

# Invasive Ant Threat



INFORMATION SHEET Number 29 • *Solenopsis xyloni*

Risk: Medium

## *Solenopsis xyloni* McCook

### Taxonomic Category

Family:	Formicidae
Subfamily:	Myrmicinae
Tribe:	Solenopsidini
Genus:	<i>Solenopsis</i>
Species:	<i>xyloni</i>

**Common name(s):** southern fire ant (Smith 1965), Californian fire ant, cotton-ant (Taber 2000)

**Original name:** *Solenopsis xyloni* McCook

**Synonyms or changes in combination or taxonomy:** *Solenopsis geminata* subsp. *maniosa* Wheeler, *Solenopsis geminata* r. *pylades* Forel, *Solenopsis pylades* Forel

Note: Often confused in early records with *S. geminata* (Smith 1965)

### General Description

“Fire ant” is the name usually used to refer to members of the *S. geminata* species group. This group includes; *S. geminata* (sheet # 24), *S. invicta*, *S. richteri* (sheet # 27), *S. saevissima* (sheet # 28), and *S. xyloni*. The group get their name from their ability to inflict especially painful bites and stings.

***Solenopsis* generic diagnosis:** Small to medium-sized ants, total length of workers around 1–9 mm. Worker caste monomorphic or polymorphic. Antennae 10-segmented, including a 2-segmented club. Eyes small to medium in size. Mandibles with 4 or 5 teeth. Clypeus with a pair of longitudinal carinae that diverge anteriorly and run to margin where they often project as a pair of teeth or denticles. Anterior clypeal border with one median seta present, clearly differentiated and conspicuous. Rear face of propodeum more or less rounded, never with teeth, spines or thin flanges. Two nodes (petiole and postpetiole) present. Stinger extruded in most alcohol-collected specimens. Most species pale yellow to reddish brown (a few species dark brown to black) and predominantly smooth and shining usually with sparse, long hairs.

**Distinction from other genera:** Workers of *Solenopsis* are most often confused with workers of *Oligomyrmex*. They can be separated by the single central hair on the front margin of the clypeus (paired hairs are present in *Oligomyrmex*) and the rounded rear face of the propodeum (spines, teeth or flanges are present in *Oligomyrmex*). *Solenopsis* may also be confused with smaller species of *Monomorium*. In this case, the distinctly 2-segmented club will allow the identification of *Solenopsis*.

**Species-level identification:** Identification of fire ants to species is difficult and usually involves evaluating the morphology of a series of workers rather than just one specimen. This task is further complicated by the fact that interbreeding between several species has been recorded.

**Identification of *Solenopsis xyloni* worker**

**Size:** polymorphic ranging from 1.6 to 5.8 mm.

**Colour:** generally have a yellowish-red head and a thorax with a black gaster. They may also be completely orangish-red or brownish black. The lighter form prefers desert and the darker form more humid habitats.

**Surface sculpture:** surface of mesopleuron very finely sculptured, scarcely subopaque.

**General description:** antennae 10-segmented with 2-segmented club. Antennal scape short. Apex of scape, when fully extended, reaching about half way between eye and posterior border of head. Frontal carinae far apart, partly concealing antennal insertions. Clypeus bicarinate, the anterior border with 2 to 5 teeth. Mandibles with 3 well-developed teeth, often with a posterior fourth or vestigial tooth. Head of major worker not extraordinarily large (as in *S. geminata*). Petiole usually with a distinct anteroventral tooth. Body, especially gaster, usually very hairy.

**Source:** Smith 1965; www35; Trager 1991

**Formal description:** Trager 1991

The taxonomy of the *S. geminata* species complex is difficult and has been revised only recently making it difficult to be certain what literature relates specifically to this species. Trager (1991) provides a key to major workers of the *geminata* group.

## Behavioural and Biological Characteristics

### Feeding and foraging

Before the arrival of *S. invicta*, *S. xyloni*, and *S. geminata* were the dominant ants in their preferred habitats in the southern USA (Morrison 2000). *S. xyloni* displaces *Pheidole teneriffana* nests in California, and in turn is displaced by *Linepithema humile* (Martinez 1992). The unstable coexistence is maintained by *P. teneriffana* displacing *L. humile*.

*S. xyloni* has a broad and opportunistic diet (including vertebrates) and will store seeds in the nest and tend honeydew producing insects (Taber 2000; Hooper-Bui et al. 2004; www36). Foragers often build runways along frequently traveled areas (www36). These runways can extend for many metres, and parts may be covered over with soil. In hot climates foraging occurs mostly at night (Hooper & Rust 1997). Foragers are slow moving compared with *L. humile*, but will rush out and defend the nest if disturbed (Smith 1965). Allergic reactions to stings can occur (Smith 1965), but pustules do not appear at the site of a sting, and foragers are less aggressive than *S. invicta* foragers (Mackay & Mackay 2002).

### Colony characteristics

Polygynous nests have been reported (Taber 2000), and in some cases are the only forms present at a location (Hooper & Rust 1997). Colonies can form mounds but more commonly nests are constructed under the cover of stones, boards, and similar objects or at the base of plants (Taber 2000). The mounds are generally flatter than those of *S. invicta*. Queens appear to like disturbed soil (www36), and colonies may frequently relocate, with some moving every couple of weeks, with long lines of workers carrying brood from the old nest to the new nest visible (www37). No mention of colony budding was found. Colonies act aggressively to each other (www36). *S. xyloni* forms hybrids with *S. geminata* where their distributions overlap (Cahan & Vinson 2003).

### Dispersal

Southern fire ants usually swarm in late spring or summer. In California this occurs on warm evenings when temperatures are about 30°C (Taber 2000).

### Habitats occupied

Largely a ground nesting species with the nest exposed or under objects (Smith 1965). Also nest in wood or the masonry of houses (Smith 1965), especially around heat sources such as fireplaces. Occur in a wide range of open habitats (Taber 2000). In dry areas nests may be along streams, arroyos, and other shaded locations where soil moisture is high.

## Global Distribution

### *Native to*

Across the southern United States from the Carolinas to Georgia (not Florida) through lowland Tennessee and south-central Kansas to California (www35) and dry subtropical areas of Mexico (Trager 1991).

### *Introduced to*

Not reported to be established outside its native range.

### *History of spread*

It has been eliminated over much of its range by *S. invicta* and *S. richteri* (Taber 2000).

### *Interception history at NZ border*

There have been no interceptions of this species at the New Zealand border. There have been several unidentified *Solenopsis* intercepted, 2 of which originated from the USA. One of these interceptions was a nest in wooden crates of plate glass from New Orleans in 1970, the other workers in timber.

## Justification for Inclusion as a Threat

Considered a significant pest in the gulf states of the USA (Smith 1965). It builds mounds in gardens, stings painfully (but not as badly as *S. invicta* – www36), gathers seeds from seedbeds, kills young birds, damages young trees by ring barking, damages insulation around wiring, bites holes in fabric, tends honeydew, feeds on household foods, and will nest in artificial structures, feed on almond nuts in orchards (Smith 1965; Knight & Rust 1990; Hooper-Bui et al. 2004; www22). This species is the most northern distributed fire ant in the USA (Taber 2000).

### *Mitigating factors*

Not established outside its native range. Not in southern hemisphere. No interceptions of this species at the New Zealand. Unclear if climate would be suitable as the habitats mentioned in Taber (2000) are all relatively high temperature areas, at least in summer.

## Control Technologies

Especially fond of food with a high protein content (Smith 1965). Hooper and Rust (1997) found freeze-dried chicken eggs and anchovy to be the most attractive, similar to baits preferred by *L. humile*. Xstinguish Argentine ant bait would probably be attractive to this species. Direct nest treatments used on *S. invicta* will likely work for this species, and management recommendations for fire ants in the USA appear to include *S. xyloni*.

Compiled by Richard Harris

