



2016 虫现风华

A Reborn Journey of Insect Specimens



序

生物標本是自然史的證據，標本和它所記錄的時間與空間資訊，是無法重現或替代的珍貴資產。今日的分子生物技術，還可以從年代久遠的標本中抽取DNA進行比對，不但擴大了標本在分類學上的用途，更有助於演化、保育、外來入侵種等相關研究。生物標本的資訊若能與長期氣象資料結合，必有助於回答氣候變遷的問題，標本的價值也因此超越了傳統的預期。林業試驗所的臺灣森林昆蟲標本館自 2000 年建館以來，成長快速，現已擁有豐富的標本與資訊。本行事曆介紹館藏設施、珍貴稀有或館藏特色的標本，藉由形形色色標本訴說昆蟲百態及背後生動有趣的故事，讓大眾了解此一重要的森林襲產與寶庫。



林業試驗所現存最早的昆蟲標本歷史已超過一世紀之久，惟因人力短缺，當年森林昆蟲標本的數量有限。光復之後，楊英烈、張玉珍等研究人員陸續採集森林昆蟲標本，其中包括咸信已經在臺灣滅絕的大樺斑蝶、大紫斑蝶，及目前政府公告的保育類昆蟲（如臺灣寬尾鳳蝶、臺灣長臂金龜等），這些都已成為林試所昆蟲標本館典藏的珍貴資產。



張玉珍研究員於 1993 年退休，接手的趙榮台研究員將散佚四處的標本集中，著手建立標本的管理系統。在過去 20 年間，趙研究員規劃、建立了一個典藏條件達到國際水準的昆蟲標本館，全面改善了現有之森林昆蟲標本製作及儲藏環境，同時建置了典藏標本的資訊管理系統，一則保障前人累積之珍貴標本與資訊，再者為未來的典藏奠定堅實的基礎，足以長久保存臺灣豐富、寶貴的自然遺產。



標本館內存放的昆蟲標本除了具有分類研究的基本功能，其實還蘊含了許多額外的訊息，等待人們去發掘。比如說，採集籤上記錄的日期與地點，可以歸納出某個採集人的野外旅程，而久遠年代的老標本則同時記錄了人文歷史與環境上的變遷。總而言之，無論是在什麼時間、空間採集的標本，唯有透過完善的標本處理、完整的資訊建置、優質的典藏環境及管理系統，日後才能成為無法替代的資產。每件標本訴說著一個與眾不同的故事，只要標本和資訊得到妥善的保存與管理，隨著知識、技術的演進，這些故事不但不會被人遺忘，而且會越來越精彩。

行政院農業委員會林業試驗所 所長

黃裕星 謹識

2015年11月

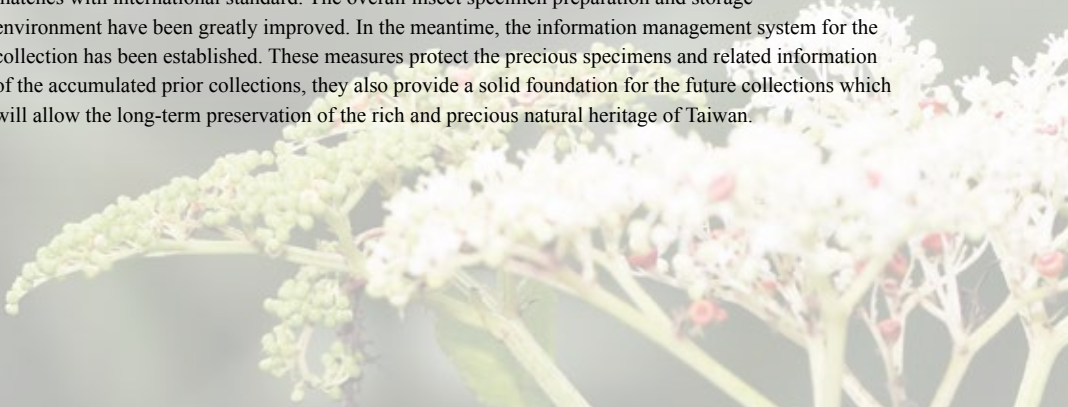
Preface

Biological specimens are evidences of natural history, the specimen and its recorded temporal and spatial information is precious asset not possible to repeat or substitute. With today's molecular biological technology, we can extract DNA from the specimens and make comparisons. This not only broadened the use of specimens in taxonomic study, but also enables studies of evolution, conservation, alien invasive species etc. If information of biological specimens can be linked to long-term climatic information, this will be very helpful toward answering questions of climate changes. Value of the specimens is therefore exceeding their traditional expectations. The Forest Arthropod Collection of Taiwan (FACT) at TFRI grows rapidly ever after its founding in 2000 and is now containing a rich collection of specimens and information. This diary calendar introduces the facilities of the collection, the precious, rare specimens and the ones with special collection significance. Through the presentation of motley assortments of insects, their ever-changing forms and shapes as well as the lively stories hidden behind, we hope to make the public know about this important forest asset and treasure trove.



The earliest insect specimens in the FACT are already more than a century old. However, due to shortage of manpower, the forest insect specimens were quite limited in numbers then. After the retrocession of Taiwan from Japanese occupation, researchers such as Ing-lieh Yang, Yu-chen Chang began the endeavor of collecting insect specimens, included among these monarch butterfly (*Danaus plexippus*) and great crow butterfly (*Euploea phaenareta juvia*) generally believed to be extinct in Taiwan and what the government has designated as endangered insects (such as Taiwan broad-tailed swallowtail (*Agehana maraho*), and Formosan long-armed scarab beetle (*Cheirotonus formosanus*) etc.). These have all become treasured assets under the FACT curatorship.

Senior Researcher Dr. Yu-chen Chang retired in 1993 after a lifelong contribution to the insect collection. Her successor, Senior Researcher Dr. Jung-tai Chao centralized all the scattered insect specimens, and established a management system for the specimens. In the last 20 years, Dr. Chao has planned and set up the FACT with collection conditions that matches with international standard. The overall insect specimen preparation and storage environment have been greatly improved. In the meantime, the information management system for the collection has been established. These measures protect the precious specimens and related information of the accumulated prior collections, they also provide a solid foundation for the future collections which will allow the long-term preservation of the rich and precious natural heritage of Taiwan.





The collection in FACT, in addition to have the basic function of taxonomical research significance, is also imbued with numerous extra information awaiting researchers to further mining. For instance, the recorded dates and locations on the collection labels can be used to deduce the field treks of collectors. Some ancient specimens also witness the cultural, demographic and environmental changes through time. In general, regardless when and where specimens were collected, only through complete specimen preparation, comprehensive information management, and a high-quality storage environment and management systems, can these specimens and information become irreplaceable assets in the future. Each specimen is telling us a unique story, only if the specimen and the accompanying information received good preservation and management. Along with advances and evolution of knowledge and technology, these stories shall not be forgotten but rather become ever more brilliant.



Y. Stan Hwang

Director General, Taiwan Forestry Research Institute

November, 2015

2015

農曆歲次乙未年【羊】

10 October

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

11 November

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

12 December

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

2016

農曆歲次丙申年【猴】

1 January

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

2 February

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29					

3 March

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

4 April

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

5 May

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

6 June

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

7 July

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

8 August

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

9 September

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

10 October

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

11 November

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

12 December

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



寬尾鳳蝶 / 許志遠攝
Broad-tailed swallowtail
Photo by CY Hsu

2017

農曆歲次丁酉年【雞】

1 January

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

2 February

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

3 March

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

4 April

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

5 May

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

6 June

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

7 July

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

8 August

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

9 September

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

10 October

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

11 November

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

12 December

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						



前農委會葛副主任委員錦昭（右二）於 2000 年標本館開幕當天來館參觀
Former Deputy Minister Chin-chao Koh (second from right), Council of Agriculture, visited FACT at its opening in year 2000

林業試驗所的臺灣森林昆蟲標本館（以下簡稱本館）是臺灣最重要的昆蟲標本館之一。本館自 2000 年完工啟用，陸續完成「標本條碼系統」與「資料庫管理系統」，並建立館藏標本的數位化影像。截至 2015 年 10 月為止，典藏已超過 69 萬多份標本以及 8 萬 6 千餘份數位化影像，詳細的資訊可透過網際網路 (<http://fact.tfri.gov.tw>) 獲得。

The Forest Arthropod Collection of Taiwan (FACT) of Taiwan Forestry Research Institute (TFRI) is one of the most important insect collections in Taiwan. Since its opening in year 2000, FACT has established a “specimen barcode system,” a “database management system,” and digitized images of the collection. By October of 2015, the collection holds more than 690,000 specimens and 86,000 digitized images. Detailed information can be accessed from <http://fact.tfri.gov.tw>.

1 January



1
January

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

MON

28
電信節

TUE

29
十九

WED

30
二十

THU

31
受信節

January

FRI

1
元旦

SAT

2
廿三

SUN

3
廿四



本館位於林試所「森林研究大樓」四樓。整個樓層除了標本製作室以及標本研究室外，其餘的典藏空間包括「浸液標本室」與乾燥標本的「永久標本室」與未完成鑑定的「暫存標本室」。標本室多數時間都處於全暗狀態，且有獨立空調，24小時維持 $20 \pm 2^{\circ}\text{C}$ 、RH $55 \pm 5\%$ 的恆溫恆濕狀態，以抑制標本害蟲的發育，並防止標本發霉。

FACT is located at the 4th floor of the 'Forestry Research Building' of TFRI. In addition to the specimen preparation room and study room, the entire floor is mainly occupied by specimen collection. The collection rooms include a room for insects preserved in liquid, a room for unidentified pinned specimens and a room for permanent collection of pinned specimens. All collection rooms are in dark condition and provided with independent air-conditioning to maintain a temperature of $20 \pm 2^{\circ}\text{C}$ and relative humidity of $55 \pm 5\%$ 24 h a day in order to inhibit development of pest and prevent specimen from molding.



1

January

MON

4

廿五

TUE

5

廿六

WED

6

小寒

THU

7

廿八

FRI

8

廿九

SAT

9

三十

SUN

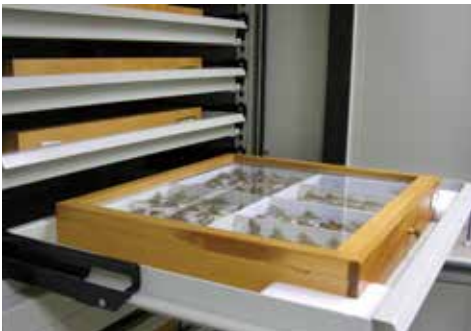
10

十二月小



各標本室均設有活動櫃架，以有效利用典藏空間。每個活動櫃架上置有數十個密閉、可以上鎖，有耐燃、防水、隔離功能的金屬製標本櫃。每一個標本櫃有八個滑動平穩、可以 100% 抽出的抽屜。每一個抽屜放置一個檜木製的標本箱，箱的內緣溝槽放置天然樟腦粉，加上密閉的隔離機制，將蟲菌感染標本的機率降至極低。

Each collection room is equipped with rolling compactor storage shelves that makes collection handling more space efficient and productive. There are dozens of air-tight, lockable, fire-resistant, water-proof and well insulated metal cabinets on each compactor. Each of the 8 roll-out drawers in a cabinet can be withdrew 100% and bear 100 kg loading. In each drawer is a red cypress wood box to hold pinned insect specimens. The inside grooves of the box are dusted with natural camphor powder. This, together with the air-tight barrier property of the cabinet, reduces the risk of pest and fungal infection to its minimum.



1

January



規格化的單位標本盒便於取代、更換，
有助於提升管理效率

The uniform unit trays facilitate
substituting, replacing and enhancement of
management efficiency

11

司法節

MON

12

初三

TUE

13

初四

WED

14

初五

THU

15

藥師節

FRI

16

初七

SAT

17

臘八節

SUN



本館的標本分為乾燥標本、浸液標本和玻片標本。乾燥標本又分為針插標本、紙袋標本和冷凍乾燥標本。針插標本是以不鏽鋼針固定蟲體的標本，體型微小的標本則以三角籤或微針製成針插標本。針插標本至少要附一張採集籤，其上載有標本的採集日期、地點和採集人。

Specimens in FACT include dried specimens, 'wet' specimens (specimens preserved in ethanol) and those mounted on microscope slides. The most common dried specimens are pinned ones. There are regular pinned specimens and small specimens double mounted with minute pins or paper points. Each pinned specimen is attached at least a label containing information such as date, location of collection and the name of the collector.



三角籤針插標本
Double mounted specimen with points



微針針插標本
Double mounted specimen with minute pins



條碼籤 Bar-code label

本館最大特色之一在於所有針插標本及部份浸液標本均附有條碼籤，其所印條碼即為所屬標本的註冊編號。條碼系統有助於快速而準確地管理標本典藏及標本出借、交換等工作。

One of the unique features of the FACT is that all our 160,000+ pinned specimens and a portion of the 'wet' specimens are attached with bar-code labels. The code number is used as the registration number of each specimen. Bar codes are a fast, easy and accurate data entry and retrieving method and it makes collection management easier and much more efficient.

MON

18

初九

TUE

19

初十

WED

20

大寒

THU

21

十二

FRI

22

十三

SAT

23

自由日

SUN

24

十五



紙袋標本 Enveloped specimens

紙袋標本是以四方形的半透明、光滑紙袋，保存乾燥後的蜻蜓或豆娘。冷凍乾燥標本則是以冷凍乾燥處理體表較軟的成蟲或幼蟲標本，以保存其天然體色或自然姿態。浸液標本是指存放在裝有70% - 80% 酒精中的水生昆蟲、小型昆蟲，或體表較軟的昆蟲。小型昆蟲或大型標本的部分器官（例如口器或生殖器）則製成玻片標本。本館目前的浸液標本超過 50 萬份。

Dried specimens of dragonfly and damselfly are preserved in translucent, smooth paper bags. Insects or larva with soft bodies can be freeze-dried to preserve their natural coloration and natural postures. Aquatic insects, small-size insects, or insects with soft bodies are stored in glass vials or bottles containing 70% - 80% ethanol. Small-size insects or body parts of large insects (such as mouthparts or genitalia) are mounted on microscope slides. FACT now holds more than half a million specimens preserved in ethanol.



浸液標本 'Wet' specimens



冷凍乾燥標本 Freeze-dried specimens



玻片標本 Specimens mounted on a microscope slide

1
January

MON

25
尾牙

TUE

26
十七

WED

27
十八

THU

28
十九

FRI

29
二十

SAT

30
廿一

SUN

31
廿二

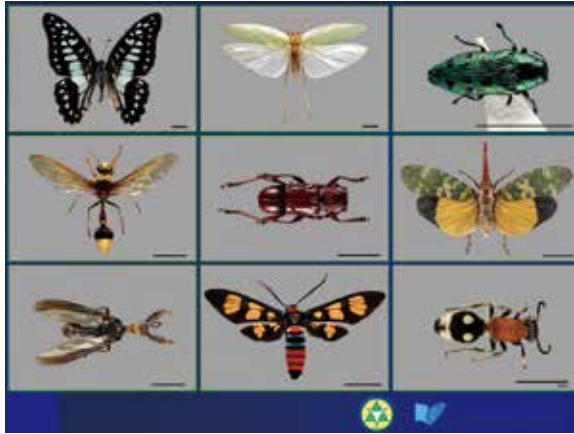


本館自 2005 年起，參與「數位典藏國家型科技計畫」，開始建立典藏標本的數位化影像檔案，標本數位影像檔的建立包括拍攝數位影像、編輯影像、加附尺規、儲存影像、添加浮水印、編撰後設資料等。迄今 (2015) 本館已有八萬多份的高解析度標本數位影像，為全臺灣最大的動物數位影像提供者。

Since 2005, the FACT joined the 'National Digital Archiving Program' to set up a digital image collection. The standard procedure for digital archiving includes taking, editing the images, adding scale bars, store the images, adding watermarks, and draft and edit metadata etc. By 2015, more than 80,000 high-resolution digital images have been produced and FACT is now the largest provider of animal digital images in Taiwan.

2 February

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29					



2

February

February

1

廿三

MON

2

送神 / 世界溼地日

TUE

3

廿五

WED

4

立春

THU

5

廿七

FRI

6

廿八

SAT

7

除夕

SUN



本館「昆蟲標本館資料庫管理系統」的資料結構主要包括採集事件（例如採集地點、採集時間、採集者、棲地資料）和分類（目、科、屬、種等分類階層）資料，還包含標本的數位圖檔、出借與交換記錄等資料表格。資料庫管理系統具有登錄、查詢、資料新增、刪除、修改、列印等功能，並可進行統計分析。

The data structure of the database management system at FACT includes collection events (such as collection location, date and name of the collector) and taxonomic (Order, Family, Genus, Species, etc.) information. Also included are the digital image files and datasets of specimen loans and exchange records. The database management system has functions of data entry, inquiry, adding, deleting, modifying and printing of information etc., as well as statistical analyses.

2

February

8

春節 / 正月大

MON

9

初二回娘家

TUE

10

初三

WED

11

迎神 / 初四

THU

12

開市 / 初五

FRI

13

初六

SAT

14

情人節

SUN



最古老的標本

The Oldest Specimen in the FACT

這隻蕈甲蟲 (Erotylidae) 標本是本館最古老的典藏品，採集於 1910 年，可惜採集人與採集時間均不詳。這類甲蟲以植物和真菌為食，臺灣目前已知有 86 種。

This pleasing fungus beetle (Erotylidae) specimen is the oldest one in the FACT. It was collected in 1910, with no collecting date, by unknown collector. The pleasing fungus beetles feed on plants and fungi, and there are 86 known species in Taiwan.

註：圖內黑色尺標長度均為 1cm

Note: Scale bar equals 1cm

2

February

MON

15
戲劇節

TUE

16
天公生

WED

17
初十

THU

18
十一

FRI

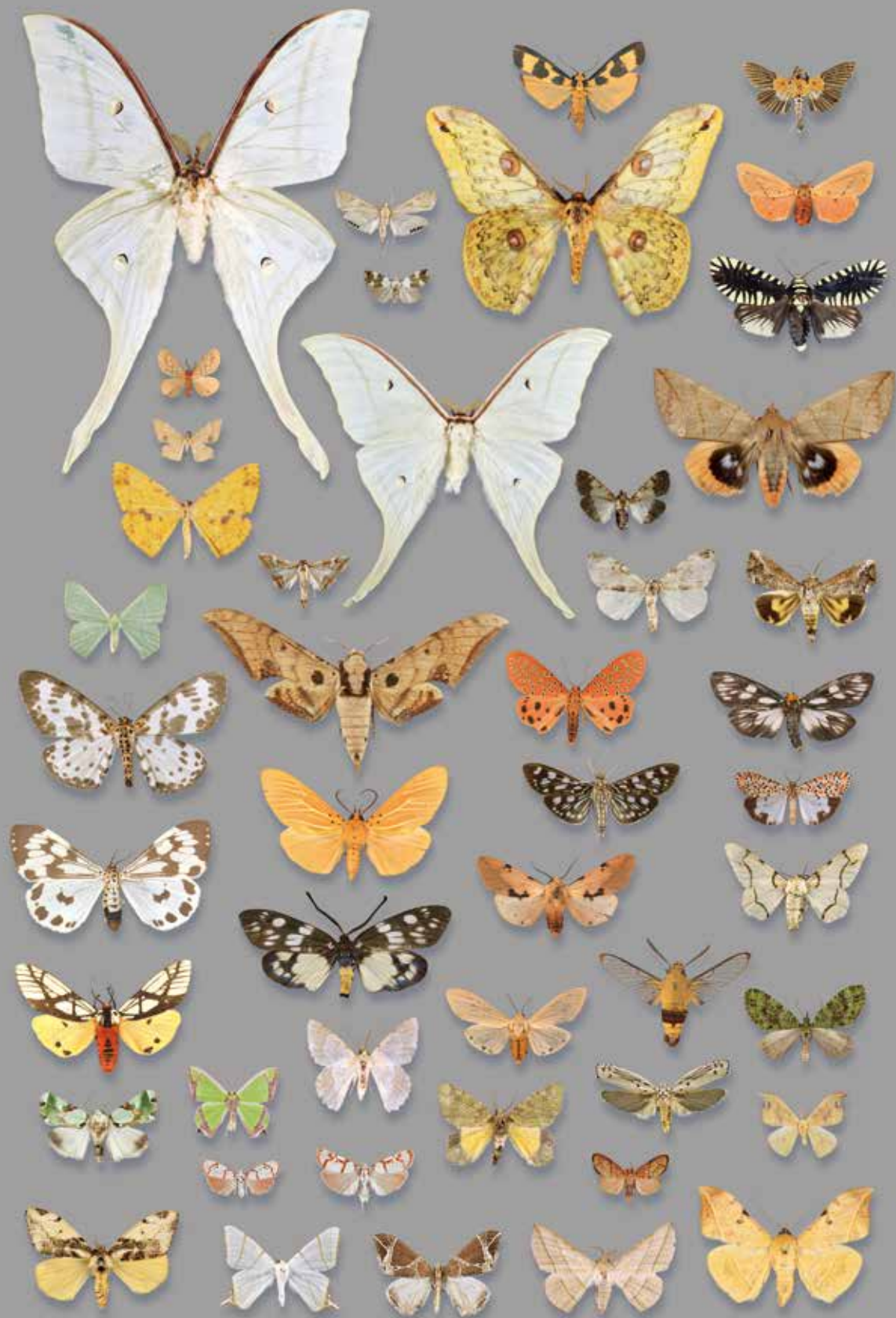
19
雨水

SAT

20
十三

SUN

21
十四



扇平蛾類 Moths of Shanping Work Station, Liouguei Research Center

本館館藏以鱗翅目為大宗，高雄六龜的扇平是臺灣的昆蟲採集聖地，當地蛾類的種類也相當繁多。已故的六龜研究中心主任沈勇強副研究員自 1980 年代後期，就在扇平調查、採集蛾類，並飼養蛾類幼蟲，以了解蛾類和植物的關係。他整理扇平的研究成果，出版了「扇平地區舟蛾科昆蟲生活史之研究」，圖中的蛾類取自他存放在本館的七千餘份標本。

Lepidoptera is the main collection of FACT. Shanping Work Station, Liouguei Research Center of TFRI is a species-rich collecting locality in Taiwan and it has numerous species of moths. The now late Chief of Liouguei Research Center, Associate Researcher Yeong-Chium Sen surveyed and collected moths there in late 1980s. He also reared caterpillars of moths to understand their relationships with their host plants and published a book "Research on the life histories of Notodontidae insects in the Shanping area." The photos shown were excerpted from the 7,000 plus specimens he had deposited at the FACT.

2

February

MON

22

元宵節

TUE

23

十六

WED

24

十七

THU

25

十八

FRI

26

十九

SAT

27

二十

SUN

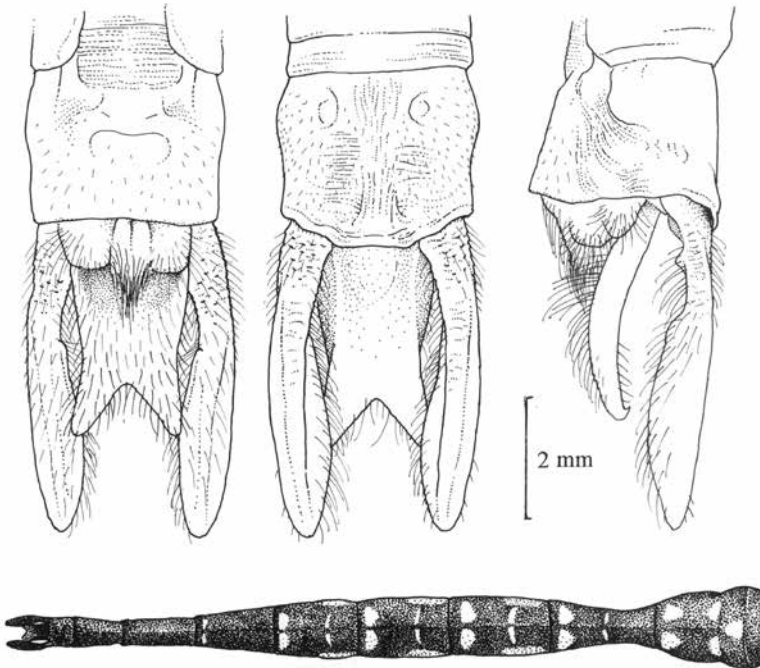
28

和平紀念日

模式標本 Type specimens

當分類學家為一個新的分類群（例如一新種、一新屬，甚或一新科）命名的時候，必須指定「模式標本」，作為日後參考、比對之用。「模式標本」定義了該分類群的特徵，換句話說，一個分類群的學名 (scientific name) 是跟著模式標本走的，凡是和模式標本不一樣的標本，都不能用該模式標本的學名；模式標本一旦遺失，則該模式標本的學名也隨之失效，可見模式標本的重要。物種的學名既然是跟著模式標本走的，模式標本必須小心保存、避免毀損當然就不在話下了。昆蟲的「模式標本」通常會以紅色標籤標示，以別於一般標本白色標籤。

A type is one particular specimen or a group of specimens of a taxon (e.g. a species, genus, or family, etc.) to which the scientific name of that taxon is formally attached. Type serves to anchor the defining features of that particular taxon. Thus, a type is the basis of its nomenclature. In other words, any specimen different from the type specimen cannot be called the same scientific name. If a type is lost, the scientific name becomes invalid and this illustrates the importance of type. Since scientific name of a taxon follows its type, the preservation of type specimens must be extra careful. Type(s) of insects are labeled with red instead of commonly used white label(s).



新種晏蜓副模標本手繪圖（陳一銘繪）

Scientific illustration of a new dragonfly species (by Yi-ming Chen)

3 March

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

本館目前典藏模式標本 267 份，包含正模 20 份，副模 236 份，以及其他模式標本 11 份。這些模式標本主要是鱗翅目的蛾類，其次為蜻蜓目（蜻蜓、豆娘），並有少量的鞘翅目（甲蟲）、半翅目（椿象）、雙翅目（蚊、蠅、虻、蚋）、等翅目（白蛾）昆蟲，以及其他節肢動物（例如蜘蛛）。本館的模式標本大多為針插標本，少數是玻片標本和浸液標本。

The FACT holds a total of 267 type specimens, which include 20 holotypes, 236 paratypes, and 11 other type specimens. These types are mostly moths of the Lepidoptera, followed by Odonata (dragonflies and damselflies), with less number of the Coleoptera (beetles), Hemiptera (true bugs), Diptera (true flies), and Isoptera (termites), and other arthropods such as spiders. Most types in the FACT are pinned specimens, only a few are preserved in ethanol or microscope slide.

MON

TUE

WED

THU

FRI

SAT

SUN

3

March

29
廿二

March

1
兵役節

2
廿四

3
廿五

4
廿六

5
驚蟄

6
廿八



日清晏蜓 *Sarasaeschna lieni* (Yeh & Chen)

Least Bog-hawker

連日清教授是臺灣眾所周知的蚊科分類與預防醫學專家，但較不為人知的是，他也致力於臺灣蜻蜓的調查與研究，並發表過許多相關報告。本所葉文琪與陳一銘先生於2000年發表採自宜蘭縣草埤的新種晏蜓時，便以連氏為種小名，以感念他對作者在蜻蜓研究上的幫助與鼓勵。本種為臺灣特有種，廣泛但零星分布在全島海拔1,000~2,200公尺之間的山區，主要的棲息地是稀有的泥炭蘚沼澤。

Professor Jih-ching Lien is a well-known mosquito taxonomist and expert on preventive medicine in Taiwan. He has also dedicated to the survey and research of the dragonflies of Taiwan and published many papers. When Messrs Wen-chi Yeh and Yi-ming Chen published their new discovery, a darner collected from Tsaopi, Yilan County in 2000, they named it in honor of Prof. Lien as a token of appreciation for the assistance and encouragement rendered to the authors in their dragonflies research. This endemic species of Taiwan, although widely distributed, is scattered in the montane regions between 1,000 and 2,200 m above sea level. The habitat of this species is sphagnum bog that is rare in Taiwan.



日清晏蜓雄蟲 / 葉文琪攝
Male least bog-hawker / Photo by WC Yeh

3
March

MON

7
廿九

TUE

8
婦女節

WED

9
二月小

THU

10
頭牙

FRI

11
初三

SAT

12
植樹節

SUN

13
初五



短鈇晏蜓 *Sarasaeschna kaoi* Yeh, Lee & Wong
Short-tailed Bog-hawker

短鈇晏蜓是最近才發表的新種，目前僅見於東部海岸山脈海拔 1,000 公尺左右的山區沼澤。本種的種小名取自本所因公殉職的高瑞卿先生，以紀念他對於淡水生物及生態研究的不遺餘力，以及對於第二命名者李宜龍先生在學習與研究上的支持與鼓勵。

The Short-tailed Bog-hawker, a recently discovered new species, is only seen in wetland at ca. 1,000 m elevation in the East Coastal Mountain Range. The etymology of the species is to honor Mr. Rui-ching Kao, who died tragically in carrying out official duty, so as to commemorate his relentless dedication in studying fresh water organisms and aquatic ecology, and his support and encouragement of the second nominator Mr. I-lung Lee in his learning and research.



短缺晏蜓雄蟲 / 葉文琪攝
Male short-tailed bog-hawker / Photo by WC Yeh

3
March

MON

14
初六

TUE

15
初七

WED

16
初八

THU

17
國醫節

FRI

18
初十

SAT

19
十一

SUN

20
春分 / 郵政節



白痣珈蟴 *Matrona cyanoptera* Hämäläinen & Yeh
Formosan Jewelwing

白痣珈蟴是一種大型豆娘，全身有琉璃般綠色光澤，加上寶藍色的雙翅，格外引人注目。本種普遍分布在臺灣低海拔山區的溪流，早於 1907 年便被日本學者松村松年報導，但直到 2000 年才由芬蘭珈蟴分類學家 Matti Hämäläinen 博士與本所葉文琪先生共同發表為新種，並確認其特有種的地位。

With an iridescent green glow all over its body, coupled with a jewel-blue wings, the Formosan jewelwing is a large, eye-catching damselfly. The species widely distributes in low-elevation streams of mountainous regions in Taiwan. As early as 1907, Japanese scholar Shonen Matsumura reported the species. However, not until in 2000, a Finnish damselflies expert, Dr. Matti Hämäläinen, and Wen-chi Yeh of TFRI co-published it as a new species, and established it as an endemic species of Taiwan.



白痣珈蟬雄蟲 / 葉文琪攝
Male Formosan jewelwing / Photo by WC Yeh

3

March

MON

21
世界森林日

TUE

22
世界水資源日

WED

23
世界氣象日

THU

24
十六

FRI

25
美術節

SAT

26
廣播節

SUN

27
十九



纖紅蜻蜒 *Sympetrum nantouensis* Tang, Yeh & Chen

Slim Darter

纖紅蜻蜒不但是臺灣特有種，而且僅見於南投縣，因此以南投作為其種小名。本種模式標本的採集地，位於本所蓮華池研究中心轄區邊緣的濕地。棲息地的破壞使纖紅蜻蜒面臨生存壓力，亟需適當的保育措施介入。

The slim darter is a dragonfly endemic to Taiwan, by far only seen in Nantou County, as indicated by its species name. The type of this species was collected from a wetland near Lienhuachih Research Center, TFRI. Habitat destruction is the main threat to the survival of the slim darter, and it urgently needs the intervention of conservation measures.

4 April

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30



纖紅蜻蜓雄蟲 / 葉文琪攝
Male slim darter / Photo by WC Yeh

4
April

28
二十

MON

29
青年節

TUE

30
出版節

WED

31
廿三

THU

April

1
愚人節

FRI

2
廿五

SAT

3
廿六

SUN



效岳圓腰螺贏 *Discoelius wangi* Yamane

Wang's Round-waisted Potter Wasp

日本鹿兒島大學的退休教授山根正氣博士，是胡蜂及螞蟻的分類學家，曾多次造訪臺灣、採集標本，並發表多種臺灣產的新種螺贏，其中包含採自本所六龜研究中心扇平工作站的效岳圓腰螺贏，種小名係紀念該新種的採集者：臺灣省立博物館（即國立臺灣博物館）的王效岳副研究員。王副研究員於退休前，將此雌性模式標本轉贈本館。

Emeritus Professor Seiki Yamane of Kagoshima University, Japan, is a well-known taxonomist of wasps and ants. He visited Taiwan many times, collected specimens and published several new species of potter wasps of Taiwan. Included in his discoveries was one Wang's round-waisted potter wasp collected from the Shanping Work Station of Liouguei Research Center, TFRI, in honor of its collector, Hsiao-yueh Wang, Associate Researcher of the Taiwan Provincial Museum (currently the National Taiwan Museum). Just before his retirement, Mr. Wang donated this type, a female wasp, to FACT.

4

April

MON

4
婦幼節

TUE

5
清明節

WED

6
廿九

THU

7
三月大 / 衛生節

FRI

8
初二

SAT

9
初三

SUN

10
初四



大黃豹天蠶蛾 *Loepa mirandula* Yen, Naessig, Naumann & Brechlin
Great Golden Emperor Moth

大黃豹天蠶蛾是臺灣大型蛾類中相當近期才被確認的特有種，由中山大學生命科學系顏聖紘副教授與其他三位外國學者共同發表。本種普遍分布全島林相完整的中低海拔山區，幼蟲取食獼猴桃科的植物。本館典藏的副模標本共 11 雄 1 雌，其中包括採自本所福山研究中心以及蓮華池研究中心畢祿溪工作站的標本。

The great golden emperor moth is one of the larger endemic moths of Taiwan that received confirmation only recently. It was reported by Associate Professor Shen-horn Yen, Department of Life Science, National Sun Yat-sen University, and three foreign researchers. This species widely distributes in the mid- and low-elevation forests that are relatively undisturbed. The larvae feed on foliage of Actinidiaceae (Chinese gooseberry). In the collection of FACT, there are paratypes of 11 males and 1 female of his species, including specimens collected from Fushan Research Center and Pilushi Work Station of Lienhuachih Research Center, TFRI.

4

April



大黃豹天蠶蛾 / 吳士緯攝

Great golden emperor moth / Photo by S Wu

MON

11

初五

TUE

12

初六

WED

13

初七

THU

14

初八

FRI

15

初九

SAT

16

初十

SUN

17

十一



聖紘沙尺蛾 *Sarcinodes yeni* Sommerer
Yen's Sarcinodes Geometer Moth

聖紘沙尺蛾是臺灣低海拔山區常見的一種尺蛾，過去一直被誤認為形態相似的三線沙尺蛾 (*S. aequilinearia*)。1996 年德國的 Von Manfred Sommerer 博士在比較過印度的標本後，確認臺灣的標本是新種，並以顏聖紘博士的姓氏做為種小名。

Yen's sarcinodes geometer moth is a moth frequently seen in lower-elevation mountainous area of Taiwan. In the past, it was mistakenly considered a morphologically similar three-lined sarcinodes geometer moth (*S. aequilinearia*). However, Dr. Von Manfred Sommerer, in 1996, after comparing it with Indian specimens, confirmed that the Taiwan species was a new species, which he named this new species in honor of Dr. Shen-horn Yen.



聖絨沙尺蛾 / 吳士緯攝
Yen's sarcinodes geometer moth / Photo by S Wu

4

April

MON

18

十二

TUE

19

穀雨

WED

20

十四

THU

21

十五

FRI

22

世界地球日

SAT

23

十七

SUN

24

十八



春彌尺蛾 *Arichanna vernalis* Fu & Sato
Spring Geometer Moth

春彌尺蛾主要分布於臺灣中高海拔的針闊葉混合林，成蟲在早春的 2~4 月出現。發表者之一的傅建明先生，是已退休的小學老師，也是臺灣知名的蛾類分類專家，他在臺灣許多地區進行蛾類相調查，並與國內外學者共同發表了許多新種蛾類。本館典藏春彌尺蛾副模標本兩隻，均採自福山研究中心。

The spring geometer moth mainly distributes in conifer-broadleaf mixed forests in mid- to high-elevation mountainous regions of Taiwan. The adult moths often appear in early spring during February to April. One of the discoverers, Mr. Chein-ming Fu, is a retired elementary school teacher and a well-known moth taxonomic expert. He has surveyed moth in different area of Taiwan and published many new moth species with domestic and foreign scholars. There are two paratypes of this species in the collection of FACT, both were collected from Fushan Research Center, TFRI.

5 May

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				



春彌尺蛾 / 吳士緯攝
Spring geometer moth / Photo by S Wu

5
May

MON

25
十九

TUE

26
二十

WED

27
廿一

THU

28
廿二

FRI

29
媽祖生

SAT

30
廿四

SUN

May
1
勞動節



榮台冬夜蛾 *Cucullia jungtaichaoi* Ronkay & Ronkay
Chao's Noctuid Moth

匈牙利自然史博物館的 László Ronkay 博士是國際知名的夜蛾分類權威，在該館與本所於 1999 年開始合作進行的研究計畫「大鱗翅群蛾類相之生物多樣性研究」期間，曾多次造訪臺灣，採集、檢視蛾類標本，並在本所客座，從事短期研究並協助鑑定本館上萬份的標本。Ronkay 博士於 1999 年的第一篇相關報告中發表了新種榮台冬夜蛾，以感謝本所的合作者趙榮台研究員，新種的模式標本係由已故的張玉珍研究員所採集。

Dr. László Ronkay of the Hungarian Natural History Museum (HNHM) is a world authority on noctuid taxonomy. The HNHM collaborated with TFRI, beginning in 1999, in a research project "Biodiversity studies on the Macrolepidoptera fauna of Taiwan". Dr. Ronkay visited Taiwan several time since then to collect moths and check specimens. He was also invited as visiting scientist at TFRI for short-term research and helped identify more than ten thousands specimens to species level. Dr. Ronkay, in 1999, described a newly recognized species in honor of his collaborator Dr. Jung-tai Chao of TFRI. The type of this species was collected by the late Senior Researcher Yu-chen Chang.

5

May

MON

2

廿六

TUE

3

廿七

WED

4

文藝節

THU

5

立夏 / 舞蹈節

FRI

6

三十

SAT

7

四月小

SUN

8

母親節



細條斑深山豔苔蛾及粗條斑深山豔苔蛾 *Lyclene wenchiyehi* Wu, Fu and Chang,
L. yimingcheni Wu, Fu and Chang

Thin-striped Mountain Footman Moth and Broad-striped Mountain Footman Moth

吳士緯博士是臺灣夜蛾類的分類學專家，目前服務於中央研究院生物多樣性研究中心，修習博士期間曾協助整理、鑑定本館的蛾類標本。他於 2013 年出版的「合歡山的蛾」一書中，與傅建明老師、張維君小姐共同發表了許多新種蛾類，其中細條斑深山豔苔蛾及粗條斑深山豔苔蛾的模式標本均存放於本館，部份採用的模式標本係森林保護組於 2007~2008 年之間，執行森林動物相多樣性調查時，在南投縣楠梓仙溪林道所採集的標本。

Dr. Shipher Wu is a taxonomic expert on noctuid moth, currently working at the Biodiversity Research Center, Academia Sinica. When he was a Ph.D. candidate, he had assisted in sorting and identifying specimens of the moth collection of FACT. Dr. Wu, Mr. Chien-ming Fu, and Ms. Wei-chun Chang published many new moth species in a 2013 book entitled “Moths of the Hehuanshan.” Among them, the types of *Lyclene wenchiyehi* and *L. yimingcheni* are deposited in FACT. Some types were collected at Nantseshianshi logging road when research staff of Division of Forest Protection carrying out their forest fauna survey from 2007 to 2008.



細條斑深山豔苔蛾 / 吳士緯攝
Thin-striped mountain footman moth / Photo by S Wu
MON

5

May

9

初三

TUE

10

珠算節

WED

11

初五

THU

12

護士節

FRI

13

初七

SAT

14

浴佛節

SUN

15

初九



文伯小瓢蜣螂 *Haroldius hwangi* Masumoto, Lee & Ochi
Hwang's Least Dung Beetle

文伯小瓢蜣螂是極小的一種糞金龜，體長僅 2.6mm，是農業試驗所應用動物組的李奇峰博士與另兩位日本學者於 2005 年共同發表的新種，種小名來自採集者，即目前任教於臺南大學生態科學與技術學系的黃文伯副教授。黃副教授的專長是食屍性昆蟲的行為與生態，他於德國攻讀博士學位時，回國執行野外調查與資料收集，曾於當時森林保護系短期工作，協助野外調查並鑑定本館典藏的鞘翅目標本。新種的模式標本採自本所福山研究中心。

Hwang's least dung beetle is an extremely minute scarab beetle, with body length of merely 2.6 mm. It was co-published as a new species in 2005 by Dr. Chi-feng Lee, Applied Zoology Division, Taiwan Agricultural Research Institute with two Japanese scholars. The species namesake was from the collector, Associate Professor Wenbe Hwang, presently an Associate Professor at the Department of Ecoscience & Ecotechnology, National University of Tainan. Dr. Hwang's specialty is the behavior and ecology of carcass-eating insects. While pursuing his Ph.D. degree in Germany, Dr. Hwang returned to Taiwan for his field work and data collection, worked at the Division of Forest Protection, TFRI and helped identify some beetle collection of FACT. The type specimens of the new species were collected from Fushan Research Center, TFRI.

5

May

MON

16

初十

TUE

17

十一

WED

18

十二

THU

19

十三

FRI

20

小滿

SAT

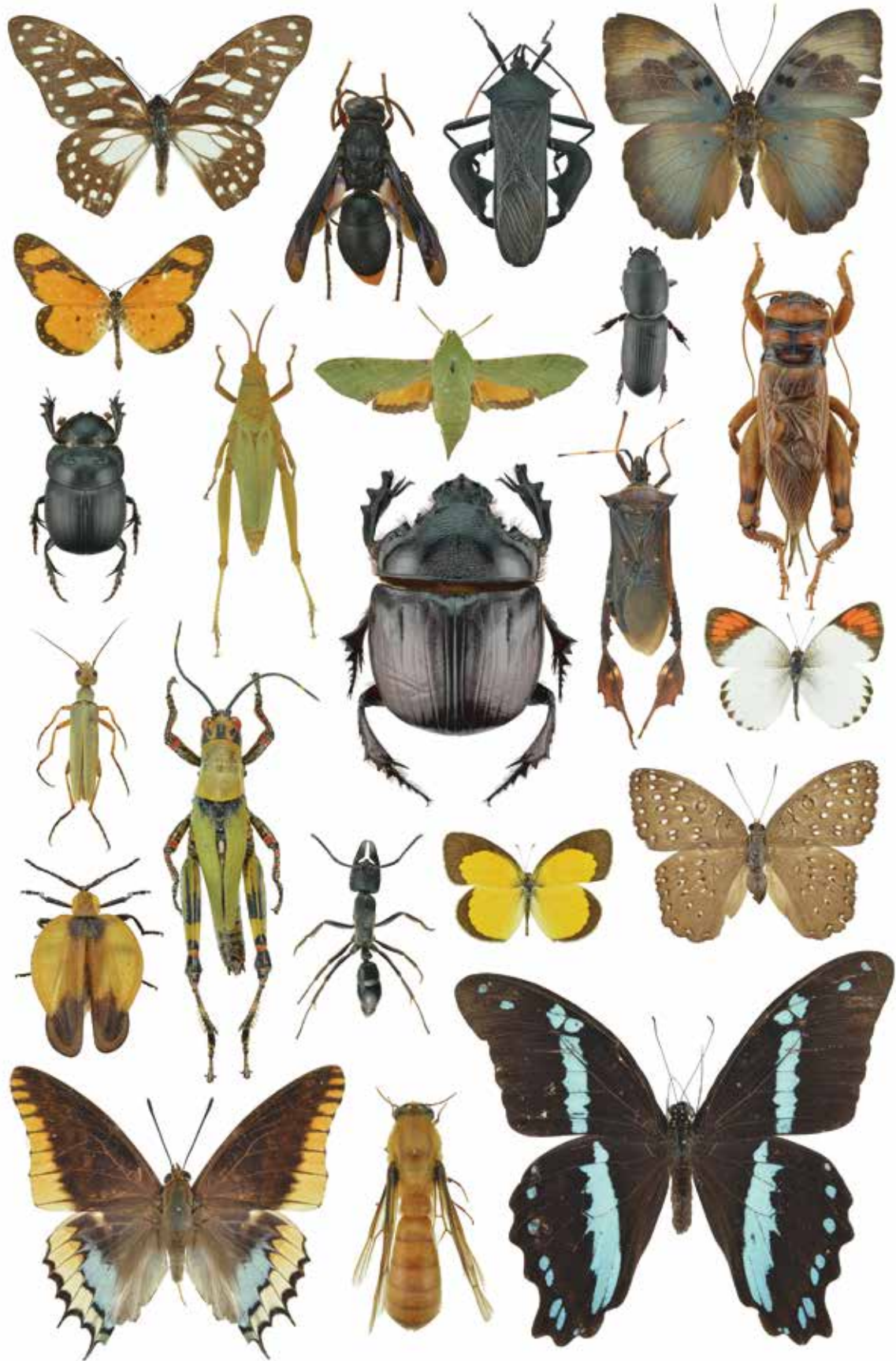
21

十五

SUN

22

國際生物多樣性日





塞內加爾的昆蟲 The Insects of Senegal

5
May

這批珍貴標本是早期於本所服務的蕭建軍先生所捐贈，標本是他本人參與國際合作發展基金會的海外志工團，遠赴塞內加爾兩年生活期間所採集。

These valuable specimens were donated to FACT by Mr. Chien-chun Hsiao who worked at TFRI for several years in the past. The specimens were collected by him while he joined Taiwan ICDF Overseas Volunteer Service and worked in Senegal for two years.

MON

23
十七

TUE

24
十八

WED

25
十九

THU

26
二十

FRI

27
廿一

SAT

28
廿二

SUN

29
廿三

昆蟲故事館

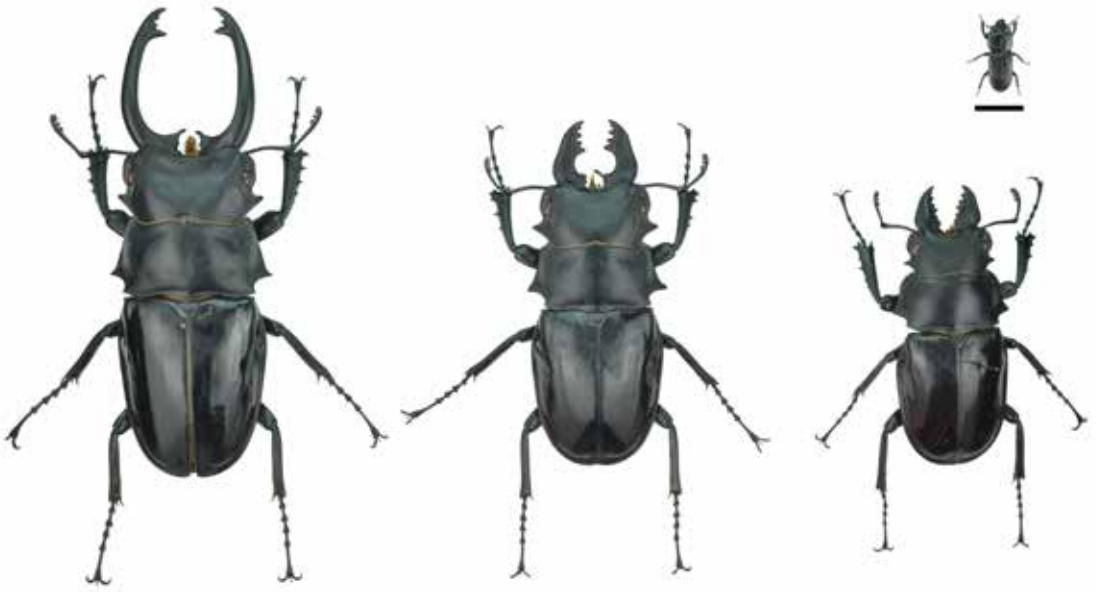
A storybook of bugs

標本館內典藏的昆蟲標本除了基本的分類研究功能之外，還附帶了許多重要的資訊。比如說，採集籤上記錄的日期、地點，可以歸納出採集者的野外旅程，而久遠年代的標本則可以反映環境或人文歷史的變遷。其實，每一個標本的背後都有一段精彩的故事，與標本相關的資訊越豐富，標本所能訴說的故事就越生動有趣。暗室的標本於是呈現了靜態版的自然舞台。

The specimens collected in FACT are basically used for taxonomy research. However, additional important information is attached to the specimens. For instance, the dates, locations recorded on the labels can be used to deduce the field treks of the collectors; whereas labels of ancient specimens could often reflect the changes in environment, cultural and history at that time. As a matter of fact, there is an interesting story behind each specimen. The more the information with the collected specimen, the more stories you can have to share with others. Cold specimens in our eyes are actually nature narratives.







鬼艷鍬形蟲 *Odontolabis siva parryi* Boileau
Ghost Stag Beetle

昆蟲界的格鬥高手，雄蟲體長 40-92 mm，大顎有大、中、小型，彼此常為爭奪地盤及雌蟲互相大打出手。臺灣特有亞種，生活於低、中海拔山區，尤其是柑橘園。

The ghost stag beetle is a gladiator of the insect kingdom. The male body length ranges from 40 to 92 mm. The species show 3 mandible types: long, medium, and short. The male often wrestle with other males over territory and females. The ghost stag beetle is an endemic species of Taiwan and lives in low- and mid-elevation mountainous areas, especially in orange orchard.



鬼艷鍬形蟲 / 許志遠攝
Ghost stag beetle / Photo by CY Hsu



矮鍬形蟲 *Figulus binodulus* Waterhouse
Dwarf Stag Beetle

鍬型蟲中的小不點，體長不超過 17 mm，分布於臺灣低、中海拔山區，成蟲與幼蟲住在一起，且有相當程度的社會性。

The Asian stag beetle is a dwarf among the stag beetles, with body length no longer than 17 mm. It distributes in low- and mid-elevation mountainous areas of Taiwan. The adults and larvae live together and show a level of sociality.

6 June

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

人們除了驚訝於昆蟲外形的千奇百怪，也對昆蟲的大小感到好奇。昆蟲體型上的差異，一再顛覆人們對昆蟲世界的想像。同一家族的昆蟲在體型上的差異可以從成人與侏儒的對比到巨人與幼兒的對比。

One may be fascinated by the various shape and form of insects as well as their size differences. The striking size differences in insects are far beyond our imagination. The insects of the same family may differ in size only like normal adults versus dwarfs, but sometimes it could be like giants versus babies.

6

June

MON

30

廿四

TUE

31

廿五

WED

June

1

廿六

THU

2

廿七

FRI

3

禁煙節

SAT

4

廿九

SUN

5

五月小 / 芒種



臺灣熊蟬 *Cryptotympana holsti* Distant
Taiwan Holst Cicada

常見於平地至低海拔山區，體長 45-52 mm，翅前半部黑褐色，後半部透明，在夏日不斷發出「下、下、下」的聲音。一生大多在地底下度過，成蟲生活只有 2-3 週。

Taiwan holst cicada is a common large insect in plain and hilly areas of Taiwan. The body length ranged from 45 to 52 mm. The wings are transparent but dark at the front. This species has a loud chirp “sha-sha-sha” in summer days. Most of its life spends underground, and adults only live for 2 to 3 weeks..

草蟬 *Mogannia hebes* Walker
Grass Cicada

草叢中常見的小型蟬，體長 13-15 mm，有綠色、黑色、黃褐色、綠褐色等體色變化。叫聲為清脆悅耳的「ㄇ - ㄇ - ㄇ -」，普遍分布於平地至低海拔山區。

The grass cicada is a small cicada often seen among tussocks. The body length is 13 to 15 mm, often with green, black, yellow-brown, and green-brown variations in coloration. The song of grass cicada is a crispy “tse-tse-tse” sound. It also distributes in plain and hilly areas of Taiwan.



臺灣熊蟬 / 葉文琪攝
Taiwan holst cicada / Photo by WC Yeh

6
June

MON

6
工程師節

TUE

7
初三

WED

8
世界海洋日

THU

9
端午節 / 鐵路節

FRI

10
初六

SAT

11
初七

SUN

12
初八



無霸勾蜓 *Anotogaster klossi* Fraser
Giant Spiketail

臺灣最大的蜻蜓，體長可達 115mm。成蟲複眼鮮綠色，身體以黃黑配色為主。分布全臺低、中海拔山區，雄蟲領域性強，常在流水處低空飛翔巡弋。

The giant spiketail is the largest dragonfly in Taiwan. The body length can reach 115 mm. The compound eyes of the adult are vivid green, and the body is in black with yellow bands. It distributes in the low to mid-elevation mountainous areas of Taiwan. The males are strongly territorial and often cruise around small bodies of flowing water.



小紅蜻蜓 *Nannophya pygmaea* Rambur
Scarlet Dwarf

不但是臺灣最小，也是全球最小的蜻蜓，體長僅 18mm。雄蟲鮮紅色，雌蟲黑褐色，有黃白色斑相間。在臺灣是稀有種，只出現在泥炭蘚形成的沼澤地。

The scarlet dwarf is not only the smallest dragonfly in Taiwan, but also the smallest in the world. It has body length of only 18 mm. The male is scarlet red and the female black brown with yellow-white splotches. It is a rare species in Taiwan and is only found in sphagnum bog.

6

June



小紅蜻蜓雄蟲 / 葉文琪攝
Male scarlet dwarf / Photo by WC Yeh

MON

13

初九

TUE

14

初十

WED

15

警察節

THU

16

十二

FRI

17

十三

SAT

18

十四

SUN

19

十五



皇蛾 *Attacus atlas formosanus* Villiard
Atlas Moth

臺灣最大的蛾類，也是世界最大的蛾類，展翅 25-30 公分。前翅端部花紋如蛇頭，故又稱「蛇頭蛾」。分布於臺灣中低海拔山區。絲質堅韌，蛹繭可改製為小錢包。

The atlas moth is the largest moth in Taiwan, and also one of the world's largest moths, with a wingspan up to 30cm. The apical extension of forewings of this saturniid resembles a snake head, hence the moth is also called snakehead moth. It distributes in mid- and low-elevation mountainous areas of Taiwan. Silk of the moth is quite tough, and the cocoons can be made into small purses.

姬長尾水青蛾 *Actias neidhoederi* Ong & Yu
Lesser Long-tailed Luna Moth

臺灣最小的天蠶蛾，翅展 6-7 公分。長尾水青蛾最明顯的特徵就是後翅的長尾突。成蟲沒有口器，因此羽化後最多只能活一星期。本種棲息於中高海拔山區，數量甚少，是 1968 年發表的新種，又稱木生長尾水青蛾。

The lesser long-tailed luna moth is the smallest saturniid in Taiwan, with a wingspan of only 6 to 7 cm. The most prominent feature of this genus is the long extensions on their hindwings. Adults have no mouthparts and can only live for a week after emergence. This rare species is found in mid- to high-elevation mountainous area of Taiwan. It was recognized as a new species in 1968 and is also called Muh-sheng long-tailed luna moth.

6

June



皇蛾 / 葉文琪攝

Atlas moth / Photo by WC Yeh

20

十六

MON

21

夏至

TUE

22

十八

WED

23

十九

THU

24

二十

FRI

25

廿一

SAT

26

廿二

SUN



猩紅蜻蜓 *Crocothemis servilia servilia* Drury
Oriental Scarlet

猩紅蜻蜓是水田常見的昆蟲，雄蟲一身血紅的體色，是牠們名稱最好的寫照；這樣鮮明的顏色，雖然可以吸引雌蟲，卻也容易引起捕食者的覬覦。相反的，雌蟲卻是遍體黃褐色，在枯黃的草叢中，一點也不顯眼，方便躲開捕食者。

The oriental scarlet is a dragonfly often seen around rice paddies. The males are characterized by their bright scarlet red coloration. Though the brilliant coloration may be attractive to females, it also put males at greater risk of predation. By contrast, the females are yellow-brown and blend in perfectly with dried grasses that predators simply overlook them.



猩紅蜻蜓雄蟲 / 葉文琪攝
Male oriental scarlet / Photo by WC Yeh

7 July

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

雌雄異型 Sexual Dimorphism

同一物種的雌性和雄性通常擁有相似的外形，但是當兩性之間的外表差異明顯時，我們稱其為雌雄異型。

The females and males of the same species often have similar appearances. However, when the appearances of the 2 sexes showed significant differences, we call this phenomena “sexual dimorphism.”

7

July

MON

27

廿三

TUE

28

廿四

WED

29

廿五

THU

30

會計師節

FRI

July

1

漁民節

SAT

2

廿八

SUN

3

廿九



雌 (Female)



雄 (Male)

雌黃粉尺蛾 *Eumelea ludovicata* Guenee

Yellow Geometer Moth

常見於低海拔山區的雌黃粉尺蛾是另一種以雌蟲外形取名的昆蟲。雌蛾的翅為黃色，前翅後緣及後翅前緣有褐色斑，而雄蛾的翅則呈鮮豔的橙紅色且沒有黑斑。

The yellow geometer moth (*Eumelea ludovicata* Guenee), often seen in hilly areas of Taiwan, is another species that its Chinese name literally indicates female features. The wings of the female are yellow, with brown spots on the rear edge of forewings wings and the front edge of hindwings. The wings of the male, on the other hand, are bright orange-red without any spots.



雌黃粉尺蛾雄蟲 / 葉文琪攝
Male yellow geometer moth / Photo by WC Yeh

7

July

4

六月大

MON

5

初二

TUE

6

合作節

WED

7

小暑

THU

8

初五

FRI

9

初六

SAT

10

初七

SUN



獨角仙 *Allomyrina dichotoma tunobosonis* (Kono)

Rhinoceros Beetle

獨角仙雄蟲頭頂著一支長犄角，是護衛領土時互相爭鬥時的主要武器。雌蟲則沒有犄角，很容易與雄蟲區分。獨角仙是郊區常見的大型甲蟲，喜歡在光蠟樹上吸食樹液。

Males of the rhinoceros beetle bear a long horn which they use as the main weapon to fight against other males over territories. Females of the species bear no horn and are easily differentiated from the males. This large beetle is a common species in rural area of Taiwan. The adults like to feed on the sap of ash tree (*Fraxinus formosana* Hayata).



獨角仙雄蟲 / 葉文琪攝
Male rhinoceros beetle / Photo by WC Yeh

7

July

MON

11
航海節

TUE

12
聾啞節

WED

13
初十

THU

14
十一

FRI

15
十二

SAT

16
十三

SUN

17
十四



雌紅紫蛺蝶 (雄)
Male danaid eggfly



雌紅紫蛺蝶 (雌)
Female danaid eggfly



琉球紫蛺蝶 (雄)
Male great eggfly



樺斑蝶 (雄)
Male plain tiger

臺灣的蝴蝶家族雌雄異型異的案例不少，普遍分布於平地及低海拔山區的雌紅紫蛺蝶 (*Hypolimnas misippus* Linnaeus) 就是最好的代表：雄蝶翅面以黑褐色為主，上有4枚帶著藍暈的大白斑，與相近種琉球紫蛺蝶類似，而雌蝶則模仿為毒、橘紅色的樺斑蝶，因而中名稱之為「『雌紅』紫蛺蝶」。

Cases of sexual dimorphism in butterflies are not uncommon, as represented by the danaid eggfly (*Hypolimnas misippus* L.), a widespread species in plain and hilly areas of Taiwan. Male eggflies are blackish with 4 distinctive white spots that are fringed in blue and are very similar to their close relative, the great eggfly (*H. bolina*). Female danaid eggflies mimic the brownish orange plain tiger (*Danaus chrysippus*) that is unpalatable (poisonous). This is why the Chinese name of this species literally means “female-red purple danaid.”



雌紅紫蛺蝶雄蟲 / 曹美華攝
Male danaid eggfly / Photo by MH Tsao

7

July

MON

18

十五

TUE

19

十六

WED

20

十七

THU

21

十八

FRI

22

大暑

SAT

23

二十

SUN

24

廿一



虻
Hoverfly



虎頭蜂
Hornet



虻
Hoverfly



蜾蠃
Potter wasp

貝氏擬態 (Batesian mimicry) 說穿了就是驢蒙虎皮，例如有螫的胡蜂和蜜蜂通常以對比強烈的明顯色彩（通常是黑色與黃色）或條紋警告捕食者，許多虻類（食蚜蠅）模仿胡蜂的黑色、黃色和條紋，使捕食者誤以為牠們也是有螫的蜂類，因此躲過捕食的威脅。還有一些虻類長著蜾蠃般細長的腹柄，幾可亂真。

The Batesian mimicry is, in short, “donkey wearing a tiger skin.” In the insect kingdom, stinging wasps and bees use contrasting, conspicuous and bright colors (often black and yellow) as a warning signal to predators. The harmless hoverflies mimic the black and yellow stripes of wasps to trick predators into avoiding them because of the risk of stinging. Other hoverflies mimic the long petiole (waist) of potter wasps and it is just good enough to pass for genuine.



擬態胡蜂的食蚜蠅 (*Ceriana* sp.) / 葉文琪攝
A wasp-mimicking hoverfly / Photo by WC Yeh

7

July

MON

25
廿二

TUE

26
廿三

WED

27
廿四

THU

28
廿五

FRI

29
廿六

SAT

30
廿七

SUN

31
廿八



「蜂」情萬種 Fascinating Bees and Wasps

蜂和蟻是膜翅目昆蟲的一般統稱，全世界有超過 15 萬種膜翅目昆蟲（包括蜂和蟻），它們的共同特徵是有膜質的翅，且前翅與後翅以一排鉤子相連。有些蜂是重要的授粉者，如蜜蜂與熊蜂；有些是敏捷的捕食者，如胡蜂與蜾蠃；而膜翅目昆蟲中種類最多的則是各類寄生蜂。

Bees, wasps and ants are general terms for Hymenoptera order. Worldwide there are more than 150,000 species of hymenoptera insects, their common features are membranous wings, and the front and hind wings have a line of hooks linking them together. Some bees are important plant pollinators, such as honey bees and bumble bees, some are agile predators, such as hornets and potter wasps and the most abundant hymenoptera insects are parasitic wasps.

8

August

August

MON

1

廿九

TUE

2

三十

WED

3

開鬼門 / 七月小

THU

4

初二

FRI

5

初三

SAT

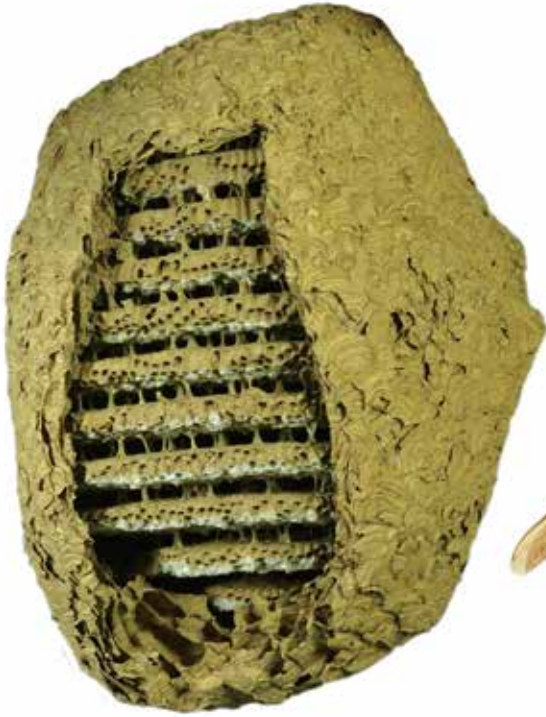
6

初四

SUN

7

立秋



虎頭蜂 Hornets

臺灣的胡蜂科中有 9 種虎頭蜂 (*Vespa* spp.)，巨大的頭部與強韌的大顎是牠們最明顯的特徵，尾部的螫針則是牠們的防衛利器，人畜遭螫時有所聞，令人聞「蜂」喪膽。虎頭蜂蜂窩的建材多取自樹皮，蜂窩外形多為圓形、橢圓形或雞籠形，由包覆的外殼及內部的多層巢脾組成，上下巢脾間則由許多柄相連，巢脾有許多蜂室，是卵、幼蟲、蛹發育的處所。

Of the vespids in Taiwan, there are nine hornet (*Vespa* spp.) species. Hornets are characterized by their large heads and strong mandibles. In addition, they possess stings in the tails as their powerful defensive weapon. Frequent media reports on human and livestock being stung by hornets make people feared even by hearing of hornets. The building materials of hornet nest are often chewed from tree barks. The shape of the hornet nests is mostly round, oval or that of chick coops. The nest consists of an envelope and multi-layered combs inside. The upper and lower are linked with petioles. Each comb has many cells where eggs, larvae and pupae develop.



黑絨虎頭蜂蜂窩 / 葉文琪攝

Nest of hornet *Vespa basalis* Smith / Photo by WC Yeh

本館目前蒐藏以鱗翅目的蝶、蛾昆蟲為主，其次便是膜翅目的胡蜂科種類及其蜂窩。有些胡蜂會在住家周圍築巢活動，以及防衛性的攻擊行為，讓人們對於這個在臺灣種數不到一百的小家族的印象也特別深刻。

At present, collection of the FACT is dominated by butterflies and moths (Lepidoptera), followed by the vespids (Hymenoptera) and their nests. Some vespid species build their nests on or around human buildings and in some cases pose threat to human safety. This explains why people in Taiwan are impressed by this small family with less than 100 species.

8

August

8

父親節

MON

TUE

9

七夕情人節

WED

10

初八

THU

11

初九

FRI

12

初十

SAT

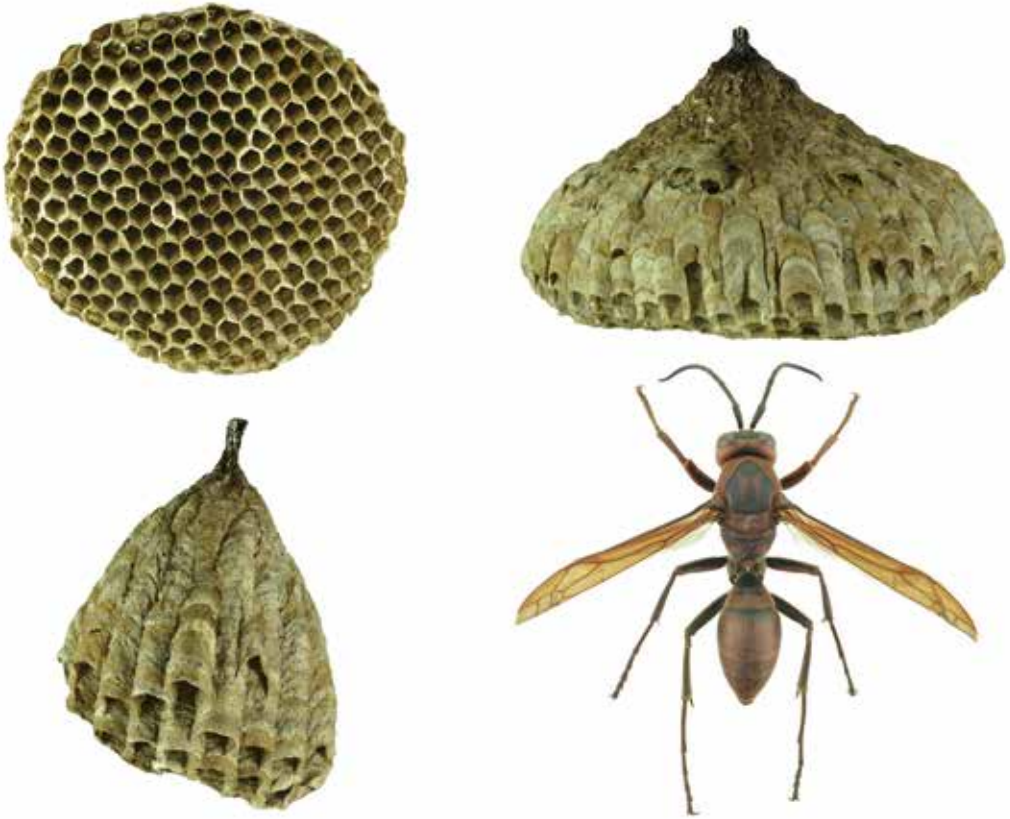
13

十一

SUN

14

空軍節



馬蜂 Paper Wasps

馬蜂 (*Polistes* spp.) 又稱為長腳蜂，大概是因為牠們細長的後足而得名。馬蜂的蜂窩沒有外殼，只有一層巢脾，常見蜂窩的形狀為鐘狀或蓮蓬狀，大多築於樹叢、洞穴或建物上。蜂窩頂部具細柄連接支撐物，巢脾通常僅由數十至百餘個蜂室組成。

Paper wasps (*Polistes* spp.) are often called long-legged wasp in Chinese, probably because of their thin, long hind legs. The nests of paper wasps do not have envelopes and there is only one layer of comb. These nests are mainly bell- or shower head-shaped and are mostly seen in bushes, caves, or buildings. On top of the nest is a pedicel attached to substrate. The comb is consisted of dozens to a hundred plus cells.

8

August



褐馬蜂蜂窩 / 葉文琪攝

Nest of paper wasp *P. tenebricosus* / Photo by WC Yeh

15

十三

MON

16

十四

TUE

17

中元節

WED

18

十六

THU

19

十七

FRI

20

十八

SAT

21

十九

SUN



異腹胡蜂 Lesser Paper Wasps

異腹胡蜂 (*Parapolybia* spp.) 是相對溫和的社會性胡蜂，蜂窩扁平，常呈長橢圓形，類似牛舌，故又稱牛舌蜂。牠們習慣築巢於灌木叢及樹上。蜂群數量從數十隻到上百隻，只在蜂巢受到碰觸干擾時才會成群攻擊。

The lesser paper wasp (*Parapolybia* spp.) is a less aggressive social wasp. The wasp is called locally as cow's tongue wasps because the shape of the wasp nests is flattened, often appear to be ovoid, similar to cow's tongue. They tend to build nests in bushes and trees. A colony may contain dozens to a hundred individuals. Only when the nests are disturbed, the wasps shall attack the invader on masse.



8

August

變側異腹胡蜂蜂窩 / 葉文琪攝
Nest of lesser paper wasp *P. varia* / Photo by WC Yeh

22

二十

MON

23

處暑

TUE

24

廿二

WED

25

廿三

THU

26

廿四

FRI

27

鄭成功誕辰

SAT

28

廿六

SUN



蜾蠃 Potter Wasps

蜾蠃 (くもてゝかめてゝ) 之名最早見於詩經，是胡蜂科中唯一的獨居性的類群，因為某些種類的窩呈泥壺狀，故又稱為泥壺蜂。許多蜾蠃都會唧泥造窩，有些則是利用中空的植物莖桿、或枯木上的天然坑穴為家，並用泥牆隔間成數個至二、三十個巢室。雌蜂捕獵蛾類幼蟲做為後代的儲糧，產完卵後即離去，不會在窩旁守候照護。

The Chinese name for eumenid, guoluo, was first seen in *Shih-ching*, or the *Classic Poetry* two to three thousand years ago. Eumenid is the only solitary wasp of the family Vespidae. They are called potter wasps because the shape of the mud nests built by some species. Although many species of this group use mud as their nest building material, other species use shewed plant material. Mother wasp collects beetle larvae, spiders, or caterpillars and, paralyzing them, places them in the cell as provisions for the larva. Than the mother deposits her egg in the cell, close the nest and fly away. The mother neither guard nor interact with their offspring.



建造壺狀泥窩的黃胸錐腹蜾蠃 / 葉文琪攝
A potter wasp *Delta pryiiforme* building mud nest
Photo by WC Yeh

MON

9

September

29

廿七

TUE

30

廿八

WED

31

廿九

THU

September

1

記者節 / 八月六

FRI

2

初二

SAT

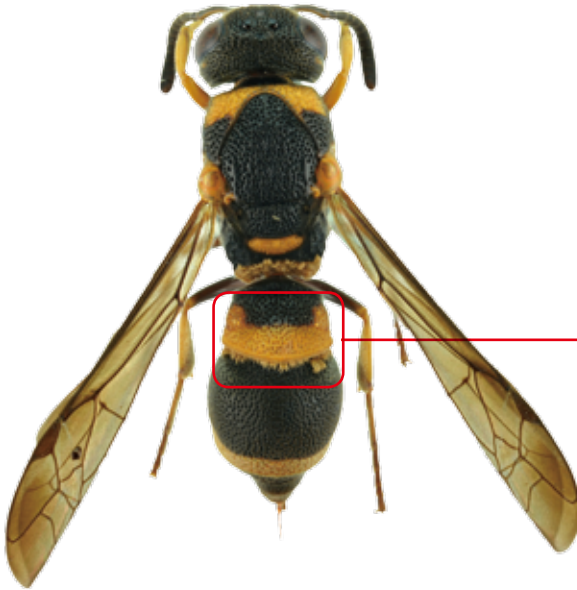
3

軍人節

SUN

4

初四



聚集於蟻室的共生蟎

負蟎螺羸 *Parancistrocerus* spp.

Mite-bearing Potter Wasps

在蟎類與負蟎螺羸的互利共生關係中，前者擔任貼身保鏢的角色，保護寄主子代的安全，並從寄主獲得生存所需的養份；後者除了提供食物之外，還有特化的腹部結構（蟎室）供蟎躲藏。共生蟎必須靠負蟎螺羸才能播遷他處。

In the mutualistic relationship between mites and mite-bearing potter wasps, the former play the roles of bodyguards to protect latters' offspring, while obtain sustenance from the hosts. The latter, in addition to providing food, possesses a specialized anatomical structure (acarinarium) suitable for mites to hide in. The mites cannot disperse without the help of mite-bearing potter wasps.



黃帶負蟎蜾蠃 / 葉文琪攝
Mite-bearing potter wasp / Photo by WC Yeh

9

September

MON

5
初五

TUE

6
初六

WED

7
白露

THU

8
初八

FRI

9
體育節

SAT

10
初十

SUN

11
十一

蜻蜓臉譜 Facebook of Dragonflies

蜻蜓身上的色彩往往是一般人注意的焦點，其實蜻蜓的臉譜也是五顏六色，甚至比體色更為繽紛。比起平劇的臉譜，蜻蜓的臉譜毫不遜色。不過，拍攝這些臉譜必須挑在標本還新鮮的時候，乾燥後的標本再也看不到臉譜的光鮮亮麗了。

The colorations on dragonflies are often the focus of people's attention. In fact, the facial makeups of dragonflies are often more intricately colored, even more attractive than the body colorations. Comparing to the facial makeups of Peking (Beijing) opera, the facial makeups of dragonflies are not a bit less colorful. Photographing of these facial patterns must take place when the specimens are still fresh. Once dried, the brilliant colors of the specimens fade out.

9

September

<i>MON</i>	12 十二
<i>TUE</i>	13 法律日
<i>WED</i>	14 十四
<i>THU</i>	15 中秋節
<i>FRI</i>	16 十六
<i>SAT</i>	17 十七
<i>SUN</i>	18 十八



大紫斑蝶 *Euploea phaenareta juvia* Fruhstorfer
Great Crow Butterfly

臺灣有 5 種原生的紫斑蝶 (*Euploea* spp.)，其中以大紫斑蝶的體型最大，翅展可達 11 公分。可惜這種紫斑蝶在 1960 年代以後就不見蹤跡，咸認已於臺灣滅絕。本館典藏的大紫斑蝶標本為一雌性個體，採集人與採集時間均不詳。

There are 5 native crow butterflies (*Euploea* spp.) in Taiwan. Among these, great crow butterfly has the largest body size, with wingspan reaching 11 cm. Unfortunately, no one has ever seen them alive since 1960s and this species is believed to be extinct in Taiwan. The specimen in the collection of FACT is a female. The collector and collecting date are not known.

9

September

MON

19
十九

TUE

20
二十

WED

21
廿一

THU

22
秋分

FRI

23
廿三

SAT

24
廿四

SUN

25
廿五



大樺斑蝶 *Danaus plexippus* (Linnaeus)

Monarch Butterfly

又稱帝王蝶，是北美洲知名的遷移性蝴蝶，每年秋天從美國、加拿大交界五大湖區，飛往墨西哥中部的森林過冬，翌年春天再飛回美加邊界。大樺斑蝶曾分布於臺灣，可惜 1960 年代之後也未在臺灣發現。本館典藏的大樺斑蝶標本為一雄性個體，採集人與採集時間均不詳。

The monarch butterfly is a well-known migratory butterfly of North America. Each autumn, the species migrate en masse from the Great Lakes area of US-Canada border to a forest in Central Mexico to over winter. The next spring, they would again migrate back to north. Monarch butterfly had distributed in Taiwan, before, they became extinct in the 1960s. The monarch butterfly in our collection is a male specimen. The collector and collecting date are not known either.

10 October

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

9

September

26

廿六

MON

27

廿七

TUE

28

教師節

WED

29

廿九

THU

30

三十

FRI

October

1

九月大

SAT

2

初二

SUN



大紫蛺蝶 *Sasakia charonda formosana* Shirôzu

Empress Butterfly

臺灣特有亞種，也是臺灣最大的蛺蝶，翅展可達 10 公分。幼蟲取食沙朴，成蟲取食青剛櫟、栓皮櫟的樹液和腐敗的水果。分布中、北部海拔 1,000~2,000 公尺原始林區，因族群極小、採集壓力大，已列為保育類（瀕臨絕種保育類）野生動物。

Empress butterfly is an endemic subspecies and is the largest nymphalid butterfly in Taiwan. The wingspan can reach 10 cm. The larvae feed on leaves of Chinese hackberry (*Celtis sinensis*) and the adults feed on tree saps of ring-cupped oak (*Cyclobalanopsis glauca*) and Chinese cork oak (*Quercus variabilis*), and fermented fruits. It lives in undisturbed original forests at 1,000 to 2,000 m elevation in Central and Northern Taiwan. It is listed as legally protected insect species (Category I, endangered species) due to extremely small population and severe collecting pressure.



大紫蛺蝶 / 曹美華攝
Empress butterfly / Photo by MH Tsao

10

October

MON

3
初三

TUE

4
初四

WED

5
初五

THU

6
老人節

FRI

7
初七

SAT

8
寒露

SUN

9
重陽節



臺灣爺蟬 *Formotosena seebohmi* (Distant)

Formosan Giant Cicada

臺灣體型最大的蟬，雄蟲體長近 5 公分，胸部背板有一藍綠色狐狸頭形之斑紋，故有「狐狸蟬」的別名。分布於臺灣中南部低海拔之原始闊葉林。因棲地破壞、採集壓力大，此一稀有種已列為保育類（珍貴稀有保育類）野生動物。

The Formosan giant cicada is the largest cicada in Taiwan. The males have body length close to 5 cm. A blue-green fox head pattern appears on the thorax and the species is also called fox cicada. It distributes in low-elevation primary broad-leaved forest in Central and Southern Taiwan. This rare species is now listed as legally protected insect species (Category II, rare and valuable species) due to habitat destruction and collecting pressure.



臺灣爺蟬 / 曹美華攝
Formosan giant cicada / Photo by MH Tsao

10
October

MON

10
國慶紀念日

TUE

11
十一

WED

12
十二

THU

13
十三

FRI

14
十四

SAT

15
十五

SUN

16
世界糧食日



妖豔吉丁蟲 *Buprestis (Akiyamaia) mirabilis* Kurosawa
Brilliant Jewel Beetle

零星分布於臺灣北部、中部中高海拔的針闊葉混合林中。外型吸睛，翅鞘上有六塊大型斑紋，成蟲體色多變，數量稀少，早年被當作珠寶盒的裝飾品，僅有少數採集記錄。因光害、採集壓力大，已列為保育類(珍貴稀有保育類)野生動物。

The brilliant jewel beetle has scattered distributions in mid to high-elevation coniferous-broadleaf mixed forests in Northern and Central Taiwan. It is an eye-catching beetle, with 6 large spots on the elytra and color variation between individuals. Though rare, this species has been collected to decorate jewel boxes. There are few collection records. It is now listed as legally protected insect species (Category II, rare and valuable species) due to light pollution and collecting pressure.

10

October

MON

17

十七

TUE

18

十八

WED

19

十九

THU

20

二十

FRI

21

華僑節

SAT

22

廿二

SUN

23

霜降



虹彩叩頭蟲 *Campsosternus watanabei* Miwa

Rainbow Sheath Click Beetle

藍綠色的金屬光澤十分亮眼，面臨商業採集壓力，因而列為保育類（珍貴稀有保育類）野生動物，惟其分類學還有疑義，生態學資料更是匱乏。

The rainbow sheath click beetle has blue-green metallic gloss and is quite eye-catching. It faces strong commercial collection pressure and has been listed as legally protected insect species (Category II, rare and valuable species). However, the taxonomic status of this species remains ambiguous and the ecology of this species is also unclear.



虹彩叩頭蟲 / 曹美華攝
Rainbow sheath click beetle / Photo by MH Tsao

10
October

MON

24
廿四

TUE

25
臺灣光復節

WED

26
廿六

THU

27
廿七

FRI

28
廿八

SAT

29
廿九

SUN

30
三十



臺灣大鍬形蟲 *Dorcus curvidens formosanus* Miwa
Formosan Giant Stag Beetle

臺灣特有亞種的大型甲蟲，雄成蟲體長可達 8.5 公分。廣泛分布於全島海拔 100~2,100 公尺之間的原始闊葉林。幼蟲仰賴原始闊葉林的朽木維生。因採集壓力、棲地破壞，已列為保育類（珍貴稀有保育類）野生動物。

The Formosan giant stag beetle is an endemic subspecies of Taiwan. The adults can reach a body length of 85 mm. It distributes widely in the original hardwood forests of Taiwan at 100 to 2,100 m elevations. The larvae rely on decaying wood material for growth. It is now listed as legally protected insect species (Category II, rare and valuable species) due to habitat destruction and collecting pressure.

11 November

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			



臺灣大鍬形蟲 / 許志遠攝
Formosan giant stag beetle / Photo by CY Hsu

11

November

31

萬聖節 / 十月小

MON

November

1

商人節

TUE

2

初三

WED

3

初四

THU

4

初五

FRI

5

初六

SAT

6

初七

SUN



黃裳鳳蝶 *Troides aeacus formosanus* (Rothschild)

Golden Birdwing

美麗的大型鳳蝶，臺灣的特有亞種，分布於臺灣南部及東南部。幼蟲取食馬兜鈴科植物，因棲地破壞列為保育類野生動物（其他應予保育類）。

The golden birdwing is a beautiful, large-sized swallowtail, and an endemic subspecies. It distributes in Southern Taiwan and Southeastern Taiwan. The larvae feed on birthwort (Aristolochiaceae). It is listed as legally protected wildlife (Category III, other conservation-deserving species) due to habitat destruction.



黃裳鳳蝶 / 許志遠攝
Golden birdwing / Photo by CY Hsu

11
November

MON

7
立冬

TUE

8
初九

WED

9
初十

THU

10
十一

FRI

11
工業節

SAT

12
國父誕辰

SUN

13
十四



臺灣長臂金龜 *Cheirotonus formosanus* Ohaus

Formosan Long-armed Scarab Beetle

臺灣體型最大的特有甲蟲。雄蟲前足極長，可達 10 公分。頭胸泛著強烈的綠色光澤，翅鞘黑色佈滿黃褐色斑點。分布於低中海拔山區，幼蟲取食樟科、殼斗科大樹的腐朽木質部。因棲地破壞與商業採集，已列為保育類(其他應予保育類)野生動物。

The Formosan long-armed scarab beetle is the largest beetle in Taiwan. The males have very long front legs which can reach 10 cm. The head and thorax have a strong glossy green glow, the elytra black in color with many yellow-brown spots. It distributes at low- and mid-elevation mountainous regions of Taiwan. The larvae feed on decayed trees of Lauraceae and Fagaceae trees. It is listed as legally protected insect species (Category III, other conservation-deserving species) due to habitat destruction and commercial collecting.



臺灣長臂金龜雄蟲 / 陳立瑜攝
Male Formosan long-armed scarab beetle
Photo by LY Chen

11
November

MON

14
十五

TUE

15
十六

WED

16
十七

THU

17
自來水節

FRI

18
十九

SAT

19
二十

SUN

20
廿一



曙鳳蝶 *Atrophaneura horishana* (Matsumura)

Aurora Swallowtail

國際知名的臺灣特有鳳蝶，成蟲腹部為鮮紅色，後翅腹面後半桃紅色布滿黑色斑點，外形甚為搶眼。本種分布於海拔 1,000-2,500 m，生活史較長，以幼蟲期越冬。由於中、高海拔農業開墾，造成曙鳳蝶的食草逐漸消失，加上非法捕捉的壓力，目前已被列為保育類（其他應予保育類）野生動物。

The aurora swallowtail is an internationally known endemic species of Taiwan. The eye-catching adult has scarlet red abdomen and a large red patch on the underside of each hindwing. It is in general found at 1,000-2,500 m in elevation. The life history of this species is quite long and they overwinter in larval stage. Food plants of the aurora swallowtail have declined due to agricultural development in mid- and high elevation. The swallowtail also suffered great pressure from illegal collecting. It is now listed as legally protected wildlife (Category III, other conservation-deserving species).



曙鳳蝶 / 曹美華攝
Aurora swallowtail / Photo by MH Tsao

11
November

MON

21
防空節

TUE

22
小雪

WED

23
廿四

THU

24
廿五

FRI

25
廿六

SAT

26
廿七

SUN

27
廿八



霧社血斑天牛 *Aeolesthes oenochrous* Fairmaire
Wu-she Blood-spotted Longhorn Beetle

臺灣大型、美麗的甲蟲之一，成蟲體長可達 6 公分，觸角可長達 10 公分。幼蟲取食山櫻花。臺灣特有種，因族群不穩定、採集壓力大，已列為保育類（其他應予保育類）野生動物。

This is a large, beautiful beetle in Taiwan, with body length and antennae up to 6 cm and 10 cm, respectively. The larvae feed on Taiwan cherry (*Prunus campanulata*). This is an endemic species of Taiwan. It is listed as legally protected insect species (Category III, other conservation-deserving species) due to unstable population and collecting pressure.

12 December

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



霧社血斑天牛 / 吳士緯攝
 Wu-she blood-spotted longhorn beetle
 Photo by S Wu

12
 December

MON

28
 廿九

TUE

29
 十一月大

WED

30
 初二

December

THU

1
 初三

FRI

2
 初四

SAT

3
 初五

SUN

4
 初六



四斑細蟴 *Mortonagrion hirosei* Asahina

Four-spotted Midget

原分布紀錄為日本及香港，2006年首次記錄於臺灣的五股濕地。棲息環境為淡水和鹹水草澤。世界保育聯盟 (IUCN) 早已將本種列為受威脅 (易危) 物種，我國卻未有任何相關保育措施。

The four-spot midget is a species of damselfly found in Hong Kong and Japan. And in 2006, it was first recorded in Wugu wetland, Taiwan. Its natural habitats are rivers and saline marshes. It has been listed as threatened (vulnerable) species by the International Union for Conservation of Nature (IUCN). No practical conservation measures have yet implemented to this species in Taiwan.



四斑細蟴似雄型雌蟲 / 葉文琪攝
Male-like female of four-spotted midget
Photo by WC Yeh

12

December

MON

5

海員節

TUE

6

初八

WED

7

大雪

THU

8

初十

FRI

9

十一

SAT

10

人權節

SUN

11

十三



大屯姬深山锹形蟲 *Lucanus datunensis* Hashimoto
Datun Mountain Stag Beetle

臺灣特有種，體長可達 3.5 公分，分布於北部陽明山區的大屯山上。成蟲 6-7 月出現，白晝活動。尚未列入保育類野生動物，非法捕捉、棲地破壞的威脅仍大。

The Datun Mountain stag beetle is an endemic species of Taiwan. The body length can reach 3.5 cm. It mainly found in Datun Mountain of Yangmingshan National Park. Adults appear in June and July and are active during the day. It is not listed as legally protected species of the Wildlife Conservation Act and still facing the threat of illegal collecting and habitat destruction.



大屯姬深山锹形蟲 / 吳士緯攝
Datun mountain stag beetle / Photo by S Wu

12
December

MON

12
憲兵節

TUE

13
十五

WED

14
十六

THU

15
十七

FRI

16
十八

SAT

17
十九

SUN

18
二十



木生鳳蝶 *Pazala timur chungianus* (Murayama)

Muh-sheng Swordtail

與劍鳳蝶 (升天鳳蝶) 形態相似，直至 1961 年才由埔里木生昆蟲館的余清金先生訂為新種。幼蟲取食香楠等樟科植物，成蟲早春出現，數量稀少。此一標本於 1997 年採集自臺北烏來。

Muh-sheng swordtail is quite similar in appearance to sixbar swordtail (*Pazala eurous asakurae*). It was not recognized as a distinct species until 1961 by Mr. Ching-kin Yu of Muhsheng Museum of Entomology in Puli. The larvae feed on foliage of Lauraceae plants such as *Machilus zuihensis* Hayata. Adults appear in early spring. Muh-sheng swordtail is a rare species and this specimen was collected in 1997 from Wulai, New Taipei City.



木生鳳蝶 / 曹美華攝
Muh-sheng swordtail / Photo by MH Tsao

12

December

MON

19

廿一

TUE

20

廿二

WED

21

冬至

THU

22

廿四

FRI

23

廿五

SAT

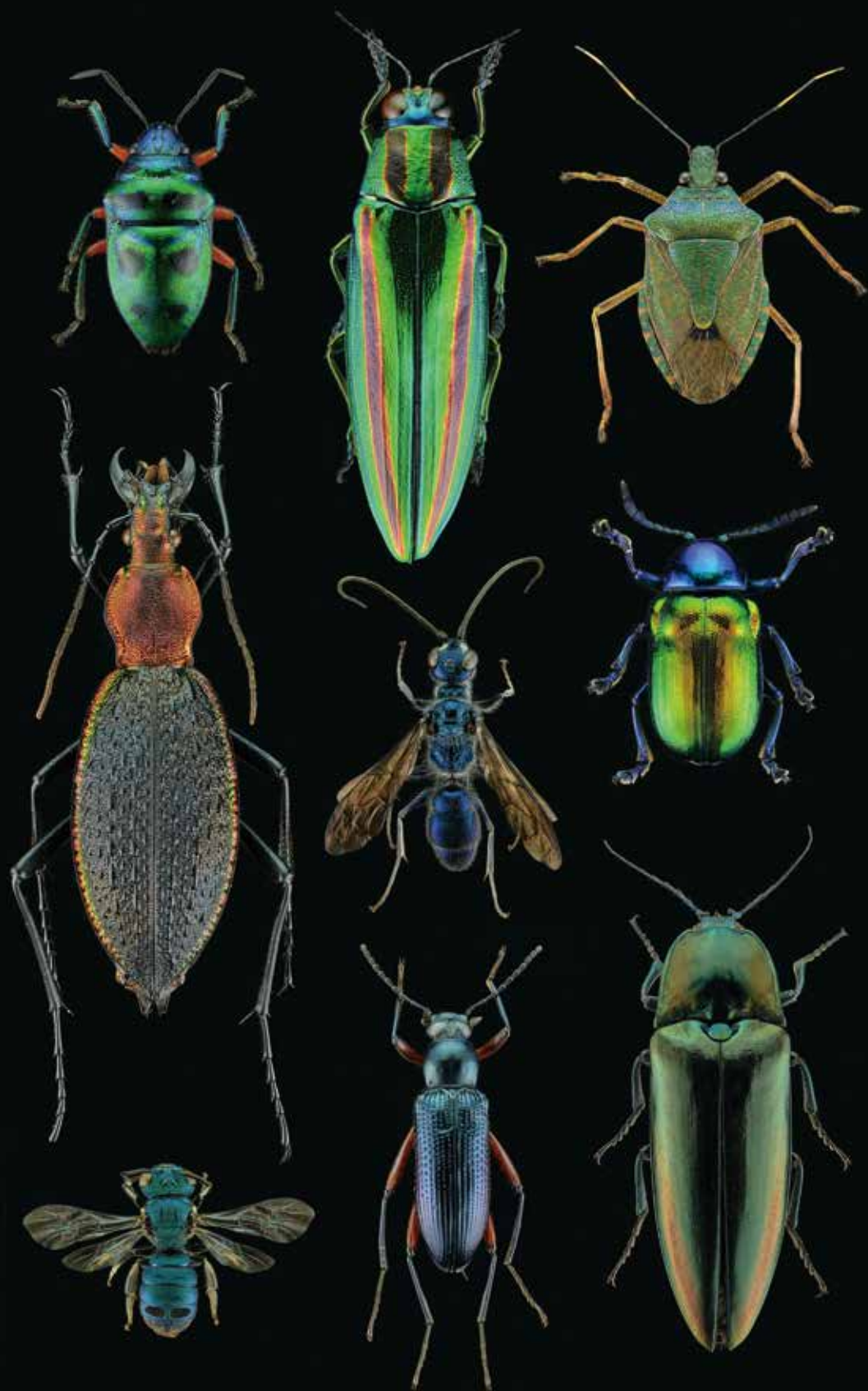
24

廿六

SUN

25

行憲紀念日



炫彩盔甲 Metallic Armors

許多昆蟲的身體都閃爍著強烈的金屬光澤，這是因為昆蟲的外骨骼中含有吸收光線的色素，外骨骼上則含有一層層產生光散射、繞射、薄膜干涉的物質和結構，例如鱗片、軟毛、剛毛、凹陷、缺刻、格狀結構、薄膜、螺旋曲面等，它們就像稜鏡那樣，折射出五彩繽紛的顏色，當折射的光波較短時，就會呈現藍、紫、綠等金屬幻彩。

Many insects have bodies with strong metallic gloss. This is because the exoskeletons of the insects often contain pigments that absorb lights. On the exoskeletons, there are also a layer upon layer of substances and structures such as scaly hairs, soft cilia, bristles, indentations, dips, grate-like structure, film and helicoidal surfaces that produce light scattering, diffraction and thin-film interference. They act like prism to diffract light into a rainbow of colors. When the diffracted wavelengths are shorter, they will appear as blue, violet, and green metallic sheens.

1
January

MON

26
廿八

TUE

27
建築師節

WED

28
電信節

THU

29
十二月六

FRI

30
初二

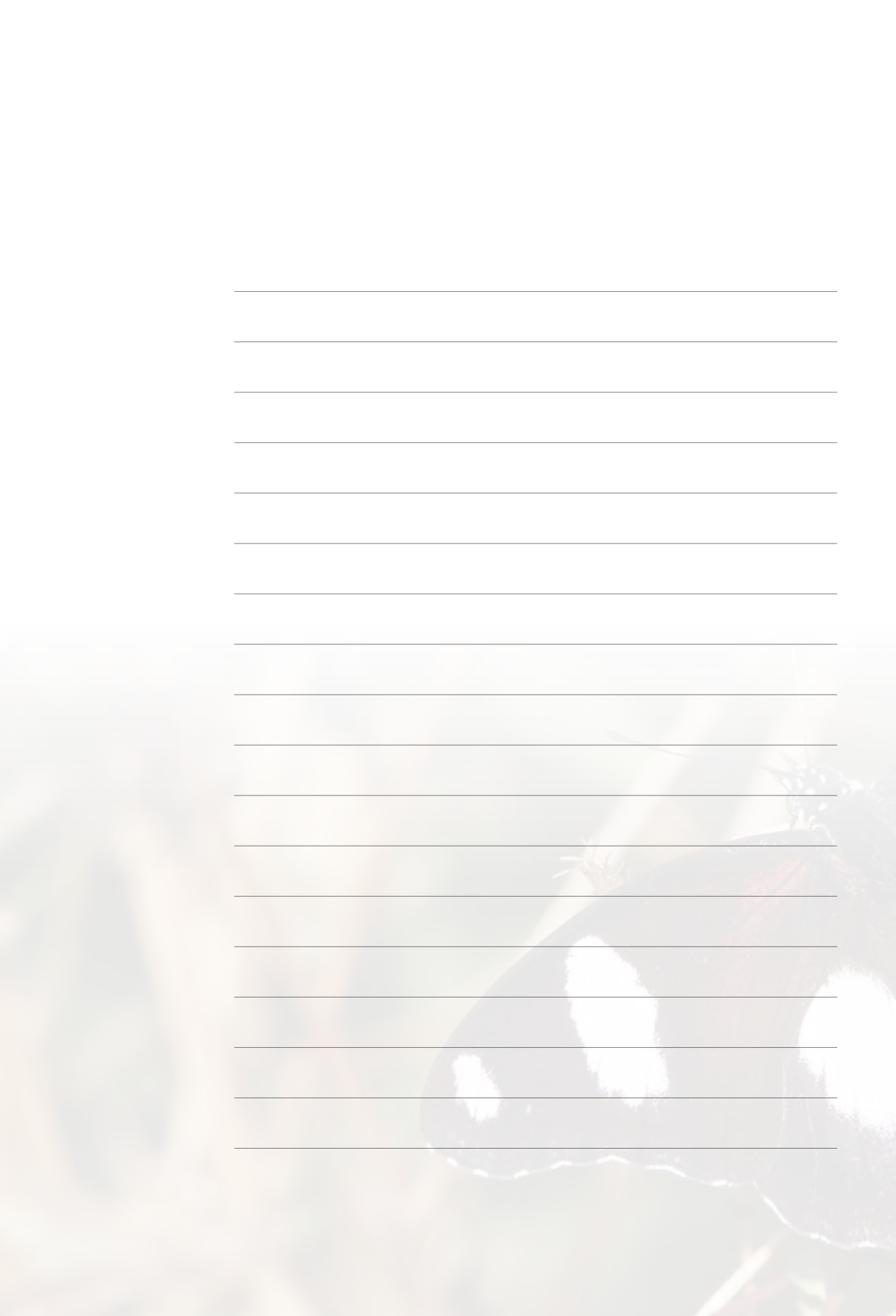
SAT

31
受信節

SUN

2017 January

1
元旦



MEMO







2016 重現風華

A Reborn Journey of Insect Specimens

發行人：黃裕星
策劃：陳燕章、吳孟玲
撰稿：趙榮台、陸聲山、莊鈴木、葉文琪
攝影：葉文琪、葉雲吟
影像處理：陳一銘、葉文琪、張靖
英文翻譯：王益真、趙榮台
執行編輯：商華光、許明峯
美術編輯：勝利數位設計印刷中心 / 李佩倫、陳盈君
出版單位：行政院農業委員會林業試驗所
地址：10066 臺北市中正區南海路 53 號
電話：(02)2303-9978
傳真：(02)2314-2234
網址：<http://www.tfri.gov.tw>
印刷：勝利數位設計印刷中心
出版日期：中華民國一〇四年十二月
定價：新臺幣 230 元整
圖文有著作權 未經同意請勿使用

Publisher/ Yue-Hsing Star Huang
Chief Editors/ Yen-Chang Chen, Meng-Ling Wu
Authors/ Jung-Tai Chao, Sheng-Shan Lu, Ling-Mu Jaung, Wen-Chi Yeh
Photographers/ Wen-Chi Yeh, Yun-Yin Yeh
Image processing/ Yi-Ming Chen, Wen-Chi Yeh, Ching Chang
Translators/ I-Chen Wang, Jung-Tai Chao
Executive Editors/ Hwa-Guang Shang, Ming-Feng Hsu
Art Editors/ Victory DIGI Print / Pei-Lun Lee, Ying-Jun Chen
Published/ Taiwan Forestry Research Institute
Address/ 53 Nan-Hai Road, Taipei 10066, Taiwan
Tel/ 886 2 2303-9978
Fax/ 886 2 2314-2234
World Wide Web/ <http://www.tfri.gov.tw>
Printer/ Victory DIGI Print
Published in December 2015
Price/ NT\$230
Copyright © All rights reserved by Taiwan Forestry Research Institute

本行事曆之物種學名主要依據臺灣物種名錄之內容標示，特此說明。

The scientific names of the species mentioned in this calendar are mainly adopted on the basis of the Catalogue of Life in Taiwan (<http://taibnet.sinica.edu.tw/home.php>).