

## Nota Científica

### FIRST REPORT OF USE OF LAND SNAILS FOR *HETEROMYS GAUMERI* (RODENTIA: HETEROMYIDAE) IN A SUBDECIDUOUS FOREST IN YUCATÁN, MÉXICO

**Resumen:** Se presenta el primer registro de uso de caracoles terrestres por *Heteromys gaumeri* en la selva mediana subcaducifolia localizada en el Rancho Hobonil, Tzucacab, Yucatán, México. Siete por ciento de la población total (n= 789) de *H. gaumeri* usó caracoles que habitan en el área. Las especies fueron: *Choanopoma largillierti* y *C. gaigei* (Annulariidae), *Neocyclotus dysoni* (Cyclophoridae) y *Drymaeus shattucki* (Bulimulidae). Cincuenta y uno por ciento de las muestras de los roedores fueron hembras y el 49% machos. Los adultos representaron el 86% y los juveniles 14%. El uso de caracoles tuvo relación significativa entre sexos de los roedores y la estacionalidad ( $p < 0.01$ ). Los caracoles fueron usados con mayor frecuencia en la estación de sequía por las hembras y por los machos adultos y juveniles en la de lluvias. Treinta y cinco por ciento de las hembras de la muestra que usaron caracoles estaban preñadas o lactantes. El género *Choanopoma* fue el más abundante y removido por *H. gaumeri* en ambas estaciones, mientras que *Neocyclotus* lo fue en la de lluvias y *D. shattucki* se encontró rara vez. Por lo observado consideramos que este ratón además de semillas come caracoles terrestres en esta región.

All the species of Heteromyidae family are granivorous, although some also feed on invertebrates when they are available (Reichman & Price 1993 *IN: BIOLOGY OF HETEROMYIDAE* 539-574). Some studies investigating the feeding habits of desert heteromyids have reported seasonal consumption of invertebrates, with the analysis of stomach contents and feces revealing invertebrate remains in more than 50% of the samples. In contrast, the diet of tropical heteromyids has been poorly documented (Reichman & Price 1993 *op cit.*). Most studies have identified only seeds in cheek pouches or in traps (Sánchez-Cordero & Fleming 1993 *IN: BIOLOGY OF HETEROMYIDAE* 596-617). However, in the rain forest of Rancho Grande, Venezuela, crab remains were found in the cheek pouches of *Heteromys anomalus* (Rood & Test 1966 *AMER. MIDL. NAT.* 79: 89-101) and in Guatemala and British Honduras, a beetle and some snails were also found in the cheek pouches of *Heteromys desmarestianus* (Murie 1935 *MISC. PUBL. MUS. ZOOLOG. UNIV. MICHIGAN.* 30 P), suggesting a possible predation. In this study we report on the possible use of snail species as food by *Heteromys gaumeri* in a subdeciduous tropical forest in the state of Yucatan, Mexico.

*Heteromys gaumeri* is endemic to the biotic province of the Yucatan Peninsula, Mexico. Very little is known about this species. There is a study about the general description of its biology and distribution (Schmidt *et al.* 1989 *MAMM. SPEC.* 345: 1-4), population fluctuation and reproductive pattern (Hernández-Betancourt 2003. *PH. D. THESIS UAM-IZTAPALAPA*), and its home range (Hernández-Betancourt *et al.* 2003 *ACTA ZOOL. MEX. (N.S.)* 90: 77-92).

This study was carried out in Hobonil Ranch, Tzucacab, Yucatan, Mexico, (20° 00' 06" N - 89° 02' 30" W). Climate is subhumid and seasonal with a wet and dry season and an annual precipitation range of 800-1200 mm. Annual average temperature varies between 22-26° C (INEGI 1989). The vegetation of the area is semi-deciduous tropical forest (Rzedowsky 1987 *VEGETACIÓN DE MÉXICO* 432 P).

We worked in two grids, one of 8100 m<sup>2</sup> with 120 Sherman traps set from March 1996 to April 1998 and another of 25600 m<sup>2</sup> with 162 traps set from January 2000 to December 2001. The distance between the rows and the columns was 20 m. Traps were baited with sunflower seeds. We used the mark-and-release technique during four nights per month. Captured animals were measured, marked by toe clipping and released. The snails found in cheek pouches and inside traps were collected and identified to the lowest possible

taxonomic level (Burch 1962 *HOW TO KNOW THE EASTERN LAND SNAILS*. 215P; Naranjo-García 2003 *REV. BIOL. TROP.* 51 (SUPPL. 3): 483 – 493).

We found that seven percent (n= 57) of the total population (n= 789) of *H. gaumeri* had snails in the cheek pouches or inside its traps. Fifty one percent of *H. gaumeri* were females and 49% were males. Eighty six percent were adults and 14% were juveniles. The snails found were *Choanopoma largillierti* and *C. gaigei* (Annulariidae), *Neocyclotus dysoni* (Cyclophoridae) and *Drymaeus shattucki* (Bulimulidae). *Choanopoma largillierti* was found in both dry and rainy season. *Choanopoma largillierti* is commonly found in xeric and mesic vegetation but also can be found in agricultural habitats (Bequaert & Clench 1933 *CARNEGIE INST. WASH.* 431: 525-545, Bequaert & Clench 1936 *CARNEGIE INST. WASH.* 457:61-75). In contrast, *C. gaigei* was only found during the dry season. This species is common in mesic and submesic vegetation and not present in disturbed habitats. *Neocyclotus dysoni* was present in both seasons but was more frequently found during the rainy season probably because this species prefers humid forest (Thompson 1967 *BIOL. SCI.* 11: 221-256, Thompson 1969 *ZOOLOGICA* 54: 35-77). *Drymaeus shattucki* was found during the 2000 dry season.

A significant relationship between the sex of *H. gaumeri* and seasonality was found ( $\chi^2= 9.44$ , *d. f.* =1,  $p<0.01$ ). The snails were found principally in the cheek pouches of females during the dry season and 35% of the sample of females were pregnant or post-lactating, while males and juveniles collected snails during the rainy season. Some of the snails found were dead with a complete or broken shell and some were alive with a broken shell. Six rats had two or three snails inside the traps and all others contained only one snail and only one individual had one *N. dysoni* inside the pouches.

Predation on invertebrates by *Heteromys gaumeri* had not been documented. We believe that the snails collected by the pregnant females could be food complement supplying water and proteins during reproduction season which occurs in the dry season (Hernández-Betancourt *op. cit.*), while males and juveniles probably fed on snails during the rainy season, because of the highest availability in the habitat in this period (personal observation). Future research on stomach contents, faecal analysis and the contents of *H. gaumeri* burrows needs to be conducted to provide information on the importance of snails in their diet.

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