positive feedback effects on the plant community, with seedlings being encouraged to germinate in open areas where plants have died and opened up the canopy.

All three ant species have been found to survive fire, although, surprisingly for a thermophilic species (Hoffmann, 1998), *Melophorus* may be more impacted than *Rhytidoponera*. At this stage, we are unsure about the reason for this difference, although its greater dependence on seeds in its diet when compared with *Rhytidoponera* might leave it less equipped to switch to other food sources when fire depletes the supply of plants which produce seeds. Some of the colonies used for assessment of food collection were subject to a cool autumn burn during the course of the study (see Majer, 1984 for details), and foraging continued after the burn, with seed in the diet often being replaced with burnt plant fragments (J. Majer, unpubl. data).

In our recent study of the importance of *Rhytidoponera*, seed removal rate was closely related to the presence of *Rhytidoponera* (Gove et al., 2007). However, in examining this data set further, seed removal rate was not associated with *Melophorus* presence ($F_{1,16} = 0.996$, $P = 0.335$), even though Majer (1982) demonstrated that it was also an important seed-taking agent. Trials in Gove et al. began at approximately 0800 h and, although they often continued during times when temperatures were in the high 30s, they were biased towards the cooler part of the day when *Rhytidoponera* was more active than *Melophorus*. Had the trials been focussed on the hotter part of the day, the undoubtedly important role of *Melophorus* would probably have become more evident.

The pivotal role that these ant species play in the dispersal, survival and therefore conservation of native plants, many of which are highly endemic and possibly threatened (Hopper and Gioia, 2004), highlights the need to understand and preserve this important plant–insect interaction. How well do these three species cope with habitat disturbance then? The extensive studies which J. Majer has undertaken in the southwest of Western Australia indicate that all three species can tolerate a high degree of habitat disturbance. Furthermore, when totally disturbed areas such as mine sites are rehabilitated, all three species are early colonizers of the area (Majer and Nichols, 1998). Seed removal trials in the maturing vegetation indicate that the myrmecochorous relationship is also rapidly restored (Majer, 1980b). The situation is less optimistic when invasive ants are involved. Callan and Majer (2009) quantified the impact of progressively increasing densities of the invasive ant, *Pheidole megacephala* (Fabricius) intruding into Perth native woodland on the Swan Coastal Plain. The smaller *R. inornata* and, to a lesser extent, the larger *R. violacea,* were vulnerable to incursions of this ant, with the former being eliminated when *Pheidole* was present at the lowest density, and the latter disappearing when *Pheidole* densities reached 100 per pitfall trap. By contrast, close relatives of *M. turneri perthensis* were able to coexist with all but very high densities of the invasive ant (>1,000 ants per pitfall trap), probably as a result of the ability to forage during high temperatures when the invasive species is inactive. The impact of these changes in composition of myrmecochorous ants was not investigated, but it is assumed that this will result in changes in the dynamics of the relationship.

To summarise, this paper confirms the important role that these three ants have in the dispersal and survival of seeds in the southwest of Western Australia. All three species have foraging and feeding strategies which maximise the collecting and dispersal of seeds and placing them in positions which are ideally suited for subsequent germination and survival. This aspect of the relationship is explored further in the case of *R. violacea* in Lubertazzi et al. (2010) and in an, as yet unpublished, MSc thesis (McCoy, 2008).

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