

Eyre Peninsula NRM Board

PEST SPECIES REGIONAL MANAGEMENT PLAN

Gazania spp. *Gazania*



This plan has a five year life period and will be reviewed in 2023.



Natural Resources
Eyre Peninsula



Government of South Australia
Eyre Peninsula Natural Resources
Management Board

INTRODUCTION

Synonyms

Gazania hirtella DC., Prodr. (DC.) 6: 511 (1838), *Gazania krebsiana* Less., Syn. Gen. Compos. 44 (1832), *Gazania leiopoda* (DC.) Roessler, Mitt. Bot. Staatssamml. München 3: 388 (1959), *Gazania leucolaena* DC., Prodr. (DC.) 6: 509 (1838), *Gazania linearis* (Thunb.) Druce, Rep. Bot. Exch. Cl. Brit. Isles 1916: 624 (1917), *Gorteria linearis* Thunb., Prodr. Pl. Cap. 162 (1800), *Gazania longiscapa* DC., Prodr. (DC.) 6: 513 (1838), *Gazania maritima* Levyns, J. S. African Bot. 8: 260 (1942), 4 of 5, *Gazania pavonia* R.Br., Hortus Kewensis 5 (1813), *Gazania pectinata* Spreng., Syst. Veg. (ed. 16) 3: 607 (1826), *Gazania rigens* (L.) Gaertn., De Fructibus et Seminibus Plantarum (1791), *Othonna rigens* L., Pl. Rar. Afr. 24 (1760), *Gazania rigida* (Burm.f.) Roessler, Mitt. Bot. Staatssamml. München 3: 397 (1959), Prodr. Fl. Cap. 28 (1768) *Arctotis rigida* Burm.f., *Gazania serrata* DC., Prodr. (DC.) 6: 510 (1838), *Gazania splendens* Hend. & A.A.Hend., Ill. Bouquet 1: t. 29, f. 1 (1859), *Gazania uniflora* (L.f.) Sims, Bot. Mag. 48: t. 2270 (1821), *Gorteria uniflora* L.f., Suppl. Pl. 382 (1782) [2].

These names have been given to populations in South Africa that have diverged only within the last half million years, and consequently are still interbreeding. The gazania variants introduced to Australia are of mixed parentage across this complex, and in recent decades have been selectively bred for improved flowers [2].

Other common names include treasure flower, coastal gazania, trailing gazania and clumping gazania [2].

Biology

Gazania is a drought tolerant perennial herb that is supported by a shallow rooted, woody rhizome system. The plant has daisy like flowers ranging in colour from bright orange, red, yellow and purple. The leaves are dark green-silver and very hairy underneath. They are long and thin and measure 5-10 cm long and 3-20 mm wide.

The plants flower from June to December and are often seen in disturbed areas such as roadsides and coastal dunes. The one seeded fruit is egg-shaped with scales and hairs.

Origin

Native to South Africa, it is widely grown and naturalised in South Australia. Gazanias were originally brought to Australia as an ornamental plant, however they soon escaped from private gardens into roadsides and native vegetation.

Distribution

Currently gazania is widely distributed across the coastal regions of southern Australia, where it is often found on coastal cliffs, sand dunes and disturbed soils [2].

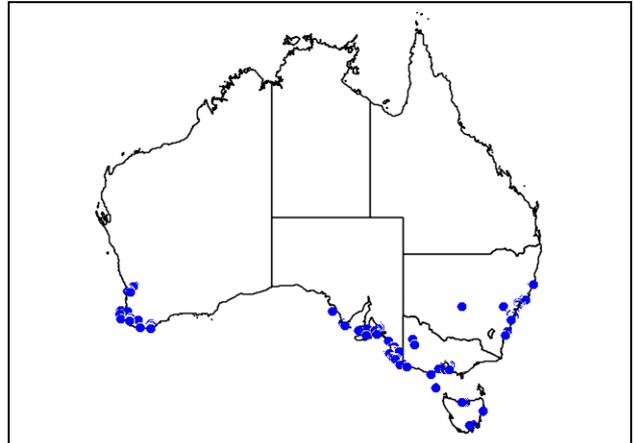


Figure 1: Australian distribution of *Gazania* spp. Source: Atlas of Living Australia.

Gazania could grow over much of South Australia, particularly where sandy and well-drained soils occur [2].

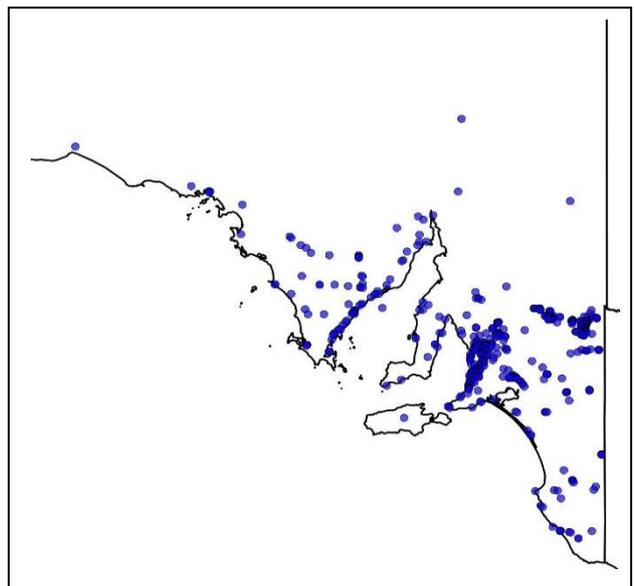


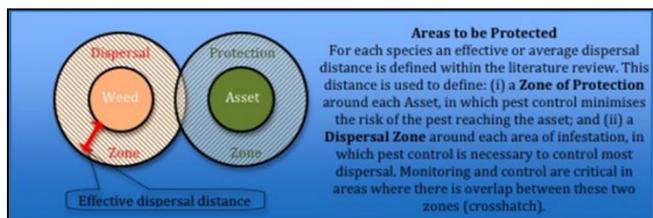
Figure 2: Distribution of *Gazania* spp. within South Australia Source: Atlas of Living Australia, Sept 2017.

RISK ASSESSMENT

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a national framework for environmental management (including the recognition of nationally threatened species and ecological communities), thereby directing resources towards the delivery of improved environmental protection. The EPBC Act applies where declared pest species threaten any listed species or ecological community or where its control may have



adverse effects on matters of national environmental significance on Commonwealth land.



South Australian weed risk assessment process

The Primary Industries and Regions SA (PIRSA) Biosecurity SA division, in cooperation with Natural Resources Management Boards developed the Biosecurity SA Weed Risk Management System [5] to rank the importance of pest plants, standardise the prioritising of these plants for control programs and to assess weed species for declaration.

The Biosecurity SA Weed Risk Management System uses a series of questions to determine weed risk and feasibility of control for a species within a specific land use type. The result of the assessment is used to determine and prioritise weed management actions within each land use type.

Weed risk characteristics assessed include; invasiveness (i.e. its rate of spread); economic, environmental and social impacts, and potential distribution (total area) of the weed.

Appropriate management objectives are determined and can be prioritised using a risk matrix which compares weed risk scores against feasibility of control scores. Pest plants that have both high weed risk and are feasible to control have higher priority management objectives e.g. eradication. Conversely, species that are not feasible to control will not rank as a high priority, monitoring or limited management action may be the most appropriate management objective.

The risk matrix categorises each weed species into one of nine risk categories for regional management:

1. **ALERT:** to prevent species which pose a significant threat arriving and establishing in a management area.
2. **ERADICATE:** remove from a management area.
3. **DESTROY INFESTATIONS:** significantly reduce the extent in a management area.
4. **CONTAIN SPREAD:** prevent the ongoing spread in a management area.
5. **PROTECT SITES:** prevent spread to key sites/assets of high economic, environmental and/or social value.
6. **MANAGE WEED:** reduce the overall economic, environmental and/or social impacts through targeted management.
7. **MANAGE SITES:** maintain the overall economic, environmental and/or social value of key sites/assets through improved general weed management.

8. **MONITOR:** detect any significant changes in the species' weed risk.
9. **LIMITED ACTION:** species would only be targeted for coordinated control if its presence makes it likely to spread to land uses where it ranks as a higher priority.

Pest risk

In the past, gazanias were regarded as an attractive 'no care' garden plant. Rural land managers often planted gazanias on roadsides at farm entrances, while others viewed the plant as a tourist attraction or as a plant that protects sandy soils from erosion. Attitudes are changing, with the community becoming concerned at its spread into coastal dunes and along roadsides from townships.

Gazanias were not considered a declared pest plant until very recently, with their declaration and through education further planting will cease (2015, pers. comm. Iggy Honan).

Gazanias are very tolerant to fire, frost, salinity and drought. Outside their natural range gazanias can rapidly out-compete native plants, leading to a decline in biodiversity.

The plant reproduces vegetatively via runners (stolons) and from seed which is spread by the wind. The viability of seeds is thought to be short-lived. The plants form a thick mat, displacing other vegetation in the area.

Gazanias tolerance of dry conditions and poor soils means they pose a significant risk to coastal plant communities. It is for this reason that gazanias have been classified as a "red alert" species in coastal management areas in New Zealand and Australia [4].

According to the CSIRO *Jumping the Garden Fence* report, gazanias are among the ten most serious invasive plants still being sold [3]. Until recently cultivars were sold by garden centres and supermarkets in South Australia.

Feasibility of control

Management options include:

Manual control - is only feasible for small infestations, regular monitoring and follow-up is crucial to ensure the regrowth is controlled.

Chemical control - glyphosate herbicide combined with a surfactant is an effective control method on both seedlings and mature plants.

Biological control - there is no information about specific biological controls currently. The seedlings however, are susceptible to grazing (and mowing) over summer. Grazing can be included as part of an integrated management program.

Integrating control methods – combines several control methods to achieve longer term outcomes.

Management calendar

	J	F	M	A	M	J	J	A	S	O	N	D
Flowering	O	O	O	O	O	O	O	O	Y	Y	Y	Y
Fruiting	Y	Y	O					O	O	Y	Y	Y
Active Growth					O	Y	Y	Y	Y	Y	O	
Optimum Treatment						Y	Y	Y	Y	Y	Y	

Legend: Y = Yes, regularly, O = Occasionally

Status

The Natural Resources Eyre Peninsula risk management assessment rates gazania as 'contain spread' in all land use systems with the exception of native vegetation where management actions will aim to 'manage weed' (Table 1).

Table 1: Regional Assessment

Land Use	Pest Risk	Feasibility of Containment	Management Action
Pasture	34 Low	16 High	Contain spread
Cropping	34 Low	3 Very High	Contain spread
Native vegetation	164 High	97 Low	Manage weed
Urban residential	34 Low	2 Very High	Contain spread

REGIONAL RESPONSE

Special considerations / Board position

A State level Declared Plant Policy and Management Plan [2] exists for Gazania (*Gazania* spp.). The policy provides State level outcomes, objectives and implementation actions for regional NRM authorities.

The Natural Resources Eyre Peninsula pest management response supports the State gazania policy.

Of particular concern is the plants ability to out-compete native vegetation in drainage lines where it could threaten the nationally endangered Eyre Peninsula blue gum (*Eucalyptus petiolaris*) woodland community and populations of native orchids.

Aim

To contain the spread of gazania on Eyre Peninsula.

Objectives

1. Control existing gazania infestations that pose a threat to priority sites; and
2. Educate community on identification, threat and control of gazania.

Priority area/s to be protected

High value coastal and mallee sites, and threatened ecological plant communities.

Actions

1. Develop localised annual action plans to achieve the aim and implement the objectives and actions of the Eyre Peninsula NRM Regional gazania management plan
2. Identify and prioritize control sites within annual action plans.
3. Educate local communities of the risk posed by this weed
4. Destroy gazanias at priority sites
5. Map gazania infestations to define extent
6. Establish buffer zones around priority areas to contain existing gazania populations
7. Ensure that the sale and transport of the plant are prohibited in accordance with the NRM Act (Table 2); and
8. Establish protocols for systematic data collection and storage in a central spatial database;

Evaluation

Evaluation will be based on changes in the distribution of gazania on Eyre Peninsula during the lifetime of this plan.

Declarations

To implement this policy, gazania is declared under the *Natural Resources Management Act 2004* throughout the whole of the State of South Australia, so that movement of contaminated produce can be prevented. The movement or transport of the plant on a public road by itself or as a contaminant, its entry to South Australia, or sale by itself or as a contaminant are prohibited [2].

Gazania is declared in Category 3 under the Act for the purpose of setting maximum penalties and for other purposes. Any permit to allow its sale or road transport can only be issued by the regional NRM Board pursuant to section 188. Under the *Natural Resources Management (General) Regulations 2005*, the transport or movement of grain for milling or wool for cleaning is exempt from the operation of sections 175 and the sale of wool or grain is exempt from section 177(2) if at the time of the sale the person believes on reasonable grounds that the purchaser

will remove the plant from the wool or grain before any re-sale [2].

Table 2: Relevant sections of the *Natural Resource Management Act 2004*, which apply to *gazania* spp. within South Australia.

Section	How the section applies
175 (1)	Prohibiting entry to area
175 (2)	Prohibiting movement on public roads
177 (1)	Prohibiting sale of the plant
177 (2)	Prohibiting sale of contaminated goods

References

1. Black, J.M., Jessop, J. P. and H.R. Toelken, 1986, *Flora of South Australia*. Adelaide, South Australia: South Australian Government Printing Division.
2. Declared Plant Policy, *Gazania*. Primary Industries and Regions South Australia. January 2015. Accessed online at http://www.pir.sa.gov.au/_data/assets/pdf_file/0016/2346/01/gazania.pdf.
3. Wedderburn Conservation Network. 2008. Available at <http://www.wedderburncmn.org/apps/blog/show/4351419-5-what-do-you-know-about-gazania->. 2008.
4. New Zealand Biosecurity Institute. Year unknown. *What to do about Gazanias*. Available at <http://biosecurity.org.nz/news/what-to-do-about-gazanias/>. Year unknown.
5. Virtue, J.G., 2008, SA Weed Risk Management Guide February 2008. Adelaide: Department of Water Land and Biodiversity Conservation - South Australia. 22.

