Impact Assessment Record

Scientific name: *Bidens pilosa* L. Common name: Cobbler's pegs

QUESTION	COMMENTS	RATING	CONFIDENCE
Social			
1. Restrict human access?	Forms dense cover along roads and trails (Smith 1985). 'The aggravating little needles will embed themselves in your clothing by the dozens every time you brush past the stems' (Floridata 2007). Due to the described nuisance value of the burrs (ESC 2002; Floridata 2007), its presence along trails and its growing height to 150cm (Holm et al 1977), it is likely this species could impede individual access in to certain areas.	**ML**	**MH**
2. Reduce tourism?	Its ability to form dense cover along roads and trails (Smith 1985), height to 150cm (Holm et al 1977) and the described nuisance value of its burrs (ESC 2002; Floridata 2007), may deter some people from utilising certain recreation areas. Minor effects to recreational uses.	**M**	**M**
3. Injurious to people?	The roots, leaves and flowers are strongly phototoxic. Substances isolated from the leaves can kill human skin in the presence of sunlight at concentrations as low as 10ppm (PFAF 2007). This plant is sometimes used as a food source in southern Africa (Holm et al 1977) and the leaves can be used to make a tea (PFAF 2007). It is unlikely to be used locally as a food source, however there are some potentially injurious properties present. A medium rating has been assigned.	**M**	**M**
4. Damage to cultural sites?	Grows in cracks in pavements and walls (Labrada 2001). May have a moderate negative visual affect on some cultural sites or infrastructure.	**ML**	**M**
Abiotic			
5. Impact flow?	Predominantly a terrestrial species, not likely to have an impact on water flow.	**L**	**M**
6. Impact water quality?	Predominantly a terrestrial species, not likely to have an impact on water quality.	**L**	**M**
7. Increase soil erosion?	The extensive fibrous root system (SSC 2003) and strong taproot (Labrada 2001) of this species may give it the potential to decrease the probability of soil erosion.	**L**	**M**
8. Reduce biomass?	Its ability to form dense stands that cover large areas, (Weber 2003) and attain a height of 1.5m, (Holm et al 1977) could lead to a biomass increase in more open communities.	**L**	**M**
9. Change fire regime?	It is not fire tolerant but quickly invades burnt areas (Smith 1985), however, no information was found documented on the capacity of *B. pilosa* to alter the fire regime.	**M**	**L**
Community Habitat			
10. Impact on composition (a) high value EVC	EVC= Creekline Grassy Woodland (BCS= E); CMA= Wimmera; Bioreg= Goldfields; CLIMATE potential=VH. Can form dense stands that cover large areas eliminating native vegetation and preventing the regeneration of native species (Weber 2003; Smith 1985; Labrada 2001). Likely to cause major displacement of some dominant species within the lower vegetative strata.	**MH**	**MH**

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(b) medium value EVC	EVC= Hills Herb-rich woodland (BCS= D); CMA= North Central; Bioreg= Goldfields; CLIMATE potential=VH. Can form dense stands that cover large areas eliminating native vegetation and preventing the regeneration of native species (Weber 2003; Smith 1985; Labrada 2001). Likely to cause major displacement of some dominant species within the lower vegetative strata.	**MH**	**MH**
(c) low value EVC	EVC= Shrubby Riverine woodland (BCS= LC); CMA= Mallee; Bioreg= Murray Mallee; CLIMATE potential=VH. Can form dense stands that cover large areas eliminating native vegetation and preventing the regeneration of native species (Weber 2003; Smith 1985; Labrada 2001). Likely to cause major displacement of some dominant species within the lower vegetative strata.	**MH**	**MH**
11. Impact on structure?	Can form dense stands that cover large areas eliminating native vegetation and preventing the regeneration of native species (Weber 2003; Smith 1985; Labrada 2001). Potential to have major effect (<60%) on the lower vegetative strata.	**MH**	**MH**
12. Effect on threatened flora?	Its impact specifically on threatened flora was not found documented but its capacity to form dense stands eliminating and inhibiting the establishment of native vegetation (Weber 2003; Smith 1985) is likely to similarly affect threatened species.	**MH**	**L**
Fauna			
13. Effect on threatened fauna?	Its capacity to eliminate native vegetation and prevent its establishment (Weber 2003; Smith 1985) is likely to reduce faunal habitat, however, no specific information was found documented.	**MH**	**L**
14. Effect on non-threatened fauna?	Its capacity to eliminate native vegetation and prevent its establishment (Weber 2003; Smith 1985) is likely to reduce faunal habitat, however, no specific information was found documented.	**M**	**L**
15. Benefits fauna?	A study in NSW, found that seeds of *Bidens pilosa* made up approximately 50% of the Winter-Spring diet of Red-browed finches (Todd 1996). Provides an important alternative food source.	**ML**	**H**
16. Injurious to fauna?	Burrs are described as being a nuisance on sheep and other fleece producing livestock (ESC 2002), however, no information was found documented to suggest the species is injurious to fauna.	**L**	**M**
Pest Animal			
17. Food source to pests?	In India, bees were found to forage throughout the year on flowers of *Bidens pilosa* (Reddy & Jacob 2001). In Malawi it is a plant commonly cut to feed rabbits and yields the highest gross energy content of the 16 plants tested (Ayoade, Makhambera & Kayange 1985). Known to be palatable and fed as forage to rabbits, however the extent to which it would be eaten under natural browsing conditions is unknown. Provides food for a minor pest species and may provide food for a serious pest species.	**M**	**M**
18. Provides harbor?	Its ability to form dense stands (Weber 2003) and attain a height of 1.5m (Holm et al 1977) gives this species the physical capacity to harbour small to medium pest animals. However no specific information was found documented on its observed capacity to harbour pest animal species.	**M**	**L**

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QUESTION	COMMENTS	RATING	CONFIDENCE
Agriculture			
19. Impact yield?	In a study in Uganda, *B. pilosa* reduced dry bean, *Phaseolus vulgaris*, cropping yield by a mean of 48% (Ugen, Wien & Wortmann 2002) and in Peru, yield was reduced by 18.75- 48.9 % (Cerna & Valdez 1987). Serious impacts on quantity, > 20% reduction.	**H**	**H**
20. Impact quality?	Burrs are described as being a nuisance on sheep and other fleece producing livestock (ESC 2002). It is also documented as a seed contaminant of several crop species and described as a difficult weed seed to separate from grain (Bogdan 1966), however, no specific information was found documented on the level of impact it would have on agricultural quality.	**M**	**M**
21. Affect land value?	Described as a principal weed of numerous crops in many countries (Holm et al 1977). It can form dense stands (Weber 2003) and significantly reduce crop yield (Cerna & Valdez 1987;Ugen, Wien & Wortmann 2002). It has also developed resistance to some herbicides, (Christoffoleti 2001; Nyabundi & Kimemia 1998) which could result in normal control practises not being effective against this species. However, no information was found documented to indicate that the presence of this species has caused reduction in land value.	**L**	**L**
22. Change land use?	Described as a major weed of numerous crops in many countries (Holm et al 1977). It can form dense stands (Weber 2003) and significantly reduce crop yield (Cerna & Valdez 1987;Ugen, Wien & Wortmann 2002). It has also developed resistance to some herbicides, (Christoffoleti 2001; Nyabundi & Kimemia 1998) which could result in normal control practises not being effective against this species. The serious impact on yield and herbicide resistance, could lead to a change in the type of crop that is grown, or perhaps, a more major change in land use. However no specific information on the capacity to which it alters land use practises was found documented.	**M**	**L**
23. Increase harvest costs?	Documented as a seed contaminant of several grain crop species and described as a difficult weed seed to separate from grain (Bogdan 1966), indicating it may increase harvest costs. However, it is unclear from the information available, the level of impact it would have on harvest costs.	**M**	**M**
24. Disease host/vector?	A host of Root knot nematode (Ijani, Mabagala & Nchimbi-Msolla 2000) and Tomato spotted wilt virus (NSW Agr.1953). Also known as a host of *Schlerotinia sclerotiorum* (Cottony Rot) and is found naturally growing infected with this disease in fields of cauliflower, maize and soya beans (Phillips 1992). Host to pest and diseases of important agricultural produce.	**H**	**MH**