

# NATIONAL GEOGRAPHIC

國家地理雜誌 中文版

## 鏡頭下的 生態故事

2024 國家地理臺灣攝影大賽  
生態環境攝影專刊

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TAIWAN PHOTO CONTEST 2024  
ECOLOGY AND ENVIRONMENT SPECIAL EDITION





Wistron  
Foundation

wistron 緯創人文基金會

《看見台灣》2013

《勇闖天際線》2024

《老鷹想飛》2015

## 視角從高空到海洋 足跡從山林到濕地 紀錄從環境到人文

緯創人文基金會自2010成立以來支持超過16部紀錄片  
從保育瀕危物種到環境衝擊議題，延伸到人與自然共生的里山里海倡議

透過影片見證許多長期用影像為臺灣留下故事的導演  
用研調監測為保育找出生機的研究團隊

唯有觸動人心才能帶來改變，緯創人文基金會持續支持優質紀錄片  
透過鏡頭傳遞臺灣真實的面貌，讓國際看見臺灣的多元與價值

《司馬庫斯》2011

《侯鳥來的季節》2012

《守護黑面琵鷺》2023

《單車天使》2016

《小白鶴的報恩》2017

《戀戀水梯田》2015

《尋找神話之鳥》2021

《山椒魚來了》2023

《退潮》2011

《戰浪》2013

《海》2016

《解密穿山甲》2018

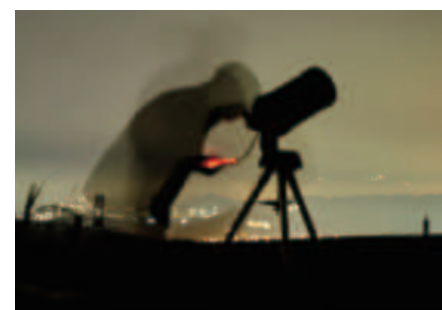
《夜行獵手·臺灣草鴉》2020



## 2024 國家地理臺灣攝影大賽 生態環境攝影專刊

TAIWAN PHOTO CONTEST 2024  
ECOLOGY AND ENVIRONMENT SPECIAL EDITION

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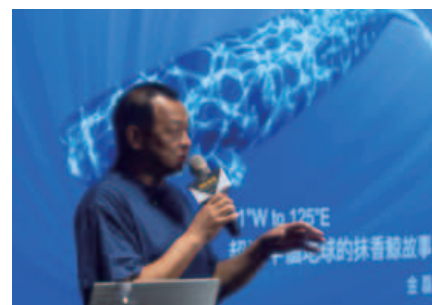


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# 通過影像捕捉人與自然的美好， 探索人與自然的關係

## Capturing the Beauty of Human-Nature Connections: Exploring the Bond that Unites Us through Imagery

感謝緯創人文基金會的大力支持，本次國家地理臺灣攝影大賽圓滿完成，我們很高興看見參賽件數持續增加，作品整體水準持續提高。除此之外，還有幾件事值得一提。

首先，這是我們首次增加了星空攝影組，分為星景、太陽系、深空三類。臺灣擁有良好的天文攝影拍攝環境，除了有高海拔山區，近年來更成立了國際認證的暗空公園，同時還有全球知名的天文器材產業。然而臺灣始終沒有一個大型、固定舉辦的天文攝影比賽。我們在籌

With strong support from the Wistron Foundation, this year's National Geographic Taiwan Photo Contest has successfully concluded. We are delighted to see the number of entries continue to grow, along with the overall quality of the works. Beyond this, there are a couple of other developments worth mentioning.

First of all, we introduced a category for astrophotography, which is divided into three subcategories: nightscapes, the solar system, and deep space. Taiwan offers an excellent environment for astronomical photography, with its high-altitude mountain regions and, in recent years, the establishment of internationally certified dark sky parks. Taiwan is also home to a globally recognized astronomical equipment industry. However, there has never been a large-scale, regularly held astronomical photography competition in Taiwan. After more than two years of planning, we decided to introduce the astrophotography category in this year's National Geographic Taiwan Photo Contest. Our goal is to provide a platform for astronomy enthusiasts to showcase their work as well as to encourage the public to appreciate the beauty of the night sky and the importance of light pollution prevention. For this inaugural event, we received tremendous support from astronomy enthusiasts, and the high quality of the entries was praised by both local and international judges. We were also joined by several domestic astronomy equipment manufacturers, which gives us confidence to continue hosting astrophotography competitions in Taiwan.



劃了兩年多後，決定今年在國家地理臺灣攝影大賽中增設天文攝影類別，希望讓眾多天文攝影迷有發表的園地，也鼓勵大眾更加認識星空的美好，重視光害的防治。首次舉辦，獲得眾多星友的支持，參賽作品的水準也得到國內外評審的肯定，並且有諸多國內天文設備廠商的共襄盛舉，讓我們有信心持續在臺灣舉辦星空攝影賽事。

其次，我們在今年恢復了鳥類攝影作品的收件。去年由於媒體揭露臺灣存在「拍鳥產業鏈」，不肖業者捕捉野鳥，放在人工環境專供拍攝。這種行為嚴重違反國家地理一貫秉持的攝影倫理。因此，我們在去年停止鳥類作品收件，並且廣泛收集國內外學者專家與相關團體對鳥類拍攝的規範，通過《國家地理》雜誌的報導，不僅譴責危害鳥類的拍鳥行徑，也公布了拍攝鳥類及野生動物的必要規範。今年，我們要求參賽者投件時簽署遵守鳥類拍攝倫理的聲明。我們很高興的發現，評審們不僅沒有發現存在違反規範疑慮的作品，鳥類攝影水準也大幅提昇。我們相信，這顯示我們不僅是為攝影愛好者舉辦一次競賽，也將自然保育的理念成功傳遞出去。

通過影像捕捉人與自然的美好，探索人與自然的關係，從而促使更多人積極保育、愛護我們的家園，是我們舉辦國家地理臺灣攝影大賽最重要的使命，我們將繼續努力推動這個使命，也希望更多愛好攝影的朋友加入我們的行列，與我們一起努力。

Second, this year we resumed accepting bird photography submissions. Last year, media reports revealed the existence of a “bird photography industry” in Taiwan, where unscrupulous operators captured wild birds and placed them in artificial settings for the sole purpose of photography. This is a gross violation of the photographic ethics that National Geographic has always upheld. As a result, we suspended bird photography submissions last year and conducted extensive research by consulting both domestic and international scholars, experts, and relevant organizations to establish clear guidelines for bird photography. Through our reportage, we not only condemned harmful practices toward birds but also published essential guidelines for photographing birds and wildlife. This year, we required participants to sign a statement affirming their adherence to ethical bird photography practices when submitting their works. We are pleased to report that the judges found no entries that raised concerns about ethical violations, and the overall quality of bird photography has significantly improved. We believe this reflects our success not only in organizing a competition for photography enthusiasts but also in effectively conveying the message of wildlife conservation.

Capturing the beauty of humanity and nature through images, exploring the relationship between humans and the natural world, and thereby inspiring more people to actively conserve and care for our home—this is the most important mission of the National Geographic Taiwan Photo Contest. We will continue to strive to advance this mission and hope that more photography enthusiasts will join us in this effort.

《國家地理》雜誌中文版總編輯  
Yungshih Lee, Editor-in-Chief



# 人與自然的平衡， 是需要持續投入 的志業

## Balancing Humanity and Nature Requires Continuous Commitment

緯創人文基金會在 2010 年成立以來，秉持著利他的初心，除了和各領域專業的公益夥伴合作外，並帶領同仁實際參與保護環境的行動，透過身體力行，希望讓更多人一起關注環境及自然生態。地球只有一個，在人類不斷的消費破壞下，本就該由人類努力修復和保護。這是所有企業都應負起的地球公民責任，要為促進人與自然的平衡一起努力。

緯創與國家地理合作攝影大賽已進入第三年，用影像記錄下臺灣的美、臺灣的故事，是我們認同也支持的理念，也希望臺灣的攝影愛好者和想透過影像說故事的人，都有一個能切磋、發表的舞臺。今年我們更促成了國際知名鳥類學者暨國家地理攝影師提姆·雷曼（Tim Laman）擔任評審，並來臺發表精采演講。從分享中，我們看到優秀攝影師的不斷自我鞭策，勇敢面對各種地形與天候的挑戰，透過攝影尋找對生命的友善與尊重。例如提姆克服種種挑戰拍攝的天堂鳥影像，成為印尼保育團體的有力證據，成功阻止了當地政府將森林剷平變成甘蔗園的計畫，這就是影像的力量！

多年來，緯創人文基金會和諸多 NGO 組織合作，藉此將我們小小的力量延伸得更廣、更



Since its establishment in 2010, the Wistron Foundation has stayed true to its altruistic mission. Alongside partnerships with professionals across nonprofit sectors, the foundation actively engages its colleagues in hands-on environmental conservation efforts, aiming to inspire broader attention to environmental and ecological preservation. We only have one Earth, and it is our responsibility to repair and protect it as humanity consume and damage it relentlessly. This is a responsibility that all businesses should take on as global citizens of the Earth, working together to promote a balance between humanity and nature.

The collaboration between Wistron and National Geographic on the Photo Contest has entered its third year. We fully support the vision of capturing Taiwan's beauty and its stories through images and strive to provide photographers and storytellers with a platform to exchange ideas and showcase their works. This year, we have helped facilitate the participation of internationally renowned ornithologist and National Geographic photographer Tim Laman as a judge. During his visit to Taiwan, he delivered an inspiring lecture highlighting how an exceptional photographer push his limits, overcoming challenging terrains and weather while finding the way to show respect and kindness to life. His stunning images of birds-of-paradise became critical evidence for Indonesian conservationists, helping halt a government plan to clear forests for sugarcane plantations – a testament to the power of image.



1 維護自然環境，呈現人與萬物共好生活的美好景象。

Protecting the natural environment and highlighting the beauty of harmonious coexistence between humans and all beings.

2 緯創樂服志工利用假日前往緯創人文基金會守護的棲地

3 ——雙連埤和關渡自然公園。

Wistron volunteers spend their holidays helping maintain the habitats supported by the Wistron Foundation—Shuanglianpi and Guandu Nature Park.

遠，更是希望這些善因能促成更多善與美的循環。這樣的合作讓我們看到，在穩定的支持下，這些組織可以推動多大的改變、成就多大的美好。有這麼多人在為臺灣這塊土地努力，我們沒有理由不對自己成長的土地付出更多關心，不管是環境的、教育的、人文的、社會的，還是各種影像紀錄，都是在為我們的下一代守護美好的環境。人與自然的平衡是需要持續投入的志業，這條路無止盡，但是對的事就應該堅持，讓我們一起努力珍惜美麗的土地，與萬物共享美好的生活。

Over the years, the Wistron Foundation has partnered with numerous NGOs in order to extend our humble strength and hopefully to inspire a cycle of kindness and virtue. These collaborations have shown us how remarkable influences that a consistent support can achieve. With so many people working hard for Taiwan, we have no reason not to care more for the land that has nurtured us. No matter it is through environmental, educational, cultural, social, or visual practices, we are guarding a better future for the next generation. Balancing humanity and nature requires continuous commitment. While the journey is endless, it is important to keep doing the right thing. Let us cherish this land and share a harmonious life with all living things.

緯創人文基金會董事長 林憲銘  
Chairman of Wistron Foundation  
Simon Lin



# 星空攝影淺談 劉志安

## An Introduction to Astrophotography with Chih-An Liu

5月18日是國際天文日，2024 國家地理攝影大賽第一場攝影論壇「星空攝影淺談」特別選在這一天邀請全臺灣歷史最悠久的民間天文教育推廣團體：臺北市天文協會的劉志安理事長主講。

自1985年進入光學公司服務，劉理事長便一路和天文攝影同步成長，看著各種器材設備從當初的高不可攀，到如今的簡便親民、甚至用手機就能拍出清晰的星空與雲河。一個多小時內，劉理事長介紹了天文攝影的發展，講解不同類型星空攝影如固定攝影及追蹤攝影的差別與技巧，再從望遠鏡與相機等硬體設備的演變，談到借助電腦強大演算功能的疊圖及影像處理軟體，以及應用這些軟硬體的成果差異，希望讓更多人踏出星空攝影的第一步。



May 18th was International Astronomy Day. To mark the occasion, the first photography forum of the 2024 National Geographic Taiwan Photo Contest, “An Introduction to Astrophotography,” was held. The speaker was Chih-An Liu, Chairman of the Taipei Amateur Astronomers Association, Taiwan’s oldest civil organization dedicated to promoting astronomy education.

Since joining an optical company in 1985, Liu has grown alongside the field of astrophotography. He has witnessed the evolution of equipment, once prohibitively expensive and complex, into today’s accessible, user-friendly tools—so much so that even a smartphone can now capture clear images of the starry sky and the Milky Way. During his hour-long talk, Liu explored the development of astrophotography, detailing the different techniques for nightscape photography, such as fixed-position and star-tracking photography. He also discussed the evolution of hardware such as telescopes and cameras, and how advancements in computer algorithms enable better image stacking and processing. By demonstrating the results achieved with these tools, Liu hopes to inspire more people to take their first steps into astrophotography.

The introduction of photography marked a pivotal moment in astronomical observation. In ancient times, observations relied on hand-drawn sketches based on what was visible to the naked eye. With the advent of photography, clearer and more precise records of celestial phenomena became possible. Photography also allowed observations to transcend time, capturing images of the same astronomical object at different intervals, enabling scientists to track and study its changes over time.

In the early days, cameras and telescopes were entirely separate devices. Liu recalled a time when he had to modify a plastic water pipe to create an adapter to connect a camera to a telescope. While most photography captures

攝影術的運用是天文觀測的轉捩點。古代只能靠眼觀手繪，但有了攝影術之後，自此就能留下更清晰準確的天文觀測紀錄、甚至能跨越時間，記錄下同一天文物體在不同時間的影像，進而觀察其變化。

早期，相機是相機、望遠鏡是望遠鏡，劉理事長也經歷過自己把塑膠水管改裝成轉接頭，才能把相機與望遠鏡連在一起的時代。其他攝影捕捉片刻的永恆，天文攝影則需長時間曝光，將時間凝煉成單幅影像。在底片機時代，拍攝星空必須一直盯著目鏡，星星一旦偏移，就要手動操控調整，完全不能亂跑，「旁邊有人在煮羊肉爐時，就只能流口水了。」劉理事長笑著說。

隨著科技發展，有了赤道儀可以隨著天空旋轉、有導星鏡可以自動追蹤，也有方便攜帶的電池能為這些科技設備提供電力。拍攝天體時不再需要死盯鏡頭，可以讓機器代勞，但依舊需要清澈的夜空。臺灣第一座暗空公園：合歡山國際暗空公園，就是在劉理事長、天文協會與天文愛好者的推動下，串聯合歡山地區的民宿業者一起戶外減光，終於在2019年完成國際申請，就此為臺灣留下一處能盡情欣賞夜空美景、不用擔心光害的地方。

展望這一路的辛苦與成果，如今拜科技之賜有了更容易使用的工具，今年國家地理攝影大賽更增加了星空組別，這樣的活動鼓勵更多人投入星空探索的領域，未來必定能激發出更多創意與精采的作品。



fleeting moments, astrophotography requires long exposure times to condense time into a single image. During the era of film cameras, photographing the night sky meant constantly watching through the eyepiece; if the stars shifted even slightly, manual adjustments were necessary, leaving no room for distraction. “If someone nearby was making lamb hotpot, all you could do was drool,” Liu joked with a smile.

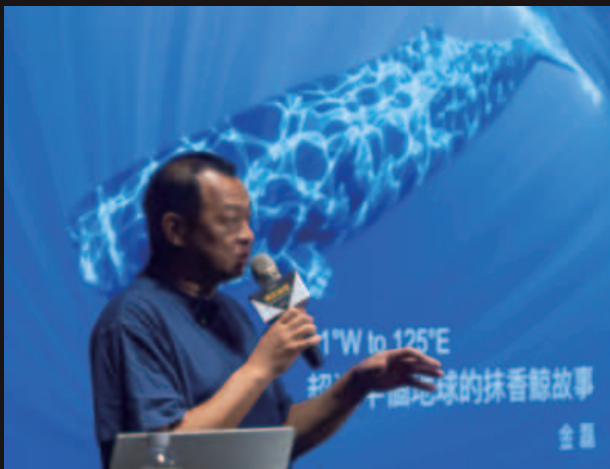
With advances in technology, equatorial mounts were developed to rotate in sync with the sky, autoguiders could automatically track celestial objects, and portable batteries made it easier to power these devices. As a result, photographing celestial bodies no longer required constant monitoring through the viewfinder, as machines could take over. However, a clear night sky remains essential. The Hehuan Mountain Dark Sky Park, the first of its kind in Taiwan, was officially established in 2019 thanks to the efforts of Liu, the Taipei Amateur Astronomers Association and dedicated astronomy enthusiasts. They collaborated with local guesthouse owners in the Hehuan Mountain area to reduce outdoor lighting. Their initiative earned international recognition, creating a place in Taiwan where people can fully enjoy the beauty of the night sky, free from the effects of light pollution.

Looking back on the challenges and achievements along the way, we now have more user-friendly tools thanks to technological advancements. This year, the National Geographic Photo Contest introduced an astrophotography category, further encouraging more people to explore the wonders of the night sky. Such initiatives will undoubtedly inspire greater creativity and outstanding work in the future.



# 61° W to 125° E： 超過半個地球的抹香鯨故事 金磊

From 61° W to 125° E：  
The Story of Sperm Whales Across Half the World



「可能很多人都不知道，此時此刻，臺灣東部外海就有抹香鯨漂浮在海上，」金磊在大螢幕放上以海岸山脈和中央山脈為背景的抹香鯨揚尾下潛照，原來，抹香鯨離我們這麼近。

每年 7 到 9 月正是許多鯨豚來到臺灣的季節，金磊都會留在臺灣捕捉牠們的身影，並且趁此機會和更多觀眾分享多年來拍攝鯨豚的點滴。在一個多小時的論壇中，金磊帶著觀眾去到中美洲的多米尼克，透過鏡頭觀看抹香鯨、以及抹香鯨的特殊行為和鯨豚攝影的種種挑戰。

原來，各國都有嚴格的鯨豚拍攝規範，有些國家規定不能下潛，有些只有合法船家才能帶領出海，也有些必須先向政府申請才能下水作業，而

“Many people may not know it, but sperm whales are floating in the waters off the eastern coast of Taiwan at this very moment,” said renowned cetacean photographer Ray Chin, as he displayed on the big screen the image of a sperm whale raising its tail to deep dive, with the Coastal Range and Central Mountain Range in the background. It turns out that sperm whales are much closer to us than we realize.

Cetaceans grace the waters of Taiwan between July and September each year. Ray Chin spends this time in Taiwan to capture their images and share his experiences photographing these mammals with a wider audience. In this forum, Chin introduced the audience to the Caribbean nation of Dominica, where they observed sperm whales and their unique behavior through his lens, and learned about the challenges of cetacean photography.

Each country has its own regulations for photographing cetaceans. Some prohibit diving, while others allow only licensed operators to take boats out to sea, and some require government permission before entering the water. “Adhering to these regulations is the most fundamental principle for photographers and an absolute line that cannot be crossed,” said Chin. There are many more principles that only those who genuinely care about the well-being of cetaceans will uphold.

When photographing cetaceans, only natural light can

遵守這些規範，「我覺得是身為一個影像工作者最基本、也是絕對不能妥協的一條底線。」金磊說。還有更多的有所不為，是真心為鯨豚設想的人才會堅持的原則。

像是拍攝鯨豚時，必須以自然光拍攝，所以拍攝深度大都是在海面 10 公尺內，同時不背氣瓶。因為氣泡也是鯨豚溝通的方式之一，為了不造成鯨豚的困擾，所有鯨豚攝影師都是戴著面鏡、穿上蛙鞋，拿著放在防水機殼裡的相機就跳下水了。每次出海，即使在海上待命整天，和鯨豚的相遇卻可能只有短短幾十分鐘，還不一定能拍照，因為必須先觀察、甚至跟隨一段時間，確認鯨豚對人類是否在意、其情緒與行為是否穩定、是否能安全靠近。畢竟，除了鯨豚的感受，人類自己的安全也很重要。

世界各地都有鯨豚研究團隊在蒐集個體資料，藉體表的傷疤和斑紋辨識個體，為鯨豚製作 photo ID。但正如金磊說的，看完人物介紹之後，故事才正要開始。認識鯨豚個體，才能了解其行為、活動範圍、成長歷史、彼此關係等等。除此以外，金磊和致力為鯨豚發聲的 NGO 組織黑潮海洋文教基金會，正計畫向 IUCN 申請在花東海域劃設一片 IMMAs：海洋哺乳動物重要棲息地，為所有來到花東海域的鯨豚，留下一片安全的海洋綠洲。

be used, so shots are usually taken within 10 meters of the surface. Scuba tanks are not allowed either, as bubbles are one way cetaceans communicate. To avoid causing disruption, photographers enter the water with only mask and fins, carrying nothing but their cameras in waterproof casings. Once out in the sea, even if they spend all day waiting, encounters with cetaceans may last only a few dozen minutes, and they may not even get a chance to take photos. Photographers must first observe and sometimes follow the animals to assess if the cetaceans are comfortable with human presence, whether their emotions and behaviors are stable, and if it is safe to approach. After all, staying safe is just as important as keeping the cetaceans' well-being in mind.

Global research teams are collecting data on individual whales and dolphins, using scars and markings to create photo IDs. But as Ray Chin said, the story begins after we identify them—only then can we understand their behavior, range, growth, and relationships.

Chin and the Kuroshio Ocean Education Foundation plan to apply to the IUCN for portions of the waters off Hualien and Taitung to become an IMMA (Important Marine Mammal Area), in hopes of establishing a lasting sanctuary—a safe marine oasis for all cetaceans passing through these waters, from now into the future.





國際攝影師來訪 | The Visit of a World-renowned Photographer

# 與 Tim 同行，探索臺灣

## Exploring Taiwan with Tim Laman

撰文：鍾慧元 攝影：陳郁文

Text by Huiyuan Chung Photographs by Yuwen Chen

走遍世界拍攝野生動物，並以收錄全世界所有天堂鳥種類的《天堂鳥》及《鳥類星球》攝影集圈粉無數的國家地理攝影師提姆·雷曼（Tim Laman）受邀擔任 2024「國家地理雜誌臺灣攝影大賽」評審，在百忙中抽空來臺頒獎，並以「鳥類星球」為主題，分享了他累積數十年的經驗與精采影像。

National Geographic photographer Tim Laman, renowned for his global wildlife photography and popular books *Birds of Paradise* and *Bird Planet*, was invited to judge the 2024 National Geographic Taiwan Photo Contest. He took time from his globe-trotting schedule to visit Taiwan as an award presenter and shared his decades of experience and stunning images in a photography forum centered on a world of birds.

誠如總編輯李永適的介紹，如果對國家地理攝影師有刻板印象，像是穿梭叢林、出生入死，「把這個想像再乘以三、乘以五、乘以十，這大概就是提姆。」從刊登在 2001 年 1 月《國家地理》雜誌中文版創刊號的初試啼聲之作〈雨林滑翔客〉以來，提姆在全球讀者心目中就像是生態攝影界的湯姆·克魯斯，他也不藏私地在論壇及後續行程中分享自己為拍攝這些畫面所作的努力。

像是大天堂鳥（*Paradisaea apoda*）會選擇在樹冠層上方的裸露枝條求偶，所以他要先爬上數十公尺的樹冠，確認可能上演精采好戲的枝條，構思想要的角度與構圖，再以藤蔓、樹葉等天然材料，編織出完全融入樹冠的偽裝帳，一待就是好幾天，直到鳥兒放心求偶，又或是在委內瑞拉紅樹林潮間帶拍攝美洲紅鸚（*Eudocimus ruber*）時，他做了一個木頭平臺，以大輪胎為底，再加上偽裝帳，在泥灘中奮力跋涉推行到選定位置後，

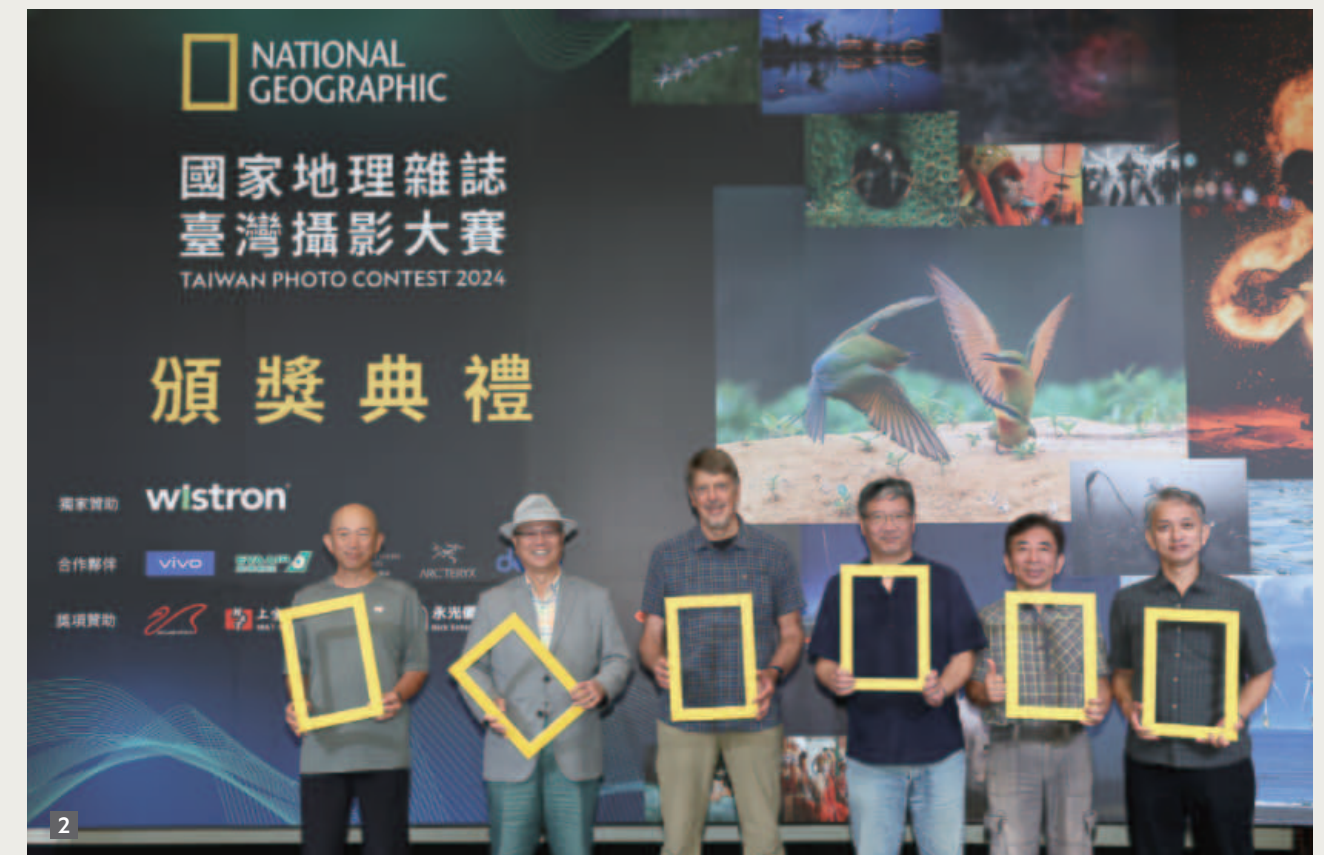
As Editor-in-Chief Yungshih Lee noted, if you hold a stereotypical view of *National Geographic* photographers—navigating dense jungles and facing life-or-death situations—“multiply that impression by three, five, or even ten, and that’s Tim.” Since his debut piece, “Borneo’s Wild Gliders”, was featured in the inaugural issue of *National Geographic’s* Traditional Chinese edition in January 2001, Tim has become a leading figure in wildlife photography—something of a superstar in this field. During the forum and subsequent events in Taiwan, he generously shared his experiences and stories of how he was able to capture those stunning images.

1 一到野外，提姆立刻進入工作模式，專注觀察動物。

As soon as Tim enters the wild, he shifts into work mode, closely observing the animals’ every move.

2 提姆為攝影大賽特別來臺。左起：柯金源導演、緯創人文基金會董事長林憲銘、提姆、國家地理雜誌總編輯李永適、臺北市天文協會理事長劉志安、國家地理特約攝影師陳郁文。

Tim Laman made a special trip for the National Geographic Taiwan Photo Contest. From left: Director Chin-Yuan Ke, Wistron Foundation Chairman Simon Lin, Tim Laman, *National Geographic* Editor-in-Chief Yungshih Lee, Taipei Amateur Astronomers Association Chairman Chih-An Liu, and *National Geographic* contributing photographer Yuwen Chen.







就躲在偽裝帳中過夜，等待不知情的鳥兒清晨來覓食。哪知他錯估漲潮水位，半夜醒來時發現平臺已經泡在水中……

但最激勵人心的，或許是他拍攝的大天堂鳥影像成為有力證據，讓當地保育運動成功阻止這片森林被開發成甘蔗園，這就是攝影的力量，也是攝影的意義。他希望這場分享能讓大家了解拍攝野生動物時尊重拍攝對象的必要性，因為鳥類唯有在棲地中不受干擾，才能展現出最自然的模樣，只要耐心等待，必能捕捉到最不可思議的畫面。他也鼓勵在座所有聽眾，永遠有一幅更棒的畫面等待捕捉，而分享自己的影像，將能啟發更多人看見自然、保護自然。

上次提姆來臺灣，是 40 年前大學畢業後到中國旅行前的短暫過境。因此，為了讓提姆在短短兩天行程中也能體驗臺灣的自然景致，國家地理團隊、荒野保護協會及獨家贊助本次攝影大賽的緯創資通／緯創人文基金會，特別邀請東華大學

To photograph the greater bird of paradise (*Paradisaea apoda*), which courts on bare branches above the canopy, Tim climbs dozens of meters to scout the branches that will most likely see action. After visualizing the perfect angles and composition, he builds a camouflage tent from vines and leaves, blending seamlessly into the canopy, where he waits for days until the birds feel safe enough to court.

In Venezuela's mangrove intertidal zone, while photographing scarlet ibises (*Eudocimus ruber*), Tim built a wooden platform using a large tire as a base and placed a camouflage tent on top, adding branches and leaves for additional concealment. He then pushed the platform through the mud to his chosen spot. After spending the night inside, waiting for the birds to arrive at dawn, he awoke to find that he had miscalculated the tide height and his platform submerged.

The most inspiring story may be how his images of the Greater Bird of Paradise served as powerful evidence for preventing the forest from being converted into a sugarcane plantation. This underscores the true power and purpose of photography. He hopes his talk highlighted the importance of respecting wildlife during shoots, as birds only display their natural behavior when



自然資源與環境學系的鳥類專家許育誠副教授同行，和提姆一起參訪位於宜蘭低海拔山區的林業試驗所福山研究中心，並在位於福山半山腰的雙連埤國家級溼地、也是攝影大賽影像故事工作坊的舉辦地點停留，和工作坊學員交流，也認識守護雙連埤的荒野保護協會夥伴，讓提姆看到臺灣在生態保育方面的民間與學術力量。

福山植物園有限制入園人數的嚴格管制及每年三月固定休園的規定。但少有人知道，這裡同時也管理水源保護區與哈盆自然保留區，是重要的森林研究基地，也是林業試驗所最年輕的植物園。助理研究員林建融向提姆介紹時提到，福山位於東北季風吹拂區，海拔 600 公尺，氣候涼爽潮溼，是林試所「方舟計畫」的重要保種地，保護著對環境變化很敏感的瀕危植物。

林建融說，方舟計畫最重要的就是設法整合全臺保種力量，並找出最適合的地點進行移地保育。福山的方舟計畫溫室中就有 600 多種瀕危植物，

- 1** 左：提姆第一次看到這麼不怕人的山羌。右上：長鬃山羊。右下：野生鴛鴦。  
It was Tim's first time seeing a muntjac so relaxed around humans. Top right: Formosan serow. Bottom right: Wild mandarin ducks.
- 2** 水生植物池遠處的鴛鴦讓大家都驚喜萬分。  
Everyone was thrilled to spot the mandarin ducks at the far end of the aquatic plant pond.

undisturbed in their habitat. With patience, extraordinary moments can be captured. He encouraged the audience to keep striving for better images and to use their photography to inspire others to protect nature.

Tim's last visit to Taiwan was 40 years ago, shortly after he graduated from university, and it was only a brief stopover. To help Tim reconnect with Taiwan's natural beauty during his two-day trip, the National Geographic team, the Society of Wilderness, exclusive sponsor Wistron Corporation and Wistron Foundation, invited Dr. Yu-Cheng Hsu, a bird expert from National Dong Hwa University, to join the trip. They visited the Taiwan Forestry Research Institute's Fushan Research Center in Yilan and made a quick stop at Shuanglianpi Wetland of National Importance, which hosted the Nature Photography & Environmental Storytelling Workshop. During



像是靠勾住候鳥羽毛傳播的小果菱和野菱，還有石龍尾、絲葉狸藻等曾經分布在雙連埤的植物。

提姆也在福山體驗了好幾個第一次。傍晚時分，他一邊和許育誠副教授聊著福山地區獨特的生態環境與鳥類，一邊用隨身攜帶的望遠鏡，確認了水池遠處有幾隻鴛鴦在安靜休憩，他說自己「從來沒有在野外環境看過鴛鴦，之前看到的都是在動物園或圈養環境中。」他更期待在第二天日出前後再訪，希望捕捉到鴛鴦游泳的畫面。「我確認過了，明天日出時間是五點半。」他口氣冷靜，展現出對難得目標的主動積極。

**1** 雙連埤獨特的浮島有嚴格管制，必須事先申請，並搭乘宜蘭縣政府的「研究船」才能登島。

Access to the unique floating island of Shuanglianpi is strictly regulated, requiring prior application and transport via Yilan County Government's research boat.

**2** 提姆樂於嘗試新事物，和大家一起戴上斗笠，跪著划船。右為東華大學許育誠副教授。

Tim is open to new experiences, joining everyone in wearing a conical bamboo hat and kneeling to paddle the boat. On the right is Dr. Yu-Cheng Hsu from Dong Hwa University.

**3** 荒野研究員黃閔義在浮島上跟提姆說明，茂盛的野薑花其實會壓迫其他原生植物的生長空間。

On the floating island, Society of Wilderness researcher Hung-Yi Huang explained to Tim that the abundant white ginger lily actually inhibits the growth of native plants.

their visit, Tim exchanged ideas with workshop participants and met with partners from the Society of Wilderness, showcasing Taiwan's grassroots and academic efforts in ecological conservation.

Fushan Research Center is best known for its Botanical Garden, but few realize it also manages a water source protection area and the Hapen Nature Reserve. This makes it a key forestry research base and the youngest botanical garden under the Forestry Research Institute. Assistant Researcher Lin Chien-Jung explained to Tim that Fushan, located at an altitude of 600 meters in an area influenced by the northeast monsoon, has a cool, humid climate, making it crucial for the Institute's Future Green Project, which focuses on protecting endangered plants sensitive to environmental changes.

Lin emphasized that the Future Green Project's main goal is to integrate conservation efforts across Taiwan and identify the best locations for *ex situ* conservation. Fushan's greenhouse houses over 600 species of endangered plants, including *Trapa incisa*, which relies on migratory birds for seed dispersal, and species such as the dwarf ambulia (*Limnophila sessiliflora*) and humped bladderwort (*Utricularia gibba*), both once found at Shuanglianpi.

Though experienced in the field, Tim encountered several firsts at Fushan. While discussing the area's unique environment and bird species with Dr. Hsu,



因為嚴格規範，福山的哺乳動物是出了名的不在乎人類。果然入園沒多久，就遇見一隻悠閒吃草的山羌。大家都停下腳步，拿出相機、手機和望遠鏡，靜靜觀察。提姆低聲說，30 多年的野外攝影生涯，他只有用自動相機拍到過一張山羌照片，從沒看過這麼自在的山羌，而他也完美預測了山羌吃草與行走的方向，緩慢地移動到能捕捉最佳畫面的角度與位置，展現了預判動物行為的深厚功力。聽到福山的臺灣獼猴會和山羌互動、甚至幫山羌理毛，更是讓提姆嘖嘖稱奇。因為提姆的太太雪蘿·諾特（Cheryl Knott）是靈長類動物學家，他確定他太太會非常有興趣了解這種現象。親眼看到福山研究人員拍攝的山羌與獼猴互動影片之後，想必讓提姆對福山留下了更深刻的印象。

另一個參訪地點，就是海拔約 470 公尺的山中湖泊雙連埤。這裡曾擁有全臺三分之一種類的水生植物，但 20 多年前因為開發造成大量水生植物消失，最後由宜蘭縣政府向私人地主買下、劃設為野生動物保護區與國家級重要溼地。從一開始就關注雙連埤狀況的荒野保護協會，在 2010 年起獲得緯創人文基金會贊助支持，雙方共同努力下，在湖畔建立了保育基地，持續守護至今。

雙連埤湖面上有一處面積約 4 公頃、目前是全臺最大的天然浮島。這片浮島其實是由漂浮在湖

he spotted a few mandarin ducks resting on the far side of the pond through his binoculars. He remarked that he had never seen mandarin ducks in the wild before, only in captivity. Excited, he planned to return at dawn to capture images of the ducks swimming. "I checked; sunrise is at 5:30," he said calmly, demonstrating his proactive approach to this rare opportunity.

Due to strict regulations, the mammals in Fushan Botanical Garden are famously indifferent to humans. Shortly after entering, the group spotted a muntjac grazing leisurely. Everyone stopped to observe, quietly pulling out their cameras, smartphones, and binoculars. Tim whispered that in his 30 years of wildlife photography, he had only once captured a muntjac on a camera trap and had never seen one so at ease. He correctly predicted the muntjac's movements, silently positioning himself for the perfect shot, demonstrating his deep understanding of animal behavior. Tim was particularly fascinated to learn that Formosan macaques in Fushan interact with muntjacs, even grooming them, something that he said would surely interest his wife, primatologist Cheryl Knott. He was also shown footage of such interactions, which no doubt left him with an even deeper impression of Fushan.

Another stop was Shuanglianpi, a lake located at an elevation of about 470 meters. Once home to one-third of Taiwan's aquatic plant species, the area experienced significant development some 20 years ago, resulting in the loss of many species. Eventually, the Yilan County government purchased the land from a private owner and designated it as a wildlife sanctuary and a Wetland of National Importance. Since 2010, with sponsorship







面的多種水生植物根莖交織纏繞，經歷長久時光和腐植質累積而形成的厚實草毯。年深日久，草毯也成為其他動植物的家，例如水社柳等瀕危植物。目前浮島屬於管制區域，必須經過申請才能登島調查。在身為國家重要溼地委員的許育誠副教授陪同下，提姆也登上了浮島，了解雙連埤獨特的溼地生態。

這次攝影大賽的生態影像故事工作坊就是在雙連埤舉辦，在荒野夥伴及指導老師陳郁文的帶領下，深入了解這處珍貴溼地及其面臨的種種挑戰。學員們把握提姆的造訪展示自己的作品，提姆也對大家的構圖、角度、甚至色彩的安排，分別給予精闢的建議。聊起野外生態攝影最困難的地方，提姆說，要先找出對的角度、對的高度和對的方向，並預先勾勒出想要的構圖，剩下的就是等待。但最重要的是預測動物的下一步，這就必須仰賴多年的觀察經驗。像是鳥類在做特定動作之前都會有些徵兆，也就是預備動作。不管是飛行、求偶、或是打架，只要觀察多了，就能抓準時機，搶先按下快門。

and support from the Wistron Foundation, the Society of Wilderness (SOW) has been monitoring Shuanglianpi's development, establishing a conservation base by the lake and continuing to protect it to this day.

Shuanglianpi is home to Taiwan's largest natural floating island, covering approximately 4 hectares. It is formed by the intertwined roots and rhizomes of various aquatic plants, creating a dense mat of vegetation that supports a variety of flora and fauna, including endangered plant species such as *Salix kusanoi*. Accompanied by Dr. Hsu, a member of the National Important Wetland Committee, Tim visited the floating island to explore the unique wetland ecology of Shuanglianpi.

The Nature Photography & Environmental Storytelling Workshop was held at Shuanglianpi, with support from the SOW. Led by instructor Yuwen Chen, the workshop provided participants with an in-depth understanding of this valuable wetland and the challenges it faces. Tim's presence offered a unique opportunity for attendees to showcase their work, and he provided valuable feedback on their compositions, angles, and color arrangements.

When discussing the challenges of wildlife photography, Tim emphasized the need to first find the right

最後，有學員問提姆該如何平衡對攝影的熱愛及現實生活？提姆說，如果有無論如何都想拍攝的計畫，那就去拍吧。他也會接人文或紀實的拍攝工作，但一定會保留時間進行自己的計畫。

或許就是因為有《國家地理》雜誌的存在，才能支持像提姆這樣的攝影師去進行各種艱困的攝影計畫，並讓全世界讀者看到遙遠地方的故事，也激勵更多後起之秀追隨這樣的精神。提姆說，看到自己的作品激勵了年輕人，還有工作坊學員與荒野夥伴對自然保育的熱情與投入，令他十分感動。但我們更感謝提姆的不藏私分享，在短短兩天內為聽眾與學員，帶來了許多珍貴的洞見。

**1** 在口譯的協助下，提姆就工作坊學員的作品分別給予中肯而實用的建議。

Aided by an interpreter, Tim provided thoughtful and practical feedback on the works of the workshop participants.

**2** 因為有各方努力，才保住了雙連埤這處珍貴溼地。工作坊則為這些努力留下珍貴的紀錄。圖中包括提姆、許育誠副教授、荒野保護協會雙連埤基地夥伴、緯創人文基金會成員及工作坊學員。

Collective efforts have helped to preserve the precious Shuanglianpi wetland, and the workshop documented these stories. Shown in the photograph are Tim, Dr. Hsu, The Society of Wilderness staff, Wistron Foundation members, and workshop participants.

angle, height, and direction while visualizing the composition—then it's a matter of waiting. The key is predicting the animal's next move, which comes from years of observation. Birds, for instance, show subtle signs before taking action. Whether they are about to fly, court, or fight, these preparatory movements help photographers anticipate the moment and capture the perfect shot.

In response to a question about balancing his passion for photography with real-life demands, Tim said that if there's a project you're truly passionate about, you should go for it. While he occasionally takes on cultural or documentary assignments for practical reasons, he always ensures he sets time aside for his personal projects.

*National Geographic's* support enables photographers and adventurers like Tim to undertake challenging projects, bringing stories from distant places to readers around the world and inspiring a new generation to follow in their footsteps. Tim was deeply moved to see his work inspire young people and to witness the passion for conservation from workshop participants and The Society of Wilderness. We, in turn, are grateful for Tim's generous sharing of insights over the two-day event, offering invaluable perspectives to both the audience and participants.





# 嘗試從不同角度觀察， 發掘議題與現象

Exploring New Perspectives, Uncovering Hidden Issues

## 2024 國家地理臺灣攝影大賽評審

National Geographic Taiwan Photo Contest 2024 Judging Panel



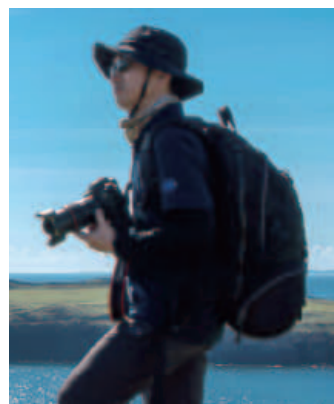
《國家地理》攝影大師  
Photographer and  
*National Geographic*  
frequent contributor

提姆·雷曼  
Tim Lamam



《國家地理》雜誌 總編輯  
Editor-in-Chief,  
*National Geographic*  
Chinese Edition

李永適  
Yungshih Lee



金鼎獎得主  
Golden Tripod  
Award winner

陳郁文  
Yuwen Chen



環境紀錄片導演  
Environmental  
documentary  
filmmaker

柯金源  
Chin-yuan Ke

今年攝影大賽投稿人數與作品增加許多，共收到來自 3,566 名參賽者的 10,205 件參賽作品。由緯創人文基金會獨家贊助的生態環境組，參賽件數也從去年的 159 組、906 件作品，倍數增加到 307 組、2,709 件作品。生態影像故事，是利用 5-10 張的影像來敘說一個完整的生態故事，因此如何選擇影像的起承轉合、微觀或巨觀，不只考驗攝影功力，也考驗取景角度與故事性，但相對的也能展現更多元與更深入的主題。

外籍評審提姆·雷曼覺得，透過參賽者的照片，他看到了臺灣的多元面貌，參賽者投注時間與精力去尋找獨特景觀、捕捉都市住民的日常生活，還有對野生動物的長時間追蹤，都令他深深感動。他也鼓勵臺灣的攝影愛好者持續追尋下一張更完美的影像。

柯金源導演認為，今年生態環境組入圍作品無論主題與型態均多元而豐富，生物微距的作品較多，蹲點紀錄生物行為與生活史的作品，更令人驚豔。但呈現上比較類似精彩的圖鑑作品，稍嫌可惜。或許是因為環境永續議題的表現難度較高，因此入圍作品較少。他鼓勵參賽者深入了解議題，把眼光拉遠，除了生物的生活史與行為，還可探討生物和大環境之間的關係，若觀察視角能更深入、甚至扣合時事，再加上攝影美學的詮釋，會更容易脫穎而出。

金鼎獎得主陳郁文老師表示，在多元的數位時代，影像除了傳達豐富的訊息以外，更要能展現攝影者的個人色彩，才能呈現作品的獨到風格。他期待所有參賽者都能找出自己的獨到觀點，拍出心目中的美好。

總編輯李永適則說，以生態環境組而言，故事性強烈的圖組會得到比較高的分數，因為這個組別期望的就是攝影者能理解用圖片說故事的方式跟語言，「你的影像是否傳達出了想表達的、影像的難度等等，都會是評分要點。我們期望看到更多講故事的起承轉合。」而透過這個組別，希望能鼓勵更多優秀攝影師養成更宏觀的視野，從不同角度觀察、發掘議題與現象，為臺灣留下更珍貴、豐富的影像紀錄。

This year's photography competition received 10,205 entries from 3,566 participants. Exclusively sponsored by the Wistron Foundation, the Ecology and Environment category saw submissions double from 159 series (906 images) last year to 307 series (2,709 images) this year. Through 5-10 images, photographers convey complete ecological stories, challenging their skills in composition, sequencing, and storytelling while allowing for deeper thematic exploration.

International judge Tim Laman praised the contestants' photos for showcasing Taiwan's diversity. He was impressed by their dedication to capturing images of unique landscapes, urban life and wildlife, and encouraged them to continue striving for that perfect shot.

Director Chin-Yuan Ke noted that this year's shortlist for Ecology and Environment category featured a wide range of themes and styles, including many remarkable macro shots of wildlife. Standout works documented animal behavior and life histories, though some resembled field guide images. He suggested that the complexity of sustainability issues might explain the fewer entries. Ke urged participants to explore these topics more deeply, focusing not only on species behavior but also their environmental connections. A deeper, more holistic approach tied to current events through a photographic interpretation would make entries stand out.

Golden Tripod Award winner Yuwen Chen remarked that in today's digital and diverse age, images must not only convey information but also reflect the photographer's personal style. He hopes participants will find their own unique perspective and capture the beauty they envision.

Editor-in-Chief Yungshih Lee explained that in the Ecology and Environment category, strong storytelling is crucial for higher scores. "Photos are judged on how well they convey the intended message and their difficulty level. We hope to see more complete story arcs." The aim is to encourage photographers to broaden their perspectives, explore new angles, and create valuable visual records for Taiwan.





冠軍作品 | 1st Place

# 金門夏日精靈 - 栗喉蜂虎生態紀實

The Summer Elves of Kinmen - Documenting the Ecology of Blue-tailed Bee-eaters (*Merops philippinus*)

攝影 周秀華 | Photographs by Anny Chou



**1** 每年4月初，栗喉蜂虎飛抵金門繁殖，半年後再南遷度冬。羽色繽紛、飛行快速、展翅呈美麗的弧形，是金門極具特色的夏候鳥。

Blue-tailed bee-eaters arrive in Kinmen in early April to breed, migrating south six months later for the winter. With their vibrant plumage, swift flight, and beautifully arched wings, they are one of Kinmen's most distinctive summer birds.

**2** 栗喉蜂虎為集體營巢、挖洞繁殖的鳥類，雄鳥負責覓食並在洞口餵食雌鳥，確保她在產卵時有充足營養補給。

Blue-tailed bee-eaters nest in colonies, digging burrows for breeding. The male forages and feeds the female at the burrow entrance, ensuring that she is well-nourished during egg-laying.



**3** 求偶配對期間，雄鳥擺動藍色的尾羽，並挺胸鳴唱，發出求愛訊息。

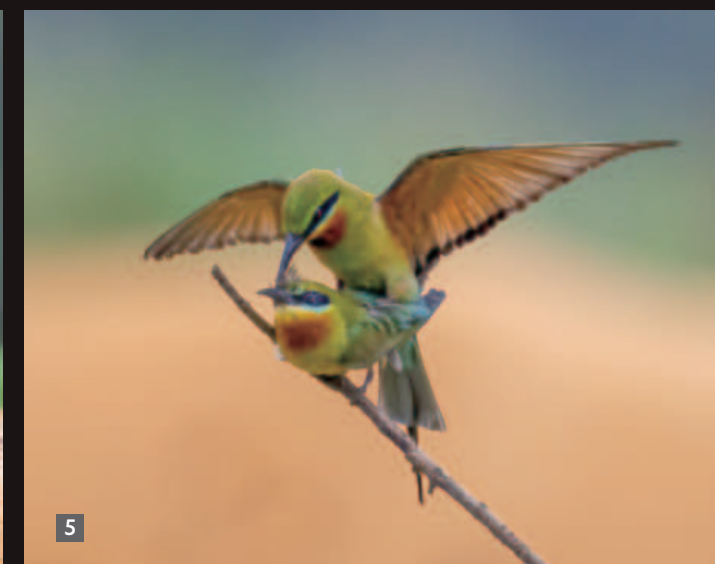
During courtship, the male swings its blue tail feathers, puffs out its chest, and sings to signal its readiness to mate.

**4** 雄鳥會捕捉各種昆蟲餵食雌鳥，稱為「求偶餵食」，有時雌鳥不領情，嫌棄食物太小，雄鳥只好繼續努力抓蟲，直到雌鳥願意配對。

The male catches various insects to feed the female in a ritual known as "courtship feeding." If the prey is too small and the female rejects it, the male must keep hunting until the female is satisfied and willing to mate.

**5** 即使接受食物，也不是每次都能成功交配。這次成功了，有情人終成眷屬，送入洞房。

Accepting food doesn't guarantee successful mating. However, this time they succeeded and became mates, so the burrow will soon be needed.







6



7



8



9



10

**6** 2024年5月21日，梅雨季中的金門連日大雨，淋溼的栗喉蜂虎仍為繁衍下一代而努力，精神令人敬佩。

On May 21 of 2024, during the East Asian rainy season, heavy rains swept through Kinmen. The rain-drenched Blue-tailed bee-eaters persevered, displaying an admirable doggedness to reproduce.

**7** 集體營巢的栗喉蜂虎雖是一夫一妻制，卻也會偷情。小社區裡競爭激烈，小王與小三接續上場，觀景窗裡的風景比連續劇還精采。

Blue-tailed bee-eaters nest in colonies and are generally monogamous, but infidelity is common. In this small, competitive community, the drama of lovers and mistresses rivals that of a soap opera.

**8** 雄鳥把握短暫的繁殖季，即使在大雨中全身溼透，仍努力抓蜻蜓，尋找心儀的對象配對。

During the brief breeding season, male birds brave the soaking rain to hunt dragonflies in their quest for the ideal mate.

**9** 栗喉蜂虎以昆蟲為主食，幾丁質不易消化，牠們會慢慢累積在胃部，再一次吐出來，稱為吐食糞。

The bee-eaters feed mainly on insects, which contain indigestible chitin. The chitin stays in their stomach and is later regurgitated through a process called “pellet casting”.

**10** 銜著蝴蝶的栗喉蜂虎，襯著深色背景飛翔，宛如空中舞者。與生態和平共存是我們的責任，希望金門的栗喉蜂虎能永遠自在飛翔。

A Blue-tailed bee-eater soars against a dark background with a butterfly in its beak, like a dancer in the sky. Coexisting peacefully with nature is our responsibility; may the Blue-tailed bee-eaters in Kinmen always fly freely.





亞軍作品 | 2nd Place

## 堅韌的母親

Resilient Mothers

攝影 蔡素珍 | Photographs by Su-Chen Tsai



1 不同於印象中的隱匿、羞怯，華麗金姬蛛在微距鏡頭前展現了堅持而無懼的母愛。卵囊還很完整，幼蛛應該剛剛才破囊而出。

The *Chrysso scintillans* spider is known for being shy and secretive. Here, a female spider's fearless maternal side is captured through the macro lens. The relatively intact egg sac suggests the spiderlings have just emerged.

2 小高金姬蛛的母蛛非常透明，幼蛛更彷彿玻璃珠一般。平時棲息在低矮草叢葉面，據說牠們喜歡側躺。

A translucent *Chrysso argyrodiformis* mother spider with her spiderlings, which resemble tiny glass beads. They inhabit the undersides of low-growing grass leaves and are said to prefer lying on their sides.

3 小高金姬蛛媽媽不會讓卵直接曝露在外，而是以絲囊包裹，消耗許多蛋白質製成的蛛絲提供了良好保護，防水、保溫、隔熱，據說人類還無法駕馭這種技術。

The *Chrysso argyrodiformis* mother spider protects her eggs by wrapping them in silk sacs, shielding them from exposure. Primarily consisting of proteins, spider silk is waterproof and insulating—a material that humans have yet to replicate.

4 虎斑金姬蛛媽媽似乎有點緊張，七手八腳忙得很，一直想把幼蛛趕回來。

Scurrying, the *Chrysso urbasae* mother spider seemed anxious to corral her young ones.







- 5** 虎斑金姬蛛產卵前會先吐一片絲，將數百顆卵產在絲上，再用絲將卵包裹成卵囊，蜘蛛選擇護卵、護幼，甚至耗盡自己的生命，以確保子代存活。

The female *Chrysso urbasae* spins a silk sheet to wrap hundreds of eggs into a protective sac and guards it fiercely—even at the cost of her own life—to ensure the survival of her offspring.

- 6** 天下的媽媽都是一樣的，華麗金姬蛛雌蛛護卵時簡直廢寢忘食，如果受到干擾，雌蛛會抱起卵囊警戒，甚至滾球落跑以躲開敵人。

Mothers everywhere are the same. The female *Chrysso scintillans* is so devoted to protecting her eggs that she neglects her own needs. When disturbed, she clutches the egg sac and may even roll it away to evade threats.



- 7** 黑色金姬蛛幼蛛非常小，乍看之下猶如灰塵。不是每種蜘蛛都會守護子代，只有區區數十種有這種行為。

The *Chikunia nigra* spiderlings are tiny and resemble specks of dust at first glance. Not all spiders care for their young; only a few dozen species display this behavior.

- 8** 黑色金姬蛛常出現在葛藤葉背，雌、雄及幼蛛如家族般群聚生活。雄雌差異甚大，雌蛛像一顆愛心，護卵時非常強悍，還能修理路過的雄蛛，為母則強！

The *Chikunia nigra* spider is often found on the undersides of *Pueraria montana* leaves, where males, females, and spiderlings live together like one big family. The heart-shaped females are fiercely protective of their eggs and can fend off passing males in a true display of maternal strength.







1

季軍作品 | 3rd Place

## 彩鷸繁殖下一代

Breeding the Next Generation:  
Greater Painted-Snipe (*Rostratula benghalensis*)

攝影 王萬坤 | Photographs by Wan-Kuen Wang

1 雌鳥展翅呼叫雄鳥交配。

The female bird spreads her wings, calling the male to mate.

2 雌鳥會靜待雄鳥沐浴乾淨後才交尾。

The female bird waits for the male to bathe and clean himself before mating.

3 雌鳥低頭翹尾，等待雄鳥跳上背交配。

The female bird lowers her head and raises her tail as she prepares to mate.



2



3



4 雌鳥基本上是一天或以上產一顆蛋，雄鳥會到巢內孵蛋。

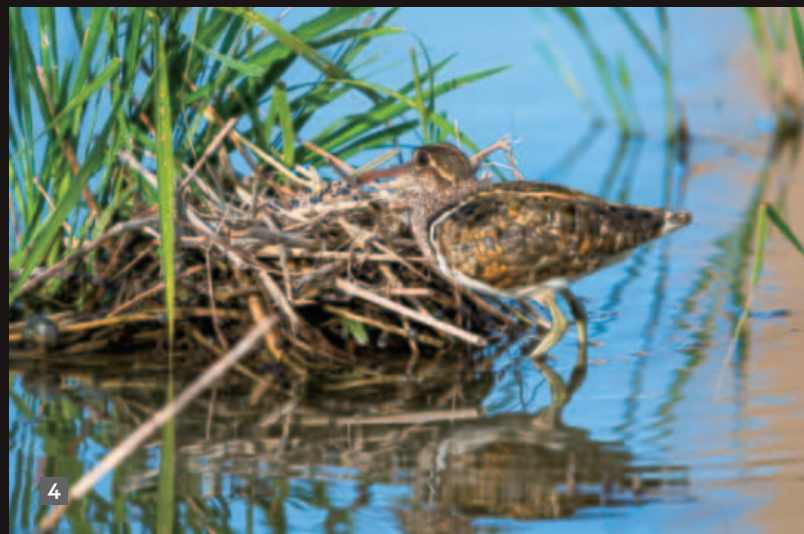
The female bird typically lays one egg every day or so, while the male incubates the eggs in the nest.

5 每窩約有3-4顆蛋，孵蛋時間約20天。彩鷸是早熟性鳥類，幼鳥破殼後不久就能四處走動，公彩鷸會把蛋殼塞進泥土藏起來。

Each clutch contains 3 to 4 eggs, hatching in about 20 days. As a precocial bird, the greater painted-snipe chicks can move around shortly after hatching, and the adult male hides the eggshells in the mud.

6 雄彩鷸孵出所有幼鳥之後，也會負責帶雛鳥覓食，吃水田中的福壽螺、無脊椎動物和草籽等等。

Once the eggs have hatched, the male painted-snipe leads the chicks to forage for food, including golden apple snails, invertebrates, and grass seeds in the rice paddies.



弱肉強食是自然界不變的法則，獵人有時也會被獵，罩子不放亮點，就可能成為盤中飧！

In nature, survival of the fittest rules—hunters can become the hunted if they don't stay sharp, ending up as someone's dinner!



佳作 | Honorable Mention

## 自然界的弱肉強食與和平共存

Survival of the Fittest and Peaceful Coexistence in Nature

攝影 陳原宗 | Photographs by Yuan-Tsung Chen





1



2

**1** 渥氏棘山蟻與斜紋貓蛛都是獵食者，但這隻斜紋貓蛛一時不慎，成了棘山蟻的美味早餐。

Both the *Polyrhachis wolffi* ant and the *Oxyopes sertatus* spider are predators, but in a moment of carelessness, the spider became the ant's tasty breakfast.

**2** 弱肉強食雖是鐵律，但物種間也能和平共存，互利共生。舉尾蟻與蚜蟲的共生就是一幅美好的畫面。

While survival of the fittest prevails, species can coexist and share benefits. The symbiotic relationship between *Crematogaster* ants and aphids exemplifies this harmony.

**4** 螳螂捕瓢，攝郎在前。這隻寬腹斧螳享用著剛捕獲的小十三星瓢蟲早餐，對於我靠近拍攝毫不在意，讓我輕易捕捉到這個畫面。幸好牠遇到的不是黃雀！

The mantis catches a ladybug while the photographer awaits his chance. This *Hierodula patellifera* enjoys its fresh *Harmonia dimidiata* breakfast, unfazed by my approach, making it easy to capture the moment.



3



4





佳作 | Honorable Mention

## 戴勝育雛樂

Joy of Raising Chicks: Eurasian Hoopoe (*Upupa epops*)

攝影 周秀華 | Photographs by Anny Chou



**1** 戴勝為金門常見留鳥，常利用破舊墓穴繁殖，金門人稱為「墓坑鳥」。但時代更迭，傳統墓穴漸少，戴勝改用破舊房舍孔洞和縫隙繁殖。

The Eurasian hoopoe is a common resident bird in Kinmen, often nesting in old graves, earning it the nickname "grave pit bird." As traditional graves decline, the hoopoe has adapted by nesting in the holes and cracks of old houses.

**2** 戴勝顏值甚高，羽冠張開時彷彿扇子，合起時則像男士的後背頭髮型，很是拉風。

The Eurasian hoopoe is a striking bird, with a crest that resembles a fan when spread and a slicked-back hairstyle when folded, giving it a stylish appearance.

**3** 戴勝公鳥是好爸爸，即使雨季全身溼透，仍來回奔波捕蟲，交給雌鳥餵食寶寶。

The Eurasian hoopoe is a dedicated father, tirelessly foraging for insects, even in the rain, to feed the female and their chicks.

**4** 戴勝爸爸不肯獨自進食，以嘴喙敲打洞口水泥地，催促雌鳥來接食。

The father hoopoe refuses to eat alone, tapping the cement ground at the nest entrance with his beak to urge the female to come take the food.

**5** 戴勝為一夫一妻制，雌鳥孵蛋育雛，雄鳥提供食物。

The Eurasian hoopoe is monogamous, with the female incubating the eggs and raising the chicks while the male provides food.





6

**6** 育雛期間，雄鳥和雌鳥會更換地點傳食，這次是在屋脊上。鸛鵲情深，堪稱鳥界模範夫妻。

During the brooding and rearing period, the male delivers food to the female at various locations, this time on the rooftop. Their strong bond makes them a model couple in the bird world.



7

**7** 在閩南式建築屋頂上傳食的雄鳥與雌鳥。

The male bird delivers food to the female on the roof of a Minnan-style building.



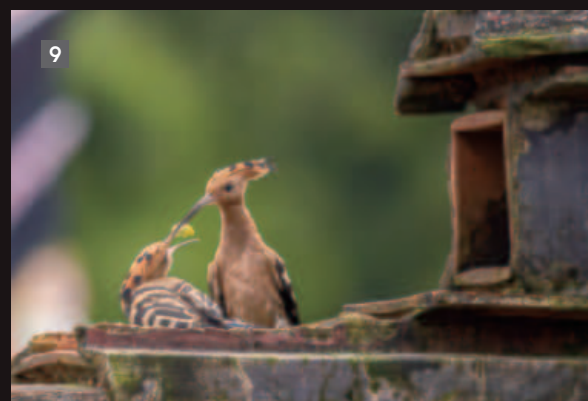
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**8** 體恤雌鳥體力不支，雄鳥自行飛上屋脊傳食，母鳥也開心地開冠接食。

Understanding the female's fatigue, the male bird flies up to the rooftop to deliver food, and the female happily receives it with her crest raised.

**9** 育雛時辛勤忙碌，但生活總要有點情趣，雄鳥淘氣地將食物放入母鳥口中，又緩緩抽出，傳食又不傳食，這是戴勝的情趣，雌鳥也樂於遊戲，就這樣長達十分鐘。

During the chick-rearing period, the male playfully teases the female by offering food and then pulling it away. The female doesn't seem to mind, engaging in this playful interaction that lasts for about ten minutes.



9

**10** 雄鳥在育雛期間辛勞工作，雖已瘦骨嶙峋，仍展翅飛向田野，繼續覓食，精神令人感佩。

The male tirelessly forages in the fields during the chick-rearing period, becoming gaunt yet still spreading his wings to make another trip—a truly moving sight.



10



草蟬若蟲棲息於地下，要羽化時便會爬上地面或樹上安全處。

The *Mogannia hebes* nymphs live underground and climb to the surface or a safe spot in a tree to molt when ready to emerge.

佳作 | Honorable Mention

## 邂逅蟬的生命痕跡

Encountering the Life Traces of Cicadas

攝影 陳銘修 | Photographs by Ming Hsiu Chen



- 1 薄翅蟬若蟲羽化時，會從殼背中央開始鑽，用力鑽出裂縫後，破殼而出。

When the nymph of *Chremistica ochracea* is ready to molt, it burrows from the center of its shell, creating a crack to break free.

- 2 雄草蟬腹面有發音器，鳴聲嘹亮優美，藉以吸引雌草蟬交配，繁衍下一代。

The male *Mogannia hebes* has a sound-producing organ on its abdomen that enables it to make a loud, beautiful call to attract female cicadas for mating.

- 3 多彩紐蛛常在蟬羽化或鳴叫處伺機獵食。這隻草蟬因躲避不及而遭獵食。此時多彩紐蛛的眼睛也因為警戒而轉為黃橙色。

The *Telamonia festiva* often lurks near cicada molting or calling sites to hunt. This *Mogannia hebes* was caught off guard and became prey for the spider, whose eyes turned yellow-orange with alertness.

- 4 位於食物鏈底層的蟬，常遭鳥類獵食。黑枕藍鶯捕到草蟬跟黑翅草蟬後，帶回巢餵食雛鳥。

As prey at the bottom of the food chain, cicadas are often hunted by birds. The nesting black-naped monarch (*Hypothymis azurea*) catches both *Mogannia hebes* and *Mogannia formosana* to feed its chicks.







報導任務 | On Assignment

## 生態環境報導任務：龍崎牛埔 紀實攝影與藝術美感的交會

### Ecology and Environment Reporting Mission : Longci Nioupu When Documentary Photography Meets an Eye for Beauty

柯金源導演和生態環境組冠軍周秀華，在緯創人文基金會支持下，跟著臺南社區大學研究發展學會理事長黃煥彰和環境行動小組研究員晁瑞光來到臺南龍崎。他們鑽進偏遠山路旁茂密的銀合歡，另一邊迎接他們的，是一片皺褶重重的灰白裸露地貌，彷彿被水流切割沖刷出的峽谷稜線高聳，延伸到視野盡頭。

這種地形稱為惡地。高雄月世界是臺灣最出名的惡地風景區，地理上和臺南龍崎相連，但龍崎卻是國軍的彈藥工廠與試爆地點，之後又規畫為

Director Chin-Yuan Ke and Ecology and Environment category champion Anny Chou went on an assignment with support from the Wistron Foundation. Traveling to Longci in Tainan, they were accompanied by Huann-Jang Hwang, Chairman of the Tainan Community University Research and Development Association, and researcher Jui-Kuang Chao from the Environmental Action Group. As they ventured through dense thickets of white lead trees along a remote mountain road, they emerged into a rugged, exposed gray-white landscape. Towering ridges, seemingly carved by water, stretched toward the horizon, resembling the ridgelines of a canyon.

This terrain is known as badlands, with the Moon World in Kaohsiung being Taiwan's most famous exam-

掩埋場。當地居民與臺南社大奮力抗爭，外界才意識到臺南也有壯觀的泥岩惡地。新任市長將其中部分劃設為「龍崎牛埔惡地地質公園及自然保留區」，但核心區並未開放。

塑造出這片驚人地景的除了質地緻密的泥岩以外，還有活動中的龍船斷層。從位處高處的州界靈隱寺，可遠眺地質公園及惡地全貌，以及此地持續長高的跡象。曾來此勘查的臺大地質系陳文山教授，在他最新的工具專書《臺灣地震帶》中提到：「除了地震頻率極低的特性外，高屏地震帶還是臺灣地表變形最快速區域……從合成孔徑雷達差分干涉法（D-InSAR）分析結果也顯示此區域內許多斷層呈現快速潛移現象，例如龍船斷層、古亭坑斷層……且具有發生較大規模地震的潛能……是值得再探討的議題。」

地貌變動如此迅速的地方，會被相中作為掩埋場，恐怕正是因為偏遠、崎嶇、人口少，還有看

ple and geographically connected to Longci in Tainan. Longci, however, was once an ammunition factory and explosives testing site, later slated to become a landfill. Local residents, along with Tainan Community University (TCU), fought to raise awareness of the area's remarkable mudstone badlands. It wasn't until then that people realized such a spectacular landscape existed in Tainan. The newly elected mayor designated part of the area as the "Longci Nioupu Badlands Geopark," though the core area remains closed to the public.

This stunning landscape is shaped by dense mudstone and the active Longchuan Fault. From the elevated Lingyin Temple, visitors can overlook the geological park and badlands, along with visible signs of ongoing uplift. Professor Chen Wenshan from National Taiwan University surveyed the area and noted in his latest reference book, *The Seismic Zones of Taiwan*: "In addition to its extremely low earthquake frequency, the Kaohsiung-Pingtung seismic zone is the fastest deforming area on Taiwan's surface... Analysis using Differential Interferometry Synthetic Aperture Radar (D-InSAR) shows that many faults in this region exhibit rapid creeping movement, such as the Longchuan Fault and the Guting Pit Fault... and there is potential for larger-scale earthquakes... This is an issue worth further exploration."



各種竹子是龍崎最常見的植物、也是農作，竹筍也是龍崎里居民重要的食物與收入來源，可加工製成各種醃漬食品，也可鮮食。

Bamboo is the most common plant and crop in Longci, providing both food and income for residents. The shoots can be processed into a variety of pickled products.  
Photo by Anny Chou



竹編也是牛埔人重要的經濟來源，老一輩牛埔人靠手編出各種民生用具。陳爸是遠近馳名的竹編師傅，女兒回鄉開設的餐廳中擺滿了他的作品。

Bamboo weaving has long been a vital source of income for Nioupu residents, with the older generation crafting household items. Papa Chen, a renowned bamboo weaver, showcases his creations in his daughter's local restaurant. Photo by Anny Chou



似荒蕪的地理環境。面積 6.27 平方公里的牛埔里，到今年 8 月為止，居民只有 259 人。

人少地惡，此處沒有大規模農作。最常見、長得也最好的，大概就是各種竹子。牛埔人靠竹吃竹，鮮食醃漬或製作器具都駕輕就熟。而從臺南海邊的蚵架到新北市舞龍隊的龍身支架，都是出自龍崎。

滿山遍野的竹林也是當地食物鏈的重要基礎。竹林造就適合白蟻的環境，愛吃白蟻的穿山甲在竹下土堆中挖洞覓食，和白蟻共生的雞肉絲菇，是居民私房美食。而社大的自動相機捕捉到的不只穿山甲，還有食蟹獐、水鹿、梅花鹿、野兔、白鼻心……證實了惡地其實生氣蓬勃。但日益嚴重的浪犬問題，也導致許多野生動物被咬傷。

第一次來這裡的周秀華說，深入龍崎牛埔、爬上峭壁溝壑、觸摸泥岩質地，造訪居民之後，才知道看似荒蕪的惡地其實擁有蓬勃的自然生態與人文歷史。和柯導討論拍攝計畫時，柯導指出，攝影藝術家可能把攝影機當作描繪的畫筆或學術

The choice of such a rapidly changing landscape as a dump site may be attributed to its remoteness, rugged terrain, sparse population, and desolate environment. As of August, Nioupu Urban Village, which covers 6.27 square kilometers, had only 259 residents.

With its sparse population and harsh terrain, large-scale farming is absent in this area. The most common and well-suited crops here are various species of bamboo. The residents of Nioupu rely on bamboo for their livelihoods, skillfully using it for fresh consumption, pickling, or crafting tools. From the oyster farming racks along the Tainan coast to the dragon body supports used by dragon dance teams in New Taipei City, all of these originate from Longci.

The abundant bamboo forms a vital foundation of the local food chain, creating an ideal habitat for termites, which in turn attract pangolins that dig for them. The termite-associated fungus, *Termitomyces*, is considered a local delicacy. Camera traps set up by TCU captured not only pangolins but also crab-eating mongooses, sambar deer, Formosan sika deer, hares, and masked palm civets, proving that the badlands are teeming with life. However, the increasing stray dog problem has led to many wild animals being injured.

On her first visit to the area, Anny Chou remarked that only after venturing deep into the rugged cliffs,

轉介的模型，「但我一直都把鏡頭當作推動社會進步的工具。如果能夠因為一張照片，推動了一個政策、或改變一個狀況，意義不是更大嗎？」抱著和藝術家交流的心情，他希望能透過藝術家的視角與美學素養，為這片惡地記錄下更突出、動人的影像。而柯導多年來持續跑遍全臺各地進行影像紀錄也讓周秀華十分感動，她表示「柯導利用影像推動政策、或改變環境，這就是我們攝影人可以發揮影響力的地方，也是對社會的一種貢獻。」

透過周秀華獨特的視角、構圖和攝影作品，相信能讓更多人看到龍崎這片獨特的人文與地貌所具備的珍貴價值。

feeling the mudstone, and meeting the local residents did she realize that the seemingly barren badlands are actually rich in wildlife and cultural history. During her discussions with Director Ke, he pointed out that while photographers may view their cameras as either a painter's brush or a research tool, he sees them as “a tool for driving social progress. Isn't it more meaningful if a single photo can help shape a policy or change a situation?” He expressed his hope that Chou would capture more striking and impactful images of the badlands through her artistic lens. Ke's decades-long commitment to visual documentation deeply moved Chou. “Ke's goal is to use imagery to influence policy and environmental change, demonstrating where photographers can make a real difference.” said Chou.

Through her unique perspective and works, we believe she can reveal the invaluable cultural and natural significance of Longci to a wider audience.

惡地地形容易被雨水侵蝕成壯觀的山脊與溝壑，是絕佳的觀光資源。但近年來銀合歡在低緩處逐漸站穩腳根，正慢慢改變這片惡地。

The badlands terrain, easily eroded by water into spectacular ridges and gullies, offers excellent tourism potential. However, in recent years, white lead trees have begun to take root in the gentler areas, gradually transforming this unique landscape.

Photo by Anny Chou





# 曾經的水草天堂，如今的保育基地

## ——雙連埤

### Shuanglianpi: From Aquatic Paradise to Conservation Base

撰文：鍾慧元 攝影：陳郁文 | Text by Huiyuan Chung Photographs by Yuwen Chen

那是春寒料峭的 4 月，海拔 470 公尺的雙連埤還很冷。我們穿著厚外套，套上青蛙裝、再包上救生衣和斗笠，像球一般笨拙地踏上屬於宜蘭縣政府的「研究船」。今天的任務，是要把去年底護區採收的野菱種子撒在沿岸淺水處，希望有些能落土萌芽、逃過吳郭魚啃咬，迸出滿滿的綠色小葉。荒野保護協會（以下簡稱荒野）雙連埤保

It was a chilly April day at Shuanglianpi, brisk even in spring at 470 meters above sea level. Bundled in thick jackets, waders, life vests, and bamboo hats, we clumsily boarded Yilan County’s “research boat.” Our mission was to scatter last year’s wild water caltrop seeds along the shallow shore, hoping some would take root, sprout, and evade nibbling tilapia. Pei-Jyun Shih, Deputy Director of the Shuanglianpi Conservation Base with the SOW, recalled a previous attempt to transplant wild water

育基地副主任施佩君告訴我，他們曾用土球包住野菱成株的根、丟進湖中移植，但沒成功。他們還在嘗試讓野菱重回雙連埤的辦法，畢竟，湖面布滿開花的野菱，就是 20 多年前雙連埤給人的經典印象。

雙連埤位於宜蘭縣員山鄉，是臺灣少見的低海拔山區湖泊溼地，這一帶曾是泰雅族的獵場，直到 20 世紀初的日治時代，才有日本人號召生活艱困的桃竹地區客家人移居開墾。仍住在湖邊古厝的鄒阿公與羅阿公都說，當年他們的祖父就是帶著家小，從新竹、桃園徒步走到雙連埤。那一代的人放乾了相連兩座湖泊中的「下埤」開墾，雙連之埤自此僅餘上埤。

caltrops using mud balls around their roots, but it was unsuccessful. Still, they seek ways to revive Shuanglian-pi’s iconic image—its lake surface once blanketed with blooming wild water caltrops over 20 years ago.

“Shuanglianpi,” meaning “two connected lakes” (with “pi” meaning “lake”), is located in Yuanshan Township, Yilan County, and is one of Taiwan’s rare low-altitude mountain lake wetlands. Originally a hunting ground for the Atayal people, it became a settlement for struggling Hakka families from Taoyuan and Hsinchu during Japanese rule in the early 20th century. Grandpa Tsou and Grandpa Luo, who still live by the lake, recount stories of their grandparents making the long journey on foot from Hsinchu and Taoyuan. That generation drained the “Lower Pi” of the two connected lakes for farmland, leaving only the “Upper Pi” intact.



1



2



3

1 眺望雙連埤，遠方山腳下那層低矮植被不是湖岸，而是植物繁茂的浮島。

Looking out over Shuanglianpi, the low vegetation at the base of the distant mountains is not the lake shore but a floating island lush with plant life.

2 高大哥和荒野契作多樣作物，他的田同時也是農事體驗與生態教育的場域。

Mr. Kao collaborates with the SOW to cultivate diverse crops, with his fields doubling as spaces for farming experiences and ecological education.

3 湖畔石頭屋已經有百年歷史，阿嬤在此生活了一輩子，現在仍身體健朗，照顧菜園是她的日常。

The century-old stone house by the lake has been this grandma’s lifelong home. Still in good health, she tends to her vegetable garden every day.





但上埤裡的浮島還在。這歷經幾百年才形成的特殊景觀，每當吹起大風，就會換個位置。浮島的「地基」其實是多種水生植物根莖交纏生長、加上長期累積的腐植質才形成的一片厚達兩公尺的草毯，就連木本植物都能支撐，鄒阿公小時甚至還曾在浮島上放牛。稀有植物如水社柳、馬來刺子莞、各種蜻蜓、蛙、蛇，都在浮島上找到了安全的棲所，形成了獨特的生態系。日月潭本來也有浮島，但因開發早已消失，雙連埤的浮島成為全臺最大，也因此受到嚴格法規保護。

20 多年前的臺灣，經濟起飛、旅遊風氣初起，保育意識開始茁壯，學術界、溼地聯盟及荒野等團體、個人開始注意到雙連埤的豐富物種和開發壓力，多次協調及現場勘查後，最終由宜蘭縣政府向地主買下這片 17 公頃的湖域，後續劃設為野生動物保護區與國家重要溼地。然而先前地主已用怪手浚深湖岸、放養所謂「具商業價值」的魚類，使得水生植物遭受浩劫。

這片溼地水域，到底為什麼重要？雙連埤有豐富的原生動植物，原生的水生植物和蜻蜓，都

The floating island in Upper Pi endures—a unique landscape formed over centuries that drifts with each strong wind. Its “foundation” is a two-meter-thick mat of intertwined aquatic plant roots and layers of humus, sturdy enough to support even woody plants. Grandpa Tsou recalls herding cattle there as a child. Rare plants like *Salix kusanoi* and *Rhynchospora malasica*, along with dragonflies, frogs, and snakes, have made a haven here, creating a distinct ecosystem. Though Sun Moon Lake once had floating islands, they were lost to development long ago. Shuanglianpi's natural floating island now stands as Taiwan's biggest, protected by strict regulations.

Over 20 years ago, scholars, Wetlands Taiwan, SOW, and other organizations recognized Shuanglianpi's rich biodiversity and the development pressures it faced. After extensive discussions and field assessments, the Yilan County Government purchased the 17-hectare lake, designating it a wildlife sanctuary and a nationally important wetland. However, before the purchase, the previous landowner had deepened the lake's shores with excavators and introduced “commercially valuable” fish, severely impacting the aquatic plants.

Why is this wetland so important? Shuanglianpi is home to a diverse array of native flora and fauna, including over a third of Taiwan's native aquatic plants and dragonfly species, some unique to this area. Moreover,

占全臺物種的三分之一以上，有些更是這裡所獨有。此外，溼地的生態系服務其實嘉惠人類許多，只是我們渾然不覺。所謂的生態系服務，是指人類直接或間接自生態系中獲得的所有益處。像是 2024 年 7 月，凱米颱風帶來豪雨，全臺多處淹水，根據由緯創人文基金會贊助、由臺大裝設在雙連埤的即時水情監測系統紀錄的資料，荒野計算出雙連埤的湖面在豪雨期間上升了約 56.6 公分，等於容納了約 9 萬 6220 公噸的雨水，相當於 33.5 萬人的單日用水。這不但讓雙連埤及下方的員山地區不致淹水，還能挹注地下水層。而這只是天然溼地的生態系服務之一。根據世界自然基金會（WWF）的資料，溼地直接或間接提供了幾乎全世界所有淡水水源，是食物的重要來源、天然的淨水處理設施、固碳冠軍，也是最具經濟價值和生物多樣性的生態系之一。但從 1970 年以來，全世界已失去超過三分之一的溼地。

2010 年緯創人文基金會成立之後，便持續支持荒野至今，除了進行生態調查、環境教育與原生物種的復育，並合作舉辦志工活動與友善農耕。幾年前在志工協助下，荒野在湖畔闢出庇護區，營造了幾個日曬條件不同的水池微棲地，種下當年細心保種的水生植物，並持續除草整地、移除外來種動植物，讓原生的野菱、圓葉節節菜、絲葉狸藻、卵葉水丁香等水生植物有安全的生長空間，期盼棲地改善後能讓它們重回雙連埤。在這過程中，稀有植物石龍尾竟自己冒了出來，原來

wetlands provide substantial ecosystem services that benefit humans, often without our awareness. Ecosystem services refer to the direct or indirect benefits people gain from ecosystems. For example, during Typhoon Gaemi in July 2024, heavy rains caused flooding across Taiwan. A real-time water monitoring system, sponsored by the Wistron Foundation and installed by National Taiwan University at Shuanglianpi, indicated that the lake level rose about 56.6 cm during the storm, absorbing around 96,220 metric tons of rainwater—equivalent to the daily water usage of approximately 335,000 people. This prevented flooding in Shuanglianpi and downstream areas of Yuanshan while replenishing groundwater. This is just one example of the ecosystem services provided by natural wetlands. According to the World Wide Fund for Nature (WWF), wetlands supply nearly all of the world's freshwater, serve as vital food sources, act as natural water purification systems, and excel in carbon storage, making them some of the most economically valuable and biodiverse ecosystems. Yet, since 1970, over one-third of the world's wetlands have been lost.



1 外來種大萍和吳郭魚也逐漸侵占了雙連埤周邊的溝渠。

The invasive species water cabbage and tilapia have gradually taken over the waterway surrounding Shuanglianpi.

2 雙連埤的魚類調查和移除外來種魚類同步進行，需要極大人力與時間。

The fish surveys and removal of invasive species at Shuanglianpi are carried out simultaneously, requiring substantial manpower and time.



是保存在土壤中的種子庫。看來，只要能營造適當的環境、解決強勢外來種的威脅，原生植物就可能重新長回來。也因此，荒野開始有計畫地移除雙連埤的外來種。已經氾濫成災的外來種會壓縮本土物種的生存機會與環境，就算有政府補助與獎勵，除了已經走到清零最後一哩路的埃及聖鵝移除以外，幾乎沒有算得上成功的案例。但荒野雙連埤團隊還是不放棄。

他們第一個挑戰的是人厭槐葉蘋。這種強悍的漂浮性水生蕨類入侵了雙連埤一處封閉水域，若

Since its founding in 2010, the Wistron Foundation has consistently supported the SOW by conducting ecological surveys, promoting environmental education, restoring native species, and organizing volunteer programs and sustainable farming initiatives. A few years ago, with help from volunteers, SOW created a sanctuary area featuring microhabitat pools with varying sunlight conditions. They carefully planted preserved native aquatic species, including wild water caltrop, dwarf rotala, humped bladderwort, and *Ludwigia ovalis*. Regular weeding, site maintenance, and invasive species removal have fostered a safe environment for these plants to thrive, with hopes that they will gradually repopulate the area as the habitat improves. Unexpectedly, the rare



1 師大志工坐著用大輪胎改裝成的浮具下水清理人厭槐葉蘋，這片小小區域花了五年時間才清理乾淨。

NTNU volunteers used large tires as floats to remove giant salvinia, taking five years to fully clear the small area.

2 無論拔草或挖土，緯創樂服志工都非常投入，享受在大自然中揮汗的感覺。

Fully immersed in weeding and digging, the Wistron volunteers relish the feeling of working hard and sweating in nature.

3 荒野夥伴黃鴻斌的日常工作之一，就是照顧稀有的水生植物石龍尾。這種植物擁有水上葉和水下葉，會因應環境而改變。

One of the daily tasks of Hong-bin Huang from SOW is caring for the rare aquatic plant *Limnophila trichophylla*, which has both aerial and submerged leaves that adapt to its environment.



蓴菜是雙連埤的原生水生植物，葉背與嫩莖周圍具保護性的膠狀物，過去居民會製成消暑冷飲，但目前族群不多。

Watershield, a native aquatic plant of Shuanglianpi, has a gelatinous protective layer on the undersides of its leaves and tender stems. Once used by locals to make refreshing summer drinks, it has now become scarce.

坐視不管，勢必繼續擴散。荒野夥伴帶著志工，一杓一杓、一袋一袋、一次一次撈起移除。就在2024年5月，臺師大的志工同學再度坐著大輪胎改造的浮具下水清理，竟然只在其他植物莖葉間找到一些細小植株，連他們自己很都驚訝，彷彿從來沒想過真有這一天。「我從大一清到現在，五年下來，終於給我們清完了。很感動欸！」一進大學就在學長、也是荒野研究員黃閎義號召下到雙連埤當志工的吳皇逸說。

除了外來種植物，還有外來種魚類。吳郭魚會啃咬水生植物，原生的青鱗魚也幾乎找不到了。所以在宜蘭縣政府的支持下，荒野會定期在湖域各處布下數種魚網，捕捉在不同水深處活動的魚類，進行物種辨識和形質調查，為湖中的動物生態留下資料，再將原生種放回湖中，外來種則狠心移除。要多久才能看到原生魚類變回優勢種？沒有人知道，但不做，就永遠不會有改變。

農業仍是雙連埤居民的命脈，但保護區範圍僅及湖岸，和慣行農田只有一路之隔，田裡的農藥

*Limnophila trichophylla* sprouted from seeds long preserved in the soil's seed bank, indicating that with proper environmental conditions and invasive species control, native plants can make a comeback. SOW has since initiated systematic invasive species removal at Shuanglianpi, as these overgrown invasives threaten native habitats. Despite government subsidies, successful removals are rare, with only the African sacred ibis nearly eradicated. Nevertheless, SOW remains committed to this endeavor.

Their first challenge was the invasive giant salvinia, a hardy floating fern that had overtaken part of Shuanglianpi and would spread further if left unchecked. SOW members led volunteers in its removal, scoop by scoop. Last May, students from National Taiwan Normal University (NTNU) returned with makeshift tire floats to access the water and were surprised to find only a few tiny plants remaining—something they hadn't imagined possible. "I've been clearing this since my freshman year, and five years later, it's finally done. This is really touching!" said Huang-Yi Wu, who began volunteering at Shuanglianpi through SOW researcher Hung-Yi Huang.

Shuanglianpi also faces challenges from non-native fish species. Tilapia feed on aquatic plants, leading to the near disappearance of the native rice fish population.





肥料，都會直接影響雙連埤。過去為了保存珍稀野生動植物，常要求農民不要灑農藥，甚至劃設保護區，禁止任何利用。因此，保育常被認為站在農民的對立面，農友對保育團體也多半不抱好感。但這幾年風氣有了轉變，研究發現，有限度的農業利用可增加棲地多樣性，而某些類型的棲地如友善水田，也會增加生物利用的機會，因此保育不再只關心野生動植物，而是將居民的生計與難處一起考量。在緯創的支持下，荒野開始和農友契作，只要不用農藥，便收購所有蔬果。而這些友善蔬果，則捐給在地社福機構，嘉惠弱勢團體。這種做法保障了農友生計，友善田區也逐漸增加。誠如將近 90 高齡的羅阿公所說，不用農藥之後，身體變好了，田裡又熱鬧了起來，不但有許多生物活動覓食，也是可以安心舉辦農事體驗、生態課程的場地，多了孩子的笑聲，成了快樂農場。

想起第一次在湖畔拍攝志工活動那天，我們走到一處視野絕佳的轉角，遠眺蒼翠群山的同時，

With support from the Yilan County Government, SOW regularly deploys fish nets around the lake to capture fish at various depths for species identification and morphological surveys, documenting the lake's fauna. Native species are then returned to the lake, while invasive ones are reluctantly removed. How long will it take for native fish to regain dominance? No one knows, but without action, change will never come.

Agriculture remains vital to Shuanglianpi's residents, but the protected area ends at the lake's edge, separated from conventional farmland by a single road. Pesticides and fertilizers from these fields directly impact the lake. In the past, conservation efforts often restricted pesticide use or designated protected zones, creating a perception that conservation conflicted with farming interests and led to distrust of conservation groups. However, recent research indicates that limited agricultural practices can enhance habitat diversity, with eco-friendly rice fields supporting increased wildlife activity. Conservation now focuses on wildlife protection while addressing local livelihoods. Supported by Wistron, SOW began contract farming with local farmers, purchasing pesticide-free produce for donation to social welfare organizations, benefiting underprivileged communities. This approach

耳邊突然傳來忽遠忽近的獵獵風聲。搜尋聲音來源，竟是一群盤旋疾飛的鳥兒，牠們一起轉彎、一起俯衝喝水，唰唰的不知是牠們的振翅聲、還是因為眾多尖喙同時劃過水面。荒野棲地守護部主任謝祥彥說，那是並不常見的灰喉針尾雨燕。這是我第一次看到這種鳥，眼前景象讓我心中溢滿敬畏與感動，應該永遠都忘不了。在全世界溼地急速消失的現在，雙連埤最珍貴之處，我想，就在於即使歷經重重考驗，它依然存在，也仍舊以不斷變化的野性與自然風貌，讓所有走進去的人，都能體驗到觸碰內心的深刻感動。

**1** 荒野專職林正勝（最前）在友善契作田區帶領農事體驗，教大家認識用來煮茶作果凍的香草植物香茅。

Zheng-sheng Lin (front) of SOW teaches participants about lemongrass, an herb used for tea and jelly, in the eco-friendly contracted farmland.

**2** 謝震山（左）在都市繞了一圈後返鄉務農，希望營造出自己記憶中多樣友善的農田環境，他的生態池種了許多原生水生植物，也是自己小孩的快樂天堂。

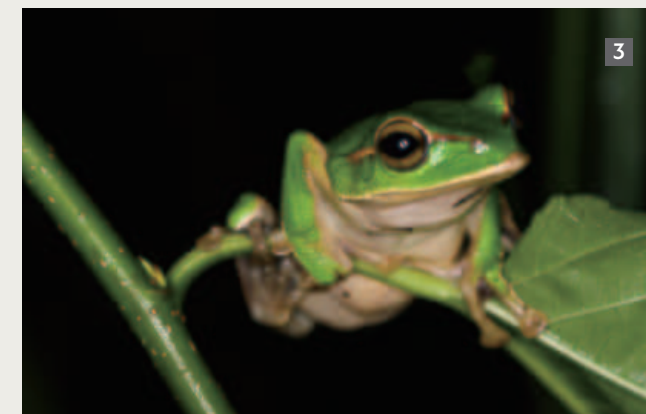
After working in the city, Zhen-shan Xie (left) returned to his hometown to farm, seeking to revive the diverse agricultural landscape of his childhood. His pond, abundant with native plants, now doubles as a playground for his children.

secures farmers' incomes while expanding eco-friendly farmland. Grandpa Luo, who is almost 90 years old, noted that stopping pesticide use improved his health and revived his fields—not only attracting diverse wildlife but also transforming his farm into a vibrant site for ecology classes and farm experiences. With children's laughter, it has become a joyful farm.

Reflecting on our first day photographing a volunteer event by the lake, we reached a corner with a sweeping view of verdant mountains when a rattling sound echoed around us. Searching for the source, we spotted a flock of birds whirling and diving together, drinking from the lake in perfect harmony. The sound seemed to emanate from their wingbeats or the swift sweep of their beaks slicing through the water. SOW's Habitat Conservation Director, Hsiang-Yen Hsieh, informed us that they were silver-backed needletails, a rare sight. It was my first time seeing this bird, and the scene filled me with awe, leaving me deeply moved—a memory I'll never forget. In a world where wetlands are disappearing at an alarming rate, I believe Shuanglianpi's true value lies in its resilience. Despite countless challenges, it continues to endure, offering everyone who steps into its embrace a profound and heart-stirring experience of wild, ever-changing beauty.







**1** 羽化後留下的水蜃空殼，說明了雙連埤的水域環境非常適合仰賴乾淨水源的蜻蜓。攝影：賴文龍

The empty shell left behind after molting indicates that the water environment of Shuanglianpi is ideal for dragonflies, which rely on clean water. Photo by Bun-liong Loa

**2** 雙連埤氣候涼爽潮溼，孕育了多樣的野生動植物，包括這隻過山刀。攝影：黃溪萍

The cool, damp Shuanglianpi is home to a variety of creatures, including this big-eyed rat snake. Photo by Shanda Huang

**3** 只分布在台灣北部的翡翠樹蛙。攝影：徐双章

The emerald green treefrog is endemic to northern Taiwan. Photo by Shuang-chang Hsu

工作坊活動花絮 & 成果作品 | Workshop Highlights and Photography Showcase

# 生態影像故事工作坊：在雙連埤一起用生命感動生命

## Nature Photography & Environmental Storytelling Workshop at Shuanglianpi: Inspiring Life with Life

自 2015 年首度舉辦以來，國家地理雜誌臺灣攝影大賽已經邁入第八屆，透過全國各地的攝影愛好者，帶來無數精彩影像，展現出臺灣各地的生命力。誠如總編輯李永適所言，《國家地理》雜誌的三大精神是「科學、探索、說故事」，我們最擅長的，就是用影像將世界各地的故事帶到讀者面前。攝影大賽的生態環境組，就是秉持著這種理念，鼓勵攝影同好拉高視野，用更宏觀的

Since its launch in 2015, the National Geographic Taiwan Photo Contest has entered its eighth year, showcasing Taiwan's vitality through countless stunning images captured by photographers nationwide. As Editor-in-Chief Yungshih Lee noted, National Geographic's core values of "science, exploration, and storytelling" shine through its visual narratives. The Ecology and Environment category epitomizes this, encouraging photographers to take a broader view, capturing the life cycles of species, the rise and fall of places, or the impact of societal issues. To

角度取景、說故事，像是物種的花落開、地方的興衰起落，或是議題的各種影響，藉此發掘出更深刻的臺灣生態故事。為了推廣生態影像故事的創作，我們決定將《國家地理》雜誌獨特的圖片故事取景與編輯分享給更多攝影愛好者，希望鼓勵更多人拍出厲害的影像作品。

在緯創人文基金會的支持下，我們規劃了四次工作坊，用總共八天的時間，由攝影大賽評審陳郁文擔任導師，帶領對生態有熱忱的攝影愛好者，深入臺灣著名的生態保育基地雙連埤，學習用影像說故事，也深入了解雙連埤一路走來的美麗與哀愁，及周邊的一切人事物。

雙連埤是國家級重要溼地，20 多年前當臺灣的保育意識初起之際，因為開發壓力而遭到破壞，也成為眾聲喧嘩的焦點。終於由政府買下這片湖

foster these skills, we launched a workshop focusing on National Geographic's unique approach to visual storytelling, aiming to spark creativity and inspire even more remarkable work.

With support from the Wistron Foundation, we organized four workshops, spanning a total of eight days. Led by Golden Tripod winner Yuwen Chen, the workshop guided photography enthusiasts through Shuanglianpi, a renowned site for conservation and environmental education in Taiwan. Participants not only learned to tell stories through images but also gained insight into the beauty and challenges Shuanglianpi faces, as well as the people shaping its unique environment.

Shuanglianpi is a wetland of national significance. Over 20 years ago, as Taiwan's conservation movement gained momentum, it became a controversial site due to destruction caused by development pressures. Finally, the government acquired the lake from the private owner and designated it a protected wetland and wildlife habitat. While destruction can happen quickly, restoration is a





1

域，劃設為重要溼地及野生動物保護區。然而環境的破壞很容易，恢復卻需要很長的時間。加上又有外來種的威脅，如果不是集合眾人之力持續關注守護，很難說現在的雙連埤會是什麼模樣。

工作坊學員由國家地理攝影大賽歷屆入圍者面試產生，課程涵蓋圖片故事的歷史、精神、取景、編排，當然還有攝影技巧。12 位學員雖然都有豐富的拍攝經驗，但背景大異其趣，有人擅長水下攝影，有人已經走在紀實攝影的路上，有人本身就具備豐富的野外調查或志工經驗，有人是假日農夫，還有已經退休但以攝影為人生新目標的熱血前輩，他們唯一相同的就是對攝影的熱情與對生態的珍惜，這樣的組成，也為工作坊帶來了多采多姿的視角和意見。

在荒野保護協會與緯創人文基金會的協助下，工作坊分別於 5、6、8、9 月舉辦，因為只有拉長時間跨度，才能看見棲地與動植物的四時變化，也才能參與多樣活動。學員們則分別從遙遠的屏東、台東、花蓮、或是北臺灣奔赴雙連埤，還有人因為土石流而差點回不了家。但不管面對時間或空間的挑戰，大家都不曾缺席。

slow process. Combined with the threat of invasive species, without the collective efforts from all sectors, we can only imagine what state the lake would be in today.

Participants in the workshop were selected from past finalists of the National Geographic Taiwan Photo Contest. The curriculum covered the history, principles, and techniques of photo storytelling. Despite their varied backgrounds—ranging from underwater photography to documentary work, field research, weekend farming, and retirees passionate about their newfound hobbies—they shared a deep commitment to photography and ecology, bringing valuable perspectives to the workshop.

With support from the SOW and the Wistron Foundation, workshops were held in May, June, August, and September. Extending the time span allowed participants to observe seasonal changes in habitats and wildlife. They traveled to Shuanglianpi from places as far as Pingtung, Taitung, and Hualien, as well as from northern Taiwan. One participant narrowly avoided being stranded by a landslide. Yet, despite the challenges of time and distance, no one missed a session.

During this period, participants visited elderly farmers who had lived by the lake all their lives, as well as a young farmer who returned from the city to restore the eco-friendly farming environment of his youth. They

這段時間中，學員們拜訪了在湖畔生活一輩子的老農和選擇回鄉重建記憶中友善環境的青農；參與了荒野舉辦的工作假期與志工活動，體驗了荒野全職員工的日常，跟著他們移除外來種動植物、整理庇護區環境、帶領解說教育和生態調查。而無論是在驕陽下穿著涉水衣坐大輪胎在水中清理人厭槐葉蘋、擠在小小的研究船上拉魚網，或是在庇護區中拔草、挖土、排水、築堤，都是非常辛苦的體力勞動，但學員也發現，每個來到雙連埤參加志工活動的人，臉上總是掛著笑容，這或許就是雙連埤的魔力吧。

而每到夜晚，就是荒野夥伴帶領夜觀的時刻，大家一起走在暗無人車的路上，循著聲音找蛙找蛇找鳥、圍著樹幹拍攝羽化的蟬，每一次夜觀，都是對雙連埤豐富生態的又一次驚奇，也體驗了年輕保育工作者的熱情。而民宿旁就是民宿主人

joined work holidays and volunteer activities organized by the SOW, gaining firsthand experience of full-time staff responsibilities. Participants helped remove invasive species, maintain sanctuary areas, lead educational tours, and assist with ecological surveys. Whether braving the scorching sun in waders, paddling on makeshift rafts, pulling fishing nets from small boats, or building dikes in the sanctuary, the labor was exhausting—yet, everyone wore a smile, drawn by Shuanglianpi's unique charm.

In the evenings, the SOW team led night hikes along quiet, car-free roads. Participants followed sounds to discover frogs, snakes, and birds or gathered around tree trunks to photograph cicadas emerging. Each hike unveiled new surprises from Shuanglianpi's rich biodiversity and highlighted the passion of young conservationists. Beside the lodge, ecological ponds, carefully maintained by the owner to preserve aquatic plant species, provided perfect spots for photographing small creatures and practicing framing techniques.



2

**1** 荒野在湖畔圍起小片水域，設法隔絕外來種魚類的啃咬，讓原生植物有喘息與成長空間。攝影：林宗儀

The SOW has enclosed a small area by the lake to isolate invasive fish species, creating a safe space for native plants to thrive. Photo by Tsung-yi Lin

**2** 荒野員工與志工的工作之一，是整理庇護區裡過於擁擠的野菱，準備移植到其他地方。攝影：施佩君

One task for SOW staff and volunteers is to manage the dense wild water caltrops in the sanctuary, preparing them for transplantation. Photo by Pei-chun Shih

**3** 野菱葉柄上有氣囊，因此能浮在水面上。攝影：陳紫晴

The petioles of wild water caltrops contain air sacs that allow them to float. Photo by Zih-ching Chen

**4** 師大志工接下帆布袋，準備用來裝要清除的外來種人厭槐葉蘋。攝影：邱翊庭

NTNU volunteers grab the canvas bags in preparation for collecting the invasive giant salvinia. Photo by Yi-ting Chiu



3



4



精心設計、照顧的數個保種生態池，擁有清澈的水環境與許多水生植物，也成了學員拍攝小生物和測試取景角度的好地方。

一開始，大部分學員對自己想拍攝的主題只有模糊的概念，但隨著活動與課程的推進，大家的想法就跟著更清晰、行動也更大膽了一點，防水殼、水下相機、空拍機、熱像儀等紛紛出籠，隨著他們探索的範圍愈來愈大、拍攝時間也愈來愈長。有人冒雨在黑夜中守候，只為了等待樹蛙鼓出鳴囊。也有人搶著比太陽更早抵達水邊，捕捉第一道光芒出現或霧氣消散的時刻。也因為學員的積極探索與分享，我們才會知道，黃昏時附近紅鳳菜田的捕蚊燈就會發出彷彿異世界一般的電藍色光芒。神祕景象的背後，是現代農業帶給生態環境的衝擊。

At first, most participants had only vague ideas about the themes they wanted to capture. As activities progressed, their visions sharpened, and their actions grew bolder. Waterproof cases, underwater cameras, drones, and thermal imagers emerged as their exploration expanded and shooting times lengthened. Some waited in the rain at night to capture a tree frog inflating its vocal sac, while others set out before dawn to catch the first rays of sunlight or the lifting morning mist. Their enthusiastic exploration revealed new details, such as the eerie neon blue glow emitted by mosquito lamps in nearby Okinawan spinach fields—a mysterious sight underscoring the impact of modern agriculture on the ecosystem.

In an era where global warming and climate change are undeniable, Shuanglianpi, once cool and humid, now faces rising temperatures and diminished rainfall. Throughout the workshops, participants repeatedly found themselves drenched in sweat, gaining newfound respect for the SOW team and volunteers, who often worked



**1** 工作坊中最可怕的時刻就是編輯臺作業，學員印出各自精挑細選的雙連埤作品，接受同學與導師陳郁文的審視。

The most exciting yet nerve-racking moment of the workshop is the editing session, when participants print their carefully selected photos of Shuanglianpi for critique by classmates and the instructor Yuwen Chen.

**2** 植被茂密的環境行動不便，考驗學員的應變能力。

It's hard to move in a densely vegetated environment, challenging the participants' flexibility.

**3** 百年石頭屋前的鄒阿公。

Grandpa Tsou in front of his century-old stone house.

**4** 友善契作農田蒼翠繁茂，象徵了人與自然的共好。

The lush, ecologically friendly contracted farmland symbolizes the harmonious relationship between humans and nature.

**5** 青農謝震山種菜也養雞，生活在寬敞棚舍與廣闊草地上的雞羽色鮮亮而壯碩，生產的友善雞蛋也是穩定的收入來源。攝影：林君達

In addition to growing vegetables, Zhen-shan Xie raises chickens in spacious shelters and pastures, where each bird displays vibrant plumage and robust size. The eco-friendly eggs provide a stable source of income. Photo by Jun-da Lin



在全球暖化與氣候變遷的影響已明顯到不可能忽視的今天，過去涼爽潮溼的雙連埤，也面對了氣溫飆升和降雨減少的困境，每次活動，學員們都是全身溼了又乾，難以想像常常要穿著青蛙裝活動的荒野夥伴與志工們有多辛苦。親身走入這樣一個交織著農業、保育、開發與生計壓力的地方、經歷了身與心的同步鍛鍊之後，學員們不但了解了這裡，也探索了自己的極限。有位學員非常怕蟲，第一天晚上體驗過大家圍著蟲拼命按快門的震撼教育之後只想逃走，但在朋友的鼓勵下咬牙撐了下來，最後端出了漂亮的昆蟲近照，並大方在結業式上分享這番心路歷程，原來，最大的挑戰從來不是在外面，而是在自己心裡。

更難忘的是在第三次工作坊中，享譽國際的野生動物攝影大師提姆·雷曼，為每位學員提供了中肯且實用的建議，絕對是比得獎更珍貴的收穫，而提姆看到學員們對生態的熱情，也十分感動。

結業式時，學員們各以 10 張照片說出自己的雙連埤故事。這些照片都是從成百上千張照片中經

tirelessly in the sun while wearing waders. Immersed in a place where agriculture, conservation, development, and livelihood pressures intersect, participants encountered both physical and mental challenges. They not only deepened their understanding of Shuanglianpi but also discovered their own personal limits.

One participant, initially terrified of insects, felt overwhelmed on the first night as others eagerly photographed bugs. He nearly left but, with encouragement from a friend, persevered—even purchasing close-up equipment later on. By the end, he proudly presented stunning macro shots of insects, realizing the greatest challenge had not been external but within himself.

The visit from renowned wildlife photographer Tim Laman was unforgettable. His thoughtful, practical advice offered each participant an invaluable insight—more rewarding than any contest win. Tim was equally moved by their passion for nature, making his visit a lasting highlight for everyone involved.

At the closing ceremony, each participant shared their story of Shuanglianpi through a series of 10 carefully selected photos, chosen from hundreds after a rigorous editing process. Although they all photographed the same locations and activities, each showcased their unique



過「廝殺」後脫穎而出。而明明是同一個地方、相同的活動，他們卻總能找到獨特的景致和視角，不管是微小的絲葉狸藻花朵、多樣的保育類生物，或是能俯瞰雙連埤又能遠眺龜山島的震撼空拍全景，百年古厝前姿勢帥氣的高齡鄒阿公，深陷池畔溼泥只能被「拔」起來的學生，燠熱天氣中揮汗勞動都還能開懷大笑的緯創樂服志工，還有友善田區裡開心玩水的孩子，都在鏡頭下化為永恆，見證了雙連埤的豐富與多樣面貌。

工作坊中除了各種技巧、裝備、概念的分享，還有新萌發的友誼。這種把各方領域拉在一起的活動，讓所有參與者都擴大了自己的視野與知識，無論是荒野夥伴或工作坊學員，對攝影技術、圖片編排、生態保育、雙連埤的現在過去未來，都有了更深刻的體會與認識。最後的成果分享中可以看到學員的成長與收穫，而荒野的夥伴更難得地透過這些鏡頭，看到工作中的自己與志工們散發出的龐大自信與感染力，留下許多珍貴的畫面。透過這個工作坊，相信所有和我們相遇的人心中都播下了種子，期待未來能看到這些種子成長茁壯，為臺灣的生態保育運動再添新鮮的創意。

perspective. These included the delicate flowers of floating bladderwort, various conservation species, stunning aerial views of Shuanglianpi with Guishan Island in the distance, the poised and forward-gazing Grandpa Tsou in front of his century-old home, a student stuck in mud by the lakeside, volunteers smiling through their labor in the heat, and children joyfully splashing in the farm’s friendly fields. Through their lenses, they immortalized the richness and diversity of Shuanglianpi.

Beyond sharing techniques and concepts, the workshop fostered new friendships, uniting people from diverse fields and broadening everyone’s horizons. Both SOW staff and workshop participants gained a deeper understanding of photography, image editing, and ecological conservation, as well as a clearer view of Shuanglianpi’s past, present, and future. The final showcase displayed the participants’ growth, offering the SOW team a rare opportunity to see themselves and the volunteers through the lens, capturing precious moments with confidence and energy. No doubt this workshop has planted seeds in the hearts of all who participated. We look forward to seeing those seeds grow, bringing fresh creativity to Taiwan’s ecological conservation movement.

日出時分的火燒雲，把雙連埤的天空與湖面都染成鮮豔的橘紅。攝影：張登峰  
The burning sky at sunrise painted both the sky and Shuanglianpi in vibrant shades of orange and red. Photo by Teng-feng Chang



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