

植物界中的活恐龍 - 蕨類植物

Ferns – the living dinosaur of the plant kingdom

它們的祖先遠在三億年前（即石炭紀）已經在地球上出現，並佔據著優勢。

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TEXT & PHOTOGRAPHY : LEE Tim-Chun, Wicky, Kadoorie Farm & Botanic Garden



蕨類植物又稱羊齒植物，它們是不會開花的維管束植物，只以孢子進行繁殖。在植物世界裏，它們較苔蘚植物高等，但較種子植物原始。全世界的蕨類植物約有12,000種，除了沙漠及南北兩極外，廣泛分佈於世界各地。它們的祖先遠在三億年前（即石炭紀）已經在地球上出現，並佔據著優勢。這些古生蕨類植物亦是形成煤的主要原料。

香港因位處於亞熱帶，生境又多樣化，故蕨類植物的種類亦比較豐富。逾200種蕨類植物被記錄，一般可在樹林、河流、沼澤、草地、山坡及陰暗的山澗找到。

有部分蕨類植物因在野外生長緩慢、生命週期長、孢子萌發率低等而令其繁殖有困難，對於其餘大部分的蕨類植物而言，最嚴峻的威脅則來自生境破壞。隨著香港土地大量而急速的發展，致令這些生

境不斷受到破壞和減少，越來越多蕨類植物被危及甚至滅絕，故此保護稀有瀕危的本土蕨類植物刻不容緩。

蕨類植物小徑

蕨類植物小徑建於一九九四年，是香港首個戶外蕨類植物園。它位於嘉道理農場暨植物園海拔380米的一條山溪旁，提供了一個理想的遷地保育場地去保護本土蕨類植物，同時也設置了教育展板，讓公眾去多認識這群特別的植物。迄今，小徑種有130多種的本土蕨類植物（其中更有70種為本園土生土長的），並按照它們所屬的生境和生活形態，一一移植於此小徑內。我們採用組織培養或其他技術，利用孢子或無性繁殖來進行大量繁殖。我們期望日後能把它們移植到合適的自然生境，使它們得以繼續繁衍而不至滅絕。

長久以來，蕨類植物與人類的關係是非常密切的。傳統上，有很多蕨類植物可供作食物、藥材、飼料、綠肥、釀酒材料或工藝品原料，有部分則可在大自然作為泥土種類及空氣污染的指示植物。近百年來，它們應用於園藝方面，作觀賞植物或插花材料。蕨類植物具有觀賞期長、耐陰和蟲害少的特點，是佈置庭園和點綴家居的理想材料。至今全世界具有觀賞價值的蕨類約有700種，有些更有300種以上的栽培變種。蕨類植物不但豐富了我們的生活，還增加了大自然的生物多樣性。若我們朝著永續發展的願景努力，將可與萬物共享這個地球。

左上圖：巢蕨；右上圖：嘉道理農場暨植物園的蕨類植物小徑；右下圖：拳卷葉。
Above: *Neottopteris nidus*; bottom: The Fern Walk at the Kadoorie Farm & Botanic Garden; bottom right: *Cicinate venation*.

Ferns (Pteridophytes) belong to a group of non-flowering vascular plants which produce spores for reproduction. They are more advanced than liverworts and mosses but less so than seeded plants. Apart from the two Poles and the deserts, there are about 12,000 fern species widely distributed all over the world. They evolved 300 million years ago in the Carboniferous period and became the dominant plant group on Earth. Such primitive ferns also provided the main raw material for coal formations.

A truly rich fern flora thrives in Hong Kong due to the sub-tropical climate and diversified habitats of the territory. Over 230 species have been recorded, and one can find ferns in forests, streams, marshes, grasslands, hillsides and shaded ravines in Hong Kong.

It is difficult for some fern species to propagate for numerous reasons - some species grow very slowly in the wild, while others have long life cycles or low germination rates. For many other species, the main threat is habitat destruction. Owing to rapid and extensive land development, many habitats suitable for ferns are under constant pressure.



It is likely that more fern species will become threatened and extinct and conservation work is extremely urgent.

Fern Walk

Established in 1994, the Fern Walk at Kadoorie Farm and Botanic Garden is the first outdoor fern garden in Hong Kong. The Fern Walk is located along a natural stream

at an altitude of 380 metres. It provides a suitable site for ex-situ conservation of ferns as well as creates an educational display for the public to learn more about this special group of plants. To date, more than 130 native fern species (including 70 indigenous to the Farm) have been transplanted along the Walk according to their growth habitats and forms. Tissue culturing or other techniques are used to propagate ferns from spores or by asexual reproduction in mass quantities. We hope that we can transplant them to suitable habitats in the wild in the near future so that they can grow and thrive in perpetuity.

Ferns and mankind have long had close connections. Traditionally, many fern species were used as food, medicine, animal forage, green manure and for making wine and artifacts. Some species can also be used as natural indicators of soil type and air pollution. Since the last century, ferns have been widely used in horticulture as ornamental plants and materials for flower/floral arrangement. Ferns' properties of vitality, shade- and pest-tolerance make them ideal materials for decorating gardens and rooms. Today, there are 700 ornamental species in the world and over 300 cultivars of some species. Ferns enrich not only our lives, but also biodiversity. We can co-exist with all living things, sharing one Earth, if we work towards the vision of sustainability.

在香港眾多的蕨類植物中，有些因具有觀賞、藥用價值或是其他原因，以致在野外的數量不斷減少，故此受到香港法例保護，如：

Some fern species in the wild are collected for ornamental, medicinal or other purposes and thus are threatened. As a result, a number of fern species are now protected by legislation in Hong Kong and in mainland China, such as:

1. 福建蓮座蕨 (蓮座蕨科) *Angiopteris fokiensis* (Elephant Fern) *Angiopteridaceae*²
2. 巢蕨 (鐵角蕨科) *Neottopteris nidus* (Bird-nest Fern) *Aspleniaceae*¹
3. 金毛狗/鯨口蕨 (蚌殼蕨科) *Cibotium barometz* (Lamb of Tartary) *Dicksoniaceae*¹
4. 蘇鐵蕨 (烏毛蕨科) *Brainea insignis* (Cycad Fern) *Blechnaceae*³
5. 水蕨 (水蕨科) *Ceratopteris thalictroides* (Water Fern) *Parkeriaceae*³
6. 樹蕨* (桫欏科植物) 包括：Four species of Tree Ferns (*Cyatheaceae*)^{1,2}
 - a. 刺桫欏 *Alsophila spinulosa* (Spiny Tree Fern)
 - b. 細齒黑桫欏 *Gymnosphaera hancockii* (Toothed Black Tree Fern)
 - c. 黑桫欏 *Gymnosphaera podophylla* (Black Tree Fern)
 - d. 筆筒樹 *Sphaeropteris lepifera* (Flying Spider-monkey Tree Fern)

任何進一步的非法採集均會很容易把它們推向滅絕的邊緣。

Any further illegal collection will easily push them to the fringes of extinction.

1. 林務規例 (第96章附例) *Forestry Regulations (Cap. 96 sub. Leg.)*
2. 動植物 (瀕危物種保護) 條例 (第187章) *Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187)*
3. 國家二級保護野生植物 *Wild plant under State protection (category II)*