
Spindasis lohita - one of 30 butterfly species added to the site's list

Observations of feeding adult Lepidoptera at Tai Po Kau Headland, Hong Kong: implications for butterfly gardening

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Episteme nipalensis; 1st Hong Kong record (Karen Barretto)

ABSTRACT

Adults of 75 species of Lepidoptera were observed utilising 7 plant species between June and September 2008 at Tai Po Kau Headland, Hong Kong. This adds 58 newly documented records of plant utilisation by adult Lepidoptera in Hong Kong. The tree *Zanthoxylum avicennae* was particularly well utilised, with 66 species observed nectaring, and is recommended as a small tree suitable for the periphery of a butterfly garden. The agaristine noctuid moth *Episteme nipalensis* (Butler, 1875) is recorded from Hong Kong for the first time.

Figure 1. Butterfly recording at *Z. avicennae* in progress

METHODS

Site: Tai Po Kau Headland, Tai Po, New Territories, Hong Kong
Universal Transmercator grid reference (WGS 1984 datum) : 50Q KK 111 839; altitude 50m a.s.l.
Habitat: garden, bordering secondary forest.

Observation method: point counts observing two *Zanthoxylum avicennae* trees (canopy areas approx 14 m^2 and 20 m^2 respectively)from suitable vantage points at canopy level (Figure 1), a patch of *Plumbago* bushes (Figure 3) (approx 7 m^2), a patch of *Stachytarpheta* (Figure 4) and a large patch of *Antigonon leptopus* vine (Figure 5) (covering approx 30 m^2), with photographic records aiding identification. Most time was spent observing the *Zanthoxylum.* Additional records were made at flowers of *Calanthe sylvatica* and *Murraya paniculata*.

Recording dates and times: see Figure 1 for dates. All sessions were mid to late afternoon (15:00-17:00) unless stated as morning sessions (09:00-11:00) or dusk sessions (18:00-19:00).

Identification of butterflies was by comparison with Chou (1994), Lau (1997) and Bascombe *et al.* (1999); moths were identified from Kendrick (2002), Tennent (1992) and Kononenko & Pinratana (2005).

RESULTS

A total of 75 Lepidoptera (butterflies and moths) species was recorded, including 30 butterfly and 10 moth species added to the list for Tai Po Kau Headland, one species of which (*Episteme nipalensis* - right side title illustration) represents an addition to the Hong Kong list.
The species are listed in Table 1. There are 51 species newly reported feeding on nectar of *Z. avicennae* in Hong Kong, two on *Plumbago*, six on *Antigonon*, one on *Murraya*, four on *Stachytarpheta* and one on *Calanthe*.

Table 1:
number of days adult Lepidoptera species were recorded feeding on nectar and fruit at Tai Po Kau Headland in June, August and September 2008

Lepidoptera species recorded		source (# - newly documented for HK)						
	notes: list includes 3 species seen at Tai Po Kau Headland that were not recorded nectaring or at fruit during the study period species new to TPKH = [N]; species new to Hong Kong = [HK]	*Zanthoxylum*	*Stachytarpheta*	*Antigonon*	*Plumbago*	*Calanthe*	*Murraya*	Papaya fruit
Hesperiidae								
1	*Baoris farri* [N]	1 #						
2	*Bibasis oedipodea* [N]	3 #	1 #					
3	*Borbo cinnara* [N]							
4	*Erionota torus* [N]							
5	*Gerosis phisara* [N]	2 #						
6	*Hasora vitta* [N]	1 #						
7	*Iambrix salsala*		1 #					
8	*Matapa aria*			1 #				
9	*Pelopidas conjunctus* [N]					2 #		
10	*Suastus gremius* [N]	1 #						
11	*Tagiades litigosus*	3 #	1 #					
12	*Telicota ancilla* [N]	1 #						
13	*Telicota ohara* [N]	1 #						
Papilionidae								
14	*Graphium agamemnon*	2 #						
15	*Graphium antiphates*	2						
16	*Graphium doson* [N]	2 #						
17	*Graphium sarpedon*	2						
18	*Papilio bianor*	1 #						
19	*Papilio helenus*	1 #			1 #			
20	*Papilio memnon*	4 #						
21	*Papilio paris*	2 #						
22	*Papilio polytes*	3 #						
23	*Papilio protenor*	1 #						
24	*Troides helena*							
Pieridae								
25	*Catopsilia pomona*	8 #						
26	*Catopsilia pyranthe*	3 #						
27	*Delias acalis*			1 #				
28	*Delias hyparete*	2 #						
29	*Delias pasithoe*	3 #		1 #				
30	*Eurema blanda*	1 #						
31	*Hebomoia glaucippe*	1 #						
Lycaenidae								
32	*Artipe eryx*	1 #						
33	*Deudorix epijarbas* [N]	3						
34	*Iraota timoleon*	3 #						
35	*Rapala manea*	4						
36	*Remelana jangala*	1 #						
37	*Spindasis lohita* [N]	3 #						
38	*Spindasis syama* [N]	2 #						
Riodinidae								
39	*Zemeros flegyas*	1						
Nymphalidae								
40	*Argyreus hyperbius*	3 #						
41	*Athyma nefte*	5						
42	*Athyma ranga* [N]	1 #						
43	*Athyma selenophora*	1						
44	*Charaxes bernadus*							1 #
45	*Cupha erymanthis*	2						
46	*Cyrestis thyodamus*	2						
47	*Danaus genutia*	1						
48	*Euploea core*	2						
49	*Euripus nyctelius* [N]	1 #						
50	*Euthalia phemius*	1 #						
51	*Euthalia lubentina* [N]							1 #
52	*Hestina assimilis*	2 #						
53	*Hypolimnas bolina*	3 #						
54	*Ideopsis similis* [N]	1						
55	*Junonia iphita*	2 #						
56	*Melanitis leda*	1 #						
57	*Mycalesis mineus*	1 #						
58	*Parantica aglea*	2 #	1 #					
59	*Parasapa dudu* [N]	1						
60	*Parathyma sulpitia*	2						
61	*Phaedyma columella* [N]	1 #						
62	*Ypthima baldus*	5 #						
Geometridae								
63	*Dysphania militaris*	1 #						
Noctuidae								
64	*Amata germana*	1 #						
65	*Amata grotei*	1 #						
66	*Episteme nipalensis* [HK]	1 #					1 #	
67	*Mimeusemia postica*	3 #						
Hyblaeidae								
68	*Hyblaea firmamentum* [N]	1 #						
Zygaenidae								
69	*Erasmia pulchella* [N]	1 #						
Sphingidae								
70	*Macroglossum corythus* [N]	1 #		1 #				
71	*Macroglossum heliophila*	6 #		2 #	2 #			
72	*Macroglossum passalus* [N]				2 #			
73	*Macroglossum pyrrhosticta*	2 #		1 #				
74	*Macroglossum variegatum*	2 #						
75	*Sataspes tagalica* [N]	2 #						

Results (cont.)
The number of species recorded on each date is presented in Figure 2, below. Peak counts occurred in early and mid-August, with *Zanthoxylum avicennae* attracting far more species (Figures 6, 7, 10 & 11) than any other plant. Once this species had finished flowering, the Lepidoptera turned their attention to the *Antigonon.* The *Plumbago* was only visited by *Macroglossum* spp. moths during this study.

Figure 2. nectaring Lepidoptera species richness at Tai Po Kau Headland, Hong Kong

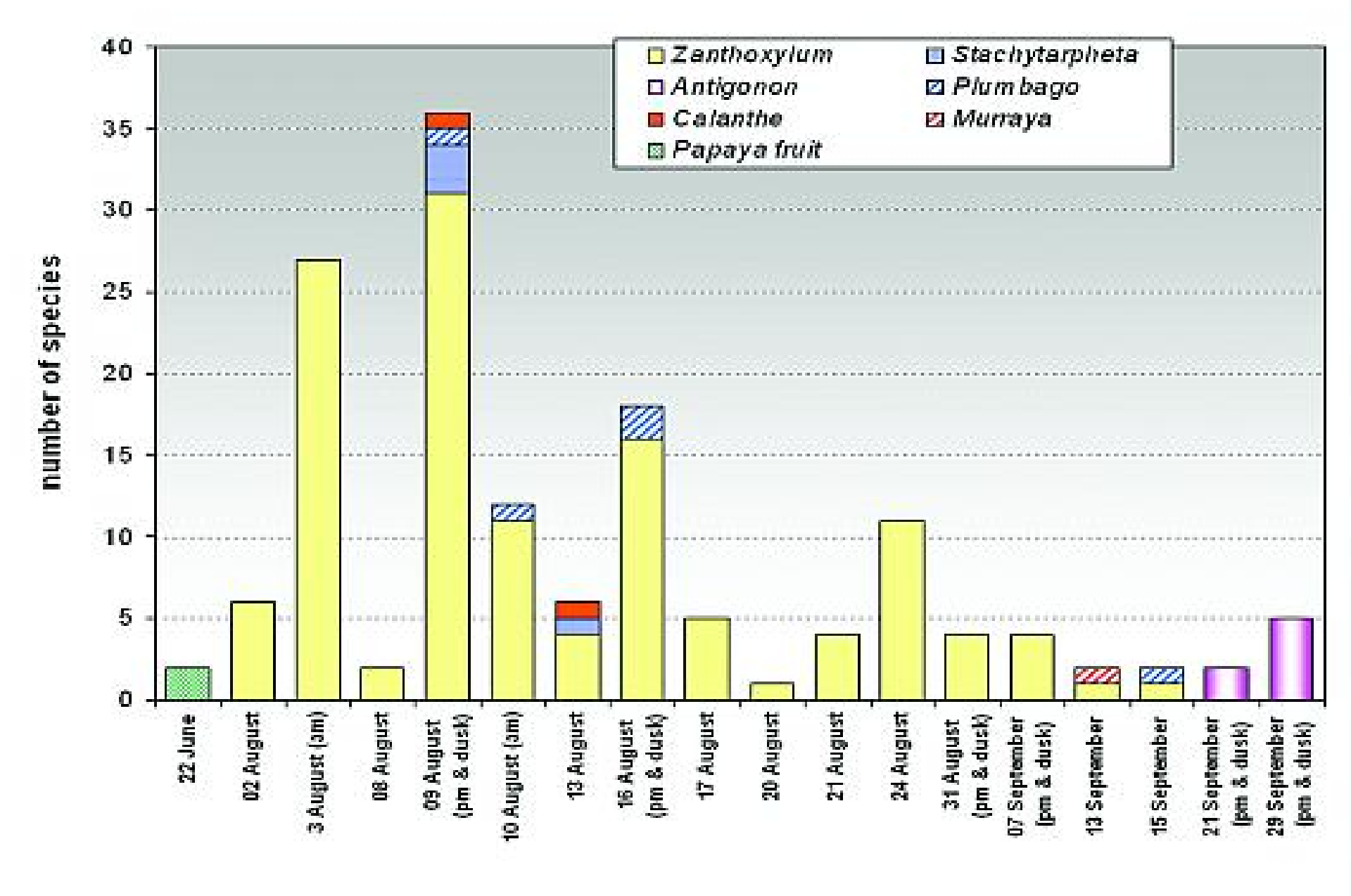

Figure 3. *Macroglossum passalus* nectaring whilst in flight over *Plumbago* at dusk


Figure 4. *Stachytarpheta* being utilised by the skipper butterfly *Bibasis oedipodea*


Figure 5. *Matapa aria* nectaring on *Antigonon* at dusk

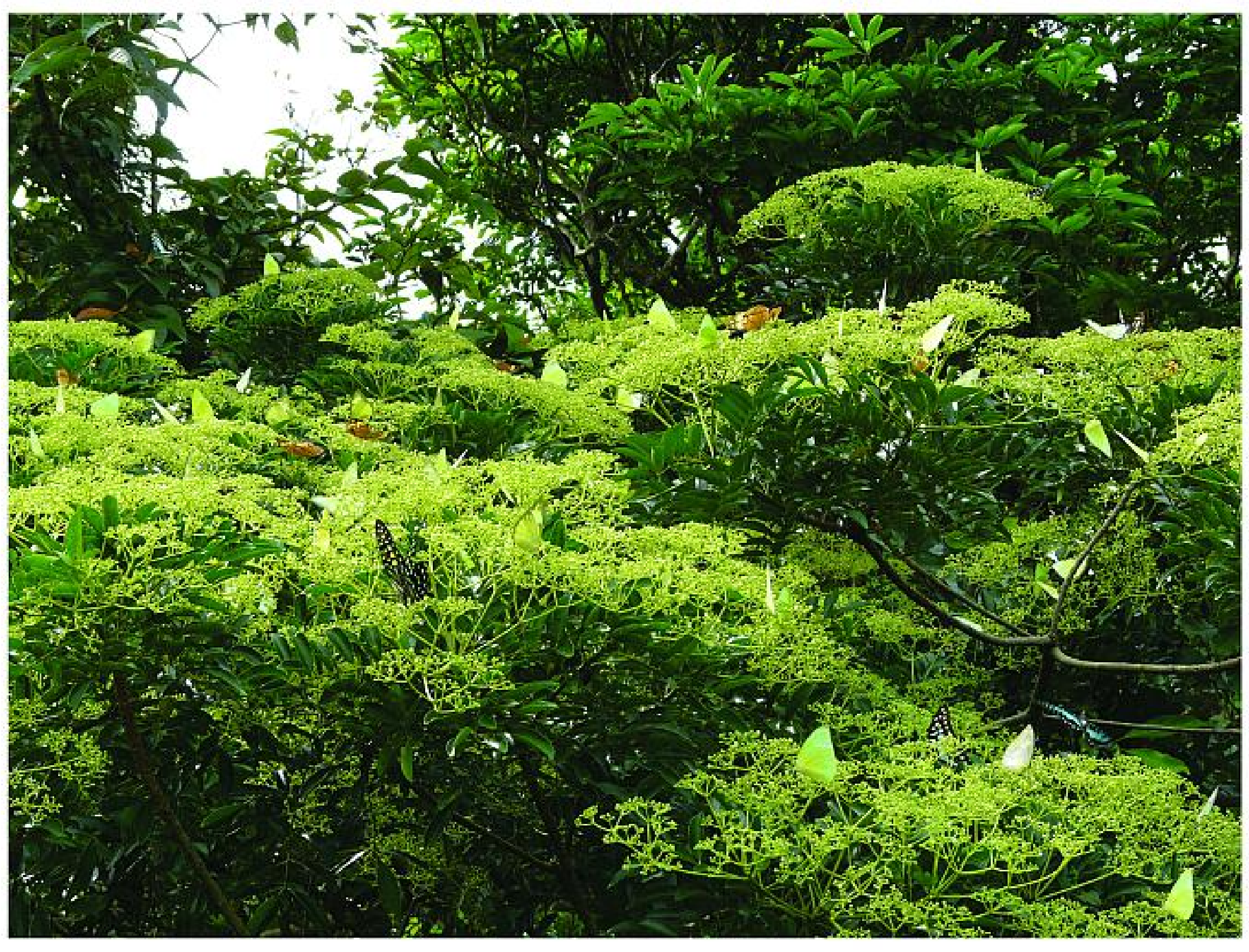
Figure 6. A busy tree - at times over 100 butterflies were observed simultaneously on the *Zanthoxylum.* The pierid *Catopsilia pomona* was by far the most abundant species

Figure 7. some of the other visitors to the *Zanthoxylum*:
(a) *Danaus genutia*; (b) *Hestina assimilis*; (c) *Amata grotei*; (d) *Argyreus hyperbius*

Figure 8. Wasps and hornets (Vespidae) take nectar and predate the butterflies


Figure 9. Butterflies disturbed by a passing hymenopteran

DISCUSSION

These observations add to those documented by Tennent (1992), Li (1992, 1994) and Bascombe *et al.* (1999) for Hong Kong and justify actions taken by the HKSAR Govt to utilize *Z. avicennae* in outdoor butterfly gardens in Hong Kong's Country Parks (Wong *et al.*, 2005). During the study, it became abundantly clear that *Z. avicennae*, although previously reported as attractive to butterflies, is a vital source of nectar to many species during its flowering period, as this short period of recording has more than doubled the previously reported list of species using *Z. avicennae* (Bascombe *et al.*, 1999) and demonstrates the value of selecting point count recording at suitable hotspots of activity. In addition, however, such a hotspot of activity does not go unnoticed by predatory insects (Figure 8), and most of the observation time at *Z.avicennae* is spent trying to focus on butterflies and moths before they are buzzed or attacked by roving wasps and hornets (Figure 9). It is possible that certain bird species also become familiar with these trees as meal sites, for flycatchers and magpie robins were also observed loitering in the vicinity of the trees. In past years the wildlife value of *Z. avicennae* has been apparent by the popularity of its fruit with winter birds.

Phenology & continuity of flowering species at this site may be a major factor in determining the presence of large numbers of butterflies. Though this has not yet been studied, the switch from *Z. avicennae* at the end of its flowering period to other available nectar sources, particularly *Antigonon*, *Gardenia jasminoides* and *Duranta erecta* (the last two are already well documented as good nectar sources for butterflies), was noted.

Use of *Z. avicennae*, *Antigonon* and *Plumbago* in butterfly gardens should be considered, although *Plumbago* is a poisonous plant (Russell *et al*., 1997), so should only be placed where it will not pose a threat to children or livestock.


Figure 10. *Deudorix epijarbas* sipping a *Zanthoxylum* flower in the late afternoon

CONCLUSIONS

- ***Zanthoxylum avicennae* is a valuable tree for attracting adult butterflies and moths to its flowers and would be a useful addition to any outdoor butterfly garden in subtropical and tropical Asia.**
- ***Plumbago* is also good for attracting crepuscular moths, but is a poisonous plant and thus may not be suitable in a butterfly garden context.**
- **The Mexican *Antigonon* is highly attractive to moths and butterflies, though requires more observation and research into its suitablilty for butterfly gardens in Asia.**
- **The point count method of recording butterflies and moths at a nectar "hot spot" has increased the butterfly list of Tai Po Kau Headland by over 30% in just 7 weeks, is spite of over 30 years recording, thus demonstrating it as a useful method of recording Lepidoptera, including rarely observed diurnal moths.**


Figure 11. The skipper *Gerosis phisara* nectaring on *Zanthoxylum*

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