

Results & Discussion

No boxes were occupied by bats during the first 10 months after the boxes were installed. It is not uncommon for roost boxes to remain unoccupied for months or years, even when foraging bats are abundant in the vicinity of the roost boxes (Tuttle & Hensley 1993a). This can be due to several factors including duration of daily solar input or presence of flight path obstacles such as tree branches near roost boxes (*ibid.*). Either of these factors may have affected the boxes that were installed in relatively dense woodlands at Kau Sai Chau. Also, some of the roost boxes at Kau Sai Chau were colonised by ants. To avoid this problem one box was relocated from a streamside woodland to the wall of a building in late June 2001.

The first record of roosting bats was made on 20 October 2001 when box 1 in a small plantation of Sea Hibiscus was occupied by two *Pipistrellus* (*Pipistrellus* sp.) (Table 2). The plantation was at the golf course clubhouse in an area frequented by vehicles, golfers and staff.

Table 2. Occupancy of 10 roost boxes at Kau Sai Chau between December 2000 and December 2002.

| Date | Species | Bats | Box No. | Location No. | Nylon Mesh | |
|-----------|-------------------------|------|---------|--------------|------------|-----|
| | | | | | On | Off |
| 20-Oct-01 | <i>Pipistrellus</i> sp. | 2 | 1 | 1 | | 2 |
| 27-Oct-01 | <i>Pipistrellus</i> sp. | 3 | 1 | 1 | | 3 |
| 29-Nov-01 | <i>Pipistrellus</i> sp. | 6 | 1 | 1 | | 6 |
| 19-Jan-02 | <i>Pipistrellus</i> sp. | 5 | 1 | 1 | | 5 |
| 24-Oct-02 | <i>Pipistrellus</i> sp. | 4 | 1,3 | 1 | | 4 |
| 29-Nov-02 | <i>Pipistrellus</i> sp. | 11 | 1,3,4,7 | 1 | 3 | 8 |

On 27 October 2001 two additional boxes were shifted because they had been colonized by ants, one from a Camphor Tree in a dense woodland to a plantation of Sea Hibiscus at the clubhouse, and one from an isolated fig to a Bauhinia at the clubhouse building. On 29 November 2001 the remaining three boxes initially installed on trees in woodlands were relocated to a plantation near the clubhouse because of colonization by ants and because only the boxes near the clubhouse had attracted roosting bats. After shifting roost boxes from the woodlands the box locations were as follows: on the walls of a metal-sided maintenance shed (3 boxes); on the exterior masonry wall of the clubhouse (1 box); on a Bauhinia at the clubhouse (1 box); and in a Hibiscus plantation at the clubhouse (5 boxes).

Numbers of roosting bats ranged between 2-6, and box 1 was the only box occupied until 24 October 2002 when a second box was occupied on a Sea Hibiscus at the clubhouse. Just over one month later two additional boxes were occupied, one on a Sea Hibiscus at the clubhouse, and the second on a Bauhinia also at the clubhouse. On 29 November 2002 four boxes were occupied by a total of 11 *Pipistrellus* (Table 2). All four occupied boxes were shaded for most of the day, but received some mid-day sunlight through the tree canopy.

Roost box locations will be shifted in winter 2002 to increase bat occupancy. Some boxes will be moved from shaded to more sunny locations to increase absorption of solar radiation, thereby increasing the interior temperature of the box. Such a shift increased bat use of boxes at 31-32° N latitude in North America (Anon 2000). Three unoccupied boxes in shaded locations on exterior walls of buildings at Kau Sai Chau are also distant from freshwater bodies such as streams and ponds. Those boxes will be shifted to tree or free-standing locations <400 m from water because distance from water has also been found to affect bat use of roost boxes (Tuttle & Hensley 1993a).

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Stinkhorns in Hong Kong

by Justin Bahl

This past summer two rare species from the *Phallaceae* family, colloquially known as stinkhorns, were identified. Members of the *Phallaceae* are very distinct, or rather they stink. The reproductive strategy of these unique and strange fungi is to attract insects, most often flies, to assist in spore

dispersal. To accomplish this, they are covered with slime heavily laden with spores and mimic foul smells such as dung or rotting flesh. The species identified, *Dictyophora indusiata* (Long Net Stinkhorn) and *Dictyophora multicolor* (Yellow Veiled Lady), are two of the more spectacular members found in Hong Kong. Spores and slime are produced on a head or cap and both produce a long and intricate skirt-like net that extends from the base of the head to the ground. The most obvious difference between these two species is the colour of the net. In the Long Net Stinkhorn, the net is white whereas in the Yellow Veiled Lady, the skirt is bright orange-red, but for both species the odour is di-stink and you will probably smell them before you see them. For pictures and descriptions in Chinese refer to Chang Shu-ting and Mao Xiaolan “*Hong Kong Mushrooms*” Chinese University of Hong Kong, Hong Kong, 1995.

Justin Bahl identified *Dictyophora indusiata*; Gavin Smith and Neil Hutchinson identified *Dictyophora multicolor*.

Three new additions to the vascular plant flora of Hong Kong

by Ng Sai-chit

Livistona saribus (Lour.) Merr. ex A. Chev. Bull. Econ. Indo-chine 21: 501. 1919; Flora Reipublicae Popularis Sinicae 13(1): 27. 1991.

L. fengkaiensis X.W. Wei & M.Y. Miao J. S. China Agric. Univ. 3(1): 22-24. 1982; Flora of Guangdong 2: 446. 1991.

Palm tree 3-4 m tall. Similar to the widely planted *Livistona chinensis* (Jacq.) R. Br. but *L. saribus* differs in having significantly more robust spines on the petiole, especially towards the base, where the spines are up to 10-16 mm wide and 20-27 mm long (Fig. 1). *Livistona saribus* also has larger fruit than *L. chinensis*, about 3 cm long and 2 cm in diameter. No record or specimen of this species from Hong Kong has been seen. The species is recorded from S. Yunnan, W. Guangdong, Hainan, and Vietnam.



Fig. 1. Base of petiole of *L. saribus* showing the robust spine.

The plant was seen near Yung Shu O, Sai Kung (SCNG 2127, 26 January 2000, HKU; SCNG 2529, 27 July 2000, HKU, AFCD (ripe fruit collected on 4 October 2002)). The tree was found growing in young secondary forest about 4-6 m tall at the bottom of a cliff on a steep rocky hillside along a stream at 160 m a.s.l. and is very unlikely to be a planted individual. The base of the tree has fallen and is lying horizontally, yet the plant has managed to grow in an upright position, although it is likely to fall in the very near future.

Smilax ocreata A. DC. in A. DC. & C. DC. Monogr. Phan. 1: 191. 1878; Flora Reipublicae Popularis Sinicae 15: 234. 1978; Flora of China 24: 114. 2000.

Climber. Similar to the locally common *Smilax lanceifolia* Roxb. var. *opaca* A. DC. but differs in having broader round-ovate leaves and round perfoliate stipule which nearly completely encircle the stem. A widely distributed species in S. & SW. China, also recorded from India, Nepal, and Indo-China, but so far no specimen or record from Hong Kong has been seen.

Only one plant was seen near abandoned farmland overgrown with *Miscanthus sinensis* next to a stream at Sheung Fa Shan, Tsuen Wan on 10 February 2002 (SCNG 3441, HKU, AFCD, KFBG).

Sticherus laevigatus (Willd.) C. Presl Tent. Pterid. 52. 1836.; Flora Reipublicae Popularis Sinicae 2:122.

Herb with horizontal creeping rhizomes and erect dichotomously branching fronds. Fronds 1.5-2 m tall and branch at least five times. Similar in growth form and pinnae shape to the two local *Dicranopteris* spp. (*D. pedata* Underw. and *D. linearis* Nakaike) but differs markedly in having leafy frond-axes, except for the primary and secondary branches of the fronds (Fig. 3 and 4). Pinnae on all the leafy frond-axes are identical in shape and texture to those on the terminal leafy branches. This species is very widely distributed in the tropics and had been recorded from Sri Lanka through Indo-China



and Malaysia to Hainan and the Philippines. It is, however, very rare in mainland China and has only been recently reported from Guduoshan at Zhuhai, Guangdong (Yan *et al.*, 2003). The present record is therefore the first record for Hong

Fig. 2. The patch of *Sticherus laevigatus*

Kong and the second record for mainland China.

A single large colony, up to 3 m width x 10 m length, was seen in the forest margin about 1-3 m tall along a stream (110 m a.s.l.) above the Shatin entrance of the Tate's Cairn Tunnel, Shatin on 3 November, 2002 (SCNG 4122, HKU, AFCD, KFBG).



Fig. 3. *Sticherus laevigatus*

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I am grateful to my hiking friends, Ronald K.Y. Ki, Lawman M.K. Law, Macro C.S. Poon, Zeeman C.M. Ng, Alfred C.K. Wong, for accompanying me in exploring the above unknown sites and making these discoveries. I would also like to thank Ken K.Y. So, Lam Wai Kei, and Ng Yiu Ming of the KFBG for collecting the ripe fruits of the *Livistona*.

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Sometimes common is not common!

by Cecily Law

Fissistigma glaucescens (Hance) Merr. belongs to Annonaceae, the custard apple family. It is a woody climber with a characteristic whitish abaxial leaf surface separating it from other members of the genus. Although considered a restricted species locally (Xing *et al.*, 2000), *Fissistigma glaucescens* is distributed in southern China (Fujian, Guangdong, Hainan & Guangxi), Taiwan, Vietnam and the Philippines (Li, 1991; Yang *et al.*, undated) and is common in Guangdong (Li, 1991). Flowering in Hong Kong has not been documented. Mr. Chan Shu Tong, who has collected plant specimens for over 40 years, claimed that he has never seen this species flowering or fruiting (Chan, *pers. comm.*). Dr. Ng Sai Chit and Dr. Richard Corlett have also claimed that flowering has not yet been seen (Corlett, *pers. comm.*, Ng,

pers. comm.). Herbarium specimens in Hong Kong Herbarium and HKU Herbarium are without flowers and fruits. It is known that flowering occurs in China from January to September and fruiting almost all year (Li, 1991).

A trip to Wu Kau Tang with Roger Kendrick on 11 August resolved the mystery. Three plants of *F. glaucescens* were found a few meters apart, all in flower. A fourth plant, some 100 m distant, had no flowers. Fruits and flowers were collected on 15th September. Subsequent visits to Tai Po Kau (10 November) and Shek Hang, Tai Mong Tsai Valley, Sai Kung Country Park (24 November) revealed further large specimens of *F. glaucescens* bearing fruits and a few flowers.

Studies have found that it may take 20 or more years for some perennial forest species to produce flowers (Taiz & Zeiger, 1991). Certainly, there are a lot of factors that trigger flowering generally, including vernalisation, water stress, photoperiodism and maturity (Taiz & Zeiger, 1991). Additionally, there has been an increase in suitable forest habitat since the Second World War. These factors, when combined, may explain why there was no previous flowering record of *F. glaucescens* in Hong Kong.

This unintentional discovery may be the first record of flowering for *F. glaucescens* in Hong Kong. However, it is just the beginning. Follow-up visits will continue to provide more information. Colour pictures will be available on the *Porcupine!* website.

Species information:

Family: Annonaceae 番荔枝科

Species: *Fissistigma glaucescens* (Hance) Merr., 1919
Melodorum glaucescens Hance, 1881
F. obtusifolium Merr.

Vernacular name: white-leaved Fissistigma 白葉瓜馥木

Habitat: gully or ravine in forest, *feng shui* wood (Li, 1991; Xing *et al.*, 2000)

Medicinal Uses: roots used as Chinese medicine, leaves used for brewing wine (Li, 1991). Recent studies extracted alkaloids from bark for treating muscular atrophy, hepatomegaly & hepatosplenomegaly (Wu *et al.*, 1987; Wu *et al.*, 1990; Lo *et al.*, 2000).

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Fig. 1. Flower of *F. glaucescens*



Fig. 2. Fruit of *F. glaucescens*

A new population of *Popowia pisocarpa* (Annonaceae) in Lam Tsuen

by Ng Sai-Chit

A new population of about 30 plants of the rare understorey shrub, *Popowia pisocarpa* (Blume) Endl., was found in Lam Tsuen in the feng-shui wood of Ma Po Mai Village in a recent field visit by myself, Ken K.Y. So of KFBG, and Angie Ng (KFBG volunteer) on 30 August 2002. This species was previously known to be locally abundant in the *feng-shui* wood at Tai Om, with a few scattered individuals also in the *feng-shui* wood at Ng Tung Chai (Corlett *et al.*, 2000). Although the occurrence of *P. pisocarpa* at this new site is not surprising, given its proximity to Tai Om, the fact that this highly accessible population had not been heard of shows how little we still know of the lowland *feng-shui* woods of Hong Kong.

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What eats *Ilex chapaensis* fruits?

by Anita Tsang, William Trehwella and Emma Long

Among all the *Ilex* species (hollies) found in Hong Kong, *Ilex chapaensis* produces the largest fruits. In the literature, it is stated that the fruits are black in colour. However, we have only seen green fruits, both on the trees and on the ground. With a size of 14 - 19 mm in diameter, there are only a few Hong Kong bird species that can swallow the whole fruits and the green colour is unlikely to attract birds. It has been suspected that bats eat *I. chapaensis* fruits, as the fruit skins and pyrenes (seeds) were found on the ground, which is a feature of how fruit bats feed (Corlett, per. comm.).

Recently (15 October), a lot of green fruits, fruit skins and pyrenes were found on the ground under an *Ilex* tree at Mt. Nicholson, Hong Kong Island. Therefore, on 28 October, we visited Mt. Nicholson, hoping to witness the bats that we suspected were eating the fruits. We started at 5:45p.m. (just before dusk) and watched for 1.5 hours to see if any bats visited the tree. Although we saw no bats we were able to identify the real frugivorous culprit - a masked palm civet

(*Paguma larvata*). We heard and saw this animal climbing about in the canopy of the *Ilex* tree. It ate 10 - 20 fruits, dropping several on the ground, which we saw were like the previous fruits seen underneath the tree. What surprises us is that it removed the fruit skin and ate the fruit tissue inside, leaving fruit skins and pyrenes to fall to the ground. This indicates that civets are smart frugivores. In Hong Kong, masked palm civets are considered important dispersers of large seeded plants (Goodyer, 1992), and from our observations it would appear that they may also help to disperse *I. chapaensis*.

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Gemmae of the moss *Octoblepharum albidum* taken as food by spider mites

by Zhang L.^{1,2}, Paul P.H. But,² and Ma P.²

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It is widely known that some bryophytes, mainly their gametophytes and capsules, are eaten by mammals, birds, and insects (Longton, 1990; Slack, 1988). No reports that we have found so far indicate that the gemmae of bryophytes are taken as food by invertebrates. We here report such an example from Hong Kong.

During a field survey at Kadoorie Farm & Botanic Garden on October 31, 2002, we collected some fresh material of *Octoblepharum albidum* on tree trunks at Orchid Heaven at 400 m altitude. The sample was kept in a petri dish (with cover) in our laboratory in room temperature. Abundant gemmae were found on the sample. The mature gemmae are commonly borne singly along the upper 1/3–1/2 leaf margins. They are fusiform, 110–220 (250) µm long, and consist of 4–8 cells. One (occasionally two), hyaline hair-like projection is frequently developed at the distal ends of the gemmae. Several weeks later (November 28, 2002), the sample was observed again. It was surprising to find that almost all gemmae were lost leaving only the basal cells of the gemmae. At the same time, several spider mites (*Tetranychus* sp.?) were found actively crawling on the moss and eating the remaining gemmae. The mite body is dark red to black in color, 1-1.5 mm in length, with eight red legs covered by sparse spines.

It is easy to find insects and other invertebrates dwelling on bryophytes, especially in streamside habitats. But this is the first time bryophyte gemmae have been documented as food for invertebrates in Hong Kong. (For figures see *Porcupine!* Website)

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This column aims to introduce interesting species of Hong Kong flora and fauna that might be encountered during fieldwork. Distinctive physical characteristics and some interesting ecological facts are included for each example. If you wish to contribute to this column, or have any comments or suggestions, please contact either

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'*Perisesarma bidens*' by David Poon

Perisesarma bidens (Grapsidae: Sesarminae) is one of the commonest mangrove crabs in Hong Kong. You can easily distinguish it from other crabs by its orange chelae and the greenish/olive green carapace. Also, as the name implies, this species has two "teeth" (hence *bi-dens*) on the lateral sides of the carapace.

As dominant mangrove fauna, *P. bidens* are highly adapted for their semi-terrestrial lifestyle. They possess a gill chamber and a modified breathing mechanism typical in many sesarminae crabs [for further details, see Warner's (1977) classic work]. They are burrowers but appear to have a strong preference for natural refuges such as rock crevices, under boulders and between interstices of mangrove root buttresses. They can also be found in high intertidal grass patches and near freshwater