

**Crocodile Specialist Group Steering Committee Meeting**  
**Sofitel Royal Bay Hotel, Agadir, Morocco**  
(12 May 2026)

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**East & Southeast Asia**

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**Laos**

The Wildlife Conservation Society (WCS)-Lao Program monitors Siamese crocodile (*Crocodylus siamensis*) nests, collects and incubates eggs and head-starts young crocodiles in two local communities: Tan Soum and Dongyanong Villages. Our involvement at Tan Soum dates to 2011, with a funding hiatus extending from 2013-2019. The bulk of WCS conservation efforts are being conducted at Tan Soum Village. Most recently (2025), a Visitor and Conservation Education Center was opened in the village. Incubation will be conducted at the center and a small group of larger crocodiles is on display. In 2025, the head-starting facility at Dongyanong was expanded to accommodate more head-started crocodiles. Further expansion is planned for 2026. Currently, the combined holdings of both head-starting facilities is 191 crocodiles: 68 and 56 head-started crocodiles were transitioned into the wild in 2025 and 2026, respectively. Nest monitoring is used to determine crocodile population trends in the Xe Champhone Wetlands; 8 and 9 nests were found in 2024 and 2025, respectively. Based on these data, WCS estimates the population of Siamese crocodiles in the Xe Champhone Wetlands consists of a minimum of 225 individuals.

Lao Conservation Trust for Wildlife (LCTW) has launched an ambitious Siamese crocodile breeding program. LCTW successfully relocated 75 adult, genetically pure (whole genome sequenced) Siamese crocodiles to a new facility, ensuring a secure and well-managed foundation stock for future conservation efforts. During the relocation period, 50 hatchlings from these purebred individuals emerged and are now two years old and ready repatriation into the wild. Furthermore, the captive population produced 400 eggs in 2025 and of these, 75 hatched successfully. The juveniles are being head-started for eventual release into the wild. LCTW is currently working with the Government of Lao to identify a suitable release site. To this end, the Si Phan Don wetland has been tentatively selected as a reintroduction area.

**Cambodia**

Rising Phoenix (Siem Pang Wildlife Sanctuary) released 10 adult Siamese Crocodiles in April 2024 bringing the total to 51 crocodiles released since 2022. Five nests were monitored from April through July. Of these, one nest produced 14 hatchlings and the remaining four nests were lost to flooding in July. An additional 10 Siamese Crocodiles were released in August 2024 (total released in 2024= 20 crocodiles). In June 2025, 20 adult Siamese Crocodiles were released, all of which were implanted with subcutaneous acoustic trackers to monitor dispersal and habitat use. The most recent releases bring the total to 81 crocodiles (24M, 57F) translocated since 2022. A follow-up survey conducted in October 2025 was able to relocate only five of the crocodiles with attached acoustic transmitters. Nesting by translocated female crocodiles was not recorded during the 2025 nesting season. Lastly, an additional 30 hatchling Siamese Crocodiles were translocated to an artificial wetland adjacent to Siem Pang Forest Lodge in November 2025. This release cohort was produced by genetically pure Siamese Crocodile parent in June 2025 at AWA.

Fauna & Flora (prepared by Vanny Lou)

1. Monitoring key populations and nests: Patrol teams documented both direct and indirect evidence of crocodile presence, including active nesting. Annual nest monitoring, conducted between April and June by the Fauna & Flora (FF) project team and crocodile wardens, combines walking and kayaking surveys to locate newly laid nests. Data collected includes nest location, egg count, fertilization success, and egg size and weight.
  - In 2024, surveys in the Cardamoms found five nests, three of which successfully hatched 60 wild-bred Siamese crocodiles.
  - In June 2025, FF in collaboration with the Forestry Administration of the Ministry of Agriculture, Forestry and Fisheries, the Ministry of Environment, and local community wardens, discovered three additional nests containing 43 eggs, of which 34 were fertile and 26 successfully hatched.
2. Translocation: On 16 March 2024, 50 juvenile Siamese crocodiles (15M, 35F) were released into a the most remote and safest site within Cardamom National Park. The release was attended by H.E. Dith Tina, Minister of Agriculture, Forestry and Fisheries. Of these crocodiles, 25 were fitted with acoustic transmitters to enable post-release monitoring, supported by 8 acoustic receivers deployed at the Steung Khiew site. The event not only advanced scientific monitoring but also underscored strong political commitment to safeguarding this Critically Endangered species.

In January 2025, the project secured the government approval for a new release site in Virachey National Park, complementing the existing site in Cardamom Mountain National Park. This decision followed a process of free, prior, and informed consent with key stakeholders, including Indigenous Peoples and Local Communities.

- In March 2025, 10 Siamese crocodiles (4M, 6F), each fitted with acoustic tags for post-release monitoring, were successfully released into one of the most remote areas of Virachey National Park. The release was carried out with the active participation of national and sub-national government bodies, as well as IPLCs
- In April 2025, an additional 40 Siamese crocodiles (25M, 15F) equipped with acoustic trackers were released into designated natural habitats within Cardamom National Park. All individuals originated directly from our breeding facility, ensuring a reliable and sustainable source for conservation efforts.

3. Protection and crocodile sanctuaries: FF continues to collaborate with 26 community crocodile wardens who patrol key sites in the Cardamom Mountains, including O’Som, Areng, Chhay Reap, Tatai Leu, and Steung Khiew. Using the SMART patrol system, wardens monitor crocodile populations and respond more effectively to threats. In 2024, they covered 3402 km over 290 patrol days, while in 2025 patrols expanded to 318 days, totaling 540 patrols and 4478 km. These efforts strengthen protection against illegal fishing, poaching, and habitat encroachment, while fostering community stewardship of crocodile habitats.



In June 2025, our camera trap recorded a female crocodile close to a nest.

4. Captive breeding program at Phnom Tamao Zoo: Our Siamese crocodile breeding facility at Phnom Tamao Zoological Park, Protected Area and Arboretum is maintained to the highest standards, ensuring that all crocodiles are kept in optimal conditions. Breeding and survival rate improvements:

- Infrastructure expansion: A new dual pond breeding enclosure was built in late 2024, forming a new breeding group of 19 animals (5M, 14F).
- Increased fertility: While the total number of eggs laid in 2025 (554) was nearly identical to 2024 (552), the overall fertility rate improved by approximately 25%. This improvement is attributed to a higher number of mature females.
- Enhanced rearing success: The use of correctly positioned supplemental UV lighting and modified enclosures for better basking has significantly improved hatchling survival rates. In 2024, 158 out of 170 hatched crocodiles survived.
- Incubation capacity: An extra outdoor incubation facility was constructed to handle overflow and provide a backup to electricity-powered incubators.
- 4 new juvenile rearing enclosures were built for yearling care. Currently housing 158 yearlings, that were bred at the zoo end of 2023 and hatched in 2024.

Crocodile stocks in 2024 and 2025.

Crocodile Stock	2024	2025
Breeding males	17	17
Breeding females	50	56
Sub-adult/Juvenile males	43	82
Sub-adult/Juvenile females	90	
Yearlings	82	156
Eggs produced	552	544
Viable hatchlings	158	170



5. Miscellaneous: In 2024, FF, together with the Ministers of Environment and Agriculture, Forestry and Fisheries, announced the discovery of 5 wild nests containing 60 hatchlings through the joint press release. The finding has attracted global media attention, including coverage by outlets such as BBC, CNN, and The New York Times, and represents a highly positive milestone for the conservation of this species in Cambodia.

In 2024, we produced a 6-minute video documentary highlighting 25 years of Siamese Crocodile conservation in Cambodia, featuring the background of the project, conservation strategy, key conservation impacts and partnership engagement with key government stakeholders including the two Ministers from Ministry of Environment, Ministry of Agriculture, Forestry and Fisheries highlighting the political support for this CR species and local community. The video link: <https://www.youtube.com/watch?v=rdFZQEUSXII>

FF in partnership with Conservation International has worked closely with the Government of Cambodia (Ministry of Environment) to create its first-ever Crocodile Genetic Conservation Area covering 315 ha, offering critical legal protection for the habitat of one of the world's rarest reptiles - the Critically Endangered Siamese crocodile. The approval of the legal establishment is expected to be declared by the Ministry of Environment within 2026.

In August 2025, FF in collaboration with Cambodia's Ministry of Environment, the Forestry Administration of the Ministry of Agriculture, Forestry and Fisheries, and the Koh Kong Provincial Department of Environment, organized a community outreach event in Tatai Leu Commune, Thmar Bang District, Koh Kong Province. The event aimed to raise awareness and encourage community participation in Siamese crocodile conservation. A total of 96 participants attended, including 40 women, 37 grade 5 and 6 students from the local primary school, 47 community members, technical officials from the Ministry of Environment and the Koh Kong Provincial Department of Environment, the district governor, and a representative from Conservation International.

The program covered topics such as crocodile species and global distribution, ecology, conservation benefits and challenges, and an overview of crocodile conservation in Cambodia. A quiz was held for the students, with winners receiving water bottles printed with conservation messages. All student participants were also given notebooks and pens, while community members received water bottles provided by the project.

FF has been supporting WWF-Cambodia in its plan to release 10 Siamese crocodiles into a new habitat within Srepok Wildlife Sanctuary in 2026. Ten (10) genetically purebred crocodiles for this release would be sourced from Fauna & Flora's breeding facility.

In December 2025, FF signed a Siamese Crocodile project agreement with the Ministry of Environment of Cambodia, strengthening our partnership and advancing further joint conservation efforts to protect the Siamese crocodile from the brink of extinction.

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#### **Indonesia** (prepared by Herdhanu Jayanto)

- The Green Status of Species (GSS) assessment for *Tomistoma* is currently underway, led by Herdhanu Jayanto. It begins at the national to global level and will involve assessors across its range. A national assessment for the Siamese crocodile is also planned in parallel. Both processes will involve local students.
- The first movement ecology study of *Tomistoma* in Berbak National Park has been conducted by Yayasan Konklusi, with CSG support. However, GPS data transmitted via satellite were below expectations. Efforts to salvage the dataset through recapture and tag retrieval are planned for 2027.
- A robust population estimation for *Tomistoma* is being piloted in Berbak National Park in 2026 by Yayasan Konklusi. This work involves two students from Universitas Jambi as research assistants and for their undergraduate theses.
- PT Surya Sawit Sejati-United Plantations (SSS-UP) has committed to *Tomistoma* conservation in the Arut River, adjacent to their concession area. Spotlight surveys have been ongoing for the past 3 years. In January 2026, PT SSS-UP attempted to capture individuals to deploy three GPS/satellite tags, in collaboration with Yayasan Konklusi.
- Kyle Shaney, in collaboration with Ahmad Khadafi (Universitas Palangka Raya), is collecting *Tomistoma* genetic samples for ongoing genetic research.
- Ilian Grima, an independent French naturalist, approached BKSDA East Kalimantan, Yayasan Ulin, Steve Platt and Lonnie McCaskill, regarding his interest in establishing a head-starting program and research center for the Siamese crocodile in Mesangat, following his visits from 2025. However, his visa and permits to conduct activities in Indonesia need confirmation.
- A crocodile survey was conducted in the Kao River, Boven Digoel, South Papua Province, by Fadiah Dzahra (IPB University), supervised by Prof. Mirza Kusri and Herdhanu Jayanto. This area represents the range of Hall's crocodile, which is not recognized by the CSG at this time. However, it has been designated as a distinct species by a Ministry of Marine Affairs and Fisheries decree.
- The CITES Secretariat has issued Notification No. 2026/060 to the Parties, seeking comment/objections to the proposed registration on a captive breeding operation in West Java, based based on *Tomistoma*. The proposal indicates that the product to be traded would be "live specimens marked with microchips". This represents the first operation to be registered for the species.
- In the past two years (2024-2025), several undergraduate theses on crocodiles have been completed in Indonesia, including:

- Idang Deni Saputra (Forestry Faculty, Universitas Muhammadiyah Sumatera Barat): Relative abundance of Saltwater crocodile in the Batang Kinali River, West Sumatra.
- Suranto (Forestry Faculty, Universitas Jambi): Human-crocodile conflict in Tanjung Jabung Timur, Jambi.
- Resti Puji Lestari (UIN Raden Fatah): “Crocodile Offering Tradition in the Context of Totemism Theory” - a case study from Tambangan Kelekar Village, Muara Enim.

Seeing how sparse these crocodile conservation efforts are in Indonesia - particularly those conducted as undergraduate theses - it would be valuable to build a network and provide support, especially to raise awareness of opportunities such as SRAS, with which many are not familiar. Herdhanu Jayanto and Brian Martin could help facilitate this.

- Yayasan Ulin Lestari continues to promote Siamese crocodile (and Tomistoma) conservation in Mesangat-Suwi, although access to the area is currently challenging. This is demonstrated by its survey efforts in Kutai National Park and Muara Kaman Sedulang Nature Reserve, as reported in the latest update to the CSG from Indonesia.

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### **Thailand** (prepared by Yosapong Temsiripong)

The Thai Crocodile Farmers Association (TCFA) has been involved in improving the status of wild Siamese crocodile populations, by continuing to encourage and support all reintroduction programs in Thailand.

In 2025, the Department of National Parks, Wildlife and Plant Conservation, DNP, monitored the release of 23 juveniles in Khao Ang Rue Nai Wildlife Sanctuary. These captive-bred crocodiles were provided by TCFA members.

Sightings of adult Siamese crocodiles were made in historical habitats within six protected areas. Hatchlings with a guarding mother were often observed by officials and/or tourists in Bueng Boraphet Non-hunting Area and Pang Sida National Park.

Public acceptance of young and juvenile crocodiles has been viral online throughout the year, thanks to the original photos and videos published online by the DNP. Many TV and newspapers re-posted and received positive comments.

A public awareness study and wild population surveys are being carried out, thanks to a government-funded project from Office of Natural Resources and Environmental Policy and Planning - ONEP to Kasetsart University and DNP.

The summary of conservation activities in 2025 includes:

1. Selected 60 1.2-1.4 m juveniles from TCFA member, Nakhon Sawan Crocodile Farm, for DNA testing and soft release at Khao Ang Rue Nai Wildlife Sanctuary.
2. Selected 30 1.2-1.4 m juveniles from TCFA member, Wongveerakit Crocodile Farm, for DNA testing and soft release at Khao Ang Rue Nai Wildlife Sanctuary.
3. Aerial survey and radio telemetry found surviving juveniles from the 2024 cohort in Khao Ang Rue Nai Wildlife Sanctuary. A report is currently being prepared by DNP.
4. More evidence was found of wild hatchlings in Bueng Borapet Non-hunting Area and Pangsida National Park.
5. The 2nd Siamese Crocodile Regional Species Meeting was held on 19-20 August 2025 at Kasetsart University.
6. A meeting report was submitted for the development of a national crocodile strategic plan to the government agencies, the Department of Fisheries, and the Department of National Parks, Wildlife and Plant Conservation for consideration and approval.
7. Siamese crocodile conservation project was initiated at Khao Ang Rue Nai Wildlife Sanctuary by Kasetsart University. This project involves the reintroduction of genetically pure Siamese crocodiles, restoration of crocodile habitat, and reduction of potential human-crocodile conflict.

In early 2026, the DNP released two genetically pure female Siamese crocodiles in the head waters of the Petchburi River in Kaeng Krachan National Park. Post-release monitoring is being conducted by DNP rangers and at the time of this writing (mid-April 2026), the crocodiles remain within the release area. The objective of this release is to augment a small existing population on the Petchburi River that consists of <3 crocodiles. This population has been intermittently monitored since being rediscovered in 2001 and successful reproduction has yet to be confirmed.

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### **Peoples Republic of China** (prepared by Xiaobing Wu, Tao Pan and Haitao Nie)

The Anhui National Nature Reserve the Chinese alligator has been continuously strengthening the protection and management of its wild population between 2024 and 2025. The combined efforts of habitat modification, wild releases of the Chinese alligators, legislative protection and education, all constantly promotes the recovery of the wild population. The research team at Anhui Normal University has conducted systematic studies on the critically endangered Chinese alligator (*Alligator sinensis*) across multiple disciplines, including genomics, microbiomics, behavioral ecology, habitat

assessment, and conservation management. The team has assembled a high-quality, chromosome-level reference genome, revealing the positive role of captive populations in preserving genetic diversity. They have elucidated the mechanisms by which gut and egg-surface microbiota influence juvenile growth and hatching success, assessed the dual pressures of climate change and human activities on alligator habitats, and proposed specific conservation strategies such as priority ecological corridors and nest site optimization. We also systematically uncovered key regulatory mechanisms governing the reproduction, gut health, and wild adaptation. These findings provide a crucial theoretical foundation for the scientific conservation and population recovery of the Chinese alligator.

1. Strengthen the recovery of the Chinese alligator wild population and the pedigree management of captive populations

a. The wild population of the Chinese alligator is growing steadily.

In 2024 and 2025, the restored wild habitat area for the Yangtze alligator reached 41.74 km<sup>2</sup>. The wild population of the Chinese alligator is showing a good growth trend (Table 1).

Table 1. Population and breeding status of wild Chinese alligators, 2024-2025.

Year	Number of nests	Total number of eggs	Number of alligators released in wild	Number of wild alligators surveyed
2024	41	947	210	1620
2025	73	1674	254	1920



Figure 1. Adult and juvenile Chinese alligators in the wild.

- b. Further strengthen the legal protection of the Chinese alligator: Anhui National Nature Reserve of the Chinese alligator Promoted the Intermediate People's Court of Xuanzhou City to issue the first judicial protection order for wildlife in Anhui Province: "the Chinese Alligator Judicial Protection Order", and establish the first collaborative mechanism in Anhui Province for ecological and resource protection in the national nature reserve with the Xuanzhou City People's Procuratorate and Public Security Bureau. And promoted the introduction of the "Management Measures for the Anhui National Nature Reserve of the Chinese Alligator".
- c. Lineage management of captive-bred populations has been implemented: 3657 alligator eggs were artificially bred and incubated resulting in 1806 juveniles in 2025. The genetic background screening of the Chinese alligator pedigree was steadily carried out, with genetic testing and pairing completed for a total of 192 parent alligators across 16 families. From 2025, the captive population of the Chinese alligator will implement pedigree-based breeding management.
- d. Continuously strengthen popular science and educational campaigns about the Chinese alligator: In 2024, the Anhui National Nature Reserve of the Chinese alligator conducted a total of 26 publicity and education activities, reaching over 13,000 people. It received nearly 140,000 visitors. In 2025, a total of more than 160 reports related

to the Chinese alligator were published in provincial and above-level media (including new media). A total of 41 science popularization and nature education activities were held, reaching more than 20,000 people.

## 2. Progress of scientific research on the Chinese alligator

- a. **Genomics and Genetic Diversity:** The team successfully assembled a chromosome-level genome (2.26 Gb) for the Chinese alligator and, based on resequencing data from 244 individuals, systematically evaluated the genetic structure of wild and captive populations. The results indicate that the species has relatively low overall genetic diversity and long runs of homozygosity. However, the captive population exhibits significantly higher heterozygosity and lower inbreeding coefficients than wild individuals, demonstrating the effectiveness of artificial breeding in preserving genetic diversity. The recent effective population size remains only a few dozen individuals, indicating ongoing risks of inbreeding depression. Population history reconstruction reveals a long-term decline, but with the support of artificial protection and reintroduction programs, the wild population has recovered to 773 individuals. Structural variant analysis further revealed genetic differences among individuals. (Pan *et al.* 2025).
- b. **Microbiomics:** Regarding the gut microbiota of juvenile alligators, the team found that four bacterial genera - *Stenoxybacter*, *Gracilibacteria*, *Abconditabacteriales* (SR1), and *Saccharimonadales* - are positively correlated with body weight. These genera help maintain an anaerobic intestinal environment, promote nutrient degradation and the production of growth factors, and are associated with increased heme biosynthesis in faster-growing individuals (Li *et al.* 2025). In semi-wild environments, juveniles showed significantly lower body length and weight compared to those in artificial settings, along with reduced gut microbial diversity and an increased abundance of *Actinobacteria*, indicating that environmental stress inhibits growth and development by altering the microbial community (Cui *et al.* 2025). Furthermore, the surfaces of successfully hatched eggs were dominated by Actinobacteria and Firmicutes, while eggs that failed to hatch showed significant enrichment of opportunistic pathogens (*Proteobacteria* and *Pseudomonas*), highlighting the importance of microbial management in improving hatching success (Sun *et al.* 2025).
- c. **Habitat and Ecological Studies:** Climate change models predict that the minimum temperature of the coldest month and precipitation seasonality are the most critical factors influencing Chinese alligator distribution. Suitable habitats are projected to decrease by 3-98% in the future, with a westward shift in the distribution center. Nearly 80% of the current nature reserve area falls outside priority protection zones (Yang *et al.* 2024). In terms of habitat integrity, highly suitable areas account for only 4.62% of the study region and are severely fragmented by farmland and residential areas. The study identified four priority ecological corridors (g Xiadu-Hongxing) and proposed a stepwise habitat restoration approach with a "human-alligator coexistence" corridor design (Sun *et al.* 2025). GPS tracking revealed that the annual home range of Chinese alligators is much smaller than that of other crocodylian species, and forest cover significantly impedes their movement, with the core area carrying capacity estimated at only 147 individuals (Li *et al.* 2025). Regarding nest site selection, alligators strongly avoid high banks and steep slopes, preferring sites with low banks, gentle slopes, and large platform areas, and nest utilization rates varied significantly among regions (Miao *et al.* 2026). Additionally, the team developed an automatic method for measuring canopy density based on an adaptive bimodal threshold segmentation algorithm, which achieved the highest accuracy under cloudy conditions and in areas with low canopy density (Sun *et al.* 2024).
- d. **Implications for Conservation Management:** Based on the above findings, the research team proposes several conservation recommendations: continuously implement genome-informed breeding to control inbreeding risks; prioritize the construction of four ecological corridors to restore habitat connectivity; optimize food chains in reintroduction sites and improve artificial nest design (low bank, gentle slope, large platform); strictly control temperature and humidity during incubation and monitor microbial dynamics; pay attention to juvenile gut health and screen for potential probiotics; and integrate climate change projections into reserve planning while expanding priority protection areas. These measures address multi-level conservation needs ranging from genes and microorganisms to habitats and climate adaptation.
- e. **Effects of Compound Feed on Intestinal Microbiota and Growth Performance:** Dietary studies in the Chinese alligator demonstrated that mixed pellet feed, alone or fortified with sodium butyrate or *Bacillus* probiotics, optimized intestinal microbial diversity and markedly improved reproductive metrics (clutch size, fertilization rate, hatching success) relative to conventional frozen animal feed (Wu *et al.* 2025). Furthermore, the study compared the effects of frozen fish meat and compound feed on the diversity of intestinal microbial communities and intestinal development in neonatal Siamese crocodiles. It was found that compound feed could enhance intestinal microbial diversity, optimize functional structure, and potentially have positive effects on intestinal development (Zhang *et al.* 2025).
- f. **Reproductive Physiology:** Hibernation was confirmed as indispensable for reproductive success: it preserves pre-ovulatory follicles via GABA/glutamine signaling, restrains vitellogenic oocyte recruitment through m<sup>6</sup>A RNA methylation, and shapes ovarian reserve (Nie *et al.* 2026). Transcriptomic analyses constructed the first reptilian lncRNA-miRNA-mRNA regulatory network for oogenesis, revealing that early germ cell proliferation depends on cell-cycle and WNT/FGF pathways (Liu *et al.* 2025). Functional assays further identified CDH3 (P-cadherin) as a critical mediator of germ cell nest integrity and primordial follicle assembly, with miRNA-

mediated regulation of CDH3 directly impacting gene expression (Li *et al.* 2025). This study employed ATAC-seq technology to elucidate the dynamic changes in chromatin accessibility during oogenesis in *A. sinensis*. Core transcriptional regulators were to significantly enhance promoter activity by binding to the CCAAT-box element of the AURKB promoter, thereby modulating cell cycle dynamics (Li *et al.* 2026). We employed RNA-seq technology to investigate the sex determination mechanism in *A. sinensis*, innovatively revealing the critical role of the MAEL gene in its sexual differentiation (Wen *et al.* 2024). We provided the characteristics of the BTB gene superfamily in *A. sinensis*. The 170 AsBTB genes are classified into 13 families and are unevenly distributed across 16 chromosomes, with tandem and fragment repeats playing equally important roles in their amplification (Li *et al.* 2024).

- g. Study on Microbial Intestinal Adaptation Mechanism in wild adaptation: The study found that host developmental and density stress significantly affect the gut microbiota of *A. sinensis*. With age, the association between intestinal and environmental microorganisms strengthens, and metabolic functions gradually improve, although specific potential pathogenic bacteria exist at different developmental stages (Wang *et al.* 2024). Finally, multi-omics profiling of reintroduced individuals documented a gut microbial shift from *Acinetobacter*- to *Cetobacterium*-dominated communities, reduced pathogenic and antibiotic resistance gene abundance, and a transition from stochastic to deterministic community assembly; concurrent metabolomic reprogramming including elevated neuroprotective enhanced environmental resilience, establishing a microbiome-metabolism axis underlying wild adaptation (Wang *et al.* 2025).

#### Publications in 2026

Haitao Nie, Fuyong You, Shi Wang, Yunlu Xu, Shaofan Li, Jixiang Zhan, Yuan Zhang, Peng Liu, Yue Wen, Yongkang Zhou, Song Zhang, Xiaobing Wu. The effect of hibernation on reproduction performance of *Alligator sinensis*, Chinese Alligator is not limited to maintenance of natural follicle, but also involves the fundamental resource of germ cells. *Animal Reproduction Science*, 2026;287:108115.

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Pan T, Miao J, Sun K, Nie HT, Luscombe NM, Li W, Zhang S, Yang L, Wang H, Zhou Y, Tu G, Shu Y, Zhang B, Wu X. (2025). Genomic insights and the conservation potential of captive breeding: The case of Chinese alligator. *Science Advances*, 11(14): eadm7980.

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Sun K, Li M, Wang Z, Sun S, Yang J, Wu X, Pan T. (2025). Habitat integrity challenges for the Chinese alligator amid land occupation by human: Pathways for protection. *Ecology and Evolution*, 15: e71113.

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Sun K, Fan G, Zhang Y, Luo J, Wu X, Pan T. (2024). Studies on automatic image segmentation method for canopy density measurement of Chinese alligator (*Alligator sinensis*) habitat. *Pakistan Journal of Zoology*, 56(4): 1717-1724.

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#### **Malaysia** (prepared by Kerisha Kntayya and Izwan Abdul Gani)

High levels Saltwater crocodile attacks continue in the Malaysian States of Sabah and Sarawak. Sarawak is currently developing a new management plan for the species and investigating options for integrating sustainable use with livelihoods and benefits to local communities.

A workshop organised by the Sabah Wildlife Department was held in Kota Kinabalu, Sabah in May 2024 to address the HCC issue in that state. Charlie Manolis and Matt Brien were invited to participate in the workshop. A series of recommendations were developed by workshop participants and submitted to the Sabah Government. In March 2026, a 2-year project aimed at mitigating HCC was launched. It will involve collaboration between the Sabah Wildlife Department and the Danau Girang Field Centre, with funding from Yayasan Hasanah - it will be led by Sai Kerisha Kntayya. The project hopes to take a community-based approach to mitigating HCC while supporting sustainable conservation management. It will prioritise the implementation of physical mitigation measures at high-risk locations (eg Crocodile Exclusion Enclosures), and with an emphasis on community engagement, awareness and education. State-wide crocodile population surveys will also be carried out, to build on surveys last undertaken in 2017-2019, to quantify population trends. The integrated approach aims to reduce conflict in high-interaction areas, improve safety for river-dependent communities and support informed crocodile management across Sabah.

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#### **Philippines** (prepared by Rainier Manalo and Merlijn van Weerd)

##### General

- The DENR - Biodiversity Management Bureau conducted a Population Viability Analysis (PVA) Workshop for both *Crocodylus mindorensis* and *Crocodylus porosus*, attended by members of the National Committee on Crocodile Conservation, its Technical Working Group, with other stakeholders, and facilitated by Crocodylus Porosus Philippines Inc.

- The Palawan Council for Sustainable Development officially approved the declaration of the first ever 97-hectare mangrove area in Tagusao River, Quezon, Palawan as Critical Habitat for Saltwater crocodile pursuant to the Philippine Wildlife Resources, Protection and Conservation Act.
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- Human-Crocodile Conflict management was streamlined in the Disaster Risk and Reduction Management (DRRM) principal action in Palawan Island, Philippines.
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- The DENR - Biodiversity Management Bureau developed a Communication, Education, and Public Awareness (CEPA) program for the conservation of the two species of crocodiles in the Philippines.

Northern Philippines (Mabuwaya Foundation)

#### Population size

- In 2025, 55 non-hatchling Philippine crocodiles were counted in the wild in San Mariano in Isabela Province, the core area for the species in Northeast Luzon. This included a minimum of 13 adults. 2025 was not a very good nesting year, as a result of adverse weather conditions, with only 2 successful nests with a total of 20 hatchlings out of a total of 4 discovered nests. 2024 was a better nesting year, with 5 successful nests and a total of 68 hatchlings. The long-term monitoring program (started in 2000) shows a gradual upward trend in the non-hatchling population, with strong annual fluctuations in nesting success and number of hatchlings.
- The continued presence of the Philippine crocodile on Dalupiri Island north of mainland Luzon was confirmed and documented (1 adult). This is a very small population, but local residents mention they have observed juvenile crocodiles in recent years. This would mean there is at least one breeding pair, but the presence of juveniles could not be confirmed in 2025.
- A new, small wild population was found in Rizal in Cagayan Province. This is likely a relict population of the previously contiguous population in Cagayan Valley which also includes the San Mariano population. The Rizal population seems to contain at least a breeding pair as juvenile crocodiles were observed.

#### Conservation

- All Philippine Crocodile breeding areas in San Mariano are protected in locally declared and managed crocodile sanctuaries, of which two are now being elevated as critical habitat areas under the national protected area system. The Rizal site is currently also undergoing further research and community consultations to be declared as critical habitat area. In 2026, potential crocodile reintroduction sites in Cagayan Valley will be identified. Dalupiri needs more research and conservation attention, but this is complicated by the logistics of visiting the isolated island.
- The Mabuwaya Foundation continues its education and awareness raising program, reaching more than 250,000 school children and adults in 2025 with various communication campaigns.
- A Philippine Crocodile Conservation Center (PCCC) has opened in San Mariano and is further being developed as a hatchling head-start, crocodile rescue, captive breeding and research facility, and as a visitors and education center. The PCCC is jointly managed by the local government of San Mariano, Isabela State University and the Mabuwaya Foundation in partnership with the Department of Environment and Natural Resources. In April 2026, 44 Philippine crocodiles including 3 adults and 41 head-started juveniles were being kept at the center. The juveniles will be released back into the wild in 2026 and 2027.

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**Prepared by:** Steven Platt and Lonnie McCaskill  
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