## Impacts of season and reproductive status on fecal reproductive and adrenocortical steroid metabolites in zoo Cuban crocodiles (*Crocodylus rhombifer*)

## Lauren Augustine<sup>\*1,2</sup>, Kyle Miller<sup>2</sup>, Alan Peters<sup>2</sup>, Ashley D. Franklin<sup>3</sup>, Cathleen M. Steinbeiser<sup>4</sup> Janine L. Brown<sup>5</sup> and Natalia A. Prado<sup>5</sup>

<sup>1</sup>Saint Louis Zoo, One Government Drive, Saint Louis, MO 63110, USA (laugustine@stlzoo.org)
<sup>2</sup>Smithsonian's National Zoological Park, 3001 Connecticut Ave. NW, Washington, D.C. 20008, USA. (MillerKL@si.edu; PetersAM@si.edu)
<sup>3</sup>Saint Louis Zoo, One Government Drive, Saint Louis, MO 63110, USA (franklin@stlzoo.org)
<sup>4</sup>Indiana University, Bloomington, Indiana, USA. (csteinbeiser@gmail.com)
<sup>5</sup>Smithsonian Conservation and Biology Institute, 1500 Remount Road, Front Royal, VA 22630, USA (BrownJan@si.edu; PradoN@si.edu)

<u>Abstract</u>: Conservation strategies for crocodilians often include captive breeding to create stable assurance populations. Evaluating adrenal and gonadal hormone patterns can provide animal managers with data to more effectively monitor animal welfare and reproductive status. This study evaluated the effects of social housing conditions (solo, pair or trio) and season (breeding, nesting or off) on concentrations of fecal glucocorticoid (FGM), androgen (FAM), and progestogen (FPM) metabolites in seven Cuban crocodiles (*Crocodylus rhombifer*) at the Smithsonian's National Zoological Park. Overall, FGM concentrations were higher in egg-laying females during nesting compared to breeding and off-season, FPM concentrations were higher furing nesting in egg-laying females only compared to breeding and nesting compared to the off-season. Future studies investigating the use of fecal hormone metabolites in crocodilians are necessary in order to understand differences between individuals and species, to further elucidate the interactions between hormones and environmental factors such as social housing, and develop long-term data sets for the management of this species.

Keywords: Fecal hormone metabolites, Zoo management

*<u>Type of presentation</u>*: Poster

*Thematic area*: Research and Knowledge (Natural History)