Study on cranial morphological variations of broad-snouted caiman (*Caiman latirostris*) during its ontogeny to establish relationships according to sex and kinship

Vanina A. Cabral[1], Sofia Pierini[1,2], Samuel Hilevski[1,3], Donato Costamagna[1] and Pablo A. Siroski*[1,3]

[1]Proyecto Yacaré – Laboratorio de Zoología Aplicada, Anexo Vertebrados – Departamento de Ciencias Naturales (FHUC – UNL/ MASPyMA) – Aristóbulo del Valle 8700, Santa Fe, Argentina (vani.cabral@gmail.com; donatocostamagna@hotmail.com)
[2]CICyTTP (CONICET-Proy. E.R.-UADER), Diamante, Entre Ríos, Argentina (sofia.p@live.com.ar).
[3]Laboratorio de Ecología Molecular Aplicada (LEMA), Instituto de Ciencias Veterinarias del Litoral (ICIVet-Litoral), Universidad Nacional del Litoral (UNL) / Concejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Santa Fe, Argentina (samyhilevski@gmail.com; pablo.siroski@icivet.unl.edu.ar)

The study of morphological features in crocodilians is relevant in the fields of systematic, evolution, ecology and conservation. Therefore, it is very important to detect similarities and differences on the forms of the traits on individuals to be analyzed in a broader context. The aims of this study were to assess and estimate cranial morphological variations on lateral view of broad-snouted caiman (*C. latirostris*) during its ontogeny and establish relationships according to sex and kinship. Forty young individuals from 4 different nests were photographed with digital camera and a homogeneous number of landmarks were digitized for each feature. Generalized procrustes analyses (GPA) were conducted by overlapping of the average configurations to remove unwanted parameters outside of the form. The allometric effect was analyzed in each of the configurations, but the regression residues were used in the case of allometry. The shape of the traits was evaluated by means of a principal component analysis (PCA). Our results evidenced similar forms among the individuals in each nest. When analyzing the forms with respect to sex, in the first instances both sexes presented homogeneous forms, although in advanced ontogenetic stages the females presented more robust forms while the males presented stylized forms. Finally, we can conclude that geometric morphometric is useful analysis tool to identify the relationship between individuals of each nest in terms of cranial shape in lateral view. In addition, this tool allows us to distinguish sex in more advanced ontogenetic stages of *Caiman latirostris*. The identification cranial spots as individual patterns in broad-snouted caiman are under analysis.

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