



A new species of *Aceria* (Acari: Eriophyidae) damaging sowthistles, *Sonchus* spp. (Asteraceae), in Australia with notes on *Aceria sonchi* (Nalepa, 1902)

DANUTA K. KNIHINICKI^{1,4}, KATHRYN L. MCCARREN^{2,3} & JOHN K. SCOTT²

¹NSW Department of Primary Industries, Agricultural Scientific Collections Unit, Orange Agricultural Institute, Forest Rd, Orange, NSW 2800, Australia. E-mail: danuta.knihinicki@dpi.nsw.gov.au

²CRC for Australian Weed Management and CSIRO Entomology, Private Bag 5, P.O. Wembley, WA 6913, Australia. E-mail: john.k.scott@csiro.au

³Current address: Entomology, Department of Agriculture & Food, Western Australia Locked Bag 4, Bentley Delivery Centre, WA 6983. E-mail: kmccarren@agric.wa.gov.au

⁴Corresponding author

Abstract

A new species of eriophyoid mite from Australia is described and illustrated. *Aceria thalgi* **sp. n.** causes severe curling and rolling of leaves of common introduced sowthistle, *Sonchus oleraceus* L. It also affects introduced *Sonchus asper* (L.) Hill and native *Sonchus hydrophilus* Boulos. The native species may be the original host for this mite. *Aceria thalgi* **sp. n.** is shown to be a separate species to *Aceria sonchi* (Nalepa), which forms distinctive leaf galls on *Sonchus* spp. in southern Europe. English translations of past descriptions of *A. sonchi* are included for comparison. Historical observations and records from New South Wales suggest that *A. thalgi* **sp. n.** has been known for at least 80 years prior to its recent rediscovery in Western Australia. This implies that the newly described species may be widespread across the continent. There is also a past record of similar damage symptoms occurring on sowthistles in New Zealand. *Aceria thalgi* **sp. n.** has the potential to be a useful biological control agent in Australia and Canada, where sowthistles are major weeds of agriculture.

Key words: Biological control, eriophyid, eriophyoid mites, gall mite, *Sonchus* species, taxonomy, weeds

Introduction

Eriophyoid mites are renowned for the economic damage that they inflict on their plant hosts. Symptoms include the formation of galls, distortion of new growth, fruits and flowers, leaf rolling and discolouration of foliage (Manson 1984a). These tiny mites (ranging in size from 80–500 µm) have a high degree of plant host specificity and for this reason certain species are regarded as being useful candidates for the biological control of weeds (Gerson *et al.* 2003). Eriophyoids have been given serious consideration as biological control agents since the 1970s because of their ability to disrupt plant growth and reproduction (Rosenthal 1996), and several species have been successful at suppressing weeds (Briese & Cullen 2001). Boczek and Petanovic (1996) observed that most of the important weed species in Europe were infested by at least one species of eriophyoid mite and urged further studies to investigate the potential of some of these as biological control agents.

Sowthistles, *Sonchus* spp. (Asteraceae), are annual and perennial weeds common in fields and gardens and are major weeds of cropping systems in Australia and elsewhere in the world (Peschken *et al.* 1983; Holm *et al.* 1997; Skinner *et al.* 2000; Ellison & Baretto 2004; Osten *et al.* 2007). In Australia, the importance of *Sonchus oleraceus* L. has increased, especially in south east Queensland, northern New South Wales (NSW) and southern Australia, largely as a result of the move towards conservation tillage (Chauhan *et al.* 2006; Osten *et al.* 2007). This has led to the development of herbicide resistance in *S. oleraceus* to chlorsulfuron (Group B herbicide) (Adkins *et al.* 1997) and therefore the investigation of alternative means of control.