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Systematic Notes on Palearctic Birds, No. 50 The Pteroclididae

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The present paper consists of reviews of *Pterocles exustus*, *orientalis*, and *coronatus*, and of notes on the barred sandgrouse complex of species, on *Syrrhaptes tibetanus*, and on the generic relationships of *S. tibetanus* and *paradoxus*.

I am indebted to Dr. James P. Chapin for examining with me some African forms and for his advice, to Dr. A. L. Rand and Mr. M. A. Traylor for lending me large series from the collection of the Chicago Natural History Museum, and to Dr. R. W. Storer for lending me material from the collection of the Museum of Zoology of the University of Michigan.

Pterocles exustus

The Chestnut-bellied Sandgrouse inhabits Africa in the dry zone south of the Sahara from Senegal eastward through the Sudan to Egypt, Abyssinia, and Somaliland, south to Kenya and northern Tanganyika, and also Arabia and southern Asia from Persian Baluchistan to India. It is sedentary and varies geographically, but its taxonomy is badly confused, as no two authors agree as to the number of its subspecies and their nomenclature. This confusion extends to its English names, as it is also called the Common Sandgrouse, Singed Sandgrouse, or Small Pin-tailed Sandgrouse, but the name Chestnut-bellied Sandgrouse seems to be the most appropriate.

Hartert (1920) recognized four races and believed another could probably be named. Peters (1937) admitted seven, but in the same year Mackworth-Praed and Grant stated that "no more" than three were valid. The review of Mackworth-Praed and Grant (1937) was based on

the series in the British Museum (Natural History), but those in the American Museum of Natural History show that no fewer than six subspecies can be recognized. The material in New York includes the types of four distinct forms, but one of these (*orientalis* Hartert) had received an earlier name. The six races are briefly reviewed below. A study of this species is complicated by some local and individual variation, a problem that often arises in the study of non-migratory birds that live on the ground in arid regions.

1. *Pterocles exustus exustus* Temminck, 1825, type locality, Senegal. This race is pale and ochraceous and ranges from Senegal eastward to the Sudan and north to the Aïr in the southern Sahara.

2. *Pterocles exustus olivascens* Hartert, 1909, type locality, Simba, southeastern Kenya, with *emini* Reichenow, 1919, type locality, region northwest of Lake Victoria, Uganda, as a synonym. Mackworth-Praed and Grant (1937) have synonymized *olivascens* and *emini*, and also *somalicus*, with nominate *exustus*, which seems incorrect, as *olivascens* is very distinctly darker than nominate *exustus*, and *somalicus* is a synonym of *elliotti*, the latter being somewhat paler and more rufescent than nominate *exustus* and hence much paler than *olivascens*. The form described by Reichenow is a mystery. No specimens from Uganda were seen by me, but Chapin (1939, p. 144) states: "The status of this race [*emini*] is extremely uncertain . . . Little is known of the occurrence of the species near the type locality of *emini*, perhaps it will be found in the dry areas of Ankole or near Lake George, not far from the Congo border. But Sir Frederick Jackson did not mention any sand-grouse as occurring in that part of Uganda." It is best not to recognize *emini*, but this name should perhaps be synonymized with nominate *exustus* rather than with *olivascens*.

Hartert was correct in emphasizing that *olivascens* is very distinct from nominate *exustus*. The males of *olivascens* differ from those of nominate *exustus* by being grayer throughout, more olivaceous on the crown, back, and rump, and much less ochraceous. The females of *olivascens* are much more densely barred with dark brown on the back, rump, and upper tail coverts and, on an average, are more heavily streaked and spotted on the lower throat and breast. Friedmann (1930, p. 198) calls his specimens from Chaffa in southern Abyssinia and northern Kenya by the name *somalicus*, but Chapin, who has compared with me specimens from these regions to some from northern Abyssinia and Somaliland, agrees that they are intermediate in coloration between "*somalicus*" and *olivascens* but are, on the whole, more similar to the latter. These intermediates consist of three specimens from the northern Waso Nyiro River, six from Chaffa Dikka, about 50 miles north of Isiolo in north-

eastern Kenya, and four of the 14 specimens seen by Friedmann from Chaffa in southern Abyssinia.

3. *Pterocles exustus ellioti* Bogdanov, 1881, type locality, Eritrea and northern Abyssinia, with *somaticus* Hartert, 1900, type locality, Milmil, Somaliland, as a synonym. This race differs only slightly from nominate *exustus* by averaging paler and somewhat brighter above, a little more rufescent above in the females and below in the males. Its range seems to consist of Eritrea and northern Abyssinia eastward to British and Italian Somaliland. It intergrades with *olivascens* in southern Abyssinia and northeastern Kenya, as stated above, and perhaps also in southern Italian Somaliland.

4. *Pterocles exustus floweri* Nicoll, 1921, type locality, El Faiyum, Egypt. The only specimen of this race that I have seen is its type. This specimen, a male, is less dark than *olivascens*, as stated by Nicoll, and differs from nominate *exustus* by being darker and grayer on the head, back, and breast. It is also more yellowish, less "warmly" colored on the upper wing coverts and scapulars, than nominate *exustus*, being yellowish ocher, rather than ochraceous buff as in nominate *exustus*. This description of the type of *floweri* (and also the original description of this race by Nicoll) does not correspond at all to the alleged specimen of *floweri* illustrated in color by Meinertzhagen (1930, pl. 24). This plate depicts an extremely dark male (virtually chocolate-brown on the back and breast) which Meinertzhagen says was collected at El Faiyum on January 10, 1922. The bird shown may represent an extreme individual variant, or an error is involved. At any rate, it is very different from the type of *floweri*, and in fact I have not seen any specimen of this species which approaches its coloration. The range of *floweri* seems to be restricted to the Nile Valley, from about Luxor, according to Meinertzhagen, north to El Faiyum and the fringes of the Delta.

5. *Pterocles exustus erlangeri* Newmann, 1909, type locality, near Lahej, Aden, southwestern Arabia. This race differs from *floweri* and nominate *exustus* by being paler and grayer above and below, and by being very pale vinaceous buff on the upper wing coverts and scapulars, less yellowish or ochraceous. It inhabits southern and western Arabia north to the region of Mecca, but, so far, is unknown from the Yemen. Hartert (1920) refers to *erlangeri* the birds that he says are common in the Syrian Desert and southern Palestine, but he had seen no specimens from these regions, where to my knowledge none has been collected. The species is said to have been seen also in Iraq, but no specimen has been collected, and confirmation is desirable.

6. *Pterocles exustus hindustan* Meinertzhagen, 1923, new name for *orien-*

*tal*is Hartert, 1900, type locality, India, which is preoccupied by *Pterocles orientalis orientalis* (Linnaeus), 1758. This race ranges from Persian Baluchistan eastward through Baluchistan proper (with the exception of the north), to the drier and more barren plains of India, east to eastern Bengal and south to Cape Comorin but not to Ceylon. It may occur also in southern Afghanistan but has not been recorded with certainty. *Hindustan* is duller and darker, more clay-colored, than *erlangeri*; it resembles *floweri* to some extent but is duller in general coloration and is more ochre, less yellowish, on the upper wing coverts and scapulars. Meinertzhagen appointed a "type" from Sambhar, Rajputana, but, as he explicitly proposed *hindustan* only as a new name for *orientalis* Hartert, the type of *hindustan* remains the specimen selected by Hartert. The type (A.M.N.H. No. 547832) has no definite locality, and, if desired, Sambhar can be accepted as the restricted type locality, which seems unnecessary as only one form is known to occur in India.

Pterocles orientalis

The Black-bellied, or Imperial, Sandgrouse breeds from the Iberian Peninsula south to northwestern Africa and Fuerteventura Island in the eastern Canaries, and also from Turkey eastward to the Iranian region, and from the lower Volga eastward through Kazakhstan and Transcaspia to Dzungaria and Chinese Turkestan. Some populations are sedentary (as in the west), but others are erratic or migratory and winter from the Near East eastward through Iraq and the Iranian region to northwestern India. It varies geographically, but such variation is rather slight and not very constant, and no subspecies were recognized until 1934 when Meinertzhagen described a "new" subspecies from western Kazakhstan. He subsequently (1940) suggested also that the population from the western end of the range was distinct, reviving the old name *aragonica* for the birds of Spain and Africa. Two additional forms were named by Neumann and Koelz, respectively, but it seems to me that no more than two subspecies can be recognized.

1. *Pterocles orientalis orientalis* Linnaeus, 1758, type locality, Turkey, with *aragonica* Latham, 1790, type locality, Aragon, Spain, as a synonym. This race inhabits the Iberian Peninsula, northwestern Africa, Fuerteventura, and Asia Minor eastward to Armenia and Transcaucasia. It differs from the eastern race (*arenarius*) by being darker and more richly colored. In males of nominate *orientalis*, the edges of the upper wing coverts, scapulars, and of the feathers of the back, rump, and upper tail coverts are more golden, less yellow, than in *arenarius*, and the feathers of the breast are more ochraceous or buffy, less grayish. The females of nominate *orien-*

talis are darker above and below, less whitish on the lower breast below the black pectoral band, than in female *arenarius*. These differences are clearly evident in the large majority of the specimens of the two races that I have seen, but one should note that an occasional bird is indistinguishable and that a few differ only very slightly.

This lack of constancy led Dementiev to state (1951, p. 79) that the species is probably monotypic. He believes the validity of *arenarius* is doubtful but he nevertheless recognizes it. I agree with his decision, as the geographical variation seems sufficiently well marked in the eastern part of the range, but I do not follow Meinertzhagen, who would recognize a third race at the western end of the range. Meinertzhagen (1940, p. 229) stated that the four birds he collected in Morocco are "considerably darker and richer" than specimens from Asia Minor and Iraq and proposed to revive the name *aragonica* for the birds of the Iberian Peninsula, Africa, and the Canaries. He granted that his material was inadequate, and I must remark that the birds that occur in Iraq are *arenarius* and hence cannot be used to determine whether or not *aragonica* differs from nominate *orientalis*. The species does not breed in Iraq, the winter visitors to that country arriving from the Iranian Plateau, according to Ticehurst (1922, p. 949); this plateau is inhabited by *arenarius*, as my many specimens show.

My material from Turkey and Spain consists of only one specimen from each and is thus totally inadequate, but *aragonica* should not be recognized until much more material can be compared. Possibly the birds from the western end of the range will be found to be somewhat darker, as the geographical variation tends to be clinal, the populations averaging paler as they range farther east. The two specimens from Turkey and Spain are identical and actually are quite pale, paler than 37 from Africa and the Canaries.

2. *Pterocles orientalis arenarius* Pallas, 1775, type locality, sandy region between the lower Ural River and the lower Volga, with the following synonyms: *koslovae* Meinertzhagen, 1934, type locality, Emba River, western Kazakhstan; *enigmaticus* Neumann, 1934, type locality, near the Rann of Kutch, northwestern India, on migration; and *bangsi* Koelz, 1939, type locality, Afghan Turkestan.

Meinertzhagen's name (*koslovae*) is based on specimens that were collected in the same region as those seen by Pallas and was synonymized with *arenarius* by Dementiev (*loc. cit.*). Meinertzhagen (1934a, p. 59) was probably misled by his belief that "the type [of *arenarius*] came from the Lower Volga" and that the birds of that region are nominate *orientalis*, whereas they are *arenarius*, as stated correctly by Dementiev. Meinertz-

hagen was aware of the existence of *arenarius* but apparently considered that it was indeterminate as to subspecies. He stated that its type "cannot be traced" and that Pallas failed to mention the subspecific characters or to show them on his plate, as the latter was not colored, but *arenarius* was correctly proposed and cannot be superseded by *koslovae*, in Dementiev's opinion and my own.

I have examined all the specimens of *bangsi* and find that they do not differ in any respect from *arenarius*. The form named by Neumann was based on two specimens collected near Kutch on January first which he stated (1934, p.73) are "far darker" than any specimen of the species he had seen. He believed that *enigmaticus* would "be found to be resident . . . in Kutch," but this species does not breed in Kutch, according to Ali (1945, p. 96), or anywhere in India, if we exclude Baluchistan which, geographically and faunistically speaking, is an integral part of the Iranian region. *Enigmaticus* is well named if indeed it is as dark as Neumann claims, but I am reluctant to grant that it represents a geographical form. Meinertzhagen (1954, p. 462) stated that *enigmaticus* was "inseparable" from nominate *orientalis*, but it seems best to synonymize *enigmaticus* with *arenarius*, the only race that seems to visit India, as nominate *orientalis* appears not to be migratory. I suspect that *enigmaticus* represents individual variants of *arenarius*.

Pallas stated that *arenarius* inhabited ". . . medio deserto inter Rhymnum et Volgam extensis," which can be expressed as the sandy or semi-desert region which extends between the (lower) Ural River and the (lower) Volga. The Rhymnum River has been mentioned by Pallas in connection with the type locality of other birds. This river has been a sore puzzle to me and generations of geographers. The Rhymnum was said to have its source in the mountains now called the Urals and to empty into the Caspian Sea. It very probably, therefore, represents the Ural River. It has been suggested, however, that the Rhymnum entered the Caspian between the Volga and the Ural, but no such intervening river exists, although, to be sure, a more or less permanent channel, called the Naryn Chara or Protoka Narynsk, leaves the Ural on the west bank at about 100 kilometers, and again at about 75 kilometers, north of its mouth and empties into the Caspian at about 55 kilometers west of the delta of the Ural. It has been said that this channel represents the Rhymnum, which seems unlikely in view of the fact that classical geographers said it flowed down from the mountains.

Pterocles coronatus

The Coroneted Sandgrouse is a bird of the true open desert or of very

arid ravines in hilly and mountainous regions and ranges from the Sahara eastward to Palestine, Arabia, and the southern part of the Iranian region to Sind and northwestern India west of the Indus. It is sedentary but is also nomadic or erratic to some extent. It varies geographically, and Peters (1937, pp. 6-7) recognized four subspecies; an additional one was described by Koelz in 1954. The five races are reviewed below. The geographical variation does not follow a clinal pattern as the birds breed in more or less isolated colonies, but in a general way their coloration is correlated to the type of desert they inhabit or, as in the case of *saturatus*, with the color of the ground. They are more rufous in the hotter deserts, more grayish in the colder ones.

1. *Pterocles coronatus coronatus* Lichtenstein, 1823, type locality, Nubia. This race is pale and the most rufous. It inhabits the Sahara from the Oued Draa in southern Morocco eastward through the Algerian and Tunisian Sahara to western Egypt, south to the Zemmour in the Spanish Sahara, the Ahaggar and Aïr Massifs in the central and southern Sahara and in the east to the region of Dongola in northern Sudan and perhaps Kordofan.

The birds that breed in the hills and mountains of the central and southern Sahara appear to average darker than those from the more open and flatter desert, and Meinertzhagen (1934b) would call them *vastitas* (the darker and less rufous race from Palestine), stating, "The form *vastitas* extends from the Ahaggar and Asben [= Aïr], then probably there is a gap, re-occurring in Sinai and southern Palestine." But as Steinbacher objects (1936, p. 462), this gives a very strange range to *vastitas*, the "gap" being inhabited by typical nominate *coronatus*. Meinertzhagen's opinion was based on three specimens that he collected in the Ahaggar which he says are "certainly not *P. c. coronatus* . . . [but] nearest to *P. c. vastitas*," and one male from the Aïr in the Rothschild Collection which he states "appears to be identical with *P. c. vastitas*." I find that the specimen from the Aïr, the only specimen of this species that has been collected in this region, is considerably darker than normal for nominate *coronatus* but nevertheless can be matched by one from the Sudan. Hartert (1924, p. 8) identified it as nominate *coronatus* and stated that he believed "that all African specimens belong to one and the same subspecies." I may add that all the birds from the central and southern Sahara are certainly not dark, because three that I have seen from the Ahaggar are quite pale and are identical with virtually all those that I have seen from the Sudan. The coloration of the birds of the Sahara and Palestine shows some degree of convergence, but it would be misleading to call these two widely separated populations by the same name (*vastitas*). The latter should be

restricted to Sinai and Palestine where its characters are constant, and Hartert should be followed in calling all the birds of Africa nominate *coronatus*.

2. *Pterocles coronatus vastitas* Meinertzhagen, 1928, type locality, southern Palestine. This race, which inhabits the Sinai Peninsula and southern Palestine, is darker than nominate *coronatus*. The males are browner, less rufous, above, and the females are more densely and darkly barred above and below. It is intermediate in coloration between nominate *coronatus* and the still darker *atratus*, which does not imply that it intergrades with these two, as it appears to be well isolated from both. Nominate *coronatus* is not found east of the Nile, *vastitas* does not occur east of the Dead Sea, according to Meinertzhagen, and the northernmost record of *atratus* in Arabia that I am aware of is "Arja, 100 miles north-east of Madina," mentioned by Bates (1937, p. 307). Arja is located at latitude 25° 19' N. by longitude 41° 01' E., about 800 kilometers southeast of the Dead Sea.

3. *Pterocles coronatus atratus* Hartert, 1902, type locality, "Eastern Persia." The label of the type in Russian script states that it was collected in Persian Baluchistan at Kaskin, 40 kilometers north of Bam-pur, by Zarudny. This race is darker than *vastitas*, the males being more blackish brown, less rufous brown, above and the females much more densely and darkly barred above. It inhabits the deserts of Iraq (where it seems to be rare and from where I know of no definite record), of Arabia, and of southern Iran, southwestern and southern Afghanistan, and Baluchistan proper. I suspect that the birds of southeastern Afghanistan (and probably eastern Baluchistan) show a tendency towards *ladas*, as Paludan (1959, p. 109) states that the specimen he collected at Girishk in southeastern Afghanistan is paler than the bird he took at Shin Dand in western Afghanistan, and its coloration is more uniform below.

4. *Pterocles coronatus saturatus* Kinnear, 1927, type locality, Oman Peninsula, southeastern Arabia. This race, which is restricted to the hills of the Oman Peninsula, was not examined by me, but it is said to be darker than *atratus* in both sexes. A color plate of it is supplied by Meinertzhagen (1954, pl. 15) which shows that it is very dark, blackish in the males and more densely and darkly barred below than *atratus* in the females. Its coloration seems to be correlated with that of the ground, because Meinertzhagen states that it is found in "hilly ravine country of black or dark grey serpentine rock."

5. *Pterocles coronatus ladas* Koelz, 1954, type locality, Sind. The birds from the eastern extremity of the range of the species were referred to

atratus, until they were named *ladas* by Koelz (1954, p. 29). I have examined the type and paratypes of *ladas* and compared them to the type and paratypes and other specimens of *atratus* and *vastitas*. They differ in several respects. They are paler, and the males are more grayish above, less blackish, than those of *atratus* and less rufous brown than those of *vastitas*; they are also more grayish below, less ruddy buff and ochraceous, and more uniform in coloration, showing less of a contrast between the colors of the breast and abdomen. The females of *ladas* are less densely and darkly barred than those of *atratus* and about similar to those of *vastitas* in the extent and color of the barring, but the ground color of the upper parts is slightly paler, less cinnamon, in *ladas* than in *vastitas*.

The range of *ladas* consists of Sind and of the desert of northwestern India stretching from the Indus to the foothills of the mountains. The only specimens that I have seen are from Sind, but it is most probable that the birds from farther north in India are also *ladas*.

THE BARRED SANDGROUSE SPECIES COMPLEX

Lichtenstein's Sandgrouse (*Pterocles lichtensteinii*), the Painted Sandgrouse (*indicus*), and the Double-banded Sandgrouse (*bicinctus*) are closely related and replace one another geographically. Meinertzhagen (1954, p. 463) believes that they are conspecific, but this concept is open to question, as the color pattern of the males differs sharply and the relationship of these three birds is complicated by the existence of a fourth form of the complex (*quadricinctus*, the Four-banded Sandgrouse) which is sympatric with *lichtensteinii* in Africa.

In *lichtensteinii*, the nape, sides of the neck, lower throat, and upper breast are closely barred with wavy blackish lines, but these parts are uniformly ochraceous, not barred, in *bicinctus* and *indicus*. The latter differs from *bicinctus* by having three bands across the upper breast (chestnut, buff, and black) rather than two (white and black), and in the pattern of the upper wing coverts and back. In *indicus*, the back is barred sharply with dark brown and buff and the coverts with alternate and sharp bands of gray and white, whereas in *bicinctus* the back and coverts are mottled or spotted with brown and white, not barred.

We can see that the pattern of the males is quite distinct in the three birds, although the pattern of the fore crown is similar in all three, barred with white and black. This and other similarities in the pattern of the males and females show that the three birds are closely related, but this fact has never been questioned. Evidently *quadricinctus* also shares the same general color pattern and is closely related to them, but as it

is sympatric with *lichtensteinii* it must be treated as a separate species.

This situation, and the differences in the alternate color pattern of the males of *lichtensteinii*, *indicus*, and *bicinctus*, suggest that it is wiser to follow the general opinion (Meinertzhagen being the only dissenter) that the three sandgrouse are probably separate species. *Pterocles personatus* (Madagascar Sandgrouse) appears also to belong to the barred sandgrouse complex but is somewhat more divergent.

After the above was written, I found a note by Donald (1943) which suggests that the ranges of *lichtensteinii* and *indicus* come into contact and may actually overlap in northwestern India. Heretofore it was believed that *indicus* replaced *lichtensteinii* in North West Frontier Province, but Donald reports several records of *lichtensteinii* from that province. These are one bird collected near Sarwekai in Waziristan, and several birds collected from small flocks near Dera Ismail Khan and near Alizai at about 3000 feet in the Kurram River Valley. This last locality is in the same region and at about the same altitude as Shinauri, 3800 feet, where Whitehead (1909, p. 267) reports that *indicus* was collected "west of Shinauri." This locality (now called Shinawari) is about 40 kilometers east of Alizai.

Hartert (1920) included *indicus* in the birds of the Palearctic fauna, but I believe that this species is best omitted from the list. *Indicus* does not penetrate anywhere within the limits of the Palearctic region, as the westernmost and highest locality on record for *indicus* seems to be Shinawari, mentioned above. To be sure, Zarudny (1911, p. 204) states that *indicus* is a rare straggler to southern Persian Baluchistan, but this record has never been confirmed, and Hartert believes an error may be involved.

Syrrhaptes tibetanus

The Tibetan Sandgrouse inhabits high and bare stony plateaus, rocky hillsides, and bleak river valleys and lacustrine depressions from eastern Tadzhikistan (in the Pamirs) eastward through the Karakoram, Kun Lun, and Astin Tagh to the Nan Shan, southward to Tsinghai, Tibet, and the Himalayas above 14,000 feet. It is sedentary, although it moves down occasionally to about 12,000 feet or a little lower in the winter.

Syrrhaptes tibetanus does not appear to vary geographically, although Koelz (1939, p. 82) believes the birds of the Pamirs are distinct and has named them *pamirensis*. The latter is based on two specimens in the collection of the American Museum of Natural History that were taken at 14,000 feet at the Akbaytal Pass in the Sary Kol Range of the eastern

Pamirs. Koelz states that they differ from *tibetanus* Gould, 1850, type locality, Tso Morari, western Tibet, by being paler, more narrowly barred with black on the tail, and by having a larger white area on the inner web of the primaries and at the tip of the tail, but I find that these two specimens are identical with a large series collected at the Tso Kar, 30 kilometers from the Tso Morari. I accordingly synonymize *pamirensis* Koelz, 1939, with *tibetanus* Gould, 1850. The term "Tso" signifies lake in Tibetan.

GENERIC RELATIONSHIPS

The genus *Syrrhaptes* consists of only two species, *tibetanus* (mentioned above) and *paradoxus* (Pallas's Sandgrouse), which differ from the species of the genus *Pterocles* by the structure and feathering of the feet. They also differ in habitat, *Pterocles* inhabiting the desert or very arid regions, chiefly in the lowlands, whereas *Syrrhaptes* inhabits very high, cold, and bleak regions. Kozlova (1946) believed that *tibetanus* and *paradoxus* were sufficiently distinct to warrant being placed in different genera and erected the genus *Przewalskia* for *tibetanus*, later (1947) "emending" this name to *Tchangtangia*, as *Przewalskia* is preoccupied. Kozlova is correct in stating that the two species differ structurally, especially in the shape of the wing, which is much narrower and more pointed in *paradoxus*. This difference is probably correlated to flight or migratory habits, as *paradoxus* is a more powerful and much swifter flier than *tibetanus*, and irregularly invades Europe and China in huge numbers, whereas *tibetanus* is sedentary, as mentioned above. Nevertheless, these two sandgrouse show many more similarities than the reverse, notably in the structure and feathering of the feet (they both lack the hind toe, and the other toes are very broad and feathered to the claws), in the shape and structure of the bill, and in the shape of the tail feathers. I agree, therefore, with Dementiev (1951), who says in his review of the sandgrouse that it is not desirable to subdivide *Syrrhaptes* into two monotypic genera.

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