

Information about biological, physical and chemical control of *Mimosa pigra*

Biological: Biological control agents used against *M. pigra* include the seed bruchids *Acanthoscelides puniceus* and *A. quadridentatus* and the green twig-mining moth, *Neurostrotta gunniella*. The latter is used in Australia but not in Thailand or Vietnam because it damages *Neptunia Oleracea*, a regionally important food source (Praneetvatakul 2001). No biological control agents are known that sufficiently control *M. pigra* on their own. Biological control agents may contribute to the success of other control measures (Buckley *et al.* 2004). In particular, *N. gunniella*, in particular, has the advantage that it attacks not only mature plants, but seedlings greater than 15 cm too. The use of such an agent following mimosa removal, reduces the requirement for herbicide use, and is preferable to strategies that focus solely on herbicide application (Paynter 2003). Bulldozing infestations into smaller blocks may increase numbers of control agents such as *N. gunniella* by the increasing of stand edges (Paynter and Flanagan 2004; Holding Undated). Fire, though, reduces numbers of the stem-mining moth *Carmentia mimosa* (Paynter and Flanagan, 2004).

Physical: Burning does not prevent resprouting of plants and kills only surface seeds, not buried ones (Miller and Lonsdale 1992, in Walden *et al.* 1999). It may stimulate seed germination due to the removal of seed coats. In addition, burning is difficult in wet ecosystems or in mature infestations which lack sufficient under-story grasses (Walden *et al.* 1999).

Manual removal takes advantage of unskilled labour and readily available equipment. However, it provides only temporary control. Hand weeding may be effective for controlling seedlings in crops. Seeds should be collected and burnt before weeding commences. Roots should be removed and destroyed. Long handled cutters, axes and machetes may be used but any stumps left will resprout unless herbicide is applied immediately after removal (Thamasara 1985, in Walden *et al.* 1999).

Schatz (2001) found that cutting plants off at about 10 cm below ground level kills all plants. However, cutting plants off between ground level and 15cm usually results in resprouting. Blade ploughing is one method of physical control that cuts the plant off below ground level. It was found to be very effective in preventing mimosa resprouting. Methods that cut plants off at ground level or above (such as slashing or chaining) will not control *M. pigra*. Chaining may, however, be helpful before burning or herbicide application (Walden *et al.* 1999).

Chemical: Herbicides are widely used to control mimosa, especially in Australia. Herbicide should be applied during the active period of growth of the mimosa and before any seed mature. In Australia, this is during the wet season (Lonsdale 1988, Miller 1988, in Walden *et al.* 1999). The height and density of mimosa may hinder access, resulting in the need for aerial spraying. However, this increases the risk posed by herbicide drift to non-target plants in the vicinity. Applying pellets or granules may greatly reduce this problem. Liquid herbicides should be applied in conditions of high humidity, low temperatures and low wind speeds to reduce harmful affects on other plants. Ground-based herbicide application methods include direct injection, foliar/basal bark spraying, and soil application (Walden *et al.* 1999).