

# Invasive Ant Threat



INFORMATION SHEET Number 23 • *Pheidole fervens*

Risk: Medium

## *Pheidole fervens* Smit

### Taxonomic Category

Family:	Formicidae
Subfamily:	Myrmicinae
Tribe:	Pheidolini
Genus:	<i>Pheidole</i>
Species:	<i>fervens</i>

**Common name(s):** minami-oozu-ari (Japan)

**Original name:** *Pheidole fervens* Smith

**Synonyms or changes in combination or taxonomy:** *Pheidole cavannae* Emery, *Pheidole javana* Mayr, *Pheidole (Pheidole) oceanica* var. *nigriscapa* Santschi

**Current subspecies:** nominal plus *Pheidole fervens* var. *desucta* Wheeler, *Pheidole fervens* var. *dharmsalana* Forel, *Pheidole fervens* var. *dolenda* Forel, *Pheidole fervens* subsp. *jacobsoni* Forel, *Pheidole fervens* subsp. *jubilans* Forel, *Pheidole fervens* var. *pectinata* Stitz, *Pheidole fervens* subsp. *protea* Forel, *Pheidole fervens* st. *soror* Santschi

### General Description

#### Identification

**Size:** worker caste dimorphic, with large broad-headed workers (majors) contrasting with much smaller workers (minors) with proportionately much narrower heads, without intermediates. Total body length around 4.5 mm in majors, around 3 mm in minor workers.

**Colour:** body colour light reddish brown, head darker, alitrunk lighter, gaster blackish brown.

**General description:** antennae 12-segmented, including a long 3-segmented club. Eyes small. Mandibles with 2 large apical teeth; with 6 or more small teeth in minors; dentition reduced in majors. Metanotal groove distinct. Pronotum and forward section of mesonotum raised above level of the propodeum and connected by the steeply sloping rear section of the mesonotum. Propodeum with a pair of slender, posteriorly curved spines. Two nodes (petiole and postpetiole) present, postpetiole shorter than petiole.

**Major workers:** head exceptionally large, covered with reticulate sculpturing; most of pronotal surface completely smooth; eyes rather small, their maximum diameter less than length of 10th antennal segment; gular dentition with paired lateral processes, the three median projections indistinct.

**Minor workers:** posterior portion of head rounded, smooth and shining, with distinct occipital carina; at least parts of lateral alitrunk unsculptured; eyes small, like those of soldiers; gular dentition undeveloped; remaining features as given for major.

**Note:** Wilson & Taylor (1967) give the following characters to distinguish *Pheidole oceanica* from *P. fervens*:

*Pheidole oceanica*: major with area between antennal insertion and eye longitudinally rugose; minor with propodeal spines distinctly longer than greatest width of propodeal spiracle.

*Pheidole fervens*: major with area between antennal insertion and eye rugoreticulate; minor with propodeal spine about as long as greatest width of propodeal spiracle.

Also resembles *Pheidole megacephala*, but the head of *P. fervens* soldiers is completely rugose, whereas the head of *P. megacephala* soldiers is smooth and shiny.

Sources: www1; www4; Wilson & Taylor (1967)

## Behavioural and Biological Characteristics

### *Feeding and foraging*

*P. fervens* is a numerically and behaviourally dominant species that can exclude *Anoplolepis longipes*, *Paratrechina bourbonica*, *Solenopsis papuana* and *Tetramorium bicarinatum* from baits (Morrison 1996a). Workers can take time to locate food sources, but then recruit to food in large numbers and aggressively attack competing species (Morrison 1996a). In urban areas it is primarily a scavenger, taking scraps of human foodstuffs and dead insect remains, but may also kill live insects and collect seeds (Martinez 1996).

### *Colony characteristics*

(*nest size, structure mobility, queen number, polydomous*)

*P. fervens* is polygynous (Morrison 1996a) and possibly polydomous (Martinez 1996). Colonies can include hundreds of workers (and nest under stones in Japan www1).

### *Dispersal*

No information found. Probably disperses by budding like *P. megacephala* (Passera 1994).

### *Habitats occupied*

In the Pacific Islands *P. fervens* inhabits dead branches (Wilson & Taylor 1967). It is also a household nuisance and is extremely abundant in some anthropogenic areas in Tahiti (Wilson & Taylor 1967). In French Polynesia, *P. fervens* is dominant in habitats with a semi-closed canopy and some light penetration (e.g. abandoned coconut plantations) (Morrison 1996a). *P. fervens* is not the dominant species at sites that are open or have a completely closed canopy (Morrison 1996a). In Hawaii it is more abundant locally in wet regions than *P. megacephala* (Gruner et al. 2003) and occurs in the hot lowlands (below 900 m; Reimer 1994). In the Philippines, *P. fervens* is found in irrigated lowlands (rice fields), but does not like wet soil and is more dominant during the dry season (Way et al. 1998). In Japan it occurs in open land grading to forest margins (Ogata 1981).

## Global Distribution (See map)

### *Native to*

Tropical Asia (Wilson & Taylor 1967).

### *Introduced to*

Mainland United States (Martinez 1996; www32), and the Pacific region (Hawai'i, Tahiti, Fiji, Cook Islands, etc.) through human commerce (Wilson & Taylor 1967).

### *History of spread*

First reported in California in 1995 occupying a two block areas in downtown Los Angeles (Martinez 1996).

### *Interception history at NZ border*

There have been 64 interceptions of *P. fervens* in New Zealand; 17 records were between Dec 2003 and Aug 2004 when reporting of all ant finds was occurring, indicating that this ant is currently a frequent arrival. All but two (one in Wellington, one in Mt Maunganui) of the interceptions are from Auckland (2003/04). The Mt Maunganui record was a post-border find of a nest in an empty container from Papua New Guinea. It has also been intercepted on freight from Australia, but this may be a trans-shipment, as it is not reported from Australia (www4). Sixty-nine percent of the interceptions were in freight from Fiji (>92% from the Pacific Islands). Interceptions were mostly in fresh produce (69%) and cutflowers (8%). There have also been three interceptions in air passengers luggage and two in containers, indicating the ease with which this ant is moved around.

There have also been 49 interceptions of unidentified *Pheidole* species (including nests, queens and eggs) at five different New Zealand ports. Most of the material was found in fresh produce and originated from Pacific Island nations known to have *P. fervens*.

## **Justification for Inclusion as a Threat**

*P. fervens* is a numerically and behaviourally dominant species possessing traits of other invasive species (polygyny – Morrison 1996a; polydomy – Martinez 1996) and can exclude *Anoplolepis longipes*, *Paratrechina bourbonica*, *Solenopsis papuana* and *Tetramorium bicarinatum* from baits (Morrison 1996a). It is also a household nuisance and is extremely abundant in some anthropogenic areas in Tahiti (Wilson & Taylor 1967). It is one of the most common species intercepted at the New Zealand border – mostly on produce from the Pacific. Closely resembles *P. megacephala* so its establishment in New Zealand could go unnoticed.

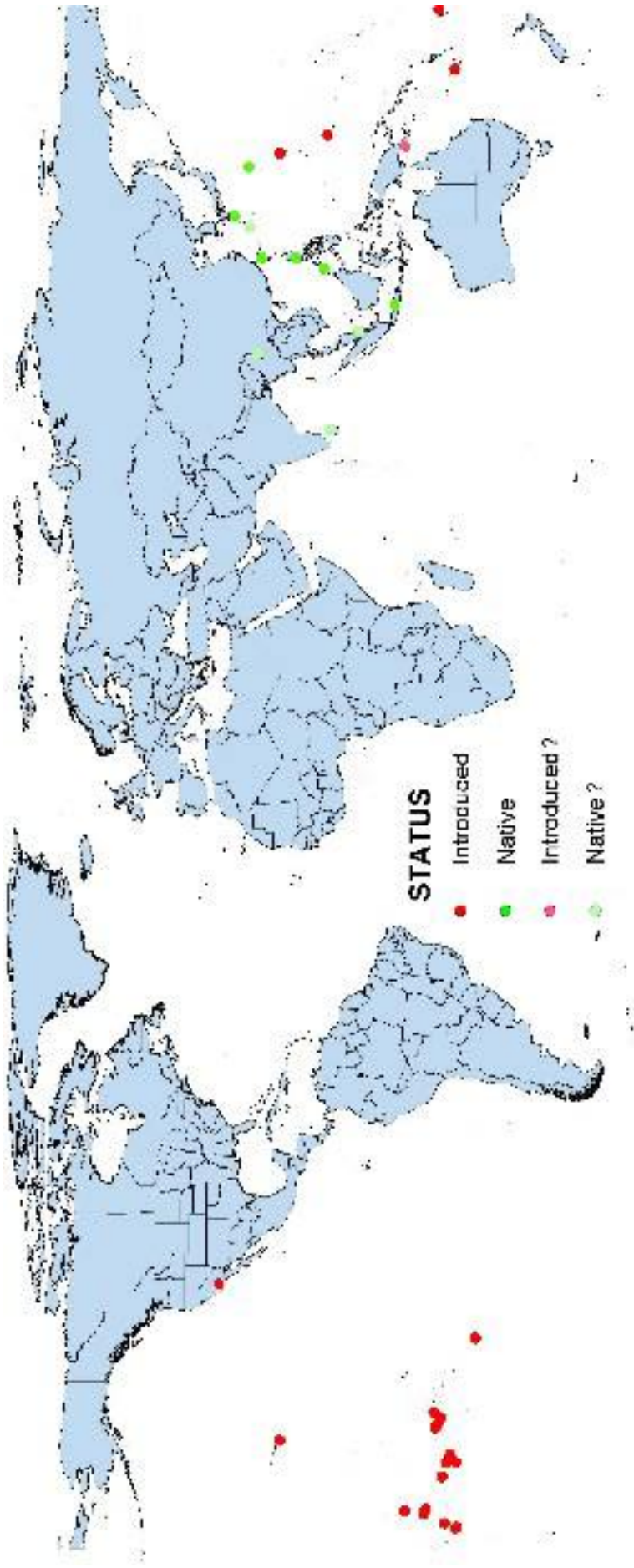
### *Mitigating factors*

Its current distribution is tropical and suggests New Zealand is probably too cold for this species.

## **Control Technologies**

Bait effective against *P. megacephala* (Amdro – Hoffman & O'Conner 2004) may be effective against this species.

*Compiled by Margaret Stanley, Richard Harris, & Jo Berry*



Global distribution of *Pheidole fervens* (Smith)