Crepuscular Activity Cycle in Cuvier's Dwarf Caiman (*Paleosuchus palpebrosus*) in Captivity

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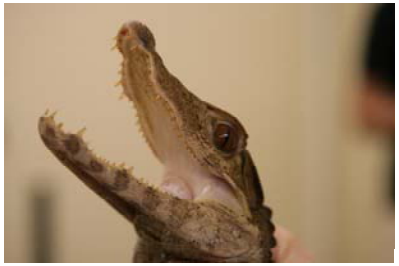
Introduction

Cuvier's Dwarf Caiman is a highly secretive reptile species about which very little is known. Crocodilians in general are thought to be nocturnal hunters, and the dwarf caiman has been reported to fit into that general pattern (Medem, 1981).



Methods

Nine recently wild-caught P. palpebrosus individuals were brought into captivity and housed on a 12:12 white:red light cycle in a 20 sq meter enclosure (see Fig 1).

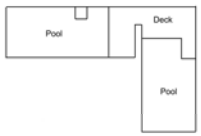
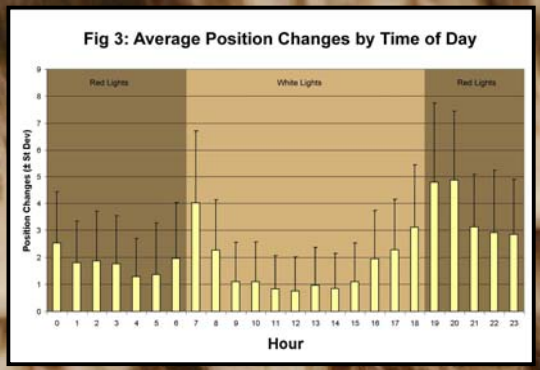
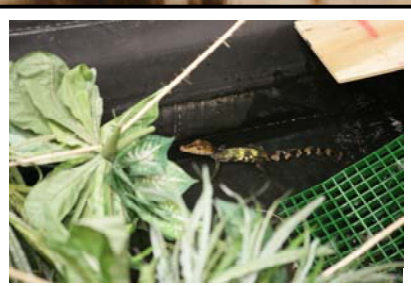


Fig 1: Enclosure Floor Plan

Movements (defined as changes of position) were tallied from four video viewing angles, two underwater, two overhead (see Fig 2). Every movement was counted within five minute observation periods sampled every fifteen minutes over 24 hours, every other day for one month (7878 mins in total).

Fig 2: Video Views





Results

The caiman activity pattern, in terms of average number of changes in position per five-minute observation period, is plotted by time of day in Fig 3. Two characteristics of their activity pattern are evident:

- Overall the caiman were more active during the red light phase than during the white phase.
- Two clear peaks of activity are evident at the times of light cycle changeovers (corresponding to what would be dawn and dusk in nature).

ANOVAs comparing number of position changes by time blocks are presented in Table 1. Significantly greater activity was found comparing both Nocturnal vs Diurnal and Crepuscular vs Other blocks.

Model	Time Periods Compared	Average Movements per 5 mins (± st dev)	ANOVA Output
Nocturnal Pattern	Red Lights 19:00 - 07:00	2.54 (± 2.36)	$F(1,1572) = 44.4$ $p < .001$
	White Lights 07:00 - 19:00	1.79 (± 2.24)	
Crepuscular Pattern	"Dawn" plus "Dusk" 06:00 - 08:00 18:00 - 20:00	3.68 (± 2.73)	$F(1,1572) = 170.3$ $p < .001$
	Other 08:00 - 18:00 20:00 - 06:00	1.83 (± 1.98)	

Table 1: ANOVA Results by Model

Discussion

A crepuscular lifestyle is therefore inferred for this species, a lifestyle which may in nature allow them to avoid competition with larger nocturnal predators, and/or to exploit specific food sources.