

Invasive Ant Threat



INFORMATION SHEET Number 19 • *Paratrechina fulva*

Risk: Medium

Paratrechina fulva (Mayr)

Taxonomic Category

Family:	Formicidae
Subfamily:	Formicinae
Tribe:	Plagiolepidini
Genus:	<i>Paratrechina</i>
Species:	<i>fulva</i>

Common name(s): hormiga loca (crazy ant) (Colombia – Zenner-Polania 1990a), crazy ant, long-legged ant, Maldive ant, ashinaga-ki-ari (Japanese), gramang ant (Indonesian)

Original name: *Prenolepis fulva* Mayr

Synonyms or changes in combination or taxonomy: *Prenolepis (Nylanderia) fulva* Mayr, *Paratrechina (Nylanderia) fulva* Mayr, *Nylanderia fulva* Mayr

Current subspecies: nominal plus *biolleyi*, *cubana*, *fumata*, *fumatipennis*, *incisa*, *longiscapa*, *nesiotis*

References to *P. fulva pubens* (Forel) from the USA apply to this species.

General Description

Identification

Size: monomorphic. Total length 2.6–2.9 mm.

Colour: red-brown. Note that Fernandez (2000) used this as a diagnostic character, but did not examine specimens from outside Colombia.

General description: Antenna 12-segmented, without a club. Scapes with at least a few erect hairs on anterior surface. Eyes about a quarter of head length. Mandibles each with 6 teeth; the intercalar (second from top) and the subbasal (second from bottom) are the smallest. Clypeus without longitudinal carinae, slightly emarginate medially. Propodeum without spines, posterodorsal border rounded; propodeal spiracles distinct. One node (petiole) present, which is wedge-shaped, with a broad base, and inclined forward. Head and gaster with prominent pubescence lying more or less close to the body surface; dense pubescence on thorax gives the body a dull appearance. Erect hairs present on all surfaces of the tibiae. Stinger lacking; acidopore present.

Sources: Creighton 1950 (key)

Formal description: Fernandez 2000 (in Spanish)

Behavioural and Biological Characteristics

P. fulva has similar habits to *Solenopsis geminata*. In Colombia (introduced range), *S. geminata* is the last native ant species displaced when *P. fulva* invades (Zenner-Polania 1994). In Brazil (native range), *P. fulva* is a superior competitor to *S. invicta* (www49).

Feeding and foraging

Like other *Paratrechina*, “crazy ants” refers to the frenzied, apparently random movements when foraging (Zenner-Polania 1990a). Workers are opportunistic foragers feeding on honeydew from Homopterans and animal protein from both invertebrates & vertebrates (Zenner-Polania 1990a, 1994). They have also been observed using brood of other ants as food (Zenner-Polania 1994). *P. fulva* can form strong associations with many Homopteran species (28 spp. been recorded in Colombia) (Zenner-Polania 1990a) that cause substantial vegetation and crop damage.

The high colony fecundity, small size of the workers, their abundance and aggressiveness, and their ability to rapidly detect and recruit to food sources, give them a competitive advantage over other ant species (Zenner-Polania 1994).

Colony characteristics

P. fulva is a polygyne, polydomous species able to colonise rapidly short-lived, disturbed environments (Zenner-Polania 1990a; Arcila et al. 2002b). It does not construct elaborate nests, but instead exploits any available humid (warm and moist) site or those constructed by animals they displace to raise its brood (Zenner-Polania 1990a; Arcila et al. 2002a,b). In dry conditions nests are below the soil surface; in wet conditions they are on the soil surface below the litter layer (Arcila et al. 2002a). *P. fulva* also colonises and occupies nests of other ant species (Zenner-Polania 1994).

Colonisation of a site by *P. fulva* begins with the appearance of transitory nests that form the invasion front, with large numbers of workers. Once an area has been colonised, permanent nests are established. The egg-masses, larvae and pupae in a transitory nest are moved frequently. Sexual stages are absent from these transitory nests and only a small number of workers attend the brood. Permanent nests are always occupied by queens, cover a large, well-protected, well-drained area (up to 1 m²), up to 40 cm depth below the soil surface and contain immatures (Zenner-Polania 1990a). 80 permanent and 556 transitory nests have been recorded in a 390 m² area in a coffee plantation in Colombia, with nest site availability limiting if extremely large populations are present (e.g., 16 000 nests per hectare in coffee, sugar cane, cocoa plantations) (Zenner-Polania 1990a).

Dispersal

Mating can take place within the original nest (Arcila et al. 2002b). Nuptial flights have never been observed, but males have been observed flying (Arcila et al. 2002b). *P. fulva* expands its territory slowly (1km/year) indicating dispersal by colony budding. Rivers are the only geographical feature that slow or stop their spread (Zenner-Polania 1990a). Peak abundance is reached after an area has been occupied for at least 2 years; after that the population undergoes a slow decline (Zenner-Polania 1990a).

Habitats occupied

In Colombia (introduced range), *P. fulva* is distributed over a wide area and can develop over a wide range of altitudes (150–2600 m) and temperatures (means 13–29°C), but is most abundant at 1500 m and MAT of 22°C (Zenner-Polania 1990a; Arcila et al. 2002a).

P. fulva lives in short-lived, disturbed environments, such as sugar cane fields or flooded lands in Colombia (Arcila et al. 2002b) and in plantations (Zenner-Polania 1990a). In its native range (Brazil) *P. fulva* inhabits tall grass habitats (www49).

Global Distribution (See map)

Native to

South America (Creighton 1950; Fernandez 2000).

Introduced to

North (Jeanne 1979) and Central America (Zenner-Polania 1994), the Galapagos (C. Causton pers. comm.), and islands in the Caribbean (e.g., Way & Bolton 1997).

History of spread

P. fulva was deliberately introduced to both Central Colombia's coffee growing region and to the Middle Magdalena Valley (cattle breeding region) as a biological control agent against leaf-cutting ants and poisonous snakes in 1969–1970 (Zenner-Polania 1990a). First detected as a pest in 1971 at Puerto Boyaca (Central Colombia (Arcila et al. 2002a). Since then *P. fulva* has been spread across Colombia in hen dung (used as fertiliser) and soil (Zenner-Polania 1990a). Although collected in Texas, USA, it may not be established as it has not been collected there since 1938 (Trager 1984), and specimens from New Jersey (Creighton 1950) are probably *P. pubens* (Trager 1984).

Interception history at NZ border

There have been no recorded interceptions of this species at the border. There have, however, been 56 interceptions (7 separate queens) of unidentified *Paratrechina* species, although only one of these has originated from the Americas.

Justification for Inclusion as a Threat

P. fulva appears to have high potential for detrimental impacts, unlike many other *Paratrechina* species. It displaces other ants, with food monopolisation suggested as the mechanism (Zenner-Polania 1994). It was introduced into Columbia intentionally to control snakes (Zenner-Polania 1994). Small animals (e.g., chickens) die of asphyxia (when large numbers of worker ants attack them), while larger animals (e.g., cows) are attacked around eyes, nasal fossae and hooves (Zenner-Polania 1990a). In agroecosystems *P. fulva* farms homopterans that damage crops (Arcila et al. 2002). It has spread outside its native South American range (some intentional introductions). It is capable of establishment (at least temporarily) in glasshouses in temperate locations (Ayre 1977), and occurs in urban areas in its native range (Silva & Loeck 1999). Due to the common occurrence of adventive *Paratrechina* around New Zealand cities, this species could initially establish without being noticed.

Mitigating Factors

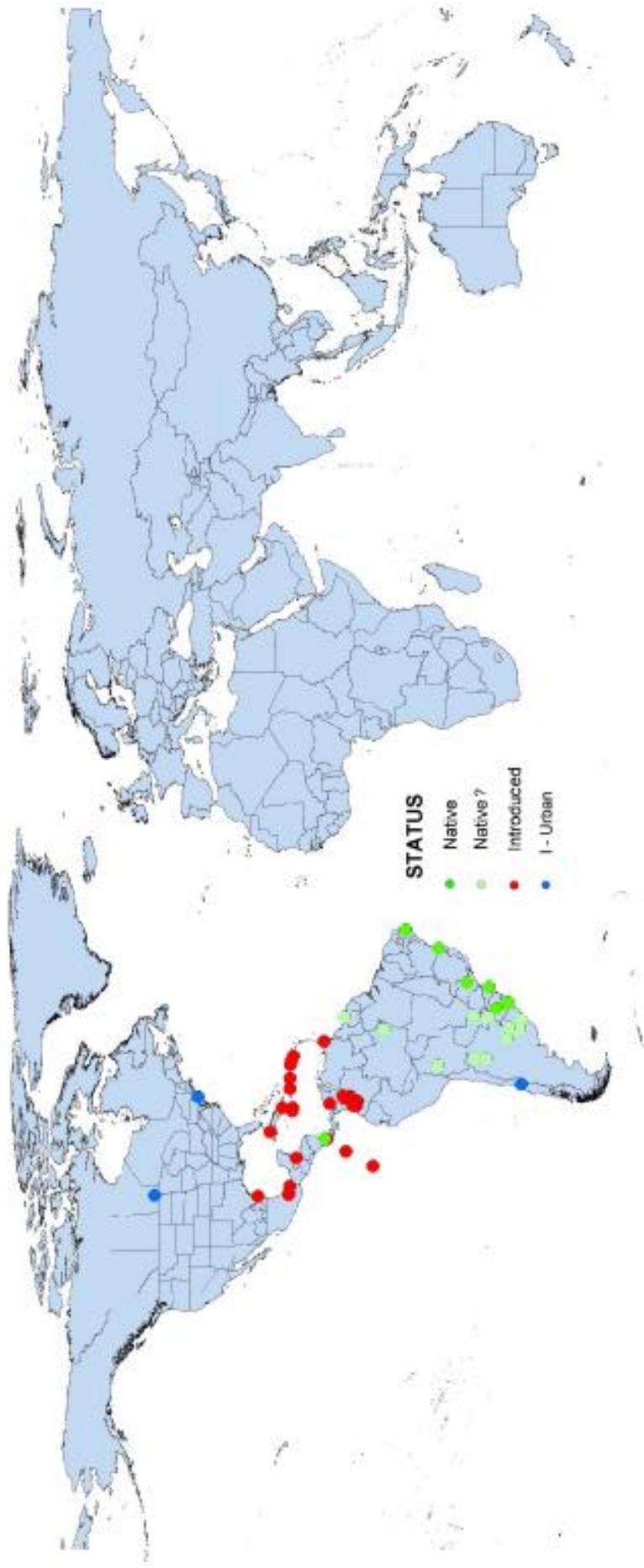
Not spread outside the new world. Areas of suitable climate may be limited in New Zealand outside urban areas. There have been no recorded interceptions of this species at the border and only one unidentified *Paratrechina* species interception originates from countries with *P. fulva*.

Control Technologies

Exclusion using sticky bands around orchard trees and water-filled concrete ditches around henhouses and stables are effective and economical in Colombia (Zenner-Polania 1990b). Several trials have been conducted in Columbia on potential baits and toxins (Zenner-Polania 1990b; Anon.1996), but no commercial bait formulation is available that has

been proved effective against this ant.

Compiled by Margaret Stanley, Richard Harris and Jo Berry



Global distribution of *Paratrechina fulva* (Mayr)