Cytogenetic research in wild animals at FCAVJ, Brazil. I. Mammals

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The Center of Study and Research in Wild Animals Prof MA Giannoni, established at FCAVJ, is conducting research projects in mammals and birds. Partial results of cytogenetic analysis of some of these projects are presented below.

The metaphases were obtained as described by Moorhead *et al* (1960), and chromosome G-, C- and NOR (nucleolar organizer region)-banding patterns were prepared according to Seabright (1971), Sumner (1972) and Howell and Black (1980), respectively.

Cytogenetic analysis of Agouti paca

This is a subproject of the 'Biology, behavior and adaptation to captivity of the *Agouti paca* species'. The species has great potential to be explored in animal production, but studies with a conservational viewpoint on repopulation and genetic improvement are needed. The purpose of this investigation was to contribute to the knowledge of the biology of the species, by providing information on the normal karyotype and description of chromosomal banding patterns. The only karyotype description of this species was made by Fredga (1966) but there are persisting doubts concerning the morphology of several chromosomes, including the sex chromosomes. A paca is considered to be a single species throughout Latin America, ranging from Mexico to the Antilles, except in the high and cold regions of the Andes where the species *Agouti taczano wskii* is found.

In the animals analyzed to date, the karyotype observed was 2n = 74, FN = 98. The metacentric X and the submetacentric Y are, respectively, the largest and smallest chromosomes of the karyotype. A variation between 3 and 8 NOR-bands has been observed, and the pericentromeric regions of all chromosomes, including the sex chromosomes, have a positive C-band. Figure 1.1 demonstrates the female karyotype and the inset shows the sex chromosomes of the male A paca.

Fig 1.1. Karyotype of species Agouti paca (paca) female. The inset shows the sex chromosomes of the male. 2. Karyotype of Mazama gouzourbira, male 2n = 70. 3. Metaphases with 4 NOR-bands. 4. Karyotype of a male Ozotoceros bezoarticus 2n = 68.

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Cytogenetic analysis of Brazilian cervines

This is a subproject of a larger project on cervines. In addition to the karvotaxonomic comparisons of the 6 Brazilian cervine species, the results of this cytogenetic analysis will be used to select the animals that will supply semen to a 'sperm bank', to be used for the reproduction and preservation of these species. Some of these species, for example the Pantanal deer (Blastoceros dichotomus) and the 'campeiro' deer (Ozotoceros bezoarticus) are threatened by extinction (IUCN Conservation Monitoring Centre, 1988). So far, the analyses have included 8 specimens of Mazama gouazoubira, 2n = 70; 3 Ozotoceros bezoarticus, 2n = 68; 1 Blastoceros dichotomus, 2n = 68; 2 Mazama americana, one with 2n = 56 and the other with 2n = 40, and 2 Mazama rufina, one with 2n = 44 and the other with 2n = 37, probably heterozygous for a centric fission/fusion chromosome. These results are different from those found in the literature, in terms of chromosome number and/or morphology. Taylor et al (1969) and Jorge and Benirschke (1977) found 2n = 68 and 2n = 50, respectively, in the Mazama americana species. The chromosome number in Ozotoceros bezoarticus but not the chromosome morphology, is in agreement with results reported by Bogenberger et al (1987). Also, the chromosome number of Blastoceros dichotomus deviates from the one described by Bogenberger et al (1987). One or two B chromosomes were observed in 2 of the 8 Mazama gouazoubira specimens that were analyzed. The occurrence and frequency of these chromosomes are now being studied. The sample is being enlarged and the G-, C- and NOR-band patterns will be established. Figure 1 (2, 3 and 4) show the karyotype of a male Mazama gouazoubira, metaphases with NOR-bands and the karyotype of a male Ozotoceros bezoarticus, respectively.

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