

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

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Sixteenth meeting of the Conference of the Parties  
Bangkok (Thailand), 3-14 March 2013

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Inclusion of *Geoemyda japonica* in Appendix II with a zero annual export quota with primarily commercial purposes for wild-caught specimens, in accordance with Article II paragraph 2 (a) of the Convention and with Resolution Conf. 9.24 (Rev. CoP15) Annex 2a.

Conf. 9.24(Rev. CoP15) Annex 2a –Criteria for the inclusion of species in Appendix II in accordance with Article II, paragraph 2 (a), of the Convention

- A. It is known, or can be inferred or projected, that the regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future; or
- B. It is known, or can be inferred or projected, that regulation of trade in the species is required to ensure that the harvest of specimens from the wild is not reducing the wild population to a level at which its survival might be threatened by continued harvesting or other influences.

B. Proponent

Japan\*

C. Supporting statement

1. Taxonomy

- 1.1 Class: Reptilia
- 1.2 Order: Testudines
- 1.3 Family: Geoemydidae
- 1.4 Genus, species, including author and year: *Geoemyda japonica* Fan, 1931
- 1.5 Scientific synonyms: *Geoemyda spengleri japonica* Fan 1931
- 1.6 Common names: English: Ryukyu Black-breasted Leaf Turtle, Okinawa Black-breasted Leaf Turtle, Ryukyu Leaf Turtle
- 1.7 Code numbers: N/A

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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.

## 2. Overview

The purpose of this proposal is to include all populations of the species *Geoemyda japonica* (*G. japonica*), which is endemic to Okinawa Island, Kume Island and Tokashiki Island of the Okinawa Island Group, Ryukyu Archipelago, southern Japan, in Appendix II of CITES.

*G. japonica* is a relatively small geoemydid species, whose habitat is confined to wet natural forests and the vicinity. Populations of this turtle have been declining as a result of reductions of favorable habitat through artificial land development, as well as aridification of forest floor. Consequently, this turtle is categorized as Endangered in the IUCN Red List (Alce, B1+2c ver 2.3) (IUCN, 2012) and Vulnerable in the Red List of Threatened Wildlife of Japan (The Ministry of the Environment, 2012).

All handlings, including capture and trafficking, of this turtle are regulated by the Law for the Protection of Cultural Properties of the Japanese National Government, because *G. japonica* is designated as a National Natural Monument of Japan. Nevertheless, however, it is confirmed through surveys of foreign markets by such international organizations as IUCN and TRAFFIC that the said species is sold abroad (Kanari and Xu, 2012), and it is highly possibly that such international trading activities have been causing illegal captures of this turtle in the wild. Therefore, it is necessary to regulate and monitor international trading activities of this turtle.

It is conceivable that there is legitimate international trade of live specimens which had been captured before enforcement of the Law regulation starting in 1975 or have derived from captive breeding involving such legally captured specimens (captive breeding of *G. japonica* could be possible technically: Ota and Hamaguchi, 2003). What important is to ensure that only these legal specimens bred in captivity are traded internationally and so that the trade are not detrimental to the survival of wild populations of the species. Japan, consequently, propose the inclusion of *G. japonica* to Appendix II to eliminate illicit trade effectively with cooperation of Parties and monitor legal trade of captive breeding specimens between countries except the range state.

The annual export quota with primarily commercial purposes for wild-caught specimens will be zero. Also, the annual export quota from Japan with primarily commercial purposes for captive breeding specimens will be zero.

## 3. Species characteristics

### 3.1 Distribution

This turtle is distributed only in three islands of the Okinawa Island Group, Ryukyu Archipelago of Japan, covering the area of less than 30,000ha in Okinawa Island, 1,000ha in Kume Island, and 500ha in Tokashiki Island. Extent of population fragmentation remains to be studied yet on Okinawa Island and Tokashiki Island. On Kume Island, population subdivision involved by habitat subdivision is obvious (The Environment Agency, 2000).

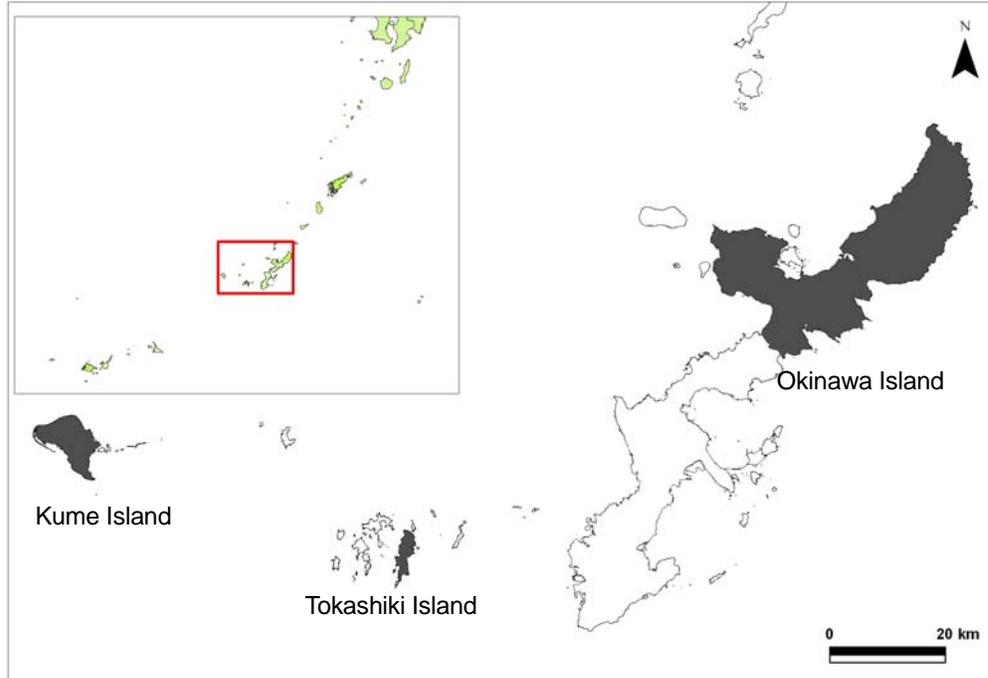
### 3.2 Habitat

This largely terrestrial turtle inhabits in the primary forest or well recovered secondary broad-leaved evergreen forest. This *Geoemyda japonica* seems to favor humid forest floors and may occasionally be found in a relatively high density in and around streams thereon. On the other hand, it is rarely observed in dry environment even of the same forest floors and environment where human activities are prominent (Ota and Hamaguchi, 2003). For the survival of a stable breeding population of *G. japonica* in a given locality, therefore, presence of natural forest with wet forest floor and little effect of human activities seems to be essential.

### 3.3 Biological characteristics

*Geoemyda japonica* composes the genus *Geoemyda* of the family Geoemydidae with only one more congeneric species *G. spengleri* from southeastern Continental China and northern Vietnam. Fan (1931) had first described the taxon *japonica* as a subspecies of *Geoemyda spengleri*. Based on the detailed morphological analyses of *G. spengleri* at that date, however, Yasukawa et al. (1992) concluded that the Central Ryukyu populations actually deserve recognition as an independent full species. Recent molecular study confirmed Yasukawa et al.'s taxonomic conclusion by demonstrating

a relatively large genetic divergence between *G. spengleri* sensu stricto and *G. japonica* (Gong et al., 2009).



**Figure 1. Maps showing location of the Okinawa Island Group in southern Japan (inset), and gross ranges of *Geoemyda japonica* on three islands of the group (shaded areas).**

In the field, *G. japonica* is observed mostly from April to September, suggesting that the turtle becomes inactive and stays in shelters during the rest of the year. Observations on captive individuals suggest that it takes at least three years for newly hatched individuals to attain sexual maturity. Based on some observations on individuals kept in an outdoor open cage on Okinawa Is., the egg-laying season of *G. japonica* may range from the beginning of April to September (with a peak in August), during which an adult female lays one or sometimes more clutch, each consisting of one egg or two eggs (or rarely three) (n=31: Ota and Hamaguchi, 2003)

This turtle is omnivorous and opportunistic, usually feeding on fruits, earthworms, insects, and land snails, but also dead bodies of frogs and other vertebrates.

Sequence variations in mitochondrial 12S and 16R ribosome RNA genes strongly suggested remarkably low genetic variation within a population and between the populations of *G. japonica*. (Ota and Hamaguchi, 2003)

Due to its preference to natural forests distant from human residences and also its overall cryptic nature, various ecological and demographic aspects of *G. japonica*, such as size and structure of each population, remain to be studied yet.

#### 3.4 Morphological characteristics

Carapace, ranging from 65-157 mm long in adults, is relatively elongate and slightly domed, with three remarkable longitudinal keels on the vertebral and pleural scutes. There are strong serrations on the posterior margin of carapace. The ground color of carapace is usually dark brown often with dark markings on carapacial keels. There is no hinge structure in the plastron. Plastral surface is almost entirely black or dark brown with yellow. Tip of maxillary antrum is sharp like a hook and occlusal surface is slightly wide. Dark reddish brown or yellowish brown dashed lines are seen from temporal to cervical regions (Yasukawa, et al., 1992; The Ministry of the Environment, 2000).

The egg of *G. japonica* is spheroid in shape, measuring approximately 45 mm long, 23 mm wide, and 15 g in weight. Egg shell, white in color, is slightly transparent, making inside more or less visible externally. The hatchling measures approximately 34 mm in carapace length, 30 mm in carapace width, and 8 g in weight. (Ota and Hamaguchi, 2003).

### 3.5 Role of the species in its ecosystem

The Central Ryukyus including the Okinawa Island Group is noted for the high frequency in terrestrial non-volant fauna of species at the state of relict endemism, such as *Tokudaia* spp., *Goniurosaurus kuroiwae*, *Limnonectus namiyei*, etc., besides *G. japonica* (see below), presumably as a result of consistent insular isolation from adjacent land masses since the Early Pleistocene or Late Pliocene (2,000,000 to 1,700,000 years ago), or even older era (Ota, 1998). Consequently this region harbors a characteristic ecosystem encompassing food web with various unique features, such as the complete absence of carnivorous mammals and assignment of the presumably compensating role to a few snake genera (e.g., *Protobothrops*, *Dinodon*) (Ito et al., 2000; Ota, unpublished data). As the only species of non-marine turtles and of surface-roaming omnivorous ectotherm vertebrates in the Central Ryukyus, *G. japonica* is expected to have long been playing a peculiar role of its own in the food-web of indigenous ecosystem in this region.

## 4. Status and trends

### 4.1 Habitat trends

On each of the three Okinawa Group islands where *G. japonica* occurs, its habitat is confined to forested areas dominated by *Castanopsis sieboldii* and the vicinity. Natural forests on these islands have been reducing in these several decades, and now this turtle is distributed only in limited areas, being less than 30,000 ha in Okinawa Island, 1,000 ha in Kume Island, and 500 ha in Tokashiki Island (The Environment Agency, 2000).

Several protected areas, in which human activities for land development are regulated by Laws, are designated in those forests. However, a number of roads and paths have been constructed within those forests, even including the protected areas, bringing various negative effects to *G. japonica* populations, such as interruptions of gene flows, road-killing of individual turtles, increased entries of exotic potential predators and competitors, and lowering of ambient humidity therein (Ito et al., 2000).

### 4.2 Population size

There are no scientifically reasonable estimates for either population size or individual home range size of *G. japonica* on any of those islands inhabited by this turtle. However, the number of individual turtles, whose occurrence had been confirmed by direct counting on each of the three islands, was reported in Ota and Hamaguchi (2003: see Table 1 below). Because the area surveyed in this work obviously represents only a part of the whole habitat on each island, actual population size should be much greater.

Table 1. Results of census surveys for *Geoemyda japonica* on the three islands reported in Ota et al. (2003).

Habitat	Period	Frequenc y	Number	Structure
Okinawa Island	2002-2002	107 times	302	M:137 F:149 Immature:16
Kume Island	1994-2002	18 times	29	M:14 F:12 Immature:3
Tokashiki Island	1994-2000	4 times	12	M:5 F:6 Immature:1

In addition, mark and recapture practices in the habitat area of Okinawa Island yielded results that indicate a relatively philopatric nature of *G. japonica*. For example, nine individuals recaptured more than three weeks after their releases were mostly found within 100 m from the points of initial captures (and releases). Furthermore, a follow-up study by attaching spools of threads to four turtles and monitoring for more than three weeks showed that the ranges of movements in all four 4 individuals were as distant as, or within 100 m from initial captures. (Ota and Hamaguchi, 2003).

### 4.3 Population structure

Ages and sexes of individuals encountered during census surveys in the natural habitat on each island are shown in Table 1. The sex ratio did not significantly skew from 1:1, and the proportion of immatures ranged from 5 to 10 %- (Ota and Hamaguchi, 2003)

### 4.4 Population trends

As mentioned in 4.2 above, there is no scientifically reliable estimate of concrete population size for any of the three islands. Nevertheless, taking grossly consistent reduction in frequency of encounters in the field into account, declines in size and geographic range of *G. japonica* populations at least on Okinawa and Kume Islands since the early 1980s are highly likely (The Environment Agency, 2000).

### 4.5 Geographic trends

Presence of a huge geographic gap between ranges of *G. japonica* and of the only other congeneric species *G. spengleri*, along with their relatively large genetic distance from each other, clearly indicates that *G. japonica* represents an extremely relict state as deriving from consistent extinction of populations belonging to phylogenetically closer species (Ota, 1998). Recent discovery of presumably closest species, *G. amamiensis*, from the Late Pleistocene Tokunoshima Island of the Amami Island Group immediately north of the Okinawa Island Group further offers a circumstantial support to the above view (Takahashi et al., 2007). Also, discoveries of Late Pleistocene and Holocene fossils of *G. japonica* from several localities in the southern part of Okinawa Island and a few adjacent islets, where this turtle does not occur at present (Ota, 2003), indicate its consistent range shrinkage since no earlier than the Late Pleistocene with or without influences of human activities.

## 5. Threats

While its habitat area is already limited, main threats are habitat loss and degradation of habitat environment. In addition, road constructions surrounding habitat areas caused road-kill and death by fall in roadside gutters of individuals. Invasion of exotic potential predators including mongooses, wild dogs and cats into its habitats in Okinawa Island and the intercrossing with *Cuora flavomarginata* or *Mauremys mutica* are also concerned.

As its capture and trafficking are subject to the regulation in Japan, it is not allowed to publicly sell or breed this turtle as a pet. However, demand as a pet is persistent, there are illegal trade cases such as the incident which the persons concerned were arrested in September, 2003 with suspicion of capture and sale of 41 individuals and 32 of them were made to die (TRAFFIC East Asia-Japan. 2004) and a case of paper sent to prosecutor in August 2011 dealing eight individuals of this turtle.

Trade of this turtle at international market exists, and there are cases of selling this turtle with explanation that those turtles are illegally captured in the wild against the law of Japan. Because this turtle has low fecundity and is traded with high price, it is seriously concerned that this international needs and trade will continue to induce its illegal capture in the wild.

## 6. Utilization and trade

### 6.1 National utilization

Utilization of this species for commercial purposes is not allowed as principle. Every capture, breeding and trafficking even for academic purposes are required permission of the Director of the Agency for Cultural Affairs in accordance with the Law for the Protection of Cultural Properties. There were nine cases that permitted its capture and trafficking during 11 years from 2001 to 2011.

### 6.2 Legal trade

In principle, export of living body from Japan is prohibited. Sales of this turtle in markets such as in China, USA and France are recognized. However, there is not any regulation regarding international trade and no trade record is available.

### 6.3 Parts and derivatives in trade

Living specimens that founded in the market this time are for the purpose of selling as a pet or as stocks for captive-breeding.

### 6.4 Illegal trade

Surveys by IUCN and TRAFFIC etc. reveal that sales of this turtle are recognized in markets at least in China including Hong Kong, France and USA. According to the survey by TRAFFIC on the markets in China, 31 individuals of *G. japonica* including breeding stocks are observed in shops, and five individuals offered online. Prices were between USD1,427 and USD5,159. From the explanation of shopkeepers and online descriptions, their country of origin was recognized as Japan of all six individuals of which origin had been clarified and among which three were explained to be wild-caught individuals (Kanari and Xu, 2012). Furthermore, according to a letter from American Fish and Wildlife Service (the CITES science authority of USA), this turtle has entered USA via Hong Kong at the price of USD600 per individual. Sale prices of 1900 euro in France and USD2,750 in USA are confirmed by online search as of October 2012.

As *G. japonica* is a turtle of low reproduction effectiveness, laying a few eggs at one season, international trade may have caused its illegal capture because of its demand and market price.

### 6.5 Actual or potential trade impacts

Changes of existing conditions including capture, trafficking, and export had already been prohibited in principle. Consequently, its legal international trade for commercial purposes is limited to the individuals of origin in Japan, which have been exported before the year 1975 when the domestic regulation was applied and the individuals that have been bred from the pre-regulation specimens.

On the other hand, illegal national trade of this turtle has been detected. Also, there is illegal international trade against Japanese law. It is concerned that these persistent demands induce its illegal capture from the wild.

It is difficult to figure out if the international trade is legal or not with out control of CITES framework and it is necessary to control international trade by including this turtle in Appendix II.

## 7. Legal instruments

### 7.1 National

It was designated as a National Natural Monument based on the Law for the Protection of Cultural Properties in 1975. In accordance with the law, any person must get permission of the Director of the Agency for Cultural Affairs for any action to change its existing conditions or influence on its conservation. As judgment of permission of changing the existing conditions, all actions including the capture, trafficking, and export for primarily commercial purposes is not permitted in principle.

Any person changing the existing conditions of natural monuments without permission, or committing any action to cause adverse effects for its conservation shall be punished by a fine of not more than JPY200,000. In addition, among the aforementioned, any person inflicting the loss, damage or ruin on natural monuments shall be punished by imprisonment with work for not more than 5 years or a fine of not more than JPY300,000.

### 7.2 International

At present, there is no international instruments for this species including listing in CITES Appendices. In case of including this turtle in Appendix II, only the individual before the application of regulation and the individual which has been bred outside Japan are to be eligible for international trade for commercial purposes with the examination of Parties in the border.

In addition, inclusion of this turtle in Appendix II makes grasp of a circulation situation possible and the information of circulation situation contribute to forward conservation of this turtle.

## 8. Species management

### 8.1 Management measures

*Geoemyda japonica* was designated as a national natural monument in accordance with the Law for the Protection of Cultural Properties because of highly academic values of this turtle. For any action to change its existing conditions or influence on its conservation, any person must get permission of the Director of the Agency for Cultural Affairs. As judgment of permission of changing the existing conditions, all activities including the capture, trafficking, and export for primarily commercial purposes is not permitted in principle.

In addition, the management authority do not allow export after its listing in the CITES Appendix II, unless the permission in accordance with the Law for the Protection of Cultural Properties is confirmed, examining the export legitimacy of this turtle at the border in accordance with Foreign Exchange and Foreign Trade Control Act.

The annual export quota with primarily commercial purposes for wild-caught specimens removed will be zero. Also, the annual export quota from Japan with primarily commercial purposes for captive breeding specimens will be zero.

### 8.2 Population monitoring

A survey result on the state of this turtle as reported by Okinawa Board of Education in 2003 to understand the state of wild population (Ota and Hamaguchi, 2003). The degree of extinction is evaluated as the Red List of Threatened Wildlife of Japan reviewed every around five years by the Ministry of the Environment.

### 8.3 Control measures

#### 8.3.1 International

There is no measures to control the trafficking of specimen of this specie across international borders other than the inclusion in CITES Appendices, which is proposed this time.

#### 8.3.2 Domestic

There is regulation as a national natural monument in accordance with the Law for the Protection of Cultural Properties as mentioned above.

### 8.4 Captive breeding and artificial propagation

There does not seem to be in the situation that active captive breeding programmes are being carried out at domestic zoos and aquariums. But in the past, according to the reference documents (Ota and Hamaguchi, 2003, Yasukawa and Ota, 2008), its captive breeding has been observed.

The reproduction efficiency of this turtle is low because this turtle lays only one to three eggs at a time, and two to four at one season.

In the case of its close related species, *G. spengleri* that also lays a small number of eggs, a successful example of captive breeding is introduced by a private breeder and the possibility of captive breeding of this type of turtles is suggested. However, these turtles inhabiting wet forests are susceptible to environment such as humidity, etc. and it is necessary to adjust the breeding environment thoroughly such as the temperature and humidity. Therefore, it could be said that the captive breeding is not easy.

Because of its low breeding efficiency, capture in the wild could be more cost-effective way than captive breeding and the demand among some of enthusiasts is possible to elicit poaching the wild individuals.

## 8.5 Habitat conservation

In Okinawa Island, a part of habitat of this turtle is designated as the Nature Protection Area by the Law for the Protection of Cultural Properties, Quasi-National Park by the Natural Parks Law or Wildlife Protection Area by the Wildlife Protection and Appropriate Hunting Law. Human activities such as alteration of land and logging are regulated in the protection area of national natural monument, special zone within the quasi-national park, and special protection area within the wildlife protection area.

In the middle and northern parts of Kume Island, a part of habitat of this turtle overlaps the natural habitat conservation area for *Opisthotropis kikuzatoi* and Prefectural Natural Park thus alteration of land is regulated. Also, there is areas of Quasi-National Park in Tokashiki Island.

**Table 2.** The major protected areas related to habitats of *Geoemyda japonica*

Distribution	Protected Area	Zoning	Area
Okinawa Island	Yonahadake National Natural Protected Area	Whole area	251ha
	Okinawakaigan Quasi-National Park	Special Protection Zone	301ha*
	Yanbaru (Ada) National Wildlife Protection Area	Special Protection Area	220ha
	Sate Prefectural Wildlife Protection Area	Special Protection Area	58ha
	Nishimedake Prefectural Wildlife Protection Area	Special Protection Area	30ha
	Nagodake Prefectural Wildlife Protection Area	Special Protection Area	207ha
	Plant Communities of Tanagaa-gumui	Whole area	0.1ha
Kume Island	Uegusukudake Natural Habitat Conservation Area for <i>Opisthotropis kikuzatoi</i>	Whole area	600ha
	Kumejima Prefectural Natural Park	Special Zone	3,383ha
Tokashiki Island	Okinawakaigan Quasi-National Park	Special Protection Zone	78ha

\*Okinawakaigan Quasi-National Park area is 36,359ha for total. Only special protection zones placed at districts which has habitats of *Geoemyda japonica* were extracted here.

## 8.6 Safeguards

Not applicable

## 9. Information on similar species

This turtle is a single species and there are no subspecies.

Its close related species, *G. spengleri* has more markedly developed saw-tooth pattern and cephalic dark reddish brown dashed lines are not seen. Therefore, it is possible to identify from *G. japonica*. In addition, *G. spengleri* in China is included in CITES Appendix III.

## 10. Consultations

Distribution of this turtle is only in Japan and thus there are no consultations needed with other countries.

11. Additional remarks

At the workshop concerning Asian Tortoises and Freshwater Turtles by IUCN etc., *Geoemyda japonica* is proposed to be included in Appendix I (Horn et al., 2011).

12. References

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