RACES OF THE SHORT-TAILED HAWK, *BUTEO BRACHYURUS*

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IN the following discussion I shall present reasons for considering *Buteo brachyurus* a polytypic species with three well-marked populations, although it can be argued that two or even three species are represented.

Buteo brachyurus Vieillot was described in 1816, and the type locality has been restricted to Cayenne. Several additional, later names have been based on South American birds and belong in synonymy. In 1858 Sclater described a small, black *Buteo* from northern Mexico as *Buteo fuliginosus,* and this name was carried in the hypothetical list of the first (1886) American Ornithologists' Union "Check-list," though as mentioned there, Ridgway had already pointed out that the identification was based on a melanistic specimen of the white-breasted bird. The name was dropped from the next (1895) "Check-list" and has remained in synonomy.

Philippi, in 1899, described *Buteo albigula* from Chile. In 1931, Peters (vol. 1, p. 229) wrote: "I can not imagine what *Buteo albigula* Philippi . . . can possibly be." Hellmayr and Conover (1949, p. 88) relegated the name to a footnote with the comment that it was unidentifiable.

However, in 1951, Goodall, Johnson, and Philippi established *B. albigula* as a Chilean species, listed six specimens, and published a photograph of an adult skin showing the characters of the underside. Stresemann (1959) pointed out that seven specimens in the British Museum (Natural History) and the American Museum of Natural History from Peru, Ecuador, Colombia, and Venezuela belonged to *albigula* and thus greatly extended its range and that 10 specimens in the British Museum and Berlin Museum from Brazil (Rio de Janeiro, Porto Alegre, Cantagallo, and Pará), Venezuela, Bolivia, Costa Rica, Guatemala, and Mexico were *brachyurus.* He also reviewed the characters of the two "species."

With Stresemann's paper in hand, it was easy to separate the South American series in the Chicago Natural History Museum into *albigula* and *brachyurus.* But it was apparent that the available birds from Florida were not the same as those from South America, although they agreed with the description of *brachyurus,* as given by Friedmann (1950, pp. 352 ff.).

To augment the series in Chicago, specimens of white-phased birds, from Middle and North America, were borrowed from the following institutions:

American Museum of Natural History (courtesy Mr. Tom Gilliard)
Carnegie Museum (courtesy Dr. Kenneth Parkes)
Louisiana State Museum (courtesy Dr. George Lowrey)
University of Cincinnati Museum (courtesy Dr. E. Kemsies)
United States National Museum (courtesy Dr. H. Friedmann)
University of Michigan Museum of Zoology (courtesy Dr. R. Storer)

To all of these my best thanks are due.

This material confirmed the impression received from the Chicago material that I was dealing with three entities. While these present a somewhat uncommon type of incipient speciation, it seems advisable to consider the three as subspecies, for reasons given below, under Discussion.

Buteo brachyurus brachyurus Vieillot

Buteo brachyurus Vieillot, 1816, Nouv. Dict. Hist. Nat., 4: 447. Type locality, Cayenne.

Diagnosis. Adult (white-breasted phase; sexes similar in color)—part of lores and forehead white, rest of upperparts usually solidly slaty black; very little of white bases of feathers show in nape; sides of head and neck solidly slaty black; a trace of rufous in sides of rump; lateral upper tail coverts distinctly barred; tail above dark gray with a broad distal and two or three narrower black bars showing beyond upper tail coverts. Underparts from chin to under tail coverts and thighs white; under wing coverts and axillaries white without or with very few markings; on underside of tail bars distinct.

Immature (light phase; sexes similar in color)—forehead with narrow, white band at most; rest of upperparts brownish black, almost black in some specimens, with much white from bases of feathers showing in nape and hindneck; sides of head and neck mixed black and buffy white; upper wing coverts and scapulars tipped with buffy; underparts and thighs white tinged buffy.

Measurements.

Wing: ♂ ad. 285, 286 — Tail: ♂ ad. 142, 139
♀ ad. 305, 307, 315 — ♀ ad. 150, 156, 157
♂ imm. 284, 299, 303, 307 — ♂ imm. 148, 155, 155, 159
♀ imm. 307, 316, 318 — ♀ imm. 156, 163, 168

Wing-tail index (tail x 100 divided by wing):
♂ ad. 49.8, 48.6 — ♂ imm. 52.1, 53.1, 51.1, 50.8
♀ ad. 49.1, 50.8, 49.8 — ♀ imm. 50.1, 51.5, 52.8

Range. The northern two thirds of South America; up to 2,500 meters altitude and perhaps 3,000 meters; known from Brazil, Paraguay, Bolivia, Peru, Ecuador, Colombia, and Venezuela.

Remarks. One adult female from Venezuela has a small amount of rufous in the sides of the neck, the only bird so marked; another has a few blackish flecks

in the flanks, and the third has a few fine streaks in the flanks. Immature females average less white in the forehead than males, and white is practically absent in one.

Worn immatures lack the pale tips to the upper wing coverts, etc., but these worn feathers then have a pointed tip, contrasting with the rounded tip of adult worn feathers.

Although I have seen only pale-phased birds, black-phased birds are known from Colombia, from where Carnegie Museum has two specimens, according to Dr. K. Parkes (in letter), and Miller (1952, p. 451) recorded one, a female, weighing 425 grams.

Material. 12 specimens as follows: Colombia, 2 ♂ imm., 1 ♀ ad.; Venezuela, 1 ♂ imm., 1 ♀ ad.; Brazil, 1 ♂ ad., 1 ♀ ad.; Ecuador, 1 [♀] imm.; Peru, 1 ♂ ad.; Bolivia, 1 ♀ imm.; Paraguay, 1 ♂ imm., 1 ♀ imm.

Buteo brachyurus fuliginosus Sclater

Buteo fuliginosus Sclater, 1858, Proc. Zool. Soc. London, p. 356. Type locality, State of Tamaulipas, Mexico.

Diagnosis. Adult (white-breasted phase, sexes similar)—part of lores and forehead white, sometimes almost obsolete; rest of upperparts brownish black, the crown, middle of back and rump nearly uniform; scapulars and wing coverts with feathers paler and browner toward the margins; very little of concealed white ordinarily shows through on nape; sides of head solidly brownish black; sides of neck rufous brown or rufous, the feathers with dusky shaft streaks; sides of rump strongly tinged rufous; outer upper tail coverts at least strongly barred; tail above grayish brown with a broad distal black bar and three or four narrower ones (narrower than in *brachyurus*) showing beyond the upper tail coverts, these bars becoming obsolete in some specimens. Underparts from chin to tail coverts and thighs white, unmarked except for a tendency for the dark shaft streaks of the rufous brown area on the sides of the neck to extend onto the sides of the breast in many specimens, and in one specimen (a male from Florida) even onto the flanks; under wing coverts and axillaries white, almost unmarked; barring on tail seen from below indistinct to nearly obsolete.

The browner upperparts and the rufous brown in the sides of the neck are the most conspicuous color characters separating this form from *B. b. brachyurus*.

Immature (pale phase, sexes similar in color)—very like the immatures of *B. b. brachyurus* but averaging considerably browner above; and with a tendency for the streaking of the sides of the neck to extend onto the breast; in a molting female specimen from San Luis Potosi there are conspicuous streaks on the flanks, the white of the underparts is distinct to faintly tinged buffy, and a few growing scapulars have rufous edgings.

Adult (dark phase)—generally sooty or brownish black above, below, and on thigh and under wing coverts; tail as in white-breasted phase; undersurface of remiges darker and much more barred than in the white-breasted phase; feathers of nape with concealed white as in light phase.

Immature (dark phase)—above much as immature white-breasted phase; below, one specimen is heavily streaked and mottled with dark brown and buffy white; the other with brownish black and rufous. In both cases the thighs and under wing coverts are heavily patterned with dark brown.

Measurements.

Florida

Wing	♂ ad. 298, 305, 306, 313	♂ imm. —
	♀ ad. 326, 331, 332, 332, 333, 336	♀ imm. 304
Tail	♂ ad. 162, 157, 154, 167	♂ imm. —
	♀ ad. 172, 182, 178, 170, 165, 178	♀ imm. 164
Wing-tail index (tail x 100 divided by wing)		
	♂ ad. 54.7, 51.3, 50.2, 53.3	♂ imm. —
	♀ ad. 52.7, 54.9, 53.6, 50.0, 49.5, 52.9	♀ imm. 53.9

Mexico

Wing	♂ ad. 282, 284	♂ imm. 274, 290, 302, 305
	♀ ad. 332	♀ imm. 315, 316, 335
Tail	♂ ad. 142, 148	♂ imm. 145, 156, 169, 154
	♀ ad. 178	♀ imm. 160, 172, 179
Wing-tail index		
	♂ ad. 50.0, 52.8	♂ imm. 52.9, 53.7, 55.9, 50.4
	♀ ad. 53.6	♀ imm. 50.7, 54.4, 53.4

Central America

Wing	♂ imm. 270, 290
	♀ imm. 312
Tail	♂ imm. 145, 150
	♀ imm. 164
Wing-tail index	
	♂ imm. 53.7, 51.7
	♀ imm. 52.5

Range. Central America, southern and eastern Mexico, and peninsular Florida; known from Panama, Costa Rica, Nicaragua, Honduras, Mexico, and Florida; and ranges up to 6,500 feet (about 2,000 meters) altitude in Michoacan (Davis, 1953, p. 90).

Remarks. In the adult, individual variation in addition to that mentioned above involves the underparts, which are tinged buffy in one specimen, and in several specimens the thighs are more or less buffy to ochraceous. One female, with ochraceous thighs, has the under wing coverts ochraceous. In females the brown of the side of the neck averages duller, less rufous than the males, but this is not constant. In one female and two males (all from Mexico) the feathers of hindneck and foreback are edged with the same rufous as the sides of the neck, giving a distinctive band. In two specimens (1 ♂, 1 ♀ from Florida) the barring on the central tail feathers has about disappeared except for the distal band. Another variant is discussed beyond under Intergradation.

The Mexican adults differ from Florida adults (pale phase) in the rufous of the hindneck as mentioned above, and the greatest size in the species is reached by Florida birds. However, the whole case is too interesting and too little known merely to name the Florida bird.

Material. Twenty-three specimens (4 adults in dark phase, 8 adults in white-breasted phase; 2 immature in dark phase, 9 in pale phase), as follows:

Florida	9 ad., 1 imm. (February, March, April, October)
San Luis Potosi	1 ad., 2 imm. (April, May, September)
Tamaulipas	1 imm. (February)
Veracruz	1 ad. (April)
Michoacan	1 imm. (dark phase) (July)

Guerrero	1 ad. (December)
Yucatan (Merida)	2 imm. (March)
Quintana Roo (Cozumel Island)	1 imm. (January)
Honduras	1 imm. (May)
Costa Rica	1 imm. (June)
Panama	1 imm. (June)

Buteo brachyurus albigula Philippi

Buteo albigula R. A. Philippi, 1899, Arch. Naturg., 65, Bd. 1: 170. Type locality, Valdivia Prov., Chile.

Diagnosis. Adult (sexes similar)—a small area in lores and side of forehead white; rest of upperparts blackish brown, the crown, middle of back and rump nearly uniform; scapulars and upper wing coverts with darker centers and becoming paler brown toward the margins; concealed white in bases of nape feathers present; sides of head nearly solid dark brown, very lightly streaked with whitish; sides of neck rufous brown or rufous, the feathers with dark shaft streaks, sides of rump with a small amount of rufous; at least outer upper tail coverts strongly barred; tail above brownish gray with a broad distal band and five or six narrower, lightly defined bars showing beyond the upper tail coverts. Underparts white with the rufous brown of sides of neck continuing over sides of breast and flanks in nearly solid bands; upper breast and upper abdomen with plentiful to sparse streaks of dark brown or rufous; thighs barred rufous; under wing coverts and axillaries fairly plentifully marked with rufous; tail seen from below with bars very indistinct.

Immature—very similar to the adult but semiconcealed white in base of nape feathers more plentiful; sides of head and neck plentifully streaked with white; white of underparts heavily tinged ochraceous; the dark brown areas from side of neck to sides of breast and flanks more broken with white and both these and the streaking of upper breast and upper abdomen lacking any rufous; thighs irregularly marked with dark brown, and under wing coverts marked with dark brown.

Measurements.

Wing	♂ ad. 272, 313	♂ imm. 300
	♀ ad. 303	♀ imm. 315
Tail	♂ ad. 157, 181	♂ imm. 188
	♀ ad. 179	♀ imm. 193
Wing-tail index		
	♂ ad. 57.7, 57.8	♂ imm. 62.6
	♀ ad. 59.0	♀ imm. 61.2

Range. Western South America; known from Chile, Peru, Ecuador, Colombia, and Venezuela; above 7,200 feet (about 2,100 meters) altitude.

Remarks. In two of the adults (1 male, 1 female) there is a tinge of rufous in the margins of some scapulars. The remaining male has the rufous of the sides of the neck continued as a faint band across the hindneck and foreback, by the feathers there having narrow, rufous margins.

Material.

Colombia:	1 ♀ ad., 1 ♀ imm. 1 sex? [= ♂] imm.
Ecuador:	1 ♂ ad.
Peru:	1 ♂ ad.

DISCUSSION

The South American *brachyurus* and *albigula* are quite readily separated by color and by proportion, and I have seen no evidence of intergradation between them. The Middle and North American *fuliginosus,* however, bridges much of the gap between the distinctive characters of the two South American forms. This is well shown by the data tabulated in Tables 1 and 2.

TABLE 1

COMPARISON OF CHARACTERS OF ADULT *brachyurus, fuliginosus* AND *albigula*

	Comparisons of adults (males and females)		
	brachyurus (light phase)	*fuliginosus* (light phase)	*albigula*
Upperparts	slaty black unpatterned	dark brown slight pattern	dark brown slight pattern
Tail bars	quite distinct coarse	distinct to obsolete finer	somewhat distinct finer
Sides of neck	black (usually)	rufous brown	rufous brown
Rufous tinge in side of rump	slight	strong	slight
Underparts	white unpatterned	white unpatterned (usually)	white, with distinctive pattern
Thighs	white unpatterned	white unpatterned (usually)	barred
Under wing coverts	white mostly unpatterned	white mostly unpatterned	white, heavily patterned
Wing length	285–315	282–332[1] 298–336[2]	272–313
Tail	142–157	142–178[1] 154–182[2]	157–181
Wing-tail index	48.6–50.8	50.0–53.6[1] 49.5–54.9[2]	57.7–59
Phases	light phase only except in Colombia where dark phase occurs	light and dark phase equally common in Florida	only a light-breasted phase known

B. b. fuliginosus agrees with *albigula* in white, unpatterned underparts, thighs, and under wing coverts; it agrees with *albigula* in the color of the upperparts, and barring of tail; in the rufous being restricted to side of neck and in the wing-tail index it is intermediate.

[1] Mexico specimens.
[2] Florida specimens.

TABLE 2

COMPARISON OF CHARACTERS OF IMMATURE *brachyurus, fuliginosus,* AND *albigula*

Comparisons of immatures (males and females)

	brachyurus	*fuliginosus* *pale phase*	*dark phase*	*albigula*
Upperparts	brownish black	blackish brown	blackish brown	blackish brown
Underparts	buffy white, unpatterned	buffy white, unpatterned	Heavily patterned, buffy and dark brown, or rufous and fuscous	buffy white, distinctly patterned
Thighs	buffy white unpatterned	buffy white unpatterned	heavily patterned	patterned
Tail barring	coarser	finer	finer	finer
Wing	284–318	274–335[1] 304[2]	302, 316[1]	300, 315
Tail	148–168	145–179[1] 164[2]	169, 172[1]	188, 193
Wing-tail index	50.1–53.1	50.7–53.7[1] 53.9[2]	54.4, 55.9[1]	61.2, 62.6

Pale-phase *fuliginosus* agrees much better with *brachyurus* except for the tail barring and paler back; dark-phase *fuliginosus* agrees better with *albigula* though the pattern below is heavier. In wing-tail index *fuliginosus* is more like *brachyurus.*

[1] Mexico.
[2] Florida.

Before discussing the possible relationships of the three forms, it is advisable to touch on certain other aspects.

Color phases. When *Buteo brachyurus* was used as a designation for all the birds discussed above, at least three "color phases" seemed to be represented. But with the recognition of the three entities outlined above, each one is seen to show relatively little individual variation. *B. b. albigula* has only a "normal" adult and immature plumage; *fuliginosus* has a white-breasted and a dark, melanistic adult plumage and a white-breasted and a dark, patterned (approaching a "normal"?) immature plumage. Only in Florida is there any quantity of data concerning frequency of the two phases, and this indicates that the melanistic and the white-breasted phase occurs in about equal numbers (56 light-breasted to 64 dark-phased birds; Moore *et al.,* 1953, p. 472). In *brachyurus* the white-breasted phase is the common, widespread phase, but the melanistic phase is known from Colombia and may well occur elsewhere.

As might be expected, a hundred years ago the dark- and light-breasted birds were thought to be two species, and this point of view persisted for nearly 40 years. The composition of pairs reported in Florida is as follows: both of pair light, 3; both of pair dark, 10; mixed pair, 5 (Moore *et al.,* 1953, pp. 471, 472; some but not all of these "pairs" were proved to be breeding). There are no data on the color phases of broods of young.

Soft parts. Apparently the bill is black, cere yellow, and feet yellow with black nails in all three forms, although certain old specimens of both *fuliginosus* (from Florida) and *brachyurus* have some yellow in the base of the lower mandible in the adult and immature.

There is general agreement that the iris is brown in *fuliginosus.* However, in *brachyurus,* while five of the specimens I have seen are labeled iris brown, one adult has the iris labeled yellow (Merida, Venezuela, coll. Gabaldon). Of *albigula* we have three specimens from Colombia collected by K. v. Sneidern in which the iris is labeled "yellow-grey," "light brown," and "brown-yellow." V. Sneidern's specimens of *brachyurus* were labeled as having iris brown. Perhaps there is a difference in eye color among the forms.

Abundance. The short-tailed hawk *(fulginosus)* is rare in Florida, where L. A. Stimson saw it only 14 times in 214 days afield in the 20-year period 1932–1951; *i.e.,* a bird about every 14 days (Moore *et al.,* 1953, p. 476). Both *brachyurus* and *albigula* are also rare in South America, for the Chicago Natural History Museum has only 14 specimens, the earliest collected in 1906. To make this figure more meaningful, the following data on some other South American species of *Buteo* in Chicago Natural History Museum (from Hellmayr and Conover, 1949) are presented:

Buteo polyosoma	28	specimens	
poecilochrous	16	"	
leucorrhous	7	"	
fuscescens	16	"	
albicaudatus	15	"	(S. America only)
albonotatus	2	"	(S. America only)
nitidus	23	"	(S. America only)
platypterus	27	"	(winter visitors from S. America only)
magnirostris	165	"	(S. American only)

It is an axiom that predators are fewer in numbers than their prey; thus we expect hawks to be relatively scarce. But some are evidently much scarcer than others. Habits, such as wariness, may affect our knowledge of apparent rareness. Among the other factors involved may be differences in food habits and the abundance of this food.

From the little we know of *B. brachyurus,* a rare species, it may specialize in birds. *B. magnirostris,* a common species, has a much more diversified diet in which insects bulk large. *B. platypterus* has a diet consisting in large part of mammals, reptiles, and amphibians.

Habitat. Only for Florida *fuliginosus* is there much habitat data. There mangrove and lowland cypress swamp are the usual habitat, and of the 12 recorded nests at least seven were in cypress swamps and two in mangroves (Moore *et al.,* 1953, p. 475). In Chile *albigula* is said to prefer woodland to open country (Goodall *et al.,* 1951, p. 42).

Habits. So little is known about the habits that the only comment possible here is that a Florida specimen of *fuliginosus* was reported as having eaten a small hawk, *Accipiter striatus* (Howell, 1932, p. 181); a Mexican specimen had a small bird in its stomach (Davis, 1953, p. 90); a Panama specimen had the remains of a bird in its stomach while it was devouring a 14-inch ground lizard, *Ameiva* (Hallinan, 1924, p. 311); a Florida bird was seen carrying a small mammal and eating it on the wing (Moore, 1954, p. 106); a Peru specimen of *albigula* had eaten a large thrush (Zimmer).

Possibly these birds may specialize in eating birds, a rather surprising diet for a small *Buteo,* but they do have heavier feet and longer claws than does the broad-winged hawk, *Buteo platypterus,* for instance.

Range. Fuliginosus ranges from Panama to southern and eastern Mexico and Florida. The highest altitude recorded on our specimens is 6,000 feet (Guerrero). *Brachyurus* ranges in the lowlands of the central and northern parts of South America, and up into the mountains, according to our data, reaching at least to 6,000 feet in Colombia, and ? 3,000 meters in Venezuela; Stresemann (1959, p. 339) gives an altitude of 2,500 meters (Venezuela).

Albigula is an Andean bird only, ranging from Venezuela and Colombia south to Bolivia and Peru, apparently at higher altitudes than the range of *brachyurus,* and to Chile where *brachyurus* does not occur. Our lowest altitude for *albigula* is 7,200 feet in Colombia. Stresemann (1959, p. 339) gives altitudes of capture at 3,000 meters (Venezuela) and 8,850 and 10,500 feet in Peru and Ecuador.

The most reliable data from an area where the ranges of *brachyurus* and *albigula* approach each other are from K. von Sneidern's collecting in Colombia, in Cauca; Cerro El Tambo, Munchique, in 1936 and 1937. He sent us three specimens of *brachyurus* from this locality collected 3 September 1936, 27 March and 16 August 1937, and labeled 4,700, 5,100, and 6,000 feet; and three specimens of *albigula* from the same locality collected 18 May 1938, 22 June and 21 July 1937, labeled 6,900, 7,200, and 7,500 feet.

From these data I think it justifiable to assume that *albigula* and *brachyurus* are indeed altitudinal representatives.

Migration. Two suggestions of migration have appeared in the literature. Moore *et al.* (1953, p. 471) have pointed out that *fuliginosus* has not been recorded in June, nor in July in Florida, and there are only two August records, and four for May. The other 119 records of the bird for Florida are in the eight-month period, September to April. In summer birds seem to disappear from the area after the nesting season. Whether they change their habits or actually move elsewhere remains to be discovered.

For Costa Rica, Carriker (1910, p. 458) had only two records of specimens, in August and September, and suggested that the birds *(fuliginosus)* might be only winter visitors. However, I have a June specimen from Costa Rica, and the winter months comprise the period when the birds breed in Florida. Their apparent absence from Florida in summer would not agree with their being winter visitors only to Costa Rica.

The Central American and Mexican specimens that I have seen were taken in January (1), February (1), March (2), April (2), May (2), June (2), July (1), September (1), October (1), December (1), which does not suggest any seasonal movement.

Further, the three adult Mexican specimens I have seen, taken in April and December, have plumage characteristics, notably the rufous tinge in the hindneck, which I did not find in pale-breasted Florida birds. This observation also refutes the idea that Florida birds migrate to Mexico.

Intergradation. Although the above three populations, *brachyurus, fuliginosus,* and *albigula,* are amply distinct to consider ranking them as species, and *brachyurus* and *albigula* are not known to intergrade, the three form a graded series with *fuliginosus* as the intermediate (see Tables 1 and 2). Even the barred thighs and under wing coverts and patterned underparts of *albigula* find their counterpart in the barred thighs and under wing and patterned underparts of the dark-phase, immature specimens of *fuliginosus.*

The close relationship of these three forms is indicated further by the individual variation as illustrated by the following specimens.

(a) A *brachyurus* adult (University of Michigan No. 12262) from Venezuela is the only one of the five adults that has rufous brown on the sides of the neck. In this it resembles *fuliginosus* but differs in the other characters as listed.

(b) A *fuliginosus* pale-phase adult from Mexico (University of Michigan No. 100176) differs from the other seven specimens in being nearly as blackish above as the five *brachyurus.* However, it otherwise resembles *fuliginosus.* In having

rufous edgings to the feathers of the hindneck, it has a character that I have seen elsewhere only in the other two adults from Mexico, and in two of the three *albigula* adults.

(c) A female pale phase of *fuliginosus* from San Luis Potosi (Louisiana State University No. 16720) I tentatively consider an immature molting into adult plumage, but it may be a molting adult. It is the most puzzling bird of the whole series. Despite its immaculate thighs and low wing-tail index, it has several growing scapulars that are fringed with rufous, a character that otherwise I found only in two of the three adult *albigula*. The rufous patch on the sides of the neck shows on the new feathers; the feathers of flanks and sides of the breast have conspicuously fuscous shaft streaks, and there are a few well-defined dark shaft streaks on the upper breast and on the upper abdomen. Because of its streaked underparts and rufous scapulars, this bird looks like an adult *fuliginosus-albigula* intermediate.

Relationships of the three forms. The three populations discussed above seem to be more closely related among themselves than to any other member of the genus *Buteo*. If the distribution of these three forms were different, arranged in a lineal sequence, or on three islands, with the form intermediate in characters in a geographically intermediate position, I think there would be little question that the three would be called subspecies.

Since the two most different forms seem to be altitudinal representatives in South America, and intergradation is unknown there as yet, one might elevate these to species rank, as Stresemann has done. The intermediate Middle and North American form then could be called a separate species, or attached to either of the species as a subspecies.

However, the intermediate character of the northern form seems best expressed by writing the three as one species with three well-marked races, despite the somewhat unusual distribution. How this situation came about is difficult to picture. From its present distribution the group is certainly a tropical one. The subtropical elements of the South American avifauna in general have developed from tropical, lower altitudinal forms. However, since the connecting link between the two South American forms is to the north, one assumes that colonization and recolonization have taken place. One could postulate with little conviction that character displacement has been a factor in causing the greater difference between the two South American forms.

LITERATURE CITED

AMERICAN ORNITHOLOGISTS' UNION. 1886. Check-list of North American birds. New York. pp. 1–392.

CARRIKER, M. A., JR. 1910. An annotated list of the birds of Costa Rica including Cocos Island. Ann. Carnegie Mus., **6** (4) : 314–915.

DAVIS, J. 1953. Birds of the Tzitzio region, Michoacan, Mexico. Condor, **55:** 90–98.

FRIEDMANN, H. The birds of North and Middle America. U.S. Nat. Mus. Bull., **50** (11) : 1–793.

GOODALL, J. D., A. W. JOHNSON, and R. A. PHILIPPI. 1951. Las aves de Chile. Buenos Aires. Vol. 2, pp. 1–445.

HALLINAN, T. 1924. Notes on some Panama Canal Zone birds with special reference to their food. Auk, **41:** 304–326.

HELLMAYR, C. E. and B. CONOVER. 1949. Catalogue of birds of the Americas. Field Mus., Zool. Ser., **13,** pt. 1 (4) : 1–358.

HOWELL, A. H. 1932. Florida bird life. Fla. Dept. Game and Fresh Water Fish, Tallahassee, Fla. pp. 1–579.

MOORE, J. C. 1954. Short-tailed hawk in action. Florida Naturalist, **27:** 106.

MOORE, J. C., L. A. STIMSON, and W. B. ROBERTSON. 1953. Observations of the short-tailed hawk in Florida. Auk, **70:** 470–478.

MILLER, A. H. 1952. Supplementary data on the tropical avifauna of the arid Upper Magdalena Valley of Colombia. Auk, **69:** 450–457.

PETERS, J. L. 1931. Check-list of birds of the world. Harvard University Press, Cambridge. Vol. 1, pp. 1–345.

STRESEMANN, E. 1959. *Buteo albigula* Philippi, ein in Südamerika weit verbreiteter Bussard. Journ. f. Ornith., **100:** 337–340.

Chicago Natural History Museum, Roosevelt Road and Lake Shore Drive, Chicago 5, Illinois.