



MANGROVES IN CHINA

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Facts

- Mangroves in China are mainly distributed along southeast coasts within latitudes between 18°09' N and 28°25' N.
- Mainland China is home to 27,100 ha of mangrove forests, most of which occur in estuaries.
- 26 true mangrove species and 11 mangrove associate species have been recorded in China.



Bruguiera sexangula



Avicennia marina



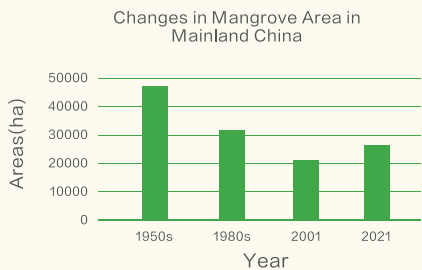
Rhizophora stylosa



Kandelia candel

Status of Mangroves in China

During 1960s–1990s, large areas of mangroves in mainland China have been lost due to reclamation, pond conversion, and urbanization. Aquaculture pond conversion accounted for most of the mangrove deforestation. Since 2000, the Chinese government has given top priority to the conservation and restoration of mangroves. Thanks to the strict protection and large-scale artificial afforestation efforts, the mangrove area began to grow, reversing its loss and making China one of the few countries in the world with a net increase in mangrove area.



Source

The mangrove area of 2021 was from the *Third National Land Resource Survey* conducted by the Ministry of Land and Resources P.R.C. The area of 2001 was from the *National Mangrove Resource Survey* by then State Forestry Administration P.R.C. The data for the early years were best approximations from the evaluation of available literature.

Major Threats to Mangrove Wetlands in China

Seawalls

More than 80% of mangroves in China are located outside of artificial seawalls. Seawalls break the connection between terrestrial and marine ecosystems, negatively affecting the ecological functions and resilience of coastal wetlands, especially under the effect of sea level rise.

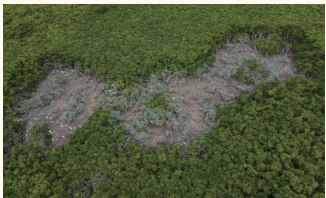


Biological Disturbances

The wide spread of the invasive species *Spartina alterniflora* has become a major threat to coastal wetlands. *Derris trifoliata* directly affect the growth and resilience of mangroves. Outbreaks of pests and pathogens such as *Sphaeroma* spp., defoliating insects, and *Colletotrichum gloeosporioides* have caused a few incidents of large-scale mangrove death in past few decades. When environmental stress exists, they pose potential risks to many mangrove forests in China which have low levels of resilience.



Spartina alterniflora from the U.S. threatens the growth of mangrove juveniles and the maintenance of mudflats, leading to reduced benthic biodiversity and lost bird habitats.



Derris trifoliata covers mangrove canopies, resulting in mangrove degradation.

Offshore Pollution

The accumulation of drifting ocean garbage can be seen in many mangrove wetlands, negatively affecting seed germination and mangrove regeneration. Historically, aquacultural effluents and urban water pollution have caused mangrove degradation. Though land-source pollution has been largely reduced, it remains a factor affecting coastal wetland quality.



Laws and Regulations

A relatively comprehensive system of laws and regulations related to mangrove wetland protection at national and local levels has been gradually put in place in China.

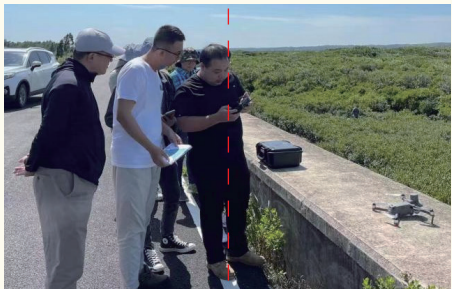
At the national level, the Forest Law of the *People's Republic of China*, the *Marine Environmental Protection Law* of the *People's Republic of China*, the *Island Law* of the *People's Republic of China*, the *Law on Wetlands Protection*, and the *Regulations on Wetland Protection and Management* contain provisions regarding mangrove protection and management.

Local governments have also formulated relevant regulations for implementation and management. For instance, Guangxi and Hainan have respectively promulgated and implemented the *Regulations on Mangrove Resources Protection in Guangxi Zhuang Autonomous Region* and the *Provisions on Mangrove Protection in Hainan Province*.

As most mangroves in China have already been included in nature reserves, the *Regulations of the People's Republic of China on Nature Reserves* has a direct bearing on the protection and management of mangrove wetlands. Special management rules have also been issued by the vast majority of national nature reserves with mangroves as the main protection targets.



Establishing protected areas



Conducting aerial monitoring



Monitoring mangrove growth



Educating residents and tourists

MANGROVE CONSERVATION AND RESTORATION

Management

Protected Areas

Most mangroves in China have been included in protected areas. By 2020, China has established 38 protected areas, mostly in the form of nature reserves, that regard mangrove as the main target of protection. These protected areas cover more than 55% of the natural mangroves.

Long-term resource survey, regular monitoring, patrols, and ecosystem management work are carried out in each nature reserve. State-of-the-art technologies including aerial monitoring are applied to collect comprehensive information on human activities, changes of areas, and mangrove species composition.



Conducting surveys on water, soil, and benthos



Rescuing threatened species



Projects supported by

Alibaba Philanthropy and “Goods for Good” sellers
Alipay Foundation
Beijing ByteDance Foundation
HSBC
KPMG China
Ping An Bank Co., Ltd.
SEE Foundation
Tencent Charitable Foundation

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MANGROVE CONSERVATION AND RESTORATION

Restoration

Since 2000, the Chinese government has attached great importance to the protection and restoration of mangroves. In particular, China has taken a series of actions to accelerate its mangrove restoration efforts since 2020.

- Since 2005, various government agencies such as the National Forestry and Grassland Administration and the State Oceanic Administration have issued a large number of standards and guidelines to help practitioners conduct mangrove-related projects. These standards and guidelines cover a wide range of topics on mangrove restoration, including resource survey, mangrove restoration, ecological monitoring, and more.

Case 1

Ecological Mangrove Rehabilitation of Brackish Ponds in Hainan

Brackish ponds that are abandoned or located in core areas of nature reserves are targets of mangrove rehabilitation. In Bodu village within Hainan Dongzhaigang National Nature Reserve, the government conducted a project of restoring 60-ha ponds to mangroves in 2019. To restore the tidal flows, openings were made on dikes, natural tidal channels were desilted, and new channels were constructed. Extra soils from dikes were used to backfill pond bottoms, creating uneven topography with shallow waters and unflooded platforms. After hydrologic restoration, 19 ha of native mangrove species were planted on the landside which features weak hydrodynamic conditions. The remaining areas were designed to allow natural recruitment of mangrove seedlings through tidal flows.

This project has restored mangrove forests, as well as other geomorphic units such as mudflats, tidal channels, and shallow waters, providing diverse habitats for benthos and waterbirds. This project well demonstrates ecological mangrove rehabilitation where a well-functioning ecosystem is restored, and biodiversity and ecosystem services are enhanced.



- In 2016, the Ministry of Finance and State Oceanic Administration jointly launched the "Blue Bay" project, where the central finance allocates 200–300 million CNY to each selected city to conduct comprehensive coastal improvement projects with a preference for mangrove restoration. Among them, at least five cities were supported to restore mangroves with a total investment of 600 million CNY.

- In 2020, the Ministry of Natural Resources, and the National Forestry and Grassland Administration released the *Special Action Plan for Mangrove Protection and Restoration (2020–2025)*, aiming to reforest 9,050 ha of land and restore 9,750 ha of existing mangroves by 2025. Thereafter, each province/autonomous region has formulated a 5-year plan for mangrove restoration and published region-specific standards and guidelines.

- In 2021, the Ministry of Natural Resources, and the National Forestry and Grassland Administration published the *Ecological Mangrove Restoration Manual*, which provides detailed instructions on ecological mangrove restoration. This manual highlights the principle that restoration methods should be ecologically based and aim to restore ecosystem functions.

Case 2

Mangrove Ecosystem Restoration in Shenzhen Bay

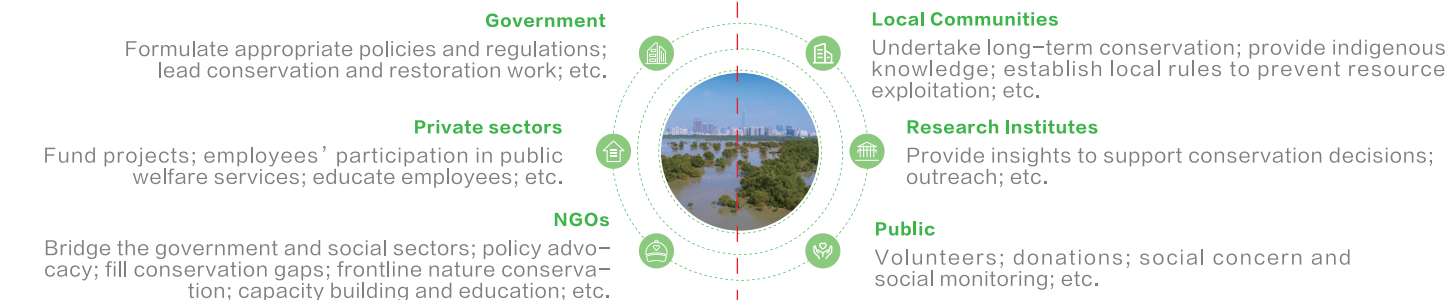
Since 2017, Mangrove Foundation (MCF) has taken a series of actions to restore a healthy mangrove ecosystem at the estuary of the Shenzhen River. Tidal channels were created to restore the hydrodynamics that had been affected by sedimentation. To improve biodiversity, clear-felling of *Sonneratia apetala Buch.-Ham.*, an exotic mangrove species that had spread rapidly to unintended areas and had outcompeted native species, was conducted. The cleared areas were partly replanted with native species, while other areas were kept as mudflats. As Shenzhen Bay is located at the midpoint of the East Asian–Australasian Flyway (EAAF), the mudflats provide important feeding grounds for migratory birds.



Following the restoration work, regular maintenance and monitoring have been carried out. The project demonstrates good restoration practices that focus on biodiversity conservation of the mangrove ecosystem.

MANGROVE CONSERVATION AND RESTORATION

Social Participation



Work of MCF

Mangrove Foundation (MCF) is the first environmental conservation foundation with public-fundraising certificate launched by civil society in China. It dedicates itself to protecting wetlands and their biodiversity, as well as conserving nature through public engagement.

Promoting Research



The Paulson Institute, Lao Niu Foundation, and MCF jointly published the *Study on China's Mangrove Conservation and Restoration Strategy*.

Restoration

MCF conducted restoration work that are ecologically based in Shenzhen Bay, Quanzhou Bay, the Leizhou Peninsula, and the Shankou Town of the Beihai city.



MCF promotes research relevant to frontline nature conservation by funding selected research projects.



Capacity Building



MCF organized several on-site trainings on ecosystem monitoring and online workshops on mangrove restoration.



MCF partners with Zhanjiang National Mangrove Nature Reserve to improve its management under the financial support of HBSC and SEE Foundation.

Community Engagement

MCF engages and empowers local communities to conserve mangroves in Zhanjiang and Beihai while preserving livelihood and indigenous culture.



CEPA (Communication, Education, Participation and Awareness)

In 2015, Shenzhen Futian Mangrove Ecological Park, an urban natural park, was authorized by the People's Government of Shenzhen Futian District to be managed by MCF. It was the first collaboration of this kind between the government and an NGO. MCF carries out CEPA activities at the park and extends these efforts to larger areas.

