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Adult male



Adult female

SKULLS OF *DINOMYS BRANICKII* FROM PERU

About two-thirds natural size

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NOTES ON DINOMYS

BY

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NOTES ON DINOMYS

BY COLIN CAMPBELL SANBORN

The genus *Dinomys* with one species, *D. branickii*, was described by Peters in 1873 from a specimen collected by Jelski in the Montana de Vitoc, Colonia Amable Maria, in the Andes of central Peru. Since then, about fifteen other specimens of the genus have been recorded from Ecuador, Colombia, and the upper Rio Purus in Brazil, but no others from Peru. This material has been the basis for the descriptions of three new species, all characterized by skin differences.

Field Museum has a series of twenty-four specimens secured by Mr. Edmund Heller on the Marshall Field Peruvian Expedition of 1922-23. The majority of these are from the haciendas Buena Vista and Vista Alegre on the Rio Chinchao, and from Pozuzo—points a short distance north of the type locality. One was bought in Manaos, Brazil. All the specimens were purchased from natives, so very few are perfect in every detail. The series consists of four skins with skulls, five skins only, and fifteen skulls only.

Of the nine skins in the series but one is complete; two have heads, feet, and part of the tail; four have heads but no tails or feet; and two have no heads, tails, or feet. Four are sexed as males and two as females. Six of the skins are black and three are brown, one of the latter being the one purchased in Manaos. One of the brown skins is sexed as a male.

The skins differ mainly in the number of white and half white hairs. In some cases the sides are very white and the four dorsal lines heavy and almost continuous, while in others the white hairs are very scattered and the dorsal lines are narrow and broken. Apparently the older the animal, the more white and the heavier and more complete the dorsal lines. In all the specimens the two outer lines are heavier and longer. In some the inner pair start from three to ten inches farther down the back than the outer pair. The only complete skin has a head and body of 730 mm. and a tail of 190 mm. The head and body measurements on the other skins range from 730 to 790 mm.

Of the nineteen skulls, two are so badly broken as to be of little use. The other seventeen fall into three age groups: four males and

two females, very old, the basioccipital, basisphenoid, and presphenoid bones being fully ankylosed; two males and five females, subadult, the basisphenoid-presphenoid suture being still open; four in various stages of immaturity. Of these, but seven have mandibles.

The type skull illustrated by Peters is subadult, as the basioccipital, basisphenoid, and presphenoid sutures are still open. This young male skull is nearly the same size as the old female measured by Preller and the old female (type of *occidentalis*) measured by Lönnberg. It is plain then, if a young male is the same size as an old female, that when a male is fully adult it will be much larger than a female and it is on this basis that I have sexed the skulls in the series before me.

The nasal bones show more individual variation than any other part of the skull. In the two of four old males in which these bones are present, they measure 52.2 x 31.8 and 50 x 28 mm. respectively. In another specimen the estimated width is 27.5 mm. In the two old females the nasals measure 49.3 x 26.8 and 42 x 22.3 mm. The subadult specimens show about the same variation. The general form of the nasals is the same in all the specimens; they broaden anteriorly for about half their length and then narrow posteriorly where the ends form a concave, parallel, or, sometimes, a convex line. The concave formation seems to be the most common. The broadest part of the nasals is always in the region of a pair of small nasal foramina on the sides of the nasals, which appear in all the eleven specimens which have these bones.

In all the females the lateral edges of the frontals are nearly parallel. In the males the frontals are expanded anteriorly and contracted posteriorly, the edges are roughened, and there is a short postorbital process, much more developed in some than in others.

In the parietals the skulls again show an individual variation which can not be attributed to age. In all, the parietals begin to expand just back of their anterior margin and to contract just forward of their posterior margin. In some this forms two converging lines, but in others the expansion and contraction is carried so far as to form two wide curves, the left hand side almost forming the letter "S." The curves are more uniform in the females and reach their greatest development in the old males. In a subadult male they are hardly noticeable while in a very young skull they are highly developed.

The jugal bones in all the skulls vary greatly in width, especially anteriorly. The size of the lachrymal bone is not constant either

and in one skull the top of the jugal almost touches the lower end of the lachrymal. The width of the maxilla between the jugal and lachrymal is also variable. In the six male skulls it ranges from 5 to 8.5 mm. This width does not seem to be governed by the size of the jugal or lachrymal. The female skulls show the same variation in these bones.

In other parts the skulls are fairly uniform. The skull of an old female is slightly abnormal, due, perhaps, to a birth injury. A view of the palatal aspect seen from above shows the palate swinging to the right, one bulla sunken, and in other parts the skull decidedly off center. The type skull of *branickii* has an abnormality shown by the Wormian bone between the parietals and the frontals. In a subadult female in this series, the suture between the parietals and frontals, instead of being a straight or gently curved line, has a very marked concavity, some 5 mm. deep in its center, which might indicate a possible tendency toward a Wormian formation.

The first specimens of *Dinomys* captured since the discovery of the type, came from the upper Rio Purus in Brazil and were sent to Goeldi at Para. These were a live adult female and a young male, brown in color, which Goeldi identified as *branickii* (Goeldi, 1904). A description of the skulls of these two specimens was published with photographs of them a few years later (Preller, 1907).

In 1919 Ribeiro described *Dinomys pacarana* from Brazil, which differed from *branickii* in being brown instead of black. At that time Peters' type was the only black specimen known but since then both colors have been found in animals from the same region. Lönnberg had a black male and a brown female from Ecuador and both colors are represented in the Field Museum series. The type of *pacarana*, which is a subadult male, has a head and body of 630 mm. and a tail of 140 mm. The type "procedente do Amazonas" probably came from the Rio Purus region.

Dinomys branickii occidentalis was described from near Gualea, Ecuador, by Lönnberg in 1921. It was said to differ from *branickii* in having a shorter tail, which was but 27.5 per cent of the head and body as opposed to 37.6 per cent in *branickii*. The author stated that this might be individual variation and it would appear that it is as the tail of the complete skin in the Field Museum series is 26 per cent of the head and body and the tail of the type of *pacarana* is only 22.2 per cent. There were no skull characters given and in size the skull is the same as *branickii*. The skin and skull of a subadult topotype show no differences from the Peruvian series.

In the same year Anthony described *D. gigas* from La Candela, Huila, Colombia, from a flat native skin without skull. This skin, which was stated to be stretched, had a head and body of 750 mm. and was supposed to be twice the size of either *branickii* or *occidentalis*. The Field Museum series of *branickii* contains specimens of this size and larger. The other character attributed to *gigas* is found in the four dorsal stripes which are continuous and not broken as in other known specimens. One specimen from Peru closely approaches the type of *gigas* as the dorsal lines have but two very slight breaks in them due to wear. The examination of the type of *gigas* shows it to be a very large, fully pelaged, and unworn specimen which accounts for the continuous lines.

In 1923 Niceforo described a specimen from the Sierra Santa Elena, near Medellin, Colombia, in which the spots and lines were clear yellow instead of white. A young specimen born in the New York Zoological Gardens has the spots and lines a brownish yellow, and in another specimen, which is a little older, they are a dirty white. The measurements which Niceforo gives for the skull agree closely with those of a very young skull in the Peruvian series. The dorsal lines in this Colombian specimen are broken and not continuous as in the type of *gigas*.

The series of undoubted *branickii* thus shows variations largely covering the characters assigned to other named forms. Brown color, short tail, size, and unbroken dorsal lines are seen to have no value as racial characters. The chance that more material from Colombia will show any stronger characters for *D. gigas*, in view of the great individual variation in the Peruvian series, seems to me very slight.

The status of the forms of *Dinomys* may be summarized as follows:

***Dinomys branickii* Peters.**

Dinomys branickii Peters, Monatsber. Akad. Wiss. Berlin, pp. 551-552, 1873; Festschr. Gesellsch. naturf. Fr. Berlin, pp. 227-234, pls. 1-4, 1873—Colonia Amable Maria, Montana de Vitoc, Andes of central Peru.

Dinomys pacarana Ribeiro, Archivos de Escola Superior de Agricultura e Medicina Veterinaria, 2, pp. 13-15, 1919—Amazonas, Brazil.

Dinomys branickii occidentalis Lönnberg, Arkiv. för Zoologi, 14, pp. 49-53, 1921—Gualea, Ecuador.

Dinomys gigas Anthony, Amer. Mus. Novit., No. 19, pp. 6-7, 1921—La Candela, Huila, Colombia.

Dinomys sp., Niceforo, Bol. Soc. Colombiana Cien. Nat., pp. 317-320, 1923—Sierra Santa Elena, Colombia.

Range.—Andes Mountains from central Colombia through Ecuador to central Peru, and east to the Rio Purus region of Brazil.

I wish to thank Mr. H. E. Anthony for the loan of the American Museum material, including the type of *gigas* and a topotype of *occidentalis*, and also for the description of Niceforo's specimen which Mr. Anthony copied for me.

Mr. Heller kindly sent me the history of the specimens which he collected and some notes on the habits of the animal, which are as follows:

"The natives in the Huallaga River headwaters such as the coca haciendas of Buena Vista and Vista Alegre have the unusual habit of saving the skulls of all their larger game animals. The skulls I obtained from the cabins or huts where the hunters lived. The skulls are kept together in long strings tied to the ceiling over a smoky fire to keep the blow-flies away. The skulls often are as black as if they came from the La Brea tar pits of California. The hunters from whom I secured the skulls were in some cases Indians who worked on the haciendas and in other cases they were Mestizos from the highlands who had worked in the coca fields of the montana. They all believed that it was good luck to keep the skulls of their game as this custom was sure to cast a favorable spell over them and make it much easier to secure more game of the same sort in their future hunting trips.

"*Dinomys* (Terrible Mouse) is not a fighter but merely fights as a last resort to save its life. It is slow in motion and can not turn about quickly, therefore it has no rear protection from alert foes like ocelots, tayras, coatis, etc. It therefore lives in rocky cliffs, or holes in the ground by preference, where it can back up and secure rear protection. With its large teeth it can fight any ordinary enemy. Dogs are used to trail *Dinomys* I believe. Although I spent several months in *Dinomys* territory and was taken by local guides to cliffs where *Dinomys* had been secured, I never met one of these rare rodents nor did I ever find a burrow or little cave where they had recently lived.

"My pet *Dinomys* followed me closely everywhere I went and at night slept under my bed. She had a firm belief that her safety lay in keeping at my heels. She had no home feeling for any cabin we occupied. When alone she was always worried and full of fear apparently."

This pet was brought home by Mr. Heller and placed in a Chicago zoo, but on its death was not preserved.

MEASUREMENTS OF DINOMYS SKULLS IN FIELD MUSEUM OF NATURAL HISTORY

Field Museum Number	Age	Sex	Greatest length	Condylto-basal length	Length of palate	Length of nasals	Breadth of nasals	Length of frontals	Length of parietals	Breadth across rostrum	Interorbital breadth	Zygomatic breadth	Length of mandible	Coronoid height of mandible	Upper tooth row, alveolar length	Crown of first m.
24284	adult	M	153.8	140.0	46.7	50.0	28.0	60.0	46.6	34.5	46.8	90.0	109.0*	53.3	38.0	7.4
24282	adult	M	151.0*	—	45.9	—	28.3	57.4	—	35.0*	49.0	92.0	—	—	35.4	6.9
34407	adult	M	154.0*	—	48.0	—	27.5	56.7	48.0	35.7	44.3	91.5	111.0	52.4	34.3	6.7
34404	adult	M	153.3	139.5	46.0	52.2	31.8	54.0	46.5	38.8	45.8	—	—	—	34.0	7.0
34403	adult	F	144.7	129.7	44.0	49.3	26.8	50.6	46.0	38.7	46.0	—	—	—	31.7	6.4
34702	adult	F	138.0	122.0*	43.3	42.0	22.3	48.1	45.8	38.0	38.0	—	—	—	33.0	6.0
34283	sub-ad	M	151.6	137.4	44.0	53.0	26.4	56.4	44.0	32.6	45.6	90.5	109.0	54.3	36.0	7.0
34415	sub-ad	M	149.0	139.3	46.0	—	27.3	53.0	44.0	32.0	45.5	89.4	—	—	34.0	—
34416	sub-ad	F	141.7	125.0*	40.0	—	22.8	51.0	48.3	29.3	39.7	81.3	—	—	31.8	6.0
34409	sub-ad	F	141.2	124.7	42.8	45.8	24.1	50.0	47.7	28.5	39.7	80.5	—	—	35.6	6.4
34411	sub-ad	F	139.0	122.0*	40.8	44.0	24.8	46.0	44.4	28.0	38.6	85.0	102.2	45.2	34.6	6.5
34414	sub-ad	F	133.0	122.3	41.0	49.0	26.3	43.5	42.7	29.7	44.0	88.4	100.5	41.6	31.0	6.9
34417	sub-ad	F	133.4	—	40.0	44.4	23.3	44.7	49.2	28.6	41.0	—	—	—	30.6	6.5
34410	immature	F	130.0	118.5	37.6	43.0	21.4	47.8	43.5	27.2	35.9	77.7	—	—	28.8	6.0
34405	immature	F	115.7	105.4	35.8	—	18.3	39.0	41.2	22.9	33.0	64.2	84.3	38.8	26.4	—
34412	immature	F	109.0	—	31.6	—	19.0	40.4	41.6	21.6	31.4	67.8	—	—	26.5	—
34413	immature	F	104.5	—	28.8	30.0*	—	36.7	40.0	—	—	—	—	—	26.3	—

*Measurements marked with an asterisk are approximate.

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