A NEW KARYOTYPE IN THE NECTOMYS SQUAMIPES COMPLEX
(RODENTIA, SIGMODONTINAE)

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ABSTRACT

A New Karyotype in the Nectomys squamipes complex (Rodentia, Sigmodontinae). A previously undescribed 2n = 40, FN = 40 karyotype from Nectomys collected at two localities in eastern Ecuador is reported. The chromosomes consist of 1 very large pair of submetacentrics and 19 pairs of acrocentrics gradated in size from large to small. The available name for 2n = 40 population is Nectomys apicalis Peters, 1861.

Keywords: Karyotype, Nectomys squamipes complex, Rodentia, Sigmodontinae
Descritores: Cariótipos, Complexo Nectomys squamipes, Rodentia, Sigmodontinae

INTRODUCTION

Neotropical water rats of the genus Nectomys are endemic to South America and extensively widespread from Colombia and Trinidad south into Bolivia, Paraguay, Uruguay, and northern Argentina. HERSHKOVITZ (1944) considered Nectomys to be monotypic (N. squamipes) based on morphological criteria. Recent work based on karyological evidence (BARROS et. al., 1992) treated the genus as polytypic. Other studies have shown the genus to be chromosomally diverse with karyotypes varying from 2n = 16/17 in Trinidad and northern Venezuela (BARROS et al., 1992), to 2n = 38/42 in Peru, and 2n = 56-59 in Suriname and along the Atlantic coast of Brazil (GARDNER and PATTON, 1976; BAKER et al., 1983; MAIA et al., 1984).

Within a large geographic area extending from northern and Central Brazil along the Atlantic coast to Uruguay and northern Argentina, variation in diploid number appears to be continuous, from 2n = 52 to 2n = 59 (Fig. 1). This variation, however, results from up to three supernumerary chromosomes present in animals otherwise having basically different diploid number of either 52 or 56 (BONVICINO et al., 1996).
FIGURE 1 – Map with localities of occurrence of *Nectomys* with 2n = 16 (▲), 2n = 17 (★), 2n = 38 (◆), 2n = 42 (▼), 2n = 40 (●), and 2n = 52 (▲▲), 2n = 56 (●●).

**MATERIAL AND METHODS**

Here we report a previously undescribed 2n = 40, FN = 40 karyotype from *Nectomys* collected at two localities in eastern Ecuador. The first site was an agricultural research station located 4 km ENE Los Encuentros (03°45'S, 78°37'W, 850m), Prov. Zamorra-Chinchipe. The second was at the former Summer Institute of Linguistics community called Limoncocha (00°25'S, 76°38'W, 300m), Prov. Napo. Only one female from each site was analyzed. They are deposited in the mammal collections of the National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (USNM 513584 and 513585, respectively). Chromosomes were processed from bone marrow using the technique described by PATTON (1967).

**RESULTS AND DISCUSSION**

The chromosomes consist of 1 very large pair of submetacentrics and 19 pairs of acrocentrics gradated in size from large to small (Fig. 2). The sex chromosomes are not identifiable because only females were processed; however, if similar to those of other western Amazon Basin population, the X
BONVICINO (1994) presented evidence that the primitive karyotype in *Nectomys* is \(2n = 56\), from which karyotypes having diploid numbers were derived. YONENAGA-YASSUDA *et al.* (1988) explained the transition from \(2n = 56\) to \(2n = 52\) by two tandem fusions, while GARDNER and PATTON (1976) explained the reductions from \(2n = 42\) to \(2n = 38\) as resulting from two centric fusions. The geographic distribution of populations of *Nectomys* having different diploid number (Fig. 1), however, does not allow us to infer a single parsimonious pathway of karyotypic evolution. In Peru, for example, a \(2n = 42\) karyotype is found at Balta on the Río Curanja (Depto Ucayali), and a population with \(2n = 38\) occurs in the vicinity of Hacienda Luisiana on the Río Apurímac (Depto Yacucho). While geographically close, these two areas belong to separate hydrographic basins and are isolated from each other by high mountains. These populations are bordered to the north and east by populations having \(2n = 52\) karyotypes.

The eastern Ecuador \(2n = 40\) population is distant from the \(38\) - and \(40\)-chromosome forms and isolated from them by populations having the \(2n = 52\) karyotype. Therefore it is likely that the \(2n = 40\) karyotype was derived independently from the lineage resulting in the populations having \(38\) and \(42\) chromosomes. Six basic karyotypes are known within the *Nectomys squamipes* complex (Fig. 1): \(2n = 16-17\), \(2n = 38\), \(2n = 40\), \(2n = 42\), \(2n = 52\) and \(2n = 56\). At least some of these represent different species. If the \(2n = 40\) population proves to represent a valid species, the available name is *Nectomys apicalis* Peters, 1861.

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