

plant species in Australia (Majer, 1982; Gove et al., 2007). Members of a second genus, *Melophorus*, are also important in this regard (Briese and Macauley, 1981; Majer, 1982). *Rhytidoponera* are common throughout Australia, occurring in all habitats. They are generalised foragers and tend to forage at night or during cooler parts of the day (Ward, 1981; Nielsen, 1997). The genus *Melophorus* is also found throughout Australia, and is most abundant and diverse in arid regions (Andersen, 2007). Members of the genus are capable of foraging at very high temperatures (Christian and Morton, 1992; Hoffmann, 1998).

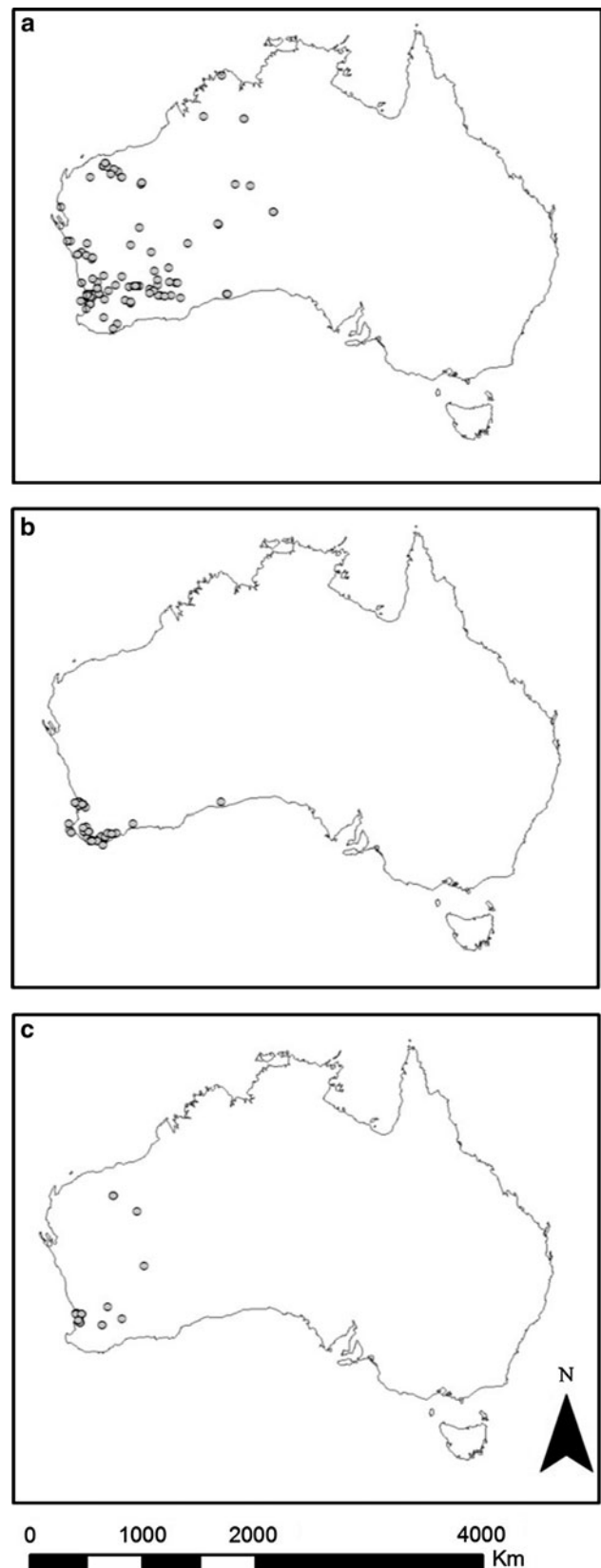
In view of their pivotal role in seed dynamics, and the fact that the southwest of Australia is a plant biodiversity hotspot (Myers et al., 2000; Hopper and Gioia, 2004), we revisit a dataset and compare the autecology and role in seed-taking of two southwest Australian species of *Rhytidoponera* with one species of *Melophorus*. The species concerned are *Rhytidoponera violacea* (Forel), *R. inornata* Crawley and *Melophorus turneri perthensis* Wheeler, which are the most prominent species involved in myrmecochorous relationships in southwestern Australia (Majer, 1982; Gove et al., 2007). *M. turneri perthensis* has been referred to as *Melophorus* spp. 1 (ANIC) in earlier papers.

We examine how *Rhytidoponera* and *Melophorus* behave in terms of their phenology, response to fire and interactions with myrmecochorous seed. Within this context, we examine nest structure, nest location, diurnal and seasonal variation in activity, the effect of fire and the species' associations with seed-fall and seed-collection. We also consider this in the context of habitat disturbance and subsequent restoration, and also in terms of invasive ant incursions. In doing this, we hope to obtain greater insight into the relationship between these three important seed takers, the seeds with which they interact, and how this important interaction might be impacted by human activity.

## Methods

### Geographic range of species

The distribution records of *R. violacea*, *R. inornata* and *M. turneri perthensis*, obtained by searching records of the CSIRO Entomology Biolink® database, are shown in Fig. 1 a, b, and c, respectively. These records are only for collections where specimens have been retained in the Curtin University or CSIRO-ANIC collections. As such, they are suggestive, rather than complete representations of the range of these three species. *Rhytidoponera inornata* occupies coastal areas of the southwest region of the state, and is also distributed along the south coast, at least as far as Esperance. By contrast, *R. violacea* is widely distributed throughout



**Fig. 1** Distribution maps of **a** *R. violacea*, **b** *R. inornata* and **c** *M. turneri perthensis* (data provided from Biolink, CSIRO)