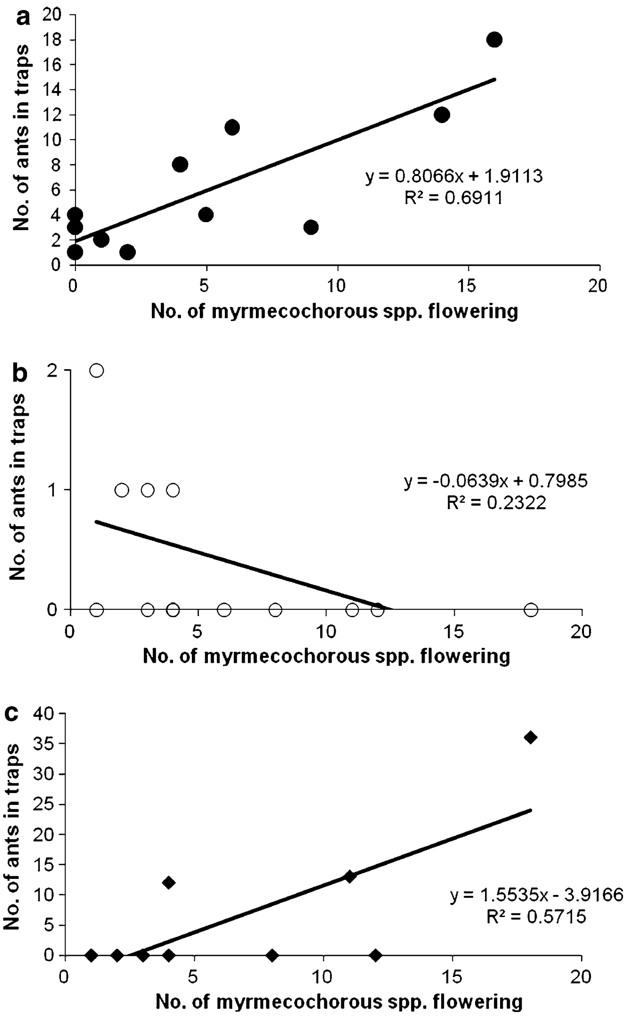

Fig. 7 Relationships between activity of **a** *R. violacea*, **b** *R. inornata* and **c** *M. turneri perthensis* and the species density of flowering myrmecochores at Karragullen, WA. The relationships for *R. violacea* and *M. turneri perthensis* incorporate a 4-month time lag since flowering, while that for *R. inornata* incorporates a 1-month time lag; vertical axes scales differ in the three graphs

Fig. 8 Photos of seedling emergence from heated nests of *R. inornata*. The *inner rectangles* show the heated area and the *outer rectangles* delimit areas affected by lateral conduction of heat

dependent on seeds than *Rhytidoponera*. This suggests that, throughout the year, *Rhytidoponera* probably switches to other food sources, such as winter-active invertebrates. We suspect that *Rhytidoponera* does not store seeds for long periods of time, as evidenced by nest diggings reported in Majer (1982) and the fact that seeds taken to the nest are often returned to the surface in less than 12 h (A. Gove, pers. obs.). Therefore, *Rhytidoponera* is likely to be relying upon other food sources throughout much of the year, rather than storing seed for long periods.

All three species have relatively shallow nests, although at least for *Melophorus*, nests tend to be deeper in the sandplain than in the lateritic soils. Colony sizes are relatively low and, in the case of *Melophorus*, are much lower than for the larger nests of *Melophorus bagoti* Lubbock. from more arid parts of Australia (Conway, 1992). The dependence upon seeds, rather than carbohydrates in nectar form, may account for the small nests, unlike the situation with high nest abundance species that are dependent upon liquid carbohydrates (Davidson et al., 2004). Despite this, nest densities were relatively high, averaging 675 nests per hectare for both *R. inornata* and *M. turneri perthensis*, and probably similarly high for *R. violacea* in areas where it is present. Combining the data on density of nests with the quantity of seeds found in forage and on middens indicates the high importance of these species in the dynamics of seed dispersal.

The structure of the nests also has a bearing on the survival of seeds and germination of the resulting seedlings. Many of the plant species dispersed by these ants are obligate seeders (Bell, 2001) which often rely on fire to germinate the seeds. Nest sievings reported in Majer (1982) indicate that seed tends to be buried in nests or under middens at a depth which is likely to be protected from the extreme effects of fire, but heated sufficiently for seed to germinate (Portlock et al., 1990). The nest heating experiment demonstrates this effect quite clearly. The preference of *M. turneri perthensis* for open conditions might have