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Record of *Pheidole megacephala* (F.), *Pheidole nodus* Smith and *Tetramorium bicarinatum* Nylander (Hymenoptera Formicidae), tropical species, in nursery imported plants (*)

Abstract - During a monitoring of Italian nurseries, which import plants from Asia, three different tropical ant species were recorded. Information about the biology are given and the possibility of establishment in Italy is discussed.

Riassunto - *Ritrovamento di Pheidole megacephala* (F.), *Pheidole nodus* Smith e *Tetramorium bicarinatum* Nylander (Hymenoptera Formicidae), di origine tropicale, in materiale vivaistico di importazione.

Nel corso di indagini in vivai italiani, che importano materiale dall'estero, sono state raccolte tre specie di formiche tropicali. Si forniscono alcune notizie di biologia e se ne discutono le possibilità di insediamento in Italia.

Key words: Exotic species, Formicoidea Myrmicinae.

Transferring plants from a Continent to another one causes problems as exotic species, particularly the small ones, are accidentally introduced; they are often pest species, that can invade the environment permanently when the climate is suitable, temporarily when climatic threshold is unfavourable.

The knowledge of the biology of exotic species in the native countries is important in order to forecast the development and colonisation in the new countries.

To prevent the phenomenon, monitoring of some nurseries that import plants from all over the world was carried out.

In this work three species of Formicidae are recorded for the first time in Italy, as it is well known that some ants can colonise different habitats, affecting biodiversity and damaging agricultural production (Van der Meer *et al.*, 1990; Jourdan, 1997).

***Pheidole megacephala* (F.)**

Examined specimen: Parabiago (MI) 19/03/2001; 4/09/2001 (workers and soldiers).

This species, presumably originated from Southern Africa, has a pantropical distribution

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(Wilson & Taylor, 1967), displace native species and interfere with agricultural production (Bach, 1991; Jahn & Beardsley, 1994). In Australia it has spread in subtropical areas, but it has also invaded the mediterranean Perth region (Majer, 1994). The species disperses within 1 metre from the parent colony by migration of a queen with a little group of workers (Hölldobler & Wilson, 1990). The presence even of low levels of infestation of this ant reduces the species richness in the area, particularly the submissive and subordinate ones (Camponotini) and generalised species; with higher colonization only cryptic or opportunist species are still present, but in low number. Even other Invertebrates are negatively affected by *P. megacephala* (Hoffman *et al.*, 1999). It prefers shaded and moist habitats, like rain forest, but thrives in cultivated and irrigated fields, exploiting all the microhabitats suitable for colonisation (Greenslade, 1972; Majer, 1994).

Pheidole nodus Smith

Examined specimen: Parabiago (MI) 4/09/2001 (workers).

It is an Asiatic species present in South Japan, China, Korea, Taiwan, India and Sri Lanka and it has colonies with many queens. Nakao (1973) verified that when a single queen is with few workers or few soldiers its fecundity diminishes till the extinction of the colony. The species is not able to compete with *Linepithema humile* (Touyama *et al.*, 2003).

Tetramorium bicarinatum Nylander

Examined specimen: Parabiago (MI) 4/09/2001 (workers, queen); 4/11/2002; 20/09/2002; 7/10/2002; 20/10/2002; 14/04/2003; 19/09/2003; 23/09/2003; 29/09/2003.

Tetramorium bicarinatum is native to Africa and spreads to tropical area with commercial trades. It is present in the South of U.S.A., from Florida to Texas (Martinez, 1993), with middle-big polygynic nests, that propagate by budding. Martinez (op. cit.) observed that this species, unlike *Ph. nodus*, successfully compete with *Linepithema humile* (Mayr), at which expense propagates. It's a predatory, saprophagous or spermophagous species.

CONCLUSIONS

Among the three species *Pheidole nodus* is the least threatening one, recorded only once in 2001, considering Nakao studies (op. cit.).

Pheidole megacephala, tropical species, is worth considering as it is able to settle even in temperate climate area and, from an ecological and economical point of view, it can damage cultivated plants by favouring the diffusion of scale insects and protecting them by entomophagous species.

Tetramorium bicarinatum was frequently recorded; specimen were collected while visiting different plants, but up to now the nest of the colony has not been discovered. Probably the species settled in a heated greenhouse, where the condition are suitable for the species development.

The three new records increase the number of exotic species accidentally introduced in Europe by importing plants without an adequate control.

Ph. megacephala (F.), *Ph. nodus* Smith and *T. bicarinatum* Nylander, even if at present

don't represent neither an economic nor an environmental problem, have to be checked, as thriving and diffusion in Europe cannot be excluded.

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