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ORIGINAL ARTICLE

Diet of *Dendropsophus molitor* (Anura: Hylidae) in a High-Andean agricultural ecosystem, Colombia

Diego F. Higuera-Rojas*[1], Juan E. Carvajal-Cogollo[1]

Edited by
Juan Carlos Salcedo–Reyes
salcedo.juan@javeriana.edu.co

1. Grupo Biodiversidad y Conservación, Museo de Historia Natural Luis Gonzalo Andrade, Programa de Biología, Universidad Pedagógica y Tecnológica de Colombia. Avenida Central del Norte 39-115, Tunja, Colombia.

*diego.felipe.bio@gmail.com

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Abstract

Dendropsophus molitor is a generalist frog that makes optimal use of resources offered by highly transformed Andean ecosystems. Despite being one of the most researched amphibian species in Colombia, aspects of its diet as an indication of its trophic niche have not yet been evaluated. For this reason, we evaluated the diet of *D. molitor*, with interpretations of dietary composition to address this dimension of the niche. We chose an Andean agricultural system and in it we selected four jagüeyes (water-filled ditches) and carried out samplings between July and November 2017. We collected 32 individual frogs, extracted their stomach contents and analyzed the composition, diversity, relative importance of the prey and the amplitude of the trophic niche. Additionally, from a network analysis, we evaluated the interactions of the species with its prey. We obtained records of 69 prey, distributed in 29 categories; the prey with the highest frequency were Bibionidae1 with seven individuals, followed by Tipulidae1 and Tipulidae2 with six, which are equivalent to those of greater relative importance. The trophic niche was characterized as wide (Levins' $B = 0.7$) and the interactions had a connectivity of 0.065, a link coefficient of 0.930 and a link density of 273.8, represented by a wide range of interactions with prey. The characterization of the diet and the trophic niche of *D. molitor* shows the broad use of resources consistent with its already documented generalist condition. The diversity of the diet together with the breadth could represent advantages for establishing large and healthy populations in transformed environments in the high mountains of the Andes.

Keywords: diet; predator; prey; generalist.

1. Introduction

Ecological studies of trophic niches allow inferences to be made on the structure and dynamics of populations of ectothermic organisms (Putman, 1994) . This niche dimension includes factors such as the description of the composition of the diet and the use of food resources (Schoener, 1974; Sih and Christensen, 2001). The way that species use resources is shaped by intrinsic and extrinsic factors, such as feeding habits and nutritional demands, ontogenetic development, changes in resource availability, and competition (Schoener, 1974; Putman, 1994). Diet (trophic dimension) represents one of the main sources of resources and energy for a species. Therefore, changes in this dimension affect organisms in two ways: indirectly when pressure is exerted on the resources that the organisms use and directly when it manifests itself in changes in the emergent properties of the population (Anderson and Mathis, 1999).

There are different ways of exploiting resources. Anurans are considered to a greater extent generalist predators with opportunistic behaviors and to a lesser extent specialists (Teixeira and Coutinho, 2002; Santos *et al.*, 2004). Although there are recent studies that have focused on describing the diet of amphibians (Luria-Manzano *et al.*, 2019; Hernández-Austria *et al.*, 2019; Martínez *et al.*, 2019; Pafilis *et al.*, 2019; Santana *et al.*, 2019; Le *et al.*, 2020; Pacheco *et al.*, 2020), there are information gaps for some generalist species that manage to establish themselves in modified sites and that exhibit wide ranges of distribution.

Generalist species are capable of population success in a wide variety of environmental conditions and can explore a wide variety of resources available in space or time (Irschick *et al.*, 2005; Ducatez *et al.*, 2015). The generalist condition can be related to the aptitude of the species to colonize multiple types of habitats, exploit a great variety of resources; and for this reason, show wide ranges of distribution (Barnagaud *et al.*, 2011).

The expression of general behavior in the use of resources is influenced by the transformation of habitats, a process that generates new conditions and resources different from those observed at natural sites (Peltzer *et al.*, 2010). Currently, these transformed habitats make up the so-called agroecosystems or rural landscapes, where biotic and abiotic conditions have been modified by human activities, mainly for the establishment of areas for livestock or agriculture (Firbank *et al.*, 2008). Agroecosystems in some cases conserve elements of the landscape that combined can maintain some ecological functions (Francis *et al.*, 2003) and niches for generalist species of amphibians, reptiles, birds and mammals (Arroyo *et al.*, 2003; Moreno-Arias *et al.*, 2010; Urbina-Cardona, 2011; Moreno-Arias *et al.*, 2013; Moreno-Arias and Urbina-Cardona, 2013; Chaparro-Herrera *et al.*, 2018). Evaluating ecological aspects such as the trophic dimension of the species from the dietary composition in these types of environments occurring in high mountain agroecosystems is an important research topic. In Colombia, one of the regions with the greatest transformation is the Andean region, where the majority of high mountain agroecosystems are concentrated (Etter *et al.*, 2017) and the most numerous populations of *Dendropsophus molitor*, a species with a great tolerance for highly disturbed environments. In the highest altitudes of the Andes, species richness decreases considerably compared to middle and lower altitudes, where there is a low number of species that are usually generalists and manage to adapt to these conditions (Urbina-Cardona, 2011). In this context, agroecosystems are appropriate settings for studying how the trophic niche is structured, how it is evaluated for dietary composition, what interactions *Dendropsophus molitor* has with its prey, and the processes that shape its Generalist tendencies in the use of its dietary resources. We ask ourselves the following questions: (1) How is the trophic niche of the Andean frog *Dendropsophus molitor* (Anura: Hylidae) structured in an Andean agroecosystem of the Eastern Cordillera of Colombia? 2) What is the breadth of the trophic niche of *Dendropsophus molitor*? We started from the hypothesis that the trophic niche of *Dendropsophus molitor* would be diverse in composition, structure and wide as a generalist species given the conditions of the evaluated agroecosystems, and would focus on those prey categories that have high abundances because of their ability to persist in highly intervened sites.

2. Materials and methods

2.1. Study species

Dendropsophus molitor is a species with a wide variation in body size throughout its geographic distribution area. Adults have snout-vent length (SVL) of 29 mm to 55 mm (Amézquita, 1999). It is heliothermic species; individuals thermoregulate in open areas (Valdivieso and Tamsitt, 1974). *Dendropsophus molitor* inhabits in permanent or semi-permanent lentic bodies of water (Lüddecke, 1997), surrounded by grasslands and shrubs (Guarnizo *et al.*, 2014).

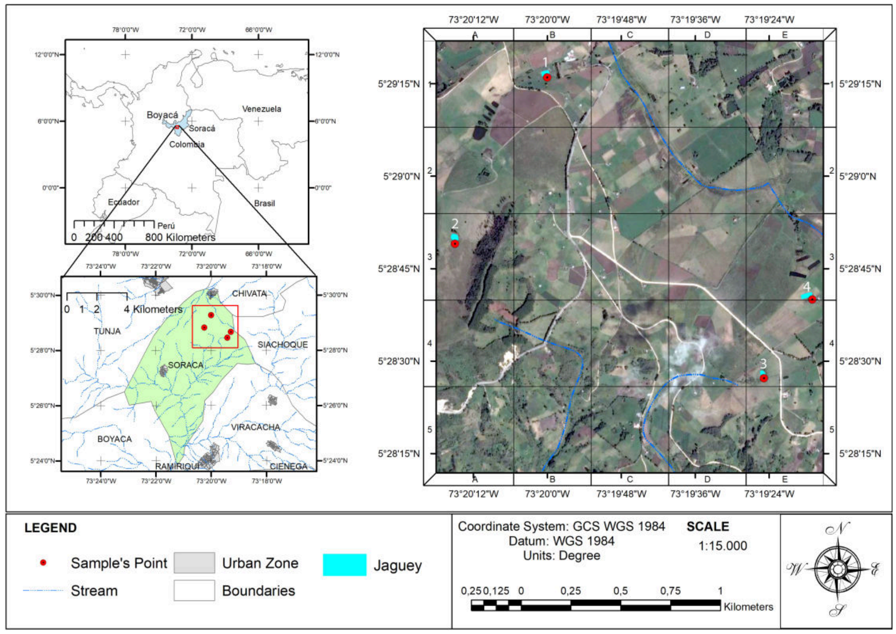

Figure 1: Location of the study area in an agroecosystem in a sector of the high plateau of Boyacá department, Colombia. The jagüeyes (depressions filled with pater as ponds or ditches) or aquatic habitats where the research was carried out. Red dots (1-4) represent the sampling sites.

2.2. Study area

We carried out the research in an agroecosystem of the highlands of Boyacá department, with typical natural characteristics of the high altitude Andean region (Van der Hammen and Rangel-Ch, 1997), on the eastern Andean Cordillera (**Figure 1**) (5°30′3″ N; 73°20′18″ W, 2795 m a.s.l.). This evaluated agroecosystem consisted of a mosaic of plant cover, most of them of anthropogenic origin, such as potato (*Solanum tuberosum*), corn (*Zea mays*) and barley (*Hordeum vulgare*) crops, characterized by their dynamic irrigation and intense fumigation and by pastures overgrazed by cattle and sheep. Crops together with grasslands formed most of the landscape, and to a lesser extent some remnants of forests and mosaics of natural and intervened areas were present (Buytaert *et al.*, 2005) as well as multiple permanent artificial aquatic systems (e.g. jagüeyes-ditches or ponds filled with water, either artificially or by natural see page from the land).

The minimum temperature during the night was 4 °C and the maximum 8 °C. Relative humidity varied between 75 % to 85 %. During the day the minimum temperature was 10 °C and the maximum 18 °C. Relative humidity ranged between 60 % to 70 % (Muñoz-Gómez *et al.*, 2018). The precipitation regimen was bimodal-tetraseasonal, with a dry season in the months of November-January and May-July and the rainy season in February-April and August-October (Muñoz-Gómez *et al.*, 2018).

2.3. Research design and sampling

We carry out the research in the rainy season of the year, since the study species exhibits its highest Abundances in this season (Lüddecke, 1997). In the same way, many groups of insects (*D. molitor* food resource) exhibit higher values of richness and abundance (Hodgkison and Hero, 2003), which were used to characterize a larger fraction of the *D. molitor* niche. Given the requirements and semi-aquatic habits of the species, the part of the agroecosystem that we chose to study were the jagüeyes. These were selected based on the following criteria: (1) they were permanent and lentic bodies of water; (2) each body of water (jagüey) offers habitats with a potential for occupation by frogs (e.g. grass-reeds, rooted macrophytes, water body and bare soil); (3) these habitats were totally surrounded by grasslands or any other typical productive system of the region (e.g. potato crops, livestock).

We randomly chose four jagüeyes, and in each one we characterized its habitat variables. We divided each jagüey into four parts in which two researchers made clockwise tours of its edge to collect the frogs. We analyzed the data during the transition period between dry and rainy seasons.

To identify individuals, we used a method of searching by visual encounters and manual capture (Crump and Scott, 1994) within each jagüey. We collected eight individuals per jagüey (Total = 32 frogs) supported by the collection permit 724/2014 issued by the National Environmental Licensing Authority. Individuals that we collected were sacrificed following the protocols and ethical standards for the correct treatment of animals to obtain optimal results with the stomach contents extraction technique (Pisani and Villa, 1974).

Once we sacrificed the individuals, we removed their stomachs by dissecting in the right belly area. Stomach contents were deposited in tubes with 70 % alcohol previously labeled (Pisani, 1973), for a posterior identification in the laboratory of the research group "Biodiversidad y Conservación of the Universidad Pedagógica y Tecnológica de Colombia". Collected individuals of *D. molitor* were deposited in the amphibian collection of the Luis Gonzalo Andrade Natural History Museum of the Universidad Pedagógica y Tecnológica de Colombia (UPTC-Am 0430-61).

2.4. Laboratory phase

Stomach contents were separated into morphotypes and the prey and were taxonomically identified using dichotomous keys (González and Carrejo, 1992; Johnson and Triplehorn, 2004; Triplehorn and Johnson, 2005; Amat *et al.*, 2008), and validated by an expert in entomology. We assigned a code to each morphotype consisting of the family name and a consecutive number, changed only when they were different species (e.g. Tipulidae1, Tipulidae2, or Tipulidae_n; n = due to the impossibility of further identification). Highly digested preys were identified to the taxonomic order (e.g. Hymenoptera, Mollusca). The order Hymenoptera were also divided into two groups, formicids and Hymenoptera *per se* (non-formicids) (Luria-Manzano and Ramírez-Bautista, 2017; Hernández-Salinas *et al.*, 2018).

2.5. Data analysis

We carried out a diversity analysis (α), where we evaluated richness and abundance data of the prey. We used an inventory completeness procedure, with analysis of $q = 0$ that expresses the total richness of species (true diversity) to measure the proportion represented by the individuals of each species in the sample with respect to the total number of individuals (Chao and Jost, 2012). The analyses were developed with the iNEXT program with an extension to R (Hsieh *et al.*, 2013).

We evaluated the composition of the diet as each dietary item (morphotype) and the importance value for each of the prey with a modified relative importance index (Pinkas, 1971).

$$\text{IRI} = (\%N + \%V) \times \%F \tag{1}$$

Where F is the relationship between the number of stomachs where a prey was found and the total number of stomach samples. N was the number of individuals of a prey in relation to the total number of preys, and V was the volume of the individuals of a prey in relation to the total volume of all the prey. With the calculated values of the relative importance index for each individual, we calculated the percentage of IRI for each category of prey to quantify which is the one that contributes most to the diet of the species expressed as a percentage (Hyslop, 1980).

A parameter that allows quantifying the specialization of a species within an environment is the breadth of the niche (Krebs, 1989). For our species, we measure the breadth of the trophic niche using the Levins' index (B) described by Pianka, 1986, the result of which is given on a scale ranging from 0 (narrow niche) to 1 (wide niche). Thus, when the values are less than 0.60, the organism is considered a specialist, indicating that it uses a low number of resources and has a preference for certain foods (Krebs, 1989). Values higher than 0.6 indicate broader diets.

The Levins' index (B) is expressed as follows: where B = Levins' index (breadth of the trophic niche); i = prey category; n = number of categories; pi = numerical proportion of prey category i in the diet.

$$\text{Levins } B = \left(\sum_{n=1}^{n} pi^2 \right)^{-1}. \tag{2}$$

To characterize the interactions of *D. molitor* with its prey, we performed a connectivity analysis of the interactions, value, and density of links. We graphed the interactions and calculated the metrics following the procedure described by Dormann *et al.* (2009) using the "computeModules" function of the "bipartite" R package in the R environment (R Core Team).

3. Results and discussion

Out of the 32 stomachs evaluated, five were empty. The diet consisted of 69 prey classified into 29 prey morphotypes or categories (**Figure 2**). This fraction of the niche corresponds to the rainy season of the year, when the species and its prey show high abundances (Lüddecke, 1997; Hodgkison and Hero, 2003). The number of preys in the stomachs was high when compared with the diets of other frog species, where these values ranged between 14 and 19 categories of prey (Santos *et al.*, 2004; Astwood-Romero *et al.*, 2016), although comparatively less in relation to some species of Bufonidae, Dendrobatidae and Leptodactylidae (Toft, 1980; Hernández-Austria *et al.*, 2019) and Craugastoridae (Luria-Manzano and Ramírez-Bautista, 2017). The maximum number of food categories that we found in a stomach was seven and the maximum number of preys was 11.

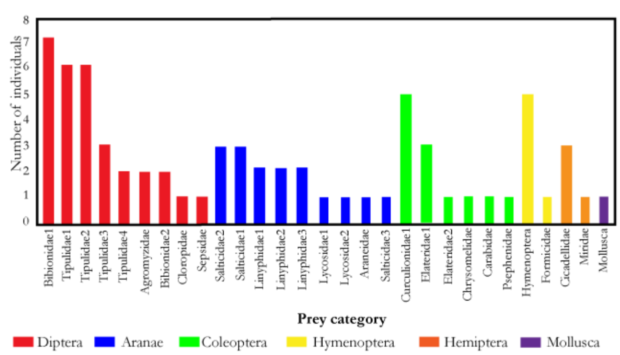

Figure 2: Number of individuals of each prey category found in the stomach contents of *Dendropsophus molitor*.

The Diptera order was the highest represented in the frog's diet (**Figure 3**A) with 30 individuals (43.48 %), distributed in nine morphotypes, in 14 stomachs representing the highest number of occurrences. The next most abundant prey items were the Araneae (Figure 3B), with 16 individuals (23.19 %) and nine morphotypes, then Coleoptera with 12 individuals (Figure 3C), (17.39 %) and six morphotypes, Hymenoptera with six individuals (8.7 %) and two morphotypes. The other orders had low representativeness values (Figure 2).

Some of the prey consumed by *Dendropsophus molitor* have also been recorded in the diet of other frog species of Hylidae (Barbosa *et al.*, 2014), along with high values of importance, such as Diptera and Coleoptera (Da Rosa *et al.*, 2011; Barbosa *et al.*, 2014). The high diversity of Diptera in the frog's diet is directly related to the habitats where these insects proliferate. In this case, the modification and contamination of natural ecosystems that form the frog habitats with the consequent variations in environmental factors (rainfall and changing relative humidity characteristic of agroecosystems), determine the population increase of mosquitoes in their different life phases (Galeano-Castañeda *et al.*, 2019) and become a wide and available resource for *D. molitor*.

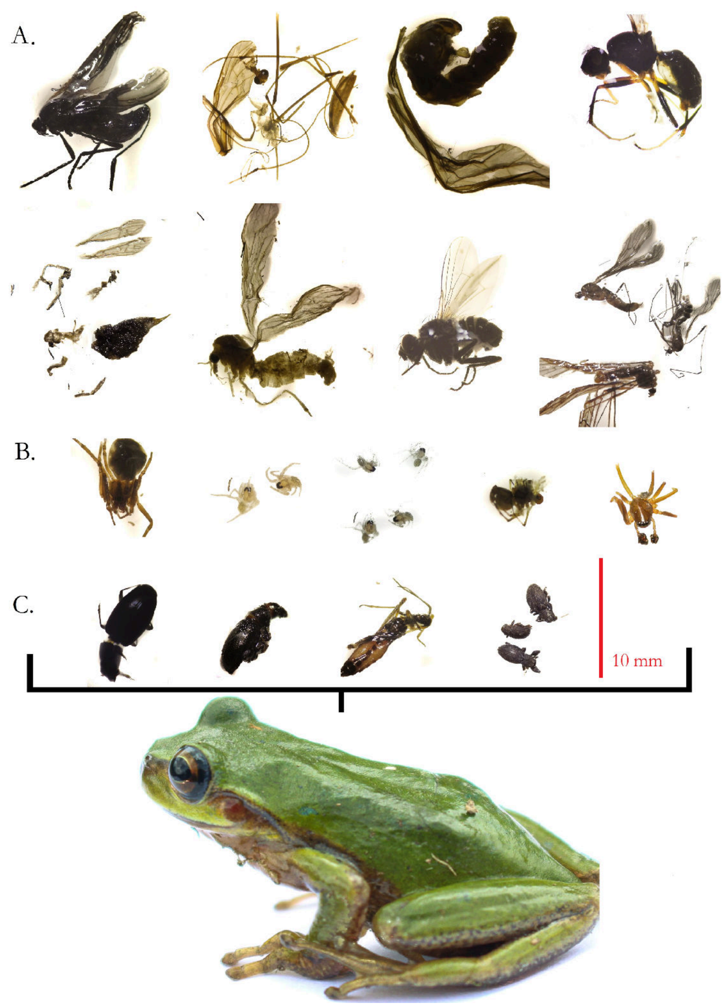

Figure 3: Prey with the highest abundance in the stomach contents of *D. molitor*. A. Some individuals of Diptera. B. Some individuals of Aranae C. Some individuals of Coleoptera. Scale bar 10 mm.

The high diversity of spiders found in the stomachs of *D. molitor* is unusual if other research on amphibians is taken into account, where this category of prey was not common (Muñoz-Guerrero *et al.*, 2007; Garcia *et al.*, 2015; Astwood-Romero *et al.*, 2016). However, the diversity as prey items is directly related to aspects of the life history of the detected spider families that are frequently seen in grassland habitats with fluctuating grazing dynamics and contamination by agrochemicals (Valencia and Florez-Daza, 2007; De Araújo *et al.*, 2015). Coleoptera have been documented among the insects exhibiting high abundances, mainly during dry seasons (Teixeira *et al.*, 2009), and this would explain their appearance and value of importance in the stomachs of *D. molitor*. However, research is required to evaluate whether there is congruence between the diversity observed in the frog's diet and what exists as available resources in the habitats where *D. molitor* was recorded.

The ingestion of hymenopterans is a remarkable result, since this order was represented by bees and a small portion of ants. Although in several studies of amphibian diet different ant taxa have been recorded (Muñoz-Guerrero *et al.*, 2007; Rivas *et al.*, 2019), the record of bees in the frog diet is unusual, given the differences in the type of habitat occupied by the predator and prey. For *D. molitor* it is an aquatic system in an open and transformed area, and for bees, there is a greater association with areas of structurally complex vegetation with frequent flowering (Agüero *et al.*, 2018).

There are a few studies of the diet of other species of frogs of the genus *Dendropsophus*. When comparing our results with the diet of *Dendropsophus microcephalus* (Muñoz-Guerrero *et al.*, 2007), we observed that the diet between the two species shares some similarities represented in prey from the orders Diptera, Araneae and Hymenoptera. This apparent similarity in prey may be given because amphibians are considered opportunistic generalists and their diets reflect the availability of the particular type and size of prey (Duellman and Trueb, 1986). Likewise, it has been documented that hylid frogs feed opportunistically in vegetation (Furtado and Costa-Campos, 2020) inferring the types of prey that they might be consuming. Similarly, Parmelee (1999) found broad diet patterns within Hylidae with some preference patterns for large prey. In line with our results, we calculated a broad trophic niche value with a variety of prey, some of them large in the stomach contents of the frog.

At the level of morphotypes (Figure 2), we found that those with the highest number of individuals were Bibionidae1 with seven individuals, followed by Tipulidae1 and Tipulidae2 with six, then Hymenoptera and Curculionidae1 with five, and the others ranged between one and three individuals (**Table 1**). Given the characteristics observed in each jagüey, the heterogeneity of the habitats could show the environmental filtering that shapes the establishment of prey, a process that would favor the abundance of some prey over others. From this, the opportunistic nature of the species comes to play, where its "sit and wait" foraging mechanism allows it to make use of the available resources. Taking into account our results and observing the results of other works, the prey consumed are mostly fast and winged prey (Huey and Pianka, 1981). According to our results of 57.9 % prey with flying habits, 41.8 % with terrestrial habits, and 0.3 % semi-aquatic, most of these preys are gregarious, so this implies the cost of energy in obtaining food was low (Griffiths and Christian, 1996).

The sampling coverage was representative for the registered prey items; however, the probability of adding new individuals to the sample that were different prey categories from those registered is evident, if we increased our sample size.

Table 1: Categories of prey consumed by *Dendropsophus molitor* in an agroecosystem in an Andean region of Colombia. $\%F$ = the percentage frequency of occurrence of each prey category; IRI = relative importance index; $\%N$ = Numerical percentage (percentage of prey items belonging to a certain category); $\%V$ = percentage of the volume of the prey in relation to the total of number of preys.

Order	**Morphotypes**	$\%V$	$\%N$	$\%F$	IRI
Aranae	Araneidae	0.51	1.45	3.13	6.12
	Linyphidae1	0.93	2.90	6.25	23.92
	Linyphidae2	0.88	2.90	6.25	23.65
	Linyphidae3	0.71	1.45	3.13	6.74
	Lycosidae1	0.51	1.45	3.13	6.12
	Lycosidae2	0.71	2.90	6.25	22.54
	Salticidae1	1.37	4.35	9.38	53.62
	Salticidae2	0.55	4.35	9.38	45.95
	Salticidae3	0.69	1.45	3.13	6.67
Coleoptera	Carabidae	1.04	1.45	3.13	7.78
	Chrysomelidae	0.80	1.45	3.13	7.02
	Curculionidae	0.93	7.25	15.63	127.74
	Elateridae1	1.90	4.35	9.38	58.6
	Elateridae2	1.50	1.45	3.13	9.23
	Psephenidae	0.11	1.45	3.13	4.87
Diptera	Agromicidae	3.32	2.90	6.25	38.86
	Bibionidae1	15.04	10.14	21.88	551.01
	Bibionidae2	2.65	2.90	6.25	34.71
	Cloropidae	0.18	1.45	3.13	5.08
	Sepsidae	0.22	1.45	3.13	5.22
	Tipulidae1	15.93	8.70	18.75	461.72
	Tipulidae2	16.37	8.70	18.75	470.01
	Tipulidae3	14.6	4.35	9.38	177.65
	Tipulidae4	15.49	2.90	6.25	114.91
Hemiptera	Cicadellidae	0.15	4.35	9.38	42.21
	Miridae	0.13	1.45	3.13	4.94
Hymenoptera	Hymenoptera	0.93	7.25	15.63	127.74
	Formicidae	0.09	1.45	3.13	4.81
Mollusca	Mollusca	0.22	1.45	3.13	5.22

In the analysis of the interactions, we found a connectivity value of 0.065, a link value of 0.930, and a link density 273.8 (**Figure 4**). By analyzing the interactions, we can describe the diversity and organization of the interaction of *D. molitor* with its prey. When observing the values of connectivity and links we could see that these are relatively low, although we observed a high connection with several prey through several links. Connectivity is sensitive and is known to decrease with species richness (Dáttilo and Rico-Gray, 2018) and may be related to the size of the sample that we obtained in our study. *D. molitor* frog is one of the few amphibians established in the highlands and specifically in agroecosystems and it represents a focal species for the maintenance of ecological processes such as the energy transition that occurs in this type of

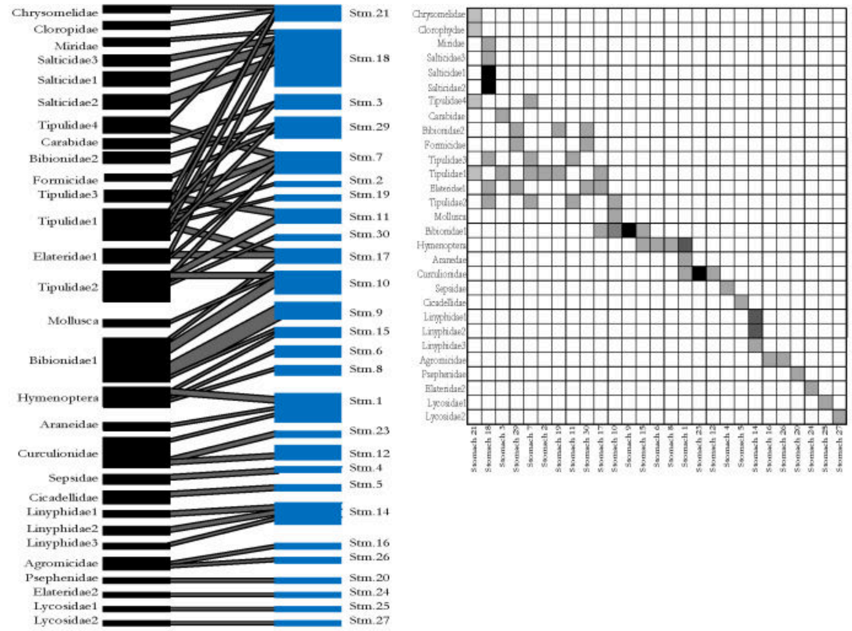

Figure 4: Left. Simple bipartite network representation of interactions linked by interaction frequencies; the black bars are the preys and the blue bars are the stomachs revieweds. Right. Representation of the strength of network interactions. The black bars represent the prey, the gray bars represent each of the stomach contents, the network shows the relationship between two trophic levels, predator-prey.

ecosystem. Particularly the most susceptible parameter is network connectivity, which increases with high levels of anthropogenic alteration due to a decrease in the specialization of species and is maintained with generalists (De Araújo *et al.*, 2015).

The most important prey categories in the frog's diet were Bibionidae1, Tipulidae2, Tipulidae1, Tipulidae3, Curculionidae, Hymenoptera, Tipulidae4 (Table 1). The relative importance index allows observing the importance value for each category of prey in the frog's diet, including variations in volume and occurrence of the categories (Kawakami and Vazzoler, 1980).

Through this we were able to observe the prey that represented the highest dietary contribution compared to other studies focused on similar patterns in groups of prey (Muñoz-Guerrero *et al.*, 2007; Garcia *et al.*, 2015; Astwood-Romero *et al.*, 2016).

The diversity and relative importance results are consistent with the breadth of the trophic niche (Levins' $B = 0.7$), which was relatively high. This fact could mean an advantage for *D. molitor* for taking advantage of the resources, since it provides a wider range in its diet (Saenz, 1996). Based on our data, it could be inferred that the species could have a high food plasticity, comparing them with other similar results, where they found fewer categories of prey despite having a greater number of individuals of the model species (Santana *et al.*, 2019).

4. Conclusions

We identified feeding habits, diet composition and interactions of a generalist high mountain species, filling a gap with respect to this dimension for the *Dendropsophus molitor* species. From a general perspective, the species behaves as a generalist predator when taking into account the variety of food categories.

These findings support the importance of this type of organism, since they control the populations of insects that are concentrated in the bodies of water and in the vicinity of the crops, so that the biomass circulates through each part of the ecosystem.

The trophic niche of *D. molitor* is wide and the characteristics that structure it are decisive in the success of the species, despite being in ecosystems that have undergone changes or have been modified by anthropogenic disturbances established for human production systems. Although the generalist status of the frog is verified, opportunism could be observed through the use of different prey present in the habitat. The species consumes a great variety of insects, but with interactions focused on some groups that are to a greater extent flying and terrestrial, such as mosquitoes, spiders and ants.

As a perspective for additional studies, we recommend considering studying the availability of the categories of prey in the environment; there could be several factors for frogs that condition their diet in one way or another, such as the abundance of prey, the size of the prey, etc. These ecological aspects could play a fundamental role in the successful establishment of this species at a site and may be one of the causes of its abundance and wide distribution in the highlands of Boyacá and Cundinamarca Departments.

5. Conflict of interests

The authors certify that they have no conflicts of interest relating to the commitments of individual authors, editors, journal staff or reviewers.

6. Acknowledgements

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Dieta de *Dendropsophus molitor* (Anura: Hylidae) en un ecosistema agrícola altoandino, Colombia

Resumen: *Dendropsophus molitor* es una rana generalista que hace un uso óptimo de los recursos ofrecidos por ecosistemas andinos altamente transformados. A pesar de ser una de las especies de anfibios más estudiadas en Colombia, es necesario todavía evaluar algunos aspectos de su dieta como indicadores de su nicho trófico. Por esta razón, se evaluó la dieta de *D. molitor*, con interpretaciones de la composición dietaria para examinar la dimensión del nicho. Se escogió un sistema agrícola andino y en él se seleccionaron cuatro jagüeyes para hacer los muestreos, que tuvieron lugar entre julio y noviembre de 2017. Se recolectaron 32 ranas, se les extrajo el contenido estomacal y se analizó su composición, la diversidad, la importancia relativa de la presa y la amplitud de su nicho trófico. Además, se evaluaron con análisis de redes las interacciones de la especie con sus presas. Se obtuvieron 69 registros de presas, distribuidos en 29 categorías; las presas con la más alta frecuencia fueron Bibionidae1 con siete individuos, seguidas por Tipulidae1 y Tipulidae2 con seis, que son equivalentes a las de mayor importancia relativa. El nicho trófico se caracterizó como amplio (Levins' $B = 0.7$) y las interacciones tuvieron una conectividad de 0.065, un coeficiente de enlace de 0.930 y una longitud de enlace de 273.8, representados por un amplio rango de interacciones con la presa. La caracterización de la dieta y el nicho trófico de *D. molitor* muestra el amplio uso de los recursos, lo cual es consistente con su ya documentada condición generalista. La diversidad de la dieta junto con su amplitud, podría representar ventajas para establecer poblaciones grandes y saludables en ambientes transformados de alta montaña andina.

Palabras Clave: Dieta; depredador; presa; especie generalista.

Dieta de Dendropsophus molitor (Anura: Hylidae) num agroecossistema alto andino, Colômbia

Resumo: *Dendropsophus molitor* é uma rã generalista que faz ótimo uso dos recursos oferecidos por ecossistemas alto andinos altamente transformados. Embora seja uma das espécies de anfíbios mais pesquisadas da Colômbia, ainda é necessário avaliar alguns aspectos da sua dieta como indicadores do seu nicho trófico. Por essa razão, avaliamos a dieta de *D. molitor* e interpretamos a sua composição dietária para abordar a dimensão do nicho. Escolhemos um agroecossistema andino, selecionamos quatro jagüeyes (fossos cheios de água) no ecossistema e fizemos amostragens entre Julho e Novembro de 2017. Coletamos 32 rãs no total, extraímos o conteúdo estomacal e analisamos a composição, diversidade, importância relativa da presa e amplitude do nicho trófico. Adicionalmente, fizemos uma análise de redes para avaliar as interações da espécie com suas presas. Obtivemos 69 registros de presas, distribuídas em 29 categorias. As três presas que apresentaram a maior frequência, Bibionidae1 com sete indivíduos, seguido por Tipulidae1 e Tipulidae2 com seis indivíduos cada uma, equivalem à maior importância relativa. O nicho trófico foi classificado como amplo (Levins B = 0,7) e as interações tiveram uma conectividade de 0,065, um coeficiente de ligação de 0,930 e uma densidade de ligação de 273,8, representados por um amplo rango de interações com a presa. A caracterização da dieta e do nicho trófico de *D. molitor* demonstram um amplo uso de recursos consistente com sua condição generalista previamente documentada. A diversidade e amplitude da dieta poderiam representar uma vantagem na hora de estabelecer populações grandes e saudáveis em ambientes transformados de alta montanha andina.

Palavras-chave: Dieta: predador; presa; generalista.

Diego F. Higuera-Rojas

Biologist student of Master's Degree in Biological Sciences, with research experience in amphibian and reptile ecology. His main interests are related to the characterization and evaluation of networks of biological interactions.

ORCID: 0000-0002-9390-9605

Juan E. Carvajal-Cogollo

He is currently an Associate Professor in the Biology program, Universidad Pedagógica y Tecnológica de Colombia, and is the director of the Museo de Historia Natural Luis Gonzalo Andrade, Tunja, Colombia. Juan obtained his Ph.D. from the Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá, Colombia, in the subject of Landscape Ecology and reptile ecology. He has a keen interest in the natural history of neotropical amphibians and reptiles, and has authored several articles in international journals and book chapters on Colombian biodiversity. Juan is particularly interested in the habitats, ecology, and conservation of amphibians and reptiles.

ORCID: 0000-0002-4542-6967