

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

To include *Lyriocephalus scutatus* in Appendix I, in accordance with Article II Paragraph 1 of the Convention and Res. Conf. 9.24 (Rev CoP17).

On the basis of available trade data and information on the status and trends of wild populations, the species has a restricted area of distribution and is characterized by a high vulnerability to intrinsic and extrinsic factors (Res. Conf. 9.24 (Rev CoP17), Annex 1 Paragraph B(iii)) and an observed and inferred decrease in both area and quality of habitat (Res. Conf. 9.24 (Rev CoP17), Annex 1 Paragraph B(iv)).

B. Proponent

Sri Lanka*:

C. Supporting statement

1. Taxonomy

1.1 Class: Reptilia

1.2 Order: Squamata

1.3 Family: Agamidae

1.4 Genus, species or subspecies, including author and year: *Lyriocephalus scutatus* (Linnaeus, 1758)

1.5 Scientific synonyms: *Iguana clamosa* (Laurenti, 1768); *Lacerta scutata* (Linnaeus 1758); *Lyriocephalus macgregorri* (Gray, 1835); *Lyriocephalus margaritaceus* (Merrem, 1820)

1.6 Common names: English: Hump snout lizard, Hump-nosed lizard, Lyre head lizard
French:
Spanish:

1.7 Code numbers: None

* 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 hump snout lizard is endemic to Sri Lanka, is monotypic (the only species of its genus), and is the country's most charismatic lizard with its spectacular colouration and unique rostral structure, reflected in its Latin name '*scutatus*' (Erdelen 2012).

Lyriocephalus scutatus is restricted to relatively small parts of the island due to severe and ongoing deforestation, compounded by habitat loss due to anthropogenic activities (de Silva 1990; de Silva and Walker 1998; Goonawardena and de Silva 2005; Somaweera and de Silva 2010; Karunarathna and Amarasinghe 2013).

Collection for the pet trade occurs due to unique physical characteristics and other features which render the species attractive to exotic pet keepers, posing an additional ongoing threat (Manamendra-Arachchi 1997; Bandara 2012; Karunarathna and Amarasinghe 2013) which is reducing population numbers (Somaweera and de Silva 2010).

Lyriocephalus scutatus is classified on Sri Lanka's Red List as Vulnerable (MOE 2012) and is strictly protected under the national Fauna and Flora Protection Ordinance legislation, which prohibits hunting, capturing and exporting (Parliament of the Democratic Socialist Republic of Sri Lanka 2009). However, in recent years specimens of hump snout lizard have become increasingly popular in the pet markets of Japan, Europe and the USA, as reflected by records of online adverts since 2011 (see Annex). It is highly unlikely that the source of these specimens is captive bred populations.

In 2010, the high demand for unique and rare species became apparent when a delegation of 14 German pet traders travelled to Sri Lanka, in order to examine export options for endemic reptiles (ZZF 2010). This initiative was ultimately abandoned (Asian Tribune 2010; Hettiarachchi 2010), with no legal exports resulting. However, in 2011 first a Russian and then shortly thereafter a Japanese wildlife trader offered several Sri Lankan agamids including *Lyriocephalus scutatus* for sale (Hettiarachchi and Daniel 2011; Karunarathna and Amarasinghe 2013). From 2013 onwards, the high popularity of this species in the exotic pet trade became evident, with regular online advertisements documented on European and US Facebook groups and other online platforms (Altherr 2014). Most individuals of *L. scutatus* on sale continue to be adult specimens, potentially indicating their wild caught origin, sourcing of which was in some cases openly noted (see Annex).

In Europe, traders of *Lyriocephalus scutatus* are found in Russia, Italy, Germany, France, Spain, Czech Republic and the UK, but are also active in the USA, Japan, Malaysia, and Taiwan (Shiau *et al.* 2006; Hettiarachchi and Daniel 2011; Karunarathna and Amarasinghe 2013; Altherr 2014). While prices in the European pet market may reach 2,500 €/pair, prices in the US market are as high as 5,500 USD/pair. Hence, smuggling of this species is highly profitable. Excluding the USA, no country has legislation which prohibits the import and sale of specimens for which capture and export is illegal in the country of origin.

While the range of this species occurs over a relatively significant area, this is its only range, and due to its complex territorial behaviour, habitat loss and further habitat fragmentation are serious threats (de Silva 1990; Goonawardena and de Silva 2005; Erdelen 2012; Wickramasinghe 2012). Although numbers in trade may not be very high, the removal of individuals poses a potentially significant threat. Additionally, due to high site fidelity (especially in males), a significant impact may be felt due to the absence of mating partners: gravid females are especially targeted by collectors, their removal contributing to lowering numbers recruited into the following generation, and leading to a lack of suitable mating partners, causing further reduction to the fragmentation of the species in its dwindling habitat (Manamendra-Arachchi 1997; Bandara and Megaskumbura 2009; Bandara 2012; Karunarathna and Amarasinghe 2013). The risks that trade poses are therefore considerable and significant to the future persistence of *L. scutatus*.

The cumulative impacts of rapid habitat change and anthropogenic exploitation could have negative impacts on the future longevity of this species, hence this proposal.

Accordingly, the Government of Sri Lanka has determined that Criterion B iii), and iv) of Annex 1 of Res. Conf. 9.24 (Rev. CoP17), applies to *Lyriocephalus scutatus*. National conservation and protection measures are insufficient to save these unique lizards from unlawful collection, export and trade. A listing in CITES Appendix I is therefore necessary to activate the protection of this species by import and re-export Parties.

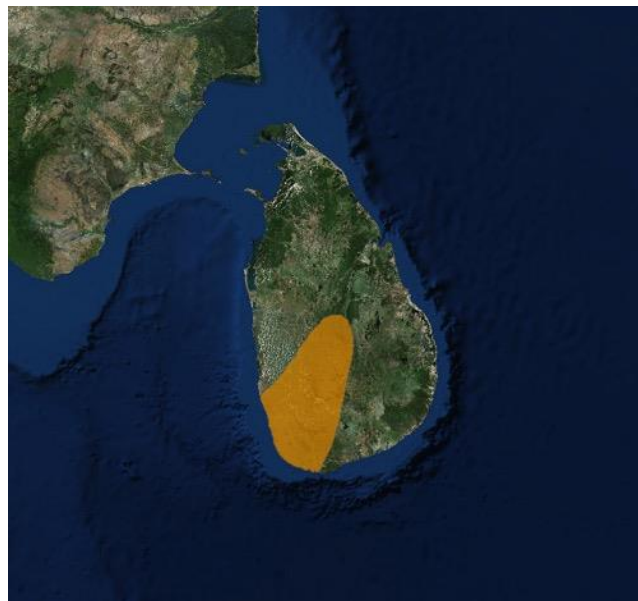
3. Species characteristics

3.1 Distribution

Lyriocephalus scutatus is endemic to Sri Lanka and is found in forests, plantations and gardens within the intermediate zones of below 900m elevation (de Silva 1990; Goonawardena and de Silva 2005; Karunaratna and Amarasinghe 2013) and in the southwest wet zone (Bartelt *et al.* 2005) (See Figure 1).

The species is found mainly in lowland but is occasionally found in sub montane habitats. Species distribution ranges from the Ratnapura District, over Kalutala, Galle, Matale, Badulla, Colombo, Kosgama and Kurunegala Districts (de Silva 1990; Karunaratna and Amarasinghe 2013).

Figure 1: Geographic distribution of *Lyriocephalus scutatus* (Somaweera and de Silva 2010)



3.2 Habitat

L. scutatus is distributed in cool and shady forested areas with a dense canopy in wet & intermediate lowlands and mid hills up to elevations of 1,600m (Karunaratna and Amarasinghe 2010). While it is most common in sub montane forest within the closed canopy, it can also be found in plantations and gardens (Goonawardena and de Silva 2005; Somaweera and de Silva 2010; de Alwis 2013).

Specimens reside on tree trunks in shaded areas (Vidyalankara and Bandara 2004; Goonawardena and de Silva 2005) with a canopy dense enough to supply cover (Manamendra-Arachchi and Liyanage 1994). Preferred habitat parameter ranges are 60-66% humidity, 54-63% canopy cover and 28.5-29.5 degrees Celsius (Karunaratna and Amarasinghe 2013).

3.3 Biological characteristics

The hump snout lizard has a diurnal lifestyle and is known for being territorial and for displaying site fidelity (Manamendra-Arachchi 1997; Goonawardena and de Silva 2005; Bandara 2012; Karunaratna and Amarasinghe 2013). Size of territory depends on both maturity and gender. Females occupy the largest territories (264 m²) with males (178 m²) next and sub-adults having the smallest (174 m²) (Bandara 2012). In a study, males were observed to stay mostly in one tree showing high site fidelity. The lizards display in the morning and rest most evenings (Bandara and Megaskumbura 2009).

Sexual maturity is reached at an age of 10-12 months. During the rainy season (March to May), six to ten weeks after mating, the females dig holes and lay clutches of two to ten eggs, up to three times a year. Hatchlings in the wild emerged after 65-71 days (Karunaratna and Amarasinghe 2010, 2013 and literature herein; de Alwis 2013). In captivity hatching after 100 - 170 days was noted, depending on incubation temperatures (Bambaradeniya *et al.* 1997; Bartelt 2003).

3.4 Morphological characteristics

Adult specimens of *L. scutatus* reach a size of 25-32 cm, making it Sri Lanka's largest endemic agamid. It has a snout with a rostral knob covered with smooth subequal scales which is larger in the male than in the female. The *canthus rostralis* consists of 14-17 compressed scutes which continue as a compressed supraocular ridge, ending in a triangular compressed spine. The species possesses a pair of blunt spines on the back of its head and lacks a tympanum. The scales on the upper head are generally unequal, while the sides of their head contain enlarged tubercles. They possess 12-16 supralabial and infralabial scales, with the nose passage above the third and the centre of the eye above the 11th scale. Nostrils are in a circular nasal scale. The gular sac is more prominent in males. The body is covered in small, smooth scales, which point upward and backward. The tail is strongly compressed with a blunt rounded tip, with large scales. Their fourth toes extend before their third toes (Karunaratna and Amarasinghe 2013).

Body colour may vary from a cinnamon brown shade to green, often with leaf green above and white below on their belly. The gular sac and antehumeral fold yellow while maturing with the enlarged scales on the sac ranging from green to black. The underside sometimes appears bluish (Somaweera and Somaweera 2009; Karunaratna and Amarasinghe 2013). Karunaratna and Amarasinghe (2013) describe different colours during nesting: specimens on the ground adapt their body colour to ground colours, but when disturbed they change body colour to dark or light green. Colouration in females is normally duller than in males.

3.5 Role of the species in its ecosystem

L. scutatus is preyed upon by many bird species including the black eagle (*Icinaetus malayensis*), gray hornbill (*Ocyrceros gingalensis*) (Bambaradeniya *et al.* 1997), mountain hawk (*Nisaetus kelaarti*), common coucal (*Centropus sinensis*) and domestic fowl. Karunaratna and Amarasinghe (2010, 2013) observed predation from shikras (*Accipiter badius*), slender lorises (*Loris spp.*), toque monkeys (*Maccaca sinica*), civet cats (*Paradoxurus spp.*), bronze back (*Dendrelaphis spp.*) and cat snakes (*Boiga spp.*). Hump snouted lizards are also preyed upon by the crested serpent eagle (*Spilornis cheela spilogaster*), crested hawk eagle (*Spizaetus cirrhatus ceylanensis*) and Ceylon junglefowl (*Gallus lafayettii*) (Goonawardena and de Silva 2005).

Hump snout lizards feed on earthworms, slugs and a variety of insects: coleopteran beetles, centipedes, wild cockroaches, dragonflies, larvae, ants, termites, butterflies, small spiders, and moths (Bambaradeniya *et al.* 1997; Somaweera and Somaweera 2009; Karunaratna and Amarasinghe 2013).

One large female was observed feeding on 13 individual earthworms (*Pheratima posthema*), which measure 10 to 12 cm (Goonawardena and de Silva 2005).

4. Status and trends

4.1 Habitat trends

Deforestation in Sri Lanka has seriously compromised its unique biodiversity: timber extraction and clearing of forests for tea plantations have destroyed large areas of the country (Wickramasinghe 2012). As a consequence, Sri Lanka's natural forest cover has dwindled from 80% to less than 16% over the last 130 years. At the end of the 19th century, more than 80% of the country was covered by forest; by 1950 only half the land area was forested. At the beginning of the 1990s forest cover was less than a quarter of the land area, and in 2007 only 17% forest coverage was recorded. Should this rate continue, less than 10% of forest cover will remain in Sri Lanka by 2030 (Kariyawasam and Rajapakse 2014).

This is resulting in extensive habitat loss for a wide array of species which include the hump snout lizard (MOE 2012). According to Erdelen (2012) the forests of the wet zone and the central hill range have become highly fragmented, and no continuous primary forest cover remains from sea level to over 2,500m of the central hill ranges, thus severely fragmenting a key habitat type for *L. scutatus*.

4.2 Population size

According to Sri Lanka's Ministry of Environment (2012), the area of occurrence for *Lyriocephalus scutatus* is less than 5,000 km², while the IUCN estimates the range to be less than 17,400 km² (Somaweera and de Silva 2010).

While population studies are highly localised and no long-term monitoring has been carried out to date, anecdotal and opportunistic observations suggest that the hump snout lizard is not uncommon within its range. However, it is prone to significant threats, the population is considered severely fragmented and its population trend is unknown (Somaweera and de Silva 2010).

4.3 Population structure

A study by Bandara (2012) found that a quarter of the male and female territories overlapped, with two or more females overlapping with a single male. This suggests that one male has access to several females. Territories of sub-adults overlap with both sexes, suggesting they do not yet compete for breeding (Bandara 2012). In a field study in the Mahausankande Regenerating Forest, 31 individuals were observed, composed of eleven males, nine females, three juveniles and eight hatchlings (de Alwis 2013).

4.4 Population trends

Applying the IUCN Red List Categories and Criteria (IUCN 2012), *Lyriocephalus scutatus* is classified in Sri Lanka's current Red List as Vulnerable, according to criteria B1ab (iii), reflecting a continuing decline in extent and/or quality of habitat (Wickramasinghe 2012). Assessed in 2010, the hump snout lizard is classed as Near Threatened by the IUCN Red List itself, and highlights that its population trend is unknown but that "collection for the pet trade is reducing population numbers" (de Silva 1990; Somaweera and de Silva 2010).

4.5 Geographic trends

In Kosgama lowland forest the population is now almost completely absent due to intensive logging activities (de Silva 1990; Somaweera and de Silva 2010).

5. Threats

Deforestation, leading to loss of habitat and habitat fragmentation, is the main threat faced by the reptile fauna of Sri Lanka (Erdelen 2012; Wickramasinghe 2012). Extraction of timber from plantation forest, conversion of small holder gardens due to urbanization and illegal encroachment into forested areas all play a significant role in undermining habitat integrity for the hump snout lizard. In addition, future linear development intrusions are anticipated in connection with the Southern Expressway road expansion and the new Colombo to Kandy Expressway.

The rate of forest depletion and loss of wildlife habitats in Sri Lanka is considered one of the highest in South Asia, with more than 50% of forest cover being lost during the last century alone (Wickramasinghe 2012; MOE 2012). By 2005 it was assumed that approximately only 5% of the island's original wet zone forest, where this species occurs, remained (Bahir and Surasinghe 2005).

Furthermore, mortality related to man-made forest fires, application of agrochemicals, road kills, and predation by farm and domestic animals such as cats and poultry have also been identified as threats (Wickramasinghe 2012; MOE 2012).

L. scutatus possesses features which are known to be highly desirable in the pet industry (Auliya *et al.* 2016), such as a large and stout body, varying ornamentation, bright body colours, relatively wide tolerance of environmental conditions, non-cryptic and other behaviours such as body lifting, head bobbing and gular sac display (Somaweera and Somaweera 2009; Karunarathna and Amarasinghe 2013).

Significant numbers of adult specimens have appeared in international trade since 2011 (Somaweera 2014; Altherr 2014), and the species now appears to be of growing interest to the international exotic pet industry, with adult specimens now regularly found on sale (de Silva 1990; Shiau *et al.* 2006; Hettiarachchi and Daniel 2011; Karunarathna and Amarasinghe 2013; Altherr 2014). The hump snout lizard is classed as Near

Threatened by the IUCN Red List, and its assessment notes that collection for the pet trade is negatively impacting population numbers (Somaweera and de Silva 2010).

6. Utilization and trade

6.1 National utilization

None.

6.2 Legal trade

Until the 1980s some specimens were exported from Sri Lanka for commercial purposes due to less stringent export laws, collected by Sri Lankan nationals and sold to foreigners for LKR 25-50 (currently ~USD 0.20-0.40) each (Karunaratne 1986). Trade in *L. scutatus* has been strictly prohibited since 1993 (Parliament of the Democratic Socialist Republic of Sri Lanka 2009).

6.3 Parts and derivatives in trade

No evidence exists of parts or derivatives being used or traded. The only known utilisation and trade of *Lyriocephalus scutatus* is from the pet industry (Karunaratna and Amarasinge 2013).

6.4 Illegal trade

Since at least 2011, significant numbers of adult Sri Lankan agamids including *L. scutatus* have shown up on the European market (Altherr 2014; Auliya *et al.* 2016). Although it is impossible to rule out that these animals are offspring from specimens exported before national legislation became more restrictive, there is a substantial and growing body of evidence suggesting that a concerted effort is invested in smuggling this species (Somaweera 2014). Frequent smuggling of endemic reptiles from Sri Lanka has been noted previously (Bambaradeniya 2006).

According to Krvavac (2015) foreign professional collectors, scientists, Sri Lankan nationals, and 'tourists' who collect individuals from the wild and courier them to overseas destinations are all implicated in this illegal trade.

Targeting gravid females so that offspring can be later presented as "captive-bred" is a technique commonly practiced by reptile collectors (Smith 2011; Adams 2012; New Zealand 2013; Fullerton 2014; Auliya *et al.* 2016). In addition, genuinely captive-bred specimens of recently smuggled adult specimens would be a result of illegally acquired breeding stock.

Europe: The first online offer for "some rare agamids" from Sri Lanka, including *Lyriocephalus scutatus*, was made by a Russian trader on www.tradeboss.com and www.bloombiz.com in January 2011. During the same year a Sri Lankan media source reported the smuggling of endemic reptiles to Germany (Hettige 2011). Since 2013, regular advertisements have appeared on European online platforms (e.g. www.terraristik.com) and in Facebook groups (Altherr 2014). Trader nationalities were initially Russian, German, Italian, Polish and Spanish, with Czech, French and British appearing later. In 2013 and 2014, prices for *L. scutatus* were up to 2,500 € for a pair.

Wild sourcing is strongly indicated for some animals in trade, based on descriptions in adverts, such as one from a Poland trader noting that specimens for sale had been "8 months in captivity", while others simply offer "adult specimens".

USA: According to U.S. LEMIS data for 2000-2017, no *L. scutatus* specimens were traded until 2016-2017, when ten live individuals were imported for commercial purposes. Of these, two were declared as wild and eight as captive-bred, and these were imported from Netherlands, Germany and Canada. Nine live individuals were exported during 2016-2017; four to the Netherlands and 5 to South Korea. All nine were declared as captive-bred and traded for commercial purposes (LEMIS 2017).

Since at least 2015, specimens have repeatedly been on sale in the US pet market. Adult breeding pairs are sold for between USD2,200 and USD5,500, and the species praised as "a truly rare reptile in today's hobby" and "very rare, almost never offered for sale" (see Annex 1).

In 2016, a US trader advertised a substantial number of “captive bred” Sri Lankan endemic agamid species, including *L. scutatus*, of questionable legality due to low likelihood of viable captive breeding populations.

Asia: There are anecdotal reports of this species being traded in Asia, namely in Taiwan, Japan, and Malaysia. In 2004 and 2005, *L. scutatus* was recorded on sale in pet shops in southern Taiwan (Shiau *et al.* 2006). In 2011, Hettiarachchi and Daniel reported the sale of specimens of *L. scutatus* by a Japanese company. In May 2011, a Japanese trader offered five specimens for export, underlining the rarity (“very few been in trade before”). Also Karunaratna and Amarasinghe (2013) noted the online sale of adult specimens in Japan. In 2014, a Malaysian trader offered a variety of Sri Lankan endemic agamids, including *L. scutatus*, on www.terraristik.com.

Refer to Annex for further information on the above examples.

6.5 Actual or potential trade impacts

While the long-term survival of *Lyriocephalus scutatus* is primarily threatened by habitat loss (IUCN Sri Lanka and the Ministry of Environment and Natural Resources, 2007), international pet trade as an additional risk factor is a relatively new, but potentially serious threat. *L. scutatus* is one of the most charismatic and sought after Sri Lankan agamids in the pet trade today due to its stunning colours and morphological characteristics (Hettiarachchi and Daniel 2011; Erdelen 2012). It can be inferred that a considerable number of adult specimens have already been illegally taken from the wild, representing a significant removal of reproductive individuals.

The high demand in the international pet trade is reflected in prices ranging from USD1,600 to USD5,500 a pair (see Annex). Such profitability renders illegal capture and smuggling a highly lucrative business (Altherr 2014; Auliya *et al.* 2016). Karunaratna and Amarasinghe (2013) identified smuggling as one of the present threats for *L. scutatus*. In addition, several experts of Sri Lankan agamids confirm that harvesting from the wild is likely to be a threat to the species, e.g. Somaweera and de Silva (2010), Somaweera (2014), and Krvavac (2015).

7. Legal instruments

7.1 National

In accordance with Section 30 of the Seventh amendment to the Fauna and Flora Protection Ordinance of Sri Lanka (1993) all reptiles (except for five highly venomous snakes) are protected species, and thus cannot be collected, even outside of protected areas. Section 40 of the FFPO completely prohibits the export from Sri Lanka of any reptile, whether dead or alive; or the eggs or skin of any reptile; or any other part of a reptile, without a permit from the Director General of the Department of Wildlife Conservation. Exceptions are only possible for the promotion of scientific knowledge and research.

7.2 International

None

8. Species management

8.1 Management measures

There are no listed management measures for this species.

8.2 Population monitoring

Somaweera and de Silva (2010) recommend monitoring of the hump snout lizard’s population and distribution, so that appropriate action can be taken in the event of any significant declines in either parameter.

8.3 Control measures

8.3.1 International

None

8.3.2 Domestic

In Sri Lanka, all endemic reptile species have full legal protection against deliberate harm or collection from the wild. A permit issued by the Department of Wildlife Conservation is mandatory to perform any *ex-situ* or *in-situ* activity that involves a protected reptile species. Ranching and breeding of reptile species is not permitted in Sri Lanka (Ratnayake 2011). Section 40 of the Flora and Fauna Protection Ordinance completely prohibits the export from Sri Lanka of any reptile whether dead or alive; or the eggs or skin of any reptile; or any other body part of a reptile, without a permit from the Director General of the Department of Wildlife Conservation (Ratnayake 2011). Exceptions are only possible for the promotion of scientific knowledge and research.

8.4 Captive breeding and artificial propagation

While there have been some legal exports of agamids from Sri Lanka until the mid 1980s (Somaweera *in litt.* 2014), there is no reliable information on the success of past or current captive breeding. A pet keeper's resource notes issues with lighting and feeding in captivity, that the species "was thought to be keepable but not breedable", and that "captive-bred animals are available from time to time" (Breeders-expo.de 2016). However, previously outlined concerns surrounding provenance make it highly unlikely that stable captive populations exist.

8.5 Habitat conservation

Sri Lanka currently has over 500 protected areas including over 90 key biodiversity areas recently identified jointly by the Wildlife Heritage Trust and the University of Peradeniya (IBP 2015). According to Erdelen (2012) the most recent significant international achievement for Sri Lankan wildlife conservation has been the recognition of the Central Highlands of Sri Lanka (including the Peak Wilderness Protected Area, the Horton Plains National Park, and the Knuckles Conservation Forest) as a World Heritage Site. As stated in the relevant text of the World Heritage Committee (34 COM 8B.9) decision: "the property includes the largest and least disturbed remaining areas of the submontane and montane rain forests of Sri Lanka, which are a global conservation priority on many accounts.... (t)hey include areas of Sri Lankan montane rain forests considered as a super-hotspot within the Western Ghats and Sri Lanka biodiversity hotspot" (UNESCO 2010). This new World Heritage Site is of outstanding importance to the long-term conservation of a significant proportion of Sri Lanka's herpetofauna and its fauna and flora in general (Erdelen 2012). These benefits apply to *Lyriocephalus scutatus* since populations are found within the World Heritage Site.

8.6 Safeguards

Not applicable

9. Information on similar species

Lyriocephalus scutatus is comparatively easy to identify via its distinctive rostral knob, bulging out of its nose, which is more developed in males than in females (Karunarathna and Amarasinghe 2013). The species is easy to discriminate from other agamids such as the *Ceratophora* genus due to its highly developed and bizarre canthus rostralis extending beyond the eye as a bony, terminally-pointed superciliary ridge.

10. Consultations

European Union and United States of America

11. Additional remarks

None

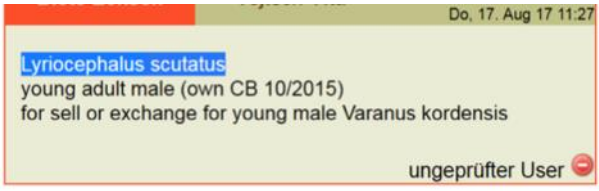




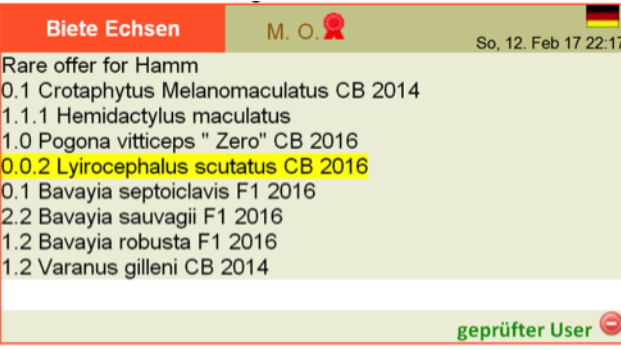
12. References

- Adams, M. (2012): Rare sungazers pose tough challenge for conservators. Available at <http://www.nzg.ac.za/newsletter/issues/20/04.php>
- Altherr, S. (2014): Stolen Wildlife – Why the EU needs to tackle smuggling of nationally protected species. Pro Wildlife (ed.), Munich, Germany, 32 pp
- Asian Tribune (2010): Sri Lanka needs to revise reptile export rules: European Reptile breeder | Asian Tribune. www.asiantribune.com/news/2010/11/14/sri-lanka-needs-revise-reptile-export-rules-european-reptile-breeder
- Auliya, M., Altherr, S., Ariano-Sanchez, D., et al. (2016): Trade in live reptiles, its impact on wild populations, and the role of the European market. *Biological Conservation*. DOI: 10.1016/j.biocon.2016.05.017
- Bahir, M. (2015): *in litt* to M. Krvavac, dated 1st July
- Bahir, M. and Surasinghe, T. (2005): A conservation assessment of the Sri Lankan agamidae (Reptilia: Sauria). *Raffles Bull. Zool. Suppl.* 12: 407–412
- Bambaradeniya, C. (Ed.) (2006): Fauna of Sri Lanka: Status of Taxonomy, Research and Conservation. The World Conservation Union, Colombo, Sri Lanka & Government of Sri Lanka. viii + 308pp
- Bambaradeniya C. et al. (1997): Some observation on the *Lyriocephalus scutatus* (Linnaeus, 1776) (Reptilia: Agamidae). *Lyriocephalus*, 3(1), 25 – 28
- Bandara, I. (2012): Territorial and site fidelity behaviour of *Lyriocephalus scutatus* (Agamidae: Draconinae) in Sri Lanka. *Amphibian & Reptile Conservation*. 5 (2): 101-113
- Bandara, I. & Meegaskumbura, S. (2009): Territorial and site fidelity behaviour of *Lyriocephalus scutatus* (Agamidae: Draconinae). *Proc. Peradeniya Univ. Res. Sess.* 14: 281-283
- Bartelt, U. (2003): Anmerkungen zur Haltung und Nachzucht der Lyrakopfagame, *Lyriocephalus scutatus* (LINNAEUS 1758). *Draco* 4 (14): 64-69
- Bartelt, U. et al. (2005): *Lyriocephalus scutatus* The lyrehead lizard. *Reptilia* 42(1): 29-36
- Breeders-expo.de (2016): „*Lyriocephalus scutatus*“. Available at <http://www.breeders-expo.de/species/Agamidae/Lyriocephalus-scutatus.html>.
- Das, I. and Anslem de Silva (2011): *A Photographic Guide to Snakes and other Reptiles of Sri Lanka*. New Holland, UK, 144 pp
- De Alwis, R.I. (2013): Some aspects of ecology, behaviour and reproductive biology of *Lyriocephalus scutatus* in the Mahausakande regenerating forest, Sri Lanka. Bachelor thesis. Dept. Zool., Open University of Sri Lanka, Nawala
- de Silva, Anslem (1990): Observations on some vanishing relict lizards of Sri Lanka. *Hamadryad* 15(1): 34-35
- de Silva, Anslem and B. Walker (1998): Saving Sri Lanka's living heritage. *Biologist*. 45(2): 71-75
- de Silva, Anslem (2006): Current status of the reptiles of Sri Lanka. In: Bambaradeniya, C.N.B. (Editor), *Fauna of Sri Lanka: Status of Taxonomy, Research and Conservation*. The World Conservation Union, Colombo. 134-163 pp
- de Silva, Anslem and K. Ukuwela (2017): *A Naturalist Guide to Reptiles of Sri Lanka*. John Beaufoy Publishing Ltd. UK. 176 pages. ISBN 078-955-665-341-0.
- Erdelen, W. (2012): Conservation of biodiversity in a hotspot: Sri Lanka's amphibians and reptiles. *Amph. Rept. Conserv.* 5(2):33-51
- Fullerton, J. (2014): The Politics of Contraband & The Reptile Smuggler's Blues. The Libertarian Enterprise 789. Available at <http://www.ncc-1776.org/tle2014/tle789-20140921-03.html>
- Goonawardena, S. and de Silva, Anslem (2005): Observations on the lyre head dragon: *Lyriocephalus scutatus* (reptilia: agamidae) in the Central Province. *Lyriocephalus* Special issue 6 (1 & 2): 313-323
- Hettiarachchi, K. (2010): EDB tries to take sting out of reptile export controversy. *Sundaytimes.lk*. http://www.sundaytimes.lk/101017/News/nws_24.html
- Hettige, P. (2011): Action against smuggling of reptiles. The Island, online http://www.island.lk/index.php?page_cat=article-details&page=article-details&code_title=23361

- IBP (2015): Sri Lanka – ecology, nature protection laws and regulation handbook. Volume 1: Strategic information and basic laws. Updated Reprint, Global Investment Centre (ed.), Washington, USA. ISBN 1-4330-7479-4., 300 pp,
- IUCN (2012): IUCN Red List Categories and Criteria: Version 3.1. Second edition. Gland, Switzerland and Cambridge, UK: IUCN. iv + 32pp
- IUCN Sri Lanka and the Ministry of Environment and Natural Resources (2007): The 2007 Red List of Threatened Fauna and Flora of Sri Lanka, Colombo, Sri Lanka. xiii+148pp
- Kariyawasam, R. & Rajapakse, C. (2014): Impact of Development on deforestation in Sri Lanka: An analytical study. *OSR J. Environ. Sci. Toxicol. Food Technol.* 8(7): 35-39
- Karunaratna, D. & Amarasinghe, A. (2013): Behavioral ecology and microhabitat use by *Lyriocephalus scutatus* (Linnaeus, 1758): A monotypic genus in Sri Lanka (Reptilia: Agamidae: Draconinae) with notes on the taxonomy. In: *Russian Journal of Herpetology*. 20 (1): 1-15
- Karunaratne, N. (1986): Udavattekal, the forbidden forest of the kings of Kandy. Government printers, Colombo, Sri Lanka
- Krvavac, M. (2015): *in litt* to Altherr, Pro Wildlife, dated 29th June
- LEMIS Database (2017): Imports and exports of Sri Lankan agamids for 2000-2017. Trade data provided by U.S. Fish and Wildlife Service Law Enforcement Management Information System
- Manamendra-Arachchi, K. & Liyanage, S. (1994): Conservation and distribution of the agamid lizards of Sri Lanka with illustrations of the extant species. *J. South Asian Nat. Hist.* 1(1): 77-96
- Manamendra-Arachchi, K. (1997): Gecko! *Sri Lanka Nature* 1(1): 45-55
- MOE (2012): The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka. viii + 476pp
- New Zealand (2013): CITES CoP16 Prop. 23 to transfer all species of geckos in the genus *Naultinus* from Appendix III to Appendix II. <https://cites.org/sites/default/files/eng/cop/16/prop/E-CoP16-Prop-26.pdf>
- Parliament of the Democratic Socialist Republic of Sri Lanka (2009): Fauna and Flora Protection (Amendment) Act, No. 22. Published as a Supplement to Part II of the Gazette of the Democratic Socialist Republic of Sri Lanka of April 24, 2009
- Ratnayake, D. *et al.* (2011): Country report for Sri Lanka. Convention on International Trade in Endangered Species of Wild Fauna and Flora. Workshop on Asian Snake Trade, Guangzhou, (China), 11-14 April 2011
- Shiau, L. *et al.* (2006): A Survey on Alien Pet Reptiles in Taiwan. *Taiwania* 51(2): 71-80
- Somaweera R. & Somaweera N. (2009): Lizards of Sri Lanka: A Color Guide with Field Keys, Edition Chimaira, Germany, pp. 303
- Somaweera, R. & de Silva, A. (2010): *Lyriocephalus scutatus*. The IUCN Red List of Threatened Species 2010: e.T170409A6778615. <http://dx.doi.org/10.2305/IUCN.UK.2010-4.RLTS.T170409A6778615.en>
Downloaded on 25 May 2018
- Somaweera, R. (2014): *in litt.* to Altherr, Pro Wildlife, dated 1 July
- Smith, J. E. (2011): Stolen World: A Tale of Reptiles, Smugglers, and Skulduggery. Crown/Archetype, 336 p
- UNESCO (2010): Natural Properties-Central Highlands of Sri Lanka (Sri Lanka). Decision 34 COM 8B.9, available at <https://whc.unesco.org/en/decisions/3989>
- Vidyalankara, K. & Bandara, R. (2004): Some observations on *Lyriocephalus scutatus*. *Lyriocephalus* 5(1): 151
- Wickramasinghe, L. (2012): The Taxonomy and Conservation Status of the Reptile Fauna in Sri Lanka. In: The *National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora*. Weerakoon, D.K. & S. Wijesundara (Eds.), Ministry of Environment, Colombo, Sri Lanka, pp 99-113
- ZZF (2010): Deutsche Zoofachleute auf Sri Lanka – verbesserten Importchancen auf der Spur. Online article, 26 October 2010. <https://bit.ly/2QPBGRRe>

Annex 1

Online adverts for *Lyriocephalus scutatus* (selection from different online platforms, in reverse chronological order)

<p>Czech trader online advert at www.terristik.com (August 2017)</p> 	<p>German trader, online advert in Facebook group "Terraristika Hamm - MARKTPLATZ" (August 2017)</p> 
<p>British trader, online advert at Facebook (May 2017), <i>L. scutatus</i> to be sold at reptile fair Terraristika in Hamm, Germany</p> 	<p>German trader, online advert in Facebook group "International trade for agamidae" (April 2017)</p> 
<p>Facebook post "Rare Reptile Collection" (April 2017)</p> 	<p>German trader, online advert at www.terristik.com (February 2017)</p> 

Neues Mitglied · 11. Februar um 14:49
 For Hamm 3/2018. *Lyriocephalus scuttatus* CB 2017.



Neues Mitglied · 14. Februar um 12:47
 1,1 *Lyriocephalus scuttatus* subadult.
 Price 1000,- e
 I can deliver to Hamm



German trader, online advert in Facebook (November 2016);
 2 pairs of *L. scuttatus* to be sold at reptile fair Terraristika in Hamm, Germany

Exchange
 26. November 2016 · 📷
 Last Chance!!! For the Hamm show:
 2/2 *Ceratophora tennentii*
 2/2 *Lyriocephalus scuttatus*
 Because of a burst reservation with deposit payment!
 Please fell free to contact me!



German trader, online advert at www.terrарistik.com (November 2016); several pairs of *L. scuttatus* to be sold at reptile fair Terraristika in Hamm, Germany



US trader and breeder - advert in the closed Facebook group "Rare and Uncommon Reptiles Exchange" (July 2016)

German trader - advert in the closed Facebook group "Hamm And Houten Reptile Classifieds" (March 2016)



27. Juli 2016 · 🇺🇸

list of reptiles for sale

1 \$

📍 Castro Valley, CA (94546)

Tri Sailfin pair \$750

CB Podarcis sicula klemmeri \$125 each

CB Podarcis sicula klemmeri \$400

US CB Lophosaurus boydii \$1200 each

US CB Lyriocephalus scutatus \$900. EACH SOLD 1

US CB anolis Smallwoodii young adult \$150 discounted damage tail

Spinytail iguana Panda pair (female highly gravid) \$3000

Female Varanus obor \$1200

Please pm for details



27. März 2016 · 🇩🇪

(VERKAUFT) Offer for Houten or shipping within Germany or shipping to USA also possible!

1 £

📍 Dortmund

1.1 Afrogecko porphyreus "subadult-adult"

1.1 Cyrtodactylus tigroides "breeding adults "

5.3 Cyrtodactylus sp. Hon Khoai, Vietnam (undescribed species) "subadult cb15"

1.2 Eublepharis angramayu " breeding adults "

0.2 Gekko gekko "Powder blue adult "

1.2.4 Goniurosaurus hainanensis cb14

0.0.3 Goniurosaurus luii CB15

0.0.1 Goniurosaurus yamashinae CB15

0.1 Nephurus laevisimus CB13 = 990e

2.0 Paroedura masobe "adults "

0.0.2 Phyllurus amnicola CB15

0.0.5 Thecadactylus oskrobapreinorum CB15

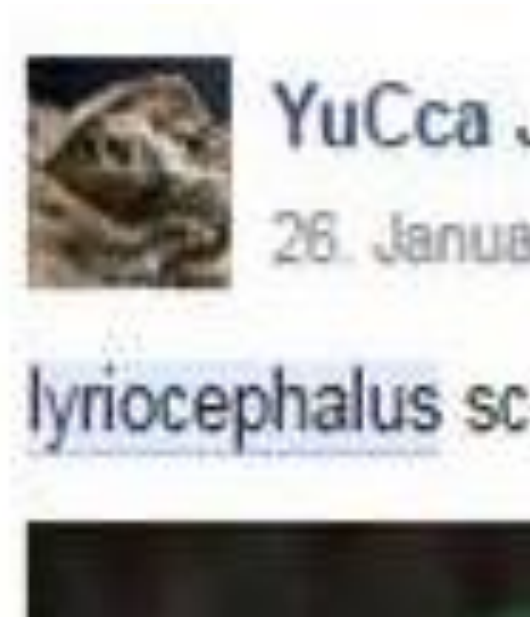
Agamids:

1.0 Acanthosaura nataliae "adult"

2.0 Calotes nigrilabris "subadult-adult"

2.0 Lyriocephalus scutatus "subadult-adult"

French trader, online advert in Facebook (Jan 2016)



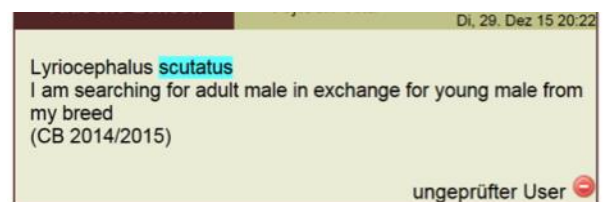
US trader and breeder - advert in Facebook group "International trade for Agamidae" (Jan 2016)



Facebook advert by an Italian trader (Nov 2015) for reptile trade fair Terraristika in Germany



Online advert by a Czech keeper at www.terraristik.com (Dec 2015)



Facebook post by an US trader (Oct 2015)



Advert by a French trader in the facebook sales group "Hamm and Houten Reptile Classifieds" (Oct 2015)



US trader, the online platform www.faunaclassifieds.com "(Sep 2015) – highlighting the pair as "Very rare, almost never offered for sale" and asking for 5,500 USD



Facebook post by an US trader (Oct 2015)



Facebook post by a French trader and keeper (July 2015)



Facebook advert by an Italian trader (April 2015)



Advert in the Facebook sales group "International trade for agamidae" of a French trader (April 2015)





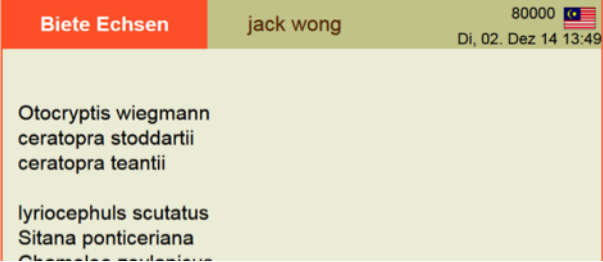



Italian trader, Facebook sales group "Rare Reptile Classifieds" (Jan 2015), targeting the US pet market



Online advert at www.terraristik.com by an Italian trader (as of January 2015) for the reptile trade fair in Hamm, Germany



Advert by an Italian trader in the Facebook group "International trade for agamidae" for German reptile trade show (Nov 2014)

<p>Sa, 10. Jan 15 00:03</p> <p>Available for Hamm show in March:</p> <p>1.1 Geochelone elegans Sri Lanka 11cm 1.1 Lyriocephalus scutatus breeding pair 1.0 Ceratophora stoddartii young adult (special price for single male) 1.1 Uromastix acanthinura sub adult 0.0.1 Uromastix microlepis young 0.1 Telescopus semiannulatus adult female eats on defrosted 1.1 Hypnale hypnale cb2014</p> <p>Contact: matthew.rock@hotmail.it</p> 	<p>6. November 2014</p> <p>Lyriocephalus scutatus adult pair for sale, delivery to Hamm show in December or UK PM info</p> 
<p>Advert at European online platform www.terraristik.com by a trader from Malaysia (Dec 2014)</p> 	<p>Advert by an Italian trader in the Facebook sales group "Rare reptiles classified" (Nov 2014), naming prices for several Sri Lankan agamids, including for <i>L. scutatus</i></p> 
<p>Mo, 03. Feb 14 19:29</p> <p>Available for March show in Hamm:</p> <p>1.1 Lyriocephalus scutatus I accept offers</p> 	<p>For next Hamm show in March:</p> <p>Lyriocephalus scutatus 2000 €/pair Leiolepis guttata 350 €/pair</p> 
<p>Advert in Facebook group "International trade for agamidae" from Poland (Nov 2013), indicating wild-caught animals</p>	<p>Advert in Facebook by a German trader (Apr 2013)</p>



Advert at www.terraristik.com from a German trader for the reptile trade show Terraristika in Hamm, Germany (Aug 2013)

So, 25. Aug 13 20:27
1.1 F. pardalis Sambirano WC 2013 430€
2.0 F. pardalis Sambirano WC 250€ each
1.1 F. pardalis ambilobe wc 2013 370€
1.0 F. pardalis ambilobe wc 2013 220€
4 weeks old F1 Furcifer lateralis - diff. bloodlines available
0.0.1 75€
0.0.3 180€
0.0.5 275€

0.0.3 Calotes calotes
1.1 Ceratophora stoddarti
1.1 Lyriocephalus scutatus

Exchanges possible - just make me an offer

Advert at www.terraristik.com from a Russian trader for the reptile show in Hamm, Germany (Aug 2013)

Do, 29. Aug 13 00:10
Sale!!!
1.2 Lyriocephalus scutatus
1.1 Ceratophora stoddarti
1.2 Xenodermus javanicus
Special prices for Hamm in September only.

Discussion on the legal origin of five *Lyriocephalus scutatus*, offered by a Japanese citizen at the online platform www.lakdasun.org. (May 2011)

Topic: Biodiversity of Sri Lanka for sale!!! (Read 845 times)

Biodiversity of Sri Lanka for sale!!!
= on: May 17, 2011, 10:35:07 PM =

Going cheap! I like the phrase "at the moment". Does this mean he can get some more if required?

http://europe.bloombiz.com/default.cgi/action/viewproducts/productid/123766/productname/Lyriocephalus_scutatus/

Product Description:
Click to view full size photo!

Click to view full size photo! The rare Lizards of the World. It name is Lyriocephalus scutatus. I have 5 heads of them at the moment. Lyriocephalus scutatus is very rare and very few been in pet trade before!! I can make export from Japan and if you interesting that lizards please contact us.

Re: Biodiversity of Sri Lanka for sale!!!
= Reply #1 on: May 18, 2011, 08:38:30 AM =

OMG. Unbelievable. An endemic specie of Lizard for sale in a public advert

Very unlikely that the seller is breeding them in Japan so there must be some one collecting them for the next shipment somewhere in our rainforests at this moment.

Online advert by a Russian trader at the platform <http://forum.agriscap.com/> (as of Jan 2011)

Rare reptiles of Sri-Lanka

 **Posted By:** Maxim

Date: Fri Jan 21 16:46:40 2011

◆I'm pleased to offer some rare reptiles of Sri-Lanka like ◆
Lyriocephalus scutatus ◆
Ceratophora stoddartii ◆
Otocryptis nigristigma ◆
Calotes calotes ◆
Calotes nigrilabris ◆
◆
Please, contact me for wholesale and retail prices, photos and more info. We are situated in Moscow, Russia. ◆
◆
Best regards. ◆
Maxim. ◆
◆

From the website <http://europe.bloombiz.com/>

Trade Lead Description:

Dear importers,

I'm pleased to offer some rare agamids like

Lyriocephalus scutatus

Ceratophora stoddartii

Otocryptis nigristigma

Calotes calotes

Calotes nigrilabris

Please, contact me for more info, prices and photos.

Best regards,
Maxim.

Type of Offer:	<u>Offer to Sell</u>
Quantity:	Wholesale
Packaging:	Not Specified
Price / Incoterms	Negotiable
Conditions:	

*Posted from Russia - Moskva on 21 January, 2011
Last Modified on 22 January, 2011*