Trophic ecology of *Tropidurus torquatus* on open and closed phytophysiognomies of the Brazilian Cerrado

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Running head: Trophic ecology of *T. torquatus*

ABSTRACT

Trophic ecology studies are essential to define ecological niches, as well as dietary preferences help us understand not only what animals eat, but what it's choosing to eat. This study investigated the diet of the lizard *Tropidurus torquatus* in two different phytophysiognomies, Cerrado *sensu stricto* and semideciduous Forest. Specimens had their stomach contents analyzed and phytophysiognomy did not significantly change the dietary choices between populations, which was strictly composed by arthropods. Hymenoptera, especially ants, were the most abundant prey because of the lizard's sit-and-wait foraging strategy, while larger and heavier prey such as Pentatomidae and Bothriuridae better explained subtle variations between habitats. Overall, our results suggest that *T. torquatus* demonstrated high dietary plasticity and a generalist, opportunistic feeding behavior. The pattern between prey preference and importance shows a strategy to optimize survival through food choices.

Keywords: Arthropods - Diet - Feeding ecology - Lizards - Opportunistic behaviour - Preference

INTRODUCTION

Species survival and the definition of ecological niches are fundamentally shaped by dietary choices (Machovsky-Capuska 2016). Diet determines a species' role within an ecosystem and is established by resource availability, environmental conditions, and interspecific interactions. Competition, or any other single mechanisms, rarely acts alone, and a variety of factors may cause community-wide patterns, such as resource partitioning (Pianka 1973; Vitt and Carvalho 1995).

The relative importance of these factors varies across taxa and communities in different geographical locations (Toft 1985). In lizards, evolutionary interactions—such as competition, predation, and parasitism—have played a key role in setting what lizards eat, directly—determining the diet based on the prey availability—or indirectly, by influencing the changes in the microhabitat use, behaviour and species morphology (Pianka and Vitt 2003). Consequently, as proposed by Pianka (1973), the species diet is the main parameter to define their ecological role.

The determinant factors of lizards' diet are complex, but involve the correlation between evolutive history, body size, microhabitat specialization, and the prey availability (Pianka and Vitt 2003). Consequently, lizards are capable of adjusting their dietary intake in response to environmental fluctuations (Huey and Pianka 1981). Another critical factor is the foraging mode, which significantly impacts prey selection. As established by Huey and Pianka (1981), lizards typically exhibit one of two primary foraging strategies: active predators, known as 'widely foragers', or sedentary ambush predators, categorized as 'sit-and-wait foragers'. These strategies directly influence dietary composition, since active foragers tend to exploit sedentary prey, whereas sit-and-wait foragers prioritize mobile prey (Pianka and Vitt, 2003). Furthermore, habitat structure can modulate these behaviors, as environmental conditions may favor one foraging mode over the other depending on the resource distribution.

Dietary strategies can also be classified based on the coverage of prey items consumed, ranging from specialist to generalist. A specialist lizard, for example, is characterized by a restricted diet, utilizing only a fraction of available resources regardless of environmental abundance. According to Pianka and Vitt (2003), dietary specialization may also be a response to the superabundance of specific prey types. On the other hand, a generalist species feeds on a wide variety of prey, often reflecting the proportional availability of resources in the habitat.

The genus *Tropidurus* (Squamata: Tropiduridae) comprises species typically associated with open environments, exhibiting one of the most wide distribution in the family, which spans from central Brazil to northeastern Argentina (Fialho et al. 2000; Rodrigues 1987). *Tropidurus torquatus* (Wied-Neuwied, 1820) is a South American species known for its generalist and opportunistic diet (Fig 2). Its stomach contents are predominantly composed of mobile prey, such as ants (Hymenoptera: Formicidae) and termites (Isoptera), which is a characteristic consequence of its sit-and-wait foraging behavior (Siqueira et al. 2013).

Due to the structural dissimilarities between open and closed phytophysiognomies within the Brazilian Cerrado, populations of *Tropidurus torquatus* may exhibit distinct dietary patterns. Cerrado *sensu stricto* and semideciduous Forest represent different environments that vary in prey availability, seasonality, microclimate, and vegetation structure (Cardoso et al. 2009). The Cerrado *sensu stricto* can be described as a savanna with a dense, short herbaceous layer and sparse, low tortuous trees with an open canopy. In contrast, the semideciduous forest consists of a more humid, taller forest where trees partially shed their foliage during the dry season, creating a dense leaf-litter layer on the ground, with a less dense herbaceous layer (Oliveira-Filho and Ratter 2002). These environmental variations directly influence the composition and abundance of local arthropod assemblages, which

likely will define a different diet between cerrado and forest populations (Pinheiro et al. 2002; Pianka 1973).

This study aims to characterize the diet of *Tropidurus torquatus* across two distinct environments to determine whether these populations exhibit generalist or specialist strategies. Specifically, we addressed the following questions: Does dietary composition differ between phytophysiognomies? Given the environmental resource availability, which prey items are actively preferred or avoided? Our hypothesis is that *T. torquatus* acts as a strict generalist, leading to the prediction that the proportion of arthropods in the stomach will be closely the same as the environment availability. To test this, our objectives were to analyze the dietary ecology of *T. torquatus* and evaluate how shifts in prey selection influence the ecological roles on the Cerrado *sensu stricto* and semideciduous Forest populations.

MATERIAL AND METHODS

Study area

The study was conducted at the Glória Campus Experimental Farm of the Federal University of Uberlândia (18º57'30" S, 48º12'00" W), which is located approximately 12 km from Uberlândia, Minas Gerais, Brazil (Fig 1). According to the Köppen-Geiger (1928) classification, the regional climate is Cwa, characterized by hot, humid summers and dry winters with pronounced seasonality. The warmest months are from October to Maevarch, while the coldest periods are from June to August. The average annual precipitation is approximately 1500 mm, and primarily concentrated between October and March. Two distinct phytophysiognomies were selected for the study: An open fragment of Cerrado *sensu stricto* and a closed-canopy fragment of semideciduous Forest (Fig. 1).

Data collection

Lizards and arthropods were sampled during dry and wet seasons over a 13-month period (August 2023 – August 2024) using “Y” shaped drift fence pitfall traps. Seven trap grids were installed in the Cerrado *sensu stricto* and eight in the semideciduous Forest. Each grid consisted of a central 30-liter bucket connected to three peripheral buckets by 6-meter-long plastic drift fences, standing 30 cm above the ground. Grids were arranged linearly and spaced 20 m apart within each habitat. Sampling was conducted under the Permanent License for Biological Material (Nº 82057-2) and after approval of CEUA (Protocol Nº 23117.069238/2023-42).

Captured specimens were euthanized via intracoelomic injection of thiopental, following Warren (2014). Stomachs were removed for dietary analysis. Specimens were fixed in 10% formalin and deposited in the herpetological collection of the Biodiversity Museum of Cerrado (UFU). A total of 32 specimens were analyzed, 15 from Cerrado *sensu stricto* and 17 in the semideciduous Forest. Out of the 32 captured individuals, 18 were males, 6 females and 8 juveniles.

To analyse prey availability, arthropod sampling was conducted concurrently with lizard collection in both fragments, using the same drift fence pitfall traps. Arthropods were collected using tweezers and protective gloves, transferred to plastic containers, and euthanized by refrigeration (decrease in body temperature). All specimens were sorted and identified to the lowest possible taxonomic level using a stereomicroscope. Identification was based on specialized dichotomous keys (Pereira and Almeida 2001; Baccaro 2015; Brígida et al. 2012; Evangelista et al. 2015; Engel 2023;) and consultation with specialists for specific groups.

Arthropod abundance and morphometrics, including body length, width, and height, were recorded for every arthropod in both phytophysiognomies. Measures were taken with a digital calliper (Mitutoyo, precision 0,001 mm). Arthropod biomass (weight, mg) was

measured using an analytical balance. Prey volume was calculated using the formula for an ellipsoid, often applied in herpetological dietary studies (Magnusson et al. 2003). To determine if dietary proportions mirrored environmental availability, prey items were identified to the lowest possible taxonomic level—predominantly to the family level, with a few groups identified to the genus level. These data were used to calculate the Index of Relative Importance (IRI), to perform the Principal Component Analysis (PCA) and the Neu preference index (Neu et al. 1974).

Data analysis

The diet composition was evaluated in number, volume and frequency of occurrence (proportion of stomachs with a certain category of prey). All plant material found was solely classified as "plant material". To understand the importance of each prey category consumed we calculated the Index of Relative Importance (IRI) from the two populations of *T. torquatus* (Pinkas et al. 1971). This index uses a combination of values, based on the formula: $IRI = (N\% + V\%)\, x\, FO\%$ where N is abundance, V is volume, and F, frequency.

To determine whether the dietary composition of *T. torquatus* differed between the Cerrado *sensu stricto* and the semideciduous Forest, Principal Component Analyses (PCA) were performed based on prey abundance, volume, and weight separately. Abundance data underwent a Hellinger transformation to reduce the effect of the dominant values, making the data adequate for the linear ordination analysis (Legendre and Gallagher, 2001; Legendre and Legendre, 2012). Three separate PCAs were conducted to identify which prey items contributed most significantly to dietary variation between habitats.

Finally, prey selection and preference within each phytophysiognomy was evaluated using the Neu method (Neu et al. 1974), comparing the observed frequency of prey consumption against environmental availability. Prey selection was evaluated by analyzing the relationship

between consumption and environmental availability using Bonferroni's simultaneous confidence intervals at a 95% confidence level. This approach allowed for the determination of preference or avoidance for each arthropod family (Pelegrin et al. 2009). Statistical analyses were performed in the R programming environment v.4.4.1 (R Core Team, 2024). Data manipulation and visualization were conducted using the packages: Tidyverse (Wickham et al. 2019), Dplyr (Wickham et al. 2023), Readxl (Wickham and Bryan 2023), Openxlsx (Schauberger 2025), and Writexl (Ooms 2025). Ecological analyses were performed with the Vegan package (Oksanen et al. 2025), while graphical outputs were generated using Ggplot2 (Wickham 2016), Ggrepel (Slowikowski 2024) and patchwork (Pedersen 2025).

RESULTS

All analyzed specimens contained food in their stomachs, indicating a continuous feeding pattern (Huey et al. 2001). A total of 55 prey taxa were identified (Table 1). The Cerrado *sensu stricto* population consumed 39 items, while the semideciduous forest population consumed 41. Both populations shared 25 items, primarily from the orders Hymenoptera (ants, bees and wasps), Coleoptera (beetles), Hemiptera (bugs), and the class Arachnida (spiders). Plant consumption was insignificant in both areas. The predominant items in terms of frequency of occurrence (FO%) were similar between habitats. In the Cerrado, the most frequent items were Hymenoptera (93%), Coleoptera (33%), Hemiptera (33%), and Blattodea (23%). In the forest, the main items were Hymenoptera (76%), Coleoptera (52%), Hemiptera (32%), and Isoptera (23%). The arthropod availability was analysed by the abundance of prey items in both phytophysiognomies (Table 2), Cerrado showed a higher abundance of arthropodes in general.

A total of 14 taxa were exclusive to the Cerrado diet, including Juliformia (millipedes) and *Xyleus* (grasshoppers), while 16 were exclusive to the Forest, such as *Euglossa* (bees) and *Hoplomutila* (velvet ants). Despite these specific occurrences, the overall arthropod composition remained similar between habitats. The Index of Relative Importance (IRI), calculated at the family level, identified Formicidae as the most relevant dietary item for both populations (Fig 3). In the forest, the second and third most relevant items were Pentatomidae (Hemiptera) and Isoptera (termites), whereas in Cerrado, Juliformia and Blaberidae (cockroaches) followed Formicidae in importance. High-resolution taxonomic identification at the family level allowed for a precise determination of dietary importance; for clarity, only the ten most representative families are presented.

The abundance-based PCA (A) accounted for 27.3% of total dietary variability, with PC1 and PC2 explaining 15.9% and 11.4% of the variance, respectively. The taxa that most contributed to dietary variability in abundance were Apidae (bees) and Curculionidae (beetles), correlated with PC1 and PC2, respectively. Additionally, Pentatomidae and Scarabaeidae were associated with PC1, while Carabidae and Cydnidae were associated with PC2 (Fig. 4).

The weight-based PCA (B) accounted for 28.2% of the dietary variation, with PC1 and PC2 explaining 15.1% and 13.1% of the variance, respectively. In terms of weight, the families Bothriuridae, Scarabaeidae, and Pentatomidae were the most significant contributors to the dietary divergence between the two populations. For the Forest lizards, Hemiptera and Coleoptera were the primary drivers of dietary variation, whereas Lycosidae and Curculionidae (spiders and small beetles) were more representative for the Cerrado population (Fig. 4).

The volume-based PCA (C) synthesized 27.9% of the dietary choice variation, with Pentatomidae, Scorpiones, and Curculionidae being the most significant items. Hemipterans

showed the strongest association with PC1, primarily influenced by forest individuals, while Curculionidae was more highly correlated with PC2. Notably, the volume PCA provided the clearest segregation between the Cerrado and forest diets, with the first two axes cumulatively explaining the most biologically relevant differences in the species' trophic niche (Fig 4).

Regarding prey preference analysis, Hymenoptera and Hemiptera were consumed in proportions significantly higher than their environmental availability in both habitats, which remained relatively constant across phytophysiognomies (Fig 5). For the Cerrado population, Hymenoptera and Hemiptera were consumed as preferred items, while Araneae and Orthoptera were avoided; other taxa, such as Coleoptera and Blattodea, were consumed opportunistically. Similarly, the forest population preferred Hymenoptera and Hemiptera but avoided Orthoptera, Araneae, and Opiliones. Other prey groups, including Scorpiones and Coleoptera, were categorized as opportunistic dietary components (Fig. 5).

DISCUSSION

Habitat structure did not influence the diet, likely due to a similar availability of arthropods in both areas. The exceptions were Mutillidae and Blaberidae, which were absent from the Cerrado and Forest environments, respectively. The diet was strictly insectivorous, plant material was insignificant, and no vertebrates were found in stomach contents. This contrasts with previous studies reporting significant consumption of plants in the genus *Tropidurus* (Rocha and Siqueira 2008; Ribeiro 2010). Such divergences are probably due to methodological differences, as those studied often lacked prey availability measurements or were limited to specific seasonal collections (either dry or wet). Ultimately, these results emphasize the opportunistic nature of *T. torquatus*, which adapts to environmental pressures by consuming different types and sizes of arthropods (Pianka 1973), surviving in different

diverse habitats proved by previous work (Carvalho et al. 2007; Siqueira 2013) which allows *T. torquatus* to exploit niche resources unavailable to other lizards.

Despite the diet composition having a diversity of food items, the majority of the arthropods were consumed as opportunistic prey, such as Blattodea, Coleoptera, Diptera and Dermaptera. Hymenoptera, however, represented a dominant dietary item across all samples. This prevalence can be partially explained by the physiological adaptations of the Iguania group, which developed a resistance to the chemical defenses of insects (Pianka and Vitt 2003). This adaptation allows *T. torquatus* to exploit niche resources such as ants, that are unavailable to other lizards. Another cause for the abundance of ants in stomach contents is the sit-and-wait foraging strategy, that favors the capture of mobile, colonial prey (Pianka and Vitt 2003). However, ants are not the most effective indicators of habitat specific dietary shifts due to their widespread presence. Instead, larger and more voluminous prey, such as Pentatomidae and Bothriuridae, better highlight subtle variations between phytophysiognomies, as their consumption reflects localized resource availability rather than generalized foraging habits.

While ants and hemipterans were not only the most important items but also highly preferred, spiders and grasshoppers were avoided despite being relatively abundant in the environment. Contrarily, other works (Rocha and Siqueira 2008) showed Orthoptera as one of the most important prey items consumed. This is probably because of differences in the environments sampled, that significantly changed the dietary choices of the species. In the Semideciduous Forest, only harvest spiders (Opiliones) were avoided, due to the cryptic behavior of these animals that live under leaves and fallen logs, reducing the chance of being captured by sit-and-wait predators. The high frequency of ants suggests that the energetic gain of consuming abundant, easily accessible colonial insects outweighs the costs of waiting for less abundant prey like Orthoptera. The dietary choices of *Tropidurus torquatus* species

highlighted an extreme plasticity to the environment, corroborating with the optimal foraging theory (MacArthur and Pianka 1966), where a predator should expand its diet when the encounter rate with high-quality prey is low.

CONCLUSIONS

In conclusion, the dietary choices of *Tropidurus torquatus* did not vary conspicuously between phytophysiognomies, despite differences in prey availability. Our hypothesis was corroborated, since the species maintained its generalist and opportunistic niche and exploited active prey through a sit-and-wait foraging strategy. Dietary preferences were driven by a balance between the high availability of easily captured colonial insects and the occasional consumption of larger prey. The uniformity observed between the populations of Cerrado *sensu stricto* and semideciduous Forest emphasizes the ecological plasticity of *T. torquatus*. This study contributes significantly to the field as one of the first works to integrate prey availability measurements with dietary analysis, providing a robust understanding of the species trophic requirements.

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LEGENDS TO FIGURE

Fig. 1: A: Location map of the UFU Experimental Farm and sampled phytophysiognomies, B: Cerrado *sensu stricto*, C: semideciduous Forest.

Fig. 2: Picture showing the species *Tropidurus torquatus*

Fig. 3: Index of relative importance of prey items in *Tropidurus torquatus.*

Fig. 4: Principal Components Analysis for the values of abundance(A), weight(B) and volume(C).

Fig. 5: Neu analyses for the cerrado and forest Dot: Diet; Red cross: Environment availability; Bars: Bonferroni interval.

TABLES

Table 1: Prey items found in the stomach content of *Tropidurus torquatus*; N: Number; V: Volume; N%: Number Percentage, V%: Volume Percentage, FO% Frequency of Occurrence Percent, IRI: Index of Relative Importance, C: Cerrado, F: Forest.

Items	N		V		N%		V%		FO%		IRI	
	C	F	C	F	C	F	C	F	C	F	C	F
Hymenoptera	900	330	763,63	787,17	89,46	52,72	8,53	6,38	93,33	76,47	9145,81	4519,3
Mutillidae		2		13,19		0,32		0,11		5,88		2,51
Hoplomutilla sp.		2		13,19		0,32		0,11		5,88		2,51
Formicidae	885	296	730,23	729,97	87,97	47,28	8,16	5,92	93,33	76,47	8971,82	4068,5
Pseudomyrmex gracilis	703	81	65,05	73,59	69,88	12,94	0,73	0,6	93,33	76,47	6589,79	1035,1
Ectatomma sp.	13	4	76,53	21	1,29	0,64	0,85	0,17	53,33	5,88	114,51	4,76
Ectatomma tuberculatum	1	2	20,39	35,52	0,1	0,32	0,23	0,29	6,67	11,76	2,18	7,14
Camponotus sp.	86	61	175,03	141,5	8,55	9,74	1,96	1,15	80	70,59	840,33	768,86
Cephalotes sp.	42	56	127,34	134,99	4,17	8,95	1,42	1,09	40	41,18	223,9	413,46
Pheidole sp.	26	21	19,63	15,94	2,58	3,35	0,22	0,13	60	47,06	168,23	163,95
Atta sp.	8	55	90,51	161,7	0,8	8,79	1,01	1,31	40	41,18	72,26	415,8
Pachycondyla sp.	3		118,86		0,3		1,33		20		32,52	
Odontomachus sp.	3	16	36,89	145,73	0,3	2,56	0,41	1,18	6,67	47,06	4,74	175,89
Apidae	15	27	33,4	34,42	1,49	4,31	0,37	0,28	53,33	64,71	99,42	297,16
Euglossa sp.		4		8,1		0,64		0,07		11,76		8,29
Tetragonisca angustula		1		1,49		0,16		0,01		5,88		1,01
Orthoptera	1	4	1410,29	220,47	0,1	0,64	15,76	1,79	6,67	5,88	105,75	14,27
Grylloidea		1		68,43		0,16		0,55		5,88		4,2
Xyleus sp.	1		1410,29		0,1		15,76		6,67		105,75	
Diplopoda	4	4	1613,33	1754,59	0,4	0,64	18,02	14,23	20	11,76	368,43	174,84
Juliformia	3		1433,81		0,3		16,02		20		326,33	
Chelodesmidae		2		1061,81		0,32		8,61		11,76		105,02
Hemiptera	20	27	1290,94	3913,08	1,99	4,31	14,42	31,73	33,33	35,29	546,95	1272,04
Pentatomidae	8	14	474,3	3415,4	0,8	2,24	5,3	27,7	26,67	35,29	162,53	1056,33
Cydnidae	6	8	127,78	307,79	0,6	1,28	1,43	2,5	33,33	29,41	67,46	110,99
Colobathristidae	2		17,95		0,2		0,2		13,33		5,32	
Reduviidae	1	1	143,23	46,09	0,1	0,16	1,6	0,37	6,67	5,88	11,34	3,14
Largidae	1		175,89		0,1		1,96		6,67		13,77	
Gelastocoridae		2		53,56		0,32		0,43		11,76		8,86
Nerthra sp.		2		53,56		0,32		0,43		11,76		8,86
Coleoptera	29	92	1366,86	4208,08	2,88	14,7	15,27	34,12	33,33	52,94	605,04	2584,57
Staphylinidae	2	2	56,19	337,4	0,2	0,32	0,63	2,74	13,33	5,88	11,02	17,97
Eulissus sp.		1		133,77		0,16		1,08		5,88		7,32
Elateridae		1		78,85		0,16		0,64		5,88		4,7
Carabidae	7	25	256,76	1009,76	0,7	3,99	2,87	8,19	26,67	41,18	95,06	501,65
Apenes sp.	1		4,61		0,1		0,05		6,67		1,01	
Tenebrionidae	4	2	143,1	57,01	0,4	0,32	1,6	0,46	20	11,76	39,93	9,19
Curculionidae	7	43	317,65	624,42	0,7	6,87	3,55	5,06	33,33	52,94	141,47	631,71
Ulocerus sp.		1		76,91		0,16		0,62		5,88		4,61
Naupactus sp.		2		45,66		0,32		0,37		5,88		4,06
Molytinae	1		124,71		0,1		1,39		6,67		9,96	
Scarabaeidae	2	9	210,45	1330,36	0,2	1,44	2,35	10,79	6,67	29,41	17,01	359,56
Scaritinae	1		66,79		0,1		0,75		6,67		5,64	
Cicindelidae	3	4	105,85	459,23	0,3	0,64	1,18	3,72	13,33	11,76	19,74	51,31
Tetracha sp.		1		353,38		0,16		2,87		5,88		17,79

Cerambycidae		1		146,64		0,16		1,19		5,88		0,1
Chydarteres dimidiatus		1		146,64		0,16		1,19		5,88		7,93
Coccinellidae		1		12,88		0,16		0,1		5,88		1,55
Blattodea	30	151	1175,1	163,62	2,98	24,12	13,13	1,33	26,67	23,53	429,65	598,8
Blaberidae	5		706,35		0,5		7,89		26,67		223,71	
Blaberus sp.	2		87,75		0,2		0,98		6,67		7,86	
Epilampra sp.	1		18,96		0,1		0,21		6,67		2,08	
Blattidae	1	8	328,66	88,41	0,1	1,28	3,67	0,72	6,67	5,88	25,15	11,73
Isoptera	18	143	25,24	75,21	1,79	23,53	0,28	22,84	6,67	0,61	13,82	551,86
Termitidae	18	98	25,24	46,86	1,79	15,65	0,28	0,38	6,67	23,53	13,82	377,3
Rhynchotermes sp.	3	45	8,14	28,35	0,3	7,19	0,09	0,23	6,67	17,65	2,6	130,93
Diptera	3	2	126,11	111,28	0,3	0,32	1,41	0,9	6,67	5,88	11,39	7,18
Dermaptera	3	1	30,39	21,01	0,3	0,16	0,34	0,17	6,67	5,88	4,25	1,94
Arachnida	13	10	1147,84	1126,2	1,09	1,44	12,82	9,13	20	23,53	2,42	2,63
Scorpiones	3	5	819,96	684,65	0,3	0,8	9,16	5,55	20	23,53	189,17	149,43
Bothriuridae	3	5	819,96	684,65	0,3	0,8	9,16	5,55	20	23,53	189,17	149,43
Opiliones	1	1	40,66	77,51	0,1	0,16	0,45	0,63	6,67	5,88	3,69	4,64
Cosmetidae	1	1	40,66	77,51	0,1	0,16	0,45	0,63	6,67	5,88	0,28	4,64
Gryne sp.	1	1	40,66	77,51	0,1	0,16	0,45	0,63	6,67	5,88	3,69	4,64
Ixodida		1		13,67		0,16		0,11		5,88		1,59
Ixodidae		1		13,67		0,16		0,11		5,88		1,59
Araneae	9	4	313,9	376,48	0,89	0,64	3,51	3,05	13,33	5,88	58,67	21,71
Lycosoidea	4		49,83		0,4		0,56		13,33		12,72	
Lycosidae	2	2	223,87	344,47	0,2	0,32	2,5	2,79	13,33	5,88	35,99	18,3
Salticidae	1	1	13,52	12,44	0,1	0,16	0,15	0,1	6,67	5,88	1,67	1,53
Plant material	2	4	0	0	0,2	0,64	0	0	6,67	11,76	1,33	7,51

Table 2: Abundance of arthropods available in Orders for Cerrado and Forest environments.

Orders	Cerrado	Forest	Total
Hymenoptera	16.332	7.908	24.240
Coleoptera	1.060	1.538	2.598
Dermaptera	426	352	778
Hemiptera	630	163	793
Araneae	433	299	732
Scorpiones	529	39	568
Blattodea	208	241	449
Opiliones	275	59	334
Orthoptera	152	145	297
Spirobolida	215	0	215
Lepidoptera	8	156	164
Scolopendromorpha	3	20	23
Mantodea	21	1	22
Polydesmida	10	4	14
Diptera	1	6	7
Phasmatodea	4	0	4
Isoptera	3	0	3
Acari	0	1	1
Neuroptera	0	1	1
Total	**20.310**	**10.933**	**31.243**

FIGURES

Figure 1

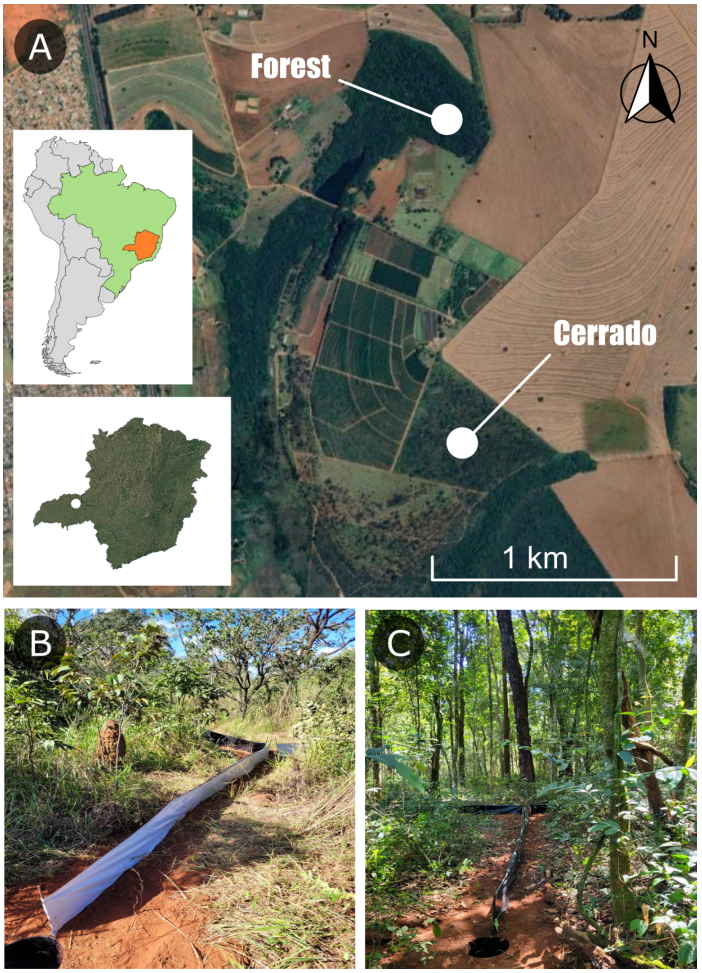


Figure 2

Figure 3

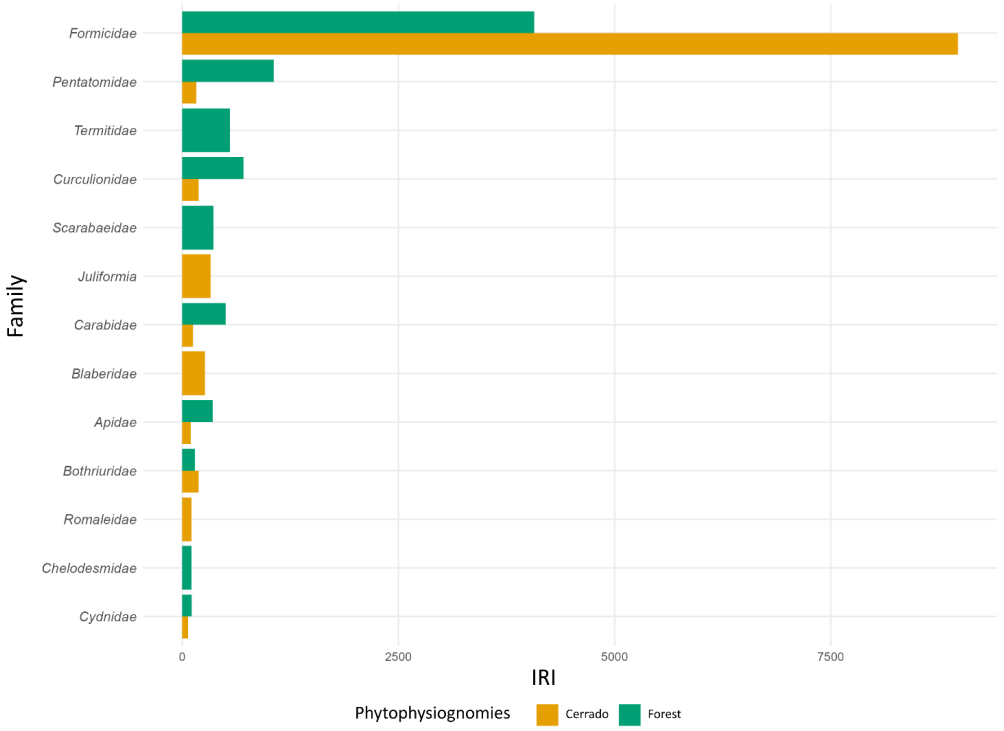

Formicidae
Pentatomidae
Termitidae
Curculionidae
Scarabaeidae
Juliformia
Carabidae
Blaberidae
Apidae
Bothriuridae
Romaleidae
Chelodesmidae
Cydnidae
Family
0
2500
5000
7500
IRI
Phytophysiognomies
Cerrado
Forest

Figure 4

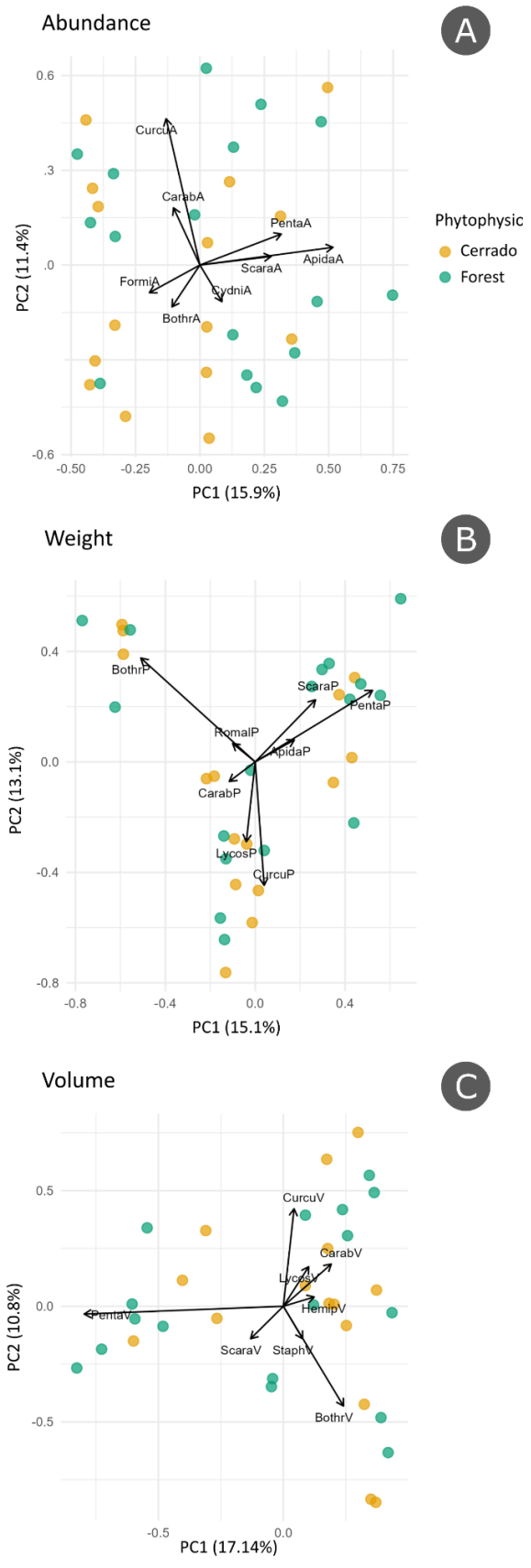
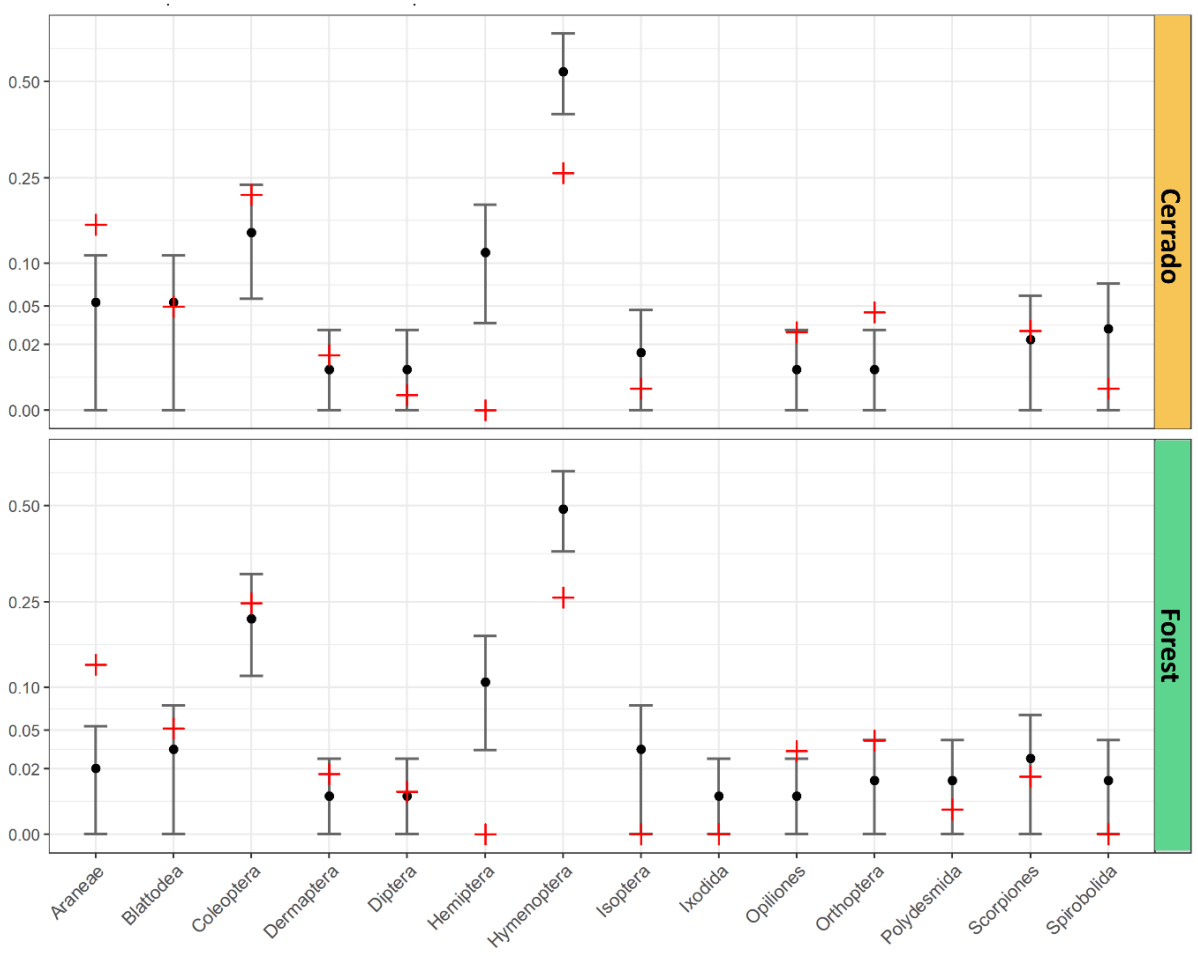

Abundance
A
CurcuA
CarabA
PentaA
ApidaA
ScaraA
FormiA
SydniA
BothrA
PC2 (11.4%)
PC1 (15.9%)
Phytophysic
Cerrado
Forest
Weight
B
BothrP
ScaraP
PentaP
FormaIP
ApidaP
CarabP
LycosP
CurcuP
PC2 (13.1%)
PC1 (15.1%)
Volume
C
CurcuV
CarabV
LycosV
HemipV
PentaV
ScaraV
StaphV
BothrV
PC2 (10.8%)
PC1 (17.14%)

Figure 5


0.50
0.25
0.10
0.05
0.02
0.00
Cerrado
Forest
Araneae
Blattodea
Coleoptera
Dermaptera
Diptera
Hemiptera
Hymenoptera
Isoptera
Ixodida
Opiliones
Orthoptera
Polydesmida
Scorpiones
Spirobolida