

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



Twenty-seventh meeting of the Animals Committee
Veracruz (Mexico), 28 April – 3 May 2014

Interpretation and implementation of the Convention

Periodic Review of species included in Appendices I and II
[Resolution Conf. 14.8 (Rev. CoP16)]

REVIEW OF *EPICRATES INORNATUS*

1. This document has been submitted by the United States of America*.

Review of *Epicrates inornatus* (Reinhardt, 1843)
in the Periodic Review of Species included in Appendices I and II
[Resolution Conf. 11.1 and Resolution Conf. 14.8 (Rev. CoP16)]

INTRODUCTION

2. At the 25th meeting of the Animals Committee (Geneva July 2011), the United States of America, committed to review *Epicrates inornatus* as part of the Periodic review of the species included in the CITES Appendices. This was one of the animals species selected for the Periodic Review from CoP15 (2010) to CoP17 (2016) at this meeting (Notification to Parties, 2011/38).
3. This species is indigenous to Puerto Rico. Information was requested in November and December 2013 from the U.S. Fish and Wildlife Service (USFWS)-Region 4 and from the Department of Natural and Environmental Resources of Puerto Rico (PR-DRNA) for this species on the following factors: Species characteristics (Distribution, Habitat), Status and trends (Habitat trends, Population size, Geographic trends), Threats, Utilization and trade (National utilization, Legal trade, Illegal trade, Actual or potential trade impacts), Legal instruments (National, International), and Species management (Management measures, Population monitoring, Control measures [International & Domestic], Captive breeding and artificial propagation, Habitat conservation, Safeguards). Responses were received from USFWS-Region 4. The PR-DRNA did not respond. All information that returned to the United States was incorporated into this review.

* 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.

DRAFT PROPOSAL TO AMEND THE APPENDICES

(in accordance with Annex 6 to Resolution Conf. 9.24 (Rev. CoP16), as amended)

Seventeenth meeting of the Conference of the Parties

Cape Town (South Africa), XX–XX --- 2016

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CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

To transfer *Epicrates inornatus* from CITES Appendix I to II. [The species does not meet the threatened with extinction criteria (Annex 1) established in Conf. 9.24 (Rev. CoP16) and does not appear to fit the “affected by trade” criteria (Annex 5)].

B. Proponent

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C. Supporting statement

1. Taxonomy

1.1 Class: Reptilia

1.2 Order: Squamata

1.3 Family: Boidae

1.4 Genus, species or subspecies, including author and year: *Epicrates inornatus* (Reinhardt, 1843)

1.5 Scientific synonyms: *Boa inornata* Reinhardt 1843: 253; *Chilabothrus inornatus* Duméril & Bibron 1844: 563; *Epicrates inornatus* Boulenger 1893: 97; *Boella tenella* Smith & Chiszar 1992; *Chilabothrus inornatus* Reynolds et al. 2013

1.6 Common names: English: Puerto Rican Boa, Yellow Tree Boa, Boa de Puerto where appropriate, trade names) Rico, Boa sobre, Gewone slanke boa, Puerto-Rico-Boa

1.7 Code numbers: None

2. Overview

Epicrates inornatus is endemic to Puerto Rico. Therefore it has a limited global distribution but is wide spread in Puerto Rico and is described as common in undisturbed karst areas of northwestern Puerto Rico. Much of the snake's apparent rarity in other localities undoubtedly relates to observers' difficulties in visually detecting the species in forests and this boa is not as rare as previously thought. There is no international trade but these snakes are locally threatened by illegal hunting for meat and oil. Snake populations suffered major habitat loss as Puerto Rico was severely deforested (less than 1% of original forest) by 1912, however as rural populations moved to the cities land once used for agriculture reverted to secondary forest and possibly explains why there are again more frequent sightings of this species. The boa is protected under Puerto Rican Law, the US Endangered Species Act and CITES.

For *Epicrates inornatus*: (i) given the absence of international trade, (ii) given that it is the only endemic boa therefore trade in other similar species is non-existent, and (iii) given its common and widespread occurrence on Puerto Rico, we conclude that the species does not meet the criteria indicated in Resolution Conf. 9.24 (Rev. CoP16) *Criteria for amendment of Appendices I and II* and should be moved from CITES Appendix I to II.

3. Species characteristics

3.1 Distribution

This species is native to Puerto Rico and is widely distributed, but is especially abundant in the northern karst region occurring at elevations of 0 to 480 m above sea level (Mayer & Tolson, 2010).

3.2 Habitat

Epicrates inornatus is found in a variety of habitats. It occurs in rainforests, karst landscape, caves, wooded areas, open pastures, shrubs, and even altered environments such as plantations and urban areas (Mayer & Tolson, 2010; Schwartz & Henderson, 1991; USFWS-SR/CESFO, 2011).

3.3 Biological characteristics

Epicrates inornatus considered arboreal but occurs at and near ground level. It is active at night and remains concealed or basking during the day (Reagan, 1996; USFWS, 1986). This species feeds on mice, birds, rats, and lizards. PR boas feed by seizing the prey in their jaws, wrapping several coils around the victim, and then constricting until the prey has suffocated. They are believed to feed on bats given their presence at the entrances to caves. Neonates feed almost exclusively on *Anolis* and *Elutherodactylus* (Towilson & Henderson, 1993; USFWS, 1986).

Matting in Caribbean *Epicrates* normally takes place from January to May and specifically at the El Yunque National Forest in PR from April to May (wet season). Gestation is 153-176 days and generally 23-32 live young boas are born in September/October (Towilson & Henderson, 1993; USFWS-SR/CESFO, 2011).

Additional information about other life history characteristics of *E. inornatus* (e.g., genetics, recruitment, survival rate, or sex ratio) is unavailable.

3.4 Morphological characteristics

Epicrates inornatus is the largest snake that inhabits Puerto Rico (1.8-2.2 m max SVL). The color and pattern are highly variable. They can be tan to dark brown with 70 to 80 diffuse markings on their backs or they can be completely lacking of markings and be uniformly dark. Ventral scales are slate or dark brown with pale posterior edges. Juveniles tend to be more reddish brown with numerous pronounced markings (USFWS, 1986). Presence or absence of pattern seems to be correlated to increasing size (Towilson & Henderson, 1993).

This species is sexually dimorphic in that females are larger than males (USFWS, 1986).

3.5 Role of the species in its ecosystem

There is little information on the PR boa's role in the ecosystem, but it may be summarized as one of the primary vertebrate consumers, in the island, of mostly rats (Leopoldo Miranda, FWS Ecological Services-Southern Region, pers. comm.).

4. Status and trends

4.1 Habitat trends

The PR boa has been reported within specific areas distributed in about 90 percent of the municipalities. The PR Gap Analysis Project (Gould et al., 2008) developed occurrence and predicted distribution maps for the PR boa. They described the PR boa as widespread, but uncommon and calculated 46.3 percent (414,379 ha) of predicted habitat for the island, of which 9 percent occurs within protected areas. However, this does not exclude PR boa occurrence outside of the predicted habitat. In fact, based on a strong likelihood, GAP illustrates the entire island of Puerto Rico as having a probable occurrence of boas. Based on the above, we may infer that the range of the species has historically been declining with an uncertain stabilization or increase because of conversion to secondary forest areas in Puerto Rico (L. Miranda, pers. comm.).

4.2 Population size

This species is described as common in undisturbed karst areas of northwestern Puerto Rico (Tolson & Henderson 1993). Much of the boa's apparent rarity undoubtedly relates to observers' difficulties in visually detecting the species in forests and this boa is not as rare as previously thought. Although the species is probably less abundant than it was in pre-Columbian times, recent accounts indicate that it is still widespread on Puerto Rico, and suggest that it may be common in some locations (Mayer & Tolson, 2010)

Density estimates were undertaken in 5 habitat types. Ríos-López and Aide (2007) estimated a mean monthly density of 5.6 boas per hectare for reforested valley, old valley and karst hill top habitat. They did not encounter boas in the deforested valley nor at the karst hillside habitats.

4.3 Population structure

Population structure characterizations are not readily available for this species.

4.4 Population trends

According to the five-year review for the species (USFWS 2011), the species was described as stable. Based on the most recent PR boa conservation genetics project report (2013), results show that PR boas have undergone a population expansion within the last 30,000 years, but have shown a population decline (and loss of genetic diversity) recently (time not specified). Although difficult to say with the available information, the PR boa population currently seems stable. In addition, most of the population studies have been done in protected areas, were one expects at least stable PR boa populations. However the lack of adequate population estimates prevents reaching conclusions regarding the status of this species, especially outside of protected areas (L. Miranda, pers. comm.).

4.5 Geographic trends

Geographic trend characterizations are not readily available for this species however populations suffered major habitat loss as Puerto Rico was severely deforested by the early 20th century. Today it appears fairly wide spread possibly because as rural populations moved to the cities and land once used for agriculture reverted to secondary forest (Towilson & Henderson, 1993).

5. Threats

Snakes are threatened by indiscriminate killing, feral cats, and introduced mongoose (O'Shea, 2007; USFWS-SR/CESFO, 2011). Snake populations suffered major habitat loss as Puerto Rico was severely deforested (less than 1% of original forest) by 1912, however as rural populations moved to the cities land once used for agriculture reverted to secondary forest and possibly explains why there are again more frequent sightings of this species (Towilson & Henderson, 1993).

6. Utilization and trade

6.1 National utilization

Boas are illegally hunted for meat and oil. Meat is used for human consumption and oil is used as a medicinal remedy (USFWS-SR/CESFO, 2011).

6.2 Legal trade

During the period 1975-2012, there was no international trade per CITES (UNEP-WCMC 2013b). According to L. Miranda (pers. comm.) the USFWS has no information to indicate the PR boa has been or is being significantly impacted by trade.

6.3 Parts and derivatives in trade

During the period 1975-2012, there was no international trade per CITES (UNEP-WCMC 2013b).

6.4 Illegal trade

The species continues to be threatened by unregulated local hunting for the extraction of oil for medicinal purposes. This practice still occurs, but probably at a small scale. In the five-year review (2011), the Service concluded that this practice does not constitute over utilization of the species for commercial and recreational purposes. However, the extent or effect of illegal hunting is uncertain. The Service is aware of a reptile breeder in Florida that has offered PR boas for sale on his website, however this breeder only sold PR boas within Florida and not interstate or international. There have also been a few reported cases of locals collecting PR boas for sale within the island through the online classifieds reptile section. One particular person was caught and fined accordingly (L. Miranda, pers. comm.).

6.5 Actual or potential trade impacts

It appears that down listing from CITES Appendix I to II protection would not have any conservation impact on this species and would not be expected to affect the nature of the trade. Current overall use of *Epicrates inornatus* is minimal and future exploitation is not expected to increase dramatically, if at all, given access difficulties to those areas where the species occurs, as well as the apparent lack of any commercial incentives to engage in international trade in this species. CITES Appendix II protection, however, would still allow the Range States and other Parties to monitor trade in *Epicrates inornatus*.

7. Legal instruments

7.1 National

In Puerto Rico, this snake is protected under the Commonwealth of Puerto Rico Law No. 241, known as the “*Nueva Ley de Vida Silvestre de Puerto Rico*” (New Wildlife Law of Puerto Rico). In 2004 the Puerto Rico Department of Natural and Environmental Resources (PR-DRNA) approved the “*Reglamento para Regir el Manejo de las Especies Vulnerables y en Peligro de Extinción en el Estado Libre Asociado de Puerto Rico*” (Regulation 6766 to Regulate the Management of Threatened and Endangered Species in Puerto Rico). This regulation explicitly prohibits the possession, transportation, taking, destruction, hunting, and killing, of any wildlife species listed as threatened or endangered. Regulation 6766 also prohibits modifications of habitat designated by the PR- DRNA as critical and critical essential. The Puerto Rican boa was included in the list of protected species and designated as “vulnerable”: A2 (c and e) under Regulation 6766. (the PR- DRNA listing criteria are based on the IUCN Red List Categories and Criteria; USFWS-SR/CESFO, 2011).

In addition, various other laws have been approved by the Commonwealth of Puerto Rico to protect the karst region of the Island. Law No.292, known as “*Ley para la Protección y Conservación de la Fisiografía Cársica de Puerto Rico*” (Law to Protect the Karst Physiography of Puerto Rico) was approved in 1999 and indirectly protects the PR boa and all other species that occur in the karst as well (USFWS-SR/CESFO, 2011).

In the United States, this snake has been listed on the Endangered Species Act (ESA) as Endangered as of 1970. The last 5-year Review in 2011 by the U.S. Fish and Wildlife Service found no change was needed in the uplisting/downlisting/delisting of this species (USFWS-SR/CESFO, 2011).

7.2 International

Epicrates inornatus was listed in CITES Appendix I in 1977 and in Annex A of the EU Wildlife Trade Regulations (UNEP-WCMC 2013a).

8. Species management

8.1 Management measures

The Recovery Plan for the species was approved in 1986. The plan is outdated and does not contain measurable recovery criteria. No quantitative criteria were defined due to the absence of information on population sizes and limiting factors (L. Miranda, pers. comm.).

8.2 Population monitoring

Epicrates inornatus is not the subject of any specific population monitoring program or activity by PR.

8.3 Control measures

8.3.1 International

Not in international trade.

8.3.2 Domestic

See section 7.1 above.

8.4 Captive breeding and artificial propagation

According to the International Species Information Systems-Zoological Information Management System (ISIS 2013), zoo holdings for this species consist of 3.3.0 specimens in one zoo in Europe and 5.9.5 specimens in nine zoos in North America (all in US with none in PR). D. Barber, Curator of Ectotherms at Fort Worth Zoo, commented that the species is fairly easy to breed, but institutions do not breed them regularly. Apparently, PR boas in captivity tend to be aggressive and probably not a priority for captive breeding (L. Miranda, pers. comm.).

There is one organized group (Puerto Rico Reptiles, Inc. <http://puertoricoreptiles.com/principal.html>) in PR that promotes keeping reptiles as pets and may be an interested stakeholder for PR boa trade (L. Miranda, pers. comm.).

8.5 Habitat conservation

The Commonwealth of Puerto Rico protects the karst region of the Island through legislation. Law No.292, known as “*Ley para la Protección y Conservación de la Fisiografía Cársica de Puerto Rico*” (Law to Protect the Karst Physiography of Puerto Rico), was approved in 1999 and indirectly protects the PR boa and all other species that occur in the karst as well (USFWS-SR/CESFO, 2011).

Predicted areas of habitat for *E. inornatus* include 43% of the Island, of which 9% occurs within protected areas (USFWS-SR/CESFO, 2011). These protected areas include: Guajataca State Forest, Guajataca Lake Nature Reserve, Río Abajo State Forest, Mata de Plifitano Nature Reserve, Hacienda La Esperanza Nature Reserve, Guánica Dry Forest, El Convento Nature Reserve (L. Miranda, pers. comm.).

8.6 Safeguards

Safeguards in the form of national laws and regulations regarding wildlife conservation are already in place in Puerto Rico for *E. inornatus*. Furthermore, there is no evidence of an unsatisfied or unreported demand for subsistence uses or commercial trade in this species.

9. Information on similar species

The PR boa is the only endemic Boid snake on the island. There is an established population of Boa constrictor in PR, but the species are distinct (L. Miranda, pers. comm.).

10. Consultations

Range State consultation letters (dated Nov 29 and Dec 4, 2013) were sent to USFWS Region 4 and to the Department of Natural and Environmental Resources of Puerto Rico — *Departamento de Recursos Naturales y Ambientales* (DRNA). The following responses were received and incorporated into this document where appropriate:

- USFWS: Leopoldo Miranda, Assistant Regional Director - Ecological Services,
- Southeast Region (dated January 14, 2014)

- DRNA: No response received.

11. Additional remarks

The IUCN Red List of Threatened Species (2013.1) classifies this species as Least Concern because of its large distribution and ability to inhabit altered environments. Population numbers have declined in the past but this boa is still abundant in protected and inaccessible areas (Mayer & Tolson, 2010).

12. References

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