Pacific Pests, Pathogens, Weeds & Pesticides - Online edition

White-footed ant - Technomyrmex albipes (360)

Common Name

White-footed ant; white-footed house ant.

Scientific Name

Technomyrmex albipes. Identification of the ant requires expert examination as there are several other species that are similar. Many specimens previously identified as *Technomyrmex albipes* have subsequently been reidentified as *Technomyrmex difficilis* (difficult white-footed ant) or as *Technomyrmex vitiensis* (Fijian white-footed ant), which also occurs worldwide.

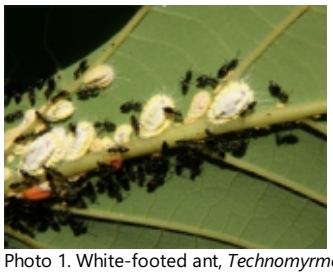

Photo 1. White-footed ant, *Technomyrmex* species, tending an infestation of *Icerya seychellarum* on avocado for their honeydew.

Distribution

Asia, Africa, North and South America (restricted), the Caribbean, Europe (restricted), Oceania. It is recorded from Australia, Cook Islands, Federated States of Micronesia, Fiji, Guam, Marshall Islands, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Pitcairn, Samoa, Solomon Islands, Tokelau, and Wallis & Futuna.

Photo 2. White-footed ant, *Technomyrmex* species, tending an infestation of mealybugs on noni (*Morinda citrifolia*) for their honeydew.

Hosts

Tent-like nests made of debris occur on the ground within leaf litter, under stones or wood, among leaves of low vegetation, in holes, crevices and crotches of stems and trunks, in the canopies of trees, and on fruit. The ants also make nests in wall cavities of houses, foraging in kitchens and bathrooms.

Symptoms & Life Cycle

Damage to plants is not done directly by *Technomyrmex albipes*, but indirectly. The ants feed on honeydew of aphids, mealybugs, scale insects and whiteflies, and prevent the natural enemies of these pests from attacking them. Consequently, the populations of the pests increase to damaging levels (Photos 1&2).

Photo 3. White-footed ant, *Technomyrmex albipes*, side view.

The ant is 2-4 mm long with legs that have white lower parts (Photos 3-5). There are winged and wingless males, and three types of females: queens, intercastes and workers. Winged males and winged females mate in a nuptial flight, the females lose their wings, find a site to start the colony and begin egg-laying. Later, the intercastes - wingless females that can store sperm - mate with wingless males in the colony, and take over the reproductive tasks.

Photo 4. White-footed ant, *Technomyrmex albipes*, from above.

Foraging is done by unfertilised females (workers); these also build and care for the nest, and care for the brood (larvae and pupae). The colony may contain several nest sites, with millions of ants; this is an ant that is difficult to control.

Apart from honeydew, the ants feed on living and dead insects, and their eggs. They do not bite or sting.

Spread of the colony occurs by 'budding': intercastes leave with workers, males and brood, to establish a new nest site. Rapid spread in this way is a reason for the successful establishment of this ant in new environments.

Impact

Technomyrmex albipes (as well as the other species mentioned) is known as a 'tramp' ant. These ants have become widely distributed globally associated with increased trade and commerce. They have the potential to create adverse economic, environmental and social impacts, as seen in Fiji beginning in 2016 with the increase of honeydew-producing insect pests to plague levels across a wide range of plant families.

The impact is worse where the ants protect pests that not only suck sap and weaken plants but also inject toxins and/or viruses, for example, the pink mealybug, *Dysmicoccus brevipes,* associated with pineapple wilt disease (**see Fact Sheet no. 282**). In another situation, the ants transfer spores of the oomycete, *Phytophthora palmivora,* within soil debris used to build their tents over mealybug colonies on cocoa pods, resulting in outbreaks of black pod disease (**see Fact Sheet no. 06**).

Detection & inspection

Look for the pale lower parts of the legs; however, separation to species needs the assistance of a taxonomist familiar with the *albipes* group. On the sides of buildings, the ants follow lines and edges, in straight lines.

The PIAkey provides charts with *Technomyrmex albipes*, *difficilis* and *vitiensis* side-by-side for comparison of important taxonomic features used to distinguish the species. (http://idtools.org/id/ants/pia/Fact_Sheets/Technomyrmex_albipes.html).

The app: *Antkey Mobile: an identification key for introduced ants*. USDA. LUCID, is useful for preliminary examination, as is the online version: (http://idtools.org/id/ants/pia/PIAkey_v2.html).

The Pacific Invasive Ants Taxonomy Workshop manual has a key to the Pacific species and is well illustrated (http://www.issg.org/cii/Electronic%20references/pii/project_docs/papp/pacific_ants_taxonomy_workshop_2009.pdf).

Management

QUARANTINE
Countries that are still free of *Technomyrmex albipes*, but vulnerable to the white-footed ant, need to: (i) define the risk; (ii) have preventive measures in place against an introduction; (iii) have quarantine protocols enacted in case a breach occurs; and (iv) be able to carry out a rapid response against this ant and others. It is important to have rapid response procedures in place in case eradication is a possibility. In addition, it is necessary to have biosecurity regulations to prevent movement of the ant within the country, especially in Pacific island countries where most are island groups or archipelagos. Finally, monitoring is required on the islands still free from infestation.

A Pacific Ant Prevention Plan has been written on behalf of the IUCN/SSC Invasive Species Specialist Group and presented to the Pacific Plant Protection Organisation and Regional Technical Meeting for Plant Protection (2004). *Technomyrmex albipes* is one of the 11 species covered. (http://issg.org/database/species/reference_files/PAPP.pdf). The Plan focuses on ways to prevent the introduction, establishment and spread of this ant.

Guidelines to assist Pacific island countries and territories in planning effective management of invasive species have also been prepared by the Pacific Community and the Secretariat of the Pacific Regional Environment Programme. (http://www.piat.org.nz/uploads/PIAT_content/pdfs/SPREP%20guidelines%20for%20invasive%20species%20management%20in%20the%20Pacific.pdf).

The IUCN/SSC Invasive Species Specialist Group website should be consulted for details on all aspects of eradication and management of invasive ants(http://www.issg.org/).

CULTURAL CONTROL
Trim trees and shrubs that surround nests to prevent bridges to other vegetation, or to touch exterior walls. Hot water at 47°C (and above) kills ants. Hot water up to 49°C will not damage plants. A more extreme method is to use fire to destroy the nests and to create conditions that favour native ant species.

CHEMICAL CONTROL
Not practical in many situations as nests are in the canopy of trees where spraying is not only difficult but also uneconomic. There is also a problem in that chemicals are not passed between individuals (i.e., food is not taken back to the nest and regurgitated) and that baits containing poisons have to be taken by a large percentage of the colony to be effective. However, if enough workers are killed, the young may starve to death.

In general, three types of chemicals are used against ants: (i) stomach poisons. e.g., Maxforce® (fipronil), Amdro® (hydramethylnon), and borax; (ii) insect growth regulators (e.g., Engage® (methoprene), and Distance® (pyriproxyfen); and (iii) poisons that work on the nervous system, that is, neurotoxins, e.g., bifenthrin, fipronil, and imidacloprid. Stomach poisons kill all queens, intercastes and workers; insect growth regulators stop the queens from laying eggs, whereas neurotoxins disrupt insects' central nervous system. It is likely that future products will combine toxins that cause rapid death and insect growth regulators, e.g., Extinguish Plus® (hydramethylnon and methoprene).

A note of caution: Although it is possible to combine a lure (such as peanut butter, fish, sugar, etc.) with a pesticide as an ant bait, it is not recommended because of the danger in leaving concentrated pesticides unattended in the environment, including dwellings.

Treatment options (and case studies) are provided in the Pacific Invasive Ant Toolkit under (http://piat.org.nz/getting-rid-of-ants).

When using a pesticide, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval. **Recommendations will vary with the crop and system of cultivation. Expert advice on the most appropriate pesticide to use should always be sought from local agricultural authorities.**

Photo 5. White-footed ant, *Technomyrmex albipes*; view of head. Note, the eyes are inside the line of the edge of the head; compare *Technomyrmex difficilis* (**see Fact Sheet 480**).

AUTHOR Grahame Jackson

Information from *Technomyrmex albipes*. Wikipedia. (https://en.wikipedia.org/wiki/Technomyrmex_albipes); and *Technomyrmex difficilis* (=*albipes*) Entomology & Nematology. UF/IFAS, University of Florida (http://entnemdept.ufl.edu/creatures/urban/ants/white-footed_ant.htm); and Pacific Invasive Ant Toolkit. White-footed ants. (http://www.piat.org.nz/index.php?page=white-footed-ants); and *Technomyrmex albipes*. AntWiki. (http://www.antwiki.org/wiki/Technomyrmex_albipes); and from *Technomyrmex albipes* (2018) Global Invasive Species Database. (http://www.iucngisd.org/gisd/speciesname/Technomyrmex+albipes). Photos 1&2 Randolf Thaman, University of the South Pacific, Fiji. Photos 3-5 April Nobile from Antweb. (https://www.antweb.org/bigPicture.do?name=casent0178469&number=1&shot=p).

Produced with support from the Australian Centre for International Agricultural Research under project HORT/2016/185: *Responding to emerging pest and disease threats to horticulture in the Pacific islands*, implemented by the University of Queensland and the Secretariat of the Pacific Community.