

PREVENT RED IMPORTED FIRE ANTS FROM INVADING FIJI



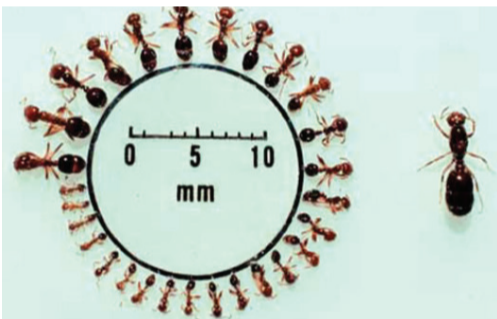
The Biosecurity Authority of Fiji (BAF) is greatly concerned in protecting Fiji from the introduction, establishment and spread of Red Imported Fire Ants (RIFA). This species of ants has potential to be a serious environmental, social and economic threat to the country.

The Red Imported Fire Ant, scientifically known as *Solenopsis invicta* (or simply RIFA) is one of over 280 species in the widespread ant genus *Solenopsis*. Although the RIFA is native to South America, it has become a pest in the southern United States of America (USA) and Hawaii, Argentina, Brazil, Cayman Islands, Australia, the Caribbean, Taiwan, Hong Kong, the southern Chinese provinces of Guangdong, Guangxi, Fujian and Macau.

Morphological characteristics of RIFA

RIFA are omnivores – meaning they consume both plant and animal products. They prey on invertebrates and vertebrates and eat plants and honeydew. RIFA are highly aggressive, with a venomous sting that used to kill their prey and defend their nest. They swarm in large numbers to attack any animal that disturbs their nest.

RIFA are small and reddish-brown on the head and body with a dark abdomen. They are polymorphic, that is, ants of different sizes are found within a colony. RIFA sizes range between 2 – 6 millimetres.



Array showing size of workers and queen

RIFA colonies

The colonies may contain eggs, larvae, pupae, workers, one or more large wingless reproductive queens and winged unmated queen and males. RIFA colonies contain between 200,000 to 400,000 workers, although some super colonies have many millions of individuals.

There are two forms or what can be considered two kinds of RIFA lifestyle – one, colonies can exist with a single egg-laying queen (monogyne) or secondly, colonies can have multiple reproductive queens (polygyne). The multi-queen colonies (sometimes with several hundred queens) reach higher densities than single-queen colonies – up to 50 million ants per hectare. They mostly spread by budding – new queen mates within the nest and then sets up a new nest just a metre or few metres away. In the monogyne form, the virgin queens and the males mate in the air, the queens then fly 500 metres or so to build a new nest.

The nests of RIFA are large, dome-shaped mounds with hard weather-resistant crusts and no obvious entry or exit holes at the top. A mature mound averages 10 – 24 inches in diameter and 6 – 18 inches in height. In heavy clay soil, the mounds may be larger, reaching approximately 3 feet in height. These mounds may have galleries extending at most 6 feet underground. RIFA mounds serve as staging platforms for nuptial flights and heat sinks during cold weather and as an elevated refuge from flooding during periods of heavy rainfall.



An adult red imported fire ant (RIFA) worker

RIFA mound

The mounds are not always evident but are usually found in open grounds exposed to the sun, for example lawns, pastures and cultivated areas. RIFA mounds may also be found in



cemeteries, parks, playing fields, within walls of structures, under sidewalks, slabs and roadways, inside cars and trucks, next to or underneath other objects on the ground (timber, logs, rocks, bricks etc.), in and around heat pumps, junction boxes and traffic lights.

Pathway for Introduction

RIFA may be introduced into countries that do not have this ant species via international movement of ships, shipping containers, aircrafts, imported goods, new/used vehicles and machineries. Remarkably, human beings are the major cause of RIFA infestation into new areas – the ants can be carried on clothes, shoes and soil that people wear or carry with them.

Invasive ants typically arrive with cargo and often dominate new environments due to traits such as aggression towards other ants. Some invasive ant species create vast super-colonies made up of many interconnected nests with millions of workers.

Biosecurity Threat

RIFA threaten Fiji's environment, biodiversity, social stability and the economy. These ants have the potential to kill beneficial pollinators such as ground-nesting bee species. They will destroy items they infest including seeds, fruits, leaves, roots, bark, nectar, sap and fungi as they are all food for the ants.

RIFA are proficient enough at overwhelming intruders to virtually clear an area of invertebrates, lizards and ground-dwelling birds. The stinging behaviour of RIFA can be hazardous to field workers as the sting is noxious (venomous) and produces a pustule (blister) on the skin that can scar if infected. In natural ecosystems they may interfere with and displace native wildlife, young birds in nests whereas lizards can also be vulnerable.

The presence of RIFA has been found to reduce the numbers of ground-nesting vertebrates such as snakes, turtles and birds in many countries. The RIFA attacks reptile and bird eggs, nestling birds, bee hives, the nests of other social insects and adult reptiles, birds and amphibians. Their presence may also lead to the local elimination of an entire species.

RIFA cause damage to cultivated plants by feeding on germinating seeds as well as on developing fruit and flower buds. Common examples of this include citrus and tomato. During drought periods, RIFA attack water-seeking food crops and may hamper hand-harvesting of fruits and vegetables if present on them. Livestock, whether young or incapacitated, may also be targeted by RIFA. The mounds and the underground channels formed may interfere with foraging livestock and cause injury to the animals.



RIFA decapitating a lizard

Human Health

RIFAs have a painful bite but also inflict a painful 'fiery' sting. A single ant can sting a person repeatedly meaning multiple times in one attack. While stinging an enemy, RIFAs pivot their abdomen in a tiny circle, which results in a small and acutely painful wound which develops into a pustule (a small, firm blister-like sore) within 24 – 48 hours. The pustules itch while healing and can become sites of secondary infection or cause permanent scarring.

Some individuals are acutely allergic (anaphylactic) to RIFA stings and may suffer from nausea, shock, chest pains and in rare cases go into a coma.



Pustule (blister) formation from RIFA bites

Economic Impacts

RIFA colonies can infest electrical equipment such as air conditioners, traffic signal boxes, electrical and utility units. Telephone junctions, airport landing lights, electric pumps for water wells, computers and even car electrical systems have been reported to be affected in many countries. The ants chew on the insulation or carry soil into these areas and cause short circuits.

Repair and maintenance work may be costly depending on the extent of damage caused by RIFA infestation. If it were to arrive in Fiji, launching an emergency response and putting an eradication program into place will cost hundreds of thousands, if not, millions of dollars.

To bring this to light, let's consider the case of Australia. RIFA was first detected in February 2001 in the south western suburbs of Brisbane, South-east Queensland. Millions of dollars have been poured into eradicating this pest. While isolated incursions have been controlled and eradicated successfully, RIFA continues to exist in Australia and cause havoc 16 years on.

Prevention of RIFA Introduction in Fiji

- BAF ensures that international ships, aircrafts and cargo destined for Fiji are free from RIFA
- BAF undertakes active RIFA surveillance through a baiting method that will help detect their presence should they get into the country undetected

- How Fijian citizens can help protect Fiji from RIFA infestation?
- All Fijians must comply with Biosecurity import requirements and offshore risk mitigation measures
- Business owners should ensure that cargo, containers (sea/aircraft), vehicles, machineries and other imports are free from RIFA infestation
- People should report any sightings of suspicious ants to the nearest Biosecurity office

Help BAF keep Red Imported Fire Ants (RIFA) out of Fiji!

For Further Information Please Contact:

Biosecurity Authority of Fiji
on 3312512 or Short Codes:
General Enquiries - 5994,
Termites - 5996, Giant Invasive
Iguana (GII) - 5995,
Animal Disease Surveillance - 5997
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