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Diet, microhabitat use, and thermal preferences of *Ptychoglossus bicolor* (Squamata: Gymnophthalmidae) in an organic coffee shade plantation in Colombia

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ABSTRACT

Ptychoglossus bicolor *is a small gymnophthalmid lizard distributed in the Magdalena Valley of Colombia. We studied ecological features of diet, microhabitat use, and thermal preferences of a population found in an organic coffee shade plantation at the Cordillera Oriental of the Colombian Andes. The studied population had a diet composed predominantly of isopods. The Relative Importance Index of isopods was 98.8%; there were no significant monthly differences in the full stomach content and volume of isopods eaten during the sampling year, neither between rainy and dry seasons. A large number of lizards were found active in the leaf-litter, buried around coffee tree roots, and under or in rotting logs. Lizard body temperature was positively correlated with substrate temperature and air temperature; sex differences in body temperature were not significant. At the studied locality we did not find lizards out of the coffee fields. Our results suggested that these lizards successfully cope with the conditions offered by the organic coffee areas as a result of the cultivation system. Thus, this population might be vulnerable to any modification of the habitat that changes microhabitat availability and abundance of isopods.*

Keywords: *Ptychoglossus bicolor;* Diet; Ecology; Tropical lizards; Organic coffee.

INTRODUCTION

New World tropical forests are well known for their biotic diversity, as well as the effect of some agroforestal systems on biodiversity (Wilson, 1988; Perfecto *et al.,* 1996; Perfecto *et al.,* 2003; Vitt *et al.,* 2005; Richter *et al.,* 2007). More and more tropical forest regions have experienced some type of deforestation or habitat modification, making necessary additional ecological studies of individual species, species assemblages, communities, and ecosystems (Vitt & Zani, 2005). Diet, microhabitat and thermal ecology studies on species that live in moist tropical forest and that have moved to new environments

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may provide good basis for understanding the role of each species in complex ecosystems and give us clues to understand what makes it possible for species to shift to new niches, the evolutionary history of such traits, and the effects of habitat alterations (Pianka & Vitt, 2003; Vitt *et al.,* 2003b; Vitt & Zani, 2005). Therefore, this kind of evidence might also provide a good arsenal for defending the value of natural ecosystems, especially when drastic habitat alteration as the cultivation of some crops is under consideration, as well as practices that combine biodiversity conservation with sustainable agricultural systems (Glor *et al.,* 2001; Pianka & Vitt, 2003; Vitt *et al.,* 2003b; Vitt & Zani, 2005; Borkhataria *et al.,* 2006). Organic farming or traditional shade coffee farming have shown to be a good model that unites biodiversity conservation with sustainable agricultural practices, not only because these plantations overlap with biodiversity hot-spots, but also because of their biological control of coffee pests (in contrast to other plantations as sun coffee plantations, where biodiversity is significantly lower than that of coffee shade plantations) (Hardner & Rice, 2002). Since landscape, especially in altered environments, is a mosaic of patches and habitats along space, to understand how particular natural populations cope with to keep viable populations in human transformed habitats is of importance to the appropriated management and conservation of such populations. For all these reasons, understanding how species live in these modified systems is imperative (Perfecto *et al.,* 1996, 2003, 2007; Borkhataria *et al.,* 2006).

The Gymnophthalmidae contains approximately 213 small-bodied lizard species in 41 genera, occurring throughout most of the habitats of South and Central America (Pellegrino *et al.,* 2001; Castoe *et al.,* 2004; Doan & Castoe, 2005). The genus *Ptychoglossus* contains 15 species of small lizards that live in the leaf litter of moist tropical forest in Panama, Costa Rica and the Northwestern quarter of South America (Harris, 1994). *Ptychoglossus bicolor* is distributed on the Magdalena Valley of Colombia between 1500 and 2100 m elevation, within zones of premontane and low montane very humid forests (Harris, 1994). These lizards are cryptic in dorsal color, resembling the soil and fallen leafs. No ecological data exist for species in this genus, but it is known that most gymnophthalmids lizards prefer to live in leaf-litter microhabitats and microhabitats rich in decaying wood; most gymnophthalmids also maintain body temperatures slightly higher than substrate temperature (Hillis, 1985; Avila-Pires, 1995; Vitt *et al.,* 2003a; Vitt & Pianka, 2004; Doan, 2008). The aim of this study is to evaluate feeding preferences, microhabitat use, and quantify thermal preferences of a population of *Ptychoglossus bicolor* found in an organic coffee shade plantation at La Mesa de Los Santos in Colombia. The knowledge of these features could explain how this lizard population, of a species which usually live in the leaf litter of moist tropical forests, can survive and maintain viable populations in the environment of coffee fields.

MATERIAL AND METHODS

Field and laboratory protocols

We performed this study at the Hacienda El Roble that is located on the western slopes of Cordillera Oriental of the Colombian Andes, between the municipalities of Los Santos and Piedecuesta, Santander, Colombia (06°52'N, 73°03'W, 1500-1700 m elevation). The area is classified as a pre-montane humid forest life zone (CORPES, 1991). The area of the farm is 334.7 ha, 210 ha of those are planted with approximately 800.000 coffee trees of three varieties (Caturra, Bourbon and Colombiana) of different ages. Twelve ha are kept as natural forests. The lots that comprise the coffee plantations of this farm are classified as rustic, commercial poly-farming, and traditional poly-farming coffee fields (Moguel & Toledo, 1999), which constitute structurally different and irregularly distributed patches (Ortegón-Martínez & Pérez-Torres, 2007). The vegetation that provides the shade to the coffee trees is dominated by *Inga* spp., *Erythrina* spp., *Musa* sp., *Cordia* sp. and

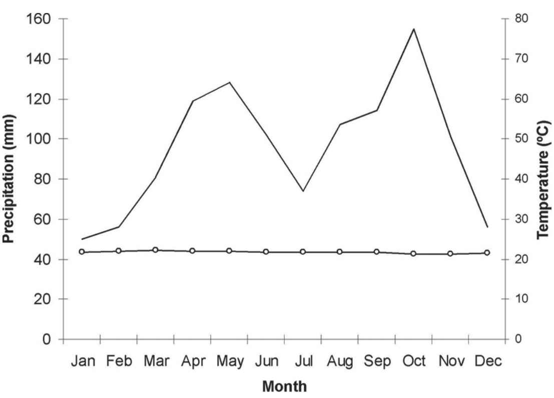

FIGURE 1: Climate of the study area. Data correspond to the monthly average precipitation and temperature of La Hacienda El Roble (Mesa de los Santos, Santander). Current data were recorded from the coffee farm station, and historical data were taken from the DIVA-GIS database.

Abizzia sp. Historically, this zone has had two peaks of rain (March to June and August to November), with a mean annual precipitation of 1143 mm (Hijmans *et al.,* 2004; Fig. 1); historical data were not significant different to that of the sampling period (Paired $t_{(11)} = -0.276$, $P = 0.787$).

We looked for individuals of *Ptychoglossus bicolor* over all possible areas in the farm, including the coffee plantations, as well as areas out of the coffee fields. We collected 218 lizards by hand during haphazard excursions through the coffee shade plantations. 166 lizards were collected monthly from April 2005 to April 2006 and were used to study microhabitat and diet preferences. The other 52 lizards were collected in May 2007 and August 2007, and were used to study their thermal preferences. We considered the following microhabitat categories, which in general encompassed most of the available microhabitats in the area for the lizard: on or within leaf-litter, into or under rotting logs, and on coffee tree roots. Subsequently, all lizards collected were euthanized by a lethal injection of Lidocain 2% within two hours of capture. Lizards were preserved in 10% formalin for 48 hours and stored in 70% ethanol to be deposited in the herpetological collection of the Museo de Historia Natural, Escuela de Biología, Universidad Industrial de Santander (UIS-R). *Ptychoglossus bicolor* has a marked sexual dichromatism (adult males with orange-red and females with pale beige ventral coloration), so sexes were easily externally recognized and separated; we also obtained the data of the reproductive stage of each individual from the study over the same sample of lizards being carried out by E. Ramos (*pers. comm.,* 2008).

We dissected stomachs of all lizards: 75 from males, 77 from females, and 14 from juveniles. For diet purposes, we considered only stomach contents; we did not use the material found in the intestines because that material was considerably digested. Prey items were identified to family level when possible (all were identified at least to order). We excluded the material that was too fragmented (digested material) from the prey category determination, but not from the volumetric analysis. For each lizard we measured prey volume and stomach volume directly using the volumetric displacement method (Magnusson *et al.,* 2003) with an accuracy of 0.2 mm^3. To calculate the relative contribution of each prey category to the total of dissected stomachs, we used the relative importance index, RII (Pinkas *et al.,* 1971) using the following equation: RII = (%N + %V) %F, where %N is the numeric percentage of items of each prey category, %V is the volumetric percentage of each prey category, and %F is the percentage of occurrence of each prey category in the total number of stomachs. We also calculated the percentage of lizards that had empty stomachs and the percentage of digested material (Huey *et al.,* 2001).

The cloacal temperature of 52 lizards (= Body T_b) was registered as well as from the site of capture the data of air temperature 5 cm above the ground (T_a), and substrate temperature (T_s), using a quick-reading thermometer with an accuracy of 0.2°C (Avinet Inc. Dryden, NY); the relative humidity (% RH) also was registered using a digital thermometer and hygrometer (*RadioShack*™).

Statistical analysis

We used an analysis of covariance (ANCOVA Separated-Slopes model) to test if the volume of the most important prey eaten and the full stomach content volume differed between sexes, among microhabitats, among months and between seasons, with SVL as the covariate and sex, microhabitat, month and season of capture as the class variables. We checked assumptions of normality and homogeneity of variances using Kolmogorov-Smirnov tests and Hartley and Bartlett tests, respectively. Although the volumetric data did not fit normality and homogeneity of variances, we used parametric ANCOVA because the large sample sizes and because data were robust enough to violations of either normality or homoscedasticity (Olejnik & Algina, 1984). We used a simple linear regression to plot the total stomach volume against SVL in order to visualize the relationship between stomach volume and lizard body size, and to estimate relative fullness of sampled lizards (Huey *et al.,* 2001).

Differences in microhabitat use of all individuals captured during the whole year were tested by a Chi-square test. The relationship between the T_b, T_a and T_s was analyzed by means of a multiple regression; we used a Paired t-test to see if T_b was different than T_a and T_s. We also used and ANOVA to test if relative humidity was different among microhabitats. To test the null hypothesis that lizards do not choose microhabitats based on T_b and that lizards do not perform with different body temperature during the rainy and dry season, we used ANCOVA (separated-slopes model) with T_b as the dependent variable, microhabitat and seasons (rainy and dry) as the class variables, and T_s as the covariate. Finally, we also tested the null hypothesis that males and females are active using different body temperatures by performing an ANCOVA with T_b as the dependent variable, T_s as the covariate, and sex as the class variable.

RESULTS

From 166 lizards analyzed, 14 had empty stomachs and 36 stomachs were full of digested material. The remaining 116 lizards examined had stomachs with a total of 468 prey items in 11 prey categories (Isopoda, Coleoptera larvae, Coleoptera, Dermaptera, Strepsiptera, Hemiptera, Orthoptera, Psocoptera, Hymenoptera, Collembolla, and Aranae, Table 1). Volumetrically and numerically, isopods, coleopteran larvae, coleopterans, and dermapterans dominated the diet. Most lizards ate numerous isopods, sometimes in combination with other items, although some lizards ate only coleopteran larvae. Predominance of a highly restricted diet on isopods is apparent in values of RII% (98.8%, Table 1). On the other hand, isopod volume distribution was highly skewed, and most of these preys were small, with a mean prey volume of 0.01 mm^3. No sex differences were found in the volume of isopods eaten (ANCOVA, $F_{(1,148)} = 0.92$, $P = 0.34$) and full stomach volume (ANCOVA, $F_{(1,148)} = 0.62$, $P = 0.43$). We did not find microhabitat differences in the volume of isopods (ANCOVA, $F_{(2,146)} = 0.66$, $P = 0.52$) nor in the isopods and full stomach content during the sampling period (Isopods: ANCOVA, $F_{(11,114)} = 0.611$, $P = 0.815$, and full stomach content; ANCOVA, $F_{(11,114)} = 0.50$, $P = 0.90$; Fig. 2), and neither between the rainy and dry seasons ($F_{(2,161)} = 0.75$, $P = 0.47$).Total prey volume and SVL were positively related ($R^2 = 0.11$, $F_{(1,164)} = 20.82$, $P < 0.05$). Few lizards reached full stomach volume; about 26% of the full stomach volume was digested material and nearly 8.4% of stomachs were empty (Fig. 3).

All lizards were found in coffee shade plantations; no lizards were found outside of this habitat. Thus, we restricted our further study to the coffee fields. Among 166 lizards collected, 93 (56%) were found diving into the leaf-litter, 57 (34%) were interred in the compost around coffee tree roots, and 16 (10%) were under or in rotting logs (Fig. 4). This variation in microhabitat use was statistically significant ($X^2 = 31.28$, df = 2; $P < 0.05$). No significant differences were found in relative humidity between leaf litter, rotting logs, and coffee tree roots ($F_{2,49} = 2.48$; $P = 0.095$, Table 2).

A summary of T_b, T_a and T_s of 52 living lizards is shown in Table 3. T_b was positively related with both T_a, and T_s ($R^2 = 0.31$ $P < 0.001$, $N = 52$) (Fig. 5). T_b averaged 4.35 ± 2.22°C higher than T_s (Paired $t_{(51)} = 14.13$; $P < 0.05$), and 1.36 ± 2.73°C higher than T_a (Paired $t_{(51)} = 3.61$; $P < 0.05$). Although, body temperature tended to be higher during the rainy season, these seasonal differences were not significant ($F_{(1,49)} = 0.15$, $P = 0.70$). No sex differences were

TABLE 1: Diet of *Ptychoglossus bicolor* at the coffee shade plantations. Number of items (No), numerical percentage of the prey type (%No), total volume of prey type (Vol, in mm^3), volumetric percentage of the prey items (%Vol), percentage of lizards containing a particular prey type (%Fq).

	No	% No	Vol	% Vol	% Fq	RII
Isopods	417	89.13	8.73	80.8	87.93	98.82
Coleoptera larvae	16	3.41	0.82	7.56	10.34	0.30
Coleoptera	12	2.56	0.35	3.25	9.48	0.36
Dermaptera	11	2.35	0.43	4.02	10.34	0.43
Others*	12	2.56	0.47	4.36	9.48	0.06
B (Simpson)	1.25		1.51			
Levin (Ba)	0.09		0.11			

* Strepsiptera, Hemiptera, Orthoptera, Psocoptera, Hymenoptera, Collembola, and Araneae.

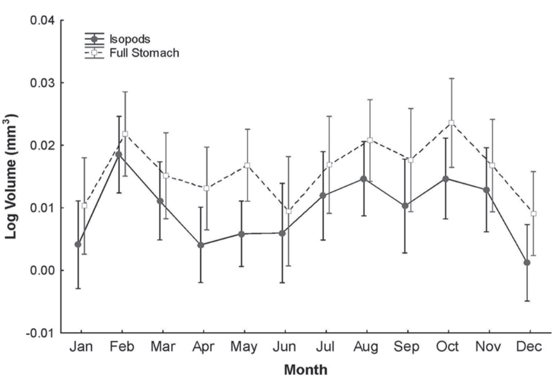

FIGURE 2: Diet variation over time of *Ptychoglossus bicolor.* Graph shows volume of isopods, and volume of the full stomach content variation. The bars represent ± 95% confidence bounds for the means. Covariate mean for SVL:1.75.

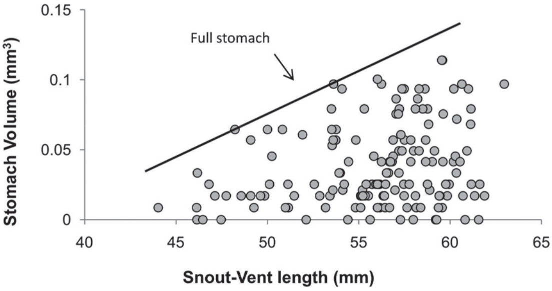

FIGURE 3: Relationships between lizard size and total volume of prey in stomach of *Ptychoglossus bicolor.* The degree of fullness of the stomach varies among individuals. The upper line is an estimate of where points for lizards with completely full stomach should lie; points for lizards with a nearly empty stomach would approach the *x* axis. Data are shown non-log-transformed to illustrate that most stomachs were not nearly full.

TABLE 2: Microclimatic characteristics of the microhabitats occupied by *Ptychologssus bicolor* and body temperatures of the lizards in each microhabitat in an organic coffee shade plantation. Relative humidity (RH%), substrate temperature (T_s), and air temperature (T_a) are shown. N, number of microhabitat measured; SD, standard deviation; Min, lowest value, and Max, maximum value.

	Microhabitat														
	Leaf litter					Log					Root				
	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max
RH%	33	79	7	66	92	7	79	10	62	90	12	83	7	70	93
T_s °C	33	19.62	0.52	18.56	20.86	7	19.65	0.93	18.76	21.56	12	19.21	0.51	18.56	20.26
T_a °C	33	21.96	2.03	19.00	25.56	7	22.98	3.18	20.56	27.96	12	21.03	1.15	19.60	23.56
T_b °C	33	24.34	2.37	20.0	29.80	7	23.90	2.27	19.60	26.80	12	22.56	2.60	19.00	27.20

TABLE 3: Body temperature (Tb) of *Ptychoglossus bicolor,* substrate temperature (Ts), and air temperature (Ta) of the microhabitats used by this lizard. N, number of lizards; Min, lowest value; Max, maximum value; SD, standard deviation. Temperatures in °C.

	N	Mean	Min	Max	SD
T_b	52	23.89	19.00	29.80	2.49
T_s	52	19.53	18.56	21.56	0.60
T_a	52	21.88	19.00	27.96	2.10

apparent in T_b (Sex: $F_{(1,50)} = 0.763$, $P = 0.387$) and T_b did not vary significantly among the different microhabitats ($F_{2,49} = 2.357$, $P = 0.105$, Table 2).

DISCUSSION

This population of *Ptychoglossus bicolor* has a diet composed predominantly of isopods; its preference for isopods is strongly marked and this may explain in some way its microhabitat preference. Leaf litter, rotting logs, and roots are always full of decomposers like isopods (Paoletti & Hassall, 1999), so lizards might choose to forage at these microhabitats. Because no differences were found in the volume of isopods eaten in the three categories of microhabitats, and because no lizards were found out of the microhabitats offered by the coffee field, a study of the relative abundance of isopods and diet of *P. bicolor* both in and out of the coffee fields in areas without an anthropogenic influence would be worthwhile. Such a study would provide a good basis to compare if natural populations of *P. bicolor* have similar dietary preferences or if these preferences are historically constrained.

Terrestrial isopods are soil-dwelling arthropods often showing sensitiveness to soil physical-chemical properties and limited dispersal capabilities, and thus may constitute good indicators of soil properties (Paoletti & Hassall, 1999), especially on a local scale perspective (Almerão *et al.,* 2006). The diet of terrestrial isopods is mostly decaying organic materials such as leaf-litter, decayed wood (rooting logs), and fungi and bacteria mats (Paoletti & Hassal, 1999). Isopods as well as coleopteran larvae are abundant soft-body arthropods that can be found easily in the microhabitats used by *P. bicolor.* However, even though soft-bodied ants also are abundant at the coffee field, no ants were found in the diet of *P. bicolor.* Vitt *et al.* (2003b) noted a similar trend in other gymnophthalmids. Consequently, organic farming, high relative

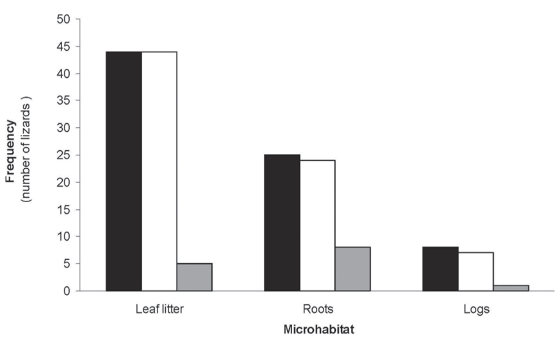

FIGURE 4: Frequency of lizards in different microhabitats in a coffee shade plantation at La Mesa de los Santos (Santander, Colombia). Black bars, females; white bars, males; grey bars, juveniles.

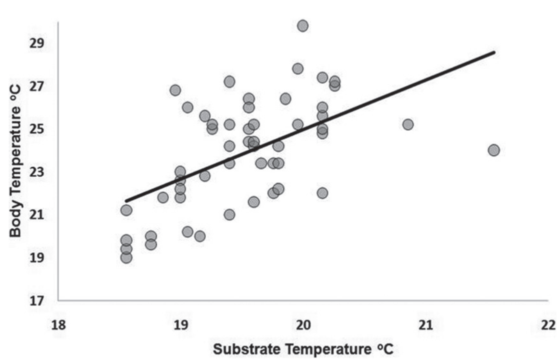

FIGURE 5: Relationship between lizard body temperature (T_b) and substrate temperature (T_s) for *Ptychoglossus bicolor.* Tb = -21.28 + 2.312x (R^2 = 0.307).

TABLE 4: Comparative temperature (°C) among some gymnophthalmids.

Species	Body Temperature	Substrate Temperature	Air Temperature	Microhabitat	Source
Alopoglossus angulatus	—	25.1 ± 0.3 (*N* = 10)	25.9 ± 0.4 (*N* = 10)	Leaf litter	Vitt *et al.,* 2007
A. atriventris	26.1 ± 1.15 (*N* = 2)	25.7 ± 0.4 (*N* = 10)	26.6 ± 0.4 (*N* = 10)	Leaf litter	Vitt *et al.,* 2007
Potamines ecpleopus	27.0 ± 0.02 (*N* = 63)	25.5 ± 0.02 (*N* = 63)	26.1 ± 0.1 (*N* = 63)	Streams	Vitt *et al.,* 1998
Cercosaura argulus	—	27.2 ± 0.3 (*N* = 5)	27.3 ± 0.3 (*N* = 5)	Vines	Vitt *et al.,* 2003b
C. eigenmanni	29.9 ± 0.44 (*N* = 10)	27.2 ± 0.19 (*N* = 10)	27.1 ± 0.20 (*N* = 10)	Leaf litter	Vitt *et al.,* 1998b
*C. argulus**	29.0 ± 0.3 (*N* = 13)	27.2 ± 0.5 (*N* = 14)	27.1 ± 0.4 (*N* = 14)	Leaf litter and trunk	Vitt *et al.,* 2003b
Ptychoglossus bicolor	23.9 ± 2.49 (*N* = 52)	19.5 ± 0.6 (*N* = 52)	21.9 ± 2.10 (*N* = 52)	Leaf litter	Present study

* = *Prionodactylus oshaughnessyi* of Vitt *et al.,* 2003b.

humidity, a rich leaf-litter layer from coffee trees and shade trees, and the shade provided at the plantations might enhance isopod richness, resulting in a high continuous source of food for these lizards, probably also influencing the continuous reproductive activity observed in this population (E. Ramos, *pers. comm.,* 2008).

Ptychoglossus bicolor lives in coffee shade plantations, diving into the leaf-litter of this terrestrial habitat, burying into the roots of coffee trees and under rotting logs. Thus, in terms of microhabitat use, *P. bicolor* is very similar to other gymnophthalmids (Harris, 1994; Teixeira & Fonseca, 2003; Santos-Barrera *et al.,* 2008). *Ptychoglossus bicolor* is common at these coffee fields but not in open areas out of these plantations, so it may be reflecting a marked microhabitat preference for areas rich in leaf litter, similar to gymnophthalmids in the Amazon rainforest and in the Cerrado of Brazil (*e.g. Cercosaura argulus, C. eigenmanni, Leposoma scincoides, Alopoglossus angulatus,* and *A. atriventris;* Vitt *et al.,* 1998b; Vitt *et al.,* 2003b; Vitt *et al.,* 2007; Teixeira & Fonseca, 2003; Doan, 2003) or it may be reflecting the absence of appropriate environments outside the plantation. These microhabitat preferences may derive from the substantial availability of food and space resources found at these coffee fields and the ability of *P. bicolor* to avoid environments that are not suitable around these plantations. Organic coffee agrosystems and coffee shade plantations have been recognized as a potential refuge for biodiversity, mainly because these environments have special properties (like an abundant layer of organic material undergoing continuous nutrient cycling by a rich macroinvertebrate fauna) and greatly overlap with global biodiversity hotspots (Hardner & Rice 2002; Perfecto *et al.,* 2007; Richter *et al.,* 2007).

Ptychoglossus bicolor occurs in relative cool microhabitats, differing in its T_b from other gymnophthalmids that occupy terrestrial microhabitats (Vitt & Avila-Pires, 1998; Vitt *et al.,* 1998a; Vitt *et al.,* 2003b; Vitt *et al.,* 2007; Table 4). This variation may result from altitudinal differences in their habitats, as *P. bicolor* occurs at higher elevations than other gymnophthalmids studied. The T_b of *P. bicolor* is similar to that of *Potamines ecpleopus* (23.9°C and 23.8°C, respectively); however, *P. ecpleopus* is associated with stream banks and frequently enters water, explaining its relative low body temperature (Vitt *et al.,* 1998a, Doan & Castoe, 2005). Maintenance of T_b significantly higher than T_a may reflect a behavioral mechanism for gaining heat (Verwaijen & Van Damme, 2007); *P. bicolor* probably use small sunlit patches in the leaf litter of the coffee shade plantation, as do gymnophthalmids in Amazonian rainforests (Vitt *et al.,* 2003b). This ability to perform with such a low body temperature may reflect the highly abundant source of food, promoting a more passive foraging mode that allows them to be active during cloudy days and in cold microhabitats (Karasov & Anderson, 1984; Verwaijen & Van Damme, 2007). The significant relationships observed between T_b, T_a and T_s suggest that microhabitats might be chosen at least partially on the basis of temperature; however, other factors may influence *P. bicolor* microhabitat preferences as stated above. The absence of these lizards in habitats out of the coffee field does not allow us to explore this issue.

Ecological traits of this population open a new window to understand the impact of organic agrosystems on species interactions and diversity, especially in such poorly-known groups as the gymnophthalmids. Most studies focus on gymnophthalmids of the Amazonian and Cerrado forest regions (Vitt & Zani, 1998; Vitt *et al.,* 2003b; Mesquita *et al.,* 2006), with few studies of gymnophthamids in agroforest systems (*Leposoma scincoides,* Teixeira & Fonseca, 2003) or in high elevation habitats (*Proctoporus,* Doan, 2008). *Leposoma scincoides* was found related to a coffee field, as was *P. bicolor,* and similarly isopods were the most important food item, but its niche breath was wider than *P. bicolor. Leposoma scincoides* eats more of other prey than does *P. bicolor* (*e.g.* numerically Isopoda, 55%; Araneae, 41%; Collembola, 17%; Blattodea, 14%; and Coleoptera, 14% dominated its diet; Teixeira & Fonseca, 2003).

Based on our dietary and spatial data, this population of *Ptychoglossus bicolor* is comprised of animals that feed mainly on isopods and with specific microhabitat preferences, thus rendering this population highly vulnerable. Any modification affecting the availability of light, leaf-litter, humidity and off-course food resources such as isopods could be adverse for this population. Such quantifiable natural history data not only provide interesting insights into potential species interactions that maintain or generate biodiversity on local, landscape, and regional levels, but also provide crucial information necessary to defend protected and unprotected areas with convincing arguments regarding effects of habitat modification on resident species (Greene, 1994; Vitt *et al.,* 2003c).

RESUMEN

Ptychoglossus bicolor *es un pequeño lagarto de la familia Gymnophthalmidae, que habita el valle del Río Magdalena de Colombia. Se estudiaron las características ecológicas de la dieta, uso de microhábitat y preferencias termales de una población que habita una plantación de café orgánico bajo sombra en la Cordillera Oriental colombiana. La dieta en esta población está dominada por isópodos. El Índice Valor de Importancia Relativa fue del 98.8% y no hubo diferencias mensuales significativas en el contenido estomacal y el volumen de isópodos consumidos durante el año, ni tampoco entre las estaciones de lluvia y seca. Un gran número de lagartos fueron encontrados activos entre la hojarasca, enterrados junto a las raíces de los árboles y bajo o dentro de troncos en descomposición. La temperatura corporal estuvo positivamente correlacionada con las temperaturas del suelo y del aire y no hubo diferencias significativas en temperatura corporal entre los sexos. En esta localidad no encontramos lagartos fuera de los campos de cultivo de café. Nuestros resultados sugieren que estos lagartos sobrellevan exitosamente las condiciones ofrecidas por los cafetales orgánicos como resultado del sistema de cultivo. Así, esta población podría ser vulnerable a cualquier modificación del hábitat que cambie la disponibilidad de microhábitats y la abundancia de isópodos.*

Palabras-claves: *Ptychoglossus bicolor;* Dieta, Ecología; Lagartos tropicales; Café orgánico.

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