

Reptiles, Squamata, Parque Natural Municipal da Taquara, municipality of Duque de Caxias, state of Rio de Janeiro, Southeastern Brazil

Rodrigo de Oliveira Lula Salles^{1*}, Luiz Norberto Weber² and Thiago Silva-Soares¹

1 Universidade Federal do Rio de Janeiro, Museu Nacional, Departamento de Vertebrados. Quinta da Boa Vista, CEP 20940-040. Rio de Janeiro, RJ, Brazil

2 Universidade Federal da Bahia, Instituto de Ciências Ambientais e Desenvolvimento Sustentável. Rua Professor José Seabra, s/n, Centro. CEP 47805-100. Barreiras, BA, Brazil.

* Corresponding author. E-mail: sallesbio@gmail.com

ABSTRACT: Herein we report a list of the reptiles from Parque Natural Municipal da Taquara, municipality of Duque de Caxias, state of Rio de Janeiro, southeastern Brazil, an area situated in the Atlantic Rainforest Domain. The study was carried out from September 2006 to October 2008. We recorded 31 species of Squamate reptiles: one species of the family Amphisbaenidae; eight species of lizards of the families Anguillidae (n = 1), Gekkonidae (1), Phyllodactylidae (1), Polychrotidae (1), Scincidae (1), Teiidae (2), and Tropiduridae (1); and 22 species of snakes of the families Boidae (2), Colubridae (6), Dipsadidae (11), Elapidae (1), and Viperidae (2). Our study indicates that the PNMT is an important area for the conservation of the Squamate reptile assemblages that inhabit lowlands of Atlantic Rainforest in Brazil.

INTRODUCTION

The Atlantic Rainforest is a complex environment that detains one of the world's biggest animal diversities, showing high level of species endemism (Myers *et al.* 2000). Currently, the remaining area is restricted to ca. 16,377,472 ha, that represents 11.73 % of its original extension (Ribeiro *et al.* 2009). These fragments are under enormous anthropogenic action and subject to a strong risk of extinction (Morellato and Haddad 2000). The fragmentation of the Atlantic Rainforest has been subject of many recent studies (Brown and Freitas 2000; Machado and Fonseca 2000; Strier 2000; Tabanez and Viana 2000). Most of them agree that even these remnants still detain a large diversity of species and efforts for its conservation have been made.

The Brazilian reptiles have also been subject of several studies on reptile populations/inventories in the past decades (*e.g.* Araújo 1981; Araújo 1991; Freire 1996; Teixeira 2001; Teixeira-Filho *et al.* 2001; Marques *et al.* 2004; Marques and Sazima 2004; Rocha *et al.* 2004a; b; Carvalho *et al.* 2007; Cicchi *et al.* 2007). Nonetheless, studies on zoogeography, conservation status, ecological behavior and taxonomy of squamate species still lack much information.

In order to provide additional data on the composition of species of squamate reptiles for the Atlantic Rainforest lowland, we present the results of two years of field work at the Parque Natural Municipal de Taquara.

MATERIALS AND METHODS

Study site

The study area includes the Parque Natural Municipal da Taquara (PNMT; 22°35' S, 43°14' W) and its surroundings, in the municipality of Duque de Caxias, state of Rio de Janeiro, southeastern Brazil (Figure 1). The PNMT is a conservation area that belongs to the Instituto

Nacional de Colonização e Reforma Agrária (INCRA) since 1992 and is probably the most important forested area of that municipality. It is situated in a lowland portion of the Atlantic Rainforest Domain (Ab'Sáber 1977), in the Serra do Mar complex, with approximately 20,1 ha and altitudes under 100 m (above sea level). The native vegetation is classified as Ombrophilous Forest, found in subtropical to tropical portions of the Atlantic Rainforest (Rizini 1979; Fernandes 1998).

Data collection

The fieldwork was carried out from September 2006 to October 2008, three times a week during the day, and once a month during the night.

Specimens were captured by active-searching method (Franco *et al.* 2002) (flashlights were used at night), and handled with leather gloves, hooks and slingshots. They

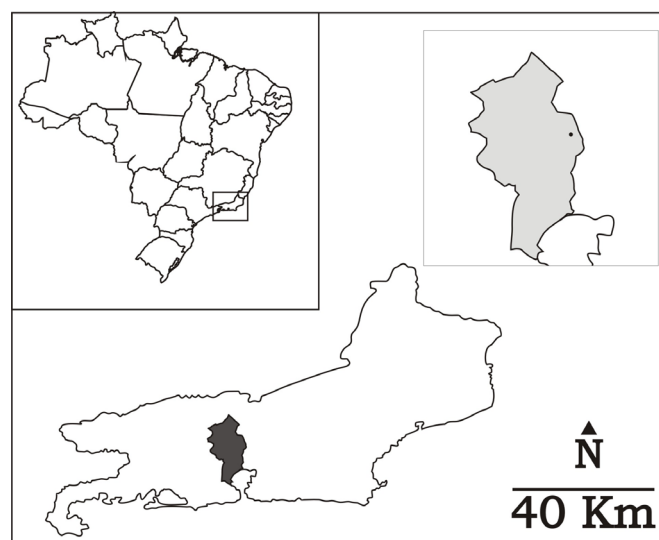


FIGURE 1. Municipality of Duque de Caxias (gray); Parque Natural Municipal de Taquara (dot).

were preserved using the usual techniques proposed by Pisani and Villa (1974).

The voucher specimens are housed at the reptile collection of Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ), Rio de Janeiro, Brazil, (Appendix 1). Collection permits were issued by the Instituto Brasileiro do Meio Ambiente e Recursos Naturais Renováveis (IBAMA; permit #17914-2, process 21619-1).

RESULTS AND DISCUSSION

Thirty-one species of Squamate reptiles were found in total, being 22 species of snakes distributed in the families Boidae (2), Colubridae (6), Dipsadidae (11), Elapidae (1) and Viperidae (2); eight species of lizards distributed in the families Anguillidae (1), Gekkonidae (1), Phyllodactylidae (1), Polychrotidae (1), Scincidae (1), Teiidae (2), and Tropiduridae (1); and one species of amphisbaenian of the family Amphisbaenidae (Table 1; Figures 2-5).

According to Rocha *et al.* (2004a; b), in the state of Rio de Janeiro there are 127 species of Squamate reptiles. The species recorded at PNMT, when compared with the number of reptiles found in the state of Rio de Janeiro, stands approximately for 25.6 % of the snakes, 32.14 % of the lizards and 14.8 % of the amphisbaenians.

Comparing our results to other studied areas (Table 2), it is noteworthy that the number of species found at PNMT is not much different comparable to the number of species reported for other larger localities of the Atlantic Rainforest (*e.g.* Marques and Sazima 2004; Pontes *et al.* 2008; Santana *et al.* 2008; Bertoluci *et al.* 2009).

The number of snakes found at PNMT is smaller than the number of species found in the Serra do Mendanha (Pontes and Rocha 2008 and Pontes *et al.* 2008), which also belongs to Serra do Mar. Despite having a larger area (*ca.* 8.500 ha) and being located nearly 32.5 km straight-line distant from PNMT, the number of species of snake found in Serra do Mendanha (N = 27) is almost similar to the number found in our study site (N = 22). Moreover, we found three species which were not recorded by Pontes and Rocha (2008) at Serra do Mendanha: *Corallus hortulanus*, *Liophis reginae*, and *Sibynomorphus newwiedi*.

Concerning the conservation status, none of the species found is included in IBAMA's Red List or IUCN (2007).

The species *Corallus hortulanus* and *Boa constrictor* were recorded for the area but not collected. The specimens were photographed in the site and released (Figure 3A). The specific level of *Thamnodynastes* sp. could not be reached. The same species is cited by Franco and Ferreira (2002) and Marques *et al.* (2004) as *Thamnodynastes* sp1., and probably refers to a new species.

The lizard *Hemidactylus mabouia*, a species introduced in Brazil by slavery ships from Africa (Vanzolini 1978), is completely adapted in PNMT's environment, but always encountered associated with human buildings. Specimens of the lizard *Gymnodactylus darwinii* were found inside the forest and nearby built structures as well. Differently of the results obtained by Teixeira (2002), which studied

the coexistence of *G. darwinii* and *H. mabouia* in Pontal do Ipiranga, municipality of Linhares, state of Espírito Santo, both species apparently do not occur syntopically at PNMT.

The present study indicates Parque Natural Municipal da Taquara as a Conservation Unity of great diversity in Squamate reptiles, despite its restricted area. Thus, the conservation of this area and its vicinity turns out to be of high importance to preserve the species that inhabit the lowlands of the Atlantic Rainforest.

TABLE 1. Squamate reptile species from Parque Natural Municipal da Taquara, municipality of Duque de Caxias, state of Rio de Janeiro, southeastern Brazil.

Amphisbaenidae Gray, 1825

Amphisbaena microcephala (Wagler, 1824)

Anguillidae Opper, 1811

Ophiodes striatus (Spix, 1824)

Gekkonidae Gray, 1827

Hemidactylus mabouia (Moreau-de-Jonnès, 1818)

Phyllodactylidae Gamble, Bauer, Greenbaum and Jackman, 2008

Gymnodactylus darwinii (Gray, 1845)

Polychrotidae Fitzinger, 1843

Anolis punctatus (Daudin, 1802)

Scincidae Gray, 1825

Mabuya agilis (Raddi, 1823)

Teiidae Gray, 1827

Ameiva ameiva (Linnaeus, 1758)

Tupinambis merianae (Duméril & Bibron, 1839)

Tropiduridae Bell 1843

Tropidurus torquatus (Wied-Neuwied, 1820)

Boidae Gray, 1825

Boa constrictor (Linnaeus, 1758)

Corallus hortulanus (Linnaeus, 1758)

Colubridae Opper, 1811

Chironius bicarinatus (Wied-Neuwied, 1820)

Chironius exoletus (Linnaeus, 1758)

Chironius fuscus (Linnaeus, 1758)

Leptophis ahaetulla (Linnaeus, 1758)

Pseustes sulphureus (Wagler, 1824)

Spilotes pullatus (Linnaeus, 1758)

Dipsadidae Bonaparte, 1838

Echianthera cephalostriata Di-Bernardo, 1996

Elapomorphus quinquelineatus (Raddi, 1820)

Leptodeira annulata (Linnaeus, 1758)

Liophis miliaris (Linnaeus, 1758)

Liophis reginae (Linnaeus, 1758)

Oxyrhopus petola (Linnaeus, 1758)

Philodryas olfersii (Lichtenstein, 1823)

Sibynomorphus newwiedi (Ihering, 1911)

Siphlophis compressus (Daudin, 1803)

Thamnodynastes sp.

Xenodon newwiedii (Günther, 1863)

Elapidae Boie, 1827

Micrurus corallinus (Merrem, 1820)

Viperidae Laurenti, 1768

Bothropoides jararaca (Wied-Neuwied, 1824)

Bothrops jararacussu Lacerda, 1884



FIGURE 2. Specimens from Parque Natural Municipal da Taquara: A - *Amphisbaena microcephala*; B - *Ophiodes striatus*; C - *Gymnodactylus darwini*; D - *Hemidactylus mabouia*; E - *Mabuya agilis*; F - *Ameiva ameiva*; G - *Tupinambis meiriana*; H - *Tropidurus torquatus*.



FIGURE 3. Specimens from Parque Natural Municipal da Taquara: A - *Boa constrictor*; B - *Chironius bicarinatus*; C - *Chironius fuscus*; D - *Chironius exoletus*; E - *Pseustes sulphureus*; F - *Spilotes pullatus*; G - *Echianthera cephalostriata*; H - *Elapomorphus quinquelineatus*.



FIGURE 4. Specimens from Parque Natural Municipal da Taquara: A - *Liophis miliaris*; B - *Liophis reginae*; C - *Leptodeira annulata*; D - *Oxyrhopus petola*; E - *Sibynomorphus newwedii*; F - *Siphlophis compressus*; G - *Thamnodynastes* sp.; H - *Xenodon newwedii*.



FIGURE 5. Specimens from Parque Natural Municipal da Taquara: A - *Micrurus corallinus*; B - *Bothropoides jararaca*; C - *Bothrops jararacussu*.

TABLE 2. Reptile richness, time sampled, and size of some areas where other reptile inventories were conducted in the Atlantic Rainforest of Brazil. Abbreviations and sources: APA-MB = Área de Proteção Permanente Mata do Buraquinho, PB; EPDAP = Estação de Pesquisa e Desenvolvimento Ambiental de Peti, São Gonçalo do Rio Abaixo and Santa Bárbara, MG; EEJ-Itatins = Estação Ecológica Juréia-Itatins, Peruibe, Iguape, Itariri and Miracatu, SP; RFMG = Reserva Florestal de Morro Grande, Cotia, SP; PASP = Planalto Atlântico de São Paulo, Tapiraí and Piedade, SP; CISSP = Coastal islands of State of São Paulo, SP; SJ = Serra do Japi, Jundiá, SP; IM = Ilha de Marambaia, Mangaratiba, RJ; IG = Ilha Grande, Angra dos Reis, RJ; SM = Serra do Mendanha, Rio de Janeiro, RJ.

PLACE	STATE	TIME SAMPLED	AREA (HA)	N SNAKES	N LIZARDS	N AMPHISBAENIAS	N TOTAL SPECIES	REFERENCES
APA-MB	PB	> 1 year	515	18	13	2	33	Santana <i>et al.</i> 2008
EPDA-Peti	MG	> 3 years	606	21	6	1	28	Bertoluci <i>et al.</i> 2009
EEJ-Itatins	SP	4 years	79230	25	7	2	34	Marques and Sazima 2004
RFMG	SP	> 1 year	10870	3	5	-	8	Dixo and Verdade 2006
PASP	SP	>2 years	26250	46	8	1	55	Condez <i>et al.</i> 2009
CISSP	SP	5 years	-	36	-	-	36	Cicchi <i>et al.</i> 2007
SJ	SP	-	35000	13	5	1	19	Sazima and Haddad 1992
IM	RJ	1 year	4000	-	12	-	12	Carvalho <i>et al.</i> 2007
IG	RJ	> 1 year	19300	16	8	1	25	Rocha and Van-Sluys 2006
SM	RJ	4 years	8500	27	-	-	27	Pontes <i>et al.</i> 2008
PNMT	RJ	2 years	20,14	21	8	1	30	this study

ACKNOWLEDGMENTS: Special thanks to Dr. Ronaldo Fernandes (MNRJ) for access to the Reptile Collection of Museu Nacional of the Universidade Federal do Rio de Janeiro and to receive the voucher specimens of this study. Adriano L. Silveira and Paulo Passos for help with identification of the collected specimens. We thank everyone from the Herpetology Laboratory of the Museu Nacional that somehow contributed to this work; Vera Lucia Rocha authorized the development of this study at the Parque Natural Municipal da Taquara; Nelson Barroso da Conceição and Alexandre Takio Kitagawa for help in the field work; Fausto E. Barbo, Ricardo Sawaya, Mariane Targino and Julio Cesar de Moura-Leite for helpful suggestion on the manuscript; Fundação Nacional de Desenvolvimento do Ensino Superior Particular (FUNADESP), Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) and Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro

(FAPERJ) for the financial support. Photography credits: Adriano L. Silveira pictures 4E and 4F; Luiz Fernando S. Magnago 3A; Nelson B. da Conceição 3B, 3C, and 3E; Bruno Pimenta 3H.

LITERATURE CITED

- Ab'Saber, A.N. 1977. Os domínios morfoclimáticos América do Sul. *Geomorfologia* 52:1-20.
- Araújo, A.F.B. 1981. *Estudo comparativo de comunidade de lagartos de Mata Atlântica e Mata de Restinga na Reserva Ecológica de Juréia*. Campinas: SEMA. 9 p.
- Araújo, A.F.B. 1991. Structure of a white sand-dune lizard community of coastal Brazil. *Revista Brasileira de Biologia* 51(4): 857-865.
- Bertoluci, J., M.A.S. Canelas, C.C. Eisemberg, C.F.S. Palmuti and G.G. Montingelli. 2009. Herpetofauna of Estação Ambiental de Peti, an

- Atlantic Rainforest fragment of Minas Gerais state, southeastern Brazil. *Biota Neotropica* 9(1): 147-155.
- Brown Jr., K.S. and A.V.L. Freitas. 2000. Atlantic forest butterflies: indicators for landscape conservation. *Biotropica* 32(4b): 934-956.
- Carvalho, A.L.G., A.F.B. de Araújo and H.R. Silva. 2007. Lagartos da Marambaia, um remanescente insular de Restinga e Floresta Atlântica no Estado do Rio de Janeiro, Brasil. *Biota Neotropica* 7(2): 221-226.
- Condez, T.H., R.J. Sawaya, and M. Dixo. 2009. Herpetofauna of the Atlantic Forest remnants of Tapiraí and Piedade region, São Paulo state, southeastern Brazil. *Biota Neotropica* 9(1): 157-185.
- Cicchi, P. J.P., M.A. de Sena, D.M. Peccinini-Seale, and M.R. Duarte. 2007. Snakes from coastal islands of state of São Paulo, Southeastern Brazil. *Biota Neotropica* 7(2): 1-14.
- Dixo, M. and V.K. Verdade. 2006. Herpetofauna de serrapilheira da Reserva Florestal de Morro Grande, Cotia (SP). *Biota Neotropica* 6(2): 1-20.
- Fernandes, A. 1998. *Fitogeografia brasileira*. Fortaleza: Multigraf. 340 p.
- Franco, F.L. and Ferreira, T.G. 2002. Descrição de uma nova espécie de *Thamnodynastes* Wagler, 1830 (Serpentes, Colubridae) do nordeste brasileiro, com comentários sobre o gênero. *Phyllomedusa* 1(2): 57-74.
- Franco, F.L., Salomão, M.G. and Auricchio, P. 2002. Répteis; p. 75-115 In P. Auricchio and M.G. Salomão (eds.). *Técnicas de coleta e preparação de vertebrados para fins científicos e didáticos*. São Paulo, Arujá. Instituto Pau Brasil de História Natural.
- Freire, E.M.X. 1996. Estudo ecológico e zoogeográfico sobre a fauna de lagartos (Sauria) das dunas de Natal, Rio Grande do Norte e da restinga de Ponta de Campina, Cabedelo, Paraíba, Brasil. *Revista Brasileira de Zoologia* 13(4): 903-921.
- IUCN. 2007. *International Union for Conservation of Nature Red List of Threatened Species*. Electronic Database accessible at: <http://www.iucnredlist.org>. Captured on 09 October 2008.
- Machado, R.B. and G.A.B. da Fonseca. 2000. The avifauna of Rio Doce Valley, southeastern Brazil, a highly fragmented area. *Biotropica* 32: 914-924.
- Marques, O.A.V., A. Eterovic, and I. Sazima. 2004. *Snakes of the Brazilian Atlantic Forest. An illustrated field guide for the Serra do Mar range*. Ribeirão Preto: Holos Editora. 204 p.
- Marques, O.A.V. and I. Sazima. 2004. História natural dos répteis da estação ecológica Juréia-Itatins; p. 257-277 In O.A.V. Marques and V. Duleba (eds.). *Estação Juréia-Itatins: ambiente físico, flora e fauna*. Ribeirão Preto: Holos Editora.
- Morellato, L.P. and C.F.B. Haddad. 2000. Introduction: The Brazilian Atlantic Forest. *Biotropica* 32(4b): 786-792.
- Myers, N., R.A. Mittermeier, C.G. Mittermeier, G.A.B. Fonseca, and J. Kent. 2000. Biodiversity hotspots for conservation priorities. *Nature* 403: 853-858.
- Pisani, G.R. and J. Villa. 1974. Guia de técnicas de preservación de anfibios y reptiles. *Herpetological Circular* 1, Lawrence: Society for the Study of Amphibians and Reptiles. 24 p.
- Pontes, J.A.L. and C.F.D. Rocha. 2008. *Serpentes da Serra do Mendanha, Rio de Janeiro, RJ, Ecologia e conservação*. Rio de Janeiro: Technical Books Editora Ltda. 147 p.
- Pontes, J.A.L., J.P. Figueiredo, R.C. Pontes, and C.F.D. Rocha. 2008. Snakes from the Atlantic Rainforest area of Serra do Mendanha, in Rio de Janeiro state, southeastern Brazil: a first approximation to the taxocenosis composition. *Brazilian Journal of Biology* 68(3): 601-609.
- Ribeiro, M.C., J.P. Metzger, A.C. Martensen, F.J. Ponzoni, and M.M. Hirota. 2009. The Brazilian Atlantic Forest: How much is left, and how is the remaining forest distributed? Implications for conservation. *Biological Conservation - Especial Issue* 142: 1141-1153.
- Rizzini, C.T. 1979. *Tratado de Fitogeografia do Brasil*. Rio de Janeiro: Editora Âmbito Cultural. 374 p.
- Rocha, C.F.D. and M. Van-Sluis. 2006. New records of reptiles from Ilha Grande Island in Rio de Janeiro state, Brazil. *Herpetological Review* 37(1): 112-114.
- Rocha, C.F.D., M. Van Sluis, D. Vrcibradic, F.H. Hatano, C.A. Galdino, M.C. Barros and M.C.A. Kiefer. 2004a. Comunidade de Répteis da Restinga de Jurubatiba; p. 179-198 In C.F.D. Rocha, F.A. Esteves, and F.R. Scarno (eds.). *Pesquisas Ecológicas de Longa Duração na Restinga de Jurubatiba: Ecologia, História Natural e Conservação*. São Carlos: Holos Editora.
- Rocha, C.F.D., H.G. Bergallo, J.P. Pombal Jr., L. Geise, M. Van Sluis, R. Fernandes and U. Caramaschi. 2004b. Fauna de anfíbios, répteis e mamíferos do Estado do Rio de Janeiro, sudeste do Brasil. *Publicações Avulsas do Museu Nacional* 104: 3-23.
- Santana, G.G., W.L.S. Vieira, G.A. Pereira-Filho, F.R. Delfim, Y.C.C. Lima, and K.S. Vieira. 2008. Herpetofauna em um fragmento de Floresta Atlântica no Estado da Paraíba, Região Nordeste do Brasil. *Biotemas* 21(1): 75-84.
- Sazima, I. and C.F.B. Haddad. 1992. Répteis da Serra do Japi: notas sobre história natural; p. 212-213 In L. P. C. Morellato (Ed.). *História Natural da Serra do Japi. Ecologia e preservação de uma área florestal no Sudeste do Brasil*. Campinas: Editora da UNICAMP/FAPESP.
- Strier, K.B. 2000. Population viabilities and conservation implications for Muriquis (*Brachyteles arachnoides*) in Brazil's Atlantic Forest. *Biotropica* 32: 903-913.
- Tabanez, A.A.J. and V.M. Viana. 2000. Patch structure within Brazilian Atlantic Forest fragments and implications for conservation. *Biotropica* 32: 925-933.
- Teixeira, R.L. 2001. Comunidade de lagartos da restinga de Guriri, São Mateus - ES, Sudeste do Brasil. *Atlântica* 23: 77-84.
- Teixeira, R.L. 2002. Aspectos ecológicos de *Gymnodactylus darwini* (Sauria: Gekkonidae) em Pontal do Ipiranga, Linhares, Espírito Santo, sudeste do Brasil. *Boletim do Museu de Biologia Mello Leitão* 14: 21-31.
- Teixeira-Filho, P.F., O. Rocha-Barbosa, V. Paes, S.C. Ribas, and J.R. Almeida. 2001. Ecomorphological relationships in six lizard species of Restinga da Barra de Maricá, Rio de Janeiro, Brazil. *Revista Chilena de Anatomia* 19(1): 45-50.
- Vanzolini, P.E. 1978. On South American *Hemidactylus* (Sauria, Gekkonidae). *Papéis Avulsos de Zoologia* 31: 307-343.

RECEIVED: June 2009

REVISED: March 2010

ACCEPTED: May 2010

PUBLISHED ONLINE: May 2010

EDITORIAL RESPONSIBILITY: Julio Cesar de Moura-Leite

APPENDIX 1. Examined material

Amphisbaenidae: *Amphisbaena microcephala* (MNRJ 15421, 15615, 16896, 17059, 17484); **Anguidae**: *Ophiodes striatus* (MNRJ 15792, 15425, 15426, 15564); **Gekkonidae**: *Hemidactylus mabouia* (MNRJ 15445, 15446, 15447, 17008, 17009, 17010); **Scincidae**: *Mabuya agilis* (MNRJ 15448, 16129); **Phyllodactylidae**: *Gymnodactylus darwini* (MNRJ 15449, 15795, 15796, 17535); **Polychrotidae**: *Anolis punctatus* (MNRJ 17005); **Teiidae**: *Ameiva ameiva* (MNRJ 15791), *Tupinambis merianae* (MNRJ 17696); **Tropiduridae**: *Tropidurus torquatus* (MNRJ 15789, 15790, 16894, 16898); **Colubridae**: *Chironius bicarinatus* (MNRJ 15614, 16034, 16110, 16530, 16897), *Chironius exoletus* (MNRJ 17831, 18181), *Chironius fuscus* (MNRJ 15331, 17667), *Leptophis ahaetulla* (MNRJ 15424), *Pseustes sulphureus* (MNRJ 16132, 17870), *Spilotes pullatus* (MNRJ 15975, 17495, 17871); **Dipsadidae**: *Echianthera cephalostriata* (MNRJ, 15420, 15595, 16122, 16363, 16529), *Elapomorphus quinquelineatus* (MNRJ 16422), *Leptodeira annulata* (MNRJ 15593, 15594, 16532, 16895, 17483, 17508, 17666, 17832), *Liophis miliaris* (MNRJ 15794, 15797, 16362, 16419, 16420, 16421, 16536, 17004, 17521, 17874), *Liophis reginae* (MNRJ 15793, 15761), *Oxyrhopus petola* (MNRJ 15390, 15616, 15566, 16027), *Philodryas olfersii* (MNRJ 15588, 17330), *Sibynomorphus newwiedi* (MNRJ 15592, 16538), *Siphlophis compressus* (MNRJ 15589, 17507), *Thamnodynastes* sp. (MNRJ 15798, 15810, 16125), *Xenodon newwiedii* (MNRJ 15590, 15591, 15596, 16130, 17006, 17928); **Elapidae**: *Micrurus corallinus* (MNRJ 15944, 15945, 15946, 15947, 15948, 16537, 17838, 17839); **Viperidae**: *Bothropoides jararaca* (MNRJ 16452, 16586, 16587, 17873), *Bothrops jararacussu* (MNRJ 15376, 15563, 16131).