

豆丁海馬

水晶宮的超級名模

Super Model from under the Sea

Pygmy Seahorse

採訪撰文 Interview & Text / 邱和珍 Jane Chiu

特別感謝 Special thanks to / 中央研究院生物多樣性研究中心鄭明修博士 Dr. Ming-shiou Jeng, research fellow of the Biodiversity Research Center of Academia Sinica、墾丁國家公園保育課馬協群課長 Xie-qun Ma, Chief of Conservation Research Section of Kenting National Park、解說課林瓊瑤小姐 Ms. Cyong-yao Lin from Interpretation and Education Section of Kenting National Park

墾丁國家公園是全國第一個具有珊瑚礁海域的國家公園，海域中的生物極為豐富，也是本公園的重要特色。這個歷經數百萬年發展而成的珊瑚礁國家公園，除了陸地上擁有豐富且多樣性的野生動物外，在水深20公尺的海扇珊瑚上還可觀賞到有「海中小精靈」之稱的豆丁海馬。

曾擔任中華民國珊瑚礁協會理事長，同時也是中央研究院生物多樣性研究中心研究員的鄭明修博士提到豆丁海馬時，眼睛為之一亮並讚嘆：「牠的偽裝色簡直就像水晶宮的超級名模！」

事實上，海馬可不是馬，牠是長得不像魚的魚。研究海洋生態多年的鄭博士指出，全世界已有文獻記載的約有五十多種海馬都是海馬屬的成員。海馬的繁殖方式和陸地上的袋鼠一樣，都是在腹部育兒。不過最奇特而有趣的，是母海馬先將卵產於公海馬腹部的育兒袋，直到小海馬從育兒袋中孵出，這可說是包括人類在內，自然界中夫妻扮演共同養兒育女的最佳典範。

偽裝色 造物者的傑作

海馬屬當中的小不點——豆丁海馬，目前只有四種已分類命名，而世界第一尾豆丁海馬是在1996年被一名在新喀里多尼亞水族館工作的人員發現，從此揭開豆丁海馬與宿主海扇珊瑚的傳奇故事。

Kenting National Park is the first of its kind in Taiwan that covers coral reefs and abundant sea creatures. With millions of years of evolution, the Park boasts diverse species of wild life. As divers go 20 meters below the sea level, they get to see the charming tiny pygmy seahorses (*Hippocampus bargibanti*) resting in sea fans.

“Their camouflage is just impeccable!” exclaimed Dr. Ming-shiou Jeng, once the director of the Taiwanese Coral Reef Society and a long-time research fellow of the Biodiversity Research Center of Academia Sinica.

Seahorse are actually not horses but bony fish that do not look like fish. Jeng pointed out that according to the recorded literature, roughly 50 species of seahorse are Hippocampus. They breed like kangaroos do—in their abdomen. But what's more intriguing is that it is the female seahorse which deposits the eggs in the male's brood pouch for the male to hatch them. This is arguably the best model of bearing offspring by both sexes of parents together.

Endowed Camouflage

So far only four species of this midget among seahorses have been categorized and named. The world's first pygmy seahorse was discovered by a staff member of the New Caledonia Aquarium in 1996, and the legend of the seahorse and their host, the sea fans, began.

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Kenting National Park is the first of its kind in Taiwan that covers coral reefs with abundant sea creatures, which predominantly characterize KTNP. / by Yung-chun Tsay



豆丁海馬又稱為侏儒海馬，牠到底有多迷你呢？從小在澎湖漁村長大的鄭博士比著一截小指頭笑著說，豆丁海馬成魚後最高可達2.4公分，只能棲息在海流強勁、陽光微弱的軟珊瑚群體上，尤其是海扇型的網柳珊瑚。為了觀察豆丁海馬的生態習性，已有30多年潛水經驗的鄭博士說，當他第一次在印尼布那肯國家公園的美娜多藍碧海峽海域潛入20公尺深處，由於豆丁海馬的體型、體色和全身附著的紅色小結節幾乎與海扇上的珊瑚蟲雷同，極具保護色，所以一時間很難辨認出豆丁海馬。「就因為豆丁海馬是如此地嬌弱與稀有，牠能為印尼政府帶來一年約新台幣3億元的觀光外匯，不是沒有道理的！」鄭博士對印尼致力於將豆丁海馬視為發展國際級潛水勝地的金雞母，給予極高評價。

海中的超級名模

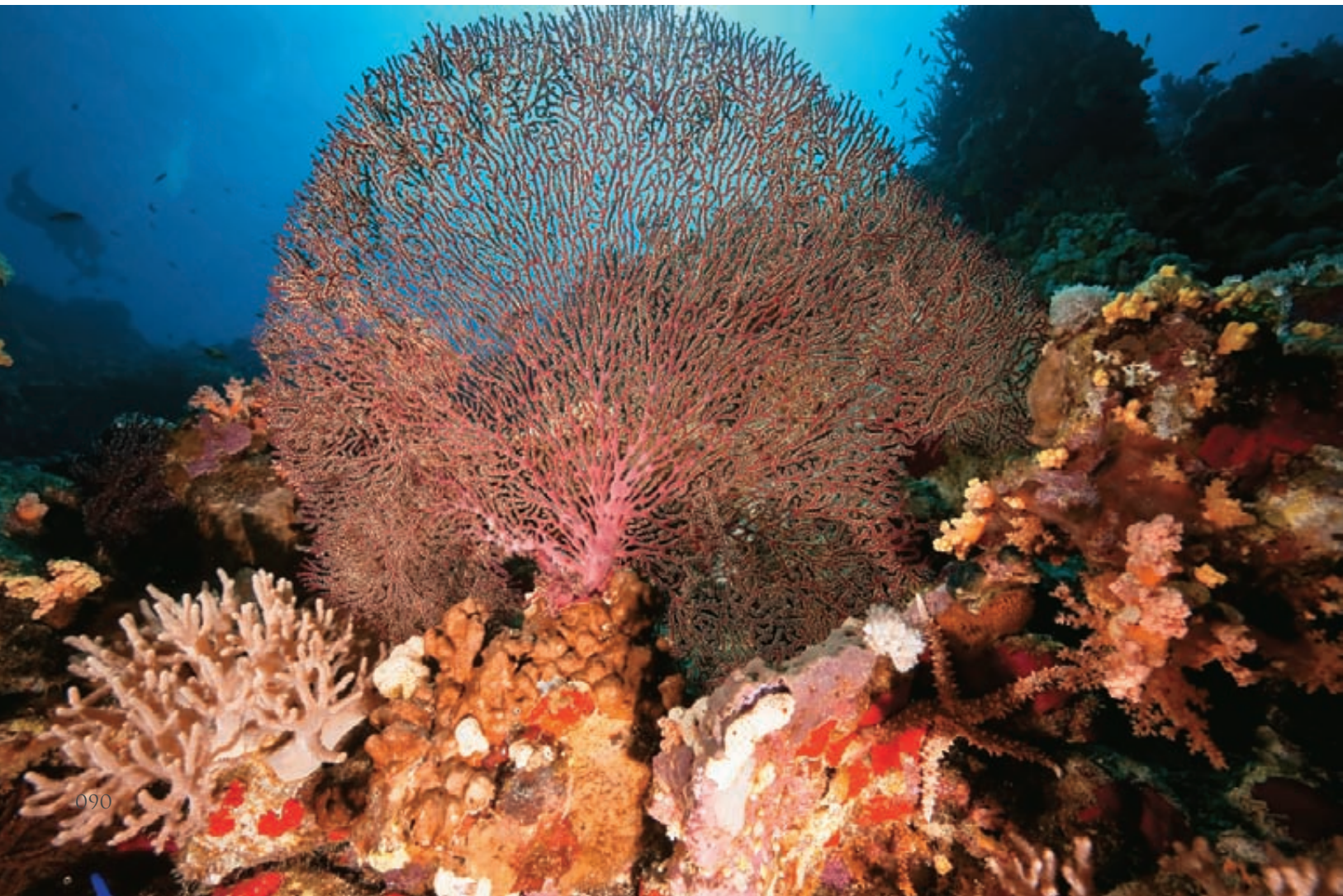
豆丁海馬不僅出現在印尼的美娜多海域，從北半球西太平洋珊瑚礁海域的日本、台灣、菲律賓、馬來西亞，一直到南半球的澳洲和新幾內亞，均可發現牠的蹤跡。

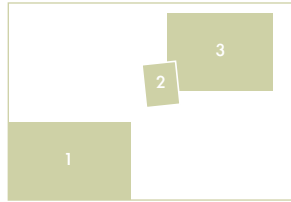
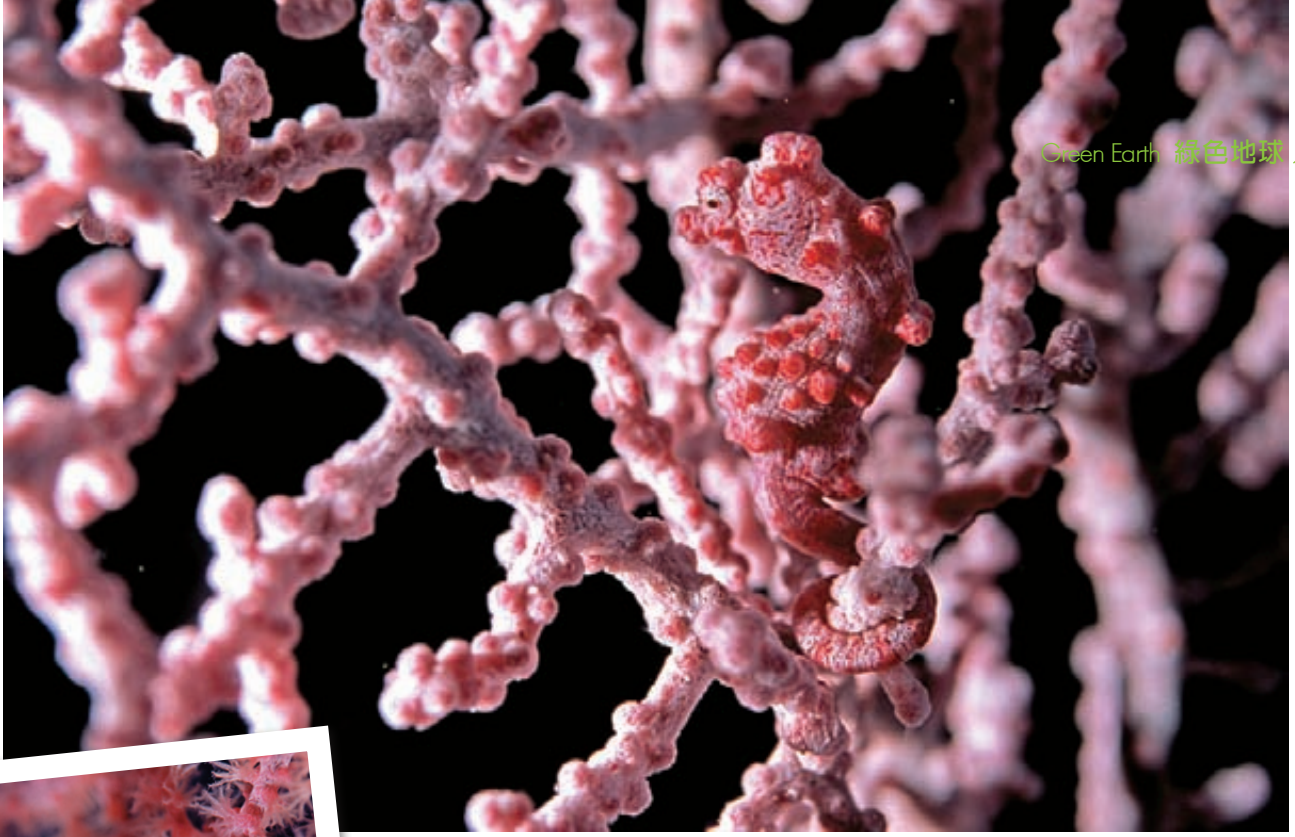
The pygmy seahorse is also known as Bargibanti's seahorse. It is so tiny that even an adult is no larger than 2.4 cm. It lives on soft corals such as gorgonian corals that only grow in the environment with strong ocean currents and dim sunlight. Jeng recalled that once he went to Bunaken National Park, Indonesia, and dived as deep as 20 meters in the Manado Lembeh Strait to observe the seahorse, whose shape, color and tubercles match the color and shape of the polyps of the host gorgonians. Because of this, the seahorse can't be easily identified.

“Because pygmy seahorse are so delicate and rare, it is understandable that they can bring in as much as 300 million NT dollars worth of revenue for Indonesia annually,” said Jeng, who praised the Indonesian government for their effort in promoting the country as an international scuba diving destination featuring pygmy seahorses.

Super Model from under the Sea

In addition to Manado Strait, Indonesia, pygmy seahorse also occur from Japan, Taiwan, the Philippines, Malaysia in the Northern Hemisphere to Australia and Papua New Guinea in the Southern Hemisphere.





1. 海扇是豆丁海馬的宿主 /Stephan 攝
The sea fan is pygmy seahorses' host. / by Stephan
- 2-3. 迷你可愛的豆丁海馬，有海中精靈之稱 / 蔡永春攝
The pygmy seahorse is so tiny that it is also called "the fairy in the sea." / by Yung-chun Tsay

鄭博士於2003年11月因主持中研院西太平洋生物多樣性的研究計劃，而前往美娜多海域潛水調查。該海域大部分被劃入布那肯國家公園，自從發現2隻豆丁海馬以後，聲名大噪，立刻吸引許多國際潛水客來這裡想要一睹牠的廬山真面目。鄭博士以自己為例，由於豆丁海馬非常的迷你，即便在導潛的指示下仍無法看清楚牠的模樣，更不用提拍攝到理想的畫面。他還說，簡直無法想像在海裡竟有一團接著一團的潛水客排隊等拍照的情形，有些潛水客發現氧氣快用完了還輪不到自己拍照，急得直跺腳！不過幸運的話，拍回來的照片看見豆丁海馬是那麼的小（2公分以下）卻又惹人愛憐，一切的辛苦都值回票價了。

抱持對豆丁海馬的研究熱忱，鄭博士於2004年的珊瑚礁生態保育活動週內，發起尋找豆丁海馬的活動。剛開始的第一週，無人見到，可是一個月以後，國內潛水界就陸續在蘭嶼、墾丁南灣獨立礁等海域，發現了豆丁

As part of his research project on west Pacific Ocean biodiversity, Jeng went to the Manado Strait, most of it designated as Bunaken National Park. The Park quickly rose to fame and drew divers around the world since two pygmy seahorses were discovered there. Jeng noted that the seahorse is too tiny for human eyes, even with the presence of a diving coach. It is therefore challenging to take photos of them. Still, swarms of scuba divers were willing to wait in line underseas just to take a precious shot. If they are lucky enough to capture the image of a tiny pygmy seahorse smaller than 2 cm, all the wait would be well worth it.

With intense interest in pygmy seahorses, Jeng initiated an activity of finding pygmy seahorse during the 2004 coral reef conservation campaign. No one spotted any in the first week, but a month later, scuba divers in Taiwan started to see the fish in waters of Lanyu (Orchid Island) and Nanwan, Kenting. In particular, the presence of three pygmy seahorses in Nanwan brought in a lot of tourists

海馬的蹤跡。自從南灣獨立礁發現了3隻珍貴豆丁海馬，讓恆春一帶的潛水業者如獲至寶，也為當地帶來無限商機。然而好景不常，2009年1月10日在全國主要媒體的版面上，出現一則令國人震驚的新聞，原來是墾丁國家公園南灣的豆丁海馬被盜。

豆丁海馬被盜 生態保育界之恥

從當地潛水業者通報海扇柳珊瑚被盜採，以及3隻豆丁海馬被竊至今，已事隔一年多，但是鄭博士每次談及此事，仍難掩氣憤並將它形容為：「生態保育界的奇恥大辱！」

此次遭盜採的扇形軟角柳珊瑚，高約150公分，年齡約150歲，由於形態生長如樹，而有海扇之稱。海扇生長於海中較深處且與海流呈垂直方向，以利珊瑚群體獲得更大的覓食機會。通常柳珊瑚群體上除可發現一些小型蝦蟹寄住外，也吸引豆丁海馬棲息其間。

鄭博士形容被盜的3隻豆丁海馬是墾丁海域的「海角七億」，為墾丁潛水市場帶來許多商機。每位潛水客到訪墾丁，除了交通食宿費用外，光是租船潛水費用就超過2,000元。如以每年數千人潛水的商機估算，這3隻小不點的確是墾丁海洋觀光遊憩的金雞母。然而，令人痛心疾首的是，非法盜採者不但抓走3隻豆丁海馬，連牠們寄宿的海扇也以鐵鎚敲擊一併挖走。這種盜採行為，不但藐視國家法律，也直接影響台灣海洋生態系中稀有物種的族群數量。他語重心長地表示，豆丁海馬被盜事件可說是台灣

for Hengchun. However, the situation took a turn for the worse when Taiwanese media reported in Jan. 10th, 2009 the theft of three pygmy seahorses in Nanwan.

Disgrace to Taiwan's Eco-conservation

It has been over a year since the reported theft of gorgonian corals along with the three pygmy seahorses, but Jeng still fumed over it and regarded it as “the disgrace to Taiwan's eco-conservation.”

The stolen gorgonian coral is about 150 cm in length and 150 years of age. Gorgonian corals are also known as the sea fans because of their shape, and they occur deep in the sea, usually perpendicular to the ocean currents, thus making food-finding easier. In addition to some small shrimps and crabs, pygmy seahorse are also attracted to the corals.

In Jeng's words, the three stolen pygmy seahorse are the cash cows for Kenting. Each scuba diver spends an average of over NT\$ 2000 in Kenting on boat rentals and diving only, and that does not include expenses such as accommodations. Given the rough estimate of thousands of scuba divers that visit Kenting each year, the stolen pygmy seahorses are truly a great loss to Kenting. But what's more distressing is that of the poachers not only took away the seahorses, but plucked the sea fans, the fish's hosts, with hammers. Such poaching was not just illegal but also adversely affected the population of rare species in Taiwan's marine ecosystem. Jeng said the theft served as a warning signal to Taiwan because its protection of

墾丁是潛水者的遊訪聖地，業者的保育觀念若不確實，會對海底造成嚴重的負荷與傷害 / 蔡永春攝

Kenting is a must-visit spot for divers. If the concepts of conservation are not well perceived by the businessman, it will bring great damage and burdens to the sea. / by Yung-chun Tsay



海洋保育的警訊，對於以海洋立國的台灣而言，雖然四面環海，但對於保育海洋中的野生動物，仍處於未開化的階段。

過度撈捕及棲地破壞

過去，海馬族群遭受的威脅大多來自於人類的濫捕，或使用破壞性極大的漁具而導致其棲地的破壞。傳統中國藥材視乾燥海馬為補品，活體則當成觀賞展示品。由於人類過度撈捕與棲息地的嚴重破壞，使得海馬已面臨生存危機。因此，瀕臨絕種野生動植物國際貿易公約組織（簡稱CITES）於2004年通過將目前所有的海馬種類列入附錄二名錄中。換句話說，雖然海馬並無立即的滅絕危機，但若恢復交易，恐有滅絕之虞。

豆丁海馬已失蹤一年多了，但是鄭博士對於這3隻水晶宮的超級明星，仍念念不忘，甚至苛責自己公布豆丁海馬的棲息處，才引起有心人的覬覦。他曾嚴厲譴責，歹徒不但在墾丁國家公園抓走豆丁海馬，連宿主也不放過，好比小偷要偷東西，竟連房子也搬走。他特別提醒，豆丁海馬和海扇之間，均有共生關係。只養豆丁海馬，可能無法養殖長久，若要蓄養海扇更是不可能，因為它只能生長於海流強勁、陽光微弱的深海裡。

儘管因豆丁海馬被竊而心捨不捨，鄭博士希望透過媒體與網路報導此一事件，讓國人意識到海洋保育的危機，他也期盼政府應加強海洋稀有生物的保育。

法律是維護社會公平、正義的最後手段，任何人只要在國家公園海域內從事毒、電、炸、撈捕海洋生物等不當行為，都是全民公敵，民眾可撥打報案電話：08-8861331 國家公園警察大隊墾丁警察隊、墾丁國家公園管理處。依國家公園法規定，如情節重大者，可處以罰款或移送法辦。海洋資源是大家所共享與共有的公有財，除了拍攝珍貴畫面外，什麼都不取。更重要的是，國人應共同維護海洋及環境，直接或間接保護海洋生物資源，讓它們生生不息。🇹🇼

marine animals is by no means enough.

Over-fishing and Habitat Destruction

The major threat to the seahorse population comes primarily from over-fishing or destructive fishing gear that damage the habitats of seahorses. Dried seahorses are used as traditional Chinese medicine while living ones are used for display. In view of this, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) listed all seahorse species in Appendix II, which means seahorses are not in immediate danger of extinction but will likely be so if trading of the species resumes.

More than a year has passed since the three pygmy seahorses went missing, and Jeng is still blaming himself for making public their habitat. He also condemned the poachers for stealing the seahorses and their hosts all together. He said the two are symbiotic, and their growth conditions make the rearing of them in an alien environment next to impossible because the former cannot live with the latter, which only live in deep sea with strong ocean currents and dim sunlight.

The theft prompted Jeng to report it through the media and the Internet, for he wanted to increase the public's awareness in marine conservation and expects the government to reinforce the protection of rare marine species. As the laws are the last means for maintaining social justice, anyone engaging in illegal activities harmful to marine animals within national parks should be brought to justice. To report any suspicious act, call the Kenting National Parks Police Corps and Kenting National Park Headquarters at (08)8861331. Offenders can be fined or charged. It must be stressed that marine resources are shared by all, and everyone should all do the utmost to protect them and allow them to prosper sustainably. 🇹🇼

簡介 Profile



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Jeng holds a Ph.D. in Oceanography from NTU and is currently a research fellow of the Biodiversity Research Center of Academia Sinica. His research area covers marine animals, ecosystem and water ecosystem conservation.