Yangtze Finless Porpoises in China

and how we encountered amazing animals in Nanjing

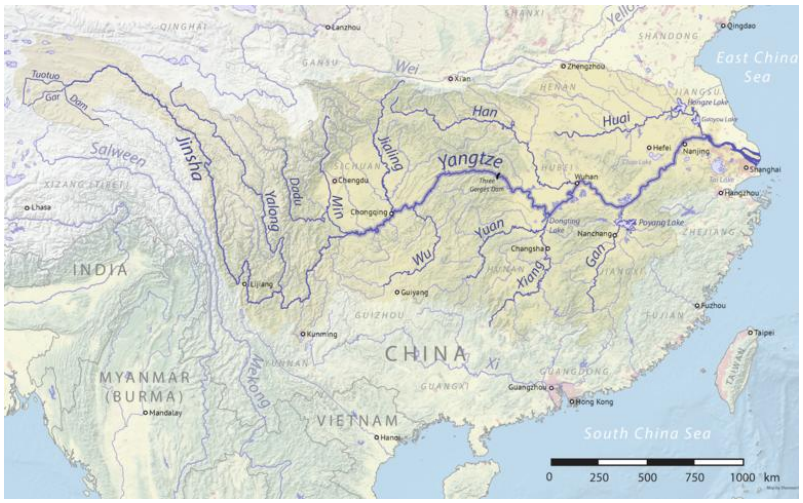
Jonas Livet & Rūta Vaicekauskaitė, October 2024

Yangtze Finless Porpoise in Tongling River Dolphin National Nature Reserve in October 2024, all photographs by Jonas Livet

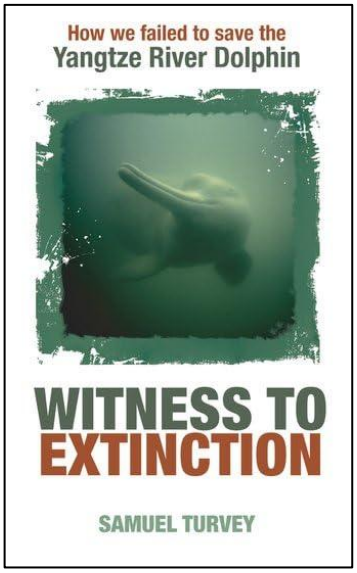
All drawings by Rūta Vaicekauskaitė

DREAM OF A LOST CHINESE PRINCESS

First I would like to introduce the location and the context of our breakthrough in observing wild Yangtze Finless Porpoises. The **Yangtze River** in China is the third-longest river in the world, after the Nile and the Amazon. It originates on the Tibetan Plateau at 5,000 m above sea level and flows eastward for some 6,300 km until reaching the East China Sea. For a very long time, this river has played a major role in the economic development of China. Nearly one-third of the current Chinese population lives in its drainage basin and the river has been used for thousands of years for irrigation, sanitation, transportation, and industry.



Map of the Yangtze River drainage basin, with major tributaries and cities (Source: https://en.wikipedia.org/wiki/File:Yangtze_river_map.png)



When I first started to visit China in 2004, the Baiji was actually still believed to be around and QiQi, the famous captive specimen kept in Wuhan, just died a couple of years before. Reading in 2009 the recently published book ***Witness to Extinction***[1] was kind of almost witnessing myself the departure of that species and the failure of its protection… The few last words of Samuel Turvey in his report of the 2006 Baiji survey made a very strong impression on me: "[…] we turned and walked away […]. You can't stay forever. In the end, you have to leave."

Nowadays, the Yangtze River is still suffering widely from industrial pollution, plastic pollution, agricultural runoff, siltation, overfishing, and habitat loss and degradation. That river being the principal navigable waterway of China, intensive cargo and passenger traffic is also known to exist along most of its course, with more than 3.5 billion tons annual freight volume travelling on the Yangtze! The **multiple anthropogenic threats** which wiped out the Baiji are clearly still around and may even be increasing!

Many species occurring in the Yangtze are suffering from this **extreme situation** and, next to the Baiji, some other species are now considered either extinct or highly threatened. Less known than the dolphin, the Chinese Paddlefish (*Psephurus gladius*) is another very unique species endemic to the Yangtze which is now extinct (IUCN 2022). While the Yangtze Sturgeon (*Acipenser dabryanus*) is classified Extinct in the Wild (IUCN 2022), the Chinese Sturgeon (*Acipenser sinensis*) is Critically Endangered (IUCN 2022). Among reptiles, the Yangtze Giant Softshell Turtle (*Rafetus swinhoei*) has only four known individuals (including two captive individuals), and the Chinese Alligator (*Alligator sinensis*) is Critically Endangered (IUCN 2018). All these species are either completely restricted to the Yangtze River system or most of their populations used to occur in that region. Same applies for the Chinese Giant Salamander (*Andrias davidianus*) and the Père David's Deer (*Elaphurus davidianus*). This short list, which is very far from being exhaustive, just shows both how important the Yangtze is as a natural ecosystem, how its biodiversity has been suffering the last few centuries and how the current situation is dramatic!

The Baiji has often be seen as the **Goddess of the Yangtze** been the reincarnation of a young princess who was drowned by her family for refusing to marry a man she did not love. Some versions of this Chinese legend include a second important character, which ends up being the reincarnation of the princess' father: the Yangtze Finless Porpoise!

TRACKING THE RIVER PIGLET

Well aware of the early end of the Baiji and the fact that this species was gone forever, I have always been interested in its small Yangtze counterpart. Over the years, I read extensively about the **Yangtze Finless Porpoise**'s population decrease as well as the captive breeding effort in the Tian-e-Zhou Oxbow Nature Reserve and the research ongoing in Wuhan. In view of its decreasing abundance, its particular behaviour, and the general context in the Yangtze, observing the porpoise in its natural habitat had always appeared for me an unattainable dream.

When an opportunity for a new trip into China arose in 2024, I took some additional efforts exploring the options to try our luck with finding some porpoises.

Phocoenidae is a family of dolphin-like cetaceans named porpoises and encompassing eight extant species. The Harbor Porpoise (*Phocoena phocoena*) is probably the most commonly known species, and it has a widespread distribution in cooler coastal waters of the North Atlantic,

[1] Turvey, S. (2008) *Witness to Extinction, How we failed to save the Yangtze River Dolphin*. Oxford University Press.

North Pacific and the Black Sea. At the opposite end, the Vaquita (*Phocoena sinus*) is known to occur only in a tiny patch of sea in the northern Gulf of California, with an extremely low population remaining nowadays.

Until the end of the 2000s, the genus *Neophocaena* was thought to comprise only one species of finless porpoises: *Neophocaena phocaenoides* (with three recognized subspecies). It was first demonstrated in 2008 that two externally distinct morphological forms of finless porpoises are reproductively isolated and should therefore be considered as two separate biological species: the Indo-Pacific Finless Porpoise (*Neophocaena phocaenoides*) and the Narrow-ridged Finless Porpoise (*Neophocaena asiaeorientalis*)[2]. This work was further confirmed by Jefferson and Wang in 2011[3]. Further research published in 2018 ultimately confirmed that both subspecies of the Narrow-ridged Finless Porpoise should be considered distinct taxa, with the East Asian Finless Porpoise (*Neophocaena sunameri*) and the Yangtze Finless Porpoise (*Neophocoena asiaeorientalis*) elevated to species level[4].

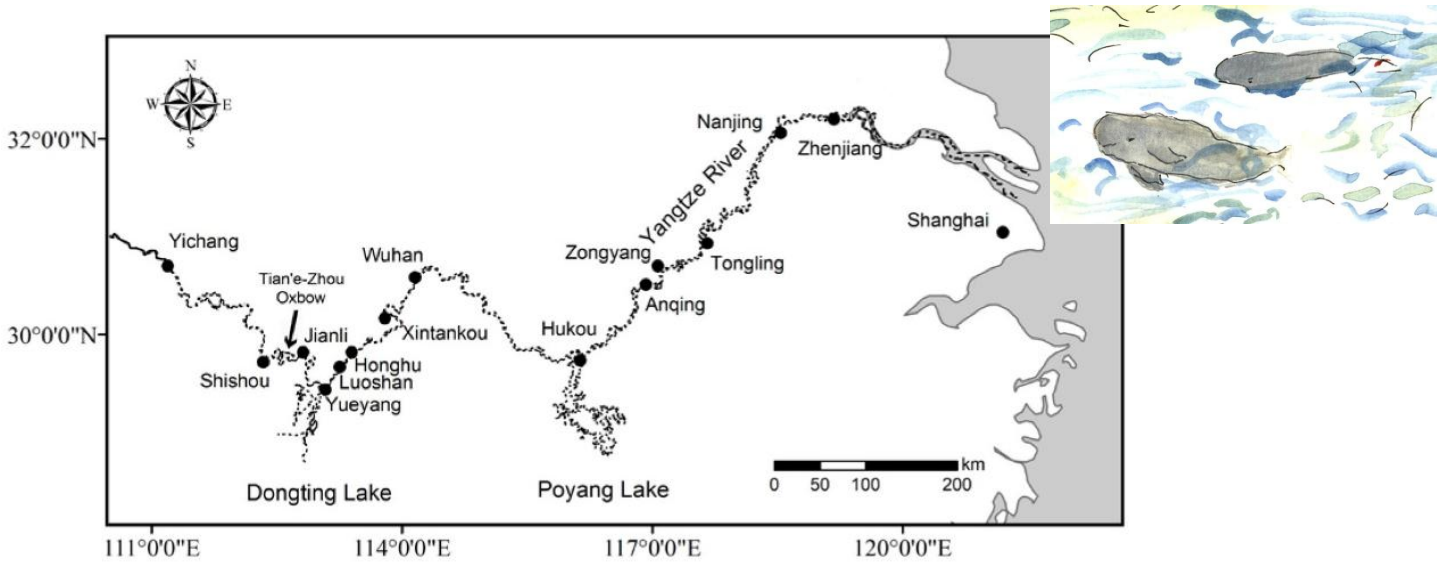
The **Indo-Pacific Finless Porpoise** (*Neophocaena phocaenoides*) occurs in shallow coastal marine waters around the northern rim of the Indian and western Pacific Oceans, from the Arabian Gulf eastwards and northwards to the Taiwan Strait and central Chinese waters. That species is the more tropical and wide-ranging of the currently recognized three species of finless porpoises.

The **East Asian Finless Porpoise** (*Neophocaena sunameri*) is found in coastal waters from the Taiwan Strait through the East China Sea north to the Bohai/Yellow Sea in China and the waters of Korea and Japan.

The IUCN Red List for finless porpoises has been updated last in 2017 with the Indo-Pacific Finless Porpoise classified Vulnerable (due to a combination of fishing pressure, coastal development and industrialization, pollution, and heavy vessel traffic) and the Narrow-ridged Finless Porpoise considered Endangered. While this latter assessment included both subspecies *asiaeorientalis* and *sunameri*, the Yangtze Finless Porpoise was also assessed as a separate taxon back in 2012 and considered then already Critically Endangered.

It is actually that third species of finless porpoise that we were on the look for when we landed in Nanjing Lukou International Airport in the middle of the night on Sunday 27th October 2024, after a short flight from Shanghai.

The **Yangtze Finless Porpoise** is endemic to the middle-lower Yangtze River drainage basin, from Yichang downstream to the estuary near Shanghai. It is now considered almost completely restricted to the main river channel and its two largest appended lakes, Poyang and Dongting. From all eight species of porpoises, the Yangtze Finless Porpoise is the only one found in freshwater environment. While the Baiji was often referred to as the Yangtze Princess, the finless porpoise is literally named the **River Piglet** in Mandarin Chinese! This small cetacean faces nowadays many of the same threats which have wiped out the Baiji. All these anthropogenic threats are associated with an escalating human overpopulation and industrialization along the Yangtze River.

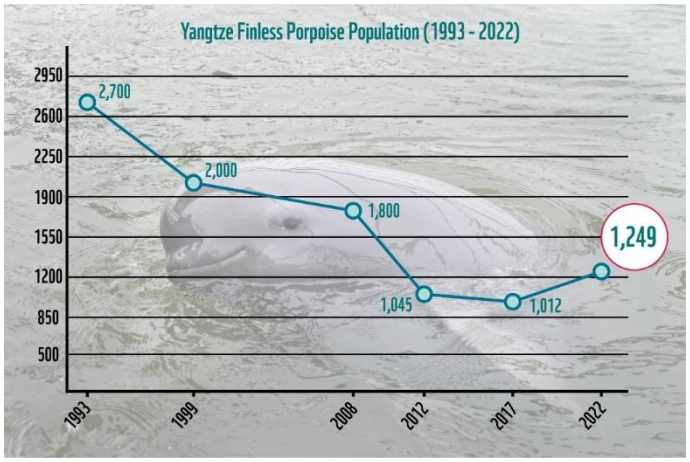


Distribution map of the Yangtze Finless Porpoise. Dashed line shows the distribution of the porpoise from Yichang to Shanghai and two large appended lake systems. Locations of some porpoise reserves are also shown on the map: Tian'e-Zhou Oxbow, Dongting Lake, Honghu, Poyang Lake, Anqing, Tongling and Zhenjiang. (Source: The IUCN Red List of Threatened Species)

The first range-wide estimate of Yangtze Finless Porpoise's abundance was compiled at the **beginning of the 1990s** based on series of small-scale surveys conducted in the 1980s, providing then a population estimate of approximately **2,700 animals**. Further surveys were conducted annually between 1997 and **1999** across the entire middle-lower Yangtze drainage, and these data concluded that approximately **2,000 finless porpoises** might have been present at that time in the Yangtze. In **2006**, a systematic survey using line-transect methods was implemented and indicated that the porpoise population in the Yangtze mainstream encompassed 1,000 to 1,200 animals. When including estimates for the porpoise populations in the above-mentioned two lakes, the entire extant population was then estimated to be around **1,800 animals**.

[2] Wang, J.Y., Frasier, T.R., Yang, S.C. and White, B.N. (2008) Detecting recent speciation events: the case of the finless porpoise (genus Neophocaena). *Heredity* 101: 145-155.
[3] Jefferson, T.A. and Wang, J.Y. (2011) Revision of the taxonomy of finless porpoises (genus Neophocaena): the existence of two species. *Journal of Marine Animals and Their Ecology* 4 (1): 3-16.
[4] Zhou, X., et al. (2018) Population genomics of finless porpoises reveal an incipient cetacean species adapted to freshwater. *Nature Communications* 9 (1): 1276.

This massive decline from 2,700 to 1,800 porpoises in less than two decades (with an observed decrease of at least 33%!), combined with the fact that the famous 2006 expedition failed to locate any Baiji in the Yangtze, was probably a trigger for action in view of trying to save the Yangtze Finless Porpoise. In continuation of what had been discussed and partially implemented for the protection of the Baiji during the previous decades, several conservation actions were taken including the creation of several reserves and protected areas, and the further regulation of fishing activities in some areas. It was also decided by the Chinese Ministry of Agriculture and Rural Affairs to realize regular intensive surveys.



Recent population changes of the Yangtze Finless Porpoise (Source: World Wildlife Fund WWF)

The **2012** survey unfortunately brought dramatic news with a total population estimate going down to around **1,045 porpoises** (a continued decline of more than 40% within six years!). The next survey in **2017** observed a population stabilization with **just over 1,000 porpoises** in its natural range. Ultimately, the latest survey in **2022** marked a small population increase with a total of **1,249 finless porpoises**, including 595 in the mainstream of the Yangtze River, about 492 in Poyang Lake, and 162 in Dongting Lake.

This recent 2022 survey may appear to bring good news and eventually reflects some success of the conservation actions taken, but such trend will need to be confirmed by future surveys. Also, while the population in Dongting Lake has seen a major increase (+72 porpoises between 2012 and 2022) which explains partly the general observed population positive trend, both the populations within Poyang Lake and in the mainstream appear to have much lower increase rates. It is clear today that the Yangtze Finless Porpoise is still in a very dire situation and that its protection will require further actions and conservation measures. Also, the numerous threats in its natural habitat are still very present and even increasing!

While preparing our 2024 trip into China, we explored the opportunity to find and to observe wild Yangtze Finless Porpoises. We exchanged with researchers involved in *ex situ* breeding and conservation of that species in China, read recent reports and published papers, looked at possible sightings near Wuhan, etc. Among all these sources, reported observations on iNaturalist were the most promising and directed us towards **Nanjing**. Indeed, from the 29 observations reported for that species until mid-2024 on that platform, more than half were actually centred on Nanjing (and most of these were relatively recent sightings). This triggered our interest and we focused our desktop research on Nanjing. It was also at that point that Fangyi Zhou, a longtime friend working with and researching elephants in Yunnan, introduced us to Meng Jiang and the work of the Nanjing Finless Porpoise and Aquatic Life Conservation Association. And the possibility for a wild porpoise sighting suddenly started to appear realistic!

THE NANJING YANGTZE FINLESS PORPOISE AND AQUATIC LIFE CONSERVATION ASSOCIATION

We arrived in Nanjing end of October 2024 and planned to stay in the city for three full days. The idea was to give us enough chances and opportunities for a wild porpoise sighting, but also to spend some time to understand local conservation actions, and to visit as well the Hongshan Forest Zoo which is known as one of the most progressive zoological institution in China.

In view of the global context in the Yangtze detailed above, the Nanjing Government established in 2014 the **Nanjing Yangtze Finless Porpoise Provincial Nature Reserve** as the first and currently the only nature reserve in the central waters of the Yangtze River. It focuses on conserving and studying the Yangtze Finless Porpoise and encompasses a total area of some 80 km², including sections of the river situated right inside the city of Nanjing. A recent survey realized in 2023/2024 has estimated the total number of porpoises in the reserve to be around 65 individuals, accounting for more than 10% of the total porpoise population in the mainstream of the Yangtze. This reserve is indeed considered to be currently one of the areas with the highest density of porpoises along the entire Yangtze mainstream. We were getting closer!

Logo of the Nanjing Yangtze Finless Porpoise Provincial Nature Reserve (left)
and location in red of the nature reserve (right) (Source: Central China Normal University, Baidu Baike)

Education and awareness are major components of biodiversity conservation. Meng Jiang, also named Frank, initiated and established in July 2015 in Nanjing a not-for-profit social organization to help protecting the Yangtze Finless Porpoises: the **Nanjing Yangtze Finless Porpoise and Aquatic Life Conservation Association** (http://www.njyfpca.org/). Frank welcomed us in Nanjing during our stay in October 2024, detailed and introduced us to the local stakeholders involved in porpoise's conservation, and explained the various actions developed by his organization. The main work of the Nanjing Yangtze Finless Porpoise and Aquatic Life Conservation Association actually includes public outreach, environmental protection, resource and scientific research monitoring, ecological restoration, academic and professional exchanges, as well as rescue activities. The conservation association has also participated in the implementation of the Yangtze Finless Porpoise City Park and manages several of its assets.

The **Yangtze Finless Porpoise City Park** (南京江豚城市公园) is a long stretch of shore-area along the Yangtze River, roughly 4 km long and situated between the Nanjing Yangtze River Bridge in the north and the mouth of the Qinhuai River in the south. Next to providing outdoor park-style spaces in an urban settings, it also includes different venues offering a variety of nature-oriented and education services.

It is actually from the shore, directly from the Yangtze Finless Porpoise City Park, that we observed **our first wild Yangtze Finless Porpoises** on the morning of the 28th October. Arriving the night before, we were enthusiastic to search for the porpoise right away. Accompanied by Frank, it took us exactly an hour to find the first porpoises. We had then repeated sightings over that day and the following ones. Some of these sightings were extremely close to shore, a few meters only, while other were far away. Most sightings were extremely brief, with surfacing and breathing pattern been unpredictable and short. The particular behaviours of these animals make it difficult to obtain good photographs and one would need to dedicate a large amount of time in view of been able to observe, and eventually to photograph, specific behaviours.
Our best sighting spot for porpoises was the observation deck right next to the little education centre named "The Yangtze Smile Station" (32° 5'4.77"N 118°43'36.69"E), while we also observed several porpoises from the "Happy Stage" (32° 5'43.07"N 118°43'49.52"E). We walked also all the way south to the mouth of the Qinhuai River (32° 4'42.80"N 118°43'33.55"E) which is supposed to be another good vantage point, but we didn't see any porpoise from there ourselves. Porpoises seem to use these areas year-round but the winter period between **September to March** is apparently the best with the highest probability of seeing them.

While walking along the Yangtze River, we were also able to observe a variety of wild birds, as well as one Chinese Softshell Turtle (*Pelodiscus sinensis*) resting on some rocks.

Frank had also organized for us to meet some of the representatives of the Nanjing Changjiang Waterway Bureau which is also involved in the management of the nature reserve. We were able to get on the water on one of their boats and had an hour cruise further south into the nature reserve. While this didn't result in any additional porpoise sighting (the best sightings were clearly from shore from the above-mentioned spots!), it gave us the opportunity to grasp the scale and the size of the Yangtze River but also to see firsthand the heavy and constant vessel traffic with multiple boats of various sizes constantly cruising the river!

Map of the Yangtze Finless Porpoise City Park and its different venues (Source: Nanjing Yangtze Finless Porpoise and Aquatic Life Conservation Association)

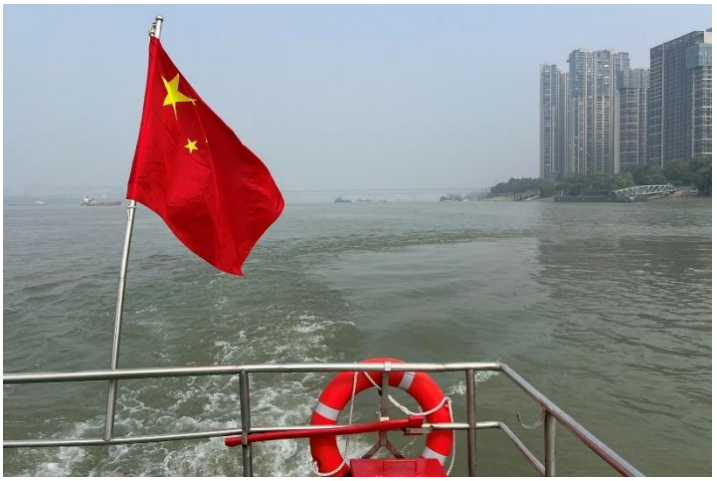
Back on shore, we visited several of the education venues within the Yangtze Finless Porpoise City Park. **The Yangtze Smile Station** (长江微笑驿站) (32° 5'4.40"N 118°43'37.44"E) is a small museum, education centre and shop dedicated to the Yangtze Finless Porpoise. It is a good introduction point to explore the Yangtze Finless Porpoise City Park and to become familiar with the porpoises. As mentioned above, the nearby viewing platform is probably one of the best spots to look for wild porpoises from the shore. Further north, the **Nanjing Yangtze River Porpoise Monitoring Station and Finless Porpoise Bookstore** (南京长江江豚监测站 & 江豚书屋) (32° 5'34.77"N 118°43'45.90"E) give further detailed information about porpoise biology. It also introduces the research and monitoring work done by the association. The nearby bookstore has on offer various items and artefacts themed around the finless porpoise and endemic species of the Yangtze, including postcards, notebooks, various books and educational materials, but also magnets, small figurines (including a beautifully sculpted family of Yangtze Finless Porpoises specifically designed by and for the local association!), etc. The **Nanjing Yangtze River Aquatic Biology Science Museum**

(南京长江水生生物科普馆) (32° 5'52.48"N 118°43'55.62"E) takes a more general approach and details various other aquatic species of the Yangtze River, using several life size casts of various local species, including the very impressive Chinese Paddlefish mentioned earlier. Next door, another small toy store provides an additional opportunity to acquire various small animal figurines (not all related to the Yangtze in view of Frank's original background as Chinese distributor of such toys). Before initiating the Nanjing Yangtze Finless Porpoise and Aquatic Life Conservation Association, Frank / Meng Jiang has also worked for numerous years in the journalism field; this involvement has brought him many connections locally and nationally, as well as expertise in communicating his conservation message about the Yangtze Finless Porpoise. We were truly impressed by his commitment to the cause, the quality and the extent of the work done by the conservation association, and the very important education and public outreach implemented. Frank can be contacted at frangjiang1983@gmail.com or directly on WhatsApp at +86 136 4516 3195. We would like to reiterate here our deep appreciation for his time, and we wish the best of luck to his conservation association in protecting this amazing species and its unique ecosystem!

Our interest for the Yangtze Finless Porpoise and the work of the Nanjing Yangtze Finless Porpoise and Aquatic Life Conservation Association had attracted quite some interest, and I ended up participating in several interviews for local and national television media[5]. This was also a great way for strengthening the international interest for this species and the need to conserve the amazing Chinese biodiversity.

While in Nanjing, we stayed at the newly opened Holiday Inn Express Nanjing Riverside, which is conveniently situated a few hundred meters from the Yangtze shore and the porpoise hotspot. It offers large room for relatively affordable prices. We arrived in Nanjing by air, flying from Shanghai. While this was convenient for us as we entered China through the Shanghai Pudong International Airport, one has to notice that Nanjing Lukou International Airport is actually located almost 50 km south of Nanjing city centre. Regular high-speed trains connect Shanghai Hongqiao Railway Station with Nanjing South Railway Station (with travel time between one and two hours depending on the time of the day). This may be a much better and faster option than flying into Nanjing, especially if one is already in Shanghai and/or arriving at Shanghai Hongqiao International Airport. The regularity of these train connections and the relative easiness to locate Yangtze Finless Porpoises in Nanjing may actually even make it possible to do a one-day trip to Nanjing from Shanghai and succeed in seeing some wild porpoises! As we will see in the following chapters, I would nevertheless highly recommend to stay longer in Nanjing and to fully appreciate what the city and the surrounding have to offer.

[5] See https://www.youtube.com/watch?v=dIj-gvujc0g&t=2s

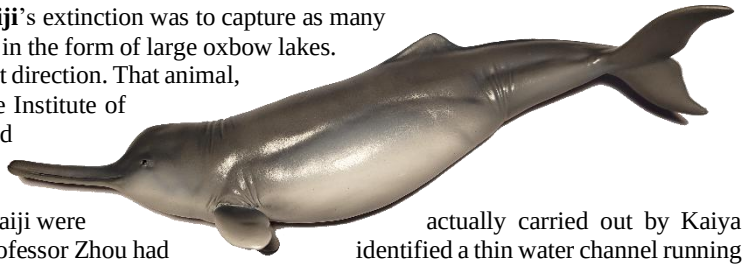


A Fascinating Encounter: French Animal Expert's Expedition to Observe Porpoises in Nanjing!

***EX SITU* CONSERVATION ACTIONS, THE TONGLING RIVER DOLPHIN NATURE RESERVE, AND WHEN THE LOST PRINCESS IS GIVING HER PLACE TO THE RIVER PIGLET**

Considering the situation of the Yangtze River and the numerous existing anthropogenic activities along its course, ***ex situ* conservation actions** have long been regarded as possible and necessary tools for the protection and the persistence of both Yangtze cetaceans. This has been the subject of long debate already back in the 1980s for the Baiji (all extremely well described in Samuel Turvey's book[6]). Already then, and still nowadays, the diversity of threats in the Yangtze would require multiple management strategies, with several of these being unfeasible given the high priority placed on economic development. Realistically, it is clear that further human development, industrialization and economic development will prevail; and deleterious impacts of anthropogenic activities such as ship traffic, sand mining, and dumping pollutants are unlikely to be significantly reduce in the short term. The maintenance of scientifically-managed *ex situ* populations may therefore be here an important conservation asset for these species.

From the late 1980s onwards, the primary strategy to prevent the **Baiji**'s extinction was to capture as many dolphins as possible and to introduce them into semi-natural settings in the form of large oxbow lakes. The rescue of a male Baiji in January 1980 was another impetus in that direction. That animal, later named QiQi, was to be housed in the dolphinarium tank at the Institute of Hydrobiology of the Chinese Academy of Sciences in Wuhan, and form the basis of a possible captive breeding population.



The first attempts to try to set up a semi-naturel reserve for captive Baiji were actually carried out by Kaiya Zhou (Chinese cetacean specialist based in Nanjing) and his team. Professor Zhou had identified a thin water channel running between two islands near the town of Tongling, some 200 km south of Nanjing. Back in the mid-1980s, various efforts and a large amount of money were dedicated to convert the area into the envisioned reserve. Several buildings were erected, including support, laboratories and technical facilities, but also service and reception components for the future public to come to see the Baijis. Ultimately, no Baiji was ever introduced into the Tongling River Dolphin National Nature Reserve, but we will come back to that attempt later.

Simultaneously to the establishment of the Tongling Nature Reserve, the second group focusing on Baiji conservation in China, namely the River Dolphin Group at the Institute of Hydrobiology of Wuhan (a somehow competing group to the Nanjing research team), selected another site for a large-scale captive breeding program. The famous Tian'e-Zhou National Baiji Reserve, a 21-km long oxbow lake appended to the Yangtze near Shishou City, some 200 km south-west of Wuhan, was unveiled at the end of the 1980s and approved in 1990. As a pilot study in view of the future management of semi-captive Baijis, it was decided to translocate a population of Yangtze Finless Porpoises in the Tian'e-Zhou Reserve.

Three more Baijis were captured in the mid-1980s and transferred first to the Institute of Hydrobiology in Wuhan, where QiQi was already maintained since 1980. None of these individuals survived long unfortunately, and QiQi remained alone for most of its captive time. A female Baiji was ultimately captured in 1995 and released directly in the Tian'e-Zhou National Baiji Reserve, but she also only survived for a few months. At the end of the day, despite the capture effort, the expectation that sufficient numbers of Baijis could be caught and placed in the reserve to establish a viable *ex situ* population proved unrealistic. QiQi died in 2002 in the dolphinarium in Wuhan and, as described earlier, the 2006 wide-range survey was not able to locate any Baiji and it was concluded that the species was functionally extinct…

Yangtze Finless Porpoises in Tongling River Dolphin National Nature Reserve in October 2024

[6] Turvey, S. (2008) *Witness to Extinction, How we failed to save the Yangtze River Dolphin*. Oxford University Press.

With the situation in the Yangtze aggravating and with the wild population of **Yangtze Finless Porpoises** decreasing, the initial *ex situ* attempts for the Baiji could only naturally transition gradually to focus on the finless porpoise… and the lost Princess gave her place to the River Piglet. The population of porpoises initially established in 1990 as a model population in the Tian'e-Zhou National Baiji Reserve fluctuated at relatively low numbers until 2010 when further management, especially of the local fishing activities, finally allowed a steep increase. The estimated total population reached 60 porpoises in 2015, and a total of 100 individuals was found during the last survey in 2021. These porpoises live in semi-natural settings and have been a source for further expanding the *ex situ* population.

Yangtze Finless Porpoises were also introduced in the Tongling River Dolphin National Nature Reserve in 1993 and at the Institute of Hydrobiology in Wuhan in 1996. A first captive breeding success was recorded in 2005 in Wuhan, with second captive-born generation being achieved in 2020 there. A total of some 11 porpoises are currently kept at the dolphinarium in Wuhan.

The situation in both Tongling and Wuhan can be regarded as intensive captive management, while the Tian'e-Zhou Reserve offers semi-natural settings where the porpoises are not individually managed and no supplementary feeding is provided. The improved situation within Tian'e-Zhou National Baiji Reserve (but also its limited total carrying capacity!) allowed and required to start two additional semi-wild populations in 2015 in Hewangmiao Oxbow (Hubei Province) and in Xijiang Oxbow (Anhui Province). These three semi-wild populations amount together for over 150 Yangtze Finless Porpoises at the end of 2024.

In 2023, four porpoises from the Tian'e-Zhou National Baiji Reserve were acclimated to the wild and released into the Yangtze River, marking the first instance of releasing (semi-)captive porpoises into the wild, and therefore a major milestone in the global conservation of that species.

Simultaneously, the public exhibition of captive Yangtze Finless Porpoises have also been considered as a possible education tool and several individuals were provided to two major Chinese public aquaria in 2021 (these animals remains behind the scenes and not yet publicly exhibited as of 2024).

Two recent published papers have detailed in length *ex situ* conservation efforts implemented in China for the Yangtze Finless Porpoise[7, 8].

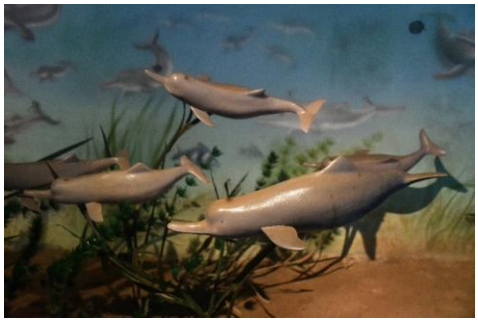
While in Nanjing in October 2024, we were interested to learn more about all these actions, to visit one of these sites as well as to have an opportunity to observe more closely (and to photograph!) some porpoises.

The **Baiji Dolphin Museum of the Institute of Hydrobiology** in Wuhan (科普场馆-白鳍豚馆, http://english.ihb.cas.cn/, 30°31'28.11"N 114°22'58.89"E) is actually regularly open for visit. This research institute was founded in 1950 and specializes in freshwater organisms. It has been involved in the study of Baiji since the 1970s and Yangtze Finless Porpoise since the 1990s. Originally built in 1980 to receive the famous QiQi, the dolphinarium facilities have been rebuilt in 1992 and extended in 2008. A captive group of porpoises is maintained and closely studied since 1996. The settings in Wuhan are similar to that of an aquarium, and allow very close inspection, management and follow-up of the porpoises. Wuhan is connected to Nanjing with several high-speed trains per day which takes approximately two hours and a half between the two cities. This meant that a day-trip from Nanjing would have been theoretically possible for us, but we knew as well that Wuhan has other assets to visit and we decided to keep that destination for another future trip.

Closer to Nanjing, the **Tongling River Dolphin National Nature Reserve** (铜陵淡水豚国家级自然保护区) (30°48'49.57"N 117°43'38.86"E) has been also historically connected with Nanjing researchers and we felt it was the right place to discover to round off our understanding of the situation locally. Coke Smith visited also the Tongling Reserve back in 2012 and reported about his experience on his blog: see http://www.cokesmithphototravel.com/amazing-anhui.html. The Tongling River Dolphin National Nature Reserve is actually situated in Datong near Tongling, some 200 km drive south of Nanjing. While we had the opportunity to reach Datong by car from Nanjing, one could also take a fast train between Nanjing South and Tongling (travel time approximately one hour) and then hire a taxi for the last fifteen kilometres from Tongling Railway Station to Datong. The site where porpoises are maintained is actually a large water channel 1.5 km long and 80-200 m wide, located on an island in the middle of the Yangtze River. One will obviously have to use the local ferry for the five-min crossing. The whole area is now known as The Scenic Spot of Datong Ancient Town and is being developed as a tourist destination, making it a relatively easy spot to reach.

[7] Hao, Y. *et al.* (2023) Recent Progress and Future Directions for Conservation of the Yangtze Finless Porpoise (Neophocaena asiaorientalis asiaorientalis). *Der Zoologische Garten* 91: 155-173.
[8] Hao, Y. *et al.* (2024) Integrated Conservation Strategy for Endangered Small Cetaceans: Insights from the Case of the Yangtze Finless Porpoise. *Bulletin of the Chinese Academy of Sciences* 38.

The Tongling River Dolphin National Nature Reserve was first established in 1987 as a Baiji *ex situ* effort, but no Baiji was ever maintained on site, and four wild-caught Yangtze Finless Porpoises were introduced in the channel in 1993. When we visited in October 2024, a total of 12 porpoises were maintained there, with the younger individual a few months old only and born on site. The animals are fed publicly twice a day and it usually attracts a few tourists. A small tired-looking education museum is situated in one of the numerous buildings on site. Interestingly, one full skeleton of Baiji is exhibited in a large glass case, and numerous signages and education items reminisce the origin of the reserve. Also, the massive Baiji statues near the entrance are an impressive and moving sight! Many extracts of Samuel Turvey's *Witness to Extinction* were floating in our mind while we were in Tongling!



For our visit on the 30th of October 2024, we left Nanjing by car around 6.30am and arrived at the Tongling River Dolphin National Nature Reserve right on time for the first feeding at 10am (after crossing the Yangtze River with the local ferry and using a small shuttle bus to reach the water channel where the porpoises are kept). We spent some time observing the animals, visiting the ground and meeting the staff involved with the porpoise management. We had lunch at the touristic quarter, a few hundred meters from the reserve, and were back around 1pm to spend more time observing the porpoises and attending the second feeding of the day at 2 pm. Leaving Datong at 3pm, we were back in Nanjing in less than two hours and a half drive, still sighting a couple of wild porpoises in the decreasing evening light from the shore of the Yangtze!

WALKING BY NIGHT IN NANJING IN SEARCH OF OTHER WILDLIFE

Nanjing is actually a major city. Being the capital of Jiangsu province, it has an administrative area of 6,600 km², and a population of 9,423,400 inhabitants as of 2021. As we have seen, the city is situated along the Yangtze River and is home to one of the world's largest inland ports. It has also a prominent place in Chinese history and culture, having served as the capital of various Chinese dynasties, kingdoms and republican governments dating from the 3rd century to 1949. The visit of multiple cultural components may enrich a stay in Nanjing: City Wall of Nanjing (erected in the 14th century), Laomendong Historic District, Linggu Temple, Xiao Mausoleum / Ming Xiaoling, Sun Yat-sen Mausoleum, and various others all known as touristic magnets and easily reached.

Evidently, we spent the little time remaining to us in Nanjing away from the shores of the Yangtze to look for wildlife and to explore natural areas. The **Zhongshan Mountain**, also named Purple Mountain or Zijin Shan, is a 448.2 m high mountain located on the eastern side of Nanjing. Its peaks are often found enveloped in purple and golden clouds at dawn and dusk, hence its name. It is an area related to many historical events of both ancient and modern China, and numerous heritage and scenic tourist sites are located around the mountain. But it is also a very large green space easily accessible from the city!

On the 29th of October, we proceeded with a **three hours night walk** on the northern slope of the Zhongshan Mountain, roughly from Jiangwangmiao Subway Station (32° 4'48.71"N 118°49'31.15"E) to Wangjiawan Subway Station (32° 5'15.91"N 118°50'1.48"E). We mostly walked the main concrete road at the edge of the forested area, but went deeper inside the woods direction southeast at three locations: 32° 4'50.30"N 118°49'38.66"E (smaller concrete path climbing up the mountain), 32° 5'9.07"N 118°49'47.05"E (dry riverbed), and 32° 5'16.29"N 118°50'17.38"E (concrete road also climbing up). The area was actually pretty busy for the first hour or so, with numerous (very) loud strollers, but it became much quieter after 9pm. Our relatively short walk was actually surprisingly extremely productive, and we observed some five mammal species, including a very cooperative Asian Badger (*Meles leucurus*), an Amur Hedgehog (*Erinaceus amurensis*), a Chinese Raccoon Dog (*Nyctereutes procyonoides orestes*) and a more expected Eurasian Wild Pig (*Sus scrofa moupinensis*). We encountered as well a small rodent, which we identified later as a possible Hainan White-bellied Rat (*Niviventer lotipes*). Towards the end of the night (near 32° 5'9.68"N 118°50'19.90"E), we had a very clear thermal image of a small cervid, which should have been a Chinese Water Deer (*Hydropotes inermis inermis*), but we were not able to have a direct observation to confirm identification. Small-toothed Ferret-badgers (*Melogale moschata ferreogrisea*) are also very often recorded from this area (more frequently than the Asian Badger itself!), but we were unlucky in finding any during our walk. Repeated, longer and deeper in the woods walks may well bring additional surprises! In any case, it was an extremely rewarding and enjoyable night walk which we shared with Frank / Meng Jiang, some of his friends and students.

Clockwise: Asian Badger (*Meles leucurus*), concrete path within the Zhongshan Mountain area,
Hainan White-bellied Rat (*Niviventer lotipes*) and Amur Hedgehog (*Erinaceus amurensis*) in Nanjing

BIRDING IN AND AROUND NANJING

Without any dedicated effort, we were able to observe some **22 bird species** while in Nanjing, including our day excursion to Tongling (see full list below). Specifically, Zhongshan Mountain may actually be a good spot for day birding, especially the Nanjing Botanical Garden Mem. Sun Yat-Sen situated on the southern slope (32° 3'10.27"N 118°49'40.58"E).

- Eastern Spot-billed Duck (*Anas zonorhyncha*)
- Chinese Bamboo-Partridge (*Bambusicola thoracicus*)
- Little Grebe (*Tachybaptus ruficollis poggei*)
- Eurasian Moorhen (*Gallinula chloropus chloropus*)
- Brown Crake (*Zapornia akool coccineipes*)
- Black-crowned Night Heron (*Nycticorax nycticorax nycticorax*)
- Little Egret (*Egretta garzetta garzetta*)
- Eastern Cattle-Egret (*Bubulcus coromandus*)
- Gray Heron (*Ardea cinerea jouyi*)
- Black Kite (*Milvus migrans lineatus*)
- Common Kingfisher (*Alcedo atthis bengalensis*)
- Long-tailed Shrike (*Lanius schach schach*)
- Azure-winged Magpie (*Cyanopica cyanus swinhoei*)
- Red-billed Blue-Magpie (*Urocissa erythroryncha erythroryncha*)
- Gray Treepie (*Dendrocitta formosae sinica*)
- Oriental Magpie (*Pica serica*)
- Light-vented Bulbul (*Pycnonotus sinensis sinensis*)
- Vinous-throated Parrotbill (*Suthora webbiana suffusa*)
- Oriental Magpie-Robin (*Copsychus saularis saularis*)
- Blue Whistling-Thrush (*Myophonus caeruleus temminckii*)
- White-rumped Munia (*Lonchura striata swinhoei*)
- White Wagtail (*Motacilla alba*)

Little Egret (*Egretta garzetta garzetta*)

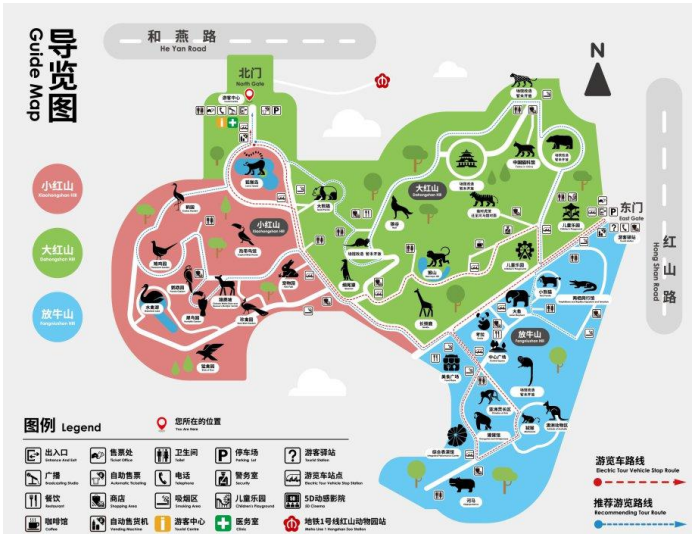
Vinous-throated Parrotbill (*Suthora webbiana suffusa*)

The pair of Brown Crakes we observed at the Tongling River Dolphin National Nature Reserve was probably the bird highlight for us. That species is also regularly recorded on the ground of the Hongshan Forest Zoo in Nanjing.

Clockwise: Brown Crakes (*Zapornia akool coccineipes*), Oriental Magpie (*Pica serica*),
Chinese Bamboo-Partridge (*Bambusicola thoracicus*) and Azure-winged Magpie (*Cyanopica cyanus swinhoei*) in Nanjing

NANJING HONGSHAN FOREST ZOO

Hongshan Forest Zoo is set on a large green area of some 50+ ha situated right in the middle of the city, north of the main Nanjing Railway Station. Historically, a small menagerie was opened in 1928 on one of the inlets on Xuanwu Lake. The zoo was moved to its current location in 1998 and renamed Hongshan Forest Zoo. This revival some 25 years ago was a unique opportunity to completely renew the approach and the way of exhibiting wild animals in Nanjing, but it is primarily the appointment in 2008 of Shen Zhijun as the new director that brought many changes. Nowadays, Hongshan Forest Zoo is considered rightly as one of the very best and among the most progressive zoos in China, with a strong focus on animal welfare and wildlife conservation education. Visited by some 6 million visitors a year, Nanjing Zoo has various themed areas organized around specific educational objectives and depicting a vast array of animals, totalling over 2,800 individuals of 280 species. There are obviously still several older and more outdated sections, but we were truly impressed by the work realized by Shen Zhijun and his team. Hongshan Forest Zoo is also involved in rescuing activities of local wildlife, and it has developed a very nice public area dedicated to local wildlife, including education components on how to best live together in harmony with nature. The exhibition of several local species rarely seen in zoos, even in China, is to be noticed! Visiting the Hongshan Forest Zoo, we were able to add as well the seventh wild mammal species of our stay in Nanjing, namely the commonly encountered Pallas's Squirrel (*Callosciurus erythraeus*).



Various impressions of Nanjing Hongshan Forest Zoo including zoo map, directional signage, Eastern Hoolock Gibbon (*Hoolock leuconedys*), Red Fox (*Vulpes vulpes hoole*), species sign in the local species themed area, and educational components about felines in China

CLOSING WORDS

Visiting Nanjing and been able to observe wild Yangtze Finless Porpoises was a truly amazing experience. We felt very lucky to be able to observe with our own eyes the ongoing situation in the Yangtze and to learn first-hand about the conservation challenges and opportunities for this species. The situation of this unique species is still extremely fragile and only the future will tell us if the lesson of the Baiji was fully grasped and if this helped to save the River Piglet!

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Kehl, 30th December 2024