CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

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Fifteenth meeting of the Conference of the Parties
Doha (Qatar), 13-25 March 2010

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Inclusion of *Ctenosaura palearis*, which is endemic to the semi-arid region of Guatemala, in Appendix II.

a) In compliance with Resolution Conf. 9.24, Annex 2 a, criterion A, owing to the fact that it is known, or can be inferred or projected, that the regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future.

B. Proponent

Republic of Guatemala*

C. Supporting statement

1. Taxonomy

1.1 Class: Sauropsida

1.2 Order: Squamata

1.3 Family: Iguanidae

1.4 Genus: *Ctenosaura*

1.5. Species: *Ctenosaura palearis* (Stejneger, 1899)

1.6 Scientific synonyms: *Enyalisaurus palearis*

1.7. Common names: English: Guatemalan Spiny-tailed Iguana, Guatemalan Black Iguana

Spanish: Iguana de órgano, Iguana garrobo

1.8. Code numbers: Not applicable as not included in CITES.

* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat or the United Nations Environment Programme concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

2. Overview

The purpose of this proposal is to include the population of the species *Ctenosaura palearis* in CITES Appendix II. The species is endemic to Guatemala; its distribution is exclusively restricted to the few remaining wooded areas of the semi-arid parts of the Motagua Valley, over an area of 101,353 ha. The genus *Ctenosaura* belongs to the family Iguanidae, which includes 18 species native to central and south-eastern Mexico, the Yucatan Peninsula and Central America (Köhler, 2008). The genus *Ctenosaura* includes the subgenus *Loganiosaura*, which contains four species that are easy to distinguish from one another:

Ctenosaura palearis (endemic to the Motagua Valley, Guatemala), *C. melanosterna* (endemic to the Aguán Valley and Cayos Cochinos, Honduras), *C. bakeri* (endemic to Utila Island, Honduras) and *C. oedirhina* (endemic to Roatán and Barbaretta islands, Honduras).

There is little information available about the Guatemalan spiny-tailed iguana (*Ctenosaura palearis*), particularly with regard to ecological and biological aspects. However, the species is known to be subject to threats such as habitat loss and fragmentation, and illegal trade. The main importance of the species lies in the fact that it is a source of protein in the diet of local communities and a keystone species in the ecosystem of the semi-arid region of the Motagua Valley. It is estimated that between 2,500 and 5,000 specimens remain in the wild. Despite the importance of *Ctenosaura* iguanas in the ecosystems and the various threats they are subject to, particularly illegal trade, over-harvesting and habitat loss, no species of the genus have been included in the CITES Appendices yet.

Ctenosaura palearis is known to be exported to the United States and Europe, where this type of iguana is in high demand. The average selling price for a specimen abroad is USD 70.00. It should be stressed that all *C. palearis* sold outside Guatemala have been illegally harvested, as Guatemala has not issued any permits authorizing commercial export of the species. Therefore, including *Ctenosaura palearis* in Appendix II will support the conservation of the species, both on a domestic and international level. *Ctenosaura palearis* is listed in Category 2 of the Endangered Species List of Guatemala (CONAP 2009). Moreover, it is included in the IUCN Red List as Critically Endangered under criterion B1ab(ii) (IUCN) and considered a species of conservation priority (IUCN 2001).

Including the species in Appendix II would be essential to thoroughly control trade and ensure it does not become a direct cause of the extinction of the species. At the same time, it would be a very useful tool to combat and track illegal trade in these iguanas. Considering that CITES Appendix II must include all species which although not necessarily now threatened with extinction may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival, it is important to include the four species mentioned above in CITES Appendix II.

3. Species characteristics

3.1. Distribution

The species is endemic to the semi-arid region of the Motagua Valley in north-eastern Guatemala (Acevedo, 2006), which includes the departments of El Progreso and Zacapa, over a continuous area of 101,353 ha (Coti and Ariano, 2008).

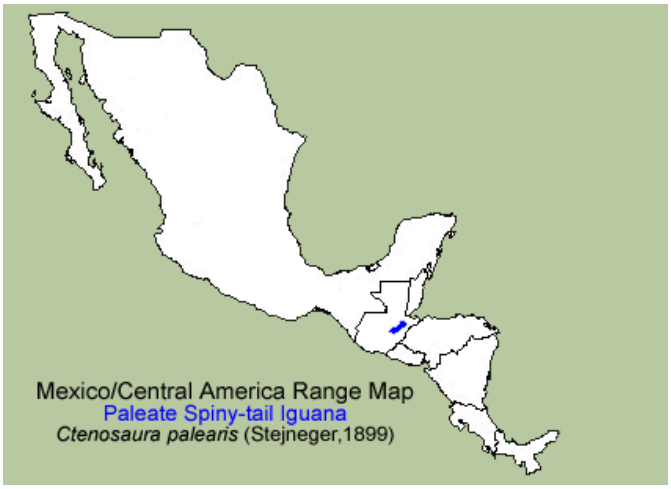

Figure 1. Range map of the Guatemalan spiny-tailed iguana, *Ctenosaura palearis*

3.2. Habitat

The habitat of the species is a combination of dry forest and thorn scrub, with an elevation range of 350 to 700 m above sea level. It is characterized by tall and thick trees, with a preponderance of the tree cactus *Stenocereus pruinosus,* quebracho (*Licania hypoleuca*), *Ximena americana* and yellow trumpetbush (*Tecoma stans)*.

3.3. Biological characteristics

Iguanas of the genus *Ctenosaura* belong to the family Iguanidae. The genus includes 13 recognized species that are native to central and south-eastern Mexico, the Yucatan Peninsula and Central America (Köhler *et al*., 2000). *C. palearis* was first described by Stejneger (1899). Since then, few studies have been undertaken to learn more about the species. Buckley and Axtell (1997) carried out a study to find out whether the species described as *C. palearis* in Guatemala was the same as the species described in Honduras or not. Their findings led them to describe the Honduran population as an independent species (*C. melanosterna*).

The Guatemalan spiny-tailed iguana is mainly vegetarian, but occasionally feeds on insects (ants, wasps and beetles). The fruit of the cactus *Stenocereus pruinosus* is one of its main sources of food (Coti and Ariano, 2008). According to observations and interviews with local people, females have an annual reproductive cycle. During courtship, males make peculiar body movements accompanied by a head-bob display with vertical movements of the head. Mouth-gaping and head-raising as the iguana stays in the same place are also common. These movements attract females and intimidate rival males at the same time (Evans, 1957).

The species breeds during the dry season. Courtship and mating occur at the beginning of the season. Copulation takes place between January and February, and gravid females can be found in February and March. Females lay their eggs between March and April in holes or tunnels they dig in the sand; clutch size ranges from six to twelve eggs. Eggs start to hatch after three months of incubation, which coincides with the beginning of the rainy season (Coti and Ariano, 2008). In the forests of El Arenal, nests were found in banks of dry streams and gullies (lower areas in the region), and in sandy patches within the dry forest at an elevation of 683 m above sea level.

As regards activity patterns, this species is primarily arboreal. These iguanas use hollow trunks or branches as shelters, which they leave as daytime temperatures rise. They use the crowns of trees and the highest parts of cacti for basking during the hours of sun, and return to their shelters between 4 and 5 pm. Sometimes, when days are cold, it is possible to find specimens in their shelters after 10:00 a.m. Each specimen has several shelters (Coti and Ariano, 2008).

3.4. Morphological characteristics

Guatemalan spiny-tailed iguanas are small, with an average snout-to-vent length of 15 cm in females and 20 cm in males (Coti and Ariano, 2008). They have a large dewlap under their throat that is black and white with some cream shades. Body colour is greyish to black dorsally with bands separated by rows of small pale spots; the pectoral side is black. The tail is characterized by having one single row of intercalary scales

between the enlarged, spinous scales (Köhler, 2003). Juveniles are bright green, usually with black bands on their body and tail.

Adults are silver grey, brown, grey, or bluish. They have several dark bands across the dorsal surface of the body, usually with pale colouring along the middle of the back. Arms and legs and the posterior part of the body have black blotches or bands, and the ventral surface is pale grey to whitish or cream in the central area (Köhler, 2003; Campbell, 1998). In the breeding season, the colours of males change: their head becomes orangey or reddish or orangey blotches appear on their dorsal surface (Lee, 2000).

Figure 2. Guatemalan spiny-tailed iguana, *Ctenosaura palearis* (photograph by D. Ariano)

3.5. Role of the species in the ecosystem

This iguana can be considered as a keystone species in its ecosystem (Mills *et al*., 1993), since it probably plays an important role as a seed disperser for plants in the dry forest of the Motagua Valley, mainly for the endemic cacti whose fruits it feeds on (CITES Appendix II), such as *Stenocereus pruinosus* (Coti and Ariano, 2008). Another reason for this is the position of the species in the food chain, as it is a key prey species for other species such as the beaded lizard (*Heloderma horridum charlesbogerti*) (CITES Appendix I).

4. Status and trends

4.1. Habitat trends

About 30 % (around 60,000 ha) of the habitat available in the region has been destroyed to plant crops, mainly for export (Nájera 2006). At present, only 56 % of the original habitat of the species remains, and most of it is seriously degraded. It is important to stress that this species inhabits only areas of woodland characterized by tall, large trees and cactus trees (*Stenocereus pruinosus*). Such areas are usually subject to selective harvest by local people. The semi-arid region of the Motagua Valley is an eco-region under serious threat (Dinnerstein *et. al*., 1995). Moreover, the fragile dry forest ecosystems are among the most endangered ones on the planet.

4.2. Population size

Mark-recapture studies have yielded population estimates ranging from 2,500 to 5,000 specimens of the species in the Motagua Valley (Ariano and Ibañez, *unpublished*).

4.3. Population structure

The sex ratio between females and males is close to 1:1 according to population studies (Coti and Ariano, 2008). Based on mark-recapture studies (Ariano and Ibañez, *unpublished*) carried out since 2007, the total estimated population size of *Ctenosaura palearis* in the Motagua Valley is about 5,000 specimens.

4.4. Populations trends

According to local people, about 20 years ago the species was easy to find and it was even possible to see up to five specimens in the same tree, so they hunted all the specimens within their reach. Today, they only see one or two specimens occasionally (Coti, 2008). Unfortunately, there are no population data for years before 2008, given that the species has only recently started to be studied systematically. As happened with the population of *Heloderma horridum charlesbogerti*, the population may have been affected by the floods caused by hurricane Mitch in November 1998.

4.5. Geographic trends

The semi-arid region of the Motagua Valley is located in north-eastern Guatemala and comprises the departments of El Progreso, Zacapa and Chiquimula. Even though the habitat available for the species is a continuous area of 101,353 ha², the population has been exterminated in certain localities. Forests in the region are very fragmented, mainly because of the expansion of plantations for export.

5. Threats

At least four main factors are jeopardizing the viability of the population of *C. palearis*: habitat loss, the growing human population in the region, illegal trade and unsustainable hunting practices.

Habitat loss is mainly caused by changes in land use owing to the increasing amount of land used for cultivation, both for export in the case of melons and tobacco and for traditional maize crops. This is leading to habitat fragmentation, and specimens of *C. palearis* are becoming isolated in the forest patches that remain in the region or moving closer to urban areas, where they are more likely to be hunted.

Unsustainable hunting practices are another threat for *C. palearis*. Hunters prefer to harvest the species during the breeding season, since they can find gravid females, which provide an additional resource. Hunting of gravid females prevents the birth of future generations and therefore endangers the stability of the population. Another inadequate practice is taking eggs directly from females. Hunters make an incision in the ventral area of females to remove eggs, sew the iguanas up and let them go free. This practice is detrimental because the specimens do not survive. Again, this endangers the population because it leads to the loss of eggs and of fertile specimens.

6. Utilization and trade

6.1. National utilization

C. palearis is mainly used as a source of food. People interviewed said they do not have a preferred time of the year for hunting the species. However, 17.3 % said they preferred to hunt from February to April, i.e. during the breeding season, because they preferred to hunt gravid females. According to the results of the interviews carried out, 62 % of those interviewed said they hunted between one and three specimens, 30 % said they hunted up to 10 specimens, and the rest said they hunted more than 10 specimens. The products used are the following: meat (20 %), meat and eggs (58 %), or meat, eggs and skin (22 %). There seems to be a preference for meat of *C. palearis* over that of *C. similis*. Unlike other species of iguana, *C. palearis* is not used to make any type of crafts because of its small size (Coti and Ariano, 2008).

The species has also been used as an aphrodisiac (eggs and blood) and, in some cases, in traditional medicine (fat and meat). More recently, it has started to be used as a pet, a laboratory animal, and in the exotic skin industry (Guzmán-Villa and Hasbún, 2003).

6.2. Legal trade

There are no records of legal trade in the species, as the relevant governmental authorities (National Council on Protected Areas - CONAP) have not issued any export permits for the species.

6.3. Parts and derivatives

So far, Guatemalan authorities have not authorized the export of parts or derivatives of the species for international trade. Locally, the species is one of those hunted for subsistence purposes, but its sale is prohibited. Hence, trade in any parts or derivatives of the species is illegal.

6.4. Illegal trade

Domestic or international trade in any specimen, part or derivative of the species is considered illegal, since it has not been authorized by the relevant authorities. The species is known to be in demand for the international exotic pet trade, mainly in Europe and the United States. Because of this, the number of specimens harvested for the pet trade now exceeds the number of specimens taken for subsistence hunting. Although there are reports that local people has received requests to capture up to 200 specimens of *C. palearis* for international trade, none of these requests have been notified to the National Council on Protected Areas (CONAP), which has not issued any permits authorizing trade in the species.

SOME DATA ON INTERNATIONAL TRADE:

The species is in high demand in international exotic pet markets, particularly in Europe and the United States. **The US Fish & Wildlife Service reported the import of 240 specimens of *Ctenosaura palearis* from Guatemala in 2008**. *(Source: USFWS database*, *2009)*. Guatemala has not issued any export permits for the species.

It is known that the species is regularly sold and traded on the international market, particularly in Europe and the United States. Most of this trade is illegal. This can be seen on Internet websites where reptiles and amphibians are offered for sale. A summary is shown in the following table.

SPECIES	***AVERAGE SELLING PRICE***	***COUNTRY OF TRADE***
Ctenosaura palearis	USD 90.00	United States, Germany, Czech Republic
Ctenosaura melanosterna	USD 90.00	United States, Spain, Germany, the Netherlands
Ctenosaura bakeri	USD 100.00	United States, the Netherlands, Germany
Ctenosaura oedirhina	USD 100.00	United States, Germany

Source: Zootropic, *2009*

6.5. Actual or potential trade impacts

Because of the endemic nature of the species, its small population size, its importance for local people in its range as a source of food, and the lack of captive-breeding programmes, it is considered imperative to regulate international trade in the species before its vulnerability makes it qualify for inclusion in Appendix I.

7. Legal instruments

7.1. National

- ***Constitution of the Republic of Guatemala***: Article No. 64. Natural Heritage. (Legal Basis of Decree 4-89, Protected Areas Act). Article No. 97. Environment and Ecological Balance.

- Decree 4-89, Protected Areas Act.

Other related items of legislation:

- General Hunting Act. Decree No. 36-04, of 24 November 2004.

- Regulation of the General Hunting Act. Government Agreement No. 84-2007.

- Hunting Schedule. Resolution 005/2007 of 27 April 2007 of the National Council on Protected Areas.

- Endangered Species List of Guatemala. Resolution No. SC01/2009 of 2 March 2009.

Harvest of and trade in the species is regulated by Decree 4-89 of the Protected Areas Act, which sets the official rules for harvest of and trade in CITES-listed and non-CITES-listed species in Guatemala. According to Article 24 of the Decree, the National Council on Protected Areas (CONAP), the government body in charge of

wildlife management in Guatemala, which is also the CITES Management Authority, must compile the Endangered Species List. The List includes species threatened with extinction, endemic species and species whose harvest is subject to regulation. *C. palearis* is included in Criterion 2 of this list, which means that it is an endemic species and can only be used for scientific and research purposes, and breeding for conservation purposes.

Articles 26 and 27 of the abovementioned Decree prohibit the harvest, capture, hunting, fishing, transport, exchange, trade, and export of species included in the Endangered Species List. They also allow trade in these species subject to special conditions: only when they have been bred by authorized persons, under controlled conditions, and from the second generation on. The Decree establishes penalties ranging from 5 to 10 years in prison and fines of GTQ 10,000 to GTQ 20,000 (USD 1,250 to USD 2,500) for any person making illegal use of wild species. Legal exports of any wild species require the issuance of relevant documents by the National Council on Protected Areas (CONAP).

7.2. International

The species is not listed in CITES, but it is included in the IUCN Red List as Critically Endangered (CR).

8. Species management

8.1. Management measures

No measures have been taken for the management of the species, given that its status on the Endangered Species List of Guatemala prohibits its commercial use. At present, a conservation plan for the species is under preparation. However, the species is already included in environmental education campaigns undertaken by Zootropic, a non-governmental organization, in the area.

8.2. Population monitoring

Owing to the little knowledge available on the population parameters of the species, the possibility of harvesting specimens is not envisaged at the moment. The NGO Zootropic is carrying out a population monitoring study, which started recently (in 2007). Specimens have been marked with subcutaneous microchips for better control. At the moment, a behavioural study is under way with the aim of generating a hunting schedule and learning more about the ecological role of the species.

8.3. Control measures

8.3.1. International

Guatemala follows a series of procedures to control the cross-border movement of wild specimens of the species. The most important ones are the following:

- Issuance of documents approving the legal export of wild species and their products and derivatives (CITES permits, non-CITES permits and certificates of origin, export licenses for wild flora and fauna).

- Control procedures in ports, airports and border Customs points (inspection of shipments and verification and authorization of export permits – Declaration for the Registration and Control of Exports (DEPREX) and Single Customs Declaration (SCD)

- Presence of specialized staff of CONAP at designated ports of entry.

- Capacity-building programmes on trade controls and illegal trafficking of wild species for customs, quarantine and police officials (DIPA and DIPRONA).

8.3.2 National

Regulations on the harvest of specimens of any wild species of fauna or flora are included in Decree 4-89 of the Protected Areas Act. So far, no specific activities have been undertaken to ensure the implementation of procedures for the sustainable harvest of the species, given that its commercial harvest is prohibited owing to its listing in Criterion 2 of the Endangered Species List. The main programmes, many of which are being implemented by ZOOTROPIC, are aimed at environmental education.

8.4. Captive breeding

For the moment, CONAP has not authorized any specimen person or legal entity to manage, breed, harvest or trade in the species, since its national status prohibits it.

8.5. Conservation

Some areas in the range of *Ctenosaura palearis* are protected; at the moment, a total of 934 ha are protected under the category of Private Nature Reserves and Municipal Regional Parks (CONAP, 2006, Nájera, 2006). This amounts to 3 % of the species' current range. Only 56 % of the original habitat of the species remains (100,206 ha), although most of it has been seriously degraded (FDN, 2003). Various institutions are promoting the designation of new Protected Areas in the region. Moreover, as a strategy for habitat conservation, awareness-raising campaigns are being aimed at major landowners on the importance of conserving remaining woodlands on their land. This has made it possible to conserve the last patches of woodland where the species occurs.

9. Information on similar species

The *Ctenosaura palearis* clade includes the species *Ctenosaura palearis, Ctenosaura oedirhina, Ctenosaura melanosterna* and *Ctenosaura bakeri.* The latter three species are endemic to Honduras and are different from *Ctenosaura palearis* in size and colour.

The diagnostic characters that distinguish the *Loganiosaura* group – which includes the species *Ctenosaura palearis* – from the rest of C*tenosaura* iguanas is the presence in all the iguanas of this group of a pendulous dewlap under the throat (like the green iguana, *Iguana iguana*), the presence of a ventrolateral expansion of the lower jaw (dentary), the presence of dorsal skull rugosities, a snout sloping abruptly downward (short) in lateral profile, and a maximum adult size of 31 cm (Köhler *et. al*., 2000). These iguanas are easy to distinguish from all the other iguanas of the genus even in the juvenile stage, since the latter do not have the characters mentioned above.

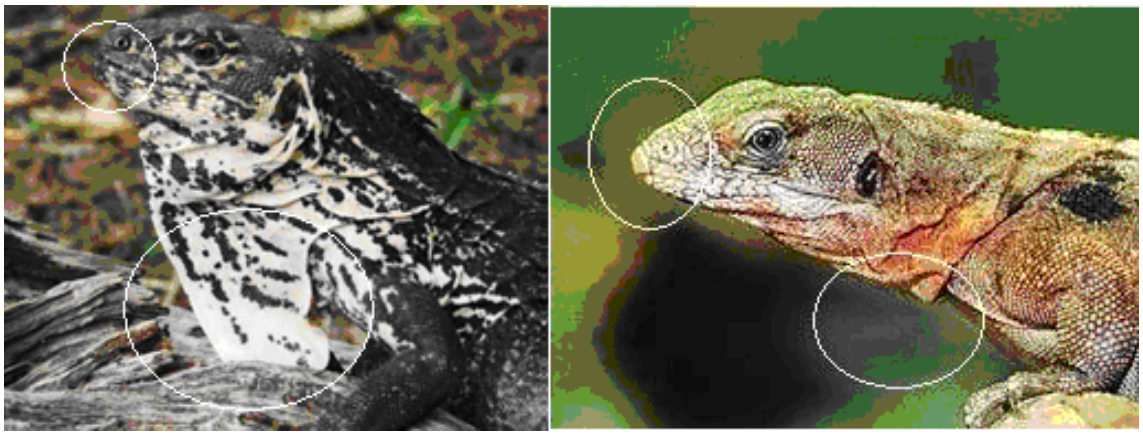

Figure 3. Circles show the differences in the shape of the snout-lower jaw and the presence of a dewlap that distinguish *Ctenosaura* iguanas of the subgenus *Loganiosaura* from the rest of iguanas of the genus *Ctenosaura* (left: *C. palearis*; right: *C. flavidorsalis*).

10. Consultations

No consultations were necessary, since the species is endemic to Guatemala. Yet, contacts were initiated with authorities of Honduras, Mexico and El Salvador.

11. Additional remarks

Considering that CITES Appendix II must include all species which although not necessarily now threatened with extinction may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival, it is important to include *C. palearis* in CITES Appendix II.

Moreover, Resolution Conf. 9.24 (Rev. CoP14), Annex 5, establishes that a species "is or may be affected by trade" if:

i) it is known to be in trade (using the definition of 'trade' in Article I of the Convention), and that trade has or may have a detrimental impact on the status of the species; or

ii) it is suspected to be in trade, or there is demonstrable potential international demand for the species, that may be detrimental to its survival in the wild.

Extinction of the species would represent a loss for biodiversity conservation and all its future economic value. This extreme cost of failure is included in Annex 4 of the above-mentioned Resolution, which follows the precautionary principle recognizing that "in case of uncertainty… the Parties shall act in the best interest of the conservation of the species".

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