

Article XII.—THE NEOTROPICAL WEASELS.

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Introduction.

In attempting recently to identify the South American weasels in the American Museum of Natural History it soon became evident that those of South America were so intimately related to those of Central America and Mexico that it was necessary to take them all into consideration. The present paper is the outcome of this investigation. The material available for study (about 75 specimens), while insufficient for a satisfactory revision of the group, throws much light on the interrelationships of the various forms.

For important material kindly loaned for use in this connection I am greatly indebted to Mr. Gerrit S. Miller, Jr., Curator of the Division of Mammals, United States National Museum; Mr. E. W. Nelson, Acting Chief, Bureau of Biological Survey; Mr. Samuel Henshaw, Director of the Museum of Comparative Zoölogy at Harvard University; and Mr. Wilfred H. Osgood, Curator of Mammals, Field Museum of Natural History, Chicago. I am also especially indebted to Mr. Edmund Heller, of Washington, D. C., for 4 specimens collected by him north of Cuzco, Peru, while on the Yale-National Geographic Peruvian Expedition, 1914-1915.

This material includes the types of *Mustela tropicalis* (Merriam), *M. t. perda* (Merriam), and *M. costaricensis* Goldman, and the paratype and topotype material on which these forms were originally based. Also specimens referred at different times and by different authors to *M. affinis* Gray, and a large series of topotypes of *M. meridana* Hollister.

The weasels of Central and South America are at present poorly represented in museums and are consequently very imperfectly known, either as regards the range of the group as a whole or in respect to the number and distribution of the forms. Their range appears to be mainly subtropical and temperate, with the single exception of two species thus far known only from portions of the tropical lowlands of the Amazonian basin.

The weasels of southern Mexico and southward in the highlands of Central America and of northern and western South America (Venezuela, Colombia, Ecuador and Peru) are all closely related, though the northern forms differ rather strikingly from the southern in the color pattern of the head, but the change is progressive from the north southward, the white face markings, so conspicuous in *Mustela tropicalis*, gradually becoming obsolete in Costa Rica and Panama, with a gradual darkening of the general coloration. A second group, characterized by smaller size, relatively shorter tail, and much lighter coloration, occurs in Ecuador and Peru, while a third group, characterized by very large size and a distinctive color pattern, is known only from parts of Amazonia.

Historical Résumé.

The hitherto described forms of tropical American weasels may be listed, in chronological order, as follows:

- 1844. (1) *Mustela agilis* Tschudi. Type locality, Andes of Peru.
- 1864. (2) *Mustela aureoventris* Gray. Type locality, Quito, Ecuador. Not *Mustela auriventer* Hodgson, 1841. *Putorius* (Gale) *brasiliensis* var. *æquatorialis* Coues (Fur-Bearing Animals, 1877, p. 142) is "merely a substitute for Gray's preoccupied name."
- 1874. (3) *Mustela macrura* Taczanowski. Type locality, near Lake Junen, central Peru.
- 1874. (4) *Mustela affinis* Gray. Type locality, "New Granada" = Bogotá region, Colombia (*cf. postea*, p. 99).
- 1881. (5) *Mustela jelskii* Taczanowski. Type locality, Cutervo, Peru.
- 1881. (6) *Mustela stolzmanni* Taczanowski. Type locality, Yurimaguas, north-eastern Peru.
- 1897. (7) *Mustela paraensis* (Goeldi). Type locality, Pará, Brazil.
- 1898. (8) *Mustela tropicalis* (Merriam). Type locality, Jico, Vera Cruz, Mexico.

1902. (9) *Mustela tropicalis perdus* (Merriam). Type locality, Teapa, Tabasco, Mexico.
1912. (10) *Mustela costaricensis* Goldman. Type locality, San José, Costa Rica.
1914. (11) *Mustela meridana* Hollister. Type locality, Sierra de Merida, Venezuela.

The only addition to this list in the present paper is *Mustela tropicalis nicaraguae* (postea, p. 100), from Matagalpa, Nicaragua.

The name *Mustela brasiliensis* Sevestianoff (1813), supposed by its author to have been based on a specimen from Brazil, proves to have been founded on a Mexican species described nineteen years later by Lichtenstein as *Mustela frenata*, from a specimen taken in the Valley of Mexico.¹ It is thus fortunate that Sevestianoff's name was preoccupied by *Mustela brasiliensis* Gmelin (1788) for a Brazilian otter. Yet *Mustela brasiliensis* was current during the middle of the nineteenth century for a supposed Brazilian weasel with conspicuous white face markings, to which all the weasels of Mexico and Central and South America were at one time referred.²

Mustela sinuensis Humboldt,³ from the Rio-Sinu, Colombia, I am unable to identify as a species of *Mustela*.

The first weasel really described from a South American specimen was *Mustela agilis* Tschudi (1841); as stated by Baird,⁴ this was the only South American weasel known prior to 1857. No weasel was known from Brazil till 1897, when Goeldi published his *Putorius paraensis*.⁵ The second South American species was described by Gray, from Quito, Ecuador, as *Mustela aureoventris* in 1864.⁶

Color Variations in the Mustela tropicalis Group.

Prior to the description of *Mustela tropicalis* by C. Hart Merriam, in 1896,⁷ all of the weasels of North and Central America with a black head conspicuously marked with white were referred either to *Mustela brasiliensis* Sevestianoff or to *Mustela frenata* Lichtenstein. The true *Mustela frenata* group ranges from Texas and New Mexico southward through eastern

¹ Cf. C. Hart Merriam's 'A Note on *Putorius brasiliensis*': North Amer. Fauna, No. 11, pp. 27-28, June 30, 1896.

² Cf. Coues, Fur-Bearing Animals, 1877, p. 142; Alston, Biol. Centrali-Americana, Mamm., 1880, p. 79; True, Proc. U. S. Nat. Mus., VII, 1884 (1885), p. 610.

³ Rech. Zool., I, 1811, p. 348.

⁴ Mammals of North America, 1857, p. 174.

⁵ Zool. Jahrb., X, Heft. 4, pp. 556-568, pl. xxi, Sept., 1897.

⁶ Proc. Zool. Soc. London, 1864, p. 55, pl. viii, June, 1864.

⁷ North American Fauna, No. 11, p. 30, pl. iii, figs. 5, 5a, 6, 6a, and text fig. 16, June 30, 1896.

Mexico to Michoacan and Chiapas, thus overlapping the range of *Mustela tropicalis*. While *frenata* and *tropicalis* present a remarkable similarity in the color pattern of the head and in general coloration, and while their ranges slightly overlap, they are surprisingly distinct in cranial characters. In *frenata*, besides other important differences, the postorbital constriction is very deep and angular in front through the great development of the postorbital processes, so that the postorbital breadth of the skull is much less than the interorbital breadth; in *tropicalis* the postorbital breadth exceeds the interorbital, and the postorbital processes are only slightly developed. As noted by Merriam (*l. c.*, p. 30), the postorbital region of the skull in *frenata* resembles that of *M. longicauda*, while the same region of the skull in *tropicalis* resembles that of *M. noveboracensis*. *M. frenatus* is also a larger species than *M. tropicalis*.¹

Facial markings. The color pattern of the head in typical *tropicalis* consists of conspicuous white markings on a black ground,—a large square white patch between the eyes, and an oblique broad white band on each side of the head in front of the ears, extending upward from the white area of the throat to above the posterior corner of the eye, confluent with the white on the throat but not quite meeting the white interorbital patch. The type form of the group is represented in the present material by the type and three paratypes and by three other specimens from near the type locality, seven specimens in all. The type conforms to the above description, from which the paratypes vary as follows: (a) frontal spot divided into two spots connected by scattered white hairs; (b) frontal spot small; (c) frontal spot and lateral bands strongly developed, but the latter much reduced in width as they approach the throat.

Other specimens from the type region (vicinity of Jalapa) include two from Perez and one from Trujillo. The two Perez specimens, both males, differ widely from each other; in one the frontal spot is large and the oblique lateral bands are very broad and confluent both with the white of the throat and with the frontal patch. In the other the frontal spot is reduced to a thin V-shaped mark; the lateral bands are narrow and short, separated from the white of the throat by a broad space of black; the band on the right side is much narrower than the one on the left, and occupies only about one-tenth of the normal area of the lateral bands. The Trujillo specimen has the frontal spot greatly reduced and almost divided into two, while the lateral bands are very broad and confluent with the white of the throat and with the frontal spot.

¹ *Putorius macrophoneus* Elliot (Proc. Biol. Soc. Washington, XVIII, p. 235, Dec. 9, 1905) is a subspecies of the *M. frenata* group (type and topotype examined).

A series of four specimens from Guatemala (three without definite localities) compare as follows with the Vera Cruz specimens: Two have the head markings all heavily developed, with the lateral bands confluent with the frontal patch and with the white of the throat; in one all the white markings are greatly reduced in breadth and the lateral bands do not reach the frontal patch; in the other the frontal mark is reduced to a small V-shaped spot and the lateral bands are reduced to one third of the normal breadth.

A series of six specimens from northern Nicaragua (5 from Matagalpa and 1 from San Rafael) vary as follows: In three the white lateral bands are confluent with the white of the throat but do not reach the small white frontal area. In the fourth specimen the lateral stripes are broad but do not extend to the throat nor reach the white frontal area. In the fifth the lateral stripes are very narrow, and do not extend below the middle of the ear, nor reach the frontal spot, which is also reduced to a narrow transverse line. In the sixth the lateral stripes are reduced to a small oval spot in front of the middle of each ear, while the frontal spot is of normal size and nearly quadrate.

Costa Rica specimens are, as a rule, practically without white markings, the whole head being black, with or without a few white hairs in the areas usually white in specimens from Nicaragua and further north. Four Costa Rica specimens (one from San José, the others without definite locality) vary individually as follows: One (No. 13770, Nat. Mus.)¹ has no white on the head; another (No. 16262, Nat. Mus.) has a few white hairs between the ear and eye on both sides of the head, a few more on the left side than on the right, but not enough on either side to be very noticeable; a third (No. 11409, Nat. Mus.) has many white hairs between the ear and eye on the right side and a few in the same position on the left; the other (No. 12891, Nat. Mus.) has a large patch of white hairs on the right side between the ear and the eye, two small tufts of white hairs on the left side between the ear and eye, two white tufts of white hairs on the left side in the same position, and a few white hairs between the eyes, representing the white frontal spot.

Three additional specimens from Costa Rica are recorded by Dr. von Frantzius,² the only ones, he says, he saw during several years of collecting in that country. These he says had no white markings on the face.³ Gray⁴

¹ Type of *Mustela costaricensis* Goldman.

² Archiv für Naturg., XXXV, 1869, pp. 286-287.

³ He says: "Es stimmt in seiner Lebensweise mit dem gemeinen Wiesel (*M. vulgaris* Erxl.) überein, ist aber grösser als dieses und der *M. frenata* Lichtenst. sehr ähnlich, nur fehlen ihm die weissen Quersstreifen im Gesicht, auch ist das Braun etwas dunkeler als bei jener Art; die unterseite ist gelb" (*l. c.*).

⁴ Ann. and Mag. Nat. Hist. (4), XIV, p. 374, Nov. 1874.

also cites a specimen from Costa Rica in the British Museum in which "the head is entirely blackish, without any white spot or streak whatever." Alston,¹ however, refers to a specimen from Costa Rica, in the British Museum, in which the white face markings "are of the usual size." Granting that the locality of Alston's specimen is correctly recorded, seven out of eight Costa Rica specimens have the white markings on the head either wanting or vestigial.

Of eight specimens from Boquete, Chiriqui, now before me, three have the head wholly black and three have small tufts of white hairs between the ear and eye on both sides of the head, but usually with more white on one side than on the other, the white hairs being asymmetrically distributed. Another has two small tufts of white hairs on the left side only, in the area of the usual white stripe. Still another has a small white spot between the eyes, a large white band of irregular shape and 27×19 mm. in extent in front of the right ear, a small white spot behind it, and a few white hairs in front of the left ear.

Gray, writing many years ago,² under the heading "*Mustela brasiliensis*," said: "There are specimens from Veragua, Guatemala, and Costa Rica, which have a white spot on the forehead between the eyes, and an oblique white streak from the back of the orbit to the front and underside of the ears; these spots and streaks vary in breadth. One specimen, from Veragua, has the head blackish brown, and with only a very indistinct white spot in front of the ears; and another from Colombia, has only the small white spot on the forehead just between the eyes, and none on the side of the head. . . ."

Of two specimens from Panama, one (from Rio Indio, near Gatun) has no white on the head, the other (from Mt. Pirri) has a small white spot in front of the right ear and a much larger one (25×40 mm.) in front of the left ear.

From the foregoing it is evident that the weasels of the *tropicalis* group have, as a rule, well developed white face markings, from Vera Cruz southward (so far as known) to northern Nicaragua, with lapses through individual variation toward obsolescence; and that in central Costa Rica and in Panama these markings become vestigial. How gradually and under what conditions this change takes place is at present unknown, owing to lack of material from the intermediate regions.

South of Panama the *tropicalis* group ranges through the Western Andes of Colombia into Ecuador, and eastward along the Caribbean coast mountains of Venezuela to at least as far as Caracas, and in the Andean system

¹ Biologia Centrali-Americana, Mamm., p. 79.

² Ann. and Mag. Nat. Hist. (4), XIV, p. 374, Nov., 1874.

to Bogotá and Merida. While available specimens are few from this wide area, those in hand suffice to show that the face markings of the *tropicalis* phylum appear vestigially with considerable frequency, and are not wanting even in the weasels of Peru, which in some other respects, as in lighter general coloration and less blackish head, show some departure from the *tropicalis* standard. The following details, from such material as is now available, are therefore of interest.

Three male specimens from Antioquia, Colombia (2 from Sta. Elena and 1 from Barro Branco); a male from Munchique (Upper Cauca region) and another male from Guala (Ecuador), have each a few white hairs on the head in the areas which are white in the northern stock. A female from Miraflores and two females from Rio Zapata (all in the Upper Cauca region) have tufts of white hairs in front of the ear on one or both sides of the head, while one of them has also white hairs between the eyes, in the region of the frontal white spot.

Five specimens from the Bogotá district all have white hairs on the head, as follows: No. 37178, a few white hairs between the eyes and in front of the ears; No. 38493, white hairs sparsely scattered through the areas of the lateral white bands but none between the eyes; No. 34545 has an incipient white stripe on the left side, small tufts of white hairs on the right side, and a few white hairs above the right eye; No. 35804 has a large white frontal spot between the eyes, and a large area of white in front of each ear, confluent on each side of the head with the white on the throat. Two of the specimens also have scattered white hairs on the back of the neck and on the fore feet.

Of fifteen specimens from the Sierra de Merida, Venezuela, seven have incipient lateral stripes on the head and eight have the head wholly black or with only a few white hairs scattered through the areas of one or both of the lateral stripes. Thus, No. 21342 has a vestigial white spot between the eyes and a small spot of white in front of the middle of each ear; No. 21341 has a vestigial frontal white spot, and a large white spot on each side extending from the white of the throat to above the level of the upper border of the ear; No. 24311 has no white between the eyes, but on the right side is a white spot 10 by 4 mm. in extent between the ear and eye, and on the left two small tufts of white hairs between the ear and eye; No. 21343 has a narrow transverse band between the eyes, and a large area of white in front of each ear, confluent with the white on the throat. No. 18205, Field Mus. has a large white spot in front of the left ear and a smaller white spot in front of the right ear. It is of interest to note that these five specimens have more white on the head than do most of the specimens in a series of eight from Chiriqui.

It is further interesting to note that nearly all the weasels thus far described from Ecuador and Peru (*Mustela agilis* Tschudi, *M. macrura* and *M. jelskii* Taczanowski, and *M. aureoventris* Gray), are recorded as having small white spots on the side of the face between the eye and ear, on one or both sides.

Of two specimens (type and topotype) of *Mustela macrura* Taczanowski,¹ from near Lake Junin, central Peru, one is mentioned as having a small frontal spot of white, the other none. Lönnberg² records two specimens from Zambiza, Ecuador, one of which has a narrow white band running from the eye backward and downward to the white on the throat, while the other has only a trace of such a mark on one side.

Two specimens (Nos. 1644 and 1645) from Ambato, Ecuador, have each a white spot or a tuft of white hairs on each side of the face between the ear and eye, which in one forms an elongate white spot, 13 by 7 mm. in extent on the left side, while there are also a few white hairs in the region of the frontal spot.

A single specimen from San Esteban, Venezuela (near Caracas), has a few white hairs in front of each ear, a few between the eyes, and a few on each fore foot.

Light markings on the Feet. In the type and topotypes of *Mustela tropicalis* the light color of the underparts extends down the inside of the limbs to the feet, and in addition the toes of the fore feet are yellowish white for the greater part of their length. The original series of four specimens presents much individual variation in the amount and tone of the light color on the feet, paralleling the variation in the white markings on the head and correlated with it. Thus the individuals with most white on the head have also the largest amount of the light color on the feet. The same parallelism holds also in a geographic sense, the white markings on the feet disappearing as the facial markings recede, as would be expected on general principles.

In the type of *tropicalis* the fore feet are entirely buffy white; in the topotypes only the toes are thus colored, and there is less buffy space on the hind feet. In a male from Perez, in which all the white markings are greatly reduced, only the tips of the fore toes are blotched with fulvous and the hind feet are entirely dark brown. In the Guatemala series (only two specimens retain the fore limbs), the apical half of the toes is light colored in one, and in the other (with reduced head markings) the light color on the fore feet is restricted to a small blotch on the inner edge of the middle of each foot.

¹ Proc. Zool. Soc. London, 1874, p. 311.

² Arkiv för. Zool., VIII, No. 16, p. 21, July 12, 1913.

In six specimens from Matagalpa, Nicaragua, five have small yellowish white blotches, irregular in shape and position, on one or both fore feet; the one without light spots on the feet is the one with least white on the head. In the dark Costa Rica and Chiriqui series the feet are entirely dark brown like the body.

Typical *tropicalis* also has the upper lip edged with white, while in *nicaraguae*, and in all the forms of *affinis*, the dark color of the head extends to the commissure.

Seasonal and age variation in color. The four specimens of the type series of *Mustela tropicalis* were all in faded and worn pelage, the dates of collecting being July 5 (type), July 3, June 26, and May 2. These strongly contrast with specimens taken near the type locality in April and March, the former being many shades paler and in much shorter coat than the latter.

Young specimens, during the acquisition of the permanent dentition, are much more richly colored than the adults, particularly on the ventral surface, which is deep ochraceous orange instead of ochraceous buff (or even paler) as in old adults.

Summary. No specimens, nor descriptions of specimens, collected in any part of the wide area between Matagalpa in northern Nicaragua and San José in central Costa Rica, are available for consideration. But it seems probable that the transition from conspicuousness to obsolescence in the white face markings between northern Nicaragua and central Costa Rica is gradual and purely geographic. The similarity of specimens from central Costa Rica to those from Chiriqui, Veragua and other localities in Panama renders it almost certain that the same vestigial condition of the white face markings is practically continuous over the intervening districts.

Passing to South America, the first locality from which specimens are available is Antioquia, Colombia (3 specimens). The next is the Upper Cauca Valley (near San Antonio, at the southern end of the Western Andes of Colombia), from where one male and three females are available. A single specimen from Gualea, Ecuador, is not appreciably different from the above cited Colombia specimens. The whole series from western Colombia is, in fact, so similar to Costa Rica and Chiriqui specimens in size, cranial characters, and in general coloration, as to leave small basis for even subspecific separation of any portion of the series. The specimens from eastern Colombia and Venezuela are but slightly differentiated, although they have been separated specifically from the Central American forms. The first real break in the series occurs when the Peru-Ecuador forms are reached, which

while differing slightly in size and in the general tone of coloration still retain traces of the white face marks which show their *tropicalis* descent.

The Status of Mustela affinis Gray.

Mustela affinis Gray¹ was based on a specimen from an unknown locality and was very imperfectly described. After referring to various specimens of weasels in the British Museum from Veragua, Colombia, Costa Rica and Guatemala, under the heading *Mustela brasiliensis*, he thus describes his *Mustela affinis*: "There is in the British Museum a large specimen of a weasel, from New Grenada of a dark brown colour, and rather darker head, which has a white line on the side of the head in front of the ears but no white mark on the forehead. It is most probably a distinct species; but its characters want confirmation. . . . It may be a variety of *brasiliensis*."

When cited by later authors it was usually referred to *brasiliensis* till, in 1896, Dr. Merriam included it, as *Putorius affinis*, in his 'Synopsis of the Weasels of North America,'² identifying it with the series of weasels from Costa Rica previously referred to in the present paper (see *antea*, p. 93). The single specimen especially mentioned by Merriam (No. 13770, Nat. Mus.) became in 1912 the type of *Mustela costaricensis* Goldman.³ Goldman in comparing *costaricensis* with allied forms, refers to *affinis* "as represented by specimens from various localities from Panama southward and including a series of 10 from Merida, Venezuela, identified by Mr. Oldfield Thomas and assumed to be typical."

Miller, late in the same year, included both *Mustela costaricensis* and *Mustela affinis* in his 'List of North American Mammals,'⁴ assigning "Colombia" as the type locality, and adding: "Ranges north to Panama."

The name *Mustela* (or *Putorius*) *affinis* has been commonly applied in recent years to the weasels of both Colombia and Venezuela as well as to those of Costa Rica, but in 1914 Hollister named the Merida form *Mustela meridana*.⁵

The case of *Mustela affinis* Gray (not of Merriam or any later author) seems now to demand renewed consideration and, if possible, final settlement.

¹ *Mustela affinis* Gray, Ann. and Mag. Nat. Hist. (4), XIV, p. 375, Nov. 1874.

² North Amer. Fauna, No. 11, p. 31, June 30, 1896.

³ Proc. Biol. Soc. Washington, XXV, p. 9, Jan. 23, 1912. Type locality, San José, Costa Rica.

⁴ Gerrit S. Miller, Jr. List of North American Mammals in the United States National Museum, p. 100, Dec. 31, 1912. = Bulletin 79, U. S. National Museum.

⁵ Proc. Biol. Soc. Washington, XXVII, p. 143, July 10, 1914. Type locality, Sierra de Merida, Venezuela.

My first impression was that a type locality could only be found in Panama, and as Panama (at least Chiriqui) specimens are obviously not properly separable, even subspecifically, from Costa Rica specimens, *costaricensis* in that case would become a synonym of *affinis*. Later careful study of Colombia specimens revealed the fact that specimens from outside of Panama, particularly from the Bogotá district, satisfactorily met all the requirements of the description of *affinis*. The same is nearly true of the Upper Cauca region, but the latter seems not so likely to have been the source of Gray's specimen in the early days (prior to 1861) when New Grenada was the current name for the Colombia of later times, while Bogotá had long been a field well known to natural history collectors. It seems desirable as well as proper, therefore, to designate, as I now do, Bogotá, Colombia, as the type locality of *Mustela affinis* Gray. Gray's description calls for a large dark brown weasel with a rather darker head and "a white line on the side of the head in front of the ears but no white mark on the forehead." My five specimens from the vicinity of Bogotá fully meet these requirements and indicate that this is a common phase of coloration of the weasels of that immediate region.¹

*Systematic Review of the Species and Subspecies.*²

***Mustela tropicalis tropicalis* (Merriam).**

Putorius tropicalis MERRIAM, North Amer. Fauna, No. 11, p. 30, pl. iii, figs. 5, 5a, 6, 6a, and text fig. 16, June 30, 1896.

Putorius tropicalis perdus MERRIAM, Proc. Biol. Soc. Washington, XV, p. 67, March 22, 1902. Teapa, Tabasco, Mexico.

Type locality.—Jico, Vera Cruz, Mexico. Altitude, 6000 feet (1800 meters).

Geographic distribution.—Coast region of southeastern Mexico from Vera Cruz southward into Guatemala.

Putorius tropicalis was based on worn and faded summer specimens (type collected July 9), as shown by other specimens from the vicinity of the type locality collected in March and April. The type (and only known specimen) of *Putorius tropicalis perdus* was taken March 31, and is in the

¹ Since writing the above I have learned from Mr. Oldfield Thomas that the type of *Mustela affinis* Gray is still extant in the British Museum, and I hope to soon have his opinion as to whether it could well have come from the Bogotá region.

² For Tables of Measurements see pp. 106-111.

unworn dark pelage of early spring. The other slight differences characterizing *perdus* are of no significance in view of the wide range of variation in just these features in a series of seven specimens of typical *tropicalis*. (For measurements see Tables I and IV, pp. 106 and 108.)

***Mustela tropicalis nicaraguæ* subsp. nov.**

Type, No. 30754, ♂ ad., Matagalpa, Nicaragua, April 16, 1910; Wm. B. Richardson. Altitude, 2000 feet.

Similar to *M. tropicalis tropicalis* but general coloration much darker and the white face markings somewhat reduced in area. (For measurements see Tables I and IV, pp. 106 and 108).

***Mustela affinis affinis* Gray.**

Mustela affinis GRAY, Ann. and Mag. Nat. Hist. (4), XIV, p. 375, Nov., 1874. Also, in part, of subsequent authors who have used the name.

Mustela meridana HOLLISTER, Proc. Biol. Soc. Washington, XXVII, p. 143, July 10, 1914. Sierra de Merida, Venezuela.

Type locality.—"New Grenada" = vicinity of Bogotá, Colombia (*cf. antea*, pp. 99).

Geographic distribution.—Eastern Andes of Colombia, the Sierra de Merida, and the mountains of the Caribbean coast of Venezuela.

Somewhat smaller and less dark in the general coloration of the upperparts than *M. affinis costaricensis*; condylobasal length of the skull averaging about 7 mm. shorter, and the zygomatic breadth about 2 mm. less, than in *costaricensis*, with less extension backward of the dark color of the head. (For measurements see Tables II and VI, pp. 107 and 110).

Five specimens from the vicinity of Bogotá, two from the Paramo de Tama (Colombia-Venezuela boundary), two from the Caribbean coast of Venezuela, and fifteen from Sierra de Merida (topotypes of *M. meridana*) are referred to *affinis*. The Bogotá series is quite indistinguishable from the topotype series of *meridana*, and the few other specimens from northern Venezuela are not appreciably different. A large part of these specimens show traces of the white face markings so conspicuous in the ancestral stock, the *M. tropicalis* group of southern Mexico, Guatemala and northern Nicaragua.

***Mustela affinis costaricensis* Goldman.**

Mustela brasiliensis GRAY (not Sevastianoff), Ann. and Mag. Nat. Hist. (4), XIV, p. 374, Nov. 1874 (at least mainly). Also of most other authors prior to 1896.

Putorius affinis MERRIAM, North Amer. Fauna, No. 11, p. 31, June 30, 1896. Costa Rica. Also of most later authors between 1896 and 1912.

Putorius (Ictis) affinis BANGS, Bull. Mus. Comp. Zool., XXXIX, No. 2, p. 49, April, 1902. Boquete, Chiriqui.

Putorius macrurus ALLEN (not Taczanowski), Bull. Amer. Mus. Nat. Hist., XXXI, p. 91, April 19, 1912. Munchique and Miraflores, Cauca, Colombia.

Mustela affinis MILLER, Bull. 79, U. S. Nat. Mus., p. 100, Dec. 31, 1912. "Ranges north to Panama."

Mustela costaricensis GOLDMAN, Proc. Biol. Soc. Washington, XXV, p. 9, Jan. 23, 1912. Costa Rica.—MILLER, Bull. 79, U. S. Nat. Mus., p. 100, Dec. 31, 1912 (ex Goldman).

Type locality.—San José, Costa Rica.

Geographic distribution.—Costa Rica and Panama, south through the Western Andes of Colombia to northwestern Ecuador (and Peru?).

Similar in general coloration and in size to the *M. tropicalis* group, but upperparts very much darker, and the white markings on head and feet absent or greatly reduced, usually to mere traces.

In addition to numerous specimens from Costa Rica, Chiriqui, and the Canal Zone of Panama, specimens from the following localities are referred to *costaricensis*: Antioquia, 3 males (2 from Sta. Elena, 1 from Barro Blanco); Cauca, 1 male, 3 females (Miraflores, Munchique, Rio Zapata); Guala, Ecuador, 1 male. The specimens from Guala and Munchique are in no way distinguishable from Boquete specimens.

An old female from Idma, Peru (altitude 6000 feet), collected by Mr. Heller (No. 761) agrees in size with females from the Western Andes of Colombia and in coloration with the large dark specimens from Guala (Ecuador) and Munchique and northward in Colombia, and is hence referred provisionally to *costaricensis*. It is too large and too dark in coloration to be satisfactorily referable to *macrura*. It measures, total length 341, head and body 215, tail vertebrae 126, hind foot 43.

***Mustela macrura* Taczanowski.**

Mustela aureoventris GRAY, Proc. Zool. Soc. London, 1864, p. 55, pl. viii. Young male, Quito, Ecuador. Not *Mustela auriventris* Hodgson, 1841.

Mustela aureoventris GRAY, Proc. Zool. Soc. London, 1865, p. 115 (part, only the

reference to his previous description and type specimen; not the new material ("New Grenada" specimen) nor the description based on it.

Mustela macrura TACZANOWSKI, Proc. Zool. Soc. London, 1874, p. 311, pl. xlviii. "Environs du lac Junin (Pérou central)." Adult male.

Putorius (Gale) brasiliensis var. *æquatorialis* COUES, Fur-Bearing Animals, 1877, p. 142 ("merely a substitute for Gray's preoccupied name," i. e., *aureoventris*).

Mustela jelskii TACZANOWSKI, Proc. Zool. Soc. London, 1881, p. 647. "Cutervo, au nord-est du Pérou." Adult female.

Mustela affinis and ?*Mustela macrura* LÖNNBERG, Arkiv för Zool., VIII, No. 16, p. 21, June, 1913. Respectively from Zambiza and Panecillo, Ecuador.

Type locality.—Vicinity of Lake Junin, Central Peru.

Geographic distribution.—Andean region of Ecuador and Peru.

The general color above is uniform pale chestnut brown, the front and sides of the head somewhat blackish but less dark than in *M. affinis costaricensis*, and the blackish tone is usually restricted to the head, not reaching the nape and shoulders as in *costaricensis*. The tail is black or blackish for about the terminal two inches (less in some specimens), and less intensely black than in *costaricensis*. The ventral surface and inside of limbs are pale yellowish or yellowish white, the color usually distinctly lighter than in the *M. affinis* group. In immature specimens the color of the underparts is much deeper, or pinkish buff. Usually there is more or less white on the sides of the head and between the eyes, but all traces of the facial markings so strongly developed in the *M. tropicalis* group are sometimes entirely absent. In others they strongly recall their descent from the more northern type and reveal the close relationship of the weasels of the whole Andean region with those of southern Mexico and Central America.

Mr. Heller's three specimens, all males, from Ollantaytambo (altitude 9000 feet) afford unsatisfactory data in respect to size, as two of them are young and the other, an adult, is without measurements and has no skull, this specimen having been purchased of a native.

Taczanowski's measurements of the type of his *M. jelskii* (female of *M. macrura*?) are: Total length, 323; head and body, 203; tail vertebræ, 120; hind foot, 37. A young female from Macate, Peru, are: Total length, 300; head and body, 198; tail vertebræ, 102; hind foot, 34 (M. P. Anderson).

Lönnberg (*l. c.*, p. 22) gives a few measurements of two skulls, assumed to be males, one of which is from Panecillo (near Quito, alt. 10,000 ft.), the other from Zambiza (alt. 8,000 ft.). The first is referred doubtfully to *M. macrura*, the other to *M. affinis*. They measure respectively as follows: "Condyllo-incisive length of skull" (= condylobasal), 49.5 and 46 mm.; upper tooththrow (with canine), 15, 13.4; width across carnassials, 17, 16. These measurements agree respectively with average male and female skulls of true *M. affinis affinis*.

Of the six specimens here referred to *M. macrura* (2 from Ecuador and 4 from Peru) five have the face markings of the *tropicalis* group vestigially represented, and in the average much more strongly than in specimens from western Colombia and Panama. The two specimens from Ambato, Ecuador, each have a large white spot in front of each ear, and a few white hairs between the eyes; the two specimens from Ollantaytambo each have a small white frontal spot, and a large white spot in front of each ear, in one forming a broad white band confluent with the white of the throat. A specimen from Mascate, Péru, a young female (No. 21147, Field Mus.) has a broad white band in front of each ear, broadly confluent with the white of the throat, and the many white hairs between the eyes form an incipient frontal band.

The first name based on the present species, *Mustela aureoventris* Gray, 1864 (not *M. aureoventris* Gray, 1865, which is composite), is preoccupied and therefore unavailable; the next in order of date is *Mustela macrura* Taczanowski, 1874, which is here adopted. His *M. jelskii* (1881) is probably only the female of his previously described *M. macrura*. The difference in size between them conforms to the usual sexual difference in the other allied South American weasels. The measurements of two specimens given by Taczanowski as "♂ et ♀," in his description of *macrura* were, as his measurements show, really of the same sex and both males. The Latin diagnoses of the two species, *macrura* and *jelskii*, differ only through the addition of the word "minor" in that of *M. jelskii*, the other alleged differences in the description of *jelskii* being unimportant and negligible. It is evident that the type of *jelskii* was an old adult (sex not stated) with worn teeth, while in his specimens of *macrura* the teeth were evidently unworn.

The three specimens of weasels recorded by Lönnberg¹ from, respectively, Zambiza and Panecillo, Ecuador, are difficult to assign, if we assume the sex of the two specimens of which measurements are given is correctly determined. The measurements of the two skulls, sexed as males, differ about as the skulls of a male and a female of the same species ordinarily differ, except that those of the "interorbital width" and "postorbital constriction" are both incomprehensible, being wholly incompatible with the others, or with those of any weasel skulls known to me, both being one fourth to one third too large for his "condylo-incisive length" measurement. As above implied, I should construe the two skulls as respectively male and female of one and the same species — probably of *Mustela macrura* Taczanowski.

The *Mustela aureoventris* of Gray, as first described,² was based on a

¹ Arkiv för Zool., VIII, No. 16, pp. 21–22, July 12, 1913.

² Proc. Zool. Soc. London, 1864, p. 55, pl. viii.

specimen from Quito, "about the size of the European weasel (*Mustela vulgaris*)," the head and body being given as 6 inches long and the tail $4\frac{1}{2}$ inches. The sex was not stated and nothing was said about the age of the specimen, which he then evidently considered adult. A year later¹ he redescribed the species, the second description being much fuller than the first and essentially different, the length of head and body being here given as 12 inches and of the tail as 8, or about twice greater than in the first description. He now cites two specimens, the original one from Quito and another from "New Grenada." This latter I strongly suspect became later (in 1874) the type of his *Mustela affinis*,² judging both by the description and the locality given. He here refers to the original type as "young," and again as: "The young from Quito is much darker than the adult." Evidently two very distinct species are confounded in the second account of his *Mustela aureoventris*, so it is perhaps fortunate that the name is practically preoccupied for a Himalayan weasel by Hodgson's *Mustela auriventris*, dating from 1841.

***Mustela agilis* Tschudi.**

Mustela agilis TSCHUDI, Fauna Peruana, Mamm., 1844, p. 110.—TACZANOWSKI, Proc. Zool. Soc. London, 1881, p. 648 (in text).

Type locality.—High Cordilleras of Peru.

Geographical distribution.—Known only from high altitudes in Peru.

Apparently known only from Tschudi's description, which is in substance as follows:

Head, back and tail reddish gray; base of the hairs gray, with a broad yellowish brown ring and reddish brown tips; nose uniform deep brown, in others upper lip edged with white; throat, breast, belly and inner-upper side of extremities whitish gray, sometimes wholly gray, the base of the hairs always gray; feet darker than the body, nearly chestnut brown. Tail darker at the tip than at the base. Ears externally dark brown, whitish internally. These little animals vary nearly as much as the European weasel. Total length, 9 to 10 inches (230–250 mm.), tail 4 to $4\frac{1}{2}$ (100–115 mm.), head, $1\frac{5}{12}$ (35 mm.). (From Tschudi.)

The above description is too vague for satisfactory identification, under present conditions of available material and knowledge of the weasels of Peru. It is probable that two quite similar species of weasel, differing mainly in size, occur in the Peruvian Andes, in which case Tschudi's *Mustela agilis* may be available for one of them.

¹ Proc. Zool. Soc. London, 1865, p. 115.

² Already discussed at length (*supra*, pp. 98–99).

***Mustela stolzmanni* Taczanowski.**

Mustela stolzmanni TACZANOWSKI, Proc. Zool. Soc. London, 1881, p. 835 (April, 1882).

Type locality.—Yurimaguas, eastern Peru. Altitude, 500 feet.

Geographic distribution.—Apparently known only from the type locality.

Size large, about as in *M. frenata*; soles of all the feet naked; upperparts uniform dark chestnut, the muzzle and extreme tip of the tail darker; inside of limbs and ventral surface yellowish ochre, with a broad median band of the color of the back extending from the lower part of the breast to between the mammæ; sides of upper lip broadly edged with white. Total length (♀), 503 mm.; head and body, 313; tail vertebræ, 190; hind foot (c. u.), 54. Lives in the forests of the great plain of Maynas. (From Taczanowski.)

***Mustela paraensis* (Goeldi).**

Putorius (Mustela) brasiliensis paraensis GOELDI, Zool. Jahrb., X, Heft 4, pp. 556–568, pl. xxi, Sept., 1897; Bol. do Mus. Paraense, III, No. 2, pp. 195–203, August, 1901 (translation of the foregoing).

Putorius paraensis GOELDI, Bol. do Mus. Goeldi, IV, No. 1, pp. 61–62, pl. i (animal), pll. ii (skulls), Feb., 1904.

Type locality.—Pará, Brazil.

Geographic distribution.—Known only from the vicinity of Pará.

Size and proportions of *M. stolzmanni* and with the same pattern of coloration, but upperparts less dark (yellowish brown) and underparts deep ochre yellow.

The American Museum has recently received a topotype of this species from the Goeldi Museum, through the kindness of the Director, Dr. Snethlage.

Doubtless weasels of this strongly marked type will be found at intermediate points between the mouth of the Amazon and its headwaters.

Tables of Measurements.

Measurements are given in the following Tables of the specimens, both skins and skulls, in all cases where measurements are available. The field measurements doubtless are not all strictly comparable, they having been made by different collectors and by different methods, and in some cases evidently without due regard for accuracy, but it seems desirable to present them for whatever they may be worth. In the case of skulls, specimens with immature dentition have been excluded, and only 'adults' utilized; but there is a large amount of variation due solely to age, as can be seen by comparison of 'young adults' with 'old adults,' or even mature adults with very old adults.

Borrowed material is distinguished by letters following the catalogue numbers, as follows:

B = Biological Survey Collection.

F = Field Museum of Natural History.

U = United States National Museum.

Z = Museum of Comparative Zoölogy.

Table I.—Field Measurements.

Cat. No.	Locality	Sex and age	Total length	Head and body	Tail vert.	Hind foot
<i>Mustela tropicalis tropicalis</i>						
¹ 54994B	Jico, Vera Cruz, Mexico	♂	444	269	175	50
12794	Trujillo, "	♂	442	282	160	47
² 10041B	Teapa, Tebasco, "	♂	473	289	184	51
65422B	Catemaco, Vera Cruz, "	♀	332	211	121	37
54993B	Jico, " "	♀	333	212	121	37
	Average, 3 males		453	280	173	49
	" 2 females		332	212	121	37
<i>Mustela tropicalis nicaraguæ</i>						
30754	Matagalpa, Nicaragua	♂	460	260	180	50
29280	" "	♂	440	260	180	47
28969	" "	♂	480	290	190	50
28332	" "	♂	420	270	150	50
28592	" "	♀	360	220	140	40
	Average, 4 males		450	275	175	49
	Minimum, " "		420	260	150	47
	Maximum, " "		480	290	190	50

¹ Type of *Putorius tropicalis* Merriam.

² Type of *Putorius tropicalis perdus* Merriam.

Table II.—Field Measurements.

Cat. No.	Locality	Sex	Total length	Head and body	Tail vert.
	<i>Mustela affinis affinis.</i>				
24309	Sierra de Merida, Venezuela	♂	460	280	180
24307	" " "	♂	360	230	130
33152	" " "	♂	400	260	140
33154	" " "	♂	440	260	160
33155	" " "	♂	410	260	150
18205F	" " "	♂	420	260	160
123341U	" " "	♂	450	280	170
21341	" " "	♀	370	250	120
21342	" " "	♀	380	260	120
21343	" " "	♀	370	240	130
24311	" " "	♀	360	230	130
33152	" " "	♀	340	220	120
	Average, 7 males		420	261	156
	Minimum, " "		360	220	130
	Maximum, " "		470	260	180
	Average, 5 females		364	240	124
	Minimum, " "		340	220	120
	Maximum, " "		380	260	130

Table III.—Field Measurements.

Cat. No.	Locality.	Sex and age	Total length	Head and body	Tail vert.	Hind foot
	<i>Mustela affinis costaricensis.</i>					
10112Z	Boquete, Chiriqui, Panama	♂ old	480	310	170	52
10113Z	" " "	♂ juv.	400	257	143	43
137514U	" " "	♂ old	460	280	180	50
178970B	Mt. Pirri, Panama	♂ juv.	422	258	164	50
170970B	Rio Indio (Gatun), Panama	♀ old	408	249	159	46
	Average, 4 males (mostly young ad.)		440	276	164	49
	Minimum, " "		400	257	143	43
	Maximum, " "		480	310	180	52
34677	Gualea, Ecuador	♂ old	470	310	160	50
32620	Munchique, Cauca, Colombia	♂ old	495	293	202	52
37679	Sta. Elena, Antioquia, "	♂ ad.	425	253	168	48
37678	" " "	♂ ad.	420	255	165	50
37680	Barro Blanco, " "	♂ ad.	412	252	160	47
32182	Miraflores, Cauca	♀ ad.	375	225	150	43
	Average, 5 males		444	273	151	50
	Minimum, " "		412	252	160	47
	Maximum, " "		495	310	202	52

Table IV.—Measurements of Skulls of *Mustela tropicalis tropicalis*, *M. t. nicaraguae*,
and *M. paraensis*.

Cat. No.	Locality	Sex	Total length	Condylobasal length	Zygomatic breadth	Interorbital breadth	Postorbital processes	Postorbital breadth	Breadth of braincase	Mastoid breadth	Upper toothrow	Maxillary toothrow	Mi	Age
1 54994B	Jico, Vera Cruz, Mex.	♂	51.5	52.1	28.4	10.8	15.2	12.5	23.1	25.2	15.1	11.8	5.7	old
132528B	Perez, " "	♂	48.4	49	27	10.4	13.8	9.6	21.6	23.5	13.7	10.8	56	old
11058	Trujillo, " "	♂	51.5	50.5	30.4	11.5	14.3	12.1	23.8	24.4	14.5	12.2	5.9	old
2100041B	Teapa, Tabasco, Mex.	♂	52.4	51.5	28.9	11.5	13.8	10.6	22.9	24.7	15	12.2	6	old
65422B	Cotemaco, Vera Cruz, Mex.	♀	44.8	44.6	23.7	9.3	11.2	10	21.6	21.4	12.4	10	5.5	old
54993B	Jico, " "	♀	41.5	40.7	23.1	9.6	12.2	9.5	20.3	20.3	11.6	10	4.7	old
38290U	Guatemala	♀	—	—	—	10.5	13.5	11	—	—	13.1	10.9	5.2	old
61277U	Average, 4 males	♀	50.9	50.8	28.7	11.1	11.5	11.1	21.4	20.9	12.4	10	5	old
	Minimum, " "		48.4	49	27	10.4	13.8	9.6	21.6	23.5	13.7	10.8	5.6	
	Maximum, " "		52.4	52.1	30.4	11.5	15.2	12.5	23.8	25.2	15.1	12.2	6	
	<i>Mustela tropicalis nicaraguae</i>													
29280	Matagalpa, Nicaragua	♂ ad.	50.7	50.6	27.5	11.2	14.8	12.9	22.1	23.6	14.5	12.2	6.2	od
30754	" "	♂ ad.	49.7	50	—	10.5	13.4	10.4	22.6	23.6	15	12.5	6.4	old
28322	" "	♂ ad.	—	—	—	10.8	15.3	11.6	—	—	14.9	12	5.8	juv.
	Average		50.2	50.6	27.5	10.8	14.5	11.6	22.4	23.6	14.8	12.2	6.1	
	<i>Mustela paraensis</i>													
37415	Pará, Brazil	♂ ad.	53.6	53.7	32.5	13	15.5	10.7	25.1	27.1	15	11.7	6.1	old

Table V.—Measurements of Skulls of *Mustela affinis costaricensis*.

Cat. No.	Locality	Sex	Total length	Condylobasal length	Zygomatic breadth	Interorbital breadth	Postorbital processes	Postorbital breadth	Breadth of braincase	Mastoid breadth	Upper toothrow	Maxillary toothrow	M	Age
38288U	Costa Rica	♂	—	—	30.4	12.3	14.9	11.5	24.6	27.1	14.8	11.8	6.1	juv.
1 37149U	" " (San José)	♂	51.9	53.5	29	11.9	15.5	14.1	24.3	25	15.7	12.7	5.6	old
38287U	" "	♂	49.6	50.9	27.4	11.4	14.4	12	23	24.3	14.5	11.6	5.8	juv.
172960U	Boquete, Chiriqui	♂	47.6	—	27	11.1	14.3	13	24.1	23.3	14.1	11.8	5.5	juv.
137514U	" "	♂	49.7	47.6	25.5	10.9	14	13.3	22.7	22.1	13.8	11.4	5.5	juv.
18848	" "	♂	49.6	49.4	29.8	11.7	14.9	11.9	22.3	22.7	14.4	12	5.6	old
101123U	" "	♂	53.6	53.7	—	12.7	15.9	11.7	22.8	25.7	15.3	12.7	5.5	very old
101133U	" "	♂	48.5	47.8	27.3	12.3	15	12.4	—	—	13.6	11	5.6	juv.
178970B	Panama (Mt. Pirri)	♂	49.4	49.5	26.8	10.6	13.7	12.1	22.1	22.6	14.7	11.7	5.5	juv.
170970B	" (Rio Indio)	♀?	47.8	47.1	27.2	10.5	13.6	10.7	22.7	23.2	13	11.1	5.3	old
	Average, 9 males		50	50.3	27.9	11.8	14.7	12.4	23.2	24	14.5	11.9	5.6	
	Minimum, " "		47.6	47.6	25.5	10.6	13.7	11.9	22.1	22.1	13.6	11	5.5	
	Maximum, " "		53.6	53.7	29.8	12.7	15.9	14.1	24.6	27.1	15.7	12.7	6.1	
34677	Guala, Ecuador	♂	50.5	50.8	28.5	12.2	15.2	12	22.1	24.2	15.4	12.5	6.2	old
32620	Munchique, Cauca, Col.	♂	52.2	52.1	30.3	12.7	16.6	12.9	22.5	24.1	14.9	12.4	6.1	old
37678	Sta. Elena, Antioquia, Col.	♂	49.6	47.8	27.3	12	15.1	13	23.1	23.5	14.2	12	5.6	old
37679	" "	♂	48	47.9	26.3	11.8	15.6	12.6	21.5	22.6	14	11.1	5.7	old
37680	Barro Blanco, " "	♂	—	—	27.6	12.2	15	12.1	—	—	14.5	11.6	6.1	old
32182	Mira Flores, Cauca, Col.	♀	45	44.8	24.2	10.1	12.7	10.2	21	21	13.1	10.8	5.6	old
14462	Rio Zapata, " "	♀	42.8	42.1	—	9.4	12.6	—	19.4	—	12.1	10.4	5	old
14463	" "	♀	—	—	—	10.2	—	—	—	—	12.1	10	5.2	old
	Average of 5 males		50.1	49.6	28	12.2	15.5	12.5	22.6	23.6	14.6	11.9	5.9	
	Minimum of " "		48	47.8	26.3	11.8	15	12	21.5	21.6	14	11	1.6	
	Maximum of " "		52.2	52.1	30.3	12.7	16.6	12.7	23.1	24.2	15.4	12.5	6.2	

1 Type of *M. a. costaricensis*.

Table VI.—Measurements of Twelve Skulls of *Mustela affinis affinis*.

Cat. No.	Locality	Sex	Total length	Condylal length	Zygomatic breadth	Interorbital breadth	Postorbital processes	Postorbital breadth	Breadth of braincase	Mastoid breadth	Upper toothrow	Maxillary toothrow	Me	Age
123341U	Sierra de Merida, Venezuela	♂	48.6	47.9	26.9	12.2	—	—	23.1	—	14.8	—	—	old
24307	" " " "	♂	47	46	25.5	—	—	—	23.4	23.7	14.2	11.6	6	juv.
24309	" " " "	♂	49.4	49	27.6	11.9	15.2	11.5	22	24.1	13.8	11.6	5.6	old
33154	" " " "	♂	46.7	46.8	26.6	10.6	14.6	12.4	23.6	22.3	13.3	10.9	5.4	juv.
33152	" " " "	♂	48.8	48.9	29	12.2	15.7	10.6	22.1	24.1	14.1	11.4	5.7	old
33155	" " " "	♂	48	—	27.4	11.7	16.2	13.5	22.5	23.6	14.6	11.5	5.7	old
33153	" " " "	♀	40.6	40.8	22.9	9.7	12.4	11.4	21.6	19.5	11.5	9.7	4.9	old
24308	" " " "	♀	41.6	40.7	22.5	9.8	12.5	10.4	20	19.5	11.8	9.5	5.2	old
21343	" " " "	♀	41.7	41.8	22.8	9.5	12.1	10.4	21	19.4	11.9	10.4	5.2	old
24311	" " " "	♀	43.1	42.7	22	10.1	12.8	10.5	19.4	19.8	12.2	10	5.2	old
24310	" " " "	♀	40.4	39.4	22.3	8.8	11.2	10.8	21	19.6	11.4	9.4	4.9	juv.
	" " " "	♀	40.7	—	23.3	—	—	—	—	—	12	—	—	old
	Average, 6 males		48	47.7	27.2	11.6	15.4	12	22.9	23.6	14	11.4	5.7	
	Minimum, " "		46.7	46.8	25.5	10.6	14.6	10.6	22	22.3	13.3	10.9	5.4	
	Maximum, " "		49.4	49	29	12.2	16.2	13.5	23.6	24.1	14.6	11.6	6	
	Average, 6 females		41.5	41	22.6	9.6	12.2	10.7	20.6	19.6	11.8	9.8	5.1	
	Minimum, " "		40.4	39.4	22	8.8	11.2	10.4	19.4	19.4	11.5	9.4	4.9	
	Maximum, " "		43.1	42.7	23.3	10.1	12.8	11.4	21.6	19.8	12.2	10.4	5.2	
	Paramo de Tama, Colombia	♂	47.3	48	27.1	11.3	14.6	12.6	22.1	22.6	14.6	11.9	6.5	old
	" " Venezuela	♂	—	23	23	9.5	12.4	11.8	19.6	—	12.7	9.4	5	old
	Paramo de Choachi, near Bogotá, Col.	♂	46.2	46.5	26.3	11.1	14.5	12.5	23.8	22.9	13.8	11.6	5.3	old
	San Esteban, Venezuela	♂	49.6	49.8	28.5	11.8	11.7	11.7	22.6	24.6	14.6	11.6	5.8	very old

1 Type of *Mustela meridiana* Hollister.

Table VII.—Summary of Tables I to VI.

External Measurements — Averages.

	Number of specimens	Total length	Head and body	Tail vertebrae	Hind foot
MALES.					
<i>Mustela tropicalis tropicalis</i>	3	453	280	173	49.3
" " <i>nicaraguae</i>	4	450	275	175	49
" <i>affinis affinis</i> (Merida)	7	420	261	156	—
" " <i>costaricensis</i> (Panama)	4	440	276	164	49
" " " (Colombia)	5	444	273	151	50
FEMALES.					
<i>Mustela tropicalis tropicalis</i>	1	333	212	121	37
" " <i>nicaraguae</i>	1	360	220	140	40
" <i>affinis affinis</i> (Merida)	5	364	240	124	—
" " <i>costaricensis</i> (Colombia)	1	375	225	150	53
" " <i>macrura</i> (Peru)	2	311	201	126	40

Cranial Measurements — Averages.

	Number of specimens	Total length	Condylolbasal length	Zygomatic breadth	Postorbital processes	Breadth of braincase	Mastoid breadth	Upper toothrow	Maxillary toothrow
MALES.									
<i>Mustela tropicalis tropicalis</i>	4	50.9	50.8	28.7	14.3	22.8	24.5	14.6	11.7
" " <i>nicaraguae</i>	3	50.2	50.6	27.5	14.5	22.4	23.6	14.8	12.2
" <i>affinis affinis</i> (Merida)	6	48	47.7	27.2	15.4	22.9	23.6	14	11.4
" " " (elsewhere)	4	47.7	48.1	26.2	13.3	18	23.1	13.9	11.1
" " <i>costaricensis</i> (Costa Rica, Panama)	9	50	50.3	27.9	14.7	23.2	24	14.5	11.9
" " " (Colombia)	5	50.1	49.6	28	15.5	22.6	23.6	14.6	11.9
" <i>paraensis</i>	1	53.6	53.7	32.5	15.5	25.1	27.1	15	11.7
FEMALES.									
<i>Mustela tropicalis tropicalis</i>	2	43.2	42.4	23.4	12.1	21.1	20.9	12.4	10.2
" <i>affinis affinis</i> (Merida)	6	41.5	41.1	22.5	12.2	20.6	19.6	11.8	9.8
" " <i>costaricensis</i> (Colombia)	3	43.9	43.4	—	13.4	20.2	—	12.6	10.4

