**Title**

# Red fire ant (*Solenopsis invicta*) effects on broad-snouted caiman reproduction (*Caiman latirostris*)

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*Caiman latirostris*

## REPORT

Field work was conducted between December 2008 and March 2009, throughout the breeding period of broad-snouted caiman (*Caiman latirostris*). Sampling area was chosen according to the harvest locations of Proyecto Yacare, in Santa Fe Province (Figure 1). For field work I used a truck (Ford Mod '98) of CICyTTP – CONICET, and partial cost of fuel was covered with the CSG grant.

In this work I considered all nests found during the season, in order to estimate the rate of fire ants (*Solenopsis invicta*) infection. In the season studied, 73 nests were harvested, of which 28 had fire ants (38.4%). I found no differences on infection rate between habitats: floating vegetation, savanna and forest ($X^2$ = 3.55, df = 2, P = 0.1699). I did determine ant species in the lab, that why the original budget was changed (I did not buy the field microscope originally included in the budget).

I have carried out an analysis of the density of *Solenopsis invicta* mounds at different habitats, to analyze if there are preferences on the infection rate between them. I made three quadrants of 400$m^2$ each (20 x 20$m^2$), located by random coordinates in the three nesting habitats of *Caiman latirostris*. Each quadrant was divided into sixteen parts of 25 $m^2$, off those four were selected at random, and I searched for the presence of *S. invicta* mounds. To determine if there is an increase of red fire ant mounds during the season, this methodology was conducted in two stages, at the beginning (from 18 to 24 December) and the end (from 15 to 22 March) of the season. However, the results for 2008 – 2009 season showed no difference of nests density at the beginning and at the end of the season (H = 4.30, P = 0.3076). As a preliminary conclusion, I could say that there is no relationship between the proportion of nests colonized and the number of ant's mounds in the different nesting habitats. This experience was also carried out in other nesting seasons and I have found similar results, at this moment I am working on a manuscript in order to report this information.

In relation to the laboratory experiment, six plastic trays (53 x 33 x 27 cm) for breeding ant colonies were purchased, using the money for the field microscope ordered in the grant application. Ants were collected in the wild, and

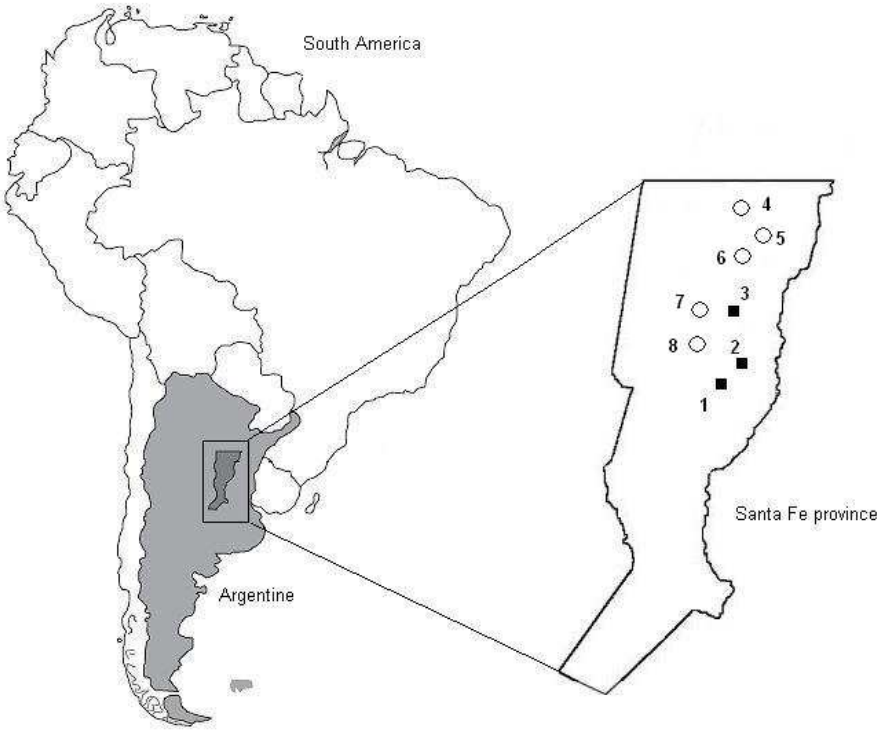
glucose-based fed. For the experiment I used Caiman hatchlings from 6 clutches. Hatchlings were individualized through a system of sisal yarn in the chest area with a plastic tag (different color for each nest). This was done to avoid excessive handling of animals, and to prevent amputation marks of the caudal scutes, becoming an attraction for ants. Each clutch were divided into five treatments of 6 hatchlings each, to be submitted to different times of exposure to fire ant bites (0.30, 1, 2, 4 minutes), leaving an unexposed group, as a control.

After completing the treatment, all animals were measured (snout-vent length), weighed and marked with an individual metallic tag on each hind limb (Figure 3). Then, they were taken in a breeding pool of Proyecto Yacare, and fed *ad libitum* according to routine techniques. Animals were kept for one month, measuring and weighing them at fifteen and thirty days to determine if the ants attack produced an immediate negative impact on subsequent growth. The different times of exposure of hatchlings to fire ant stings did not influence growth in length (snout-vent length; $P = 0.071$) or weight ($P = 0.720$) of *Caiman latirostris*, but were found clutch effects between nests ($P < 0.0001$).

Costs incurred with the CSG grant:

| Nombre del proveedor | Item | Unit Price | Amount | Total Price |
|---|---|---|---|---|
| **Divers** | Marking system | U$S 43,5 | - | **U$S 43,5.-** |
| **YPF** | fuel | U$S 0,85 / liter | 720 liters | **U$S 612.-** |
| **Travel** | Food and hotel (two people) | U$S 92,2 | 2 | **U$S 184,40.-** |
| **Colombraro** | Plastic trays (53 x 33 x 27 cm) | U$S 53,50 | 6 | **U$S 151.-** |
| | | | **Total:** | **U$S 990,9.-** |

Figure 1: Study area determined by the harvesting region of Proyecto Yacaré in Santa Fe Province.




1- Los Saladillos
2- Cacique Araicaiquín
3- El Estero
4- Cañada Ombú
5- Intiyaco
6- Fortín Olmos
7- El Lucero
8- Fisco

Figure 2: Harvesting of *Caiman latirostris* eggs in floating vegetation habitat.



Figure 3: Materials used in the experiment of exposure to fire ants bites (*Solenopsis invicta*).





Plastic trays with *Solenopsis invicta* colonies.

*Caiman latirostris* hatchlings.

Plastic trays with water for subsequent washing after the bite exposure time.

Figure 4: a- Metallic tags for individual identification, on each hind limb, b- measurement, c- and weighing of *Caiman latirostris* hatchlings.

a-




b-




c-

