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GEOGRAPHICAL VARIATION IN *BUBO SUMATRANUS* (RAFFLES) (AVES, STRIGIDAE)

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In recent literature (Chasen, 1935; Peters, 1940; Delacour, 1947; Smythies, 1957) two races of *Bubo sumatranus* are recognized: *B. s. sumatranus* (Raffles) from Sumatra, Bangka, and the Malay Peninsula, and *B. s. strepitans* (Temminck) from Java and Borneo.

From the zoogeographical point of view a distribution as indicated above is unexpected, as generally speaking the faunas of Sumatra and Borneo are very similar, while that of Java is more distinct from either. The suspicion that the current classification might be erroneous induced me to examine the material of the species available in the Rijksmuseum van Natuurlijke Historie, with a result that is presented here. Plumage characters and measurements given are of adult specimens only; juveniles, which can easily be recognized by their whitish plumage, have not been considered.

Bubo sumatranus strepitans (Temminck)

Strix strepitans Temminck, 1823, Recueil d'Ois. 2, livr. 30, pl. 174 — Batavia.

Strix orientalis Horsfield, 1821, Trans. Linn. Soc. Lond. 13: 140 — Java. Preoccupied.

Characters. Size large; cross-bars on lower part of under surface broad and far apart.

Measurements of wing. ♂: 370, 379, 381, 384, 385, 388, 388, 388, 392, 392, 395 mm. ♀: 376, 386, 395, 397, 405, 408, 410 mm. sex?: 417 mm.

Distribution. Java and Bali.

Remarks. The outstanding character of this race, large size, was correctly observed by Schlegel (1863) and several subsequent authors. Stuart Baker

(1927: 419) mistakenly stated that the race from Java is smaller than that of Sumatra and Malaya.

Amongst the specimens studied is the holotype of *Strix strepitans* Temminck, a male with a wing-length of 392 mm. The inclusion of Bali in the range of this subspecies is tentative, as from that island only a single juvenile individual is known (Stresemann, 1932).

Bubo sumatranus sumatranus (Raffles)

Strix sumatrana Raffles, 1822, Trans. Linn. Soc. Lond. **13**: 279 — Sumatra.

Bubo orientalis minor Schlegel, 1863, Mus. Pays-Bas **2**, Oti: 13 — Bangka.

Characters. Similar to *B. sumatrana strepitans*, but considerably smaller; bands on belly not quite so pronounced and widely spaced as in birds from Java.

Measurements of wing. ♂: 323, 336, 345, 350, 352 mm. ♀: 341, 345, 345, 350, 353 mm. sex?: 330, 335, 341, 341, 350, 358 mm.

Distribution. Sumatra, Bangka and the Malay Peninsula, as far north as southern Tenasserim. In Sumatra widely distributed; material examined is from the Lampongs, Telok Betong, Palembang, Padang, Padang Highlands, Priaman, and Isaq (Atjeh). Though from Malaya only a single specimen was available to me (from Singapore), the species is apparently not as uncommon there as earlier authors believed it to be (cf. Glenister, 1951). From Bangka, Schlegel's two types of *B. o. minor* were examined; they are similar to individuals from Sumatra.

Bubo sumatranus tenuifasciatus subspecies nova

Characters. In size similar to the nominate race, but bands on belly finer and closer together. Though there is some variation in this character, it is quite distinct when series are compared. Note also that Chasen (1935: 84, footnote 1) found the same difference between birds from Borneo and Malaya.

Measurements of wing. ♂: 323, 350 mm. ♀: 341, 345, 345 mm.

Type: ♂, Rantau, S.E. Borneo, 22 February 1916, collected by F. C. E. van der Putten. Rijksmuseum van Natuurlijke Historie, regd. no. 35476.

Distribution. Borneo, where apparently widely distributed (Smythies, 1960). Material examined from Rantau and Liang Koeboek.

Remarks. Though this subspecies, as noted above, has generally been placed under the name *strepitans*, at least Chasen (1939) considered the status of Borneo birds doubtful.

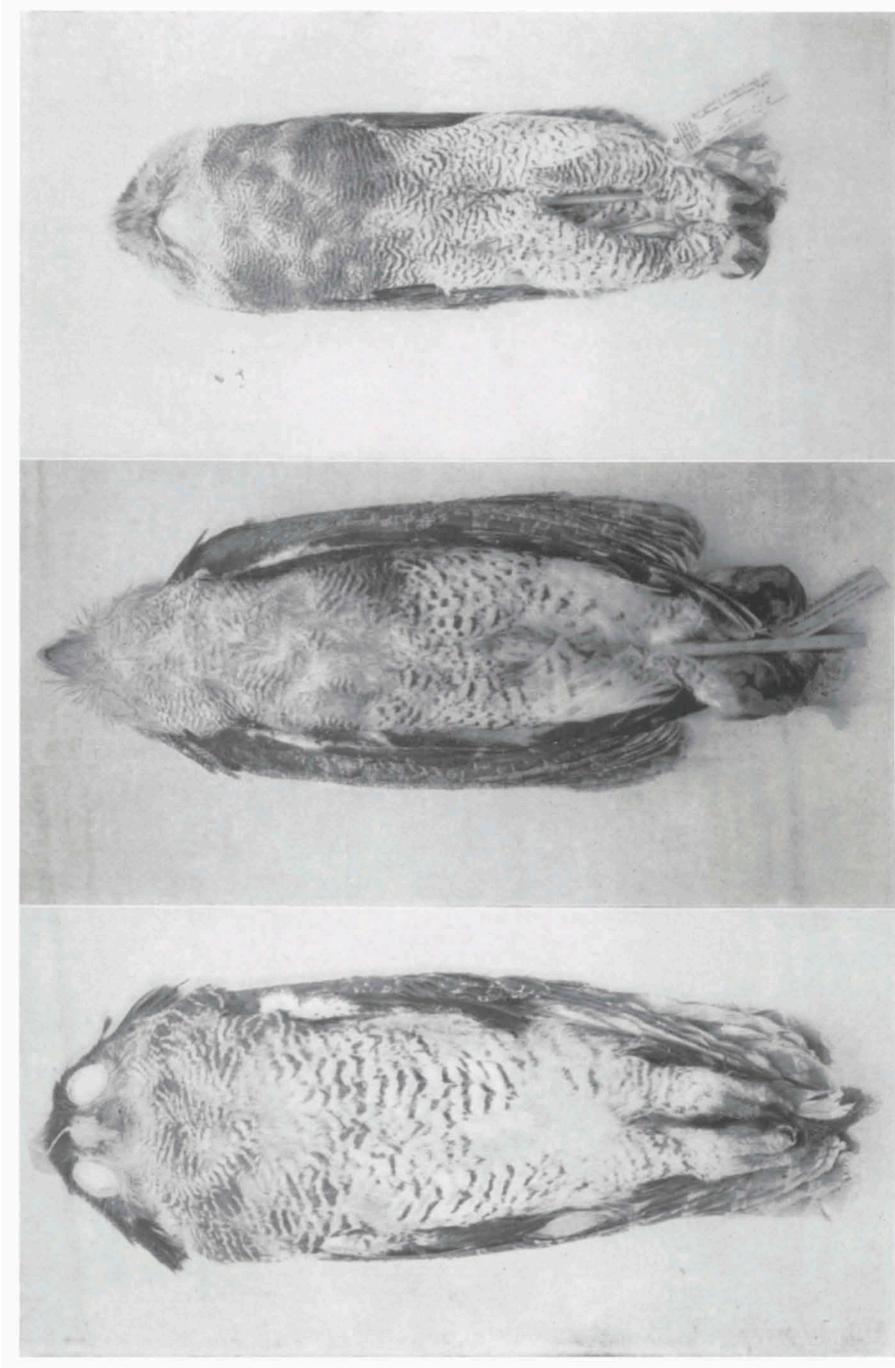
The type, as shown on the photograph, has a very dark breast, but there is individual variation in this character, and I do not consider it to have subspecific significance.

Discussion. It is mainly through lack of material that the geographical variation of *Bubo sumatranus* has hitherto been so insufficiently understood. Chasen (1935) for example stated that he never saw specimens from Java. The actual geographical variation of the species, with one race in Sumatra and Malaya, a fairly close race in Borneo, and a more distinct subspecies in Java, follows a pattern familiar in many other species of birds, and is as one would expect on the basis the known geological history of Malaysia.

An interesting point, apparent from the measurements, is that there is hardly any difference in size between the sexes, though females possibly average slightly larger. Though it might rightly be objected that museum material is usually so unreliably sexed that no conclusions can be drawn from it, several specimens collected by reputable ornithologists confirm the lack of sexual dimorphism in size. In particular I am impressed by a pair collected with young, by Jacobson and W. C. van Heurn, of which the male has a wing of 344 mm, the female of 347 mm.

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Races of *Bubo sumatranus*. Left: *B. s. strepitans*, ♀ (RMNH regd. no. 35494). Middle: *B. s. sumatranus*, ♂ (RMNH cat. no. 21). Right: *B. s. tenuifasciatus*, ♂ (RMNH regd. no. 35476, type of the subspecies). About 1/5 x natural size.