



**Good Practice Story Title:**

A Faithful Sea Traveler - The Happy Home of Wangan Green Turtle in Penghu.

**Destination:**

Penghu NSA

**Country:**

Taiwan

**Submitting Organization:**

Penghu National Scenic Area Headquarters, Tourism Administration, MOTC

**Category:**

- Destination Management
- Nature & Scenery
- Environment & Climate
- Culture & Tradition
- Thriving Communities
- Business & Marketing

**Destination description:**

Wangan Island, located south of the Penghu Archipelago, covers an area of approximately 14 square kilometers. Known as the "Home of the Green Turtle," it is one of Taiwan's most stable green turtle nesting sites, with turtles returning annually to lay eggs on its beaches. To prevent human disturbance or destruction of these nesting habitats, six nesting habitat protection areas were designated in 1995. Additionally, Wangan Island's Tiantaishan, formed around 17.4 million years ago, features the oldest basalt geology in the Penghu Archipelago. The area around the mountain's base is known for Wangan aragonite. The island also hosts the Huazhai settlement, which has a history of over 300 years and is one of the few well-preserved Han Chinese settlements in Taiwan. In 2010, the Ministry of Culture designated it as an important cultural asset for its architectural heritage. Wangan Island is rich in both natural ecology and cultural history.





### Summary of Good Practice Story:

On Wangan Island, a stone stele named "Haoshan Hall" records the history of sea turtle conservation. Around 150 years ago, due to a lack of resources, many impoverished residents and fishermen on the island would catch sea turtles, slaughtering and selling them for food. Local gentry, moved by compassion, would buy the turtles for 10-12 coins each and release them. They also raised funds and erected the stele to explicitly subsidize and reward residents for protecting life, while also reporting to the authorities to approve heavy penalties for violators. This marked the beginning of sea turtle protection. However, in the past century, large-scale fishing, coastal development, and waste pollution have drastically reduced the number of green turtles returning to Wangan to nest.

To protect their habitat, nesting protection areas were designated, and rangers and volunteers were deployed. The first "Green Turtle Conservation Center" in Taiwan was established in Wangan, focusing on ecological conservation education and showcasing Wangan's ecological resources. The center provides shelter for injured turtles, assists professionals in research and rescue efforts, and promotes eco-tourism and marine ecological education.

Since 1995, over a hundred female turtles (not distinguishing repeated returns) have returned to Wangan to nest. This unique ecological resource attracts tourists annually, facilitating the organization of workshops and camps to promote marine ecological education and generate economic income for the local community.

### Issues faced:

To maintain the stable nesting population of green turtles, we understand that protecting their ecological environment is crucial. Green turtles migrate back to their birthplace to lay eggs every 2-3 years, so ensuring an environment suitable for their survival and reproduction is our primary task. We begin by ensuring that the habitat protection areas remain undisturbed. However, this is just one of the many challenges we face.

Every year from May to October is the green turtles' nesting season. If they find their habitats disturbed by development, excessive tourism, fishing lights, or other human activities when they approach or come ashore, or if they sense the presence of other large animals nearby, they may abandon nesting and return to the sea. Additionally, in earlier years, when legal awareness and ecological conservation concepts were not yet widespread, residents would collect sea turtle eggs for nutritional supplements or engage in activities in the nesting areas during the nesting season. These behaviors also led to a decrease in the number of turtle hatchlings.

In recent decades, marine debris caused by humans and the thriving fishing industry have posed threats to the survival of sea turtles, leading to a continuous decrease in the number of nesting female turtles.

### Solution:

**1. Designate Habitat Protection Areas:** To achieve the goal of protecting sea turtle habitats, the Penghu County Government has designated six green turtle nesting habitat protection areas on Wangan Island. From May to October each year, nighttime restrictions are implemented to reduce external disturbances during the turtles' nesting period. Local rangers are hired, and volunteers are recruited to join the efforts in protecting the sea turtles.



**2. Establish Wangan Green Turtle Tourism and Conservation Center:** To maintain the unique marine ecology and promote ecological conservation awareness, the Penghu National Scenic Area Administration established the "Wangan Green Turtle Tourism and Conservation Center." This center focuses on sea turtle ecological education and showcases Wangan's tourism resources. It also collaborates with private enterprises to conduct marine ecology workshops, promoting marine life conservation to the public. Additionally, the center provides income and job opportunities for the local community, offers shelter for injured turtles, and releases them back into the wild once they have recovered.

**3. Avoid Development and Clean Up Waste:** To prevent sea turtles from ingesting debris and to avoid habitat destruction, regular clean-up of beaches and surrounding coastal areas is conducted to remove human waste. Additionally, development of land within and around these habitats is avoided.

### **Methods, Steps, and Tools applied:**

Green turtle conservation is a sustainable action plan that requires the collaboration of public and private sectors. Long-term monitoring by scholars has shown a continuous decline in the number of female turtles returning to Wangan to nest. Factors contributing to this decline include habitat destruction and improper fishing practices. Through the consensus of residents, academic groups, the Council of Agriculture, and several environmental organizations, efforts were made to urge the Penghu County Government to designate six control areas, totaling about 23 hectares, in key nesting regions. In 1995, the first green turtle nesting habitat protection area in the nation was officially announced, restricting all nighttime activities within these areas. Various agencies then continued to carry out ecological protection and educational tasks according to their responsibilities:

**1. Conducting Ecological Surveys and Professional Training:** Supported by funding from the Ocean Conservation Administration, the Penghu County Government continues to conduct sea turtle ecological surveys. Additionally, local volunteers or hired residents serve as patrol officers and receive professional training to monitor and protect the habitat environment. Through daily patrols and reports by local personnel, they track whether green turtles come ashore to nest and the locations of their nests. In the past two years, they have recorded mother turtles returning to Wangan Island to nest, laying a total of 2,760 eggs.

**2. Establish the Sea Turtle Rescue and Shelter Research Center:** In 1997, the Penghu Fisheries Research Institute of the Fisheries Research Institute of the Ministry of Agriculture established a Sea Turtle Rescue and Shelter Research Center to treat injured sea turtles.

**3. Penghu National Scenic Area Administration Launched the First Green Turtle Tourism and Conservation Center in 2002:**

- (1) This center is the only one in Taiwan dedicated to promoting sea turtle conservation combined with island ecological tourism. It features exhibits on the sea turtles of Wangan, as well as the local culture and natural ecology. The center also offers guided tours, educational activities, and training programs, promoting unique ecological tourism and education.
- (2) Since 2006, the center has collaborated with professors from National Taiwan Ocean University and the Taiwan Marine Environmental Education Promotion Association to hold 14 sessions of green turtle marine workshops. These workshops, led by ecological experts, educate participants about the local natural environment and conservation laws.
- (3) The center offers shelter space for injured turtles, assisting in their rehabilitation, and provides facilities for professionals to conduct local sea turtle research and surveys.





**4. Environmental Development and Maintenance:** Continuous monitoring of habitat changes is essential. Artificial structures are avoided in and around the habitat. Regular beach clean-ups and environmental maintenance are conducted annually to ensure a clean and safe nesting area for the turtles.

### **Achievements and Results:**

**1. Cross-Sector Collaboration for Habitat-Friendly Practices:** Stakeholder Cooperation: In addition to designating protection areas, effective habitat management and the promotion of conservation awareness are crucial for green turtle conservation. The Penghu County Government continuously monitors the habitat environment and, when necessary, undertakes beach restoration to maintain the natural landscape and prevent dense vegetation from hindering nesting and increasing hatchling mortality. Over the past two years, the Penghu National Scenic Area Administration has cleared approximately 70.7 tons of waste from surrounding areas to reduce habitat pollution. During typhoon seasons, the conservation center's life support system provides emergency shelter for newly hatched turtles, preventing storm damage and reducing mortality rates. Since 2002, the Sea Turtle Rescue and Shelter Research Center has released 57 rehabilitated sea turtles back into the wild on Wangan Island. Thanks to cross-sector collaboration since the protection areas were established in 1995, 168 nesting female green turtles (not distinguishing repeated returns) have been recorded on Wangan Island. In 2023, green turtles laid a total of 18 nests and 969 eggs in Wangan, with 613 hatchlings successfully emerging.

**2. Promoting Marine Ecological Education:** Green Turtle Tourism and Conservation Center: This center displays information on various sea turtles and freshwater turtles and utilizes technological innovations and creative exhibits such as AI Green Turtle, oyster shell art turtles, and special exhibitions of albino green turtles. It also provides a rehabilitation system for injured turtles and continues to host sea turtle ecology workshops and turtle release activities. Over the past two years, the Taiwan Marine Environmental Education Promotion Association has conducted 16 Wangan marine ecology workshops, with eight more planned for July 2024. The county government and conservation center have announced regulations for nighttime behavior in nesting habitats and restricted recreational activities in nearby waters. Informational signs have been installed in protection areas to enhance public awareness of marine ecological education and relevant regulations. This year, an event combining beach clean-up and coral restoration was held, encouraging public and corporate participation in marine biodiversity conservation and sustainable education.

**3. Local Community Involvement and Economic Benefits:** Community Engagement and Economic Impact: With increasing public awareness of environmental protection and the promotion of ecotourism, the conservation of endangered sea turtles has gained local support. Wangan Island's green turtle nesting protection area is the only government-designated sea turtle conservation area in Taiwan, providing a critical habitat for nesting and breeding. The Green Turtle Tourism and Conservation Center, also the first of its kind established by the government, is responsible for local ecological resource education and tourism. Sustainable development of Wangan Island's unique resources benefits local industries.

From 2022 to 2023, 478,657 tourists visited Wangan, generating approximately NT\$298.85 million in economic value. Additionally, 127 participants attended sea turtle ecology workshops over the past two years, enhancing their understanding of Wangan's cultural, geographical, and ecological beauty. Community cultural experiences for participants contributed at least NT\$670,000 to the local economy. The conservation center employs guides and cleaners, while the Penghu County Government's seasonal hiring of local rangers during the nesting season promotes economic and employment cycles.



**4. Promoting Sea Turtle Conservation Through Unique Cultural Customs:** In Chinese culture, the Lantern Festival features the unique tradition of "Qi Gui," symbolizing longevity and good fortune. In Penghu, surrounded by the sea and reliant on fishing, people make turtle-shaped offerings from glutinous rice (fangpian turtles) are created to becoming messengers conveying the public's wishes for a safe return, health, and wealth.

Every winter, we organize at least six guided tours as part of our Ancient Tour Season, taking visitors to various temples to promote cultural activities. Through this immersive experience, participants subtly learn about the importance of sea turtle conservation. This unique approach helps instill the concept and spirit of protecting sea turtles, thereby extending the education on sea turtle conservation.

**5. Integrating Sea Turtle Conservation Education into School Innovative Curricula:** The teaching team at Wangan Elementary School has integrated local natural and cultural resources to design marine education courses for students, focusing on green turtle conservation and island culture. These courses instill concepts of understanding, connecting with, and protecting the ocean, embedding these values in the students' minds from a young age. This helps them develop a lifelong commitment to caring for their community, conserving sea turtles, and cherishing marine resources.

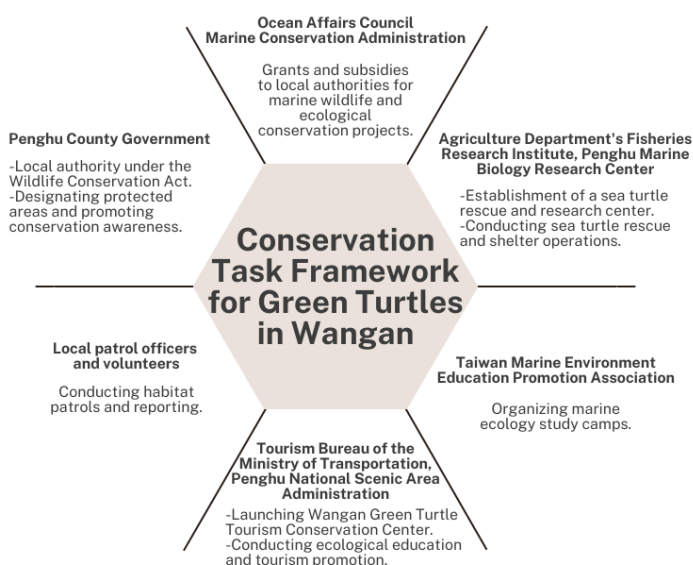
### **Lessons Learned and Advice:**

**1. Ecological conservation requires the cooperation of multiple stakeholders:** Although the green turtle nesting habitat has been designated as a protected area, it still requires the continuous cooperation of governments at all levels, research units, local residents and tourists, such as the continuous investigation and monitoring by research units, the continuous investment of manpower by the government in habitat management and patrols, and the responsible eco-tourism by tourists, so as to jointly reduce the impacts on and disturbances to the environment, and to avoid various threats to the turtles during the process of migrating ashore to the egg laying process. The process of migrating to shore and egg laying will not be threatened by various threats.

**2. Strengthen marine ecology education and promotion:** In a way that does not interfere with the sea turtles and their habitat, incorporate ecological conservation and responsible tourism education into the rehabilitation of green turtles in the wild and the explanatory tours of the Tourism and Conservation Center, in order to encourage the public to understand the significance of conservation and to deeply root it in their hearts. Furthermore, we continue to advocate for corporate social responsibility in supporting coral restoration efforts, enhancing the ecological environment for marine biodiversity.

**3. Continuously cooperate with local communities and promote local sustainable development:** Continuously encourage communities to participate in habitat patrols and cultivate local docents, assist in counseling and promoting various ecological and cultural experiences for local communities, and combine local food ingredients, specialties, ancient houses and other characteristic resources to not only convey education on marine ecology of sea turtles, but also to increase the value of local consumption, and to support balanced and sustainable development of the local economy.





## Recognitions and Additional References

- Stakeholder organization chart for green turtle conservation work

- Supporting information: (Also available in the cloud, please click the following link [https://drive.google.com/drive/folders/1\\_ZQhFseDP916R5NvZxqQUkLOiFePZ4VR?usp=drive\\_link](https://drive.google.com/drive/folders/1_ZQhFseDP916R5NvZxqQUkLOiFePZ4VR?usp=drive_link))

- Attachment 1 - Notice of Designation of Wangan Island Green Turtle Nesting Habitat Protection Area
- Attachment 2- Restrictions on Recreational Activities in the Waters Surrounding Wangan Green Turtle Nesting Habitat Protection Area
- Attachment 3 - Number of Green Turtle Nesting Habitat Protection Area Sisters Returning to Nesting over the Years (Not Distinguished from the Number of Sisters Returning Repeatedly)
- Attachment 4 - Exhibitions Featuring Albino Green Turtles, AI Green Turtles, and Oyster Shell Art Sea Turtles
- Attachment 5 - Participants of Wangan Green Turtle Rewilding in 2021-2023
- Attachment 6 - Statistics on the number of participants in marine ecology camps in Wangan in 2022 and 2023.
- Attachment 7 - Statistics on the number of wildlife releases in Wangan since 2002

