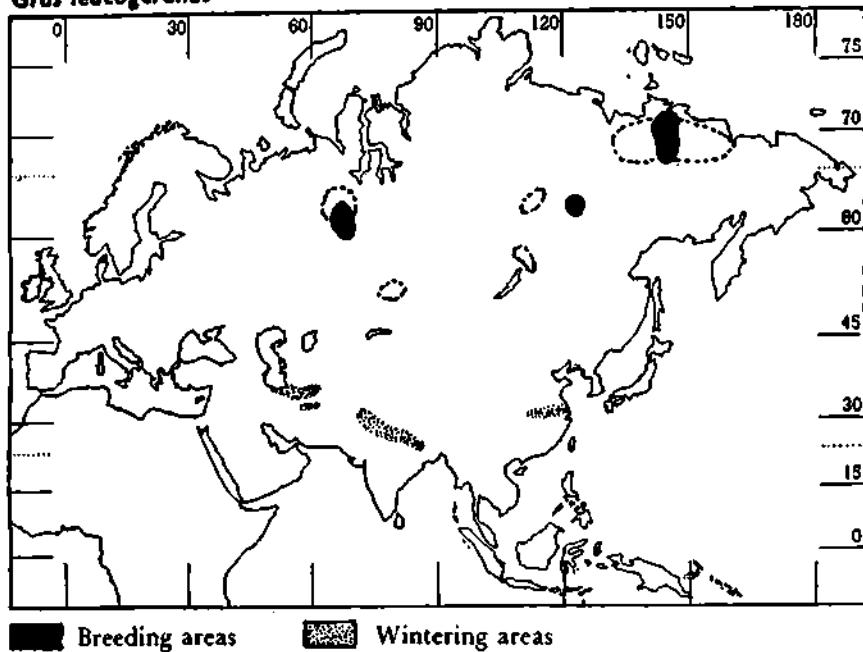
FIELD CHARACTERS. An exquisitely beautiful snow-white crane with naked reddish face; immaculate, like egret, at rest, showing black wing-quills in flight. On a cursory distant view could be mistaken in flight for White Stork (63), q.v. Sexes alike.

YOUNG (immature). Whole head and face feathered cinnamon-rufous; rest of plumage white tinged and dappled with cinnamon-buff.

STATUS, DISTRIBUTION and HABITAT. Uncommon and sparse but regular winter visitor chiefly to NW. Pakistan and N. India, straggling east to Bihar (Jainagar 24°23'N., 85°39'E. — Inglis) where apparently familiar to *mirshikars* (professional birdcatchers) as *burmuch*. Recorded once as far south as the Nagpur area in Madhya Pradesh (c. 21°N., 79°E. — McMaster). Selective and faithful to specific wintering grounds, among its better known regular haunts being Pyagpur jheel (Uttar Pradesh) and Keoladeo Ghana, Bharatpur (Rajasthan). Two small parties of stragglers recorded from Larkana and E. Narra districts, Sind, and also the Delhi neighbourhood

(Najafgarh jheel) — Hume, c. 1875. Affects only open jheels and swamps, not cultivated fields like Common and Demoiselle cranes.

Grus leucogeranus



Extralimital. Breeds locally in SE. Russia and in Siberia, south to Turgai, the upper Ob, N. Turkestan, Transbaikalia, and Ussuriland. Winters also in China.

MIGRATION. Arrives in NW. Pakistan between middle and end October — occasionally somewhat earlier; in its easterly and more southerly haunts seldom before late November or early December. Leaves again end March or early April, but observed (presumably this species) migrating northward high over the Himalayas in Chamba (Himachal Pradesh) c. 1000 metres above observer's level c. 4400 m. as late as May (Donald, JBNHS 51: 270).

GENERAL HABITS. Met with in family parties of 3 or 4, or small flocks of 12-15 birds. Larger gatherings in some years at favourite wintering places, e.g. Keoladeo Ghana where largest flock observed of about 72. More addicted than other cranes to wading and resting in shallow water, and feeding with head submerged. Does not raid winter crops like wheat and gram. Usually wild and wary, but where unpersecuted becomes comparatively trustful.

FOOD. More or less exclusively vegetarian; largely bulbs, corms, shoots and seeds of aquatic plants with which considerable quantities of coarse grit are swallowed.

VOICE and CALLS. A pleasant, soft, musical *koonk-koonk* uttered chiefly in flight. According to Baker 'their call has been syllabified as *karekhur* rapidly but rather softly repeated'. We have not heard any call answering to this description.

BREEDING. Extralimital and little known. *Season, c. June. Nest and eggs* said to be indistinguishable from those of the Common Crane (320).

MUSEUM DIAGNOSIS. See Field Characters.

Chick (in down) — captivity bred. ‘Entirely covered. Underparts dirty buff, belly white. Head and neck dark isabelline; creamy streak on each scapular, rest of upperparts pale chestnut, darker on mid dorsum’ (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	635–645	185–197	275–285	205–218 mm.
♀ ♀	538–620			(Baker)

COLOURS OF BARE PARTS. Iris creamy golden yellow. Naked skin of head reddish. Bill: culmen to nostril dusky orange-brown, rest of bill dusky pinkish flesh. Legs and feet flesh pink; claws horny brown.

Genus ANTHROPOIDES Viciot

Anthropoides Viciot, 1816, Analyse: 59. Type, by monotypy, *Demoiselle* of Buffon = *Ardea virgo* Linnaeus

Bill and legs proportionately shorter than in *Grus*. Head fully feathered. A tuft of long white plumes springing from behind ear-coverts. Feathers of lower neck long and lanceolate; inner secondaries much lengthened and pointed but not disintegrated as in *Grus*.

326. Demoiselle Crane. *Anthropoides virgo* (Linnaeus)

Ardea virgo Linnaeus, 1758, Syst. Nat., ed. 10, 1: 141 (‘In Oriente’ = India)

Baker, FBI No. 2040, Vol. 6: 57

Plate 26, fig. 2, facing p. 176

LOCAL NAMES. *Kārkdrā* (Hindi); *Ghanto* (Nepal); *Kārkūcha* (Marathi); *Kārkārō* (Gujarati); *Koonj* (Sind, Kutch); *Kūlām, Kūlāng* (Deccan); *Kurra* (Bihar); *Garāra* (Orissa); *Wada koraka* (Telugu); *Karkoncha* (Kannada).

SIZE. Sarus — ; standing c. 76 cm. (2½ ft) to top of head.

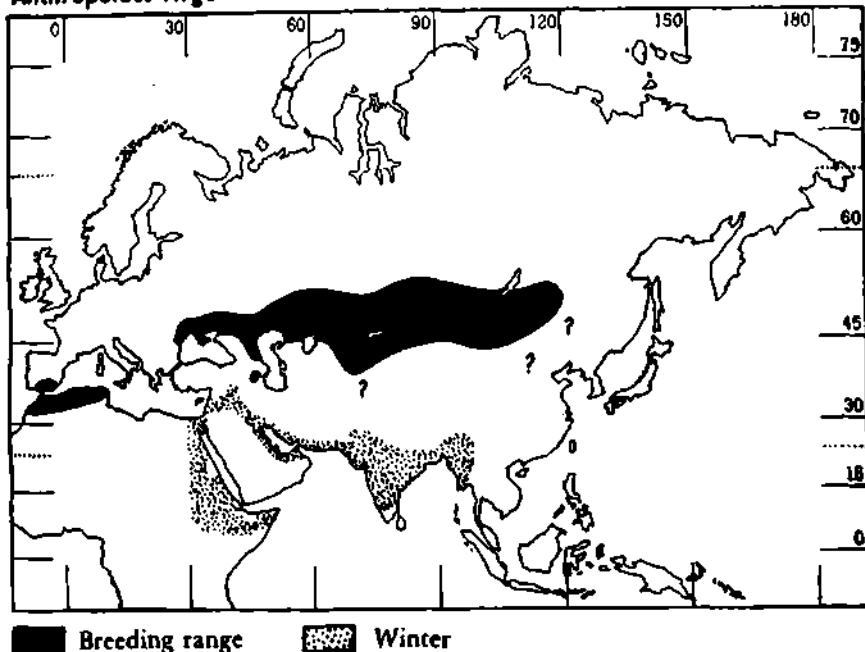
FIELD CHARACTERS. A dainty little grey crane with black head and neck and conspicuous white ear-tufts behind eyes. Black feathers of lower neck long, pointed, and falling over breast. Elongated sickle-shaped brownish grey secondaries drooping over tail. Sexes alike.

Young (immature). Like adult but with head wholly grey instead of the crown only. Black of neck browner behind, more grey in front with no apron of lengthened plumes on breast. Drooping grey secondaries shorter, only slightly overhanging tail.

STATUS, DISTRIBUTION and HABITAT. Winter visitor. Commonest and most abundant in the northwestern and west-central portions of the sub-continent diffusing eastward, occasionally to Bhutan, Assam and East Pakistan (not common east of Bihar); southward more or less regularly to Mysore (generally rare south of c. 16°N.). Its winter quarters and migration dates and routes largely overlap those of the Common Crane (320), the two species usually found in association, and seldom reliably differentiated by

observers. Winter visitor also to Nepal terai and dun, overflying the Valley on migration; occasionally making short halts. Affects fields of winter crops (especially wheat and gram), paddy stubbles, sandy river-beds, and flat open margins of jheels and tanks.

Anthropoides virgo



Extralimital. Breeds in SE. Europe and the greater part of C. Asia, north to c. 60°, south to N. Mongolia. Also on the high plateaux of Algeria. Winters in NE. Africa to the White and Blue Niles, and Ethiopia; likewise Middle East, India, Burma and China.

MIGRATION. No ringing data. See under Common Crane (320). Observations on the two species combined owing to unreliability of discrete identifications. Regular autumn migration over Kohat (NW. Pakistan) commences punctually between 25 and 27 August. Earliest arrival date in Mysore 20 December; latest departure 5 March.

GENERAL HABITS. As of 320, q.v. Visits the subcontinent in colossal numbers. One typical large feeding flock in the Punjab (apparently mixed with Common Crane) described as a broad band of birds about 1½ miles long. When bunched together on alarm they looked like a pebbly beach c. 500 × 100 yards (A. A. Phillips, quoted by Whistler). Feeds in the mornings and late afternoons in newly sown or stubble fields of wheat, gram, and paddy; also ripening cereal crops. Spends the rest of the day and night lazing on open sandbanks in large rivers or the margins of jheels. Always uncannily vigilant and difficult to circumvent without ruse, but like the Common Crane excellent for the table and keenly sought after by sportsmen.

FOOD. As in 320. The large quantity of wheat, gram, and paddy usually found crammed in stomachs of specimens shot, even though partly gleaned

in stubbles, indicates the magnitude of the damage to cereal crops that cranes in their hundred thousands must annually cause.

VOICE and CALLS. Sonorous high-pitched *krook-krook* like Common Crane's but somewhat softer.

BREEDING. Extralimital. On their breeding grounds pairs said to assemble into large congregations morning and evening and go through elaborate communal displays or dances consisting of vigorous bowing, leaping, and sprinting around with ear-tufts and breast-plumes raised. *Season*, May to July. *Nest* etc. as in other cranes; *eggs* also 2, greenish- or yellowish grey, sparsely blotched with reddish brown and grey.

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♀	450-530	65-70	170-187	165-182 mm. (Baker)

Weight ♂♀ 5 lb. to 6½ lb. (c. 2.25-3 kg.) — Hume.

COLOURS OF BARE PARTS. Iris red-brown to crimson or red. Bill pale greenish with red tip. Legs and feet black.

Family RALLIDAE: Rails, Coots *

(For morphology see Stresemann, 1927-34, Aves: 763-5; Baker, 1929, 6: 3; Witherby, 1941, 5: 173-4; Van Tyne & Berger, 1959 : 431)

Key to the Genera

	Page
A Bill from gape as long as, or longer than, the tarsus.....	<i>Rallus</i> 148
B Bill from gape much shorter than tarsus.....	I
1 Frontal shield absent or only slightly developed.....	a
Frontal shield well developed.....	b
a Second quill longest; first between fifth and seventh.....	I
Third to sixth quill longest; first shorter than eighth.....	II
I Tarsus longer than middle toe without claw.....	<i>Crex</i> 158
Tarsus as long as or shorter than middle toe without claw.....	<i>Porzana</i> 159
II Tarsus longer than middle toe without claw. Plumage banded below.....	<i>Rallina</i> 154
Tarsus as long as or shorter than middle toe without claw. Plumage not banded below.....	<i>Amaurornis</i> 164
b Toes with membranous fringe divided into convex lobes. Plumage black or blackish grey.....	<i>Fulica</i> 180
No lobate fringe on toes.....	III
III Plumage blue; frontal shield truncate behind.....	<i>Porphyrio</i> 177
Plumage not blue; frontal shield not truncated behind	a'
a' Toes with a narrow straight-edged lateral fringe. Sexes alike	<i>Gallinula</i> 174
Toes without any fringe. Sexes differing.....	<i>Gallicrex</i> 172

Genus RALLUS Linnaeus

Rallus Linnaeus, 1758, Syst. Nat., ed. 10, I: 153. Type, by subsequent designation,
Rallus aquaticus Linnaeus

Hypotaenidia Reichenbach, 1852, Av. Syst. Nat.: 23. Type, by original designation, *Rallus pectoralis* 'Cuvier' not *Rallus pectoralis* Temminck = *Hypotaenidia australis* Pelzeln

Wing short: 1st primary (as.) between 6th and 8th in length; 2nd primary usually longest. Tail shorter than half length of wing. Nostril linear, placed in an elongate groove on each side of mandible. Feathers of forehead bristly or slightly stiffened. Tarsus slender, usually shorter than middle toe with claw. Toes, long, slender, free.

The genus is widely distributed in the Palaearctic, Oriental & Australasian regions.

Key to the Species

	Page
Bill slender. No white markings on back.....	<i>R. aquaticus</i>
Bill stouter. Back marked with black bars or spots.....	<i>R. striatus</i>

RALLUS AQUATICUS Linnaeus

Key to the Subspecies

Darker above and below.....	<i>R. a. indicus</i>
Lighter above and below.....	<i>R. a. korejewi</i>

327. Turkestan Water Rail. *Rallus aquaticus korejewi* Zarudny

Rallus aquaticus korejewi Zarudny, 1905, Orn. Monatsb. 13: 209 (Northern Turkestan, Buchara, Transcaspia and east Persia)

Baker, FBI No. 2007, Vol. 6: 6

Plate 25, fig. 1, facing p. 160

LOCAL NAMES. None recorded.

SIZE. Grey Partridge —; length c. 28 cm. (11 in.).

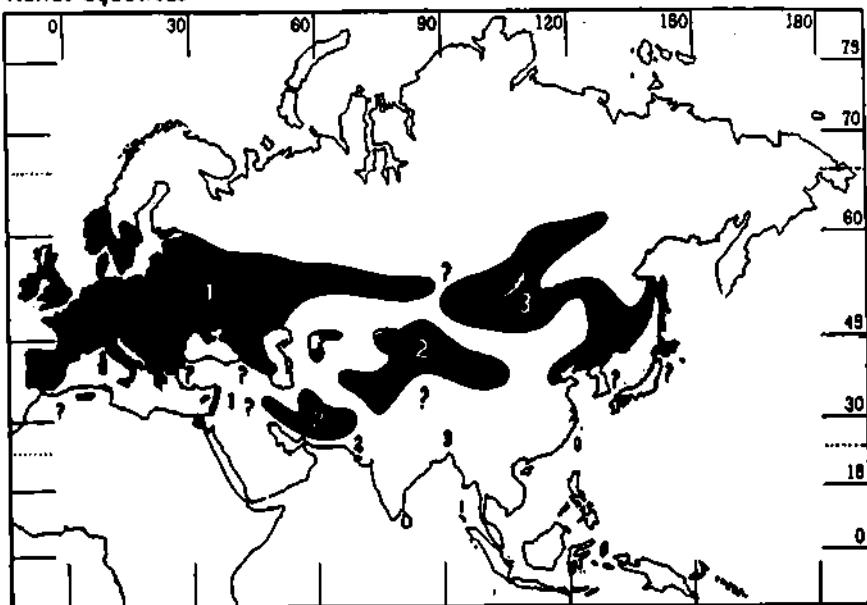
FIELD CHARACTERS. A partridge-like bird somewhat slenderer and longer legged, found in reedy marshes; resembling also a small all-brown moorhen. *Above*, greyish olive-brown boldly streaked with black. *Below*, chin and throat white; sides of head, neck, and breast pale slaty grey; flanks barred black and white. The comparatively long and slender orange-red bill immediately distinguishes it from other rails. Sexes alike. See Key to the Subspecies.

YOUNG (immature). *Above*, much more definitely barred with white on the wing-coverts. *Below*, with broader pale rufescent edges to the feathers.

STATUS, DISTRIBUTION and HABITAT. Resident and breeding in Kashmir and Ladakh (?); straggling south in winter as far at least as Madhya Pradesh (Sehore). Common in Kashmir Valley (c. 1500 m.) on all extensive jheels — Hokarsar, Anchar, and others. Owing to paucity of specimens and dependable sight records, status of the two races in our area remains uncertain. Affects reedy marshes.

EXTRALIMITAL. 'Known to breed in Transcaspia, eastern Persia, Turkestan, Zaidam, Kashmir and Ladakh. Winters in NW. India and E. China, casually elsewhere' (Peters).

GENERAL HABITS. Keeps singly or in pairs to swampy reed-beds, inundated sugarcane fields, etc., venturing out to feed at the edge in the early morning and dusk, and in cloudy drizzly weather. Walks about with upright carriage and high-stepping gait, tail partly cocked and jerked up from time to time as in Moorhen. But an inveterate skulker, unobtrusive and shy, scuttling into cover on the least suspicion, legs flexed and with lowered head and tail. Difficult to see and even more to flush, thus possibly much

Rallus aquaticus

■ Breeding range

Black numerals = Winter

1 *R. a. aquaticus* (RE). 2 *R. a. korejewi* (327). 3 *R. a. indicus* (328).

commoner in appropriate habitats than it appears to be. When suddenly come upon, flutters up feebly, flying with dangling legs just above the tall reeds for a few metres and dropping into cover again. But is capable of strong sustained flight over long distances when on migration. Swims jerkily for short distances like Moorhen, with frequent twitches of tail.

FOOD. Small freshwater snails complete with shells, slugs, worms, and insects. Also vegetable matter, e.g. shoots and seeds of grasses and marsh plants, and occasionally paddy.

VOICE and CALLS. Chiefly heard at early dawn and late into the dusk — a curious 'scream' reminiscent of the squealing of 'a small pig in trouble' (B. B. Osmaston). Other calls difficult to fix when issuing from within thick reed-beds tenanted by several species of rails and others, with the producers in hiding.

BREEDING. Season, in Kashmir Valley (c. 1500 m. elevation) late May to early August. Nest, an unlined pad of loosely put-together dry rushes, aquatic weeds, and grass, usually well concealed in herbage in a swamp a few inches above water. Eggs, normally 5–8 (once 10), glossy broad ovals, pale creamy to warm buff faintly tinged with green, flecked and blotched with pale reddish brown or purple-brown, and secondary markings of lavender or pinky grey. Average size of 50 Kashmir eggs 36.2×25.9 mm. (Baker). Both sexes partake in nest-building and incubation; female's share greater. Incubation period recorded elsewhere (for nominate race) 19–20 days (Witherby).

MUSEUM DIAGNOSIS. Similar to Indian Water Rail (328) but paler and more grey above and below. Brown eye-stripe faint or absent behind the eye.

Chick (in down). Velvety black all over.

MEASUREMENTS. Wing ♂♂ 128–136 mm.; ♀♀ 116–126 mm. (Baker).

COLOURS OF BARE PARTS. Iris red-brown to brick-red. Bill: upper mandible dark brown with a stripe on the base bright orange-red to vermillion; base of lower mandible also red but paler, the terminal third grey to dark horny brown. Legs and feet fleshy pink to brownish pink.

328. Indian Water Rail. *Rallus aquaticus indicus* Blyth

Rallus indicus Blyth, 1849, Jour. Asiat. Soc. Bengal 18(2): 820

(Lower Bengal and India generally)

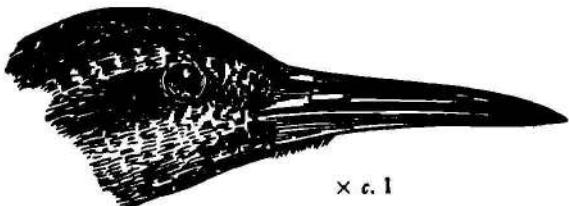
Baker, FBI No. 2006, Vol. 6: 4

LOCAL NAME. Ambukkukut (Bengal).

SIZE. Grey Partridge —; length c. 28 cm. (11 in.).

FIELD CHARACTERS. As for 327, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Winter visitor to eastern Nepal terai (JBNHS 65: 327) and Kathmandu Valley; Bengal south to Calcutta, Bangladesh and NE. India.



× c. 1

Extralimital. Breeds in E. Siberia from the Lena east to Amur and Ussuriand, south to Transbaikalia, Chihili, and Korea; Japanese Islands from Sakhalin to Kyushu. Winters in E. Bengal, Assam, Burma, SE. China' (Peters). Burma (Smythies).

MIGRATION. Nothing recorded beyond Baker's statement that 'On their first appearance in India these birds are often so exhausted as to allow themselves to be captured by hand without attempting to move'.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 327.

BREEDING. Extralimital. Season, May-June. Nest and eggs as in 327.

MUSEUM DIAGNOSIS. Differs from Turkestan race (327) in being darker olive-brown, less grey, above and below; distinct brownish wash on upper breast (v. clear grey); more white on throat (v. white largely lacking); brown eye-stripe more prominent behind eye. From nominate *aquaticus* by paler brown edges to feathers of upperparts, paler and more brownish (v. more slaty grey) underparts, and a brown stripe through eye to ear-coverts. For details of plumages of *R. a. aquaticus* see Witherby, 1941, 5: 1967.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	120–130	40–43		
♀♀	110–122	36–40 (from feathers)	40–45	52–65 mm. (Baker)

For the nominate race Witherby gives:

♂♂	115–126	37–44	39–45	50–60 mm.
♀♀	109–116	33–39	—	—

COLOURS OF BARE PARTS. As in 327.

RALLUS STRIATUS Linnaeus

Key to the Subspecies

- Paler and smaller.....*R. s. albiventer*
 Darker and larger.....*R. s. obscurior*

329. Indian Bluebreasted Banded Rail. *Rallus striatus albiventer*
Swainson*Rallus albiventer* Swainson, 1838, Animals in Menageries: 337 (India)

Baker, FBI No. 2008, Vol. 6: 7

Plate 24, fig. 1, facing p. 128

LOCAL NAMES. *Kānān kozhi* (Tamil); *Wadi kodi* (Telugu); *Kirimeti korowakā* (Sinhala); *Tuttuterippan* (Malayalam).

SIZE. Grey Partridge —; length c. 27 cm. (10½ in.).

FIELD CHARACTERS. A short-tailed marsh bird like the waterhen, seen skulking amongst reeds etc.

Male. *Above*, head and sides of neck rufous-chestnut. Rest of upper-parts dark brown with irregular wavy white bands and spots. *Below*, chin and throat white; foreneck and breast ashy blue. Abdomen and flanks blackish, conspicuously barred with white. The partly red bill, reddish eyes, and olive-grey legs are further clues to its identity.

Female, duller above and whitish on belly.

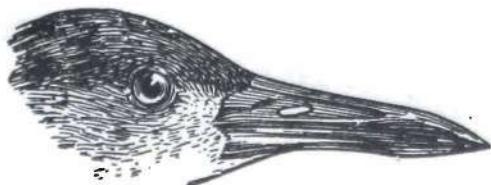
Young (immature). Feathers of back streaked with dark brown, the white bars and spots absent or obsolete. Crown and neck rufous-brown freely streaked with dark brown.

STATUS, DISTRIBUTION and HABITAT. Resident; moving about locally under stress drought or flood. Kutch, Madhya Pradesh, eastern Nepal, Darjeeling, Jalpaiguri duars, NE. India. Southward through Bangladesh and peninsular India to Kerala; from plains level to c. 1300 m. Also Sri Lanka. Affects reedy swamps and mangroves, margins of village tanks, inundated paddy cultivation, etc.

GENERAL HABITS. Usually solitary or in pairs. Much commoner and more widespread than apparent, but an inveterate skulker and therefore easily overlooked. Walks about with an upright carriage and high-stepping gait, bobbing head and jerking stub tail at each step, but crouching and slinking away into the reeds on the least alarm. The elongated toes enable it to trip lightly over floating vegetation in quest of food. Flight typical of rails, slow and laboured flapping, with the legs dangling behind. Swims well and can even dive on occasion.

FOOD. Seeds and shoots of marsh plants, molluscs, crustaceans, grubs, worms, and insects.

VOICE and CALLS. Normally very silent. 'A rather sharp though not loud whistled note' by one bird of a pair feeding together (Hume). 'Short jerking screams, not very loud.' Also 'a deep low note, probably male's', audible only at very close range (Baker).



x c. 1

BREEDING. *Season*, more or less over its entire range (including Ceylon) from the break of the rains in mid June to September-October. *Nest*, a pad of matted weeds, reed stems and grass c. 20-25 cm. across placed on the ground or on the debris of breakdown reeds, well concealed amongst vegetation on the edge of a marsh. *Eggs*, 5 to 7, and up to 9, cream to warm salmon-buff in colour, smooth textured and with a fair gloss, handsomely blotched and spotted with reddish- or purplish-brown or deep red, more densely at the broad end. Average size of 200 eggs $33\cdot 7 \times 25\cdot 8$ mm. (Baker). Both sexes partake in building the nest and incubation. Period believed to be 19-22 days. Courtship display *vide* Baker of the normal rail pattern: the male approaches the female with drooping, quivering wings, the stub tail held erect and constantly flicked forward over the back, head held low and stretched out parallel to the ground. When close to the female he stops and jerks himself upright on his toes, spreads out his wings, and soon crouches again. Copulation follows if the female responds, otherwise the antics are repeated.

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	108-131	31-34	34-37	38-41 mm. (Baker)

Weight 3·6 to 5 oz. (c. 100-142 gm.) — Hume.

COLOURS OF BARE PARTS. Iris light brown (in young birds) to Indian red (in adults). Bill: upper mandible and tip of lower horny brown to dark brown; lower mandible and commissure dull yellowish red to bright red. Legs and feet olive-grey, olive, or fleshy grey.

330. Andaman Bluebreasted Banded Rail. *Rallus striatus obscurior* (Hume)

Hypotaenidia obscuriora Hume, 1874, Stray Feathers 2: 302 (Andaman Islands)

Rallus striatus nicobarensis Abdulali, 1966, JBNHS 63: 420

(Nancowri, central Nicobars)

Baker, FBI No. 2009, Vol. 6: 9

LOCAL NAMES. None recorded.

SIZE Same as 329; Grey Partridge --.

FIELD CHARACTERS. As for 329, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Resident and common in both the Andaman and Nicobar groups of islands. Affects forest, marshy meadows, reedy swamps and paddylands.

GENERAL HABITS, FOOD, VOICE and CALLS. As of 329, q.v. Also a great skulker and adept at hiding itself, only rarely flushed, and then flying heavily with legs dangling. Utters a deep croak very like the note of *Rallina cinnamomea* (333) — A. L. Butler.

BREEDING. *Season*, more or less throughout the year, chiefly June to November. *Nest*, a pad of dry grass on swampy ground, usually well concealed in thick grass or herbage, or in jungle (A. L. Butler, B. B. Osmaston).

Eggs. normally 6, sometimes 7 or 8, slightly glossed, pinkish stone-colour or dun, spotted and blotched chiefly at the broad end with reddish brown or bright chestnut and secondary greyish markings. Average size of 150 eggs $36 \cdot 0 \times 27 \cdot 5$ mm. (Baker).

MUSEUM DIAGNOSIS. Differs from the Indian race (329) in being darker and larger. *Above* much blacker; *below*, chin and throat much less white; breast deeper grey.

Chick (in down). All black. Iris greyish brown; bill blackish; legs and feet dark brown. The first feathers to appear are the grey feathers of the breast (A. L. Butler).

MEASUREMENTS. ♂ ♀ Wing 129–136; bill (from feathers) 33–36 mm. (Baker).

COLOURS OF BARE PARTS. Iris dark brown. Bill Indian red, tips of both mandibles and whole culmen deep horny brown. Legs and feet dark greenish horny (Davison).

Genus RALLINA G. R. Gray

Rallina 'Reichenbach' = G. R. Gray, 1846, Gen. Bds. 3: 595. Type, by original designation, *Rallus fasciatus* Raffles

Differs from *Rallus* in having a shorter bill which is much shorter than middle toe, which again is shorter than the tarsus. Wing rounded: 3rd primary (as.) longest. In *Rallina canningi* (333) secondaries slightly longer than primaries; in other species slightly shorter.

The genus ranges from India and Ceylon to Australia; represented by three species within our limits.

Key to the Species

	Page
A Back and wings rufous-brown; culmen 20 to 21 mm.; legs red.....	<i>R. fasciata</i> 154
B Back and wings olive-brown; culmen 27 to 28 mm.; legs slaty.....	<i>R. surizonoides</i> 155
C Upper plumage deep ruddy-chestnut; culmen 29 to 33 mm.; legs olive-green	<i>R. canningi</i> 157

331. Malayan or Redlegged Banded Crake. *Rallina fasciata* (Raffles)

Rallus fasciatus Raffles, 1822, Trans. Linn. Soc. London 13(2): 328

(Bentulu, western Sumatra)

Baker, FBI No. 2015, Vol. 6: 17

Plate 25, fig. 2, facing p. 160

LOCAL NAMES. None recorded.

SIZE. Between Quail and Partridge; length c. 23 cm. (9 in.).

FIELD CHARACTERS. A marsh-haunting ground bird like partridge, less plump and longer legged.

Male and Female: Whole head, neck, and breast cinnamon chocolate-brown. Rest of upperparts rufous-brown. Wing quills and coverts blackish with broad white bars. Underparts strikingly banded black and white. Readily distinguished from very similar Banded Crake (332) by coral red (*v.* slaty) legs.

Young (immature). Head and neck like back, rufous-brown. Breast pale dull brown; rest of underparts whitish obscurely barred with brown.

STATUS, DISTRIBUTION and HABITAT. Status as resident or migratory, and to what extent, uncertain. Baker obtained it on several occasions in N. Cachar (c. 800 m. alt., Assam). No other Indian or E. Pakistan records. Affects reedy swamps and marshes; also shrubbery bordering paddyfields etc.

Extralimital. 'Burma south over the Malay Peninsula; Sumatra; Java; Borneo; Lesser Sunda Is.; Philippine Is. (Palawan, Balabac, Mindoro); Palau Is.; Moluccas (Halmahera, Batjan, Buru)' (Peters).

GENERAL HABITS and FOOD. As of 327, and typical of all rails and crakes. A skulker in marshy reed-beds and undergrowth, difficult to flush or observe, thus comparatively little known.

VOICE and CALLS. Unrecorded.

BREEDING. Extralimital. Unrecorded within our limits. *Season*, in Burma August-September. *Nest* and *eggs* similar to 322.

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	118-131	20-21	—	49-51 mm. (Baker)

COLOURS OF BARE PARTS. Iris crimson or blood-red. Bill blackish, the base paler and tinged with greenish or plumbeous-slate. Gape and orbital skin (fine ring round eye) crimson. Legs and feet coral red; claws slate.

332. Indian or Slatylegged Banded Crake. *Rallina eurizonoides amauropetra* (Jerdon)

Z.(apornia) nigrolineata Hodgson, in Gray, G. R., 1844, Zool. Misc. : 86 (Nepal).
Nomen nudum.

Rallus superciliaris Eyton, 1845, Ann. and Mag. Nat. Hist. 16: 230 (Malacca). *Nec Rallus superciliaris* Vieillot, 1819, Nouv. Dict. Hist. Nat. 28: 565.

Zapornia nigrolineata 'Hodgs.' = G. R. Gray, 1846, Cat. Bds. Nepal: 143 (Nepal). In synonymy of *Rallus superciliaris* Eyton, *nomen nudum*.

Porzana amauropetra 'Blyth' = Jerdon, 1864, Bds. India 3: 725 (Northern India)
Baker, FBI No. 2014, Vol. 6: 16

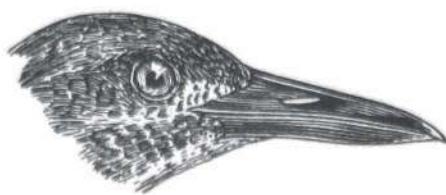
Plate 25, fig. 3, facing p. 160

LOCAL NAMES. *Daobui lai* (Cachar); *Kirimet korowakā* (Sinhala); *Kānān kōzhi* (Tamil).

SIZE. Between Quail and Partridge; length c. 25 cm. (10 in.).

FIELD CHARACTERS. Confusingly similar to 331 but with chin and throat pure white. Most readily distinguished from it by absence of white bars on wing quills and coverts, and above all by slaty (v. coral-red) legs. Sexes alike.

Young (immature) has upper-parts of head and neck dark olive-brown, concolorous with back. Sides of head and neck more ashy brown; scapulars and wing-coverts with sparse white and black bars.



x c. 1

STATUS, DISTRIBUTION and HABITAT. Resident and local migrant, found in well-wooded, well-watered tracts, especially during the monsoon season, practically throughout our area, from NW. Pakistan to eastern Assam (including Nepal) and to the extreme south of the Peninsula (Kerala, Rameswaram Island). Judging from its calls not uncommon, and locally even numerous. Winter visitor to Ceylon (October/November to March/April). Affects a wide range of jungle habitats, plains and up to at least 1600 metres elevation in the Himalayas (Darjeeling district) and peninsular hills — Western Ghats (Khandala), Biligirirangans, hills of Kerala, Coorg and Mysore, and others.

Extralimital. Burma, Malay Peninsula, Vietnam.

MIGRATION. Little known except that at certain times of year, especially at the commencement and end of the SW. monsoon, exhausted birds widely and commonly reported blundering into houses for refuge from gales, while evidently on some sort of migratory passage. Arrives on the west coast of Ceylon from India about October.

GENERAL HABITS. Like other rails, partly nocturnal. Is shy and scuttles into thick cover on the slightest suspicion, with legs partly flexed and head and tail lowered. Normally walks with a high-stepping gait and upright carriage, tail slightly cocked and twitched from time to time like Moorhen, and wings partly drooping at the sides. When flushed often flies up into a tree, perching on a branch seemingly quite at home. Swims short distances jerkily, also like Moorhen.

FOOD. Animal and vegetable: molluscs, worms, insects, shoots and seeds of marsh plants.

VOICE and CALLS. Chiefly heard at early dawn and late into the dusk, especially during the breeding season; also in daytime in misty overcast weather. The following calls described: a cry rather like that of a domestic hen after laying an egg; a cry like the Paddy Bird's (*Ardeola grayii*) when suddenly alarmed; a noise like *krrrrr*, pronounced in a subdued voice, when suspicious of danger (T. R. Bell). During breeding season bird answers bird hidden in dense grass and scrub with a *Kok* note which 'said through one's nose is the exact sound' (C. M. Inglis). Calls persistently during night, mostly a double note *kek-kek*, *kek-kek*, *kek-kek*, *kek-kek*, and so on, like the Spotted Scops Owl (*Otus spilocephalus*) but much harsher (W. H. Matthews, *in epist.*). 'A long drumming croak *krrrrrrrrr-ar-kraa-kraa-kraa*' (Mrs Lushington, Ceylon). A repeated hissing like a snake but deeper and more guttural (W. H. Matthews); 'a peculiar noise somewhat resembling the swearing of a cat' (B. B. Osmaston) — both (probably the same) by an incubating bird when nest closely approached.

BREEDING. Season during the SW. monsoon, June to September, the months of heaviest rainfall in the Western Ghats. Nests in the densest jungle as well as opener scrub, from plains level to at least 1600 m. elevation in the peninsular hills. Also in the outer Himalayas (Dehra Dun dist. c. 750 m., Darjeeling dist., c. 1000 m.). Nest, an untidy pad of dead leaves and grasses and a few thin twigs, with a slight central depression. Placed in bamboo clumps, on masses of tangled creepers, on top of an overgrown tree stump etc. up to a metre or so above ground, not necessarily in the vicinity of a swamp. Eggs, 4 to 8, pale creamy white with a fair gloss. Average size of

100 eggs $28 \cdot 1 \times 20 \cdot 0$ mm. (Baker). Both sexes incubate and tend the young. Period unrecorded. The incubating bird displays extraordinary pluck and pugnacity, standing up and puffing out its plumage at approach of a hand, pecking viciously at it, and repeating the process without leaving (Osmaston).

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

Chick (in down). Velvety black all over.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	122-132	27-28	39-46	55-64 mm. (Baker)

COLOURS OF BARE PARTS. Iris: adult crimson red; immature dull brown. Bill green; terminal half of upper mandible and tip of lower dark brown. Legs and feet: adult dull greenish plumbeous, plumbeous, or black; imm. greenish plumbeous.

333. Andaman Banded Crake. *Rallina canningi* (Blyth)

Euryzona canningi 'Tytler' = Blyth, 1863, Ibis: 119 (Andaman Is.; type from Port Canning)

Baker, FBI No. 2016, Vol. 6: 18

Plate 25, fig. 5, facing p. 160

LOCAL NAMES. None recorded.

SIZE. Grey Partridge +; length c. 34 cm. ($13\frac{1}{2}$ in.).

FIELD CHARACTERS. More or less as for Slatylegged Banded Crake (332), q.v., but larger. Differs from it also in being deep glossy ruddy chestnut above and on breast (v. rufous-brown). No white on throat; bill pale green. Sexes alike.

Young (immature) has the chestnut parts duller. Lower parts dark grey with a chestnut tinge, narrowly banded and streaked with dirty white instead of black broadly barred with pure white as in adult (Butler).

STATUS, DISTRIBUTION and HABITAT. Resident; common. Andaman Islands. (Details of range not worked out. Apparently absent in the Nicobars.) Affects marshy jungle.

GENERAL HABITS. Typical of the family. A great skulker in reeds and herbage on marshland; seldom seen but readily snared, thus proving its abundance (80 caught within 1 square mile!). 'Carries itself high on the legs, head generally rather drawn in, and feathers always more or less ruffled up to produce a very round and ball-like outline' (A. L. Butler). A peculiarity described by the same observer needs confirming. 'In drinking they seemed to raise the head much less than most birds, drinking steadily for many seconds without lifting the bill at all.'

FOOD. Small fish (?), molluscs, worms, insects (beetles, grasshoppers and caterpillars). Large grasshoppers shaken about and battered before swallowing.

VOICE and CALLS. 'A curious deep croak sounding something as if a man were trying to say *kroop! kroop!* with his mouth under water.' Alarm-note when a snared bird is approached 'a sharp *chick, chick*'. When handled 'sometimes utters a cry like that of a wounded rabbit' (A. L. Butler).

BREEDING. Season so far recorded between June and August. Nest a collection of grass and leaves at the foot of some big tree or under tangled undergrowth in forest, not necessarily close to water. Eggs, similar to those of Indian Banded Crake (332), larger, whiter and more glossy. Average size of 32 eggs $40\cdot6 \times 30\cdot8$ mm. (Baker). Share of the sexes in incubation, and period, unrecorded.

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

Chick (in down). Rich chestnut, slightly greyish under the wings. Bill dusky olive (Butler).

MEASUREMENTS. ♂ ♀ Wing 151–163; bill (from feathers) 29–33; tarsus 56–62; tail 73–92 mm. (Baker).

COLOURS OF BARE PARTS. Iris scarlet; in some mottled with tiny specks of gold round pupil. Bill bright apple-green, whitish at tip ('this green colour is so delicate that it gives the bill, which is hard and strong, the appearance of being soft and weak'). Legs and feet olive-green (Butler).

Genus *Crex* Bechstein

Crex Bechstein, 1803, Orn. Taschenb. Deutschl. Th. 2: 336. Type, by monotypy and tautonymy, *Crex pratensis* Bechstein = *Rallus crex* Linnaeus

Differs from other rail species by its comparatively short, stout bill of which depth at base is equal to more than half length of culmen. Tarsus as long as middle toe with claw. Wing rather broad: 1st primary (as.) about equal to 5th or 6th; 2nd primary longest.

Contains a single Palaearctic species extending to N. Africa and W. Asia.

334. CORNCRAKE or LANDRAIL. *Crex crex* (Linnaeus)

Rallus Crex Linnaeus, 1758, Syst. Nat., ed. 10, 1: 153 (Europe, restricted type locality Sweden, ex Fn. Svec.)

Baker, FBI No. 2010, Vol. 6: 10

Plate 25, fig. 4, facing p. 160

LOCAL NAMES. None recorded.

SIZE. Grey Partridge — ; length c. 25 cm. (10 in.).

FIELD CHARACTERS. A quail-like bird, standing somewhat higher on the legs. Above yellowish buff or yellowish ashy, the feathers boldly streaked with dark brown. A grey-blue stripe over eye. Below, chin and throat whitish, breast pale ashy grey. Flanks and under tail-coverts broadly barred with reddish brown. Sexes more or less alike.

In the sluggish rail-like flight chestnut-coloured wings conspicuous.

STATUS, DISTRIBUTION and HABITAT. Casual vagrant. Only two records from within the subcontinent: one reported to Blyth as having been shot in the 1870s, the other obtained by Scully in Gilgit (8 October, c. 1881) 'while on autumn migration'. More recently, in the 1950s (?), one reported flying on board ship near Ceylon, presumably also on migration (Evenden *in litt.*). Two specimens, Colombo (Oct. 1970, Sept. 1972), therefore presumably rare but regular visitor (CBCN, Sept. 1972).

EXTRALIMITAL. 'Breeds in the British Isles, N. Europe and Asia north to about the Arctic circle and east to C. Siberia, south to the Pyrenees, N. Italy, Macedonia, N. Persia, Turkestan, and Altai. Winters chiefly in N. and E. tropical Africa. Many instances of casual occurrence' (Peters).

GENERAL HABITS. Like the other rails, but more restricted to dry grass-land and standing crops. Distinctly crepuscular. Very difficult to flush and seldom seen, but its presence advertised by its constant calls.

FOOD. Insects, worms, snails as well as seeds and other vegetable matter.

VOICE and CALLS. Of male, a loud rasping disyllabic *arp-arp* or *crake-crake* persistently repeated throughout the day and night in long unbroken runs. The calls have a peculiar ventriloquistic quality.

BREEDING. Extralimital. *Nest* on ground in grassland or corn fields. *Eggs*, 8-12, pale greenish grey to reddish brown.

MUSEUM DIAGNOSIS. For details of plumages (and bionomics) see Witherby, 1941, 5: 174-80. Baker's description, loc. cit., is misleading.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	135-150	20-23	34-43	40-50 mm.
♀ ♀	130-145	19-23	—	—

(Witherby)

COLOURS OF BARE PARTS. Iris pale brown. Bill pale brown, darker at tip, more flesh-coloured on lower mandible. Legs and feet pale flesh.

Genus PORZANA Vieillot

Porzana Vieillot, 1816, Analyse: 61. Type, by monotypy and tautonymy, *Marouette* of Buffon = *Rallus porzana* Linnaeus

Differs from *Crex* in having the tarsus shorter than middle toe and claw. Bill short and fairly stout. First primary (as.) about equal to 6th or 7th: 2nd primary longest and subequal with 3rd.

Genus practically cosmopolitan.

Key to the Species		Page
A	Breast spotted with white; wing over 110 mm.	<i>P. porzana</i> 162
B	Breast immaculate; wing under 110 mm.	1
I	Head uniformly brown (both sexes); outer edge of primary brown; wing over 94 mm.	<i>P. parva</i> 159
	Head marked with black (both sexes); outer edge of primary white; wing under 93 mm.	<i>P. pusilla</i> 160
C	Breast (adults) vinous chestnut; young dark olive.	<i>P. fusca</i> 164

335, 336. Little Crake. *Porzana parva parva* (Scopoli)

Rallus parvus Scopoli, 1769, Annus I, Hist.-Nat.: 108 (probably from Carniola)

Porzana parva illustris Gavrilenko, 1926, J. Orn. 74: 700 (Tarim River, Turkestan)

Baker, FBI No. 2012, Vol. 6: 13

Plate 25, fig. 8, facing p. 160

LOCAL NAMES. None recorded.

SIZE. Grey Quail ±; length c. 20 cm. (c. 8 in.).

FIELD CHARACTERS. A quail-like swamp bird.

Male. Supercilia and sides of head and neck dark ashy grey; centre of crown and neck rufous-tinged dark brown. Rest of upperparts olive-brown feebly marked with sparse narrow white streaks except on wing-coverts. Upper back, scapulars and innermost secondaries also broadly streaked with black. *Below*, chin, throat and rest of underparts dark ashy grey barred with white posteriorly.

Female. *Above.* Supercilia and face paler grey, otherwise as in ♂.
Below, chin, throat and foreneck whitish; rest of underparts isabelline-buff, barred brown and white on vent and under tail-coverts.

Young (immature). Like female but with very pale, almost whitish underparts.

STATUS, DISTRIBUTION and HABITAT. Winter visitor, apparently uncommon; hitherto recorded only in Gilgit and W. Pakistan (Baluchistan, Sind). A specimen from Bombay city! (SA & HA, 1968, JBNHS 65: 217-18). Karwar, Karnataka (specimen, BNHS coll.). Its distribution within our limits and numerical status need to be worked out. Paucity of museum skins and liability of misidentification from fleeting glimpses of these small similar-looking crakes renders assessment difficult. Affects reed-beds in and around jheels and swamps.

Extralimital. According to Peters the nominate race breeds locally in E. and S. Europe, SW. Asia, and possibly in NW. Africa. Winters chiefly in the Mediterranean lands, Arabia, Iraq, Sind, and Baluchistan; *P. p. illustris* Gavrilenko breeds from E. Turkestan to the valley of the Tarim in western Chinese Turkestan, and 'doubtless winters in W. India'. However, this race is of doubtful validity, and rejected by both Meinertzhagen (1954, *Birds of Arabia*) and more recently by Vaurie (1965, *The Birds of the Palaearctic Fauna 2*). The composite breeding range will therefore stand for the species, which has no races.

MIGRATION. No ringing data or other specific information.

GENERAL HABITS. Very similar to Baillon's and the Spotted Crakes (337, 338), qq.v. Trips lightly over the dry floating lotus leaves and stems, swimming from stem to stem. A great skulker and difficult to flush. Scuds along close to the surface with hurried wing-beats very like quail, but with legs dangling until the bird is well under way. Tumbles headlong into cover after a short flight.

FOOD. Chiefly aquatic insects.

VOICE and CALLS. Unrecorded in India.

BREEDING. Extralimital. *Nest* and *eggs* similar to those of 337.

MUSEUM DIAGNOSIS. For description of plumages (and bionomics) see Witherby, 1941, 5: 187-90.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	102-110	16.5-19	28-32	50-57 mm.
♀ ♀	95-106	16-18	—	—
(from feathers)				(Witherby)

Weight 1.5 to 1.9 oz. (c. 42-56 gm.) — Hume.

COLOURS OF BARE PARTS. Iris and orbital ring crimson. Bill grass green, tip greyish, base of upper mandible at gape red. Legs and feet green.

337. Eastern Baillon's Crake. *Porzana pusilla pusilla* (Pallas)

Rallus pusillus Pallas, 1776, Reise Russ. Reichs 3: 700 (Dauria)

Baker, FBI No. 2013, Vol. 6: 14

Plate 25, fig. 9, facing p. 160

LOCAL NAME. *Jhilli* (Nepal, N. Bihar).

SIZE. Grey Quail ±; length c. 19 cm. (7½ in.).



PLATE 25

Rallus a. korejewi, Turkestan Water Rail (327). 2 *Rallina fasciata*, Redlegged Banded Crake (331). 3 *Rallina c. amauropoera*, Banded Crake (332). 4 *Crex crex*, Corn Crake or Land Rail (334). 5 *Rallina anningi*, Andaman Banded Crake (333). 6 *Porzana porzana*, Spotted Crake (338). 7 *Amauornis bicolor*, Elwes's Crake (341). 8 *Porzana p. parva*, Little Crake (335). 9 *Porzana p. pusilla*, Baillon's Crake (337). 10 *Porzana f. zeylonica*, Southern Ruddy Crake (340). 11 *Amauornis a. akool*, Brown Crake (342). 12 *Turnix s. taigoor*, Common Bustard-Quail (318). 13 *Turnix s. dussumieri*, Little Bustard-Quail (313).

FIELD CHARACTERS. A quail-like swamp bird — our smallest rail.

Adult. *Above.* Supercilium and cheeks ashy grey. A brownish streak through eye over ear-coverts to sides of neck. Rest of upperparts rufescent olive-brown broadly streaked with dark brown. Scapulars, back, rump, and upper tail-coverts with narrow white paint-like smears. Edge of wing at shoulder white, conspicuous in flight. *Below,* neck, breast and anterior abdomen grey; posterior abdomen, vent, and under tail-coverts barred brown and white. Sexes alike.



× c. 1

Young (immature). *Above*, brown eye-streak broader; otherwise more or less like adult but paler. *Below*, almost white; sides of neck, breast, and flanks suffused with ruddy brown.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Breeds abundantly in Kashmir (to c. 1800 metres) where common throughout summer. Very probably also breeds elsewhere within our limits, but no definite records. Spreads out practically throughout the area, including Ceylon and Andaman Is., in suitable biotopes in winter, when there is apparently also an influx of extrazonal migrants. Recorded as a passage migrant in many localities, but owing to secretive habits and liability of confusion with the other two *Porzanas* its status remains undetermined. Affects reedy marshes and jheels, irrigated crops, etc.

Extrazonal. ‘Breeds in C. and E. Asia from the upper Ob to Amurland and Japan, south to Kashmir, Mongolia, N. China and Korea; lower Himalayas in N. India. Winters from Kashmir and the lower Himalayas to India, Ceylon and Burma, and from S. China to the Malay Archipelago and the Philippines’ (Peters).

MIGRATION. No ringing data. Recorded as a passage migrant in many northern localities in September-October and again in March-April — even as late as end May or first week June in the NW. frontier of W. Pakistan (Whitehead, JBNHS 12: 345). Often flies into houses at night attracted by the lights.

GENERAL HABITS. Usually keeps singly or in pairs. As great a skulker as its other relations, thus oftener heard among reed-beds than seen, and then mostly when put up in a snipe shoot. On undisturbed jheels or ponds, however, occasionally quite tame, tripping lightly over the floating vegetation or swimming from leaf to leaf in quest of food, twitching up its stub tail every little while in the typical Moorhen manner and unafraid so long as the observer remains quiet. When alarmed, calmly slips under a lotus leaf or similar object, peering out cautiously from its hiding-place from time to time to assure itself that the danger is past.

FOOD. Largely seeds of aquatic plants; also insects, worms, and molluscs.

VOICE and CALLS. A single loud high-pitched *crek* followed after a pause by another, then by a succession of *creks* in increasing tempo till it ends in an unbroken run. Reminiscent of the trilling of a dabchick.

BREEDING. *Season*, in Kashmir May to August, chiefly June and July. *Nest*, a collection of grass or reeds placed in soft marsh grass, in grass on the

side of a bank or at the base of a bush, in a swamp or on the edge of a lake. Often anchored in water amongst growing rice crops with a number of stems bending over to form a canopy; in very similar situations to those chosen by Ruddy Crake (339). Position of nest usually given away by bird sitting very close and flying straight off it when almost trodden on. Eggs, 5 to 8 or 9 yellow-brown, olive, or pale brown, profusely streaked and freckled with reddish brown. Average size of 82 eggs 28.4×20.6 mm. (B. B. Osmaston). Proportionately large for the bird, and how such large clutches are effectively covered by so small a body is puzzling. Both sexes incubate. Period (in European race) 20–21 days; unrecorded in India.

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

Chick (in down). All black; a greenish tinge to the tips of the down.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♀	84–91	14–16	27–28	40–46 mm. (Baker)

Weight 1·1 to 1·8 oz. (c. 28·5–52 gm.) — Hume.

COLOURS OF BARE PARTS. Iris red (adult), reddish brown (imm.), dull blue-brown (chick). Bill horny green to green, darker at tip and on culmen. Legs and feet yellowish green to dull green; claws horny brown.

338. Spotted Crake. *Porzana porzana* (Linnaeus)

Rallus Porzana Linnaeus, 1766, Syst. Nat., ed. 12, 1: 262

(Europe = France, ex Brissonian reference)

Baker, FBI No. 2011, Vol. 6: 11

Plate 25, fig. 6, facing p. 160

LOCAL NAMES. *Jhilli* (N. Bihar); *Khairi, Gurguri khairi* (Bengal); *Venna mudi kozhi* (Tamil).

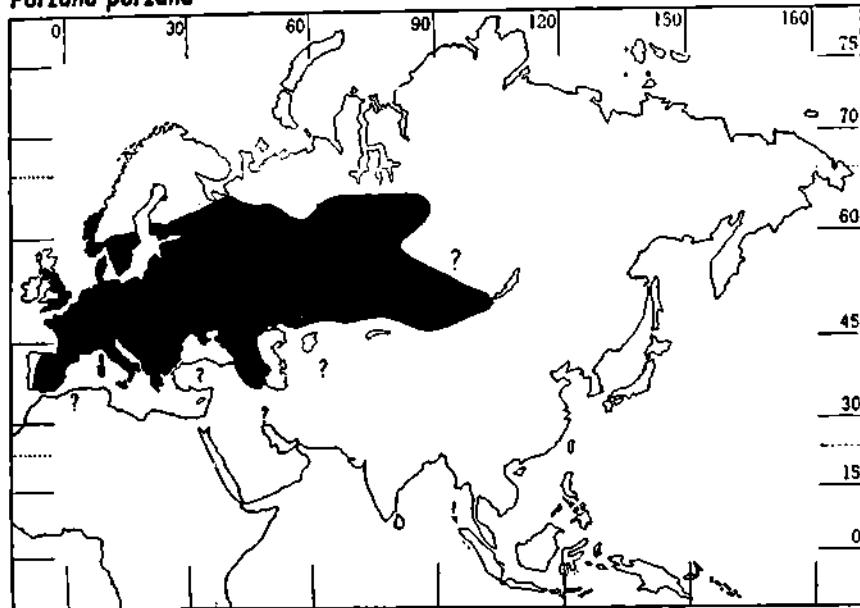
SIZE. Grey Quail +; length c. 23 cm. (9 in.).

FIELD CHARACTERS. A quail-like swamp bird.

Adult. Above. Supercilium, sides of head and neck grey, speckled with white. Rest of upperparts rufescent olive-brown broadly streaked with black. Hindneck and upper back spotted with white. Scapulars, lower back, rump, upper tail-coverts and inner secondaries narrowly streaked with white. Wing border white at carpal joint. Below, chin, throat, and abdomen white. Breast brownish grey speckled with white; flanks brownish grey barred with white. Vent and under tail-coverts buff. Sexes alike.

Young (immature). More brown less grey below, with the white of chin and throat more extensive.

STATUS, DISTRIBUTION and HABITAT. Winter visitor recorded from practically every part of our area from Sind to Assam and south in the Peninsula at least to Belgaum (Mysore). Perhaps commoner than supposed wherever appropriate facies available, but overlooked due to its skulking habits and silence in non-breeding season. Affects reedy jheels and seepage or spillage marshes from reservoirs and canals.

Porzana porzana

■ Breeding range

Extralimital. 'Breeds in the British Isles, Europe and W. Asia, north to Norway, Finmark and the upper Ob, south to the islands in the Mediterranean, and NW. Kashmir. Winters in S. Europe, and in Africa chiefly north of the Sahara, but south to Damaraland and Bechuanaland; also in India from Sind to Bengal' (Peters). Its breeding in NW. Kashmir (as above), presumably Gilgit, needs confirming.

MIGRATION. No ringing data. Arrives in N. India in September-October apparently by a different route to that taken in spring. 'Passes through Kohat (NW. Pakistan) in fair numbers in March and April' (Whitehead, 1909, *Ibis*: 270).

GENERAL HABITS AND FOOD. As in 336 and 337, qq.v. Like them also largely crepuscular.

VOICE AND CALLS. Not intelligibly described in its winter quarters when birds mostly silent.

BREEDING. Extralimital. Nest and site as in Baillon's Crake (337). *Eggs*, 8-12, greyish- to greenish buff profusely spotted and blotched with reddish- or purplish brown.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. Under tail-coverts uniform buff, unbarred.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	112-119	19-21	c. 33-35	47-52 mm. (Baker)

Weight ♂ ♀ 3 to 4 oz. (c. 85-114 gm.) — Hume.

COLOURS OF BARE PARTS. Iris reddish brown to red. Bill yellow, orange at base, darker and more greenish along culmen and at tip. Legs and feet bright olive-green.

PORZANA FUSCA (Linnaeus)**Key to the Subspecies**

- Larger; wing 99 mm. or over *P. f. fusca*
 Smaller; wing 97 mm. or less *P. f. zeylanica*

339. Northern Ruddy Crake. *Porzana fusca fusca* (Linnaeus)

Rallus fuscus Linnaeus, 1766, Syst. Nat., ed. 12, 1: 262 (Philippines)

Porzana fusca bakeri Hartert, 1917, Nov. Zool. 24: 272 (Bhim Tal, Kumaon)

Baker, FBI No. 2019, Vol. 6: 21

LOCAL NAME. *Di daobui gajao* (Cachar).

SIZE. Grey Quail +; length c. 22 cm. (c. 8½ in.)

FIELD CHARACTERS. A skulking stub-tailed ground bird of reedy swamps, of the general effect of the familiar Whitebreasted Waterhen.

Adult. *Above*, forehead, forecrown, supercilia, and sides of face (the mask) vinous-chestnut. Rest of upperparts dark olive-brown. *Below*, chin and centre of throat whitish; throat to lower breast vinous-chestnut. Abdomen and flanks olive-brown; under tail-coverts blackish with white fringes. Sexes alike. Dangling bright red legs conspicuous in feeble flight.

Young (immature). *Above*, darker than adult. Crown concolorous with back; supercilia and sides of head and neck dull white. *Below*, dull white barred with dusky brown. Flanks and thighs dull olive-brown; under tail-coverts as in adult.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident and possibly migratory to some extent. Pakistan and N. India from the NW. Frontier district through Kashmir and Nepal to Assam up to c. 1800 metres along the lower Himalayas. Southwest to Delhi (specimens, Donahue, JBNHS 64: 414), thence eastward to Bengal and E. Pakistan. Curiously enough, occurrences in peninsular India, excepting on the western side as given under *P. f. zeylanica* (340), completely unrecorded save for a specimen from Chanda (Maharashtra, c. 20° N.) in Brit. Mus. Affects swampy localities — edges of inundated rice-fields, reedy banks of canals and spillage marshes, etc.

Extralimital. N. Burma (Chin Hills, Arakan); Thailand.

GENERAL HABITS. Typical of the rails. A shy and extreme skulker, slipping away into the herbage on the slightest alarm, threading its way swiftly through the reed stems, flushed only with difficulty, and usually very silent; thus easily overlooked. Pairs probably roost together in thick bushes at night as do its relatives in Indonesia.

FOOD. Aquatic insects and their larvae, molluscs, seeds and shoots of marsh plants.

VOICE and CALLS. 'A very soft *crake* uttered as a single note at considerable intervals' (Baker). 'A metallic *tewk* repeated every two or three seconds, usually followed by a bubbling note, much like that of the Dabchick but louder' (R. S. P. Bates). A short low *chuck* when feeding (Julian Donahue). Heard rarely, and chiefly in the very early mornings and evenings.

Hume renders another (or the same note?) as *keek-keek-keek*. Even in the breeding season the bird is apparently much less noisy than other crakes.

BREEDING. Season, in Kashmir and NW. Pakistan, June, July and August; in Bengal and E. Pakistan (Sunderbans), July to September. Breeds abundantly in all these areas preferring rice-fields and ditches to large jheels. *Nest*, a pad of dry grass and leaves of aquatic plants placed on swampy ground amongst grass, reeds or rice plants which sometimes bend over to form a canopy over the nest. *Eggs*, 6-9, pale *café-au-lait* spotted all over, but chiefly at the broad end, with pinkish brown and pale purplish grey markings. Average size of 92 eggs 32.6×23.5 mm. (B. B. Osmaston). Both sexes share in nest-building, incubation and tending the young. Incubation period unrecorded.

MUSEUM DIAGNOSIS. Larger than *zeylonica* (340); variable in tone of plumage, but tending to be darker both above and below.

Chick (in down). Black with fulvous spots behind the ear-coverts.

MEASUREMENTS

	Wing	Bill (from feathers)
♂ ♀	$\left\{ \begin{array}{l} 97-110 \\ 105-109 \end{array} \right.$	$21-24$ mm. (Baker) — (Whistler)

COLOURS OF BARE PARTS. Iris crimson (ad.), brown (imm.), glaucous blue-brown (downy chick). Eyelids plumbeous grey with a red rim. Bill horny green to brownish green; tip of lower mandible yellowish. Legs and feet reddish orange to brick-red.

340. Southern Ruddy Crake. *Porzana fusca zeylonica* (Baker)

Amauornis fuscus zeylonicus Baker, 1927, Bull. Brit. Orn. Cl. 47: 73 (Ceylon)

Baker, FBI Nos. 2017, 2018, Vol. 6: 20

Plate 25, fig. 10, facing p. 160

LOCAL NAMES. *Punchi korowata* (Sinhala); *Kāmān kōzhi* (Tamil); *Chenkōzhi* (Malayalam).

SIZE. Grey Quail ±; length c. 22 cm. (c. 8½ in.).

FIELD CHARACTERS. As for 339, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Resident, and partially migratory in winter. Ceylon, and the Western Ghats strip of country northward at least to Bombay (specimen in BNHS collection) from plains level to c. 2000 metres. In Ceylon, scattered sparingly through all zones (low country and hills up to c. 1200 m.), its numbers augmented in winter by migrants arriving October-November and leaving March-April (Phillips). Affects reeds and brushwood on the edge of jheels, swamps and inundated rice-fields.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the northern race (339).

BREEDING. Season, in both Ceylon and SW. India normally June to September commencing after the break of the SW. monsoon rains. *Nest* and *eggs* as in 339, the latter averaging somewhat smaller — 30.0×22.3 mm. (Baker).

MUSEUM DIAGNOSIS. Differs from the north Indian race (339) only in being smaller. Coloration variable in tone, but size range diagnostic.

MEASUREMENTS

	Wing	Bill (from feathers)
♂ ♀	{ 87-97 (once 99) 90-98	19-20 mm. (Baker) — (Whistler)

COLOURS OF BARE PARTS. As in 339.

Genus *AMAUORNIS* Reichenbach

Amauornis Reichenbach, 1853 (1852), Av. Syst. Nat.: xxi. Type, by original designation, *Gallinula olivacea* Meyen

Differs from *Porzana* and *Gallinula* (pp. 159, 174) in its more rounded wing: 3rd primary (as.) longest; 2nd equal to 5th or 6th; 1st much shorter. Tarsus shorter than middle toe with claw. Bill short, about two-thirds length of tarsus; variable in shape, being rather swollen at the base in some species but not in others.

Key to the Species

		Page
A	Breast white; bill swollen at base	<i>A. phoenicurus</i>
B	Breast dark grey; bill not swollen at base	
	Back rufous-brown	<i>A. bicolor</i>
	Back dark olive	<i>A. akool</i>

341. Elwes's Crake. *Amauornis bicolor* (Walden)

Porzana bicolor Walden, 1872, Ann. and Mag. Nat. Hist. 9(4): 47
(Rungbee, Darjeeling)

Baker, FBI No. 2025, Vol. 6: 26
Plate 25, fig. 7, facing p. 160

LOCAL NAMES. None recorded.

SIZE. Grey Quail ±; length c. 22 cm. (c. 8½ in.).

FIELD CHARACTERS. A quail-like chestnut and slate marsh bird.

Adult. Above, head and neck dark ashy grey; rest of upperparts rufous-brown. Tail black. Below, sides of head pale grey; chin whitish; rest of underparts dark ashy grey. Sexes alike.

Young (immature). ?

STATUS, DISTRIBUTION and HABITAT. Resident. Nepal (?), Sikkim, Bhutan to E. Assam; Khasi and Cachar hills; Manipur. To at least c. 2800 metres in Bhutan (Ludlow), and reportedly to c. 3600 m. in Sikkim (Stevens). Affects patches of jungle in and around rice cultivation, grass-bordered streams, pools or swampy patches in forest, often very dense.

Extralimital. Shan States (Burma), Yunnan, W. Szechuan, N. Vietnam.

GENERAL HABITS, FOOD, VOICE and CALLS. Except that like *Amauornis akool* (342) and other rails it is a great skulker, emerging at the edge of cover in the early mornings and evenings, and scuttling in on the least alarm, very little specifically known. Call unrecorded.

BREEDING. Season, in the Khasi Hills where it breeds freely, mid-May to end August up to c. 1800 metres and possibly higher. Nest, a rough pad of loosely put-together twigs and grass with a slight depression in the centre.

Placed on wet ground in forest undergrowth; sometimes a metre or two up in bushes and trees, once c. 6 metres from the ground recorded by Baker. Eggs, 5 to 7, occasionally 8, handsome and richly coloured, pale cream to pale salmon-pink, boldly blotched with deep red-brown, purplish brown or brick-red, more densely at the broad end, with secondary markings of grey and lavender. A second type of egg is rather feebly marked and resembles those of the Whitebreasted Waterhen (344) q.v. Average size of 80 eggs 33.9×26.1 mm. (Baker). Both sexes share in nest-building and incubation; period unrecorded.

MUSEUM DIAGNOSIS.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	112-119	21-27	37-39	57-60 mm.
		(from feathers)		(Baker)

COLOURS OF BARE PARTS. Iris blood red (ad.); brown (imm.). Bill pale bluish green, tipped paler and greyer; a red patch near base, brighter in breeding season. Legs and feet dull red to bright brick-red.

342. Brown Crake. *Amaurornis akool akool* (Sykes)

Rallus Akool Sykes, 1832, Proc. Zool. Soc. London: 164 (Dukhun)

Baker, FBI No. 2024, Vol. 6: 25

Plate 25, fig. 11, facing p. 160

LOCAL NAMES. None recorded.

SIZE. Grey Partridge — ; length c. 28 cm. (c. 11 in.).

FIELD CHARACTERS. A skulking stub-tailed brown and ashy swamp bird.

Adult. Above, indistinct supercilia and sides of head and neck ashy grey; rest of upperparts, wings and tail dark olive-brown. Below, chin and centre of throat whitish; rest of underparts ashy grey passing into brown posteriorly. Sexes alike; female somewhat smaller.

Young (immature). ?

STATUS, DISTRIBUTION and HABITAT. Resident; possibly also local migrant. Kashmir eastward through Nepal (lowlands and duns to c. 800 m. alt.) to W. Assam (Gauhati); south through the Punjab, Delhi and Gangetic Plain, Gujarat, Maharashtra, Madhya Pradesh and Andhra to southern Mysore. Status on eastern side of the Peninsula south of Orissa unknown; also up to what altitudes it occurs in the peninsular hills. Affects swampy reed-beds, *Pandanus* brakes, herbage lining watercourses, irrigation channels, etc.

Extralimital. SE. China, NE. Indochinese countries, the Philippines (Peters).

GENERAL HABITS. Nothing specifically recorded as different from the typical rails. Largely crepuscular. Shy and secretive. Emerges cautiously at the edge of reed-beds and shrubbery to feed in the early mornings and evenings, walking about with characteristic constant jerks of the stub tail and scuttling into cover with lowered head on the least suspicion. When alarmed will sometimes run to earth under a large stone or in a hole in a bank and remain there for many minutes peering out circumspectly before emerging. Clammers among the reeds and on the broad *Pandanus* leaves with the agility of the Whitebreasted Waterhen. Less difficult to flush than some of its congeners, but an equally feeble flier with legs dangling.

FOOD. Insects and their larvae, molluscs, worms, and seeds of marsh plants.

VOICE and CALLS. As of most rails very imperfectly known. Variously described as 'a short plaintive note heard at daybreak and just before sunset' (Blewitt); 'a shrill rattle-like call' frequently emanating from sugarcane fields (around Poona) attributed to this species by Betham, but not proved; 'a long-drawn-out vibrating whistle, gradually descending a little in the scale' (B. B. Osmaston).

BREEDING. Season, chiefly May to August, varying with locality: March and October (Poona), and September (Gujarat and Sikkim terai) also recorded. Nest, a pad of grass, rush-blades and sticks with a slight depression in the centre, well concealed in raised grass tussocks in or near the edge of a swamp. One nest recorded c. 1·5 metres above ground in a collection of flood-wrack on top of a stunted acacia on a river bank. Eggs, 5 or 6, very like richly coloured eggs of *Rallus aquaticus* (327) — creamy buff to pale salmon-pink sparsely flecked and blotched with pale reddish brown, purple-brown or pale brick-red, the markings somewhat more concentrated at the broad end. Some eggs are less richly marked and resemble those of the Waterhen (344). Average size of 50 eggs 34·9 x 26·5 mm. (Baker). Both sexes take part in incubation; period unrecorded. The birds are close sitters and often betray the nest by running off it like a rat when almost trampled on.

MUSEUM DIAGNOSIS.

Chick (in down). All black.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	114-131	28-33	46-51	54-63 mm.

Females average smaller than males.

(Baker)

Weight ♂♂ 4-6 oz. (c. 114-170 gm.); ♀ ♀ 3·7-4·9 oz. (c. 110-140 gm.) — Hume.

COLOURS OF BARE PARTS. Iris blood red (ad. ♂), brown (imm.). Bill horny green to pale green, bluish at tip. Legs and feet fleshy brown to livid purple.

AMAUORNIS PHOENICURUS (Pennant)

Key to the Subspecies

		Page
A	Smaller; wing 142-160 mm.	<i>A. p. phoenicurus</i>
B	Larger; wing 157-173 mm.	<i>A. p. insularis</i>

343, 344. Indian Whitebreasted Waterhen. *Amaurornis phoenicurus phoenicurus* (Pennant)

Gallinula phoenicurus Pennant, 1769, Indian Zool.: 10, pl. 9 (Ceylon)

Fulica chinensis Boddaert, 1783 Table Pl. enlum.: 54. (China, ex Daubenton, pl. 896,
restricted to Hongkong by Stresemann, 1913, Nov. Zool. 20: 304)

Amaurornis phoenicurus maldivus Phillips & Sims, 1958, Bull. Brit. Orn. Cl. 78:53
(Hulule Island, North Malé Atoll, Maldive Archipelago)

Baker, FBI Nos. 2021, 2022, Vol. 6: 23, 24

Plate 24, fig. 5, facing p. 128

LOCAL NAMES. *Dawāk, Dahāk, Dauk* (Hindi); *Pānpairā* (Bengal); *Kinati* (Uttar Pradesh); *Bān mūrghi* (Bihar); *Jāl mūrghi* (Madhya Pradesh); *Kuku kōmbdi* (Marathi, Bombay); *Davāk* (Gujarati); *Būda kōdi* (Telugu); *Kuraki* (Sind); *Kureyn* (Gond); *Pāni dūboi* (Assam); *Uren Konthou* (Manipur); *Korowakā* (Sinhala); *Kānān kōzhi* (Tamil); *Kula kōzhi* (Malayalam).

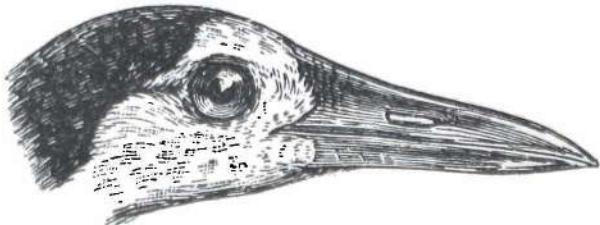
SIZE. Grey Partridge ±; length c. 32 cm. (c. 12½ in.).

FIELD CHARACTERS. A familiar dark slaty grey stub-tailed skulking swamp bird with prominent white facial mask and underparts.

Adult. *Above*, forehead, supercilia, and sides of head pure white; hindneck, crown and rest of upperparts dark slaty grey. *Below*, from chin to vent pure white; sides of breast and flanks slaty grey; posterior flanks, vent, and under tail-coverts rufous. Sexes alike.

Young (immature). White facial mask obscured by slaty-tipped feathers. Upperparts more olive-brown than slaty grey.

For downy chick see Museum Diagnosis.



× c. 1

STATUS, DISTRIBUTION and HABITAT. Resident. Throughout West Pakistan (decreasing in the northwest) and northern India including Nepal (bhabar and duns), Sikkim and Bhutan duars, Assam. South throughout peninsular India, Laccadive (Lakshadweep) and Maldive archipelago, Ceylon (Sri Lanka). Plains and hills up to c. 1500 m. (to 2000 m. in the Nilgiris). Widely dispersed during the rainy season. Affects reedy marshland, edges of inundated rice-fields, rain-filled ponds and roadside ditches, village tanks and their neighbourhood.

Extralimital. Burma, Thailand, S. China, Malay Peninsula south to about the latitude of Malacca, and Cambodia; Formosa (Taiwan) and Hainan.

GENERAL HABITS. Our commonest and most familiar rail; less shy and secretive than most of its tribe. Frequently found in the surroundings of

villages, running about under roadside and boundary hedgerows and shrubbery, even entering rambling compounds and public parks within the limits of populous towns. The stumpy tail is constantly jerked up as the bird saunters about, flashing the chestnut coverts underneath. Clammers up amongst thorny bamboo clumps and shrubs with great agility, especially in the breeding season when it mounts into their tops to command an open view of the surroundings and utter its resounding calls. It does this while remaining partly hidden in the foliage, and withdraws deeper inside or quickly descends to the ground on alarm. Has the typical feeble flight of rails with legs dangling. Swims buoyantly like moorhen.

FOOD. Insects and their larvae, molluscs, worms, seeds and shoots of marsh plants. Among the stomach contents of five specimens analysed at Pusa were found — in addition to vegetable matter such as seeds and roots of water weeds — 169 insects of which 103 were weevils (Curculionidae) of the genus *Myllocerus*, the majority being the species *discolor*. There were also broken pieces of the shells of *Melania tuberculata*, *Corbicula orientalis* and *Unio favidens* (Mason & Lefroy, 1912).

VOICE and CALLS. Bird very silent in the dry season and thus liable to be overlooked. Becomes exceedingly boisterous as soon as the monsoon commences. The calls begin with loud raucous roars, croaks and chuckles and settle down to a monotonous metallic *krr-kwaak-kwaak*, *krr-kwaak-kwaak*, etc. or *kook . . . kook . . . kook* somewhat like the Coppersmith barbet's but louder, higher in pitch and faster in tempo. They are of astonishing volume for the size of the bird, the roars and cackles in particular being, according to E. H. Aitken (EHA), more appropriate to a bear being roasted over a slow fire ! The bird calls throughout the night and also on cloudy overcast days, in unbroken runs of often fifteen minutes or more.

BREEDING. Season, mainly coincident with the SW. monsoon — June-July to October. Nest, a shallow, cup-shaped pad of twigs, creeper stems, and flags of bulrushes. Placed on the ground in tangled undergrowth by the margin of a tank, ditch or inundated rice-field, or concealed in the interior of a shrub or thorny bamboo clump up to 2 or 3 metres from the ground. Sometimes it may be well away from water. Eggs, 6 or 7, rather long smooth ovals, cream or pinkish white, streaked and blotched with some shade of reddish brown. Average size of 100 eggs $40\cdot5 \times 29\cdot7$ mm. (Baker). Breeding males pugnacious, but their battles rather formalized and usually innocuous. Both sexes incubate and tend the young, one parent leading the brood while the other brings up the rear. Newly hatched chicks extraordinarily active, and adepts at diving and dispersing when followed. Incubation period unrecorded.

MUSEUM DIAGNOSIS. There is considerable individual variation in the colour of the underparts, some birds having the grey sides of the breast strongly barred with olive. This character is inconstant and does not justify racial separation.

Chick (in down). Uniformly black, with blackish bill and legs.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
12 ♂♂	148-178	38-42	53-63	59-80 mm.
14 ♀♀	130-168	34-36	52-59	46-71 mm.

Weight 10 ♂ ♀ 152-230 (av. 188.7) gm. — BNHS.

COLOURS OF BARE PARTS. Iris crimson (ad. ♂), brown (imm.). Bill sage green; base of upper mandible red, tip and lower mandible paler and more yellow. Legs and feet dull chrome-yellow or yellowish green.

The descriptions of the **Chinese** and **Ceylonese White-breasted Waterhens**, *Amaurornis phoenicurus chinensis* and *A. p. phoenicurus*, are amalgamated under the name of the **Indian Whitebreasted Waterhen** (No. 343, 344).

345. Andamans Whitebreasted Waterhen. *Amaurornis phoenicurus insularis* Sharpe

Amaurornis insularis Sharpe, 1894, Cat. Bds. Brit. Mus. 23: 162
(Andaman and Nicobar islands)

Amaurornis phoenicurus leucocephalus Abdulali, 1964, JBNHS 61: 412 (Car Nicobar)
Baker, FBI No. 2023, Vol. 6: 25

LOCAL NAMES. *Jængli mürghi* (Andamans); *Takoor* (Car Nicobar).

SIZE. Grey Partridge ±; length c. 32 cm. (c. 12½ in.).

FIELD CHARACTERS. Same as for the North Indian race (343), q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Andaman and Nicobar islands. Affects thick jungle far from water as well as brushwood near streams, and mangrove swamps. Fairly common on volcanic Barren I. (12°18'N., 93°49'E.) despite absence of fresh water.

GENERAL HABITS and FOOD. As of 343.

VOICE and CALLS. Some calls apparently peculiar and distinct. ' Emitting a most extraordinary variety of improbable sounds ' (B. B. Osmaston). Among various other loud and raucous far-carrying calls ' an extraordinary duck-like quack never heard in Ceylon. From this quacking, unseen bird mistaken for some exceptionally noisy duck ' (A. L. Butler).

BREEDING. Season, June-July. Nest, sometimes in thick brushwood, sometimes on the ground in rushes and grass (Osmaston). Eggs, normally 4 in a clutch; occasionally 5 or 6. Average size of 50 eggs $40\cdot8 \times 31\cdot0$ mm. (Baker).

MUSEUM DIAGNOSIS. Larger than 343, darker and blacker in general coloration with very little olive tint. White on forehead more extensive.

MEASUREMENTS. ♂ ♀ Wing 157-173; bill (from feathers) 37-44 mm. (Baker).

COLOURS OF BARE PARTS. As in the Indian races.

[A new race, *A. p. leucocephalus*, has recently been described by Abdulali (1964, JBNHS 61(2): 412) on a single specimen collected by him on Car Nicobar. The characters given for the holotype are: Adult (♀). Whole head and neck white except for irregular grey spots on crown and nape. No olive-green in upper and lower parts. More white on breast than in *insularis*, the white ventral stripe narrower and broken in the middle on anterior abdomen. Six further specimens collected in Car Nicobar since tend to confirm the distinctness of the Nicobar population (Abdulali, H., 1967, ibid. 64(2): 158).]

Genus *GALLICREX* Blyth

Gallicrex Blyth, 1852 (1849), Cat. Eds. Mus. Asiatic. Soc.: 283. Type, by monotypy, *G. cristatus* = *Fulica cinerea* Gmelin

Horny shield on forehead pointed posteriorly; much larger in male than female; in breeding male ending in a fleshy horn-like protuberance. Bill stout, moderately long, about equal to hind toe without claw. All toes long, the middle toe without claw longer than tarsus. Wing rounded: 1st primary (as.) between 6th and 8th in length; 2nd and 4th primaries equal; 3rd slightly the longest. Sexes dimorphic; male much larger than female.

Contains a single species spread over a wide area from India to Japan.

346. **Kora or Watercock.** *Gallicrex cinerea cinerea* (Gmelin)

Fulica cinerea Gmelin, 1789, Syst. Nat. 1(2): 702 (China, ex Latham)

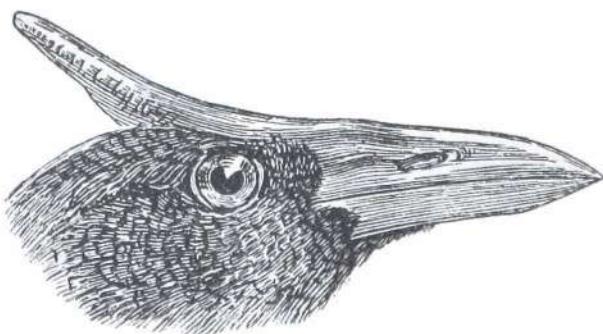
Baker, FBI No. 2027, Vol. 6: 29

Plate 24, fig. 10, facing p. 128

LOCAL NAMES. *Kora*, *Kangra* (Hindi); *Toobka*, *Kora* (Bihar); *Kora*, *Jāl morāg* (Bengal); *Khora sorāi* (Assam); *Utum* (probably from its call — Manipur); *Wil kukkanū* (Sinhala); *Tannir kōzhi* (Tamil); *Thepporikkannān* (Malayalam); *Cooli kükülu* (Maldives).

SIZE. Grey Partridge +. Length ♂ c. 43 cm. (17 in.); ♀ c. 36 cm. (14 in.).

FIELD CHARACTERS. A rail-like swamp bird. Both sexes alike in non-breeding plumage: above, dark brown, broadly scalloped with fulvous;



♂, × c. 1

below, pale buffy brown with fine wavy darker bars. A small triangular yellowish horny shield on forehead. Female considerably smaller.

Male (breeding). Overall black, scalloped with grey. Its most striking features are the bright red fleshy horn (continued backward from the frontal shield) projecting above the crown, and the bright red eyes and legs.

Young (immature). Like female but less barred below.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident in well-watered areas, dispersing widely during the monsoon with the creation of adequate marshy conditions in otherwise low-lying dry localities. All India south of the Himalayas from W. Pakistan (Sind, Punjab) east to Assam and East Pakistan, south through the Peninsula, and Ceylon. Andaman Is., Nicobars, Maldives Archipelago. Affects reedy swamps, low-lying rice and irrigated sugarcane cultivation, rush-bordered channels, ponds, ditches, borrow-pits, etc.

Extralimital. Eastward to S. and E. China, Korea, Japan, south to the Malay Peninsula, Indochina, Sumatra, Java, Borneo, the Philippines and Celebes (Sulawesi).

GENERAL HABITS. Rail-like. Largely crepuscular, keeping to cover during daytime and emerging to feed in the early mornings and evenings, or in cloudy, overcast and drizzly weather. Saunters about with characteristic jerking of tail, never straying far from edge and scuttling into cover on the least alarm. Flight feeble, with rapid flaps, the long legs dangling below. Males highly pugnacious during breeding season indulging in furious and long-sustained battles with rivals, jumping and clawing at each other, trying to get hold of opponent's neck in bill and hold him down. In spite of seeming ferocity, little serious damage usually suffered by the combatants beyond scratches and loss of neck-feathers.

FOOD. Largely vegetarian — seeds and shoots of green crops, wild and cultivated rice, to which latter it may do some local damage; also aquatic insects and their larvae, molluscs, worms, etc.

VOICE and CALLS. Calls of three sorts, all with a remote suggestion of 'booming'. Produced more or less continuously, with a definite rhythm and a few seconds' silence between each series. Posture of bird and sounds produced obviously interdependent. With head up utters a series of 10 to 12 *kok-kok-kok-kok* somewhat like the booming notes of Chestnut Bittern.

Then suddenly lowers head steeply and utters a number of deeper, hollower, metallic notes *utumb-utumb-utumb* (*u* as in 'put') more rapidly than the previous series. (The *utumb* sound is of the volume and quality of a lemon-sized pebble dropped into a deep well.) After 10 or 12 *utumbs* raises head again, uttering maybe 5 or 6 *kluck-kluck-kluck* notes while doing so. With head back in the original position the bird is now ready to begin it all over again. The calling continues thus for half an hour (or more) at a stretch. It is accompanied by a puffing out of the neck and raising of its feathers as in a Bittern (*Botaurus*) booming (K. K. Neelakantan, JBNHS 55: 560-1).

BREEDING. Season, chiefly the monsoon months, June to September. In Ceylon, May and possibly July-August (January-February also recorded); in the Maldives June-July (Phillips). Nest, a large concave or deep cup-shaped pad of sedges, rush-leaves, grass, etc. sometimes domed over with the surrounding substrate to form a bower. Placed in tangled reed-beds in large swamps and jheels, or amongst standing rice plants in an inundated rice-field. Eggs, normal clutch 3 to 6 (sometimes up to 8 and even 9) rather long ovals closely resembling Coot's; from almost white through pale pink or yellowish stone-colour to deep brick-pink, with longitudinal blotches and spots of reddish brown fairly profuse all over but slightly denser at the broad end. Average size of 100 eggs $42\cdot2 \times 31\cdot0$ mm. (Baker). Cock probably monogynous, but not proved. Also not known whether he assists in incubation; period unrecorded.

MUSEUM DIAGNOSIS

Chick (in down). Black above, more brownish below.

MEASUREMENTS

	Wing	Bill (‘culmen’)	Tarsus	Tail
♂♂	211-227	37-38	75-77	77-83 mm.
♀ ♀	172-184	32-34	65-68	65-75 mm. (Baker)

COLOURS OF BARE PARTS. ♂ (breeding). Iris bright red. Bill and shield at base blood red, paling to dusky yellow at tip; 'horn' bright red. Legs and feet dull to bright red. ♀ and non-breeding ♂: Iris yellow or yellowish brown. Bill and small triangle at its base (on forehead) yellowish. Legs and feet dull greenish brown.

MISCELLANEOUS. Highly prized as a fighting bird in Sylhet, East Pakistan, large sums of money being wagered on the mains. Fanciers used to collect the eggs and hatch them with the heat of their own bodies in a half-coconut shell for protection, wrapped in cloth and kept tied against their bellies day and night. Incubation takes about 24 days, during which time the human incubator is constrained to eschew all baths! Whether this practice is still in vogue is not known.

Genus *GALLINULA* Brisson

Gallinula Brisson, 1760, Orn. 1: 50; 6: 2. Type, by tautonymy,

Gallinula Brisson = *Fulica chloropus* Linnaeus

Toes extraordinarily long, fringed with narrow straight-edged lateral membranes (not broad and lobed as in Coot). Middle toe without claw much longer than tarsus. Bill of moderate length, base of culmen continued on forehead as a flat rounded

frontal shield, red in adults; nostrils long and narrow. Second primary (as.) longest, or 2nd and 3rd subequal; 1st primary about equal to 5th or 6th.

Genus widespread in the Old and New Worlds; only a single species within our limits.

347. Indian Moorhen. *Gallinula chloropus indica* Blyth

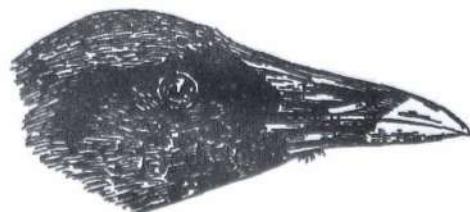
Gallinula chloropus? var. *indicus* Blyth, 1842, Jour. Asiatic Soc. Bengal 11: 887 (Calcutta)
Baker, FBI No. 2026, Vol. 6: 28
Plate 24, fig. 6, facing p. 128

LOCAL NAMES. *Jäl mürghi*, *Pāni mürghi* (Hindi); *Tech* (Kashmiri); *Bodor* (Bihar); *Jäl mürgi*, *Dakab paira* (Bengal); *Jumbu kōdi*, *Bolli kōdi* (Telugu); *Paat üren* or *ürel* (= 'lake waterhen'— Manipur); *Wil kukkulā* (Sinhala); *Tannir kōzhi*, *Kānān kōli* (Tamil); *Pātta kōzhi* (Malayalam); *Jäl kükddi* (Gujarati); *Pān kōmbdi* (Marathi).

SIZE. Grey Partridge ±; length c. 32 cm. (12½ in.).

FIELD CHARACTERS. General effect on land typical of rail; on water that of a small duck.

Adult. Above black, slaty grey and brown with a diagnostic white border to the closed wings. Below slaty grey, paler and whitish on centre of abdomen. Under tail-coverts white with a black central patch. Green bill, bright red frontal shield on forehead, longish green legs with long slender toes are additional pointers. Sexes alike.



x c. 1

Young (immature). Overall more brown less grey, the lower parts much mixed with white. Bill and frontal shield greenish brown.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident and partly winter visitor, when its numbers everywhere get vastly augmented. All India, both Pakistan, Nepal, Ceylon. Chiefly lowlands, but also breeding up to considerable elevations in the outer Himalayas and peninsular hills, e.g. to c. 2400 metres in Kashmir and c. 2000 m. in the Nilgiris. Affects jheels and swamps, with beds of sedges and bulrushes, and tangles of lotus and other floating vegetation interspersed with sheets of open water. Also reed-margined ponds, village tanks, ditches, etc. Shifts locally with water conditions.

Extralimital. Southern Tibet, S. and E. China, Japan, Burma, Thailand, central Malay Peninsula, Cambodia, Hainan (?), Formosa and the Ryukyu Islands.

MIGRATION. No ringing data. In the Kurram Valley, NW. Pakistan (where small numbers breed) recorded as occurring chiefly on spring migration passage in March and April (Whitehead, 1909, *Ibis*: 271). Passes through Chitral in May (Perreau, JBNHS 19: 920). Common only on passage in Gilgit in April and October (Scully, SF 10: 142).

GENERAL HABITS. Keeps in pairs or small parties; after influx of winter migrants in larger congregations, often of 50 or more. Spends most of its time on the water, paddling about amongst the lily pads and other floating

vegetation. Rides high like a duck, its swimming accompanied by rhythmical jerky bobs of the head and upward flicks of the erect tail, flashing the white coverts underneath. This action also characteristic as the bird saunters about with an upright carriage over the floating tangles in search of food. Usually keeps to the edge of reed-beds, withdrawing into them quickly and quietly on alarm. Trusts to its legs and paddling for escape, and flies reluctantly, either clambering up reed stems to launch itself from a height or skittering along the water like a coot to get airborne. Is a seemingly feeble flier with rapidly flapping wings and dangling legs but capable of sustained long-distance migration over high mountains. Creditable diver when hard pressed.

FOOD. Omnivorous: seeds, fruits, and shoots of water-plants, molluscs, insects and their larvae, young frogs and small fish. Sometimes wanders into cultivation away from swamps to feed in the early morning and at dusk, and to some extent nocturnally. For some details see Mukherjee, A. K., 1974, JBNHS 71(2): 194-7.

VOICE AND CALLS. Normally very quiet, only an occasional loud *karuck* announcing its presence in a reed-bed. Noisy when breeding, mostly in the mornings and evenings — a sharp, loud and abrupt *kirrik-krek-rak-rak* constantly uttered. Also a number of softer chuckling notes. 'A cackling "laugh" lower in pitch than the Little Grebe's' (Nicholls). Clucking noises when alerting or commanding chicks: 'Unborn chicks even before breaking the shell understand these calls of their parents, ceasing their subdued chirping the moment they hear the danger call' (R. S. P. Bates, 1952: 295).

BREEDING. Season, in Kashmir (where it is perhaps the commonest water bird and breeds abundantly on the Dal, Anchar, and other lakes) May to August, chiefly June and July; in the Peninsula during the SW. monsoon months July, August, September; in Ceylon March to August. Sometimes two successive broods raised. Nest, a bulky mass of sedges and bulrush leaves placed in a dense reed-bed a few inches above water level; rarely even in a tree near or overhanging water. Eggs, 5 to 12, pale yellowish to warm buff stone-colour, thinly and more or less evenly spattered all over with small blotches of dark reddish brown. Average size of 71 eggs 41.4 x 29.6 mm. (B. B. Osmaston, 1927, JBNHS 32: 146). Both sexes share nest-building, incubation and care of the young; incubation period c. 21 days. The perturbed parents occasionally slap the water with the wings (akin to injury-feigning) in an attempt to draw away the intruder from the brood.

MUSEUM DIAGNOSIS. For details of plumages (and bionomics) of the nominate race see Witherby, 1941, 5: 197-204. *G. a. indica* differs from it only in being somewhat smaller, with a relatively smaller bill.

Chick (in down). Deep grey-black all over.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	152-172	♂ ♂ 38-41 ♀ ♀ 32-35 }	47-50	52-68 mm. (Baker)

Female only slightly smaller than male.

!! ♂ ♀ tarsus 46-50 mm.; middle toe without claw 55-67 mm. (V. C. Ambedkar).

COLOURS OF BARE PARTS. Iris red. Frontal shield and base of bill red, the terminal third greenish yellow. ' Tibia and front of tarsus greenish yellow, hinder part of tarsus and all toes slaty green; an orange ring round the tibia just below the feathered portion ' (Oates).

347a. Malay Moorhen. *Gallinula chloropus orientalis* Horsfield

Gallinula orientalis Horsfield, 1821, Trans. Linn. Soc. London, 13: 195 (Java)

LOCAL NAMES. None recorded.

SIZE AND FIELD CHARACTERS. As of 347. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. A single example collected in March 1964 near Port Blair marks an addition to the avifauna of the Andaman Is. as well as of India. Status not known (Abdulali, JBNHS 61(3): 514-15).

Extralimital. Southern Malay Peninsula, Sumatra, Java, Borneo, Kangean, Bali, Lombok, Sumbawa and Celebes (Sulawesi) — Peters.

GENERAL HABITS, FOOD, VOICE and CALLS. Unrecorded.

BREEDING. Unrecorded.

MUSEUM DIAGNOSIS. Differs from 347 in having the frontal shield wider, extending back on forehead to above the eyes. Plumage somewhat darker, practically the entire upperparts being without any olive-brown tinge.

MEASUREMENTS. Sex? Wing 170; bill (from gape) 30 mm. (Abdulali).

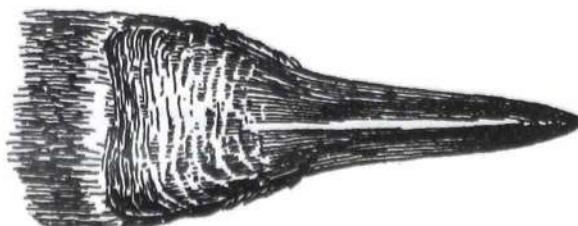
COLOURS OF BARE PARTS. As in 347.

Genus PORPHYRIO Brisson

Porphyrio Brisson, 1760, Orn. 1: 48; 5: 522. Type, by tautonymy,

Porphyrio Brisson = *Fulica porphyrio* Linnaeus

Large moorhens distinguished by blue coloration and by the broad frontal shield covering the whole anterior crown, and truncated posteriorly. Bill deep, short, and compressed. Nostril short, rounded, not placed in a groove. Wing rounded: 1st



From above, $\times c. 1$

primary (as.) equal to 6th or 7th; 2nd, 3rd and 4th longest and subequal. Tarsus and toes very long and powerful. Sexes alike.

Genus represented in Africa, Madagascar, the Mediterranean region, S. Asia, Malay Archipelago to Australia, New Zealand and the Pacific islands. A single species within our limits.

PORPHYRIO PORPHYRIO (Linnaeus)

Key to the Subspecies

Generally larger, particularly tarsus and toes. Tarsus 92 to 97 mm.; middle toe without claw 100 to 104 mm.....*P. p. seistanicus*

Smaller; tarsus 88 to 90 mm.; middle toe without claw 90 to 95 mm. *P. p. poliocephalus*

348. Baluchi Purple Moorhen. *Porphyrio porphyrio seistanicus*
Zarudny & Härm's

Porphyrio poliocephalus seistanicus Zarudny & Härm's, 1911, Jour. f. Orn. 59: 240
(Seistan)

Baker, FBI No. 2028 (part), Vol. 6: 32

LOCAL NAME. *Bistuni* (Persian).

SIZE. Village hen ±; length c. 43 cm. (17 in.).

FIELD CHARACTERS. As for 349, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Resident and partly migratory. West Pakistan, in northern Baluchistan. Birds from c. south of Chagai are closer to the Indian *poliocephalus*. Affects large low-lying reedy swamps.

Extralimital. Shores of the Caspian Sea, Lake of Antioch in Syria, Iraq, E. Iran, W. Turkestan, and Afghanistan. (For details of range see Vaurie, 1965, 2: 358.)

GENERAL HABITS, FOOD, VOICE and CALLS. As in 349.

BREEDING. Nothing specifically recorded as different from 349, q.v.

MUSEUM DIAGNOSIS. Differs from Indian Purple Moorhen (349) in being larger, with stouter bill, larger casque, and larger legs and feet (see Key). No difference in coloration.

MEASUREMENTS. Wing ♂♂ 260-270; ♀♀ 241, 256 mm. (Hartert). Dr C. B. Ticehurst measured birds from Baluchistan: 1 ♂ Wing 269; 2 ♀♀ 258, 268 mm.

Other measurements of 3 ♂♀ in Bombay Nat. Hist. Soc. collection:

Bill (from posterior end of casque to tip)	Tarsus	Middle toe (without claw)
63, 67, 72	85, 97, 102	95, 108, 111 mm.

COLOURS OF BARE PARTS. As in Indian birds.

349. Indian Purple Moorhen. *Porphyrio porphyrio poliocephalus* (Latham)

Gallinula poliocephala Latham, 1801, Index Orn., Suppl.: 68 (India)

Baker, FBI No. 2028, Vol. 6: 32

Plate 24, fig. 2, facing p. 128 and Vol. 1, plate 7

LOCAL NAMES. *Kaim, Kalim, Kharim, Khima* (Hindi); *Kaim, Kām pākhi* (Bengal); *Wān tech* (Kashmir); *Kaim* (Cachar); *Karim, Korma* (N. Bihar); *Kham chordi* or *sordi* (Assam); *Lili jelet kauri* (Sylhet); *Omā* (Manipur); *Nila bolli kōdi* (Telugu); *Neela kōzhi* (Malayalam); *Kitta, Kittale* (Sinhala); *Neel kākkādi* (Gujarati); *Kambala pitts* (S. Konkan).

SIZE. Village hen ±; length c. 43 cm. (17 in.).

FIELD CHARACTERS. A handsome but rather clumsy purplish blue rail with long red legs and enormous toes. The bald red forehead running back from the short heavy red bill, and white patch under the stumpy tail — flashed conspicuously as the bird flicks it up at each step — are additional clues. Sexes alike, but bald forehead (casque) smaller in extent in female.

Young (immature) paler, with frontal shield and bill blackish; legs and feet pale orange-brown.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident and possibly local migrant. West Pakistan from southern Baluchistan (Hingol river area, Las Bela, Sibi) eastward through Assam, Manipur and E. Pakistan, and south throughout the Peninsula: terai and plains. One occurrence in Chitral. Very rare in Kashmir, but a few usually on Anchar and Wular lakes in summer, and doubtless breeding. Andaman and Nicobar Is. Common in Ceylon (low-country Wet and Dry zones). Affects dense reed-beds around large swamps and jheels.

GENERAL HABITS. Usually keeps in parties of 5 to 10; at large swamps sometimes in bigger congregations of up to 50 or more. Stalks through the marshy reed-beds or wades over matted floating vegetation, constantly flicking its stub tail in the typical rail manner, flashing the white patch underneath. Fond of clambering among the reeds working up to the tops in ungainly hand-over-hand style, clinging and balancing itself insecurely on the pliant bending stems. Dozens may frequently be seen thus sunning themselves at the top of a reed-bed on a misty morning. Swims well but is averse to do so unless compelled, preferring to cross even narrow stretches of water by flapping low over the surface with dangling legs; or it will climb up to the tops of the bulrushes and flop across to the other side. Noisy and quarrelsome, especially in the breeding season when the birds are constantly cackling and chasing one another. Not particularly shy except where much harried; then becoming excessively secretive and cunning. Is highly relished as a delicacy by certain classes and often suffers considerable local persecution at their hands. Flight seemingly feeble, attained by laboured wing-beats, but is quite fast once the bird is properly launched: the neck is extended in front, the large ungainly legs and feet trail behind.

FOOD. Mainly seeds, grain and vegetable matter; also insects and molluscs. Recorded flighting in larger numbers to rice-fields in the evenings. Does considerable occasional damage to rice crop not only by cutting the stalks above the roots to eat the tender pith (J.R. Cripps) and the ripening grain, but also by trampling down the plants with its large and heavy feet.

VOICE and CALLS. Has a wide repertoire of noisy hooting, cackling, clucking and hoarse rippling notes. While feeding, a party maintains contact by soft *chuck-chuck* notes. The birds scatter on disturbance and fly off in different directions but soon re-unite with the help of louder rallying *chucks* uttered by the members. One caught by a Tawny Eagle (*Aquila rapax*) 'cried very like domestic fowl caught to be killed' (E. A. Butler).

BREEDING. Season, chiefly during the SW. monsoon, June to September. Also recorded in other months locally, e.g. Andhra, November and February; Mysore, November-December-January; Ceylon, January-May and occasionally July-August. Nest, a large pad of firmly interwoven rush-, paddy-, or grass stems, placed on a floating islet of matted weeds or up to a metre or so above water level among partially submerged bulrushes and reeds. Eggs, 3 to 7, long ovals pale yellowish stone to reddish buff in colour, spotted and blotched with reddish brown. Average size of 100 eggs 50·5 × 35·7 mm. (Baker). Apparently both sexes share in building the nest; period

of incubation and male's participation unknown. The male performs an elaborate though ludicrous courtship display, holding up water-weeds in his bill, facing the female and bowing and showing off before her to the accompaniment of loud chuckles. The components of this display have not been studied.

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

Chick (in down) c. 2 days old. Uniformly black with whitish shafts (excepting at base and tip) on head, wings, and upper back. Bill pale blue (with white egg-tooth), dark cherry-red or magenta at base of both mandibles. Forehead shield indicated only by slight baldness. Forecrown (above this) dark cherry-red or magenta showing through sparse black down. Legs and feet pale pinkish red; eyelids pale magenta. Newly hatched chick active and precocious; conceals itself by sinking beneath the water surface, only keeping the culmen exposed. When separated from parent utters almost incessantly a comparatively loud *peep, peep* like young drongo (SA).

MEASUREMENTS

	Wing	Bill (‘culmen’)	Tarsus	Tail
♂ ♀	244-271	41-49	88-90	82-108 mm.

Weight 6 ♂ ♀ 510-785 (av. 662.5) gm. — BNHS.

Female quite as big as male; and largest measurements above refer in each instance to a female.
(Baker)

Bill (4 ♂♂) from posterior edge of casque to tip 61, 62, 68, 70 mm. Middle toe (without claw) 98, 96, —, 100 mm. (SA).

COLOURS OF BARE PARTS. Iris ♂ deep blood red, ♀ and imm. brown-red. Bill and casque blood red-brown, generally paler at tip more brown at centre of casque and middle of lower mandible. Legs and feet pale dingy red to dull red, browner at the joints; claws dull red, darker at tips.

Genus FULICA Linnaeus

Fulica Linnaeus, 1758, Syst. Nat., ed. 10, 1: 152. Type, by subsequent designation,
Fulica atra Linnaeus (Gray, 1840)

Distinguished from all other Indian rails (Rallidae) by the possession of a broad lobed membrane springing the toes, one to each phalange. Tarsus shorter than middle toe without claw, with a ridge-like membranous fringe behind. Bill of moderate length, rather deep and compressed, the culmen produced posteriorly over forehead in a knob-like flat or horny shield. Sexes alike.

Genus represented in the Old and New Worlds. Only a single species within our limits, resident and partly migratory.

350. Coot. *Fulica atra atra* Linnaeus

Fulica atra Linnaeus, 1758, Syst. Nat., ed. 10, 1: 152 (Europe, restricted type locality Sweden, ex ref. to Fn. Svec.)

Baker, FBI No. 2029, Vol. 6: 34

Plate 24, fig. 8, facing p. 128

LOCAL NAMES. *Dasari, Dasarni, Aari, Khuskul, Thekdri* (Hindi); *Kārandab, Jdl kūkkūt* (Bengal); *Kēsrār, Serār* (Bihar); *Barra godar* (Purnea); *Bolli kōdi* (Telugu); *Kaam, Poonoor* (Marathi); *Aad, Dasādi* (Gujarati); *Kāvpūt, Kolur, Kolru* (Kashmir); *Aari* (Sind); *Kokdi* (Kutch); *Porom, Ngānu porom* (Manipur).

SIZE. Three-quarter grown duck ±; length c. 42 cm. (16 in.).

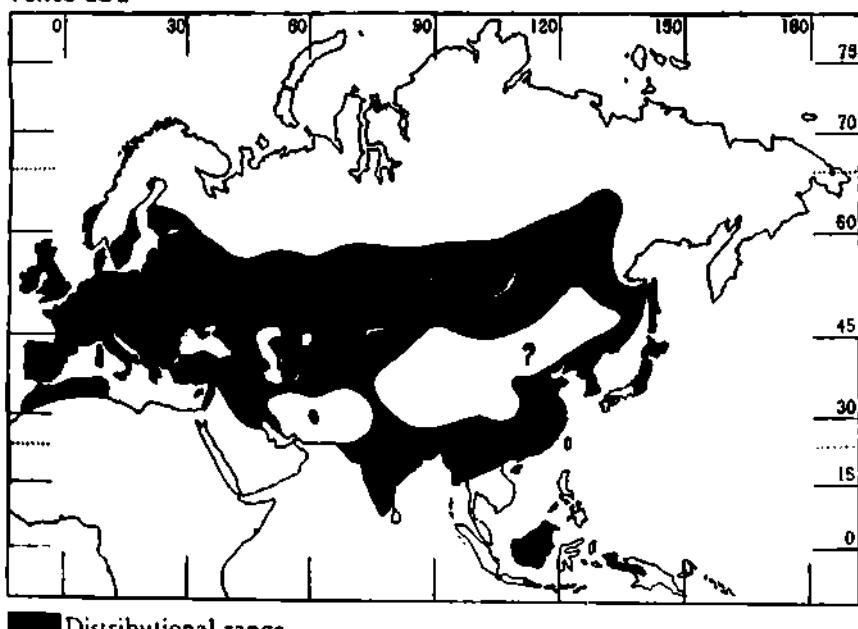
FIELD CHARACTERS. A slaty black, dumpy and practically tailless water bird — rather duck-like when swimming — with stout pointed ivory-white bill and flat, rounded, horny shield covering forehead. Sexes alike.

Young (immature). *Above*, greyish brown. *Below*, paler brown mottled with white.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident as well as common and abundant winter visitor. All India including Assam, both Pakistans, Nepal, Ceylon (uncommon and only recently established). Breeding up to c. 2500 metres locally in the Himalayas — in Kashmir and elsewhere; also in small numbers, widely but somewhat erratically almost throughout the plains. Affects rush-bordered weedy jheels and tanks with expanses of open water. Very abundant in winter, in congregations of tens of thousands on the larger jheels, especially in West Pakistan and northern India.

Fulica atra



■ Distributional range

Extralimital. Breeds over the greater part of Europe and Asia south to N. Africa, Asia Minor, and southern China; Azores; Iceland. Migratory in the northern part of its breeding range and occurring in winter south to the Sudan, Arabia, India, Java, and Celebes (Sulawesi) — Peters; Borneo (Smythies).

MIGRATION. A bird ringed in Indore (c. 23°N., 76°E.) on 12.ii.1929 recovered near Veliko Alekseyevskiy (c. 41°N., 69°E.) in Uzbekistan, U.S.S.R., in March 1929; another ringed at Lake Alakol (c. 47°N., 75°E.) in Kazakhstan, U.S.S.R., in July 1938 recovered near Srinagar, Kashmir (c. 34°N., 75°E.) on 19.ii.1939. The straight-line map distance between the points is c. 2240 and 1600 km. respectively.* A common spring and autumn migrant through Gilgit (Scully). Observed on northward passage through Chaman

(Baluchistan) and Kandahar (S. Afghanistan) in February and March (Ticehurst), and through Chitral in late April and early May (Perreau).

GENERAL HABITS. Gregarious, usually keeping in parties and flocks. In winter, numbers vastly augmented by northern immigrants; then locally in enormous swarms, often blackening large expanses of water. The birds paddle about in great discrete herds or rafts, diving expertly to get at the submerged water-weeds. When disturbed the nearest will merely skitter away towards the centre, half running half flying, and soon flop down to resume the paddling, with the characteristic gentle bobs of the head and neck at each stroke. The patterning din set up by such a close-packed herd at the firing of the first shot on a jheel, or at the stoop of a marauding eagle, is like the roar of the sea, and quite bewildering. Requires a good deal of patterning along the surface to get airborne, but when well under way is capable of strong and sustained flight over long distances and high mountains as shown by its bi-annual migrations. The flight consists of hurried, almost vibrating, flaps of the short blunt wings, neck stretched in front and legs trailing behind the tubby body. Owing to rather feeble flight and rank flavour seldom shot by sophisticated sportsmen. Long after the firing commences in a duck shoot and the more esteemed species such as pintail and gadwall have moved off to other jheels or rocketed high out of gunshot, coots will continue to fly around fussily close above the guns as if fully confident of the immunity they enjoy. Often the birds will merely skitter away into open water to join the other floating herds. They are, however, more highly esteemed as a delicacy than any duck species by the fisherfolk and other lake dwellers. The mounds of coot feathers bestrewing the precincts of fishing villages by the larger jheels in N. India and W. Pakistan (e.g. the Manchar Lake in Sind before the Sukkur Barrage project) testify to their popularity as an article of food, and the vast abundance in which they are killed.¹ Around many such jheels coots form the staple diet of the local inhabitants for several months in the year besides providing remunerative sustenance to professional netters. Large numbers are rounded up by gangs of villagers and killed with sticks when flightless through moult (end June, Baluchistan — Ticehurst; early and mid October, Rajasthan — Sálim Ali). A harried bird will often dive and keep under for inordinately long periods hidden among the weeds, holding on to a stalk with its bill, only the culmen breaking the surface. During the winter months moreover, the birds are subjected to heavy predation by raptors of several species particularly the Ringtailed and Spotted Eagles (*Haliaetus leucoryphus* and *Aquila clanga*). Despite these incessant ravages by man and beast the coot as a species continues to hold its own — an indication of its hardiness and resiliency.

FOOD. Chiefly vegetable matter — shoots and seeds of aquatic plants and wild and cultivated rice. Also worms, insects and molluscs, and occasionally small fish. For some details see Mukherjee, A. K., 1974, JBNHS 71(2): 197-200.

VOICE AND CALLS. Often heard at night — a clear and loud trumpet-like cry. Also a variety of soft chuckling and other abrupt, not unpleasant, sounds.

¹ For some local methods of capture see Sálim Ali, 1927, 'A Sind Lake', JBNHS 32: 460-71.

BREEDING. Non-colonial. *Season*, in Kashmir (where nesting commoner and more regular than elsewhere in our limits) end May to August, chiefly June-July; in N. India till about September; in the Peninsula (more sporadic) chiefly July-August; in S. India November-December. Not yet recorded in Ceylon. *Nest*, a large compact mass of rushes and flags placed amongst reeds, slightly above water-level. *Eggs*, 5 to 12, normally 6 to 10, fine textured, yellowish- or brownish grey in colour, stippled and spotted with reddish brown and purplish black. Average size of 100 Indian eggs 53.1×35.6 mm. (Baker). Birds very quarrelsome and pugnacious when nesting, darting at intruders along the water, neck thrust menacingly forward and closed wings raised over the back as in an angry swan. Both sexes share nest-building, incubation and tending the young; incubation period about 21 days. The claret-headed downy chicks sometimes thrust their bills into parents' gullet to receive food.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for the various plumage phases and structure (also bionomics) Witherby, 1941, 5: 204-8. Pure and partial albinos have been taken in India.

Chick (in down). Top of head bare with the exception of some black hairs; a number of minute red papillae at base of forehead and in front of the eyes to the bill; throat and round the neck orange, rest of plumage blackish blue, mixed on the back with orange hairs and on underparts with grey. Iris dull black; bill red at base, pink in the middle and tipped purplish black (Gordon Dalglish).

MEASUREMENTS

	Wing	Bill (‘ culmen ’)	Tarsus	Tail
♂ ♀	185-220	33-38	56-64	54-63 mm. (Baker)

Weight 20 ♂ ♀ (autumn/winter) 390-800 (av. 540.5) gm. — BNHS.

Witherby gives for British birds ‘Wing 200-225; bill from shield 33-38 mm.’ Sexes more or less equal in size.

Weight 1 lb. to 1 lb. 15 oz. (c. 450-875 gm.) — Scully.

COLOURS OF BARE PARTS. Iris red, red-brown, or blood-red. Bill and shield ivory white, the former tinged with pinkish at base. Legs and feet dull greenish; tibia orange.

Family HELIORNITHIDAE: Finfoots

(For morphological details see Stresemann, 1927-34, Aves: 765-6; Baker, 1929
FBI, 6: 36)

Genus HELIOPAIS Sharpe

Heliopais Sharpe, 1893, Bull. Brit. Orn. Cl. 1: 37. Type, by original designation,
Podica personata G. R. Gray

Bill rather stout, with culmen considerably curved; longer (from gape) than tarsus. No frontal shield as in Coot, but in breeding season a small fleshy horn from base of culmen. Nostril long and narrow, pervious, placed nearly in centre of upper mandible. Tarsus very strong; shorter than middle toe without claw. Toes fringed laterally with a lobed web. Wing rounded: 1st primary (as.) equal to 5th or 6th; 2nd primary (or 2nd and 3rd) longest. Rectrices 18, broad and stiff, slightly graduated, equal in length to about half the wing. Sexes differing slightly.

Contains a single Indomalayan species.

351. Masked Finfoot. *Heliopais personata* (G. R. Gray)

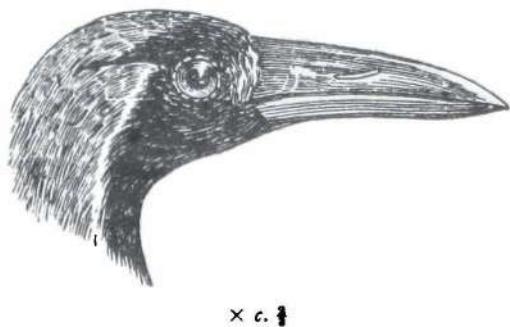
Podica personata G. R. Gray, 1849 (1848), Proc. Zool. Soc. London: 90 (Malacca)
 Baker, FBI No. 2030, Vol. 6: 36
 Plate 24, fig. 9, facing p. 128

LOCAL NAMES. None recorded.

SIZE. Domestic duck ±; length c. 56 cm. (22 in.).

FIELD CHARACTERS. A cormorant-shaped olive-brown and white water bird, with a velvety black facial mask and throat, bordered by a narrow white line. Conspicuous stout orange or yellow bill. On water could be mistaken for a large grebe at first sight.

Female has chin and centre of throat and foreneck white; black forehead narrower.



Young (immature). Like female but without any black on forehead. Black surrounding throat mottled with white.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Rare. East Pakistan, eastern Assam, and probably NE. Manipur. Ideal biotope: inundated depressions in forest with trees, cane brakes

and dense tangled masses of creepers.

Extralimital Burma, Thailand, Malay Peninsula, Sumatra.

GENERAL HABITS. Shy and secretive. Keeps singly or in pairs or trios to dense forest pools and streams. Normally rides high on the water with much of the body above water line. When alarmed sinks low like a darter, finally only with the head and neck showing. Swims with coot-like rhythmic movements of head and neck at each paddle. Dives well on occasion, but whether does so in feeding not known. On land carries body rather upright — at 45 degrees to ground. Runs like rail at great pace, climbing up on shore and retreating into nearest jungle on alarm. Rises off water after patterning along surface for several metres like coot, legs dangling till properly airborne. Flight fairly strong but usually low. Commonly perches on boughs and tree-trunks overhanging water. Other habits not known; probably also similar to those of the African Finfoot, *Podica senegalensis* (Vieillot). (See C. R. S. Pitman, Bull. Brit. Orn. Cl. 82: 156–60.)

Both its flesh and eggs highly relished by locals. Flesh described as 'delicious' by W. Davison.

FOOD. Molluscs, crustaceans, insects, small fish (perhaps also frogs), and vegetable matter.

VOICE and CALLS. A loud grunting quack while settling on water. A rather high-pitched bubbling sound like blowing air through a tube into water, whence its Burmese name *Ye balon* = 'water bubbler' (Hopwood).

BREEDING. Only once recorded within our limits — Assam, July 1904. Season (in Burma) July-August. Nest, a more or less circular pad of twigs,

c. 40 cm. in diameter, with a central depression; placed from a metre to 3 metres in a horizontal branch of a partially submerged tree in dense jungle swamp. Eggs, normally 5 or 6, rather spheroidal, fine textured, highly glossed, reminiscent of some of the bustards'. Ground colour cream faintly tinged pinkish or greenish, with small primary blotches of reddish brown or blackish brown all over (sometimes more numerous at the broader end), and secondary markings of lavender grey. Average size of 44 eggs $52 \cdot 0 \times 43 \cdot 7$ mm. (Baker). Both sexes incubate; incubation period, share of the sexes in nest-building, and other details unknown."

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

Chick (in down). 'Whole chick well covered with down. Upper parts dark grey-brown; dusky white over eye and on cheeks; chin and upper throat whitish, lower throat mixed with grey-brown; breast and belly white; flanks grey-brown.

'Note: The large strong bill, well-marked digital claw as in other rails, long soft downy tail (unlike the Rallidae), and the "finned" feet. The red papillomatous specialized down on the head of *Fulica atra* is not represented in *Heliopais*' (Ticehurst, Bull. BOC. 49 : 65-6).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	248-253	52-56 }	46-51	98-124 mm.
♀ ♀	232-241	41-50 }		(Baker)

COLOURS OF BARE PARTS. Iris dark brown; eyelids pea-green. Bill bright chrome yellow, brownish in the centre. Legs and feet pea-green; edges of lobed webs yellow. Erectile horn or wattle at base of culmen (in breeding male) c. 15 mm. long, bright yellow.

Family OTIDIDAE: Bustards

(For morphological details see Baker, 1929, FBI 6: 59; Witherby, 1940, Handbook 4: 436; Stresemann, E., 1927-34, Aves: 774.)

Key to the Genera

	Page
A A ruff on each side of neck; sexes alike.....	191
B No ruff. Sexes differing in size or breeding plumage or both.....	1
I Wing about four times the length of the tarsus.....	185
Wing two to three times the length of the tarsus.....	a
a Wing in males and females c. 180-248 mm.....	195
Wing in males and females c. 338-368 mm.....	193
Wing in males and females c. 460-762 mm.....	188

Genus OTIS Linnaeus

Otis Linnaeus, 1758, Syst. Nat., ed. 10, 1: 154. Type, by subsequent designation, *Otis tarda* Linnaeus

Tetrax T. Forster, 1817, Syn. Cat. Brit. Bds.: 20. Type, by tautonymy, *Otis tetrax* Linnaeus

Wings ample, rounded; 3rd primary (as.) usually longest. Tarsi equal to about quarter length of wing; together with bare portion of the tibia covered with small scales. Hind toe absent; three front toes short, stout, scutellated above. Bill shorter than head, broader than high at base. No crest or ruff, though in some species the male has long bristly feathers with few and short webs on each side of throat.

Key to the Species

	Page
Length of wing in males c. 595–635 mm.; females c. 455–495 mm... <i>O. tarda</i>	186
Length of wing in males c. 241–256 mm.; females c. 242–260 mm... <i>O. tetraz</i>	187

352. Great Bustard. *Otis tarda dybowskii* Taczanowski

Otis Dybowskii Taczanowski, 1874, Jour. f. Orn. 22: 331 (Dauria)
Baker, FBI No. 2041, Vol. 6: 60

LOCAL NAME. *Deodagh* (Chitral).

SIZE. Vulture +; length c. 102 cm. (c. 40 in.).

FIELD CHARACTERS. A huge ground bird reminiscent of a small ostrich; readily distinguished from Great Indian Bustard (354) even at long range by whitish instead of black crown of head.

Male. *Above*, head and neck pale grey with conspicuous whitish bristly 'moustaches'. Rest of upperparts rufous-buff finely barred with black. *Below*, white with a broad rich chestnut band across breast, sometimes visible only as chestnut patches on sides of upper breast.

Female smaller than male and without chestnut breast-band or moustaches.

In flight — long neck extended forward, legs tucked under tail — the broad rounded wings look very white with contrasting black tips.

STATUS, DISTRIBUTION and HABITAT. Rare vagrant in winter. Has been recorded less than a dozen times in the last 70 years at long intervals, in West Pakistan — Chitral, Peshawar district (Mardan, Risalpur), N. Baluchistan, N. Sind (Jacobabad); all in years of particularly severe winters further north in central Asia. Of the 6 specimens procured within our limits 4 were in Peshawar district. Keeping around and feeding in gram and mustard cultivation.

EXTRALIMITAL. 'Breeds from the southeastern Altai, Transbaikalia and the Amur region south to N. Mongolia, Manchuria, and Ussuriland. Winters in China, Korea, and Japan; casual in N. India' (Peters).

GENERAL HABITS. Closely resembling those of Great Indian Bustard (354), q.v. Keeps in droves of 5 to 15 birds. Usually very wild and shy, flying off at long range. Said to feed and fly in flocks like geese, whereas *Choriotis* feeds widely scattered and flies individually.

FOOD. Mainly vegetable matter — leaves and grain of crops, in NW. Pakistan chiefly gram and mustard. A specimen weighing 17 lb. (c. 8 kg.) had in its gizzard solid vegetable matter weighing 2 lb. (c. 900 gm.). Insects and other small animals also eaten.

VOICE. Very silent in winter; no call recorded in India. During the bizarre nuptial display male utters a deep moan with ludicrously puffed-out throat.

BREEDING. EXTRALIMITAL. EGGS — 2 or 3 — laid on a trampled-down spot amongst crops.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for further details of plumage phases and structure (also bionomics) of the nominate (European) race, Witherby, 1940, 4: 437–41. Our race *dybowskii* differs from it in the adult male having a much paler grey head and neck and more grey (*v.* white) on the wings (coverts).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	595-635	41-47	142-150	210-235 mm.
♀ ♀	455-495	35-40	113-126	178-210 mm. (Baker)

Weights recorded for European birds ad. ♂ ♂ 24-37 lb. (c. 11-17 kg.); ad. ♀ ♀ average c. 15 lb. (c. 7 kg.).

COLOURS OF BARE PARTS. Iris dark brown. Bill plumbeous with black tip. Legs and feet earthy brown or greenish brown; claws black.

MISCELLANEOUS. Apparently like the Snowcock (*Tetraogallus*) emits a disgusting stench soon after being killed.

353. Eastern Little Bustard. *Otis tetrax orientalis* Hartert

Otis tetrax orientalis Hartert, 1916, Nov. Zool. 23: 339, pl. 2

(Sarepta, southern Russia)

Baker, FBI No. 2042, Vol. 6: 62

Plate 26, fig. 8, facing p. 176

LOCAL NAMES. *Chhota tiloor*, *Obāra* (Punjab); *Chārāz* (Baluchi).

SIZE. Country hen; length c. 46 cm. (18 in.).

FIELD CHARACTERS. Superficially reminiscent of the floricans, 356 and 357.

Male (breeding). *Above*, crown and upperparts finely vermiculated sandy buff. Face blue-grey. Neck (all round) black, distinctly patterned like a white loosely hanging necklace with a prominent black-and-white pectoral collar below it. Rest of underparts white.

Male (winter). Above more or less like female with finer vermiculations. *Below*, black crescentic markings on breast ill-defined.

Female. *Above* sandy buff with the head and neck streaked with black and buff. *Below*, chin and throat whitish; breast pale buff irregularly barred with black crescentic markings; rest of underparts white.

STATUS, DISTRIBUTION AND HABITAT. Rather rare but fairly regular winter visitor to northern West Pakistan; frequently taken in Peshawar and adjoining districts. One record from Gilgit and several sporadic ones from Kashmir, the latest in January 1964 (Haigam, Col. H. Nedou). Stragglers have been obtained in Ludhiana and Gurdaspur districts, Punjab, and Saharanpur district, U.P. Status in Baluchistan needs investigating. According to C. B. Ticehurst (JBNHS 34: 481) confusion with some other bustard is implicit in Baker's records of its abundance there. So far only one definite record (specimen) of a straggler from Baluchistan — from Ormara in Makran. Affects open coarse grassland and mustard crops.

EXTRALIMITAL. Breeds in E. Europe and W. Asia from Poland to NE. Kazakhstan, south to Greece, the Black Sea, Transcaspia, and Afghanistan. Migratory in the northern part of its breeding range to winter quarters in Syria, Iraq, and NW. India.

GENERAL HABITS. Usually keeps in small parties of 3 or 4, sometimes up to a dozen birds. Lies close in cover, but when flushed is easy to shoot. More highly esteemed as quarry for trained Saker or Charagh falcon and often hunted thus. Called 'Butterfly Houbara' from its peculiar vagaries

in flight which is otherwise strong and direct attained by very rapid wing-beats and reminiscent of both partridge and florican. The bird often rises to a height and turns and twists erratically before resuming a straight course. The noise produced by its quick movement through the air is likened by one observer (Willoughby Verner, Spain) to 'a sibilant see-see-see-see suggestive of steam from a railway engine as it gets under way'.

FOOD. Chiefly vegetarian: shoots, leaves and grain. Also insects and small animals.

VOICE AND CALLS. Very silent. None recorded in India.

BREEDING. Extralimital. *Season*, May to July. *Nest* a scanty pad of grass amidst crops. *Eggs* 3 or 4.



Fourth primary (as.) of adult ♂ showing emarginations

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumage phases and structure (also bionomics) Witherby, 1940, 4: 441-4; Hartert, 1916, *Novitates Zoologicae* 23: 337-9.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	247 (two 241)-257	22-25 (14 measured)	64-70	91-108 mm.
♀ ♀	242-260	—	—	—

(Witherby)

Weight of Indian-collected specimens 1½ to 2 lb. (c. 600-900 gm.).

COLOURS OF BARE PARTS. Iris light yellow to orange, browner in young. Bill blackish, tinged with grey or greenish horny; greenish or yellowish at base. Legs and feet yellow or greenish yellow to yellowish brown.

Genus CHORIOTIS G. R. Gray

Choriotis 'Pr. B.' = G. R. Gray, 1855, Cat. Gen. Subgen. Bd. 109. Type, by original designation, *Otis arabs* Linnaeus

Distinguished from all other Indian genera of Otididae by its great size, black-crested head, and lengthened feathering of the throat and foreneck. Bill and legs comparatively longer than in *Otis*. Wings broad, very long and pointed.

Male much larger than female. Only a single species confined to peninsular India with its nearest congener in Australia.

354. Great Indian Bustard. *Choriotis nigriceps* (Vigors)

Otis nigriceps Vigors, 1831 (2 March), 1830-31, Proc. Zool. Soc. London: 35 (Himalayas = Foothills of NW. India *vide* Ticehurst, 1930, J. Bom. nat. Hist. Soc. 34: 482-3)

Baker, FBI No. 2043, Vol. 6: 64

Plate 26, fig. 6, facing p. 176

LOCAL NAMES. *Sohān*, *Gughunbher*, *Hükna* (Hindi); *Tuqdār*, *Gurayin* (Punjab); *Godawan* pronounced *Godaan* (Jaisalmer, Rajasthan); *Gurāhna*, *Garumba* (Sind);

Gūdād (Kutch); *Ghōrār* (Gujarati); *Hūm* (Marathi); *Serailu, Bherār* (Madhya Pradesh); *Mardhōnk, Maldhōnk, Karadhōnk, Karlunk* (Deccan); *Heri hākki, Arkujina hākki, Yere-laddu* (Kannada); *Bat meka or Bat myaka* (Telugu); *Kanal myle* (Tamil = 'mirage peacock'), and variants.

SIZE. Vulture +; standing over a metre to top of head. Length ♂ c. 122 cm. (48 in.); ♀ c. 92 cm. (37 in.).

FIELD CHARACTERS. A huge ground bird reminiscent of a small ostrich. Horizontal carriage of body and stout bare legs characteristic.

Male. *Above*, deep sandy buff finely vermiculated with black. Crown of head black and crested. *Below* white, with a black band or gorget across lower breast.

In flight the large size, white neck stretched in front with contrasting black cap on head, white underparts with dark breast-band, and large whitish patches near tips of the broad wings make its identity unmistakable.

Female similar but much smaller, with the white of head and neck less pure, more vermiculated with black. Pectoral band absent or merely indicated on the sides; occasionally fairly complete.

Young (immature) male differs from female in having buff spots on the crown, hindneck, and upper back.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident and seasonally nomadic, dispersing widely in monsoon with creation of grasslands. Once (c. century ago) ranged from the present Pakistan (Sind, Punjab) east to W. Bengal and Orissa, and southward through the Peninsula to southern Madras (Tiruchirapalli). Distribution now much constricted and numbers dwindling due to human population-pressure — encroachment on its habitats by cultivation, plus direct persecution. Presently rare or absent over much of its former range, but still not uncommon in remote areas of Rajasthan, e.g. Jaisalmer. Casually or regularly seen, and also breeding in small numbers, in parts of Gujarat (Saurashtra, Kutch), and Deccan (Ahmednagar district), sporadically south to Mysore. Affects wide open spaces of scanty grassland interspersed with scrub and cultivation in more or less semi-desert country.

GENERAL HABITS. Normally met with in scattered pairs, or parties of 5 or 6, but droves of up to 25 or 30 not unknown; largest recorded 34. Excessively shy and wary; can seldom be approached within gunshot except by subterfuge — in a bullock-cart or on or behind a camel to which the birds have become inured. However, surprisingly, and foolishly, unperturbed by noise and rattle of jeeps which now largely responsible for its rapid decimation by poachers. Runs at great speed and prefers to squat and freeze behind a bush rather than fly away. Takes a few steps before rising in air; with favourable wind almost straight off the ground. Flight rather vulture-like, with deliberate rhythmical strokes of the huge wings, never very high above ground, but often sustained for many miles before realighting.

FOOD. Omnivorous. Grain (whole ears of barley recorded) and tender shoots of various crop plants of which mustard is a favourite. Drupes and berries, e.g. *Zizyphus* and *Carissa*. Also locusts, grasshoppers, beetles (Cantharidae, Scarabidae and Buprestidae); at certain seasons largely the green

blister beetle (*Cantharis tenuicollis*), which often taints its flesh. Lizards, centipedes and snakes (one 2 ft long, and a poisonous phoorsa — *Echis carinata*) likewise recorded. Pebbles usually found in stomachs (stones of 1 inch and 1½ in. recorded), and once a complete egg of quail (*Coturnix*).

VOICE AND CALLS. Usual alarm call, a bark or bellow something like *hook*, whence one of its local names *Hookna* (Gwalior). In nuptial display a deep booming moan audible up to 500 metres away.

BREEDING. Season, principally between March and September; locally also in other months. Nest, a shallow depression in the ground at the base of a bush in grass-and-scrub country, sometimes sparsely lined with grass. Eggs, normally a singleton, very rarely two, drab or pale olive-brown in ground colour, faintly blotched with deep brown. Average size of 88 eggs 79·4 × 59·6 mm. (Baker). Polygynous, each cock having 3 to 5 hens. Nuptial display of cock, given from some slight eminence or mound, consists of strutting and posturing and inflating the special gular sac (with opening under the tongue) to grotesque proportions so that it stretches all down the throat protruding below like a wobbling bag between the legs. The tail is erected well over the back and moved quickly up and down. Sometimes performed when there is no hen in the vicinity; when there is one she usually seems quite uninterested. The sequences leading to copulation have not been observed. Incubation by hen alone; period unrecorded.

(For details of the fantastic and extravagant nuptial display see Hume & Marshall, 1879, *Game Birds of India, Burmah, and Ceylon* 1: 9–10; Dharmakumarsinhji, R. S., 1962, 'Display, Posturing and Behaviour of the Great Indian Bustard *Choriotis nigriceps* (Vigors)', *Proc. 2nd All-India Congr. Zool.* (1962), pt. 2: 277–83.)

Eggs suffer great destruction from marauding House Crows. On approach of an enemy the hen indulges in a distraction display, flying about zigzag with legs dangling (Dharmakumarsinhji).

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

Chick (in down). Above buff, with black marks on head and back. Below, buffy white.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	614–762	c. 85–95	c. 190–208	— mm.
♀ ♀	460–540	—	—	—
I ad. ♀	564	88 (from skull)	162	250 mm. (SA)
(Kutch)				

Weight ♂ ♂ 18–32 lb. (c. 8–14·5 kg.); ♀ ♀ 8–15 lb. (c. 3·50–6·75 kg.) — Various authors.

Crest feathers c. 5 cm. long; less developed in ♀.

COLOURS OF BARE PARTS. Iris pale to bright yellow. Eyelids (unfeathered) cream colour. Bill greyish white to greyish brown, blackish at tip and base of upper mandible, yellowish on lower. Legs and feet yellowish cream, greyish white, or pale plumbeous.

MISCELLANEOUS. In his *Memoirs* the Mogul emperor Babur comments on the savouriness of its flesh thus: 'The flesh of the leg of some fowls, and

of the breast of others is excellent; the flesh of every part of the *Kharchat* is delicious' (Sálim Ali, 1927, JBNHS 32: 60). This is precisely the reason for the present-day deteriorating status of the bird, and unless effective practical measures are taken for its preservation, the species is in real danger of early extinction; this despite the total official ban on its killing and the taking of its eggs. In the defunct *Oriental Sporting Magazine* a writer proudly signing himself 'Lover of all Sports' claimed that in the 20 years between 1809 and 1829 he shot no less than 961 Great Indian Bustards in the neighbourhood of Ahmadnagar in the Deccan — an indication of their abundance in those days.

A pure albino among a flock of 9, glistening white 'like an egret', recorded from Kutch (M. K. S. Vijayarajji, 1926, JBNHS 31: 526).

Genus CHLAMYDOTIS Lesson

Chlamydotis Lesson, 1839, Rev. Zool.: 47. Type, by monotypy, *Otis houbara* Desfontaines = *Psophia undulata* Jacquin

Separable from all other genera of Otididae by the presence of a curious crest of isolated feathers thinly webbed at the base. A ruff on either side of neck; feathers of lower neck lengthened, overhanging breast. Sexes alike; female somewhat smaller.

Contains a single species with two races, the nominate N. African, and the other central Asian wintering in NW. India.

355. Houbara Bustard. *Chlamydotis undulata macqueenii* (J. E. Gray)

Otis Macqueenii J. E. Gray, 1832, in Hardwicke's Ill. Indian Zool. 2(12): pl. 47 (Himalayas = foothills of NW. India *vide* Ticehurst, 1930, J. Bom. nat. Hist. Soc. 34: 482)

Baker, FBI No. 2044, Vol. 6: 67

Plate 26, fig. 7, facing p. 176

LOCAL NAMES. *Tiloor, Hobāra, Obāra* (Punjab); *Taloor* (Sind); *Tilōr* (Rajasthan); *Sīārā tiloor* (Kutch); *Chārz, Chārās* (Baluchi); *Sārā, Sārē* (Pushtu).

SIZE. Domestic hen +; standing c. 60 cm. (2 ft) to top of head. Length ♂ c. 73 cm. (29 in.); ♀ 66 cm. (26 in.).

FIELD CHARACTERS. Superficially a smaller edition of the Great Indian Bustard, also with longish bare legs and horizontal carriage of body.

Male. *Above*, sandy buff, pencilled, vermiculated and splodged with blackish. A short black-and-white crest, a ruff of black-and-white feathers on each side of neck, and a tuft of greyish plumes from lower throat overhanging the breast. *Below*, white, barred with blackish on flanks.

Female. Somewhat smaller with ruff and neck-plumes less developed.

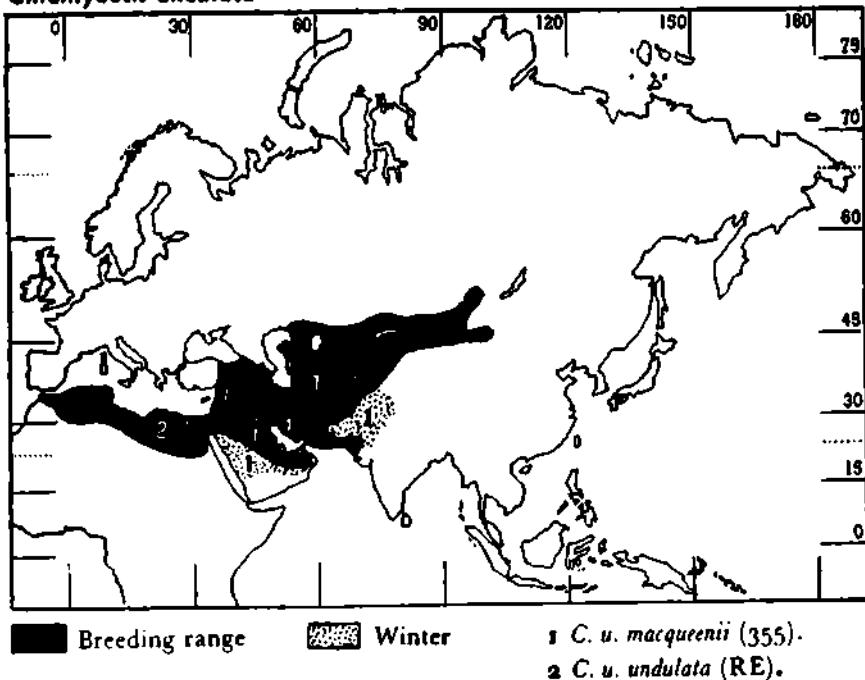
Young (immature). Differs from female in having numerous sandy-coloured arrowhead markings on upper plumage, smaller crest and ruff.

In flight, with neck outstretched, the white underparts and the round white patches near the blackish wing-tips are prominent.

STATUS, DISTRIBUTION and HABITAT. Breeds in small numbers in Baluchistan (Makran). Common winter visitor to the rest of West Pakistan (Sind, Punjab) straggling east to Delhi. Southward through Rajasthan and N. Gujarat (Banaskanta, Kutch, NW. Saurashtra). Abundance varying locally.

from year to year. Affects open hummocky semi-desert country with sand-dunes and flat salt-encrusted plains or *pats*, sparsely dotted with xerophytic bushes (e.g. *Capparis*, *Salvadora*, *Suaeda*, *Salsola*) interspersed with mustard fields and other winter cultivation around the far-flung desert canal colonies. In Kutch and Saurashtra in the sandy undulating grassland along the edge of the Rann, and among the coastal sand-dunes covered with *khip* (*Leptadenia spartium*) and similar vegetation; in riverain Punjab in low sparse tamarisk scrub on the sandy flood plains flanking rivers.

Chlamydotis undulata



Extralimital. Breeds from the Syrian desert, SE. Transcaucasia, and Transcaspia, north to about lat. 51° in Turgai and Turkestan, east to Zaissan Nor, south to the Sinai Peninsula, Arabia, E. Persia, and Baluchistan. Winters chiefly in Palestine, Arabia, NW. India, and Egypt (Peters).

MIGRATION. No ringing data. Passes through the Quetta area of Baluchistan on spring migration from end of March and in April. Then in large numbers on the plains between Pishin and Khwaja Amran (where 4 guns have shot 60 birds in a day at this season — Meinertzhangen). Passes through again in autumn (Ticehurst). Fairly plentiful on spring migration in March in the Kohat and Kurram valleys, NW. Pakistan (Whitehead). In the Sirsa area of the Punjab c. 29°N., 75°E. 'a few birds began arriving in September, but were not plentiful till December' (Heath).

GENERAL HABITS. Similar to 354, q.v. Excessively wild and unapproachable on foot, especially on a cloudy windy day. Normal method of shooting it is from camel back or from behind a good stalking camel which is walked round the bird in ever-narrowing circles. When closely approached thus, the bird squats, sometimes behind an absurdly diminutive bush, often on

the open sand with no protection at all. It lies doggo here with neck outstretched flat in front, the unblinking yellow eye closely following the intruder's movements. The bird's contours and coloration blend so perfectly with the substrate that special effort is needed to pick it out, even at 15 metres distance, even knowing all the time that it is there! In Kutch the nature of the coastal sand-dunes lends itself to the birds being driven over the guns by a line of beaters, and good sport can sometimes be had. The flight, seemingly heavy with slow wing-beats, is in fact considerably swifter than it appears. But the Houbara provides best sport when hunted with trained falcons, particularly the Cherrug (*F. cherrug*) and the Peregrine (*F. peregrinus*) as is still quite popular in NW. Pakistan. When chased by the falcon the bird constantly tries to spiral upwards to avert a stoop from above. If successful it is said to squirt a gummy liquid (anal) on to its pursuer, clogging its wings and sometimes causing it to fall to the ground like a stone.

FOOD. Omnivorous, but largely vegetarian: young shoots of wheat, mustard and other oilseed crops, flowers of various ground weeds, drupes and berries of bushes such as *Zizyphus jujuba* and *Grewia populifolia*. Also insects: black ants, termites, locusts and grasshoppers, and beetles (*Tenebrionidae*, *Scarabidae*, *Cantharidae* and others). Rarely centipedes, lizards, and small snakes as well.

VOICE AND CALLS. Very silent. None recorded.

BREEDING. Chiefly extralimital; in small numbers in Baluchistan (Makran). Nowhere else authentically reported within our boundaries. Nest, a bare depression in the sand or amongst stones in desert, under shelter of a small bush or grass tussock. Eggs, 3 or 4 brownish stone colour, tinged with olive and blotched and spotted with umber-brown and pale secondary markings. Average size of 140 eggs $62 \cdot 3 \times 45 \cdot 1$ mm. (FBI).

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for further information (plumage phases, structure, bionomics, etc.) Witherby, 1940, 4: 446-9.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	363-411	34-38	c. 125	216-241 mm.
♀ ♀	342-381	30-34	—	—
♂♂	383-430	35-42	93-102	185-205 mm. (Baker)
♀ ♀	345-380	32-36	—	— (Witherby)

Middle toe 42-51 mm. (Baker).

Weight ♂♂ 4 lb. to 5 lb. 4 oz. (c. 1.80-2.40 kg.); ♀ ♀ 2 lb. 10 oz. to 3 lb. 12 oz. (c. 1.20-1.70 kg.)—Hume.

COLOURS OF BARE PARTS. Iris pale to bright golden yellow. Bill: upper mandible blackish, lower mandible and gape greenish or yellowish horn. Legs and feet greenish, plumbeous, or brownish yellow.

Genus *EUPODOTIS* Lesson

Eupodotis Lesson, 1839, Rev. Zool.: 47. Type, by subsequent designation, *Otis rhoa*

Rüppell not Gmelin = *Otis senegalensis* Vieillot

Very like the next genus, *Syphocotides*, differing from it only in that the adult male does not have a non-breeding or 'eclipse' plumage, retaining sexual dimorphism throughout the year. Represented in our area by a single Indochinese species.

356. **Bengal Florican.** *Eupodotis bengalensis* (Gmelin)

Otis bengalensis Gmelin, 1789, Syst. Nat. 1(2): 724 (Bengal)

Baker, FBI No. 2046, Vol. 6: 71

Plate 26, fig. 10, facing p. 176

LOCAL NAMES. *Chārās, Chārg, Chārāt* (Hindi); *Dāhār* (Bengal); *Āblāk ♂, Bor ♀* (Terai); *Ūlū moira* (= peacock of the ūlū grass. Nowgong, Assam); *Daō tiriling* (Cachar).

SIZE. Domestic hen +; standing c. 55 cm. (c. 2 ft) to top of head. Length ♂ c. 66 cm. (26 in.); ♀ slightly larger.

FIELD CHARACTERS. A typical bustard with longish bare legs and horizontal carriage of body.

Male. Moppy crested head, neck, and underparts velvety jet black. Back buffy brown, heavily mottled and vermiculated and with bold black arrowhead marks. A bunch of elongated plumes overhanging breast. Exposed parts of closed wings showing up as a glistening white patch. In flight large size, outstretched neck, legs tucked under body, and conspicuous black-and-white (or pied) plumage make its identity unmistakable.

Female and ♂ in first plumage. Overall rufous-buff and sandy-buff, mottled with black on back and with bold arrowhead marks. No white patch on wings. Crown of head dark brown with a bold buff coronal streak or 'centre parting'.

Young (immature) males, *vide* Baker, assume the adult or a semi-adult plumage at the first spring moult, but often revert to the juvenile plumage the following autumn. Once fully acquired (presumably at the second spring moult) the adult ♂ plumage is retained in all seasons.

STATUS, DISTRIBUTION and HABITAT. Resident. Assam, East Pakistan, duars and terai of Bhutan, Bengal, Nepal, and Kumaon (Uttar Pradesh), west to about the Jumna (Yamuna) river. Commonest in Assam Valley from about the Mishmis east of Sadiya westward to the Manas river, chiefly north of Brahmaputra in the extensive grassland and *chaus* going right into the Bhutan and NEFA foothills. Rare south of Brahmaputra Valley; stragglers obtained in Tippera and Chittagong; absent in Manipur. Less common, rare, or a straggler west of the Manas in Nepal and Kumaon terai. Affects tall grassland interspersed with scattered scrub and bushes, especially where grazed down to about half-metre height or regenerating after the seasonal firing.

GENERAL HABITS. Unlike bustards of the genus *Otis*, not gregarious. Keeps in widely spaced solos, sometimes 4 to 8 birds thus in a restricted vicinity. Feeds out in fairly open short grassland or burnt patches in the early morning and evening, retiring into thicker cover as the morning advances. The sexes also keep more or less segregated, males and females usually to different patches. Very wary in open country, but in tall concealing grass lies low and flushes only when within a few metres. Flies long distances at grass-top height when flushed and runs on speedily upon alighting so that the bird has moved a long way off by the time the observer reaches the spot. Flight like other bustards', by rhythmic strokes of the broad wings, neck outstretched and legs and feet tucked under body — not trailing behind as in a stork or crane.

FOOD. Omnivorous; largely vegetarian: shoots and flowers of mustard and other oilseeds and crops, succulent grasses, seeds, berries, wild cardamom. Among insects chiefly locusts, grasshoppers, beetles, ants. Occasionally takes lizards and small snakes. A good deal of gravel usually found in stomachs.

VOICE AND CALLS. Normally very silent. When startled a shrill metallic chik-chik-chik. Ordinary note same, but softer and more plaintive.

BREEDING. Season, in Assam March to June, chiefly late March and early April; elsewhere June-July-August recorded. Nest, a slight depression on the ground in the vast expanses of grassland along the Himalayan foothills. Nests very difficult to find as incubating female runs off through the rootstocks, flying only when a long way away. Eggs, almost invariably 2, smooth, glossy, regular ovals, olive-green with small and large blotches of purple and purple-brown and a few secondary markings of pale purplish grey. Average size of 100 eggs $64 \cdot 3 \times 45 \cdot 8$ mm. (Baker). Incubation by female alone; period c. 30 days. On circumstantial evidence male promiscuous, attracting individual ready-to-breed females by his extravagant display. He springs up vertically 8 or 10 metres above the grass-tops with a little croak and a peculiar deep humming, hovering on extended quivering wings, and floats down perpendicularly to the same spot, repeating the manoeuvre every little while. Courts approaching female in the manner of a turkey cock, raising and spreading tail, trailing wings on ground, and humming as before. (Mechanics of this sound unknown.) After copulation he apparently takes no further interest in raising a family.

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

Chick (in down). Above and below warm rufous-buff. Crown rufous mixed with rufescent brown and bordered by a stripe of the same colour from each side, meeting behind at the nape and continuing partly down the back of the neck; ear-coverts bordered with rufescent brown; back and wings mixed rufous-buff and rufescent brown; a patch of rufous bordered by rufescent brown from lower neck to breast and a patch of rufescent brown on each side of the breast; thighs with three broad rufescent brown bands on outer side. Iris hazel brown (C. M. Inglis, JBNHS 28: 1134).

MEASUREMENTS. ♂♀ Wing 338-368; Bill (from feathers) 38-39 mm. (Baker).

Tarsus c. 165; Tail c. 190 mm. Female only slightly larger than male but usually heavier. Weight ♂♀ 4 to 5 lb. (1.80-2.25 kg.).

COLOURS OF BARE PARTS. Iris yellow or brown. Bill dark horny or plumbeous brown, yellowish on lower mandible and at gape. Legs and feet straw-yellow, sometimes tinged with green or plumbeous, or paler and dingier.

Genus *SYMPHOTIDES* Lesson

Symphtides Lesson, 1839, Rev. Zool.: 47. Type, by subsequent designation,
Otis aurita Latham = *Otis indica* J. F. Miller

Differs from *Otis* and *Chlamydota* in its comparatively longer tarsus equal to about one-third length of wing. Primaries very attenuated; notched on inner web. Unlike *Eupodotis*, male has a seasonal female-like non-breeding or eclipse plumage, but separation of the genus on this character alone inconsistent with other similar cases and seems doubtfully necessary.

Has only a single species confined to the Indian subregion.

357. **Leekh or Lesser Florican.** *Syphoetides indica* (J. F. Miller)*Otis indica* J. F. Miller, 1782, Icon. Anim., pl. 33 (India)

Baker, FBI No. 2045, Vol. 6: 69

Plate 26, fig. 9, facing p. 176

LOCAL NAMES. *Leekh, Chhota chārāz, Bārsāti or Kālā chārāz or tūgdār* (Hindi); *Chhota dāhār, Likh* (Bengal); *Khār mōr* (Gujarat); *Tiloor* (Kutch); *Khār mār* = grass peacock, *Tānmūr* (Sind); *Khār teetār* (Bhil); *Chini mōr* (Belgaum); *Kannoul* (Kannada); *Niala nimli* (Telugu); *Warragu kōzhi* (Tamil); *Chātta kōzhi* (Malayalam).

SIZE. Domestic hen. Length ♂ c. 46 cm. (18 in.); ♀ c. 51 cm. (20 in.).

FIELD CHARACTERS. A small bustard with the typically longish bare legs and horizontal carriage of body.

Male (breeding). Chiefly black-and-white with a tuft of narrow spatulate-ended upcurving black plumes projecting behind the head, three on either side.

Male (winter: non-breeding). Similar to female, but with much white on wing.

Female. Overall sandy buff, mottled and with blackish arrowhead marks on back. Two parallel blackish stripes down centre of throat and



♀, × c. 1

foreneck. Forehead and crown black with a pale median stripe or 'centre parting'. No head plumes. Slightly larger than male.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; irregular local migrant, and also nomadic in the rainy season (SW. monsoon). W. Pakistan (coastal Makran, southern Sind), Punjab, Rajasthan, Gujarat (including Saurashtra and Kutch), south through the Peninsula to Mysore and Madras; straggler to Kerala. Wandering erratically eastward through Uttar Pradesh, Nepal (Valley? and terai), Bihar, Orissa, W. Bengal to slightly east of Teesta river in Bhutan duars (c. 89°E.). Rare in the coastal strip between the Western Ghats and the sea. Affects tall grassland with scattered bushes, and standing crops of cotton and millets; chiefly plains, but a vagrant has been obtained in the Nilgiris at c. 1000 metres.

MIGRATION (local). Of about 500 males in breeding plumage ringed by Raol Shri Dharmakumarsinhji in the erstwhile Bhavnagar State of Gujarat in seven successive seasons (between 1943 and 1949), 18 have so far been recovered. Ten of these were in the same area where ringed, the others mostly well within a radius of 50 kilometres. The recoveries were all in subsequent breeding seasons, of birds that had presumably returned to breed; they ranged from one to four years after ringing. No recoveries have been reported in the non-breeding season, or from peninsular India whence

the birds are believed to be derived (excepting one of a male from Baroda), therefore the off-season migratory movements still remain obscure.

From his observational data Dharmakumarsinhji suggests that the majority of breeding birds in Saurashtra and Kutch are immigrants from peninsular India. They arrive on the south-east coast of Saurashtra from the direction of Gujarat and Bombay across the Gulf of Cambay (flying individually, not in flocks) from the end of May to August depending upon the timing and intensity of the SW. monsoon, returning in the same south-easterly direction about October/November, the males apparently leaving before the females.

GENERAL HABITS. Broadly similar to 356, q.v. Much less shy and wild than other bustards or Bengal Florican. When flushed usually flies a considerable distance, running on immediately upon alighting and difficult to flush a second time. Wing-beats more rapid than other bustards' and reminiscent of Redwattled Lapwing. Capable of astonishing turn of speed when flushed by beaters and chased by trained 'waiting on' Peregrine or Cherrug falcon. Normally relies for safety chiefly on lying low and running through cover.

FOOD. Insects of all kinds, mainly grasshoppers (Acrididae), beetles (Cantharidae, Chrysomelidae, Buprestidae, Scarabidae); sometimes centipedes, lizards, and frogs. Also takes vegetable matter: shoots of crops, grass and herbs, seeds, drupes and berries, e.g. *Zizyphus*. At certain seasons feeds very largely on blister beetles (*Mylabris*), tainting the flesh which is otherwise highly esteemed as a table delicacy. Insects secured on ground and on grasses by jabbing at them with pointed bill like cattle egret, or leaping up in the air to snap at such as a flying grasshopper.

VOICE AND CALLS. A characteristic harsh frog-like croak emitted by male during his jumping display; sometimes from the ground. Also 'a short whistle-like call when frightened' (Dharmakumarsinhji). A low chuckle constantly uttered while feeding. Croak of female similar but distinctive. Another ♀ call, *peeo*, apparently meant to attract attention of male.

BREEDING. Season, chiefly July, August, and September as soon as sufficient grass cover becomes available in otherwise dry areas. Disperses to breed over vast tracts of country in years of good rainfall. No special nest. Eggs normally 4, sometimes 3 or 5, laid on the bare ground often even without any depression, in some bare patch of short grass or in crops. Colour: some shade of olive-brown, variously mottled, streaked and blotched with brown. Average size of 57 eggs 49.1×41.3 mm. (Baker). Incubation by hen alone; period unrecorded. On circumstantial evidence male promiscuous, like Bengal Florican, attracting individual ready-to-breed females by his well-known springing display, mating with them, and taking no further interest in raising the family. The attraction or advertisement display serves to repel rivals from a territory and attract eligible hens. It is given from a bare spot, usually some little eminence in grassland or standing crops. The cock flexes his legs and springs perpendicularly in the air to a height of two or three metres depending on the surrounding grass. At the apogee the neck is arched backwards till almost resting on the back and he utters a guttural frog-like croak. The wings are partially open level with the body and fluttering rapidly, the legs pulled in as in the sitting

position. The bird then floats or parachutes down vertically to the starting-point, tail spread, legs gradually lowered for landing and often kicked forward and back as if running on air, to steady himself. A complete spring occupies 4 or 5 seconds and is soon repeated. Activity is most intense in the early mornings and late afternoons, but continues more or less throughout the day if cloudy and drizzly. While serving to safeguard his territory and attract hens, the display unfortunately renders the cock particularly vulnerable to enemies, chiefly human, and is responsible for much of the decimation of the species by poachers and vandalistic 'sportsmen'.

(For an excellent study of the courtship display, behaviour, and habits of the Lesser Florican see Dharmakumarsinhji, K. S., 1950, *J. Bom. nat. Hist. Soc.* 49: 201-16.)

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

Chick (in down). 'An almost uniform dirty pale yellow colour with an unclosed V on the crown of the head in dingy black, and blotches, rather stripy, of black on the wing, back and sides, and about the ears; legs and beak a colour between pale blue and pale pink and on the tip of the beak a little lump of pale pearly white' (Davidson quoted by Hume).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	180-204	31-38	c. 85-95	82-114 mm.
♀ ♀	209-248	37-42	—	—

(Baker)

Weight ♂ ♀ 1 lb. 2 oz. to 1 lb. 10 oz. (c. 510-740 gm.) — Hume.

COLOURS OF BARE PARTS. Iris pale yellow or brownish fawn colour. Bill: upper mandible horny brown, lower yellowish flesh. Legs and feet fleshy or dusky yellow ('old discoloured ivory' — SA).

Order CHARADRIIFORMES *

Stresemann, E., 1927-34, Aves: 774-5 (Laro-Limicolae); Witherby *et al.*, 1940, Handbook, 4: 151-2

Family JACANIDAE: Jacanas

(For morphological characters see Baker, 1929, FBI 6: 39; Stresemann, E., op. cit.: 767-8; Van Tyne & Berger, 1959, *Fundamentals of Ornithology*: 437).

Key to the Genera

	Page
A A lappet at base of bill resting against forehead (less pronounced in young birds); primaries not attenuated.	Metopidius
B No frontal lappet; first and fourth primaries attenuated.	Hydrophasianus

Genus HYDROPHASIANUS Wagler

Hydrophasianus Wagler, 1832, Isis von Oken, col. 279. Type, by original designation, *Parra chinensis* auct. = *Tringa chirurgus* Scopoli

Bill more slender than in *Metopidius* with no lappet at base. Toes similarly elongated, but hind claw shorter. 1st and 4th primaries (as.) attenuated, the first into a barbless shaft terminating in a spatulate web, the fourth prolonged into an attenuated point. Wing furnished with a strong sharp spur at the carpal joint, or bend. Both sexes assume a nuptial plumage and are alike, but female larger.

Contains a single species.

358. Pheasant-tailed Jaçana. *Hydrophasianus chirurgus* (Scopoli)*Tringa Chirurgus* Scopoli, 1786, Del. Flor. et Faun. Insubr., fasc. 2: 92

('In nova Guiana' = Luzon ex Sonnerat)

Baker, FBI No. 2032, Vol. 6: 42

Plate 24, fig. 4, facing p. 128

LOCAL NAMES. *Piho, Pihuya* (Hindi); *Günd kāv, Gair kov* (Kashmir); *Surdal, Sakdal, Miwa, Dal kükra, Bhepi, Jäl manjor, Jäl mdyūr, Jäl kokra, Chitra billai* (Bengal, Bihar); *Lobo dak* (Santhali); *Rāni didao gophita* = 'Little White Water Princess' (Cachar); *Yem pārabā* = Cock fowl (Manipuri); *Pān kukkulā, Ballal sēru, Vil giravā* (Sinhala); *Miwa, Manal purā* (Tamil); *Tāmara kōzhi* (Malayalam).

SIZE. Grey Partridge. Length (excluding tail) c. 31 cm. (12 in.).

FIELD CHARACTERS. In breeding plumage a striking white and chocolate-brown rail-like marsh bird with enormous spidery toes and pointed sickle-shaped pheasant tail. Face and foreneck white; hindneck pale silky golden yellow. In flight, the large amount of white in plumage and pointed down-curved tail are diagnostic pointers. In the distance pied colour pattern, long gently curving tail and slow flapping wing-action reminiscent of Magpie (*Pica pica*). Sexes alike; female slightly larger.

In non-breeding (winter) plumage chiefly pale brown and white with a black 'necklace' on upper breast, and minus the long tail. In flight, hair-brown head and back, and white wings with black tips conspicuous.

Young (immature). No yellow on sides of neck; dark gorget broken up with white. Crown dull rufous-brown; feathers of upperparts pale-edged producing a faintly scalloped effect.

STATUS, DISTRIBUTION and HABITAT. Resident; moving locally with conditions of flood and drought. All India (including Assam and Manipur), both Pakistans, Nepal, Ceylon. In summer normally up to c. 1500 metres in Kashmir Valley (once recorded on Vishan Sar lake, c. 3700 m.) and the outer Himalayas. A straggler taken in Gilgit (Scully, 1882, SF 10: 142), and once recorded at Patseo in Lahul, c. 3800 m. (Whistler, 1925, *Ibis*: 203). Mostly descending to the plains in winter. Affects lotus, *singara* (*Trapa*), water hyacinth (*Eichhornia*) and other floating-vegetation-covered jheels, tanks, and ponds.

Extralimital. Burma, Thailand, and eastward to S. China and Formosa, south to Malay Peninsula, Java, Cambodia, Philippine Islands.

GENERAL HABITS. Feeds in the open among the surface vegetation on large jheels as well as small village and temple tanks, sometimes submerging head completely. Trips about lightly on the floating water-lily and *singara* leaves and tangles, the enormous spreading toes functioning like snow-shoes to distribute and support its weight; calmly steps on to the next leaf when the supporting one has slowly sunk down to belly level. Normally not shy: frequently seen moving about complacently on village tanks in the proximity of people noisily bathing and washing round the edge. Gregarious in winter, then often collecting in flocks of 50 to 100 birds. Non-breeding dress very obliterative when feeding amongst the surrounding dry lily pads, but black-tipped white wings flash into prominence, as in pond heron, when the bird rises. Flight feeble and rail-like, reminiscent also of lapwing, with the large feet dangling behind; seldom more than 2 or 3 metres above the surface. The purpose of the wingspur is obscure. It is apparently not used in fighting.

FOOD. Chiefly vegetable matter — seeds, roots, etc. Also aquatic insects and their larvae, and bivalves and other molluscs.

VOICE and CALLS. In winter a peculiar nasal mewing *tewm, tewm* uttered chiefly when a flock flies off on alarm. In breeding season — 'a loud musical *me-e-ou, me-e-ou* or *me-onp*' often taken up by another bird in the vicinity. It has many shortened variants 'perhaps the commonest being a loud open *kloo'* (R. S. P. Bates). A third call described as uttered by the cock alone to attract the female (A. Hoffmann).

BREEDING. Season, in Kashmir from about 2nd week of May into July; in the plains during the SW. monsoon, principally June to September; in Ceylon mainly March to July, but also in January. Nest, an insignificant skimpy pad or raft of grass or weed stems freely floating or resting on partly submerged vegetation (*Hydrilla*); sometimes eggs laid directly on *singara*, water-lily, or water hyacinth (*Eichhornia*) leaves. Eggs, 4, peg-top shaped, glossy greenish bronze or rufous-brown, unmarked. Average size of 100 eggs 37.4×27.6 mm. (Baker). Incubation by male alone; period c. 26 days.

Contrary to accepted belief and published accounts, now ascertained that the larger female is polyandrous as in Painted Snipe (*Rostratula*). The following facts also established: Male acquires territory in rivalry with other males which female later helps to defend vigorously while her liaison with the owner lasts. Eggs laid at 24-hour intervals, in the morning. Male commences incubation from the first egg. Frequently removes the clutch to a distance maybe of several metres, when disturbed, as by observer's hide. This done by pressing egg between throat and breast and dragging or rolling it over the matted vegetation, himself walking backwards. Eggs similarly floated across any intervening narrow channels of clear water or over partly submerged mat of *Hydrilla* (confirmed and photographed by Peter Jackson). Sometimes by holding pointed end in bill and dragging egg backwards (J. S. Serrao & P. B. Shekar, 1962, *Newsletter for Birdwatchers* Vol. 2(1)). Male tends the nidifugous chicks in early stages with great solicitude, performing 'broken-wing' and 'rat-run' distraction displays to mislead an intruder. Downy chicks lie doggo at command often fully submerged, hidden under a floating leaf, except for the bill sticking out at an angle. He rears two, and sometimes three families in a season. How many clutches a female lays in a season here unknown; in China 7-10 clutches recorded at intervals of 9-12 days between each (Hoffmann, A., 1949, *Zoologischer Jahrbücher*, Bd. 78, Heft 4, Jena).

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

For description of chick just getting out of down plumage, see Whistler, H., 1940, *JBNS* 41: 483.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	182-242	25-29	54-59	145-325 mm. (generally over 200 mm.)
		(from feathers)		(Baker)

Weight 10 ♂ ♀ 120-180 (av. 143.4) gm. — BNHS.

COLOURS OF BARE PARTS. *Breeding.* Iris brown. Bill slaty blue, paler at tip. Legs and feet pale bluish plumbeous. *Non-breeding.* Iris pale yellow. Bill basal half yellow, terminal half brown. Legs and feet dull greenish to dull plumbeous (Baker).

Genus METOPIDIUS Wagler

Metopidius Wagler, 1832, Isis von Oken, col. 279. Type, by subsequent designation,
Parra aenea Cuvier = *Parra indica* Latham

Head small. Bill moderately long, straight, and compressed, the culmen curved at tip; a lappet at base resting against the forehead and rounded behind. Tail short. Wing not rounded: 1st and 2nd primaries (as.) subequal and longest; a tubercular



X c. 1/6

spur on carpal joint. Toes greatly elongated; middle toe without claw longer than tarsus; hind claw excessively long. Tarsus with transverse shields in front and behind. Sexes alike in all seasons; no special nuptial plumage, but female larger than male.

Contains a single species.

359. **Bronzewinged Jaçana.** *Metopidius indicus* (Latham)

Parra indica Latham, 1790, Index Orn. 2: 765 (India)

Baker, FBI No. 2031, Vol. 6: 40

Plate 24, fig. 7, facing p. 128

LOCAL NAMES. *Däl pipi*, *Jäl pipi*, *Koratiya* (Bengal); *Pipi*, *Kundai* (Bihar); *Kattoi* (Purnea); *Kalo jäl manjär* (Gujarati); *Pipi* (Cachar); *Thamnächenbi* = 'running on lotus leaves' (Manipur).

SIZE. Grey Partridge ±; length ♂ c. 28 cm. (11 in.); ♀ c. 31 cm. (12 in.).

FIELD CHARACTERS. A leggy swamp bird somewhat like a moorhen, with enormous spidery toes. Head, neck, and breast glossy black. Back and wings metallic greenish bronze. Stub tail chestnut-red. A broad white stripe from eye to nape. Sexes alike; female somewhat larger.

Young (immature). *Above*, crown and nape rufous-brown; a short dull white supercilium. Back more or less as in adult but paler; upper tail-coverts barred white and brown. Tail rufous with terminal black band. *Below*, chiefly sullied rufous-white.

STATUS, DISTRIBUTION and HABITAT. Resident; common and widely spread. All India (excepting western Punjab and western Rajasthan), east through Assam and Manipur, south through the Peninsula to Kanyakumari. Also Nepal (terai) and East Pakistan. Absent in West Pakistan and Ceylon. Affects floating-vegetation-covered jheels and tanks in the plains and plateau country largely co-existing with 358. Does not ascend the hills.

Extralimital. Burma, Thailand, Vietnam, Cambodia, Malay Peninsula, Java, Sumatra.

GENERAL HABITS. Very similar to 358, q.v. When surprised in the open, far from cover, partially submerges itself for concealment, keeping only the bill exposed. If persistently harried, as sometimes by local shikaris, will take refuge on dry land amongst standing crops whence it will flush like Painted Snipe when walked up. Is a good diver and swimmer, but poor on the wing,

flying coot-like with neck extended and large feet trailing clumsily behind. After a few metres, low above the surface, re-aligns on the floating weeds to continue 'leaf trotting'.

FOOD. As in 358, chiefly vegetarian, but also insects and molluscs.

VOICE AND CALLS. A short harsh cry, or grunt, given as contact note between individuals. An agonistic or aggressive shrill, wheezy, piping seek-seek-seek etc.

BREEDING. Season, June to September, commencing soon after the SW. monsoon has properly set in. Nest, a flimsy pad of a few roughly put-together grasses or weed stems, placed on matted vegetation. Eggs often laid directly on floating lotus or singara (*Trapa*) leaves. Eggs normally 4, very glossy and handsome, peg-top shaped, bronze-brown with an irregular network of blackish scrawls. Average size of 120 eggs 36.4×25.1 mm. (Baker). Female occasionally helps male by bringing a few grasses to the nest during their temporary liaison. Contrary to published accounts, and correlated with her larger size, female polyandrous with a similar breeding biology to 358 and Painted Snipe (D. N. Mathew, 1964, JBNHS 61(2): 295-302). Incubation by male alone; period not definitely determined, but certainly longer than the '14 to 16 days' presumed by Baker. Details require further study. Chicks tended entirely by male. When alarmed, one observed scurrying off over floating weeds with a newly hatched chick tucked under his wing completely hidden except for its long legs dangling, and dropping it by opening wings when safety attained (Kingsley Kefford).

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

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
3 ♂♂	153-177	37-41	65-68	40-52 mm.
4 ♀♀	170-184	40-45	70-72	43-51 mm.
Hind claw ♂	65-70;	♀ 54-75 mm.		(SA)

Weight 10 ♂ ♀ (ad. & imm.) 94-210 (av. 154.6) gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill greenish yellow, tinged with red at base, pure yellow at tip; frontal lappet livid red. Legs and feet dull green.

Family HAEMATOPODIDAE: Oystercatchers

Treated as a genus (*Haematopus*) of the family Charadriidae by many authors. Characters as of the genus (below). See also Van Tyne & Berger, 1959, *Fundamentals of Ornithology*: 439.

Genus HAEMATOPUS Linnaeus

Haematopus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 152. Type, by monotypy,
Haematopus ostralegus Linnaeus

Characters as of the family. Bill very long, compressed, slightly truncated at end. Nostril linear, narrow, placed near the base of a groove which extends about half way to tip of upper mandible. Wings long and pointed: 1st primary (as.) longest. Tarsus short, stout, and reticulated throughout. No hind toe; anterior toes short, stout, and edged laterally with a narrow membrane; slightly webbed, especially between 3rd and 4th toes.

Genus cosmopolitan; one species with two races within our limits.

HAEMATOPUS OSTRALEGUS Linnaeus

Key to the Subspecies

- Outer web of first and occasionally second primary black; outer web of remaining primaries marked with white..... *H. o. ostralegus*
 Outer web of first five or six primaries black; outer web of remaining primaries marked with white..... *H. o. osculans*

360. **Oystercatcher or Sea-Pie.** *Haematopus ostralegus ostralegus* Linnaeus

Haematopus Ostralegus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 152

(Europe and America = Öland)

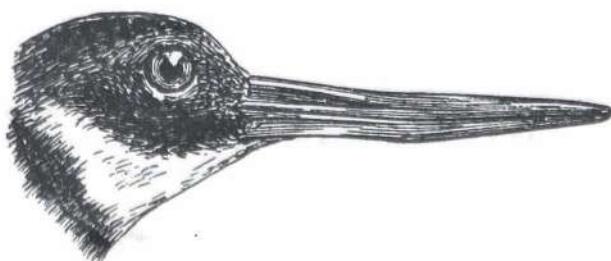
Baker, FBI No. 2110, Vol. 6: 165

Plate 27, fig. 1, facing p. 208

LOCAL NAMES. *Darya gajpāon* (Hindi); *Terra kali ulanka* (Telugu); *Dōbāh* (Sind).

SIZE. Grey Partridge +; length c. 42 cm. (16 in.).

FIELD CHARACTERS. A striking black and white shore bird with stoutish bare red legs, and long straight laterally compressed orange-red bill, snipe-like but blunt or truncated at tip. In flight the broad white band across the black wings, white lower back and underparts contrasting with the black head, breast, and tail are diagnostic pointers. Sexes alike.



Juvenile, $\times c. \frac{3}{8}$

Young (immature) has the black parts browner, feathers of mantle narrowly edged or scalloped with white. Centre of chin and throat whitish; a broad white patch on foreneck.

STATUS, DISTRIBUTION and HABITAT. Winter visitor mainly to the sea coasts and offshore islands. Commoner on the west coast than the east; abundant in W. Pakistan on the Makran coast and about Karachi, Ceylon (northern coasts). Has been recorded once (subspecies?) at Wular Lake, Kashmir, obviously on passage (Ward, JBNHS 17: 946), and sporadically on shingle banks of large rivers inland and fairly high up in the hills also on migration. Considerable numbers of non-breeding birds oversummer on the West Pakistan coast (Karachi, Makran). Affects sandy and rocky sea shores.

Extralimital. Breeds on the coasts of Europe, south to N. Spain. Also on the coasts of the Black and Caspian seas. Winters south to Africa.

MIGRATION. No data.

GENERAL HABITS. Keeps in small scattered flocks on the seashore amongst dunlins, sand plovers and other waders, running about and probing into the wet sand for food at low tide, bunching up on rocks and marking time when the water rises. Always exceedingly wild and wary. In fading light, silhouette when flying away from or towards the observer very like Whistling Teal (*Dendrocygna*).

FOOD. Largely marine molluscs; also sand worms (Annelida) and small crustaceans. The specialized bill helps to prise limpets off rocks and chisel out the contents from the shells.

VOICE and CALLS. A loud plaintive whistle or pipe repeated in varying tempo and shrillness depending on whether uttered as a contact note or alarm call. Curiously enough this whistle is also sometimes very reminiscent of the Whistling Teal's.

BREEDING. Extralimital. *Season*, c. May-June. *Nest*, a depression on the shingly seashore above high-tide mark. *Eggs*, 3 or 4, brownish buff spotted with black and dark grey.

MUSEUM DIAGNOSIS. For details of plumages, structure, etc. (also bionomics), see Witherby, 1940, 4: 418-21.

Some of our winter visitors possibly belong to the rather paler — more brownish less black — race *longipes* Buturlin, as suggested for Sind birds by Ticehurst. In that race bill 84-97 mm. (aver. 89.5), tarsus 47-55 mm. (aver. 50.3) in 14 adults (Vaurie, 1965, 2: 369).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	240-261	77-90	c. 48-54	99-114 mm. (Baker)

COLOURS OF BARE PARTS. Iris red or orange-red. Bill bright orange-red, paler and duller at extreme tip. Legs and feet dull brownish purple or purple-red.

361. Chinese Oystercatcher. *Haematopus ostralegus osculans* Swinhoe

Haematopus osculans Swinhoe, 1871, Proc. Zool. Soc. London: 405 (North China)
Baker, FBI No. 2111, Vol. 6: 166

LOCAL NAMES. As for 360.

SIZE. Same as 360.

FIELD CHARACTERS. Indistinguishable from 360, q.v. (see Key and Museum Diagnosis).

STATUS, DISTRIBUTION and HABITAT. Unknown except that a pair of oystercatchers once found breeding in the Khulna Sunderbans of E. Pakistan presumably belonged to this eastern race. But no specimens collected at the time and no confirmation since.

Extralimital. 'Breeds on the coasts (and probably some of the larger rivers) of NE. Asia from E. Siberia, Kamchatka and the Commander Is., south to Korea, N. China and Japan. Winters south to S. China, N. Burma and Bengal' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. Presumably as of 360.

BREEDING. Two fresh eggs taken on 22 April (1922) on stony ground near the seashore in Khulna Sunderbans of East Pakistan, where young

also seen the following year (Stanford, JBNHS 39: 867). The eggs — deep brownish buff spotted with black, lavender and dark grey — measured $53 \cdot 6 \times 39 \cdot 7$ and $52 \cdot 5 \times 40 \cdot 0$ mm. (Baker).

MUSEUM DIAGNOSIS. Like 360 but slightly larger and with a longer bill. The amount of white on the primaries is generally less, the first primary (as.) seldom showing any white at all on the inner web.

MEASUREMENTS. Wing ♂ ♀ 260–277 (once 284); bill (from feathers) c. 90–98 mm. (Hartert).

COLOURS OF BARE PARTS. As in 360.

Family CHARADRIIDAE: Plovers, Sandpipers, Snipe
Baker, E. C. S., 1929, FBI 6: 152–3; Witherby *et al.*, 1940, Handbook 4: 154–5
(Scolopacidae)

Key to the Subfamilies

	Page
A Toes lobed.....	Phalaropinae
B Toes not lobed	1
I Bill short to medium-long, pigeon-like, never decurved or recurved, with swollen area at tip of upper mandible, contracted in middle portion	Charadriinae
Bill short to very long; straight, decurved or recurved; tip of upper mandible occasionally flattened and pitted but never swollen vertically	Scolopacinae

Subfamily CHARADRIINAE: Plovers

For morphological characters see Baker, op. cit., 6: 167; Stresemann, E., 1927–34, Aves: 774–5, 777; Witherby, op. cit.

Key to the Genera

A Tail white narrowly barred with dusky except in immatures which have spots on margins of outer tail-feathers. Back spotted.....	Pluvialis	219
B Tail white or white basally with a broad black band on the distal half and often with a narrow white terminal band.....	Vanellus	205
C Tail-feathers grey or brown, occasionally white-tipped; outer tail-feathers white or white-tipped.....	Charadrius	225

Genus VANELLUS Brisson

Vanellus Brisson, 1760, Orn. 1: 48; 5: 94. Type, by subsequent designation and tautonymy, *Vanellus* Brisson = *Tringa vanellus* Linnaeus

Hoplopterus Bonaparte, 1831, Giorn. Acad. Sci. Lett. Arti, Roma 49: 55. Type, by monotypy (*id.* 1838), *Charadrius spinosus* Linnaeus

Lobivanellus 'Strickl.' = G. R. Gray, 1841, List Gen. Bds., ed. 2: 84. Type, by original designation, *L. goensis* Gmelin = *Tringa indica* Boddaert

Chettusia Bonaparte, 1841, Iconogr. Faun. Ital., Uccelli, Intr.: 12, 115. Type, by monotypy, *Charadrius gregarius* Pallas

Lobipluvia Bonaparte, 1856, Compt. Rend. Acad. Sci. Paris 43: 418. Type, by monotypy, *Charadrius bilobus* Gmelin = *Charadrius malabaricus* Boddaert

Microsarcops Sharpe, 1896, Cat. Bds. Brit. Mus. 24: 123 (in key), 133. Type, by monotypy, *Pluvianus cinerea* Blyth

Cf. Stresemann, E., 1934, Handbuch der Zoologie, Aves, Berlin: 777 (alternative suggestions of classification).

Delacour, J., 1951, L'Oiseau et la Rev. Fr. d'Orn. 22: 7.

Bock, W., 1958, Bull. Mus. Comp. Zool. 118(2): 57-66 (Genera of Lapwings).

Jehl, J. R., 1968, Mem. San Diego Soc. Nat. Hist., 3: 1-53.

Key to the Species

		Page
A	Tail white.....	<i>V. leucurus</i>
B	Tail white basally, with a broad black band on the distal half and often with a narrow white terminal band.....	1
I	Wing unicoloured.....	<i>V. vanellus</i>
	Wing with a broad wing stripe.....	a
a	Hind toe present.....	I
	Hind toe absent.....	II
I	Wattles not present.....	<i>V. gregarius</i>
	Wattles present.....	a ²
a ¹	Secondaries pure white.....	<i>V. cinereus</i>
	No white on secondaries.....	<i>V. indicus</i>
II	Outer tail-feathers white with wide subterminal black bar....	<i>V. spinosus</i>
	216
	Outer tail-feathers entirely white.....	<i>V. malabaricus</i>
		218

362. Whitetailed Lapwing. *Vanellus leucurus* (Lichtenstein)

Charadrius leucurus Lichtenstein, 1823, in Eversmann's Reise von Orenburg nach Buchara: 137 (Between the Kuwan and Jan Daria, Turkestan)

Baker, FBI No. 2123, Vol. 6: 183

Plate 27, fig. 2, facing p. 208

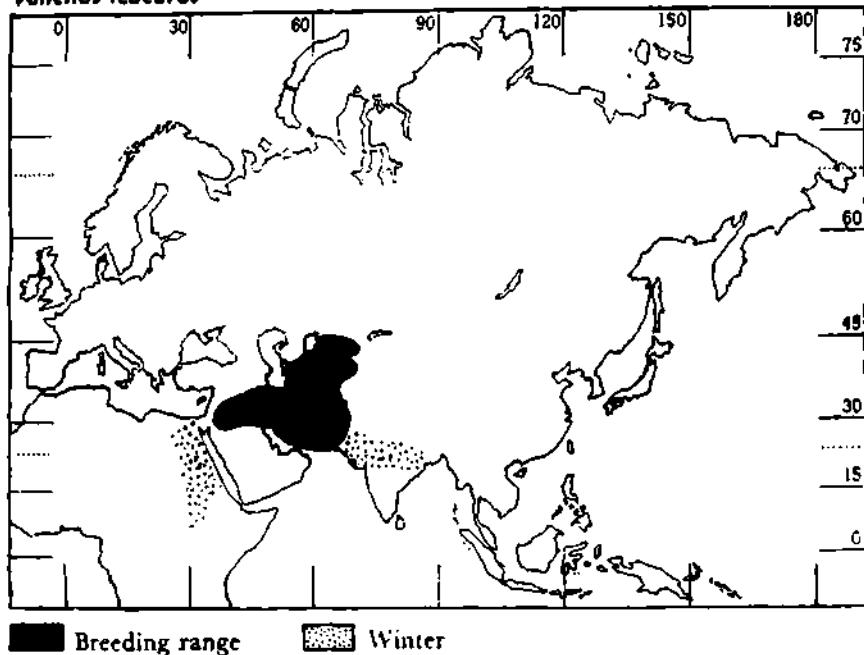
LOCAL NAMES. None recorded.

SIZE. Grey Partridge ±; length c. 28 cm. (11 in.).

FIELD CHARACTERS. A light brown and white plover, very like Yellow-wattled Lapwing (370) in general effect but minus the black cap and, unlike it, always seen near water. Long yellow legs. *Above* head and back pinkish brown with indistinct pale greyish white forehead and supercilia. *Below*, chin, throat and foreneck ashy grey; breast darker grey; abdomen pinkish buff; under tail-coverts rosy white. Sexes alike. In flight readily identified by its white lower back and tail, and the bold black and white bands on the wings.

Young (immature). *Above* much darker, almost blackish, the feathers broadly edged (scalloped) with rufous-brown. *Below* sullied white.

STATUS, DISTRIBUTION and HABITAT. Winter visitor (c. September to March). Not uncommon in West Pakistan (southern Baluchistan, Sind, Punjab) and northwestern India (Punjab, Rajasthan, Gujarat) diffusing in smaller numbers through Uttar Pradesh, northern Madhya Pradesh, N. Bihar and Nepal (terai) east to W. Bengal and E. Pakistan. Has straggled as far south as Bombay and may do so further, but Baker's record of Mysore untraceable. Affects marshy grassy edges of large jheels.

Vanellus leucurus

■ Breeding range ■ Winter

Extralimital. Breeds on the Kirghiz Steppes, Transcaspia, parts of Syria, Iraq and Iran. Winters chiefly in NW. India; in small numbers also in Egypt and Sinai.

MIGRATION. One ringed Bharatpur 11. xii. 1969 recovered Tipdez, Zabol, Iran (31° 01' N., 61° 29' E.) 3. iii. 1978. Passes through Quetta Valley and N. Baluchistan in large flocks on spring and autumn migration (Delme-Radcliffe, Ticehurst).

GENERAL HABITS. Gregarious; in large flocks when migrating. Usually in smaller flocks or parties of 6 to 25 birds in winter quarters, commonly in association with Redshanks and other waders. While a flock is standing inert in a marsh (resting), frequently one bird then another stretches both wings vertically upwards back to back ('flag-waving')—evidently a contact signal. Flight and behaviour similar to the Redwattled and other lapwings.

FOOD. Aquatic insects, worms, tiny freshwater shrimps and molluscs.

VOICE and CALLS. Rather silent in winter. Calls variously described as 'a soft whistle . . . also a *chee-viz* call like that of a Shikra' (Dharmakumar-sinhji); 'much more mellow than that of *Vanellus indicus*' (Fleming); 'more like that of the Lapwing [Peewit] but not so plaintive' (McInertzhagen); a double-noted rather subdued *pi-wick* of lapwing quality (SA).

BREEDING. Extralimital; in Iraq (on the Euphrates marshes) gregariously among mixed nesting colonies of pratincoles and terns. Season, mid May to mid June. Eggs, 4, laid in shallow depressions on the edges of marshes or semi-submerged islets.

MUSEUM DIAGNOSIS. No crest; much white in wings. Tarsus with small scutellations. Hind toe small but distinct. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	173-189	35-38	72-75	71-78 mm.
♀ ♀	167-186	—	—	(SA)

(from skull)

Weight 20 ♂ ♀ (autumn/winter) 100-185 (av. 129.9) gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown to blood red. Bill black. Legs and feet pale yellow.

363. Sociable Lapwing. *Vanellus gregarius* (Pallas)

Charadrius gregarius Pallas, 1771, Reise Russ. Reichs 1: 456 (Volga, Jaiku, and Samara)

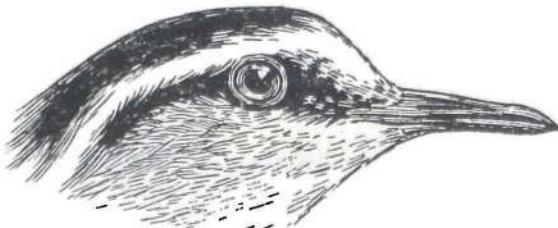
Baker, FBI No. 2122, Vol. 6: 182

Plate 27, fig. 4, facing p. 208

LOCAL NAMES. None recorded.

SIZE. Grey Partridge ±; length c. 33 cm. (13 in.).

FIELD CHARACTERS. In winter (non-breeding plumage) as mostly seen in India (and as shown on the plate): *Above*, crown brown; forehead buffy white running backward in broad white supercilia meeting on hindneck a brown line from lores through eye and ear-coverts bordering the supercilia



$\times c. \frac{3}{4}$

below. Rest of upperparts ashy grey; lower back and tail white, the latter with a black subterminal band. A good deal of white in wings (outer secondaries). *Below*, chin and throat white; breast smoky grey mottled with brown. Rest of underparts smoky white. Legs black.

In flight the distinctive head pattern, large white patch (secondaries) in the black wings, and black subterminal tail-band, are diagnostic clues.

In summer (breeding plumage) the crown and eye-stripe become black, the forehead and supercilia pure white. *Below*, throat and upper breast ashy grey; lower breast black and chestnut; abdomen and vent white.

Sexes alike.

Young (immature). Like non-breeding adult but with feathers of upperparts edged with light rufous.

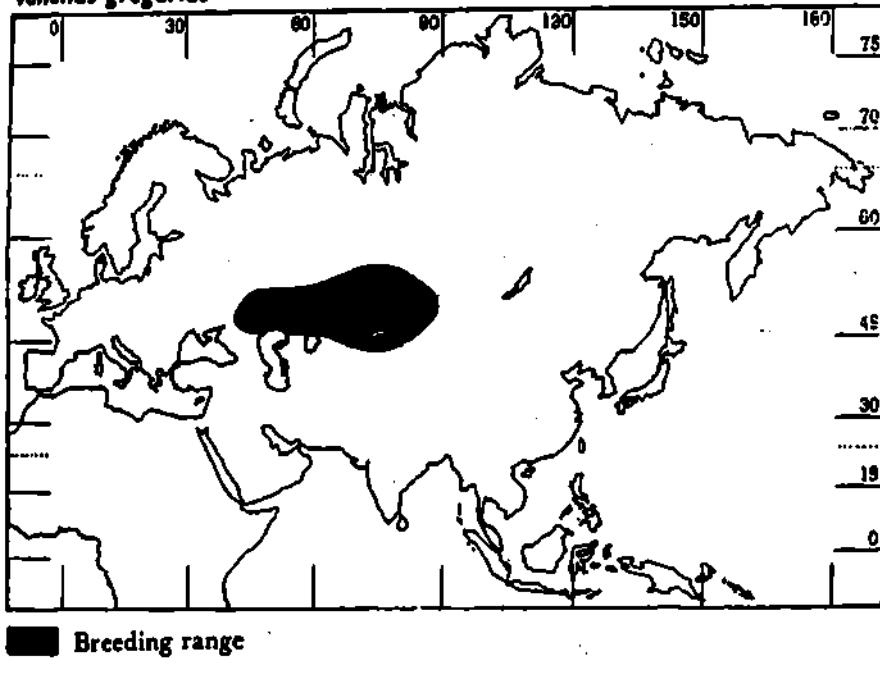
STATUS, DISTRIBUTION and HABITAT. Winter visitor, September-October to March-April. Regular and fairly common in W. Pakistan (Baluchistan, Sind, Chitral Valley), and NW. India (Kashmir, occasional) and Uttar Pradesh, diffusing east through N. Bihar, sporadically to W. Bengal. South through Rajasthan and Gujarat, erratically farther south in the Peninsula (Bombay, Ahmednagar, Ratnagiri); straggling to Kerala (Trivandrum)



PLATE 27

1 *Haematopus ostralegus*, Oystercatcher (360). 2 *Vanellus leucurus*, Whitetailed Lapwing (362). 3 *Vanellus vanellus*, Peewit or Green Plover (364). 4 *Vanellus gregarius*, Sociable Plover (363). 5 *Pluvialis squatarola*, Grey Plover (371). 6 *Vanellus malabaricus*, Yellow-wattled Lapwing (370). 7 *Charadrius a. asiaticus*, Caspian Sand Plover (376). 8 *Pluvialis a. apricaria*, Golden Plover (372). 9 *Charadrius h. tundrae*, Eastern Ringed Plover (378). 10 *Charadrius a. alexandrinus*, Kentish Plover (381). 11 *Charadrius l. leschenaulti*, Large Sand Plover (374).

J. R. Coombs,
1964.

Vanellus gregarius

■ Breeding range

and Ceylon. Less addicted to jheels and marshes than Whitetailed Lapwing (362). Affects dry waste land in the neighbourhood of cultivation, ploughed fields and stubbles, in plains and plateau country.

Extralimital. Breeds in southern and middle Russia, Kirghiz Steppes, Transcaspia, W. Siberia to Tomsk and Zaisan-nor. Winters in NE. Africa to Sudan, besides N. India.

MIGRATION. No ringing data. Recorded on spring (March-April) and autumn passage migration through the Kurram Valley (Rattray, Whitehead) and Gilgit (Scully).

GENERAL HABITS. Keeps in small parties of 5 or 6 or flocks of 20 to 100 or more, the latter chiefly before spring emigration when many birds have assumed the handsome breeding plumage. Actions, flight and behaviour typical of the plovers, e.g. Redwattled and Yellow-wattled Lapwings, more particularly like the Peewit (364).

FOOD. Chiefly insects such as grasshoppers and crickets, but very little specifically recorded.

VOICE and CALLS. Also unrecorded in India, the birds being very silent in winter. According to Meinertzhagen call not at all like that of 364. A single wailing note uttered on the ground and in the air (Baker).

BREEDING. Extralimital. Season, mainly between mid April and mid June. Eggs, 4, site etc. very similar to those of the Peewit.

MUSUM DIAGNOSIS. No crest. Wing pointed: 1st primary (as.) minute, 3rd primary longest, 2nd equally long or slightly shorter. Tarsus reticulated. Hind toe small but distinct.

For details of plumage see Baker, loc. cit.; for structure and plumage phases (also bionomics), Witherby, 1940, 4: 392-5.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	198-211	26-31	56-62	74-90 mm.
♀ ♀	199-212	27-30	—	—

(Witherby)

COLOURS OF BARE PARTS. Iris brown. Bill, legs and feet black.

364. Peewit, Lapwing or Green Plover. *Vanellus vanellus* (Linnaeus)

Tringa Vanellus Linnaeus, 1758, Syst. Nat., ed. 10, I: 148

(Europe, Africa. Restricted type locality, Sweden)

Baker, FBI No. 2121, Vol. 6: 180

Plate 27, fig. 3, facing p. 208

LOCAL NAME. *Sābāz tītī* (Bengal).

SIZE. Grey Partridge; length c. 31 cm. (12 in.).

FIELD CHARACTERS. An apparently black and white plover with long slender upstanding pointed crest. Sexes alike; female's crest somewhat smaller.

Adult winter (non-breeding). Crown blackish brown; face, chin, throat and foreneck white more or less speckled with brown or black; scapulars, innermost secondaries and black breast-feathers scalloped with fulvous; rest of underparts as in summer.

Summer (breeding). *Above*, forehead, crown, and long crest of narrow feathers black, glossed with green; sides of head and neck white with black patches. Upperparts metallic glossy bronze-green and violet-purple; upper tail-coverts cinnamon; tail white with a broad metallic black subterminal band. *Below*, throat, foreneck, and breast black; rest of underparts white; under tail-coverts cinnamon.

In overhead flight the apparently pied plumage, black breast and white underparts, including underside of wings, are leading pointers. ♂ distinguishable from ♀ in air by broader rounder wings obviously correlated with his acrobatic nuptial display.

Young (immature). *Above*, brown narrowly scalloped with fulvous, the back and wings slightly glossed with purple, bronze, and green. *Below*, like adult in winter.

STATUS, DISTRIBUTION AND HABITAT. Winter visitor: September-October to March-April. Fairly common in W. Pakistan (Baluchistan, Sind, N.W.F. Province including Chitral, Punjab) and in NW. India (including Gilgit, Ladakh, Kashmir) and Uttar Pradesh. Erratically and in small numbers east through N. Bihar, Nepal (Valley and lowlands), NEFA (Subansiri Frontier Division) to Cachar and Lakhimpur, south and east of Brahmaputra river in Assam; Manipur and E. Pakistan. A straggler to Rajasthan and probably N. Gujarat. Affects fallow land and stubbles, irrigated fields, shingly river banks, marshland bordering jheels in cultivated plains country.

EXTRALIMITAL. Breeds in Europe and N. Asia east to Siberia, south to Spain, N. Italy, Transcaspia, Turkestan, and N. China. Migratory in the northern part of its range. Winters in S. Europe, N. Africa, Asia Minor, SW. Asia, and across northern India and Burma to S. China and Japan.

MIGRATION. No ringing data. Passes through Thal, NW. Pakistan $33^{\circ}24'N.$, $70^{\circ}36'E.$ (alt. c. 750 m., at the junction of Kurram and Miranzai valleys) in February (Rattray); through Gyantse (Tibet, $28^{\circ}55'N.$, $89^{\circ}38'E.$) in March-April, and again in autumn (Ludlow).

GENERAL HABITS. Keeps in pairs or small scattered flocks, running about with short mincing steps, stopping now and again to pick up some titbit, tilting the body at a steep angle without flexing the legs, as typical of the plover family. Often foraging on wet meadows or grazing land in proximity of cattle. Assembles in large flocks before migration, and on passage. Normal flight rather sluggish and wobbly, with slow wing-beats, but bird capable of considerable speed when occasion demands. In nuptial display — not seen in winter quarters — male performs extravagant aerobatics, rising, falling and tumbling in the air.

FOOD. Chiefly insects, molluscs, and worms.

VOICE AND CALLS. Largely silent in winter; a rather plaintive mewing *pee-wit* uttered singly, unmistakable when once heard. Birds as noisy as Redwattled Lapwing at nesting time.

BREEDING. Extralimital. Season chiefly end March to end May. Eggs, 4, laid in scrape on bare ground in open fallows or pastures; peg-top shaped, olive-brown or drab, spotted and blotched with blackish.

MURM DIAGNOSIS. Wing: in ♂ 3rd primary (as.) longest, 2nd equals 4th; in ♀ 2nd and 3rd primaries longest, 1st equals 4th. Tarsus reticulated. A small hind toe present. For details of plumage see Baker, loc. cit.; for plumage phases and structure (also bionomics), Witherby, 1940, 4: 395-403.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	220-236	23-27 (from feathers)	44-48	108-119 mm. (Hartert)

Weight 2 oo? 180, 200 gm. — BNHS.

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

365. Greyheaded Lapwing, *Vanellus cinereus* (Blyth)

Pluvianus cinereus Blyth, 1842, Jour. Asiatic Soc. Bengal 11: 587 (Calcutta)

Baker, FBI No. 2129, Vol. 6; 191

Plate 29, fig. 8, facing p. 256

LOCAL NAME. *Salang* (Manipur).

SIZE. Grey Partridge +; length c. 37 cm. ($14\frac{1}{2}$ in.).

FIELD CHARACTERS. *Above*, entire head and neck grey; back light brown; rump, upper tail-coverts, and tail white, the last with a broad black sub-terminal band. Primaries black, secondaries white. *Below*, neck and breast ashy grey bordered by a chocolate-and-black pectoral band. Rest of under-parts, including underwing, white. Sexes alike.

Young (immature) has head, neck, and breast light brown like back and no dark pectoral band.

STATUS, DISTRIBUTION and HABITAT. Winter visitor (September-October to end March-April). Regularly in small flocks in W. Bengal (near Calcutta); quite common in Assam, Manipur, and East Pakistan; also in Kathmandu Valley, Nepal. Occurs in N. Bihar, and stragglers recorded in Kashmir,

Dehra Dun, Rajasthan (JBNHS 65: 484) and the Andaman Islands. A large proportion of our visitors are young birds without the pectoral band. Affects marshy places — the edge of jheels etc. (typical snipe ground), banks of rivers, and wet grazing grounds, ploughs and stubbles.

Extralimital. Breeds in Mongolia, China south to the Yangtse Valley, Manchuria, Korea, and Japan. Winters in S. China, E. India, Burma, Malaya and the Indochinese countries (Peters).

MIGRATION. Nothing recorded. In eastern China migrates in successions of large flocks (La Touche).

GENERAL HABITS. Gregarious; keeps in parties of 5 or 6, or flocks of up to 50 or so. Actions and behaviour typical of the lapwings, e.g. the Red-wattled, with which it commonly associates.

FOOD. Mainly insects, worms, molluscs.

VOICE and CALLS. Seldom heard in winter. 'A harsh version of the Redwattled Lapwing's call' (R. L. Fleming). 'A plaintive *chee-it, chee-it*' (Baker). 'When approached, rises with a cry of "Did all eat"' (W. Davison).

BREEDING. Extralimital. Season, apparently mid May to end June. Eggs, 4, peg-top shaped, similar in colour and markings to those of 364. Laid in a slight depression on bare ground.

MUSEUM DIAGNOSIS. Tarsus long and slender, scutellated in front reticulated behind. A small hind toe present; also a lappet at base of bill (lores) as in *V. indicus* and *V. malabaricus*. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	228-255	35-39 (from feathers)	c. 75-79	93-112 mm. (Baker)

Weight 1 o? 284 gm. — BNHS.

COLOURS OF BARE PARTS. Iris red. Rim of eyelid and lappet bright yellow. Bill basal two-thirds bright yellow, terminal third black. Legs and feet bright yellow; claws black (La Touche).

VANELLUS INDICUS (Boddaert)

Key to the Subspecies

		Page
A	A white band from eye to ear-coverts only.....	<i>V. i. atronuchalis</i> 215
B	A white band down each side of the neck to breast.....	1
1	Larger; wing 212-240 mm.....	<i>V. i. indicus</i> 212
	Smaller; wing 201-209 mm.....	<i>V. i. lankae</i> 214

366. Redwattled Lapwing. *Vanellus indicus indicus* (Boddaert)

Tringa Indica Boddaert, 1783, Table Pl. enlum.: 150 (Goa, ex Daubenton, pl. 807)

Sarcogrammus indicus aignerii Laubmann, 1913, Falco 9: 30 (Sonmiani, Makran)

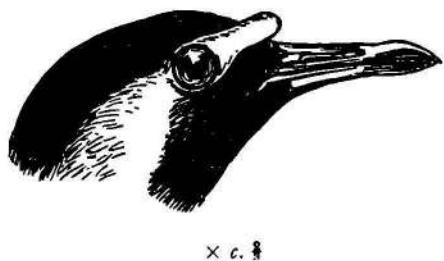
Baker, FBI Nos. 2125, 2126, Vol. 6: 187, 189

Cf. Ripley, S. D., 1946, Spolia Zeylanica 24: 203-4

LOCAL NAMES. *Titeeri, Titai, Titi, Titöri* (Hindi); *Täteehdr* (Sind); *Hatalut, Hatalutu* (Kashmir); *Balighora, Tetdúa* (Assam); *Titwi* (Marathi); *Titödi* (Gujarati); *Yennapa chitawa* (Telugu); *Alkati* (Tamil); *Chenkanni* (Malayalam).

SIZE. Grey Partridge +; c. 33 cm. (13 in.).

FIELD CHARACTERS. A familiar leggy plover, bronze-brown above white below, with black breast, head and neck, and a crimson fleshy wattle



sullied white.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; migrating altitudinally in spring and autumn (e.g. in N. Baluchistan and NW. Pakistan) and spreading out widely in the monsoon on creation of requisite habitats. Both Pakistans and all India (including Assam north of Brahmaputra river) south through the Peninsula to Kanyakumari, up to c. 2000 m. in the Nilgiris and c. 1800 m. in Kashmir, Kulu etc. Nepal (terai, bhabar, and dun, to c. 1100 m. even in winter. 'Very common during monsoon in Nepal Valley' — Proud), Sikkim terai, Bhutan duars. Affects the neighbourhood of water in open country and cultivation — jheels, tanks, rivers, ditches and puddles. In the rainy season pairs very commonly seen on the grassy shoulders of motor highways.

Extralimital. Eastern Transcaspia, Iraq, SW. Iran, S. Arabia, Afghanistan.

GENERAL HABITS. Usually keeps in pairs or trios — occasionally small loose flocks of 6 to a dozen — in open well-watered country, sometimes in grassy glades within deciduous forest with rain puddles and pig-wallows. Here often a source of great annoyance to the sportsman, spoiling his stalk by its ceaseless vigilance and frantic screaming, betraying him to the quarry. Somewhat crepuscular and nocturnal, feeding casually during the day but spending most of the time standing about drowsing on a rock amid stream or bund separating fields. Feeds more actively in the early mornings and evenings and throughout the night, especially when moonlit. Runs about with mincing steps in irregular zigzag spurts, dipping forward steeply now and again (with unflexed legs) to pick up a morsel. Flight rather slow, with deliberate flaps and often a rapid fluttering action of the wing-tips, but bird capable of remarkable speed when chasing off an intruder from proximity of its nest or young, and of astonishingly agile turns and twists and other antics when hunted with a hawk.

FOOD. Ants, beetles, caterpillars and other insects, molluscs, and a quantity of vegetable matter.

VOICE and CALLS. The most familiar and diagnostic is a loud penetrating *Did ye do it?* or *Pity to do it!* shrieked either placidly or frantically, just once or twice or repeatedly, as occasion demands. Varied by *did-did-did-did*, or *käb-käb-käb-käb* and quite frenzied when accompanying the 'dive-bombing' demonstrations. Both sexes apparently have the same calls.

BREEDING. Season, principally from March to August-September, the peak periods varying locally. Nest, a natural depression or scrape in the

in front of each eye. A prominent broad white band from behind eyes running down sides of neck to meet the white underparts. Producer of the well known *Did-ye-do-it?* calls. Sexes alike.

Young (immature). *Above*, black feathers of the head fringed with brown. *Below*, chin, throat and foreneck white; sides of neck

ground sometimes lined with mud pellets or goats' droppings and parapeted with bits of dry cowdung or pebbles. Sited on waste or stony land, fallow fields, dry beds of village tanks, and shingle banks or islets in rivers. Some unusual sites recorded, e.g. the flat concrete roof of a residential bungalow in New Delhi, and a heap of ballast between two railway tracks in Ghosrana station yard (Rajasthan). Every time a train came in the incubating bird flew up, returning immediately the train left! (McCann, JBNHS 42: 442, photo). Eggs, 4, pyriform or peg-top shaped, variable in coloration but some shade of grey-brown or drab, blotched with blackish. Average size c. 42 x 30 mm. Incubation by both sexes; period 28-30 days. In very hot weather, on sunbaked substrate, the birds regularly wet their breast and belly feathers before taking turns on the eggs. On a high-pitched warning note, *pit*, by the partner incessantly on guard, incubating bird leaves nest and slinks off rising in the air only when some distance away to join its mate in the noisy aerial demonstrations. (For behaviour when incubating see Naik, R. M., et al., 1961, JBNHS 58: 222-30, 3 photos.)

Both eggs and downy chicks superbly camouflaged: on a subdued *pit* or *cluck* command from the parents the chicks instantly squat behind a stone or clod and lie doggo becoming completely obliterated. Immediately they receive the 'all clear' — a series of high-pitched *clucks* — they rise mechanically, as on the press of a button, and resume their feeding actively, completely unperturbed by the recent emergency! The parents also indulge in the 'broken wing' distraction manoeuvres on occasion.

MUSEUM DIAGNOSIS. In common with *V. cinereus* and *V. malabaricus*, possesses curious fleshy wattles in front of eyes. Bill of moderate length: culmen flattened at base; dertrum slightly swollen. Nostrils linear placed in grooves extending over more than half length of upper mandible. Wing long, furnished with a spur at the bend: 2nd primary (as.) longest in both sexes. Tarsus long, reticulated throughout; a small hind toe present. For details of plumage see Baker, loc. cit.; for subspecies, Key.

Chick (in down). 'Upperparts grey-brown mottled with black; behind eyes and round occiput a broad black collar, under this from below eyes, a broad white collar. Pectoral band black; chin and rest of underparts white, tinged with buff on belly and flanks' (Ticehurst).

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	217-238	34-40	65-76	108-125 mm.
♀ ♀	208-237	33-38	70-77 (from skull)	106-127 mm. (SA)

Weight 20 ♂ ♀ (ad. & imm.) 149-229 (av. 189.3) gm. — BNHS.

COLOURS OF BARE PARTS. Iris red-brown to red; eyelids and wattle crimson-red. Bill red or orange-red, black at tip. Legs and feet greenish yellow to bright yellow; claws black.

367. Ceylon Redwattled Lapwing. *Vanellus indicus lankae* (Koelz)

Lobivanellus indicus lankae Koelz, 1939, Proc. Biol. Soc. Washington 52: 82
(Galgamuwa, Ceylon)

Baker, FBI No. 2125 (part), Vol. 6: 186

LOCAL NAMES. *Kiraluwd*, *Kiralā* (Sinhala); *Ālkātti* (Tamil).

SIZE. Grey Partridge +; c. 33 cm. (13 in.).

FIELD CHARACTERS. As of 366, q.v. For subspecies see Museum Diagnosis.
STATUS, DISTRIBUTION and HABITAT. Resident. Ceylon. Common in the low-country Wet and Dry zones, to c. 300 m. elevation. Affects well-watered open terrain and paddyfields.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the Indian race (366).

BREEDING. Season, April to August, occasionally March and September (Phillips). Nest, site, and eggs as in 366.

MUSEUM DIAGNOSIS. Differs from the Indian race in being somewhat smaller, and deeper coloured above with the gloss — especially the purple gloss — more pronounced. South Indian birds show some intergrading between the peninsular Indian and Ceylonese forms.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
4 ♂♂	211-220	35-39	73-76	105-115 mm.
3 ♀♀	208-214	34-37	68-78	101-107 mm. (Whistler)

COLOURS OF BARE PARTS. As in 366.

368. Burmese Redwattled Lapwing. *Vanellus indicus atronuchalis* (Jerdon)

Lobivanellus atronuchalis 'Blyth' = Jerdon, 1864, Bds. India 3: 648 (Burma)

Baker, FBI No. 2127, Vol. 6: 189

Plate 29, fig. 5, facing p. 256

LOCAL NAMES. *Daoyip* (Cachar); *Salangkât* (Manipur).

SIZE. Grey Partridge +; c. 33 cm. (13 in.).

FIELD CHARACTERS. As of 366, q.v. For subspecies see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Assam south of Brahmaputra river, Manipur, Mizo (Lushai Hills)? and East Pakistan (Surma Valley, Tipperah, Chittagong). Affects well-watered open country and up to c. 600 m. elevation.

Extralimital. Burma, SW. Yunnan, Malay Peninsula and the Indo-chinese countries.

GENERAL HABITS, FOOD. Not different from the Indian race (366).

VOICE and CALLS. Also similar but recorded as being only a trisyllabic *Did ye do?*, whence its Burmese name *teeteedu*.

BREEDING. Season, March to June, chiefly March-April. Nest, site, and eggs as in the Indian race, the last said to average somewhat darker. Average size of 48 eggs 41.5 × 29.8 mm. (Baker).

MUSEUM DIAGNOSIS. Differs from the Indian race in having the white line down side of neck restricted to a patch on and just behind the ear-coverts, leaving the whole neck black all round. The black neck is divided from the bronze-brown back by a narrow white or lilac band.

MEASUREMENTS. ♂♀ Wing 200-221 mm.; bill (from feathers) 27-32 mm. (Baker).

COLOURS OF BARE PARTS. As in 366.

369. Spurwinged Lapwing. *Vanellus spinosus duvaucelii* (Lesson)*Charadrius Duvaucelii* Lesson, 1826, Dict. Sci. Nat., éd. Levrault, 42: 38 (Calcutta)*Charadrius ventralis* Wagler, 1827, Syst. Av. no. 2 (Calcutta)

Baker, FBI No. 2124, Vol. 6: 184

Plate 29, fig. 4. facing p. 256

LOCAL NAME. *Ngāhoibi* = 'fish chaser' (Manipur).

SIZE. Grey Partridge; length c. 31 cm. (12 in.).

FIELD CHARACTERS. General effect unmistakably like Redwattled Lapwing. *Above*, forehead, crown and full occipital crest black. Upperparts chiefly vinous-grey and sandy brown; upper tail-coverts and tail white, the latter black on its terminal half. Primaries and primary coverts black; central secondaries white. *Below*, chin, cheeks and throat black bordered with white; upper breast white shading into vinous-grey on sides of neck and browner grey on lower breast. Centre of abdomen black; rest of underparts white. Sexes alike.

In flight the black wings with a broad white patch or band, together with the contrasting black-and-white patterned head, throat and belly are diagnostic pointers. On ground the hunched posture with body rigid and horizontal and head and neck almost furtively sunk into the shoulders is characteristic.

Young (immature). Undescribed.

STATUS, DISTRIBUTION and HABITAT. Resident, with some seasonal nomadic movement. East Pakistan and eastern and central India — Assam, Manipur, Bengal, Bihar, Orissa, Andhra, northern and eastern Madhya Pradesh; west in Uttar Pradesh to c. 76°E., Nepal and Sikkim (terai and bhabar and to c. 900 m. alt. in the former even in winter), Bhutan. Not Kashmir as given by Baker. Affects sandbanks and shingle beds in flowing rivers above tidal limits. Normally not at jheels or stagnant waters.

Extralimital. Eastward to SW. Yunnan and N. Vietnam, south to peninsular Thailand and S. Vietnam.

GENERAL HABITS. Normally keeps singly or in pairs; rarely parties of 3 to 6, hardly ever in large flocks. In general effect, ecology and behaviour very similar to other lapwings, especially Redwattled (366) and Peewit (364). Coloration remarkably obliterative in its native environment of dry river sand and shingle (on this colour scheme and its utilization see Hingston, JBNHS 32: 219). Flight seemingly sluggish with deliberate steady flaps, but bird capable of considerable speed on the wing, as well as of swimming and diving when occasion demands. One on a shingle bank apprehending attack by Peregrine was observed launching out in the water, swimming with ease and diving expertly at each stoop of the falcon, remaining submerged for 3 or 4 seconds, bobbing up and then diving again at the second stoop, thus baffling the marauder. The bird then swam ashore and resumed its normal activities (Livesey).

Whether the well-developed pointed spur on the wing is employed in fighting, and how it is used, remain to be shown.

FOOD. Insects, worms, crustaceans — sometimes of considerable size. Also said to take frogs and tadpoles, and 'pursue fish cut off in pools of water'. Eight stomachs examined at Pusa all contained small molluscs only, chiefly *Melania tuberculata* (Mason & Lefroy, 1912).

VOICE and CALLS. A sharp, insistent, high-pitched *did, did, did* several times repeated as the bird rises, sometimes ending with 2 or 3 staccato notes sounding like *did-did-do-weet, did-did-do-weet*. Distantly resembling the Redwattled Lapwing's calls yet quite distinctive.

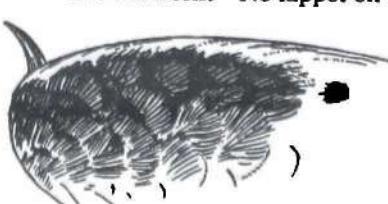
BREEDING. Season, March to June. Nest, a shallow scrape or form on an exposed sand- or shingle bank in a river — quite in the open, unprotected by stone or bush. Eggs, normally 4 sometimes only 3, very similar to those of the Redwattled Lapwing, olive- or yellowish stone colour, blotched and spotted with shades of brown and black. Average size of 100 eggs $41 \cdot 1 \times 29 \cdot 4$ mm. (Baker). Baker's statement that the female alone incubates needs confirming, as also the incubation period '22 to 24' days.

An elaborate display (nuptial?) has been described on two separate occasions by independent observers with the following sequences: Four birds standing apart on a sandbank in a river; two approach each other slowly; stoop body to horizontal and whirl or spin themselves rapidly round in several complete circles to the accompaniment of vocal clamour; draw themselves bolt upright (in position of penguin or standing man) heads thrust high, and puff out breasts showing off the black-and-white patterned underparts ostentatiously. In this strutting position run or shuffle with short quick steps side by side exactly as if 'dressing by a flank' in military jargon; at times all four birds (only 3 in one case) shuffle side by side thus, almost touching each other. Occasionally one bird bobs his body up and down and squares up to another with a threat of a blow from his wing, without any actual fight resulting. The birds chatter continuously. In one case all four birds actively engaged in the antics, in the other only 3 — the 4th (♀?) seemingly just an uninterested spectator: the latter observation made in September, after the breeding season, the former in March before its commencement (Hingston, JBNHS 32: 219; Stanford, ibid. 37: 223-4).

(For a fuller account of habits and breeding biology of the nominate race, see Helversen, O. v., 1963, 'Beobachtungen zur Verhalten und zur Brutbiologie des Spornkiebitzes', *Jour. für Ornithologie* 104(1): 89-96.)

MUSEUM DIAGNOSIS. No lappet on bill. Wing rounded, armed with a long curved spur on the bend or carpal joint; 2nd primary (as.) longest. Tibia bare for c. 20 mm. above joint; tarsus long, slender, reticulated throughout; no hind toe. For details of plumage see Baker, loc. cit.

Chick (in down). Undescribed.



Wing spur, $\times c. 1$

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	185-205	26-28	c. 64-67	80-94 mm.
(from feathers)				(Baker)

Weight 3 ♂ ♂ 164-185, 1 ♀ 143 gm. — BNHS.

Bill (from skull) c. 34-36 mm. — Biswas, SA.

There is no difference in the measurements of the sexes.

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

370. Yellow-wattled Lapwing. *Vanellus malabaricus* (Boddaert)

Charadrius malabaricus Boddaert, 1783, Table Pl. enlum.: 53

(Malabar Coast, ex Daubenton, pl. 880)

Baker, FBI No. 2128, Vol. 6: 190

Plate 27, fig. 6, facing p. 208

LOCAL NAMES. *Zirdi* (Hindi); *Jihiri* (W. Pakistan); *Laori* (Mhow, M.P.); *Chitawa* (Telugu); *Alkatti* (Tamil); *Manjakkanni* (Malayalam); *Kiraluwa*, *Kirala* (Sinhala).

SIZE. Grey Partridge — ; c. 27 cm. (10½ in.).

FIELD CHARACTERS. A leggy sandy brown plover with white belly, black cap, bright yellow lappets of skin above and in front of eyes and bare yellow legs. In flight a white bar (secondaries and greater coverts) on the black wings conspicuous. *Above*, crown of head ('skull-cap') silky black, surrounded by a thin white line. Upperparts sandy brown; tail white, with a broad black terminal band. *Below*, chin and throat black; breast sandy brown; rest of underparts white separated from breast by a thin black line. Sexes alike.

Young (immature). *Above*, pale sandy brown narrowly barred with rather darker brown. *Below*, chin whitish; throat and upper breast with traces of darker brown marks.

STATUS, DISTRIBUTION and HABITAT. Resident, with some local migratory or nomadic movement away from wetter areas in monsoon; thus appearing in many parts only as a winter (dry-season) visitor. From cis-Indus lower Sind in West Pakistan eastward through N. India to W. Bengal and E. Pakistan. Nepal Valley (occasional). Southward throughout the Peninsula; Ceylon (low-country Dry zone). Affects barren waste land, stubbles, and fallow fields in drier biotope than Redwattled Lapwing. Much less dependent on proximity of water; even near jheels keeps to a higher zone away from muddy shores.

GENERAL HABITS. Very similar to those of the Redwattled Lapwing (366) except that it frequents drier facies and is less dependent on the proximity of water: sometimes the two species occur side by side. Usually met with in pairs, only occasionally in small parties of 5 or 6. On the whole much less noisy and demonstrative than Redwattled. Under excitement the black cap sometimes stands up on the crown like the long erect pile of a silken carpet, reminiscent of a miniature steep-sided tableland !

FOOD. Chiefly insects — grasshoppers, beetles, etc.

VOICE and CALLS. Not like Redwattled Lapwing's as stated by Baker but a plaintive long-drawn *ti-ee*, *ti-ee* punctuated by a high-pitched, quick-repeated *twit-twit-twit-twit*. Uttered chiefly when nest or chicks approached, the parents circling agitatedly overhead, diving at and making as if to strike the intruder.

BREEDING. Season, over most of its range March-April to July; occasionally (as in Ceylon) to August. Nest, an unlined shallow scrape on dry open sunbaked fallow- or waste land, sometimes encircled by a parapet of pebbles

or *kankar* (mud pellets). Eggs, 4, of the normal peg-top shape of plovers' eggs, usually arranged in nest with pointed ends inward to occupy least space. Colour, buff to olive-stone, irregularly blotched with dark brown and purplish grey. Average size of 200 eggs 36.4×26.9 mm. (Baker). An erythristic type of egg often found which when laid on red laterite soil (as usual but not invariable), proves adaptively coloured in a high degree. Both eggs and downy chicks superbly camouflaged on the bare ground — the latter buffy or fawn-grey, disruptively stippled with black and rufous. A broad white collar on hindneck further disrupts the pattern in an astonishing way, but once spotted, this same feature becomes conspicuous enough thereafter to betray the chick 'freezing' in the open every time. Both sexes share in incubation; period not recorded. As in Redwattled Lapwing the birds regularly wet their belly feathers in very hot weather before taking turns on the eggs. Water carried thus even after hatching of the first chicks evidently for quenching their thirst; possibly also to small chicks after they wander away from the nest. (For observations on incubatory adaptations in this species see Jayakar, S. D. & Spurway, H., 1965, *Zool. Jahrb., Abt. allgemeine Zool. u. Physiol.* : 53-72.)

MUSEUM DIAGNOSIS. Bill slenderer than in *Vanellus indicus* (366). Tarsus long and slender with transverse shields in front instead of reticulations throughout. No hind toe. 2nd primary (as.) generally longest in both sexes; 1st and 3rd subequal.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	186-205	26-29	60-65	72-84 mm.
♀ ♀	181-205	28-30 (from skull)	57-62	71-80 mm. (SA, HW)

Weight 2 oo? 108, 109 gm. — BNHS.

There is a clinal increase in size from south to north but no difference in coloration.

COLOURS OF BARE PARTS. Iris white to silver-grey or pale lemon-yellow. Bill black, yellow or greenish yellow at base and gape. Legs and feet bright yellow.

Genus PLUVIALIS Brisson

Pluvialis Brisson, 1760, Orn. 1: 46; 5: 42. Type, by tautonymy, *Pluvialis aurea*

Brisson = *Charadrius pluvialis* Linnaeus

Squatarola Cuvier, 1817 (1816), Règne Anim. 1: 467. Type, by tautonymy, *Tringa squatarola* Linnaeus

Wings long and pointed: first primary (as.) longest. Tail short and rounded. Tarsus covered with hexagonal scales all round; outer and middle toes connected by a small web at their base. Sexes alike but with a distinct breeding plumage sometimes partially seen whilst the birds with us. A small hind toe present in *P. squatarola*; absent in *P. apricaria* and *P. dominica*.

Genus more or less Holarctic.

Key to the Species

		Page
A	Axillaries black.....	<i>P. squatarola</i> 220
B	Axillaries white.....	<i>P. apricaria</i> 221
C	Axillaries grey	<i>P. dominica</i> 222

371. Blackbellied or Grey Plover. *Pluvialis squatarola* (Linnaeus)

Tringa Squatarola Linnaeus, 1758, Syst. Nat., ed. 10, 1: 149 (in Europa = Sweden)
Charadrius hypomelus Pallas, 1776, Reise Russ. Reichs 3: 699 ('Colit paludes borealis
 orae'). New name for *Charadrius helvetica* Linnaeus

Cf. Delacour, J., 1951, op. cit.: 6

Baker, FBI No. 2102, Vol. 6: 156

Plate 27, fig. 5, facing p. 208

LOCAL NAME. *Bddā bātān* (Hindi, Bengali).

SIZE. Grey Partridge; length c. 31 cm. (12 in.).

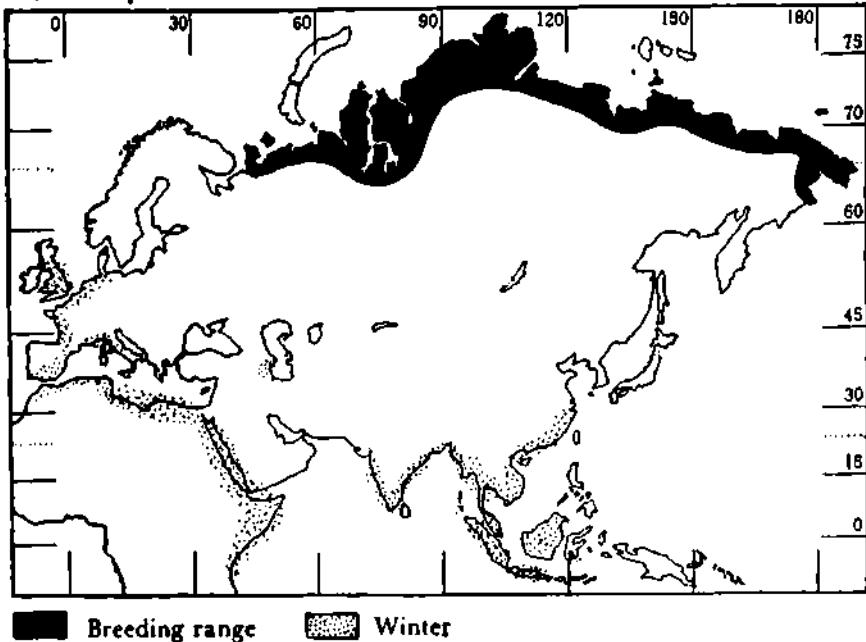
FIELD CHARACTERS. Winter (non-breeding plumage, as commonly seen in India). *Above*, forehead and lores white speckled with black; sides of head and neck white streaked with brown. Rump, upper tail-coverts and tail white narrowly barred with brown. Rest of upperparts dark brown conspicuously scalloped with pale brownish grey. *Below*, foreneck, breast and flanks streaked and spotted with brown; rest of underparts white. Sexes alike.

Summer (breeding plumage). *Above*, black profusely barred and spangled with silvery grey or pearly white. *Below*, from chin to middle of abdomen black; lower abdomen and under tail-coverts white. Sexes alike.

In flight a large black oval patch (axillaries) under the wing (armpit), the whitish rump and tail and whitish wing-bar are conspicuous and diagnostic in both winter and summer plumages.

STATUS, DISTRIBUTION and HABITAT. Winter visitor chiefly to the sea-board — Pakistan (Makran, Sind), Kutch, Saurashtra, down the western side of the Peninsula and up the eastern coast. Ceylon (commoner along the NW. coast); Andaman, Nicobar, Laccadive and Maldives Islands. Less commonly to inland waters — erratically or as a straggler — mostly on migration passage

Pluvialis squatarola



in autumn and spring. Recorded thus in Kashmir, Uttar Pradesh, Bihar, Nepal, Assam, Rajasthan, Madhya Pradesh and Deccan. Doubtless also occurs inland elsewhere. Affects sandy seashore between the tidemarks, and mudflats by lagoons, estuaries and tidal creeks.

Extralimital. Breeds on the Arctic tundra of Europe and Asia from the Kanin Peninsula to E. Siberia; Kolguev, Great Lyakov and Wrangel Is. (also in Arctic N. America). In the Old World migrates south through Europe and Asia to winter quarters in Africa, Madagascar, India, Burma, Thailand, Malaya, etc.

MIGRATION. No ringing data. Arrives on the Sind coast (Karachi harbour) in early August; leaves by end April, earlier than most waders. Latest date in two successive years 6 May (Ticehurst). Small numbers in non-breeding plumage stay behind and may be seen in the winter quarters in all months. They moult into the non-breeding dress again in autumn.

GENERAL HABITS. Gregarious. Sometimes seen in very large flocks; more commonly of 20 to 30 birds. Usually pairs or parties of 5 or 6 mixed with redshanks, dunlins, and other waders. Keeps more to the open sandy seashore and tidal mudflats than Golden Plover, which prefers marshy meadows slightly above this zone. Occasionally seen at freshwater pools not far from tidal influence. Actions on ground typical — running about in short spurts with mincing steps, dipping forward body obliquely to pick up food, and so on. Flight very swift with much agile turning, twisting and banking in unison, as characteristic of the gregarious plovers. Always excessively wary and difficult to approach. Is good eating and a coveted sporting bird.

FOOD. Almost entirely animal: insects, tiny molluscs and crustaceans, worms, etc. Occasionally seeds of marsh plants.

VOICE and CALLS. A shrill musical pipe not unlike the Golden Plover's, constantly uttered in flight; occasionally while feeding. Alarm note a double whistle repeated 2 or 3 times at intervals of a couple of seconds.

BREEDING. Extralimital. Normal clutch 4 eggs laid in a depression in the tundra moss, June-July.

MUSEUM DIAGNOSIS. Unlike Golden Plover possesses a small hind toe and claw. nostrils linear placed fairly close to base of bill in a rather deep, broad groove. For description of plumage see Baker, loc. cit.; for further details of morphology (also bionomics), Witherby, 1940, 4: 377-81.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	182-202	27-32	43-50	69-82 mm.
♀ ♀	186-202	27-31	—	—
(from feathers)			(Witherby)	

Weight 700? (winter) 138-188 (av. 164) gm. — BNHS.

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

372. *Golden Plover*. *Pluvialis apricaria* (Linnaeus)

Charadrius apricarius Linnaeus, 1758, Syst. Nat., ed. 10, 1: 150 ('Oelandia, Canada') restricted type locality, Lapland ex Fn. Svec., where based on a Rudebeck drawing

Cf. Lonnberg, E., 1931, *Ibis* 306-7.

Baker, FBI No. 2119, Vol. 6: 176

Plate 27, fig. 8, facing p. 208

LOCAL NAME. *Chhota bātān* (Hindi).

SIZE. Grey Partridge — ; length c. 27 cm. (10½ in.).

FIELD CHARACTERS. Similar to Grey Plover (371).

Winter (non-breeding). Like the commoner Eastern Golden Plover (373), q.v., also without a white wing-bar, but with brighter black and gold-spangled upperparts. In flight the *pure white* underwing and axillaries distinguish it from the above which has them greyish brown, and from Grey Plover (371) in which the underwing is white and axillaries black. Sexes alike in all plumages.

Summer (breeding). Brightly gold-spangled above, black below. More or less as Eastern Golden Plover (373) and doubtfully distinguishable from it except in flight, again by the pure white v. sooty grey underwing and axillaries.

STATUS, DISTRIBUTION and HABITAT. Winter vagrant. Singly or in small flocks mixed up with Eastern Golden Plover and other waders. Odd specimens identified from West Pakistan (Baluchistan and Sind — Gwadar on Makran coast, Karachi and Sehwan) and from Uttar Pradesh (Lucknow), and Assam (Dibrugarh). Doubtless sometimes overlooked in sportsmen's bags of Golden Plover. Affects muddy shores of jheels, wet pastures, and grassy maidans.

Extralimital. Breeds in Arctic Europe and Asia from Scandinavia to the Yenisey river, south to Latviya and W. Siberia. Winters chiefly in the Mediterranean countries, straggling widely.

GENERAL HABITS and FOOD. As in 373.

VOICE and CALLS. A mournful but not unpleasant musical disyllabic whistle *tloo-ee* constantly repeated, chiefly on the wing. Said to be shriller than of Eastern Golden Plover.

BREEDING. Extralimital. Similar to 373.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 364-9.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	188-192	22-25	38-41	60-76 mm.
♀ ♀	180-191	21-25	—	—

(Witherby)

COLOURS OF BARE PARTS. Iris brown. Bill, legs, and feet black.

373. *Eastern Golden Plover. Pluvialis dominica fulva* (Gmelin)

Charadrius fulvus Gmelin, 1789, Syst. Nat., 1(2): 687 (Tahiti)

Baker, FBI No. 2120, Vol. 6: 178

Plate 29, fig. 2, facing p. 256

LOCAL NAMES. *Chhōta bātān* (Hindi); *Sona bātān* (Bengal); *Oltiyā, Rana watuwā* (Sinhala); *Köttān* (Tamil); *Manal kōzhi* (Malayalam); *Nong-gāng* (Manipuri).

SIZE. Grey Partridge — ; length c. 24 cm. (9½ in.).

FIELD CHARACTERS. A typical plover with the thick rounded head and short pigeon-like bill, swollen at base.

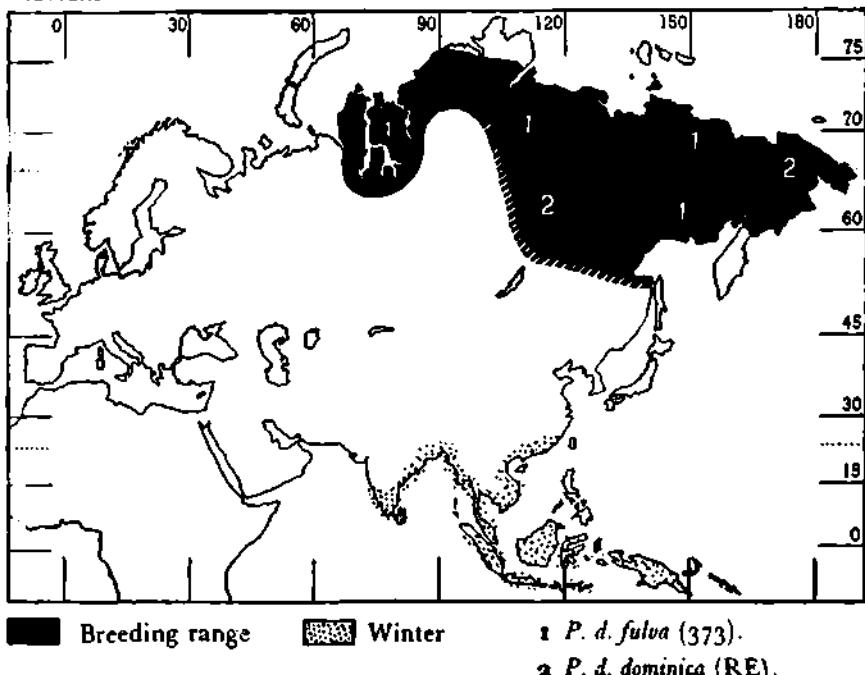
Winter (non-breeding). *Above*, mottled brown, white, and golden yellow. *Below*, whitish, the breast mottled with brown, grey, and yellow.

In flight the very narrow and pointed wings and fanned-out tail (as in a pigeon) are suggestive pointers. Smaller size, absence of white wing-bar, and smoky grey underwing and axillaries (*v.* white underwing and black axillaries) distinguish it from Grey Plover; from Golden Plover (372) by colour of underwing and axillaries, which in that species are pure white.

Summer (breeding). *Above*, forehead white running back in a broad band over the eyes and down sides of neck and breast. Rest of upperparts blackish brown spangled with white and golden yellow. *Below*, from throat to vent black.

STATUS, DISTRIBUTION and HABITAT. Winter visitor, chiefly September–October to April. Most abundant in Assam (N. Cachar), Manipur, East Pakistan and eastern India (West Bengal, N. Bihar), more thinly diffused westward to West Pakistan (Sind, N.W.F. Province) and southward through the Peninsula to Mysore, Madras, and Kerala. Nepal (passage migrant?); Ceylon (regular and abundant in the low-country Wet and Dry zones,

Pluvialis dominica



wandering up to c. 1300 m. in the hills); Andaman, Nicobar, Laccadive and Maldives islands. Affects muddy shores of jheels and coastal lagoons, ploughed, freshly sown and partially inundated fields, wet grazing grounds and maidans, tidal mudflats, etc.

Extralimital. Breeds in N. Siberia from the Yalmal Peninsula to the Yenisey river (overlapping the range of *P. a. apricaria*), east to W. Alaska, south in E. Siberia to the Stanovoy Mountains and Kamchatka. Winters in India, Burma, Thailand, Malaysia, Indochinese countries, S. China; also in Oceania, Australia, and Hawaii Is.; straggles west to E. Africa and east to the Pacific coast of N. America.

MIGRATION. No ringing data. Little known beyond that the vanguard already arrives in the first half of August at places as distant from one another as Assam, Ceylon, and the Nicobar islands; mostly young birds of the year accompanied by a few adults in remnants of the breeding plumage. The species is well established over most of its winter range by mid-September, though Ludlow found it still on migration passage on the marshy flats of the Tsangpo river in SE. Tibet and around Lhasa at the end of September (*Ibis* 1944: 386; 1950: 43), and Scully in the Nepal Valley in September-October (SF 1880, 8: 351). Thus autumn migration is apparently a long-drawn process. Return emigration commences by mid-April, but small numbers in partial summer dress commonly linger on till end May or later — a party of 4 in full breeding plumage observed in the Bombay neighbourhood on 17 July (Sálim Ali). Odd birds in non-breeding plumage stay behind all year. Known to be one of the world's longest distance non-stop migrants, flying continuously over more than 3200 km. of the open ocean between the Aleutian islands and Hawaii in an estimated period of 35 hours under favourable weather conditions.

GENERAL HABITS. Gregarious. Usually in flocks of 20 to 50 by itself or in association with other waders. Larger close-packed flocks of several hundred strong not uncommon in eastern India, especially in autumn and spring. Excessively wary and difficult to approach, a feeding flock usually posting sentries at its periphery who give the alarm long before the birds can be approached within gunshot. The flock rises *en masse* almost simultaneously, flying fairly low and at great speed, turning, twisting, and banking in the air in regimented unison. On touching down after a flight the bird suddenly closes its wings and comes to a dead stop, assuming an erect stance. Though so extremely cunning and wide awake on the ground the birds are curiously simple when on the wing. When driven by beaters will often fly past or over an unconcealed gunner with little suspicion till bitter experience has proved their folly. They are good eating and rank high as sporting birds.

FOOD. Grasshoppers, beetles and other insects, tiny molluscs, crustaceans, and worms. Possibly berries and seeds of marsh plants as on its breeding grounds.

VOICE and CALLS. The only calls commonly heard in winter are a clear single whistle *teeh*, or a high-pitched disyllabic *tu-ee* or *tee-tew*, much richer than the Greenshank's.

BREEDING. Extralimital. Similar to 373.

MUSEUM DIAGNOSIS. Axillaries greyish brown as against pure white in *P. apricaria*. For description of plumage see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 374-6.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	165-174	21-27	39-46	59-64 mm.
♀ ♀	158-175	22-26	—	—

(from feathers) (Witherby)

Weight 28 ♂ ♀ (winter) 86-118 (av. 103) gm. — BNHS.

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



PLATE 28

1 *Numenius p. phaeopus*, Whimbrel (385). 2 *Limosa l. limosa*, Blacktailed Godwit (389). 3 *Limosa l. lapponica*, Bartailed Godwit (391). 4 *Tringa erythropus*, Dusky Redshank (392). 5 *Tringa terek*, Terek or Avocet-Sandpiper (400). 6 *Limnodromus semipalmatus*, Snipebilled Godwit (403). 7 *Calidris c. canuta*, Knot (412). 8 *Gallinago minima*, Jack Snipe (410). 9 *Calidris alba*, Sanderling (414). 10 *Gallinago s. solitaria*, Eastern Solitary Snipe (404). 11 *Calidris a. alpina*, Dunlin (420). 12 *Calidris ruficollis*, Eastern Little Stint (415). 13 *Calidris testacea*, Curlew-Sandpiper (422).

Genus CHARADRIUS Linnaeus

Charadrius Linnaeus, 1758, Syst. Nat., ed. 10, 1: 150. Type, by tautonymy,
Charadrius hiaticula Linnaeus

Cirreepidesmus Bonaparte, 1856, Compt. Rend. Acad. Sci. Paris 43: 417. Type, by tautonymy, *Charadrius pyrrhothorax* 'Terminck' = Gould = *Charadrius cirreepidesmos* Wagler = *Charadrius atrifrons* Wagler

Leucopolius Bonaparte, 1856, Compt. Rend. Acad. Sci. Paris 43: 417. Type, by tautonymy, *Charadrius nivifrons* Cuvier = *Charadrius leucopolius* Wagler = *Charadrius marginatus* Vieillot

Elseya Mathews, 1913, Bds. Austr. 3: 125, 135. Type, by original designation, *Charadrius melanops* Vieillot, *nec Elseya* Granddier, 1867

Elseynornis Mathews, 1914, Austr. Av. Rec. 2: 87. New name for *Elseya* Mathews, preoccupied

Eupoda J. F. Brandt, 1845, in Tchihatchev's Voy. Sci. Altai Orient.: 444. Type, by monotypy, *Charadrius asiaticus* Pallas

Characters as for the Family. For references see p. 205.

Cf. Nielsen, B. P., 1971, *Ornis Scand.* 2: 137-42 (Relationships of Asiatic Plovers)

Key to the Species

Page

A	A white band behind neck.....	1
B	No white band behind neck.....	2
1	Breast band incomplete.....	a
	Breast band complete.....	b
a	Cap reddish brown.....	<i>C. alexandrinus</i> (breeding male) 235
	Cap greyish brown.....	<i>C. alexandrinus</i> 235
b	Scapulars chestnut-red.....	<i>C. melanops</i> (ad.) 227
	Scapulars paler with some chestnut distributed over wing-coverts	<i>C. melanops</i> (imm.) 227
	Neither of these.....	I
I	Outer tail-feathers about 12 mm. shorter than inner. <i>C. placidus</i> 237	
	Outer tail-feathers equal to or only slightly shorter than inner	a ¹
a ¹	White at base of outer web of innermost primaries.....	
	<i>C. hiaticula</i> 230
	No white at base.....	<i>C. dubius</i> 231
2	Upper breast chestnut.....	c
	Upper breast white, buffy, or ringed with complete or incomplete band.....	d
c	Lores white.....	<i>C. asiaticus</i> (breeding male) 228
	Lores black.....	II
II	Bill long (above 20 mm.).....	<i>C. leschenaultii</i> (breeding male) 226
	Bill short (less than 20 mm.).....	<i>C. mongolus</i> (breeding male) 238
d	Rump and tail concolorous.....	<i>C. asiaticus</i> 2 ²
	Rump whitish, tail dark.....	III
III	Bill long (above 20 mm.).....	<i>C. leschenaultii</i> 226
	Bill short (below 20 mm.).....	<i>C. mongolus</i> 238

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	Scapulars paler with some chestnut distributed over wing-coverts	<i>C. melanops</i> (imm.) 227
	Neither of these.....	I
I	Outer tail-feathers about 12 mm. shorter than inner. <i>C. placidus</i> 237	
	Outer tail-feathers equal to or only slightly shorter than inner	a ¹
a ¹	White at base of outer web of innermost primaries.....	
 <i>C. hiaticula</i> 230	
	No white at base.....	<i>C. dubius</i> 231
2	Upper breast chestnut.....	c
	Upper breast white, buffy, or ringed with complete or incomplete band.....	d
c	Lores white.....	<i>C. asiaticus</i> (breeding male) 228
	Lores black.....	II
II	Bill long (above 20 mm.).....	<i>C. leschenaultii</i> (breeding male) 226
	Bill short (less than 20 mm.).....	<i>C. mongolus</i> (breeding male) 238
d	Rump and tail concolorous.....	<i>C. asiaticus</i> 2 ⁿ
	Rump whitish, tail dark.....	III
III	Bill long (above 20 mm.).....	<i>C. leschenaultii</i> 226
	Bill short (below 20 mm.).....	<i>C. mongolus</i> 238

374. Large Sand Plover. *Charadrius leschenaultii* Lesson

Charadrius Leschenaultii Lesson, 1826, Dict. Sci. Nat., 6d. Levraut, 42: 36
(Pondicherry, India)

Baker, FBI No. 2118, Vol. 6: 175

Plate 27, fig. 11, facing p. 208

LOCAL NAMES. None recorded.

SIZE. Grey Partridge —; length c. 22 cm. (8½ in.).

FIELD CHARACTERS. Winter (non-breeding). *Above*, forehead and supercilia fulvous-white, with a broad brown band from lores under eye to ear-coverts. Rest of upperparts ashy brown. *Below* white, with a pale brown band across breast generally broken in the middle.

In flight a narrow whitish bar on the pointed wings, and white-tipped tail-feathers noticeable.

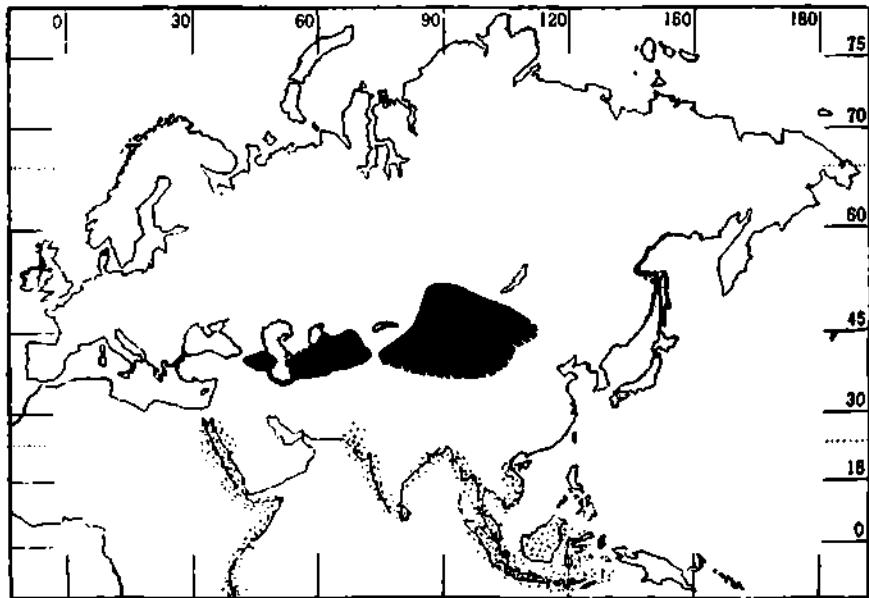
Summer (breeding). *Above*, crown, hindneck and sides of neck rufous; no pale supercilia; forehead black with a white spot on each side; a black patch below eye thinning to ear-coverts. *Below* white, with a broad rufous band across upper breast continuous with sides of neck. Female. Black on head replaced with blackish speckling. Chestnut parts very pale.

Sexes alike in winter.

Young (immature). Like adult in winter plumage, but with faint buff edges to the upperparts and pale edges to wing-coverts.

STATUS, DISTRIBUTION AND HABITAT. Winter visitor to the seabords of West Pakistan (Makran, Sind), India (Gujarat, Maharashtra, Kerala,

Charadrius leschenaultii



■ Breeding range ■ Winter

Madras, Andhra, Orissa, W. Bengal), and East Pakistan. Also Ceylon, Maldives, Andaman, and Nicobar islands. Except perhaps in W. Pakistan, less abundant than Lesser Sand Plover (384) with which it is usually associated. Rare inland, and apparently only on migration passage: recorded in

N. Baluchistan (Quetta, Chagai), Nepal, Rajasthan (Jodhpur, Sambhar Lake). Some non-breeding birds stay back all summer. Affects sandy sea beaches between the tidemarks, mud flats, salt pans, and estuaries.

Extralimital. Breeds on the Kirghiz Steppes and in NW. Mongolia, putatively across Asia from Transcaspia to Korea, south to Iran and possibly to the Red Sea. Winters on the coasts of southern Asia south of Turkestan and Korea, to S. Africa, India, Burma, Thailand, Malaysia and Australia. (For details of range see Vaurie, C., 1965, *Bds. Pal. Fauna* 2 : 381.)

MIGRATION. No ringing data. Arrives on the coasts of W. Pakistan and NW. India in early August, largely in worn breeding dress; departs chiefly in April-May (some as late as June) when most adults are again in freshly moulted partial or complete breeding dress, and very fat. A few non-breeding individuals remain in the winter quarters throughout the year without any trace of breeding plumage or migratory fat.

GENERAL HABITS. A truly maritime species. Gregarious; in small parties or large flocks usually in association with Lesser Sand Plovers, dunlins, and other waders. Behaviour typical of the family and very like the commoner Lesser Sand Plover (384), q.v.

FOOD. Small crabs, marine worms, insects. Among the last the beetle *Sphenoptera aenea* (Buprestidae) has been identified.

VOICE and CALLS. Very silent in winter. Except for a low *trrrr* when flying off, nothing recorded.

BREEDING. Extralimital. Apparently similar to Lesser Sand Plover.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit. In non-breeding and immature plumage could be confused with *Charadrius hiaticula* (378), but its longer tarsus (dusky greenish *v.* orange-yellow) and longer bill will distinguish it at all times.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
20 ♂ ♀	134-150	24-27 (from feathers)	35-38	48-58 mm. (Ticehurst, SA)

Weight 8 ♂ ♀ (winter) 65-84 gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill black. Legs and feet dusky greenish (sometimes almost sage-green) to olive-slate colour.

375. Australian Blackfronted Plover. *Charadrius melanops* Vieillot

Charadrius melanops Vieillot, 1818, Nouv. Dict. Hist. Nat. 27: 139

('Terre Australis' = New South Wales *apud* Mathews)

Omitted in Baker

SIZE. Lesser Sand Plover (384) — ; length c. 16-17 cm. (6-6½ in.).

FIELD CHARACTERS. The distinctive black and white patterning on the head, very different from the Ring Plover group, and prominent maroon-chestnut scapulars should be diagnostic. Sexes alike. (For description of plumage see Museum Diagnosis, below.)

STATUS, DISTRIBUTION and HABITAT. Vagrant. A single specimen collected by Dr T. C. Jerdon at Pulicat Lake near Madras in June (i.e. during the austral winter). Breeds in Australia and Tasmania where it frequents muddy river banks and shores of lakes and inlets.

MUSEUM DIAGNOSIS. *Above.* Crown brown; forehead and a stripe commencing at eye and passing over ear-coverts round hindneck black. A conspicuous white stripe over eyes continuing round hindneck separating the black band from crown. Back and wings (tertiaries) brown; scapulars maroon-chestnut; greater coverts white-tipped forming an obscure band across wing; primaries black. Middle pair of tail-feathers brown at base black at tip; next three pairs white at base passing into blackish brown and largely white-tipped. Remaining rectrices entirely white. *Below,* a broad black band across breast, starting from the black ear-coverts, encroaching somewhat towards abdomen in its middle. Throat, abdomen, and under tail-coverts white. (After Gould, *Birds of Australia*.)

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	110-112	15-17	23-25	53 mm.
♀ ♀	c. 109	—	—	(SDR)

COLOURS OF BARE PARTS. Iris dark brown; eyelids bright red. Legs and feet pale fleshy to orange-flesh.

CHARADRIUS ASIATICUS Pallas**Key to the Subspecies**

- Smaller; wing under 152 mm.; axillaries white..... *C. a. asiaticus*
Larger; wing over 152 mm.; axillaries light brown..... *C. a. veredus*

376. Caspian Sand Plover. *Charadrius asiaticus asiaticus* Pallas

Charadrius asiaticus Pallas, 1773, Reise Russ. Reichs 2: 715

(Salt Lakes of the South Tartar steppes)

Baker, FBI No. 2104, Vol. 6: 158

Plate 27, fig. 7, facing p. 208

LOCAL NAMES. None recorded.

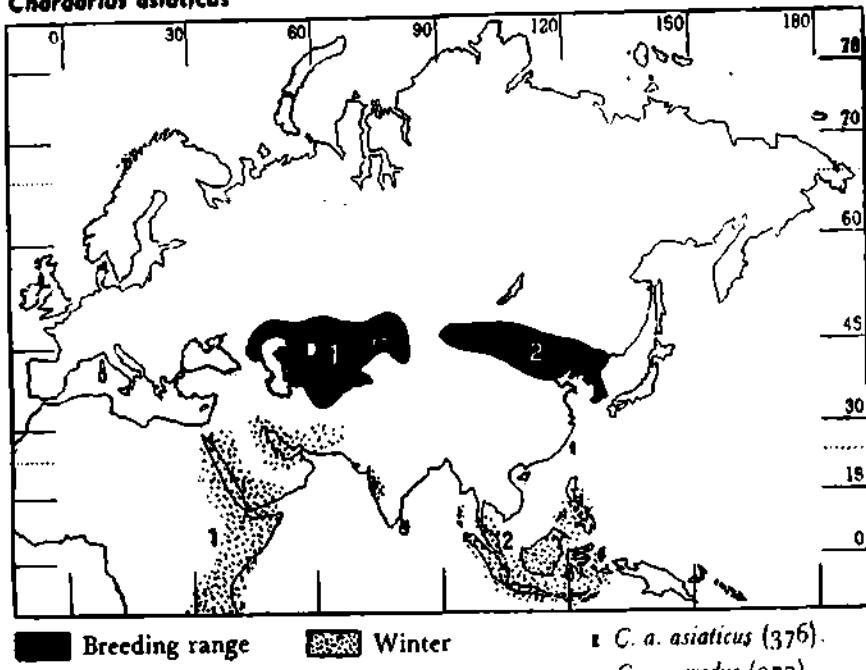
SIZE. Grey Quail ±; length c. 19 cm. ($7\frac{1}{2}$ in.).

FIELD CHARACTERS. Winter (non-breeding). Difficult to tell from Lesser Sand Plover (384) of the same size, but when together should be noticeable as somewhat higher on the legs. *Above*, forehead, supercilia, lores, and cheeks buffy white. A brown patch behind eye to ear-coverts. Back and upperparts brown. Tail-feathers brown, darker near end and tipped white. *Below*, chin and throat buffy white continuing from cheeks; foreneck and breast brown; rest of underparts white. Underwing mixed brown and white; axillaries pure white. Sexes alike.

Summer (breeding). Foreneck and upper breast chestnut, separated from white lower breast and abdomen by a black band.

Young (immature). Upperparts narrowly scalloped with dull rufous.

STATUS, DISTRIBUTION and HABITAT. Vagrant. A single specimen shot near Ratnagiri on the west coast in c. 1880, another in Ceylon in February 1951, and a pair in the Maldives Is. in November 1958 constitute the only authentic records for our area. Sight-recorded in Ceylon (Norris, C. E., 1964, *Loris* 10: 119). Possibly less rare but overlooked. Affects sea coast and mudflats, but said to prefer grassy plains inland.

Charadrius asiaticus1. *C. a. asiaticus* (376).2. *C. a. veredus* (377).

Extralimital. Breeds from the lower Volga in SE. Russia to Dzungaria south to E. Iran and the Tian Shans. Migrates through Iran, Arabia and eastern Africa; winters chiefly in S. Africa — Peters.

GENERAL HABITS and FOOD. Unrecorded in India; presumably as of the Lesser Sand Plover.

VOICE and CALLS. 'A plaintive treble whistle' (Baker). 'A whistling ku-wit' (Meinertzhagen).

MUSEUM DIAGNOSIS. Distinguished from Lesser Sand Plover (384) by its longer tarsus. Shafts of all primaries usually white. For details of plumages see Baker, loc. cit.; for plumage phases and morphology (also bionomics), Witherby, 1940, 4: 381-3.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	141-155	19-23	37-41	49-60 mm.
♀ ♀	140-150	20-23	—	—

(Witherby)

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

377. Eastern Sand Plover. *Charadrius asiaticus veredus* Gould

Charadrius veredus Gould, 1848, Proc. Zool. Soc. London: 38

(Northern Australia)

Baker, FBI No. 2105, Vol. 6: 159

LOCAL NAMES. None recorded.

SIZE. Grey Quail +; length c. 24 cm. (9½ in.).

FIELD CHARACTERS. Very like Caspian Sand Plover (376) but larger.

Winter (non-breeding). *Above*, supercilia less distinct; hindneck paler than crown or back. Sexes alike. In flight the light brown underwing and axillaries are suggestive clues.

Summer (breeding). *Above*, whole head and neck white excepting a brown nape patch; a brown band from behind eye over ear-coverts to nape. *Below*, throat white; foreneck rufous (connected with brown nape-patch), turning to chestnut on upper breast and sides of breast. A black band separating chestnut breast from white of rest of underparts.

Young (immature) have the upperparts scalloped with rufous. *Below*, brown feathers of breast with dark centres.

STATUS, DISTRIBUTION and HABITAT. Vagrant. A single example (in winter plumage) collected in the Andamans in May 1872. No other record within our limits.

Extralimital. Breeds in Mongolia and N. China. Migrates through China and Japan and winters in the Sunda Islands, Celebes, Moluccas, and Australia — Peters.

GENERAL HABITS and FOOD. As of Caspian and Lesser and Large Sand Plovers.

VOICE and CALLS. ‘When disturbed utters a sharp whistling note’ (Cayley, Australia).

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. In winter plumage distinguishable from *Charadrius mongolus atrifrons* (384) by larger size and longer tarsus; from *C. leschenaultii* (same size) by colour of shafts of the primaries. In *C. a. tundrus* whole shaft of first primary (as.), white; a portion of second primary usually white but occasionally second primary all brown like the rest; in *leschenaultii* whole shaft of first primary and all but the tips and bases of the others are white. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	153-167	22-24	c. 44-46	59-64 mm. (Baker)

COLOURS OF BARE PARTS. Iris hazel. ‘Bill olive-brown. Legs pale brownish flesh colour; feet washed with grey, blackish on joints’ (Swinhoe).

378. Eastern Ringed Plover. *Charadrius hiaticula tundrae* (Lowe)

Aegialitis hiaticula tundrae Lowe, 1915, Bull. Brit. Orn. Cl. 36: 7

(Valley of the Yenesei)

Baker, FBI No. 2112, Vol. 6: 168

Plate 27, fig. 9, facing p. 208

LOCAL NAMES. None recorded.

SIZE. Grey Quail ± ; length c. 19 cm. (7½ in.).

FIELD CHARACTERS. Very like Little Ringed Plover (380), q.v. — also with a double collar on hindneck (the upper white, the lower black), black pectoral band, and bold black-and-white head markings. Distinguished from it at rest chiefly by somewhat larger size, absence of the thin white

line above black forecrown-band, and orange-yellow (*v.* dusky-olive or greenish yellow) legs; in flight by presence of a narrow white wing-bar (lacking in 380). Sexes alike.

Young (immature) doubtfully possible to tell in the field from young 380.

STATUS, DISTRIBUTION and HABITAT. Straggler or very rare winter visitor; possibly sometimes confused by observers with Little Ringed Plover, and in immature plumage with Lesser Sand Plover. So far recorded with specimens only from Gilgit (1881, SF 9: 359), Sultanpur near Delhi (1879, SF 8: 197), and Maldives Islands (1958, JBNHS 60: 571). Authentically sight-recorded: Karachi harbour (C. B. Ticehurst, *Ibis* 1923: 655), Jaffna Peninsula, Ceylon (G. M. Henry, 1944, *Loris* 3: 132).

Extralimital. 'Breeds on the Arctic tundras of northern Scandinavia, Finland, N. Russia and N. Siberia to the Chuckchi Peninsula. Winters chiefly along the coasts and islands of the NE. Mediterranean and the coasts of E. Africa . . .' — Peters.

GENERAL HABITS, FOOD, VOICE and CALLS. Not recorded in India. Elsewhere noted by SA as a full, liquid *toot* (disyllabic), lower pitched than the (monosyllabic) *phiu* or *pheoo* of Little Ringed Plover (379, 380).

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for description of plumage phases, morphology (also bionomics) of the nominate race and of *C. A. tundras* (which is decidedly darker and also slightly smaller), Witherby, 1940, 4: 947-53.

Black pectoral band much broader, legs and bill coarser, and feet larger than in *Charadrius dubius*. For other distinguishing characters of *hiaticula* from *C. dubius*, *C. mongolus* and allied plovers see A. O. Hume, 1879, SF 8: 197-201.

MEASUREMENTS of breeding birds from Siberia and N. Norway:

	Wing	Bill	Tarsus	Tail
♂ ♂	122-132	13-15	24-27	55-61 mm.
♀ ♀	125-129	13-15 (from feathers)	—	— (Witherby)

Weight 1 o? 42 gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown; eyelids yellow. Bill orange-yellow, black at tip. Legs and feet orange-yellow.

CHARADRIUS DUBIUS Scopoli

Key to the Subspecies

- | | |
|-----------------------------------|------------------------|
| Smaller; wing 102 to 114 mm. | <i>C. d. jerdoni</i> |
| Larger; wing 115 to 121 mm. | <i>C. d. curonicus</i> |

379. European Little Ringed Plover. *Charadrius dubius curonicus* Gmelin

Charadrius curonicus Gmelin, 1789, Syst. Nat. 1(2): 692 (Kurland)

380. Indian Little Ringed Plover. *Charadrius dubius jerdoni* (Legge)

Aegialitis jerdoni Legge, 1880, Proc. Zool. Soc. London: 39 (Ceylon and middle India). New name for *Aegialitis minutus* Jerdon, nec *Charadrius minutus* Pallas

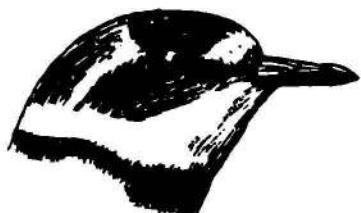
Baker, FBI Nos. 2114, 2115, Vol. 6: 171

Plate 29, fig. 3, facing p. 256 and Vol. 3, plate 37

LOCAL NAMES. *Zirrea, Mērwā* (Hindi); *Jiria* (Bengal); *Kola katij* (Kashmiri); *Bytu ulanka, Rewa* (Telugu); *Punchi olēiyā* (Sinhala); *Sinna kōttān* (Tamil); *Motira kōchi* (Malayalam).

SIZE. Lesser Sand Plover ±; length c. 17 cm. (6½ in.).

FIELD CHARACTERS. A typical little plover with thick round black-and-white patterned head, bare yellowish legs and short pigeon-like bill. *Above*, forehead white; forecrown black, separated from the sandy brown crown by a thin white line running back over eyes and ear-coverts. A black band from lores enclosing yellow-rimmed eye and ear-coverts. A double collar on hindneck (the upper white, the lower black) separating crown from sandy brown upperparts. *Below*, chin, throat and foreneck white narrowing on sides of neck into the



x c. 1

white collar; black nuchal collar continuing down into a pectoral band across upper breast. Rest of underparts white. Sexes alike.

Absence of white wing-bar (in flight), and yellowish *v.* brownish grey legs distinguish it from Kentish Plover (381, 382) in comparable plumage.

Young (immature). No clear-cut black and white markings on head or breast, these being replaced by brown. The black pectoral band when first assumed has whitish fringes.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Status of the races uncertain since their separation rests solely on slightly larger wing in *curonicus*; impossible to discriminate the two without specimens in hand, therefore they are both combined here.

C. d. curonicus. Breeds for certain in West Pakistan (Quetta Valley, N.W.F. Province (?)) and Kashmir to c. 1500 metres and possibly higher elevations (Ladakh ?). Winter visitor and/or on migration passage (August/September to April/May) over practically our entire area as far east as the Naga and Mishmi Hills and including Andaman Is. and Ceylon. Recorded (presumably this subspecies) on passage in Chitral (April) and Kohat (February to mid May), as well as breeding abundantly in the Kurram Valley from May onwards (Perreau), and about Thal (Rattray). Double passage migrant, October and April, in Punjab Salt Range (Waite).

Extralimital. 'The greater part of Europe and N. Asia from lat. 62°N. in Sweden, 67°N. in Finland, the White Sea, lat. 60°N. in Asia, south to NW. Africa, Egypt, Kashmir, N. China and N. Japan; Island of Madeira. Winters in Africa south of the Sahara, Arabia, India, S. China, the Malay Archipelago and Papuan Islands' (Peters).

C. d. jerdoni. Resident throughout the subcontinent from the Himalayan foothills to Kanyakumari, and from Sind to Assam. Nepal; Ceylon. Moves about locally with water conditions.

Extralimital. 'Burma, Thailand, Malay Peninsula, Indochina, New Guinea, Bismarck Archipelago, apparently also the Greater and Lesser Sunda Islands' (Peters).

Affects shingly banks of rivers, streams and tanks, wet grazing grounds, the seashore between tidemarks, and tidal mudflats and estuaries.

GENERAL HABITS. Keeps in pairs or small scattered feeding parties and flocks of 6 to 12 or more, either by itself or mixed with other small waders.

Runs about with rapid mincing steps, head partly drawn into the shoulders, in short zigzag spurts punctuated by pauses to pick up some titbit with the peculiar steep 'hinged to knee-joint' forward tilt of the body characteristic of the family. Has a clever technique of stampeding tiny insects and crustaceans lying doggo in unevennesses of the ground by drumming or tapping with the toes of one foot in a rapid vibratory motion. Success of this manœuvre evident from the frequency of the darting forward 'dips' to snatch the fleeing refugees, immediately resulting. In its native environment its colour pattern is astonishingly disruptive, making the bird quite invisible even at close range unless it moves. Though scattered over a wide area when feeding the birds will rise more or less simultaneously on alarm and fly off in a compact agile flock turning and twisting in the air in regimented unison, their white undersides flashing in the sun as they bank and wheel. The flight, attained by rapid strokes of the pointed wings, is swift but seldom more than a few metres above ground.

FOOD. Insects (weevils, beetles, dipterous larvae), worms, tiny crabs, etc. Among stomach contents the following insects have been identified: *Chrotogonus* sp. (Acridiidae), *Hypera variabilis* (Curculionidae), *Scleron denticolle* (Tenebrionidae), *Chrysopa* larvae (Hemerobiidae).

VOICE AND CALLS. A short rather plaintive single whistle *phiu* or *phoo* constantly uttered in flight; noticeably higher pitched and thinner-sounding than the full liquid double-noted *toot* of Ringed Plover (378).

BREEDING. Season. *C. d. curonicus* in Kashmir, April-May. *C. d. jerdoni* in continental and peninsular India chiefly March to May; in South India, December to June, chiefly March, April and May; in Ceylon, June and July, occasionally August. Nest, a shallow unlined depression or scrape on a shingle bank or islet in a stream, or in a dry gravelly river-bed; usually in the open, sometimes near a bush or boulder. Eggs, 4, of the typical peg-top shape of plovers' eggs — broad at one end, abruptly pointed at the other. Variable in coloration from buffish stone to greenish grey with hieroglyphic-like squiggles and scrawls and spots of dark brown and phantom purplish markings. Average size of 100 European eggs of *curonicus* 29.8×22.1 mm. (Jourdain); of 8 taken in Kashmir 28.9×21.5 mm. (Osmaston); of 60 *jerdoni* 27.5×20.7 mm. (Baker). Both sexes share in incubation and tending the chicks, brooding them against rain and performing 'broken-wing' distraction displays to lead off suspicious intruders. Incubation period c. 22 days.

The nuptial display is a remarkable performance described by two independent observers with the following sequences:

1. A pair feeding. Male flattens body horizontally, partially fluffs out feathers on sides of breast, lowers head (neck telescoped into shoulders and with bill pointing at female), scuttles up to her. She moves away in the same manner, leading him on. After a few metres female halts. Male comes up and with bill almost 'digging her in the ribs' rapidly vibrates his fanned-out tail up and down, at the same time prancing quickly from one foot to the other. After about 5 seconds of this hops on to female's back, she still with body horizontal and legs upright. Stands with unflexed legs on female's back and repeats the shivering for over 10 seconds. Female now tilts forward raising her posterior and quick copulation takes place. Male slips off female's

back and moves off some distance in same 'furtive' manner, and resumes feeding (Sálim Ali).

2. A female feeding. Male comes flying over with rapidly beating wings, calling excitedly *sweet-you, sweet-you, sweet-you*. Lands nearby, fluffs out side feathers of breast, runs towards her pointing his bill as if to chase her off. She trots away and halts at a short distance, he follows at a crouching run. When a few centimetres away he straightens out of his crouch, draws himself to his full height rapidly goose-stepping the intervening distance, stiffly raising one leg in front of him then the other in 'a curious, comical, preposterously cock-of-the-walk performance'. The rapidly goose-stepping legs look from the side like a pair of scissors snipping away at speed. On his close approach female crouches slightly while he advances waving his legs in the air. Finally male jumps on female's back and stands ('perhaps 20 seconds') literally treading her, his feet working strenuously. After quick copulation runs off, breast feathers again fluffed out, and expanded tail twitching (Loke Wan Tho).

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics) of *curonicus*, Witherby, 1940, 4: 356-9. *C. d. jerdoni* differs from it only in being slightly smaller, but size difference in the two races clinal. However, subspecies *jerdoni* (tropical) differs considerably from *curonicus* (palaearctic) in its moult pattern. The latter has a juvenal-like winter plumage whereas *jerdoni* lacks a winter plumage (Stresemann, *in epist.*). All examples with wing over 114 mm., especially non-breeding birds collected in the plains in winter, probably referable to *curonicus*.

Chick (in down). *C. d. jerdoni*. 'Forehead, carpus, edge of ulna and collar of hindneck white; circle round crown from eye to eye and above white collar, black; lines on thighs and forearm, tail, black; rest of upperparts grizzled black, white and ginger points' (Ticehurst).

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
<i>C. d. curonicus</i>				
♂ ♂	111-119	12-14	22-25	50-60 mm.
♀ ♀	112-120	12-14 (from feathers)	—	— (Witherby)
<i>C. d. jerdoni</i>				
♂ ♂	107-115	15-17	24-26	54-62 mm.
♀ ♀	105-117	16-17 (from skull)	23-26	53-64 mm. (SA, HW, BB)

Weight *C. d. curonicus* 20 ♂ ♀ 28-39 (av. 31.8) gm.

C. d. jerdoni 20 ♂ ♀ 21-33 (av. 27.9) gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown; naked ring round eye (eyelids) yellow, becoming greatly swollen in breeding season. Bill horny black, yellow at base of lower mandible. Legs and feet dusky greenish yellow; claws horny black.

MISCELLANEOUS. Longevity (ring record) 8 years (*Ring*, 1962, 33: 149).

CHARADRIUS ALEXANDRINUS Linnaeus

Key to the Subspecies

- | | |
|---------------------------------|---------------------------|
| Smaller; wing 93 to 107 mm..... | <i>C. a. seeborni</i> |
| Larger; wing 106 to 118 mm..... | <i>C. a. alexandrinus</i> |

381. **Kentish Plover.** *Charadrius alexandrinus alexandrinus* Linnaeus*Charadrius alexandrinus* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 150

(Egypt, ex Hasselquist)

Baker, FBI No. 2106, Vol. 6: 161

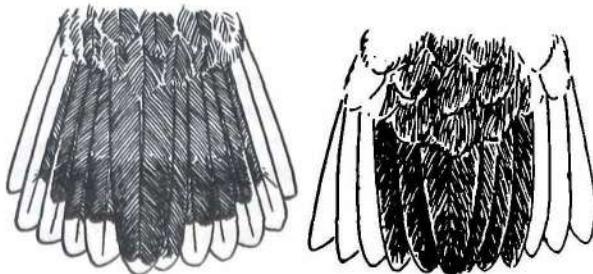
Plate 27, fig. 10, facing p. 208

LOCAL NAMES. Unspecific and general. *Sinna köllän* (Tamil); *Manal kōzhi* (Malayalam).

SIZE. Grey Quail —; Lesser Sand Plover ±. Length c. 17 cm. (6½ in.).

FIELD CHARACTERS. Winter (non-breeding). ♂ ♀ very similar to immature Little Ringed Plover, and not easily distinguished from it. But blackish v. yellowish legs, narrower brownish stripe through eye, white forehead continued unbroken as supercilium, and a small dark patch on each side of upper breast v. a complete pectoral band, are leading pointers.

Summer (breeding). Male: Crown bright rufous, and head markings more contrasty. White collar on hindneck not separated from back by a black band as in Little Ringed Plover. Female more or less as in winter, but when freshly moulted has edges of feathers of the crown and breast-patches rufescent.



Tails, \times c. 1/2
C. hiaticula *C. alexandrinus*

In flight a narrow white wing-bar and more prominent white sides of tail readily distinguish it from Little Ringed Plover at all times.

Young (immature). Like female but with the upperparts narrowly scalloped with sandy buff.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Breeds, as so far proved, in West Pakistan (Baluchistan, Sind), northern India (N. Bihar — Darbhanga dist.), Gujarat — Bhavnagar, Porbunder, Kharaghoda (race presumed). Doubtless also elsewhere and more widely. Winter visitor to the rest of India (recorded as rare in Assam [N. Cachar] and Manipur), Nepal terai, Ceylon, Maldives and Laccadive islands. Affects the sea coast (mostly); also shingly river banks inland.

Status of this race and the next uncertain as winter sightings racially inseparable, and breeding records outside W. Pakistan not authenticated by skins.

Extralimital. 'Breeds on the Canary, Madeira, Azores, and Cape Verde Islands, south coast of England and the greater part of Europe and C. Asia from Sweden and Latvia east to Korea, south to the northern Sahara, Egypt, Arabia, and Sind. Migrates in winter to tropical and southern Africa, India, S. China, Japan, Formosa and the Sunda Islands' (Peters).

MIGRATION. No ringing data. Common at Bannu (NW. Pakistan) in spring and autumn (Whitehead & Magrath). Arrives in Quetta district (Baluchistan) early April, leaves in September (Ticehurst). Spring passage migrant in Delhi, chiefly end April and first half May (Frome).

GENERAL HABITS. Very similar to the Little Ringed Plover (379, 380), with immatures of which it may easily be confused. Parties and flocks, often mixed with other waders. Runs about with neck drawn into the shoulders as typical of the smaller plovers.

FOOD. Small crabs, sandhoppers and other insects.

VOICE and CALLS. A soft *trrr* uttered when flying off; 'a sweet trill in butterfly-like display flight' (Baker). A shrill double alarm note '*too-it, too-it, ittup, ittup*' (Witherby).

BREEDING. Season in Baluchistan (Quetta dist.), Sind and Gujarat March to July chiefly May and June. Nest, a slight depression in sand sometimes lined with fragments of shells, in a dry river-bed, or on the seashore above high-tide mark or on mounds of windblown sand collected at the base of salt-plants like *Sueda* or among runners of *Ipomoea biloba*. Eggs normally 3, occasionally 2, exceptionally 4; pyriform, pale to dark sandy brown sometimes tinged greenish; stippled, spotted and blotched with blackish brown often mixed with or largely replaced by twisted hair lines and scrawls. The eggs often lie in the scrape half buried in windblown sand with only the broad ends showing as rounded studs or domes. Average size of 100 extralimital eggs 32.5×23.5 mm. (Jourdain). Indian eggs agree with this (Baker). Both sexes incubate; period 15–17 days (Naumann). Both parents tend the young and indulge in 'broken-wing' distraction displays to draw off intruders from the vicinity of nest and chicks. A case of egg predation by the Great Stone Plover (*Esacus m. recurvirostris*, 437) has been reported (Dharmakumarsinhji).

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 360–3.

In winter plumage may be distinguished from the very similar non-breeding and immature *Charadrius dubius* as follows:

<i>C. alexandrinus</i>	<i>C. dubius</i>
1. Three outer pairs of rectrices all white	1. Only the outermost pair all white; 2nd and 3rd pairs partly brown
2. Shafts of all primaries white	2. Shaft of first primary only white
3. Brown pectoral band widely broken	3. Pectoral band unbroken
4. Legs blackish	4. Legs yellowish

Chick (in down). 'Forehead and carpus white; black line on forearm and behind each eye; white hind collar; crown and rest of upper parts mottled black and buffish white; underparts white' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
12 European ♂♂	109–118	14–15	25.5–29	43–46 mm.
12 European ♀♀	106–117	14–15 (one 16) (from skull)	—	— (Witherby)
8 Indian ♂♂	105–111	19–22	26–29	46–47 mm.
8 Indian ♀♀	105–114	18–21	27–28	43–49 mm. (CBT, HW, SA)
Weight 22 ♂ ♀ (winter)	27–41	(av. 35.6) gm.	—	BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill black. Legs and feet plumbeous grey or blackish.

382. **Ceylon Kentish Plover.** *Charadrius alexandrinus seebohmi*
Hartert & Jackson

Charadrius alexandrinus seebohmi Hartert & Jackson, 1915, Ibis: 529. New name for *Charadrius cantianus minutus* Seeböhm (Aripo, N. Ceylon), *nec Charadrius minutus* Pallas *Leucopolius alexandrinus leggei* Whistler & Kinnear, 1937, J. Bern. nat. Hist. Soc. 39: 251 (Hambantotta, SE. Coast, Ceylon)
Baker, FBI No. 2107, Vol. 6: 162

LOCAL NAMES. *Punchi olgyiya* (Sinhala); *Uppu kothi* (Madura dist., Madras).

SIZE. As 381; length c. 17 cm. (6½ in.).

FIELD CHARACTERS. As of the nominate race (381), q.v. Slightly smaller and lacking the bright rufous cap in the breeding season. In winter the two races indistinguishable.

STATUS, DISTRIBUTION and HABITAT. Resident. Common. Ceylon (low-country Dry zone) and southern peninsular India, how far north not known. Affects the seashore and tidal mudflats, and margins of large tanks inland.

GENERAL HABITS, FOOD, VOICE and CALLS. As of the nominate race (381).

BREEDING. Season in Ceylon May to August; occasionally as early as February in the Jaffna Peninsula (Phillips). In Madras (Cuddalore 11°43'N., 79°46'E.) April and July/August, possibly throughout the period. Rev. Axel Krebs, who found both eggs and chicks there, categorically noted the absence of the rufous cap in breeding birds as is diagnostic of the race *seebohmi* (JBNHS, 1956, 53: 703). Site, nest and eggs as in the nominate race, the last smaller. Average size of 40 eggs 29·9 × 22·0 mm. (Baker).

MUSEUM DIAGNOSIS. Differs from 381 in its smaller size and in the fact that it does not assume the distinctive breeding plumage with the bright rufous cap.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
5 Ceylon ♂♂	103-104	18-20	25-27	43-46 mm.
3 Ceylon ♀♀	96-104	17-20 (from skull)	25-28	39-43 mm. (HW)

Weight 20 ♂ ♀ (winter) 20-40 (av. 30·4) gm. — BNHS.

(Pt Calimere)

1 ♂ 29 gm. — SDR (Ceylon).

COLOURS OF BARE PARTS. As in 381.

383. **Longbilled Ringed Plover.** *Charadrius placidus* J. E. Gray

Charadrius placidus J. E. Gray, 1863, Cat. etc. Mamm. Bds. Nepal and Tibet . . .
Brit. Mus., ed. 2: 70 (Nepal)
Baker, FBI No. 2116, Vol. 6: 172

LOCAL NAMES. None recorded.

SIZE. Grey Quail +; Large Sand Plover ±. Length c. 23 cm. (c. 8½ in.).

FIELD CHARACTERS. Very similar to the Ringed and Little Ringed Plovers (378, 380) — also with black bill and yellow legs — and doubtfully distinguishable from them. But larger size and much longer bill are suggestive clues. (For differentiation in the hand see Museum Diagnosis.)

STATUS, DISTRIBUTION and HABITAT. Winter visitor. Rare but evidently regular in eastern and upper Assam. Has been obtained also in Nepal, N. Bihar, the duars of Bengal and Bhutan, and in East Pakistan. Affects shingle banks of large rivers.

Extralimital. 'Breeds in Ussuriland, Manchuria, Korea, N. China and N. Japan. Winters south to China, N. India, Burma and Annam [central Viet Nam] — Peters. Possibly breeds along the Tsangpo river in SE. Tibet (Ludlow).

GENERAL HABITS, FOOD, VOICE and CALLS. Very little specifically recorded. Usually solitary. Coloration remarkably obliterative on the shingle banks it frequents, rendering the bird liable to be overlooked.

BREEDING. Extralimital. In general similar to the Ringed Plovers.

MUSEUM DIAGNOSIS. Shaft of first primary brown, paler and yellowish towards tip but never white as in Ringed Plover. Forehead wholly white; the black on the lores and cheeks replaced by brown or blackish brown.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	139-152	18-20	c. 31-34	76-78 mm. (Baker)

COLOURS OF BARE PARTS. Iris brown; rim of eyelid yellow. Bill black, base of lower mandible yellowish. Legs and feet light yellowish (La Touche).

384. Pamirs Lesser Sand Plover. *Charadrius mongolus atrifrons* Wagler

Charadrius atrifrons Wagler, 1829, Isis von Oken, col. 650 (Bengal)

Baker, FBI No. 2117, Vol. 6: 174

Plate 29, fig. 1, facing p. 256

LOCAL NAMES. *Oléyiya* (Sinhala); *Köttán* (Tamil); *Manal kózhi* (Malayalam).

SIZE. Grey Quail; length c. 19 cm. (7½ in.).

FIELD CHARACTERS. A typical little plover with thick round head, bare greenish grey legs, and short pigeon-like black bill.

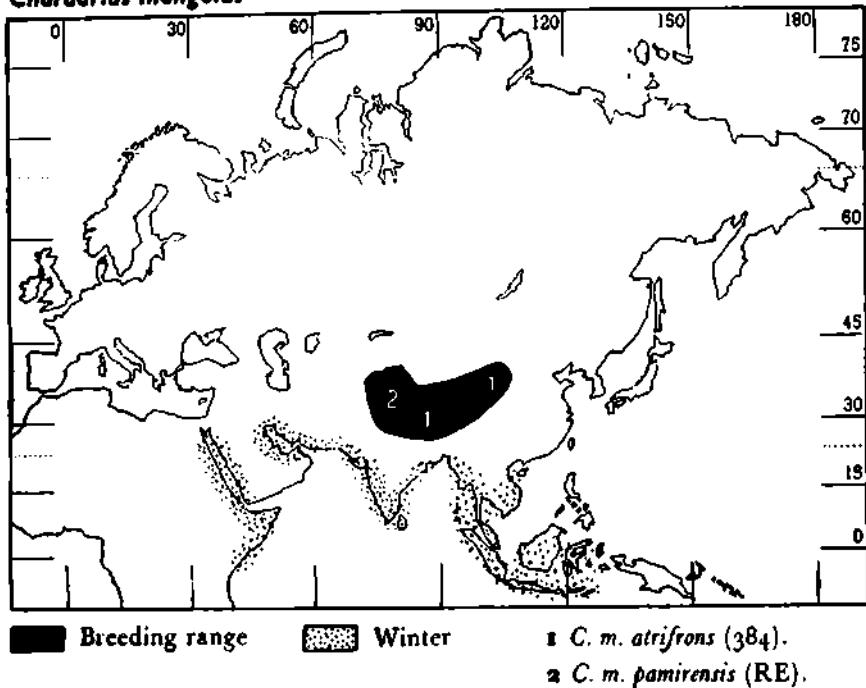
Winter (non-breeding). *Above*, forehead fulvous or tawny. Ear-coverts brownish, conspicuous as a dark patch behind eye on white sides of head. White collar on hindneck very faint or absent. Upperparts sandy greyish brown. *Below*, white.

Summer (breeding), as sometimes seen just before emigration. *Above*, forehead and sides of head black; crown and hindneck rust coloured or pale chestnut. Rest of upperparts sandy brown. *Below*, upper breast and flanks pale chestnut, separated from glistening white throat by a blackish half collar. Sexes alike.

Young (immature) has pale fringes (scalloping) to the feathers of the upperparts.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Within our limits breeds in the Tibetan plateau facies of the High Himalayas between c. 3900 and 5500 m. elevation in Ladakh, Lahul, and Sikkim. Abundant winter visitor — perhaps the commonest wader — to the seaboard from Makran and Sind in W.

Charadrius mongolus

Pakistan round the entire Peninsula to W. Bengal and E. Pakistan. Also the coasts on Ceylon, Andaman and Nicobar, and Maldives islands. Recorded inland south of the Himalayas sparingly and irregularly, chiefly on migration passage (stragglers ?) in N. Bihar, Nepal, Assam, Manipur, Rajasthan. A few odd birds in non-breeding dress remain behind on the sea coast throughout the year. Affects seashores, and tidal mudflats and estuaries in winter; stony, sandy plains in the vicinity of high elevation lakes, streams, and bogs in summer.

Extralimital. Breeds on the Kirghiz Steppes (probably also in other parts of southern Siberia and Turkestan), and Tibet. Migrates south in winter to Persia, eastward to Malay Peninsula and Greater Sunda Is. Also Red Sea coasts, E. Africa south to the Zambezi, and islands of the Indian Ocean.

MIGRATION. No ringing data. Arrivals on the sea coasts begin early August; the birds becoming fairly abundant by early September. In Ceylon arrives during September and October and leaves in April and May (Phillips). Spring emigration evidently commences about early May when some individuals already in partial breeding plumage with accumulation of migration fat and enlarged gonads. Exodus gradual and not in a body; by end of May most birds have gone. From paucity of inland records it is evident that migration from sea coast to Tibetan uplands normally performed in a single hop non-stop.

GENERAL HABITS. Gregarious. Keeps in scattered flocks — sometimes very large — often mixed with Large Sand Plovers, dunlins, stints and other waders, dotted about on tidal mudflats or the shiny wet sand left by

the receding tide. The birds run about in short spurts with quick mincing steps, neck pulled into the shoulders, dipping forward obliquely now and again to pick up some titbit. They bunch up on high ground to rest when the tide is in, and scatter again as it recedes, often feeding till well past sunset. When resting the bird stands inert on one leg, the other remaining tucked even while repelling a neighbour, hopscotching up to him comically with bill threateningly levelled.

When just arrived from their breeding grounds much territorial rivalry is still in evidence resulting in frequent but innocuous skirmishes. Two birds will run parallel to each other in an almost furtive posture — bills horizontal and necks telescoped — as if patrolling an imaginary boundary. Of a sudden one will turn upon the other, rush at him with open wings, and jump clean over him. To vary the tactics the patrolling birds will sometimes pretend to ignore each other's proximity, making as if to sheer off. Suddenly they will whip round and rush at each other to repeat the clinch.

On disturbance the scattered flock rises almost simultaneously, the birds closing up and flying swiftly in well-drilled unison, turning, twisting and zigzagging on the wing all together, their white undersides flashing from time to time as they bank and wheel. Has been observed preparing to roost for the night (?) crouching in scattered hoof-prints in dry sand above high-water mark, looking in the gathering dusk like little stones strewn over an extensive area of beach (SA).

FOOD. Chiefly small crabs (including *Ocypode* sp.), sandhoppers and marine worms. Hole of last approached by bird stealthily lifting and gently putting down each foot. Often both feet planted squarely on the ground the bird leaning back and tugging at the worm till its tail almost touches the ground !

VOICE and CALLS. Very silent in winter: only a low *irr* or *twip* when flying off. In courtship chase on breeding grounds a peculiar hard *tk-tatrr-tatrrwheel* sometimes varied to *tit-tit-irr-irrweet* of the same quality of sound as the 'stone-on-ice' call of the Indian Nightjar (*Caprimulgus asiaticus*). This uttered also in the nature of a 'war-cry' when chasing off a territorial rival or intruder. Alarm note a chatter of two syllables, *corrup*, not unlike the croak of a frog (Whistler).

BREEDING. Season in Ladakh (Tso Kar, Tso Moriri and Pangkong lakes), Lahul and Spiti (Chandra lake) — c. 3900 to 5500 m. — chiefly early June to mid July. Nest, an unlined scrape or saucer-like depression on dry stony or shingly ground about the margin of a lake or bog. Eggs normally 3, pyriform, glossless pale green to dark biscuit colour or khaki, stippled fairly evenly all over with reddish brown (colour of dried blood). Average size of 12 eggs 36.7 x 26.3 mm. (B. B. Osmaston).

Pre-nuptial chase of female as well as territorial defence consists of the bird flying close above the ground on rapidly vibrating wings uttering its peculiar 'war-cry'. Both birds partake in incubation and care of the young, commonly giving the broken-wing distraction display to lead off intruders from nest (particularly when eggs hard set) and chicks. Incubation period unknown.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. Bill shorter than middle toe without claw.

Chick (in down). 'Upperparts deeper buff than in *alexandrinus* [381], mottled with black on crown; wings and whole of back, tips of wings and collar of neck grey-buff; narrow, short black lines on lores, behind eyes and on the ear-coverts. Underparts white, greyish buff at the sides; legs and feet plumbeous' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
34 ♂ ♀	122-132 (one 118)	16-19	32-35	44-49 mm. (CBT, HW, SA)

There is no difference between the sexes.

Weight 8 ♂ ♀ (autumn) 39-50 gm. (aver. 43.75)—SA.

COLOURS OF BARE PARTS. Iris dark brown. Bill black. Legs and feet fleshy grey-yellowish- or olive-slate colour.

Subfamily SCOLOPACINAE: Curlews, Sandpipers, Snipe, Woodcock

Key to the Genera

		Page
A	Tibia entirely feathered.....	<i>Scolopax</i> 292
B	Tibia partially feathered.....	<i>Capella</i> 278
C	Tibia unfeathered.....	1
I	Toes partially webbed.....	a
Toes divided		b
a	Bill long; over 65 mm.....	I
Bill moderate to short; under 65 mm.....		II
I	Bill curved down.....	<i>Numenius</i> 241
Bill straight or slightly curved up.....		a ¹
a ¹	Bill slightly curved up.....	<i>Limosa</i> 248
Bill straight, flattened and pitted towards tip.....		
.....		<i>Limnodromus</i> 276
II	No white on secondary coverts or upper tail-coverts.....	
.....		<i>Philomachus</i> 318
White on upper tail-coverts, or secondary coverts tipped with white		<i>Tringa</i> 254
b	Inner webs of outer primaries speckled.....	<i>Tryngites</i> 317
Inner webs of outer primaries not speckled.....		III
III	End of bill spoon-shaped.....	<i>Eurynorhynchus</i> 312
Bill sharply pointed; profile of lower mandible generally inclined upward.....		<i>Arenaria</i> 273
Bill generally same width beyond base to slightly decurved tip; occasionally widened towards middle.....		<i>Limicola</i> 314
Bill generally depressed in width towards middle, expanded slightly towards tip.....		<i>Calidris</i> 295

Genus *NUMENIUS* Brisson

Numenius Brisson, 1760, Orn. I: 48; 5: 311. Type, by tautonymy, *Numenius* Brisson = *Scolopax arquata* Linnaeus

Bill very long, slender, and curved downwards over the greater part of its length; tip of upper mandible blunt and projecting beyond the lower. Nostril linear placed in a groove which extends over about three-quarters length of the bill. Legs moderately long; tarsus reticulated except on the lower half in front, where transversely

scutellated. Hind toe of moderate size; middle toe much longer than the others; toes webbed at base; claws dilated. Wing long and pointed: first primary (as.) longest; inner secondaries very long. Sexes alike.

The genus contains the curlews and whimbrels which have an almost worldwide distribution.

Key to the Species

		Page
A	Crown streaked; tarsus 75 mm. or more.....	<i>N. arquata</i>
B	Crown brown with a pale median stripe; tarsus decidedly less than 75 mm.....	<i>N. phaeopus</i>

NUMENIUS PHAEOPUS (Linnaeus)

Key to the Subspecies

General colour paler; dark bars and streaks less heavy.....	<i>N. p. phaeopus</i>
General colour darker; dark bars and streaks broader and more numerous.....	<i>N. p. variegatus</i>

385. Whimbrel. *Numenius phaeopus phaeopus* (Linnaeus)

Scolopax Phaeopus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 146 (in Europa = Sweden)
Baker, FBI No. 2135, Vol. 6: 203

Plate 28, fig. 1, facing p. 224

LOCAL NAMES. *Chhotā goungh*, *Chhotā gūlindā* (Hindi, Bengal); *Chhotā gūnyār* (Bihar); *Tetti kokku* (Malayalam); *Māhā watuwā* (Sinhala); *Kuthirai mālai kōttān* (Tamil); *Bulithumbi*, *Bulithunga*, *Orana* (Maldives).

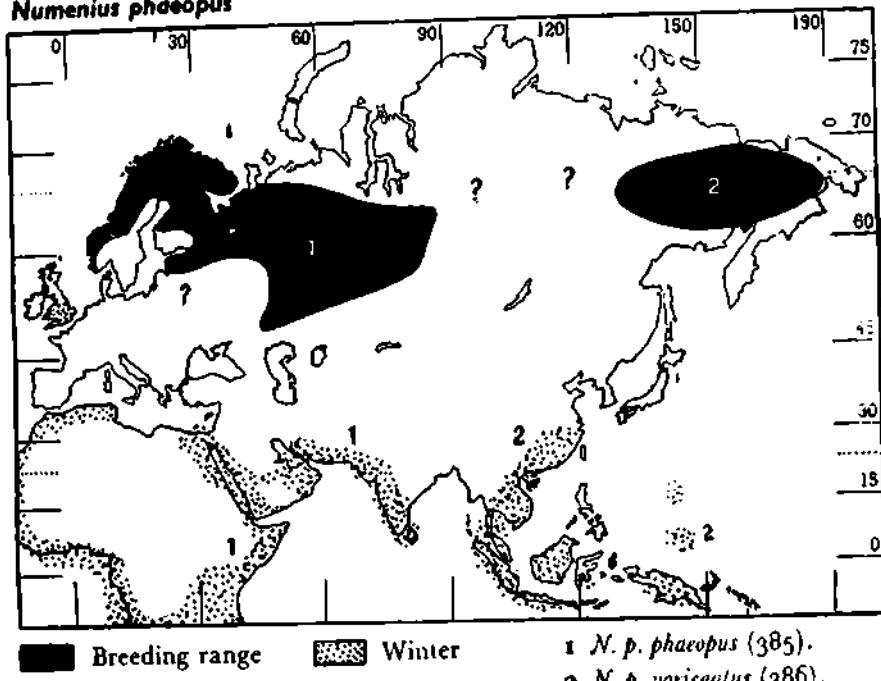
SIZE. Country hen; length c. 43 cm. (17 in.).

FIELD CHARACTERS. A smaller edition of the more familiar Curlew (387), also with long downcurved bill. Distinguished by its blackish crown with white 'centre parting' and long white superciliary stripes on either side.

Above, forehead and crown dark brown with a white median band; long supercilia from base of bill, and sides of head whitish. A dark brown band from lores through eye to ear-coverts. Upperparts sandy brown with whitish spots; lower back and rump white; upper tail-coverts barred brown and whitish. Tail ashy brown barred with blackish. Below, chin, throat, and abdomen white; rest of underparts sullied white narrowly streaked with blackish on foreneck and breast, and barred on flanks. Sexes alike.

Young (immature) has the mantle scalloped with pinkish buff or buff, and rump suffused with same. Lower back, rump, and upper tail-coverts white finely scalloped with brown.

STATUS, DISTRIBUTION and HABITAT. Winter visitor to West Pakistan (Baluchistan, Sind — chiefly passage migrant), and western India in Gujarat (chiefly Kutch and Saurashtra) and sparingly along the entire seaboard south to Kerala, Ceylon, and the Andaman, Nicobar, Laccadive and Maldives Is. Also up the east coast to Bengal and E. Pakistan, but the winter distributions of this race and *variegatus* (386) not yet properly worked out though both occur in the Ganges delta. Stray individuals regularly seen throughout the year especially in the Kutch area, but no evidence of breeding as yet. Affects the sea coast, tidal mangroves, creeks and mudflats. Occasionally at inland jheels during migration passage. Recorded and/or collected thus in Baluchistan (Sibi), Kashmir (Hokarsar), Uttar Pradesh

Numenius phaeopus

(Lucknow Division), Nepal, Bihar (Darbhanga), Madhya Pradesh (Sehore) and also up in the Western Ghats.

Extralimital. Breeds in northern Scandinavia, Lapland, Finland, northern Russia and W. Siberia to Tobolsk and the upper Irtysh. Winters throughout Africa, Madagascar, Arabia, NW. India and islands in the western Indian Ocean. Burma (Smythies).

MIGRATION. No ringing data. Recorded on autumn passage in Iraq, July-August to end September. In West Pakistan (Makran (?)) and Sind coasts) first arrivals early August continuing to mid September; then in smaller numbers also along the west coast of the Peninsula. By early October main body has moved on leaving only small lots of wintering birds on Sind coast. Females believed to comprise the vanguard of southern migrants in autumn, the males following later with young birds of the year. This proposition needs testing. Return (spring) passage, possibly partly from our area, noted at Enzeli (Bandar-e-Pahlavi) on the southwestern shore of the Caspian Sea in Iran, from second week of April to early May. Unravelling of movements in India complicated by the considerable numbers, presumably of non-breeding birds, which oversummer within our limits.

GENERAL HABITS. Very similar to Curlew (387), but more gregarious. Ostenre met with in parties or flocks of 5 to 15 in winter; larger flocks on first arrival, e.g. in Sind. Partial to tidal mudflats and mangrove-lined creeks, running about and feeding on the squelchy ooze at low tide. The slender curved bill is admirably adapted for probing into the oblique burrows of fiddler crabs (*Uca* spp.). The bird inserts it into a hole and drags out the inmate by its large 'arm'. A smart sideways jerk detaches the arm which remains in the bill as the crab tries to escape. The bird

promptly drops the arm and seizes and swallows the crab. The cool, matter-of-fact way in which this operation is performed as the bird trots from hole to hole is amusing to watch. At high tide when the mudflat is submerged, it often perches on the tops of the mangrove bushes waiting for the ebb.

When flighting to and from alternative feeding-grounds among the creeks with the changing of the tides the birds can be readily decoyed over an ambush by an imitation of their calls, and afford good sport with the gun. They are swift on the wing, wary and difficult to circumvent, and excellent for the table — all the qualities that most appeal to the sportsman.

FOOD. Chiefly molluscs and crustaceans. Stomachs of specimens usually crammed with remains of snails and crabs, of which the fiddlers *Uca* spp. often form a considerable proportion. Other species identified are *Thalamita crenata* (Latreille) and *Sesarma longipes* Krauss.

VOICE AND CALLS. The only call heard in winter is a musical quick-repeated tittering whistle *tetti-tetti-tetti-tet* of 7-9 syllables chiefly uttered on the wing, quite diagnostic even when the birds are passing over at night unseen. Bubbling, musical breeding call or song uttered in curlew-like aerial display flight closely resembles the Curlew's, but is more prolonged and trilling.

BREEDING. Extralimital. *Season*, May-June. *Nest*, a shallow circular grass-lined depression in marshland. *Eggs*, 3 or 4, pear-shaped olive-green, blotched and spotted with brown. After the recent unexpected finding of the Avocet breeding in the Great Rann of Kutch, the breeding of this species, as frequently alleged, becomes less improbable; the birds are fairly numerous in the Gulf of Kutch area during June, July, and August as in other months.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for plumage phases and morphology (also bionomics), Witherby, 1940, 4: 172-6. C. B. Ticehurst remarks that Sind birds are more spotted on the lower back and rump than European examples, but less so than *variegatus* (386).

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	232-250	76-86	50-61	87-99 mm.
♀ ♀	243-265	80-90 (from feathers)	—	— (Witherby)

Weight 10 ♂ ♀ (autumn/winter) 255-400 (av. 329.3) gm. — BNHS.

COLOURS OF BARE PARTS. Iris hazel to dark brown. Bill dark horny brown, fleshy pink at base of lower mandible. Legs and feet greenish grey.

Smaller size of male noteworthy. Correlated with this would seem the assertion that he takes the major share in incubation and tending the young.

386. Eastern Whimbrel. *Numenius phaeopus variegatus* (Scopoli)

Tantalus variegatus Scopoli, 1786, Del. Flor. et Faun. Insubr., fasc. 2: 92

(No locality = Luzon, ex Sonnerat)

Baker, FBI No. 2136, Vol. 6: 204

LOCAL NAMES. As for 385.

SIZE. Same as 385; country hen. Length c. 43 cm. (17 in.).

FIELD CHARACTERS. As of 385, q.v. Indistinguishable from it except in the hand; see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Has been obtained as a vagrant and/or on migration in Assam (N. Cachar and Lakhimpur [Margherita]) in autumn or winter, and Manipur (August). Occurs in the Sunderbans (West Bengal and East Pakistan). Specimens from the Andamans and Nicobars have been identified as nominate *phaeopus*, but very probably both the races visit the islands in winter.

Extralimital. 'Breeds in E. Siberia west to the Lena River. Winters from E. China over the entire Indo-Australasian Archipelago to New Guinea, Solomon Is., Australia, Tasmania, New Caledonia, Caroline, Marianne and Pelew Is. In migration on the Commander Is. and Japan' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in the nominate race (385).
BREEDING. Extralimital.

MUSEUM DIAGNOSIS. Differs from the nominate race in being much darker and browner. Lower back, rump, and upper tail-coverts much more heavily barred with brown; striations on underparts heavier; flanks and under tail-coverts broadly barred and streaked with dark brown. Axillaries and under wing-coverts white, profusely barred with dark brown. Bill more curved.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	236-248	76-82	52-58	92-99 mm.
♀ ♀	239-243	68-83	58-61	91-97 mm. (La Touche)
♂ ♂	231-239	77-84 } ♀ ♀ 227-239 83-90 }	60-64	89-100 mm. (Baker)

In this race there is apparently no difference in size between the sexes.

COLOURS OF BARE PARTS. As in 385.

NUMENIUS ARQUATA (Linnaeus)

Key to the Subspecies

Lower parts broadly streaked; axillaries white with bold streaks of blackish..... *N. a. arquata*

Lower parts finely streaked; axillaries pure white or thinly streaked with blackish..... *N. a. orientalis*

387. Curlew. *Numenius arquata arquata* (Linnaeus)

Scolopax Arquata Linnaeus, 1758, *Syst. Nat.*, ed. 10, 1: 145 (in Europa = Sweden)
Baker, FBI No. 2133, Vol. 6: 200

LOCAL NAMES. As under 388.

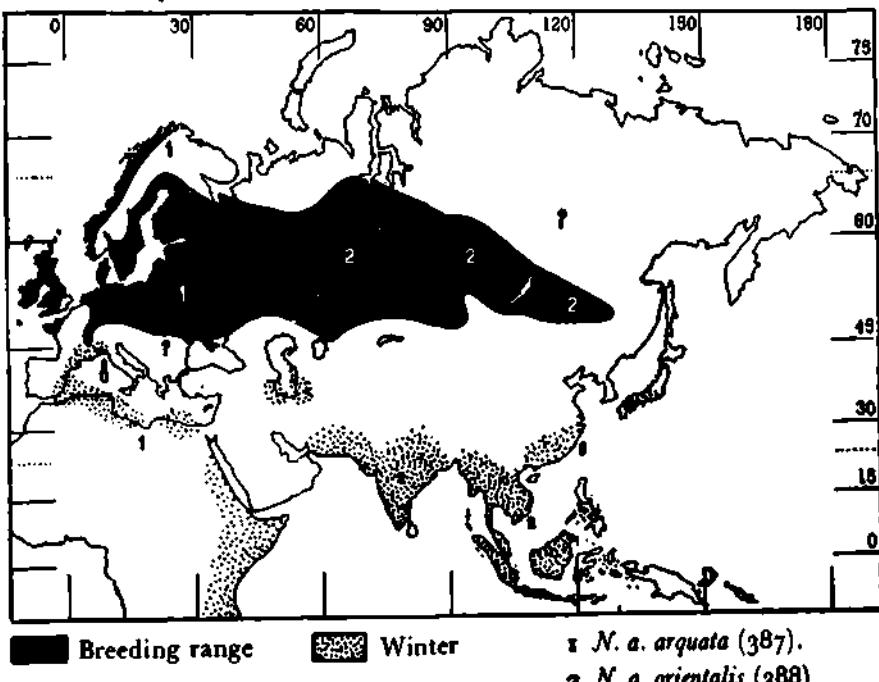
SIZE and FIELD CHARACTERS. As of 388. Indistinguishable from it except in the hand; see Key to Subspecies and Museum Diagnosis.



x c. 1

STATUS, DISTRIBUTION and HABITAT. Described by Baker, loc. cit., as winter visitor 'to north-west India as far east as Delhi and as far south as Ceylon'. All the specimens collected by Ticehurst and Whistler in Sind and NW. India, and by SA and others down the west coast and in Ceylon, and elsewhere within our limits, are referable to the race *orientalis* (388),

Numenius arquata



q.v. The nominate race, if it occurs at all, must be purely as a vagrant. D'Abreu's birds collected on Mahanadi river in Madhya Pradesh alleged to be of this race (JBNHS 38: 112) cannot be traced, and there are apparently no specimens of *N. a. arquata* from India in the British Museum collection.

MUSEUM DIAGNOSIS. Differs from the eastern race *orientalis* (388) in being darker, less fulvous more brown above; more broadly streaked below. The white lower back, rump, and axillaries are streaked with blackish, the first two sometimes being also barred.

MEASUREMENTS AND COLOURS OF BARE PARTS AS IN 388.

MISCELLANEOUS. Longevity (from ringing records) 31½ years — Ring 33: 149, 1962.

388. Eastern Curlew. *Numenius arquata orientalis* C. L. Brehm

Numenius orientalis C. L. Brehm, 1831, Handb. Naturg. Vog. Deutschl.: 610
(East Indies)

Baker, FBI No. 2134, Vol. 6: 202

Plate 29, fig. 7, facing p. 256

LOCAL NAMES. *Godr, Goungh, Baddā gūlindā* (Hindi); *Choppa, Sädā kāstachūra* (Bengal); *Gātīnyār* (Bihar); *Borindo* (Sind); *Māhā watuwā* (Sinhala); *Khalili* (Gujarat); *Kuthirai mālai kōttān, Khūdūrē kottān* (Tamil); *Vālkokku* (Malayalam).

SIZE. Large country hen; length c. 58 cm. (23 in.).

FIELD CHARACTERS. A large darkish sandy brown wader with long, slender downcurved bill. Scalloped with fulvous above, streaked with black on the whitish underparts. White lower back and rump conspicuous in flight. Overall very similar to Whimbrel (385) but larger and lacking the distinctive blackish crown with white stripes. Sexes alike.

Young (immature) has the buff scalloping of upperparts more pronounced; white back and rump tinged with buff, and black streaks on breast and abdomen narrower.

STATUS, DISTRIBUTION and HABITAT. Winter visitor to the entire seaboard of both Pakistans, and India. Also Ceylon, Andaman, Nicobar, Maldives, and Laccadive islands. Occurs inland less rarely than Whimbrel on large jheels and rivers; chiefly on migration, but sparingly also throughout the cold season, thus recorded or obtained in Rajasthan (Sambhar lake and Bharatpur), Delhi (Jumna river), Nepal (Valley and Himalayas), N. Bihar (Darbhanga dist.), Assam (N. Lakhimpur, N. Cachar), Manipur (Logtak lake), N. Baluchistan (Quetta, Chaman), Punjab (Salt Range, Indus and other large rivers), Uttar Pradesh (Lucknow division), Madhya Pradesh (Mahanadi river), Deccan, W. Khandesh. Doubtless similarly elsewhere. Affects harbours, backwaters, sandy seashores, tidal mudflats, creeks and estuaries, and mangrove swamps.

Extralimital. 'Breeds in the southern Baikal region and in Dauria, probably westward into W. Siberia. Winters in E. Africa, Madagascar, India, Ceylon, Burma, Indochina and the Malay Archipelago' (Peters).

MIGRATION. No ringing data. Recorded on southward (autumn) passage in N. Baluchistan (Quetta, Chaman) and Rajasthan (Bharatpur) August-September (R. Meinertzhagen, Sálim Ali); Nepal Valley August (Mrs Proud); Mt Everest region c. 5200 m. September (Wollaston); Assam, N. Lakhimpur (Stevens), N. Cachar c. 2200 m. (Baker) September. On northward (spring) passage N. Baluchistan (Meinertzhagen) April; Chitral (Perreau) end April; Nepal, Khumbu glacier c. 5790 m. (Biswas) May. Is usually well established on our seaboard by middle or end September, some birds already in by first week August. Most gone again by end April or early May, but small numbers regularly oversummer on the coast, e.g. on Rameswaram Island and in the Gulf of Kutch.

GENERAL HABITS. Very similar to Whimbrel (385) but less gregarious. Keeps singly or in small parties of half a dozen birds or so, running about and feeding between tidemarks or on mudflats and mangrove swamps at ebb, often in association with Godwits and other waders. In early part of season sometimes found miles inland from the seacoast feeding on edges of jheels or open grassy plains still damp and soft after the monsoon. Collects in larger flocks before migration, occasionally of 200 or more birds. Probes with its bill into the soft ooze or holes of crabs, sometimes for over half its length. Always excessively wild and wary and difficult to approach. Runs a few steps with flapping wings before taking off the ground, this usually accompanied by its shrill alarm cry. Swift on the wing and much prized by sportsmen for its game qualities as well as excellence for the table.

FOOD. Molluscs, crustaceans (largely fiddler and sand crabs, *Uca* and *Ocypoda* spp.), mudskippers (*Periophthalmus* sp.), insects, and occasionally

berries. Has been observed pecking at and turning over desiccated cowdung for beetles while running in and out amongst grazing or resting cattle on dry pastureland.

VOICE and CALLS. In winter only the characteristic wild plaintive scream — a shrill musical *kloo-it*, *coor-lee* or *cur-lew*, usually given on the wing; unforgettable when once heard. In breeding season a loud musical mellow song *wōke*, *wōke*, *wōke*, etc. uttered in fluttering display flight followed by fluty bubbling notes sounding in the distance very like the yelping of a puppy receiving punishment !

BREEDING. Extralimital. *Season*, May-June. *Nest* and *eggs* similar to Whimbrel's, the latter somewhat larger.

MUSEUM DIAGNOSIS. Differs from the nominate race (387) in having the white rump and underwing almost unspotted, and the axillaries pure white. Streaks on breast finer; sides of breast unbarred.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	290-308	140-178	c. 82	c. 120 mm.
♀ ♀	325-330	136-182 (from feathers)	86-90	117-135 mm. (La Touche)

Weight 9 ♂ ♀ (autumn/winter) 540-800 (av. 23.8) gm. — BNHS.

♂ ♂	280-297	137-139 (one 167) mm.	—	—
♀ ♀	300-314	135-194 [sic] ¹ mm.	—	(Baker)

2 specimens from Gujarat

♂	288	158 (from skull)	83	110 mm.
♀	310	187 (from skull)	89	109 mm. (SA)

As in the Whimbrel and many other waders, females are larger than males.

COLOURS OF BARE PARTS. Iris brown. Bill dark brown, fleshy brown on basal half. Legs and feet pale grey, fleshy grey, or bluish grey.

Genus LIMOSA Brisson

Limosa Brisson, 1760, Orn. 1: 48; 5: 261. Type, by tautonymy,

Limosa Brisson = *Scopopax limosa* Linnaeus

Bill long, straight or slightly upcurved, both mandibles grooved at the side. Nostrils linear, placed in the groove near base of upper mandible. Wings long and pointed; first visible² primary (as.) longest. Tail rather short and almost even. Tarsus of moderate length partly covered with transverse shields in front and behind. Hind toe well developed, more so than in *Numenius*; front toes all about same length; a web between the outer and middle toes, but scarcely any between the middle and inner. Middle claw dilated, curved outwards, sometimes pectinate on outer side.

Genus cosmopolitan, two Palaearctic species visiting India in winter.

Key to the Species

- | | | | |
|---|---|---------------------|-----|
| A | Base of tail white, terminal half black..... | <i>L. limosa</i> | 249 |
| B | Tail barred black and white over the whole of the outer rectrices and most of the central ones..... | <i>L. lapponica</i> | 252 |

¹ Possibly a slip for 184 mm. as given by Harttert.

² The actual first primary is minute and not visible unless specially looked for.

LIMOSA LIMOSA (Linnaeus)

Key to the Subspecies

Larger; wing c. 200 to 240 mm.; culmen 85 to 126 mm. *L. l. limosa*
 Smaller; wing c. 176 to 207 mm.; culmen 77 to 87 mm. *L. l. melanuroides*

389. Blacktailed Godwit. *Limosa limosa limosa* (Linnaeus)

Scopopax Limosa Linnaeus, 1758, Syst. Nat., ed. 10, 1: 147 (in Europa = Sweden)

Baker, FBI No. 2137, Vol. 6: 205

Plate 28, fig. 2, facing p. 224

LOCAL NAMES. *Gūdēra*, *Gairiya*, *Jangrāl*, *Khāg* (Hindi); *Susling* (Sind); *Mālgūjhā* (Nepal, Bihar); *Jaurali* (Bengal); *Tondu ulanka* (Telugu).

SIZE. Country hen; length c. ♂ 41–♀ 50 cm. (16–19½ in.).

FIELD CHARACTERS. A largish wader dark sandy brown above, whitish below very like Whimbrel in general effect but with a long, slender, straight v. downcurved) bill. In flight conspicuous white subterminal bands on



× c. 8/₉

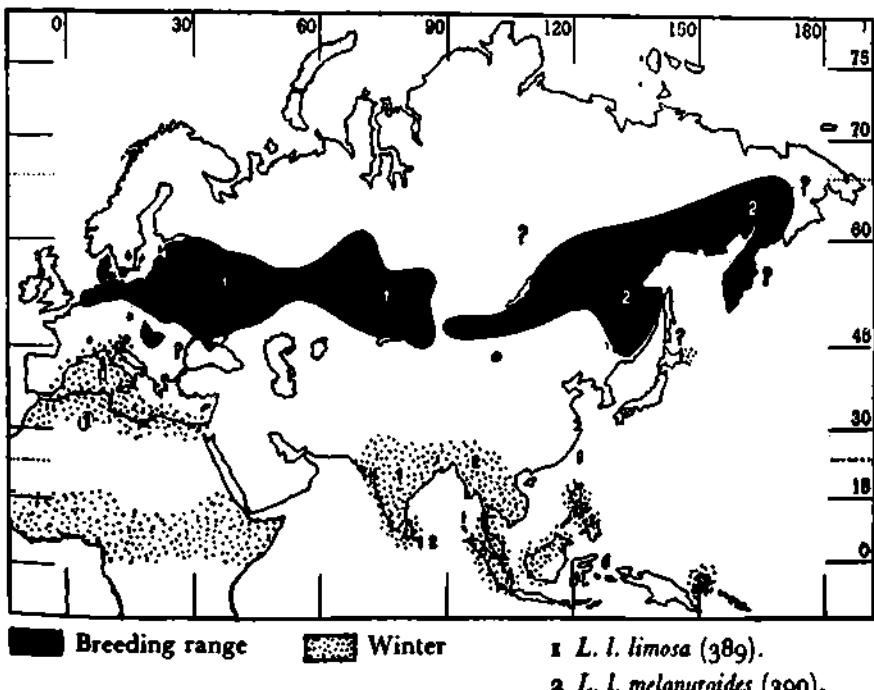
trailing edge of black wings, together with white upper tail-coverts, form an open V which is distinctive. Broad black tip to white tail is an additional clue. Often in mixed feeding flocks with Bartailed Godwit from which readily distinguished at rest by standing taller (longer legged), and in flight by presence of a white wing-bar.

Summer (breeding) plumage largely acquired before spring emigration, has head, neck, and breast dull rufous or rusty red, cross-barred with brown on lower breast and flanks. Chin, throat, abdomen and lower back white.

Sexes alike but female slightly larger and with longer bill; in summer plumage paler rufous.

STATUS, DISTRIBUTION and HABITAT. Winter visitor. Common in West Pakistan (most abundant in Sind) and northern India, diffusing eastwards to Bihar, Orissa and W. Bengal where the winter ranges of this and the Eastern Godwit (390) overlap. Extends southward decreasingly through the Peninsula becoming very rare in S. India and Ceylon. Vagrant in the Maldives Islands. Local abundance varies markedly from year to year. Rare in Kashmir and Nepal, apparently only on migration. Affects inland jheels and marshes; occasionally tidal creeks, estuaries, and brackish lakes (e.g. Sambhar in Rajasthan) but is predominantly a freshwater species.

Extralimital. Breeds locally in northern and central Europe and W. Asia east to W. Turkestan. On migration over the greater part of Europe and western Asia. Winters chiefly in the Mediterranean countries south to tropical Africa, and India.

Limosa limosa

MIGRATION. No ringing data. Trickle of inward migration begins by last week of August and early September (Makran coast, Sind, N. Gujarat); fair numbers in by end September and first half of October (northern India); well dispersed over entire range by early December. Spring exodus commences by mid March when many individuals are already in various stages of summer plumage. By end April the majority in more or less full breeding dress and with considerable accumulation of migration fat. By first week May most birds have left, but fair numbers in breeding dress still about here and there in N. India till early June, and some in Sind and Saurashtra even well into July (last date recorded for a flock of such 28 July (Abdulali, JBNHS 59: 656). As in Whimbrel and several other waders, small numbers in non-breeding plumage remain behind throughout the year.

GENERAL HABITS. Gregarious; very similar to Whimbrel, but oftener seen in larger flocks. Extremely common and abundant in Sind (West Pakistan) at every patch of stagnant water, especially the scum-covered margins of drying-up jheels. On the shores of Manchar lake (e.g. in the neighbourhood of Shah Hassan) large patches at the water's edge obscured by multitudes that must run to tens of thousand birds — December 1927 (SA). Trots about actively probing the soft ooze with its bill, thrust in almost to the forehead. Flocks often wade into shallow water up to the belly feeding with head and neck completely submerged, then looking in the distance like floating teal. The birds rest on a mudspit closely packed, necks drawn in, all uniformly facing the wind. Flight swift and typical, the regiments wheeling and banking in unison, the white bars on their pointed wings flashing from time to time, to reveal their identity even at long range. It is a coveted sporting bird and excellent for the table.

FOOD. Molluscs, crustaceans, worms, and seeds of grass and marsh plants.

VOICE and CALLS. Very silent in winter except for a low trisyllabic *wit-wit-wit* or *quick-quick-quick* uttered when taking off the ground. Breeding 'song' (extralimital) uttered in fluttering Avocet-like display flight, reminiscent of calls of Yellow-wattled Lapwing (*Vanellus malabaricus*).

BREEDING. Extralimital. *Season*, chiefly May-June. *Nest*, a pad of grass in a natural depression, in short thick grassland. *Eggs*, 4. Status of birds in breeding plumage occasionally seen on the Saurashtra coast in June-July needs investigating. For breeding biology see Huxley, J. S. & Montague, F. A., 1926. 'Studies on the courtship and sexual life of birds — *Limosa limosa*'. *Ibis*: 1-25.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumages and morphology (also bionomics), Witherby, 1940, 4: 160-6.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	205-226	82-107	75-82	74-89 mm.
♀ ♀	215-240	104-126	—	—

(from feathers) (Witherby)

Weight 20 ♂ ♀ (autumn/winter) 200-341 (av. 262.1) gm. — BNHS.

Note larger size and much longer bill of females.

COLOURS OF BARE PARTS. Iris hazel or dark brown. Bill dull orange-red or dusky orange, redder at base and duskier at tip. Legs and feet greyish green.

MISCELLANEOUS. Longevity (from ringing data) at least 17 years (*Orn. Monatb.* 1930: 51).

390. Eastern Blacktailed Godwit. *Limosa limosa melanuroides* Gould

Limosa Melanuroides Gould, 1846, Proc. Zool. Soc. London: 84

(Port Essington, Australia)

Baker, FBI No. 2138, Vol. 6: 207

LOCAL NAMES. As for 389 where applicable.

SIZE. Slightly smaller than 389, with a shorter bill.

FIELD CHARACTERS. Indistinguishable with certainty from the nominate race (389) except in the hand. See Measurements under Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Winter visitor. Assam, Manipur, and East Pakistan, diffusing westward decreasingly to W. Bengal, Bihar and Orissa, where the two races overlap. Affects *bheels* and marshes. Locally common on Chilka lake (both subspecies?).

Extralimital. 'Breeds in eastern Asia from NW. Mongolia to Kamchatka. On migration over China to lower Burma, the Philippines, Sunda Is., the Bismarck Archipelago and N. Australia' (Peters).

MIGRATION. No ringing or other specific data.

GENERAL HABITS, FOOD, VOICE and CALLS. As of 389. 'A pleasant triple note *tir-ree-wee* twice repeated on rising and circling in air' (Baker).

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. Smaller than nominate race (389), and with a shorter bill. Plumage similar, but perhaps slightly richer ferruginous in summer and with the barring on the underparts blacker.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	176-197	77-95	68-73	68-86 mm.
♀ ♀	182-207	78-87		(Baker)

COLOURS OF BARE PARTS. As in 389.

391. **Bartaile Godwit.** *Limosa lapponica lapponica* (Linnaeus)

Scolopax lapponica Linnaeus, 1758, Syst. Nat., ed. 10, 1: 147 (Lapland)

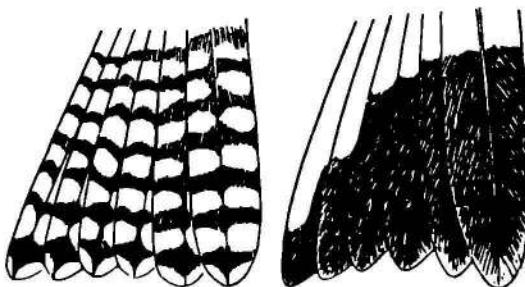
Baker, FBI No. 2139, Vol. 6: 208

Plate 28, fig. 3, facing p. 224

LOCAL NAMES. As for 389.

SIZE. Country hen; length ♂ c. 36 cm. (14½ in.); ♀ larger, c. 41 cm. (16 in.).

FIELD CHARACTERS. General effect very like Blacktailed Godwit (389) with dark-patterned sandy brown winter plumage as in Whimbrel. Distinguished from 389 *at rest* by standing shorter in the leg, and with the



Half tail, \times c. $\frac{1}{2}$

L. lapponica

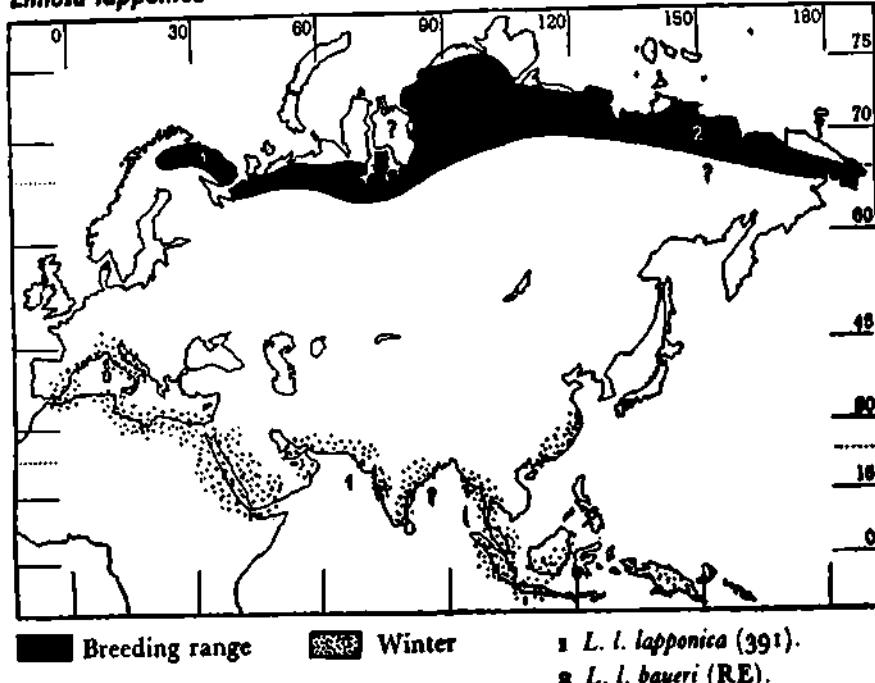
L. limosa

slender straight bill slightly upcurved; *in flight* by absence of white wing-bar and particoloured black-and-white tail, and by the shorter legs projecting less conspicuously beyond tail. Sexes alike.

Summer (breeding). Male: whole head, neck and underparts chestnut-red or cinnamon. Female duller and browner.

Young (immature). Like adult in winter but with the breast buff, mottled and streaked with blackish.

STATUS, DISTRIBUTION and HABITAT. Winter visitor, chiefly to the seaboard of West Pakistan (Makran, Sind) and W. India (Kutch, Saurashtra), and decreasingly south to about Bombay; straggling further south (vagrant?) to Ceylon and the Maldive Is. Recorded inland in Bihar (Patna district, on the Ganges and jheels — D'Abreu) and Punjab Salt Range (Nammal lake — Waite). Eminently a saltwater species in winter, affecting the sea coast, tidal creeks and mudflats, and shallow salt pans. Only rarely freshwater jheels inland.

Limosa lapponica

Extralimital. 'Breeds locally in N. Europe and N. Asia from N. Scandinavia east probably to the Taimyr Peninsula. Winters south to the coasts of tropical Africa (Senegambia and Somaliland), Makran Coast, Persian Gulf, and NW. India' (Peters).

MIGRATION. No ringing data. One of the earliest migratory waders to arrive on the Makran, Sind, and Kutch coasts. August-September (earliest dates 22 July, 5 August). Then many still in worn breeding dress which is moulted soon after arrival in winter quarters. By first week April many, and by last week April most, have again donned breeding dress and the majority have left, a few lingering on till first half May. Small numbers in grey non-breeding plumage remain behind throughout the year.

GENERAL HABITS. Not significantly different from Blacktailed Godwit's except that it keeps mainly on the sea coast and is seldom met at fresh waters inland. Often in large flocks mixed with Blacktailed Godwits, dunlins, oystercatchers, and other waders.

FOOD. As of 389 — molluscs, marine worms, insects.

VOICE and CALLS. In winter only a pleasant low whistle or 'low piping note' (Hume), uttered singly or rapidly repeated while taking off or landing. Alarm call (chiefly when nesting) a bisyllabic *te-tén*, *te-tén*, or *chitiiu*, *chitiiu*, *chitiiu*.

BREEDING. Extralimital. Season, June-July. Nest a slight depression on a grassy hummock around a bog or in open grassland — same as Whimbrel. Eggs 3 or 4, greyish green with umber brown spots; indistinguishable from Whimbrel's.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit., but as Ticehurst points out (JBNHS 34: 486) female's breeding dress when assumed is complete though rather different from male's, being much browner. For details of plumages and morphology (also bionomics) see Witherby, 1940, 4: 155-60.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	202-216	72-83	46-51	67-77 mm.
♀ ♀	211-227	95-106 (from feathers)	—	— (Witherby)

Weight 20 ♂ ♀ (autumn/winter) 162-277 (av. 220.5) gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill pinkish flesh colour, horny brown or blackish on terminal half. Legs and feet greenish grey to almost black.

Genus TRINGA Linnaeus

Tringa Linnaeus, 1758, Syst. Nat., ed. 10, 1: 148. Type, by tautonymy, *Tringa ochropus* (ernend. of *ocrophus*) Linnaeus

Totanus Bechstein, 1803, Orn. Taschenb. Deutschl. 2: 282. Type, by tautonymy, *Totanus maculatus* Bechstein = *Scolopax totanus* Linnaeus

Actitis Illiger, 1811, Prodromus: 262. Type, by subsequent designation, *Tringa hypoleucus* Linnaeus

Glostis Koch, 1816, Syst. Zool.: 42, 304. Type, by monotypy, *Scolopax nebularia* Gunnerus

Xenus Kaup, 1829, Skizz. Entw.-Gesch. Eur. Thierw.: 115. Type, by monotypy, *Scolopax cinerea* Güttenstädt

A predominantly Palaearctic composite genus of Sandpipers, Redshanks, Greenshanks and Avocet-Sandpiper, previously split up into discrete genera on characters now considered unwarrantable.

For particulars see Thomson, A. L., 1964. Article 'Sandpiper' in Thomson, A. L. (ed.), *New Dict. Birds*, London & New York.

Key to the Species

		Page
A	Upper tail-coverts not white.....	I
B	Upper tail-coverts white or barred.....	2
1	Bill curved upward.....	<i>T. terek</i> 269
Bill not curved upward.....	<i>T. hypoleucus</i> 271	
2	Outer web of secondaries white barred with grey.....	<i>T. erythropus</i> 255
Outer web of secondaries nearly uniform white.....	<i>T. totanus</i> 257	
Outer web of secondaries not as above.....	a	
a	Bill 48 mm. or above.....	I
Bill less than 48 mm.....	II	
I	Tarsus over 50 mm.....	<i>T. nebularia</i> 261
Tarsus under 50 mm.....	<i>T. guttifer</i> 268	
II	Axillaries uniform white.....	<i>T. stagnalis</i> 259
Axillaries white barred with fuscous.....	<i>T. glareola</i> 265	
Axillaries blackish, narrowly barred with white....	<i>T. ochropus</i> 263	

392. Spotted or Dusky Redshank. *Tringa erythropus* (Pallas)*Scolopax erythropus* Pallas, 1764, in Vroeg's Cat., Adumbr.: 6 (Holland)

Baker, FBI No. 2149, Vol. 6: 223

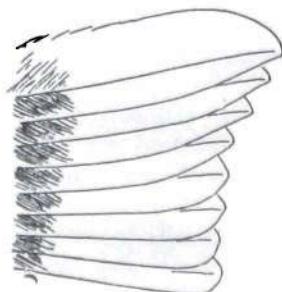
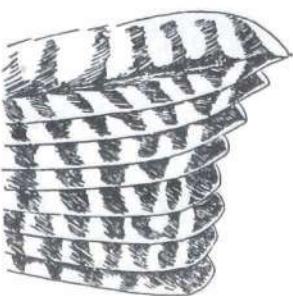
Plate 28, fig. 4, facing p. 224

LOCAL NAMES. *Bātān, Gatni, Sūrma* (Hindi); *Terra kal ulanka* (Tamil); *Ngāhoibi* (Manipur).

SIZE. Grey Partridge ±; length c. 33 cm. (13 in.).

FIELD CHARACTERS. A medium-sized greyish brown-and-white wader with longish orange-red legs and slender straight bill.

Winter (non-breeding). *Above*, narrow forehead, crown, hindneck and back ashy brown; lores darker brown; prominent white speculum from base of bill. Lower back, rump, and upper tail-coverts white, the last barred with black. Wings mottled and barred with white. Tail ashy brown, barred with white on edges. *Below*, white, indistinctly spotted and mottled



Secondaries, $\times c. \frac{1}{2}$

A. *T. erythropus* B. *T. totanus*

Ceylon (rare vagrant). Everywhere less common than Redshank (393, 394). Recorded from Punjab, Kashmir, Delhi, Uttar Pradesh, Bihar, W. Bengal, Manipur, Orissa, Rajasthan, Madhya Pradesh, Gujarat, Maharashtra, Mysore, Madras. Doubtless occurs also in Assam and elsewhere within our limits. So far not recorded in the Andamans and Nicobars.

Affects jheels and tanks inland, as well as tidal creeks and estuaries.

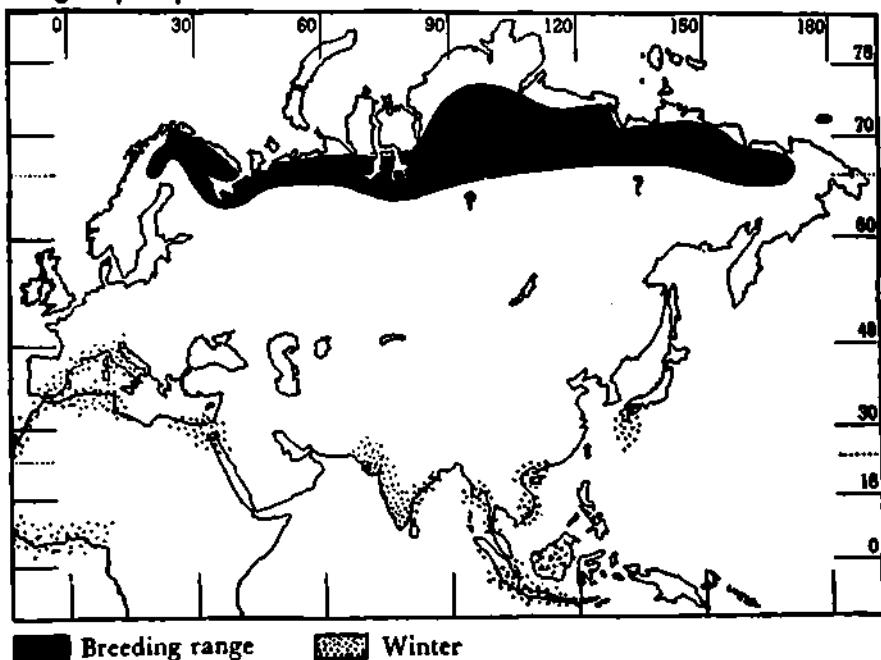
Extralimital. 'Breeds in Scandinavia north of the Arctic Circle, N. Russia south to Moscow, Kazan, and Orenburg, and in N. Asia east to Kamchatka. Winters south to Africa, India, Burma, China, Japan and the Malay States' (Peters). Borneo (Smythies).

MIGRATION. No ringing data. Arrives in Sind as early as mid August, in N. India c. mid September. Mostly gone by end April when many birds are in partial or full breeding plumage. A few linger into early May (last date 8 May, Allahabad).

A with brown on neck and upper breast; flanks tinged with dusky, and barred. Sexes alike. In fresh winter plumage distinctively grey-brown, profusely spotted and barred with white. Stands somewhat taller than the Common Redshank (393) but most readily distinguished from it in flight by absence of broad white bar along trailing edge (secondaries) of wing.

B more or less narrowly scalloped and spotted with white. Lower back and rump white; tail barred with broader black and narrower white bars. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Winter visitor. West Pakistan (common in Sind; reportedly only on autumn and spring passage in Baluchistan); all India; Nepal (vagrant);

Tringa erythropus

■ Breeding range

▣ Winter

GENERAL HABITS. As in 393, but oftener seen feeding in fairly deep open water. A compact flock will swim energetically back and forth with bills and heads fully immersed, the birds freely up-ending like ducks to reach the bottom mud.

FOOD. As in 393. One with 'gullet full of small fish' (Inglis).

VOICE and CALLS. A shrill piping *tiu-it* or *tiu-tiu-tiu* uttered when taking off, or in flight; very similar to Common Redshank's and easily confusable with it except after sufficient experience of both.

BREEDING. Extralimital. Season June-July. Nest, a scantily lined depression in a grass tussock in a bog. Eggs, normally 4, olive-brown blotched with umber-brown.

MUSEUM DIAGNOSIS. Distinguished from Redshank (393) by the outer secondaries being barred brown and white *v.* all white. Also by white back and rump, barred tail-coverts, and longer bill and legs. For description of plumage see Baker, loc. cit.; for details of plumages and morphology (also bionomics), Witherby, 1940, 4: 332-5.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	158-168	53-59	53-59	60-68 mm.
♀ ♀	166-177	57-64	-	(Witherby)

PLATE 29

- 1 *Charadrius m. atrifrons*, Lesser Sand Plover, winter (384). 2 *Pluvialis d. fulva*, Eastern Golden Plover, winter, changing adults (373). 3 *Charadrius d. jerdoni*, Little Ringed Plover, breeding (380). 4 *Vanellus s. duvaucelii*, Spurwinged Lapwing (369). 5 *Vanellus i. atronuchalis*, Redwattled Lapwing (368). 6 *Himantopus h. himantopus*, Blackwinged Stilt (430). 7 *Numenius a. orientalis*, Curlew (388). *Vanellus cinereus*, Greyheaded Lapwing (365).



Weight 13 ♂ ♀ (winter) 108-187 (av. 146·9) — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill blackish brown, orange-salmon at base of lower mandible. Legs and feet orange-red; claws blackish brown.

The Eastern Redshank, *Tringa totanus eurhinus*
(Oberholser) is no longer separated from the Common
Redshank.

393, 394. Common Redshank. *Tringa totanus totanus* (Linnaeus)

Scolopax Totanus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 145 (in Europa = Sweden)

Totanus totanus eurhinus Oberholser, 1900, Proc. U.S. Nat. Mus. 22: 207
(Tso Moriri Lake, 15,000 ft, Ladakh)

Tringa totanus terrignotae R. & A. Meinertzhagen, 1926, Bull. Brit. Orn. Cl. 46: 85
(Koko Nor)

Baker, FBI Nos. 2147, 2148, Vol. 6: 221, 222

Plate 30, fig. 7, facing p. 272

LOCAL NAMES. *Chhotā bōtān* (Hindi); *Māli kötlān*, *Segappū kāl ullān* (Tamil); *Māhā watuwā* (Sinhala); *Ngāhoibi* (Manipur).

SIZE. Grey Partridge ±; length c. 28 cm. (11 in.).

FIELD CHARACTERS. A large-sized sandpiper.

Winter (non-breeding). *Above*, greyish brown with white lower back and rump. Tail white, barred with brown. *Below*, white, finely streaked with brown on breast. Bare slender orange-red legs and straight slender orange-red and black bill. Sexes alike.

In flight the white rump, a broad white border to trailing edge of wing (secondaries), and long slender red legs projecting behind are leading pointers. Combined effect of legs of large feeding flock — a red patch moving about on the sands (Armstrong).

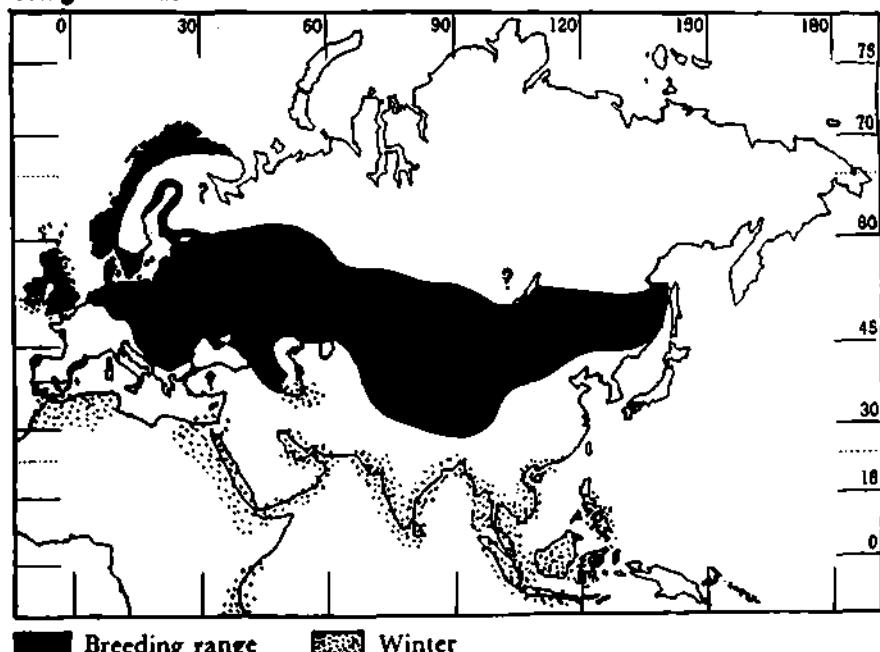
Summer (breeding) — as sometimes seen before emigration — upper-parts somewhat streaked and spotted with black and fulvous. *Below*, more

heavily streaked with brown on upper breast than in winter; crescent-shaped dark spots, like broken bars, on lower breast.

Young (immature). *Above*, more rufous, the fulvous spots on the scapulars etc. more pronounced. *Below*, more banded with black on flanks.

STATUS, DISTRIBUTION and HABITAT. Breeds in Kashmir and Ladakh, between c. 3300 and 5200 m. alt.; winter visitor to both Pakistans, all India,

Tringa totanus



Nepal, Sikkim, Ceylon, Andaman, Nicobar and Maldive Is. Affects river banks and jheel margins inland; tidal creeks, salt pans and estuaries on the seaboard.

Extralimital. Breeds from Scandinavia to W. Siberia and in C. and E. Asia (probably from the Altai) east to Transbaikalia and W. Kansu. Winters in India, Ceylon, Burma, Malay States, S. China, Philippines, Sunda Is., and Celebes. (Peters).

MIGRATION. Himalayan-breeding winter visitors to the Peninsula vastly augmented by influx from extralimital areas between August-September and end March to early May. An example ringed in Bharatpur, Rajasthan (27°13'N., 77°32'E.) on 6.x.1965 recovered in Altai, near Blagoveshchenka (52°50'N., 79°53'E.), U.S.S.R., in spring 1966. Vast concentrations of Redshanks together with thousands upon thousands of Ruff and Reeve and assorted small waders assemble on the squelchy mud and shallows at the mouth of Banas river, Little Rann of Kutch (Gujarat), prior to emigration, presenting a truly astonishing spectacle.

GENERAL HABITS. Keeps solitary, in small parties and large flocks, often in association with other small waders. Runs about on the muddy edges picking up titbits, sometimes wading into shallow water and feeding with the bill and head completely immersed. Swims on occasion, but much less

regularly than Dusky Redshank. Sometimes feeds in salt pans in concentrated brine. When alarmed or suspicious bobs head and posterior violently up and down in the seesaw action typical of sandpipers.

FOOD. Molluscs, crustaceans, worms, aquatic insects and larvae. A considerable quantity of coarse sand and grit usually found in stomachs.

VOICE AND CALLS. In winter quarters only a shrill, piping *tiwee-tiwee-tiwee* or *tiu-tiu-tiu* uttered chiefly while taking off or on the wing. Easily confused with almost identical calls of Greenshank (396), from which distinguished only with practice, by its somewhat higher pitch. In breeding season male has beautiful nuptial song of strung-out quick-repeated trilling notes delivered as he circles at speed in dipping flight over the nesting ground, the white tail fully expanded and white rump fluffed out and flaunted prominently.

BREEDING. Breeds in the Tibetan Plateau facies at c. 4000 to 5000 m. elevation, of Ladakh and Kashmir (Tsokar, Tso Moriri, Pangong lakes, Rupshu, Shushal, etc.) and Sikkim (?). *Season*, May to July. *Nest*, a grass-lined deepish depression usually concealed in a grass tussock in a swamp. *Eggs*, normally 4, pale stone colour to bright reddish buff, speckled and spotted with purplish brown or blackish, chiefly at the broad end. Elongated pyriform in shape and remarkably large for the size of the bird. Average of 8 Kashmir eggs $46 \cdot 1 \times 31 \cdot 8$ mm. (Osmaston); of 60 Asiatic-taken eggs $44 \cdot 3 \times 30 \cdot 4$ mm. (Baker). Both sexes partake in incubation and tending the young, resorting to 'broken-wing' distraction tactics to lead off intruders. Incubation period 23–25 days (Witherby). For courtship display see under Voice etc. (above); further details in Witherby, 1940, 4: 324–9 under race *britannica*.

MUSEUM DIAGNOSIS. Somewhat larger than nominate *totanus*. In winter paler, more grey less brown above; whiter below. In breeding plumage upperparts paler than in nominate *totanus* but edges of feathers more rufous. Below, throat usually purer white and less streaked; streaking and spotting on rest of underparts also showing a tendency to be more reduced (Vaurie).

MEASUREMENTS. Vaurie (1965) gives for 20 ♂♂ of this race: Wing 152–165 (av. 157·5); bill from skull 48–53 (av. 50·2) mm.

Indian collected birds measure:

	Wing	Bill	Tarsus	Tail
4 ♂♂	158–161	45–51	49–51	63–72 mm.
2 ♀♀	162–165	51–54	—	67 mm. (SA)
(from skull)				

Weight 12 ♂ ♀ (winter) 107–127 (av. 116·9) gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill black, orange-reddish on basal third. Legs and feet orange; claws black.

395. Marsh Sandpiper or Little Greenshank. *Tringa stagnatilis* (Bechstein)

Totanus stagnatilis Bechstein, 1803, Orn. Taschenb. Deutschl. 2: 292, pl. 29 (Germany)

Baker, FBI No. 2144, Vol. 6: 216

Plate 30, fig. 5, facing p. 272

LOCAL NAMES. *Chhota gôtra*, *Biler bâlibdân* (Bengal).

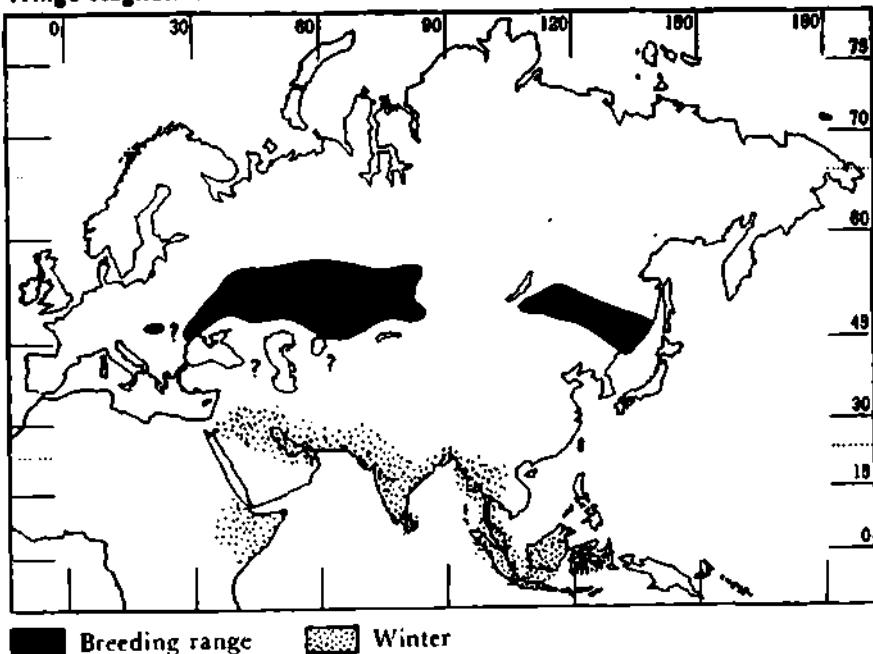
SIZE. Grey Partridge —; slenderer and lankier. Length c. 25 cm. (10 in.).

FIELD CHARACTERS. Perhaps the daintiest and most beautiful of our sandpipers. In winter plumage, both at rest and in flight (no wing-bar), a perfect miniature of Greenshank (396) even to the slight upcurve in bill. *Above*, greyish brown with forehead, supercilium, sides of head, lower back and rump pure white. Tail narrowly barred brownish. *Below*, pure white; sides of breast more or less marked with brown. Fine almost straight black bill; very slender greenish legs. Sexes alike.

Summer (breeding). *Above*, sandy grey, the feathers dark-centred forming angular spots on back and 'herring-bone' pattern on inner secondaries. *Below*, white; foreneck and upper breast spotted with brown; flanks irregularly barred.

STATUS, DISTRIBUTION and HABITAT. Winter visitor. Not uncommon, but numerically perhaps the least of the commoner sandpipers. All India, both Pakistans, Ceylon. Not yet specifically recorded from the Andamans. A

Tringa stagnatilis



sight record from Nepal (GD 1968). Affects swampy edges of freshwater ponds and jheels, inundated paddyfields, etc.; to a lesser extent brackish lagoons and tidal mudflats.

Extralimital. 'Breeds in SE. Europe, C. and S. Russia and across middle Asia south of lat. 56° at least as far east as Transbaikalia, south to Turkestan and N. Mongolia. Migrates in winter to Africa, Arabia, India, Burma, Indo-chinese countries, Sunda Is. and the Moluccas to Australia' (Peters).

MIGRATION. Begins to arrive in N. India about mid August; mostly gone again by end April or early May, a few non-breeding birds loitering throughout the summer months. Two Marsh Sandpipers ringed at Point Calimere, Madras (*c.* 10°N., 79°E.) on 12.xi.1962 were recovered in the Novosibirsk Region, U.S.S.R. between 54°-55°N. and 76°-77°E., at a

straight-line map distance of c. 5100 km.—one on 4.v.1963, the other almost exactly four years later (8.v.1967); from the dates of recovery, presumably on their breeding grounds.

GENERAL HABITS. Keeps in parties or small flocks in company with other sandpipers running about on marshy ground, probing the soft mud with its bill for food, pivoting in semicircles methodically from side to side and prospecting in a transect as it were rather than at random. Frequently wades into shallow water feeding with head and bill completely submerged.

FOOD. Small molluscs, crustaceans, insects and worms.

VOICE and CALLS. Rather silent. A shrill piping *che-weep, che-weep* uttered as the bird rises and makes off.

BREEDING. Extralimital. More or less as in Redshank (394).

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of structure etc. (also bionomics), Witherby, 1940, 4: 341–3.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	132–139	37–40	47–52	53–58 mm.
♀ ♀	133–143	40–50	—	—

(Witherby)

Weight 40 ♂ ♀ (autumn) 48–73 gm. (aver. 60·7)—SA.

COLOURS OF BARE PARTS. Iris brown. Bill dark horny brown to blackish, paler and greenish at base of lower mandible. Legs and feet dull sage-green, olive-green or bluish-green.

396. Greenshank. *Tringa nebularia* (Gunnerus)

Scopopex nebularia Gunnerus, 1767, in Leerm, Beskr. Finm. Lappar: 251

(District of Trondhjem, Norway)

Baker, FBI No. 2150, Vol. 6: 225

Plate 30, fig. 9, facing p. 272

LOCAL NAMES. *Tāntārā, Timtimā* (Hindi); *Gōtra* (Bengal); *Peria kōttān* (Tamil); *Māhā watuwā* (Sinhala); *Pachakkāli* (Malayalam); *Timblid* (Marathi for all sandpipers).

SIZE. Grey Partridge +; length c. 36 cm. (14 in.).

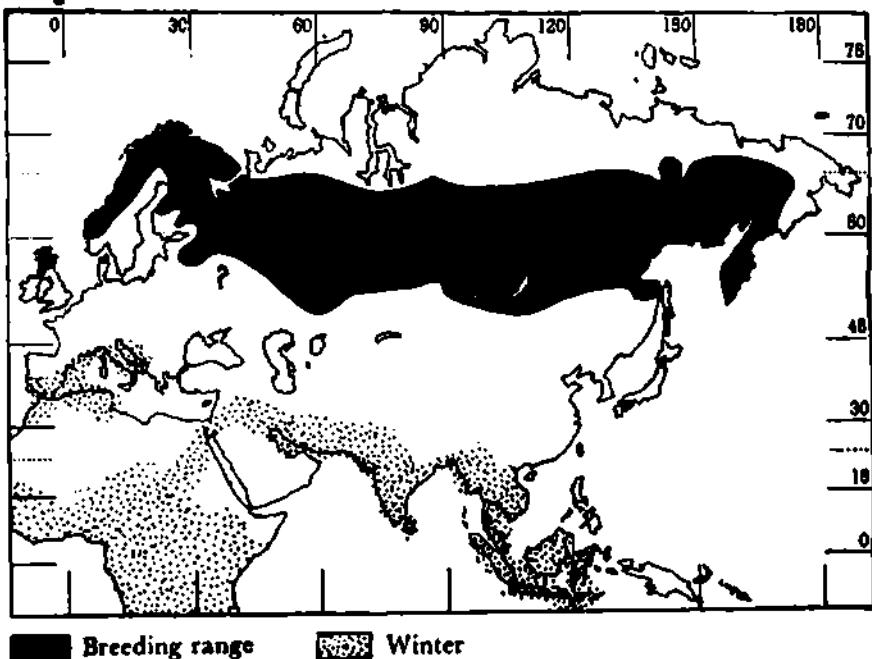
FIELD CHARACTERS. The largest of our sandpipers.

Winter (non-breeding). *Above*, dark greyish brown, with white forehead, lower back, rump, and tail; the last with faint, almost invisible barring. *Below* white, greyish on foreneck and sides of head. Sexes alike.

Summer (breeding). *Above*, darker and richer coloured, the feathers of back and scapulars with broad black centres. Head and neck whitish streaked with brown. *Below*, white; foreneck and sides of breast spotted with dark brown.

Distinguished from Marsh Sandpiper by larger size; from Redshank by absence of white wing-bar (in flight), olive-green v. red legs, and by the slender bill being slightly upcurved.

STATUS, DISTRIBUTION and HABITAT. Winter visitor. All India, both Pakistans, Nepal, Ceylon, Andaman, Nicobar, and Maldives Is. Affects river banks and mudspits, margins of puddles, tanks and jheels, as well as tidal creeks, mudflats, coastal lagoons and salt pans.

Tringa nebularia

Extralimital. Breeds in N. Europe south to Leningrad, Kazan and across N. Asia to Kamchatka south to about 55°N. Winters in the Mediterranean countries, Africa and eastward through SE. Asia to Australia and New Zealand.

MIGRATION. Like most waders arrives in the second half of August and is mostly gone by end April or early May. A few non-breeding birds stay behind all the year. By mid March moult into summer dress begins; by mid April most birds have acquired considerable migration fat. A bird ringed in Bharatpur (Rajasthan) 24. x. 1966 recovered in Arkhangelsk region, near Vozhggora, USSR, 64°35'N., 48°25'E. on 10.vi.1968 — c. 4800 km. NNW.

GENERAL HABITS. Mostly met with as a solitary bird or in small parties of 3 to 5; rarely in flocks of more than 15 or 20 except when migrating. Frequently associated with Redshanks. Often wades in water up to the belly and feeds with head and neck fully submerged. Has frequently been observed feeding in quite shallow water with neck stretched out in front and merely the bill immersed, the bird moving forward at a run, as if pushing a lawnmower — not zigzagging or sweeping from side to side. Cf. 395

When alarmed or suspicious, bobs or 'pumps' head violently up and down and also tail end of body.

FOOD. Molluscs, crustaceans, insects, worms and tadpoles. A frog recorded in the crop of a specimen, seemingly far too big for the narrow bill and gullet.

VOICE AND CALLS. In winter only a shrill piping *tiwee-tiwee-tiwee* or *tiu-tiu-tiu* when flushed and going off; very similar to, and easily confused with, calls of the Redshank but somewhat lower in pitch. In breeding season has a remarkably beautiful continuous song delivered while the singer is

flying in wide circles at top speed high up above the nesting ground (D. Nethersole-Thompson).

BREEDING. Extralimital. In general similar to Redshank (394).

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 335-40.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	184-194	50-56	55-61	68-80 mm.
♀ ♀	184-200	53-59	—	—

(from feathers) (Witherby)

Weight 15 ♂ ♀ (autumn/winter) 143-212 (av. 159) gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill dark horny brown or greenish brown, blacker at tip. Legs and feet yellowish green or olive-green.

(For an admirable biography of the species see D. Nethersole-Thompson, 1952, *The Greenshank*. New Naturalist Monographs (M 5), Collins, London.)

397. Green Sandpiper. *Tringa ochropus* Linnaeus

Tringa Ochropus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 149 (in Europa = Sweden)

[Name emended to *ochropus*]

Baker, FBI No. 2143, Vol. 6: 215

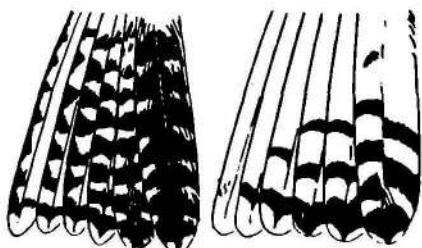
Plate 30, fig. 1, facing p. 272

LOCAL NAMES. *Nella ulanka* (Telugu); *Kāta kokku* (Malayalam), *Timblā* (Marathi — all sandpipers); *Leeli tūtvāri* (Gujarati).

SIZE. Grey Quail + ; length c. 24 cm. (9½ in.).

FIELD CHARACTERS. A medium-sized sandpiper.

Winter (non-breeding). *Above*. Head and neck ashy brown; rest of upperparts dark brown glossed with bronze-green. Rump and tail more or less pure white, the latter faintly barred with blackish. *Below*, white, finely streaked with brown on throat, breast, and flanks. Sexes alike.



Half tail, \times c. 1
T. glareola T. ochropus

Below, brown streaks on foreneck and upper breast very broad and distinct.

Young (immature) has upperparts narrowly scalloped with bronze. Tail narrowly barred, and with a broader terminal band.

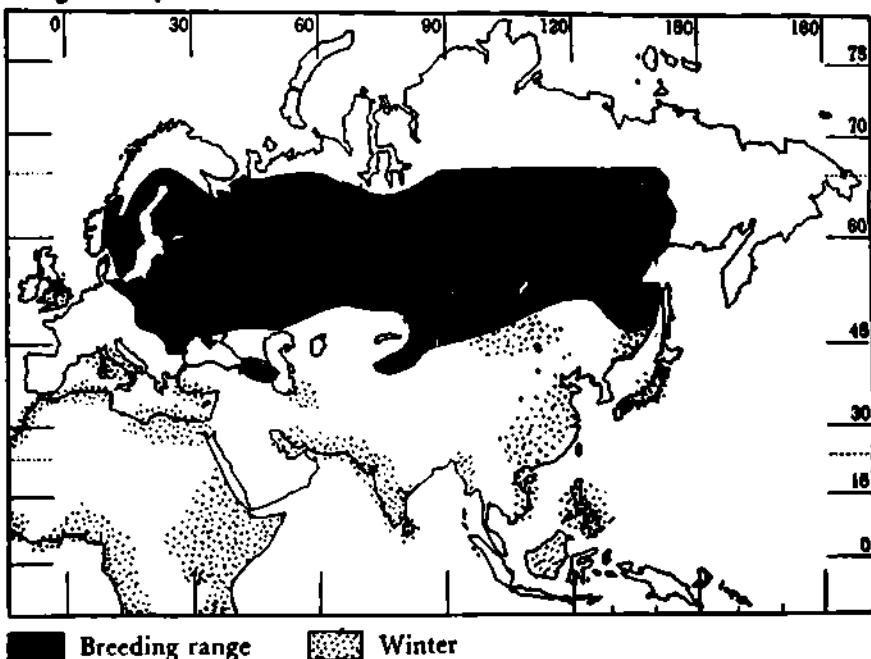
STATUS, DISTRIBUTION and HABITAT. Winter visitor. All India (including Assam and Manipur), both Pakistans, Nepal, Sikkim, Bhutan, Ceylon, Andaman Is., Nicobars (?). Affects jheels, village tanks, puddles, streams

In flight the very dark upperparts contrasting sharply with the white rump, tail and lower plumage, no wing-bars, and blackish underside of wings are pointers to its identity, confirmed by its shrill flushing notes (see under Voice).

Summer (breeding). *Above*, crown and hindneck with white edges to the feathers; sides of face boldly streaked with brown. Upperparts lightly spotted with whitish.

and trickles, in the plains and peninsular hills to at least 2300 m. (Nilgiris). Also tidal creeks, lagoons and salt pans.

Tringa ochropus



■ Breeding range ■ Winter

Extralimital. Breeds in northern Europe and Asia, north to the Arctic Circle (locally to c. 68°N.), south to Transcaspia, Turkestan, NW. Mongolia and the Amur river. (For details see Vaurie, 1965, 2: 414.) Winters in the British Isles, Mediterranean region, Africa south to Angola and Kenya, and southern Asia, Hainan, Taiwan and the Philippines. Burma, Borneo (Smythies).

MIGRATION. Abundant on passage at Kohat and through Kurram Valley (NW. Pakistan) from end August till November, and again in April-May (Whitehead, 1909, *Ibis*: 275). Earliest arrivals in Sind end July; more in August and September when many pass through Lower Sind. Return passage early April; most gone by end of that month 'noticeably earlier than most other species' (Ticehurst, 1924, *Ibis* : 122-3).

Gilgit: Very common in migration mid August to end September, and again beginning of April to mid May (Scully, 1882, SF 10: 141). Nepal Valley: earliest date 17 August, latest date 17 April. Large numbers on passage. On 16 September during afternoon over 20 parties observed, mostly of 3 birds each, all calling and flying steadily in same direction; on 21 September again numbers flying past (Desirée Proud, 1949, JBNHS 48: 718). Gujarat: Earliest 13 August latest 17 April (SA). Bombay environs: Earliest 5 August, latest 9 May. Ceylon: Arrives end August and September, leaves towards end April and in May (Phillips, 1952, Checklist: 38). Odd non-breeding birds stay behind throughout the year.

A bird ringed in the environs of Kazan, U.S.S.R. (c. 56°N., 49°E.), presumably on its breeding grounds, in June 1929 was recovered in

September 1933 in Kottayam district, Kerala ($c.$ 9°N., 76°E.)—a straight-line map distance of $c.$ 5600 km. ($c.$ 3500 miles).

GENERAL HABITS. Typical of the sandpipers, but is less gregarious than most species. Keeps singly or in twos and threes, and seldom in voluntary association with other species; small flocks of usually not more than 15 or 20 even on migration. Runs about and feeds at edge of water, sometimes wading into the shallows, probing into the soft mud with its bill. When perturbed, bobs violently up and down before taking wing, this almost invariably accompanied by the distinctive flushing notes.

FOOD. Molluscs, crustaceans, aquatic insects, worms. Mosquito larvae (Husain & Bhalla).

VOICE and CALLS. A shrill piping *ti-tui* or *twee-twee-twee* as it flushes and is flying off. A beautiful nuptial song in the breeding season.

BREEDING. Extralimital and peculiar. As a rule lays its 3 or 4 eggs in the deserted nests of thrushes and other birds fairly high up in trees; only rarely on the ground like most other sandpipers, e.g. Redshank.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumages and morphology (also bionomics), Witherby, 1940, 4: 310–14.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	136–148	33–35	32–34	52–61 mm.
♀ ♀	142–153	33–36	—	—

(from feathers)

(Witherby)

Weight 20 ♂ ♀ (autumn/winter) 59–87 (av. 74·5) gm.—BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill dull greenish, black at tip. Legs and feet dull greenish brown or olive-green.

398. Wood or Spotted Sandpiper. *Tringa glareola* Linnaeus

Tringa Glareola Linnaeus, 1758, Syst. Nat., ed. 10, 1: 149 (in Europa = Sweden)

Baker, FBI No. 2146, Vol. 6: 219

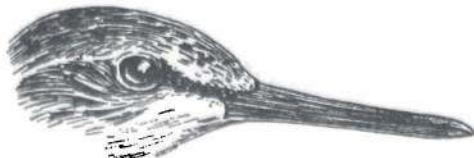
Plate 30, fig. 2, facing p. 272

LOCAL NAMES. *Chūpka*, *Chobāha*, *Titvāri* (Hindi); *Bālu bātān* (Bengal); *Chinna ulanka* (Telugu); *Kāta kokku* (Malayalam); *Sili watuwā* (Sinhala); *Köttān*, *Vāyā ullān* (Tamil).

SIZE. Grey Quail ±; length $c.$ 21 cm. (8½ in.).

FIELD CHARACTERS. A small snipe-like, rather gregarious wader.

Winter (non-breeding). *Above*, greyish brown and sepia-brown indistinctly spotted and marked with white. A whitish supercilium. Lower

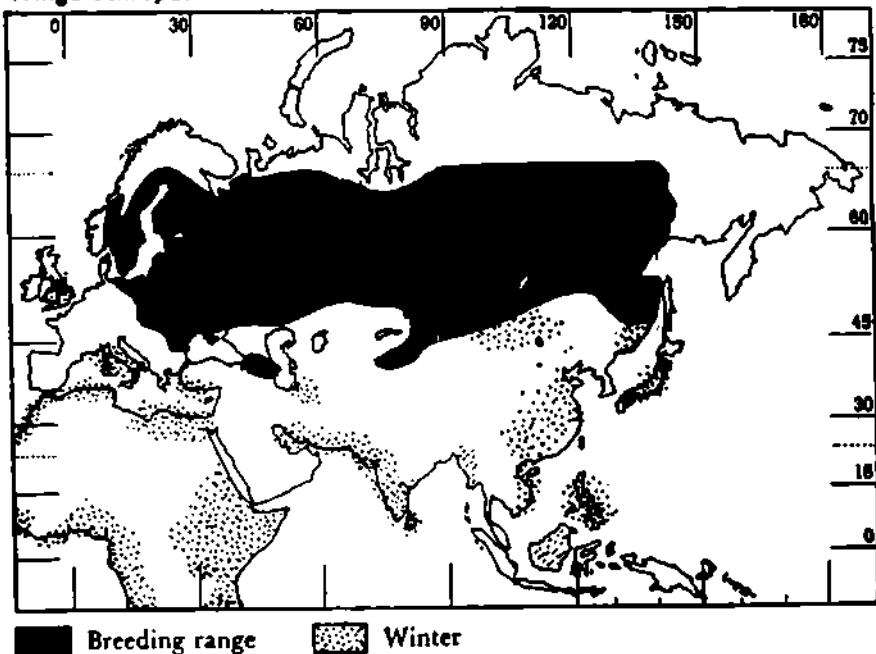


× c. 1

back, rump and tail white, the last barred with blackish. *Below*, breast pale dusky; rest of underparts white. Sexes alike.

and trickles, in the plains and peninsular hills to at least 2300 m. (Nilgiris). Also tidal creeks, lagoons and salt pans.

Tringa ochropus



Extralimital. Breeds in northern Europe and Asia, north to the Arctic Circle (locally to c. 68°N.), south to Transcaspia, Turkestan, NW. Mongolia and the Amur river. (For details see Vaurie, 1965, 2: 414.) Winters in the British Isles, Mediterranean region, Africa south to Angola and Kenya, and southern Asia, Hainan, Taiwan and the Philippines, Burma, Borneo (Smythies).

MIGRATION. Abundant on passage at Kohat and through Kurram Valley (NW. Pakistan) from end August till November, and again in April-May (Whitehead, 1909, *Ibis*: 275). Earliest arrivals in Sind end July; more in August and September when many pass through Lower Sind. Return passage early April; most gone by end of that month 'noticeably earlier than most other species' (Ticehurst, 1924, *Ibis*: 122-3).

Gilgit: Very common in migration mid August to end September, and again beginning of April to mid May (Scully, 1882, SF 10: 141). Nepal Valley: earliest date 17 August, latest date 17 April. Large numbers on passage. On 16 September during afternoon over 20 parties observed, mostly of 3 birds each, all calling and flying steadily in same direction; on 21 September again numbers flying past (Desirée Proud, 1949, JBNHS 48: 718). Gujarat: Earliest 13 August latest 17 April (SA). Bombay environs: Earliest 5 August, latest 9 May. Ceylon: Arrives end August and September, leaves towards end April and in May (Phillips, 1952, Checklist: 38). Odd non-breeding birds stay behind throughout the year.

A bird ringed in the environs of Kazan, U.S.S.R. (c. 56°N., 49°E.), presumably on its breeding grounds, in June 1929 was recovered in

September 1933 in Kottayam district, Kerala (c. 9°N., 76°E.)—a straight-line map distance of c. 5600 km. (c. 3500 miles).

GENERAL HABITS. Typical of the sandpipers, but is less gregarious than most species. Keeps singly or in twos and threes, and seldom in voluntary association with other species; small flocks of usually not more than 15 or 20 even on migration. Runs about and feeds at edge of water, sometimes wading into the shallows, probing into the soft mud with its bill. When perturbed, bobs violently up and down before taking wing, this almost invariably accompanied by the distinctive flushing notes.

FOOD. Molluscs, crustaceans, aquatic insects, worms. Mosquito larvae (Husain & Bhalla).

VOICE and CALLS. A shrill piping *ti-tui* or *twee-twee-twee* as it flushes and is flying off. A beautiful nuptial song in the breeding season.

BREEDING. Extralimital and peculiar. As a rule lays its 3 or 4 eggs in the deserted nests of thrushes and other birds fairly high up in trees; only rarely on the ground like most other sandpipers, e.g. Redshank.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumages and morphology (also bionomics), Witherby, 1940, 4: 310–14.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	136–148	33–35	32–34	52–61 mm.
♀♀	142–153	33–36 (from feathers)	—	—

(Witherby)

Weight 20 ♂ ♀ (autumn/winter) 59–87 (av. 74·5) gm.—BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill dull greenish, black at tip. Legs and feet dull greenish brown or olive-green.

398. Wood or Spotted Sandpiper. *Tringa glareola* Linnaeus

Tringa Glareola Linnaeus, 1758, Syst. Nat., ed. 10, 1: 149 (in Europa = Sweden)

Baker, FBI No. 2146, Vol. 6: 219

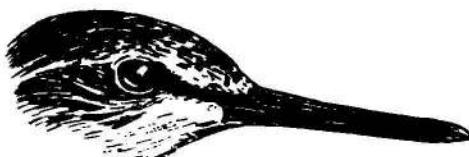
Plate 30, fig. 2, facing p. 272

LOCAL NAMES. *Chūpka*, *Chobāha*, *Titvāri* (Hindi); *Bālu bātān* (Bengal); *Chinna ulanka* (Telugu); *Kāta kokku* (Malayalam); *Sili watuwā* (Sinhala); *Köttān*, *Vāyā ullān* (Tamil).

SIZE. Grey Quail ±; length c. 21 cm. (8½ in.).

FIELD CHARACTERS. A small snipe-like, rather gregarious wader.

Winter (non-breeding). *Above*, greyish brown and sepia-brown indistinctly spotted and marked with white. A whitish supercilium. Lower



× c. 1

back, rump and tail white, the last barred with blackish. *Below*, breast pale dusky; rest of underparts white. Sexes alike.

In flight sepia-brown upperparts, with conspicuous white rump, barred brown-and-white tail, and no wing-bar, together with characteristic flushing notes are diagnostic clues.

Summer (breeding). Plumage much brighter; markings above and below better defined giving a distinctly spotted appearance.

STATUS, DISTRIBUTION and HABITAT. Winter visitor. Common and widespread: all India (including Assam and Manipur), both Pakistans, Nepal, Ceylon, Andaman, (Nicobar ?) and Maldives islands. Affects squelchy margins of jheels, wet paddyfields, seepage marshes round irrigation tanks — chiefly lowlands but also up to at least 2000 m. altitude. Also mudflats along tidal creeks on the seaboard.

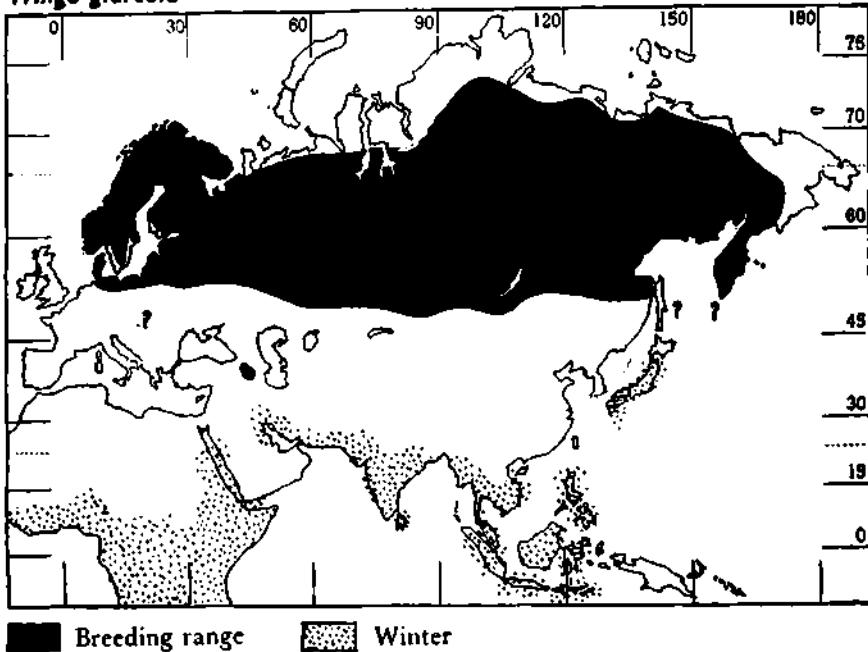
Extralimital. Breeds in N. Europe and N. Asia east to the Amur river, Kamchatka and northern Kurile islands. (For details see Vaurie, 1965, 2: 415.) Winters throughout Africa, and SE. Asia; Japan, Philippines, Malay Archipelago to Australia.

MIGRATION. Begins to arrive in the northern districts in early August; fair numbers in by end August or early September. Spring (outward) passage end March and April, trickling on till mid May. The same in Ceylon. Apparently oversummering of this species in India unusual and unrecorded. Among the extralimital recoveries (to January 1968) of Spotted Sandpipers ringed in India, the following are suggestive of the general provenance of our wintering populations.

Ringed at	on	Recovered at	on
Manjhaul, Monghyr district, N. Bihar (c. 25°N., 86°E.)	17.iii.64	Nuya, Mukhtuya dist., Yakutian, U.S.S.R. (c. 60°30'N., 116°10'E.)	16.v.64
do.	4.xii.64	30 km. S. of Yakutsk, Yakutian, U.S.S.R. (c. 62°N., 129°40'E.)	25.v.65
Salt Lakes, near Calcutta (c. 22°35'N., 88°21'E.)	26.iii.65	Srednyaya, Olekma Tungiro-Olekmansk dist., Chita region, U.S.S.R. (c. 55°15'N., 120°E.)	25.v.65
do.	2.iv.65	Almaznyi, near Mirnyi, Yakutian, U.S.S.R. (c. 62°30'N., 113°50'E.)	25.v.65
Bharatpur, Rajasthan (c. 27°13'N., 77°32'E.)	9.x.65	Near Ushakovo, Tyumen region, U.S.S.R. (57°49'N., 68°4'E.)	5.v.67

All the above recovered at straight-line map distances of between 4500 and 5200 km.

Since then, many more recoveries of Spotted Sandpipers ringed in Bharatpur, Bihar and Bengal have been reported from the same general area in NE. Siberia. The most noteworthy of these is of one ringed near Calcutta on 6.iv. 1967 and recovered 48 days later (on 24.v.1967) near Susuman (68°48'N., 148°12'E.) in the Magadan Region of the USSR — at a map distance of c.

Tringa glareola

6200 km. From the recovery date presumably the bird was on its breeding grounds.

GENERAL HABITS. More gregarious than most sandpipers, e.g. Green and Common. Often seen in flocks of 20 to 30 birds, and much larger ones on migration. Occasionally also solitary or in small parties. When feeding, sometimes wades into water up to the belly giving the impression of swimming, and probes the bottom mud with head and neck completely immersed. When newly arrived on migration, and again just prior to departure late in the season, territorial rivalry apparent. One bird suddenly rushes at a neighbour and leaps at him with open wings as if to strike with imaginary spurs, the other usually ducking to avoid the onslaught. In one case observed, the attacker leapt viciously on the head and neck of his adversary and pinned him down in the water in a seemingly deliberate attempt to drown him.

When wounded and trying to evade capture has been seen to dive for a few seconds quite 'professionally'. Its predilection for snipe marshes and confusingly snipe-like flight-silhouette sometimes bring it to grief at the hands of tyro snipe-shooters.

FOOD. Tiny molluscs, crustaceans, insects, worms. 'Small fish about 2 cm.' (SA).

VOICE AND CALLS. A sharp quick-repeated *chip, chip, chip, chip*, etc. (at c. 2-3 *chips* per second) from the ground, usually by individual birds, not together. A shrill *pee-pee-pee* by several birds in disorderly chorus as a flock flushes and flies away. The latter call 'similar to that of Green Sandpiper but more metallic' (A. E. Jones).

BREEDING. Extralimital. In general like Redshank and other sandpipers. Female does most of the active courting (Malcolm Macdonald, 1947).

The Birds of Brewery Creek, p. 141). This is probably true of many other sandpipers as well, and correlated with the larger size of their females.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumages and morphology (also bionomics), Witherby, 1941, 4: 305-9.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	120-128	25-29	34-38	44-52 mm.
♀ ♀	125-130	25-31	—	— (Witherby)

Weight 50 ♂ ♀ (autumn and winter) 36-66 gm. (aver. 52.8)—SA.

COLOURS OF BARE PARTS. Iris brown. Bill blackish brown, olive at base. Legs and feet pale sage-green or olive-green; claws brown.

399. Spotted Greenshank or Armstrong's Sandpiper. *Tringa guttifer* (Nordmann)

Totanus guttifer Nordmann, 1835, in Erman's Reise, Naturh. Atlas: 17 (Okhotsk)
Baker, FBI No. 2151, Vol. 6: 226

LOCAL NAMES. Unrecorded.

SIZE. Grey Partridge ±; slightly smaller than Greenshank. Length c. 33 cm. (13 in.).

FIELD CHARACTERS. Difficult to distinguish from Greenshank (396) especially as it occurs mingled with it and with Redshanks and liable to be overlooked. Wing like Greenshank's — without white bar, stouter bill (also slightly upcurved) noticeably longer than tarsus, and yellow legs, are points to look for.

Winter (non-breeding). *Above*, forehead, supercilium, and sides of head white. Sides of face, and hindneck, streaked with brown. Rest of upper parts ashy brown. Lower back and rump white, faintly barred with brown on upper tail-coverts. Tail ashy and white. Primaries black. *Below*, white.

Summer (breeding). *Above*, blackish brown with a few white spots on scapulars. *Below*, scattered dark spots on foreneck and breast. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Rare winter visitor to Assam and East Pakistan. Possibly overlooked and may be actually less rare than apparent. Affects grassy meadows near streams, sand- and mudflats in the larger rivers and near the sea.

EXTRALIMITAL. Breeds on Sakhalin Island and probably in E. Siberia. Winters in Ussuriland, Japan, Korea, Malaya, Burma. (For details see Vaurie, 1965, 2: 414.)

MIGRATION. No data.

GENERAL HABITS. Very little specifically known; apparently similar to Greenshank (396).

FOOD. Stomachs of Indian-shot specimens contained small mudfish, crustacea, mollusca and insect larvae (Baker).

VOICE and CALLS. 'A sharp whistling note as they rose' (Baker).

BREEDING. Extralimital and little known.

MUSEUM DIAGNOSIS. Bill slightly upcurved as in Greenshank but stouter and appreciably longer than tarsus. Web between 2nd and 3rd toes well developed as in Redshank. For description of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂	178	50-57	45-47	62-67 mm.
♀ ♀	174-181	(from feathers)		(Baker)

Tarsus 41-42 mm.; middle toe with claw 35 mm. (Hartert).

COLOURS OF BARE PARTS. Iris dark brown. Bill dusky; yellow near base, black at tip. Legs and feet dull ochreous yellow or greenish ochreous (Armstrong).

400. **Terek Sandpiper or Avocet-Sandpiper.** *Tringa terek* (Latham)

Scolopax cinerea Güldenstädt, 1774, Novi Comm. Sci. Petropol. 19: 437, pl. 19, preoccupied in genus *Tringa* by *Tringa cinerea* Brünnich, 1764 (Shores of the Caspian Sea about the mouth of the Terek river)

Scolopax terek Latham, 1790, Index Orn. 2: 724, new name for *Scolopax cinerea*

Baker, FBI No. 2141, Vol. 6: 212

Plate 28, fig. 5, facing p. 224

LOCAL NAMES. None recorded.

SIZE. Grey Quail +; length c. 24 cm. (9½ in.).

FIELD CHARACTERS. Unmistakable by its long, slender upcurved bill and rather short orange-yellow legs. In flight pale ashy brown rump and white trailing edge of dark wings conspicuous.

Winter (non-breeding). *Above*, greyish brown with conspicuous white forehead and supercilia. *Below*, white. Sexes alike.

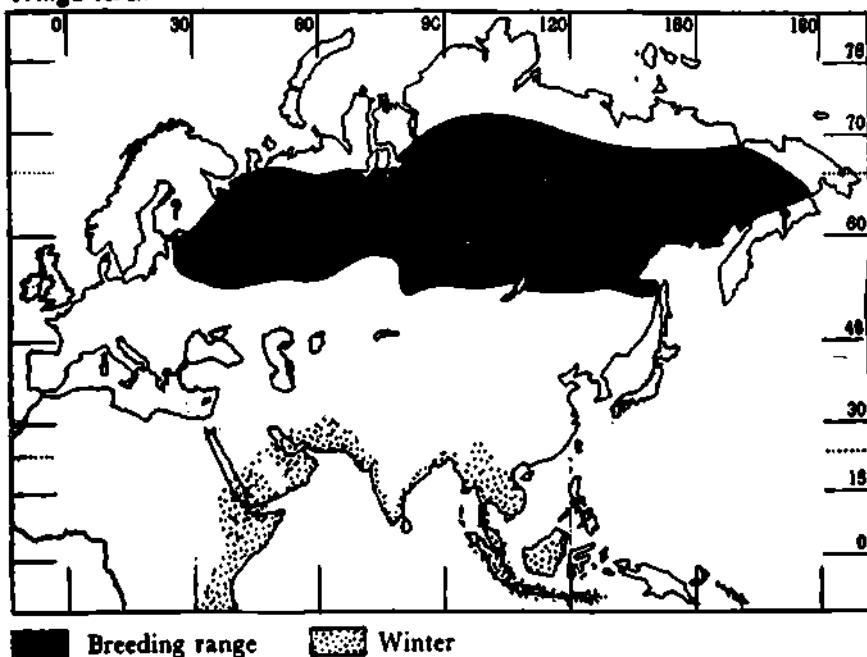
Summer (breeding). *Above*, with bold black streaks on mantle forming a prominent V-shaped mark (scapulars). *Below*, sides of head and neck, and breast, distinctly striated with brown.

STATUS, DISTRIBUTION and HABITAT. Winter visitor to the entire seaboard from W. Pakistan (Makran, Sind) and western India from Kutch and Saurashtra south to the tip of the Peninsula and up the east coast to W. Bengal and East Pakistan; Ceylon (northwest coasts); Andaman Is. Affects the seashore, mangrove swamps, tidal creeks and mudflats, and coastal lagoons. Rarely at inland fresh water and that chiefly on migration and near the seacoast, but ascends the larger rivers in the Sunderbans, Bangladesh.

EXTRALIMITAL. Breeds in N. Russia to Siberia (north locally to lat. c. 70°N.) east to Kolyma river, south from southern Urals to Lake Baikal and beyond. (For details see Vaurie, 1965, 2: 418-19.) Winters in E. Africa, Madagascar, Mauritius, India, Burma, Malay Archipelago, Australia, and Tasmania.

MIGRATION. No ringing data. Like many other waders begins to arrive on the Makran, Sind, Kutch and Saurashtra coasts in early August. Is fairly spread out by September south to Ceylon and east to Orissa. (Chitta, gong ?). Birds in April in partial summer plumage and very fat; exodus well advanced by end April; nearly all gone by mid May, but staybacks commonly observed June-August (Pt Calimere). Apparently migrates mainly along the littoral. Once taken on autumn passage in Bharatpur and once observed in Delhi (JBNHS 65:781-2); otherwise not reported from far inland in India or Pakistan.

GENERAL HABITS. Keeps in parties and small flocks of up to 10 or 15 birds running about actively and feeding on the seashore between the tide-

Tringa totak

■ Breeding range ■ Winter

marks or on the mudbanks of tidal creeks, scattered amongst dunlins, sand plovers and other maritime waders. When feeding probes with its bill deep into the squelchy ooze almost to the eyes so that the base of the lower mandible and chin usually become bare of feathers due to the constant attrition. Often a morsel is shaken in water and carefully washed before being swallowed. At high water the birds bunch up on a raised sandspit or rock on the seashore resting on one leg, or settle on the bushes in mangrove swamps until the receding tide exposes the feeding ground. Whether the peculiar upturned shape of the bill has any special adaptive significance remains to be studied.

FOOD. Tiny molluscs, crustaceans and insects.

VOICE and CALLS. In winter only a subdued twittering or trilling especially as a flock rises.

BREEDING. Extralimital. Season late May and June. Nest a grass-lined depression in ground moss in willow scrub. Eggs, 4, very like those of Marsh Sandpiper (395), yellowish grey or buff blotched with sepia.

MURMUR DIAGNOSIS. Bill slender, upcurved, nearly twice as long as tarsus. Both mandibles grooved. Nostril in upper groove close to base of bill. Hind toe and claw well developed; anterior toes webbed; middle claw dilated but not pectinated. Wing pointed: 1st primary (as.) longest; second nearly as long. For description of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	126-141	43-49	25-28	47-56 mm.
♀ ♀	127-140	44-52	—	—

(Witherby)

Weight 17 ♂ ♀ (June-Aug., staybacks) 45-65 (av. 53) gm.; 20 ♂ ♀ (winter) 50-72 (av. 58.1) gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill black or dark brown, yellowish or orangy at base. Legs and feet dull yellow to bright orange-yellow.

401. Common Sandpiper. *Tringa hypoleucus* Linnaeus

Tringa hypoleucus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 149 (in Europa = Sweden)

Baker, FBI No. 2145, Vol. 6: 217

Plate 30, fig. 6, facing p. 272

LOCAL NAMES. *Polte ulanka* (Telugu); *Köttān* (Tamil); *Sili watuwā* (Sinhala); *Neerkāta* (Malayalam); *Sāmānya tutvāri* (Gujarati); *Findon* (Maldive Is.).

SIZE. Grey Quail; length c. 21 cm. (8 in.).

FIELD CHARACTERS. A small-sized sandpiper with a vertical white stripe between wing-shoulder and dusky breast-band. A narrow white wing-bar, conspicuous in the peculiar rapid, stiffly vibrating jerking flight low over water, and the shrill piping *tee-tee-tee* are diagnostic pointers.

Winter (non-breeding). *Above*, sides of head and neck ashy brown, streaked darker. A broad pale rather indistinct supercilium. Upperparts

olive-brown. Rump and tail brown with only the outer tail-feathers white. *Below* white with a broad diffuse dusky band across breast. Sexes alike.

Summer (breeding). *Above*, darker, less olive, with broader dark shaft-stripes and cross-barring. *Below*, foreneck and breast boldly striated with brown.

STATUS, DISTRIBUTION and HABITAT. Breeds in Kashmir, Ladakh and Garhwal to at least 3200 m. altitude, perhaps higher. Possibly also in N. Baluchistan.

Winter visitor to all India (including Assam, NEFA, Nagaland, Manipur), both Pakistans, Nepal, Sikkim, Ceylon, Andaman, Nicobar, Maldive and Laccadive Is. Up to c. 2100 m. (Nilgiris). Affects inland waters — streams, tanks, ditches, puddles — as well as rocky seashores, harbours and docks, coastal lagoons, tidal creeks and mangroves.

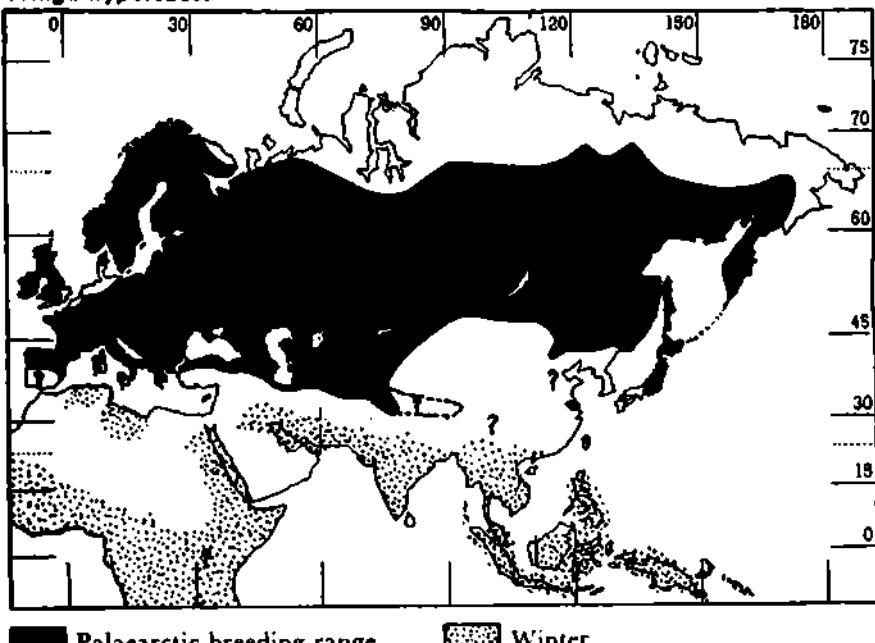
EXTRALIMITAL. Breeds throughout Europe and Asia south of the tundra, south to N. Spain, N. Italy, S. Russia, Iran, Mongolia, Manchuria, Japan. Winters in Africa, India, Ceylon, SE. Asia north to S. China, Taiwan, the Philippines, Malay Archipelago to Australia.

MIGRATION. No ringing data. Apparently migrates along the coast. Very few definite records of overland migration in India, but see above. Once of a flock at a pool of fresh water in the desert a couple of miles inland from the coast near Karachi, apparently just arrived. Arrives near Karachi between middle and end August. Leaves late in the season; a few flocks still present between middle and end May (Ticehurst, 1924, *Ibis*: 111) and at end June in Pt Calimere.

GENERAL HABITS. Usually keeps solitary or in scattered twos and threes running about at the water's edge, picking up titbits cast up by the wavelets



Tail, $\times c. \frac{1}{4}$

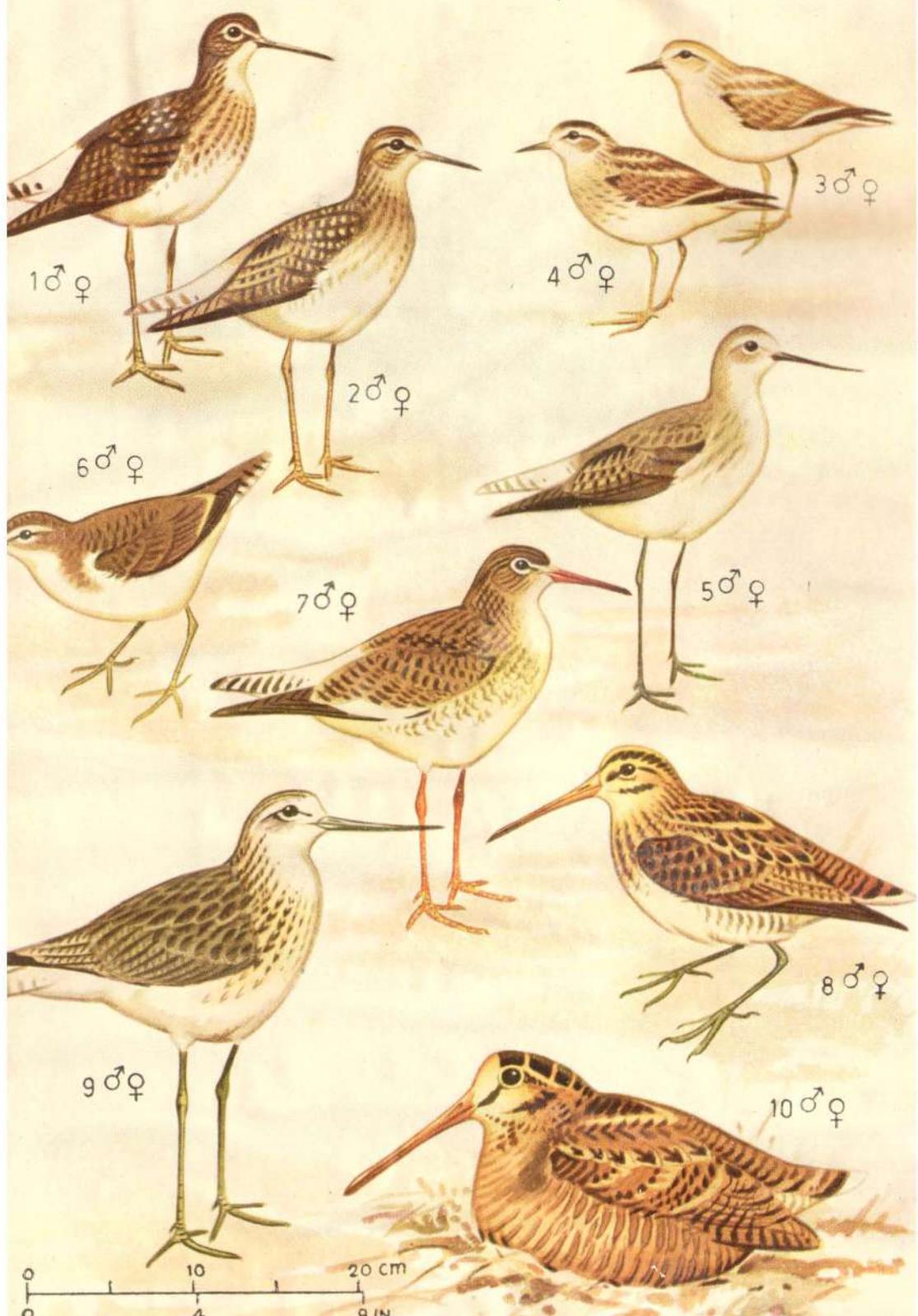
Tringa hypoleucus

and ripples; wags its tail end incessantly and jerks its head, or bobs, vehemently from time to time, particularly when agitated. Hardly ever collects in flocks, but numbers (40–50 or more) sometimes bunch up together on rocks on the seashore at high tide while waiting for the ebb to resume feeding. The way a bird follows a receding wave to pick up any morsels it may expose, and hastily withdraws to avoid being engulfed by the oncoming next, is amusing to watch. In keeping with the harder ground it normally frequents, does not probe into the mud for food but picks it up from the surface, like the Grey Wagtail with which it is very commonly associated on inland streams and trickles. The jerky 'vibrating' flight (see Field Characters) is typical. When wounded has been observed to dive and swim hither and thither with quick wing-strokes two feet below the surface, diving again immediately on rising to the top (Butler, JBNHS 13: 148).

Much rivalry for feeding territories noticeable among first arrivals. Two birds will run parallel to each other casting malicious sidelong glances. One will abruptly spring at his rival, the assailed one drooping his wing on that side and screwing round his expanded tail in anticipation, and as if to

PLATE 30

- 1 *Tringa ochropus*, Green Sandpiper (397).
- 2 *Tringa glareola*, Wood or Spotted Sandpiper (398).
- 3 *Calidris temminckii*, Temminck's Stint, winter (417).
- 4 *Calidris subminuta*, Longtoed Stint, winter (418).
- 5 *Tringa stagnatilis*, Marsh Sandpiper, winter (395).
- 6 *Tringa hypoleucus*, Common Sandpiper, winter (401).
- 7 *Tringa t. eurhinus*, Redshank, winter (394).
- 8 *Gallinago g. gallinago*, Fantail Snipe (409).
- 9 *Tringa nebularia*, Greenshank, winter (396).
- 10 *Scolopax r. rusticola*, Woodcock (411).



John H. Dick

ward off the attack. These assaults, repeated in turn by either belligerent, are mostly formalized and innocuous.

FOOD. Tiny molluscs, crustaceans, and insects.

VOICE and CALLS. A characteristic shrill flushing note *tee-tee-tee*. A pretty, long-drawn trilling or piping nuptial song *wheeeit*, *wheeit*, or *kiti-wheeeit*, *kiti-wheeeit* repeated several times. This is frequently heard when the bird is resting and completely at its ease, just prior to emigration and also till shortly after return to winter quarters. It is delivered from the ground, from a rock or mangrove bush, or during the male's elaborate aerial courtship display. The latter consists of flying around in circles at top speed above the nesting area, the bird often soaring to a considerable height and descending on quivering wings.

BREEDING. Season in Kashmir, Ladakh, Garhwal, etc. principally May-June. Nest, a hollow in the ground lined with dead leaves and dry grass under the concealing shelter of a bush or boulder. Placed on a tamarisk- or other scrub-covered shingle islet amid a rushing Himalayan stream. Eggs, 4, rather glossy pyriform ovals, creamy buff, blotched and speckled with reddish brown, and with phantom marks of lavender or pinkish grey. Average size of 120 Indian-taken eggs 35.6×26.2 mm. (Baker). Both sexes take part in incubation and tending the young. Period 22-23 days; longer than in domestic hen! Eggs disproportionately large and heavy for size of bird. According to Heinroth combined weight of full clutch (4 eggs), laid at 24-hour intervals, is 48-52 + gm., exceeding the normal weight of the layer.

MUSEUM DIAGNOSIS. For description of plumage (including chick in down) see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 297-302.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	106-114	23-25	22-24	50-59 mm.
♀ ♀	111-119	24-26	—	—

(from feathers)

(Witherby)

Weight 8 ♂ ♀ (autumn/winter) 38-50 (av. 44) gm. — BNHS.

COLOURS OF BARE PARTS. Iris dark brown. Bill horny brown, greyer or greenish at base of lower mandible; mouth pale french grey. Legs and feet greenish grey or greyish sage-green; claws dusky.

Genus ARENARIA Brisson

Arenaria Brisson, 1760, Orn. 1: 48; 5: 132. Type, by tautonymy,

Arenaria Brisson = *Tringa interpres* Linnaeus

Bill distinctive, conical and pointed with the culmen nearly straight and lower mandible inclined upward. Nostril linear, situated in a groove which extends nearly half way down upper mandible from base. Wing long and pointed: first primary (as.) longest. Tarsus short, reticulated behind, scutellated in front. Hind toe well developed. No web between the anterior toes.

Genus Holarctic, the Palaearctic race of one species migratory to India.

402. Turnstone. *Arenaria interpres interpres* (Linnaeus)*Tringa Interpres* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 148

(Europe and North America = Gotland, Sweden)

Baker, FBI No. 2101, Vol. 6: 154

Vol. 3, plate 37

LOCAL NAMES. *Tirakkata* (Malayalam); *Ratasy* (Maldives); *Oleyiya* (Sinhala); *Kottan* (Tamil).

SIZE. Grey Quail ±; length c. 22 cm. (8½ in.).

FIELD CHARACTERS. A medium-sized dark brown-and-white wader distinguished by its glistening white chin and throat, straight conical black bill and orange-red legs. Sexes alike.



× c. 1

Winter (non-breeding). *Above*, dark brown and white. Lower back, rump, and tail-coverts white, the last with a dark brown cross-bar. Tail dark brown tipped with whitish and with the outermost pair of feathers

white. *Below*, foreneck and sides of breast brown. Rest of underparts including chin and throat pure white.

Summer (breeding). *Above*, head white streaked with black on crown. A black band from forehead to eye and to a black patch below eye. Rest of upperparts largely black and deep rufous. *Below*, foreneck and sides of breast, and a partial collar on sides of neck, black. Rest of underparts white.

In flight the middling size, black-and-white plumage (with white back and dark pectoral band), pointed wings with a white wing-bar and white shoulder-patch, and bright-coloured legs, are diagnostic pointers.

Birds in mottled black-and-white and chestnut intermediate plumage phases common.

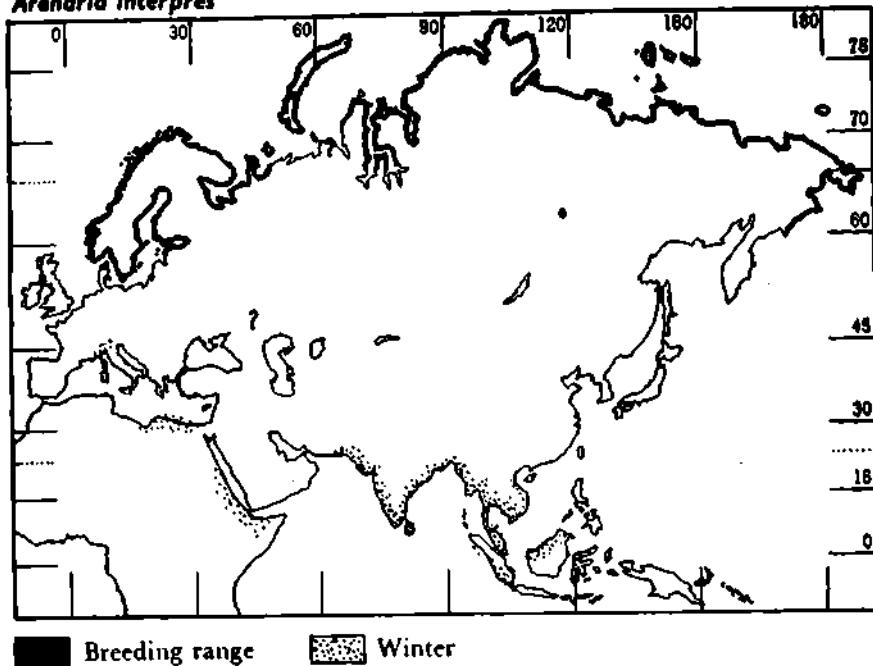
STATUS, DISTRIBUTION and HABITAT. Winter visitor to the entire seaboard of India and both Pakistans, Ceylon, Andaman, Nicobar, Maldivian, and Laccadive islands. Affects rocky sea coasts; very rarely fresh waters.

Exceptional vagrant inland; solitaires or twos and threes (on migration ?) recorded once each from Lucknow (U.P.), Patna (Bihar), Sambhar Lake and Bharatpur (Rajasthan) and Manipur in the last 95 years.

Extralimital. Breeds on arctic coasts and tundras from Scandinavia eastward across Siberia, locally to Alaska to c. lat. 76°N. Winters *inter alia* on the coasts of southern Asia — India, Burma, Malay Peninsula and Archipelago. (For details see Vaurie, 1965, 2: 391.)

MIGRATION. No ringing data. Apparently migrates along the coast. Very few definite records of overland migration in India, but see above. Once of a flock at a pool of fresh water in the desert a couple of miles inland from the coast near Karachi, apparently just arrived. Arrives near Karachi between middle and end August. Leaves late in the season; a few flocks still present between middle and end May (Ticehurst, 1924, *Ibis*: 111) and at end June in Pt Calimere.

GENERAL HABITS. Predominantly maritime. Usually keep in small parties either by themselves or dotted about among feeding sand plovers on the

Arenaria interpres

Breeding range Winter

rocky beach. Runs actively in plover-like spurts on the sand, shingle and sheet rock, turning over algae or poking with its bill under stones and seashells at the tide's edge in search of food. Scuttles up the beach to avoid each incoming wave, following it closely as it recedes to seize any washed-up morsels, and withdrawing hurriedly again before the next one.

In the Laccadives has been repeatedly observed swimming out buoyantly (like Phalarope) — in spite of completely unwebbed feet — to just beyond the breakers on the outside of the atolls, never in the still lagoons. The birds rose off the water quite easily and settled on the sea again after short flights (Hume, SF 4: 464). What they were after is not mentioned, but is worthy of investigation since it may represent an unrecorded method of feeding.

FOOD. Molluscs, crustaceans, sandhoppers, and marine worms. Sand crabs (*Ocypoda*) with carapace up to c. 5 cm. across recorded elsewhere; also berries of *Scaevola* (Child, 1960, Atoll Res. Bull. 74: 26).

VOICE and CALLS. The only note heard in its winter quarters is a metallic twitter as a flock flushes.

BREEDING. Extralimital. *Season*, mid-May to July. *Nest*, a grass-lined ground hollow on Arctic islands. *Eggs*, normally 4.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 223-7.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	147-157	20-24	23-26	c. 55-62 mm.
♀ ♀	146-162	c. 21-25	—	—
(from feathers)				(Witherby)

Weight 25 ♂ ♀ (autumn/winter) 58-95 (av. 75) gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill black. Legs and feet orange-red; claws black.

MISCELLANEOUS. Longevity (from ringing data) 19 years. Ring, 1962, 33: 149.

Genus *LIMNODROMUS* Wied

Limnodromus Wied, 1833, Beitr. Naturg. Brasil, 4, Abth. 2: 716. Type, by monotypy,

Scolopax noveboracensis Gmelin = *Scolopax grisea* Gmelin

Pseudoscolopax Blyth, 1859, Jour. Asiatic Soc. Bengal 28(1): 280. Type, by monotypy,

Macrorhamphus semipalmatus 'Jerdon' = Blyth

Cf. Rand, A. L., 1950, Condor 52: 228-31.

Bill like snipe (*Capella*), very long, straight and slender, swollen towards the tip where it is pitted. Both mandibles grooved at the sides, upper mandible also above, towards tip. Nostrils near base. Wing long and pointed: first primary (as.) longest, 2nd subequal. Tarsus shorter than bill, scutellated in front reticulated behind. Hind toe well developed; anterior toes webbed near base, the web between outer and middle toe the larger. Winter plumage grey-brown, summer plumage rufous as in Godwit (*Limosa*).

The genus contains two species one of which is a rare migrant to India.

403. Snipebilled Godwit or Asian Dowitcher. *Limnodromus semipalmatus* (Blyth)

Macrorhamphus semipalmatus 'Jerdon' = Blyth, 1848, Jour. Asiatic Soc. Bengal 17(1): 252 (Madras)

Micropalama tacksanowskia [sic] Verreaux, 1860, Rev. Ung. de Zool., May-June: 206, pl. 14 (Dauria)

Baker, FBI No. 2140, Vol. 6: 210

Plate 28, fig. 6, facing p. 224

LOCAL NAMES. None recorded.

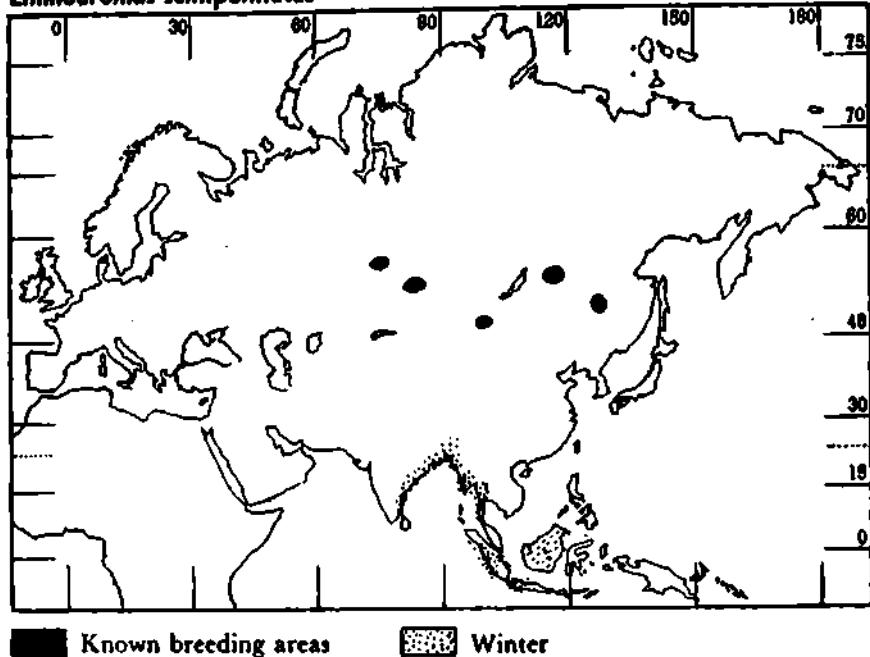
SIZE. Grey Partridge +; length c. 34 cm. (13½ in.).

FIELD CHARACTERS. A rare, large-sized wader similar to Godwit but with a conspicuously slenderer, longer bill, somewhat swollen towards tip.

Winter (non-breeding). *Above*, forehead and lores dark brown; a broad white supercilium; crown and mantle dark greyish brown, back dark brown, both scalloped with whitish. Inner primaries and secondaries broadly bordered with white. Rump and upper tail-coverts white with irregular arrow-shaped brown bars. Rectrices barred brown and white. *Below*, sides of head, chin, throat, foreneck, and upper breast white streaked with pale brown forming wavy vertical bands. Flanks and under tail-coverts irregularly spotted and barred with brown. Sexes alike.

Summer (breeding). *Above*, head, neck and upperparts bright rufous, the mantle feathers with black centres. *Below*, uniform rufous.

STATUS, DISTRIBUTION and HABITAT. Rare vagrant (?). Has been obtained at long intervals since first described by Jerdon from Madras in 1848, in W. Bengal (Calcutta), Assam (Dibrugarh, Shillong), Orissa (Chilka lake) and Tamil Nadu (Pt Calimere). Mostly on the sea coast and muddy banks of estuaries of large rivers, but has also been taken at c. 1500 m. in the Khasi

Limnodromus semipalmatus

■ Known breeding areas

■ Winter

Hills, Assam. Perhaps less rare than published records suggest, but uncritically overlooked among Godwits (*Limosa*). Thus recently (1966) found to be not uncommon in winter on Chilka lake, Orissa.

Extralimital. Breeds in W. Siberia in the valley of the Irtysh near Tara and in the Ob valley in the Barnaul region; in Transbaikalia (Argun Valley) and in NW. and C. Mongolia. Complete breeding range not known. On migration and in winter to China, Japan, N. India, Burma, and the Indochinese countries. Borneo (Smythies).

MIGRATION. No data. The specimens obtained near Shillong, c. 1500 metres elevation, in early September and late April were presumably on passage.

GENERAL HABITS, FOOD, VOICE and CALLS. Apparently similar to the Godwits (389, 391) but no precise data.

BREEDING. Extralimital. Poorly known.

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

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	160-172			
♀ ♀	163-177	77-87	48-54	61-67 mm.
				(Baker)

6 ♂♀ recently ringed at Chilka lake gave Wing (in flesh) 177-181 mm.; weight 127-147 gm. (SA).

COLOURS OF BARE PARTS. Iris dark brown. Bill black, paler and plumbeous at base. Legs and feet dark plumbeous or brownish black.

Genus *GALLINAGO* Brisson

Gallinago Brisson, 1760, Orn. 5: 298–310. Type, by tautonymy, *Scolopax gallinago* Linnæus

Gallinago Koch, 1816, Syst. Baier. Zool. 1: 312. Type, by tautonymy, *Gallinago media* Koch = *Scolopax gallinago* Linnæus

Lymnocryptes Kaup, 1829, Skizz. Entw. Gesch. Eur. Thierw.: 118. Type, by monotypy, *Scolopax gallinula* Linnæus = *Scolopax minima* Brünnich

Capella Frenzel, 1801, Vög. u. Eyer Wittenberg: 58. Type, by monotypy, *Scolopax costalis* Frenzel = *Scolopax gallinago* Linnæus

Cf. Wetmore, A., 1958, *Ibis* 100: 125–7.

Bill as in Woodcock long, straight, slender, rather soft and swollen at tip, finely pitted and provided with sensory nerves. Differs from the Woodcock genus (*Scolopax*) in having a denser, harder plumage with a different colour pattern on the head and scapulars — longitudinal streaks instead of transverse bars on the former, and streaks instead of blotches on the latter. Lower part of tibia bare instead of feathered throughout. Wing longer in proportion and less rounded. Tail more or less fan-shaped but feathers varying in number from 14 or 16 in Common Snipe to 26 in Pintail, and in shape from short attenuated pins to normal rectrices with broad vanes.

Contains a great number of species, many of which are cosmopolitan. Seven species occur in India in winter.

Key to the Species

	Page
A Crown with no median pale band; tail-feathers pointed <i>G. minima</i>	290
B Crown with longitudinal stripes and median pale band; tail-feathers rounded I	278
1 Wing exceeding 150 mm.; borders of scapulars white <i>G. solitaria</i>	278
Wing under 150 mm.; borders of scapulars buff or rufous a	
a Distance between tip of shortest secondary and that of longest primary not exceeding 55 mm. <i>G. nemoricola</i>	280
Distance between tip of shortest secondary and that of longest primary exceeding 55 mm. I	
I Outer tail-feathers narrow and stiff and under 7·5 mm. broad a ¹	
Outer tail-feathers not narrow or stiff b ¹	
a ¹ Tail-feathers 26 in number, the eight outer on each side less than 5 mm. broad <i>G. stenura</i>	282
Tail-feathers 20, the six outer on each side less than 7·5 mm. broad <i>G. megala</i>	284
b ¹ Three outer pairs of tail-feathers marked with dusky spots and bars <i>G. gallinago</i>	287
Three outer pairs of tail-feathers pure white <i>G. media</i>	286

404. Eastern Solitary Snipe. *Gallinago solitaria solitaria* Hodgson

Gallinago solitaria Hodgson, 1831, Gleanings in Science 3: 238 (Nepal)

Baker, FBI No. 2169, Vol. 6: 257

Plate 28, fig. 10, facing p. 224

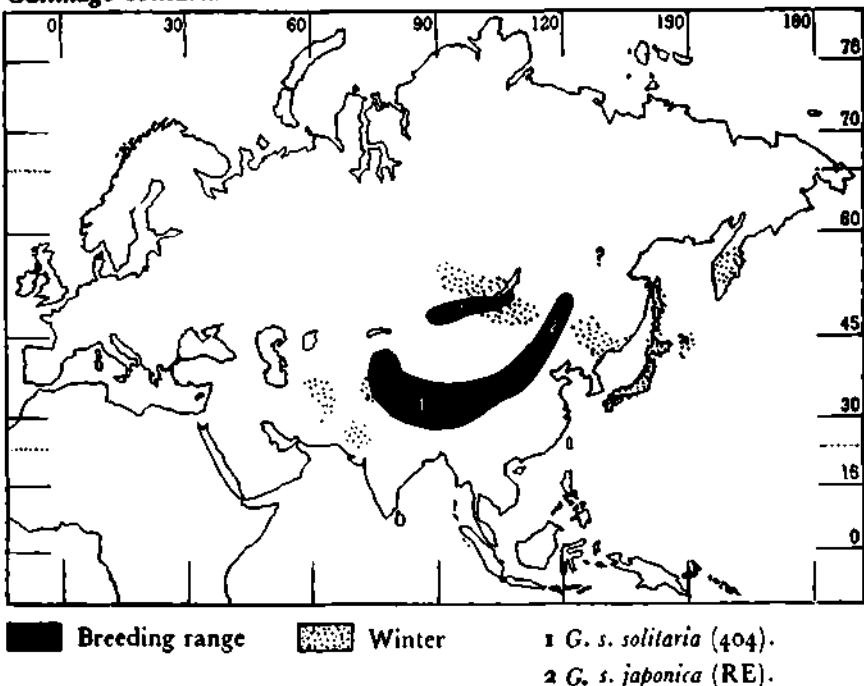
LOCAL NAMES. *Bān chāhā* (Hindi); *Bhadrka* (Nepal); *Simpoo* (Khasi); *Daudidep gophu* (Cachar); *Boner kocha* (Assamese); *Chek laobi* = 'calls chek', presumably for all snipe (Manipur).

SIZE. Grey Quail +; larger than Fantail Snipe. Length (including bill) c. 31 cm. (12 in.).

FIELD CHARACTERS. A typical, concealingly coloured marsh bird — variegated brown, black, rufous, fulvous, and white — with a straight slender bill about 7 cm. (3 in.) long. Difficult to tell from other snipe (unless in the hand), but large size, paler coloration, solitary habit, and mountain habitat suggestive. See Key and Museum Diagnosis. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Found in summer throughout the Himalayas, between c. 2800 and 4600 m. elevation. Nowhere common but probably breeding locally: Ladakh, Kashmir and through Himachal Pradesh, Kumaon, Garhwal, Nepal, Sikkim, Bhutan to extreme NE. Assam; descending to lower levels and foothills in winter. Recorded in winter as rare visitor or erratic vagrant in the Assam hills south of Brahmaputra river, Manipur, northern W. Bengal, Banaras (U.P.), Chilka lake (Orissa). An old record

Gallinago solitaria



from Wynnaad (Kerala-Mysore) is doubted by Whistler. Recorded also in West Pakistan (north Baluchistan Hills — Quetta etc., and Chitral) and E. Pakistan (Dinajpur, Rangpur, Chittagong Hill Tracts). Affects sprawling boggy mountain streams, often half frozen, interspersed with spongy grass hummocks and rhododendron, berberis and such-like scrub. Also wet scrub-bordered paddy stubbles among the hills (Assam).

Extrazonal. 'Breeds in central Asia at high elevations from Tarbagatai, the Sayan and Khangai Mts. south to the Tian Shans and Himalayas, east to Koko Nor and Upper Burma. Chiefly resident but descending to lower levels in winter' (Peters).

MIGRATION. No data.

GENERAL HABITS. Terrestrial; solitary; swamp-dwelling, usually at high elevations in the Himalayas. Two or three widely separated individuals occasionally flushed on the same bog. Flight somewhat slower and heavier than Common Snipe's but with the same zigzag twists and turns. Seldom flies far before resettling, even after being fired at.

FOOD. Worms, grubs, minute snails, etc.

VOICE and CALLS. A characteristic *scape* or *penc*, uttered as the bird flushes; very like the Common Snipe's but deeper and harsher. No other calls recorded.

BREEDING. Extralimital and curiously little known. No authentic record of nest and eggs within our limits, but 'doubtless breeds' in the Puga Valley in Rupshu (Ladakh) *vide* Ludlow (JBNHS 27: 146).

MUSEUM DIAGNOSIS. Coloration paler than *nemoricola* (405); bill appreciably longer and less stout. Wing exceeds 150 mm.; outer edges of scapulars broadly white; middle upper tail-coverts unbarred pale olive-brown.

For description of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	153-169	67-77	c. 28-38	55-63 mm.
Depth of bill at base	8-9 mm.			(Baker)

Weight 5-8 oz. (c. 142-227 gm.) — Hueme.

COLOURS OF BARE PARTS. Iris brown. Bill olive-brown, blackish on terminal third of upper mandible and half of lower. Legs and feet olive; claws horny brown.

405. Wood Snipe. *Gallinago nemoricola* Hodgson

Gallinago nemoricola 'Ej.' = Hodgson, 1836, Proc. Zool. Soc. London: 8 (Nepal)
Baker, FBI No. 2168, Vol. 6: 255

LOCAL NAMES. *Chāhē* (Hindi, for all snipe); *Bōn chāhē* (Bengal); *Kāttu ullān* (Tamil — Madurai).

SIZE. Grey Quail +; length (including bill) c. 31 cm. (12 in.).

FIELD CHARACTERS. *Above*, dark brown, concealingly patterned with black, rufous, and buff streaks. *Below*, breast fulvous barred with brown; rest of underparts, including abdomen, white closely barred with brown. Sexes alike.

Can usually be distinguished from the commoner Pintail and Fantail snipes (406, 409) by larger size, much darker coloration and comparatively slow flight with bill pointing downwards; also by its more wooded and hilly habitat.

STATUS, DISTRIBUTION and HABITAT. Throughout the Himalayas from Dalhousie in Himachal Pradesh (c. 76°E.) east through Nepal, Sikkim, and Bhutan to extreme NE. Assam. Rare west of Indus river: once at Mardan in Peshawar district, c. 72°E. (Barton, JBNHS 14: 606). In summer between c. 1300 and 3700 metres and possibly higher. A specimen taken in SE. Tibet on September 1 at c. 4300 m. (Ludlow, 1944, *Ibis*: 387). Below c. 1200 m. in the Himalayas status uncertain; may be resident in parts.

In winter at lower elevations in the Himalayas, and visitor to the peninsular and south Indian hill ranges: recorded in northern W. Bengal, Manipur, Orissa, Madhya Pradesh, Andhra, Maharashtra, Mysore, Madras, and Kerala; apparently occurring regularly in small numbers. Rare vagrant in Ceylon. Doubtless also occurs in Chittagong Hill Tracts, E. Pakistan. Affects swampy patches, pools and puddles amidst tall grass and scrub in hilly country — cover too thick for Common Snipe.

Extralimital. Eastward through Burma to the southern Shan States.

MIGRATION. No data.

GENERAL HABITS. An essentially montane species. Keeps singly, but two or three not infrequently flushed close to one another in swampy patches under waist-high grass and scrub. Flight slow and wavering, reminiscent of both Painted Snipe and Woodcock — well described as 'owlish' or 'bat-like' — also like the latter with bill pointing downwards. Flops into cover again like a rail after fifty or a hundred metres. Far easier shooting than Pintail or Fantail Snipe, but its smaller numbers, irregularly scattered over far-flung pockets of appropriate habitat, makes sizeable bags impossible.

FOOD. Worms, small aquatic insects and grubs. Tiny hard black seeds, probably accidentally taken, and gravel have been found in stomachs (Hume & Marshall).

VOICE and CALLS. Often flushes silently; occasionally with a low croaking note like *tok-tok*. This together with the other field characters (above) should help to establish its identity.

BREEDING. Strangely enough no first-hand authentic record of nest and eggs available. Baker's Khasi egg collector brought him a single egg with skin of a female snared on the nest. They were taken on 11 June¹ 1908 in pine forest between 1700 and 1850 metres altitude. The egg is described as very like Common Snipe's but more grey-brown in tint. No further information in the last 60 odd years !

MUSEUM DIAGNOSIS. The barring on the underparts extending down to abdomen together with its general duskeness gives the bird a 'woodcocky' appearance. Distinguished from Woodcock by the longitudinal stripes on head (*contra* bold transverse bars) and attenuated outer tail-feathers. Buff borders to scapulars and large size differentiate it from Pintail and other snipes with attenuated outer rectrices. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	133-141	61-67	c. 30-36	63-74 mm.
Depth of bill at base	c. 12-13 mm.			
				(Baker)

Weight c. 5-7 oz. (c. 142-198 gm.) — Various authors.

COLOURS OF BARE PARTS. Iris dark brown. Bill horny brown tinged green, darker at tip, yellowish on basal two-thirds of lower mandible. Legs and feet dark plumbeous green.

¹ The Fauna gives the date as 16 June.

406. Pintail Snipe. *Gallinago stenura* Bonaparte

Scolopax stenura 'Kuhl' = Bonaparte, 1830, Ann. Stor. Nat. Bologna 4: 335

(Sunda Islands)

Baker, FBI No. 2173, Vol. 6: 263

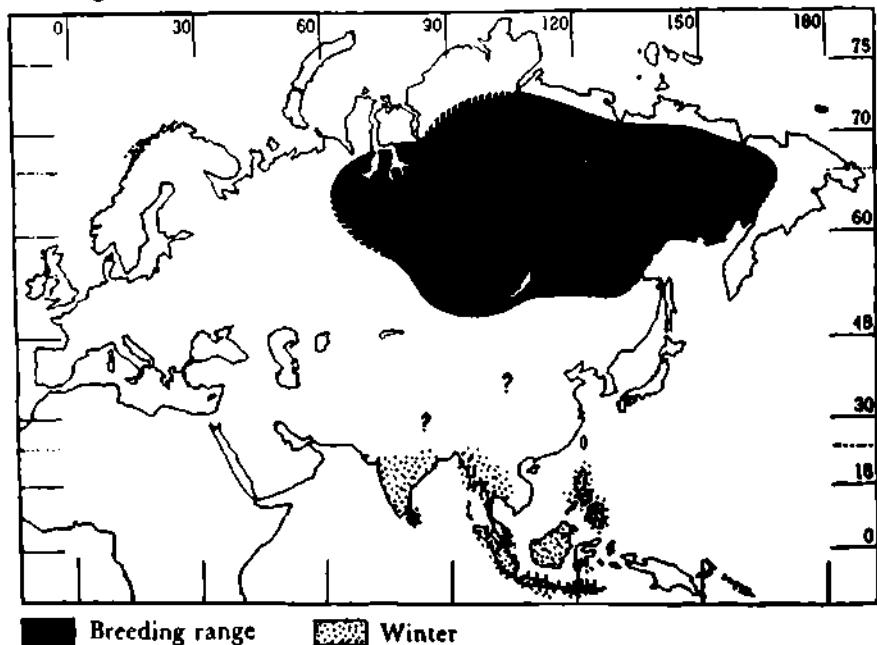
LOCAL NAMES. Same as for Common or Fantail Snipe (409); *Kadakkocha* (Bengal).

SIZE. Grey Quail +; length (including bill) c. 27 cm. (10½ in.).

FIELD CHARACTERS. As of Fantail Snipe (409), q.v. Slightly darker, and heavier on the wing with a less zigzag flight, and often frequenting drier ground. But field identification difficult and unreliable except perhaps by very experienced snipe shooters. A consistent peculiarity observed while ringing snipe for migration study is that the Pintail nearly always 'squeals' when handled, whereas the Fantail hardly ever does so. Sexes alike; female slightly larger. See Key and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Winter visitor to both Pakistans and all India, Nepal (Valley and (?) terai), Sikkim and Bhutan duars, Ceylon, Andaman, Nicobar and Maldive islands; plains level to c. 2500 m. About equally abundant with Fantail Snipe in the eastern areas, viz. Assam, Bengal, East Pakistan, but overwhelmingly more so in South India, Andaman Is. and Ceylon. In the western and northwestern parts of the subcontinent the Fantail is relatively more numerous. Affects marshy

Gallinago stenura



edges of jheels, wet paddy stubbles (inland as well as those under tidal influence), seepage marshes from dammed reservoirs in the foothills, and the like, sharing these with Fantail Snipe. But oftener frequents harder ground than Fantail — damp rather than marshy, e.g. harvested

paddyfields with puddles here and there, scrub-dotted grazing grounds, and even lantana-covered fallows.

Extralimital. 'Breeds in E. Siberia west to the Yenisey, north to c. lat. 67°, south to E. Turkestan (?), N. Tibet, the upper Hoang-ho, Amurland, and Sakhalin. Winters in India, [Burma], Indochinese countries, S. China, Hainan, Formosa, the Greater Sunda Is., and Timor' (Peters).

MIGRATION. No ringing data. First birds of the season normally begin to arrive about end August or early September, not only in the north (Assam, Bengal, Sind) but simultaneously also elsewhere in the Peninsula to the south, and in the Andamans and Ceylon. The majority have departed again by early April, a few lingering on into May. Arrival in different localities depends on phenological conditions, extralimital as well as local, subject to variation from year to year. Therefore the map of approximate dates of arrival given by Baker, 1921 (*Game Birds of India, Burma and Ceylon* 2: 97) must be taken only as diagrammatic.

GENERAL HABITS. Usually flushed singly; also in wisps of 3 and 4 in patches where food is plentiful, and in larger wisps, even flocks, early in the season when the birds have just arrived, and again preparatory to emigration. Can seldom be spotted as it crouches on the ground due to its astonishingly obliterative coloration. When disturbed rises abruptly, often from almost under foot, uttering the harsh characteristic note — *scape* or *pench* — and goes off at a tremendous pace in a series of angular zigzags. It is this lightning zigzag flight that provides the element of sport to snipe shooting, and disappointing bags to mediocre shots! Feeds in the squelchy mud, chiefly in the morning and evening and through the night. Is less active during the heat of the day, retiring into shade under grass tussocks or bushes bordering its feeding marsh — sometimes among thickets on higher ground well away. Very active on cool windy days. On such will often flush while still out of gunshot, mount high in the air and circle widely overhead flying at great speed with its peculiar angular rolling movements, calling from time to time, and soon drop or shoot down to earth again close to where it rose. Like all snipes, feeds by probing with its slender bill into soft mud. Under-ground prey located by means of the sensitized flexible tip which opens like forceps to seize the quarry.

FOOD. Chiefly worms, larvae and tiny molluscs.

VOICE AND CALLS. A harsh nasal *scape* or *pench* uttered as it flushes; also in flight every second or so in the initial spurt and with longer pauses when well under way. This call closely resembles the sucking sound of a sodden shoe, which is so deceptively alerting when walking up snipe on marshy ground!

BREEDING. Chiefly extralimital. Exceptional cases of breeding recorded in Assam and E. Pakistan three or four times (N. Cachar, Sylhet-Cachar border, Barail Range, Silchar) presumed by Baker to be of pricked birds disabled from migrating. Reports need confirmation. Nest and eggs similar to those of Fantail Snipe (409), q.v.

MUSEUM DIAGNOSIS. Tail-feathers 26 or 28, of which 8 or 9 outer ones on each side much attenuated and stiff ('pins'). Under wing-coverts and axillaries much more heavily and darkly barred than in *Gallinago gallinago* (409). For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	125-134	57-61	29-31	c. 54-68 mm.
♀♀	130-138	59-64		(Baker)

Baker's tail measurements are erroneous. Specimens in the Bombay Natural History Society's collection, and others collected recently, give ♂♀ tarsus 32-36 (5 measured), tail 45-52 mm. (13 measured).

Weight c. 3 to 4½ oz. (c. 85-134 gm.). Average of 472 birds (♂♀) in South India 4 oz. (c. 113 gm.) — Stoney. 12 ♂♀ (winter, Bihar) 89-123 (av. 99.9) gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill horny brown, pale greenish on gonyx and base of lower mandible. Legs and feet greyish green; claws dark brown.

MISCELLANEOUS. Statistics of relative abundance of Pintail and Fantail Snipe in the erstwhile Madras Presidency collected by Mr R. F. Stoney from shooting tables for 37 seasons (1898-9 to 1934-5) confirm the overwhelming preponderance of the Pintail in South India. During this entire period 13,530 Pintails were shot against 2312 Fantails. During the 10 seasons 1925-6 to 1934-5 3644 Pintails were shot at Cannanore, Malabar (now Kerala) against 856 Fantails (Phythian-Adams), while during 12 seasons (1923-4 to 1934-5) 526 Pintails were shot on the Nilgiri Plateau against only a single Fantail by the same sportsman.

Several instances of partial to almost complete albinism have been recorded in this as well as Fantail Snipe in India.

407. Swinhoe's Snipe. *Gallinago megala* Swinhoe

Gallinago megala Swinhoe, 1861, Ibis: 343 (Between Takoo and Peking, China)

Baker, FBI No. 2174, Vol. 6: 264

LOCAL NAMES. Same as for Common or Fantail Snipe (409).

SIZE. Grey Quail +; length (including bill) c. 29 cm. (c. 11 in.).

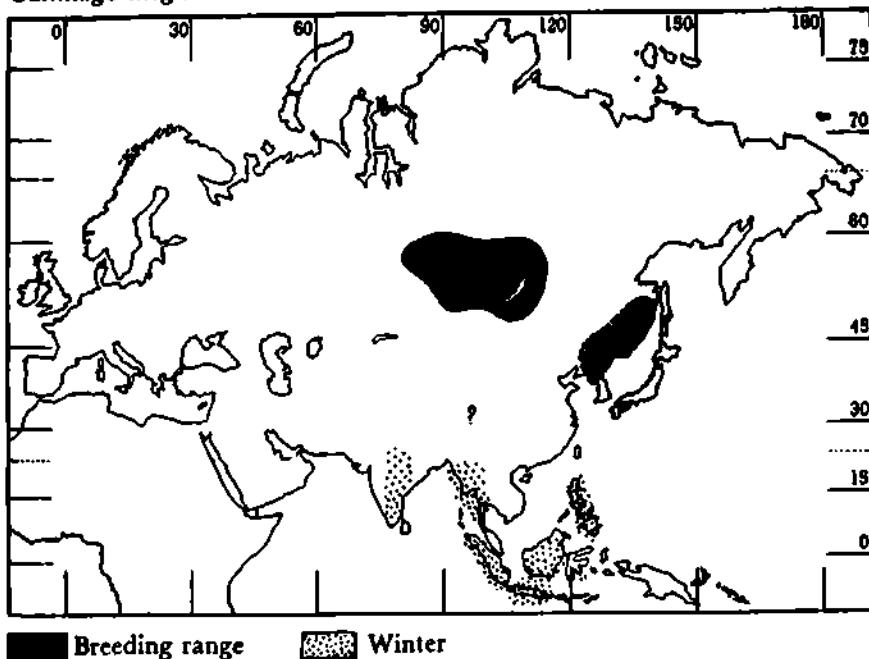
FIELD CHARACTERS. Indistinguishable from Pintail Snipe (406) except in the hand, for which see Key and Museum Diagnosis. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. A comparatively uncommon but regular winter visitor between September and March: recorded from Assam, Manipur, W. Bengal, Madras, Mysore, Kerala, Ceylon, Maldive and Andaman Is., Bombay (JBNHS 67: 108). Possibly less rare than assumed, due to lack of careful vetting of bags of Pintail among which very liable to be overlooked. Affects the same habitats as Pintail.

Extralimital. 'Breeds in east-central Asia from southwestern Transbaikalia to Amurland, south to N. Mongolia, the upper Hwang ho and Ussuri; Sakhalin (?). Migrates through E. China and Japan; winters in Burma, the Philippines, Borneo, Celebes, the Moluccas and N. Australia' (Peters). For details see Vaurie, C., 1965, 2: 433. Recorded as very abundant in ricefields in the Philippines 'at certain seasons'.

MIGRATION. No data. Eastern and southern India apparently lie on the extreme western fringe of its winter range.

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing recorded as different from Pintail Snipe.

Gallinago megala

■ Breeding range ■ Winter

BREEDING. Extralimital. (For a good account of its aerial nuptial display and song in N. Mongolia, see Kozlova, E. V., 1932, *Ibis*: 580.)

MUSEUM DIAGNOSIS. Coloration above and below (including white centre of abdomen) confusingly similar to Pintail Snipe (406). Most easily differentiated by its tail of 20 feathers of which only the central 6 are broad (of normal shape), the rest on either side attenuated. See also Key to the Species. Another good diagnostic character, especially when tail in moult or damaged, is length of bastard wing.

Bastard wing always over 19 mm..... *G. megala*

Bastard wing always under 19 mm..... *G. stenura*

Some superficial characters, suggested by an experienced snipe-shooter (R. J. Clough) to assist picking out at a glance suspected Swinhoe's Snipe from among a bag of Pintails for more critical examination are:

1. 'Definitely' larger size
2. Longer legs
3. Longer and slenderer bill, with the white knob at tip of upper mandible less pronounced.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	128-139	59-74	c. 32-34	52-57 mm. (Baker)
♂ ♂	147-150	61-65	32-35	
♀ ♀	142-151	64-72	33-35 (once 37, once 38)}	55-62 mm. (La Touche)

COLOURS OF BARE PARTS. 'Iris dark umber-brown; bill light yellowish brown for the basal two-thirds, yellower on the base of the upper mandible, blackish brown

on the apical third; feet light yellowish grey with blackish brown claws' (Swinhoe). 'Iris chestnut. Legs and feet bluish plumbeous' (Venning).

MISCELLANEOUS. In South India where both this species and Pintail occur together, Lt-Col. E. G. Phythian-Adams found Swinhoe's Snipe proportionately less common in Mysore than in Malabar (Kerala). His bag record for 14 years (up to 1939) showed

Mysore: 1973 Pintail to 3 Swinhoe's, i.e. 1 to 658

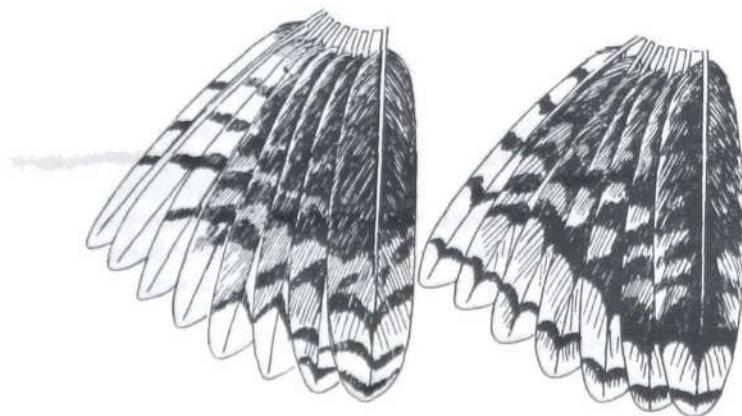
Malabar: 5321 Pintail to 19 Swinhoe's, i.e. 1 to 280

408. **Great Snipe.** *Gallinago media* (Latham)

Scolopax media Latham, 1787, Gen. Syn., Suppl.: 292
(England; based on Gen. Syn. 3(1): 133, no. 4)
Baker, FBI No. 2172, Vol. 6: 261

SIZE. Fantail Snipe +; length c. 28 cm. (c. 11 in.).

FIELD CHARACTERS. Slightly more robust in build, darker, and more heavily barred below than Fantail Snipe, but doubtfully distinguishable from it at rest. In flight — which is slower, less zigzag, and usually unaccom-

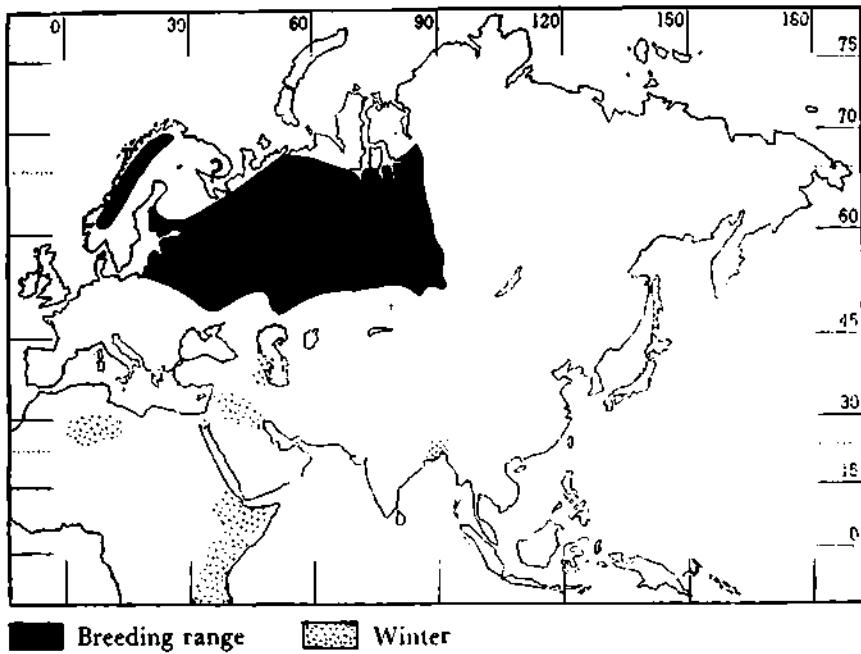


panied by the characteristic flushing note *pench* — the large amount of white in the tail (outside feathers) is at once striking. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Rare vagrant. Has so far only been obtained in southern India (Bangalore, Nilgiris, Arkonam, Madras). Also in Ceylon and Andaman Is. All September-March.

Extralimital. 'Breeds in N. Europe and W. Asia from N. Norway, S. Finland, the White Sea and the lower Yenisey, south to Denmark, E. Prussia, Poland, Bessarabia, Kirghiz Steppes and the Altai. Migrates through S. Europe and SW. Asia; winters in Africa south of the Sahara, mainly in the east' (Peters). For details see Vaurie, C., 1965, 2: 432.

MIGRATION. No data.

Gallinago media

■ Breeding range

■ Winter

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing observed in India as different from Fantail or Pintail Snipe. Elsewhere reported as more crepuscular, and occasionally uttering a low guttural croak on flushing.

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. See Key to the Species. For details of plumage Baker, loc. cit.; for plumage phases and morphology (also bionomics), Witherby, 1940, 4: 193-7.

MEASUREMENTS —

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	140-150	57-63	33-37	51-59 mm.
♀ ♀	139-149	64-69	—	— (Witherby)

COLOURS OF BARE PARTS. Iris dark brown. Bill brown or horny brown. Legs and feet dusky plumbeous or greenish plumbeous (Baker).

409. Common or Fantail Snipe. *Gallinago gallinago gallinago* (Linnaeus)

Scolopax Gallinago Linnaeus, 1758, Syst. Nat., ed. 10, 1: 147 (in Europa = Sweden)
Scolopax (Gallinago) gallinago raddei Buturlin, 1912, Pssovaia i Ruzheinaia Okhota, author's reprints, p. 54 (East Siberia)

Baker, FBI No. 2170, Vol. 6: 259

Plate 30, fig. 8, facing p. 272

LOCAL NAMES. *Chāhā* (Hindi); *Chegga, Kadakhocha* (Bengal); *Khocha sorāi, Chāhā sorāi, Cheryga* (Assam); *Bhārak* (Nepal); *Cheklaobi* (Manipur); *Mor ullān, Ullān kūrūvi*,

Korra kuthi (Tamil); *Muku puredi* (Telugu); *Keswatuwā* (Sinhala); *Dao didap* (Cachar); *Voh ti alin* (Kuki); *Ti inrui* (Naga); *Lik pakhi* (Sind); *Chuntan kata* (Malayalam); *Garkhad* (Gujarati); *Pān lawa* (Marathi). Commonly understood as 'ishnap' or 'ishnaf'.

SIZE. Grey Quail +; length (including bill) c. 27 cm. (10½ in.).

FIELD CHARACTERS. A brown obliteratively patterned marsh-haunting bird with straight slender bill about 6 cm. (2½ in.) long, difficult to observe when squatting motionless on the ground. Renowned for its habit of rising suddenly when disturbed, with a hoarse *sape* or *pench* note, and flying off in lightning zigzags. *Above*, dark brown, heavily streaked with black, rufous, and buff; *below*, whitish. Impossible to distinguish from Pintail Snipe (406) by non-experts unless in the hand, but usually frequents more squelchy ground. See Key and Museum Diagnosis. Sexes alike.

Young (immature) like adult but sometimes recognizable by whitish fringes to mantle feathers and wing-coverts.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Partly resident in the Himalayas (Kashmir, Garhwal, etc.); chiefly a common and abundant winter visitor to the entire subcontinent including both Pakistans and Nepal (Valley and (?) terai). Also Ceylon, Andaman and Maldive islands. Relatively

Gallinago gallinago



much less numerous than Pintail Snipe in southern India; more so in the western and northwestern parts, and in W. Pakistan. Affects swampy edges of jheels, seepage marshes from dammed reservoirs, squelchy harvested paddyfields, etc. — on the whole softer ground than preferred by Pintail. Occasionally seen on bare edges of exposed village ponds in proximity of women washing and cattle watering !

Extralimital. 'Breeds in Europe and Asia from Scandinavia to eastern Siberia, north to lat. 66°30' to 70°, south to the British Isles, Pyrenees, the Alps, [erstwhile] Balkan States, Caucasus, Kirghiz Steppes, the Pamirs, Himalayas, Transbaikalia, the Amur River, Hokkaido and the Kurile Is. Winters in the southern parts of its breeding range, Mediterranean region, Egypt, E. Africa south to Kenya; Persia, India, Indochinese countries, S. China, Japan, and the Greater Sunda Is.' (Peters).

MIGRATION. No ringing data. On spring emigration passes through the Kurram Valley (NW. Pakistan) from the last week of January till mid April (Whitehead). See remarks under Pintail which are generally applicable also to this species. The migration routes and approximate arrival dates shown on the map in Baker, 1921 (*Game Birds* 2: 63) are largely diagrammatic and must not be taken too literally.

GENERAL HABITS, FOOD, VOICE and CALLS. As of Pintail Snipe (406), q.v. The harsh nasal flushing note of the two species — *scape* or *pench* — are indistinguishable to the normal ear.

BREEDING. Season in the Kashmir Valley, Garhwal, and elsewhere in the Himalayas at elevations between c. 1600 and 4500 m., from late April to about mid June. Nest, a scanty concave pad of grass and weed stems, etc., c. 10 cm. across, concealed among arching grasses or thick herbage in a spongy or semi-floating bog. Eggs, normally 4 — occasionally 3, rarely 5 — greyish stone to olive-grey or yellowish brown in ground colour, irregularly blotched and speckled all over with dark brown, more densely at the broad end. They have secondary markings of grey, sienna, or pale purplish brown. Shape variable from broad to longish pyriform, and size absurdly large for the bird. Average of 60 Indian eggs 38·3 × 28·5 mm (Baker). Both sexes believed to share in incubation; period recorded as 19–20 days. The bird is a close sitter, often permitting the observer's hand to approach within a few centimetres before leaving the nest, then usually flying off in a semi-circle at top speed. In nuptial display male mounts rapidly on fluttering wings to height of 50 to 100 metres, flies about in rambling zigzags and wide circles at top speed uttering *chip-per*, *chip-per*, etc., punctuated by steep nose-dives with wings pulled in and tail fully fanned out. The outermost rectrix on either side sticks out widely separated from its neighbour and vibrates rapidly with the through rush of air, producing the peculiar loud drumming or bleating sound which gives the bird one of its popular German names meaning 'goat of the sky'. Each flight lasts for five minutes or more, and covers an extensive area of the breeding marsh in wide circles at a furious tempo. Thereafter the performer drops or shoots to the ground at a steep angle with wings pulled in, fluttering to break the fall just before alighting.

MUSEUM DIAGNOSIS. See Key to the Species; for details of plumage, Baker, loc. cit.; for description of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 197–203.

Chick (in down). 'Down of upper plumage rufous-buff; a band across the forehead yellow-buff; crown freckled with black and with two broad bands of black on either side of the crown; a line through the eye and another on the cheek black; dorsal, median, and lateral lines black, the down white-speckled at the tips; wings broadly marked with black and a black patch on the side of the breast and on the flanks; lower parts rufous-buff' (Baker).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	128-138	60-71.5	29-33	53-61 mm.
♀ ♀	130-140	64-73	—	—

(Witherby)

50 ♂ ♀ Wing 121-141 mm. (av. 133.7); weight 73-106 gm. (av. 81.3)

9 ♂ ♀ Tail 54-64 mm. (av. 57.7)

(SA)

COLOURS OF BARE PARTS. Iris dark brown. Bill yellowish horny or olive-yellow on basal half, dark horny brown to blackish on terminal half. Legs and feet dull olive-green, more yellow in breeding season.

MISCELLANEOUS. Four cases of complete or partial albinism have been recorded in the *Journal of the Bombay Natural History Society*. Longevity (from ringing records) 7 years (*Ring*, 1962, 33: 149).

410. Jack Snipe. *Gallinago minima* (Brünnich)*Scolopax Minima* Brünnich, 1764, Orn. Boreal.: 49 (E. Christiansö, Denmark)

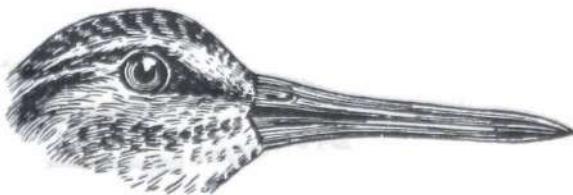
Baker, FBI No. 2175, Vol. 6: 265

Plate 28, fig. 8, facing p. 224

LOCAL NAMES. *Chhōta chāhā* (Hindi); *Chhōta bhārkā* (Nepal); *Ullān* (Tamil); *Dō lāgāin* (Bihari mirshikars).

SIZE. Fantail Snipe —; Grey Quail ±; length (including bill) c. 21 cm. (8½ in.).

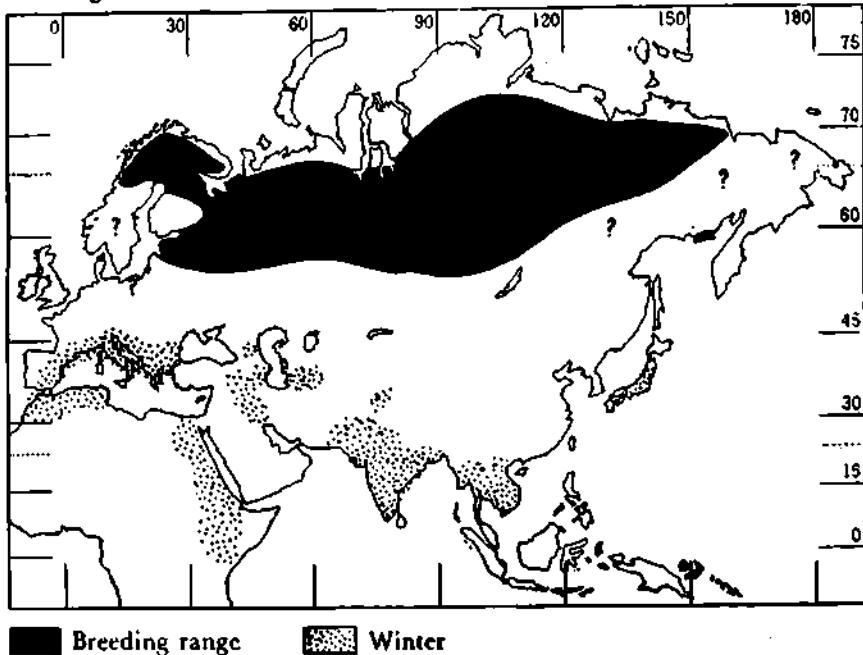
FIELD CHARACTERS. Similar to Fantail Snipe but considerably smaller with relatively shorter and stouter bill and much metallic green and purple sheen in the streaked dark brown upper plumage. Tail rather wedge-shaped,



.x. c. 1

uniformly dark, lacking Fantail's whitish tips to outer rectrices; crown without the central stripe of other snipes. Sexes alike. Flushes silently and has rather sluggish flight without the abrupt zigzags.

STATUS, DISTRIBUTION and HABITAT. Winter visitor in much smaller numbers than Fantail and Pintail Snipe, irregularly throughout the Indian Union, both Pakistans, Nepal. Occasional in Ceylon and Andaman Is. Affects the swampy marginal zone around jheels, seepage marshes, and waterlogged harvested paddyfields — as with Fantail Snipe more squelchy ground than normally frequented by Pintail.

Gallinago minima

■ Breeding range ■ Winter

Extralimital. 'Breeds in N. Europe and Asia from N. Norway east to the Kolyma Delta (apparently nowhere north of 70°), south to Denmark, E. Prussia, Baltic States, central Russia, and the forest steppe of Minussinsk; southward limit in W. and E. Siberia not known. Winters in W. Europe, Mediterranean region, Egypt, Iraq, Persia, India, Burma; casually to Nigeria and Kenya' (Peters). For further details see Vaurie, C., 1965, 2: 436.

MIGRATION. No ringing data. In Baluchistan and Sind in autumn 'it is much later in arriving [than Fantail or Pintail Snipe] and the end of the first week in October would seem to be the earliest date' (Ticehurst). In northern Baluchistan it is particularly common on spring (outward) passage, Meinertzhagen having seen more than 100 birds in a day. It passes through the Kurram Valley (NW. Pakistan) in varying numbers, less than Fantail, from the last week in January till the middle of April (Whitehead).

GENERAL HABITS. Similar to Fantail and Pintail Snipe, but almost invariably flushed singly and not in wisps as the others often are. Is reluctant to leave cover; rises silently, without the characteristic *scape* or *pench*, only when almost trodden on, dropping into the reeds again after a short flight unlike the Fantail's zigzagging to a height and then shooting down steeply to the ground. Somewhat slower flight and less abrupt twists and turns afford easier shots to the sportsman.

FOOD. Mainly worms, tiny molluscs, insects and their larvae. Also seeds of marsh plants.

VOICE and CALLS. Not recorded in India. Display-note in breeding season (presumably vocal) likened to the distant cantering of a horse on hard hollow ground.

BREEDING. Extralimital; in general as in the Fantail (409).

MUSEUM DIAGNOSIS. Tail of 12 feathers, more or less uniformly dark brown with rufescent-buff borders. Central pair pointed and projecting slightly beyond the others, as e.g. in the Little Stint (416). No median pale coronal stripe. Plumage of back and scapulars with an iridescent purple and green gloss. Gape more or less in line with the bases of the upper and lower mandibles. Culmen somewhat swollen at base. For details of plumage see Baker, loc. cit.; for description of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 205-9.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	108-117	39-41	23-25	46-51 mm.
♀ ♀	107-115	40-43	—	— (Witherby)

Weight 40 ♂ ♀ (autumn/winter) 39-55 (av. 46.5) gm. — BNHS.

COLOURS OF BARE PARTS. Iris dark brown. Bill almost black at tip, paling posteriorly to horny brown; olive, greenish horny, or flesh coloured at base and gape. Legs and feet pale olive-green, often tinged with yellowish or grey.

MISCELLANEOUS. An indication of the relative scarcity of the Jack Snipe in South India is provided by the game records maintained by the late Mr R. F. Stoney for 37 seasons — from 1898 to 1935. Of the total number of snipe shot during this period 13,530 were Pintails, 2312 Fantails, and only 126 Jacks.

Genus *SCOLOPAX* Linnaeus

Scolopax Linnaeus, 1758, Syst. Nat., ed. 10, 1: 145. Type, by tautonymy, *Scolopax rusticola* Linnaeus (*Scolopax* prebinomial specific name in synonymy)

Bill long, slender, rather soft and swollen at tip; both mandibles grooved. Nostril linear, at base of upper mandible. Gape forward of base of culmen. Wings long: first primary (as.) longest. Tail-feathers 12; short and soft. Legs short; tibia fully feathered.

The genus contains a single species represented in India by the nominate race.

411. **Woodcock.** *Scolopax rusticola rusticola* Linnaeus

Scolopax Rusticola Linnaeus, 1758, Syst. Nat., ed. 10, 1: 146
(Europe, restricted type locality, Sweden)

Scolopax indicus Hodgson, 1837, Jour. Asiatic. Soc. Bengal 6: 490 (Nepal)

Scolopax rusticola ultimus Koelz, 1954, Contrib. Inst. Regional Exploration No. 1: 31
(Sangau, Lushai Hills)

Cf. Hartert, E., 1921, Vög. pal. Fauna 2: 1651-4
Baker, FBI No. 2167, Vol. 6: 252

Plate 30, fig. 10, facing p. 272 and Vol. 1, plate 7

LOCAL NAMES. *Simteekdr*, *Tuleekdr* (Hindi); *Sim kūkrā* = 'rill, or spring fowl' (Kumaon and Nepal); *Chinjorole* (Chamba); *Daodidap gadeba* (Cachar); *Simpookhlow* (Khasi); *Sābel kādrik* (Manipur); *Wilditi chāhā* (Chittagong); *Bumpal*, *Dhabha* (Chitral); *Ghordik* (Drosh); *Chāndik* (Gilgit); *Zār batchi* (Kashmir).

SIZE. Partridge —; length (including bill) c. 36 cm. (14 in.).

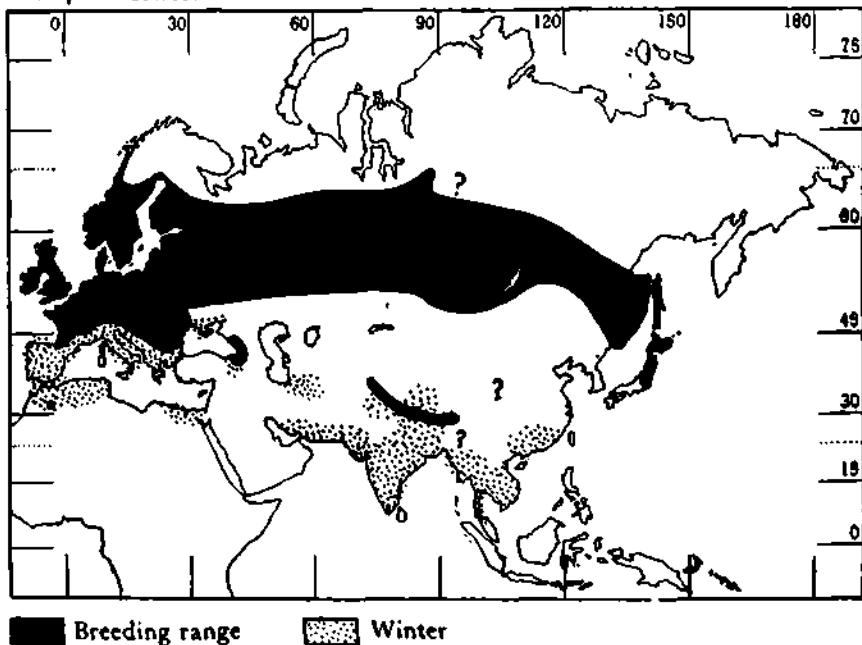
FIELD CHARACTERS. An outsized snipe, camouflagingly mottled brown, black, and whitish with the characteristic long slender straight bill — soft and swollen at tip — and comparatively short legs. *Above*, brownish grey blotched and barred with black, rufous, and buff. Hindcrown, nape and rump cross-barred black and rufous. *Below*, chin white; rest of underparts brownish white cross-barred with dark brown. Sexes alike.

In the owl-like flapping flight the bill is carried pointing downwards. When banking in the air the tail is fanned out giving the tubby body with its short curving scimitar-like wings a blunt-ended look.

For immature bird and downy chick see *Museum Diagnosis*.

STATUS, DISTRIBUTION and HABITAT. Breeds throughout the Himalayas between c. 2000 and 3800 metres — in NW. Pakistan, Kashmir, Garhwal, Kumaon, and Bhutan. Evidently also in Nepal, Sikkim, and NEFA whence as yet no actual nests reported. In winter descends to lower elevations in the Himalayas and also migrates south to the Assam hills, Nagaland, Manipur, and across the Peninsula to the Nilgiri, Palni, and associated hill ranges,

Scolopax rusticola



and the moist southern strip of the Western Ghats in Kerala and Mysore. Occasional winter visitor to Ceylon in the central hill zone (c. 2000 m.). Affects swampy glades with dense scrubby undergrowth in rhododendron, fir and mixed forest in the Himalayas; dank ravines in sholas and evergreen forest, and cardamom and coffee plantations with sprawling swampy streams in South India. The clearing away of forests for potato and tea cultivation in the last forty years has progressively reduced its abundance in many of its best-known former habitats in the Nilgiris and Assam hills.

Extralimital. Breeds in the British Isles, Scandinavia (north to lat. 70°), Russia (north to lat. 66°) and across Asia (north to lat. 62°–64°), south to

the Pyrenees, Alps, northern Balkan States, Kashmir, the Himalayas, Ussuri, and Japan. Winters in the southern part of its range, the Mediterranean region, Egypt, India, Ceylon, S. China, and Japan. Resident on Madeira, the Canary Is., and the Azores' (Peters).

MIGRATION (in India). No ringing data. Commences to arrive in the Nilgiris and other S. Indian hills during October; numbers at peak in December-January; mostly gone again by end of March. From striking paucity of records in Peninsular India, probably journey from Himalayas performed in a single non-stop flight. The sporadic records of odd birds, obviously on passage, are from Karachi (W. Pakistan), Bhuj, Mt Abu (Gujarat), Thana near Bombay (Maharashtra), Agra, Muzaffarnagar, Sitapur, Mainpuri, Kanpur (Uttar Pradesh), Golconda (?) and Eastern Ghats [Salabam, Padera] (Andhra), and Madras City. Indications suggest that the birds reach their southern winter quarters mainly by the Eastern Ghats route.

GENERAL HABITS snipe-like. Usually solitary or in separated pairs. Largely crepuscular and nocturnal, lying up in shady cover during daytime, seldom stirring after sunrise or before dusk unless driven. Feeds by probing into soft wet earth with its sensitive-tipped bill, the bird's presence in a glade being revealed by the honeycombed patches left in the ground. Flight rather sluggish and wavering, reminiscent of Painted Snipe, but with unexpected sudden jerks and zigzags this side and that, and swift turns and twists to avoid tree-trunks in its wooded habitat, the bird dropping down abruptly into cover 'as if it had flown against a wall'. Thus, in spite of its large size, the sportsman finds it less difficult to miss the target than would appear possible !

In the breeding season the male (?) performs his characteristic aerial display known as 'roding' at dusk and dawn. This consists of flapping slowly in a high arc back and forth across an open glade or flying round and round over it in wide circles to the accompaniment of a 'loud wailing cry' (B. B. Osmaston) or a deep croak, and sometimes a shrill bat-like squeak, at intervals.

FOOD. Chiefly worms and grubs; occasionally some seeds and shoots.

VOICE and CALLS. Besides the notes uttered while roding, Osmaston has described 'a continuous sort of grating, purring noise' made by a female he disturbed off the nest. 'A strange croaking like a nutcracker's' while occupied in shifting downy chicks from one spot to another (Bates).

BREEDING. Season in the Himalayas, April to July. Nest, a depression in the ground lined with dry leaves, etc., well concealed amongst bracken, dwarf rhododendron or other undergrowth, preferably near a wooded stream. Eggs, 4, pale clay colour to deep buff, boldly blotched with pale reddish brown and grey. Average size of 55 Indian eggs 44.5×33.3 mm. (Baker). *Fide* Witherby incubation and tending of young by female alone; period of incubation 20-21(22) days. A peculiar habit of Woodcock, also recorded elsewhere in its range and reliably observed and authenticated in the Himalayas (more recently by R. S. P. Bates, JBNHS 43: 69), is its transporting its downy chicks to a place of safety when danger threatens. This is accomplished by carrying them pressed between the parent's thighs and breast and dangling below. With legs thus occupied, parent finds considerable difficulty in

take-off and has to be assisted by beating the earth with the wing-tips for a metre or so before getting clear. In flight the body is weighted down at rear to an angle of about 45 degrees. In the case observed by Col. Bates the chicks were transported one by one downhill to a distance of some 30 metres.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 184-93.

Young (immature). Feathers of the mantle with more or less exposed brown bases and marked with buff and cinnamon-buff. Upper tail-coverts more barred, and lacking buff tips. Bars on underparts narrower and paler.

Chick (in down). 'From base of bill to eye, over and behind it, a narrow dark brown line; from centre of base of bill to centre of crown a dark brown line; between the two lines, creamy yellow; rest of crown pale chestnut; side of head variegated chestnut and creamy yellow, as are the wings and rest of upperparts, showing a broken spinal black streak; underparts creamy yellow, tinged with ferruginous on throat and thighs' (Ticehurst).

A curious feature of the Woodcock is its abnormally high and backwardly placed eyes, virtually at the back of its head. The exact function of this adaptation needs study.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	186-205	69-79	34-38	71-82 mm.
♀ ♀	184-208 (one 172)	67-80 (from feathers)	—	— (Witherby)

Baker gives ♂ ♀ Wing 183-219 mm.; weight 7-16 oz. (c. 190-454 gm.).

Weight 1 ♀ 335 gm. — BB.

COLOURS OF BARE PARTS. Iris deep brown. Bill horny brown darker at tip, paler, tinged with purple, at base of lower mandible. Legs and feet greenish grey or olive-brown; claws horny brown.

Genus CALIDRIS Merrem

Calidris Anonymous = Merrem, 1804, Allg. Lit. Zeitung 2 (168): col. 542. Type, by tautonymy, *Tringa calidris* Gmelin = *Tringa canutus* Linnaeus

Erolia Vieillot, 1816, Analyse: 55. Type, by monotypy, *Erolia variegata* Vieillot = *Scopulax testacea* Pallas

Crocethia Billberg, 1828, Syn. Faun. Scand. 1(2): 132. Type, by monotypy, *Charadrius calidris* Linnaeus = *Tryngia alba* Pallas

Cf. *Ibis* 1949: 509.

Delacour, J., 1951, *L'Oiseau*, 21 : 6.

Bill slender varying a good deal in length, either straight or slightly downcurved; both mandibles grooved. Nostrils linear, placed in a groove at base of upper mandible. Hind toe present in most species; anterior toes unwebbed. Wing long and pointed; first primary (as.) longest. Tail nearly square with the central feathers pointed and projecting slightly beyond the others.

Genus cosmopolitan; represented in India only by Palearctic migrants in winter.

Key to the Species

		Page
A	Upper tail-coverts white or white barred with dark brown; sharply contrasting with back	1
B	Upper tail-coverts grey, dark brown, or similar to back	2
1	Bill long and decurved..... <i>C. testacea</i>	310

Bill straight.....	a	
a Bill 39 mm. or above.....	<i>C. tenuirostris</i>	297
Bill below 39 mm.....	<i>C. canuta</i>	296
2 Hind toe absent.....	<i>C. alba</i>	298
Hind toe present.....	b	
b Culmen 21 mm. or above.....	I	
Culmen below 21 mm.....	II	
I Wing 122 mm. or above.....	<i>C. acuminata</i>	307
Wing below 122 mm.....	<i>C. alpina</i>	308
II Shaft of first primary white, others brown.....	a¹	
All shafts of primaries more or less white.....	b¹	
a ¹ Tail-feathers all brown.....	<i>C. subminuta</i>	305
Outer tail-feathers white.....	<i>C. temminckii</i>	303
b ¹ Some rufous colour in plumage.....	a²	
No trace of rufous in plumage.....	b²	
a ² Chin, throat and upper breast uniformly chestnut.....	<i>C. ruficollis</i> (summer)	300
Chin and throat white, breast streaked with chestnut.....	<i>C. minuta</i> (summer)	301
b ² Wing and tail longer (c. 92–104 mm.; 39–48 mm.); bill and tarsus shorter (c. 16–18 mm.; 18–20 mm.).....	<i>C. ruficollis</i> (winter)	300
Wing and tail shorter (c. 91–98 mm.; 38–43 mm.); bill and tarsus longer (c. 17–19 mm.; 20–21 mm.).....	<i>C. minuta</i> (winter)	301

412. Knot. *Calidris canuta canuta* (Linnaeus)

Tringa Canutus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 149 (in Europa = Sweden)

Baker, FBI 2161a, Vol. 8: 698

Plate 28, fig. 7, facing p. 224

LOCAL NAMES. None recorded.

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

FIELD CHARACTERS. Rather like Dunlin (420) in winter — scaly (or scalloped) ashy grey above, white below — but larger and stockier, with straight relatively shorter bill and legs. In flight, larger size than Dunlin, pale rump (*v.* black-centred) and tail, and pale wing-bar are suggestive pointers. In its normal range characterized by keeping in densely packed flocks.

Summer. *Above*, strongly mottled chestnut and black; *below*, bright rufous.

STATUS, DISTRIBUTION AND HABITAT. Rare vagrant in winter. Obtained within our limits only once in Baluchistan (Khushdil Khan Lake — 26 March) by Col. R. Meinertzhagen, presumably on passage, and once in Ceylon (Mannar, 15.xii.1928) — Wait, 1931: 365. Tamil Nadu (Pt Calimere) 2 specimens — JBNHS 67: 282. Normally prefers extensive coastal mudflats and estuaries and is rare inland.

Extralimital. 'Breeds in Spitzbergen and on the Taimyr Peninsula. Winters in Africa' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. One of the maritime waders. Nothing recorded in our area. For an account see Witherby, 1940, 4: 228-31.

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. Similar to Eastern Knot (413) but with a much smaller bill. Upper tail-coverts white strongly barred with blackish; spots on underparts larger and less well defined.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	162-171	30-34	27.5-31	50.5-66.5 mm.
♀ ♀	164-174	31.5-38.5	—	—

(Witherby)

COLOURS OF BARE PARTS. Iris brown. Bill black. Legs and feet olive-green.

413. Eastern Knot. *Calidris tenuirostris* (Horsfield)

Totanus tenuirostris Horsfield, 1821, Trans. Linn. Soc. London 13(1): 192 (Java)
Baker, FBI 2162, Vol. 6: 243

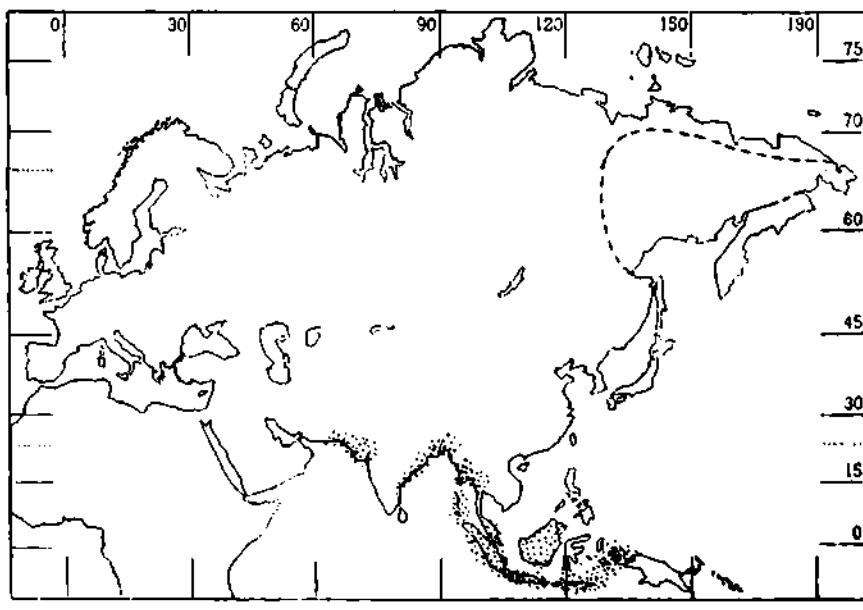
LOCAL NAMES. None recorded.

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

FIELD CHARACTERS. A stocky shore bird, usually seen in flocks feeding in company with stints and other small waders amongst which it stands out conspicuously by its size. On the wing, in the distance, confusion possible with Bartailed Godwit with which it also often associates.

Adult. Winter. Above, light brownish grey, boldly streaked with black. Lower back, rump and upper tail-coverts dark brown scalloped with

Calidris tenuirostris



[diagonal hatching] Putative breeding range

[stippling] Winter

white, much more broadly on the last, making the feathers sometimes almost all white. *Below*, white; foreneck and upper breast streaked or spotted with dark brown. Sexes alike.

Summer. *Above*, blackish brown scalloped with white; boldly spotted with chestnut on scapulars. Tail-coverts (upper and lower) white, spotted and barred with dark brown. *Below*, densely spotted with blackish brown and without any rufous.

STATUS, DISTRIBUTION and HABITAT. Winter visitor, not abundant but not rare on the Makran, Sind, Kutch and Kathiawar coasts. Also recorded from Assam (Dibrugarh, Cachar), Calcutta, Madras, Andaman and Laccadive Is.; not Ceylon. Possibly occurs in Bangladesh as it does in Burma. Affects tidal mudflats and creeks on the sea coast. In inland localities probably on migration.

Extralimital. Breeding range not properly known; believed to be chiefly NE. Siberia. Actual breeding records from mountains near lower Kolyma river and in Anadyrland and Koryakland. (For details see Vaurie, C., 1965, 2: 403.) On migration in China and Japan. Winters chiefly in the Malay Archipelago, Moluccas, and Australia.

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing recorded as different from other shore waders.

BREEDING. Extralimital and little known.

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

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	165-185	39-47 (from feathers)	34-38	63-69 mm. (Baker)

Weight 9 ♂ ♀ (winter) 112-147 (av. 133·2) gm. — BNHS.

COLOURS OF BARE PARTS. Iris dark brown. Bill dusky black. Legs and feet greenish dusky (Armstrong).

414. *Sanderling*. *Calidris alba* (Pallas)

Trynga (alba) Pallas, 1764, in Vroeg's Cat. Adumbr.: 7 (Coast of the North Sea)

Baker, FBI No. 2153, Vol. 6: 231

Plate 28, fig. 9, facing p. 224

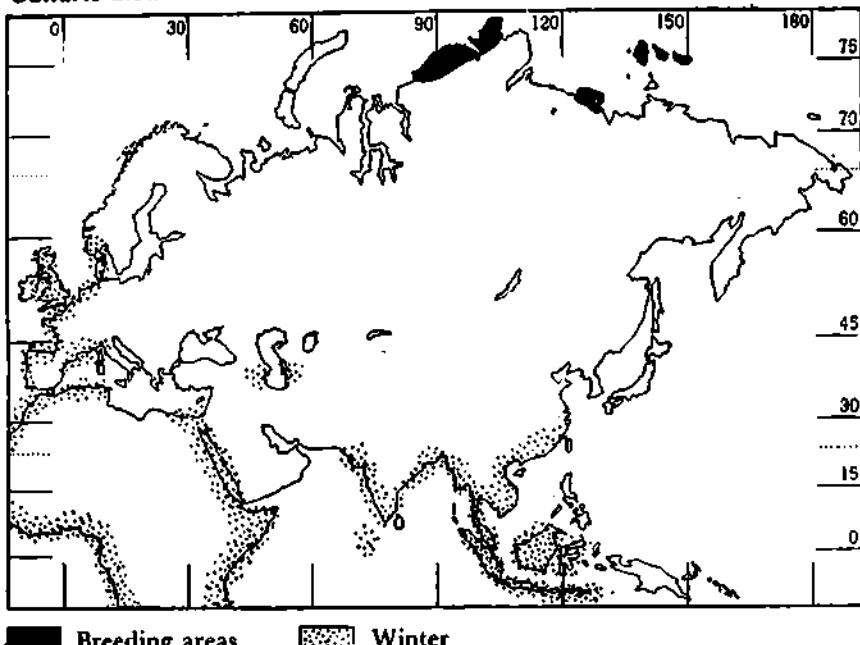
LOCAL NAMES. None recorded.

SIZE. Grey Quail; length c. 19 cm. (7½ in.).

FIELD CHARACTERS. A plump little shore bird, slightly larger than Dunlin (420), with slender straight bill. Most readily recognized in winter among other small coastal waders by its overall pale (almost whitish) coloration and blackish shoulder-patch; also by its extreme activity, chasing waves back and forth on the seashore for washed-up food. Identified in flight by whitish plumage and the very conspicuous white wing-bar.

Summer. *Above*, chestnut mottled with black; *below*, pure white. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Winter visitor. Abundant on the coastline of W. Pakistan (Makran, Sind). Less common than Little Stint and Dunlin on the western seaboard of India; rare on Kerala coast. On the eastern side tolerably abundant around Pt Calimere and along the Coro-

Calidris alba

■ Breeding areas ■ Winter

mandel and Orissa coasts. Large numbers ('flocks of more than a thousand') between August and February along the seacoast and flooded sand flats in the southern part of Rameswaram I. (Biddulph, JBNHS 40: 254). Regular winter visitor in small flocks to Ceylon (Phillips), and occurs also in the Laccadive and Maldives Is.

Extralimital. A Holarctic species. In the Palaearctic Region breeds on Spitzbergen and the arctic coasts and islands of Siberia from the Taimyr Peninsula to the mouth of the Lena river. In the Old World winters in the British Isles, the North Sea, India, Malay Archipelago, China, Japan, and Australia. South to S. Africa; and Madagascar.

MIGRATION. No ringing data. Either migrates along the coasts or is capable of immense non-stop transcontinental flights, as has never been recorded inland in our area.

GENERAL HABITS. Feeds in mixed flocks with Dunlins, Curlew-Sandpipers, and other small waders on tidal mudflats or strung out along the edge of the surf on sandy shores. Recognized among the miscellaneous crowd by its whitish coloration and ceaseless activity, running swiftly on a blur of twinkling legs after each receding wave to pick up any titbits it may cast ashore, and hurriedly retreating before the oncoming next. Continues to run back and forth and feed thus when most of its associates are resting at high tide in wait for the ebb. The flocks fly in regimented unison, flashing white from time to time as they bank and wheel.

FOOD. Tiny crustaceans, molluscs and other small animals washed up on the seashore.

VOICE AND CALLS. A shrill liquid *wick-wick* when flushed, and occasionally in flight. No other notes recorded in its winter quarters in India.

BREEDING. Extralimital; on arctic tundra.

MUSEUM DIAGNOSIS. Hind toe absent. For description of plumage see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby 1940, 4: 276-81.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	117-130	24-27	22-26	46-55 mm.
♀ ♀	120-130	23-29 (from feathers)	—	— (Witherby)

Examples collected in Sind by C. B. Ticehurst measured:

Wing Bill
(from skull)

4 ♂ ♂ 121-128 25.5-26 mm.
9 ♀ ♀ 125-129.5 25-29.5 mm.

Weight 4 ♂ ♀ 37-42 gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill, legs, and feet black.

415. Eastern Little Stint. *Calidris ruficollis* (Pallas)

Tryngia ruficollis Pallas, 1776, Reise Russ. Reichs 3: 700 ('circa lacus salsos Dauriae campestris' = Kulussutai, southern Transbaikalia, *fide* Ridgway, 1919, Bull.

U.S. Nat. Mus. no. 50, pt. 8: 292)

Baker, FBI No. 2156, Vol. 6: 236

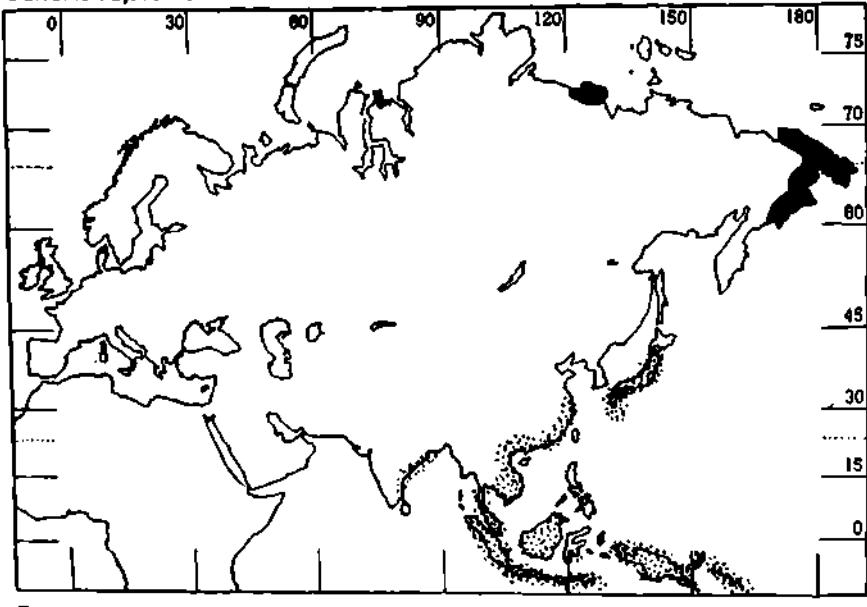
Plate 28, fig. 12, facing p. 224

LOCAL NAME. *Chhota pânlouwâ* (Hindi).

SIZE. Grey Quail —; length c. 16 cm. (6½ in.).

FIELD CHARACTERS. Indistinguishable in winter from Little Stint (416), q.v. Slightly larger, and with a shorter, stouter, and blacker tarsus.

Calidris ruficollis



■ Palaeartic breeding range

■ Winter

Summer. Chin white; face, throat, sides and front of neck, and upper breast chestnut or rich ferruginous-red. Rest like summer plumage of 416. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Winter visitor. An eastern form apparently not uncommon along shores of Bay of Bengal in the Calcutta region. Recorded also from Orissa (Chilka lake), Tamil Nadu (Rameswaram I.) and the Andaman and Nicobar Is. Not western India or Ceylon. Exact status uncertain owing to impossibility of differentiating in the field from Little Stint in winter plumage.

Extralimital. Breeds in northern and northeastern Siberia. Winters from SE. China, Formosa, and Philippines south to the Indochinese countries, Andamans and Nicobars, Australia and New Zealand. (For details see Vaurie, C., 1965, 2: 394.)

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing recorded within our limits. Elsewhere, call described by Meinertzhagen as a whistling *week-week-week*, never monosyllabic.

MUSEUM DIAGNOSIS. See Key. ' Hind toe short. Middle toe with claw equal to or shorter than the tarsus' (La Touche).

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	92-108	16-20	18-21	40-46 mm.
	(once 111) (from feathers)			(Baker, La Touche)

Weight 20 ♂ ♀ (winter/spring) 19-34 (av. 24) gm. — BB.

COLOURS OF BARE PARTS. ' Iris dark brown. Bill and legs blackish' (La Touche).

416. Little Stint. *Calidris minuta* (Leisler)

Tringa minuta Leisler, 1812, Nachträge zu Bechstein's Naturg. Deutschl.: 74

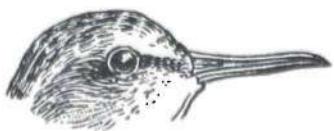
(Hanau am Main, Germany)

Baker, FBI No. 2155, Vol. 6: 234

LOCAL NAMES. *Chhōtā pānlowwā* (Hindi); *Rūnni* (Bihari mirshikars); *Tanki* (Baluchistan — for all small waders); *Kōsū ullān* (Tamil).

SIZE. Grey Quail —; length c. 15 cm. (6 in.).

FIELD CHARACTERS. Our smallest wader, only slightly larger than the House Sparrow. In winter mottled greyish brown or dusky above, white below. Sexes alike. Very like diminutive Dunlin but with shorter, straight



× c. 1



C. minuta

Tails, × c. ½



C. temminckii

bill. Distinguished from Temminck's Stint (417) by *smoky brown* outer tail feathers (*v.* pure white) and *blackish* (*v.* olive-green) legs. White stripes on

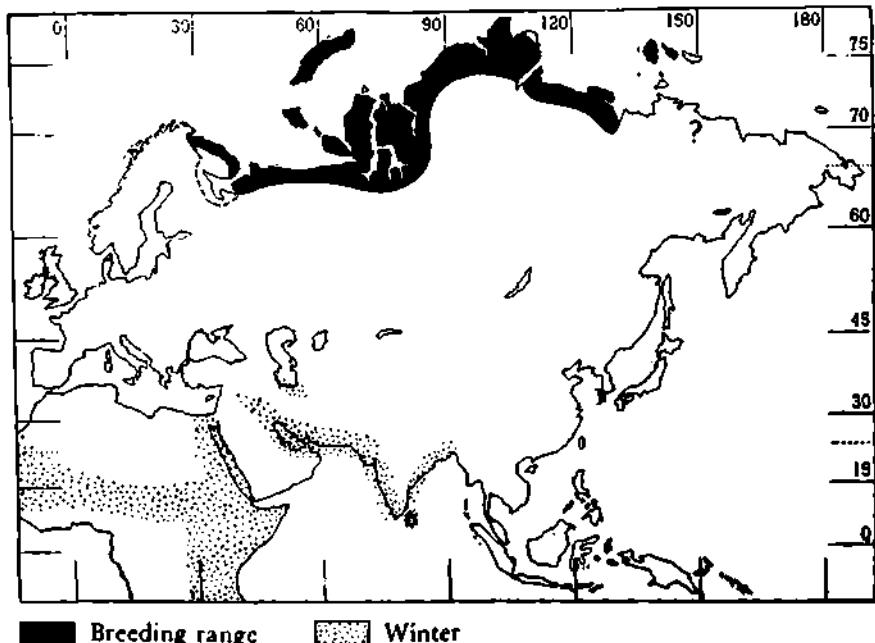
back in addition to the narrow whitish wing-bar (common to both) is a further pointer in flight.

Summer plumage, often partially acquired before emigration: *Above*, feathers black with broad rufous edges; *below*, foreneck and upper breast indistinctly spotted with dark brown and tinged with dull rufous.

Young (immature). *Above*, like adult in summer, but hindneck more grey less rufous, and rufous on mantle less dominant; *below*, white or nearly so.

STATUS, DISTRIBUTION and HABITAT. More maritime than 417. Winter visitor chiefly to the coasts of India and both Pakistans, Ceylon, Andaman, Laccadive and Maldives islands. On passage (or wintering) in smaller numbers inland. Recorded thus in NW. Pakistan (Chitral, Peshawar), Baluchistan (Quetta), Rajasthan (Bharatpur), and over the entire Gangetic Plain, Assam, and peninsular India. Also Nepal (occasional). Affects marshy ground — paddyfields, jheels, estuaries, coastal lagoons, and tidal creeks and mudflats.

Calidris minuta



Extralimital. Breeds in 'the arctic tundra from about 30°E. long. eastward to about the delta of the Yana, and also Kolguev and Vaigach islands, southern Novaya Zemlya and New Siberian Archipelago' (Vaurie). Winters in Africa south to Cape Province, and from the southern shores of the Caspian to Ceylon.

MIGRATION. No ringing records.* In Chitral common in April and May, evidently on migration (Fulton). At Kohat and in the Kurram Valley appears in small flocks, end March to mid May; not met with in autumn (Whitehead). In Karachi harbour arrives with great punctuality in the last days of July and departs again in May (Ticehurst); in Rajasthan September. Fairly plentiful, in fair-sized flocks, on the Kutch and Saurashtra

coast in August reaching the peak, here as well as on the seaboard of India and Ceylon, in September-October.

According to C. B. Ticehurst (*Ibis* 1924: 115) the adults of nearly all waders arrive in Sind (W. Pakistan) in the first days of August and the young of the year three to four weeks later. A few non-breeding birds loiter in their winter quarters throughout the year.

GENERAL HABITS. A sociable little wader often collecting in large flocks of several hundred, mixed with Dunlins, Curlew-Sandpipers, Temminck's Stints, and others. The birds scatter when feeding, but never stray very far from one another. They are incessantly on the move scampering about on the mud with great agility picking up titbits. When disturbed the flock rises more or less simultaneously and flies off swiftly in an orderly mass or 'cloud', the birds turning, twisting and banking in unison, their white undersides flashing into view from time to time. The flock resettles soon at a distance to resume its activity.

FOOD. Tiny molluscs, crustaceans, insects and worms. Occasionally seeds of marsh plants.

VOICE and CALLS. In winter, whilst with us, only a soft musical *wit-wit-wit* or a low *trrr* in flight, readily distinguishable with a little practice from the 'slurred' trill of Temminck's Stint.

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 244-8.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	90-102	17-20	19-22	34-42 mm.
♀ ♀	94-102	18-20	—	—

(Witherby)

50 ♂ ♀ (N. Bihar, Orissa, Rajasthan) Wing 89-102 mm. (aver. 95.6); weight (October to December) 17-25 gm. (aver. 20.6)—SA.

COLOURS OF BARE PARTS. Iris brown. Bill black. Legs and feet blackish brown, sometimes with an olive tinge.

417. **Temminck's Stint.** *Calidris temminckii* (Leisler)

Tringa Temminckii Leisler, 1812, Nachträge zu Bechstein's Naturg. Deutschl.: 64
(Hanau am Main, Germany)

Baker, FBI No. 2158, Vol. 6: 237

Plate 30, fig. 3, facing p. 272

LOCAL NAMES. Same as for Little Stint.

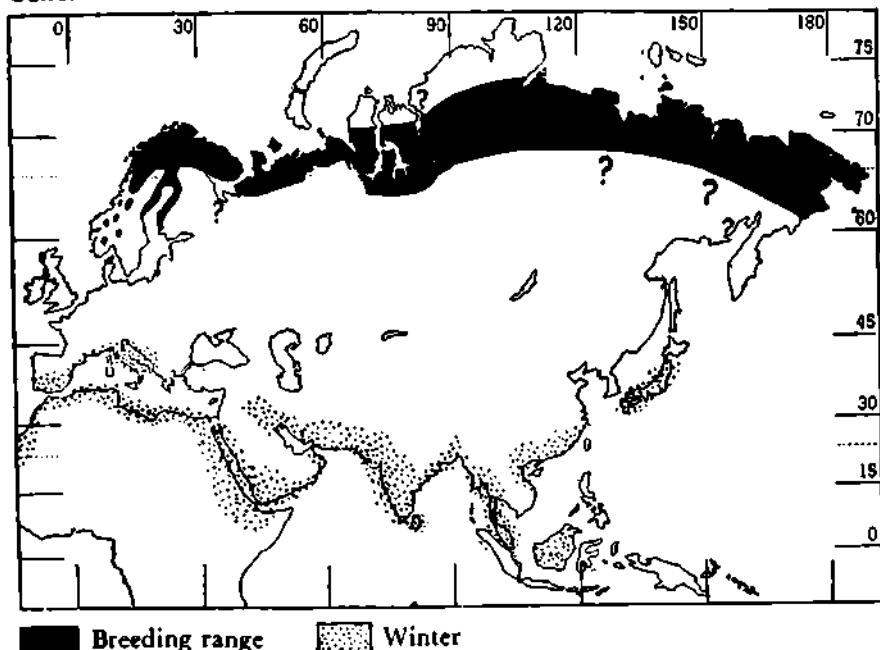
SIZE. House Sparrow +; length c. 15 cm. (6 in.).

FIELD CHARACTERS. A diminutive wader, very similar to Little Stint but greyer brown and less mottled above; less pearly white below, with the breast light brownish grey. Sexes alike. Superficially a miniature of Common Sandpiper (401); almost identical in plumage and leg colour. Distinguished from Little Stint (416) by pure white outer tail-feathers (*v.* smoky brown), and olive-green legs (*v.* blackish). Narrow whitish wing-bar as in 416, but no white stripes on back.

In summer plumage, often partially acquired before emigration, upperparts darker with the edges of the feathers slightly rufous; breast light sandy brown with small dark spots.

STATUS, DISTRIBUTION AND HABITAT. More inland freshwater-haunting than 416. Winter visitor to the entire subcontinent including Nepal. Also Ceylon, Andaman, Laccadive and Maldives islands. Affects freshwater marshes inland as well as tidal mudflats and coastal lagoons.

Calidris temminckii



■ Breeding range ■ Winter

Extralimital. 'Breeds from N. Norway east to the Chukchi Peninsula but not north of lat. 72° at the mouth of the Yenisey, nor north of 76° on the Taimyr Peninsula; Kolguev and Vaigach Is.; exact southern limits not determined, but extends into the "Alpine zone" of N. Europe and Asia. Migrates through Europe and Asia and winters in the Mediterranean region, NE. Africa, Iraq, Persia, India, Ceylon, Burma, Malay Peninsula, China, and Japan' (Peters).

MIGRATION. No ringing data. See remarks under *C. minuta* which presumably apply equally to this species, the two being often confused by observers. Passes through S. Tibet on autumn migration in September–October and on spring migration in April (Ludlow, *Ibis* 1928: 224). As late as mid May Maclarens found it very abundant, in parties and flocks of 4 to 400, around the shores of Hram Tso (c. 4500 m.) and Kala Tso (c. 4400 m.) in S. Tibet. A single exhausted bird, evidently on migration, was observed by Hingston on the Rongbuk Glacier in the Everest region (c. 5200 m.) on 23 May (JBNHS 32: 328).

GENERAL HABITS. Very similar to Little Stint (416), often keeping in mixed flocks with it and with other small waders. Found on the sea coast as well as at inland jheels and marshes, *contra* Ticehurst's opinion (JBNHS



PLATE 31

1 *Eurynorhynchus pygmaeus*, Spoonbilled Sandpiper (423). 2 *Limicola f. falcinellus*, Broadbilled Sandpiper (424). 3 *Philomachus pugnax*, Ruff (426). *Phalaropus lobatus*, Rednecked Phalarope (428). 5 *Phalaropus fulicarius*, Grey Phalarope (427). 6 *Recurvirostra avosetta*, Avocet (432). 7 *Cursorius c. cursor*, Creamcoloured Courser (439). 8 *Dromas ardeola*, Crab Plover (434). 9 *Cursorius coromandelicus*, Indian Courser (440). 10 *Cursorius bitorquatus*, Jerdon's or Doublebanded Courser (441). 11 *Glareola p. maldivarum*, Collared Pratincole (443).

34: 487) that it is a purely freshwater species differing in this respect from Little Stint which affects both fresh and salt water. When flushed, shoots straight up in the air rather like snipe, with a different note to Little Stint's.

FOOD. Same as 416 — chiefly tiny molluscs, crustaceans, worms, and insects.

VOICE and CALLS. Flushing note a high-pitched trilling twitter appreciably different from the *wit-wit-wit* of Little Stint. A beautiful trilling song in butterfly-like hovering flight on its arctic breeding grounds.

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 251-5.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	90-100	16-18	16-18	38-49 mm.
♀ ♀	92-103	16-20	—	— (Witherby)

3 ♀ ♀ collected in Gujarat give
(from skull)

98-105	21-24	19-20	46-52 mm.
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50 ♂ ♀ (N. Bihar — December) Wing 90-104 mm. (aver. 95.8); weight 15-25 gm.
(aver. 19.0).
(SA)

COLOURS OF BARE PARTS. Iris brown. Bill black. Legs and feet olive-green or yellowish olive.

418. Longtoed Stint. *Calidris subminuta* (Middendorff)

Tringa subminuta Middendorff, 1853, Reise Nord. und Ost. Siberien 2, Th. 2: 222,
pl. 19, f. 6 (Western slopes of the Stanovoi Mountains and mouth of the Uda)

Baker, FBI No. 2157, Vol. 6: 236

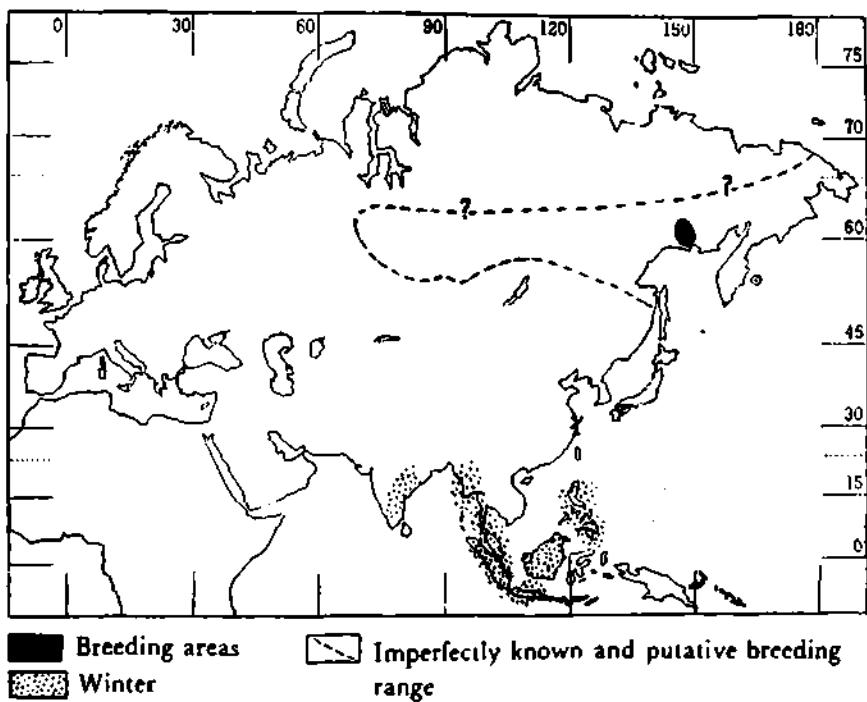
Plate 30, fig. 4, facing p. 272

LOCAL NAMES. None recorded

SIZE. Same as Little Stint: House Sparrow +; length c. 15 cm. (6 in.).

FIELD CHARACTERS. A diminut. wader, very like Little Stint (416), also with outer tail-feathers greyish brown (*v.* white in Temminck's) and not distinguishable from it with certainty unless in the hand (see Museum Diagnosis). In winter very dark almost black crown and much darker mottlings on the back are usually suggestive pointers. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Winter visitor. Specimens collected in Nepal, Assam, Bangladesh, Bihar, Andaman Is., Ceylon and Maldives. Probably regular and less uncommon than supposed, but overlooked due to difficulty in field discrimination from Little Stint. Around 1878 Hume found the two to be brought in about equal number to the Calcutta bird market. However, of birds caught recently in N. Bihar for ringing, the proportion was 34 Little Stints: 109 Temminck's: 2 Longtoed (P. V. George, JBNHS 62: 302).

Calidris subminuta

Extralimital. 'Breeds in E. Siberia south to Kamchatka and on the Commander and Kurile Is., perhaps also on Sakhalin. Migrates through China and Japan and winters in E. India, Burma, Malay Peninsula, Sunda Is., and the Philippines' (Peters).

MIGRATION. No ringing or other specific data.

GENERAL HABITS, FOOD, VOICE and CALLS. Keeps in mixed flocks with Little and Temminck's Stints on inland marshes as well as tidal mudflats. Nothing recorded as different from the other stints.

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. Upperparts darker than in *C. minuta* in winter due to the dark centres of the feathers covering a larger area; tail-feathers darker brown; a well-defined grey-streaked pectoral gorget. Toes noticeably longer and slenderer: middle toe 22–25 mm. (v. under 20 mm. in the other two stints). Middle toe with claw longer than tarsus (v. more or less equal); hind toe longer — 5 to 6 mm. v. 3 to 4 mm. For description of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	87–95	17–19	c. 20–21	34–36 mm. (Baker)

Weight 17 ♂ ♀ (autumn/winter) 16–23 (av. 19·9) gm. — BNHS.

COLOURS OF BARE PARTS. 'Iris brown. Bill olive-brown to blackish, paler at the base of the lower mandible. Legs and feet pale olive-yellow to pale brown' (Baker).

419. Asian Pectoral or Sharptailed Sandpiper. *Calidris acuminata*
(Horsfield)

Totanus acuminatus Horsfield, 1821, Trans. Linn. Soc. London 13(1): 192 (Java)
Baker, FBI No. 2159, Vol. 6: 239

LOCAL NAMES. None recorded.

SIZE. Grey Quail ±; length c. 22 cm. (8½ in.).

FIELD CHARACTERS. Resembles Little Stint and Dunlin but is somewhat larger. In winter chin, throat, and abdomen white; foreneck and breast pale brownish grey with small dark streaks or spots. On a good view, in flight, the pointed white-edged tail-feathers should be suggestive.

Summer plumage much darker; upper breast tinged with rufous; dark spots on breast broader, often taking the form of angulate bars, extending to the flanks. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Rare vagrant in winter. Recorded by Col. A. E. Ward in 1907 as 'a very rare visitor' to Kashmir (JBNHS 17: 946) but not found there since. J. Biddulph shot a specimen in Gilgit on 1 August, 1880 (SF 10: 276) and W. W. A. Phillips one in Ceylon more recently — 18 September 1955 (SZ 28(2): 183). These are the only records within our limits. It is possible that some are lost for want of critical examination.

EXTRALIMITAL. 'Breeds on the Chukchi Peninsula [NE. Siberia]. Migrates through E. Asia; winters in the eastern part of the Malay Archipelago, New Guinea, Australia, and some of the S. Pacific islands' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. The Gilgit specimen was flying about with a number of Ruff (*Philomachus pugnax*). The Ceylon example was feeding with Curlew-Sandpipers (*Calidris testacea*), Wood and Marsh Sandpipers (*Tringa glareola* and *T. stagnatilis*), Terek Sandpipers (*T. terek*) and Broadbilled Sandpipers (*Limicola falcinellus*) in shallow water in the bed of a coastal lagoon.

BREEDING. EXTRALIMITAL.

MUSEUM DIAGNOSIS. In the hand the best point of distinction is the tail-feathers, all of which are pointed or acuminate in this species, whereas in the rather similar Dunlin (420) only the central ones are pointed. The latter, moreover, has a slightly downcurved bill. For description of plumage see Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 263-5.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	127-139	23-27	27-31	45-58 mm.
♀ ♀	124-133	23-29	—	(Witherby)

The Ceylon specimen (♀) measured

124	25	29	50 mm.
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Middle toe with claw 28 mm. (Phillips)

COLOURS OF BARE PARTS. Iris dark brown. Bill black, base below brownish. Feet (ad.) dull green-slate, (juv.) dirty (greyish) ochraceous (Witherby).

'Iris dark brown; eyelids greyish white; bill dark greenish lead with the lower mandible lighter towards the base; legs and feet bright green with a yellowish tinge' (Phillips).

420, 421. **Dunlin.** *Calidris alpina alpina* (Linnaeus)

Tringa alpina Linnaeus, 1758, Syst. Nat., ed. 10, 1: 149 (Lapland)

Erolia alpina centralis Buturlin, 1932, Alauda (2), 4: 265 (Yakutsk, eastern Siberia)

Baker, FBI No. 2161, Vol. 6: 241

Plate 28, fig. 11, facing p. 224

LOCAL NAMES. Not recorded.

SIZE. Grey Quail — ; length c. 19 cm. ($7\frac{1}{2}$ in.).

FIELD CHARACTERS. Essentially maritime. In winter confusingly like Curlew-Sandpiper (422) but with the bill slightly less downcurved near the end: *above*, greyish brown with a good deal of fine dark mottling; *below*, white, with a diffuse greyish-streaked band across breast. Sexes alike.

In flight the whitish wing-bar, as in Curlew-Sandpiper, conspicuous; differentiated from it with certainty only by the blackish (*contra* white) upper

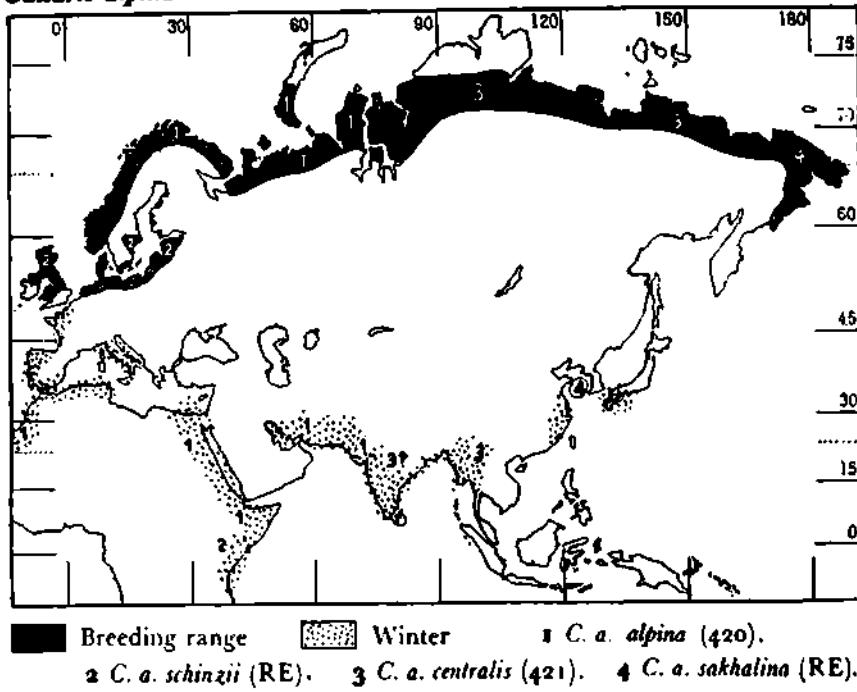


Tail, $\times c. 1$

tail-coverts. At rest among a mixed flock of small waders, characteristic rounded or 'hunched-up' profile suggestive of Dunlin.

Summer plumage diagnostic: *above*, chiefly black, boldly scalloped with bright deep rufous or chestnut; *below*, white, with centre of breast and abdomen black. Remnants of this plumage frequently seen among the earlier immigrants in autumn; fresh summer plumage donned partially or fully before departure in April and May.

STATUS, DISTRIBUTION and HABITAT. Common and abundant winter visitor to the seaboard of West Pakistan (Makran and Sind coasts) and NW. India (Kutch, Saurashtra — Gujarat). Sparsely inland, as occasional winter visitor or passage migrant, throughout northern and peninsular India from Kashmir to Kerala, and east to Assam; also both Pakistans, and Nepal. Uncommon east of Bihar, and a straggler south of central coastal Maharashtra and the Deccan. Not recorded in Ceylon or Andaman Is. though specimens have been collected in the Maldives where it is 'probably a regular winter visitor in small numbers' (Phillips, JBNHS 60: 575). Affects the seashore, tidal mudflats and creeks, river banks, flooded fields, etc. in association with other waders.

Calidris alpina

Extralimital. 'Breedes in Iceland, the Faeroes, and in Europe and Asia from N. Scandinavia to the Yalmal Peninsula; Kolguev and Vaigach Is., northern Nova Zemlya and Spitzbergen; southern breeding limits south to Pskov, the upper Volga and the lower Ob. Winters in the Mediterranean region, NE. Africa and SW. Asia' (Peters).

MIGRATION. No ringing data.* Adults in worn breeding dress arrive in W. Pakistan (Karachi harbour) [also on the Gujarat coast] in the first days of August; young birds later. The majority depart in the second or third week of May (latest 5 June). Odd birds oversummer, unlike most waders, in summer dress (Ticehurst, *Ibis* 1924: 111).

GENERAL HABITS. Keeps in flocks, often mixed with Curlew-Sandpipers, stints, sand plovers and other small waders. The birds scatter to feed on the seashore or mudflats at low tide, running about and probing with their bills into the soft mud. On alarm the flock rises more or less simultaneously and flies off in packed formation — the different species sometimes breaking up into smaller bands of their own — turning, twisting and banking in the air at great speed, their white undersides flashing in the distance from time to time. At high water the feverish activity slackens; the birds bunch-up on dry ground waiting for the ebb to resume feeding.

FOOD. Molluscs, crustaceans, worms, sandhoppers, chironomid larvae and other insects; occasionally some seeds. A large quantity of gritty sand commonly found in stomachs, together with brownish mucous-like matter.

VOICE AND CALLS. Ordinary call in winter a prolonged rather shrill *tue-ep* or *wee-wee-et* especially when taking wing. A soft purring sound produced by a flock while feeding or alighting has been described. In breeding

season male delivers a rich trilling song in fluttering switchback flight, or from an exposed perch, over or near the nesting place.

BREEDING. Extralimital. *Season*, June-July. *Nest*, a neat cup at base of grass tussock on damp ground, near water. *Eggs*, 4.

MUSEUM DIAGNOSIS. See Key. For description of plumage Baker, loc. cit.; for details of structure (and bionomics) Witherby 1940, 4: 232-40.

Moult. 'Spring moult begins early in April, and by the third week is well on; it involves most of the body feathers, not the wings and as a rule not the tail. As in most waders the males are always in advance of the females' (Ticehurst).

MEASUREMENTS of birds collected in our area in winter:

	Wing	Bill (from feathers)	Tarsus	Tail
Sind 22 ♂♂	112-121	29-36	24-27	— mm.
18 ♀♀	116-123	34-39	25-27	— mm.
		(from skull)		(Ticehurst)
Gujarat 2 ♀♀	120-124	40-41	26-28	47-53 mm. (SA)

Weight 20 ♂ ♀ (autumn/winter) 34-57 (av. 44.1) gm. — BNHS.

COLOURS OF BARE PARTS. Iris hazel or dark brown. Bill, legs, and feet black.

It is possible that some of the dunlins wintering in eastern India may belong to the race *Calidris alpina centralis* Buturlin (421), described as having more white on the outer webs of the inner primaries. However, *centralis* is an intermediate (clinal) form between the nominate western race *alpina* and the somewhat larger eastern *C. a. sakhalina* (Vieillot). In winter plumage *sakhalina* itself is doubtfully separable from *alpina* though the reduction in its breast streaking is evidently discernible and the outer webs of the inner primaries are somewhat more broadly bordered with white on an average. *C. a. sakhalina* breeds in NE. Siberia and it is likely that the birds wintering in Assam, E. Pakistan, and Bengal belong to that race, or approaching it ('*centralis*'), though in winter plumage allocation with certainty is impossible.

Hartert (Vög. pal. Fauna: 1577) gives the measurements of *sakhalina* as:

Wing ♂♂ 177-123, rarely 125, mostly 119-121 mm.; ♀♀ 120-126, exceptionally up to 130 mm. Bill (from feathers) ♂♂ 31.3-35.8; ♀♀ 34-42 mm. Tarsus ♂♂ 25-27.5; ♀♀ 25-28 (29) mm.

422. Curlew-Sandpiper. *Calidris testacea* (Pallas)

Scopopax testacea Pallas, 1764, in Vroeg's Cat. Adumbr.: 5 (Holland)

Baker, FBI No. 2160, Vol. 6: 240

Plate 28, fig. 13, facing p. 224

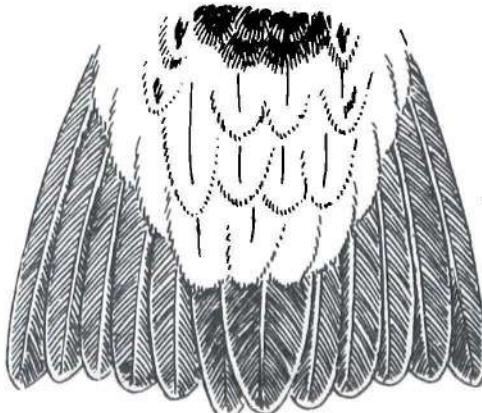
LOCAL NAMES. None recorded.

SIZE. Dunlin ±; length c. 20 cm. (8 in.).

FIELD CHARACTERS. An essentially maritime species. In winter very like Dunlin (420) and easily confused with it: above, greyish brown with a



good deal of fine dark mottling; *below*, white, with the breast streaked and washed with brown. When at rest or feeding in a mixed flock with Dunlin its slightly larger size, longer legs, and similarly downcurved but somewhat slenderer bill are suggestive pointers. In flight differentiated from Dunlin with certainty only by its *white* (*contra* blackish) upper tail-coverts.



Tail, $\times c. 1$

SUMMER plumage completely different from Dunlin's and diagnostic: mainly chestnut and rich rufous, above and below. As in Dunlin remnants of this plumage commonly seen among the earlier immigrants in autumn. Most birds have moulted back into the chestnut dress before departure for the breeding grounds in spring.

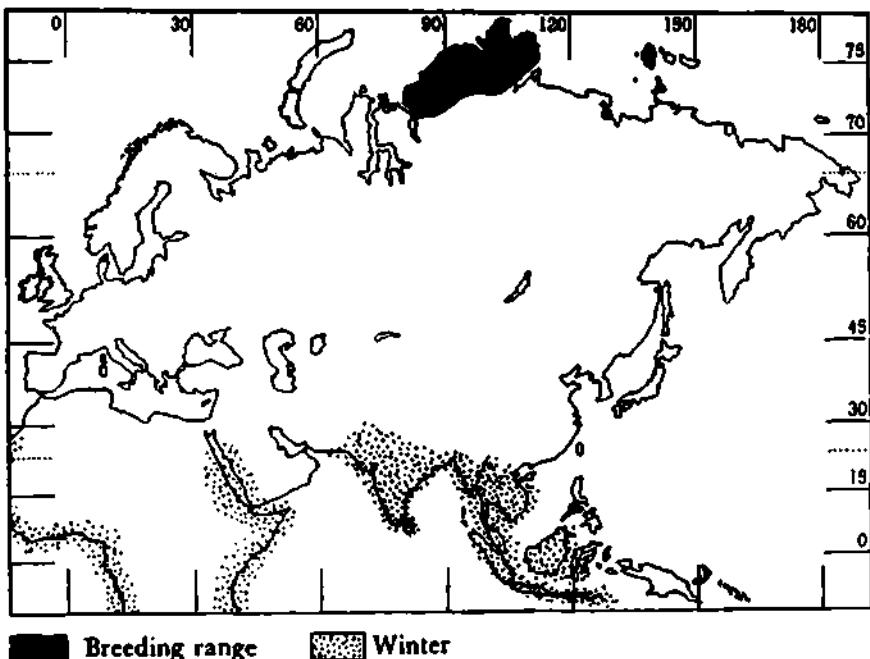
STATUS, DISTRIBUTION AND HABITAT. Common winter visitor to the entire seaboard of West Pakistan and India. Doubtless also in East Pakistan since it occurs in the Sunderbans of W. Bengal. Also Ceylon, the Maldives, Andaman, and Nicobar Is. In small numbers inland — as winter visitor and/or passage migrant. Not recorded in Nepal. Affects the seashore, tidal mudflats and creeks, salt-pans, squelchy paddyfields and marshes, etc. in association with other waders.

EXTRALIMITAL. 'Breeds in N. Asia at the mouth of the Yenisey, in W. Taimyr, Cape Bolschoi Baranov and on the New Siberian Is. On migration occurs throughout Europe and Asia; winters in Africa, Madagascar, India, Burma, Malay Archipelago, and Australia' (Peters).

MIGRATION. No ringing data.* Adults in worn breeding dress, often still in pairs, arrive on the Makran, Sind, and Gujarat coasts as early as the last days of July or first week in August; juveniles (according to Ticehurst) in the first days of September. Most birds have departed by end April; many in full breeding dress linger on till *c.* mid May accumulating enormous quantities of body fat; yet others (in non-breeding plumage) oversummer on our shores.

GENERAL HABITS AND FOOD. Similar to Dunlin, q.v. Keeps in large flocks often of several hundred strong, usually mixed with stints, dunlins, sand plovers, and other waders.

VOICE AND CALLS. Not authentically recorded in India, the fact of its keeping in mixed flocks making it difficult to isolate the calls of the various

Calidris testacea

■ Breeding range ■ Winter

species. According to Baker 'in winter it has a twittering call as well as a rather shrill single note'.

BREEDING. Extralimital. More or less similar to Dunlin.

MUSEUM DIAGNOSIS. Somewhat larger size (cf. Measurements) and *white* upper tail-coverts distinguish it from the very similar Dunlin in winter. The breeding plumages of the two are diagnostic (see Field Characters); for detailed description see Baker, loc. cit., and Witherby, 1940, 4: 242-4.

Moult. In adults, moult of body feathers from the worn breeding plumage commences about the first week in August. Spring moult takes place in March and April and by mid April is well advanced. Most birds have acquired full summer dress by the third week of April (Ticehurst).

MEASUREMENTS of birds collected in our area in winter:

	Wing	Bill	Tarsus	Tail
♂ ♂	124-137	37-44	28-31	43-52 mm.
♀ ♀	130-134	41-45	30-32	47-52 mm. (CBT, HW, SA)

Weight 20 ♂ ♀ (winter) 36-53 (av. 45.5) gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill black. Legs and feet greyish plumbeous to black.

Genus EURYNORHYNCHUS Nilsson

Eurynorhynchus Nilsson, 1821, Orn. Svecica 2: 29. Type, by monotypy, *Eurynorhynchus griseus* Nilsson = *Platalea pygmaea* Linnaeus

Genus unique and readily distinguished from all others by the remarkable shape of the bill which terminates in a flat quadrilateral disc or spatula, bluntly angulate at each side and at the end. Basal portion of bill depressed throughout with height

and breadth about equal. Nostrils small and placed quite at the base. Other characters as in *Calidris*, q.v.

Contains a single eastern Palaearctic species.

423. Spoonbilled Sandpiper. *Eurynorhynchus pygmaeus* (Linnaeus)

Platalea pygmaea Linnaeus, 1758, Syst. Nat., ed. 10, 1: 140

(in Surinami = eastern Asia)

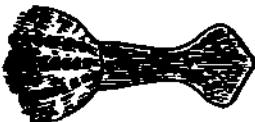
Baker, FBI No. 2154, Vol. 6: 232

Plate 31, fig. 1, facing p. 304

LOCAL NAMES. None recorded.

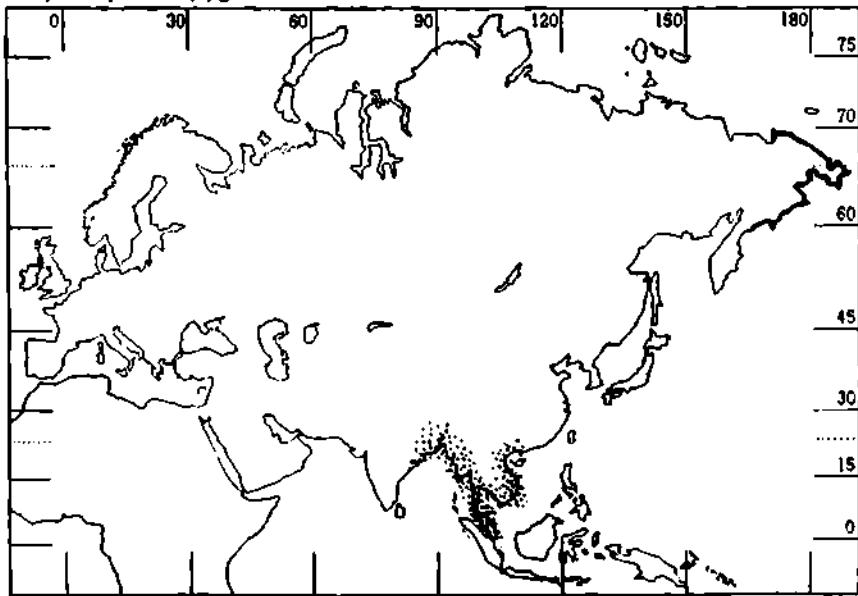
SIZE. Little Stint ±; length c. 17 cm. (6½ in.).

FIELD CHARACTERS. A small stint-like wader with a unique spatula-shaped bill. Winter plumage largely white, with dark-shafted pale greyish brown upperparts (including crown). Rump and upper tail-coverts dark brown in the middle, white at the sides. Middle rectrices dark brown, outer rectrices paler, with white edges and shaft-stripes.

 x c. 1 Summer (breeding). Above, blackish, the feathers fringed with rufous. Below, foreneck and breast deep ferruginous spotted with dark brown; rest white.

STATUS, DISTRIBUTION and HABITAT. Very rare winter visitor to West Bengal, Assam, and East Pakistan. Up till Jerdon's time, c. 1864, it had only been recorded at the mouths of the Ganges [Sunderbans] and on the coast of Chittagong. Hume only found a single example brought to the Calcutta bird market in the course of his frequent visits there over several years (c. 1877). Since then Baker records two obtained in the Sibsagar district

Eurynorhynchus pygmaeus



 Breeding range

 Winter

of Assam by a Mr Edens, and one by himself in the Meghna Sunderbans (E. Pakistan). No specimens appear to have been taken within our limits during the last 50 years or so, but one sight-recorded in Sri Lanka (Bundala), Jan. 1978 (CBCN, Feb. 1978:7). It is rare also in Burma in winter, but apparently less infrequent.

Extralimital. 'Coast of NE. Siberia, west to Vankarem Bay on the north coast of the Chukotski Peninsula and south to southern Koryakland (to Korsa Bay, 166°E. long.). Migrates through the Kuriles, Sakhalin, Japan, Korea, and along the coast of China to winter from S. China to Hainan and the Indochinese countries, and rarely to Assam and Bengal; has wandered to NW. Alaska' (Vaurie).

GENERAL HABITS, FOOD, VOICE AND CALLS. Has been found individually or very sparsely in large mixed flocks of stints and other small waders amongst which it tends to get overlooked. Runs about and feeds with them, and like them, on tidal mudflats etc. The stomach of the specimen shot by Baker contained minute red crabs. 'The only note it uttered was a shrill *wheet, wheet* as it rose.'

[For a very full account of the morphology, bionomics, and breeding biology of the Spoonbilled Sandpiper in NE. Siberia see Portenko, A. L., 1957, *Journal für Ornithologie*, 98(4): 454-66.]

BREEDING. Extralimital.

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

MEASUREMENTS	Wing	Bill (from feathers)	Tarsus
14 ♂♂ ad.	95·3-102·4 (av. 98·9)	19·6-22·3 (av. 21·2)	20·1-21·8 mm. (av. 20·9)
9 ♀♀ ad.	95·5-103·5 (av. 99·9)	21·7-24 (av. 22·8)	20·4-22·4 mm. (av. 21·6)
Breadth of 'spoon':	{ 13 ♂♂ ad. 8 ♀♀ ad.	10·1-11·2 (av. 10·7) mm. 10·7-11·6 (av. 11·1) mm.	
			(Portenko)

Tail: 3 ♂♂ 37-39 mm. (Hartert).

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

Genus *LIMICOLA* Koch

Limicola Koch, 1816, Syst. baier. Zool.: 316. Type, by monotypy, *Numenius pygmaeus* Bechstein (not of Latham) = *Scopopax falcinellus* Pontoppidan

Differs from *Calidris* in its bill, which is soft and flexible (with hard tip), slightly downcurved near end, swollen at base and depressed and broad. Nostrils small, placed in a groove near base. Tail short and nearly square, the central rectrices a little longer and pointed. Wing long and pointed, with first primary (as.) longest. Tarsus and toes as in *Calidris*; hind toe well developed.

The genus contains a single Palaearctic species.

LIMICOLA FALCINELLUS (Pontoppidan)

Key to the Subspecies

- Upperparts less brightly coloured rufous in breeding plumage..... *L. f. falcinellus*
- Upperparts more brightly coloured rufous in breeding plumage..... *L. f. sibirica*

424. **Broadbilled Sandpiper.** *Limicola falcinellus falcinellus* (Pontoppidan)

Scopopax Falcinellus Pontoppidan, 1763, Dansk. Atlas 1: 623, pl. 25 (No locality, Siaelandia ex Orn. Boreale: 49 = Denmark)

Baker, FBI No. 2163, Vol. 6: 245

Plate 31, fig. 2, facing p. 304

LOCAL NAMES. None recorded.

SIZE. Grey Quail ±; length c. 17 cm. ($6\frac{1}{2}$ in.).

FIELD CHARACTERS. Very like Dunlin (420) and Curlew-Sandpiper (422) with similar slightly downcurved bill, and consusable with both. In winter above, dark-mottled greyish brown; below, white, sparsely streaked on breast. Rump, upper tail-coverts and middle rectrices brown as in Dunlin from which doubtfully distinguishable in flight. At rest the long whitish supercilium (not meeting across forehead), and blackish patch on wing-shoulder are suggestive pointers. On a fairly close view the somewhat smaller size, shorter legs and more marked spotting of the cheeks and breast help further to distinguish it from Dunlin.

In summer (breeding plumage) a smaller but passable replica in coloration and pattern of the Jack Snipe (410), q.v. This dress donned before departure in May, the birds then looking nearly black on the ground and unmistakable even at a distance.

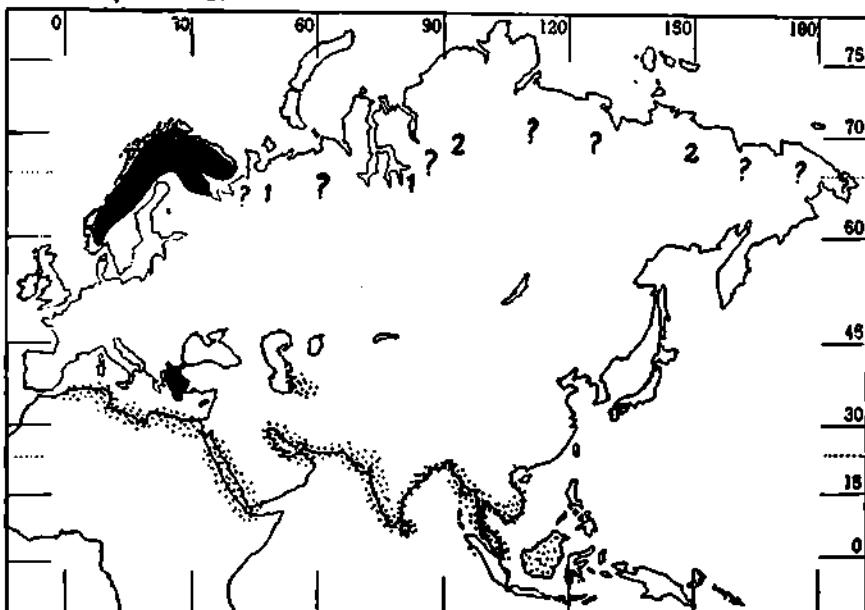
STATUS, DISTRIBUTION and HABITAT. Winter visitor to the seaboard of both Pakistans,¹ India, Ceylon, Andaman, and Nicobar Is. Common on the Makran and Sind coasts. Perhaps commoner than the records suggest owing to ambiguity in field identification. Recorded less commonly from inland localities in Baluchistan, Delhi, Bihar, and elsewhere — presumably on passage. Affects the coastline, tidal mudflats, muddy creeks and brackish lagoons, and sandbanks in large rivers.

Extralimital. 'Breeds in Norway, Sweden, Lapland, Finland, N. Russia and Siberia east to the Yenisey and perhaps further, exact northern and southern limits not known, but not extending into the tundra; breeds also in Orenburg (Ilek River), in Turgai (upper Irgiz) and in the forest steppe of Minussinsk. Winters south to the Mediterranean, Black, Caspian, and Red Seas, Persian Gulf and western India' (Peters).

MIGRATION. No ringing data. According to C. B. Ticehurst (*Ibis* 1924: 116) adults in worn breeding dress arrive on the Sind coast in the last days of July, their numbers increasing in the first week of August. At first they are usually in pairs, the female still showing remains of incubation patches. Immature birds arrive about a month later, in the last week of August or the first in September, and join up with flocks of other waders. In early May most birds have donned breeding dress, segregated out in pure flocks, and become very fat. By the third week of May most have emigrated, leaving a few non-breeding birds behind to oversummer. On the Coromandel coast the influx is heaviest Sept./Oct.

GENERAL HABITS. Not appreciably different from other sandpipers and stints. An impression that needs confirming is that this species obtains its

¹ The races are inseparable in winter plumage, and the visitors to coastal W. Bengal and E. Pakistan may belong to the eastern race, *sibirica* (425). Specimens taken in Ceylon have, however, been confirmed as of the nominate race.

Limicola falcinellus

■ Breeding range ■ Winter 1 *L. f. falcinellus* (424).
2 *L. f. sibirica* (425).

food by 'picking' from the surface like Common Sandpiper, and not by probing its bill into the soft mud like Dunlin or Snipe.

FOOD. Molluscs, worms, tiny gastropods, and insects; also a small quantity of seeds.

VOICE AND CALLS. A twittering flushing note, similar to Temminck's Stint's, is the only call recorded in winter. On its breeding grounds a harsh trill also rather similar to that of Temminck's Stint.

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for description of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 290-3.

Moult from worn breeding dress into winter plumage (body moult) begins on arrival in winter quarters about first week in August; in immature birds (of the year) about a month later. Towards end February moult into breeding plumage again commences; it is well advanced by early April, and nearly complete by the end of that month. Exodus starts in early May; by the third week most birds have departed (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	101-113	30-36	20-23	35-42 mm.

Weight 25 ♂ ♀ (autumn/winter) 26-40 (av. 32.25) gm. — BNHS.

COLOURS OF BARE PARTS. Iris dark brown. Bill horny black or brown, strongly tinged with olive-green. Legs very dark lead (ad.); dark yellowish olive (juv.).

425. **Eastern Broadbilled Sandpiper.** *Limicola falcinellus sibirica* Dresser

Limicola sibirica Dresser, 1876, Proc. Zool. Soc. London: 674 (Siberia and China)
Baker, FBI No. 2164, Vol. 6: 246

LOCAL NAMES. None recorded.

SIZE. Same as 424; c. 17 cm. (6½ in.).

FIELD CHARACTERS. In winter plumage indistinguishable from 424, q.v.

Summer (breeding). More rufous and spotted and streaked than 424.
See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Winter visitor to the seaboard of W. Bengal and East Pakistan as it is commonly in Burma. Owing to difficulty of identifying the races in winter plumage, the range of *sibirica* within our area is somewhat obscure.

Extralimital. 'Breeding range unknown but presumably N. Siberia east of the Yenisey. Winters from Formosa (rarely) and SE. China (a few), and Hainan, south to the Indochinese countries, coast of eastern India, and Sundas to Australia' (Vaurie).

GENERAL HABITS, FOOD, VOICE and CALLS. Same as 424.

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. In summer plumage differs from nominate race (424) in having the upperparts much more rufous, each feather boldly spotted and streaked with bright rufous.

MEASUREMENTS and COLOURS OF BARE PARTS. Same as 424.

Genus TRYNGITES Cabanis

Tryngites Cabanis, 1856 (1857), Jour. f. Orn. 4: 418. Type, by original designation,
Tringa rufescens Vieillot = *Tringa subruficollis* Vieillot

Very close to *Calidris*. Easily recognized by small black spots on inner webs of primaries. Bill much longer than tarsus, straight, hard, not flexible. Sides of tail not emarginated; middle rectrices much longer than rest. Male larger than female. Summer and winter plumages more or less alike.

Contains a single Palaearctic species.

425a. **Buffbreasted Sandpiper.** *Tryngites subruficollis* (Vieillot)

Tringa subruficollis Vieillot, 1819, Nouv. Dict. Hist. Nat. 34: 465 (Paraguay)
Not in Baker, FBI

SIZE. Common Sandpiper ±; length ♀ c. 18 cm., ♂ c. 20 cm. (7-8 in.).

FIELD CHARACTERS. Stockier than Common Sandpiper with shorter bill and noticeably rounded head. *Above*, blackish with the feathers prominently bordered with buff ('scalloped') like Ruff in winter plumage. Rump uniformly dark-coloured without contrasting pattern. *Below*, buff, including throat and sides of face. Sexes alike.

Frequents upland fields (dry open ground) as well as seashores.

STATUS, DISTRIBUTION and HABITAT. Accidental vagrant. A solitary specimen collected in Ceylon at Kalametiya Lagoon on 5.iii.1960 (*Loris* 8(5): 330-1); another sight-recorded Trincornalee, Nov. 1974 (CBCN).

Extralimital. 'Breeds on the arctic coast of N. America from Alaska to Mackenzie. Migrates chiefly through the interior of N. and S. America

and winters in some part of southern Argentina, but winter concentration area not known' (Peters). Occasionally wanders into the Palaearctic Region.

MUSEUM DIAGNOSIS. Distinguished by pink-buff underparts and by inner webs of primaries and secondaries being freckled with black, and short, slender bill. For description of structure, plumage phases, etc. see Witherby, 1940, 4: 287-90.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	129-138	20-23	29-33	54-60 mm.
♀ ♀	124-129	18-21	—	—

(Witherby)

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

Genus PHILOMACHUS Merrem

Philomachus Anonymous = Merrem, 1804, Allg. Lit. Zeitung 2(168): col. 542
Type, by monotypy, *Tringa pugnax* Linnaeus

Bill moderately long, straight, flexible; both mandibles grooved over the greater part of their length. Nostrils linear placed in the groove close to base of upper mandible. Wing long and pointed; first primary (as.) longest; inner secondaries lengthened. Tail rather short and rounded; tail-coverts very long. Tarsus longer than bill from gape, with transverse shields in front and behind. Hind toe moderate; outer and middle toe connected by a web; web between inner and middle toe obsolete.

Male promiscuously polygynous (?) and considerably larger than female. In breeding season he assumes a ruff of long feathers extending from nape down each side of neck and showing extraordinary variation in colour, transforming his appearance completely.

The genus contains a single Palaearctic species.

426. Ruff. *Philomachus pugnax* (Linnaeus)

Tringa Pugnax Linnaeus, 1758, Syst. Nat., ed. 10, 1: 148

(in Europa minus boreali = Southern Sweden)

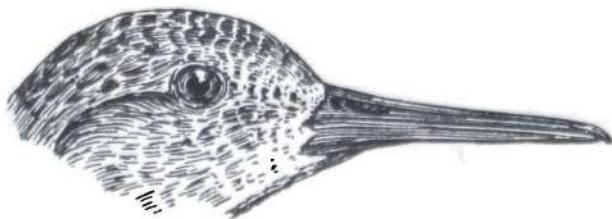
Baker, FBI No. 2152, Vol. 6: 228

Plate 31, fig. 3, facing p. 304

LOCAL NAMES. *Gehwala*, *Bägbäd* (Hindi); *Geowala* (Bengal).

SIZE. ♂ (Ruff) c. Grey Partridge, ♀ (Reeve) Grey Quail +; length ♂ c. 31 cm. (12 in.), ♀ c. 25 cm. (10 in.).

FIELD CHARACTERS. In winter plumage a rather dumpy greyish brown wader with bold blackish scaly-patterned upperparts and relatively short sandpiper-like bill. Red-legged birds on the ground liable to be



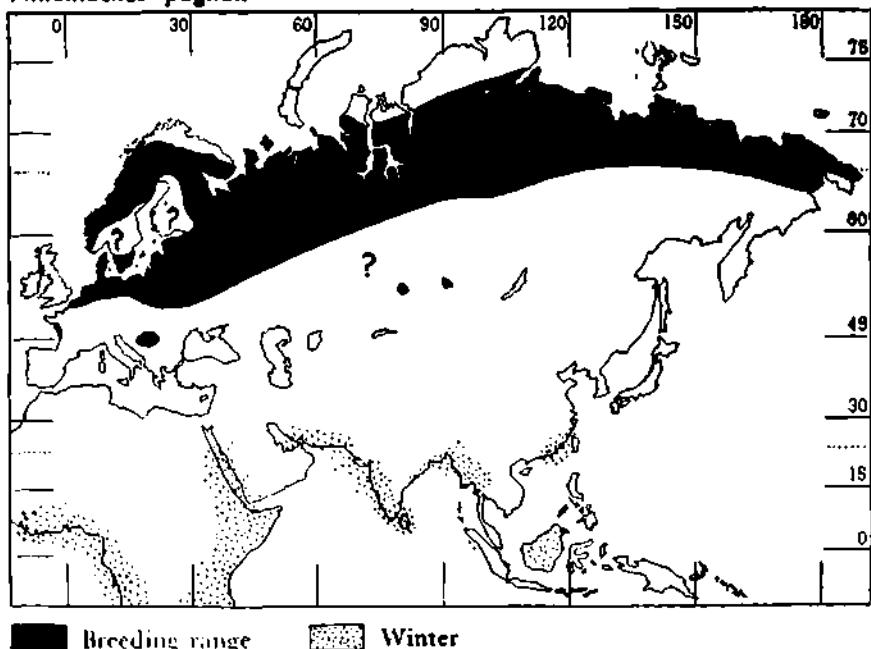
Winter, × c. 1

confused with Redshanks in distance. In flight a narrow white wing-bar, the dark rump and tail with a white patch on either side at its base, are suggestive pointers.

In summer plumage, Ruff (σ) extremely variable with much black, white, purple, chestnut, and buff in plumage, and with a peculiar erectile shield-like ruff and ear-tufts of stiff, curled feathers. Face bare, covered with small fleshy papillae of bright yellow or pale pink. Remnants of breeding plumage occasionally seen on arrival in India. Reeve (φ) as in winter, but blacker above, and sometimes with black linear spots or broken bars on pale fulvous breast — reminiscent of pattern in bustard-quail.

STATUS, DISTRIBUTION and HABITAT. Winter visitor to both Pakistan and all India including Kashmir, Nepal, Assam and Manipur. Also Ceylon and Maldives Is. In some areas (e.g. Nepal) merely an autumn and/or spring passage migrant, in others (e.g. Sind) partly winter visitor and partly passage migrant. Curiously not recorded from the Andaman and Nicobar Is.

Philomachus pugnax



Affects tidal mudflats and estuaries, and inundation marshes, and squelchy or wet paddy stubbles and fallows inland.

Extralimital. 'Breeds in N. Europe and Asia from Nordkapp east across the tundra to the Kolyma (including Kolguev and Vaigach Is.) south to eastern England (formerly), Belgium, Bavaria, Hungary, steppes of S. Russia and W. Siberia (north of lat. 50°N.), Minussinsk, and the upper Amur. Winters in Africa south to Cape Province, India, Assam, and Burma, rarely to China' (Peters). Has occurred casually on the eastern Atlantic islands, N. America, and the Lesser Antilles. For greater details of distribution see Vanrie, 1965, 2: 405-6.

MIGRATION. Arrives in West Pakistan (Sind) and NW. India (Kutch, Saurashtra, Rajasthan) in first week August (some as early as the last days of July), but autumn passage in bulk most general in September. Return migration commences in the last days of February and early March, the males going in advance of the females. By mid April the majority have departed, but odd birds linger on till May. Recoveries of ruffs ringed in the Bharatpur area of Rajasthan (*c.* 27°N., 77°E.) soon after the mass arrivals in autumn (September/October) indicate an interesting trend of dispersal in the succeeding winter months. The movement hence is evidently in an ESE. direction, through Uttar Pradesh, Bihar and W. Bengal to East Pakistan, our farthest recovery in that direction being from Jessor district (*c.* 23°N., 89°30'E.) — about 1250 km. distant from the place of ringing. All recoveries in spring (March/April) have been in a NW. to N. direction in West Pakistan and beyond, the extralimital ones being in the territories of the U.S.S.R. between *c.* 60° and 90° E. long. Our northernmost record so far is from the neighbourhood of Norilsk (*c.* 69°20'N., 88°13'E.) in the Krasnoyarsk region of W. Siberia — a straight-line map distance of some 5000 km. This bird was recovered on 8 June when presumably on its breeding grounds.*

GENERAL HABITS. Gregarious; often in company with other waders in parties of 5 to 8 or flocks up to 25 individuals or so. Enormous concentrations of many thousands commonly collect in favourite feeding localities (e.g. the inundated fallows in Bharatpur, Rajasthan) on their first arrival in NW. India and before dispersing in smaller bands over the country. The expansive mudflats at the mouth of the Banas river in the Little Rann of Kutch is the scene of similar colossal aggregations prior to the northward migration in March. The tens of thousands of Ruff that gather here, along with densely crowded 'acres' of other waders, present a spectacle that is truly phenomenal. Jostling flocks feed energetically in wet grass fields or inundated stubbles, picking up grass and weed seeds from the dry surface or probing for food in the squelchy mud with the bill thrust in up to the forehead and chin, sometimes with the head completely submerged. The birds 'hedge-hop' from field to field in close-packed rabbles; when pitching, the body axis is tilted to the vertical and the wings flapped rapidly in a vibratory action to check momentum. Largely a nocturnal feeder, flocks flighting regularly to their feeding grounds around sunset. Flight strong and swift, with regular rapid wing-beats.

FOOD. Molluscs, crustaceans, insects, worms, and large quantities — sometimes almost exclusively — of vegetable matter: grass- and weed seeds, berries, wild and cultivated rice, etc.

VOICE and CALLS. Very silent. A low *chuck-chuck* or plaintive *tu-whit* occasionally emitted on flushing.

BREEDING. Extralimital. Ruff renowned for its fantastic sparring tournaments or courtship displays. A number of males in variegated ornamental plumages assemble at selected dry spots in marshes known as 'leks' or 'hills', each occupying an adjacent 'territory' of half a square metre or so. The neighbours posture threateningly with ruff and ear-tufts erected, legs flexed, head lowered and bill pointing to the ground, and lunge and tilt and leap up and down in the air and at one another. Physiologically mature

reeves visit the 'hills' from time to time and apparently mate promiscuously with the ruff of their choice. He takes no part in the nesting chores.

MUSEUM DIAGNOSIS. See under Genus. For details of plumage phases etc. see Witherby, 1940, 4: 284-6.

Moult. In keeping with its other unusual features, the moult pattern is also unique. Between two breeding cycles the male renews his body feathers not twice, as is normal with limicolines, but three times — twice on its breeding grounds and once in the winter quarters. He emigrates in this second non-breeding plumage (prenuptial) to his breeding grounds, moulting quickly into the ornamental nuptial dress after arrival there. This nuptial dress is worn for about two months only.

(For details of moults see Kozlowska, E., 1956, *Zool. Jour.* 35: 1908-10 — Russian, and Stresemann, E. & V., 1965, *L'Oiseau*, 35 (Special No.): 125-9 — German.)

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	173-190	30-36	46-50	78-89 mm.
♀ ♀	150-166	29-31	41-44	64-70 mm. (Baker)
	(from feathers)			
	Wing			Weight
				(early autumn)
50 ♂ ♂	181-194 mm. (av. 136.9)			127-179 gm. (av. 150.9)
50 ♀ ♀	149-163 mm. (av. 156.1)			81-118 gm. (av. 93.25)
No overlap in the sexes.				(SA)

COLOURS OF BARE PARTS. Winter. Iris brown. Bill dark brown; particoloured in some individuals — orange or salmon near base. Legs exceedingly variable: olive, pinkish olive, yellowish olive, orange-olive, greyish olive, olive-plumbeous, greenish orange, bright orange, dull salmon-pink, or salmon.

Adults of both sexes *mostly* (but not invariably) have orange legs in autumn (September/October), but leg coloration by itself is no criterion of age. Moult of the primaries at that period, however, is an infallible indication of adulthood. Young birds (i.e. those hatched in the same year) never have orange legs in September/October and they arrive in their Indian winter quarters with freshly moulted wing-quills — in reality carrying their first generation of flight feathers which still look fresh at the time.

MISCELLANEOUS. Ranked as a semi-sporting bird and excellent for the table. Longevity: longest period between ringing and recovery of an individual in India 8 years 9½ months.

Subfamily PHALAROPINAE: Phalaropes Genus PHALAROPUS Brisson

Phalaropus Brisson, 1760, Orn. 1: 50; 6: 12. Type, by tautonymy,

Phalaropus Brisson = *Tringa fulicaria* Linnæus

Lobipes Cuvier, 1817 (1816), Règne Anim. 1: 495. Type, by original designation
Tringa hyperborea Linnæus = *Tringa lobata* Linnæus

Anterior toes bordered throughout by a web divided into lobes very much as in coots and grebes. Similar to *Calidris* in other respects except that the female is much bigger and more brightly coloured than the male and is the dominant sex partner as in Jaçanas and Painted Snipe. Wings long and pointed: first primary (as.) longest. Tail of moderate length and nearly square. Tarsus scutellated all

round; a hind toe present. Bill slender, short and straight. Nostrils placed in a well-defined groove near base of bill.

Genus Holarctic with two species recorded in our area in winter.

Key to the Species

Bill flat; broader than tarsus and broader than high.....*P. fulicarius*

Bill slender and subcylindrical; anteriorly narrower than the tarsus.....*P. lobatus*

427. Grey Phalarope. *Phalaropus fulicarius* (Linnaeus)

Tringa Fulicaria Linnaeus, 1758, Syst. Nat., ed. 10, 1: 148

(in America = Hudson Bay)

Phalaropus fulicarius jourdaini Iredale, 1921, Bull. Brit. Orn. Cl. 42: 8

(Liefde Bay, Spitzbergen)

Baker, FBI No. 2165, Vol. 6: 248

Plate 31, fig. 5, facing p. 304

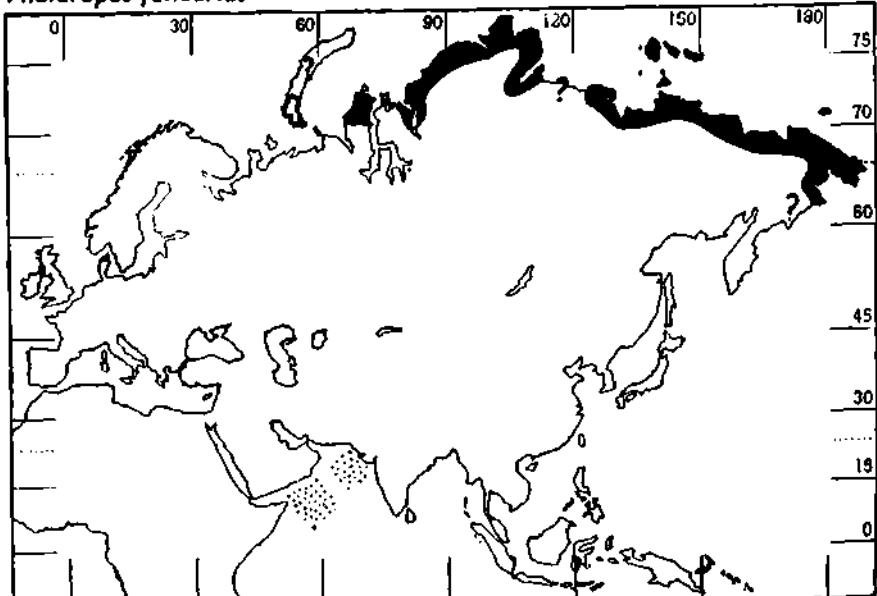
LOCAL NAMES. None recorded.

SIZE. Grey Quail ±; length ♀ c. 20 cm. (8 in.), ♂ smaller.

FIELD CHARACTERS. Winter. A dainty sandpiper-like bird habitually seen swimming buoyantly on water, fresh as well as salt, often far out at sea. The unstriped grey and white plumage with a prominent dark patch from in front of eye to ear-coverts, thicker chiefly yellow bill, and yellow legs, help to distinguish it from Rednecked Phalarope (428) in winter. Sexes alike in winter plumage. ■

Summer plumage (unlikely to be seen in India): above, dark brown streaked or scalloped with chestnut-buff. Sides of face white. Below, chestnut.

Phalaropus fulicarius



■ Palaearctic breeding range

■ Winter

Male less brightly coloured than female with crown streaked like back (*contra* black in ♀), and with much white on throat and breast.

STATUS, DISTRIBUTION and HABITAT. Accidental waif. Since the single specimen obtained by Blyth in the Calcutta market on 11.v.1846, there is no other record within our limits.

Extralimital. 'Breeds locally on the arctic coasts and islands of the Holarctic region. . . Winters at sea off the west coast of Africa and coast of Chile' (Peters). For details of range see Vaurie, 1965, 2: 441-2.

HABITS, FOOD, etc. as in 428.

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. Short, broad, flattened bill distinguishes it from Rednecked Phalarope (428). For description of plumage phases etc. see Witherby, 1940, 4: 216-18.

428. Rednecked Phalarope. *Phalaropus lobatus* (Linnaeus)

Tringa tobata [sic] Linnaeus, 1758, Syst. Nat., ed. 10, 1: 148

(in America septentrionali = Hudson Bay)

Baker, FBI No. 2166, Vol. 6: 249

Plate 31, fig. 4, facing p. 304

LOCAL NAMES. None recorded.

SIZE. Grey Quail ± ; length ♀ c. 19 cm. (7½ in.), ♂ smaller.

FIELD CHARACTERS. Like 427 a delicate sandpiper-like bird habitually seen swimming about buoyantly on ponds, lagoons, and the open sea. In winter chiefly grey above, white below, with a blackish eye-patch —

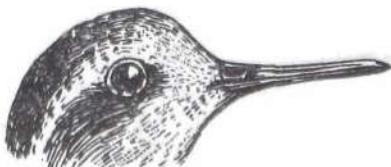
rather reminiscent of Sanderling. Doubtfully separable from 427 except by those familiar with both species. May be distinguished from it by slightly smaller size, darker grey more streaked upperparts, more prominent white wing-bar in flight, and — on a good view through glasses — by the finer black bill, and blackish (not yellowish)

legs. Sexes alike in coloration; male smaller.

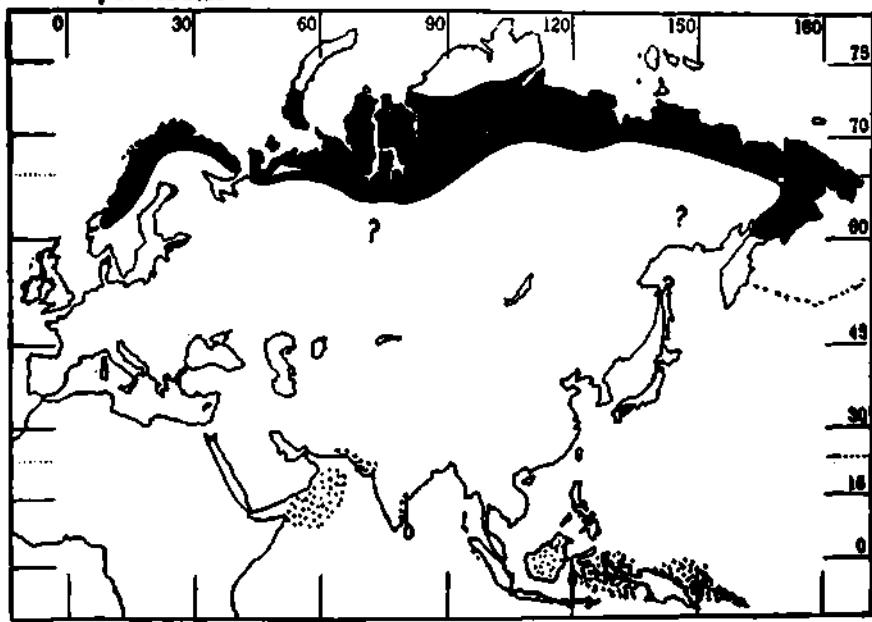
In contrast with stints and other small waders with which it feeds and flies, its characteristic habit of alighting on water (fresh and salt) and swimming on the surface instead of landing on squelchy mud and running about or wading is quite diagnostic.

In summer plumage (not normally seen in India) upperparts blackish grey with sides of neck and foreneck rich rufous. Male duller, and with the rufous broken across foreneck by a dark slaty area.

STATUS, DISTRIBUTION and HABITAT. Winter visitor. Common offshore along the coastline of W. Pakistan (Makran, Sind), less so in NW. India (Kutch, Saurashtra), and in small numbers and patchily (regular or sporadic?) more or less off the entire coastline of peninsular India to East Pakistan. Ceylon (sporadic). Recorded from a few inland localities on spring and/or autumn passage: thus from Chitral (Drosh), Baluchistan (Quetta, Fort



x c. 1

Phalaropus lobatus

■ Palearctic breeding range

■ Winter

Munro), Sind, Delhi, Rajasthan (Bharatpur), Bihar (Patna), Karnataka (Bangalore) and Kutch (near Bhuj). Most abundant though rather patchy off the Sind and Makran coasts, sometimes within a few miles of land but more often well out to sea at 10 to 40 or more miles from the coastline. Affects shallow water in the Arabian Sea, the 200-fathom line apparently being its limit (Ticehurst). Frequents shallow jheels and ponds inland.

Extralimital. Breeds in Iceland, Spitzbergen, Faroes, Scandinavia, N. Russia and across northern Asia; also in extreme N. America (Alaska etc.). Winters at sea in the northwestern Indian Ocean, off the coasts of Peru and West Africa, between New Guinea and the Bismarck Archipelago, and in the Banda Sea. For greater details of range see Vaurie, 1965, 2: 442-3.

MIGRATION. No ringing data. Observed on passage in Makran and Sind, chiefly autumn : earliest September 2, latest May 20 (Ticehurst); Chitral September 14 (Fulton); Fort Munro, Sulaiman Hills, Baluchistan, September 25 (Waite). Latest inland dates late May in two successive years, 1948 and 1949, Kutch (Himmatsinhji), and June 1 Delhi (H. G. Alexander), all in partial summer plumage.

GENERAL HABITS. Ticehurst (*Ibis* 1924: 126) has given an excellent account of its habits in winter. Chiefly pelagic. Keeps in flocks of 20 to a hundred or more offshore. Extremely wild and unapproachable at sea, rising and scudding over the surface to re-settle at some distance even while the observer's boat is 200 yards away. In contrast, absurdly tame on inland waters (as also on its breeding grounds), parties feeding unconcernedly within a few metres of an observer. The birds keep to pools and shallow jheels, swimming about buoyantly like corks, spinning round and round to pick up food particles from the surface, making swift little darts here and

there, head bobbing like a moorhen, or threading their way in single file through the more thinly scattered rushes. Flight swift and agile, in close-knit flocks, very like stints.

FOOD. Chiefly plankton, insects and larvae. Also small crustaceans, molluscs and worms.

VOICE AND CALLS. Not recorded in winter.

BREEDING. Extralimital. Courtship by female; incubation and raising family entirely by male.

MUSEUM DIAGNOSIS. See Key; for description of plumage Baker, loc. cit.; for details of plumage phases and morphology (also bionomics), Witherby, 1940, 4: 218-22.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♂	106-110	20-24	19-21	43-47 mm.
♀ ♀	112-118	20-25	—	—
(from feathers)				(Witherby)

Weight 20 ♂ ♀ (autumn/winter) 20-38 (av. 27.6) gm. — BNHS.

COLOURS OF BARE PARTS. Iris dark brown. Bill dark horny brown, orange at base. Legs and feet dull brown or fleshy brown.

Tibia pale orange; tarsus and feet black except lobes of web between inner and middle toe which are bright orange (D'Abreu).

Family ROSTRATULIDAE: Painted Snipe

Genus ROSTRATULA Vieillot

Rostratula Vieillot, 1816, Analyse: 56. Type, by monotypy, *Bécassine de Madagascar*, Buffon = *Rallus benghalensis* Linnaeus

Bill slender and long but shorter than in most species of true snipe of the genus *Capella* (p. 278), and not pitted at the end; tip slightly swollen and bent down; both mandibles grooved at the base. Nostrils at base of upper mandible. Tarsi strong, of moderate length. Tibia partly naked; toes long. Wings short, broad, rather lax: 1st and 2nd primaries (as.) longest and subequal. Tail of 14 feathers. Female larger and brighter coloured than male.

Represented by one resident species in our area.

429. Painted Snipe. *Rostratula benghalensis* (Linnaeus)

Rallus benghalensis Linnaeus, 1758, Syst. Nat., ed. 10, 1: 153 (Asia)

Baker, FBI No. 2033, Vol. 6: 45

Plate 24, fig. 3, facing p. 120

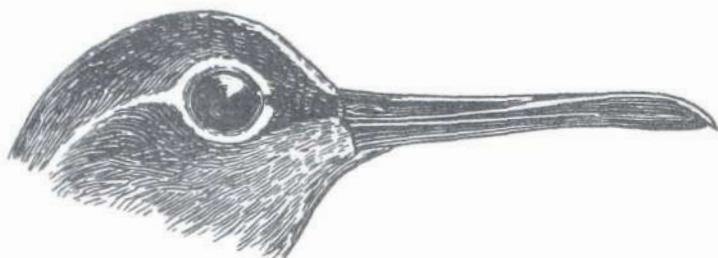
LOCAL NAMES. *Rājchākā* (Hindi); *Ohāri* (Nepal, Bihar); *Baggarji* (Bengal); *Pān lawā* (Gujarat, Maharashtra); *Myle ulān* (Tamil, Madras); *Ullān kūruvi* (Tamil, Ceylon); *Kālikāta* (Malayalam); *Rāja wātuwā*, *Ulu kēswatuwā* (Sinhala); *Kāngdrük* (Manipur); *Daodidap gajao* (Cachar, Assam).

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

FIELD CHARACTERS. A typical skulking rail with long, slender, straight snipe-like bill, slightly downcurved at tip.

Female. *Above*, chiefly metallic olive- or bronze-green with buff and blackish streaks and markings. Whitish 'spectacles' with a white patch

behind eye, and white bands over shoulders to sides of breast (reminiscent of the straps of a rucksack) distinctive. *Below*, chin, throat, and upper breast chestnut; lower breast blackish. Rest of underparts white. Easily differentiated from male in flight. Outside breeding period the sexes more or less alike and difficult to distinguish.



♀, $\times c. 1$

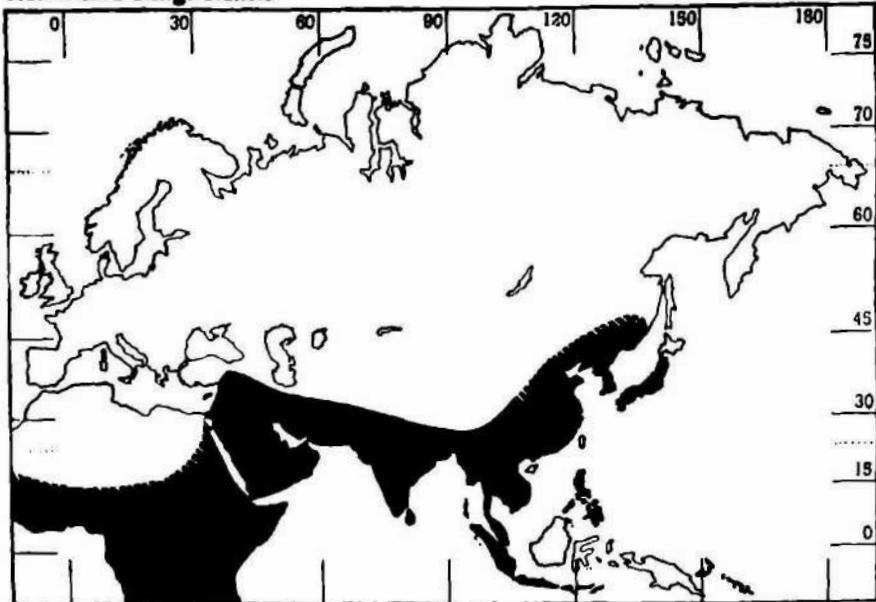
Male less showy than female and lacking the chestnut and black on neck and breast.

Young (immature) ♂ ♀. Very similar to adult male but with throat entirely white; lower throat and foreneck washed with brown, with some dusky streaks (Sharpe).

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident throughout the Indian Union and both Pakistans; locally to c. 1800 m. in the Himalayas. Also Ceylon in all zones and up to c. 1300 m. in the hills of Uva Province. Not observed in Nepal and in Andaman and Nicobar Is. Affects marshes inter-

Rostretula benghalensis



■ Distributional range

spersed with deepish pools and soft muddy patches, and rather thick scrubby vegetation, in preference to squelchy paddyfields.

Extralimital. 'Africa south of the Sahara to Cape Province; Egypt; Madagascar; S. Asia from Asia Minor through Persia to S. and E. China, and Japan, south to Arabia, Sind, all India [including Burma], Ceylon, Malay Peninsula, and Cambodia; Philippines, Borneo, Sumatra, and Java' (Peters).

MIGRATION. Apart from local movements dependent on drought and flood conditions, some translimital migration would seem to be indicated by the puzzling, oft-quoted statement of Wollaston (*if correct*) that Painted Snipe¹ were among the Temminck's Stints, Pintail Snipe, and several other species of migrating birds seen at 17,000 ft. (*c.* 5200 m.) in September by the first Mount Everest expedition (*Ibis* 1922: 497; and Younghusband, Sir F., 1926, *The Epic of Mount Everest*: 154). No other evidence.

GENERAL HABITS. Largely crepuscular; much more active in the early mornings and evenings, and during night, than in daytime. Keeps singly or in small wisps and is reluctant to leave cover unless pressed. Flight slow and rail-like — legs dangling below for some distance then tucked under tail and trailing behind — the bird soon pitching into the reeds again. Strong and swift on its legs and usually runs a good distance through the undergrowth upon alighting, soon working its way back to where originally disturbed. Wounded birds swim effectively to evade capture, and also to cross narrow deep channels in the course of their feeding. Feeds by probing into squelchy mud as well as by a side-to-side scything movement of the bill in shallow water — reminiscent of the Spoonbill. Wags hindpart of body like sandpiper when feeding, which it sometimes does in exposed puddles far from cover.

FOOD. Molluscs, crustaceans, insects, worms, and vegetable matter — weed-seeds, paddy grains, etc.

VOICE AND CALLS. Female (ready-to-breed?) utters a rather metallic long-drawn *ook*, like the sound of blowing into a large-mouthed bottle. The calls begin around sunset and continue intermittently through the night, especially if moonlit; sometimes also in daytime in cloudy overcast weather. Repeated at the rate of 1 per second (or 3 in 2 seconds) in runs of 20 to 80 or so, with a break of a few minutes between each run. Single calls (not runs) also uttered by female in a 'roding' type of flight (*cf. Woodcock*) 3 or 4 metres above the marsh. Male has a squeaky note, but whether this given in response to female's calls, or how occasioned, not known.

BREEDING. Female polyandrous and pugnacious as in Bustard-Quail (318, q.v.), and the dominant sex partner. She battles with rival females for the possession of successive husbands, and once secured and eggs laid leaves to him the onus of incubating them and raising the chicks. Meanwhile she sets out to make fresh conquests. No precise data available, but female believed to lay several clutches successively.

Season, practically throughout the year, varying locally; chiefly July to September in India; November to April in Ceylon. **Nest,** a pad of grass or

¹ F. Ludlow suggests, with good reason, that this (or these) may possibly have been Wood Snipe (*Capella nemoricola*) and not Painted Snipe, since the flight of the two species is very similar.

rushes (built by male) with a slight depression in the centre. Placed on the ground in a grass tussock on the edge of a marsh, or on banks separating inundated paddyfields. Eggs, normally 4 — sometimes 3 — yellowish in ground colour, boldly and heavily blotched with blackish brown. Average size of 100 eggs 35.9×25.5 mm. (Baker). Incubation period unknown.

MUSEUM DIAGNOSIS. See under Genus (above); for description of plumage, Baker, loc. cit.

Chick (in down). 'Dull grey or buff-grey, with broad coronal and eye-streaks of rich brown; centre of back rich rufous with broad bands of black on either side and lateral bands of purplish brown from the wings to the thighs' (Baker).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	115-136 (mostly over 124)	41-47	40-45	36-45 mm.
♀ ♀	130-146	45-50	—	— (Baker)

Weight 23 ♂ ♀ (autumn) 106-151 gm. (aver. 125.9) — SA.

COLOURS OF BARE PARTS. Iris olive-brown to dark brown. Bill pale to darkish fleshy brown or horny brown, greenish at base; more fleshy pink in breeding ♀. Legs and feet yellowish to olive-green, sometimes tinged with brown or plumbeous.

Family RECURVIROSTRIDAE: Stilts, Avocets, Ibisbills

Key to the Genera		Page
A	Bill straight	<i>Himantopus</i> 328
B	Bill curved upward	<i>Recurvirostra</i> 332
C	Bill curved downward	<i>Ibidorhyncha</i> 334

Genus HIMANTOPUS Brisson

Himantopus Brisson, 1760, Orn. 1: 46; 5: 33. Type, by tautonymy,
Himantopus Brisson = *Charadrius himantopus* Linnaeus

Characterized by the enormous length of the legs. Both tibia and tarsus very long, the former bare for over three-quarters of its length; tarsus reticulated throughout. No hind toe; outer toe joined to middle toe by a broad web, middle toe to inner by a narrower one. Bill long, straight, and slender, the dertrum not swollen. Nostrils: long slits placed in the base of a groove running about half the length of upper mandible. Wing long and pointed: first primary (as.) longest. Tail short and even.

The genus ranges over the temperate and tropical areas of the Old and New worlds; represented within our limits by one species.

HIMANTOPUS HIMANTOPUS (Linnaeus)

Key to the Subspecies

Crown and nape black (ad. ♂♂, summer) or black variously mixed with white, or black concealed or subdued (ad. ♂♂ winter, and ad. ♀ ♀ summer and winter). Upperparts blackish, glossed metallic green (♂♂ summer and winter) or upperparts hair brown (♀ ♀ summer and winter). Breast suffused with mouse grey (juvenals) *H. h. himantopus*
Crown and nape whitish or merely sullied by dark bases of feathers showing through (♂♂ and ♀ ♀, summer)¹ *H. h. ceylonensis*

¹ Winter plumage not examined by us but presumably similar.

430. Indian Blackwinged Stilt. *Himantopus himantopus himantopus*
(Linnaeus)

Charadrius Himantopus Linnaeus, 1758, Syst. Nat., ed. 10, I: 151 (Southern Europe)

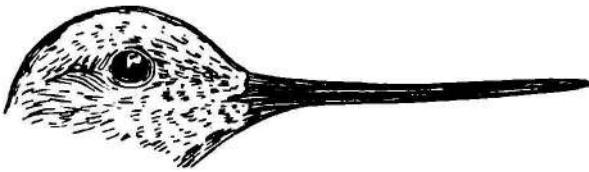
Baker, FBI No. 2130, Vol. 6: 193

Plate 29, fig. 6, facing p. 256

LOCAL NAMES. *Gāz pāon*, *Tinghūr* (Hindi); *Sārgāin* or *Sārgyne* (Bihari mirshikars); *Lāl gon*, *Lāl thengi*, *Lām gōra* (Bengal); *Gusling* (Sind); *Pāvillē kāl ullān* (Tamil).

SIZE. Grey Partridge ±, with bare slender legs c. 25 cm. (10 in.) long.

FIELD CHARACTERS. A lanky pied black and white marsh bird with straight slender black bill, pointed black wings, and enormously long, thin reddish legs which trail behind comically in flight, making its identity unmistakable even in the distance.



× c. ½

Male (adult). Mantle and wings glossy metallic black; rest of plumage above and below largely glistening white. A few black spots on head, and pale grey-brown in tail. Undersurface of wings black.

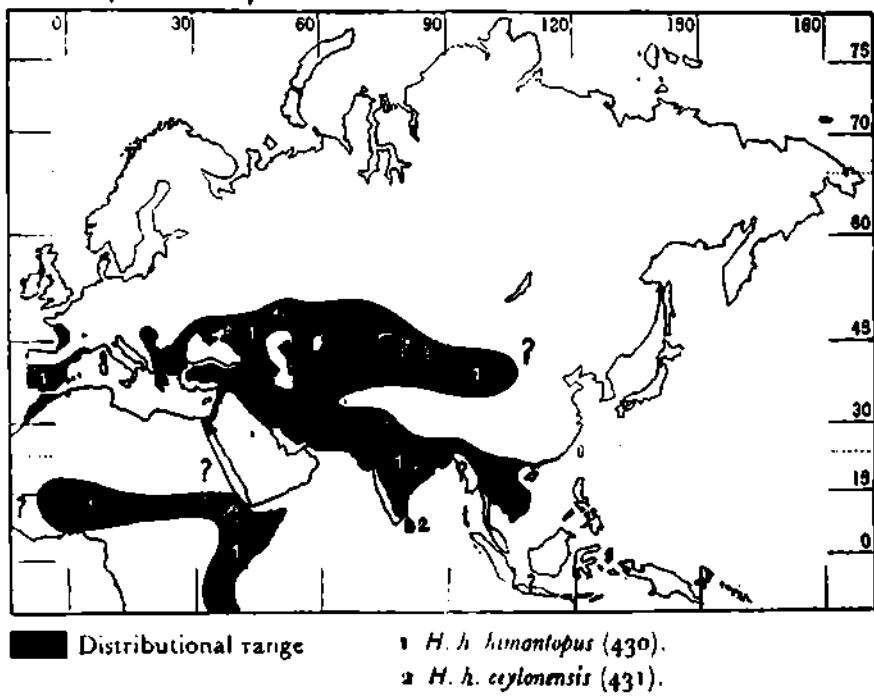
Female (adult) has black portions of male replaced by brown, and the white head and hindneck sullied with brownish grey. Summer and winter plumages differ in details.

For downy chick see *Museum Diagnosis*.

STATUS, DISTRIBUTION and HABITAT. Resident — breeding in suitable localities, migrating locally under stress of water conditions — throughout the Indian Union, both Pakistans and Nepal. Normally to c. 1500 m. in Kashmir Valley (uncommon); one at c. 3600 m. (Vishan Sar, July — on migration?). Not in Andamans or Nicobars. Observed once in the Maldives where race and status unknown but presumed a vagrant (Phillips). Ceylon has an endemic race (431). Affects marshes both freshwater and tidal, jheels, village tanks, irrigation reservoirs, lagoons, salt-pans, etc. Sometimes inundated ploughed fields, but hardly ever the seashore.

Extralimital. 'Breeds locally in the Mediterranean region; about the mouth on the Danube; steppes of S. Russia; S. Asia east to China and S. Arabia, India, Ceylon [now race *ceylonensis*], and the Malay States; Egypt; Africa south of the Sahara; Madagascar. Migratory only in the northern part of its range' (Peters).

MIGRATION. Birds ringed in Bharatpur in autumn and winter recovered in NW. Pakistan and N. Afghanistan in spring (late April) clearly indicate extralimital seasonal movement. Recorded by Ticehurst as mainly winter visitor (locally abundant) in Sind, appearing in the Karachi neighbourhood early in August, its numbers increasing during the month but soon dwindling again.

Himantopus himantopus

GENERAL HABITS. Gregarious — usually by itself, occasionally with Godwits and other waders — in small parties or fair-sized flocks and larger congregations of a hundred or more. Often wades into deepish water almost to the belly, walking with an awkward high-stepping gait lifting each foot clear of the surface behind and putting it forward with deliberation. The long stilt-like legs enable it to tap food supplies normally out of reach of most other waders. While feeding, head often completely submerged. Flight feeble and flapping, the black undersides of the pointed wings and the absurdly long trailing legs giving it a singular silhouette.

FOOD. Molluscs, worms, aquatic insects, and small seeds of sedges and marsh plants.

VOICE AND CALLS. A shrill piping *kip, kip*, usually in flight. When agitated, a squeaky *chek-chek-chek-chek* etc. reminiscent of a Moorhen, with the timbre of the Redwattled Lapwing's calls. This uttered noisily while wheeling and demonstrating above the intruder.

BREEDING. Season, principally between April and August. Nest, a hollow depression in the ground on the dry margin of a jheel or on an islet, or a raised platform of *kankdr* (pebbles) in a shallow salt-pan — lined with vegetable scum off the water, grass, or similar material. Sometimes nests in colonies maybe of several score pairs. Eggs, normally 4, sometimes 3, exceptionally 5, light drab in colour densely blotched with black. In size, the longish peg-top shape and general appearance, they are replicas of Redwattled Lapwing's (366). Average size of 100 Indian eggs 44×31 mm. (Baker). Both sexes incubate; incubation period undetermined, believed to be 25–26 days. When nests approached the birds protest loudly,

flapping their wings and jumping about in a frenzied manner. Incubating birds not shy, permitting close approach before leaving nest, and thereupon demonstrating noisily about the intruder, flying high in the air and hovering with loud incessant calls.

MUSEUM DIAGNOSIS. For description of the various plumage phases, structure, etc. see Witherby, 1940, 4: 406-8.

Chick (in down). 'Head and upperparts mottled pale buff and black; black spinal line; black line from base of bill to eye, and on ulna. Round eye and whole of underparts pale buff' (Ticehurst).

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	240-253	60-69	c. 115-145	80-90 mm.
♀♀	222-240	54-69 (from feathers)	—	— (Baker, Witherby)

13 ♂ ♀ Wing 202-249 (aver. 231.7); weight (autumn) 163-208 gm. (aver. 196.2)
— SA.

Weight 20 ♂ ♀ (autumn/winter, ad. & imm.) 112-223 (av. 177.1) gm. — BNHS.

COLOURS OF BARE PARTS. Iris bright red. Bill black. Legs and feet crimson; claws black.

431. Ceylon Blackwinged Stilt. *Himantopus himantopus ceylonensis* Whistler

Himantopus himantopus ceylonensis Whistler, 1944, Spolia Zeylanica 23(3, 4): 277
(Kalawewa, Ceylon)
Not in Baker, FBI

LOCAL NAMES. *Kalapu-kiralā* (Sinhala); *Pavala kali* (Tamil).

SIZE. As 430.

FIELD CHARACTERS. As of 430, q.v.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to Ceylon. Plentiful round large tanks and lagoons throughout the low-country Dry zone (Phillips).

GENERAL HABITS. Not different from the Indian race. (Cf. also Henry, G. M., 1955, *A Guide to the Birds of Ceylon*: 292-3.)

BREEDING. Season, May, June, and July; occasional nests in April and August (Phillips). Nest and eggs similar to 430.

MUSEUM DIAGNOSIS. No distinct breeding plumage as in male of the nominate form. Brown back of female darker than in Indian birds. 'The males differ from the typical form which has the crown and nape black in breeding plumage in having those parts white merely sullied by the dark bases of the feathers showing through. The females have the brown back darker than in European birds' [nominate] (Whistler, H., loc. cit.).

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
4 ♂♂	233-249	62-74	110-124	73-85 mm.
3 ♀ ♀	230-234	64.5-70	107-120	73-80.5 mm. (Whistler)

COLOURS OF BARE PARTS. As in 430.

Genus RECURVIROSTRA Linnaeus

Recurvirostra Linnaeus, 1758, Syst. Nat., ed. 10, 1: 151. Type, by monotypy,
Recurvirostra avosetta Linnaeus

Bill very long, slender, flexible, tapering and curved upwards towards the end; both mandibles flattened or depressed. Nostrils slit-like, placed near base of upper mandible in an ill-defined groove extending for less than half length of bill. Wings long and pointed: 1st primary (as.) longest. Tarsus and bare tibia long; tarsus reticulated. Hind toe small, furnished with a claw; anterior toes deeply webbed, but webs notched in the middle.

Represented by one species in our area.

432. Avocet. *Recurvirostra avosetta* Linnaeus

Recurvirostra Avosetta Linnaeus, 1758, Syst. Nat., ed. 10, 1: 151

(in Europa australiore = Italy)

Baker, FBI No. 2131, Vol. 6: 195

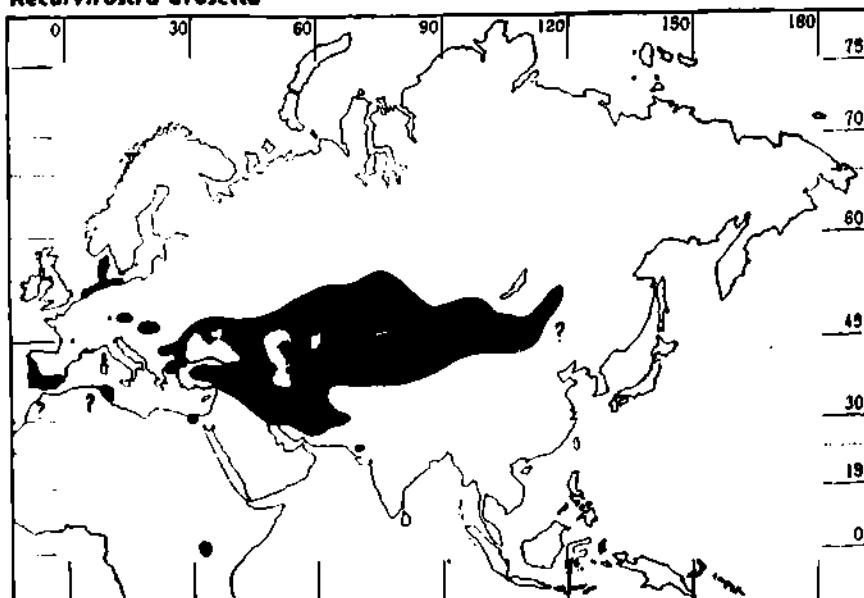
Plate 31, fig. 6, facing p. 304

LOCAL NAME. *Kūsyā chāhā* (Hindi); *Kuni ārichichān* (Tamil).

SIZE. Grey Partridge +; more leggy. Length c. 46 cm. (18 in.).

FIELD CHARACTERS. An elegant black-and-snowy white (pied) marsh bird unmistakable with any other by its unique slender black upcurved bill and longish bare blue legs. Sexes alike.

STATUS, DISTRIBUTION AND HABITAT. Breeding regularly or sporadically (?) in N. Baluchistan and Kutch. Mainly winter visitor: fairly common in West Pakistan (Baluchistan, Sind) and NW. India (Banaskantha, Kutch,

Recurvirostra avosetta

■ Breeding range

Saurashtra). Less common, sporadic and/or occasional, in Nepal and Kashmir and over the rest of the Indian Union including coastal Maharashtra, Punjab, Delhi, U.P., Bihar, Orissa, Assam and Manipur. Recorded on Rameswaram I. and at Point Calimere (Madras State); not in Kerala, Andaman and Nicobar Is. or the Maldives. Rare straggler to Ceylon, observed in February and July. Affects jheels and swamps, lagoon shores, tidal creeks and mudflats, and the sea coast.

Extralimital. 'Breeds locally from Holland eastward through the region of the Black and Caspian Seas, Kirghiz Steppes, the upper Yenisey and Transbaikalia, south to the Mediterranean countries, Persia, Turkestan and N. China; breeds also in various parts of tropical and southern Africa, possibly in Madagascar. Migrates from the northern part of its breeding range to Africa, India, and S. China' (Peters).

MIGRATION. No ringing data. Earliest date at Karachi 28 August; latest 24 May (Ticehurst). Owing to its dual status, observations on movements ambiguous.

GENERAL HABITS. Keeps in pairs and small parties — sometimes flocks of a hundred or more. The birds run about and feed on squelchy mudflats or by wading in shallow water. The curious upturned bill is directed obliquely against the ground — like a hockey stick held in play — the curved part skimming the surface. It is then moved back and forth in a rotatory sweeping motion churning up the bottom mud along with minute organisms which are collected in the mandibles. Sometimes feeds in deeper water, its webbed feet being well adapted for swimming, and frequently up-ends like a duck to reach the bottom.

FOOD. Tiny molluscs, crustaceans and insects.

VOICE and CALLS. A clear loud, rather high-pitched *kloot* uttered several times in succession, usually on the wing. When agitated by proximity of observer to nest, a continuous screaming *kleet-kleet-kleet* (at the rate of c. 3 per second), of the timbre of Stone Curlew's (*Burhinus*) calls, while wheeling overhead.

BREEDING. Nesting within Indian limits, in the Great Rann of Kutch — discovered for the first time in April 1945 (Sálim Ali, JBNHS 45: 420-1). The colony consisted of over a thousand birds. More than 150 nests counted within an area of c. 2 hectares, and numerous others scattered far and wide. On April 21 most nests contained full clutches, some incomplete. Only two downy chicks observed and perhaps several overlooked, but general hatching had not yet commenced. Owing to remoteness of the area and difficulty of access, it remains undetermined whether the breeding in the Rann is regular or sporadic. *Nest*, in some cases a bed of *kánkár* (mud-pellets), but mostly a mere shallow scrape or unevenness in the hard sun-baked ground. *Eggs*, 4, some shade of olive-brown, boldly blotched with blackish; in shape and coloration very close to eggs of both Redwattled Lapwing and Stilt. Average size of 16 Kutch eggs $49\cdot25 \times 35\cdot0$ mm. (SA). Incubation by both sexes; period recorded elsewhere as 22-24 days. On an observer's approach the birds left their nests and started running about here and there, crouching low, raising their wings vertically back to back, and giving the 'broken-wing' diversionary display. Over 30 birds occasionally thus engaged at the same time.

Nearest previous breeding record from N. Baluchistan (small numbers Khushdil Khan lake) where full clutches found on June 10 and 17 in different years (Ticehurst, JBNHS 32: 82).

MUSEUM DIAGNOSIS. See under Genus; for description of chick in down, plumage phases and structure, etc. Witherby, 1940, 4: 412-13.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	220-235	84-91	c. 84-90	86-90 mm. (Hartert)

No appreciable size difference between the sexes.

COLOURS OF BARE PARTS. Iris reddish brown or red. Bill black. Legs and feet pale bluish grey.

Family IBIDORHYNCHIDAE: Ibisbills

Genus IBIDORHYNCHA Vigors¹

Ibidorhyncha Vigors, 1832 (1830-31), Proc. Zool. Soc. London: 174

Type, by monotypy, *Ibidorhyncha struthersii* Vigors]

Bill long, hard, slender, and curved down over nearly half its length. Nostril linear, placed at base of bill in a groove which extends over more than half length of bill. Tarsus comparatively short; reticulated throughout. No hind toe; outer and middle toes connected by a deeply indented small web; web between middle and inner toes obsolete. Wing very square: first 3 primaries (as.) subequal; inner secondaries almost as long.

433. Ibisbill. *Ibidorhyncha struthersii* Vigors

Ibidorhyncha Struthersii Vigors, 1832 (1830-31), Proc. Zool. Soc. London: 174

(Himalayas)

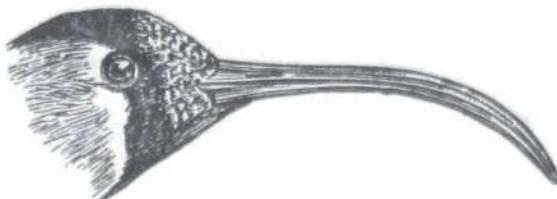
Baker, FBI No. 2132, Vol. 6: 196

Plate 20, fig. 6, facing p. 32

LOCAL NAME. Puggah (Hill Miri).

SIZE. Grey Partridge +; length c. 41 cm. (16 in.).

FIELD CHARACTERS. A greyish brown sandpiper-like bird with black facial mask and breast-band, and long downcurved red bill. *Above*, anterior face (including throat) black. Rest of upperparts largely ashy grey-brown; rump feathers with basal black markings. Tail ashy grey with narrow wavy



× c. 8/9

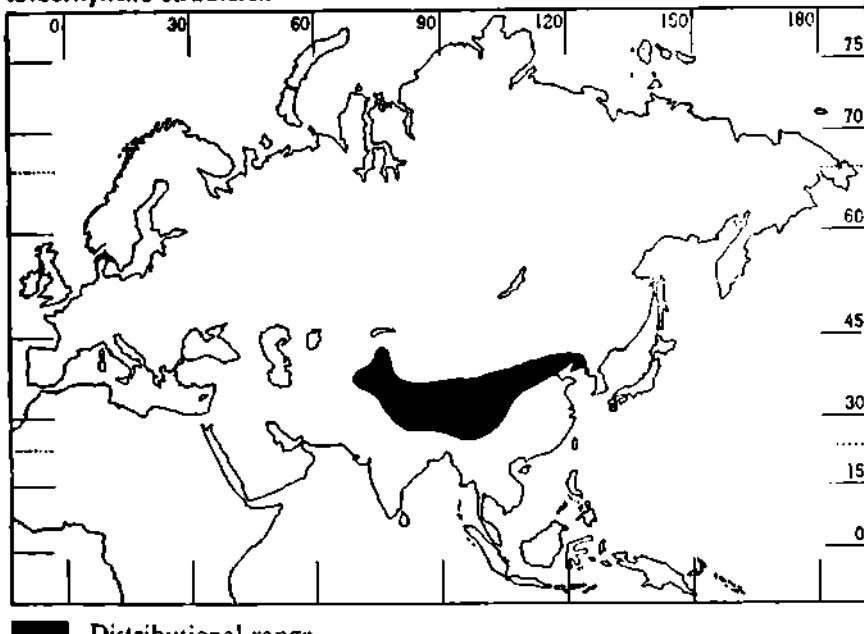
¹ The familial relationships of this genus are uncertain, see Verheyen, R., 1958, Inst. roy. Sci. nat. Belg. 34(18): 1-31.

blackish cross-bars, broad near tips of outer rectrices. A partially concealed white wing-patch. Below, sides of head, neck, and upper breast bluish grey. A broad black gorget separated from upper breast by a narrow white band. Rest of lower plumage white. Sexes alike.

In flight, which resembles the Stone Curlew's, the neck and long curved bill are stretched out in front, and the posterior end of the bird looks rather truncated. White wing-patches and black breast-band very prominent.

STATUS, DISTRIBUTION and HABITAT. Resident in the Himalayas between c. 1700 and 4400 m. from Gilgit, Ladakh and Kashmir, through Garhwal, Kumaon, Nepal, Sikkim and Bhutan to extreme eastern NEFA (Luhit

Ibidorhyncha struthersii



Distributional range

Frontier Division). In winter, while some birds continue to remain at high elevations a great many descend into the foothills of northern W. Bengal and eastern Assam north of the Brahmaputra, being found on the Teesta and most other east-Himalayan rivers where they debouch into the plains. Affects shingle banks and islets in fast-flowing Himalayan streams.

Extrazonal. 'High plateaus of central Asia from W. Turkestan to Chihili south to Kashmir, the Himalayas and northern Assam' (Peters).

GENERAL HABITS. Keeps in pairs or small parties of 6 to 8 birds on shingle banks or islets in comparatively placid stretches of fast-flowing glacier streams. Sometimes feeds in short grass by a river, running a few steps, stopping abruptly and tilting forward like a plover. Has characteristic habit of wading breast deep and ducking whole head and neck under water, thrusting its long bill under the submerged pebbles for food. When feeding among water-worn boulders, curves its bill around the front of the stone, sometimes inserting it from one side. Bill eminently adapted; curved in

such a way that it fits neatly round the boulders when the bird is probing for food (Hingston). The rounded profile and grey-brown coloration of the Ibisbill's back obliterate it in an astonishing way in its native habitat of smooth water-worn stones. When alarmed or inquisitive it bobs or 'pumps' its head and neck jerkily up and down and slowly wags the tail end, very like a Greenshank. Usually shy, flying off from an observer at long range, but has a curious habit of doubling back after some distance to fly overhead. Flight reminiscent of Stone Curlew.

FOOD. Insects, molluscs, crustaceans, worms, and small fish (?).

VOICE and CALLS. A loud, ringing single note or 'whistle' quickly repeated: *tee-ti-ti-ti-ti-tee* of distinctly sandpiper quality, uttered in flight. 'When disturbed emits a rather shrill mournful cry, something resembling that of a Greenshank' (B. B. Osmaston). A pretty trilling song by the male (?) from a distance prior to relieving his mate at the nest has been recorded by SA — like something between the nuptial song of the Spotted Sandpiper (*Tringa glareola*) and of the Curlew (*Numenius arquata*). This is responded to by the incubating partner with loud *titee* notes. Relief announces his progress towards nest by a frequent sandpiper-like *tit-tit* but of a different timbre.

BREEDING. An early nester. Season, end March (even before ground clear of snow) to mid May; exceptionally into early June. Nest, a shallow depression on the raised portion or ridge of a shingly islet in a glacier stream amongst grey water-worn pebbles; usually unlined, occasionally with a tamped-down bed of tiny pebbles. Incubating bird merges into the rounded stones in a miraculous way becoming completely invisible when still. Eggs, 4, large for the bird, fine-textured broad ovals, drab grey or greenish grey in ground colour, spotted and speckled with dark brown, chiefly towards the large end. Average size of 52 eggs $51\cdot0 \times 36\cdot9$ mm. (Baker). Incubation by both sexes; period undetermined. Observations by SA at a nest in Sikkim revealed that not only the pair but three birds were clearly interested in it, suggesting the need for a proper investigation of the bird's breeding biology.

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

Chick (in down) 24 hrs. old. 'Head covered with white down with black hair-like tips; hindneck greyish white; back densely covered with white down, tinged with fawn and minutely freckled with black; hinder quarters similarly marked but more strongly washed with rufous; an indistinct line of black and rufous feathers from the angle of the mouth through the eye; underparts silky white. Bill black; feet fleshy with plumbeous patches on the joints; iris dusky brown. Culmen 16 mm.; tarsus 24 mm.' (Ludlow).

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ 9	230-245	68-80 (from feathers)	c. 47-49	113-120 mm. (Baker)

Weight 1 ♂ 295 gm. (BB), 2 ♀ 271, 318 gm. (Diesselhorst).

COLOURS OF BARE PARTS. Iris crimson. Bill dull reddish brown to scarlet-red. Legs and feet pinkish grey ('non-breeding and young') to blood red ('breeding adults' — Baker). 'Livid and greenish grey' (breeding) — B. T. Phillips.

Family DROMADIDAE: Crab Plovers
 Genus DROMAS Paykull

Dromas Paykull, 1805, Kongl. Vet.-Acad. Nya Handl. 26: 182. Type, by monotypy,
Dromas Ardeola Paykull

Bill longer than head, strong, smooth and compressed; culmen curved. Nostril placed in a small depression at base of bill; no groove; angle of lower mandible prominent and close to base. Wings long and pointed: 1st primary (as.) longest. Tail very slightly graduated; almost square. Half tibia bare; tarsi long, shielded in front and behind; toes long, the 3rd and 4th joined by a broad web, the 2nd and 3rd by a small one; middle claw broad and pectinate, or notched, on the inner dilation. Feathers of interscapular region much lengthened and covering the lower back.

434. **Crab Plover.** *Dromas ardeola* Paykull

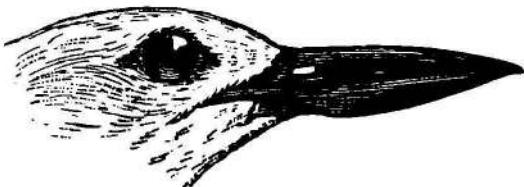
Dromas Ardeola Paykull, 1805, Kongl. Vet.-Acad. Nya Handl. 26: 182, 188, pl. 8
 (India)

Baker, FBI No. 2057, Vol. 6: 94
 Plate 31, fig. 8, facing p. 304

LOCAL NAMES. *Eshunga*, *Tayrawa* (Maldives); *Cummermelmoa* (Car Nicobar).

SIZE. Grey Partridge +; length c. 41 cm. (16 in.).

FIELD CHARACTERS. A rather dumpy piebald maritime wader. In flight the overall white plumage with black back and wing quills, a small but striking black patch around eye, and particularly the rather heavy black



× c. 8/8

tern-like bill simplify its differentiation from other pied waders, e.g. Avocet, Stilt, Oystercatcher. Sexes alike.

Young (immature) has the crown and neck pale grey, the former streaked with dark brown; back, scapulars and tail brownish grey.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Winter visitor in small numbers, locally and sporadically, to the sea coasts of W. Pakistan (Makran, Sind) and peninsular India, northern Ceylon (resident?), Andaman, Nicobar, Maldives, and Laccadive islands. [E. Pakistan?] Affects tidal mudflats and estuaries, lagoon shores, coral reefs exposed at low tide, etc.

Extralimital. 'Northern and western shores of the Indian Ocean, Red Sea and the Persian Gulf, south to Natal and east to India; islands in the Red Sea; Laccadive and Andaman Is., Comoro Is., Aldabra and Madagascar' (Peters).

GENERAL HABITS. Essentially maritime; gregarious. Keeps in small parties and large flocks — of up to 60 or 70 birds recorded from the Andamans. Sometimes solos. Usually very shy. Largely crepuscular, feeding like plovers, running about with mincing steps, stopping abruptly and tilting forward at an oblique angle to pick up food. Very close in general behaviour to Stone Curlew. Flight reminiscent of Bronzewinged Jaçana (*Metopidius indicus*) with legs trailing behind.

FOOD. Chiefly crabs. One examined by Hume in the Andamans had fed entirely on the species *Gonodactyla chiragra*.

VOICE AND CALLS. According to Baker 'it is said to have a low rather musical call'. Shrill notes *tchuk-tchuk-chuk-chuk-chuk* uttered in the vicinity of the nest-holes. A continuous *tchuk-tchuk* kept up at night (Cheeseman).

BREEDING. Extralimital as far as known, but may turn up in NW. Ceylon as reported by Parker in 1881 (SF 9: 482), not since confirmed. Season in the Persian Gulf islands May-June. Nests colonially 'rabbit-warren' fashion in holes in sandbanks on coral reefs, apparently made by crabs and enlarged to suit. Burrows 15-20 cm. in diameter, a metre or more deep, ending in an enlarged egg-chamber. Egg — invariably a singleton — pure white and quite unlike the egg of any other Charadrine bird. It is enormous in size, being quite as large as the egg of *Esacus recurvirostris* (437), a bird double the weight of the Crab Plover. Average size of 30 eggs 65·4 × 45·9 mm. (Baker). Share of the sexes in the domestic chores, and period of incubation, undetermined. Curiously enough although the bird lays only a single large egg, it has two lateral brood patches like other waders which normally lay 3 or 4.

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

Chick (in down). 'Entirely covered with long, very pale smoky grey down, darker on forehead and round eyes. Legs slate grey. The character of the down is more Larine than Limicoline, and lacks the mottling and lines which the latter nearly always show' (Ticehurst). 'Keel on gony well developed' (McInerzhagen). Downy chicks, unlike those of other Charadrines, are helpless and cannot run or even walk for the first few days.

MEASUREMENTS

	Wing	Bill (from feathers)	Bill (from skull)	Tarsus	Tail
♂ ♂	202-225	55-61	60-70 }	88-100	64-76 mm.
♀ ♀	201-216	54-56	62-66 }		
				(Baker, Whistler)	

Weight 6 ♂ ♀ (autumn/winter) 230-300 (av. 265·1) gm. — BNHS.

COLOURS OF BARE PARTS. Iris brown. Bill black. Legs and feet greyish white to pale glaucous blue.

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APPENDIX

p. 48.

257a. Tamil Nadu Jungle Bush Quail. *Perdicula asiatica vellorei* Abdulali & Reuben

Perdicula asiatica vellorei Abdulali & Reuben, 1964, Jour. Bern. nat. Hist. Soc. 64(3): 690
(Vellore, North Arcot district, Tamil Nadu)

LOCAL NAMES. None recorded.

SIZE AND FIELD CHARACTERS. As of 255, q.v. See Key to the Subspecies.

STATUS, DISTRIBUTION AND HABITAT. Resident. North Arcot district, Tamil Nadu, probably extending to Shimoga (Karnataka) and Palkonda Hills (northeastern Andhra Pradesh) — apparently intergrading with 255 — and presumably south through Tamil Nadu except for the range of *vidali*. Plains and hills up to c. 1500 m. — dry scrub-and-bush country.

GENERAL HABITS, FOOD, VOICE AND CALLS. As of 255.

BREEDING. As 257.

MUSEUM DIAGNOSIS. See Key to the Subspecies. Paler than *asiatica* (255) and with no trace of reddish wash on upperparts. Pale streak markings on mantle prominent, but not as bold as in *punjabii* (256). Chin and throat dark chocolate-brown (*contra* chestnut in nominate *asiatica*).

MEASUREMENTS AND COLOURS OF BARE PARTS. As in 255.

p. 89. Obtained in Myitkyina dist., Burma (Hpungan Pass, 27°30' N., 96°48' E., c. 3050 m.) September 1969 (U Tun Yin in epist.) — thus the first record east of 93°.

p. 90. MISCELLANEOUS. The stiff primary and tail quills are highly prized for making the vanes of arrows in Bhutan where archery is the national sport.

p. 129, line 4. Sri Lanka, 1 record (CBCN, Feb. 1978).

p. 148. In the second edition of Ripley's *Synopsis of the Birds of India and Pakistan* the order of Nos. 327–339 is: 329, 330, 327, 328, 333, 331, 332, 334, 339, 340, 335/336, 337, 338..

p. 181. For further recovery data see JBNHS 65: 784–93, 66: 174–82, 630–31, 68: 267–9.

p. 185. The male American Finfoot, *Heliornis fulica*, is reported to carry newly hatched chicks in pleated skin pockets under wings (10th Annual, 1971, *Living Birds*, Cornell Lab. Ornith.).

p. 198. Following recent taxonomic revisions in the Order Charadriiformes, the second edition of Ripley's *Synopsis of the Birds of India and Pakistan* places the families Rostratulidae, Recurvirostridae, Ibidorhynchidae, Dromadidae, Burhinidae and Glareolidae before Charadriidae.

p. 289. A bird ringed in Bharatpur (27°14' N., 77°28' E.) 29.i.1969, recovered in Alma Ata region (45°53' N., 74°50' E.) 4.x.1969. Another ringed in the

same locality 7.iii.1970, recovered in Kemerov region (53°37' N., 87°20' E.) 30.viii.1970—both in Kazakh SSR.

p. 302. A bird ringed in Bharatpur (27°14' N., 77°28' E.) 3.xi.1967, recovered in Yakutian ASSR (68°14' N., 145°21' E.) June 1970—c. 6250 km. NE.

p. 309. A bird ringed in Kutch (23°14' N., 68°45' E.) 13.xii.1970, recovered in Kazakh SSR (53°55' N., 69°17' E.) 19.x.1972—c. 3500 km. N.

p. 311. A bird ringed at Point Calimere, Tamil Nadu (10°18' N., 79°52' E.) 25.iv.1970, recovered in Kazakh SSR (43°36' N., 77°03' E.) 17.ix.1971—c. 3700 km. N.

p. 320. Aberrant migration once recorded. A bird ringed in East Africa (Lake Nakuru, Kenya, 0°26' S., 36°06' E.) 12.iv.1969, recovered near Meerut, U.P. (29°00' N., 77°42' E.) 16.ii.1973. *The Ring*, Vol. 7, No. 79/1974—2.

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