

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

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Nineteenth meeting of the Conference of the Parties  
Panama City (Panama), 14 – 25 November 2022

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Transfer of *Cuora galbinifrons* from Appendix II to Appendix I, in accordance Article II, paragraph 1 of the Convention. The species meets the biological criteria found in Annex 1 of Res. Conf. 9.24 (Rev.CoP17), under criteria A v) (a small population in the wild with high intrinsic vulnerability) and C i) (past and ongoing severe decline due to exploitation).

B. Proponent

Viet Nam and the European Union.\*

C. Supporting statement

1. Taxonomy

1.1 Class: Reptilia

1.2 Order: Testudines

1.3 Family: Geoemydidae

1.4 Genus and species or subspecies, including author and year: *Cuora galbinifrons* Bourret, 1939

*Cuora galbinifrons* was traditionally considered to include two non-typical subspecies, i.e. *Cuora galbinifrons bourreti* and *Cuora galbinifrons picturata* (e.g., Fritz and Havas, 2007). However, recent research has treated both *bourreti* and *picturata* as full species, a status that was recognized for CITES purposes by the adoption at CoP17 of Spinks *et al.* (2012) as the nomenclature standard reference for the *Cuora galbinifrons* group. As a result, at present no subspecies are recognized for *Cuora galbinifrons*.

1.5 Scientific synonyms: *Cyclemys flavomarginata hainanensis* Li, 1958 = *Cuora galbinifrons*

*Cuora galbinifrons serrata* Iverson and McCord, 1992 – documented by Parham *et al.* (2001) to be a hybrid between *Cuora galbinifrons* and *Cuora mouhotii*.

See Fritz and Havas (2007: 216-217) for the history of genus attributions and species-subspecies rankings of the *Cuora galbinifrons* lineage.

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\* 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.

1.6 Common names: English: Indochinese Box Turtle; Flowerback Box Turtle  
French: Tortue-boîte à front jaune  
Spanish:  
German: Hinterindische Scharnierschildkröte ; Dreistreifen-Scharnierschildkröte  
Vietnamese: Rua hop tran vang, Rua hop tran vang mien bac

1.7 Code numbers: ITIS TSN 551910

## 2. Overview

*Cuora galbinifrons* is a medium-sized terrestrial turtle that can grow to 19 cm shell length and about one-kilogram weight. Traditionally it was considered to have two distinct subspecies, *bourreti* and *picturata*, but recent taxonomic studies have preferred to recognize these as distinct species (Stuart and Parham, 2004; Nguyen *et al.*, 2009; Spinks *et al.*, 2012; TTWG, 2017). The typical species *C. galbinifrons* occurs in forested areas of southern P.R. China, Lao PDR, and Viet Nam.

The primary threat to *C. galbinifrons* has been the collection for the pet and Asian consumption trade. The population was estimated to have undergone a decline of over 90% over the past 60 years (three generations) as a direct result of over-collection. The species has been assessed in the IUCN Red List as Critically Endangered since 2000; an updated Red List Assessment of *galbinifrons* (excluding *bourreti* or *picturata* as subspecies) was published in 2020, which noted that the species was rare and continuing to decline.

Calculated population densities are at less than one animal per square km inside protected areas with suitable habitats. 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 traders at the local, district, and provincial level before being exported or consumed (Pham *et al.*, 2019a; Pham *et al.*, 2019b). Whilst documented market trade volumes may have been several orders of magnitude greater than total reported legal trade volumes in the past, trade volumes had reported to have “collapsed” due to the species increasing rarity (Li *et al.*, 2020). Habitat loss and degradation is a secondary threat to the species.

*C. galbinifrons*, including its subspecies *bourreti* and *picturata*, was included in CITES Appendix II at CoP11 in 2000 (CoP11 Prop.36). Based on concerns relating to trade sustainability, all three species were selected for the Significant Trade Review process following CoP11, which resulted in a recommendation to suspend trade from Lao PDR and Viet Nam in 2009. A zero quota for wild specimens traded for commercial purposes was adopted for *Cuora galbinifrons* at CoP16 (CoP16 Prop.32), effective 12 June 2013. At present, illegal trade of this species is still existing, both in Vietnam and neighboring countries. In Vietnam, 29 cases of illegal trade with 260 turtles were seized in the period of 2017-2021. This species was listed in the Government Decree No. 64/2019/ND-CP of Vietnam as a priority protection species. However, a high penalty could not applied for the case with seized animals imported into Vietnam. Therefore, uplisting of *C. galbinifrons* to Appendix I is important for conservation of the species. Following a Periodic Review completed by Viet Nam at AC28<sup>1</sup>, the Animals Committee agreed with the recommendation to transfer the species from Appendix II to Appendix I.

*C. galbinifrons* is legally protected from exploitation in all range countries, but enforcement may be insufficient to prevent ongoing illegal trade. Inclusion in Appendix I is expected to more effectively address illegal trade in this species. *Cuora galbinifrons* warrants 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 estimated to have declined severely (90% in three generations) across its range as a result of collection for trade (see sections 4.4, 5, and 6.4), thus meeting the ‘marked decline’ threshold outlined in Annex 5 of Res. 9.24 (Rev. CoP17). Moreover, the species meet criterion A v) as the population is likely to be small and has the biological characteristics of slow growth, late maturity, limited annual reproductive output and high egg and juvenile mortality rate, which makes the species extremely intrinsically vulnerable to exploitation (see sections. 3.3 and 6.5).

## 3. Species characteristics

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<sup>1</sup> [AC28 Doc. 20.3.8](#)

### 3.1 Distribution

P.R. China, Lao PDR, Viet Nam

*C. galbinifrons* is confirmed to occur in Hainan and Guangxi in PR China, in northern Lao PDR, and in northern Viet Nam at least as far south as Quang Binh province between Minh Hoa and Bo Trach districts (Iverson, 1992; Stuart *et al.*, 2002; Stuart and Parham, 2004; Stuart and Platt, 2004; Fritz and Havas, 2007; Shi *et al.*, 2008a, Asian Turtle Program Unpublished Data)

### 3.2 Habitat

*Cuora galbinifrons* inhabits upland, moist, closed-canopy forest, usually between 300 and 1700 m altitude. The species is predominantly terrestrial and is not specifically associated with forest streams, though animals can swim relatively well and can be seen, at least in captivity, wallowing in shallow water or swampy areas. It is considered a cool forest turtle, with temperatures exceeding 28°C often resulting in stress and poor incubation success in captive animals (Stuart and Platt, 2004; Wang *et al.*, 2011; T.McCormack, *in litt.* to VN MA, 29 Sept 2012).

### 3.3 Biological characteristics

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

A study of the feeding habits of *C. galbinifrons* in the wild in the Diaoluoshan Natural Reserve, Hainan Province, China, found that individuals had an omnivorous diet consisting of fungi, plants, earthworms, and insect larvae (Xiao *et al.*, 2017). For captive animals, a diet consisting of a variety of vegetables, fungi, fruits, and protein sources was recommended (Augustine and Haislip, 2019). Research on movement patterns, microhabitat use, and other aspects of natural history has been carried out for the population of Diao Luo Shan in Hainan, China (Wang *et al.*, 2011).

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; McCormack, unpubl. data in: Li *et al.*, 2020). Similar clutch sizes of 1 to 3 eggs have been reported from long-term captive animals kept in Europe and North America (de Bruin, 1994; Struijk, 2010). In captivity, females can lay eggs all year round, but are typically laid from March through to the end of September (Augustine and Haislip, 2019). It is unknown whether the species exhibits temperature-dependent sex determination, but this feature is present in at least one other *Cuora* species (Augustine and Haislip, 2019).

### 3.4 Morphological characteristics

*Cuora galbinifrons* is a medium-sized turtle, reaching up to 19 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 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 shows 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 shell is relatively long and oval when viewed from above. The middle of the carapace shows a broad brown band with black edges; the brown band splits on the first vertebral scute, and only two narrow extensions reach forward to the carapace margin, enclosing a yellow area above the neck. A fine yellow, black-edged vertebral line is normally present. The lower 2/3 of each costal scute area is uniform yellow (sometimes with small black markings), creating a distinct large yellow 'window'. Most of the marginals are dark brown or black, including the upper area and underside. The plastron is uniform black, or in some older animals is mostly black with some irregular areas of less dense pigmentation appearing yellowish in the midline and/or along scute seams. The head coloration is variable, and usually shows areas of bright yellow, orange and red and fine black speckling. The front limbs are generally dark, with some of the large scales being bright yellow or orange.

### 3.5 Role of the species in its ecosystem

The role of *Cuora galbinifrons* in its native upland forest ecosystems is unknown.

## 4. Status and trends

*C. galbinifrons* has been assessed in the IUCN Red List as Critically Endangered since 2000. The initial assessment prepared included *bourreti* and *picturata* as subspecies of *galbinifrons*. An updated Red List Assessment of *galbinifrons* (excluding *bourreti* or *picturata* as subspecies) as Critically Endangered under Red List Criteria A2bd+4bd was published in 2020 (Li *et al.*, 2020). *C. galbinifrons* was not included in the 1982 Amphibia-Reptilia Red Data Book; it was listed as 'K – Insufficiently Known (suspected to be threatened)' from 1988 to 1994, before being assessed as 'Lower Risk: near threatened' in 1996. The rapid rise in Red List threatened status reflects the rapid escalation of its exploitation combined with its intrinsic biological vulnerability to exploitation. Since 2000, *Cuora galbinifrons* has consistently been included in the list of 50 species of tortoises and freshwater turtles at the 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 early 2000 have largely been due to the 1998-2010 goal to reforest five 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 five 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. Quantitative data on primary forest areas or trends in the areas of occurrence of this species in P.R. China or Lao PDR has not been available.

### 4.2 Population size

No overall population estimates for the species are available. Wang *et al.* (2011) calculated a population density of 0.7862 *C. galbinifrons* per square km at Diaoluoshan Nature Reserve in Hainan, China, based on surveying six sampling areas with 424 baited traps over a total of 6360 trap-days. Elsewhere for *Cuora galbinifrons*, only anecdotal and relative population density data are available. 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* per day when working with a trained turtle hunting dog in prime turtle habitat (Stuart and 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 *C. 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).

In northern Viet Nam, a 2019 survey of the bamboo and hilly secondary forests of the Tam Thanh commune and Quan Son district encountered three *C. galbinifrons* individuals during time-constrained walks on random transects of 1-4.5 km in length, covering a total of 64.9 km over a total of 361.8 survey hours (Van Thong *et al.*, 2020). The overall density of *C. galbinifrons* was calculated as 0.057 individuals per km (Van Thong *et al.*, 2020). The same study followed a single hunter over a period of 59 days, and during this period 23 *C. galbinifrons* individuals were collected. Further studies were considered needed in order to assess population status in of high mountain forests in northern Viet Nam (Van Thong *et al.*, 2020).

### 4.3 Population structure

No population structure data are available. 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

Substantial survey effort has been undertaken in Viet Nam between 2009–2012 focused on determining the range and priority habitat for *C. galbinifrons*. Anecdotal information from interviews throughout the range documented 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. 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, unpubl. data in: Li *et al.*, 2020).

During 7999 trap-days during 2011 and 2012 at Yinggeling Nature Reserve in Hainan, China, where *galbinifrons* was previously known to occur, not a single *C. galbinifrons* was trapped; interviews conducted in villages surrounding the reserve indicated that the last capture of *C. galbinifrons* in the reserve occurred over 10 years previously (Wan *et al.*, 2015).

#### 4.5 Geographic trends

All available information indicates that the species is intensively collected throughout its range in PR China, Lao PDR and Viet Nam.

### 5. Threats

The primary threat to *Cuora galbinifrons* has been collected for trade. The species continues to be 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 (Hendrie, 2000; Stuart and Timmins, 2000; McCormack *et al.*, 2010; Li *et al.*, 2020). Habitat loss and degradation are considered a significant but more localized threat to the species (Stuart and Timmins, 2000; Hendrie, 2000; Li *et al.*, 2020).

### 6. Utilization and trade

#### 6.1 National utilization

Historically *C. galbinifrons* have been consumed locally for food as part of a subsistence diet, however, in the last decade consumption has largely ceased with most animals now sold into the trade due to the high economic incentive. These turtles are readily collected with the assistance of hunting dogs but are difficult to find without them (Stuart and Timmins, 2000). 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 generally have specific local medicinal uses, but bones are often sold to traders for the production of bone glue. However, Pham T.V. *et al.* (2020) reported that hunters of *C. galbinifrons* in northern Viet Nam suggested that aside from being sold to traders, the species was also used for traditional medicine and for decorative purposes. In some areas, turtles of all species are consumed as broad "health invigorators". The *C. 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; Li *et al.*, 2020).

#### 6.2 Legal trade

The CITES Trade Database records a total of 3,718 live specimens as well as scientific specimens of *C. galbinifrons* (including *bouretti* and *picturata*) as gross exports during the period 1999-2019. Exports over the 20-year period amounted to 1500 declared live specimen exports from Lao PDR in 2006 with source code 'R' (which triggered inclusion in the Review of Significant Trade), 1057 (re-) exported from Hong Kong SAR of China, 834 exported from Viet Nam (likewise placing the species- country combination in the Review of Significant Trade), 38 from P.R. China, and between 1 and 25 from France, Germany, Italy, Jersey, Japan, Latvia, Lebanon, the Netherlands, Switzerland, and the United Kingdom. A complete Gross Export tabulation and a Comparative Trade Tabulation are provided as an annex to this proposal.

The largest importers over the period 2000-2019 were Viet Nam, United States, Japan, Hong Kong SAR of China, and Spain, with Belgium, Canada, Germany, Italy, South Korea, Switzerland, Taiwan Province of China, Thailand, the United Kingdom, and the Czech Republic each reporting modest imports numbers of less than 30 individuals per year.

The CITES Trade Database does not specify subspecies; thus the data above cannot be used to elucidate trends in the trade of *galbinifrons* sensu stricto while excluding *bourreti* or *picturata*; however, based on trade observations it is likely that the great majority of specimens traded as *Cuora galbinifrons* were indeed *galbinifrons*, with many fewer *bourreti* and *picturata* being observed in trade when shipments have been identified to specific taxon (subspecies or species).

### 6.3 Parts and derivatives in trade

According to the CITES Trade Database, *Cuora galbinifrons* was predominantly traded internationally as live specimens (see section 6.2). All available turtle shells are bought in Viet Nam 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 *C. galbinifrons* and *Manouria impressa*.

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

### 6.4 Illegal trade

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

Available information indicates that most *C. galbinifrons* traded in Viet Nam have been exported to East Asian markets, mainly Hong Kong SAR of China and southern China. Seizures of illegally transported and traded freshwater turtles in Viet Nam occurred predominantly on north-bound shipments, and in many cases traders or drivers stated that their cargo's destination was China. The species was present in nearly every reported market survey that looked at turtle trade in China and Hong Kong of China since recording began in 1993. All these animals appeared wild-caught and most were offered alive in the food markets (Lau *et al.*, 1995; Artner and Hofer, 2001; Wang *et al.*, 2005; Gong *et al.*, 2005, 2006, 2009; Cheung and Dudgeon, 2006; Wu, 2007). Cheung and Dudgeon recorded over 15,000 *Cuora galbinifrons* traded in markets of Hong Kong SAR of China alone during the period 2000-2003, making it the fourth most traded turtle species at 4% of total; comparing this to the total of 916 live *C. galbinifrons* that were recorded in the CITES Trade Database as exported during this same period worldwide (see 6.2 and Annex) hints at the scale of illegal and unrecorded trade. The volume of *C. galbinifrons* in visible trade continued to be highly significant in subsequent 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). Although legally protected in Lao PDR, trade continued almost unabated due to the porous border with Viet Nam and limited resources and capacity of law enforcement personnel (Stuart *et al.*, 2011). Monitoring of turtle advertisements in Vietnamese Facebook Groups from 2013-2018 found 209 *C. galbinifrons* individuals for sale, the majority of which were adult turtles (88.5%) and were therefore considered likely to be wild-caught and illegally traded (Pham 2019a). A rapid increase in the number of turtle advertisements was observed over the study period (Pham 2019b).

IUCN and TRAFFIC (2012) noted that reported seizures involving *Cuora galbinifrons* provide evidence of continuing illegal activities involving this species. In 1998, Vietnamese authorities reported having seized an estimated 700 (800 kg) of turtles and tortoises of 13 species, of which a small number were *C. galbinifrons*, from a public bus destined for Hanoi. The trader claimed that the animals were raised on farms in southern Viet Nam, but information provided to the authorities suggested they were collected from the wild in Viet Nam, Laos PDR and possibly Cambodia. The cargo was for possible onward shipment to the Chinese market (TRAFFIC, 2012). In 1999, an estimated 150 *C. galbinifrons* were among specimens seized from a truck travelling from Central Viet Nam to Hanoi, which, at the time, was the largest number of specimens of this species observed in a single trade seizure (Hendrie, 1999). In 2004, 277 kg of turtles were seized en route to Vinh City, Viet Nam, of which an unknown number were *C. galbinifrons*. Police suspected that the turtles came across the border from Lao PDR

(TRAFFIC, 2012). More recent seizures include 28 cases of domestic seizures in Viet Nam during the period 2010-2020, comprising a total of 383 live specimens; noteworthy cases among these included seizures of 32 *galbinifrons* in Ha Tinh province on 22 May 2013 followed by their release in a National Park, seizure of 55 *galbinifrons* from a bus in Quang Ninh province on 29 July 2014 (turtles placed in a rescue center, bus driver was fined), 78 *galbinifrons* plus 41 *bourreti* seized in Hanoi on 24 September 2015 (all turtles placed in rescue center), 23 *galbinifrons* seized in Hanam on 24 May 2016 (turtles placed in a rescue center), and a total of 50 *galbinifrons* seized in 2019 from six cases (all turtles placed in rescue center). In addition, a seizure of 620 live turtles made by Chinese authorities in Guangxi on 24 August 2015 from a truck arriving from Viet Nam contained 10 *Cuora galbinifrons*, indicating ongoing illegal international trade (recent seizure data from provincial Forest Protection Department records).

TRAFFIC International's Wildlife Trade Portal, an open-access repository of wildlife seizure and incident data, holds a record of 19 incidents involving the seizure of *C. galbinifrons* between 2013-2020, corresponding to a total of 92 individuals seized (TRAFFIC International 2022 Wildlife Trade Portal). All except one incident was reported to have occurred in Viet Nam (TRAFFIC International 2022 Wildlife Trade Portal).

Overall, an evaluation of reported seizures of tortoises and freshwater turtles for the period 2000-2015 ([CoP17 Doc.73 Annex](#)) recorded a minimum of 284 live specimens of *C. galbinifrons* seized in 21 separate seizure cases. Forensics database of the Institute of Ecology and Biological Resource showed that a total of 25 seizures with 228 turtles have been seized by enforcement agencies of Viet Nam from November 2016 to June 2021.

## 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 galbinifrons*, have proven to be highly susceptible to overexploitation, particularly where adult animals are harvested (Doroff and Keith, 1990; Gibbons, 1990; Congdon *et al.*, 1993; O'Brien *et al.*, 2003). The population trend data in section 4.4 strongly suggests that *C. galbinifrons* has been subject to unsustainable collection for the past 15-20 years and this has resulted in the depletion, collapse, or extirpation of each population 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, *C. galbinifrons* emerged with a relatively high score (1.5 out of a maximum of 2.0) of endangerment from trade (Zhou and Jiang, 2008).

## 7. Legal instruments

### 7.1 National

**P.R. China:** The People's Republic of China Wild Animals Protection Law (1989) forms the national cornerstone of the protection of wildlife species. The Wild Animals Protection Law also covers important economic and scientific species; *Cuora galbinifrons* is included in the list of *National Protected Terrestrial Wild Animals that are Beneficial, or with Important Economic and Scientific Research Value*, which was published by the State Forestry Administration in 2000. For terrestrial species, the State Forestry Administration is responsible for the administering and enforcing of this law, while the Fisheries Ministry is responsible for the aquatic species. The collecting of state major protected species is only allowed for scientific research, captive breeding, exhibition and other special reasons. The transport of state major protected species across the county boundary needs permission from the provincial Forestry or Fisheries Department. The import and export of these state major protected species and CITES-listed species need permission from the Forestry or Fisheries bureau in the central government and a certificate issued by the Endangered Species Import and Export Management Office of the People's Republic of China (Shi and Lau, 2000; Endangered Species Import and Export Management Office of the People's Republic of China, 2002a).

**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* is listed under Prohibited Category I, the highest protective category, banning hunting and collection year-round.

**Viet Nam:** *Cuora galbinifrons* is protected from commercial exploitation as a Priority Protected Rare, Precious and Endangered Species under Decree 160/2013/ND-CP, amended and supplemented by Decree 64/2019/ND-CP of the Government.

## 7.2 International

*Cuora galbinifrons* (including *bourreti* and *picturata* as subspecies) was included in CITES Appendix II under Criteria B i and B ii at CoP 11 (Proposal 36, Gigiri, Kenya, 2000). 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* at CoP16 (CoP16 Prop.32), effective 12 June 2013.

The genus *Cuora*, including *Cuora galbinifrons*, has been included in Annex B of EU Commission (EC Regulation 338/97 and its amendments) since 18/12/2000, which requires that the country of import must issue a corresponding non-detriment finding and import permit before a shipment of the species can enter the European Union. Since 10 May 2006, imports of wild specimens of *C. galbinifrons* from China have been subject to an EU import suspension (implemented on the basis of Article 4(6)(b) Council Regulation (EC) No 338/97). EU import restrictions have also been in place for wild specimens of this species from Lao PDR since 26 November 2010

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 galbinifrons* are not known to be managed or manipulated for sustainable offtake in any part of its range.

### 8.2 Population monitoring

No population monitoring programs are known to be in place for *Cuora galbinifrons* anywhere in the species' range.

### 8.3 Control measures

#### 8.3.1 International

Since its inclusion in CITES Appendix II, international shipments of *Cuora galbinifrons* 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 beyond 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 an 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 galbinifrons* with limited success; survival of eggs is low and long-term survival of hatchlings is lower. Some early hatchlings are now (2021) nearing fifteen years of age. 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 galbinifrons* is maintained in modest numbers in captivity by zoos, institutions and private 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 (Buskirk, 1989; de Bruin, 1994; Struijk, 2010). A European studbook has existed for the species since the late 1990s, with 78 registered animals maintained at institutions and private keepers in eight countries in 2009 (Struijk, 2010). According to the European studbook holder for *C. galbinifrons*, a total of 47 individuals are held in European Association of Zoos and Aquaria (EAZA) institutions (11 males, 13 females, and 23 unsexed individuals) as of January 2022, the majority of which are held at Allwetterzoo Münster, Germany (Philipp Wagner *pers. comm.* to UNEP-WCMC, 2022). A further 4 individuals (1 female, 3 unsexed) were reported within a network of private keepers (Philipp Wagner *pers. comm.* to UNEP-WCMC, 2022).

*Cuora galbinifrons* 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 of juveniles does not exceed mortality of breeding stock) in commercial captive conditions and is no longer included in inventories of turtle farms in subsequent 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 galbinifrons*, and several records of these turtles are known from inside protected areas (Stuart and Platt, 2004; McCormack *et al.*, 2006; Wang *et al.*, 2011). However, designation as a 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 their natural habitat.

#### 8.6 Safeguards

No safeguards are 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. *Cuora galbinifrons* is easily separated from *bourreti* and *picturata* 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*. Furthermore, *galbinifrons* normally shows a single large pale yellow or orange area low on the side of the carapace (pale area bisected by dark pigmentation in *bourreti*, pale area higher up on side of carapace in *picturata*), the marginal scutes may show orange or yellow pigmentation, and the head in some individuals bears bright red pigmentation. Detailed information to differentiate these three forms was provided by Tabaka (2002, available online) and Becker (2015).

### 10. Consultations

Consultations with P.R. China and Lao PDR were conducted in the official letter dated 20 October 2021.

### 11. Additional remarks

Soon after its inclusion in CITES Appendix II at CoP11, *Cuora galbinifrons* 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* 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* to Appendix I (AC28 Sum. 2 (Rev. 1); CoP17 Doc. 73 para.11).

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Table 1. Gross export trade tabulation for <i>Cuora galbinifrons</i> , displaying available records of legal international trade for the period 1999-2019; the species was included in CITES Appendix II with effect of 19 July 2000. Trade records downloaded from the UNEP-WCMC CITES Trade Database on 19 July 2021.																							
Term	Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Live	CA																			1			1
Live	CH				5		5			1			2		5	5					4		27
Live	CN				24		6			5			3										38
Live	DE						4			3					2				5	3			17
Live	FR				5																		5
Live	GB				1	3		1													8		13
Live	HK		287	62	281	174	40					12				40	63	93				5	1057
Live	IT																			4			4
Live	JE				2	2		1			8	6											19
Live	JP												2										2
Live	LA								1500														1500
Live	LB							13															13
Live	LV					2																	2
Live	NL				7																		7

Live	US		6		6																		12
Live	VN	7	33	16											175	610							841
Total live		7	326	78	331	181	55	15	1500	9	8	18	7	0	182	655	63	93	5	8	12	5	<b>3538</b>
specimens	AR												1										
specimens	DE									1													
specimens	HK					14																	
specimens	US							1			1										125		
specimens	VN					14	2					1											

Table 2. Comparative trade tabulation for *Cuora galbinifrons*, displaying available records of legal international trade for the period 1999-2017; the species was included in CITES Appendix II with effect of 19 July 2000. Trade records downloaded from the UNEP-WCMC CITES Trade Database on 19 July 2021.

1999	US	VN		7		live		T	W
2000	IL	US			6	live			
2000	US	HK			287	live		T	W
2000	US	VN			3	live		T	U
2000	US	VN			30	live		T	W
2001	US	HK	CN		3	live		T	W
2001	US	HK	VN		7	live		T	W
2001	US	HK	XX		52	live		T	W
2001	US	VN			16	live		T	W
2002	CA	US	CN			6	live	P	C
2002	CA	US	CN	6		live		P	U
2002	CH	FR	CN			5	live	Q	O
2002	CH	HK	XX	12		12	live	T	O
2002	DE	HK	XX		27	live		P	O
2002	DE	HK	XX			27	live	T	O
2002	FR	CH	CN	5		live		Q	O
2002	GB	JE	GB			1	live	B	U
2002	GB	JE				1	live	B	U
2002	JE	GB	XX	1		live		Z	U
2002	JE	NL	XX		7	4	live	Z	I
2002	JP	HK	XX		14	14	live	T	O
2002	US	CN			24	live		T	C
2002	US	HK	XX		3	live		B	I
2002	US	HK	XX		5	live		P	W
2002	US	HK	XX		26	228	live	T	O
2002	US	HK	XX		33	live		T	W



Table 2 (continued)

Year	Importer	Exporter	Origin	Importer reported quantity	Exporter reported quantity	Term	Unit	Purpose	Source
2002	US	HK		154		live		T	C
2003	GB	JE	XX	2		live		Z	U
2003	GB	LV	XX		2	live		Z	W
2003	JE	GB			3	live		Z	U
2003	JP	HK	XX	110	122	live		T	O
2003	US	HK	XX	52	22	live		T	O
2003	US	HK	XX		30	live		T	U
2003	US	HK		14		specimens		S	W
2003	US	VN			14	specimens		S	W
2004	CA	HK	XX		6	live		T	O
2004	CH	DE	CN		4	live		Q	O
2004	DE	CH	CN	4		live		Q	O
2004	DE	CH	CN		5	live			O
2004	TH	HK	XX	18		live		P	O
2004	TH	HK	XX		18	live		T	O
1999	US	VN		7		live		T	W
2004	US	CN			6	live		Z	C
2004	US	HK	XX	10		live		P	W
2004	US	HK	XX	6	10	live		T	O
2004	US	VN		2		specimens	S	W	
2005	DE	US	XX		1	specimens	S	W	
2005	DK	GB	HK	1		live		Z	C
2005	DK	JE	HK		1	live		B	C
2005	JP	LB	KZ	13		live		T	C

2006	VN	LA		1500		live		T	R
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Table 2 (continued)

Year	Importer	Exporter	Origin	Importer reported quantity	Exporter reported quantity	Term	Unit	Purpose	Source
2007	CH	DE	XX	1	1	live		B	O
2007	CH	DE	XX	2	2	live		T	O
2007	DE	CH			1	live		Z	F
2007	US	CN	XX	5		live		S	U
2007	US	CN			5	live		S	U
2007	US	DE	XX	1		specimens	S	W	
2008	AR	US			1	specimens	S	C	
2008	GB	JE	GB	1		live		Z	U
2008	GB	JE	XX	1		live		Z	I
2008	GB	JE	XX	1		live		Z	U
2008	GB	JE		5		live		Z	F
2009	CZ	HK		7		live			I
2009	DE	VN			1	specimens	S	W	
2009	GB	JE	VN	1		live		Z	W
2009	GB	JE	XX	2		live		Z	W
2009	HK	JE			1	live		Z	U
2009	US	HK	XX		5	live		P	U
2009	VN	JE	XX		1	live		Z	W
2009	XX	JE	XX		1	live		Z	W
2010	CZ	CN		3		live			I
2010	DE	CH	HK		2	live		T	O
2010	US	AR	US	1		specimens	S	C	
2010	US	JP	XX	2		live		P	I

2012	IT	CH	HK		4	live		T	O
2012	IT	CH			1	live		T	F

Table 2 (continued)

Year	Importer	Exporter	Origin	Importer reported quantity	Exporter reported quantity	Term	Unit	Purpose	Source
2012	JP	DE		2	2	live		T	C
2012	JP	VN		100	160	live		T	C
2012	TW	VN			15	live		T	C
2013	BE	VN			20	live		T	C
2013	ES	VN		20	90	live		T	C
2013	HK	VN		120	160	live		T	C
2013	IT	CH	HK	4		live		T	O
2013	IT	CH		1		live		T	F
2013	JP	VN		273	323	live		T	C
2013	KR	VN		2		live		T	C
2013	TW	VN			15	live		T	C
2013	US	HK	VN	40	40	live		T	C
2014	JP	HK	VN	1	1	live		T	C
2014	KR	HK	VN	42	14	live		T	C
2014	US	HK	VN	20	20	live		T	C
2015	US	HK	VN	8	8	live		T	C
2015	US	HK	XX		83	live		B	U
2015	US	HK	XX	83		live		Z	U
2015	US	HK			2	live		B	F
2015	US	HK		2		live		Z	F
2016	CH	DE		5	5	live		T	C
2016	DE	US			125	specimens	S	C	

2017	CN	IT			2	live		T	C
2017	HK	IT		2		live		T	C
2017	TW	DE			3	live		T	C

Table 2 (continued)

Year	Importer	Exporter	Origin	Importer reported quantity	Exporter reported quantity	Term	Unit	Purpose	Source
2017	US	CA		1	1	live		Z	C
2018	AT	CH	XX	4		live		T	U
2018	SG	GB	JE		2	live		B	F
2018	SG	GB	JE	8		live		Z	F
2019	KR	HK	VN		2	live		T	C
2019	SG	HK	XX	3		live		Z	I

Table 2 (continued)

Year	Importer	Exporter	Origin	Importer reported quantity	Exporter reported quantity	Term	Unit	Purpose	Source
2013	KR	VN		2		live		T	C
2013	TW	VN			15	live		T	C
2013	US	HK	VN	40	40	live		T	C
2014	JP	HK	VN	1	1	live		T	C
2014	KR	HK	VN	42	14	live		T	C
2014	US	HK	VN	20	20	live		T	C
2015	US	HK	VN	8	8	live		T	C
2015	US	HK	XX		83	live		B	U
2015	US	HK	XX	83		live		Z	U
2015	US	HK			2	live		B	F
2015	US	HK		2		live		Z	F
2016	CH	DE		5	5	live		T	C
2016	DE	US			125	specimens		S	C
2017	CN	IT			2	live		T	C
2017	TW	DE			3	live		T	C