

# 5th Seminar on Best Practices for Urban Tree Management

## Insect Pests of Urban Trees

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CBiol, MSB



# What is pest?

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# What make a pest?

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- Oxford Dictionary: a **destructive** insect or other animal that attacks **crops, food, livestock** etc.
- Wikipedia: an animal or plant **detrimental** to **humans or human concerns**
- ISPM5: Any species, strain or biotype of plant, animal or pathogenic agent **injurious** to **plants or plant products**
- 維基百科：害蟲是人類對一些動物（大多屬於昆蟲）的定義，這些動物往往會對人類的**生活、生產產生負面影響**。

# Is this a pest?

## (Case 1) 蘆葦細蟎







**Side View**

**T.S. through the rolled & Galled part of a leaf**

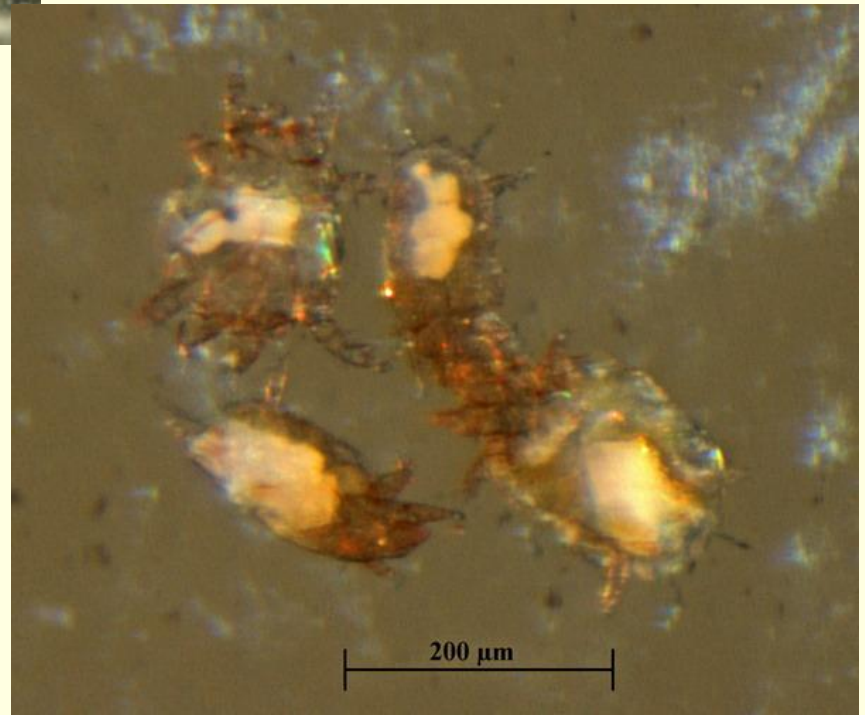




**Cavity developed between  
epidermis forming egg  
Chamber**

*Steneotarsonemus  
phragmitidis* ex  
*Phragmites australis*

**Adult  
mites**







## Phragmites: Common Reed

Invasive  
Plants

### Problem and Control Methods

#### Biological Control, Research Efforts:



Research in Europe began in the late 1980s. Literature and field studies indicate a potential for biological control. *et al., 2001* deliberate biological control agents occurred. (2002) 26 attack *P. a* Many of the accidentally introduced last decade

The mite is used as biological agents against common reed.

moth *Rhizedra lutosa*, the gall midge *Lasioptera hungarica*, a dolichopodid in the genus *Thrypticus*, the aphid *Hyalopterus pruni*, and the wasp *Tetramesa phragmitis*, appear widespread. The mite *Steneotarsonemus phragmitidis* was recently discovered in the Finger Lakes Region of New York and the rice grain gall midge *Giraudiella inclusa* in Massachusetts, Connecticut, New Jersey, and New York.

Is this a pest?

(Case 2) 管氏腫腿蜂



*Sclerodermus harmandi*

Bethylidae 蟻形蜂科





HOME

실험실 소개

곤충의 자료실

수업개시란

이미지 갤러리

질문 답변 Q&A

관련관련 사이트

- ▷ 실험실 소개
- ▷ 진행중인 연구
- ▷ 우리 교수님
- ▷ 실험실 식구
- ▷ 졸업한 선배님
- ▷ 추억의 재집여행

방명록  
홈페이지관리



로그인 회원가입 ○○○○

개미침벌 *Sclerodermus harmandi* (Buysson 1903)

taxon

2007-06-05 12:49:53, 조회 : 2,458, 추천 : 66

- Download #1 : IMG\_7894\_01.jpg\_copy.jpg.jpg (250.4 KB), Download : 47



개미침벌 암컷이 폭발수염하늘소(*Monochamus saltanarius*) 유충에 산란한 사진입니다.

# **Destructive Pests**

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# Don't take chances - Avoid these trees

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1. *Erythrina variegata* – *Quadrastichus erythrinae*  
(Eulophidae) 刺桐紬小蜂
2. *Cycas revoluta* – *Aulacaspis yasumatsui*  
(Diaspididae) 蘇鐵白輪盾介
3. *Phoenix canariensis* – *Rhynchophorus ferrugineus* (Dryophthoridae) 紅棕象甲
4. *Pinus massoniana* – *Monochamus alternatus*  
(Cerambycidae) 松墨天牛+ *Bursaphelenchus xylophilus* (Aphelenchoididae) 松材線蟲







1. *Erythrina variegata* 刺桐  
*Quadrastichus erythrinae*  
(Eulophidae) 刺桐糸小蜂



# *Quadrastichus erythrinae* (Eulophidae)





## 2. *Cycas revoluta* – *Aulacaspis yasumatsui* (Diaspididae) 蘇鐵白輪盾介

The scale has the ability to kill its host within a period of less than a year without any control measure.



## 2. *Cycas revoluta* – *Aulacaspis yasumatsui* (Diaspididae) 蘇鐵白輪盾介

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# *Cycas revoluta* – *Aulacaspis yasumatsui* (Diaspididae)

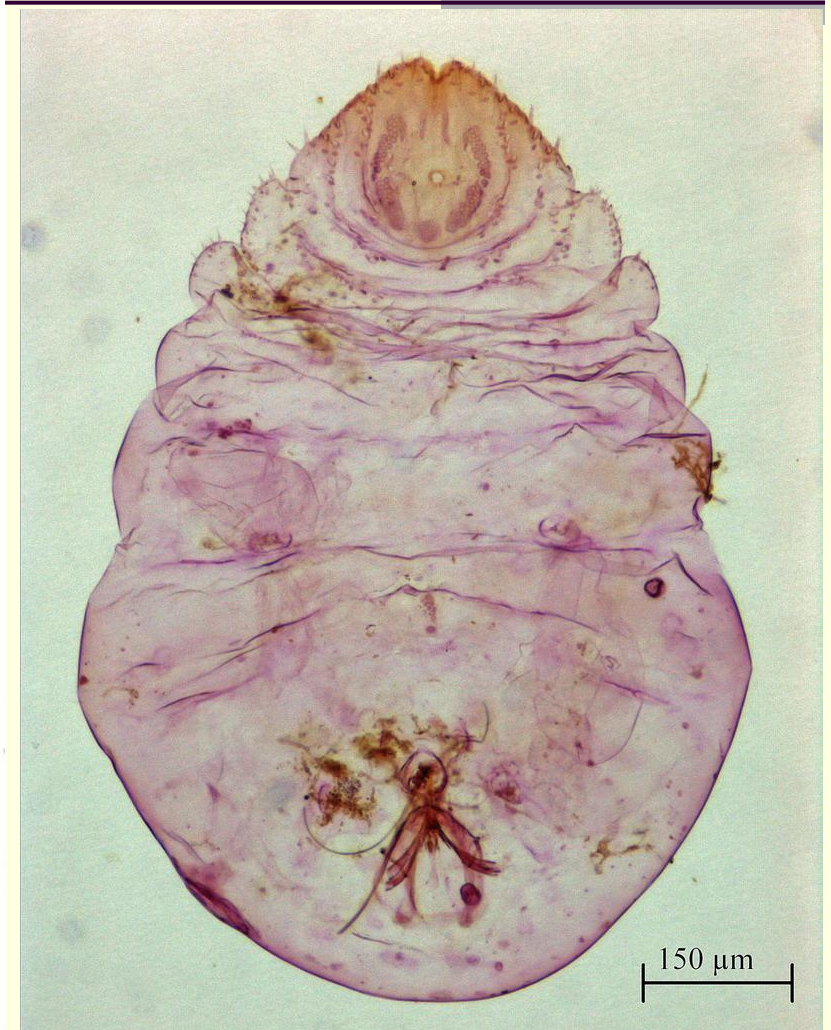




*Cycas revoluta* – *Aulacaspis yasumatsui*  
(Diaspididae)



*Cycas revoluta* – *Aulacaspis yasumatsui*  
(Diaspididae)





# 3. *Phoenix canariensis* – *Rhynchophorus ferrugineus* (Dryophthoridae) 紅棕象甲

## 引入貴價樹帶來象甲蟲禍

### 團體轟盲目綠化 耗公帑兼不環保

【本報訊】施政報告提出綠化都市，政府近期努力植樹，但種得多，死的也多。土木工程拓展署在竹篙灣種植的貴價樹「加拿利海棗」大量死亡，同一部門轄下的馬鞍山棕櫚園又有數以十計加拿利海棗被蟲蛀枯死。環保團體批評政府盲目綠化，引入外來品種，非但未能達致生態保育目標，反而浪費公帑兼破壞自然。

記者：蔡元貴



■被蟲蛀死亡的加拿利海棗位於馬鞍山丁7道路，鄰近樟木頭村。

**鄰** 近馬鞍山鐵路的T7道路，去年八月起進行美化工程，位於樟木頭村一帶更開闢了一個棕櫚園，種植一千棵棕櫚樹，當中有些不是香港原生的巨型棕櫚樹加拿利海棗，植樹工程並不順利，承建商最近發現大批加拿利海棗移植後逐漸凋謝，樹冠變黃，繼而塌下。

### 最少有二十棵壞死

漁農自然護理署接獲承建商通報，經調查後，證實該批加拿利海棗是死於蟲患。漁護署發言人說，該署已通知土木工程拓展署，要求該部門把不健康的樹木移走，並進行滅蟲工作；包括砍掉壞死的加拿利海棗，然後以殺蟲劑徹底清理，再運往廢物堆填區銷毀。

現場所見，壞死的加拿利海棗最少有二十棵，蛀食加拿利海棗

的害蟲名叫棕櫚象甲。漁護署表示，這是該署有紀錄以來的首宗象甲蟲害，為免蟲禍蔓延，該署已通知所有園藝及樹木出入口公司，今後引入棕櫚樹時務須小心檢疫。

上月在竹篙灣迪士尼樂園入口通道大量死亡的加拿利海棗每棵價值十萬元，種植於馬鞍山的同類品種較為矮小，造價可能低一點。當局曾向立法會解釋，在竹篙灣引入這種貴價樹是為了營造度假氣氛。

### 對本土生態無幫助

綠色力量總幹事文志森質疑，政府為何要在馬鞍山引入貴價的外來樹種，「今次事件好可惜，綠化都市嘅意義唔單止在於美觀，更重要係保育生態環境，外來品種不但對本土生態環境有幫助，一旦帶來蟲禍，更加會造成反效果。」





vn Exploration for RPW. UC Riverside, Centre for Invasive Species Research.  
<http://www.youtube.com/watch?v=rUnfFDtp1w8>

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### 3. *Phoenix canariensis* – *Rhynchophorus ferrugineus* (Dryophthoridae) 紅棕象甲

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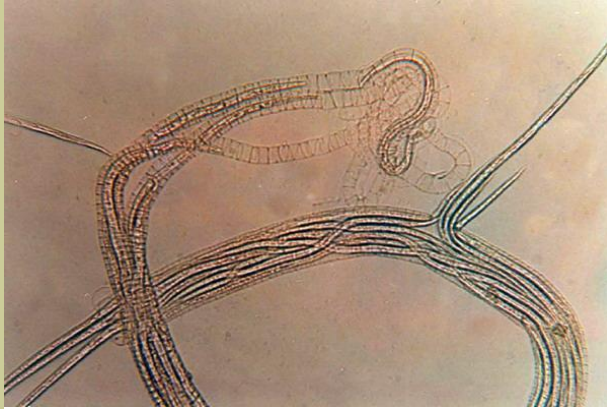


4. *Pinus massoniana* – *Monochamus alternatus* 松墨天  
牛(Cerambycidae) + *Bursaphelenchus xylophilus* 松材  
線蟲(Aphelenchoididae)





4. *Pinus massoniana* – *Monochamus alternatus* 松墨天牛(Cerambycidae) + *Bursaphelenchus xylophilus* 松材線蟲(Aphelenchoididae)

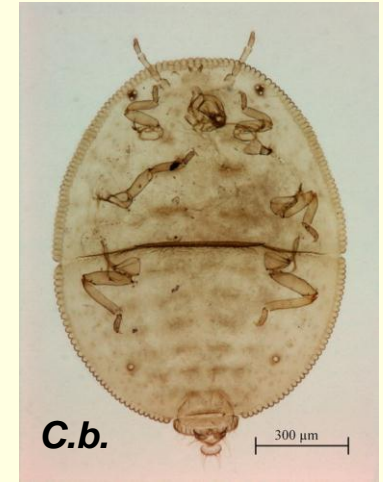




# Ghosts

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# Palm Ghosts: *Tirathaba mundella* 椰子綴蛾 (Pyralidae) *Cerataphis brasiliensis* 巴西蝨蚜(Aphididae) *Brontispa longissima* 椰心葉甲(Chrysomelidae)





# Boom & Bust

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# Occasional Boom & Bust -1

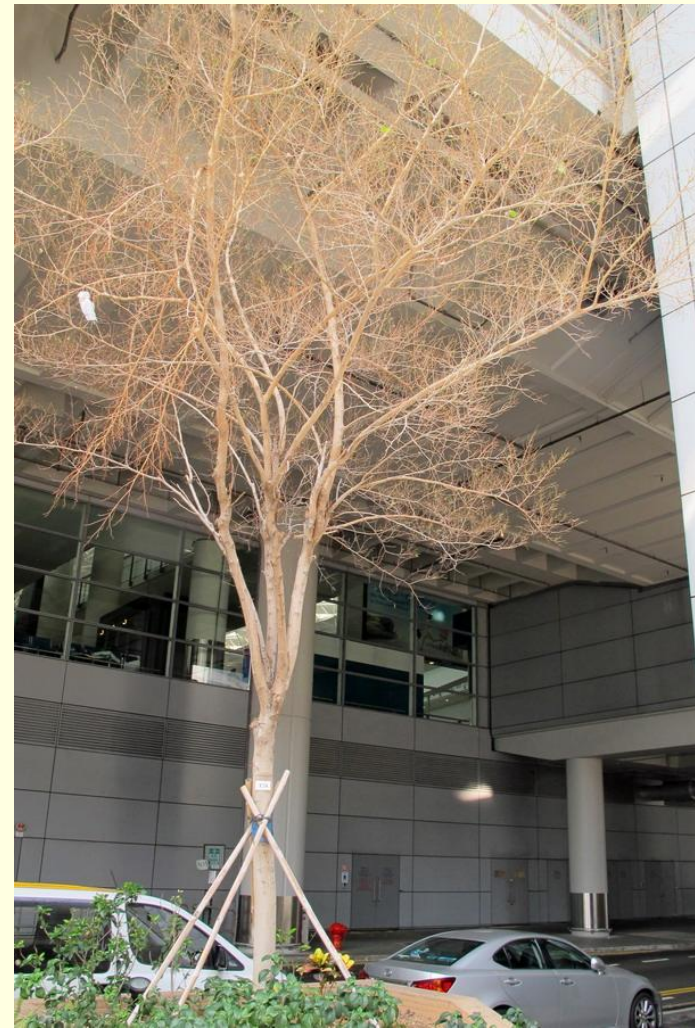
*Delonix regia* – *Pericyma cruegeri* (Erebidae:  
Catocalinae) 鳳凰木夜蛾





# Occasional Boom & Bust - 2

*Ficus microcarpa* - *Perina nuda* (Erebidae: Lymantriinae)



# Occasional Boom & Bust -2

*Ficus microcarpa* - *Perina nuda* (Erebidae: Lymantriinae)





**Pests of**

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**Favourite Trees**

# Top Ten Recommended Trees

	Asso. sp.	Species of Concern
1 <sup>st</sup> <i>Crateva unilocularis</i> 魚木	15	Nil
2 <sup>nd</sup> <i>Jacaranda mimosifolia</i> 藍花楹	2	Nil
3 <sup>rd</sup> <i>Cinnamomum camphora</i> 樟樹	169	<i>Metatriozidus camphorae</i> (Triozidae) <i>Actias sinensis</i> (Saturniidae)
3 <sup>rd</sup> <i>Terminalia catappa</i> 欖仁樹	28	Nil
5 <sup>th</sup> <i>Cinnamomum burmannii</i> 陰香	23	Nil
6 <sup>th</sup> <i>Lagerstroemia speciosa</i> 大花紫薇	22	<i>Kunugia divaricata</i> & <i>Trabala visnou</i> (Lasiocampidae), <i>Orgyia postica</i> (Erebidae: Lymantriinae)
6 <sup>th</sup> <i>Michelia alba</i> 白蘭	51	<i>Formosaphis michelia</i> (Aphididae)
6 <sup>th</sup> <i>Melaleuca cajuputi</i> subsp. <i>Cuminngiana</i> 白千層	14	<i>Syntonarcha iriastis</i> (Crambidae)
6 <sup>th</sup> <i>Cassia fistula</i> 臘腸豆 (豬腸豆)	38	Nil
6 <sup>th</sup> <i>Spathodea campanulata</i> 火焰木	4	Nil



# Top Ten Recommended Trees

	Associated sp.	Species of Concern
1 <sup>st</sup> <i>Crateva unilocularis</i> 魚木	15	Nil
2 <sup>nd</sup> <i>Jacaranda mimosifolia</i> 藍花楹	2	Nil
3 <sup>rd</sup> <i>Cinnamomum camphora</i> 樟樹	169	<i>Metatriozidus camphorae</i> (Triozidae) Various Saturniids

# *Trioza camphorae* (Trioziidae)



樟個木虱



# Various Saturniids



*Actias sinensis*



*Samia wangi*

*Actias sinensis*



Courtesy of 'blackdogto'



*Eriogyna pyretorum*



# Top Ten Recommended Trees

	Associated sp.	Species of Concern
3 <sup>rd</sup> <i>Terminalia catappa</i> 欖仁樹	28	Nil
5 <sup>th</sup> <i>Cinnamomum burmannii</i> 陰香	23	Nil
6 <sup>th</sup> <i>Lagerstroemia speciosa</i> 大花紫薇	22	<i>Kunugia divaricata</i> & <i>Trabala visnou</i> (Lasiocampidae), <i>Orgyia postica</i> (Erebidae: Lymantriinae)



*Kunugia divaricata* & *Trabala visnou* (Lasiocampidae),  
*Orgyia postica* (Erebidae: Lymantriinae)



斜紋枯葉蛾



棉古毒蛾



青枯葉蛾



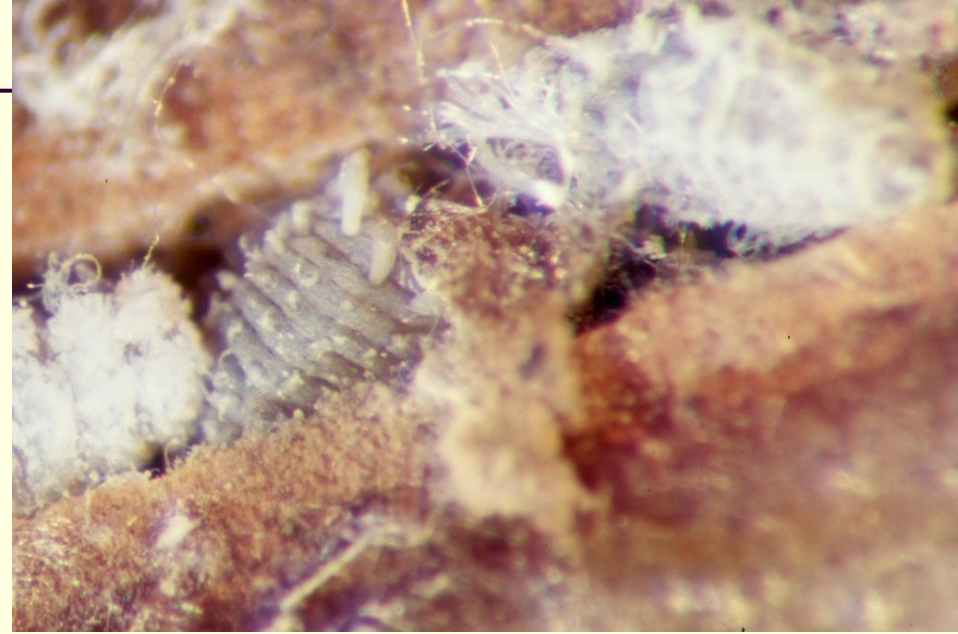
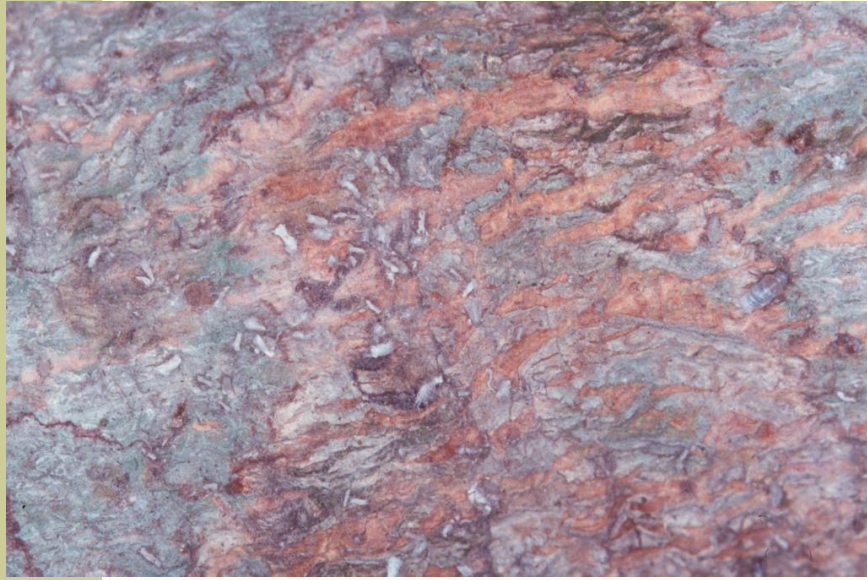
# Top Ten Recommended Trees

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	Associated sp.	Species of Concern
6 <sup>th</sup> <i>Michelia alba</i> 白蘭	51	<i>Formosaphis michelia</i> (Aphididae)



*Formosaphis michelia* (Aphididae) 麗綿蚜



# Top Ten Recommended Trees

	Associated sp.	Species of Concern
6 <sup>th</sup> <i>Melaleuca cajuputi</i> subsp. <i>cuminngiana</i> 白千層	14	<i>Syntonarcha iriastis</i> (Crambidae)
6 <sup>th</sup> <i>Cassia fistula</i> 臘腸豆 (豬腸豆)	38	Nil
6 <sup>th</sup> <i>Spathodea campanulata</i> 火焰木	4	Nil



*Syntonarcha iriastis* (Crambidae) 白千層草螟



**Pests of**

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**Unfavorite Trees**



# Top Ten Not Recommended Trees

	Asso. No.	Key Pest
1 <sup>st</sup> <i>Leucaena leucocephala</i> 銀合歡	18	<i>Heteropsylla cubana</i> (Psyllidae)
2 <sup>nd</sup> <i>Ficus elastica</i> 印度橡膠	20	Nil
3 <sup>rd</sup> <i>Macaranga tanarius</i> 血桐	43	<i>Icerya aegyptiaca</i> (Monophlebidae)
4 <sup>th</sup> <i>Erythrina variegata</i> 刺桐	17	<i>Quadrastichus erythrinae</i> (Eulophidae)
5 <sup>th</sup> <i>Salix babylonica</i> 垂柳	57	Nil
5 <sup>th</sup> <i>Casuarina equisetifolia</i> 木麻黃	65	Nil, but reservoir of <i>Anoplophora chinensis</i> , <i>Batocera horsfieldi</i> , <i>B. rubus</i> (Cerambycidae), stink bug, weevil and scarabid
7 <sup>th</sup> <i>Acacia confusa</i> 台灣相思	69	Nil - ? <i>Biston marginata</i> (Geometridae)
7 <sup>th</sup> <i>Cocos nucifera</i> 椰子	100	Nil
7 <sup>th</sup> <i>Ravenala madagascariensis</i> 旅人蕉	7	Nil
10 <sup>th</sup> <i>Cerbera manghas</i> 海芒果	3	Nil
10 <sup>th</sup> <i>Eucalyptus citriodora</i> 檸檬桉	9	Nil
10 <sup>th</sup> <i>Aleurites moluccana</i> 石栗	8	Nil
10 <sup>th</sup> <i>Araucaria heterophylla</i> 異葉南洋杉	3	Nil

# Top Ten Not Recommended Trees

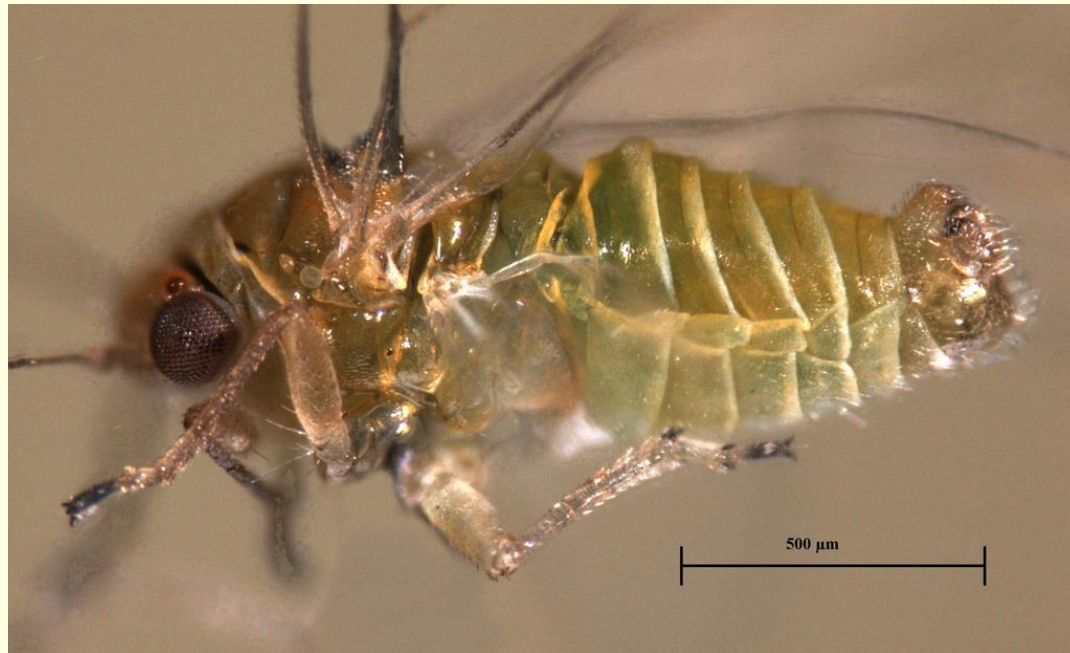
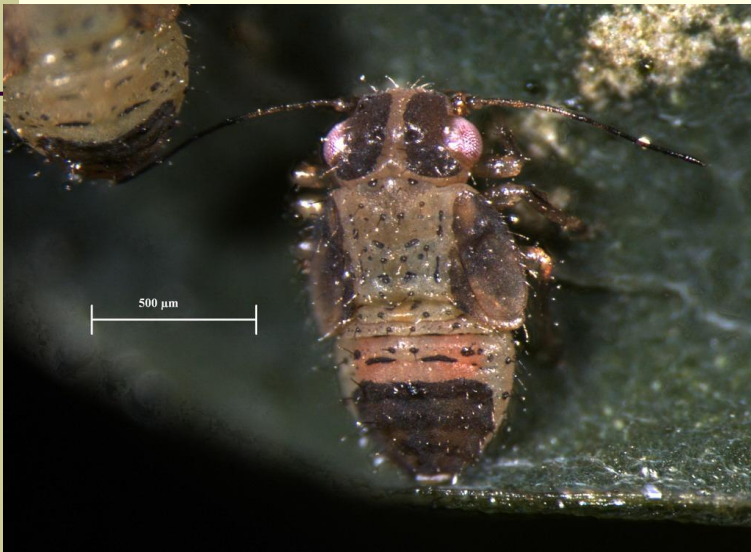
	No. of Asso. Sp.	Key Pest
1 <sup>st</sup> <i>Leucaena leucocephala</i> 銀合歡	18	<i>Heteropsylla cubana</i> (Psyllidae)
2 <sup>nd</sup> <i>Ficus elastica</i> 印度橡膠	20	Nil



*Heteropsylla cubana* (Psyllidae) 銀合歡木蝨



*Heteropsylla cubana* (Psyllidae) 銀合歡木蝨





# Top Ten Not Recommended Trees

	No. of Asso. Sp.	Key Pest
3 <sup>rd</sup> <i>Macaranga tanarius</i> 血桐	43	<i>Icerya aegyptiaca</i> (Monophlebidae) {c.f. <i>I.</i> <i>jaihind</i> + <i>Rodolia pumila</i> }

*Icerya aegyptiaca* (Monophlebidae) 埃及吹綿蚧  
{c.f. *I. jaihind* + *Rodolia pumila*}

*I. a.*

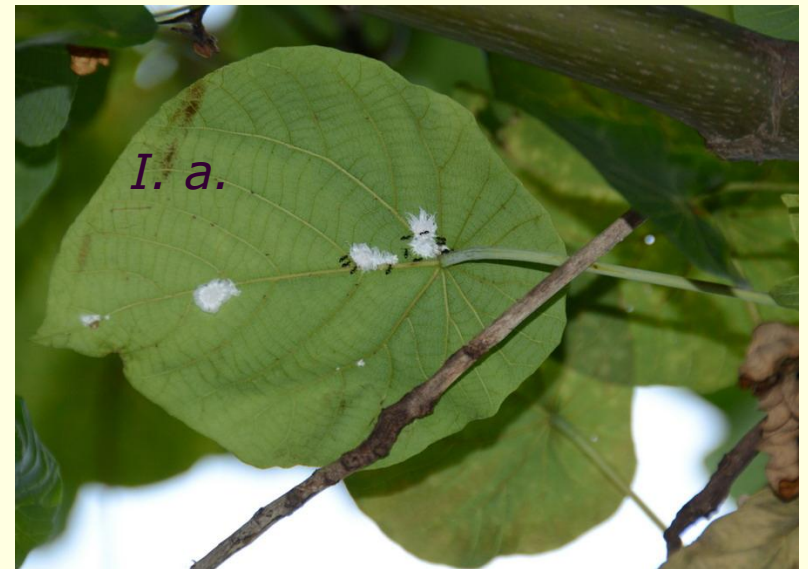
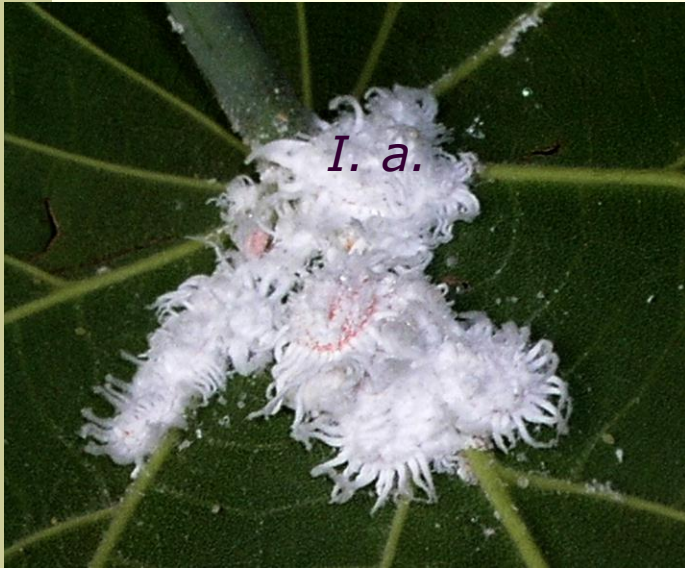


*I. j.*





*Icerya aegyptiaca* (Monophlebidae) 埃及吹綿蚧  
{c.f. *I. jaihind* + *Rodolia pumila*}



# Top Ten Not Recommended Trees

	No. of Asso. Sp.	Key Pest
4 <sup>th</sup> <i>Erythrina variegata</i> 刺桐	17	<i>Quadrastichus erythrinae</i> (Eulophidae) (discussed)
5 <sup>th</sup> <i>Salix babylonica</i> 垂柳	57	Nil



# Top Ten Not Recommended Trees

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	No. of Asso. Sp.	Key Pest
5 <sup>th</sup> <i>Casuarina equisetifolia</i> 木麻黃	65	Nil, but reservoir of <i>Anoplophora chinensis</i> , <i>Batocera horsfieldi</i> , <i>B. rubus</i> (Cerambycidae), stink bug, weevil and scarabids

# Res. of longhorn, stink bug, weevil, scarabid etc.





# Top Ten Not Recommended Trees

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	No. of Asso. Sp.	Key Pest
7 <sup>th</sup> <i>Acacia confusa</i> 台灣相思	69	Nil, <i>Biston marginata</i> (Geometridae)!
7 <sup>th</sup> <i>Cocos nucifera</i> 椰子	100	Nil
7 <sup>th</sup> <i>Ravenala madagascariensis</i> 旅人蕉	7	Nil

# *Biston marginata* (Geometridae)

## 油茶尺蠖 - 吊絲蟲



再來一條橙黑相間的毛蟲大模私樣的在我面前橫過  
和一條從台灣相思吊下來的吊絲蟲...

抽完血後

到百佳買菜

翻過幾包菜心

每包均有幾隻小蝸牛





# Top Ten Not Recommended Trees

	No. of Asso. Sp.	Key Pest
10 <sup>th</sup> <i>Cerbera manghas</i> 海芒果	3	Nil
10 <sup>th</sup> <i>Eucalyptus citriodora</i> 檸檬桉	9	Nil
10 <sup>th</sup> <i>Aleurites moluccana</i> 石栗	8	Nil
10 <sup>th</sup> <i>Araucaria heterophylla</i> 異葉南洋杉	3	Nil

# Quarantine

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# The Most Authoritative Reference

Available for free download at:

<http://www.fao.org/docrep/013/i2080e/i2080e00.htm>





# Examples of Major Forest Pest

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***Agrilus planipennis*, emerald ash borer**

***Cinara cupressivora*, cypress aphid**

***Leptocybe invasa*, blue-gum chalcid**

***Sirex noctilio*, European woodwasp**

***Cryphonectria parasitica*, chestnut blight**

***Ophiostoma ulmi* & *O. novo-ulmi*, Dutch elm disease**

***Phytophthora ramorum*, sudden oak death**

***Puccinia psidii*, eucalyptus rust**

***Bursaphelenchus xylophilus*, pinewood nematode**

***Bursaphelenchus cocophilus*, red ring nematode**

# CLIVE'S A2 PEST LIST (1 of 3)

Distribution	ORDER	FAMILY	PEST
T	Coleoptera	Brachyceridae	<i>Lissorhoptrus oryzophilus</i> Kuschel, 1952
T*		Buprestidae	<i>Agrilus planipennis</i> Fairmaire, 1888
IT		Cerambycidae	<i>Hoplocerambyx spinicornis</i> (Newman, 1842)
-		Chrysomelidae	<i>Acanthoscelides pallidipennis</i> (Motschulsky, 1874)
-			<i>Octodonta nipae</i> (Maulik, 1921) Kimoto, 2000
T*			<i>Ophraella communa</i> LeSage, 1986
G			<i>Zygogramma suturalis</i> (Fabricius, 1775)
-		Curculionidae	<i>Dendroctonus pseudotsugae</i> Hopkins, 1905
-			<i>Dendroctonus valens</i> LeConte, 1860

**T: Just Taiwan,**

**\*: also in other part of mainland China**

**I: Hainan**

**-: mainland China**

**G: Guangdong**

# CLIVE'S A2 PEST LIST (2 of 3)

Distribution	ORDER	FAMILY	PEST
T	Dictyoptera	Blaberidae	<i>Henschoutedenia flexivitta</i> (Walker, 1868)
T			<i>Princisia vanwaerebeki</i> van Herrewege, 1973
T		Polyphagidae	<i>Ergaula capucina</i> (Brunner von Wattenwyl, 1893)
T			<i>Therea petiveriana</i> (Linnaeus, 1758)
GT	Diptera	Agromyzidae	<i>Liriomyza trifolii</i> (Burgess in Comstock, 1880)
-		Cecidomyiidae	<i>Obolodiplosis robiniae</i> (Haldemann, 1847)
-		Tephritidae	<i>Procecidochares utilis</i> Stone, 1947
-	Heteroptera	Tingidae	<i>Corythucha ciliata</i> (Say, 1832)
T*	Thysanoptera	Thripidae	<i>Echinothrips americanus</i> Morgan, 1913

**T: Just Taiwan,**

**\*: also in other part of mainland China**

**I: Hainan**

**-: mainland China**

**G: Guangdong**



# CLIVE'S A2 PEST LIST (3 of 3)

Distribution	ORDER	FAMILY	PEST
-	Homoptera	Aleyrodidae	<i>Aleurochiton pseudoplatani</i> Visnya, 1936
IT			<i>Aleurodicus dispersus</i> Russell, 1965
-			<i>Bemisia tabaci</i> biotype G (Mediterranean)
GT			<i>Paraleyrodes bondari</i> Peracchi, 1971
T		Aphididae	<i>Dysaphis tulipae</i> (Boyer de Fonscolombe, 1841)
-			<i>Greenidea artocarp</i> (Westwood, 1890)
-		Asterolecaniidae	<i>Asterodiaspis ilicicola</i> (Targioni-Tozzetti, 1888)
-		Dactylopiidae	<i>Dactylopius confusus</i> (Cockerell, 1893) Cockerell, 1902
G		Pseudococcidae	<i>Dysmicoccus neobrevipes</i> Beardsley, 1959
-	Lepidoptera	Crambidae	<i>Diaphania hyalinate</i> (Linnaeus, 1767)
GI		Tineidae	<i>Opogona sacchari</i> (Bojer, 1856) Klimesch, 1980
-		Tortricidae	<i>Epiblema strenuana</i> (Walker, 1863) Heinrich, 1923

**T: Just Taiwan, G: Guangdong, I: Hainan**  
**-: mainland China**

# GAMES

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# Which psyllid is an important pest? (Plate 1)





**Which psyllid is an important pest? (Plate 1)**

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**2**

# Which mirid is a pest? (Plate 2)



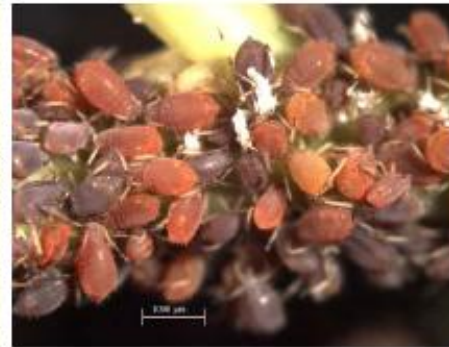
Which mirid is a pest? (Plate 2)

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None



# Which aphid can be beneficial? (Plate 3)



# Which aphid can be beneficial? (Plate 3)

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7

# Which ladybird is a pest? (Plate 4)





**Which ladybird is a pest? (Plate 4)**

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**3**

# Which termite is a pest? (Plate 5)



# Which termite is a pest? (Plate 5)

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9



The image features a vibrant red background adorned with various Christmas-themed decorations. In the center-left, two large ornaments are suspended by thin gold lines. The upper ornament is dark red with a prominent white snowflake design, while the lower one is a lighter, metallic gold color with several smaller, dark red starburst patterns. Surrounding these ornaments are several intricate, white snowflake cutouts of varying sizes and designs. The overall aesthetic is warm and celebratory, typical of a holiday greeting card or a seasonal presentation slide.

**Thank You**