

417 - 424. Aportes al conocimiento de la reproducción embriología y manejo de *Crocodylus intermedius* en la Estación de Biología Tropical 'Roberto Franco' de Villavicencio. The Tropical Biological Station Roberto Franco has captive reptiles which are subject to observations and analysis that will permit development of guidelines in management, conservation and repopulation. Incidental to the program for conservation of *C. intermedius*, we made observations on a nest of one of the captive pairs which allow us to provide some information on mating behavior, nesting, management of embryos and neonates and embryonic development. The paper includes color photographs of courting and mating, nests, embryos of three stages and detailed data on nest temperature, egg dimensions and a sonogram of hatchling vocalisations.

Ardila-R, M.C., Sandra L. Barahona-B, Olga P. Bonilla-C & Diana R. Cardenas-R. 1999. Pp. 425-435. Evaluación del crecimiento en *C. intermedius* nacido en la Estación de Biología Tropical 'Roberto Franco' de Villavicencio. A series of observations were made on a nest of *C. intermedius* maintained in the Tropical Biological Station 'Roberto Franco'. These observations allow us to establish growth models for the first year of life and to try and understand the physiological characteristics, behavior and sexual maturity. These are important parameters to know before repopulation efforts are undertaken.

Ardila-R, M.C., Sandra L. Barahona-B, Olga P. Bonilla-C & Diana R. Cardenas-R. 1999. Pp. 437-444. Análisis morfométrico craneal asociado con la edad en los *Crocodylus intermedius* nacidos en la Estación de Biología Tropical 'Roberto Franco' de Villavicencio. The Tropical Biological Station Roberto Franco has a series of skulls of *C. intermedius* hatched in captivity. From these skulls we have obtained information on sizes for a range of ages of the cranial morphometrics related to total length and body weight. Data from 48 skulls ranging from 6 to 64 months age are presented with trends in growth and correlations among 16 skull measurements and body dimensions.

Gloria Romero de Perez, Martha P. Ramirez & Martha Lucia Calderon. 1999. Pp. 453-464. Estudio preliminar de la ultraestructura de la pared del ovario y de folículos previtelogénicos y vitelogénicos tempranos de *Caiman crocodilus fuscus*. The ultrastructure of the ovarian

epithelium, follicles of different developmental states and other stromal elements is described. Ovarian tissue was obtained from adult individuals of *Caiman crocodilus fuscus* and processed by conventional methods for transmission electron microscopy (TEM). The general morphology of the ovary and follicular structure is similar to that of other reptiles and shows a chordolacunar bird-like system with large lymphatic vessels. A single layer of follicle cells forms the granulosa of the follicles. Ultrastructural characteristics of follicular cells and oocytes, and their relationship, suggest that the substances pass into the oocyte by both intra and extracellular pathways during follicle development. However, the precise mechanism used for the transport of nutrients and yolk precursors during vitellogenesis cannot be clarified from these observations. Neither the follicle cells nor the theca cells in growing follicles have the characteristics of steroidogenic cells as in other reptiles and birds. Two interesting findings are reported: the presence of electron dense and heterogeneous granules, similar to lysosomes, in the endothelium of the lymphatic vessels, and neurosecretory cells in the ovarian interstices. The function of these structures was not studied.

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French Guiana

BLACK CAIMAN POPULATION IN KAW SWAMPS. Between 14 and 17 December 1999, a small expedition took place to the Angelique Creek in the western part of the swamps of Kaw. It was organized by the Association Kwata, a local NGO on nature conservation research. They invited Paul Ouboter, a crocodile specialist located in Suriname, to join the team.

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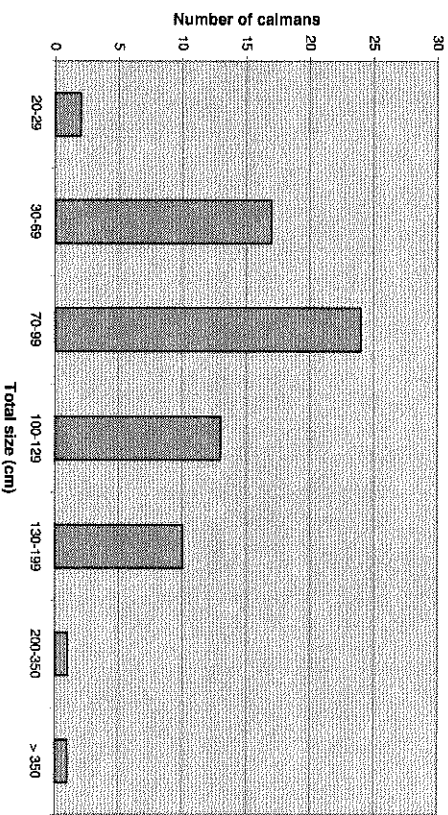
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saw mostly juveniles (Plotkin et al., 1983). The necessity to protect the area was stressed by them, and before by Condamin (1975). The Kaw Swamps were declared a nature reserve (Réserve Naturelle de Kaw-Roura) on March 13, 1998, mainly based on the population of black caimans and hoatzins (*Opisthocomus hoazin*). However, it soon became clear that the black caiman population in the accessible parts of the swamp was still decreasing and it consisted mainly of juveniles. It was hoped that a larger number, including reproducing adults, would be present in the hardly accessible parts of the Kaw swamps, especially in the area west of the Kaw River, the Savanna Angelique. In order to investigate this, a preliminary survey was organized.

An area suitable for the survey was selected by airplane on May 20th, and in more detail by helicopter on December 10th. On December 14th, a helicopter dropped the team of five people near the Angelique Creek, together with two boats and equipment. It was the end of the dry season, so the swamps were almost dry and the caimans should be concentrated in the creeks. During three days and nights the team covered about 5 km of creek. Along most of the creek the going was really tough because of overgrowing bushes of *Chrysobalanus icaco* and trunks of *Mauritia* and *Euterpe* palms. Between these overgrown creek parts were wider areas with water lilies (*Nymphaea*) and other aquatic vegetation (*Cabomba* and *Utricularia*). Black caimans were most abundant in the wider parts. In the narrow channels only few were seen, together with juveniles of *Paleosuchus palpebrosus*, that stayed in very shallow water, near the shore. Black caimans were both seen during the day and

Size estimates of *Melanosuchus niger* in 3 km of the Angelique Creek



night. The total distance covered during the night surveys was 3 km, on which we counted 130 caimans. Seventy six (76) could be identified as *M. niger*, 16 as *P. palpebrosus* and 38 dived before identification was possible. These were probably *M. niger* as well, since *P. palpebrosus* are easy to approach. So the minimum density of the black caiman population in the area was about 25/km, but a more reliable estimate is 38/km. The highest density recently recorded for a black caiman population is >30/km in parts of an area of rivers, streams and lakes near the Mamirauá Ecological Station, Brazil. All other high figures are between 23 and 28/km, and are for lakes in Ecuador and Peru (Ross 1998), not for a small creek. Therefore it can be concluded that the Angelique Creek contains a dense population of *M. niger*. In addition to counting and identifying caimans, size estimates were made. The accuracy of these estimates was checked by measuring some individuals. Unfortunately, only few large specimens could be estimated to size. Only two were above 2 m total length and could be reproductive adults according to available information (Ross, 1998). Only one was really large, and was surely a male. We were able to approach this individual very close. A comparison with the size of the boat led to an estimated size of 4.0-4.5 m. Several of the individuals that dived before a size estimate was possible, both during day and night surveys, were quite large. We estimate the adult breeding population on this 3 km stretch of creek to consist of 2-3 large males and about the same number of females. *M. niger* is supposed to nest in the dry season (see i.e. Ouboter & Nanhœ 1987). We found only two hatchlings. It is likely

that hatching had just started.

The accessible part of the area, the Kaw River, was surveyed on 18 and 19 December 1999. According to the inhabitants of the Kaw village, black caimans were once so abundant that boatmen had to hit the water with a paddle to chase them away in order to make passage for the boats possible. Plotkin et al. (1983) observed mainly small individuals in the Kaw River in 1979. Also we found mainly juveniles. On a river length of about 47 km, 68 caimans were seen. Seventeen (17) dived before identification was possible, 22 were *M. niger*, 19 *P. palpebrosus* and 10 *Caiman crocodilus*. As in the Angelique Creek, newly born *P. palpebrosus*

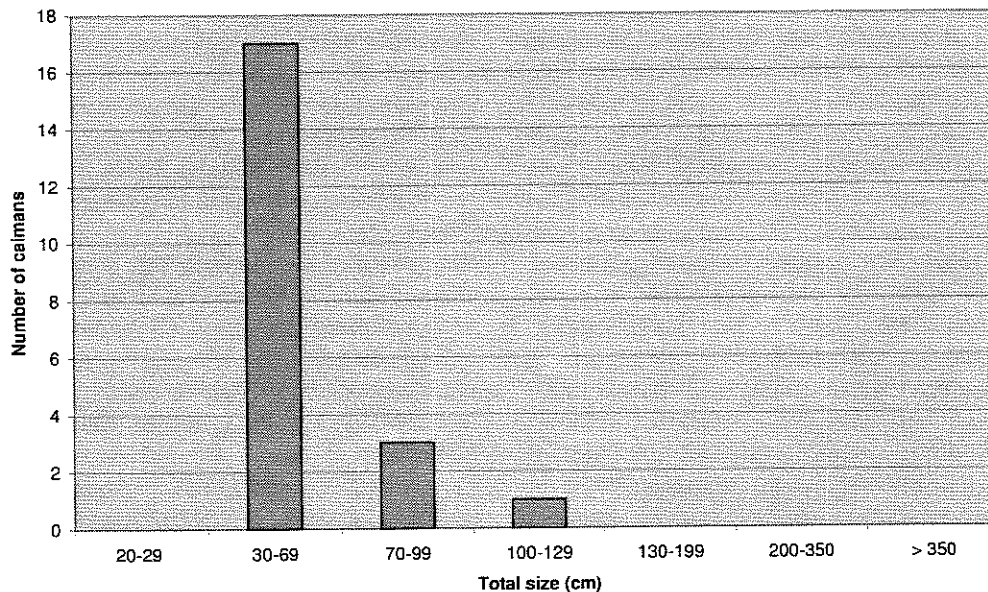
the swamp may prove to be suited for ecological studies because of the presence of a black caiman population in an almost pristine stage.

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Size estimates of *Melanosuchus niger* in 47 km of the Kaw River



were present, but here also many subadult and adult dwarf caimans were seen. *C. crocodilus* was most abundant near the village. It seems that the Kaw River at present only contains some juvenile and subadult black caimans, probably individuals that wandered away from the breeding population in the swamps.

These preliminary surveys showed that the Kaw Swamps are likely to have a good black caiman population, as many other hardly accessible areas with suitable habitat exist in the swamps. However, the exact status of the population needs further investigation. Especially surveys in other parts of the swamps are needed. The part of the population in the Kaw River needs to be monitored regularly. Some areas of

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