

## *Solenopsis papuana*

**System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae

**Common name** Papuan thief ant (English)

**Synonym** *Solenopsis cleptis* , Mann  
*Solenopsis dahlia* , Forel  
*Solenopsis cleptis* , var. *vitiensis* Mann

**Similar species** ,

**Summary** *Solenopsis papuana* is a native ant of the Pacific region that thrives in the company of other more major invasive ants, but is not a major pest species on its own. It has been introduced to Hawaii and has been able to invade intact forest land.



[view this species on IUCN Red List](#)

## Species Description

*Solenopsis papuana* are very small monomorphic ants. They have a light reddish yellow to medium reddish brown colouration. The total length of workers is around 1-2mm. Antennae are 10-segmented with a 2-segmented club. Eyes are small to medium in size and contain less than 10 ommatidia. The mandibles can have 4 or 5 teeth. The head is subquadrate, and is longer than it is wide. The metanotal groove of this species is distinct and the petiole is higher than the postpetiole. All the dorsal surfaces of *S. papuana* have erect setae. The gaster is oval with the first segment longer than half the total length (Harris *et al.* 2005). Please follow this link for a fully illustrated [Lucid key to common invasive ants \[Hymenoptera: Formicidae\] of the Pacific Island region](#) [requires the most recent version of Java installed]. The factsheet on *Solenopsis papuana* contains an overview, diagnostic features, comparison charts, images, nomenclature and links. (Sarnat, 2008)

## Notes

*Solenopsis papuana* is not known to sting people (Gruner, 2000).

## Uses

The mound-building activities of non-native *Solenopsis* spp. alter physical and biogeochemical properties of soils, and can lead to increased soil aeration and infiltrability, elevated soil pH, increased phosphorous and potassium levels, lowered surface soil bulk density, change in organic matter, altered soil texture and enhanced fungal abundance. These influences are further enhanced by plant uptake and excretion in the rhizosphere, and cause other flow-on effects within ecosystems. This is an area that has not been well studied, and more research is warranted (DeFauw *et al.* 2008 and references therein).

## Habitat Description

Found in tropical rainforests, *Solenopsis papuana* colonies often nest in soil and are most often associated with rotting wood in or near soil, or under rocks. This species has occasionally been found inhabiting dry forested areas. (Harris *et al.* 2005).

## Nutrition

*Solenopsis papuana* workers form trails to foraging sites but will also forage by spreading over an area (Harris et al. 2005).

## General Impacts

Studies have been conducted that suggest a negative interaction between *Solenopsis papuana* and indigenous invertebrates. Authors have suggested that they present a grave threat to native diversity, however arguments have surfaced which suggest the impact might not be as severe as originally thought, but more research is needed before a conclusion can be drawn (Gillespie and Reimer, 1993; Wetterer, 2002). *S. papuana* is an inconspicuous species (Wilson & Taylor 1967) whose arrival could go unnoticed (Harris et al. 2005).

## Management Info

Preventative measures: [The Pacific Ant Prevention Programme](#) is a proposal prepared for the Pacific Plant Protection Organisation and Regional Technical Meeting for Plant Protection. This plan aims to prevent the red imported fire ant and other invasive ant species with economic, environmental or social impacts from establishing within or spreading between countries in the Pacific.

Chemical Amdro® (hydramethylnon) is very effective at controlling *S. papuana*'s relative, *S. invicta*. Presto® (fipronil) and Xstinguish® (fipronil) also appear to be highly effective baits for *S. invicta* and would most likely be effective against *S. papuana*. Engage® (methoprene) and Distance® (pyriproxyfen) are insect growth regulators (IGR) that were manufactured in Australia to combat *S. invicta*. These two chemicals may be viable control options for *S. papuana* (Stanley, 2004). Gruner (2000) found that *S. papuana* was abundant on peanut butter baits in Hawai'i.

Please follow this link for more detailed information on the [management of \*Solenopsis papuana\*](#) compiled by the ISSG.

## Pathway

*S. papuana* is predominantly reported as live workers associated with taro and coconut imports (Harris and Berry, 2005).

**Principal source:** [Harris et al. 2005](#) Information sheet *Solenopsis papuana* Emery  
[Stanley, 2004](#). Review of the efficacy of baits used for ant control and eradication.

**Compiler:** National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

Updates completed with support from the Ministry of Agriculture and Forestry (MAF)- Biosecurity New Zealand

## Review:

**Publication date:** 2009-09-04

## ALIEN RANGE

[1] NEW ZEALAND

[7] UNITED STATES

## BIBLIOGRAPHY

17 references found for *Solenopsis papuana*

Managment information

Harris, R.; Abbott, K.; Barton, K.; Berry, J.; Don, W.; Gunawardana, D.; Lester, P.; Rees, J.; Stanley, M.; Sutherland, A.; Toft, R. 2005: Invasive ant pest risk assessment project for Biosecurity New Zealand. Series of unpublished Landcare Research contract reports to Biosecurity New Zealand. BAH/35/2004-1.

**Summary:** The invasive ant risk assessment project, prepared for Biosecurity New Zealand by Landcare Research, synthesises information on the ant species that occur in New Zealand (native and introduced species), and on invasive ants that pose a potential threat to New Zealand.

There is a great deal of information in this risk assessment on invasive ant species that is of global interest, including; biology, distribution, pest status, control technologies.

The assessment project has five sections. 1) The Ants of New Zealand: information sheets on all native and introduced ants established in New Zealand 2) Preliminary invasive ant risk assessment: risk scorecard to quantify the threat to New Zealand of 75 ant species. 3) Information sheets on invasive ant threats: information sheets on all ant species scored as medium to high risk (n = 39). 4) Pest risk assessment: A detailed pest risk assessment for the eight species ranked as having the highest potential risk to New Zealand (*Anoplolepis gracilipes*, *Lasius neglectus*, *Monomorium destructor*, *Paratrechina longicornis*, *Solenopsis geminata*, *Solenopsis richteri*, *Tapinoma melanocephalum*, *Wasmannia auropunctata*) 5) Ranking of high risk species: ranking of the eight highest risk ant species in terms of the risks of entry, establishment, spread, and detrimental consequences.

NB. The red imported fire ant (*Solenopsis invicta*) is considered to be the worst ant pest in the world. However, *Solenopsis invicta* was specifically excluded from consideration in this risk assessment as this species has already been subject to detailed consideration by Biosecurity New Zealand

(This invasive ant pest risk assessment was funded by Biosecurity New Zealand and Foundation for Research, Science and Technology. Undertaken by Landcare Research in collaboration with Victoria University of Wellington and Otago Museum)

Available from: [http://www.landcareresearch.co.nz/research/biocons/invertebrates/Ants/ant\\_pest\\_risk.asp](http://www.landcareresearch.co.nz/research/biocons/invertebrates/Ants/ant_pest_risk.asp) [Accessed 20 May 2007]

McGlynn, T.P. 1999. The Worldwide Transfer of Ants: Geographical Distribution and Ecological Invasions, *Journal of Biogeography* 26(3): 535-548.

Pacific Ant Prevention Programme, March 2004. Pacific Invasive Ant Group (PIAG) on behalf of the IUCN/SSC Invasive Species Specialist Group (ISSG).

**Summary:** A proposal prepared for the Pacific Plant Protection Organisation and Regional Technical Meeting For Plant Protection. This plan aims to prevent the red imported fire ant and other invasive ant species with economic, environmental and/or social impacts, entering and establishing in or spreading between (or within) countries of the Pacific Region.

Sarnat, E. M. (December 4, 2008) PIAkey: Identification guide to ants of the Pacific Islands, Edition 2.0, Lucid v. 3.4. USDA/APHIS/PPQ Center for Plant Health Science and Technology and University of California Davis.

**Summary:** PIAkey (Pacific Invasive Ant key) is an electronic guide designed to assist users identify invasive ant species commonly encountered in the Pacific Island region. The guide covers four subfamilies, 20 genera and 44 species.

The primary tool offered by PIAkey is an interactive key designed using Lucid3 software. In addition to being fully illustrated, the Lucid key allows users to enter at multiple character points, skip unknown characters, and find the most efficient path for identifying the available taxa. Each species is linked to its own web page. These species pages, or factsheets, are linked to an illustrated glossary of morphological terms, and include the following seven sections: 1) Overview of the species; 2) Diagnostic chart illustrating a unique combination of identification characters; 3) Comparison chart illustrating differences among species of similar appearance; 4) Video clip of the species behavior at food baits (where available); 5) Image gallery that includes original specimen images and live images (where available); 6) Nomenclature section detailing the taxonomic history of the species, and 7) Links and references section for additional literature and online resources.

Available from: <http://www.lucidcentral.org/keys/v3/PIAkey/index.html> [Accessed 17 December 2008]

Stanley, M. C. 2004. Review of the efficacy of baits used for ant control and eradication. Landcare Research Contract Report: LC0405/044. Prepared for: Ministry of Agriculture and Forestry.

**Summary:** Available from: <http://www.landcareresearch.co.nz/research/biocons/invertebrates/ants/BaitEfficacyReport.pdf> [Accessed 10 December 2005]

## General information

DeFauw, S. L., Vogt, J.T. & Boykin, D. L. (2008). Imported Fire Ant (Hymenoptera: Formicidae) Bioturbation and Its Influences on Soils and Turfgrass in a Sod Production Agroecosystem. *Journal of Entomological Science* 43(1): 121-127.

Gruner, D. S. 2000. Distribution of the Little Fire Ant *Wasmannia auropunctata* (Roger) in Hawaii. A partnership of K-12 schools, the University of Hawaii, and the Hawaii Department of Agriculture. University of Hawaii at Manoa.

Harris, R. & Berry, J. (n.d.). *Solenopsis papuana*. Invasive Ant Threat: Information Sheet 26. Landcare Research.

Hoffman, P. 2003. *Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Blackburn's Sphinx Moth*. Federal Register: June 10, 2003 & DOI: Fish and Wildlife Service.

**Summary:** Available from: <http://www.epa.gov/fedrgstr/EPA-SPECIES/2003/June/Day-10/e14144.htm> [Accessed 28 November 2005]

ITIS (Integrated Taxonomic Information System), 2005. Online Database *Solenopsis papuana*  
**Summary:** An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from: [http://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=581960](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=581960) [Accessed 7 February 2008]

Keall, J. B. 1980. Some ants recently intercepted entering New Zealand (Hymenoptera : Formicidae). Plant Health Diagnostic Station, MAF, Private Bag, Levin. New Zealand Entomologist 7(2).

Lester, P. J. 2005. Determinants for the successful establishment of exotic ants in New Zealand. Diversity and Distributions 11:279-288.

U.S. Fish and Wildlife Service. 2003. Candidate Assessment and Listing Priority Assignment Form.

Vargo, D. L. 2000. Soil Invertebrates of American Samoa. Micronesica 33(1/2):1-10, 2000

Wetterer, J. K. 2002. Ants of Tonga (1). (Statistical Data Included). Pacific Science, April 2002 v56 i2 p125(11).

Wetterer, J. K. 2002. *Solenopsis papuana*. Personal Communication.



# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Solenopsis papuana*

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Wetterer, J. L., and D. L. Vargo. 2003. *Ants (Hymenoptera: Formicidae) of Samoa*. Pacific Science, Oct 2003 v57 i4 p409(11).