

SHORT COMMUNICATION

KARYOTYPE OF THE LITTLE BLUE MACAW *Cyanopsitta spixii* (PSITTACIFORMES, AVES)

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ABSTRACT

The little blue macaw (*Cyanopsitta spixii*), considered to be extinct in nature, was analyzed cytogenetically for sexing and for evolutionary study. The species, which has $2n = \pm 70$ chromosomes and $FN = 88$, showed sex chromosome heteromorphism which permitted sexing four birds held in captivity as part of a program of cooperation with the "Spixii Macaw Committee".

INTRODUCTION

The species *Cyanopsitta spixii* belongs to the family Psittacidae, order Psittaciformes. It is a monospecific genus differing from other blue macaws by its smaller size and more opaque, almost gray, coloring. Originally occurring in the northern Region of the state of Bahia and in the southern part of the states of Piauí and Maranhão, Brazil (Sick, 1984), this species is today considered to be extinct in the wild (Roth, 1987; FBCN, 1988), with only a few individuals still existing in captivity.

To attempt reproduction of the remaining specimens, sex identification was needed for pair formation, since the animals do not present sexual dimorphism.

Several methods can be used for bird sexing: laparoscopy, hormonal measurements, behavioral analysis, and cytogenetic analysis for the identification of the sex chromosomes, ZZ for males and ZW for females (Giannoni *et al.*, 1986; Giannoni, 1988). Because of the characteristic pattern of these chromosomes in the Psit-

tacidae, the cytogenetic technique has been practically 100% effective for animals of this group sexed in the Genetics Laboratory of the Faculty of Agricultural and Veterinary Sciences of Jaboticabal. As part of a collaborative program with the "Spixii

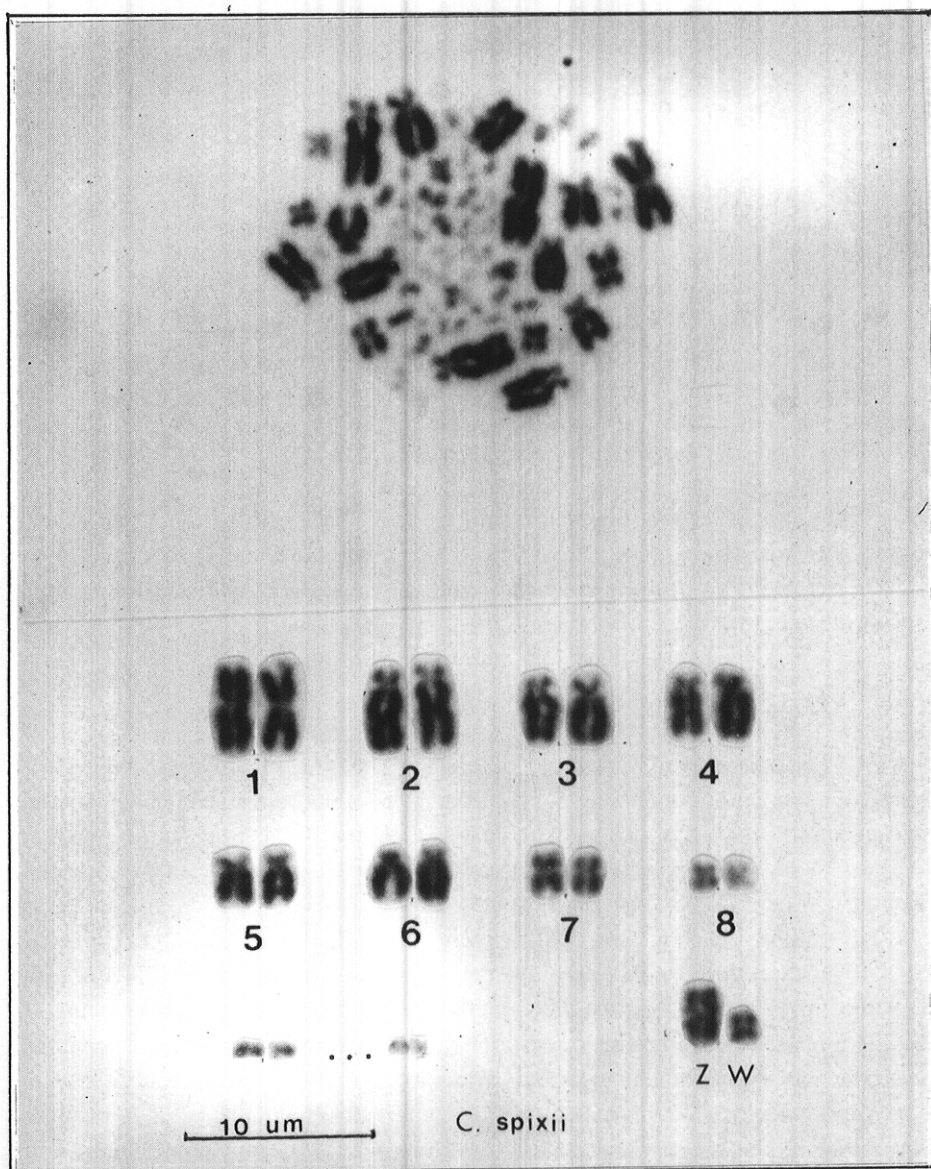


Figure 1 - Karyotype of the little blue macaw obtained from the bulb of the feather and stained with Giemsa - Male $2n = \pm 70$, FN = 88. A metaphase containing 70 chromosomes is indicated in the upper part of this figure.

Macaw Committee", we analyzed cytogenetically four *C. spixii* specimens in order to describe the karyotype of the species, help with the sexing work and initiate studies of the karyotypic evolution of Psittacidae.

MATERIAL AND METHODS

Four animals, three from "Fundação Parque Zoológico de São Paulo" and one from a private breeding unit, were utilized.

Cytogenetic material was obtained from the pulp of growing feathers (approximately 25 days old) cultured in complete culture medium for six hours according to the technique of Shoffner (personal communication) modified in our laboratory.

RESULTS

Cytogenetic analysis of feather pulp metaphases stained with Giemsa (two males and two females) demonstrated that the species has a modal chromosome number of $2n = \pm 70$, FN = 88. Nine pairs are macrochromosomes, pairs 1, 7 and 8 and the Z and W sex chromosomes being metacentric, and the remaining five subtelocentric.

Figure 1 shows the karyotype of the species, and Figure 2 a male metaphase with the Z sex chromosomes identified by arrows.

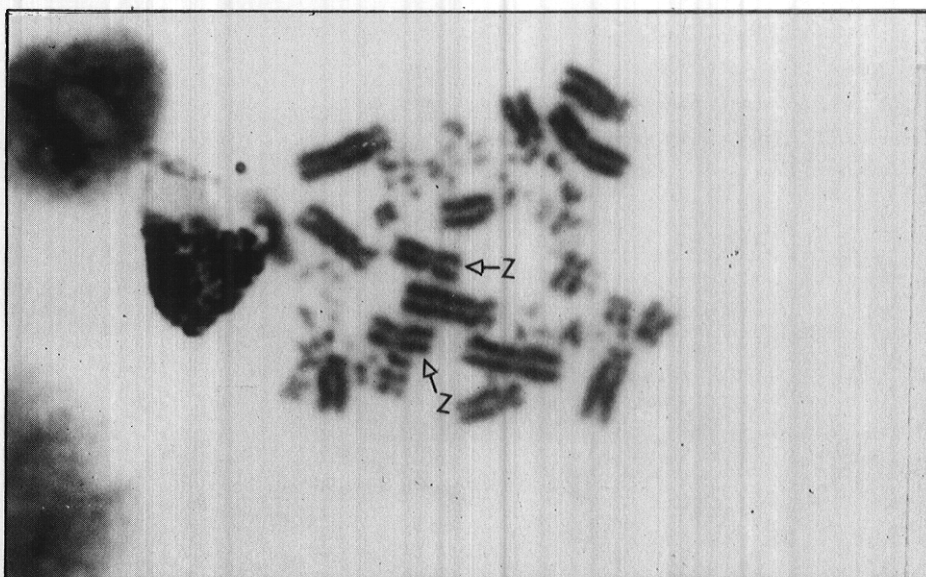


Figure 2 - Metaphase of a male *Cyanopsitta spixii*. The arrows indicate the Z sex chromosomes.

Initial observations indicate a karyotypic similarity between this species and the genus *Ara* (Van Dongen and De Boer, 1984; Aquino, 1987), with differences in the morphology and size of some chromosomes from the karyotype described for the genus *Aratinga* (Aquino, 1987) and the genus *Amazona* (De Boer and Belterman, 1981; Van Dongen and De Boer, 1984; Aquino, 1987).

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RESUMO

A Ararinha azul (*Cyanopsitta spixii*) considerada extinta na natureza foi analisada por método citogenético com objetivo de sexagem e estudos evolutivos. A espécie, com $2n = \pm 70$ cromossomos, $NF = 88$, apresentou heteromorfismo de cromossomos sexuais o que permitiu a sexagem de quatro aves mantidas em cativeiro dentro do programa de cooperação com o "Comitê da Arara Spixii".

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