

# Predation of *Ameiva ameiva* (Squamata: Teiidae) by *Caracara plancus*, with a review of predators in Brazil

Vinícius Antonio Martins Barbosa Figueiredo<sup>1</sup>, Edson Varga Lopes<sup>2</sup>, Carlos Eduardo Costa-Campos<sup>1\*</sup>

<sup>1</sup> Laboratório de Herpetologia, Departamento de Ciências Biológicas e da Saúde, Universidade Federal do Amapá, Campus Marco Zero do Equador, 68903-419 Macapá, AP, Brasil.

<sup>2</sup> Laboratório de Ecologia e Conservação, Instituto de Biodiversidade e Florestas, Universidade Federal do Oeste do Pará, 68015-110 Santarém, PA, Brasil.

\* Corresponding author. E-mail: [dudueducampos@gmail.com](mailto:dudueducampos@gmail.com)

Doi: [10.5281/zenodo.7828850](https://doi.org/10.5281/zenodo.7828850)

Observations on predation in nature are relevant because they provide key information regarding diet and natural history of species. Such observations are difficult to obtain in systematic surveys and most records came from occasional observations. Furthermore, this type of documentation contributes substantially to a better understanding of ecosystem dynamics, since predation has important consequences in the organization of biological communities (Law & Blackford, 1992; Brook et al., 2012).

Neotropical lizards are recognized as a food source for many animal groups such as anurans, snakes, other lizards, birds, mammals and even invertebrates

(see Pianka & Vitt, 2006; Schalk & Cove, 2018). *Ameiva ameiva* (Linnaeus, 1758) is a diurnal species with one of the widest geographic distributions among Neotropical lizards (Harvey et al., 2012). In Brazil, it is one of the most conspicuous and abundant members of lizard assemblages, occurring in rural areas, forest edges and in areas of forest fragmentation (Vitt & Colli, 1994), which suggests an increase in its abundance in these localities, which influence the prey-predator relationship.

The Crested Caracara, *Caracara plancus* (Miller, 1777) is a Falconidae that avoids forest interiors, but can be found in many habitats, including forest edges, open fields, natural grasslands, shrub-

lands, marshes, pastures, wetlands, and agricultural areas. Unlike most falcons, it is typically described as an opportunistic predator, feeding even on road-killed animals and carrion (Okada-Aguiar & Costa-Campos, 2018) and many live prey such as mammals, birds (and their nestlings), reptiles, and large insects (Vargas et al., 2007). Herein, we report a case of predation on *A. ameiva* by *C. plancus* in northern Brazil. We also provide a brief review of predatory events in *A. ameiva*.

The event was observed on 30 April 2022 at 14:00 h, during a bird survey in a rural area (2.700°S, 54.950°W, datum WGS84, elevation 169 meters a.s.l.) located in the municipality of Belterra, state of Pará, east-central Amazonia, Brazil. One of us (EVL) noticed the *C. plancus* capturing a prey on the ground, in an open area, about two meters from the forest edge (Fig. 1). A few seconds later, the caracara flew up towards a tree 15 m high, in the edge of the forest, where it ate the lizard's head before flying into the forest fragment (Fig. 2). These observations lasted ca. five minutes.

Although the saurophagy by *C. plancus* has been recorded from pellets (Vargas et al., 2007), documentation of predation upon lizards in nature is scarce given the difficulty of recording these events in the wild (Bernarde et al., 2016). Many studies have documented *A. ameiva* as prey for vertebrates and

invertebrates (Table 1). We conducted a literature survey on Google scholar using several key word combinations regarding predation on *A. ameiva*: diet OR natural history OR predator OR predation OR prey OR predator-prey OR vertebrates OR invertebrates AND “*Ameiva ameiva*”. In addition, we searched editions of the journal Herpetological Review (1996–2022), which traditionally publishes natural history notes. Non-peer-reviewed literature (theses and conference abstracts) was not included. We considered only records from Brazil. Species nomenclature follows the lists of Brazilian amphibians and reptiles by Segalla et al. (2021) and Costa et al. (2021), respectively.

We found 3330 results, with 40 being relevant to this study because they present records of predation on *A. ameiva* (18 articles and 22 natural history notes, see Table 1). The most common group of animals reported as predators of *A. ameiva* are snakes, represented by 27 species from five families (Boiidae, Colubridae, Dipsadidae, Elapidae, and Viperidae). Birds (9 species) are the second most numerous group that feeds on this species, followed by mammals (7 spp.), lizards (3 spp.), amphibians (1 spp.) and crustaceans (1 sp.) (Table 1).

It is likely that there are more predation events on *A. ameiva* than reported, given its wide distribution and sym-

patry with several potential predator species. However, the difficulty in recording such events makes it difficult to accurately ascertain the true extent of the diversity of predators that feed on this species of lizard. Therefore, our findings expand the knowledge on natural history of *Ameiva ameiva* through identification of its natural predator, and of *C. plancus* by adding a lizard species to its list of consumed prey species. We encourage observers to make this type of record public on online platforms such as WikiAves (<https://www.wikiaves.com.br/>), eBird (<https://ebird.org/home>), Fonoteca Neotropical Jacques Viellard (<https://www2.ib.unicamp.br/fnjv/>) and iNaturalist (<https://www.inaturalist.org/>) so that they can be used to understand the natural history of the species.

## REFERENCES

- Alencar L.R.V., Galdino C.A.B., Nascimento L.B. 2012. Life History Aspects of *Oxyrhopus trigeminus* (Serpentes: Dipsadidae) from Two Sites in Southeastern Brazil. *Journal of Herpetology* 46:9–13. doi:[10.1670/09-219](https://doi.org/10.1670/09-219).
- Almeida L.S., Silva A.W.O., Trevine V.C. 2020. Two new records of predation by *Oxybelis fulgidus* (Squamata: Colubridae) in the northern region of Brazil. *Herpetology Notes* 13:283–289.
- Aoki C., Piatti L., Landgraf-Filho P., Souza F.L. 2011. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 42:426.
- Ávila R.W., Ferreira V.L. 2006. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 37:82.
- Ávila-Pires T.C.S. 1995. Lizards of Brazilian Amazonia. *Zoologische Verhandlungen* 299:1–706.
- Beebe W. 1946. Field Notes on the Snakes of Kartabo, British Guiana, and Caripito, Venezuela. *Zoologica* 4:11–52. doi:[10.5962/p.203521](https://doi.org/10.5962/p.203521).
- Bernarde P.S., Abe A.S. 2010. Hábitos alimentares de serpentes em Espigão do Oeste, Rondônia, Brasil. *Biota Neotropica* 10:167–173. doi:[10.1590/S1676-06032010000100017](https://doi.org/10.1590/S1676-06032010000100017)
- Bernarde P.S., Silva A.M., Recoder R. 2016. Predation on the lizard *Pantodactylus parkeri* Ruibal, 1952 (Squamata: Gymnophthalmidae) by *Guiraguira* (Aves, Cuculidae) in the Pantanal at Pocone, Western Brazil. *Herpetology Notes* 9:279–281.
- Branco A.C., Bordignon M.O., Albuquerque N.R. 2019. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 50:133.
- Brook L.A., Johnson C.N., Ritchie E.G. 2012. Effects of predator control on behaviour of an apex predator and indirect consequences for mesopredator suppression. *Journal of Applied Ecology* 49:1278–1286. doi:[10.2307/23353507](https://doi.org/10.2307/23353507).

- Costa H.C., Guedes T.B., Bérnils R.S. 2021. Lista de répteis do Brasil: padrões e tendências. *Herpetologia Brasileira* 10:110–279.
- Cotts R.A., Souza P.P.Q., Costa P.B., Menezes A.S.O. 2019. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 50:779–780.
- Filadelfo T., Camandaroba M., Hamdan B., Ramalho W.P., França D.P.F., Freitas M.A. 2011. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 42:598.
- Fischer W.A., Gascon C. 1996. *Oxybelis fulgidus* (Green Vine Snake). Feeding Behavior. *Herpetological Review* 27:204.
- França F.G.R., Mesquita D.O., Nogueira C.C., Araújo A.F.B. 2008. Phylogeny and ecology determine morphological structure in a snake assemblage in the Central Brazilian Cerrado. *Copeia* 2008:23–38. doi:[10.1643/CH-05-034](https://doi.org/10.1643/CH-05-034).
- Gaiotti M.G., Pinho J.B., Santos R.C.L. 2011. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 42:425–426.
- Gatti A., Bianchi R., Rosa C.R.X., Mendes S.L. 2006. Diet of the crab-eating fox, *Cerdocyon thous* (Carnivora, Canidae) in Paulo Cesar Vinha State Park, Espírito Santo State, Brazil. *Mammalia* 70:153–155. doi:[10.1515/MAMM.2006.021](https://doi.org/10.1515/MAMM.2006.021).
- Goulart W.L.I., Tavares-Pinheiro R., Figueiredo V.A.M.B., Costa-Campos C.E. 2019. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 50:360.
- Granzinolli M.A.M., Barros F.M., Motta-Junior J.C. 2007. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 38:448–449.
- Harvey M.B., Ugueto G.N., Gutberlet R.L.J. 2012. Review of teiid morphology with a revised taxonomy and phylogeny of the Teiidae (Lepidosauria: Squamata). *Zootaxa* 3459:1–156. doi:[10.11646/ZOOTAXA.3459.1.1](https://doi.org/10.11646/ZOOTAXA.3459.1.1).
- Laurindo T.F.S., Vrcibradic D., Alves M.A., Chaves F.G., Silva P.A., Carvalho S.X.M. 2010. *Philodryas patagoniensis* (Parelheira). Feeding Behavior. *Herpetological Review* 41:237–238.
- Lauvers W.D., Koski D.A., Mônico A.T. 2016. *Philodryas olfersii* (Cobra-cipó; Lichtenstein's Green Racer). Diet. *Herpetological Review* 47:687.
- Law R., Blackford J.C. 1992. Self-assembling food webs: a global viewpoint of coexistence of in Lotka-Volterra communities. *Ecology* 73:567–578.
- Maffei F., Nascimento G.R., Neto D.G. 2009. Predation on the lizard *Ameiva ameiva* (Sauria: Teiidae) by a coral snake *Micrurus frontalis* (Serpentes: Elapidae) in Brazil. *Herpetology Notes* 2:235–237.
- Mesquita P.C.M.D., Borges-Nojosa D.M., Passos D.C., Bezerra C.H. 2011.

- Ecology of *Philodryas nattereri* (Serpentes: Dipsadidae) in the Brazilian semiarid region. *Herpetological Journal* 21:193–198.
- Mesquita P.C.M.D., Passos D.C., Borges-Nojosa D.M., Cechin S.Z. 2013. Ecologia e história natural das serpentes de uma área de Caatinga no nordeste brasileiro. *Papéis Avulsos de Zoologia* 53:99–113. doi: [10.1590/S0031-10492013000800001](https://doi.org/10.1590/S0031-10492013000800001).
- Michaud E.J., Dixon J.R. 1989. Prey items of 20 species of the neotropical colubrid snake genus *Liophis*. *Herpetological Review* 20:39–41.
- Mônico A.T., Koski A.P.V., Koski D.A. 2016. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 47:663.
- Okada-Aguiar K.M., Costa-Campos C.E. 2018. *Rhinella marina* (Cane toad). Scavenged by *Caracara*. *Herpetological Review* 49:310–311.
- Pianka E.R., Vitt L.J. 2006. *Lizards: Windows to the Evolution of Diversity*. University of California Press, Berkeley, USA.
- Pinho J.B., Gaiotti M.G., Nóbrega P.F.A. 2010. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 41:72.
- Pizzatto L., Marques O.A.V., Facure K. 2009. Food habits of Brazilian boid snakes: overview and new data, with special reference to *Corallus hortulanus*. *Amphibia-Reptilia* 30:533–544. doi:[10.1163/156853809789647121](https://doi.org/10.1163/156853809789647121).
- Pommer-Barbosa R.A., Albino A.M., Reis J.F.T., Fialho S.N. 2021. Predation on *Ameiva ameiva* (Squamata: Teiidae) by *Ardea alba* (Pelecaniformes: Ardeidae) in the southwestern Brazilian Amazon. *Herpetological Notes* 14:1073–1075.
- Pontes M.R., Morais D.H., Silva R.J. 2018. *Bothrops moojeni* (Brazilian Lancehead). Diet. *Herpetological Review* 49:335.
- Rocha C.F.D., Vrcibradic D. 1998. Reptiles as predators of vertebrates and as prey in a restinga habitat of southeastern Brazil. *Ciência e Cultura* 50:364–368.
- Rodrigues M.F., Santos E.M., Moraes B.L.C. 2014. Predação de *Ameiva ameiva* Linnaeus, 1758 por *Tropidurus hispidus* (Spix, 1825) em um fragmento urbano de Mata Atlântica, Recife, PE. *Revista Brasileira de Zoologia* 16:123–127.
- Rodrigues J.B., França R.C., Sampaio I.L.R., França F.G. 2016. *Pseudoboa nigra* (Black False Boa). Foraging Behavior. *Herpetological Review* 47:152–153.
- Santos D.L., Vaz-Silva W. 2012. Predation of *Phimophis guerini* and *Ameiva*

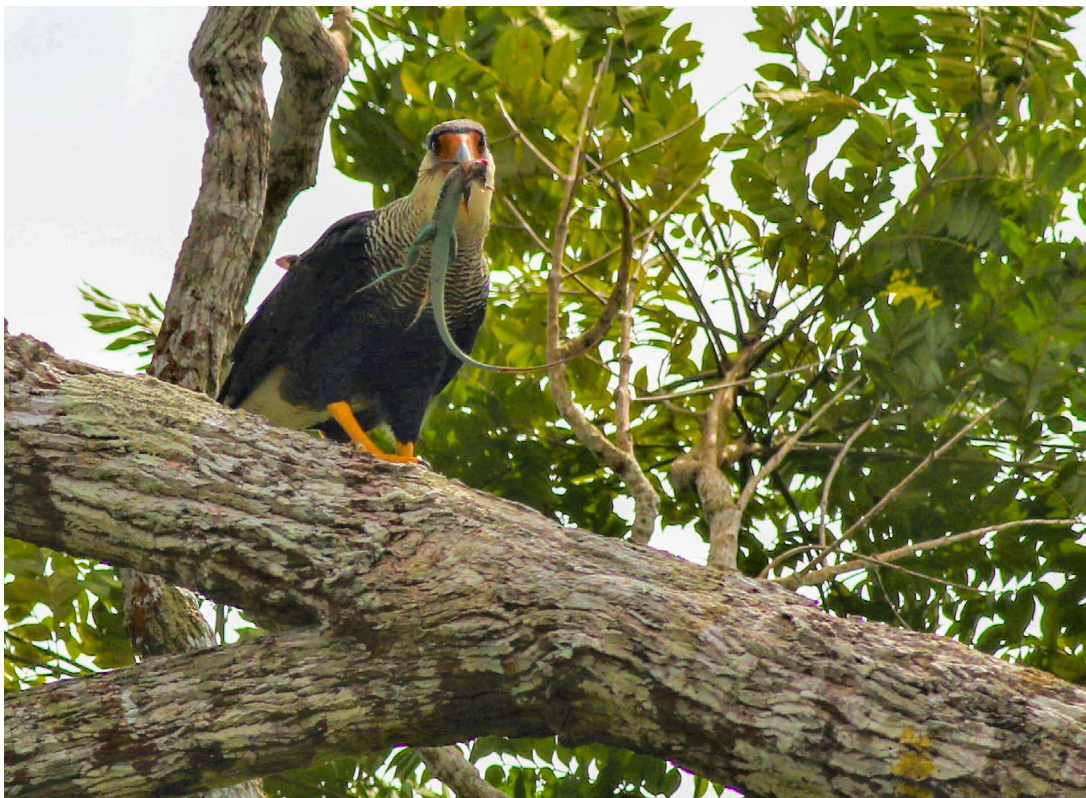
- ameiva by *Erythrolamprus aesculapii* (Snake: Colubridae). *Herpetological Notes* 5:495–496.
- Santos S.M.A., Germano V.J. 1996. *Crotalus durissus* (Neotropical Rattlesnake) Prey. *Herpetological Review* 27:143.
- Schalk C.M., Cove M.V. 2018. Squamates as prey: Predator diversity patterns and predator-prey size relationships. *Food Webs* 17:e00103.
- Segadilha J.L., Ferreira R.B., Teixeira R.L., Silva-Soares T. 2016. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 47:292–293.
- Segalla M.V., Berneck B., Canedo C., Caramaschi U., Cruz C.A.G., Garcia P.C.A., ... Langone J.A. 2021. Lista de anfíbios do Brasil. *Herpetologia Brasileira* 10:121–216.
- Silva J.S., El-Deir A.C.A., Moura G.J.B., Alves R.R.N., Albuquerque U.P. 2014. Traditional Ecological Knowledge About Dietary and Reproductive Characteristics of *Tupinambis merianae* and *Hoplias malabaricus* in Semiarid Northeastern Brazil. *Human Ecology* 42: 901-911.
- Silva C.F., Alcantara E.P., Matias C.S.L., Oliveira C.R. Ávila R.W. 2016. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 47:292.
- Teixeira R.L., Narciso R.B., Vrcibradic D. 2015. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 46:86.
- Tozetti A.M., Hulle N., Vetorazzo V. 2005. *Ameiva ameiva* (Giant Ameiva). Predation. *Herpetological Review* 36:443–444.
- Vargas R.J., Bó M.S., Favero M. 2007. Diet of the Southern Caracara (*Caracara plancus*) in Mar Chiquita Reserve, Southern Argentina. *Journal of Raptor Research* 41:113–121. doi:[10.1016/j.jkr-sus.2018.10.001](https://doi.org/10.1016/j.jkr-sus.2018.10.001).
- Vaz-Silva W., Silva H.L.R., Junior N.J.S. 2003. *Leptodactylus labyrinthicus* (Labyrinth Frog). Diet. *Herpetological Review* 34:359.
- Vitt L.J. 1980. Ecological observations on sympatric *Philodryas* (Colubridae) in northeastern Brazil. *Papéis Avulsos de Zoologia* 34:87–98.
- Vitt L.J., Vangilder L.D. 1983. Ecology of a snake community in Northeastern Brazil. *Amphibia-Reptilia* 4:273–296.
- Vitt L.J., Colli G.C. 1994. Geographical ecology of a neotropical lizard: *Ameiva ameiva* (Teiidae) in Brazil. *Canadian Journal of Zoology* 72:1986–2008.
- Yensen E., Tarifa T. 2003. *Galictis vittata*. *Mammalian Species* 727:1–8. doi:[10.1644/0.727.1](https://doi.org/10.1644/0.727.1)

Editor: Henrique C. Costa



---

Figure 1. Predation of *Ameiva ameiva* by *Caracara plancus* in Belterra, state of Pará, Brazil. Photo by Edson Lopes.



---

Figure 2. *Caracara plancus* holding *Ameiva ameiva* specimen on a tree, state of Pará, Brazil. Photo by Edson Lopes.

**Table 1.** Predation records upon *Ameiva ameiva* in Brazil.

Predator	References
<b>CRUSTACEA</b>	
<b>Ocypodidae</b>	
<i>Ocypode quadrata</i> (Fabricius, 1787)	(Segadilha et al., 2016)
<b>ANURA</b>	
<b>Leptodactylidae</b>	
<i>Leptodactylus labyrinthicus</i> (Spix, 1824)	(Vaz-Silva et al., 2003)
<b>SQUAMATA</b>	
<b>“LIZARDS”</b>	
<b>Teiidae</b>	
<i>Salvator merianae</i> Duméril & Bibron, 1839	(Silva et al., 2014)
<i>Tupinambis teguixin</i> (Linnaeus, 1758)	(Ávila-Pires, 1995)
<b>Tropiduridae</b>	
<i>Tropidurus hispidus</i> (Spix, 1825)	(Rodrigues et al., 2014)
<b>SERPENTES</b>	
<b>Boidae</b>	
<i>Boa constrictor</i> Linnaeus, 1758	(Ávila-Pires, 1995; Pizzatto et al., 2009; Bernarde & Abe, 2010; Silva et al., 2016)
<i>Corallus hortulana</i> (Linnaeus, 1758)	(Pizzatto et al., 2009)
<i>Epicrates assisi</i> Machado, 1945	(Vitt & Vangilder, 1983)
<b>Colubridae</b>	
<i>Drymarchon corais</i> (Boie, 1827)	(Ávila-Pires, 1995; Bernarde & Abe, 2010)
<i>Drymoluber dichrous</i> (Peters, 1863)	(Ávila-Pires, 1995)
<i>Mastigodryas boddaerti</i> (Sentzen, 1796)	(Ávila-Pires, 1995; Bernarde & Abe, 2010)
<i>Oxybelis aeneus</i> (Wagler in Spix, 1824)	(Beebe, 1946; Ávila-Pires, 1995)
<i>Oxybelis fulgidus</i> (Daudin, 1803)	(Fischer & Gascon, 1996; Almeida et al., 2020)

<b>Dipsadidae</b>	
<i>Clelia clelia</i> (Daudin, 1803)	(Ávila-Pires, 1995)
<i>Erythrolamprus aesculapii</i> (Linnaeus, 1766)	(Santos & Vaz-Silva, 2012)
<i>Erythrolamprus poecilogyrus</i> (Wied, 1824)	(Michaud & Dixon, 1989)
<i>Oxyrhopus melanogenys</i> (Tschudi, 1845)	(Bernarde & Abe, 2010)
<i>Oxyrhopus trigeminus</i> Duméril, Bibron & Duméril, 1854	(Vitt & Vangilder, 1983; França et al., 2008; Alencar et al., 2012)
<i>Philodryas aestiva</i> (Duméril, Bibron & Duméril, 1854)	(França et al., 2008)
<i>Philodryas nattereri</i> Steindachner, 1870	(Vitt, 1980; Vitt & Vangilder, 1983; Mesquita et al., 2011)
<i>Philodryas olfersii</i> (Liechtenstein, 1823)	(Vitt, 1980; França et al., 2008; Mesquita et al., 2013; Lauvers et al., 2016)
<i>Pseudablabes patagoniensis</i> (Girard, 1858)	(França et al., 2008; Laurindo et al., 2010)
<i>Pseudoboa coronata</i> Schneider, 1801	(Ávila-Pires, 1995)
<i>Pseudoboa haasi</i> (Boettger, 1905)	(Ávila & Ferreira, 2006)
<i>Pseudoboa neuwiedii</i> (Duméril, Bibron & Duméril, 1854)	(Ávila & Ferreira, 2006)
<i>Pseudoboa nigra</i> (Duméril, Bibron & Duméril, 1854)	(Ávila & Ferreira, 2006; Rodrigues et al., 2016)
<i>Siphlophis compressus</i> (Daudin, 1803)	(Ávila-Pires, 1995)
<i>Xenodon severus</i> (Linnaeus, 1758)	(Ávila-Pires, 1995)
<b>Elapidae</b>	
<i>Micrurus frontalis</i> (Duméril, Bibron & Duméril, 1854)	(Maffei et al., 2009)
<b>Viperidae</b>	
<i>Bothrops atrox</i> (Linnaeus, 1758)	(Ávila-Pires, 1995)
<i>Bothrops moojeni</i> Hoge, 1966	(Pontes et al., 2018)
<i>Crotalus durissus</i> Linnaeus, 1758	(Santos & Germano, 1996)

<b>AVES</b>	
<b>Accipitridae</b>	
<i>Buteo albicaudatus</i> (Vieillot, 1816)	(Granzinolli et al., 2007)
<i>Buteo nitidus</i> (Latham, 1790)	(Gaiotti et al., 2011)
<i>Gampsonyx swainsonii</i> Vigors, 1825	(Pinho et al., 2010)
<i>Heterospizias meridionalis</i> (Latham, 1790)	(Ávila-Pires, 1995)
<i>Rupornis magnirostris</i> (Gmelin, 1788)	(Ávila-Pires, 1995)
<b>Ardeidae</b>	
<i>Ardea alba</i> Linnaeus, 1758	(Pommer-Barbosa et al., 2021)
<i>Tigrisoma lineatum</i> (Boddaert, 1783)	(Mônico et al., 2016)
<b>Falconidae</b>	
<i>Caracara plancus</i> (Miller, 1777)	<b>This study</b>
<i>Falco femoralis</i> Temminck, 1822	(Cotts et al., 2019)
<i>Falco sparverius</i> Linnaeus, 1758	(Goulart et al., 2019)
<b>Strigidae</b>	
<i>Athene cunicularia</i> (Molina, 1782)	(Tozetti et al., 2005)
<b>MAMMALIA</b>	
Carnivora	
Canidae	
<i>Cerdocyon thous</i> Linnaeus, 1766	(Gatti et al., 2006)
<b>Felidae</b>	
<i>Leopardus pardalis</i> (Linnaeus, 1758)	(Branco et al., 2019)
<i>Leopardus wiedii</i> (Schinz, 1821)	(Teixeira et al., 2015)
<b>Mustelidae</b>	
<i>Galictis vittata</i> (Schreber, 1776)	(Yensen & Tarifa, 2003)
<b>Procyonidae</b>	
<i>Nasua nasua</i> (Linnaeus, 1766)	(Aoki et al., 2011)
<b>CINGULATA</b>	

<b>Dasypodidae</b>	
<i>Dasyus novemcinctus</i> Linnaeus, 1758	(Filadelfo et al., 2011)
<b>DIDELPHIMORPHIA</b>	
<b>Didelphidae</b>	
<i>Philander quica</i> (Temminck, 1824)	(Rocha & Vrcibradic, 1998)