

## Transfer of the Thai population of Salt-water Crocodile *Crocodylus porosus* from Appendix I to Appendix II (with a zero quota for wild specimens)

### Proponent: Thailand

**Summary:** The Salt-water Crocodile *Crocodylus porosus* is a very large species formerly widespread in South and Southeast Asia and Australasia. It is extinct or nearly so in some range States, strongly depleted in most, but retains good populations in the island of New Guinea and Australia. It is not considered threatened at the global level.

The Thai population of Salt-water Crocodiles used to be found in estuarine and coastal areas adjoining the Andaman Sea and the Gulf of Thailand. Once feared extinct in Thailand, sightings and reports in recent years have shown that the species persists in low numbers at scattered locations, almost all within protected areas. It has been suggested that the population may number 200 or more, but it is not known what the basis for this estimate is. Depletion in Thailand and elsewhere was caused mainly by excess hunting for skins, and also by habitat loss or modification. The species is also persecuted as a danger to people and individuals were in the past taken from the wild to stock farms.

The entire species was listed in CITES Appendix I in 1985 except for the populations of Australia, Indonesia and Papua New Guinea, which were included in Appendix II at that time. Thailand's captive population of *Crocodylus porosus* could number in the thousands. Registered captive-breeding crocodile farms are permitted to export specimens of species listed in Appendix I as if they were of species included in Appendix II. As of late 2012 there were 14 farms in Thailand registered with CITES as breeding *C. porosus*. Thailand reported an average of 1850 skins exported per year from captive sources between 2006 and 2010.

The proponent proposes the 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)*.

**Analysis:** Available evidence confirms that the species is not extinct in Thailand but persists at a handful of sites. Although most or all of these sites are within protected areas, the population evidently remains extremely small and fragmented and would appear still to meet the biological criteria for inclusion in Appendix I. There are clearly high levels of international demand for skins from this species, currently met by long established captive-breeding facilities, of which there are currently 14 registered in Thailand as breeding *C. porosus*. 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><br> <br><u>Range</u><br> <br><i>Recent global range: Australia, Bangladesh, Brunei, Cambodia, India, Indonesia, Malaysia, Myanmar, Palau, Papua New Guinea, Philippines, Singapore, Sri Lanka,</i> |

| Supporting Statement (SS)   | Additional information   |
|---|--|
|   | <p><i>Solomon Islands, Thailand, Vanuatu, Vietnam (Webb et al., 2010).</i></p> <p><i>Historically present in Seychelles, possibly China (Webb et al., 2010).</i></p>   |
| <b><u>IUCN Global Category</u></b>  |  |
| Lower Risk/ least concern.  | <i>Assessment needs updating; originally published 1996 using version 2.3 of Categories and Criteria (CSG, 2012).</i>  |
| <b>Biological criteria for inclusion in Appendix I</b>  |  |
| <p><b><u>A) Small wild population</u></b><br/> <b>(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</b></p> <p>In Thailand individuals are occasionally reported in coastal wetlands. There is no count of total population size, but it is estimated to number around 200 individuals, and possibly higher (SS). <i>C. porosus</i> populations are now fragmented or locally extirpated in most of the former range in lowland Southeast Asia.</p> <p>The total wild population in Thailand could be around 200 but given the inaccessible nature of much <i>C. porosus</i> habitat, it may be greater than this (SS). According to the SS, current breeding populations are small and their long-term viability is not secure but the residual wild population is thought to provide a basis for recovery. At some locations re-introduction or augmentation may be needed to increase viability.</p> | <p><i>The species is considered to be extinct in most parts of Thailand (Webb et al., 2010). There is no evidence to indicate that the current population is viable in the long-term, and for all intents and purposes the species is considered virtually extinct in Thailand (Jelden et al., in litt., 2012).</i></p> <p><i>Jelden et al. (in litt., 2012) note that there have been no systematic surveys of the species since 1994 and there is no supporting information on how the estimate of 200 was derived. A country-wide monitoring programme is being developed but has yet to be completed or implemented.</i></p> |
| <p><b><u>B) Restricted area of distribution</u></b><br/> <b>(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</b></p> <p>It is likely that several small wild populations persist in Thailand (SS). Surveys since the early 1990s have confirmed a fragmented and scattered remnant population mostly within protected habitats. Around the 1990s a few <i>C. porosus</i> were recorded in Tarutao NP and Sirindhorn WS; small numbers probably occur at Ao Bandon, and two females were found at Samaesarn Island in 2012. Occasional reports of crocodiles by local fisherman in the Ranong River, adjacent to the Myanmar border, and a report of a newly hatched clutch in 2007 suggest a few individuals may still exist in this area.</p>   | <p><i>Crocodile surveys undertaken in Thailand in the early 1990s (Ratanakorn et al., 1994) revealed sightings of one or two <i>C. porosus</i> on Phuket Island, but the majority of suitable habitat in this area has been destroyed or occupied by people, and no viable population exists there.</i></p>  |

| Supporting Statement (SS)  | Additional information   |
|--|--|
| <p><b><u>C) Decline in number of wild individuals</u></b><br/> <b>(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.</b></p> <p>The species was virtually extirpated from Thailand by over-hunting for skin, particularly in the 1960s. There are no historical data to allow quantitative assessment of population trends. Anecdotal evidence suggests some possible recovery. Crocodiles have been seen more regularly by fishermen since the government of Thailand established 32 marine national parks.</p> |  |
| <p><b>Trade criteria for inclusion in Appendix I</b></p>   |  |
| <p style="text-align: center;"><b><u>The species is or may be affected by trade</u></b></p>  |  |
| <p>According to the CITES Trade database 2007 - 2011, the major exporter were Papua New Guinea (57 991 skins) and Australia (66 930 skins). The major importing countries were France, Japan and Singapore.</p>  | <p><i>Thailand reported exports of around 1385 skins annually from captive breeding operations over the decade 2002-2011; reported export volume was low during the first half of the decade and generally rising in the second half, to a maximum of 3151 in 2007 (UNEP-WCMC CITES Trade Database). The reported trade in skins is far lower than the potential annual farm production of 20 000 given in the SS (p8), which also indicates a stock of 20 000 (p5) or around 60 000 (p6) C. porosus. Possibly a large proportion of output is used domestically.</i></p> <p><i>Historical decline of the species has been attributed largely to hunting for the skin trade, mainly in the latter half of the 20<sup>th</sup> century. Sustainable use projects based on captive breeding and some wild collection, the most sophisticated of which are in Australia and New Guinea, have economic benefits and have contributed to increased security of crocodile populations.</i></p> |
| <p><b>Precautionary Measures</b></p>   |  |
| <p>According to the SS, all extant wild <i>C. porosus</i> in Thailand occur in national parks which, being protected areas, will ensure they are not exploited.</p>  |  |
| <p><b>Other information</b></p>  |  |
| <p style="text-align: center;"><b><u>Threats</u></b></p>   |  |
| <p>The main threat to the species is habitat degradation, especially if it involves a reduction in prey availability and possible pollution of water bodies.</p>   | <p><i>Habitat degradation is a key threatening process and the persistence of <i>C. porosus</i> in the wild in Thailand will ultimately rely on protected areas (Jelden et al., in litt., 2012).</i></p>   |

| Supporting Statement (SS)   | Additional information  |
|---|---|
| <b><u>Conservation, management and legislation</u></b>  |   |
| <p><i>C. porosus</i> became protected under Thai law in 1975. However, illegal hunting was widespread. Following the adoption of <i>Resolution Conf. 5.21</i> by the Conference of Parties to CITES in 1975, Thailand was permitted to trade internationally in <i>C. porosus</i> skins derived only from captive-breeding.</p> <p>Under the Wild Animal Reservation and Protection Act 1992, <i>C. porosus</i> and its habitat are protected from any activities (other than scientific use). Thus there is currently no legal trade in wild Salt-water crocodile, but an exemption in the Act allows <i>C. porosus</i> to be captive-bred in captivity and traded in domestic and international markets.</p> <p>CITES listings:<br/>Appendix II: Australia and Papua New Guinea</p> <p>Appendix II: Indonesia (Ranching <i>Resolution Conf. 3.15</i>, with special conditions applying to Papua Province pursuant to <i>Resolution Conf. 8.22</i>)</p> <p>Appendix I: All other countries including Thailand</p> <p>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 <i>C. porosus</i>. The Thai crocodile farmers have set up the association in 1990. Its main objective is to provide purebred <i>C. porosus</i> for re-introduction and channel funding from commercial to run conservation programs.</p> | <p><i>Jelden et al. (in litt., 2012) note that a country-wide monitoring program is being developed, but has yet to be completed or implemented. The proposed reintroduction of C. porosus into wild habitats does not appear to have been implemented yet. That large numbers of captive C. porosus are available for restocking is certainly advantageous, as is the ability to distinguish hybrids (with C. siamensis).</i></p>  |
| <b><u>Artificial Propagation/Captive breeding</u></b>   |   |
| <p>Some 60 000 <i>C. porosus</i> are currently housed on crocodile farms. Currently, all commercial use of <i>C. porosus</i> in Thailand is based on captive-breeding. There are 61 837 <i>C. porosus</i> from 836 operations including 13 Thai <i>C. porosus</i> farms registered under <i>Resolution Conf. 12.10 (Rev. CoP15)</i>. Total annual production of the registered farms is around 20 000. A number of crocodile farms that met qualification criteria are preparing to register. <i>Crocodylus porosus</i> is traded in national and international markets.</p>  | <p><i>Thai farms contain mainly C. siamensis, and hybridization between C. siamensis and C. porosus is well established. (Webb et al., 2010).</i></p> <p><i>Farming of C. porosus, based on captive breeding is undertaken in Bangladesh, China, Thailand, Singapore, Malaysia, Myanmar, Philippines, Indonesia, Papua New Guinea and Australia. Stocks produced through captive breeding are added to significantly through ranching programs (eggs, hatchlings and/or juveniles) in Indonesia, Papua New Guinea and Australia (Webb et al., 2010).</i></p> <p><i>As of late 2012 there were 14 captive-breeding operations for this species in Thailand registered under Resolution Conf. 12.10 (Rev. CoP15).</i></p> |

**Other comments**

| Supporting Statement (SS) | Additional information   |
|---------------------------|--|
|                           | <p><i>Further development of the existing re-introduction scheme, combined with rigorous habitat and species protection, may generate recovery of the highly threatened wild population that is a prerequisite for transfer from Appendix I to II.</i></p> <p><i>Seriously depleted in most range countries. Extinct in Singapore and nearly so in Cambodia, Thailand, Vanuatu, and Vietnam (where now only represented by a small re-introduced population) (Webb et al., 2010). Current global status assessment is based on the existence of widespread healthy populations in Australia and Papua New Guinea and to a lesser extent Indonesia (Papua). Total wild population estimated in excess of 400 000 non-hatchlings. (Webb et al., 2010).</i></p> |

**Reviewers:** D. Jelden, C. Manolis, W. Schaedla, B. Simpson, G. Webb.

**References:**

- Crocodile Specialist Group (CSG) (1996). *Crocodylus porosus*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.1. <[www.iucnredlist.org](http://www.iucnredlist.org)>. Downloaded on 15 October 2012.
- Jelden, D., Manolis, C., Simpson, B. and Webb, G. (2012). *In litt.* to the IUCN/TRAFFIC Analyses Team, Cambridge, UK.
- 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.
- Webb, G.J.W., Manolis, S.C. and Brien, M.L. (2010). Saltwater Crocodile *Crocodylus porosus*. Pp. 99-113 *In* S.C. Manolis and C. Stevenson (eds), Crocodiles. Status Survey and Conservation Action Plan. Third Edition, Crocodile Specialist Group: Darwin.