

小蜻蜓 大變身 Little Dragonflies, It's Time to Change!



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引言 Foreword

蜻蜓色彩奪目、飛行迅捷,堪稱「有翅寶石」。牠們不僅出沒在樹林溪流和田野沼澤,也不時現身於市區公園的水池附近。香港多樣化的濕地生境孕育著豐富的蜻蜓物種,至 2024 年為止,共錄得超過 130 種蜻蜓,包括這繪本兩位特別的主角——作為香港蜻蜓物種中首獲發現並記錄的方帶溪蟌、與屬瀕危物種的克氏小葉春蜓。

作為捕食者,蜻蜓有助控制其他昆蟲的數量而在維持生態平衡上佔有不可或缺的 角色;然而,牠們的存活及繁衍需要合適的生境。透過這個輕鬆活潑的故事,大 家能體會蜻蜓充滿冒險的一生、生命周期各階段所面對的變化及挑戰。家長和教 師與年幼讀者一起閱讀此繪本時,可以運用延伸學習活動,了解有關蜻蜓的生態 知識,再走到野外探索香港瑰麗繽紛的蜻蜓世界。

讓我們一同踏上尋寶之旅,從水底到天空,追尋美麗多姿的「有翅寶石」吧!

漁農自然護理署

生物多樣性護理科

Dragonflies are admired as "winged jewels" because of their fabulous colours and swift flight. They can be found in various habitats, including streams in woodlands, farmland and marshes, and even ponds in urban parks. Hong Kong's diverse wetlands have nourished a rich variety of dragonflies. As of 2024, over 130 species of dragonflies have been recorded, including the two main characters in this storybook, the Black-banded Gossamerwing, the first dragonfly species ever recorded in Hong Kong, and the endangered Chinese Tiger.

As predators, dragonflies help control the population of other insects and play an indispensable role in the ecosystem. However, their survival and reproduction depend on suitable habitats. In this lively and engaging story, we are introduced to the adventurous life of dragonflies and various changes and challenges they face during each stage of their life cycle. When parents and teachers read this book along with their young readers, the appended learning activities will inspire more understanding about the ecology of dragonflies, before they accompany their little explorers to the countryside to meet these fascinating creatures.

Let us embark on the treasure pursuing adventure, from underwater to the sky, and discover the world of "winged jewels"!

Biodiversity Conservation Division

Agriculture, Fisheries and Conservation Department

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雖然從異鱲的襲擊中逃脱,但<u>小方</u>不幸撞上 一個大大的汽水罐,損失了兩個寶貴的尾鰓。

Unfortunately, while trying to escape the Predaceous Chub, Fong hit a large soda can and lost two of his precious external gills.

大克上前扶起<u>小方</u>:「你一定感到很痛吧!」 堅毅的<u>小方</u>説:「折損兩個尾鰓總比失去性命好。」 Luke helped Fong to stand up and asked, "Are you okay? That must have been very painful!" Fong was brave and replied, "I'd rather lose two external gills than lose my life." 雨停了,神秘的稚蟲<u>阿晴</u>有點擔心年紀比較小的 大克和<u>小方</u>,便順著水流到下游看看牠們。<u>大克</u>和 小方說:「謝謝你!剛才真的很危險,幸好我們都 成功避開捕食者。」

The rain stopped and the clouds parted. The mysterious dragonfly larva, who later introduced himself as Dave, was worried about Luke and Fong as they were young. Dave decided to follow the river current downstream to check on them. Luke and Fong expressed their gratitude to him, "Thank you! That was really close! Luckily, we managed to escape from the Predaceous Chub."

阿晴 Dave

一起經歷過這次危機,<u>大克、小方</u>和<u>阿晴</u>便成為了 好朋友。

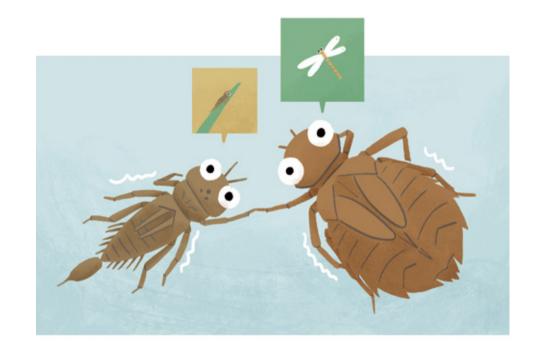
After going through this danger together, Luke, Fong, and Dave became good friends.





幾個月後,<u>阿晴</u>依然沒有回到<u>大克和小方</u>身邊。此時,<u>大克和小方</u>都不約而同地感覺到身體不適。 地們知道自己羽化的時間到了!

Several months had passed and Dave still had not returned to Luke and Fong. Luke and Fong were starting to feel strange themselves. They knew it would soon be their turn to undergo metamorphosis!





大克和<u>小方</u>各自努力地 沿着樹幹和水生植物爬 出水面,時機一到就進 行羽化。



To reach above the water, both of them worked really hard to climb, Luke onto a tree trunk and Fong onto an aquatic plant. Metamorphosis started when the time was right.



羽化為成蟲後,牠們向彼此炫耀美麗的新衣。在山谷中愉快地飛翔時, 大克和小方留意到濕地和河流的污染 好像增加了不少。

While completing metamorphosis and becoming adults, Luke and Fong couldn't resist showing off their gorgeous new outfits to each other. Gliding gracefully through the valley, Luke and Fong noticed that the wetlands and rivers around were getting more polluted.



玉帶蜻説:「我們蜻蜓常站在水邊的 枝頭上守衛著附近的水域,確保有安 全的地方讓伴侶產卵。但水質污染令 合適產卵的水域減少了!為免被其他 蜻蜓搶去我的領域,我要時刻的守衛 著,真的很疲倦呢! The banded dragonfly said,

"Dragonflies like us often stand guard on branches near water. We make sure our mates have a safe and quiet place to lay our eggs. Sadly, water pollution has reduced suitable areas for us! Now I have to keep defending my territory from other dragonflies. It's really exhausting!"





大克和<u>小方</u>一眼便認出紫紅色的蜻蜓就是<u>阿晴</u>!一會後,黃色的蜻蜓離開並在水面上「蜻蜓點水」。

雄 Male

Luke and Fong instantly recognised the purple-red dragonfly of the couple as Dave! After a while, the yellow one departed and skimmed on the water's surface.

雌 Female



久別重逢的三隻蜻蜓回到河溪旁的水池,<u>阿晴</u>説: 「剛才那隻黃色的蜻蜓是我的伴侶! 早前我羽化後 便離開你們,是為了尋找伴侶,繁殖下一代。」

The moment arrived when the three dragonflies could finally reunite. They gathered at a pool along the stream. Dave said, "That yellow dragonfly is my mate! After metamorphosis, I left both of you in search of a partner to reproduce and give birth to my next generation."

阿晴繼續與大克和小方分享之前的經歷,說:「當我還是稚蟲時,曾遇到一個智者——金錢龜。牠說水質污染是人類活動導致的,並非我們動物所能解決,所以我們長大後,只可以努力完成傳宗接代的使命,保護我們的族群。|

Dave continued sharing his stories and experiences with Luke and Fong, saying, "When I was a larva, I met a wise being — the Three-banded Box Turtle. She told me that water pollution is caused by humans that animals can't do much to fix it. However, as we grow, we can help protect our species by having the next generation and continuing the circle of life."



延伸學習活動 - 小小蜻蜓生態學家

Learning Activity - Little Dragonfly Ecologist

小朋友,相信看完《小蜻蜓大變身》的故事後,你們對蜻蜓的認識一定增加了不少。你們可以邀請爸爸媽媽,一起當上小小蜻蜓生態學家,到蜻蜓出沒的地方觀察牠們,並用以下的記錄表,寫出及畫下你們的觀察。

Little readers, now you have learned more about dragonflies from the story "Little Dragonflies, It's Time to Change!", and you can become little dragonfly ecologists! Why not have your parents join you in observing dragonflies by visiting their natural habitats? Use the record sheet below to note down your observations using words or sketches.

地點 Location:

水塘或河溪旁,如城門水塘或獅子會自然教育中心 Place with ponds or streams, e.g., Shing Mun Reservoir or Lions Nature Education Centre

天氣 Weather:

晴朗的早上或下午 Sunny morning or afternoon

月份 Month: 5 月至 10 月 May to October

任務 Mission:

用不少於一分鐘,全神貫注地觀察一隻蜻蜓

Observe a single dragonfly with full attention for at least 1 minute

工具 Tools:

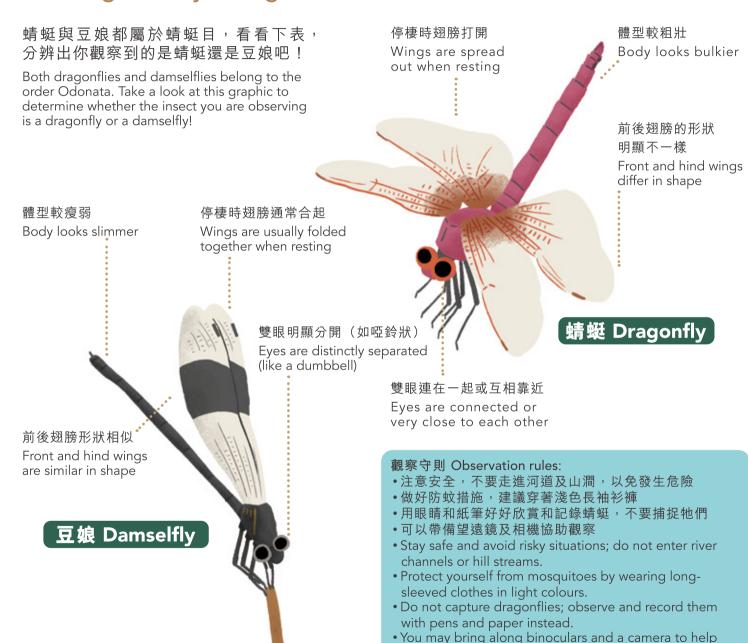
記錄表,筆,顏色筆及望遠鏡(如有)

Record sheet, pen, colouring pens, and binoculars (optional)

記錄表 Record Sheet

觀察者名字 Name of Observer :	畫下你觀察的蜻蜓 Sketch of the Observed Dragonfly:
觀察日期 Date of Observation:	
觀察地點 Location of Observation:	
蜻蜓的顏色 Colour of the Dragonfly:	
物種 Species (蜻蜓 Dragonfly / 豆娘 Damselfly):	
地在做甚麼呢?What is it doing?(如 飛行、停留、進食、 點水等等 E.g., flying, resting, eating, touching water):	
編が寺寺 E.g., Hyllig, lesting, eating, touching water)	

延伸學習活動 - 蜻蜓與豆娘 Learning Activity - Dragonflies vs Damselflies



with your observation.

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延伸學習活動 - 故事彩蛋資料

Learning Activity - Let's look at some fun facts behind the story!

我們平常看見在空中展翅飛翔的蜻蜓、豆娘,只是牠們生命中其中一個階段,牠們一生有不少時間以稚蟲(幼體)的形態生活在水中。牠們可算是非常重要的水生昆蟲呢!細閱以下故事彩蛋,加深對這些昆蟲朋友的了解吧。

Dragonflies and damselflies that we often see soaring in the sky represent only one stage in their life cycles. In fact, they spend most of their time living underwater as larvae (an immature stage). They are very important aquatic insects. Let's learn more about these insect friends from the following fun facts.

香港生物多樣性資訊站 Hong Kong Biodiversity Information Hub



和大家介紹故事角色的真實身份 Introducing the true identities of the story characters



克氏小葉春蜓 Chinese Tiger

瀕危的大型蜻蜓,喜歡停留 在獨立的小樹枝上。

Endangered large dragonfly that often perches on isolated sticks.



Black-banded Gossamerwing 香港首個被發現的蜻蜓物種 常見於溪邊植物和石頭上。

The first dragonfly species recorded in Hong Kong.
Commonly found on plants and rocks beside streams.



曉褐蜻 Crimson Dropwing

小型蜻蜓,雄蟲擁有鮮艷的 紫紅色身軀。

Small dragonfly. The body of the male is bright purplish red.

完全變態? 不完全變態?

Complete metamorphosis? Incomplete metamorphosis?

蜻蜓和豆娘不像蝴蝶那樣需要經過結蛹,方能蜕變成成蟲,因此屬於不完全變態的昆蟲。牠們一生只會經歷三個階段: 卵、稚蟲、成蟲。絕大部分蜻蜓和豆娘的稚蟲生活在水中。

Dragonflies and damselflies are amazing insects that undergo a special kind of transformation called incomplete metamorphosis. Unlike butterflies, they do not need to go through a pupal stage turning from larvae to adults. There are only three stages in their life cycles: egg, larva, and adult. Most dragonfly and damselfly larvae live under water.



如何分辨蜻蜓和豆娘的稚蟲?

How to tell the difference between dragonfly and damselfly larvae?

豆娘的稚蟲腹部最末端有 2-3 根尾鰓,蜻蜓的稚蟲則沒有。豆娘稚蟲依靠體外的尾鰓呼吸,蜻蜓稚蟲則依靠體內的直腸腮來呼吸。故事中<u>小方</u>雖然失去了兩片寶貴的尾鰓,幸好還剩下一片尾鰓可以讓牠呼吸。

Damselfly larvae possess 2 to 3 gills sticking out from the tip of their abdomens, while dragonfly larvae lack these external gills. Damselfly larvae use these external gills to breathe while dragonfly larvae breathe through rectal gills inside their bodies. In the story, Fong has lost two precious pieces of external gills, leaving him with only one external gill for breathing.



豆娘的稚蟲 Damselfly larva



蜻蜓的稚蟲 Dragonfly larva



我是兇猛的捕獵高手! I'm a fierce and skilled hunter!

蜻蜓、豆娘是肉食性的昆蟲,稚蟲階段時,牠們會捕食其他水生生物如蚊子的幼蟲、蝌蚪甚至小魚。稚蟲不擅游泳,故大多會潛伏在泥沙或者水草中靜待獵物游近,然後快速伸出其下唇,捕捉獵物再送進口中進食。

Dragonflies and damselflies are carnivorous (meat-eating) insects that prey on other aquatic organisms, such as mosquito larvae, tadpoles, and small fish during their larval stage. The larvae are not great swimmers and they tend to hide under sand or among aquatic plants, waiting patiently for their preys to swim by. They will launch their labium at their targets, catching and grabbing them back to their mouth to enjoy their meal.



小心,快點逃! Watch out, run!

蜻蜓、豆娘稚蟲亦是許多生物如魚類、兩棲動物和雀鳥的食物。除了捕食者的威脅,在溪流居住的稚蟲還要克服急速的水流。為了生存及適應環境,扁平的身體及良好的保護色有助牠們隱藏於植物的根部、泥沙及石頭底部等,躲避危險。

Dragonfly and damselfly larvae serve as a food source for many fishes, amphibians, and birds. In addition to facing threats from predators, larvae living in streams also need to cope with strong water currents. In order to survive and adapt to the environment, a flat and well-camouflaged body helps them hide among plant roots, sand, and gaps beneath rocks, keeping them away from danger.



蜕變成美麗的成蟲——羽化 Transforming into dazzling adults – Emergence

稚蟲經過漫長的水底生活,當到了蜕變的時刻,牠們會沿著水生植物、樹幹或石頭等爬出水面進行羽化。羽化的時間需要一至數小時,為了避開捕食者,牠們通常在傍晚到清晨時羽化。

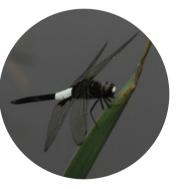
After spending a long period of their lives in water as larvae, when it is time to transform into adults, they climb out of water along aquatic plants, tree trunks, or rocks as a pathway. This emergence process takes about an hour to several hours, typically occurring from dusk to dawn when there are fewer predators around.



空中的飛行霸王 Ace aviators of the sky

蜻蜓、豆娘擁有高超的飛行能力,不但飛行快速, 而且還能做出不同的花式,如在空中急轉、滑翔、向後飛行、定點懸停、垂直升降等。蜻蜓、豆娘的飛行秘訣在於牠們的前翅與後翅並非連結,可以自由拍動,牠們的翅膀結構、飛行模式更啓發了飛行機器的開發。

Dragonflies and damselflies have incredible flying skills. Not only can they reach great speeds, but they can also perform some awesome tricks, such as sharp turns, gliding, reverse flying, hovering, and vertical movements. The secret to their skills is that their two pairs of wings are not connected to each other and can move independently. Their wing structure and mode of flying have inspired the development of some flying machines.



讓我來守護妳! I will protect you!

部份物種雄性的成蟲具領域性,牠們會尋找適合雌性產卵的地點作 為自己的領地。為了保護伴侶不被其他同類搶走,雄蟲會在領地巡 邏飛行或停在水邊的植物上視察領地,並趕走同種的雄蟲。

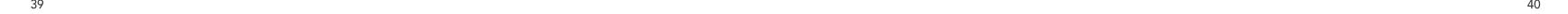
Some adult male dragonflies are highly territorial and will guard spots that are suitable for females to lay their eggs. To protect their partners from being taken by other competitors, these males typically patrol their territory or perch on vegetation on the waterside to inspect their territory. They will fiercely chase away any rivals that come close.



浪漫的心形連結 The romantic heart

蜻蜓、豆娘交尾時,雄性會用腹部末端像鉗子的器官來抓住雌性頭 部後方或前胸,然後雌性將腹部向上舉起與雄蟲連結在一起,構成 心形圖案。交尾可以在定點或是飛行時進行。

During mating, male dragonflies and damselflies use claw-like appendages located at the tip of their abdomen to grasp the back of the female's head or prothorax. The female then raises her abdomen to connect with the male, forming a heart-shaped loop. This mating process can occur while both are stationary or in flight.





原來不止蜻蜓點水?! Not all dragonflies dip their eggs into water?!

相信大家聽過蜻蜓點水是蜻蜓的產卵方法,雌性以腹部點水的方式將卵產入水中。不過部份蜻蜓及豆娘其實還會利用鋒利如鋸、針頭的產卵器割開植物或插入泥沙、土壤之中,將卵產在裡面。

You may have already known that dragonflies lay eggs by dipping their abdomens into water. However, some species of dragonflies and damselflies use sharp, saw-like, or pin-like ovipositors (egg-laying body parts) to cut open plant stems or insert their eggs into sand.

你我都做到!一起保護蜻蜓豆娘朋友! Together, we can make a difference. Let's protect our dragonfly and damselfly friends!



郊遊時保持河溪潔淨,不要污染水源。

● 稚蟲對水質敏感,污染河溪會大大減低牠們的生存機會。

Keep our rivers and streams clean and avoid polluting water sources.

• Larvae of dragonfly and damselfly are sensitive to water quality and water pollution greatly reduces their chances of survival in streams.



幫手撿拾郊野的垃圾,身體力行潔淨環境。

Whenever you spot litter in the wild, pick it up and help keep our environment clean.

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Little Dragonflies, It's Time to Change!

於香港的一條小溪,蜻蜓<u>大克</u>和豆娘<u>小方</u>兩隻稚蟲 在遇上一次危機中結識了新朋友<u>阿晴</u>。不料,有天<u>阿晴</u>竟突然 在大變身後就離開了。不久之後,<u>大克</u>和<u>小方</u>亦開始感到身體有 點「奇妙」,莫非……。到底<u>大克</u>和<u>小方</u>身體發生了什麼變化? 地們還能重遇好朋友阿晴嗎?

> 一起來體驗蜻蜓和豆娘的成長旅程, 了解牠們鮮為人知的一面吧!

Two larvae, Luke the dragonfly and Fong the damselfly, met a new friend named Dave during a crisis at a stream in Hong Kong.

One day, Dave unexpectedly underwent great changes in his body and disappeared! Soon after, Luke and Fong also felt something "strange" happening to their bodies. Would that be...?

What exactly happened to the little two?

Will they ever see Dave again?

Join the journey of the two larvae to discover the hidden secrets of dragonflies and damselflies!

