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Systematic Notes on Palearctic Birds. No. 48 Columbidae: The Genus *Columba*

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The present paper consists of reviews of *Columba palumbus* and *C. livia* and of a discussion of the relationships of *C. livia* and *C. rupestris*. These last two are usually accorded specific rank, a decision that I believe is certainly correct, but some authors continue to regard them as conspecific.

This study is based on the collections of the American Museum of Natural History augmented by the loan of a very large amount of material, collected chiefly by Dr. Walter N. Koelz, which was kindly lent to me by Dr. A. L. Rand and Mr. M. A. Traylor from the collections of the Chicago Natural History Museum. I gratefully acknowledge their assistance and their cordial reception during my visit to Chicago. I am indebted also to Colonel R. Meinertzhagen for lending me a specimen of a rare form from Egypt.

Columba palumbus

The Wood Pigeon inhabits the Azores, Madeira, the forests or well-timbered regions of northwestern Africa and of Europe eastward to western Siberia, the Iranian region, Russian and Chinese Turkestan, and the Himalayas. It is chiefly sedentary, but the northern populations of nominate *palumbus* and *casiotis* are migratory and winter in the southern part of their breeding range or a little farther south. It varies geographically, and Peters (1937, pp. 61–62) recognized six subspecies, but one of these (*excelsa* from Africa) seems much too poorly differentiated for its recognition to be warranted. Two additional, but invalid, subspecies have been proposed since 1937: one in 1950 from Scotland and the other in

1954 from Iran.

The geographical variation is slight, or relatively so, and is predominantly clinal in the continental populations, the birds becoming paler from west to east, slightly larger, and the pale patch on the neck decreasing in size and changing from white to buff. Three subspecies can be recognized along this cline: nominate *palumbus* in the west, *iranica* in Iran, and *casiotis* in the east, but the intermediate *iranica* is rather poorly differentiated. The other two subspecies are insular forms, but one of these (*maderensis*) differs only slightly from nominate *palumbus*. The five valid races are reviewed below.

1. *Columba palumbus azorica* Hartert, 1905, type locality, Azores. This race differs from nominate *palumbus* by being darker and more richly colored, being more vinaceous on the breast and more slaty on the rump, but the dark spots at the tip of the tail are paler and less broad and sharply demarcated than in nominate *palumbus* or *maderensis*. It is restricted to the eastern and central islands of the Azores.

2. *Columba palumbus maderensis* Tschusi, 1904, type locality, Madeira. This race differs from nominate *palumbus* only by being slightly darker and somewhat more richly colored. It is restricted to Madeira.

3. *Columba palumbus palumbus* Linnaeus, 1758, type locality, Sweden, with the following synonyms: *excelsa* Bonaparte, 1856, type locality, western Algeria, and *kleinschmidtii* Clancey, 1930, type locality, Scotland. The nominate race ranges from Scandinavia and Russia southward, including the British Isles, to the larger islands of the Mediterranean and the mountain forests of northwestern Africa from Morocco to Tunisia, eastward to the regions of Tyumen and Tobolsk and the middle course of the Ishim River in western Siberia, and from Asia Minor to Iraq and Transcaucasia.

Hartert (1920, p. 1478) recognized *excelsa* but only in very reserved terms. He says that the average coloration of the birds of Europe and Africa does not differ at all ("*keineswegs*"), but that some individuals from Africa are somewhat darker here and there ("*hier und da etwas gesättigter*"). He adds that similar birds are found in Europe and that the wing length of birds in Africa measures 254–270, as against 245–258 of birds in Europe and 265 in one bird from Syria. He wondered, however, whether this material is "adequate to assume that there is a larger form in northwestern Africa" (translation). Lynes (1924, p. 91), who does not recognize *excelsa*, states, "I do not think the proportion of deeper-coloured individuals (only some 50 per cent so far as I can see) from North Africa great enough to warrant separation."

I agree with Lynes in not recognizing *excelsa*, as the material that I have

seen shows that only a few specimens from Africa are slightly darker "here and there," and because the measurements of the birds of Europe and Africa show too much overlap. This overlap amounts to 50 per cent in the case of the males and is virtually complete in the case of the females. The individual wing lengths in birds collected only during the breeding season in Africa are as follows: 253, 254, 254, 255, 256, 256, 258, 259, 261, 262, 264, 268 (258.3) in 12 males, and 244, 253, 254, 255, 255, 259 (253.4) in six females, as against 243, 245, 245, 248, 248, 250, 251, 252, 252, 255, 255, 255, 257, 257, 258, 258 (251.8) in 16 males, and 244, 244, 248, 249, 250, 251, 252, 254, 258 (250) in nine females from Europe; and 263 in one male and 250 in one female from Syria, Hartert having measured an individual with a wing length of 265 from that country.

Clancey (1950, p. 89) stated that the birds of "Scotland, Ireland, and most of England and Wales" are darker than those of the continent and named them *kleinschmidtii*. I cannot, however, confirm that these populations differ constantly, and I agree with Niethammer (1956, p. 114) that *kleinschmidtii* is invalid.

4. *Columba palumbus iranica* Zarudny, 1910, type locality, Kopet Dagh in Transcaspia and Zagros in Iran. This race, which inhabits the greater part of Iran north to the Kopet Dagh in southern Transcaspia, differs from nominate *palumbus* by being paler and from *casiotis* by having larger and whiter patches on the neck. It is similar to *casiotis* in other respects and, in fact, is intermediate between *casiotis* and nominate *palumbus* in the size and color of the patch, not identical to the latter in this character as is usually stated. The patch varies geographically in Iran. It is white in the six specimens that I have seen from northern Iran but in three is more restricted than normal in nominate *palumbus*; in 25 specimens from the Zagros Mountains in southern Iran, it is white in 15 and more or less tinged with buff in 10. It is very difficult to evaluate its size, but, generally speaking, the patch is smaller on the birds in the Zagros than on those in northern Iran and on nominate *palumbus*. This variation suggests that the geographical variation is clinal from nominate *palumbus*, via *iranica*, to *casiotis*.

Koelz (1954, p. 28), who has collected the large series that I have seen from Iran, states that in this material the birds of the Zagros "are like northern specimens, but with paler abdomen," but the only difference evident to me is the fact that all the specimens from the north have a white neck patch, as stated above.

The wing length shows a tendency to be longer in birds from Iran than in those from Europe, the wing length of 19 males from Iran measuring 243-270 (256.1), as against 243-258 (251.8) in 16 from Europe, but the

females seem to have similar measurements, nine from Iran measuring 243–257 (248.6) and nine from Europe 244–258 (250).

5. *Columba palumbus casiotis* Bonaparte, 1854 (or early 1855), type locality, northwestern Himalayas, with *kirmanica* Koelz, 1954, type locality, Kirman, southeastern Iran, as a synonym. This race differs from nominate *palumbus* by being paler and by having a buffy, rather than white, and somewhat smaller, neck patch, *iranica* being intermediate in this character between *casiotis* and nominate *palumbus*, as stated above. *Casiotis* replaces *iranica* in southeastern Iran, but it is difficult to define the southwestern limit of its range because of the clinal variation. From southeastern Iran it ranges eastward through Afghanistan and northern Baluchistan to North West Frontier Province and the Himalayas and north to Russian Turkestan, where it inhabits the Tian Shan system, west to the Kuh i Tang Range on the border of Turkmenia and Uzbekistan, and east to western Chinese Turkestan, where it penetrates at least as far as longitude 82° E. and probably farther.

I cannot confirm the validity of *kirmanica*. Koelz (*loc. cit.*) mentions some color and size differences between his specimens from the region of Kirman and “3 toptotypical specimens” of *casiotis* from “Chinese Turkestan” in the collection of the American Museum of Natural History, but the specimens from Turkestan (which consist of five from Russian, not Chinese, Turkestan) were collected between 1895 and 1901 and are badly faded. He should have compared the series from Kirman that he collected at the end of 1939 and the beginning of 1940 to his series of *casiotis* that he collected in Afghanistan, also at the end of 1939. The two series, which are in comparative plumage, show no differences in coloration, and I find no appreciable differences in size among the birds of Iran, Afghanistan, and Turkestan (see below).

The correct type locality of *casiotis* seems to be the northwestern Himalayas, not Chinese Tartary, as stated by Peters (*loc. cit.*). Bonaparte published *casiotis* twice at short intervals. In the account that was probably published earlier (and hence is cited by Peters) the only locality mentioned is “Tartarie chinoise,” but in the other, Bonaparte states clearly that *casiotis* is based on “*Palumbus torquatus* [= *C. palumbus*] var. ex Himal [ayas]” of Blyth, giving a reference to page 233 of Blyth’s “Catalogue of the birds in the Museum Asiatic Society” published in 1849. Blyth stated in that publication that his specimens had been collected in “N. W. Himalaya” by Captain Hutton. He described them correctly but failed to give them a name, being content to call them a “variety.” I believe that the northwestern Himalayas should be accepted as the correct type locality in view of the fact that *casiotis* was based on the description given

by Blyth, Bonaparte's descriptions being merely a paraphrase of Blyth.¹

MEASUREMENTS: My measurements, given below, and those supplied by Koelz (*loc. cit.*) show some discrepancies in the number of specimens and their measurements. For instance, I find that the series of "*kirmanica*" consists of many more females but fewer males than stated by Koelz, but I accepted the sexing indicated on the labels. Some specimens were difficult to measure, because their primaries were worn, and I found also that I had to omit some specimens because their primaries were too badly worn or molting, or because the birds were not adult.

RUSSIAN TURKESTAN: Wing length, males, 254, 257; females, 254, 255, 257. Bill length measured from the skull, males, 26, 29; females, 27, 28, 31.

AFGHANISTAN: Males, 254, 254, 258, 261, 265 (258.4); females, 234, 235, 260 (243). Bill, males, 26, 28, 28, 28, 28.5 (28.1); females, 25, 26.5, 27.5 (26.5).

IRAN (REGION OF KIRMAN, "*kirmanica*"): Males, 249, 255, 256, 258 (254); females, 242, 243, 246, 247, 248, 250 (246). Bill, males, 26, 26.5, 27, 27, 27.5, 28, 28.5, 28.5, 29, 29 (27.7); females, 26, 26, 26.5, 27, 27, 27, 28, 28, 28 (27.05).

IRAN (ZAGROS): Males, 245, 248, 249, 249, 253, 253, 254, 257, 258, 258, 260, 261, 262, 264, 265 (255.7); females, 243, 244, 245, 247, 248, 249, 250, 255 (247.7). Bill, males, 25.5, 26, 26.5, 26.5, 27, 27, 27, 27.5, 28, 28, 28, 28, 28, 28.5, 29, 30 (27.5); females, 25.5, 25.5, 26, 26.5, 27, 27.5, 28, 29 (26.9).

IRAN (NORTH): Males, 243, 257, 261, 270; female, 257. Bill, males, 25, 26.5, 27, 31; females, 28, 29.

Columba livia and *Columba rupestris*

The Rock Pigeon (*C. livia*) and the Blue Hill Pigeon (*C. rupestris*) are closely related and, generally speaking, replace each other geographically, *livia* being in the western half of the Palearctic region and *rupestris* in the eastern. They are usually accorded specific rank, although some authors, such as Austin (1948, p. 139) have treated them as one species. Their relationship is discussed by Goodwin (1959, p. 12) who concludes: "... it seems best to accept the majority opinion that *rupestris* is a full species. Since the evidence suggests strongly that, at least as far as genuinely wild individuals are concerned, *livia* and *rupestris* are allopatric when breeding they should, I think, be considered members of a superspecies." My own study shows, however, that they are not allopatric throughout their range,

¹ Bonaparte described *casiotis* on page 1103 of the *Compte rendu des séances de l'Académie des Sciences* of Paris for the session of December 11, 1854, which may have been published at the end of that year or early in 1855, and on page 42 of volume 2 of his "Conspectus generum avium." Pages 25-26 of the "Conspectus" were published before March, 1855, because, as stated by Zimmer (1926, p. 69), Cabanis notes on page 192 of number 14, volume 3 of the *Journal für Ornithologie*, published in March, 1855, that he had received them. In the "Conspectus," Bonaparte gives references to his authorities, whereas these are omitted in the more hastily prepared account in the *Compte rendu*.

as they overlap broadly in the mountains of Turkestan, Afghanistan, and the northwestern Himalayas, and I have no doubt whatever that they are separate species.

The evidence available hitherto is reviewed by Goodwin. He states: "Over most of their range the two are allopatric, *rupestris* replacing *livia* in the higher and colder parts of central and eastern Asia. The differences between them are certainly such as suggest racial rather than specific status. *Rupestris* has a proportionately smaller bill and a reduced amount of melanin in the plumage resulting in a white instead of a grey central bar in the tail, smaller black wing bars, paler grey ground colour and less intensely iridescent display plumage. With the possible exception of the white tail bar none of these cause as great difference in appearance as exists, for example, between *C. livia gymnocyclus* and *C. l. dakhlae* or *C. l. livia* and *C. l. intermedia*. In its habits and ecology (Schäfer, 1938) *rupestris* apparently differs in no essentials from *livia*.

"These facts suggest that the two are conspecific. On the other hand *rupestris* is said to associate with *livia* in parts of northern India (Stuart Baker, 1913), and it is potentially in contact with feral specimens of *livia* in many parts of its range . . . the voice of *rupestris*, as described by Salim Ali (1949), would appear to differ much from that of *livia*. The evidence is thus conflicting."

I would comment that the tail of *livia* is not barred, as it is uniformly gray above the black tip, in sharp contrast to *rupestris* which has a white "central bar" between the gray of the base and the black tip; that the difference between the color of the rump in *C. l. livia* and *C. l. intermedia* is bridged by all sorts of intermediates; that *dakhlae* is an extremely isolated form; and that Goodwin has apparently discountenanced the statements of range given by Meklenburtsev (1951), although Goodwin cites his paper in his bibliography.

The ranges of *livia* and *rupestris*, as described by Meklenburtsev (1951), show that the two species come into contact and overlap in the Tarbagatai, Dzungarian Ala Tau, and the Tian Shan system in Russian Turkestan. They are sympatric also in northeastern Afghanistan (Badakhshan) and in the northwestern Himalayas, as shown by the large but unreported series that were collected by W. Koelz. He took both species at Zebak in Afghanistan July 20–22 and a series of *rupestris* at Iskatul, 10 miles south of Zebak and in the same valley. He collected both in the valley of the Indus in Ladak (the type locality of *C. l. neglecta*), and at localities varying from 13 to 17 miles apart in Kulu and Lahul in northern Punjab.

The sharp differences in the pattern of the tail and of the voice (*fide* Ali) are the sort of characters that birds use for recognition. These differences,

together with the fact that the two birds are undeniably sympatric, certainly argue that they are not conspecific.

Goodwin speculates on the possibility of interbreeding. He states that he has seen no specimens "among the many from North India and the Himalayas" in the collection of the British Museum "that appear to be hybrids of intergrades between the two [but] it must be admitted, however, that such birds might be difficult to detect, unless they were intermediate in coloration of the tail." The specimens that I have seen from the zone of overlap in Afghanistan and the Himalayas consist of 65 *rupestris* and 18 *livia* and show no evidence of interbreeding.

Columba livia

The Rock Dove, from which the many varieties of domestic pigeons are derived, ranges from Europe eastward to the Tarbagatai, western Chinese Turkestan, India south to Ceylon, and south through Africa including the Canaries, to Senegal, French Sudan, northern Gold Coast, Darfur, coast of the Sudan, Arabia, and the Iranian region. It is sedentary. Domestic birds have been introduced virtually throughout the world and have reverted to a wild or semi-wild state in many regions.

Some authors include the Azores, Madeira, the Cape Verde Islands, Burma and northern Siam, Inner Mongolia, and parts of China in the range of *C. livia*, and some recognize a subspecies (*atlantis*) in the three groups of islands named and another (*nigricans*) in China. These two forms are highly variable, however, and probably represent domestic stock which has become feral. The regions from which *nigricans* is reported (Inner Mongolia and northern China) are very far from the normal range mentioned above and are inhabited by the closely related Blue Hill Pigeon (*C. rupestris*), but it is possible that *livia* had spread to the Cape Verdes, Madeira, and the Azores before domestic birds were brought to these islands. Smythies (1953, p. 425) states, "it is very doubtful" that *livia* "occurs anywhere in Burma in a truly wild state," and Deignan (1945, p. 150) says, "there can be little doubt" that the birds of Siam "are feral descendants of introduced stock, which was perhaps brought in during the earliest days of Thai intercourse with India."

Peters (1937) recognizes 14 subspecies, three of which are not Palearctic. Two of the seven races that I recognize in the Palearctic region are isolated in the oases of the Libyan Desert (*dakhlæ*) or in the mountains of the Sahara (*targia*), the geographical variation being clinal in the other races. The wing length decreases from north to south, and the birds become paler in arid regions. The wing length increases from Europe eastward to northwestern India and the rump changes from white to gray. The colora-

tion, other than that of the rump, becomes paler also from west to east but only as far as eastern Afghanistan, where this cline is reversed. In this region, neighboring Gilgit, and apparently also in the mountains of Turkestan, the birds are intermediate in coloration between the paler *gaddi* in the west and the darker *neglecta* in northwestern India. In peninsular and southern India color saturation increases and size diminishes from north to south. The birds of these regions, from which the domestic and feral pigeons of eastern Asia were probably derived, are called *intermedia*, an unfortunate name as this race is not "intermediate" but the darkest of all. This race is not Palearctic and, as stated above, a feral population from Inner Mongolia was named *nigricans* by Buturlin in 1908. In the west, the race of the Canaries appears to represent only the end of a slight cline running from Europe through northwestern Africa.

The seven Palearctic races are listed below with a few comments.

1. *Columba livia canariensis* Bannerman, 1914, type locality, Gran Canaria. This race, restricted to the Canaries, is not well differentiated from nominate *livia* but is slightly duller above, slightly darker below, less white on the rump, and averages slightly smaller. The rump is less white in *canariensis* as a rule, being tinged with a slight admixture of gray in most specimens. Some specimens from northwestern Africa are similar to the birds of the Canaries but, taken in series, the birds of Africa are identical or virtually so with those of Europe. The wing length measures 214–234 (222.5) in 20 males and 210–226 (216.5) in 16 females from Europe, 209–231 (221) in 15 males and 207–224 (214) in eight females from northwestern Africa, and 216–222 (220) in three males and 202–211 (205) in three females from the Canaries. The birds are less numerous in the eastern Canaries according to Volsøe (1951).

2. *Columba livia livia* Gmelin, 1789, type locality, southern Europe, according to Hartert. This race inhabits Europe, western Siberia, northwestern Africa, and the islands of the western Mediterranean.

The status of *atlantis* has been discussed by Mayaud (1932). He does not advocate the recognition of *atlantis*, as he states that it is impossible to find two specimens that are identical, but takes issue with the authors who believe the birds of the Azores are of domestic origin. He states that he is inclined to believe that this species colonized the Azores unaided ("*très naturellement*"),¹ where most individuals became melanistic.

¹ An old tradition holds that no land birds were found when the islands were discovered in 1432, although they seem to have been abundant (including "pigeons") towards the middle of the sixteenth century. Land birds had certainly spread to the Azores long before man, but it is also known that domestic birds were introduced very early in the Azores. They probably included the domestic pigeon.

The specimens that I have seen consist of 20 from the Azores and 17 from Madeira. They vary a great deal individually and seem to correspond to the 16 seen by Mayaud from the Azores. Only two are similar to nominate *livia* from Europe, the others being melanistic to a greater or lesser degree. They vary from gray birds, which are more or less extensively mottled with dark slate on the back and wings, to some that are almost uniformly blackish. The color of the rump varies from pure white to dark slate and is not correlated with the color of the rest of the plumage, some of the darker birds having pure white rumps.

Columba livia may have reached the Azores and Madeira before the arrival of man, but the considerable individual variation and melanism of the birds now found in these islands suggest that they are the descendants of domestic pigeons. Such was the opinion of Hartert (1905, p. 94; 1920, p. 1467), who stated that this was "evident," and also of Murphy and Chapin (1929) concerning the birds of the Azores who state that this is "quite evident."

The field notes of Ogilvie-Grant (1905) and of Murphy and Chapin seem to confirm also the domestic origin of the birds. They are very unwarly. Ogilvie-Grant says that they are very "tame," and Murphy and Chapin that "the rock doves spent much time about human dwellings, perching on roofs and stone walls and waiting for the inhabitants to feed the poultry. At such times they would fill their crops quickly and then fly off to their crevices among the sea cliffs." I have seen no specimens from the Cape Verde Islands, but I believe that pigeons there are also of domestic origin, as Bourne (1955) states that the birds he saw were "very dark though occasional individuals had some white feathers."

3. *Columba livia gaddi* Zarudny and Loudon, 1906, type locality, southwestern Iran, with the following synonyms: *palaestinae* Zedlitz, 1912, type locality, Jordan Valley; and *butleri* Meinertzhagen, 1921, type locality, Red Sea province of the Sudan. Peters (1937) recognized *palaestinae* and *butleri*, but Meinertzhagen (1954, p. 444) synonymized his own *butleri* with *palaestinae*, and I agree fully with Hartert (1923, p. 79) that *palaestinae* is not valid and should be synonymized with *gaddi*.

This race differs from nominate *livia* by being paler. In the eastern part of its range, it becomes larger and acquires a gray rump (see geographical variation above). In typical specimens from Iran the wing length measures 230–240 (234) in 10 males and 224–235 (227.5) in eight females. *Gaddi* replaces nominate *livia* in Cyrenaica and the eastern Mediterranean, ranging eastward to Arabia, Transcaspia, and Afghanistan, where it grades into *neglecta* in eastern Afghanistan. This range is much more extensive than was believed by Hartert (1920), Steinbacher (1936), and

Peters (1937), but Meinertzhagen (1938, p. 707) found that the large series he collected in Afghanistan was *gaddi*. This was confirmed by the equally large series that Paludan (1959, p. 111) collected in western and central Afghanistan and Koelz in western Afghanistan and Afghan Turkestan. Birds that I have seen from eastern Iran and Transcaspia are similar also to those of western and southern Iran and Afghanistan.

The specimens collected by Koelz in eastern Afghanistan in the region of Gardez south of Kabul and in Badakhshan in the northeast are intermediate in coloration between *gaddi* and *neglecta*. Such intermediate coloration is true also of one bird from Gilgit and another from the Tian Shan. Paludan (*loc. cit.*) found that his specimens from Nuristan in eastern Afghanistan were darker than those he collected farther west in central and western Afghanistan, and he referred them to *neglecta*. It seems therefore that *gaddi* grades into *neglecta* in the regions mentioned.

4. *Columba livia neglecta* Hume, 1873, type locality, Ladak. This race is discussed in part above and appears, judging by the specimens I have seen, to range in northwestern India as far east as northern Punjab and Kumaon. It inhabits Baluchistan and Sind also, according to Ticehurst (1927, p. 72).

5. *Columba livia schimperi* Bonaparte, 1854, type locality, Egypt. This race inhabits the Nile Valley from the Delta south to about the region of Khartoum. It differs from *gaddi* by being paler and smaller. The wing length of three males from Egypt measures 194–203 (200) and of five females 195–204 (199).

6. *Columba livia dakhlae* Meinertzhagen, 1928, type locality, Dakhla Oasis, Libyan Desert, western Egypt. This distinctive and handsome race is the palest of all, virtually white, being very pale French gray on the back and under parts, with a pure white rump. It is very local, as it is known only from the oases of Dakhla and Kharga. I was able to examine it through the courtesy of Colonel Meinertzhagen, who sent me a specimen. An excellent color plate of *dakhlae* was supplied by him in his book on the birds of Egypt (1930, pl. 21).

7. *Columba livia targia* Geyr von Schweppenburg, 1916, type locality, Ahaggar Massif, central Sahara. This race is darker than *schimperi*, paler than nominate *livia*, and about similar to *gaddi*, but the rump is gray in all the specimens known, and, on the whole, it is slightly duller above than *gaddi* and somewhat darker below. It is larger than *schimperi* and smaller than nominate *livia* or *gaddi*, the wing length of six males from the Aïr measuring 208–220 (213) and of five females 201–210 (205). *Targia* inhabits the mountains of the Sahara in the Fezzan, Ahaggar, Aïr, Tibesti, Ennedi, and Darfur.

The extralimital races recognized by Peters (*loc. cit.*) consist of *intermedia* Strickland, 1844, type locality, Calcutta, which is briefly discussed above, and of two from the dry zone south of the Sahara: *gymnocyclus* Gray, 1856, type locality, Senegal, and *lividior* Bates, 1932, type locality, Mopti, French Sudan. The latter is known only from the type locality and requires further study, as it is possible that *lividior* will turn out to be a synonym of *gymnocyclus*.

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