Systematic Notes on Palearctic Birds. No. 36
Picidae: The genera *Dendrocopos*
(Part 2)\(^1\) and *Picoïdes*

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The following notes were made during a study of the Palearctic races of *Picoïdes tridactylus* and the small Palearctic species (the pygmy or "ladderback" woodpeckers) of the genus *Dendrocopos*. The larger species of *Dendrocopos* (*D. medius*, *D. leucotos*, and *D. major* and its relatives) were reviewed in part 1 of the study of this genus.

This study was based primarily on the collections of the American Museum of Natural History, but I have also examined the series in the British Museum (Natural History) and borrowed many specimens. My gratitude is due to Mr. J. D. Macdonald and his staff for the kind reception and help they extended to me in London and to the following institutions and individuals for the loan of specimens: British Museum (Natural History) (Mr. J. D. Macdonald), Chicago Natural History Museum (Dr. A. L. Rand and Mr. M. Traylor), Museum of Zoology of the University of Michigan (Dr. R. W. Storer), and the Reichsmuseum Alexander Koenig in Bonn (Dr. G. Niethammer). I have also had the pleasure of discussing some species with Dr. F. Salomonsen.

*Dendrocopos herythyrs*

The Rufous-bellied Pied Woodpecker inhabits the Himalayas from Kashmir to Assam, Sikang, the hills of Assam south of the Brahma-

\(^1\) For Part 1, see American Museum Novitates, no. 1946, 1959.
putra, Burma, northern Siam, and northern and western Yunan; an isolated colony is found also in southern Annam and another in central and southern Manchuria. Peters (1948, Checklist of birds of the world, Cambridge, Harvard University Press, vol. 6, p. 193) recognized four subspecies: one in Annam (annamensis) and three that are Palaeartic exclusively or partly so. These last three, ranging from west to east, are: marshalli Hartert, 1912, type locality, Murree in extreme northwestern Punjab; nominate hypyrrhus Vigors, 1831, type locality, Nepal; and subrufinus Cabanis and Heine, 1868, type locality, southern Manchuria.

*Dendrocopos h. marshalli* and *subrufinus* are larger than nominate hypyrrhus, and *subrufinus* differs from the other two by being duller, ocher in worn plumage and pale chocolate brown in fresh plumage, but not rufous as in *marshalli* and nominate hypyrrhus; the white markings of the upper parts average also slightly bigger. In specimens of *marshalli* and nominate hypyrrhus in comparative plumage the hue and shade of the rufous pigment of the under parts vary individually but to the same extent in both races; in *marshalli* the crimson area on the head of the male is more extensive than in nominate hypyrrhus, extending, as a rule, farther back onto the nape and also to the sides of the neck. The wing length of males in the three races is: marshalli, 124–131 (127.7) in 13 specimens; nominate hypyrrhus, 115–124 (120.2) in 18 specimens from the Himalayas; subrufinus, 125–136 (131.3) in nine specimens.

Peters (loc. cit.) has apparently overlooked heinrichi Stresemann (1940, Mitt. Zool. Mus. Berlin, vol. 24, p. 235), type locality, Chin Hills; and two new forms were described recently by Koelz: haemorrhous (1952, Jour. Zool. Soc. India, vol. 4, p. 44), type locality, Karong, Manipur; and henoticus (1954, Contrib. Inst. Reg. Explor., no. 1, p. 22), type locality, Mawryngkneng, Khasia Hills. However, I find that these forms are not separable from one another, or from nominate hypyrrhus, with which the three names should be synonymized. The series that I have seen from the Chin Hills, Manipur, Khasia Hills, and Himalayas exhibit a certain amount of individual variation in the size of the white markings, or the hue of the red pigment of the under parts, but the variation is slight, and the range of variation is precisely the same in all four series, many specimens being identical. The only evidence of geographical variation is in size, the birds south of the Brahmaputra averaging smaller, those of Manipur being smallest. However, some of the individuals from the Himalayas are small, and the populations of the Chin and Khasia Hills are intermediate in size.
It is best, therefore, not to recognize any dimensional races. The individual wing lengths of the males in the populations under discussion are: Himalayas, Nepal, 119, 119, 120, 121, 122; Himalayas, Sikkim, 115, 119, 119, 120, 122, 123, 124, 124; Himalayas, Bhutan, 115, 116, 119, 123, 123; Khasia Hills, 112, 114, 117, 119, 119, 121; Manipur, 114, 114, 114, 114, 115, 115, 116; Chin Hills, 112, 114, 114, 115, 116, 117, 118, 119, 122. The material of *heinrichi* that I have compared with series from the Himalayas consists of six paratypes and five additional topotypes; of *haemorrhous*, six paratypes and two topotypes; and of *henoticus*, nine specimens, including seven paratypes. I am particularly grateful to Dr. Storer for making the paratypes of the forms described by Koelz available to me.

Another synonym of nominate *hyperythrus* is *miniakorum* Meise (1934, Abhandl. Ber. Mus. Dresden, vol. 18, no. 2, p. 53), type locality, Tatsienlu [now Kangting, eastern Sikang]. Yen (1933, L'Oiseau, p. 622) states that his four specimens from Tatsienlu resemble "very closely" those of the Himalayas, and *miniakorum* has been synonymized with nominate *hyperythrus* by Peters (*loc. cit*). One specimen each that I have seen from central and eastern Sikang are identical with nominate *hyperythrus*.

The range of *subrufinus* is said by Peters to be "Central Manchuria and northern Korea southward through eastern and central China to northern Tonkin." However, Peters does not seem to have been aware that *subrufinus* is very decidedly migratory, as the other subspecies are not, and is known to breed with certainty only in Manchuria from Harbin southward. It seems likely that it breeds also in Korea, as stated by the "Hand-list of the Japanese birds" (1942, ed. 3, p. 90), at least in the north where it has been collected in May and June, according to Austin (1948, Bull. Mus. Comp. Zool., vol. 101, p. 165), but definite proof is lacking. *Subrufinus* is a regular but uncommon migrant in northern China in Hopeh, where Shaw (1936, Zool. Sinica, ser. 8, vol. 15, p. 557) says it passes through in May and from the end of August to September. Migrants have been examined by me from Hopeh (May 10–26 and September 11) and Shantung (September 5), and I have examined two typical winter visitors collected at Laokay and Chapa in Tonkin (December 17, 22). See also map 84 in Cheng's "Distributional list of Chinese birds" (1955, Peking) which shows *subrufinus* as breeding only in Manchuria and wintering from the Yangtze southward. La Touche (1931, A handbook of the birds of eastern China, London, Taylor and Francis, vol. 2, p. 13) quotes a record of *subrufinus* for July 7 in "Szechwan" given by Thayer and Bangs. Reference to these
authors (1912, Mem. Mus. Comp. Zoöl., vol. 40, p. 160) shows that this record is from Tatsienlu [Sikang], though another specimen was collected at "Nochianghsien, Szechwan," on April 23. It seems probable to me that the July record applies to a specimen of nominate *hpyerythrus* misidentified by Thayer and Bangs.

**Dendrocopos auriceps**

The Brown-fronted Pied Woodpecker ranges from eastern Afghanistan and North West Frontier Province eastward along the outer ranges of the Himalayas to central Nepal. No subspecies were recognized until recently, when Rand and Fleming (1956, Fieldiana, zool. ser., vol. 39, no. 1, p. 1) described the birds of central Nepal, naming them *conoveri*. Unfortunately, Rand and Fleming have overlooked the existence of *Picus incognitus* Scully (1879, Stray Feathers, vol. 8, p. 246) which is based on a female collected in the "Valley of Nepal" [at Katmandu] on March 2, [1878]. The birds of central Nepal are smaller than nominate *auriceps* Vigors, 1831, type locality, Simla, and the females are said by Scully and by Rand and Fleming to be brighter yellow on the nape, more golden.

The males that I have measured from central Nepal have a wing length of 110, 111, 111, 111, and the 10 measured by Rand and Fleming one of 105, 105, 108, 109, 109, 110, 111, 111, 112, 115, giving an average of 109.9 for the 14 specimens, as against 114, 115, 116, 116, 117, 117, 117, 119, 119, 119, 120, 121 (117.4) in males from Simla measured by me.

The color characters are not constant in the material I have seen. Only four of 12 females examined from central Nepal are brighter yellow, one of these being the type of *incognitus*. Rand and Fleming mention also that the fore crown is more fulvous in specimens of both sexes from Nepal and that the males average more yellow on the nape, but they add that this character is not constant and consider that the difference in the color of the fore crown is slight. These two characters do not seem to be diagnostic, as they are even more inconstant in the material that I have examined than the color of the nape in the females.

Rand and Fleming remark that "Neither character [i.e., size and color of the nape in the females] would perhaps merit naming the eastern bird, but the two characters together seem an adequate basis for separating two subspecies." The color difference is not constant, but, if a subspecies is recognized in Nepal, its correct name is *incognitus*.
The specimens measured by Rand and Fleming suggested that a cline of decreasing size runs from west to east, but this is not well shown by the specimens I have measured, the wing length of males listed from west to east being: North West Frontier Province, Murree, and Kashmir, 115, 117, 117, 117, 119, 120 (117.5); Chamba, Kulu, Kangra, and Dharmsala, 112, 112, 113, 114, 114, 115, 115, 115, 116, 116, 116, 116, 117, 117, 118, 119, 120 (115.6); Simla, 114–121 (117.4) see above; Mussoorie, 114, 116, 117, 119 (117.4); Kumaon, 113, 115, 116, 120 (116); central Nepal 110, 111, 111, 111.

Dendrocopos minor

The Lesser Spotted Woodpecker ranges from northwest Africa and Europe, including England and Wales, eastward to Asia Minor, the Caucasus, and Iran, and, in the north, eastward across Siberia south to Dzungaria and northern Mongolia, to Anadyrland, Kamchatka, Sakhalin, Hokkaido, and from Amurland and Ussuriland south to central Manchuria and northern Korea. It varies geographically, but its variation is relatively slight and predominantly clinal in character, the populations becoming darker and smaller from north to south and larger and paler from west to east. Nevertheless, it has been badly oversplit; for instance, Domaniewski (1927, Ann. Zool. Mus. Polonici Hist. Nat., vol. 6, pp. 60–91) divided its populations into 21 subspecies. Seven additional subspecies have been described since. Dementiev (1937, Alauda, vol. 9, pp. 287–299) has synonymized a number of forms in his study of the eastern populations, but Peters (op. cit., pp. 195–198) still recognizes 19 subspecies. It seems amply sufficient to me to recognize only 13, several of which are only slightly differentiated. It is possible that one of the 13, namely, hyrcanus, is not valid, but I have seen no specimen of quadrifasciatus to which it should be compared. Dementiev (loc. cit.) has questioned the validity of hyrcanus, and this name was synonymized with quadrifasciatus by Gladkov (1951, Birds of the Soviet Union, vol. 1, pp. 602–608). The 13 races are listed below, with a brief diagnosis and statement of their ranges.

1. Dendrocopos minor minor Linnaeus, 1758, type locality, Sweden, with the following synonyms: transiitivus Loudon, 1914, type locality, Livonia; lönbergi Domaniewski, 1927, type locality, Lapland; menzbieri Domaniewski, 1927, type locality, Saratov, southern Russia; and obliotus Gavrilenko (1948, Uchenia Zapiski Poltava Gos. Ped., vol. 6, p. 126), type locality, Ukraine. This race is whitish below, slightly washed to a varying degree with ocher, moderately or slightly streaked with black on the sides of the breast and flanks, and moderately spotted
with black on the under tail coverts. It inhabits northern continental Europe and the northern parts of western Siberia southward to East Prussia, northern and eastern Poland, the Ukraine, the gouvernements of Voronezh and Saratov, and the forests along the Volga to the head of its delta.

The southern and eastern limits of the breeding range cannot be defined with certainty, as nominate minor intergrades with hortorum to the south and into kamtschatkensis to the east and southeast, the populations between the Urals and the Irtysh being more or less intermediate between the latter and nominate minor. On the northern borders of the range, from northwestern Siberia westward across northern Russia to northern Finland and Lapland, the populations average whiter and less streaked and have received the names transitivus and lönnerbergi, the latter being a synonym of transitivus which was based on migrants and winter visitors to Livonia. Many specimens from the north are, however, indistinguishable from topotypical nominate minor, and Dementiev (loc. cit.) and Gladkov (loc. cit.) have synonymized transitivus as well as lönnerbergi with nominate minor. These authors have also added menzbieri and obliotus to the synonymy.

2. Dendrocopos minor kamtschatkensis Malherbe, 1861, type locality, Okhotsk, with the following synonyms: mongolicus Buturlin, 1908, type locality, Dzungaria; and neglectus Portenko (1937, Fauna Ptits Vnepoliar, Chasti Severnogo Ural, pp. 80, 226), type locality, Omsk, western Siberia. This race differs from nominate minor by being paler and slightly larger. It is whiter on the back, not streaked on the under parts or only faintly so in a few specimens, and less heavily and symmetrically barred with black on the tail. This diagnosis is based on specimens that I have seen, collected from the Yenisei eastward, which are clearly separable from nominate minor, but the validity of kamtschatkensis has been questioned because, as stated above, the populations in the west grade into nominate minor and those from the Altai and Sayans to Lake Baikal and Transbaicalia are inconstant, many specimens being more or less similar to amurensis, a race that is very similar to nominate minor.

The range of kamtschatkensis extends from the Urals and Siberia (east and south of nominate minor) to the coast of the Sea of Okhotsk north to about longitude 150° E., southward to the forested steppes, Zaisan Nor, northwestern Dzungaria, northern Mongolia, Transbaicalia (to perhaps northwestern Manchuria), the Stanovoi Range, and the Gulf of Uda.

The forms mongolicus and neglectus represent intermediates be-
between nominate minor and kamtschatkensis and are not considered to be sufficiently distinct by Johansen (1955, Jour. Ornith., vol. 96, p. 391) to warrant recognition.

Measurements of the northern and eastern races (wing and bill length in males measured by me) follow:

**Nominate minor**: Scandinavia, 89, 90, 92, 92, 93, 93, 93.5, 94, 94, 94, 94, 95, 95, 95, 95, 96, 97 (93.7); 17, 17.5, 17.5, 18, 18, 18, 18, 18, 18.5, 18.5, 19, 19, 19, 19.5, 19.5, 20.5 (18.5).

*Dendrocopos m. kamtschatkensis*, 94, 94, 94, 95, 96, 96, 96, 96, 97, 98, 98.5, 101 (96.4); 18.5, 18.5, 19, 19, 19, 19, 19.5, 20, 20, 21, 21, 21 (19.5).

*Dendrocopos m. amurensis*, 90, 90, 91, 91, 92, 92, 92, 92, 93, 93, 94, 94, 95, 95, 96, 96 (92.8); 16, 17, 17, 17, 17, 17, 17.5, 17.5, 18, 18, 18, 18, 18, 18, 18.5, 19, 19 (17.7).

*Dendrocopos m. immaculatus*, 97, 97, 99, 99; 20.5, 21, 21.5, 22.

3. *Dendrocopos m. amurensis* Buturlin, 1908, type locality, lower Amur River, with nojidoensis Yamashina, 1930, type locality, northern Korea, as a synonym. This race is very similar to nominate minor, but the under parts are a little more grayish, not washed with ocher, and, as a rule, are better streaked; the white area on the back is usually a little more heavily barred with black; and the wing and bill average slightly shorter.

The range of amurensis is Amurland (intergrading with kamtschatkensis in the west), south to Ussuriland, northern and central Manchuria (but perhaps replaced in the northwest by kamtschatkensis or intermediate populations), northeastern Korea, and the islands of Sakhalin and Hokkaido. However, according to Austin and Kuroda (1953, Bull. Mus. Comp. Zoöl., vol. 109, p. 491), there are no breeding records for Hokkaido, and the species has not been collected on the island in recent years, but Austin and Kuroda believe that it may breed in the northern part of the island and that its numbers have probably declined because of extensive deforestation.

Voous (1947, Limosa, vol. 20, pp. 1-142) has synonymized amurensis with nominate minor in his review of the genus *Dendrocopos*. However, although amurensis is poorly differentiated from nominate minor, and some specimens of the two forms are identical, I agree with Johansen (loc. cit.) that it seems misleading to synonymize amurensis with nominate minor. The two are very widely separated geographically, and, though they have come to resemble each other closely, it seems desirable to recognize amurensis on slighter morphological grounds than would otherwise be acceptable. The specimens that I have seen from northern Korea are identical with topotypical amur-

4. Dendrocopos minor immaculatus Stejneger, 1884, type locality, Kamchatka. This race is whiter than the preceding, being virtually snow white on the lower back and under parts which are not streaked, the under tail coverts are not spotted, and it averages larger. It is restricted to the forests of Anadyrland south to the region of Gizhiga on the northern gulf of the Sea of Okhotsk and to Kamchatka.

5. Dendrocopos m. hortorum C. L. Brehm, 1831, type locality, Thuringia, Germany, with the following synonyms: bacmeisteri Kleinschmidt, 1916, type locality, northern France; silesiacus Kleinschmidt, 1917, type locality, Silesia; and jordansi Götz, 1925, type locality, Salzburg, Austria. This race is poorly differentiated, as it is intermediate in coloration and size between nominate minor and buturlini, being more earthy and better streaked below than nominate minor and darker, more barred with black on the back but slightly less brownish and less streaked below, than buturlini, a little whiter on the back, and somewhat less heavily barred with black on the tail.

The range is western and central Europe, south of nominate minor with which it intergrades, from Poland and Germany south to France, Switzerland, Austria, and Hungary. It is not found in Denmark where the species does not breed, and the populations of France and perhaps also Hungary are more or less intermediate between hortorum and buturlini. The limits of the range cannot be defined with certainty.

Voous (loc. cit.) states that the populations of Switzerland and Austria are not separable from buturlini and accordingly suggests that jordansi is a synonym of buturlini, questioning the decision of Hartert and Steinbacher (1933, Die Vögel der paläarktischen Fauna, Ergänzungsband, p. 370) who had synonymized jordansi with hortorum. However, Voous had only one specimen of buturlini and no specimens from Austria. The specimens that I have compared from Lichtenstein, Carinthia, and the region of Vienna to a long series of topotypical buturlini are certainly not distinguishable from hortorum, but specimens from the Valais and Tessin in southern Switzerland, though intermediate between hortorum and buturlini, are more similar to the latter on the whole. The two specimens that Voous reports from Hungary seem also to be intermediate, but one that I have seen from western Hungary is hortorum.

Measurements of the southern races (wing and bill lengths in males measured by me) are as follows:
Dendrocopos m. hortorum, Germany: 87, 87, 89, 90, 90, 91, 91, 91.5, 92, 93 (90.1); 16, 16.5, 16.5, 16.5, 17, 17, 17.2, 17.5, 17.5, 17.5 (16.5).


Dendrocopos m. ledouci: 87, 87, 88; 16, 16.5, 18.

Dendrocopos m. danfordi, Taurus: 85, 85, 86, 87, 88; 17, 17.5, 17.5, 18.5, 18.5.

Dendrocopos m. colchicus, northern Caucasus: 90, 91, 91, 91, 92, 92; 16.5, 17, 17, 17, 17, 17, 17.2.

Dendrocopos m. hyrcanus: 82; 17.5.

Dendrocopos m. morgani: 84, 86, 88, 88; 17, 17.5, 18, 20.

6. Dendrocopos m. comminutus Hartert, 1907, type locality, England. This race is similar to hortorum in general coloration but distinctly darker and browner and less streaked below, the streaks being much reduced in size and number and only faintly indicated in many specimens; it averages a little smaller. The range is England and Wales where it is local.

7. Dendrocopos m. buturlini Hartert, 1912, type locality, Italy, with the following synonyms: wagneri Domaniewski, 1927, type locality, Romania; serbicus Buturlin (1936, Polny Opredel. Ptits S.S.S.R., vol. 3, p. 205), type locality, Montenegro; hispaniae von Jordans (1938, Falco, vol. 34, p. 52), type locality, Spain; and heinrichi von Jordans (1940, Izv. Tzar. Prirod. Inst. Sofiya, vol. 13, p. 131), type locality, Bulgaria. This race is compared above to hortorum. Its range is southern and southeastern Europe in the Iberian, Italian, and Balkan peninsulas. It intergrades with hortorum in France and southern Switzerland and probably eastern and southern Hungary and shows a tendency towards danfordi in Greece and one towards ledouci in Spain south of the Pyrenees.

The populations of buturlini are not perfectly homogeneous and show several trends in their geographical variation, but this variation is very slight and, judging by the material I have seen, has been greatly overemphasized by Domaniewski and von Jordans. Four specimens from Romania, which consist of the type and three paratypes of wagneri, average only faintly paler, more grayish, and less streaked than topotypical buturlini. All the differences are scarcely appreciable. The type and one cotype of heinrichi can be matched perfectly with the type of buturlini, but some specimens from Italy are very slightly darker, less whitish, though somewhat less heavily streaked, than the two specimens from Bulgaria. These are the only specimens I have seen
from that country, and a series might show a difference in average coloration, but the type and cotype of *heinrichi* do not suggest a constant difference of taxonomic importance. A series of 15 specimens from Spain collected south of the Pyrenees and which includes nine topotypes of "*hispaniae,*" two of which are labeled "cotype," averages purer white and deeper black than topotypical *buturlini*, thus showing some approach to *ledouci* of North Africa. However, such differences as exist between the birds of Spain and those of Italy can be discerned only with difficulty, and, furthermore, the difference between *ledouci* and *buturlini* is not sufficiently well marked to warrant the recognition of a vaguely differentiated intermediate form in the Peninsula. Specimens examined from the Pyrenees are identical with topotypical *buturlini*. This is also true of a series of 14 birds from Hercegovina, Serbia, Montenegro, and Albania which shows that *serbicu*s is not valid.

There is some doubt, however, concerning the subspecific status of the birds of Macedonia and Greece. Stresemann (1920, Avifauna Macedonica, Munich, Dultz and Co., p. 211) had one specimen from Macedonia, and Voous (*loc. cit.*) had two from Greece, which they identified as *danfordi*, a race that differs from *buturlini* chiefly by having a more or less well-indicated band of black behind the ear coverts connecting the black malar stripe to the black of the crown. However, two specimens that I have seen from Macedonia are not separable from *buturlini*, though one shows a vague band of black behind the cheek. I believe the populations of Macedonia and Greece will probably be found to be more or less intermediate between *buturlini* and *danfordi*, but until more abundant material can be compared it seems desirable to restrict the range of *danfordi* to Asia Minor.

I am especially grateful to Dr. G. Niethammer who kindly lent me, among other material, the type and cotype of *heinrichi* and the cotypes and topotypes of *hispaniae*.

8. *Dendrocopos m. ledouci* Malherbe, 1855, type locality, Algeria. This race, which is restricted to the oak forests of northern Algeria and northern Tunisia, differs only slightly from *buturlini*, but the black areas of its plumage are a little deeper and purer black, the pale areas purer white, and the back is also a little more heavily and broadly banded with black.

9. *Dendrocopos m. danfordi* Hargitt, 1883, type locality, Asia Minor. This race differs from *buturlini* by having, as stated above, a band of black behind the ear coverts, a character that distinguishes it also from all the preceding races. It is similar to *buturlini* in size and general
coloration but is a little more heavily streaked on the flanks. *Danfordi* is known so far only from the Taurus, but the distribution of bird life in Asia Minor is imperfectly known, and it probably occurs in other regions, as specimens from Transcaucasia are more or less intermediate between *danfordi* and *colchicus*, which suggests that the two races intergrade.

10. *Dendrocopos m. colchicus* Buturlin, 1908, type locality, northern Caucasus, with *harterti* Domaniewski, 1927, type locality, region of Tiflis, Transcaucasia, as a synonym. *Harterti* Domaniewski, 1927, is preoccupied by *Dendrocopos major harterti* Arrigoni, 1902, and was renamed *ernsti* by Domaniewski in 1933. This race is whiter on the back than *danfordi*, the back being less heavily banded with black, and has a somewhat longer wing (see above). The black connecting band behind the ear coverts is present in some specimens but lacking in others, but when present is less distinct than in *danfordi* and more or less interrupted. Its range is the Caucasus and Transcaucasia.

Domaniewski has described a subspecies from Transcaucasia, naming it *harterti*, stating that it is similar to *colchicus* but has a more slender bill and is less white on the back. The new race was based on one specimen from the region of Tiflis selected for the type, three from Lagodekhi, and one from Zakataly near Lagodekhi. The type and the specimen from Zakataly are in the collection of the American Museum of Natural History and are identical, I find, with a series from the northern Caucasus as far as the shape or size of the bill is concerned, but these two specimens are somewhat less white on the back. The difference is slight and does not warrant nomenclatural separation, but these specimens are interesting, as they suggest that *colchicus* and *danfordi* may intergrade in Transcaucasia. The color of the back is intermediate, and the type of *harterti* has a very distinct and unbroken band of black behind the ear coverts, but in the specimen from Zakataly the band is interrupted and only vaguely shown as in most specimens from the Caucasus.

11. *Dendrocopos m. quadrifasciatus* Radde, 1884, type locality, Talych. This race, which is restricted to the forests of Talych at the southwestern corner of the Caspian Sea, was not examined by me. It is said to be darker below than *colchicus*, more brownish, more heavily streaked, not banded with black behind the ear coverts, and not spotted with white at the tips of the middle upper wing coverts; these coverts are tipped with white in all the races listed so far. All these characters are shown by three specimens of *hyrcanus* that I have seen, and it is possible that *hyrcanus* is a synonym of *quadrifasciatus*. Hartert
(1921, Die Vögel der paläarktischen Fauna, p. 2188) states that *hyrcanus* is darker brown and more streaked below than *quadrifasciatus*, but it is not clear if he has examined the latter. Stresemann (1928, Jour. Ornith., vol. 76, p. 397) recognized *hyrcanus* but without comparing it to *quadrifasciatus*. Dementiev (loc. cit.) states that "very probably" *hyrcanus* is not valid but did not examine it.

12. *Dendrocopos m. hyrcanus* Zarudny and Bilkevitch, 1913, type locality, Gurgan, at the southeastern corner of the Caspian. This race, if valid (see above), is restricted to the southern Caspian districts of northern Iran where, so far, it has been reported and collected only in Mazanderan.

13. *Dendrocopos m. morgani* Zarudny and Loudon, 1904, type locality, Bakhtiar, Zagros, southwestern Iran. This race, which inhabits the Zagros Mountains eastward to Fars, is well differentiated. The ground color of the breast and abdomen is quite pale, about as whitish as in nominate *minor*, but the throat is buffy brown and contrasts with the breast and abdomen, and the breast and sides of the body are very sharply streaked with black down to the lower flanks. A black connecting band is present behind the ear coverts in most specimens, and the middle upper wing coverts are tipped with white. The bill is proportionately longer than in any other race and very attenuated in some individuals.

*Dendrocopos canicapillus*

The Gray-headed Pygmy Woodpecker ranges from Ussuriland, eastern Manchuria, and Korea southward through China, including Formosa and Hainan, to the Indo-Chinese countries south through the Malay Peninsula to Sumatra and Borneo, and west through Assam to eastern Bengal and the foothills of the Himalayas to northern Punjab. It varies quite a good deal geographically, and many subspecies have been described. Greenway (1943, Auk, vol. 60, pp. 564–574) has recognized 15 but questions the validity of one of these, and several represent only rather poorly differentiated forms. He states that, with some exceptions, "all [races] are more or less ill-defined, unsatisfactory forms." Peters (op. cit., pp. 198–200) recognized the same races as Greenway. Biswas (1950, Proc. Zool. Soc. Bengal, vol. 3, no. 1, pp. 1–37) has also reviewed the species and recognizes the same subspecies but has revived an additional one, namely, *szetschuanensis* Rensch, 1924, which had been synonymized with *omissus* Rothschild, 1922, by Greenway, Peters, and Hartert and Steinbacher (1935, Die Vögel der paläarktischen Fauna, Ergänzungsband, p. 374). The revival of *szetschuanensis* is not warranted, as discussed below in the brief review of the Pale-
arctic races. These are only three in number, and their geographical variation is clinal in character.

1. *Dendrocopos canicapillus doerriesi* Hargitt, 1888, type locality, Askold Island, Ussuriland. This race, which ranges from Ussuriland from about latitude 49° N. southward to Askold Island, eastern Manchuria, and Korea, inhabits the northern extremity of the range of the species and is the palest and largest.

2. *Dendrocopos canicapillus scintilliceps* Swinhoe, 1853, type locality, Peking. This race is intermediate in coloration between *doerriesi* and *omissus*. It is darker, less white, more heavily barred with black on the back, than *doerriesi*, a little less pale and somewhat more heavily streaked below, and the white spots on the wing, including the coverts, are smaller. *Omissus* is darker above and below than *scintilliceps*, more heavily barred on the back, more brownish and more heavily streaked below, and its white spots on the wing are smaller. *Scintilliceps* inhabits northern and eastern China from Hopeh southward to northern Szechwan, Hupeh, Anhwei, and Chekiang, but its southern limits cannot be defined with certainty, as it grades into *nagamichii*, which replaces it in southern China, and with *omissus* in northwestern Szechwan. The trend towards *omissus* is discernible also in southern Shenssi. *Scintilliceps* probably intergrades with *doerriesi* in the north.

3. *Dendrocopos canicapillus omissus* Rothschild, 1922, type locality, Likiang Range in northwestern Yunnan, with the following synonyms: *obscurior* Rothschild, 1922, type locality, Likiang Range, and *szetschuanensis* Rensch, 1924, type locality, Kwanhsien, western Szechwan. This race is compared above to *scintilliceps*. It ranges from northwestern Szechwan, southwestern Kansu, and the mountains of western Szechwan, westward through Sikang to northwestern Yunnan, grading farther south in Yunnan into *obscurus* La Touche, 1921, type locality, southeastern Yunnan.

Rensch had not seen *omissus* when he described *szetschuanensis*, comparing the latter only to *scintilliceps*, but two of his paratypes that I have seen from Kwanhsien are only very slightly paler than topotypical *omissus*. The difference is not of taxonomic importance, and Hartert and Steinbacher, Greenway, and Peters were correct in synonymizing *szetschuanensis* with *omissus*. However, Biswas believes *szetschuanensis* should be revived, stating that the birds of Szechwan and Shensi are intermediate in coloration between *scintilliceps* and *omissus* and differ from both by having a "larger" [i.e. longer] bill. He mentions also that Rensch stated that *szetschuanensis* differed from *scintilliceps* by being yellowish at the base of the lower bill [rather than grayish]. This last difference is not a taxonomic character, as specimens
which are more or less yellowish or grayish at the base of the bill are found throughout the range of the species. Older skins are grayish, and the color of the bill is probably correlated also with physiological factors. The measurements given below show no differences in the length of the bill or only very trivial ones in average.

The birds of Shensi are a little darker than those of Hopeh and Shantung (typical scintilliceps), but they are clearly paler, have larger white spots, and are much less heavily streaked, than those of western Szechwan (topotypical szetschuanensis), the latter differing only very slightly from topotypical omissus as stated above. It seems to me that Biswas was misled by the clinal variation in combining the populations of Shensi and Szechwan. This type of variation renders a division for nomenclatural purposes more or less arbitrary, but I believe that the ranges of scintilliceps and omissus are essentially correct as I define them above and that szetschuanensis should be synonymized with omissus.

_Dryobates obscurior_ Rothschild is known from a single specimen that was described as a separate species, but critical examination of the type shows that it is an immature specimen of _omissus_. It is a female collected in May, 1921, by Forrest at apparently the same time that he collected other specimens of _omissus_, though this was not made clear by Rothschild (1923, Novitates Zool., vol. 30, p. 39). Hartert (1925, _ibid._, vol. 32, p. 147) has puzzled subsequent authors by stating in his discussion of the type of _obscurior_ that it was “very peculiar” and that he was “not sure about its relationship,” failing to mention that it was a young bird, though there can be no difference of opinion whatever that the bird was immature. Subsequent authors did not recognize _obscurior_, considering that it probably represented only an “aberrant” or “melanistic” individual of _omissus_, but the specimen does not seem aberrant or melanistic to me. All its characters (brownish black fore crown, heavy, diffused streaking, and small bill) are matched by those of other immature specimens I have seen.

Measurements of adult males, wing and bill lengths, are:


Scintilliceps: Hopeh and Shantung, 98, 99, 101, 102, 104, 106 (101.7); 18, 18, 18.5, 18.5, 19, 19, (18.5); Shensi (Tsinling Range), 99, 102, 102, 103, 104, 106, 108 (103.4); 18.5, 18.5, 19, 19.5, 19.5, 20, 20.5 (19.4).

Omissus: Western Szechwan, 102, 102, 104, (102.7); 18, 19, 20.5 (19.1); Likiang Range, 103, 103, 104, 104, 105, 108 (104.5); 18, 19, 19.5, 19.5, 20.5 (19.4).
Dendrocopos kizuki

The Japanese Pygmy Woodpecker ranges on the continent from Ussuriland south to Korea and northeastern Hopeh, and on the islands from Sakhalin and the southern Kuriles south through Japan to the southern Ryu Kyus and inhabits also Quelpart, Tsushima, and the Seven Islands of Izu. It varies geographically and has been split into about 20 subspecies, 13 of which were recognized by Peters (op. cit., pp. 200–202). However, the geographical variation is relatively slight and clinal, and I believe it is ample to recognize only nine, some of which are slightly differentiated only, such as matsudairai, kotataki, amamii, and probably orii. The cline involves an increase in color saturation from north to south, accompanied by a decrease in size.

The material used for this review consists of the combined collections of the British Museum (Natural History) and the American Museum of Natural History, but I have been unable to see specimens of two races: wilderi from Hopeh and orii from the southern Ryu Kyus. These two races were described by Kuroda, whose collection was destroyed during the war. Wilderi is represented in the collection of the Academia Sinica in Peking, but orii was known from only two specimens in the Kuroda Collection.

1. Dendrocopos kizuki iijimae Taka-Tsukasa, 1922, type locality, Sakhalin, with the following synonyms: kurilensis Bergman, 1931 (November 24), type locality, Kunashiri Island, southern Kuriles; permutatus Meise, 1934, type locality, southern Ussuriland; and nagamichi Bergman (1935, Zur kenntnis Nordostasiatischer Vögel, Stockholm, p. 211), type locality, Eterofu Island, southern Kuriles. Nagamichi Bergman, 1935, is a new name for kurodae Bergman, 1931 (November 24), but it is preoccupied by Yungipicus scintilliceps nagamichii La Touche, 1932 (which equals Dendrocopos canicapillus nagamichii La Touche, 1932); nagamichii La Touche, 1932, is also a new name proposed by La Touche to replace Yungipicus scintilliceps kurodai La Touche, 1931 (May), which is preoccupied by Dryobates leucotos kurodae Götz, 1926, a synonym of Dendrocopos leucotos namiyi (Stejneger), 1886.

This, the palest and largest race, inhabits Sakhalin, the southern Kuriles, Hokkaido, and Ussuriland from about the mouth of the Khor River in the valley of the Ussuri and about latitude 45° N. on the coast southward to perhaps northeastern Korea. Meise named the birds of Ussuriland permutatus in the belief that they were larger than those of Hokkaido and Sakhalin, but the measurements listed below show a
great deal of overlap, and only a very trivial difference in average, amounting to only 1 mm. I did not measure sufficient material from Sakhalin and the Kuriles, but the measurements of these populations given by Gizenko (1955, Birds of Sakhalin, pp. 210–212) are about similar to those of the birds I have measured from Hokkaido and Ussuriland.

I can detect no difference in coloration between specimens from Sakhalin and those from the Kuriles, from Hokkaido, and from Ussuriland, but I have seen only one specimen from the Kuriles and two from Sakhalin. However, the “Hand-list of the Japanese birds” (1942, ed. 3, pp. 91–93) considers that the populations of Sakhalin and Hokkaido are not separable but recognizes a distinct race (kurilensis) in the Kuriles. The statements of Gizenko (loc. cit.) seem contradictory; he considers apparently that the population of Sakhalin differs only in size from that of Hokkaido and is identical in coloration with that of the Kuriles, but adds that the latter is paler than that of Hokkaido. It is possible that the birds of the Kuriles average paler, but it seems doubtful that the difference is sufficiently well marked to warrant the nomenclatural recognition of kurilensis.

2. Dendrocopos kizuki seebohmi Hargitt, 1884, type locality, Yokohama, central Hondo, with the following synonyms: nippon Kuroda, 1922, type locality, Suruga Province, central Hondo; and acutirostris Yamashina, 1931, type locality, Kongosan, eastern Korea. This race inhabits Hondo, Quelpart, and Korea and differs from ijimae by being darker and smaller. It is darker brown above and on the sides of the breast and more heavily streaked below, the white spots on the wing are smaller, and the white bars on the back are narrower.

The population of southern Hondo is called shikokuensis by the “Hand-list of the Japanese birds” in the third as well as in the fourth edition (1958, p. 108), but specimens that I have seen from Nara Province in southern Hondo are identical with topotypical seebohmi. In view of the clinal variation, it is possible that the populations farther south in Hondo become more similar to nominate kizuki, but it seems best to restrict the latter (of which shikokuensis is a synonym) to the islands of Shikoku and Kyushu. One specimen that I have seen from southern Korea and two from Quelpart match specimens from Hondo, and the populations of Korea and Quelpart are said to be inseparable from those of Hondo by the “Hand-list.”

No specimens from eastern Korea were available to me, but I believe acutirostris should be synonymized with seebohmi. Yamashina states that the birds of eastern Korea and Hondo are identical in coloration
but that the former have a very attenuated and long bill, measuring 16, 17.5 in two males and 17, 18 in two females. However, I have examined individuals from Hondo in which the bill seems to be about as attenuated as in the specimen of *acutirostris* shown in Yamashina's photograph (1931, Tori, vol. 7, p. 111), and the bill measures 15.5–17.5 in the males and 16–18 in the females I have measured from Hondo. Figure 1 shows that the shape of the bill varies individually in Hondo and is very attenuated in some individuals. The bill may be somewhat more attenuated on an average in eastern Korea, but such a difference would not be of taxonomic importance.

The correct type locality of *seebohmi* is not Hokkaido but Yokohama, as shown by Meise in the description of *permutatus* (1934, Abhandl. Ber. Mus. Dresden, vol. 18, no. 2, p. 53). Hargitt stated in the description of *seebohmi* that it was found "*In insulis Japonicis Niphon et Yezo dictis,*" and Stejneger (1886, Proc. U. S. Natl. Mus.,
vol. 9, p. 122) subsequently restricted the type locality to “Yesso” [= Hokkaido]. However, Hargitt states that the type of seebohmi is a specimen in his own collection and gives a reference to one of his earlier papers (1882, Ibis, p. 36) in which he stated that all his specimens are from Yokohama. I have examined the two cotypes of seebohmi, which consist of a male and a female labeled “Yokohama,” and find that they match perfectly the dark coloration (see above) of the birds of central Hondo, not the pale coloration of the birds of Hokkaido. The male has a wing length of 85 and the female one of 89. In view of the fact that the correct type locality of seebohmi is central Hondo, nippon must be synonymized with seebohmi, of which it becomes a pure synonym.

3. Dendrocopos kizuki kizuki Temminck, 1836, type locality, Kyushu, with the following synonyms: shikokuensis Kuroda, 1922, type locality, Shikoku; and petersi Kuroda, 1929, new name for Yungipicus kizuki harterti Kuroda, 1923, type locality, Yakushima, preoccupied by Dryobates major harterti Arrigoni, 1902. This race inhabits Shikoku, Kyushu, and Yakushima and represents another stage on the cline, being darker and averaging smaller than seebohmi.

A series of five specimens from Shikoku and eight from Kyushu are identical in every respect. The population of Yakushima (petersi) was combined with that of the Seven Islands of Izu (matsudairai) in the third edition of the “Hand-list” (loc. cit.), but four specimens that I have seen from Yakushima, though not identical with the specimens from Shikoku and Kyushu, are more similar to them than to a series of five from the Seven Islands. The only difference that I can detect between the specimens from Yakushima and those of Shikoku and Kyushu is a very slight one in coloration, the birds of Yakushima being somewhat paler. It is best, therefore, to refer the population of Yakushima to nominate kizuki.

4. Dendrocopos kizuki matsudairai Kuroda, 1921, type locality, Miyakushima, Seven Islands of Izu. This race, which inhabits the Seven Islands, is not well differentiated from nominate kizuki, but it is a little larger and has a somewhat heavier bill. It is also slightly darker, more blackish brown, above and somewhat less broadly barred with white on the back.

5. Dendrocopos kizuki kotataki Kuroda, 1922, type locality, Tsushima. This race, which inhabits Tsushima and perhaps also Oki Island, though the status on this island is not clear, is very well differentiated from seebohmi by being much darker throughout. It is larger than nominate kizuki but not well differentiated from it, or from matsudairai and amamii, in coloration. However, kotataki is a little
darker than nominate *kizuki*, more blackish brown above, a little
darker brown on the sides of the breast, and more heavily streaked on
the flanks; similar above to *matsudairai* but a little browner and better
streaked below and slightly less dark than *amamii*, somewhat less
blackish above and more broadly barred with white, the white spots
on the wing being also slightly larger in *kotataki* than in *amamii*.

6. *Dendrocopos kizuki amamii* Kuroda, 1922, type locality, Amami
Oshima. This race inhabits Amami and Tokunoshima in the northern
Ryu Kyus and is the darkest race. It represents the extreme in the cline
of increasing color saturation though not of decreasing size.

7. *Dendrocopos kizuki nigrescens* Seebohm, 1887, type locality, Okinawa.
This race, which inhabits Okinawa and the small island of
Yagachishima north of Okinawa, is the smallest race that I have ex-
amined, the extreme in the cline of decreasing size being reached ap-
parently in the southern Ryu Kyus with *oiri*. In view of the clinal in-
crease in color saturation from north to south, one would have expected
to find darker birds on Okinawa than in Amami, but, contrary to
expectation, the nine birds I have seen from Okinawa are a little
paler, less blackish above and somewhat less heavily streaked below,
than the birds of Amami. *Nigrescens* resembles nominate *kizuki* in
general coloration, but the white spots on its wing are a little smaller
and the white bars on the back average slightly narrower.

8. *Dendrocopos kizuki orii* Kuroda, 1923, type locality, Iriomote,
southern Ryu Kyus. This race was known from only two specimens
collected on the island of Iriomote, which were destroyed during
World War II. According to Kuroda, they resembled *nigrescens* but
differed from it by having two broad bars of black on the inner web of
the outer tail feathers instead of three narrower bars. They were also
somewhat darker on the back and smaller, the wing measuring 78.5, 79,
both being females.

9. *Dendrocopos kizuki wilderi* Kuroda, 1926, type locality, Eastern
Tombs, northeast of Peking. This race, which ranges from southwestern
Manchuria southwest of Jehol to northeastern Hopeh, was not ex-
amined by me. It is said to be dark, resembling *kotataki* in the dark
coloration of the upper parts but grayer on the crown, and paler, less
brown, below. These characters suggest that *wilderi* represents the ex-
treme in the cline of increasing color saturation on the continent.

Measurements of wing lengths of the males and females and bill
lengths of the males in specimens measured by me are:

*Dendrocopos kizuki iijmae*: Kuriles, female, 90. Sakhalin, females, 88.5, 89.
Ussuriland, males, 85, 87, 87, 87, 88, 88, 88, 88, 88, 88, 89, 90, 90, 90, 90, 92
Dendrocopos kizuki seebohmi: Central Hondo, males, 83, 83, 84, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86, 87 (83.5); females, 83, 85, 85, 85, 86, 86, 86.5, 87, 87, 88, 88, 89, 89, 90, 90 (86.6).

Dendrocopos kizuki kizuki: Shikoku, males, 82, 83; 16.2, 17; females, 84, 84, 86.

Dendrocopos kizuki matsudairai: Seven Islands of Izu, males, 83, 86, 86; 17.5, 17.5, 18; females, 89, 89.

Dendrocopos kizuki kotataki: Tsushima, males, 83, 85, 85, 86, 87 (85.2); 16.8, 17, 17, 17.2, 18 (17.2); females, 87, 88.

Dendrocopos kizuki amamii: Amami Oshima, males, 82, 83, 86; 17, 17.2, 18; females, 84, 84, 85.

Dendrocopos kizuki nigrescens: Okinawa, males, 79, 80, 80, 80; 16, 17, 18, broken; females, 79, 80, 81, 82, 83.

The Three-toed Woodpecker1 is a Holarctic species which in Eurasia ranges from Scandinavia and northern Europe eastward across Siberia to Anadyrland and Kamchatka south to northern Mongolia, Manchuria, Ussuriland, northeastern Korea, Sakhalin, and Hokkaido, with three isolated populations: one (alpinus) in the Alps, Carpathians, and mountains of southeastern Europe, another (tianschanicus) in the Tian Shan, and the third (funebris) in the mountains of western China. In North America it inhabits Alaska, Canada east to Labrador and Newfoundland, south to Oregon, the Rocky Mountains, northern Minnesota, Ontario, northern New York, and northern New England. Three subspecies are recognized in North America, and perhaps eight can be recognized in Eurasia, two of which (kurodai from Korea and inouyei from Hokkaido) are known, however, from only a few specimens and require further study. The Palearctic races are listed and briefly discussed below.

1. Picoides tridactylus Linnaeus, 1758, type locality, Sweden, with the following synonyms: dzungaricus Buturlin, 1907, type locality, northwestern Mongolia; and sakhalinensis Buturlin, 1907, type locality, Sakhalin. This race inhabits northern Europe and southern Siberia, south to northern Mongolia, Manchuria, Amurland, Us-

1 Called “Northern Three-toed Woodpecker” in America.
suriland, and Sakhalin. It is replaced in northern Siberia by *crissoleucus* and in Kamchatka by *albidior*. The geographical variation appears to be clinal, the populations becoming whiter from west to east through northern Siberia to Kamchatka. In the mountains of central Siberia (Altai, Sayans, the region of Lake Baikal, and probably also northern Mongolia), and in Transbaicalia, Amurland southward, and in Sakhalin, the populations are darker than those of northern Siberia and are not separable taxonomically from those of northern Europe, clines of increasing color saturation probably running southward in Siberia.

The accounts given by the Russian authors concerning the northern populations vary widely, as the geographical variation is complicated by individual variation, intermediate populations, migration, and the fact that some populations consist of dark and pale individuals which some authors consider are color phases. My material from Siberia is insufficient, and the reader should consult the accounts given by Portenko (1937, Fauna Ptits Vnepoliar. Chasti Severnogo Urala, Moscow and Leningrad, Akademia Nauk, pp. 81–84), Mikheiev (1938, Bull. Soc. Nat. Moscou, new ser., vol. 47, sect. biol., pp. 167–173), Gladkov (1951, Ptitsy Sovietskogo Soiuza, vol. 1, pp. 569–574), and Johansen (1955, Jour. Ornith., vol. 96, pp. 392–394). In the northern part of the range, Portenko would recognize four races (nominate *tridactylus*, *crissoleucus*, *kolymensis*, and *albidior*); Mikheiev and Gladkov synonymize *crissoleucus* and *kolymensis* with nominate *tridactylus*; and Johansen apparently advocates the recognition of nominate *tridactylus*, *crissoleucus*, and *albidior*, stating that *kolymensis* is a “mixed” form, very variable individually, which apparently represents the result of secondary intergradation between *crissoleucus* and *albidior*.

Two specimens that I have seen from the region of Markovo in Anadyrland, and three from Gizhiga at the northern end of the Sea of Okhotsk, show a tendency towards *albidior* but are much more similar to *crissoleucus*. These specimens suggest that *kolymensis* is best synonymized with *crissoleucus* and that true *albidior* is restricted to Kamchatka.

No specimens from northwestern Mongolia were available to me, but it seems incorrect to synonymize *dzungaricus* with *tianschanicus* as Mikheiev (*loc. cit.*), Gladkov (*loc. cit.*), and also Peters (*op. cit.*, p. 216) have done. *Tianschanicus* seems to be restricted only to the Tian Shan and is very heavily barred with black below and on the tail, whereas Buturlin states that *dzungaricus* is white below and not heavily barred with black on the tail. Kozlova (1933, Ibis, p. 596) states that the birds
of northern Mongolia are nominate *tridactylus*, and I believe *dzungaricus* should be synonymized with the latter. A single specimen that I have seen from Sakhalin is identical with topotypical nominate *tridactylus*. Mikheiev (*loc. cit.*), Gladkov (*loc. cit.*), and also Gizenko (1935, Ptitsy Sakhalin Oblast., Moscow, Akademia Nauk, p. 201) consider that *sakhalinensis* is invalid and a synonym of nominate *tridactylus*.

It seems to me, therefore, that it is sufficient to recognize only nominate *tridactylus*, *crissoleucus*, and *albidior* in the northern part of the range. *Crissoleucus* differs from nominate *tridactylus* by being paler, whiter on the back, under parts, and tail, much less streaked on the sides of the breast and barred on the flanks, some specimens being all white on the under parts of the body; its under tail coverts are whiter also. *Albidior* is still whiter throughout, all white on the under tail coverts and tail, and has much larger white spots on the wing, the white spots merging together on the inner web of the primaries and also to a lesser extent on the outer web.

2. *Picoides tridactylus crissoleucus* Reichenbach, 1854, type locality, forests on the Irtysh River in October; with *kolymensis* Buturlin, 1917, type locality, Olekminsk and Sredne Kolymsk, as a synonym.


4. *Picoides tridactylus alpinus* C. L. Brehm, 1831, type locality, Switzerland. This race is restricted to the Alps, Carpathians, and mountains of southeastern Europe and is much darker than nominate *tridactylus*, less white above, including the spots on the crown, and much more streaked and barred with black below and on the tail feathers. Its bill averages a little more slender.

5. *Picoides tridactylus tianschanicus* Buturlin, 1907, type locality, Tian Shan. This race differs conspicuously from nominate *tridactylus* but is not well differentiated from *alpinus*. However, it is separable from the latter by several slight differences. It is usually a little whiter on the back and better spotted with white on the short upper tail coverts, the white spots being fewer and smaller in *alpinus* or lacking, and, as a rule, the black malar stripe is a little more conspicuous and the black bars on the tail are a little broader; the yellow crown of the male is very slightly darker on an average. The two races are similar in size, the wing, tail, and bill of 10 males of each measuring: *tianschanicus*, 126–132 (128.3), 79–85 (82.5), 32–36 (33.5); *alpinus*, 123–131 (127.8), 76–86 (80.3), 33–35 (34).

6. *Picoides tridactylus kutroda* Yamashina, 1930, type locality,
Nojido, northeastern Korea. This form is doubtfully separable from *tianschanicus* but may be slightly smaller and average slightly darker above. *Kurodai* was based on five specimens which Yamashina described as follows: "much similar to *Picoides tridactylus tianschanicus* but far more blackish, differs from it in having no white tinge on the interscapular region, less white on the back, and wider stripes on the under parts. Smaller than *tianschanicus*, the measurements of five adults being: wing, 118–123, exposed culmen, 28.5–31.5 mm." However, one female that I have seen from northeastern Korea is identical in coloration with half of 12 females of *tianschanicus*, the bill measures only 1 mm. shorter, and the wing length is the same as that of the smaller specimens of *tianschanicus*. The other six females of the latter are slightly whiter on the back. This female, which was collected on May 10, 1912, only 131/2 miles from the type locality of *kurodai*, has a wing length of 124 and a bill length of 39, 12 females of *tianschanicus* measuring 124–130 (126.3), and 30–33 (31.3), the bill being measured from the skull. The measurements of male *tianschanicus* are given above.

7. *Picoides tridactylus inouyei* Yamashina (1943, Bull. Biogeogr. Soc. Japan, vol. 13, p. 43), type locality, Mitsumata, Katō district, Tokachi Province, Hokkaido. This form, which I have not examined, is known only from three specimens collected at the type locality in November and December. These specimens are the first record of the species for Hokkaido, but it is said to have been observed on several occasions since at the same locality, where it is believed to be resident.

Yamashina states that his three specimens resemble *kurodai* and *tianschanicus* but are whiter on the back than the former, and differ from both *kurodai* and *tianschanicus* by being more broadly streaked with black on the breast and by having a paler yellow crown in the male; the black bars on the flanks and abdomen are more numerous than in *kurodai* and narrower than in *tianschanicus*. However, Yamashina states that he has examined only two specimens of *tianschanicus*, a number that seems insufficient to me, as the extent of the black streaking or barring varies individually in *tianschanicus*. The shade of the yellow varies so very slightly geographically in this species that this character is of dubious value. The specimens of *inouyei* measure, according to Yamashina: wing length, 126 in the male, 120, 122 in females; and exposed culmen, 29 in the male and 24.5 in the two females.

It seems to me that *inouyei* and *kurodai* probably do not differ sufficiently from each other and from *tianschanicus* or *alpinus* to warrant nomenclatural separation. The regions inhabited by these four forms
are widely isolated from one another, but throughout Eurasia all the populations of this species show a very strong and parallel tendency to become darker as they range farther south. This results in the existence of populations which, though widely separated geographically, do not differ taxonomically or do so only very slightly. As stated above, *tianschanicus* can be separated only with some difficulty from *alpinus*, although the Tian Shan and the Alps are far removed, and the populations of southeastern Siberia, though they are even farther removed from those of northern Europe, cannot be separated taxonomically from the latter.

8. *Picoides tridactylus funebris* Verreaux, 1871, type locality, Pao-hing, eastern Sikang. This well-named race differs very conspicuously from all the others by being almost black below. The feathers of the breast, flanks, abdomen, and under tail coverts retain some small white tips, but the black pigment has coalesced, so that the bird appears to be spotted rather than streaked and barred below. Its throat is pale buffy brown rather than white, the tail is very heavily barred with black, and the white area is more reduced on the back. *Funebris* ranges from southern Kansu and the mountains of western Szechwan westward through southern Tsinghai and Sikang to the borders of Tibet (Kongbo and Takpo), south to the Likiang Range in northwestern Yunnan.