



Site Descriptions

Ramsar and Flyway Network

Site Descriptions

For each Ramsar and Flyway Network Site (FNS) we provide a brief description on biodiversity, key values, ecosystem services, the recent trends and key management interventions. For some sites trends in biodiversity are available for several years and a graph is shown. Otherwise trend information on biodiversity and ecosystem services is based on interviews. A summary of the trends is provided in two tables at the end of this section.

There are at present (Sep 2021) 37 Ramsar sites and three EAAFP Flyway Network Sites in the region, distributed across the five IBRRI countries as follows:

Country	Cambodia	Laos	Myanmar	Thailand	Vietnam	Total
Ramsar sites	5	2	6	15	9	37
Flyway network Sites (FNS)	1	-	-	2	-	3
Total	6	2	6	17	9	40



Name Middle stretches of the Mekong River near Stoeng Treng, Cambodia

Year of Designation 1999

Size 14,896 ha

Key Wetland types River channels, sand banks, deep pools, flooded and riverine forests

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Eld's Deer (EN), Pileated Gibbon (EN), Mekong River Irrawaddy Dolphin (EN), Smooth-coated Otter (VU), Dhole (EN), Silvered Leaf Monkey (VU)	DEC
Birds	White-rumped Vulture (CR), Slender-billed Vulture (CR), Red-headed Vulture (CR), White-shouldered Ibis (CR), Greater Adjutant (EN), Masked Finfoot (EN), White-winged Duck (EN), Green Peafowl (EN), Lesser Adjutant (VU), River Tern (VU)	DEC
Reptiles	Siamese Crocodile (CR), Asian Giant Softshell Turtle (CR), Asiatic Softshell Turtle (VU)	DEC
Fish	Giant Mekong Catfish (CR), Pangasid-catfish (CR), Yellow Tail Brook Barb (EN), Mekong Herring (VU), Small Scaled Mud Carp (VU), Elephant Ear Gourami (VU), <i>Hypsibarbus lagleri</i> (VU), <i>Mystus bocourti</i> (VU)	DEC

Key threats:

- Hydropower development on the Mekong main stream and the Se San tributary has drastic impacts on riverine habitats, biodiversity and fisheries. The dams are changing the flooding pulse, river velocity and sedimentation and blocking fish migration. Hydrology will be further exacerbated by the impacts of climate change
- Forest on river banks are being converted to cashew nut plantations and cassava fields
- Pollution from agricultural run-offs, including persistent organic pollutants
- Blast fishing, electro fishing still remains a threat, even though the establishment of community fisheries has reduced the threat. The Fisheries Department has insufficient staff and resources for patrolling. Community fisheries groups have no power to arrest.
- Hunting and wildlife trade

Key management interventions:

Establishment of Community Fisheries throughout the Ramsar site, including both utilisation and conservations zone, the latter in particular for protecting important deep pools that function as fish refuge. Ranger patrols by the Environment Department in collaboration with Community Fisheries Groups. Designation of community forestry areas by the Forest Administration with NGO support (CEPA, FACT) to protect some of the forests adjacent to the river. Gear restrictions and patrols by the Department of Fisheries to protect dolphins and threatened fish.

References:

Interviews:
 Youk Senglong, FACT
 Mam Kosal, World Fish Centre
 Jack Tordoff, CEPF

Key wetland values:

This section of the Mekong is one of the least disturbed stretches of a large river ecosystems within Indoburma. The extensive and largely undisturbed river channels and islands provide important refuge and a food source for fish species during times of high flows while the area's deep pools allow refuge for aquatic species, including the Irrawaddy Dolphin, when the river is low. Deep pools are also important refuge areas for migratory fish populations.

Key ecosystem services and trends:

- Flood control and ground water recharge, water provision for agriculture (DEC)
- Fish refuge, breeding and nursery grounds (STA)
- Fisheries are essential for local people's livelihoods, for subsistence and income (DEC)



Name Prek Toel, Cambodia

Year of Designation 2011

Size 21.342 ha

Key Wetland types Mangroves and intertidal mudflats as well as Outer Sandy Islands

Key Biodiversity features and trends:

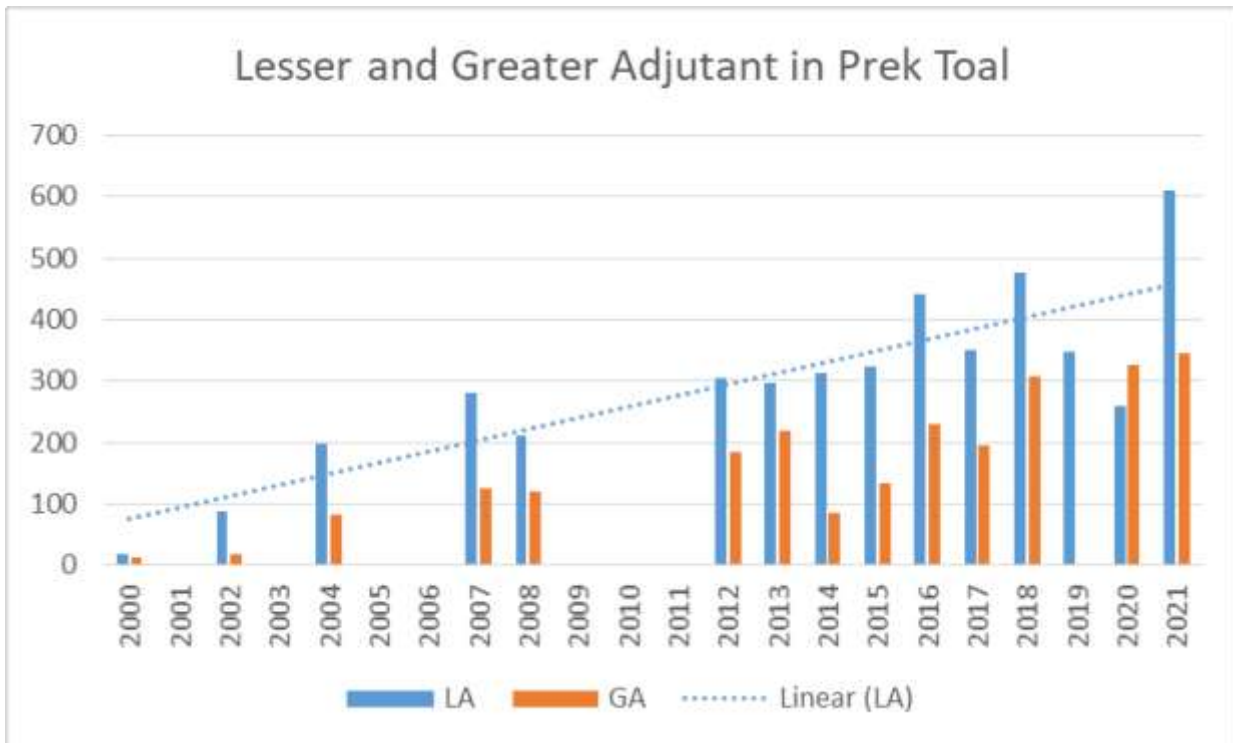
Taxa	Species	Trends
Mammals	Hairy nosed Otter (EN), Smooth-coated Otter (VU), Fishing Cat (VU)	STA or INC
Birds	Greater Adjutant (EN), Lesser Adjutant (VU), Milky Stork (VU) , Masked Finfoot (EN), Large colony of Spot-billed Pelicans (NT), Grey-headed Fish-eagle (NT)	Breeding colonies INC 2011 to 2016 and now STA since, probably because suitable nesting sites are occupied
Reptiles	Siamese Crocodiles (CR), River Terrapin (CR), Cantor’s Giant Softshell Turtle (CR), Elongated Tortoise (VU), Yellow-headed Temple Turtle (VU), South Asian Box Turtle (VU), Black Marsh Turtle (VU), Giant Asian Pond Turtle (VU), Malayan Snail-eating Turtle (NT), Asiatic Softshell Turtle (VU)	Siamese crocodiles declining due to past hunting for crocodile farms, current trends of turtle population unknown UNK
Fish	Mekong Giant Cat Fish (CR), Giant Barb (CR), Leaping Barb (EN), Julien’s Golden Barb (EN), Asian Arowana (EN), Silver Shark (EN), Laotian Shad (VU)	Strict conservation measure contribute to fish spill over into neighboring community fisheries areas. No recent species-level assessment STA

Key wetland values:

Supporting Siamese crocodile *Crocodylus siamensis* (CR), River Terrapin *Batagur baska* (CR), Mekong Giant Catfish *Pangasianodon gigas* (CR), and the Giant Barb *Catlocarpio siamensis*. High concentration, variety and numbers of nesting waterbirds, including Greater Adjutant *Leptoptilos dubius* (EN) and Masked Finfoot *Heliopais personatus* (EN).



Prek Toal
Dec 2010
Photo: CZ



Lesser Adjutant (VU) and Greater Adjutant (EN) population development in Prek Toal, Cambodia

Key ecosystem services and trends:

Site qualifies for IUCN green-listing

- Prek Toal is a key colony-nesting site for waterbirds and turtles
- Well-protected fish nursery ground, and contributes to sustaining livelihoods of the surrounding fishing communities
- Due to the seasonal flooding cycle the forests in Prek Toal traps large quantities of sediment and carbon. The high nutrient deposition enables a very productive food chain, stimulating plant and fish growth and thus contributing significantly to supporting high numbers of waterbirds, other wildlife and a fishing community

Key threats:

- Hydrological changes, caused by climate change and hydrologic structures, such as dams, reservoirs and weirs, impacts water flow and sedimentation, alters habitats and blocks the migration of aquatic species and risks fires.
- Dams and reservoirs on the Sangker River, but also by hydropower schemes in the upper Mekong basin and climate change, which impacts the entire Tonle Sap ecosystem.

Key management interventions:

- Effective governmental patrols and law enforcement, currently supported by WCS, are central to the excellent management of the Prek Toal Ramsar Site
- Improved fire prevention and mitigation involving local communities.
- Interventions to protect the hydrological system requires sub-basin (Sanker river/ Tonle Sap watershed) and Mekong basin-wide interventions to adapt to climate change, managing water resources to reduce demand and develop climate resilient agriculture.
- Hydraulic structures for irrigation, hydropower and water reservoirs should be ‘fish friendly’ by using overshoot gates and fish passages appropriate for the Mekong fish species.
- Awareness and livelihood interventions, supported by the local NGO Osmose, has improved relationships with local communities.
- Community fishery areas adjacent to the Ramsar site benefit from the spill over of fish from the strictly protected core zone.

Key contributors:

Simon Mahood, Rob Tizard, WCS



Name Boeng Chhmar and Associated River System and Floodplain, Cambodia

Year of Designation 1999

Size 28,648 ha

Key Wetland types open water habitat (lake, rivers), seasonally flooded forest, gallery forest, seasonally inundated grassland, and scrubland

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Indochinese Silver Langur (EN), Hairy-nosed Otter (EN), Smooth-coated Otter (VU), Fishing Cat (VU)	DEC, no recent information available
Birds	Greater Adjutant (EN), Lesser Adjutant (VU), Milky Stork (EN), Masked Finfoot (EN), Spot-billed Pelican (VU)	DEC, largest colony of Spot-billed Pelican (20% of global population), second largest colony of Greater Adjutant world-wide (>10%)
Reptiles	Siamese Crocodile (CR), Yellow-headed Temple Turtle (EN), Asian Box Turtle (VU), Malayan Snail-eating Turtle (VU), Asiatic Softshell Turtle (VU)	All declining, some of the turtle species such as the River Terrapin may be locally extirpated, other species are rare
Fish	Mekong Giant Catfish (CR), Giant Carp (CR), Flying Minnow (EN), Jullien's Golden Carp (CR), Asian Arowana (EN), Mekong Herring (VU)	No information for the Ramsar site, but likely declining.

Key wetland values:

- Near-natural example of the wetlands of the Tonle Sap flood plain
- Regularly > 20,000 waterbirds, more than 1% of Oriental Darter flyway population
- Globally threatened fish, reptile, mammal and water bird species

Key ecosystem services and trends:

- Important feeding area for the waterbird colonies. DEC
- Fish feeding, spawning and nursery areas; UNK
- Forest and grassland carbon sequestration, DEC
- Water regulation and retention. Trap surface water and sediments from two rivers. The lake, slightly higher than Tonle Sap, maintains its water levels even as the waters in the Tonle Sap recede, serving as a refuge for fish, while providing for groundwater. DEC

Key threats:

- Extraction for irrigation from Stoung and Chekrek rivers, causing draught.
- Hydropower dams in the upper and lower Mekong basin and deforestation further exacerbate the draught.
- Agricultural encroachment and forest fires by gradual modification of the swamp forests to grassland.
- Illegal fishing and destructive fishing practices, Hunting and wildlife trade.
- Invasive species, in particular *Mimosa pigra* has a significant impact on the ecosystem and local fisheries.

Key management interventions:

- Patrolling and biodiversity monitoring interventions have fluctuated over time.
 - Community-protected area (CPA) by MoE in the Boeng Chhmar - TSB core zone and 3 CPI's by FiA with IUCN support in the buffer zone has improved fisheries management.
- A new EU funded, WCS and Forum Syd implementing project 'Our Tonle Sap' (2021 – 2024) aims to improve management effectiveness, reduce incidence of fires, replant flooded forest, and supporting communities to develop ecologically resilient livelihoods in the TSB.

References:

Interviews:

Bou Voursak, NatureLife Cambodia
Youk Senglong, FACT
Simon Mahood / Rob Tizard, WCS

Boeng Chhmar Ramsar Information Sheet, 2012 updated <https://rsis.ramsar.org/RISapp/files/RISrep/KH997RIS.pdf>

IUCN, 2020. Climate change vulnerability assessment summary: Boeung Chhmar Ramsar Site, Cambodia. Mekong Wet Project. https://www.iucn.org/sites/dev/files/boeung_chhmar_ramsar_site_cambodia_climate_change_vulnerability_assessment_summary.pdf

Lohani, S. et al. 2020. Rapidly Accelerating Deforestation in Cambodia's Mekong River Basin: A Comparative Analysis of Spatial Patterns and Drivers. *Water* (2020), 12 (8) <https://doi.org/10.3390/w12082191>

Meynell, P. J., et al. 2014. Climate change vulnerability assessment for Boeung Chhmar. IUCN.

Ministry of Environment, Ministry of Agriculture, Forestry and Fisheries, UNDP & GEF, 2007. Boeng Tonle Chhmar Biosphere Reserve Core Zone Management Plan 2008-2012. Tonle Sap Conservation Project.



Name Stung Sen Wildlife Sanctuary, Cambodia

Year of Designation 2013

Size 9,293 ha

Key Wetland types river and associated channels, seasonally flooded forests, scrublands and grasslands, gallery forest

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Indochinese Silver Langur (EN), Hairy-nosed Otter (EN), Smooth-coated Otter (VU), Fishing Cat (VU)	DEC, no recent information available
Birds	Greater Adjutant (EN), Lesser Adjutant (VU), Spot-billed Pelican (VU), Milky Stork (EN), Masked Finfoot (EN), Oriental Darter (NT), significant breeding concentration of Grey-headed Fish-eagle (NT)	DEC; important feeding area
Reptiles	Siamese Crocodile (CR), River Terrapin (CR), Asian Giant Softshell Turtle (EN), Yellow-headed Temple Turtle (EN), Asian Box Turtle (EN), Black Marsh Turtle (VU), Giant Asian Pond Turtle (VU), Malayan Snail-eating Turtle (NT), Asiatic Softshell Turtle (VU)	All DEC, some of the turtle species such as the River Terrapin may be locally extirpated, other species are rare. SS may be the most important site in Cambodia for the Yellow-headed Temple Turtle
Fish	Mekong Giant Catfish (CR), Jullien's Golden Carp (CR), Mekong Herring (VU)	No information for the Ramsar site, but likely DEC. Fish populations in adjacent CFI area have increased

Key wetland values:

Located between the south-eastern edge of the Tonle Sap Great Lake and the Stung Sen River, the site comprises of open water bodies seasonally flooded freshwater swamp forests, gallery forests along the Stung Sen, low-stature shrub land, inundated and submerged trees, seasonally flooded grasslands and extensive mats of herbaceous and aquatic vegetation which provide breeding and feeding habitat for threatened resident and migratory water bird species.

Key ecosystem services and trends:

One of three core zones of the Tonle Sap biosphere reserve.

- Important ecological function (fish feeding, spawning and nursery areas) for local communities
- forest and grassland carbon sequestration, DEC
- water regulation and retention, DEC
- storm protection from storms and floods, DEC
- wetland habitats and biodiversity rely on flood pulse, DEC
- ponds in the flood plain provide for groundwater recharge, DEC

- flooded forests and aquatic plant communities provide for water purification, DEC
- gallery forest prevent the erosion of river banks and sedimentation, DEC
- local communities rely on fish, fuelwood and NTFPs, DEC

Key threats:

- Hydrological changes caused by hydropower dams in upper and lower Mekong basin
- Deforestation in the watershed.
- Changes in flood pattern reduced flood depth, flood duration and sediment inflow.
- El-Nino related droughts increased agricultural encroachment and forest fires.
- A planned dam on the Stung Sen will further alter the hydrology of the Ramsar site.
- Destructive fishing practices, hunting and wildlife trade. Populations of mammals and turtles have declined as a result. Fuelwood collection is leading to forest degradation.
- Invasive species, in particular *Mimosa pigra* has a significant impact on the ecosystem and local fisheries.

Key management interventions:

A management plan has been developed (2008 – 2012).

- Subsequent government, donor and NGO funding and human resources have neither been sufficient nor sustained to reduce threats significantly and reverse the trend of ecosystem degradation and biodiversity loss.
- Fisheries management in adjacent areas has improved through the introduction of community fisheries supported by the Fisheries Administration and a local NGOs (FACT).
- In 2020 NatureLife established a comanagement system strengthening the existing community protected area (CPA) and promoting a second CPA within the Ramsar site.

References:

Interviews:

Bou Voursak, NatureLife Cambodia

Youk Senglong, FACT

ICEM, 2013. Case Study: Lower Stung Sen Wetlands, Basin-wide Climate Change Impact and Vulnerability Assessment for Wetlands in the Lower Mekong Basin for Adaptation Planning. Consultant report prepared for the Mekong River Commission, Hanoi, Viet Nam.

Lohani, S. et al. 2020: Rapidly Accelerating Deforestation in Cambodia's Mekong River Basin: A Comparative Analysis of Spatial Patterns and Drivers. *Water* (2020), 12 (8)

<https://doi.org/10.3390/w12082191>

Tha Theara, et al. 2020: Integrated modelling to assess flow changes due to future dam development and operation in Stung Sen River of Tonle Sap Lake Basin, Cambodia. *Journal of Water and Climate Change* (2020) 11 (4): p 1123-1133.

<https://iwaponline.com/jwcc/article/11/4/1123/67696/Integrated-modeling-to-assess-flow-changes-due-to>

Ministry of Environment/ Ministry of Agriculture, Forestry and Fisheries, Kingdom of Cambodia, 2008. Stung Sen Core Area, Tonle Sap Biosphere Reserve Management Plan 2008 - 2012 https://rsis.ramsar.org/RISapp/files/33691065/documents/KH2365_mgt180913.pdf



Name Koh Kapik and Associated Islets, Cambodia

Year of Designation 1999

Size 12,000 ha

Key Wetland types estuary/ coastal mangroves, intertidal mudflats, sandbanks and beaches, seagrass bank, Melaleuca forests

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Irrawaddy Dolphin (EN), Smooth-coated Otter (VU), Dhole (EN), Silvered Leaf Monkey (VU), Sunda Pangolin (CR), Pig-tailed Macaques, Fishing Cat (VU), Sambar Deer (VU), Clouded Leopard (VU)	DEC
Birds	Nordmann’s Greenshank (EN), Great Knot (EN), Asian Dowitcher (NT)	DEC

No fish, reptile or amphibian surveys have been conducted.

Key wetland values:

One of the most intact remaining mangroves in Indochina. The mangrove ecosystem is connected to the evergreen forest in the eastern part of KKRS via several waterways, providing ecological connectivity from reef-to-ridge.

Key ecosystem services and trends:

- Protection against storm surges, prevention of salt water intrusion and coastal abrasion STA
- Fish feeding, breeding and nursery grounds DEC
- Fisheries is the main source of local livelihoods for local people, for subsistence and income
- Carbon sequestration DEC

Key threats:

- Illegal land encroachment and legal land conversion, exacerbated in 2021 through de-gazettement of parts of Peam Krasop WS and Botom Sakor NP for land allocation to local communes, commercial land concessions, tourism development and the development of a new airport are the most serious and immediate threats to the site
- Illegal fishing practices, such as dynamite fishing, push-netting, using coastal back nets and near-shore trawling, have reduced, but remain a threat

- Hunting and wildlife trade
- Lack of demarcation of the Ramsar site
- Climate change, increase in sea level and high tides and extreme storms, beach erosion,
- Previous threats such as mangrove extraction of charcoal production, large scale illegal logging, mangrove conversion to shrimp ponds and sand mining have been stopped by the Ministry of Environment and other law enforcement agencies with support from donor funded projects

Key management interventions:

The site overlaps with parts of Peam Krasop Wildlife Sanctuary and Botom Sakor National Park. MoE has significantly improved the management of Peam Krasop Wildlife Sanctuary in recent years, including improved ‘SMART’ patrolling and law enforcement, mangrove rehabilitation, development of ecotourism and visitor interpretation facilitates and alternative livelihood development support with financial assistance from government and donor budgets. Concrete pillars have been installed to physically prevent illegal trawling in the main seagrass beds.

Key contributors:

Interviews: Lou Vanny, IUCN
 Site visit in 2019: Frank Momberg, FFI

Ministry of Environment & Koh Kong provincial government, Kingdom of Cambodia 2017;
 Management Plan for Peam Krasop Wildlife Sanctuary 2018-2022

Sorn, P. and Veth, S.; 2019. Climate Change Vulnerability Assessment Koh Kapik Ramsar Site, Cambodia. Bangkok, Thailand: IUCN. X + 36pp.



Name Anlung Pring Protected Landscape, Flyway Network Site, Cambodia

Year of Designation 2018

Size 217 ha

Key Wetland types seasonally flooded grasslands, *Melaleuca* scrub

Key Biodiversity features and trends:

Taxa	Species	Trends
Birds	Spotted Greenshank (EN), Sarus Crane (VU), Black-tailed Godwit (NT)	DEC
Flora	<i>Eleocharis dulcis</i> and <i>Eleocharis spiralis</i> are important food source for Sarus Cranes	DEC

Key wetland values:

- Small remnant of the Plain of Reeds; high density of *Eleocharis*, and *Melaleuca* shrubs
- Main feeding area for 20% of the regional Eastern Sarus crane population
- Wetland is influenced by saline tidal stream of the Giang Thanh River changing from freshwater to brackish water conditions in particular in the dry season resulting in a high level of aquatic productivity
- Important feeding area for migratory birds during winter, supporting more than 1% of flyway population of Sarus Crane, Spotted Greenshank and Black-tailed Godwit

Key ecosystem services and trends:

- Water provision for agriculture, DEC
- Flood control, ground water recharge, regulate saline water intrusion
- Carbon sequestration, STA
- Fish, shrimps and grass as roofing material are utilised by local communities, STA

Key threats:

- Water pollution from the surrounding rice paddies and shrimp aquaculture threatens the ecological integrity of the wetland.
- Sea level rise is causing more salt water intrusion
- Invasive species such as *Mimosa pigra* and water hyacinth
- Illegal fishing practices

Key management interventions:

WWT is supporting collaborative patrolling and law enforcement. Community-based ecotourism and a wetland visitor centre have been developed to strengthen the local communities' involvement in the protection of Sarus Crane. An annual census of migratory birds is conducted and a hydrology monitoring system has been developed to support wetland conservation decision-making. A new management plan is under development to integrate adaptation to climate change, including the construction of barriers to prevent direct saltwater flooding due to tidal surge.

Key contributors:

Interviews:
Saber Masoomi
Bena Smith, WWT
Triet Tran, International Crane Foundation



Name Beung Kiat Ngong Wetlands, Lao PDR

Year of Designation 2010

Size 2,360 ha

Key Wetland types Swamp Forest and marshes

Key Biodiversity features and trends:

Taxa	Species	Comments
Mammals	Asian Small-clawed Otter (VU)	DEC: Typical wetland mammals mostly extirpated. Promising reports of otters in buffer zones need to be verified
Reptiles	Yellow tortoise, Yellow-headed Temple Turtle (CR), Giant Asian Pond Turtle (CR), Asian softshell turtle (VU), Southeast Asian Box turtle (EN), Asian Leaf Turtle (VU), Black Marsh Turtle (EN), Black and White Spitting Cobra (VU)	DEC
Birds	Yellow-breasted Bunting (CR, dry season migrant), Black Bittern (LC), Lesser whistling Duck (LC)	DEC
Amphibians	Blunt-headed Burrowing Frog (NT)	
Fish	54 spp., incl. a sanctuary for the Walking Catfish	DEC
Plants	156 plant spp. incl. flood forest species, <i>Xanthoxylum lanceatum</i>	

Key wetland values:

Large permanent wetlands with swamp forests and the largest peatland area in Laos. High reptile diversity.

Key ecosystem services and trends:

- Subsistence fishery (DEC) Intensive usage of chemical pesticides nearby the lake area
- Wild plants and wild animals, bamboo timber grass DEC
- Water purification (DEC) pollutants from surrounding agricultural activities.
- Water provision (STA)
- Water regulation (DEC) due to consistent agricultural encroachment
- Carbon storage

Key threats:

- Encroachment of rice paddies.
- Peat extraction for fertilizer
- Unsustainable fish harvesting.
- Hunting and poaching

Key management interventions:

- Strengthened patrolling and law enforcement by local communities
- Improved community fisheries management, through expanded FCZs
- nursery for flood forest species, *Xanthoxylum lanceatum* was established
- community patrolling
- species recovery & conservation programmes

Key contributors:

RIS, IUCN draft management plan and VA



Name Xe Champone Wetlands, Laos

Year of Designation 2010

Size 13,178 ha

Key Wetland types Swamp Forest and marshes

Key Biodiversity features and trends:

Taxa	Species	Comments
Mammals	Rhesus Macaque (LC)	DEC: Typical wetland mammals such as otter extirpated
Reptiles	Siamese Crocodile (CR), Yellow Tortoise, Giant Asian Pond Turtle (CR), Yellow-headed Temple Turtle (CR), Asian Softshell Turtle (VU)	DEC
Birds	Oriental Darter (NT), Lesser Whistling Duck (LC)	DEC
Fish	Wallago Catfish, Giant Snakehead, Bleeker's Sheatfish and Clown Featherback	DEC

Key wetland values:

The wetlands are home to a significantly large population of Siamese Crocodiles and three CR endangered turtles. Little information is available on other wetland species.

Key ecosystem services and trends:

- Subsistence fishery (DEC) Intensive usage of chemical pesticides nearby the lake area
- Water purification (DEC) pollutants from surrounding agricultural activities
- Water provision (STA)
- Water regulation (DEC) due to consistent agricultural encroachment

Key threats:

- Encroachment of rice paddies
- Eutrophication by using chemical pesticides
- Hydrological modifications, such as small dams etc.
- Hunting and poaching

Key management interventions:

- Strengthened patrolling and law enforcement by local communities
- Improved community fisheries management, through expanded FCZs
- Species recovery & conservation programmes, incl. head-starting of Siamese crocodiles

Key contributors:

RIS, IUCN draft management plan
Sam Leslie, WCS



Name Indawgyi Wildlife Sanctuary, Myanmar

Year of Designation 2016

Size 47,839 ha

Key Wetland types lake, marshes, gallery forest

Key Biodiversity features and trends:

Taxa	Species	Comments
Mammals	Hog Deer (EN), Eastern Hoolock Gibbon (VU), Shortridge's Langur (EN)	Hog deer (DEC), Eastern Hoolock Gibbon (STA) Shortridge's Langur (STA)
Reptiles	Asian Brown Tortoise, Burmese Peacock Softshell Turtle (CR), Yellow Tortoise, Asian Softshell Turtle, Myanmar Box Turtle, and possibly Burmese Eyed Turtle and Burmese Narrow-headed Softshell Turtle (CR)	DEC
Birds	Baer's Pochard (CR), Wood Snipe (VU), Lesser Adjutant (VU), Sarus Crane (VU), Oriental Darter (NT), Ferruginous Duck (NT), Black-headed Gull (LC), Black Stork (LC), Lesser whistling Duck (LC), Common Crane (LC)	Baer's Pochard (UNK), Oriental Darter (STA), Little Cormorant (STA), Black-headed Gull (DEC), Glossy Ibis (STA), Sarus Crane (DEC)
Fish	Burmese River Shad, Long-whiskered Catfish, Rohu, Climbing Perch, Snakehead Murrel 96 fish species, including 7 species endemic to the lake basin	Decreased the water quality and electric fishing activities due to decline the population. Moreover, massive population of introduce species Talapia fish

Key wetland values:

Largest inland lake in region, supporting over 20,000 wintering waterbirds. Shwe Myint Zu pagoda festival is very famous, attracting local and international tourism. Approximately 30,000 people from 16 villages have socio-economic benefits from the lake ecosystem services.

Key ecosystem services and trends:

- Fishery and fish nursery (DEC)
- Water purification (DEC) due to sewage pollution and impact of gold mining.
- Water provision (STA)
- Carbon sequestration by lakeside forest, also mitigating bank erosion

Key threats:

- Encroachment of rice paddies and other land use forms into the wetland.
- Intensive usage of chemical pesticides nearby the lake area
- Overfishing, bird hunting, logging nearby the lake and gold mining

Key management interventions:

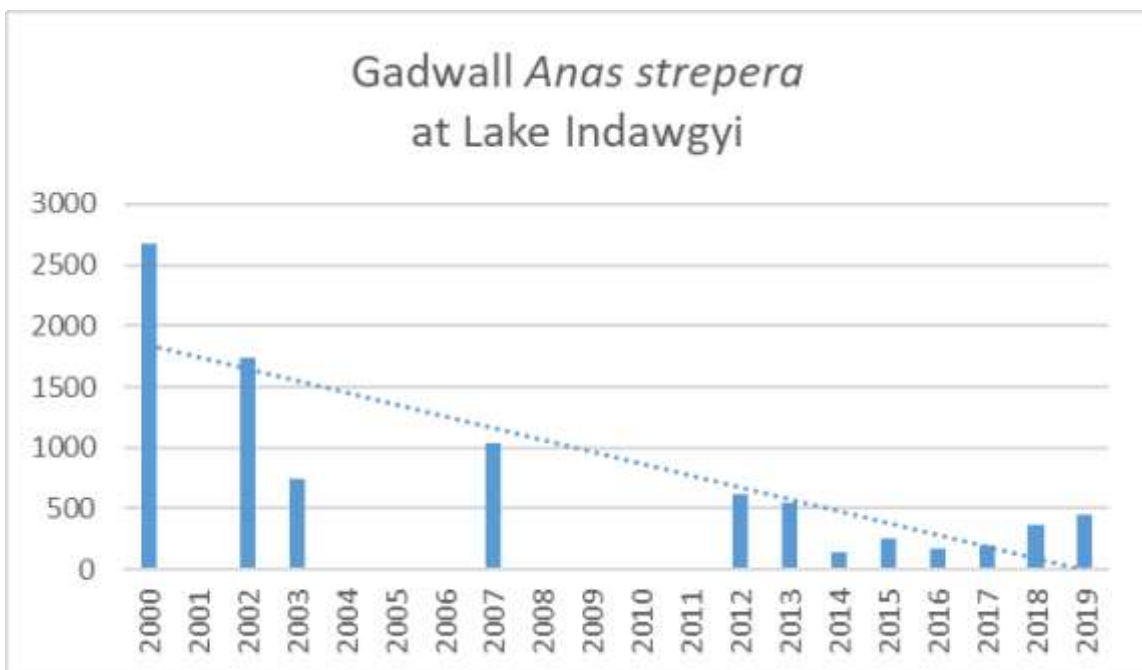
- Established participatory patrol activities with local communities and park staff for reduction of illegal activities (such as fishing and bird hunting)
- Pilot activities of organic rice farming for the sustainable agriculture products and supports income generation for local communities
- Developing local tourism group

Key contributors:

Maung Win, NWCD
Zau Lunn, FFI Myanmar
Myint Aung and Khine Khine Swe, FoW
Frank Momberg, FFI



Lake Indawgyi Jan 2014, Photo: CZ





Name Inle Wildlife Sanctuary, Myanmar

Year of Designation 2018

Size 5,797 ha

Key Wetland types freshwater lake, marshes

Key Biodiversity features and trends:

Taxa	Species	Comments
Birds	Baer's Pochard (CR), Yellow-breasted Bunting (CR), Sarus Crane (VU), Greater Spotted Eagle (VU), Glossy Ibis (LC) and Black-winged Stilt (LC), Little Cormorant (LC), Asian Openbill (LC)	Baer's Pochard, Sarus Crane, Yellow-breasted Bunting, Greater Spotted Eagle (all DEC), Glossy Ibis, Black-winged Stilt, Little Cormorant, Asian Openbill (all INC)
Fish	Burmese Snakehead, Sawbwa Barb, Inle Carp	DEC due to declining water quality and electric fishing activities. Also introduction of Talapia

Key wetland values :

Second largest inland lake and important for local and global includes cultural heritage spirit. Provides several ecosystem services which includes more than 25% of freshwater endemic fish species' spawning area. Approximately 200,000 people depends on the lake ecosystems for different purposes.

Key ecosystem services and trends:

- Fishery and fish nursery (DEC)
- Over usage of chemical pesticides at the floating agriculture farms in the lake and over harvested by using illegal fishing gears
- Erosion and flood and drought (INC) due to deforestation issues at the upper watersheds and nearby the lake

Key threats:

- Eutrophication by using chemical pesticides
- over fishing
- bird hunting

Key management interventions:

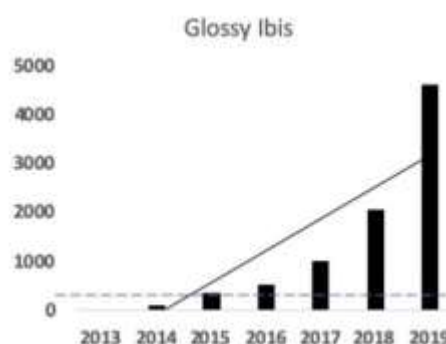
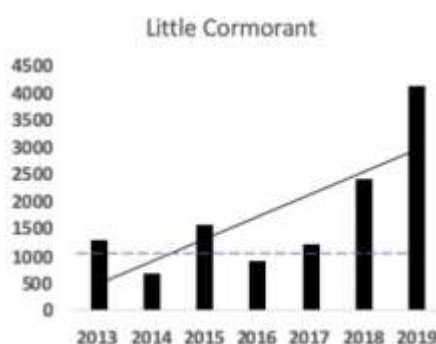
Established Lake management authorities oversight developed policies and guideline to conserve the lake in collaboration with community to reduce high pressures.

Key contributors:

Tin Mya Soe, NWCD
Joern Kristensen, MIID
San Lwin, FREDA



Traditional fishing trap, Photo: CZ



Asian Water bird counts (Wetlands International 2019)

Name Nanthar Island and Mayyu Estuary, Myanmar

Year of Designation 2020

Size 3,608 ha

Key Wetland types Mud- and Sandflats

Key Biodiversity features and trends:

Taxa	Species	Comments
Marine Mammals	Irrawaddy Dolphin (VU)	Coastal population of the usually riverine Irrawaddy Dolphin STA
Birds	Spoon-billed Sandpiper (CR), Great Knot (EN), Nordmann's Greenshank (EN), Indian Skimmer (VU) and Bar-headed Goose (LC)	Spoon-billed Sandpiper (DEC), Great Knot (DEC), Nordmann's Greenshank (DEC), Indian Skimmer (no regular records), Bar-headed Goose (DEC) Overall shorebird hunting pressure is successfully mitigated but flyway wintering population is still declining
Marine Turtles	Olive Ridley Turtle (VU), Green Turtle (EN), Leatherback (VU)	DEC dramatically; latter three species possibly lost all together and recorded dead sea turtles's shell along the sand back of island
Fish	Hilsa Shad, Toli Shad, Anchovy	Economically important species for the fishing communities. DEC

Key wetland values:

Adjacent with Bay of Bengal region, the intertidal mudflats support invertebrate's species include clam and shell for local people's livelihood and migratory waterbirds.

Key ecosystem services and trends:

- Fishery and fish nursery (DEC) deforestation of the mangrove forest nearby island and trawler fishing
- Mangrove (INC) Less than one hectare of natural mangrove forest is established on the island.

Key threats:

- Sea turtle egg collection
- trawler fishing at the outer island
- bird hunting

Key management interventions:

Local based NGO (Rakhine Biodiversity and Nature Conservation Association-RBANCA) is safeguarding the site includes monitoring of shorebirds and regular patrolling.

Key contributors:

Aung Myint Oo
Min Thiha Zaw, BANCA
Ren Naung Soe, RBANCA



Spoon-billed sandpiper 'Lime 27' returning in 2022/2023 for the ninth consecutive winter, Photo: Ren Naung Soe (RBANCA)



Name Moeyungyi Wildlife Sanctuary, Myanmar

Year of Designation 2004

Size 10,359 ha

Key Wetland types lake

Key Biodiversity features and trends:

Taxa	Species	Comments
Reptiles	Burmese Eyed Turtle (VU), Burmese Softshell Turtle (VU), Burmese Python (VU)	All species are (DEC), not regular monitoring status
Birds	Baer's Pochard (CR), Sarus Crane (VU), Oriental Darter (NT), Lesser whistling Duck (LC), Northern Pintail (LC), Glossy Ibis (LC), Asian Openbill (LC), Painted Stock (NT)	Baer's Pochard, Painted Stock, Lesser whistling Duck (DEC), Northern Pintail (DEC), Glossy Ibis (DEC)
Fish	<i>Channa</i> spp.	DEC

Key wetland values:

A man-made reservoir for irrigation and logging purposes to transport to the Sittaung Cannel. The reservoir is supporting > 20,000 water birds. Moreover support to local community for small scale fishery products and livestock grazing.

Key ecosystem services and trends:

- Fishery (DEC) Intensive usage of chemical pesticides nearby the reservoir area and electric fishing practices
- Water purification (DEC) Blooming water hyacinth inside the reservoir where decreased the dissolve oxygen level for aquatic species

Key threats:

- Insect trapping, bird hunting
- Electro-fishing, Fish biomass is decline due to electric fishing and poisoning
- agriculture encroachment

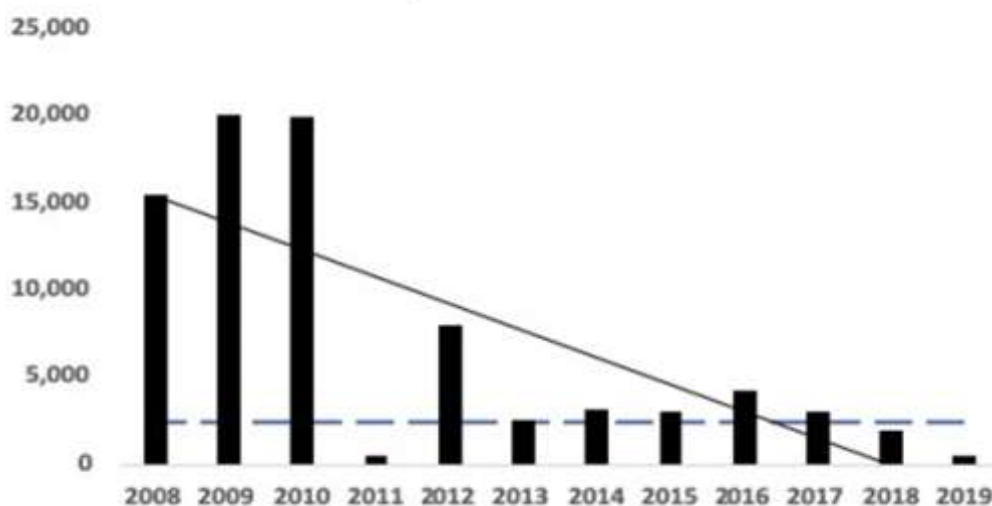
Key management interventions:

- Regular patrol to reduce threats and monitoring on biodiversity by park staff,
- Awareness raising activities for local community participation in conservation.
- Promotion of organic rice production and other Good Agricultural Practices (GAP)

Key contributors:

Thin Thin Yu, NWCD
IUCN Mekong WET
N. Davidson

Northern Pintail: peak winter counts 2008-2019



Trends in Northern Pintail *Anas acuta* (AWC comp. Davidson and R. McInnes, draft 2019)



Fisherman at Moeyunghi, 2011, Photo: CZ



Bamboo Land Artwork at Lake Moeyunghi, 2019, Photo: CZ



Name Gulf of Mottama, Myanmar

Year of Designation 2017

Size 161,030 ha

Key Wetland types intertidal mudflats

Key Biodiversity features and trends:

Taxa	Species	Comments
Marine Mammals	Irrawaddy Dolphin (VU), Finless Porpoise (VU), Indo-Pacific Humpback Dolphin (VU)	Coastal population of the Irrawaddy Dolphin STA, Finless Porpoise and Indo-Pacific Humpback Dolphin are (DEC) due to bycatch
Birds	Black-headed Ibis (NT), several shorebirds including Spoon-billed Sandpiper (CR), Nordmann's Greenshank (EN), Great Knot (EN) plus six near threatened species such as Painted Stock (NT), Black-tailed Godwit (NT), Curlew Sandpiper (NT) and Red-necked Stint (NT), Asian Dowitcher (NT), Red-necked Stint (NT)	Black-tailed Godwit, Bar-tailed Godwit and Eurasian Curlew are (INC), Asian Dowitcher, Red-necked Stint, Curlew Sandpiper, Broad-billed Sandpiper, Great Knot and Spoon-billed Sandpiper, (DEC)
Fish	Hilsa Shad, Toli Shad	Economically important species for the fishing communities, DEC

Key wetland values:

- Dynamic estuary ecosystem and vast intertidal mudflat, supporting up to 150,000 waterbirds and fish nursery ground.
- Unique tidal bore creating hugely dynamic intertidal system.
- Large commercial fishery for local communities

Key ecosystem services and trends:

- Commercial fishery products for local communities (DEC) due to re-establishment of illegal fishing practices in recent years.
- Water purification (STA) is huge due to the huge and productive intertidal mudflat
- Storm buffer by the large intertidal area

Key threats:

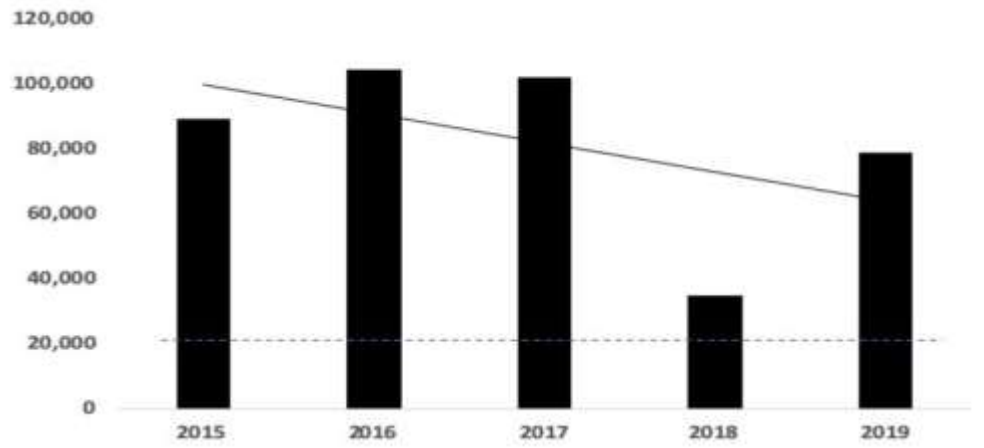
Overfishing by using of small mesh size and pollution from agricultural affluent and residues.

Key management interventions:

Overall shorebird hunting pressure is successfully mitigated through livelihood support but flyway wintering population for some species is still declining. Established community-based conservation groups in cooperation with department officials to eradicate the illegal fishing activities and patrol bird hunting funded by Swiss DC.

Key contributors:

Aung Kyaw Nyunt
Thaw Phyoo Shwe and Min Thiha Zaw, BANCA
Than Htike Aung and Jos van den Zanden, Helvetas Myanmar



Total waterbird population at Gulf of Mottama Ramsar Site (Pyae Phyo Aung et al. 2020)



Spoon-billed Sandpiper Survey Camp in salt marsh at receding tide, 2019, Photo: CZ



Name Meinmahla Kyun Wildlife Sanctuary, Myanmar

Year of Designation 2017

Size 51.087 ha

Key Wetland types Mangroves and intertidal mudflats as well as Outer Sandy Islands

Key Biodiversity features and trends:

Taxa	Species	Comments
Marine Mammals	Irrawaddy Dolphin (VU), Finless Porpoise (VU)	Coastal population of the usually riverine Irrawaddy Dolphin STA
Mammals	Fishing Cat (EN)	STA
Birds	Lesser Adjutant (VU), Black-headed Ibis (NT), Spoon-billed Sandpiper (CR) and Nordmann's Greenshank (EN), Great Knot (EN), Mangrove Pitta (NT)	Lesser Adj STA, Black-headed Ibis DEC, NG STA or INC, SBS and Great Knot DEC
Reptiles	Saltwater Crocodile	Only population in Myanmar, STA
Marine Turtles	Olive Ridley Turtle (VU), Green Turtle (EN), Leather-back (VU), Loggerhead (VU), and Hawksbill (CR)	Number of nesting turtles declined dramatically; latter three species possibly lost altogether gone
Fish	mudskipper; eel-gobies; Hilsa Shad, Toli Shad, and catfish <i>Pangasius</i> spp.	Economically important species for the fishing communities. DEC

Key wetland values:

Last remaining mangrove stand in Ayeyarwady Delta, Internationally important Waterbird concentrations at the outer islands and intertidal mudflats, nationally important crocodile and marine turtle populations.

Key ecosystem services and trends:

- Storm protection through dense and broad mangrove layer, DEC
- Fisheries and fish nurseries, crabs, shellfish and shrimps, DEC
- The temple of U Shin Gyi, along with the 100 Monkey Pagoda are important pilgrimage sites

Key threats:

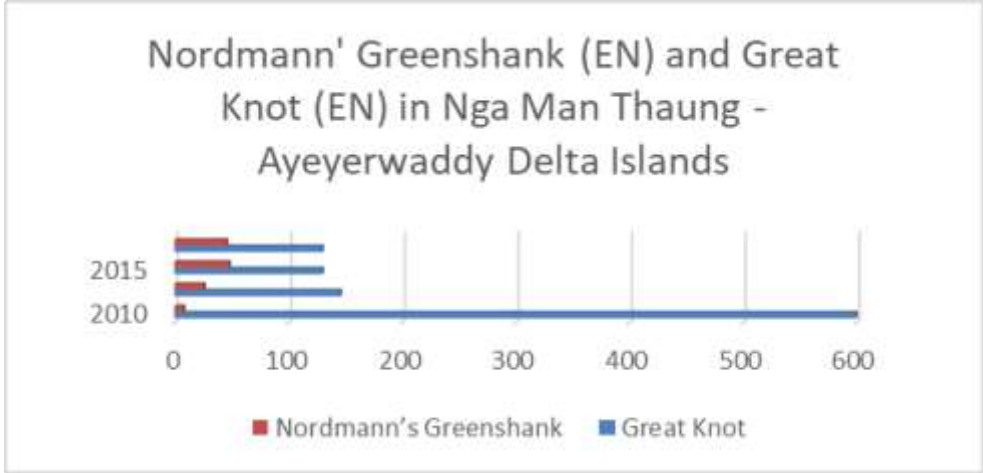
Mangrove cutting, Mangrove conversion, Overfishing, squid fishing, ghost nets, bird trapping, pollution from agricultural affluent and residues.

Key management interventions:

Participatory patrolling composed of local communities and Wildlife Sanctuary staff is partly effective and has reduced illegal activities to some extents.

Key contributors:

Sai Wanna Kyi, NWCD
Zau Lunn, FFI-Myanmar
Win Maung, World View International
Win Sein Naing, MSN
Aung Thant Zin, MERN



Trend of two globally endangered wader species (Nordmann's Greenshank and the Great Knot) at Nga man Thaung in the Outer Delta Islands in the Meinmahla Kyun Ramsar Site (Lee & Zöckler 2017)



Black-capped Kingfisher, Photo: CZ



Name Nong Bong Kai Non-Hunting Area, Thailand

Year of Designation 2001

Size 433.76 ha

Key Wetland types Inland wetland, Permanent freshwater lakes and seasonal flood plain

Key Biodiversity features and trends:

Taxa	Species	Trends
Breeding Birds	<i>Ardea purpurea</i> (VU), <i>Anhinga melanogaster</i> (VU)	FLU
Migratory Birds	<i>Anas acuta</i> , <i>Aythya nyroca</i> (NT) The species found in some years are <i>Aythya baeri</i> (CR), <i>Aythya fuligula</i> (NT), <i>Mareca falcata</i> (NT) and <i>Spatula clypeata</i>	DEC
Reptiles	<i>Malayopython reticulatus</i> , <i>Varanus salvator</i>	DEC
Fish	<i>Anabas testudineus</i> , <i>Trichogaster pectoralis</i> , <i>T. trichopterus</i> , <i>Notopterus notopterus</i> , <i>Babodes gonionotus</i> , <i>Monopterus albus</i> , <i>Clarias batrachus</i> , <i>Osteochilus hasselti</i> , <i>Henicorhynchus siamensis</i> , <i>Hampala macrolepidota</i> , <i>Rasbora tornieri</i> , <i>Oxyeleotris marmoratus</i> and <i>Dermogenys pusilla</i>	DEC
Crustaceans	Lanchester's Freshwater Prawn	DEC

Key wetland values:

Nong Bong Kai Non-Hunting Area is a major habitat for migratory water birds. It is one of several connected water bodies of streams, lakes, swamps and reservoirs, providing water for agricultural lands, community consumption and other purposes in the Chiang Saen Basin.

Key ecosystem services and trends:

- Water level maintained by setting up overflow weir to maintain fresh water levels in dry season, STA
- There are rules and agreements for mutual use between water user groups about resource harvesting
- Floating plants that serve as breeding grounds for aquatic life

Key threats:

- Bird net traps are use in the surrounding area to protect products such as rice and fish ponds
- Invasive alien species have reduced floating vegetation
- Water contaminated with chemicals (Pesticides, herbicides and chemical fertilizers) from agricultural mal-practices

Key management interventions:

- Community leaders and aquaculture representatives have been appointed to the Protected Area Committee (PAC) are involved in the protection of the wetland
- Educational institution (Chiang Rai Rajabhat University) is main organization to monitoring Water quality, Biodiversity and Fisheries

Key contributors:

Wachirayu Kiatbutr, Superintendent of Nong Bong Kai Non-Hunting Area
Suchakrie Srirat, Association for Wetland USEs
Dusit Jitsook, Ban Hui Nam Rak Local Conservation Club



Name Kut Ting Marsland, Thailand

Year of Designation 2009

Size 2,653 ha

Key Wetland types Permanent freshwater lakes and Seasonal/intermittent freshwater lakes

Key Biodiversity features and trends:

Taxa	Species	Trends
Breeding Birds	Little Egret (LC), White-breasted Waterhen (LC), Ruddy-breasted Crake (LC)	STA
Migratory Birds	Baer's Pochard (CR), Black-faced Spoonbill (EN), Ferruginous Pochard (NT), Falcated Duck (NT)	INC, record of 20 Baer's Pochards in 2005, record of Black-faced Spoonbill in 2017
Reptiles	Soft-shelled Turtle (VU), Mekong Snail-eating Turtle (NT)	DEC
Fish	Endemic sp. - <i>Neodontobutis aurarmus</i> Economical sp. - <i>Probarbus jullieni</i> (CR), <i>Galaxiella nigrostriatal</i> EN, <i>Clarias batrachus</i> , <i>Monopterus albus</i>	INC
Plant	<i>Vallisneria spiralis</i> , <i>Utricularia auria</i>	FLU, depends on season and water level-short term plant

Key wetland values:

Kut-Ting is important wetland for wintering birds. Supports nationally endemic fish species and supplies food and water for community and also provides a spawning ground for aquatic species between Mekong River and Kut-Ting Wetland.

Key ecosystem services and trends:

- To maintain the water level in Kut-Ting Wetland flowing back to the Mekong River in the dry season by Huai Kamphaeng overflow dam, STA
- Crucial water source for agriculture (50%), local fishery (30%), aquatic plants 10% and animal husbandry 5%, STA (DEC water quality)

Key threats:

- Pollution from agricultural residues and wastewater from communities INC, resulting in deterioration of the quality of water for the living of plants and animals.
- Huai Kham Phaeng overflow dam affects the migration of aquatic animals between the Mekong River and the Kut-Ting Wetlands.
- Xayaburi Dam in Laos has caused the Mekong water level to fluctuate with little overflow into the wetland.

Key management interventions:

Communities are involved in decision-making, management, maintenance and monitoring of wetland natural resources such as establishing the aquatic conservation boundary and participating in patrols to monitor various offenses in wetlands.

Due to flooding in Kut-Ting Wetlands and Bueng Kan Provincial Government Center in August 2018, the Royal Irrigation Department and provincial agencies have initiated a project to build "drainage gate" to control the flow of the Mekong River at the end of Huai Kham Phaeng.

Key contributors:

Yanyong Sri-charern, WWF-Thailand
Warisa Papravet, KT Non-Hunting Area
Ratchaneekorn, KT Non-Hunting Area



Photo: Wanchanok Suwanakorn



Name Bung Khong Long Non-Hunting Area, Thailand

Year of Designation 2001

Size 1,842 ha

Key Wetland types Permanent freshwater lakes and Seasonal/intermittent freshwater lakes

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Small Asian Mongoose, Masked Palm Civet, Common Palm Civet, Large Indian Civet	STA
Breeding Birds	Purple Heron, Cotton Pygmy Goose, Little Grebe, Purple Swampphen, White-browed Crake	Resident water birds, STA
Migratory Birds	Baer's Pochard (CR), Common Pochard (VU), Ferruginous Duck (NT)	Migratory water birds increasing, INC Baer's Pochard not found annually, DEC
Reptiles	Elongated Tortoise (CR), Asiatic Softshell Turtle (VU), Mekong Snail-eating Turtle (NT)	DEC
Amphibians	<i>Hoplobatrachus rugulosus</i> , <i>Occidozyga lima</i> , <i>Hylarana erythraea</i> , <i>Fejervarya limnocharis</i> , <i>Microhyla ornata</i> , <i>Microhyla heymonsi</i> , <i>Micryletta inornata</i>	Water Quality decline, Habitat change to short-term agriculture in dry season, DEC
Fish	Small Scaled Mud Carp (VU), Jullien's Golden Carp (CR), Long-snouted Pipefish (LC), Glass Catfish (LC)	Water Quality decline, Habitat change to short-term agriculture in dry season, DEC

Key wetland values:

Bung Khong Long is one of the most important wetland for wintering birds in the northeastern part of Thailand. It supports globally threatened turtles and nationally endemic fish species.

Key ecosystem services and trends:

- Bung Khong Long is one of the most important wetland for wintering birds in the northeastern part of Thailand, INC
- Well-protected fishing and fish nursery ground, and contributes to sustaining livelihoods of the surrounding fishing communities, DEC
- Provision of water for agriculture, DEC

Key threats:

- Agricultural areas have been expanded into wetlands during the dry season with agro-chemicals contaminating the water.
- Hydrological changes, caused by dams, reservoirs and weirs, impact the water flow and sedimentation, alters habitats and blocks the migration of aquatic species. The increase of the weir level by 25 cm to store more water is impacting the migration of fish in the area.

Key management interventions:

Community leaders and aquaculture representatives have been appointed to the Protected Area Committee (PAC) are involved in the protection of the wetland Educational institution (Chiang Rai Rajabhat University) is main organization to monitoring Water quality, Biodiversity and Fisheries

Key contributors:

Wisetsak Wisetvohan
Noppadon Bualoi, Ranger of reserve
Yanyong Sri-charern, WWF-Thailand
Yoottasart Hardda, Teacher and Bird Watcher



Name Lower Songkhram River, Thailand

Year of Designation 2019

Size 5,504.54 ha

Key Wetland types Freshwater swamp forest, seasonally flooded forests

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Small Asian Mongoose, Common Palm Civet, Small Indian Civet	DEC due to habitat change and tend to be separated into small forest patches
Breeding Birds	Watercock, Cattle Egret, White-breasted Waterhen, Purple Heron	STA
Migratory	Baer's Pochard (CR), Grey-headed Lapwing (LC)	STA, Baer's Pochard DEC, no longer annually
Reptiles	<i>Cuora amboinensis</i> (EN), <i>Amyda cartilaginea</i> (VU), <i>Ophiophagus hannah</i> (VU), <i>Malayemys subtrijuga</i> (NT)	DEC
Fish	<i>Catlocarpio siamensis</i> (CR), <i>Mystus bocourti</i> (VU), <i>Betta splendens</i> (VU), <i>Tenualosa thibaudeaui</i> (VU)	STA
Invasive Species	<i>Eichhornia crassipes</i> , <i>Salvinia molesta</i> , <i>Mimosa pigra</i>	INC

Key wetland values:

The Lower Songkhram River Basin (LSRB) wetlands hosts indigenous fish species, endemic to the Mekong Basin. It is one of the last seasonally flooded forest, essential for many fish species and other wildlife.

Key ecosystem services and trends:

- For food as a source of income, non-timber forest products (NTFPs), medicinal resources, livestock farming, and more, STA
- A reservoir of water in the dry season sufficient for community use, DEC
- Seasonal flood forest is a water storage area buffering water during the flooding season reducing the chance of flooding, STA

Key threats:

- Construction of bank barriers in many areas along the river threatening riverbank forests.
- The Department of Rural Roads constructed a bridge over the river (under construction near the Mekong River. The banks were reclaimed on both sides, reducing the river flow, potentially impacting the fish fauna in both rivers in the future.
- Encroachment of agriculture into seasonal flooded forest area

Key management interventions:

Community participation in decision-making, natural resource management, freshwater conservation areas and community forest management in the area. The Ramsar Site sign was installed to raise awareness of the value and importance of the Songkhram River.

There was cooperation of 50 villages in the lower Songkhram River to form the Lower Songkhram River Protection Association. To create cooperation with all sectors in the management of the area as well as monitoring various development projects that may affect the Ramsar site, such as the construction of a biomass power plant, the construction of floodgates, etc., which resulted in the suspension of the project.

Key contributors:

Yanyong Sri-charern, WWF-Thailand
PONRE (Provincial Office of Natural Resources and Environment)



Name Khok Kham, Flyway Network Site, Thailand

Year of Designation 2015

Size 12,912 ha

Key Wetland types Intertidal mud and sandflats, aquaculture and salt pan, mangroves

Key Biodiversity features and trends:

Taxa	Species	Trends
Marine Mammals	Irrawaddy Dolphin (EN), Finless Porpoise (VU)	Coastal population of Irrawaddy Dolphin STA, Finless Porpoise STA
Mammals	Fishing Cat (VU), Smooth-coated Otter (VU), Long-tailed Macaque (VU)	DEC due to degraded mangroves
Migratory Birds	Spoon-billed Sandpiper (CR), Great Knot (EN) and Spotted Greenshank (EN), Eurasian Curlew (NT), Black-tailed Godwit (NT), Bar-tailed Godwit (NT), Asian Dowitcher (NT)	STA
Reptiles	Monitor Lizard, Dog-faced Water Snake	INC
Fish	Barramundi, Blue-spotted Mudskipper, Giant Mudskipper	Economically important species for the fishing communities, DEC
Crustaceans	<i>Penaeus monodon</i> , <i>Litopenaeus vannamei</i> , <i>Fenneropenaeus merguensis</i> , <i>Portunus pelagicus</i> , <i>Scylla serrata</i>	DEC due to overharvesting by local community, Blue Swimming Crab can be caught all year round

Key wetland values:

The site supports roosting and feeding habitats for over 20,000 resident and migratory shorebirds and other waterbirds. It holds more than 1% of the flyway population of some shorebirds and it is a regular wintering site for globally threatened migratory species such as Spoon-billed Sandpiper, Great Knot and Spotted Greenshank.

Key ecosystem services and trends:

- This area supports the utilization of coastal aquaculture communities 32.14%, salt farming 28.5%, fisheries 17.62 %, restaurant trading and tourism services 9.22% and others
- There are stable mangrove forests, most of them in recovery and increasing trend. By bamboo revetment, reforestation and sea wall to prevent coastal erosion
- There are various types of sewage and contaminants from urban communities flowing through the branch canals into the sea in the area of the FNS without treatment. Especially during the rainy season, fresh water from urban communities is accelerated down to the FNS, INC

Key threats:

- Chemicals and contaminants from the waterfront industry and solid waste and wastewater from urban areas affect mudflat, and benthic species in mangrove forests
- The use of fishing gear and illegal tools in large quantities. Fishing in prohibited areas by commercial fisheries
- Bird-watching tourism in the FNS area has increased

Key management interventions:

- Local communities have formed a Khok Kham Nature Conservation Club. Establish a learning center about migratory birds, establish a salt farming learning center, establish a mangrove forest conservation and rehabilitation center to disseminate and provide information about resources in the area
- Department of Fisheries and Department of Marine and Coastal Resources has set a prohibited area for fishing to commercial boats and abolishing some fishing gear that destroys marine ecosystems
- Set a time limit for fishing during the spawning season according to the Fisheries Act and the Marine and Coastal Resources Act
- Promote and develop products derived from sea salt, which is a product of the community.
- Signs have been installed and a bird-watching pavilion erected to channelize bird and whale watching in the sea for the safety of whales and tourists

Key contributors:

Surasak Thongsookdee, Marine and coastal Research Center, The Upper Gulf of Thailand DMCR
Sakchai Netlomwong, President of Khok Kham Nature Conservation Club
Lerpong Janthong, President of Salt Farming Learning Center
Roongroj Jukmonkol, President of Waterbird Learning Center
Suchart Daengphayon, Salt farmer and Bird Watcher Expert



Photo: WN



Name Don Hoi Lot, Thailand

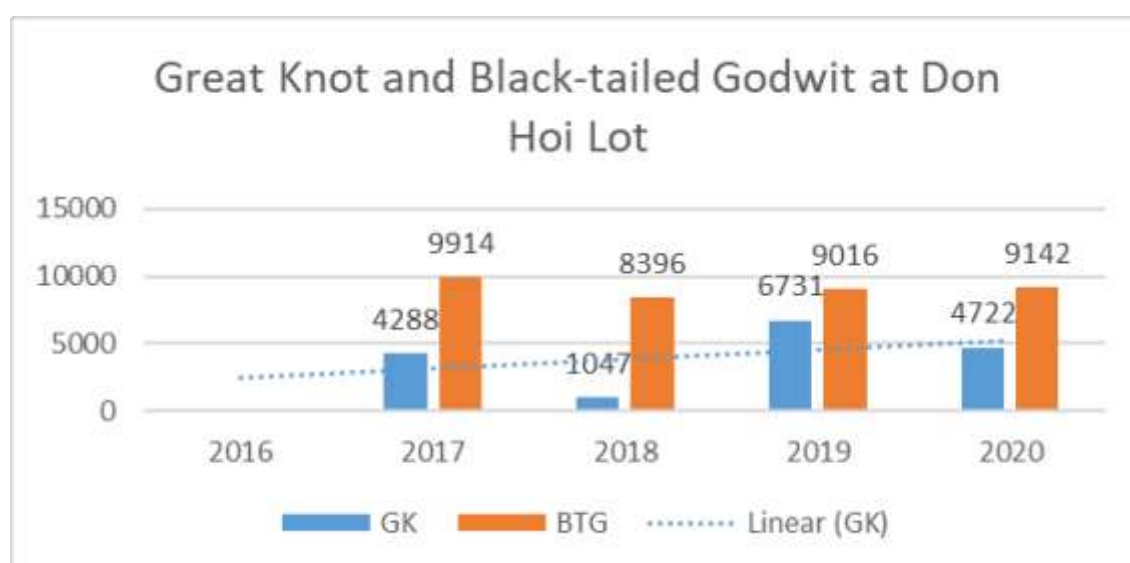
Year of Designation 2001

Size 87,000 ha

Key Wetland types Mangroves and intertidal mud and sandflats

Key Biodiversity features and trends:

Taxa	Species	Trends
Marine Mammals	Irrawaddy Dolphin (EN), Finless Porpoise (VU)	INC, due to increase in food resources
Mammals	Fishing Cat (VU), Smooth-coated Otter (VU), Long-tailed Macaque (VU)	DEC due to poaching and habitat change, otter STA
Breeding Birds	Painted Stork (NT), Oriental Darter (NT)	INC
Migratory Birds	Far-Eastern Curlew (CR), Great Knot (EN), Black-tailed Godwit (NT)	INC
Reptiles	Water Monitor	INC, additional food resources
Ambhians	Mangrove Frog	DEC, Land Use Changes
Fish	Shot-bodied Mackerel, Flathead Mullet, Giant Mudskipper, Blue-spotted Mudskipper	DEC, local fisheries and commercial fisheries are required to catch large quantities of fish
Crustaceans	Banana shrimp, Pacific White Shrimp, Blue Swimming Crab	DEC
Molluscs	<i>Solen regularis</i> , <i>Solen vitreus</i> (Razor Shell-fish)	INC, Important livelihood for local community



Great Knot and Black-tailed Godwit at Don Hoi Lot (AWC 2021)

Key wetland values:

- Razor shell fishing is a key livelihood for local people
- Small mangroves and important intertidal mudflats, important for migratory species

Key ecosystem services and trends:

- Storm protection through dense and broad mangrove layer, INC
- Nursery for young animals, STA
- Fisheries and fish nurseries for crabs, shellfish and shrimps, STA

Key threats:

- Mangrove cutting,
- overfishing, bird trapping
- poaching of young animals for fish trade
- pollution from domestic and agricultural wastewater
- coastal development
- Chemically contaminated wastewater pollution
- Encroachment of private developers into mangrove (e.g. restaurant, parking lot, aquaculture ponds and walled fence construction)
- Hunting and poaching of young aquatic animals in private aquaculture areas by means of netting along the edge of the aquaculture ponds

Key management interventions:

community protection zone for aquatic animals established, Governmental Patrols and law enforcement. Department of Fisheries and Department of Marine and Coastal Resources established:

- Conservation and protection zones for aquatic animals
- Restoring mangrove forest by the community
- Strict no-fishing zones and abolished some fishing gear that destroys ecosystems
- Set a time limit for fishing during the spawning season according to the Fisheries Act and the Marine and Coastal Resources Act
- Encroached mangrove land was reclaimed and is protected again

Key contributors:

Manop Yanpisitkul, Senior Officer of Samut Songkhram PONRE

Sompong Nuamsiri, Chairman of Reforestation and Conservation Center

Sookkasem Ngowsakul, Former Chief Executive of the SAO (Bang Ja Kreng)

Amornsak Chatratin, Chief Executive of the SAO (Leam Yai)

Nattawut Kongraksa, Local Fisherman

Wicha Narungsri, Thai Wetlands Foundation (TWF)



Photo:
Tanintorn Ketburana



Name Pak Thale - Leam Phak Bia, Flyway Network Site, Thailand

Year of Designation 2014

Size 8,666 ha

Key Wetland types Intertidal mud and sandflats, Aquaculture and Salt pan

Key Biodiversity features and trends:

Taxa	Species	Trends
Marine Mammals	Irrawaddy Dolphin (EN), Finless Porpoise (VU)	Coastal population of Irrawaddy Dolphin STA, Finless Porpoise STA
Mammals	Fishing Cat (VU)	DEC due to mangroves degradation
Breeding Birds	Little Cormorant, Indian Cormorant, Little Egret, Black-crowned Night Heron	INC
Migratory Birds	Spoon-billed Sandpiper (CR), Far-Eastern Curlew (CR), Great Knot (EN) and Nordmann's Greenshank (EN), Asian Dowitcher (NT)	STA
Reptiles	Monitor Lizard, Dog-faced Water Snake	INC
Fish	Flathead Mullet, <i>Lates calcarifer</i> , <i>Eleutheronema tetradactylum</i> , <i>Selaroides leptolepis</i> , <i>Scomberomorus commerson</i> , Giant Mudskipper, Blue-spotted Mudskipper, <i>Scatophagus argus</i>	Economically important species for the fishing communities, DEC
Crustaceans	<i>Penaeus monodon</i> , <i>Litopenaeus vannamei</i> , <i>Euphausiacea</i> , <i>Portunus pelagicus</i> , <i>Scylla serrata</i>	Important livelihood for local community, Blue swimming crab can be caught all year round, DEC

Key wetland values:

Important for over 20,000 resident and migratory waterbirds. It holds more than 1% of the flyway population for Spoon-billed Sandpiper, Spotted Greenshank, Far Eastern Curlew and Great Knot.

Key ecosystem services and trends:

- Important for waste water treatment, INC
- Fishery catch in the area has increased, due to raised income expectations, DEC

Key threats:

Bird-watching tourism in the FNS area has increased. Signs have been installed and bird-watching pavilion built. There are rules to maintain a distance for whale watching in the sea. Hunting and poaching of young aquatic animals in aquaculture areas by means of netting.

Key management interventions:

- Department of Fisheries and Department of Marine and Coastal Resources (DMCR) has set a prohibited area for fishing to commercial boats and abolishing some fishing gear that destroys marine ecosystems
- Fishing restrictions during spawning season in accordance to the Fisheries and the Marine and Coastal Resources Act
- The land was taken back from developers who encroached on the mangrove forest

Key contributors:

Surasak Thongsookdee, DMCR
 Tataya Tip-apa, Director of BCST
 Virot Srinak Chief Executive of the SAO (Pak Tale)
 Mr. Pia, Salt Farmer
 Seri Manit, Fisherman and Bird Watcher Expert



Pak Thale, Photo: CZ



Name Khao Sam Roi Yot Wetland, Thailand

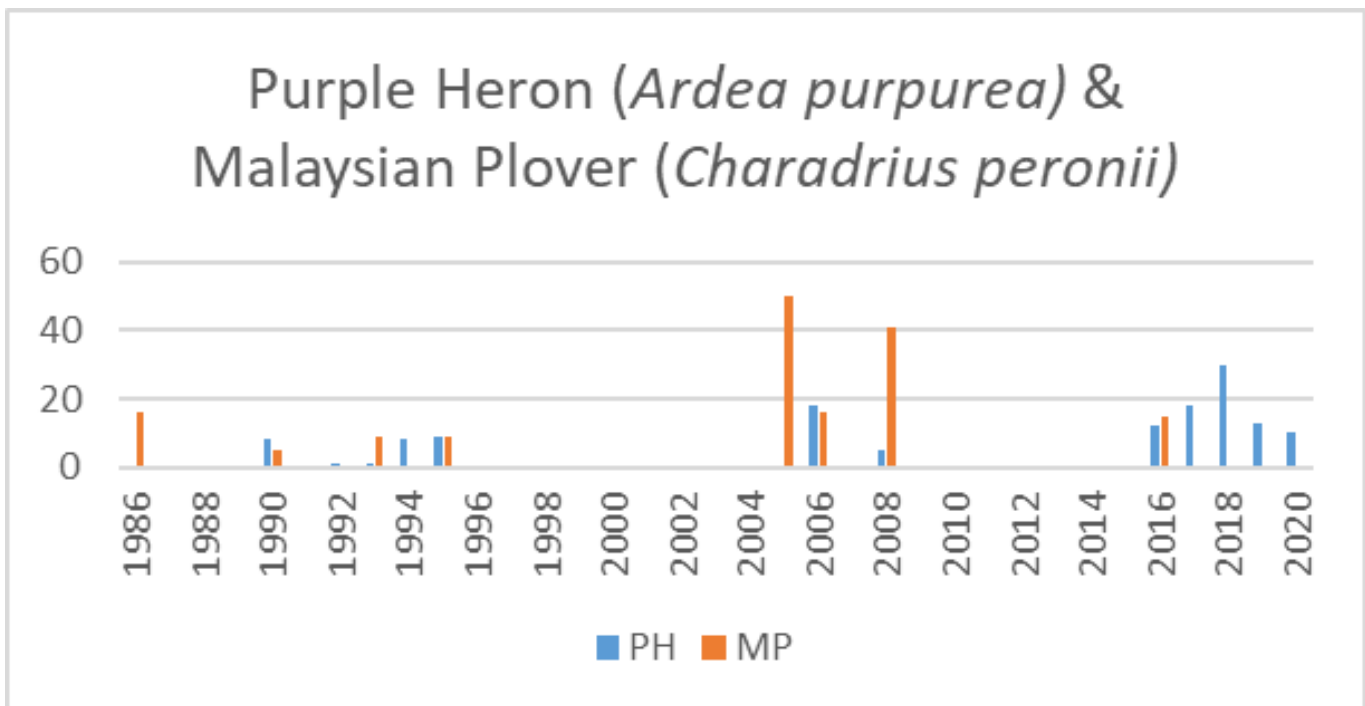
Year of Designation 2008

Size 11,176 ha

Key Wetland types Freshwater Marsh and coastal wetlands including mangroves and corals

Key Biodiversity features and trends:

Taxa	Species	Trends
Marine Mammals	Irrawaddy Dolphin (VU), Finless Porpoise (VU)	INC, Report of sightings from local fishery
Mammals	Stump-tailed Macaque (VU), Fishing Cat (VU), Dusky Langur (VU)	No Macaque reports in past five years. The last two species, INC
Breeding Birds	Malaysian Plover (VU), Little Tern (LC), Purple Heron (LC)	The Malaysian Plover, Little Tern nesting population is DEC, but Purple Heron INC/STA
Migratory Birds	Found 35 species of migratory birds. The dominant species are Grey Heron, Eurasian Curlew, Black-tailed Godwit, and Whiskered Tern	INC-common winter visitor and River Lapwing - no record found for more than 5 years
Reptiles	Black Marsh Turtle (VU)	DEC
Fish	<i>Clarias batrachus</i> (VU), <i>Clarias macrocephalus</i> (VU)	STA
Corals	0.133 sq of coral reefs in the park area	STA
Reeds & grass	<i>Phragmites karka</i> , <i>Arundo donax</i> , <i>Eleocharis dulcis</i>	STA



AWC, Courtesy Wetlands International 2021

Key wetland values:

A mix of freshwater marsh and coastal habitats including mangroves help boost carbon sequestration and protect coastal communities from storm surges.

Key ecosystem services and trends:

- Storm protection through mangrove layer restoration, INC
- Carbon storage in freshwater marsh and mangroves improved, INC
- Water purification INC due to waste water management and aquaculture waste reduction

Key threats:

- Overfishing
- coastal development
- unsustainable tourism

Key management interventions:

- Community leaders and aquaculture representatives have been appointed to the Protected Area Committee (PAC) to manage freshwater, control and remove invasive species and restore freshwater resources.
- Good Aquaculture Practice; GAP standards of Dept of Fisheries before released into public water sources, to prevent the spread of disease and other effects on aquatic animals

Key contributors:

Suthon Wiangdao, Superintendent of Khao Sam Roi Yot NP

Yongyoot Yoosook and Mr. Apirak, Siresakultorn, Community leader and fishermen



Photo TWF



Name Kaper Estuary - Laemson MNP - Kraburi Estuary, Thailand

Year of Designation 2002

Size 123,020 ha

Key Wetland types Intertidal forested wetlands, Estuarine waters, Marine subtidal aquatic beds

Key Biodiversity features and trends:

Taxa	Species	Trends
Marine Mammals	Indian Humpbacked Dolphin (VU), Dugong (VU)	INC
Mammals	Smooth-coated Otter (VU), Asian Small-clawed Otter (VU), Long-tailed Macaque (VU), Dusky Langur (EN), Southern Pig-tailed Macaque (VU)	STA
Breeding Birds	Malaysian Plover (NT), Purple Heron (LC), Little Tern (LC)	INC
Migratory Birds	Great Knot (EN), Red Knot (NT), Bar-tailed Godwit (NT), Black-tailed Godwit (NT), Curlew Sandpiper (NT)	INC/STA
Reptiles	Hawksbill Turtle (CR), Green Turtle (EN), Monitor Lizard, Mangrove Pit Viper, Dog-faced Water Snake	STA
Fish	<i>Lates calcarifer</i> , <i>Scomberomorus</i> , <i>Epinephelus bleekeri</i> , <i>Drepane longimana</i> , <i>Himantura imbricate</i> , <i>Lutjanus russelli</i> , <i>Moolgarda cunnesius</i> , <i>Lutjanus johnii</i>	DEC
Corals	<i>Pavana decussate</i> (VU), <i>Pachyseris rugasa</i> (VU), <i>Galaxea astreata</i> (VU), <i>Turbinaria stellulata</i> (VU), <i>Diploastrea heliopora</i> (NT), <i>Porites lutea</i> , <i>Hydnophora mierpconos</i> (NT), <i>Rydophora exesa</i> (NT), <i>Porites lobata</i> (NT)	DEC
Seagrass	<i>Enhalus acoroides</i> , <i>Halodule spp.</i>	STA

Key wetland values:

The only place in Thailand with primary mangroves. Supports critically endangered, vulnerable and near threatened animal and plant species. There are also large seagrass beds, incl. dugong and economically important local fisheries.

Overall mangrove trend at the site in hectare:

1996	22,121
2007	21,793
2016	22,067

Key ecosystem services and trends:

- Storm protection through mangrove layer restoration, capable of protecting against monsoons and coastal erosion, INC
- Carbon storage in mangroves and seagrass, INC
- Ecotourism causing the distribution of income to the community and create incentives for new occupations, INC
- Water purification (DEC) due to waste water increase from urban along the coastal netting

Key threats:

- Agricultural encroachment on wetlands has decreased
- There are still some illegal fishing and poaching but the trend is decreasing
- Monocultures such as oil palm plantations and rubber plantations on steep slopes result in inefficient soil anchoring and are easily washed into water sources

Key management interventions:

- Law Enforcement arresting intruders, by the Department of National Parks, the Department of Marine and Coastal Resources and the Department of Fisheries
- The government works with communities to determine navigating zones, to establish aquatic conservation areas and promote legal fishing tools

Key contributors:

Preecha Fueakong, Superintendent of Laemson National Park
Somchai Hadsajak, Secretary of Ban Muang Klang Community Tourism Enterprise Group



Mature Mangroves near Ranong, Nov 2018, Photo: CZ

Name Mu Koh Ang Thong MNP, Thailand

Year of Designation 2002

Size 10,321 ha

Key Wetland types Coral reef, Rocky beach, Sand and gravel beach, Intertidal wetland

Key Biodiversity features and trends:

Taxa	Species	Trends
Marine Mammals	Irrawaddy Dolphin (EN), Finless Porpoise (VU), Indo-Pacific Humpbacked Dolphin (VU)	DEC, National Park monitoring and report
Mammals	Dusky Langur (EN), Long-tailed Macaque (VU), Hairy-nosed Otter (EN)	DEC
Birds	Little Heron, Pacific Reef Egret	STA
Reptiles	Hawksbill (CR), Green Turtle (EN), Elongated Tortoise (CR)	DEC, National Park monitoring and report
Fish	Economical: <i>Rastrelliger spp.</i> , <i>Epinephelus fasciatus</i> , <i>Saurida sp.</i> , <i>Lates calcarifer</i> , <i>Sphyrnaena barracuda</i> , <i>Scomberomorus guttatus</i> , <i>Epinephelus malabaricus</i> Biodiversity: <i>Bolbometopon muricatum</i> , <i>Chaetodontidae spp.</i> , <i>Pomacentridae spp.</i> , <i>Labroides dimidiatus</i> ,	FLU, National Park monitoring and report
Molluscs	<i>Laevistrombus canarium</i> , <i>Octopus dolifusi</i> , <i>Tridacna gigas</i> , Honeycomb Oysters, <i>Trochus maculatus</i>	DEC, National Park monitoring and report
Coral	<i>Diploastrea heliopora</i> (NT), <i>Pavana decussate</i> (Vu), <i>Porites luteo</i> , <i>Fungia sp.</i> , <i>Platygyra daedalea</i>	STA, National Park monitoring and report
Seagrass	<i>Enhalus acoroides</i>	STA
Plant	<i>Paphiopedilum niveum</i>	STA, endemic Lady slipper orchid

Key wetland values:

- The site supports endemic, endangered species such as *Paphiopedilum niveum*
- Important coral and sea grass
- Globally threatened reptiles and fish species that are economically important
- A relatively complete coral reef ecosystem

Key ecosystem services and trends:

- Water purification through grease trap, and adding oxygen to the water before discharging and filtering waste.
- National Park defines boundaries for resource conservation areas and use area, without allowing to harvest in the conservation area.
- Seagrass areas store carbon

Key threats:

- Overfishing, INC
- Smuggling fishing in national park areas and dumping of nets and fishing gear in sea, INC

Key management interventions:

- Provincial Office of Natural Resources and Environment Suratthani, DNP, Department of Tourism, Pollution Control Department, DMCR and Department of Mineral Resources participate in coral reef restoration, sea turtle release programme; picking trash and establish crab bank
- Smart Patrol System by National Park Authority

Key contributors:

Nuttawat Nui Sriram, Superintendent of Mu Koh Ang Thong National Park
Tipamad Oopnoi, Marine and coastal Research Centre
The Central Gulf of Thailand DMCR



Name Ko Ra-Ko Phra Thong Archipelago, Thailand

Year of Designation 2013

Size 20,387 ha

Key Wetland types Mangroves, Mudflats, seagrass and corals

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Sunda Pangolin (CR), Smooth-coated Otter (VU), Binturong (VU)	DEC, Sambar <i>Rusa unicolor</i> (VU) introduced, INC
Marine Mammals	Dugong (VU), Indo-pacific Bottle-nosed Dolphin (NT), Striped Dolphin, Indo-Pacific Humpback Dolphin (VU), Bryde's Whale (LC)	STA, currently 8 Dugongs
Breeding Birds	Lesser Adjutant (VU), Grey-headed Fish-eagle (NT), Brown Fish-owl, Malaysian Plover (NT)	INC, After the 2004 tsunami, the bird population dropped to less than 10, but now increased to 30. No nesting Grey-headed Fish-eagle for > 15 yrs
Migratory Birds	23 species incl. Chinese Egret (VU), Bar-tailed Godwit (NT)	STA
Reptiles	Hawksbill Turtle (CR), Green Turtle (EN), Olive Ridley (VU), Black Marsh Turtle (VU)	STA
Amphibians	At least 8 LC species, incl. <i>Rana erythraea</i> , <i>Fejervarya limnocharis</i> , <i>Polypedates leucomystax</i> , <i>Kaloula pulchra</i>	STA
Fish	At least 14 species incl. Shortfin Eel (NT)	DEC due to water trapped in the swamps, pH changes and overfishing
Molluscs	<i>Strombus canarium</i>	STA, local people rely on harvest
Seagrass	720 ha of seagrass with 7 species: <i>Halophila ovalis</i> , <i>H. beccarii</i> , <i>H. decipiens</i> , <i>H. minor</i> , <i>Haloduleu ninervis</i> , <i>H. pinifolia</i> , <i>Enhalus acoroides</i>	INC, Recovering after 2004 tsunami in cooperation with government, private sector, tourism, NGOs and villagers
Corals	<i>Porites sp.</i> , <i>Favia sp.</i>	STA but affected by increasing sediment pollution

Key wetland values:

Important coastal habitats for biodiversity and carbon storage.

Trends in Mangrove extent in hectare:

1996	3,560
2007	3,436
2016	3,537

Key ecosystem services and trends:

- Carbon storage of swamp (1,500 ha) and beach forest (800 ha), mangroves (1,260 ha) and over 720 ha of seagrass; gradually INC after long period of loss until 2003 from originally over 3,500 ha mature mangroves, STA
- Fisheries and shell fishery, STA
- Eco-Tourism, STA



Photo : WN

Key threats:

- Coastal development of mainland, incl electrical infrastructure
- Bleaching from jellyfish fermentation released to the tidal current is increasing.
- Unsustainable tourism
- Unclear legal land tenure exposing site to land speculation and development

Key contributors:

Acting Lt. Pondsak Dumdaeng, Chief Administrator of the Koh Phra Thong SAO
Kong Kiet Kittiwattanawong, Phuket Marine Biological Center, DMCR
Tep Khammayee, Community leader
Donraman Rawang Ngan, Chairman of the Ban Bang Tip Chilli Paste Enterprise Group

Key management interventions:

- At present, the mangrove forest is in a state of recovery by cooperation of communities, government agencies and environmental organizations
- Department of Marine and Coastal Resources and NGOs developed a seagrass restoration project
- Community promotes uniqueness of site, impact of tsunami and the limitations to tourism with moderate – good response



Name Phang Nga Bay Marine Park, Thailand

Year of Designation 2002

Size 42,284 ha

Key Wetland types Mangroves, Mudflats, seagrass and corals

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Sunda Pangolin (CR), Smooth-coated Otter (VU), Dusky Langur (EN)	DEC
Marine Mammals	Dugong (VU), Finless Porpoise (VU)	STA
Birds	Malaysian Plover (NT), Brown-winged Kingfisher (NT), Mangrove Pitta (NT), Asian Dowitcher (NT)	STA
Reptiles	<i>Lepidochelys olivacea</i> (VU), Leatherback (VU)	STA
Amphibians	At least 8 LC species, incl. <i>Rana erythraea</i> , <i>Fejervarya limnocharis</i> , <i>Polypedates leucomystax</i> , <i>Kaloula pulchra</i> , <i>Rana nigrovitta</i>	STA
Fish	<i>Lates calcarifer</i> , <i>Batoidea</i> spp., <i>Sillago sihama</i> , <i>Rastrelliger brachysoma</i> , <i>Sphyaena barracuda</i> , <i>Plotosus lineatus</i> , <i>Mugil</i> spp., <i>Anguilla bicolor</i> (NT)	DEC, large scale fishing practices
Crustaceans	Econom. spp: <i>Litopenaeus vannamei</i> , <i>Harpisquilla</i> sp, <i>Portunus pelagicus</i> , <i>Scylla serrata</i> , <i>Tachypleus gigas</i>	DEC
Molluscs	<i>Laevistrombus canarium</i> , <i>Anadara granosa</i> , <i>Pinna bicolor</i> , <i>Notocochlis tigrina</i> , <i>Meretrix</i> sp.	DEC, local people rely on harvest
Seagrass	1,280 ha of seagrass <i>Thalassia hemprichii</i> , <i>Cymodocea rotundata</i> , <i>C. serrulata</i> , <i>Halophila ovalis</i> , <i>H. beccarii</i> , <i>Halodule pinifolia</i> , <i>H. uninervis</i> , <i>Enhalus acoroides</i>	DEC
Corals	<i>Porites</i> sp., <i>Favia</i> sp.	DEC

Key wetland values:

Important coastal habitats for biodiversity and carbon storage.

Trends in Mangrove extent in hectare:

1996	5,729
2007	5,368
2016	5,619

Key ecosystem services and trends:

- Carbon storage of mangroves (1,260 ha) and over 1,280 ha of seagrass, STA
- Fisheries and shell fishery, STA
- Eco-Tourism, STA
- Water purification, DEC
- Livelihoods:
 - Local fishery 16.62%
 - Aquaculture 2.75%
 - Agriculture 80.62%

Key threats:

- 25% Mangrove encroachment and logging
- Over-fishing
- Bleaching from jellyfish fermentation
- Unsustainable touristic development
- Unclear legal land tenure exposing site to land speculation and development

Key management interventions:

Encouraging the community to avoid the use of natural resources, provide training and education of community to become local tourist guides. Seagrass restoration developed by DMCR and NGOs. Establishing land tenure boundaries and installing signs in the wetlands area and prosecute forest intruders.

Key contributors:

Sarayoot Tansatian, Ao Pang Nga
Subo Wareerak, Chairman of Ban Koh Kiam
"SERRATED MUD CRAB Bank"
Yahn Wareesri, Secretary of community forestry

Name Ko Kra Archipelago, Thailand

Year of Designation 2013

Size 374 ha

Key Wetland types Marine coastal, Coral reef, Rocky beach

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Red Spiny Rat (LC), Small Flying Fox (NT), Smooth-coated Otter (VU), Asian Small-clawed Otter (VU)	STA
Birds	White-bellied Sea-eagle (LC), Nicobar Pigeon (NT), Lesser and Christmas Island Frigatebird (CR)	Breeding water birds STA Other breeding birds DEC
Reptiles	Hawksbill Turtle (CR), Green Turtle (EN), Leatherback Turtle (VU), Kuhl's Flying Gecko	DEC, 34 nests of sea turtles were found on October 2020 to May 2021
Fish	Fam. <i>Lutjanidae</i> : Black Kingfish, Short-Bodied Mackerel Fam. <i>Sciaenidae</i> , Fam. <i>Serranidae</i> : Indo-Pacific King Mackerels; Fam. <i>Pomacentridae</i> : 25 species; Fam: <i>Labridae</i> : 17 species; Fam. <i>Chaetodontidae</i> : 10 species	STA, economically important species are 41% of all species found
Coral	<i>Acropora aculeus</i>	STA, <i>Acropora aculeus</i> is dominant

Key wetland values:

The site supports nesting area for sea turtles and waterbirds, the coral reef and marine life is economically important and a relatively complete ecosystem.

Key ecosystem services and trends:

- Important nesting area for sea turtles, DEC
- The breeding ground for coral and marine life that is economically, STA
- It is a refuge for commercial fisheries when encountering storms and monsoons, STA

Key threats:

- Koh Kra is a military area 63 kilometres from the shore with a few threats

- Fishing and coral reefs have been disrupted by commercial fishing boats and nets

Key management interventions:

- Fishermen cooperate in avoiding mooring along coral reefs and report sea turtles spawning
- Patrol and surveillance on illegal fishing by the Royal Thai Navy and DMCR

Key contributors:

Tipamad Oopnoi, Marine and coastal Research Center, The Central Gulf of Thailand DMCR
Smith Sutibut, expert on fauna identification



Photo: WN



Name Krabi Estuary, Ramsar & FNS, Thailand

Year of Designation 2001

Size 30,769 ha

Key Wetland types Mangroves and Intertidal Mud and sandflats

Key Biodiversity features and trends:

Taxa	Species	Trends
Marine Mammals	Irrawaddy Dolphin (VU), Finless Porpoise (VU), Indian Humpbacked Dolphin (VU), Dugong (VU)	Up to 20 Dugong around this wetland, INC
Mammals	Smooth-coated Otter (VU), Asian Small-clawed Otter (VU), Long-tailed Macaque (VU)	STA, Adapt to changing environments
Breeding Birds	Roseate and Lesser Crested Terns (LC)	DEC, also no sighting of Masked Finfoot for > 20 yrs
Migratory Birds	Nordmann's Greenshank (EN), Great Knot (EN), Chinese Egret (EN)	INC
Reptiles	Hawksbill (CR), Green Turtle (EN), Monitor Lizard, Mangrove Viper, <i>Acrochordus granulatus</i>	INC, More frequent sightings reported by fishermen
Amphibians	Mangrove Frog	DEC, Land use changes
Fish	<i>Chanos chanos</i> , <i>Lates calcarifer</i> , <i>Megalops cyprinoides</i> , <i>Mugil cephalus</i>	STA, Fishermen established better understanding of conservation
Corals	<i>Porites lutea</i> , <i>Goniopora sp.</i> , <i>Favites spp.</i> , <i>Montipora spp</i>	Good condition; STA
Seagrass	<i>Enhalus acoroides</i> , <i>Halodule pinifolia</i> , <i>Thalassia hemprichii</i> , <i>Halophila minor</i> , <i>H. uninervis</i> , <i>Cymodocea rotundata</i> , <i>C. serrulata</i> , <i>Syringodium isoetifolium</i>	INC, due to restoration

Key wetland values:

Important for wintering waterbirds, marine turtles, mangroves and seagrass bed for Dugong. It's a breeding grounds for economically important to local fisheries.

Trends in Mangrove extent (in ha)

1996	6,408
2007	6,258
2016	6,339

Key ecosystem services and trends:

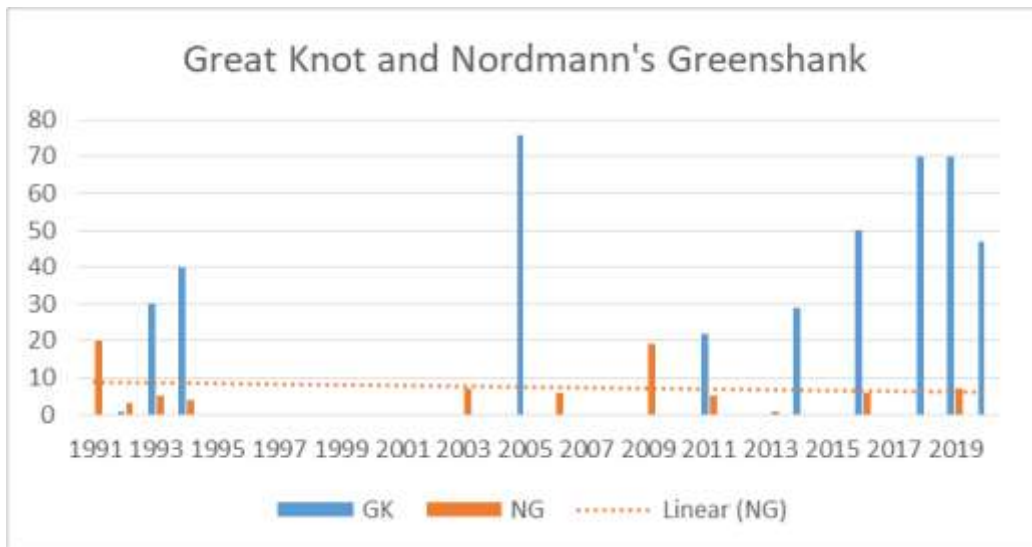
- Storm protection through mangrove layer restoration, INC
- Carbon storage in mangroves and seagrass, INC
- Fisheries and fish nurseries, crabs, shellfish and shrimps, DEC
- Water purification DEC due to waste water increase from urban and agriculture runoff

Key threats:

- Bait poisoning of fish along the coral reefs
- Drainage of wastewater from urban communities, agricultural sectors, aquaculture, jellyfish fermentation into wetlands without proper treatment
- Unsustainable Tourism causing sediments and oil spills to settle along the coast damaging coral reefs and seagrass
- Boat traffic, anchor and plastic waste accumulation on coral reefs

Key management interventions:

- Department of Fishery, DMCR and Provincial Office of Natural Resources and Environment working with community leaders to increase seagrass and restore mangrove by 16 ha. Department of Fisheries, Department of Marine and Coastal Resources, Provincial Administrative Organization working with community to restore 13,020 ha seagrass bed



AWC, Courtesy Wetlands International 2021

Key contributors:

Chaisak Saweangpon, Director of Disaster Prevention and Mitigation Division, Krabi PAO

Donnapat Tamornsuwan, Thai Wetlands Foundation (TWF)

Amrit Siripondjutakul, Adviser of Tourism Council Krabi Province, Founder of Krabi goes green projects

A-Leh Channam, President of Krabi Sea Lover Association

Dr.Chaturong Kongkaew, Faculty of Technology and Environment, Prince of Songkla University

Phuket, Krabi Project Co-ordinator of Department of Environmental Quality Promotion



Photo: Donnapat Tamonsuwan



Name Kuan Ki Sian of Thale Noi Non Hunting Area, Thailand

Year of Designation 1997

Size 489.8 ha

Key Wetland types Freshwater swamp forest, seasonally flooded forests

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Large-Spotted Civet (EN), Fishing Cat (VU), Smooth-coated Otter (VU)	Habitat changes and cannot adapt to the environment of the area, DEC
Breeding Birds	Painted Stork (NT), Purple Heron	INC
Migratory Birds	Lesser Adjutant (VU), Black-headed Ibis (NT)	INC, >20,000 waterbirds
Reptiles	Asian Box Turtle (EN), Southeast Asian Softshell Turtle (VU), Black Marsh Turtle (VU), King Cobra (VU)	DEC
Amphibians	<i>Hylarana erythraea</i> , <i>Hoplobatrachus rugulosus</i>	DEC
Fish	Slender Walking Catfish, Fire Spiny Eel, Swamp Eel	Economically important species for the fishing communities and ecosystems, DEC
Crustaceans	Lanchester's Freshwater Prawn	Reduction of important species in economy and ecosystem, DEC

Key wetland values:

Habitat and nesting grounds for > 20,000 of resident and migratory water birds and globally threatened mammals and reptiles. Economically important fisheries for local community.

Key ecosystem services and trends:

- Carbon storage: 1,632 ha peatland, covered by grass and Paper Bark tree: Total carbon storage capacity of 1.7 million tons or 3.6% of total in Tcapacity of 1.7 million hailand. STA
- Provision of water for local communities: agriculture (27%), 2.3% for fisheries and livestock (0,25%), tourism (16 %) and basketry handicrafts (18%). DEC

Key threats:

- Forest fires during dry periods
- Raised levees on embankment obstructs water flows, affecting water quality, plants and animals
- Water Pollution from agricultural residues, aquaculture and tourism without treatment
- Illegal fishing gear and overfishing
- Expanding Asian Openbill colony threatening Painted Stork and Purple Heron colonies

Key management interventions:

- Encouraging communities from government to produce products from reed (basketry)
- Establishment of fish conservation areas
- Smart patrol including law enforcement.
- Community purchased some adjacent land to mitigate impact on wetland resources

Key contributors:

Nakin Kaewboonsong, Head of Khlong Yuan Forest Protection Unit, Thale Noi Non-Hunting Area
Supasek Opitakon, Thale Noi Wetland Foundation (TWF)



Photo: WN



Name Had Chao Mai MNP – Ta Libong Island Non-Hunting Area, Thailand

Year of Designation 2002

Size 66,363 ha

Key Wetland types Mangrove, Sand and rock Beach, Coral Reef, Seagrass and Brackish water

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Irrawaddy Dolphin (EN), Finless Porpoise (VU), Pacific Humpback Dolphin (VU), Dugong (VU); Dusky Langur (EN), Smooth-coated Otter (VU), Serow (VU), Asiatic Golden Cat (NT)	Marine: INC. A colony of 30 Dugongs was found on April 22, 2020. Terrestrial: STA
Birds	Breeding: Malaysian Plover (NT), Mangrove Pitta (NT), Brown-winged Kingfisher (NT) Migratory: Nordmann's Greenshank (EN), Great Knot (EN), Bar-tailed Godwit (NT), Chinese Egret (VU)	Breeding: STA, Migratory: INC. No record of Masked Finfoot (EN). In 10 years only 1 record of <i>Ephippiorhynchus asiaticus</i> (NT).
Reptiles	<i>Eretmochelys imbricate</i> (CR), <i>Chelonia mydas</i> (EN), <i>Cuora amboinensis</i> (EN)	INC
Coral	<i>Diploastrea heliopora</i> (NT), <i>Porites lutea</i> , <i>Acropora sp.</i> , <i>Pocillopora.sp.</i> , <i>Pachyseris .sp.</i> , <i>Pavona sp.</i> , <i>Fungia sp.</i>	STA
Seagrass	<i>Enhalus acoroides</i> , <i>Halophila avalis</i> , <i>H. beccarii</i> , <i>H. decipiens</i>	STA

Key wetland values:

Had Chao Mai Ramsar site comprises of many wetland types and supports globally threatened, and near threatened birds species and many kinds of plant and animal species. Supports large seagrass beds that importance to diversity of marine life.

Trends in Mangrove extent (in ha)

1996	11,587
2007	11,333
2016	11,422

Key ecosystem services and trends:

Most of solid wasted especially plastic waste from urban and islanders. Waste is managed by the national park, but residual waste in the surrounding area is under the responsibility of local authorities, INC

- Local fishery 21.1% Commercial fishery 1.07% Aquaculture 0.44% Cultivation Mixed agriculture 21.28%
- There are approximately 23,130 ha of mangrove forests and ongoing restoration, INC

Key threats:

- Overfishing, INC
- Increasing of tourist
- Construction of wharf at Pak Meng Beach to support tourism
- Wasted water without treatment, jelly fish fermentation along the coast releasing waste water to the sea



Photo: WN



Photo: WN

Key management interventions:

- Laws have been enforced against intruders and mangrove forest areas have been reclaimed and restoration work has been carried out since 1991 to the present.
- The staff of Hat Chao Mai National Park, Libong Non-Hunting Area and other agencies in the Ministry of Natural Resources and Environment and the community as volunteers to conserve resources, to monitor and report marine life, seagrass and mangrove restoration.
- Determine the navigating zone, establish an aquatic conservation area, patrol the use of illegal fishing gear by the Department of Marine and Coastal Resources.
- Continuing to work with local communities
- Preparation of mangrove forest restoration plans in all provinces with coastal areas after the cancellation of mining and mangrove logging concessions in 1996.

Key contributors:

Narong Kong-iat, Superintendent of Hat Chao Mai National Park, Fisherman and Community Leader



Name Princess Sirindhorn Wildlife Sanctuary (Pru To Daeng Wildlife Sanctuary), Thailand

Year of Designation 2001

Size 20,278 ha

Key Wetland types Largest fresh water swamp forest in Thailand

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Hairy-nosed Otter (EN), Long-tailed Macaque (LC), Banded Langur (VU), Leopard (LC)	DEC, No record of Leopard <i>Panthera pardus</i> for very long time because the habitat loss.
Breeding Birds	Lesser Adjutant (VU), Grey-headed Fish-eagle (NT), Black Hornbill (VU)	DEC , No record of Masked Finfoot for very long time and habitat of Black Hornbill is limited
Reptiles	South-east Asian Box Turtle (EN), Black Marsh Turtle (VU), Asian Leaf Turtle (EN), Southeast Asian Softshell Turtle (VU), Water Monitor, Elephant Trunk Snake	DEC, Important site for turtle several species, No record of <i>Tomistoma schlegelii</i> (VU), and <i>Crocodylus porosus</i> (LC) for very long time
Amphibians	At least 8 LC species such as Common Green Frog , Collett's Whipping Frog , Deli Paddy Frog	STA, may be reduced in the future
Fish	At least 75 species recorded such as Slender Walking Catfish , Angler Catfish, Harlequin Rasbora	DEC due to water trapped in the swamps, pH changes and overfishing

Key wetland values:

Important peat swamp forest, important for threatened mammals, nesting waterbirds, turtles and fish

Key ecosystem services and trends:

- Carbon storage of swamp forest with large peat layer (STA). The average peat thickness \geq 120 cm, total carbon storage 28.4 million tons, or 59.0% of the whole country.
- Fisheries and fish nurseries, DEC
- Water purification DEC due to water abstraction
- Agriculture 10.80% , Fisheries 1.2%, Tourism services and trade 5.54% and Basketry handicrafts 0.14%

Key threats:

- Overfishing and illegal fishing of ornamental fish
- Water abstraction and expanding land for agriculture
- Overlapping certificate of ownership of around 588.48 hectare

Key management interventions:

- Dugging the ditch to prevent the water flowing to agriculture area and dredging for drain the water as appropriate, to prevent the community from flood, prevent invasion from human and to use as a fireline by Royal Irrigation Department, Department of National Parks, Wildlife and Plant Conservation and Royal Forest Department
- Determining guidelines for management of peat swamp forests into 3 zones, Reservation zone, Conservation zone and Restoration zone
- Pikunthong Royal Development Study Center has conducted studies and developed guidelines for farming and animal husbandry to be consistent with the peatland conditions.

Key contributors:

Soepon Tip-arpaskul, Superintendent of Princess Sirindhorn Wildlife Sanctuary Wetland
 Namfon Nina, Staff of Princess Sirindhorn Wildlife Sanctuary Wetland and Research and Study Center



Photo: WN



Name Ba Be, Vietnam

Year of Designation 2011

Size 9,941 ha

Key Wetland types River valleys, freshwater lakes, small ponds and areas of marshland surrounded by a karst landscape

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Chinese Pangolin (CR), Francois' Langur (EN), several vulnerable listed species in low numbers	DEC, no recent information
Birds	White-eared Night Heron (EN)	DEC, no recent information
Reptiles	Big-headed Turtle (EN), Black-breasted Leaf Turtle (EN), Keeled Box Turtle (EN), Chinese Soft-shelled Turtle (VU)	DEC, no recent information
Amphibians	Vietnam Warty Newt (LC), endemic to northern Vietnam	DEC, no recent information
Plants	<i>Burretiodendron tonkinense</i> (EN), karst restricted	No information available

Key wetland values:

Unique freshwater mountain lake surrounded by a karst landscape, diverse wetlands including lakes, river valleys, streams, ponds and marshlands. The site supported >1% of the global population of the endangered White-eared Night-heron *Oroanassa magnifica*. The site also supported several globally threatened mammals (e.g. Francois' Langur) and turtle species.

Key ecosystem services and trends:

- Regulates water supply to the entire region (40,000,000 m³ catchments). The lake helps to mitigate floods in four rivers with a total catchment area of ca. 2,000 km², STA.
- Important water provision for irrigation schemes in the Nang River

Key threats:

- Pioneer shifting cultivation
- illegal timber and fuelwood extraction
- hunting/ trapping, illegal/ unsustainable fishing
- pollution by agrochemicals and fuel from boats
- infrastructure development
- Increased tourism activities

Key management interventions:

- Insufficient patrolling and law enforcement
- Key species for which the site has been designated continued to decline due hunting and wildlife trade, such as the White-eared Night-heron and the Francois' Langur. No recent population data, no biodiversity monitoring, no biodiversity conservation projects.
- PRCF facilitated the lake co-management cooperative in support of sustainable fisheries. However, there is no current information on the trend of lake fisheries and fish populations.

Key contributors:

Manh Hung Le, Institute of Ecology and Biological Resources (IEBR), Hanoi

References:

- Dine, M. 2012. Management plan for the White-eared Night-heron *Gorsachius magnificus* at Ba Be National Park, Bac Kan province. People Resources and Conservation Foundation, Hanoi, Vietnam.
- Eames, J. C.; Le Manh Hung. 2009. White-eared Night Heron *Gorsachius magnificus* in Ba Be National Park, Vietnam. *BirdingASIA* 12: 58-61.
- Pilgrim, J.D., Walsh, D.F., Thanh Tu, T., Duc Tu, N., Eames, J.C. and Manh Hung, L. 2009. The endangered white-eared night-heron *Gorsachius magnificus* in Vietnam: status, distribution, ecology and threats. *Forktail* 25: 142-146.

Name Van Long Wetland Nature Reserve, Vietnam

Year of Designation 2017

Size 2,730 ha

Key Wetland types Shallow lake with sub-merged aquatic vegetation in limestone hills

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Delacour's Langur (CR), Sunda Pangolin (CR), Owsten Palm Civit (EN), Binturong (VU), Clouded Leopard (VU), Serow (VU), Bengal Slow Loris (VU), Leopard (VU), Asian Black Bear (VU)	INC Delacour Langur number have significantly increased, for others species there is no information available, some are likely to be extremely rare
Birds	Yellow-breasted Bunting (EN), White-browed Crake (LC)	UNK
Reptiles	Yellow Pond Turtle (CR), Keeled Box Turtle (EN), Wattle-necked Softshell Turtle (CR), Chinese Softshell Turtle (VU)	UNK
Fish	Amur Carp (VU)	UNK
Plants	<i>Amorphophallus interruptus</i> (CR), <i>Isoetes sinensis</i> (CR), <i>Burretiodendron hsienmu</i> (VU), <i>Dalbergia tonkinensis</i> (VU), <i>Knema tonkinensis</i> (VU), <i>Psydrax dicoccos</i> (VU)	UNK, but likely to recover due to the absence of grazing and fires on the limestone hill



Van Long Wetland, March 2019, Photo: CZ



Van Long Wetland, March 2019, Photo: CZ

Key wetland values:

Van Long is one of the few intact lowland inland wetlands remaining in the Red River Delta, surrounding a karst complex with the largest remaining population of the critically endangered Delacour Langur. The wetland features a fish fauna typical for the river ecosystems in Red River delta. The site is an important resting and feeding grounds for 6000 heron and egrets.

Key ecosystem services and trends:

- Water regulation, storing water in wet season and releasing it into the aquifer in dry season, providing water for irrigated rice fields
- Flood control
- Groundwater recharge
- Fish refuge and breeding site, linked to the Red River system
- Ecotourism, creating income for local communities

Key threats:

- Hunting and over-fishing significantly reduced, but night-time electrofishing may still occur
- Vulnerability to fire during long dry spells in the karst hills remains a potential threat
- *Tillapia* has been introduced by local people; impact not yet known, but could become a threat for local fish fauna

Key management interventions:

- Collaborative protected area management; effect collaborative patrolling and law enforcement, employing 30 community rangers from all surrounding communes, financed by and Zoo and NGO partners (Leipzig Zoo, Frankfurt Zoological Society, 'Three Monkeys Wildlife Conservancy - TMWC').
- Generating alternative livelihoods through employment opportunities in ecotourism.
- The site has been IUCN green-listed.

Key contributors:

Interviews: Thilo Nadler, TMWC
Nguyen Duc Tu, IUCN Vietnam

Name Xuan Thuy Natural Wetland Reserve, Ramsar & Flyway Network Site, Vietnam

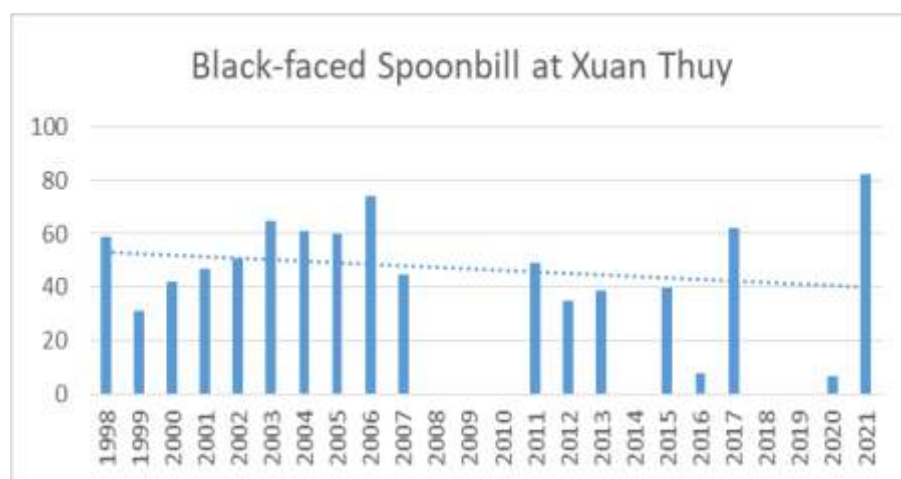
Year of Designation 1988

Size 10,916 ha

Key Wetland types Intertidal mudflats, mangroves, salt marshes and sandy beaches

Key Biodiversity features and trends:

Taxa	Species	Trends
Migratory Birds	Spot-billed Pelican (NT), Chinese Egret (VU), Black-faced Spoonbill (EN), Spotted Greenshank, Spoon-billed Sandpiper and Saunder's Gull	DEC
Fish	56 fish species	UKN
Mangroves	<i>Sonneratia caeseolaris</i> , <i>Kandelia candel</i> , <i>Aegiceras corniculatum</i> , <i>Avicennia</i> species, <i>Rhizophora stylosa</i> , <i>Bruguira gymnorhiza</i> , <i>Acanthus ebracteatus</i> and <i>Derris trifoliata</i>	STA or INC



Black-faced Spoonbill (EN) in the Xuan Thuy estuary according to AWC, courtesy Wetlands International

Key wetland values:

Delta and estuary islands supporting the last significant remnants of coastal mangrove and mudflat ecosystems in the Red River Delta that are economically important to local fisheries.

Key ecosystem services and trends:

- Supporting migratory waterbirds (DEC)
- Supporting fisheries and aquaculture (> 10,000 tons of yield)
- Buffering storm surges (STA)
- Carbon storage (INC)
- Ecotourism

Key threats:

- Aquaculture and dike constructions
- Hunting of waterbirds
- Over-exploitation of fishes
- Waste water

Key management interventions:

Unknown

Key contributors:

Ding Li Yong, BirdLife International
AWC, Wetlands International



Name Bau Sau Wetlands, Vietnam

Year of Designation 2004

Size 14,000 ha (within Cat Tien NP - 71,188 ha)

Key Wetland types Lakes and seasonally flooded grasslands

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Asian Elephant (EN), Gaur (VU), Black-shanked Douc (CR), Elliot's Silver Langur (EN), Yellow-cheeked Crested Gibbon (EN)	Large mammal populations have been monitored; populations are recovering/increasing
Birds	White-shouldered Ibis (CR), White-winged Wood Duck (EN), Sarus Crane (VU), Lesser Adjutant (VU)	Lesser Adjutant INC. Status of other threatened species UNK. Overall bird diversity has increased. Migratory birds DEC from 2018 to 2020
Reptiles	Siamese Crocodile (CR), <i>Indotestudo elongata</i> (CR), Yellow-headed Temple Turtle (CR), Giant Asian Pond Turtle (CR), <i>Siebenrockiella crassicollis</i> (VU), Asian Box Turtle (EN), Asiatic Soft-shelled Turtle (VU)	60 Siamese Crocodiles have been re-introduced (2000 – 2005). INC to 286 (2019). No recent turtle survey, UNK
Fish	Asian Arowana (EN), high diversity of fish species	UNK, probably declining due to the impacts of hydropower schemes upstream on fish migration and populations
Plants	<i>Afzelia xylocarpa</i> (EN), <i>Dalbergia oliveri</i> (EN), <i>D. cochinchinensis</i> (VU), <i>Dipterocarpus dyeri</i> (EN), <i>D. alatus</i> (VU), <i>Hopea odorata</i> (VU)	Stable

Key wetland values:

Southern Vietnam's most important remaining tropical lowland rainforest. A large proportion of this natural lowland wetland is intact and provides key habitats for threatened plants and animals. Bau Sau Ramsar Site is a strictly protected core zone of Cat Tien National Park.

Key ecosystem services and trends:

- Flood control, water provision for 20 million people living downstream along the Dong Nai River
- Carbon storage in lowland forests and wetlands, STA
- Fisheries, DEC due to hydropower schemes in the Dong Nai River Basin

Key threats:

- Wildlife trapping/ snaring, illegal fishing, illegal logging
- Pollution caused by agro-chemical run-off and waste water dumping in the Dong Nai River
- Invasive species, *Mimosa pigra* and other invasive floating aquatic plants
- Installed and planned upstream hydropower schemes impact the water pulse, water table and fish migration, exacerbated by climate change

Key management interventions:

Bau Sau is well managed as part of Cat Tien National Park. Interventions include patrolling and law enforcement, monitoring of water birds and other key species, ecotourism development, awareness raising and livelihood support in buffer zone villages. Protected area management is well funded by government. Community-based forest protection in buffer zone is financed through payment for forest environmental services (PFES). Annual community development funds are allocated to 37 buffer zone villages. New partnership projects in collaboration with WWF (2021-2025) have been secured, funded by AFoCO and USAID. Cat Tien NP is currently being assessed for IUCN green-listing.

Key contributors:

Khanh Pham Huu, Head of Science and International Cooperation
Cat Tien National Park/ Bau Sau Ramsar Site
Anh Kanh, Cat Tien NP

Name Lang Sen Wetland Reserve, Vietnam

Year of Designation 2000

Size 4,783 ha

Key Wetland types Melaleuca forest, seasonally inundated grassland, and fresh water marsh

Key Biodiversity features and trends:

Taxa	Species	Trends
Birds	Eastern Sarus Crane (VU), Greater Adjutant (EN) over 20,000 migratory waterbirds	Waterbird population STA, but Sarus Crane and Greater Adjutant disappeared in 2013
Reptiles	Asiatic Softshell Turtle (VU), Southeast Asian Box Turtle (VU)	UKN, no recent survey data
Fish	Giant Barb (CR), Mekong Giant Catfish (CR), Siamese Fighting Fish (VU)	UKN, no recent survey data
Flora	<i>Eleocharis dulcis</i> , important food source for Sarus Cranes and wild rice - <i>Oryza rufipogon</i>	DEC, due to inappropriate hydrology management

Key wetland values:

- Second most important remnant of the ‘Plain of Reeds’
- At the time of designation important wintering site for Eastern Sarus Crane
- Important site for fish spawning and nursery

Key ecosystem services and trends:

- Services for local communities such as fish and lotus
- Lang Sen wetlands provide food, spawning grounds, nursery and migration paths for fish
- Ground water recharge, carbon sequestration, water supply for agriculture

Key threats:

- Surrounded by dykes, high water levels have been maintained to store water for fire control in the dry season for the Melaleuca forests. This has caused *Eleocharis dulcis* to disappear, which are an important food source for the Sarus Cranes.
- Reforestation of grass lands with Melaleuca forests by the Forest Department
- Illegal, unsustainable fishing and poaching remain a threat
- Water pollution from the surrounding rice paddies and aquaculture
- Barriers to fish due to sluice gates and dykes

- Changes in hydrology, future possibility of saltwater intrusion due to climate change
- *Mimosa pigra* invasion in the grasslands

Key management interventions:

Hydrological/ water table management has been improved. IUCN is piloting flood-based agriculture models (lotus/ deep rice farming, mixed rice/ aquaculture) in the buffer zone.

Key contributors:

Interviews:

Le Phat Quoi, Institute for Environment and Natural Resources, HCMC

Triet Tran, International Crane Foundation

Nguyen Huu Thien, Saving Vietnam’s Wetlands

Nguyen Duc Tu, IUCN Vietnam

Andrew Wyatt, IUCN

Long Tring Thi, WWF

Doung Van Ni, Can Tho University, Department of Environment and Natural Resources



Aerial view of Lang Sen Wetland Reserve showing melaleuca forest, seasonally inundated grasslands and lotus (open) swamps
March 2018, Photo: Nguyen Truong Sinh

Name Tram Chim National Park, Vietnam

Year of Designation 2000

Size 8,018 ha

Key Wetland types Seasonally flooded grasslands, open water, channels, and Melaleuca forest

Key Biodiversity features and trends:

Taxa	Species	Trends
Birds	Eastern Sarus Crane (VU), Bengal Florican (CR), Greater Spotted Eagle (VU), Black-faced Spoonbill (EN), Lesser Adjutant (VU), Greater Adjutant (EN), Chinese Egret (VU), Yellow-breasted Bunting (CR), >1% of flyway population: Garganey, Oriental Darter, Painted Stork	DEC, site no longer supports significant populations of threatened species listed. Sarus Crane disappeared for several years, only 3 ind. returning in 2021
Fish	Giant Barb (CR), Small-scaled Mud Carb (VU), <i>Heterobagrus bocourti</i> (VU)	DEC, no recent information available, last survey 2006
Flora	<i>Eleocharis dulcis</i> , important food source for Sarus Cranes and wild rice <i>Oryza rufipogon</i>	DEC, due to inappropriate water management

Key wetland values:

- Largest remnant 'Plain of Reeds'; Melaleuca woodland, seasonally inundated swamp
- At the time of designation important wintering site for Eastern Sarus Crane
- One of the most important sites for the conservation of wild rice in Vietnam

Key ecosystem services and trends:

- Services for local communities such as fish, water lilies, lotus, DEC
- Tram Chim wetlands provide food, spawning grounds, nursery and migration paths for fish
- Ground water recharge, carbon sequestration, regulate saline water intrusion

Key threats:

- Even though the initial water control structure was designed to create a hydrological condition that mimics the natural wet-dry cycle, high water levels have been maintained to store water for fire control in the dry season for the Melaleuca forests. This has caused *Eleocharis dulcis* to disappear.
- Illegal, unsustainable fishing and poaching
- Water pollution from the surrounding rice paddies and aquaculture
- Tourism development, associated infrastructure development and disturbance

Tram Chim, Photo: Bao Nguyen





Tram Chim, Photo: Bao Nguyen

Key management interventions:

Both WWF and IUCN have developed and piloted improved hydrological management models together with the National Park. Monitoring data showed good recovery of wetland ecosystems following the implementation of the new fire and water management plan. The plan was approved by Vietnamese authorities in 2011 to be applied permanently at Tram Chim. However, following changes in park management, water tables continued to be kept too high.

Key contributors:

Interviews: Triet Tran, International Crane Foundation,
Nguyen Huu Thien, Saving Vietnam's Wetlands
Nguyen Duc Tu, IUCN Vietnam
Andre Wyatt, IUCN
Long Tring Thi, WWF
Doung Van Ni, Can Tho University, Department of Environment and Natural Resources

References:

Ni, D. and Le, T. 2015. Review of water management strategies in Tram Chim National Park and develop the new strategy that climate change issues are incorporated.

Tran, T. and Barzen, J. 2016. Tram Chim: Mekong River Basin (Vietnam). The Wetland Book (pp.1-7). DOI:[10.1007/978-94-007-6173-5_41-4](https://doi.org/10.1007/978-94-007-6173-5_41-4)

Name U Minh Thuong, Vietnam

Year of Designation 2015

Size 7,940 ha

Key Wetland types Peat swamp forests, seasonally flooded grasslands

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Hairy-nosed Otter (EN), Asian Small-clawed Otter (VU), Sunda Pangolin (CR), Fishing Cat (VU), Lyle's Flying Fox (VU), Large-spotted Civet (EN)	DEC, but otter populations are recovering
Birds	Yellow-breasted Bunting (CR), Lesser Adjutant (VU), Greater Spotted Eagle (VU)	STA/ increasing since 2009; > 20,000 migratory waterbirds
Reptiles	Yellow-headed Temple Turtle (EN), Asian Box Turtle (EN), Malayan Snail-eating Turtle (NT)	DEC, no recent information available, but poaching continues
Fish	Significant fish diversity, 8 range restricted species	DEC, no recent information available
Flora	220 vernacular plant species	

Key wetland values:

- Last remaining area of peat swamp forest remaining in Vietnam
- Hosting high biodiversity

Key ecosystem services and trends:

- The peat acts as sponge and absorbs rain water during wet seasons and gradually releasing it during the dry seasons, INC
- Peat swamp forest stores huge amounts of carbon, DEC

Key threats:

A system of dykes and canals altered the hydrology of the peat soil and allowed saltwater intrusion into parts of the core zone. The main threat is inappropriate water table management. While fire is a natural part of the ecology of Melaleuca swamp forest, inappropriate hydrological management has led to low water levels in the dry season, drying the peat layer, increasing peat fires. A ring dyke was built to keep the area flooded but the high water level also impacted Melaleuca forests and avifauna.

- Sea level rise will increase salt water intrusion
- Illegal and destructive fishing practices and hunting remain a threat

- Water pollution from the surrounding rice paddies and aquaculture
- Tourism numbers increased, with associated infrastructure development and disturbance

Key management interventions:

In 2009 a new hydrological management system was introduced, maintaining different water levels corresponding to areas with different peat layers, keeping peat soils wet. Severe fires stopped, peat loss and GHG emissions reduced. The practice requires an accurate water level monitoring system and effective water control structures that allow timely water level manipulations in different segments of the park. Illegal fishing and hunting has declined due to the introduction of co-management systems and community development interventions in the buffer zone, but remains a serious problem, in particular the harvest and trade of reptiles.

Key contributors:

Interviews: Dr. Le Phat Quoi, Institute for Environment and Natural Resources, HCMC
 Nguyen Huu Thien, Saving Vietnam's Wetlands
 Nguyen Duc Tu, IUCN Vietnam

References: Thai Thanh Luom, 2020: Effect of flooding on peatland in U Minh Thuong National Park, *Journal of Soil Science and Environmental Management*, Vol. 11(2), pp. 57-64

<https://academicjournals.org/journal/JSSEM/article-full-text-pdf/F71443763685>

Name Mui Ca Mau National Park, Vietnam

Year of Designation 2012

Size 38,985 ha

Key Wetland types Mangroves, tidal mudflats

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Hairy-nosed Otter (EN), Asian Small-clawed Otter (VU), Sunda Pangolin (CR), Fishing Cat (VU), Large-spotted Civet Cat (EN), Stump-tailed Macaque (VU)	Declining, but otter populations are recovering
Birds	Black-faced Spoonbill (EN), Far Eastern Curlew (EN), Chinese Egret (VU)	Declining, no recent information available
Reptiles	River Terrapin (CR), Yellow-headed Temple Turtle (EN), Black Marsh Turtle (EN), Asian Box Turtle (VU), Malayan Snail-eating Turtle (VU), Southeast Asian Softshell Turtle (VU)	Declining, no recent information available, River Terrapin likely extirpated
Fish	White-spotted Whipray (EN), <i>Pangasius krempfi</i> (VU)	Unknown



Mui Ca Mau, Photo: Bao Nguyen



Mui Ca Mao, Photo: Bao Nguyen

Key wetland values:

Mui Ca Mau’s ecological characteristics has been shaped by new and continued accretion of mudflats and mangrove colonization in the southernmost Mekong Delta. Ca Mau Peninsula’s natural wetlands have been converted to agriculture and aquaculture. Mui Ca Mau National Park protects the largest remaining area of coastal wetlands in the peninsula.

Trends in Mangrove extent (in ha)

1996	7,070
2007	6,268
2016	7,943

Key ecosystem services and trends:

- Flood control and ground water retentions, prevention of salinization, DEC. These service are being compromised by rising sea levels and a sinking delta, due to hydropower schemes along the Mekong, changing hydrology and sediment flow.
- Important feeding, breeding and nursery ground for commercially important fish species including for species that migrate from the brackish-water to freshwater for breeding.
- Fish and crabs for community livelihoods

Key threats:

- In the past, the main threat has been conversion of mangroves to aquaculture. This trend has been stopped, mangroves have re-colonized abandoned shrimp ponds and have been actively reforested.
- Coastal abrasion, sea level rise due to climate change
- Illegal and unsustainable fishing and hunting, wildlife trade
- Unsustainable firewood extraction

Key management interventions:

Improvement of law enforcement, mangrove restoration, in the buffer zone introduction of integrated mangrove/ aquaculture models and value chain development (Aquaculture Stewardship Council EU/USDA organic certification) to reduce pollution and adapt to climate change.

Key contributors:

Interview: Duc Nguyen Phuong, WWF Vietnam



Name Con Dao National Park, Vietnam

Year of Designation 2013

Size 42,532 ha

Key Wetland types Sandy beaches, rocky shores, sea-grass areas, coral reefs and mangroves

Key Biodiversity features and trends:

Taxa	Species	Trends
Mammals	Dugong (VU)	DEC, no recent information < 9 ind.
Birds	Nicobar Pigeon (NT), Red-billed Tropic Bird (LC), Masked Booby (LC)	UNK or stable (Nicobar pigeon)
Reptiles	Leatherback Turtle (CR), Hawksbill Turtle (EN), Olive Ridley Turtle (VU), largest nesting sites for Green Turtle (EN) in Vietnam	DEC, except for Green Turtles (INC). None of the other species continue to nest in Con Dao.
Plants	Burmese Rosewood (EN), <i>Bruguiera hainesii</i> (CR)	No information, but likely declining
Corals	Over 50 species of threatened coral species (VU)	DEC

Key wetland values:

One of Vietnam's most intact coastal ecosystems, including beaches, seagrass and mangroves. Most notable for sea turtles, reef fishes and more than 50 spp. of threatened corals.

Key ecosystem services and trends:

Forest cover on the islands provides protection for freshwater resources. Mangroves, coral reefs and sea grass areas protect the islands from storm surges and store carbon.

Key threats:

Tourism arrivals in Con Dao are rapidly increasing and it is listed as national tourism development priority with 20 beaches listed for potential investment. Tourist activities, such as speed boat transport, swimming and snorkelling, have a significant impact on coral reefs and seagrass. Illegal fishing practices, such as near-shore trawling cause habitat destruction and by-catch of dugong, turtles and seahorses. Marine plastics, have a serious impact on marine ecosystems and species.

Key management interventions:

Effective protection of turtle nesting beaches, improved patrolling and law enforcement of the protection zones. Monitoring of coral reef, seagrass habitat and sea turtles and campaigns to reduce plastic waste in collaboration with conservation NGO partners.

Key contributors:

Department of Scientific and International Cooperation, Con Dao National Park
 Young Truong Binh, WWF
 Tien Thi Nguyen, FFI

References:

IUCN 2019: Status of sea turtles and their habitats in South-central & Southern provinces of Vietnam. https://www.iucn.org/sites/dev/files/content/documents/status_of_sea_turtles_and_their_habitats_2019_-_final.pdf

Table 3: Biodiversity Matrix Fresh and marine

* Abb	Freshwater	Country	Mammals	Marine M	Fish	Birds	Reptiles	Amphibians	Crustaceans	Molluscs	Dragonflies	Corals	Seagrass/Saltmarsh	Overall Trend
1	ST	Stoeng Treng	DEC	STA	DEC	DEC	DEC							DEC
2	PT	Prek Toal	INC		STA	INC	STA							INC
3	BC	Boeung Chhmar	DEC		DEC	DEC	DEC							DEC
4	SS	Stung Sen	DEC		DEC	DEC	DEC							DEC
5	AP	Anlung Pring				DEC								DEC
7	BK	Beung Kiat Nong Wetlands				DEC	STA							DEC
8	XC	Xe Champhone Wetlands	DEC		DEC	DEC	DEC	DEC		STA				DEC
9	ID	Indowgyi W5y	DEC		DEC	STA				DEC				DEC
10	IN	Inlay Lake	DEC		DEC	DEC								DEC
12	MY	Moeyungyi Wetland W5			DEC	DEC	DEC	DEC						DEC
15	BL	Bung Khong Long		STA	DEC	INC	DEC	DEC	DEC	DEC				DEC
16	KT	Kut Ting Marshland			DEC	INC	DEC	DEC	DEC	DEC				DEC
17	LSK	Lower Songkhram River	DEC		STA	STA	DEC	DEC	DEC					STA
18	NB	Nong Song Kai			DEC	DEC		DEC	DEC	DEC	DEC			DEC
29	KK	Kuan Ki Sain of The Thale Noi	DEC	STA	DEC	INC	DEC	DEC	DEC	DEC				DEC
31	PS	Princess Sirindhorn W5	DEC		DEC	DEC	DEC	STA						DEC
32	BB	Ba Be	DEC		DEC	DEC	DEC							DEC
33	VL	Van Long Wetland	INC		STA	STA								STA
35	BS	Bau Sau Wetlands		STA	STA	STA	INC							STA
36	LS	Lang Sen	DEC		DEC	DEC	DEC							DEC
37	TC	Tram Chim	DEC		DEC	DEC	DEC							DEC
38	MT	U Minh Thuong	DEC		DEC	STA	DEC							DEC

* Abb	Marine & coastal	Country	Mammals	Marine M	Fish	Birds	Reptiles	Amphibians	Crustaceans	Molluscs	Dragonflies	Corals	Seagrass/Saltmarsh	Overall Trend
5	KO	Koh Kapik	DEC	DEC	DEC	DEC	DEC						STA	DEC
13	GM	Gulf of Mottama			DEC	DEC							STA	DEC
14	MM	Meinmahla Kyau W5		STA	DEC	DEC	STA					DEC		DEC
11	NT	Nanzhar Island			DEC	DEC	DEC		STA	STA				DEC
19	KKH	Khok Kham	DEC	STA	DEC	STA	STA	DEC	DEC	DEC				DEC
20	DH	Don Hoi Lot	DEC	INC	DEC	INC/INC	INC	DEC	DEC	INC				INC
21	PL	Pak Thale Laem Bhia	DEC	STA	DEC	INC/STA	INC	DEC	DEC	DEC				DEC
22	KS	Khao Som Roi Yot	INC	STA	STA	STA	DEC		STA	DEC		STA		STA
23	KP	Kaper Estuary	STA	INC	DEC	INC/INC	STA	STA	DEC	DEC		DEC	STA	STA
24	MK	Mu Koh Ang Thong	INC	INC	STA	INC	STA	INC	STA	STA		STA	STA	INC
25	KR	Ko Ra-Ko Phra Thong	DEC	STA	STA	INC/STA	STA	STA	STA	STA		STA	INC	STA
26	PN	Pang Nga Bay	STA	STA	DEC	STA	STA	DEC	DEC			STA	STA	DEC
27	KA	Ko Kha Archipelago	STA	STA	STA	DEC	DEC		STA	STA		STA	STA	STA
28	KB	Krabai Estuary	STA	INC	DEC	INC/DEC	INC	DEC	DEC	DEC		STA	INC	STA
30	HC	Had Chao Mai	STA	INC	DEC	STA	DEC	DEC	STA	DEC		STA	STA	DEC
34	XT	Xuan Thuy				DEC								DEC
39	MC	Muc Ca Mau	DEC		DEC	DEC	DEC							DEC
40	CD	Con Dao		DEC	DEC							DEC	STA	DEC

LEGEND

- Number on map, side 1
- DEC decrease
- STA stable
- INC increase
- breeding birds/wintering guests
- unknown, no appearance

