Myrmica rubra **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae

Common name Kiiro-kushike-ari (Japanese), European imported fire ant (English, USA), European fire ant (English)

Synonym
Myrmica laevinodis , (Nylander)
Myrmica laevinodis , var. *bruesi* (Weber)
Myrmica rubra r. champlaini , (Forel)
Myrmica longiscapus , (Curtis)
Myrmica rubra laevinodis , (Nylander)
Myrmica levinodis , (Dalla Torre)
Myrmica rubra st. laevinodis , (Nylander)
Atta rubra , (Linnaeus)
Formica (Myrmecia) rubra , (Linnaeus)
Formica (Myrmica) rubra , (Linnaeus)
Formica rubra , (Linnaeus)
Manica rubra , (Linnaeus)

Similar species

Summary Myrmica rubra, commonly known as the European fire ant, is an aggressive ant species which has been introduced from its native Eurasia to eastern North America, where it appears able to reach sizeable densities. It has a painful sting, and also impacts on native ants and other invertebrates, and reptiles.

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Species Description
Size: monomorphic. Total length of workers about 4–5.5mm. Colour: body colour yellow to yellowish brown and workers in the field are clearly yellowish (Japan) or reddish brown (North America). Surface sculpture: head and mesosoma are heavily sculptured, the gaster is smooth and shining; unraised rugae occur on the posterodorsal portion of the mesonotum. General description of genus: body cuticle thick and with an armoured appearance; usually the cuticle strongly sculptured. Psammophore absent. Clypeus with longitudinal rugulae interrupted by posterior border of clypeus and not continuous with rugulae of rest of head. Antenna 12-segmented; scape often curved or bent at base; funniculus enlarged apically forming an indistinct 3- or 4-segment club. Promesonotal suture absent. Metanotal impression weak to distinct. Propodeum with spines. Petiole with a short anterior peduncle and an anteroventral tooth or process. Tibial spurs on mid- and hind- legs finely pectinate. (Landcare Research, 2006).
Please see *AntWeb: Myrmica rubra* for more images and assistance with identification. The AntWeb image comparison tool lets you compare images of ants at the subfamily, genus, species or specimen level. You may also specify which types of images you would like to compare: head, profile, dorsal, or label.
There are several native species of *Myrmica* in New England, and distinguishing them from *M. rubra* can be difficult (Landcare Research, 2006).

Notes
Sting: *M. rubra* sometimes nests in lawns and gardens and will readily sting humans, pets and livestock. Schmidt (see Landcare Research, 2006) compared the stings of *Pogonomyrmex* and *M. rubra*. *M. rubra* stings produce mini-versions of the reactions to *Pogonomyrmex*, which typically hurts for 4–8 hours, produces a deep pain that feels like the “tearing of muscles or tendons”, and comes in waves. The venom also produces localized sweating at the sting site, erection of the hairs around the sting site, and a pain or tenderness in axillary or groin lymph nodes. *Pogonomyrmex* venom is the most lethal known arthropod venom, with an LD50 in mice of about 190 micrograms/kg. The lethality of *M. rubra* venom is unknown, but is also likely to be high (Landcare Research, 2006).
A light dose of carbon dioxide can be used as a safe method of anaesthesia of ants in laboratory studies (Wardlaw, 1995). Also please see Weir, 1957.

Lifecycle Stages
Myrmica rubra is \"normally polygynous with some 1000 workers, but may develop large polydomous colonies covering up to 2 m2 and consisting of 100s of queens and over 10 000 workers (Saaristo, 1995). Unrelated queens have been found cohabiting (Pearson, 1983). Densities of *M. rubra* nests can be as high as 4 per m2, with more than 5200 workers and 39 queens per nest (Drummond and Garnas www57). Artificial nesting substrates set out in Maine were readily used and were repeatedly vacated and recolonised, suggesting colony movement is high, or that *M. rubra’s* large polydomous colonies are able to relocate nests in response to shifting optimal conditions for brood production on a short temporal scale (Garnas *et al.* www57). In Poland, mating swarms were present from August until mid-October (Woyciechowski, 1992)\" (from Landcare Research, 2006). Studies on populations of *M. rubra* on Mount Desert Island (Maine, USA) have suggested an approach towards supercolonialism (Bell *et al.* 2002).

Uses
Butterflies of the highly endangered genus *Maculinea* are parasites of *Myrmica* ants. A recent study by Anton *et al* (2008) indicates that *Maculinea nausithous* is limited by the density of its host ant, *M. rubra*. They suggest that habitat management to increase densities of this endangered butterfly should focus on the optimization of habitats that enable high densities of *M. rubra*.

Habitat Description
In Finland it is frequently found in gardens and agricultural meadows and can be extremely abundant. It is rare inside larger forests (Saaristo, 1995; from Landcare Research, 2006). Similarly, in its introduced range in the US, the ant favours disturbed open grassy areas, forest edges, and residential landscapes. In Japan, this species is rare and nests in the soil of grasslands in lowland areas (Landcare Research 2006).

Nutrition
Myrmica rubra are generalist scavengers and predators. Workers also feed on honeydew of Homoptera and exudates of plants, and tend aphids. Workers forage around the clock from early June to September on Mount Desert Island, Maine. Throughout the autumn months (September to early November) there was a significant sigmoidal relationship between temperature and foraging. Foraging activity increased with temperature from about 6°C to 13–14°C. Above these temperatures, foraging did not appear to increase in response to air temperature (Landcare Research, 2006).

General Impacts
For a summary of the general impacts of invasive ants, such as their affect on mutualistic relations, the competitive pressure they impose on native ants and the effect they may have on vulnerable ecosystems please read this document: *invasive ants impacts*
Myrmica rubra is an aggressive ant species which has a painful sting. It has become a significant pest in many parts of its introduced range in Maine, USA. Nest densities can reach 4/m2, and there are impacts on people, pets, native ants, other invertebrates and reptiles (Landcare Research, 2006; Gammans *et al*. 2006). *M. rubra* appears to establish in sizeable colonies in its introduced range, in disturbed and natural areas around residences and commercial buildings. It aggressively defends its territory as well as dominating native species. (USDA-APHIS, 2003).

Management Info
Preventative measures: *The Pacific Ant Prevention Programme* is a proposal prepared for the Pacific Plant Protection Organisation and Regional Technical Meeting for Plant Protection. This plan aims to prevent the red imported fire ant and other invasive ant species from establishing within or spreading between countries in the Pacific.
Chemical: *Myrmica rubra* can be controlled by tracking foragers back to the nest and eliminating the colony by direct treatment. Foragers of this sugar-loving ant quickly discover and recruit to vials baited with small pieces of surgical gauze dipped in 30–50% sucrose solution. Preliminary trials using low concentrations of boric acid (1% and less) in sucrose bait show promise for species control, and foragers will readily pick up baited formulations of both Extinguish®, a baited formulation of methoprene, and Amdro®, so strategies for *Solenopsis invicta* may be effective against this species (see Landcare Research, 2006). Research has shown that the use of pheromones may assist in attracting *M. rubra* to bait stations (Gammans *et al*. 2006). Stanley, 2004 provides comprehensive information about the range of baits available for ant control and eradication. Groden and Stack, 2003 provide information on managing *M. rubra* in Maine, as does USEPA, 2003.

Pathway
Myrmica rubra can be dispersed *via* the movement of infested potted plants, mulch and fill (Landcare Research, 2006).

Principal source: Landcare Research. 2006. *Myrmica rubra* Information Sheet, Research, Invasive Ants.

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[26] UNITED STATES

BIBLIOGRAPHY
25 references found for **Myrmica rubra**