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Systematic Notes on Palearctic Birds. No. 21 Fringillidae: the Genera *Pyrrhula*, *Eophona*, *Coccothraustes*, and *Mycerobas*

BY CHARLES VAURIE

The following notes were made during a study of these genera in preparation of a contemplated check list of the Palearctic region. Among the species discussed, those reviewed more in detail are *Pyrrhula erythaca*, *P. pyrrhula*, *Eophona migratoria*, and *Coccothraustes coccothraustes*. My reasons for keeping the genera *Eophona* and *Coccothraustes* separate are given.

I would like to express my gratitude to Dr. Friedmann and Mr. Deignan of the United States National Museum, Mr. Macdonald of the British Museum, and Dr. Voous of the Amsterdam Museum for their kind cooperation in lending me specimens from their institutions. Dr. Voous has also given me the benefit of some of his observations on *Pyrrhula* in the Pyrenees, and Dr. Amadon, with whom, as usual, I have discussed some of these birds, has read and criticized the manuscript.

Pyrrhula nipalensis

In a note published on the Brown Bullfinch (1949, Amer. Mus. Novitates, no. 1424, pp. 55-56), I had the occasion to remark that *victoriae* Rippon, 1906, type locality, Chin Hills, seems to be a valid race, although this name had been synonymized with nominate *nipalensis* Hodgson, 1836, type locality, Nepal, by Stresemann (1940, Mitteil. Zool. Mus. Berlin, vol. 24, p. 171). The comparative material available to me then consisted of topotypes of *victoriae* collected in 1938 and of topotypes of nominate *nipalensis* collected in 1947, and I have since examined addi-

tional specimens from the Himalayas collected in 1948 in Garhwal. In view of the fact that two authors, in recent and important papers, namely, Voous (1949, *Condor*, vol. 51, pp. 52–81) in his review of the bullfinches, and Smythies (1953, *Birds of Burma*, p. 234), have followed Stresemann in not recognizing *victoriae*, it seems worth while to mention again that it appears to be valid.

Pyrrhula nipalensis victoriae is grayer in tone than either nominate *nipalensis* or *ricketti* La Touche, 1905, type locality, Fukien, and combines some of their characters to a different degree. It has a very clearly indicated white spot below the eye similar to that of nominate *nipalensis*, but it is darker on the crown, the coloration of the crown and its scaly appearance being similar to that of *ricketti*. In *ricketti* the white spot below the eye is absent or virtually obsolete, or if present is much smaller and much duller white. The subspecific characters of *victoriae* are relatively slight, but the population of the Chin Hills cannot correctly be referred to either of the other two races. Two other non-Palearctic races are much better differentiated: *waterstradti* Hartert, 1902, type locality, Malay Peninsula, in which the white below the eye extends over the whole cheek; and *uchidai* Kuroda, 1916, type locality, Formosa, which is whiter on the abdomen than the other races and differs from them also by having the shaft of the central rectrices white instead of black. Voous (*loc. cit.*) adds that *uchidai* is the only race with a black chin, but this character is not constant, as I have examined specimens with a black chin in nominate *nipalensis*, *ricketti*, and *waterstradti*.

Pyrrhula nipalensis ricketti seems to replace nominate *nipalensis* in the eastern Himalayas, the two races probably grading into each other between longitude 93° E. and longitude 95° E. I did not examine specimens from this region, but this seems to be indicated by the statements of Ludlow and Kinnear (1944, *Ibis*, p. 208) and Ludlow (1951, *Ibis*, p. 566). Ludlow and Kinnear identified as nominate *nipalensis* their easternmost specimen collected at Migyitun (or about longitude 93° 35' E.), and Ludlow also identified as nominate *nipalensis* the specimens he collected at Tsakchugong (or about longitude 95° E. in the Po Tsangpo Gorge) but remarked that these "are all a good deal darker on the upper surface than other specimens of *nipalensis* in the British Museum collection." He did not mention *ricketti* but in view of the fact that this race is generally darker than nominate *nipalensis*, especially above, it is likely that these specimens are *ricketti* or nearer to it than they are to nominate *nipalensis*.

Pyrrhula erythaca

The geographical variation in Beavan's Bullfinch is slight but the individual variation very great. A number of races have been divided on the

coloration of the breast in the male, but this character is not sufficiently constant to be of taxonomic value. Two races are recognizable: nominate *erythaca* Blyth, 1862, type locality, Sikkim; and *wilderi* Riley, 1918, type locality, northern Hopeh; but these, which are discussed below, are separable on the basis of size, *wilderi* being distinctly smaller than nominate *erythaca*.

Concerning the individual variation in coloration, Ludlow (1951, Ibis, p. 565) states, commenting on a series which he collected in Pome in southwestern Sikang (about longitude 95° E.), "In my experience the colour of the breast in the male is very variable and not sufficiently constant to be of diagnostic value. In the above series there is almost every gradation in the colour of the breast from rich red-orange to pale yellow. No. 5257, for example, is as red on the breast as any specimen of *altera* from Yunnan. No. 5297 is every whit as yellow as *wilderi* from Szechuan, whilst 5319 is neither red-orange nor pale yellow, but an intermediate between the two extremes. I am, therefore, extremely sceptical about the validity of any race of *erythaca* which is founded solely on the colouration of the breast in the male."

The specimens that I have examined confirm Ludlow. These, unfortunately, do not include any specimens of *wilderi* and only one male topotype of nominate *erythaca*, but consist of very large series of the type and paratypes of *taipaishanensis* Rothschild, 1921, type locality, Tsingling Range, Shensi, plus five specimens from Kansu and northern Szechwan, and a large series of *altera* Rippon, 1906, type locality, northwestern Yunnan, from this last region and northern Burma. Nominate *erythaca* is supposed to differ from *altera* by being less red, more orange, and *wilderi* is supposed to differ from the other two by being more yellow. Hartert and Steinbacher (1932, Die Vögel der paläarktischen Fauna, suppl. vol., p. 55), who have synonymized *taipaishanensis* with *wilderi*, add that this latter differs also from nominate *erythaca* and *altera* by showing more white around the black facial mask, but I find that this character varies individually just as much as the color of the breast and therefore is not diagnostic. One should also take into consideration that opinion as to the correct hue of the color of the breast differs according to the author. For instance, Shaw (1936, Fan Mem. Inst. Biol., Zool. Sinica, vol. 15, pp. 855-856), who has examined far more true specimens of *wilderi* than anyone else, states that in males from Hopeh the breast is orange-vermilion; he does not mention yellow.

It is very doubtful if Hartert and Steinbacher did examine *wilderi*, because this race is very rare in collections. As stated above, there are no specimens from Hopeh in the Rothschild Collection. It probably still breeds in northern Hopeh but was known to western authors only from

specimens collected in the Imperial Forest near Peking where it was said to be not common. The forest has disappeared, and *wilderi* was described by Riley on the basis of a single specimen (a female at that!). Bangs (1932, Field Mus. Nat. Hist., zool. ser., vol. 18, p. 375) states that the La Touche Collection in the Museum of Comparative Zoölogy contains only one pair of specimens. I believe, therefore, that Hartert and Steinbacher, followed by many subsequent authors, based their appreciation of *wilderi* on specimens from Shensi, Kansu, and Szechwan but these, as shown below, are very definitely larger and are not *wilderi*.

In the material mentioned above, the males, which number 34 in the single population from Shensi ("*taipaishanensis*"), show every conceivable shade from pure yellow through orange and vermilion to dark orange-red, and seven males of *altera* from northern Burma and 10 male topotypes of this form from northern Yunnan, as well as the male topotype of nominate *erythaca*, fall perfectly within the range of individual variation of the series from Shensi, not only in the coloration of the breast but also in the amount of white on the face and the width of the gray band on the upper breast. The best that can be said is that, taken as a series, the males of *altera* average very slightly redder and the females slightly darker and that in the males more specimens show a somewhat broader band of gray on the upper breast, but all the differences are so slight and so little constant that I do not believe any race (including very probably *wilderi*) is separable on the basis of coloration.

Pyrrhula erythaca wilderi is clearly separable, however, by being smaller than all the other populations, which are similar in size. According to Shaw (*loc. cit.*) 10 males of *wilderi* from Hopeh (to which apparently this race must be restricted) measure: wing, 74.4–78 (76.3), tail, 63–67.4 (65.4), as against in the males I have measured: Shensi, 20 specimens, wing, 80–86 (82), tail, 67–76 (71.5); Kansu, 84 and 72, respectively, in one specimen; northern Szechwan, 81 and 64 in one specimen; northern Yunnan, eight specimens, 80–86 (82.5) and 65–75 (70); northern Burma, seven specimens, 81–86 (83) and 64–72 (69.5); and in one from Sikkim, 80 and 68. Meise (1937, Jour. Ornith., vol. 85, p. 465) gives the wing length of three males from Kansu as 80–88.5; and Kinnear (1944, Ibis, p. 208) that of 11 from Bhutan and southern Tibet as 81–86. It seems also that *wilderi* has a much smaller bill, because Bangs (*loc. cit.*) states that it can be differentiated "at once by its small size and tiny bill."

Another race (*owstoni* Rothschild and Hartert, 1907) occurs on Formosa. No adult males are available to me, but these are said to differ from nominate *erythaca* by showing a reduction of the red pigments, these being

restricted to the sides of the breast. The females that I have examined from Formosa scarcely differ from those of nominate *erythaca*, being only somewhat grayer on the crown and nape and less brownish below.

Pyrrhula pyrrhula

The geographical variation in the European populations of the Bullfinch has been studied in a series of papers. Notable among them are those of Stresemann (1919, Beitr. Zoogeogr. paläarktischen Region, vol. 1, pp. 25-56), Cerny (1938, Alauda, pp. 76-90), Mayaud (1939, L'Oiseau, pp. 486-506), and Voous (1949, Condor, vol. 51, pp. 52-81). The paper of Stresemann commented on by Mayaud, and that of Voous explain the present-day variation of these populations in terms of their past history, that is, whether or not the ancestral populations of Europe were separated during the last glaciation and with the retreat of the ice came together again, meanwhile having become differentiated in size and slightly in coloration.¹ However, whatever past history, it is clear that continental Europe is now occupied by populations that are larger and brighter in the north and smaller and somewhat duller and darker in the southwest. It is clear also that the geographical variation is now clinal in character throughout the greater part of Europe, though this does not necessarily imply that all the populations follow a smooth gradient.

One who is concerned with the name he has to give to these populations is at a loss, for the authors cited above cannot agree as to whether one or two intermediate races (*coccinea* Gmelin, 1789, type locality, Baden, southwestern Germany; and *germanica* C. L. Brehm, 1831, type locality, Thuringia, southeastern Germany) should be recognized between the large birds of the north (nominate *pyrrhula* Linnaeus, 1758, type locality, Sweden) and the small ones of the southwest, or, indeed, as to what is the correct name to apply to the latter. But is it really desirable that the intermediate populations should be recognized at all nomenclaturally? The measurements given below show, I believe, that these populations are much closer in size to nominate *pyrrhula*, and it is generally agreed that they are identical or virtually so in coloration. On the other hand, the populations from Denmark (*vide* Salomonsen) and the Netherlands (Voous) to western France (Mayaud) and the British Isles are darker, duller, or more richly pigmented (Iberian Peninsula) than nominate *pyrrhula*, and they are all small and very similar in size (fig. 1).

¹ A weakness inherent in such theories is, as pointed out by Snow (1954, Ibis, p. 339), that the characters we now observe may indicate selective adaptation to present-day environmental factors.

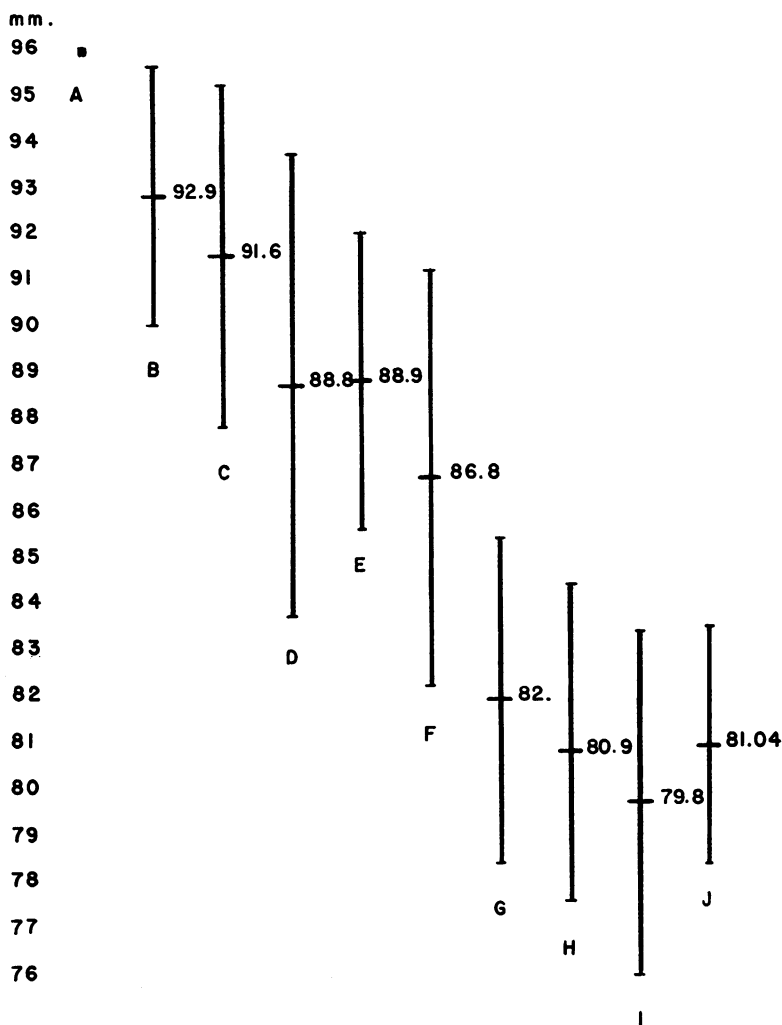


FIG. 1. Graphic illustration of geographical variation in wing length of adult males in *Pyrrhula pyrrhula*. Horizontal bar represents statistical mean; vertical bar, two standard deviations above and below. Variation is clinal according to latitude in populations A to F inclusive and again in populations G to I inclusive, but montane populations from south average larger, such as population E from mountains of southeastern Europe and population J from Pyrenees and mountains of northern Portugal and Spain. Key: A, Archangel, two specimens only; B, Pskov, northwestern Russia; C, central and southern Sweden; D, southern Germany; E, Bulgaria and Macedonia; F, Austria; G, Netherlands; H, southern England; I, western France; J, Pyrenees, Portugal, and Spain.

The nomenclatural treatment of clinal variation can never be perfectly satisfactory, but it seems less misleading if the intermediate *coccinea* and *germanica* are synonymized with nominate *pyrrhula* and the small and slightly darker race which does not appear to be part of the cline is restricted to the area in which it is clearly distinct, namely, from Denmark, the Netherlands, and the plains of western Germany south to France. In eastern France in the Vosges, Jura, and the Alps it is replaced by nominate *pyrrhula*, as understood above, and in the Pyrenees is replaced by another small but more richly pigmented race (*iberiae* Voous) which is discussed below.

If this division of the continental European populations is followed, there can no longer be any disagreement as to the name of the small western race. Its correct name, as maintained all along by Mayaud, is *europoea* Vieillot, 1816, type locality, Europe, restricted to western France in Normandy, Brittany, and Anjou by Mayaud (1933, *Alauda*, p. 462). It cannot be called *coccinea* because (fig. 1) the population of western France is very distinctly smaller than that of southern Germany with no overlap in measurements, or even smaller than that of northeastern France, three males from the Vosges measuring 84, 88, 89, according to Voous, 89 in one that I have measured from the Vosges, and 91 in one from Alsace.

The population of the British Isles (*pileata* MacGillivray, 1837, type locality, Great Britain, with synonyms *nesa* Mathews and Iredale, 1917, and *wardlawi* Clancey, 1947) is similar to *europoea* in size but differs slightly from it in coloration. The males are duller red below and darker blue-gray on the mantle, the females darker brown below and more olive-brown, less brownish, on the mantle. This race is clearly distinct from nominate *pyrrhula*, but the differences that separate it from *europoea* are slight and not very constant. Clancey (1946, *Ibis*, p. 158; 1948, *ibid.*, p. 133) and Meinertzhagen (1947, *Bull. Brit. Ornith. Club*, vol. 68, p. 23) agree that the birds of England, particularly from the southeast, scarcely differ from the continental populations which they call *coccinea*. Perhaps it would be better to synonymize *pileata* with *europoea*, but I cannot judge as I have examined only a very few specimens of true *europoea*, most of them very old and probably faded. I expect, however, that freshly collected material from England will prove to be somewhat darker in both sexes and the males duller red than similar material from western France.

Clancey (1947, *Bull. Brit. Ornith. Club*, vol. 67, p. 76) has separated the population of Scotland as *wardlawi* from that of England, the males from Scotland being, according to Clancey, darker and bluer on the mantle, the females paler on the mantle and paler and warmer brown below,

and the bill rather less massive in both sexes. In a subsequent defense of the validity of *wardlawi* (1948, Bull. Brit. Ornith. Club, vol. 68, p. 92) he emphasizes that the difference in the color of the mantle in the males "is most striking." Despite this, the validity of *wardlawi* has not been accepted, except more or less tentatively by Voous who says it is a "weakly differentiated race." My material from Scotland is very insufficient and too old, but for what they are worth two males and one female from Fife and Loch Lomond are perfectly identical with a long series from many parts of England. It seems that it would have been amply sufficient to call attention to whatever characters may exist between the birds of Scotland and those of England without burdening the nomenclature with the description of a local and probably very poorly differentiated form, and I follow the opinion of the official check-list of the birds of Great Britain and Ireland (1952, London, British Ornithologists' Union, p. 98) which synonymizes *wardlawi* with *nesa*, or *pileata* as I believe it should be called.

This list, as well as all the more recent authors with the exceptions of Hartert and Steinbacher (1932, Die Vögel der paläarktischen Fauna, suppl. vol., pp. 53–54), has unfortunately followed Mathews and Iredale in their ill-advised substitution of the name *pileata* by their own new name *nesa*. Mathews and Iredale did this because they apparently believed that *pileata* as proposed by MacGillivray is a substitute name for nominate *pyrrhula* and was not applied expressly to the British bird. However, if one reads the account given by MacGillivray (1837, A history of British birds, London, Scott, Webster, and Geary, vol. 1, pp. 407–410) one can readily see that the action of Mathews and Iredale was high handed. Furthermore, they totally ignored the note published by Hartert (1908, Brit. Birds, vol. 2, pp. 130–131) in which he had established carefully that the name *pileata* is valid and applicable to the British race. As Hartert shows, it is quite certain that MacGillivray described the British Bullfinch and that only. Hartert did not mention the measurements given by MacGillivray, but this author states that his bird has a wing length of $3\frac{4}{12}$ inches [or 83 mm.]. This measurement corresponds to measurements of the population of Great Britain but not to those of nominate *pyrrhula*. I fully agree with Hartert and also with Hartert and Steinbacher in their protest that the name *pileata* should not be replaced by *nesa*.

Voous (1951, Limosa, vol. 24, p. 131) has recently described as *iberiae*, type locality, Linares de Rio Frio, Salamanca, western Spain, a well-differentiated race from the Iberian Peninsula. I was particularly interested in this new race, because the birds of the Peninsula are not well

known, and their breeding in the Peninsula had not been demonstrated as far as I am aware. Thanks to the courtesy of Mr. Macdonald of the British Museum and Dr. Voous, I have been able to get together a series that includes some of the paratypes of *iberiae*. In view of the fact that records from the Peninsula are few, it is worth while to list these specimens. B.M. indicates specimens in the collection of the British Museum (Natural History), A.M. from the Amsterdam Museum, and A.M.N.H. from the American Museum of Natural History. All the specimens are adult.

Lecumberri, Navarra, Spain, May 15, 1924, one male (B.M.)

Burguete, 3200 feet, Navarra, Spain, May 24, 1924, one male (B.M.)

Moaña, near Vigo, Galicia, Spain, May 13, 1927, one female, "breeding" (B.M.)

Linares de Río Frio, southern Salamanca, Spain, March 4, 1950, one female; December 24, 1950, one female; January 10, 1951, one female; November 2, 1951, one male; January 4, 1952, one male; January 28 and February 22, 1953, two males; all specimens in the A.M.

Braga, Minho, northern Portugal, October 30, 1917, two males (A.M.N.H.); October 30, 1917, one male (B.M.); November 6, 1917, and November, 1917, no date, one male and one female (B.M.); all specimens from Braga collected apparently by W. C. Tait

In the 10 males above the under parts are a very rich and dark vermillion-red, very beautiful in shade, unmatched in any other population of the species known to me except *caspica* Witherby from northern Iran, of which I have examined specimens in exactly the same plumage collected in November and December, 1940. In male *caspica* and *iberiae* the color of the under parts is identical, but *caspica* is paler gray above and has a slightly longer wing and a very much larger bill. The females of *iberiae* are distinctly grayer, less brownish, above and are paler and grayer below than either *europoea* or *pileata*. Voous compares them to female nominate *pyrrhula*, but in my opinion they are not nearly so pale, judging by specimens collected in 1947 in Denmark.

The red color of the males fades, or varies individually. Two of the males from Braga are paler than the other two which match the color of the birds from Salamanca. The two paler males match the two collected in the Spanish Pyrenees at Lecumberri and Burguete, but these paler birds are still very distinctly more richly colored than male *europoea*.

It will be noticed that the female collected near Vigo on May 13 was breeding. If the species breeds by May 13 in Galicia, there is no reason to doubt that the two males collected in the Spanish Pyrenees on May 15 and 24 were on their breeding grounds. At the localities where they were collected, chestnut and beech forest occurs according to Ticehurst and Whistler (1925, Ibis, p. 443). Voous has informed me in a letter that on

June 16, 1955, he observed at Gavarnie in the French Pyrenees a very intensely colored male at 1950 meters in beech forest which he believed was a local bird. He states that it is his impression that *iberiae* breeds in the Galician and Cantabrian mountain forests and possibly in parts of the Pyrenees. If one may judge by the specimens above and the observations of Voous, it seems that the breeding range of this race extends from the mountain forests of northern Portugal and those of near-by Galicia, eastward through the Cantabrian mountain forests to those of the western Pyrenees (Navarra) and central Pyrenees (Gavarnie), and the range may extend farther east to the whole of the Pyrenees. All the specimens from Salamanca were collected in winter at low altitudes and probably were not on their breeding range. On the other hand, it is known that this species, while erratic, is not truly migratory in central and southern Europe and usually does not move very far from its breeding grounds (Cerny). It is possible then that the birds that were collected in the plains of southern Salamanca may have come not from the north, but from the near-by mountains of central Spain such as the Sierras de Gata, Gredos, and Guadarrama. The Bullfinch has not been reported from these regions but may eventually be found there.

The fact that *iberiae* probably breeds in the Pyrenees suggests that *europoea* does not reach into these mountains and is restricted to the plains or foothills. If it is correct that *iberiae* is a montane and *europoea* a lowland form, one would expect that *iberiae* has a longer wing. This is confirmed by the measurements below (see fig. 1 also).

Thanks to the courtesy of Dr. Voous, a female paratype of *iberiae* and a male topotype from the specimens listed above have been acquired by the American Museum of Natural History.

The taxonomic status of the populations of southern Siberia and northern Mongolia is not very clear, and it is still a moot question whether *cineracea* Cabanis, 1872, type locality, Lake Baikal, is or is not a separate species. Several authors, such as Sushkin, Stegmann, Kozlova, Grote, and Johansen, have shown that its breeding range and that of nominate *pyrrhula* overlap. The gray-breasted *cineracea* breeds from the mountains around Lake Baikal and the mountains of northern Mongolia westward over the Sayans to northern Russian Altai and occasionally Tomsk, and there is even a summer record from much farther west at Beresovo on the lower Ob. Its range is still not well known, but throughout most of it, if not all, it appears to be sympatric with nominate *pyrrhula*. Many authors consider, therefore, that *cineracea* is a separate species, but there are some important exceptions, such as Hartert and Steinbacher (1932, Die Vögel der paläarktischen Fauna, suppl. vol., pp. 52–55) and the au-

thors of the "Birds of the Soviet Union" (1954, vol. 5, pp. 242-249) who continue to treat all the various populations of the Bullfinch as conspecific, and Stegmann (1931, Jour. Ornith., vol. 79, pp. 156-157) who is reluctant to treat *cineracea* as a full species.

In some parts of the mutual range one form is more common than the other. At the eastern end, *cineracea* is more common according to Kozlova (1933, Ibis, p. 66), but according to Johansen (1944, Jour. Ornith., vol. 92, pp. 45-48) the reverse is true at the western end. Hybrids are cited by many authors, but there is some difference of opinion as to their frequency; probably it varies in different parts of the range. Stegmann states that they are found very seldom, but he is concerned with the eastern populations, while Johansen, concerned with the western ones, states that they are observed frequently.

In view of the fact that male *cineracea* lacks all red pigments and male nominate *pyrrhula* is of course very red below, hybrids should be easy to detect. Sushkin (1925, Proc. Boston Soc. Nat. Hist., vol. 38, no. 1, pp. 14-15) denies their existence, preferring to explain the gray specimens that he has examined with traces of red pigment as individual variants of *cineracea* because he says these have a small bill. He places the utmost confidence on the size and shape of the bill as a diagnostic character, saying that it is "absolutely reliable." This is certainly open to question, for the measurements that Sushkin gives show that the differences in length and width between the two forms amounts in some series to only 0.3 or 0.4 mm. As far as the shape is concerned, I find that in the only three males of *cineracea* available to me, the shape falls perfectly within the range of individual variation of long series of nominate *pyrrhula* from Europe. The bill may average smaller and the wing shorter in *cineracea*, but the differences cannot be accepted as perfectly diagnostic. The difference in the wing length is certainly not diagnostic as stated by Sushkin. The "Birds of the Soviet Union" gives the wing length of 12 males of *cineracea* as 83.5-97.0 (88.9) whereas, as shown below, the raw measurements of 10 males of nominate *pyrrhula* from Sweden are 90-97 (92.6); seven males of this race from Russian Altai measure 89-96 (93), and the three males of *cineracea* mentioned above, 88, 89, 91.

Ecological preferences and differences in the breeding season help to keep the two forms apart, but these mechanisms are not perfect. In some regions the birds breed in the same habitat, the ecological differences are very slight, and the breeding season overlaps. In the west, according to Johansen, the breeding season of nominate *pyrrhula* extends from May 9 to June 27 and that of *cineracea* from June 1 to July 9. The presence of an occasional hybrid does not necessarily invalidate the thesis that the two

forms are separate species, but hybrids do not seem to be infrequent and perhaps are the rule in some populations. Voous, who considers *cineracea* to be a separate species, states that "there does not seem to be any convincing evidence of a wild cross between these species," but, as shown above, this statement is contrary to the published evidence. In short, while *cineracea* may very well be an incipient species, its relationship to nominate *pyrrhula* is not well understood, and for the time being it seems best to me to follow the opinions of the authors who continue to treat all the populations of the Bullfinch as one species. Field studies can do more to settle this question than the mere examination of skins.

Johansen (*loc. cit.*), because he wanted to call attention to the hybrids, described as *jenisseiensis* a series of eight of these that were winter visitors to Krasnoyarsk. I do not believe, however, this form can be accepted as a valid subspecies. In view of the fact that Johansen proposed his form under the combination *Pyrrhula pyrrhula (pyrrhula) jenisseiensis*, he apparently considered it to be nearer nominate *pyrrhula*, with which *jenisseiensis* should be synonymized.

In the Far East, the "Hand-list of the Japanese birds" (1942, pp. 14-15) recognizes five forms, including *cineracea* which it treats, however, as a separate species. This form is included on the basis of a single specimen collected in November in Korea (see Austin, 1948, Bull. Mus. Comp. Zool., vol. 101, p. 256). The others are *cassini* Baird, 1869, type locality, Alaska; *kurilensis* Sharpe, 1886, type locality, Kuriles; *rosacea* Seebohm, 1882, type locality, Yokohama; and *griseiventris* Lafresnaye, 1841, type locality, Japan.

Pyrrhula pyrrhula cassini which breeds in Kamchatka and the northern Kuriles is very similar to nominate *pyrrhula* but paler and purer gray on the mantle, has purer white tips on the greater upper wing coverts, and is somewhat brighter red in the male. The validity of *rosacea* is open to question, and *kurilensis* does not seem to me sufficiently well differentiated from *griseiventris* to warrant recognition.

It is not certain whether *rosacea* is a geographical form or a plumage stage of *griseiventris*. Austin and Kuroda (1953, Bull. Mus. Comp. Zool., vol. 109, pp. 587-589) consider that *rosacea* is a geographical form, intermediate in coloration between the gray-breasted *griseiventris* and the red-breasted *cassini*, and state that it breeds on Sakhalin and the adjacent mainland and winters in Japan. It is certain that many specimens ("*rosacea*") are found in winter in Japan in which the gray of the breast is invaded with pink to a very highly variable degree. Among 31 males that I have examined from Japan, 20 are pink to a varying degree below and 11 are gray, but the gradation is such that it is impossible to

determine where one color passes into the other. Unfortunately, all the specimens, with one exception, a gray-breasted bird collected in "May" in Hokkaido, are without dates or localities, but they are all in very fresh plumage and were probably collected in the fall or early winter. In view of the fact that it is believed (see Hartert, 1903, *Die Vögel der paläarktischen Fauna*, p. 95) that the color is correlated with the age of the bird, I have tried to determine whether or not the gray or the pink birds were adults, using the plumage characters indicated for European Bullfinches by Drost (1940, *Vogelzug*, vol. 11, p. 68) and Mayaud (1945, *Bull. Soc. Zool. France*, vol. 69, p. 235), but without success, because about the same range of variation prevails as to the shape and color of individual feathers in both gray and pink specimens. This may indicate that we are not dealing with a plumage stage and that the variation is geographical, the pink birds being only winter visitors to Japan. However, this is contradicted to some extent by the fact that pressure on the skull reveals that in virtually all the pink birds the skull was not completely ossified, whereas it is hard and unyielding in 10 of the 11 gray birds. The extremely high degree of individual variation in the extent to which the specimens are tinged with pink is suspicious also. My observations are not conclusive, but with birds of known age it should be easy to determine whether or not the variation is geographical. Until then it is probably best to follow such authors as Hartert, Hartert and Steinbacher, and those of the "Birds of the Soviet Union" who consider *rosacea* to be a synonym of *griseiventris*.

A separate and resident race (*kurilensis*) is recognized in the central and southern Kuriles. According to Hartert (*loc. cit.*) it is paler but scarcely separable from *griseiventris*, but this is denied by Austin and Kuroda who state that it differs only by being slightly larger. Austin and Kuroda are correct, but the average difference is so slight and the overlap in individual measurements so very great between the birds that I have measured from Etorofu and Japan (gray-breasted only) that I believe *kurilensis* must be synonymized with *griseiventris*. The wing length in the specimens I have measured is 87, 88, 89, 90, 91, 92 (89.5) in males from Etorofu, as against 85, 85, 86, 86, 87, 88, 88, 89, 90, 91 (87.5) in males from Japan.

The other valid races of the species are *rossikowi* Derjugin and Bianchi, 1900, type locality, Transcaucasia; *caspica* Witherby, 1908, type locality, Mazenderan, northern Iran; and *murina* Godman, 1866, type locality, São Miguel Island, eastern Azores.

The first two differ only slightly from each other and nominate *pyrrhula*. In *rossikowi* and *caspica* the bill is more swollen at the base, slightly

longer, and more attenuated at the tip. Male *caspica* is very richly colored below (similar to *iberiae*) and apparently more so than male *rossikowi* which is said to be redder than nominate *pyrrhula*, and its females are paler and grayer above and below than female *rossikowi*. The difference between *rossikowi* and *caspica* is nevertheless relatively slight and of about the same order as between *europaea* and *pileata*. For more details on these two races, see Vaurie (1949, Amer. Mus. Novitates, no. 1424, pp. 56-58).

The most isolated of all the races is *murina* in which the male lacks red pigments, being hen feathered as in male *cineracea*. Male *murina* is slightly browner throughout than its female, and both sexes differ from all the other races of the species by having the rump and under tail coverts gray-brown rather than white. This bird, without a doubt the most interesting of all the land birds of the Azores, is or was restricted only to the island of São Miguel, and there restricted further to the eastern end of this island, a mountainous region roughly 15 kilometers long by 12 wide. Its existence has been very seriously threatened since the turn of the century, and it may now be extinct. However, a fairly recent popular publication received from the Azores (1947, Açoreana), reprinting an article published by Chaves in 1923, closes with a plea by "J. A." for the protection of the bird and leads one to hope that it is not yet extinct.

MEASUREMENTS OF THE EUROPEAN POPULATIONS

The measurements below are those of adult males only. The specimens were measured by me, or the measurements were taken from Voous (1949, Condor, vol. 51, p. 68, table 1). Except in the case of the birds from the far north (Archangel, Pskov, and Sweden), which were assumed to have been on their breeding grounds, or those from southern England and the Pyrenees and Iberian Peninsula, which show the color characters of their race, the measurements are restricted to birds collected only during the breeding season. These are the measurements used to illustrate the range of variation in figure 1.

Archangel, 96, 96

Pskov (northwestern Russia), 91.5, 92, 92, 92, 93, 93, 93, 94, 94, 95, 96

Sweden, 90, 91, 91, 92, 92, 93, 93, 93, 94, 97

Thuringia and Bavaria, 86, 87, 87, 91, 92.5, 93, 94; Bavaria (Voous), 87, 87, 87, 87.5, 89.5, 90, 91, 92.5

Austria (Voous), 83, 86.5, 87, 87.5, 87.5, 88, 88.5, 89+, 91.5+

Bulgaria and Macedonia (Voous), 87, 88, 88, 89, 89.5, 89.5, 90, 92, 92

Netherlands (Voous), 79, 80, 82, 82, 83, 84, 84

Southern England, 78, 79, 79, 80, 80, 80, 81, 81, 81, 81, 81, 82, 82, 82, 82, 82, 83, 83, 83, 84, 84

Western France (Voous), 77, 78, 78.5, 79, 80.5, 81, 83

Spain and Portugal, 79, 79, 81, 81, 81, 81, 82, 83, 83, 84

THE GENUS *EOPHONA*

The genus *Eophona* Gould, 1851, type *E. personata*, is merged by some authors with the genus *Coccothraustes* Brisson, 1760, type *C. coccothraustes*, but the two differ very clearly morphologically, and it seems best to keep them distinct. They are closely related and their bill is similar, as are also their general habits, but they differ in proportions, pattern, and pigmentation. In the two species of the genus *Eophona* the tail is very much longer, absolutely as well as proportionately, being about 70 per cent of the length of the wing as against less than 50 per cent in *Coccothraustes* which is monotypic. In the latter the tail is almost square, but it is forked in *Eophona* and blue-back and glossy, not white and dull brown as in *Coccothraustes*. The wings of *Eophona* are more glossy, with a different pattern of white areas, and the primaries are normal in shape, not scalloped on the inner web of the inner primaries as in *Coccothraustes*. The latter has a very dull brown cap, but in *Eophona* the crown is glossy blue-black and rather similar to that of *Pyrrhula*. It seems to me that *Eophona* is best retained and that its position seems to be between *Pyrrhula* and *Coccothraustes*.

Eophona migratoria

The geographical variation of the Chinese Grosbeak is relatively slight, and it seems sufficient to recognize but two subspecies: nominate *migratoria* Hartert, 1903, type locality, southern Ussuriland; and *sowerbyi* Riley, 1915, type locality, Hupeh, with *harterti* La Touche, 1923, type locality, southern Yunnan, as a synonym. Nominate *migratoria* breeds in southern Amurland, southern Ussuriland, Manchuria, and northern Korea, and winters in eastern China south to Fukien and Kwangtung, according to La Touche (1927, A handbook of the birds of eastern China, London, Taylor and Francis, pp. 300-303), reaching southern Yunnan and occasionally northern Indochina. *Eophona m. sowerbyi* is resident in the Yangtze Valley and probably other parts of eastern China.

The geographical variation involves size and coloration. Nominate *migratoria* is smaller (see below), contrary to expectation, as it is the northern race and migratory. The difference in measurements is rather slight, but the bill of typical *sowerbyi* is very distinctly larger. It is more massive, higher, and more decurved. The difference in shape is hard

to visualize by measurements alone and is illustrated in figure 2. Nominate *migratoria* is generally paler, not so dark brown above in both sexes, and in males not so gray on the breast and less rufous or chestnut on the lower flanks. All the differences in coloration are rather slight and not perfectly constant. The best difference between the two races is in the shape and size of the bill as noted by La Touche.

With the difference depicted in figure 2, combined with the other characters, it should be fairly easy to identify the winter visitors of nominate *migratoria* in China, but this is not the case. Among 50 specimens from China, the great majority of which were collected in winter (Shantung, 19 specimens; Kiangsu, six; Chekiang, one; Fukien, 18; and Yunnan, six), some are identical with topotypical nominate *migratoria*, but most of them are intermediate to a varying degree between topotypical speci-

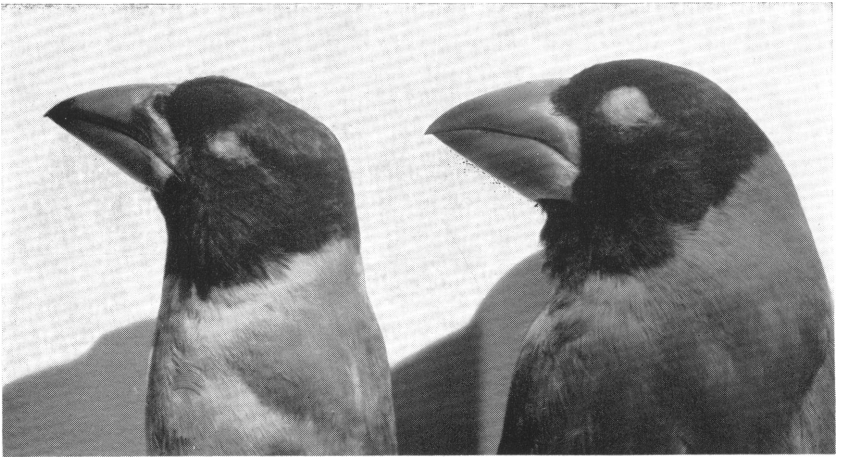


FIG. 2. Shape of the bill (natural size) in males of *Eophona migratoria*. Left, paratype of nominate *migratoria*, Ussuriland; right, *sowerbyi* from Shanghai.

mens of nominate *migratoria* or *sowerbyi* or differ very slightly from either. For instance, in a series of males from Shantung the wing length is about intermediate, but the bill is shorter than in either, while its height and the length of the tail are identical with those of nominate *migratoria*. In coloration, these males show the same range of individual variation present in both nominate *migratoria* and *sowerbyi* but taken as a series average darker than the former and much closer to the latter. All the specimens with the exception of one from Tchingchou [= Yitu] were collected at Chimo [Tsimo ?] on the following dates: November 29 (one), April 20 (one), August 17-26 (five), May 7 (one), May 17-25

(two) and could include migrants. However, the specimens collected in August are molting the body plumage and could have been local birds as well as the specimens collected in May, because by that date the species breeds in the Yangtze Valley. A series of males collected in Fukien from November to January is identical with nominate *migratoria* in measurements but may not belong to this race because all the specimens, as well as females collected in winter, match very well the coloration of the darker *sowerbyi*.

If some of the specimens from Shantung and Fukien are local birds, one can only conclude that China is inhabited by populations that differ very slightly from one another and bridge the gap between the characters of nominate *migratoria* and *sowerbyi* and that under the circumstances it is best not to recognize any subspecies. However, the fact remains that topotypical nominate *migratoria* and topotypical *sowerbyi* are clearly distinct. Our knowledge of the species in China is very insufficient, and for the time being it is probably best to refer all its populations to *sowerbyi*, although as emphasized here this form may be truly distinct only in the Yangtze Valley. Concerning the distribution of the Chinese populations, we know only that a large and dark race with a big bill is resident in the Yangtze Valley, "from Hupeh to the sea" according to La Touche; that the species is resident in southern and central China according to David and Oustalet (1877, *Oiseaux de la Chine*, Paris, Masson, p. 347); and that it apparently does not breed in Hopeh in northern China according to Shaw (1936, *Fan Mem. Inst. Biol., Zool. Sinica*, vol. 15, p. 843). It is possible that the range is not continuous from Manchuria to central and southern China, but this can be ascertained only by collections taken during the breeding season.

The validity of *harterti* has already been questioned by Rothschild (1926, *Novitates Zool.*, vol. 33, p. 334) and Bangs (1930, *Bull. Mus. Comp. Zool.*, vol. 70, p. 369). This race was based by La Touche on five specimens collected in January and February in southeastern Yunnan which this author said were dark above and had a small bill. It is very doubtful if these were any better differentiated than the specimens from Shantung and Fukien mentioned above, and I believe *harterti* is best synonymized with *sowerbyi*. One male and five females that I have examined from Yunnan, all collected in winter, are just as poorly differentiated as the specimens from Shantung and Fukien.

NOMENCLATURE

The first Linnean description of this species is by Gmelin (1789, *Systema naturae*, vol. 1, p. 853) under the name *Loxia melanura*, "Habi-

tat in Sina" which is founded on "Le Gros-bec de la Chine" of Sonnerat (1782, Voyage aux Indes Orientales et à la Chine, Paris, vol. 2, p. 199). In 1903, Hartert described *Eophona melanura migratoria*, and in 1915 Riley described *Eophona melanura sowerbyi*. The name of the species was changed from *melanura* to *migratoria* in 1919 when Penard (Proc. New England Zool. Club, vol. 7, p. 22) showed that *Loxia melanura* Gmelin is

TABLE 1
MEASUREMENTS OF *Eophona migratoria*

	Wing Length	Tail Length	Bill Length ^a	Bill Height ^b
Ussuriland ^c				
♂	99, 100, 100, 102 ^d (100.2)	68, 70, 72, 73 ^d (70.7)	21.5, 22, ^d 23, 23 (22.4)	12, 12.5, 13, 13 (12.6)
♀	95, 97	68, 68	19, 20.5	11.5, 12
Manchuria ^c				
9 ♂	99.5–101.5 (100.5)	—	—	—
Shantung				
10 ♂	100–109 (103.2)	67–73 (70)	19–22.5 (20.8)	12–13 (12.6)
Fukien				
7 ♂	98–102 (100)	64–77 (70.3)	21–24 (22.5)	12–13 (12.5)
Hupei and Shanghai				
♂	104, 105, 109, 110 (107)	76, 78, 82, 82 (80.5)	24.5, 25, 25.5, 26 (25.2)	14, 14.5, 14.5, 14.5 (14.5)
♀	100, 101	72, 74	24, 24.5	13, 13

^a Length of the whole bill measured from the skull.

^b Measured from the base of the upper half of the bill at the gape.

^c Type and paratypes of nominate *migratoria*.

^d Type of nominate *migratoria*.

^e From Meise (1934, Abhandl. Ber. Mus. Dresden, vol. 18, no. 2, p. 17).

preoccupied by *Loxia melanura* P. L. S. Müller (1776, Natursystem, suppl., p. 153), proposing for *Loxia melanura* the new name *pulla*. In 1932, Hartert and Steinbacher (Die Vögel der paläarktischen Fauna, suppl. vol., pp. 36–37) ascribed a type locality to *pulla* as the Yangtze Valley, treating *sowerbyi* as a synonym of nominate *migratoria*, although Hartert (1921, Die Vögel der paläarktischen Fauna, p. 2046) had remarked earlier that *sowerbyi* was probably a synonym of *melanura* Gmelin and, as this last name was preoccupied, *sowerbyi* might eventually replace it. There is no doubt that it should, although some authors have

followed Hartert and Steinbacher in calling the southern race *pulla* rather than *sowerbyi*.¹

Riley described *sowerbyi* on the basis of being paler than *melanura* Gmelin, but he had only two specimens from Hupeh, a male and a female, and I agree with Hartert (1921) that the difference noted by Riley is not constant. However, these two specimens are large birds, and their measurements, as given by Riley, do not correspond to those of nominate *migratoria*, whereas they correspond very well (see table 1) with those of the large race of the Yangtze Valley. According to Riley his male has a wing length of 107.5, tail length 82.5, and "culmen" 20.5; the female measures, respectively, 104, 82, and 21. By "culmen" Riley probably means the exposed length of the bill. In five specimens of both sexes that I have measured from Shanghai, the exposed length of the bill varies from 20 to 22.5, but in the six paratypes of nominate *migratoria* it varies only from 17 to 18. One male measured by me from Hupeh, with a very large bill, measures, wing 109, tail 82, exposed bill 22.5. I believe, therefore, that the name *sowerbyi* is applicable to the large race of the Yangtze.

Coccothraustes coccothraustes

The Hawfinch exhibits a rather high degree of individual variation but only a moderate amount of geographical variation, and the only two subspecies which seem to be moderately or well differentiated from nominate *coccothraustes* Linnaeus, 1758, type locality, southern Europe restricted to Italy, are *buvryi* Cabanis, 1862, type locality, Algeria, of northwestern Africa; and *humii* Sharpe, 1886, type locality, northwestern Punjab, which breeds in Russian Turkestan and probably northern Afghanistan, occurring in winter in Baluchistan and northwestern India. *Coccothraustes c. buvryi* differs in both sexes from nominate *coccothraustes* by being generally paler, especially on the crown, rump, and upper tail coverts which are grayer, the rump being pure gray without a tinge of brown or buff. Its white spots on the primaries and at the tip of the tail average smaller and it is also a slightly smaller bird. In 20 males of *buvryi* the wing length measures 94–103 (98.5), as against 100–110 (104) in seven from southern Europe, four from Italy, and the others from southern France, Macedonia, and Greece. *Coccothraustes c. humii* is very well differentiated, much more yellowish than all the other forms, ochre on the mantle rather than brown, tawny rather than vinaceous below. It is much better differentiated than *buvryi*.

¹ La Touche (1934, A handbook of the birds of eastern China, London, Taylor and Francis, London, p. 538) adopted the name *sowerbyi* in his *corrigenda*.

A strict division of the species should be limited to these three races, but it is possible to distinguish a fourth, though only slightly differentiated race (*japonicus* Temminck and Schlegel, 1850, type locality, Japan) in Japan and China; and possibly a fifth (*nigricans* Buturlin, 1908, type locality, Transcaucasia) ranging from southeastern Russia to the Caucasus and northern Iran. *Coccothraustes c. japonicus* is very similar to nominate *coccothraustes* but slightly paler throughout, and the white tips of its tail feather and also the size of the bill average smaller. It is paler below than *buurysi*, less grayish on the rump. My material of *nigricans* is inadequate, but the Russian authors recognize under this name a dark form in which the mantle is less brown, more blackish. If one can judge, however, from a series from northern Iran discussed in an earlier paper (1949, Amer. Mus. Novitates, no. 1424, pp. 62–63), *nigricans* does not seem to be a well-differentiated race.

A number of other races have been described, but these are not valid, require confirmation, or seem too poorly differentiated to warrant recognition. These are: *insularis* Salvadori and Festa, 1914, type locality, Sardinia; *verticalis* Tugarinov and Buturlin, 1911, type locality, central Siberia; *tatjanae* Kudashev, 1916, type locality, Crimea; *boehmei* Buturlin, 1929, type locality, northern Caucasus; *lönnerbergi* Bergman, 1931, type locality, Kuriles; *theresae* Meinertzhagen, 1939 (Bull. Brit. Ornith. Club, vol. 59, p. 66), type locality, Taddert, Morocco; and *schulpini* Johansen, 1944 (Jour. Ornith., vol. 92, p. 32), type locality, southern Ussuriland.

The validity of *insularis*, which is said to be the form of Corsica also, has been already questioned by Hartert and Steinbacher (1932, Die Vögel der paläarktischen Fauna, suppl. vol., p. 36). Six specimens from Sardinia and two from Corsica examined by me average grayer than nominate *coccothraustes*, but the difference is not constant and so very slight that I do not believe it is of taxonomic importance. The "Birds of the Soviet Union" (1954, vol. 5, pp. 160–171) has synonymized *verticalis* and *lönnerbergi* (and also *japonicus*) with nominate *coccothraustes*, and *tatjanae* and *boehmei* with *nigricans*. I have examined only four specimens of *verticalis* and one of *boehmei* and none of *lönnerbergi* and *tatjanae*, and I follow the opinion of the "Birds of the Soviet Union," except in the case of *japonicus* of which a long series differs slightly from nominate *coccothraustes* as stated above.

The forms described by Johansen and Meinertzhagen have not been discussed in the literature since their descriptions. The "Birds of the Soviet Union" does not mention *schulpini* which was described as having a larger bill than either nominate *coccothraustes* or *japonicus* and inter-

mediate in coloration between nominate *coccothraustes* and *verticalis*. It is clear that Johansen considers that the difference in the size of the bill is the more important character, but this is hardly confirmed by four specimens that I have examined from the range of *schulpini* as defined by Johansen. These consist of two breeding males from southern Ussuriland, one breeding male from Khabarovsk on the Amur, and one collected in February on the Ussuri River. The last-mentioned has a high bill, measuring 18 mm. from the anterior border of the nostril to the tip, but in the other three this measurement is 15.5, 15.5, and 17 and does not differ from that of males from Europe, 10 from Italy and Germany measuring 15.5–17. I can see no difference in shape and do not believe *schulpini* is separable from nominate *coccothraustes*. Meinertzhagen based *theresae* on one male and four females from a single locality in central Morocco, stating that these were darker on the mantle than *buvryi*, but these specimens were collected from October 16 to 18 and were in extremely fresh plumage. In fact, they were still molting, because Meinertzhagen (1940, Ibis, p. 128) states, "Head, wings, and tail, still in moult, body-moult almost complete." It seems that *theresae* requires confirmation. It is possible that it may prove to be darker, but before a separate subspecies can be recognized from a single locality (Meinertzhagen states that in another locality in central Morocco the birds are "typical" *buvryi*) more specimens in various plumages should be collected. It is very probable that the difference noted by Meinertzhagen is but a plumage stage of *buvryi*.

The birds of southern Spain and Portugal are said to be intermediate between nominate *coccothraustes* and *buvryi* by several authors who quote Witherby (1928, Ibis, p. 409) and Ticehurst and Whistler (1933, Ibis, p. 100). However, the last authors state that only females from Portugal approach *buvryi*, the males being not separable from nominate *coccothraustes*. Witherby states that males from Valencia, Rincon, and Granada are similar to nominate *coccothraustes*, but that females from Gibraltar are nearer *buvryi*. A series of two males and four females that I have examined from Sevilla averages slightly grayer than topotypical nominate *coccothraustes* but is very much closer to it than it is to *buvryi*.

One might postulate that a certain amount of gene flow takes place between the populations of the Peninsula and those of northwestern Africa, but this is not certain. The peninsular populations move altitudinally but are not migratory, and their range is probably not continuous with the range in Africa, as the species seems to be absent in northern Morocco. At any rate, it seems to me that all the populations of the Peninsula should be called nominate *coccothraustes*, whether perfectly typical or not, and *buvryi* restricted to northwestern Africa.

Mycerobas melanozanthos

The Spotted-winged Grosbeak had been considered monotypic, until Deignan (1943, Auk, p. 608) described a subspecies from northern Siam which he called *fratris-regis*, differing from *melanozanthos* Hodgson, type locality, Nepal, by "having the upper parts deep slate, not black, and the under parts a decidedly paler lemon-chrome" according to Deignan. In my opinion, however, two paratypes of *fratris-regis* that Deignan has been very kind to lend me fall perfectly in their coloration within the range of individual variation of the specimens I have examined from the Himalayas as well as from northern Yunnan, Sikang, and Chin Hills in Burma. These populations are not separable, as I have already remarked (1949, Amer. Mus. Novitates, no. 1424, pp. 61–62). Their coloration varies somewhat individually above and below, but none are truly black. Some of the specimens from the Himalayas are old skins, but others were collected in 1931 and 1948, while those from China and Burma were collected from 1922 to 1928.

In 1949 I gave the wing length of adult males as 124–131, and these are therefore larger than the three adult males of *fratris-regis*, the wing length of which was given as 117.3–120.9 by Deignan. However, the geographical variation is somewhat irregular, because birds from the southern end of the range measure 122–128 in 10 males from the Chin Hills according to Stresemann (1940, Mitteil. Zool. Mus. Berlin, vol. 24, p. 170). Birds from this region have also a somewhat more robust bill than those of the Himalayas as noted by Stresemann, but this author did not consider the difference to be of taxonomic importance. I agree with him and believe also, though this is a matter of opinion, that the small variations in the wing length do not warrant the recognition of subspecies either.

Koelz (1954, Contributions from the Institute for Regional Exploration, no. 1, pp. 19–20) has described two forms from Assam. Specimens are not available, but the two forms are described on characters that require confirmation, namely, on differences in coloration which are not stated to be clear-cut and on differences in the size of the bill, but no measurements are given to illustrate the difference. The size of the bill varies individually to a considerable extent. For instance, in six males from the Himalayas its length measured from the anterior border of the nostril varies from 17 to 20; and its greatest width at the base of the lower bill, from 18 to 20, and in two from the Chin Hills, 18 and 21.5. Until there is confirmation of the validity of the forms described by Koelz, it seems best to continue to regard this species as being monotypic.

Mycerobas carnipes

The White-winged Grosbeak shows a slight amount of geographical variation and has been divided into three subspecies, which, ranging from west to east, are *speculigerus* Brandt, 1842, type locality, northern Iran; nominate *carnipes* Hodgson, 1836, type locality, Nepal; and *nanschanicus* Meise (1937, Jour. Ornith., vol. 85, p. 459), type locality, Tchaoutou on the Tatung River, "Kansu" [= northeastern Tsinghai]. The western race, restricted below to Iran and Afghanistan, is paler and smaller than nominate *carnipes*, but it is acknowledged that it is only a slightly differentiated race. The eastern *nanschanicus*, which I believe is best synonymized with nominate *carnipes*, was described as similar to it in coloration but larger and has, I find, a somewhat more massive bill than the population of the Himalayas.

In an earlier note on this species (1949, Amer. Mus. Novitates, no. 1424, pp. 58-61) I recognized all three subspecies but remarked that the population of Russian Turkestan, although always called *speculigerus*, differed from that of Afghanistan and Iran. Upon reexamination of my material, I find that the population of Russian Turkestan averages much closer to that of the Himalayas in coloration and should be referred to nominate *carnipes* if subspecies are recognized. Birds examined from "Kansu" and southeastern Sikang (one adult male paratype and two adult female paratypes of *nanschanicus* and one adult male from southeastern Sikang, identical with these) differ from those of the Himalayas (nominate *carnipes*) by being larger and by having a larger bill, but the differences (see below) are relatively slight. These are bridged by the specimens examined from Russian Turkestan in which the wing averages longer than those from the Himalayas and in which the bill is identical in length with, or very slightly longer than, that of *nanschanicus* and identical in shape and width in about one-third to one-half of the specimens (five out of eight adult males and four out of 11 adult females). In coloration about one-third of the specimens from Russian Turkestan are identical with those of the Himalayas and those of *nanschanicus*. Under the circumstances it seems very difficult to uphold the validity of the latter and less misleading if all the populations from Russian Turkestan eastward are called nominate *carnipes*, with *nanschanicus* as a synonym.

The species breeds in northern Baluchistan and the Safed Koh on the border of Afghanistan and northern Baluchistan, and Ticehurst (1927, Jour. Bombay Nat. Hist. Soc., vol. 31, pp. 863-864) stated he believed that the populations of Baluchistan, Russian Turkestan, Gilgit, and

"Northwestern Himalayas" could be called *speculigerus* as opposed to nominate *carnipes* in Nepal and Sikkim. A cline of increasing saturation and size runs from west to east in the species, but five adults collected in the Safed Koh in June that I have examined (three males and two females) are only infinitesimally darker than specimens from northwestern Afghanistan and northern Iran. I agree therefore that the population of the Safed Koh and northern Baluchistan should be called *speculigerus*, but, as stated above, I believe the population of Russian Turkestan should be referred to nominate *carnipes*, as well as the populations of Gilgit and northern Punjab, because specimens examined from these regions are not, or are not constantly, paler than some from Sikkim, the difference being extremely slight at best.

The terminal populations of the cline (Iran and China) are fairly distinct, but from the discussion above and the measurements below it is clear that the geographical variation is not sharp and some authors may consider that it is best not to recognize any subspecies.

Individual measurements of adult males: Iran, wing length, 114, 115, 115, 116.5, 117, 117, 118, 118, 119, 120 (117); Afghanistan, 115, 116, 116, 116.5, 117, 117, 119, 120, 121, 122 (118); bill length measured from the anterior border of the nostril, Iran and Afghanistan, 15, 15.5, 16, 16, 16.5, 17 (16). Russian Turkestan, 118, 120, 122, 122, 122, 122, 123, 125 (121.8); bill, 17, 17, 17, 17.5, 18, 18.5, 19, 20 (18). Himalayas, 115, 116, 119, 119, 119, 120, 122, 123, 123, 123, 124 (120.3); bill, 16, 17, 17, 17, 17, 17, 17.5, 17.5, 17.5, 19, 19 (17.4). "Kansu" (Meise, 1937), 125, 126, 126, 126.5; bill in both sexes, 17-19. "Kansu" (Vaurie) 125, 18. Southeastern Sikang, 125, 18.