

Checklist of the ants (Hymenoptera, Formicidae) of the Solomon Islands and a new survey of Makira Island & recent studies on invasive ants



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CHECKLIST

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Checklist of the ants (Hymenoptera, Formicidae) of the Solomon Islands and a new survey of Makira Island

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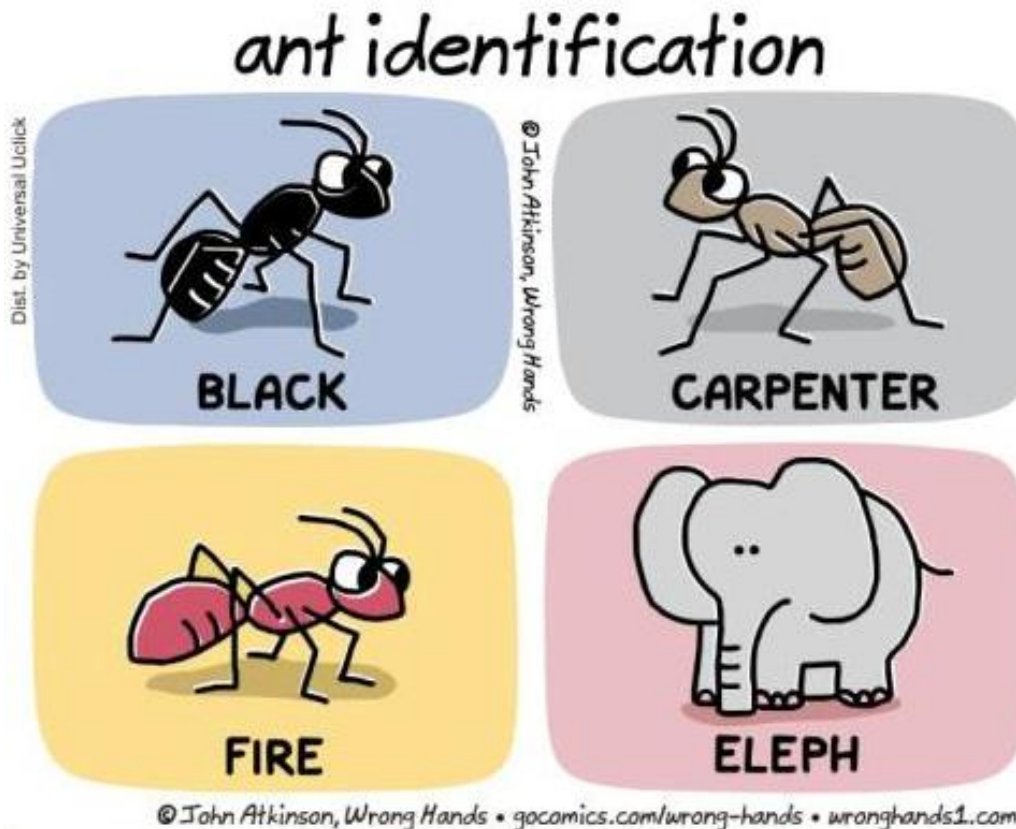
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<https://benoitguenard.files.wordpress.com/2013/08/solomon-islands.pdf>

Goal

- Facilitate future research of the SI ant fauna by providing first comprehensively researched species list in over 75 years after Mann 1919 & Wheeler 1935
- Highlight negative impacts of invasive ants on native arthropods



History of ant research in SI

- Forel (1910) first described ants in the SI on a paper on Australian ants on the collections of W.M. Froggat and Rollan Turner who visited SI to collect insects and collected at Tulagi and Russell Is.
- W.M. Mann (1919) first produced a comprehensive revision on the SI ant fauna
 - 19th May to 24th November 1916
 - Collected ants on Guadalcanal, Makira, Malaupaina, New Georgia, Nggela Sule, Santa Ana, Santa Cruz, Ugi.
 - Reported 136 currently recognised species and subspecies (described 68 sp.)

Forel A (1910) Formicides australiens reçus de MM. Froggatt et Rowland Turner. *Revue Suisse de Zoologie* 18: 1–94.

Mann WM (1919) The ants of the British Solomon Islands. *Bull Mus Comp Zool* 63: 273–391

Wheeler described specimen from Mann (Wheeler 1918)

Wheeler (1934) contributed to 27 currently recognised taxa describing ants collected by Maurice Willows from Santa Cruz



Opisthopsis sp.

Combined records of Forel and Mann are contained in Wheeler 1935 work.

- Wilson (1962) reports that the B. P. Bishop Museum, Honolulu, initiated a collecting programme in the Sol. Is. under the direction of Judson Linsley Gressitt -

Ant Review of Solomon Islands

We researched taxonomic names that were associated with the region in the literature.

- Reviewed the names of all taxa that were originally described from Solomons, reviewed specimen records from Antweb.org,
- Species list for the Solomon Islands presented on Antwiki <http://www.antwiki.org/Solomon_Islands>,
- We also reviewed a dataset of ca. 1,040 specimen records of identified ants collected in the Solomon Islands that are deposited at the ANIC (Australian National Insect Collection, Canberra).

Survey of Makira

30 January to 9 February, 2008 – Ant survey on Maraone, Bauro.



Results

Ant records from the Solomon Islands

- 9 subfamilies,
- 60 genera
- 215 valid ant species and subspecies
 - Based on review of the literature and our recent collections from Makira

The full species list with associated images and specimen data is available on Antweb.org <<http://www.antweb.org/solomons.jsp>>.

Makira

- 67 described species and 30 presumptive species that are either undescribed or that we were unable to determine.
- Based on comparisons with type material, previously determined material and literature review, we suspect approximately 15 of the presumptive species are new to science.
- The survey added 67 new species records to Makira of taxa included in Appendixes 1
- Bringing the total number of species known from the island to 142.
- The survey added 28 new species records to the Solomon Islands.

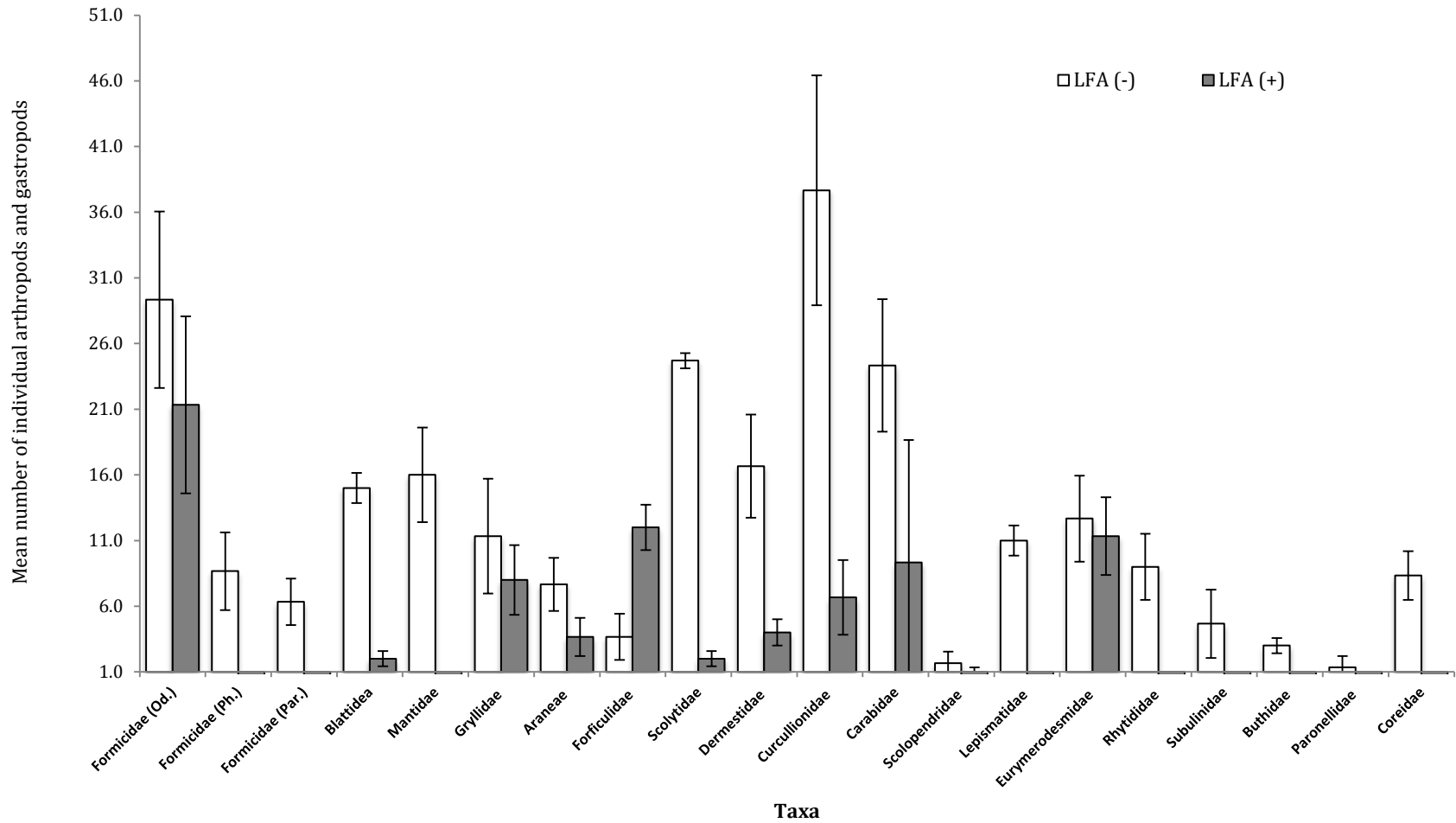
❖ **In total, our research suggests that the Solomon Islands support at least 237 unique ant species and subspecies.**

Collection issues?

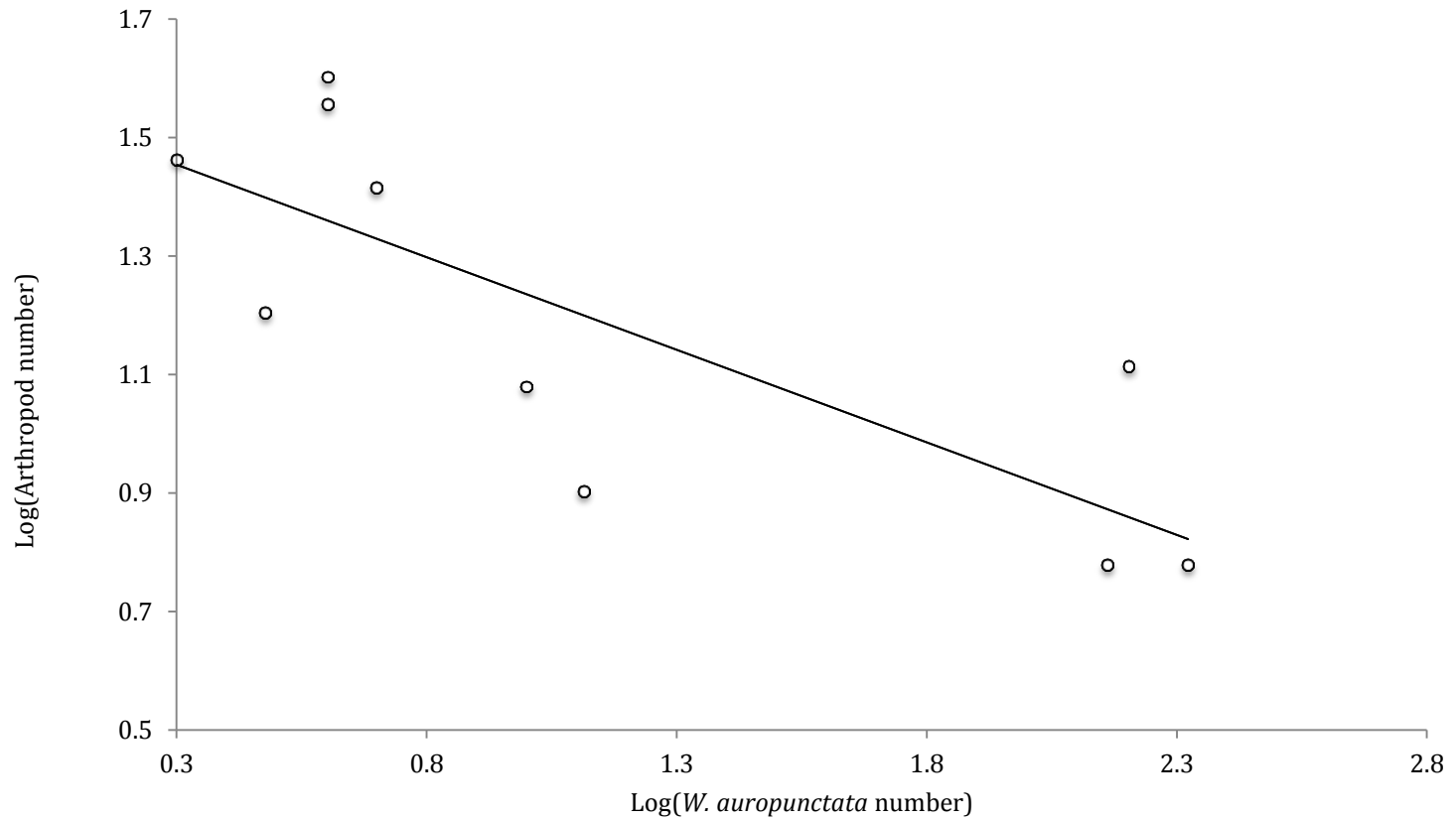
**Invasive Ants – the little fire ant *Wasmannia auropunctata*:
threat to native ants and arthropods**







Number of arthropods and gastropods caught in pitfall traps in sites heavily infested with *W. auropunctata* (LFA+) and sites with low numbers or free of *W. auropunctata* (LFA-).



Association between the (log) number of *W. auropunctata* and the (log) number of native arthropods on transects.

The relationship between arthropod diversity of arthropods and the presence or absence of *W. auropunctata*

	Order	Family	Simpson's Diversity Index
<i>W. auropunctata</i> (-)	14	21	0.96
<i>W. auropunctata</i> (+)	8	12	0.43

W. auropunctata (-): sampling sites where little fire ant *W. auropunctata* is absent at very low density

W. auropunctata (+): sampling sites heavily infested with little fire ant *W. auropunctata*