

Stony Head Bush Blitz

Heteroptera

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Nomenclature and taxonomy used in this report is consistent with:

The Australian Faunal Directory (AFD)

<http://www.environment.gov.au/biodiversity/abrs/online-resources/fauna/afd/home>

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List of contributors

List of contributors to this report.			
Name	Institution/affiliation	Qualifications/area of expertise	Level/form of contribution
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Arlee McMaha	UNSW	PhD Candidate	Specimen collection, curation, identification, principal report author

Abstract

The Bush Blitz survey of Stony Head, Tasmania, resulted in the collection of 81 species of Heteroptera, of which 9 are putatively new to science, and a further 72 require further examination to determine species identification. The heteropteran species of Stony Head are known from 12 families with the following number of species assigned to each: Acanthosomatidae (13 spp.), Artheneidae (1), Coreidae (1), Lygaeidae (2), Miridae (44), Nabidae (1), Ochteridae (2), Pentatomidae (6), Reduviidae (1), Rhyparochromidae (5), Saldidae (1) and Tingidae (4). The majority of the species belong to the family Miridae, which is expected given the hyperdiversity of the family in Australia and worldwide, as well as in Australia (Cassis et al. 2007, Cassis and Schuh 2012). The second most speciose family at Stony Head is the parent bug family Acanthosomatidae, which is a region of high species richness for the family on a worldwide basis, but requires further taxonomic and biogeographic investigation.

Two pest species (*Nysius vinitor* and *Creontiades dilutus*) were collected from Stony Head. No range extensions given the lack of comprehensive collections detailed documentation of the distribution of Tasmanian Heteroptera to date.

Specimens were collected by beating vegetation, hand collecting and from a light sheet. Specimens were collected from 19 localities and 20 hosts.

1. Introduction

The suborder Heteroptera is a highly speciose suborder, that comprises about 40,000 described species worldwide (Cassis 2019), and 2600+ species in Australia. Hundreds of new species have been found during the Bush Blitz program (Cassis and Laffan 2014), many of which have been described, particularly for the families Miridae (e.g., Cassis and Symonds 2014a, b, 2016, Symonds and Cassis, 2018) and the Tingidae (e.g., Cassis et al. 2018).

The Stony Head Bush Blitz survey is an additional Bush Blitz survey in Tasmania that UNSW has participated in (incl. Bruny Island, Five Rivers, Tarkine), resulting in new species discovery. This report is based on the survey of Stony Head, not previously visited by UNSW, and is of the work of PhD student Arlee McMahan and Prof. Gerry Cassis of the University of New South Wales (UNSW).

2. Methods

2.1 Site selection

A total of 19 sites were surveyed over the 10 period. Full descriptions of the sites are included in the attached Point Data spreadsheet.

Sites were selected primarily on vegetation present including known plant hosts and the presence of species in flower. These included the Standard Survey sites, which were sampled as required.

2.2 Survey techniques

Specimens were collected using the following techniques:

1. Beating or sweeping of vegetation: using a beating sheet or an extension net to dislodge specimens from plant canopies.
2. Light sheet collection: One Lepi-LED light (<http://www.gunnarbrehm.de/en/contact.html>) was suspended at night in front of a white sheet stretched flat between two trees. Light sheets placed in several locations in the survey.
3. Hand collecting: Insects were collected by hand. This included rolling logs, overturning rocks and peeling bark off trees.

2.2.1 Methods used at standard survey sites

Techniques used at the Standard Survey sites included beating of vegetation, hand collecting and the use of a light sheet. Although collecting was in Autumn, there was a higher than expected number of species collected (81 spp.), although some were at low abundances, and in some instances as singletons only.

2.3 Identifying the collections

Prof. Gerry Cassis of UNSW and Arlee McMahan of UNSW sorted and identified specimens with reference to the UNSW entomological collections, and consultation with the heteropteran literature. Nomenclature is in alignment with the Heteroptera section of the Australian Faunal Directory.

3. Results and Discussion.

3.1 Un-named or not formalised taxa

The species in Table 1 are in alphabetical order and represents 63 species that require further taxonomic resolution.

Table 1. Putatively un-named or not formalised taxa	
Taxon	Comment
<i>Agriopocoris</i> sp_BBSH_msp.088	Single specimen
<i>Amphaces</i> sp_BBSH_msp.087	
<i>Ausejanus</i> sp_BBSH_msp.034	Low abundance
<i>Ausejanus</i> sp_BBSH_msp.045	Low abundance
<i>Ausejanus</i> sp_BBSH_msp.046	Low abundance
<i>Ausejanus</i> sp_BBSH_msp.062	
<i>Creontiades</i> sp_BBSG_msp.022	
<i>Creontiades</i> sp_BBSH_msp.064	
<i>Cuspicona</i> sp_BBSH_msp.020	
<i>Diomocoris</i> sp_BBSH_msp.079	
<i>Duadicus</i> sp_BBSH_msp.012	
<i>Duadicus</i> sp_BBSH_msp.013	
<i>Duadicus</i> sp_BBSH_msp.043	
<i>Engynoma</i> sp_BBSH_msp.015	High abundance
<i>Engynoma</i> sp_BBSH_msp.035	High abundance
<i>Epimixia</i> sp_BBSH_msp.027	
<i>Epimixia</i> sp_BBSH_msp.095	
<i>Gn_Acanthosomatidae_SH001</i> sp_BBSH_msp.002	
<i>Gn_Acanthosomatidae_SH001</i> sp_BBSH_msp.063	
<i>Gn_Acanthosomatidae_SH001</i> sp_BBSH_msp.030	
<i>Gn_Acanthosomatidae_SH002</i> sp_BBSH_msp.005	
<i>Gn_Acanthosomatidae_SH001</i> sp_BBSH_msp.040	
<i>Gn_Acanthosomatidae_SH001</i> sp_BBSH_msp.042	
<i>Gn_Cremno_SH001</i> sp_BBSH_msp.036	
<i>Gn_Cremno_SH001</i> sp_BBSH_msp.061	
<i>Gn_Lygaeidae_SH001</i> sp_BBSH_msp.056	
<i>Gn_Mirinae_SH001</i> sp_BBSH_msp.011	
<i>Gn_Myodochini_SH001</i> sp_BBSH_msp.025	
<i>Gn_Myodochini_SH001</i> sp_BBSH_msp.090	
<i>Gn_Orthotylinae_SH001</i> sp_BBSH_msp.001	

<i>Gn_Orthotylinae_SH001 sp_BBSH_msp.018</i>	
<i>Gn_Orthotylinae_SH001 sp_BBSH_msp.021</i>	
<i>Gn_Orthotylinae_SH001 sp_BBSH_msp.039</i>	
<i>Gn_Orthotylinae_SH001 sp_BBSH_msp.044</i>	
<i>Gn_Orthotylinae_SH002 sp_BBSH_msp.049</i>	
<i>Gn_Orthotylinae_SH002 sp_BBSH_msp.053</i>	
<i>Gn_Orthotylinae_SH002 sp_BBSH_msp.089</i>	
<i>Gn_Orthotylinae_SH002 sp_BBSH_msp.057</i>	
<i>Gn_Orthotylinae_SH003 sp_BBSH_msp.037</i>	
<i>Gn_Palassocoris_SH001 sp_BBSH_msp.038</i>	
<i>Gn_Pentatomidae_SH001 sp_BBSH_msp.029</i>	
<i>Gn_Phylinae_SH001 sp_BBSH_msp.003</i>	
<i>Gn_Phylinae_SH001 sp_BBSH_msp.047</i>	
<i>Gn_Phylinae_SH002 sp_BBSH_msp.007</i>	
<i>Gn_Phylinae_SH001 sp_BBSH_msp.085</i>	
<i>Gn_Phylinae_SH002 sp_BBSH_msp.048</i>	
<i>Gn_Phylinae_SH003 sp_BBSH_msp.016</i>	
<i>Gn_Phylinae_SH003 sp_BBSH_msp.008</i>	
<i>Gn_Phylinae_SH003 sp_BBSH_msp.009</i>	
<i>Gn_Phylinae_SH003 sp_BBSH_msp.010</i>	
<i>Gn_Piratine_SH001 sp_BBSH_msp.059</i>	
<i>Gn_Rhynchocorini_SH001 sp_BBSH_msp.031</i>	
<i>Gn_Rhyparochromidae_SH001 sp_BBSH_msp.004</i>	
<i>Gn_Rhyparochromidae_SH001 sp_BBSH_msp.050</i>	
<i>Gn_Rhyparochromidae_SH001 sp_BBSH_msp.052</i>	
<i>Gn_Rhyparochromidae_SH001 sp_BBSH_msp.024</i>	
<i>Kalkadoona sp_BBSH_msp.033</i>	
<i>Ochterus sp_BBSH_msp.086</i>	
<i>Ochterus sp_BBSH_msp.099</i>	
<i>Oncocoris sp_BBSH_msp.006</i>	
<i>Panaetius sp_BBSH_msp.058</i>	
<i>Stauralia sp_BBSH_msp.041</i>	
<i>Zanessa sp_BBSH_msp.019</i>	Collected at light
<i>Zanessa sp_BBSH_msp.023</i>	Collected at light

3.2 Putative new species (new to science)

All of the nine putative new species belong to the Miridae (Table 2), which is not unexpected, given the hyperdiversity of the family worldwide and in Australia (Cassis and Schuh 2012). Four of the putative new species belong to the subfamily Phylinae, which is highly speciose, with many new species awaiting description, even though it has had substantial taxonomic treatment over the past 15 years (e.g., Schuh and Schwartz 2015). All of the new putative phylinae species are currently unplaced to genus, and require dissection to verify their new species status.

One of the putative species (*Ommatodema sp_BBSH_msp.051*) belongs to the genus *Ommatodema*, which is under investigation by Dr Michael Schwartz (Canadian National Insect

Collection) and Prof. Cassis. This was only a singleton species, but appears to be distinct in comparison to *Ommatodema leanum*, which was also collected at Stony Head.

The other four species belong to the mirid subfamily Orthotylinae, which Prof. Cassis and his team research extensively (e.g., Cassis and Symonds 2014, 2016, Cheng and Cassis 2019a,b, Chin and Cassis 2018). *Zanessa* sp_BBSH_msp.026 is not the same species as *Z. pictulifer*, which occurs in Tasmania. The *Palassocoris* species is unlike those of the *Palassocoris* genus complex described by Chin and Cassis (2018). Both *Orthotylus* sp_BBSH_msp.054 and Gn_Orthotylinae_SH003 sp_BBSH_msp.060 are also not attributable to described orthotyline taxa. There may be additional new species to those given in Table 2, but require further study and detailed dissections.

The included habitus image plate show seven of the nine new species. Two new species, Gn_Phylinae_SH003 sp_BBSH_msp.066 and Gn_Orthotylinae_SH003 sp_BBSH_msp.060, have not yet been photographed.

Species	Comment
Gn_Phylinae_SH001 sp_BBSH_msp.085	Red cuneus, moderate abundance
Gn_Phylinae_SH001 sp_BBSH_msp.028	
Gn_Phylinae_SH003 sp_BBSH_msp.065	High abundance
Gn_Phylinae_SH003 sp_BBSH_msp.066	Low abundance
<i>Ommatodema</i> sp_BBSH_msp.051	Single specimen
<i>Zanessa</i> sp_BBSH_msp.026	Single specimen, collected at light
<i>Palassocoris</i> sp_BBSH_msp.057	Single specimen
<i>Orthotylus</i> sp_BBSH_msp.054	
Gn_Orthotylinae_SH003 sp_BBSH_msp.060	

3.3 Exotic and pest species

There were 2 heteropteran pest species collected during the Stony Head Bush Blitz.

Nysius vinitor, of the family Lygaeidae, is a widespread pest species across Australia. It is present on many host plants, and causes damage to crops including grain. Pest control management is limited.

Creontiades dilutus, of the family Miridae, is a major cotton pest of in Australia. It also has many hosts and causes damage to crops including soybeans.

Exotic/pest species	Location sighted/observed	Indication of abundance	Comments
<i>Nysius vinitor</i> (pest)	L5, L8, L10	Low abundance	Collected from vegetation and hand collected

<i>Creontiades dilutus</i> (pest)	SSS1, SSS2, Base Camp	Moderate abundance	Collected at light, hand collected and from vegetation
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3.4 Threatened species

There are no threatened heteropteran species listed for Tasmania. None of the species collected from Stony Head are considered based on existing information to be vulnerable or threatened

3.5 Range extensions

Given that there are many species that require further taxonomic resolution, most heteropterans from Stony Head cannot be assessed for range extensions.

All species that have been categorically identified to species (see Stony Head Bush Blitz spreadsheet) would represent first records for Stony Head, but there is insufficient baseline data for heteropteran distribution to stipulate any as a significant range extension.

3.6 Genetic information

The majority of all heteropteran species sampled were collected in 100% ethanol for future molecular analyses. Samples are stored in the UNSW insect collection. No genetic sampling has been undertaken of the Stony Head material.

4. Information on species lists

The Heteroptera section of the Australian Faunal Directory was used to verify correct nomenclature for the described species, as given in the Stony Head Bush Blitz spreadsheet.

5. Information for land managers

Further collecting and analysis is necessary to determine species ranges, host vegetation, and endemism or rarity of taxa. The listing of the pest species *Nysius vinitor* and *Creontiades dilutus* in section 3.3 above is unlikely to be of a major issue for land managers, given that both species are ubiquitous and abundant across much of Tasmania.

6. Other significant findings

The representation of the Miridae at the Stony Head was exceptional, with 81 putative species. The Miridae is the most hyperdiverse family of the hemipteran suborder Hemiptera, with 11,000+ described species worldwide (Cassis and Schuh 2012), and is highly diverse in the tropics and Mediterranean biomes of the world. Recent works on the Miridae (e.g., Cassis and Symonds 2016, Schuh and Schwartz 2015) demonstrate their radiation in the arid regions of Australia, including the central and western deserts. What is surprising is the diversity of the Miridae in the southern latitudes of Tasmania, particularly the subfamilies Orthotylinae and Phylinae. This points to additional collecting across the state, focusing on host plant sampling.

The second most speciose family at Stony Head is the parent bug family Acanthosomatidae, which have a worldwide distribution but are known to be rich in the Southern Hemisphere (Cassis and Gross 2002). It is apparent that Tasmania is a biodiversity hotspot of Acanthosomatidae on a world basis, with 13 species collected at Stony Head. This family however requires a detailed study of the systematics of the Tasmanian Acanthosomatidae, with detailed examination of the genitalia of both sexes, and accounting for what appears to be extensive intraspecific colour variation.

7. Conclusions

There was a surprising number of heteropteran species captured at Stony Head given that sampling was in the Autumn and the briefness of the sampling period. Eighty-one heteropteran species were captured, belonging to 12 families with the following number of species assigned to each: Acanthosomatidae (13 spp.), Artheneidae (1), Coreidae (1), Lygaeidae (2), Miridae (44), Nabidae (1), Ochteridae (2), Pentatomidae (6), Reduviidae (1), Rhyparochromidae (5), Saldidae (1) and Tingidae (4).

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References

- Cassis, G. (2019). True Bugs (Insecta: Hemiptera: Heteroptera): Evolution, Classification, Biodiversity and Biology.. In Reference Module in Life Sciences.
- Cassis G and Gross GF. 1995. Zoological Catalogue of Australia. Heteroptera. Volume 27.3A. Canberra: CSIRO 540 pp.
- Cassis G and Gross GF. 2002. Zoological Catalogue of Australia. Heteroptera. Pentatomomorpha. Volume 27.3B. Canberra: CSIRO 732 pp.
- Cassis G and Laffan, S. (2014). Bush Blitz short contract final report. Heteropteran Integration and spatial analysis. UNSW report to ABRS.
- Cassis G. and Schuh RT. 2012. Systematics, biodiversity, biogeography and host plant associations of the Miridae (Insecta: Hemiptera: Heteroptera). *Annual Review of Entomology* 57: 377–404.
- Cassis G, and Symonds C. 2014a. Systematics and host plant associations of a new genus of *Acacia*-inhabiting plant bugs from arid Australia (Heteroptera: Miridae). *Invertebrate Systematics* 28(5): 522-554.
- Cassis G. and Symonds CL. 2014b. *Granitohyoidea calycopeplus* n.gen. and n.sp.: a new plant bug taxon (Heteroptera: Miridae) affiliated with granite outcrops in southwest Western Australia, and Palearctic affinity and host associations. *Austral Entomology* 53(3): 353-362.
- Cassis G. and Symonds C. 2016. Plant bugs, plant interactions and the radiation of a species rich clade in southwest Australia: *Naranjakotta* nov. gen. and eighteen new species (Insecta: Heteroptera: Miridae: Orthotylinae). *Invertebrate Systematics*. 30(2): 95-186.=

- Cassis G, Symonds C, Branson L. 2019. Systematics and species radiation of the sheoak lace bug genus *Epimixia* Kirkaldy (Insecta: Heteroptera: Tingidae) in Australia, New Caledonia and Papua New Guinea. *Invertebrate Systematics*, 33: 277-366.
- Cassis G, Wall M and Schuh RT. 2007. Insect Biodiversity and Industrializing the Taxonomic Process: The Plant Bug Case Study (Insecta: Heteroptera: Miridae). Pages 193-212, in: Hodkinson TR, Parnell J, Waldren S (editors) *Taxonomy and systematics of species rich taxa: towards the tree of life*. CRC: Boca Raton.
- Cheng M, Cassis G. 2019a. Combined molecular and morphological phylogeny of *Myrtlemiris*, evolution of endosomal spicules, description of two new species and *Neomyrtlemiris*, gen. nov. (Insecta: Heteroptera: Miridae: Orthotylinae). *Invertebrate Systematics* 33(5): 719-56.
- Cheng M, Cassis G. 2019b. Systematic study of the Australian plant bug genus *Xasmasoma*, gen. nov. (Insecta: Heteroptera: Miridae: Orthotylinae), including host plant and biogeographic analysis, and description of twelve new sp. *Invertebrate Systematics*, 33: 1-70.
- Chin YW, Cassis G, 2018. Systematics and host-plant associations of the *Palassocoris* complex (Insecta: Heteroptera: Miridae: Orthotylinae), a monophyletic suprageneric group of long-headed Australian Orthotylini, and the description of ten new species. *Invertebrate Systematics*, 32: 703-757.
- Schuh, R.T. and Schwartz, M.D., 2015. Nineteen new genera and 82 new species of Cremonorrhinina from Australia, including analyses of host relationships and distributions (Insecta: Hemiptera: Miridae: Phyllinae: Cremonorrhinini). *Bulletin of the American Museum of Natural History*, 2016(401), pp.1-279.
- Symonds CL, Cassis G. 2018. Systematics and Analysis of the Radiation of Orthotylini Plant Bugs Associated with Callitroid Conifers in Australia: Description of Five New Genera and 32 New Species (Heteroptera: Miridae: Orthotylini, *Bulletin of the American Museum of Natural History*, 2018: 1-228.

Appendices

Appendix 1. List of Heteroptera recorded during the Stony Head Bush Blitz

Species collected are recorded in the attached Appendix 1 spreadsheet.

Family	Species
Acanthosomatidae	<i>Amphaces</i> sp_BBSH_msp.087
Acanthosomatidae	<i>Duadicus namyatovae</i>
Acanthosomatidae	<i>Duadicus</i> sp_BBSH_msp.012
Acanthosomatidae	<i>Duadicus</i> sp_BBSH_msp.013
Acanthosomatidae	<i>Duadicus</i> sp_BBSH_msp.043
Acanthosomatidae	Gn_Acanthosomatidae_SH001 sp_BBSH_msp.002
Acanthosomatidae	Gn_Acanthosomatidae_SH001 sp_BBSH_msp.063
Acanthosomatidae	Gn_Acanthosomatidae_SH002 sp_BBSH_msp.005
Acanthosomatidae	Gn_Acanthosomatidae_SH001 sp_BBSH_msp.030
Acanthosomatidae	Gn_Acanthosomatidae_SH001 sp_BBSH_msp.040
Acanthosomatidae	Gn_Acanthosomatidae_SH001 sp_BBSH_msp.042
Acanthosomatidae	<i>Panaetius</i> sp_BBSH_msp.058
Acanthosomatidae	<i>Stauralia</i> sp_BBSH_msp.041
Artheneidae	<i>Dilompus robustus</i>
Coreidae	<i>Agriopocoris</i> sp_BBSH_msp.088
Lygaeidae	Gn_Lygaeidae_SH001 sp_BBSH_msp.056
Lygaeidae	<i>Nysius vinitor</i>
Miridae	<i>Ausejanus albisignatus</i>
Miridae	<i>Ausejanus</i> sp_BBSH_msp.034
Miridae	<i>Ausejanus</i> sp_BBSH_msp.045
Miridae	<i>Ausejanus</i> sp_BBSH_msp.046
Miridae	<i>Ausejanus</i> sp_BBSH_msp.062
Miridae	<i>Creontiades dilutus</i>
Miridae	<i>Creontiades</i> sp_BBSH_msp.022
Miridae	<i>Creontiades</i> sp_BBSH_msp.064
Miridae	<i>Diomocoris</i> sp_BBSH_msp.079
Miridae	<i>Felisacus elegantulus</i>
Miridae	Gn_Cremno_SH001 sp_BBSH_msp.036
Miridae	Gn_Cremno_SH001 sp_BBSH_msp.061
Miridae	Gn_Mirinae_SH001 sp_BBSH_msp.011
Miridae	Gn_Orthotylinae_SH001 sp_BBSH_msp.001
Miridae	Gn_Orthotylinae_SH001 sp_BBSH_msp.021
Miridae	Gn_Orthotylinae_SH001 sp_BBSH_msp.039
Miridae	Gn_Orthotylinae_SH001 sp_BBSH_msp.044
Miridae	Gn_Orthotylinae_SH002 sp_BBSH_msp.049
Miridae	Gn_Orthotylinae_SH002 sp_BBSH_msp.053
Miridae	Gn_Orthotylinae_SH002 sp_BBSH_msp.089

Miridae	Gn Orthotylinae SH003 sp BBSH msp.057
Miridae	Gn Orthotylinae SH003 sp BBSH msp.037
Miridae	Gn Orthotylinae SH003 sp BBSH msp.060
Miridae	Gn Palassocoris SH001 sp BBSH msp.038
Miridae	Gn Phylinae SH001 sp BBSH msp.003
Miridae	Gn Phylinae SH001 sp BBSH msp.028
Miridae	Gn Phylinae SH001 sp BBSH msp.047
Miridae	Gn Phylinae SH001 sp BBSH msp.085
Miridae	Gn Phylinae SH002 sp BBSH msp.007
Miridae	Gn Phylinae SH002 sp BBSH msp.048
Miridae	Gn Phylinae SH003 sp BBSH msp.008
Miridae	Gn Phylinae SH003 sp BBSH msp.009
Miridae	Gn Phylinae SH003 sp BBSH msp.010
Miridae	Gn Phylinae SH003 sp BBSH msp.016
Miridae	Gn Phylinae SH003 sp BBSH msp.065
Miridae	Gn Phylinae SH003 sp BBSH msp.066
Miridae	<i>Ommatodema leanum</i>
Miridae	<i>Ommatodema</i> sp BBSH msp.051
Miridae	<i>Oncocoris</i> sp BBSH msp.006
Miridae	<i>Orthotylus</i> sp BBSH msp.054
Miridae	<i>Palassocoris</i> sp BBSH msp.057
Miridae	<i>Zanessa</i> sp BBSH msp.019
Miridae	<i>Zanessa</i> sp BBSH msp.023
Miridae	<i>Zanessa</i> sp BBSH msp.026
Nabidae	<i>Nabis kinbergii</i>
Ochteridae	<i>Ochterus</i> sp BBSH msp.086
Ochteridae	<i>Ochterus</i> sp BBSH msp.099
Pentatomidae	<i>Cuspicona</i> sp BBSH msp.020
Pentatomidae	Gn Pentatomidae SH001 sp BBSH msp.029
Pentatomidae	Gn Rhynchocorini SH001 sp BBSH msp.031
Pentatomidae	<i>Kalkadoona</i> sp BBSH msp.033
Pentatomidae	<i>Oechalia schellenbergii</i>
Pentatomidae	<i>Omyta centrolineata</i>
Reduviidae	Gn Peiratinae SH001 sp BBSH msp.059
Rhyparochromidae	Gn Myodochini SH001 sp BBSH msp.025
Rhyparochromidae	Gn Myodochini SH001 sp BBSH msp.090
Rhyparochromidae	Gn Rhyparo SH001 sp BBSH msp.004
Rhyparochromidae	Gn Rhyparo SH001 sp BBSH msp.050
Rhyparochromidae	Gn Rhyparo SH001 sp BBSH msp.052
Saldidae	Gn Saldidae SH001 sp BBSH msp.024
Tingidae	<i>Engynoma</i> sp BBSH msp.035
Tingidae	<i>Engynoma</i> sp BBSH msp.015
Tingidae	<i>Epimixia</i> sp BBSH msp.027
Tingidae	<i>Epimixia</i> sp BBSH msp.095