

CITES Appendix II Listing for the *Ctenosaura palearis* Clade: Developing Conservation Policies in Central America

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In June 2006, Stesha A. Pasachnik, Daniel Ariano, and Paola Cotí traveled to the Motagua Valley, Guatemala to collect data pertaining to conservation-based ecological and genetic studies of *Ctenosaura palearis*. Given the nature of the research, collecting data from all areas where this species occurs was imperative. Although successful in encountering individuals in the majority of the range, reality intruded when we got to the westernmost part of the species' distribution. Despite records for this species in this area, no individuals were encountered. Interviews with locals led to the discovery that "foreigners" had been periodically visiting this area over the last five years for the purpose of purchasing *C. palearis* for the international pet trade. Furthermore, villagers indicated that approximately 200 individuals are taken every time these foreigners visit. Follow up visits by P. Cotí and D. Ariano generated identical results, leading to the conclusion that one of

the main causes of this extirpation is exploitation (Cotí and Ariano 2008), which was confirmed as illegal by the Guatemalan government.

Given this information, an agreement was made between Zootropic (D. Ariano) and the National Council of Protected Areas (CONAP) to investigate the possibility of listing this species in the appendices of the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). Simultaneously, S.A. Pasachnik and the Iguana Research and Breeding Station (IRBS) were in the process of organizing the annual meeting of the IUCN (International Union for Conservation of Nature) Iguana Specialist Group, which was to be held on Utila, Bay Islands, Honduras. At that meeting, discussions of trade in various species of ctenosaurs led the members to agree that the threat of exploitation demanded further investigation.



JOHN BINNIS

The Honduran Paleate Spiny-tailed Iguana (*Ctenosaura melanosterna*) has a distribution restricted to the Valle del Aguán and the Cayos Cochinos off the coast of Honduras.

Although many species of ctenosaurs are threatened with extinction, are listed on the IUCN Red List, and the live animal trade is implicated in many of those assessments, no ctenosaurs were listed in any of the CITES Appendices. In early 2009, in order to address this discrepancy, we began the process of developing a proposal for listing the entire genus or selected species. The first months were spent collecting data to determine the historical and current degree of trade involving ctenosaurs. We concluded that the species most threatened by the live-animal trade and for which we could generate enough data to develop a CITES listing proposal were the four species of the *Ctenosaura palearis* clade: *Ctenosaura palearis* (endemic to the Valle del Motagua, Guatemala), *C. melanosterna* (endemic to the Valle del Aguán and Cayos Cochinos, Honduras), *C. bakeri* (endemic to the island of Utila, Honduras), and *C. oedirhina* (endemic to the island of Roatán, Honduras). All members of this group are listed as Critically Endangered on the IUCN Red List, are severely threatened by international trade, and are easily differentiated from other species in the genus by the presence of a dewlap, a lateral dentary flange, frontal-parietal skull rugosities, a snout that slopes steeply downward (flat), and a maximum adult size of 31 cm.

Ctenosaura palearis occurs in less than 930 km² of the Motagua Valley in Guatemala. The total population is estimated to be approximately 2,000 mature individuals, distributed over 10–15 subpopulations, and is thought to be in decline. The main threats include habitat loss and collection for the international pet trade. Extirpation of some populations (Morazán, El Progreso) within the historic range has occurred as a direct consequence of the pet trade (Cotí and Ariano 2008). Illegal traders usually catch 50–60 individuals per month. Internet and market surveys have shown that individuals are sold in Greece, Germany, and the USA at an average price of US\$ 25. All *Ctenosaura palearis* sales outside Guatemala are illegal, as governmental authorities in Guatemala to date have issued no export permits for this species.

Ctenosaura melanosterna is known only from a portion (1,316 km²) of the Rio Aguán Valley in northern Honduras and two islands within the Cayos Cochinos Archipelago (2.2 km²) off the Caribbean coast of Honduras. Genetic data demonstrate that two evolutionarily significant units exist within the species, thus the island and mainland populations are ecologically and genetically distinct and should be managed as such (Pasachnik, unpubl. data). The main threats to the species are habitat loss and over-harvesting of both adults and eggs for human consumption and adults for the interna-

tional pet trade. The exact number of individuals being exported is difficult to determine because declaration of the species name is not necessary for importation into most nations and the exportation from Honduras is illegal and undocumented. Most animals are imported into the USA or Europe. The cost of an individual in the Valle del Aguán is US\$ 1–30 depending on size and sex. Although all populations are currently threatened, those in the Rio Aguán Valley are in greatest need of immediate attention.

Ctenosaura bakeri is endemic to the island of Utila, Honduras. The estimated range occurs within mangrove and beachfront habitats that are currently being developed by the tourist industry. Genetic data indicate that this is a panmictic population (Pasachnik, unpubl. data). The population is declining as a consequence of habitat loss and fragmentation, over-harvesting for human consumption, pollution, and invasive species. Illegal exportation for the pet trade has not yet been documented for this species, but is thought to be occurring. Hybridization with a sympatric congener is not a threat at this time, but as habitat destruction increases, the possibility of outbreeding depression, due to mating with *C. similis*, might also increase (Pasachnik et al. 2009).

Ctenosaura oedirhina is endemic to the island of Roatán and various satellite islands in Honduras. Total population size is not known, but fewer than 2,500 mature individuals are thought to remain. Genetic data suggest that geographic variation is present across the island (Pasachnik, unpubl. data). This species is threatened primarily with habitat destruction and modification associated with the tourist industry. Small-scale hunting for food and the eradication of individuals due to the perception that they are pests is also occurring. Illegal exportation for the pet trade has not yet been documented, but is thought to be occurring. A widely distributed congener (*C. similis*) has recently been introduced onto a small satellite island less than 50 m from Roatán (Pasachnik, pers. obs.). This invasive species could easily disperse to Roatán and threaten *C. oedirhina* through competition and hybridization.

To begin the listing process, we held various meetings with local scientific and administrative authorities in Guatemala and Honduras to sensitize them to the status of these species and the threats they face, and to discuss the importance of a CITES proposal for these species. These meetings then allowed us to determine the degree of in-country support that was present for listing these species under the various appendices. From this, we determined that a proposal focusing on listing these four species under



STESHIA PASACHNIK

The Roatán Spiny-tailed Iguana (*Ctenosaura oedirhina*) occurs only on the Honduran Bay Island of Roatán.



DANIEL ARIANO

The Guatemalan Spiny-tailed Iguana (*Ctenosaura palearis*) is endemic to the Valle del Motagua, Guatemala.

CITES Appendix II was most appropriate. On 3 August 2009, a validation meeting was held in Tegucigalpa, Honduras with the necessary government counterparts. The final proposal was completed on 5 August 2009 and was sent from the governments of Guatemala and Honduras to the CITES secretariat on 10 August 2009. Due to the political situation in Honduras at the time, two separate proposals were submitted, one from Honduras and one from Guatemala. The Guatemalan proposal listed only *C. palearis*, suggesting that CITES Appendix II criteria Resolution Conf. 9.24, annex 2 a, criteria A and B, were met. The Honduran proposal suggested that the remaining three species within the clade be listed under Appendix II due to look-a-like status with *C. palearis*.

On 21 March 2010, the two proposals were brought before the CITES delegates in Doha, Qatar. D. Ariano attended the meeting as a delegate from Guatemala and S.A. Pasachnik represented the International Iguana Foundation. First, Guatemala introduced proposal 12 to list *Ctenosaura palearis* under Appendix II. The delegates drew attention to its fragmented and continually declining habitat, small population size, and exploitation, noting the export of 240 individuals in 2008, which accounted for 10% of the total adult population. The proposal was met with a recommendation for support and was accepted by consensus. Next, Honduras presented proposal 11 to include *Ctenosaura bakeri*, *C. oedirhina*, and *C. melanosterna* under Appendix II. They noted that *C. melanosterna* qualified in terms of biological criteria and was harvested from the wild for the international pet trade, and that the other two species were included in the proposal based on their similarity to *C. melanosterna*. This proposal also was met with support from all who spoke except the International Animal Trade Organization, which recommended Appendix-III listing, based mainly on information concerning the population size of *C. bakeri* as estimated by Gutsche and Streich (2009). Given that no delegates agreed with this organization, proposal 11 also was accepted by consensus.

Both D. Ariano and S.A. Pasachnik plan to continue to aid in the protection of these species. D. Ariano and Zootropic will develop a semi-captive breeding conservation program for *C. palearis* and also will develop a national conservation plan for this species within Guatemala. S.A. Pasachnik will continue to work with the three Honduran species throughout the next year as she pursues a post-doctoral appointment focusing on *C. oedirhina*; she also will continue to work closely with *C. melanosterna* and *C. bakeri* as a member of the Fundación Islas de la Bahía. Both S.A. Pasachnik and D. Ariano intend to continue the development of CITES capacity-building efforts in Guatemala and Honduras now that these listing proposals have been accepted.

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Literature Cited

- Cotí, P. and D. Ariano. 2008. Ecology and traditional use of the Guatemalan Black Iguana (*Ctenosaura palearis*) in the dry forests of the Motagua Valley, Guatemala. *IGUANA* 15:142–149.
- Gutsche, A. and W.J. Streich. 2009. Demography and endangerment of the Utila Island Spiny-tailed Iguana, *Ctenosaura bakeri*. *Journal of Herpetology* 43:105–113.
- Pasachnik, S.A., B.M. Fitzpatrick, T.J. Near, and A.C. Echternacht. 2009. Gene flow between an endangered endemic iguana, and its wide spread relative, on the island of Utila, Honduras: When is hybridization a threat? *Conservation Genetics* 10:1247–1254.



Vegetation of the forest of Laguna Maxbal.