



Islands of snakes and monkeys reveal their hidden gems

At the entry point of Dajinshan Island stands a marker indicating the "Jinshan Three Islands Marine Ecological Nature Reserve." The site, which encompasses Dajinshan Island, Xiaojinshan Island and Fushan Island, is Shanghai's first marine ecological reserve.

While many people are familiar with Dajinshan Island for its snakes and monkeys, few realize the hidden natural treasures it holds. The island boasts Shanghai's highest natural point, its only marine ecological reserve, and the largest local plant gene bank.

Situated north of Hangzhou Bay in Shanghai's Jinshan District, Dajinshan Island is about 6.2 kilometers from Jinshanzui Fishing Village. On clear days, it can be seen from Jinshan City Beach and Fengxian's Bihaijinsha Beach.

As the largest of the three islands, Dajinshan Island spans about 0.22 square kilometers and reaches an elevation of 103.7 meters. While many believe the 99-meter Sheshan Hill to be Shanghai's highest natural point, it is actually Dajinshan Island that holds the title.

The Jinshan Islands were once part of the mainland. During the reign of Emperor Kang of the Western Zhou Dynasty (c.11th century-770BC), a fortress was built on the northern slopes of Dajinshan Island, known as Jinshan City. Over time, rising sea levels and coastal erosion separated the area from the mainland, forming the islands in Hangzhou Bay.

Dajinshan Island boasts rich biodiversity in both vegetation and wildlife, according to Xie Hanbin, a researcher from the Shanghai Natural History Museum.

It has the richest plant diversity and best-preserved natural vegetation in Shanghai, known as "Shanghai's largest native plant gene bank." The island is home to over 60 species of rare plants that have long disappeared from the mainland of Shanghai.

Additionally, there are nationally protected species such as *Neolitsea sericea* and *Cinnamomum japonicum*, as well as 13 types of the largest ancient trees in Shanghai, including the Chinese hackberry and the mulberry.

Dajinshan Island hosts a wide variety of wildlife. A survey conducted in 2017-2018 recorded 51 bird species, including several nationally protected species such as the Chinese sparrowhawk, black kite, and common kestrel.

It is also home to over 100 macaques, another nationally protected species.

"There were no macaques on the island initially," said Xie. "In the 1980s, some macaques used for scientific research were released here. After decades of surviving and reproducing in the wild, they have essentially become wild macaques."

Various types of snakes inhabit the island,



including the red-banded snake and king ratsnake, as well as a newly recorded species in Shanghai, the two-headed blunt-tailed snake.

Islands of snakes and monkeys reveal their hidden gems. Xie Hanbin, The two-headed blunt-tailed snake, a newly recorded species in Shanghai, was found on the island.

A few years ago, the two-headed blunt-tailed snake was found on Dajinshan Island during a field investigation by Xie and his colleagues from the museum. Its discovery increased the number of known snake species in the city to 16.

"We first found a skeleton, half bones and half snake skin, likely eaten by ants, in a ditch at the foot of the mountain. It was the first two-headed blunt-tailed snake we had come across. The snake may have been bitten to death by a centipede," Xie says. "Later on, we found a live one during another field investigation."

The two-headed blunt-tailed snake is small, thin, and non-venomous. It lives in the soil and feeds on insects. The snake gets its name because its tail resembles its head. "This is a kind of self-defense mechanism," Xie said. "If a predator bites the snake's head, it could die, but if the tail is bitten, it may survive. This mimicry acts as a survival strategy, a form of deception."

Islands of snakes and monkeys reveal their hidden gems. Xie Hanbin, A research team from the Shanghai

Natural History Museum conducts an investigation on the island.

The Shanghai Oceanic Bureau, working to enhance marine ecological protection and advance Shanghai's development as a modern marine city, has been conducting ecological restoration and conservation on Dajinshan Island to promote harmonious coexistence between humans and nature.

Ecological trails have been built on the island for scientific research and observation, and the island is equipped with scientific research equipment for rainfall data collection, insect sampling, and more, according to Xie.

The efforts also focus on protecting the island's biodiversity, with long-term observations tracking changes in its ecological diversity. "Infrared cameras were installed to monitor certain species, particularly the macaques, and sound recording devices were placed to record the sounds of wildlife," Xie said. "Signs were also attached to some trees for observation purposes, such as monitoring their growth."

Islands of snakes and monkeys reveal their hidden gems. Xie Hanbin sets up infrared cameras to monitor wildlife as part of the biodiversity research.

Jinshan Three Islands Marine Natural Reserve implements strict ecological management. For conservation purposes, the reserve is not open to the public. Typically,

only scientific research teams are allowed for investigations, and occasionally, open days are offered for the public to visit, though the number of visitors is limited.

Dajinshan Island has retained its relatively pristine ecological environment and rich biodiversity thanks to the dedication of its "guardians." They keep watch over the island, preventing unauthorized visitors from disturbing its ecosystems. They also regularly bring food from the mainland, such as corn and bananas, to feed the macaques.

The island guardians stay away from the city's bustle and stick to the quiet Dajinshan Island. "They have a deep love for the island and protect it, which may not be referred to as the last pure land in Shanghai, but rather one of the few truly magical natural spaces left in the city," Xie said.

In recent years, the Shanghai Water Authority (Shanghai Oceanic Bureau) and the Shanghai Marine Management Affairs Center, in collaboration with the Shanghai Natural History Museum, have organized open days for Dajinshan Island during the annual Shanghai International Nature Conservation Week, inviting families to visit the island.

These open days have been popular, particularly among young people, sparking a growing ecological awareness about understanding and protecting nature.

"The natural world is full of unknowns, and there is much to learn. We need to stay curious and explore it," said Xie, who also serves as a guide at the open-day events. "We encourage children to step outside the classroom to appreciate the beauty and wonders of nature. We taught them how to observe and discover nature using our five senses."

This year's open day is expected to take place in October. Anyone interested can follow the WeChat accounts of the Shanghai Natural History Museum and the Shanghai Marine Management Affairs Center for updates on participant recruitment.

Families interested in participating will need to complete a quiz on marine ecology and submit their registration forms to a designated email address, then wait for the results. Each family can register up to two people, but children under 8 are not accepted.

On the day of the event, participants will gather at 389 Jiangsu Road, Shanghai Oceanic Bureau, to board a bus to Jinshan Wharf, where they will take a boat to the island for a day of exploration.

Many people desire to visit Dajinshan Island but feel regret as it is not open for regular visits. Xie said: "Nature is there, but it doesn't need to be possessed. We pass by without disturbing it. As the saying goes: 'Some things are best admired from a distance, not up close!'"