Zoological Health Program
2018 Report from the Field:
Response to a Confiscation of >10,000 Radiated Tortoises (*Astrochelys radiata*) in Madagascar

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**Highlights**

**Country**
- Madagascar
- Island off southeast coast of Africa
- 587,000 km²
- ~75% of its wildlife found nowhere else in the world

**Key Species**
- Radiated Tortoise
  - *Astrochelys radiata*

**Biome**
- Tropical, dry terrain
- Spiny forest

**Key Conservation Issues**
- Poaching
- Habitat loss and development

**Strategies**
- Treatment of confiscated animals
- Health monitoring
- Disease surveillance

The Radiated Tortoise (*Astrochelys radiata*) is one of four species of *Testudinidae* endemic to Madagascar. Their range primarily includes spiny forest regions of southern and southwestern Madagascar. Uniquely adapted to inhabit this harsh environment, they are known for their over developed sense of smell and markings. They are characteristically recognized by their intricate radiating star carapacial patterns. Coincidentally, this feature makes them particularly vulnerable to wildlife poaching for human consumption, traditional medicine, and the illegal pet trade. While it is locally considered taboo to hunt and eat this tortoise, external factors such as foreign market demand, deforestation for infrastructure development, as well as other anthropogenic causes, perpetuate decreasing populations. Despite legal protection and extensive multi-modal conservation efforts they remain listed as critically endangered by the IUCN.

On April 10th, 2018 approximately 10,000 radiated tortoises were confiscated from a private residence in Tulear, Madagascar. Three individuals were arrested. The tortoises were transferred to a nearby center, Le Village des Tortues. The Turtle Survival Alliance (TSA) immediately dispatched Malagasy veterinarians to the village to assess the situation, and put out a call for assistance to the international turtle conservation community. A team from the Bronx Zoo was assembled and consisted of clinician Dr. Susie Bartlett, pathologist Dr. Ken Conley, chelonian care staff Lisa Eidlin, and veterinary technician Anibal Armendaris who left for Madagascar on April 20th, each carrying approximately 100lbs of medical supplies.

Considering the magnitude of the confiscation – the largest to date in which TSA has participated – and the extremely poor conditions in which the tortoises were being kept, many
were in adequate condition and responded quite well to their new environment. Dehydrated and compromised tortoises were provided with an opportunity to soak and, if necessary, given subcutaneous fluids, antibiotics, and vitamin supplementation by Dr. Bartlett and veterinary technician Anibal Armendaris. This was easily done in sick tortoises that did not have much strength to retract their heads and legs. As tortoises got stronger, it took great effort and skill to even extend a leg to find a fold of skin for an injection. Some animals had evidence of inflammation or infections of the mouths and/or eyes. Treatments including pain medicine were provided as necessary. Those that were too weak or ill to return to their outdoor enclosures were kept in the make shift hospital full time. Most days a few hundred tortoises needed treatment, which was coordinated and recorded by Lisa Eidlin. Dr. Conley performed necropsies on those tortoises that died. In our time on site, there were just over 100 mortalities which was not excessive considering the massive numbers, and a total of 83 necropsies were performed. Postmortem findings including softening of the shells and emaciated body condition indicated that at least some of these tortoises had been captured and held indoors for many months. Other lesions included soft tissue edema, and, most strikingly, caseous inflammation in the oral cavities of a large subset of necropsy cases.

Due to the severity of the oral lesions in some of the tortoises, swabs were collected for pathogen screening. Immediate testing is being performed for herpesvirus and Mycoplasma within Madagascar, but additional viral screening will likely have to await exportation out of the country. Histopathology will also be pursued when permits are obtained. We are in the process of applying to the US Fish and Wildlife Service for an emergency permit to enable import of the samples from these critically endangered species so that informed decisions can be made about their eventual release or placement.