

Impact Assessment Record

Scientific name: *Vetiveria zizanioides* L. 'Monto'

Common name: Monto vetiver grass

QUESTION	COMMENTS	RATING	CONFIDENCE
Social			
1. Restrict human access?	Can form dense hedges up to 3m wide and tall. If left to grow to these dimensions it has been noted to impede farm machinery in Fiji (Truong & Creighton, 1994). Vehicles able to access but with difficulty.	MH	MH
2. Reduce tourism?	Not reported outside of cultivation (Truong, 2000). Planted to delineate farm boundaries and for erosion control in agricultural systems and on disturbed sites, such as quarries (Truong & Creighton, 1994) and new road works (Hopkinson, 2002). Therefore any impact the species may have is a deliberate act of those who planted it and unlikely to be planted where it will impact on recreation.	L	MH
3. Injurious to people?	Some forms of vetiver have tiny barbs on the leaf edges that can cut skin; however the forms used for erosion control tend to be smooth edged (NRC, 1993). As a form used for erosion control, Monto vetiver probably does not have barbed edges.	L	MH
4. Damage to cultural sites?	Not reported outside of cultivation (Truong, 2000). Planted to delineate farm boundaries and for erosion control in agricultural systems and on disturbed sites, such as quarries (Truong & Creighton, 1994) and new road works (Hopkinson, 2002). Therefore any impact the species may have is a deliberate act of those who planted it, and unlikely to be planted where it will impact on cultural sites.	L	MH
Abiotic			
5. Impact flow?	Whilst it can be grown to delineate farm boundaries and for erosion control in agricultural systems and on disturbed sites, such as quarries (Truong & Creighton, 1994) and new road works (Hopkinson, 2002), another application for this species is to slow water flow both overland and in gully heads (NRC, 1993). This will have a deliberate and high impact on flow, however, it is unlikely to be planted to interrupt the flow of creeks or rivers.	L	MH
6. Impact water quality?	Two applications of this species are likely to improve water quality. Firstly, by reducing erosion (Truong & Creighton, 1994), less sediment will be introduced to waterways, and secondly, as part of a system for treating sewage and polluted water (Veiritz <i>et al</i> , 2003), it can improve the quality of water entering creeks and rivers.	L	MH
7. Increase soil erosion?	Used extensively to reduce soil erosion (Truong & Creighton, 1994). Erosion has been reported to occur when plants were removed and roots harvested for oil (NRC, 1993), however, the plant was not the cause of this erosion, but its removal was.	L	MH
8. Reduce biomass?	Not reported outside of cultivation (Truong, 2000). Planted to delineate farm boundaries and for erosion control in agricultural systems and on disturbed sites, such as quarries (Truong & Creighton, 1994) and new road works (Hopkinson, 2002). Under these circumstances, vetiver has been established on sites that were denuded of permanent vegetation. Likely to increase biomass.	L	MH
9. Change fire regime?	Has been reported to stop fire spread when planted adjacent to a cane field, which was being burnt, (NRC, 1993). When green it is fire resistant, however it will burn if it dries (Chelard 2003). Not reported outside of cultivation (Truong, 2000) and is planted either outside natural ecosystems, such as roadsides (Hopkinson, 2002) or farms (Truong & Creighton, 1994), or in areas where fire is not an important factor, such as near waterways (NRC, 2003). Therefore it is unlikely to alter the fire regime of a natural	L	MH

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	ecosystem.		
Community Habitat			
10. Impact on composition (a) high value EVC	Not known outside of cultivation (Truong, 2000). A CLIMATE match was not possible, as naturalised populations, required to perform the analysis, have not been found. A CLIMATE analysis of the parent species <i>V. zizanioides</i> , however, showed that the parent species is unlikely to establish in Victoria. Monto vetiver may be cultivated in Victoria, but it is unlikely to occur as a naturalised population.	L	MH
(b) medium value EVC	Not known outside of cultivation (Truong, 2000). A CLIMATE match was not possible, as naturalised populations, required to perform the analysis, have not been found. A CLIMATE analysis of the parent species <i>V. zizanioides</i> , however, showed that the parent species is unlikely to establish in Victoria. Monto vetiver may be cultivated in Victoria, but it is unlikely to occur as a naturalised population.	L	MH
(c) low value EVC	Not known in outside of cultivation (Truong, 2000). A CLIMATE match was not possible, as naturalised populations, required to perform the analysis, have not been found. A CLIMATE analysis of the parent species <i>V. zizanioides</i> , however, showed that the parent species is unlikely to establish in Victoria. Monto vetiver may be cultivated in Victoria, but it is unlikely to occur as a naturalised population.	L	MH
11. Impact on structure?	Not reported outside of cultivation (Truong, 2000). Planted to delineate farm boundaries and for erosion control in agricultural systems and on disturbed sites, such as quarries (Truong & Creighton, 1994) and new road works (Hopkinson, 2002). Under these circumstances, vetiver has been established on sites that were previously denuded of the original vegetation. No impact on structure, as Monto vetiver is not planted in natural ecosystems.	L	MH
12. Effect on threatened flora?	Not reported outside of cultivation (Truong, 2000). Planted to delineate farm boundaries and for erosion control in agricultural systems and on disturbed sites, such as quarries (Truong & Creighton, 1994) and new road works (Hopkinson, 2002). Under these circumstances, vetiver has been established on sites that were previously denuded of the original vegetation, and as such, the altered landscape is unlikely to be supporting threatened flora.	L	MH
Fauna			
13. Effect on threatened fauna?	Not reported outside of cultivation (Truong, 2000). Planted to delineate farm boundaries and for erosion control in agricultural systems and on disturbed sites, such as quarries (Truong & Creighton, 1994) and new road works (Hopkinson, 2002). Under these circumstances, vetiver has been established on sites that were previously denuded of the original vegetation, and as such, the altered landscape is unlikely to be supporting threatened fauna.	L	MH
14. Effect on non-threatened fauna?	Not reported outside of cultivation (Truong, 2000). Planted to delineate farm boundaries and for erosion control in agricultural systems and on disturbed sites, such as quarries (Truong & Creighton, 1994) and new road works (Hopkinson, 2002). Under these circumstances, vetiver has been established on sites that were previously denuded of the original vegetation, and as such, the altered landscape is unlikely to provide habitat or food for	L	MH

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	non-threatened fauna.		
15. Benefits fauna?	The young growth is eaten by grazing species including kangaroos and wallabies (Chelard, 2003). Provides some assistance as food for desired species.	MH	MH
16. Injurious to fauna?	Some forms of vetiver have tiny barbs on the leaf edges that can cut skin, however the forms used for erosion control tend to be smooth edged (NRC, 1993). As a form used for erosion control, Monto vetiver probably does not have barbed edges. Indigenous fauna have been observed grazing Monto vetiver, but no mention was made of this being harmful (Chelard, 2003).	L	M
Pest Animal			
17. Food source to pests?	New growth is quite palatable. In its native range, cattle and buffalo grazing it kept it in check (Greenfield, 1989). May therefore be eaten by goats or other feral grazers.	ML	MH
18. Provides harbour?	In Fiji large clumps can provide harbour for rats (Truong & Creighton, 1994). May provide harbour for minor pest species.	ML	MH
Agriculture			
19. Impact yield?	In agricultural landscapes, vetiver grass is recommended for creating hedges along contour lines to reduce erosion and water run-off (Truong & Creighton, 1994). This practise has been observed to increase soil moisture content and maintain soil fertility without competing with the crop and is believed to increase yields (NRC, 1993). By contrast, it appears that in drought years, vetiver may compete with the crop for moisture, however the row immediately beside the vetiver only seems to be affected (Slinger, 2004). Hedges with the potential to grow up to 3m wide (Truong, 2002) may be considered lost land (NRC, 2003), however, it can take 25 years to attain this girth (Truong, 2002) and cultivation can keep hedges to a smaller width (Truong, 2002).	L	MH
20. Impact quality?	There is no evidence to suggest that Monto vetiver impacts on agricultural quality. It has been deliberately planted to make land more productive (Truong & Creighton, 1994) so it would not be expected to impact on the quality of agricultural produce.	L	MH
21. Affect land value?	Vetiver has been used to create productive land on dry hillsides, where cropping was previously not viable due to lack of available water and erosion (NRC, 1993). May increase land value as it enables more productive use of the land.	L	MH
22. Change land use?	In Fiji it was used to limit erosion and slow water runoff so that it was practical to cultivate sugar cane on slopes (NRC, 1993). This was a change in land use from a less productive, to a more productive, use. No evidence has been found that vetiver hedges cause unwanted changes in land use.	L	MH
23. Increase harvest costs?	Is an alternative to more expensive engineering practices for erosion control, and potentially more effective than historical methods (NRC, 1993). Likely to decrease the cost of maintaining agricultural production.	L	MH

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QUESTION	COMMENTS	RATING	CONFIDENCE
24. Disease host/vector?	Is related to other crop species such as maize and sorghum but reported to be generally pest and disease free, However, vetiver can be attacked by " <i>Fusarium</i> (the most widespread cause of rotting in fruits and vegetables);" leaf blights of clover, <i>Curvularia trifolii</i> ; and may be a host for several other fungal diseases of maize, sugarcane and oil palm (NRC, 1993). Provides a host for common diseases.	M	MH