Trabajo

Cuad. herpetol. 38 (2): 00-00 (*2024*)

Reptiles of Santa Catarina Island, Southern Brazil

Ivo Rohling Ghizoni Jr[1] and Tobias Saraiva Kunz[2]

[1] Laboratório de Ecologia de Anfíbios e Répteis (LEAR), Universidade Federal de Santa Catarina, UFSC, Florianópolis, SC. Brasil. (ORCID: 0000-0002-0316-5682)
[2] Laboratório de Coleções Zoológicas, Instituto Butantan, São Paulo, SP, Brasil.

Recibido: 05 Mayo 2024
Revisado: 24 Julio 2024
Aceptado: 19 Agosto 2024
Editora Asociada: S. Quinzio

doi: 10.31017/CdH.2024.(2024-019)

ABSTRACT
The Atlantic Forest is a biodiversity hotspot and one of the most threatened ecosystems in the world. Still, its reptile fauna is poorly known, especially in its southern portion. We present here for the first time a compiled list of land and freshwater reptiles of the Island of Santa Catarina, the largest continental island off the Brazilian coast. The list was based on field observation, literature, and preserved material from herpetological collections. We recorded 36 autochthonous reptile species, including one crocodylian, one turtle, two amphisbaenians, nine lizards, and 23 snakes. We also recorded introduced populations of two exotic emydid turtles. Species composition is strongly influenced by the presence of Atlantic Forest species, but there are also some non-forest species associated with the fauna of southern South America.

Key words: Squamata, Testudines, Crocodylia, Island diversity, Zoogeography, Atlantic Forest.

RESUMO
A Mata Atlântica é um hotspot de biodiversidade e um dos ecossistemas mais ameaçados do mundo. Ainda assim, sua fauna reptiliana é pouco conhecida, principalmente na porção sul. Apresentamos aqui pela primeira vez uma lista compilada de répteis terrestres e de água doce da Ilha de Santa Catarina, a maior ilha continental da costa brasileira. A lista foi baseada em observação de campo, literatura e material preservado em coleções herpetológicas. Registramos 36 espécies de répteis autóctones, incluindo um crocodiliano, uma tartaruga, duas anfisbenas, nove lagartos e 23 cobras. Também registramos populações introduzidas de duas tartarugas Emidídeos exóticas. A composição de espécies é fortemente influenciada pela presença de espécies da Mata Atlântica, mas também existem algumas espécies não florestais associadas à fauna do sul da América do Sul.

Palabras claves: Squamata, Testudines, Crocodylia, Biogeografia de ilhas, Zoogeografia, Floresta Atlântica.

Introduction

The Island of Santa Catarina is the largest continental island of the Brazilian coast. It is home to the capital of the State of Santa Catarina, Florianópolis, which has a population of over 537,000 (IBGE, 2022). The island lies within the Atlantic Forest Domain, one of the most fragmented and threatened ecosystems in the world (Brown and Brown, 1992), and a biodiversity hotspot (Bibby *et al.*, 1992; Myers *et al.*, 2000).

From 1748, date when the first colonizers arrived from the Azores (Portugal), until the late 1970s, nearly 80% of the island's forests were cleared for crops and wood (Caruso, 1983). With the decline of agriculture at the beginning of the twentieth century, most of these areas were abandoned, allowing the original vegetation to slowly and spontaneously recover. Tourism is now one of the main economic activities of the island. However, the shift in major economic activities led to the systematic destruction

Author for correspondence: ivoghizoni@gmail.com

of restingas and mangroves, even though nowadays at least 42% of the area of the island is protected (CECCA, 1997a). Despite the recovery of the island's montane forests, deforestation in the past has led to the extinction of largest mamals (Graipel *et al.*, 2001; Olimpio, 1995; Müller, 1969a, 1970a) and some birds (Naka *et al.*, 2002).

Santa Catarina Island was an important port of supply for European ships during centuries XVII-XIX, receiving many renowned naturalists, such as René Lesson, Georg von Langsdorff, Antoine Joseph Pernetty, Hermann von Ihering, and Johann Friedrich Theodor Müller – the German naturalist best known for his correspondence with Charles Darwin and for Müllerian mimicry (named after him). Those early naturalists have left countless reports on the fauna and flora of the island. However, the first contributions to the knowledge of the island's reptile fauna were made by German herpetologist and biogeographer Paul Müller, who made several expeditions to Brazil in the 1960s and 1970s, with a special interest in the biogeography of the southeastern Brazilian islands. Müller's expeditions resulted in several contributions to the fauna of Santa Catarina Island (Müller, 1968a, b, c, 1969a, b, c, 1970a, b, 1971a, b, 1974a, b, 1975, 1976; Müller and Ritter, 1978), most of which were published in German and remain seemingly unknown to most Brazilian herpetologists to this day.

Only recently, following the increasing interest in the Brazilian herpetofauna, has new information on the reptile fauna of the island appeared, albeit still restricted to sporadic observations of only one or few species (*e.g.* Lema and Braun, 1993; Lema, 1994; Vcrbradic *et al.*, 2004a,b; Ghizoni Jr and Graipel, 2005; Kunz and Ghizoni Jr, 2009). Aiming to fill a gap in the knowledge of reptile diversity in the southern limits of the Atlantic Forest, we present for the first time a compiled list of the reptile fauna on the Island of Santa Catarina based on field surveys, scientific collection records, and bibliographic records.

Materials y methods

Study area

Santa Catarina Island (SCI hereafter) is located east off the coast, between 27°22'S–27°50'S and 48°21´W–48°35´ W and separated from the mainland by a strait of 500 meters. It is 425 km^2 in area, with an elongated shape formed by a NNE–SSW oriented rocky mountain range (up to 600 m.a.s.l.) that crosses the 54 km length of the island; its maximum width (E–W) is 18 km. The surrounding lowland plains are formed by marine sediments and there are about 29 km^2 of rivers and lakes/lagoons (CECCA, 1997b; Fig. 1).

The climate is subtropical and strongly influenced by southern polar winds during winter (May–September) and by Atlantic tropical winds from northeastern Brazil during summer (October–April). The mean annual temperature is 21ºC, being January the hottest month (mean temperature of 24°C) and July the coldest (mean temperature of 16°C). The rainfall average is 1830 mm, distributed evenly throughout the year (CECCA, 1997b).

The main vegetation types found on the island are as follows (adapted from Naka et al., 2002; Fig. 2):

(1) *Lower-montane evergreen forest*: This vegetation type is very rich with a canopy reaching up to 20 or 30 m. Most of this habitat is now composed of patches of secondary growth. The best preserved remnant patches are confined to the highest areas of the slopes.

(2) *Lowland evergreen forest*: This forest grows on marine sedimentary soils. It is characterized by

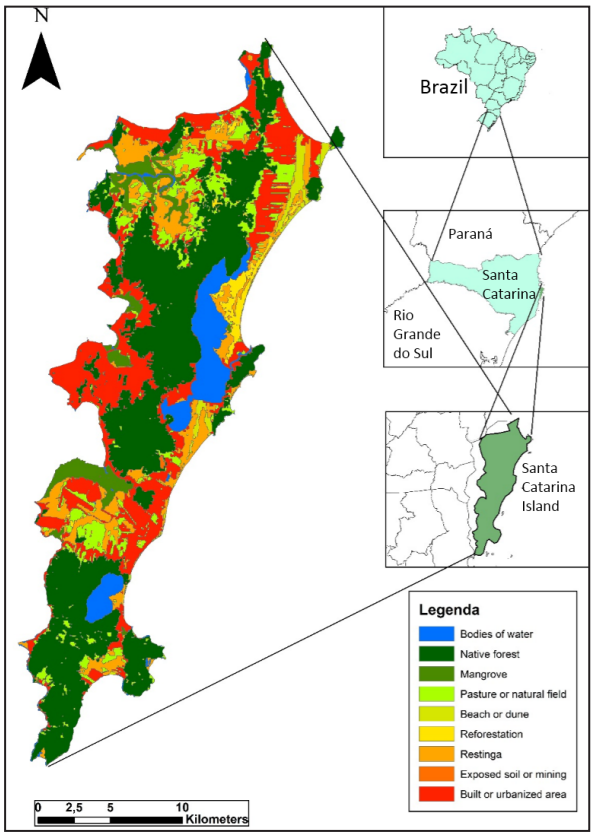

Figure 1. Location of Santa Catarina Island, off the coast of the state of Santa Catarina, southern Brazil.

Figure 2. Main ecosystems found on Santa Catarina Island: A) Montane Forest at Parque Municipal Lagoa do Peri; B) wetland and lowland forest (on the background) on the Ratones and Jurerê plains, (Ratones river basin, northwest of the island); C) Restingas and sand dunes on the eastern portion of the island (Moçambique beach); D) Mangroves near the mouth of the Ratones river (northwest of the island); E) a rivulet inside a lower-montane forest; F) interior of a lowland forest, with many bromeliads on the ground.

many epiphytes with an understory covered with bromeliads and a canopy averaging 15 m in height.

(3) *Restinga and sand dunes*: A coastal strip of shrubby vegetation that grows on Holocene sandy soils of the littoral plains. In the eastern portion of the Island, there are also banks of sand dunes accompanying the restingas. This habitat covers approximately 6% of the island's area.

(4) *Mangroves*: These forests, which occur only on the western coast of the island, are dominated by three tree species: *Aviccenia schaueriana, Rhizophora mangle* and *Laguncularia racemosa*. The mangroves cover about 6% of the island.

(5) *Wetlands*: They occur along the coastal plains. These areas are inhabited by many species of Cyperaceae. There are also two large lagoons on the island: *Lagoa do Peri* (a freshwater lagoon) and *Lagoa da Conceição* (a saltwater lagoon). Wetlands, including the lagoons, cover about 6% of the island's area.

(6) *Disturbed areas*: includes rural areas (old cattle pastures and abandoned agricultural lands) and urban areas.

Inventory of Taxa

Below we present a list of land and freshwater reptiles present on SCI. We compiled literature records and field observations made by the authors over the past two decades with data from the Herpetological Collections of the Federal University of Santa Catarina (CHUFSC) and the Federal University of Rio Grande do Sul (UFRGS), indicating the list of available specimens in the collections. A significant part of this material resulted from the authors' fieldwork. When global (*e.g.* Di-Bernardo *et al.*, 2000) or regional (Brazil: ICMBio, 2022; Santa Catarina: CONSEMA, 2011) conservation assessments are available they are noted. Habitat use is based mostly on field observations and, when available, on the literature and catalogue data of specimens in the CHUFSC and UFRGS collections. Nomenclature followed Uetz *et al.* (2022) and Guedes *et al.* (2023). Taxonomic comments are made when necessary. We also discuss some doubtful or misidentified species previously recorded for SCI.

Results

We recorded 36 autochthonous reptile species (including the naturalized gekkonid species *Hemidactylus mabouia*; see Costa and Bérnils (2015) and comments below) distributed among 31 genera and 15 families. Of these, 23 are snakes (63.9%), nine lizards (25%), two amphisbaenids (5.6%), one turtle (2.8%), and one crocodylian (2.8%). Additionally, we also recorded established populations of two introduced Emydid turtles, *Trachemys dorbigni* and *T. scripta*, totalizing 38 reptile species recorded for SCI, 13 of which (34.2%) are recorded here for the first time. Three species are threatened at a regional and/or global scale (Table 1; Figs. 3-5).

Table 1. List of terrestrial and freshwater reptiles recorded for Santa Catarina Island, southern Brazil. Status: Threat categories according to IUCN criteria at regional (Santa Catarina state = SC; Brazil = BR) and global (WR) scale. VU = Vulnerable; EN = Endangered. Habitat: 1 = montane forest; 2 = lowland forest; 3 = restinga; 4 = mangroves; 5 = wetlands; 6 = disturbed areas.

Taxon	Status	Habitat	Previous records
TESTUDINES			
Emydidae			
Trachemys dorbignyi (Duméril and Bibron 1835)	Exotic	4, 5, 6	Horus Institute
Trachemys scripta elegans (Wied 1838)	Exotic	4, 5, 6	Horus Institute
Chelidae			
Hydromedusa tectifera Cope 1870		1, 2, 4, 5, 6	Müller (1968c) Ghizoni Jr and Graipel (2005)
CROCODYLIA			
Alligatoridae			
Caiman latirostris (Daudin 1801)		4, 5, 6	Müller (1971b) Fusco-Costa *et al.* (2008)
SQUAMATA			
Gekkonidae			
Hemidactylus mabouia (Moreau de Jonnès 1818)		1, 2, 3, 6	Müller (1969b)

Mabuyidae			
Aspronema dorsivittatum (Cope 1862)		3, 6	Müller (1970b, 1971a, as *Mabuya mabouya*) Lema and Braun (1993, as *Mabuya dorsivittata*) Vrcibradic et al. (2004b, as *Mabuya dorsivittata*)
Leiosauridae			
Enyalius iheringii Boulenger 1885		1	Müller (1970b) Lema (1994)
Liolaemidae			
Liolaemus occipitalis Boulenger 1885	VU (WR, BR, SC)	3	Müller (1975, 1976)
Diploglossidae			
Ophiodes fragilis (Raddi 1820)		3, 6	Müller (1968a, 1971a, as *Ophiodes striatus*)
Gymnophthalmidae			
Colobodactylus taunayi Amaral 1933		1	new record
Placosoma glabellum (Peters 1870)		1	new record
Teiidae			
Contomastix lacertoides (Duméril and Bibron 1839)	EN (SC)	3	Vrcibradic *et al.* (2004a) Ghizoni Jr *et al.* (2009) (both as *Cnemidophorus lacertoides*)
Salvator merianae (Duméril and Bibron 1839)		1, 2, 3, 6	Müller (1969a, as *Tupinambis teguixin*) Ghizoni Jr and Graipel (2005, as *Tupinambis merianae*)
Amphisbaenidae			
Amphisbaena arenicola Perez and Borges-Martins (2019)		3	Perez and Borges-Martins (2019)
Leposternon microcephalum Wagler 1824		1, 2, 3, 6	new record
Typhlopidae			
Amerotyphlops brongersmianus (Vanzolini 1976)		3	new record
Colubridae			
Chironius exoletus (Linnaeus 1758)		1, 2, 3	Müller (1969a, as *Chironius pyrrhopogon*) Dixon *et al.* (1993) Kunz and Ghizoni Jr (2009)
Chironius foveatus Bailey 1955		1	Kunz and Ghizoni Jr (2009)
Chironius laevicollis (Wied 1824)		2, 5, 6	Müller (1969a) Dixon *et al.* (1993) Lema (1994, 2002)
Spilotes pullatus (Linnaeus 1758)		1	Müller (1968b) Kunz and Ghizoni Jr (2009)
Dipsadidae			
Cercophis auratus (Schlegel 1837)		2	Müller and Ritter (1978, as *Uromacerina ricardinii*)
Clelia plumbea (Wied 1820)	EN (SC)	1, 2	Müller (1974)
Dipsas albifrons (Sauvage 1884)		1	new record
Dipsas alternans (Fischer 1885)		1	new record
Dipsas neuwiedi (Ihering 1911)		1, 2, 3, 6	Kunz and Ghizoni Jr (2009, as *Sibynomorphus neuwiedi*)
Echinanthera cyanopleura (Cope 1885)		1	new record
Erythrolamprus miliaris (Linnaeus 1758)		1, 2, 3, 4, 5, 6	Müller (1969a) Lema and Braun (1993) (both as *Liophis miliaris*)

Imantodes cenchoa (Linnaeus 1758)	1	Kunz and Ghizoni Jr (2009)
Oxyrhopus clathratus Duméril, Bibron and Duméril 1854	1	new record
Philodryas aestiva (Duméril, Bibron and Duméril 1854)	3, 6	new record
Pseudablabes patagoniensis (Girard 1858)	3	new record
Siphlophis pulcher (Raddi 1820)	1	Prudente *et al.* (1998)
Dibernardia bilineatus (Fischer 1885)	1	Kunz and Ghizoni Jr (2009)
Tropidodryas serra (Schlegel 1837)	1	new record
Xenodon neuwiedii Günther 1863	1	new record
Elapidae		
Micrurus corallinus (Merrem 1820)	1, 2, 3, 6	Müller (1974b) Kunz and Ghizoni Jr (2009)
Viperidae		
Bothrops jararaca (Wied 1824)	1, 2, 3, 6	Müller (1971a, 1974b) Campbell and Lamar (2004)
Bothrops jararacussu Lacerda 1884	1, 2	new record

Species Accounts

TESTUDINES
Family Chelidae
Hydromedusa tectifera Cope, 1870 (Fig. 3B)
Material: CHUFSC 3132, UFRGS 7393. **Comment:** This snake-necked turtle is the only native freshwater turtle of SCI. It is habitat generalist, occurring from small montane rivulets to mangroves, and appears to be most active at night. Müller (1968c) reported the finding of seven specimens in a water reservoir at "Morro da Lagoa" (500 m.a.s.l) and commented briefly on sexual dimorphism (females of the sample had smaller plastrons than males). Ghizoni-Jr and Graipel (2005) reported an accidental bycatch of this species at Lagoa do Peri Park using live-traps for small mammals in a rivulet. Recently, at 27 march 2023, an individual was recorded in a stream in the middle of the forest in the RPPN Morro das Aranhas in the north of ISC in the early afternoon.

Family Emydidae
Trachemys dorbigni (Duméril and Bibron, 1835)
Material: none. **Comment:** Exotic. This species is considered native to Brazil only in the neighboring state of Rio Grande do Sul, even though it probably also occurs in the southeastern coastal plains of Santa Catarina (see comments in Tortato *et al.*, 2014). It is common in the pet trade and an established population occurs in the small-polluted rivers that drain to the Itacorubi Mangrove.
Trachemys scripta elegans (Wied, 1838)
Material: none. **Comment:** Exotic. This North American Emydid turtle is a worldwide invasive species due to pet trade. On SCI, as for *T. dorbigni*, a probably reproductive population occurs in the Itacorubi basin. Tortato *et al.* (2014) reported evidence of reproduction of this species in natural areas near SCI.

CROCODYLIA
Family Alligatoridae
Caiman latirostris (Daudin, 1801) (Fig. 3A)
Material: CHUFSC 354. **Comment:** The broad-snouted caiman still occurs in the major mangroves, lakes, lagoons and in the main lowland drainages of SCI. Indeed, its populations are recovering and it can now be seen even in small and polluted rivers and channels inside urban areas.

SQUAMATA - Lizards
Family Diploglossidae
Ophiodes fragilis (Raddi, 1820) (Fig. 3H)
Material: CHUFSC 735, 1376, UFRGS 6736, 7316. **Comment:** Müller (1968a), in a work on the herpetofauna of Campeche Island (a small island east off SCI), besides specimens of this species (as *Ophiodes striatus*) from that island, also lists two specimens from SCI. Found usually in disturbed areas or forest edges, but never inside dense forests. It was quite

Figure 3. Reptile species from Santa Catarina Island: A) *Caiman latirostris*; B) *Hydromedusa tectifera*; C) *Amphisbaena arenicola*; D) *Leposternon microcephalum*; E) *Aspronema dorsivittatum*; F) *Enyalius iheringii*; G) *Liolaemus occipitalis*; H) *Ophiodes fragilis.*

abundant at the Federal University of Santa Catarina campus until the mid-1990s.

Family Gekkonidae
Hemidactylus mabouia (Moreau de Jonnès, 1818)
Material: none. **Comment:** Contrary to what Rocha *et al.* (2011) stated, the data obtained by Müller (1969b) for several southeastern Brazilian islands, including SCI, demonstrates that this widespread gekkonid has long been established on the Brazilian coast. On SCI, this species is abundant, both in urban and natural environments. One specimen was found in the stomach content of a juvenile *Bothrops jararacussu* (CHUFSC 714) from "Ribeirão da Ilha" at the southern portion of the island.

Family Gymnophthalmidae
Colobodactylus taunayi Amaral, 1933 (Fig. 4A)
Material: CHUFSC 691, 698-99, 736. **Comment:** This is a cryptic, poorly known species distributed across the Atlantic Forest from São Paulo to Santa Catarina. Previously known for the Itajaí Valley (Bérnils *et al.*, 2001) at northern Santa Catarina, this is the first record for SCI and the southernmost for the species. Observed only in montane forests. Four specimens were caugh in pitfall traps at Lagoa do Peri (TSK, unpublished data). In other three occasions the species was observed active in the leaf litter, into which the species rapidly tried to submerge to escape. Two were active during the day, in the early afternoon, and one was observed active at midnight.
Placosoma glabellum (Peters, 1870)
Material: CHUFSC 2694. **Comment:** Recorded here for the first time for SCI. Besides the preserved material, from a forest area near Lagoa da Conceição, there are only two photographic records of lizards of the genus *Placosoma* for SCI. However, these photographic records do not allow a clear differentiation between *P. glabellum* and *P. cordylinum*. Both species are Atlantic Forest endemic species and have their current southern distribution limits at northern Santa Catarina (Bérnils *et al.*, 2007). One of these records was obtained from inside a bromeliad (*Canistrum lindenii*) on the floor of a secondary forest (J. Steiner and A. Zillikens, personal communication) and the other was found in debris in a disturbed area near forest edges (C. Salvador, personal communication).

Family Leiosauridae
Enyalius iheringii Boulenger, 1885 (Fig. 3F)
Material: CHUFSC 133, 567, 739-740, 753. **Comment:** Observed only in montane forests. Lema (1994) stated that it is abundant on SCI (on the hill known as "Morro da Lagoa"). During a study at the Lagoa do Peri Park, between 2005 and 2007, 13 specimens were recorded, eight of which caught in pitfall traps (TSK, unpublished data).

Family Liolaemidae
Liolaemus occipitalis Boulenger, 1885 (Fig. 3G)
Material: CHUFSC 183, 493-97, 537-38, 568. **Comment:** This sand-dweller lizard occurs on the larger sand dunes of eastern SCI, between Lagoa da Conceição (the largest lagoon on SCI) and Joaquina beach and Ingleses/Santinho/Moçambique beaches. The island is the northern distribution limit of this globally threatened species (Silveira *et al.* 2021).

Family Scincidae
Aspronema dorsivittatum (Cope, 1862) (Fig. 3E)
Material: CHUFSC 95, 100-01, 110, 135, 336-337, 528, 692-93, 737. **Comment:** Most frequently seen on rocky seashores, restingas and occasionally in disturbed areas. Abundant on the rocky seashore of Santinho Beach and in the restingas near the Carijós Ecological Station.

Family Teiidae
Contomastix lacertoides (Duméril and Bibron, 1839) (Fig. 4B)
Material: CHUFSC 512-14, 518, UFRGS 6852. **Comment:** This regionally threatened species is actually a complex of cryptic species distributed in open areas along the Pampas and the southern Brazilian restingas (Rio Grande do Sul and Santa Catarina; M. Borges-Martins, personal communication). SCI is the northernmost limit for this species (Vrcibradic *et al.*, 2004a), which is known only in some restingas of eastern SCI.
Salvator merianae (Duméril and Bibron, 1839) (Fig. 4C)
Material: CHUFSC 738. **Comment:** This large, widespread and habitat generalist lizard is active mainly between October and March (personal observation) on SCI. It is abundant on the island and sometimes hunted by locals for food.

SQUAMATA - Amphisbaenians
Family Amphisbaenidae
Amphisbaena arenicola Perez and Borges-Martins, 2019 (Fig. 3C)

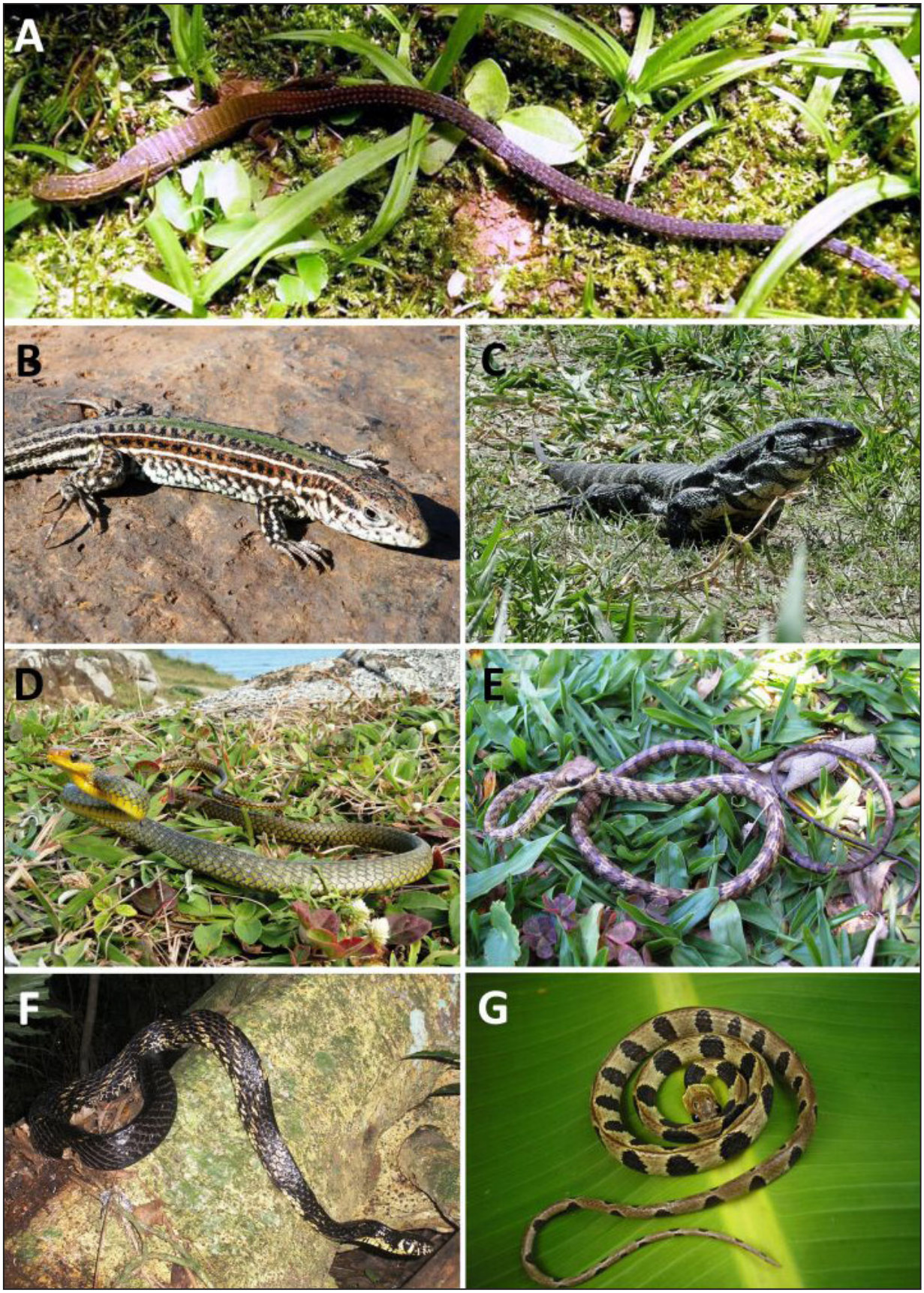

Figure 4. Reptile species from Santa Catarina Island: A) *Colobodactylus taunayi*; B) *Contomastix lacertoides*; C) *Salvator merianae*; D) *Chironius exoletus*; E) *Chironius foveatus*; F) *Spilotes pullatus*; G) *Dipsas alternans*.

Material: CHUFSC 668, 683, 696, UFRGS 5892-94, 6303, 6615-16, 6702. **Comment:** Frequent on the sandplains of the northeastern portion of the island (the restingas of Ingleses and Rio Vermelho), and closely related to *Amphisbaena munoai* from the Pampa region of Uruguay and Rio Grande do Sul (Perez and Borges-Martins, 2019).

Leposternon microcephalum Wagler, 1824 (Fig. 3D)

Material: CHUFSC 682, 697, 700, 744, 978-79, UFRGS 7330. **Comment:** This widespread amphisbaenid is reported here for the first time for SCI. We recorded this species in restingas, montane forests and even urban areas, but it seems to be more frequent in the sandy, lowland plains. A specimen was regurgitate by a *Micrurus corallinus*, found in the restinga of Ratones.

SQUAMATA - Snakes

Family Colubridae

Chironius exoletus (Linnaeus, 1758) (Fig. 4D)

Material: CHUFSC 60-61, 65-66, 369, 373, 484, 492, 519, 522, 564, 833-36, 881, 971, UFRGS 7063. **Comment:** It is probably one of the most frequent snake species of the island, found in most habitat types, but especially in the restingas and in forest edges, including disturbed areas. This diurnal, semi-arboreal species, as most of its genus, is diet specialist, feeding mostly on anurans. One specimen was observed feeding on a leptodactylid frog *Leptodactylus paranaru*, which was actively found under debris in the morning. After swallowing the frog, the snake climbed a tree and remained inactive partially exposed to the sun for about 40 minutes.

Chironius foveatus Bailey, 1955 (Fig. 4E)

Material: CHUFSC 686, 797. **Comment:** Two juvenile specimens were found inactive at night in the vegetation (about1.5 m high) and another was found active during the day also in the vegetation at Lagoa do Peri. Very large specimens were found active on the forest floor at Morro da Lagoa (about 2.5 m total length) and in Sertão do Peri. At Morro da Lagoa, a juvenile was found dead on an unpaved road (Kunz and Ghizoni Jr., 2009). All records of this Atlantic Forest endemic species were obtained on dense mountain forests, and SCI is the southernmost record for the species.

Chironius laevicollis (Wied, 1824)

Material: CHUFSC 270. **Comment:** Recorded by Müller (1969a) for the surroundings of Lagoa da Conceição, the largest lagoon on the island (same material examined by Dixon *et al.*, 1993), and by Lema (1994) at the Rio Vermelho State Park, which lies between this lagoon and the ocean at northeastern SCI. The collected material comes from Rio Tavares, and we have observed this species only two times, both near the Carijós Ecological Station. This locality is on the island's largest plain and also largest hydrographic basin (Ratones river basin). All known records come from lowland plains.

Spilotes pullatus (Linnaeus, 1758) (Fig. 4F)

Material: CHUFSC 88, 266, 475, 751.

Comment: Müller (1968b) recorded it for the first time for SCI, reporting the finding of a female (2200 mm in total length) on the roof of a ruined distillery at Lagoa do Peri. Largest snake of the island, one specimen (male) found in the montane forest west of Lagoa do Peri measured 2800 mm in total length. Not rare, but nowadays it seems to be restricted to the largest forest remains, mostly in mountain areas.

Family Dipsadidae

Cercophis auratus (Schlegel, 1837)

Material: none. **Comment:** Müller and Ritter (1978) reported four specimens from Lagoa do Peri. This is a very rare snake along all its distribution. Three of the four specimens mentioned by Müller and Ritter were sent to Saarland University (Germany) and one is reported to be at the Federal University of Rio Grande do Sul (UFRGS; Porto Alegre, Brazil). Unfortunately, this material was not found in that collection and seems to be lost. One specimen at the CHUFSC is not catalogued and has no collection data.

Clelia plumbea (Wied, 1820)

Material: CHUFSC 49, 271, 526. **Comment:** First recorded by Müller (1974a), who reported a very large female (217 cm in total length) of this mainly ophiophagous snake for the island. Lema (1994) reported the species for Florianópolis (probably referring to the island area of the city) without any further information. The three voucher specimens referred to above were collected between 1977 and 1990. A juvenile was observed by one of us (TSK) near the Federal University of Santa Catarina campus in 1990, an area in the central portion of the island now completely urbanized. The populations of this species seem to be declining in the state of Santa Catarina, where it occurs only at the eastern portion in lowland and lower montane Atlantic Forest areas. It is considered now a very rare snake, listed as vulnerable on the regional red list of threatened species (CONSEMA, 2011).

Dipsas albifrons (Sauvage, 1884)

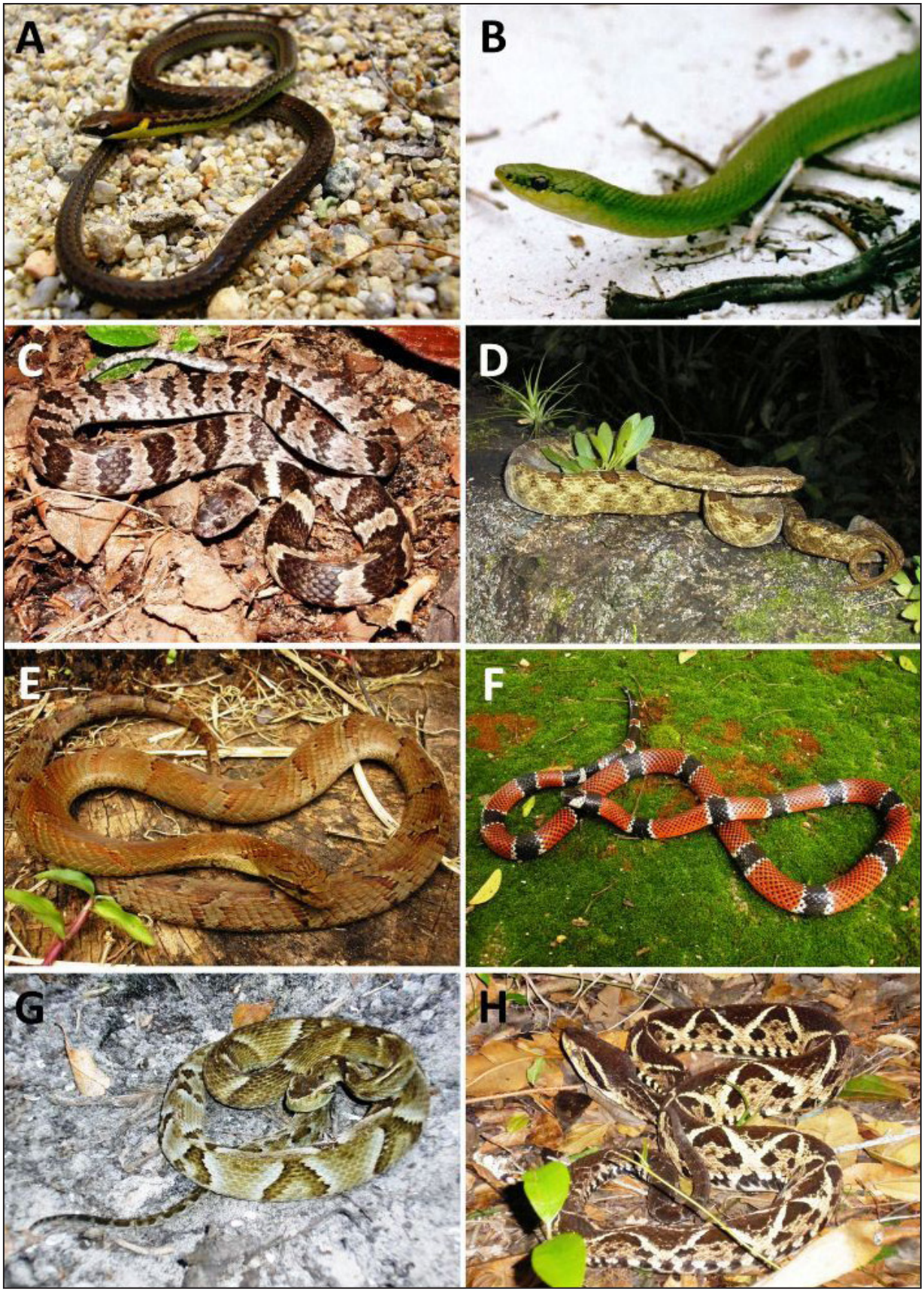

Figure 5. Reptile species from Santa Catarina Island: A) *Echinanthera cyanopleura*; B) *Philodryas aestiva*; C) *Dipsas neuwiedi*; D) *Tropidodryas serra*; E) *Xenodon neuwiedii*; F) *Micrurus corallinus*; G) *Bothrops jararaca*; H) *Bothrops jararacussu*.

Material: CHUFSC 517. **Comment:** This voucher specimen is the only known record of the species for SCI, which is reported here for the first time. It was collected in 1990 in the central portion of the island (Pantanal), an area now mostly urbanized.

Dipsas alternans (Fischer, 1885) (Fig. 4G)

Material: CHUFSC 1135. **Comment:** The only known record of this species for the island, which is reported here for the first time, was obtained at a well-preserved montane forest west of Lagoa do Peri (M. Graipel, personal communication).

Dipsas neuwiedi (Ihering, 1911) (Fig. 5C)

Material: CHUFSC 53, 63, 78, 82, 84, 185-86, 204, 242, 267, 351, 368, 376, 563, 566, 589, 593, 610-11, 659, 706, 815, 1047, 1159, 1243, UFRGS 5689. **Comment:** A very common snake in all eastern Santa Catarina State, including SCI. It is a malacophagous snake that is frequently found in disturbed areas near forest edges.

Echinanthera cyanopleura (Cope, 1885) (Fig. 5A)

Material: CHUFSC 743. **Comment:** The only known record of this species, which is reported here for the first time, was obtained in a well-preserved montane forest west of Lagoa do Peri. The specimen (a female, 38.5 mm in total length) was found active in the leaf litter at early afternoon (TSK, unpublished data).

Erythrolamprus miliaris (Linnaeus, 1758)

Material: CHUFSC 37, 41, 45, 50, 54-55, 57-58, 67, 210, 258, 390, 476, 506, 562, 569, 583, 876. **Comment:** Müller (1969a) stated that this is the most common snake species on SCI. This is a semi-aquatic species frequent in the lowland wetlands of the island. Though a habitat generalist species, with an apparent preference for open and disturbed areas, being one of the few reptiles, together with *Caiman latirostris* and *Hydromedusa tectifera*, which can be found in the mangroves, it is rarely seen on dense montane forest. This preference for lowland areas may have contributed to the apparent reduction in the species abundance over the past few years.

Imantodes cenchoa (Linnaeus, 1758)

Material: CHUFSC 688. **Comment:** The only known specimen for SCI was found dead on a road at Morro da Lagoa (Kunz and Ghizoni Jr., 2009). This is the southernmost record for this widespread species along the Brazilian coastal Atlantic Forest. The species also occurs in similar latitudes in the inland Atlantic Forest of Misiones and west in the Chaco, Argentina (Giraudo, 2001), but is absent from the temperate grasslands and Araucaria Forests of the southern Brazilian plateau that separates these populations.

Oxyrhopus clathratus Duméril, Bibron and Duméril, 1854

Material: CHUFSC 684. **Comment:** the first known record of this species reported here for the first time for SCI was obtained during earthmoving at a construction site near forest remnants. This false coral snake presents an ontogenetic shift in color pattern, with juveniles invariably having white and black bands. The white bands are progressively invaded with red or brown bands in adults (Bernardo *et al.* 2012). The near 100 mm long freshly killed (by workers) and headless specimen from SCI presented a bright red and black pattern, which is not common in specimens from the southernmost populations, where adults of the same size are usually melanic. The second record was of a red-black specimen run over in the south of ISC.

Philodryas aestiva (Duméril, Bibron and Duméril, 1854) (Fig. 5B)

Material: CHUFSC 68, 73, 352, 545, 577, 685. **Comment:** This snake is associated with open areas. In SCI, it is found in restingas and lowland disturbed areas. Until the mid-1990s, the species was common in the area of the Federal University of Santa Catarina campus and surrounding areas that are now completely urbanized. Reported here for the first time for SCI.

Pseudablabes patagoniensis (Girard, 1858)

Material: CHUFSC 205, 556, 559, 690. **Comment:** Associated with open areas, this snake is found only in some restinga areas of the island. A population occurs at the sand dunes and restinga between Lagoa da Conceição and Joaquina beach. Reported here for the first time for SCI.

Siphlophis pulcher (Raddi, 1820)

Material: CHUFSC 715-16, UFRGS 6733. **Comment:** A very rare snake. The three collected specimens were found in the yards of residences neighboring forest areas. All specimens were obtained already dead directly from residents. These are the southernmost records for the species.

Dibernardia bilineata (Fischer, 1885)

Material: CHUFSC 687. **Comment:** The only known specimen from SCI was found run over on an unpaved road at Morro da Lagoa, within a well preserved dense forested area (Kunz and Ghizoni Jr., 2009).

Tropidodryas serra (Schlegel, 1837) (Fig. 5D)

Material: CHUFSC 385, 487, 541, 561, 573, 586, 626, 719. **Comment:** This snake is an Atlantic Fo-

rest endemic species with mainly arboreal habits. Its arboreal habits make it a hard-to-observe snake. At Lagoa do Peri Park the species was observed partially coiled in a tree branch about two meters above the ground. It was active during the day with its head elevated, apparently in an ambush position. One specimen from the didactic collection of the Federal University of Santa Catarina (no collection data) contained an unidentified bird (Passeriformes) in the stomach.

Xenodon neuwiedii Günther, 1863 (Fig. 5E)

Material: CHUFSC 689, 1090. **Comment:** The few records of this snake on SCI are for densely forested mountain areas such as Morro da Lagoa and Ribeirão da Ilha. Reported here for the first time for SCI. A third specimen from Florianópolis (CHUFSC 52) lacks precise locality data.

Family Elapidae

Micrurus corallinus (Merrem, 1820) (Fig. 5F)

Material: CHUFSC 13-23, 25, 27, 30, 33-35, 189, 196, 209, 216, 254, 257, 265, 275, 353, 356, 359, 365, 372, 374, 378, 383-84, 391-92, 485-86, 491, 565, 585, 617, 621-22, 667, 701, 733-34, 798, 877, 885, 887-89, 892, 896, 912, 964, 966-69, 972-77, 1008, 1495, UFRGS 6699-6700, 6991, 7001, 7003. **Comment:** This coral snake is one of the most common snake species on the island. Müller (1974b) illustrated the coloration patterns of 25 specimens from SCI. It is found from mountain forests to restingas, including disturbed areas, although it is more frequent in forested areas. On SCI, the species was observed feeding upon *Dipsas neuwiedii*, *Aspronema dorsivittatum* and *Leposternon microcephalum*. We have also observed cannibalism on two occasions, one where recently collected individuals were kept together and the other an attempt of cannibalism in the field, when a large adult male (UFRGS 6991; 816 mm in total length) was found biting a young female (UFRGS 7001; 458 mm in total length) before both were killed by locals.

Family Typhlopidae

Amerotyphlops brongersmianus (Vanzolini, 1976)

Material: CHUFSC 1503. **Comment:** There is only one record for this widespread worm snake on SCI, from Armação Beach. Reported here for the first time for SCI.

Family Viperidae

Bothrops jararaca (Wied, 1824) (Fig. 5G)

Material: CHUFSC 3, 5, 7, 9-10, 12, 192, 197, 272, 377, 478, 558, 584, 587, 827, 843, 963, 970. **Comment:** This is the most common of the two pitvipers species found on the island. Associated with forested areas but also present in more densely vegetated restingas and on rocky seashores.

Bothrops jararacussu Lacerda, 1884 (Fig. 5H)

Material: CHUFSC 714, 799, 965, UFRGS 6735. **Comment:** This species is most frequent in the densely forested mountains of the southern portion of the island, especially in Ribeirão da Ilha and Pantano do Sul. A population also occurs in the lowland forest remnants of Ratones and Jurere, in the surroundings of the Carijós Ecological Station, where at least in some isolated forest patches it seems to be more abundant than *B. jararaca* (TSK, unpublished data). A young specimen from the southern portion of the island (Ribeirão da Ilha; CHUFSC 714) presented a *Hemidactylus mabouia* in the stomach. Reported here for the first time for SCI.

Doubtful or misidentified species previously reported for Santa Catarina Island

SQUAMATA - Lizards

Family Gymnophthalmidae

Cercosaura schreibersii (Wiegmann, 1834)

Comment: Müller (1970b), discussing the diet of *Philodryas pseudoserra* (now *Tropidodryas striaticeps*; see comments below), lists some lizard species from SCI, including *Pantodactylus schreibersii* (=*Cercosaura schreibersii*). This widespread gymnophthalmid lizard is known in Santa Catarina only for the southern Brazilian plateau, mainly associated with "campos" (grasslands). There are no records for this species in tropical Atlantic Forests of eastern Brazil and we believe that Müller's record may be based on misidentified *Colobodactylus taunayi* specimens.

Family Leiosauridae

Enyalius brasiliensis (Lesson, 1828)

Comment: This species was described based on two specimens from "Sainte-Catherine du Brésil" currently at the Muséum national d'Histoire naturelle, Paris. Regarding the locality data for the specimens, Jackson (1978) wrote: *"at the time of collection (1822) 'Santa Catarina' referred primarily to the island rather than to the interior of the present-day state. Collection occurred during a trans-world natural history expedition aboard the French ship La Conquille. According to Lesson (1828), the ship made its first and only Brazilian landfall at present-day Flo-*

rianópolis on Ilha de Santa Catarina. Collections were made on the island and nearby mainland during 16-29 October; then the ship sailed for temperate South America". Therefore, there is no reason to doubt the origin of the specimens. However, besides the type locality, the currently recognized *E. brasiliensis* is known only for southeastern Brazil in the states of Espirito Santo and Rio de Janeiro (Rodrigues *et al.*, 2006, 2014). The recent literature recognizes only *E. iheringii* in southern Brazil (Santa Catarina and Rio Grande do Sul) (*e.g.* Müller, 1970b**;** Jackson, 1978; Lema, 1994; Bérnils *et al.*, 2001; Rodrigues *et al.*, 2006, 2014; Bérnils *et al.*, 2007; Rautenberg and Laps, 2010). The main diagnostic characters between *E. brasiliensis* and *E. iheringii* are the presence of keeled subdigital lamellae (unkeeled or weakly keeled on the hind feet of *E. iheringii*) and scales on tail aligned in dorso-ventral rows with caudal autotomy (not aligned in dorso-ventral rows and absence of autotomy in *E. iheringii*) (Etheridge, 1969; Jackson, 1978; Rodrigues *et al.*, 2006). Besides the five examined specimens from SCI, we also examined other 14 *Enyalius* specimens from Santa Catarina, including two from the Arvoredo Island, 11 km northeast from SCI (CHUFSC 236, 338) and 11 specimens from the mainland (CHUFSC 465, 539-40, 555, 574, 670, 1156-57, 1331, 1353-54). All agreed with *E. iheringii*. Thus, despite the presumable origin of the syntypes of *E. brasiliensis*, we recognized only the presence of *E. iheringii* for SCI, waiting for more detailed studies on *E. brasiliensis* and its syntypes.

SQUAMATA - Snakes

Family Colubridae

Chironius bicarinatus (Wied, 1820)

Comment: Müller (1969a) recorded this species for SCI based on a specimen currently at the Geographisches Institut der Universität des Saarlandes, Germany (GIUS 3840). Dixon *et al.* (1993), in a revision of the genus *Chironius*, included in their examined material this same specimen under *C. bicarinatus*, reinforcing its identity. *Chironius bicarinatus* is a common snake species in Santa Catarina and it does occur in the mainland surrounding SCI. In fact, it is the most widespread snake of this genus in the state, being the only species known to occur at the higher portion of the state (southern Brazilian plateau) and in the seasonal (subtropical) forest in the west of the state (Kunz, 2012). It is also probably the most abundant species of the genus in the state, except for the coastal areas, where *exoletus* seems to be more abundant. Since we have never seen this species on the island and, to our knowledge, there is no other known material of this species from the island, we believe that this species does not occur on SCI because it is very unlikely that such a large and common snake with some preference for disturbed areas would be so rare on the island as to have only one specimen known until now. The data presented by Müller for this specimen does not allow it to be specifically determined as it falls within the variation of both *bicarinatus* and *exoletus*, but Müller highlights that the usually bright and evident vertebral stripe is faded and perceptible only in the first third of the body. This is a condition also observed in *exoletus*. One of the main diagnostic characters between these taxa is the dorsal scale row formula of 12-12-10 in *bicarinatus* and 12-12-8 in *exoletus* (Dixon *et al.* 1993). It is possible that the specimen from SCI may be an *exoletus* with an unusual dorsal scale row formula. In fact, one of the examined specimens we identified as *exoletus* (CHUFSC 522) present an irregular pattern in the posterior dorsal scale rows and a dorsal scale formula of 12-12-9/10. Unusual variation in otherwise diagnostic character such as the number of dorsal scale rows is not rare and known to occur in other snake species, as is the case for some *Xenodon* species (TSK, unpublished data). Other possibility is that Müller acquired the specimen from his collaborators in Florianópolis. Specimens catalogued only as being from "Florianópolis" are generally interpreted as coming from the island and may cause some confusion. Thus, until more material of this species from the island is available, we will refrain from including it in the island's reptile fauna.

Family Dipsadidae

Tropidodryas striaticeps (Cope, 1869)

Comment: Müller (1970b, 1971a) reported the finding of a specimen of *Philodryas pseudoserra* (currently *Tropidodryas striaticeps*) on SCI. We have examined 16 specimens from SCI and surrounding mainland, 10 of which are *T. serra* (CHUFSC 385, 473, 487, 541, 561, 573, 586, 626, 719, 818), including all specimens from SCI, and six are *T. striaticeps* (CHUFSC 381, 637-38, 819-20, 879). The main diagnostic characters between these taxa are number of ventral scales (218-237 in *serra* vs. 179-209 in *striaticeps*) and the presence of keeled dorsal scales in *serra* (vs. smooth dorsal scales in *striaticeps*) (Thomas and Dixon 1977), even though this character is

very subtle and discernible only in the posterior half of the body. Müller did not show character variation for this specimen. Despite the resemblance between both species, all *striaticeps* specimens analyzed can be also characterized by their color pattern, since the series of quadrate dorsal blotches are laterally limited by a bright cream border that its usually continuous, forming a white/cream line in the first third of the body given the typical striated pattern of this species (this character may be faded and subtle in old preserved specimens). *Tropidodryas serra* usually present a much more uniform color pattern, olive-gray with brown quadrate blotches not limited by a lateral bright border. This is exactly the pattern shown in the good photograph presented by Müller (1970b) for his specimen, which led us to believe that his record is actually based on a misidentified *T. serra*. Interestingly, although both species occur in the Atlantic Forest of eastern Santa Catarina, we have never recorded them sintopically. Apparently, based on the preserved material and field observations, *T. serra* is more common in coastal areas while *T. striaticeps* is usually found in more inland forests.

Xenodon guentheri Boulenger, 1894

Comment: Ferreira (1997) included in her analysis a specimen of this species from the collection of the Butantan Institute (IB 26053), with locality recorded as from SCI. Despite some other doubtful records (see Abegg *et al.*, 2016), this is an endemic species of Araucaria Forests at the higher altitudes of southern Brazil (Bérnils *et al.*, 2007; Kunz and Ghizoni Jr, 2009; Abegg *et al.*, 2016). Although it is a poorly known species, this is probably due to its restricted distribution in a region poorly studied regarding its herpetofauna. Actually, we have found it to be relatively frequent in the eastern portion of the southern Brazilian plateau in Santa Catarina State based on several recent records we have obtained in this region (including records published by Kunz and Ghizoni Jr, 2009 and Abegg *et al.*, 2016). Thus, we consider this a doubtful record.

Discussion

Santa Catarina Island is situated near the southern limits of the Atlantic Forest, a region of this biodiversity hotspot still poorly studied in relation to its herpetofauna. In southern Brazil, the tropical portion of this forest is restricted to a narrow stretch with low altitudes, between the ocean to the east and the higher mountains and the southern Brazilian plateau to the west. At least six endemic species of the Atlantic Forest (*Colobodactylus taunayi*, *Chironius foveatus*, *Chironius laevicollis*, *Placosoma glabellum*, *Siphlophis pulcher* and *Tropidodryas serra*) have their currently known southern distribution limit in SCI. Although the reptile fauna of SCI is mostly composed by Atlantic Forest species, there is also a group of species associated with open formations, some of these clearly related to the fauna of the pampas from Rio Grande do Sul, Uruguay and Argentina, as already noted by Müller (1969b, 1975). This is the case of the endangered lizards *Contomastix lacertoides* and *Liolaemus occipitalis*, both with their northern distribution limits at SCI, as its seems to be also the case of the *Amphisbaena munoai* complex distribution.

Occurrence of these species on SCI is due to the continuity of the sandy coastal plains and the line of dunes and restingas extending from SCI to Uruguay, though these plains are not totally continuous, being interrupted at points by the pre-cenozoic crystalline massif projecting into the ocean, especially between SCI and Farol de Santa Marta. On these rocky seashores, the vegetation is ombrophyllous with typical forest elements. However, the coastal plain is much wider south of SCI than northwards where the coast rests against the crystalline massifs that form the Serra do Mar coastal range. In this wide southern plain, a number of other Pampean reptiles also occur without reaching SCI, such as *Amphisbaena kingii*, *Micrurus altirostris*, *Bothrops pubescens* and *Xenodon dorbignyi* (see Ghizoni Jr *et al.*, 2009; Kunz *et al.*, 2011a). Species from open areas of southern South America with its northern limits at SCI also include some birds (Naka *et al.*, 2002) and at least one amphibian (Kunz and Ghizoni Jr, 2011), corroborating the statement of Naka *et al.* (2002) that "from a biogeographical and evolutionary perspective, it represents a transition between the Atlantic Forest and the Pampas".

The high reptile diversity found on SCI is due to both its environmental heterogeneity, allowing forest and non-forest species to coexist, and its large area. However, as predicted by the theory of island biogeography (MacArthur and Wilson, 1967), several species recorded for the surrounding mainland are apparently lacking from the island, as is the case of the lizard *Ecpleopus gaudichaudii* and the snakes *Helicops carinicaudus, Micrurus altirostris*, *Oxyrhopus rhombifer, Pseudoboa haasi, Sordellina punctata, Dryophilax hypoconia, and D. cf. nattereri,* in addition to *C. bicarinatus* and *T. striaticeps*, at least until

these species are confirmed for the island (records from CHUFSC and Ghizoni Jr *et al.*, 2009; Kunz and Ghizoni Jr, 2009; Kunz *et al.*, 2011a, b).

Acknowledgments

We are grateful to Renato S. Bérnils for valuable discussions on the island's herpetofauna and biogeography; to Markus Monzel for valuable help with Paul Müller's bibliography; to Benedito C. Lopes, Carlos J. C. Pinto, Paulo Simões-Lopes, Kay Saalfeld, Karla Scherer and Walter L. A. Santos for their assistance during the time we were working at the CHUFSC; to Selvino N. Oliveira (CHUFSC) and Márcio Borges-Martins (UFRGS) for giving us access to specimens under their care. Javier Toso provided the map. Karina Schröder and Raíssa F. Bressan (*in memoriam*) revised the English translation.

Literature cited

Abegg, A.D.; Balestrin, R.L.; Schossler, M.; Toso, J. & Ghizoni Jr, I.R. 2016. *Xenodon guentheri* Boulenger 1894 (Squamata, Dipsadidae): New state record and key to the genus *Xenodon* in the state of Rio Grande do Sul, *Boletin de la Sociedad Zoológica del Uruguay* 25: 72-84.

Bernardo, P.H.; Machado, F.A.; Murphy, R.W.; & Zaher, H. 2012. Redescription and morphological variation of *Oxyrhopus clathratus* Duméril, Bibron and Duméril, 1854 (Serpentes: Dipsadidae: Xenodontinae), *South American Journal of Herpetology* 7: 134-148.

Bérnils R.S.; Batista M.A., & Bertelli P.W. 2001. Cobras e lagartos do vale: levantamento das espécies de Squamata (Reptilia, Lepidosauria) da bacia do rio Itajaí, Santa Catarina, Brasil, *Revista de Estudos Ambientais* 3: 69-79.

Bérnils, R.S.; Giraudo, A.R.; Carreira, S., & Cechin S.Z. 2007. Répteis das porções subtropical e temperada da região Neotropical, *Ciência e Ambiente* 35: 101-136.

Bibby, C.J.; Collar, N.J.; Crosby, M.J.; Heath, F.; Imboden, C.; Johnson, T.H.; Long A.J.; Stattersfield, A.J. & Thirgoog S.J. 1992. *Putting biodiversity on the map: priority areas for global conservation*. International Council for Bird Preservation, Cambridge.

Brown Jr, K.S. & Brown, G.G. 1992. Habitat alteration and species loss in Brazilian forests, *in*: T.C. Whitmore & J.A. Sayer (eds.), *Tropical deforestation and species extinction*, Chapman & Hall, London, pp. 129-142.

Campbell, J.A. & Lamar, W.W. 2004. *The venomous reptiles of the western hemisphere*, Cornell University Press, Ithaca.

Caruso, M.M.L. 1983. *O desmatamento da Ilha de Santa Catarina de 1500 aos dias atuais*, Editora da UFSC, Florianópolis.

CECCA, 1997a, *Unidades de Conservação e Áreas Protegidas da Ilha de Santa Catarina: caracterização e legislação*, Insular, Florianópolis.

CECCA, 1997b. Uma cidade numa ilha, Insular, Florianópolis.

CONSEMA, 2011. *Resolução Consema n° 002, de 06 de dezembro de 2011. Reconhece a Lista Oficial de Espécies da Fauna Ameaçadas de Extinção no Estado de Santa Catarina e da outras providências*, Diário Oficial de Santa Catarina, Florianópolis.

Costa, H.C. & Bérnils, R.S. 2015. Répteis brasileiros: Lista de espécies 2015. *Herpetologia Brasileira* 4(3): 75-93. Disponível em:http://www.sbherpetologia.org.br/images / LISTAS/ 2015 -03-Repteis.pdf (acesso: 7 out.2016).

Di Bernardo, M.; Borges-Martins, M. & Oliveira R.B. 2000. *Liolaemus occipitalis*. The IUCN Red List of Threatened Species, http://dx.doi.org/10.2305/IUCN.UK.2000.RLTS.T39908A10282088.en (accessed on may 3, 2024).

Dixon, J.R., Wiest, J.A. & Cei, J.M. 1993. Revision of the Neotropical snake genus *Chironius* Fitzinger (Serpentes, Colubridae), *Monografie dei Museo Regionale di Scienze Naturali di Torino* 13: 1-279.

Etheridge, R. 1969. A review of the iguanid lizard genus *Enyalius*, *Bulletin of the British Museum of Natural History (Zoology)* 18: 231-260.

Ferreira, V.L. 1997. Aspectos zoogeográficos de *Xenodon* Boie, 1826 e *Waglerophis* Romano et Hoge, 1973 (Serpentes, Colubridae, Xenodontinae, Xenodontini), *Biociências* 5: 109-139.

Fusco-Costa, R.; Castellani T.T. & Tomás W.M. 2008. Abundância e locais de ocorrência do jacaré-de-papo-amarelo (*Caiman latirostris*, Alligatoridae) no noroeste da ilha de Santa Catarina, SC, *Biotemas* 21: 183-187.

Ghizoni Jr, I.R. & Graipel, M.E. 2005. Capturas acidentais de vertebrados em estudos com pequenos mamíferos no estado de Santa Catarina, sul do Brasil, *Biotemas* 18: 163-180.

Ghizoni Jr, I.R.; Kunz, T.S.; 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.

Giraudo, A.R. 2001. *Serpientes de la selva Paranaense y del Chaco húmedo*, LOLA, Buenos Aires.

Graipel, M.E.; Cherem, J.J. & Ximenez, A. 2001. Mamíferos terrestres não voadores da Ilha de Santa Catarina, sul do Brasil, *Biotemas* 14: 109-140.

Guedes, T.B.; Entiauspe-Neto, O.M. & Costa, H.C. 2023. Lista de répteis do Brasil: atualização de 2022. *Herpetologia Brasileira* 1: 56-161.

Horus Institute for Environmental Conservation and Development 2021. *Base de Dados Nacional de Espécies Exóticas Invasoras*, http://bd.institutohorus.org.br (accessed on September 14, 2021).

IBGE 2022. *Censo Demográfico 2022*, https://cidades.ibge.gov.br/brasil/sc/florianopolis/panorama (accessed on May 1, 2024).

ICMBio 2022. *Lista das Espécies da Fauna Brasileira Ameaçadas de Extinção*, https://in.gov.br/en/web/dou/-/portaria-mma-n-148-de-7-de-junho-de-2022-406272733 (accessed on May 01, 2024).

Jackson, J.F. 1978. Differentiation in the genera *Enyalius* and *Strobilurus* (Iguanidae): implications for Pleistocene climatic changes in eastern Brazil, *Arquivos de Zoologia* 30: 1-79.

Kunz, T.S. 2012. Répteis, *in*: J. J. Cherem & V. Salmoria (eds.), *Fisiografia, Flora e Fauna do Rio Irani*, ETS, Florianópolis, pp. 103-116.

Kunz, T.S. & Ghizoni Jr, I.R. 2009. Serpentes encontradas mortas em Rodovias do estado de Santa Catarina, Brasil, *Biotemas* 22: 91-103.

Kunz, T.S. & Ghizoni Jr, I.R. 2011. Amphibia, Anura, Cycloramphidae, *Odontophrynus maisuma* Rosset, 2008: Distribution extension and geographic distribution map, *Check List* 7: 131-132.

Kunz, T.S.; Ghizoni Jr, I.R. & Giasson, L.O.M. 2011a. Novos registros de répteis para as áreas abertas naturais do planalto e do litoral sul de Santa Catarina, Brasil, *Biotemas* 24: 59-68.

Kunz, T.S.; Ghizoni Jr, I.R., & Graipel, M.E. 2011b, Reptilia, Squamata, Gymnophthalmidae, *Ecpleopus gaudichaudi* Duméril and Bibron, 1839: Distribution extension in the state of Santa Catarina, Brazil, *Check List* 7: 11-12.

Lema, T. 1994. Lista comentada dos répteis ocorrentes no Rio Grande do Sul, Brasil, *Comunicações do Museu de Ciências e Tecnologia da PUCRS, Série Zoologia* 7: 41-150.

Lema, T. & Braun P.C. 1993. Contribuição à herpetologia da Argentina e do Rio Grande do Sul, Brasil por William Wright Milstead (Amphibia, Reptilia), *Revista Brasileira de Zoologia* 10: 261-287.

MacArthur, R.H. & Wilson, E.O. 1967. *The Theory of Island Biogeography*, Princeton University Press, Princeton.

Müller, P. 1968a. Beitrag zur Herpetofauna der Insel Campeche (27°42'S/48°28'W)," *Salamandra* 4: 47-55.

Müller, P. 1968b. Bemerkungen zu den beiden südamerikanischen Natternarten *Spilotes pullatus* und *Pseustes sulphureus*, *Aquaterra* 5: 108-112.

Müller, P. 1968c. Zur Verbreitung der Gattung *Hydromedusa* (Testudines, Chelidae) auf den südostbrasilianischen Inseln, *Salamandra* 4: 16-26.

Müller, P. 1969a. Zur Verbreitung der Gattung *Chironius* (Serpentes, Colubridae) auf den südbrasilianischen Inseln, *Senckenbergiana biologica* 50: 133-141.

Müller, P. 1969b. Zur Verbreitung von *Hemidactylus mabouia* (Moreau de Jones) auf den brasilianischen Inseln, *Zoologischer Anzeiger* 182: 196-203.

Müller, P. 1969c. Vertebratenfaunen brasilianischer Inseln als Indikatoren für glaziale und postglaziale Vegetationsfluktuationen, *Abhandlungen der Deutschen Zoologischen Gesellschaft, Zoologischer Anzeiger, Supplement-Band* 33: 97-107.

Müller, P. 1970a. Durch den Menschen bedingte Arealveränderungen brasilianischer Wirbeltiere, *Natur und Museum* 100: 37-68.

Müller, P. 1970b. Die Verschiedenheit der Nahrung von *Philodryas pseudoserra*, *DATZ* 23: 91-92.

Müller, P. 1971a. Herpetologische reiseeindrücke aus Brasilien, *Salamandra* 7: 9-30.

Müller, P. 1971b. Zum Vorkommen von *Caiman latirostris* (Daudin, 1802) auf der Insel von Santa Catarina, *Aquaterra* 5: 59-60.

Müller, P. 1974a. *Clelia clelia plumbea* von der Insel Florianópolis (Santa Catarina, Brasilien) (Serpentes, Colubridae), *Salamandra* 10: 43.

Müller, P. 1974b. Die Giftschlangen der südostbrasilianischen Inseln, *Das Aquarium* 61: 312–316.

Müller, P. 1975. Zum Vorkommen von *Liolaemus occipitalis* im Staat von Santa Catarina (Brasilien) (Sauria, Iguanidae), *Salamandra* 11: 57–59.

Müller, P. 1976. Biotope des brasilianischen Erdleguans *Liolaemus occipitalis*, *Das Aquarium* 84: 268-271.

Müller, P. & Ritter, C. 1978. Erstnachweis von *Uromacerina ricardinii* (Peracca, 1897) für den Staat von Santa Catarina (Brasilien) (Reptilia: Serpentes: Colubridae), *Salamandra* 14: 44.

Myers, N.; Mittermeier R.A.; Mittermeier, C.G.; Fonseca, G.A.B. & Kent, J. 2000. Biodiversity hotspots for conservation priorities, *Nature* 403: 853-858.

Naka, L.N.; Rodrigues, M.; Roos, A.L. & Azevedo, M.A.G. 2002. Bird conservation on Santa Catarina Island, Southern Brazil, *Bird Conservation International* 12: 123–150.

Olimpio, J. 1995. *Conservação da fauna de mamíferos silvestres da Ilha de Santa Catarina: aspectos biogeográficos, históricos e sócio-ambientais. Master Thesis*, Federal University of Santa Catarina, Florianópolis.

Perez, R. & Borges-Martins, M. 2019. Integrative taxonomy of small worm lizards from Southern South America, with description of three new species (Amphisbaenia: Amphisbaenidae), *Zoologischer Anzeiger* 283: 124-141.

Prudente, A.L.C.; Moura-Leite, J.C. & Morato, S.A.A. 1998. Alimentação das espécies de *Siphlophis* Fitzinger (Serpentes, Colubridae, Xenodontinae, Pseudoboini), *Revista Brasileira de Zoologia* 15: 375-383.

Rautenberg, R. & Laps, R.R. 2010. Natural history of the lizard *Enyalius iheringii* (Squamata, Leiosauridae) in southern Brazilian Atlantic forest, *Iheringia, Série Zoologia* 100: 287-290.

Rocha, C.F.D.; Anjos, L.A. & Bergallo, H.G. 2011. Conquering Brazil: the invasion by the exotic gekkonid lizard *Hemidactylus mabouia* (Squamata) in Brazilian natural environments, *Zoologia* 28: 747-754.

Rodrigues, M.T.; Freitas, M.A.; Silva, T.F.S. & Bertolotto C.E.V. 2006. A new species of lizard genus *Enyalius* (Squamata, Leiosauridae) from the highlands of Chapada Diamantina, state of Bahia, Brazil, with a key to species, *Phyllomedusa* 5: 11-24.

Rodrigues, M.T.; Bertolotto, C.E.V.; Amaro, R.C.; Yassuda Y.Y., Freire E.M.X., and Pellegrino, K.C.M. 2014. Molecular phylogeny, species limits, and biogeography of the Brazilian endemic lizard genus *Enyalius* (Squamata: Leiosauridae): An example of the historical relationship between Atlantic Forest and Amazonia, *Molecular Phylogenetics and Evolution* 81: 137-146.

Silveira, A.L.; da Rocha, C.; Nogueira, C.C.; Werneck, F.; de Moura, G.J.B.; Winck, G.; Ribeiro Júnior, M.A.; Kiefer, M.; de Freitas, M.A.; Hoogmoed, M.S.; Tinôco, M.S.T.; Valadão, R.; Cardoso Vieira, R.; Perez Maciel, R.; Gomes Faria, R.; Recoder, R.; D'Ávila, R.; Torquato da Silva, S.; de Barcelos Ribeiro, S. & Avila-Pires, T.C.S. 2021. *Liolaemus occipitalis. The IUCN Red List of Threatened Species* 2021: e.T39908A67479751. https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T39908A67479751.pt. Accessed on 03 May 2024.

Thomas, R.A. & Dixon, J.R. 1977. A new systematic arrangement for *Philodryas serra* (Schlegel) and *Philodryas pseudoserra* Amaral (Serpentes: Colubridae), *The Pearce-Sellards Series* 27: 1-20.

Tortato, M.A.; Bressan, R.F. & Kunz, T.S. 2014. Reproduction of two exotic species of *Trachemys* Agassiz, 1857 (Testudines, Emydidae) at Parque Estadual da Serra do Tabuleiro, state of Santa Catarina, Southern Brazil, *Herpetology Notes* 7: 11–15.

Uetz, P.; Freed, P.; Aguilar, R. & Hošek, J. 2022. *The Reptile Database*, http://www.reptile-database.org (accessed on October 23, 2022).

Vrcibradic, D.; Rocha, C.F.D.; Menezes, V.A. & Ariani, C.V. 2004a. Geographic distribution: *Cnemidophorus lacertoides*, *Herpetological Review* 35: 408.

Vrcibradic, D.; Rocha, C.F.D., Menezes, V.A. & Ariani, C.V. 2004b, Geographic distribution: *Mabuya dorsivittata*, *Herpetological Review* 35: 409.

© 2024 por los autores, licencia otorgada a la Asociación Herpetológica Argentina. Este artículo es de acceso abierto y distribuido bajo los términos y condiciones de una licencia Atribución-No Comercial 4.0 Internacional de Creative Commons. Para ver una copia de esta licencia, visite http://creativecommons.org/licenses/by-nc/4.0/