

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

Transfer of *Cuora bourreti* from Appendix II to Appendix I, in accordance with Res. Conf. 9.24 (Rev.CoP17), under criteria A v) (intrinsic vulnerability) and C i) (past and ongoing severe decline due to exploitation) in Annex 1.

B. Proponent

Viet Nam

C. Supporting statement

1. Taxonomy

1.1 Class: Reptilia

1.2 Order: Testudines

1.3 Family: Geoemydidae

1.4 Genus, species or subspecies: *Cuora bourreti* Obst & Reimann, 1994

Cuora bourreti was traditionally considered a subspecies of *Cuora galbinifrons* (e.g., Fritz & Havas, 2007); however, more recent research has treated *bourreti* as a full species, including the nomenclature standard reference for the *Cuora galbinifrons* group adopted at CoP17, Spinks *et al.* (2012), which recognizes *Cuora bourreti* (and *C. picturata*) as full valid species for CITES purposes.

1.5 Scientific synonyms: *Cuora galbinifrons bourreti* Obst & Reimann, 1994; *Cistoclemmys galbinifrons bourreti* (Obst & Reimann, 1994); *Cistoclemmys bourreti* (Obst & Reimann, 1994)

1.6 Common names: English: Bourret's Box Turtle
French:
Spanish:
Vietnamese: Rua hop bua-re

1.7 Code numbers: ITIS TSN 949148

2. Overview

Cuora bourreti is a medium-sized terrestrial turtle that can reach 18 cm shell length and a weight of about one kilogram. It was originally described and recognized as a subspecies of *Cuora galbinifrons* (e.g., Fritz & Havas 2007) but recent taxonomic studies have consistently treated it as a full species, *Cuora bourreti* (Stuart & Parham, 2004; Nguyen *et al.*, 2009; Spinks *et al.*, 2012; TTWG, 2017). It occurs in the hill forests of central Viet Nam and in adjoining Savannakhet Province of Lao PDR.

The primary threat to *Cuora bourreti* is collection for trade. The species is in high demand in the international pet trade and the Asian consumption trade. Collection efforts include both casual encounters when collecting other forest products, and targeted searches for turtles involving trained dogs and/or burning undergrowth to drive and expose turtles. Turtles encountered are collected, regardless of legal protection status or location inside protected areas. Collected turtles are traded, mostly illegally, through a network of local middlemen before being exported or consumed locally. Documented market trade volumes may be several orders of magnitude greater than total reported legal trade volumes. Habitat loss and degradation is a secondary threat to the species. *Cuora bourreti* was assessed for the IUCN Red List of Threatened Species in 2016 and is categorized as Critically Endangered.

Cuora bourreti is legally protected from exploitation in both range countries Lao PDR and Viet Nam, but enforcement may be insufficient. *Cuora bourreti* was listed in CITES Appendix II by unanimous adoption at CoP 11 (CoP11 Prop.36) as a subspecies of *Cuora galbinifrons*; this listing came into effect on 19 July 2000. A zero quota for wild-sourced specimens traded for commercial purposes was adopted for *Cuora galbinifrons* (including *bourreti* and *picturata* as subspecies at that time) at CoP16 (CoP16 Prop.32), effective 12 June 2013. At CoP17, a nomenclatural standard reference (Spinks et al., 2012) recognizing *bourreti* and *picturata* as full separate species was adopted as part of the revision of [Res. Conf 12.11](#).

Cuora bourreti qualifies for transfer to Appendix I of CITES as it meets Criterion C i) of Annex I of Res.Conf.9.24 (Rev.CoP17), by having been documented to have declined severely across its range as a result of collection for trade (see sections 4.4, 5, and 6.4); moreover, the species meets criterion A v) as its biological characteristics of slow growth, late maturity, limited annual reproductive output and high egg and juvenile mortality rates makes the species extremely vulnerable to exploitation (see sections. 3.3 and 6.5).

3. Species characteristics

3.1 Distribution: Viet Nam and Lao PDR

Cuora bourreti is known from central Viet Nam (Nghe An, Ha Tinh, Quang Binh, Thua Thien-Hue, Da Nang, Quang Nam, and Kon Tum provinces), as well as from adjoining Savannakhet Province in Lao PDR (Obst & Reimann, 1994; Nguyen et al., 2009; Stuart *et al.*, 2011).

3.2 Habitat

Cuora bourreti inhabits upland, moist, closed-canopy evergreen forest, usually between 300 and 1700 m altitude. The species is predominantly terrestrial and is not specifically associated with forest streams. (Stuart & Platt, 2004; Stuart *et al.*, 2011; T. McCormack, in litt. to VN MA, 29 Sept 2012; McCormack & Stuart, 2016).

3.3 Biological characteristics

Extremely little is known of the biology of *Cuora bourreti* in the wild; most observations on diet, growth and reproduction derive from animals maintained in captivity, either close to the species' natural range, or in artificially manipulated captive conditions such as terrariums.

Slow growth (10-15 years) to maturity is combined with low fecundity; in captivity a single clutch of 1-3 eggs is seen each year in Cuc Phuong National Park where a small group is maintained (McCormack, in litt. To VN MA, 29 Sept 2012). Similar clutch sizes of 1 to 3 eggs have been reported from long-term captive animals kept in Europe and North America (Fiebig & Lehr, 2000; Struijk, 2010).

3.4 Morphological characteristics

Cuora bourreti is a medium-sized turtle, reaching up to 18 cm carapace length at a weight of about 800 to 1200 grams. Males and females reach about the same size. Hatchlings measure about 45-50 mm and weigh 15-24 grams. The carapace (upper shell) is relatively long and oval, smooth, rounded and high-domed. The plastron (lower shell) has a very distinct hinge which allows the front and rear parts of the plastron to be raised up against the carapace, closing both front and back shell openings completely. It has a very distinct yellow or orange area on each side of the carapace, contrasting strongly with the remainder of the shell which is mainly rich dark brown. The carapace shows a fairly irregular pattern of black, brown and yellow: A broad brown band with black edges runs over the middle of the carapace, not always clearly distinct from the rest of the carapace; the brown band extends forward to reach a broad area of the carapace margin above the neck. A fine pale vertebral line is often vague, interrupted, or completely absent. A vague cloudy dark band extends across much of the middle

of the costal scutes, leaving the remaining costal scute areas bright yellow both above and below this irregular band. The effect can create two sets of yellow areas, one along the upper costal scutes, the other in the lower areas of the costals. The marginal scutes are generally dark, at least their upper areas always has dark pigmentation. The plastron is yellow with a large black cloudy spot on each scute; these spots can be large enough to connect to each other, forming a black horseshoe-shaped mark or mostly black band around the plastron. The underside of the marginal scutes can vary from yellowish with small black markings to mostly black with some yellow along the margins. The head is bright yellow or orange to brown with some dark spotting, but never deep red. The soft parts of the legs and tail are generally grey with yellow.

3.5 Role of the species in its ecosystem

The role of *Cuora bourreti* in its native upland forest ecosystems is unknown; by analogy with other forest turtles, the species likely plays a modest ecological role in the dispersal of plant seeds and mushroom spores, and as a consumer of invertebrates.

4. Status and trends

Cuora bourreti was assessed for the IUCN Red List at full species level in 2016 and was categorized as Critically Endangered under criteria A2bd+4bd (McCormack & Stuart, 2016). Before 2016 it was assessed as part of the Critically Endangered assessment of *C. galbinifrons* since 2000. *Cuora bourreti* has consistently been included in the list of 50 species of tortoises and freshwater turtles at highest risk of extinction (Turtle Conservation Coalition, 2011, 2018).

4.1 Habitat trends

Forest cover in Viet Nam fell from 14.3 million ha (43% land area) in 1943 to 9.5 million ha (29%) in 1973, and since then the area under forest cover has appeared relatively stable at assessments in 1979-81 and 1995 (FAO, 1997; FSIV, 2009). Recent increases in forest cover since the early 2000 have largely been due to the 1998-2010 goal to reforest 5 million ha under national decision No. 661/QD-TTg (661 Programme: Decision No. 661/QD-TTg dated 29 July 1998 by the Prime Minister on objectives, tasks, policy and Organisation for implementation the 5 million hectares afforestation national programme) (ICEM 2003). Reforestation has mostly been monoculture, while the primary forests on which this species depends continue to be lost or degraded.

4.2 Population size

No absolute population size numbers or estimates are available for *Cuora bourreti*, and only anecdotal relative population density data. All recent indications are that the species requires extensive search effort to encounter. During field surveys in Lao PDR in 1993-1999, encounter rates were at the order of one turtle per three months in the field for a herpetologist, and one *Cuora galbinifrons* (or *bourreti*) per day when working with a trained turtle hunting dog in prime turtle habitat (Stuart & Timmins, 2000). It is noteworthy that during a thorough, multi-year study of the herpetofauna of the Ky Anh-Ke Go protected area in Ha Tinh province, in the contact zone of *Cuora galbinifrons* and *C. bourreti*, not a single specimen of either species was encountered in the field, though small numbers of animals were encountered at local traders (Ziegler, 2002: 137).

4.3 Population structure

No population structure data are available for *Cuora bourreti*. No distinct sex bias has been observed during field or trade surveys. All age classes except hatchlings are seen in trade; juveniles are normally kept at the village level as traders prefer not to buy very small individuals.

4.4 Population trends

Extensive survey work has been undertaken in Viet Nam between 2009 – 2012 focused on determining the range and priority habitat for taxa of the *Cuora galbinifrons* group, with focus on *Cuora bourreti* and *Cuora picturata*. Anecdotal information from interviews throughout the range has found that historic quantities of the species available for collection in the forest have been greatly reduced, with many hunters stating that while the species was common 7-15 years ago, it is now increasingly difficult to find. During surveys in 2006 in and around Song Thanh Nature Reserve, Quang Nam province local hunters at that time claimed that numbers of *Cuora bourreti* had already been seriously depleted, from being able to catch 20 animals a day in the in the mid 1990's to only a few animals a week. However

the increasing economic value of the species to an average of US\$15.00 per kg is an increase from 2006, when surveys found an average value of US\$9.00 around Song Thanh Nature Reserve, Quang Nam province. Similar reports of reductions in wild populations, and corresponding increases in wholesale prices paid, have been documented during interviews throughout the species range in Viet Nam (T. McCormack, in litt to VN MA, 29 Sept 2012; McCormack & Stuart, 2016).

4.5 Geographic trends

All available information indicates that *bourreti* is intensively collected throughout its range in Lao PDR and Viet Nam.

5. Threats

The primary threat to *Cuora bourreti* is collection for trade. The species is in high demand in the international pet trade and the Asian consumption trade. Collection efforts include both targeted searches for turtles involving trained dogs, or occasionally pitfall traps, as well as capitalizing on casual turtle encounters when collecting other forest products. Turtles, of any species, are collected whenever and wherever encountered in the region, regardless of legal protection status or location inside protected areas. Collected turtles are traded, mostly illegally, through a network of local middlemen before being exported or consumed locally. Increasing economic value has ensured that hunting pressure is sustained despite the increasing rarity of the species. Habitat loss and degradation are considered a significant but more localized threat to the species. (Hendrie, 2000; Stuart & Timmins, 2000; McCormack et al., 2010; Stuart et al., 2011; McCormack & Stuart, 2016).

6. Utilization and trade

6.1 National utilization

Historically *Cuora bourreti* were consumed locally for food as part of a subsistence diet, however in the last decade local consumption has largely ceased with most animals now sold into the trade due to the high economic incentive. Juvenile animals are often kept at the village level in attempts to raise them to sell on into the trade (often unsuccessful, with animals dying). The species does not have specific local medicinal uses, but bones are often sold to traders for production of bone glue. In some areas turtles of all species are consumed as broad “health invigorators”. The *Cuora galbinifrons* group represents the second most valuable type of turtle in trade in Viet Nam and Lao PDR after the *C. trifasciata* complex (Stuart in litt., to IUCN and TRAFFIC, 2012).

6.2 Legal trade

The UNEP-WCMC CITES Trade Database does not contain records of international trade in *Cuora bourreti*, which is logical as *bourreti* was recognized as a full separate species in 2013, at the same time that a zero quota for wild specimens traded for commercial purposes was adopted. Previously, trade in *Cuora bourreti* would have been recorded as part of the trade in *Cuora galbinifrons*, for which records of legal trade of 3372 live specimens and 35 specimens are recorded during the period 1999-2013; only a minority of these specimens have likely been *Cuora bourreti*.

Searches of internet fora and bulletin boards occasionally yields offers of *Cuora bourreti* for sale, often claimed bred in captivity; the veracity of such claims is often difficult to confirm without contacting the studbook keeper. *Cuora bourreti* was not evident in visible retail trade in China or Hong Kong in the early 2010s (van Dijk, pers comm to VN SA, 22 June 2015).

6.3 Parts and derivatives in trade

Available turtle shells in Viet Nam are bought by traders to make into a generic bone glue; plastrons are normally preferred. In some areas shell fragments are discarded. In many areas shells considered beautiful are kept as household decorations, this is often seen with *Cuora bourreti* and *Manouria impressa*.

Some shells or shell fragments are traded internationally: Chen *et al.* (2009) recorded that *Cuora galbinifrons* (possibly including *C. bourreti*) were rare but present among imported turtle shells for Chinese traditional medicine in Taiwan.

6.4 Illegal trade

Visible trade in *Cuora galbinifrons*, *C. bourreti* and *C. picturata* at Hanoi's principal wildlife market, Dong Xuan, stopped by about 2006 due to better market enforcement. Prior to this, dozens of *Cuora galbinifrons* and *bourreti* were regularly available each week, these were often juvenile animals and intended for the pet market, not food.

In 2018: 18 individuals were seized in Kon Tum and Quang Nam provinces, Vietnam (IEBR trade report 2018).

Available information indicates that most *Cuora* traded in Viet Nam were exported to East Asian markets, mainly in Hong Kong and in southern China. Seizures of illegally transported and traded freshwater turtles in Viet Nam occurred nearly all on north-bound shipments, and in many cases traders or drivers stated that their cargo's destination was China. *Cuora galbinifrons* was present in nearly every reported market survey that looked at turtle trade in China and Hong Kong since recording began in 1993, with *bourreti* usually recorded if precise taxonomic identification was recorded. All these animals appeared wild caught and most were offered in the food markets (Lau et al., 1995; Artnier and Hofer, 2001; Wang et al., 2005; Gong et al., 2005, 2006, 2009; Cheung & Dudgeon, 2006; Wu, 2007). Cheung and Dudgeon recorded over 15,000 *Cuora galbinifrons* (including *bourreti*) traded in Hong Kong markets alone during the period 2000-2003; comparing this to the total of 886 *C. galbinifrons* that were recorded in the CITES trade database as net exported during this same period worldwide (see 6.2, above) hints at the scale of illegal and unrecorded trade. The volume of *C. galbinifrons* in visible trade continues to be highly significant in recent years; market surveys by the Wildlife Conservation Society during 2008-2011 in Guangzhou, China, documented 1826 animals observed in food markets, and another 1944 animals recorded in the local pet trade (Robertson, in litt to VN CITES MA), but with no numbers provided for the proportion of *bourreti* animals. Seizures from illegal trade continue in recent years in Viet Nam, including at least two cases where animals specifically identified as *bourreti* were recorded (one live animal in Ha Tinh, 17 October 2012; 41 live *bourreti* seized in Hanoi on 24 September 2015), and additional *bourreti* animals may have been part of seizures recorded as *Cuora galbinifrons*. An evaluation of reported seizures of tortoises and freshwater turtles for the period 2000-2015 ([CoP17 Doc.73 Annex](#)) recorded no specimens of *Cuora bourreti* as seized; this is not surprising as *Cuora bourreti* is not easy to differentiate from *Cuora galbinifrons*, with which it is usually traded, and was treated as a subspecies of *C. galbinifrons* for CITES purposes during most of the analysis period.

6.5 Actual or potential trade impacts

Long-lived, late-maturing species with limited annual reproductive output and high juvenile mortality, as exemplified by *Cuora bourreti*, have proven to be highly susceptible to overexploitation, particularly of adult animals (Doroff & Keith, 1990; Gibbons, 1990; Congdon et al., 1993; O'Brien et al., 2003). The population trend data in section 4.4 strongly suggests that *Cuora bourreti* has been subject to unsustainable collection for the past 15-20 years and this has resulted in the depletion if not collapse of each populations that has been surveyed. Of particular significance is that commercial turtle farms in East Asia create a specific demand for animals collected from the wild, being considered the primary purchasers of wild-collected turtles and driving the collection of the last remaining wild animals through increased trade prices (Shi et al., 2007).

In an analysis of risk posed by international trade, *Cuora galbinifrons* emerged with a relatively high score (1.5 out of a maximum of 2.0) of endangerment from trade (Zhou & Jiang, 2008), a score which would also be applicable to *bourreti* in isolation.

7. Legal instruments

7.1 National

Lao P.D.R.: Principles, regulations and measures for the protection and management of wildlife are governed by the Wildlife and Aquatic Species Law (No07/NA 24 December 2007); *Cuora galbinifrons* (including *bourreti* as a subspecies) is listed under Prohibited Category I, the highest protective category, *banning* hunting and collection year-round.

Viet Nam: *Cuora bourreti* is protected from commercial exploitation as a Priority Protected Rare, Precious and Endangered Species under the revised Decree 160/2013/ND-CP of the Government.

7.2 International

Cuora bourreti was included in CITES Appendix II under Criteria B i and B ii at CoP 11 (Proposal 36, Gigiri, Kenya, 2000) as part of the listing of *Cuora galbinifrons*. The proposal was adopted unanimously and came into effect on 19 July 2000. A zero quota on wild specimens traded for commercial purposes was adopted for *Cuora galbinifrons* (including *bourreti* and *picturata* as subspecies) at CoP16 (CoP16 Prop.32), effective 12 June 2013.

The genus *Cuora*, including *Cuora bourreti*, is included in Annex B of EU Commission Regulation no. 709/2010 (amending EC Regulation 338/97), which requires that the country of import must issue a corresponding import permit before a shipment of the species can enter the European Union.

Health inspection certification is required by a number of countries before live animals, including turtles, may be imported.

The recommended conditions for transport of live turtles by air are detailed in the IATA Live Animals Regulations; compulsory adherence to these Live Animal Regulations has been adopted by legislation in a number of countries, and is required by a number of international airlines.

8. Species management

8.1 Management measures

Populations of *Cuora bourreti* are not known to be managed or manipulated in any part of its range. A conservation initiative to focus on *Cuora bourreti* through improved protected area management, community engagement and enforcement capacity building has been initiated at Song Thanh Nature Reserve, Quang Nam province in Central Viet Nam (McCormack *et al.*, 2006).

8.2 Population monitoring

No population monitoring programs are known to be in place for *Cuora bourreti* anywhere in its range.

8.3 Control measures

8.3.1 International

Since its inclusion in CITES Appendix II, international shipments of *Cuora bourreti* are required to be accompanied by appropriate export permits, and subject to the customary checks by customs and wildlife authorities at the points of export and import.

8.3.2 Domestic

No control measures are in place other than those described in section 7.1, national legislation and regulations. Wildlife authorities, customs and enforcement authorities of the range and trading countries have made great efforts to ensure that turtles traded within their jurisdiction are legal and regulated, as evidenced by extensive record of seizures of illegally traded turtles in the countries of the region (AC25 Doc.19, Annex C).

8.4 Captive breeding and artificial propagation

The Turtle Conservation Centre at Cuc Phuong National Park has been breeding *Cuora bourreti* with limited success; survival of eggs is low and long-term survival of hatchlings is lower. Low incubation temperatures, 25-28°C, are an important factor for successful reproduction, as are cool, humid environmental conditions for juveniles and a high protein diet.

Cuora bourreti is maintained in modest numbers in captivity by hobbyists in Asia, Europe, North America and elsewhere, and has been bred in captivity, but continues to be regarded as a difficult, sensitive species that is challenging (but not impossible) to establish and reproduce consistently in captivity (Fiebig & Lehr, 2000; Struijk, 2010; Becker, 2015). A European studbook exists for the taxon since the late 1990s, with 22 registered animals maintained in 2009 (Struijk, 2010).

Cuora galbinifrons, possibly including *bourreti*, was recorded among the stock kept at commercial turtle farms in China in the early 2000's (Parham *et al.*, 2001; Germany SA, 2003), but is understood not to

breed successfully (i.e., production exceeding mortality) in commercial captive conditions and is no longer included in inventories of turtle farms in recent years (Endangered Species Import and Export Management Office of the People's Republic of China, 2002b; Zhou *et al.*, 2005, 2008; Shi *et al.*, 2008b).

8.5 Habitat conservation

Habitat conservation, in the form of National Parks, Special Conservation Areas, and other protected areas, is in place across much of the range of *Cuora bourreti*, and several records of these turtles originate from inside protected areas (Stuart & Platt, 2004; McCormack *et al.*, 2006; Stuart *et al.*, 2011). However, designation as protected area does not necessarily lead to effective restrictions on the collection of turtles and other 'forest products', and is insufficient by itself to safeguard viable populations of the species in its natural habitat.

8.6 Safeguards

None applicable beyond legal, regulatory and enforcement processes in place, including the need for non-detriment findings and inspections of shipments in international trade.

9. Information on similar species

Cuora box turtles can be separated from all other turtles by the combination of possessing a single hinge on the plastron allowing them to effectively close their shell, their distinctly domed to highly domed shell, and generally bright facial colouration that includes a strip of granular skin between the eye and tympanum. The species *bourreti*, *galbinifrons* and *picturata* are unique among all turtles in possessing a large yellow to orange area on each side of the carapace. The species *bourreti* can most easily be separated from *galbinifrons* by its plastron colouration, which is solid black in *galbinifrons* and bony yellow with a large black blotch on each scute in *bourreti* and *picturata*. In contrast to *picturata*, *bourreti* is characterized by uniform dark brown to black marginal scutes, and irregular dark pigmentation dividing the yellow carapace area into two parallel yellow bands (*picturata* has pale yellow markings on the marginal scutes and a single yellow mark on the side of the carapace with fine black speckling which does not form a band to bisect the pale area). Detailed information to differentiate these three forms was provided by Tabaka (2002, available online) and Becker (2015).

10. Consultations

11. Additional remarks

Soon after its inclusion in CITES Appendix II at CoP11, *Cuora galbinifrons* including the subspecies *C. g. bourreti* was selected for the Significant Trade Review process, eventually resulting in a recommendation to suspend trade from Lao PDR and Viet Nam in 2009; these recommendations were withdrawn respectively at SC 62 (July 2012, for Viet Nam, as no commercial exports had taken place since 2001 [see [SC62 Doc.27.2 \(Rev.1\)](#)]) and SC70 (October 2018, for Lao PDR, on the basis that it confirmed to the Secretariat that it has no intention of resuming trade in the species [see [SC70 Doc.29.2](#), para. 18]).

An earlier proposal to transfer *Cuora galbinifrons*, including *Cuora bourreti* at subspecies rank, to Appendix I was prepared and submitted by Viet Nam for CoP16 ([CoP16 Prop.33](#)) but this was defeated in a procedural vote following the adoption of [Proposal 32](#) which placed a zero quota on trade in wild specimens of *Cuora galbinifrons* for commercial purposes. At the request of Viet Nam at CoP16, *Cuora galbinifrons* was included in the Periodic Review of Animal Species in the Appendices, conducted by the Animals Committee (Decision 16.124). The review of the species was prepared by Viet Nam and presented in document [AC28 Doc.20.3.8](#). The Animals Committee agreed with the recommendation in the Periodic Review document to transfer *Cuora galbinifrons* including the taxa / subspecies *bourreti* and *picturata* to Appendix I ([AC28 Sum. 2 \(Rev. 1\)](#); [CoP17 Doc. 73](#) para.11).

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