

## Impact Assessment Record

Scientific name: *Glyceria maxima* (Hartman) Holmb.

Common Name: Reed sweet grass

QUESTION	COMMENTS	RATING	CONFIDENCE
<b>Social</b>			
1. Restrict human access?	Robust perennial grass to 250cm high. It will grow in water to around 1.5 metres in depth, and in deeper water it can form floating mats (Parson & Cuthbertson 2001). In these situations, it may impede human access to waterways or even make such access dangerous. Access to some streams (slow-moving) or ponds may be severely restricted.	<b>MH</b>	<b>MH</b>
2. Reduce tourism?	In a study of <i>G. maxima</i> , Clarke <i>et al.</i> (2004) record that it may convert sections of fast-flowing streams into anaerobic, swampy environments. Such a dramatic change would affect recreational fishing as downstream fish habitat would be significantly affected by reduced water flow. Some recreational uses affected.	<b>MH</b>	<b>H</b>
3. Injurious to people?	No harmful properties noted in relation to humans.	<b>L</b>	<b>MH</b>
4. Damage to cultural sites?	Unlikely to have any serious affect on indigenous or European cultural heritage sites. Dense infestations may have a negative visual effect.	<b>ML</b>	<b>L</b>
<b>Abiotic</b>			
5. Impact flow?	Optimal habitats for <i>G. maxima</i> include banks of slow-moving rivers, creeks, spring-fed gullies and seepage areas, canals, ditches, farm dams, wetlands and the margins of wetlands (Melb. Water 2003; Parsons & Cuthbertson 2001). In Tasmania, it is recorded to impede water flow in rivers, creeks and irrigation and drainage channels, initially by stem abundance slowing water velocity and increasing the deposition of silt and debris (DPIWE 2007). An attached, emergent aquatic, it would affect both surface and subsurface water flow.	<b>H</b>	<b>MH</b>
6. Impact water quality?	Clarke <i>et al.</i> (2004) observed that glyceria "...may convert fast-flowing, aerobic streams into partially anaerobic, swampy environments." Noticeable effects on both dissolved O <sub>2</sub> and light in streams potentially leading to increased algal growth. In Victoria, Melbourne Water records that in some instances, infested dams have become unusable due to putrid water (MW 2003).	<b>MH</b>	<b>H</b>
7. Increase soil erosion?	The plant has an extensive root system with many fibrous roots rising from rhizome nodes and extending to depths of 1 m (Parsons & Cuthbertson 2001). The root mass comprises between 40–55% of the overall plant biomass (DPIWE 2007). A dense, perennial species with an extensive root system, it is unlikely to negatively affect soil erosion.	<b>L</b>	<b>MH</b>
8. Reduce biomass?	<i>G. maxima</i> establishes and grows most vigorously in wet, open areas or where there is high level soil moisture such as winter-flooded sites (Parsons & Cuthbertson 2001). In these waterlogged areas where little else will grow, the establishment of glyceria would likely significantly increase biomass.	<b>L</b>	<b>MH</b>
9. Change fire regime?	It is clear from the literature that once glyceria establishes in open areas it becomes the dominant species. The potentially large increase in fuel load that accompanies the growth of glyceria (aerial shoots to 250 cm high) could lead to an increase in both fire frequency and intensity. "A single plant may produce as many as 100 shoots and 30 metres of rhizomes in its first 2 years of growth," (Parsons & Cuthbertson 2001). This growth rate does	<b>MH</b>	<b>MH</b>

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	slow considerably in well established stands.		
<b>Community Habitat</b>			
10. Impact on composition (a) high value EVC	EVC= Riparian scrub (V); Bioregion= Gippsland Plain; CMA= West Gippsland; VH CLIMATE match. Within the area of infestation glyceria is known to develop as a monoculture. "Even within its native range, the ability of <i>G. maxima</i> to create virtual monocultures under varying levels of disturbance is of conservation concern," (Anderson & Reznicek 1994). Forms a monoculture in open, wet areas. Established infestations expand rapidly at the boundaries, while density within the infestation increases more slowly (Parsons & Cuthbertson 2001). Serious impact within the infestation and, over time, the likely displacement of indicator species in the lower or mid strata.	<b>MH</b>	<b>H</b>
(b) medium value EVC	EVC= Wet heathland (D); Bioregion= Otway Ranges; CMA= Corangamite; VH CLIMATE match. This EVC is typified by tall graminoid species with medium to tall graminoids representing about 10% of total cover. Invasion in this EVC would likely displace existing grasses or reeds, particularly in the areas with permanent water cover. See also comments in Q10(a) above. Likely to displace dominant species in mid stratum.	<b>MH</b>	<b>H</b>
(c) low value EVC	EVC= Riverine swamp forest (LC); Bioregion= Murray Fans; CMA= North Central; VH CLIMATE match. Eucalypt woodland to open woodland, ground-layer grassy to sedgy to herbaceous. Similar impacts as described in Q10(a) and 10(b) above.	<b>MH</b>	<b>H</b>
11. Impact on structure?	Within the area of infestation glyceria is known to develop as a monoculture. "Even within its native range, the ability of <i>G. maxima</i> to create virtual monocultures under varying levels of disturbance is of conservation concern," (Anderson & Reznicek 1994). Forms a monoculture in open, wet areas. Lambert (1947) cited in ISSG (2006) states that plants are usually found in fully exposed situations but are tolerant to slight shade. Glyceria then, would not have as great an impact in the heavier shade of overstorey trees.	<b>MH</b>	<b>H</b>
12. Effect on threatened flora?	No data available	<b>MH</b>	<b>L</b>
<b>Fauna</b>			
13. Effect on threatened fauna?	No data available	<b>MH</b>	<b>L</b>
14. Effect on non-threatened fauna?	In the U.S. it was noted that <i>G. maxima</i> simplified plant species diversity and consequently reduced the number of seed-producing plants available for winter grazing water birds. It is also recorded as providing a poor nesting base for wetland birds common to the area (Anderson & Reznicek 1994). Minor reduction in food source or habitat for some water fowl.	<b>ML</b>	<b>H</b>
15. Benefits fauna?	Domesticated animals readily browse on glyceria and it follows that herbivorous fauna would likely graze on the plant. While cattle death has been recorded (Barton <i>et al</i> , 1983) no such evidence exists for native herbivores;	<b>MH</b>	<b>M</b>

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	either dead animals are disposed of without autopsy, or glyceria does not provide and alternative food source. DPIWE (2007) suggest that glyceria can provide shelter for waterbirds or other aquatic organisms. Conversely, ISSG (2006) state that glyceria is, "...a poor nesting substrate for wetland wildlife." May provide some limited benefit through alternative food source or habitat.		
16. Injurious to fauna?	<i>G. maxima</i> is known to be toxic (cyanic compounds) during the vegetative growth stage through Spring. Vegetative tillers showed the highest level of cyanide concentration. Sudden deaths were reported though no symptoms of poisoning were observed. (Barton <i>et al</i> , 1983)	<b>MH</b>	<b>H</b>
<b>Pest Animal</b>			
17. Food source to pests?	Not documented as a food source to pest animals.	<b>M</b>	<b>L</b>
18. Provides harbor?	May provide harbour for minor pest species such as exotic birds.	<b>ML</b>	<b>L</b>
<b>Agriculture</b>			
19. Impact yield?	A weed that affects agriculture in two ways; animal poisoning (Barton <i>et al</i> . 1983) and water availability and quality reducing the amount of productive land (MW 2003). The holding capacity of farms dams can be significantly reduced due to siltation (Parsons & Cuthbertson 2001), and access to such water bodies can be seriously restricted and even dangerous to grazing animals. "Livestock have also become bogged when attempting to reach water through dense Reed Sweet Grass infestations," (MW 2003). Parsons & Cuthbertson (2001) also record glyceria to be an important weed affecting vegetable growers on the northern coast of Tasmania, though the problem is not described. Possibly a major impact on yield.	<b>MH</b>	<b>M</b>
20. Impact quality?	Not known to affect the quality of produce. Given the amount of data available on this species, it likely to have limited impact.	<b>L</b>	<b>L</b>
21. Affect land value?	Management options are within the normal range of standard farm practices (Parsons & Cuthbertson 2001; DPIWE 2007; MW 2003), though dense infestations would require a concerted effort. Presence of this weed at lower levels would not be a serious impost on farm operation and thus unlikely to affect land value.	<b>L</b>	<b>MH</b>
22. Change land use?	See comment above. Presence of the weed would not necessary dictate a change in the priority of land use activity.	<b>L</b>	<b>MH</b>
23. Increase harvest costs?	None implicated.	<b>L</b>	<b>L</b>
24. Disease host/vector?	None described.	<b>L</b>	<b>L</b>