Cytogenetics and karyosystematics of South American oryzomyine rodents (Cricetidae: Sigmodontinae)

I. A species of *Oryzomys* with a low chromosome number from Northern Venezuela

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Abstract

Studied the bone-marrow *karyotypes* and the external, skull and molar morphology of mice of the *Oryzomys capito* complex from Venezuela. Four male and three female individuals from three different and distant localities in northern Venezuela, showed a 2N = 34, FN = 64 karyotype of mostly metacentric chromosomes. This karyotype represents the lowest chromosome number for a species of *Oryzomys* reported so far, and is quite different from other known karyotypes of *capito*-like species. One female individual from southern Venezuela showed a 2N = 52, FN = 64 karyotype very similar the that of Peruvian and Brazilian forms which were proposed to represent typical *capito*. The 2N = 34 northern Venezuelan form and the southern 2n = 52 form, although very similar in overall morphology, show subtle, but consistent distinguishing character-states in fur colour and in skull, mandible and molar morphology. They are considered to be closely related but distinct biological species, separated by a potentially strong post-zygotic isolating mechanism. Following the proposed convention, the 2n = 52 form is ascribed to *O. capito* properly. It is proposed to provisionally ascribe the northern 2n = 34 form to *O. talamancae,* as advanced in labels by A. L. Gardner, and in agreement with the recent revival of that species by Musser and Williams.

Introduction

Oryzomys is the most speciose and the least known of the genera of the Oryzomyini, which itself is the most polytypic tribe of the primarily South American subfamily Sigmodontinae of the Cricetidae (Reig 1980). Over 100 nominal species distributed in eight subgenera have been referred to it. The status and relationships of many of those species are highly dubious, and so is the taxonomical situation of the subgenera, several of which have been treated as full genera (Gardner and Patton 1976). *Oryzomys* s.s. includes approximately 45 species inhabiting the South American continent (Reig 1984a). An appropriate understanding of the species and supraspecific taxa of *Oryzomys* and allies is certainly necessary to gain and adequate knowledge of South American cricetids as a whole.

Cytogenetic information has proved to be an important tool in clarifying the systematics of complex rodent taxa. Chromosomal data may reveal sibling (synmorphic, see McCafferty and Chandler 1974) species (Reig 1984b), and also help to establish relationships between species and genera (see, for instance, Baker et al. 1983; Bianchi and Merani 1984; Reig 1981).

Although the cytogenetics of oryzomyine rodents is still poorly known and has not passed the stage of gathering empirical data, chromosomal information on these mice has

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increased greatly during the last fifteen years. After the pioneering work of KIBLISKY (1969) on Venezuelan species, various papers contributed a significant amount of chromosomal data on species of *Oryzomys* and related genera (BAKER et al. 1983; BARROS 1980; BENSON and GEHLBACH 1979; GARDNER and PATTON 1976; HAIDUK et al. 1979; HSU and BENIRSCHKE 1969; KOOP et al. 1983; MAIA 1981; MAIA and HULACK 1981). The chromosomal information reported so far covers 44 karyotypic forms belonging to several different subgenera of *Oryzomys*. It shows that this genus has a degree of chromosomal heterogeneity which matches its extensive taxonomic diversity. Characteristic species of *Oryzomys* have high diploid numbers, ranging from 2N = 46 to 2N = 80 (with fundamental numbers ranging from FN = 66 to FN = 112). Karyotypes of *Oryzomys* are usually comprised mostly of acrocentric chromosomes, and chromosomal evolution in this genus seems to have been primarily triggered by Robertsonian mechanisms (GARDNER and PATTON 1976; MAIA and HULAK 1981). Robertsonian polymorphisms are also common within some species (KOOP et al. 1983; MAIA and HULAK 1981). However, a few oryzomyine genera other than *Oryzomys* show diploid numbers below 46, the lowest for that genus. This is the case of *Nesoryzomys narboroughi* (2N = 32) and of species of *Thomasomys* and *Rhipidomys* (2N = 42–44) (GARDNER and PATTON 1976). Moreover, an extreme reduction was reported in the case of *Nectomys palmipes* (2N = 16–17; reported as *N. squamipes* in REIG et al. 1978). But those cases are rather isolated among oryzomyines and high numbers have so far been the rule without exceptions for the polytypic genera *Oryzomys* and *Oecomys*.

Thus, it was surprising to find a karyotype of 2N = 34 chromosomes in a typical representative of the genus *Oryzomys* closely related in morhology to *O. capito*, in three different localities of Northern Venezuela. This discovery resulted from our current karyotyping of cricetids captured as a by-product of other research. Our finding was coincidental with the parallel and independent work by MUSSER and WILLIAMS (1985), who revalidated and redefined *O. talamancae* Allen, 1891, referring several specimens from Northern Venezuela, Colombia and Ecuador to this species, which was originally described from Costa Rica. Our 2n = 34 *capito*-like *Oryzomys* from localities in the north of Venezuela matched perfectly this redefinition of *O. talamancae*, adding a strong chromosomal argument to MUSSER and WILLIAMS' action. We present here the corresponding data and discuss the bearing of karyosystematics for the assessment of the status and nomenclature of an array of poorly known species included in the *Oryzomys capito* group.

Material and methods

We studied the chromosomes of eight individuals (four males, four females) which were originally identified as *Oryzomys capito*. They were obtained in three different localities in northern Venezuela and from one locality in southeastern Venezuela (Fig. 1 and below). The animals were collected with Sherman live-traps, and they were taken alive to the laboratory at the Simon Bolivar University. We processed the bone marrow following the technique described in REIG et al. (1971). Colchicine solution at a concentration of 0.02 % was injected one hour before killing at a dose of one ml per 100 grams body weight. As these specimens were karyotyped only for routine recording of number and gross morphology of chromosomes, no C- or G- bands were procured at the time of processing, and the material was not adequate for subsequent banding techniques when we realized that we had found a new and interesting *Oryzomys* karyotype.

Voucher specimens of all the animals processed were deposited in the collections of the Simón Bolivar University (CVUSB) and La Salle Natural History Museum (MHNLS) in Caracas, as follows: CVUSB 677 and 681, one male and one female, respectively: La Horqueta, Territorio Federal Delta Amacuro; CVUSB 660, 734, females, and 755 male: Turiamo, Aragua State; CVUSB 699 and 754, males: Estación Biológica de Rancho Grande, Aragua State; MHNLS 7028, female: San Ignacio de Yuruani, Gran Sabana, Bolivar State. For identification and systematic comparisons, we consulted several additional specimens of the *O. capito* complex in Venezuelan collections: MHNLS 6810, male: El Abismo, Icaburú, Bolivar State; Rancho Grande Biological Station (EBRG) 40 and 41, males, and EBRG 42, female: La Regresiva, Rancho Grande, Aragua State; Central University of Venezuela,

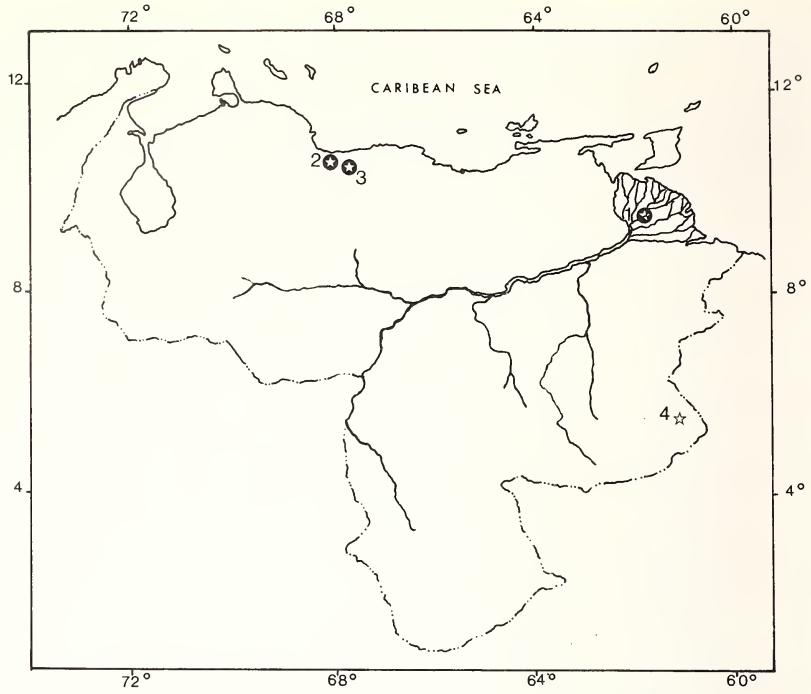

Fig. 1. Sampled localities of venezuelan *capito*-like *Oryzomys*. Localities of 2N = 34 karyotype: 1. La Horqueta (T. F. Delta Amacuro), 2. Turiamo (Aragua State), 3. Rancho Grande (Aragua State). ☆ Locality of 2N = 54 karyotype: 4. San Ignacio de Yuruani (Bolivar State)

Museum of Zoology (MBUCV) 340, male, Chichiriviche de la Costa, Distrito Federal, and MBUCV 337, female: Hacienda Medellín, Sierra de Perija, Zulia State.

For the description of chromosomes according to centromere position we followed LEVAN et al. (1964). FN numbers are autosomal numbers. For the assortment of chromosomes in size groups we classified as large chromosomes those measuring > 9 % of the length of the female haploid length; medium-sized were those ranging from 5.5 to 9.0 % of that length; small were those ranging from 2 to 5.5 %, and microchromosomes were those measuring < 2 % of the female haploid set.

Results

The seven different individuals of the three samples in northern Venezuela had an identical 2N = 34 karyotype, with a FN of 64 arms. This karyotype can be described as composed of two groups of autosomes and a XY sexual set. Autosomal group A comprises three pairs of large chromosomes. Pair A-1 are submetacentric chromosomes showing a distinctive secondary constriction at the long arm, close to the centromere. Pair A-2 are submetacentric autosomes a little smaller than those of pair A-1, from which they are also distinguished by relatively longer short arms and absence of secondary constrictions. Chromosomes of pair A-3 are the only subtelocentric (centromeric index r = 0.123) chromosomes of the complement. Autosomal Group B is made up of 13 pairs of metacentric and sub-metacentric chromosomes ranging from medium-sized to microchromosomes. Pairs B-1 and B-2 are similar medium-sized metacentrics. Pairs B-3 to B-5 are also similar medium-sized metacentrics, but are separated from the former two pairs by an abrupt size gap. Pairs B-6 and B-7 are medium-sized submetacentrics, similar in size to paris B-3 to B-5 and hard to distinguish from each other, pair B-6 being a little larger and

with slightly longer short arms than pair B-7. Another size gap follows the latter, and pairs B-8 to B-10 are gradually decreasing metacentrics. A further size gap separate from the former group the chromosomes of pairs B-11 to B-13, which are the smallest, and are also metacentric. A secondary constriction is present in pairs B-9 and B-11. The X chromosome is a medium-sized telocentric amounting to about 5 % of the female haploid complement. The chromosome is biarmed and scarcely surpasses half the length of the X chromosome (Fig. 2).

The single female individual from San Ignacio de Yuruani showed a 2n = 54 karyotype with a FN of 62 arms. There is a single pair of large subtelocentric autosomes in Group A. Autosomal group B comprises five pairs of medium-sized to small metacentrics and submetacentrics. Group C is made of twenty pairs of autosomes graded from medium-

Fig. 2. Karyotype of *Oryzomys* cf. *talamancae* (2N = 34, FN = 64). Bone marrow; Giemsa stain

sized to microchromosomes. By comparison, we ascribe to the X set a pair of medium-sized telocentrics measuring about 5.5 % of the female haploid set.

In view of the differences found in the karyotypes of our northern specimens as compared to that of the single karyologically studied specimen from San Ignacio de Yuruani, we compared the external and skull morphology of our 2n = 34 specimens from La Horqueta, Turiamo and Rancho Grande plus additional specimens from Rancho Grande, Chichiriviche de la Costa, and Sierra de Perijá in Northern Venezuela with MHNLS 7028 and MHNLS 6810 from the La Gran Sabana region, in Southern Venezuela. Although in external, skull and dental character-states the two samples showed a striking overall similarity, detailed morphological scrutiny revealed a few distinguishing atributes. In the northern specimens, the fur shows the grayish-coloured ventral parts characteristic of *capito,* but the colour of the dorsal parts and flanks is more contrasted, the upper parts being bright reddish-brown and darker than the more yellowish-brown sides. The northern specimens are also distinguished by long, buffy ears which are darker than in the southern form, and they have a more clearly bicoloured tail, darker above than below than in specimens from the south. The skulls of northern and southern forms are quite similar in general morphology, but they can be easily distinguished by the smaller incisive foramina in the former. The mandible is also distinctive, being more slightly built, with a lower ramus and a more slender condyloid process in the northern form. The latter also shows a few differences in the molar teeth: a more developed mesoloph and mesostyle in the upper molars, and a much more deeply infolded hypoflexid in the lower ones (see Reig 1977 for nomenclature of molars). In all compared instances, the distinctive character-states of the northern form were found to match those presented by Musser and Williams (1985) as distinctive attributes of *O. talamancae.*

Discussion

The 2N = 34, FN = 64 karyotype of the *capito*-like *Oryzomys* of Northern Venezuela described above strongly differs from the 2N = 54, FN = 62 karyotype found in our single specimen from Gran Sabana. However, the latter is identical to that described by Barros (1980) for 21 individuals from different localities in northern Brazil identified as *Oryzomys capito,* which differ only by one Robertsonian arrangement affecting the small autosomes from the 2n = 52, FN = 62 karyotype observed in 22 specimens from Amazonian Perú and ascribed by Gardner and Patton (1976) to *Oryzomys capito.* These karyotypic similarities suggest that our southern karyomorph may belong to *O. capito.* However, before accepting that conclusion it would be necessary to examine in more depth the systematic status and the cytotaxonomy of the *capito*-like *Oryzomys* species.

Certainly, the taxonomic situation of the "*macconnelli-capito* group" (Koop et al. 1983), and of the "*O. capito* complex" (Gardner and Patton 1976) in particular, is far from clear. A confusing array of terrestrial forest- dwelling forms of medium size are included. There is agreement neither on their taxonomic status and nomenclature, nor even on their unity as a group of related species. Hershkovitz sweepingly synonymized in a foot-note (1960: 545) the names *bolivaris, boliviae, caracolus, castaneus, goeldi, legatus, macconnelli, magdalenae, medius, modestus, mollipilosus, oniscus, perenensis, rivularis, saltator, sylvaticus, talamancae, velutinus,* "and a few others" under *O. laticeps* (Lund) 1941. Afterwards, based on the idea that *laticeps* was a junior synonym of *capito* (Olfers, 1818) he used the latter name for this group (Hershkovitz 1966). This action may be too extreme, as it places in a single species more than eighteen forms described by authors as O. Thomas and J. A. Allen as full species distributed from Costa Rica and northern Colombia and Venezuela in the north, to Rio Grande do Sul and Paraguay in the south, and from the Andean slopes in the west to the Atlantic coast in the east. Less extreme was

the position of CABRERA (1961), who recognized *macconnelli* as a distinct species and included most of the other namens quoted by HERSHKOVITZ as subspecies in a polytypic concept of *O. capito*.

Cytogenetic evidence demonstrates that both HERSHKOVITZ and CABRERA were mistaken. Based on chromosome data and on direct comparisons of karyotyped specimens with most of the holotypes, GARDNER and PATTON (1976) recognized at least four species in this complex, i.e.: (1) the 2n = 52 *O. capito* (including *goeldi* and *perenensis,* and, probably but not surely, *carrikeri, castaneus, magdalenae, medius, modestus, mollipilosus, oniscus, talamancae,* and *velutinus*); (2) the 2n = 80 *O. nitidus* (with *boliviae* and *legatus* as certain synonyms and *bolivaris* and *intermedius* as probable synonyms); (3) the 2n = 64 *O. macconnelli* (which may be more closely related to the *O. albigularis* complex), and (4) the 2n = 58–60 *O. yunganus*. A fifth species, *O. bombycinus* (2n = 58) may also belong to the same group, as GARDNER and PATTON suspected that it may be a synonym of *rivularis,* an idea which was later formally supported by A. L. GARDNER (in HONACKI et al. 1982), who also included *bolivaris* in *rivularis*.

Work subsequent to GARDNER and PATTON (1976) introduced more complications in the karyosystematics of *capito*-like *Oryzomys*. ALMEIDA (1980) described as belonging to *O. capito* a karyotype of 2N = 80, FN = 86 very similar to that which GARDNER and PATTON (1976) ascribed to *Oryzomys nitidus*. Later, MAIA (1981) described in two female individuals from Pernambuco, Brazil a karyotype identical to that assigned by GARDNER and PATTON for Peruvian specimens. She referred those specimens to *Oryzomys capito oniscus,* surely by reason of topotypy, as *O. oniscus,* which CABRERA (1961) classified as a subspecies of *capito,* was described by THOMAS from Sao Lourenco near Recife. More recently, KOOP et al. (1983) described a polymorphic 2N = 52–59, FN = 58–67 karyotype from specimens captured in Central Surinam which they referred to the *"macconnelli-capito"* complex, and BAKER et al. (1983) mentionned a N = 54 karyotype in specimens from other localities in Surinam. It must be recalled that GARDNER and PATTON (1976) assigned to *O. macconnelli* from Peru specimens showing a 2N = 64, FN = 64 karyotype.

MAIA (1981) concurred with GARDNER and PATTON in restricting the name *capito* to the 2N = 52–54, FN = 62 forms of Amazonian Peru and Brazil. She also proposed to apply other available namens, such as *nitudus* and *intermedius,* to chromosomally distinguishable species of this group. Although we agree with GARDNER and PATTON and with MAIA that it is convenient to apply available species-namens to well-differentiated karyomorphs, a word of caution is needed. Their proposals must be considered as conventions leading to a provisional arrangement of the involved taxa, susceptible of modification as a consequence of further relevant information, i.e. karyotypes of topotypic specimens. Thus, the terra typica of *O. capito* (Olfers, 1818) is San Ignacio Guazú, Paraguay, and no karyotypes of this group of mice from that area have been described so far. In fact, to make a definite decision on the namens applying to chromosomally differentiated *Oryzomys* species, it would be necessary to know the karyotypes of topotypical samples of each of the described nominal forms. Cryptic speciation hidden by synmorphic species synonymized in classical revisions based on morphology may be uncovered by such study. Because this work is not fully achieved, we cannot be sure even that such commonly accepted synonymies as that of *O. laticeps* under *O. capito* are really correct. However, in order to advance in clarifying in systematics of this group of species, we can accept GARDNER and PATTON's and MAIA's proposals as provisionally valid.

This decision leads us to identify our Gran Sabana 2n = 54, FN = 62 cytotype as *O. capito*. Our northern 2n – 34, FN = 64 form remains to be identified.

Although a precise arm-to-arm comparison between the two cytotypes of the *O. capito* complex from Venezuela must await the capture of new specimens for G- and C- banding, the available beta-karyological evidence strongly suggests that the two cytotypes are not likely to belong to the same species. The similarity in FN in spite of the sharp difference in

diploid number gives an inkling of Robertsonian processes as the principal mechanisms involved in the differentiation between these two karyotypes. But even if further banding comparisons confirm that Robertsonian rearrangements have been the exclusive acting forces in the differentiation of these forms, no less than ten fusion/fission chromosomal rearrangements must have been involved. These are by far enough to create an effective reproductive barrier between two chromosomal forms (Capanna et al. 1977; Reig et al. 1981). Moreover, the wide distribution and invariance of the 2N = 34 karyomorph suggest that it is an established arrangement and not part of a polymorphic system. Needless to say, the same arguments hold with greater weight when inferring reproductive isolation between the 2N = 34 Northern Venezuelan form and any remaining species of the *capito* complex for which chromosomal evidence is available.

The 2n = 34 northern Venezuelan karyomorph of *Oryzomys* must therefore belong to a species different from *O. capito, O. macconnelli, O. nitidus, O. revularis* (= *O. bombycinus*) and *O. yunganus,* with which it shares similarities at the morphological level. Other *Oryzomys* groups are also easily discarded from a close relationship, either on morphological or chromosomal grounds or both. The 2n = 32 *Nesoryzomys narboroughi* from the Galapagos (Gardner and Patton 1976) is quite different in morphology, and its rather similar low chromosome number is not accompanied by detailed karyotypic similarities. We face then the problem of the name to be applied to this chromosomal form from northern Venezuela.

In fact, the 2n = 34 specimens are so close in morphology to the southern *O. capito,* that if we claim on chromosomal bases that they are separated by a reproductive barrier, one is tempted to try them as sibling or synmorphic species. However, there are many cases (Reig 1984b) in which chromosomally differentiated species which at first were difficult to distinguish morphologically, were later able to be distinguished by slight and usually neglected character-states. Such was the result after close scrutiny of character-states of the two Venezuelan forms.

As mentioned under Results, we found that although in external, skull and dental character-states the 2N = 34 specimens from northern Venezuela are very similar to the typical *capito* from Bolivar State and other southern Venezuelan localities, the former share with each other several minor distinctive features which allow us to distinguish them from specimens from the south of Venezuela. In undertaking this analysis, we found that the same conclusion had been arrived by A. L. Gardner, as he identified on the labels as *O. talamancae* specimens MBUCV 337 and 340 we studied from Sierra de Perija (Zulia) and from Chichiriviche de La Costa. He also commented to our colleague R. Guerrero (pers. comm.) that the *capito*-like *Oryzomys* from northern Venezuela belonged to that species, which was named and described by J. A. Allen (1891) on the basis of a few specimens from southeastern Costa Rica. Its distribution was later extended to Panama to near the Colombian frontier (Goldman 1918).

O. talamancae was treated as a synonym of *O. capito* in the literature after 1966, following the lumping action of Hershkovitz noted above. However, Gardner (1983) revived its status as a full species after finding a few slight but constant distinctive characters allowing to distinguish typical *talamancae* including the northern Venezuelan specimens he studied, from *O. capito* (Guerrero, com. pers.; Musser and Williams 1985: 9). These findings were corroborated by Musser and Williams (1985) in working through the collection of *Oryzomys* of the American Museum of Natural History. They found that specimens from eastern Costa Rica, southern Panama and the inter-montane valleys and slopes of the Andes of Colombia, Ecuador and Venezuela, as well as the Cordillera de la Costa of Venezuela differed from specimens inhabiting east of the Andean Chains and south of the Cordillera de la Costa which are ascribed to *O. capito, O. macconnelli, O. nitidus* or *O. yunganus.* The former matched the original description and the characters in the holotype of *O. talamancae.* Musser and Williams contributed with

additional distinguishing character states usually neglected in current mammalogical descriptions: presence of a sphenofrontal foramen and squamosoalisphenoid groove, absence of a enamel island (parafosettus) in the bottom of paraflexus in first upper molares (nomenclature as in REIG 1977) which, united to the bright tawny upperparts, partially bicolored tail, and geographic range, would enable to distinguish *O. talamancae* from other species of the *O. capito* complex, as *O. capito* properly, *O. nitidus*, *O. macconnelli* and *O. yunganus*.

We found that the specimens from northern Venezuela studied by us matched the character-states that MUSSER and WILLIAMS used to distinguish *O. talamancae*. And to the features they pointed out as distinctive for this species, we added a few other distinguishing attributes: the skull of our northern specimens is easy to distinguish by the short and broad incisive foramina, the more slightly built and lower mandibular ramus with a more slender condyloid process, not surpassing the height of the coronoid process, the more developed mesoloph and the more deeply infolded hypoflexid in the upper and lower molars, respectively. All of them are subtle distinguishing properties not evident by the current approach in taxonomy of rodents which is based in more readily observable morphological discontinuities, and which lead HERSHKOVITZ and other mammalogists to neglect the species heterogeneity in the *capito* complex which was later cogently indicated by the results of karyosystematics. These results conduced GARDNER and PATTON (1976) to examine more in detail the pattern of discontinuities in phenotypic variation of the different karyomorphs previously subsumed under *O. capito*, starting to apply in this group of rodents a new dimensionality in character analysis which allowed later MUSSER and WILLIAMS to distinguish *O. talamancae* from the other species of the complex.

The finding of a quite different 2n = 34 karyotype in specimens from northern Venezuela matching the distinctive characters that MUSSER and WILLIAMS report as distinguishing *O. talamancae* can be taken as a confirming crucial evidence of the validity of *O. talamancae* as a full biological species. Specimens referred to *talamancae* are not only distinguishable by subtle, but constant, morphological discontinuities, but they should be considered as separated from other populations of the complex by a clear-cut postzygotic isolating mechanism that may represent a quite effective reproductive barrier.

However, we believe that a definite solution as to the name to apply to the northern Venezuelan 2N = 34 form is not yet quite settled. It is true that the discussed Venezuelan form shows several characters in common with typical *O. talamancae*. However this species has been described from Costa Rica, and the karyotype of topotypical *talamancae* has not yet been described. It might happen that the northern Venezuelan form is a different reproductively isolated allospecies of an *Oryzomys capito* complex (or superspecies), rather synmorphic with respect to *O. talamancae*. There are several nominal species described for northern Venezuela and Trinidad which have been synonymized with *O. capito* and/or *O. talamancae*, but which deserve further study, and which can be available names for a chromosomally distinguished northern Venezuelan form. This is the case of *O. velutinus* J. A. Allen and Chapman, 1893 (Princetown, Trinidad), *O. modestus* J. A. Allen, 1899 (Campo Alegre, Sucre State, Venezuela), and *O. medius* Robinson and Lyon, 1901 (San Julian, East of La Guaira, North Central Venezuela). The question is further complicated by the fact that we cannot be sure that the southern Venezuelan form actually belong to *O. capito*. The merely conventional restriction of *capito* to forms sharing the 2N = 52–54 karyotype, makes the question quite unsettled.

As advocated above, a definite solution to the nomenclatorial and systematic problems posed by this group of South and Central American mice will require a thorough revision, including karyotyping of topotypical specimens of the different nominal forms. Until this work is achieved, we believe that the best issue is to continue calling *O. capito* the 2N = 52 Venezuelan animals matching the characters of the specimens of southern Venezuela referred to above, and, in good respect to the opinion of A. L. GARDNER and of the partial

revision undertaken bei Musser and Williams (1985), to quote the 2N = 34 northern Venezuela *capito*-like *Oryzomys* as *Oryzomys talamancae* J. A. Allen, 1891.

To make the issue still more difficult, it must be taken into account that it can be claimed that *capito* (Olfers, 1818) is not a valid name, being preoccupied by *megacephalus* (Fischer, 1814). This will be a fact if the International Commission of Zoological Nomenclature decides that Fischer, 1814, is an available work (see Honacki et al. 1981: 459).

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Resumen

Una especie de Oryzomys de bajo número cromosómico del norte de Venezuela

Se estudiaron los cariotipos de médula ósea y los caracteres morfológicos externos, del cráneo y de los molares en ratones silvestres de Venezuela del grupo de *Oryzomys capito*. Cuatro ejemplares machos y tres hembras de tres distintas localidades distanciadas del Norte de Venezuela resultaron poseer un cariotipo de 2n = 34, FN = 64, constituido preponderantemente por cromosomas metacéntricos. Este cariotipo resultó ser el de número más bajo conocido hasta ahora en el género *Oryzomys*, y se distingue netamente del de cualquier otra especie del grupo *capito* del subgénero *Oryzomys*. Un ejemplar hembra de ese mismo grupo procedente del sur de Venezuela resultó poseer un cariotipo de 2n = 52, FN = 64 muy parecido al descripto para ejemplares del Perú y del Brasil referidos a *O. capito* propiamente dicho. A pesar de ser muy similares en los aspectos generales de su morfología, estas dos formas de 2n = 34 y de 2n = 52 cromosomas presentan ciertas diferencias sutiles, aunque constantes y significativas, en el color de la piel, la morfología del cráneo y de las mandíbulas, y de los molares. Ellas son aquí consideradas como especies estrechamente emparentadas, pero separadas por un mecanismo postcigótico de aislamiento reproductivo potencialmente muy eficiente. Siguiendo la convención aceptada, se ubica a la forma de 2n = 52 cromosomas en *O. capito*. En cuanto a la de 2n = 34 cromosomas, se la refiere provisionalmente a *O. talamancae*, siguiendo una sugerencia inédita de A. L. Gardner, y los resultados de un reciente trabajo de Musser y Williams.

Zusammenfassung

Eine Oryzomys-Art mit geringer Chromosomenzahl aus Nordvenezuela

Knochenmark-Karyotypen und morphologische Merkmale an Schädeln und Molaren wurden von Mäusen aus dem *Oryzomys capito*-Komplex von Venezuela studiert. Vier ♂♂ und drei ♀♀ von drei verschiedenen und voneinander entfernten Orten im Norden Venezuelas zeigen einen Karyotyp von 2n = 34, FN = 64 mit hauptsächlich metazentrischen Chromosomen. Dieser Karyotyp zeigt die geringste Chromosomenzahl aller bisher untersuchten *Oryzomys*-Arten. Er hebt sich deutlich von anderen bekannten Karyotypen *capito*-ähnlicher Arten ab. Ein weibliches Exemplar dieser Gruppe aus Südvenezuela zeigt demgegenüber einen Karyotyp von 2n = 52, FN = 64. Dieser ist wiederum jenen Formen aus Peru und Brasilien sehr ähnlich, welche als typische *capito* vorgeschlagen wurden. Obwohl die allgemeinen morphologischen Merkmale sehr ähnlich sind, zeigen die 2n = 34 Form und die 2n = 52 Form einige kleine aber deutliche Unterschiede in Fellfarbe, Schädel, Unterkiefer und Molaren. Sie sind als nahe verwandte, aber durch effiziente Isolationsmechanismen getrennte und in Entstehung begriffene biologische Arten anzunehmen. Dabei kann die 2n = 52 Form – nach allgemeiner Übereinstimmung – *O. capito* zugeordnet werden. Für die 2n = 34 Form wird vorläufig als Provisorium *O. talamancae* vorgeschlagen, gemäß einer unveröffentlichen Anzeige von A. L. Gardner und entsprechend den Ergebnissen einer kürzlich erschienenen Studie von Musser und Williams.

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WISSENSCHAFTLICHE KURZMITTEILUNGEN

G-band homology in two karyomorphs of the *Ctenomys pearsoni* complex (Rodentia: Octodontidae) of neotropical fossorial rodents

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Despite the extensive chromosomal variation reported in the genus *Ctenomys* (e.g. Reig and Kiblisky 1969), only the polytypism found in *C. torquatus* has been studied using banding techniques (Freitas and Lessa 1984). In this paper we study, by means of G-bands two karyomorphs of the *C. pearsoni* complex Lessa and Langguth 1983, which is closely related to *C. torquatus*. Standard karyotypes of the forms we have studied have been reported by Kiblisky et al. (1977).

Following Gallimore and Richards (1973), G-bands were obtained from bone marrow preparations of nine individuals from each of two localities: Carrasco (2N=56), and Autódromo (2N=70) (see Lessa and Langguth 1983 for precise locations).

The Figure presents the correspondence between the G-banded karyotypes of Carrasco and Autódromo. The main features arising from this comparison are: 1. 20 chromosomal pairs are identical in morphology and G-banding patterns; 2. metacentric pairs 2, 3, 6 and 10 from Carrasco correspond to 8 pairs of telocentrics from Autódromo; 3. four pairs of chromosomes from Autódromo and one pair from Carrasco are unique, i.e., lack any obvious correspondence in the other karyomorph.

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