

Impact Assessment Record

Scientific name: *Zantedeschia aethiopica* (L.) Spreng.

Common name: White Arum Lily

QUESTION	COMMENTS	RATING	CONFIDENCE
Social			
1. Restrict human access?	Forms large spreading clumps to 1.5m high around waterways and wetland edges (Blood 2001). Could impede individual access to waterways.	ML	MH
2. Reduce tourism?	Although no information was found that documented this species affecting the recreational use of an area, as a visually distinctive species, growing to 1.5m high (Blood 2001), it is likely to be obvious to the 'average visitor' and would have an affect on the aesthetics of an area.	ML	MH
3. Injurious to people?	Children have been fatally poisoned after eating the white spathe or yellow spadix of the flowers (Moore 1997) and there are also a number of overseas reports of children poisoned as a result of eating the seeds and berries (APB 1986). Symptoms include severe burning and swelling of lips, tongue, and throat, acute gastritis and diarrhoea followed by death from shock and exhaustion (Russell 1997, Moore 1997). Extremely toxic.	H	MH
4. Damage to cultural sites?	No information was found to suggest that this species would impact on cultural sites or infrastructure.	L	M
Abiotic			
5. Impact flow?	Described as impeding water flow (Blood 2001), and while it has the potential to impact on both surface and subsurface flow, its impacts are not likely to be very serious as it grows only in shallower aquatic habitats.	MH	MH
6. Impact water quality?	Its capacity to form dense clumps in some aquatic systems (Blood 2001, Carr et al 1992) gives it the potential to impact on light levels, however, these impacts are likely to be relatively minor as it grows primarily in the shallower water or margins of waterways (Blood 2001).	ML	MH
7. Increase soil erosion?	'We have recorded up to 250t/ha of rhizomes under old arum lily stands (Moore & Hoskins 1997)'. Unlikely to increase, and may decrease soil erosion due to its dense rhizome system.	L	MH
8. Reduce biomass?	Described as forming dense monocultures (Wykes 1997) to a height of 1.5 m (Blood 2001) and up to 250t/ha of rhizomes have been recorded under stands of <i>Z. aethiopica</i> (Moore & Hoskins 1997). It has the potential to increase the vegetative biomass of a community.	L	MH
9. Change fire regime?	On Eclipse island WA it is forming monospecific stands and replacing a low open heath community (Keighery 1997). Heath ecosystems are adapted to fire (Groves 1994) and the succulent nature of <i>Z. aethiopica</i> foliage may lead to a reduction in fire frequency and intensity.	MH	M
Community Habitat			
10. Impact on composition (a) high value EVC	EVC= Plains Grassy Wetland (E); CMA= Corangamite; Bioreg= Central Victorian Uplands; VH CLIMATE potential. Forms dense monocultures (Keighery 1997, Wykes 1997) and can completely displace the native vegetation (Weber 2003). Potential to displace all species within the understorey layer.	H	MH

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(b) medium value EVC	EVC= Sedgy Riparian Woodland (D); CMA= Corangamite; Bioreg= Otway Plain; VH CLIMATE potential. Forms dense monocultures (Keighery 1997, Wykes 1997) and can completely displace the native vegetation (Weber 2003). Potential to displace all species within the understorey layer.	H	MH
(c) low value EVC	EVC= Heathy Woodland (LC); CMA= Corangamite; Bioreg= Otway Ranges; VH CLIMATE potential. Forms dense monocultures (Keighery 1997, Wykes 1997) and can completely displace the native vegetation (Weber 2003). Potential to displace all species within the understorey layer.	H	MH
11. Impact on structure?	Forms dense monocultures (Keighery 1997, Wykes 1997) and can completely displace the native vegetation (Weber 2003). Major affect on <60% (understorey layer) of floral strata.	MH	MH
12. Effect on threatened flora?	Forms dense monocultures over large areas (Keighery 1997, Wykes 1997) and can completely displace the native vegetation (Weber 2003). Although it is likely to be significant, its impact specifically on threatened flora was not found described.	MH	ML
Fauna			
13. Effect on threatened fauna?	Its invasion and formation of dense monocultures on Garden island, WA has been labelled as an 'ecological disaster' due to its potential impact on the population of the endangered Tammar wallaby (<i>Macropus eugenii</i>) through reduction in habitat and food supply (Wykes 1997). Although it has the capacity to reduce habitat, the Tammar wallaby does not occur in Victoria, and no information was found documented of its impact on similar Victorian threatened fauna.	MH	ML
14. Effect on non-threatened fauna?	As well as its impact on the Tammar wallaby, its invasion on Garden Island is also described as impacting on reptile species through reduction in habitat and food supply (Wykes 1997), which would likely result in a reduction of the local population.	MH	M
15. Benefits fauna?	Singing honeyeater, grey butcherbird and silvereye are all known to feed on the fruits (Wykes 1997). Provides some assistance with food supply to desirable species.	MH	MH
16. Injurious to fauna?	'All Zantedeschia species are considered extremely poisonous to all animals (Blood 2001)'. Toxic.	H	MH
Pest Animal			
17. Food source to pests?	'Foxes and stock consume the seed and also aid dispersal (Blood 2001, Moore 1997)'. Provides food to one serious pest species.	MH	MH
18. Provides harbour?	Rabbits are documented as the likely cause of the severe <i>Z. aethiopica</i> invasion on Eclipse Island (Keighery 1997), which could be attributed to soil disturbance due to warren construction under dense stands, however this is not specifically stated. Its capacity to form 1.5m high monocultures (Wykes 1997, Blood 2001) though, suggests it would be able to harbour pest animals, such as rabbits.	M	M

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Agriculture			
19. Impact yield?	Dense infestations completely replace pasture species, reducing the available grazing area and, hence, pasture productivity, and it is known to cause stock deaths (Parsons & Cuthbertson 2001). Potential for greater than 5% reduction in yield.	MH	MH
20. Impact quality?	The toxic nature of the plant (Blood 2001) has the potential to impact severely on stock health, however, nothing was found described to suggest it affects the quality of agricultural produce.	L	M
21. Affect land value?	'It's not really a big agricultural problem because it's quite easily managed... (Grieve & Atkins 2006)'. This indicates it can be controlled with good farm management practises, therefore is unlikely to affect land value.	L	M
22. Change land use?	Although it is described as, 'not really a big agricultural problem because it's quite easily managed... (Grieve & Atkins 2006)', its toxicity to stock and ability to reduce pasture productivity has the potential to alter some land use practises, however, nothing was found specifically documented.	M	L
23. Increase harvest costs?	Its high toxicity and ability to cause stock deaths (Parsons & Cuthbertson 2001), could lead to a minor increase in the cost of production as a result of increased veterinary expenses.	M	MH
24. Disease host/vector?	Can be infected with Cucumber mosaic virus and tomato spotted wilt virus (Griffiths 1992). Potential host of common agricultural diseases.	M	M