

相遇「油」勝美地  
台灣中油生態地圖



# 祕境初探

Exploring Hidden Gems



祕境初探

台灣中油股份有限公司

相遇「油」勝美地  
台灣中油生態地圖



Encounters with the 'Oil'-standing Nature -  
CPC Taiwan's Ecological Tapestry

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ISBN  
000-000-87937-8-1



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## 關一畝 乘載永續思維的生態綠洲

2023 年 5 月 22 日，台灣中油股份有限公司在行政院農業部林業及自然保育署的頒獎典禮上，接下「2023 TWBA 台灣生物多樣性獎」的金獎肯定。這個獎項對我們而言，背後意義遠大於「金獎」二字。

能源事業關乎著國家經濟、民生活動、乃至於國防安全，是不可或缺的上游產業，但相比一般企業，石化重工業的特性也常被質疑有環保及生態疑慮。正因如此，兼顧經濟效益與環境永續，始終是我們念茲在茲的首要任務之一。

中油公司廠區遍布臺灣淺山、海域、潮間帶與近郊都會區，與自然環境的關係緊密，其中更因「三接」的興建，凸顯生態保育與開發的矛盾與挑戰，但我們不畏困難，從內部管理營運到與外部的協力合作，找出與環境共存的最佳解方。



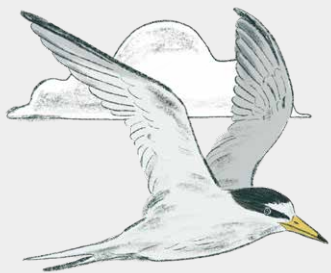
## CARVING A NICHE: AN ECOLOGICAL OASIS CARRYING SUSTAINABLE IDEALS

On May 22, 2023, CPC Corporation, Taiwan, was honored with the Gold Award at the “2023 Taiwan Biodiversity Awards” ceremony hosted by the Forestry and Nature Conservation Agency of the Ministry of Agriculture, Executive Yuan. To us, the significance of this award far exceeds the mere title “Gold Award.”

The energy industry, essential to the national economy, civilian life, and even national defense and security, is an indispensable upstream industry. Compared to general enterprises, the petrochemical industry is often questioned for its environmental and ecological concerns. Therefore, balancing economic benefits with environmental sustainability has always been one of our top priorities.

The plants of CPC are spread across Taiwan, from low mountains, marine areas, intertidal zones to suburban areas, maintaining a close relationship with the natural environment. The construction of the third LNG terminal, in particular, highlights the contradictions and challenges between ecological conservation and development. Despite the difficulties, we strive for the best solutions for coexistence with the environment, from internal management and operations to external collaboration.





多年來，藉由與各領域專家學者合作，推動多項海域、陸域生態監測調查，逐步盤點廠區生態，掌握運營場域與周邊環境的相互關係，擬定適當保育策略，主動積極實施復育行動，並轉化環境知識與全民共享。近年，更期許打破保護區與產業開發的絕對界線，引入「其他有效保育措施之區域」（Other Effective Area-based Conservation Measures，簡稱 OECM）的概念，將廠區化身生態園區，為臺灣野生動植物留下棲地。

會有這樣的行動，是我們對臺灣能源產業轉型使命的落實，更是守護臺灣生物多樣性的具體承諾。

### 翻開書頁 踏上生態「旅歷」

攤開中油公司廠區分布地圖，從供油服務中心、煉油廠、油氣接收站等各類型廠區座落在不同的山海地帶，加上長久以來限制人為活動，讓各類生物得以在此休養生息、茂盛發展，經年累月在廠區內構築出動植物生長活躍的一天方地，如同諾亞方舟為生物「續命」。

綠蠵龜、臺灣狐蝠、食蟹獾、穿山甲、及柴山多杯孔珊瑚等保育類野生動物，都是常在廠區內現身的嬌客。「巡廠要小心山豬、工作時要留意不驚擾竹雞孵蛋」。這不是巡山員的例行業務，而是我們廠區的員工日常。

Over the years, by collaborating with experts and scholars from various fields, we have promoted numerous marine and terrestrial ecological monitoring and investigation projects, gradually inventorying the ecosystems surrounding our plants, understanding the relationship between business sites and their surrounding environments, developing appropriate conservation strategies, actively implementing restoration actions, and sharing environmental knowledge with the public. In recent years, we have aimed to blur the absolute boundary between conservation areas and industrial development by introducing the concept of "Other Effective Area-based Conservation Measures (OECM)" and transforming our plant areas into ecological parks and preserving habitats for Taiwan's wildlife.

Such actions demonstrate our commitment to the transformation of Taiwan's energy industry and our solemn pledge to protect Taiwan's biodiversity.

### Turning the Pages: An Ecological "Voyage"

Gazing at the map of CPC's plant locations, from fuel depots, refineries, to terminals across various mountain and sea regions, and the long-standing restriction of human activities have allowed various species to rest, grow, and flourish. As time goes by, a vibrant land of animals and plants are built within our plant areas, akin to Noah's Ark giving life anew to species.

Green sea turtles, Formosan flying foxes, crab-eating mongooses, pangolins, and Chaishan caryophyllid corals, among other protected species, are frequent guests seen within our plant areas. "Be cautious of wild boars during patrols and mindful not to disturb the bamboo partridges nesting" is not a routine task for forest patrollers but a daily occurrence for our plant staff.





如果說「2023 TWBA 台灣生物多樣性獎」金獎象徵的是中油公司在環境永續與生態保育努力的成果；那麼本書的誕生，便是希望將這份成果分享出去，讓台灣中油在永續的路上與社會產生更深的連結，因為維繫生物多樣性不應該把人、生物與環境拆開，而是讓這個理念落實為普世價值。因此，我期望本書以輕鬆可讀的方式，引領讀者認識不同的台灣中油，進而與我們攜手串連起更多的公眾參與。

本書將具生態潛力的中油廠區依照自然環境特性劃分四大主題，以探索、盤點、理解為主要核心，呈現中油與環境生態共存之理念與在地故事，將長年隱蔽於圍牆之內的廠區生態，藉由悠然輕鬆的圖文正式進入群眾視野。

其中最吸睛之處，便是數十種躍然紙上的珍稀動植物，牠們之中許多是保育類野生動物，幾乎無法在日常生活中目睹真實身影。就讓我們透過書頁間的「旅歷」打開廠區大門，來一場現地的生態野遊，您將會發現以為遠在彼方的生態綠洲，其實就在生活不遠處。

台灣中油股份有限公司  
董事長

李頂欽

If the Gold Award from the "2023 Taiwan Biodiversity Awards" symbolizes the fruits of CPC's efforts in environmental sustainability and ecological conservation, the birth of this book is to share these results, deepening CPC's connection with society on the path to sustainability. Preserving biodiversity should not separate humans, animals, and the environment. We should integrate this concept into a universal value. Hence, I hope this book, in an easily readable manner, introduces a different CPC to readers and encourages more public engagement.

This book divides CPC's facilities with ecological potential according to natural environmental characteristics into four main themes, centered around exploration, inventory, and understanding. It presents the coexistence of CPC with the nature and tells local stories. The long-hidden ecology within the plant walls, through serene and easy-to-understand text and images, officially enters the public domain.

Among the most captivating sights are dozens of rare animals and plants leaping off the pages, many of which are protected species, almost impossible to witness in everyday life. Let us open the doors to the plant areas through the "voyage" within these pages and embark on an ecological adventure. You will discover that an ecological oasis, albeit seemingly distant, is actually not far from everyday life.

Chairman of CPC Corporation,  
Taiwan

Lee, Shuen-chin

# 目錄

## Table of Contents



## 02

### 關一畝

#### 乘載永續思維的 生態綠洲

Carving a Niche: An  
Ecological Oasis  
Carrying Sustainable  
Ideals

導讀  
台灣中油股份有限公司  
董事長 李順欽

Foreword by Lee  
Shun-chin, Chairman  
of CPC Corporation,  
Taiwan

## 10

### CHAPTER 1

#### 供油服務中心

##### FUEL DEPOT

#### 劃地保留生態區 做山林的 守護者

Carving Out Ecological  
Reserves: Guardians of the  
Forests

14 基隆・石門供油服務中心  
Keelung · Shih-men Fuel Depot

16 臺中・王田供油服務中心  
Taichung · Wangtian Fuel Depot

18 宜蘭・蘇澳供油服務中心  
Yilan · Suao Fuel Depot

21 花蓮・花蓮供油服務中心  
北埔庫區  
Hualien · Beipu Fuel Depot

山羌、石虎、麝香貓、筆筒樹、  
臺灣獼猴、大冠鷲、黑鳶、  
五色鳥、環頸雉、臺灣葉鼻蝠、  
臺灣狐蝠、旖斑蝶

*Muntiacus reevesi micrurus*, *Prionailurus  
bengalensis*, *Viverricula indica taivana*,  
*Sphaeropteris lepifera*, *Macaca cyclopis*,  
*Spilornis cheela*, *Milvus migrans*,  
*Psilopogon nuchalis*, *Phasianus colchicus*,  
*Hipposideros armiger terasensis*, *Pteropus  
dasymallus formosus*, *Ideopsis similis*

## 46

### CHAPTER 2

#### 海域接收站

##### COASTAL TERMINAL

#### 港邊祕境 成就海洋生物的 熱門棲地

Secret Havens by the Harbor: A  
Hotspot for Marine Life

48 新北・深澳港供輸服務中心  
New Taipei · Shen-ao Terminal

54 高雄・永安液化天然氣接收站  
Kaohsiung · Yongan LNG Terminal

克氏雙鋸魚、圓眼燕魚、  
魔鬼蓑鮋、綠蠔龜、諾亞碑礫蛤

*Amphiprion clarkii*, *Platax orbicularis*,  
*Pterois volitans*, *Chelonia mydas*,  
*Tridacna noae*

## 66

### CHAPTER 3

#### 第三座液化天然氣接收站

##### THE THIRD LNG TERMINAL

#### 海岸紅寶石 實踐綠色港灣的 生態願景

Coastal Rubies: Towards the  
Ecological Vision of a Green Harbor

68 第三座液化天然氣接收站  
The Third LNG Terminal

小燕鷗、東方環頸鴉、  
柴山多杯孔珊瑚、殼狀珊瑚藻、  
兇猛酋婦蟹

*Sterna albifrons*, *Charadrius alexandrinus*,  
*Polycyathus chaishanensis*,  
*Crustose coralline algae*, *Eriphia ferox*

## 90

### CHAPTER 4

#### 煉油廠

##### REFINERY

#### 城市謳歌 跨越永續未來的 關鍵一步

Urban Harmony: The Crucial  
Step Towards a Sustainable  
Future

92 桃園煉油廠  
Taoyuan Refinery

96 高雄煉油廠  
Kaohsiung Refinery

穿山甲、領角鴉、鳳頭蒼鷹、  
臺灣藍鵲、黃鸝、黃裳鳳蝶、  
相思樹、椶櫚

*Manis pentadactyla pentadactyla*,  
*Otus lettia*, *Accipiter trivirgatus*,  
*Urocissa caerulea*, *Oriolus chinensis*,  
*Troides aeacus kagya*, *Acacia confusa*,  
*Mangifera indica*



# CHAPTER 1

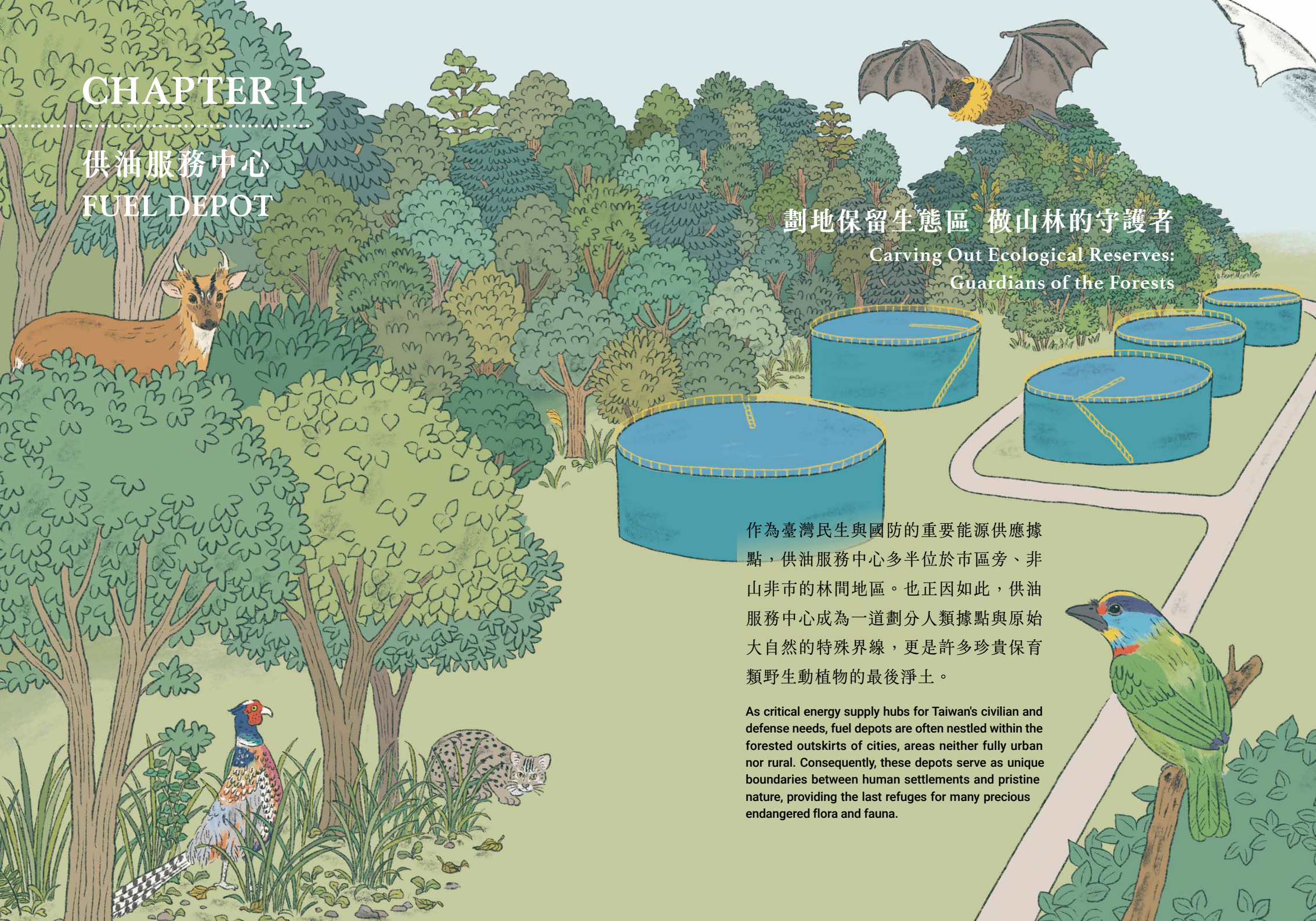
## 供油服務中心 FUEL DEPOT

### 劃地保留生態區 做山林的守護者

Carving Out Ecological Reserves:  
Guardians of the Forests

作為臺灣民生與國防的重要能源供應據點，供油服務中心多半位於市區旁、非山非市的林間地區。也正因如此，供油服務中心成為一道劃分人類據點與原始大自然的特殊界線，更是許多珍貴保育類野生動植物的最後淨土。

As critical energy supply hubs for Taiwan's civilian and defense needs, fuel depots are often nestled within the forested outskirts of cities, areas neither fully urban nor rural. Consequently, these depots serve as unique boundaries between human settlements and pristine nature, providing the last refuges for many precious endangered flora and fauna.





# 臺灣特有種的世外桃源

## Utopia for Taiwan's Endemic Species

### 山林裡的供油基地

#### An Oil Supply Base in the Forest

曾經，我們能在平緩的淺山地區輕易遇見覓食的山豬，能在低海拔樹林間看見從洞穴中探出頭來的穿山甲，能欣賞天空中翱翔飛舞的黑鳶與大冠鷲。但隨著臺灣經濟起飛，接踵而至的環境開發與棲地破壞，卻使這些過去常見的身影消失在人們的視野之中。

經濟與生態能並存嗎？與人類生活愈為重疊的動物們，還有機會找到安身之處嗎？

所幸，臺灣仍有淨土，  
承載起臺灣特有種生物的未來。

作為民生與國防的重要據點，供油服務中心多半位於緊鄰市區的林間地帶，廠區中除了油槽為必需建物外，僅有零星辦公大樓與灌裝設施，並不需要開發周邊林地。中油公司為了安全與國防隱蔽需求，將周邊土地買下卻沒有進行開發，在中油公司長期維護管理之下，反而意外造就了保育類動植物的安居之所。



Once, it was common to encounter foraging wild boars in the gentle slopes of the low mountains, to see pangolins peeking out from their burrows in the low-altitude forests, and to admire the soaring black kites and crested serpent eagles in the sky. However, with Taiwan's economic took off, ensuing industrial development and habitat destruction have caused these once-common sights to vanish from our view.

Is economic development antithetical to natural environment? Do animals, increasingly overlapping with human activities, still have a chance to find a place to live?

Fortunately, Taiwan still has sanctuaries to carry the future of the island's endemic species.

As important hubs for civilian and defense needs, fuel depots are primarily located in forested areas adjacent to cities. Apart from necessary oil tanks, only a few office buildings and filling facilities occupy the plots, with no need to encroach on the surrounding forest land. For safety and defense concealment, CPC has purchased but not developed the surrounding land. Together with the long time maintenance by CPC, sanctuaries for protected flora and fauna were inadvertently created.







- 1** 滯洪池豐富了廠區的生態系。  
The detention ponds enrich the facility's ecosystem.
- 2** 樹下小洞竟是穿山甲的傑作。  
A small hole under a tree reveals the craftsmanship of the pangolin.

## 隱市 熱鬧的生態廊道

距離基隆市區不到十分鐘的車程，就能從熱鬧的港口城市來到三面環山、覆蓋著大面積森林的石門供油服務中心。此廠區恰好位處在基隆七堵區下坡山及港口山之間，包含了石門及八堵兩個廠區。

廠區銜接了陽明山、七堵與石碇三座淺山，成為一條隱藏在市區的生態廊道，讓生物能在不受人類影響的前提下在區域內安心活動。常可見穿山甲覓食時挖出來的洞穴，山羌的叫聲更是不絕於耳，尤其廠區內有一座渾然天成的生態滯洪池，富有許多兩棲類及魚類，豐富多樣的生物孕育了生態鏈中的頂級掠食者，當英挺的黑鳶在上空盤旋時，便象徵著這片廊道中生生不息的生命力。

## Hidden in the City: A Bustling Ecological Corridor

Less than a ten-minute drive from the bustling port city of Keelung brings you to the Shih-men Fuel Depot, which is surrounded by mountains on three sides and covered with extensive forests. This depot is strategically located between the Xiaposhan and Gangkoushan mountains in Keelung's Qidu District, encompassing both the Shih-men and Badu plants.

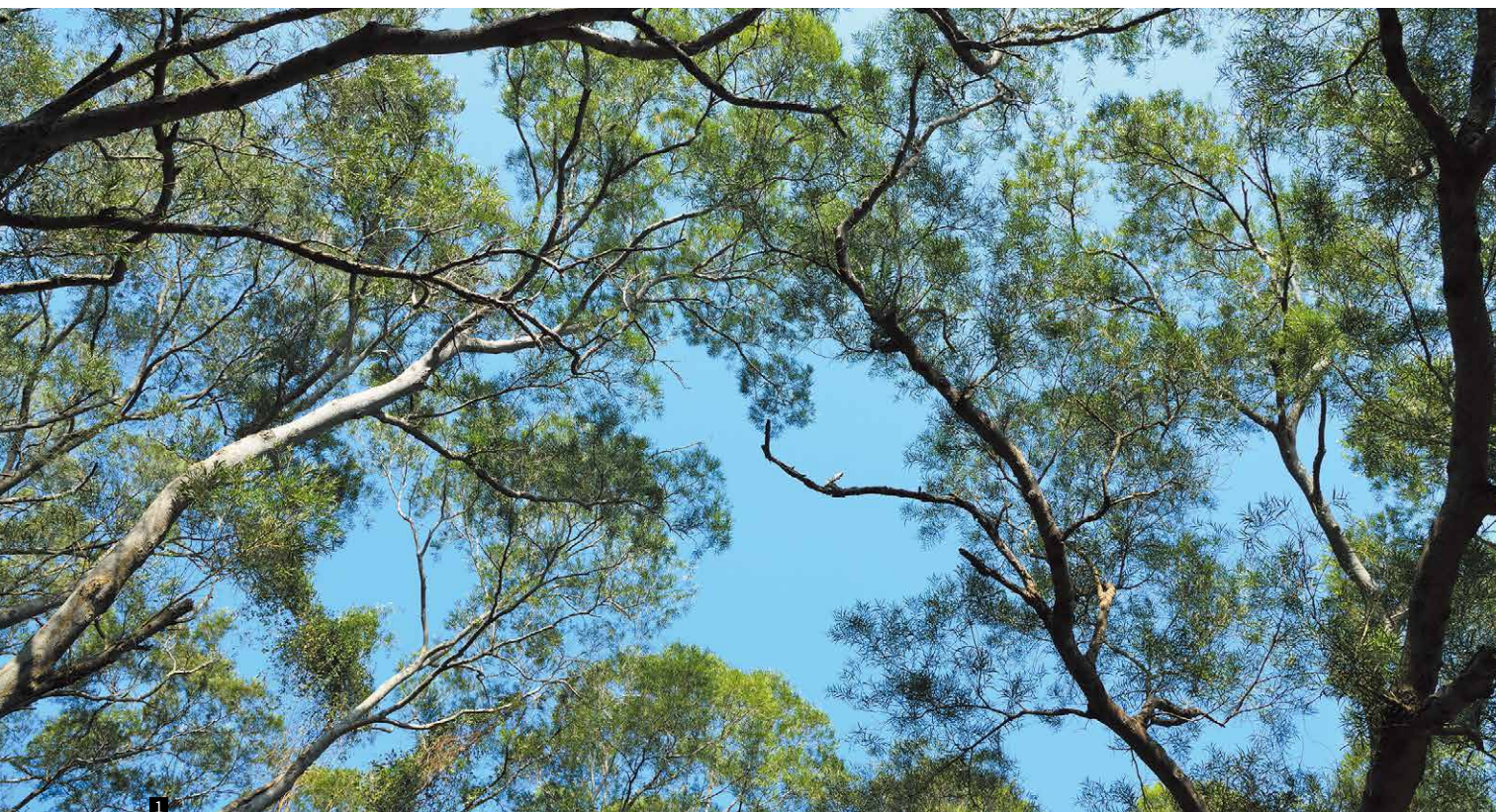
The depot connects the three low-altitude mountains of Yangmingshan, Qidu, and Shiding, forming an ecological corridor hidden within the urban area. It allows wildlife to move freely without human interference. Burrows dug by pangolins in search of food and the constant calls of the Formosan muntjacs are common sights and sounds. Notably, the facility includes a natural detention pond rich in amphibians and fish species. This fosters a diverse ecosystem that nurtures top predators in the food chain. The majestic circling of the black kite overhead symbolizes the vibrant lives within this corridor.



## 守護 石虎與林鳥共譜的樂章

位於大肚山臺地上的王田供油服務中心，位處林業及自然保育署劃設的保安林範圍內，也是國土生態綠網中大肚臺地淺山保育軸帶範圍。這座少數不搭建圍牆，僅由溪溝與坡坎形成自然界線的廠區中，以相思樹、油桐等次生林相為主，廠區內還有一座滯洪池供小鷗鵒、雁鴨、烏龜等生物棲息。

在這片天然茂密的次生林中，鼬獾及穿山甲在此出沒，甚至還有特有種石虎的蹤跡；而色澤豔麗的翠翼鳩、五色鳥更是停駐在這片林間，傳來猶如笛聲與木魚交錯的綺麗樂曲。



## Guarding: A Symphony Composed by Leopard Cats and Forest Birds

Located on the Dadu Plateau, the Wangtian Fuel Depot is within the conservation forest area designated by the Forestry and Nature Conservation Agency and is part of the Dadu Plateau low mountain conservation corridor of the national ecological green network. This is one of the few facilities without perimeter walls, using only natural creeks and slopes as boundaries. The area, dominated by Taiwan acacia and tung trees among other secondary forest species, also includes a detention pond that serves as a habitat for little grebes, wild geese and ducks, and turtles.

In this dense, natural secondary forest, Formosan ferret-badgers and pangolins roam, and even traces of the endemic leopard cat can be found. The colorful emerald doves and Taiwan barbets frequently roost in these woods, producing a beautiful melody reminiscent of flutes and wooden bells.

**1-2** 大冠鷲在自然次生林中逡巡。

The crested serpent eagle patrols the natural secondary forest.

**3** 架設監控攝影鏡頭，捕捉生物們的身影。

Surveillance cameras are set up to capture the movements of wildlife.

**4** 滯洪池水提供了重要的水源，意外成為候鳥棲息的樂園。

The detention ponds serve as an important source of water and have unexpectedly become a paradise for migratory birds.





宜蘭・蘇澳供油服務中心  
Yilan · Suao Fuel Depot

### Shielding: A Mountainous Refuge for Wildlife

The Suao Fuel Depot, located west of the Nanfangao Fishing Port and close to the confluence of the Suao and Houkeng streams, is naturally separated by ridgelines and mountains, making it a secret refuge for wildlife.

The early mornings at the facility are the best time to spot Taiwan serows, Formosan masked civets, and small Indian civets. Surrounded by mountains on three sides and naturally isolated from the outside world, this depot's surroundings abound with wildlife and old-growth forests. A shy Formosan muntjac might appear around a corner during the quiet moments before the staff's arrival. Surprisingly, the Guoguang Tunnel, built for transportation needs, has become a rare habitat for the Formosan leaf-nosed bat and a hidden secret of the facility.



### 屏蔽 野生動物藏身的環山地帶

蘇澳供油服務中心座落於南方澳港口以西，緊鄰著蘇澳溪與猴坑溪匯流處，以天然稜線與山區區隔，成為野生動物們藏身的祕密基地。

清晨的廠區，是目睹臺灣野山羊、白鼻心與麝香貓等可愛夥伴們的最佳時刻。在這座三面環山的供油廠區，由於天然屏障阻隔外界，野生動物與原始林相豐富，在員工們上班前的寧靜時刻，一個轉角就能碰上難得一見的害羞山羌，更令人驚奇的是，因運輸需求建造的國光隧道，竟意外成為極為少見的臺灣葉鼻蝠群居之地，是廠區隱藏的祕密基地。



臺灣野山羊  
Taiwan serows





1 蘇澳供油服務中心內的國光隧道。  
The Guoguang Tunnel at the Suao Fuel Depot.

2 國光隧道寄居著一群嬌客——臺灣葉鼻蝠。  
A group of charming guests resides in the Guoguang Tunnel— Formosan leaf-nosed bats.



## 留白 與生物共存的智慧

花蓮供油服務中心北埔庫區位於花東縱谷平原北段，緊鄰佳山基地與美崙溪間。除油槽區外，廠區內有兩處生態消防滯洪池以及大片草地，以保留不使用的方式，養起一座自然天成的隱蔽生態池。

### Leaving Space: The Wisdom of Coexistence with Nature

The Beipu Fuel Depot in Hualien, located in the northern part of the East Rift Valley Plain, is close to the Chiashan Air Force Base and Meilun Stream. Besides the oil tank area, the depot includes two ecological fire suppression ponds and extensive grasslands that are preserved in an undeveloped state, fostering a natural and hidden ecological pond.

Walking along the perimeter wall of the facility, outside is a secondary forest in its primal state. Formosan macaques often swing over the wall through crooked bamboo, breaking into the operating area and catching the patrol staff by surprise. During the summer, the grassland attracts birds like the ring-necked pheasant, Formosan bulbul, and bronzed drongo, creating a symphony that echoes through the mountains. Next to the retired railway tracks once used for oil transportation, trees such as country almond, bishop wood, wax apple, and mango have been planted. At night, the Formosan flying foxes feast here, turning it into a Michelin-starred restaurant for these endangered species.





沿著廠區圍牆散步，牆外是一片原始樣貌的次生林，臺灣獼猴常藉由彎曲的竹幹盪過圍牆進到操作區，惹得巡廠員工哭笑不得；夏季，草生地會聚集環頸雉、烏頭翁與小卷尾等鳥類，唱起縈繞山間的交響樂，而廠區內曾用於輸油、現已退役的火車軌道旁，種植了欖仁樹、茄冬以及蓮霧、芒果等樹種，到了夜間，臺灣狐蝠便會來此大啖一頓，儼然成為這些瀕危生物的米其林餐廳。



**1-2** 火車軌道旁的欖仁樹是狐蝠深夜的米其林餐廳。  
Trees beside the railway tracks serve as a Michelin-starred restaurant for the Formosan flying fox at night.

**3** 廠區內鳥類生態豐富。  
The facility boasts a rich bird ecology.



## 山羌

*Muntiacus reevesi micrurus*



常見體長  
約 47 – 70 公分

Average Length:  
Approx. 47–70 cm

原民神話中，大洪水將火種熄滅，人們派出高大的山羌將火取回，所有人開心地撫摸牠的身體，沒想到山羌的毛竟愈來愈亮，身體卻愈縮愈小，變成了現在小巧可愛的模樣。

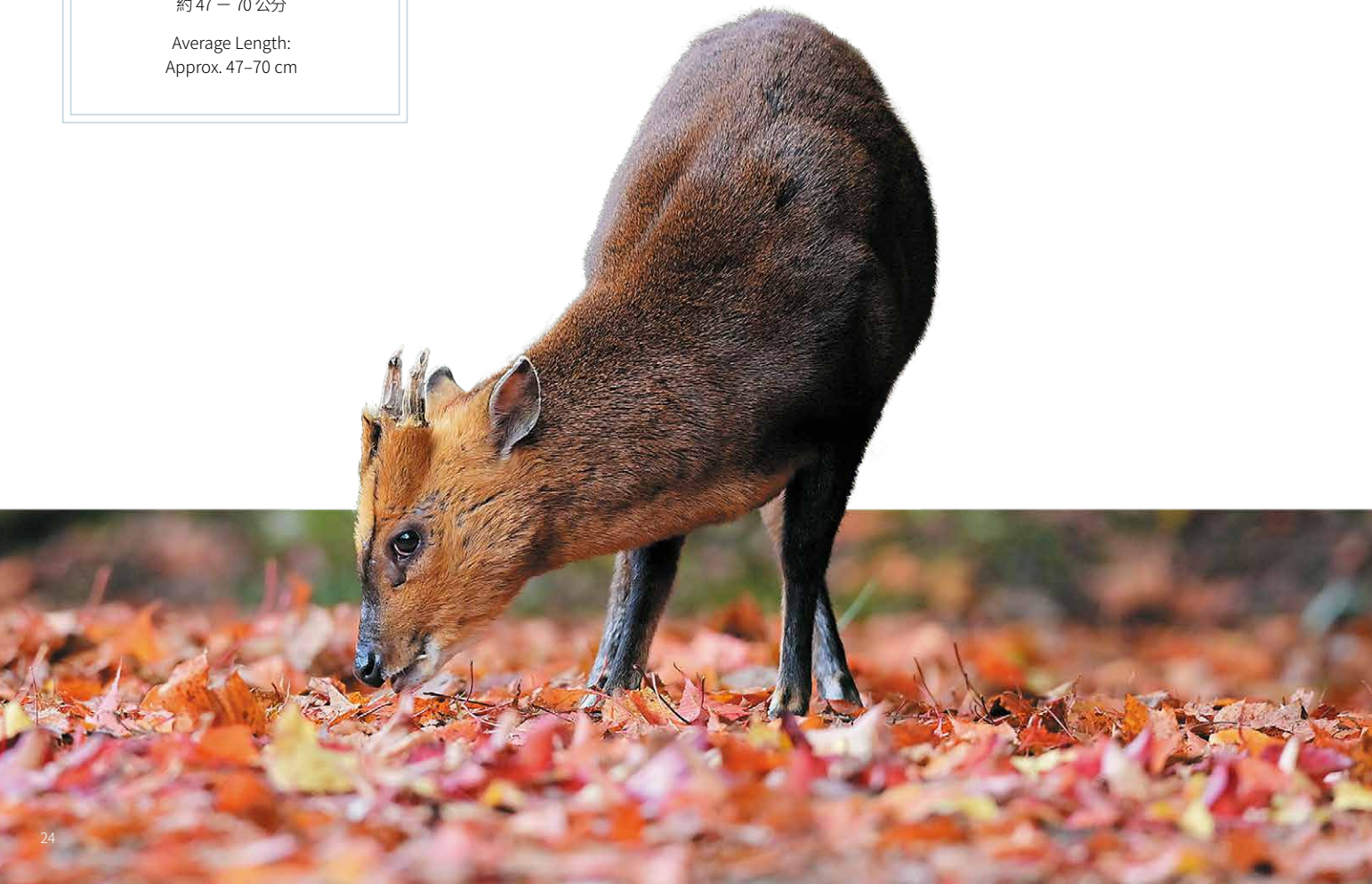
討喜的山羌在臺灣鹿科動物中體型最小，乍看就像隻中型犬，但在額內緣至角基內側各有一黑色條紋。



牠們生性害羞，往往只聞其聲卻不見其影，如果想在石門供油服務中心一睹牠的風采，不妨聽聽林間是否傳來像是犬吠的叫聲，那也許就是這個象徵吉利的小夥伴正在附近喔！

In indigenous myths, after a great flood extinguished all fires, tall muntjacs were sent to retrieve fire for the people. Everyone happily petted its body, but surprisingly, the muntjac's fur became brighter while its body shrank smaller, turning into the petit and adorable form we see today.

The charming Formosan muntjac, the smallest among Taiwan's cervids, resembles a medium-sized dog at first glance but can be identified by a black stripe from the inner edge of the forehead to the base of the horns. They are naturally timid, often heard but seldom seen. If you wish to catch a glimpse of this lucky symbol at the Shih-men Fuel Depot, listen for a bark-like call in the forest, which might just be this little friend nearby!





## 石虎

*Prionailurus bengalensis*



常見體長  
約 55 – 65 公分

Average Length:  
Approx. 55–65 cm

石虎又像虎斑貓、又像小花豹的俏皮模樣，是貓科家族中的獨特存在，也是臺灣境內現存唯一的野生貓科居民。但由於棲息地減少、道路開發以及非法盜獵的威脅，這群可愛的貓科動物們正面臨巨大的生存危機。僅存的石虎多半棲息在中臺灣中低海拔山區，金黃色的毛皮上布滿著黑色斑點，耳後及眼睛內側的白色線條是牠們獨特的象徵。

牠們偶爾會在無人之時悄悄穿梭在王田供油服務中心的周邊林區，如果你幸運見到牠，可千萬要小心翼翼別嚇走敏感的牠們了！

With its playful appearance resembling both a tabby cat and a small leopard, the leopard cat is a unique member of the cat family and Taiwan's only existing wild feline. However, due to habitat reduction, road development, and illegal poaching, these adorable felines face a significant survival crisis. The remaining leopard cats mostly reside in the mid to low altitude mountain areas of central Taiwan. Their golden fur covered in black spots and white stripes behind their ears and eyes serve as their unique symbols.

They occasionally roam stealthily around the Wangtian Fuel Depot's surrounding forests when undisturbed. If you're lucky enough to see one, be sure to tread carefully not to scare away these sensitive creatures!



照片提供：農業部生物多樣性研究所  
Photo courtesy of Taiwan Biodiversity Research Institute



## 麝香貓

*Viverricula indica taivana*



常見體長  
約 52 – 55 公分

Average Length:  
Approx. 52–55 cm

背上的黑色縱紋、尾巴上一圈圈的黑環、以及一對圓圓的耳朵，麝香貓在臺灣屬於珍貴稀有野生動物。屬靈貓科的牠們主要棲息在中低海拔森林，蘇澳供油服務中心的相思樹次生林就是牠們平時生活、覓食的領地，通常下午開始出沒，清晨休息，是道道地地的「夜貓子」。麝香貓尾部有「香腺」，便於牠們將氣味擦抹在植物、岩石上標示領域。

Characterized by black dorsal stripes, rings on the tail, and a pair of round ears, the small Indian civet is considered a precious and rare wild animal in Taiwan. Belonging to the Viverridae family, they mainly inhabit mid to low altitude forests. The Taiwan acacia secondary forests at the Suao Fuel Depot are their typical domains for living and foraging. They usually become active in the afternoon and rest at dawn and are true "night owls". Small Indian civets have scent glands on their tails, allowing them to mark their territory by rubbing scent on plants and rocks.



照片提供：謝孟宜  
Photo courtesy of  
Xie Meng-yi

## 筆筒樹

*Sphaeropteris lepifera*

常見樹高  
約 5 – 12 公尺

Average Height:  
Approx. 5–12 m



照片提供：達志影像  
Photo courtesy of Shutterstock

蘇澳廠區生長著許多筆筒樹，包括林緣以及曾經崩塌過又重新長出山黃麻的山坡上，都可以發現它的存在。這種來自億萬年前的珍貴活化石宛如巨大化的蕨類，莖幹粗壯，高度可達 10 公尺以上，大型葉片呈羽狀裂葉，莖幹更是布滿渾然天成的葉痕，令人讚嘆。

Many brush pot trees grow in the Suao plant area, including on the forest outskirts and on slopes that have collapsed and then regrown with jute. This precious living fossil from hundreds of millions of years ago resembles a gigantic fern, with a sturdy stem that can grow over 10 meters tall. The large pinnate fronds and stems covered with naturally formed leaf scars are just awe-inspiring.



## 臺灣獼猴

***Macaca cyclopis***

常見體長  
約 36 – 65 公分

Average Length:  
Approx. 36–65 cm

紅通通的臉蛋、毛茸茸的身軀，偶爾在花蓮供油服務中心北埔庫區的操作區會見到臺灣獼猴調皮的身影。臺灣獼猴是臺灣島上唯一的原生猴種，甚至可以說是臺灣最早的「原住民」，以果實、嫩葉、種子等為食，其富有表情的臉龐生動可愛，偶爾會從圍牆外抓著竹子盪進廠區，讓人好氣又好笑。

With their bright red faces and furry bodies, the naughty Formosan macaques are occasionally seen in the operational areas of the Beipu Fuel Depot. The Formosan macaque is the only native monkey species in Taiwan, and could even be considered one of Taiwan's earliest "aboriginals." They feed on fruits, tender leaves, and seeds, and their expressive faces are endearingly lively. Sometimes they swing into the plant area from the outside by clutching bamboo, amusing and exasperating in equal measure.



巡廠員工常撞見臺灣獼猴自圍牆外盪進廠區。

The patrol staff often encounter Formosan macaques swinging into the plant from outside the fence.



照片提供：達志影像

Photo courtesy of Shutterstock



## 大冠鷲

*Spilornis cheela*

常見體長  
約 65 – 74 公分

Average Length:  
Approx. 65–74 cm

在石門供油服務中心的周邊，經常都能見到大冠鷲飛舞或停駐在高處的雄偉身影。在布農傳說中，這種以蛇類為主食、展翅時可達 170 公分的老鷹，是由一個受到後母欺負的孤兒所變成，他不堪每日折磨，拿起掃把做尾巴、山棕做翅膀，一躍飛上天空變成了大冠鷲，終於獲得自由。

Around the Shih-men Fuel Depot, the majestic figure of the crested serpent eagle, mainly preying on snakes and with a wingspan of up to 170 centimeters, can occasionally be seen flying or perching at stunning heights. In Bunun legend, this eagle was originally an orphan mistreated by his stepmother. Unable to bear the daily torment, he took a broom as a tail and Formosan palm fronds as wings, leaping into the sky to become a crested serpent eagle and finally gaining freedom.



## 黑鳶

*Milvus migrans*



常見體長  
約 58 – 69 公分

Average Length:  
Approx. 58–69 cm

黑鳶俗稱「老鷹」，是生態環境健全的指標物種。50 年前，黑鳶的身影遍布全臺，卻因為經濟發展壓力及農藥殺鼠劑，使黑鳶數量大幅下降，最終被列為二級珍貴稀有保育類野生動物。不過，正因石門供油服務中心近乎原始的林區與周邊區域，保留了大自然的豐富資源，讓黑鳶能安心享用天然獵物，終於使黑鳶展翅於北海岸藍天白雲中的美好畫面，能夠成為人們的日常小確幸。



照片提供：達志影像  
Photo courtesy of Shutterstock



The black kite, colloquially known as "eagle," is an indicator of a healthy ecosystem. Fifty years ago, black kites were a common sight across Taiwan. However, due to economic development and the use of rodenticides, their numbers drastically declined, eventually leading them to be listed as a level 2 rare and valuable species. Nevertheless, the almost pristine forests and surrounding areas of the Shih-men Fuel Depot, preserving nature's rich resources, allow black kites to safely hunt for their preys. This has enabled the beautiful sight of black kites soaring under the blue skies and white clouds of the North Coast to become a daily blessing for locals.



## 五色鳥

*Psilopogon nuchalis*



常見體長  
約 23 公分

Average Length:  
Approx. 23 cm

五色鳥有著一身翠綠的羽毛，頭、喉則點綴著紅、黃、藍、綠、黑等五種顏色。牠們因為身著鮮豔、又常啄木發出和尚敲木魚般的特殊聲響，又被稱作「花和尚」，跟牠一身胖胖的身軀相得益彰。牠們在臺灣廣泛分布，活躍在平地至中海拔山區，始終樹棲，從不踏足於地面，在王田供油服務中心豐富多樣的林相生態中，五色鳥得以尋找自己喜愛的樹木啄洞築巢，繁衍後代，下次不妨循著「敲木魚」的聲音看去，也許就能一窺花和尚的美麗倩影。



The Taiwan barbet, adorned in vibrant green feathers with red, yellow, blue, green, and black markings on its head and throat, is also known as the "Flowery Monk" due to its colorful plumage and distinctive wooden-fish-like tapping sound. These birds are widely distributed across Taiwan, from the plains to mid-altitude mountain areas, always tree-dwelling and never descending to the ground. In the diverse forest ecosystem of the Wangtian Fuel Depot, Taiwan barbets can find their preferred trees to peck holes and nest, propagating their species. Next time, follow the sound of their "tapping wooden bells" to catch a glimpse of the Flowery Monk's beautiful figure.



## 環頸雉

*Phasianus colchicus*



常見體長  
約 60 – 80 公分

Average Length:  
Approx 60-80 cm

環頸雉，又被稱為雉雞或啼雞。環頸雉多現蹤在花東縱谷平原，喜愛在乾燥的草叢中穿梭，只要有草地和次生林相互交織、相互嵌套的地景，都可能成為環頸雉的棲地，常見於農村、機場以及河口地帶。雄鳥特徵為紅面藍冠，以及顯眼的白色頸環；雌鳥則羽色樸素，帶淡褐色斑紋。

有趣的是，牠們擁有飛行的本領，卻更偏好奔跑，花蓮供油服務中心北埔庫區的北廠區因為有廣闊的腹地與未開發的次生樹林區，是最容易看到臺灣環頸雉的地方之一，看著這些鳥兒在草地間悠哉漫步，真是再幸福不過了！



環頸雉雄鳥爭搶地盤。  
Male ring-necked pheasants vie for territory.



The ring-necked pheasant, also known as the pheasant or rooster, frequently appears in the East Rift Valley Plain, preferring to roam in dry bushes. Landscapes where grasslands and secondary forests interlace are potential habitats for the ring-necked pheasant, commonly seen in rural areas, airports, and river mouths. The male features a red face with a blue crown and a distinct white neck ring, while the female sports a more modest plumage with light brown spots.

Interestingly, though capable of flight, they prefer running. The northern plant area of the Beipu Fuel Depot, with its vast expanses and undeveloped secondary forests, is one of the places where Formosan ring-necked pheasants are most easily spotted. Watching these birds casually stroll through the grasslands is truly a delight!



## 臺灣葉鼻蝠

*Hipposideros armiger  
terasensis*



常見體長  
約 9 – 10.5 公分

Average Length:  
Approx. 9–10.5 cm

臺灣葉鼻蝠是臺灣特有種，也是臺灣最大型的食蟲蝠類，展翼長約 50 ~ 60 公分，因為臉上有三對側鼻葉而被稱為「葉鼻蝠」。這種蝙蝠通常棲息在天然岩洞或人工洞穴中，每年 3 月會從冬眠中甦醒、開始活動覓食，跟人類一樣，這種葉鼻蝠一年只懷一胎、一胎只生一隻幼蝠，是珍貴稀有的保育類動物。供油服務中心雖無洞穴，但卻意外在國光隧道內發現了臺灣葉鼻蝠的蹤跡，大自然的魔力令人驚嘆不已。



一群臺灣葉鼻蝠寄居在國光隧道內。  
A group of Formosan leaf-nosed bats resides in the Guoguang Tunnel.



臺灣葉鼻蝠的正面、  
背面。  
Front and back view of a  
Formosan leaf-nosed bat.



The Formosan leaf-nosed bat is endemic to Taiwan and is the island's largest insectivorous bat, with a wingspan of about 50–60 centimeters. Named for the three pairs of lateral nasal leaves on its face, it's known as the "leaf-nosed bat". This bat species usually inhabits natural caves or man-made tunnels, awakening from hibernation and starting to forage in March. Like humans, this bat mates once a year and gives birth to only one offspring at a time, making it a precious and rare protected species. Although there are no caves at the depot, the accidental discovery of Formosan leaf-nosed bat traces inside the Guoguang Tunnel is a testament to nature's wonder.



## 臺灣狐蝠

*Pteropus dasymallus  
formosus*



常見體長  
約20公分

Average Length:  
Approx. 20 cm



臺灣狐蝠是臺灣最大型的飛行哺乳類動物，雙翼展開可達約 1 公尺。從傍晚到凌晨，這些夜行性動物以優雅的姿態在淺山地區活動，以巧妙的倒掛方式於果樹上取食。因為鼻子像狗或狐狸而得名，與靠聲納定位的食蟲蝠類不同，牠們是用視覺辨物，所以眼睛圓又大、耳朵較小。但在棲息地減少與捕捉等威脅下，所餘族群量極小，從《野生動物保育法》立法以來就受保護，目前臺灣本島在花蓮較容易發現牠們的蹤影。

在花蓮，臺灣狐蝠主要活動於市區，與人類共享生活環境。牠們巧妙隱身於美崙山的林間，穿梭於校園和公園的大王椰子叢中，沿著美崙溪畔的樹上流連。而在花蓮供油服務中心北埔庫區種植的大葉欖仁樹上，可以看見牠們前來享用晚餐的身影，隔天早晨時，滿地都能撿到被啃光的欖仁果核，顯然相當滿意這餐款待。

照片提供：鄭錫奇

Photo courtesy of Cheng Hsi-chi



The Formosan flying fox is Taiwan's largest flying mammal, with a wingspan of up to one meter. These nocturnal creatures gracefully roam the low mountain areas from dusk till dawn, ingeniously hanging upside down on fruit trees to feed. Named for their dog- or fox-like noses, unlike echolocating insectivorous bats, they rely on vision for navigation, thus having round, large eyes and smaller ears. However, due to habitat loss and capture threats, their populations are extremely small, protected under the Wildlife Conservation Act since its enactment. Today, they are more commonly spotted in Hualien.

In Hualien, Formosan flying foxes primarily roam urban areas, sharing living spaces with humans. They skillfully hide in the forests of Meilun Mountain, weaving through clusters of royal palms in schools and parks and lingering in the trees along Meilun Stream. On the country almond trees planted at the Beipu Fuel Depot, their silhouettes can be seen enjoying their dinner, leaving behind a carpet of gnawed fruit kernels by morning, clearly satisfied with their feast.



## 旖斑蝶

*Ideopsis similis*

常見體長  
展翅約 7.5 – 8.5 公分

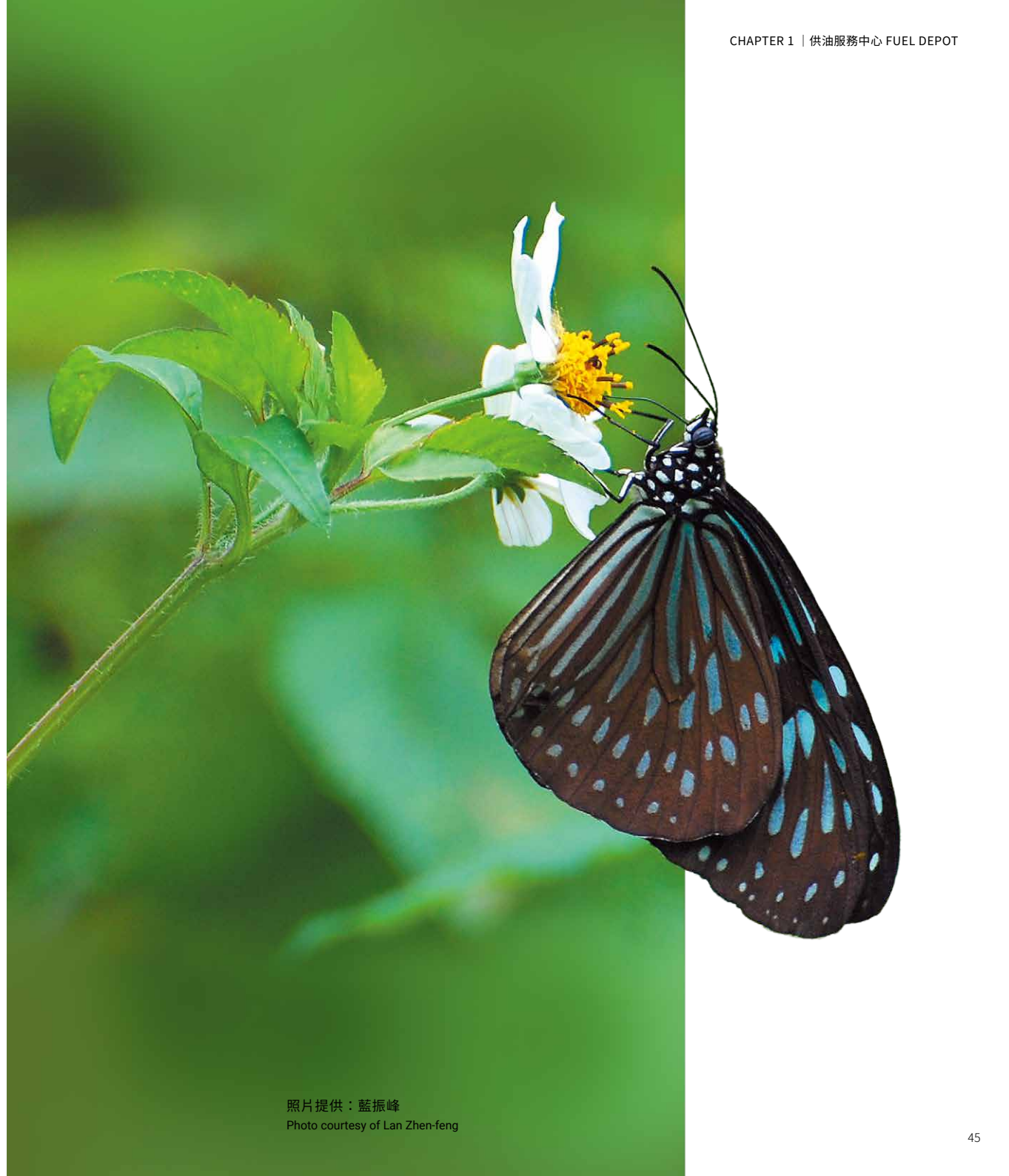
Wingspan:  
Approx. 7.5–8.5 cm

俗稱「琉球青斑蝶」，是點綴繽紛花叢中的青綠色畫布，翅上斑點優雅翠綠，在蘇澳供油服務中心的次生林與草地上都可以見到牠們的蹤跡。臺灣的琉球青斑蝶在冬天會飛往南部及東南部聚居，在山谷中避風，甚至曾記錄到有一隻琉球青斑蝶從新北烏來飛越中央山脈，穿過花東縱谷，落角臺東大武的越冬紀錄，飛行了足有 300 公里。

這些美麗的蝴蝶們飛行速度緩慢，經常在花叢間優雅地飛舞，牠們並從幼蟲時期便以有毒的蘿藦科植物為食，使自己成為毒物而不被獵食，而翅上美麗的斑紋更是一種禦敵的警示。

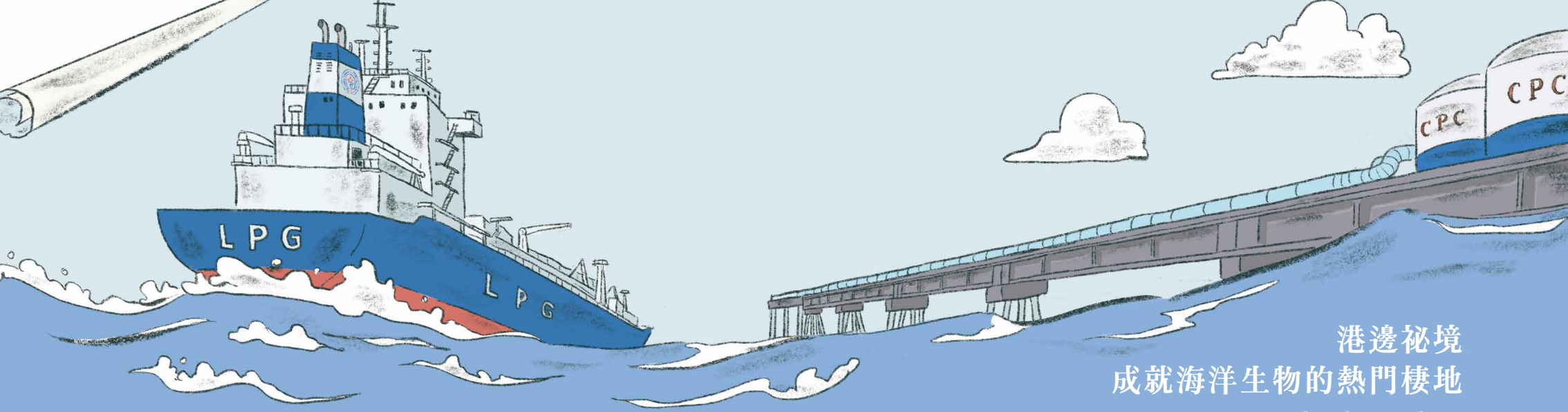
Also known as the "Liuchiou Blue Spotted Milkweed Butterfly," it's a green canvas adorning the colorful flower clusters, with elegant emerald spots on its wings. The Ceylon blue glassy tiger can be seen in the secondary forests and grasslands of the Suao Fuel Depot. In winter, these butterflies migrate to the south and southeast to cluster in valleys for wind protection. There's even a record of one flying over the Central Mountain Range from Wulai in New Taipei, crossing the East Rift Valley to Dawu in Taitung for wintering, covering a distance of about 300 kilometers.

These beautiful butterflies fly slowly, often fluttering gracefully among flowers. From their larval stage, they feed on poisonous plants from the dogbane family, making themselves toxic to predators. The beautiful patterns on their wings serve as a warning to predators.



照片提供：藍振峰  
Photo courtesy of Lan Zhen-feng





## 港邊祕境 成就海洋生物的熱門棲地

Secret Havens by the Harbor:  
A Hotspot for Marine Life

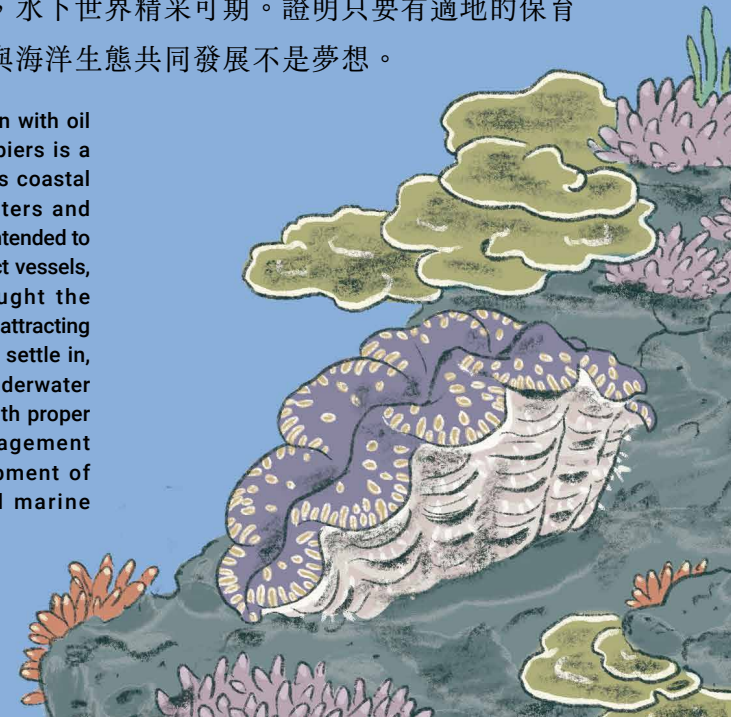
## CHAPTER 2

### 海域接收站 COASTAL TERMINAL



載著油氣的運輸船在碼頭邊停靠作業，是中油海域接收站日復一日的風景。港區周遭的防波堤和消波塊，原本是為了維持水域平穩、保護船隻作業安全，沒想到被珊瑚慧眼相中，進而吸引海洋生物紛紛遷居入住，水下世界精采可期。證明只要有適地的保育及管理，民生經濟與海洋生態共同發展不是夢想。

The sight of tankers laden with oil and gas docking at the piers is a daily occurrence at CPC's coastal terminals. The breakwaters and wave dissipators, initially intended to stabilize waters and protect vessels, have unexpectedly caught the attention of corals, in turn attracting a myriad of marine life to settle in, promising an exciting underwater world. This proves that with proper conservation and management actions, the co-development of economic utilities and marine ecology is not a dream.





# 在水下圈擁一方樂土

## Building a Paradise Underwater



### 能源港區的海底花園

### The Seabed Garden of the Energy Port Area

#### 珊瑚花園 孕育繁生的新興棲地

依山傍海，這四個字是深澳港供輸服務中心的最佳註解。

啟用迄今已將近半世紀，這座位於東北角九份山腳下、北部濱海公路上的能源專用港，從空中的視角俯瞰，翠綠的山林和透藍的海水像是一雙安穩臂膀環繞擁抱，天氣晴朗的時候，陽光直透海底，水面下的世界澄澈一覽無遺，燦爛耀眼。

#### Coral Garden: A Thriving New Habitat

Nestled between mountains and sea perfectly describes the Shen-ao Terminal.

Nearly half a century since its inception, this energy exclusive harbor located at the foot of Jiufen Mountain along the Northern Coastal Highway, from an aerial view, is cradled by verdant mountains and clear blue waters like secure arms around the supply and transport center. On clear days, sunlight pierces through the water surface down to the seabed, unveiling the crystal-clear underwater realm in dazzling splendor.



建廠前，這裡散發著漁村的淳樸氣息，鄰近居民多以捕撈漁業為生，如今成為工業、民生的能源儲放與運輸點，擁有液化石油氣與航空燃料油的專用靠卸碼頭，穩定供應臺灣北部地區能源使用。即使身負重任，廠區卻在黃金山城與漁火點點中顯得別具氛圍，漫步其中，腳步和心境都不自覺慢了下來。

Before the establishment of the plant, the area exuded the rustic charm of a fishing village, with nearby residents primarily engaging in fishing. Now transformed into an industrial and civil energy storage and transport hub, it features dedicated docks for LPG and aviation fuel, ensuring a stable energy supply for northern region of Taiwan. Despite its significant responsibilities, the plant area, set against the backdrop of the golden mountain town and flickering fishing lights, offers a unique atmospheric vibe that slows one's pace and quiets one's soul.



港域周遭是珊瑚生長的熱點，伴隨許多物種棲息於此，生態豐富。中油公司曾進行水下勘查，發現港內珊瑚不僅覆蓋率高，而且健康狀況良好，當中以葉片型表孔珊瑚、分支狀軸孔珊瑚最常見，牠們可是造礁幕後功臣，吸引如小丑魚、獅子魚等珊瑚礁魚類悠游，為了棲地維護和物種保育，廠區對於環境管理、垃圾清理、水質監測更是不遺餘力。

The harbor vicinity is a hotspot for coral growth, accompanied by numerous species, making it an abundant ecosystem. CPC once conducted an underwater survey and discovered not only a high coverage of corals within the harbor but also their healthy state. Montipora corals and Acropora corals, the unsung heroes of reef-building, are common, drawing in reef fish like clownfish and lionfish. To maintain habitats and conserve species, the terminal spares no effort in environmental management, garbage cleanup, and water quality monitoring.

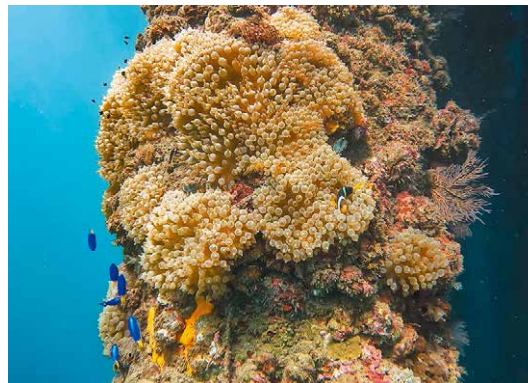
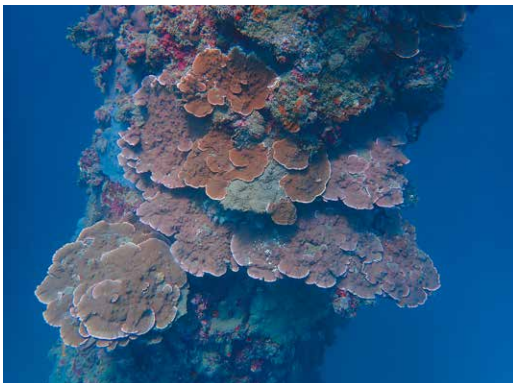


**1** 港區少了遊客的紛擾，適合生物在此定居。  
The harbor area, less disturbed by visitors, is suitable for wildlife to settle.





中油公司委託海洋大學團隊進行水下調查。  
CPC commissions a team from the National Taiwan Ocean University to conduct an underwater survey.



卸收平臺水下的鋼柱上長滿了珊瑚和海葵。  
The steel pillars under the unloading platforms are covered with corals and anemones.



此處海域珊瑚種類多元，豐富生態吸引魚類群聚。  
The diverse coral species in this area enrich the ecosystem and attract schools of fish.



## 珊瑚方舟 經濟與生態兼收的保種基地

10餘年前，位於高雄永安的液化天然氣接收站工作人員巡視港區時，發現淺水處消波塊上疑似有生物生長，後來委託國立中山大學調查發現，港區海域長了許多珊瑚，而且種類繁多。全球造礁珊瑚約有1,600多種，當中500多種可在臺灣海域見到，而永安液化天然氣接收站海底就占了130種，足以媲美珊瑚礁生態系保護區海域。

### Coral Ark: A Conservation Base Balancing Economy and Ecology

Over a decade ago, staff at the Yongan LNG Terminal in Kaohsiung, while patrolling the harbor, spotted suspected biological growth on shallow water breakwaters. Subsequent investigations by National Sun Yat-sen University revealed a diversity of coral species in the harbor area. Among the global 1,600 coral species, more than 500 can be found in Taiwan's waters, with the Yongan LNG Terminal's seabed hosting 130 species, rivaling protected coral reef ecosystems.



1



2

**1** 永安液化天然氣接收站水下成了珊瑚的理想棲地。

The water beneath the Yongan LNG Terminal becomes an ideal habitat for corals.

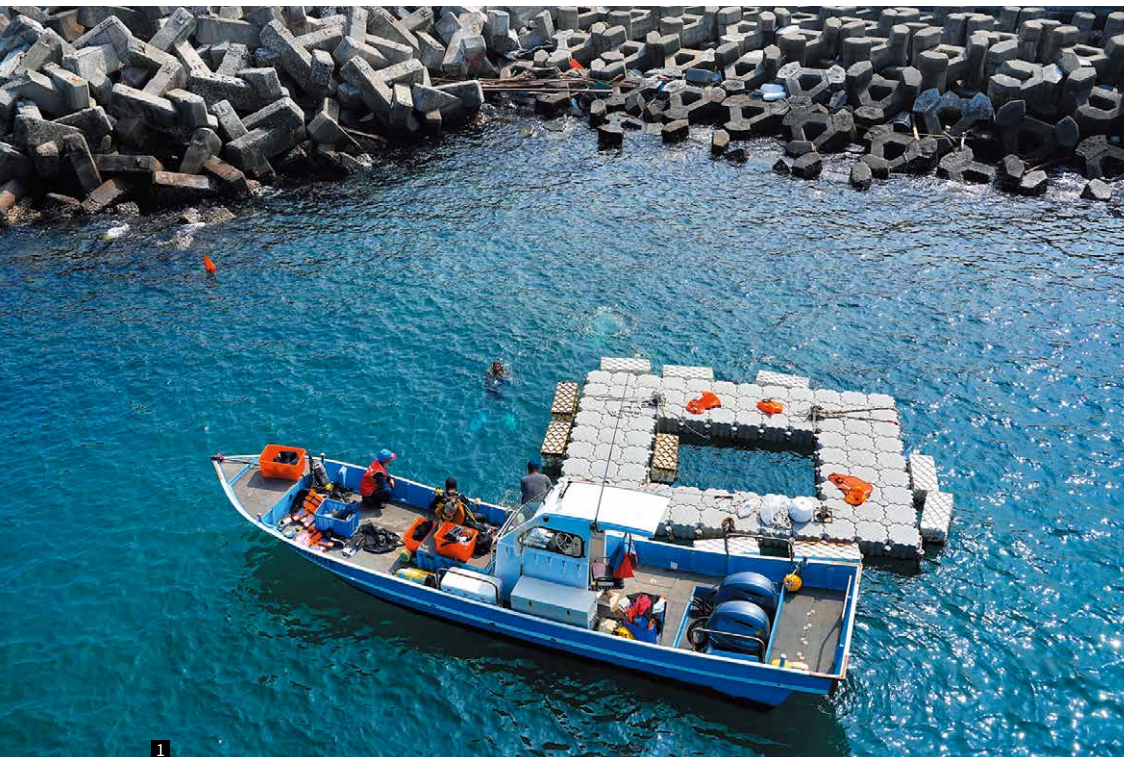
**2** 南北提防為珊瑚打造適合生長的平靜港灣。

The north and south breakwaters create a calm harbor suitable for coral growth.

永安液化天然氣接收站主要任務是提供液化天然氣載運船停泊、卸收，需要使用時再進行氣化，透過管線運輸最終送到各地用戶。為了讓船隻能安全作業，港區南北兩側劃設了防波堤，水流和濁度都相對平靜，竟因此被珊瑚相中，成為避開風浪的理想棲地，消波塊則提供珊瑚生長所需的硬基質，自然形成美麗海底世界。

The primary function of the Yongan LNG Terminal is to provide berthing and offloading for LNG carriers, with gasification when needed, and final distribution to users through pipelines. To ensure safe operations for vessels, breakwaters were constructed on both the north and south sides of the harbor, offering calm and clean waters, inadvertently becoming an ideal habitat for corals. The breakwaters provide the hard substrates corals need for growth, naturally creating a stunning underwater world.





過去大多認為，唯有劃設保護區域才能保育生態，如今永安液化天然氣接收站證明，持續且適地的保育及管理，可以兼收民生經濟與海洋生態的發展。現在更推動「珊瑚方舟」計畫，把重要的珊瑚物種移植至港內進行保育，讓永安液化天然氣接收站成為珊瑚保種的永續基地。

It was once believed that only by establishing protected areas could ecosystems be conserved. Now, the Yongan LNG Terminal demonstrates that continuous and appropriate conservation and management actions can balance between economic development and marine ecological conservation. Currently, the "Coral Ark" project is under implementation, transplanting important coral species into the harbor for conservation, making the terminal a sustainable bulwark for coral species conservation.

珊瑚來了，各種海洋生物也回家了。枝梗狀的軸孔珊瑚、葉片狀的表孔珊瑚、團塊狀的微孔珊瑚、迷宮狀的腦紋珊瑚，還有樹叢狀的鹿角珊瑚形成立體結構，營造海洋生物幼苗庇護空間，也提供了豐富食物來源，這裡就像是海洋的客廳，綠蠔龜、鸚哥魚、硨磲貝都是常客，綠島明星魚種——波氏燕魚，也閃亮登場。

With the arrival of corals came various marine organisms. The three-dimensional structures formed by branch-like Acropora corals, leaf-like Montipora corals, humpy Porites corals, labyrinthine brain corals, and bush-like Staghorn corals create shelter for marine larvae and offer abundant food sources. This place is the living room of the ocean, with regulars like green sea turtles, parrotfish, and Noah's giant clams, and even the celebrity fish of Green Island — golden spadefish — making a glittering appearance.

- 1 中油公司委託專業調查、研究周邊珊瑚生態。  
CPC commissions professional teams to study the surrounding coral ecology.
- 2 軸孔珊瑚。  
Acropora corals.
- 3 葉片型表孔珊瑚。  
Montipora corals.
- 4 諾亞硨磲蛤生長在消波塊上。  
Noah's giant clams grow on the wave dissipators.
- 5 迷宮狀的腦紋珊瑚。  
Maze-like brain corals.





## 克氏雙鋸魚

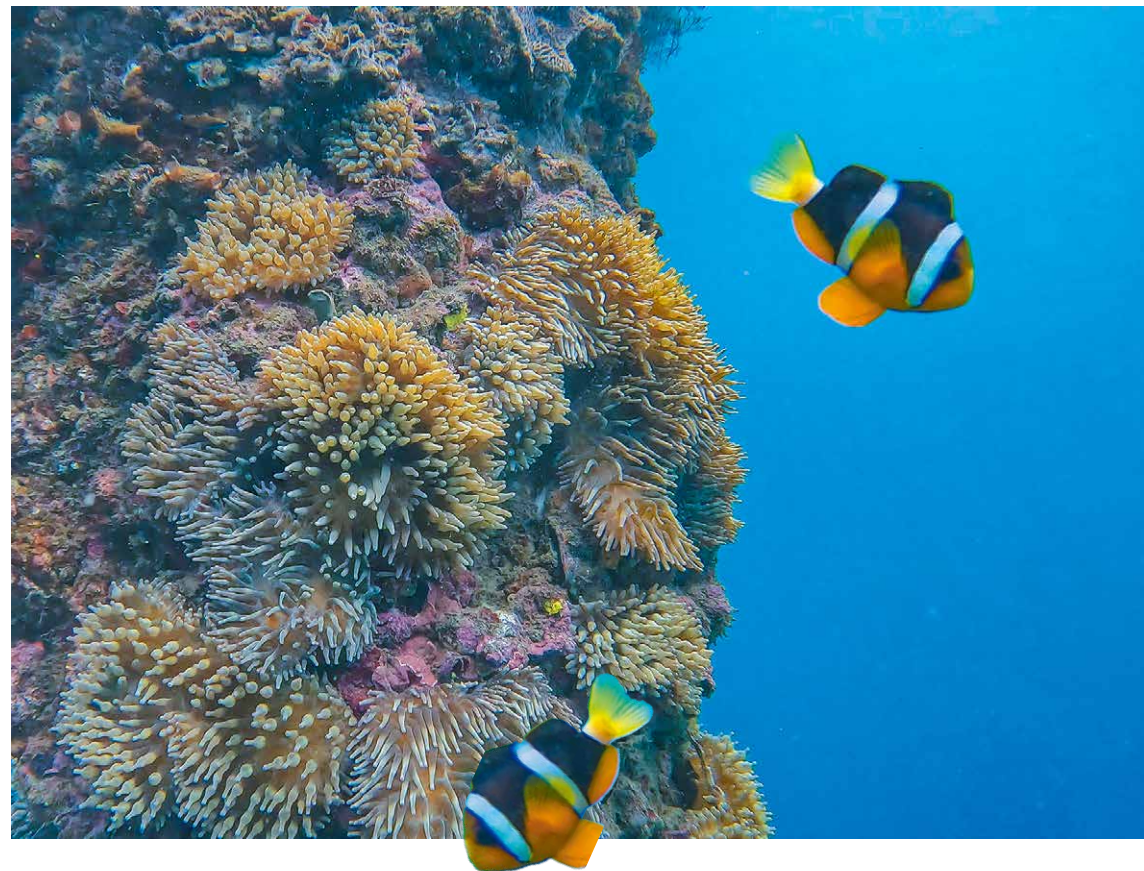
*Amphiprion clarkii*



常見體長  
約6－12公分

Average Length:  
Approx. 6-12 cm

俗稱「雙帶小丑魚」、「小丑魚」的牠們，受到動畫電影的影響，討喜又迷人的形象深植人心。牠們是海葵魚的一種，顧名思義，與海葵有著微妙的關係，由於魚身上覆蓋一層獨特黏液，使牠可以悠游於海葵的毒液觸手間，避免受到天敵攻擊，並且幫忙海葵清理食物殘渣，偶爾還會帶食物給海葵享用，互利共生。中油深澳港供輸服務中心海域水質清澈，港壁和卸收平臺的鋼柱，有多種珊瑚和海葵著生，輕易就能透過粼粼水光，看見魚兒鮮豔的身影自在來去。



Known as "Clark's anemonefish" or "clownfish", their endearing and charming image has become deeply ingrained in people's hearts thanks to animated films. They are a type of anemonefish, implying a symbiotic relationship with sea anemones. Covered in an unique mucus, they can swim among the toxic tentacles of sea anemones without harm, avoiding predators while helping clean food residues for sea anemones and sometimes even feeding them, benefiting both parties. The clear ocean of the Shen-ao Terminal, along with its harbor walls and steel columns of the unloading platforms, are home to various corals and sea anemones, making it easy to spot the vividly colored fish moving freely through the shimmering waters.



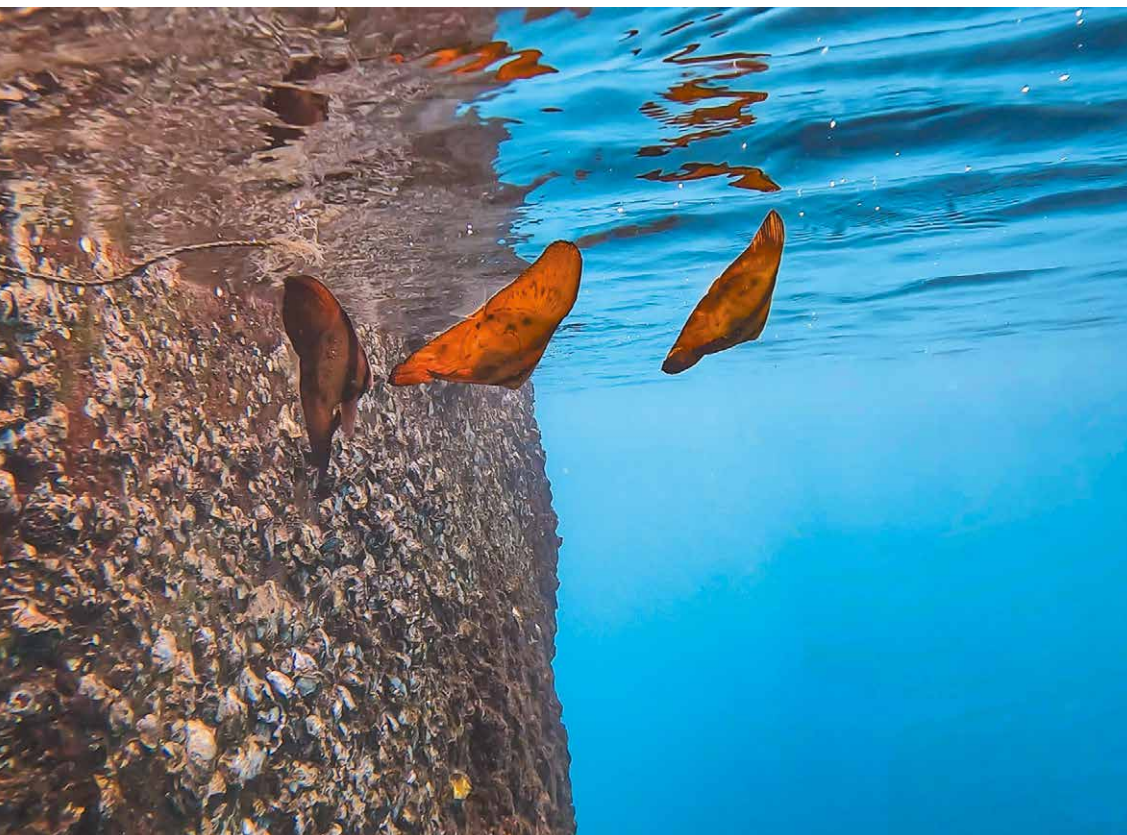
## 圓眼燕魚

*Platax orbicularis*

常見體長  
約 40 – 60 公分

Average Length:  
Approx. 40–60 cm

燕魚魚體極為側扁，最喜歡待在珊瑚礁海域生活，幼魚和成魚的外型跟習性差異甚大，常被戲稱是「魚大十八變」。幼魚體色紅褐，偏好棲息在平靜的水域，擅長擬態成枯葉，在深澳港邊不時會觀察到幼魚現蹤，好似一片枯葉般隨海流上下漂浮。



幼魚好似一片紅褐色枯葉漂浮在深澳港邊。

Juvenile fish resembling a piece of reddish-brown leaf float near the Shen-ao Harbor.



Orbicular batfish have extremely laterally compressed bodies and prefer living in coral reefs. Juveniles and adults differ significantly in appearance and behavior, often humorously referred to as "fast-changing fish." Juveniles have reddish-brown colors, preferring calm waters and are adept at mimicking dead leaves. They are occasionally observed near the Shen-ao Terminal, floating up and down with the currents like a leaf.

照片提供：達志影像

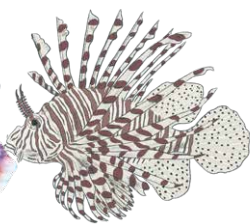
Photo courtesy of Shutterstock





## 魔鬼蓑鮋

*Pterois volitans*



常見體長  
約 20 – 40 公分

Average Length:  
Approx. 20-40 cm

一身搶眼裝扮，俗稱「獅子魚」的魔鬼蓑鮋，就像是準備隆重登臺的花蝴蝶，受到驚嚇時會展開紅白相間的魚鰭和硬棘，一副「不要惹我」氣勢，嚇阻敵人。硬棘下方長有毒刺，臺灣漁民針對有毒魚類排行，流傳了「一魴、二虎、三沙毛、四臭肚、五金鼓」的說法，排行第二的「虎」就是指獅子魚，牠們是深澳港供輸服務中心海底珊瑚或岩石間的常客，若在海中相遇，記得保持距離觀察才是上策。

With their striking appearance, Lionfish, also known as "devil firefish," resemble flamboyantly dressed butterflies ready to take the stage. When startled, they spread their red and white banded fins and sharp spines in a "don't mess with me" stance to deter predators. The spines are venomous. According to Taiwanese fishermen's ranking of poisonous fish, "First stingray, second lion, third eel catfish, fourth spinefoot, fifth spotted scat," the "lion" refers to the lionfish. They are frequent visitors among the corals and rocks at the bottom of the Shen-ao Terminal. If encountered, it's wise to observe them while keeping a distance.

## 綠蠓龜

*Chelonia mydas*



常見體長  
約 90 – 150 公分

Average Length:  
Approx. 90-150 cm

如果請綠蠓龜來推薦美食，海草和海藻大概榜上有名，牠們體內脂肪呈現綠色就是因為攝取大量海草和海藻所導致。臺灣周遭海域時常可見這位龜客，包括澎湖、綠島、蘭嶼、恆春半島等地都有牠們覓食的蹤跡，當中以小琉球和太平島擁有數量較穩定的族群，每年 4 至 9 月，是牠們上岸產卵的季節，會洄游到棲地進行繁殖。永安液化天然氣接收站由於珊瑚生長構成立體結構，提供海洋生物庇護、覓食空間，也吸引綠蠓龜到此遊歷。

If you ask green sea turtles for food recommendations, seagrass and algae would likely be their favorites, as their body fat turns green due to consuming large amounts of these plants. These turtles are frequently seen foraging around Taiwan, including Penghu Islands, Green Island, Orchid Island, and the Hengchun Peninsula, with stable populations in Xiaoliuqi and Taiping Island. From April to September, they migrate back to their nesting sites to lay eggs. The coral structures at the Yongan LNG Terminal provide shelter and feeding grounds for marine life, attracting green sea turtles to visit.

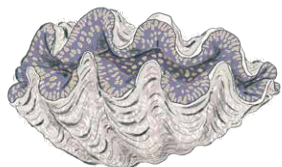
照片提供：達志影像  
Photo courtesy of  
Shutterstock





## 諾亞碑礫蛤

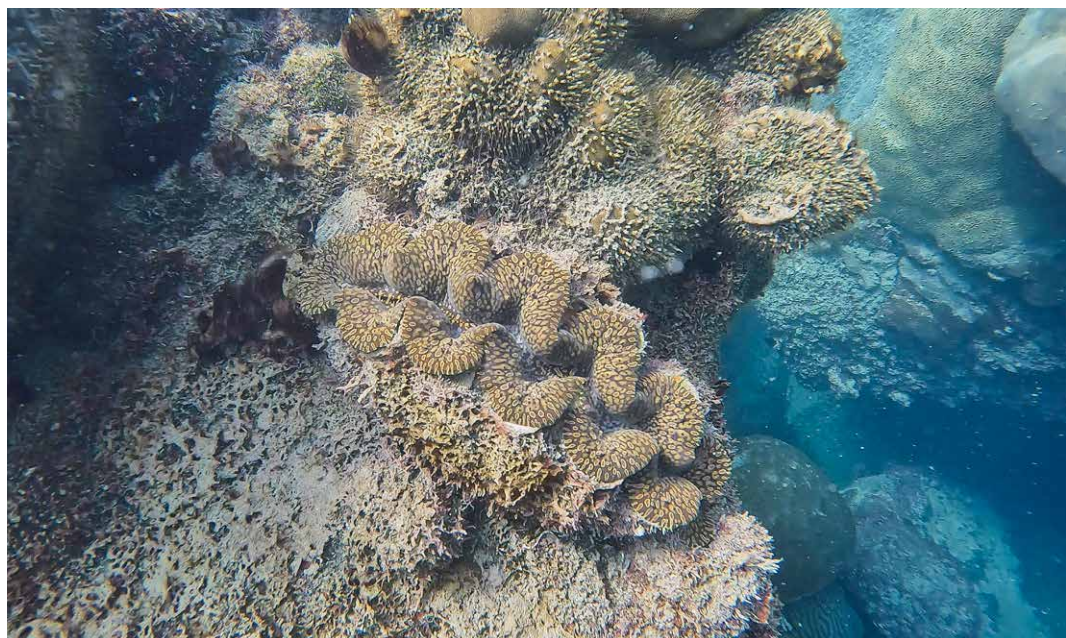
*Tridacna noae*



常見體長  
約 15 – 25 公分

Average Length:  
Approx. 15–25 cm

俗稱「碑礫貝」，厚重的外殼上長滿繽紛的共生藻類，加上波浪造型，從古至今，牠們都是海底獨特的存在，佛教中用來供奉菩薩的七寶聖物，其中之一就是碑礫貝殼。生長速度緩慢，每年成長頂多約 3 公分，在野外如果見到重達百公斤的碑礫貝，可說相當幸運。碑礫貝為濾食者，以過濾海水中有機物質為食，被視為環境指標性生物，可當作判斷珊瑚礁區是否健康的依據，而永安液化天然氣接收站海域的消波塊上，竟也發現了全臺數量稀少的碑礫貝，更顯示出這片海域蘊藏的永續生機。



Commonly known as Noah's giant clam, its thick shells are adorned with colorful symbiotic algae that form swirl patterns, making them a unique presence on the seabed since ancient times. Shells of giant clams are used in Buddhism to venerate Bodhisattvas as one of the seven treasures. They grow slowly, about three centimeters per year at most. A giant clam in the wild weighing hundreds of kilograms is quite rare. Noah's giant clams are filter feeders, consuming organic matter from seawater and considered an environmental indicator species that represents the health of coral reefs. Remarkably, Yongan LNG Terminal's wave dissipators are home to some of Taiwan's rare giant clams, highlighting the area's potential for sustainable marine life.





## CHAPTER 3

### 第三座液化天然氣 接收站

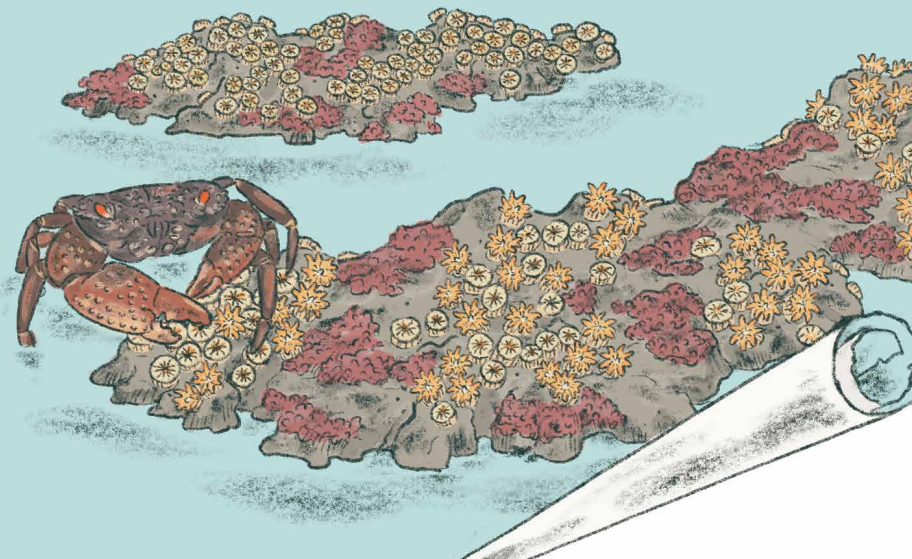
### THE THIRD LNG TERMINAL

#### 海岸紅寶石 實踐綠色港灣的生態願景

Coastal Rubies: Towards the  
Ecological Vision of a Green  
Harbor

位於桃園觀塘的第三座液化天然氣接收站，臨接數千年藻礁地景，更有柴山多杯孔珊瑚、小燕鷗等珍貴保育類野生動物以此為家。開發工程和生態保育工作的並進，成為三接最大課題。

Located in Guantang, Taoyuan, the third LNG Terminal borders a millennia-old algal reef landscape, home to protected wildlife such as the Chaishan caryophyllid coral and the little tern. Balancing development with ecological conservation has become the terminal's greatest challenge.





## 聚礁海岸直播室 Reef Coast Live Studio

### 第三座液化天然氣接收站 The Third LNG Terminal

漫步在 2 月的桃園海岸，大潭附近一大片胭脂色的藻礁讓人眼前一亮。

桃園海岸擁有長達 27 公里的藻礁，北起竹圍漁港，南至永安漁港，是臺灣現存最完整的藻礁。因能源轉型需求規劃興建於觀塘工業區的第三座液化天然氣接收站（簡稱三接），讓藻礁議題再度受到矚目。



Walking along the coast of Taoyuan in February, the extensive carmine algal reefs near Datan are definitely a sight to behold.

Taoyuan's coast boasts 27 kilometers of algal reefs, stretching from Zhuwei Fishing Harbor to Yongan Fishing Harbor, representing Taiwan's most intact algal reefs. The construction of the third LNG Terminal (referred to as the third terminal), planned in the Guantang Industrial Area due to energy transition needs, has again brought attention to the issue of algal reefs.





## 跨步 佇立海上的巨人

「藻礁」是殼狀珊瑚藻鈣化後經年累月堆積而成的生物礁，耗費十年才生長一公分——意即桃園藻礁歷時了數千年之久，才有如今的規模。其多孔隙的特殊地形，提供退潮期間魚、蝦、貝類暫時的棲所，等待下一次的漲潮，再次回到大海。

### Striding Forward: A Giant at Sea

Algal reefs are biotic reefs formed over years by the calcification of crustose coralline algae, growing only one centimeter in a decade—implying that Taoyuan's algal reefs have taken thousands of years to reach their current size. Their unique porous terrain makes them perfect temporary refuges for fish, shrimp, and shellfish during low tide. These creatures wait here patiently for the next high tide to return to the sea.

三接周圍棲息的物種豐富，地形特殊多變，藻礁裸露的潮間帶區域，兇猛酋婦蟹強勢橫行，而在潮間帶的海面下，柴山多杯孔珊瑚正伸展著漂亮的觸手。覆沙較多的沙灘區，還有東方環頸鴉、小環頸鴉和小燕鷗等鳥類棲息，在沙灘上尋找合適位置配對築巢。

為了保護藻礁和就近提供天然氣給大潭電廠的使命，中油公司針對三接進行三次修改，迴避岸邊潮間帶，把開發範圍也縮小九成，剩下 23 公頃。

The area around the third terminal is home to a rich variety of species and terrains. In the intertidal zones where algal reefs are exposed, ferocious reef crabs stride powerfully, while beneath the surface of the intertidal zones, Chaishan caryophyllid corals stretch out their beautiful tentacles. In sandy areas, birds like the Kentish plover, little ringed plover, and little tern inhabit here, searching the beach for the perfect spot to mate and nest.

To protect the algal reefs and to supply LNG to the Datan Power Plant nearby, CPC has revised the third terminal's plans three times, avoiding the coastal intertidal zones and reducing the development area by 90% to 23 hectares.



1 沙灘區的小燕鷗雛鳥。

Juvenile little terns on the sandy beach.

2 潮間帶的兇猛酋婦蟹。

Ferocious reef crabs in the tidal zone.



「三接外推方案」將原本工業港建設再外推，離岸 1.2 公里。強調以不浚挖、不填地的方式建港，工業港改以棧橋與工業區連接，不破壞海床下礁石，對沿岸也影響更小。

興建中的三接如海上巨人，一肩扛下穩定供電的任務和環境保護的社會責任。由於工程開發避開潮間帶，未來三接完工後，這些海岸原住民仍可以在此生生不息。

### 翻湧 公私協力護永續

隨著三接工程啟動，中油公司即同步投入環境維護工作，引進國際熱門保育趨勢「其他有效保育措施之區域（OECM）」概念，結合中油公司、政府機關和在地 NGO 三方公私部門的力量，投入資源進行研究調查，執行各項生態監測及保育工作。

The "Third Terminal Expansion Plan" pushes the original industrial port construction further out to sea, 1.2 kilometers from the shore. Emphasizing construction without dredging or land reclamation, the industrial port connects to the industrial area via piers, avoiding damage to the reefs on the seabed and minimizing impact on the coast.

The under-construction third terminal, like a giant at sea, shoulders the dual responsibilities of ensuring stable power supply and environmental protection. With the development project avoiding the intertidal zones, these coastal natives will continue to thrive here even after the third terminal's completion.

### Surging Forward: Public-Private Collaboration for Sustainability

With the start of the third terminal project, CPC has engaged in environmental maintenance, introducing the concept of "Other Effective Area-based Conservation Measures (OECM)". This involves pooling resources from CPC, the public sector, and local NGOs to conduct research, ecological monitoring, and conservation actions.





如與桃園市政府及社團法人桃園市野鳥學會合作，在竹圍漁港北堤、許厝港國家濕地、白玉海岸及大潭高灘地等四處進行繁殖棲地營造，為小燕鷗布置「新房」。搭建圍籬、拉設警戒線，減少外界干擾及威脅，更以石頭、磚塊及瓦片搭蓋出雛幼鳥的庇護所，遮風擋雨防日曬，讓遠道而來的嬌客能夠在此共築愛巢，順利繁衍下一代。

中油公司更結合社區參與的概念，攜手桃園觀音保生社區發展協會推動裸胸鯙調查和環境監測，開啟居民共同投入生態保育的契機。此外，舉辦海洋公民科學家尋找柴山多杯孔珊瑚活動，號召全民透過記錄與調查，以實際行動關心海洋生態，同時也能完備海洋資料庫。



For example, in collaboration with the Taoyuan City Government and the Wild Bird Society of Taoyuan, breeding habitats are being created at north of Zhuwei Fishing Harbor, Xucuoang Wetland, Baiyu Coast, and the high tidal flats of Datan, providing "new homes" for the little terns. Fences are erected and warning lines laid to reduce external disturbances and threats, while stones, bricks, and tiles provide shelters for chicks against wind, rain, and sun, allowing guests from afar to nest and breed.

CPC also embraces the concept of community participation, partnering with the Baosheng Community Development Association of Guanyin, Taoyuan to carry out investigations and environmental monitoring of the moray eel, offering residents the opportunity to engage in ecological conservation actions. Additionally, the company organizes the "Citizen Scientist of the Sea" event to search for Chaishan caryophyllid corals, calling on the general public to care for marine ecology through concrete actions like documenting and surveying, thus enriching the marine database.

在棲地放置水泥假鳥與遮陽板，吸引小燕鷗築巢。（照片提供：桃園市野鳥學會范卓昭）  
Concrete decoys and sunshades are placed in habitats to attract little terns to nest. (Photo courtesy of Fan Zhuo-zhao, Wild Bird Society of Taoyuan)



## 「藻」回初衷 聚「礁」未來

中油公司也和桃市府合作，成立環保艦隊及潛水隊並定期淨灘，自 2019 年起持續投入沿海海洋廢棄物清理，至今已清除超過 180 噸海洋垃圾，讓藻礁生態系有更優質的生長環境，讓環境保護和經濟發展不再是二選一的選擇題，打造三接工業港成為護藻礁、減空污、穩供電三贏的綠色港灣。

### Returning to Origins with Algae: A Thriving Future with Coral Reefs

CPC collaborates with the Taoyuan City Government to form environmental fleets and diving teams, engaging in regular marine waste cleanup along the coast since 2019. Over 180 tons of marine debris have been removed to date, providing a healthier environment for the algal reef ecosystem. This proves that environmental protection and economic development are not mutually exclusive, transforming the third terminal into a green harbor that protects algal reefs, reduce air pollution, and supplies power stably.

**1** 與桃園觀音區保生社區發展協會攜手推動裸胸鯙調查，帶民眾認識藻礁生態。（照片提供：廖經贈）  
In collaboration with the Baosheng Community Development Association, surveys of the moray eel are conducted to introduce the public to the algal reef ecology.  
(Photo courtesy of Liao Jing-zeng)





## 小燕鷗

*Sterna albifrons*



常見體長  
約 22 – 28 公分  
Average Length:  
Approx. 22 – 28 cm

每年 4 月開始，桃園沿海地帶經常可以看到成群結隊的小燕鷗，被列為二級保育類動物的牠們，是從菲律賓、澳洲一帶乘著西南風遠道而來的貴客。目前小燕鷗繁殖棲地營造集中在竹圍漁港北堤、許厝港國家濕地、白玉海岸及大潭高灘地等四處，中油公司為牠們整地除草、架設圍籬與警戒線，減少外界干擾及威脅，並以磚瓦搭蓋雛鳥的底護所。



Every April, flocks of little terns, a level 2 listed endangered species, can often be observed along the coast of Taoyuan. They ride the southwest winds to Taiwan from the Philippines and Australia. Efforts made to create breeding habitats for the little terns are focused on four sites : the north embankment of Zhuwei Fishing Harbor, Xucuogang Wetland, Baiyu Coast, and the high tidal flats of Datan. These efforts from CPC include land clearing, fencing, and installment of lines to reduce external disturbances and threats, as well as using bricks and tiles to build shelters for the chicks.



照片提供：桃園市野鳥學會  
Photo courtesy of Wild Bird  
Society of Taoyuan



有趣的是，原本 2023 年在竹圍棲地營造區觀察到的築巢數量不如以往，調查團隊正沮喪之際，大潭藻礁 G3 區卻傳來發現 69 個巢位的捷報，原來有超過 250 隻小燕鷗選擇大潭藻礁作為繁殖育雛的祕密基地，也讓團隊笑稱這是在和他們玩躲貓貓呢。

Interestingly, while the nesting numbers observed in Zhuwei in 2023 were lower than in previous years, leading to some disappointment among the survey team, the Datan high tidal flat G3 brought exciting news of 69 nests found. It turns out that over 250 little terns chose the Datan G3 as their secret breeding and rearing base. The survey team later joked that the little terns just wanted to play hide and seek with them.



小燕鷗在沙地求偶、育雛。

Little terns court and nurture their young on the sandy ground.

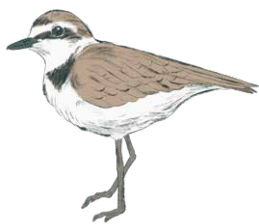
左圖照片提供：桃園市野鳥學會

Photo courtesy of Wild Bird Society of Taoyuan



## 東方環頸鷸

*Charadrius alexandrinus*



常見體長  
約 18 公分

Average Length:  
Approx. 18 cm

你以為鳥類大多是銜枝上樹築巢嗎？東方環頸鷸卻反其道而行。牠們會在被認為「鳥不生蛋」的沙地上，撥出一個凹槽直接下蛋。卵殼上帶有灰色斑點，與灘地、礫石的環境色彩融為一體，不易被天敵發現。因此，每到繁殖季節，便會有許多愛鳥人士高聲呼籲盡量避免在這段時間內淨灘或沙灘娛樂活動，以免誤傷巢位。

調查團隊在記錄東方環頸鷸孵育下一代的過程中，發現酷暑高溫下的沙地炎熱難耐，親鳥會想辦法將腹部的羽毛用水浸濕，再回巢孵蛋，以降低蛋殼表面溫度、擋風遮雨，讓人動容親情的偉大。

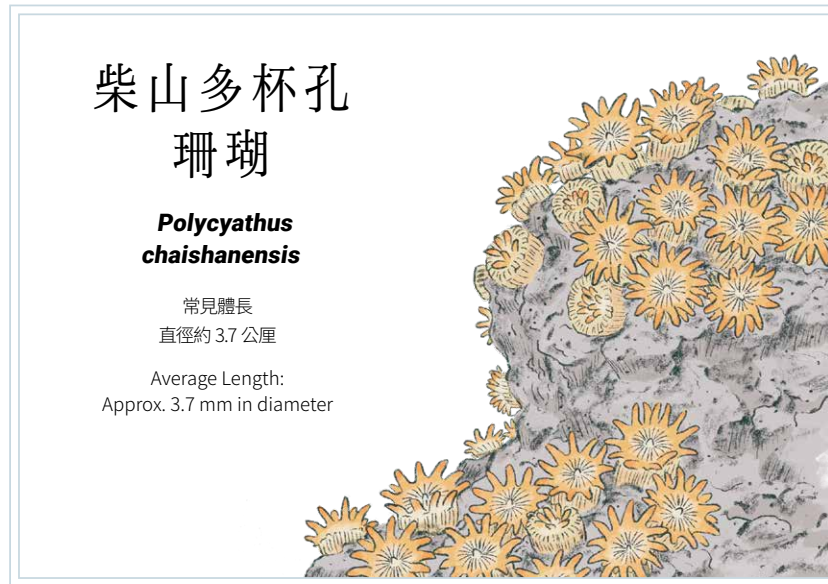


照片提供：桃園市野鳥學會范卓昭  
Photo courtesy of Fan Zhuo-zhao,  
Wild Bird Society of Taoyuan

You thought most birds nest in trees using twigs? Kentish plovers do the opposite. They nest in what is considered "uninhabitable" for eggs, the sand, by scooping out a groove to lay their eggs. The eggs' shells, speckled with grey dots, blend into the beach and pebble environment, making them difficult for predators to spot. Thus, during the breeding season, many bird enthusiasts urge to avoid beach cleaning or recreational activities on the beaches to prevent harming the nests.

While documenting the Kentish plovers nurturing their next generation, the survey team noticed that to deal with the unbearable heat of the sand under the scorching summer sun, parent birds would wet their belly feathers with water and return to the nest to incubate the eggs, reducing the shell surface temperature and providing shelter from wind and rain, a touching moment of parental love.



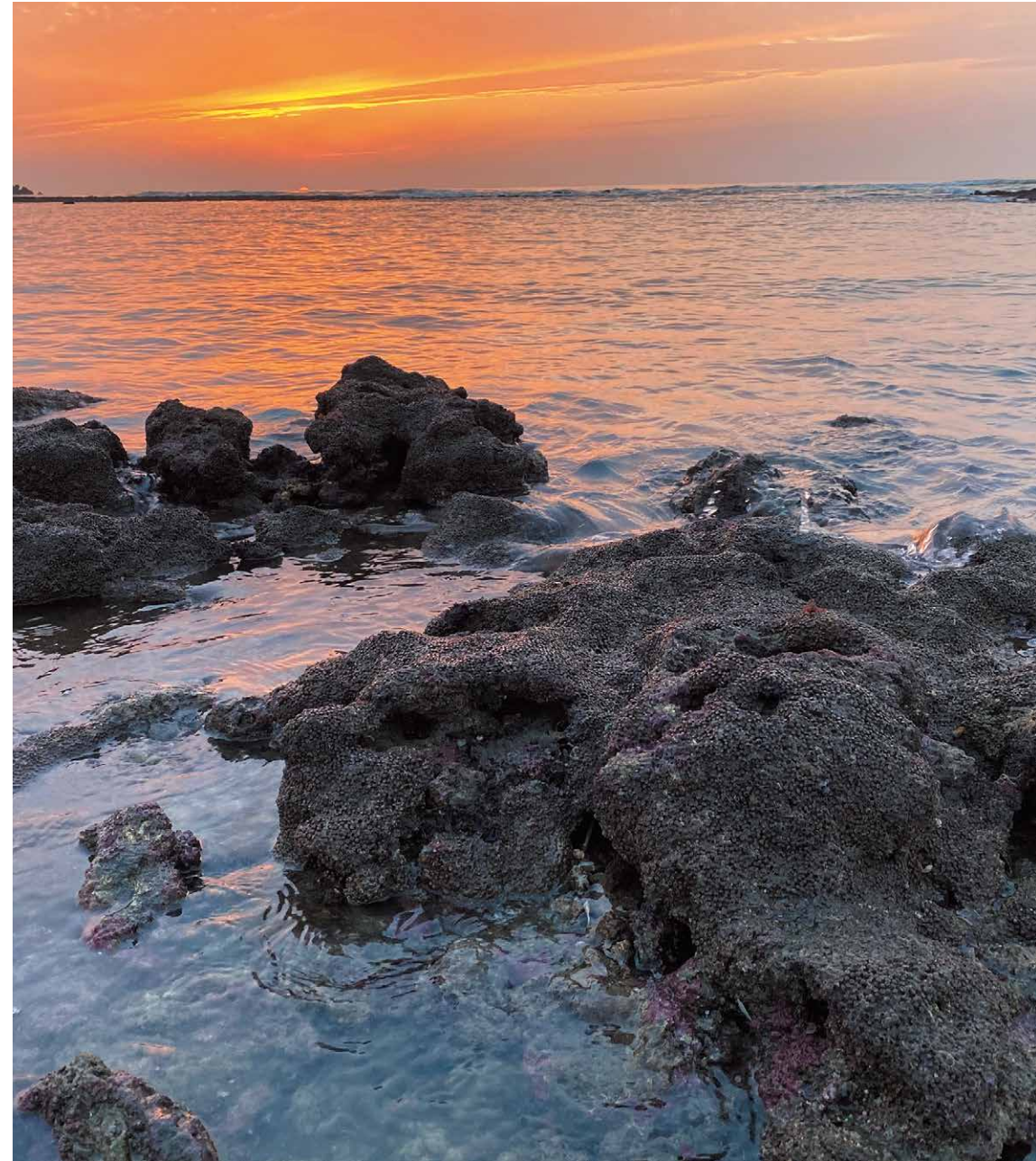


大潭藻礁有個「隱藏版」珊瑚島，上面附著大量的柴山多杯孔珊瑚，每年只有 5、6 月當潮水退到極低潮位後，才會露出水面。其生長的潮間帶區域海浪拍打猛烈，靠近調查困難，因此過去很少被記錄。

顧名思義，最早是在高雄柴山海域發現而得名，一度被視為柴山限定。沒想到 2017 年正式依照《野生動物保育法》列冊管理時，正巧就在大潭藻礁發現族群蹤跡，且數量遠超過高雄原棲地，十分珍貴。

Datan's algal reefs harbor a secret coral island, covered with abundant Chaishan caryophyllid corals, which only become visible when the tide is extremely low during May and June every year. The area where they grow, in the intertidal zone, is difficult to approach due to the fierce waves, hence they have rarely been recorded in the past.

As the name suggests, they were first discovered in the sea area of Chaishan in Kaohsiung and were thought to be exclusive to that area. However, in 2017, when they were officially listed as endangered species under the Wildlife Conservation Act, populations were discovered in the Datan algal reef areas, in numbers far exceeding their original habitat in Kaohsiung, making them incredibly precious.







柴山多杯孔珊瑚在海面上觸手會收起來（上圖），在海裡才會伸展觸手。（下圖）

Chaishan caryophyllid corals retract their tentacles above the water (upper photo) and extend them underwater (lower photo).



## 殼狀 珊瑚藻

**Crustose  
coralline algae**

桃園藻礁範圍寬廣，是目前全臺現生藻礁中範圍最大的區域，以「殼狀珊瑚藻」（或稱無節珊瑚藻）為主要造礁生物，其中又包括四個無節珊瑚藻屬：殼葉藻屬、哈維石藻屬、膨石藻屬、孢石藻屬等，組成常見的造礁藻種。

冬春兩季溫度下降，就是大潭海岸的殼狀珊瑚藻開始旺盛生長的時節，在藻礁區點綴出一抹淡淡粉紅。殼狀珊瑚藻以平均十年一公分的速度，年復一年層層堆疊，累積成今日我們所見的藻礁。除了造礁功能外，殼狀珊瑚藻礁體的多孔隙特質，正好可充當螺貝、海葵等小型無脊椎動物的住所，進一步吸引許多以此為食的魚類或螃蟹來到這裡。

The Taoyuan algal reef covers a wide area and are the largest living algal reef in Taiwan, primarily formed by crustose coralline algae (or nongeniculate coralline algae), including four genera: Crustaphytum, Harveyolithon, Phymatolithon, and Sporolithon, comprising the common reef-forming algal species.

The colder temperatures of winter and spring make up the peak growth period for the crustose coralline algae along the Datan coast, adding a hint of pale pink to the algal reef areas. These algae, growing at an average rate of one centimeter per decade, layer upon layer, accumulate into the algal reefs we see today. Besides their reef-forming function, the porous nature of the crustose coralline algae provides a habitat for small invertebrates like snails and sea anemones, attracting various fish and crabs to the area.



## 兇猛酋婦蟹

*Eriphia ferox*



常見體長  
頭胸甲寬約 4 – 6 公分  
Average Length:  
Carapace width 4 – 6 cm

退潮時走進藻礁區，礁體上大小不一的孔隙表面生長著許多藻類。蹲著不動耐心等候一段時間，會發現許多小型螃蟹一邊吃著藻類、一邊從細小孔隙間走出來，而像是兇猛酋婦蟹這樣體型較大的蟹類會從大孔隙出現，穿梭在礁岩間。

兇猛酋婦蟹舉著一雙壯碩不對稱的雙螯，雙眼鮮紅是最大特徵，主要以夜間外出捕捉螺類、蟹類等小型生物為食。蟹如其名，性情兇狠，可說是大潭藻礁區生態系中的殺手。因為在此地天敵少，數量龐大，是藻礁區觀察時最常見到的物種之一。

During low tide, as you enter the algal reef area, many algae can be seen growing on the surface of the varied-sized pores of the reef. If you wait patiently while squatting still, many small crabs can be observed eating the algae and emerging from the tiny pores, whereas larger crabs like the ferocious reef crab appear from the larger pores, moving through the reef rocks.

The ferocious reef crab, with its pair of robust asymmetrical claws and piercing red eyes, primarily feeds on small creatures such as conches and crabs during the night. True to its name, its aggressive nature positions it as one of the apex predators within the algal reef ecosystem. The scarcity of predators in the area and their large population make ferocious reef crabs one of the most commonly observed species here.



橫行過沙灘（上圖），時而蟄伏在礁岩縫中（下圖）。

Crossing the sand (upper photo) and occasionally hiding among the reef crevices (lower photo).





# CHAPTER 4

## 煉油廠

## REFINERY

在都會喧囂中，桃園與高雄兩座煉油廠區不僅保有大片林地，動物居民們更是生機蓬勃。

桃園廠區的員工時常與臺灣藍鵲不期而遇，高雄廠區的同仁則能在休息時聆聽黃鸝吟唱，工作之餘在此散步、慢跑、賞鳥，交織出一幅共生的畫卷，讓人們重新思考城市發展與自然保護關係的契機，也是跨越永續未來的關鍵一步。

In the hustle and bustle of urban areas, the Taoyuan and Kaohsiung Refineries preserve large expanses of woodland that abound with animal residents.

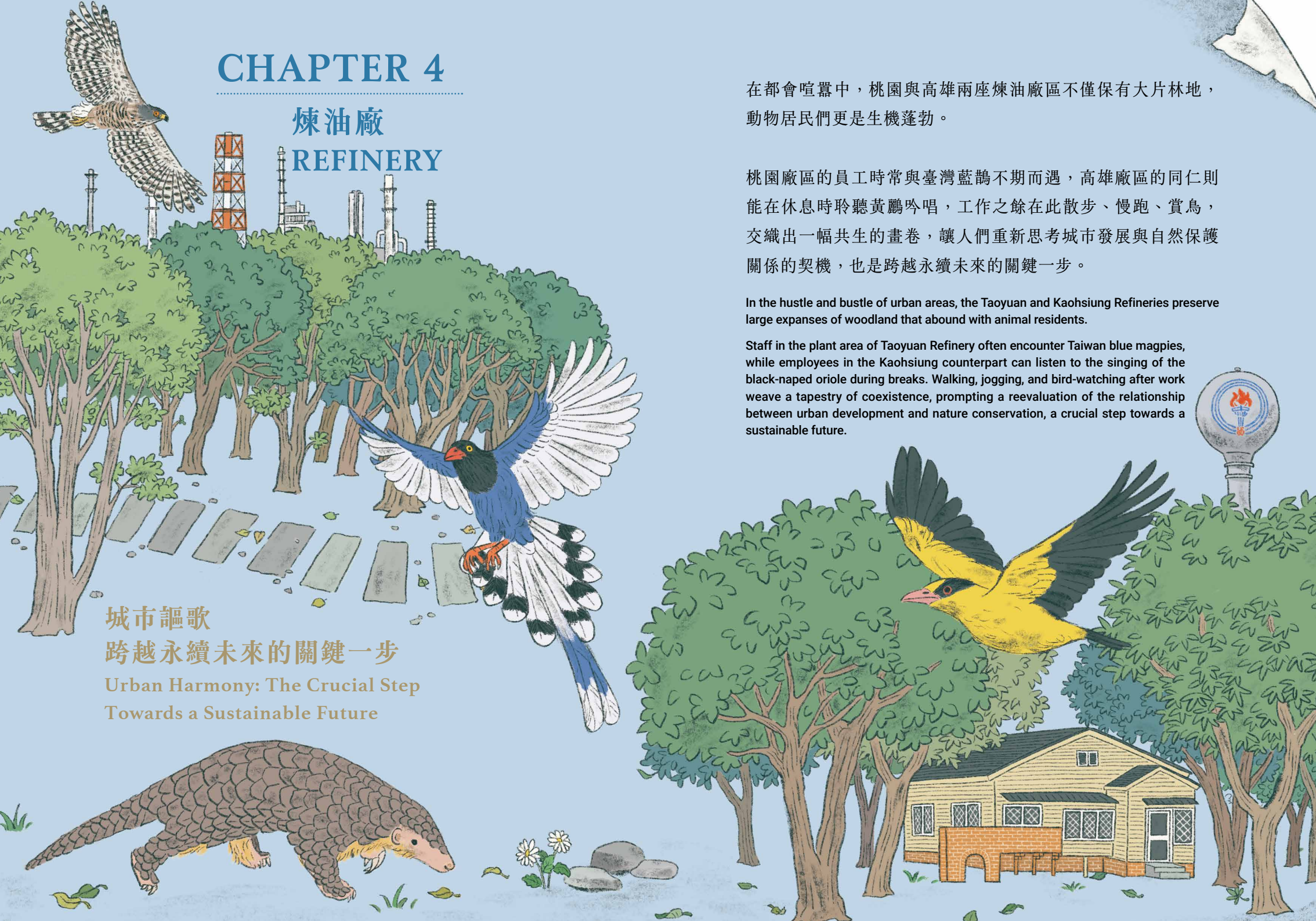
Staff in the plant area of Taoyuan Refinery often encounter Taiwan blue magpies, while employees in the Kaohsiung counterpart can listen to the singing of the black-naped oriole during breaks. Walking, jogging, and bird-watching after work weave a tapestry of coexistence, prompting a reevaluation of the relationship between urban development and nature conservation, a crucial step towards a sustainable future.

城市謳歌

跨越永續未來的關鍵一步

Urban Harmony: The Crucial Step

Towards a Sustainable Future







## 近郊的環山漫步 Suburban Mountain Walks

### 都會煉油廠的野外觀察

### Wilderness Observations at Urban Refineries

#### 安居 蟲魚鳥獸的動物王國

桃園煉油廠區位於有「桃園後花園」美譽的虎頭山綠色軸帶旁，除了廠房設施之外，映入眼簾的是廣闊森林植被，尤其在下過雨後更顯得蔥鬱茂盛。廠區三面環山，有將近一半土地未開發，長年對外管制、人為干擾較低，進而巧妙保護了這片宜人的林地，成為都會中難得的動物棲地，生態資源相當豐沛。

#### Settling In: The Animal Kingdom for All Species

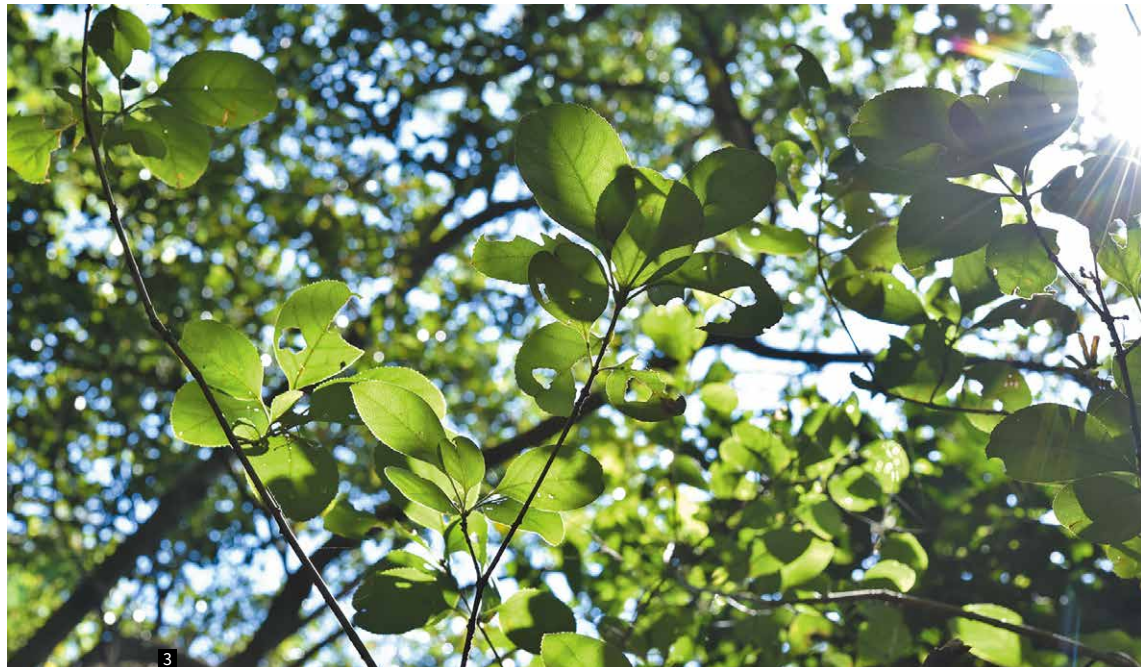
The Taoyuan Refinery is located next to the green belt of Hutoshan, the so-called "Backyard of Taoyuan." In addition to the facilities, the refinery boasts the vast forest vegetation that becomes even more lush after the rain. With mountains on three sides and nearly half of the land undeveloped, the area has been cleverly preserved due to long-term external restrictions and minimal human disturbance, making it a rare urban habitat with abundant ecological resources.



1



2



漫遊廠區環山步道，陽光灑落，一路樹影婆娑，相思樹林是常見的風景，由於生長快又耐燒，為早年先民提供理想的柴火來源。到了春天，淺山已不多見的流蘇開滿了花，點綴山間「白雪點點」，秋冬還有大頭茶花綻放，為寒冷的季節增添一抹清香。豐富林相和蜜源也引來蝴蝶、蜜蜂紛飛，幸運的話，還可見珍稀的黃裳鳳蝶。

As you wander the mountainous trails of the plant area, sunlight filters through the swaying branches of widespread Taiwan acacia forests being a common sight. Their rapid growth and long-burning characteristics made them an ideal source of firewood for early settlers. In spring, blooms of the Chinese fringe-tree, now rare in low mountain areas, cover the mountains like snow, and in autumn and winter, the large Taiwan gordonia flowers add a touch of fragrance to the chilly seasons. The rich forest full of nectar also attracts butterflies and bees, and with some luck, you might even spot the listed endangered golden birdwing.

- 1 遠眺桃園煉油廠。  
Distant view of the Taoyuan Refinery.
- 2 豐富林相和蜜源植物吸引蝴蝶、蜜蜂前來。  
Rich forest vegetation and nectar plants attract butterflies and bees.
- 3 翠綠的流蘇。  
Verdant Chinese fringe-tree.





這裡是特有種和保育類野生動物的家，舉凡如穿山甲、白鼻心、領角鴉、大冠鷲等身影，都曾出現在生態調查紀錄上。廠區內有溪澗潺潺，許多水域生物在此安居共榮，兩棲的青蛙、蟾蜍及魚蝦悠游其中，一旁有水鳥在岸邊伺機而動，為廠區帶來生動的野外觀察現場。

The area is home to numerous endemic and listed endangered species such as Formosan pangolins, Formosan gem-faced civets, collared scops owls, and crested serpent eagles, all of which have been documented in ecological surveys. The plant area is traversed by babbling brooks, where aquatic creatures coexist peacefully, with amphibians like frogs, toads, and fish and shrimp thriving. Waterbirds wait for preys by the shore, bringing a lively field observation scene to the plant area.



在烷化工廠做了 40 年的老員工，記錄了許多的廠區生態直擊。熱愛慢跑的他，總在清晨或傍晚沿著環山道路一邊運動、一邊觀察，曾經目睹灰黑的錦蛇從眼前滑過、毛蟹在雨天洄游上岸準備去產卵，還有臺灣藍鵲吱喳成群飛過，以及體型嬌小圓潤的翠鳥。分享這些寶貴紀錄，是工作之餘最紓壓的樂趣。

A veteran employee, who has worked in the alkylation plant for 40 years, has documented the plant area's ecology tirelessly. An avid jogger, he often exercises along the mountainous roads in the early morning or evening while observing. He has witnessed the sleek movement of a Taiwan beauty snake, the migration of mitten crabs to shore for egg-laying on rainy days, the chattering flocks of Taiwan blue magpies flying past, and the petite, rounded kingfishers. Sharing these precious records has become his most relaxing hobby outside of work.

1 廠邊有潺潺溪水。

Babbling brooks beside the refinery.

2 研究人員在廠內樹林裡進行監測作業。

Researchers monitor the forested areas in the facility.

3 欄杆上的翠鳥。

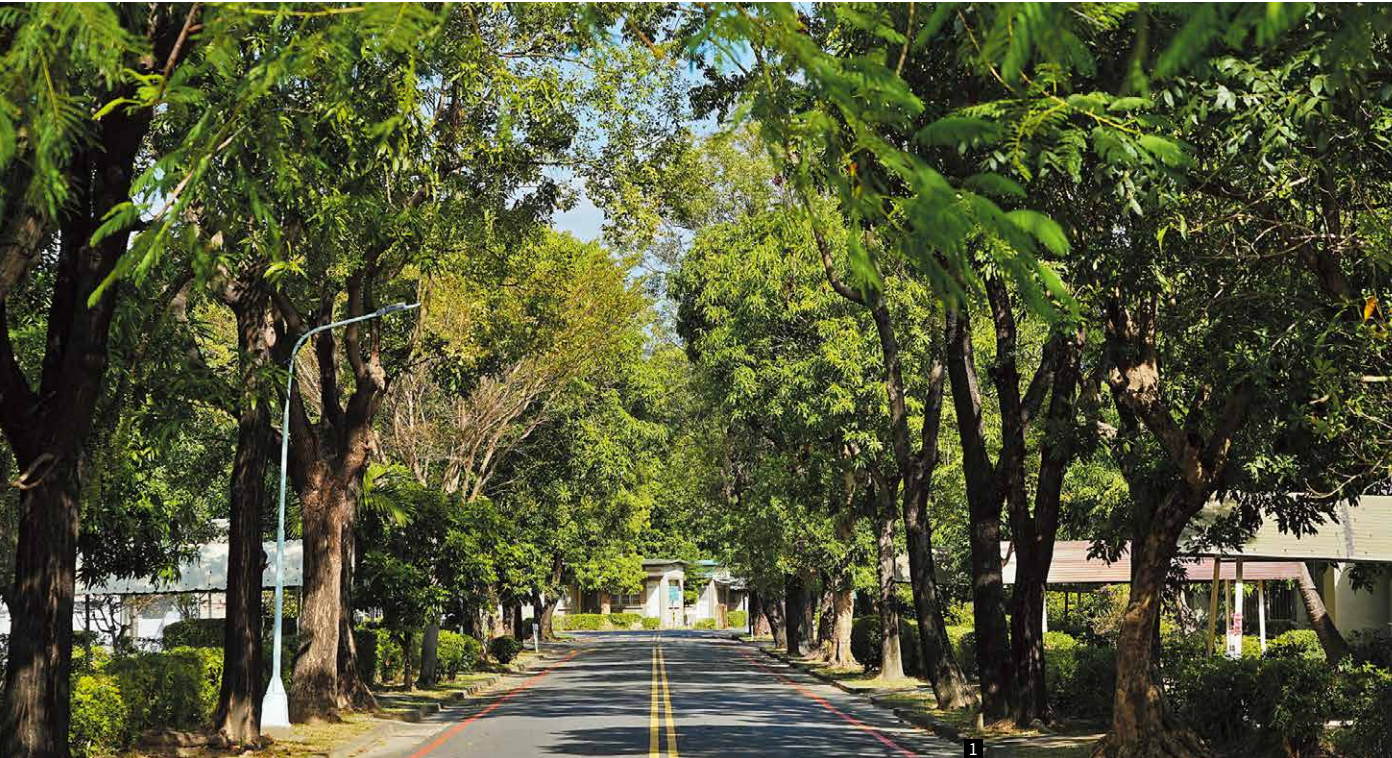
A kingfisher on the railing.

4 拉都希氏赤蛙。

Latouche's frog.







**1-2** 宏南宿舍的日式建築。

The Japanese-style architecture in the Hongnan dormitory area.

**3** 繡眼畫眉育雛。

A Formosan white-eyed nun babbler nurtures its young.

## 轉型 開闢城邊的野鳥新樂園

如果說桃園煉油廠區是員工運動紓壓的好所在，那麼，高雄煉油廠區則是都會賞鳥寶地。

位於楠梓，與高雄國家體育場相鄰的高雄煉油廠區，過去曾有超過 3,000 名的員工日夜運轉，在 2015 年熄爐停工以後，轉型為臺灣首座石化產業環教場域，周邊的宏南宿舍坐擁許多優美的老樹，成為鳥類覓食、休憩的樂園。

宏南宿舍歷史悠久，從日治時代就存在，雖然隨著廠區停止運作已無人居，卻仍保有昔日風采，猶如走進時光膠囊。由於來往人稀，見證時代轉變的老樹成了許多鳥類的棲所，常見如繡眼畫眉、黑冠麻鷺、小啄木鳥、黑枕藍鶇、小彎嘴鵲等，亦有被列入二級保育的黃鸝。

### Transformation: Creating a Suburban Paradise for Wild Birds

If the Taoyuan Refinery serves as an excellent spot for employee relaxation and exercise, then the Kaohsiung Refinery stands out as an urban birdwatching wonderland.

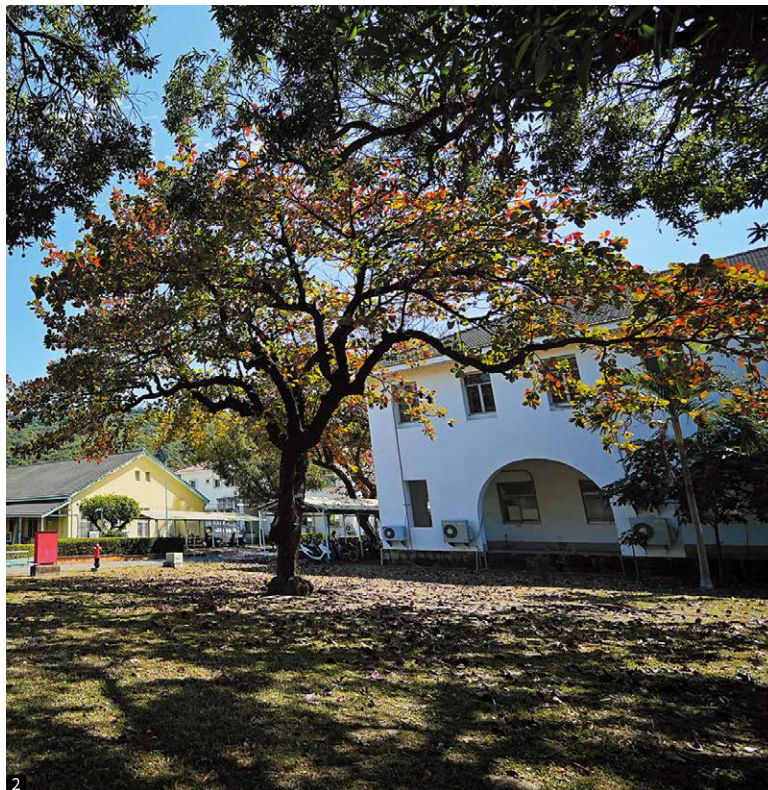
Located in Nanzih and adjacent to the Kaohsiung National Stadium, the Kaohsiung Refinery, once bustling with over 3,000 employees working day and night, ceased operations in 2015. It has since transformed into Taiwan's first environmental education site for the petrochemical industry. The surrounding Hongnan dormitory area, with its many beautiful old trees, has become a paradise for birds to forage and roost.

The Hongnan dormitory has a long history dating back to the Japanese colonial period. Although no longer inhabited since the plant's cessation, it retains its historic charm, taking visitors on a journey across time. With fewer human visitors, the old trees that have witnessed the passage of time now serve as homes for many bird species. Common sightings include the Formosan white-eyed nun babbler, Malayan night heron, pygmy woodpecker, black-naped blue monarch, and Taiwan scimitar-babbler, among others, including the level 2 listed endangered species, the black-naped oriole.



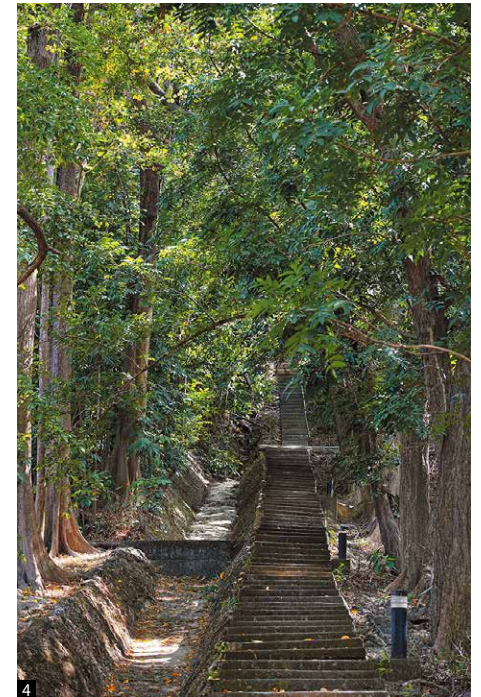
高雄是全臺最容易觀察到黃鸝的城市，中油公司宏南宿舍是主要的據點之一，擁有穩定族群。宿舍周遭有開闊的草坪，還有高達 15 公尺的喬木林立，黃鸝時常穿梭於雨豆樹、芒果樹、黑板樹及白千層之間，一下「黃鸝出谷」嘹亮吟唱，一下啄食昆蟲、榕果或種子，飛來跳去，像是披著鮮黃外衣的小精靈，十分討喜。

Kaohsiung is the most accessible place in Taiwan to observe the black-naped oriole, with the CPC's Hongnan dormitory area being one of its main habitats, boasting a stable population. The dormitory area features expansive lawns and towering trees up to 15 meters high, where the black-naped oriole flits among rain trees, mango trees, green maples, and paper-bark trees, sometimes bursting into song, other times pecking at insects, fig fruits, or seeds. Like little sprites in bright yellow coats, they are endearingly delightful.



與廠區為鄰的半屏山麓，是高雄市民親近自然生態的去處。過去這裡是石灰採礦區，一度整座山光禿禿，直到採礦終止以後，有計畫的植樹讓半屏山重新綠了山頭，生物也陸續回歸，都會中常見的猛禽鳳頭蒼鷹是此處常客，等到春季候鳥過境，在半屏山瞭望臺還有機會見到灰面鵟鷹展翅的英姿。

Adjacent to the refinery area, the foothills of Banping Mountain offer Kaohsiung residents a chance to get close to the nature. Once a lime mining area, the mountain was bare until mining ceased, and planned afforestation turned Banping Mountain green again, allowing wildlife to gradually return. Raptors like the crested goshawk, a bird of prey easy to observe in cities, frequents this area, and during the spring migration, one might even spot the majestic grey-faced buzzard from the Banping Mountain lookout.



**1-2** 廠內討喜的黃鸝鳥與高大的喬木。

The charming black-naped oriole and tall trees within the plant.

**3** 廠內通往半屏山的步道。

The trail from the refinery to Banping Mountain.

**4** 廠內的睡蓮盛開。

Water lilies in bloom at the refinery.



## 穿山甲

***Manis pentadactyla***  
***pentadactyla***



常見體長  
約 44 – 56 公分

Average Length:  
Approx. 44-56 cm

這群「鐵甲武士」，其實是生性害羞的山林居民。全身被一層堅固的鱗片保護，遇到危險時捲曲成球狀，能保護動作遲緩、個性羞怯的牠們，免受獵食者的威脅。在桃園煉油廠區山林緩坡上，如果見到鬆軟的土堆和洞穴，有可能就是穿山甲的家，白天蟄居在洞穴內，直到夜幕降臨牠們才會外出活動覓食，被桃廠員工多次目擊，還曾經在巡廠時發現受傷的穿山甲，連忙通知救傷單位協助處置，就像關心比鄰而居的老朋友一樣。

These "armored warriors" are shy forest dwellers, protected by body scales. They curl into a ball when threatened, protecting their slow-moving and timid selves from predators. In the Taoyuan Refinery's forested areas, soft mounds and burrows could indicate a pangolin's home. They reside in burrows during the day and forage at night. Refinery staff have frequently sighted them and have assisted injured pangolins by contacting animal rescue organizations, treating them like old friends.





## 領角鴞

*Otus lettia*

常見體長  
約 22 – 26 公分

Average Length:  
Approx. 22-26 cm



夜晚走在廠區山林，聽見「鳴——鳴——」叫聲，抬頭一看，或許樹上就住著領角鴞。全身灰褐，頭頂有著一對豎立如耳朵的角羽，是臺灣淺山和都會地帶最常見的貓頭鷹，主要使用天然形成的樹洞築巢，廠區豐富的林相讓牠們可以擇良木而棲。廠區員工也曾在巡廠時發現受傷的領角鴞，緊急通知相關單位救傷，平日裡偶然會見到牠們睜著圓圓大眼淡定的模樣，相當可愛。



Walking in the refinery's forest at night, you might hear the distinctive call of the collared scops owl. With their ear tufts and camouflaged grey-brown plumage, they are one of the most common owls in Taiwan's low-altitude areas and urban regions. They primarily nest in natural tree cavities, and the refinery's rich forest allows them to choose the suitable trees to inhabit. The refinery's staff has also found injured individuals and sought help from animal rescue organizations on their behalf. Occasionally, you would catch a glimpse of their calm, round-eyed demeanor, which is quite adorable.



## 鳳頭蒼鷹

*Accipiter trivirgatus*



常見體長  
約 40 – 48 公分

Average Length:  
Approx. 40-48 cm

由於對環境的適應能力很強，鳳頭蒼鷹是少數常見於都會地區的猛禽，終年在此生息、繁殖、雛育。金黃虹膜配上深黑眼珠，眼神如同其他鷹類一樣炯炯有神，尤其在捕捉獵物的時候，銳利敏捷。牠們可說是鼠類的剋星，也是高雄煉油廠區「滅鼠大隊」，隱匿在高處以精明目光掃描四周，一旦鎖定獵物，快速俯衝撲向目標，帶回樹梢飽餐一頓。



With a strong adaptability to environments, crested goshawks are among the few raptors commonly seen in urban areas, living, breeding, and nurturing here year-round. Their golden irises and deep black pupils give them a sharp appearance. They are swift and agile when hunting prey and are known as the killers of rodents. They now serve as the Kaohsiung Refinery's "rodent control team," lurking in high places with keen eyes for their prey, nimbly diving down once they lock onto a target and returning to the treetops to feast.



## 臺灣藍鵲

*Urocissa caerulea*

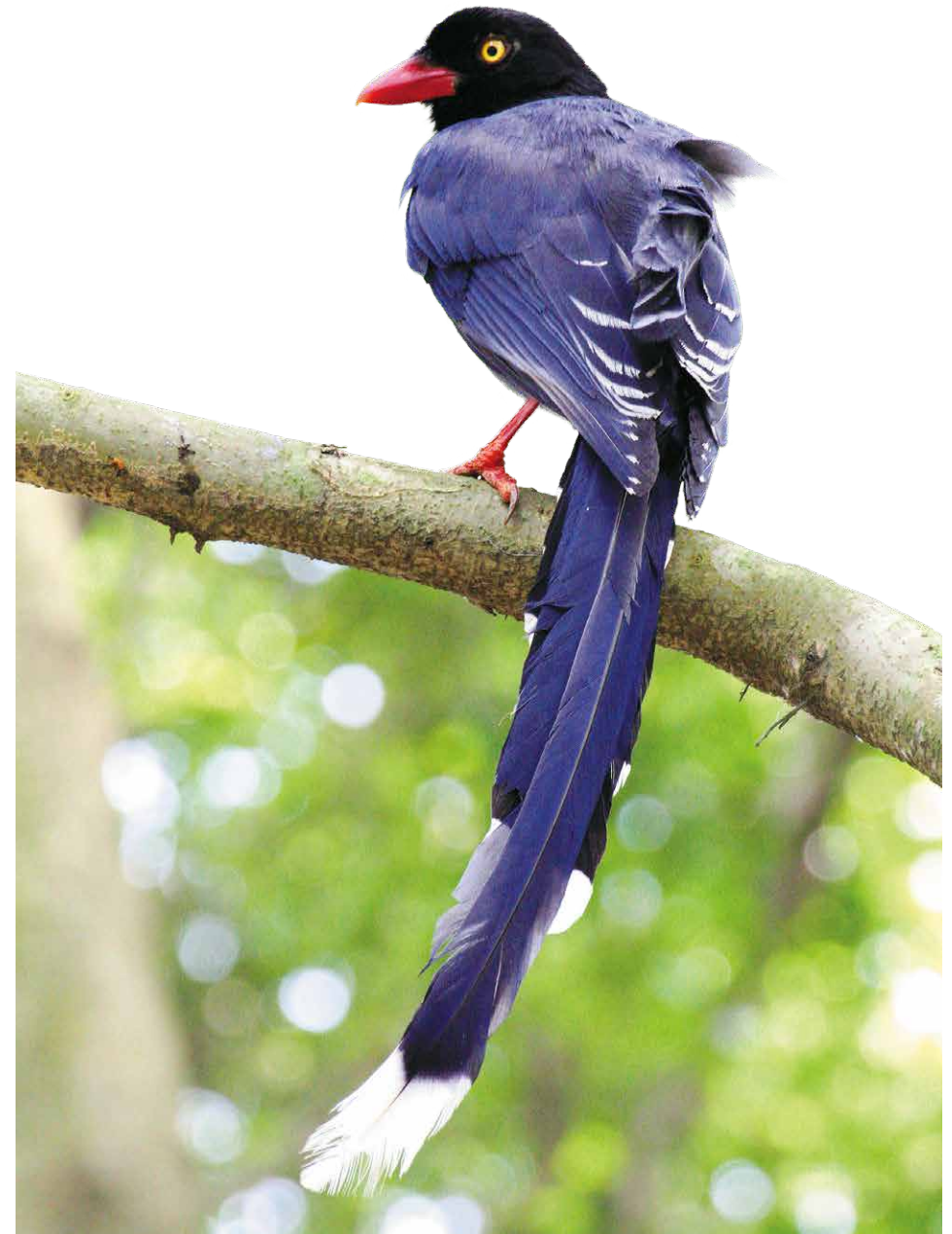


常見體長  
約 60 – 65 公分  
Average Length:  
Approx. 60-65 cm



臺灣藍鵲是山林裡無法忽視的風景，披著一襲寶藍羽毛禮服，嘴上像是抹了豔紅唇彩，不過，可別被牠們繽紛的模樣給迷惑了。臺灣藍鵲具有強烈而明確的領域傾向，性格強悍，會主動驅趕或攻擊入侵其地盤的生物，繁殖期間尤甚。由於築巢地點與人們的生活區域高度重疊，因此動保機關常在 4 至 8 月的繁殖期間呼籲民眾，營造人鳥和諧共處的空間。桃廠資深員工在清晨或傍晚於廠區慢跑時，經常聽見臺灣藍鵲聒噪，也曾目睹一群藍鵲家族飛過，在桃廠過著豐足的日子。

The Taiwan blue magpie is unmissable in the forest with their bright blue feathers and red "lipstick." Despite their colorful appearance, they are territorial and aggressive, and tend to drive away or attack intruders into their territory, especially during breeding season. As their nesting overlaps with human habitats, wildlife protection agencies often call for the public to keep harmonious spaces for human-bird coexistence during the breeding season from April to August. Senior staff in Taoyuan often encounter these magpies during their morning or evening jogs in the refinery area and have witnessed flocks of these magpies flying over, living prosperously within the refinery.





## 黃鸝

*Oriolus chinensis*

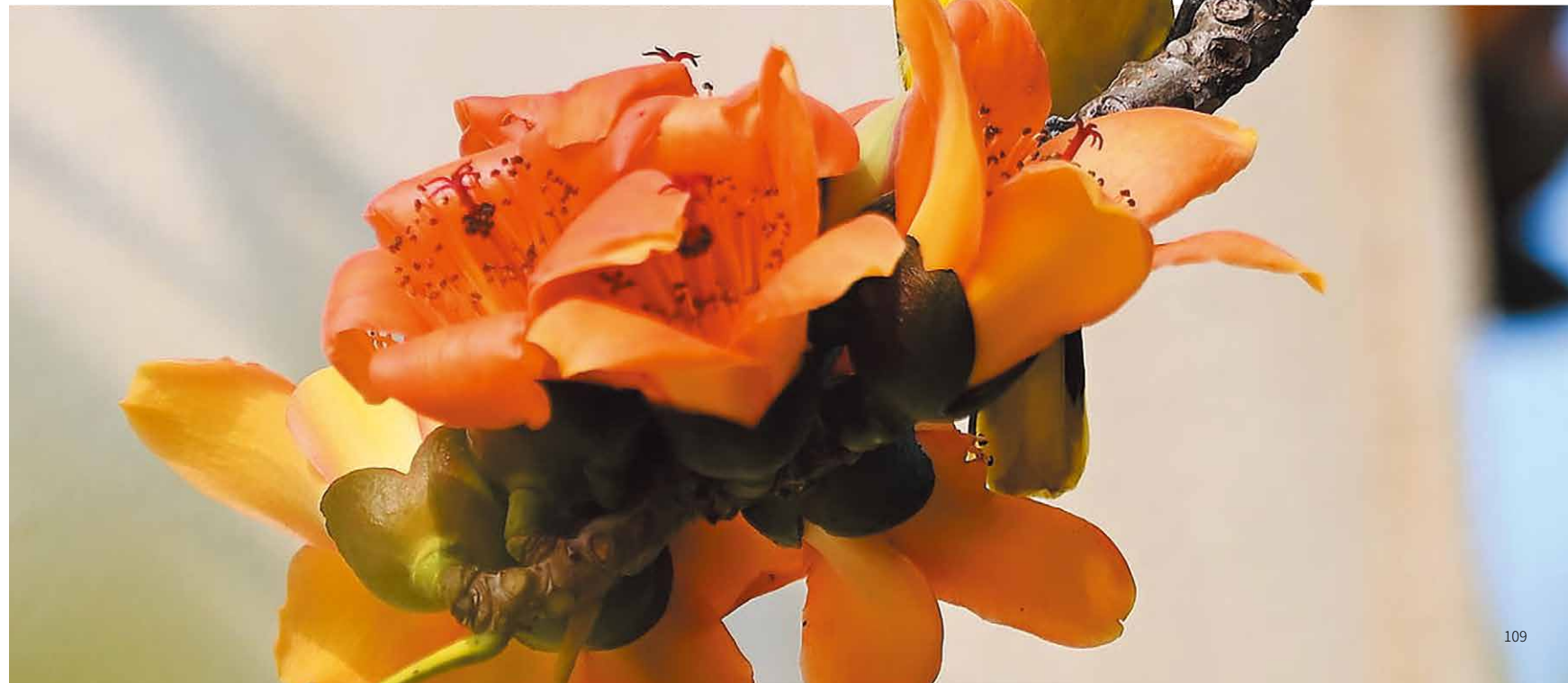


常見體長  
約 23 – 28 公分

Average Length:  
Approx. 23-28 cm

「黃鸝出谷」形容歌聲悅耳動聽，指的就是黃鸝。鮮黃羽色、桃紅嘴喙，搭配烏黑粗大「眼線」，整體造型引人注目，早年受到人為捕捉壓力，被列為瀕臨絕種的一級保育野生動物，近年保育有成，數量已有穩定回升。目前全臺粗估數量約 300 隻，其中在高廠就有穩定的族群，員工每回見到牠們在枝頭上歌唱，都不自覺停下腳步欣賞。

The black-naped oriole is known for its melodious and pleasant singing. With bright yellow plumage and peach-red beaks, coupled with thick black "eyeliner," its overall look is captivating. Once pressured by poaching and listed as a level 1 endangered species, black-naped orioles are seeing a population recovery thanks to recent conservation efforts. An estimated population of 300 individuals are in Taiwan now, with a stable population residing in the Kaohsiung Refinery area, where employees can't help but stop to appreciate their singing on the branches.





## 黃裳鳳蝶

*Troides aeacus kagya*

常見體長  
展翅約 9 – 11.5 公分

Average Length:  
Approx. 9-11.5 cm

臺灣特有的蝴蝶，是三級保育物種。亮黃的斑紋是牠們最顯眼的特徵，尤其在陽光照射下，格外耀眼。桃廠保有了優良的林相與蜜源植物，鄰近的虎頭山公園又復植了馬兜鈴，正吸引黃裳鳳蝶前來，雌性會在馬兜鈴植株上產卵，若想觀察牠們，不妨從馬兜鈴找起。



An endemic butterfly species in Taiwan and a level 3 listed endangered species. Their bright yellow markings are their most striking feature, especially dazzling under the sun. The Taoyuan Refinery maintains excellent forest cover and nectar plants. Alongside the nearby Hutoushan Park, where *Aristolochia debilis* has been reintroduced, they attract golden birdwings. Females lay their eggs on *Aristolochia debilis* vines, making it a starting point for those who wish to observe them.

照片提供：藍振峰

Photo courtesy of Lan Zhen-feng



## 相思樹

***Acacia confusa***

常見樹高  
約 10 – 20 公尺

Average Height:  
Approx. 10-20 m

桃廠可說是相思樹的大本營，保有了北臺灣相對完整的相思林。早年為了薪柴、農具，當地種植了許多相思樹造林，桃廠成立以後，樹林不受外界干擾，生長得蔥鬱又高大，從人工林慢慢演變成次生林，也是各種野生動物鍾愛的家。



The Taoyuan Refinery boasts an intact acacia forests in northern Taiwan. Taiwan acacia trees were planted in the past for firewood and to create farming tools. After the establishment of the refinery, the forest was left undisturbed, growing lush and tall, transforming from plantations into secondary forests and becoming beloved homes for various wildlife.



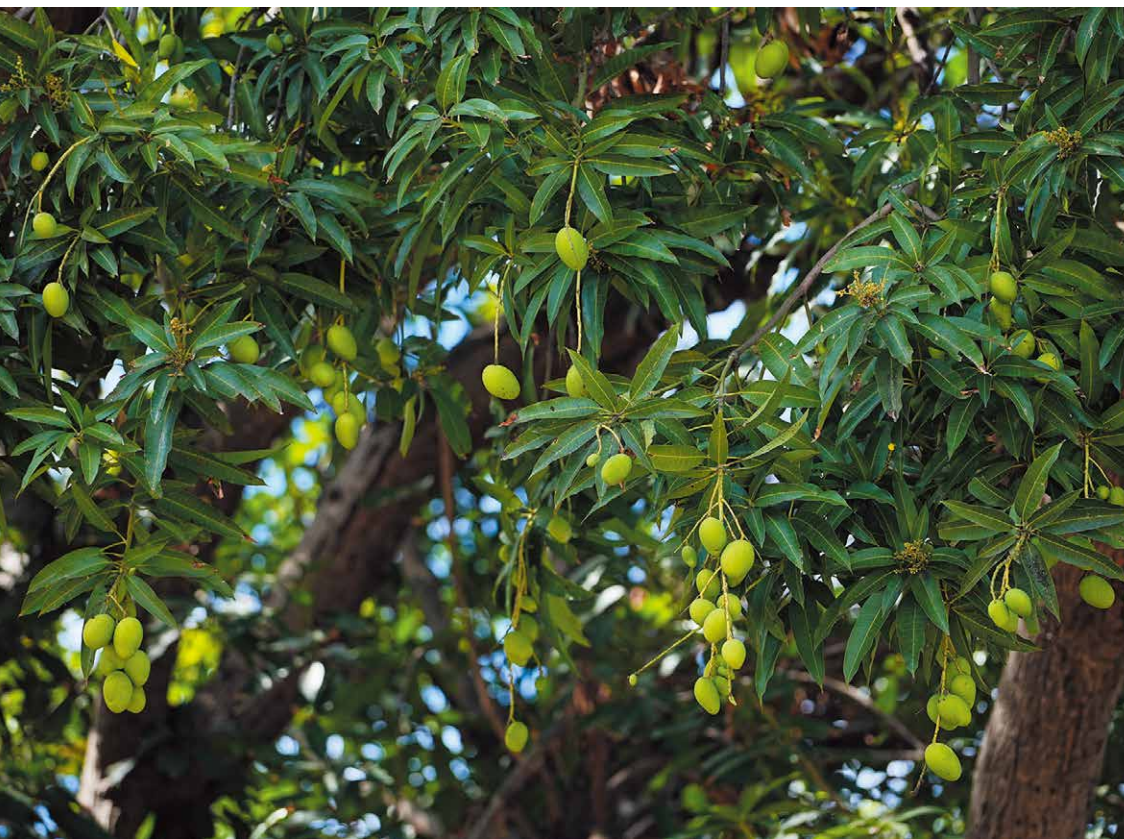
## 檬果

***Mangifera indica***

常見樹高  
約 10 – 20 公尺

Average Height:  
Approx 10-20m.

檬果其實就是「芒果樹」。高雄煉油廠區宏南宿舍早年住滿了中油公司的員工，裡頭還有洗衣部、理髮廳、圖書館、福利社等，自成國度。宿舍間也種了不少芒果樹，每當果紅熟落，是居民與孩子最期待、最甜蜜的零嘴。



*Mangifera indica* is commonly known as the mango tree. The Hongnan dormitory of the Kaohsiung Refinery, once bustling with CPC employees, featured amenities like laundry services, barbershops, libraries, and welfare shops, forming a self-contained community. Many mango trees were planted between the dormitories, and the ripe, falling fruits were the most anticipated and sweetest treats for the residents and their children.



展望  
FUTURE  
VISION

## 造一艘 划向未來的生態方舟

走過蟲鳴鳥叫的淺山間、走過海風吹拂的潮間帶，在我們生活的這座島嶼上，因海洋隔離，有著許多臺灣獨有的特有種。輔以高山環抱、河川蜿蜒的地形，更造就了豐富多樣的生態環境。但隨經濟發展，我們也失去了許多美麗的身影；還有更多物種們處於瀕危狀態，如何守護他們最後的棲地，是眼前最迫切的任務。

台灣中油多年來默默大隱於市，承載了臺灣經濟發展的生機，近年來更期許身兼臺灣生態的守護員，讓生硬的工業區成為兼容野生動物的避風港。因此我們引進 OECM 概念，期望打破生態壁壘，將潛力廠區打造成一座生態園區，在這裡相遇石虎、巧遇山羌、邂逅臺灣狐蝠，讓下一代或下下一代，不會只能在書中追憶這座美麗之島。

因此，我們將經營之路視為與萬物相連，選擇與生態共生共存的道路，期許自己成為一艘諾亞方舟，將臺灣島上美麗的生物帶到子子孫孫皆能與之共同生活的未來。

## Building an Ark: Sailing Towards the Future with an Ecological Vision

Wandering through the low mountains filled with the chirping of insects and singing of birds, and walking along the intertidal zones brushed by sea breezes, we find ourselves on an island isolated by the ocean, home to many species unique to Taiwan. Surrounded by high mountains and winding rivers, this island boasts a rich and diverse ecological environment. However, with economic development, we've also lost numerous beautiful creatures and many more species are in danger. Protecting their last habitats is an urgent task at hand.

For years, CPC has quietly supported Taiwan's economic growth. In recent years, it has aspired to also become a guardian of Taiwan's natural environment, transforming the stark industrial zones into safe havens for wildlife. By introducing the concept of OECM, we hope to tear down ecological barriers and transform potential plant areas into ecological parks. Here, we hope for encounters with the leopard cat, surprise meetings with the Formosan muntjac, and unexpected sightings of the Formosan flying fox, ensuring that future generations can experience the beauty of this island not just through books, but also in real life.

Thus, we view our corporate path as intertwined with all living beings and have chosen a route that coexists and cohabits with nature. We aspire to become a Noah's Ark that carries beautiful creatures of Taiwan into a future where our descendants can live in harmony with them.



祕境不在彼方，探秘不用遠行。  
緩下腳步，就能聽見自然的低語，  
細細呵護，毗鄰的那片綠土，  
就是美好的永續祕境。

Hidden realms lie not afar,  
No distant travels to explore.  
With steps slowed, hear nature's soft call,  
Tender care for the green earth near,  
Therein lies a sanctuary so dear,  
A sustainable embrace, a sacred space forevermore.





相遇「油」勝美地—台灣中油生態地圖

祕境初探

Encounters with the 'Oil'-standing Nature – CPC Taiwan's Ecological Tapestry

Exploring Hidden Gems

發行人 Publisher 李順欽 Lee Shun-chin	照片提供 Photo Courtesy of 林志明 Lin Zhi-ming 易清平 Yi Qing-ping 桃園市野鳥學會 Wild Bird Society of Taoyuan 范卓昭 Fan Zhuo-zhao 許鴻彬 Xu Hong-bin 廖經贈 Liao Jing-zeng 農業部生物多樣性研究所 Taiwan Biodiversity Research Institute 鄭美佳 Cheng Mei-chia 鄭錫奇 Cheng Hsi-chi 謝孟宜 Xie Meng-yi 藍振峰 Lan Zhen-feng 達志影像 Shutterstock	出版 Published by 台灣中油股份有限公司 CPC Corporation, Taiwan
策畫審校 Planned and Reviewed by 方振仁 Fang Jeng-zen 楊漢宗 Yang Han-tsung 黃志堅 Huang Chih-chien 莊家欣 Chuang Chia-hsin 蕭閔麟 Hsiao Hung-lin 鄭吉延 Cheng Chi-yen 曾建仁 Tseng Chien-jen 曾正豪 Tseng Cheng-hao	美術設計 Designer 劉丁菱 Orange Liu	110207 台北市信義區松仁路 3 號 No. 3, Songren Rd., Xinyi Dist., Taipei City 110207, Taiwan
編輯 Editor 王佩琪 Wang Pei-chi 黎筱芃 Li Xiao-peng	插畫 Illustrator Cheryl C.	02-8789-8989 www.cpc.com.tw
特約記者 Writers 劉子寧 Jessie Liu 高嘉聆 Charlyn Kao 張雅琳 Pauline Chang	翻譯 Translator 吳奕昌 Alex Wu	製作 Production 天下雜誌股份有限公司 天下實驗室 CWLab, CommonWealth Magazine Co., Ltd.
特約攝影 Photographers 林韋言 Lin Wei-yan 鄭祺耀 Zheng Qi-yao 盧柏翰 Lu Bo-han 游忠霖 You Zhong-lin 羅正傑 Luo Zheng-jie	行銷企劃 Marketing and Planning by 何宗陶 Terry Ho 楊心慧 Esther Yang	出版日期 Publication Date 2024 年 5 月第一版第一次印行 First Published on May 2024
		定價 Price 新臺幣 250 元 NT\$250
		ISBN 978-986-5334-43-7

國 家 圖 書 館 出 版 品 預 行 編 目 (CIP) 資 料

相遇「油」勝美地：台灣中油生態地圖：祕境初探 = Encounters with the 'oil' standing nature：CPC Taiwan's ecological tapestry：exploring hidden gems / 王佩琪，黎筱芃編輯．  
-- 第一版．-- [ 高雄市 ]：台灣中油股份有限公司，2024.05  
128 面 15×21 公分  
ISBN 978-986-533-443-7( 平裝 )  
1.CST: 臺灣中油公司 2.CST: 環境保護 3.CST: 永續發展

457.0933 113006302