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Systematic Notes on Palearctic Birds. No. 42 Strigidae: The Genus *Athene*

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The present paper consists of a detailed review of *Athene noctua* and of a note on the race of *Athene brama* which breeds in the Palearctic region. The review of *A. noctua* is the first complete one, and I have been able to undertake it only through the cooperation of several institutions which have lent me specimens, including a type, some paratypes, and other specimens of critical interest. I express my appreciation for this friendly help to Mr. J. C. Greenway, Jr., of the Museum of Comparative Zoölogy, Mr. J. D. Macdonald of the British Museum (Natural History), Dr. G. Niethammer of the Alexander Koenig Museum in Bonn, and Dr. A. L. Rand and Mr. M. A. Traylor of the Chicago Natural History Museum.

ATHENE NOCTUA

The Little Owl is sedentary and ranges (fig. 1) from western and central Russia, Russian Turkestan, and Outer Mongolia south to the Sahara, northeastern Africa, Arabia, the Iranian region, Tibet, and western and northern China. It varies geographically, and Peters (1940) recognized 17 subspecies, although he listed two from the Crimea and Transcaucasia with queries and warned that the eastern populations required further study. I have recognized 13, the ranges of which are shown in figure 1. Hartert (1913) reviewed the species, but additional forms were described or revived after 1913, and neither he nor Steinbacher (1936), who listed the Palearctic races with brief comments, included the two valid but non-Palearctic races (*spilogastra* and

somaliensis) in his review. I have included them in order to present a complete review.

GEOGRAPHICAL VARIATION

The geographical variation is conspicuous and involves size (table 1) and coloration, but the Little Owl varies also individually and tends also to vary locally in some regions. The individual and local variations are more evident in the southern part of the range, and the local variations may represent adaptations to climatic or other factors that are of critical importance in a sedentary and diurnal species which inhabits deserts or very arid open regions. However, in the equally arid and open but colder parts of Asia the birds are much more constant in coloration. Possibly they may be forced to wander more throughout the year because of the more severe climate and, as a result, are less closely adapted to local conditions. The situation in the Little Owl is not unlike that prevailing in some larks that I have discussed in an earlier paper (1951), although the owls are not so closely adapted as the larks. The plumage of *A. noctua* also bleaches more quickly in arid and sunny regions. The individual and local variations, or those due to wear and bleaching, are not unusual, but I mention them in this review because it seems to me that these factors have been a source of confusion in the case of the southern subspecies, *glaux*, *saharae*, *lilith*, and *bactriana*. The conclusions that I have reached were based on a comparison of about 200 specimens of these four races.

The geographical variation appears to be clinal in many parts of the range but apparently is more or less random in character in some regions. For instance, the difference in coloration between the population of Morocco (*glaux*) and that of southern Spain (*vidalii*) is abrupt and very striking indeed. There is no evidence of any clinal variation from Spain to Morocco, or throughout the range of *vidalii*, which ranges north to the Netherlands and England, although the southern part of the Iberian Peninsula is much more arid and receives much more sunlight. The climatic conditions in southern Spain and northern Morocco are similar, but *vidalii* is very much darker than *glaux*. On the other hand, *vidalii* grades into the paler nominate *noctua* in western Germany, and a cline of decreasing color saturation runs eastward to *bactriana* of Iran and Transcaspia, via *indigena* of southeastern Europe and Asia Minor, accompanied by a slight cline of increasing size from nominate *noctua* to *bactriana*. However, although the body plumage of *indigena* is intermediate in coloration between that of nominate *noctua* and that of *bactriana*, its tail is darker than that of either, the

pale buffy markings on the top of the tail of *indigena* being more reduced in size and number and being less regular than in either nominate *noctua* or *bactriana* in which the pattern is similar. The large series that I have seen from all the important regions of Iran and Afghanistan shows no evidence of clinal variations, although it is well known that, almost always, well-marked clines of decreasing color saturation run from northwestern Iran eastward along the Caspian districts to northeastern Iran (Khorasan) and, in the south, from the western Zagros eastward to Persian Baluchistan. My specimens from the more humid ranges of the Tian Shan (*orientalis*) are paler than those of the arid lowlands (*bactriana*), although one would expect the reverse.¹ The population of the Tibetan Plateau (*ludlowi*), which breeds up to at least 15,000 feet, is relatively dark, distinctly darker than *orientalis*, although *ludlowi* inhabits the most inhospitable regions—the coldest, most windy, and, generally speaking, most barren—of those inhabited by the species. Farther east, however, the geographical variation appears to become clinal again. The population of western China is more or less intermediate between *ludlowi* and *plumipes* from northern China, and in northwestern Mongolia the birds appear to be intermediate between *plumipes* and *orientalis*. Finally, it is of interest to note that the population (*somaliensis*) of arid Somaliland and eastern Abyssinia is not pale but very dark and shows a striking reduction in the white markings on the crown.

This last race is isolated geographically (fig. 1) and is very distinct morphologically from the other races of Africa or those from neighboring Arabia. *Somaliensis* suggests that geographical isolation plays a part in the tendency towards a random type of geographical variation. Or this random variation may reflect selection pressures, such as the varying prevalence of predation, which are evidently of greater importance in some regions than a close correlation to climatic factors.

SYSTEMATIC LIST

Athene noctua glaux Savigny, 1809

Type locality, Egypt.

This race is relatively dark, the upper parts and the streaks below, which are heavy, being rufous brown or pale chocolate brown; the tail is irregularly spotted or barred with brownish buff. It ranges from Egypt, where it inhabits the Nile Valley from the delta south to Aswan,

¹ Dementiev's (1951, p. 402) statement that *orientalis* is darker than *bactriana* is contradicted by my specimens.

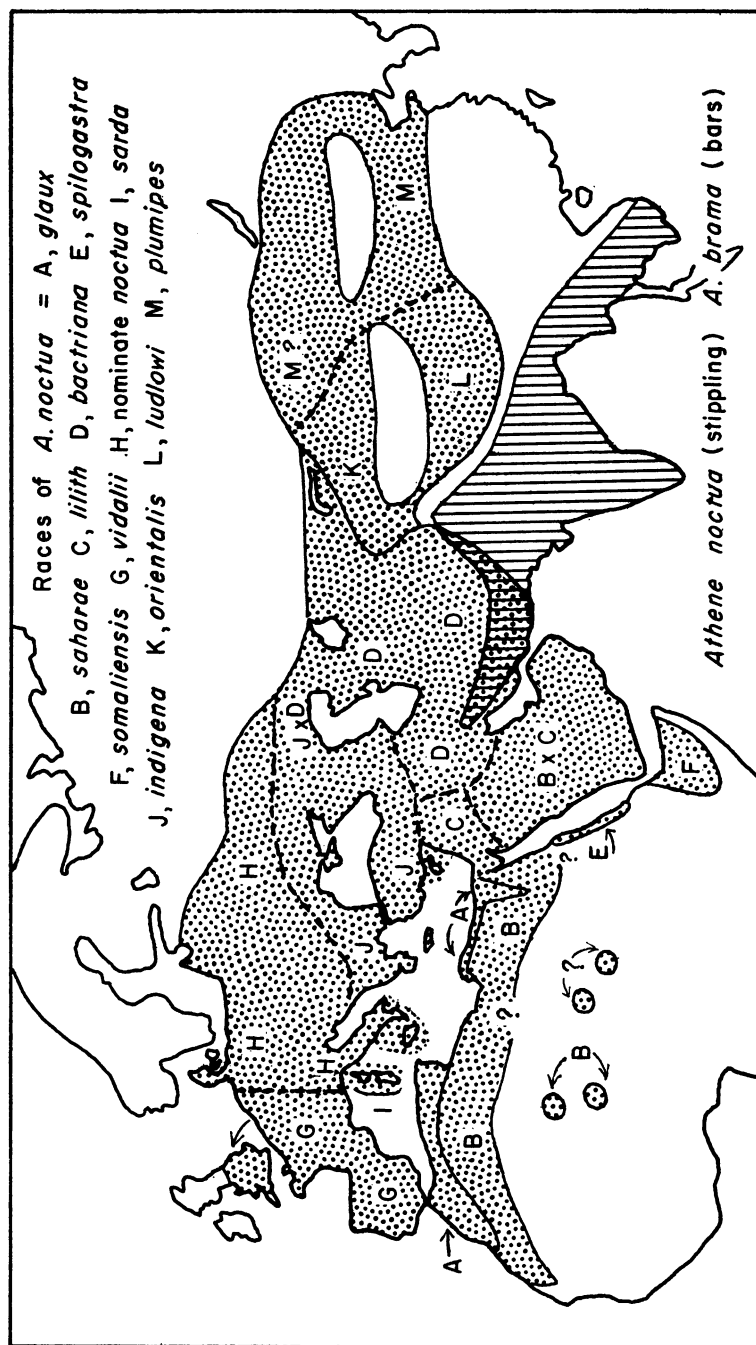


FIG. 1. Distribution of *Athene noctua* and *Athene brama*.

westward along the coastal districts of the Mediterranean to Morocco south to the Sous River Valley and the region of Tiznit, grading into the paler *saharae* south of the ranges of the Atlas. The latter race replaces *glaux* in Algeria from the Hauts Plateaux southward, in southern Tunisia, and perhaps coastal Tripolitania, but the birds of coastal Cyrenaica are more similar to *glaux*.

Hartert (1923, p. 23) states that the specimens that he and Hilgert collected in Cyrenaica "are most decidedly of the paler, very good race, *A. n. saharae* (Kleinschm.), not the darker *A. n. glaux*, quoted by Salvadori and Festa, 1921, and which I would have expected; there is of course some variation, but not as much as in places in southern Algeria." These specimens consist of three from Driana on the coast, taken on April 6 and 8, one from Soluch taken on April 22, and three from Sceledeima on the edge of the plateau east of Soluch, taken on April 21. All are very worn and bleached and vary individually, but, although taken as a series they are much more similar to *saharae* than they are to *glaux*, they are darker than *saharae* in similar plumage from Algeria. Probably specimens in fresh plumage would show that the population of coastal Cyrenaica is more similar to *glaux* than it is to *saharae*, the conclusion reached by Hall and Goodwin (1954, p. 466) and apparently also by Salvadori and Festa, as quoted by Hartert. I believe, therefore, that it is best called *glaux*.

Hall and Goodwin, who discuss a series of seven specimens collected by Stanford in northern Cyrenaica in April and May, 1952, state: "In view of the amount of individual variation and bleaching found in this species it is impossible to name these with certainty without seeing fresh specimens from the area. It seems significant, however, that, though the specimens from the non-desert areas [Slonta, Tmimi, Gubba, and Benina] in worn plumage have a bleached appearance, the unexposed portions in their plumage are dark, suggesting that fresh-plumaged birds would be typical of *glaux*, while the two desert specimens [Sceledeima and Bir el Gobi] are generally paler throughout, and have accordingly been referred to *saharae*."

Athene noctua saharae Kleinschmidt, 1909

Type locality, near Biskra, southern Algeria, with *solitudinis* Hartert, 1924, type locality, Aïr, southern Sahara, as a synonym.

This race is similar to *glaux* but differs from it by being paler throughout and by being less heavily and darkly streaked below but more profusely spotted with whitish on the crown and the entire upper parts. It varies more, individually and locally, than *glaux*. It ranges

from Morocco, south of the Atlas, to latitude 22° 30' N. in Spanish Sahara and the region of the Zemmour in northern Mauretania, from the Hauts Plateaux of Algeria south to the Oued Mya in the Sahara, the mountain massifs of the Ahaggar and Air in the central and southern Sahara (and perhaps those of the Tibesti and Ennedi), and from southern Tunisia and Cyrenaica eastward to Egypt and Arabia but is replaced by *glaux* in the coastal districts of Cyrenaica and in the Nile Valley (fig. 1). I have seen no specimens from Arabia, the population of which is said to be very variable individually and locally, some individuals being similar to *saharae*, others to the paler *lilith*, while the rest are intermediate to a varying degree between these two races.

Steinbacher (1936, p. 391) recognizes *solitudinis*, but it appears to be invalid. According to Steinbacher, *solitudinis* is "somewhat smaller than *saharae*, wing to 154 mm.; darker, somewhat like *glaux*, but somewhat more reddish, feathers of the head with rounded white spots" (translation). However, I find that the type of *solitudinis*, and the only specimen known, is identical in coloration with many specimens of *saharae* in the same plumage, including topotypes of the latter. It does not differ in size from *saharae*. The wing length of the type, a female, measures 154, a measurement that falls within the range of variation of nine females of *saharae* which measure 152, 152, 154, 154, 154, 158, 161, 161, 162. Hartert (1924, p. 18) mentioned also that *solitudinis* differs from *saharae* by having a smaller bill which is "pale grey-green, not yellow!" but I can see no difference in the size of the bill or its coloration which varies from grayish green to yellow in *saharae* and is correlated no doubt with physiology. Hartert discussed *solitudinis* again (1925, p. 261) stating, "When I said [1924, p. 18] that this bird was 'much' smaller than *A. n. saharae* this requires some modification, as most *saharae* are indeed larger, but sometimes the bill is not larger, and the wings measure only 150–154 mm., the latter being the length of the wing of *A. n. solitudinis*, while in *saharae* the wings are generally 160–164 mm." This statement, and the one of Steinbacher quoted above, are ambiguous, as they imply that more than one specimen of *solitudinis* exists, whereas, as stated by Bannerman (1933, p. 28), this form apparently "is known from the type only." It is quite possible that the isolated population of the Air will be found to differ from *saharae* but, pending confirmation, *solitudinis* must be synonymized with *saharae*.

Bannerman (*loc. cit.*), who has seen the type of *solitudinis*, states that it "is so close to *Carine noctua spilogaster* Heuglin, from North-

East Africa, that when more specimens are available I shall be surprised if these two forms are not synonymous." However, this opinion seems uncritical, as the population of the Aïr very probably represents only a relatively slight southern extension of the range of *saharae*, via the Ahaggar Massif, not an extension of the range of *spilogastra*, which is restricted (fig. 1) to a narrow coastal belt along the Red Sea from the Sudan to northern Eritrea, about 3000 kilometers distant from the Aïr. We know that some migrants from Europe follow the wadis which "flow" north into the Sahara from the Ahaggar, notably storks which require some water and are mentioned by Dorst (1956). This route, which is marked with springs and water holes, does not seem impossible for the Little Owl, but these conditions do not exist in the eastern desert. It is possible that this species will be found eventually in Tibesti and Ennedi (a possibility indicated in fig. 1), but so far the species has not been reported in these regions which, although they narrow the gap, are still very far removed from the Red Sea. *Spilogastra* does not penetrate far inland, but *saharae* does extend very deeply into the Sahara. It seems to me that any resemblance between "*solitudinis*" and *spilogastra* is due to convergence.

Athene noctua lilith Hartert, 1913

Type locality, Deir ez Zor, eastern Syria.

This race differs from *saharae* by being distinctly paler throughout, very pale "sandy" in coloration, whiter on the head, back, and wings and, especially, on the nape, where the white spots form a large patch. It is the palest race of the species and differs also from *saharae* by being very distinctly, less heavily, streaked below with paler, more reddish, less brownish streaks; its tail is also more regularly barred with buff on an average. The range of *lilith* is rather restricted, consisting of the Sinai Peninsula north to Syria and east to Jordan, but its limits are difficult to define, as it probably grades into *indigena* in southern Turkey and *bactriana* in western Iraq, and, as stated above, the population of Arabia is more or less intermediate between *lilith* and *saharae*.

I consider that *lilith* is well differentiated, though not perfectly constant, but its validity has been questioned by several authors. It was recognized at first by Meinertzhagen (1922, p. 53), who gave a good diagnosis of it, but he subsequently synonymized it with *saharae* (1925, p. 320). Bates recognized *lilith* at first (1937a, p. 54) but soon changed his opinion (1937b, p. 816), synonymizing it with *saharae*. Ticehurst (1926, p. 107) was dubious about its validity, stating, "If *lilith* be a

good race, (and the types from Deir ez Zor between Dair and Aleppo on the Euphrates seemed to me to be distinct, although unique), then it must be a local desert race; for the birds from Palestine (Lebanon, Judaea, Tabor, Kutifah N. of Daur) I cannot separate from Kandahar birds (*bactriana*).” Prior to this (1922, p. 418) he had acknowledged the validity of *lilith* as a “pale sandy [race] above . . . (from Palestine) . . . [with] yellowish-red [streaks below].” After comparing the type and paratypes of *lilith* (three specimens) with 14 from Palestine, I cannot agree that the type and paratypes represent a “unique” form, as they match 11 of the 14 specimens from Palestine. This material compared to a large series of *bactriana* which includes paratypes shows also that Ticehurst is quite incorrect in stating that the birds of Palestine are *bactriana*.

My conclusion is the same as that of Hartert, who, in refuting Meinertzhagen, states (1925, p. 261): “Spreading out our 29 *saharae* side by side with 15 *lilith*, it is obvious that the latter average much paler, especially the heads being lighter; only 3 of our 15 could be mistaken for *saharae*, while only 2 of our *saharae* would be called *lilith* if their origin was unknown. Possibly, if I had had all this material available in 1913, I would not have named *lilith*, but it seems wiser not to unite it with *saharae*.” Two additional birds from Palestine have been examined by me, and I agree with Hartert that *lilith* should be recognized.

Athene noctua bactriana Blyth, 1847

Type locality, Kandahar, southern Afghanistan.

This race differs from the three races discussed so far by being larger (table 1) and by having the toes much more heavily feathered. It is paler than *glauca* but darker than *saharae* or *lilith*, less “sandy” and yellowish, less spotted with white, than *lilith*, and much more heavily streaked below with darker and browner streaks. It is more grayish, less rufous brown, above than *saharae* and more heavily streaked below with darker and browner streaks. It ranges from Iraq eastward through Iran to Afghanistan and northern Baluchistan, and north from the Iranian region to Transcaspia and Russian Turkestan to the Ust Urt Plateau, the northern coast of the Aral Sea, and Lake Balkhash, but is replaced by *orientalis* in the mountains of Turkestan and Semirechia. Dementiev (1951, pp. 399–400) refers the birds of the Volga-Ural steppes, Transcaucasia, and northern Iran to *indigena* but states that they are paler. Two specimens that I have seen from the lower Volga and one from the region of Orenburg are indistinguishable from *indigena* from the Balkans, but it is probable that *indigena*

grades into *bactriana*. The only bird that I have seen from Transcaucasia is immature and not diagnostic, but a series from northwestern Iran (Azerbaijan) and northern Iran (Mazenderan) are indistinguishable from topotypical *bactriana* from Afghanistan. No specimens from Iraq are available to me, but the birds of that country would appear to be more or less intermediate between *lilith* and *bactriana*, according to Hartert (1925, p. 261), while Meinertzhagen (1924, p. 618) states they "are nearest *A. n. bactriana*." The statements of Dementiev, Hartert, and Meinertzhagen suggest that the geographical variation is clinal.

I cannot agree with Paludan (1938, p. 626) that the birds of the Zagros in southwestern Iran are *lilith*, as my specimens from this region are typical *bactriana*. The comparative material seen by Paludan seems insufficient, as it consisted of only four birds from Iran and two from Palestine. The wing lengths of his specimens from the Zagros are much more similar to those of *bactriana* than they are to those of *lilith*, with one exception, a male with a wing length of 154, his other specimens measuring 164 in one male and 164, 168 in two females. Possibly the bird with a wing length of 154 was not fully adult, as its weight was only 118 grams, as against 146 in the other male and 164, 201 in the females. Paludan does not believe that the feathering of the toes is a "useful" character, but it seems diagnostic to me in birds that are not badly worn.

Athene noctua spilogastra Heuglin, 1863

Type locality, near Massawa, Eritrea.

This race is similar to *saharae* in coloration but smaller. Its wing length measures 146–147 according to Mackworth-Praed and Grant (1952, p. 654) who give no average measurement and do not mention how many specimens were measured. In the only specimen of *spilogastra* that I have seen, a male collected on the Jebel Bawati, north of Port Sudan, the wing measures 146 mm., as against 150–163 (156.2) in 10 males of *saharae*. Reichenow (1900–1901, p. 671) states that the wing length of *spilogastra* measures "140–160," but the localities he mentions suggest that he combined birds that belong to at least three subspecies. This race inhabits the coastal region on the African shore of the Red Sea from the region north of Port Sudan south to northern Eritrea and apparently is isolated geographically from *somaliensis* and perhaps *saharae*.

Athene noctua somaliensis Reichenow, 1905

Type locality, northern Somaliland.

This race differs from *spilogastra* by being smaller, the wing length

of seven males measuring 135–144 (138.9), and by being distinctly darker. It is darker brown above, more heavily streaked with darker brown below, and less spotted or streaked with white on the crown, these markings being more reduced in number and extent in *somaliensis* or absent altogether in about half of the specimens I have examined. It ranges from southeastern Abyssinia to Somaliland. Friedmann (1930, p. 299) restricts the range of *somaliensis* to northern British Somaliland westward to Dire Dawa in northeastern Abyssinia, but I have also examined a number of specimens collected in “southeastern Abyssinia” in Gallaland.

Athene noctua vidalii A. E. Brehm, 1857

Type locality, southeastern Spain, with the following synonyms: *grüni* von Jordans and Steinbacher, 1942, type locality, southern Portugal; and *cantabriensis* Harrison, 1957, type locality, northwestern Spain.

This race differs from the preceding by being very much darker, dark umber brown, tinged faintly with rufous brown in some individuals. It is the darkest race of the species. It is also more regularly barred on the tail and more conspicuously spotted with purer white on the upper parts. It ranges from the Netherlands and Belgium southward through France to the Iberian Peninsula and has been introduced in England.

A series of two males and eight females taken at Lagos on the coast of southern Portugal in March, April, and May, 1939, was named *grüni* by von Jordans and Steinbacher (1942, p. 234), who state that these specimens differ from *vidalii* by having narrower white streaks on the crown, by being tinged with olive above, and by having a shorter wing. Five of these specimens, the two males and three females, which were collected between April 18 and May 19, were kindly lent to me by Dr. Niethammer and are, I find, identical in coloration with specimens of *vidalii* in comparative plumage from southern Spain but have a somewhat shorter wing. The males measure 144, 152 and the females 152, 155, 155, as against 154–160 in seven males and 156–166 in six females of *vidalii* from Spain. A male from the region of Guarda in northern Portugal has a wing length of 154. It thus appears that the wing length becomes somewhat shorter on the coast of southern Portugal, but most systematists would agree that this type of variation, which is probably clinal, is best mentioned without resorting to nomenclatural separation.

Harrison (1957, pp. 2–3), who acknowledges a loan from the Bonn Museum, speaks of having examined specimens of *grüni* in “fresh autumn plumage,” stating that they are paler than *vidalii*, but I accept

this statement with reservation, as *grüni* seems to be known only from the original series in the Bonn Museum. These specimens, judging by the dates at which they were collected, and the five that I have seen are in very worn plumage.

The form named by Harrison (*loc. cit.*) was based on three adults and one immature bird which, he states, "are acquiring their fresh autumn plumage" and differ from *vidalii* by being darker. In other words, they are molting, and it seems not surprising, therefore, to find that the new feathers are dark. The specimens that I have seen from the Peninsula and the rest of the range of *vidalii* show that the new feathers are always very distinctly darker than the old ones in birds that are molting or in very fresh plumage. The type of *cantabriensis* was collected at Laredo, Santander, on September 18, 1956, and, although Harrison does not say where or when the other three specimens were collected, it is evident they were taken at the same time as the type and at the same locality. He believes that *cantabriensis* probably ranges to northern Portugal, basing this opinion on a specimen, also in molt, collected at Barcellos. However, a specimen that I have seen from northern Portugal, which was taken on April 17, 1934, is virtually identical in coloration with one in the same plumage collected at Murcia (the type locality of *vidalii*) on April 15, 1897, although the latter, being considerably older, has probably "foxed" slightly.

The four specimens of *cantabriensis* were not examined by me, but additional material must be collected in different plumages and from a number of localities before the validity of *cantabriensis* can be acknowledged. It is possible that the population of coastal northwestern Spain differs from that of southeastern Spain by being darker, as the Cantabrian region is more humid, but this requires confirmation, as I find that specimens from the Netherlands do not differ from those of southeastern Spain, although the Netherlands is much more humid and receives much less sunlight.

The material that I have seen from the Iberian Peninsula consists of 19 birds collected at Murcia, Daimiel in La Mancha, Aguilas, the Sierra Nevada, Granada, Malaga, Cordoba, and Sevilla. Four are from Murcia and include the type of *vidalii* and a paratype; the latter is an immature male taken on September 1, 1856. The type was taken on September 10, 1856, and, although said to be an adult, is actually a young bird molting into adult plumage. In addition, I have examined the specimen mentioned from northern Portugal and five paratypes of *grüni*. These have been compared to series from France and the Netherlands and one from England where the species was introduced about

1874 but did not begin to breed regularly until 1896 after further introductions.

Athene noctua noctua Scopoli, 1769

Type locality, Carniolia, northern Italy.

This race is similar to *vidalii* but paler, more rufous brown, with the dark streaks below and the white spots above somewhat less contrasting. It ranges from western and central Russia south to Germany, Denmark (Jutland, Funen, and surrounding islands), Switzerland, Italy and Sicily, Bosnia, Hungary, Romania (probably in the west, but not in the east where it is replaced by *indigena*), northern Ukraine, Voronezh, and southern Urals. It is said to grade into *vidalii* in western Germany and has been introduced in New Zealand from Germany on several occasions between 1906 and 1911.

Athene noctua sarda Kleinschmidt, 1907

Type locality, Sardinia.

This race is poorly differentiated from nominate *noctua*, but its general coloration is somewhat paler, with smaller white spots on the scapulars. It inhabits Sardinia and probably Corsica where, however, it is said to be extremely rare. Specimens from Corsica are unknown to me.

Athene noctua indigena C. L. Brehm, 1855

Type locality, Attica, southern Greece, with the following synonyms; *kessleri* Semenov, 1899, type locality, Crimea; and *caucasica* Zarudny and Loudon, 1904, type locality, Baku on the southeastern Caspian.

This race differs from nominate *noctua* by averaging somewhat paler, more rufous, in general coloration and by averaging a little larger (table 1) but essentially by being less extensively and sharply patterned with buff on the tail. In *indigena*, the pale and buffy markings are reduced in number and size and form rounded or elongated spots rather than bars and are irregularly arranged in two rows, less often three, as against three or four rather regular bands in nominate *noctua*. It approaches *bactriana* in size but differs clearly from it in coloration and by having the toes less thickly feathered; in *bactriana* the tail is well and regularly barred as in nominate *noctua*, the general coloration is considerably paler, more grayish, than in *indigena*, and the crown, nape, wings, and scapulars are more profusely marked with larger white spots. Some authors consider that *indigena* is intermediate between nominate *noctua* and *bactriana*, but *indigena* is not truly

intermediate other than in the length of the wing. It is much more similar to nominate *noctua* than it is to *bactriana*, with the exception of the reduced and irregular pattern on the tail, and in this respect differs from both.

Athene noctua indigena ranges from southeastern Europe, south of nominate *noctua*, from Hercegovina, Macedonia, and Bulgaria south and east to Greece, the Aegean islands, Rhodes, Turkey, Cyprus, and Crete, and from southern and eastern Romania east through the steppes of the Ukraine and of southern Russia (north to at least the region of Stalingrad on the Volga) to the basin of the lower Ural River, and the Crimea, Caucasus, and Transcaucasia, but not to Iran where it is replaced by *bactriana*.

The eastern limits of the range of *indigena* cannot be defined with certainty, as this race seems to grade into *bactriana* between the Volga and the Ural and in Transcaucasia, as stated above, and to show a tendency towards the paler *lilith* in southern Turkey, Rhodes, and Cyprus. The only specimen that I have seen from Turkey is from the west (Istanbul) and is identical with typical *indigena* from the Balkans, but Bannerman and Bannerman (1958, p. 186) suggest, no doubt correctly, that the population of southern Turkey is paler than *indigena*. No specimens were seen by me from Rhodes, but those reported by Salvadori and Festa (1913, p. 18) would appear to be paler than *indigena* and better spotted with white. They are, perhaps, more or less similar to five specimens that I have from Cyprus which vary individually but, nevertheless, are paler than *indigena* from the Balkans, better spotted with white throughout and more regularly marked with buff on the tail, the tail being regularly barred in two of these specimens. Hartert (1913, p. 1004) refrained from identifying the population of Cyprus, and the question of its subspecific identity has remained unsettled to this day. Bannerman and Bannerman (*loc. cit.*) state that a series of 30 specimens was examined on their behalf by Meinertzhagen and report that he told them the birds of Cyprus are "referable either" to *glaux* or *indigena* and "are best designated as *Athene noctua glaux* \geq *indigena*." Such a formula is not satisfactory for nomenclatural purposes, and I believe it is best to call the birds of Cyprus *indigena*, although they do differ from those of the Balkans to a certain extent. Another solution would be to propose a new subspecies for Cyprus, but its birds vary individually and it would not be well differentiated.

I follow Dementiev (1951) in synonymizing *kessleri* and *caucasica* with *indigena*, as I have not seen specimens from the Crimea or

Transcaucasia other than one young bird mentioned above. Steinbacher (1936, p. 390) had already synonymized these names with *indigena*, but I mention them because Peters (1940) believed that these forms might be valid, stating that Dementiev [1933, p. 513] had upheld them. In 1951, however, Dementiev no longer did so.

Athene noctua orientalis Severtzov, 1872

Type locality, Russian Turkestan. Severtzov did not appoint a type, and Dementiev (1931) has appointed a lectotype from the Issyk Kul, Tian Shan.

This race is similar to *bactriana* in size (table 1) and in having thickly feathered toes, but is paler above, more grayish, less brownish, more conspicuously and abundantly spotted with larger white spots on the whole of the upper parts and wings, and somewhat less heavily and darkly streaked below. It is much paler than *indigena*, but the ground coloration of its upper parts is considerably darker than that of *lilith*, more grayish and "cooler" in tone, less "sandy" and yellowish, although almost as well spotted with white. It differs also from *lilith* by having darker, more brownish, less reddish, streaks below, a longer wing, and thickly feathered toes.

The range of *orientalis* consists, according to Dementiev (1951), of the Pamirs, Tian Shan, Tarbagatai, Kun Lun, and Astin Tagh, or, in other words, of the mountains of Russian and Chinese Turkestan. This may be correct, but, as my specimens from the Tian Shan (including two topotypes of *orientalis* from the Issyk Kul and another from the same region) do not correspond at all to the diagnosis of *orientalis* given by Dementiev, I cannot confirm that this race inhabits also the Pamirs, Tarbagatai, and the Kun Lun and Astin Tagh from whence I have no specimens. The probabilities are, however, that *orientalis* ranges to the Tarbagatai, as my specimens from northwestern Mongolia are intermediate between *orientalis* and *plumipes* of China. It may also range to the Kun Lun and the Astin Tagh, but I have some reservation about the Pamirs, as my specimens from the regions of Khana-bad and Cha i Ab in northeastern Afghanistan are *bactriana*, not *orientalis*. It is possible that the birds of the Pamirs are *bactriana* or intermediate between it and *orientalis*. The specimens of *orientalis* that I have seen consist of seven from Russian Turkestan and one from Hami, at the eastern end of the Tian Shan in Chinese Turkestan, which is identical with the other seven.

Dementiev (1931, p. 258) seems to have been the first author to call attention to the fact that the birds of the Tian Shan (for which the

name *orientalis* was available) were distinct from those of the lowlands and plains of Russian Turkestan and Transcaspia (*bactriana*). The latter, I find, are identical in coloration with my birds from Afghanistan which include some from Kandahar, the type locality of *bactriana*. According to Dementiev (*loc. cit.*), *orientalis* differs from *bactriana* by being darker and larger and by having more thickly feathered toes. He subsequently (1951, p. 402) repeated these statements, adding that *orientalis* was also less spotted with white above than *bactriana* and more heavily and darkly streaked below. It is evident that these statements are the very opposite of the description of *orientalis* that I have given above. I cannot account for the contradiction, but it is true that the specimens from the mountains are somewhat larger than those of the lowlands of Russian Turkestan and Transcaspia. In specimens that I have measured from Transcaspia, Bukhara, and Samarkand the wing length measures 158, 159, 159, 162, 163, 168 (161.5) in six males and 164 in one female, as against 161, 165, 166, 171, 175 (167.6) in five males and 160, 164, 169 (164.3) in three females from the Tian Shan, but 15 males from Afghanistan measure 159–174 (165.5) and 10 females 163–175 (170). The three series show a virtually complete overlap in individual measurements, although the averages differ slightly.

The series of *orientalis* and *bactriana* that I have examined vary somewhat individually in coloration, as is to be expected, but I can match only four specimens, out of a total of 63 *bactriana*, with the eight *orientalis*. Two of the 63 are from Transcaspia, and one each is from northern Afghanistan and southwestern Iran. The difference in coloration between the two races is therefore remarkably constant for such a species in which individual variation is often great in some regions.

Athene noctua orientalis and the three forms (*ludlowi*, *impasta*, and *plumipes*) to be discussed below are the least known in the species. They are not well represented in collections, and Peters (1940, p. 149), who suffered from this lack of material, remarked, "Only direct comparison of an adequate series of *orientalis*, *ludlowi*, *impasta* and *plumipes* can settle the question of the validity and geographic limits of these races." The series that I have been able to gather is not very large but is the most representative that has been assembled so far. It consists of the eight specimens of *orientalis* mentioned, three from Outer Mongolia, one from Inner Mongolia (Angoli Nor in Chahar, north of Kalgan), one from southwestern Transbaicalia, four from Tibet, two from the region of Jyekundo in southern Tsinghai, three from the region of the Koko Nor and southwestern Kansu (the type and

paratypes of *impasta*), and 11 from central and northern China collected in Shensi, Shansi, Shantung, and Hopeh. This material suggests that, in addition to *orientalis*, two other subspecies (*ludlowi* and *plumipes*) can be recognized, *impasta* being too poorly differentiated from *plumipes* to warrant its recognition.

Athene noctua ludlowi Baker, 1926

Type locality, Dochen at 15,000 feet, near the Rham Tso lake, southern Tibet.

This race differs from *orientalis* by being darker and considerably larger, being the largest race of the species (table 1). It is more rufous brown above than *orientalis*, less grayish, and is less spotted on the average, the spots being also more buffy, less whitish; the under parts are slightly more buffy, less whitish, and are distinctly more heavily and darkly streaked. It ranges from northern Kashmir eastward over the Tibetan Plateau to at least the region of Litang in eastern central Sikang and north to the upper basins of the Yangtze and Yalung in Tsinghai. In Kashmir it is found in Baltistan and Ladak and extends to the foothills of the Karakoram and perhaps to the Kun Lun and the Astin Tagh in Sinkiang, but the birds of the Kun Lun and Astin Tagh are called *orientalis* by Dementiev, as stated above, and require further investigation.

Athene noctua plumipes Swinhoe, 1870

Type locality, near Shato, which is located near Nankow, northwest of Peking, northern Hopeh, with *impasta* Bangs and Peters, 1928, type locality, eastern Tsinghai south of the Koko Nor, as a synonym.

This race differs from *ludlowi* by being a little darker, more rufous brown, above and by being considerably smaller (table 1); it is similar to *glauca* from Africa in general coloration. *Plumipes* inhabits the mountains of western, central, and northern China and of Outer Mongolia, ranging in China from eastern Tsinghai, Kansu, southern Shensi, and Inner Mongolia, to Shansi, Shantung, Hopeh, and probably western Manchuria. Dementiev (1951, p. 402) includes also the Zaidam in northern Tsinghai, Korea, southwestern Transbaicalia, and southeastern Russian Altai in the range of *plumipes*. He is incorrect as far as Korea is concerned, for this species is known there only as a straggler or winter visitor in the north, according to Austin (1948, p. 148), but he is probably correct about the Zaidam. The birds of Outer Mongolia, Transbaicalia, and the Altai are best called *plumipes*, but they seem to require further study, as the specimens I have seen from Transbaicalia

and Outer Mongolia are paler and better spotted with white above than those of China. They are, in fact, intermediate in coloration between *plumipes* and *orientalis* and support Johansen's statement (1956, p. 214) that the birds of southeastern [Russian] Altai and northwestern [Outer] Mongolia are intermediate between these two races. The specimen that I have seen from Transbaicalia was collected on the Chikoy River, and those from Mongolia came from Tsetsenwang and the Kholobolchi Nor. Tsetsenwang is about 180 kilometers southwest of Ulan Bator at about latitude 47° 10' N., longitude 104° 30' E. The Kholobolchi Nor is north of the Orok Nor at about latitude 45° 20' N., longitude 100° 45' E.

The form described by Bangs and Peters (*impasta*) is based on two specimens collected south of the Koko Nor in Tsinghai and one in southwestern Kansu near Choni which were kindly lent to me by Mr. J. C. Greenway, Jr. Bangs and Peters state (1928, p. 330) that they differ from *plumipes* by being "much darker; pale markings on the top of the head linear rather than guttate; light tail bands interrupted; markings below darker and more extensive." I find, however, that I cannot confirm these differences, with the sole exception that the ground color is darker on the upper parts of the type of *impasta* than that of any of my specimens of *plumipes*. The type was collected in September (no date) and is in extremely fresh plumage, as it is still molting. The great freshness of its plumage probably accounts for its dark coloration, although it is darker than specimens in fresh plumage from Shensi, Shansi, Shantung, and Hopeh, but almost all the latter were collected between November 5 and December 28, and their plumage is not so fresh as in the type of *impasta*. The two paratypes were collected in May (no date) and on July 26 and are in worn plumage. They are considerably paler than the type and match a specimen in comparative plumage taken on June 10 in Shantung. Meise (1938, p. 179) states that the validity of *impasta* is not substantiated by the specimens Beick collected near the Koko Nor, as these are *plumipes*.

Bangs and Peters did not mention a difference in size between *impasta* and *plumipes*, but one seems to exist, as the three specimens of *impasta* and those measured by Meise have a longer wing than that of the adults I have measured from Shensi, Shansi, Shantung, and Hopeh. The latter measure 158, 159, 159, 160, 168 in males, 160, 165 in females, and 156, 157 in unsexed birds (averaging 160.2 in nine adults), as against 162, 167, 173 in males, and 166, 167, 177, 178 in females (averaging 170 in seven adults) from the Koko Nor and Kansu. The five adults of *ludlowi* that I have measured have a wing length of 181,

183, 184, 185, 187 (184). We see, therefore, that the population of the Koko Nor and Kansu is intermediate in size between *ludlowi* and *plumipes* but more similar to the latter; its individual measurements overlap to some extent the measurements of *plumipes* but not those of *ludlowi*. In view of the fact that *impasta* is also similar to *plumipes* in coloration (with the single exception of the type), I consider that it should be synonymized with *plumipes*. Steinbacher (1936, p. 391) reached the same conclusion, although to my knowledge he had not examined the original series.

TABLE 1
WING LENGTH OF ADULTS OF *Athene noctua*

Subspecies	N	Males	N	Females
<i>glaux</i>	10	150-166 (156.8)	10	155-167 (160.3)
<i>saharae</i>	10	150-163 (156.2)	9	152-162 (156.5)
<i>lilith</i> ^a	10	155-162 (159.4) ^b	3	156-162 (159.4)
<i>bactriana</i>	33	159-174 (166)	21	159-177 (168.6)
<i>spilogastra</i>	1	146		
<i>somaliensis</i>	7	135-144 (138.9)	9	132-146 (139.7)
<i>vidalii</i>	15	154-161 (157.5)	10	157-166 (160.9) ^c
nom. <i>noctua</i>	10	152-165 (157.6)	10	152-165 (159.2)
<i>sarda</i>	2	157, 164	3	154-159 (156.7)
<i>indigena</i>	9	160-169 (163.7)	7	161-174 (167) ^d
<i>orientalis</i>	5	161-175 (167.6)	3	160-169 (164.3)
<i>ludlowi</i> ^e	2	181, 184	1	183
<i>plumipes</i> ^f	5	158-168 (160.5)	2	160, 165

^a Four additional specimens that were not sexed measure 158-165 (161).

^b The type of *lilith* measures 161.

^c The type of *vidalii*, a young bird molting into adult plumage, measures 153.

^d The type of *indigena* measures 163.

^e Two additional specimens that were not sexed measure 185, 187.

^f Specimens from Shensi, Shansi, Shantung, and Hopeh; two additional ones that were not sexed measure 156, 157. See text for the measurements of the birds of Kansu and eastern Tsinghai.

ATHENE BRAMA

The Spotted Owl ranges from southwestern Iran eastward through the Zagros and Persian Baluchistan in southeastern Iran to India and the Indo-Chinese countries (fig. 1) and is sympatric with *Athene noctua* in Iran. It varies geographically, and three subspecies were recognized by Peters (1940), but three additional ones were proposed, respectively, in 1941, 1950, and 1951, one of which comes within the scope of my studies. This subspecies was proposed by Koelz (1950, p. 2) from Iran under the name *albida*, type locality, Saadatabad, "Kirman," but it

is not well differentiated, and, in my opinion, *albida* is a synonym of *indica* Franklin, 1831, type locality, United Provinces. Saadatabad is in the province of Laristan, not Kirman.

The diagnosis of *albida* states that this form "Differs from [nominate] *brama*" by being paler and by having larger white spots on the crown, scapulars, and upper wing coverts. This is quite correct, but *albida* is not separable from *indica* which was not mentioned in the description of *albida* and perhaps was overlooked. *Albida* should have been compared to *indica*, as the latter differs from nominate *brama* by being paler and by being better spotted with larger white spots. The type locality of nominate *brama* Temminck, 1821, is Pondichéry, southern India.

The three paratypes of *albida*, which were kindly lent to me by the Chicago Natural History Museum, vary individually in coloration but match eight of 10 specimens from Persian Baluchistan [not Baluchistan proper as implied in the description of *albida*] and five out of eight from the United Provinces, the type locality of *indica*. The other two from Persian Baluchistan and the other three from the United Provinces are somewhat darker than the paratypes of *albida*. In other words, the populations show a tendency to become paler as they range farther west, but this tendency is slight and not sufficiently constant to warrant the recognition of *albida*. As far as Baluchistan itself is concerned, Ticehurst (1923, p. 243) states: "Birds from Sind, Beluchistan, Punjab, and North-west Frontier Province are not separable from those from the United Provinces. They are paler and larger than the typical race [nominate *brama*], though here and there odd fresh-moulted birds are almost as dark as the latter race." He calls them *indica*, and I believe he is correct also in including the Punjab in the range of *indica*, although it is stated in the description of *albida* that "Birds from Punjab (Lahore, Hissar district) are intermediate but closer to typical *brama*." Thirteen specimens that I have seen from the Punjab are similar to *indica* in size, not to *brama*, and differ from *indica* only by averaging slightly darker.

Differences in size were mentioned in the description of *albida*, but the measurements that I have taken fail to show any significant differences between the various populations. The length of the wing and that of the tail are:

IRAN: Paratypes of *albida*, females, 160, 71, 161, 73; male, 162, 74. The type of *albida* measures apparently 167, 82.5. It is a male and was not seen by me.

IRAN, PERSIAN BALUCHISTAN: Females, 155, 74, 157, 70, 160, 80; males, 154, 76, 157, 74, 158, 74, 160, 80, 163, 78, 164, 78; unsexed, 160, 72.

UNITED PROVINCES: Females, 162, 77, 163, 72; male, 165, 80; unsexed, 156, 75, 160, 70, 160, 74, 160, 76, 162, 73.

PUNJAB: Females, 155, 68, 156, 75, 158, 77, 160, 75, 162, 74, 164, 70, 164, 82, 165, 70; males, 159, 70, 160, 78, 161, 72, 165, 80; unsexed, 160, 75.

SOUTHERN INDIA (NOMINATE *brama*): 151–156.5 and 68–73.5 in six females; and 141–158 and 66–71.5 in seven males measured by Whistler (1935, p. 237).

LITERATURE CITED

AUSTIN, OLIVER L., JR.

1948. The birds of Korea. *Bull. Mus. Comp. Zoöl.*, vol. 101, pp. 1–301.

BANGS, OUTRAM, AND JAMES L. PETERS

1928. Birds collected by Dr. Joseph F. Rock in western Kansu and eastern Tibet. *Bull. Mus. Comp. Zoöl.*, vol. 68, pp. 313–381.

BANNERMAN, D. A.

1933. The birds of tropical west Africa. London, Crown Agents for the Colonies, vol. 3.

BANNERMAN, D. A., AND W. M. BANNERMAN

1958. Birds of Cyprus. Edinburgh and London, Oliver and Boyd.

BATES, GEORGE LATIMER

1937a. Birds of Jidda and central Arabia collected in 1934 and early in 1935, chiefly by Mr. Philby. Part III. *Ibis*, pp. 47–65.

1937b. Birds of 'Asir and parts of Hijaz and northern Yaman collected by H. St. J. B. Philby on his 1936 journey. *Ibid.*, pp. 786–830.

DEMENTIEV, GEORGES P.

1931. Sur quelques points de systématique et de nomenclature. *Alauda*, vol. 3, pp. 257–259.

1933. *Systema avium Rossicarum*. *L'Oiseau*, vol. 3, pp. 512–514.

1951. In Dementiev, G. P., and N. A. Gladkov (eds.), *Ptitsy Sovetskogo Soiuza*. Moscow, *Sovietskaya Nauka*, vol. 1, pp. 396–402.

DORST, JEAN

1956. *Les migrations des oiseaux*. Paris, Payot.

FRIEDMANN, HERBERT

1930. Birds collected by the Childs Frick expedition to Ethiopia and Kenya Colony. Part 1. Non-passeres. *Bull. U. S. Natl. Mus.*, no. 153.

HALL, B. P., AND D. GOODWIN

1954. In Stanford, J. K., A survey of the ornithology of northern Libya. *Ibis*, pp. 449–473.

HARRISON, J. M.

1957. Exhibition of a new race of the Little Owl from the Iberian Peninsula. *Bull. Brit. Ornith. Club*, vol. 77, pp. 2–3.

HARTERT, ERNST

1913. *Die Vögel der paläarktischen Fauna*. Berlin, Friedländer und Sohn, pp. 999–1007.

1923. On the birds of Cyrenaica. *Novitates Zool.*, vol. 30, pp. 1–32.

1924. Ornithological results of Captain Buchanan's second Sahara expedition. *Ibid.*, vol. 31, pp. 1–48.

1925. Types of birds in the Tring Museum. *Ibid.*, vol. 32, pp. 259–276.

JOHANSEN, HANS

1956. Die Vogelfauna Westsibiriens. *Jour. Ornith.*, vol. 97, pp. 206-219.

JORDANS, A. VON, AND J. STEINBACHER

1942. Beiträge zur Avifauna der Iberischen Halbinsel. *Ann. Naturhist. Mus. Wien*, vol. 52, pp. 200-244.

KOELZ, WALTER

1950. New subspecies of birds from southwestern Asia. *Amer. Mus. Novitates*, no. 1452, pp. 1-10.

MACKWORTH-PRAED, C. W., AND C. H. B. GRANT

1952. Birds of eastern and north eastern Africa. London, Longmans, Green and Co., vol. 1.

MEINERTZHAGEN, RICHARD

1922. Notes on some birds from the Near East and from tropical east Africa. *Ibis*, pp. 1-74.
1924. Notes on a small collection of birds made in Iraq in the winter of 1922-23. *Ibid.*, pp. 601-625.
1925. A further contribution to the ornithology of Palestine, Transjordan, and Petra. *Ibid.*, pp. 305-324.

MEISE, W.

1938. In Stresemann, E., W. Meise, and M. Schönwetter, *Aves Beickianae*. *Jour. Ornith.*, vol. 86, pp. 171-221.

PALUDAN, KNUD

1938. Zur Ornithologie des Zagrosgebietes, W.-Iran. *Jour. Ornith.*, vol. 86, pp. 562-638.

PETERS, JAMES LEE

1940. Check-list of birds of the world. Cambridge, Harvard University Press, vol. 4, pp. 147-150.

REICHENOW, A.

- 1900-1901. Die Vögel Afrikas. Neudamm, J. Neudamm, vol. 1.

SALVADORI, T., AND E. FESTA

1913. Escursioni zoologiche del Dr. Enrico Festa nell'Isola di Rodi. *Boll. Mus. Zool. Univ. Torino*, vol. 28, no. 673, pp. 1-24.

STEINBACHER, F.

1936. In Hartert, E., and F. Steinbacher, *Die Vögel der paläarktischen Fauna, Ergänzungsband*. Berlin, Friedländer und Sohn, pp. 389-391.

TICEHURST, CLAUD B.

1922. In Ticehurst, C. B., P. A. Buxton and R. E. Cheesman, *The birds of Mesopotamia*. *Jour. Bombay Nat. Hist. Soc.*, vol. 28, pp. 381-427.
1923. The birds of Sind. Part IV. *Ibis*, pp. 235-275.
1926. In Ticehurst, C. B., P. Cox, and R. E. Cheesman, *Additional notes on the avifauna of Iraq*. *Jour. Bombay Nat. Hist. Soc.*, vol. 31, pp. 91-119.

VAURIE, CHARLES

1951. A study of Asiatic larks. *Bull. Amer. Mus. Nat. Hist.*, vol. 97, pp. 431-526.

WHISTLER, HUGH

1935. In Whistler, H., and N. B. Kinnear, *The Vernay scientific survey of the Eastern Ghats. Part XII*. *Jour. Bombay Nat. Hist. Soc.*, vol. 38, pp. 232-240.

