Impact Assessment Record

Scientific name: *Phalaris coerulescens* Desf

Common name: Blue canary grass

QUESTION	COMMENTS	RATING	CONFIDENCE
Social			
1. Restrict human access?	The grass grows in tufts or clumps with tubers at base of stem generally above ground (Herbarium usu).The adult plants grows to heights of 30-150 cm tall (Davis, 1985; McLaren and Turner, 1999). The plant may not prevent human access but may be of a low nuisance value.	**ML**	**M**
2. Reduce tourism?	The adult plant grows to heights of 30-150 cm tall (Davis, 1985; McLaren and Turner, 1999). Therefore infestations of the species may have minor effects to aesthetics and most recreational activities will not be inhibited. The plants toxicity to horses (Bourke *et al*, 2003) may reduce horse related recreation.	**MH**	**M**
3. Injurious to people?	Of the literature consulted (Harden, G.. 1993; McLaren, and Turner, 1999; Muyt A., 2001) none mentioned the grass being injurious to humans. Not known to be injurious to people, no prickles, spines or toxins present.	**L**	**MH**
4. Damage to cultural sites?	The adult plant grows to heights of 30-150 cm tall (Davis, 1985; McLaren and Turner, 1999) suggesting that height of the plant is likely to have a moderate visual effect in densely infested areas. However no reported effect or damage to cultural sites was found.	**ML**	**M**
Abiotic			
5. Impact flow?	Despite the grass being often found near streams and lakes the species is terrestrial (Colgate *et al*, 1999) and is not known to invade the waterbody or streambed.	**L**	**MH**
6. Impact water quality?	Despite the grass being often found near streams and lakes the species is terrestrial (Colgate et al, 1999) and is not known to invade or have any effect on the waterbody or streambed. No measurable effect on water quality.	**L**	**MH**
7. Increase soil erosion?	The grass grows in tufts or clumps (Herbarium usu). The adult plants grow to heights of 30-150 cm tall (Davis, 1985; McLaren and Turner, 1999). It is a species that commonly invades already disturbed eroded areas such as disturbed pastures edges of cultivated fields and roadsides (Baldini, 1995; Herbario Virtual; Tutin *et al*, 1980). existing with other native and exotic grasses (Walsh and Entwisle 1994). It has the potential to dominate grasslands and pastures as experienced in Mediterranean grasslands (Troumbis *et al,* 2000). Therefore it is likely that the species can replace and displaced exiting species of a similar life form and in the highly disturbed areas it colonises may contribute to soil stability.	**L**	**L**
8. Reduce biomass?	Other *Phalaris* species (such as *P.acquatica* and *P. paradoxa*) are known to increase the biomass and fuel load of introduced areas. On the basis that *P. coerulescens* is closely related with both particularly *P. paradoxa* (Bourke *et al*, 2003; Davis, 1985; Richardson *et al*, 2006) it may have the capacity to displace other species and dominate infested areas in turn increasing fuel load and biomass.	**L**	**L**
9. Change fire regime?	Other *Phalaris* species are known to have a higher fuel load than the original native grasses (CFA, 2004). *Phalaris* species have a fuel load of 27.5 tonnes/hectare compared to 2.9 t/h for kangaroo grass (CFA, 2004). On this basis dense stands of *P.coerulescens* increase biomass and fuel hazard and are likely to have a minor affect more so on fire intensity than frequency.	**ML**	**M**

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QUESTION	COMMENTS	RATING	CONFIDENCE
Community Habitat			
10. Impact on composition (a) high value EVC	EVC= Plains Grassy Woodland (E); CMA=Port Phillip and Westernport; Bioregion= Victorian Volcanic Plains; VH Climate potential. Reported to grow in association with native and exotic grasses (Walsh and Entwisle 1994) some displacement and possible dominance due to it being a persistence and productive grass species (Anderton *et al*, 1999). It has the potential to dominate grasslands and pastures as experienced in Mediterranean grasslands (Troumbis *et al,* 2000).	**MH**	**MH**
(b) medium value EVC	EVC= Grassy Dry Forest (D); CMA= Port Phillip and Westernport; Bioregion= Victorian Volcanic Plain; VH Climate potential. Reported to grow in association with native and exotic grasses (Walsh and Entwisle 1994) some displacement and possible dominance due to it being a persistence and productive grass species (Anderton *et al*, 1999). It has the potential to dominate grasslands and pastures as experienced in Mediterranean grasslands (Troumbis *et al,* 2000).	**MH**	**MH**
(c) low value EVC	EVC= Wet Forest (LC); CMA= Glenelg Hopkins; Bioregion= Glenelg Plain; MED Climate potential. Reported to grow in association with native and exotic grasses (Walsh and Entwisle 1994) in moist well drained soils (Colegate *et al*, 1999). Some displacement and possible dominance due to it being a persistence and productive grass species (Anderton *et al*, 1999). It has the potential to dominate grasslands and pastures as experienced in Mediterranean grasslands (Troumbis *et al,* 2000).	**MH**	**MH**
11. Impact on structure?	Growing up to 150cm affecting mainly the lower stratum and may have a minimal affect on the lower end of the mid stratum. Reported to be a competitive species therefore associated with other grass species (UnderControl, 1999). The species has been found to be a persistence and productive grass species (Anderton *et al*, 1999). It has the potential to dominate grasslands and pastures as experienced in Mediterranean grasslands (Troumbis *et al,* 2000), suggesting that it can become a dominant species of the lower strata.	**ML**	**MH**
12. Effect on threatened flora?	The impact on threatened flora is indeterminable	**MH**	**L**
Fauna			
13. Effect on threatened fauna?	The impact on threatened flora is indeterminable	**MH**	**L**
14. Effect on non-threatened fauna?	Strong circumstantial evidence suggests that *P.coerulescens* is fatal to horses (Bourke *et al*, 2003). Sheep, goat and cattle seem to be unaffected by the species (Bourke *et al*, 2003). It can provide an alternate food source for livestock similar to other cultivated *Phalaris* species (Watson *et al*, 2000). It contains six alkaloids that may make it unpalatable to natives. No reports of toxicity to natives. The species can have a minor impact on structure and habitat and availability of food resources.	**ML**	**M**

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QUESTION	COMMENTS	RATING	CONFIDENCE
15. Benefits fauna?	May provide an alternate, reliable food source for livestock or native animals. Particularly because it can tolerate herb pressure (Colegate *et al*, 1999). Areas of high infestations in combination with other grass species may provide cover for native animals (e.g. bandicoots).	**MH**	**L**
16. Injurious to fauna?	Contains toxic alkaloids poisonous to horses (Bourke *et al*, 2003). Alkaloids may render it unpalatable to native fauna. Found to have little or no effect on cattle and sheep but found that horses are most susceptible to poisoning once plant has been ingested due to the presence in *P.coerulescens* of methylated tryptamine and related beta- carboline alkaloids (Bourke *et al*, 2003). At the moment strong circumstantial evidence suggests that these deaths are associated with *P. coerulescens.* Toxicity to horses may suggest that it can have the same effect on native fauna however no reported effects on native fauna.	**M**	**L**
Pest Animal			
17. Food source to pests?	Can be a food source to goats. In its native range Arevalo *et al* (2007) studied *P.coerulescens* dominated pastures under a goat grazing system.	**ML**	**MH**
18. Provides harbor?	Growing to heights of up to 150cm (Davis, 1985; McLaren and Turner, 1999) large, dense infestations may provide temporary harbour to major pest specie such as rabbits. However nothing has been documented in the literature.	**M**	**L**
Agriculture			
19. Impact yield?	*P. coerulescens* in its native range it is a known weed of cultivated fields (Baldini, 1995). The closely related *P. paradoxa* is a serious weed of cereal crops (Bourke *et al*, 2003). According to Global Compendium of Weeds it is considered an agricultural weed. In Portugal *P.coerulescens* amongst other Phalaris species infest a wide variety of crops but principally cereals and uncropped land (Costa, 1981). However in Australia it has not yet been documented as a weed of cultivated fields. Due to the similarities *P.coerulescens* shares with *P.paradoxa* (Bourke *et al*, 2003; Davis, 1985) it is possible that *P.coerulescens* can potentially invade cultivated fields (perrs comm. David McLaren) however the impact is not yet known.	**M**	**L**
20. Impact quality?	A known weed of cultivated pastures. However there is no information in the literature that indicates how this species impacts on the quality of produce.	**M**	**L**
21. Affect land value?	A known weed of cultivated pastures (Baldini, 1995) however there is no information in the literature describing how this species could affect land values.	**M**	**L**
22. Change land use?	Due to toxicity to horses (Bourke *et al*, 2003) can change grazing system of pastures and subsequently land use.	**ML**	**MH**
23. Increase harvest costs?	Currently not a documented weed of cultivated pastures in Australia. There is no evidence that suggests that this species currently requires a control regime outside normal weed management	**M**	**L**
24. Disease host/vector?	Benigno and Brook (1972) reported *P. coerulescens* as a host for the Cocksfoot Mottle Virus. They are viruses transmitted by beetles prevalent in the Gramineae. Its closely related species P. paradoxa is susceptible to a	**M**	**H**

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QUESTION	COMMENTS	RATING	CONFIDENCE
	number of viruses including barley stripe mosaic hordeivirus, maize dwarf mosaic potyvirus, and sugarcane mosaic potyvirus (Brunt *et al*, 1996). Diseases identified and prevalent in Phalaris species, that may affect *P.coerulescens,* include Ergot and Stem rust, Grass downy mildew fungus, wheat eye spot fungus, powdery mildew and a new disease identified in Victoria, *Stagonospora foliicola* (Watson and Bourke, 2000).		