

## Parthenium weed: management prospects in Pakistan

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**Summary** *Parthenium hysterophorus* L., an alien invasive species, is spreading through out Pakistan (Shabbir and Bajwa, 2006). *Parthenium* is a weed of global significance affecting human and animal health; crop production and native biodiversity (Khosla and Sobti 1979, Navie *et al.* 1996, Nadeem *et al.* 2005, Shabbir 2006, Javaid *et al.* 2006). *Parthenium* probably arrived in Pakistan in the late 1990s. It has since spread rapidly and now occurs in central and upper Punjab and some parts of North West Frontier Province (Figure 1) where it is recognised as a weed in crops such as wheat and rice, in pasture land (Shabbir 2006) and in natural ecosystems.

Of the current management options, chemical and physical methods have limitations, due to expense and potential health hazards. Classical biological control appears to be the preferred option for the long-term management of the weed (Evans 1997).

A biological control program was initiated in Australia in 1975 and has resulted in the release of nine insect species and two rust pathogens from the tropical Americas (Adkins and Navie 2006), and several of these are causing significant damage (Dhileepan 2001). *Zygotogramma bicolorata* Pallister, a beetle released as a biocontrol agent against this weed in India and Australia, has been reported in Pakistan (Javaid and Shabbir 2006). It was found to be well established and damaging in the Changa Manga forest reserves.

There is a strong need to develop linkages between Pakistani and international institutes, particularly in Australia, to share experiences and to implement a classical weed biological control program to manage *parthenium*. A priority will be to identify other biological

control agents that are widespread and effective in Australia for introduction in to Pakistan. Efforts are also required to redistribute *Z. bicolorata* in to climatically suitable areas in Pakistan and monitor its status and impact.

**Keywords** *Parthenium* weed, biological control, management prospects, Pakistan.

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**Figure 1.** Current distribution of *parthenium* weed in Pakistan.