Jawoyn Country, NT Bush Blitz

True Bugs

(Heteroptera)

31 March – 5 April 2025

Submitted: 31 October 2025

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Nomenclature and taxonomy used in this report is consistent with:

The Australian Faunal Directory (AFD)

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List of contributors

Name	Institution/affiliation	Qualifications/area of expertise	Level/form of contribution
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Katrina Menard	***University of Connecticut***	***PhD/ Heteroptera***	***identifications***

Abstract

On this Bush Blitz Heteroptera were sampled during the first week only. 19 sites were visited by the author, with additional material provided by other survey participants. Over 250 specimens were collected, representing 70 species across 16 families. Six of these are believed to be new to science, with an additional 16 either known but unformalized, or requiring further study.

1. Introduction

The hemipteran suborder Heteroptera (True Bugs) is one of the core target taxa for the Bush Blitz program (Cassis and Symonds, 2016) (Cassis and Symonds 2016). Heteroptera is represented in Australia by 2500+ species (Australian Faunal Directory), with over 400 new species described in the past 20 years. Much of the taxonomic impediment pertains to the families Miridae and Tingidae, which are sister-taxa (Cassis and Schuh, 2012) , but new species are also regularly discovered in other groups as well (e.g. Tatarnic, 2022; Tatarnic and Cassis, 2022; Malipatil et al., 2023, 2024; Tatarnic et al., 2024). Many True Bugs are phytophagous, feeding on a broad range of host plants, particularly eudicot angiosperms, and are most abundant when plants are flowering. Without knowing whether or not the majority of plants would be in flower during the survey period, it was difficult to predict our relative success.

2. Methods

2.1 Site selection

Normally, sites are selected based on what woody perennials are in flower. As all of the survey sites had been selected “site unseen” and were only accessible by helicopter, luck played a major part in site quality.

2.2 Survey techniques

As most Heteroptera are herbivorous, they are best collected by targeting their host plants, either by beating or sweeping vegetation. Specimens were also collected by hand, peeling bark, from leaf litter and at light traps. Specimens were killed by freezing and pinned at base camp. Were multiple specimens of a given species were collected, a subset was preserved in 100% ethanol for future DNA sequencing.

2.2.1 Methods used at standard survey sites

Due to my limited time and the tight helicopter schedule, I was only able to visit one of the standard survey sites personally, and thus relied on collections from other participants. Methods used were as above.

2.3 Identifying the collections

Specimens were initially sorted into families, tribes, then morphospecies. In some instances specimens could be rapidly identified to genus or species, whereas others required further investigation and comparison with the literature and the synoptics collections of the WAM. Final identifications were made through published taxonomic keys (e.g., Malipatil, 1992; Brailovsky and Cassis, 1999; Brailovsky, 2007; Weirauch, 2007; Schuh and Pedraza, 2010; Schuh and Weirauch, 2010; Schuh and Schwartz, 2016; Cassis *et al.*, 2017; Konstantinov *et al.*, 2018; Cheng and Cassis, 2019a, 2019b; Malipatil *et al.*, 2020) and comparison to material in the WAM collection.

3. Results and Discussion

Appendix 1 lists all Heteroptera recorded during the Bush Blitz.

3.1 Un-named or not formalised taxa

Table 1. Putatively un-named or not formalised taxa

Taxon	Comment
Carenotus BBJAW46	*Carenotus* was only described in 2024 (McMah & Cassis 2024) and no NT specimens were recorded. Further examination is needed to determine if the Jaowyn specimen belongs to one of the published species.
Asterophylus BBJAW63	As this specimen is a female, it is not currently possible to confirm its ID without dissection or molecular analysis.
Erysivena BBJAW74	The *Callitris*-feeding genus *Erysivena* was described in 2018 (Symonds & Cassis 2018), and did not include any NT species. Our specimen appears superficially similar to this genus, but further study is required.
Orthotylini BBJAW68	Further study required to determine the placement of this taxon.
Orthotylini BBJAW65	Further study required to determine the placement of this taxon.
Campylomma BBJAW23	Further study is required to determine if this conforms with any of the 5 known species.
Phylini BBJAW28	This is likely a new taxon, but additional material is required.
Zanchiini BBJAW88	The tribe Zanchiini is not formally recognized in Australia, yet several undescribed species have been recorded in an unpublished thesis. Further work required.
Setocoris BBJAW71	*Setocoris* is known from 3 described species, however G. Cassis is currently revising the genus, adding an additional 20+ new species. Whether this is one of these requires further examination.
Mirinae BBJAW57	This is probably new but requires further work.
Kalkadoona BBJAW45	This is likely new, but additional material and is required.
Oncocoris BBJAW19	Further work required.
Harpactorinae BBJAW76	This new genus/species is currently being described by Tatarnic.
Harpactorinae BBJAW25	This new genus/species is currently being described by Tatarnic.
Ptilocnemus BBJAW87	This new species of *Ptilocnemus* is currently being described by Bardy et al (in review)
Nethersia BBJAW20	The current published key (Cassis et al. 2017) is insufficient to diagnose this species (though

	presently no species have been recorded in northern NT to date). Further work required.

3.2 Species new to science

In this report, 'species new to science' means species that were not recognised by Western science before this Bush Blitz.

Table 2. Species new to science

Species	Comment
Agriopocorini BBJAW21	This unusual leaf footed bug does not key out to any of the described taxa (Brailovsky & Cassis 1999), and represents a new genus and species.
Cydnidae BBJAW54	Using the most recent key (Lis 2000), this burrowing bug does not match any of the known genera and appears to be a new genus and species.
Aeptini BBJAW52	This aeptine stink bug matches no described species, and may be related to 'Genus 2 species 2' of Faundez (2017) (PhD thesis).
Eysarcoriini BBJAW58	This single specimen resembles another singleton in the WAM collection, which was recently identified as an undescribed genus of the tribe Eysarcorini by visiting expert C. Schwertner.
Deraeocorinae BBJAW75	This taxon does not conform to any of the known genera in Australia and is likely new.
Tingidae BBJAW22	This minute, jet black tingid may belong to the genus *Nethersia*, but does not conform to any of the known species.

3.3 Genetic information

No genetic sampling was undertaken. Some specimens were stored in 100% ethanol for possible future DNA analysis.

4. Information on species lists

I have taken a cautious approach to the naming species, as most heteropterans require additional investigation requiring dissection of the male and female genitalia.

5. Information for land managers

There is insufficient evidence to say whether any species collected are of conservation significance. Our general advice would be that species richness is best conserved through habitat preservation, with plant diversity a good indicator of insect diversity and abundance.

6. Other significant findings

Local entomologist Simon Ong provided additional samples from NT (though not from the survey site). These include specimens of the feather legged assassin bug *Ptilocnemus*

kakaduensis. To our knowledge this species has not been collected since its description in 1985.

7. Conclusions

Despite the Heteroptera survey being only half the length of the Bush Blitz and undertaken by a single participant, 70 species across 16 families were collected. This includes six species new to science, and another 16 that are either un-named/ not formalised or also new but requiring additional study for confirmation. These findings are in keeping with other Bush Blitz surveys and reinforces that we are a long way from cataloguing the Heteroptera of Australia.

Acknowledgements

We thank the Bush Blitz team (Parks Australia, Earthwatch and BHP) for logistics and funding, and especially the Jawoyn People for welcoming us on country and collaborating on the survey.

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Appendices

Appendix 1. List of Heteroptera recorded during the Jawoyn Country Bush Blitz

Family	Species	Common name	Species new to science	Threatened species (EPBC Act)	Threatened species (NT)	Introduced species
Alydidae	Leptocorisa acuta	Paddy Bug, Rice Bug	no	no	no	no
Alydidae	Noliphus erythrocephalus	Colourful Broad-headed Bug	no	no	no	no
Alydidae	Riptortus BBJAW13	na	no	no	no	no
Alydidae	Riptortus linearis	Bean Podsucking Bug	no	no	no	no
Anthocoridae	Anthocoridae BBJAW6	na	no	no	no	no
Coreidae	Agriopocorini BBJAW21	na	yes	no	no	no
Coreidae	Amorbus BBJAW67	na	no	no	no	no
Coreidae	Amorbus robustus	na	no	no	no	no
Coreidae	Aulacosterjanus serrulatus	na	no	no	no	no
Coreidae	Gralliclava australiensis	na	no	no	no	no
Coreidae	Mictis profana	Crusader Bug	no	no	no	no
Cydnidae	Cydnidae BBJAW54	na	yes	no	no	no
Gelastocoridae	Nerthra BBJAW77	na	no	no	no	no
Geocoridae	Germalus victoriae	Big-eyed Bug	no	no	no	no
Largidae	Physopelta BBJAW86	na	no	no	no	no
Lygaeidae	Graptostethus BBJAW85	na	no	no	no	no
Miridae	Adelphocorisella rubricornis	na	no	no	no	no
Miridae	Ancoraphylus arctous	na	no	no	no	no
Miridae	Asterophylus BBJAW63	na	no	no	no	no
Miridae	Campylomma BBJAW23	na	no	no	no	no

Family	Species	Common name	Species new to science	Threatened species (EPBC Act)	Threatened species (NT)	Introduced species
Miridae	Carenotus BBJAW46	na	no	no	no	no
Miridae	Cremnorrhinini BBJAW79	na	no	no	no	no
Miridae	Creontiades BBJAW81	na	no	no	no	no
Miridae	Deraeocorinae BBJAW75	na	yes	no	no	no
Miridae	Erysivena BBJAW74	na	no	no	no	no
Miridae	Melaleucaphylus beaufortiae	na	no	no	no	no
Miridae	Mirinae BBJAW57	na	no	no	no	no
Miridae	Orthotylini BBJAW65	na	no	no	no	no
Miridae	Orthotylini BBJAW68	na	no	no	no	no
Miridae	Phylini BBJAW28	na	no	no	no	no
Miridae	Setocoris BBJAW71	na	no	no	no	no
Miridae	Tytthus chinensis	na	no	no	no	no
Miridae	Zanchiini BBJAW88	na	no	no	no	no
Pachygronthidae	Pachygrontha austrina	na	no	no	no	no
Pachygronthidae	Stenophyella macreta	na	no	no	no	no
Pentatomidae	Aeptini BBJAW52	na	yes	no	no	no
Pentatomidae	Alcaeus BBJAW2	na	no	no	no	no
Pentatomidae	Aspideurus flavescens	na	no	no	no	no
Pentatomidae	Borrichias frenchi	na	no	no	no	no
Pentatomidae	Bromocoris souefi	na	no	no	no	no
Pentatomidae	Cephaloplatus darwini	na	no	no	no	no
Pentatomidae	Eysarcorini BBJAW58	na	yes	no	no	no
Pentatomidae	Kalkadoona BBJAW45	na	no	no	no	no

Family	Species	Common name	Species new to science	Threatened species (EPBC Act)	Threatened species (NT)	Introduced species
Pentatomidae	Macromolus nervosus	na	no	no	no	no
Pentatomidae	Nezara viridula	na	no	no	no	no
Pentatomidae	Ocirrhoe BBJAW26	na	no	no	no	no
Pentatomidae	Oncocoris BBJAW19	na	no	no	no	no
Pentatomidae	Paramenestheus brevis (Paramenestheus terricolor)	na	no	no	no	no
Pentatomidae	Piezodorus oceanicus	na	no	no	no	no
Pentatomidae	Poecilometis BBJAW49	na	no	no	no	no
Pentatomidae	Poecilometis nigriventris	na	no	no	no	no
Reduviidae	Australcnema lineativentris	na	no	no	no	no
Reduviidae	Harpactorinae BBJAW25	na	no	no	no	no
Reduviidae	Harpactorinae BBJAW76	na	no	no	no	no
Reduviidae	Havinthus rufovarius	na	no	no	no	no
Reduviidae	Ischnolestes maculipes	na	no	no	no	no
Reduviidae	Poecilosphodrus gratiosus	na	no	no	no	no
Reduviidae	Polytoxus BBJAW50	na	no	no	no	no
Reduviidae	Ptilocnemus BBJAW87	na	no	no	no	no
Reduviidae	Undiareduvius aquilonius	na	no	no	no	no
Rhyparochromidae	Dieuches BBJAW83	na	no	no	no	no
Rhyparochromidae	Horridipamera nietneri	na	no	no	no	no
Rhyparochromidae	Lethaeini BBJAW84	na	no	no	no	no
Rhyparochromidae	Pseudopachybrachius guttus	na	no	no	no	no
Scutelleridae	Choerocoris paganus	na	no	no	no	no

Family	Species	Common name	Species new to science	Threatened species (EPBC Act)	Threatened species (NT)	Introduced species
Scutelleridae	Coleotichus costatus	na	no	no	no	no
Tingidae	Nethersia BBJAW20	na	no	no	no	no
Tingidae	Tingidae BBJAW22	na	yes	no	no	no