

Vital role of Persian Gulf mangrove forests



Iranica Desk

Forests are among the largest and most vital genetic resources, both from ancient times to the present. The history of ancient plant formation and distribution dates back approximately 420 million years. Iran's vast forests contain rich gene reservoirs of specific species that have been utilized and exploited by humans for thousands of years. They are crucial habitats and some of the oldest living organisms on Earth, covering about one-third of the planet's surface. Over time, forests have evolved and adapted, spreading rapidly to dominate many landscapes. Despite undergoing changes or destruction due to climate change, many forests endure, providing habitats for various animal and plant species. The gene pools and genomes of the ancient forests of the Persian Gulf, which harbor some of the rarest plant species, have attracted human interest due to their unique geographical location throughout history, as noted by chtn.ir.

Mangrove forests of the Persian Gulf

The Persian Gulf can be viewed as the cradle of ancient civilizations in southern Iran, with mangrove forests covering approximately 10,070 hectares. These forests consist of various plant

species that thrive in three primary forms: island, deltaic, and coastal. However, environmental pollution, particularly marine pollution, poses a complex challenge that humanity currently faces, threatening the delicate balance of these vital ecosystems.

The importance of mangrove forests, recognized globally as biosphere reserves, is significant. Despite extensive exploitation, these ecosystems have persisted. Mangroves are wetland areas situated between tidal zones, characterized by a variety of unique plants and specific animals that thrive in coastal and marshy environments. In Iran, mangrove forests are primarily composed of two species: *Avicennia marina* (known as Hara) and *Rhizophora mucronata* (known as Chandl). These species flourish in their unique habitats, continuously influenced by sea tides and flooding.

Characteristics of Hara trees

The Hara tree is a remarkable plant that thrives in sunlight, reaching heights of five to ten meters. Its flowering period occurs in early August, producing small yellow flowers with a delightful fragrance. An interesting aspect of Hara's growth is its viviparity; the seed germinates while still attached to the mother tree and falls into the water after sprouting. The roots of the Hara

consist of a short vertical root and numerous inclined lateral roots. When seawater rises, the crowns of the Hara trees remain above the water, creating a stunning landscape that attracts many tourists who explore the area by boat. Hara trees can thrive in salty water while purifying it into freshwater. Additionally, the sap of the Hara tree possesses medicinal properties and has been shown to affect the bacillus that causes leprosy. The mangrove forests in Hormozgan, located around Qeshm Island, Bandar Pol, Hormoz Island, and Bandar Khamir, are home to diverse wildlife and pristine nature, making them important tourist attractions. These forests are designated as protected areas by the Environmental Protection Organization and are recognized as the Hara Biosphere Reserve due to their international significance. The Hara forest in Tis, Chabahar, is noted as one of the most beautiful tourist attractions in the region, located about 120 kilometers from Chabahar, near the Iran-Pakistan border and close to the Gwadar Gulf.

Conservation strategies and economic importance

Studying the distribution patterns and genetic diversity of these species helps prioritize populations for conservation, identify at-risk species, and highlight gaps in gene bank col-

lections. This information is vital for addressing global challenges such as food security and climate change. Many of these species possess commercial value, contributing to local economies. Additionally, marine forests play a crucial role in stabilizing coastlines against erosion caused by powerful sea waves. They are also acknowledged for their significant contributions to providing wood and fodder. Furthermore, these ecosystems are effective in reducing carbon dioxide levels in the atmosphere, thereby playing a role in mitigating climate change.

Historical context and threats to mangroves

Historically, mangrove environments were deemed harsh and useless, leading to their destruction through various means. Consequently, 80% of the world's marine forests have been lost due to road construction, waste dumping, excessive harvesting, and the establishment of irrigation systems, pushing these ecosystems toward extinction. The study of ancient forests in Iran, such as the Hara, highlights the need for increased discussions about the preservation and protection of these ancient genetic reservoirs and their sustainable use. With the global destruction of tropical forests, there is growing attention to

marine ecosystems that are threatened or facing extinction, recognized as habitats for numerous aquatic species and the animals that depend on them.

Biodiversity and the Persian Gulf

Biodiversity encompasses a wide range of concepts, from genetic diversity to ecosystem diversity. A key component of biodiversity is species diversity, which refers to the variety of species present at local or regional levels. The ancient forests of the Persian Gulf harbor some of the rarest plant species, making their gene pools and genomes particularly significant. This unique geographical location has attracted human attention throughout history.

In recent years, as tropical forests face widespread destruction, there has been increasing attention on marine forest ecosystems that are threatened or at risk of extinction. Many specialists recognize these ecosystems as vital habitats for numerous aquatic species and the animals that depend on them. Marine forests play a crucial role in stabilizing coastlines against erosion caused by powerful sea waves. They are also acknowledged for their significant contributions to providing wood and fodder. Furthermore, these ecosystems are effective in reducing carbon dioxide levels in the atmosphere, thereby playing a role in mitigating climate change.

Kolah Farangi Citadel; heritage of South Khorasan Province

The Kolah Farangi Citadel is one of the historical monuments of Birjand in South Khorasan Province. Attributed to Amir Hasan Khan Sheybani, the citadel was presented to the Birjand governorship by its owner, Amir Alam Khazimeh, in 1977.

The citadel dates back to the Zand period and the beginning of the Qajar period. It is also known as Hesar Al-Dowleh Citadel, Bi Bi Arous Palace, and Sarkar Citadel.

The architecture of the citadel sets it apart from other urban buildings. It is a hexagonal structure topped with a cone, characterized by its striking white color and impressive design. The building consists of six floors, constructed in the

style of a ziggurat, with the most effective spatial planning found on the ground floor. The entrance of the citadel is prominently located on the ground floor, offering an eye-catching appearance with its elegant arcs.

While two floors are functional, the additional floors were added to enhance the external façade, particularly over the dome of the spring house. The entire structure is adorned with intricate decorations made of clay, brick, lime, and sarooj. Historical documents indicate that the yard and garden were originally designed in the Persian *chahar bagh* style of architecture, though they have lost their original form over time.

