New records of *Uroderma magnirostrum* Davis (Mammalia, Chiroptera) from southeastern Brazil, with comments on its natural history

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ABSTRACT. *Uroderma magnirostrum* Davis, 1968 is reported from four new localities in southeastern Brazil, significantly extending its geographical distribution south and westward. A total of 12 adult specimens collected in areas of Caatinga and Atlantic Forest in the states of Minas Gerais, Espírito Santo, and Rio de Janeiro, including specimens from the new localities and museum specimens were examined. Females from southeastern Brazil were larger than males in all external measurements analyzed, but after univariate statistical analyses using corrected p values for multiple tests no significant sexual dimorphism was detected. Mean values obtained from this sample fall within the known range documented for the species in both external and cranial measurements, and are similar to those found in specimens from north and northeastern Brazil. The habitats of the new localities of *U. magnirostrum* in southeastern Brazil ranged from pristine and secondary forests to a small urban park. *Uroderma magnirostrum* is apparently a rare species in southeast Brazil, which corroborates most previous reports of populations of this bat at other localities.

KEY WORDS. Stenodermatinae, distribution, habits, morphological measurement analysis.

Uroderma magnirostrum Davis, 1968 is a medium-sized stenodermatine bat that occurs from Mexico to the southeast coastal Brazil (Koopman 1993, Peracchi & Albuquerque 1993). Although widely distributed, this bat seems to be locally rare (Willig 1983, Ochoa *et al*. 1988, Woodman *et al*. 1991, Aguirre *et al*. 1996, Kalko *et al*. 1996, Lim & Engstrom 2001) and little is known about its biology. *Uroderma magnirostrum* is often associated with humid lowland areas and seems to exhibit some plasticity in its environmental tolerances, occurring in yards, pastures, orchards, and croplands (Handley 1976). Although Handley (1976) captured *U. magnirostrum* in elevations ranging from 1 to 1,140 m in Venezuela, most of the captures occurred below 500 m of altitude. *Uroderma magnirostrum* is recognized as a tent-making bat species, roosting under modified palm leaves (Timm 1987, Kunz & Lumsden 2003). According to Gardner (1977), this bat is primarily frugivorous, a feeding habit that has been corroborated by the scarce data subsequently obtained (Reis & Peracchi 1987, Ascorra & Wilson 1992, Ascorra *et al*. 1996, Muñoz-Saba *et al*. 1997).

Most records of *U. magnirostrum* in Brazil are from localities within the Amazonian Forest biome (Davis 1968, Reis & Schubart 1979, Taddei & Reis 1980, Peracchi *et al*. 1984, Marques 1985, Reis & Peracchi 1987, Taddei *et al*. 1990, Voss & Emmons 1996, Nogueira *et al*. 1999, Bernard 2001, Bernard & Fenton 2002). Few additional records are known from localities in the Cerrado biome (Pine *et al*. 1970), Caatinga (Mares *et al*. 1981, Willig & Mares 1989), and Atlantic Forest (Peracchi & Albuquerque 1993). Specimens captured by Peracchi & Albuquerque (1993) in the state of Espírito Santo, in the north part of the Brazilian southeastern, represent the southernmost record of *U. magnirostrum* registered to date.

Here new records of *U. magnirostrum* in areas of Caatinga and Atlantic Forest in southeastern Brazil are reported, and the known range of the species is extended south and westward. New information on the biology of the species, along with mensural data and a discussion of characters that allow for the correct identification of *U. magnirostrum* are also provided.

MATERIAL AND METHODS

All specimens of *U. magnirostrum* reported here were captured with ground-level mist-nets and are deposited in the following institutions: the Adriano Lúcio Peracchi collection (ALP) at the Instituto de Biologia, Universidade Federal Rural do Rio de Janeiro, state of Rio de Janeiro, and the Laboratory of Chiropterology, in the Universidade para o Desenvolvimento do

Estado e da Região do Pantanal (UNIDERP), Campo Grande, state of Mato Grosso do Sul. In addition to the material from new localities, specimens from the series reported by Peracchi & Albuquerque (1993) and from Acre state, northern Brazil, were also examined. Only adult specimens (with phalangeal epiphyses and basisphenoid region completely ossified) were included in the analyzes. Measurements were taken with calipers precise to 0.05 mm and generally following the protocol described by Taddei & Uieda (2001). The exceptions were that greatest skull length and mandibular length were measured not including the incisors, and that tibia length (from the proximal end of the tibia to the posterior base of the calcar) was included in the list of measurements. Secondary sexual dimorphism for *U. magnirostrum* in southeastern Brazil was tested using independent *t*-tests with sequential Bonferroni correction for multiple comparisons (Rice 1989). To minimize the loss of power associated to this correction, the experiment-wise error rate was stated at 10% as suggested by Chandler (1995). This procedure led to an initial alfa value of 0.006 (0.10/16 variables). Prior to *t*-tests, all variables were examined for homogeneity of variances by Levene tests. When this assumption was not met (*e.g.*, greatest skull length), a *t*-test with separate variance estimates was applied. Statistical analyses were performed using the program STATISTICA 5.0 for Windows (StatSoft 1995).

Abbreviations used in tables are as follows: forearm length (FA), tibia length (TIL), third metacarpal length (MEIII), fourth metacarpal length (MEIV), fifth metacarpal length (MEV), greatest length of skull (GLS), condylocanine length (CCL), postorbital breath (POB), zygomatic breath (ZYG), braincase breath (BCB), mastoid breath (MTB), mandibular length (MBL), maxillary toothrow length (MTL), mandibular toothrow length (MNT), breath across molars (BAM), breath across canines (BAC).

Specimens examined (9 males, 5 females): Acre: Taumaturgo, Parque Nacional da Serra do Divisor, Igarapé Paratari (ALP 7179); Rodrigues Alves, Igarapé Grande (ALP 7340); Minas Gerais: Jaíba (ALP 6831, 6833, 6834); Marliéria, Parque Estadual do Rio Doce (UNIDERP uncataloged); Espírito Santo: Linhares, Mata dos Goitacazes (ALP 1648, 2149, 2807, 3012); Linhares, Reserva Florestal da Companhia Vale do Rio Doce (ALP 3942); Rio de Janeiro: Rio de Janeiro, Jardim Botânico do Rio de Janeiro (ALP 8163); Rio de Janeiro, Parque Arruda Câmara (ALP 6029, 6033).

RESULTS

Four new localities were recorded for *U. magnirostrum* in southeastern Brazil (Fig. 1). Four individuals were captured by the first author (MRN) in a limestone outcrop known as "Morro Solto" (*ca*. 15°15'S, 43°51'W; *ca*. 510 m elevation), in the municipality of Jaíba, in the extreme northern part of Minas Gerais state and the southern limit of the Caatinga biome. Crevices and cavities are abundant at this site, which is also characterized by the presence of a hyper-xerophytic caatinga formation and some mesophytic plants such as *Cecropia* Loefling (Cecropiaceae) and *Ficus* Linnaeus (Moraceae). Two adult males of *U. magnirostrum* were captured in April 6th, 1994 and two additional specimens, an adult male (left testis 5 x 3.9 mm) and a lactating female, were captured in the following night at 1930 and 2015 hours, respectively. Local relative frequency of *U. magnirostrum* in the sample from Morro Solto was 2% (four individuals in a sample of 210 bats).

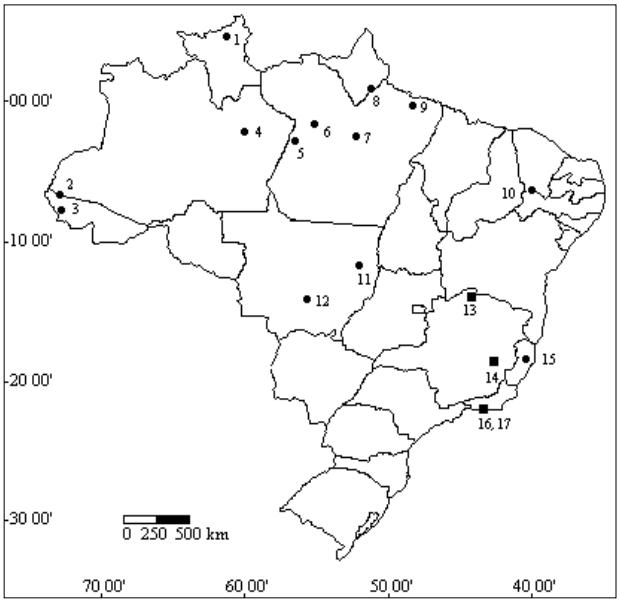

Figure 1. Locality records for *Uroderma magnirostrum* in the Brazilian territory. Squares represent new localities. (1) Maracá, (2) Cruzeiro do Sul, (3) Parque Nacional da Serra do Divisor, (4) Manaus, (5 Parque Nacional da Amazônia, (6) Boim, (7) Lower Rio Xingu, (8) Macapá, (9) Belém, (10) Chapada do Araripe, (11) Xavantina, (12) Chapada dos Guimarães, (13) Jaíba, (14) Parque Estadual do Rio Doce, (15) Linhares, (16) Parque Arruda Câmara, (17) Jardim Botânico do Rio de Janeiro.

In eastern Minas Gerais state, municipality of Marliéria, the second author (VT) captured a single individual of *U. magnirostrum* in the Parque Estadual do Rio Doce (19°29' and 19°48'S, 42°28'W; 230 to 515 m elevation). This is the largest preserved area of Atlantic Forest in Minas Gerais (*ca*. 36,000 ha) and one of the largest in the Brazilian southeast. The specimen was a pregnant female weighing 23 grams, captured in October 1st, 1997 in a trail inside the area known as "Campolina", which is the most preserved tract of forest within the Parque. *Uroderma magnirostrum* represented 1.8% of the 54 bats captured at the Campolina area and 0.6% of the total of 179 bats recorded in the Parque Estadual do Rio Doce.

The two additional records of *U. magnirostrum* were from the mid-southern part of the state of Rio de Janeiro, in the municipality of Rio de Janeiro. At 2300 h on August 17th, 1998, the first author (MRN) captured a single specimen at the Jardim Botânico do Rio de Janeiro (22°58'14"S, 43°13'18"W; 3 m elevation). This adult male (left testis 3.6 x 3.3 mm) weighed 14 g and was netted in the border of a secondary Atlantic Forest that is contiguous with the arboretum of Jardim Botânico and that extends westward into the Parque Nacional da Tijuca (3,300 ha), the largest urban natural park in the world. A seed of *Ficus* sp. was found in the fecal sample of this specimen that accounted for only 0.04% of the captures at this site (1 individual in a sample of 2,407 bats).

The Parque Arruda Câmara (22°59'48"S, 43°22'37"W; 12 m elevation) is a 50 ha area 16 km apart from the Jardim

Botânico do Rio de Janeiro and covered mainly by restinga vegetation. The lowland region ("Baixada de Jacarepaguá") where this park is located has a long history of intense human disturbance and is currently composed mostly by urban areas and anthropic fields (grasslands). The two specimens available from this site, an adult male and an adult female, were collected by Adriana M. Marques in April 1999 and May 1999, respectively. The records from Parque Estadual do Rio Doce and Parque Arruda Câmara extend the previous southernmost record of *U. magnirostrum* (Linhares, Espírito Santo state) 257 km westward and 525 km southward, respectively (Fig. 1). *Uroderma magnirostrum* has not been recorded in the states of Minas Gerais and Rio de Janeiro prior to our study.

Mensural data from 12 specimens of *U. magnirostrum* from southeastern Brazil, including measurements of seven specimens from the new localities are summarized in table I. Females averaged larger than males in all five external measurements analyzed but the opposite was found in 10 of the 12 skull variables. After the sequential Bonferroni correction, however, none of the measurements were significantly dimorphic. Mean values of external and cranial measurements reported here for *U. magnirostrum* from southeastern Brazil are also similar to the values for specimens from northern and northeastern Brazil and fall within the known range documented for the species (Tab. II). Individual measurements of some specimens fall out of this range, but the extent of this variation seems to be small, ranging from 0.15 (MNT) to 0.35 mm (MXT) in males, and reaching 0.4 mm in females (BC).

DISCUSSION

Regarding discrete diagnostic features, specimens of *U. magnirostrum* from southeastern Brazil followed the general pattern described from northern South American populations in: pale or yellowish-brown to grayish brown pelage, facial and malar white stripes poorly developed or absent, presence of a faint dorsal stripe (from neck to rump), and ear pinna concolor or with a whitish edging. These characters sharply contrast with that observed in *Uroderma bilobatum* Peters, 1866, the congeneric species that is found in sympatry with *U. magnirostrum* in Southeastern Brazil. In *U. bilobatum* the dorsal stripe and both upper and lower facial stripes are bright white, and the ear pinna presents a well-defined yellowish or whitish edge (Davis 1968, Reid 1997). Three other discrete characters identified by Davis (1968) proved to be useful to distinguish *U. magnirostrum* from *U. bilobatum*. The rostral profile in the former species gently slopes from the anterior portion of the braincase (forehead) to the anterior facial premaxillae, the rostrum is robust, deep and heavy, and the mesethmoid is laterally expanded, assuming a shield-like appearance. In contrast, the rostral profile in *U. bilobatum* is disrupted by the angle formed by the forehead and the rostral bones, anterior facial maxilla and premaxillae are depressed in frontal view, and the mesethmoid is narrow.

Little is known on the biology of *U. magnirostrum*, and information on food preferences, habitat use, and reproduction of this bat are scanty in the literature. Gardner (1977) reported that several individuals captured in Peru were dusted with pollen, suggesting a previous feeding on flower products. In Peru this bat is known to feed on the fruits of *Ficus* (Ascorra *et al*. 1996), as reported here for southeastern Brazil, as well as *Photomorphe peltata* Miq. (Piperaceae) (Ascorra & Wilson 1992). Reis & Peracchi (1987) found seeds of *Cecropia palmata* Willd. in the feces of a single specimen from the Brazilian Amazon. From a collection of nine specimens from the Serranía La Macarena, Colombia, Muñoz-Saba *et al*. (1997) reported for *U. magnirostrum* a diet composed 78% by fruits, 11% by nectar and pollen, and 11% by insects. Regarding the first food item, these authors also mentioned that fruits of diversified species were consumed by *U. magnirostrum*, suggesting some flexibility in the use of this resource.

The presence of *U. magnirostrum* in both pristine and disturbed areas in southeastern Brazil corroborates previous data suggesting relative plasticity in environmental tolerances for this bat (Handley 1976). The use of disturbed areas by *U. magnirostrum* may be correlated with feeding on plants that are gap specialists (*e.g*. *Cecropia* spp.). Reis & Peracchi (1987) captured this bat in a very disturbed secondary forest in the Brazilian Amazon, and Reis (pers. comm.) associated this fact with the use of *Cecropia* fruits and the abundance of this tree in his study site. Species of *Cecropia*, however, are known to occur at all new sites from which *U. magnirostrum* is reported, including the well-preserved Campolina area and the Morro Solto outcrop. Also in these areas, therefore, *Cecropia* may prove to be an important food resource for *U. magnirostrum*. Fruits of *Cecropia* are widely used by fruit-eating bats (Orozco-Segovia & Vásquez-Yanes 1982, Charles-Dominique 1986, Zórtea & Chiarello 1994, Romo 1996, Passos *et al*. 2003) and have shown to be a core resource for these mammals in certain areas (Fleming 1986).

Uroderma magnirostrum has generally been considered a rare species (Willig 1983, Kalko *et al*. 1996), a conclusion also supported by the data from southeastern Brazil. In Serranía La Macarena (Colombia), however, this bat was shown to be relatively more abundant, at least during part of the year (Muñoz-Saba *et al*. 1997). Although no specimen was captured in the rainy season or during the transitional period to the dry season, the relative frequency of capture of *U. magnirostrum* achieved 7% (2 bats in a sample of 27) in the dry season and 12% (9 in 76) in the beginning of the rainy season. Muñoz-Saba *et al*. (1997) suggested that this fluctuation in the relative frequency of capture of *U. magnirostrum* is correlated with seasonal fluctuation of the food resources used by this bat. Passos *et al*. (2003) suggested a similar situation regarding the capture of other fruit-eating bats in the Parque Estadual Intervales, southeastern Brazil. In this area, the absence of captures of *Artibeus* Leach, 1821 in the cold months seems to be related to the absence of *Cecropia* fruits (its main food resource in the area) during this period. It is also noteworthy that in Alter do Chão, Pará (central Amazon), *U. magnirostrum* was the thirteenth most frequently captured bat (59 individuals) in a list of 70 species reported by Bernard & Fenton (2002). The relative frequency of capture of *U. magnirostrum* in that area (1.5%), however, was lower then that found in the Morro Solto outcrop (2%). Because in southeastern Brazil the same technique (ground-level nets) employed by Muñoz-Saba *et al*. (1997) was used, and at least three of the four new localities reported here were sampled during distinct seasons for at least one year, it seems that sampling bias was not a major factor determining the low frequencies recorded.

Discussions on the rarity in mammals have taken into account biological characteristics such as local population density, range of distribution, and flexibility in habitat use (Yu & Dobson 2000). As previously reported, *U. magnirostrum* has a large geographical distribution and had been sampled in a wide

Table I. External and cranial measurements of *U. magnirostrum* from southeastern Brazil, and levels of probability for sexual differences after independent two-tailed t tests.

Specimen	State	FA	TIB	3ME	4ME	5ME	GLS	CCA	POS	ZIG	BC	MAS	MAN	MXT	MNT	BAM	BAC
Males																	
6029	RJ	41.75	15.00	41.35	41.00	41,40	23.30	21.30	5.90	12.30	9.20	11.00	15.70	8.25	8.85	8.85	5.50
8163	RJ	43.30	17.00	42.10	41.60	42.80	24.10	20.90	6.00	13.40	10.20	10.95	16.20	8.20	8.95	9.55	5.90
1648	ES	41.40	15.50	42.55	40.75	41.80	22.75	20.20	5.85	11.65	9.25	10.65	15.00	7.95	8.60	8.55	5.45
3012	ES	43.40	14.65	43.40	41.45	41.85	24.05	21.50	6.10	13.40	9.60	11.20	16.00	8.30	9.25	–	5.90
3942	ES	42.30	15.00	42.35	41.45	41.35	24.10	21.80	5.70	12.90	9.50	11.15	16.35	8.65	9.10	9.10	5.90
6831	MG	42.40	–	–	–	–	23.25	21.05	5.60	12.70	9.70	10.90	15.75	8.10	8.70	8.80	5.60
6834	MG	41.60	15.05	42.30	41.60	41.90	23.21	20.50	5.60	12.70	9.35	10.75	15.65	8.35	8.80	8.80	5.70
Mean		42.31	15.37	42.34	41.31	41.85	23.54	21.04	5.82	12.72	9.54	10.94	15.81	8.26	8.89	8.94	5.71
± SD		0.80	0.84	0.66	0.35	0.52	0.54	0.56	0.20	0.62	0.34	0.20	0.44	0.22	0.23	0.35	0.20
Females																	
6033	RJ	43.40	–	43.90	41.60	42.40	23.20	20.70	5.60	12.70	9.65	11.10	15.20	8.05	8.60	9.00	5.55
2149	ES	43.40	16.10	43.50	41.90	42.50	22.80	20.30	5.75	12.75	9.35	10.70	15.20	8.00	8.70	9.10	5.40
2807	ES	43.15	14.20	42.25	40.60	41.40	23.25	20.80	5.90	13.00	9.55	10.80	15.55	8.4	9.10	9.35	5.65
6835	MG	44.35	15.50	42.50	40.70	41.10	22.80	20.80	5.50	12.25	9.00	10.80	15.75	8.35	9.05	9.10	5.70
Uncataloged	MG	44.10	17.00	44.70	43.40	43.40	22.90	20.50	5.70	–	9.50	11.20	15.30	8.00	8.90	9.00	5.60
Mean		43.68	15.70	43.37	41.64	42.16	22.99	20.62	5.69	12.67	9.41	10.92	15.40	8.16	8.87	9.11	5.58
± SD		0.52	1.17	1.01	1.13	0.92	0.22	0.22	0.15	0.31	0.25	0.22	0.24	0.20	0.22	0.14	0.12
p		0.007	0.613	0.073	0.510	0.500	0.042	0.149	0.239	0.893	0.481	0.854	0.094	0.449	0.864	0.338	0.227

variety of habitat types. Population densities, however, seem to be low across most of the distribution of this bat, regardless of the type of habitat studied. Current evidence suggests that *U. magnirostrum* does not have diet specializations, which may explain the occurrence of this bat in diversified habitats. Its roost requirements, however, remain virtually unknown. The only published record was provided by Timm (1987), who reported the use of tents constructed in leaves of *Astrocaryum murumuru* Mart. (Arecaceae). *Astrocarium aculeatissimum* (Schott) Burret is an abundant species in the PERD. Although it was not found direct evidence of the use of this palm by *U. magnirostrum* in the Campolina forest, palm leaves with marks of bites along the axis were present in this area, which should be further investigated. Like other types of roosts (*e.g.*, tree cavities; Kunz & Lumsden 2003), plants suitable for manufacturing tents may constitute a limiting resource for bats (Stoner 2000, Fenton *et al*. 2001), and their availability may prove to be an important factor influencing local abundance of *U. magnirostrum*.

Wilson (1979) suggested a polyestrous reproductive pattern for *U. magnirostrum*, which was confirmed by Marques (1985) based on the collection of simultaneously pregnant and lactating females in central Amazonian Brazil. Marques (1985) suggested that poliestry in *U. magnirostrum* is bimodal. In Peru, the reproduction of this bat seems to be concentrated in the wet season (Graham 1987). The present records (a lactating female in northern Minas Gerais in April, end of the rainy season at Jaíba, and a pregnant female in eastern Minas Gerais in October, beginning of rainy season at Parque Estadual do Rio Doce) are consistent with this association between reproduction and the rainy season, but additional data, from both northern and eastern Minas Gerais state, are necessary to test for a possible correlation.

Secondary sexual dimorphism in *U. magnirostrum* has not been addressed to date. Davis (1968) treated males and females separately. However, in spite of the fact that mean values of forearm length and third metacarpal length were considerably larger in the latter group, he did not comment on a possible dimorphism in size. Anderson (1997) published combined measurements of female and male Bolivian specimens. Although the comparative analysis presented here failed in finding statistically significant results, the marginal p value obtained for the length of the forearm (0.007) reinforces the necessity of an increase in the sample size so that the tests could be more powerful. It is noteworthy that the usefulness of Bonferroni adjustments is not a consensus among researchers (*e.g.* Perneger 1998; Spradling *et al*. 2001) and it has been argued that the increase in the likelihood of type II errors (failing in recognizing true differences) and the dependence of the interpretation of a finding on the number of other tests performed, make the use of this correction "unnecessary and, at worst, deleterious to sound statistical inference" (Perneger 1998:

Table II. Selected external and cranial measurements (mean and range) of *U. magnirostrum* from southeastern Brazil (SE; present study), northeastern Brazil (NE; Willig 1983)[1], northern Brazil (NO; unpublished data from Acre state, plus measurements from Taddei & Reis 1980 and Taddei *et al.* 1990), and from a general sample (northern Brazil and Bolivia to southern Mexico) reported by Davis (1968).

	Males				Females			
Character	SE	NE	NO	General	SE	NE	NO	General
FA	42.3	–	43.13	42.10	43.75	–	42.77	43.30
	(41.4-43.4)7		(42.95-43.3)2	(36-43.8)22	(43.15-44.35)5		(40.7-44)3	(41-46.6)36
TIB	15.40	–	14.90	–	15.70	–	16.20	–
	(14.65-17)6		(14.3-15.5)2		(14.2-17)4		(15.9-16.5)2	
3ME	42.30	–	42.63	41.90	43.24	–	42.37	42.80
	(41.35-43.4)6		(42.1-43.15)2	(35-43.7)21	(42.25-44.7)5		(39.6-44)3	(40.5-45.5)39
4ME	41.30	–	41.07	–	41.65	–	41.37	–
	(40.75-41.6)6		(40.75-41.4)2		(40.6-43.4)5		(39.1-42.6)3	
5ME	41.90	–	42.00	–	42.10	–	41.93	–
	(41.35-42.8)6		(41.4-42.6)2		(41.1-43.4)5		(39.7-43.1)3	
CCA	21.00	–	20.38	–	20.60	–	20.80	–
	(20.2-21.8)7		(20.35-20.4)2		(20.3-20.8)5			
POS	5.80	6.1	5.65	–	5.71	5.83	5.47	–
	(5.6-6.1)7		(5.6-5.7)2		(5.5-5.9)5	(5.7-5.9)3	(5.2-5.6)3	
ZIG	12.70	12.5	12.33	12.70	12.67	12.73	12.77	12.70
	(11.7-13.4)7		(12.25-12.4)2	(12-13.5)24	(12.3-13)4	(12.4-13)3	(12.4-13.4)3	(12.1-13.2)50
BC	9.50	9.7	9.23	9.70	9.35	9.53	9.80	9.80
	(9.2-10.2)7		(9.1-9.35)2	(9-10)25	(9-9.65)5	(9.4-9.7)3		(9.4-10.3)50
MAS	10.90	–	10.93	–	10.88	–	10.77	–
	(10.65-11.2)7		(10.9-10.95)2		(10.7-11.2)5		(10.5-11.1)3	
MAN	15.80	–	15.43	–	15.45	–	14.87	–
	(15-16.4)7		(15.35-15.5)2		(15.2-15.8)5		(14.2-15.7)3	
MXT	8.30	–	7.90	8.00	8.16	–	7.93	8.00
	(7.95-8.65)7		(7.8-8)2	(7.7-8.3)25	(7.9-8.4)5		(7.5-8.3)3	(7.5-8.5)50
MNT	8.90	–	8.53	8.60	8.94	–	8.90	8.6
	(8.6-9.25)7		(8.45-8.6)2	(8.2-9.1)25	(8.6-9.1)5			(8-9.1)47
BAM	8.90	–	8.70	8,90	9.14	–	8.83	9.00
	(8.55-9.55)7		(8.6-8.8)2	(8.5-9.3)26	(9-9.35)5		(8.4-9.2)3	(8.4-9.5)50
BAC	5.70	–	5.53	–	5.59	–	5.70	–
	(5.45-5.9)7		(5.5-5.55)2		(5.4-5.7)5			

[1] Some characters used by this author were not included in the analysis due to differences in the measurement protocol.

1236). Although in the present paper a more conservative approach has been adopted, the presentation of the respective p value obtained for each comparison allows alternative interpretations of our results.

In the original description of *U. magnirostrum*, Davis (1968) studied 82 specimens from various localities in South and Central America, including Brazilian specimens from Pará. In contrast to data reported in the same paper for *U. bilobatum*, Davis (1968) found little evidence of geographic variation in *U. magnirostrum*. Davis (1968) argued that if the largest available sample (36 specimens from Bolivia) were excluded from the analysis, two geographic areas of differentiation could be

discernible: Peru and northeastern Brazil, characterized by larger specimens, and Colombia, Venezuela and Middle America, by smaller ones. The range of variation found in the Bolivian material, however, was nearly identical to that observed in the entire population sample, and he considered sample sizes from areas other than Bolivia insufficient for a meaningful statistical treatment. After the study of Davis (1968) data on *U. magnirostrum* remained scarce and are restrict to publications with mensural data (Swanepoel & Genoways 1979, Taddei & Reis 1980, Willig 1983, Polaco & Muñiz-Martínez 1987, Taddei *et al*. 1990, Anderson 1997). The quantitative analysis presented here showed little variation among populations of *U. magnirostrum*, supporting the conclusion of previous studies that *U. magnirostrum* is a regionally widespread species. However, the conclusions must be taken with caution since they are limited by the low number of specimens examined. Further examination of a larger number of specimens throughout all the range of *U. magnirostrum* is needed to clarify aspects of geographical variation in this species.

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