

Invasive Ant Threat



INFORMATION SHEET Number 2 • *Camponotus* spp.

Risk: Medium

Genus *Camponotus* Mayr

Taxonomic Category

Family:	Formicidae
Subfamily:	Formicinae
Tribe:	<i>Camponotini</i>
Genus:	<i>Camponotus</i>

Common name(s): carpenter ants, oo-ari-zoku (Japan)

Original name: *Camponotus* Mayr

Camponotus is a very large (currently around 600 described species) and complex, taxonomically confused genus, and in great need of revision (Bolton 1995). The use of subgenera has been inconsistent and without justification, so most taxonomists are inclined to ignore them. The major subgenus *Colobopsis* is often treated as a separate genus, especially in North America (Brown 1973; Snelling 1981; Hölldobler & Wilson 1990).

General Description (workers)

Identification

Size: medium to large ants. Total length of workers ranges from 2.5 mm to over 20 mm. Most species are over 4 mm long. They are also polymorphic and show considerable size variation within single species. Most *Camponotus* species have a diphasic range of worker size, i.e. though the variation is continuous, at some mid-point proportions change so the larger workers have relatively wider and larger heads than the smaller ones.

General description: antennae 12-segmented, antennal insertions well separated from posterior margin of clypeus, leaving a distinct gap between the rear margin of the clypeus and the antennal sockets. Frontal carinae converging anteriorly, leaving the antennal insertions only partially or not at all covered. Eyes present, usually well developed and situated in the upper half of the head (face view); ocelli absent. Mandibles each with 5–8 stout teeth, decreasing in size from apex to base. Clypeus often with a median portion projecting as a truncated lobe, more obvious in larger workers. Promesonotal suture (between pronotum and mesonotum) distinct, development of other sutures variable. Alitrunk in side view often high and rounded. Propodeum without spines. Metapleural gland absent in all but two known species (this is usually a distinct orifice situated above hind coxa and below level of propodeal spiracle). One node (petiole) present as a node or scale, without spines. First gastral tergite short, accounting for less than half the length of gaster in dorsal or lateral view, at most only slightly longer than second tergite. Stinger lacking; acidopore present.

Sources: www1; www4; Bolton 1994

Behavioural and Biological Characteristics

Feeding and foraging

Camponotus have an omnivorous diet and workers are also significant predators of many small invertebrates (Smith 1965). Some species maintain mutualistic relationships with aphids and coccids (www4). Foragers form loosely defined trails. Some species forage at night and around dawn and dusk (www2).

Colony characteristics

Mostly monogyn colonies (Smith 1965) although several functional queens have been found in *C. herculeanus* (L.) and *C. ligniperda* Latreille with the queens having their own territory within the nest (Akre et al. 1994). Generally the pest species are those that nest in moist rotting wood in trees, and a number of species also nest in similar wood in buildings. They exacerbate the damaged wood by tunneling into adjacent drier wood. Colonies are long lived and can build up to 10 000 workers, and even 100 000 workers in exceptional cases (Akre et al. 1994). Swarms are often not produced until the colony is several years old (www7).

Dispersal

Nuptial flights with nests initiated by a single, fertilised female.

Habitats occupied

Camponotus species are capable of occupying most terrestrial habitats. In natural ecosystems, carpenter ants play an important role in the ecologically vital process of decomposing wood back into soil (www8).

Global Distribution (See map)

Native to

Camponotus is the largest ant genus, with 1518 described species and subspecies (as well as 22 fossil species). The genus is well represented in Australia with 128 described species and subspecies (www4). They are found worldwide (except polar regions and many oceanic islands including New Zealand).

Introduced to

Most of the species that have been recorded as pests are within their native range. Eight species have established outside their native range (e.g. *C. variegatus* (Smith) in Hawaii on Midway Atoll – Nishida & Beardsley 2002, *C. planatus* Roger in Florida – Deyrup et al. 2000), but none have spread widely.

History of spread

Considering the large number of species and wide geographic range, members of this genus have only infrequently established outside their native ranges.

Interception history at NZ border

C. pennsylvanicus has been commonly intercepted in timber and containers, including nests and queens. Workers of *C. herculeanus* are commonly intercepted in timber from the United States. Workers of *C. variegatus*, *C. irritans* (Smith), and *C. chloroticus* Emery have been intercepted infrequently. Many *Camponotus* specimens (mostly workers but several queens and nests) have been intercepted from a wide variety of locations, but were not identified to species.

A species has been described from New Zealand. *Camponotus newzealandicus* Donisthorpe was described by Donisthorpe (1940). Brown (1958) referred to a second sample, locality “near Wellington”, but that material and sample details has been “lost”. No more specimens have been collected and the identity remains unknown. It is extremely doubtful a *Camponotus* species is established here as they are generally large (the queen described by Donisthorpe was over 5 mm long), have flighted queens that would likely be sampled, and are distinctive in appearance.

Justification for Inclusion as a Threat

Occupies a niche not utilised by other ants in New Zealand – nesting arboreally in dead wood and enlarging the cavity. Several species (including *C. pennsylvanicus*) infest houses and can cause significant structural damage (Hansen & Akre 1985). They also forage for food indoors (Smith 1965). Many have a painful bite and they will also spray victim with formic acid. Commonly intercepted at the New Zealand border and their association with timber means this is likely to continue.

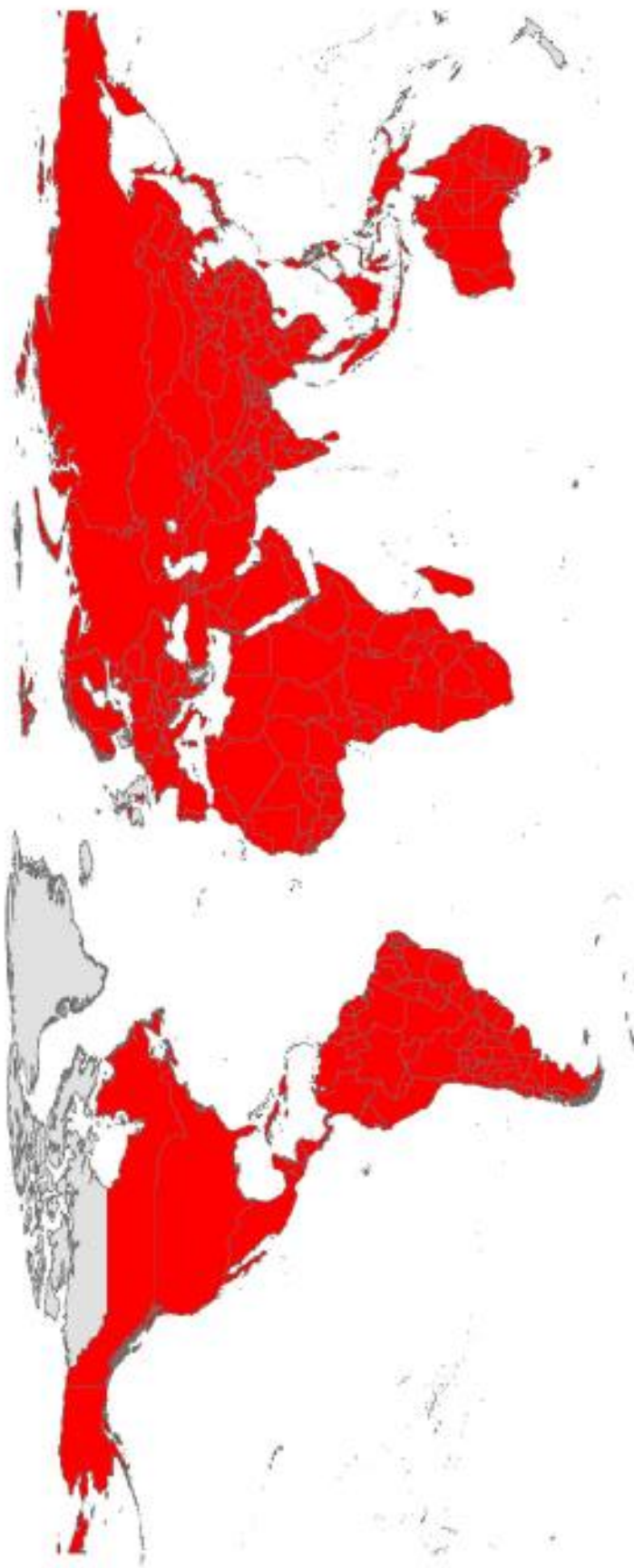
Mitigating factors

A very widespread genus of over 1518 described species and subspecies with only very limited spread outside its native range. Eight species have established outside their native range but none have spread widely. Generally large ants that would likely be detected early should they establish in New Zealand. Historical patterns of establishment suggest the risk of establishment of North America species (e.g. *C. herculeanus* and *C. pennsylvanicus*) is relatively low. Those that have spread outside their native range are not considered to have pest status (e.g., Deyrup et al. 2000; Collingwood et al. 1997), other than as competitors with similar indigenous species (Collingwood et al. 1997). *C. pennsylvanicus* is frequently distributed by commerce (e.g. to England and New Zealand) but has failed to establish (Smith 1965).

Control Technologies

Direct control of nests, repair of rotting timber, preventative residual sprays, and protein baits placed along foraging trails are methods used to control carpenter ants (www 2; Akre & Hansen 1990; Tripp et al. 2000). Maxforce (1% hydramethylnon) is effective in summer against *C. pennsylvanicus* but a combination of approaches gives the best control (Tripp et al. 2000). Placing non-toxic baits on trails can be used to follow foragers back to nests.

Compiled by Richard Harris & Jo Berry



Global distribution of Camponotus spp.