

FEDERATION UNIVERSITY AUSTRALIA

NANYA STATION WESTERN NEW SOUTH WALES: VEGETATION AND FLORA



Nanya Station, owned and managed by the Federation University was purchased with assistance from the Department of Environment and Heritage and the Lower Murray Darling Catchment Management Authority (now incorporated in Local Land Services).



Australian Government
Department of the Environment





Location of Nanya Station

The Centre for Environmental Management at the Federation University Australia (Previously known as University of Ballarat) had been involved in studies of flora and fauna in western New South Wales since 1988. Studies became concentrated on the Scotia region with its variety of intact ecosystems due to a short pastoral history. Of particular significance is a system of natural salt lakes of which the most extensive is the Scotia Discharge Complex located on Nanya Station. An extensive vegetation survey of the Scotia region (Westbrooke *et al.* 1998) highlighted the significance of the area both in terms of the range of communities in relatively intact condition and the occurrence of species and communities of restricted distribution. Nearly 400 species were recorded of which nine had either not previously been recorded or have restricted distribution in western NSW. Twenty-two plant communities occur on Nanya Station of which two, *Halosarcia lylei* low open shrubland and *Hemichroa diandra*/*Halosarcia*/*Frankenia* low open shrubland, are dominated by species not previously recorded from NSW. *H. lylei* and *Acacia loderi* shrublands are listed as endangered under the NSW Threatened Species Conservation Act.

VEGETATION

The vegetation of Nanya consists predominantly of *Eucalyptus gracilis*/*E. dumosa*/*E. socialis* open shrubland and *Casuarina pauper*/*Alectryon oleifolius* open woodland but 22 distinct communities occur (Table 1). While several of the communities are of limited distribution they add significantly to the conservation values of the property. The approximate percentage area occupied by each community, mean species richness, total species richness, mean percentage weediness and Benson (2006) equivalence of these communities are given in Table 1. Communities are described and illustrated grouped according to structural and floristic attributes.

Distribution of plant communities

The distribution of plant communities on Nanya is largely determined by minor changes in topography and associated soil type. *Eucalyptus* open-shrubland with *Triodia scariosa* understorey occurs on deep sandy soils of the dunes. *Eucalyptus* shrubland with a shrub understorey occurs in the swales. *Casuarina pauper* woodland occurs on calcareous plains of loamy solonised brown soils. *Atriplex vesicaria* low open shrubland is associated with the areas around the salt lake systems and on islands within the salt lakes while *Halosarcia*/*Osteocarpum*/*Frankenia* and *Halosarcia lylei* low open-shrublands occur on and around the fringes of salt lakes.

Vegetation community conservation values

Halosarcia lylei low open-shrubland has not previously been recorded from NSW (Harden 1990-1993). Whilst the species is not listed as endangered for Australia (Briggs and Leigh 1988) this is the only site in NSW from which it has been recorded and the community is now listed under the NSW Threatened Species Act. *Halosarcia*/*Frankenia*/*Osteocarpum* low open shrubland frequently includes *Hemichroa diandra* which has not previously been recorded from NSW. This species is not listed as endangered for Australia (Briggs and Leigh 1988) but is endangered in Victoria (Gullan *et al.* 1990). It is a new record for NSW and its widespread occurrence in this area is significant. A small area of *Acacia loderi* open shrubland, listed under the NSW Threatened Species Act, occurs to the north of the homestead complex. Gypseous low shrubland dominated by *Kippistia suaedifolia*, the *Atriplex vesicaria* shrubland and the *Callitris glaucophylla* open woodland are listed by Benson (2006) as vulnerable. The distribution of communities is shown on Fig. 4.

Plant species

Over 410 vascular plant species from 64 families have been recorded from Nanya including 62 (15%) exotics. A full listing of species is given as Appendix 1.

None of the species recorded is rare or threatened Australia-wide (Briggs & Leigh 1988) but nine have not previously been recorded, or have restricted distribution in western NSW (Harden 1990-93). *Halosarcia lylei*, *Hemichroa diandra*, *Podotheca angustifolia*, *Dodonaea stenozyga* and *Elachanthus glaber* have not previously been recorded for NSW; *Bergia trimera* and *Ptilotus atriplicifolius* have not been recorded for the south far western province; *Austrostipa nullanulla*, *Cratystylis conocephala* and *Kippistia suaedifolia* were previously known only from a few sites in NSW and were listed by Pressey (1993) as at risk. Beckers (1997) records *C. conocephala* and *K. suaedifolia* on Schedule 1, Part 1 endangered species for the Western Zone of NSW but does not list the other six species due to lack of records. With the exception of *C. conocephala*, *D. stenozygza* and *P. angustifolia*, which occur within *Eucalyptus* shrubland, these species are associated with the salt lakes.

Nanya contains highly significant plant communities not otherwise represented in conservation reserves. The vegetation communities of south-western NSW have until recently been poorly conserved and the communities of Nanya are of particular significance due to their species richness, low weediness and occurrence of significant species.

1. Woodlands

1a. *Casuarina pauper*/*Alectryon oleifolius* woodland/open-woodland with a mixed shrubby understorey



Casuarina pauper, growing to 10-12m, occurs as a dominant species on the loamy sands of interdune areas. It is frequently associated with *Alectryon oleifolius* ssp. *canescens* and/or *Myoporum platycarpum*. Commonly associated understorey shrubs are *Enchylaena tomentosa*, *Chenopodium curvispicatum*, *Maireana pentatropis*, *M. georgei*, *Sclerolaena obliquicuspis*, *Eremophila sturtii*, *Olearia muelleri* and *Senna artemesioides*. *Stipa* spp., *Vittadinia cuneata* and *Dissocarpus paradoxus* are frequent in the ground layer.

1b *Casuarina pauper*/*Alectryon oleifolius* woodland/open-woodland with *Maireana sedifolia* understorey



A *Casuarina pauper* community characterised by an understorey dominated by *Maireana sedifolia* occurs in areas near Seawards Tank in the north, around Sturt Bore in the west and on the eastern boundary.

1c *Casuarina pauper* *Alectryon oleifolius*/*Geijera parviflora* woodland/open-woodland with a mixed shrubby understorey



In the south east corner of the property *Casuarina pauper* woodland occurs in association with *Geijera parviflora*. *G. parviflora* has been shown to have a significant facilitation effect on ground flora (Warnock *et al.* 2008).

1d *Callitris glaucophylla* open-woodland



Callitris glaucophylla to 10m occurs as the dominant tree on a few sandy ridges. The community has an understorey of herbs and grasses including the native species *Actinobole uliginosum*, *Calandrinia eremaea*, *Calotis hispidula*, *Tetragonia tetragonioides* *Crassula colorata*, *Rhodanthe moschata* and *Zygophyllum ammophilum* with a high occurrence of exotic weeds including *Brassica tournefortii*, *Bromus rubens*, *Erodium cicutarium*, *Medicago minima* and *Sisymbrium irio*.

1e *Hakea leucoptera*/*Hakea tephrosperma* low open woodland



In a number of locations a low open-woodland with a near monospecific overstorey of *Hakea leucoptera* or *H. tephrosperma* to 7m occurs with an understorey of grasses and herbs.

2. **Eucalypt shrublands (mallee)**

2a *Eucalyptus oleosa*/*E. gracilis*/*E. dumosa* open-shrubland



Eucalyptus open-shrubland dominated by *E. oleosa*, *E. gracilis*, and *E. dumosa* to 8m. occurs on interdune plains. Understorey shrubs include *Enchylaena tomentosa*, *Chenopodium curvispicatum*, *Atriplex stipitata*, *Maireana pentatropis*, *M. georgei*, *Sclerolaena obliquicuspis*, *Eremophila sturtii*, *E. glabra*, *Olearia muelleri*, *Senna artemisioides*, *Myoporum platycarpum*, *Dodonaea viscosa* and *Acacia colletioides*. Frequently occurring grasses and herbs include *Stipa* spp., *Vittadinia cuneata* and *Dissocarpus paradoxus*.

2b *Eucalyptus* open-shrubland with *Triodia* understorey



On dune ridges *Eucalyptus* open-shrubland to 8m occurs characterised by the presence of *Triodia scariosa* as the dominant component of the understorey. The most frequent dominants are *Eucalyptus socialis*, *E. dumosa* and *E. gracilis* with *E. oleosa*, *E. costata* and *E. leptophylla* as more occasional associates. Commonly associated shrubs include *Dodonaea viscosa*, *Maireana pentatropis*, *Eremophila glabra* and *Grevillea huegelii*. Associated grasses and herbs include *Stipa* spp., *Podolepis capillaris* and *Vittadinia cuneata*.

2c *Eucalyptus gracilis*/*Melaleuca lanceolata* open-shrubland



In a narrow fringe around the salt lakes a mallee community to 8m occurs in which *Melaleuca lanceolata* is a prominent component. Associated shrubs confined to this community include *Leptospermum coriaceum*, *Acacia rigens* and *Hibbertia virgata*. *Disphyma crassifolium* ssp *clavellatum* is a common component of the ground layer.

2d *Eucalyptus gracilis* open-shrubland with *Disphyma crassifolium* ssp. *clavellatum*



Around the eastern edges of many of the salt lakes is a community dominated by generally aged examples of *Eucalyptus gracilis* with a low understorey dominated by *Disphyma crassifolium* ssp. *clavellatum* and *Maireana pentatropis*.

3. Acacia shrublands

3a *Acacia aneura* open-shrubland



Small areas of *Acacia aneura* tall open shrubland to 8m occur at a number of sites. The disturbed area around the homestead may have included a significant area of this community. Areas of *A. aneura* tall open shrubland are generally surrounded by *Casuarina pauper* woodland. The understorey is dominated by herbs and grasses.

3b *Acacia loderi* open-shrubland



An area of *A. loderi* tall open shrubland to 6 m occurs 500m north of the homestead. *A. loderi* shrubland is listed on the NSW Threatened Species Act as endangered due to lack of regeneration. The area on Nanya has been exclusion fenced to encourage regeneration within this community.

4. Low open shrublands

4a *Dodonaea viscosa* ssp. *angustissima*/ *Eremophila sturtii* shrubland/open-shrubland



In a number of areas *Dodonaea viscosa* ssp. *angustissima* and/or *Eremophila sturtii* form stands of varying density to 2m. *Acacia burkitti* may also be associated. The understorey consists of a variety of grasses and herbs. This community is regarded as resulting from past clearing of eucalypt open-shrubland or *Casuarina pauper* woodland.

4b *Nitraria billardieri* shrubland



Nitraria billardieri is a low rounded native shrub which is unpalatable to most grazers. It has tended to increase in areas of heavy grazing such as around water points.

4c *Lycium australe* shrubland



Small areas of low shrubland dominated by *Lycium australe* occur on the plains surrounding the salt lake system.

4d *Atriplex vesicaria* low open-shrubland



An extensive open-shrub community dominated by *A. vesicaria* occurs around the salt lakes. Frequently associated species include *Lycium australe*, *Disphyma crassifolium* ssp. *clavellatum*, *Maireana pentatropis*, *Scleroleana obliquicuspis* and *Stipa* spp.

4e *Maireana sedifolia* low open shrubland



To the south of Sturt Bore an area of *Maireana sedifolia* low open shrubland occurs, an example of a community far more extensive to the east of Nanya.

4e *Halosarcia/Frankenia/Osteocarpum* low open-shrubland



Around the perimeter of many salt lakes is a community dominated in varying proportions by *Halosarcia* spp., *Hemichroa diandra* (only known from this location in NSW), *Frankenia* spp. and *Osteocarpum acropterum* ssp. *diminutum*.

4f *Halosarcia lylei* low open-shrubland



A near monospecific community of *Halosarcia lylei* occurs across the bed of smaller salt lakes and around the perimeter of larger lakes.

4g *Halosarcia pergranulata* low open-shrubland

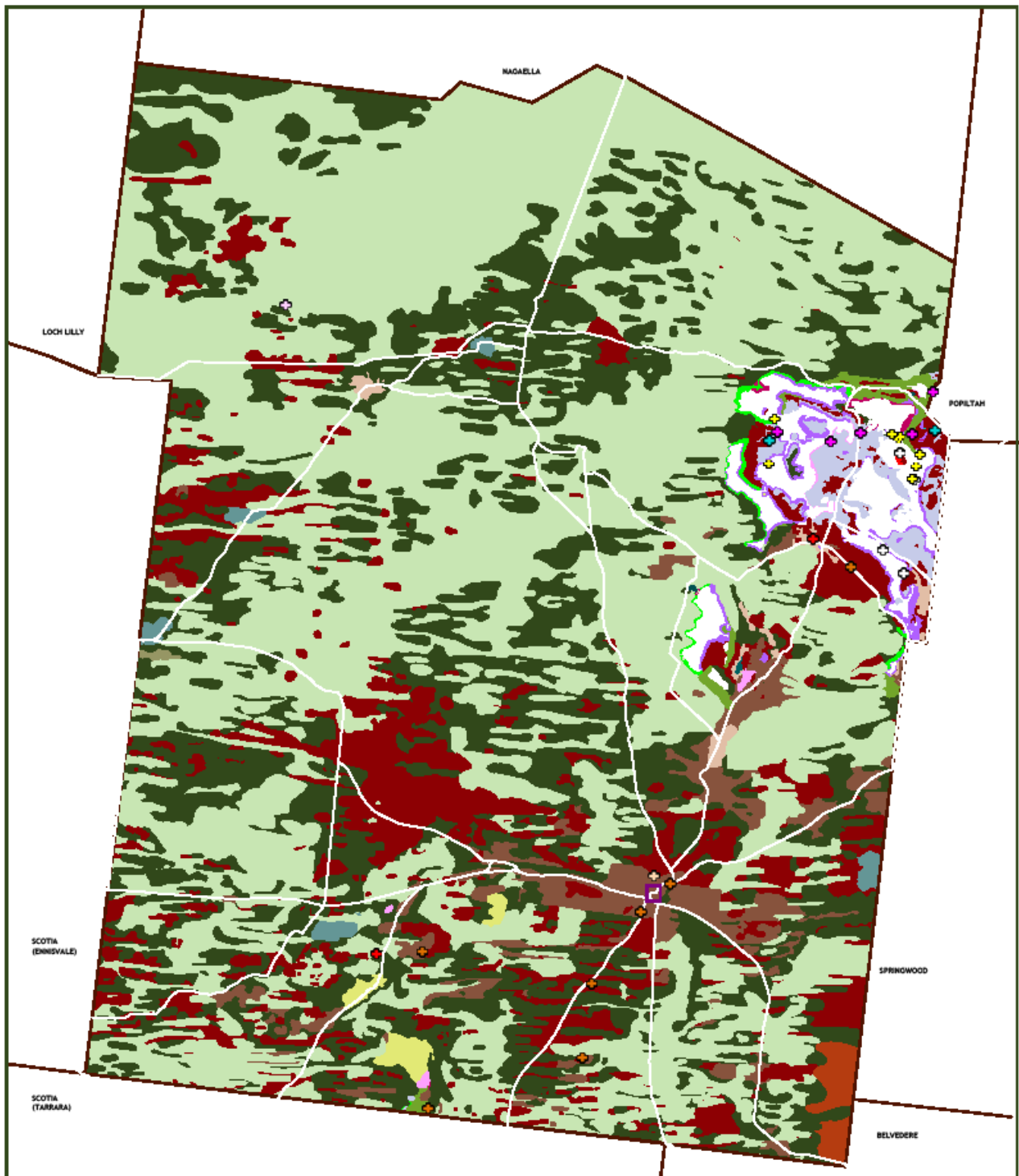


Across many of the smaller lakebeds and around the perimeter of larger lakes is a near monospecific community dominated by *Halosarcia pergranulata*.

4h Gypseous shrubland



Areas of gypseous dunes around the salt lakes and on some islands within the salt lake complex support a low shrubland community dominated by the gypsophile, *Kippistia suaedifolia*.



Vegetation Communities of Nanya Station



Woodlands

- Casuarina pauper/Alectryon oleifolius* woodland/open-woodland with a mixed shrubby understorey
- Casuarina pauper/Alectryon oleifolius* woodland/open-woodland with *Malreana sedifolia* understorey
- Casuarina pauper/Alectryon oleifolius/Geijera parviflora* woodland open-woodland with a mixed shrubby understorey
- Callitris glaucophylla* open-woodland
- Callitris verrucosa* open-woodland
- Hakea leucoptera/Hakea tephrosperma* low open-woodland

Eucalyptus shrublands (Mallee)

- Eucalyptus oleosa/E. gracilis/E. dumosa* open-shrubland
- Eucalyptus* open-shrubland with *Triodia* understorey

- Eucalyptus gracilis* open-shrubland with *Disphyma crassifolium* ssp. *ciavellatum*
- Eucalyptus gracilis/Melaleuca lanceolata* open-shrubland

Acacia shrublands

- Acacia aneura* open-shrubland
- Acacia loderi* open-shrubland

Low open shrublands

- Dodonaea viscosa* ssp. *angustissima/Eremophila sturtii* shrubland/open-shrubland
- Nitrasia billardieri* shrubland
- Lycium australe* shrubland
- Malreana sedifolia* low open-shrubland

- Atriplex vesicaria* low open-shrubland
- Halosarcia/Frankenia/Osteocarpum* low open-shrubland
- Halosarcia lyellii* low open-shrubland
- Halosarcia pergranulata* low open-shrubland
- Gypseous shrublands
- Gypseous low open-shrubland

Grasslands/Herblands

- Grassland/Herbland

Saltlake Complex

- Saltlake

- Tracks
- Nanya homestead
- Property Boundary



Map preparation by Martin Westbrooke and Sara Munawar, 2009

5. Grasslands/Herblands

5a Grassland



Open areas which are bare for extended periods develop dense *Stipa* spp. grassland after good spring rains.

5a Herbland




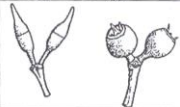


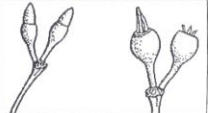

An artificial community consisting of largely exotic grasses and herbs with few associated shrubs occurs around the more reliable groundwater tanks and other highly disturbed areas.

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Photography by Martin Westbrooke, maps by Sara Munawar


Mallees

Find examples of buds and fruits. Look both on the tree and on the ground. If there are no buds/fruits on the tree you are examining look at others of similar appearance	1 Leaves grey-green and dull or with a slight sheen	2	
	1 Leaves dark-green and shiny	3	
<i>Eucalyptus socialis</i>	2 Cap of bud short and pointed with faint ribs Leaves very grey-green	<i>E. dumosa</i>	
<i>Eucalyptus dumosa</i> Widespread and easily recognised from its broad greyish leaves. Very widespread.	2 Cap of bud slender, smooth, long and pointed Leaves light green with a slight sheen	<i>E. socialis</i>	
<i>Eucalyptus gracilis</i> Typically in swales and around clay pans/salt lakes	2 Very large buds, short pointed and strongly ribbed. Typically only found on dune crests	<i>E. costata</i>	
<i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> Typically in swales	3 Leaves very narrow - <10mm wide	4	
<i>Eucalyptus leptophylla</i>	3 Leaves narrow - typically 8-15mm wide	5	
<i>Eucalyptus costata</i> Only on deep sand. Typically on dune crests	4 Domed cap with no ridge where cap meets the cup. Buds turn red as they develop	<i>E. leptophylla</i>	
<i>Eucalyptus porosa</i> Only known from Canegrass Bore on Tarawi.	5 Bud looks like an acorn or an egg in egg cup	<i>E. oleosa</i>	
	5 Small buds and fruits. Small smooth domed cap	<i>E. gracilis</i>	

Other overstorey trees/tall shrubs

<i>Casuarina pauper</i>	Belah	Jointed ribbed photosynthetic stems
<i>Alectryon oleifolius</i>	Rosewood	Narrow grey leaves, grazed to 2m
<i>Myoporum platycarpum</i>	Sugarwood	Bright green leaves, warty stems, 'zig-zag' branchlets
<i>Geijera parviflora</i>	Wilga	Similar to above. Weeping habit, aromatic leaves
<i>Acacia aneura</i>	Mulga	Upright habit, narrow grey phyllodes
<i>Hakea tephrosperma</i>	Needlewood	Thin pointed silvery leaves, hooked tip
<i>Hakea leucoptera</i>	Needlewood	Thin pointed silvery leaves, straight tip
<i>Exocarpos aphyllus</i>	Leafless cherry	Tangled stiff leafless stems
<i>Pittosporum angustifolium</i>	Native apricot	Narrow leaves with prominent mid vein
<i>Santalum acuminatum</i>	Quandong	Thick leaves, 'nibbled'
<i>Callitris verrucosa</i>	Scrub pine	On deep dunes

Medium shrubs

<i>Senna artemisioides</i> ssp. <i>filifolia</i>		Multi-stemmed shrubs to 3m with compound leaves	2-5 pairs narrow leaflets
<i>Senna artemisioides</i> ssp. <i>petiolaris</i>			As above – flattened petiole
<i>Senna artemisioides</i> noth. <i>coriacea</i>			Several pairs broad leaflets
<i>Eremophila glabra</i> ssp. <i>glabra</i>	Tar bush		Broad dark green sticky 'dirty' leaves
<i>Eremophila glabra</i> ssp. <i>murrayensis</i>			Dense narrow green sticky leaves
<i>Eremophila scoparia</i>	Scotia bush		Fine grey leaves, purple flower
<i>Eremophila sturtii</i>	Turpentine		Thin twisted sticky leaves
<i>Eremophila deserti</i>			
<i>Eremophila longifolia</i>			
<i>Eremophila oppositifolia</i>			Grey leaves, pale lilac flower
<i>Acacia burkittii</i>		Long fine phyllodes	

<i>Acacia colletioides/nyssophylla</i>		Tangled spiny shrub.
<i>Acacia wilhelmiana</i>		Phyllode flat to 2cm. Prominent hairy veins. Dunes
<i>Acacia ligulata</i>		Broad phyllodes to 20cm. Dunes
<i>Acacia oswaldii</i>	Umbrella wattle	Curled fruit, spine tipped phyllode
<i>Acacia rigens</i>		Straight stiff phyllode
<i>Olearia pimelioides</i>		Grey decussate leaves
<i>Olearia muelleri</i>		Spade-shaped green sticky leaf
<i>Olearia subspicata</i>		Fine grey leaves. Deep sands
<i>Westringia rigida</i>		Rigid branched leafless stems. Heavily grazed
<i>Maireana georgei</i>		Satin Bluebush. Fruit with single radial slit
<i>Maireana pentatropis</i>		Erect habit, retains dead black leaves, 3-5 vertical wings
<i>Maireana sedifolia</i>		Silver fleshy leaves
<i>Maireana pyramidata</i>		Black pyramid shaped fruit
<i>Maireana brevifolia</i>		Small dark green leaves. 5 short wings on fruit
<i>Maireana radiata</i>		Prominent radial nerves on horizontal wing
<i>Templetonia egena</i>		Broom like, olive green leafless
<i>Beyeria opaca</i>		Monoecious – separate male & female plants
<i>Dodonaea viscosa</i> ssp. <i>angustissima</i>		Prominent mid rib, irregular edge to leaf
<i>Atriplex vesicaria</i>		Bladder saltbush
<i>Atriplex stipitata</i>		Very sparse habit
<i>Chenopodium desertorum</i>		Small rounded grey leaves
<i>Chenopodium curvispicatum</i>		Near white rounded leaves
<i>Chenopodium nitrariacium</i>		Rounded shrub to 2m around tanks
<i>Lycium australe</i>		Low shrub. Rounded fleshy leaves drop readily
<i>Nitraria billardieri</i>		Low-lying sites around tanks
<i>Enchylaena tomentosa</i>		Variable common shrub. Yellow/red edible fruits
<i>Duboisia hopwoodii</i>		Sandy ridges
<i>Scaevola spinescens</i>		Dense, spiny grey shrub
* <i>Nicotiana glauca</i>		Only exotic shrub. Around tanks
<i>Grevillea huegelii</i>		Deeply divided leaves

Sub-shrubs

<i>Sclerolaena diacantha</i>	2 stout spines	<i>Einadia nutans</i>	
<i>Sclerolaena obliquispis</i>	'oblique' spines	<i>Dissocarpus paradoxus</i>	Cannonball
<i>Sclerolaena patentispis</i>	opposite spines	<i>Pimelea microcephala</i>	
<i>Sclerolaena parviflora</i>	Star fruit	<i>Sida corrugata</i>	
<i>Maireana appressa</i>		<i>Rhyncharrhena linearis</i>	Climber
<i>Maireana erioclada</i>		<i>Leichhardtia australis</i>	Climber

Grasses/tussocks

<i>Triodia scariosa</i>		<i>Austrostipa elegantissima</i>	Cane-like
<i>Eragrostis dielsii</i>		* <i>Schismus barbatus</i>	Exotic
<i>Austrostipa</i> sp.		<i>Lomandra leucocephala</i> ssp. <i>robusta</i>	

Native daisies		Herbs	
<i>Brachyscome ciliaris/lineariloba</i>	Alternate/basal	<i>Atriplex semibaccata</i>	
<i>Isoetopsis graminifera</i>		<i>Calandrinia eremea</i>	
<i>Calotis hispidula</i>		<i>Crassula colorata</i>	
<i>Pseudognaphalium luteoalbum</i>		<i>Eriochiton sclerolaenoides</i>	Hairy fruit
<i>Vittadinia cuneata</i>		<i>Chenopodium melanocarpum</i>	
<i>Actinobole uliginosum</i>	Cudweed	<i>Salsola kali</i>	
<i>Podolepis capillaris</i>	Invisible plant	<i>Sida corrugata</i>	
<i>Myriocephalus stuartii</i>	Poached eggs	<i>Nicotiana velutina</i>	
<i>Cthonocephalus pseudovax</i>	Cf <i>Actinobole</i>	<i>Goodenia pinnatifida</i>	
<i>Senecio glossanthus</i>		<i>Euphorbia drummondii</i>	

**VASCULAR PLANT SPECIES
RECORDED FROM NANYA
Nomenclature according to Gullan
(Viridans) (2013)**

¹ Exotic species denoted thus *

ADIANTACEAE

Cheilanthes austrotenuifolia

AIZOACEAE

Aizoon quadrifidum
Disphyma crassifolium ssp. *clavellatum*
**Mesembryanthemum crystallinum*
**Psilocaulon granulicaule*
Tetragonia eremaea

CHLOANTHACEAE

Dicrastylis verticillata

AMARANTHACEAE

Hemichroa diandra
Ptilotus sessifolius
Ptilotus erubescens
Ptilotus exaltatus
Ptilotus gaudichaudii var. *gaudichaudii*
Ptilotus nobilis
Ptilotus obovatus
Ptilotus polystachyus
Ptilotus seminudus
Ptilotus sessilifolius var. *sessilifolius*
Ptilotus spathulatus

APIACEAE

Daucus glochidiatus

APOCYNACEAE

Marsdenia australis
Rhyncharrhena linearis

ASTERACEAE

Actinobole uliginosum
Angianthus spp.
Angianthus tomentosus
**Arctotheca calendula*
Brachyscome ciliaris
Brachyscome exilis
Brachyscome lineariloba
Brachyscome trachycarpa
Xerochrysum bracteatum
Calotis cymbacantha
Calotis erinacea
Calotis hispidula
**Carthamus lanatus*
**Centaurea melitensis*
Centipeda crateriformis subsp. *compacta*
Centipeda cunninghamii
Centipeda minima s.l.
Centipeda thespidioides s.l.
**Chondrilla juncea*
Chrysocephalum apiculatum s.l.

Chthonocephalus pseudevax

**Cirsium vulgare*
**Conyza bonariensis*
Cratystylis conocephala
**Dittrichia graveolens*
Elachanthus glaber
Eriochlamys behrii
Euchiton sphaericus s.l.
Gnephosis arachnoidea
Gnephosis tenuissima
Heliotropium asperimum
**Hedynois rhagodioloidea*
Hyalosperma demissum
Hyalosperma stoveae
**Hypochoeris glabra*
Isoetopsis graminifolia
Ixiolaena leptolepis
Kippistia suaedifolia
**Lactuca serriola*
Lemooria burkittii
Millotia greevesii
Millotia myosotidifolia
Minuria cunninghamii
Minuria integerrima
Myriocephalus rhizocephalus
Polycalymma stuartii
Olearia muelleri
Olearia pimeleoides s.l.
Olearia subspicata
**Onopordum acaulon*
Podolepis capillaris
Podotheca angustifolia
Pogonolepis muelleriana
Pseudognaphalium luteoalbum
Pycnosorus pleiocephalus s.l.
**Reichardia tingitana*
Rhodanthe corymbiflora
Rhodanthe microglossa
Rhodanthe moschata
Rhodanthe pygmaea
Rhodanthe stuartiana
Rhodanthe tietkensis
Senecio glossanthus s.l.
Senecio minimus s.ol.
Senecio pinnatifolius
Senecio quadridentatus
Senecio runcinifolius
#*Sonchus asper* s.l.
**Sonchus tenerrimus*
**Sonchus oleraceus*
Stuartina hamata
Triptilodiscus pygmaeus
Vittadinia cervicalis
Vittadinia cuneata
Vittadinia dissecta
Waitzia acuminata var. *acuminata*
**Xanthium spinosum*

BORAGINACEAE

**Echium plantagineum*
Halgania andromedifolia
Halgania cyanea
Heliotropium curassavicum

**Heliotropium europaeum*
**Heliotropium supinum*
Omphalolappula concava
Plagiobothrys plurisepalus

BRASSICACEAE

**Alyssum linifolium*
Arabidella trisecta
**Brassica tournefortii*
**Carrichtera annua*
Geococcus pusillus
Harmsiodoxa blennodioides
Harmsiodoxa brevipes var. *brevipes*
Lepidium leptopetalum
Lepidium papillosum
Lepidium phlebopetalum
Menkea australis
**Sisymbrium erysimoides*
**Sisymbrium irio*
**Sisymbrium orientale*
Stenopetalum lineare
Stenopetalum sphaerocarpum

CACTACEAE

**Opuntia vulgaris*

CAESALPINIACEAE

Senna artemisioides subsp. *filifolia*
Senna artemisioides subsp. *petiolaris*
Senna artemisioides subsp. x *artemisioides*
Senna artemisioides subsp. x *coriacea*
Senna artemisioides subsp. x *sturtii*

CAMPANULACEAE

Wahlenbergia communis s.l.
Wahlenbergia gracilentia s.l.
Wahlenbergia gracilis s.l.

CARYOPHYLLACEAE

Gypsophila tubulosa
**Herniaria cinerea*
Scleranthus minusculus
**Silene apetala*
**Spergularia diandra*
**Spergularia rubra* s.l.

CASUARINACEAE

Casuarina pauper

CHENOPODIACEAE

Atriplex acutibractea
Atriplex eardleyae
Atriplex holocarpa
Atriplex lindleyi subsp. *inflata*
Atriplex nummularia
Atriplex pumilio
Atriplex stipitata
Atriplex suberecta
Atriplex vesicaria
**Chenopodium album*
Chenopodium cristatum
Chenopodium curvispicatum

Chenopodium desertorum ssp. *desertorum*
Chenopodium desertorum ssp. *rectum*
Dysphania melanocarpa
**Chenopodium murale*
Chenopodium nitrariaceum
Chenopodium spp.
Chenopodium ulicinum
Dissocarpus paradoxus
Einadia nutans
Enchylaena tomentosa var. *tomentosa*
Eriochiton sclerolaenoides
Tecticornia halocnemoides subsp.
 halocnemoides
Tecticornia indica
Tecticornia lylei
Tecticornia pergranulata
Tecticornia pterygosperma subsp.
 pterygosperma
Maireana appressa
Maireana brevifolia
Maireana ciliata
Maireana decalvans
Maireana erioclada
Maireana georgei
Maireana integra
Maireana lobiflora
Maireana pentatropis
Maireana pyramidata
Maireana radiata
Maireana rohrlachii
Maireana sedifolia
Maireana trichoptera
Maireana triptera
Maireana turbinata
Malacocera tricornis
? *Neobassia* spp.
Osteocarpum acropterum var. *deminutum*
Rhagodia spinescens
Rhagodia ulicina
Salsola spp.
Sclerolaena bicornis
Sclerolaena decurrens
Sclerolaena diacantha
Sclerolaena divaricata
Sclerolaena muricata
Sclerolaena obliquicuspis
Sclerolaena parviflora
Sclerolaena patenticuspis
Sclerolaena tricuspis
Tecticornia tenuis
Stelligera endecaspinis

CONVOLVULACEAE

Convolvulus erubescens s.l.

CRASSULACEAE

Crassula colorata
Crassula sieberiana s.l.

CUCURBITACEAE

**Citrullus colocynthis*
**Cucumis myriocarpus*
Austrobryonia micrantha

CUPRESSACEAE

Callitris glaucophylla
Callitris verrucosa

CYPERACEAE

Schoenus subaphyllus

DILLENACEAE

Hibbertia virgata

ELATINACEAE

Bergia trimera

EUPHORBIACEAE

Beyeria opaca
Chamaesyce drummondii
Poranthera microphylla s.l.

FABACEAE

Cullen discolor
Daviesia arenaria
Eutaxia diffusa/microphylla
Lotus cruentus
**Medicago laciniata*
**Medicago minima*
**Medicago polymorpha*
**Melilotus indicus*
Swainsona murrayana
Swainsona purpurea
Templetonia egena

FRANKENIACEAE

Frankenia connata
Frankenia foliosa
Frankenia pauciflora subsp. *pauciflora*
Frankenia serpyllifolia

GENTIANACEAE

Schenkia australis
**Centaurium tenuiflorum*

GERANIACEAE

**Erodium botrys*
**Erodium cicutarium*
Erodium crinitum

GOODENIACEAE

Goodenia fascicularis
Goodenia pinnatifida
Goodenia pusilliflora
Scaevola depauperata
Scaevola spinescens
Velleia connata

GYROSTEMONACEAE

Codonocarpus cotinifolius

HALORAGACEAE

Glischrocaryon behrii
Haloragis aspera
Haloragis odontocarpa
Myriophyllum verrucosum
Myriophyllum sp.

LAMIACEAE

**Marrubium vulgare*
**Salvia verbenaca* var. *vernalis*
Teucrium racemosum var. *racemosum*
Westringia rigida

LAURACEAE

Cassytha melantha

LILIACEAE

Bulbine bulbosa
Dianella revoluta s.l.
Thysanotus baueri

LOGANIACEAE

Logania nuda

LOMANDRACEAE

Lomandra effusa
Lomandra leucocephala subsp. *robusta*

LORANTHACEAE

Amyema linophyllum subsp. *orientale*
Amyema miquelii
Amyema miraculosum subsp. *boormanii*
Amyema preissii
Lysiana exocarpi subsp. *exocarpi*

MALVACEAE

Abutilon fraseri
Lavatera plebeia
Lawrenzia glomerata
Lawrenzia squamata
**Malva parviflora*
**Modiola caroliniana*
Radyera farragei
Sida ammophila
Sida corrugata var. *corrugata*
Sida fibulifera
Sida intricata
Sida spodochroma
Sida trichopoda

MARSILEACEAE

Marsilea costulifera
Marsilea drummondii

MIMOSACEAE

Acacia acanthoclada
Acacia aneura
Acacia brachybotrya
Acacia burkittii
Acacia colletioides
Acacia ligulata
Acacia loderi
Acacia nyssophylla
Acacia oswaldii
Acacia rigens
Acacia sclerophylla
Acacia wilhelmiana

SCROPHULARIACEAE

Eremophila deserti
Eremophila glabra subsp. *glabra*
Eremophila glabra subsp. *murrayensis*
Eremophila hillii
Eremophila longifolia
Eremophila maculata var. *maculata*
Eremophila oppositifolia subsp. *oppositifolia*
Eremophila scoparia
Eremophila sturtii
Myoporum platycarpum

MYRTACEAE

Baeckea crassifolia
Eucalyptus incrassata
Eucalyptus dumosa
Eucalyptus gracilis
Eucalyptus leptophylla
Eucalyptus oleosa
Eucalyptus porosa
Eucalyptus socialis
Leptospermum coriaceum
Melaleuca lanceolata

NYCTAGINACEAE

Boerhavia dominii

OLEACEAE

Jasminum didymum subsp. *lineare*

OPHIOGLOSSACEAE

Ophioglossum lusitanicum

ORCHIDACEAE

Pterostylis biseta s.l.

OXALIDACEAE

Oxalis perennans
**Oxalis pes-caprae*

PITTOSPORACEAE

Billardiera cymosa
Pittosporum angustifolium

PLANTAGINACEAE

Plantago cunninghamii
Plantago drummondii
Plantago varia

POACEAE

Lachnagrostis filiformis
Amphipogon caricinus var. *caricinus*
Aristida contorta
Aristida spp.
Austrostipa acrociliata
Austrostipa drummondii
Austrostipa elegantissima
Austrostipa eremophila
Austrostipa mollis
Austrostipa nitida
Austrostipa nullanulla
Austrostipa scabra subsp. *scabra*
Austrostipa trichophylla

Austrostipa tuckeri
Bromus arenarius
**Bromus rubens*
Chloris truncata
**Hordeum glaucum*
Cynodon dactylon
Austrodanthonia eriantha
Austrodanthonia setacea
Enneapogon avenaceus
Enneapogon intermedius
Enneapogon nigriceps
Enteropogon acicularis
Eragrostis australasica
Eragrostis dielsii
Eragrostis eriopoda
Eragrostis falcata
Eragrostis setifolia
**Holcus lanatus*
**Panicum capillare*
Paspalidium gracile
**Rostraria pumila*
**Schismus barbatus*
Triodia scariosa subsp. *scariosa*
**Vulpia myuros*

POLYGONACEAE

**Emex australis*
Muehlenbeckia diclina
Muehlenbeckia florulenta
Polygonum plebeium
**Rumex crispus*
Rumex tenax

PORTULACACEAE

Calandrinia eremaea

PRIMULACEAE

**Anagallis arvensis*

PROTEACEAE

Grevillea huegelii
Grevillea pterosperma
Hakea leucoptera
Hakea tephrosperma

RANUNCULACEAE

Ranunculus pumilio

RHAMNACEAE

Cryptandra propinqua

RUBIACEAE

Asperula conferta
Synaptantha tillaeacea

RUTACEAE

Geijera parviflora

SANTALACEAE

Exocarpos aphyllus
Exocarpos sparteus
Santalum acuminatum

SAPINDACEAE

Alectryon oleifolius subsp. *canescens*
Dodonaea bursariifolia
Dodonaea viscosa subsp. *angustissima*
Dodonaea stenozyga

SCROPHULARIACEAE

Limosella australis
Stemodia floribunda

VERBENACEAE

**Verbena supina*

SOLANACEAE

Duboisia hopwoodii
Lycium australe
**Lycium ferocissimum*
**Nicotiana glauca*
Nicotiana goodspeedii
Nicotiana occidentalis
Nicotiana simulans
Nicotiana velutina
Solanum coactiliferum
Solanum esuriale
#*Solanum nigrum* s.l.

THYMELAEACEAE

Pimelea microcephala subsp. *microcephala*
Pimelea simplex subsp. *simplex*
Pimelea trichostachya

URTICACEAE

Parietaria debilis s.l

ZYGOPHYLLACEAE

Nitraria billardierei
Tribulus terrestris
Zygophyllum ammophilum
Zygophyllum angustifolium
Zygophyllum apiculatum
Zygophyllum aurantiacum
Zygophyllum billardieri
Zygophyllum compressum
Zygophyllum crenatum
Zygophyllum eremaeum
Zygophyllum glaucum
Zygophyllum iodocarpum
Zygophyllum ovatum



Frankenia foliosa



Sclerolaena diacantha



Eremophila glabra



Eragrostis eriopoda



Hemichroa diandra



Disphyma crassifolium



Lomandra leucocephala



Dodonaea stenozyga



Maireana sedifolia



Exocarpos aphyllus



Eremophila scoparia



Pimelea microcephala



Swainsona formosa



Eremophila maculata



Senna artemisioides



Acacia colletioides



Maireana georgii



Zygophyllum aurantiacum



Grevillea huegelii



Cratystylis conocephala



Alectryon oleifolius



Acacia rigens



Scaevola spinescens



Eutaxia microphylla



Velleia connata



Waitzia acuminata



Solanum esuriale



Ptilotus polystachyus



Ptilotus polystachyus



Eragrostis dielsii



Calotis erinacea



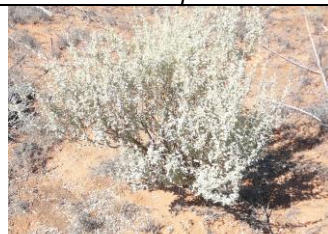
Ptilotus atriplicifolius



Ptilotus obovatus



Xerochryson bracteatum



Atriplex vesicaria



Santalum acuminatum



Grevillea pterosperma



Schoenus subaphyllus



Geijera parviflora



Scaevola depauperata



Lycium australe



Olearia muelleri



Halganea cyanea



Sclerolaena bicornis



Templetonia eremaea



Enchylaena tomentosa



Maireana pyramidata



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