Weed (Scientific name)	**Cortaderia selloana**
Region	**Greater Sydney**
Management Area	**Entire region**
Landuse	**1. CONSERVATION AND NATURAL ENVIRONMENTS**
Assumptions	**also urban, periurban, industrial, transport corridors and wetland areas.**

Invasiveness	**Score**	**Total**			**Source and comments**
Q1. What is the ability of the weed to establish amongst existing plants?		**3.0**	Seedlings establish within dense vegetation or weeds	Q1	Parsons and Cuthbertson (2001) It forms dense, often impenetrable, stands that can damage grazing lands and affect visibility on roads. Damage grass increases its density and colonizes semi
Q2. What is the weed's tolerance to average weed management practices in the land use?		**1.0**	Between 5 and 50% of weeds survive	Q2	Entire plant needs to be treated or individual tillers will continue to grow.
Q3. What is the reproductive ability of the weed in the land use?		**3.0**		Q3	Individual plants have the ability to produce vast quantities of windborne seed – up to 100,000 per flower head – which can infest areas within a 25 km radius (Dellow & McCaffery, 2008) (b) varies with species © clump forming from tillers and rhizomes Seeds lack dormancy (Costas-Lippmann, 1976)
(a) Time to seeding	1.0		>1-3 yrs		
(b) Annual seed production	2.0		High		
(c) Vegetative reproduction	2.0		Frequent		
Q4. How likely is long-distance dispersal (>100m) by natural means?		**2.0**		Q4	Individual plants have the ability to produce vast quantities of windborne seed – up to 100,000 per flower head – which can infest areas within a 25 km radius (DPI, 2015)
(a) Flying animals	0.0		Unlikely		
(b) Other wild animals	0.0		Unlikely		
(c) Water	2.0		Common		
(d) Wind	2.0		Common		
Q5. How likely is long-distance dispersal (>100 m) by human means?		**2.0**		Q5	Individual plants have the ability to produce vast quantities of windborne seed – up to 100,000 per flower head – which can infest areas within a 25 km radius (DPI, 2015) Flowers are increasingly harvested illegally and sold through flower markets away from the main trading area.
(a) Deliberate spread by people	2.0		Common		
(b) Accidentally by people and vehicles	1.0		Occasional		
(c) Contaminated produce	0.0		Unlikely		
(d) Domestic/farm animals	0.0		Unlikely		
Total		**7.3**			

Impacts	Score	Total		
Q1. Does the weed reduce the establishment of desired plants?		**3.0**	> 50% reduction	forms dense clumps Once established, the plant is very competitive, restricting the establishment of native trees (DPI, 2015).
Q2. Does the weed reduce the yield or amount of desired vegetation?		**4.0**	> 50% reduction	It is a very invasive plant, forming dense, often impenetrable, stands that can damage grazing lands, interfere with afforested areas, affect visibility on roads and hinder access to certain natural areas (e.g. stream margins) (CABI, 2016)
Q3. Does the weed reduce the quality of products, diversity or services available from the land use?		**3.0**	High	Invasion reduces plant species, life form richness and native species cover; similarity of native species composition with non-invaded areas can decrease by more than 50% (Domènech et al., 2006).
Q4. What is the weed's potential to restrict the physical movement of people, animals, vehicles, machinery and/or water?		**2.0**	Medium	It is a very invasive plant, forming dense, often impenetrable (CABI, 2016)
Q5. What is the weed's potential to negatively affect the health of animals and/or people?		**2.0**	Medium	The sharp leaves can produce superficial cuts (CABI, 2016) mechanical damage from leaves
Q6. Does the weed have major positive or negative effects on environmental health?		**2.0**		Parsons and Cuthbertson (2001) Due to low decomposition rates of standing dead leaves and senescing panicles, it increases fire risk (CABI, 2016)
(a) food/shelter	1.0		Major negative effect	Plant density was also negatively correlated with pH and richness of plant functional groups (Domènech and Vilà, 2007)
(b) fire regime	1.0		Major negative effect	Low decomposition of litter and standing dead leaves reduce the total soil N and increase C:N ratios (Domènech et al., 2006).
(c) altered nutrient levels	0.0		Minor or no effect	
(d) soil salinity	0.0		Minor or no effect	
(e) soil stability	0.0		Minor or no effect	
(f) soil water table	1.0		Major negative effect	
Total		**8.4**		
Potential Distribution				
Q1. Within the geographic area being considered, what is the percentage area of land use that is suitable for the weed?		**4.0**	20-40% of land use	Common sites of infestation are roadsides, road cuttings, quarry faces, sand dunes, mine spoil, new forest plantations and burnt and mechanically disturbed bushland. It can thrive in low-fertility situations and also tolerate
Comparative weed risk score		**247**		
Weed risk category		**Very high**		

Control Costs	Score	Total		
Q1. How detectable is the weed?		**1**		Q1 Pampas grass is a robust, long-lived perennial plant. It generally takes the form of a large tussock, approximately 1–1.5 m across, with attractive, plumed flower heads carried on tall stems (Dellow & McCaffery, 2008).
(a) Distinguishing features	0		always distinct	
(b) Period of year shoot growth visible	0		> 8 months	
(c) Height at maturity	0		> 2 m	
(d) Pre-reproductive height in relation to other vegetation	2		below canopy	
Q2. What is the general accessibility of known infestations at the optimum time of treatment?		**2**	low	Q2 Many areas that are heavily infested are inaccessible such as wetlands, cliff faces and steep dense areas of bushland. Accessible areas are generally controlled.
Q3. How expensive is management of the weed in the first year of targeted control?		**4**		Q3
(a) Chemical costs/ha	2		medium ($100-$249/ha)	
(b) Labour costs/ha	4		very high (>$500/ha)	
(c) Equipment costs	2		medium	
Q4. What is the likely level of participation from landholders/volunteers within the land use at risk?		**2.0**	low	Q4
Total		**7.5**		

Persistence	Score	Total		
Q1. How effective are targeted management treatments applied to infestations of the weed?		**1**	high	Q1 susceptible to herbicides; if mechanical methods used care must be taken to remove crown and all rhizomes completely (Parsons and Cuthbertson, 2001) deep root system (Dellow and McCaffery, 2008)
Q2. What is the minimum time period for reproduction of sexual or vegetative propagules?		**1**	1-2 years	Q2 Seed dispersal occurs in the autumn and seeds germinate in the early spring (CABI, 2016)
Q3. What is the maximum longevity of sexual or vegetative propagules?		**0**	< 2 years	Q3 Blood (2001) Seedling survival and growth is enhanced by protection from direct light exposure, and soil disturbance at any seral stage and in any habitat type (Domènech et al.,
Q4. How likely are new propagules to continue to arrive at control sites, or to start new infestations?		**2.0**		Q4 seeds disperse to 25km (Parsons and Cuthbertson, 2001)
(a) Long-distance (>100m) dispersal by natural means	2		frequent	
(b) Long-distance (>100m) dispersal by human means	1		occasional	
Total		**3.6**		

Current distribution				
Q1. What percentage area of the land use in the geographical area is currently infested by the weed?		**1.0**	5-10% of land use	Q1
Q2. What is the number of infestations, and weed distribution within the geographic area being considered?		**2.0**	widespread	Q2 Rare to scattered in many parts of the Greater Sydney area with some areas having the weed as widespread and common.
Total		**2.5**		

Comparative feasibility of coordinated control score	**68**	
Feasibility of coordinated control category	**Low**	

Management priority category	**Manage weed Protect priority sites**
Calculation of overall uncertainty score	**0%**
Response	**Submit Assessment**
Positive Impacts	

References/Other comments

Blood, K. (2001). Environmental Weeds. Bloomings Books. Melbourne.228pp.
Dellow, J. and McCaffery, A. (2008). Pampas grass. Primefact 697. NSW DPI. 4pp.
Global Invasive Species Database. http://ww.issg.org/database/species/ecology
Parsons, W.T. and Cuthbertson, E.G. (2001). Noxious Weeds of Australia. 2nd. Edition. CSIRO Publishing, Melbourne, pp.100-105.
PlantNET (2009). Flora Online module of PlantNET. Royal Botanic Gardens and Domain Trust, Sydney. Online at http://plantnet.rbgsyd.nsw.gov.au/search/simple.htm

*Includes C.selloana and C. jubata. C.richardii, a native of New Zealand has been recorded in Tasmania (Parsons and Cuthbertson, 2001) but is not in AVH. (B. Auld 20/3/14)

RAssessed by Kim Hignell 18 August 2016 for Hunter Region

CABBI - (2016) Invasive Species Compendium - Cortaderia selloana (pampas grass). http://www.cabi.org/isc/datasheet/11872 . Accessed 18 August 2016
Costas-Lippmann M, 1976. Ecology and reproductive biology of the genus Cortaderia in California. Berkeley, USA: University of California.
DPI. (2015), NSW Weedwise - Pampas Grass, http://weeds.dpi.nsw.gov.au/Weeds/Details/100 . Accessed 18 August 2016
Domènech RM, Vila M, 2008. Cortaderia selloana seed germination under different ecological conditions. Acta Oecologia, 33:93-96.