HEMATOLOGY, BLOOD CHEMISTRY AND IONIZED CALCIUM VALUES IN *CAPTIVE-BRED GIANT HISPANIOLAN GALLIWASP* (*CELESTUS WARRENI*)

CRITICALLY ENDANGERED

+ GIANT HISPANIOLAN GALLIWASP
(CELESTUS WARRENI)

RESEARCH

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INTRODUCTION

The Giant Hispaniolan galliwasp (Celestus warreni) is the largest Diploglossine Anguid. This species is endemic to isolated patches of forest in Northern Haiti and the Dominican Republic. They possess a snout to vent length of greater than 200 mm (McGinnity 2002). Other members of the family Diploglossinae occur in the Neotropics and Caribbean, but only a few members of the family grow large. The other 2 large species (SVL > 150 mm) are all also considered rare. Diploglossine Anguids are skink-like lizards and are often burrowing species. Celestus warreni occurs in mesic lowland broadleaf forests and has very limited viable habitat left within its historical range. In the wild they are threatened by habitat destruction and predation by invasive species such as the mongoose. In addition, they are often killed by local people who believe that these lizards are venomous; as well as being important for the Voodoo religion (McGinnity 2002 and 2004). In 2004, the IUCN listed C. warreni as critically endangered. In 2013, an AZA Species Survival Plan was initiated for the species.

To date, there is very limited information regarding the ecological, biological, clinical and pathological conditions on either captive or free-ranging Diploglossine lizards. In-situ research is currently challenging to perform in Haiti due to the political and infrastructural instability following the 2010 earthquake. Captive populations offer a way to establish reference normals in hematological and biochemical values as well as providing more information about these fascinating lizards. This information can then be used to help assess the overall health of the wild population once research is able to be performed again in Northern Haiti.

In 1999, a genetically diverse founder population of C. warreni was collected from small patches of forests in the hills surrounding Limbe, Haiti. This captive population has been successfully managed and maintained in isolation at the Nashville Zoo for a future re-introduction program. Currently there are 184 C. warreni in the population (48.36.100), making the Nashville Zoo, the largest captive breeding center for this species.

The captive population at the Nashville Zoo offers a unique opportunity to obtain and establish statistically significant reference ranges for hematological, blood chemistry and ionized calcium values in C. warreni given the large amount of individuals currently present. These reference values can aide the veterinarian in assessing the overall health of an individual, both in a captive and wild setting, given the challenges that exist due to their heavily scaled armored bodies.

To our knowledge, this would be the first report of hematological values in C. warreni or any other Diploglossine lizard. Also, it would be one of the few hematological studies ever performed on any species in the family Anguidae.

RESEARCH

GOALS

- Establish statistically significant reference ranges for hematological, blood chemistry and ionized calcium values in C. warreni
- Conduct a health assesment of a successful captive breeding colony of Celestus warreni. These animals have the potential of being re-introduced back into the wild.
- Data collected in this study will aid future wild, captive and conservation studies conducted on this species. Also, by using portable point of care analyzers, field health assessments of the wild population can be attained.
- No previous study has established normal hematological or biochemical values in any of the Diploglossine lizards.

RESEARCH METHOD

Animals:
Currently, there are approximately 184 C. warreni (48.36.100) in the Nashville Zoo breeding program. All of the original founders are still represented, which includes 20 founders and 3 generations. Age groups are normally distributed ranging from 1-12 plus years of age.

60-70 apparently healthy individual of varying age groups will be selected for the study. Initial selection will be based on overall good body condition score, attitude, appetite and overall appearance. Once selected, each individual galliwasp will have a complete physical examinations, radiographs and blood work performed.

Biochemistry and Ionized Calcium (iCa)
Biochemistries will be performed using a VetScan VS2 point-of-care analyzer using the Avian/Reptilian rotors in order to assess the following parameters aspartate aminotransferase (AST), bile acids, creatine kinase, uric acid, glucose, total calcium, phosphorous, total protein, albumin, globulin, potassium, and sodium. Ionized calcium (iCa) will be evaluated via a VetScan i-STAT using an i-STAT CG8+ cartridge.

Project Start Date:
June 2014

Projected End Date:
January 2015

LITERATURE CITED

McGinnity, D. 2002. The conservation initiative for Giant galliwasps at Nashville Zoo: a preliminary account. Int Zoo 49(7) 396-403.

McGinnity, D. (Nashville Zoo, Tennessee, USA) & Powell, R. (Avila University, Kansas, USA) 2004. Celestus warreni. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2. <www.iucnredlist.org>. Downloaded on 24 February 2014.