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#### A NEW SUBSPECIES OF *GLOSSOPHAGA* *COMMISSARISI* (CHIROPTERA: PHYLLOSTOMIDAE) FROM WESTERN MEXICO

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*Glossophaga commissarisi* originally was described by Gardner (1962) on the basis of specimens from the Mexican states of Chiapas, Colima, and Nayarit. Subsequent work has shown that the species occurs as far north in western México as central Sinaloa (Jones *et al.*, 1972), and southeastward in Middle America to Panamá (Handley, 1966). No records currently are available from South America, but this bat surely will be found there in at least western Colombia as well.

That specimens of *G. commissarisi* from the northern part of the range of the species in western México (Colima, Durango, Jalisco, Nayarit, and Sinaloa) average larger and somewhat paler in color than bats to the south has been known for some time. Most earlier workers evidently assumed, as we did, that *commissarisi* eventually would be found to be continuously distributed in western México (see Jones and Carter, 1976, and Hall, 1981, for example) and that the northern population probably represented the terminus of clinal variation in size and color. However, extensive field operations in the 20 years that have elapsed since the original description, coupled with our examination of thousands of bats of the genus *Glossophaga* in all major North American collections, now indicate to us that in all likelihood *G. commissarisi* is absent from much of southwestern México (Guerrero, Michoacán, and western Oaxaca) and that a considerable hiatus thus exists between the population to the north and the main

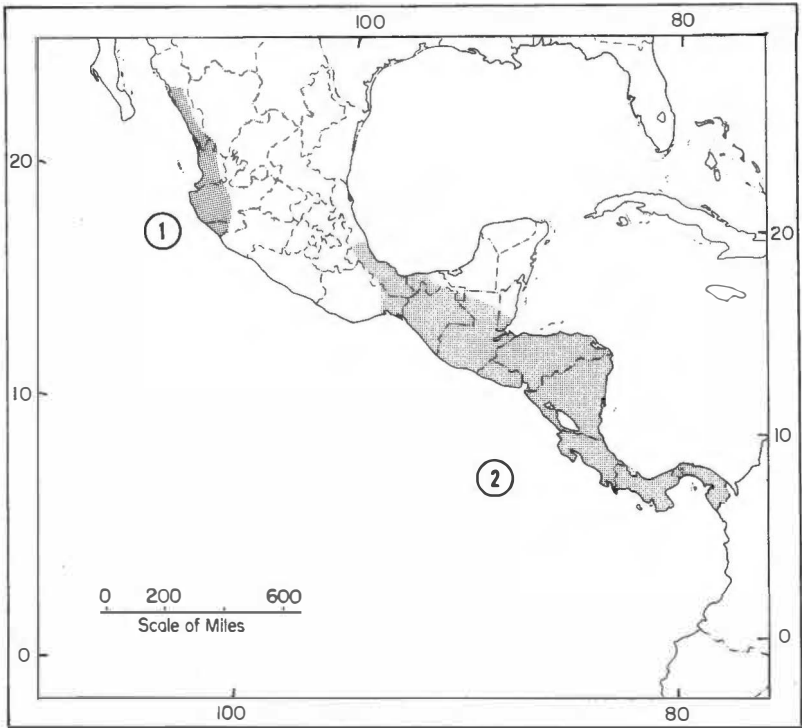


FIG. 1.—Geographic distribution of *Glossophaga commissarisi hespera* (1) and *G. c. commissarisi* (2) in North America.

range of the species to the south (Fig. 1). Inasmuch as Gardner selected a place in Chiapas (10 km. SE Tonalá) as the type locality of *commissarisi*, the northwestern population represents an undescribed subspecies, for which we propose the name:

***Glossophaga commissarisi hespera*, new subspecies**

*Holotype*.—Adult female, skin and skull, no. 36223, The Museum, Texas Tech University (formerly no. 4956, University of Arizona); from Tepehuajes Mine, ca. 20 km. N Soyatlán del Oro, Jalisco; obtained on 16 January 1964 by A. L. Gardner, original no. 6864.

Selected external and cranial measurements (in millimeters) of the holotype are: total length, 75; length of tail, 9; length of hind foot, 11; length of ear from notch, 13; length of forearm (dry), 35.6; greatest length of skull, 21.2; condylobasal length, 19.3; zygomatic breadth, 9.5; mastoid breadth, 9.2; interorbital breadth,

4.2; length of maxillary toothrow, 7.3; length of mandibular toothrow (c-m3), 7.7; weight, 12 grams.

*Distribution.*—Lowlands and riparian forests of western México from central Sinaloa and southwestern Durango southward to western Jalisco and Colima (Fig. 1); known altitudinal distribution from near sea level to 6000 feet.

*Diagnosis.*—A large subspecies of *Glossophaga commissarisi*, both externally and cranially (Table 1). The braincase is more domed and the angle between the rostrum and cranium is more abrupt in *G. c. hespera* than in the nominate subspecies. In addition, the posterior presphenoid extension is small, poorly developed, and continuous with the basisphenoid septum in *G. c. hespera*, but is well developed and noticeably raised (in ventral view) from the basisphenoid septum in *G. c. commissarisi*. Although some local variation in color is apparent, *G. c. hespera* averages somewhat paler than *G. c. commissarisi*, resembling the sympatric *Glossophaga soricina handleyi*.

*Remarks.*—Individuals of *G. c. hespera* have been collected in caves. These bats also have been taken in mist nets over water in various habitats including savanna, arid thorn forest, and subtropical and tropical evergreen forest, particularly along river valleys that penetrate into lower elevations of the Sierra Madre Occidental. They have been captured frequently at the same locality as has *Glossophaga soricina handleyi*, and the two may be difficult to distinguish in the field. Means by which these and other North American species of *Glossophaga* can be identified were given by Webster and Jones (1980).

Pregnant females are known from January, February, April, July, and September; lactating females have been collected in May. Based on these scanty reproductive data, *G. c. hespera* appears to be polyestrous, with a bimodal cycle (Wilson, 1979).

*Specimens examined* (42).—COLIMA: Miscoate, 2 (LACM); 11 mi. W Comala, Miscoate, 4 (LACM); Pueblo Juárez, 1 (UA); 5 km. SE Pueblo Juárez, 1 (UA); 35 km. NW Pueblo Juárez, Rancho Tavernillas, 2 (UA); 1 km. S Pueblo Nuevo, 1 (UA); 2.5 km. NW Pueblo Nuevo, 1 (UA). DURANGO: 2 mi. N Pueblo Nuevo, 6000 ft., 1 (MSU); 6 mi. S Pueblo Nuevo, 3000 ft., 1 (MSU). JALISCO: 14 mi. WSW Ameca, 5000 ft., 1 (KU); 8 km. ESE Chamela, 30 m., 1 (MSU); 6 mi. E Limón, 2700 ft., 1 (KU); 2 mi. N. Milpillas, 3000 ft., 1 (KU); 20 km. WNW Purificación, 1400 ft., 1 (KU); ca. 20 km. N Soyatlán del Oro, Tepehuajes Mine, 2 (1 UA, 1 TTU); 10 mi. SE Talpa de Allende, 5300 ft., 1 (KU); 7.5 mi. SE Tecomates, 1500 ft., 1 (KU). NAYARIT: 4 km. S Aticama, 2 (USNM); Chacala, 2 (USNM); Jalcocotán, 1 (USNM); 1 mi. S Lo de Marcos, 2 (USNM); Paso de Soquipa (Zoquipa), 1 (USNM); Río Chilte, 1.2 mi. S El Casco, 480 ft., 1 (USNM); 5 mi. NE San Blas, 1 (KU); 8 mi. E San Blas, 3 (1 LACM, 2 UA); 4 mi. S, 5 mi. E San Blas, 1 (MSB); 5

TABLE 1.—Selected comparative measurements of *G. c. hespera* and two samples of *G. c. commissaris*. Mean followed by standard deviation, extremes in parentheses, and sample size.

Variate	Sex	<i>G. c. hespera</i>		<i>G. c. commissaris</i>			
		(western Mexico)	(vicinity type locality)	(Costa Rica-Panamá)			
Length of forearm	♂	34.38±0.90 (32.7-35.6)	12	33.48±1.14 (31.1-35.1)	19	32.70±0.89 (31.3-35.3)	47
	♀	35.00±0.92 (33.2-36.6)	28	33.94±1.18 (32.0-36.6)	21	33.64±0.84 (32.0-35.3)	43
Length of third metacarpal	♂	34.31±1.00 (32.6-35.7)	12	33.49±1.20 (31.7-35.4)	19	32.59±1.02 (30.8-35.6)	47
	♀	34.70±1.03 (33.0-37.3)	28	33.55±1.07 (31.6-36.0)	21	33.41±0.96 (30.8-35.6)	43
Greatest length of skull	♂	20.60±0.27 (20.3-21.1)	12	19.99±0.43 (19.3-21.0)	19	20.11±0.37 (19.1-21.0)	45
	♀	20.67±0.29 (20.2-21.3)	29	20.00±0.26 (19.5-20.5)	21	20.23±0.33 (19.7-21.1)	43
Condylobasal length	♂	18.73±0.18 (18.5-19.1)	12	18.27±0.45 (17.2-19.1)	19	18.44±0.38 (17.5-19.2)	45
	♀	18.84±0.29 (18.3-19.3)	29	18.37±0.29 (17.8-19.0)	21	18.56±0.34 (17.9-19.4)	43
Zygomatic breadth	♂	9.64±0.15 (9.4-9.9)	12	9.46±0.27 (9.0-10.1)	18	9.30±0.31 (8.6-9.8)	47
	♀	9.45±0.19 (8.9-9.8)	27	9.36±0.20 (9.1-9.9)	19	9.40±0.27 (8.8-10.0)	41
Mastoid breadth	♂	9.15±0.13 (9.0-9.4)	12	8.99±0.23 (8.7-9.4)	19	8.94±0.24 (8.5-9.4)	47
	♀	9.14±0.16 (8.7-9.5)	30	8.97±0.12 (8.8-9.2)	21	8.96±0.21 (8.5-9.5)	43
Interorbital breadth	♂	4.33±0.07 (4.2-4.4)	12	4.01±0.13 (3.8-4.3)	19	4.04±0.15 (3.8-4.3)	47
	♀	4.24±0.12 (3.9-4.4)	30	4.02±0.14 (3.8-4.3)	21	4.08±0.15 (3.8-4.3)	44
Length of maxillary toothrow	♂	6.89±0.20 (6.5-7.2)	12	6.76±0.15 (6.5-7.0)	18	6.79±0.19 (6.3-7.1)	47
	♀	6.99±0.18 (6.7-7.5)	30	6.79±0.13 (6.5-7.0)	21	6.94±0.15 (6.6-7.2)	44
Greatest width across molars	♂	5.67±0.13 (5.4-5.9)	12	5.45±0.17 (5.1-5.7)	18	5.46±0.17 (4.8-5.8)	47
	♀	5.66±0.10 (5.4-5.8)	30	5.46±0.19 (5.2-5.6)	20	5.56±0.17 (5.3-6.0)	44

mi. SE San Blas, 1 (KU). SINALOA: 20 km. N, 5 km. E Badiraquato, 1800 ft., 2 (KU); Santa Lucía, 3600 ft., 2 (KU).

Specimens (131) of *G. c. commissarisi* used in comparisons and in Table 1 are from the localities that follow. CHIAPAS: 15 km. ESE Tonalá, 3 (LACM); 10 km. SE Tonalá, 20 (LACM); 8 mi. SE Tonalá, Finca Ocuilapa, ca. 100 ft., 6 (3 LACM, 3 UA); 9 mi. SE (and then) 8 mi. NE Tonalá, 1 (LACM); 12.5 km. SE Tonalá, 8 (LACM); 21 km. SE Tonalá, 2 (LACM). COSTA RICA: *Alajuela*: Los Chiles, 2 (LACM); Playuela, 1 (LACM). *Guanacaste*: 7 mi. SW Philadelphia, 7 (KU); Finca la Pacifica, 4 mi. NW Cañas, 1 (MSB). *Heredia*: Puerto Viejo, 1 (KU). *Limón*: Finca la Lola, 2 (LACM). *Puntarenas*: Boca de Río Barranca, 1 (LACM); Monteverde, 2 (LACM). PANAMA: *Bocas del Toro*: Almirante, 24 (USNM); Boca del Drago, 1 (USNM); Cayo Agua, Puerta Norte, 4 (USNM); Sibube, 1 (USNM). *Canal Zone*: Buena Vista Peninsula, 1.75 km. NNW Frijoles, 1 (USNM). *Chiriquí*: 1 mi. E Cuestra de Piedra, 2800 ft., 3 (USNM); San Vicente, 1800 ft., 1 (USNM). *Coclé*: Santa Clara, 1 (USNM). *Darién*: Jaqué, 7 (USNM); Tacarcuna Village Camp, 3200 ft., 9 (USNM). *Panamá*: Cerro Azul, 13 (USNM). *San Blas*: Armila, Quebrada Venado, 7 (USNM); Mandinga, 2 (USNM).

For the record, the northernmost marginal localities of *G. c. commissarisi* known to us are: Mirador, Veracruz (1 USNM); 8 km. S Solusuchiapa, ca. 400 ft., Chiapas (3 LACM); Lubaantun, Toledo, Belize (1 FMNH); Santiago Lachiquirí (2 AMNH) and 6 mi. S Matias Romero, Río Grande (1 USNM), Oaxaca.

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