Indonesia - Country Report

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Indonesian Crocodilians

- New Guinea crocodile (*Crocodylus novaeguineae*) occurs on Papua island.
- Saltwater crocodile (*Crocodylus porosus*) occurs throughout archipelago.
- Tomistoma (*Tomistoma schlegelii*) habitats on islands of Java, Sumatera and Kalimantan.
- Siamese crocodile (*Crocodylus siamensis*) occurs in Java and Kalimantan.

Current Status of *C. siamensis* and its Habitats in the Wild

- *Crocodylus siamensis* has one of the most limited distributions of any world crocodilian in the world, occurring along the mainland of Southeast Asia, Sarawak and Sabah (Malaysia) and Indonesia (Kalimantan and possibly Java).
- The species may, however, be extinct in many of these areas. Populations in Java may not exist anymore. At the Museum Zoologicum Bogoriense, Indonesia, is the oldest collection of *C. siamensis* recorded from Cilebar, Bogor, on 24 April 1927.



- The ecology of this species is still poorly understood and the population status in the wild is also not documented yet in many parts of Indonesia.
- The main habitat of the Siamese crocodile in the wild is rivers and freshwater lakes. It probably prefers slow moving areas of fresh water and possibly brackish areas.
- Survey has been undertaken to assess habitat and possible locations of *C. siamensis* in Kalimantan (Kurniati *et al.* 2005). This survey has confirmed that *C. siamensis* is still present in the upper Makaham River, and breeding still occurs. However, more detailed systematic surveys over a wider area are required to assess the current status of the wild *C. siamensis* population.

Conservation Action

- The Siamese crocodile has a critical status in the wild (ie nearly extinct) and is currently recognized as 'critically endangered' by IUCN, and listed on Appendix I of CITES (Hilton and Taylor 2000).
- Past hunting is believed to be main threat for its survival in the wild. The other major threats come from habitat destruction (conversion to agricultural land).
- Indonesia has also declared that *C. siamensis* is protected species under Indonesian Law (Act No. 5/1990: Biodiversity Conservation and Its Ecosystem; and Government Regulation No.7/1999: Preservation on the Wild Fauna and Flora).

Threats

- Fishing and mud sedimentation have been impacting *C*. *siamensis* habitats.
- Weeds are a natural enemy of crocodile habitats, with the capacity to change the floral structure considerably. The process of sedimentation is accelerated with the growth of weeds.
- Numerous waterways in crocodile habitats are fished intensively with fishing nets, hooks and fish traps. These types of equipment catch hatchlings and juvenile crocodiles.

Conservation Efforts

- The Indonesian Government has closed many legal logging companies in the upper Mahakam River to conserve the habitats of *C. siamensis*.
- Design as a very important ecosystem essentials.
- Conduct the inventory of *C. siamensis* population.
- Design and consider to propose as wetland's protected area or Ramsar site.
- Socialization on protection of *C. siamensis*, campaign to conserve the Mesangat Lake as the last remaining habitat for *C. siamensis*.
- Increasing awareness of local communities on the importance to conserve the wild habitat of *C. siamensis*.

Current Status of *C. siamensis* in Captivity and Annual Production

- Captive breeding has not occurred yet.
- The breeders (crocodile farms) are actually ready to do captive breeding, but currently this is perhaps carried out for conservation purposes.
- No data for annual production of *C. siamensis*.
- No data on trade of *C. siamensis*, since under Indonesian law all activities related to the commerce of this species are prohibited.

Domestic versus International Trade



Figure 1. Exports of Indonesian Crocodilians, 2005-2010.

Enforcement, Legislation and Regulations

- Policy: utilization of wildlife resources based upon sustainable principle.
- For endangered but demanded species, captive breeding and artificial propagation program are promoted. The captive breeding program will provide incentive for conservation of the wild population.
- The current protocol for establishing annual quota is now more precautionary. Each year MA establish harvest levels in the fields which are reviewed and assessed by the SA, and involving also related NGOs.
- Population monitoring program is being developed to support non-detriment findings as the basis for quota establishment.

Habitat Protection and Restoration

- Habitat protection through a national decision to conserve the habitat. This will give a better leverage for conserving the area itself.
- Habitat restoration is a part of the national programme of conservation.

• As the important essentials ecosystem either locally, nationally and internationally could become an entry point to increase awareness of communities surrounding the habitat, (local and national) government, NGOs and related stakeholders.

Human-Crocodile Conflict with *C. porosus* (last 5 years) (F= fatal, NF= non-fatal/injury)

Province	Conflict Sites	t Victims	Solutions/Remarks
Aceh	10	5 F, 2 NF	compensation. survey, translocation
N. Sumatera	3	7 NF	compensation, awareness, translocation
W. Sumatera	2	2 NF	translocation
Jambi	5	2 F, 2 NF	taskforce, awareness
S. Sumatera	3	1 NF	taskforce, translocation
Lampung	1	1 F	translocation
Papua	-	-	no cases

Guideline for Handling Conflict between Human and Wild Animal (Ministry of Forestry Decree No. 48/2008)

- Establishing : Task force and coordination team to handling. conflict between human and wild animals.
- Procedure to handling the conflict information flow; handling mechanism; compensation.
- Prevention mapping conflict sites; awareness.
- Post-conflict reporting and monitoring.

Increased Awareness on Crocodile Conservation and Management

- Socialization of importance of Mesangat Lake as the last remaining habitat for *C. siamensis*.
- National Workshop on Crocodile Conservation and Management.
- Using the international convention, such as RAMSAR, to develop the wetland management networking.

Community-based Crocodile Recovery 2010-2012, Savannakhet Province, Lao PDR

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Goal

Recovery of this local crocodile population and wetland habitat improvement



History of Project

Kout Xelat Kadan Kout Kaen Nong Maehang TOTALS

- *Crocodylus siamensis* were widespread in the lowland wetlands of southeastern Asia. They are now reduced because of loss of its wetland habitat, and hunting for its skin.
- *Crocodylus siamensis* is one of four species of crocodile listed as Critically Endangered.
- Surveys in 2005. DFRC and LARREC surveys in 25 wetlands in three provinces in southern Laos but the project did not go ahead because no sponsor found.
- Survey in 2008 to see if crocs still there.
- 2008 work with 7 villages to make community based recovery plan.
- 2009 finalize arrangements with sponsor.
- 2010 began co-management of crocodile.
- Implemented by Savannakhet PAFO and Wildlife Conservation Society-Lao PDR Program

Savannakhet Province					
Site	Crocodiles observed*	Nests	Adult trails (w/out nests)	Dung	Local estimate of population (min)
Kout Kouang -		2 new (infertile)			2 A
(Kout Koke)					1 A
Kout Mark Peo		1 not finished		1 J ≥1 A	ca. 50 (J + A)

1 old hatch



Objectives

Based on recommendations from 2008 participatory planning:

- Improve local livelihoods (wetland zoning, rules for sustainable use, fish ponds, irrigation pumps)
- Restore and create wetlands (earthwork, weed control)
- Replenish the crocodile population (nest guarding, head starting)



Recovery is possible: our assumptions

- Crocodile reproduce quickly.
- Village people can do the work to recover the crocodile.
- Crocodile can earn money to people without being killed because tourists enjoy seeing crocodiles.

1. Kout Kouang - Kout Koke	Xonbouly
2. Kout Tapon area wetlands	Xonbouly
3. Kout Kaen area wetlands	Champhone
4. Kout Xelat Kadan oxbow	Champhone
5. Kout Mak Peo area	Champhone
6. Nong Maehang oxbow	Champhone
7. Beung Hor - Beung Bua	Xaibouly
8. Ban Khern Zoo	Vientiane

38

about 75



Figure 1. Example of crocodile habitat in a mosaic of agricultural land.



Figure 2. Wild C. siamensis nest.



Activity Update

- Equipment procurement: project boat and office equipment, motor bikes for District staff, Buffalo pump for Ban Kardan
- DNA sampling of captive crocodiles at Ban Kheun Zoo completed
- Wetland clearing at 3 sites completed
- Co-management training: capacity building for comanagement ongoing; recruit village staff, review national regulations with village teams, review current wetland use

Future Activities

- DNA analysis
- Make wetland rules
- Do zoning of wetlands
- Do nest guarding
- Do dam construction
- Do school repair

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Crocodile Conservation - Feasibility Study for Tourism and Conservation in Lao PDR

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Background

- *Crocodylus siamensis* were widespread in the lowland wetlands of southeastern Asia. They are now reduced because of loss of habitat and hunting for skins.
- *Crocodylus siamensis* is one of four species of crocodilian listed as Critically Endangered.

Recovery is possible, however:

- Crocodiles reproduce quickly.
- Crocodile can earn money for people without being killed because tourists enjoy seeing crocodile.
- Crocodile tourism is a large industry in Australia, South America and USA.

Project Objectives

- Determine if crocodile remain in Lao PDR.
- If so, co-manage with villagers to stabilize the remaining populations.
- Promote tourism in these villages to reduce poverty.



Figure 1. Three sites visited during two surveys.



Figure 2. Siamese crocodile habitats.



Figure 3. Wetland areas.



Figure 4. Xaybouly District.

Siamse crocodile breeding in the wild

- Crocodile habitat abundance
- Fauna and Flora:
 - Water Bird
 - Amphibian
 - Aquatic plant
 - Reptiles, Endangered Species



Figure 5. Nest XNX001, Kout Kouang Nyai, Xe Xangxoy, 27 May 2008.



Figure 6. Siamese crocodile breeding in Lao Zoo.



Figure 7. Siamese crocodile habitat.



Figure 8. Public interest is high.

Recommendations for Bung Khe wetlands

- 1. Need survey to determine the area of wetland habitat and the presence/status of crocodiles.
- 2. Surveys should be conducted as part of a larger effort in the lower Xe Kong, Xe Kampho and Xe Pian River systems.
- 3. Start discussions with the four villages that use the Bung Khe area for potential of community-based management.
- 4. Seek funding for community-based protection of the wetlands and the crocodile population.
- 5. Consider linking management of the Bung Ke area with the Xe Pian NBCA.

Recommendations for Xaybouly area

- 1. Conduct a detailed survey of wetlands and crocodiles along the lower Xe Bangfai and associated wetlands.
- 2. Begin talking with villagers that use the Beung Saiyan wetland about the potential for community management that would improve the survival of crocodile- perhaps linked to ecotourism.
- 3. Conduct a study of the factors affecting crocodile nesting success in Nong Boua.

Recommendations for Xe Champhon and Xonbuly Wetlands

- 1. A high priority should be given to surveys of crocodiles, and land-use patterns in the region.
- 2. Contact ecotourism groups in Savannakhet to discuss the potential for nature-viewing trips to this area.
- 3. Initiate meetings with principal villages to discuss resource-use issues in these wetland habitats and their management.
- 4. Consider declaring this a new provincial or national protected area.

Results of Feasibility Studies

- 1. Sixth short surveys were conducted.
- 2. Crocodiles were found in all three locations.

- 3. Populations size is unknown exactly, but we caught Siamese crocodile juvenile in the wetland.
- 3. Project has continue support by Xe Pon Mining Company.



Figure 9. Juvenile Siamese crocodile from Kout Kaen, Xe Champhone.