common in the other groups. The few spiders found were in larger larvae. A minor shift is noted in the Diptera while Ephemeroptera nymphs and Tricoptera larvae were eaten by all size classes of the larval *Dicamptodon*.—DEAN E. METTER, *Dept. of Zoology, University of Idaho, Moscow, Idaho.*

THE FROG GENUS *PIPA* IN PANAMA.—In a summary of the distribution and taxonomy of the American pipids, Dunn (1948, *Am. Mus. Novitates No. 1384: 1–13*) gave the range of *Pipa parva* as "the lowlands of the Maracaibo Lake drainage, in Colombia and Venezuela." His records came from the Venezuelan states of Zulia, Falcón, and Trujillo, and the Colombian department of Norte de Santander. This picture has remained relatively unchanged and no range extension was reported in the review of the Venezuelan pipids by Gines (1958, *Mem. Soc. Cien. Nat. La Salle 18:5–18*). Rivero (1961, *Bull. Mus. Comp. Zool. Harvard Coll. 126:1–207*) stated that *Pipa parva* "represents the only frog that is apparently endemic to the arid and semiarid region of northwestern Venezuela." He reported "Lagunillas" as an additional locality. However, there is a town by this name in both Zulia and Merida states.

Through the kindness of Drs. Juan Racenis and Janis Roze and Miss Haydee Solano, I was able to examine the specimens of *Pipa parva* in the collections of the Museo de Biologia, Universidad Central de Venezuela. These consisted of 6 specimens from Sabana Mendoza, Trujillo (type locality), and 69 examples from El Vigia, Merida state. The latter definitely establish the occurrence of the species in Merida.

On 6 January 1962, a series of 31 immature *Pipa* were collected by the author and Giordano San Antonio near the Rio Chucunaque, Darien Province, Panama, about 1½ miles upriver from the mouth of the Rio

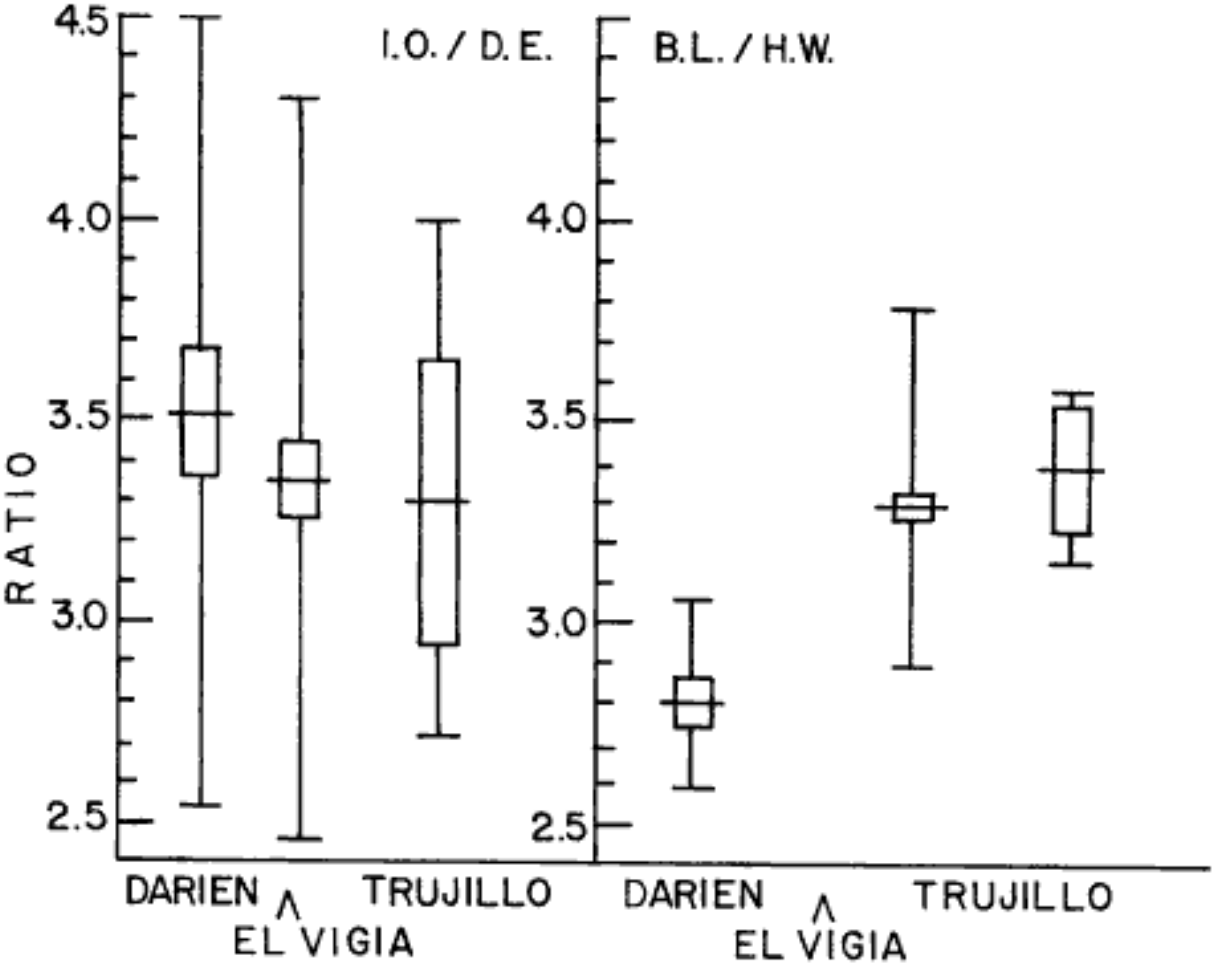

Fig. 1. Comparison of ratio of measurements of *Pipa parva* from Darien Province, Panama, El Vigia, Venezuela, and Sabana de Mendoza, Venezuela. Terminal horizontal lines represent the end points of the range, horizontal lines within the rectangles represent means, and the rectangles indicate twice the standard error on each side of the mean.

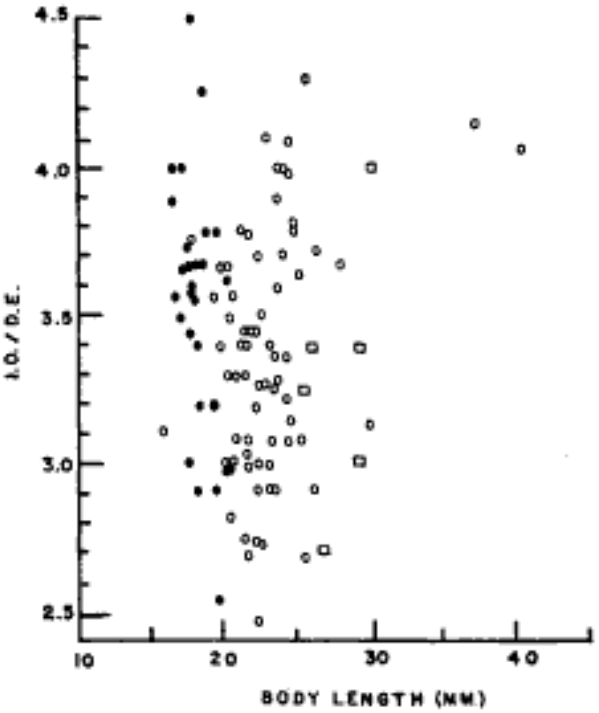

Fig. 2. Relation of the ratio of interorbital distance and diameter of the eye to the body length in *Pipa parva*. Dots represent specimens from Darien Province, Panama; circles those from El Vigia, Venezuela; and squares, those from Sabana de Mendoza, Venezuela.

Canclon. This constitutes the first record of the family Pipidae from Central America and is a range extension of about 375 miles to the west. All of the specimens were taken from a small pond in second-growth forest near the edge of an abandoned platano plantation formerly belonging to a group of Chocoi Indians. The pond had been approximately 12 meters long and 5 meters wide and about 1 meter deep at maximum size. However, at the time the frogs were collected (early part of dry season), it had nearly dried up and was only 1½ meters in diameter and 20 cm deep at the deepest point. It probably dried up completely before the end of the dry season. It was choked with partly floating leaf litter; the water was brown. None of the frogs were seen when the pond was approached and were only discovered when it was seined for tadpoles.

These specimens have the fingertips bifurcated into two short lobes with two similar ventrolateral lobes present a short way proximal to the tip, a condition which is found only in *P. parva*. They were indistinguishable in all other external morphological characters from *Pipa parva* from Venezuela, including specimens from the type locality.

To evaluate geographic variation in this species, two ratios believed by Dunn (*op. cit.*) to be of taxonomic significance were compared among the Darien and two Venezuelan populations. These are the interorbital distance divided by the diameter of the eye (I.O./D.E.) and the body length from the snout to vent divided by the head width (B.L./H.W.). Dunn gave the former as 4.5 and the latter as 4–4.5 for *parva*.

I found the I.O./D.E. ratio to average lower in the *parva* I examined, including specimens from the type locality, although Dunn's value was included in the range (Fig. 1). As only two of the specimens I examined were adult, an ontogenetic change in this ratio might be responsible for these results. However, no ontogenetic difference in I.O./D.E. is evident from a scatter diagram of this ratio plotted against body length (Fig. 2). There was no significant difference in Venezuelan and Panamanian populations with respect to this ratio, as indicated by the statistical test of Dice and Leraas (1936, *Contrib. Lab. Vert. Gen. U. Mich. No. 3:1–3*) (Fig. 1).

There was, however, a significant difference between the Panamanian and Venezuelan populations in B.L./H.W. ratio (Fig. 1). Again the actual values averaged lower than those presented by Dunn. Within any one series there was no demonstrable onto-

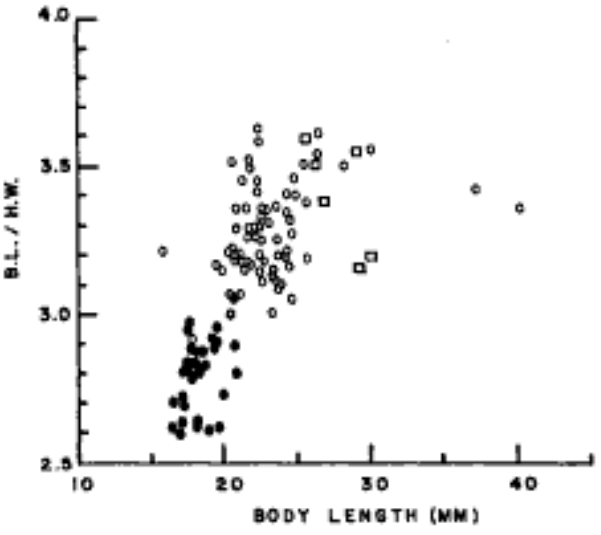

Fig. 3. Relation of the ratio of body length and head width to body length in *Pipa parva*. Dots represent specimens from Darien Province, Panama; circles those from El Vigia, Venezuela; and squares, those from Sabana de Mendoza, Venezuela.

genetic change in ratio. However, the size range of specimens from each locality was small and the specimens from different localities were of different sizes. When the ratios of specimens from all areas were plotted against body length (Fig. 3), there was a definite suggestion of a slight ontogenetic effect. Thus the difference in B.L./H.W. among these populations may simply reflect the fact that series of individuals of slightly different ages were used to represent different localities. However, even if this difference is truly a geographic one, the Panamanian and Venezuelan specimens appear not only to be conspecific but to display such slight geographic variation that, in the absence of adult material from Panama, it seems unwarranted to give them even subspecific designation at the present time.

This is highly surprising in view of the separation of the Venezuelan and Darien localities by several mountain ranges such as the Sierra de Perijá, Sierra Nevada de Santa Marta, and the Cordillera Occidental, which run along a north–south axis, extending almost into the Caribbean Sea. For a lowland aquatic frog they would seem to be an effective barrier to gene flow.

The specimens from Panama have been deposited in the University of Michigan Museum of Zoology, the Museo de Biología of Universidad Central de Venezuela, and the collections of the Department of Biology of the University of Puerto Rico at Rio Piedras.

I am deeply indebted to the various persons mentioned in the text and to the citizens of the United States who, through National Science Foundation Grant No. G-14427, supported the project of which this report is a part. – HAROLD HEATWOLE, *Department of Biology, University of Puerto Rico, Rio Piedras, P. R., and Department of Zoology, Washington University, St. Louis, Missouri.*

RANGE EXTENSIONS FOR THREE AMPHIBIANS IN NORTH-CENTRAL KENTUCKY. – Recent collecting trips to Kentucky, southwest of Cincinnati along the Ohio River, yielded specimens which extend the known ranges of three species. We follow the range maps of Conant (1958, *Field guide to reptiles and amphibians, Houghton Mifflin Co.*) as his are the most recent and accurate for this area, and the physiographic areas as considered by Funkhouser (1925, *Wildlife in Kentucky, Kentucky Geological Survey, Frankfort*). Collection citations are as follow: CJH, Corson J. Hirschfeld; JLC, James L. Corrado (Cincinnati); CMNH, Cincinnati Museum of Natural History; RN, Richard Newcomer (College Park, Md.); and USNM, U. S. National Museum.

On 30 April 1962 we obtained two *Pseudotriton montanus diastictus* (CJH 351, one adult, one larva) approximately 1 airline mile southeast of Burlington along Gunpowder Creek, Boone County, and on 5 May 1962 we took one adult and one larva (CJH 356) 5.6 miles southwest of the Carroll County line, off U. S. Route 42, Trimble County. Additional specimens include two (JLC 117, newly transformed, and CJH 418, adult) from Gunpowder Creek, Boone County, and another (CMNH 2689, recently transformed) from Dry Creek, Kenton County. Mittleman and Gier (1948, *Am. Midland Nat. 40:372–7*) cite a specimen (evidently CMNH 2689) from Kenton County. Conant's map (*op. cit., p. 343, map 192*) does not include Kenton County but shows the range of *diastictus* to extend west in Kentucky along the southern perimeter of the Blue Grass (a physiographic and faunal area occupying the north-central portion of the state) nearly to Louisville. To the north this salamander is known only from south-central Ohio and adjacent West Virginia.

The above records are from the periphery of the Outer Blue Grass, a province characterized by a gently rolling, sparsely forested terrain with excellent drainage (little surface water) producing a rather unfavorable habitat for many salamanders, particularly the more aquatic forms. It is therefore somewhat surprising that a number of *diastictus* (RN, 18 adults, 10 recently transformed, and 2 larvae) have been located from near Lexington, Fayette County, as Lexington lies near the center of the Blue Grass (although it is in the Inner Blue Grass, a region with a more favorable habitat than that of the Outer Blue Grass). These latter records seem to indicate that the species occurs throughout the Blue Grass province.

Mittleman and Gier (*op. cit.*) suggest that nominate *montanus* occurs in south-