

Transfer of the Thai population of Siamese Crocodile *Crocodylus siamensis* from Appendix I to Appendix II with a zero quota for wild specimens

Proponent: Thailand

Summary: The Siamese Crocodile *Crocodylus siamensis* is among the most threatened crocodylians with a global wild population almost certainly comprising fewer than 1000 mature individuals. It was formerly widely distributed in Southeast Asia and apparently common in some areas until the mid 20th century when brought to the verge of global extinction mainly by hunting for skins. Recent surveys have shown that the species persists in parts of the former world range, with remnant populations in Cambodia, Indonesia (Kalimantan), Lao PDR and Thailand. There is a reintroduced population in Viet Nam. It is currently classified by IUCN as Critically Endangered.

The species was formerly widely distributed in suitable habitat in Thailand. The current population is estimated at up to 200 individuals in a small number of scattered localities in central and western Thailand, most notably in Bueng Boraphet Non-hunting area, which may hold around half the total. Fewer than five wild nests have been located in Thailand during the five years up to 2012.

Very large numbers (~ 600 000) are held in captive breeding farms in Thailand. Twenty-four registered captive-breeding operations are permitted to export specimens as if they were specimens of species included in Appendix II. Thailand reported an average of almost 33 000 skins exported per year from captive sources between 2006 and 2010. Very large numbers of live animals are also exported from Thailand and there is concern that this trade is more difficult to regulate than the skin trade. Some individuals have been released in the wild in Thailand although with no evidence as yet of expanding populations.

The proposal to transfer the Thai population of *Crocodylus siamensis* from Appendix I to Appendix II with a zero quota for wild specimens is 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)*.

Analysis: The Thai population of the Siamese Crocodile remains extremely small and fragmented. The viability of existing groups is poorly known and recorded breeding success is extremely low. The species would therefore appear still to meet the biological criteria for inclusion in Appendix I. Skins from this species are in demand for international trade, currently met by skins from long established captive-breeding facilities, of which there are at present 24 registered in Thailand as breeding *C. siamensis*. Specimens originating in these facilities are already treated as if they were specimens of species included in Appendix II.

Supporting Statement (SS)	Additional information
Proposal only concerns population of Thailand.	<u>Taxonomy</u>
	 <u>Range</u>
	<i>Global range: Cambodia, Indonesia (Kalimantan), Laos, Thailand, Viet Nam, (Malaysia, Myanmar (unconfirmed)).</i>

Supporting Statement (SS)	Additional information
<u>IUCN Global Category</u>	
Critically Endangered A1ac .	<i>Critically Endangered A2cd (Bezuijen et al., 2012).</i>
Biological criteria for inclusion in Appendix I	
<u>A) Small wild population</u>	
(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability	
<p>Surveys in Thailand since the early 1990s have confirmed a highly fragmented remnant population largely within marginal habitats. The viable population persisting in Bueng Boraphet Non-hunting Area may comprise fewer than 100 individuals. The overall wild population in Thailand may be under 200.</p> <p>Extant populations are in a small number of scattered localities in central and western Thailand. Confirmed sites include Pang Sida and Kaengkrachan National Parks.</p>	<p><i>Simpson and Bezuijen (2010) confirm that most populations have been extirpated from Thailand, although historically common and widely distributed (Smith, 1919; Platt et al., 2002). One to several individuals persist in a small number of scattered localities, and nests are sometimes documented; fewer than five wild nests and few hatchlings have been recorded in Thailand over the past five years, suggesting low clutch fertility (Bezuijen et al., 2012).</i></p> <p><i>The smallest of the five known sub-populations is estimated to consist of one individual, and the largest is estimated to comprise less than 100 individuals (Jelden et al., in litt., 2012) . Nesting has been reported in the wild.</i></p>
<u>B) Restricted area of distribution</u>	
(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment	
<p>Formerly widespread in low altitude freshwater wetlands of central and eastern Thailand. Extant populations in Thailand are in a small number of scattered localities in central and western areas. Confirmed sites include Bueng Boraphet, Pang Sida and Kaengkrachan National Parks, Phu Khieo and Khao Ang Rue Nai Wildlife Sanctuaries.</p>	<p><i>Formerly widely distributed (Smith 1919; Platt et al., 2002). Surveys since the early 1990s have confirmed a highly fragmented and scattered population persisting in marginal habitats (Kreetiyutanont, 1993; Ratanakorn and Leelapatra, 1994; Ratanakorn et al., 1994; Platt et al., 2002; Temsiripong, 2003). One hatchling was discovered at Pang Sida National Park in 2002 (Temsiripong, 2003).</i></p>
<u>C) Decline in number of wild individuals</u>	
(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment.	
<p>Historically “commonly sighted” and fairly common in at least four river systems in Thailand. Hunting for the skin trade, primarily in the latter half of the 20th century, reduced the Thailand population to a few vulnerable remnant populations.</p>	<p><i>Historically, C. siamensis was widely distributed in some parts of Thailand (Platt et al., 2002), but most populations have been extirpated. The extremely threatened national status of the species appears unchanged since the 1992 CSG review.</i></p> <p><i>Current trends are not known (Jelden et al., in litt., 2012).</i></p>

Supporting Statement (SS)	Additional information
<p>Trade criteria for inclusion in Appendix I</p> <p>Commercial hunting in the mid-twentieth century for the skin trade is considered to be the principal cause for the historical decline of <i>C. siamensis</i> in Thailand.</p> <p>Currently, all commercial use of <i>C. siamensis</i> in Thailand derives from captive breeding operations.</p>	<p style="text-align: center;"><u>The species is or may be affected by trade</u></p> <p><i>Thailand is a major centre in the world crocodile trade with a reported average annual export volume of around 21 000 captive-bred Appendix I Crocodylus siamensis skins during the period 2000-2011 (CITES trade statistics derived from the CITES Trade Database, UNEP World Conservation Monitoring Centre, Cambridge, UK). Thailand was by far the major exporter of C. siamensis skins in this period, followed by Viet Nam.</i></p> <p><i>The CITES trade database also indicates substantial trade in live C. siamensis reported as exported from Thailand to China, averaging around 27 000 annually for 2000-2009. In the absence of the standard marking protocols used in the skin trade, there are problems involved in attempting to ensure this trade (which may include hatchlings, food animals and breeding stock) is legal, accountable and verifiable (CSG, 2011).</i></p>
<p>Precautionary Measures</p> <p>According to the SS, the precautionary measures required under <i>Resolution Conf. 9.24 (Rev. CoP15)</i>, Annex 4 (2b) would be satisfied by the commitment of the Thai government and CMAT to re-establish a viable wild population, in which case the species could be transferred to Appendix II in compliance with Article II paragraph 2 (a).</p> <p>The SS states that even though the species is likely to be in demand for international trade, its management in Thailand, with enforcement controls in place, is such that implementation of the Convention is secured. The proposal includes a zero quota to ensure that wild populations of the Siamese Crocodile do not become endangered by international trade.</p>	
<p>Other information</p> <p>Current and ongoing threats in virtually all range states include the illegal collection of eggs and crocodiles, habitat loss and degradation (often following hydroelectric dam construction), and incidental capture/drowning in fishing gear. The small size of known groups contributes to their vulnerability.</p>	<p style="text-align: center;"><u>Threats</u></p> <p><i>Collection of crocodiles to stock farms was a factor leading to near extirpation in Thailand following the major hunting period 1945-1960 (CSG, 2011).</i></p> <p><i>Hybridisation with Crocodylus porosus and C. rhombifer has occurred in captivity. DNA markers now enable hybrids to be identified.</i></p>

Supporting Statement (SS)	Additional information
<u>Conservation, management and legislation</u>	
<p>Known crocodile groups in Thailand occur in protected areas (three National Parks, two Wildlife Sanctuaries).</p> <p>The species and its habitat are protected under the 1992 Thai Wild Animal Reservation and Protection Act. An exemption allows trade in captive-bred <i>C. siamensis</i> but trade in wild specimens remains prohibited.</p> <p>The Crocodile Management Association of Thailand (CMAT) was developed to be a linkage between trade and conservation.</p> <p>A re-introduction project has been initiated by the Royal Thai Forest Service and the Crocodile Management Association of Thailand with 20 crocodiles being released in a pilot project in Pang Sida National Park in 2005 and 2006. Monitoring by ranger patrols and camera trapping has detected few of the released animals. Further releases and sites are being considered.</p>	<p><i>A reintroduction program has been underway in Pang Sida National Park, but results to date have not been encouraging. Recent widespread flooding in Thailand has stalled implementation of the reintroduction program in some areas. Nonetheless there are opportunities for re-establishment of the species in other protected areas. That large numbers of captive C. siamensis are available for restocking is certainly advantageous, as is the ability to distinguish hybrids (with C. porosus) (Jelden et al., in litt., 2012).</i></p> <p><i>To achieve success, re-introduction programmes must first address the complex and extreme threats facing C. siamensis in the wild, but in principle the current re-introduction programme should be continued and strengthened, and outcomes monitored (Simpson and Bezuijen, 2010).</i></p> <p><i>Some regular population surveys are undertaken, and efforts are being made to develop a country-wide monitoring program, but it does not appear to have been completed or implemented at this time.</i></p>
<u>Artificial Propagation/Captive breeding</u>	
<p>Captive-breeding has been established in Thailand since 1937. Currently, all commercial use of <i>C. siamensis</i> in Thailand derives from captive-breeding. There are 601 548 <i>C. siamensis</i> in 836 establishments including 23 Thai crocodile farms registered under CITES <i>Resolution Conf. 12.10 (Rev. CoP15)</i>. A number of crocodile farms that met qualification criteria are preparing to register.</p>	<p><i>As of late 2012 there were 24 captive-breeding operations for this species in Thailand registered under Resolution Conf. 12.10 (Rev. CoP15).</i></p>
<u>Other comments</u>	
	<p><i>Thought in the 1990s to be virtually extinct in the wild throughout its world range but more recent surveys have confirmed presence at a few scattered localities (Simpson and Bezuijen, 2010). The global wild population of C. siamensis may comprise fewer than 1,000 adults. Between 100 and 300 wild adults may remain in Cambodia, based on footprints and other evidence, and a similar number in Laos.</i></p>

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References:

- Bezuijen, M., Simpson, B., Behler, N., Daltry, J. and Tempsiripong, Y. (2012). *Crocodylus siamensis*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <www.iucnredlist.org>. Downloaded on 13 November 2012.
- Crocodile Specialist Group (CSG) (2011). Crocodiles. *Proceedings of the 1st Regional Species Meeting*. (First Regional Species Meeting. Mahidol University, Bangkok, Thailand. 4-6 April 2011). Crocodile Specialist Group: Darwin.
- Jelden, D., Manolis, C., Simpson, B. and Webb, G (2012). *In litt.* to the IUCN/TRAFFIC Analyses Team, Cambridge, UK.
- Kreetiyutanont, K. (1993). Siamese crocodile (*C. siamensis*) in Khao Ang Ru Nai Wildlife Sanctuary. *Natural History Bulletin of the Siam Society* 41: 135-137
- Platt, S. G., Lynam, A. J., Tempsiripong, Y. and Kampanakngarn, M. (2002). Occurrence of the Siamese Crocodile (*Crocodylus siamensis*) in Kaeng Krachan National Park, Thailand. *Natural History Bulletin of the Siam Society* 50: 7-14.
- Ratanakorn, P., Amget, B. and Ottley, P. (1994). Preliminary surveys of crocodiles in Thailand. Pg 35-49 *In Crocodiles. The 12th Working Meeting of the IUCN-SSC Crocodile Specialist Group*. IUCN, Gland, Switzerland.
- Ratanakorn, P. and Leelapatra, W. (1994) (dated October 1997). Thailand National Crocodylian Management Plan, Draft, Unpublished Manuscript.
- Simpson, B.K. and Bezuijen, M.R. (2010). Siamese Crocodile *Crocodylus siamensis*. Pp. 120-126 *In* S.C. Manolis and C. Stevenson (eds), Crocodiles. Status Survey and Conservation Action Plan. Third Edition, Crocodile Specialist Group: Darwin.
- Smith, M.A. (1919). *Crocodylus siamensis*. *Natural History Bulletin of the Siam Society* 3: 217-222
- Tempsiripong, Y. (2003). Conservation status and progress report of the reintroduction program of the Siamese crocodile in Thailand. Crocodile Management Association of Thailand Report, Bangkok, Thailand.