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

Eighteenth meeting of the Conference of the Parties
Colombo (Sri Lanka), 23 May – 3 June 2019

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Placement of *Gonatodes daudini* on Appendix I as a matter of urgency in accordance with Article II, paragraph 1 of the Convention and Resolution Conf. 9.24 (Rev. CoP17), Annex 1, as per:

a) Criteria B. The wild population has a very restricted area of distribution and is characterized by: i) occurrence at only one location; iii) a high vulnerability to intrinsic and extrinsic factors; iv) an observed decrease in the number of individuals and the quality of habitat.

b) Criteria C. A marked decline in the population size in the wild, which has been: i) observed as ongoing.

B. Proponent

Party name*: St Vincent and the Grenadines

C. Supporting statement

1. Taxonomy

1.1 Class: Reptilia

1.2 Order: Squamata

1.3 Family: Sphaerodactylidae

1.4 Genus, species or subspecies, including author and year: *Gonatodes daudini* Powell & Henderson, 2005

1.5 Scientific synonyms:

1.6 Common names: English: Union Island gecko, Grenadines clawed gecko

French:
Spanish:

* *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.*

1.7 Code numbers:

2. Overview

Gonatodes daudini is a very small, colourful gecko endemic to Chatham Bay on Union Island in the Grenadines archipelago (St Vincent and the Grenadines). This species was first described in 2005 and has since become heavily targeted by collectors for the live pet trade, especially in Europe and North America, where the species commands high prices. *Gonatodes daudini* is found only in mature dry forest within an area of not more than 53 hectares. The species has been listed as Critically Endangered on the IUCN Red List of Threatened Species since 2011 "on the basis that it has a known extent of occurrence of approximately 1 km² and an area of occupancy of 0.5 km², and there is a continuing decline in the extent and quality of its habitat resulting from increasing coastal development and the presence of invasive species at its single known location" (Powell & Henderson 2011). Surveys since 2016 have reported a decrease in gecko abundance and observed that significant habitat degradation had been caused by *G. daudini* collectors turning over rocks and logs, even though no permits have been issued to collect and export *G. daudini* as per the Wildlife Protection Act (Act 16 of 1987, amended by Act 42 of 1988, Act 16 of 1991). The population is furthermore threatened by loss of habitat to infrastructure development. A Conservation Action Plan was developed by the Government of St Vincent and the Grenadines in 2016 in collaboration with local and international stakeholders and sets out measures to protect and patrol the critical habitat of *G. daudini*, control invasive alien species, and strengthen the capacity of local actors to manage endangered species. The conservation strategy is underpinned with sensitising local stakeholders and a research and monitoring programme to inform and evaluate management actions. The Conservation Action Plan also identified the need for *G. daudini* to be listed on CITES Appendix I as a matter of urgency to facilitate cooperation with other Parties to halt the international trade this species. This species is critically affected by trade according to definition i) of this term in Resolution Conf. 9.24 (Rev. CoP17), Annex 5. It is known to be in trade, based on the evidence of animals advertised for sale in multiple countries. That trade is having a highly detrimental impact on the status of the species, both by means of extracting individuals from the population and causing critical damage to the habitat during the collection process.

3. Species characteristics

3.1 Distribution

Gonatodes daudini is endemic to Union Island (St Vincent and the Grenadines), where only a single population is known. The population has been recorded only with an area of not more than 53 hectares on slopes above Chatham Bay (from near sea level to 300 metres above sea level). Extensive surveys have failed to detect any other populations on Union Island (e.g. Quinn et al. 2010).

3.2 Habitat

This species occupies one of the few mature dry forests in the Grenadines archipelago (Powell & Henderson 2005), which supports an exceptionally high diversity of animals and plants, including other rare and globally threatened species (Fiard, 2003, Daltry et al. 2016). The geckos reach their highest population densities among boulders and rocky outcrops, where they are often associated with small crevices (Bentz et al. 2011). Individuals recorded away from these areas have typically been found in association with leaf litter, under logs and other surface debris, and in termite mounds (Bentz et al. 2011). Unlike most members of the genus *Gonatodes*, this species does not appear to be arboreal.

3.3 Biological characteristics

Little is known about this species in the wild. *Gonatodes daudini* appear to be most active during early morning, before and shortly after sunrise (Bentz et al. 2011). These small geckos are exceedingly vulnerable to desiccation and therefore rely on mesic habitats with moisture-retaining cover and shade. Suitable conditions are confined to the slopes above Chatham Bay on Union Island (Bentz et al. 2011). No studies have been carried out on the diet of wild *G. daudini*, but is likely they are wholly insectivorous, feeding on small invertebrates. In captivity, members of this genus are typically fed on small crickets, flies, beetle larvae, springtails, small isopods and other small invertebrates. The

reproductive biology of this species has not been reported. Observations of other species of *Gonatodes* suggest the males are probably highly territorial and females probably lay single, large oval eggs several times a year. Females may lay eggs communally in a favourable crevice.

3.4 Morphological characteristics

Gonatodes daudini is a miniature gecko, not more than 3 cm in length from the tip of its snout to the base of its tail, and with an average mass of 0.56 g (Quinn et al. 2010). It has a pointed snout, a bright red-orange iris, and unusually large body scales (39–44 scales around midbody, compared with >70 scales in other members of this genus). Both sexes, including juveniles, are greenish brown with four conspicuous pairs of dorsolateral white spots surrounded concentrically first by black and then by red, becoming fainter posteriorly. There is also a conspicuous white spot encircled first by black and then by red is also on the pineal eye. No other lizard has these distinctive markings.

3.5 Role of the species in its ecosystem

No information is available on the role of the species in the ecosystem.

4. Status and trends

4.1 Habitat trends

Collectors have inflicted, and continue to inflict, significant damage on gecko's microhabitat by turning over rocks and dismantling logs and termite mounds. These practices severely threaten the survival of the remaining individuals, which are highly susceptible to predators and desiccation (Bentz et al. 2011). The forests of Chatham Bay, which hold the only known population of *Gonatodes daudini*, have also been degraded by a number of invasive alien plants and animals, and are used for grazing domestic goats during the dry season. A road constructed in 2005 improved access to the Chatham Bay forest, opening this area up to risk from further development. There is a proposal to extend the road through the heart of the Chatham Bay forest, which would destroy much of the rock and litter cover that represents critical habitat for this gecko and facilitate the spread of invasive alien species. Land clearance along the slope for housing and agriculture is already underway in the northeast of the bay, and the construction and upslope expansion of tourist facilities could place additional pressure on this area (Powell & Henderson 2011; Daltry et al. 2016).

4.2 Population size

There is only a single population of *Gonatodes daudini*. A transect-based survey in August 2018 estimated the total population to number 9,957 *Gonatodes daudini* (including adults and juveniles) but this estimate is considered tentative because of the small sample sizes and patchy distribution of this species.

4.3 Population structure

No data are available on sex ratio, age structure, growth rate, or other population parameters.

4.4 Population trends

The population of *Gonatodes daudini* is inferred to be decreasing. The 2018 survey replicated the methods of Bentz et al. (2011) and found that while the population density is stable on rocky outcrops, it has fallen by nearly 80% in the most accessible parts of the species range (from 87/ha in 2010 to 19/ha in 2018, unpublished data). This change is most likely due to collectors.

4.5 Geographic trends

Gonatodes daudini has only ever been recorded on Union Island, specifically in the mature dry forests on slopes above Chatham Bay. It is possible, but unproven, that the species used to be more widely

distributed in the Grenadine islands, which were historically connected by land bridges during periods of low sea level. However, most of the natural vegetation of the Grenadines was cleared for agriculture during the 18th and 19th centuries.

5. Threats

Over-harvesting for commercial purposes is inferred to be the single most important threat to the continued survival of the *G. daudini* population in the wild (Daltry et al. 2016). Trade is having a highly detrimental impact on the status of the species by both removing individuals from the population and causing critical damage to the species microhabitat during the extraction process. Other notable threats include invasive alien species that compete with, prey on or degrade the gecko's habitat (e.g. domestic cats *Felis catus*, goats *Capra hircus*, African house geckos *Hemidactylus mabouia*), wildfires, plans to extend a road through the forest, land clearance for housing and tourism facilities, and climate change (which in the Caribbean is projected to lead to more extreme weather, including a higher frequency of storms and longer droughts: IPCC, 2014). As a single relatively small population, *G. daudini* is especially vulnerable to environmental change and intrinsic factors such as inbreeding depression.

6. Utilization and trade

6.1 National utilization

No current or historical uses have been reported.

6.2 Legal trade

No permit has ever been issued to collect or export *Gonatodes daudini* for commercial purposes. A small number of permits have been granted to scientists to catch the geckos for research purposes, but in most cases this is on condition that the animals are released unharmed.

6.3 Parts and derivatives in trade

None reported.

6.4 Illegal trade

Illegal trade was first reported soon after the species was described (Powell & Henderson 2011) and exploitation appears to have accelerated in recent years, driven by the commercial demands of the pet trade. Desk-based research in 2016 and 2017 discovered more than a dozen dealers offering live *Gonatodes daudini* at prices upwards of USD 700 each from addresses in the USA, UK, the Netherlands and Germany (Daltry et al. 2016; Noseworthy, 2017). The origin of the animals was either not stated or was affirmed to be from the wild. One major reptile trader in the UK announced shipments every few months (Daltry et al. 2016). Little quantitative data are available on the numbers of individuals traded, and the number of mortalities in transit is unknown, but it appears that a significant number of geckos are being taken from the wild population. Social media networks commonly used by reptile collectors in Europe make numerous references to this species (usually under the trade name Grenadines clawed gecko), with many people reporting either having this species in their collection or expressing a desire to acquire it. It is not known whether the persons collecting the geckos are local residents, international visitors or a combination. Chatham Bay is popular with yacht users, and footpaths lead directly from the beach to the gecko's range.

6.5 Actual or potential trade impacts

As detailed in previous sections, collection of animals for the international pet trade not only removes valuable individuals from the small population, but the collectors damage their environment and expose

the remaining geckos and their prey populations to increased risk of predation and desiccation. Further legal protection of the species is essential to saving the species from extinction in the wild.

7. Legal instruments

7.1 National

Gonatodes daudini is not listed as a Protected Species yet, but nonetheless has significant protection under the Wildlife Protection Act (Act 16 of 1987, amended by Act 42 of 1988, Act 16 of 1991) as a native reptile. The Act notably requires persons wishing to collect or export such wildlife to have a permit. Under Article 15 of the Wildlife Protection Act, any person who hunts any species of wildlife; disturbs, damages or destroys the nest or eggs of any species of wildlife; has in his possession any species of wildlife, the nest or egg thereof… is guilty of an offence and liable to a fine and imprisonment. Such activities require a permit from the Chief Wildlife Warden. Under the Wildlife Protection Act, no person may export any wildlife from St Vincent & the Grenadines without the written permission of the Minister. The penalty for exporting (or importing) wildlife illegally is a fine and imprisonment. Permits have been issued to export only the five dead voucher specimens (all males) that were used to formally describe *Gonatodes daudini* in 2005 (Powell & Henderson 2005). To date, no person has been arrested and charged for illegally hunting and exporting *Gonatodes daudini.* The Forestry Department of St Vincent and the Grenadines is currently working to amend the Wildlife Protection Act and inscribe *Gonatodes daudini* as a Protected Species, which will increase the penalties for illegal collection, trade and disturbance of its habitat.

Approximately half of the area occupied by *Gonatodes daudini* is on privately owned but unoccupied land parcels, while the rest is in three Forest Reserves: the Large Forest Reserve, Water Rock Reserve and Colin Campbell Reserve. The Forestry Department is currently investigating the status of lands in Chatham Bay and intends to propose that critical habitat is afforded stricter protection, ideally as a Wildlife Reserve under the Wildlife Protection Act.

7.2 International

St Vincent and the Grenadines is Party to the Protocol Concerning Specially Protected Areas and Wildlife. The SPAW Protocol is the only legally binding regional environmental treaty for the Wider Caribbean Region, its objective being to protect rare and fragile ecosystems and habitats, thereby protecting the endangered and threatened species residing therein. Article 3 (General Obligations) states: "Each Party to this Protocol shall, in accordance with its laws and regulations and the terms of the Protocol, take the necessary measures to protect, preserve and manage in a sustainable way, within areas of the Wider Caribbean Region in which it exercises sovereignty, or sovereign rights or jurisdiction: (a) areas that require protection to safeguard their special value; and (b) threatened or endangered species of flora and fauna".

8. Species management

8.1 Management measures

Powell and Henderson (2011) proposed a number of recommendations for conserving *Gonatodes daudini,* including "CITES listing", but no specific measures were taken until 2016, when a species Conservation Action Plan was developed by the Forestry Department, Fauna & Flora International and a diverse array of stakeholders (Daltry et al. 2016). The plan set out seven objectives to enhance the survival of this species in the wild: 1) Chatham Bay Forest preserved and sustainably used for the benefit of biodiversity and people, 2) Establish effective policies, legislation and enforcement to protect the gecko and its habitat, 3) The public and decision makers understand and cooperate in conserving the Union Island Gecko and its habitat, 4) Biosecurity systems established to prevent the introduction and increase in harmful invasive alien species, 5) Increase knowledge of the biology of the gecko, the threats to it, and the impacts of the conservation programme, 6) Key individuals and organisations have the capacity to conserve and manage the gecko and its habitat, and 7) Secure the necessary funding to implement this action plan. Each objective is accompanied with a suite of activities, costed and ranked by priority. High priority actions in the plan are being implemented, e.g. forest wardens have been trained and deployed since May 2017 to

detect and deter illegal activities and a public education programme has been launched on Union Island. The Forestry Department and other agencies on Union Island have shown a strong determination to conserve *Gonatodes daudini* and its habitat, and halt the illegal and destructive exploitation. In late 2017, for example, a reptile poacher was prosecuted on Union Island under the Wildlife Protection Act thanks to the combined efforts of the wardens, the Forestry Department, the police and local community. Objective 2 of the Conservation Action Plan recommended listing *Gonatodes daudini* on CITES Appendix I to require and enable importing countries to assist and cooperate in preventing commercial exploitation from threatening this species.

8.2 Population monitoring

Systematic monitoring of the wild population of *G. daudini*, has begun (Daltry et al. 2016), using surveys by Quinn et al. (2010) and Bentz et al. (2011) as baselines. The most recent assessment was conducted in August 2018 by herpetologists from the St Vincent and the Grenadines Forestry Department, Fauna & Flora International and Union Island Environmental Attackers.

8.3 Control measures

8.3.1 International

Stricter regulation of trade, including effective enforcement to combat illegal trade in destination countries, is imperative to reduce poaching. The species survival in the wild depends on the ability of authorities to control the illicit exports of wildlife to other countries, especially North America and Europe (Daltry et al. 2016).

8.3.2 Domestic

The protective legislation for terrestrial wildlife is enforced by the Forestry Department, which has its headquarters on St Vincent. The Department does not issue permits for commercial harvesting of geckos, and the Wildlife Protection Act provides penalties for those engaged in illegal capture and trade of wildlife. However, enforcement was weak on Union Island prior to 2017 due to the Forestry Department having limited resources for staff to travel to the Grenadine islands. In accordance with the species Conservation Action Plan (Daltry et al. 2016), two forest wardens affiliated to the Forestry Department have been appointed on Union Island since May 2017 to assist in upholding the laws protecting forests and wildlife.

8.4 Captive breeding and artificial propagation

No authorised captive breeding programmes exist. It is possible, but not confirmed, that private collectors outside of the range state have bred this species in captivity for sale (Noseworthy, 2017).

8.5 Habitat conservation

The Large Forest Reserve, Water Rock Reserve and Colin Campbell Reserve appear to extend into the higher parts of the gecko's range in Chatham Bay, Union Island, but these reserves were not affected by statutes under the Forest Resources Conservation Act (1992) and may not therefore be fully secure. The Forestry Department is investigating the status of lands in Chatham Bay and intends to propose critical habitats become designated a Wildlife Reserve under the Wildlife Protection Act (Daltry et al. 2016). This area will require a management plan, clear demarcation and personnel to address threats from poaching, livestock grazing, tree cutting, etc.

8.6 Safeguards

N/A

9. Information on similar species

Gonatodes daudini is also the only species in the genus *Gonatodes* to have large body scales, a bright red-orange iris, or a body pattern consisting of four prominent pairs of red and black concentric circles enclosing white dots. The same pattern is shared by adults and juveniles of both sexes, making *G. daudini* easy to identify at all ages. The species most similar in appearance is *G. ocellatus* from Tobago, which has a large pair of black and white spots behind the forearms and, in some individuals, a second pair on the flank. However, *G. ocellatus* is otherwise very different in colouration and is much larger and with much smaller body scales (Powell & Henderson 2005).

10. Consultations

None. The species is endemic to St Vincent and the Grenadines.

11. Additional remarks

Prior to *Gonatodes daudini* being formally described in 2005, this species was completely unknown. There is no evidence to suggest it was collected and exported under any other name.

The IUCN Red List of Threatened Species assessment for *Gonatodes daudini* recommended CITES listing (Powell & Henderson 2011), as does the species Conservation Action Plan (Daltry et al. 2016). Halting illegal trade is important for the future survival of *Gonatodes daudini,* which is one of a number of reptile species that is being exported illegally from Union Island (others include the native Grenadines iguana *Iguana cf. iguana,* the Grenada Bank tree boa *Corallus grenadensis*, and the Vulnerable Grenadines pygmy gecko *Sphaerodactylus kirbyi*: Noseworthy, 2017). It is possible that all the exploited species involve the same network of illegal collectors and traders operating between Union Island and the importing countries in North America, Europe and Japan (Daltry et al. 2016; Noseworthy, 2017).

12. References

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