

Invasive Ant Threat



INFORMATION SHEET Number 34 • *Tetramorium caespitum*

Risk: Low

Tetramorium caespitum (L.)

Taxonomic Category

Family:	Formicidae
Subfamily:	Myrmicinae
Tribe:	Tetramoriini
Genus:	<i>Tetramorium</i>
Species:	<i>caespitum</i>

Common name(s): pavement ant - North America (Smith 1965)

Original name: *Formica caespitum* Linnaeus

Synonyms or changes in combination or taxonomy: *Myrmica fuscula* Nylander, *Myrmica modesta* Foerster, *Formica fusca* Leach, *Myrmica (Myrmica) brevinodis* var. *transversinodis* Enzmann, *Tetramorium caespitum* var. *immigrans* Santschi, *Tetramorium caespitum* subsp. *himalayanum* Viehmeyer, *Tetramorium caespitum* var. *indocile* Santschi, *Tetramorium semilaeve* subsp. *transbaicalense* Ruzsky, *Tetramorium caespitum* var. *hammi* Donisthorpe

Current subspecies: nominal plus *Tetramorium caespitum* var. *alternans* Santschi, *Tetramorium caespitum* var. *barabense* Ruzsky, *Tetramorium moravicum* var. *caespitomoravicum* Kratochvil, *Tetramorium caespitum* var. *flavidulum* Emery, *Tetramorium caespitum* var. *japonicum* Roszler, *Tetramorium caespitum* var. *oxyomma* Karavaiev, *Tetramorium caespitum* var. *pallidum* Stitz, *Tetramorium caespitum* var. *penninum* Santschi, *Tetramorium caespitum* var. *rhodium* Emery, *Tetramorium caespitum* subsp. *typicum* Ruzsky

General Description (worker)

Identification

Size: monomorphic, total length 2.5–4 mm.

Colour: body varies from a light brown to black, with paler coloured legs and antennae.

Surface sculpture: head covered in fine parallel grooves, without unsculptured patches. Dorsal alitrunk similarly sculptured, more coarsely anteriorly than on propodeum. Dorsal surfaces of nodes finely sculptured but each with a smooth area. First gastral tergite smooth.

General description: antennae 12-segmented, including a 3-segmented club; antennal scrobes absent. Frontal carinae short, sometimes virtually absent, never extending back as far as posterior margin of eye. Clypeus with a medial longitudinal carina; anterior margin without median notch. Area of the clypeus immediately below antennal sockets raised into a sharp-edged ridge, which forms the lower section of a pit around the base of the antennae. Dorsum of alitrunk flat in profile but sloping downwards to the posterior. Metanotal groove impressed. Propodeum dorsally with 2 short spines, usually slightly longer than their basal width but sometimes reduced to broadly triangular teeth, additionally a pair of flanges (metapleural lobes) present near the insertion of the petiole. Two nodes (petiole and postpetiole) present; both usually broader than long in dorsal view. Hind tibiae dorsally without long erect or suberect hairs but with short fine

pubescence. Dorsal alitrunk, pedicel segments and gaster with at least some elongate fine setae. Sting present, tip with a triangular extension.

Sources: Bolton 1979

Formal description: Bolton 1979

Behaviour and Biological Characteristics

Feeding and foraging

T. caespitum is omnivorous (Smith 1965). Its diet includes mainly dead insects and other invertebrates, but also live arthropods and even carcasses of small vertebrates (birds, mice, frogs, etc.) (Radchenko et al. 1998). Honeydew from Homopterans and seeds are also important food sources (Radchenko et al. 1998; Katayama & Suzuki 2003b; www20). *T. caespitum* workers move slowly in single file and are not easily disturbed (Reil et al 1982; www22; www23). They overwhelm the competition by finding food quickly and rapidly recruiting large numbers of workers to the site (King & Green 1995; Holway 1999; Katayama & Suzuki 2003b). In its native range, *T. caespitum* has permanent underground foraging routes (Radchenko et al. 1998). The foraging area of a colony is approximately 40 m² (Brian et al. 1965 in Hölldobler & Wilson 1990) and workers may forage for distances up to 9 m in the United States (www25). Foraging occurs between 10°C and 40°C in heated buildings in England (Hölldobler & Wilson 1990). Although they forage during daylight, workers are more active at night (www25; www26). *T. caespitum* readily forages in houses and consumes many different foods (including pet food) – especially those with a high fat or sugar content (www22; www23; www26). They forage in heated buildings year round but the largest infestations occur during the summer (www22).

Colony characteristics

Nests are usually built in soil, often with small earth mounds or under stones (Radchenko et al. 1998). They tend to be found in exposed, south-facing (Northern Hemisphere), rocky areas with short sparse vegetation (www20). Colonies (normally monogynous) have several thousand to tens of thousands of workers (Radchenko et al. 1998). Average colony size in England was 11 000 workers (Briano et al. 1965 in Hölldobler & Wilson 1990). In addition to its underground colonies it often builds fast-growing, temporary mounds that are steep and of low bulk density (Kovar et al. 2001). In urban areas *T. caespitum* often nests in soil next to and beneath slabs, boards, sidewalks, patios, and driveways with piles of displaced soil next to and on top of pavement (www22; www25; www26; www30). Adjacent colonies fight, producing spectacular pavement “ant wars” in the spring (www22).

Dispersal

Nuptial flights take place in spring/summer in the native range; usually in the morning (Radchenko et al. 1998; www20) and can occur in huge numbers (www29). The queens found new colonies unaided (www20). In the introduced range, mating flights normally occur in early spring although can occasionally occur any time of the year (www22; www25; www26; www29).

Habitats occupied

T. caespitum is a semixerophilous species that inhabits mainly open, well-insulated and dry places, with sparse vegetation cover (>40% bare ground) – especially common in sandy soils on plains (Radchenko et al. 1998; Kovar et al. 2001; www28). It avoids wet meadows and woodlands; in relatively humid habitats it nests only in raised, dry and warm patches (Radchenko et al. 1998). Colonies will move or die out if vegetation becomes too high (King & Green 1995). It is abundant in urban areas in its native and introduced range (Radchenko et al. 1998; www25). *T. caespitum* finds disturbed areas very quickly and monopolises resources in these areas (where there is very little competition) (King & Green 1995).

Global Distribution (See map)

Native to

T. caespitum is a widespread temperate European (includes England and Scotland) species that extends from Spain and the North-West African Mediterranean coast up to Russia, central Norway and Sweden, southern Finland and Siberia. It is fairly common in the Middle East, Turkey and central Asia (Kugler 1988; Radchenko et al. 1998; www20).

Introduced to

T. caespitum has been introduced to the USA and is now widespread as far north as Canada and as far south as Florida (Bolton 1977; www25; www27). Sporadic introductions have been recorded in the neotropics (e.g. Mexico) (Bolton 1977).

History of spread

T. caespitum was introduced to the USA about 200 years ago, is now among the most abundant ant species in urban and highly developed suburban areas along the Atlantic Coast (King & Green 1995), and has spread from Canada to Florida. It is believed that this species was brought to the United States in colonial times in the soil that was used as ballast in merchant vessels from Europe (www26). When the ships arrived at US ports, they would empty the soil and replace it with raw and manufactured goods to take back to Europe (www26).

Interception history at NZ border

There have been no recorded interceptions of this species at the border. There have been six interceptions (including one queen) of unidentified *Tetramorium* species, none however from the United States, Europe, or Korea.

Justification for Inclusion as a Threat

T. caespitum is a European species occurring in a wide range of climates that has spread from its native range. It is often the most common house-infesting ant in the large cities of the Atlantic coast in the USA (www13). They also steal seeds from seedbeds, gnaw into tubers, roots, and stalks of various plants, and attend honeydew-excreting insects (Smith 1965). *T. caespitum* disperses seeds of *Ulex* species in England (including gorse) (www21) and damages almonds in Californian orchards (Reil et al. 1982). It is an intermediate host of poultry tapeworms (*Raillietina tetragona* and *R. echinobothrida*) (Smith 1965).

Mitigating factors

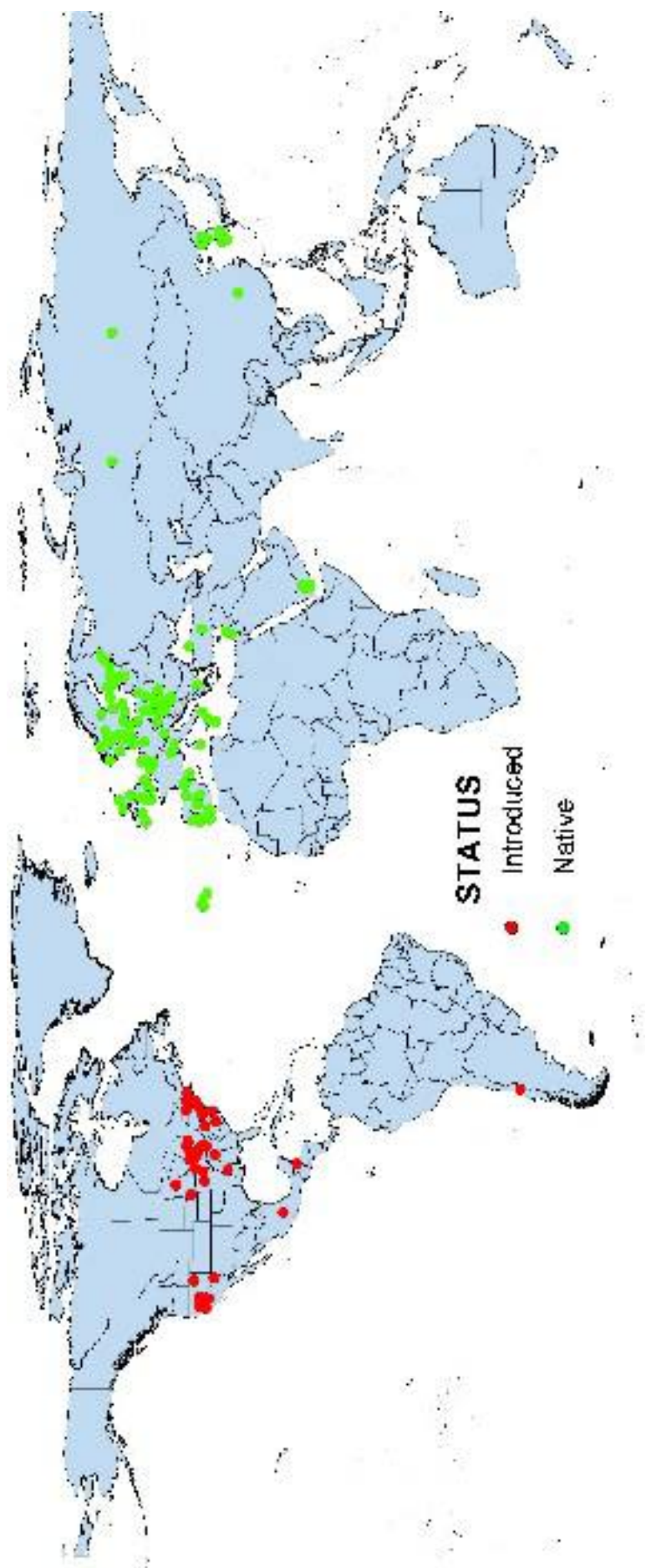
This species is not established in the Southern Hemisphere. There have been no recorded interceptions of this species at the New Zealand border. Though they have the ability to bite and sting, *T. caespitum* is not an aggressive species (www25; www26). It is currently not considered an environmental threat in the USA (www25).

Control Technologies

Nests are usually quite evident, due to the displaced soil (www25) and can often be controlled using ant baits (www30). Baits that contain fatty substances (butter, shortening, peanut butter, etc.) are favoured over others (www26); 50:50 peanut butter/vegetable shortening combinations with toxicants (5% boric acid, Biocin) were preferred to commercial bait stations. Addition of baking powder in a bait station appeared to increase worker recruitment to baits. Boric acid (5%) caused slight reduction in bait visitations (www31). The Myrmicine ant *Anergates atratulus* (Forel) is a workerless, obligate

parasite to *T. caespitum* and diverts colonies to the development of new *A. atratulus* queens and wingless males (www28; www34).

Compiled by Richard Harris, Margaret Stanley, & Jo Berry



Global distribution of *Tetramorium caespitum* (L.)