Invasive Ant Threat

INFORMATION SHEET Number 1 • *Anoplolepis gracilipes* Risk: High

Anoplolepis gracilipes (Smith)

Taxonomic Category

Family:	Formicidae
Subfamily:	Formicinae
Tribe:	Lasiini
Genus:	*Anoplolepis*
Species:	*gracilipes*

Common name(s): yellow crazy ant, crazy ant, long-legged ant, Maldive ant, ashinaga-ki-ari (Japanese), gramang ant (Indonesian)

Original name: *Formica gracilipes* Smith

Synonyms or changes in combination or taxonomy: *Formica longipes* Jerdon, *Formica trifasciata* Smith, *Anoplolepis longipes* (Jerdon), *Plagiolepis longipes* (Jerdon), *Prenolepis gracilipes* (Smith), *Plagiolepis gracilipes* (Smith)

General Description

Identification

Size: total length around 4 mm.

Colour: body colour yellow, gaster brownish to greenish.

Surface sculpture: head and body mostly with inconspicuous sculpture; appearing more or less smooth and shining.

General description: head oval, antennae and legs remarkably long. Antennae 11-segmented, each segment longer than wide; scapes twice as long as the length of the head, or longer. Eyes relatively large and protruding. Mandibles each with 8 teeth. Clypeus protruding medially, with convex anterior margin; without longitudinal carinae. Alitrunk slender; pronotum narrow, with almost straight dorsum in profile. Anterior portion of mesonotal dorsum, back to the propodeum, gently concave in profile; metanotal groove absent. Propodeum without spines, propodeal dorsum convex in profile. One node (petiole) present; thick, with an inverted-U-shaped crest. Erect hairs present on head and gaster, lacking on dorsum of mesosoma. Stinger absent; acidopore present.

Sources: www1; www4

Behavioural and Biological Characteristics

Feeding and foraging

Anoplolepis gracilipes forages on and above ground throughout the day and night, and over a wide range of temperatures (www6). High temperatures associated with midday often prevent workers from foraging on ground surfaces hotter than 44°C, and activity of foragers declines below 25°C. Foraging can also be limited by rain. Food is discovered rapidly, even more rapidly than *Paratrechina longicornis* (Lester & Tavite 2004). *A. gracilipes* has a broad diet. Initially described as a

scavenger, it has been called subsequently a "scavenging predator". It preys on a variety of litter and canopy fauna, from small isopods, myriapods, molluscs, arachnids, and insects to large land crabs, birds, mammals, and reptiles. Foragers lack a sting but subdue and kill prey by spraying formic acid. In addition to these protein-rich foods, *A. gracilipes* obtains carbohydrates and amino acids from plant nectaries and especially from honeydew excreted by Homoptera, which it tends on stems and leaves of a wide variety of tree and shrub species (www6).

Colony characteristics

Anoploepis gracilipes is polygynous (multi-queened) and intraspecific aggression among workers is not reported (Passera 1994). It can form diffuse supercolonies, sometimes extending continuously over large areas (10–150 ha) with densities as high as 20 million workers/ha (K. Abbott unpubl. data). Nest size averages about 4000 individuals (www61). Worker production is continuous, though fluctuating, throughout the year (www6). Sexual stages can be present year round, but in most instances initiation of brood follows the onset of the wet season. Researchers have reported an increase in nest size and foraging activity in the dry season (www6). Colonies readily migrate if disturbed (Passera 1994). Nesting requirements are non-specific; they nest under leaf litter, in cracks and crevices in the soil, usurp land crab burrows, readily colonize bamboo sections when placed on the forest floor, and use canopy tree hollows (www6). They also nest under the ground substrate (when consisting of coarse material), in urban structures, and in anthropogenic debris (Lester & Tavite 2004).

Dispersal

Most natural dispersal and colony foundation appears to occur primarily through colony budding (Haines & Haines 1978; Rao et al. 1991). However, queens are capable of flight (Passera 1994) and many winged queens and males have been captured in canopy Malaise traps and at lights on Christmas Island, Indian Ocean (www6). It is unclear if alates are able to start new colonies themselves (as independent colony founding has not been confirme), or if they must join existing colonies to survive (www6). Human-mediated dispersal is an important long distance dispersal mechanism, with colonies inadvertently transported to new location by humans in, for example, potted plants, containers, or rubbish .

Habitats occupied

Anoplolepis gracilipes is primarily a species of the lowland, tropical rainforest and is not commonly found in arid regions or sites above 1200 m in elevation (Wetterer 2005). It is capable of invading both disturbed and undisturbed habitats, including tropical urban areas, plantations, grassland, savanna, woodland, and rainforest (www6). This species does not appear to have as close an association with urban buildings as other tramp species and has not been reported established in heated buildings in cities in temperate regions.

Global Distribution (See map)

Native to

The native range of *A. gracilipes* is not known explicitly, although authors have speculated its origin as West Africa, India or China (www6). Tropical Asia appears to be the most likely origin (Wetterer 2005)

Introduced to

It has been widely introduced across the subtropics and tropics, including East Africa, South and Southeast Asia, and the Indo-Pacific Islands (Wetterer 2005). Recent incursions have been reported in tropical and subtropical Australia. *A. gracilipes* is generally a lowland species in Hawai'i establishing at higher elevations in geothermal regions (Wetterer 1998b).

History of spread

A well-known tramp ant species commonly spread by a wide variety of pathways including soil, produce and timber, packaging material, vehicles, and machinery. *A. gracilipes* has also been a deliberate introduction for biological control of plant pests on coconut, coffee and cacao plantations. *A. gracilipes* was already widespread by 1900: having been collected from India (1851), Southeast Asia (1854), Chile (1859), Polynesia (1867), Melanesia (1876), Mexico (1893), East Africa (1893), Australia (1894), and Indian Ocean islands (1895) (Wetterer 2005). *A. gracilipes* appears to be still spreading to new islands (Lester & Tavite 2004) and new incursions are being detected in Australia (C. Vanderwoude pers. comm.) and New Zealand (S. O'Connor pers. comm.).

Interception history at NZ border

Workers and, to a lesser extent, queens are commonly intercepted at the New Zealand border on a wide range of commodities and from a range of countries (particularly the Pacific). Nests have also been detected in containers from the Pacific. A single nest was found on a wharf at the Ports of Auckland, and another single nest was found near a container storage yard in Mount Maunganui during surveillance for the red imported fire ant incursion (2001–2003).

Justification for Inclusion as a Threat

One of five ants listed among the "100 of the World's Worst Invaders" (www6). In the tropics and subtropics, *A. gracilipes* is a major environmental and a secondary agricultural pest, as well as a nuisance to humans. Impacts include decline of endemic species, rapid degradation of native plant and animal communities, and altered ecosystem processes (www6). Formic acid sprayed by the ants can cause skin burns and irritate the eyes of fieldworkers.

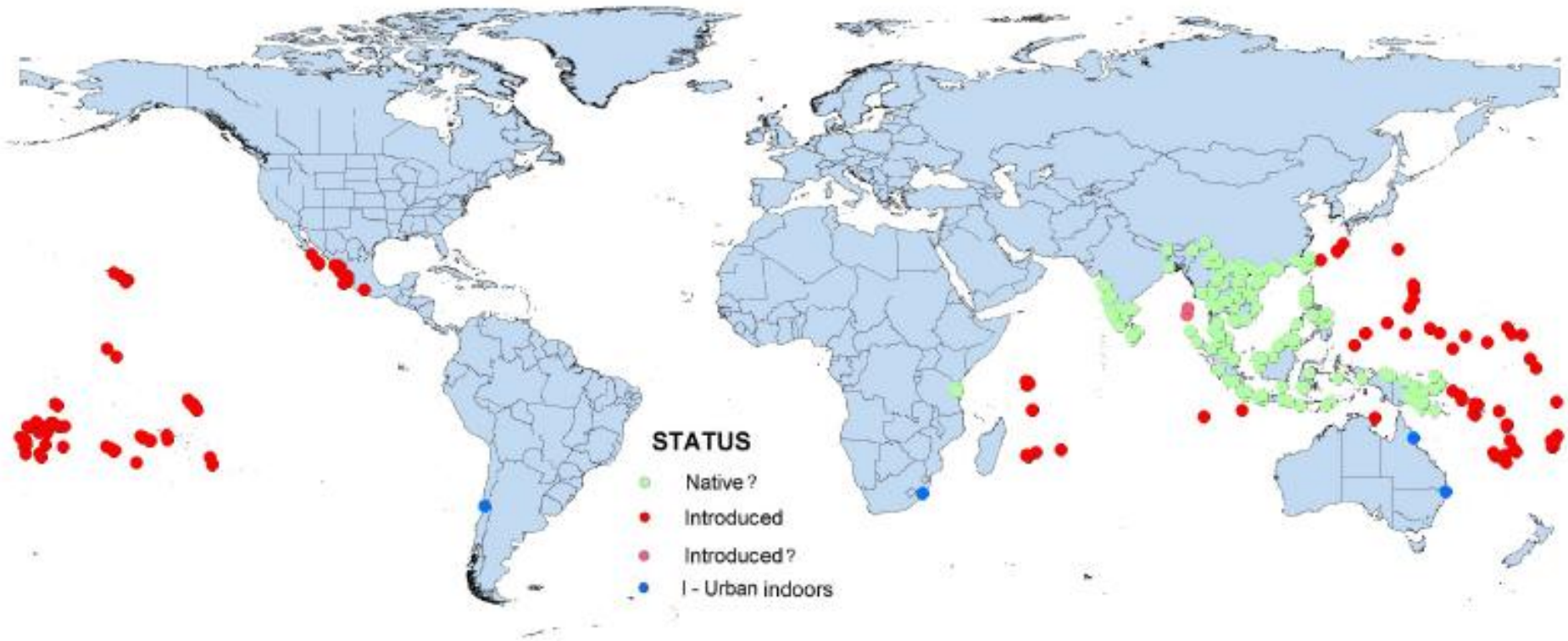
Mitigating factors

Despite being widely dispersed by commerce this ant has not established in temperate areas of the globe. Climate of areas where it has established shows low similarity to New Zealand, which will reduce the risk of establishment and the magnitude of detrimental impacts, should it establish.

Control Technologies

Control and management of yellow crazy ants has primarily involved the broadcast of toxic chemical baits. Current programmes use a fish-meal attractant laced with an insecticide e.g. Fipronil. On Christmas Island aerial application has been used to manage populations effectively (Green et al. 2004), ground based trials are occurring on Tokelau (K, Abbott pers. comm.) and eradication of large populations is being attempted in the Northern Territory (B. Hoffmann pers. comm.).

Compiled by Richard Harris, Kirsty Abbott, & Jo Berry



Global distribution of Anoplolepis gracilipes *(Smith)*