Impact Assessment Record

Scientific name: *Carrichtera annua* (L.) DC. Common name: Ward's Weed

QUESTION	COMMENTS	RATING	CONFIDENCE
Social			
1. Restrict human access?	*C. annua* can form dense stands, to 60cm in height (Cooke 2003: Weber 2003). *C. annua* would not restrict human access, minimal impact.	**L**	**MH**
2. Reduce tourism?	Orchard (1946) describes *Carrichtera annua* as an 'evil smelling weed' due to its pungent, penetrating odour. This may cause minor effects to aesthetics and tourism value.	**ML**	**MH**
3. Injurious to people?	*C. annua* is not reported having any toxic qualities or spines. Not described in the literature reviewed, to cause injury to humans.	**L**	**M**
4. Damage to cultural sites?	Unknown: No reviewed documentation suggests that *C. annua* causes damage to indigenous, european heritage sites or infrastructure.	**M**	**L**
Abiotic			
5. Impact flow?	*C. annua* occurs in less dry habitats in desert situations (Loria and Noy-Meir 1979/80) where water runoff may occur, and is a tap-rooted, erect winter annual herb (Cooke 2003: Weber, 2003). The species does not occur within watercourses, little impact on surface or subsurface water flow.	**L**	**H**
6. Impact water quality?	No reviewed documentation suggests that *C. annua* impacts on water quality.	**L**	**M**
7. Increase soil erosion?	*C. annua* can form dense stands and has a deep taproot (Weber 2003) which may reduce soil erosion, although because *C. annua* can form dense stands and displace native plants (Cooke 2003) may increase the probability of soil erosion slightly. The annual species may leave bare patches that are exposed to soil erosion. Moderate probability of large scale soil movement.	**ML**	**MH**
8. Reduce biomass?	*C. annua* forms dense stands displacing both native plants and other weed species and can comprises up to an estimated 95% of total herbaceous biomass (Cooke 2003). Direct replacement of biomass by invader.	**ML**	**MH**
9. Change fire regime?	*C. annua* is a winter growing annual plant, following plant senescence the dead plant remains upright over the summer months (Cooke 2003). Gat-Tilman (1995) describes *C. annua* as a 'dry plant' during the summer months. This suggests the plant may increase the risk of fire intensity. Minor change.	**ML**	**MH**
Community Habitat			
10. Impact on composition (a) high value EVC	EVC= Semi-arid woodland (V); CMA= Mallee; Bioreg= Murray Mallee; CLIMATE potential=VH. *C. annua* can form dense stands becoming the dominant herbaceous plant. Across its range, *C. annua* displaces both native plants and other weed species and comprises up to an estimated 95% of total herbaceous biomass. *C. annua* could be considered as forming a monoculture in the Flinders Rangers National Park within a specific layer (Cooke 2003), although in other areas such as Willandra *C. annua* occurs with perennial competitors.	**MH**	**MH**

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(b) medium value EVC	EVC= Semi-arid woodland (D); CMA= Mallee; Bioreg= Lowan Mallee; CLIMATE potential=VH. *C. annua* can form dense stands becoming the dominant herbaceous plant. Across its range, *C. annua* displaces both native plants and other weed species and comprises up to an estimated 95% of total herbaceous biomass. *C. annua* could be considered as forming a monoculture in the Flinders Rangers National Park within a specific layer (Cooke 2003), although in other areas such as Willandra *C. annua* occurs with perennial competitors.	**MH**	**MH**
(c) low value EVC	EVC= Shrubby Woodland (E); CMA= Wimmera; Bioreg= Greater Grampians; CLIMATE potential=VH. *C. annua* can form dense stands becoming the dominant herbaceous plant. Across its range, *C. annua* displaces both native plants and other weed species and comprises up to an estimated 95% of total herbaceous biomass. *C. annua* could be considered as forming a monoculture in the Flinders Rangers National Park within a specific layer (Cooke 2003), although in other areas such as Willandra *C. annua* occurs with perennial competitors.	**MH**	**MH**
11. Impact on structure?	Across its range, *C. annua* displaces both native plants and other weed species and comprises up to an estimated 95% of total herbaceous biomass. *C. annua* could be considered as forming a monoculture in the Flinders Rangers National Park (Cooke 2003) within the ground cover layer.	**MH**	**MH**
12. Effect on threatened flora?	Described by Cooke (2003), *C. annua* may form part of a succession of weed species, which appears to have succeeded hops (*Rumex vesicarius*) in the Flinders Rangers, which is now rare. This species is in the same genus as Glistening dock (*Rumex crystallinus s.s.)* a species classed as vulnerable in Victoria.	**MH**	**L**
Fauna			
13. Effect on threatened fauna?	No reviewed documentation suggests that *C. annua* causes a threat to threatened fauna species.	**MH**	**L**
14. Effect on non-threatened fauna?	No reviewed documentation directly suggests that *C. annua* causes a threat to fauna species, although the ability of *C. annua* to form dense stands becoming the dominant herbaceous plant (Cooke 2003) may suggest a reduction in the available habitat for certain fauna species.	**MH**	**MH**
15. Benefits fauna?	The pod seed bank of *C. annua* forms a potential food source for vertebrate herbivores including goats, macropods, emus, sheep, cattle and rabbits. Ant species in semi-arid areas dominated by *C. annua* also use the seed of the species as an alternative food source (Cooke 2003 pg. 71).	**MH**	**MH**
16. Injurious to fauna?	No literature suggests that *C. annua* is injurious to fauna although the species is described by Orchard (1946) as being unpalatable to fauna because of its hairiness and pungent, penetrating odour.	**L**	**MH**
Pest Animal			
17. Food source to pests?	*C. annua* provides a potential food source for vertebrate herbivores, including rabbits (Cooke 2003).	**MH**	**MH**
18. Provides harbor?	*C. annua* can form dense stands, to 60cm in height (Cooke 2003: Weber 2003) which may suggest that the species has the capacity to harbour pest species, especially considering *C. annua* provides a potential food source for vertebrate herbivores including rabbits (Cooke 2003).	**MH**	**MH**

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Agriculture			
19. Impact yield?	*C. annua* is described as a major pastoral weed (Keighery 1991 in Cooke 2003 pg7) due to its ability to replace native vegetation following overgrazing. Orchard (1946) also describes that *C. annua* might choke out cereal crops entirely, if left uncontrolled.	**H**	**H**
20. Impact quality?	Reduced quality of meat and milk from animals feeding on *C. annua* has been recorded due to the strong odours of *C. annua* being transferred to the produce (Orchard 1946). Seeds of *C. annua* were also recognised as an impurity in wheat in Australia (Cooke 2003).	**MH**	**H**
21. Affect land value?	*C. annua* is unpalatable to sheep and cattle; it reduces the carrying capacity and so value of infested property (Cooke 2003). *C. annua* might choke out cereal crops entirely, if left uncontrolled. (Orchard 1946), causing a decrease in land value.	**M**	**MH**
22. Change land use?	*C. annua* is unpalatable to sheep and cattle therefore reduces the carrying capacity (Cooke 2003), *C. annua* may also choke out cereal crops entirely, if left uncontrolled (Orchard 1946) this may cause a downgrading of the priority land use, to one with less agricultural return.	**MH**	**MH**
23. Increase harvest costs?	Unknown: No reviewed literature suggests *C. annua* increases the cost of production.	**M**	**L**
24. Disease host/vector?	Unknown: No reviewed documentation suggests that *C. annua* acts as an alternative host or vector for disease of agriculture.	**M**	**L**