Interdisciplinary Studies for Crocodile Conservation Across Africa

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Since 2005 I have been developing an interdisciplinary program for crocodile conservation in Africa including re-evaluation of the systematics of these species, surveys and capacity building to assess conservation needs, and implementing sustainable utilization where appropriate. The past year was marked by exciting advancements with fieldwork in Senegal, Gambia, Egypt, and Uganda. In the fall of 2008, while studying French in Senegal, I had the opportunity to work with the wildlife conservation agencies of Senegal and Gambia to determine if dwarf (Osteolaemus tetraspis) and slender-snouted (Mecistops cataphractus) crocodiles were locally extinct. Neither species had been seen for 20 – 40 years, but I was inspired by our quick rediscovery of dwarf crocodiles in both countries. Even better news is that we rediscovered slender-snouted crocodiles in River Gambia National Park, though this western population is precarious with as few as 12 – 20 individuals.

Starting in June 2008, I initiated a project with the Egyptian Environmental Affairs Agency to evaluate the burgeoning Nile crocodile population in Lake Nasser as a harvestable wildlife resource. Over the course of the year we established a population size estimate and built strong relationships with the Lake Nasser communities. As a culmination to this exciting first year, my colleagues and I passed a proposal to initiate a government- sponsored crocodile management unit, which is now continuing management related research, and has drafted a proposal to the 15th CITES CoP for approval of utilization and international trade.

In the lab I have been working on finalizing extensive investigations into the evolutionary history of African crocodiles. The dwarf crocodile was recently split into three unique species, and our analysis of samples collected in Senegambia suggest

that they warrant recognition as an Evolutionarily Significant Unit within the West African (as yet unnamed) species. For the Nile crocodile, my results provide strong evidence that there are two species with highly divergent evolutionary histories. Based on this we have proposed that the taxon *Crocodylus suchus* (Geoffrey 1807) should be resurrected. This species was described from mummies of the historic Crocodilopolis of ancient Egypt, and our ancient DNA analyses confirm that these mummies are actually a different species than existed in the Nile River, and are aligned with our *C. suchus*. This is exciting as it suggests the Pharaonic Egyptians were cognizant of two different species and preferentially bred one in the temples of Sobek. Samples collected in Uganda from a population of pygmy crocodiles in the Kidepo Valley provide additional support that C. suchus was once more widely distributed than its modern, predominantly West African range suggests. The conservation implications of this species split are profound because Nile crocodile populations throughout East and southern Africa are large, with harvest as the ideal management strategy, while C. suchus automatically qualifies as Threatened or Endangered.

The coming year promises to be just as exciting with continued fieldwork in Egypt and Uganda, and new programs starting up focused on the ecology and conservation of the slender-snouted crocodile in Gabon and Republic of Congo.

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