

Weed seed predation in a low rainfall cropping zone of Western Australia: ant survey

David Minkey¹ and Helen Spafford Jacob²

¹Faculty of Natural and Agricultural Sciences, Western Australian Herbicide Resistance Initiative, University of Western Australia, 6009, Australia

²CRC for Australian Weed Management, Faculty of Natural and Agricultural Sciences, School of Animal Biology, University of Western Australia, 6009, Australia

Summary Ants play an important role in seed harvesting and could hold the key for granivory to be a successful biological control mechanism. Pitfall traps were put out on a 50 × 50 m grid pattern in a 16 hectare cropping paddock in Merredin (Borger *et al.* 2002) to determine ant species richness and abundance.

The survey found 34 species of ant present in both the field and adjacent native vegetation. *Monomorium rothsteini* made up 41% of the total number collected. Other dominant species included *Monomorium sordidum* (5.9%), *Rhithidoponera metallica* (5.1%), *Iridomyrmex rufeniger* (4.5%), *Melophorus turneri* (3.9%) and *Pheidole hartmeyer* (3.8%).

Based on their food use patterns the species were divided up as follows: 2 specialist predators, 4 generalist predators, 2 predator – scavengers, 6 omnivore – nectar collectors, 10 omnivore – seed collectors, 2 seed harvesters and 4 of unknown or of multiple feeding habits. This indicates that a wide range of species were present with a broad diet. Encouragingly, 24 of the 30 species are known to consume seeds.

The pattern of distribution for these species followed their biology fairly closely. The more dominant species (*Iridomyrmex* spp.) colonised the undisturbed

edges of the field, rarely encroaching into the tilled area. Opportunists such as *Pheidole* spp. and *Monomorium* spp. tend to invade or survive from one year to the next in the disturbed habitats and were found throughout the field. This has significance for weed seed predation in that if dominant species were to invade the field this may restrict the specialist seed consumer's activity. It is also important for central-place foragers such as *Pheidole* spp. to be present so that a wider surface area will be searched for seeds.

Keywords Biological control, ants, herbivory.

ACKNOWLEDGMENTS

This work was supported by the Grains Research and Development Corporation, Western Australian Department of Agriculture, and the Western Australian Herbicide Resistance Initiative.

REFERENCES

- Borger, C., Minkey, D. and Spafford Jacob, H. (2002). Weed seed predation in a low rainfall cropping zone of Western Australia: spacial variation of weed seed predation. Proceedings of the 13th Australian Weeds Conference, Perth.