

THE OCELOT CATS.

By EDGAR A. MEARNs.

Major and Surgeon, United States Army.

My thanks are due to the authorities of the United States National Museum for collecting and placing at my disposal as many specimens of Ocelots as were obtainable. In addition, through the United States National Museum and the kind offices of Mr. Witmer Stone and the authorities of the Philadelphia Academy of Natural Sciences, and through Dr. J. A. Allen, I have had the Ocelots belonging to the collections of the Philadelphia Academy of Natural Sciences, and the American Museum of Natural History, New York; and, through Dr. C. Hart Merriam, the specimens of *Felis limitis* in the collection of the Biological Survey of the United States Department of Agriculture have been placed in my hands. From this material it has been possible to differentiate five very distinct forms of the Ocelot, unconnected by intermediate individuals in the materials examined. These forms may be identified by means of the following

KEY TO THE AMERICAN OCELOTS.

- a.* Color decidedly grayish. Black markings restricted. Size small or medium.
- b.* Total length less than 1,100 mm. Skull less than 115 mm. in basilar length. Tail plainly ringed with black above, except at base; subterminal black rings about 8. Ground-color uniformly grayish. Audital bulle short and inflated. Inhabits the valley of the Rio Grande of Texas and Mexico.
- Felis limitis* Mearns.
- bb.* Total length more than 1,100 mm. Skull more than 115 mm. in basilar length. Tail irregularly spotted with black above; subterminal black rings about 3. Color grayish, decidedly tinged with tawny on head and neck. Audital bulle elongate. Inhabits Brazil and the northeastern portion of South America *Felis chibigonazon* Griffith.
- aa.* Color decidedly tawny. Black markings extended. Size large.
- c.* Ground-color above, uniformly tawny, tinged with rufous. Spots of upper portion of body all black, not inclosing light areas. Postorbital breadth of skull greater than the length of the nasal bones.
- Felis equatorialis*, new species.
- cc.* Ground-color above, tawny anteriorly, becoming grayish or paler posteriorly. Spots of dorsal region black, inclosing, or partially inclosing, light areas.

- d. Smaller; basilar length of skull of male measuring 120 mm., female 105 mm. Ground-color of upper parts, tawny anteriorly, varying from wood brown to clay color posteriorly. Black markings moderately intense. Inhabits southern Mexico *Felis pardalis* Linnaeus.
- dd. Larger; basilar length of skull of male measuring 130 mm., female 115 mm. Ground-color russet anteriorly, varying from tawny-olive to cream-buff posteriorly. Black markings very intense. Inhabits Central America, *Felis costaricensis*, new species.

It is probable that some of the above forms intergrade, and it is certain that other forms remain to be described. The diversity and close interrelationship of the species and regional forms of Ocelots, together with the lack of adequate material in the hands of any investigator, have given rise to the multiplication of synonyms and misapplication of names to such a degree that the group is now in a state of nomenclatorial confusion. The earlier descriptions were incomplete, especially with regard to the cranial and dental characters, and were frequently based on young individuals, sometimes living ones, and specimens from unknown localities, or of which the sex was unknown. I have little expectation that my efforts to disentangle the intricately involved synonymy of the American Ocelots will be entirely successful. At a later day, when the existing forms shall have been characterized and the investigator can visit the museums of the Old World, carrying with him the necessary materials for comparison with such types as remain, it may become possible to establish more of the early names than I have been able to do. Those which have received attention from me are the following:

Pardalis (Felis). LINNÆUS, 1766. Syst. Nat., 12th ed., I, p. 62, sp. 5 (based primarily on the *Cato-pardus mexicanus* of Hernandez).

This, the earliest available name for an Ocelot, pertains to the species of east-central Mexico.

Mexicana (P[anthera]). OKEN, 1816. Lehrbuch der Naturgeschichte, p. 1054.

Under the genus *Felis*, an Ocelot from Mexico is described which is probably a synonym of *Felis pardalis* Linnaeus. The name is pre-occupied by *Felis mexicana* Desmarest, Nouv. Dict. d'Hist. Nat., VI, 1816, p. 112, applied to the Yagüarundi Cat.¹

Ocelot (Felis). SMITH, 1827. Griffith's Animal Kingdom, II, p. 475. (South America and Mexico.)

Maj. Charles Hamilton Smith described and figured four forms of the Ocelot: Nos. 1, 2, 3, and 4, including the *Felis pardalis* of Linnaeus, which latter Griffith in the fifth volume of the same work identifies with the Ocelot No. 4 of Smith. Griffith (Vol. V, p. 167) gives the new name *chibiquazon* to Smith's Ocelot No. 1, thus restricting *ocelot*

¹*Felis mexicana* Sanssure, 1860, p. 1, is the Tiger-Cat of Mexico; and *Panthera mexicana* Fitzinger, Sitzungsber., Akad. Wiss. Wien, LIX, 1869, p. 1260, is the Ocelot No. 1 of Major Smith.

to Nos. 2 and 3, of which No. 2 came from South America and No. 3 from Mexico. In 1838 Swainson named the Mexican "Ocelot No. 3" *Felis canescens*, which finally restricted the name *ocelot* to Smith's "Ocelot No. 2." As numerous names have been applied to the four forms which Major Smith figured as Nos. 1, 2, 3, and 4, and described, successively, under the name *Felis ocelot*, a statement of the earliest available name for each is given, as follows:

<i>Felis ocelot</i> Smith	{	Ocelot No. 1.	} From South America.	{	No. 1. <i>Felis chibigouazou</i>
		Ocelot No. 2.			Griffith, 1827.
	{	} From Mexico -----	{	No. 2. <i>Felis ocelot</i> Smith,	
				1827.	
{	} From Mexico -----	{	No. 3. <i>Felis canescens</i> Swain-		
			son, 1838.		
{	} From Mexico -----	{	No. 4. <i>Felis pardalis</i> Lin-		
			naeus, 1766.		

The name *Felis ocelot* is thus restricted by elimination to the form "Ocelot No. 2." If identical with the Chibigouazou of Azara, from Paraguay, as surmised by Major Smith, it belongs to a form not represented in the collections which I have examined, and is probably entitled to recognition, as Smith's figure of his Ocelot No. 2 is unlike the Brazilian specimens seen by me.

Catenata (Felis). SMITH, 1827. Griffith's Animal Kingdom, II, p. 478, pl.

The author (Smith) had seen two specimens. This Ocelot was supposed by some writers to have come from Mexico, although Swainson gives the following:¹

Major Smith was the first naturalist who made us acquainted with this very elegant ocelot, which had probably been in some of our menageries unknown to science, and subsequently found its way into Bullock's Museum, where this acute observer detected it. He also met with another specimen in the Berlin Museum, and made it known to the Prussian professors.

I am unable to identify this animal. It may have been the young of *Felis pardalis* Linnaeus, although the describer states that the teeth showed it to be adult.

Chibigouazou (Felis). GRIFFITH, 1827. Animal Kingdom, V, 167, No. 431.

This is the "Felis Ocelot No. 1" of Maj. Charles Hamilton Smith. It is the earliest available name for the Ocelot which I have redescribed from Chapada, Brazil, with which Smith's plate figure and description closely agree.

Brasiliensis (Felis). FR. CUVIER, 1828. Nat. Hist. Mamm., July, 1828, pl. LVIII.

Described from a caged specimen from the island of Cuba, supposed to have been brought there on shipboard from Brazil. Probably identical with *Felis chibigouazou* Griffith. Name preoccupied by *Felis brasiliensis* Schinz. Thierreich, 1821, applied to the Black Jaguar.

¹ Animals in Menageries, 1838, p. 125, fig. 19.

Armillata (Felis). FR. CUVIER, 1832. Hist. Nat. Mamm., II, January, 1832, pl. CXXXII.

The figure resembles the Brazilian Ocelot, but no locality is given. The specimen was living in the menagerie of the Jardin des Plantes.

Canescens (Felis). SWAINSON, 1838. Animals in Menageries, p. 118, fig. 16.

This is Ocelot No. 3 of Maj. Charles Hamilton Smith, who observes: "A young female of this is now in Mr. Bullock's Mexican collection. It came from Mexico. I have examined five or six specimens, and believe I have sufficient grounds for considering the differences between this and the preceding [Ocelot No. 2, from "South America"] not to arise from nonage." Probably composite. If from Mexico, perhaps *Felis pardalis* Linnæus.

Smithii (Felis). SWAINSON, 1838. Animals in Menageries, p. 120, fig. 17.

This is Ocelot No. 2 of Maj. Charles Hamilton Smith. In applying the name *Felis canescens* to Smith's Ocelot No. 3, Swainson had restricted Smith's *Felis ocelot* to No. 2. *Felis smithii* therefore became at once a synonym of *Felis ocelot* Smith.

Maracaya (Felis). WAGNER, 1841. Supplement to Schreber's Saugthiere, II, p. 492. (South America.)

It is the *Felis pardalis* of Wied, Beiträge zur Naturgesch. Bras., II, p. 361. Brazil and Paraguay. Perhaps identical with Azara's Chibigouazou.

Pictus (Leopardus). J. E. GRAY, 1842. Ann. Mag. Nat. Hist., X, p. 260.

A very strongly colored Ocelot which I have not seen; from "Central America." The description, given more in detail in Gray's List of Mammals in the British Museum, 1843, p. 43, and especially in the Proceedings of the Zoological Society of London for the year 1867, p. 271, does not agree with the Ocelot which I have named *Felis costaricensis*.

Griseus (Leopardus). J. E. GRAY, 1842. Ann. Mag. Nat. Hist., X, 1842, p. 260 ("Hab. Central America. Both varieties in Brit. Mus.")

Later, Gray stated that it came from Guatemala. I am unable to identify it with any of the forms which I have examined.

Pseudopardalis (Felis). BOITARD, 1842. Le Jardin des Plantes description et moeurs des Mammifères, etc., p. 187.

Supposed to inhabit Mexico and the Bay of Campeche. Apparently a synonym of *Felis pardalis* Linnæus.

Melanura (Felis). BALL, 1844. Proc. Zool. Soc., p. 128.

Undeterminable; described from a living specimen from an unknown locality.

Albescens (Felis) PUCHERAN, 1855. Voyage Vénus, Zool., text p. 137, atlas pl. VIII.

A translation contains the following:

As to the individual which we have described, it was a male, from the State of Arkansas, in Louisiana, which had been given to our menagerie by M. Trudau. Nothing proves to us that this species inhabits Brazil, and as the application of the name cited above [*Felis brasiliensis* Fr. Cuvier] carries with it an error, we think it legitimate, until we have further information, to substitute for it the denomination Albescens Cat (*Felis albescens*), a name which recalls to memory the whitish tint of the pelage.

It thus became a synonym of *Felis brasiliensis* Fr. Cuvier, 1828.

Minimus (*Felis pardalis*). WILSON, 1860. Proc. Acad. Nat. Sci. Phila., p. 82.

Unidentifiable. "It was obtained in Realejo, Nicaragua, in the month of December, 1858. At that time it was too young to eat anything except milk."

Pardoides (*Felis*). J. E. GRAY, 1867. Proc. Zool. Soc. London, p. 403; Cat. Carn. Mamm., 1869, p. 20, sp. 5. (Tropical America.)

Unidentifiable.

Ludoviciana (*Panthera*). FITZINGER, 1869. Sitzungsber. Akad. Wiss. Wien, LIX, p. 258.

An unidentifiable composite, based on a miscellaneous compilation.¹

Jardinii (*Panthera*). FITZINGER, 1869. Sitzungsber. Akad. Wiss. Wien, LIX, p. 263.

This is the *Felis pardalis* of Jardine,² which can not be positively identified.

Hamiltonii (*Panthera*). FITZINGER, 1869. Sitzungsber. Akad. Wiss. Wien, LIX, p. 265.

This is the Ocelot No. 2 of Major Smith, in Griffith's Animal Kingdom, II. 1827, p. 476, from South America.

Griffithii (*Panthera*). FITZINGER, 1869. Sitzungsber. Akad. Wiss. Wien, LIX, p. 266.

This is Major Smith's Ocelot No. 3, from Mexico. Perhaps identical with *Felis pardalis* Linnæus.

Limitis (*Felis*). MEARNS, 1901. Proc. Biol. Soc. Washington, XIV, Aug. 9, 1901, p. 146. (Brownsville, Cameron County, Texas.)

See below.

The species which I am able to recognize, at present, are described as follows:

FELIS LIMITIS Mearns.

RIO GRANDE OCELOT.

1855. *Felis albescens* PUCHERAN, Voyage Vénus, Zool., text p. 137; atlas, pl. VIII (= *Felis brasiliensis* Fr. Cuvier). (Perhaps in part, as to menagerie specimen from M. Trudau.)

1901. *Felis limitis* MEARNS, Proc. Biol. Soc. Washington, XIV, p. 146, Aug. 9, 1901.

¹ See Proc. Biol. Soc. Washington, XIV, Aug. 9, 1901, p. 145.

² Mammal., II, pp. 206, 211, 268, pl. xvi.

Type locality.—Brownsville, Cameron County, Texas.

Geographic distribution.—Rio Grande Valley of Mexico and the United States; formerly ranging north to "Arkansaw" and "Louisiana" of the old geographies, but probably not north of Texas and New Mexico at the present time.

General characters.—Smaller and grayer than *Felis pardalis* Linnaeus, with markings less intense, and without strong contrast of coloration between the ground-color inside and outside of the black rings. Skull relatively broad; dentition weaker; interpterygoid fossa wider and more quadrate; audital bullae wider and more inflated; postorbital process more flattened and less depressed.

Color.—Upper parts exquisitely lined and spotted with black on a drab-gray ground. The ground-color varies from whitish drab-gray on the uninclosed areas to pale broccoli brown on those that are inclosed or margined with black. The pattern is never exactly the same on any two specimens, although the general effect is similar. There is a distinct vertebral area marked with black, usually appearing as a more or less broken or irregular line of black on the posterior three-fifths, breaking up into parallel or divergent lines or spots anteriorly; it is usually apparent from the occiput to the root of the tail, though always an interrupted line. In places, especially on the rump, it often becomes a single or double row of black spots, while anteriorly it may change to parallel lines or elongated inclosures. On each side of the vertebral line is a parallel series of inclosed or (occasionally) solid black elongate areas, sometimes containing black spots. Succeeding these, laterally, are series of elongate, partially or completely inclosed spots or irregular bands of drab-gray having a trend downward and backward, and separated from one another by grayish white areas, an especially broad transverse one usually appearing behind the shoulder. Upper side of neck with longitudinal black stripes inclosing drab-gray areas anteriorly and usually open posteriorly. Upper side of head with a broad black, usually interrupted line arising about 10 mm. above the middle of the orbital ring and extending backward on either side to opposite the middle of the ear; between these lateral bands are several interrupted lines of spots, larger behind and breaking up into small spots anteriorly. Eyelids blackish, bordered above and below by whitish bands, succeeded by drab-gray. Side of head with two conspicuous black longitudinal stripes, the upper one beginning as a black spot behind nostril, another in front of inner canthus and involving upper and lower eyelids, extending thence to a point about 30 mm. below and behind the posterior root of the ear; lower stripe, beginning behind whiskers and below middle of orbit, extends backward to behind ear, then transversely across under side of head, almost joining the corresponding stripe of the opposite side. The space between these black lines is

white except anteriorly; that between the upper one and the lateral crown stripe forms a large drab-gray triangle between the eye and ear, in which there are but few small black spots. Muzzle, above plain drab-gray, lined on sides with spots of black edged with drab, and plain grayish white posteriorly. Whiskers mostly white, some becoming brownish black at base. Ear with concavity well coated with whitish buff hairs; convexity black anteriorly, grayish white posteriorly, the latter encroaching on the middle of the black area, forming a rounded spot, which, in one individual, is narrowly encircled by black posteriorly, cutting it off from the whitish posterior third of the ear. Outer surface of limbs transversely spotted with black, the spots decreasing in size from within outward, becoming obsolete on the toes. Under parts white, very slightly tinged with ochraceous, the pelage drab-gray at base; chin and throat, middle of neck, and belly between thighs unspotted. Under side of neck with two transverse bands of black slightly mixed with fulvous, interrupted at median line. Hinder part of neck finely spotted with black; chest and belly coarsely spotted, the black spots rounded on chest and transversely elongated on abdomen. Inner surface of limbs whitish, transversely spotted with black. Under side of feet hair brown, sometimes mixed with hoary. Tail, whitish gray, speckled with black below; upper surface irregularly barred with light and dark bands, the former grayish white, the latter drab gray, edged with black, and somewhat grizzled; light rings, averaging about ten.

Skull and teeth.—Compared with *Felis pardalis* Linnaeus the skull is smaller, relatively short and broad, the interpterygoid fossa averaging considerably wider and more quadrate. The auditall bullae are relatively short, and more inflated than in any other form; and the postorbital processes are more flattened and less depressed. The dentition is relatively weak.

Measurements.—Adult male: Length, 1,080 mm.; tail vertebrae, 330; length of hind foot, 160; ear above crown, 50. Adult female: Length, 950; tail vertebrae, 300; hind foot, 145; ear above crown, 50. Skulls: Greatest diameters of largest male, 140 by 93 (basilar length of Hensel, 114); largest female, 126 by 87. (See table of cranial measurements, p. 249.)

Remarks.—It is uncertain whether the Ocelot referred to by Dr. Richard Harlan and other early writers as occurring in Arkansas and Louisiana was precisely the same as the present form. Harlan¹ observes as follows: "Inhabits Mexico, and the south-western parts of the United States, particularly Louisiana; also observed by Mr. Nuttall in the Arkansa territory; vid. Travels into the Arkansa territory, page 118. Not known to exist east of the Mississippi." Pucheran's colored

¹Description of the Mammiferous Animals Inhabiting North America, 1825, p. 98.

plate of "a male from the State of Arkansas, in Louisiana, which had been given to our menagerie [in Paris] by M. Trudau," shows the ground clay color above, which agrees with *Felis pardalis* but not with *F. limitis*.

FELIS PARDALIS Linnæus.

MEXICAN OCELOT.

1766. *Felis pardalis* LINNÆUS, Syst. Nat., 12th ed., I, p. 62, sp. 5.
 1816. *Felis mexicana* OKEN, Lehrbuch der Naturgeschichte, p. 1054.
 1827. ?*Felis catenata* SMITH, Griffith's Animal Kingdom, II, p. 478, pl.
 1838. ?*Felis canescens* SWAINSON, Animals in Menageries, p. 120, fig. 17.
 1842. ?*Felis pseudopardalis* BOITARD, Le Jardine des Plantes description et moeurs des Mammifères, etc., p. 187.
 1869. ?*Panthera jardiui* FITZINGER, Sitzungsber. Akad. Wiss. Wien, LIX, p. 263.
 1869. ?*Panthera griffithii* FITZINGER, Sitzungsber. Akad. Wiss. Wien, LIX, p. 266.

Type locality.—Mexico.

Geographic distribution.—Southern and eastern Mexico. (It is uncertain whether this form occurs in northwestern Mexico.)

General characters.—Decidedly larger than *Felis limitis*. Ears large. Black markings extended. The ground-color within the black circles contrasts strongly with that outside of them; and the chains of black-bordered inclosures are broken up into patches, which commonly contain black spots. The skull is relatively narrow; dentition heavy.

Color.—There are three principal colors—black markings, ground-color outside the black circles, and color within the circles. The general ground is pale grayish buff; within the black rings, dark clay color. The pattern of the black markings is similar to *Felis limitis*, differing in having the chains of black-edged inclosures broken up into shorter patches, and the longitudinal black neck-stripes more frequently double, inclosing clay-colored stripes. On the fore limbs the black markings are disposed in irregular rosettes or rounded spots, while in *F. limitis* they tend to form transverse bands. The tail-rings contain irregular areas of russet. The gray ear spot is small, and barely reaches the edge of the ear; and there is no distinctly grayish area bordering the posterior margin of the ear, as there is in *limitis*. The coloration as a whole is more intense.

Skull and teeth.—See measurements.

Measurements.—I have no reliable external measurements of fresh specimens. Skulls—Largest male: Basilar length (Hensel), 122; zygomatic breadth, 91. Largest female: Basilar length, 102; zygomatic breadth, 87. (See table of cranial measurements, p. 249.)

Remarks.—Skins, unaccompanied by skulls, in the collection of the American Museum of Natural History in New York—one from Arizona, one from Sonora, and two from the State of Colima, Mexico (the

latter collected by Dr. Buller)—are of a peculiar pattern and grayish coloration, quite different from either *limitis* or *pardalis*; but, in the absence of skulls, the form can not be differentiated.

FELIS COSTARICENSIS, new species.

COSTA RICAN OCELOT.

Type.—Skull No. 14180, U.S.N.M. Adult male from Talamanca, Costa Rica; collected by William M. Gabb. (The skin, No. 12180, U.S.N.M., seems to have been destroyed.)

General characters.—Size very large. Ground-color decidedly tawny. Black markings extended and very intense. Ear smaller than in *Felis limitis*. Skull narrow, osseous, with a heavy dental armature.

Color.—Pattern similar to that of *Felis pardalis* and *F. limitis*. Coloration like that of *F. pardalis*, but with black markings increased in area and intensity. Neck with median pair of black stripes consolidated, so there are but five longitudinal stripes on upper side of neck. Ears black, with the gray patch extending to margin and measuring 8 by 25 mm. Upper parts with ground-color russet, becoming tawny-olive on the inclosed areas of the spots, and cream-buff between the chains of spots on the sides. A heavy black stripe, 250 mm. in length, occupies the median dorsal area, the row of spots on either side being solidly black, elliptical, measuring about 15 by 20 mm. The lateral-dorsal spots all heavily inclose areas of tawny-olive, except anteriorly, where they are sometimes open (C-shaped), the spots being 20 to 40 mm. in length and half as wide, varying in size and shape within the usual limits. Tail with more black than light; about eleven crossbars of black, encircling the tail more narrowly below than above. A broad collar of black crosses the under side of the head behind the throat, and the pectoral collar is likewise continuous. The under parts are cream-buff, with the usual black spotting, the largest blotches on the chest measuring 25 mm. in greatest diameter. The russet ground-color of the upper parts becomes less intense posteriorly, but much less markedly so than in the Brazilian Ocelot, which also differs in having most of the lateral spots C- or <-shaped, open anteriorly.

Skull and teeth.—Skull narrow, but heavily ossified, with prominent crests and terete, elongate, depressed postorbital processes. The braincase is narrow; dentition heavy.

Measurements (adult female, No. $\frac{1}{4}$ $\frac{2}{11}$ $\frac{1}{8}$, U.S.N.M., from Talamanca, Costa Rica, collected by William M. Gabb; now No. 2853 in the collection of the Philadelphia Academy of Natural Sciences, on which the above description of the color is based).—Length (of skin), 1,050 mm.; tail, 280; hind foot, 162. Skull (largest male): Basilar length (Hensel), 134; zygomatic breadth, 108. Largest female: Basilar length, 112; zygomatic breadth, 92.

Remarks.—This is the largest North American Ocelot. Quite singularly, the smallest of the Jaguars (*Felis centralis*) occurs in the same region. Alston observes:¹ "In Costa Rica, where it is called Manigorda (literally, *fat paws*), Dr. v. Frantzius says that, in spite of its smaller size, it is as much dreaded as the Jaguar."

FELIS CHIBIGOUAZOU Griffith.

BRAZILIAN OCELOT.

1827. *Felis ocelot* SMITH, Griffith's Animal Kingdom, II, p. 475. (Part; as to Ocelot No. 1.)

1827. *Felis chibigouazou* GRIFFITH, Animal Kingdom, V, p. 167, No. 431.

1828. *Felis brasiliensis* FR. CUVIER, Hist. Nat. Mamm., July, 1828, pl. LVIII (not *Felis brasiliensis* Schinz, 1821).

1832. *Felis armillatus* FR. CUVIER, Hist. Nat. Mamm., II, January, 1832, pl. CXXXII.

Type locality.—South America.

Geographic distribution.—Brazil and northeastern South America.

General characters.—Size medium. Coloration pale; ground-color fulvous anteriorly, grayish posteriorly. The skull most resembles that of *Felis pardalis* Linnaeus.

Color.—Pattern as in the preceding species, but with the black markings everywhere restricted. Ground-color tawny anteriorly, fading to grayish posteriorly, or light clay color in the black-bordered spots, which are usually open anteriorly. The ground-color within the black-bordered chains of spots is decidedly darker than that between them; and a similar contrast is afforded by the coloration of the anterior and posterior portions of the upper parts of the animal. The tail is very irregularly spotted with black above, with only about three distinct subterminal rings.

Skull and teeth.—The skull and braincase are narrow, the teeth large, and the audital bullæ elongate. (See table of cranial measurements.)

Measurements.—Adult male (skin): Length, 1,150 mm.; tail vertebrae, 340; length of hind foot, 160; ear above crown, 50. Skull (adult male): Basilar length, 125; zygomatic breadth, 100. Largest female: Basilar length, 105; zygomatic breadth, 93.

Remarks.—In the South American Ocelots the gray patch on the back of the ear is usually surrounded by black, narrowly at edge of ear; but in North American Ocelots the gray spot usually extends to the margin of the ear, in *F. limitis* often cutting off the posterior horn of the black crescent.

FELIS ÆQUATORIALIS, new species.

ECUADOR OCELOT; TIGRILLO.

Type.—No. 113267, U.S.N.M. Adult female, collected at Paramba, northern Ecuador (altitude 3,500 feet), November 2, 1899, by G. Fleming. (Original number, 22.)

¹ Biologia Centrali-Americana, Mammalia, 1879-1882, p. 60.

General characters.—Size very large. Ground-color tawny-rufous. Spots of upper parts all black, not inclosing lighter areas. Postorbital breadth of skull greater than length of nasals.

Color.—The type (November) is heavily marked with black on a ground of tawny above and smoke gray below. Upper parts tawny, tinged with rufous, of almost uniform intensity. Black pattern similar to that of *Felis pardalis* Linnaeus, except for its greater intensity. The black markings only inclose light areas upon the sides, where the inclosed areas are much smaller and very much less elongated, bearing, in fact, a close resemblance to the pattern of *Felis onca*. Upper side of neck with six longitudinal stripes, beginning between the ears and ending in front of the shoulders. The stripes forming the middle pair are nearly parallel, about 4 mm. wide and 5 to 10 mm. apart; those of the next pair begin 20 mm. apart and (in the skin) end 55 mm. apart, having a width of 5 mm. anteriorly and about 15 posteriorly. The outer stripes begin 10 mm. internal to the ear, pass downward and outward to the median outer side of the neck, having a pretty uniform width of about 5 mm., except where narrowly bifurcating posteriorly. Four irregular rows of solid, glossy-black spots extend from the shoulders to the hips; these are mostly elongate, from 5 to 15 mm. in width and 10 to 60 mm. in length. The oblique area of light bordered with black between hips and shoulders, and the transverse black stripes at the shoulders (characteristic of *Felis pardalis*) are not plainly indicated, but, instead, are broken up into spots which even form rosettes. On the outer faces of the fore and hind limbs the tawny color becomes slightly paler, and grayish on the feet. On the fore limbs the black spots are rounded, and decrease from above downward, ranging from 3 to 18 mm. in diameter; the same being the case on the hind limbs, where the spots vary from 3 to 25 mm. in diameter. The tail is reddish tawny above, irregularly spotted with black on basal three-fifths, with five transverse subterminal black bands on last two-fifths, the last three forming continuous rings around the tail. The widest tail-ring is 40 mm. in width. Inner surface of ear light tawny; outer surface black, inclosing a rectangular gray spot measuring 13 by 18 mm. Top of head with two parallel, black, longitudinal stripes, about 5 mm. in width and 40 mm. apart, extending from above the inner canthus of the eye to opposite the front of the ears. Space between the stripes, and between the ears, spotted with black; in all about forty spots, varying from 3 to 10 mm. in greatest diameter. Side of head with two heavy black stripes, each about 7 mm. in width, the upper beginning at the outer canthus of the eye, the inner midway between the last point and the margin of the upper lip, these two ending separately at side of neck below and behind ear. The large triangular space between the black crown-stripe and the upper lateral stripe is unspotted. On either side of underpart of the neck is a black spot,

shaped like a riding boot with the heel pointed toward the end of the lower jaw, the toes separated by a space of 30 mm. in the median line. Chin and throat buffy-white. Side of neck with a longitudinal black stripe 70 mm. in length and 10 mm. in width. Under surfaces and inner sides of limbs smoke gray. There is a very faint buffy-gray pectoral collar, interruptedly bordered with black anteriorly. Underparts spotted with black, sparingly on neck, axillae, and hollows of thighs; most thickly and heavily blotched with black on chest, where the spots vary in size from small dots to blotches 40 mm. in diameter. Underside of tail grayish buff, irregularly cross-banded with black; tipped slightly with gray. Eye-ring and crescentic area at either side of nose, black. Whiskers mixed black and white. Five transverse lines of black spots border the lip on each side of the nasal pad. Muzzle above, plain tawny.

Skull and teeth.—This species and *Felis limitis* have the braincase unusually broad. *Limitis* is at once distinguished by small size (less than 115 mm. in basilar length). The measurements of the type and only specimen are given in the appended table of cranial measurements.

Measurements of type (adult female).—Head and body, 725 mm.; tail, 366; hind foot, 150; ear from crown, 55.¹ Skull: basilar length, 113; zygomatic breadth, 95.

Remarks.—The coat is fuller and softer than that of *Felis pardalis* or *F. limitis*; and it also differs from them in lacking a complete black pectoral collar and transverse black band back of the throat.

Note.—In conclusion I must express my obligation to Mr. Outram Bangs, curator of mammals at the Museum of Comparative Zoology at Cambridge, Mass., for the generous offer of the Ocelots at his disposal, including a number collected at his personal expense in Central and South America. Unfortunately this highly important material was not available until the assembled specimens had been returned to the several museums, and I was preparing for a new military station in the West.

¹The preceding measurements were taken fresh by the collector.

Comparative cranial measurements of five species of Ocelot Cats.

Parts.	<i>Felis limitis</i> Mearns.										<i>Felis costaricensis</i> , new species.										Male of <i>Felis chibiquensis</i> Grif. Amneric.	Female, type of <i>Felis agouti</i> - <i>alis</i> , sp. nov., No. 113567, Panama, Ecuador, South America.
	Male, No. 8388, Fort Ring-Texas.	Male (?), No. 1357, Matamoros, Tamaulipas, Mexico.	Male, No. 1359, Matamoros, Tamaulipas, Mexico.	Female (?), No. 1362, Matamoros, Tamaulipas, Mexico.	Female (?), No. 1361, Matamoros, Tamaulipas, Mexico.	Male, No. 2233, Mirador, Mexico.	Female, No. 112812, Tehuantepec, Mexico.	Male, type of <i>Felis costaricensis</i> , No. 141223, Talamancas, Costa Rica.	Male, No. 141223, Talamancas, Costa Rica.	Male, No. 141223, Talamancas, Costa Rica.	Female, No. 141223, Talamancas, Costa Rica.	Female, No. 11854, Talamancas, Costa Rica.	Male, No. 15966, Costa Rica (Pacific side).	Male, No. 11743, Isthmus of Darien.	Male (?), No. 6023, Isthmus of Panama.	Male of <i>Felis chibiquensis</i> Grif. Amneric.						
Basilar length (Hensel).....	114	107	111	103	108	122	107	134	128	127	117	112	124	117	125	113						
Zygomatic breadth.....	93	86	90	86	87	91	87	108	99	96	92	92	97	97	100	95						
Least postorbital breadth.....	25	25	24	23	25	25	22	33	30	29	27	23	29	30	25	27						
Least postorbital breadth.....	27	30	33	31	35	26.5	22	33	30	32	30	29	32	29	31.5	39						
Breadth of brain case above auditory meatus.....	54	52	54	50	54	54	51	56	55	53	53	51	53	56	54	57						
Length of auditory bulla.....	26	26	24	23.7	22.5	27	24	29	28	28	26	24	27	24	29	26						
Width of auditory bulla.....	17	17.8	15.2	15.5	14.5	16	14.3	16.3	17	16.7	16	15.7	16	14.6	18	15						
Palate, length from hensenion to posterior edge, excluding median notch.....	51	47	45	44	48	54	46	58	52	47	50	46	53	55	56	51						
Breadth between outer corners of carnassials.....	51	49	47	47	50	54	49	58	53	53	52	49	54	53	54	53						
Width of posterior nasal fossa.....	14.6	17	18	16	17.5	15.7	13	16	15.5	13	17	12.2	15	14.3	13.5	14.5						
Front of canine to back of carnassial, measured on alveoli.....	40	37.5	36	35.5	37	43.5	40	47	44	44	40	39	41	45	41	43						
Upper premolar series (alveoli).....	28	27.5	27	27	27	30	27.7	31	31	31.6	29	27	29	32.5	28	31						
Upper incisor series (alveoli).....	15	14	13.5	13.5	14	17	13.5	17	16	16	15.5	14.4	16	14.4	15.7	15.5						
Length of upper carnassial (crown).....	15.8	15	15	14.5	15	16.7	15.2	17	17	17	15.5	15	16	16	16.2	17.5						
Length of lower carnassial (crown).....	7.8	8	7.7	7	7.2	8.3	7	9.3	8.7	8	7	7.5	8	9	8	8						
Width of crown of middle upper premolar.....	10	9	9.3	9.2	9	11	9.8	11	11	10.3	10	9.7	10	11.3	10	10.8						
Width of crown of middle upper premolar.....	5	5.3	4.6	5.3	4.8	6.4	5	6.5	6	6	6	5.2	6	7	5.5	6						
Length of lower lateral tooth row (alveoli).....	45	41	43.5	41.5	41	50	44	53	51	50	47	44	48	51	46	50.5						
Length of crown of lower carnassial.....	11	11	11	11	10.6	12.4	11.8	12	12	13	12	11	12	13	12	12						
Width of crown of lower carnassial.....	4.8	5	4.3	5.1	5.3	6	5.5	6.5	6.2	6	5.5	5	5.7	6.2	5.8	6						