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A checklist and host catalogue of the aphids (Hemiptera: Aphididae) held in the Australian National Insect Collection

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Abstract

The aim of this paper is to provide a checklist for Australian collected aphids present in the Australian National Insect Collection. Host plants for each species are provided, alongside Australian State and territory distribution. Six species are documented for the first time in Australia: *Aphis forbesi*, *Micromyzella filicis*, *Trichosiphonaphis polygoni*, *Wahlgreniella nervata*, *Reticulaphis distylii* and *Reticulaphis inflata*. A total of 137 new host plant associations are documented, spread across 51 species of aphids. A list of the remaining species previously published as present in Australia is also included.

Key words: host plants, aphids, Australia

Introduction

Aphids (Hemiptera: Aphididae) are well known as important urban, agricultural and horticultural pests (Blackman & Eastop 2000). The family encompasses about 4,700 species of sap-sucking insects worldwide (Remaudière & Remaudière 1997). They can cause damage not only through their direct phloem feeding but also as vectors of a wide range of plant viruses, through injecting of toxic saliva compounds and by the build-up of excreted honeydew causing sooty mould. Within a species there may be different adult phenotypes, but identification keys generally only apply to winged or wingless adult parthenogenetic females (Blackman & Eastop 2007). Morphological features can vary greatly both within and between species, which generally means that specimens need to be slide-mounted and host plants recorded to facilitate an accurate identification. While there are a number of polyphagous species, most aphids only feed within a particular family, genus, or occasionally single species of plant and identification keys such as Blackman & Eastop (2019) are reliant on accurate host information. Host plant catalogues such as Holman (2009) are therefore of particular benefit in furthering understandings of aphid-host behaviour, plant protection and our ability to identify aphid species.

The last complete review of Australian aphids was done over 50 years ago by Eastop (1966) who documented 119 species present. Since then there has been a continual stream of new species arriving on the continent along with a handful of newly discovered native species (e.g: Carver & Hales 1974; Carver & Kent 2000; Ridland & Carver 1987; Valenzuela *et al.* 2007). Pest species commonly make up a large proportion of adventive aphids, largely owing to the transport and trade of crop plants (Foottit *et al.* 2006). The last decade has seen a continuation of new arrivals (e.g: Brumley & Watson 2017; Hales *et al.* 2017; Valenzuela *et al.* 2009) including Russian Wheat Aphid, *Diuraphis noxia* (Mordvilko), a significant pest species to Australian agricultural industries (Yazdani *et al.* 2017).

A significant holding of Australian slide mounted aphids reside within The Australian National Insect Collection (ANIC). ANIC holds the largest collection of Australian insects, mites and spiders in the world, containing over 12 million specimens. Beginning its establishment in 1929 as the nation's first national entomological laboratories, early researchers were tasked to carry out the national economic entomological work needed for Australia's expanding agricultural industries (Upton 1998). The ANIC Aphididae collection contains around 8500 slides, making it the largest collection of aphids in Australia. The collection holds a significant number of slides mounted and identified by some of the world's eminent aphid experts including D. Hille Ris Lambers, V. F. Eastop and G. Remaudière. The

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Canada Balsam slides mounted and identified by H. Britten from the 1920's are still of remarkable quality and clarity, and stand out as some of the best historical slides in the collection, outlasting many slides made decades later using inferior mounting mediums. The bulk of the collection however is due to the decades of work by the now retired ANIC aphidologist Dr Mary Carver. Throughout her career Dr Carver documented a substantial number of exotic aphid arrivals to the continent, as well as describing new native species (e.g: Carver 1976, 1980, 1999; Carver & Hales 1983). Her continuous trapping, collecting and mounting of aphids from across different states and territories forms a substantial portion of the Australian records and has left a lasting scientific legacy at ANIC.

Following Dr Carver's retirement there has been no replacement aphid specialist appointed at ANIC. As such, due to the lack of expertise there has since been very little in the way of new accession material. Curation of aphid material and general scientific knowledge has since been managed in a de-centralised means by various State Departments of primary industries. Substantial reorganisation of the holdings was carried out by R. G. Foottit and L. A. Mound in 2008 into the current verticle slide holding cabinets, and continued by the author sporadically from 2014 to 2019. While digitisation is ongoing within ANIC (e.g: Mantle *et al.* 2012) at this stage it is focusing on other orders and families, leaving aphids yet to be databased or digitised in any fashion.

While examining and further organising the collection it became evident that it contains substantial information not documented in the scientific literature, or present in the main online reference site (Blackman & Eastop 2019). New species records for the continent, new host records, and new Australian state based distribution records are present within the ANIC holdings. Some of the new species records are recent arrivals, while others have simply been overlooked in the collection. The aim of this paper is to document the aphid holdings within ANIC of Australian collected specimens, their host plant associations, and their distribution.

Methods

The aphids collected from Australia and its territories in ANIC were examined and the information collated below. Specimens collected from overseas locations have been omitted. Where necessary, identifications were checked or done using Blackman & Eastop (2019), Blackman (2010), Noordham (2004) and Heie (1982, 1986, 1992, 1994, 1995). The taxa are listed in alphabetical order inside each subfamily, following the current taxonomic classification used in Favret (2019). State occurrences are indicated using the Australian State or Territory common abbreviations: Australian Capital Territory (ACT), New South Wales (NSW), Northern Territory (NT), Queensland (QLD), South Australia (SA), Tasmania (TAS), and Western Australia (WA). Other collections from Christmas Island are also included, along with Norfolk Island and the subantarctic Macquarie Island. The host plants for each species are listed in alphabetical order for every state. Every effort has been made to ensure the accuracy and validity of the host information. Where questionable host records were encountered, these have been omitted. New host records were not included if they were recorded only from alate specimens. If no host plant was recorded for an aphid species in a locality (such as from collections done via yellow pan traps), the species are listed as "present". The distribution and host information is not intended to encompass the entirety of known knowledge for each species in Australia, as the information provided here only encompasses what is present within ANIC and not other institutions.

Plant nomenclature has been updated from The Australian Plant Census (APC 2019) to reflect the current taxonomy, and in the same way as Blackman & Eastop (2019), authorities are left out. Obvious spelling errors have been corrected and, for the occasional situation where no matching host plant name could be found, host records have been omitted. Where only a common name was recorded, this was matched to the Latin name accepted in Australia. Where only genus level host information was recorded, this has been included in the results.

New aphid species records to the continent and new host plant records (*i.e.* not listed in Blackman & Eastop, 2019) are indicated with an *. Some of these records may have been published elsewhere, either historically or recently, but have been overlooked and omitted from the online repository website (Blackman & Eastop 2019). Comments are made for some individual taxa with regard to their recent taxonomic position, or other particular information.

Table 1 details the remaining published aphid species records for Australia, but absent from ANIC, to provide a full aphid checklist, with species listed in alphabetic order, references, published state localities and host plants.

TABLE 1. Species of aphids published as present in Australia, but absent in ANIC

Aphid species	**Original reference**	**State localities**	**published hosts**
Aloephagus myersi Essig	Forster 1998	QLD	*Aloe* sp. (Aloaceae)
Aphis (Aphis) polygonacea Matsumura	Eastop 1966	QLD	*Polygonum hydropiper* (Polygonaceae)
Aphis glycines Matsumura	Ragsdale 2008	NSW, QLD	*Glycine max* (Fabaceae)
Casimira canberrae (Eastop)	Hales *et al*. 2015	ACT, NSW, SA, VIC	*Epilobium billardierianum* ssp.*cinereum* (Onagraceae)
Cinara (Cinara) costata (Zetterstedt)	Eastop 1966	NSW, TAS	*Picea glauca* (Pinaceae), *P. excelsa*
Cinara (Cupressobium) louisianensis Boudreaux	Eastop 1966	TAS	*Thuja* sp. (Cupressaceae)
Diuraphis noxia (Mordvilko in Kurdjumov)	Yazdani *et al*. 2017	SA, VIC, NSW, Tas	*Avena sativa* (Poaceae), *Hordeum murinum*, *H. vulgare* (Poaceae), *Secale cereal* (Poaceae), *Triticum aestivum* (Poaceae), *T. durum* (Poaceae), *Bromus spp*. (Poaceae), *Lolium rigidum* (Poaceae), *Panicum effusium* (Poaceae), *Phalaris* spp. (Poaceae)
Essigella (Essigella) californica (Essig)	Carver & Kent 2000	ACT, NSW, QLD, SA, TAS, Vic	*Pinus sp.* (Pinaceae)
Eucarazzia elegans (Ferrari)	Hales *et al*. 2009	NSW, SA, VIC	*Lavandula sp.* (Lamiaceae), *Mentha* sp. (Lamiaceae), *Nepeta mussinii* (Lamiaceae), *Salvia officinalis* (Lamiaceae), *Salvia* sp. (Lamiaceae)
Hyadaphis coriandri (Das)	Valenzuela *et al*, 2007	VIC	*Foeniculum vulgare* (Apiaceae)
Illinoia (Illinoia) azaleae (Mason)	Sunnucks & Hales 1996	ACT	*Rhododendron* sp. (Ericaceae)
Liosomaphis berberidis (Kaltenbach)	Eastop 1966	TAS	*Mahonia* spp. [Berberidaceae), *Berberis* spp. (Berberidaceae)
Macrosiphoniella (Macrosiphoniella) abrotani (Walker)	Eastop 1966	VIC	*Artemisia abrotanum* (Asteraceae)
Macrosiphum (Macrosiphum) hellebori Theobald & Walton	Valenzuela *et al*. 2009	ACT	*Helleborus* spp. (Ranunculaceae)
Megoura crassicauda Mordvilko	Hales *et al*. 2017	NSW	*Vica faba* (Fabaceae)
Micromyzus katoi (Takahashi)	Eastop 1966	QLD	*Platycerium alcicorne* (Polypodiaceae), *P. grande* (Polypodiaceae)
Pentalonia caladii van der Goot	Foottit *et al*. 2010	NSW	*Caladium* sp. (Araceae)
Pentalonia gavarri Eastop	Carver & Hales 1983	QLD	present
Periphyllus testudinaceus (Fernie)	Eastop 1966	TAS	present
Protaphis middletonii (Thoma)	Eastop 1966	NSW	*Opuntia aurantiaca* (Cactaceae), *O. stricta*
Rhopalosiphum musae (Schouteden)	Blackman & Eastop 1994	NSW	*Polygonum hydropiper* (Polygonaceae)
Schizaphis (Schizaphis) pyri Shaposhnikov	Blackman and Eastop 2006	VIC	*Cyperus rotundus* (Rosaceae)
Takecallis arundinariae (Essig)	Valenzuela *et al*. 2010	NSW	*Phyllostachys sp.* (Poaceae), *Bambusa* sp. (Poaceae)
Uroleucon (Lambersius) erigeronense (Thomas)	Brumley & Watson 2017	WA, Vic, NSW, ACT, Norfolk Is.	*Conyza bonariensis* (Asteraceae), *C. canadensis*, *C. sumatrensis*, *Conyza* sp.

Results

The ANIC holdings of Australian-collected Aphididae number 152 species. These include six new aphid records for Australia of exotic species: *Aphis forbesi* (Weed)*, Micromyzella filicis* (van der Goot), *Trichosiphonaphis polygoni* (van der Goot), *Wahlgreniella nervata* (Gillette), *Reticulaphis distylii* (van der Goot) and *Reticulaphis inflata* (Yeh & Hsu). A further six introduced species, *Amphorophora rubi* (Kaltenbach)*, Dysaphis lappae* (Koch), *Hyperomyzus picridis* (Börner), *Pseudoregma sundanica* (van der Goot), *Schizoneuraphis gallarum* (van der Goot), and *Shivaphis celti* (Das), lack Australian distribution information in Blackman & Eastop (2019) but have been published elsewhere in print or online public databases. A further 24 species of aphids are included in Table 1, bringing the total number of aphids in Australia to 176 species.

There are 137 new host records documented, spread across 51 different aphid species. The common polyphagous species are responsible for the bulk of the new host records, with the largest numbers being recorded for *Aphis craccivora* (Koch) (10), *Macrosiphum euphorbiae* (Thomas) (9), *Aphis gossypii* (Glover) (7), *Aphis spiraecola* (Patch) (7) and *Aulacorthum solani* (Kaltenbach) (7).

Family Aphididae

Subfamily Aphidinae Latreille

Tribe Aphidini Latreille

Subtribe Aphidina Latreille

Genus *Aphis* Linnaeus

Subgenus *Aphis* Linnaeus

Aphis (Aphis) acaenovinae Eastop
ACT: *Acaena ovina* (Rosaceae); **NSW**: *Acaena anserovina* (Rosaceae), *Geum urbanum* (Rosaceae)

Aphis (Aphis) carverae Hales, Foottit & Maw
NSW: *Epilobium billardiereanum* (Onagraceae)

Aphis (Aphis) chloris Koch
ACT: *Hypericum perforatum* (Hypericaceae)
Remarks: *Aphis chloris* was deliberately introduced (and remains the only species to have been) to Australia in 1986 as a biological control for the invasive weed St. John's Wort, *Hypericum perforatum* (Briese & Jupp, 1995).

Aphis (Aphis) clerodendri Matsumura
NSW: *Clerodendrum tomentosum* (Lamiaceae); **QLD**: *Clerodendrum longiflorum* (Lamiaceae), *Clerodendrum* sp. (Lamiaceae); **NT**: *Clerodendrum floribundum* (Lamiaceae)

Aphis (Aphis) craccivora Koch
ACT: *Vicia faba* (Fabaceae); **NSW**: *Medicago* sp. (Fabaceae), *Rumex* sp. (Polygonaceae), *Vigna unguiculata* (Fabaceae); **QLD**: *Indigofera spicata* (Fabaceae), *Macroptilium* (Fabaceae), *Panicum* (Poaceae)*, *Tulipa* sp. (Liliaceae)*, *Vigna marina* (Fabaceae)*; **SA**: *Atriplex vesicaria* (Chenopodiaceae)*, *Glycine max* (Fabaceae), *Lathyrus* (Fabaceae), *Lens culinaris* (Fabaceae), *Maireana trichoptera* (Amaranthaceae)*, *Medicago sativa* (Fabaceae), *Vicia faba* (Fabaceae), *Vicia sativa* (Fabaceae*), Tribulus terrestris* (Zygophyllaceae); **VIC**: *Eucalyptus melliodora* (Myrtaceae)*, *Medicago* sp. (Fabaceae), *Prunus dulcis* (Rosaceae), *Vicia faba* (Fabaceae), *Wisteria* sp. (Fabaceae); **WA**: *Arachis hypogaea* (Fabaceae), *Hardenbergia comptoniana* (Fabaceae)*,

Jacksonia sternbergiana (Fabaceae)*, *Lupinus angustifolius* (Fabaceae), *Medicago truncatula* (Fabaceae)*, *Pterostylis* sp. (Orchidaceae)*; **NT**: *Phaseolus coccineus* (Fabaceae), *Vigna unguiculata* (Fabaceae)

Aphis (Aphis) eugeniae van der Goot
NSW: *Glochidion ferdinandii* (Phyllanthaceae); **QLD**; Present

*Aphis (Aphis) forbesi** Weed
WA: *Fragaria* x *ananassa* (Rosaceae)
Remarks: *Aphis forbesi* is recorded here as a new species record for Australia. First identifications were made in 2015 from Landsdale, WA and subsequent collections made in 2016. ANIC slide mounted material is from Myaree, WA, 2016, col: L. Edwards, det: C. Brumley

Aphis (Aphis) gossypii Glover
ACT: *Chrysanthemum* sp. (Asteraceae), *Crataegus* sp. (Rosaceae), *Cucurbita pepo* (Cucurbitaceae), *Ficus carica* (Moraceae), *Hibiscus* sp. (Malvaceae), *Mentha* sp. (Lamiaceae), *Pyracantha* sp. (Rosaceae); **NSW**: *Leptospermum* sp. (Myrtaceae), *Platysace lanceolata* (Apiaceae)*, *Schefflera* sp. (Araliaceae), *Senecio madagascariensis* (Asteraceae)*; **QLD**: *Abutilon indicum* (Malvaceae), *Acacia* sp. (Fabaceae), *Crassocephalum crepidioides* (Asteraceae), *Erigeron* sp. (Asteraceae), *Lantana camara* (Verbenaceae); **SA**: *Agonis flexuosa* (Myrtaceae), *Chaenomeles japonica* (Rosaceae) [as *Cydonia japonica*], *Citrus* sp. (Rutaceae), *Cucumis sativus* (Cucurbitaceae), *Eucalyptus caesia* (Myrtaceae)*, *Eucalyptus cladocalyx* (Myrtaceae)*, *Gossypium sturtianum* (Malvaceae), *Lythrum salicaria* (Lythraceae), *Salix* sp. (Salicaceae), *Senna septemtrionalis* (Fabaceae), *Solanum eardleyae* (Solanaceae)*; **VIC**: *Cucurbita pepo* (Cucurbiaceae); **WA**: *Eucalyptus marginata* (Myrtaceae)*, *Gossypium* sp. (Malvaceae), *Lupinus* sp. (Fabaceae), *Scholtzia involucrata* (Myrtaceae)*, *Sida cunninghamii* (Malvaceae)*; **NT**: *Citrus* sp. (Rutaceae)

Aphis (Aphis) hederae Kaltenbach
ACT: *Hedera helix* (Araliaceae)

Aphis (Aphis) nerii Boyer de Fonscolombe
ACT: Present; **NSW**: *Asclepias curassavica* (Apocynaceae); **QLD**: *Gomphocarpus physocarpus* (Apocynaceae); **SA**: *Asclepias* sp. (Apocynaceae), *Crassula* sp. (Crassulaceae)*, *Marsdenia australis* (Apocynaceae)*, *Nerium* sp. (Apocynaceae); **VIC**; Present; **WA**: *Calotropis procera* (Apocynaceae)

Aphis (*Aphis*) *platylobii* Carver & White
ACT: *Daviesia mimosoides* (Fabaceae)*; **NSW**: *Platylobium formosum* (Fabaceae)

Aphis (*Aphis*) *sedi* Kaltenbach
ACT: *Sedum* sp. (Crassulaceae); **NSW**: present

Aphis (*Aphis*) *spiraecola* Patch
ACT: *Billardiera heterophylla* (Pittosporaceae)*, *Cassinia quinquefaria* (Asteraceae)*, *Chrysanthemum* sp. (Asteraceae), *Conyza* sp. (Asteraceae), *Spiraea* sp. (Rosaceae); **NSW**: *Billardiera scandens* (Pittosporaceae)*, *Crataegus* sp. (Rosaceae), *Persicaria decipiens* (Polygonaceae)*, *Rumex obtusifolius* (Polygonaceae)*, *Schefflera* sp. (Araliaceae), *Spiraea* sp. (Rosaceae); **QLD**: *Nicandra physalodes* (Solanaceae)*; **SA**: *Billardiera heterophylla* (Pittosporaceae), *Chaenomeles japonica* (Rosaceae), *Foeniculum vulgare* (Apiaceae), *Hymenosporum flavum* (Pittosporaceae)*; **TAS**: *Malus* sp. (Rosaceae)

Aphis (*Aphis*) *tirucallis* Hille Ris Lambers
ACT; present; **NSW**: present; **SA**: present; **VIC**: *Euphorbia peplus* (Euphoorbiaceae); **WA**: *Euphorbia teracina* (Euphorbiaceae)
Remarks: Records for *Aphis tirucallis* represent the species that was originally identified as *Aphis euphorbiae* by Eastop (1966) following recent specimen collections from *Euphorbia* in Western Australia and examination

of the original Australian material held in ANIC and the Natural History Museum, London (Blackman pers. comm.).

Subgenus *Bursaphis* McVicar Baker

Aphis (*Bursaphis*) *oenotherae* Oestlund
ACT: present; **NSW**: *Oenothera affinis* (Onagraceae)

Subgenus *Toxoptera* Koch

Aphis (*Toxoptera*) *aurantii* Boyer de Fonscolombe
NSW: *Billardiera scandens* (Pittosporaceae)*, *Citrus* sp. (Rutaceae), *Macadamia* sp. (Proteaceae), *Persoonia* sp. (Proteaceae)*; **QLD**: *Citrus* sp. (Rutaceae), *Macadamia tetraphylla* (Proteaceae)*; **SA**: *Citrus* sp. (Rutaceae), *Choisya ternata* (Rutaceae)*, *Correa glabra* (Rutaceae)*, *Dodonaea viscosa* subsp. *angustissima* (Sapindaceae), *Pittosporum* sp. (Pittosporaceae), *Ulmus parvifolia* (Ulmaceae)*; **Christmas Island**: present

Aphis (*Toxoptera*) *citricidus* (Kirkaldy)
ACT: *Choisya* sp. (Rutaceae)*, *Philadelphus* sp. (Rutaceae)*; **NSW**: *Citrus* sp. (Rutaceae); **QLD**: *Cotoneaster sp.* (Rosaceae)*, *Citrus* sp. (Rutaceae); **SA**: *Calodendrum capense* (Rutaceae)*, *Citrus* sp. (Rutaceae), *Citrus glauca* (Rutaceae)*, *Vepris* sp. (Rutaceae)*; **WA**: present

Subtribe Rhopalosiphina Mordvilko

Genus *Hyalopterus* Koch

Hyalopterus pruni (Geoffroy)
ACT: *Phragmites australis* (Poaceae); **NSW**: present; **QLD**: present; **SA**: present
Genus *Hysteroneura* Davis

Hysteroneura setariae (Thomas)
NSW: *Paspalum dilatatum* (Poaceae), *Hordeum vulgare* (Poaceae); **QLD**: *Axonopus fissifolius* (Poaceae)*, *Eleusine indica* (Poaceae), *Hordeum vulgare* (Poaceae); **SA**: *Cynodon dactylon* (Poaceae), *Panicum decompositum* (Poaceae)*, *Panicum miliaceum* (Poaceae)*, *Prunus persica* (Rosaceae), *Setaria verticillata* (Poaceae); **VIC**: *Hordeum vulgare* (Poaceae); **WA**: *Whiteochloa* (Poaceae)*

Genus *Melanaphis* van der Goot

Melanaphis bambusae (Fullaway)
NSW: present; **SA**: present

Melanaphis sacchari (Zehntner)
NSW: present; **QLD**: *Sorghum halepense* (Poaceae)

Genus *Rhopalosiphum* Koch

Rhopalosiphum nymphaeae (Linnaeus)
ACT: *Nymphaea* sp. (Nymphaeaceae), *Vallisneria* sp. (Hydrocharitaceae); **NSW**: *Aponogeton elongatus* (Aponogetonaceae)*; **QLD**: *Eichhornia crassipes* (Pontederiaceae), *Pistia stratiotes* (Araceae); **SA**: *Nymphaea* sp. (Nymphaeaceae); **TAS**: *Dianella tasmanica* (Hemerocallidaceae)

Rhopalosiphum maidis (Fitch)
ACT: *Chloris truncata* (Poaceae)*; **NSW**: *Hordeum vulgare* (Poaceae); **QLD**: *Sorghum halepense* (Poaceae), *Zea mays* (Poaceae); **SA**: *Hordeum vulgare* (Poaceae); **WA**: *Hordeum vulgare* (Poaceae), *Triticum* sp. (Poaceae); **NT**: *Sorghum bicolor* (Poaceae)

Rhopalosiphum oxyacanthae (Schrank)
ACT: present

Rhopalosiphum padi (Linnaeus)
ACT: *Avena sativa* (Poaceae), *Dianella* sp. (Hemerocallidaceae)*, *Triticum* sp. (Poaceae); **NSW**: *Carex* sp. (Cyperaceae), *Hordeum vulgare* (Poaceae), *Triticum* sp. (Poaceae); **QLD**: present; **SA**: *Hordeum vulgare* (Poaceae); **VIC**: present; **WA**: *Ehrharta erecta* (Poaceae)*; **Macquarie Island**: *Festuca contracta* (Poaceae)

Rhopalosiphum rufiabdominale
ACT: present; **NSW**: *Hordeum vulgare* (Poaceae), *Triticum* sp. (Poaceae); **QLD**: *Solanum tuberosum* (Solanaceae); **SA**: *Chenopodium album* (Chenopodiaceae)*, *Saccharum officinarum* (Poaceae); **TAS**: present; **VIC**: *Hordeum vulgare* (Poaceae); **WA**: *Solanum tuberosum* (Solanaceae), *Triticum* sp. (Poaceae)

Genus *Schizaphis* Börner

Subgenus *Schizaphis* Börner

Schizaphis (*Schizaphis*) *hypersiphonata* Basu
NSW: *Secale cereale* (Poaceae)*, *Trifolium subterraneum* (Fabaceae)*; **QLD**: *Digitaria eriantha* (Poaceae)*, *Paspalum conjugatum* (Poaceae)

Schizaphis (*Schizaphis*) *minuta* (van der Goot)
NSW: present; **QLD**: present;

Schizaphis (*Schizaphis*) *rotundiventris*
ACT: present; **NSW**: present; **QLD**: *Medicago sativa* (Fabaceae)*

Tribe Macrosiphini Wilson

Genus *Acyrthosiphon* Mordvilko

Subgenus *Acyrthosiphon* Mordvilko

Acyrthosiphon (*Acyrthosiphon*) *kondoi* Shinji
NSW: *Heliotropium* sp. (Boraginaceae)*, *Medicago sativa* (Fabaceae); **QLD**: *Medicago sativa* (Fabaceae), *Pisum* sp. (Fabaceae); **SA**: *Glycine max* (Fabaceae)*, *Medicago polymorpha* (Fabaceae), *Medicago sativa* (Fabaceae), *Pisum sativum* (Fabaceae), *Swainsona formosa* (Fabaceae)*; **VIC**: *Medicago sativa* (Fabaceae); **WA**: *Erodium cygnorum* (Geraniaceae)*, *Medicago sativa* (Fabaceae)

Acyrthosiphon (*Acyrthosiphon*) *malvae* (Mosley)
ACT: *Geranium potentilloides* (Geraniaceae)*, *Pelargonium australe* (Geraniaceae)*; **NSW**: present; **SA**: *Pelargonium australe* (Geraniaceae)*; **TAS**: present; **VIC**: present; **WA**: present

Acyrthosiphon (*Acyrthosiphon*) *pisum* (Harris)
ACT: *Medicago sativa* (Fabaceae); **NSW**: *Heliotropium* sp. (Boraginaceae)*, *Medicago sativa* (Fabaceae); **SA**: *Medicago truncatulata* (Fabaceae); **TAS**: present; **VIC**: *Medicago sativa* (Fabaceae)

Acyrthosiphon (*Acyrthosiphon*) *primulae*
TAS: *Primula polyantha* (Primulaceae)*

Genus *Akkaia*

Akkaia taiwana
NSW: present

Genus *Amphorophora* Buckton

Subgenus *Amphorophora* Buckton

Amphorophora (*Amphorophora*) *rubi** (Kaltenbach)
TAS: *Rubus* (*Rubus*) *fruticosus* (Rosaceae)
Remarks: *Amphorophora rubi* is a recently introduced species for Australia. The species was first published as present in Victoria by Valenzuela *et al*. (2007) from collections done in 2004 from *Rubus fructicosus*. ANIC holdings are the first records of its presence in Tasmania.

Genus *Aulacorthum* Mordvilko

Subgenus *Aulacorthum* Mordvilko

Aulacorthum (*Aulacorthum*) *solani* (Kaltenbach)
ACT: *Euodea* sp. (Rutaceae)*, *Geranium* sp. (Geraniaceae), *Primula polyantha* (Primulaceae)*, *Viola* sp. (Violaceae); **NSW**: *Cissus hypoglauca* (Vitaceae)*, *Plantago lanceolata* (Plantaginaceae), *Rumex crispus* (Polygonaceae); **QLD**: *Aristolochia* sp. (Aristolochiaceae), *Rubus rosifolius* (Rosaceae)*; **SA**: *Hibiscus trionum* (Malvaceae)*, *Solanum tuberosum* (Solanaceae), *Stellaria media* (Caryophyllaceae), *Trifolium resupinatum* (Fabaceae)*, *Trifolium subterraneum* (Fabaceae)*; **WA**: present; **Norfolk Island**: present

Genus *Brachycaudus* van der Goot

Subgenus *Brachycaudus* van der Goot

Brachycaudus (*Brachycaudus*) *helichrysi* (Kaltenbach)
ACT: *Chrysanthemum* sp. (Asteraceae), *Cistus* x *purpureus* (Cistaceae)*, *Veronica* sp. (Plantaginaceae); **NSW**: present; **QLD**: present; **SA**: *Carthamus lanatus* (Asteraceae)*, *Chrysanthemum* sp. (Asteraceae), *Cryptostemma* sp. (Asteraceae)*, *Echium plantagineum* (Boraginaceae), *Goodenia brunnea* (Goodeniaceae)*, *Myosotis* sp. (Boraginaceae); **WA**: *Helianthus annuus* (Asteraceae), *Lupinus angustifolius* (Fabaceae)*, *Medicago truncatula* (Fabaceae)*

Subgenus *Scrophulaphis* Andreev

Brachycaudus (*Scrophulaphis*) *persicae* (Passerini)
ACT: *Prunus persica* (Rosaceae); **NSW**: *Prunus armeniaca* (Rosaceae); **SA**: *Parentucellia latifolia* (Linderniaceae)*, *Prunus domestica* (Rosaceae), *Prunus persica* (Rosaceae)

Subgenus *Thuleaphis* Hille Ris Lambers

Brachycaudus (*Thuleaphis*) *rumexicolens* (Patch)
NSW: present; **TAS***: Tanacetum* sp. (Asteraceae)*

Genus *Brachysiphoniella* Takahashi

Brachysiphoniella montana (van der Goot)
NSW: present

Genus *Brevicoryne* van der Goot

Brevicoryne brassicae (Linnaeus)
ACT: *Brassica napus* (Brassicaceae), *Brassica rapa* (Brassicaceae), *Sisymbrium officinale* (Brassicaceae); **NSW**: *Brassica oleracea* (Brassicaceae); **SA**: *Brassica napus* (Brassicaceae), *Brassica oleracea* (Brassicaceae), *Brassica rapa* (Brassicaceae); **TAS**: present; **WA**: *Brassica napus* (Brassicaceae); **NT**: *Brassica oleracea* (Brassicaceae), *Brassica rapa* (Brassicaceae)

Genus *Capitophorus* van der Goot

Capitophorus elaeagni (Del Guercio)
ACT: *Elaeagnus umbellata* (Elaeagnaceae), *Onopordum acanthium* (Asteraceae); **NSW**: *Silybum marianum* (Asteraceae); **QLD**: *Carthamus tinctorius* (Asteraceae); **SA**: *Carthamus tinctorius* (Asteraceae), *Cynara scolymus* (Asteraceae); **VIC**: *Carduus tenuiflorus* (Asteraceae); **WA**: present

Capitophorus hippophaes javanicus Hille Ris Lambers
ACT: present(?); **NSW**: present; **QLD**: present(?); **SA**: *Polygonum* sp. (Polygonaceae)
Remarks: Records for both ACT and QLD are slide mounted alates identified as *C. hippophaes*. They are presumed to be the subspecies *javanicus* and not *C. hippophaes* sensu stricto.

Capitophorus mitegoni Eastop
ACT: *Polygonum* sp. (Polygonaceae); **NSW**: present; **SA**: present; **VIC**; present; **WA**: present

Genus *Cavariella* Del Guercio

Subgenus Cavariella Del Guercio

Cavariella (*Cavariella*) *aegopodii* (Scopoli)
ACT: *Foeniculum vulgare* (Apiaceae); **NSW**: *Apium graveolens* (Apiaceae), *Daucus carota* (Apiaceae); **QLD**: *Anethum graveolens* (Apiaceae); **SA**: *Daucus carota* (Apiaceae), *Foeniculum vulgare* (Apiaceae)

Genus *Chaetosiphon* Mordvilko

Subgenus *Pentatrichopus* Börner

Chaetosiphon (*Pentatrichopus*) *fragaefolii* (Cockerell)
ACT: *Potentilla* x *ananassa* (Rosaceae); **QLD**: *Potentilla* x *ananassa* (Rosaceae)

Chaetosiphon (*Pentatrichopus*) *tetrarhodum* (Walker)
ACT: *Rosa* sp. (Rosaceae), *Rosa canina* (Rosaceae); **NSW**: present; **SA**: *Rosa* sp. (Rosaceae)

Genus *Coloradoa* Wilson

Coloradoa rufomaculata (Wilson)
ACT: *Chrysanthemum* sp. (Asteraceae); **SA**: *Chrysanthemum* sp. (Asteraceae); **VIC**: *Chrysanthemum* sp. (Asteraceae)

Genus *Dysaphis* Börner

Subgenus *Dysaphis* Börner

Dysaphis (*Dysaphis*) *apiifolia* (Theobald)
ACT: *Foeniculum vulgare* (Apiaceae); **NSW**: *Foeniculum vulgare* (Apiaceae); **SA**: *Foeniculum vulgare* (Apiaceae); **VIC**: present

Dysaphis (*Dysaphis*) *foeniculus* (Theobald)
ACT: *Daucus carota* (Apiaceae); **NSW**: *Daucus carota* (Apiaceae), *Foeniculum vulgare* (Apiaceae); **QLD**: *Daucus carota* (Apiaceae); **SA**: *Daucus carota* (Apiaceae), *Foeniculum vulgare* (Apiaceae); **Norfolk Island**: *Daucus carota* (Apiaceae)

Dysaphis (*Dysaphis*) *lappae* (Koch)
ACT: *Onopordum acanthium* (Asteraceae); **NSW**: *Onopordum acanthium* (Asteraceae); **VIC**: *Cynara cardunculus* (Asteraceae)
Remarks: A long standing introduction to Australia, with it first being referenced in Naumann (1993). Earliest collection details are from Mt. Derrimut, VIC, 1982, col: P. Ridland. Further collections were made in 1986 in ACT and NSW. Determinations by M. Carver.

Dysaphis (*Dysaphis*) *radicola* (Mordvilko)
ACT: *Rumex crispus* (Polygonaceae), *Rumex* sp. (Polygonaceae); **VIC**: *Rumex crispus* (Polygonaceae)

Dysaphis (*Dysaphis*) *tulipae* (Boyer de Fonscolombe)
ACT: *Iris* sp. (Iridaceae); **NSW**: present; **SA**: *Iris orientalis* (Iridaceae); **VIC**: *Iris* sp. (Iridaceae)

Subgenus *Pomaphis* Börner

Dysaphis (*Pomaphis*) *aucupariae* (Buckton)
NSW: *Plantago lanceolata* (Plantaginaceae); **VIC**: *Plantago* sp. (Plantaginaceae), *Plantago lanceolata* (Plantaginaceae); **WA**: *Plantago* sp. (Plantaginaceae)

Genus *Elatobium* Mordvilko

Elatobium abietinum (Walker)
TAS: *Callitris rhomboidea* (Cupressaceae)?
Remarks: The host records for *Callitris rhomboidea* are included here but are seen as dubious. The species is only known to feed on limited members of the family Pinaceae, usually *Abies* and *Picea* (Holman, 2009). Collected in 1960, label data for the specimens only gives the common name of Oyster Bay Pine (= *Callitris rhomboidea*). While potentially a host misidentification, it is included here to encourage further research and collections.

Genus *Hyadaphis* Kirkaldy

Hyadaphis passerinii (Del Guercio)

ACT: *Daucus carota* (Apiaceae), *Conium maculatum* (Apiaceae), *Lonicera fragrantissima* (Caprifoliaceae)*, *Lonicera* (Caprifoliaceae); **NSW**: *Daucus carota* (Apiaceae), *Lonicera* (Caprifoliaceae); **QLD**; present; **SA**: *Daucus carota* (Apiaceae)

Remarks: Australian records of *Hyadaphis foeniculi* Passerini are considered to be *H. passerinii* (Blackman & Eastop, 2019). Further research needs to be carried out to examine if both species are present in Australia. *Hyadaphis foeniculi* is not known to feed on carrot.

Genus *Hyperomyzus* Börner

Subgenus *Hyperomyzus* Börner

Hyperomyzus (*Hyperomyzus*) *carduellinus* (Theobald)

NSW: present; **QLD**: *Sonchus oleraceus* (Asteraceae), *Sonchus* sp. (Asteraceae); **SA**: *Reichardia picroides* (Asteraceae)*, *Reichardia tingitana* (Asteraceae), *Sonchus asper* (Asteraceae), *Sonchus oleraceus* (Asteraceae); **WA**: present

Hyperomyzus (*Hyperomyzus*) *lactucae* (Linnaeus)

ACT: *Conyza* sp. (Asteraceae)*, *Sonchus* sp. (Asteraceae); **NSW**: *Sonchus* sp. (Asteraceae); **QLD**: *Sonchus* sp. (Asteraceae); **SA:** *Actites megalocarpus* (Asteraceae), *Reichardia picroides* (Asteraceae)*, *Sonchus hydrophilus* (Asteraceae), *Sonchus oleraceus* (Asteraceae); **TAS**: *Sonchus* sp. (Asteraceae); **VIC**: present; **WA**: present

Subgenus *Neonasonovia* Hille Ris Lambers

Hyperomyzus (*Neonasonovia*) *picridis* (Börner)

TAS: present

Remarks: The species has been listed on the Australian Faunal Directory (ABRS, 2019) as present in Australia, likely due to these ANIC holdings; it has not been published elsewhere in the scientific literature. Slides are from Judbury, Tasmania, 1999 in Mary Carvers hand writing.

Genus *Idiopterus* Davis

Idiopterus nephrelepidis Davis

SA: *Adiantum* sp. (Pteridaceae); **TAS**: *Adiantum* sp. (Pteridaceae)

Genus *Ipuka* Van Harten & Ilharco

Ipuka dispersa (van der Goot)

QLD: *Emilia sonchifolia* (Asteraceae)

Genus *Jacksonia* Theobald

Jacksonia papillata Theobald

Macquarie Island: *Acaena* sp. (Rosaceae)*, *Festuca contracta* (Poaceae)*, *Montia fontana* (Portulacaceae)*, *Pleurophyllum* sp. (Asteraceae)*, *Poa annua* (Poaceae)*, *Poa foliosa* (Poaceae)*, *Stilbocarpa* [litter] (Araliaceae)*

Remarks: Host records on Macquarie Island have all been previously published by Eastop (1962). They are indicated here as new to facilitate their inclusion into host lists such as Blackman & Eastop (2019).

Genus *Lipaphis*

Subgenus *Lipaphis*

Lipaphis pseudobrassicae (Davis)

ACT: *Brassica oleracea* var. *acephala* (Brassicaceea), *Brassica rapa* subsp. *pekinensis* (Brassicaceae), *Brassica* sp. (Brassicaceae); **NSW**: *Matthiola* sp. (Brassicaceae); **SA**: *Brassica napus* (Brassicaceae), *Sinapis arvensis* (Brassicaceae); **WA**: *Brassica napus* (Brassicaceae)

Remarks: Many historical records in Australia refer to *Lipaphis erysimi* Kaltenbach, which is considered absent from Australia.

Genus *Macrosiphoniella* Del Guercio

Subgenus *Macrosiphoniella* Del Guercio

Macrosiphoniella (*Macrosiphoniella*) *sanborni* (Gillette)

ACT: *Chrysanthemum* sp. (Asteraceae); **QLD**: *Chrysanthemum* sp. (Asteraceae); **SA**: *Chrysanthemum* sp. (Asteraceae)

Genus *Macrosiphum* Passerini

Subgenus *Macrosiphum* Passerini

Macrosiphum (*Macrosiphum*) *euphorbiae* (Thomas)

ACT: *Akebia quinata* (Lardizabalaceae), *Chrysanthemum* sp. (Asteraceae), *Epilobium* sp. (Onagraceae), *Eucalyptus pulverulenta* (Myrtaceae)*, *Gardenia* sp. (Rubiaceae), *Iris* sp. (Iridaceae), *Muscari* sp. (Asparagaceae), *Rheum rhaponticum* (Polygonaceae), *Spergularia* sp. (Caryophyllaceae), *Solanum tuberosum* (Solanaceae), *Tagetes* sp. (Asteraceae), *Tulipa* sp. (Liliaceae), *Ulmus* sp. (Ulmaceae), *Vica faba* (Fabaceae); **NSW**: *Berberis* sp. (Berberidaceae), *Echium plantagineum* (Boraginaceae)*, *Pisum* sp. (Fabaceae), *Rosa rubiginosa* (Rosaceae), *Rumex obtusifolius* (Polygonaceae), *Silybum mariatum* (Asteraceae), *Sonchus arvensis* (Asteraceae); **QLD**: present; **SA**: *Annona muricata* (Annonaceae)*, *Centranthus* sp. (Caprifoliaceae), *Cymbidium* sp. (Orchidaceae)*, *Lactuca sativa* (Asteraceae), *Moraea flaccida* (Iridaceae)*, *Nicotiana glauca* (Solanaceae), *Oxalis* sp. (Oxalidaceae), *Pericallis cruenta* (Asteraceae), *Solanum eremophilum* (Solanaceae)*, *Triticum aestivum* (Poaceae)*; **VIC**: *Citrus medica* (Rutaceae), *Humulus lupulus* (Cannabaceae), *Lactuca sativa* (Asteraceae), *Malva parviflora* (Malvaceae), *Rosa* sp. (Rosaceae), *Roepera crenata* (Zygophyllaceae)*; **WA**: *Lupinus angustifolius* (Fabaceae), *Stirlingia latifolia* (Proteaceae)*

Macrosiphum (*Macrosiphum*) *rosae* (Linnaeus)

ACT: *Rosa* sp. (Rosaceae); **NSW**: *Rosa* sp. (Rosaceae); **QLD**: *Rosa* sp. (Rosaceae); **SA**: *Centranthus ruber* (Caprifoliaceae), *Rosa* sp. (Rosaceae), *Valeriana officinalis* (Caprifoliaceae); **VIC**: *Rosa* sp. (Rosaceae)

Genus *Metopolophium* Mordvilko

Subgenus *Metopolophium* Mordvilko

Metopolophium (Metopolophium) *dirhodum* (Walker)

ACT: *Hordeum vulgare* (Poaceae), *Triticum aestivum* (Poaceae); **NSW**: *Hordeum vulgare* (Poaceae), *Triticum aestivum* (Poaceae); **VIC**: *Hordeum vulgare* (Poaceae)

Genus *Micromyzella* Eastop

Micromyzella judenkoi (Carver)
NSW: present; **QLD**: present

Micromyzella filicis (van der Goot)*
Norfolk Island: Ferns
Remarks: The record of *Micromyzella filicis* on Norfolk Island indicates a new Australian geographic location for the species currently only known from Java and New Zealand (Noordham 2004, Blackman & Eastop 2019). The slides are from 1984, and collected by T.A. Weir, Det: C. Brumley. So far it has not been collected on mainland Australia.

Genus *Myzus* Passerini

Subgenus *Myzus* Passerini

Myzus (*Myzus*) *cerasi* (Fabricius)
ACT: *Prunus avium* (Rosaceae); **NSW**: *Prunus cerasus* (Rosaceae); **SA**: *Prunus cerasus* (Rosaceae)

Myzus (*Myzus*) *dycei* Carver
NSW: *Urtica incisa* (Urticaceae)

Myzus (*Myzus*) *hemerocallis* Takahashi
QLD: *Hemerocallis* sp. (Hemerocallidaceae)

Myzus (*Myzus*) *ornatus*
ACT: *Ocimum basilicum* (Lamiaceae), *Plantago* sp. (Plantaginaceae), *Primula polyantha* (Primulaceae); **NSW**: *Mentha* sp. (Lamiaceae), *Ocimum basilicum* (Lamiaceae), *Salvia splendens* (Lamiaceae); **SA**: *Fuchsia* sp. (Onagraceae), *Stellaria media* (Caryophyllaceae); **VIC**: *Hypericum perforatum* (Hypericaceae)*

Subgenus *Nectarosiphon* Schouteden

Myzus (*Nectarosiphon*) *antirrhinii* (Macchiati)
ACT: *Euphorbia peplus* (Euphorbiaceae)*; **NSW**: *Buddleja* sp. (Scrophulariaceae)

Myzus (*Nectarosiphon*) *persicae* (Sulzer)
ACT: *Bartsia* sp. (Linderniaceae)*, *Brassica oleracea* (Brassicaceae), *Brassica rapa* (Brassicaceae), *Portulaca* (Portulacaceae), *Prunus avium* (Rosaceae), *Prunus persica* (Rosaceae), *Urtica urens* (Urticaceae); **NSW**: *Berberis* sp. (Berberidaceae), *Rumex obtusifolius* (Polygonaceae), *Viola wittrockiana* (Violaceae), *Zea mays* (Poaceae); **QLD**: *Emex australis* (Polygonaceae)*; **SA**: *Brassica napus* (Brassicaceae), *Brassica rapa* (Brassicaceae), *Chenopodium album* (Chenopodiaceae), *Cymbidium* sp. (Orchidaceae), *Datura stramonium* (Solanaceae), *Emex australis* (Polygonaceae)*, *Ipomoea lobata* (Convovulaceae)*, *Malva* sp. (Malvaceae), *Parentucellia latifolia* (Linderniaceae)*, *Prunus persica* (Rosaceae), *Solanum eremophilum* (Solanaceae)*, *Solanum tuberosum* (Solanaceae), *Sparaxis bulbifera* (Iridaceae)*, *Triticum aestivum* (Poaceae); **TAS**: *Dianthus* sp. (Caryophyllaceae); **VIC**: *Citrus medica* (Rutaceae), *Cynara cardunculus* (Asteraceae), *Sinapis arvensis* (Brassicaceae); **WA**: *Brassica napus* (Brassicaceae), *Carthamus tinctorius* (Asteraceae)
Remarks: Worth noting here are the new records on *Solanum eremophilum*. This native species is listed as rare and poorly known in South Australia and Victoria (DEW 2007; DWELP 2014).

Subgenus *Sciamyzus* Stroyan

Myzus (*Sciamyzus*) *ascalonicus*
ACT: *Stellaria* sp. (Caryophyllaceae); **Macquarie Island**: *Cotula* sp. (Asteraceae)*, *Epilobium neoteroides* (Onagraceae)*, *Juncus* sp. (Juncaceae)*

Myzus (*Sciamyzus*) *cymbalariae* Stroyan
ACT: *Arctotheca calendula* (Asteraceae)*, *Viola* sp. (Violaceae); **SA**: *Allium cepa* (Alliaceae), *Allium schoenoprasum* (Alliaceae), *Vicia faba* (Fabaceae)*; **TAS**: *Allium ascalonicum* (Alliaceae), *Nephrolepis exaltata* (Lomariopsidaceae)

Genus *Matsumuraja*

Matsumuraja sp.
QLD: *Rubus rosaefolius* (Rosaceae)
Remarks: An undetermined species. Representatives are also present in BMNH (Blackman & Eastop 2019). These remain the only representatives for the genus in Australian collections.

Genus *Neomyzus* van der Goot

Neomyzus circumflexus (Buckton)
ACT: *Petroselinum* sp. (Apiaceae); **NSW**: present; **QLD**: *Aristolochia acuminata* (Aristolochiaceae)*, *Aristolochia indica* (Aristolochiaceae)*

Genus *Neotoxoptera* Theobald

Neotoxoptera formosana (Takahashi)
ACT: *Allium porrum* (Alliaceae), *Allium schoenoprasum* (Alliaceae); **NSW**: *Allium cepa* (Alliaceae); **SA**: *Allium cepa* (Alliaceae), *Allium schoenoprasum* (Alliaceae); **TAS**: *Allium ascalonicum* (Alliaceae); **WA**: *Allium sativum* (Alliaceae)

Neotoxoptera oliveri (Essig)
ACT: *Allium cepa* (Alliaceae), *Allium schoenoprasum* (Alliaceae), *Stellaria media* (Caryophyllaceae), *Viola* sp. (Violaceae); **NSW**: *Plantago lanceolata* (Plantaginaceae)*, *Plantago* sp. (Plantaginaceae)*; **QLD**: present; **SA**: present

Neotoxoptera violae (Pergande)
ACT: *Viola* sp. (Violaceae); **NSW**: *Viola* sp. (Violaceae)

Genus *Ovatus* van der Goot

Subgenus *Ovatus* van der Goot

Ovatus (*Ovatus*) *crataegarius* (Walker)
ACT: *Mentha* sp. (Lamiaceae); **NSW**: present; **SA**: *Mentha* sp. (Lamiaceae)

Genus *Pentalonia* Coquerel

Pentalonia nigronervosa Coquerel
ACT: *Musa* sp. (Musaceae) [in glass house]; **QLD**: present

Genus *Pleotrichophorus* Börner

Pleotrichophorus chrysanthemi (Theobald)
SA: *Chrysanthemum* sp. (Asteraceae)

Genus *Rhodobium* Hille Ris Lambers

Rhodobium porosum (Sanderson)
ACT: present; **NSW**: *Rosa* sp. (Rosaceae); **QLD**: present; **SA**: *Rosa* sp. (Rosaceae); **VIC**: *Rosa* sp. (Rosaceae)

Genus *Rhopalosiphoninus* Baker

Subgenus *Rhopalosiphoninus* Baker

Rhopalosiphoninus (*Rhopalosiphoninus*) *latysiphon* (Davidson)
ACT: present; **NSW**: present; **SA**: present

Subgenus *Neorhopalosiphoninus* Ghosh & Raychaudhuri

Rhopalosiphoninus (Neorhopalosiphoninus) *staphyleae* (Koch)
NSW: *Arctotheca calendula* (Asteraceae); **SA**: present

Genus *Sinomegoura* Takahashi

Sinomegoura citricola (van der Goot)
NSW: present
Genus *Shinjia* Takahashi

Shinjia orientalis
NSW: *Pteridium esculentum* (Dennstaedtiaceae)*; **QLD**; present; **SA**: present

Genus *Sitobion* Mordvilko

Subgenus *Sitobion* Mordvilko

Sitobion (*Sitobion*) *fragariae* (Walker)
ACT: *Hordeum vulgare* (Poaceae); **NSW**: *Avena sativa* (Poaceae), *Avena sterilis* (Poaceae), *Paspalum dilatum* (Poaceae)

Sitobion (*Sitobion*) *luteum* (Buckton)
ACT: Orchidaceae; **NSW**: *Dendrobium aemulum* (Orchidaceae)*; **QLD**: *Dendrobium jonesii* (Orchidaceae)*
Remarks: These are the first recorded host plants for *Sitobion luteum* in Australia, as Eastop (1966) remarked their presence only on an undetermined orchid from Queensland. *Dendrobium* are native Australian orchids.

Sitobion (*Sitobion*) *miscanthi* (Takahashi)
ACT: *Hordeum vulgare* (Poaceae), *Setaria parviflora* (Poaceae)*; **NSW**: *Elytrigia repens* (Poaceae), *Paspalum* sp. (Poaceae); *Axonopus fissifolius* (Poaceae)*; **SA**: *Dactylis glomerata* (Poaceae), *Triticum* sp. (Poaceae); *Ehrharta erecta* (Poaceae)*

Genus *Trichosiphonaphis* Takahashi

Subgenus *Xenomyzus* Aizenberg

*Trichosiphonaphis (Xenomyzus) polygoni** (van der Goot)
NSW: *Persicaria decipiens* (Polygonaceae)*
Remarks: *Trichosiphonaphis polygoni* is recorded as a previously unpublished new species for Australia. The species was first collected in 1991 at Beecroft, NSW by Dinah Hales, Det: M. Carver. Even with the substantial time since initial detection, it has not been recorded in other Australian states.

Genus *Uroleucon* Mordvilko

Subgenus *Uroleucon* Mordvilko

Uroleucon (*Uroleucon*) *sonchi* (Linnaeus)
ACT: *Sonchus oleraceus* (Asteraceae); **Norfolk Island**: Present

Genus *Wahlgreniella* Hille Ris Lambers

*Wahlgreniella nervata** (Gillette)
WA: *Arbutus unedo* (Ericaceae)
Remarks: *Wahlgreniella nervata* represents a new species record for Australia. First records are from 2017 on Strawberry Tree, *Arbutus unedo*, Walliston, WA, col: R. Ulrich, det: C. Brumley. While only collected from *Arbutus*, the specimen's morphology does not clearly delineate between *W*. *nervata* and *W*. *nervata* ssp. *arbuti* (Davidson) using the key in Blackman (2010). The original species level name is used here for Australian specimens until further research is undertaken on the group.

Subfamily Calaphidinae Oestlund

Tribe Calaphidini Oestlund

Subtribe Calaphidina Oestlund

Genus *Calaphis* Walsh

Calaphis flava
ACT: *Betula pendula* (Betulaceae), *Betula* sp. (Betulaceae); **NSW**: *Betula pendula* (Betulaceae); **SA**: *Betula pendula* (Betulaceae); **TAS**: *Betula pendula* (Betulaceae)

Genus *Euceraphis* Walker

Euceraphis betulae Koch
ACT: *Betula* sp. (Betulaceae); **SA**: *Betula pendula* (Betulaceae); **TAS**: *Betula pendula* (Betulaceae)

Tribe Panaphidini Oestlund

Subtribe Myzocallidina

Genus *Myzocallis* Passerini

Subgenus *Agrioaphis* Walker

Myzocallis (*Agrioaphis*) *castanicola* Baker
ACT: *Quercus* sp. (Fagaceae); **NSW**: *Quercus robur* (Fagaceae); **SA**: *Quercus canariensis* (Fagaceae)

Subgenus *Myzocallis* Passerini

Myzocallis (*Myzocallis*) *coryli* (Goeze)
SA: *Corylus avellana* (Betulaceae); **TAS**: *Corylus avellana* (Betulaceae)

Genus *Tuberculatus*

Subgenus *Tuberculoides* van der Goot

Tuberculatus (*Tuberculoides*) *annulatus* (Hartig)
ACT: *Quercus robur* (Fagaceae), *Quercus* sp. (Fagaceae); **NSW**: *Quercus robur* (Fagaceae); **SA**: *Quercus canariensis* (Fagaceae), *Quercus* sp. (Fagaceae); **WA**: *Quercus* sp. (Fagaceae)

Subtribe Panaphidina Oestlund

Genus *Pterocallis* Passerini

Subgenus *Pterocallis* Passerini

Pterocallis alni (De Geer)
ACT: *Alnus glutinosa* (Betulaceae)

Genus *Shivaphis* Das

Subgenus *Shivaphis* Das

Shivaphis (*Shivaphis*) *celti* Das
NSW: *Celtis sinensis* (Ulmaceae)
Remarks: A recent introduction to Australia. *Shivaphis celti* was originally found in 2013 infesting *Celtis* trees in New South Wales (Carnegie & Nahrung 2019).

Genus *Therioaphis* Walker

Subgenus *Pterocallidium* Börner

Therioaphis (*Pterocallidium*) *trifolii* (Monell)
ACT: *Medicago sativa* (Fabaceae); **NSW**: *Medicago sativa* (Fabaceae), *Trifolium subterraneum* (Fabaceae); **QLD**:

Medicago sativa (Fabaceae), *Medicago truncatula* (Fabaceae); **SA**: *Medicago sativa* (Fabaceae); **WA**: *Trifolium subterraneum* (Fabaceae)

Genus *Tinocallis* Matsumura

Subgenus *Tinocallis* Matsumura

Tinocallis (*Tinocallis*) *ulmiparvifoliae* Matsumura
ACT: *Ulmus parvifolia* (Ulmaceae), *Ulmus* sp. (Ulmaceae); **NSW**: *Ulmus parvifolia* (Ulmaceae); **SA**: present

Subfamily Chaitophorinae

Tribe Chaitophorini

Genus *Periphyllus* van der Hoeven

Periphyllus californiensis (Shinji)
ACT: *Acer japonicum* (Sapindaceae), *Acer palmatum* (Sapindaceae); **SA**: *Acer japonicum* (Sapindaceae), *Acer* sp. (Sapindaceae);

Subfamily Drepanosiphinae Herrich-Schaeffer

Genus *Drepanosiphum* Koch

Drepanosiphum platanoidis (Schrank)
ACT: *Acer pseudoplatanus* (Sapindaceae); **SA**: *Acer pseudoplatanus* (Sapindaceae); **VIC**: present

Subfamily Eriosomatinae

Tribe Eriosomatini

Genus *Eriosoma* Leach

Eriosoma lanigerum (Hausmann)
ACT: *Malus* sp. (Rosaceae), *Pyracantha* sp. (Rosaceae); **SA**: *Malus* sp. (Rosaceae)

Eriosoma pyricola Baker & Davidson
TAS: *Ulmus* sp. (Ulmaceae)

Genus *Tetraneura* Hartig

Subgenus *Tetraneura* Hartig

Tetraneura (*Tetraneura*) *radicicola*
NSW: *Cenchrus clandestinus* (Poaceae)*

Tetraneura (*Tetraneura*) *yezoensis*
NSW: present

Subgenus *Tetraneurella* Hille Ris Lambers

Tetraneura (*Tetraneurella*) *fusiformis* Sasaki
ACT: *Digitaria sanguinalis* (Poaceae); **NSW**: present; **QLD**: *Echinochloa colona* (Poaceae)*; **SA**: present
Remarks: Australian collected records of *Tetraneura nigriabdominalis* (Sasaki) all likely refer to this species (Blackman & Eastop, 2019).

Tribe Fordini

Genus *Aploneura* Passerini

Aploneura lentisci
ACT: Poaceae [roots]; **NSW**: Poaceae [roots]; **QLD**: *Poa annua* (Poaceae); **SA**: Poaceae [roots]

Genus *Geoica* Hart

Geoica lucifuga (Zehntner)
ACT: present; **NSW**: present; **QLD**: *Saccharum officinarum* (Poaceae); **SA**: present; **VIC**: present

Genus *Smynthurodes* Westwood

Smynthurodes betae Westwood
NSW: *Glycine max* (Fabaceae)*[roots], *Sparaxis tricolor* (Iridaceae)*; **SA**: *Aquilegia* (Ranunculaceae)*[roots], *Bergenia crassifolia* (Saxifragaceae)*; **WA**: *Lathyrus odoratus* (Fabaceae) [roots], *Pastinaca sativa* (Apiaceae) [roots]

Tribe Pemphigini Herrich-Schaeffer

Genus *Pemphigus* Hartig

Subgenus *Pemphigus* Hartig

Pemphigus (*Pemphigus*) *bursarius* (Linnaeus)
ACT: *Beta vulgaris* (Chenopodiaceae) [roots], *Populus nigra* (Salicaceae); **NSW**: present; **SA**: *Chenopodium album* (Chenopodiaceae)*; **VIC**: *Populus nigra* (Salicaceae**)**

Subfamily Greenideinae Baker

Tribe Cervaphidini van der Goot

Genus *Anomalaphis* Baker

Anomalaphis casimiri Carver
ACT: *Leptospermum scoparium* (Myrtaceae)*

Anomalaphis comperei Pergande
WA: *Agonis flexuosa* (Myrtaceae)

Genus *Meringosiphon* Carver

Meringosiphon paradisicum Carver
WA: *Gastrolobium dilatatum* (Fabaceae)*
Remarks: The series of slides of *Meringosiphon paradisicum* on host plant *Gastrolobium dilatatum* are the only known host records for this native aphid species. The original type specimens are recorded as "host unknown", and no collection records are available in other Australian institutions.

Tribe Greenideini Baker

Genus *Greenidea* Schouteden

Remarks: An exclusion from the list is *Greenidea* (*Trichosiphon*) *psidii* van der Goot. There are a series of slides for this species (originally recorded as *Greenidea formosana*), from a single collection instance in Queensland, containing an alate ovipara, and an aptera with no host records. The aptera is unfortunately missing siphunculi, as they commonly detach when slide mounting this genus, and without which a definite identification is impossible. Halbert (2004) notes having a slide mounted specimen that is likely this species from Brisbane, but as yet it remains absent from Australian institutions. Further collecting and slide mounting is therefore needed to prove the species is present on the continent with any certainty.

Subgenus *Greenidea* Schouteden

Greenidea (*Greenidea*) *ficicola* Takahashi
NSW: *Ficus microcarpa* var. *hillii* (Moraceae)

Subgenus *Trichosiphum* Pergande

Greenidea (*Trichosiphum*) nr. *anonae* (Pergande)
Christmas Island: present

Tribe Schoutedeniini

Genus *Schoutedenia*

Schoutedenia ralumensis
NSW: *Breynia oblongifolia* (Phyllanthaceae)

Subfamily Hormaphidinae

Tribe Cerataphidini Baker

Genus *Astegopteryx*

Astegopteryx rhapidis (van der Goot)
QLD: *Cocos nucifera* (Arecaceae)

Genus *Cerataphis* Lichtenstein

Cerataphis brasiliensis
QLD: *Cocos nucifera* (Arecaceae); **Christmas Island**: present

Cerataphis lataniae (Boisduval)
NSW: palm (Arecaceae); **QLD:** *Cocos nucifera* (Arecaceae)

Cerataphis orchidearum (Westwood)
ACT: *Epidendrum* sp. (Orchidaceae); **NSW**: *Cymbidium suave* (Orchidaceae)*, *Dendrobium gracilicaule* (Orchidaceae), *Dendrobium kingianum* (Orchidaceae)

Genus *Pseudoregma* Doncaster

Pseudoregma panicola (Takahashi)
NSW: *Oplismenus hirtellus* (Poaceae); **QLD**: present

Pseudoregma sundanica (van der Goot)
QLD: *Alpinia caerulea* (Zingiberaceae)*
Remarks: Listed on the Australian Faunal Directory as present in Australia based on ANIC and BMNH records but unpublished elsewhere (ABRS 2019). Collections were made from a yellow pan trap at Bellenden Ker Range in 1981, col: G.B. Monteith, and from the listed host plant at Atherton in 1988, col: A. Irvine.

Tribe Nipponaphidini Ghosh

Genus *Reticulaphis* Takahashi

*Reticulaphis distylii** van der Goot
QLD: *Ficus* sp. (Moraceae)

*Reticulaphis inflata** Yeh & Hsu
WA: *Ficus benjamina* (Moraceae)*, *Ficus* sp. (Moraceae)
Remarks: The records for *Reticulaphis distylii* and *R. inflata* are the first published records for these species in Australia. These are both long-standing introductions, with the earliest *R. inflata* record collected in 1997, WA Dept of Ag, det: C. Brumley. The species is now widespread over the Perth metropolitan region on *Ficus* trees. QLD records of *R. distylii* are from Bamaga, 1999 col: P. Dangerfield, det: M. Carver.

Genus *Schizoneuraphis* van der Goot

Schizoneuraphis gallarum van der Goot
QLD: *Litsea* sp. (Lauraceae)
Remarks: Listed on the Australian Faunal Directory as present in Australia based on ANIC records but unpublished elsewhere (ABRS 2019). Collection records are from Weipa, 1999 and 2000, and Snapper Island (no date), all from *Litsea* sp.

Subfamily Lachninae Herrich-Schaeffer

Tribe Eulachnini Baker

Genus *Cinara* Curtis

Subgenus *Cinara* Curtis

Cinara (*Cinara*) *pilicornis* (Hartig)
NSW: *Picea abies* (Pinaceae)

Subgenus *Cupressobium* Börner

Cinara (*Cupressobium*) *fresai* Blanchard
ACT: *Cupressus arizonica* (Cupressaceae), *Cupressus* sp. (Cupressaceae); **SA**: *Cupressus macrocarpa* var. *bruniana* (Cupressaceae), *Cupressus* sp. (Cupressaceae), *Dacrydium* (Podocarpaceae)*, *Juniperus sabina* (Cupressaceae); **TAS**: *Cupressus macrocarpa* (Cupressaceae), *Cupressus* sp. (Cupressaceae)

Cinara (*Cupressobium*) *juniperi* (De Geer)
ACT: *Cupressus* sp. (Cupressaceae), *Juniperus sabina* (Cupressaceae), *Juniperus* sp. (Cupressaceae); **NSW**: *Callitris preissii* (Cupressaceae)*, *Juniperus* sp. (Cupressaceae); **SA**: *Cupressus lusitanica* (Cupressaceae), *Cupressus macrocarpa* (Cupressaceae), *Cupressus* sp. (Cupressaceae), *Dacrydium* sp. (Podocarpaceae), *Juniperus oxycedrus* (Cupressaceae); **TAS**: *Cupressus macrocarpa* (Cupressaceae), *Cupressus* sp. (Cupressaceae)

Cinara (*Cupressobium*) *tujafilina* (Del Guercio)
ACT: *Cupressus* sp. (Cupressaceae); **NSW**: *Cupressus* sp. (Cupressaceae); **SA**: *Callitris preissii* (Cupressaceae)*, *Callitris* sp. (Cupressaceae); **WA**: *Callitris preissii* (Cupressaceae)*
Genus *Eulachnus* Del Guercio

Eulachnus thunbergii Wilson
ACT: *Pinus* (Pinaceae), *Pinus taeda* (Pinaceae); **QLD**: *Pinus radiata* (Pinaceae), *Pinus* sp. (Pinaceae); **VIC**: *Pinus radiata* (Pinaceae)

Tribe Tuberolachnini Oestlund

Genus *Tuberolachnus* Mordvilko

Subgenus *Tuberolachnus* Mordvilko

Tuberolachnus (*Tuberolachnus*) *salignus* (Gmelin)
TAS: *Salix* sp. (Salicaceae)
Remarks: *Tuberolachnus salignus* is a recent introduction to Australia originally recorded in 2014 (AgVIC 2017).

Subfamily Lizeriinae Blanchard

Genus *Ceriferella* Carver & Martyn

Ceriferella dossuaria Carver & Martyn
WA: present

Ceriferella leucopogonis Carver & Martyn
NSW: *Leucopogon* sp. (Ericaceae); **SA**: *Leucopogon concurvus* (Ericaceae); **TAS**: *Leucopogon parviflorus* (Ericaceae)

Subfamily Neophyllaphidinae Takahashi

Genus *Neophyllaphis* Takahashi

Subgenus *Neophyllaphis* Takahashi

Neophyllaphis (*Neophyllaphis*) *araucariae* Takahashi
NSW: *Araucaria* sp. (Araucariaceae); **QLD**: *Araucaria cunninghamii* (Araucariaceae); **Norfolk Island**: *Araucaria cunninghamii* (Araucariaceae)

Neophyllaphis (*Neophyllaphis*) *brimblecombei* Carver
NSW: *Podocarpus elatus* (Podocarpaceae); **QLD**: *Podocarpus elatus* (Podocarpaceae)

Neophyllaphis (*Neophyllaphis*) *gingerensis* Carver
ACT: *Podocarpus alpina* (Podocarpaceae); **NSW**: *Podocarpus alpina* (Podocarpaceae)

Neophyllaphis (*Neophyllaphis*) *lanata* Hales & Lardner
NSW: *Podocarpus spinulosus* (Podocarpaceae)

Subfamily Phyllaphidinae Herrich-Schaeffer

Genus *Phyllaphis* Koch

Phyllaphis fagi Linnaeus
VIC: present

Subfamily Saltusaphidinae Baker

Tribe Thripsaphidini Börner

Genus *Allaphis* Mordvilko

Allaphis foxtonensis (Cottier)
ACT: *Carex gaudichaudiana* (Cyperaceae); **NSW**: *Carex gaudichaudiana* (Cyperaceae)

Subfamily Taiwanaphidinae Quednau & Remaudière

Genus *Taiwanaphis* Takahashi

Subgenus *Sensoriaphis* Cottier

Taiwanaphis (*Sensoriaphis*) *furcifera* (Carver & Hales)
NSW: *Nothofagus moorei* (Nothofagaceae)

Taiwanaphis (*Sensoriaphis*) *melaleucica* Quednau
WA: *Melaleuca lanceolata* (Myrtaceae), *Melaleuca teretifolia* (Myrtaceae)

Taiwanaphis (*Sensoriaphis*) *tasmaniae* (Carver & Martin)
TAS: *Nothophagus cunninghami* (Nothofagaceae); **WA**: *Nothophagus cunninghami* (Nothofagaceae)

Discussion

This paper lists a number of first records of aphids on Australian native flora covering both rarely collected native aphids, and long-standing introduced species, indicating the need for more studies of this aspect of aphidology in Australia. The spread of exotic aphids can have significant impacts on agricultural crops, ornamental and urban landscape environments. Their overall impact within the native Australian environment is still largely unknown, although the introduction and spread of the exotic species *Aphis* (*Bursaphis*) *oenotherae* has been shown to outcompete and endanger the native aphid species *Aphis carverae* and *Casimira canberrae* (Hales *et al.* 2015). Invasive species have been implicated as a significant cause of insect biodiversity decline around the world (Sánchez-Bayo & Wyckhuys 2019). Greater knowledge of exotic aphid host ranges, and the species present within Australia could therefore be of particular use to future researchers looking into the large questions surrounding general decline of Australian native invertebrates.

No single species in the ANIC collection is present from every state and territory. This is most likely due to the majority of historic collecting and deposits coming from southern and eastern regions, rather than a lack of aphid fauna in Western Australia and the Northern Territory. The prevailing climatic conditions across the Northern Territory of tropical wet and dry seasons or semi arid inland deserts would also be unconducive for sustaining aphid populations for many temperate species. Common polyphagous species were also less likely to have been sent the significant distance to Canberra for confirmation. The collection also completely lacks aphids from the Cocos Keeling Islands in the Indian Ocean which, along with Christmas Island, would be of particular interest as a potential assisted entry pathway for future exotic species due to their remoteness (Christmas Island is around 1600km from the Western Australian coast, Cocos Keeling Islands 2300km) and close trade and transport links with Australia.

The digitisation of natural history collections the size of ANIC is a monumental undertaking requiring significant funding and support, and often relying on volunteers (Flemons & Berents 2012). While the ANIC Aphididae collection remains an un-digitised "orphan" group, this article hopes to help spread the information contained within its cabinets to aphid researchers, fostering collaborations, the exchange of material and new research ideas.

With the inclusion of the extra 24 aphids published as present in Australia but absent from ANIC, this paper provides the most recent aphid checklist for Australia and its territories. Large national repositories are of immense benefit in helping facilitate current and future research for taxonomists, ecologists and plant biosecurity researchers across the world. Due to their highly variable morphology, large, accessible collections encompassing a range of localities and hosts significantly assist aphid species identification. Physical holdings in institutions that can be continuously studied and scrutinised are the key foundations underpinning our understanding of biodiversity and agricultural pests. While a specialist Aphididae curator is not employed at ANIC, the institution's staff will undoubtedly continue to assist outside researchers with interest in the group.

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