Developing biological control options for the integrated management of *Conyza bonariensis* and *Sonchus oleraceus*

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Summary Flaxleaf fleabane (*Conyza bonariensis*; native range – South America) and common sowthistle (*Sonchus oleraceus*; native range – Eurasia) are major weeds of cropping systems in northern New South Wales and southern Queensland. Fleabane and sowthistle are estimated to cause revenue losses in excess of $43 million and $8 million respectively for grain producers. Both weeds are predominant in the fallow period where they use vital stored soil moisture and act as alternate hosts for pest insects. Development of resistance to herbicides in both weeds is making populations increasingly difficult to manage in agricultural environments. Given the success of classical biological control in the management of other weeds (including ruderal species) in the Asteraceae (e.g. *Onopordum* sp., *Cirsium* sp., *Parthenium hysterophorus*, *Chromolaena odorata*), we have commenced a project to develop biological control solutions for these two weed species. Our work includes (a) determination of the invasion history of these species using genomic data; (b) physiological and bioclimatic modelling of their distributions in their native range and in Australia; (c) exploration for natural enemies in the native range informed by the results from (a) and (b); and (d) undertaking risk assessment of candidate agents in their respective native ranges and under quarantine conditions in Australia. This talk will provide an overview of the project, and the results achieved to date.

Keywords Common sowthistle, flaxleaf fleabane, integrated weed management, classical biological control, fungi, arthropods.