

Invasive Ant Threat



INFORMATION SHEET Number 15 • *Myrmecia pilosula* (Smith)

Risk: Medium

Myrmecia pilosula (Smith)

Taxonomic Category

Family:	Formicidae
Subfamily:	Myrmeciinae
Tribe:	Myrmeciini
Genus:	<i>Myrmecia</i>
Species:	<i>pilosula</i>

Common name(s): jumper ant, jack-jumper ant, hopper ant, jumping jack, bull ant

Original name: *Myrmecia pilosula* Smith

Synonyms or changes in combination or taxonomy: *Ponera ruginoda* Smith

General Description (worker)

Identification

Size: 10-12 mm (Brown et al. 2001)

General description of genus: antennae 12-segmented. Eyes large. Mandibles long and straight, with teeth along entire inner margin, and attached near the outer corners of the front margin of the head. Two nodes (petiole and postpetiole) present.

***pilosula* species group:** (*chasei* Forel, *chrysogaster* (Clark), *croslandi* Taylor, *cydista* (Clark), *dispar* (Clark), *elegans* (Clark), *harderi* Forel, *ludlowi* Crawley, *michaelseni* Forel, *occidentalis* (Clark), *pilosula* Smith, *queenslandica* Forel, *rugosa* Wheeler, *variants* Mayr): Subapical portion of mandible with a supplementary ventral tooth below the normal series; head essentially uniformly coloured. Dentition strongly developed along entire inner margin of mandible. Posterior tibial spur of hind leg distinctly pectinate. Occipital carina lacking.

***pilosula* species complex:** (*M. croslandi* Taylor is not specifically discriminated here: it is a member of the karyologically diverse *pilosula* species complex): Standing hairs on clypeus short, at most only slightly exceeding its anterior margin. Standing hairs on hind tibia abundant and long, some as long or longer than maximum width of the tibia. Mandibles light reddish to yellowish, lighter than head. Mesosoma essentially uniformly black; petiole black. Femora, tibiae and tarsi lightly colored, yellowish- or reddish-brown.

Sources: www4; Shattuck (www4) presents keys to species groups and the *pilosula* species group allowing separation of most species in the genus from *pilosula*.

Behavioural and Biological Characteristics

Feeding and foraging

Forage on the ground or on low vegetation, primarily during the day (www4). Collects nectar and plant juices as well as animal prey, the latter being fed to their larvae. They are aggressive and have a very potent sting and well-developed vision. Workers will actively chase intruders away from their nest. They can cover ground very quickly using a rapid series of short jumps up to 10 cm long. Workers do not trail but forage widely (Williams 1991). Activity is relatively low compared with many ants; Williams (1991) recorded up to 27 ants per minute leaving or entering nests.

Colony characteristics

This species has long-lived colonies. Nests are defended aggressively and range from a single hole to large mounds a metre in diameter with multiple entrances, typically surrounded by a scattering of fine gravel (Brown et al. 2001). Such nests house hundreds and often many thousands of ants (Lowery 1991). More than one functional queen may occur in a colony, and these are generally related (Craig & Crozier 1979).

Dispersal

Most species of *Myrmecia* have large, fully winged queens, which establish new nests by flying from their parental nests, mating and forming a new nest in a suitable location (www4).

Habitats occupied

In Tasmania it is found on beaches, in coastal scrub and heath, in dry sclerophyll, grasslands and lawns and roadsides (Lowery 1994). It is not found in moss or rainforest or in any forest with a thick understorey.

*Venom of *M. pilosula**

The sting is not severe (in terms of pain) (Lowery 1991) but this ant is responsible for greater than 90% of Australian ant venom allergy (Brown et al. 2003). In Tasmania stings by *M. pilosula* (and possible the inchman ant, *M. forficata*) caused 21–25% of the 324 cases of anaphylaxis treated with adrenaline in the Royal Hobart Hospital Emergency Department between 1990 and 1998, compared with 13% caused by honeybee stings (Brown et al. 2001). Six ant sting-related fatalities have been reported that are probably due to this ant; five in Tasmania and one in New South Wales (McGain & Winkel 2002). Sting allergy prevalence is determined by age and exposure rate. *Myrmecia pilosula* sting exposure in Tasmania is high compared with that found in mainland Australia (Brown et al. 2003). Five of the six fatalities had prior histories of jumper or bull ant (*Myrmecia* spp.) venom allergy and none carried adrenaline (McGain & Winkel 2002). Although the median time from sting to cardiac arrest in fatal cases was 15 minutes, The maximum period was several hours (Brown et al. 2001). Ant venom immunotherapy reduces the risk of systemic reactions to *M. pilosula* from 72% to 3% (Brown & Heddle 2003). Although a simple method of venom extraction has been developed, small market size means treatment may never become widely available.

An information sheet 'Allergic Reactions to Australian Stinging Ants' is available at http://www.medeserv.com.au/ascia/aer/infobulletins/Australian_Stinging_Ants.htm

Global Distribution (See map)

Native to

Tasmania and southern mainland Australia.

History of spread

Not introduced outside native range.

Interception history at NZ border

This species has not been intercepted at the New Zealand border. However, there is at least one interception of an unidentified member of the genus, and a population of *M. brevinoda* did successfully establish in Auckland for a number of years, but did not spread beyond a single street and is considered to have been eradicated.

Justification for Inclusion as a Threat

The Ministry of Health requested an information sheet on this ant. These are large aggressive ants that defend their nest if disturbed. They are native to the southern mainland of Australia and Tasmania so climate is likely to be similar to much of New Zealand. This ant is one of the most dangerous ants in terms of its sting, comparable to species like *Pachycondyla sennaarensis* (Africa & the Middle East), *Pachycondyla chinensis* (Asia), and *Solenopsis invicta* (North and South America, Taiwan, Brisbane, and possibly Malaysia). Numerous cases of anaphylaxis (Brown et al. 2001) and deaths have resulted from stings of *M. pilosula* in Tasmania (McGain & Winkel 2002) and

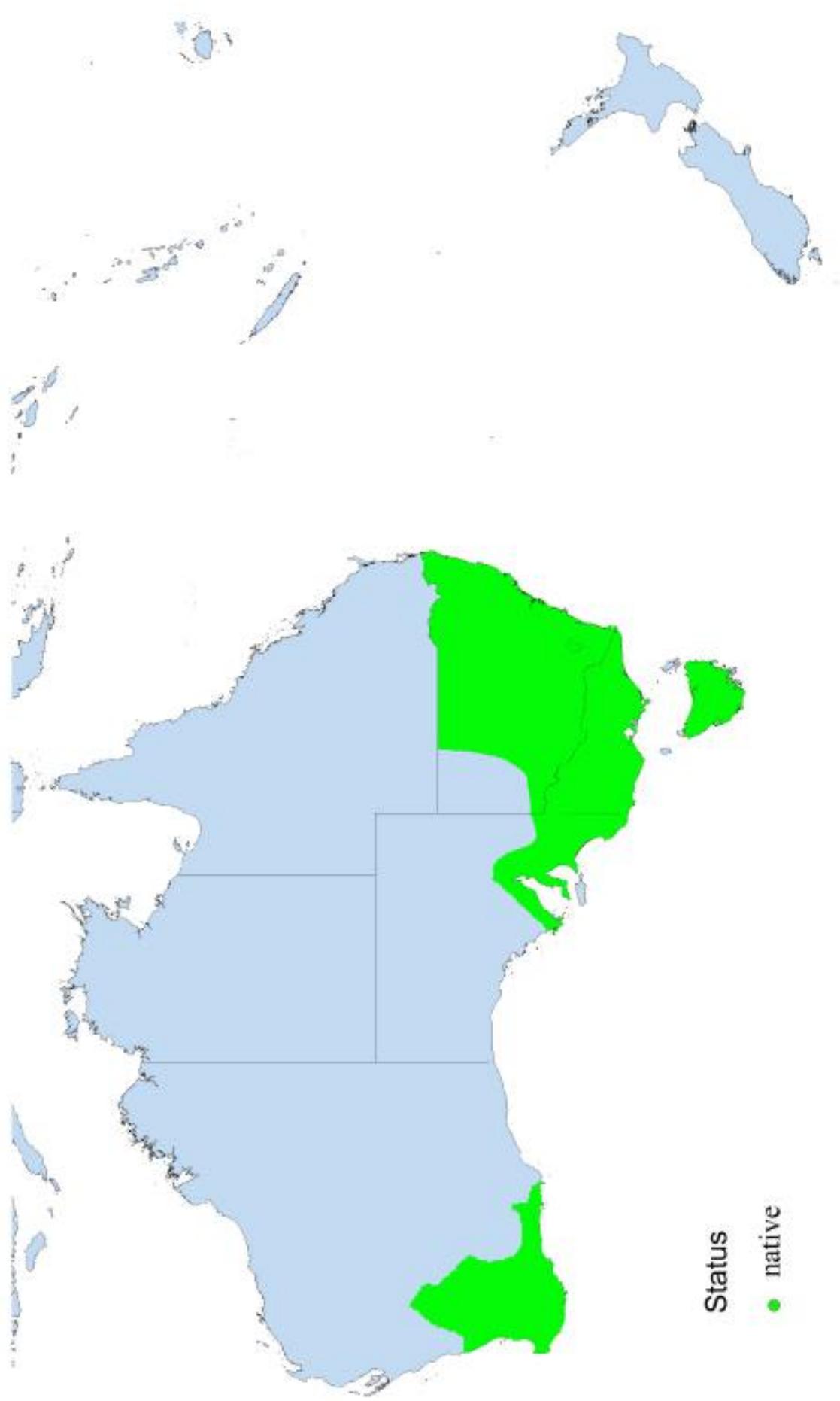
Mitigating factors

Not established outside its native range. Nests in the ground in stable long-lived colonies, so limited chances of spreading whole colonies. Has not been intercepted at the New Zealand border, although there was at least one interception of an unidentified member of the genus. It is a large conspicuous ant, would likely be relatively rapidly detected if it did arrive in New Zealand, and it would be easily controlled.

Control Technologies

The main form of control is direct nest treatment, and a range of insecticides are effective (Williams 1991).

Compiled by Richard Harris & Jo Berry



Global distribution of *Myrmecia pilosula* (Smith)