
Short Communications

***Tetramorium insolens* Smith (Hymenoptera: Formicidae): a new record for Mauritius, Indian Ocean**

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Invasive ants are a major challenge to conservation (Sanders *et al.* 2003). The negative effects of invasive ants are most significant on oceanic islands (Jourdan 1997). The impact of invasive ants include declines of arthropods, with direct and indirect effects extending to all trophic levels (Holway *et al.* 2001). For example, the little fire ant, *Wasmannia auropunctata* Roger, may dominate nearly the entire ant community (Clark *et al.* 1982; Le Breton *et al.* 2003). The crazy ant, *Anopolepis gracilipes* Smith, has massive effects upon the arthropods on Christmas Island as well as directly reducing numbers of the famous endemic migratory crabs (Green *et al.* 1999). A number of invasive ants have become the source and focus of major conservation efforts (Reimer 1994; Krushelnycky & Reimer 1998; Ingram 2002).

It is practically impossible to eradicate an established population of invasive ants (Holway *et al.* 2002). Control efforts can ameliorate the effects of invasions and reduce the possibility of dispersal into new habitats, but ideally early detection and control of invaders is critical for the most effective control of invasions (Tsutsui & Suarez 2003). However, even when rapid detection has not occurred, reports on the distributions of known invasive species are incomplete, and knowledge of the known distributions is important for monitoring and prevention (McGlynn 1999). In this short communication, we report the new arrival of an invasive ant in the western Indian Ocean.

While conducting a survey of the orchid flora of Mauritius, ant activity was observed on the flowers of *Aeranthus arachnites* Lindl. at the Fixon CMA (Conservation Management Area), Bel Ombre, particularly in the floral spurs, on 4 February 2000. Within three days all floral nectar

had been removed and ant activity had ceased. Four species of ants were found in the floral spurs of *A. arachnites* at the Fixon CMA, (a) *Pheidole megacephala* Forel, (b) *Technomyrmex albipes* Mann, (c) *Tetramorium insolens* Smith and (d) an undetermined *Solenopsis* species (*S. mameti* Donisthorpe prov. det.), the latter being the only native species. Voucher specimens are deposited in the British Museum. The 4.3 ha Fixon CMA is located at 250 m elevation inside the Black River Gorges National Park. It is evergreen moist lowland forest, which is transitional between the upland and dry lowland forests, with a closed canopy reaching up to 25 m in height (Page & D'Argent 1997).

Tetramorium insolens has previously been recorded on the Hawaiian Islands (N.J. Reimer, pers. comm.), Los Angeles, Europe (Bolton 1979), Sri Lanka, the Philippines, New Guinea and surrounding Pacific Island region, with the holotype being collected on Sulawesi (Bolton 1977). *T. insolens* is a human commensal species with a huge geographic range. Because of the morphological similarity of *T. insolens* to the more widespread invasive congener *T. bicarinatum* Nylander, its geographic distribution is likely to be underestimated, particularly in the Pacific Ocean (Bolton 1977, 1979).

Around 44 species of ant have been recorded from Mauritius (Fisher 1997). Of these, approximately 24 are non-native, based on Fisher (1997) and McGlynn (1999), although this figure is likely to increase as we gain more knowledge of their distribution. By far the most common species observed was *Technomyrmex albipes* (D. Hansen, pers. comm.; D.L.R., pers. obs.), which may have now reached Rodrigues (D.L.R., pers. obs.). This species was recorded by Ward (1990) on Mauritius who noted the extraordinarily aggressive nature

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of invaders like ... *Technomyrmex albipes*'.

Nectar robbing presents a loss of resource to the orchid and its pollinators, as unused nectar is reabsorbed. Such a loss is likely to reduce pollinator visitations due to lack of a reward and therefore fruiting success of the orchid. Disturbance to pollination systems will effect not only their long-term survival but also their evolutionary potential. It is now clear that we are entering a time of immense environmental upheaval due in part, if not fully, to human activities. This ecosystem decay has led to widespread pollination disruption referred to as the 'pollination crisis' (Buchmann & Nabhan 1996).

Less than 5 % of the original vegetation of Mauritius remains (Safford 1997; Page & D'Argent 1997). However, the most serious threat to the native species is competition for habitat with exotic species. Introduced plant species, particularly *Psidium cattleianum* Sabine and *Ligustrum robustum* subsp. *walkeri* (Decne.) P.S. Green, form monotypic stands, destroying forest habitats and microclimates and are usually spread by introduced monkeys, wild pigs, birds and humans. In some areas these form thickets so dense as to completely prevent the regeneration of the native forest. Unfortunately, very little is known about the effect of exotic insect species in Mauritius. Conservation Management Areas (CMA) have

been delineated and these areas have been fenced against large exotic mammals and invasive weeds have been removed from them. The positive results of this can be seen with the centres of CMAs requiring increasingly less weeding with time as the weeded buffer zones are expanded further and further. However, we know very little on how this affects the density of invasive insects such as ants, which can easily penetrate such boundaries. Highly co-evolved pollination systems, such as those seen in orchids, are particularly susceptible to disruption and therefore offer an opportunity to study possibly breakdown in such systems by invasive species.

While habitat conversion and fragmentation are often recognized as the most significant threat to the protection of biological diversity, the ability of invaders to penetrate into undisturbed environments is particularly insidious because it is more difficult to control.

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