Solenopsis saevissima (Smith)

Taxonomic Category

Family:	Formicidae
Subfamily:	Myrmicinae
Tribe:	Solenopsidini
Genus:	*Solenopsis*
Species:	*saevissima*

Common name(s): formiga ruiva (red ant) – Brazil (Taber 2000)

Original name: *Myrmecia saevissima* Smith

Synonyms or changes in combination or taxonomy: *Solenopsis geminata saevissima* var. *picea* Wasmann, *Solenopsis pylades* Forel, *Solenopsis saevissima* var. *picea* Kistner, *Solenopsis moelleri* var. *gracilior* Forel, *Solenopsis saevissima* var. *perfida* Santschi, *Solenopsis moelleri* Forel, *Solenopsis saevissima* var. *morosa* Santschi, *Solenopsis geminata* var. *incrassata* Forel

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*, and *S xyloni* (sheet # 29). The group get their name from their ability to inflict especially painful bites and stings. *Solenopsis saevissima* is a member of the *saevissima* complex within the *Solenopsis geminata* species group (Trager 1991).

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 saevissma worker

Size: polymorphic (major and minor castes).

Colour: highly variable, variation partly clinal. Trager (1991) cites the following colour features as diagnostic of major workers of this species: head usually yellowish, at least near mandibles and clypeal bases and often more extensively, dark frontal median streak usually lacking.

Surface sculpture: head and dorsal alitrunk (except propodeum) smooth, except for inconspicuous setae-bearing punctures; some of lateral alitrunk sculptured; sloping face of propodeum transversely striate; nodes smooth apart from small setae-bearing punctures, except bases often sculptured, and sculpture on rear face of postpetiole of large workers covering at least the lower half, often ¾ or more; gaster smooth.

General description

Major workers: head weakly trapezoidal or subquadrate to slightly ovate, with sides straight to weakly convex and posterior border at most weakly emarginate, never deeply as in *S. geminata*. Median clypeal tooth poorly developed, may be displaced off-centre. Median clypeal seta and clypeal carinae conspicuous, the latter projecting as a pair of pointed triangular teeth. Mandibles convex, variably sculptured; eye ovate, often outer ring of facets depigmented; antennal scapes reaching almost to vertex. Metanotal impression conspicuous. Subpetiolar process present. Erect hairs on head and anterior alitrunk abundant, less so on gaster.

Minor workers: head ovate, longer than broad in full-face view; antennal scapes easily reaching or exceeding posterior margin of head.

Sources: Bolton 1987, Trager 1991 (major workers)

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

The predominant or only fire ant present in over much of its range in Amazonia (Trager 1991). This species recruits actively to large food sources and displace other ants (Trager 1991). Its diet is likely similar to *S. invicta* and *S. richteri*, namely highly omnivorous and opportunistic (Lofgren et al. 1975).

Colony characteristics

Forms mounds similar to *S. invicta* and *S. richteri* where soil conditions appropriate (Trager 1991, Porter 1998). Polygyne colonies have not been reported for this species (Trager 1991), but are known for other members of the *saevissima* complex.

Dispersal

Independent nest founding by winged queens is the primary dispersal mechanism for monogyny colonies. Mating flights in the *saevissima* complex occur in low wind in late morning to mid afternoon following rain the previous day or night (Trager 1991).

Habitats occupied

Found in grasslands and forest openings (often disturbed areas) in tropical to warm temperate lowland South America (Trager 1991) and may forage into forest (Majer et al. 1997). Disturbed sites may be natural (riverbanks, animal trails) or man-made (farms, plantations, vacant lots) (www41). A rapid coloniser of disturbed ground and one of the most frequently sampled ants in a survey in Pelotas City, Brazil (Silva & Loeck 1999). Nests in sandy soil and avoids clay (Taber 2000).

Global Distribution (See map)

Native to

South America – approximately the eastern half of tropical South America (www41). It has not expanded outside this area, and seems to be common only in eastern Brazil and the "Guianas"(www41) with Surinam close to its northern limit (Kempf 1961).

Introduced to

Africa (www38) and the Galapagos Islands (C. Causton pers. comm.).

History of spread

Long history in Africa as reported from Guinea in 1920s (Wheeler 1927) and 1911 in Kenya (www38), but details of more recent collections have not been found. Not abundant on the Galapogos and unclear if still present (C. Causton pers. comm.).

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, but only one originated in South America. This was in bananas from Ecuador and is outside the known range of *S. saevissima*.

Justification for Inclusion as a Threat

A pest in horticulture (Taber 2000) and a common species in urban areas within its native range (Silva & Loeck 1999) that has spread to Africa (www38) and the Galapagos Islands (C. Causton pers. comm.). Morphologically very similar to *S. invicta* and colonies may be difficult to distinguish (Porter 1998). Has a potent sting and may build up to very high densities in disturbed areas (Adams 1994 reported in Taber 2000). Has the potential to have detrimental impacts where it establishes outside its native range.

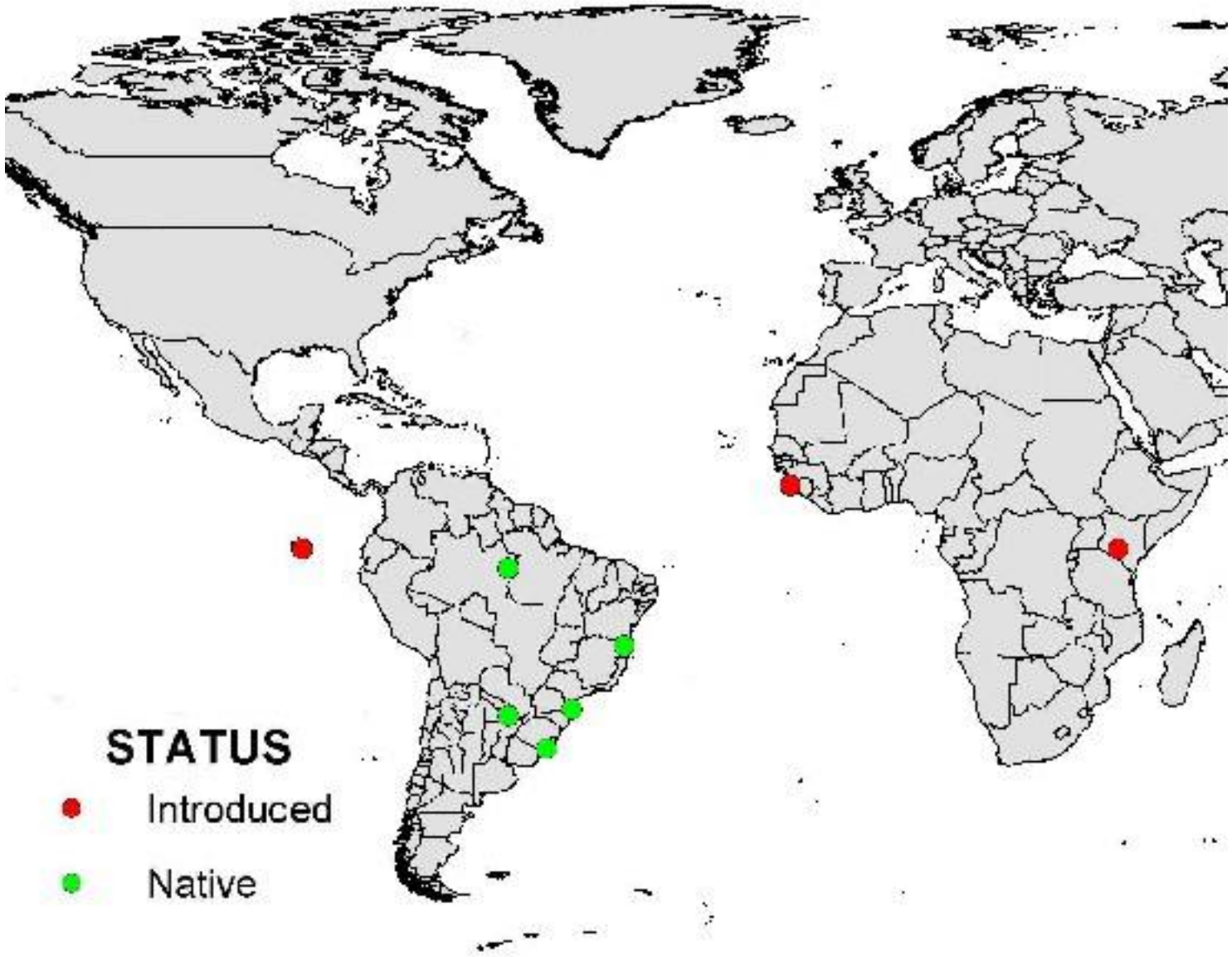
Mitigating factors

Not intercepted at the New Zealand border. Very similar to *Solenopsis invicta*, but with reduced pathways for spread to New Zealand due to its comparatively restricted distribution. Existing surveillance and response plans to *S. invicta* will likely directly transpose to this species. The more northern South American distribution (than *S. invicta* and *S. richteri*) and introduced records from hot climates suggests temperatures in New Zealand are unlikely to be suitable.

Control Technologies

Chemical control strategies for *S. invicta* are likely to be applicable to this species. The socially parasitic fire ant *S. daguerrei* invades nests of *S. saevissima* and a number of Phorid flies are also natural enemies (Taber 2000). *Wolbachia* (cytoplasmically inherited bacteria), whose infections have fitness consequences on their hosts, also attack South Am rica *Solenopsis* (Shoemaker et al. 2000).

Compiled by Richard Harris & Jo Berry



Global distribution of Solenopsis saevissima (Smith)