

AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST

# ANNUAL REPORT 2009-10



*Cicadulina mbila* (Naudé)



*Bajauana acuminata* Löcker, 2010



# Report of the Agricultural Scientific Collections Trust

for the Year Ended 30 June 2010

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## CONTENTS

Aims and Objectives.....	2
Access.....	2
Composition of Trust.....	2
Trustees.....	2
Activities of the Trust.....	3
Statement by Members of the Trust.....	9
Independent Audit Report.....	10
Financial Statements.....	12

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Report of the Agricultural Scientific Collections Trust  
For the Year Ended 30 June 2010

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This is the twenty seventh Annual Report on the activities of the Agricultural Scientific Collections Trust, established in 1983 under the provisions of the *Agricultural Scientific Collections Trust Act, 1983*, No.148, of the NSW Parliament.

## Aims and Objectives

The Act provides statutory protection for the scientific collections of Industry & Investment NSW and ensures their long-term maintenance and improvement. At present, the collections vested in the Trust are the Plant Pathology Herbarium and the Insect and Mite Collection, both housed at Orange Agricultural Institute, the Forest Entomology, Plant Pathology and Wood Sample collections, housed at West Pennant Hills and the National Collection of Domestic Animal

Pathology housed mainly at the Elizabeth McArthur Agricultural Institute, Menangle. The entomological and plant pathology collections are used in both research work on the taxonomy and identification of insects, mites, fungi and other microorganisms harmful to agricultural and forestry plants and in providing advice on the identification, host range, distribution and biology of these organisms. The animal pathology collection is a physical record of animal disease occurrence in New South Wales and is used as a research and teaching resource by departmental veterinarians and university Veterinary Science departments.

### Access

Director of the Collections  
Agricultural Scientific Collections Trust  
Orange Agricultural Institute  
Forest Road  
Orange NSW 2800  
Telephone: (02) 63913800  
Fax: (02) 63913899

Email: [murray.fletcher@industry.nsw.gov.au](mailto:murray.fletcher@industry.nsw.gov.au)

Business hours: 8.30 am - 4.30 pm.

The present Director of the Collections is Dr M.J. Fletcher, Principal Research Scientist and Curator of the Entomological Collections.

Details of the Trust and the Agricultural Scientific Collections Trust Act (ASCT) are available on the internet at:

<http://www.dpi.nsw.gov.au/aboutus/about/legislation-acts/agricultural-scientific-collections-trust>

### Composition of the Trust

Trust members are appointed by the Minister for Primary Industries for a period of five years. The Trust currently comprises:

#### Chairman



**Ms H. Scott-Orr**, Former Director Health Science & Strategic Alliances, NSW Department of Primary Industries.

#### Director of the Collections



**Dr M.J. Fletcher**, Principal Research Scientist, Curator Entomological Collections, I&I NSW.

Dr Fletcher is not a member of the Trust

#### Trustees



**Mr R. Armstrong**, 14 Thoopara Place, Orange, NSW

#### Secretary to the Trust



**Dr M.J. Priest**, Special Plant Pathologist, Curator, Plant Pathology Herbarium, I&I NSW

Dr Priest is not a member of the Trust



**Dr T. Entwisle**, Executive Director, Royal Botanic Gardens and Domain Trust, Sydney, NSW



**Dr Simon McKirdy**, CEO, Cooperative Research Centre for National Plant Biosecurity, University of Canberra, ACT

## Meetings

Two meetings of the Trust were held during the reporting period, on 31 July 2009 and 20 April 2010.

## Freedom of Information Act

The Agricultural Scientific Collections Trust is F.O.I. Agency No 1668. No submissions or activities relevant to the NSW Freedom of Information Act 1989 were made during 2009-2010.

This Act was replaced from 1 July 2010 by the Government Information (Public Access) Act 2009.

## Abbreviations

The following abbreviations are used in this report:

**APPD** – Australian Plant Pest Database

**AQIS** – Australian Quarantine and Inspection Service

**ASCT** – NSW Agricultural Scientific Collections Trust

**ASCU** – NSW Agricultural Scientific Collections Unit, Orange (also the Coden for the Insect Collection)

**CHAEC** – Council of the Heads of Australian Entomological Collections

**CSU** – Charles Sturt University

**DAFF** – Australian Government Department of Agriculture, Forestry and Fisheries, Canberra.

**EMAI** - Elizabeth McArthur Agricultural Institute, Menangle

**FCNI** – Forestry Commission of New South Wales Insect collection, West Pennant Hills

**Herb-DAR** – Plant Pathology Herbarium, Orange

**I&I NSW** – Industry & Investment New South Wales

**MAF (NZ)** – Ministry of Agriculture and Forestry, New Zealand

**NAQS** – Northern Australian Quarantine Strategy

**NATA** – National Association of Testing Authorities.

**NCDAP** – National Collection of Domestic Animal Pathology, EMAI and Wagga Wagga

**NSWF** – New South Wales Forest Pathology Herbarium, West Pennant Hills.

## Activities of the Trust

### 2009-2010

On 23 December 2009, the Minister formally approved the transfer to the Trust of the National Collection of Domestic Animal Pathology. This collection comprises the Veterinary Pathology Collections housed at the former Regional Veterinary Laboratories at Wollongbar, Orange, Armidale and Wagga Wagga and the current Veterinary Laboratory at EMAI. Most of these collections have now been transferred to EMAI.

The business conducted at the July 2009 Trust meeting included the gazettal of the Forestry collections, ongoing care of the Plant Bacteria collection following the retirement of Dr Ric Cother, progress with placement of the seed collection formerly housed at Rosebery but now mothballed in Orange in Herb-DAR, progress with gazettal of the National Collection of Domestic Animal Pathology, budgetary constraints imposed on departmental accounts and possible impacts on Trust activities, possible contenders as replacement Trustees to replace Dr Rob

Brown and a funding request for Mr Gillespie to travel to Darwin to audit the Graham Brown material on long term loan from ASCU.

The business conducted at the April 2010 Trust meeting included consideration of new Trustees to replace Dr Hales and ongoing renewals of Trustees, protection of the Forestry Wood Collection, air conditioning for FCNI and NSWF collections and purchase of an Ultra Low Temperature Freezer for the Living Fungal and Bacterial components of Herb-DAR.

The primary role of the Trust Collections and their associated personnel is to provide authoritative taxonomic support for agricultural, forestry and veterinary activities in New South Wales and as the official record of pest and disease occurrence across the state.

The Agricultural Scientific Collections Unit in Orange has continued to make a significant contribution to sustainability and market effectiveness of agricultural produce in NSW by providing basic information on the identities, distributions, host relationships and pest status of plant pests and pathogens for biological control, integrated pest management, quarantine and trade purposes.

The Science and Research Collections based at the Forest Science Centre at West Pennant Hills provide invaluable identification and reference resources for current research projects and forest health surveillance. The insect and disease collections are also a repository of biosecurity comparative material relating to potential exotic plant pests affecting both forestry and timber products.

The NCDAP based at EMAI and Wagga Wagga is a major research and teaching resource as well as a comprehensive record of veterinary diseases affecting New South Wales. It comprises stained histopathology slides of animal tissues, wax blocks with embedded animal tissue from which further slides can be made, photographs and photographic slides of pathological conditions of animals, data pertaining to the farms and animals from which the tissue samples were taken and the diagnostic case reports made on them by experienced veterinary pathologists. The collection forms an invaluable record of the disease conditions of livestock and other animals which have occurred in New South Wales. They are used for retrospective surveillance of animal diseases, especially when new or emerging diseases appear in NSW, as a diagnostic support resource and as a teaching resource for both undergraduate and postgraduate students and junior pathologists. The collection at Wagga Wagga is currently on loan to CSU as a teaching resource and the University of Sydney is looking at borrowing the former Armidale collection for undergraduate teaching.

## Accreditation

The Entomology Laboratory at Orange Agricultural Institute is the first plant health lab in Australia to be accredited under NATA's Plant Health Diagnostic Testing annex to the Biological Testing Field Application Document (FAD).

The Mycology Section of Herb-DAR has had its ISO 9001 certification renewed. In addition, the laboratory has been accredited as an Australian Quarantine Approved premise at QC2 level. Both Dr Priest and Mrs Cowan are Quarantine

Approved Persons for the handling of exotic plant fungi and bacteria.

NATA accreditation was retained for the detection of exotic mites in honey bees.

An additional test for identification of Asian Gypsy Moth was approved by NATA, effective 18 March 2010.

## Personnel

Dr Dinah Hales formally resigned from the Trust after 15 years as a Trustee. The Trust is grateful for the valued input Dr Hales has given to the activities and considerations of the Trust over this extended period.

Ms Knihinicki has been appointed as Subject Editor (Eriophyoidea) for *Zootaxa: A Rapid International Journal for Animal Taxonomists*.

## Curation

### ASCU

Ongoing curation of the ASCU microscope slide and alcohol collections has been funded by the Trust. Slide collections are 90% relabelled and the Acarology Collection is being reorganised phylogenetically by Dr Löcker.

Chrysomelid beetles and the Diptera have been reorganised during the reporting year. Significant additions were made to the Aleyrodidae (whiteflies), both slide mounted and dry material.

The ASCU collection database contains 208010 records, representing 335459 specimens. All of these data are shared with the APPD except for those bearing unpublished manuscript names.

Assessment of G.R. Brown loan material in Darwin was undertaken in September 2009 and a report prepared for the Trust. Type and other ASCU material could not all be found in the institutions visited. Recommendation for the return of designated type material has been made as an initial recovery step.

### Herb-DAR

Accessioning of the overseas collection and updating of the virus records has continued slowly throughout the year. Two hundred and sixty specimens were added to the herbarium from research, diagnostic and other sources and 9,000 database records were edited. Two hundred and fifty living isolates of fungi were added to the culture collection. Mrs Cowan is currently managing the culture collection (fungi, bacteria and viruses) as well as herbarium duties. The purchase of a -80 degree freezer partly funded by the Trust, has allowed for a more rapid incorporation and revitalising of cultures.

### FCNI

Accession of material from existing projects continued on from the previous year with new accessions reaching approximately 3000 records. The latest records are from historical termite collections, in addition to recent AQIS termite intercepts.

The upgrades planned for the housing of the FCNI collection at West Pennant Hills hit major problems due to limited funding. ASCT made available funds which were used to purchase a suitable dehumidifier unit. This unit will be installed

using divisional funding and it is hoped to be installed for the upcoming humidity vagaries of Sydney's spring and summer. This upgrade of the air conditioning system will improve the environmental qualities of the collection rooms by reducing the relative humidity to an acceptable range of 50–55%.

The second upgrade was the replacement of the dedicated databasing computer with a faster model. The new computer will be used in conjunction with a newly purchased Leica M205C microscope with motor focus and touch controller, Leica DFC425 digital camera and Leica LAS montage software. These latter capital item purchases will improve and enhance the taxonomic capabilities of forestry research being undertaken at West Pennant Hills. It is planned that this microscope will eventually become part of the remote microscope network being developed in conjunction with the CRC for National Plant Biosecurity and PaDIL.

## Loans

Ten loans of mites and insects were sent out by ASCU, including the loan of two primary type specimens of achilid planthoppers to a researcher in Italy and two mite loans included primary types for phytoseiid mite researchers in France and Italy. Six loans were returned during 2009-2010.

Herb-DAR sent out seven loans to national and international institutions. In addition, sixty nine cultures (fungi and bacteria) were sent out for research or teaching purposes.

Two loans of insects were sent out by FCNI during 2009, one to North America as a small loan of additional species that form part of a larger loan of mirids and the second to a retired bark beetle taxonomist in Thailand. The latter loan included exchange material of *Platypus tuberculosus*, a rarely collected species which inhabits living *Eucalyptus* trees.

## Art Collection

Acknowledgement of the Trust was required in all of the approvals listed below.

### E.H. Zeck.

Zeck's painting of the black peach aphid, *Brachycaudus persicae* (Passerini) appeared in the Spring 2009 Edition of *Gardening Australia* magazine.



Zeck's image of the black peach aphid

Zeck's 1927 painting of the banana aphid, *Pentalonia nigronervosa* Coquerel, was used to illustrate an article in the Israeli popular science magazine *Galileo – Science and Thought Monthly*.

Fifteen prints of Zeck paintings were exhibited by Orange City Council in The Guildry, Cook Park, Orange from January to February 2010 for the benefit of the Orange community.

Zeck's painting of the Light Brown Apple Moth, *Epiphyas postvittana* (Walker) was used to illustrate an article by Phillip Wilk, District Horticulturist, Industry & Investment NSW Alstonville, in the Australian Blueberry Growers' annual report.

Permission was granted for a student at Laval University, in Quebec City, Canada to use Zeck's painting of tomato caterpillar for a project about GMO (Tomato Bt 5345 against Lepidoptera).

### **Margaret Senior**

A request to reproduce Margaret Senior's painting of Club Root of Crucifers was received from a music group in Finland called "Club Root". The band wanted to use the illustration on their website and other marketing outlets to promote their music. The request was denied.

Approval was given to ChemCert Victoria to use two Margaret Senior paintings for an online training course in AgVet chemical use. The two paintings were of Cereal Cyst Nematode and Bacterial Wilt of Potato.

### **Others**

A photograph from the ASCU website of the leafhopper *Kahaono montana* Evans (Hemiptera: Cicadellidae: Typhlocybinae: Dikraneurini) which produces shelters made from silk was used to illustrate an article on insect silk in the French popular magazine *Insectes, un autre monde parmi nous* in June 2010.

## **Diagnostics**

Mr Löcker has developed a simple morphological and molecular protocol to distinguish the African Maize Leafhopper, *Cicadulina mbila* (Naudé) (Hemiptera: Cicadellidae: Deltocephalinae: Macrostelini) from the two native species of *Cicadulina*, *C. bimauculata* and *C. bipunctata*. DNA barcoding (CO1 gene region) of all three species will allow reliable diagnosis of adult females, nymphs and eggs. An electronic key to aid identification of *Cicadulina* species has been published on the ASCU website. The project was funded by an Australian Government DAFF Training Scholarship in Diagnosing Exotic Plant Pests.



*The African Maize Leafhopper*  
[photo: H. Löcker]

Mr Gillespie received a DAFF Training Scholarship to travel to Thailand and the Natural History Museum, London, to prepare a diagnostic protocol for the Asian Sugarcane Whitefly, *Aleurolobus barodensis*. His planned overseas travel was postponed due to political unrest in Thailand and disruption to air travel in Europe caused by volcanic ash clouds from Iceland.

**Ms Knihinicki** conducted a survey to determine if there are mites associated with foliage of the original source trees of the Wollemi Pine, *Wollemia nobilis*, in late February 2010. This was prompted by requests from curious world mite authorities. Any eriophyoid mite species found would have proved to be very interesting from an evolutionary point of view but, disappointingly, no eriophyoid mites were found on the samples.

**Ms Knihinicki** has also contributed to an international project headed by eriophyoid mite specialists, Dr Anna Skoracka (Poland) and Dr Denise Navia (Brazil) on morphological and genetic variation in the wheat curl mite, *Aceria tosichella* Keifer (Eriophyidae).

**Mr Eldridge** and **Mr Horwood** regularly carry out termite identifications for AQIS and NAQS. Numbers are variable but can range from 10 to 50 per year. The FCNI collection provides a diagnostic resource for the Forest Health Survey group. FCNI staff regularly undertake identifications of insect material from the general public and other I&I NSW agencies, including Forest NSW timber inspectors.

7,540 insect and mite identifications were made during the year by ASCU staff, most delivered through the Plant Health Diagnostic Service of the department. The majority of the identifications were of fruit flies.

## **Biosecurity Support**

### **Exotic Detections**

Since May 2010, Dr Priest has been heavily involved in an outbreak of Myrtle Rust (*Uredo rangellii*) as the confirmatory identification expert for all suspect material. Eight other members of the unit have been involved with monitoring and documenting the outbreak.



*Myrtle Rust on willow myrtle*  
[photo: Angus Carnegie]

Termite detections – involved the diagnosis of 18 AQIS intercepts of termites during 2009–2010. Most diagnoses

tended to be species of the subterranean genus *Coptotermes*. The majority of these turned out to be the local species *Coptotermes acinaciformis*, known to invade imported goods and containers left sitting on wharfs or stored on the ground. In addition, the exotic Asian subterranean species *C. gestroi* was identified four times, while the Western drywood termite, *Incisitermes minor* and the drywood termite *Cryptotermes dudleyi* (an exotic but present in Australia) were identified once each.

An infrequent but regular detection is the West Indian drywood termite *Cryptotermes brevis* which was detected four times, mostly in items of old furniture or wood pallets.

*Aleurothrixus floccosus* was recorded from Indonesia for the first time and was identified by Mr Gillespie for AQIS.

Clarification was provided by Ms Knihinicki of possible exotic eriophyoid mite, *Diptacus gigantorynchus* (Nalepa) at Eastern Creek Plant Quarantine Station. This species was previously only recorded from Victoria.

As part of the detection above, clarification was also provided by Ms Knihinicki of the status of a second eriophyoid mite species, *Phyllocoptes abaenus* Keifer.

### Import Risk Analyses

An assessment was made of an Import Risk Assessment to import Table Grapes from China.

An assessment was made of an Import Risk Assessment to import apples from the Pacific Northwest States of the USA.

Input was provided for departmental response to citrus red mite *Panonychus citri* and the spider mite *Tetranychus piercei*.



Mr Gillespie and Ms Lawler on a surveillance visit to the NSW North Coast.

### Surveillance

During 2009-2010, 191 sites were visited across NSW and in SE Queensland looking for up to 14 exotic and established pests (see Appendix 2 below) as part of a DAFF funded Multi Pest Surveillance Program. No exotic pests were found. New records for some established pests were made.

### New Research Grants

Dr Fletcher has been contracted by the Australian Biological Resources Study to prepare a comprehensive catalogue of the Australian Hemiptera: Auchenorrhyncha (leafhoppers, planthoppers, spittlebugs and their relatives except cicadas) for the Atlas of Living Australia and Mr Gillespie has been contracted to catalogue the Australian Aleyrodidae (whiteflies).

Dr Priest is continuing his revision of the plant pathogenic genus *Albugo* and collaborating with Dr Marco Thines in Germany.

Monitoring staff have sorted and identified invertebrates from pitfall trap samples as part of an ecological study being undertaken by CRC Feral Animal Control on the impacts of kangaroo culling in western NSW, Queensland and South Australia.

Collection and identification of parasitoids of the Australian Citrus Whitefly, *Orchamoplatus citri* (Aleyrodidae), has been undertaken for MAF (NZ).

Identification was undertaken of thrips species collected as part of a CSU study on novel plant-based attractants.

### Training

Dr Carnegie conducted a Tree Pathology Workshop at the Australasian Plant Pathology Society conference in Newcastle, September/October 2009.

Most of the ASCU and Herb-DAR staff have received training in the use of the national biosecurity monitoring tool BioSIRT as part of the Myrtle Rust program.

### Conferences Attended

Dr Fletcher, Dr Kent and Mr Gillespie attended both the CHAEC meeting and Darwin 200: Evolution and Biodiversity (which included the 40th Australian Entomological Society conference and AGM) held in Darwin in September 2009.

Dr Carnegie attended the Australasian Plant Pathology Society conference in Newcastle, September/October 2009.

### Referee reports

Staff of ASCU and Herb-DAR have provided referee reports for the following scientific journals:

*Annales de la Société Entomologique de France*

*The Australian Journal of Entomology*

*General and Applied Entomology*

*Journal of the Royal Society of New Zealand*

*Systematic and Applied Acarology*

*Systematic Entomology*

*Zoological Science (Japan)*

*Zootaxa*

In addition, Ms Knihinicki provided peer review of a book chapter on bird mites for a pest monograph produced by NSW Health.

## Publications by collections staff

### Refereed scientific publications

**Dominiak, B.C., Worsley, P., Gillespie, P.S., Locker, H., Kerr, M. and Shattuck, S.O.** 2010. Search for red imported fire ant *Solenopsis invicta* Burren in New South Wales from 2004-2006. *Plant Protection Quarterly*. 25(1): 15-18.

**Fletcher, M.J.** (2009) A new species of deltocephaline leafhoppers of the genus *Horouta* Knight from Barrow Island, Western Australia (Hemiptera: Cicadellidae). *Records of the Western Australian Museum* 35(3): 265-268.

Gitau, C.W., Gurr, G.M., Dewhurst, C.F., **Fletcher, M.J.** and Mitchell, A., (2009) Insect pests and insect-vectored diseases of palms. *Australian Journal of Entomology* 48(4): 328-342.

Gnezdilov, V.M. and **Fletcher, M.J.**, (2010) A review of the Australian genera of the planthopper family Issidae (Hemiptera: Fulgoromorpha) with description of an unusual new species of *Chlamydopteryx* Kirkaldy. *Zootaxa* 2366: 35-45.

**Kent, D.S.** and Taylor, G.S. (2010) Two new species of *Acizzia* Crawford (Hemiptera: Psyllidae) from the Solanaceae with a potential new economic pest of eggplant, *Solanum melongena*. *Australian Journal of Entomology* 49(1): 73-81.

**Löcker, B., Fletcher, M.J.** and Gurr, G.M. 2010. Taxonomic revision of the Australian Eucarpiini (Hemiptera: Fulgoromorpha: Cixiidae) with the description of nine new species. *Zootaxa* 2425: 1-31.



*Bajauana acuminata* Löcker, 2010  
(Cixiidae: Eucarpiini)

**Löcker, H., Löcker, B. & Holzinger, W.E.** (2009) Revision of the Derbidae of Seychelles Islands (Insecta: Hemiptera: Fulgoromorpha), *Zootaxa* 2221: 1-26

Moir, M.L., Brennan, K.E.C., Majer, J.D., Koch, J.M. and **Fletcher, M.J.**, (2010) Plant Species Redundancy and the Restoration of Faunal Habitat: Lessons from Plant-Dwelling Bugs. *Restoration Ecology* 18(S1): 136-147.

Nair, R.M., Wilmshurst, C., Russ, M.H., Williams, A and **Priest, M.** (2010). First report of anthracnose (*Colletotrichum trifolii*) on *Cullen australasicum* (syn. *Psoralea australasica*). *Australian Plant Disease Notes* 5: 34-36

**Walker, J.** and van der Merwe, M.M. (2009) Two previously undescribed rusts of *Acanthocarpus* and *Lomandra* (Lomandraceae) in Australia. *Australasian Plant Pathology*. 38(5): 525-532.

Wellings, C., Park, R. and **Priest M.** (2010). Recent Rust Developments in Eastern Australia. First Report of Wheat Stripe Rust in 2010. Cereal Rust Report Vol. 8 Issue 3. Plant Breeding Institute, University of Sydney.

### Other publications

**Kent, D.S.** (2009) City trees host pest invaders. *Bush Telegraph* Spring/Summer 2009: 12.

### Electronic publications

**Fletcher, M.J.** & Gnezdilov, V.M. (2010) *Illustrated Key to the Genera of the family Issidae described from Australia (Hemiptera: Fulgoroidea)* <http://www1.dpi.nsw.gov.au/keys/fulgor/issidae/iss00.htm>

**Löcker, B. and Fletcher, M.J.** (2010). *Illustrated Key to the Genera of the Tribe Eucarpiini found in Australia (Hemiptera: Fulgoromorpha: Cixiidae)* <http://www1.dpi.nsw.gov.au/keys/fulgor/cixiid/eucarpiini/eucar00.htm>

**Löcker, H. and Fletcher, M.J.** (2010). Key to the species of *Cicadulina* of interest to Australia (Hemiptera: Cicadellidae: Deltocephalinae: Macrostelini) <http://www1.dpi.nsw.gov.au/keys/leafhop/deltocephalinae/cicadulina00.htm>

In addition, continued upgrading of the ASCU web keys have included generic synonymies added to all the checklists and a species index added for the Indonesian and New Guinean checklists.

### Conference papers

**Fletcher, M.J.** (2009) Wingless in the Desert: How do they survive? Darwin 200: Evolution and Biodiversity Conference. 25-28 September 2009, Darwin, NT.

**Fletcher, M.J., Gitau, C.W., Mitchell, A., Dewhurst, C. & Gurr, G.M.** (2010) Review of the lophopid genus *Zophiuma* Fennah (Fulgoromorpha: Lophopidae) in New Guinea. 13th International Auchenorrhyncha Congress, Vaison-la-Romaine, France. 28 June – 2 July 2010.

**Kent, D.S.** (2009) City trees: a bug's superhighway to the bush. Darwin 200: Evolution and Biodiversity Conference. 25-28 September 2009, Darwin, NT.

### Conference poster

Semeraro, L., **Fletcher, M.J.** & Mitchell, A. (2010) Taxonomy and Phylogeny of the Macropsinae (Cicadellidae) of Australia. (poster) 13th International Auchenorrhyncha Congress, Vaison-la-Romaine, France. 28 June – 2 July 2010.

## Murray J. Fletcher

Director of the Collections

## Michael J. Priest

Secretary to the Trust

# Appendix 1

## Staff of the Collections

### Orange Agricultural Institute

#### ASCU Entomology

Dr M.J. Fletcher, FRES, Research Leader (Scientific Collections), Principal Research Scientist  
 Mr P. Gillespie, Technical Officer III (Insect Collection Manager)  
 Ms D.K. Knihinicki, Technical Officer III (Acarology)  
 Ms M. Davison, Technical Officer II (Enquiry Officer)  
 Mr H. Löcker, Technical Officer (part time) (Molecular Entomology)  
 Ms M.A.C.B. Lawler, Technical Officer (part time) (National Fruit Fly Strategy)  
 Ms M. Rossetto, Technical Officer (part time) (Pest Monitoring)  
 Ms R. Kerslake, Technical Officer (part time) (Pest Monitoring)  
 Ms Catherine Phillips, Technical Assistant (part time) (Pest Monitoring)  
 Ms C. Bloomfield, Technical Assistant (part time) (Pest Monitoring)  
 Dr R. Mirrington, Technical Assistant (part time) (Pest Monitoring)  
 Dr E. Cottage, Technical Assistant (part time) (Pest Monitoring)  
 Dr B. Löcker, Technical Assistant (part time) (mite curation)

#### Herb-DAR Mycology

Dr M.J. Priest, Special Plant Pathologist (Curator of Herb-DAR)  
 Mrs K. Cowan, Technical Assistant (Mycology)  
 Ms D. Gunning, Technical Officer (part time)  
 Mr R. Gilbert, Ph.D. student

#### Associated Staff

Mrs M. Mitchell, Hygiene Technician

### Forest Science Centre, West Pennant Hills

Mr R.H. Eldridge, Research Leader Forest Health, Forest Science Centre Director and Curator  
 Dr A.J. Carnegie, Principal Research Scientist (NSWF)  
 Dr D.S. Kent, Insect Collection Manager (FCNI)  
 Mr M.A. Horwood, Research Officer Forest Health (FCNI)  
 Mrs K.A. Sims, Technical Officer (Part time) (FCNI and NSWF)

#### Associated Staff

Mr D. Binns, Flora Officer Ecologist, Coffs Harbour

#### Research Associates

Mr J. Walker (Herb-DAR)  
 Mr G.J. Goodyer (FCNI)

#### NCDAP Menangle

<vacant>, Registrar  
 Dr Les Gabor, Caretaker Curator

# Appendix 2. Hazard Sites Target List

Common Name	Family	Taxa	Search Location
Tramp ants	Formicidae	<i>Solenopsis spp.</i> , <i>Wasmannia auropunctata</i> <i>Anoplolepis gracilipes</i>	Sydney area/near QAP
Sycamore lace bug	Tingidae	<i>Corythuca ciliata</i>	public areas
Asian Gypsy Moth	Lymantriidae	<i>Lymantria dispar japonica</i>	forest areas Sydney area
Fruit Flies	Tephritidae	<i>Bactrocera spp.</i>	Sydney area Nth coast NSW
Giant African land snail	Achatinidae	<i>Achatina fulica</i>	Water bodies near QAP
Aphids	Aphididae	many	suburban ornamental
Melon thrips	Thripidae	<i>Thrips palmi</i>	agricultural crops, glasshouses
Silverleaf whitefly	Aleyrodidae	<i>Bemisia tabaci</i>	Sydney area Nth coast NSW
Spiralling whitefly	Aleyrodidae	<i>Aleurodicus dispersus</i>	Sydney area Nth coast NSW
Red Banded Mango Caterpillar	Pyralidae	<i>Deanolis sublimbalis</i>	Sydney area Nth coast NSW
Mango leafhopper	Cicadellidae	<i>Idioscopus nitidulus</i> <i>Idioscopus clypealis</i>	Sydney area Nth coast NSW
Mango leaf gall midge	Chironomidae	<i>Procontarinia spp</i>	Sydney area Nth coast NSW
Citrus red mite	Tetranychidae	<i>Panonychus citri</i>	Sydney area Nth coast NSW
Citrus longhorn beetle	Cerambycidae	<i>Anoplophora chinensis</i>	Sydney area Nth coast NSW
Asiatic citrus psyllid	Psyllidae	<i>Diaphorina citri</i>	Sydney area Nth coast NSW



**Statement by Members of the Trust**

Pursuant to section 41C(1B) of the *Public Finance and Audit Act 1983* and in accordance with a resolution of the members of the Agricultural Scientific Collections Trust, we declare on behalf of the Trust that in our opinion:

1. The accompanying financial statements exhibit a true and fair view of the financial position of the Trust as at 30 June 2010 and transactions for the year then ended.
2. The statements have been prepared in accordance with the provisions of the *Public Finance and Audit Act 1983*, the *Public Finance and Audit Regulation 2010* and the Treasurer's Directions.
3. In the interval between the end of the financial year and the date of these financial statements no item, transaction, or event of a material and unusual nature has arisen which is likely, in the opinion of the members of the Trust, to substantially affect the results of the Trust's operations for the next financial year.

Ms H Scott-Orr  
Chairperson  
25 October 2010



GPO BOX 12  
Sydney NSW 2001

## INDEPENDENT AUDITOR'S REPORT

### Agricultural Scientific Collections Trust

To Members of the New South Wales Parliament

I have audited the accompanying financial statements of the Agricultural Scientific Collections Trust (the Trust), which comprises the statement of financial position as at 30 June 2010, the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, a summary of significant accounting policies and other explanatory notes.

#### Auditor's Opinion

In my opinion, the financial statements:

- present fairly, in all material respects, the financial position of the Trust as at 30 June 2010, and its financial performance for the year then ended in accordance with Australian Accounting Standards (including the Australian Accounting Interpretations)
- are in accordance with section 41B of the *Public Finance and Audit Act 1983* (the PF&A Act) and the Public Finance and Audit Regulation 2010.

My opinion should be read in conjunction with the rest of this report.

#### The Trustees' Responsibility for the Financial Statements

The Trustees are responsible for the preparation and fair presentation of the financial statements in accordance with Australian Accounting Standards (including the Australian Accounting Interpretations) and the PF&A Act. This responsibility includes establishing and maintaining internal controls relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

#### Auditor's Responsibility

My responsibility is to express an opinion on the financial statements based on my audit. I conducted my audit in accordance with Australian Auditing Standards. These Auditing Standards require that I comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal controls relevant to the Trust's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Trust's internal controls. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the Trustees, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

My opinion does *not* provide assurance:

- about the future viability of the Trust
- that it has carried out its activities effectively, efficiently and economically
- about the effectiveness of its internal controls.

### **Independence**

In conducting this audit, the Audit Office of New South Wales has complied with the independence requirements of the Australian Auditing Standards and other relevant ethical requirements. The PF&A Act further promotes independence by:

- providing that only Parliament, and not the executive government, can remove an Auditor-General
- mandating the Auditor-General as auditor of public sector agencies, but precluding the provision of non-audit services, thus ensuring the Auditor-General and the Audit Office of New South Wales are not compromised in their role by the possibility of losing clients or income.



Peter Barnes  
Director, Financial Audit Services

26 October 2010  
SYDNEY

## AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST

### STATEMENT OF COMPREHENSIVE INCOME FOR THE YEAR ENDED 30 JUNE 2010

	Notes	2010 \$	2009 \$
<b>Revenue</b>			
Grants	2(a)	15 000	15 000
Salary Contribution	2(b)	385 987	376 922
<b>Total Revenue</b>		<b>400 987</b>	<b>391 922</b>
<b>Expenses excluding losses</b>			
Personnel Services - I&I NSW	4	385 987	376 922
Temporary Assistance		17 101	466
Audit Fees		5 475	4 275
Books and Printing		602	352
Fees for Services Rendered		3 310	2 527
Freight		0	12
Postal		39	0
Purchases		16 988	589
Travelling Expenses		4 823	749
<b>Total Expenses</b>		<b>434 325</b>	<b>385 892</b>
<b>SURPLUS / (DEFICIT) FOR THE YEAR</b>		<b>(33 338)</b>	<b>6 030</b>
<b>Other comprehensive income</b>			
<b>Other comprehensive income for the year</b>		<b>0</b>	<b>0</b>
<b>TOTAL COMPREHENSIVE INCOME FOR THE YEAR</b>		<b>(33 338)</b>	<b>6 030</b>

The accompanying notes form part of these financial statements.

## AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST

### STATEMENT OF FINANCIAL POSITION AS AT 30 JUNE 2010

	Notes	2010 \$	2009 \$
<b>ASSETS</b>			
<b>Current Assets</b>			
Cash and cash equivalents	7(a)	6 007	38 025
<b>Total Current Assets</b>		6 007	38 025
<b>Total Assets</b>		6 007	38 025
<b>LIABILITIES</b>			
<b>Current Liabilities</b>			
Payables	1(i)	6 023	4 703
<b>Total Current Liabilities</b>		6 023	4 703
<b>Total Liabilities</b>		6 023	4 703
<b>Net Assets</b>		(16)	33 322
<b>EQUITY</b>			
Accumulated Funds		(16)	33 322
<b>Total Equity</b>		(16)	33 322

The accompanying notes form part of these financial statements.

## AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST

### STATEMENT OF CASH FLOWS FOR THE YEAR ENDED 30 JUNE 2010

	Notes	2010 \$	2009 \$
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>			
<b>Payments</b>			
Temporary Assistance		(17 101)	(466)
Audit Fees		(4 155)	(4 275)
Books and Printing		(602)	(352)
Fees		(3 310)	(2 526)
Freight		0	(12)
Postal		(39)	0
Purchases		(16 988)	(589)
Travel		(4 823)	(750)
Trustee Meeting Expenses		0	0
<b>Total Payments</b>		<b>(47 018)</b>	<b>(8 970)</b>
<b>Receipts</b>			
<b>Total Receipts</b>		<b>0</b>	<b>0</b>
<b>Cash Flows from Government</b>			
Funding from I&I NSW		15 000	15 000
<b>Net Cash Flows From Government</b>		<b>15 000</b>	<b>15 000</b>
<b>NET CASH FLOWS FROM OPERATING ACTIVITIES</b>	6	<b>(32 018)</b>	<b>6 030</b>
<b>NET INCREASE/(DECREASE) IN CASH</b>		<b>(32 018)</b>	<b>6 030</b>
Opening Cash and Cash Equivalents		38 025	31 995
<b>CLOSING CASH AND CASH EQUIVALENTS</b>	7(a)	<b>6 007</b>	<b>38 025</b>

The accompanying notes form part of these financial statements.

## AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST

### STATEMENT OF CHANGES IN EQUITY FOR THE YEAR ENDED 30 JUNE 2010

	Notes	Accumulated Funds \$	Total \$
<b>BALANCE AT 1 JULY 2009</b>		33 322	33 322
Surplus / (Deficit) for the Year		(33 338)	(33 338)
Total Other Comprehensive Income		0	0
Transactions with owners in their capacity as owners		0	0
<b>BALANCE AT 30 JUNE 2010</b>		(16)	(16)
<b>BALANCE AT 1 JULY 2008</b>		27 292	27 292
Surplus / (Deficit) for the Year		6 030	6 030
Total Other Comprehensive Income		0	0
Transactions with owners in their capacity as owners		0	0
<b>BALANCE AT 30 JUNE 2009</b>		33 322	33 322

The accompanying notes form part of these financial statements

# AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST

Notes to and forming part of the Financial Statements for the year ended 30 June 2010

## 1. Summary of Significant Accounting Policies

### (a) Reporting Entity

The Trust is constituted under Section 5 of the *Agricultural Scientific Collections Trust Act 1983* which commenced on 9 November 1984. This Act gives statutory protection to the scientific collections of Industry & Investment NSW, ensuring their long-term maintenance and improvement. At the present time, there are six collections vested in the Trust. The Plant Pathology Herbarium and the Insect and Mite Collection are housed in the Agricultural Scientific Collections Unit at the Orange Agricultural Institute and the FCNI Collection, the Forestry Wood Sample Collection and the Forestry Plant Pathology Collection are housed at the Industry & Investment NSW office at West Pennant Hills. The recent addition to the collections, the Domestic Animal Pathology Collection is housed at the Industry & Investment NSW office at Menangle. The Financial Statements for the year ended 30 June 2010 has been authorised for issue by the Trust on 25 October 2010.

### (b) Basis of Preparation

The Trust's financial statements are general purpose financial statements which have been prepared in accordance with:

- applicable Australian Accounting Standards (which include Australian Accounting Interpretations); and
- the requirements of the *Public Finance and Audit Act 1983*, and Regulation.

Judgements, key assumptions and estimations management has made are disclosed in the relevant notes to the financial statements.

All amounts are rounded to the nearest dollar and are expressed in Australian currency.

### (c) Statement of Compliance

The financial statements and notes comply with Australian Accounts Standards which include Australian Accounting Interpretations.

### (d) Expense Recognition

Expense is measured at the fair value of the consideration or contribution paid or payable. The value of accrued expense is based on historical data or direct evidence.

### (e) Income Recognition

Income is measured at the fair value of the consideration or contribution received or receivable. Contributions (including grants and donations) are generally recognised as income when the Trust obtains control over the assets comprising the contributions. Control over the contributions is normally obtained upon the receipt of the cash.

### (f) Other Provision

Other provisions exist when: the Trust has a present legal or constructive obligation as a result of a past event; it is probable that an outflow of resources will be required to settle the

obligation; and a reliable estimate can be made of the amount of the obligation.

### (g) Accounting for the Goods and Services Tax (GST)

Revenues, expenses and assets are recognised net of the amount of GST, except that:

the amount of GST incurred by the agency as a purchaser that is not recoverable from the Australian Taxation Office is recognised as part of the cost of acquisition of an asset or as part of an item of expense and

receivables and payables are stated with the amount of GST included.

### (h) Plant and Equipment

- The Trust has adopted the same policy and procedures in relation to plant and equipment as are applied by Industry & Investment NSW.
- All Plant and Equipment owned by the Trust have been fully depreciated.

### (i) Payables

These amounts represent liabilities for goods and services provided to the Trust and other amounts. Payables are recognised initially at fair value, usually based on the transaction cost or face value.

Subsequent measurement is at amortised cost using the effective interest method. Short-term payables with no stated interest rate are measured at the original invoice amount where the effect of discounting is immaterial.

### (j) New Australian Accounting Standards issued but not effective

At report date, a number of Australian Accounting Standards have been issued by the AASB but are not yet operative. These have not been early adopted by the Trust. These standards have been assessed for their possible impact on the financial statements, if any, in the period of their initial application. The assessment concluded that there will be no material impact.

### (k) Going Concern

Industry & Investment NSW has committed to continue funding the activities of the Agricultural Scientific Collections Trust.

## 2. Revenue

### (a) Grants

The Trust operates from an annual Consolidated Fund appropriation to the Minister for Primary Industries and this is identified as a separate item for operating purposes.

### (b) Salary Contribution

Standard operations of the Trust were carried out by officers of Industry & Investment NSW and their salaries, wages and overhead costs were not paid by the Trust. It is not possible to reliably estimate the total value of material expenditure incurred by the Department in direct support of the Trust. This

## AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST

Notes to and forming part of the Financial Statements for the year ended 30 June 2010

is due to the number of staff located throughout the State that have some input into the maintenance of the collections and the interrelationship with normal departmental duties. However, salary costs relating to the staff located in the Trust buildings in Orange, West Pennant Hills and Menangle are recognised in the Statements, as outlined in Note 4.

### 3. Contingent Liabilities

There were no contingent liabilities in respect of the Trust as at 30 June 2010 (2009 - Nil).

### 4. Personnel Services – I&I NSW

The cost of salaries paid by Industry & Investment NSW on behalf of staff who maintain the six collections is estimated to be \$385 987 for 2010 (2009 - \$376 922).

### 5. Commitments

There were no Operating Commitments outstanding as at 30 June 2010 (30 June 2009 - Nil).

### 6. Reconciliation of Cash Flows from Operating Activities to Operating Result

	2010 \$	2009 \$
Operating Surplus / (Deficit)	(33 338)	6 030
Increase in Accruals	1 320	0
Net Cash Used in Operating Activities	(32 018)	6 030

### 7. Financial Instruments

The Trust's principal financial instruments are outlined below. These financial instruments arise directly from the Trust's operations or are required to finance the Trust's operations. The Trust does not enter into or trade financial instruments, including derivative financial instruments, for speculative purposes.

The Trust's main risks arising from financial instruments are outlined below, together with the Trust's objectives, policies and

processes for measuring and managing risk. Further quantitative and qualitative disclosures are included throughout these financial statements.

The Board has overall responsibility for the establishment and oversight of risk management and reviews and agrees policies for managing each of these risks. Risk management policies are established to identify and analyse the risks faced by the Trust, to set risk limits and controls and to monitor risks.

#### (a) Financial instrument categories

Financial Assets Class:	Note	Category	Carrying Amount 2010 \$	Carrying Amount 2009 \$
Cash and cash equivalents		N/A	6 007	38 025

Financial Liabilities Class:	Note	Category	Carrying Amount 2010 \$	Carrying Amount 2009 \$
Payables		Financial liabilities measured at amortised cost	6 023	4 703

#### (b) Credit Risk

Credit risk arises when there is the possibility of the Trust's debtors defaulting on their contractual obligations, resulting in a financial loss to the Trust. The maximum exposure to credit risk is generally represented by the carrying amount of the financial assets (net of any allowance for impairment).

Credit risk arises from the financial assets of the Trust, including cash, receivables, Trust deposits and advances receivable. No collateral is held by the Trust. The Trust has not granted any financial guarantees.

Credit risk associated with the Trust's financial assets, other than receivables, is managed through the selection of counterparties and establishment of minimum credit rating standards. Trust deposits held with NSW TCorp are guaranteed by the State.

#### Cash

Cash comprises cash on hand which is part of the Department of Industry & Investment bank account. Transactions of the Trust are recognised in relevant amounts recorded in the Department's financial statements.

## AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST

Notes to and forming part of the Financial Statements for the year ended 30 June 2010

### Receivables – trade debtors

All trade debtors are recognised as amounts receivable at balance date. Procedures for the collection of outstanding amounts is managed by the Department of Industry & Investment.

The Trust is not materially exposed to concentrations of credit risk to a single trade debtor or group of debtors. There are no debtors due or past due.

#### (c) Liquidity risk

Liquidity risk is the risk that the Trust will be unable to meet its payment obligations when they fall due. The Trust continuously manages risk through monitoring future cash flows and maturities planning to ensure adequate holding of high quality liquid assets.

During the current and prior years, there were no defaults

or breaches on any loans payable. No assets have been pledged as collateral. The Trust's exposure to liquidity risk is deemed insignificant based on prior periods' data and current assessment of risk.

The liabilities are recognised for amounts due to be paid in the future for goods or services received, whether or not invoiced. Amounts owing to suppliers (which are unsecured) are settled in accordance with the policy set out in Treasurer's Direction 219.01. If trade terms are not specified, payment is made no later than the end of the month following the month in which an invoice or a statement is received. Treasurer's Direction 219.01 allows the Minister to award interest for late payment. The rate of interest applied during the year was nil (2009 – nil).

The table below summarises the maturity profile of the Trust's financial liabilities, together with the interest rate exposure.

### Maturity analysis and interest rate exposure of financial liabilities

	Weighted Average Effective Int. Rate	Nominal Amount \$	Interest Rate Exposure			Maturity Dates		
			Fixed Int. Rate \$	Variable Int. Rate \$	Non-interest bearing \$	< 1 yr	1 – 5 yrs	> 5 yrs
2010								
Payables	0	6 023	0	0	6 023	6 023	0	0
2009								
Payables	0	4 703	0	0	4 703	4 703	0	0

#### (d) Market risk

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. The Trust has no borrowings or investments.

#### Interest rate risk

The Trust does not receive interest and has no borrowings or investments.

### 8. Valuation of the Collections

The principal assets of the Agricultural Scientific Collections Trust are the insect and mite collections, the plant pathology herbarium, the FCNI insect collection, the forest pathology collection, the forestry wood sample collection and the domestic animal pathology collection. The former two collections (known here as the ASCU collections) were originally established in 1890 with the appointment of the first scientific officers in the then Department of Agriculture and Mines. The three forestry collections were first established after the passing of the Forestry Act No.55 in 1916. Since that time the ASCU collections and the Forestry insect and plant pathology collections have been augmented regularly through the addition of specimens representing records of insects, mites, fungi, bacteria, viruses and nematodes associated

with agricultural or forestry activity in New South Wales. Each addition of a specimen to the collections also adds a data label bearing information on the identity, location, date of collection, name of the collector and biological information pertaining to that specimen.

This information provides data for the trade, quarantine, research and diagnostic functions of the Agricultural Scientific Collections Unit and the Forest Health Research Unit. The identity information has been added progressively by specialist taxonomists, many with world authority status, over many years and much of the information is now irreplaceable because the original source is no longer available. Therefore, due to the irreplaceable nature of these collections, valuation would be extremely difficult.

## **AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST**

Notes to and forming part of the Financial Statements for the year ended 30 June 2010

In addition to this collection information, the ASCU collections include many unique reference specimens known as primary type specimens. These are used by taxonomists as the only valid reference point for individual scientific names and are established by the taxonomist who originally names a species.

The location of each of these primary type specimens is published with the original description of a species, this being a requirement of the International Codes for Zoological and Botanical Nomenclature. In addition to the collections themselves, the Trust assets held in the ASCU, Orange, include original paintings of insects by E.H. Zeck, many in colour, and original paintings of plant diseases by Margaret Senior. These have been used for many years to illustrate departmental publications on insects, mites and plant diseases in NSW and images of these are provide on the Industry & Investment NSW website at: <http://www.dpi.nsw.gov.au/aboutus/services/collections/scientific-illustrations/>.

Although irreplaceable, an exercise was conducted in November 2000, based on valuation models used by other Institutions, to find an indicative value of the collections. This exercise indicated that, even though unreliable, the value of the ASCU collections alone may be in the vicinity of \$25million.

### **END OF AUDITED FINANCIAL STATEMENTS**



<http://www.dpi.nsw.gov.au/aboutus/about/legislation-acts/agricultural-scientific-collections-trust>