

State Herbarium of South Australia
Botanic Gardens and State Herbarium
Economic & Sustainable Development Group
Department of Environment and Water

Milestone Report

**Regional Landscape Surveillance for
New Weed Threats Project
2017-2018**

**Milestone: Annual report on new plant
naturalisations in South Australia**

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June 2018



Government
of South Australia



State Herbarium
of South Australia



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ISBN 978-1-922027-53-5 (PDF)

Published and available on *Enviro Data SA* data.environment.sa.gov.au

This report should be cited as:

Brodie, C.J.¹, Lang, P.J.¹, Canty, P.D.¹ & Waycott, M.^{1,2} (2018). *Regional Landscape Surveillance for New Weed Threats Project 2017-2018. Milestone: Annual report on new plant naturalisations in South Australia.* (State Herbarium of South Australia: Adelaide).

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Summary

Largely through the work of the State Herbarium of South Australia's Weeds Botanist, this year 14 weeds have been added to the Census that have naturalised or become questionably established in the State. This comprises eight taxa collected and databased for the first time and six for which herbarium collections had been made in previous years, but have now been more thoroughly investigated and assessed as weedy in South Australia. Detailed descriptions are given for each of these plant species. Furthermore, 69 updates were made to existing Census weed records involving either a change to the scientific name of a taxon, or to its regional occurrence(s) or establishment status.

The Weeds Botanist undertook 28 days of fieldwork and 12 separate community engagement activities during the last year, in four of the State's eight NRM regions.

1. Activities and outcomes for 2017/2018 financial year

This report summarises the work carried out by the State Herbarium of South Australia for the project *Regional Landscape Surveillance for New Weed Threats* for the 2017/18 financial year.

Funding

Overall funding for the project was received from a number of sources namely the, State Natural Resource Management Program, Department of Primary Industries and Regions, South Australia (PIRSA) Biosecurity SA, Natural Resources Adelaide and Mt Lofty Ranges (NR AMLR), Natural Resources South East (NR SE), and Natural Resources Eyre Peninsula (NR EP). Their support is gratefully acknowledged.

Funding covered the salary of a Weeds Botanist (Chris Brodie), based at the State Herbarium. Funding partially defrayed the cost of undertaking fieldwork and essential plant sample processing expenses.

Further funding was provided by Greening Australia for a community workshop on 'Invasive grass identification and management'. This funding also allowed several days in the region with stakeholders to collect and document weed occurrences.

An additional workshop in the SA Murray-Darling Basin (SAMDB) Natural Resources Management (NRM) region, in Karoonda, on 'Invasive grass identification and management', was funded by Natural Resources SA Murray-Darling Basin (NR SAMDB).

Further funding was provided by PIRSA Biosecurity SA for continuing work on investigations relating to proposed introductions of biological control organisms for the Silverleaf Nightshade *Solanum elaeagnifolium*. Much of this work was carried out by State Herbarium Honorary Research Associate Dr Laurie Haegi, who has extensive taxonomic knowledge of the Solanaceae.

PIRSA Biosecurity SA and NR AMLR also provided funding to support the publication of the second volume of *Feral opuntoid cacti in Australia* by State Herbarium Honorary Research Associate Dr R.J. (Bob) Chinnock.

Significant in-kind support was also provided by State Herbarium staff, Honorary Research Associates and volunteers for associated activities such as plant identification, specimen processing, data entry and reporting.

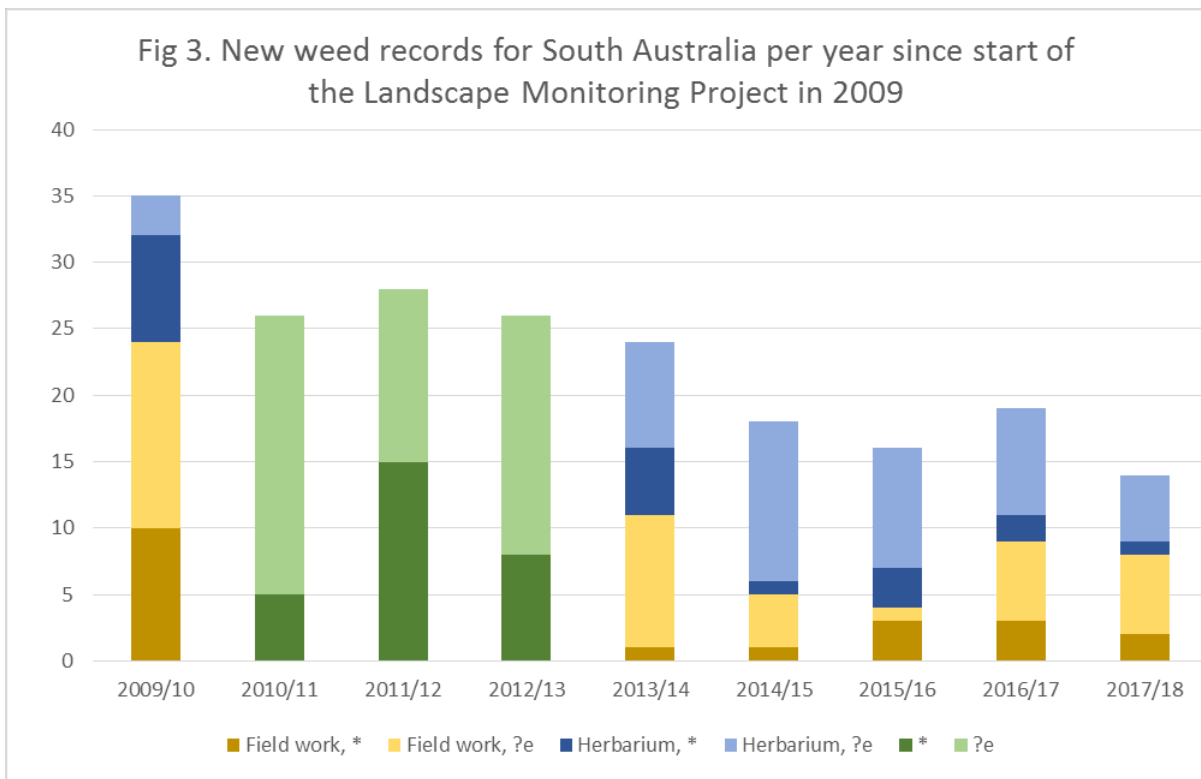
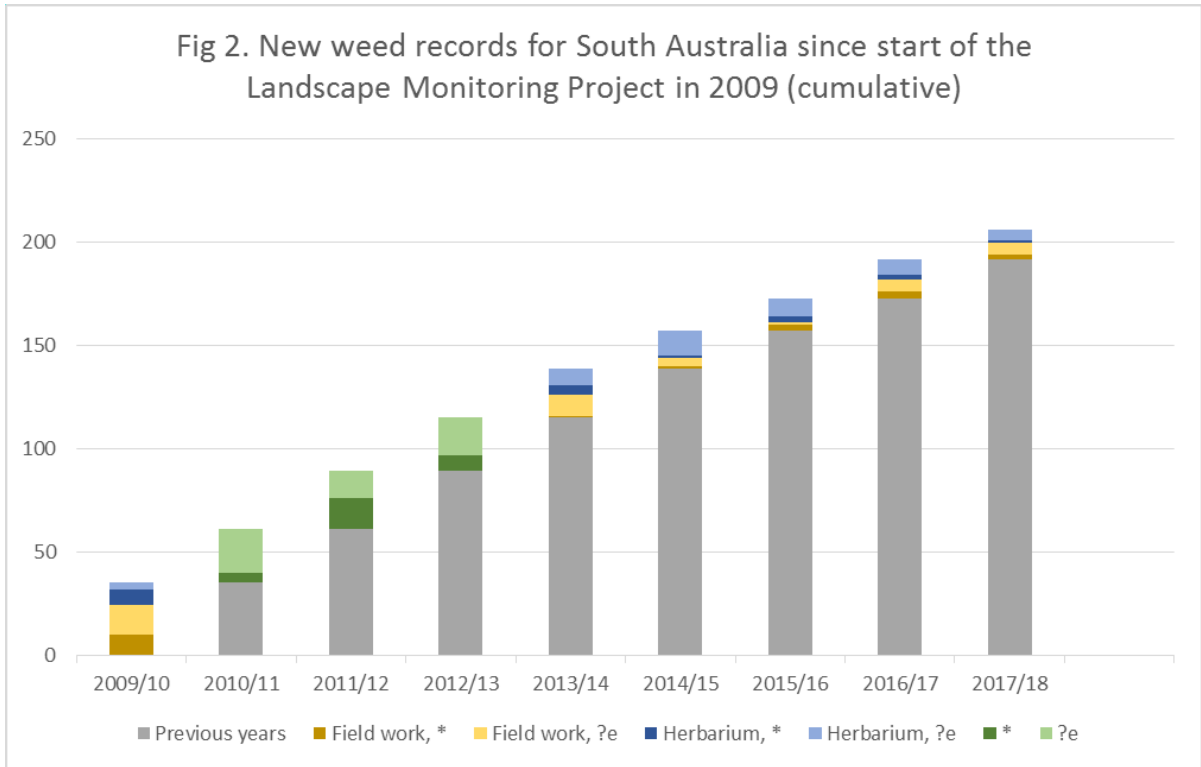
Activities

A major focus of the work of the Weeds Botanist was discovery and collection of new ‘weed’ records, with field work in the Adelaide Mount Lofty Ranges, South East, Northern and Yorke, and SA Murray Darling Basin NRM regions. The Weeds Botanist undertook 28 days of fieldwork during the reporting period, in conjunction with State Herbarium and agency staff, Honorary Research Associates and volunteers (see Appendix 1).

In addition, regional visits included the delivery of workshops and field days for regional staff, NGOs and community members. These visits help to increase awareness of weeds, the value of early detection and the processes required to contribute scientifically valid specimens and records to the State Herbarium. Support for the Weeds Botanist position also provided a point of contact for regional staff and communities, as well as training and support. The Weeds Botanist undertook 12 Community Engagement activities during the year (see Appendix 1; Fig. 1).



Fig. 1. Weeds workshop on ‘Invasive grass identification and management’ presented by Weeds Botanist Chris Brodie and NR SAMDB staff in Karoonda.



Data in Fig. 2 & 3 from the yearly *Regional Landscape Surveillance* reports, specifying new weeds (established, *, or questionably established, ?e) recorded through **Field work** or existing **Herbarium** collections. The distinction between Field work and Herbarium was not reported in the years 2010/11 to 2012/13.

Outcomes and progress of weeds monitoring

The State Herbarium includes all naturalised (established, *) and questionably or sparingly naturalised (questionably established, ?e) taxa in this report as weeds or potential weeds. These taxa are non-native species that have established naturally in the wild and are either self-sustaining or show some degree of self-propagation.

This year we have recognised 14 new weed species records for the State (see Section 2).

Since the project began in 2009, a total of 206 new naturalised plant species have been recorded through field collections and research at the Herbarium. These records have subsequently been added to the online *Census of South Australian plants, algae and fungi* (Census¹).

An overview of the numbers of weeds reported through this project (Figs 2 & 3) shows that, even after the initial rapid detection of new weeds at the initiation of the program, there are ongoing increases in new weeds being detected in South Australia. Over half of the new records were discovered for the first time through fieldwork by the Weeds Botanist, regional staff and collaborators. The remainder were found as a result of more detailed taxonomic analysis among existing herbarium collections. Some of these existing herbarium collections lacked adequate data and required subsequent collections or targeted fieldwork before being assessed as naturalised or questionably naturalised and added to the Census.

The Census provides the South Australian community with information on the State's native and naturalised (weedy) plants occurring in the wild, listing their current name and synonyms (previous names), as well as their regional distribution and conservation status. This data underpins our knowledge on plant species identity and occurrence, and as such forms an official reference point for any legislative action relating to native and naturalised plants in the wild. Data obtained from researchers and botanists within and outside South Australia, through ongoing taxonomic research in the Herbarium and from field collections, has been assessed and included in the Census. Maintaining the Census involves monitoring work published by botanists world-wide that affects the taxonomy of species occurring in South Australia.

¹ *Census of South Australian Plants, Algae and Fungi*, current edition available online <http://flora.sa.gov.au/census.shtml>

2. New naturalised or questionably naturalised records of plants in South Australia.

Over the previous year (3 May 2017 – 1 May 2018) a total of **14** new species records of naturalised or questionably naturalised plants in the wild were added to the Census, based on collections deposited and accessioned in the State Herbarium (listed in Table 1 and described in Section 3 of this report).

These fall into three categories:

- **Eight** field work detected species, i.e. collected recently and databased for the first time in the past year. There is definitive evidence of these being established or questionably established in the wild (although two occurrences were eradicated and are now presumed to be extinct):

- ?e *Abutilon grandifolium*
- * *Chasmanthe aethiopica*
- * *Eucalyptus dundasii*
- ?e *Eucalyptus forrestiana*
- ?e *Eucalyptus stoatei*
- ?e, ex *Euphorbia hirta* (now extinct)
- ?e *Hoheria populnea*
- ?e, ex *Paulownia tomentosa* (now extinct).

- **Four** species were known from State Herbarium collections, but data on their distribution in the State or taxonomic status was inadequate for assessment. Recent field observations and collections enabled their addition to the Census:

- * *Canna* × *generalis*
- ?e *Eucalyptus densa* subsp. *densa*
- ?e *Eucalyptus eremophila* subsp. *eremophila*
- ?e *Eucalyptus torquata*.

- **Two** new species records were discovered when existing State Herbarium collections were re-examined and identified during the past year:

- ?e *Alkekengi officinarum*
- ?e *Euphorbia oblongata*.

* = established/naturalised in the wild; ?e = questionably established; ex = extinct.

Table 1. The fourteen new South Australian weed records added to the Census, based on recent collections and knowledge newly generated.

* = established/naturalised in the wild; ?e = questionably established; ex = extinct.

New Taxon	Common Name	Family	Naturalised/ established	Regional distribution
<i>Abutilon grandifolium</i> (Willd.) Sweet	Hairy Abutilon	Malvaceae	?e	SL
<i>Alkekengi officinarum</i> Moench	Chinese Lantern	Solanaceae	?e	SL
<i>Canna</i> × <i>generalis</i> L.H.Bailey	Canna Lily	Cannaceae	?e	SL
<i>Chasmanthe aethiopica</i> (L.) N.E.Br.	Small Cobra Lily	Iridaceae	*	KI
<i>Eucalyptus densa</i> Brooker & Hopper subsp. <i>densa</i>	Narrow-leaved Blue Mallet	Myrtaceae	*	MU
<i>Eucalyptus dundasii</i> Maiden	Dundas Blackbutt	Myrtaceae	*	NL
<i>Eucalyptus eremophila</i> (Diels) Maiden subsp. <i>eremophila</i>	Tall Sand Mallee	Myrtaceae	?e	MU
<i>Eucalyptus forrestiana</i> Diels	Fuchsia Gum	Myrtaceae	?e	MU
<i>Eucalyptus stoatei</i> C.A.Gardner	Scarlet Pear Gum	Myrtaceae	?e	MU
<i>Eucalyptus torquata</i> Luehm.	Coral Gum	Myrtaceae	?e	FR, EA, EP, MU, SL
<i>Euphorbia hirta</i> L.	Hairy Spurge	Euphorbiaceae	?e & ex	SL
<i>Euphorbia oblongata</i> Griseb.	Balkan Spurge	Euphorbiaceae	?e	NL, MU, SL, SE
<i>Hoheria populnea</i> A.Cunn.	Lacebark	Malvaceae	?e	SL
<i>Paulownia tomentosa</i> (Thunb.) Steud.	Princess Tree or Foxglove Tree	Paulowniaceae	?e & ex	SL

3. Descriptions of newly recognised weeds in South Australia

Taxa are listed in alphabetical order (see also Table 2).

Family: **Malvaceae**

Abutilon grandifolium (Willd.) Sweet

Common name: Hairy Abutilon.

Description: A shrub to 3 m tall, with long hairs on stems. Leaves ovate to ovate-lanceolate, 3–18 cm long, 2–13 cm wide, with yellow to orange flowers about 3 cm wide. **Fig. 4.**

Native to: South America.

Worldwide: Planted occasionally in gardens, and known to have escaped and naturalised (to be weedy), in the United States including Hawaii, New Zealand, some Pacific Islands, and on the Indian subcontinent.

Distribution in Australia: Naturalised in Qld, NSW and Norfolk Island. Sparingly naturalised in Vic and WA.

Collections in SA: Known from a single recent [poor] collection made from a garden at 371 Plains Hill Road, Sellicks Hill. The landowner was concerned that the taxon could naturalise, as the plant was ‘re-seeding everywhere’. Submitted to the State Herbarium to obtain an identification to find out if this was a potential or known garden escapee.

Status in SA: A questionably naturalised record (?e) for the Adelaide and Mount Lofty Ranges NRM region. Added to the Census for the SL region based on a single collection, *J.Edwards s.n.* (Aug. 2017).

References: PlantNET (2018), VicFlora (2018).



Fig. 4. *Abutilon grandifolium* (Willd.) Sweet.

Images: LHS, Forest & Kim Starr (CC-BY 3.0); RHS, Krzysztof Ziarnek (CC-BY-SA 3.0).

Alkekengi officinarum Moench

Synonym: *Physalis alkekengi* L.

Common name: Chinese Lantern or Cape Gooseberry.

Description: Herb or small shrub, 10–50 cm high, sparsely hairy with simple hairs, losing hairs with age. Leaves 4–12 cm long, 2–7 cm wide, sometimes irregularly toothed or not, on a stalk (petiole) 1–3 cm long. White to cream flowers with five petals. Fruit an inflated 10-ribbed bladder, 2.5–4 cm long, which is bright orange to red in colour, containing a red berry 1–2 cm in diameter. **Fig. 5.**

Native to: Origin usually given as Asia or Europe.

Worldwide: Widely naturalised in temperate regions around the world.

Distribution in Australia: Formerly naturalised in Vic.

Collections in SA: Known from a single historical collection made in 1995, from Aldgate Valley in the Adelaide Hills.

Status in SA: A questionably naturalised record (?e) for the Adelaide and Mount Lofty Ranges NRM region. Added to the Census for the SL region based on a single collection, *R.J.Bates 40648* (12 Feb. 1995).

References: Barker (2010).

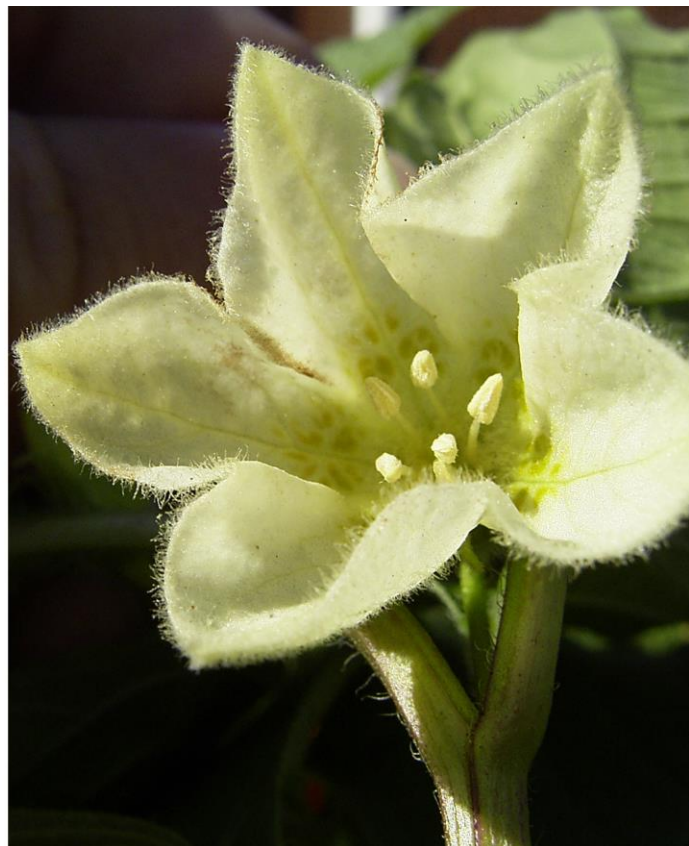
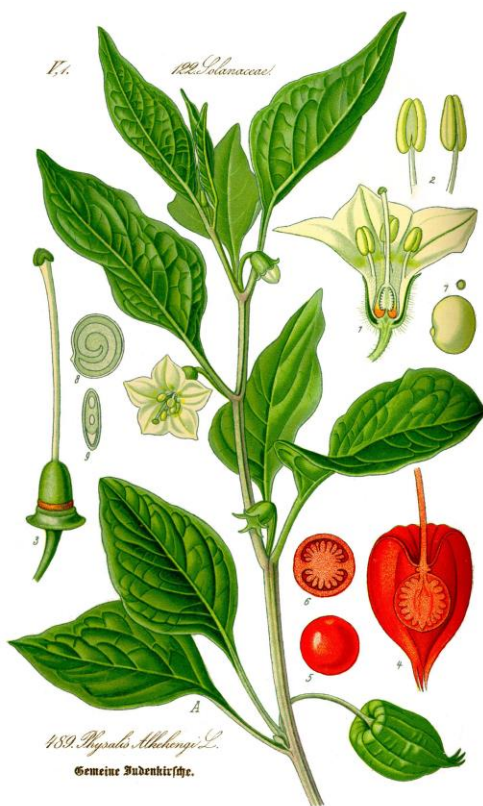


Fig. 5. *Alkekengi officinarum* Moench.

Images: LHS, Thome (1889), as *Physalis alkekengi*; RHS, TeunSpaans (CC-BY-SA 3.0).

Canna × *generalis* L.H.Bailey

Common name: Canna Lily

Description: A large clumping rhizomatous herb to 2 m tall with a tropical look. Large leaves to 45 cm long are produced up the stem from the base. Showy flowers are produced at the top of the stems and can be yellow to orange to red. **Fig. 6.**

Native to: The genus *Canna* comes from the Americas. However, the Canna Lilies are a widely planted horticultural group and this taxon is a horticultural hybrid and the origins are unclear.

Worldwide: Widely cultivated in warm temperate to subtropical environments. Naturalised in Ethiopia, South Africa, New Zealand, some Pacific islands and on the Galapagos Islands.

Distribution in Australia: Naturalised in WA, Qld and Lord Howe Island.

Collections in SA: A recent collection from a clump about 4 m in diameter, growing on the side of a drain, in Regency Park, off Naweena Road, near the roundabout, by rail yard, in industrialised area. An earlier collection, *R.J.Bates 31619* (Feb. 1993), was from a reserve off Grenfell Road, Fairview Park, but lacks detail on its naturalised status and as such was not included in the Census.

Status in SA: A questionably naturalised record (?e) for the Adelaide Mount Lofty Ranges NRM region. Added to the Census for the SL herbarium region based on a single collection, *C.J.Brodie 8188* (11 Dec. 2017).

References: Stanley (1989).



Fig. 6. *Canna* × *generalis* L.H.Bailey.

Image: H. Rose (CC-BY 2.0).

Chasmanthe aethiopica (L.) N.E.Br.

Common name: Small Cobra Lily.

Description: An attractive red-flowered bulbous herbaceous perennial. Plants with a corm and sword-shaped leaves to 30–40 cm above ground, with 6–10 leaves fanning out from a single stem. Inflorescence consisting of 10–16 deep red flowers on spike up to 60 cm tall raised above the leaves. Forming clumps and dense swards. **Fig. 7.**

Native to: Winter rainfall zone of southern Africa, north of Cape Town, from the Western Cape along to the Eastern Cape.

Worldwide: Not commonly planted but known as a garden plant in areas with a Mediterranean climate. In southern California these plants have the reputation of being weedy or legacy plants, because they require no irrigation and multiply by corm offsets and self-sown seeds. A closely related species with similar ecological requirements, *Chasmanthe floribunda* (Salisb.) N.E.Br, is widely naturalised in higher rainfall temperate areas of Australia and South Australia, including the Adelaide Hills and Fleurieu Peninsula, the Northern and Yorke region, southern Eyre Peninsula, Kangaroo Island and the South-East region.

Distribution in Australia: Not previously recorded in Australia.

Collections in SA: A collection on two sheets, from a population at Penneshaw, at Hog Bay Beach at Frenchman's Rock, at the top of the dunes near car parking area, opposite a beach shack called Blue Shack on the opposite side of the road from the dunes. A population of 1000s of plants at the top of the dunes for about 20 m or more, from a patch of several 100 plants, with outlier patched in the dunes. The identification was confirmed by D.A. Cooke via email on 1 Aug. 2017, who noted that it was a smaller plant than *C. floribunda* with the spike secund instead of distichous.

Status in SA: A naturalised record (*) for Kangaroo Island NRM region. Added to the Census for the KI herbarium region based on a single collection, *C.J.Brodie 7912* (13 June 2017).

References: Goldblatt *et al.* (2004), Pacific Bulb Society (2017).



Fig. 7. Population of *Chasmanthe aethiopica* at Penneshaw (C.J.Brodie 7912). Photos: Chris Brodie.

Eucalyptus densa* Brooker & Hopper subsp. *densa

Common name: Narrow-leaved Blue Mallet.

Description: A tall tree, reaching 10–12 m in height, bark smooth and imperfectly shed. Leaves, flowers and fruits held on long elongate branches on the top half of the plant. Small flowers are yellow-cream in colour. Flowers: Jan. to Feb., or May to Sep. **Fig. 8.**

Native to: South-western WA, where it is restricted, and has a scattered distribution, mainly in the wheat belt region.

Worldwide: Not known to be planted or naturalised overseas, but may occur there under the name *E. gardneri*, to which it is closely related.

Distribution in Australia: Occasionally planted in southern Australia as an ornamental. Not recorded as naturalised in any other state or territory.

Collections in SA: Two collections from different locations on Crown Land at the old Monarto plantings, on site RV2 about 100 m from the Old Princes Highway. The first collection, *C.J.Brodie 8038B*, was a group of 10 seedlings not yet producing reproductive structures close to the parent trees. The second collection, *C.J.Brodie 8041*, was a larger group of 30 or more self-sown plants that were in bud, and had old fruits, growing under or close to the large parent tree. Other cases of this species establishing were also present in the area.

Status in SA: A new established record (*) for SA Murray Darling Basin NRM region. Added to the Census for the MU region based on *C.J.Brodie 8041* (24 Aug. 2017).

References: Brooker & Hopper (1991), Nicolle (2016b, p. 90).



Fig. 8. Population of *Eucalyptus densa* subsp. *densa* at Monarto (*C.J.Brodie 8041*). Photo: Chris Brodie.

Eucalyptus dundasii Maiden

Common name: Dundas Blackbutt.

Description: A tree to about 8–14 m tall with a smooth, usually single trunk and rough bark on lower trunk. Crown is rounded to funnel-shaped with small white flowers. **Fig. 9.**

Native to: Goldfield area of southern WA where it grows on plains of reddish loam or on gravelly low rises and hills.

Worldwide: Not known to be planted or naturalised overseas.

Distribution in Australia: Commonly planted in areas of WA, SA, Vic, and NSW. Occasionally planted in southern NT and Qld. Not known as naturalised in any other state or territory.

Collections in SA: A single location with several collections from a roadside population of 25 self-seeded saplings on the Port Wakefield Highway between Red Hill and Crystal Brook. Self-sown plants from 1 to 5.5 m tall, with several of these saplings now fertile. Close to the original roadside plantings of *Eucalyptus dundasii*.

Status in SA: A naturalised record (*) for the Northern and Yorke NRM region. Added to the Census for the NL Herbarium region based on *P.J.Lang 3299* (16 Apr. 2018).

References: Nicolle (2016b, p. 80).



Fig. 9. *Eucalyptus dundasii* (arrow), growing on a Port Wakefield roadside on (*P.J.Lang 3299*). Photo: Peter Lang.

Eucalyptus eremophila* (Diels) Maiden subsp. *eremophila

Common name: Tall Sand Mallee.

Description: An attractive ornamental small tree to 5–10 m tall, normally with a single trunk with smooth shiny light silvery-grey bark, occasionally seasonally coppery. Crown often funnel-shaped with thin elliptic leaves, about 6–7 cm long. Flower buds small, in sevens, with long caps, and producing masses of bird attracting lemon yellow to green flowers. **Fig. 10.**

Native to: WA from the Esperance Plains to the Kalgoorlie area. It grows in mallee and mixed mallee-woodland vegetation, mostly on clayey soils but also on sand overlaying clay.

Worldwide: Not known to be planted or naturalised overseas.

Distribution in Australia: Widely, but not commonly, planted in southern Australia. Not recorded as naturalised in any other States or Territories.

Collections in SA: A single collection made from a stand of 5 self-sown plants in a 3 × 3 m area. The plants were at a reproductive age with old fruit, recent fruit and copious buds. Collected on Crown Lands at the old Monarto plantings, south of plot RV2, about 140 m east-south-east of the gate off Thomas Crescent.

Status in SA: A questionably naturalised record (?e) for the SA Murray Darling Basin NRM region. Added to the Census for the MU region, based on *C.J.Brodie 8047* (24 Aug. 2017).

References: Nicolle (2016a, p. 80).



Fig. 10. *Eucalyptus eremophila* subsp. *eremophila*, parent and seedlings growing at Monarto (*C.J.Brodie 8048*). Photo: Chris Brodie.

Eucalyptus forrestiana Diels

Common name: Fuchsia Gum.

Description: A small tree to 4–6 sometime to 9 m tall. Plants with single thin whippy trunk with smooth light grey-silver bark, shedding in ribbons. It has thick tough lance-shaped leaves to about 10 cm in length. Buds (and fruits) deep red in colour, 3–4 cm long, borne singly on pendulous stalks. Buds (and fruits) with four very prominent longitudinal ridges, becoming shiny at maturity. Flowers (stamens) light yellow. Fruits turning yellow to orange before becoming woody. **Fig. 11.**

Native to: Southern WA from Esperance Plains to Cascades area.

Worldwide: Not known to be widely planted outside Australia. Not known as naturalised overseas.

Distribution in Australia: Cultivated as a street tree and an ornamental in south-east Australia and south-west WA. Not recorded as naturalised in any other States or Territories.

Collections in SA: A single collection made from a small localised population of about 25 self-sown flowering and fruiting plants, 2–4 m tall. Collected on Crown Lands at the old Monarto plantings, on plot RV2, about 140 m east of the gate off Thomas Crescent.

Status in SA: A questionably naturalised record (?e) for the SA Murray Darling Basin NRM region. Added to the Census for the MU region, based on a single collection, *C.J.Brodie 8050* (24 Aug. 2017).

References: Nicolle (2016a, p. 74).



Fig. 11. Population and buds of *Eucalyptus forrestiana* growing at Monarto (*C.J.Brodie 8050*). Photo: Chris Brodie.

Eucalyptus stoatei C.A.Gardner

Common name: Scarlet Pear Gum.

Description: A small tree to 5–8 m tall with a single trunk and grey, cream, to orange tan bark shed in ribbons. Crown usually heavy and dense. Adult leaves shiny green and elliptic. Buds (and fruits) borne singly on long pendulous stalks. Buds large, to 4 cm long, egg-shaped coarsely ribbed and bright red at maturity. Fruit fading to yellow green before becoming woody. **Fig. 12.**

Native to: A small area near the coast between Esperance and Albany, growing on clayey soils in undulating to level country where often forms thickets in mallee shrubland vegetation.

Worldwide: Not known to be widely planted outside Australia. Not known as naturalised overseas.

Distribution in Australia: Restricted to a small area on the south coast of WA, where it can form thickets in mallee shrubland vegetation. Not recorded as naturalised in any other States or Territories.

Collections in SA: A single collection from a single self-sown individual made on Crown Lands at the old Monarto plantings, on plot RV2, about 250 m east of the gate off Thomas Crescent. Several other scattered individuals up to 100 m away.

Status in SA: A questionably naturalised (?e) record for the SA Murray Darling Basin NRM region. Added to the Census for the MU region, based on a single collection, *C.J.Brodie 8056* (24 Aug. 2017).

References: Nicolle (2016b, p. 170).



Fig. 12. Single self-sown individual of *Eucalyptus stoatei* growing at Monarto (*C.J.Brodie 8056*). Photo: Chris Brodie.

Eucalyptus torquata Luehm.**Common name:** Coral Gum.

Description: A small to medium tree to 9, or rarely, 12 m tall, with a single trunk with non-shedding rough fissured bark, and more or less smooth cream to tan branches. Crown rounded with dull green green-grey lance-shaped leaves, mostly 8–10 cm long, occasionally to 15 cm. Plants produce an abundance of ribbed buds and subsequently fruit, normally in groups of 7, but occasionally in groups from 5 to 10. Buds lime green, turning pink to orange-pink or even light red as they mature, with strongly ribbed bud-caps. Flowers cream, pink or orange-pink. Flowering occurs mainly in spring, with fewer flowers sometimes present at other times of the year. **Fig. 13.**

Native to: WA and restricted to southern goldfields, where it grows on low hills and rises on stony to rocky sites in reddish loam.

Worldwide: Not known to be widely cultivated, or recorded as naturalised outside Australia.

Distribution in Australia: An attractive tree with colourful bird-attracting pink flowers present much of the year, and widely grown in temperate to arid areas of Australia. Not recorded as naturalised in any other States or Territories.

Collections in SA: A total of six collections from five State Herbarium regions. Four collections were made between 1991 and 2004, and the two most recent ones were made in 2017.

Status in SA: All records are listed as questionably naturalised (?e) in these herbarium regions: FR, EA, EP, MU, SL.

A questionably naturalised record for the SA Murray Darling Basin NRM region was added to the Census for the MU herbarium region based on the *C.J.Brodie 8045B* (24 Aug. 2017), from several self-sown plants within the Monarto plantings.

A questionably naturalised record for the Adelaide Mount Lofty Ranges NRM region was added to the Census for the SL herbarium region based on *C.J.Brodie 8187* (30 Nov. 2017). This was from a quarry near Hallett Cove, with about 15 self-sown plants.

Two questionably naturalised records for the Northern and Yorke NRM region were based on two collections that fall within the FR and EP Herbarium regions. One record was added to the Census for the FR region, based on *R.Bates 64087* (Oct. 2004) from Wilmington. The other was added to the Census for the NL region, based on *F.J.Badman 6632* (Jan. 1992), 2 km north of the racecourse on Leigh Creek power line track at Port Augusta. This followed a site visit by State Herbarium Botanist Dr Peter Lang on 16 Apr. 2018 to evaluate its establishment status. He stated: ‘the site appears to be an old sand quarry with the elongated stands of 15–20 mature trees of *E. torquate*, showing no evidence of self-establishment but probably planted for screening or rehabilitation purposes; however, also observed presumed self-seeded clump of 3 sterile saplings 1.5 to 2.5 m tall and [a] nearby young tree 4 m tall with buds & fruit, plus another isolated younger fertile tree’.

Two questionably naturalised records for the SA Arid Lands NRM region are based on two collections in the FR and EA herbarium regions. One record was added to the Census for the FR region based on *R.J.Bates 34194* (Sep. 1993) from the Gammon Ranges National Park. The other was added to the Census for EA region based on *D.E. Symon 15107* (July 1991) from Ocalia Creek at Manunda Homestead.

References: Nicolle (2016a, p. 182–183).



Fig. 13. A planted parent tree of *Eucalyptus torquata* at Monarto plantings (C.J.Brodie 8277). Photo: Chris Brodie.

***Euphorbia hirta* L.**

Common name: Hairy Spurge or Asthma Weed.

Description: A soft herb that can grow along the ground or semi-erect to 40 cm. Pale brown stems; leaves opposite, elliptic, green with several obvious veins. Small flowers less than 1 mm long, in dense clusters on a stalk in the leaf axils. Fruits 3-lobed, to 1.2 mm across, with small seeds to 0.8 mm. **Fig. 14.**

Native to: North and South America.

Worldwide: A very common weed worldwide, especially in tropical and subtropical areas, but also occasionally found and less common in warm temperate areas.

Distribution in Australia: Naturalised in WA, NT, Qld, NSW.

Collections in SA: A single collection made from adventive groups of plants growing on a path and gravel. They are presumed to have germinated from seeds originating from pot plants brought into a garden. The existing occurrences were collected and all subsequent plants and seedling germinations have been removed.

Status in SA: A questionably naturalised record (?e) also listed as extinct (ex) for the Adelaide and Mount Lofty Ranges NRM area. Added to the Census for the SL region, based on a single collection, *R.J.Chinnock 10511* (29 Jan. 2016). The population is being controlled and monitored.

References: PlantNET (2018).



Fig. 14. *Euphorbia hirta*.

Image by By Krish Dulal (CC-BY-SA 3.0).

Euphorbia oblongata Griseb.

Common name: Balkan Spurge.

Description: An erect short-lived perennial subshrub to 1 m tall that makes an attractive looking garden plant. It produces numerous stems from the roots, and the leathery green leaves are arranged alternately up the stems. Stems terminate in inflorescences with brilliant acid-green bracts; the 3–5 umbellately arranged terminal fertile branches are further branched. Normally flowering Sep–Mar.

Fig. 15.

Native to: Turkey and south-eastern Europe, including Albania, Bulgaria, Greece, and Macedonia.

Worldwide: Naturalised in the USA.

Distribution in Australia: Doubtfully naturalised in Qld, and naturalised in NSW, ACT and Vic.

Collections in SA: All collections were made between 1997 and 2005. All are historical occurrences that were reassessed and added to the Census by Peter Lang.

Status in SA: Added as questionably naturalised (?e) for the herbarium regions: NL, MU, SL, SE.

It is a questionably naturalised record for the SA Murray Darling Basin NRM region and was added to the Census for the MU herbarium region based on *R.J. Bates 64642* (June 2005), from the ‘Eudunda area’.

It is a questionably naturalised record for the Northern and Yorke NRM region and was added to the Census for the NL herbarium region based on *R.J. Bates 64818* (Feb. 2005) from ‘near the old monastery at Sevenhill’.

It is a questionably naturalised record for the Adelaide Mount Lofty Ranges NRM region. It was added to the Census for the SL herbarium region based on two collections: *R.J. Bates 60240* (5 Nov. 2001) from Gumeracha streets; *R.J. Bates 49097* (14 Nov. 1997) from Arbury Park.

It is a questionably naturalised record for the South-East NRM region and was added to the Census for the SE herbarium region, based on *R.J. Bates 45930* (15 Jan. 1997) made south of Mount Gambier.

References: PlantNET (2018), VicFlora (2018).



Fig. 15. *Euphorbia oblongata*.

Image: Dominicus Johannes Bergsma (CC-BY-SA 3.0).

Hoheria populnea A.Cunn.

Common name: Lacebark.

Description: A soft wooded small tree to about 8 m tall, with grey to grey-brown trunk and branches. Younger twigs red brown and ascending, producing evenly spaced, alternate coarsely toothed leaves, oval in outline, sometimes with purplish tinged veins. Leaves to 4–10 cm long and 3–6 cm wide, but reported to have larger leaves. Green buds present, producing white flowers white (not seen). **Fig. 16.**

Native to: New Zealand.

Worldwide: Known to be cultivated in temperate areas but not recorded as naturalised.

Distribution in Australia: Known to be sparingly naturalised in Vic.

Collections in SA: A single collection from a small population of about 20 plants of varying sizes growing by a pathway connecting Crafers and Stirling in the Adelaide Hills. The largest plant was about 8 m tall and flower buds were present.

Status in SA: This is a questionably naturalised record (?e) for the Adelaide and Mount Lofty Ranges NRM area. Added to the Census for the SL region based on a single collection, *C.J. Brodie 7032* (7 Apr. 2016).

References: VicFlora (2018), de Lange (2012).



Fig. 16. *Hoheria populnea* growing wild by a path in the Adelaide Hills (*C.J.Brodie 7032*). Photo: Chris Brodie.

Family: **Paulowniaceae / Scrophulariaceae**

Paulownia tomentosa (Thunb.) Steud.

Common name: Princess Tree or Foxglove Tree.

Description: Large fast growing trees to about 20 m tall with a straight trunk. with grey smooth to slight fissured bark. Broad heart-shaped leaves, 15–30 cm long, 12–28 cm wide. Produces masses of large foxglove like flowers in racemes at the end of the branches. **Fig. 17.**

Native to: China.

Worldwide: Widely cultivated in temperate regions around the world and occasional naturalised.

Distribution in Australia: Naturalised in Qld and formerly naturalised in Vic.

Collections in SA: A single collection made from a population on a roadside bank in the Adelaide Hills. Plants less than 1 m tall, so probably only the first season's growth (**Fig. 17**). Several large parent trees to 15–20 m or more in height, growing in a paddock 10–40 m away from main population.

Status in SA: This is a questionably naturalised record (?e), also listed as extinct (ex) for the Adelaide Mount Lofty Ranges NRM region. Added to the Census for the SL herbarium region based on a single collection, *C.J.Brodie 6051A* (19 Jan. 2015). However, no seedlings were seen on a return visit to the site to collect and confirm the identity of the parent trees. *C.J.Brodie 8124* (9 Nov. 2017).

References: Mill (2011).



Fig. 17. *Paulownia tomentosa* seedlings growing on a roadside bank on Spriggs Road in the Adelaide Hills (*C.J.Brodie 6051A*). Photo: Chris Brodie.

4. Updates to weed distributions in South Australia, weed status and name changes

Updates to 69 taxa were made in the Census during the last year. These are changes to **distribution, names or status** (Table 2) of plant names already listed in the Census. Some taxa have multiple changes listed for one or more regions within SA.

A change in **distribution** indicates:

- additional regions added due to new collections, corrected or updated identifications, or reassignment of recorded locations to their correct regions
- regions removed due to corrected or updated identifications, or reassignment of recorded locations to their correct regions.

A **name change** could be:

- a change in genus, species or sub specific name (subspecies, variety, form or cultivar)
- adding or removing a sub specific name.

These changes may result from the application of new or recently accepted taxonomic classifications in South Australia, or merely through application of the rules of botanical nomenclature to existing taxonomy.

A change of **weed status** in one or more region; this can be change from one of the following to another:

- naturalised / established in the wild (*)
- questionably established (?e)
- native (n)
- questionably native (?n).

Table 2. Updates to weed distribution, weed status and name changes

Update type: **Name** = name change; **Distribution** = change in distribution, extension of range or new regional record (new region indicated in **bold**, deleted region with ~~strike through~~); **Status** = change of weed status (region changed is underlined).

Weed status: * = naturalised, i.e. established in the wild; ?e = questionably established; n = native; ?n = questionably native.

Taxon	Update type	Update / comment
<i>Acacia dealbata</i> Link subsp. <i>dealbata</i> Silver Wattle	Distribution	NL*, SL*, KI ^{?e} , SE* Added for KI as questionably naturalised based on collection <i>C.J.Brodie 7968</i> (15 June 2017) from near Parndana.
<i>Acacia longifolia</i> (Andrews) Willd. subsp. <i>longifolia</i> Sallow Wattle	Status	EP ^{?e} , NL*, SL*, <u>KI</u> *, SE* Changed status for KI from questionably naturalised to <u>naturalised</u> based on <i>C.J.Brodie 7973</i> with the comments, 'very common in area' and advice from M.O'Leary that 'it was well established on inland KI'.
<i>Acacia notabilis</i> F.Muell Notable Wattle	Distribution	GT ⁿ , FR ⁿ , EP ⁿ , NL ⁿ , MU ^{n&*} , YP ⁿ , SL ^{n&*} Added status as naturalised for MU region, as well as being native in the region. Naturalised record based on collection and assessment of <i>L.Jansen 2099</i> and <i>A.Carle 224</i> (both 2010). Added status as naturalised for SL region, as well as being native in the region. Naturalised record based on collection and assessment of <i>E.L.Robertson 107</i> (Apr. 1996).
<i>Agave americana</i> L. Century Plant	Distribution	LE ^{?e} , GT ^{?e} , FR ^{?e} , EA ^{?e} , EP*, NL*, MU*, YP ^{?e} , SL*, KI ^{?e} , SE* Added for LE as questionably naturalised based on <i>C.J.Brodie 1668</i> (22 Apr. 2010). Added for KI as questionably naturalised based on <i>B.M.Overton 2945</i> (10 Apr. 2007) and <i>C.J.Brodie 6468</i> (24 Nov. 2016).
<i>Aloe maculata</i> All. Broad-leaf Aloe	Distribution	LE*, EP*, NL*, YP*, SL*, KI *, SE* Added for KI as naturalised based on <i>C.J.Brodie 7467</i> (24 Nov. 2016).
<i>Asparagus scandens</i> Thunb. Climbing Asparagus	Distribution	SL*, KI ^{?e} , SE* Added for KI as questionably naturalised based on <i>C.J.Brodie 7958</i> (15 June 2017).
<i>Bellardia latifolia</i> (L.) Cuatrec.	Name	Changed from <i>Parentucellia latifolia</i> (L.) Caruel
<i>Bellardia trixago</i> (L.) All.	Name	Changed from <i>Bartsia trixago</i> L.
<i>Bellardia viscosa</i> (L.) Fisch. & C.A.Mey.	Name	Changed from <i>Parentucellia viscosa</i> (L.) Caruel.

Taxon	Update type	Update / comment
<i>Blechnum parrisiae</i> Christenh.	Name	Changed from <i>Doodia australis</i> (Parris) Parris.
<i>Bidens pilosa</i> L. var. <i>minor</i> (Blume) Sherff Cobbler's Pegs	Name	Name change for <i>Bidens pilosa</i> L. applying variety names: <ul style="list-style-type: none"> • var. <i>minor</i> (Blume) Sherff: NW*, EP*, MU*, SL* • var. <i>pilosa</i> Sherff: MU*, SL*
<i>Bidens pilosa</i> L. var. <i>pilosa</i> Cobbler's Pegs		The addition of variety names follows the published taxonomic work of Orchard (2015). The original identification of SA specimens was by Orchard in April 2010.
<i>Bidens subalternans</i> DC. var. <i>simulans</i> Sherff Bi-pinnate Beggar's Ticks	Name	Name change for <i>Bidens bipinnata</i> L.
<i>Brassica rapa</i> L. subsp. <i>oleifera</i> (DC.) Metzg. Turnip Rape	Name	Changed from <i>Brassica rapa</i> L. subspecies <i>silvestris</i> (L.) Janch. An invalid name.
<i>Carduus pycnocephalus</i> L. Shore Thistle	Distribution	FR*, EP*, SL*, KI* , SE* Added for KI as naturalised based on <i>C.J.Brodie 7433</i> (23 Nov. 2016).
<i>Carex divulsa</i> Stokes Grey Sedge	Status	<u>SL*</u> Changed status for <u>SL</u> from questionably naturalised to <u>naturalised</u> based on a second collection <i>C.J.Brodie 8153</i> (22 Nov 2017) from a different population. First collection: <i>A.Welsh s.n.</i> (30. Nov 2016).
<i>Cassinia sifton</i> Orchard Sifton Bush	Name	Name change for <i>Cassinia</i> , with <i>Cassinia arcuata</i> R.Br. split in to two species, <i>Cassinia arcuata</i> R.Br. and <i>Cassinia sifton</i> Orchard. <i>Cassinia sifton</i> is now considered naturalised in the SE region. This follows the published taxonomic work of Orchard (2017).
<i>Casuarina glauca</i> Sieber ex Spreng. Swamp Oak	Distribution	FR ^{?e} , EP*, NL ^{?e} , MU ^{?e} , YP*, SL*, KI* , SE ^{?e} Added for KI as naturalised based on <i>C.J.Brodie 7970A</i> (15 June 2017) south of Parndana.
<i>Cenchrus setaceus</i> (Forssk.) Morrone Fountain Grass	Distribution	LE* , GT*, FR*, EP*, NL*, MU*, YP*, SL*, KI* , SE* Added for LE as naturalised based on <i>D.Jardine 307</i> . First collection: <i>D.E.Symon 17155</i> (28 Aug. 2005). Added for KI as naturalised based on <i>C.J.Brodie 7503</i> (25 Nov. 2016) and <i>C.J.Brodie 7933</i> (14 June 2017).
<i>Centaurium erythraea</i> Raf. × <i>Centaurium</i> <i>tenuiflorum</i> (Hoffmanns. & Link) Fritsch	Name	Added the name <i>Centaurium erythraea</i> × <i>Centaurium tenuiflorum</i> to recognise the large number of hybrids, following identifications by Botanist Louis Zeltner in Sep. 2011.

Taxon	Update type	Update / comment
<i>Centaurium pulchellum</i> (Sw.) Druce Branched Centaury	Distribution	EP*, MU*, YP*, SL*, KI* , SE* Added for KI as naturalised based on <i>C.J.Brodie 7498</i> (25 Nov. 2016).
<i>Citrullus amarus</i> Schrad.	Name	Changed from <i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai.
<i>Conyza bonariensis</i> (L.) Cronquist Flax-leaf Fleabane	Status	NW*, LE*, NU*, GT*, FR*, EA*, EP*, NL*, MU*, YP*, SL*, KI* , SE* Changed status for KI from questionably naturalised to naturalised based on a second collection <i>C.J.Brodie 7931</i> (13 June 2017). First collection: <i>G.Jackson 3199</i> (23 Feb. 2001).
<i>Corymbia maculata</i> (Hook.) K.D.Hill & L.A.S.Johnson Spotted Gum	Distribution	SL*, KI ^{2e} Added for KI as questionably naturalised based on <i>C.J.Brodie 7971B</i> (15 June 2017).
<i>Cota tinctoria</i> (L.) J.Gray	Distribution Name	NL ^{2e} , SL ^{7e} Added for NL as questionably naturalised based on <i>R.Bates 49855</i> . Added <i>Anthemis tinctoria</i> L. subsp. australis (R.Fern.) Oberpr. & Greuter as a synonym of <i>Cota tinctoria</i> (L.) J.Gray based on identification of SL collection <i>R.J. Bates 29571</i> by I.R. Thompson.
<i>Cucumis myriocarpus</i> Naudin subsp. <i>myriocarpus</i>	Name	Name change to include subspecies <i>myriocarpus</i> .
<i>Dimorphotheca fruticosa</i> (L.) DC. Trailing African Daisy	Distribution	GT*, YP*, SL*, KI* Added for KI as naturalised based on fruiting collection <i>C.J.Brodie 7520</i> (25 Nov. 2016).
<i>Dysphania multifida</i> (L.) Mosyakin & Clemants Scented Goosefoot	Distribution	EP*, NL*, MU*, YP*, SL*, SE* Added for SE as naturalised based on <i>A.Kurray s.n.</i> (19 July 1994), previously misidentified and subsequently re-named as <i>Dysphania multifida</i> by Chris Brodie in Aug. 2017.
<i>Echium candicans</i> L.f. Pride of Madiera	Distribution	SL ^{7e} , KI ^{2e} , SE Added for KI as questionably naturalised based on <i>C.J.Brodie 7509</i> (25 Nov 2016).
<i>Eragrostis minor</i> Host Small Stink-grass	Distribution	NW*, LE*, FR*, EA*, EP*, NL*, MU*, YP*, SL*, KI* , SE* Added for KI as questionably naturalised based on <i>C.J.Brodie 7950</i> (14 June 2017) and <i>C.J.Brodie 7977</i> (16 June 2017).

Taxon	Update type	Update / comment
<i>Eruca sativa</i> Mill. Purple-vein Rocket	Distribution	FR ^{?e} , EP*, NL*, MU*, SL*, KI ^{?e} , SE* Added for NL as naturalised based on <i>R.J.Bates 53867</i> (Sep. 1999). Added for KI as questionably naturalised based on <i>C.J.Brodie 7505</i> (25 Nov. 2016).
<i>Eucalyptus sideroxylon</i> A.Cunn. ex Woolls subsp. <i>sideroxylon</i> Red Ironbark	Name	Name change to include subsp. <i>sideroxylon</i>
<i>Eucalyptus utilis</i> Brooker & Hopper Coastal Moort	Distribution	MU ^{?e} , SE ^{?e} Added for MU as questionably naturalised based on <i>C.J.Brodie 8049A</i> and a few other self-sown plants in general location.
<i>Euphorbia cyathophora</i> Murray Dwarf Poinsettia	Distribution	EP ^{?e} , YP ^{?e} Added for YP as questionably naturalised based on <i>D.E.Murfet 6427</i> (22 Jan. 2009), which was recently identified.
<i>Euphorbia lathyris</i> L. Caper Spurge	Distribution	NL*, SL*, SE* Added for NL as naturalised based on recently identified collections <i>R.Bates 52279</i> (1 Mar 1999) and <i>R.Bates 64765</i> (Feb. 2005).
<i>Euphorbia marginata</i> Pursh Snow-on-the-mountains	Distribution	MU ^{?e} , NL ^{?e} Added for NL as questionably naturalised based on collections <i>R.Bates 55898</i> (Feb. 2000), which was recently identified.
<i>Fumaria capreolata</i> L. White-flower Fumitory	Name	Removed subspecies name, i.e. 'subsp. <i>capreolata</i> '.
<i>Gazania linearis</i> (Thunb.) Druce Gazania	Status Distribution	FR*, EA*, EP*, NL*, MU*, YP*, SL*, KI*, SE* Changed status for FR from questionably naturalised to <u>naturalised</u> based on <i>R.Bates 15573</i> . Added for EA as naturalised based on <i>D.E.Symon 17448</i> . Added for NL as naturalised based on <i>C.J.Brodie 2289</i> (19 Jan 2011) and <i>C.J.Brodie 3202</i> (22 June 2011). Added for KI as naturalised based on <i>R.Bates 61161</i> (Sep. 2002) and four other Brodie collections from Nov. 2016. Added for SE as naturalised based on collections <i>C.J.Brodie 2730</i> (15 Feb. 2011), plus four other collections, including first collection <i>P.J.Lang BS84-812</i> (7 Dec 1995).
<i>Glandularia aristigera</i> (S.Moore) Tronc.	Name Status	FR*, EP*, NL ^{?e} , MU*, YP ^{?e} , SL* Changed name from <i>Verbena aristigera</i> S.Moore. Changed status for YP from naturalised to <u>questionably naturalised</u> , based on <i>D.E.Murfet 6426</i> .

Taxon	Update type	Update / comment
<i>Glebionis coronaria</i> (L.) Cass. ex Spach	Name	Changed name from <i>Chrysanthemum coronarium</i> L.
<i>Kickxia elatine</i> (L.) Dumort. subspecies <i>elatine</i> Woolly Toadflax	Distribution	SL*, KI* Added for KI as naturalised based on <i>C.J.Brodie 7922</i> (13 Jun 2017).
<i>Lepidium coronopus</i> (L.) Al-Shehbaz Flat Swine's Cress	Distribution	SE*, KI * Removed <i>Lepidium coronopus</i> as naturalised from KI (based on <i>G.Jackson 3416</i>), following re-identification to <i>Lepidium didymum</i> by C.J.Brodie on 26 July 2017.
<i>Limonium hyblaenum</i> Brullo Sicilian Sea-lavender	Distribution	EP*, MU*, YP*, SL*, KI*, SE* Added for KI as naturalised based on <i>B.M.Overton 1225</i> being re-identified from <i>Limonium companyonis</i> to <i>L. hyblaenum</i> by C.J.Brodie on 7 Dec. 2012.
<i>Limonium sinuatum</i> (L.) Mill. Notch-leaf Sea-lavender	Distribution	GT*, FR*, EP*, NL*, MU*, YP*, SL*, KI*, SE* Added for NL as naturalised based on <i>C.J.Brodie 4742</i> (1 Feb. 2013) and 5 other collections made between 1966 and 2015.
<i>Lobularia maritima</i> (L.)Desv. Sweet Alyssum	Distribution	EP ^{2e} , NL ^{2e} , MU ^{2e} , YP*, SL*, KI*, SE* Added for EP as questionably naturalised based on <i>C.J.Brodie 5592</i> (23 July 2014). Added for NL as questionably naturalised based on <i>R.Bates 34244</i> (26 Sep 1993). Added for MU as questionably naturalised based on <i>C.J.Brodie 6354</i> (11 Jun 2015) and <i>C.J.Brodie 3160</i> (15 June 2011). Added for KI as naturalised based on <i>C.J.Brodie 7984</i> (16 June 2017).
<i>Lycium barbarum</i> L. Chinese Boxthorn	Distribution	MU ^{2e} , SL ^e , SE ^{2e} Added for MU as questionably naturalised based on <i>R.Bates 64610</i> . Added for SE as questionably naturalised based on flowering and fruiting collection <i>D.Lang 3</i> (15 Nov. 2016). This is the same occurrence as the vegetative collection <i>C.J.Brodie 5157</i> (5 Nov. 2013).
<i>Lysimachia arvensis</i> (L.) U.Manns & Anderb. Scarlet Pimpernel	Name	Changed name from <i>Anagallis arvensis</i> L.
<i>Lysimachia linum-stellatum</i> (L.) Duby Asterolinon	Name	Changed name from <i>Asterolinon linum-stellatum</i> (L.) Duby

Taxon	Update type	Update / comment
<i>Lysimachia minima</i> (L.) U.Manns & Anderb. Chaffweed	Name	Changed name from <i>Anagallis minima</i> (L.) E.H.L.Krause
<i>Malva parviflora</i> L. Small-flower Marshmallow	Status	NW ^e , LE ^e , NU ^e , GT ^e , FR ^e , EA ^e , EP ^e , NL ^e , MU, YP ^e , SL ^e , KI ^e , SE ^e Changed status for KI from questionably naturalised to <u>naturalised</u> based on <i>C.J.Brodie 7463</i> (24 Nov 2016).
<i>Melaleuca nesophila</i> F.Muell. Showy Honey Myrtle	Distribution	EP* , SL*, SE* Added for EP as naturalised based on I.Abbott SEP-1013, made 19 Jan 2016.
<i>Oligocarpus calendulaceus</i> (L.f.) Less.	Distribution	NU*, GT* , EA*, EP* Added for GT as naturalised based on <i>D.J.Duval 1670</i> (4 Nov. 2009). Added for EA as naturalised based on <i>T.S.Te 623</i> (21 Oct. 2008).
<i>Opuntia monacantha</i> Haw. Drooping Prickly Pear	Distribution	GT*, EA*, EP*, MU*, SL*, KI ^e Added for KI as questionably naturalised based on <i>C.J.Brodie 7917</i> (13 June 2017). The single small plant collected, was removed.
<i>Opuntia puberula</i> Pfeiff. Blind Prickly-pear	Distribution	FR*, EP*, NL*, MU*, YP* , SL*, SE* Added for YP as naturalised based on <i>C.J.Brodie 8021</i> (22 Jun 2017) and an earlier collection, <i>R.J.Chinnock 10118</i> (11 July 2007).
<i>Rapistrum rugosum</i> (L.) All. subsp. <i>rugosum</i> Turnip Weed	Distribution	LE*, NU*, FR*, EP*, NL*, MU*, YP*, SL*, KI* , SE* Added for KI as naturalised based on <i>C.J.Brodie 7489</i> and <i>C.J.Brodie 7492</i> (both 25 Nov. 2016).
<i>Reichardia tingitana</i> (L.) Roth False Sow Thistle	Distribution	NU*, GT*, FR*, EA*, EP*, NL*, MU*, YP*, SL*, KI* , SE* Added for KI as naturalised based on collections <i>C.J.Brodie 8002</i> (16 June 2017) and previous collections <i>C.J.Brodie 7424</i> and <i>7458</i> , made on 23 and 24 Nov. 2016, respectively.
<i>Rumex acetosella</i> Fourr. Sorrel	Name	Changed name from <i>Acetosella vulgaris</i> Fourr.
<i>Rumex hypogaeus</i> T.M.Schust. & Reveal Three-corner Jack	Name	Changed name from <i>Emex australis</i> Steinh.
<i>Rumex sagittatus</i> Thunb. Rambling Dock	Name	Changed name from <i>Acetosa sagittata</i> (Thunb.) L.A.S.Johnson & B.G.Briggs.

Taxon	Update type	Update / comment
<i>Rumex spinosus</i> L. Lesser Jack	Name	Changed name from <i>Emex spinosa</i> (L.) Campd.
<i>Rumex vesicarius</i> L. Rosy Dock	Name	Changed name from <i>Acetosa vesicaria</i> (L.) A.Love
<i>Silybum marianum</i> (L.) Gaertn. Variegated Thistle	Distribution	FR*, EA*, EP*, NL*, SL*, KI* , SE* Added for KI as naturalised based on <i>C.J.Brodie 7515</i> (25 Nov. 2016).
<i>Solanum lobatum</i> A.R.Bean Rock Nightshade	Name Status	NW ⁿ , <u>LE</u> ^{2e} Name change: <i>Solanum petrophilum</i> F.Muell. was split in to various species in accordance with the treatment by Bean (2016). Status change: <i>Solanum lobatum</i> A.R.Bean, present in <u>LE</u> and recorded as <u>questionably naturalised</u> , based on the three collections, all on Stuart Hwy: <i>D.E.Symon 16116, 17392 & 17393</i> .
<i>Solanum petrophilum</i> F.Muell. Rock Nightshade	Status	NW ⁿ , LE ⁿ , GT ⁿ , FR ⁿ , EA ⁿ , EP ⁿ , NL ⁿ , MU ⁿ , SL ^{2e} Changed status for <u>SL</u> from native to <u>questionably naturalised</u> based on <i>C.R.Alcock 7876</i> , following review by <i>Solanum</i> specialist Laurie Haegi.
<i>Sonchus asper</i> (L.) Hill Rough Sow-thistle	Name	Removed subspecies name (subsp. <i>asper</i>), as subspecies are no longer recognised.
<i>Verbena bonariensis</i> L. Purple-top Verbena	Name	Removed variety names (var. <i>conglomerata</i> Briq. and var. <i>bonariensis</i>) as these are no longer recognised.
<i>Verbena incompta</i> P.W.Michael Purple-top Verbena	Name	Result of a taxonomic change within <i>Verbena</i> , with <i>Verbena bonariensis</i> L. var. <i>bonariensis</i> , effectively split into two species, <i>Verbena bonariensis</i> L. and previously unrecorded species, <i>Verbena incompta</i> P.W.Michael. Also, <i>Verbena incompta</i> is now considered naturalised in the SE region. This follows in accordance with the Australian Plant Census.
<i>Verbena rigida</i> Spreng. Veined Verbena	Name	Removed variety name (var. <i>rigida</i>).
<i>Yucca gloriosa</i> L. Yucca	Distribution	YP ^{2e} , SL ^{2e} , KI ^{2e} , SE ^{2e} Added for KI as questionably naturalised based on <i>C.J.Brodie 7940</i> and <i>C.J.Brodie 7988</i> , collected on the 14 and 16 June 2017, respectively.

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Appendix 1: Activities of the Weeds Botanist

Surveillance based on field observations and collections

Table 3. Summary of field surveys and collections

Activities of the Weeds Botanist, Chris Brodie (CJB), State Herbarium of South Australia (SHSA), with other participants (listed individually). **No.** = Number of collections.

Date(s)	NRM Region	Participants	No.	General Location	Significant weed collections
24 Aug. 2017	SA MDB	Chris Brodie (CJB), Peter Lang (PJL) (SHSA) & Loraine Jansen (LJ) (volunteer)	20	Monarto Plantings	Exotic <i>Eucalyptus</i> species.
28 Aug. 2017	AMLR	CJB	4	Near Crafers	Bulbous plants and <i>Carpobrotus</i> identification.
29 Aug. 2017	AMLR	CJB & David Blewett (DB) (volunteer)	25	Southern Adelaide plains and coast	Succulent plants and cacti. General weed collection.
30 Aug. 2017	AMLR	CJB & Catherine Austin (AMLR NRM)	4	Montacute	General weed collection and <i>Asparagus scandens</i> record.
31 Aug. 2017	AMLR	CJB & DB	26	Adelaide Hills Morialta and Black Hill CP	Succulents, declared plants and general weed collection.
11 Nov. 2017	AMLR	CJB	16	Adelaide foothills, Piccadilly and Kuinto	<i>Paulownia tomentosa</i> & general weed collection.
15 Nov. 2017	AMLR	CJB & Bob Chinnock (SHSA)	15	Marino and metro coastal areas	Succulents and cacti and general weed collection.
22 Nov. 2017	AMLR	CJB	25	Adelaide Hills - Gorge road	General weed collections.
30 Nov. 2017	AMLR	CJB & Ron Taylor	14	Field River area near Hallett Cove	General weed records.
11 Dec. 2017	AMLR	CJB	5	Northern Adelaide Plains - Regency park	New record <i>Canna × generalis</i> .
19 Dec. 2017	AMLR	CJB	4	Visited property in Montacute for suspected weed ID	General weed collections.
22 Dec. 2017	AMLR	CJB & Henry Rutherford (HR) (NR AMLR)	4	Gepps Cross and Port Adelaide areas	<i>Cenchrus ciliaris</i> (Buffel grass) collections.
13 Feb. 2018	SA MDB	CJB	6	Karoonda township and roadside	General weed collections.
21 Feb. 2018	N&Y	CJB & Anne Brown (AB) (Greening Australia)	22	Melrose & Wirrabara area	Weedy grasses and cacti and general weed collections.

Date(s)	NRM Region	Participants	No.	General Location	Significant weed collections
22 Feb. 2018	N&Y	CJB & AB (Greening Australia)	26	Wirrabara & Wilmington areas	Weedy grasses and cacti and general weed collections.
23 Feb. 2018	N&Y	CJB & AB	15	Wirrabara, Gladstone and Crystal Brook areas	Weedy grasses and cacti and general weed collections.
6 Apr. 2018	AMLR	CJB & Paul Green (Volunteer)	3	St Peters Billabong and west Adelaide Parklands	2 collections of <i>Bacopa monnieri</i> and a weedy <i>Bidens</i> species.
20 Apr. 2018	AMLR	CJB & PJJ	2	Adelaide Botanic Gardens	Weedy <i>Agathis</i> (conifer) and <i>Bidens</i> species.
26 Apr. 2018	SA MDB	CJB, PJJ & LJ	8	Monarto Plantings	Exotic and unrecorded <i>Eucalyptus</i> species.
4 May 2018	AMLR	CJB & Eric DeSmit	3	Waterfall Gully Creek	Unknown fern, ginger.
9 May 2018	AMLR	CJB, Barbara & Steven Raine (Friends of Belair)	2	Belair National Park	<i>Celtis</i> and <i>Prunus</i> species.
15 May 2018	SE	CJB & Aidan Laslett (AL)	5	Leg-O-Mutton, Mount Gambier	Weedy and unknown tree species.
16 May 2018	SE	CJB & AL	16	Mt Gambier to Naracoorte to Keith area	Unrecorded cacti and succulents, and general weed collections.
17 May 2018	SE	CJB & AL	15	Naracoorte and Coonawarra area	Declared grasses and general weed collections.
18 May 2018	SE	CJB & AL	21	East of Mount Gambier & south to Port MacDonal	Declared plants and general weed collections.
19 May 2018	SE	CJB & AL	23	Mount Gambier	Declared plants, grasses and general weed collections.
20 May 2018	SE	CJB & AL	1	Naracoorte	<i>Gazania linearis</i>
29 May 2018	AMLR	CJB and HR	4	Port Adelaide area	<i>Cenchrus setaceus</i> and general weed collection

Community Engagement

Table 4. Summary of community engagement activities.

Weeds Botanist, Chris Brodie (CJB), State Herbarium of South Australia (SHSA), with other participants (as listed).

Date(S)	DEWNR Staff	Location	Presentation title / subject	Audience / Society / Conference	# Attendees
27 July 2017	Chris Brodie (CJB)	Unley Community Centre	Australian native plants as weeds	Australian Plants Society (APS), Adelaide	50
28 Oct. 2017	CJB	Oakland's Wetland, Adelaide	Weeds and their evil deeds	General public	10
30 Oct. 2017	CJB	Black Hill Office	Emerging weeds in the AMLR region	NR AMLR staff & National Parks and Wildlife staff	15
9 Nov. 2017	CJB	Aldinga Library	A pictorial introduction to the State Herbarium of South Australia, and the naturalised flora & how to get involved	Friends of Aldinga Scrub	30
13 Feb. 2018	CJB	Karoonda football Club (SA MDB)	Invasive grass identification and management	Local farmers & NR SAMDB	20
22 Feb. 2018	CJB	Wilmington Football Club	Invasive grass identification and management	Local farmers, stakeholders & NR N&Y	30
21 Apr. 2018	CJB	Adelaide Showgrounds, APS area	A pictorial introduction to the State Herbarium of South Australia – Australian plants as weeds	APS & general public	25
2-3 May 2018	CJB	Weed Management Society South Australia (WMSSA) Conference, Adelaide	New and existing weeds threats to South Australia and its regions and challenges associated with identification	WMSSA members	c. 150
2-3 May 2018	Michelle Waycott	WMSSA Conference, Adelaide	Behind the scenes, the often unseen potential impacts of weeds on our flora—insights from DNA based techniques and detailed taxonomic revisions	WMSSA members	c. 150
19 May 2018	CJB	Mount Gambier	What to do when you find an unknown plant and you want to know what it is	General public	8
19 May 2018	CJB	Naracoorte Caves	What to do when you find an unknown plant and you want to know what it is	General public	15

Date(S)	DEWNR Staff	Location	Presentation title / subject	Audience / Society / Conference	# Attendees
22 May 2018	CJB	One-Tree-Hill Hall	Invasive grass identification and management	The Northern Foothills Landcare Group	55

Appendix 2: Herbarium regions

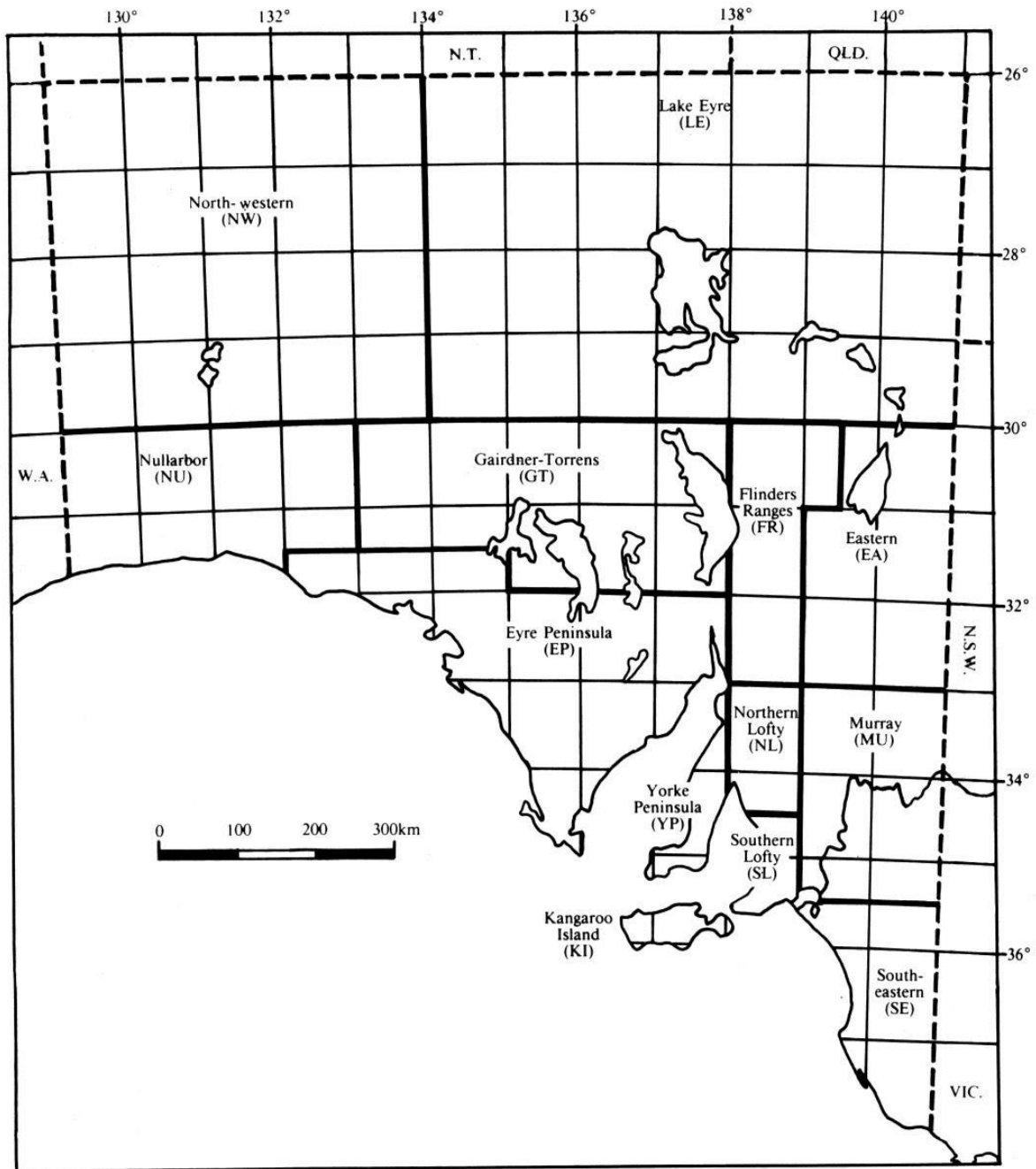


Fig. 18. State Herbarium regions for South Australia. Map from Jessop & Toelken (1986, endpapers).

