

# 臺灣寬尾鳳蝶的發現

Discovery of Taiwan Broad-tailed Swallowtail

1932年，宜蘭農林學校（今國立宜蘭大學）的日籍教師鈴木利一，在烏帽子山（今宜蘭縣大同鄉獨立山）捕獲世上第一隻寬尾鳳蝶，1935年，日本人以《史蹟名勝天然紀念物保存法》將其列為天然紀念物，是第一個列入天然紀念物名單中的臺灣蝴蝶。1966年當時任教於宜蘭縣順安國小的廖有麟，首次在太平山上發現僅攝食臺灣檫樹的寬尾鳳蝶幼蟲，開啟了臺灣寬尾鳳蝶生物學研究。1988年，政府依《文化資產保存法》指定為「珍貴稀有動物」，1989年再以《野生動物保育法》公告為「瀕臨絕種野生動物」，堪稱為臺灣的國寶蝶。

The Taiwan broad-tailed swallowtail (*Papilio maraho*) was first captured on Mt. Wumaazi (today's Mt. Duli in Yilan County's Datong township) in 1932 by Toshikazu Suzuki, a Japanese teacher at the Yilan School of Agriculture and Forestry (now National Ilan University). The Japanese designated the butterfly a "natural monument" in 1935, the first Taiwan butterfly to be so honored. In 1966 Liao You-lin, then a teacher at Shun'an Elementary School in Yilan, initiated biological research on this butterfly when he discovered broad-tailed swallowtail larvae, which eat only the Taiwan sassafras, at Taipingshan. In 1988 Taiwan's government listed the butterfly as a "Rare and Valuable Species" in accordance with the Cultural Heritage Preservation Act, and the following year announced it as an endangered species under the Wildlife Conservation Act. The Taiwan broad-tailed swallowtail is, indeed, a national treasure.



▲ 臺灣寬尾鳳蝶分布圖  
Distribution map of Taiwan broad-tailed swallowtail

# 寬尾鳳蝶 九宮格

The Broad-tailed Swallowtail Tic-tac-toe

和您的同伴搶答，看誰先連成一線，成為寬尾鳳蝶知識王喔！  
See who can give three correct answers in a row first, and be the ace of broad-tailed swallowtail know-how!

解答在下方，先不要偷看喔！  
The answers are at the bottom, but don't look now!

- 臺灣寬尾鳳蝶在每片葉片上，一次產幾顆卵？  
(A) 1顆  
(B) 2顆  
(C) 3顆
- 臺灣寬尾鳳蝶幼蟲的唯一食草為？  
(A) 紅檜  
(B) 臺灣檫樹  
(C) 山櫻花
- 臺灣寬尾鳳蝶從幼蟲成長結成蛹，會經歷幾個齡期？  
(A) 3齡期  
(B) 4齡期  
(C) 5齡期
- 臺灣寬尾鳳蝶為何被稱為國寶蝶？  
(A) 為臺灣特種  
(B) 為瀕臨滅絕的一級保護物種  
(C) 以上皆是
- 1932年宜蘭農林學校的日籍教師鈴木利一在哪裡發現了第一隻臺灣寬尾鳳蝶？  
(A) 獨立山  
(B) 神代山  
(C) 留茂安山
- 依據分子研究資料分析，臺灣寬尾鳳蝶1800萬年前起源自哪裡？  
(A) 美洲  
(B) 非洲  
(C) 歐洲
- 以下哪項不是臺灣寬尾鳳蝶幼蟲的型態？  
(A) 一至四齡的幼蟲體色為黃褐色，與鳥糞相似  
(B) 終齡幼蟲呈綠色，會將葉片兩側捲曲增加隱蔽性  
(C) 以上皆是
- 臺灣寬尾鳳蝶是臺灣特種大型鳳蝶類，最重要的特徵為？  
(A) 有兩條翅脈貫穿的寬大紅色尾突  
(B) 以臺灣檫樹的嫩芽和樹葉為食  
(C) 以上皆是
- 臺灣寬尾鳳蝶長相美麗獨特，目前面臨哪些問題？  
(A) 賴以維生的植物臺灣檫樹數量逐漸減少，對於寬尾鳳蝶的族群造成威脅。  
(B) 有被捕捉的壓力  
(C) 以上皆是

# 國寶蝶 臺灣寬尾鳳蝶 前生今世

History of the Broad-tailed Swallowtail  
(*Papilio maraho*)—Taiwan's National Butterfly



# 寬尾鳳蝶的起源

Origins of the Broad-tailed Swallowtail



大家好，我叫小蝶，  
你知道我的祖先從哪裡來嗎？

Hello, everybody! I'm Little Butterfly.  
Do you know where my ancestors come from?



世界上只有兩種鳳蝶尾突中有兩條翅脈，一種分布在華南，另一種便是臺灣特有的「臺灣寬尾鳳蝶」。研究發現寬尾鳳蝶其實源自美洲，距今約1,800萬年前藉由白令海峽進入亞洲，並與牠的最近緣類群「美洲鳳蝶」開始產生分化。隨後北方氣候變遷，使得寬尾鳳蝶與牠們的祖先分隔在東亞和美洲。

The world has only two species of swallowtail with caudal appendages having two veins; one is distributed in southern China, the other is the broad-tailed swallowtail endemic to Taiwan. Research has discovered that the broad-tailed swallowtail actually originated in America; about 18 million years ago it migrated across the Bering Strait to Asia, where it began differentiating from its closest relative, the American swallowtail. Later on, climate change in the north separated the Asian broad-tailed butterfly from its ancestors in America.

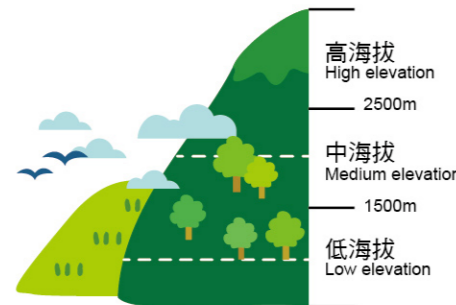
## 我的主食 臺灣檫樹的生態特性

My Diet-The Ecological Characteristic of Taiwan Sassafras (*Sassafras randaiense*)

臺灣檫樹是臺灣寬尾鳳蝶幼蟲的唯一食草，是臺灣稀有的特有植物，在全世界已知的3種檫樹中，是分布最狹隘、數量最稀少者。臺灣檫樹零星分布於海拔1,000到2,000公尺間的山區霧林帶，以北部地區數量較多，因屬陽性樹種，若受其他樹種遮光，會不易開花結實、產生種子，受光微薄也會導致生長狀況不佳而死亡。

然而，若茂密的森林邊出現崩塌、火燒或砍伐地，在動物的幫助下，檫樹的種子、幼株還是能夠在這新生地出現，完成族群更新。

The Taiwan sassafras (*Sassafras randaiense*) is the only source of food for broad-tailed butterfly larvae. The Taiwan sassafras is a rare endemic plant; of the three known sassafras species in the world, it has the narrowest distribution and smallest numbers. It is scattered in the cloud forest belt on mountains at an elevation of 1,000 to 2,000 meters, with the greatest numbers in northern Taiwan. It is a shade-intolerant species, and if shaded by other trees it cannot easily flower, fruit, and produce seeds. Insufficient sunlight leads to weak growth and death, and an inability to compete with shade-tolerant species leads to its elimination from the forest. If a landslide, fire, or logging occurs at the edge of a dense forest, however, sassafras seeds that are spread with the help of animals can sprout and grow in the newly cleared land, resulting in stand regeneration.



溫暖的陽光  
才能使我成長茁壯~  
I need warm sunlight to  
grow big and strong...

一片葉子只產一粒卵!  
Just one egg per leaf!

我長大了!  
I've grown up!

## 我的小時候 幼蟲形態與習性

My Childhood –  
Larval Shapes and Habits

寬尾鳳蝶對於產卵環境的選擇有特別偏好，日照充足的地方為產卵的首選，成蝶產卵於葉片中肋，一至四齡體色為黃褐色，形態與鳥糞相似，終齡幼蟲呈現綠色，會將葉片兩側捲曲增加隱蔽性。

The broad-tailed swallowtail is very particular about its choice of environment for laying eggs. Its first choice is a place with abundant sunlight, where it lays eggs on the midribs of leaves. From the first to fourth instar, the color of the larva is ochre and its shape resembles bird droppings; the last instar, which is green, bends the two edges of its leaf over to keep it better hidden.

我只吃  
臺灣檫樹的葉子  
The only thing I eat is  
Taiwan sassafras leaves.

## 臺灣寬尾鳳蝶的一生

Life Cycle of the Taiwan Broad-tailed Swallowtail (*Papilio maraho*)



我的小時候  
My childhood

## 我長大了 成蟲形態與生態

I've Grown Up –  
Shape and Ecology of Adult Butterflies

雌雄斑紋相似，雄蟲有降落溪床吸水的習性，雌蟲偏好於棲息地訪花飛舞，並尋找合適的產卵環境。

The male and female have similar markings. The male drops into riverbeds to drink, while the female likes to fly around visiting flowers in its habitat—and looking for suitable places to lay its eggs.



## 我們不一樣 寬尾鳳蝶與青帶鳳蝶的卵

We're Different –  
Broad-tailed Swallowtail and Common Bluebottle Eggs

翻找臺灣檫樹的葉片可以找到兩種鳳蝶的卵。寬尾鳳蝶僅在成熟葉片表面之主脈或較粗側脈上產卵。幼葉、芽上之卵粒為青帶鳳蝶所產。可藉產卵部位、卵粒大小及顏色，分辨何者為寬尾鳳蝶的卵。

You can find eggs of two kinds of swallowtails on Taiwan sassafras leaves. Broad-tailed swallowtails lay their eggs only on the midribs or other relatively thick ribs on the surface of mature leaves. Eggs on young leaves and buds are laid by common bluebottles. You can differentiate broad-tailed swallowtail eggs by their location, size, and color.

寬尾鳳蝶  
Broad-tailed Swallowtail  
*Papilio maraho*



比比看 Compare the Two

	寬尾鳳蝶 Broad-tailed Swallowtail	青帶鳳蝶 Common Bluebottle
產卵部位 Egg location	成熟葉片 Mature leaves	幼葉、芽 Young leaves and buds
卵粒大小 Egg size	較大 Relatively large	較小 Relatively small
卵粒顏色 Egg color	● → ●	● → ●

## 我的煩惱 寬尾鳳蝶面臨的問題

All My Troubles – Problems Faced by Broad-tailed Swallowtails

臺灣檫樹因繁殖不易，造成了幼苗不易更新，此情形會導致寬尾鳳蝶能利用的植株及可供產卵的枝葉層減少，對寬尾鳳蝶野外族群數量的維持，有不利的影響。

The Taiwan sassafras does not propagate easily and its seedlings do not grow readily. This limits the amount of trees and leaves that the broad-tailed swallowtail uses for food and for laying eggs, and makes it harder to maintain the population of broad-tailed swallowtails in the wild.