

序言

大多數人聯想起香港時，腦海中浮現的是一個現代化、人口稠密且節奏急促的城市，有超過740萬人生活在緊密相鄰的高層公寓大樓中。然而，香港約38%的土地面積被劃定為郊野公園及特別地區，大自然仍遍布於香港幾乎所有地區。此外，由於香港擁有豐富的植物群落，約有70個地點更被劃為具特殊科學價值地點 (SSSI)。香港有數百公里的遠足徑，為市民和遊客提供了很多接觸大自然的機會。大帽山 (957米) 和鳳凰山 (934米) 提供了各式各樣的生境，雨影區讓某些地方形成較乾旱的生境，亦會增加地區的生物多樣性。

也許鮮為人知的是，在香港這個狹小的空間裏，有超過3,300種植物，包括本地和歸化植物，同樣不為人知的是，香港有不少的自然愛好者、具備科學知識的業餘愛好者，以及描繪香港豐富的植物多樣性、才華橫溢的植物繪圖藝術家。但在他們的筆下，以珍稀植物為題的作品並不常見。

《香港原生植物圖鑑 (第二冊)：稀有及瀕危植物》延續第一冊的風格，收錄了香港二十種罕見而珍貴的植物，由王曉欣小姐和李敏貞小姐繪製，馬平先生潤飾。與照片相比，科學繪圖通常具有更高的價值，因為繪圖師可以展示和強調在照片中可能被隱藏的結構。這些繪圖展示了花朵的微小細節，這些細節可能會被一般觀察者忽略。每個插圖都附有中英雙語描述，以及關於植物的趣聞。本書亦列出了實體資料和網絡上的參考資料，為希望獲得更多信息的人提供信息來源和指引。其他的細節包括，物種在自然環境中的照片、記錄了其在香港的分布情況的標本館館藏，以及掃描電子顯微鏡 (SEM) 下的花粉粒或孢子影像。

David E. Boufford

哈佛大學植物標本館高級研究科學家

《中國植物誌》編輯委員

2024年春

Foreword

When most people think of Hong Kong, the image that comes to mind is of a modern, densely populated and fast-paced city of over 7.4 million people, all living in closely spaced high-rise apartment buildings. The secret that almost no one knows about is that about thirty-eight percent of the land area of Hong Kong is designated as country parks and special areas and that nature still abounds in nearly all parts of Hong Kong. There are also around seventy Sites of Special Scientific Interest (SSSI), mostly due to their floristic composition. The hundreds of kilometres of hiking trails throughout Hong Kong provide numerous opportunities for locals and visitors alike to come in contact with nature. Tai Mo Shan (957 m) and Lantau Peak (934 m) provide a range of habitats and cast rain shadows that result in drier habitats in places that support even more diversity.

It may also be unknown that in the tiny space it occupies, Hong Kong has over 3,300 species of plants, including both native and naturalised, and with many nature enthusiasts, scientifically knowledgeable amateurs and talented illustrators whose focus is on illustrating the rich floristic diversity of Hong Kong. Among their subjects are rare and special plants that are not often seen.

Botanical Illustrated Guide to Hong Kong Native Plants (Volume II): Rare and Endangered Plants follows the style of the first volume. It includes twenty rare and precious plants of Hong Kong, illustrated by Ms Hiu-Yan Wong and Ms Man-Ching Li and refined by Mr Ping Ma. Illustrations are often of more value than photographs, since an illustrator can reveal and emphasize structures in an illustration that may be hidden in a photo. Such is the case with these illustrations showing minute details of the flowers that a casual observer may fail to notice. Accompanying each of the illustrations are descriptions in Chinese and English and interesting facts about each of the subjects. Both physical and online references are provided to the source of information and as a guide for those who wish to have additional information. Photos of the plants in nature,

herbarium specimens that document the plant's occurrence in Hong Kong and scanning electron microscope (SEM) photos of the pollen grains or spores, to give even more detail, are provided for each of the species.

David E. Boufford
Senior Research Scientist, Harvard University Herbaria
Editorial Committee Member of *Flora of China*
Spring 2024

香港中文大學出版社：具有版權的資料

序言

植物繪畫包羅萬象，用畫筆盡情謳歌記錄著我們的心緒。植物科學繪畫作為其中一個分支講著不同的故事。

十八世紀瑞典植物學家卡爾·林奈用科學方法建立了第一個公認的植物分類系統，之後德國植物學家艾瑞特確立植物科學畫的標準規範，由此演化沿用至今。在具象解剖和藝術表現力等都有很多不同手法，但目標只有一個：用科學探索方法解釋自然。科學畫的重要性是，綜合手上樣本、文獻及標本，去表達物種的典型特徵，繪畫出物種的典型肖像(模式化)，並將關鍵的分類特徵展示出來，而這不是攝影能做到的。科學畫、標本、攝影與文字描述，有著相輔相成的關係。

1968年，享譽盛名的植物學家胡秀英博士任職香港中文大學，從她採集第一份標本至今已有數萬份，展現在我們面前的成就，無不滲透著她對事業的愛和心血，更重要的是她具有厚重專業知識，鑒定的每份標本準確性極高，使她成為全球植物分類研究不可替代的區域性支點。為了表彰她在生物系的貢獻，標本館於2012年命名為「胡秀英植物標本館」。

1989年，我很榮幸接受畢培曦博士的邀請開始參與胡博士、畢博士的研究課題相繼十數年。胡博士的為人自有公論，無需贅述，就學術和工作要求的嚴謹性讓我深有感觸。我們首次在標本室一見面，喝過咖啡後，她就出去採來蘭科、禾本科植物各一種，讓我解剖、鑒定和繪畫。我心裡明白這是個即場考試，便一口氣把它完成了，最後成績是基本及格，但仍有很多的進步空間。我們經過一段時間相互觀察和交流，逐漸明白對方專業的特殊性。由於文字有其局限性，胡博士認為不能僅依靠分類學的文字描述，而必須透過科學繪畫作為輔助手段，去展示完整的植物學概念。這些重要性在胡博士、畢博士研究課題中得到驗證。由此，我的心得是：所有樣本我一手一腳自己動手採集、解剖、觀察和繪製，前人的畫作只會參考，絕不臨摹。我們在工作上很合拍，很喜歡一起討論和解決學術問題，後來和胡博士談起這個從頭到尾都自己動手的工作流程，她說：「應該早些請你一起工作」。我說：「但那時我可能還有些蠢」，她聽後哈哈大笑。

胡博士的精神薪火相傳，劉大偉博士長期在她身邊受影響頗深，承傳了胡博士科學精神，2012年「胡秀英植物標本館」成立時首任館長。劉博士沉澱數年之後開啟了結合香港本地需求的科教結合項目，使胡博士建立的優質科研資產平台傳承下去，為社會和公眾發揮更大作用。本圖鑑立意新穎，植物圖像、臘葉標本、顯微攝影和墨線圖相結合的方式，形成自成一套多維度教授方法。雖然還有些對物種分類表達視角和繪畫技法有待提高，但現實高速發展的社會還能靜心立志為公眾的植物科學教育事業而努力的精神值得稱讚。

植物的奧秘要我們共同努力去探索，向公眾展示多姿多采的自然，它就在我們身邊。

馬平

資深植物繪圖師

《嘉卉：百年中國植物科學畫》主編

2024年春

香港中文大學出版社：具有版權的書

Foreword

Plant drawings come in a myriad of forms; they record and celebrate thoughts by pens and brushes. Scientific botanical drawings, like one of the many branches of a tree, tells many unique stories.

In the 18th century, Swedish botanist Carl Linnaeus established the first recognised plant classification system using a scientific approach. Subsequently, German botanist Georg Dionysius Ernst established standards for botanical scientific illustration. This system has evolved and continues to be used today, encompassing various techniques such as detailed dissection and artistic expression. Despite these differences, the goal remains the same: using scientific methods to explore and explain nature. The importance of scientific illustration lies in its ability to capture the typical characteristics of species by combining samples, literature, and specimens. It involves depicting the typical portraits of species (typification) and showcasing key classification features, which cannot be achieved through photography. Scientific illustration, specimens, photography, and written descriptions complement each other in a synergistic relationship.

In 1968, the renowned botanist Shiu-Ying Hu began her tenure at The Chinese University of Hong Kong. Since collecting her first specimen, she amassed tens of thousands of specimens, showcasing her achievements and reflecting her love and dedication to her career. Moreover, her extensive expertise ensured the high accuracy of each specimen she identified, making her an indispensable regional focal point for global plant classification research. To honour her contributions, the School of Life Sciences, CUHK, named the herbarium the 'Shiu-Ying Hu Herbarium' in 2012.

In 1989, I received an invitation from Dr Paul, Pui-hay But to join Dr Hu and Dr But's research projects, which continued for over a decade. Dr Hu's public images and personality are well-known and need no further elaboration. I am touched by her seriousness in research and work. I remember the first time we met in the herbarium. After enjoying a cup of coffee, Dr Hu went out and brought back specimens of Orchidaceae and Poaceae for me to dissect, identify, and illustrate. I understood in my heart that this was an impromptu test, so I completed it. I received a passable result, but there was still much room for improvement. Over time, through mutual observation

and communication, we gradually came to understand the particular characteristics of each other's expertise. In brief, Dr Hu believed that relying solely on textual descriptions in taxonomy was inadequate and that it was necessary to use scientific illustration as an auxiliary means to demonstrate comprehensive botanical concepts. The importance of this was validated in Dr Hu and Dr But's research projects. From this experience, I have developed my protocol—doing all the collection, dissection, authentication and illustration works by myself. I could only use predecessors' work as reference, and must never copy them. Dr Hu and I worked together very well, and enjoyed discussing and resolving scientific problems. Later, when I explained my entire work process of working on this project from start to finish on my own with Dr Hu, she said, 'I should have invited you to come work with me sooner.' I jokingly replied that perhaps I was still a bit foolish back then, to which she laughed heartily.

Dr Hu's spirit has been passed down through generations, Dr David Tai-Wai Lau deeply influenced by Dr Hu, assumed the role of the first curator when the Shiu-Ying Hu Herbarium was established in 2012. After several years of reflection, Dr Lau embarked on projects that combined local needs with scientific education, ensuring the inheritance of the high-quality scientific research assets established by Dr Hu and enabling them to have a greater impact on society and the public. This illustrated guidebook adopts a novel approach, combining plant images, plant specimens, microscopic photography, and pen-and-ink drawings to form a comprehensive multidimensional teaching method. Although there is room for improvement in terms of expressing taxonomic perspectives and artistic techniques, the dedication to the public's botanical science education in the face of the rapidly developing society deserves praise.

The mysteries of plants require our collective efforts to explore and showcase the vibrant beauty of nature to the public. It is right beside us.

Ping Ma
Senior botanical illustrator
Chief Editor of *Infinite Blooming: 100 Years of Chinese Botanical Illustration*
Spring 2024

前言

轉眼之間，《香港原生植物圖鑑》已經迎來第二冊，我們團隊幸運地在過往兩年仍能持續進行野外調查和研究工作，回到實驗室後，我們進一步進行解剖、拍攝和文獻回顧等工作，並在完成某一程度的數據及繪圖後，將其製成教研書刊。本次書刊的主題聚焦在稀有及瀕危物種，這些植物對大眾來說可能相對陌生，然而，實際上這些品種及其親緣物種都存在於我們的日常生活中。

本書內容涵蓋了一些稀有及瀕危的品種，包括蘭花、茶花、豬籠草、巴豆、杜鵑、鳳仙、馬兜鈴等等。這些品種在觀賞、藥用或有毒植物的範疇中相當常見。以巴豆和馬兜鈴為例，它們的某些品種均是藥用植物，但同時亦具毒性。中藥材巴豆有大毒，但能用於治療惡瘡疥癬等疾病。本書記載的香港巴豆亦非常用中藥，在其他地區亦罕見。馬兜鈴則被用作為清肺降氣、止咳平喘類的中藥，然而香港馬兜鈴極少作為臨床使用。這兩個品種都因其分布地和植株數目較少，被評估為極危品種。

本書記載的品種都受到不同的法例和名錄所管制和保護，包括香港法例第96A章《林務規例》及第586章《保護瀕危動植物物種條例》，以及刊載在《香港稀有及珍貴植物》中的「100種香港稀有及珍貴植物」。這些物種均是本地原生，在生物多樣性中扮演重要的角色，同時也能夠代表其生境的生態指標。因此，深入了解、研究、保育和教育有關這些物種，人們可更進一步與它們共存。本次圖鑑以稀有及瀕危品種為主題，團隊對每個樣品都懷著戰戰兢兢的珍視心情去撰寫和製作：從不同層次的研究方法，建立該物種多方面的科學數據，包括了古今文獻回顧、植物憑證標本、自然生長狀態、野外生態環境、花果解剖結構、顯微特徵描述、花粉電子鏡影像與植物各部分的詳細註釋墨線圖等。透過綜合上述的資訊，我們去記錄每個珍貴的植物品種，務求豐富香港稀有及瀕危植物的基礎科學資訊。

基礎科學是我們常見的名詞，顧名思義就是科學學科的基礎知識。以植物學為例，其中一項基礎知識是植物鑒定，植物鑒定的工作在三百多年前已有記載，而草藥鑒定的歷史更加源遠流長，數百年來，植物學家及草藥學家都會運用植物的外型結構作為證據，判斷植物的品種。隨著科技進步，記錄特徵結構的方法亦應運而生，然而，墨線圖是其中一種歷久不衰的方法。透過運用黑白灰的手繪線圖，可以傳神地表達和展示植物的不同部位及放大數倍的結構。墨

線圖的細緻及準確性使得植物鑒定更加客觀，和具有如實物一樣的參考根據。墨線圖雖有不可代替的功能，但其工序時間甚長，亦須具備豐富植物鑒定的經驗，因此入行難，人才亦難求。以個人來說，我甚至覺得植物學界的繪圖師是難得的基礎科學人員。況且，植物分類鑒定是植物科學研究的基石和源頭，我們理應更加注重基礎科學的教研工作，培訓人才及知識傳承是我們的期望和正在實踐的信念。

機緣巧合之下，我們有幸邀請到中國資深植物繪圖大師馬平老師來港指導。多年未見，重逢後更加珍惜與老前輩相聚的緣分。每次重逢都能夠帶來新的領會和學習機會，而這次馬老師到訪更是為我們提供了寶貴的培訓和指導。特別是對於我們的繪圖師王曉欣小姐和李敏貞小姐來說，她們與馬老師進行了深刻的交流並專注於學習，使她們的繪圖技藝更上一層樓。此外，馬老師還為本圖鑑繪圖記錄的某些植物結構補上一些精細的筆觸，為作品錦上添花。在職業生涯中遇見良師益友是我們的福氣，而持續學習和成長則是我們團隊真誠的回應。希望透過本圖鑑，大家共同見證基礎科學的傳承和意義。

每項重大的工作都是困難重重，但《香港原生植物圖鑑(第二冊): 稀有及瀕危植物》的項目並沒有想像中的荊棘密布。相反，整個過程平常而充實，這要歸功於許多對基礎科學充滿關心的人們，他們付出了專業的力量，使這項不平凡的任務得以順利完成。在野外調研的階段，我們有幸能夠與漁農自然護理署(AFCD)合作，他們在每次野外考察前都預先調查各品種的開花和結果期，以尋找最具代表及科學性的植物標本。回想起每逢烈日當空、傾盆大雨、寒風刺骨及蚊蟲橫飛的季節，我們深感慶幸和感激一直都有署方的團隊在我們身旁。在此，我要特別感謝劉苑容博士、石瑞華先生和林建華先生的指導。在珍稀及瀕危植物的教研工作中，我們深深感謝陳堅峰先生、廖家業先生、陸妍女士和黃潔珊小姐的寶貴意見和支援，才使這項工作得以順利進行。

每次回到實驗室，我們的繪圖師便著手工作，從室內拍攝、顯微觀察到解剖，每個階段都帶來令人費解、驚喜及安慰的心理起伏。我由衷感謝兩位孜孜不倦工作的繪圖師，王曉欣小姐和李敏貞小姐。馬平大師的到訪和指導對我們團隊來說是一種福氣，他與繪圖師的互動教學讓我無時無刻不感激。我們期望這本教研小書能讓馬平老師感受到我們對基礎植物學的尊重和謙卑的傳承。此外，是次出版有賴香港中文大學出版社的支持才能成功進行，特別感謝編輯冼懿穎和美術設計曹芷昕的努力與專業。

再次感謝所有老師、同事們和合作單位共同付出的努力！

劉大偉
胡秀英植物標本館館長
2024年春

Preface

Time goes by quickly. We are now publishing the second volume of *The Botanical Illustrated Guide to Hong Kong Native Plants*. Fortunately, our team has been able to continue field study and research work over the past two years. Upon returning to our laboratory, we have further engaged in tasks such as dissection, imaging and literature reviews. After obtaining a certain level of data and illustrations, we have compiled them into this educational research and education publication, which focuses on rare and endangered species. While the species of this category may be relatively unfamiliar to the general public, in fact, they and their related species exist in our daily lives.

In this volume, the rare and endangered species such as Orchids, Camellia, Pitcher Plant, Croton, Azalea, Balsam, Birthwort, and others are quite common ornamental, medicinal, or toxic plants. Let me explain by using two common examples: Croton and Birthwort could be used as medicinal plants, but also possess toxicity. In traditional Chinese medicine, Purging Croton Seed is highly toxic and used to treat conditions like ulcers and scabies. But the Hong Kong Croton documented in this book is not commonly used, and has been determined to be rare in other regions as well. Birthwort fruit, on the other hand, is used in traditional Chinese medicine for its lung-clearing and cough-suppressing properties. However, the Westland's Birthwort recorded in this book is rarely used clinically. Both of these species are considered critically endangered due to their limited distribution and small population sizes.

The rare and endangered plants are regulated and protected by various local ordinances and plant checklists, including Hong Kong Ordinances Cap. 96A Forestry Regulations and Cap. 586 Protection of Endangered Species of Animals and Plants Ordinance, and the list of '100 Rare and Precious Plants in Hong Kong' published in the *Rare and Precious Plants of Hong Kong*. These species are native to the local areas and play important roles in biodiversity, serving as ecological indicators of their habitats. Therefore, by gaining a deeper understanding, conducting research, making efforts at conservation, and educating ourselves about these species, we can enhance their sustainability and help them co-existing with humans. Since this volume focuses on rare and endangered species, our team addressed each sample with a sense of preciousness

and caution during the writing process. Through various levels of research methods, we have gathered extensive scientific data on these species, including literature reviews, voucher specimens, examination of growing habits, habitats, dissection of flowers or fruits, descriptions of microscopic structures, pollen SEM images, and detailed annotated line drawings of various parts of the plants. Our team is committed to effectively disseminating fundamental scientific knowledge, particularly related to rare and endangered species, through our research deliverables and educational programmes.

Fundamental science is a common term to the general public. Its meaning seems to be simple and could be interpreted as fundamental knowledge of science subjects. Taking botany as an example, one of the fundamentals is plant authentication, which has a history of more than 300 years. Herbal identification has an even longer history. For hundreds of years, botanists and herbalists have relied on morphology to determine plant identity. Along with the advanced technology, various kinds of documentation have been newly developed. Nonetheless, line drawing illustrations are a very respected and reliable method of recording plant structures under different magnifications. The intricate and precise nature of ink drawings enhances the objectivity of plant identification, providing a basis akin to a physical reference. While ink drawings serve an irreplaceable function, the process is time-consuming and requires sufficient botanical knowledge. As a result, it is challenging to enter this field, and talented individuals are scarce. Personally, I believe botanical illustrators are invaluable members of the fundamental science community. Furthermore, plant taxonomy serves as the cornerstone and origin of botanical research. It is essential for us to prioritize the work of fundamental science, including talent development for botanist trainees and young scientists. We trust that our next generation of scientists will be able to continue the legacy of plant taxonomy and the Shiu-Ying Hu Herbarium team will continue to fulfill its mission.

We have been fortunate to have the privilege of inviting the renowned botanical illustrator from mainland China, Mr Ping Ma, to visit Hong Kong and guide us throughout the production of this volume. After many years apart, each reunion brings new insights and learning opportunities, and this visit by Mr Ma has provided us with invaluable training and guidance. In particular, our illustrators Ms Hiu-Yan Wong and Ms Man-Ching Li had profound exchanges with Mr Ma and focused on learning, taking their drawing skills to new heights. Furthermore, Mr Ma skillfully incorporated delicate strokes to enhance the botanical illustrations featured in this book, thereby adding an exquisite touch to the illustrations. Encountering a good mentor and friend in our professional careers is a blessing, and continuous learning and growth are our team's sincere wishes. Through this botanical guide, we hope to collectively witness and affirm the inheritance and significance of fundamental taxonomy.

Every major project comes with its own set of challenges, but the *Botanical Illustrated Guide to Hong Kong Native Plants (Volume II): Rare and Endangered Plants* project did not encounter any expected obstacles. On the contrary, the entire process was ordinary yet fulfilling, thanks to the dedicated individuals who deeply care about fundamental science. Their professional expertise has propelled this extraordinary task to successful completion. During the field research phase, we were fortunate to collaborate with the Agriculture, Fisheries and Conservation Department (AFCD). Prior to each field survey, they conducted preliminary investigations on the flowering and fruiting periods of each species, to ensure the best specimen selection. Reflecting back on the scorching hot days, torrential rain, bone-chilling winds, and swarms of mosquitoes, we are grateful to have had the AFCD team by our side throughout. I would like to extend special thanks to Dr Jenny Lau, Mr S. W. Shek and Mr K. W. Lam for their help and guidance. In our educational and research work on rare and endangered plants, we deeply appreciate the valuable insights and support from Mr Simon Chan, Mr Eric Liu, Ms Michelle Luk, and Ms Kit Shan Wong without which this work could not have progressed smoothly.

Upon returning to the laboratory, our illustrators diligently undertook their tasks, which involved close-up imaging, dissections and literature reviews. Each stage brings a psychological upsurge of disappointment, surprise, and comfort. I sincerely thank our two dedicated botanical illustrators, Ms Hiu-Yan Wong and Ms Man-Ching Li, for their contributions to every plant character illustration. The visit and guidance from Mr Ping Ma was a tremendous opportunity and gift for us all. We hope that this educational booklet will convey our profound respect for basic botany to him. The Chinese University of Hong Kong Press is definitely the key to the success of this illustrated book publication, I am grateful to editor Ms Winifred Sin and designer Ms Tsz-Yan Cho for their diligence and professionalism.

Once again, thank you to all the teachers, colleagues and collaborators for their collective efforts and dedication!

David T. W. Lau
Curator, Shiu-Ying Hu Herbarium
Spring 2024