NOTEWORTHY KARYOTYPES OF RODENTS
FROM DURANGO, MEXICO

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Herein, we report karyotypes for 10 species of rodents. Among these are karyotypes that to our knowledge have not been described for six subspecies. In addition, we make noteworthy comments on the karyotypes of four other species. These specimens were obtained from localities in central and southeastern Durango, Mexico, including the Mexican Plateau and the Sierra Madre Occidental and its foothills.

METHODS AND MATERIALS

Wild-caught rodents were sacrificed and somatic cell suspensions were prepared from bone marrow using methods described by Baker et al., (1982). Five metaphase spreads were examined for each individual and the diploid number (2n) and fundamental number (FN) were determined for each taxon. Voucher specimens are deposited in the Museum, Texas Tech University and the Instituto Politécnico National.

Specimens examined.— *Dipodomys phillipsii ornatus* - 5.8 km N, 2.1 km E Vicente Guerrero, 1937 m (3 males: TK 48698, TK 48699, TK 48713; 1 female: TK 48714); 2.8 km S, 3.8 km W Vicente Guerrero, 1950 m (2 males: TK 48808, TK 48810; 1 female: TK 48809); *Perognathus flavus mediis* - 5.8 km N, 2.1 km E Vicente Guerrero, 1937 m (3 males: TK 48538, TK 48703, TK 48705; 3 females: TK 48701, TK 48702, TK 48704); 2.8 km S, 3.8 km W Vicente Guerrero, 1950 m (2 males: TK 48811, TK 48813); *Chaetodipus nelsoni nelsoni* - 1.5 km SE Los Herreras, 1964 m (1 male: TK 48536); *Peromyscus maniculatus labecula* - 5.8 km N, 2.1 km E Vicente Guerrero, 1937 m (1 male: TK 48719; 3 females: TK 48716, TK 48717, TK 48718); 2.8 km S, 3.8 km W Vicente Guerrero, 1950 m (2 females: TK 48814, TK 48815); *Reithrodontomys megalotis megalotis* - 2.8 km S, 3.8 km W Vicente Guerrero, 1950 m (4 males: TK 48817, TK 48818, TK 48821, TK 48825; 3 females: TK 48820, TK 48822, TK 48823); 1.5 km SE Los Herreras, 1964 m (1 male: TK 48564); *Reithrodontomys fulvescens griseocephalus* - 1.5 km SE Los Herreras, 1964 m (3 males: TK 48562, TK 48591, TK 48593; 2 females: TK 48563, TK 48592), 15 km N Los Herreras, 1780 m (5 males: TK 48615, TK 48723, TK 48726, TK 48844, TK 48846; 4 females: TK 48724, TK 48725, TK 48845, TK 48847); *Baiomys taylori paulus* - 5.8 km N, 2.1 km E Vicente Guerrero, 1937 m (3 males: TK 48690, TK 48694, TK 48695; 4 females: TK 48698, TK 48691, TK 48692, TK 48696); 2.8 km S, 3.8 km W Vicente Guerrero, 1950 m (2 males: TK 48805, TK 48807; 1 female: TK 48806),
1.5 km SE Los Herreras (3 males: TK 48841, TK 48842, TK 48843; 1 female: TK 48840); Sigmodon ochrognathus - 15 km N Los Herreras, 1780 m (2 females: TK 48608, TK 48609); Thomomys umbrinus chihuahucae - 1.5 km SE Los Herreras, 1964 m (1 male: TK 48502; 1 female: TK 48517); Spermophilus variegatus rupestris - 1.5 km SE Los Herreras, 1964 m (1 male: TK 48560; 2 females: TK 48559, TK 48561).

RESULTS AND DISCUSSION

*Dipodomys philipsii ornatus.*— This karyotype (2n = 72, FN = 138) possesses 34 biarmed pairs (12 small submetacentric and 22 large to small subtelocentric) and one small acrocentric pair and is the same as reported by Stock (1974). The X chromosome is submetacentric and the Y chromosome is small and acrocentric. Specimens examined by Stock (1974) were from 1.3 mi. W Bledos, San Luis Potosi. Our specimens from 300 kilometers to the west, on the opposite side of the Mexican Plateau, suggest that this karyotype is unchanged throughout a large portion of the species distribution.

*Perognathus flavus medius.*— This represents the first reported karyotype for this subspecies. It is identical to karyotypes reported by Bradshaw and Hsu (1972), and Bowers et al. (1973) for other subspecies of *P. maniculatus*. The karyotype (2n = 48, FN = 86) possesses 18 pairs of biarmed chromosomes, ranging in size from large to small, and five pairs of large to small acrocentric chromosomes (Fig. 1). The X chromosome is large and submetacentric and the Y chromosome is small and metacentric.

*Reithrodontomys megalotis megalotis.*— This karyotype is identical to that reported by Robbins and Baker (1980), and Hood et al. (1984) for populations

Figure 1. Nondifferentially stained karyotype of a female *Peromyscus maniculatus labecula* (TK 48717) and the Y chromosome of a male *P. m. labecula* (TK 48719) from Durango, Mexico.
of this subspecies in the southern United States and by Engstrom et al. (1981) for populations from central Mexico. The autosomal karyotype \((2n = 42, FN = 80)\) is completely biarmed with nine pairs of medium sized metacentric, eight pairs of medium to small submetacentric, and three pairs of large subtelocentric chromosomes. The X chromosome is large and submetacentric and the Y chromosome is medium and subtelocentric. As described by Blanks and Shellhammer (1968), we also document the presence of supernumerary chromosomes. Blanks and Shellhammer (1968) reported one to seven supernumerary chromosomes, in this study, the number ranged from one to four.

*Reithrodontomys fulvescens griseoflavus.*— This karyotype \((2n = 50, FN = 48-50)\) is similar to the karyotype \((2n = 50, FN = 48-49)\) reported by Carleton and Myers (1979), Robbins and Baker (1980), and Engstrom et al. (1981). The karyotype possesses an entirely acrocentric complement with the exception of one to two medium sized biarmed chromosomes. The two individuals \((FN = 50)\) reported herein provide the first example of this cytotype.

*Baiomys taylori paulus.*— This represents the first reported karyotype for this subspecies. The karyotype \((2n = 48, FN = 46)\) possesses 23 large to small acrocentric pairs of chromosomes. The X chromosome is medium and subtelocentric and the Y chromosome is small and subtelocentric. This karyotype is identical to that reported by Hsu and Benirschke (1967) and Yates et al. (1979) for *B. t. analogous*.

*Sigmodon ochrognathus.*— This karyotype \((2n = 52, FN = 68)\) possesses 9 medium to small biarmed chromosomes and 16 large to small acrocentric chromosomes. The X chromosome is a medium to large biarmed chromosome and the Y chromosome is small and acrocentric. This karyotype is identical to that reported by Elder and Lee (1985) for specimens from Arizona and Texas indicating that individuals from central Mexico have the same karyotype as individuals from the northern portion of this species range.

*Thomomys umbrinus chihuahucae.*— The karyotype of \((2n = 78, FN = 108)\) possesses 16 pairs of large to medium biarmed and 22 pairs of acrocentric elements ranging in size from large to small (Fig. 2). The X chromosomes is large and biarmed and the Y chromo-

Figure 2. Nondifferentially stained karyotype of a male *Thomomys umbrinus chihuahucae* (TK 48502) from Durango, Mexico.
some is an extremely small acrocentric chromosome. Hafner et al. (1987) reported on karyotypes of several populations of Thomomys from Mexico, however, it is unclear whether any of the populations examined in their study represent T. u. chihuahuae. They examined one population (23) near the boundary separating T. u. chihuahuae and T. u. evexus (2n = 76, FN = 64) and two populations (24 and 25) near the boundary separating T. u. chihuahuae and T. u. musculus (2n = 76, FN = 116; 2n = 76, FN = 114 respectively). Subspecies boundaries are those of Hall (1981). Our population, from 1.5 km SE Los Herreras, Durango is from the central portion of the range for T. u. chihuahuae. If we interpret this population to be representative of T. u. chihuahuae, then either the populations reported by Hafner et al. (1987) are indicative of the other subspecies or T. u. chihuahuae is extremely polymorphic in regard to its karyotype. Interestingly, Hafner et al. (1987) reported an individual with 2n = 78, FN = 108 from Boca del Monte, Puebla. This population is representative of either T. u. orizabae or T. u. umbrinus and is over 500 km SE of our Durango site.

Spermophilus variegatus rupestris.— This represents the first reported karyotype for this subspecies. The karyotype (2n = 38, FN = 72) possesses a complete biarmed autosomal compliment. There are 18 large to small biarmed pairs (Fig. 3). The X chromosome is a large biarmed chromosome and the Y chromosome is small and acrocentric. This karyotype is identical to that reported by Nadler (1966) for S. variegatus grammus.

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Figure 3. Nondifferentially stained karyotype of a male Spermophilus variegatus rupestris (TK 48560) from Durango, Mexico.
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It was through the efforts of Horn Professor J Knox Jones, as director of Academic Publications, that Texas Tech University initiated several publications series including the Occasional Papers of the Museum. This and future editions in the series are a memorial to his dedication to excellence in academic publications. Professor Jones enjoyed editing scientific publications and served the scientific community as an editor for the Journal of Mammalogy, Evolution, The Texas Journal of Science, Occasional Papers of the Museum, and Special Publications of the Museum. It is with special fondness that we remember Dr. J Knox Jones.

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