

NOTES ON THE GENUS *CORACINA*

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It has recently been my pleasure and privilege to work with Dr. Ernst Mayr on various forms of the Campephagidae collected by the Whitney South Sea Expedition of the American Museum of Natural History in New York. While studying the species *Coracina caledonica*, I was struck by the confusion existing in the present-day arrangement of the genus. It is only necessary to refer to the recent work of Mathews (1930) and Hachisuka (1935). I have attempted, therefore, to construct an arrangement, based on the probable lines of speciation within the genus, which I hope will prove to be satisfactory. To Dr. Mayr, who has been most generous with advice and help, I am indebted for assistance on this paper, as well as to Mr. J. L. Peters, who has kindly read the manuscript. The present revision is not concerned with the African species of the genus.

The name *Coracina* is now generally accepted for this genus. Oberholser (1932) supports *Graucalus*, but his contention is not upheld by the International Code, nor is that of Mathews (1930). Sharpe (1879) has given a key to separate the genus *Artamides* from *Coracina*, in both of which some of the forms of *caledonica*, for example, have been listed. One of the distinguishing characters used is whether the culmen is longer or shorter than the tarsus. If this were a valid distinction, races from nearby islands would have to be separated under different genera, which could only add to the confusion. Thus *Artamides* must be abandoned as well as *Paragraucalus*, *Ptiladela* and *Celebesica*.

The forms of the genus *Coracina* vary greatly in size. All are characterized, however, by a rather strong, notched bill, about as long as the tarsus; small, weak feet; and the following somewhat varying color characters: upper parts usually gray, varying somewhat in intensity; lower parts dark gray to white or barred blackish on white; lores and sometimes parts of the head darker than the rest of the body, often glossy black; tertials with blackish inner and paler outer webs; under wing-coverts of a different color from the under parts; iris yellow in some species, in others reddish or blackish brown.

The genus differs from *Lalage* by larger size throughout, stronger bill, coarser, harder plumage, different pattern of coloration on the wing, and by the lack, except in *bicolor*, of a well-defined difference between the colors of the upper and under parts. From *Edolisoma*

it differs by comparatively larger size, stronger bill, different color pattern on the wing, and by having almost no difference between the plumages of the male and female.

HISTORY OF THE GENUS

The origin of the Asiatic forms of *Coracina* must be looked for somewhere within the continental borders of the Oriental region. From the mainland several well-defined branches have spread out over the chains of islands into the Australian area. One branch, having spread over southern Asia, has utilized the Sunda chain to pass into Australia and Melanesia. A second, moving out in two waves, the earlier a mountain form of the Greater Sunda Islands, the later a lowland and small-island form, has spread north through the Philippines and from there to New Guinea and northern Melanesia. The third main branch is today confined to the Moluccas, the Papuan area, and Australia.

From the speciation evidence afforded by the group as a whole it seems as if there had been several centers at which evolution had proceeded more rapidly than elsewhere. These areas, agreeing with other distributional evidence (*vide* Wallace, Rensch, Stresemann, Mayr), are found to be (a) the Greater Sunda Islands, (b) the Philippine area, (c) Celebes, and (d) Papua. Certain groups of species seem to have rather well-defined affinities, and for them I propose to set up three superspecies (for a definition of this term see Mayr, 1931) named in each case after the oldest specific name of the group. This results in the following arrangement:

Caledonica SUPERSPECIES

1. *Coracina novaehollandiae* including *macei*, *javensis*, *floris*, *personata* formerly considered separate species. Range: continental Asia from India to southeastern China south through Indo-China, Siam, Shan States, and Ceylon, the Andamans, Formosa, and Hainan, the Greater and Lesser Sunda Islands, Australia and Tasmania.
2. *Coracina fortis*. Range: Buru Island, Moluccas.
3. *Coracina atriceps*. Range: Ceram and Halmahera, Moluccas.
4. *Coracina pollens*. Range: Timor Laut and Kei Island, Moluccas.
5. *Coracina caledonica*. Range: New Caledonia and islands of the Loyalty, New Hebrides and Solomon groups.

Striata SUPERSPECIES

1. *Coracina larvata*. Range: Greater Sunda Islands (mountains).
2. *Coracina striata*, including the species *sumatrensis*. Range: lowlands of Greater Sunda and outlying islands.

3. *Coracina schistacea*. Range: Sula Islands off Celebes.

4. *Coracina lineata* including the species *axillaris*. Range: northern and eastern New Guinea, Numfor Island, New Ireland, Solomon Islands, eastern Australia.

Papuensis SUPERSPECIES

1. *Coracina leucopygia*. Range: Celebes.

2. *Coracina papuensis*. Range: Moluccas, New Guinea to Solomon Islands, and northern tropical Australia from northern Queensland to northwestern Australia.

3. *Coracina robusta*. Range: Queensland, New South Wales, and Victoria, South Australia.

There are a few other forms of *Coracina* which do not fit readily into these groups. I shall reserve discussion of them until a later point in the paper.

Caledonica SUPERSPECIES

In this group I have included several species, all of which are uniformly large (wing: 150–210 mm.), with moderately long tails (70–85% of wing length). The adult-male plumage is gray or slate-colored on the upper and lower parts with solid-colored under wing-coverts (slightly barred in one case). The under tail-coverts are white, gray or slate. There is usually a blackish loreal streak and some forms have the black extended over the crown or on the chin or throat generally. The wings and tail are black. The rectrices are tipped with white in varying intensity except for the two central ones which are almost always of a grayish coloration. The two exceptions to this are *pollens* and *caledonica*, the blackish slate-colored species.

The adult female resembles the male in general coloration, but lacks the black on the head and throat, and, in some forms, even the black loreal streak. In the white-bellied forms, there is a tendency for the females to have more or less barring on the lower breast and abdomen.

Coracina novaehollandiae.—The assemblage of species which I have lumped together as *novaehollandiae* has been known under at least four separate names. At first sight this action may seem somewhat drastic, but careful examination of the series in the American Museum's very extensive collection has convinced me that it is necessary in order to indicate the real relationships involved.

Coracina macei with its races is a widely extended species with the extremes of variation represented by *macei* and *larvivora*. *C. macei*

not only lives presumably somewhere near the ancestral home of the genus, but also probably resembles fairly closely the ancestral type of this species. For a careful description of these races see Sharpe (1879: 34). In general, it is sufficient to say that the male plumage of *macei* is rather unspecialized, gray above and on the throat and breast, with some barring on the whitish abdomen. In contrast, *larvivora* is a much more specialized form with black lores, sides of head and throat, and without barring. When the intervening races are examined, it is found that most of them differ much more widely from *macei* than they do from each other. Actually, *larvivora*, for example, resembles *floris* from the Lesser Sunda Islands more closely than it does *macei*. *C. floris* is somewhat darker, the black on the throat is more glossy, but otherwise the birds are strikingly similar. Unfortunately, between Sumbawa, the westernmost island in the range of *floris*, and the upper Malay Peninsula, the nearest range of a race of *macei*, there is a gap which can only be closed by assigning to *novaehollandiae* the two races of the former species *javensis*, viz., *larutensis* from the Malay Peninsula and *javensis* from Java and Bali. These two races resemble *macei* more closely than they do any of the other forms. The male and female are almost uniform gray in color with occasional light barring on the belly or under wing-coverts. The black loreal streak is only indicated.

Summing up, therefore, the evidence for and against the inclusion of these birds in one species, I should like to point out the following considerations: (a) the absence of *javensis* and *larutensis* from Sumatra and Borneo, although peculiar, is far from unique (Dammermann, 1929); (b) the absence of a *Coracina* from Lombok is paralleled by another 'Mittelland' species, *Zosterops palpebrosa* (Stresemann, 1939), and is perhaps explainable by the fact of Rinjiani's devastating eruption (Rensch, 1936); (c) *C. javensis* and *macei* have already been united by Kuroda and others without, however, considering the possible further extension of these birds to the southeast.

In conclusion, I may point out that the distribution of these birds from continental Asia through the islands is a natural one, that the resemblances between the birds of Lesser Sunda and Australia and those from the mainland of Asia are too great to remain unrecognized, and that *javensis* and *larutensis*, although perhaps hold-overs from an earlier typical *macei* wave, are still links in a chain showing clearly the line of distribution of this species.

From Sumbawa to the east there is little change in the appearance of these birds. *C. personata* from Timor differs only in a slight increase of melanin pigment in the plumage, but retains the white



TEXT-FIG. 1.—Distribution map of the *caledonica* superspecies showing the range of:

-, *Coracina novaeollandiae* and its races: 1, *macei*; 2, *nipalensis*; 3, *siamensis*; 4, *rex-pineti*; 5, *loyardi*; 6, *andamana*; 7, *larivora*; 8, *larutensis*; 9, *javensis*; 10, *floris*; 11, *sumbensis*; 12, *alfredianus*; 13, *subballida*; 14, *melanops*; 15, *novaeollandiae*. + +, *Coracina fortis*. — — —, *Coracina atriceps* and its races: 1, *atriiceps*; 2, *maguirostris*. . . ., *Coracina pollens* and its races: 1, *unimodus*; 2, *pollens*. - - - -, *Coracina calcedonica* and its races: 1, *caledonica*; 2, *isjuensis*; 3, *sejuencia*; 4, *ihileni*; 5, *welchmani*; 6, *kulambangrae*; 7, *bougainvillei*.

under wing- and tail-coverts. All the forms are representative. There is one case of apparent overlapping from Timor to the Little Kei Islands, but it is now known that the specimens of the Australian race, *subpallida*, found on these islands are winter visitors, not residents, as hinted by Hellmayr (1914). The remaining races of this species are found in Australia. In contrast to *personata*, they are paler in general color, one race, *subpallida*, being the palest of any of the subspecies, quite whitish gray. All, however, vary principally in coloration only, not in pattern or structure.

Coracina fortis and *atriceps*.—I have not included the species *fortis* from Buru in *novaehollandiae* as there have been no specimens for comparison. Salvadori's description, however, indicates that this bird might be included within *novaehollandiae*. *C. atriceps* from Ceram and Halmahera is next to *fortis* in range and presumably differs from it only in the character of a black crown. Otherwise, *atriceps* resembles *novaehollandiae* most closely, having like that species, white under wing- and tail-coverts. A tendency to a solid black crown is inherent in the superspecies as a whole, as demonstrated by specimens of typical *novaehollandiae* in which the black of the forehead extends back for some distance over the crown, and in far-away *kulambangrae*, a race of *caledonica*, in which the crown is of a somewhat darker cast than the back. The final status of *atriceps*, however, must await a critical examination of *fortis*, the intervening link in the chain of distribution.

Coracina pollens and *caledonica*.—These two species are without doubt offshoots of *novaehollandiae*, but have become so suffused with melanin as to have changed substantially. The under wing- and tail-coverts of both are blackish or slate-colored. Together the two species are so close to each other that positive identification would not be an easy matter, but the gap in their range is so great as to indicate that they are only parallel offspring of the same parent stock.

To express better the variations within this superspecies I have drawn up the following chart:

COLOR VARIATIONS IN THE *Caledonica* SUPERSPECIES

♂ Adults	General coloration	Crown	Throat	Under wing-coverts	Under tail-coverts
<i>macei</i>	gray	gray	gray	white (some barring)	white
<i>larvivora</i>	gray	gray	black	white	white
<i>larutensis</i>	gray	gray	gray	grayish with barring	white
<i>floris</i>	gray	gray	black	white	white
<i>personata</i>	dark gray	gray	black	white	dark gray
<i>subpallida</i>	whitish gray	gray	black	white	white
<i>atriceps</i>	gray	black	black	white	white
<i>pollens</i>	slate	slate	black	slate	slate
<i>caledonica</i>	slate	slate	slate	slate	slate
<i>bougainvillei</i>	slate	blackish slate	black	slate	slate

Striata SUPERSPECIES

This group consists of several species ranging from the Andamans and Greater Sunda Islands through the Philippines, New Guinea and the Solomons. The members of this superspecies are a good deal smaller than those of *caledonica* (wing 120–170 millimeters). The tail length shows a much greater range of variation, from 62–88% of the wing length.

The plumage of the adult male ranges from gray to brownish gray or slate on the upper and lower parts, occasionally barred on the abdomen and vent, on the rump in one case, with black on the lores, sometimes extending over the crown and throat. The under wing- and tail-coverts are gray, sometimes barred gray or black on white. The wings and tail are much as in the preceding group except that the two central tail-feathers are usually black.

The adult female resembles the male in general coloration, but is usually heavily barred on the lower breast and abdomen with black on white. The under wing- and tail-coverts are barred, also, except in one or two cases, and the rump is often barred. Several members of this group have a yellow iris, a character which tends to disappear in those species lacking pronounced barring.

One species, *larvata*, which I have included in this group, is a montane one extending through the three Greater Sunda Islands.

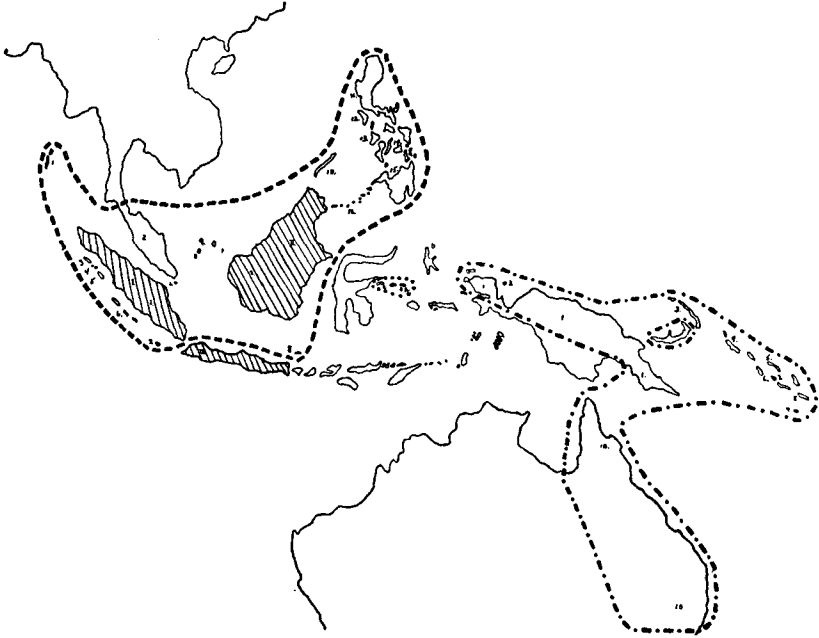
Many members of the species *lineata* also are found up to five thousand feet throughout the Papuan area. The third species of the group, *striata*, is a lowland one found in secondary growth and on small islands in the Greater Sunda area. Thus all the species of this group are representative in range, even though two of them occur on the same islands.

Coracina larvata.—This species is characterized by dark-gray plumage, a good deal of black on the head and throat, and dark under wing-coverts in the male; the female lacks the dark throat of the male and has barred under wing-coverts and, occasionally, some barring on the vent. Immature birds have very pronounced barring on the under wing-coverts (a fact which Kuroda included in his description of the adult male, 'Birds of Java,' 1: 181, 1933). Kuroda (l. c.) included *personata* and *parvula* in this species, a grouping which serves to indicate the confusion existing in most of the arrangements of this genus. This species does not appear, on the surface at least, to be closely related to the other members of the group, but the following facts point toward its inclusion within this superspecies: (a) the position of *larvata* is representative with reference to *striata*; this location (montane) indicates that it belongs to an earlier wave of the common *striata* ancestor; (b) *C. larvata* resembles closely two races of *striata*, *guillemardi* and *mindorensis*, from the Sulu Islands and Mindoro, and *schistacea* from the Sulu Islands; (c) Raven (1935) points out that Mindoro and the Sulu Islands are remnants of an old continental area along with the Greater Sunda Islands. These birds may then possibly represent a more ancestral type of the present-day species, *striata*; (d) thus it may well be that the original wave of the *striata* superspecies spread out over the Greater Sunda area and on through the Philippines, later to become isolated and to be pushed into outlying positions by the second wave.

Coracina striata.—The races of *striata* are fairly uniform although there are four unusual offshoots. The adult male plumage in most of the forms of this species is a uniform gray above and below, with lightly indicated white tips to the rump-feathers and the two central tail-feathers gray. The adult female resembles the male, but has barred under wing-coverts, and barring on the abdomen, crissum and vent. Of the four exceptions to this characteristic plumage, two, *guillemardi* and *mindorensis*, which are uniformly colored like the species *larvata*, have been mentioned before. The other two races deserve special mention.

C. striata dobsoni is a very dark-colored bird, brownish gray on the upper parts, with barring on the abdomen in the male plumage and

heavy barring on the whole of the under parts in the female. The iris is crimson (*vide* Stuart Baker, 1924). This bird has been confused by some authors with a race of *novaehollandiae*, *andamana*, occurring also on the Andamans (see Stuart Baker, 1924: 346). Oberholser (l. c.) omits it from his list entirely. It was not until Neumann



TEXT-FIG. 2.—Distribution map of the *striata* superspecies showing the range of: */////*, *Coracina larvata* and its races: 1, *melanocephala*; 2, *normani*; 3, *larvata*. —, *Coracina striata* and its races: 1, *dobsoni*; 2, *sumatrensis*; 3, *simalurensis*; 4, *babiensis*; 5, *kannegieteri*; 6, *crissalis*; 7, *enganensis*; 8, *vordermani*; 9, *bungurensis*; 10, *difficilis*; 11, *striata*; 12, *mindorensis*; 13, *panayensis*; 14, *cebuensis*; 15, *kochii*; 16, *guillemardi*. . . ., *Coracina schistacea* and its races: 1, *petersi*; 2, *schistacea*. - · - ·, *Coracina lineata* and its races: 1, *axillaris*; 2, *maforensis*; 3, *sublineatus*; 4, *nigrifrons*; 5, *malaitae*; 6, *solomonensis*; 7, *ombriosus*; 8, *mahirae*; 9, *gracilis*; 10, *lineata*.

named *andamana* (1915) that the existence of the two separate species on these small islands was definitely ascertained. Whistler (1940) has recently named this form *andamanensis*, evidently overlooking Neumann's description. This fact is a good illustration of the division that exists between the two superspecies, *caledonica* and *striata*.

C. striata vordermani, a race from Kangean Island, although belonging to *striata*, has two characters (barred under tail-coverts in the

male, and whitish under tail-coverts in the female), that are found otherwise only in the *caledonica* superspecies. This occurrence of similar characters in different superspecies of *Coracina* is not unique, as will be shown later, and is a good illustration of parallelism in different species.

Coracina schistacea.—The Sulu species is one that some authors (Mathews, 1930) would include with *personata* as being similar to *pollens*. This species is like *pollens* in having a suffusion of melanin in the plumage but except for this it seems to me to be much closer to *guillemardi*, having like it the central tail-feathers black, not slate as in *pollens*. Likewise, the species *fortis* from Buru would have to be considered its nearest relative rather than *pollens*, a fact that, in view of the contrast in plumage between *fortis* and *schistacea*, seems highly unlikely.

Coracina lineata.—This is a species (type of the genus *Paragraucalus* Mathews) which shares many common characters with *striata*, such as barred under parts in the female, barred under wing-coverts, and a yellow iris. There can be little doubt of its relationship to this group, but the gap in distribution, the long isolation and different environmental associations of *lineata* make it impossible to put it in any closer relationship. The species is characterized in the adult male by uniform bluish-gray plumage above and below, with a black loreal streak and blackish tail. The under wing-coverts are finely barred. A chart of the varying plumage characteristics follows:

COLOR VARIATIONS IN THE *striata* SUPERSPECIES

♂ Adults	Iris	General coloration	Crown	Throat	Under wing-coverts	Under tail-coverts	Belly
<i>larvata</i>	brown	gray	gray	black	gray	gray	gray
<i>melanocephala</i>	brown	gray	black	black	gray	gray	gray
<i>dobsoni</i>	crimson	dark gray	gray	gray	barred	barred	barred
		brownish gray					
<i>striata</i>	yellow	gray	gray	gray	barred	barred	gray
<i>kochii</i>	yellow	gray	gray	gray	barred	barred	barred
<i>guillemardi</i>	brown	slate	slate	blackish slate	blackish slate	blackish slate	slate
<i>schistacea</i>	brown	slate	black	black	blackish slate	blackish slate	slate
<i>lineata</i>	yellow	gray	gray	gray	barred	barred	barred
<i>maforensis</i>	yellow	bluish gray	bluish gray	bluish gray	barred	barred	barred
<i>axillaris</i>	yellow	gray	gray	gray	barred	gray	gray
<i>nigrifrons</i>	yellow	bluish gray	bluish gray	bluish gray	barred	gray	gray

Papuensis SUPERSPECIES

In the *papuensis* group I would place three species, *leucopygia*, *papuensis* and *robusta*, which in many ways are exceedingly similar. All are of medium size (wing 135–165 millimeters), with a relatively long tail averaging 80% of the wing length. All are dark gray above and paler below, with white belly, under wing- and under tail-coverts. All have a prominent black loreal streak. As pointed out by Stresemann (1940), *leucopygia* is obviously related to *papuensis*. This monotypic species differs from *papuensis* only by having a yellow iris and white rump-patch. The tone of the plumage is somewhat darker, and the two central tail-feathers are blackish in the adult instead of gray, but these differences are not particularly striking. The yellow iris, however, which is not otherwise found in this superspecies, must be considered as an example of parallel mutation. It remains to be seen whether at some future time these differences may be considered of only subspecific rank.

The monotypic species *robusta* from Australia resembles *papuensis* perfectly in the adult plumage, differing only in larger size and the slightly darker tone of gray on the upper and under parts. The immature plumage, however, is quite different, being characterized by a black head, throat and upper breast, and heavy barring on the abdomen. Nonetheless, the two species are representative in their respective ranges. This occurrence of widely varying plumage in *robusta* suggests that it is a condition which has been suppressed in the other two members of the group. Taken with the evidence of the distribution of this group (Moluccas, Papua, Australia and Melanesia) these two facts together point toward the conclusion that the *papuensis* superspecies has not evolved entirely independently, but rather stems from an older continental form which has become lost or redirected into another form. The forms included in the species *papuensis* are: (1) *melanolora*, (2) *papuensis*, (3) *meeiana*, (4) *angustifrons*, (5) *oriomo*, (6) *lousiadensis*, (7) *ingens*, (8) *sclaterii*, (9) *perpallida*, (10) *eyerdami*, (11) *elegans*, (12) *timorlaöensis*, (13) *mertoni*, (14) *hypoleucus*, (15) *stalkerii*.

ISOLATED SPECIES

There are seven species of *Coracina*, found in Celebes, Halmahera and New Guinea, which for the present must be considered separate from the three main superspecies enumerated above. All of these forms have been so isolated, and the conditions on the islands have evidently been otherwise so favorable for change, that it is almost

impossible to say what, if any, are the relationships of these birds. That some of these species are even members of the genus *Coracina* has in the past been open to doubt, but critical examination of all of them has convinced me that they do belong to this genus and no other.

Coracina abbotti and *C. parvula*.—Stresemann (1940: 125) lists *abbotti* as an *Edolisoma*, although he qualifies this listing by saying that the bird has no near relatives and in fact does not resemble *Edolisoma macgregori*, the little-known species from Mindanao. This is certainly true. More than this, *abbotti* hardly seems to me to resemble *Edolisoma* from any other point of view than that of size. It lacks the distinctive white patch on wing-coverts and secondaries, and the black patch on the under parts covers the throat only and does not extend on to the breast as it does in *Edolisoma*. The American Museum possesses a specimen of the very rare *Coracina parvula* from Halmahera which I have been able to examine. By comparing these birds it at once becomes apparent that the mysterious *Coracina abbotti* from Celebes is in fact a *Coracina* and a close relative of *parvula*. This form from Halmahera, formerly considered a subspecies of *personata* (*vide* Mathews), is a much smaller bird, with a different type of plumage of a finer, softer texture, and with the upper parts a different shade of gray. Both these characters are similar to those of *abbotti* which also has a black throat and white under wing-coverts. The only real differences between the two species are that *abbotti* is white on the breast and abdomen where *parvula* is gray, and has a good deal shorter wing in proportion to its size. A chart of the characters follows:

COLOR VARIATIONS IN *Coracina abbotti* and *parvula*

♂ Adults	Upper parts	Throat	Belly	Wing	Tail-wing index
<i>abbotti</i>	uniform bluish gray	black	white	110	89
<i>parvula</i>	uniform bluish gray	black	gray	142.5	82

Coracina temmincki.—This species occurs on Celebes where it divides into three geographical races, with no very close relatives. The tail is nearly as long as the wing, which is short and rounded, and the suffusion of blue of a campanula shade over the gray plumage has served to remove almost all the characters which might otherwise

give some hint as to its position. If the blue could be suppressed, however, *temmincki* at once resembles the *caledonica* group. A study of the immature plumage shows the following characters when compared with a similar specimen of *caledonica*:

COLOR VARIATIONS IN *Coracina*

<i>Immature</i>	<i>Tertials</i>	<i>Tail</i>	<i>Belly</i>	<i>Under wing-coverts</i>
<i>temmincki</i>	subterminal spots	edged and spotted with white	barred	barred
<i>caledonica</i>	subterminal spots	edged and spotted with white	faintly barred	barred

The resemblances are there, but they are perhaps a little tenuous to do more than call attention to them. It remains for some more searching method of analysis to determine how indicative these resemblances are.

Coracina bicolor is the third of the isolated forms from Celebes. Unlike all other forms of *Coracina*, the adult male is bicolored, glossy black above with a white rump, and white below. This striking coloration, however, is not entirely successful in concealing the fact that there is a tendency to barring on the rump and under parts, and particularly on the auricular area. *C. dobsoni*, the race of *striata* from the Andamans, is the only other *Coracina* with a tendency to barring on the auricular area (*vide* Stuart Baker). This and the rest of the barring are an indication that *bicolor* might be considered a highly evolved offshoot of the *striata* group.

FORMS FROM NEW GUINEA

New Guinea has three very old aberrant forms of *Coracina*. The first, *caeruleogrisea*, containing three races, is a montane species in New Guinea and a lowland form on the Aru Islands. It has a large, powerful bill, bluish-gray general color, no barring, a black loreal streak and chin, tawny under wing-coverts, and gray central tail-feathers. In size and general coloration, it is similar to members of the *caledonica* superspecies, but such characters as the large bill, the tawny under wing-coverts and the more bluish shade to the plumage indicate that it is not very closely related. It is interesting to note, however, that the female and immature plumages of *Coracina pollens*, a member of the *caledonica* superspecies, have a tendency to tawny coloration on the under wing-coverts.

Coracina boyeri from the lowlands of New Guinea is a puzzling species for in size and in the coloration of the upper parts it exactly resembles such forms as *Coracina lineata axillaris*, a member of the *striata* superspecies from the same locality. It differs, however, very markedly in the uniform coloration of the under parts, the pale area around the bill, and the chestnut under wing-coverts. The last character and the fact of their distribution, hint at a relationship between this bird and *caeruleogrisea*. Examination of the immature plumages, however, as well as the obvious correlation of size and general coloration, incline me to the belief that this species should be considered as a highly aberrant offshoot of the *lineata* group. Thus the character of the chestnut under wing-coverts may be considered as still another example of parallel mutation in the same genus.

Coracina longicauda from the mountains of New Guinea is a species which is, I am sure, a *Coracina*. It possesses all the characters of the genus, but combines with them other characters—such as a peculiar dark-bluish sheen on the head, very fluffy, disintegrated feathers, and a rather square tail—that are not found in any other species of *Coracina*. A list of some of the characters of *longicauda*, giving the name of the species of *Coracina* which that character resembles, follows:

COLOR CHARACTERS OF *C. longicauda*

♂ Adult	Bill	Head	Under wing-coverts	Under tail-coverts	Tail
<i>longicauda</i>	short and weak like <i>papuensis</i>	black like <i>atriceps</i> or <i>melanocephala</i>	gray like <i>caledonica</i>	barred like <i>lineata</i>	black like <i>bicolor</i>

CONCLUSION

The Oriental forms of *Coracina* exhibit to a striking degree the ability to evolve along parallel lines. Thus it becomes difficult to set up a single character by which one species can be recognized or set apart from another. Certain differences do exist, however, and tenuous as they may at times appear, it is quite possible to set up standards within the genus and from these to chart out species groups or superspecies. In general, these three main superspecies show a remarkable amount of similarity in the makeup of their constituent species. Only in a few isolated cases in Celebes and Papua are there any forms which cannot be identified readily as belonging to one or other of the superspecies.

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