

KINGFISHERS

Family ALCEDINIDÆ

Vol. I., p. 93; Vol. II., p. 41.

THE family of kingfishers, consisting of a large number of species, includes some of the most beautiful of birds. They occur in most parts of the world, but in Malaysia and thence east to New Guinea are particularly abundant. Although birds of powerful flight the wings are comparatively short. The large head carries a heavy bill; the tail is usually stumpy and the feet small. The voice is raucous (the laughing-jackass of Australia is a kingfisher) and the birds are of unsociable habits. All the species lay round, glossy white eggs and the nest is at the end of a long hole or gallery bored in the bank of a stream, or less commonly in a tree. Some of the species excavate a nest-chamber in the nest of ants and termites.

The family can be conveniently divided into two groups. The water-kingfishers, characterized by a long slender bill in which the upper mandible is keeled, are mainly fish-eaters. The wood-kingfishers have a wider, stouter bill: they feed largely on insects, crustacea and small reptiles, etc.

Fourteen forms occur in the Malay Peninsula and all of these show a marked preference for specific haunts, some species like the forest streams, others are rarely found away from salt water and others again are true denizens of the forest and do not feed on fish.

KEY TO THE MALAYAN KINGFISHERS

1	{	Very large species: bill from gape well	2
		over 3.2 in.	
2	{	Smaller species: bill from gape under	3
		3.2 in.	
2	{	Crown, brownish grey; wings, blue .	<i>Ramphalcyon capensis malaccensis</i> , p. 77
		Crown, buffy yellow; wings, brown .	
3	{	Back and wings boldly barred with	<i>Carcineutes pulchellus pulchellus</i> , p. 83
		black	
4	{	Upper plumage not boldly barred .	4
		Top of head, chestnut to orange-red.	
4	{	Top of head, blue, green or blackish.	8

	Very small species: wing about 2.5 or less	6
5	Much larger species: wing roughly 4.5 in.	7
6	Mantle, black washed with blue	<i>Ceyx erithaca erithaca</i> , p. 81
	Mantle, orange-chestnut	<i>Ceyx rufidorsa</i> , p. 81
7	Back and wings, blue	<i>Halcyon smyrnensis fusca</i> , p. 83
	Back and wings, rufous - orange washed with lilac	<i>Halcyon coromanda coromanda</i> , p. 83
8	Under parts, white	<i>Sauropatis chloris humii</i> , p. 84
	Under parts, white with a broad blue breast band.	<i>Alcedo euryzona</i> (male), p. 79
	Under parts, chestnut to rufous	9
9	With a whitish nuchal collar; crown, black	<i>Halcyon pileata</i> , p. 84
	With a broad brownish-orange nuchal collar; crown, green without barring	<i>Caridagrus concretus</i> , p. 85
	Nuchal collar absent; crown cross-barred	10
10	Larger: wing more than 3.25 in.	<i>Alcedo euryzona</i> (female), p. 79
	Smaller: wing less than 3 in.	11
11	Blue-green above; rusty below (wing, 2.6 in. and over)	<i>Alcedo atthis bengalensis</i> , p. 80
	Much more deeply coloured; deep blue above; orange-rufous below (wing less than 2.6 in.)	<i>Alcedo meninting meninting</i> , p. 80

Ramphalcyon amauroptera

The Brown-winged Stork-billed Kingfisher

Halcyon Amauropterus Pearson, *Journ. Asiat. Soc. Bengal*, x., 1841, p. 635 (Calcutta).

Pelargopsis amauroptera, Sharpe, *Cat. Birds, Brit. Mus.*, xvii., 1892, p. 97; Blanford, *Faun. Brit. Ind., Birds*, iii., 1895, p. 128.

Ramphalcyon amauroptera, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1922, p. 121; Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), iv., 1927, p. 263; Stuart Baker, *Nid. Birds Ind. Emp.*, iii., 1934, p. 414.

Malay Name.—Burong buaya. Pĕkaka, burong raja udang (generic).

Description.—A large kingfisher with a massive red bill; head and under parts, deep buffy yellow; upper parts, dark brown; rump, bright blue.

Adult.—Sexes alike. Entire head, neck, under parts and wing lining, deep, dark buffy yellow. Mantle, scapulars, wings, tail and upper tail coverts, dark chocolate-brown, the wing quills buffy yellow on the inner webs, at the base on the outer quills and for the whole length along the edge on the inner

feathers; upper tail coverts, very narrowly fringed with greenish. Back and rump, bright blue tinged with green.

Immature.—The feathers of the yellow parts very narrowly fringed with dusky and the wing coverts fringed with very slightly paler brown.

Soft Parts.—Iris, brown; bill, feet and eyelids, deep bright red. In young birds the tip of the bill and the culmen are brownish.

Dimensions.—Total length, about 14.5 in.; tail, 3.25 in.; wing, 5.3 to 5.5 in.; bill from gape, 3.5 to 3.75 in.; tarsus, 0.7 in.

Range in the Malay Peninsula.—Occurs only in the north. On the west coast it has been found as far south as Langkawi. From the east coast there is no record.

Extralimital Range.—From Eastern Bengal and South Assam (*vide* Stuart Baker), through Arakan, Pegu and Tenasserim to the peninsular part of Siam. There is no record from French Indo-China and it seems also to be absent from the greater part of Siam. Common in the Mergui Archipelago.

Nidification.—Nothing has been recorded from the Malay Peninsula and the only published account from other regions that I can trace is that of Mr Stuart Baker, who on one occasion took four eggs from a short tunnel just under the top of a high bank of a muddy creek off a river in Assam. The white eggs measured about 1.4 by 1.2 in.

Habits.—Over the greater part of its range this bird is found only near salt water, being most common along creeks and rivers near sea-coasts. It follows the rivers, usually, only as far as they are tidal, and shows a marked preference for mangrove swamps. It is not uncommon along the coast and among the coastal islands on the west side of the peninsular part of Siam, and in the Langkawi and Terutau Islands Robinson found it common, although he did not meet with it outside the narrow littoral belt of mangrove.

Ramphalcyon capensis malaccensis

The Malay Stork-billed Kingfisher

Pelargopsis malaccensis Sharpe, *Proc. Zool. Soc.*, 1870, p. 67 (Malacca).

Ramphalcyon capensis hydrophila, Oberholser, *Proc. U.S. Nat. Mus.*, xxxv., 1909, p. 677 (Singapore Island).

Northern Birds

Pelargopsis burmanica Sharpe, *Cat. Birds, Brit. Mus.*, xvii., 1892, p. 104; Oates, *Cat. Birds' Eggs, Brit. Mus.*, iii., 1903, p. 30.

Pelargopsis gural (part), Blanford, *Faun. Brit. Ind., Birds*, iii., 1895, p. 129.

Ramphalcyon capensis burmanica, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1922, p. 122; Herbert, *Journ. Nat. Hist. Soc. Siam*, vi., 1924, p. 308; Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), iv., 1927, p. 266; Stuart Baker, *Nid. Birds Ind. Emp.*, iii., 1934, p. 416.

Malay Name.—Burong buaya. Pékaka; burong raja udang (generic).

Description.—A large kingfisher with a massive red bill. Head, clay-colour; upper parts, deep blue; under parts, brownish yellow.

Adult.—Top and sides of head from base of lower mandible, greyish brown; entire under parts, including under wing coverts and a collar round the hind neck, tawny yellow. Remainder of upper parts, blue, tinged with green in certain lights, but always rather greener on the mantle, bluer on wing and tail quills, and with the back, rump and centre upper tail coverts vivid, pale cobalt, forming a distinct patch. Hidden portion of wing quills, blackish, the edge of the inner webs at the base, buffy.

Note.—Some birds are much bluer on the upper parts than others; a certain amount of this variation depends on the age of the feathers, but a lot of it is purely individual and seems not to be connected with sex. The top of the head is also variable in colour; sometimes the greyish brown is mixed with buff, or washed with green. In worn plumage the crown is creamy grey and occasionally, in fresh plumage, the cheeks and crown are very dark, almost pale chocolate-brown.

Immature.—Even juveniles are almost indistinguishable from the adult. They have very narrow dusky fringes to the breast feathers and others, slightly broader, on the collar round the hind neck. I believe that these dark fringes are sometimes, in a small degree, retained in adult birds.

Note.—In the north of the Malay Peninsula the form described above merges into another subspecies, the Burmese stork-billed kingfisher (*Ramphalcyon capensis burmanica* Sharpe), which is not so deep a blue above and is also lighter on the crown. The two forms are difficult to separate where they meet, but on a balance of characters the Isthmus of Kra is a convenient dividing line between them, although it must be admitted that south of that line and, therefore, in our area birds occur which are, at least, nearer to *burmanica* than to *malaccensis*.

Soft Parts.—Iris, brown; edge of lids, red or orange; bill, deep red, washed with brown on terminal third; feet, bright coral-red; claws, brown.

Dimensions.—Total length, about 15 in.; tail, 3.6 to 4 in.; wing, 5.3 to 5.8 in.; bill from gape, 3.5 to 3.8 in.; tarsus, 0.75 in. *Females* run slightly larger: wing up to 6.1 in. The birds measured are from the Federated Malay States.

Range in the Malay Peninsula.—From the extreme north to the extreme south, on both coasts and in the lowlands. The inshore islands; Koh Pennan. No record from the Langkawi group, the Tioman group, or the small offshore islands in the Straits of Malacca.

Extralimital Range.—The Rhio and Lingga Archipelagos. Subspecies occurring in Sumatra and the adjacent small islands are almost indistinguishable. Those in Borneo and Java are slightly more distinct. Other subspecies are found in Ceylon, India, the Nicobars, Burma, Siam, French Indo-China, the Philippines and Lesser Sunda Islands.

Nidification.—Mr A. T. Edgar has found the nest in Lower Perak about fifty yards from the bank of a small river. "It was excavated in the base of a white-ant hill, the entrance hole being nearly four inches in diameter.

The tunnel, only six or eight inches long, led to a spacious egg-chamber nearly a foot in diameter." An addled egg (27th March) measured 1.48 by 1.11 in. Juveniles from Pulau Kundur, a small island near Singapore, are dated 22nd August.

Habits.—This large kingfisher is a common bird in the Malay Peninsula. It is found in a variety of situations, but is commonest along the mangrove-lined shores, creeks and rivers, being especially numerous near the mouths of large creeks. It also spreads over the ricefields and low country wherever there is open water and ascends the larger rivers as far as the foothills, being then found in heavy, thick forest, but under these circumstances it seems never to leave the fringe of the forest on the river-bank, nor does it ascend the hills. Although it is essentially a bird of the sea-coasts this large, heavily built kingfisher shows no great liking for crossing the open sea for any great distance and common though it is on the small islands near Singapore it is unrecorded from the Langkawi and Tioman groups of islands, and we have not yet obtained it on any of the small islands in the Straits of Malacca.

It is a shy bird, rarely approaching the environs of towns. The harsh, many-syllabled scream is uttered both when darting away when disturbed, or when seated on a branch overhanging the water, but perhaps this species is less vociferous than its smaller relatives. The food consists of fish, frogs, crabs and lizards, etc. It is an easy species to observe in Singapore if one employs a sampan (Chinese rowboat) and explores the lower reaches of those waterways that empty into the Johore Straits. Then, as one drifts along the edge of the mangrove, one may see, perhaps a hundred yards ahead, a large, highly coloured bird leave its post and plunge into the water, causing a large splash in so doing. When it returns to its seat in the mangrove it may be possible to push the boat closer for a nearer view, but, usually, on the first sign of danger, the wary bird darts off with a swift straight flight at no great height over the water, and thus it will precede the sampan for perhaps a mile or two, darting away when one is about a hundred yards distant.

Alcedo euryzona

The Broad-zoned Kingfisher

Vol. II., p. 46.

Male: back, rump and upper tail coverts, silvery blue; remaining upper parts, dull black, barred with dull blue-green on the head, washed with blue on the wing quills and spotted with blue on the wing coverts. Under parts, white with a broad blue, white-patched band across the breast and washed with rufous on the flanks. A whitish rufous spot on each side of the neck.

Female: rather like the male above but quite different on the under parts. Chin and throat, whitish; remaining under parts rich rust-colour.

Total length, about 6.75 in.; wing, 3.4 in.

A bird of the submontane heavy forest, in which it follows the rapidly flowing streams into the adjacent lowland forest. It is never found far from mountains and is by no means common. The food consists of small fish and crustacea. The nest and eggs have been recorded from Perak.

*Alcedo atthis bengalensis***The Common Kingfisher**

Vol. I., p. 93.

Upper parts, greenish blue, brightest on the rump, barred with blackish on the head, and spotted with brighter blue on the wings. Sides of the head with broad chestnut (upper) and blue (lower) bands. A white patch on each side of the neck. Throat, whitish; remaining under parts, rich ferruginous. Bill, mostly black; feet, red.

Total length, 6.6 in.; wing, about 2.7 in.

The tropical representative of the European kingfisher, from which it differs in details only. It is common throughout the lowlands of the Peninsula wherever there is water, but it is not often seen in thick forest. It is more numerous on the coasts than inland and is particularly abundant in mangrove. In winter the local stock is greatly augmented by migrants from elsewhere. It usually nests in holes in banks just above water-level. Mr A. T. Edgar studied a pair in Lower Perak and writes: "They nested in a 'live' white-ant hill near to the water's edge. The entrance was about one and a half inches in diameter, the tunnel itself only extending some six inches horizontally inwards, and widening, though not greatly so, to form the egg-chamber, which had no lining except a few fragments of fish bone: at the back of the egg-chamber, which could be seen from outside, termites were moving about, at their ordinary occupations. On 20th February there were two eggs, which were found to be partly incubated: this shows that *Alcedo* occasionally lays a much smaller number of eggs than the clutch of five to seven with which it is credited in other parts of its range." The eggs measured 0.87 by 0.68 in. and 0.85 by 0.66 in.

From Negri Sembilan Mr V. W. Ryves records a clutch of five eggs in June.

*Alcedo meninting meninting***The Deep Blue Malayan Kingfisher**

Vol. I., p. 95.

Very like the common kingfisher mentioned above, with which it is easy to confuse in the field. The present bird is smaller and much more brightly coloured. The upper parts are deep blue, not merely greenish blue, and the breast and abdomen deep orange-rufous.

Total length, about 6 in.; tail, 1.15 in.; wing, 2.5 in.; tarsus, 0.34 in.; bill from gape, 1.9 in.

This bird is less common than the preceding species but it is widely distributed in the lowlands and is far more often found in forest and away from water. Normally it does not frequent the seashore. The nesting habits are much like those of *A. atthis bengalensis*.

From Lower Perak, Mr A. T. Edgar describes the nesting site as a steep bank of a deep drain-cutting in red, loamy soil, on the boundary of a village

and flat jungle. The tunnel was twenty-four inches long and about one and a half inches in diameter. It led to a roughly circular egg-chamber about five inches in diameter. Mr Edgar describes his three eggs as fine-textured, highly glossy and rounded. The average measurement was 0.79 by 0.66 in. The birds had begun to excavate, and then abandoned, three other tunnels, close together and near to the finally selected tunnel. A fifth tunnel appears to have been used in a previous year. Perak eggs are dated February and May. I have a note of others from near Malacca, also in May.

Ceyx erithaca erithaca

The Indian Three-toed Kingfisher

Vol. II., p. 42.

Crown, lower back, rump and tail, orange-rufous washed with lilac, a blackish spot on the forehead; mantle, scapulars, upper back and wings, black, glossed with blue; chin and throat, whitish yellow; remainder of under parts, deep yellow. A blue patch on each side of the neck, bordered by a white patch below. Bill and feet, red. Young birds are blacker and less blue on the upper parts and pale ferruginous rather than yellow on the under parts. Tail, tipped with black.

Total length, about 5.2 in.; wing, about 2.3 in.

This tiny kingfisher is common in the lowlands of the Peninsula where streams run through forest. At times it is also met with in mangrove, and during certain local but rather extensive movements, little understood, it is likely to turn up almost anywhere from the cabin of a ship in the Straits of Malacca to the heart of busy Singapore.

Mr A. T. Edgar has found the species nesting in Lower Perak at the beginning of March. The nesting tunnel was in the bank of a hill-stream in jungle. It was only six inches long and led to a small chamber with a back wall of rock. The white eggs are described by Mr Edgar as translucent, rounded ovals, highly glossy and thin-shelled. They measure 0.78 and 0.79 by 0.65 in.

Ceyx rufidorsa

The Malay Red-backed Three-toed Kingfisher

Vol. II., p. 43.

Ceyx rufidorsa Strickland, *Proc. Zool. Soc.*, 1846, p. 99 (Malacca).

Ceyx euerythra, Sharpe, *Cat. Birds, Brit. Mus.*, xvii., 1892, p. 179.

Ceyx rufidorsus rufidorsus, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1922, p. 126.

Malay Name.—Pĕkaka api.

Description.—A small brownish-orange and yellow kingfisher. Only likely to be confused with the Indian three-toed kingfisher, *Ceyx e. erithaca*, from which it differs in having the mantle not black.¹

¹ In young birds the scapulars are mixed with black and sometimes splashed with blue, and Robinson's statement regarding the distinguishing characters between *C. rufidorsa* and *C. e. erithaca* on p. 43 of Vol. II. should be amended accordingly.

Adult.—Sexes alike. Upper parts including wing coverts, except the primary coverts, deep orange-brown, almost chestnut, strongly washed with lilac, especially on the upper tail coverts, but not on the tail quills and smaller wing coverts. Primary coverts and wing quills, black, the outer web of the first primary and often of the inner secondaries, and the inner webs of all quills, always edged with chestnut. Lores, cheeks, under parts and under wing coverts, orange-yellow, turning to whitish on the chin and throat. A large white spot behind the ear coverts.

Immature.—Upper parts less washed with lilac. Scapulars, wing coverts and tail, much mixed with black and often splashed with blue. There is usually a dusky spot on the forehead at the base of the bill. Under parts and cheeks lacking the deep yellow of the adult. Chin and throat, white, remainder of under parts, whitish tinged with orange-rust, so heavily on the breast as to form a fairly distinct, broad, pectoral band.

Soft Parts.—*Adult*: iris, brown; bill and feet, scarlet, or orange-red. *Immature*: iris, brown; bill, orange-red, or salmon-pink.

Dimensions.—Total length, 5.4 to 5.6 in.; wing, 2.3 to 2.4 in.; tail, 0.85 to 1 in.; tarsus, 0.36 in.; bill from gape, 1.5 to 1.65 in.; culmen, 1.3 to 1.4 in.

Range in the Malay Peninsula.—From Bandon (northern limit of the species), in Peninsular Siam, down both sides of the Peninsula to, and including, Singapore Island; Junk Zeylon.

Extralimital Range.—Sumatra and the adjacent island groups; Borneo and the North Natuna Islands; Java, Bali and some of the islands in the China Sea; the Philippines.

Nidification.—Mr G. C. Madoc sends me a note of an April nest found in a termite mound, standing in the middle of a small Sakai rubber-holding, surrounded by dense jungle. Mr Madoc writes: "There was no stream of any sort for miles around but, at the foot of the hill, about a quarter of a mile away, there was an extensive belt of swamp jungle. The termite nest was only a foot high and the tunnel was bored horizontally into its sloping flanks. The tunnel was about one and three quarters inches in diameter and eighteen inches long. At the end it was enlarged into a circular chamber about five inches across. The floor of this chamber was lined with a few rotting leaves. The mound was actively occupied by termites." The three eggs measure 0.86, 0.84 and 0.84 by 0.7, 0.7 and 0.68 in. Dr E. Jacobson has found the species breeding in Sumatra. A tunnel, about the length of an arm and slanting upwards, had been excavated in the earth adhering to the roots of a fallen tree. There was no nesting material.

Habits.—Fairly generally distributed over the lowlands of the Malay Peninsula, but less numerous than the nearly related and very similar *Ceyx e. erithaca*. It is most often found near streams in heavy lowland jungle, sometimes, but not commonly, ascending the lower slopes of the hills and mountains up to about 3000 feet, but it is rare at this altitude. We have never seen it, normally, away from water, or in open country, but it will venture into secondary forest growth. In rough weather in the autumn it has turned up

in such unexpected places as houses in Malacca and Singapore, but, nevertheless, it seems not to be subject to the fairly extensive, coastal movements to be observed in *Ceyx e. erithaca*, nor has it been captured on any of the small islands or lighthouses in the Straits of Malacca. Where there is a backing of other forest it sometimes wanders into the mangrove belt. According to Dr E. Jacobson, the food consists chiefly of water-insects and their larvæ. In the Natuna Islands I have seen it eat small crabs.

Carcineutes pulchellus pulchellus

The Malaysian Banded Kingfisher

Vol. II., p. 43.

Male: forehead, sides of the head and a narrow collar across the nape, chestnut; crown, blue; remaining upper parts, black, banded with blue. Throat and abdomen, white; breast, orange-buff.

Female: quite different. Entire upper parts, yellowish brown, barred with black; under parts, white with scattered arrow-shaped blackish markings. Bill in both sexes, red.

Total length, 8·3 in.; wing, 3·3 in.

Common in forest, both near water and far from it, but not in open country. The animals found in dead fallen trees (cockroaches, millipedes, etc.) are often taken as food. The eggs are laid in holes in the banks of forest streams, and in Sumatra the species has been seen breeding in the nest of a tree-termite (*Eutermes*).

Halcyon coromanda coromanda

The Ruddy Kingfisher

Vol. I., p. 101.

Upper parts including wings and tail, orange-rufous strongly marked with lilac. Rump, white tinged with blue. Under parts, orange-buff, palest on the throat. Bill and feet, red.

Total length, about 10 in. Wing, 4·5 in.

This kingfisher is far from rare in the Malay Peninsula, but it is much less common than some of the other species. Furthermore it is usually a shy bird and a fleeting glimpse in the mangroves is the usual experience. It is exclusively a bird of the coasts and I know of no local record of the nest and eggs. The numbers are swollen in winter by migrants from the north.

In the extreme south of the Peninsula it is replaced by a slightly smaller race (*H. c. minor*) which also differs in being darker in colour and in having a stronger and more extensive lilac wash.

Halcyon smyrnensis fusca

The White-breasted Kingfisher

Vol. I., p. 96, pl. 6.

Chin, throat and centre of the breast, white; top of head, nape, sides of breast and remainder of under parts, dark chestnut. Upper parts, bright

greenish blue, a large patch on the wing coverts and the tips of the wing quills, black. Primaries with large white patches on the inner webs. Lesser wing coverts, pale chestnut. Bill and feet, red.

Total length, about 10·75 in. ; wing, 4·6 in.

A very common bird in the open country of the lowlands, being especially numerous in town gardens and ricefields, but rarely, if ever, seen in old forest. It is not commonly seen in mangrove. It prefers small crustaceans and large insects to fish, which are not found in some of the country frequented by this kingfisher.

Mr V. W. Ryves summarizes his nidification notes as follows: "Eggs in July and December (Selangor); March and July (Negri Sembilan); March (Johore). Nesting-holes in any sort of bank, the roadside as often as not. Usually a long way from water. Clutch, 3-5."

Mr A. T. Edgar, writing of Lower Perak, records: "The nest of this kingfisher may be found from February to May, and consists of a tunnel, fifteen inches to two feet in length, excavated horizontally in the bank of a drain, or well, and generally only nine inches to a foot below ground-surface. I have seen nests in all sorts of soil, from light sand to stiff, unyielding clay. The entrance is just too small to admit one's hand, but the tunnel broadens at the end into an egg-chamber, usually about nine inches in diameter by five inches in height. On the floor of the chamber there are almost always a few small fish bones, or the wing- and leg-cases of a species of coppery beetle.

"The full clutch seems to be five, but I have found numerous nests containing only four." Measurements, 1·16 by 1·02 in. (average of eleven).

Halcyon pileata

The Black-capped Kingfisher

Vol. I., p. 97.

Top of the head and wing coverts, velvety black; a double collar of buffy white and black across the nape; remaining upper parts, purplish blue. Wing quills, black with a large white patch on the inner web at the base. Chin, throat and centre of the breast, white; remainder of under parts, orange-buff. Bill, red.

Total length, about 12 in. ; wing, 5·3 in.

A common bird along the coasts, on the ricefields and along the courses of the rivers in the lowlands. It is certainly migratory in some degree, but it is equally certain that the species is also resident in the Peninsula, although there are no local records of the nest and eggs.

Sauropatis chloris humii

The White-collared Kingfisher

Vol. I., p. 99, pl. 6.

Top of the head, back, wings and tail, blue, darkest on the ear coverts, almost green in certain lights, but the exact colour very variable individually.

A patch in front of the eye, a broad collar on the hind neck and entire under parts, white. Bill, black, whitish at the base of the lower mandible.

Total length, about 9.5 in. ; wing, about 4.2 in.

This noisy kingfisher is one of the commonest and most conspicuous birds of the Malayan seashore. It is especially abundant on the mangrove-lined coasts and is rarely found far from the sea. It often breeds in holes dug in termites' nests which are found on the ground or in hollow trees ; also in ants' nests in the latter situation.

Most of the nests found by Mr A. T. Edgar in Lower Perak were in holes in trees, mostly about from six to ten feet above the mud. One nest was in a tunnel, above three feet long, in soft earth at the roots of a fallen coconut-tree on the seashore. Another was in a hole, about nine inches long, in a "live" white-ants' nest built up round the base of a thorny palm in scrub just above high water-mark. Season, January to August ; and in October. Clutch, usually three eggs. The averages of two clutches measured by Mr Edgar are, 1.14 by 0.96 in. and 1.21 by 0.98 in.

Ceyidagrus concretus

The Chestnut-collared Kingfisher

Vol. II., p. 45.

Male : crown, green bordered with black ; nape and under parts, bright orange-rufous. Remaining upper parts, blue, brightest on the rump. A black band across the mantle next to the orange-rufous nape. A broad, blue moustachial stripe. Bill, yellow and brown.

Female : back, scapulars and wings, dark green with large buff spots. Otherwise plumage as in the male.

Total length, about 9 in. ; wing, 4.5 in.

A forest bird quite independent of water. It is widely spread in the Peninsula in old forest. It is known to eat small snakes, lizards and wood-lice, and is often seen searching for food in rotten logs. There is no local record of the nest.