Zootaxa 3620 (2): 245–259
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3620.2.3
http://zoobank.org/urn:lsid:zoobank.org:pub:1DEA9623-0C24-408F-8B67-F1FB47DD35CB

A lost species or the loss of stripes? The case of *Contomastix* lizards from Cabo Polonio, Uruguay, with observations on *C. lacertoides* (Duméril & Bibron) and *Cnemidophorus grandensis* Cope (Squamata, Teiidae)

CLAUDIO BORTEIRO[1,4], FRANCISCO KOLENC[1], CARLOS PRIGIONI[1], MARIANA L. LYRA[2] & DIEGO BALDO[3]

[1]*Sección Herpetología, Museo Nacional de Historia Natural, 25 de Mayo 582, CP 11000, Montevideo, Uruguay. E-mail: borteiro@gmail.com; fkolenc@gmail.com; cprigioni3@yahoo.com.ar*
[2]*Departamento de Zoologia (Jacarezário), Instituto de Biociências, UNESP-Rio Claro, Av. 24-A Nº1515, Bela Vista, Rio Claro, São Paulo, Brazil. E-mail: marillyra@gmail.com*
[3]*Laboratorio de Genética Evolutiva, Instituto de Biología Subtropical (CONICET-UNaM), Facultad de Ciencias Exactas Químicas y Naturales, Universidad Nacional de Misiones; Félix de Azara 1552, CPA N3300LQF, Posadas, Misiones, Argentina. E-mail: diegobaldo@gmail.com*
[4]*Corresponding author*

Abstract

The main goal of this manuscript is the reevaluation of the taxonomic status of the teiid lizard *Contomastix charrua*, known only from Cabo Polonio, a small coastal rocky outcrop in southeastern Uruguay. This species was erected on the basis of the presence of a second pair of ceratobranchials and longer cornua in the hyoid bone, in addition to a reduced expression of the pattern of coloration as compared with *C. lacertoides*. Nevertheless, we found that both species have indistinguishable hyoid morphology, bearing *C. lacertoides* a noticeable second pair of ceratobranchials. Besides, we realized that the pattern of coloration in this species is more variable than previously considered. As a result of the present work, *C. charrua* is included in the synonymy of *C. lacertoides*. In addition, we provide some observations on the holotype of *Cnemidophorus grandensis*, a junior synonym of *C. lacertoides*.

Key words: whiptail lizards, hyoid bone, color morph

Introduction

The lizard Family Teiidae is widely distributed in the New World, from United States to southern Argentina and Uruguay (Harvey *et al.* 2012). It contains several species currently arranged in three subfamilies, Callopistinae, Teiinae and Tupinambinae, see Harvey *et al.* (2012) for recent taxonomic review. Many teiid taxa present a controversial taxonomic history given the morphological resemblance of many species and the variation of the pattern of coloration (Cope 1892a; Reeder *et al.* 2002). These polymorphic lizards present conspicuous, usually striped patterns of coloration, and may also exhibit sexual color dimorphism (*i.e.* Duellman & Zweifel 1962; Vitt 1983; Ugueto *et al.* 2009; Arias *et al.* 2011).

The taxonomic instability of teiids can be well exemplified with *Cnemidophorus lacertoides* Duméril and Bibron, described based on material from Montevideo, southern Uruguay (Duméril & Bibron 1839). Its placement within Teiinae was controversial (Reeder *et al.* 2002), being assigned by different authors either to *Ameiva* or to *Cnemidophorus* (*i.e.* Burt 1931; Milstead 1961; Presch 1974; Cole *et al.* 1979). Boulenger (1896) included in the synonymy of *Cn. lacertoides* the species *Cn. grandensis* described by Cope (1869) from Brazil. The name *Cn. lacertoides* was then applied to populations throughout a wide geographic range in Argentina, southern Brazil and Uruguay. Peters and Donoso-Barros (1970) considered the northwestern Argentinean species *Cn. leachei* Peracca under the synonymy of *Cn. lacertoides*. This species was later resurrected by Cei and Scrocchi (1991). Meanwhile, some *Cn. lacertoides* populations from Córdoba in central Argentina, were described as *Cn. serranus* Cei and

Accepted by S. Carranza: 16 Jan. 2013; published: 6 Mar. 2013

Martori (Cei & Martori 1991). *Cnemidophorus lacertoides* was consequently restricted to the central-eastern part of Argentina, southern Brazil and Uruguay, associated to rocky habitats of hilly landscapes and coastal sandy areas (Koslowsky 1898; Milstead 1961; Gudynas 1985; Feltrim 2002).

Cei (1993) suggested a close relationship of *Cnemidophorus lacertoides* with *Cn. leachei* and *Cn. serranus*, grouping them in the *Cn. lacertoides* species group. Two other species later described were associated to the *Cn. lacertoides* group, *Cn. vacariensis* Feltrim and Lema from southern Brazil and *Cn. charrua* Cabrera and Carreira from southeastern Uruguay (Feltrim & Lema 2000; Cabrera & Carreira 2009). More recently, Harvey *et al.* (2012) created the genus *Contomastix* to include the already mentioned species *C. charrua*, *C. lacertoides*, *C. leachei*, *C. serrana*, *C. vacariensis*, and also *C. vittata* (Boulenger) from Bolivia.

Contomastix charrua was suggested as different from *C. lacertoides* in the following characters (states of *C. lacertoides* between parentheses): reduced pattern of dorsal stripes and of the bold flecks between them including unstriped individuals (striped, marked bold flecks), paravertebral stripes sometimes present (absent), hyoid bone with a second pair of ceratobranchials (absent) and longer cornua (relatively shorter) (Cabrera & Carreira 2009). This species is known only from Cabo Polonio, a small coastal granitic outcrop of about 0.2 km^2 with sandy soil and no more than 15 m asl. Specimens of *C. charrua* accessioned in herpetological collections date from between 1971 and 1977, and the population apparently vanished (Cabrera & Carreira 2009).

The study of a series of specimens of *Contomastix lacertoides* allowed us to observe that the diagnostic features of *C. charrua* may not be valid. Consequently, we reevaluate herein the taxonomic status of *C. charrua* making further comparison with an account of external variation and hyoid morphology in *C. lacertoides*. We also provide new observations useful to discuss the status of the old and forgotten Cope's species *Cnemidophorus grandensis*.

Material and methods

We compared external characters of coloration of the type series of *Contomastix charrua* with *C. lacertoides* from Argentina, Brazil and Uruguay. Additional specimens of *C. leachei*, *C. serrana* and *C. vacariensis* were used for comparison. The geographic distribution of these species is shown in Figure 1. The type specimen of *Cnemidophorus grandensis* was also examined.

Four individuals of *Contomastix lacertoides* from Uruguay were used for the study of the hyoid apparatus (MNHN 9459–62). These specimens were fixed in formalin and preserved in 70° ethanol soon afterwards until cleared and stained according to the technique of Taylor and Van Dyke (1985), and finally stored in 100% glycerol. Hyoid nomenclature follows Tanner and Avery (1982). X-ray images of the holotype of *Cnemidophorus grandensis* were studied.

Examined specimens are stored at the following biological collections: Academy of Natural Sciences of Drexel University (formerly Academy of Natural Sciences), Philadelphia, Pennsylvania, USA (ANSP); Instituto Miguel Lillo, Fundación Miguel Lillo, San Miguel de Tucumán, Tucumán, Argentina (FML); Museu de Ciências Naturais, Fundação Zoobotânica, Porto Alegre, Rio Grande do Sul, Brazil (MCN); Museu de Ciências e Tecnologia, Pontificia Universidade Católica do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil (MCP); Museo Nacional de Historia Natural, Montevideo, Uruguay (MNHN); Colección de Reptiles, Departamento de Zoología-Vertebrados, Facultad de Ciencias, Universidad de la República, Montevideo, Uruguay (ZVC-R). See list of specimens in Appendix I.

Results

Pattern of coloration variation. The usual dorsal pattern of *Contomastix lacertoides* presents whitish stripes on a brownish background, see Figure 2. Most specimens examined by us exhibited continuous dorsal stripes (DS) and dorsolateral stripes (DLS). However, many combinations of discontinuous DS and DLS exist (only some examples from southern Uruguay are indicated): continuous DS and almost continuous DLS (MNHN 3188), almost

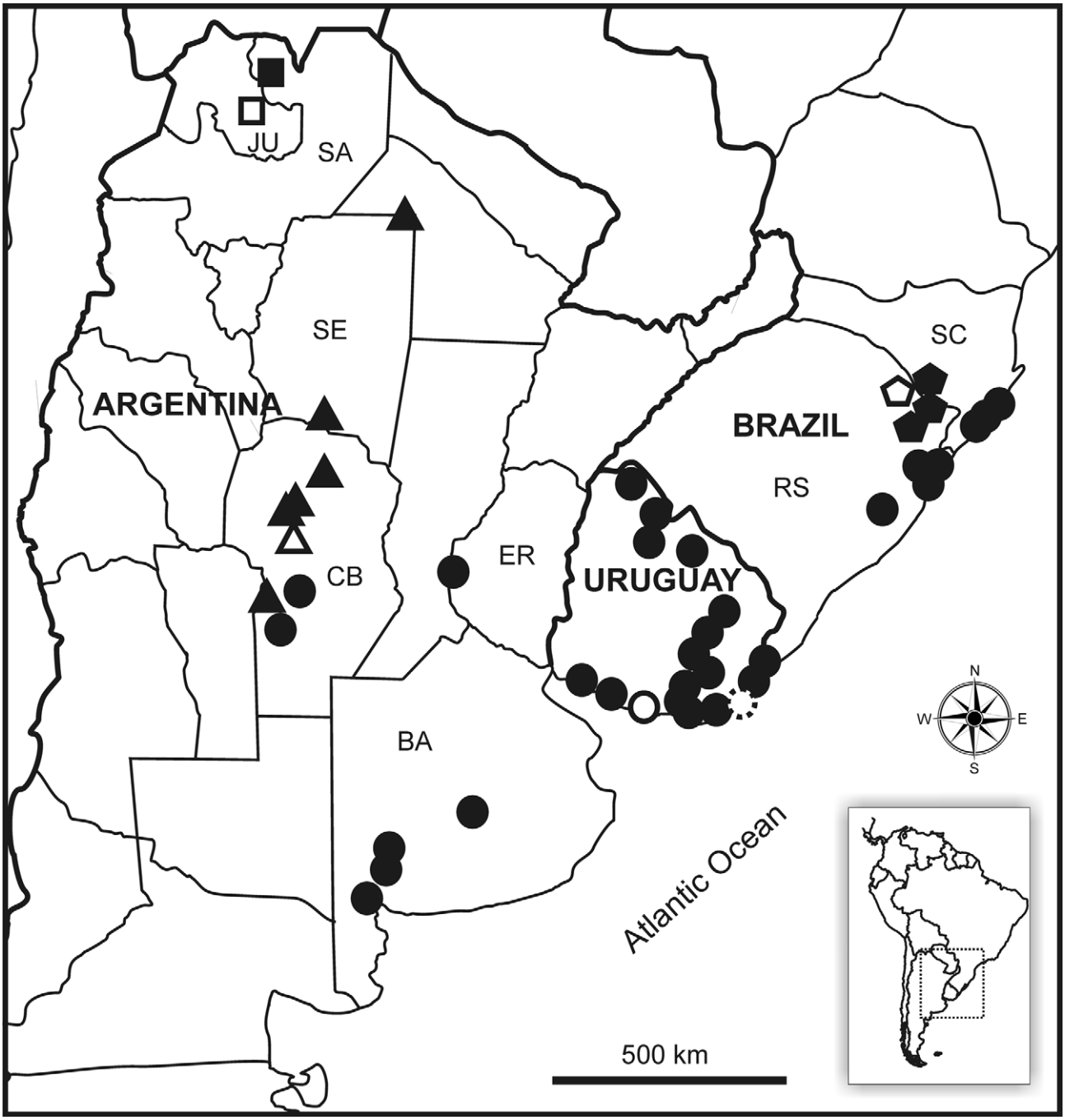

FIGURE 1. Geographic distribution of *Contomastix* species from Argentina, Brazil and Uruguay, according to present study and published reports (Koslowsky 1898; Gudynas 1985; Cei & Martori 1991; Cei & Scrocchi 1991; Cei 1993; Federico 2000; Feltrim & Lema 2000; Pérez & Grassini 2001; Vrcibradic *et al.* 2004; Arias & Lobo 2005; Stahnke *et al.* 2006; Rholing *et al.* 2009; Caruccio *et al.* 2010; Cabrera *et al.* 2012). Closed circles, *C. lacertoides* (white circle, type locality Montevideo); open circle, *C. charrua* (type locality, Cabo Polonio); squares, *C. leachei* (white square, type locality, San Lorenzo); triangles, *C. serrana* (white triangle, type locality, Icho Cruz); pentagons, *C. vacariensis* (white pentagon, type locality, Vacaria). Abbreviations: BA, Buenos Aires Province; CB, Córdoba Province; ER, Entre Ríos Province; JU, Jujuy Province; RS, Rio Grande do Sul state; SA, Salta Province; SC, Santa Catarina state; SE, Santiago del Estero Province.

continuous DS and broken/spotted DLS (MNHN 3185, 5772–3, 5777), almost continuous DS and spotted DLS (MNHN 3182), both DS and DLS broken (MNHN 5774), broken DS and spotted DLS (MNHN 3191, 3197), and broken/spotted DS plus spotted DLS (MNHN 3190). Thin light, continuous, or alternatively dashed or spotted paravertebral stripes (PVS) may also be present (MNHN 3186, 5770, 5777, 6222; Figure 3). Stripes are variably marked from one individual to another. Bold flecks are present between the DS and DLS, and are of varying

contrast against the background brown color. Variation in the dorsal pattern is presented in Figure 3 for Uruguayan specimens. In life, dorsal coloration is brownish or brownish/grey, sometimes with faded greenish tones or a median and well defined bright green dorsal band both in males and females (MNHN 9461), see Figure 2. *Contomastix charrua* presents a similar striped pattern than that of *C. lacertoides* (MNHN 3422, 3424) or uniform dorsal coloration (MNHN 3423, holotype, ZVC-R 1856, 1865), Figure 3. When present, DS, DLS and PVS (*i.e.* MNHN 3424) are thin and the dorsal flecks slightly marked.

FIGURE 2. Uruguayan specimens of *Contomastix lacertoides*. On top, unvouchered adult male photographed while basking at La Palma, Rivera (orange color corresponds to parasitic mites); inset: detail of sexual color dimorphism in a male from Quebrada de los Cuervos, Treinta y Tres (MNHN 9460). Bottom, adult female from Quebrada de los Cuervos, (MNHN 9461, total length 196 mm).

FIGURE 3. Dorsal pattern of coloration in *Contomastix* lizards from Uruguay. On top, from left to right: *C. lacertoides* MNHN 5774, 5777 (Las Piedras, Artigas), MNHN 3196 (Pozo Hondo, Tacuarembó), MNHN 3190 (Tambores, Tacuarembó). Middle, from left to right: *C. lacertoides* MNHN 5767 (Aiguá, Lavalleja), MNHN 6222 (Route 8, km 162, Lavalleja), MNHN 5766, 5770 (Sierra de las Ánimas, Maldonado). Bottom, from left to right: *C. lacertoides* MNHN 3185 (Sierra de las Ánimas, Maldonado); *C. charrua* MNHN 3422, 3424, paratypes and MNHN 3423, holotype (Cabo Polonio, Rocha).

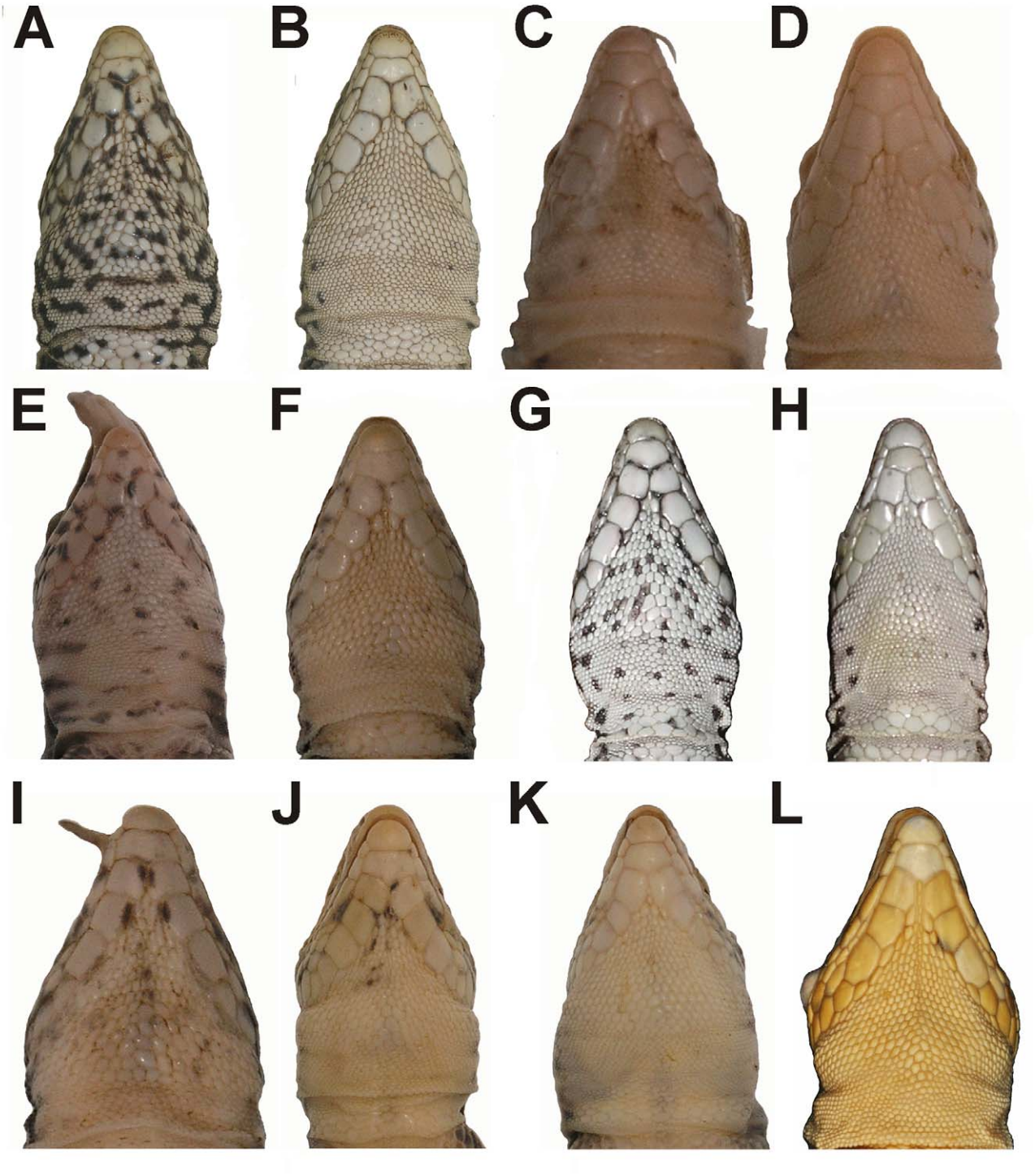

FIGURE 4. Ventral view of the head of adult *Contomastix* lizards (fixed specimens otherwise indicated). On top, *C. lacertoides:* A MCP 14453, B MCP 17758 (São Jerônimo, Rio Grande do Sul, Brazil); C MNHN 3189, D MNHN 3187 (Tambores, Tacuarembó). Middle, *C. lacertoides* from southeastern Uruguay: E MNHN 3185, F MNHN 5770 (Sierra de las Ánimas, Maldonado); G MNHN 9463 (in life), H MNHN 9464 (in life), (Quebrada de los Cuervos, Treinta y Tres). Bottom, *C. lacertoides* from southeastern Uruguay: I MNHN 3192 (Km 128, National Route #8, Lavalleja); *C. charrua*, J MNHN 3422 (paratype), K MNHN 3423, holotype (Cabo Polonio, Rocha); *Cnemidophorus grandensis*, L ANSP 9593, holotype (Rio Grande do Sul, Brazil).

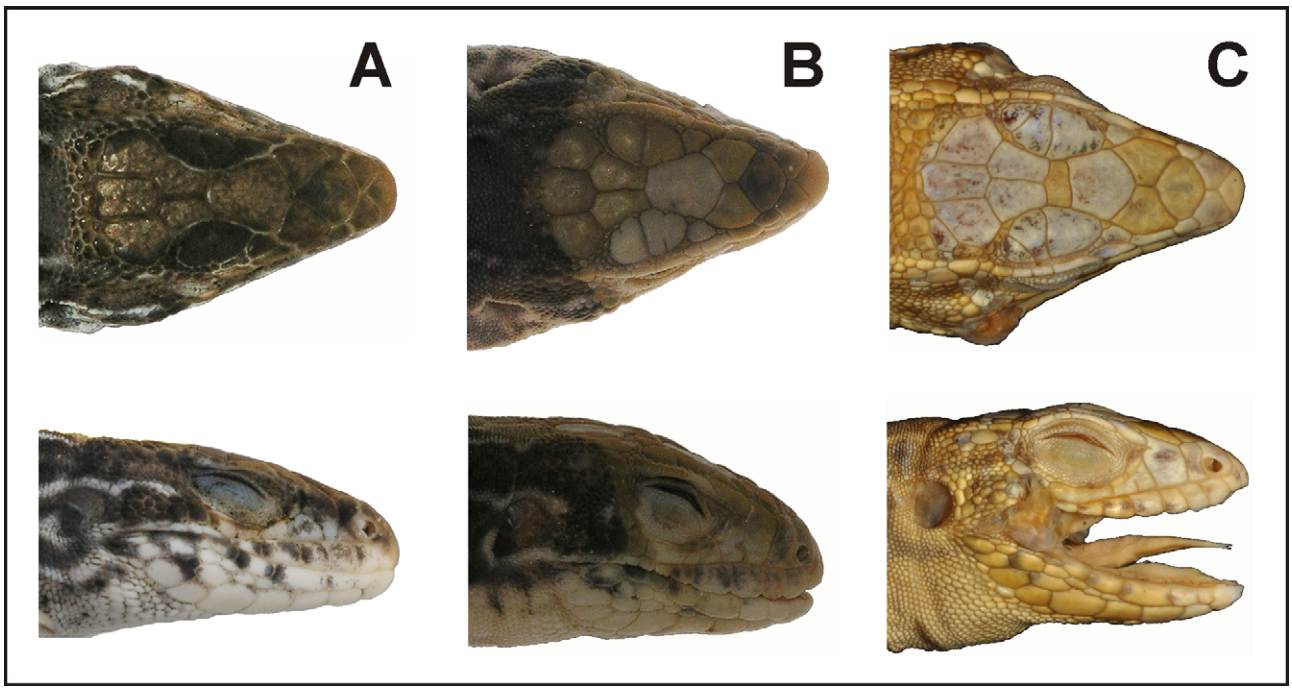

FIGURE 5. Paired dorsal and lateral views of the heads of: A *Contomastix lacertoides* (Quebrada de los Cuervos, Uruguay) MNHN 9464; B *C. charrua* MNHN 3424, paratype (Cabo Polonio, Uruguay); C *Cnemidophorus grandensis* ANSP 9593 (Rio Grande do Sul, Brazil).

The belly in adult *Contomastix lacertoides* is usually whitish as in *C. charrua*, sometimes with scarce black dots and less frequently markedly dark colored. In both species the most lateral scales along the belly present dark stains or are completely dark. In mature males of *C. lacertoides* these scales present greenish stains, sometimes mixed with slight orange and yellowish tones that are lost in fixatives. The pattern underside the head is quite variable in this species, from markedly spotted to uniformly whitish even within the same population, Figure 4 A-I; scarce dotting may be present in *C. charrua* (MNHN 3422), Figure 4 J, K.

The holotype of *Cnemidophorus grandensis* ANSP 9593 is a well preserved specimen (Figures 4–6). Besides Cope's description, some additional morphological characters observed are: pattern of coloration with continuous dorsal and dorsolateral light stripes, bearing some bold flecks between them; dashed lateral stripe; total count of femoral pores 16 (although stated as 9 on each side by Cope); frontal scale transversely divided (stated as single by Cope).

Hyoid morphology. The cleared and stained *Contomastix lacertoides* from Uruguay were MNHN 9459, snout-vent length (SVL) 49.9 mm, Pozo Hondo, Tacuarembó (May 5, 2003); MNHN 9460, male, SVL 64.8 mm; MNHN 9461, female, SVL 75.6 mm, Quebrada de los Cuervos, Treinta y Tres (February 2, 2010); MNHN 9462, SVL 50.0 mm, Solís de Mataojo, Lavalleja (May 28, 2011), Figure 7. The hyoid of these specimens showed the following features: both rami of the inverted "Y"-shaped basihyoid (BH) project posteriorly forming an angle of approximately 65°. The cranial margin of the basihyoid projects a bony and well developed processus lingualis (PL) that ends cartilaginous. The first pair of ceratobranchials (CBIs) begins on each ramus of the BH, and run caudodorsally in the same direction. An evident cartilaginous bridge provides attachment of the CBIs and the hyoid cornua (HC) to the BH. The HCs are of similar length than the CBIs, scarcely bi-concave medially and slightly directed laterally. They may have marginal cartilaginous tissue for about their distal halves, mainly over the medial borders. The epihyals (EH) depart from the HCs to which are attached by small cartilaginous commissurae at approximately the end of the first proximal third of these bones. The EHs run almost parallel to the CBIs. The second pair of ceratobranchials (CBIIs) appears as two short cartilaginous spiculae of about 1/4 to 1/3 the length of the PL. They are projected posteriorly, departing either from the base of the cartilaginous commissure that joins the BH, CBI and HC (MNHN 9460–1), slightly more posterior from the CBI (MNHN 9462) or the two alternative states can be present in the same individual (MNHN 9459). In three of the studied specimens the CBIIs are straight (MNHN 9459–61), and in another one they are slightly curved outwards (MNHN 9462). The slender entoglossal

bone (EB) projects craniodorsally from the dorsal surface of the PL and comprises about two thirds of the tongue. In smaller specimens (MNHN 9459, 9462) the BH, EB, EH, HC and the base of the PL are fairly calcified, and only the CBI is well ossified. Calcified structures are ossified in larger individuals, in which the cartilaginous commissura between BH, CBI and HC can be almost unnoticeable (MNHN 9460–1). No sexual differences were evident.

FIGURE 6. Holotype of *Cnemidophorus grandensis* ANSP 9593 (Rio Grande do Sul, Brazil).

The hyoid preparations of *Contomastix lacertoides* and *C. charrua* described by Cabrera and Carreira (2009) were made with material from old specimens that were collected in 1965 and 1972 respectively, and long-term stored in formalin (ZVC-R 1266 and ZVC-R 1856). The reported variation between these specimens consisted in the absence of a second pair of ceratobranchials (CBIIs) in *C. lacertoides* and shorter cornua in *C. charrua* (Cabrera & Carreira 2009), Figure 8 A, C. However, the aspect and size of cornua are quite similar in both hyoids, Figure 8 B, D. The processus lingualis were apparently removed by the dissection made on both specimens, thus the anterior slender process illustrated by Cabrera and Carreira (2009) for *C. charrua* (Figure 8 A) is in fact the entoglossal bone. Taking this into account, the hyoid of *C. charrua* does not differ from that of *C. lacertoides.* In addition, the presence of the CBII in the holotype of *Cnemidophorus grandensis* (ANSP 9593) was noticed from X-ray images, see Figure 7.

Discussion

Pattern of coloration in *Contomastix charrua* and *C. lacertoides.* Duméril and Bibron (1839) in the original description of *C. lacertoides* depicted a striped pattern for this species, with two yellowish dorsal stripes on each side of the body with intermediate dark stains. Boulenger (1885) stated that the most lateral ones can be broken into spots. We observed both broken and pointed stripes, as reported by Cei (1993) and Carreira *et al.* (2005), and illustrated also by Cei and Scrocchi (1991), Cei (1993) and Cabrera and Carreira (2009). Similarly, continuous stripes are commonly present in *C. charrua* but they can be broken, hardly noticeable or absent (Cole *et al.* 1979, as *Cnemidophorus lacertoides*; Cabrera & Carreira 2009). The presence of paravertebral stripes were previously recorded only in *C. charrua* (Cabrera & Carreira 2009) but we commonly observed them in *C. lacertoides.* The bold flecks between dorsal stripes are variably marked in *C. lacertoides*, and appear scarcely noticeable in *C. charrua* when dorsal stripes are present. The coloration underside the head is usually whitish in both species (Duméril & Bibron 1839; Carreira *et al.* 2005), but it may present a mottled pattern (Cabrera & Carreira 2009; present study).

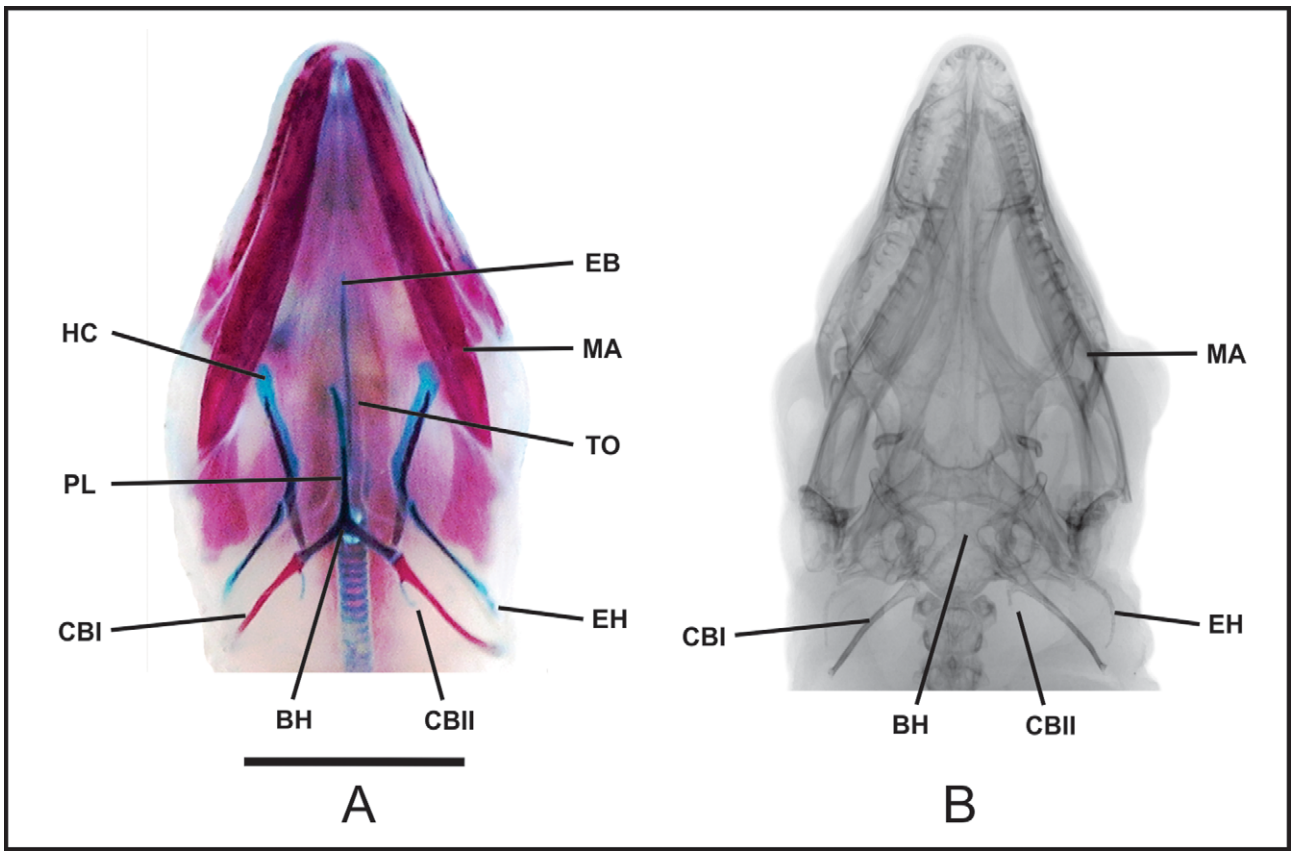

FIGURE 7. Left, ventral view of the head of a cleared and stained specimen of *Contomastix lacertoides*, MNHN 9462 (scale bar equals 5 mm). Right, X-ray image of the head of the holotype of *Cnemidophorus grandensis* ANSP 9593 in ventral view. Abbreviations: BH, basihyoid; CBI, first pair of ceratobranchials; CBII, second pair of ceratobranchials; EB, entoglossal bone; EH, epihyal; MA, mandible; PL, processus lingualis; TO, tongue; TR, trachea.

Our observations on the general pattern of coloration of live *Contomastix lacertoides* are coincident with the description by Cei (1993), and also Carreira *et al.* (2005) who indicate the occurrence of dorsal greenish tones. The presence of a fairly distinct green dorsal band was unreported until the present study. Although color photographs of live *C. charrua* are not available, Cole *et al.* (1979) who were the only authors with the opportunity to examine several specimens in life, describe a similar "broad, green middorsal stripe on a uniform pearl-gray ground color" for an almost unstriped individual in a sample of 18 specimens. Cabrera and Carreira (2009) assumed this one to be the coloration of the whole population assigned to *C. charrua*, however.

In summary, the diagnosis of *Contomastix charrua* is faded by the variation of *C. lacertoides* observed herein, also if only populations from southern Uruguay are considered (*i.e.* Departamento de Lavalleja and Maldonado). Both species are comparable except for the occurrence of almost unstriped or totally unstriped individuals in the single known population of *C. charrua.* The holotype of *C. charrua* MNHN 3423 is an unstriped specimen, but this phenotype is exhibited by 7 of 31 known individuals of this taxon (Cole *et al.* 1979, as *Cnemidophorus lacertoides*; Cabrera & Carreira 2009).

Hyoid morphology. Presch (1974), in the most comprehensive work on hyoid morphology of Teiidae, reported the finding of a second pair of ceratobranchials (CBIIs) in *Ameivula ocellifera* (Spix), *Cnemidophorus lemniscatus* (Linnaeus), *Cn. murinus* (Laurenti), *Cn. vanzoi* (Baskin & Williams) and *Contomastix lacertoides.* These observations are in agreement with our results, although he only examined a single specimen of *C. lacertoides* (W. Presch, pers. comm.), for which the collection site is not given. Presch (1974) also reported the presence of CBIIs for a large sample of Callopistinae and Teiinae, but noticed its absence in Tupinambinae. Results of several other works are coincident with this pattern (Cope 1892b; Reese 1923; Fisher & Tanner 1970; Tanner & Avery 1982; Álvarez *et al.* 1987; Tedesco *et al.* 1999). The few reports on the absence of CBII in Teiinae need confirmation (Cope 1892b; Tanner & Avery 1982). The absence of CBIIs in Tupinambinae gives support to the recovery of this last group as monophyletic in recent studies (Giugliano *et al.* 2007; Harvey *et al.* 2012). In regard

to the entoglossal bone we found no previous reference about its occurrence in teiids. This structure is rarely mentioned in the reptile literature (see Bona & Alcalde 2009).

The taxonomic status of *Contomastix charrua*. The differentiation between *C. charrua* and *C. lacertoides* was based on a different structure of the hyoid and on a distinct pattern of coloration (Cabrera & Carreira 2009). The character suggested as univocal feature to distinguish between both species is the lack of the CBIIs in the hyoid of *C. lacertoides*. However, the hyoids of both species are similar and the CBIIs are indeed present in *C. lacertoides*. Hyoid preparations from old specimens may have biased comparison previous to the present study, as the longer a specimen has been preserved, the less predictable the results of bone and cartilage staining are (Wassersug 1976; Potthoff 1984). Other putatively diagnostic features of *C. charrua* such as a spotless gular region, less marked dorsal bold flecks and the presence of paravertebral stripes are also exhibited by *C. lacertoides*. Furthermore, those characters are not constant in the whole sample available of *C. charrua*. Basic karyology, morphometrics and scutelation characteristics also do not allow distinguishing them from each other (Cole *et al*. 1979; Cabrera & Carreira 2009). As a consequence, we find no arguments to consider *C. charrua* as a valid species, and we include this taxon under the synonymy of *C. lacertoides*.

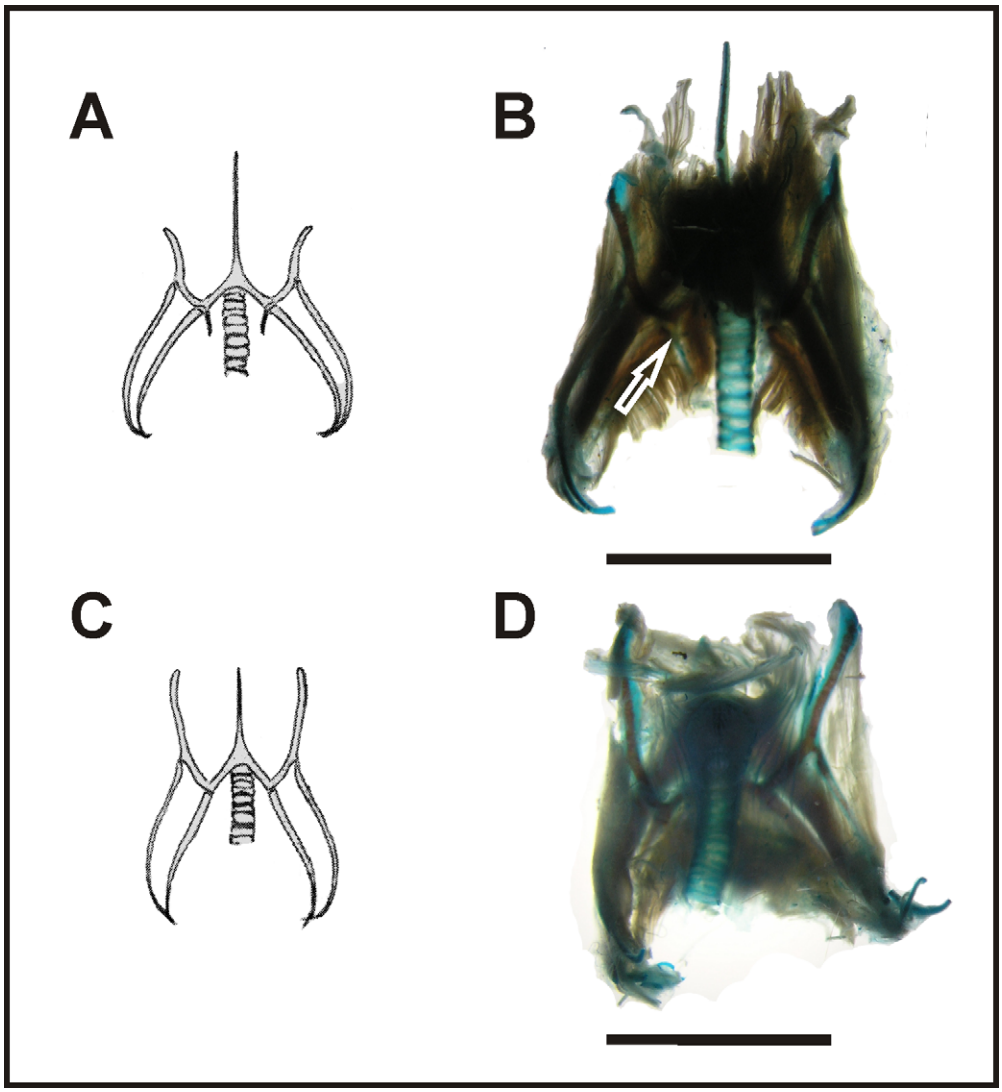

FIGURE 8. On top, hyoid apparatus of *Contomastix charrua* ZVC-R 1266, paratype. Bottom, hyoid apparatus of topotypic *C. lacertoides* ZVC-R 1856. A and C are schematic representations as depicted by Cabrera and Carreira (2009); B and D are the corresponding hyoid preparations of Cabrera and Carreira (2009), photographed under a stereoscopic microscope (photos by CB). Notice in B the apparently fairly degraded right spicula of the second pair of ceratobranchials (arrow). Scale bars equals 5 mm.

Finally, it is noteworthy that variation of the striped pattern similar than that observed for the *Contomastix* population from Cabo Polonio was reported in several works on Teiinae (Table 1). The taxonomic implications of these markedly less striped or unstriped morphs have long been discussed, and are at present regarded as species polymorphism (Rosenblum *et al.* 2004; Walker *et al.* 2009; Rosenblum & Harmon 2010). These blanched and unstriped variants may provide cryptic background matching in sandy habitats (Axtell 1961; Rosenblum *et al.* 2004).

TABLE 1. Reported cases of reduction of the usual dorsal striped pattern of coloration in the teiid genera *Aspidoscelis* and *Contomastix.*

Taxon (source)	Pattern	Habitat	Observations
A. gularis pallida (Duellman & Zweifel 1962)	striped pattern extremely faded	alongside streams	few specimens
A. gularis pallida (Walker 1981; 1981a)	unstriped	"arroyos" and "canyons"	not common
A. inornata (Axtell 1961)	unstriped	sandy mounds	6 specimens, cohabitation with striped morph (≈1:1)
A. inornata (Walker *et al*. 1996)	unstriped	gypsum sand deposits	2/30 unstriped, mating with striped morph observed
A. inornata (Rosenblum *et al.* 2004; Rosenblum *et al.* 2009)	blanched morph	gypsum dunes	differential frequency of blanched and striped morphs according to substrate
A. inornata (Walker *et al*. 2009)	unstriped	-----	several localities
A. marmorata (Acre *et al*. 2012)	unstriped	sand dunes	1/332 specimens
A. marmorata (Ballinger & McKinney 1968)	unstriped	-----	4/17 unstriped
C. lacertoides (Cole *et al.* 1979)	unstriped	rocky area surrounded by moving sand	17 specimens with reduced striped pattern, 1 unstriped
C. lacertoides (Cabrera & Carreira 2009, as *Cnemidophorus charrua*)	unstriped	ibid.	6 specimens with reduced striped pattern, 7 unstriped
C. lacertoides (Cabrera *et al.* 2012)	stripes faded	sandy beach	1 specimen, reduced dorsal pattern

Origin and identity of *Cnemidophorus grandensis.* The species *Cn. grandensis* is based on a single adult specimen collected at "The Rio Grande, Brazil, brought by Capt. George Harrington, and presented to the Essex Institute, Salem, Mass., (No. 388,) Museum Academy Natural Sciences, Philadelphia." (Cope 1869). This specimen is currently stored in the Academy of Natural Sciences of Drexel University as ANSP 9593. Malnate (1971) provided a list of type specimens deposited in the ANSP herpetological collection and referred to the holotype of *Cn. grandensis* as "Syntype: ANSP 9553", in error for ANSP 9593. Although the label of its jar reads "Syntype", there are no other specimens in the ANSP collection that could be associated to the name *Cn. grandensis*.

By the end of the 19th century two regions of Brazil fairly distant from each other and that are now Brazilian states bear in their names the term "Rio Grande": Rio Grande do Norte in the northeast (5–6°S, 35–38°W) and Rio Grande do Sul in the south (27–33°S, 49–57°W). George Harrington was an active collaborator of the Essex Institute, as indicated by his several donations of study materials coming from "Rio Grande" made between 1852 and 1863 (*Proceedings of the Essex Institute* 1, 3). Many zoological specimens collected by him in "Rio Grande" during the period 1859–1862, which correspond to species present in south Brazil, are currently stored at the Museum of Comparative Zoology, Harvard University (on-line catalog available at http://mczbase.mcz.harvard.edu/SpecimenSearch.cfm). Besides, some contemporary zoological work include biological specimens from "The Rio Grande, Brazil" collected and provided by "Capt. Harrington", which again correspond

to taxa that dwell in Rio Grande do Sul (Scudder 1869; Smith 1869; Kingsley 1880). There is no evidence against the assumption that the holotype of *Cn. grandensis* ANSP 9593 was collected in Rio Grande do Sul but the locality cannot be further specified.

Cope (1869) in the description of *Cnemidophorus grandensis* did not compare this taxon with *Cn. lacertoides*, already described at that time by Duméril and Bibron (1839). Conversely, Cope did not mention his own species *Cn. grandensis* in a morphological account of *Cnemidophorus* made later on, this opportunity including *Cn. lacertoides* (Cope 1892a). A few years later Boulenger (1896) complemented the puzzling history of *Cn. grandensis* including it in a synonymy list of *Cn. lacertoides*, based on the information provided in its original description. Since then, the name *Cn. grandensis* sporadically appeared in the literature as a synonym of *Cn. lacertoides* (*i.e.* Peters & Donoso-Barros 1970; Maslin & Secoy 1986; Carreira *et al.* 2005). Following authors addressing the taxonomy of species formerly included in the *Cn. lacertoides* group, currently grouped in the genus *Contomastix*, have made no reference to examination of ANSP 9593 (Cei & Martori 1991; Cei & Scrocchi 1991; Feltrim & Lema 2000; Reeder *et al.* 2002; Cabrera & Carreira 2009).

The external characteristics of the holotype of *Cnemidophorus grandensis* suggests that it relates to the genus *Contomastix* according to the following combination of characters (after Harvey *et al.* 2012): small size (total length 19.2 mm, snout-vent length 6.5 mm; Cope 1869), tail relatively short, nasal scale in contact with prefrontal scale, three parietal scales present, nostril round and located anteriorly to nasal suture, first supraciliary scale long, first supralabial scale subequal to the second, absence of auricular flap, and long fifth toe. A comparison of some of its external morphology characters with the species recognized in *Contomastix* follows (character states compiled from Duméril & Bibron 1839; Peracca 1897; Boulenger 1902; Cole *et al.* 1979; Cei & Martori 1991; Cei & Scrocchi 1991; Feltrim & Lema 2000; Feltrim 2002; Carreira *et al.* 2005; Harvey *et al.* 2012; present study): pattern of coloration with continuous dorsal and dorsolateral light stripes (stripes continuous and/or discontinuous in *C. lacertoides*, both stripes continuous in *C. leachei* and *C. serrana*, pointed in *C. vacariensis*); dashed lateral stripe (sometimes absent in *C. lacertoides*, lacking in *C. leachei* and *C. serrana*, pointed in *C. vacariensis*); “median dorsal line bright green” (Cope 1869; bright green, greenish/brownish, brownish or brownish/grey in *C. lacertoides*, greenish in *C. leachei*, brownish in *C. serrana* and *C. vacariensis*, grey in *C. vittata*); “belly and throat uniform yellow” (Cope 1869; uniformly whitish or variably spoted in *C. lacertoides*, whitish or bluish in *C. leachei*, whitish in *C. serrana* and *C. vacariensis*); 10 longitudinal rows of ventral scales at mid-body (8–10 in *C. lacertoides*, 10 in *C. leachei*, 8–10 in *C. serranus*, usually 8, 8–10 in *C. vacariensis*); 4 supraocular scales (3 in *C. leachei* and *C. serrana*, 3–4 in *C. lacertoides* and *C. vacariensis*); total count of femoral pores 16 (16–25 in *C. lacertoides*, 20–24 in *C. leachei*, 20 in *C. serrana*, 18–22 in *C. vacariensis*, 19–25 in *C. vittata*). Further detail of the cephalic lepidosis of ANSP 9593 resembles *C. lacertoides*. The frontal scale being partial or totally divided as in ANSP 9593 was observed by us also in some specimens of *C. lacertoides* from Rio Grande do Sul (*i.e.* MCP 14726, 14730, 15656, 15657). Given the broad similarity between both taxa and until further evidence is accomplished, we agree with Boulenger (1896) in considering *Cn. grandensis* a junior synonym of *C. lacertoides*.

Acknowledgements

We are grateful to D. Arrieta (MNHN), M. Meneghel (ZVC-R), N. Gilmore (ANSP), G.M.F. Pontes (MCP), M.L. de Araújo and M. F. Renner (MCN), and S. Kretschmar and E. Lavilla (FML), who allowed the study of specimens under their care; N. Gilmore and K. Luckenbill (ANSP) kindly provided the X-ray images of the holotype of *Cnemidophorus grandensis*; D.J. Leavitt and I.F. Machado shared literature; and W. Barboza and A. Cabrera assisted during field-work. We also thank L. Alcalde, W. Presch and F. Arias for critical reading of a previous version of the manuscript. Collection permits of specimens were extended by División Fauna/MGAP/Uruguay. MLL received support from FAPESP (Nº 2010/50124-0), CB and FK from ANII/SNI.

References

Acre, M.R., Leavitt, D.J. & Schalk, C.M. (2012) A patternless morph of the Marbled Whiptail (*Aspidoscelis marmorata;* Squamata: Teiidae) in New Mexico. *The Southwestern Naturalist*, 57, 206−207. http://dx.doi.org/10.1894/0038-4909-57.2.206

Álvarez, B.B., Tedesco, M.E. & Porcel, E. (1987) Osteología craneana de *Teius teyou* (Daudin, 1802), (Reptilia: Teiidae). *Cuadernos de Herpetología*, 3, 7−31.
Arias, F. & Lobo, F. (2005) *Cnemidophorus serranus*. *Herpetological Review*, 36, 467.
Arias, F., Morato de Carvalho, C., Rodrigues, M.T. & Zaher, H. (2011) Two new species of *Cnemidophorus* (Squamata: Teiidae) of the *C. ocellifer* group, from Bahia, Brazil. *Zootaxa*, 3022, 1–21.
Axtell, R.W. (1961) *Cnemidophorus inornatus*, the valid name for the little striped whiptail lizard, with the description of an annectant subspecies. *Copeia*, 1961, 148−158. http://dx.doi.org/10.2307/1439990
Ballinger, R.E. & McKinney, C.O. (1968) Occurrence of a patternless morph of *Cnemidophorus*. *Herpetologica*, 24, 264−265.
Bona, P. & Alcalde, L. (2009) Chondrocranium and skeletal development of *Phrynops hilarii* (Pleurodira: Chelidae). *Acta Zoologica*, 90, 301−325. http://dx.doi.org/10.1111/j.1463-6395.2008.00356.x
Boulenger, G.A. (1885) *Catalogue of lizards in the British Museum. Volume 2: Iguanidae, Xenosauridae, Zonuridae, Anguidae, Anniellidae, Helodermatidae, Varanidae, Xantusiidae, Teiidae, Amphisbaenidae.* Taylor & Francis, London, 561 p.
Boulenger, G.A. (1896) A synopsis of the reptiles and batrachians of the province Rio Grande do Sul, Brazil. *Annals and Magazine of Natural History*, 18, 423−445. http://dx.doi.org/10.1080/00222938609459995
Boulenger, G.A. (1902) Descriptions of new batrachians and reptiles from the Andes of Peru and Bolivia. *Annals and Magazine of Natural History*, 10, 394−402. http://dx.doi.org/10.1080/00222930208678691
Burt, C.E. (1931) A study of the teiid lizards of the genus *Cnemidophorus* with special reference to their phylogenetic relationships. *United States National Museum Bulletin*, 154, 1–286. http://dx.doi.org/10.5479/si.03629236.154.1
Cabrera, M.R. & Carreira, S. (2009) A new but probably extinct, species of *Cnemidophorus* (Squamata, Teiidae) from Uruguay. *Herpetological Journal*, 19, 97–105.
Cabrera, M.R., Carreira, S. & Verrastro, L. (2012) Abnormal colour pattern in a wild specimen of *Cnemidophorus* from the *lacertoides* species group (Squamata, Teiidae). *Herpetology Notes*, 5, 185−186.
Carreira, S., Meneghel, M. & Achaval, F. (2005) *Reptiles del Uruguay.* Universidad de la República, Montevideo, 639 pp.
Caruccio, R., Vieira, R.C. & Verrastro, L. (2010) Microhabitat use by *Cnemidophorus vacariensis* (Squamata: Teiidae) in the grasslands of the Araucaria Plateau, Rio Grande do Sul, Brazil. *Zoologia*, 27, 902−908.
Cei, J.M. (1993) Reptiles del noroeste, nordeste y este de la Argentina. Herpetofauna de las selvas subtropicales, Puna y Pampas. *Museo Regionale di Scienze Naturale di Torino, Monografie*, 14, 1−949.
Cei, J.M. & Martori, R.A. (1991) A new species of *Cnemidophorus* of the *lacertoides* species group from the eastern sierras de Córdoba, central Argentina (Lacertilia, Teiidae). *Bolletino del Museo Regionale di Scienze Naturali di Torino*, 9, 33−38.
Cei, J.M. & Scrocchi, G. (1991) A poorly known and discussed species, *Cnemidophorus leachei* Peracca 1897, and general remarks on the genus *Cnemidophorus* in Argentina (Lacertilia, Teiidae). *Bolletino del Museo Regionale di Scienze Naturali di Torino*, 9, 233−244.
Cole, C.J., McCoy, C.J. & Achaval, F. (1979) Karyotype of a South American teiid lizard, *Cnemidophorus lacertoides*. *American Museum Novitates*, 2671, 1−5.
Cope, E.D. (1869) Seventh contribution to the Herpetology of Tropical America. *Proceedings of the American Philosophical Society*, 11, 147−192.
Cope, E.D. (1892a) A Synopsis of the species of the Teïd genus *Cnemidophorus. Transactions of the American Philosophical Society*, 17, 27−52. http://dx.doi.org/10.2307/1005408
Cope, E.D. (1892b) The Osteology of the Lacertilia. *Proceedings of the American Philosophical Society*, 30, 185−221.
Duellman, W.E. & Zweifel, R.G. (1962) A synopsis of the lizards of the *sexlineatus* group (genus *Cnemidophorus*). *Bulletin of the American Museum of Natural History*, 123, 155−210.
Duméril, A.M.C. & Bibron, G. (1839) *Erpetologie generale ou historie naturelle complete des Reptiles*. V. Paris, 854 pp.
Federico, L. (2000) *Cnemidophorus lacertoides*. *Herpetological Review*, 31, 52.
Feltrim, A.C. (2002) Dimorfismo sexual em *Cnemidophorus lacertoides* (Squamata, Teiidae) do sul da América do Sul. *Phyllomedusa*, 1, 75−80.
Feltrim, A.C. & Lema, T. de (2000) Uma nova espécie de *Cnemidophorus* Wagler, 1830 do estado do Rio Grande do Sul, Brasil (Sauria, Teiidae). *Biociências*, 8, 103−114.
Fisher, D.L. & Tanner, W.W. (1970) Osteological and myological comparisons of the head and thorax regions of *Cnemidophorus tigris septentrionalis* Burger and *Ameiva undulata parva* Barbour and Noble (Family Teiidae). *Brigham Young University Science Bulletin, Biological Series*, 11, 1−41.
Giugliano, L.G., Collevatti, R.G. & Colli, G.R. (2007) Molecular dating and phylogenetic relationships among Teiidae (Squamata) inferred by molecular and morphological data. *Molecular Phylogenetics and Evolution*, 45, 168−179. http://dx.doi.org/10.1016/j.ympev.2007.05.017
Gudynas, E. (1985) Notas sobre teiidos del Uruguay (Lacertilia: Teiidae), I. Nuevos registros y distribución geográfica de *Tupinambis teguixin, Teius teyou, Cnemidophorus lacertoides* y *Pantodactylus schreibersii schreibersii*. *Centro de Estudios Don Orione, Contribuciones en Biología*, 12, 9−17.
Harvey, M.B., Ugueto, G.N. & Gutberlet, R.L. Jr. (2012) Review of Teiid Morphology with a revised taxonomy and phylogeny of the Teiidae (Lepidosauria: Squamata). *Zootaxa*, 3459, 1–156.
Kingsley, J.S. (1880) Carcinological Notes, No. IV.—Synopsis of the Grapsidae. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 32, 187–232.
Koslowsky, J. (1898) Enumeración sistemática y distribución geográfica de los reptiles argentinos. *Revista del Museo de La*

Plata, 8, 161−200.
Malnate, E.V. (1971) A catalog of primary types in the herpetological collections of the Academy of Natural Sciences, Philadelphia (ANSP). *Proceedings of the Academy of Natural Sciences of Philadelphia*, 123, 345–375.
Maslin, T.P. & Secoy, D.M. (1986) A checklist of the lizard genus *Cnemidophorus* (Teiidae). *Contributions in Zoology of the University of Colorado Museum*, 1, 1–60.
Milstead, W.W. (1961) Notes on teiid lizards in southern Brazil. *Copeia*, 1961, 493−495. http://dx.doi.org/10.2307/1439610
Peracca, M.G. (1897) Viaggio del Dr Alfredo Borelli nel Chaco boliviano e nella Rep. Argentina: Rettili ed Anfibi. *Bollettino dei Musei di Zoologia ed Anatomia comparata della R. Universitá di Torino*, 12, 1−19.
Pérez, C.H.F. & Grassini, C.M. (2001) *Cnemidophorus lacertoides. Herpetological Review*, 32, 275.
Peters, J.A. & Donoso-Barros, R. (1970) *Catalogue of the Neotropical Squamata: Part II. Lizards and Amphisbaenians*. Smithsonian Institution Press, Washington, 293 pp.
Potthoff, T. (1984) Clearing and staining techniques. *In:* Moser, H.G. (Ed.) *Ontogeny and Systematics of Fishes*. Special Publication of the American Society of Ichthyologists and Herpetologists, volume 1. Allen Press, Lawrence, pp. 35–37.
Presch, W. (1974) Evolutionary relationships and biogeography of the macroteiid lizards (Family Teiidae, Subfamily Teiinae). *Bulletin of the Southern California Academy of Sciences*, 73, 23−32.
Presch, W. (1983) The lizard family Teiidae: is it a monophyletic group? *Zoological Journal of the Linnean Society*, 77, 189−197. http://dx.doi.org/10.1111/j.1096-3642.1983.tb00529.x
Reeder, T.W., Cole, C.J. & Dessauer, H.C. (2002) Phylogenetic relationships of Whiptail Lizards of the genus *Cnemidophorus* (Squamata: Teiidae): a test of monophyly, reevaluation of karyotypic evolution, and review of hybrid origins. *American Museum Novitates*, 3365, 1−61. http://dx.doi.org/10.1206/0003-0082(2002)365<0001:PROWLO>2.0.CO;2
Reese, A.M. (1923) The osteology of Tegu, *Tupinambis nigropunctatus. Journal of Morphology*, 38, 1−17. http://dx.doi.org/10.1002/jmor.1050380102
Rohling Ghizoni Jr., I., Saravia Kunz, T., Cherem, J.J. & Bérnils, R.S. (2009) Registros notáveis de répteis de áreas abertas naturais do Planalto e litoral do Estado de Santa Catarina, sul do Brasil. *Biotemas*, 22, 129–141.
Rosenblum, E.B. & Harmon, L.J. (2010) "Same same but different": replicated ecological speciation at White Sands. *Evolution*, 65, 946−960. http://dx.doi.org/10.1111/j.1558-5646.2010.01190.x
Rosenblum, E.B., Hoekstra, H.E. & Nachman, A.M.W. (2004) Adaptive color variation and the evolution of the MC1R gene. *Evolution*, 58, 1794−1808. http://dx.doi.org/10.1111/j.0014-3820.2004.tb00462.x
Rosenblum, E.B., Römplerb, H., Schönebergb, T. & Hoekstra, H.E. (2009) Molecular and functional basis of phenotypic convergence in white lizards at White Sands. *Proceedings of the National Academy of Sciences, USA*, 107, 2113–2117. http://dx.doi.org/10.1073/pnas.0911042107
Scudder, S.H. (1869) Revision of the large, stylated, fossorial crickets. *Memoirs of the Peabody Academy of Sciences*, 1, 1–35.
Smith, S.I. (1869) Notice of the Crustacea collected by Prof. C.F. Hartt on the coast of Brazil in 1867. *Transactions of the Connecticut Academy of Arts and Sciences*, 2, 1−42.
Stahnke, L.F., da Silva, G.E.F., dos Santos, R.R. & Machado, I.F. (2006) Novo registro de *Cnemidophorus vacariensis* para o estado do Rio Grande do Sul, Brasil (Sauria, Teiidae). *Biociências (Porto Alegre)*, 14, 91−92.
Tanner, W.W. & Avery, D.F. (1982) Buccal floor of reptiles, a summary. *The Great Basin Naturalist*, 42, 273−349.
Taylor, W.R. & Van Dyke, G.C. (1985) Revised procedures for staining and clearing small fishes and other vertebrates for bone and cartilage study. *Cybium*, 9, 107−119.
Tedesco, M.E., Krause, L. & Álvarez, B.B. (1999) Descripción del sincráneo de *Ameiva ameiva* (Linnaeus) (Squamata, Teiidae). *Revista Brasileira de Zoologia*, 16, 1025−1044. http://dx.doi.org/10.1590/S0101-81751999000400013
Ugueto, G.N., Harvey, M.B. & Rivas, G.A. (2009) Two new species of *Cnemidophorus* (Squamata: Teiidae) from islands of the northeastern coast of Venezuela. *Herpetological Monographs*, 23, 123–153. http://dx.doi.org/10.1655/09-035.1
Vitt, L.J. (1983) Reproduction and sexual dimorphism in the tropical teiid lizard *Cnemidophorus ocellifer*. *Copeia*, 1983, 359–366. http://dx.doi.org/10.2307/1444378
Vrcibradic, D., Rocha, C.F.D., De Menezes, V.A. & Ariani, C.V. (2004) *Cnemidophorus lacertoides*. *Herpetological Review*, 35, 408.
Walker, J.M. (1981) Systematics of *Cnemidophorus gularis*. I. Reallocation of populations currently allocated to *Cnemidophorus gularis* and *Cnemidophorus scalaris* in Coahuila, México. *Copeia*, 1981, 826−849. http://dx.doi.org/10.2307/1444184
Walker, J.M. (1981a) Systematics of *Cnemidophorus gularis*. II. Specific and subspecific identity of the Zacatecas Whiptail *(Cnemidophorus gularis semiannulatus)*. *Copeia*, 1981, 850−868. http://dx.doi.org/10.2307/1444185
Walker, J.M., Cordes, J.R., Mendoza Quijano, F. & Hernández García, E. (1996) Implications of extraordinary variation in the little striped lizard, *Cnemidophorus inornatus* Baird (Sauria: Teiidae) in Chihuahua, México. *Journal of Herpetology*, 30, 271−275. http://dx.doi.org/10.2307/1565523
Walker, J.M., Dixo, J.R., Axtell, R.H. Cordes, J.E. (2009) The taxonomic status of the inornate (unstriped) and ornate (striped) Whiptail lizards (*Aspidoscelis inornata* [Baird]) from Coahuila and Nuevo León, Mexico. *Herpetological Review*, 40, 276−282.
Wassersug, R.J. (1976) A procedure for differential staining of cartilage and bone in whole formalin-fixed vertebrates. *Stain Technology*, 51, 131−134.

APPENDIX I. Examined specimens.

Abbreviations: ANSP, Academy of Natural Sciences of Drexel University (formerly Academy of Natural Sciences), Philadelphia, Pennsylvania, USA; FML, Instituto Miguel Lillo, Fundación Miguel Lillo, San Miguel de Tucumán, Tucumán, Argentina; MCN, Museu de Ciências Naturais, Fundação Zoobotânica, Porto Alegre, Brazil; MCP, Museu de Ciências e Tecnologia, Pontificia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil; MNHN, Museo Nacional de Historia Natural, Montevideo, Uruguay; ZVC-R, Departamento de Zoología-Vertebrados, Facultad de Ciencias, Universidad de la República, Montevideo, Uruguay; CS, cleared and stained.

Contomastix lacertoides.—ARGENTINA: Provincia de Buenos Aires. Bahía Blanca (38°44'S, 62°15'W), FML 10359. Tornquist: Sierra de la Ventana, Parque Provincial Ernesto Tornquist (38°03'S, 62°02'W), FML 1705–1, 1705–2, Provincia de Corrientes, FML 17588. BRAZIL. Rio Grande do Sul. ANSP 9593 (holotype of *Cnemidophorus grandensis*). Arroio do Sal (29º32'S, 49º54'W), MCP 4348, 5041. Capão da Canoa (29º45'S, 50º00'W), MCN 0859, 9738, MCP 4601, 5134, 6936–7. Dom Feliciano (30º42'S, 52º06'W), MCP 8873–7, 8879–86, 10461–64. Osório (29º52'S, 50º04'W), MCN 4543, 6143, 6157, 6174, 6271, 63389, 6360, 63967, 6514, 6793, 6845, 6991. São Jerônimo (29º58'S, 51º45'W), MCP 14449–58, 14724–36, 14754, 14760, 14832–4, 14871, 14881–9, 14901, 14905, 14913–4, 14917, 14927–9, 14945–57, 15006–22, 15081–8, 15323–34, 15427–35, 15655–67, 15765–75, 15877–87, 15969–72, 15974–7, 16206–20, 16746–50, 16790–5, 17756–68, 17882–5, 17956–61. URUGUAY: Departamento de Artigas. Las Piedras (30°53'S, 56°12'W), MNHN 5722−77. Departamento de Lavalleja. Aiguá, MNHN 5766−69; Zapicán (33°32'S, 54°57'W), MNHN 3184, 3194−5, 3198−9; Route 8, km 128 (34°20'S, 55°05'W), MNHN 3192; Route 8, km 162 (34°11'S, 54°50'W), MNHN 6222; Solís de Mataojo (34°36'S, 55°20'W), MNHN 9462 (CS). Departamento de Maldonado. Camino Cerro Pan de Azúcar-Minas (34°40'S, 54°58'W), MNHN 1083, 3493−5; Cerro Betete (34°44'S, 56°19'W), MNHN 5687; Piriápolis (34°54'S, 55°15'W), MNHN 3182; Sierra de las Ánimas (34°42'S, 56°19'W), MNHN 3181, 3185−6, 3193, 5765, 5770, 5947−8. Departamento de Montevideo (34°53'S, 56°15'W), ZVC-R 1266 (CS hyoid). Departamento de Rocha. Cabo Polonio (34°24'S, 56°46'W), MNHN 3423 (holotype of *Cn. charrua*), 3422, 3424, ZVC-R 1856 (CS hyoid), 1865 (paratypes of *Cn. charrua*). Departamento de Tacuarembó. Pozo Hondo (31°50'S, 56°13'W), MNHN 3196−7, MNHN 9459 (CS); Tambores (31°52'S, 56°14'W), MNHN 3183, 3187−91. Departamento de Treinta y Tres. Arroyo del Brujo (33°08'S, 54°32'W), MNHN 5806−7; Quebrada de los Cuervos (32°55'S, 54°26'W), MNHN 9460 (CS), MNHN 9461 (CS), MNHN 9463−4.

Contomastix leachei.—ARGENTINA: Provincia de Jujuy: Ledesma: Yuto (23°38'S, 64°28'W), FML 00472; Sierras de Santa Bárbara, Estancia Cachipunco (24°27'S, 64°34'W), FML 855-1, 855-2. Provincia de Salta: Orán: Angosto del Río Pescado (22°54'S, 64°19'W), FML 00907/1, 00907/2.

Contomastix serrana.—ARGENTINA: Provincia de Córdoba. Calamuchita (32°09'S, 64°30'W), 10265, 10266; Punilla, Tanti (31º20'S, 64º36'W), FML 10228−9, 10241, 10243−8, 10250−10255; Bialet Massé (31º18'S, 64º28'W), FML 10242, 10249, 10261; Los Chorrillos (31º24'S, 64º31'W), FML 10257−60; Río Cuarto, Alpa Corral (32º41'S, 64º43'W), FML 10263−4.

Contomastix vacariensis.—BRAZIL. Rio Grande do Sul. Vacaria (28º30'S, 50º56'W) MCP 10466 (holotype), MCP 10465, 10467−8 (paratypes), MCP 18536−54, 18569−73, 18575.