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



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

Transfer of the Thai population of *Crocodylus porosus* from Appendix I to Appendix II with a zero quota for wild specimens, on the basis of Article II, paragraph 2 (a), and in accordance with the preventative measures of the appropriate management controls included in Annex 4 (2b) of the Resolution Conf. 9.24 (Rev. CoP 15).

B. Proponent

Thailand*.

C. Supporting statement

Taxonomy

1.1 Class: Reptilia

1.2 Order: Crocodylia

1.3 Family: Crocodylidae

1.4 Genus, species or subspecies, including author and year: Crocodylus porosus (Schneider, 1801)

1.5 Scientific synonyms: Crocodilus biporcatus

Crocodilus biporcatus raninus

Crocodilus oopholis Crocodylus raninus Oopholis pondicherianus

1.6 Common names: English: Estuarine Crocodile; Salt-water Crocodile

French: Crocodile d'estuaire; Crocodile marin

Spanish: Cocodrilo poroso Thai Jara Kae Numkhem

1.7 Code numbers: L-306.002.001.009

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

Thai population of the Saltwater crocodile (*Crocodylus porosus*) was included in CITES Appendix I in 1985. However, the status of the species in the CITES Appendices has not been reviewed since then. While historically widespread and relatively abundant throughout much of lowland Southeast Asia, *C. porosus* is now fragmented or locally extirpated in some of its former range. Thai population of *Crocodylus porosus* are occasionally reported in coastal areas near the borders with Myanmar, Malaysia, and Cambodia.

The species did not play a significant role in either the culture or religion of the Thai people. It rather appears to have been generally regarded as vermin (Webb and Jenkins, 1991). Consequently, conservation needs for crocodiles in Thailand has gained little consideration in the past. Besides, competition for wetland use with human activities, habitat loss, skin demand for commercial purposes, particularly in the 1960s, stimulated hunting of wild populations in Thailand.

Fortunately, crocodile farmers became concern about the long-term future of wild crocodiles in Thailand. Captive breeding and raising of *C. porosus* were first attempted in 1950 (Webb and Jenkins, 1991). Commercial harvest of wild specimens of the Saltwater crocodile is forbidden by domestic legislation. In addition, Thailand has an abundant captive population of the species (closed-cycle operations) that satisfies domestic commercial demand and part of international demand. In Thailand, current regulations and law enforcement both directly and indirectly related to the Saltwater crocodile have proven to be adequate and effective.

The crocodile has a high intrinsic factor to increase population size and all population is in good quality habitat in protected areas. Thai government has initiated a strong support to the crocodile farmer association, Crocodile Management Association of Thailand (CMAT). The Thai crocodile farmers have set up the association in 1990. Its main objective is to provide purebred *C. porosus* for re-introduction and channel funding from commercial to run conservation programs.

In order to meet biological and trade criteria, systematic enforcement controls and compliance with the requirements of the Convention is currently implemented as a normal practice. According to the precautionary measures listed in Resolution Conf. 9.24 (Rev. CoP15), Annex 4 (2b), the species can be transferred to Appendix II in compliance with Article II paragraph 2 (a), because of Thai government and CMAT commitment to re-establish viable wild population.

Even though the species is likely to be in demand for international trade, its management is such that implementation of the Convention is secured and appropriate enforcement controls are in place (see section 8). Based on paragraph 2. c) of the same Annex, the species can be transferred to Appendix II because an integral part of the amendment proposal is an export quota (in this case, a zero quota for trade in wild specimens), thus ensure that wild populations of the Saltwater crocodile do not become endangered by international trade.

3. Species characteristics

3.1 Distribution

Saltwater crocodiles (*Crocodylus porosus*) used to be found in estuarine and coastal areas adjoining the Andaman Sea and the Gulf of Thailand, although their densities were quite variable between different areas. The presence of Saltwater crocodiles in coastal rivers conflicts with human use of those rivers, and may well have done so for centuries. The extent and distribution of the current population is in coastal areas, some of which have been protected as marine national park.

In Thailand, Ranong River delta in Ranong Province is considered a suitable habitat consisted of the largest mangrove in the region (see Map 1). Tarutao Marine National Park in Satun Province south of Thailand is the third largest island in the Andaman Sea. The survey found remnant population of Saltwater crocodiles in the river and swamp areas in the middle zone of the island and around the mangrove forest. Restocking of *C. porosus* in Tarutao island was discussed between Crocodile Management Association of Thailand and Department of National Park.

Pa Pru Toh Daeng (Peat swamp forest) in Sirindhorn Wildlife Sanctuary, Narathiwat province, was reported to contain *C. porosus* and *Tomistoma schlegelii* (Ratanakorn, 1994). Samaesarn Island in Chonburi Province is located in southeast coast of Thailand. Although the island area is relatively

small, recent sightings of remnant population were confirmed. Ao Bandon is the largest estuarine and mangrove inlet on the east coast of the Malay Peninsula, and it still supports a number of *C. porosus* (Ngampongsai and Nabhitabhata, 1987).

3.2 Habitat

The Saltwater crocodile is usually found in deep, dark murky water. It may inhabit freshwater or saltwater but is most commonly found in the brackish estuary areas (Ross, 1998; Webb and Manolis, 1989). Tidal habitats like estuaries attract Saltwater crocodiles because of the brackish water and abundant supply of crabs, turtles and fishes. These areas also offer protection from wind and allow for movement around the coast for new territory. Inland freshwater environments such as rivers, lakes, billabongs and creeks offer a constant supply of fresh water which crocodiles need to drink, but during the dry season they move back to permanent water areas close to the coast.

3.3 Biological characteristics

The Saltwater crocodile is the world's largest reptile; it ranges from 3,500 – 6,000 mm, they are among the top predators, so they can prey upon almost any animal within range, from monkeys to fully matured water buffalo. In general terms, the species reaches sexual maturity between 10 and 16 years of age. *C. porosus* nest during the wet season (April - June) with clutch sizes of 25-90 eggs, with a mean of 40-60 eggs (Cox, 1985; Groombridge, 1982).

Females are the main keepers of the nest during incubation, and may help the hatchlings leave it. She protects juveniles against predators and other adult crocodiles for the first year. They usually spend the wet season in freshwater swamps or rivers and move downstream into estuaries in the drier part of the year, and may sometimes be found to travel far out to sea. In Australia, less than 25% of wild eggs produce hatchlings, and 3% of hatchlings survive to 5 years of age (Webb and Manolis, 1989).

3.4 Morphological characteristics

Newly hatched Saltwater crocodiles measure about 250 to 300 mm long and weigh an average of 70 grams. Males reach sexual maturity at around 3,300 mm at around 16 years of age, while females reach sexual maturity at 2,100 mm and 12–14 years (Britton *et al.*, 1999). An adult male Saltwater crocodile's weight is 409 to 1,000 kilograms and length is normally 4,100 to 5,500 mm. However, mature males can exceed 6,000 mm and weight more than 1,000 kilograms. Typical female body lengths range from 2,300 to 3,500 mm (Britton *et al.*, 1999).

Six nuchal scales present on the neck region. 1.7-2.1 snout ratio with 2 ridges on skull. Dorsal osteoderms are 16-17 rows. Ventral scales are arranged in 31 to 35 transverse rows and 16 to 19 longitudinal rows. Tail and belly inclusions are absent. The color of adults is olive-yellow on the dorsal area. The ventral area is pale with a creamy-yellowish tone.

Hybridization of captive Saltwater crocodiles with *C. siamensis* has been documented (Chavananikul *et al.*, 1994).

Srikulnath *et al.* (2012) discovered a new genome (haplotype2, EF581859) and successfully differentiated *C. porosus* from *C. siamensis* and hybrids between both species. The results were consistent with the phylogenetic relationship among the three genomes *C. porosus* (AJ810453), haplotype1 (DQ353946), and haplotype2 (EF581859). These effective markers could be used specifically for rapid and accurate species identification in population, ecology and, conservation studies especially for the re-introduction programs.

3.5 Role of the species in its ecosystem

Crocodylus porosus facilitates a number of ecological processes, especially in smaller water bodies, where it regulates populations of fish and other invertebrate species. It is preyed upon by birds and medium-sized mammals at juvenile and adult stages. By breaking vegetation and creating passage in shallow water, it is an engineer in estuarine ecosystem.

4. Status and trends

It is likely that several small wild populations persist in Thailand. Surveys since the early 1990s have confirmed a fragmented and scattered remnant population mostly within protected habitats (Ratanakorn and Leelapatra, 1994; Ratanakorn *et al.* 1994; Webb and Jenkins, 1991; Temsiripong, 2012).

4.1 Habitat trends

After many years of conservation activities by the farmer association that aims to restock wild population and bring back the abundance of crocodiles in Thailand, CMAT has learnt that the major obstacle to reach this goal is the limited suitable and protected habitat historically contains crocodiles. Currently, there are 4 suitable sites, two of which are in protected areas (Pa Pru Toh Daeng and Tarutao Island). Once the areas are being protected, the animals are less likely to be disturbed.

4.2 Population size

In the past, *C. porosus* populations were depleted from their historical abundance throughout Thailand. An extensive survey program was conducted by Ratanakorn *et. al.* (1994) and Webb and Jenkins (1991). Recently, there is a reliable estimate of the total population size as greater than 200 individuals.

Ranong River delta is considered a suitable habitat, which consisted of the largest mangrove on Andaman side of southern Thailand. There were many sightings of *C. porosus* in this area, all with anecdotal report. In 2010, a clutch of hatchlings were captured in fishing net by a fisherman (Temsiripong, *pers. comm.*).

Tarutao National Park in southern Thailand is the third largest island in the Andaman Sea. The survey found only remnant population of Saltwater crocodile in the river and swamp area in the middle zone of island and around the mangrove forest. Restocking of *C. porosus* in Tarutao island was underway between Crocodile Management Association of Thailand and Department of National Park, Wildlife and Plant Conservation.

Pa Pru Toh Daeng in Narathiwat province was reported to contain a remnant population of *C. porosus* (Ratanakorn et. al., 1994). The habitat of this protected area is peat swamp forest, which is suitable for crocodiles of all size classes and their preys. Another suitable saltwater habitat, Ao Bandon is the largest estuarine and mangrove inlet on the east coast of the Malay Peninsula, and it may still support a number of *C. porosus* (Ngampongsai and Nabhitabhata, 1987).

Samaesarn Island is located in southeast coast of Thailand. Although the island area is relatively small, recent sightings of remnant population were confirmed (Temsiripong, 2012). Two female *C. porosus* (2,430 mm and 2,500 mm) were captured to mark, measure, and release in April, 2012.

It is clear that the current breeding populations are small; their long-term viability is secure only in protected habitat. There is however a sufficient residual wild population to provide a basis for recovery, although some locations may require re-introduction or augmentation if they are to remain viable. The crocodile has a high intrinsic factor to increase population size and all population are in good quality habitat in protected areas.

The wild population is greater than 200 since many *C. porosus* habitats are inaccessible. Moreover, some 60,000 *C. porosus* are currently housed on crocodile farms.

They are quite rare in most parts of India, but can be commonly found in the northeastern part of the country. In Indonesia, Malaysia, New Guinea, and Northern Territory of Australia, some areas have quite large populations while others, such as the Philippines, have smaller numbers (Webb, 1992). There is also a small population in the south pacific, mainly in the Solomon Islands.

4.3 Population structure

Due to lack of adequate survey in most habitats, it is impossible to calculate sex ratio.

4.4 Population trends

No historical survey data is available to assess population trends; however, anecdotal evidence is available to support a rising trend. After to the WWII, Saltwater crocodiles were virtually, if not actually, extirpated from Thailand through over-hunting for skin (Webb and Jenkins, 1991). However, since the government of Thailand established 32 marine national parks, crocodiles have been seen more regularly by fishermen (Temsiripong, *pers. comm.*). The recent data concluded that the population status of *C. porosus* in Thailand is growing.

4.5 Geographic trends

C. porosus has been abundant in northern Australia, Bangladesh, Brunei, Burma, Cambodia, India, Indonesia, Malaysia, Palau, Papua New Guinea, Philippines, Singapore, Sri Lanka, Solomon Islands, Thailand, Vanuatu (Banks Islands), Vietnam (Groombridge, 1987). The number of Saltwater crocodiles has severely declined throughout much of their previous range. Sightings in places like Cambodia, Vietnam, and Thailand, where they were common, have become rare, and they may be extinct in some of these places as few confirmed sightings have been recorded.

5. Threats

The main threat to the species is habitat degradation, especially if it involves a reduction in prey availability and possible pollution of water bodies. Throughout the species' range, there is currently no evidence that disease, native or alien predator species, tourism, or scientific activities represent negative factors or threats for the wild populations of the Saltwater crocodile.

The species's intrinsic ability to recover, which is now evident, coupled with conservation efforts, the ban on wild harvests of the species, the designation of new protected areas, and the promotion of closed-cycle operations, have all contributed to the recovery of the Saltwater crocodile. This is attested by its presence throughout its range in historical localities and areas where it was heavily hunted in the past.

6. Utilization and trade

Thailand acceded to CITES by Presidential Decree on 15 December 1978 and *C. porosus* became protected under Thai law in 1975. However illegal hunting was widespread. Following the adoption of Resolution Conf. 5.21 by the Conference of Parties to CITES in 1975, Thailand was permitted to trade internationally in *C. porosus* skins derived only from captive-breeding operation.

6.1 National utilization

There is no utilization of wild *C. porosus* in Thailand due to all of it dwelling in national park which are protected area.

Currently, all commercial use of *C. porosus* in Thailand derived from captive-breeding operation. There are 61,837 *C. porosus* from 836 housing (Department of Fisheries, 2011) including 13 Thai registered *C. porosus* farms under Resolution Conference 12.10 (Rev. CoP15) of CITES. Amount of crocodile farms that met qualification are preparing to register.

6.2 Legal trade

According to the Thai law, Wild Animal Reservation and Protection Act 1992, *C. porosus* and its habitat is protected from any activities except for scientific purposes. As a result, there is currently no legal trade of wild Saltwater crocodile. However, exemption of the Act allows *C. porosus* to be captive-bred in captivity to trade in domestic and international under the law.

6.3 Parts and derivatives in trade

There is currently no trade of wild *C. porosus* in Thailand. However, *Crocodylus porosus* were trade in national and international markets derived from captive breeding. According to the UNEP-WCMC Trade database 2007 - 2011, parts and derivatives of *Crocodylus porosus* expressed that the major trade were skins, meats and leather products. The major exporter were Papua New Genie (57,991 skins, 68,544 kg of meats and 9,949 leather products) and Australia (66,930 skins, 13,447 kg of

meats and 11,649 leather products), whereas 8,290 skins were exported from Thailand. The major importing countries of skins were France (104,770), Japan (29,454) and Singapore (19,865). Furthermore, the major importing countries of meats were Australia (72,360 kg), Japan (27,879) and China (Hong Kong SAR) (6,529).

6.4 Illegal trade

No illegal trade of wild Saltwater crocodiles in Thailand has been recorded since CITES listing. It is believe that production from captive breeding can fully serve the trade demand. Not necessary to take the species from the wild.

6.5 Actual or potential trade impacts

Thailand has a long history of farming crocodiles, exporting crocodilian products, and importing crocodiles and crocodile skins from other countries (Webb and Jenkins, 1991). Currently, there is no potential trade impact on the species.

7. Legal instruments

7.1 National

In the past, Thailand had the Wild Animal Reservation and Protection Act B.E. 2503(C.E. 1960) to enact wildlife and natural resources conservation instrument but it could not implemented CITES. From this reason the act was amended in year 1992 to be the Wild Animal Reservation and Protection Act B.E. 2535(WARPA) (C.E. 1992), which has article 23 and 24 to control international trade of the protected species. *Crocodylus porosus*, *Crocodylus siamensis*, and *Tomistoma schlegelli* were also listed in the protected species. Under WARPA, the species are prohibited to possess, hunt, breed, or trade, except for scientific purposes. However, WARPA 1992 allowed for the specimen of *C. siamensis and C. porosus* from registered captive breeding operations that can be allowed to trade by law. Besides, the species has been fully protected under the provision of WARPA. The law also protected crocodile habitats by determining Wildlife Sanctuary and Non-hunting area. Furthermore, the species are protected under National Park Act B.E. 2504 (C.E.1961), which prohibits the same illegal actions as indicated in WARPA.

7.2 International

The *C. porosus* was included in CITES Appendix I in 1985. Since then, the Convention has proven its effectiveness in controlling international trade of the species and preventing illegal activities that may affect wild population. Resolution Conf. 11.12 on the *Universal tagging system for the identification of crocodilian skins* and 12.10 (Rev. CoP15) on *Guidelines for a procedure to register and monitor operations that breed Appendix-I animal species for commercial purposes have established mechanisms to ensure control of international trade in crocodilians*. This is proven by the clear recovery of the species and the few instances of the illegal trade reported by the Parties.

8. Species management

8.1 Management measures

Currently, no ranching operations involving wild specimens exist in Thailand. The only establishments authorized and in operation are closed-cycle captive-breeding farms, which must have proven production of offspring beyond the second generation (F2). These farms have been registered with either management authorities of Thailand or CITES Secretariat. They are part of Crocodile Management Association of Thailand (CMAT), whose goal is to promote sustainable use of crocodile resources.

8.2 Population monitoring

In Thailand, efforts are being made by Crocodile Management Association of Thailand, CMAT, to design and implement a country-wide monitoring program for the populations and habitat of *C. porosus*. The Department of National Park, Wildlife and Plant Conservation, in conjunction with CMAT, conducted a survey in Tarutao National Park in 2002, and in Pa Pru Toh Daeng in 1994.

The study design has been reviewed and assessed in a workshop involving experts and management authorities to come up with the most appropriate methods and define time intervals, localities, and variables to take into account for crocodiles and their habitat. Recently, the preliminary design supports wild and re-introduced specimens by monitoring effort with annual sampling throughout the range of the species. In addition, capture-mark-recapture of individuals and standard data/sample collection, as well as nest location was in a plan to monitor.

The training for wildlife rangers by CMAT was completed in mid 2004, the rangers were trained to understand natural history of all species of crocodiles in Thailand, and the importance of crocodile in its ecosystem, safe handling of all-sized crocodiles, night-light survey techniques, and field data collection.

8.3 Control measures

8.3.1 International

CITES signatories are required parties to enact national laws to implement their responsibilities under the convention. After the CoP13 held in Bangkok, Thailand 2004, all ten member countries (Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam) of the Association of Southeast Asian Nations (ASEAN) are signatories to CITES and, therefore, legally bound to enforce CITES resolutions. For these objectives, ASEAN has established ASEAN Wildlife Enforcement Network (ASEAN-WEN).

RESPONSE / SOLUTIONS Governments and their agencies, the private sector, non-governmental organizations and the public all have important roles to play in stopping illegal wildlife trade. As the largest environmental enforcement network in the world, ASEAN-WEN is committed to furthering cooperation among all sectors and agencies; increasing law enforcement capacity and support for investigations; encouraging strong laws and appropriate sentencing to deter criminals; and increasing public awareness of wildlife crime and its impacts to reduce consumer demand.

ASEAN-WEN is helping to build capacity to dismantle the organized criminal networks behind the illegal wildlife trade to turn the tide on trafficking and improve protection for the region's biodiversity.

8.3.2 National

Since ASEAN-WEN was found in 2004. Thailand Wildlife Enforcement Network (Thailand-WEN) was found in 2009 with same the concept as ASEAN-WEN.

To ensure that Thailand Wildlife Enforcement Network (Thailand-WEN) works effectively, the National Park, Wildlife and Plant Conservation Department in cooperation with the Department of Agriculture,

Fisheries Department, the Royal Thai Police, and the Customs Department and relevant agencies for enforcement convened the cross border workshop on law enforcement networking and other activities to build up public awareness for example: distributed the printed materials, brochures, and leaflets on the wildlife trade campaign at airports, tourist spots, local markets, and hotels, as well as at wildlife check points of National Park, Wildlife and Plant Conservation Department and border check points of the Department of Agriculture, Fisheries Department, Royal Thai Police, and Customs Department, etc.

8.4 Captive breeding and artificial propagation

In Thailand, there are 13 Saltwater crocodile farms registered with CITES and the management authority of Thailand, Department of Fisheries to breed Appendix-I species in captivity for commercial purposes under Conf. 12.10 of CITES. Totally annual productions are approximately 20,000.

8.5 Habitat conservation

About 102 protected areas including Marine National Parks, Wildlife Sanctuaries, and Non-hunting areas in Thailand provide sufficient shelter and legal protection to the Saltwater crocodile in its potential range. There are also 10 RAMSAR sites with 3,706 km² altogether in the potential range of the *C. porosus*.

8.6 Safeguards

According to the precautionary measures listed in Resolution Conf. 9.24 (Rev. CoP15), Annex 4 (2b), the species can be transferred to Appendix II in compliance with Article II paragraph 2 (a), because of Thai government and CMAT commitment to re-establish viable wild population. Even though the species is likely to be in demand for international trade, its management is such that implementation of the Convention is secured and appropriate enforcement controls are in place (see sections 7 and 8 for more information). Moreover, the proposal includes a zero quota to ensure that wild populations of the Saltwater crocodile do not become endangered by international trade.

9. Information on similar species

Similar species to *Crocodylus porosus* in international trade is *Crocodylus siamensis*. However, *C. porosus* can be distinguished by its number of belly traverse scale, narrower head, two ridges on snout stretch from eye to nostril. Horn-back scales tend to be smaller than that of *C. siamensis*. Detailed information with morphological characteristics, parts and derivatives in trade, and identification keys on CITES-listed crocodile species is available in the *CITES Identification Guide — Crocodilians* (Environment Canada, 1995). According to this guide, it is possible to distinguish between species similar to *C. porosus* even without special training. Distinctive characteristics can be easily observed in whole skins, which are the main product of the Saltwater crocodile in trade.

10. Consultations

Cambodia, Vietnam, and all other range states will be consulted, as they are range states of the species, and considering supports transfer of the Thai population of the Saltwater crocodile from Appendix I to Appendix II with a zero quota for wild specimens.

11. Additional remarks

During the International IUCN-SSC-Crocodile Specialist Group Regional Species Meeting $4^{\text{th}}-7^{\text{th}}$ April, 2011, Bangkok Thailand, many recommendation issues were received. For example, further development and implementation of the Saltwater crocodile re-introduction program in Thailand must be continued and strengthened in conjunction with national management plans. Ongoing assessment of the success and status of these restocking initiatives would be beneficial, with such information helping to underpin future release programs.

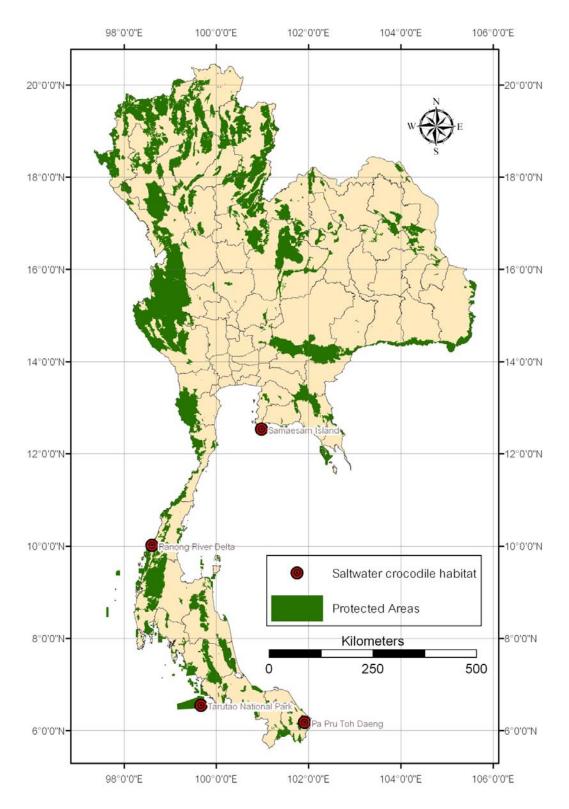
Strengthening linkages between commercial captive breeding, trade, and conservation in the Southeast Asian region is a top priority. Several countries in the region have already developed crocodile farming associations and other commercial enterprises linked to the farming industry. The crocodile industry has an important role to play in the conservation of wild populations, through funding of surveys and/or other conservation initiatives. A long-term aim could be the re-establishment of viable wild populations and their sustainable use by ranching.

Maintain pure stocks of *C. porosus* in crocodile farms where large population of the captive Saltwater crocodile population is maintained in Thailand, where interbreeding with *C. siamensis* occurs. Farms should be encouraged to segregate genetically pure *C. porosus* for conservation. There are 2,000 purebred animals ready to support future re-introduction program.

To effectively control of raising and trading of parts and derivatives from the same species with different CITES appendices among range states, regional regulation of registration for captive-breeding institution with the management authorities and the marking system of live and products must be harmonized among range states.

12. References

- Britton, A.R.C., Ottley, B. & Webb, G.J.W. 1999. A report on the helicopter surveys of *Crocodylus porosus* in the Northern Territory of Australia. *In: Crocodiles. Proceedings of the 14th Working Meeting of the Crocodile Specialist Group, Singapore*. IUCN: Gland, Switzerland.
- Chavananikul, V., Wattanodorn, S. and Youngprapakorn, P. 1994. Karyotypes of 5 species of crocodile kept in Samutprakan Crocodile Farm and Zoo. Pages 58-62 in Crocodiles. The 12th Working Meeting of the IUCN-SSC Crocodile Specialist Group. IUCN, Gland, Switzerland.
- Cox, J.H. 1985. Crocodile nesting ecology in Papua New Guinea. FAO-DPI Field Document No. 5 (DPIPNG/74/029). 201 pp.
- Environment Canada. 1995. CITES Identification Guide Crocodilians. Authority of the Minister of Environment. ISBN 0-662-61957-9. Canada.
- Groombridge, B. 1982. The IUCN Amphibia-Reptilia Red Data Book. Part 1. Testudines, Crocodylia, Rhynchocephalia. 426 pp. (IUCN: Gland, Switzerland).
- Groombridge, B. 1987. The distribution and status of world crocodilians. Pp. 9-22 in "Wildlife Management: Crocodiles and Alligators", edited by G.J.W. Webb, S.C. Manolis and P.J. Whitehead. (Surrey Beatty and Sons: Sydney).
- Ngampongsai, C. and Nabhitabhata, J. 1987. Occurrences of endangered and rare wild animals in the Upper South Area, Ban Don Bay, Peninsular Thailand. Tigerpaper 14(4): 25 -26.
- Ratanakorn, P. and Leelapatra, W. 1994. (dated October 1997). Thailand National Crocodilian Management Plan, Draft, Unpublished Manuscript.
- Ratanakorn, P., Amget, B. and Ottley, P. 1994. Preliminary surveys of crocodiles in Thailand. Pages 35-49 in Crocodiles. The 12th Working Meeting of the IUCN-SSC Crocodile Specialist Group. IUCN, Gland, Switzerland.
- Ross, J. P. 1998. Crocodiles. Status Survey and Conservation Action Plan. 2nd Edition. IUCN/SSC Crocodile Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK. Viii + 96 pp.
- Srikulnath, K., Thongpan, A., Suputtitada, S. and Apisitwanich, S. 2012. New haplotype of the complete mitochondrial genome of *Crocodylus siamensis* and its species-specific DNA markers: distinguishing *C. siamensis* from *C. porosus* in Thailand. *Molecular Biology Reports*: DOI 10.1007/s11033-011-1263-7.
- Temsiripong, Y. 2012. Crocodile Management Association of Thailand Mark-Recapture Report. Department of Fisheries. Bangkok, Thailand.
- Webb. G. and Manolis, S.C. 1989. "Crocodiles of Australia" (Reed Books: Sydney). 160 pp.
- Webb, G. J. W. and Jenkins, R. W. G. 1991. Management of crocodilians in Thailand: a review with recommendations. Australian National Parks and Wildlife Service, Canberra, Australia.
- Webb, G.J.W. 1992. Monitoring Saltwater crocodiles (Crocodylus porosus) in the Northern
- Territory of Australia. Pp. 404 to 418 in "Wildlife 2001: Populations", ed. by D.R. McCullough and R. Barrett. (Elsevier Applied Science: London and New York).



(Map 1) The Saltwater crocodile habitats in Thailand



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≥1 August B.E. 2555 (2012)

Dear Sir/Madame.

Subject: Transfer of the Thai population of Crocodylus siamensis and Crocodylus porosus from Appendix I to Appendix II

In preparation for the sixteenth meeting of the Conference of the Parties (CoP 16) to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), we are seeking your support on submitting a proposal to transfer of the Thai population of *Crocodylus siamensis* and *Crocodylus porosus* from Appendix I to Appendix II with a zero quota for wild specimens, on the basis of Article II, paragraph 2 (a), and in accordance with the preventative measures of the appropriate management controls included in Annex 4 (2b) of the Resolution Conf. 9.24 (Rev. CoP 15).

To allow us time to make a revision and inclusion of your comments in our proposals and meet proposal submission deadline, it would be most helpful for us to receive your comments by September 6th, 2012. You may respond to my attention, Department of Fisheries, KasetKlang, Chatuchak, Bangkok 10900; or by fax to (660) 2561 4689 or by e-mail to citesdof@yahoo.com.

Thank you very much for taking the time to consult with us on this important issue. I look forward to hearing from you.

Yours Sincerely,

(Dr. Wignol Jantrarotai) Director - General

Fisheries Licensing and Management Section Bureau of Fisheries Administration and Management. Tel./Fax: +66 (2) 561 4689

Montenegro

vladimir.pavicevic@epa.org.me Wed, 5 Sep 2012

Dear collegues,

After having analyzed the proposals for transfer of species Crocodylus siamensis and Crocodylus porosus from Appendix I to Appendix II of CITES Convention, CITES Managament Authority of Montenegro wish to inform you that we have no objections to the proposals and we strongly support efforts of Managament Authority of Thailand. We think that proposals have sufficient adequate scientific informations and evidence datas in favor of the need to make transfer of these species in Annex II of the Convention.

Hope that we will meet soon at the next COP in Tailand next year.

Kind regards, Vladimir Pavicevic

Latvia

<u>gita.strode@daba.gov.lv</u> Monday, 10 September, 2012 Dear colleagues,

Latvian MA welcomes Your proposals and we have no any comments or objections to their content. Please note that Latvia will evaluate these proposals as a member state of European Union and officially Latvia will respond after consultations with other EU member states.

Best regards, Gita Strode CITES MA of Latvia

3. Singapore

LYE Fong Keng@ava.gov.sg Thursday, 13 September, 2012

Dear Dr Jantrarotai,

Thank you for the letter dated 21 Aug 2012 and the proposals. We apologise for the delay in our response.

We are pleased to inform you that Singapore can support the proposals to transfer the populations of *Crocodylus siamensis* and *Crocodylus porosus* in Thailand from App I to II with a zero quota for the wild specimens, if the Thai populations of these 2 crocodilian species meet the scientific criteria for the downlisting.

Kind regards

Lye Fong Keng (Ms) | AD/Wildlife Section | Quarantine & Inspection Department | Agri-Food & Veterinary Authority

Tel: 63257349 | Fax: 62276403 | Website: www.ava.gov.sg

Iran (Islamic Republic of)

Saturday, 15 September, 2012

Dear Collegue,

Thank you for the email. I here by forward your email to CITES Iran (Mr. Faraii) for further actions.

Kind regards,

Mehdi Shakouri

Iran CITES Sturgeon Management Authority and Director of Aquaculture Dept.

Iran Fisheries Organization,

No.250, Fatemi Ave., Tehran, Iran.

Tel:(+98 21) 66941366 Mobile:+98 9128151783 5. <u>Australia</u> Monday, 17 September, 2012 Dear Dr Jantrarotai,

Thank you for the opportunity to comment on your proposals to transfer *Crocodylus siamensis* and *Crocodylus porosus* populations in Thailand from Appendix I to Appendix II. Please find attached a copy of Australia's letter to you, which contains our comments on your draft proposal.

Please note that our position for the Conference of the Parties is contingent on our domestic consultation process. The letter attached therefore only constitutes preliminary comment from this department.

If you would like to discuss Australia's comments further, please contact Sharon Lane at Sharon.lane@environment.gov.au or on +61 2 6274 2880.

Regards
Melinda Pearce
CITES Management Authority of Australia |
Australian Government Department of Sustainability, Environment, Water, Population and Communities
wildlife.communications@environment.gov.au

Ref: 2012/00555

Dr Wimol Jantrarotai Director-General Department of Fisheries Kasetklang, Phaholyotin Rd Chatuchak, Bangkok THAILAND 10900

Dear Dr Jantrarotai

Thank you for your letter of 21 August 2012 regarding your draft proposal to transfer the Thailand population of *Crocodylus porosus* and *C. siamensis* from Appendix I to Appendix II (zero quota for wild specimens) of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

We appreciate the opportunity to comment as a range State of *C. porosus*. Our position for the upcoming meeting remains contingent on our domestic consultation process so I am unable to advise of a position at this stage. This letter therefore constitutes only preliminary comment from this department.

In reviewing proposals to transfer any species or population from Appendix I to Appendix II, we look for adequate justification for the down-listing and whether sufficient measures are in place to regulate the trade and monitor the status of the wild population to ensure ongoing sustainability.

On review, the current draft proposals would benefit from further information to support a down-listing. The population estimates in the draft proposal of around 200 for *C. porosus* and 100 for *C. siamensis*, which have been extrapolated from limited surveys, may not sufficiently support down-listing.

Information on the likely impact of down-listing on the crocodile populations in neighbouring countries would also be useful. Down-listings to Appendix II will no longer require Thai crocodile farms to be assessed and registered by the CITES Secretariat as captive-breeding operations. Thailand will need to demonstrate that sufficient domestic controls, monitoring and enforcement are in place to ensure that illegal trade will not occur.

Both species currently meet several of the biological criteria for Appendix I listing as outlined in Resolution Conf. 9.24 (Rev. CoP15) Annex 1. These criteria include being threatened with extinction and a small wild population that has an observed decline in the number of individuals or the area and quality of habitat. Annex 4(A2) of this Resolution states that species in Appendix I should only be transferred to Appendix II if they do not satisfy the relevant criteria in Annex 1.

We would strongly recommend, if you have not already done so, that you seek advice from IUCN's Crocodile Specialist Groups (CSG) [www.iucncsg.org]. The views and scientific expertise of the CSG have been influential at Meetings of the Conference of the Parties to CITES in assessment of crocodile proposals.

GPO Box 787 Canberra ACT 2601 • Telephone 02 6274 1111 • Facsimile 02 6274 1666 www.environment.gov.au

Australia would appreciate if you could keep our CITES Authorities informed regarding the outcome of your proposals. If you wish to discuss this further, please contact Sharon Lane in the first instance on +61 02 6274 2880 or by email (Sharon.Lane@environment.gov.au).

Yours sincerely

Deb Callister Assistant Secretary Wildlife Branch

1 September 2012

6. <u>United States of America</u>

fwsdbc@fws.gov" fwsdbc@fws.gov Monday, 24 September, 2012

Thank you for the opportunity to review and comment on your draft proposals to down-list *Crocodylus siamensis* and *Crocodylus porosus* populations in Thailand. We are not able at this time to commit to supporting either of these proposals, as we evaluate and develop our positions on other Parties proposals after October 4, 2012. We would like to provide you with the following comments on the proposals:

- 1) The justification that you have provided for transferring these two species from CITES Appendix I to Appendix II is that you will be implementing precautionary measures listed in Resolution Conf. 9.24 (Rev. CoP15), Annex 4 (2b) by establishing a zero export quota for trade in wild specimens and by implementing appropriate enforcement controls that will safeguard wild populations.
- **U.S. Comment:** We would like to point out that Resolution Conf. 9.24 (Rev. CoP15), Annex 4 (2) states, "Species included in Appendix I should only be transferred to Appendix II if they do not satisfy the relevant criteria in Annex 1. . ." Therefore, in addition to meeting the necessary precautionary safeguards in order to down-list an Appendix-I listed species, the species should no longer meet the biological criteria for inclusion in Appendix I. Your proposals to transfer Thailand populations of *Crocodylus siamensis* and *Crocodylus porosus* populations would be greatly strengthened if you could demonstrate that the two species no longer meet the biological criteria for inclusion in Appendix I, as per Annex 1 of Resolution Conf. 9.24 (Rev. CoP15). Based on the information provided in the two proposals, it appears that both species continue to meet the criteria for inclusion in Appendix I. We note that according to your proposals, there is currently very little information on population numbers of each of these species in the wild and that the best available information indicates that there may be as few as 200 individuals of each of these two species in the wild.
- 2) Both proposals state that the Thai government and the Crocodile Management Association of Thailand (CMAT) are committed to re-establishing viable wild populations by restocking wild populations, protecting habitats, and implementing country-wide monitoring programs.
- **U.S. Comment:** We encourage these efforts to re-establish viable wild populations, and we encourage you to include more detailed information in the proposals about your success in such efforts to recover populations of these species. For example, how many numbers of individuals of each species are being released into the wild and over what time period, how are these individuals monitored to determine survival and reproduction, how much protected habitat is available for each species (hectares of wetland), how much additional habitat does Thailand plan to protect, what criteria do you use to determine if a population is viable, how do you plan to monitor populations once the populations are recovered (methods, frequency, etc.), etc.?
- 3) The proposals state that in Thailand there are 13 saltwater crocodile farms and 23 Siamese crocodile farms that are registered with CITES in accordance with Resolution Conf. 12.10 (Rev. CoP15).
- **U.S. Comment:** We commend Thailand for working to take pressure off wild populations by producing captive stocks of each of these two species. Since Thailand is only trading in captive specimens, it is unclear what a transfer of either of these two species to Appendix II would accomplish.
- 4) Both proposals state that you received many recommendations during the international IUCN-SSC Crocodile Specialist Group Meeting in April 2011, in Bangkok, Thailand.
- **U.S. Comment:** We believe it would be beneficial for you explain the success of your efforts to address these recommendations. For example, one recommendation was to segregate genetically pure stocks of each of the two species in crocodile farms. To what extent have you been able to do this? What safeguards are in place to ensure that captive stocks of one species do not escape and hybridize with wild stocks of the other species? What safeguards are in place to ensure that captive hybrid individuals do not escape into the wild?

Finally, we understand that you will be consulting with other range countries on these species, and we encourage you to include information received from these consultations in the proposals. Additional information on the status of these species globally as well as your rationale for only transferring the Thailand population of these two species will strengthen the proposals.

Please feel free to contact me if you have any questions on these suggestions. Thank you again for the opportunity to review these proposals.

Sincerely,

Rosemarie Gnam, Ph.D. Chief Division of Scientific Authority 4401 N. Fairfax Drive, Room 110 Arlington VA 22203 Phone: (703) 358-2497

7. <u>Cambodia</u> Dear Sir/Madam.

Fax: (703) 358-2276

Based on your letter and proposal on proposing down listing of Siamensis crocodile and sea water crocodile. On behalf H.E. Prof Dr. Nao Thuok, Royal Delegate of Cambodia Director general of fisheries administration & CITES scientific authority would like to inform you that now fisheries administration in Cambodia is very fully supported on your proposal. Also FiA have write the letter clarify to CITES Management to be inform to your CITES to support too.

Please see on attachment in Khmer version for referencing related supporting letter on your proposal.

Please accept on my consideration and Good collaboration.

Your sincerely
Heng Sovannara
Deputy Director of Department of Fisheries Conservation&
Project Manager
Batagure baska & Crocodile Conservation
WCS Cambodia
#21, St.21, Tonle Bassac, Chamkarmorn
P.o.Box 1620, Phnom Penh, Cambodia
Phone/Fax: (855-23) 219 443/217 205

Tel: (855-16) 333 785

E-mail: h.sovannara@gmail.com

8. Solomon Islands

1 October, 2012

Dear Sir/Madam

Solomon Islands also has wild population of *Crocodylus porosus* but its trade is also banned by CITES. We are planning a national survey of wild crocodile population with the view to requesting CITES to lift the trade ban on our wild population, according to CITES conservation management measures or practices.

As we are absolutely certain that Thailand will also be supporting our efforts to transfer our *Crocodylus porosus* from Appendix I to II in the near term, Solomon Islands CITES MA would like to support your efforts in requesting that your *Crocodylus porosus* be transferred from Appendix I to II. We will definititely to learn and benefit from your experience when out time comes.

Joe Horokou CITES MA Solomon Islands horokoujoe@gmail.com

9. <u>Japan</u>1 October, 2012Dear CITES Thailand

Thank you for your e-mail. Japan reply to your inquiry as follows:

We are now considering your country's proposals to downlist Crocodylus siamensis and Crocodylus porosus population in Thailand, and we cannot conclude that at this time.

In case you make the above proposal, we will further study for COP16.

Kotoha Itakura (Ms.)

Global Environment Division, International Cooperation Bureau, Ministry of Foreign Affairs (MOFA)

Tel: 81-3-5501-8000 (Ext. 3276) 81-3-5501-8245 (direct)

kotoha.itakura@mofa.go.jp