

**EVIDENCE OF ALTITUDINAL MOVEMENTS
OF *Leptonycteris curasoae*
(CHIROPTERA: PHYLLOSTOMIDAE)
IN CENTRAL MEXICO**

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In North and Central America, lesser long-nosed bats, *Leptonycteris curasoae*, range from southern Mexico and Salvador to southwestern United States (Cockrum, 1991). In the fall, northern populations of *L. curasoae* migrate to southwestern Mexico in response to the seasonal scarcity of food sources, although flowering schedules allow year-round resident populations to occur in Baja California (Fleming *et al.*, 1993, Wilkinson and Fleming, 1996). Given the availability of flowers and fruits for most of the year in central Mexico, it has been suggested that south-central populations of *L. curasoae* are not long-distance migrants but that they may undergo altitudinal movements (Valiente *et al.*, 1996). Here I present evidence of annual altitudinal movements of *L. curasoae* during four consecutive summers in central Mexico.

I captured 4, 6 and 8 individuals of *L. curasoae* in Orizaba, Veracruz, Mexico (18°51'N, 97°05'W) on 2 and 9 August 1993 and 1994 and on 18 August 1995 respectively. The bats were captured in a house they used as a night roost. Only males were captured, and the total number of bats using this roost was approximately 30 individuals each year. Bats visited the house nightly until the end of August. In July 1996 I found a population of about 200 *L. curasoae* during the daytime in a cave in Tlilapan, Veracruz, approximately 5 km SE of Orizaba. This cave probably represents the diurnal roost of the individuals previously captured in Orizaba because it was approximately 5 km from the house they use as a night roost and *L. curasoae* usually covers much higher distances while foraging (T. H. Fleming, personal communication). I had previously visited this cave throughout the year except from May to September and found no presence of *L. curasoae*. Seven *L. curasoae* were captured in this cave and, similarly to the bats captured between 1993 and 1995, they all were males. Carbon stable isotope analysis of pectoral muscle tissue taken from one individual in 1993 revealed a $\Delta^{13}\text{C}$ value of -11.6, characteristic of animals feeding on CAM plants such as cacti and agaves (Fleming *et al.*, 1993).

Orizaba is located at an elevation of 1,240 m approximately 62 km SE of Tehuacan Valley in the states of Puebla and Oaxaca (17°48'-18°58'N and 96°40'-97°43'W). The Tehuacan Valley contains a large number of species of cactus and agave with different flowering and fruiting peaks throughout the year (Valiente *et al.*, 1996). The carbon isotope data, which allows one to infer the diet of the animal in the last two months before the collection of muscle tissue (Tieszen *et al.*, 1983), suggests that the bats captured in Orizaba came from the Tehuacan Valley or some other area where cacti and agaves are important components of the vegetation. *L. curasoae* has been previously captured at Boca del Río, Veracruz, at an elevation of 8 m and 130 km SE from Orizaba, and in other lowland localities in the state of Veracruz (Arita and Humphrey, 1988). The fact that only males were captured in Orizaba apparently conforms to a pattern that has been described for northern migratory populations: pregnant females move northward earlier and at lower elevations than adult males (Cockrum, 1991).

Information about the time of the year individuals of *L. curasoae* have been previously captured in the state of Veracruz and their sex would help to determine whether central populations of this species move altitudinally between the Tehuacan Valley and the coast of Veracruz in a similar fashion as northern populations move latitudinally. Additional carbon and nitrogen stable isotope analysis would probably reveal dietary changes associated with these altitudinal movements.

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