



# NATIVE PLANT SPECIES AT RISK FROM BITOU BUSH INVASION

*A Field Guide for New South Wales*



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Bitou bush has invaded over 80% of the New South Wales coastline, placing many native plants and ecological communities at risk. A New South Wales Bitou Bush Threat Abatement Plan (TAP) is being implemented along the New South Wales coast to protect native species from bitou bush invasion.

This field guide is a supplement to the TAP and describes the 157 plant species, three plant populations and 24 ecological communities most at risk. It will be an invaluable aid to those controlling bitou bush to enhance the quality of our natural environment.



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*A Field Guide for New South Wales*

MARK A. HAMILTON, MARION A. WINKLER  
AND PAUL O. DOWNEY



2008



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## Cover and title pages photograph credits

### Front cover

Native species at risk from bitou bush – TOP *Tetratheca juncea* (Jaime Plaza); BOTTOM (left to right) *Archidendron hendersonii* (Shane Ruming), *Pandanus tectorius* var. *australianus* (Gary Varga), *Sophora tomentosa* (Paul Downey).

### Back cover

TOP Bitou bush invasion threatening coastal banksia woodland near Wooli, New South Wales (Paul Downey); BOTTOM Ecological communities at risk from bitou bush (left to right) Littoral Rainforest (Shane Ruming), Swamp Sclerophyll Forest on Coastal Floodplains (Nick Skelton), Eastern Suburbs Banksia Scrub (Paul Ibbetson).

### Title page

LEFT *Glochidion sumatranum* (Paul Donatiu), CENTRE *Pandanus tectorius* var. *australianus* (Shane Ruming), RIGHT *Syzygium moorei* (Jaime Plaza).

### Species descriptions title page, p. 1

LEFT *Pultenaea maritima* (Shane Ruming), CENTRE *Casuarina equisetifolia* (Shane Ruming), RIGHT *Tylophora benthamii* (Lachlan Copeland).

### Threatened plant population descriptions title page, p. 159

LEFT *Chorizema parviflorum* (Martin Bremner), RIGHT *Zieria smithii* (Jackie Miles).

### Ecological community descriptions title page, p. 163

LEFT Littoral Rainforest (Shane Ruming), CENTRE Coastal Sand Wallum Heath (Doug Beckers), RIGHT Frontal Dune Vegetation Complex (Shane Ruming).

## Preface

This field guide is a companion document to the New South Wales Bitou Bush Threat Abatement Plan (TAP). While the TAP identified a range of native plant species, plant populations and ecological communities at risk from bitou bush and boneseed invasion in New South Wales, it did not provide sufficient information to identify them in the field. This field guide was needed because many of these species are rare or poorly known and until now such field identification information has not been readily available. For example, some of the species do not have an illustration in the *Flora of New South Wales*. In order to ensure that these species are protected, information was urgently needed to help land managers identify them in the field. To aid adoption of this guide by all land managers and volunteers, its production costs were kept as low as possible, so that it could be distributed to all stakeholders free of charge.

## Acknowledgments

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The Department of Environment and Climate Change thanks those people who supplied their photos free of charge, or at a reduced cost – see individual photo credits for the specific details of each photo or the full list on page vii. Particular thanks to Glenn Leiper for providing many images from his collection, Jackie Miles for her numerous contributions, and Shane Ruming (DECC) for photographing plants and ecological communities specifically for this field guide. The Department of Environment and Climate Change also acknowledges Maggie Nightingale (CPBR), Jo Palmer (Australian National Herbarium), and the staff of the Australian National Botanic Gardens, Hornsby Online Herbarium, Royal Botanic Gardens Sydney and Wollongong Botanic Gardens for sourcing/supplying images. In addition, staff of the Centre for Plant Biodiversity Research (Australian National Herbarium) provided photos of herbarium sheets of *Lepturus repens* (page 150) and *Glycine clandestina* (page 162), representing herbarium sheets CANB 505219 and CANB498987.1 respectively.

## Photograph credits

Each photograph is accompanied by details of the photographer. The following is an alphabetical list of all the people who supplied images.

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The Department of Environment and Climate Change thanks the many individuals that assisted in supplying and sourcing photos that did not make it into the final version of the guide. Their generous contributions are greatly appreciated, and provided the opportunity to select from a range of photos.

## Introduction

The threat posed by the South African native coastal shrub bitou bush (*Chrysanthemoides monilifera* subsp. *rotundata*) to Australian native plant communities has long been acknowledged. In addition, bitou bush has expanded its distribution rapidly in the last few decades; now occupying over 80% of the New South Wales coastline. The culmination of these factors saw bitou bush and the other introduced subspecies boneseed (*Chrysanthemoides monilifera* subsp. *monilifera*) listed collectively as a Key Threatening Process under the NSW *Threatened Species Conservation Act 1995* (TSC Act), and later under the Australian Government's Weeds of National Significance initiative.

In 2006 an approved threat abatement plan (TAP) under the TSC Act was released for the *Invasion of Native Plant Communities by Chrysanthemoides monilifera (Bitou Bush and Boneseed)*. The TAP aimed to abate, ameliorate or reduce the threat posed by bitou bush and boneseed to threatened species, populations and ecological communities. It identified 158 native plant species, three endangered plant populations and 26 ecological communities as being at risk from bitou bush invasions in New South Wales, and 169 high priority sites where control would result in significant benefits to the biodiversity at risk. While all the species presented in this guide are at risk from bitou bush, several are also at risk from boneseed; this subspecies is not currently distributed widely in New South Wales and thus there was limited analysis of its impacts to native species in the TAP.

As part of the implementation of the TAP a series of resources or companion documents have been produced to assist land managers in conserving native species. These resources include:

- a monitoring manual to assess the recovery of native species following bitou bush control
- a boneseed management manual
- a bitou bush management manual
- best practice guidelines for aerial spraying of bitou bush
- this field guide to the native species at risk
- web downloads of the above resources at [www.environment.nsw.gov.au/pestsweeds/BitouBush.htm](http://www.environment.nsw.gov.au/pestsweeds/BitouBush.htm).

This field guide is primarily for use by land managers and volunteers/community groups who are involved in the implementation of the TAP; however, it should be used by all land managers, contractors and volunteers/community groups working on bitou bush control throughout New South Wales. In addition, it should be used by all stakeholders who are concerned with saving native species from extinction as a result of bitou bush invasion. This guide should also be used in conjunction with the bitou bush monitoring manual.

**Selected additional reading**

Broese van Groenou, E.A. and Downey, P.O. (2006). *Best Practice Guidelines for Aerial Spraying of Bitou Bush in New South Wales*. Department of Environment and Conservation (NSW), Hurstville.

Brougham, K.J., Cherry, H. and Downey, P.O. (eds) (2006). *Boneseed Management Manual: current management and control options for boneseed* (*Chrysanthemoides monilifera* *ssp.* *monilifera*) *in Australia*. Department of Environment and Conservation (NSW), Sydney.

Department of Environment and Conservation (NSW) (2006). *NSW Threat Abatement Plan – Invasion of Native Plant Communities by Chrysanthemoides monilifera (Bitou Bush and Boneseed)*. Department of Environment and Conservation (NSW), Hurstville.













King, S.A., Burley, A.L. and Downey, P.O. (2008). *Monitoring Manual: for bitou bush control and native species recovery*. Department of Environment and Climate Change (NSW), Hurstville.

Thomas, J. and Leys, A. (2002). ‘Strategic management of bitou bush (*Chrysanthemoides monilifera* *ssp.* *rotundata* (L.) T. Norl.)’. In: Spafford Jacob, H., Dodd, J. and Moore, J.H. (eds) *13th Australian Weeds Conference: papers and proceedings*, 8–13 September 2002, Perth, pp. 586–590. Plant Protection Society of Western Australia, Perth.

Winkler, M.A., Cherry, H. and Downey, P.O. (eds) (2008). *Bitou Bush Management Manual: current management and control options for bitou bush* (*Chrysanthemoides monilifera* *ssp.* *rotundata*) *in Australia*. Department of Environment and Climate Change (NSW), Sydney.

Electronic copies of most of these publications can be obtained via the bitou bush TAP website (<http://www.environment.nsw.gov.au/pestsweeds/BitouBush.htm>) or in hard copy form by sending a request to [bitou.tap@environment.nsw.gov.au](mailto:bitou.tap@environment.nsw.gov.au) or the postal address on the inside cover.

**How to identify boneseed and bitou bush**

Distinguishing features between boneseed and bitou bush				
boneseed (subsp. <i>monilifera</i> )			bitou bush (subsp. <i>rotundata</i> )	
	erect shrub, up to 3 m high	<b>habit</b>	sprawling shrub, 1–2 m high (unsupported)	
	3–9 cm long, elongated oval shape, irregularly toothed edges	<b>leaves</b>	3–7 cm long, broader oval shape, smooth or only slightly toothed edges	
	4–8 ‘petals’ flowers from late winter to spring (mainland), to early summer (Tas)	<b>flowers</b>	11–13 ‘petals’ flowers year round with a peak from April to June	
	round fruit	<b>fruit</b>	egg-shaped fruit	
	round, smooth, bone-coloured	<b>seeds</b>	egg-shaped, rough, dark brown to black	
	leaves with toothed edges	<b>seedlings</b>	leaves with smooth edges	

### The threat posed by bitou bush to native plant species

Bitou bush poses a serious threat to native coastal plant communities, particularly in New South Wales. In some areas bitou bush forms a virtual monoculture, excluding many native plant species. Boneseed poses a similar threat in other southern states of Australia but is yet to establish widely in New South Wales. Below is a series of photos that illustrate the scale of the impact posed by bitou bush, and the types of vegetation communities at risk.



Paul Downey

Bitou bush invaded Coastal Banksia Woodland (*Banksia integrifolia*)



Mark Hamilton

Bitou bush forming a monoculture on a coastal headland



Mark Hamilton

Bitou bush invading the understorey of coastal woodland



Hilary Cherry

Bitou bush regeneration following fire in coastal dry sclerophyll forest vegetation



Paul Downey

Bitou bush engulfing the habitat of *Pandanus tectorius* var. *australianus*





Hillary Cherry

Bitou bush invading foredunes



Mark Hamilton

Bitou bush invading hinddunes supporting the Coastal Scrub (*Leptospermum laevigatum*/*Acacia longifolia* subsp. *sophorae*) ecological community

## Name changes for some of the species at risk

Some of the species identified in the TAP have recently undergone taxonomic revision so some names used in this guide may differ from those published in the TAP. The old (or synonymous) names are presented in the index with a reference to the new name and species description page. In addition, the taxonomic status of a species (*Diuris superba*) has been questioned and it is now no longer considered to be a valid species. This species is not presented here, in part because there was very little information available on it and photos could not be sourced, but for the most part due to its questionable status as a species.

The formerly listed Sydney Coastal Estuary Swamp Forest Complex ecological community was considered in the TAP. Since the draft TAP's publication however, this vegetation complex has been revised and no longer exists as a distinct entity. The complex now encompasses two Endangered Ecological Communities (EEC): Swamp Sclerophyll Forest on Coastal Floodplains and Swamp Oak Floodplain Forest, both of which are threatened by bitou bush and feature in this guide. The former name of this vegetation complex has been excluded and those subcomponent communities that are at risk are outlined. In addition, the Coastal Sand Dune Complex (*Acacia longifolia* subsp. *sophorae*) community was amalgamated with the Coastal Scrub (*Leptospermum laevigatum*/*Acacia longifolia* subsp. *sophorae*) community for the purposes of this field guide. Obvious similarities in the communities meant they were effectively duplicates with differing names applied to them.

The revised number of species at risk from bitou bush invasion in New South Wales, as presented here, is 157 plant species, three plant populations and 24 ecological communities.

## Gathering new information

Given that much of the biodiversity described in this book are rare or poorly known, if you have any additional information or find new locations of plant species, populations or ecological communities at risk, please forward details to bitou.tap@environment.nsw.gov.au or to the postal address on the inside cover. Additional and regularly updated information is critical for the implementation of the TAP, for conserving the biodiversity at risk from bitou bush invasions, as well as for aiding the revision of the TAP in 2011.

## How to use the guide

This field guide is separated into three sections: (i) plant species, (ii) plant populations and (iii) ecological communities at risk from bitou bush invasion in New South Wales. These entities are identified in the NSW Bitou Bush Threat Abatement Plan as being at risk (see the TAP for more information on the biodiversity selection process). The list of plant species at risk is not restricted to species listed under NSW or Commonwealth threatened species legislation or ROTAP (Rare or Threatened Australian Plants). Of the 157 plant species listed here, 65% are not formally listed as threatened. In many instances bitou bush may be the major or sole threat to them. Only specific plant populations listed as threatened under the NSW *Threatened Species Conservation Act 1995* were considered during the development of the TAP. Many populations of other plant species are also threatened by bitou bush, but they were not considered individually, as one of the defined objectives of a TAP is to abate or ameliorate the threats to biodiversity listed under the Act. The list of ecological communities at risk is not restricted to those listed under threatened species legislation (either in New South Wales or nationally). Of the 24 ecological communities listed here one third are not formally listed as threatened. In many instances bitou bush may be the major or sole threat to them.

Each description page contains three components: photographs or illustrations of the biodiversity at risk, a range of visual symbols to help with fast identification, and a written description to help confirm their identity. Efforts were made to compile similar levels of information on each species, population and ecological community, however information may vary due to the relative rarity, poorly known status or general paucity of information on the biodiversity in question.

Species and populations are described first by life form (see below) and then alphabetically within these categories. The index at the back of the guide can assist in quick location of particular species. It also details species name changes (synonyms) since the TAP's completion. The page layout for species and populations follow the same format and hence are presented together below.

Ecological communities are listed first by habitat type (in order of rainforest, wet sclerophyll forest, dry sclerophyll forest, woodland, heath, grassland, dunefield, freshwater wetland and saltwater wetland) and then alphabetically within these categories.

## Photographs and illustrations

The value of any field guide is largely dependent on the quality and identification or diagnostic value of the images (photographs or illustrations), together with the diagnostic information given. As the majority of images used were generously donated free of charge and/or were of biodiversity that is rare in the landscape, we were not always able to select images that showed the diagnostic features described in the text. Illustrations were only used where photographs could not be sourced. The credits of the owner of each image are presented within each photograph. Please note that neither photos nor illustrations are to scale. Exact sizes should be taken from the written descriptions.

## Visual symbols to aid identification

NB Not all of the below visual aids feature in the descriptions of at risk ecological communities.

**Life form** The plant species at risk from bitou bush invasion are grouped here by life form: (i) tree, (ii) shrub, (iii) climber/scrambler, (iv) herb, (v) grass/sedge and (vi) fern. The relevant grouping for each species is indicated along the top of the page. Where a species may take more than one form due to differing habitats and conditions, e.g. a tree or a shrub, the life form most commonly affected by bitou bush invasion was used. Definitions of each life form and their colour codings are listed below:

- TREE** a woody plant usually greater than 5 m high, with a single distinct trunk/stem.
- SHRUB** a much-branched woody plant, 2–8 m high for tall shrubs, 1–2 m high for small shrubs and less than 1 m high for low or subshrubs.
- CLIMBER/SCRAMBLER** a climbing or scrambling plant with long, typically thin stems that are not self-supportive. Those that climb rely on external support to obtain height, often through the use of hooks or tendrils. Maximum height is generally dependent on the height of the climbing support available. Also called vines or twiners.
- HERB** a plant that does not produce a woody stem, although it may be woody at the base. Examples include lilies and orchids.
- GRASS/SEDGE** a non-woody plant often forming tussocks or groups of closely aggregated stems, usually less than 1 m high. These plants typically have small flowers enclosed by bracts that form spikelets. Examples include the Poaceae and Cyperaceae families.
- FERN** a mostly non-woody plant with fronds, growing primarily in damp or moist situations. Reproduction is typically by spores borne in sporangia on the underside of fronds or in nut-like structures.

**Map** The distribution of each at risk plant species, plant population and ecological community is presented visually using a map. The map shows their distribution (shaded grey) relative to the areas affected by bitou bush (and boneseed) invasions using the three coastal botanical regions of New South Wales, the north coast,



central coast and south coast. Some of the species at risk occur on Lord Howe Island, either as endemics or with a distribution that encompasses both the island and mainland New South Wales. For those species that are endemic to Lord Howe Island the words 'Lord Howe Island' replace the map. Where species are distributed on the mainland and Lord Howe Island, the map depicts their distribution within the three botanical regions and the words 'on Lord Howe Island' are included in the summary section of the description (see below).

**Priority for control** The Bitou Bush TAP ranked the native plant species, plant populations and ecological communities at risk from the invasion of bitou bush in New South Wales, as **HIGH**, **MEDIUM** or **LOW** priority for control. See the Bitou Bush TAP for more information. The specific control priority of each species is presented in a black box to the right of the distribution map, or below for ecological community descriptions.



**Height scale** The maximum height of each native plant species is visually depicted by a vertical bar next to a stylised human figure. The human figure equates to a height of 1.7 m. Each species is classified into one of six vertical height scales:



These height classes are in no way indicative of the species' habit or form, but are only an indication of maximum height. For example, a small single-stemmed tree and a tall multi-stemmed shrub may be represented by the same height scale.

**Habitat code** A description of the habitat/s in which each species is typically encountered is presented to assist identification. Nine habitat descriptions are used:

**rainforest** a forest dominated by broad-leaved trees with dense crowns forming a continuous layer (canopy) and with one or more of the following growth forms: epiphytes, climbers, tree-ferns, palms. Eucalypts are absent or present only as isolated emergents.

**wet sclerophyll forest** an open forest in which mesomorphic (soft-leaved) shrubs form a layer below the trees (usually species of eucalypts).

**dry sclerophyll forest** an open forest in which sclerophyllous (hard-leaved) shrubs form a layer below the trees (usually species of eucalypts).

**woodland** a plant community dominated by small to medium height trees (usually species of eucalypts) in which the canopies are separated from each other (or mostly separated). Grasses and herbs form a more or less continuous ground layer.

**heath** a plant community dominated by small, closely packed shrubs, most of which often have stiff and small or reduced leaves.

**maritime** a location rather than a plant community, it includes those environments in close proximity to the coast and being heavily influenced by the prevailing maritime conditions (wind, salt spray, etc.). Locations primarily include exposed headlands and cliffs overlooking the ocean, but also the uninundated land bordering coastal estuaries.

**freshwater wetland** an area of land subject to temporary or permanent freshwater inundation, with a characteristic herbaceous-dominated plant community dependent on inundation to complete part or all of their life cycle. This habitat also includes damp areas and soils or crevices characterised by a high moisture content.

**saline wetland** similar to freshwater wetlands but with a saltwater influence. These wetlands also include mangrove swamps and saltmarshes.

**dunefield** an area of land characterised by sand hills, ridges and swales (usually with a large free moving component). Here, dunefields refers to the vegetation communities present on sand associated with beaches or coastal areas, comprised primarily of foredunes, hinddunes and swales.

**grassland** a plant community dominated by grasses and some herbs, and lacking woody plants, especially as an overlying canopy.

**NB** for freshwater and saline wetland habitats, bitou bush poses a threat to the edge species or where the habitats experience low levels of inundation (potentially the whole community).

## Species descriptions

**Species scientific name** the most up-to-date nomenclature is used, as accepted by the Royal Botanic Gardens Sydney and detailed on their PlantNET website (<http://plantnet.rbgsyd.nsw.gov.au>)

**Common name/s** were derived from the literature (primarily the *Flora of New South Wales* series) and are listed underneath the species' scientific name.

**Family name** as with species' names, family names were obtained from PlantNET.

**Summary** a brief written summary of each species at risk is presented to aid quick identification and includes, where possible, the height, habit and distinguishing characteristics of the species and specific details of its distribution, e.g. north from Seal Rocks. For certain tree species, diagnostic information on bark is included.

**Written description** a detailed written description for each native plant species and plant population is presented to help confirm their identity in the field. This description follows a standard format which is condensed into the key diagnostic features. There may be other features that are not included here. The descriptive categories, and a list of features that may be described under that heading, are:

- **Leaves** leaf age (e.g. juvenile if necessary), type, length and width, shape, followed by other diagnostic characteristics (i.e. hairs, colouration, margins, venation, glands). For phyllode-bearing *Acacia* species **phyllodes** are described, and for fern species **fronds** are described (along with a description of the **rhizome**) using the same format.
- **Flowers** inflorescence type, location (i.e. terminal or axillary), length, and individual flower characteristics (i.e. shape, length and width, orientation, colour, peduncle, sex). **Sori** are described in fern species using a similar format.
- **Flowering time** months of the year.
- **Fruit** type, with individual fruit characteristics (e.g. colour, shape, attachment), length and width, and where possible information on fruiting time (months) and seeds. Where diagnostic, the infructescence or fruiting inflorescence is described. For non-flowering plants the **reproductive organ** is described instead of flowers and fruit using a similar format.

Information is also included on the species, population or ecological community's conservation status, using a series of codes:

- **Status** broken into 2 parts being a jurisdiction code followed by conservation code. The jurisdiction component is **S** for state listed (i.e. under the *NSW Threatened Species Conservation Act 1995*) and/or **N** for nationally listed (i.e. under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*). The conservation category component is **V** for vulnerable, **E** for

endangered, **CE** for critically endangered or **EEC** for endangered ecological community. Where a species is listed under ROTAP (Rare Or Threatened Australian Plants) the ROTAP code is also given (e.g. 3RC-). For an explanation of the ROTAP coding system see Briggs and Leigh (1998). Where ecological communities are also components of NSW State Environmental Planning Policies the acronym SEPP and the policy number are listed here.

- **Notes** sometimes additional information is given to help with identification, particularly where there are closely related or similar looking species. Species at risk from boneseed are also noted here.

## Ecological communities

**Summary** a brief overview of each ecological community at risk is given to help with quick identification. This includes the vegetation type, height of the tallest stratum, substrates it occurs on, and specific details of the distribution. Other details that may be present include a breakdown of the vegetation strata and dominant plant types of each (e.g. sclerophyllous trees, herbs, ferns, etc.), the most dominant species, its situation in the landscape (e.g. drainage lines or lake margins), and an indication of its former extent (and hence decline).

**Written community description** a detailed description of each ecological community is presented to aid identification in the field. This description follows a standard format that outlines the key diagnostic features. Due to a lack of a clear definition for some of the non-listed ecological communities the level of information presented may not contain all the features described for listed communities (i.e. EECs). The descriptive categories, and an indication of attributes described under that heading, are:

- **Characteristic species** those species considered typical of the community, as determined by the NSW Scientific Committee (if an EEC) or from a variety of other vegetation classifications (if a non-threatened ecological community). Species are listed alphabetically or where possible, by their stratum in the community (i.e. canopy, shrub or understorey). For EECs additional information can be found in the NSW Scientific Committee determinations, which are available at <http://www.environment.nsw.gov.au/determinations/> and by following the links to the relevant ecological community.
- **Distinguishing features** given the difficulty in identifying and locating some ecological communities, especially those not listed as threatened, key features are given to distinguish the community from others with which it may be confused. Unfortunately there is no widely accepted definition or terminology for non-threatened ecological communities in New South Wales.
- **Notes** additional information is provided to assist with identification or gain a better understanding of the community. Communities at risk from boneseed are also noted here.

## Glossary and acronyms

This glossary has been compiled using definitions from the Flora of New South Wales and with permission of the BGT. Terms within the definition in **bold** refer to the plural (pl.), adjective (adj.) or adverb (adv.), or compare (cf.) the term defined.

**acute** pointed, having a short sharp apex, the converging edges forming an angle of less than 90°. cf. **obtuse**.

**aeolian** of or caused by the wind, windblown.

**ANBG** Australian National Botanic Gardens

**anther** the pollen-bearing part of the stamen, most often 2-locular with the loculi (pollen cavities) joined by the connective.

**anthocarp** a false fruit consisting of the true fruit surrounded by the base of the perianth.

**apex** the tip. pl. **apices**.

**appressed** pressed closely against another organ, e.g. of hairs on a leaf.

**awn** a bristle-like appendage terminating an organ or inserted on its back. adj. **awned**.

**axil** the upper angle between one part of a plant and another part, e.g. the stem and a leaf, primary and secondary veins. adj. **axillary**.

**basal** (radical) attached or grouped at the base, e.g. of leaves in a rosette.

**BGT** Botanic Gardens Trust, Sydney.

**biconvex** both surfaces convex.

**bipinnate (2-pinnate)** of a compound leaf, with the lamina divided twice pinnately, i.e. with the pinnae themselves divided pinnately into pinnules.

**bract** usually a more or less modified leaf, especially a smaller one associated with a flower or part of an inflorescence.

**bracteole** bract-like structure borne singly or in pairs on the pedicel or calyx of a flower.

**callus** (1) a small hard protrusion, e.g. on the labellum of some orchids (family Orchidaceae); (2) a hard point below the lemma, in spikelets of family Poaceae; pl. **calli**.

**calyx** the sepals of one flower collectively. pl. **calyces**.

**capsule** a dry dehiscent fruit derived from two or more carpels. Capsules may dehisce in various ways. adj. **capsular**.

**carpel** a unit of the female part of the flower, consisting of an ovary bearing one or more ovules, a receptive stigma, and often a stalk-like style between them. A flower can have a solitary carpel or more than one carpel.

**coccus** one of the segments (usually 1-seeded) of a distinctly lobed fruit which becomes separated at maturity; sometimes called a mericarp.

**compound** composed of several more or less similar parts, as opposed to simple, e.g. of an ovary formed from several united carpels or of a leaf divided into leaflets.

**constricted** sharply tapering or binding together at some point.

**CPBR** Centre for Plant Biodiversity Research (Australian National Herbarium).

**cyme** an inflorescence in which the main axis ends in a flower and further growth of the inflorescence is by one or more branches which themselves end in a flower (main and lateral branches may bear bracteoles but have no bracts, leaves or nodes). adj. **cymose**.

**decumbent** spreading horizontally with the ends growing upwards.

**decurved** bent downward and curved. cf. **deflexed**.

**decussate** in pairs, with successive pairs borne at right angles to each other.

**deflexed** bent sharply downward. cf. **decurved**.

**dicotyledons** a major group of angiosperms (flowering plants) characterised by the embryo usually having two (rarely more) cotyledons (seed leaves). cf. **monocotyledons**.

**digitate** (palmate) of a compound leaf with 3 or more leaflets arising from one point at top of petiole.

**disc** an outgrowth of tissue from the receptacle in the form of a ring or plate, sometimes divided into lobes or separate bodies, occurring between whorls of floral parts; generally glandular.

**discolorous** coloured differently on the two surfaces.

**disjunct** (1) (opposite) a variant of opposite and decussate leaf arrangement in which during development, the leaves of a pair become separated on the axis owing to elongation of the nodal region, often giving the appearance of 'alternate' leaf arrangement but distinguished by decussate, not spiral, sequence; (2) of a species' population, widely separated

geographically or ecologically from other populations of the same species.

**domatia** small structures on the lower surface of some leaves, usually consisting of depressions, partly enclosed by leaf tissue or hairs, usually located in the axils of the primary and secondary veins.

**dorsal** relating to the back of an organ, i.e. the surface of a lateral organ facing away from the axis.

**drupe** an indehiscent succulent fruit derived from one or more carpels in which the pericarp consists of three layers: the seed(s) enclosed in an inner stony layer (endocarp), a soft mesocarp and an outer epicarp or skin.

**EEC** Endangered Ecological Community as defined under the TSC or EPBC Act.

**elliptic** a 2-dimensional shape, oval in outline, broadest about the middle.

**endocarp** the innermost layer of the pericarp.

**entire** of a margin, neither dissected nor toothed.

**EPBC Act** Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

**ephemeral** lasting a short time, short-lived, transitory.

**epicarp** the outermost layer of the pericarp.

**erect** (1) upright, e.g. of a shrub; (2) perpendicular to a surface, e.g. of hairs.

**floret** (1) a small flower, one of a spikelet or dense cluster, as in family Asteraceae; (2) a grass flower, together with the lemma and palea that enclose it.

- foliate** a suffix: number of leaves, as in bifoliate = with 2 leaves.
- foliolate** an adjective used with a number prefix to indicate the number of leaflets forming a compound leaf, e.g. bifoliolate, a leaf with 2 leaflets.
- follicle** a dry fruit derived from a single carpel and opening along one suture.
- frond** the leaf of a fern or cycad; sometimes used for a large compound leaf, as in palms.
- funicle** the stalk of the ovule.
- glume** a bract in the inflorescence of some monocotyledons; (1) one of the two bracts at the base of the grass spikelet; (2) also used in families Cyperaceae and Restionaceae for the small bracts on the spikelet in which flower is subtended.
- hastate** spear-shaped; of a leaf, with a narrow, pointed lamina with two basal lobes spreading more or less at right angles to the petiole.
- head** (capitulum) a dense cluster of more or less sessile flowers or florets, e.g. in family Asteraceae a group of florets sessile on a common receptacle.
- hypanthium** a cup-like or tubular structure formed above the base, and often above the top, of the ovary with the stamens and perianth parts inserted on the rim, e.g. as in some species of the family Myrtaceae.
- indumentum** a general term for the hairy or scaly covering of plants.
- indurated** hardened.
- inflorescence** a general term for the flower-bearing system of a plant, and more particularly for portions of such systems separated from one another by vegetative portions of the plant.
- intramarginal** situated inside the margin but close to it, e.g. of veins in leaves of many species in family Myrtaceae.
- keel** (1) a ridge like the keel of a boat, usually on the back of an organ; (2) the two fused anterior petals of the pea flower.
- labellum** the distinctive median petal in orchids (family Orchidaceae), usually differing in size and shape from those either side.
- lamina** an expanded portion of a leaf or petal. pl. **laminas, laminae**.
- lanceolate** lance-shaped; 3–6 times as long as broad, and broadest below the middle and tapering to the apex.
- lateral** attached to the side of an organ, e.g. leaves on a stem.
- lemma** the lower of two bracts enclosing the flower of a grass.
- ligule** (1) a variously shaped appendage facing towards the base of a leaf (especially in grasses), petiole, or perianth segment; (2) the strap-shaped corolla lobe or limb in ray florets of family Asteraceae.
- lobe** part of a leaf (or other organ), often rounded, formed by incisions about halfway to the midrib. adj. **lobed**.
- loculus** a more or less closed cavity, containing the pollen in anthers and the ovules in an ovary. pl. **loculi, locules**. adj. **locular**.
- margin** a border or edge, as of a leaf.
- membranous** thin and translucent.
- mericarp** one segment of a fruit that breaks at maturity into units derived from the individual carpels, sometimes called a coccus.
- mesocarp** the fleshy part of the wall of a succulent fruit; the middle layer of the pericarp in a drupe.
- mesomorphic** soft and with little fibrous tissue, but not succulent.
- mesophyll** photosynthetic tissue of a leaf; of vegetation, characteristic of moist habitats and with soft, fairly large leaves predominating. adj. **mesophyllous**.
- midrib** the midvein or primary vein, especially when it is prominently raised or depressed.
- monocotyledons** a major group of angiosperms, characterised by the embryo usually having one cotyledon (seed leaf). cf. **dicotyledons**.
- nut** a dry indehiscent 1-seeded fruit formed from 2 or more carpels.
- oblanceolate** a 2-dimensional shape, lanceolate but broadest in the upper third. cf. **lanceolate**.
- oblong** a 2-dimensional shape, rectangular with length greater than breadth.
- obovate** a 2-dimensional shape, ovate but broadest above the middle.
- obtuse** blunt or broadly rounded, the converging edges separated by an angle greater than 90°, e.g. of an lamina apex, or of a lamina base. cf. **acute**.
- orifice** a small opening or aperture.
- ovate** a 2-dimensional shape, with the length 1–3 times the breadth, and broadest below the middle.
- ovule** a structure in seed plants within which one or more megaspores are formed in the embryo sac, and which after fertilisation develops into the seed.
- palea** (1) the upper of 2 bracts enclosing the flower of a grass; (2) one of the chaffy scales on the petiole and rachis of many ferns.
- panicle** a compound inflorescence with a main axis and lateral branches which are further branched, and in which each axis ends in a flower or flower bud. adj. **paniculate**.
- pappus** the group of appendages, usually hairs or scales, above the ovary and outside the corolla in family Asteraceae (possibly a modified calyx); often persisting on the fruit and aiding in its dispersal.
- pedicel** the stalk of a flower (above the subtending bract or leaf); bracteoles are sometimes present on a pedicel. adj. **pedicellate**. cf. **peduncle**.
- peduncle** the stalk of an inflorescence; the axis between the last foliage leaf and the first branch of the inflorescence; the stalk of a solitary flower when that flower represents a reduced inflorescence. adj. **pedunculata**. cf. **pedicel**.
- perianth** the calyx and corolla collectively; especially when they are similar, individual segments then being called tepals.
- pericarp** the wall of the fruit, developed from the ovary wall.
- persistent** remaining until the part that bears it is fully matured, e.g. of floral parts remaining until fruit is mature; of a leaf base, remaining attached to the plant after leaf or frond has been shed.
- petiole** the stalk of a leaf. adj. **petiolate**.
- phyllode** a flattened petiole, leaf-like in

appearance and function, replacing the lamina, as in many wattles.

**pinna** a primary segment of the lamina of a compound leaf. pl. **pinnae**.

**pinnate** (1) (1-pinnate) of a leaf, with the lamina divided into pinnae in 2 rows along a rachis, once compound. cf. **bipinnate**; (2) of veins, with the secondary veins arranged regularly. adv. **pinnately**.

**pinnule** a leaflet of a bipinnate leaf. pl. **pinnules**.

**prostrate** lying flat on the ground.

**pubescent** a somewhat dense covering of short, weak, soft hairs.

**raceme** a simple inflorescence ending in a non-floral bud and in which the flowers are stalked, i.e. an indeterminate inflorescence. cf. **spike**.

**rachis** the axis of an inflorescence, pinnate leaf, or of a pinna in a bipinnate leaf. pl. **rachises**.

**radical** of leaves, clustered at the base of the stem. cf. **rosette**.

**receptacle** the often more or less expanded top of the stalk on which a flower or flower-head arises; an axis on which sporangia arise in ferns.

**recurved** curved backwards (and hence usually downwards), e.g. of the margins of a leaf.

**rhizome** an underground stem, usually growing horizontally. adj. **rhizomatous**.

**rosette** a radiating cluster of leaves, usually close to the ground at the base of a plant.

**ROTAP** Rare or Threatened Australian Plants, see Briggs and Leigh (1998).

**saprophyte** an organism deriving its nourishment from dead organic matter and usually lacking chlorophyll.

**scale** (1) any thin and often scarios body, often a reduced or rudimentary leaf, e.g. covering a dormant bud; (2) a thin flap of tissue, e.g. at the base of stamens; (3) a small papery surface structure on stems and leaves.

**sclerophyll** a plant with hard, stiff leaves. adj. **sclerophyllous**.

**SEPP** State Environmental Planning Policy (NSW).

**sepal** one of the outer leaf-like structures surrounding the corolla (if present) and fertile organs of the flower, usually green; collectively the calyx.

**sessile** without a stalk, e.g. of a leaf without a petiole.

**sheath** a tubular or rolled part of an organ, e.g. the lower part of the leaf in most grasses.

**sheathing** clasping or surrounding the stem.

**simple** of a single piece or series; (1) of a leaf, with lamina not divided into leaflets. cf. **compound**; (2) of an inflorescence, unbranched with the pedicels arising from the main axis.

**sorus** a discrete aggregate of sporangia in ferns. pl. **sori**.

**spathulate** spoon-shaped, e.g. of a leaf.

**spike** a simple inflorescence, terminating in a non-floral bud, in which the flowers are sessile, i.e. a type of indeterminate inflorescence. cf. **raceme**.

**spikelet** the small partial inflorescence (unit) in families Poaceae, Cyperaceae and Restionaceae, composed of an axis

bearing glumes, most of which enclose a small flower.

**spinose** bearing spines.

**sporangium** a structure in which spores are formed. pl. **sporangia**.

**spore** a unicellular or few-celled asexual or sexual reproductive unit, not containing an embryo.

**spur** a slender sac-like or hollow protuberance from a part of the calyx or corolla, often secreting nectar. adj. **spurred**.

**stamen** one of the male organs of the flower, consisting of a pollen-bearing anther and a filament or stalk. adj. **staminate**.

**standard** the large upper petal of a pea flower.

**stigma** the part of the carpel receptive to pollen, generally terminal on the style. adj. **stigmatic**.

**stipule** one or a pair of appendages sometimes developed at the base of a leaf in many dicotyledons; can be leaf-like, scarios or spinose.

**stolon** a more or less horizontal stem growing above ground and rooting at the nodes. adj. **stoloniferous**.

**stomate** a pore bounded by two guard cells in the epidermis, especially in leaves, for the exchange of gases between the plant tissues and the surrounding atmosphere. pl. **stomates**.

**striate** striped with parallel longitudinal ridges or lines.

**style** the part of the carpel between the stigma and ovary, often elongated.

**subtend** to stand below or close to something, to enclose.

**suture** a seam or line as formed at the junction of two margins.

**TAP** Threat Abatement Plan for bitou bush and boneseed in NSW.

**tepal** a free segment of a perianth that is not differentiated into a calyx and corolla.

**thyrsoid** a compound inflorescence which ends in a flower and in which the main axis is raceme-like and the lateral ones cymose.

**truncate** with an abruptly transverse edge as if cut off, e.g. of a lamina apex or base.

**TSC Act** NSW *Threatened Species Conservation Act 1995*.

**umbel** an inflorescence (strictly an indeterminate one) in which all the flowers or flower stalks arise from one point at the top of the peduncle. adj. **umbellate**.

**umbellaster** a group of flowers (with terminal bud ending in a flower) more or less arising from one point, which may be derived from the condensation of a cyme, thyrsoid or panicle.

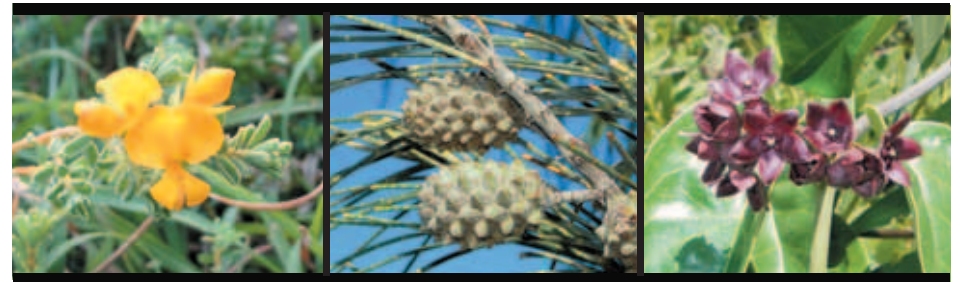
**undulate** wavy, i.e. not flat.

**valve** a lid or segment of an anther or capsule which opens or separates at dehiscence.

**whorl** a ring of leaves, bracts or floral parts borne at the same level on a stem or axis.

**wing** (1) a membranous expansion of a fruit or seed which aids dispersal; (2) a thin flange of tissue on a stem or petiole; (3) a lateral petal in the family Fabaceae.

## SPECIES DESCRIPTIONS



TREES	2
SHRUBS	32
CLIMBERS/SCRAMBLERS	79
HERBS	93
GRASSES/SEDGES	140
FERNS	153





Terry Lane

Habit



Shane Ruming

Phyllodes



Andrew Orme

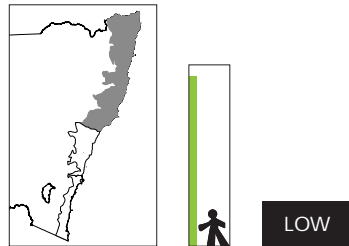
Phyllodes and fruit (pods)

## *Acacia bakeri*

Baker's wattle, marblewood, scrub wattle, white marblewood

FABACEAE

rainforest wet sclerophyll forest



Erect or spreading tree 5–40 m high with finely fissured or smooth bark. Found north from Mullumbimby.

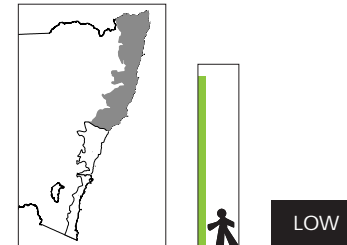
- **Phyllodes** 5–10 cm long, 1.5–5 cm wide, alternate, broadest in the middle, straight or slightly curved, with mostly 3 but occasionally 4 prominent longitudinal veins.
- **Flowers** inflorescence a spherical head 3–4.5 mm in diameter, pale yellow to cream in colour, arranged in clusters of 1–8 along a raceme axis. Racemes axillary with central branch 4–12 cm long and inflorescence stalks 5–10 mm long.
- **Flowering time** September – November
- **Fruit** a more or less flat pod 5–16 cm long, 10–16 mm wide, straight or curved, finely veined, deeply constricted between seeds.
- **Status** SV

## *Acmena hemilampra*

broad-leaved lilly pilly, blush satinash

MYRTACEAE

rainforest



Medium-sized to tall tree with bark on twigs smooth, becoming flaky and fissured with age. Grows in subtropical and littoral rainforest, north from Iluka.

- **Leaves** 4–13 cm long, 2–5 cm wide, broad-lanceolate to elliptic and usually tapering to a blunt point, hairless, margins undulate, upper surface glossy, lower surface paler and sometimes dull blue-green in colour. Lateral veins are numerous, at 40–50° angle to the midvein. Intramarginal vein distinct. Oil glands present.
- **Flowers** inflorescence a terminal panicle. Flowers with petals 1–1.5 mm long and mostly circular, occasionally irregular in shape, more or less cohering.
- **Flowering time** October – November
- **Fruit** a firm, fleshy spherical white berry 8–20 mm in diameter. The flower stalks are thickened when fruiting.
- **Status** not listed



Shane Ruming

Leaves



Glenn Leiper

Fruit (berries) and leaves

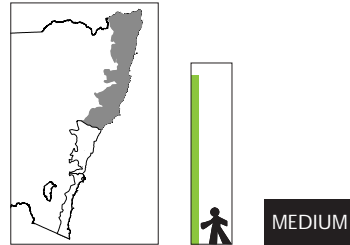


Habit

## *Acronychia imperforata*

logan apple  
RUTACEAE

rainforest dune/field



Shrub or small tree to 9 m. Stems, lower surface of the leaves and inflorescences are more or less hairless. Grows in lowland or littoral rainforest, north from Seal Rocks.

- **Leaves** 3–12 cm long, 1.6–5.5 cm wide, opposite, usually elliptic to broad-elliptic. Leaf apex broad and rounded and notched at the tip. Oil glands absent or inconspicuous. Leaf has little or no scent when crushed.
- **Flowers** inflorescence axillary and usually few-flowered, 2.5–5 cm long. Sepals 1–1.5 mm long. Petals 6–9.5 mm long, yellowish or creamy-white in colour.
- **Flowering time** chiefly March – May
- **Fruit** a yellow to yellow-orange drupe 7–12 mm in diameter, more or less spherical or egg-shaped, hairless or with a few hairs at the apex.
- **Status** not listed



Leaves



Fruit (drupes)

Michael Fiedler

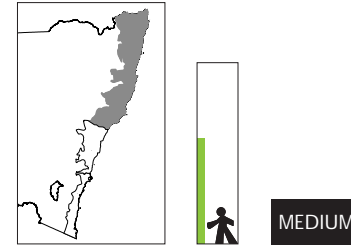
Michael Fiedler

Michael Fiedler

## *Acronychia littoralis*

scented acronychia  
RUTACEAE

rainforest



Small tree to 6 m high. Grows in littoral rainforest on sand, from Iluka to Kingscliff.

- **Leaves** 5–16 cm long, 3–6.5 cm wide, opposite, broad-elliptic to broad-obovate, upper surface green and moderately glossy, lower surface paler, apex rounded to blunt and often notched. Petiole 10–25 mm long and 1.2–2.2 mm wide. Oil glands numerous and faintly to moderately translucent. A strong spicy-aromatic scent when crushed.
- **Flowers** inflorescence axillary and usually few-flowered, 4–5.5 cm long. Sepals approximately 2.5 mm long. Petals approximately 9 mm long, yellowish.
- **Flowering time** usually December – February
- **Fruit** a 4-lobed creamy-lemon drupe 10–20 mm in diameter, broad egg-shaped, hairless with 4 shallow grooves at the apex.
- **Status** NE, SE, 3ECi
- **Notes** distinguished from *A. imperforata* by the conspicuous oil glands in leaves and the creamy-lemon 4-lobed fruit.



Leaves



Flowers



Fruit (drupes)

Mark Hamilton

Shane Ruming

Shane Ruming



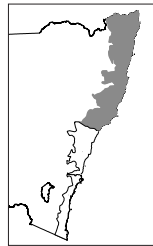
Glen Leiper

Leaves

### *Ailanthus triphysa*

white bean, white siris  
SIMAROUBACEAE

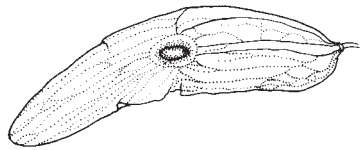
rainforest



LOW

Evergreen tree to about 30 m high. Grows in dry, littoral and subtropical rainforest, north from Iluka.

- **Leaves** compound, 15–45 cm long, crowded at end of branches, alternate, with a single terminal leaflet. 15–61 leaflets 3–10 cm long, 1–2 cm wide, oblong-lanceolate to lanceolate and tapering to a point, entire, more or less opposite and hairless.
- **Flowers** inflorescence an axillary panicle 5–7 cm long. Petals 2.5–5 mm long, creamy-green in colour, more or less hairless.
- **Flowering time** December – January
- **Fruit** a dry, papery and winged brownish fruit, 4.5–6 cm long, 1.5–2 cm wide, single-seeded.
- **Status** not listed



Fruit (winged) containing a single seed

© BGT 2008

### *Archidendron hendersonii*

white lace flower, tulip siris  
FABACEAE

rainforest



LOW

Tree to 18 m high, with buttressed trunk. Grows in riverine and lowland subtropical rainforest and littoral rainforest, north from Alstonville.

- **Leaves** compound, 2 pinnae per leaf, usually 6 leaflets per pinnae. Leaflets 4–13 cm long and 2–6 cm wide, lanceolate to ovate, strongly asymmetrical and usually opposite but lower ones sometimes alternate. Upper surface glossy, lower surface duller. A sunken gland occurs on the petiole.
- **Flowers** inflorescence a head with at least 10 flowers 6–8 cm in diameter, fluffy and creamy white.
- **Flowering time** September – December
- **Fruit** an oblong pod 4–6 cm long, curved, orange outside and red inside. Seeds glossy and black.
- **Status** SV

Shane Ruming  
Flowers and leavesShane Ruming  
Leaves, fruit (pods) and seeds (black)



Glenn Leiper

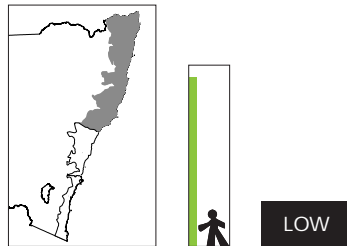
Leaves and fruit (drupes)

### *Bridelia exaltata*

brush ironbark, scrub ironbark, grey birch,  
brown birch

PHYLLANTHACEAE

rainforest



Small to large tree with dark brown and coarsely fissured bark. Inhabits moist and dry rainforest from sea level to 600 m, north from Seal Rocks.

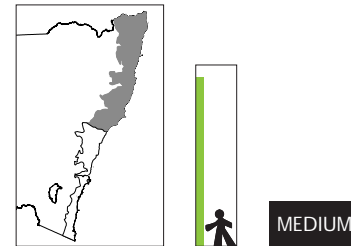
- **Leaves** 5–12 cm long, 2–5 cm wide, ovate to oblong, alternate; margins entire, undulating; upper surface dark green, lower surface pale greyish-green in colour. 12–15 pairs of prominent secondary veins on both surfaces, petiole 3–5 mm long.
- **Flowers** solitary and axillary, sepals and petals in 5s. Sepals 2 mm long. Petals shorter than sepals.
- **Flowering time** includes November – April
- **Fruit** a fleshy, yellow-orange drupe 8 mm in diameter, mostly 2-seeded, ripe March – July.
- **Status** not listed

### *Casuarina equisetifolia*

horsetail she-oak

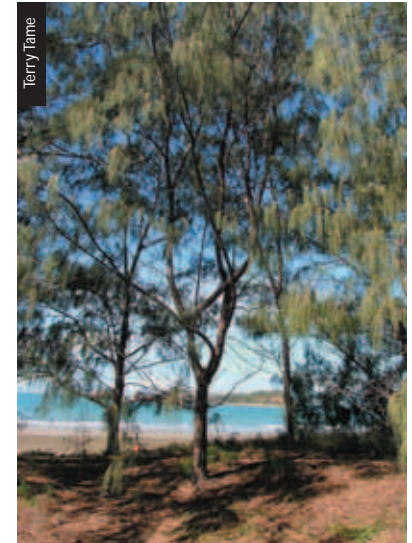
CASUARINACEAE

maritime dune/field



Small tree 6–12 m high with drooping branches and scaly, grey-brown to black bark. Found on rocky headlands and dunes along the coast. Occurs north from Laurieton (near Port Macquarie).

- **Leaves** reduced to teeth in whorls of 6–8 on branchlets. Teeth 0.7 mm long, erect, not withering. Leaf whorls spaced 7–13 mm apart on the branchlet. Branchlet 0.7–1 mm in diameter, cylindrical, densely hairy at least when young.
- **Flowers** male and female flowers borne on the same plant. Male inflorescence 2 cm long, anthers 0.6–0.8 mm long. Female inflorescence club-shaped, reddish in colour.
- **Flowering time** April – June
- **Fruit** borne in a cone 10–20 mm long and 10–13 mm in diameter, more or less densely hairy. Fruit dry, papery and winged, 6–8 mm long, grey or yellow-brown in colour, dull.
- **Status** not listed



Terry Tame



Shane Ruming

Fruit (cones) and branchlets



Shane Ruming

Leaves



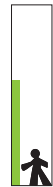
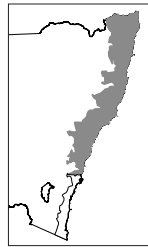
Glenn Leiper

Fruit (drupes)

## *Celtis paniculata*

native celtis  
ULMACEAE

rainforest



LOW

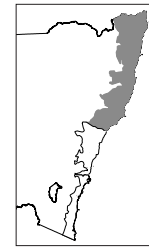
Small to medium-sized evergreen tree to 4 m high. Grows in dry, subtropical and especially littoral rainforest, in coastal areas north from Kiama.

- **Leaves** 5–10 cm long, 2–4.5 cm wide, elliptic to lanceolate, margins entire, upper and lower surfaces hairless and dull green, usually 3-veined from near base.
- **Flowers** inflorescence a many-flowered axillary panicle. Flowers very small, <2 mm long. Sepals and petals similar, both white in colour.
- **Flowering time** August – March
- **Fruit** a black drupe 1 cm in diameter, ripe August – March.
- **Status** not listed

## *Cryptocarya foetida*

stinking cryptocarya  
LAURACEAE

rainforest



MEDIUM

Small to medium-sized tree to 20 m high with 'offensive' smelling flowers. Grows in littoral rainforest, usually on sandy soils, north from Iluka.

- **Leaves** 5–12 cm long, 2–6 cm wide, elliptic to ovate, margins entire, hairless, apex bluntly pointed. Upper surface dark green, lower surface paler and drying yellowish-green. Main veins very prominent, yellowish and characteristically crooked, network of veins prominent on both surfaces, 4–5 pairs of secondary veins.
- **Flowers** inflorescence a dense panicle. Flowers about 2 mm long, cream, with a strong odour.
- **Flowering time** includes September – May
- **Fruit** a spherical purple to black drupe 1 cm in diameter, ripe in February.
- **Status** NV, SV, 3VCi



Shane Ruming

Leaves



Stephen Booth

Fruit (drupes)



Terry Lane

New leaves



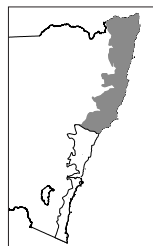
Glenn Leiper

Leaves and fruit (drupes)

## *Cryptocarya triplinervis* var. *pubens*

LAURACEAE

rainforest



LOW

Small to medium-sized tree to 12 m high, with hairy branchlets. Inhabits warmer rainforest, north from Coffs Harbour.

- **Leaves** 5–10 cm long, 2–4 cm wide, broad-lanceolate to ovate, upper surface glossy green. Lower surface of mature leaves covered in both crooked and straight, erect and appressed white to fawn hairs, domatia absent.
- **Flowers** inflorescence a panicle, usually shorter than the leaves. Flowers 3.5 mm long, yellowish, pubescent.
- **Flowering time** September – December
- **Fruit** a purple-black oval drupe approximately 12 mm long, slightly ribbed, ripe February – May.
- **Status** not listed

## *Cryptocarya triplinervis* var. *triplinervis*

three-veined cryptocarya

LAURACEAE

rainforest



LOW

Small to medium-sized tree to 12 m high, with hairy branchlets. Inhabits warm rainforest, north from South West Rocks, and Lord Howe Island.

- **Leaves** 5–10 cm long, 2–4 cm wide, broad-lanceolate to ovate, upper surface glossy green. Lower surface of mature leaves covered in straight, more or less appressed white hairs, domatia often present.
- **Flowers** inflorescence a panicle, usually shorter than the leaves. Flowers 3.5 mm long, yellowish, pubescent.
- **Flowering time** September – December
- **Fruit** a purple-black oval drupe approximately 12 mm long, slightly ribbed, ripe February – May.
- **Status** not listed



Shane Ruming

Leaves



Habit

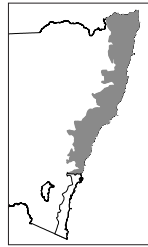
Terry Lane

## *Cupaniopsis anacardioides*

tuckeroo

SAPINDACEAE

rainforest maritime dune/field



LOW

Small to medium-sized tree 3–15 m high, mostly hairless except the inflorescence and new growth. Growing in littoral rainforest, coastal scrub and along coastal estuaries, north from Gerroa (Illawarra region).

- **Leaves** pinnate, 15–25 cm long, with 4–11 leaflets. Leaflets 5–15 cm long, 2–6 cm wide, ovate but broadest about the middle or oblong-elliptic. Margins entire, apex rounded and often notched, leathery, secondary veins 6–10 mm apart.
- **Flowers** inflorescence an axillary panicle 8–30 cm long. Flowers tiny. Sepals 2–4 mm long. Petals 1.5–3 mm long, yellowish in colour.
- **Flowering time** June – July
- **Fruit** a 3-chambered, almost spherical fleshy capsule 15–30 mm long, 15–20 mm in diameter, yellow to orange in colour.
- **Status** not listed



Flowers and leaves

Shane Ruming



Fruit (capsules)

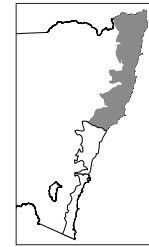
Glenn Leiper

## *Endiandra globosa*

black walnut

LAURACEAE

rainforest



LOW

Medium-sized to large rainforest tree to 25 m high, with whitish, grey or brown finely scaly bark, without buttressed roots. Restricted to riverine rainforest on rich alluvial soils and subtropical rainforest on moist slopes, in the Brunswick and Tweed valleys.

- **Leaves** 7–15 cm long, 3–6 cm wide, broad-elliptic to elliptic or ovate, hairless and glossy, turning black when dried, apex abruptly tapering to a point, with a prominent yellowish main vein and 6–9 pairs of secondary veins.
- **Flowers** inflorescence an axillary panicle shorter than the leaves. Flowers 3.5 mm long.
- **Flowering time** includes October – February
- **Fruit** a black spherical drupe 4–5 cm in diameter. Single seed 2–3 cm in diameter.
- **Status** 2RC–



Leaves showing prominent veins



Fruit (drupes)

Terry Lane

Glenn Leiper



Samuel Lucitti

Habit



Peter Jensen

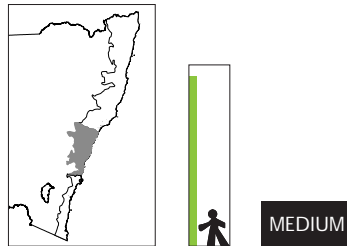
Adult leaves

## *Eucalyptus camfieldii*

Camfield's stringybark

MYRTACEAE

heath



A multi-stemmed mallee to 4 m high or straggly tree to 10 m, with rough, fibrous and stringy bark. Grows in shallow sandy soils overlying sandstone, from Royal National Park to Gosford.

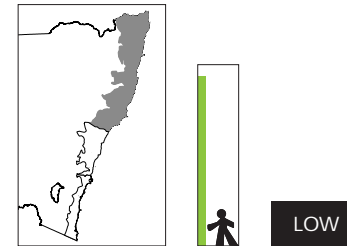
- **Leaves** juvenile leaves round to heart-shaped, disjunct and with bristly hairs. Adult leaves 10 cm long, 2–3 cm wide, broad-lanceolate, disjunct, glossy green on both surfaces.
- **Flowers** inflorescence an umbellaster, 11 or more flowered on cylindrical or angular stalks, 5–10 mm long. Flowers creamy-white. Buds 6–8 mm long, 3–5 mm in diameter, broadly egg-shaped with conical caps, stalkless.
- **Flowering time** throughout the year
- **Fruit** a woody capsule 4–6 mm long, 6–9 mm in diameter, hemispherical or flattened-spherical, with valves enclosed and tips projecting beyond the rim.
- **Status** NV, SV, 2VCi

## *Eucalyptus paniculata* subsp. *matutina*

grey ironbark

MYRTACEAE

wet sclerophyll forest



Tree to 30 m high, with persistent grey-black bark. Occurs in wet forest on deeper soils of higher fertility, in coastal districts between Newcastle and Port Stephens.

- **Leaves** juvenile leaves ovate, disjunct, glossy to dull green. Adult leaves 8–12 cm long, 1–3 cm wide, lanceolate to broadly lanceolate, disjunct, semi-glossy and discoloured. Stomates present on upper surface, in lower densities on lower surface.
- **Flowers** inflorescence an umbellaster, 7-flowered, on angular or narrowly flattened stalks, 6–15 mm long. Flowers creamy-white. Buds 7–9 mm long, 3–5 mm in diameter, oval- or spindle-shaped with conical caps.
- **Flowering time** March – November
- **Fruit** a woody capsule 6–9 mm long, 5–8 mm in diameter, varies in shape from hemispherical to conical to egg-shaped, 4–5-locular, disc depressed or flat, valves enclosed or at rim-level.
- **Status** 2K



Jackie Miles



Jackie Miles

Fruit (capsules) and bark





© M. Fagg, ANBG

Flowers and leaves

### *Fontainea oraria*

coast *Fontainea*  
EUPHORBIACEAE

rainforest



HIGH

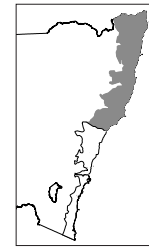
Large shrub or small tree 8–10 m high, occasionally multistemmed from the base. Grows in low littoral rainforest on highly fertile basalt-derived soils. Restricted to a small number of trees near Lennox Head.

- **Leaves** 8–12 cm long, 2.5–4 cm wide, elliptic to ovate but broadest above the middle, alternate, dark green and hairless. A gland is present 0.5–4 mm above base of the leaf blade.
- **Flowers** inflorescence a short terminal and/or axillary raceme, usually with male and female flowers on different plants. Flowers <8 mm in diameter. Sepals 4–6 lobed and cup-like, disc ring-shaped and fleshy. Female inflorescence axes 8–10 mm long. Male inflorescence axes 5–6 mm long.
- **Flowering time** November – December
- **Fruit** a red and slightly downy drupe 18–22 mm long, 22–24 mm in diameter, more or less spherical.
- **Status** NE, SE, 2E
- **Notes** leaf stalks exude a watery sap when damaged.

### *Glochidion sumatranum*

umbrella cheese tree  
PHYLLANTHACEAE

rainforest freshwater wetland



LOW

Small to medium-sized tree to 15 m high. Inhabits rainforest or adjoining palm forest and swamp sclerophyll forest in coastal regions, north from Iluka.

- **Leaves** 5–12 cm long, 2–6 cm wide, elliptic to ovate, hairless or finely pubescent below, petiole 5–7 mm long, stipules narrow-triangular and finely pointed.
- **Flowers** inflorescence a cluster of flowers on a short stalk arising 5–10 mm above the leaf axil. Flowers 2–3 mm long, yellow.
- **Flowering time** includes March – April
- **Fruit** a dusky pink hairy capsule 5–10 mm in diameter. 1–8 capsules on a common stalk, ripe April – May.
- **Status** not listed



Leaves and fruit (capsules)



Fruit (capsules) and flowers

Paul Donatitu

Glenn Leiper



Juvenile leaves

Terry Lame



Flowers and adult leaves

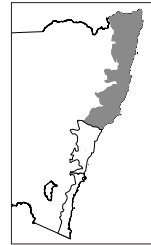
Terry Lame

## *Grevillea hilliana*

white yiel yiel, white silky oak

PROTEACEAE

rainforest



LOW

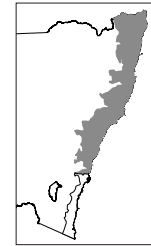
Tree 8–30 m high growing in subtropical rainforest, often on basalt-derived soils. Restricted to several populations on the coast, north from Brunswick Heads.

- **Leaves** juvenile leaves 25–40 cm long, 15–30 cm wide, divided and deeply lobed with 3–10 linear to lanceolate lobes. Adult leaves 9–24 cm long, 1.5–6 cm wide, lanceolate to oblong-elliptic, or sometimes 4–6 lobed, margins recurved, veins in a feather pattern. Lower surface of both young and adult leaves is silvery and silky.
- **Flowers** inflorescence 8–22 cm long, cylindrical, sometimes branched, branches many-flowered. Sepals and petals white to pale green, silky outside and hairless or pubescent inside.
- **Flowering time** mainly May – July
- **Fruit** a hairless follicle with 1–2 seeds.
- **Status** SE

## *Melaleuca groveana*

MYRTACEAE

heath



LOW

Small tree or shrub from 2–5 m high, rarely to 10 m, with firm, fibrous-papery bark. Grows in heath and shrubland, often in exposed sites, at high elevations. Occurs north from Port Stephens, as well as inland.

- **Leaves** 20–55 mm long, 3–8 mm wide, narrow-elliptic, alternate, hairless, apex pointed, petiole 1.5–3 mm long.
- **Flowers** inflorescence a few- to many-flowered spike 2–3 cm long. Inflorescence stalk more or less hairless. Flowers solitary within each bract, white. Petals up to 4 mm long, broad-ovate.
- **Flowering time** September – November
- **Fruit** a woody capsule 4–7 mm in diameter with a 2–3 mm diameter orifice.
- **Status** SV, 3RC–



Habit



Flowers



Fruit (capsules)

Glenn Leiper

© BGT: David Hardin

Andrew Orme



Glenn Leiper

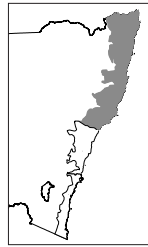
Flowers and leaves

### *Melicope vitiflora*

coast euodia, northern euodia

RUTACEAE

rainforest



LOW

Small tree to 14 m high, largely hairless though petioles can be covered with downy hairs. Found in subtropical and littoral rainforest, north from Broken Head.

- **Leaves** compound, consisting of 3 leaflets each 5–20 cm long and 2–7 cm wide, oval-shaped, narrowed at the base and apex, soft and moderately thick. Oil glands numerous and obvious. Petiole 2–14 cm long. Terminal leaflet stalks 7–25 mm long, other leaflet stalks 3–12 mm long.
- **Flowers** inflorescence a more or less terminal panicle to 10 cm long, densely flowered. Sepals 1 mm long, hairy. Petals 2.5 mm long, white to cream, hairless.
- **Flowering time** October – January
- **Fruit** a 1–2-segmented brown capsule, 5–7 mm long, thin-walled. Seeds black, shiny.
- **Status** SE

### *Niemeyera chartacea*

smooth-leaved plum

SAPOTACEAE

rainforest



LOW

Small rainforest tree with rust-coloured, pubescent new growth. Grows in subtropical rainforest, north from Brunswick River.

- **Leaves** 5–15 cm long, 1.5–3.5 cm wide, elliptic to ovate but broadest above the middle, secondary veins curved in 5–10 pairs, petiole 5–10 mm long, small widely spaced translucent dots present.
- **Flowers** clustered and axillary, often on previous season's woody branches, to 5 mm in diameter, white, tubular, sessile. Sepals and petals in 5s.
- **Flowering time** September – January
- **Fruit** a purple-black egg-shaped berry 15–30 mm in diameter, ripe November – April. Seeds 1–2, 5–10 mm wide.
- **Status** SE



Glenn Leiper

Flowers



Glenn Leiper

Fruit (berries)



Gary Varga

Habit



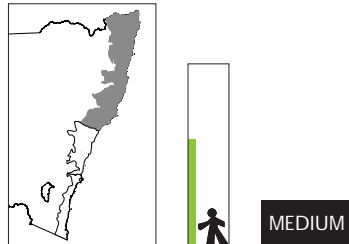
Shane Ruming

Aggregate fruit and leaves

## *Pandanus tectorius* var. *australianus*

screw pine  
PANDANACEAE

maritime dunefield



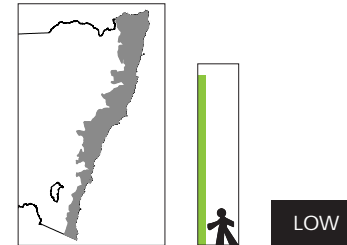
Shrub or small tree to 5 m with aerial roots and much-branched stems. Stem and branches ringed with distinct leaf scars. Found on coastal headlands and along beaches, north from Port Macquarie, and Lord Howe Island.

- **Leaves** in 4 rows, to 1 m long, 5–8 cm wide, linear, spirally arranged and concentrated at the stem apices. Margins recurved, margins and midrib prickly.
- **Flowers** male and female flowers borne on separate plants. Inflorescences dense stalked spikes with large surrounding bracts. Male spikes in columns formed by numerous fused stamens. Female spikes 5–12 cm long, stalked.
- **Flowering time** throughout the year
- **Fruit** individual fruit a bright red drupe, orange or yellow when ripe, combined into a spherical to egg-shaped (cone-like) aggregate fruit to 25 cm in diameter. May persist on the stout branches for up to 12 months.
- **Status** not listed

## *Pisonia umbellifera*

birdlime tree  
NYCTAGINACEAE

rainforest



Erect shrub or tree to 28 m high, without spines. Widespread in coastal rainforest, north from the Shoalhaven River and on offshore islands.

- **Leaves** 6–20 cm long, 4–10 cm wide, more or less elliptic, alternate, opposite or clustered, hairless and soft. Petiole 2–5 cm long.
- **Flowers** inflorescence a terminal cyme-like panicle, much branched and leafless. Sepals and petals fused into a tube 6 mm long, bell-shaped, white, yellow or pink, scented.
- **Flowering time** December – May
- **Fruit** an anthocarp 2–4 cm long, 6 mm wide, elongate and somewhat spindle-shaped, 5-ribbed, sticky and without glandular hairs.
- **Status** not listed



Leaves and flowers



Flowers



Shane Ruming

Leaves



Glenn Leiper

Fruit (berries)

### *Planchonella* sp.

blunt-leaved coodoo, yellow plumwood

SAPOTACEAE

rainforest



LOW

Small tree to 10 m high. Growing in dry and littoral rainforests, north from Forster, and Lord Howe Island.

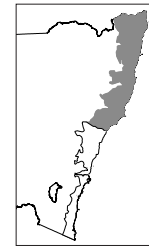
- **Leaves** 2–10 cm long, 1–4 cm wide, more or less elliptic or occasionally ovate, young leaves hairy on lower surface, apex with a short point or sometimes blunt, base tapering.
- **Flowers** solitary or in few-flowered clusters, axillary. Flowers 5–10 mm long, greenish to cream, hairy outside. Sepals, petals and stamens in 5s.
- **Flowering time** mainly September – December, also sporadically throughout the year
- **Fruit** a purple-black berry 1–3 cm long, more or less egg-shaped, style persistent. Seeds 1–3, shiny.
- **Status** not listed
- **Notes** in the Bitou Bush TAP this species was referred to as *Planchonella myrsinoides*.

### *Planchonella queenslandica*

blush coodoo

SAPOTACEAE

rainforest



LOW

Tree to 40 m high, found in littoral and dry rainforests, north from Brunswick River.

- **Leaves** 9–20 cm long, 3–6 cm wide, elliptic to ovate, hairless, apex rounded or shortly pointed, base rounded. Upper leaf surface dull, lower surface glossy, fine venation evident below, petiole 15–30 mm long.
- **Flowers** inflorescence comprised of few- to numerous-flowered axillary clusters. Flowers approximately 4 mm long, greenish, hairy. Sepals, petals and stamens in 5s.
- **Flowering time** April – July
- **Fruit** a black egg-shaped berry 1–2 cm long, mostly 1-seeded, ripe August – December. Seeds brown, shiny.
- **Status** not listed



Glenn Leiper

Fruit (berries)



Glenn Leiper

Fruit (berries) and leaves



Glenn Leiper

Flowers



Glenn Leiper

Fruit (berries)

### *Polyalthia nitidissima*

shiny-leaf tree, canary beech

ANNONACEAE

rainforest



LOW

Shrub or tree to 18 m high growing in the understorey of subtropical rainforests on sands near the coast, north from Yamba.

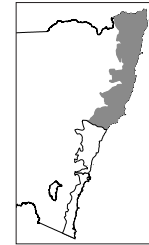
- **Leaves** 7–11 cm long, 2–5 cm wide, ovate to elliptic, hairless except for small hairy domatia on lower surface, upper surface shiny, veins fine and forming a network, petiole 2–5 mm long.
- **Flowers** solitary or paired, on stalks 5–15 mm long (to 40 mm in fruit). Sepals 2 mm long. Petals 10–15 mm long, yellowish-white.
- **Flowering time** December – February
- **Fruit** an orange spherical or egg-shaped berry 5–10 mm long, turning dark red at maturity.
- **Status** not listed

### *Syzygium hodgkinsoniae*

smooth-barked rose apple

MYRTACEAE

rainforest



LOW

Small tree to 11 m high with smooth, fibrous to flaky bark. Grows in subtropical and riverine rainforest, north from the Richmond River.

- **Leaves** 7–13 cm long, 3–6 cm wide, broad-elliptic to ovate, opposite, hairless, apex gradually tapering to a point, base wedge-shaped, lateral veins prominent, intramarginal veins irregular and poorly developed.
- **Flowers** inflorescence a terminal or upper axil panicle or with the main axis bearing lateral flowers. Flowers 25 mm in diameter, honey-scented. Petals 8–10 mm long, spreading, off white in colour. Stamens 2–3.5 cm long, numerous.
- **Flowering time** February – March
- **Fruit** bright red, more or less spherical and fleshy berry, 15–45 mm in diameter, encloses a single large seed.
- **Status** NV, SV, 3VC–



Glenn Leiper

Flowers



Glenn Leiper

Fruit (berries)



Habit

© BGT, Jaime Plaza

## *Syzygium moorei*

coolamon, durobby

MYRTACEAE

rainforest



LOW

Medium-sized to large tree to 40 m high, with red-brown or grey to pinkish, flaky bark. Grows in lowland subtropical and riverine rainforest, north from the Richmond River.

- **Leaves** 9–16 cm long, 3.5–8 cm wide, oblong to ovate or elliptic, opposite, hairless, thick, apex broadly rounded or tapering to short point, base narrowing gradually, lateral veins numerous, intramarginal vein faint or irregular.
- **Flowers** inflorescence a much-branched panicle on older stems below the leaves, arising directly out of the bark. Flowers, pink to red, showy. Petals 5 mm long. Stamens 8–15 mm long, numerous.
- **Flowering time** November – March
- **Fruit** white, flattened-spherical and fleshy berry, 3.5–6 cm in diameter, encloses a single large seed.
- **Status** SV, 2VCi



Flowers

© BGT, Jaime Plaza



Fruit (berries)

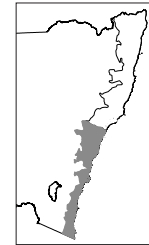
Glenn Leiper

## *Syzygium paniculatum*

magenta lilly pilly

MYRTACEAE

rainforest



MEDIUM

Shrub or small tree to 8 m high, with flaky bark. Grows in subtropical and littoral rainforest on sandy soils or stabilized dunes near the sea, from Jervis Bay to Bulahdelah.

- **Leaves** 4.5–10 cm long, 1.5–3 cm wide, lanceolate to ovate, opposite, hairless. Upper leaf surface green and glossy, lower surface paler, apex gradually tapering to a point, base wedge-shaped, lateral veins numerous, intramarginal vein discernible. Oil dots scattered, faint.
- **Flowers** inflorescence a terminal or upper axil cyme or panicle. Flowers white. Petals 4–5 mm long, spreading. Stamens 6–15 mm long, numerous.
- **Flowering time** November – March
- **Fruit** magenta, spherical to egg-shaped and fleshy berry, 15–25 mm in diameter, encloses a single large seed.
- **Status** NV, SV, 3VCi



Flowers and leaves

Shane Ruming



Fruit (berries) and leaves

© BGT, Jaime Plaza



Terry Jaine

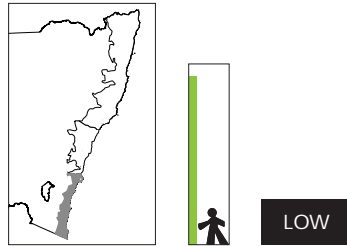
Habit

## *Acacia georgensis*

Dr George Mountain wattle

FABACEAE

heath



Erect or spreading shrub or tree 2–10 m high with corrugated or deeply fissured grey to brown bark. Found in heath on exposed rocky outcrops on the ranges near Tathra and Bega.

- **Phyllodes** 6–15 cm long, mostly 7–15 mm but occasionally to 30 mm wide, alternate, narrow and sickle-shaped with numerous longitudinal veins.
- **Flowers** inflorescence 7–35 mm long, a more or less cylindrical or egg-shaped head, bright yellow, occurring singly or in pairs in the phyllode-stem axis.
- **Flowering time** August – October
- **Fruit** a long and narrow pod 3–7 cm long, 3 mm wide, more or less straight and flat (though slightly raised over seeds), finely longitudinally wrinkled.
- **Status** NV, SV, 2VCi



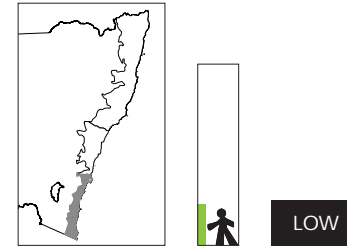
© BGT: Jaime Plaza

Phyllodes, flowers and buds

## *Acacia kydrensis*

FABACEAE

dry sclerophyll forest



Erect or spreading shrub to 2 m, often multi-stemmed. Commonly found on rocky outcrops or gullies, primarily on the Kydra Reef near Cooma, but also in the Deua and Wadbilliga National Parks.

- **Phyllodes** mostly 3–7 cm long, 8–15 mm wide, oval-shaped, broadest in the upper third, more or less straight to very slightly curved, apex broad and rounded with a discrete hard point, midvein and marginal veins prominent, midvein off centre.
- **Flowers** inflorescence a spherical head, 3.5–5 mm in diameter, on stalks 2–3 mm long, yellow in colour, arranged in clusters of 3–7 (occasionally to 13) along an axillary raceme with central axes mostly 0.5–3 cm long.
- **Flowering time** September – November
- **Fruit** a more or less flat and smooth pod 4–8 cm long, 5–8 mm wide, straight to slightly curved. Seed longitudinal in pod. Funicle partially or wholly encircling seed and reddish or orange in colour.
- **Status** 2RCa

Andrew Orme  
Phyllodes and fruit (pods)





Marion Winkler

Leaves



Bruce Mullins

Leaves and flowers

## *Acacia terminalis* subsp. *terminalis*

sunshine wattle  
FABACEAE

dry sclerophyll forest woodland



An erect, spindly or spreading shrub to 2 m high. Found on sandy soil on creek banks, hillslopes or in shallow soil in rock crevices and sandstone platforms on cliffs. In near-coastal areas of Sydney Harbour and Botany Bay.

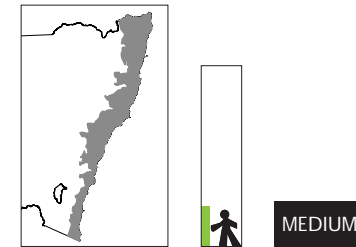
- **Leaves** bipinnate, usually 5–14 pairs of leaflets, each 5–11 mm long, 2–6 mm wide, dark green and shiny above, paler and dull below. Leaf stalks with sparse to dense soft hairs.
- **Flowers** inflorescence a spherical head 7–11 mm in diameter, 7–14-flowered, arranged on axillary racemes or panicles, the main axis of which is up to 16.5 cm long. Peduncle 7–15 mm long, 0.5–1 mm in diameter, covered in dense soft hairs.
- **Flowering time** March – July
- **Fruit** a pod 3.5–10 cm long, 12–19 mm wide, straight or curved, more or less flat except raised over seeds, prominent pale margins.
- **Status** NE, SE, 2RCi

- **Notes** this subspecies has dense, soft hairs on branchlets, main leaf axes and inflorescence stalks. It is also at risk from boneseed invasion.

## *Acalypha nemorum* (prostrate form)

EUPHORBIAEAE

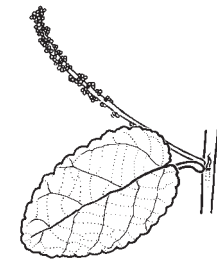
rainforest maritime



© BGT 2008



Leaves and male flowers



Leaf and male flowers

Erect or prostrate shrub to 2 m. This prostrate form occurs near the sea on exposed headlands north from the Shoalhaven River.

- **Leaves** variable, 2–12 cm long, 1–4 cm wide, alternate, ovate to lanceolate, sometimes circular and 1 cm long. Margins have shallow rounded teeth. Both upper and lower surfaces densely hairy, veins prominent (3-veined at the base) and upper surface wrinkled between veins.
- **Flowers** male and female flowers separate on the same plant. Male inflorescence 2–5 cm long, female inflorescence comprising flowers in groups of 1–3 enclosed by bracts about 10 mm in diameter.
- **Flowering time** prostrate form unknown, but normally from September – November
- **Fruit** rounded, 0.3 mm across (for erect form)
- **Status** not listed

- **Notes** this form differs from the typically erect form only by its prostrate nature.



Branchlets and female flowers

## *Allocasuarina defungens*

CASUARINACEAE

heath



Erect shrub 1–2 m high, with smooth bark and arising from a lignotuber. Grows in coastal tall heath on sand substrates, in the Nابیac area and coastal northern New South Wales.

- **Leaves** reduced to teeth in whorls of 5–7 on branchlets to 12 cm long. Branchlet segments between leaf whorls 6–8 mm long, 0.5–0.6 mm diameter, cylindrical, teeth erect and overlapping when young, blue-green.
- **Flowers** male and female flowers borne on separate plants or on the same plant. Male inflorescence <2.5 cm long with anthers 0.7–0.9 mm long. Female inflorescence small spherical or egg-shaped heads, reddish and on short stalks.
- **Flowering time** unknown, but likely throughout the year
- **Fruit** borne in a cone, very irregular, 8–11 mm long and 5–7 mm in diameter, on slender stalks 3–7 mm long. Fruit dry, papery, winged, dark brown when mature.
- **Status** NE, SE, 2E

- **Notes** may be confused with *Allocasuarina simulans* which has larger cones (26–45 mm long, including a sterile apex) and teeth (0.5–1.1 mm long).



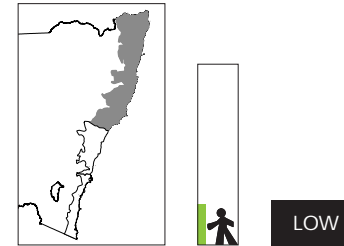
Fruit (cones)

Andrew Orme

## *Allocasuarina simulans*

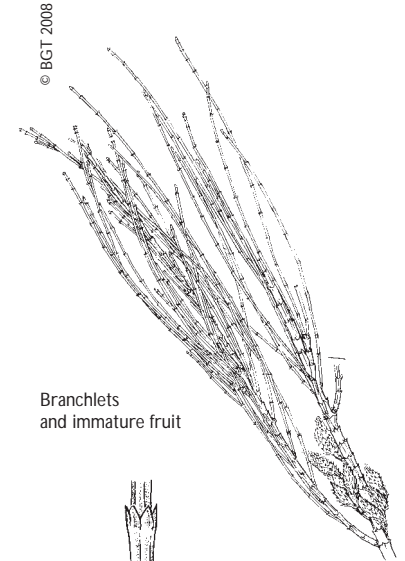
CASUARINACEAE

heath

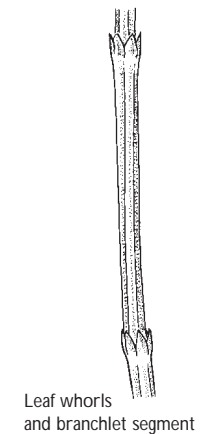


Straggling shrub 1–3 m high, with chiefly smooth bark and ascending branchlets. Grows in coastal heath on sand, often on dunes. Occurs from Nابیac to Forster.

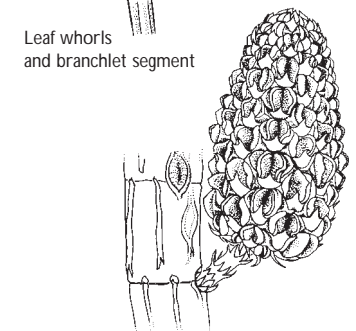
- **Leaves** reduced to teeth in whorls of 6 on branchlets to 19 cm long. Branchlet segments between leaf whorls 13–22 mm long and 0.9–1.3 mm in diameter, cylindrical, teeth erect and often slightly overlapping at base, pale yellow-green in colour.
- **Flowers** male and female flowers borne on separate plants. Male inflorescence 1.5–4 cm long. Female inflorescence small spherical or egg-shaped heads on short stalks, reddish in colour.
- **Flowering time** includes August – September
- **Fruit** borne in a cone, irregular in shape, 26–45 mm long and 9–12 mm in diameter, on slender stalks 2 mm in diameter. Fruit dry, papery and winged, black when mature.
- **Status** NV, SV, 2VCa



Branchlets and immature fruit



Leaf whorls and branchlet segment



Fruit (cone)

© BGT 2008



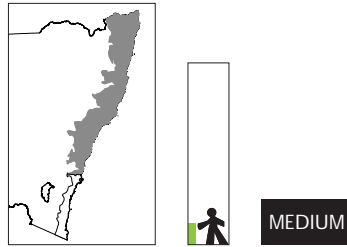
Leaves and flowers

Hornsby Online Herbarium © Hornsby Shire Council

***Bossiaea stephensonii***

FABACEAE

woodland heath



Multi-stemmed erect shrub to 1 m high, mostly hairless but young growth sometimes with long, fine hairs. Stems flat. Grows in heath and woodland in exposed sites on sandstone, from the Illawarra Region to Port Macquarie.

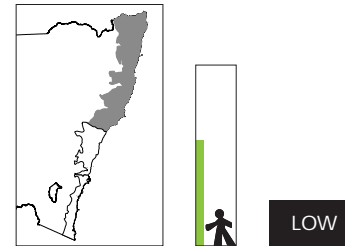
- **Leaves** 1–2 cm long, elliptic to oblong, alternate, apex recurved and with a stiff sharp point. Stipules 5–10 mm long, erect and conspicuous, narrow-triangular.
- **Flowers** axillary and solitary 8–12 mm long. Typical pea flower. Petals more or less equal, bright yellow with reddish markings and red keel.
- **Flowering time** August – October
- **Fruit** an oblong pod 15–25 mm long.
- **Status** not listed

***Caesalpinia bonduc***

nicker bean

FABACEAE

heath maritime



Scrambling woody shrub to 5 m high. Growing near waterways or in coastal scrub on sandy coral-derived soils, north from Ballina, and Lord Howe Island.

- **Leaves** bipinnate, 20–40 cm long. Pinnae 5–20 cm long, in pairs of 4–11. Pinnules 15–40 mm long, 10–20 mm wide, in pairs of 5–10, oblong to oval-shaped with a sharp apical point. Sharp, recurved prickles scattered along underside of leaf and leaflet axes, 1–6 mm long.
- **Flowers** inflorescence an axillary raceme 10–15 cm long, often branched, prickly. Petals 10–12 mm long, yellow in colour, longer than the sepals.
- **Flowering time** September – November
- **Fruit** a brown egg-shaped to spherical pod 3–9 cm long, 25–40 mm wide, covered with bristly spines, 1–2-seeded.
- **Status** SE



Leaves and flowers



Fruit (pods)

Ian Hurton

Dianne Brown



Andrew Orme

Leaves and flowers



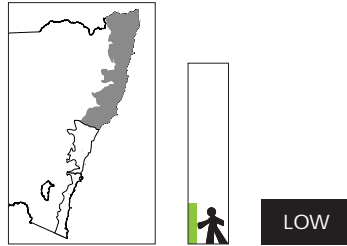
Andrew Orme

Fruit (capsules)

## Callistemon acuminatus

MYRTACEAE

dry sclerophyll forest heath



Shrub 1–3 m high with willow-like leaves. Grows in dry sclerophyll forests and heathlands on rocky dry slopes of the coastal ranges, from Port Stephens to the Clarence River.

- **Leaves** 4–11 cm long, 8–12 mm wide, narrow-lanceolate to narrow-elliptic, tapering gradually towards base and apex, margins generally undulate, irregularly and finely toothed, lateral veins prominent.
- **Flowers** inflorescence a spike 6–10 cm long, 5–5.5 cm wide, dark crimson-coloured, usually with growth continuing into a leafy shoot.
- **Flowering time** mostly September – November, but sporadically throughout the year
- **Fruit** a woody capsule 4–7 mm in diameter, persistent on stem. Seeds numerous.
- **Status** 3RC–

## Carmichaelia exsul

FABACEAE

wet sclerophyll forest heath



Broom-like shrub 1–3.5 m high with sweetly scented flowers. Adult branches are flattened, ridged, spreading and drooping. Grows on basalt ledges and scree slopes in low scrub, endemic to Lord Howe Island.

- **Leaves** present on juvenile shoots, pinnate. Leaflets 7–30 mm long, 4–25 mm wide with a shallow notch at the apex, 3–5 per leaf. Adult branches are leafless.
- **Flowers** inflorescence a raceme 2–5-flowered. Typical pea flowers. Petals white with purple markings. Sepals 2.5 mm long with teeth about 0.5 mm long. Standard (petal) 6–7 mm long, wings and keel 4–5 mm long.
- **Flowering time** November – January
- **Fruit** a flattened oval pod 10–12 mm long. Seeds 3 mm long, kidney-shaped and pale orange.
- **Status** SE



Ian Hutton

Flowers



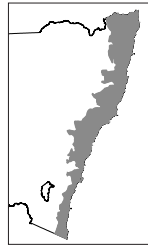
Glenn Leiper

Flowers

## *Comesperma sphaerocarpum*

POLYGALACEAE

dry sclerophyll forest heath



LOW

Straggling plant to 20 cm high, with few or occasionally many smooth, ridged and more or less leafless stems. Grows in dry sclerophyll forest or heath on sandy soil, between Nowra and Warialda (near Moree).

- **Leaves** <8 mm long, <2 mm wide, narrow, oval-shaped and pointy at tip, alternate, thick, rarely seen and then only on lower part of plant.
- **Flowers** inflorescence a loosely arranged terminal raceme to 9 cm long. Flowers 3–8 mm long, bright purplish-blue. Outer sepals 3 mm long, inner or 'wing' sepals 6 mm long and petal-like. Lateral petals with hairs at tip, lower two petals more or less united to form a keel.
- **Flowering time** October – May
- **Fruit** a compressed capsule 4 mm long, wedge-shaped to circular.
- **Status** not listed

## *Coprosma inopinata*

small-leaved currant bush

RUBIACEAE

maritime



LOW

Compact scrambling or prostrate shrub to 50 cm high with young stems minutely hairy. Found only on ridges and associated sheltered pockets of vegetation of the southern mountains of Lord Howe Island.

- **Leaves** 7–13 mm long, 3–6 mm wide, broadly lanceolate to elliptic, leathery, crowded on stem, margins slightly thickened and sometimes slightly recurved, apex pointed. Petiole 1–2 mm long, hairless.
- **Flowers** male and female flowers solitary, tiny. Sepals to 0.5 mm long. Petals to 4 mm long, green with purple margins.
- **Flowering time** unknown, but includes November
- **Fruit** a fleshy orange oval drupe 5–6 mm long.
- **Status** SE



Leaves and flowers



Leaves



Mark Hamilton

Habit



Glenn Leiper

Flowers and leaves



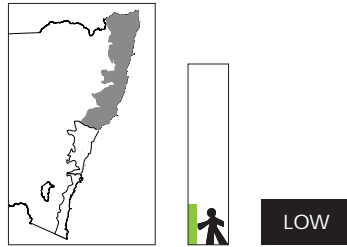
Mark Hamilton

Fruit (berries)

## *Cordyline congesta*

ASTELIACEAE

rainforest



Sparsely branched shrub to 3 m high growing in and on the margins of warmer rainforests, on coastal lowlands north from the Clarence River.

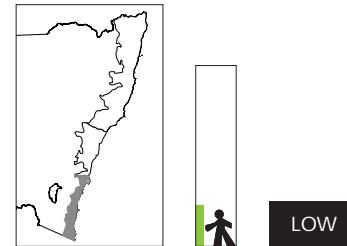
- **Leaves** 30–40 cm long, 2–4 cm wide, narrow and linear, margins irregularly toothed and rough. Leaf blade narrows into shallowly incurved petiole 10–20 cm long.
- **Flowers** inflorescence a panicle 20–35 cm long, on stems 10–25 cm long. Tepals fused at base, outer tepals 6.5–9.5 mm long, inner tepals 8.5–10.5 mm long, bluish and hairless.
- **Flowering time** unknown, but likely to include November – December
- **Fruit** an orange-red berry 10–15 mm in diameter. Seeds black and shiny.
- **Status** 2RC–
- **Notes** often confused with *Cordyline rubra* and *C. stricta*, but distinguishable by its leaves with irregular margins, as if nibbled.

## *Correa baeuerlenii*

chef's hat Correa

RUTACEAE

wet sclerophyll forest woodland dry sclerophyll forest



Shrub 1–2.5 m high with rusty, soft woolly hairs on stems. Grows in riparian sites of sclerophyll forests, from Bega to the Batemans Bay area.

- **Leaves** 2–6 cm long, 1–2 cm wide, ovate to elliptic, opposite. Upper surface glossy and hairless, lower surface sparsely hairy with star-shaped hairs, becoming hairless with age.
- **Flowers** solitary, terminal or axillary, 20–28 mm long, drooping greenish-yellow 'trumpets'. Sepals to 7 mm long, fused cylindrical caps with 4 teeth. Anthers projecting beyond the petals.
- **Flowering time** September – November and sporadically throughout year
- **Fruit** 9 mm long with 1–4 segments and surrounded by persistent flower petals.
- **Status** NV, SV, 3VCi
- **Notes** common name is derived from the sepals forming a short cup-shaped outgrowth at the flower base, shaped like an inverted chef's hat.

© BGT, Jaime Plaza  
Flowers and leaves



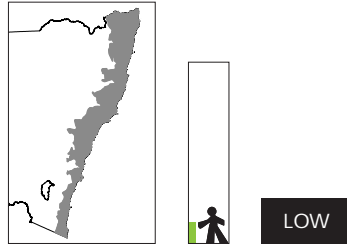
Tanja Lenz

Leaves and flowers

## *Cryptandra propinqua*

RHAMNACEAE

dry sclerophyll forest heath



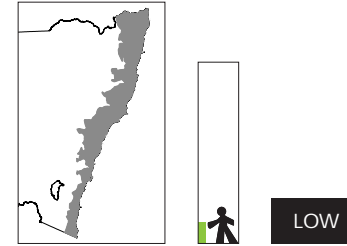
Much branched spreading shrub to 1 m high with branches covered with small star-shaped hairs. Inhabits heath and dry sclerophyll forest on sandstone, on the ranges, inland regions and coast from Jervis Bay to Grafton.

- **Leaves** 2–10 mm long, 1–2 mm wide, more or less linear, flat or cylindrical. Upper surface hairless, lower surface finely covered with dense intertwined hairs.
- **Flowers** inflorescence spike-like usually on short lateral branches. Flowers 5–7 mm long. Sepals 2–4 mm long, equal to or longer than hypanthium. Bracts more or less enclosing the hypanthium.
- **Flowering time** July – November
- **Fruit** a capsule enclosed in the persistent floral tube.
- **Status** not listed

## *Darwinia leptantha*

MYRTACEAE

heath



Erect shrub 20–80 cm high, growing in heath on poorly drained sandy soils on the coast and ranges, from Batemans Bay to Laurieton.

- **Leaves** in pairs, 7–11 mm long, 0.5 mm wide, compressed laterally, hairless, triangular in cross section.
- **Flowers** inflorescence a cluster of 2–8 axillary flowers at shoot apex enclosed by leaf-like bracts 1–11 mm long. Bracteoles 2–3.5 mm long, lanceolate, yellow brown to reddish in colour. Flowers 4–9 mm long (including style), white in colour. Hypanthium 4–6 mm long, 0.5 mm in diameter and ribbed.
- **Flowering time** April – September
- **Fruit** only slightly enlarged from flower, not opening on maturity, usually 1-seeded.
- **Status** not listed



Lachlan Copeland

Leaves and flowers



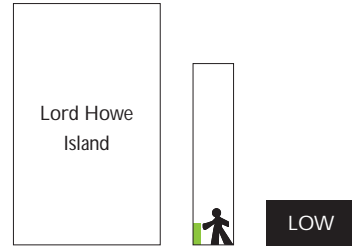
Ian Hutton

Leaves and flowers

## *Geniostoma huttonii*

LOGANIACEAE

rainforest



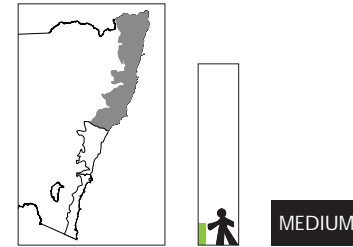
Scrambling shrub to 1 m high, with furrowed stems between the leaf bases. Found in rainforest, Curly Palm forest and scrub on Lord Howe Island.

- **Leaves** 2–3 cm long, 1–1.6 cm wide, ovate, glossy green, narrowing towards the base, petiole 4–6 mm long.
- **Flowers** inflorescence 1–3-flowered, <1 cm long and on stalks 2 mm long. Sepals fused into a tube 0.5 mm long with triangular lobes 1–1.5 mm long. Petals fused into a tube 0.8–1 mm long with 5 lanceolate lobes 2 mm long, white in colour. Stamens attached to the sepals.
- **Flowering time** January – March
- **Fruit** a spherical to oval green capsule 5–6 mm in diameter, splits into 2 segments to expose black seeds.
- **Status** SE

## *Grevillea humilis* subsp. *maritima*

PROTEACEAE

heath maritime



Low erect shrub to 70 cm with dense foliage and hairs on the branchlets and lower leaf surfaces that are reflective under strong light. Grows on low rocky rises and slopes in coastal low heath and on steep exposed headland slopes in moist heath/rush association, from Brooms Head to Bundjalung National Park.

- **Leaves** 1.4–3.5 cm long, 1.5–10 mm wide, narrowly oblong-elliptic to narrowly ovate but broadest above the middle, often arranged in clusters of 3. Upper surface usually covered in silky, sparkling hairs.
- **Flowers** inflorescence 10–24-flowered, flowers arranged to one side of the axis, axis straight or decurved. Flowers usually white, occasionally pink (style reddening with age), silky hairs on the outside, profusely or sparingly bearded inside.
- **Flowering time** March – September
- **Fruit** a follicle 8–11 mm long with a rough surface of low round bulges.
- **Status** not listed



Shane Ruming



Shane Ruming

Flowers and leaves

- **Notes** could be confused with *Grevillea virgata*, which is generally taller and has reddened young branches.





Leaves and flowers

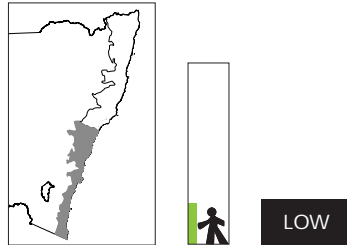


Fruit (nuts)

## *Haloragis exalata* subsp. *exalata*

HALORAGACEAE

freshwater wetland



Small shrub to 1.5 m high with square 4-ribbed stems. Found in protected sites and shaded damp areas in riparian habitats. Distributed in four widely scattered localities in eastern New South Wales.

- **Leaves** 6–10 cm long, 13–25 mm wide, lanceolate to oblong, opposite up to the inflorescence, coarsely toothed.
- **Flowers** inflorescence a 3–15-flowered cyme, sometimes prominent at the ends of branches. Flowers stalked. Petals 2.5–3.3 mm long, yellowish-green to reddish. Ovary hairless or with very short rigid hairs.
- **Flowering time** November – January
- **Fruit** an egg-shaped nut 2–2.5 mm long, 1–3 in the leaf axil, 4-ribbed between the persistent sepals.
- **Status** NV, SV
- **Notes** this subspecies differs from subsp. *velutina* by longer, broader and more coarsely toothed leaves.

Jackie Milles

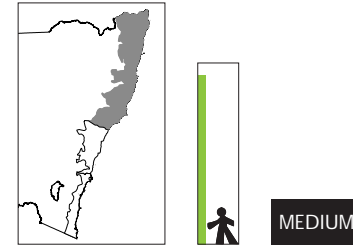
Jackie Milles

## *Hibiscus tiliaceus*

cottonwood hibiscus

MALVACEAE

rainforest freshwater wetland



Small tree or shrub 2.5–8 m high with a spreading crown to 16 m across. Grows on rainforest or swamp forest margins near the coast, north from Port Macquarie, and Lord Howe Island.

- **Leaves** 5–18 cm long, more or less circular, alternate. Upper leaf surface dark green, with star-shaped hairs, lower surface whitish and with densely star-shaped hairs. Apex tapering to a point, base heart-shaped. Young leaf bases with two leaf-like stipules.
- **Flowers** inflorescence a terminal raceme on stalks jointed at the base. A whorl of bracts below the flowers 7–11 mm long, united at the base to form a cup. Sepal lobes 19–28 mm long, lanceolate. Petals 5–7 cm long, yellow with crimson spot at the base, often turning red before falling.
- **Flowering time** December – May
- **Fruit** a densely pubescent pale brown to golden capsule 25 mm long.
- **Status** not listed



Habit



Flower and leaves



Fruit (capsules)

Terry Tame

Terry Tame

Michael Fiedler



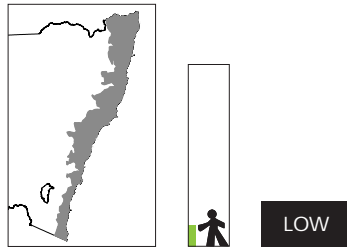
Tony Auld

### *Isopogon anemonifolius*

broad-leaf drumsticks

PROTEACEAE

dry sclerophyll forest heath



Shrub 1–1.5 m high, hairless except young shoots. Occurs in dry sclerophyll forest and heath, especially on the coast and associated ranges from Ulladulla to South West Rocks.

- **Leaves** 5–11 cm long, deeply divided, undivided portion 2–5 cm long. Leaf segments without a stiff, sharp apex, all veins obscure or only midvein conspicuous. Rarely leaves are simple and undivided and then 5–9 cm long and 3–4 mm wide.
- **Flowers** inflorescence terminal, spike-like, forming a spherical cone-like structure. Flowers 10–12 mm long, yellow, without a stalk.
- **Flowering time** September – January
- **Fruit** arranged into a spherical woody cone 10–16 mm in diameter. Individual fruit (within the cone) a nut 2–3 mm long and covered in hairs 5–6 mm long.
- **Status** not listed



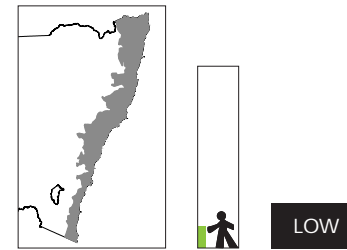
Andrew Orme

Fruit (in cone) and leaves

### *Leucopogon esquamatus*

ERICACEAE

dry sclerophyll forest woodland heath  
freshwater wetland



Slender shrub to 1 m high, with branchlets hairless or finely bristled. Grows in swampy heath, woodland or dry sclerophyll forest on skeletal sandy soils, north to Yamba.

- **Leaves** 7–15 mm long, 2–3.3 mm wide, elliptic or sometimes ovate but broadest above the middle, margins minutely toothed towards apex, discolorous, hairless, petiole 1 mm long.
- **Flowers** solitary or often 2 together in upper leaf axils, inconspicuous and hidden amongst leaves, erect, white, on stalks to 1.5 mm long. Sepals 2.1–2.5 mm long. Petals formed into a tube 1–1.5 mm long, outside hairless, inside densely bearded on upper two thirds.
- **Flowering time** August – September
- **Fruit** a brown hairless cylindrical drupe, 3.8–4.5 mm long.
- **Status** not listed



Jackie Miles

Flowers and leaves



Jackie Miles

Flowers



Paul Kennedy

Habit



Paul Kennedy

Leaves



Paul Kennedy

Fruit (cone)

## Macrozamia flexuosa

ZAMIACEAE

dry sclerophyll forest



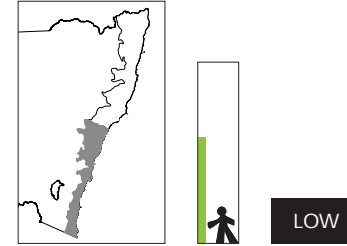
Small cycad with strongly spiralled leaves and an underground stem to 20 cm long and 8–20 cm in diameter. Scattered distribution in sclerophyll forests and on coastal cliffs on shallow clay loam substrates, from Lake Macquarie to Bulahdelah.

- **Leaves** 1–6, pinnate, 45–100 cm long, leaf axis strongly spirally twisted. 80–150 leaflets per leaf, longest leaflets 17–30 cm long, 3–7 mm wide, margins inrolled, bright green, strongly discolourous, highly glossy to semi-glossy, cylindrical petiole 20–35 cm long.
- **Reproductive organ** male and female cones borne on separate plants, solitary. Male cones 15 cm long, 4–5 cm wide. Female cones 10–16 cm long, 7–11 cm in diameter, egg-shaped. Seeds 2.4–2.7 cm long, 1.9–2.3 cm wide, egg-shaped, red.
- **Status** 2K

## Myoporum bateae

MYOPORACEAE

dry sclerophyll forest



Sweet-smelling shrub to 4 m high with branches sparsely to densely warty. Grows in sclerophyll forest in coastal ranges, from Cobargo to the Nepean River.

- **Leaves** 5–15 cm long, 3–9 mm (to 16 mm) wide, linear-elliptic, hairless, discolourous, margins finely toothed, apex pointed. Surface covered in wart-like bumps.
- **Flowers** inflorescence axillary, 3–10-flowered. Sepals 1–2.2 mm long, 0.5 mm wide, linear-triangular. Petals 4–6 mm in diameter, white or pale purplish-pink in colour.
- **Flowering time** September – February
- **Fruit** a dry, compressed drupe, 2–2.5 mm long, 2–3 mm wide, ovate, apex truncate but with a shallow notch.
- **Status** 3RC–



Jackie Miles

Flowers and leaves



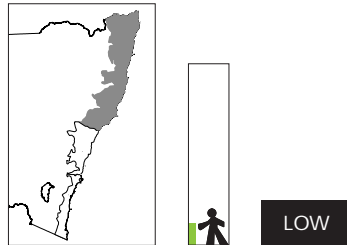
Lachlan Copeland

Flowers and leaves

## *Olax angulata*

Minnie Waters olax  
OLACACEAE

woodland heath



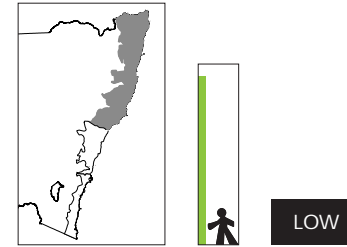
Erect shrub to 1 m high, likely to be root-parasitic. The stems are dull blue-green (sometimes yellowish), hairless, stiff, square in cross section and with prominent U-shaped ridges. Grows in low-lying coastal heaths and associated woodlands on sandy soils near swamps. Known only from Minnie Waters (east of Grafton).

- **Leaves** 10–25 mm long, 4–7 mm wide, elliptic, alternate, yellow-green or blue-green, sessile, apex rounded and with a short sharp suddenly constricted point.
- **Flowers** solitary, probably unisexual, on stalks 2–3 mm long. Sepals tiny and persisting in fruit as an apical collar. Petals 5–5.5 mm long, white, in 5s.
- **Flowering time** September – November
- **Fruit** an egg-shaped succulent drupe 5–9 mm long, 2–6 mm wide, 1-seeded.
- **Status** NV, SV, 2VCi

## *Persoonia conjuncta*

PROTEACEAE

wet sclerophyll forest dry sclerophyll forest



Erect shrub to small tree 2–7 m high, with young branchlets moderately hairy. Occurs in dry to wet sclerophyll forests in coastal ranges, between the Manning and Bellinger Rivers.

- **Leaves** 6–14 cm long, 1–2.6 cm wide, narrow-elliptic to lanceolate, alternate, margins more or less recurved. Sparsely hairy when young, hairless and smooth with age.
- **Flowers** inflorescence a 1–16-flowered axillary to terminal raceme, usually with growth continuing into a leafy shoot. Flowers enclosed by scale leaves or leaves. Pedicels 2–6 mm long, sparsely to densely hairy. Tepals 12–13 mm long, gradually tapering to a point or with a tail-like appendage, sparsely to moderately hairy, yellow.
- **Flowering time** January – February
- **Fruit** a fleshy green drupe.
- **Status** not listed



Leaves, flowers and buds

© BGT 2008



Habit

© BGT: Jaime Plaza &amp; David Hardin



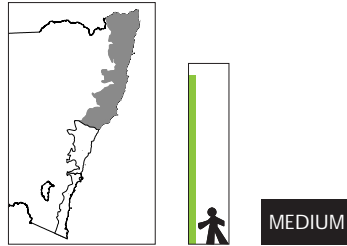
Leaves and flowers

© BGT: Jaime Plaza &amp; David Hardin

## Persoonia katerae

PROTEACEAE

dry sclerophyll forest heath



Erect shrub or small tree 2.5–9 m with young branchlets moderately hairy. Grows in heath to dry sclerophyll forest on stabilised coastal sand dunes, from Myall Lakes to the Hastings River.

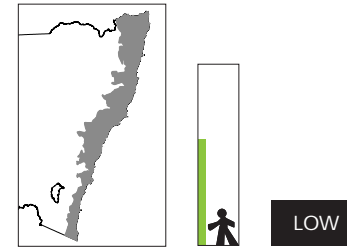
- **Leaves** 6–17 cm long, 8–22 mm wide, narrow-elliptic to lanceolate but broadest above the middle, alternate, margins slightly recurved, hairless to sparsely hairy when young, becoming hairless with age.
- **Flowers** inflorescence a terminal or nearly terminal 3–22-flowered raceme, usually with growth continuing into a leafy shoot. Flowers enclosed by leaves, on erect stalks 3–5 mm long. Tepals 9–12 mm long, pointed or gradually tapering to a point, moderately hairy, yellow.
- **Flowering time** January – February
- **Fruit** a fleshy green drupe, sometimes with a reddish-purple tinge.
- **Status** not listed
- **Notes** usually grows in association with *Banksia integrifolia* and *Eucalyptus pilularis*.

## Persoonia linearis

narrow-leaved geebung

PROTEACEAE

wet sclerophyll forest dry sclerophyll forest woodland



Erect shrub or small tree 2–5 m high with thin plate-like flaking bark red underneath and moderately to densely hairy young branchlets. Found in sclerophyll forest or woodland on a variety of well-drained soils, north to the Macleay River.

- **Leaves** 2–8.5 cm long, 1–6 mm wide, linear to narrow-oblong or narrow-spathulate, sparsely to moderately hairy when young, becoming hairless and smooth with age.
- **Flowers** inflorescence a 1–50-flowered raceme with growth continuing into a leafy shoot. Inflorescence stem 0–17 cm long. Flowers enclosed by scale leaves or leaves, on spreading to suberect stalks 2–8 mm long. Tepals 11–14 mm long with a small abrupt point or with a short tail-like appendage, sparsely to densely hairy.
- **Flowering time** October – May, though chiefly December onwards
- **Fruit** a fleshy green drupe.
- **Status** not listed



Leaves and flowers

Terry Tame



Habit



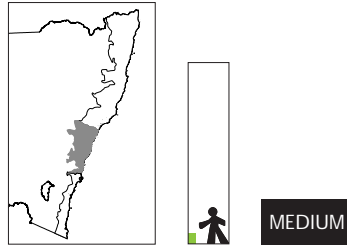
Flowers

### *Pimelea spicata*

spiked rice-flower

THYMELAEACEAE

woodland maritime grassland



Slender erect or somewhat prostrate shrub to 50 cm high, with brittle and hairless stems. Growing in open woodlands, grasslands or on headlands. Occurs in two disjunct areas, the Cumberland Plain and the Illawarra region.

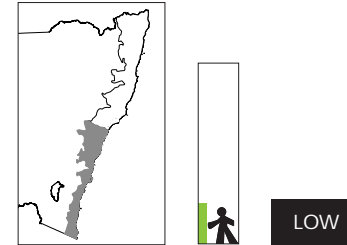
- **Leaves** 5–20 mm long, 2–8 mm wide, narrow-elliptic to elliptic, opposite, pointed or blunt at the apex.
- **Flowers** inflorescence an elongated terminal raceme at maturity, on stalk to 14 mm long. Flowers 7–10 mm long, tubular, white and pink-tinged. Sepals 4, lobed, sparsely hairy.
- **Flowering time** mainly December – February, but possible throughout year
- **Fruit** a 1-seeded green nut 2.5 mm long, more or less narrow-egg-shaped.
- **Status** NE, SE, 3ECi

### *Prostanthera densa*

villous mint-bush

LAMIACEAE

dry sclerophyll forest heath maritime



Erect and compact aromatic shrub 0.5–2 m high, branches and leaves covered with long, spreading hairs. Grows in sclerophyll forest and heath on sandstone, on coastal headlands and near-coastal ranges from Huskisson to Port Stephens.

- **Leaves** 10–15 mm long, 7–12 mm wide, ovate, often appearing triangular, opposite, margins strongly recurved, apex rounded to blunt, base rounded to more or less truncate, mint-smelling.
- **Flowers** solitary, axillary with persistent bracteoles to 5 mm long. Sepals 6.5–8 mm long, forming a tube approximately 4 mm long, upper lobe 3–3.5 mm long. Petals 12–15 mm long, pale mauve with orange marking in throat.
- **Flowering time** sparingly throughout the year
- **Fruit** a dry fruit splitting into four 1-seeded partitions upon maturity.
- **Status** NV, SV, 3VC–



Flowers and leaves



Shane Ruming

Habit



Shane Ruming

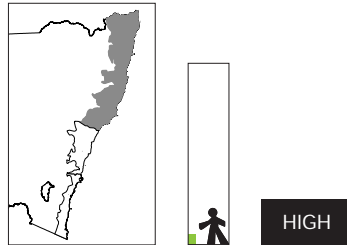
Flowers

## *Pultenaea maritima*

coastal bush-pea

FABACEAE

heath maritime grassland



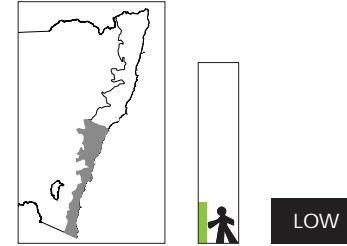
Prostrate, mat forming shrub with hairy stems. Inhabits grasslands, shrublands and heath on exposed coastal headlands, north from Newcastle.

- **Leaves** 3.5–5 mm long, 1.8–3 mm wide, elliptic or oblong to spoon-shaped, hairless or with soft, appressed to ascending hairs, margins incurved, apex pointed or shallowly notched, stipules 1.1–2 mm long.
- **Flowers** inflorescence nearly terminal or appearing terminal, leafy. Typical pea flowers 6.5–10 mm long, yellow-orange with reddish markings, on 0.5 mm stalks. Bracteoles 3–3.3 mm long, hairy, fused halfway with stipules, attached at the base of the sepal tube.
- **Flowering time** throughout the year
- **Fruit** a swollen pod 5 mm long.
- **Status** SV
- **Notes** this species was only recently described and was previously considered a prostrate maritime form of *Pultenaea villosa*.

## *Pultenaea villifera*

FABACEAE

dry sclerophyll forest



Nick Skelton

Flowers and leaves

Erect shrub 1–2 m high with stems covered in moderately long shaggy hairs. Inhabits dry sclerophyll forest on sandy soils, from Eden to the lower Blue Mountains.

- **Leaves** 1–2 cm long, 2–5 mm wide, narrow-ovate, alternate, margins incurved to inrolled, lower and upper leaf surfaces similarly coloured, apex with a stiff tip, stipules 4–6 mm long.
- **Flowers** inflorescence clustered in upper axils or on short lateral shoots, 1-flowered (occasionally 2), bracts absent. Typical pea flowers 10–12 mm long, yellow-orange with reddish markings, on 1 mm long stalks. Bracteoles 4–5 mm long, ovate, gradually tapering to a fine point, hairless except for margins, lacking stipules.
- **Flowering time** throughout the year with a peak from September – November
- **Fruit** a swollen pod 5 mm long.
- **Status** not listed

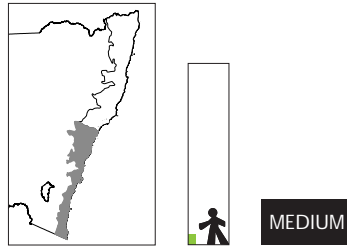


Flowers and leaves

## *Rulingia hermanniifolia*

STERCULIACEAE

heath



Prostrate or trailing shrub spreading 1–2 m across and to 30 cm high. Grows in heath mostly on sandstone cliffs or along gullies, coastal areas from Jervis Bay to Broken Bay.

- **Leaves** 5–20 mm long and 4–15 mm wide (sometimes larger in juveniles, especially post-fire growth), oblong to lanceolate, mostly 3-lobed, margins recurved and irregularly toothed. Upper leaf surface strongly wrinkled, lower surface covered in dense intertwined hairs. Petiole 0–3 mm long.
- **Flowers** inflorescence a few-flowered cyme, longer than petioles. Petals 2 mm long, pinkish.
- **Flowering time** September – November
- **Fruit** a capsule 4–6 mm in diameter, covered in dense, intertwined star-shaped hairs. Present in summer.
- **Status** not listed

## *Senna acclinis*

rainforest cassia

FABACEAE

rainforest



Shrub to 3 m high. Found in or on the edges of subtropical and dry rainforest, north from the Illawarra region.

- **Leaves** compound, to 15 cm long, 5–7 pinna pairs. Each pinna to 5 cm long, 1.5 cm wide, broad-elliptic, hairless or only slightly hairy. 1–4 glands between lowest pinna pairs, petioles 2–4 cm long.
- **Flowers** inflorescence a 2–5-flowered axillary raceme on stalk 2–4 cm long, hanging on the underside of the branchlets. Flowers bright golden yellow, cup-shaped. Sepals and petals in 5s. Fertile stamens 10.
- **Flowering time** September – February
- **Fruit** a more or less flat pod 12–15 cm long, 6–8 mm wide.
- **Status** SE, 3RC–
- **Notes** distinguished from the introduced *Senna pendula* by the flat pods and the generally larger leaves.



Flowers and leaves



Fruit (pod)





Paul Downey

Habit with bitou bush invading



Shane Ruming

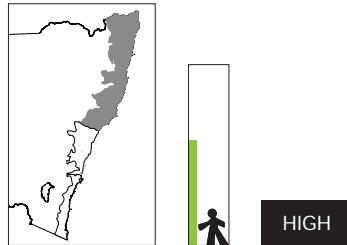
Fruit (pods), flowers and leaves

## *Sophora tomentosa*

silver bush

FABACEAE

maritime dunefield



Coastal shrub or small tree to 5 m high. Found on frontal coastal dunes and at the king tide mark along tidal rivers, chiefly north from Port Macquarie.

- **Leaves** compound, 10–20 cm long, mainly 11–17 leaflets. Each leaflet 2–4 cm long, 1–3 cm wide, ovate to more or less circular, with greyish to white intertwined hairs.
- **Flowers** inflorescence a terminal raceme 10–15 cm long. Flowers pea-like. Sepals 6 mm long. Petals 2–2.5 cm long, pale yellow.
- **Flowering time** June – August
- **Fruit** a pod 10–18 cm long, to 14 mm in diameter, strongly constricted between seeds. Seeds to 6 mm long.
- **Status** SE

## *Spyridium cinereum*

tiny spyridium

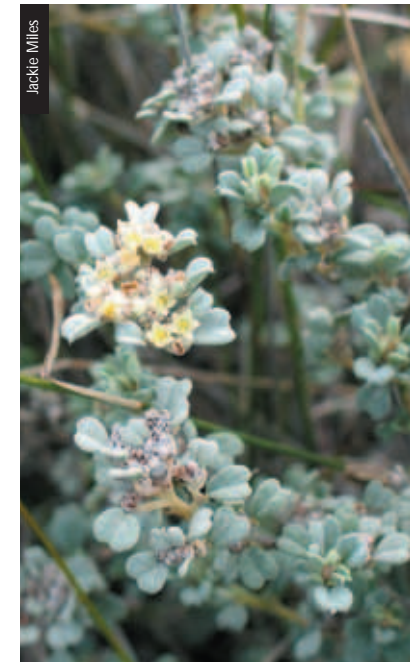
RHAMNACEAE

heath



Subshrub 10–50 cm high with young branches and leaf surfaces covered in whitish densely intertwined hairs. Grows in coastal heath, north to Nadgee.

- **Leaves** 4–8 mm long, 3–5 mm wide, heart-shaped, margins strongly recurved. Upper leaf surfaces more densely hairy than lower.
- **Flowers** inflorescence a cyme 3–8 mm in diameter. Flowers 2–3 mm long, covered in dense white intertwined hairs, appearing white.
- **Flowering time** includes August – March
- **Fruit** a capsule enclosed in the hypanthium, crowned by the persistent sepals.
- **Status** 3RCa

Jackie Miles  
Flowers and leaves



Shane Ruming

Flowers and leaves



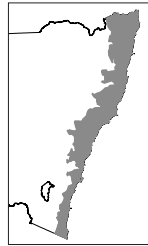
Shane Ruming

Flowers

## *Spyridium scortechinii*

RHAMNACEAE

dry sclerophyll forest



LOW

Shrub to 50 cm high, with young branches and lower leaf surfaces covered in whitish densely intertwined hairs. Grows in open forest, often in rocky sites on infertile soils, north from Bermagui.

- **Leaves** 6–15 mm long, 1–5 mm wide, ovate to narrow-lanceolate, margins flat or recurved. Upper leaf surface hairless, lower surface greyish and densely hairy. Stipules 2–3 mm long, brown.
- **Flowers** inflorescence a dense terminal head 10–15 mm in diameter. Bracts surrounding inflorescence head as well as individual flowers, brown. Flowers 4–5 mm long, covered in whitish densely intertwined hairs, appearing white.
- **Flowering time** July – November
- **Fruit** a capsule enclosed in the hypanthium, crowned by the persistent sepals.
- **Status** not listed

## *Tetratheca juncea*

ELAEocarpaceae

dry sclerophyll forest heath



MEDIUM

Prostrate shrub with stems to 1 m long and growing in clumps. Stems with 2–3 wings and minute wart-like outgrowths. Grows in sandy, occasionally swampy heath and in dry sclerophyll forest, from Lake Macquarie to Bulahdelah.

- **Leaves** usually reduced to narrow-triangular scales 3 mm long, otherwise 2 cm long, 5 mm wide, more or less narrow-elliptic, alternate, hairless, margins flat or recurved.
- **Flowers** solitary or paired, hairless, facing downwards, on stalks 5–10 mm long. Sepals 1–1.5 mm long, pink. Petals 4, 7–11 mm long, deep lilac-pink.
- **Flowering time** mainly July – December
- **Fruit** an obovate, often beaked capsule 6–8 mm long. Seeds 4 mm long.
- **Status** NV, SV, 3VCa
- **Notes** distinguished from other *Tetratheca* species with which it may co-occur by the distinct winged stem and reduced leaves.



© BGT, Jaime Plaza

Flowers and leaves



Cath Ireland

Habit



Jackie Miles

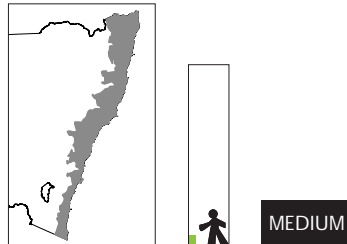
Flowers (erect form)

## *Viminaria juncea* (prostrate form)

golden spray, native broom

FABACEAE

maritime freshwater wetland



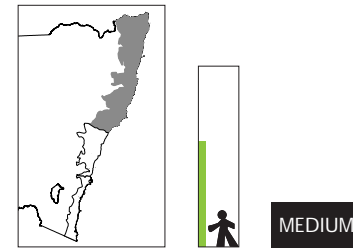
Prostrate shrub to 20 cm high, with cylindrical, hairless and striate branches. Found in swampy situations of coastal headlands.

- **Leaves** juvenile leaves compound, comprising 1–3 leaflets. Leaflets 1–4 cm long, oblong to linear-lanceolate. Mature leaves reduced to long cylindrical phyllodes 3–25 cm long. Stipules 1 mm long, lanceolate.
- **Flowers** inflorescence a terminal >20-flowered raceme, bracts 2–3 mm long. Typical pea flowers on 5 mm stalks. Sepals 4 mm long, teeth triangular. Petals yellow to orange with red blotches, keel usually darker in colour.
- **Flowering time** September – November
- **Fruit** a more or less black pod 4–5 mm long, ovate, beaked, 1-seeded. Seeds 2–3 mm long.
- **Status** not listed
- **Notes** this form differs from the typically erect form only by its prostrate nature.

## *Vitex trifolia* var. *trifolia*

LAMIACEAE

maritime dunefield



Shrub or small tree to 6.5 m high. Growing in riverine or foredune and frontal beach ridge communities, north from Ballina.

- **Leaves** compound, mostly 3 leaflets, occasionally 1–5, terminal leaflet often the largest. Leaflets 3–8 cm long, 2–4 cm wide, oblong-elliptic or ovate, upper surface mostly hairless and green, lower surface densely grey to white hairy, apex tapering to a short point or broadly rounded, base wedge-shaped or rounded. Petiole 5–60 mm long.
- **Flowers** inflorescence a cyme in the upper leaf axils, arranged into a pyramid shape with a non-floral bud at the end, 5–20 cm long, 4–8 cm wide. Sepals 2–3 mm long. Petals form a tube 4–6 mm long, blue to purple.
- **Flowering time** mostly September – November
- **Fruit** a succulent more or less spherical drupe 4–6 mm in diameter, turning yellowish-red and finally blue or black.
- **Status** not listed

Glenn Leiper  
Leaves, flower and immature fruit (drupes)



Paul Downey

Habit



Paul Downey

Flowers and leaves



© BGT: Jaime Plaza

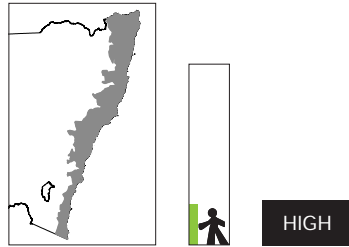
Flowers

## *Westringia fruticosa*

coastal rosemary

LAMIACEAE

maritime



Compact shrub 1–2 m high, growing near the sea and estuary foreshores, often on exposed cliffs in skeletal soils, from Eden to Forster.

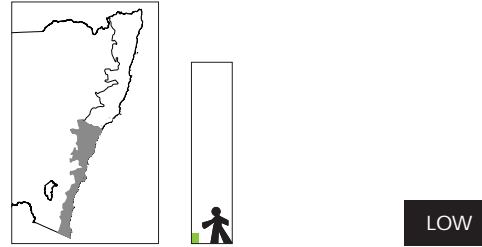
- **Leaves** in whorls of 4, rarely 3 or 5. Leaves 10–30 mm long, 3–5 mm wide, lanceolate, lower surface densely hairy, appearing silky. Upper surface usually not as densely hairy or hairless, margins recurved to rolled, petiole to 1 mm long.
- **Flowers** inflorescence a short terminal raceme, or occasionally a solitary flower, bracteoles 1.5–2.2 mm long. Sepals forming a tube 2.9–3.5 mm long, appearing whitish due to dense covering of appressed hairs, 5-lobed. Sepal lobes 2–3.2 mm long, triangular. Petals fused at base, 5-lobed, white with purplish or brownish dots.
- **Flowering time** throughout the year
- **Fruit** a dry fruit splitting into four 1-seeded partitions (mericarps) at maturity.
- **Status** not listed
- **Notes** commonly cultivated.

## *Wilsonia backhousei*

narrow-leaved *Wilsonia*

CONVOLVULACEAE

saline wetland



Perennial, sprawling, matted subshrub to less than 15 cm high, more or less hairless. Grows on the margins of coastal saltmarshes, chiefly in the Sydney district, though extending south to Jervis Bay.

- **Leaves** 5–20 mm long, 1–2 mm wide, linear-lanceolate to linear-ovate, dark green, fleshy, sessile, apex pointed.
- **Flowers** solitary and axillary. Sepals forming a tube 5–7 mm long with lobes shorter than tube, short-triangular. Petals forming a tube 1 cm long with lobes 2–4 mm long, linear-ovate to linear-elliptic, white in colour.
- **Flowering time** late October – February
- **Fruit** an egg-shaped capsule not opening at maturity, 1–2-seeded.
- **Status** SV



Jackie Miles

Habit



Jackie Miles

Leaves



Jackie Miles

Habit



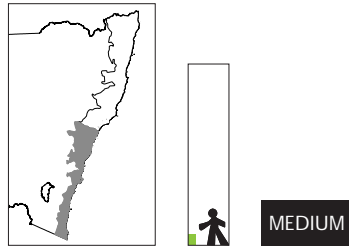
Jackie Miles

Leaves

## *Wilsonia rotundifolia*

round-leaved *Wilsonia*  
CONVOLVULACEAE

saline wetland



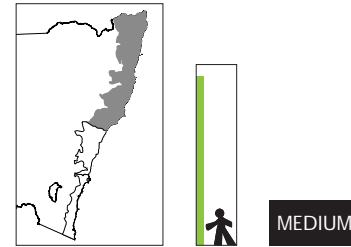
Prostrate, perennial subshrub with spreading hairs and woody stems. Grows in coastal saltmarsh and brackish swamps and inland saline areas, in scattered locations north to Royal National Park.

- **Leaves** 1.5–7 mm long, to 3 mm wide, broad-ovate or oblong spoon-shaped, apex pointed or broadly rounded, fleshy, sessile or with very short petiole.
- **Flowers** solitary and axillary. Sepals forming a tube 4.5–5 mm long with teeth a third as long as tube, short-triangular. Petals forming a tube more or less equal in length to sepal tube; lobes 5, 2–3 mm long, oblong-elliptic, white.
- **Flowering time** September – February
- **Fruit** an egg-shaped capsule not opening at maturity, 1-seeded.
- **Status** SE

## *Xylosma terrae-reginae*

Queensland *Xylosma*  
FLACOURTIACEAE

rainforest



Tall shrub or small tree to 15 m high, with crooked trunk and low branches with smooth grey bark and fine vertical lines. Found in littoral and subtropical rainforest on coastal sands or soils derived from metamorphic sediments, north from Broken Head.

- **Leaves** juvenile leaves to 15 cm long. Adult leaves 4–10 cm long, 2.5–5 cm wide, elliptic to oblong, alternate. Pair of small raised glands near base of leaf blade and 2–6 glands scattered along margins.
- **Flowers** male and female flowers borne on separate plants. Inflorescence an axillary cluster or short raceme, males 8-flowered, females fewer-flowered. Sepals 4–5, 2 mm long, fused at base. Petals absent.
- **Flowering time** includes August – February
- **Fruit** a spherical red berry 8–10 mm in diameter. Seeds 1–4.
- **Status** SE



Glenn Leiper

Habit and maturing fruit (berries)



Wollongong Botanical Gardens

Habit



© BGT: Jaime Plaza

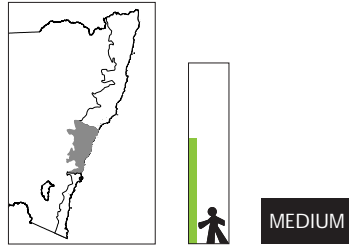
Flowers and leaves

## *Zieria granulata*

hill Zieria

RUTACEAE

rainforest dry sclerophyll forest woodland



Tall bushy shrub or small tree 3–6 m high with a dense covering of small glandular wart-like outgrowths. Grows on dry rocky ridges with underlying shallow volcanic soils in a variety of habitats, endemic to the Illawarra region.

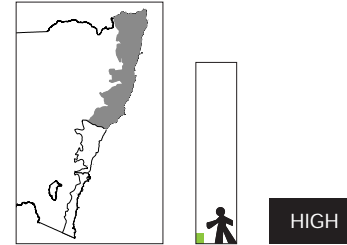
- **Leaves** compound, consisting of 3 leaflets. Central leaflet 2–4.2 cm long, 0.5–1.5 mm wide, more or less linear, dull green, margins toothed and downward curved. Upper surface warted, lower surface warted and whitish, petiole 3–10 mm long.
- **Flowers** inflorescence a cyme, axillary, 50–180-flowered, shorter than leaves. Flowers 3.5–4.5 mm in diameter. Sepals basally fused, lobes <1 mm long, triangular. Petals 4, 1.7–2.5 mm long, white.
- **Flowering time** October – February
- **Fruit** a dry hairless light brown capsule, 4-chambered, separating into segments at maturity. Seeds dark reddish-brown, dull, released forcibly from mature segments.
- **Status** NE, SE, 2VCI

## *Zieria prostrata*

headland Zieria

RUTACEAE

heath maritime



Multi-stemmed prostrate shrub 10–50 cm high forming mats 0.5–1 m wide. Branches are hairless and ridged but not warted as in other *Zieria* species. Grows in low coastal heaths on headlands, endemic to the Coffs Harbour area.

- **Leaves** compound, with 3 leaflets. Central leaflet 10–16 mm long, 4–6 mm wide, longer than other leaflets, oblong to ovate, margins entire, hairless, apex rounded, dotted with oil glands. Petiole 3–4 mm long.
- **Flowers** inflorescence a cyme, axillary, 3–7-flowered (occasionally to 32), much shorter than leaves. Sepals basally fused, lobes 0.5 mm long, broad-triangular. Petals 4, 2–2.5 mm long, white (pink in bud), with soft star-shaped hairs.
- **Flowering time** September – November
- **Fruit** a hairless red-green capsule dotted with oil glands, 1–4-chambered, separating into segments at maturity. Seeds more or less egg-shaped, black, dull, released forcibly.
- **Status** NE, SE, 2E



Paul Downey

Habit



Shane Ruming

Flowers and leaves

- **Notes** the oblong to ovate central leaflet and branches lacking warts distinguish this species from *Zieria smithii*.



Jackie Miles

Flowers and leaves



John Briggs

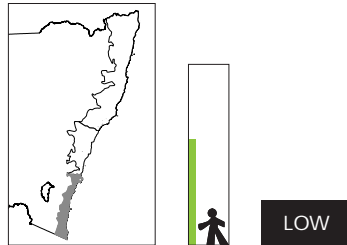
Flowers

## *Zieria tuberculata*

warty Zieria

RUTACEAE

rainforest dry sclerophyll forest heath



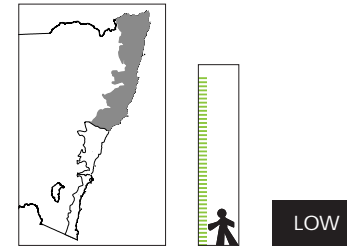
Rounded bushy shrub to 3.5 m high, with soft star-shaped hairs to sparsely hairy and warty branches. Grows in heath on margins of forest on exposed rocky outcrops. Cambewarra Range and Mt Dromedary on the south coast.

- **Leaves** compound, with 3 leaflets. Central leaflet 25–50 mm long, 2–3.5 mm wide, linear, margins more or less toothed, apex rounded. Upper surface densely warted, sparse to moderate covering of soft star-shaped hairs, dull green. Lower surface warted, with woolly star-shaped hairs, whitish, petiole 4–8 mm long.
- **Flowers** inflorescence a cyme, axillary, many-flowered, shorter than leaves, bracts 6–13 mm long. Sepals basally fused; lobes 1.5–2.5 mm long, narrow-triangular. Petals 4, 2.5–4 mm long, creamy-white.
- **Flowering time** July – November
- **Fruit** a hairless more or less warted capsule, 1–4-chambered, separating into segments at maturity. Seeds black, dull, released forcibly from mature segments.
- **Status** NV, SV

## *Caelospermum paniculatum*

RUBIACEAE

rainforest



Woody climber inhabiting littoral and subtropical rainforest, north from the Clarence River.

- **Leaves** 4–16 cm long, 2–7 cm wide, oblanceolate to narrow-elliptic, opposite, margins recurved. Petiole mostly 5–20 mm long. 5–12 pit-like depressions in vein axils.
- **Flowers** inflorescence a terminal panicle. Sepals truncate or minutely toothed. Petals 9 mm long, forming a tube with lobes more or less equal in length to floral tube, white to pale yellow in colour.
- **Flowering time** September – February
- **Fruit** a spherical red to purplish or blackish drupe 10–15 mm in diameter.
- **Status** not listed



Leaves and flowers



Leaves and fruit (drupes)



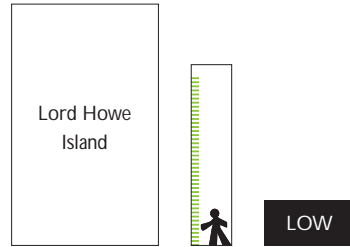
Ian Hutton

Leaves and flower

## *Calystegia affinis*

CONVOLVULACEAE

wet sclerophyll forest dry sclerophyll forest



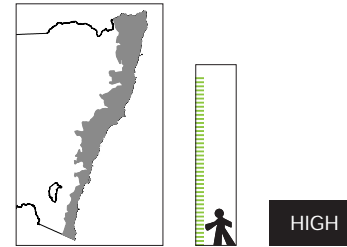
Creeping or climbing perennial vine growing in lowland and mountain areas on basalt-derived soils. Endemic to Lord Howe and Norfolk Islands.

- **Leaves** 4–9 cm long, 3.5–7 cm wide, arrowhead-shaped, tapering to a stiff point at the apex, petiole 5–12 cm long.
- **Flowers** solitary, 2.5–3.5 cm long, funnel-shaped, pink or white in colour. Bracteoles 1.2–1.5 cm long, slightly longer than the sepals. Flower stalks 4–13 cm long, equal to or longer than the petioles.
- **Flowering time** September – February
- **Fruit** a spherical capsule 9 mm long.
- **Status** NCE, SE

## *Calystegia soldanella*

CONVOLVULACEAE

dunefield maritime



A trailing or slightly twining perennial herbaceous vine with somewhat fleshy leaves. Grows in sandy or rocky coastal areas, north to the Queensland border, and Lord Howe Island.

- **Leaves** 1.5–4 cm long, 2–6 cm wide, kidney- to heart-shaped, margins undulate, petiole 1–6 cm in length.
- **Flowers** solitary, 3–5 cm long, white, pink or purplish in colour. Bracteoles 1–1.5 cm long, slightly shorter than the sepals. Flower stalk equal to or longer than petioles.
- **Flowering time** September – February
- **Fruit** an egg-shaped capsule 12–15 mm long.
- **Status** not listed



Jackie Miles

Leaves and flower





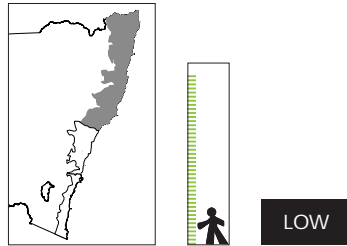
Glenn Leiper

Leaves, flowers and fruit (follicles)

## *Cynanchum carnosum*

APOCYNACEAE

maritime saline wetland



Trailing herb with much-branched twining stems. Grows in salt marshes, the inner fringe of mangrove communities and on headlands. Occurs in coastal districts north from Hat Head.

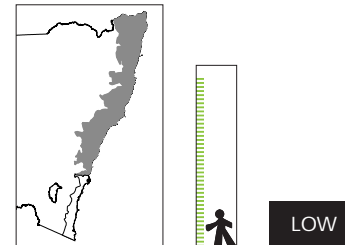
- **Leaves** 2–5.5 cm long, 5–30 mm wide, oblanceolate, elliptic or occasionally lanceolate or linear, apex with a sharp, suddenly constricted point, thick and semi-succulent but firm to touch, glands absent from leaf base.
- **Flowers** inflorescence a lateral umbel or cyme. Flowers 15–16 mm in diameter. Sepals 2 mm long. Petals 6–7 mm long. Anthers red.
- **Flowering time** December – February and throughout the year
- **Fruit** a follicle 5–7 cm long, tapering to a point. Seeds flattened with a tuft of hairs 1–2 cm long.
- **Status** not listed
- **Notes** clear watery latex exudes from damaged stems.

## *Cynanchum elegans*

white-flowered wax plant

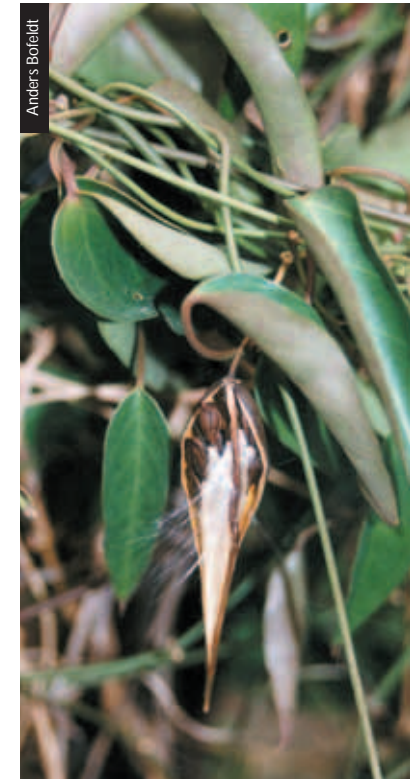
APOCYNACEAE

rainforest



Climber or twiner with stems to 10 m long and 3.5 cm thick, with fissured corky bark. Plant form is highly variable. Found in dry, littoral or subtropical rainforest gullies, scrub and scree slopes, from Gerroa (Illawarra region) to Brunswick Heads.

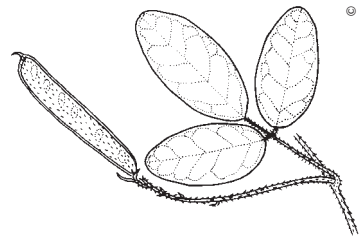
- **Leaves** 1.5–15 cm long, 1.5–7.5 cm wide, broad-ovate to ovate, apex a suddenly constricted point, base heart-shaped to bluntly cut off, more or less hairless, 2 basal glands present.
- **Flowers** inflorescence a few-flowered lateral umbel or clustered on branched stalks. Flowers 6–12 mm wide, tubular and white. Sepals fused with lobes to 1 mm long. Petals to 5 mm long, floral tube and fused sepals equivalent in length.
- **Flowering time** August – May with a peak in November
- **Fruit** a hairless follicle 6–7 cm long, narrow-egg-shaped, tapering to a lengthened point. Seeds with a tuft of hairs 1–2 cm long.



Anders Borelett

Leaves and fruit (follicle) showing seeds

- **Status** NE, SE, 3ECi
- **Notes** leaves exude a milky latex when damaged.



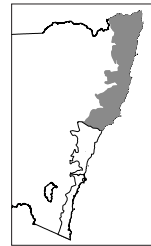
Leaf and fruit (pod)

© BGT 2008

## *Galactia tenuiflora* var. *villosa*

FABACEAE

wet sclerophyll forest   dry sclerophyll forest  
maritime



LOW

Climbing or trailing herb with more or less pubescent stems and pods. Found on coastal headlands or in sclerophyll forest, chiefly north from Gloucester.

- **Leaves** compound, consisting of 3 leaflets 1–4 cm long, 6–20 mm wide and mostly broad-ovate to more or less circular in shape. Upper surface more or less smooth, lower surface pubescent.
- **Flowers** inflorescence an axillary raceme, 1–12-flowered, on stalks 1–4 cm long. Typical pea flowers. Sepals 3–6 mm long. Petals 8–9 mm long, mauve to pink, sometimes with a whitish 'eye-spot', keel usually white to pink.
- **Flowering time** December – February
- **Fruit** a pod 1.5–4 cm long with closely pressed pubescent hairs. Seeds 3–3.5 mm long, brown to blackish.
- **Status** not listed
- **Notes** this variety differs from *Galactia tenuiflora* var. *lucida* in that the leaves are broader and more oval-shaped rather than long and narrow.

## *Hoya australis* subsp. *australis*

native hoya

APOCYNACEAE

rainforest



LOW

Pubescent climber with twining stems to 6 m high, often scrambling over rocks. Occurs primarily in dry rainforest in subcoastal ranges, north from Dorrigo.

- **Leaves** 3–6 cm long, 2–5 cm wide, broad-elliptic to ovate or circular. Upper surface sparsely pubescent or near hairless. Lower surface densely pubescent with spreading hairs. Petiole 10–35 mm long, thick.
- **Flowers** inflorescence a 12–30-flowered umbel on stalk 5–25 mm long. Flowers 15–25 mm in diameter, white with red centres, on stalks 15–25 mm long, fragrant. Sepals 2–3 mm long. Petals 7–8 mm long.
- **Flowering time** March – August
- **Fruit** a cylindrical and elongate follicle 10–15 cm long and 10–15 mm wide, opening along one seam.
- **Status** not listed
- **Notes** copious latex is exuded from damaged leaves and stems.



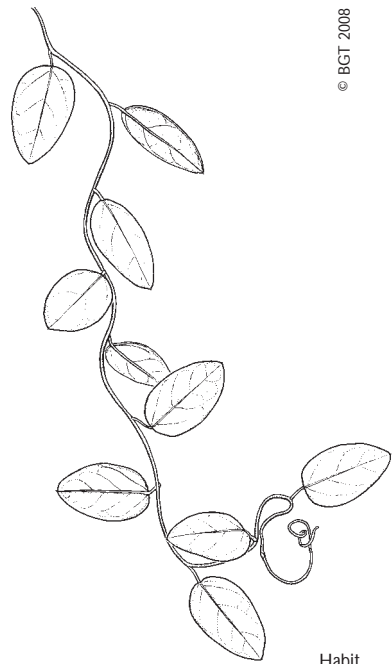
Habit



Flowers

Mark Hamilton

Glenn Leiper



Habit



Leaf, flower and inflorescence

© BGT 2008

*Hypserpa decumbens*

MENISPERMACEAE

rainforest



LOW

Twinner with young stems, lower leaf surfaces and flowers covered with rusty-pubescent hairs. Found in littoral rainforest, north from Kingscliff.

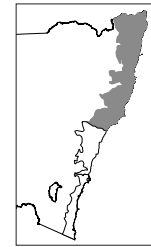
- **Leaves** 3–6 cm long, 1–2 cm wide, more or less ovate to oblong-elliptic, pubescent when young. Rusty pubescent hairs on lower leaf surface. 3–5 pairs of veins pinnately arranged.
- **Flowers** inflorescence an axillary panicle 2–4 cm long. Male and female flowers on different plants. Sepals 7–12, spirally arranged. Petals 5–9, fleshy. Stamens 10–15.
- **Flowering time** March – August
- **Fruit** a compressed spherical drupe 5–7 mm in diameter, scar present near the base.
- **Status** not listed

*Marsdenia liisae*

large-flowered milk vine

APOCYNACEAE

rainforest wet sclerophyll forest



LOW

Climber to 5 m high. Growing in wet sclerophyll forest and on rainforest margins. Occurs from the headwaters of the Hastings River to the Nightcap Ranges in the north-east of the state.

- **Leaves** 4–16 cm long, 2–8 cm wide, opposite, oblong-ovate to oblong or near triangular. Lower leaf surface hairless or sparsely hairy, apex tapering to a fine point, base of leaf rounded or heart-shaped, petiole 1.5–5 cm long.
- **Flowers** inflorescence a simple axillary umbel. Flowers 2–4 cm in diameter, whitish or pale yellow in colour. Petals fused into a short tube with spreading, slightly twisted lobes 9–17 mm long.
- **Flowering time** December – February
- **Fruit** a spindle-shaped follicle 10–13 cm long, 2–2.5 cm wide. Seeds with a silky tuft of hairs.
- **Status** 3RC–
- **Notes** copious milky latex is exuded from damaged stems.



Flowers and leaves

Lachlan Copeland



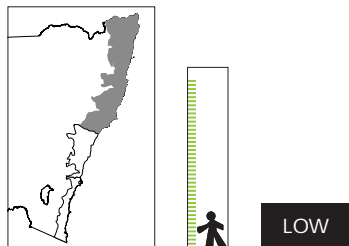
Shane Ruming

Flowers and stem

### *Sarcostemma brunonianum*

caustic vine  
APOCYNACEAE

rainforest maritime



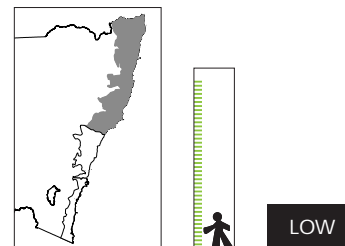
Trailer or climber with jointed, semi-succulent stems to 6 m long. Stems bright green to grey-green and becoming woody, young parts minutely hairy. Occurs in dry rainforests and on cliffs near the sea, north from Crescent Head.

- **Leaves** much reduced, scale-like, opposite, internodes long.
- **Flowers** inflorescence a 2–10-flowered umbel. Flowers 6–8 mm in diameter, pale yellowish or whitish, on stalks 3–6 mm long. Petals form a tube 2 mm long; lobes 4–5 mm long, ovate to oblong, pointed.
- **Flowering time** September – April
- **Fruit** a follicle 5–14 cm long, slender and gradually tapering to apex. Seeds with a tuft of hairs.
- **Status** not listed
- **Notes** stems exude white latex when damaged.

### *Streptothamnus moorei*

FLACOURTIACEAE

rainforest



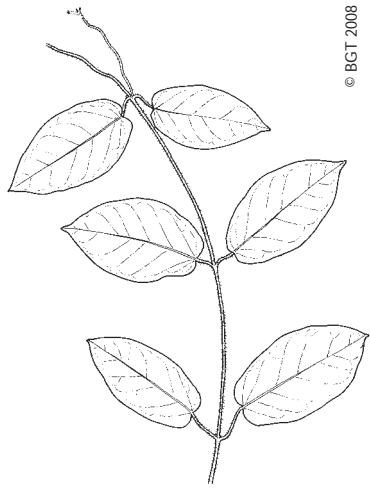
Climber with more or less hairless stems found in rainforests on escarpment ranges and coastal areas, north from the Clarence River.

- **Leaves** 6–12 cm long, 4–12 cm wide, broad-ovate to circular, 3-veined in basal half, thin and soft, petiole 2–3 cm long, domatia absent.
- **Flowers** solitary, axillary, on stalks 2–3 cm long, bracts present near base. Petals 5–7 mm long, pale pink to cream. Stamens 70.
- **Flowering time** includes May – December
- **Fruit** a black oval berry 2 cm long, surrounded at base by persistent sepals. Seeds 20–25.
- **Status** not listed

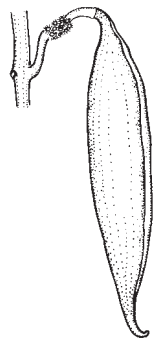


Glenn Leiper

Leaves and fruit (berries)



Leaves



Fruit (follicle)

© BGT 2008

***Thozetia racemosa***

APOCYNACEAE

rainforest



LOW

Climber with twining stems to 4 m high, stems with rusty to fawn hairs and young shoots and leaf buds furry. Grows in littoral and subtropical rainforest, north from Iluka.

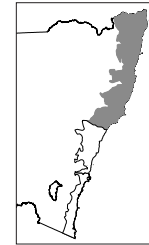
- **Leaves** 7–18 cm long, 4–10 cm wide, ovate or oblong-ovate, lower surface pubescent with rusty to fawn hairs, apex gradually tapering or suddenly constricting to a point, base strongly heart-shaped.
- **Flowers** inflorescence a raceme with axis 2–15 cm long, thick and ridged. Flowers 20–25 mm in diameter, deep purple. Sepals 4 mm long. Petals forming a tube with lobes to 1 cm long.
- **Flowering time** December – February
- **Fruit** a slender hairless follicle 10–12 cm long, tapering to a point.
- **Status** not listed
- **Notes** watery latex exudes from damaged stems.

***Tylophora benthamii***

coast tylophora

APOCYNACEAE

rainforest



MEDIUM

Climber to 4 m high, with pubescent stems. Grows in littoral rainforest, north from Sawtell.

- **Leaves** mostly 6–12 cm long, 3–8 cm wide, broad-ovate. Upper leaf surface sparsely pubescent, lower surface pubescent, apex gradually tapering or suddenly constricting to a point, base strongly heart-shaped, petiole 15–50 mm long.
- **Flowers** inflorescence a compact lateral umbel in groups of 2–5, on primary stalks 1–2 cm long. Flowers 8–11 mm in diameter, red-purple, on stalks 5–12 mm long. Petal lobes 3–5 mm long, ovate to lanceolate, hairy.
- **Flowering time** October – February
- **Fruit** a more or less spindle-shaped follicle 7–12 cm long, tapering to a point. Seeds with a silky tuft of hairs.
- **Status** not listed
- **Notes** opaque yellowish latex exudes from damaged stems.



Leaves and flowers

Lachlan Copeland



Glenn Leiper

Flowers and leaves



Glenn Leiper

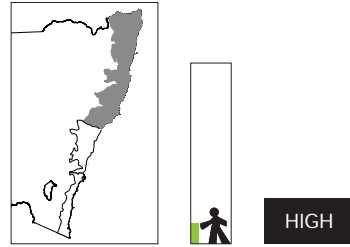
Fruit (pods)

## *Vigna marina*

dune bean

FABACEAE

maritime dunefield



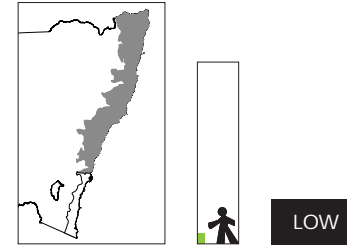
Climbing or trailing perennial with stems to 2 m long, hairy to hairless. Grows in coastal dunes and on headlands, north from Port Macquarie, and Lord Howe Island.

- **Leaves** compound, consisting of 3 leaflets. Leaflets 3–9 cm long, 2–7 cm wide, broad-elliptic to more or less circular, apex with a shallow notch or broadly rounded, petiole 3–6 cm long, stipules 2.5–3 mm long.
- **Flowers** inflorescence an axillary 5-flowered raceme, bracts and bracteoles deciduous, on stalk 4–10.5 cm long. Typical pea flowers. Sepals forming a tube 2–3 mm long, 5-lobed. Petals 12 mm long, broader than long, yellow.
- **Flowering time** March – July
- **Fruit** a compressed brown hairless pod 3.5–8 cm long, curved. Seeds 2–6.
- **Status** not listed

## *Acianthella amplexicaulis*

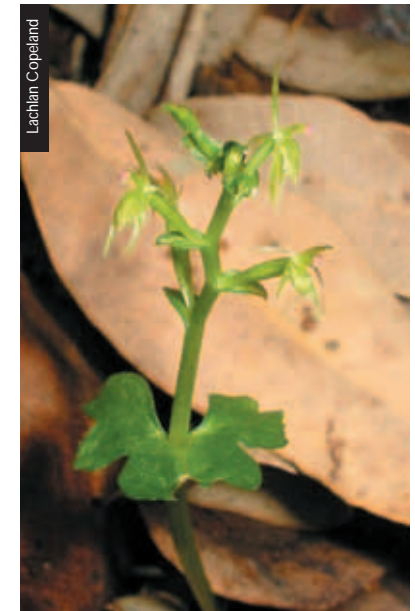
ORCHIDACEAE

rainforest



Orchid to 10 cm high with 1 leaf per shoot, held horizontally above the soil surface. The plant is deciduous and visible only during flowering and fruiting. Grows in moist coastal scrub on the lee slopes of stabilised dunes and in littoral rainforest, north from Gosford.

- **Leaves** 10–24 mm long, 10–16 mm wide, flat and solitary, held 2–8 cm above soil surface. Margins deeply lobed or sometimes entire, both upper and lower surfaces are green.
- **Flowers** inflorescence a raceme 5–9 cm long and 2–20-flowered. Flowers tiny 4–5 mm long and translucent green with a burgundy anther cap. Labellum about 2.5 mm long and 2 mm wide, broad-oblong, with margins deeply incised with 3–5 coarse teeth.
- **Flowering time** April – May
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** not listed

Lachlan Copeland  
Habit, leaf and flowers

- **Notes** the green undersurface of the *Acianthella amplexicaulis* leaf distinguishes this species from *Acianthus* spp., which exhibit purple pigmentation on leaf undersides.



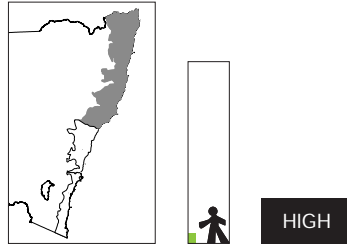
Lachlan Copeland

Habit, leaf and flowers

## *Acianthus exiguus*

ORCHIDACEAE

rainforest wet sclerophyll forest



Orchid to 10 cm high with 1 discolorous leaf per shoot held horizontally above the soil surface. The plant is deciduous and visible only during flowering and fruiting. Grows in moist areas of tall sclerophyll forest and in littoral rainforest. Known from Wardell and Bundagen.

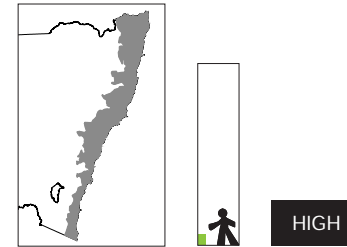
- **Leaves** 18–30 mm long, 15–20 mm wide, margins entire, upper surface dark green, lower surface light reddish-purple.
- **Flowers** inflorescence a raceme 6–10 cm long and 1–5-flowered. Flowers 5–7 mm long, translucent, greenish-white with a pink and green labellum. Labellum 3.5–4 mm long, 1.8–2 mm wide, oblong to elliptic with entire margins.
- **Flowering time** May – June
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** 3RC–

## *Actites megalocarpa*

dune thistle

ASTERACEAE

maritime dunefield



Fleshy perennial herb to 40 cm high, with creeping rhizomes and forming large clumps. Grows in coastal sand dunes and on coastal cliffs, and on Lord Howe Island.

- **Leaves** 1.5–17 cm long, 0.5–4.5 cm wide, alternate, oblanceolate to elliptic or lanceolate. Margins deeply wavy and toothed or sometimes entire. Leaf bases heart-shaped and sessile or tapering. Veins prominent and forming a network.
- **Flowers** inflorescence a solitary head 1–2 cm in diameter on stalk 1–10 cm long. A whorl of bracts surrounds the head. Florets yellow, sometimes pale purple towards base.
- **Flowering time** September – June
- **Fruit** a dry hairless 1-seeded fruit 4–8 mm long, flask-shaped, constricted at apex, with an attached pappus 7–13 mm long.
- **Status** not listed



Jackie Miles



Glenn Leiper

Leaves and flower



John Briggs

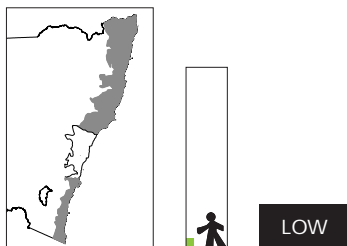
Habit

### *Aldrovanda vesiculosa*

waterwheel plant, waterbug trap

DROSERACEAE

freshwater wetland



John Briggs

Flower

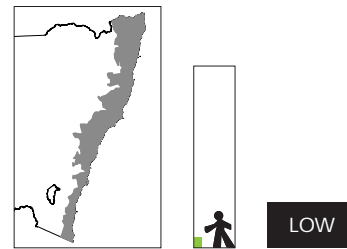
Small herb usually 5–20 cm long and 1–2 cm in diameter. Grows in shallow fresh water, often caught on submerged vegetation, widespread but rare in New South Wales.

- **Leaves** modified into a trap of semi-circular upcurved halves 2–4 mm long, 2–6 mm wide, in whorls of 6–9 that are basally fused, with 4–8 bristles 2–6 mm long. Petiole swollen, 2–6 mm long and 1–2 mm wide.
- **Flowers** solitary and axillary. Sepals 2–4 mm long, 1–1.5 mm wide. Petals 4–5 mm long, approximately 2.5 mm wide, whitish or pinkish in colour. Sepals, petals, stamens and styles in 5s.
- **Flowering time** December – February
- **Fruit** a thin, translucent capsule nearly spherical in shape, 4 mm long, 3 mm wide.
- **Status** SE

### *Caesia parviflora* var. *minor*

ANTHERICACEAE

dry sclerophyll forest woodland heath

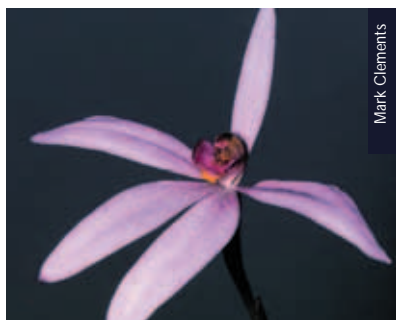


Leaves and flowers

Small tufted herb to 20 cm high, perennial with branched rhizomes and clustered fleshy roots. Grows in heath, woodland and dry sclerophyll forest on sandstone-derived soils, north to Corindi.

- **Leaves** 40 cm long, 2 mm wide, linear, arranged in a rosette at ground level, sheath dry and more or less membranous.
- **Flowers** inflorescence a panicle, branches widely diverging, often horizontal but pointing upwards at the apex. Flowers in clusters of 2–6 on slender stalks 3–10 mm long. Tepals <5 mm long, narrow-elliptic, mainly white in colour, also blue or purple.
- **Flowering time** September – February
- **Fruit** a 3-lobed green capsule to 5 mm in diameter. Seeds 1.3–2.3 mm in diameter.
- **Status** SE
- **Notes** this variety differs from other varieties of *Caesia parviflora* by its small stature (less than 20 cm high).





Mark Clements

Flower

## *Caladenia porphyrea*

ORCHIDACEAE

dry sclerophyll forest heath



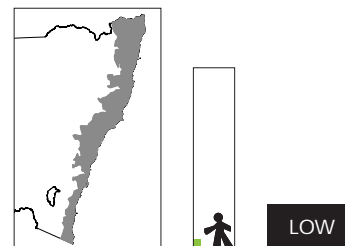
A single flowered orchid 20–35 cm high, deciduous and visible only during flowering and fruiting. Grows in heath and coastal sclerophyll forest on sandy soils. In New South Wales, restricted to the Wyong area.

- **Leaves** 15–20 cm long, 3–5 mm wide, linear, basal, sparsely hairy, dark green in colour, 1 leaf per flowering shoot.
- **Flowers** inflorescence a terminal raceme 20–35 cm high, 1–2-flowered, hairy. Flowers 25–35 mm long, 3–4 cm wide, usually bright pink to purplish-pink, occasionally white, with a strong musk scent. Sepals and lateral petals 1.3–2 cm long, dorsal sepal held erect. Labellum 3-lobed, broad, pink with reddish-purplish bands and a yellowish-orange tip, midlobe margins with 8–12 flat irregular teeth. Calli in 2 rows with yellowish-orange heads.
- **Flowering time** August – October
- **Fruit** unknown. Seeds numerous and minute, usually dust-like.
- **Status** SE

## *Caladenia quadrifaria*

ORCHIDACEAE

dry sclerophyll forest heath



Mark Clements

Flower

Broad-flowered orchid 10–20 cm high, deciduous and visible only during flowering and fruiting. Growing on slopes and ridges in sclerophyll forest, heath and coastal scrub in sandy or shallow clay loam substrates, from Belmont to Brunswick Heads.

- **Leaves** 7–15 cm long, 3 mm wide, narrow-linear, basal, sparsely hairy, 1 leaf per flowering shoot.
  - **Flowers** inflorescence a terminal raceme to 20 cm high, 1–2-flowered, hairy. Flowers 3–4 cm long, 2.5–4 cm wide, pale or bright pink in colour with a strong musk scent. Sepals and lateral petals to 2 cm long, dorsal sepal held erect. Labellum 3-lobed, more or less diamond-shaped, pink with reddish bands. Midlobe broad-triangular, recurved and orange, with margins bearing prominent stalked teeth. Calli in 4–6 rows with yellowish heads.
  - **Flowering time** September – October
  - **Fruit** unknown. Seeds numerous, minute, usually dust-like.
  - **Status** not listed
- **Notes** often found scattered under *Allocasuarina* spp.



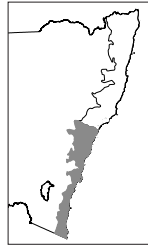
Mark Clements

Flower

## *Caladenia tessellata*

ORCHIDACEAE

woodland



LOW

Small-flowered orchid to 25 cm high, deciduous and visible only during flowering and fruiting. Grows in grassy sclerophyll woodland on clay loam or sandy soils, north to Swansea.

- **Leaves** a single leaf, 6 cm long, 5 mm wide, linear, sparsely hairy on both sides.
- **Flowers** inflorescence a terminal raceme to 25 cm high, rarely more than 2-flowered, hairy. Flowers 1–3 cm wide, yellowish-green to cream-coloured with reddish stripes. Sepals and lateral petals about 2 cm long, with short stiff points often held horizontally, dorsal sepal held erect. Labellum 10–15 mm long, 10–20 mm wide, heart-shaped, more or less unlobed, yellowish with a few darker striations, maroon and thickened at the apex, tip pointing downwards. Calli to 1 mm long in 4 rows, purple to black, thick, becoming crowded and overlapping towards the base.
- **Flowering time** September – November
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** NV, SE, 3V

## *Chamaecrista maritima*

FABACEAE

maritime grassland



HIGH

Prostrate or tufted perennial herb to 15 cm high, stems with sparse short hairs. Grows on grassy windswept headlands and hillsides on a variety of soils, north from Port Macquarie.

- **Leaves** pinnate without a terminal leaflet. Leaflets 3.3–6.6 mm long, 1–1.6 mm wide, in 15 to 30 pairs, oblong, hairless or with a few hairs on the lower surface. Central leaf axis 2–4 cm long, stipules 2–3 mm long. Sessile gland present on the petiole.
- **Flowers** inflorescence axillary, 1–3-flowered. Petals 8–10.5 mm long, ovate but broadest above the middle, yellow in colour.
- **Flowering time** includes October – March
- **Fruit** a sparsely hairy pod 3–5 cm long, 3.5–4.5 mm wide.
- **Status** not listed

Glenn Leiper  
Leaves and flowers



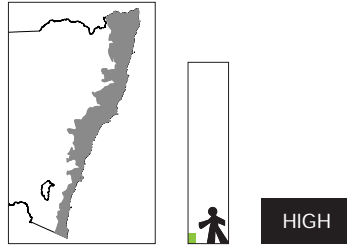
Ian Hutton

Leaves and flowers

## *Chamaesyce psammogeton*

sand spurge  
EUPHORBIACEAE

maritime dune/field



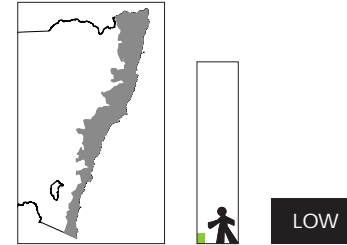
Prostrate herb forming mats to 1 m in diameter, often from a woody rootstock. Grows on sand dunes and exposed headlands on the coast, north from Sussex Inlet, and Lord Howe Island.

- **Leaves** 10–30 mm long, 5–15 mm wide, oval to oblong, opposite, hairless. Leaf base asymmetric, petiole 1–2 mm long, and stipules small.
- **Flowers** inflorescence a small cyme, each flower-head consisting of a female flower surrounded by up to 5 sprays of minute male flowers, hidden in a cup from which the bracts grow, 'petals' white in colour.
- **Flowering time** December – February
- **Fruit** a smooth and hairless capsule approximately 2 mm long, 2.5 mm in diameter. Seeds 1–1.5 mm long, pale brown and faintly wrinkled.
- **Status** SE

## *Corybas undulatus*

tailed helmet orchid  
ORCHIDACEAE

dry sclerophyll forest



Ron Tunstall

Habit and flower

Small-flowered deciduous orchid visible only during flowering and fruiting. Inhabiting moist dark places in scrub or forests on sandy soils. Occurs in coastal and near-coastal regions north from Jervis Bay.

- **Leaves** 8–20 mm long, 10–18 mm wide, heart-shaped, upper surface green and lower surface reddish.
- **Flowers** solitary, 10–13 mm long, 8–18 mm wide, held erect or leaning back, purplish-red and white, with translucent areas. Dorsal sepal 12–14 mm long, 6–8 mm wide, greenish-grey with red striations, curved forward over the labellum but not obscuring it. Lateral sepals and petals reduced and thread-like. Labellum a bristled tube with the apex having a short tail.
- **Flowering time** May – July
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** 3KC–



Jackie Miles

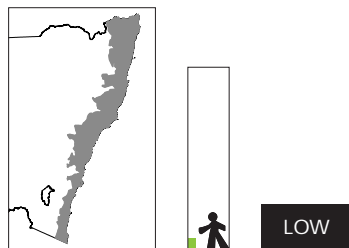
Flowers and stems

## *Cryptostylis hunteriana*

leafless tongue-orchid

ORCHIDACEAE

woodland heath freshwater wetland



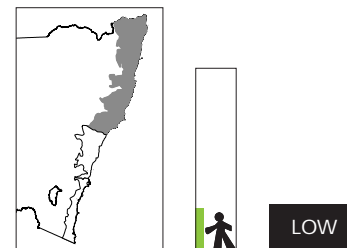
Leafless saprophytic orchid 15–45 cm high, with an erect labellum. Grows in swampy-heath and sedgeland on sandy soils, chiefly in coastal districts, north to the Gibraltar Range near Grafton.

- **Leaves** absent.
- **Flowers** inflorescence a 5–10-flowered raceme held erect on stems 15–45 cm high. Flowers 2–3 cm long, 6–8 mm wide. Sepals and petals to 22 mm long, 0.5–1.5 mm wide, linear, green. Labellum 22–33 mm long, 6–7 mm wide, spoon-shaped, erect, maroon along the margins and at the widened tip, and with a black central band, margins recurved, upper surface conspicuously hairy, lower surface hairless.
- **Flowering time** August – February
- **Fruit** reproduces from seed, but also capable of vegetative reproduction.
- **Status** NV, SV, 3VC–

## *Desmodium heterocarpon* var. *heterocarpon*

FABACEAE

wet sclerophyll forest dry sclerophyll forest



Sprawling, to ascending subshrub or herb to 1.8 m high, stems may or may not be covered in hairs. Found in sclerophyll forest, north from Coffs Harbour.

- **Leaves** compound, consisting of 3 leaflets. Leaflets 1.3–7 cm long, 8–45 mm wide, oblong or elliptic to more or less circular. Stems and lower surface of leaflets sparsely hairy to hairless, upper surface with a few appressed hairs, petiole 10–35 mm long. Stipules 7–15 mm long.
- **Flowers** inflorescence a 10–100-flowered raceme 3–15 cm long. Typical pea flowers, mostly 4–6 mm long and white to violet blue in colour.
- **Flowering time** December – May
- **Fruit** a pod 1–3 cm long, hairless or covered in hooked hairs, separated into 2–8, 1-seeded sections each 3 mm long.
- **Status** not listed

Glenn Leiper  
Leaves, flowers and fruit (pods)

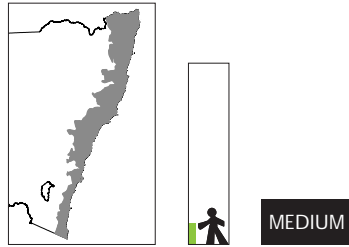


Glenn Leiper

## *Dianella congesta*

PHORMIACEAE

dunefield



Habit

Perennial herb to 1 m high, with strap-like leaves and forming mats 20 m in diameter. Found mainly on stabilised coastal sand dunes, north from Kioloa.

- **Leaves** 45 cm long, 1–1.5 cm wide, margins and midrib smooth, foliage often yellowish-green, sheaths folded flat together and completely closed around stem.
- **Flowers** inflorescence a cyme not exceeding the leaves in height, consisting of 2–8 flowers congested on stem, bent downwards. Tepals 6, in 2 whorls. Outer tepals 7.5–8.5 mm long, inner tepals 6.5–7.5 mm long. Anthers yellow-brown.
- **Flowering time** September – February
- **Fruit** a blue berry 6–12 mm long.
- **Status** not listed



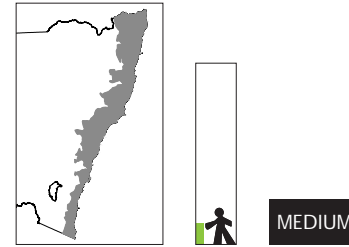
Glenn Leiper

Fruit (berries) and flowers

## *Dianella crinoides*

PHORMIACEAE

maritime dunefield



© BGT 2008



Habit

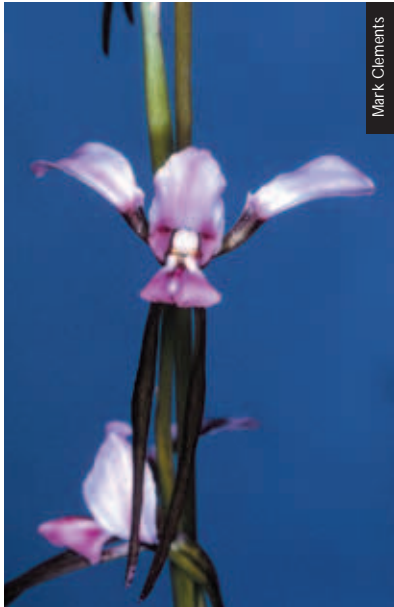
Perennial tufted herb to 80 cm high, with strap-like leaves and tufts to 20 cm in diameter. Grows in maritime locations in a variety of habitats on sandy soils, north from Bermagui.

- **Leaves** 70 cm long, 6–18 mm wide, sheath on lower surface keeled, less than half the length of the leaf blade.
- **Flowers** inflorescence a 5–15-flowered cyme exceeding the leaves in height. Tepals 6, in 2 whorls. Outer tepals 7.5–9.5 mm long and 5–9-veined, inner tepals 7.5–8.5 mm long, blue to dark blue in colour. Anthers pale yellow.
- **Flowering time** September – February
- **Fruit** a blue berry 6–8 mm long.
- **Status** not listed



Glenn Leiper

Flowers



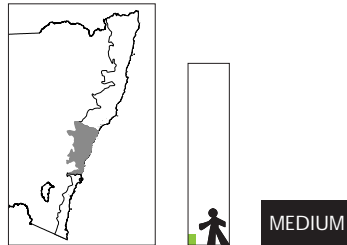
Flower

Mark Clements

## *Diuris arenaria*

sand doubletail  
ORCHIDACEAE

dry sclerophyll forest heath



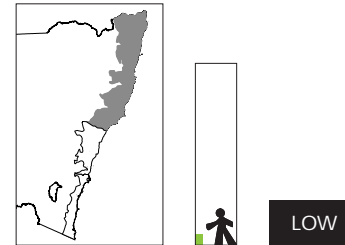
Small ground orchid 15–50 cm high, growing from a tuber. The plant is deciduous and visible only during flowering and fruiting. Grows in coastal heath or dry grassy eucalypt forest on sandy flats or on clay. Known from only three locations on the Tomaree Peninsula near Newcastle.

- **Leaves** 15–20 cm long, 2–6 mm wide, 2 per plant, each folded flat along the midrib, growing from base of the plant.
- **Flowers** inflorescence a terminal 1–9-flowered raceme 15–50 cm high. Flowers 2–3 cm wide, light purple to mauve. Petals 10–17 mm long, 6–10 mm wide, erect to recurved, on short stalks. Dorsal sepal erect. Lateral sepals 1.5–4 cm long, deflexed. Labellum 10–14 mm long, lobed, wedge-shaped, dark purplish with yellow callus.
- **Flowering time** August – September
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** SE

## *Diuris byronensis*

Byron Bay donkey orchid  
ORCHIDACEAE

heath grassland



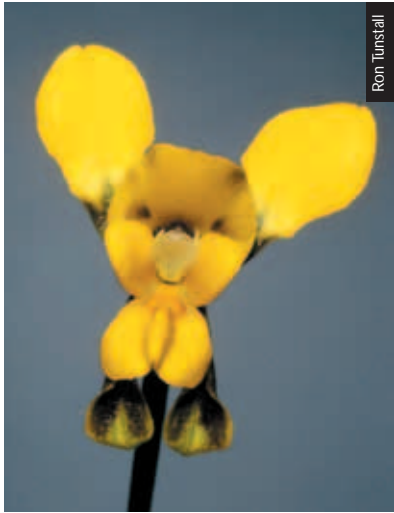
A 'donkey' orchid 10–35 cm high, growing from a tuber. The plant is deciduous and visible only during flowering and fruiting. Grows in low-growing grassy heath. Known from a single location at Byron Bay.

- **Leaves** 10–25 cm long, 2–4 mm wide, linear and grass-like, 2 per plant, each folded flat along the midrib.
- **Flowers** inflorescence a terminal 1–7-flowered raceme 10–35 cm high. Flowers 2–3 cm wide, bright yellow with a few brown or blackish markings. Petals 8–13 mm long, 6–9 mm wide, ovate, erect to recurved, on short stalks. Dorsal sepal erect, lateral sepals 2–3.4 cm long, oblanceolate, deflexed. Labellum 10–13 mm long, lobed, wedge-shaped.
- **Flowering time** August – September
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** SE



Flower

Mark Clements



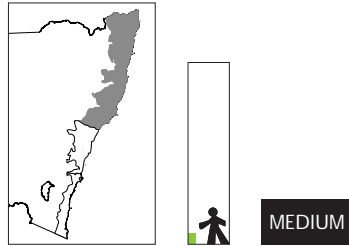
Ron Tunstall

Flower

## *Diuris curta*

ORCHIDACEAE

heath maritime grassland



Terrestrial orchid 5–20 cm high, growing from a tuber. Deciduous and visible only during flowering and fruiting. Grows in grasslands or shrublands on coastal headlands, north from Hat Head.

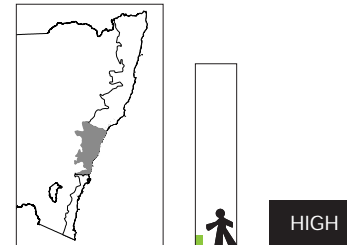
- **Leaves** 15–25 cm long, 5–8 mm wide, linear, usually solitary, occasionally 2, folded flat along the midrib, apex gradually tapering.
- **Flowers** inflorescence a terminal 1–5-flowered raceme 5–20 cm high. Flowers 2–3 cm in diameter, bright yellow to golden with two small dark markings on the dorsal sepal, projecting forward to semi-nodding. Petals 9–15 mm long, 7–10 mm wide, broadly ovate to broadly elliptic, erect to recurved, blackish, with claw 4–5 mm long. Dorsal sepal erect, ovate to orb-shaped. Lateral sepals 13–22 mm long, ovate to spoon-shaped, deflexed. Labellum 10–12 mm long, 3-lobed, decurved.
- **Flowering time** August – October
- **Fruit** unknown. Seeds numerous and minute.
- **Status** not listed

## *Diuris praecox*

early doubletail

ORCHIDACEAE

dry sclerophyll forest



Terrestrial orchid 20–40 cm high, growing from a tuber. The plant is deciduous and visible only during flowering and fruiting. Grows in sclerophyll forest with a grassy to fairly dense understorey. Occurs in coastal and near-coastal districts between Ourimbah and Nelson Bay.

- **Leaves** 15–35 cm long, 3–5 mm wide, linear, 2–3 per plant, each folded flat along the midrib.
- **Flowers** inflorescence a terminal 6–10-flowered raceme 20–40 cm high. Flowers 2–2.5 cm wide, yellow with a few dark brown markings at the base of the dorsal sepal and labellum, nodding. Petals 8–12 mm long, 5–6 mm wide, elliptic, erect to recurved, widely divergent, on short stalks. Dorsal sepal erect, lateral sepals 12–15 mm long, linear to lanceolate, deflexed. Labellum 9–12 mm long, ovate.
- **Flowering time** July – September
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** NV, SV, 2VC–



Mark Clements

Flowers



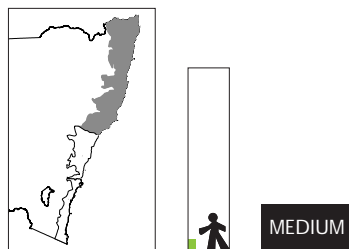
Mark Clements

Flower

## *Empusa habenarina*

ORCHIDACEAE

dry sclerophyll forest grassland



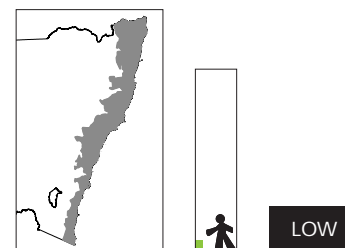
Erect orchid 15–60 cm high, with egg-shaped pseudobulbs 2–3 cm long. Deciduous and visible only during flowering and fruiting. Found in grassland and the grassy understorey of dry sclerophyll forests, usually on swamp margins. Occurs in coastal areas north from Coffs Harbour.

- **Leaves** 10–25 cm long, 25–40 mm wide, ovate to oblong or obovate, dark green to yellowish-green, 5 prominent veins, longitudinally folded into pleats. 2–3 leaves per shoot.
- **Flowers** inflorescence a terminal, erect 8–22-flowered raceme 15–60 cm long. Flowers greenish to reddish. Petals 5–8 mm long, deflexed with blunt or rounded edges. Dorsal sepal 5–8 mm long, pointed and deflexed, lateral sepals 3–5 mm long, fused for part or all of their length. Labellum 4–5 mm long, bent downwards and curved, with 2 rounded basal ridges and a central plate.
- **Flowering time** January – May
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** not listed

## *Euphrasia collina* subsp. *paludosa*

SCROPHULARIACEAE

woodland heath grassland



Partly parasitic herb 18–45 cm high, growing in heathy areas on sandy and clay soils in coastal regions, also in snowgum woodland and surrounding grassland in montane and subalpine areas. Occurs north to Torrington district (near Tenterfield), also recorded from inland regions.

- **Leaves** 7.5–13.5 mm long, base narrow-wedge-shaped to truncate. Uppermost leaves on flowering stem 3.4–7 mm wide with 1–3 pairs of teeth. Base of plant usually hairy.
- **Flowers** inflorescence a raceme. Sepals 3.5–16 mm long with glandular indumentums to 0.1 mm long on external surfaces. Petals 9.5–16 mm long, white to purple, blue or pink, sometimes with yellow blotches on lower lip. Main inflorescence stalks have branches or young shoots near the ground.
- **Flowering time** August – February
- **Fruit** a capsule 6–15 mm long, hairless or bristly only at the apex.
- **Status** not listed

Jackie Miles  
Flowers and leavesJackie Miles  
Flowers





Mark Clements

Habit



Glenn Leiper

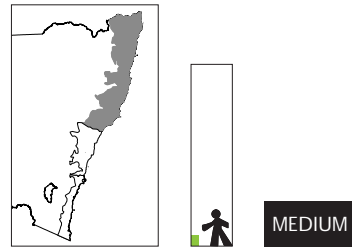
Flowers and leaves

## *Geodorum densiflorum*

shepherds crook orchid

ORCHIDACEAE

rainforest dry sclerophyll forest woodland  
heath grassland



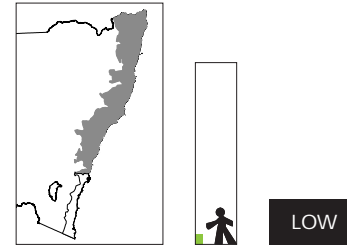
Small ground orchid to 30 cm high with nodding flower stems and buried or half-buried pseudobulbs. The plant is deciduous and visible only during flowering and fruiting. Occurs in a wide range of moist habitats at low altitudes in fewer than 20 known populations north of the Macleay River.

- **Leaves** 15–35 cm long, 2–8 cm wide, ovate to lanceolate, longitudinally folded into pleats and marked by 3 prominent ribs. 3–5 leaves per plant.
- **Flowers** inflorescence an 8–20-flowered raceme 15–30 cm long, basally erect but nodding so the flowers point downwards. Flowers bell-shaped, white to deep pink and not widely opening. Sepals and lateral petals 11–18 mm long and 2.5–5 mm wide.
- **Flowering time** December – January
- **Fruit** unknown. Inflorescence stem becomes erect during fruiting.
- **Status** SE

## *Gonocarpus salsoloides*

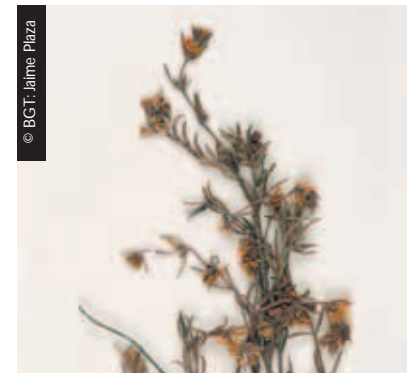
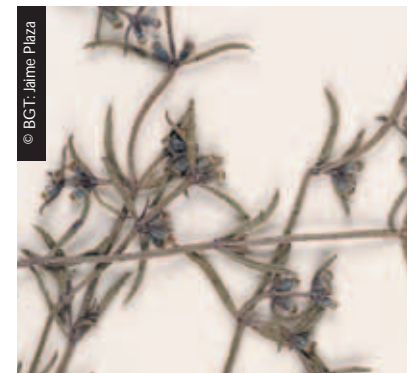
HALORAGACEAE

freshwater wetland



Erect, much-branched herb to 40 cm high growing on sand in swampy areas, in coastal districts from Bulli to Port Macquarie.

- **Leaves** 6–20 mm long, mostly 1–2 mm wide, in pairs, linear, margins more or less entire or with a few small teeth towards the tip, petiole absent.
- **Flowers** inflorescence spike-like with primary bracts opposite. Flowers with petals 2.5–2.8 mm long, red-brown to yellowish in colour, on short stalks.
- **Flowering time** July – September
- **Fruit** a silver-grey egg-shaped nut 1–1.5 mm long, 8-ribbed. One seed occupies most of the fruit.
- **Status** 3RCa

© BGT: Jaime Plaza  
Habit© BGT: Jaime Plaza  
Flowers and leaves© BGT: Jaime Plaza  
Fruit (nuts)



Habit

© BGT 2008

## *Haemodorum austroqueenslandicum*

Queensland blood-lily  
HAEMODORACEAE

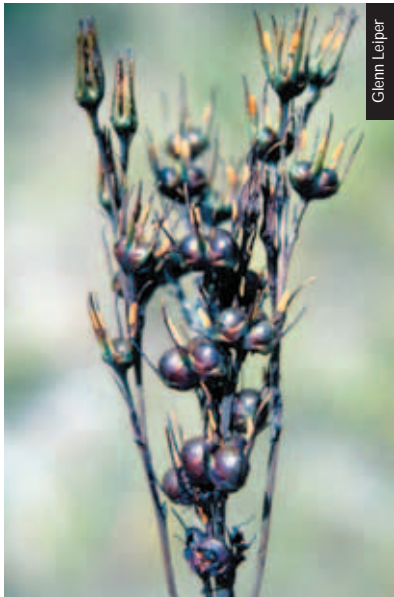
dry sclerophyll forest heath



LOW

Herb 0.6–2.1 m high with an open habit and strap-like leaves. Occurs in dry sclerophyll forest and coastal heath, often in sandy soil, north from Hat Head.

- **Leaves** 35–70 cm long, 1.5–7 mm wide, flat, basal, 3–9 leaves per plant.
- **Flowers** inflorescence a narrow panicle with erect branches. Bracteoles opaque and black in colour, upper bracteole acute or narrow-obtuse, less than a quarter as long as flower. Flowers 9–12 mm long, solitary and scattered, dark red-brown to black. Tepals 6, in 2 whorls. Outer tepals almost as long as inner tepals.
- **Flowering time** September – February
- **Fruit** a shiny black 3-lobed capsule 4–6 mm long, disc-shaped.
- **Status** not listed



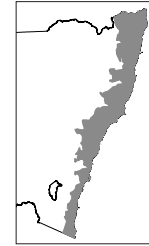
Fruit (capsules)

Glenn Leiper

## *Haemodorum corymbosum*

HAEMODORACEAE

heath freshwater wetland



LOW

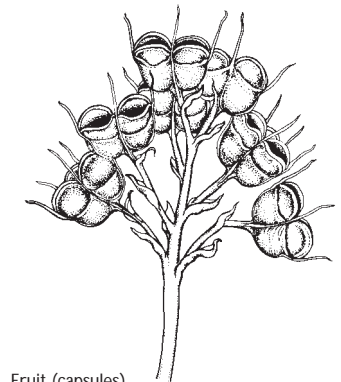
Herb 40–70 cm high. Inhabits dry and swampy sandy soil on sandstone plateaus, from Gosford to the Budawang Ranges.

- **Leaves** 40–75 cm long, 1–1.5 mm wide, cylindrical, basal, 3–4 leaves per plant.
- **Flowers** inflorescence a panicle with 1–3 dense clusters of flowers concentrated terminally and appearing at the same level. Bracteoles opaque, black or brown-black in colour, veins obscure on lower surface. Upper bracteole acute or obtuse, one-fifth to half as long as the flower. Flowers 12–15 mm long, brown-black or black. Tepals 6, in 2 whorls. Outer tepals almost as long as inner tepals.
- **Flowering time** October – December
- **Fruit** a shiny black 3-lobed capsule 7–12 mm long, disc-shaped.
- **Status** not listed



Flowers and habit

© BGT 2008



Fruit (capsules)



Murray Fagg

Habit



Murray Fagg

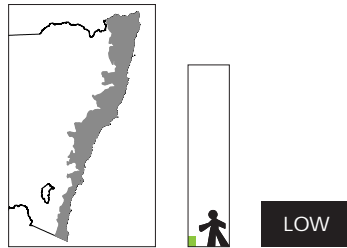
Flowers

## *Linum marginale*

native flax

LINACEAE

dry sclerophyll forest woodland  
freshwater wetland grassland



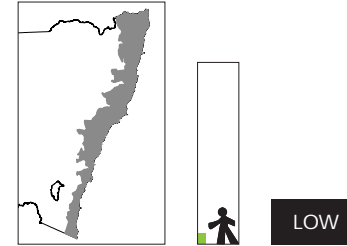
Perennial herb 10–60 cm high with erect mostly unbranched stems. Grows in woodland, grassland, forest and margins of acid swamps, widespread.

- **Leaves** 5–20 mm long, 1–3 mm wide, linear to narrow-elliptic, margins entire, hairless, often bluish.
- **Flowers** inflorescence a terminal cyme, flowers appearing on the same plane. Inflorescence stalk 13–25 mm long (elongating in fruit). Sepals 3–6 mm long, ovate. Petals 8–12 mm long, blue, sometimes with darker venation.
- **Flowering time** September – February
- **Fruit** a spherical capsule 4–6 mm in length and diameter. Seeds 3 mm long, brown.
- **Status** not listed

## *Logania pusilla*

LOGANIACEAE

dry sclerophyll forest



Herb or shrub with trailing or spreading stems to 15 cm high, with 2 lateral longitudinal ridges on the branches. Occurs in dry sclerophyll forest on sandstone in coastal areas and adjacent ranges.

- **Leaves** 6–12 mm long, 3–6 mm wide, narrow-elliptic to oblong, margins rolled backwards, bases wedge-shaped or narrowing gradually. Lower leaf surface smooth, petiole 1–3 mm long.
- **Flowers** solitary, axillary. Sepals 3–5 mm long, lobes narrow-ovate. Petals fused to form a tube 5 mm long, white; lobes to 3 mm long, ovate to elliptic. Outer surface hairless, inner surface sparsely hairy.
- **Flowering time** September – November
- **Fruit** a woody capsule 5–9 mm long, splitting upon maturity.
- **Status** not listed



Glenn Leiper

Leaves and flowers



Glenn Leiper

Fruit (capsules)



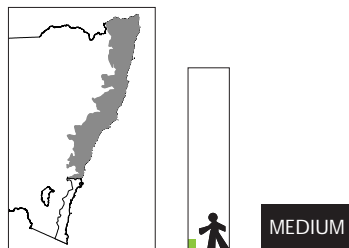
Glenn Leiper

Habit

## *Macarthuria neocambrica*

AIZOACEAE

freshwater wetland dune/field



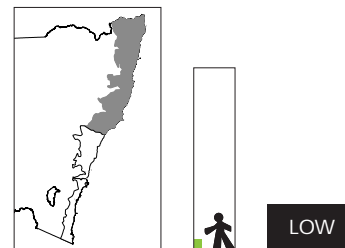
Spreading and much-branched annual herb to 20 cm high. Found in hind-dune swamps or on stabilized coastal sand dunes along the coast, as well as inland.

- **Leaves** 1–5 cm long, 5 mm wide, spoon-shaped to elliptic, basal, margins entire. Leaf apex blunt or rounded, slightly succulent, tapering into a short petiole.
- **Flowers** inflorescence a loose cyme 3 mm in diameter. Flowers small and stalked. Tepals 1–2 mm, formed into 2 whorls, white to pinkish.
- **Flowering time** unknown, but likely throughout the year
- **Fruit** a spherical capsule 2 mm long. Seeds 1.5 mm long, black.
- **Status** not listed

## *Oldenlandia galioides*

RUBIACEAE

woodland freshwater wetland



Delicate, inconspicuous annual herb that has a prostrate or slightly erect habit, with many slender, branching stems to 45 cm long. Inhabits the margins of seasonally inundated wetlands in paperbark swamps and woodlands. Known from several locations including the Tweed area as well as some inland regions.

- **Leaves** 4–22 mm long, 0.5–3 mm wide, linear to narrow-elliptic, paired, margins curved back, hairless, apex narrowing gradually.
- **Flowers** solitary or few together in axils, on thread-like stalks to 2 cm long. Sepals with lobes 1–1.5 mm long, pointed, often persistent in fruit. Petals formed into a tube 1.5–2 mm long, lobes shorter than tube, white.
- **Flowering time** January – May
- **Fruit** a furrowed capsule 2–2.5 mm long, protruding slightly beyond the persistent sepals. Seeds tiny, rare.
- **Status** SE



Glenn Leiper

Habit including flowers and leaves



Murray Fagg

Habit



© BGT: David Hardin

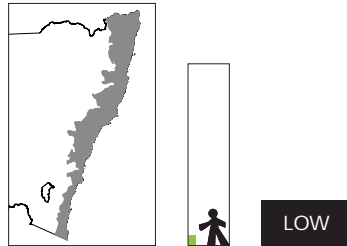
Leaves and flowers

## *Pelargonium australe*

native storksbill

GERANIACEAE

maritime dunefield



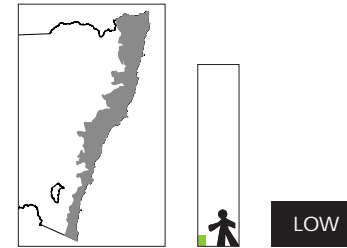
Perennial herb to 50 cm high, with a covering of soft hairs and more or less succulent stems. Generally growing on sand dunes and coastal cliffs, as well as inland and on Lord Howe Island, usually on rocky outcrops.

- **Leaves** 2–9 cm long, 2–8 cm wide, ovate to more or less circular with 5–7 shallow lobes, undulate and toothed; opposite, covered with short, soft hairs or almost hairless.
- **Flowers** inflorescence a 4–12-flowered umbel on stalk 3–10 cm long. Bracts 3 mm long, 0.5 mm wide, lanceolate. Flowers on stalks 1–2 cm long. Sepals with lobes 4–7 mm long. 1–6 nectary spurs 2–8 mm long. Petals 8 mm long, pink with darker coloured markings.
- **Flowering time** October – March
- **Fruit** a dry capsule 8–15 mm long, separating into 5 mericarps. Mericarps with long shaggy or short weak hairs, each 1-seeded, surmounted by a curved awn.
- **Status** not listed

## *Pelargonium inodorum*

GERANIACEAE

wet sclerophyll forest dry sclerophyll forest  
woodland



Annual or short-lived perennial herb 6–40 cm high with a covering of soft hairs. Inhabits woodland and forest, widely distributed.

- **Leaves** 1–4 cm long, 1–5 cm wide, ovate to heart-shaped, often 5–7-lobed, lobes with shallow rounded teeth, opposite. Scattered hairs on both surfaces or hairless on upper surface.
- **Flowers** inflorescence a 3–14-flowered umbel on stalk 3–8 cm long. Flowers on stalks 1–3 mm long (to 10 mm in fruit). Sepals with lobes 2–4 mm long, nectary spur almost obsolete. Petals 2–4 mm long, deep pink sometimes with darker veins.
- **Flowering time** mainly December – February
- **Fruit** a dry capsule 10–14 mm long, separating into 5 mericarps. Mericarps with long soft weak hairs which are clearly separated, each 1-seeded and surmounted by a curved awn.
- **Status** not listed



Leaves and flowers

- **Notes** distinguished from *Pelargonium australe* by smaller nectary spurs (0.5–1 mm long) on the sepals and dry (not succulent) stems.

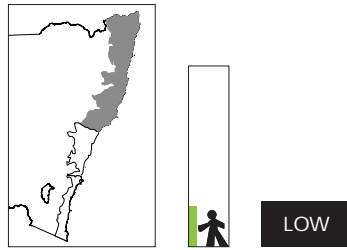


Lachlan Copeland

## *Phaius australis*

ORCHIDACEAE

rainforest dry sclerophyll forest  
freshwater wetland grassland



Showy terrestrial orchid to 2 m high, with egg-shaped pseudobulbs 2–7 cm in diameter. Found in *Melaleuca quinquenervia* swamps and in sclerophyll forest, on the coast, north from Lake Cathie, though chiefly from Evans Head.

- **Leaves** 30–70 cm long, 3–10 cm wide, oblanceolate, dark green, apex pointed, pleated, 4–8 leaves per shoot.
- **Flowers** inflorescence an erect 5–20-flowered raceme 70–110 cm long, arising from lower leaf axils. Petals and sepals white outside, red-brown with yellow veins inside. Petals 33–45 mm long, 12–15 mm wide. Dorsal and lateral sepals 3.5–6 cm long, 0.8–1.0 mm wide, oblong and gradually tapering to a point. Labellum 3-lobed, 2.8–5.5 mm long, 1.7–4.5 mm wide, red-brown with a yellow keel inside, lobes slightly curved inwards but not forming a tube.
- **Flowering time** September – November
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** NE, SE, 3VCa

Habit



Lachlan Copeland

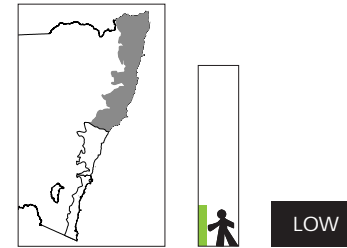
Flower

## *Phaius tancarvilleae*

swamp lily

ORCHIDACEAE

rainforest dry sclerophyll forest  
freshwater wetland grassland



Showy terrestrial orchid to 2 m high, with egg-shaped pseudobulbs 3–7 cm in diameter. Found in swampy grassland and forest, including rainforest and especially *Melaleuca quinquenervia* forest, on the coast. North from Lake Cathie, though chiefly north from Brunswick Heads.

- **Leaves** 30–70 cm long, 3–10 cm wide, usually oblanceolate, dark green, apex pointed, pleated, 4–8 leaves per shoot.
- **Flowers** inflorescence an erect 5–20-flowered raceme 70–110 cm long, arising from lower leaf axils. Petals and sepals white outside, red-brown with yellow veins inside. Petals 33–45 mm long, 12–15 mm wide. Dorsal and lateral sepals 3.5–6 cm long, 0.8–1.0 mm wide, oblong and gradually tapering to a point. Labellum 3-lobed, 2.8–5.5 mm long, 1.7–4.5 mm wide, red-brown with a yellow keel inside, lobes slightly curved inwards to form a tight tube.
- **Flowering time** September – November
- **Fruit** unknown. Seeds numerous and minute.



Paul Downey

Habit



Shane Ruming

Flower

- **Status** NE, SE
- **Notes** differs from *Phaius australis* by the lateral lobes of the labellum being tightly inrolled to form a tube and the cinnamon brown insides of the sepals and lateral petals.

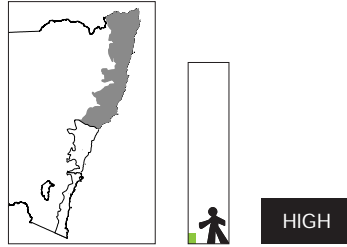


Paul Downey

## *Plectranthus cremnus*

LAMIACEAE

maritime



Prostrate to decumbent herb, pleasantly aromatic with a geranium-like odour, branches moderately to densely covered with long, spreading hairs. Grows in shallow, sandy soils on rocky coastal headlands of northern coastal New South Wales.

- **Leaves** 35–40 mm long, 45–50 mm wide, broadly ovate, flattened, margin with shallowly rounded teeth, apex blunt to rounded, base nearly truncate, petiole 15–25 mm long.
- **Flowers** inflorescence a compact terminal cyme or arising from the upper leaf axils. Flower a tube 6 mm long, white and lobes bright blue with a purple tinge. Sepals 2-lipped, outer surface maroon. Stamens 3.5–4.5 mm long, style 7.5–8.2 mm long.
- **Flowering time** throughout the year
- **Fruit** a dry fruit splitting into four 1-seeded partitions upon maturity.
- **Status** 3K



Shane Ruming

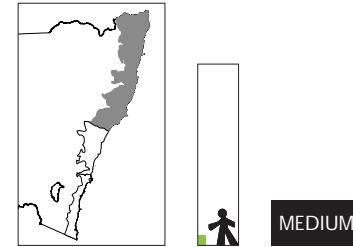
Flowers and leaves

## *Pterostylis nigricans*

dark greenhood

ORCHIDACEAE

heath



Greenhood orchid 10–35 cm high with fleshy, rounded tuberoids. The plant is deciduous and visible only during flowering and fruiting. Grows in coastal scrub and heath on sand, north from Evans Head.

- **Leaves** 1–3 rosettes on mature plants, each with 3–11 leaves. Each leaf 0.5–3 cm long, 4–10 mm wide, ovate to heart-shaped, mid green to bluish. 3–6 stem leaves reside on flowering stalk.
- **Flowers** inflorescence a terminal 1–6-flowered raceme on stalk 10–35 cm high. Flowers 9–10 mm long, 4–5 mm wide, widely spaced on stalk, base green and white, upper helmet dark brown. Helmet erect at the base and curved forwards at the apex. Dorsal sepal pointed or tapering, lateral sepals hugging the helmet. Labellum to 4 mm long, 1.5 mm wide, diamond-shaped, not visible.
- **Flowering time** March – May
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** SV, 3V



Lachlan Copeland

Flower



Mark Clements

Flower

### *Pterostylis* sp. Botany Bay

Botany Bay bearded greenhood orchid  
ORCHIDACEAE

heath



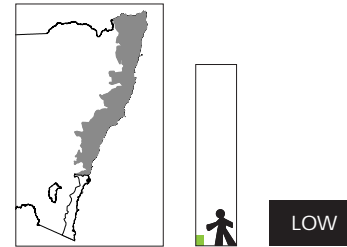
Greenhood orchid with slender flowering stems to 20 cm high, and fleshy rounded tuberoids. Deciduous and visible only during flowering and fruiting. Inhabiting coastal heath in moist situations on sandy sandstone-derived soils. Known from one small disjunct population at Kurnell.

- **Leaves** up to 12 leaves in a basal rosette, each 37 mm long, 12 mm wide, narrow-ovate, slightly ascending stem, such that leaves form a pyramid.
- **Flowers** solitary on stalks to 20 cm high, translucent green with dark green veins. Helmet inflated at the base, curving towards an upcurved apical beak to 2 mm long. Lateral sepals slender and pointing forwards. Labellum slightly arched, sparsely covered in yellow hairs, dark red knob at the apex.
- **Flowering time** August – September
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** NE, SE
- **Notes** similar to *Pterostylis plumosa* which is not found in coastal areas and has almost erect flowers which are larger and more robust.

### *Pterostylis ophioglossa*

snake tongue greenhood  
ORCHIDACEAE

wet sclerophyll forest dry sclerophyll forest  
heath



Greenhood orchid to 25 cm high, with fleshy, rounded tuberoids. Deciduous and visible only during flowering and fruiting. Grows in sheltered areas of sclerophyll forest and scrub in coastal and near-coastal districts, north of Sydney.

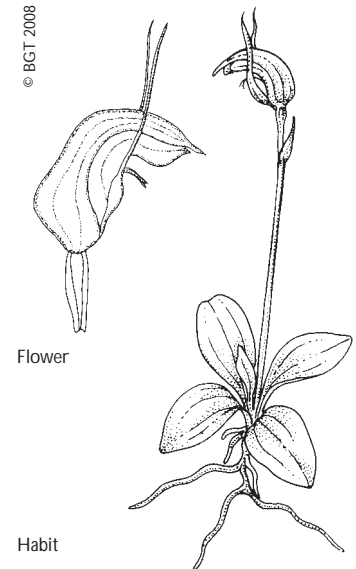
- **Leaves** 4–6 leaves in basal rosette, each 1–4.5 cm long, 5–20 mm wide, ovate to oblong, dull green.
- **Flowers** solitary on stalks to 25 cm high, flowers 3–5 cm long, 10–13 mm wide, semi-nodding, white with tan or reddish stripes and tinges. Helmet apex pointing downwards. Dorsal sepal tapering to an extended point, lateral sepals hugging the helmet. Labellum 12–17 mm long, 3 mm wide, narrow-ovate to lanceolate, apex deeply notched, the lobes nearly parallel.
- **Flowering time** April – July
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** not listed



Glenn Leiper

Habit

© BGT 2008



Flower

Habit





Lachlan Copeland

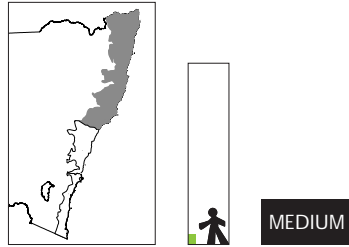
Flower

## *Pterostylis woollsii*

long-tail greenhood

ORCHIDACEAE

dry sclerophyll forest



Spectacular greenhood orchid to 45 cm high, with fleshy, rounded tuberoids. Deciduous and visible only during flowering and fruiting. Grows amongst rocks on ridges and slopes and in the understorey of sclerophyll forest, widespread but disjunct.

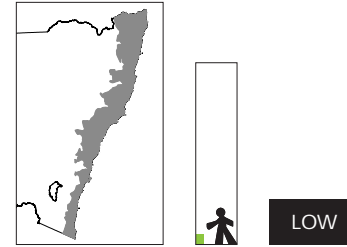
- **Leaves** 5–10 leaves in basal rosette, each 15–40 mm long, 8–20 mm wide, broad-ovate to lanceolate.
- **Flowers** inflorescence a terminal 1–6-flowered raceme on stalk 20–45 cm high. Flowers 35–60 mm long, 12–14 mm wide, transparent with green and reddish tones. Dorsal sepal with an upcurved and thread-like point to 1.5 cm long. Lateral sepals with thread-like tails 10–13 cm long, margins strongly incurved, parallel. Labellum 12–15 mm long, 3–4 mm wide, elliptic to ovate, reddish-brown, apex beaked; basal lobe 3.5 mm long, 2 prominent bristles.
- **Flowering time** October – December
- **Fruit** unknown. Seeds numerous, minute, usually dust-like.
- **Status** 3RC–

## *Scaevola aemula*

fairy fan flower

GOODENIACEAE

dry sclerophyll forest



Ascending to decumbent perennial herb to 50 cm high with coarse yellowish hairs on stems. Found in dry sclerophyll forest on sandy soils, in coastal districts north to South West Rocks.

- **Leaves** 1–8.8 cm long, 4–31 mm wide, ovate, margins toothed, tapering towards the base.
- **Flowers** inflorescence a spike to 24 cm long, bracts leaf-like. Bracteoles 4.5–7 mm long, lanceolate. Sepals basally fused. Petals 17–25 mm long, mauve or white, with appressed hairs outside and bearded inside.
- **Flowering time** mainly August – March
- **Fruit** a hairy, wrinkled egg-shaped drupe to 4.5 mm long.
- **Status** not listed



Jackie Miles

Flowers



Leaves and flowers

Jackie Miles

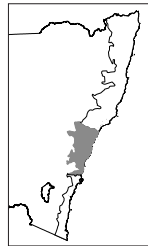


Immature fruit and habit

## *Senecio spathulatus*

coast groundsel  
ASTERACEAE

dunefield



HIGH

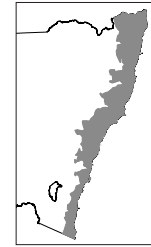
Low-growing, smooth-stemmed perennial daisy to 30 cm high, often forming hummocks. Growing on primary dunes. The New South Wales distribution encompasses Cape Howe and along the coastline from Kurnell to Myall Lakes.

- **Leaves** 1–6 cm long, 6–25 mm wide, ovate to spoon-shaped, margins with shallow round or saw-like teeth, fleshy, sessile.
- **Flowers** inflorescence a solitary compact head, occasionally in groups of up to 6, 12–14 bracts fused near the base, fleshy. Flowers yellow, comprising 8–16 ray florets and up to 70 disc florets (in central section of flower).
- **Flowering time** mainly November – March
- **Fruit** a dry cylindrical 1-seeded fruit 5–7 mm long, often curved, hairless, ribbed. Pappus of slender hairs assists in dispersal.
- **Status** SE

## *Stackhousia spathulata*

STACKHOUSIACEAE

dry sclerophyll forest heath maritime



HIGH

Perennial herb to 50 cm high, with hairless stems trailing or ascending. Found in heath and dry sclerophyll forest in coastal sandy regions, widespread in coastal districts.

- **Leaves** 15–30 mm long, 2.5–15 mm wide, thick, lanceolate to spoon-shaped, apex broadly rounded.
- **Flowers** inflorescence a dense cylindrical terminal spike. Bracts 3, triangular. Flowers nearly sessile, hypanthium 1–1.5 mm long. Sepals 1.2–2 mm long. Petals forming a tube 6–7 mm long, with lobes 4–5 mm long, white.
- **Flowering time** September – February
- **Fruit** a dry fruit splitting into 1–5 partitions, each 4–6 mm long with 3 prominent wings.
- **Status** not listed



Habit and flowers



Flowers

Glenn Leiper



Shane Ruming

Habit



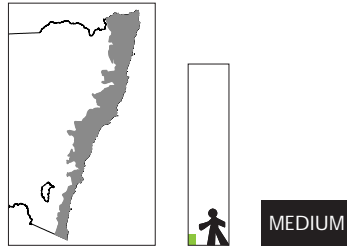
Jackie Miles

Leaves and flowers

## *Thesium australe*

austral toadflax  
SANTALACEAE

woodland grassland



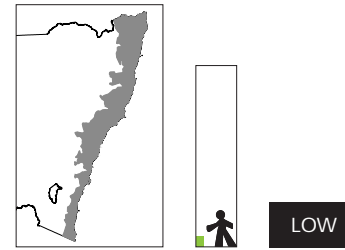
Straggling root-parasitic perennial herb to 40 cm high with striate, hairless stems, pale green to yellow-green in colour. Found in grassland or woodland, often in damp sites, in scattered populations in eastern New South Wales.

- **Leaves** mostly 1–4 cm long, 0.5–1.5 mm wide, linear, apex pointed, sessile, somewhat succulent, lowest leaves scale-like.
- **Flowers** solitary, axillary, tiny, enclosed by a leaf, on stalk 1–3 mm long. Tepals 1–1.5 mm long, oblong, white, finely keeled.
- **Flowering time** September – February
- **Fruit** a dry, more or less spherical nut-like drupe 2–2.5 mm in diameter with a network of veins or striate, crowned with persistent tepals.
- **Status** NV, SV, 3VCi+

## *Thysanotus juncifolius*

ANTHERICAEAE

dry sclerophyll forest heath  
freshwater wetland



Ascending or sprawling herb with flowering stems to 65 cm long, striate, and hairless in upper parts. Grows in sclerophyll forest and heath, often in swampy conditions, north to the Hastings River as well as in inland regions.

- **Leaves** 6–25 cm long, linear, basal, annual.
- **Flowers** inflorescence a terminal 1–5-flowered umbel enclosed with bracts, on stalk 6–11.5 mm long, elongating in fruit. Flowers mauve. Tepals in 2 rows, each 10–14 mm long. Outer tepals 1.5–2 mm wide, 5-veined. Inner tepals 4–9 mm wide including fringed margins.
- **Flowering time** September – March
- **Fruit** a capsule 4 mm in diameter, enclosed in persistent perianth. Seeds black.
- **Status** not listed
- **Notes** grows from a small rhizome and fibrous roots.



Tanja Lenz

Habit and flowers



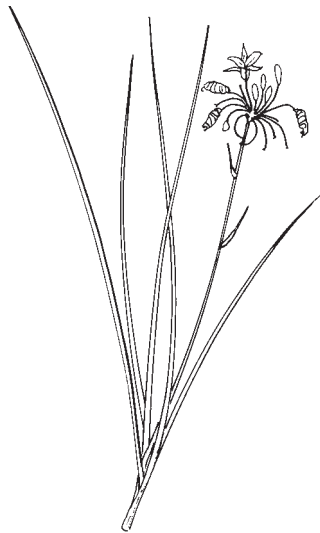
Jackie Miles

Flower



Jacqui Hickson

Flower



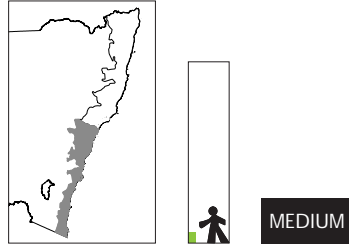
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Habit

## *Tricoryne simplex*

ANTHERICACEAE

wet sclerophyll forest heath



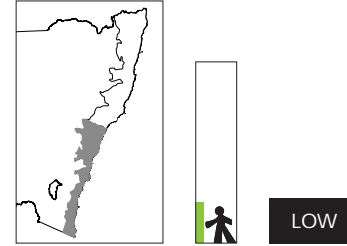
Weak perennial herb to 30 cm high. Found in sandstone-derived soils in heath and wet sclerophyll forest, from Nowra to Port Stephens.

- **Leaves** 6–25 cm long, 1–5 mm wide, linear, mostly basal, hairless or rough to the touch.
- **Flowers** inflorescence a terminal 6–25-flowered umbel, few-branched, solitary or 2–3 together. Bracts 3–5 mm long, 0.5–1.5 mm wide. Flowers yellow, on stalks 5–15 mm long. Tepals in 2 rows. Outer tepals 5–9 mm long, 1.2–2.2 mm wide, 3-veined; inner tepals 6–9 mm long, 2–3 mm wide, 3–4-veined.
- **Flowering time** August – December
- **Fruit** a dry fruit splitting into 1–3 1-seeded partitions (mericarps), each 3.5–4 mm long, 2 mm in diameter.
- **Status** not listed

## *Typhonium eliosurum*

ARACEAE

rainforest



Erect perennial herb, deciduous and with a tuberous rhizome. Growing in sheltered places on rainforest margins and along creek banks, from Nowra to Wuyong.

- **Leaves** juvenile leaves simple; adult leaves lobed, to 22 cm long, hastate, shiny to dull green, deeply 3-lobed to more or less triangular, lobes 1–12 cm long. Petiole to 30 cm long.
- **Flowers** inflorescence a succulent spike, surrounded by a large greenish-purple bract 12 cm long, segregated into an upper male zone and lower female zone with a sterile zone in between, terminating in a conspicuous sterile appendix, slender, deep purple-black, smelling of faeces.
- **Flowering time** October – January
- **Fruit** a reddish berry 1 cm in diameter, 1-seeded. Fruits usually protected by the persistent bract base.
- **Status** 3RC–

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Habit and developing aggregate fruit© Wollongong Botanic Garden 2008  
Leaves



Glenn Leiper

Habit including leaves and flowers



Glenn Leiper

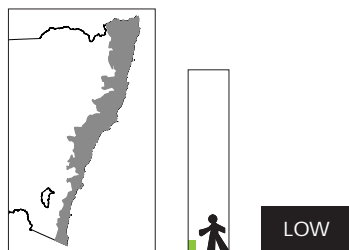
Flowers

## *Viola betonicifolia*

native violet

VIOLACEAE

dry sclerophyll forest woodland



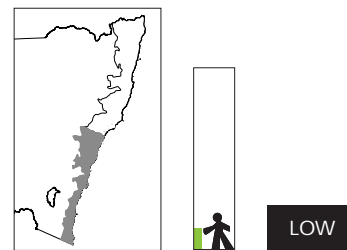
Perennial herb 5–40 cm high, with short erect stems and crowded basal leaves. Found in woodland and open forest, often in shaded, damp situations, throughout coastal New South Wales as well as in inland situations.

- **Leaves** 1–6 cm long, 5–25 mm wide, oblong to lanceolate, margins entire or shallowly toothed, base wedge- or spear-shaped, sometimes shallowly heart-shaped, petioles 1.5–8 cm long; stipules linear, entire or with narrow lobes, fused to the petiole.
- **Flowers** solitary, arising from axillary stalks to 20 cm long. Sepals 3–6 mm long. Petals 9–15 mm long, violet to more or less white, yellow at base.
- **Flowering time** December – February
- **Fruit** an oval capsule 7–13 mm long, apex pointed.
- **Status** not listed

## *Wahlenbergia littorica*

CAMPANULACEAE

dry sclerophyll forest woodland heath  
grassland



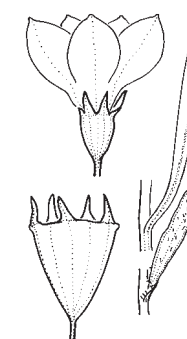
Perennial tufted herb 10–80 cm high, branching below the inflorescence, usually more or less hairless. Grows in forest, woodland, grassland and heath, mainly north to the Hunter River.

- **Leaves** 4–60 mm long, 1–4 mm wide, alternate or sometimes opposite (lowermost), linear or occasionally narrow-lanceolate, margins flat or undulate, hairless, apex pointed.
- **Flowers** inflorescence a terminal cyme. Sepals 2–4 mm long. Petals forming a tube 2–3 mm long, lobes 5–9 mm long, blue.
- **Flowering time** throughout the year
- **Fruit** a conical hairless capsule 3–8 mm long, with persistent sepals.
- **Status** not listed

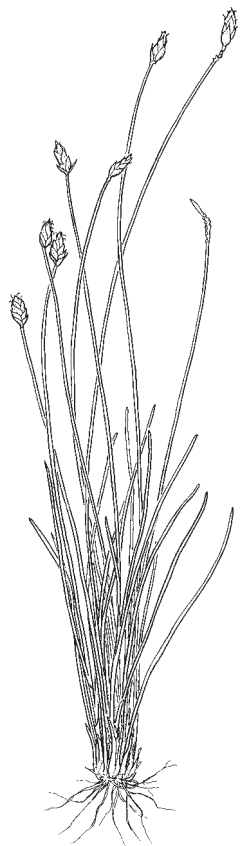
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Habit



Flower, fruit (capsule) and leaves



Habit



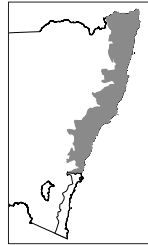
Seed-head

© BGT 2008

**Abildgaardia ovata**

CYPERACEAE

maritime



MEDIUM

Small tufted sedge to 60 cm high, perennial with very short rhizome and short narrow leaves. Grows mainly on headlands on clayey soils, north from Austinmer.

- **Leaves** 2 cm or more long, to 1 mm wide, shorter than the inflorescence, basal and hairless. Ligule absent.
- **Flowers** inflorescence a single terminal spikelet, rarely with 1–2 additional spikelets on 2 cm long branches. Spikelets compressed and oval-shaped, 6–15 mm long, 3–6 mm in diameter. Inflorescence stem rough to the touch and more or less cylindrical, 6–40 cm high (rarely to 60 cm). Glumes whitish to straw-coloured.
- **Flowering time** September – February
- **Fruit** a pale straw to grey-brown nut 2–3 mm long, 1.2–2 mm in diameter, sessile and triangular in cross section.
- **Status** not listed

**Abildgaardia vaginata**

CYPERACEAE

woodland



LOW

Small tufted sedge to 40 cm high, perennial with very short rhizome and leaves reduced to loose sheaths. Grows in woodland near creeks, on sandy soil, north from Brunswick Heads

- **Leaves** reduced to loose sheaths clatching stems of the inflorescence, hairless, basal and white or translucent at the base. Ligule absent.
- **Flowers** inflorescence a terminal and sessile spikelet with 1–5 additional spikelets on 2 cm long branches. Spikelets compressed and oval-shaped, 8–18 mm long and 2–3 mm in diameter. Inflorescence stem smooth and thread-like, 3–40 cm long. Glumes pale red-brown in colour.
- **Flowering time** September – February
- **Fruit** a pale brown to dark grey-brown nut 1.5 mm long, 1 mm in diameter, roughly egg-shaped, and triangular in cross section.
- **Status** not listed

© BGT 2008



Habit

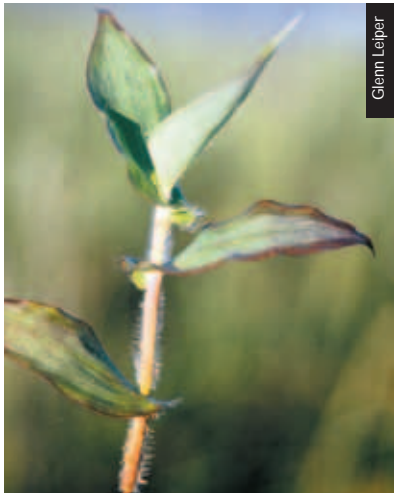


Seed-head



Glenn Leiper

Leaves and flowers



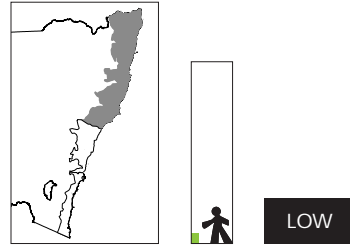
Glenn Leiper

Leaves

## *Arthraxon hispidus*

POACEAE

rainforest wet sclerophyll forest



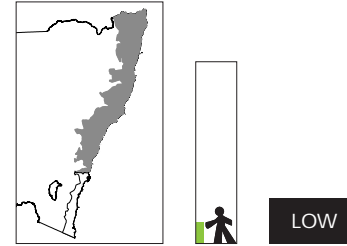
Slender perennial grass spreading horizontally with ends growing upwards, hairy stems, and rooting at the lower nodes. Grows in rainforest and wet sclerophyll forest, north from the Gibraltar Range near Grafton.

- **Leaves** 2–6 cm long, 7–15 mm wide with sheaths usually 1–3 cm long, covered in bristly hairs and slightly inflated. Leaf margins hairy near stem; ligule short, membranous and torn or slightly hairy. Leaf bases heart-shaped.
- **Flowers** inflorescence 2–5 racemes on long slender stalks. Spikelets 4–5 mm long, solitary and greenish to purple. Pedicel of the reduced pedicellate spikelet present and reduced or absent. Upper bract that encloses the flowers of fertile spikelets awned from low down on the back; awn to 9 mm long, bent and twisted.
- **Flowering time** December – May
- **Fruit** unknown
- **Status** NV, SV, 3VC+

## *Carex brownii*

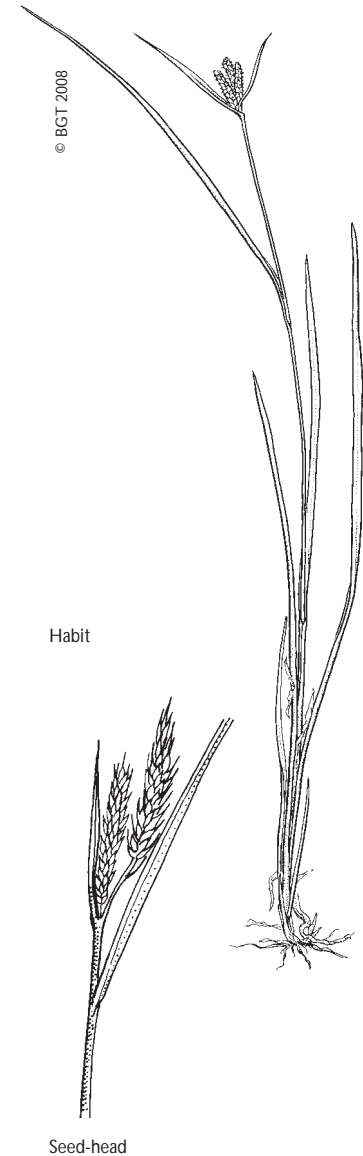
CYPERACEAE

freshwater wetland



Perennial sedge 20–100 cm high with loosely tufted shoots and long rhizomes. Grows in moist habitats such as stream banks, occasionally on the coast. Disjunct populations occur at Sydney, north of Newcastle and coastal northern New South Wales.

- **Leaves** 4–6 mm wide, shorter than inflorescence stem. Sheath pale to dark brown, ligule blunt or broadly rounded.
- **Flowers** inflorescence erect, 2–20 cm long on stems 20–100 cm high emerging above leaves, consisting of 3–4 spikes at nodes, the lowest spike often distant from the rest. Lowest leaf-like bract exceeding the inflorescence in length. Spikes 1–2.5 cm long, erect at maturity and sessile. Glumes pointed to truncate in shape with a sharp apical point as long as or exceeding the glume, whitish with a green midrib.
- **Flowering time** September – February
- **Fruit** an oval yellow-brown nut, broadest about the middle, triangular in cross section.
- **Status** not listed



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Habit

Seed-head



## *Cyperus scaber*

CYPERACEAE

heath dune/field



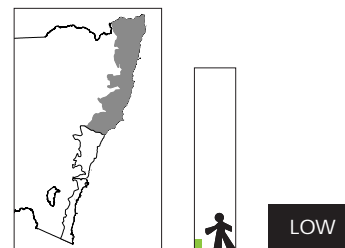
Tufted perennial sedge 30–70 cm high with a short thick rhizome. Flowering stems triangular in cross section, rough to touch and swollen at the base. Inhabits heath on coastal dunes, north from Tweed Heads.

- **Leaves** 4–8 mm wide, shorter than flowering stems, containing numerous small transverse cross-walls that are clearly visible when dried.
- **Flowers** inflorescence simple to compound with 4–10 branches to 20 cm long. Spikes to 2 cm long, 2 cm in diameter, cylindrical to egg-shaped. 3–6 bracts surround the inflorescence, whorled, longer than the inflorescence. Spikelets 3–10 mm long, 0.7 mm in diameter, cylindrical and elongated, numerous per spike, 1–4-flowered.
- **Flowering time** September – February
- **Fruit** a dark red-brown nut 2 mm long, 0.5–0.7 mm in diameter, oval-shaped and broadest about the middle, triangular in cross section.
- **Status** not listed

## *Cyperus stradbrokensis*

CYPERACEAE

rainforest heath



Small tufted perennial sedge 30–45 cm high with a short rhizome. Flowering stems triangular in cross section and smooth, often with fibrous remains of leaf sheaths. Grows in littoral rainforest and heath on sandy soil, north from Hat Head.

- **Leaves** 1–2 mm wide, shorter than flowering stems, not containing numerous small transverse cross-walls.
- **Flowers** inflorescence head-like or simple with up to 4 branches to 4 cm long, clusters digitate, to 15 mm in diameter. Leaf-like bracts surrounding the inflorescence are 2–4 times as long as the inflorescence. Spikelets 5 mm long, 2 mm wide, flattened, 4–20 per cluster and 9–13-flowered. Glumes 1–1.3 mm long and about as long as broad.
- **Flowering time** September – February
- **Fruit** a dark brown to blackish nut 0.8 mm long, 0.7 mm in diameter, oval-shaped and broadest about or above the middle, triangular in cross section.
- **Status** not listed



Seed-head

Lachlan Copeland



**Cyperus subulatus**pointed flat-sedge  
CYPERACEAE

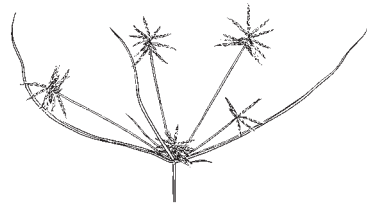
woodland dunefield



LOW



Habit



Seed-head

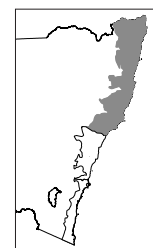
Perennial sedge to 50 cm high, with a very short rhizome. Flowering stems smooth, triangular in cross section and slightly swollen at the base. Grows on coastal dunes, occasionally in woodland, north from Coffs Harbour.

- **Leaves** 1–2 mm wide, often as long as inflorescence stem, not containing numerous small transverse cross-walls.
- **Flowers** inflorescence simple with 3–5 branches to 8 cm long. Clusters spike-like to digitate, to 1 cm long and 5 cm in diameter. Leaf-like bracts surround and are 2 times longer than the inflorescence. Spikelets 8–30 mm long, 1–1.5 mm wide, almost flattened, 6–20 per spike and 5–16-flowered. Glumes 2.5–3.5 mm long, red-brown or greenish tinged red-brown.
- **Flowering time** September – February
- **Fruit** a yellow brown to blackish nut 1.2–1.7 mm long, 0.5–0.7 mm in diameter, narrow-ovate and broadest above or about the middle, triangular in cross section.
- **Status** not listed

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**Elyonurus citreus**lemon-scented grass  
POACEAE

heath dunefield



MEDIUM

Habit  
(peduncle bent in illustration)

Seed-head

Tufted perennial grass to 1 m high, growing in sandy soils near rivers or along the coast in heath or sand dunes, north from Grafton.

- **Leaves** 2–3 mm wide, leaf blade rolled inwards, often hairy on the upper surface, sheath hairless, ligule a rim of hairs <1 mm long. Exude a distinct lemon smell when crushed.
- **Flowers** inflorescence a solitary raceme 3–12 cm long. Spikelets 10–12 mm long, overlapping in 2 rows. Lower glume as long as the spikelet, hairless or hairy on the back; margins with a fringe of hairs; 9-veined with 2 teeth or awns 10 mm long (as long as or longer than the basal part of the glume). Upper glume 3-veined, awnless, 50–70% the length of the lower glume..
- **Flowering time** December – February
- **Fruit** unknown
- **Status** SE

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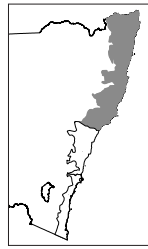


Glenn Leiper

## *Fimbristylis polytrichoides*

CYPERACEAE

saline wetland



LOW

Habit

Small, densely tufted perennial sedge to 30 cm high. Growing in coastal saltmarsh, north from Port Stephens.

- **Leaves** to 1 mm wide, half as long to equal in length with the flowering stems, hairless except for the ligule which has a row of short hairs.
- **Flowers** inflorescence a single terminal or pseudolateral spikelet, rarely with 1–2 extra spikelets on branches to 2 cm long, atop stems 5–30 cm high. Leaf-like bract surrounding inflorescence appearing glume-like or with an erect blade as long as or slightly exceeding the inflorescence. Spikelet 5–15 mm long, 2–3 mm in diameter, erect, egg-shaped or oblong. Glume 2.5–3 mm long and pale red-brown.
- **Flowering time** September – February
- **Fruit** a biconvex greyish or blackish-brown nut 0.9–1.1 mm long, 0.5–0.7 mm in diameter, egg-shaped and attached at the narrower end, surface smooth or minutely warty and nodular.
- **Status** not listed



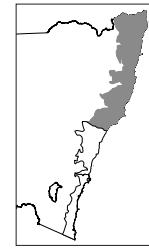
© BGT 2008

Seed-head

## *Ischaemum triticeum*

POACEAE

dunefield



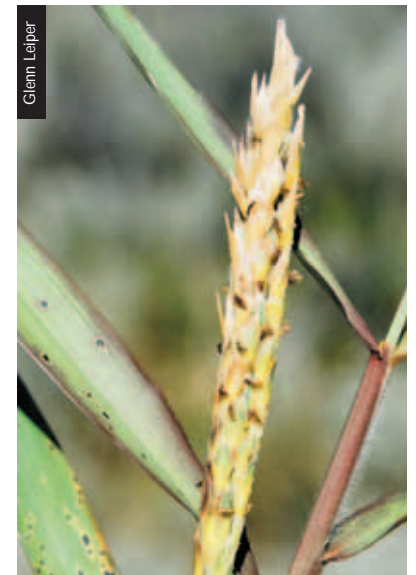
HIGH

Trailing perennial grass spreading horizontally with stems to 2 m long. Stems are stout and hairless with the ends growing upwards, rooting and branching at the nodes. Grows on coastal sand dunes, north from Laurieton.

- **Leaves** 6–12 mm wide, usually hairless, sheath occasionally with hairs. Ligule 1–3 mm long, usually hairy.
- **Flowers** inflorescence 2–3 racemes, 6–12 cm long. Inflorescence stem stout, trailing, nodes hairless. Spikelets 6–10 mm long, paired, one with and one without a stalk. Stalks flattened and hairy on the edges, stalked spikelet somewhat narrower. Glumes smooth, hairless, 7–9-veined, keeled. Uppermost bract as long as the lower.
- **Flowering time** December – February
- **Fruit** unknown
- **Status** not listed



Flowers and leaves



Flowers

Glenn Leiper

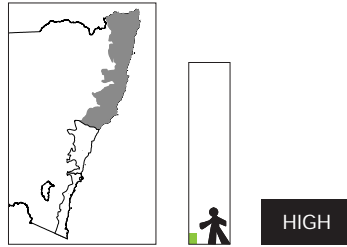


© CPBR: Andrew Whiting

## *Lepturus repens*

POACEAE

maritime dune/field



Prostrate spreading perennial grass to 50 cm high with long trailing stems, rooting at the nodes. Grows on sandy soils or on exposed rock ledges along the coast, north from Port Macquarie, and Lord Howe Island.

- **Leaves** 2–6 mm wide, linear, dull blue-green, margins and sheaths rough to the touch, sheaths sometimes with a few scattered fine hairs. Ligule 0.5 mm long, membranous and fringed with hairs.
- **Flowers** inflorescence a cylindrical spike 3.5–7 cm long, 3 mm wide. Spikelets 5–7 mm long, embedded in the axis. Glumes leathery, pointed. Lower glume absent except on the terminal spikelet, upper glume longer than the spikelet, 7-veined.
- **Flowering time** unknown, but includes September – December
- **Fruit** unknown
- **Status** not listed

Habit



Seed-head

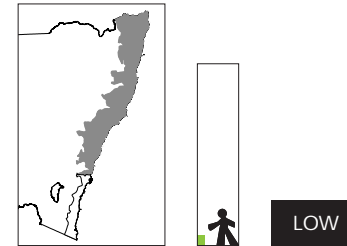
Deb Stevenson  
© Coast and Wetlands Society

## *Lipocarpa microcephala*

button rush

CYPERACEAE

freshwater wetland



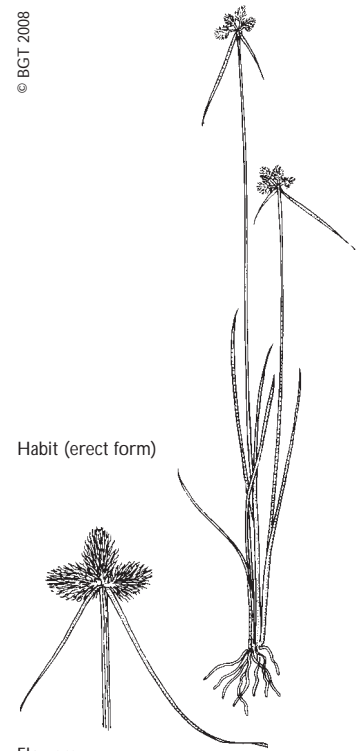
Slender prostrate or erect annual to 35 cm high, occurring in open damp places such as sandy stream banks, widespread with scattered populations.

- **Leaves** 1–2 mm wide, linear, elongated, shorter than flowering stems, basal, ligule absent.
- **Flowers** inflorescence 1–4 spikes, each 2–8 mm long, 2–4 mm in diameter, egg-shaped. 2–3 leaf-like bracts surround the inflorescence, to 12 cm long. Inflorescence stem 2–35 cm high, <1 mm in diameter, hairless. Spikelet bract 1–1.7 mm long, oblong or nearly so, up to 2 veins on sides, apex with a sharp point, pale brown often tinged red-brown.
- **Flowering time** September – February
- **Fruit** a pale brown nut 0.7–1 mm long, 0.2 mm in diameter, very narrow-oval-shaped but broadest about the middle.
- **Status** not listed



Habit (prostrate form)

© BGT 2008



Habit (erect form)

Flowers



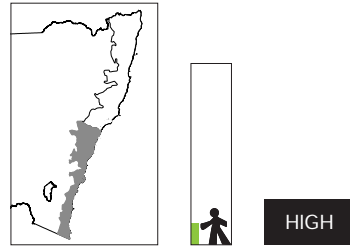
Habit

Marion Winkler

## *Poa poiformis*

coastal poa  
POACEAE

maritime dunefield



Densely tufted erect perennial grass to 1 m high. Found along ocean foreshores and estuaries and occasionally on coastal sand dunes and cliffs, north to Port Stephens, and Lord Howe Island.

- **Leaves** 0.25–1.5 mm wide, narrow and linear, usually strongly rolled with margins overlapping or cylindrical. Sheath usually smooth; ligule 0.25–1.25 mm long, truncate.
- **Flowers** inflorescence a panicle 8–30 cm long. Spikelets 2–7-flowered, 6–10 mm long, compressed. Glumes 3–5 mm long, pointed or gradually tapering to a point, lower 1–3-veined, upper 3-veined. Lowermost bract enclosing the flower, 3–6 mm long, pointed to truncate, 4–7-veined.
- **Flowering time** throughout the year
- **Fruit** a dry 1-seeded fruit.
- **Status** not listed



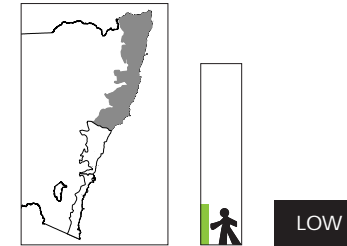
Seed-head

Marion Winkler

## *Acrostichum speciosum*

mangrove fern  
PTERIDACEAE

freshwater wetland saline wetland



An erect clump-forming fern growing in brackish swamps, often on the landward side of mangroves, north from Iluka.

- **Fronde**s up to 2 m long, erect and pointing upwards, divided into 2 rows of leaflets. Leaflets 6–10 cm long, 2–4 cm wide, narrowing towards tips, dull green and leathery.
- **Rhizomes** erect, stout and covered with large, broad, entire scales.
- **Sori** sporangia cover the lower surface of the terminal leaflets. Other leaflets are sterile and longer in length.
- **Status** not listed



Habit

Glenn Leiper



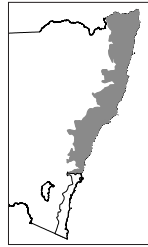
Habit and fronds

Paul Downey

## *Asplenium difforme*

ASPLENIACEAE

maritime



MEDIUM

Terrestrial fern with semi-erect or spreading fronds. Grows in crevices on rocky headlands, either fully exposed or in the shelter of vegetation. Occurs north from La Perouse, Sydney.

- **Fronds** to 45 cm long, almost erect, pinnate or bipinnate, without a distinct leaflet at the apex. Leaflets 1.5–8 cm long, thick to almost succulent, pale green, secondary leaflet divisions never free and stalked. Frond and leaflet stems thick, bearing scattered, short scales and pale green upper surface.
- **Rhizome** erect, stout and covered with red-brown to dark brown scales about 15 mm long and more than 1 mm wide.
- **Sori** sporangia in discrete aggregates, mostly 2–8 mm long, several per leaflet.
- **Status** not listed

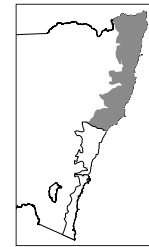


Habit

Paul Downey

## *Gleichenia mendellii*

GLEICHENIACEAE

dry sclerophyll forest heath  
freshwater wetland

HIGH

Coral fern with 1–3 tiers of branching fronds, growing in swamps, heath, open forest and along creek banks of coastal lowlands, north from Minnie Water.

- **Fronds** to 1 m long, forked several times with leaflets to 3 cm long, dark green. Ultimate (smallest) segments of mature fronds 1–1.5 mm long and wide, flat or slightly recurved. Lower surface of lateral stems have matted star-shaped hairs.
- **Rhizome** 2–2.5 mm in diameter, long and slender, dark and wiry, creeping.
- **Sori** aggregates of sporangia solitary at the base of the segment, each consisting of 2–4 sporangia clusters.
- **Status** not listed
- **Notes** could be confused with *Gleichenia microphylla*, which generally has longer fronds (to 2 m long).



Habit

Glenn Leiper



Glenn Leiper

Habit including fronds



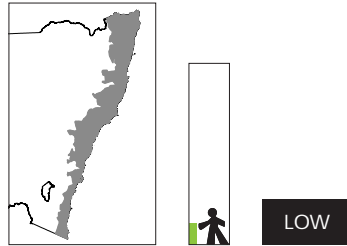
Glenn Leiper

Fronds

## *Gleichenia rupestris*

GLEICHENIACEAE

rainforest dry sclerophyll forest



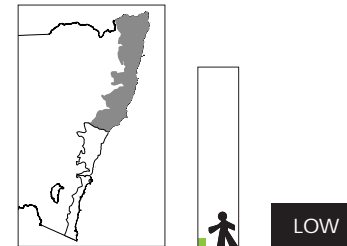
Scrambling coral fern with hairless stems and 1–3 tiers of fronds, the lower tier often branching. Found near cliffs and in crevices in open forest or on rainforest margins, along the coast.

- **Fronds** 9–200 cm long, forked once to several times. Leaflets to 4 cm long, green. Ultimate (smallest) segments of mature fronds 2–4 mm long, flat or only slightly recurved. Lower surface of lateral stems are hairless or nearly so.
- **Rhizome** 1–2.5 mm in diameter, long and slender, dark and wiry, creeping, with stiff red-brown spreading hairs initially.
- **Sori** aggregates of sporangia solitary at the base of the segment, each consisting of 3–4 sporangia clusters.
- **Status** not listed

## *Lindsaea fraseri*

Fraser's screw fern

LINDSAEACEAE

dry sclerophyll forest heath  
freshwater wetland

Slender ground fern with a creeping rhizome from which new fronds arise at intervals. Found in swamp forest, open eucalypt forest and coastal heathland, in far north coastal areas.

- **Fronds** pinnate, 10–60 cm long, 1.5–3.5 cm wide, narrow-lanceolate, yellowish-green, slender, not tufted, on straw-coloured stalks shorter than the frond length. Sterile fronds with leaflets 1.2–2 cm long (the upper ones shorter), 5–15 mm wide, lanceolate to ovate, with shallow, rounded teeth. Fertile fronds with leaflets slightly narrower and with more or less entire margins.
- **Rhizome** 1–2 mm in diameter, long-creeping, covered with narrow golden-brown scales to 2 mm long.
- **Sori** sporangia more or less continuous around the leaflet margin.
- **Status** SE



Robert Hill

Habit



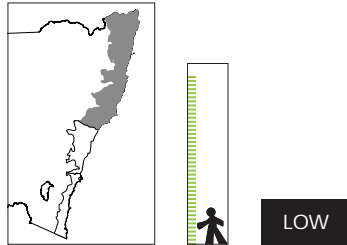
Habit

### *Lygodium microphyllum*

climbing snake fern

SCHIZAEACEAE

rainforest   dry sclerophyll forest  
freshwater wetland



Climbing fern with long climbing fronds to several metres in length. Grows in rainforest, swamp forest and open forest, north from Iluka.

- **Fronds** with axis 2–3 m long, slender and hairless, primary branches approximately 4 mm long, secondary branches to 15 cm long, with 4–11 alternate stalked leaflets. Sterile leaflets 2–5 cm long, 1–2 cm wide, ovate to triangular; margins with minute shallow, rounded teeth, and sometimes undulate. Fertile leaflets to 1.5 cm long and 1.2 cm wide.
- **Rhizome** long and creeping, densely covered with short, dark brown hairs.
- **Sori** sporangia on the margin, oblong to egg-shaped on a short stalk, spore-bearing segments mostly 1–4 mm long.
- **Status** not listed

## THREATENED PLANT POPULATION DESCRIPTIONS





Flowers and immature fruit (pods)



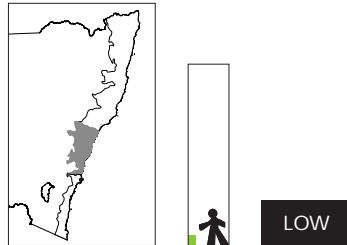
Habitat

## *Chorizema parviflorum* (Wollongong/Shellharbour)

eastern flame pea

FABACEAE

dry sclerophyll forest woodland maritime



A disjunct and threatened population of this species occurring between Albion Park and Austinmer. Erect or ascending, more or less hairless shrubs to 50 cm high with angular striate branches. Occur in woodland or forest dominated by *Eucalyptus tereticornis* and/or *E. longifolia*.

- **Leaves** often variable in size and shape, 1–4 cm long, 1–4 mm wide, linear to narrow-ovate, alternate, margins recurved, apex broadly rounded or with a shallow notch, sharply pointed, with a conspicuous midrib.
- **Flowers** inflorescence a slender terminal raceme. Bracts and bracteoles narrow-lanceolate. Sepals 2–3 mm long, forming a tube, sparsely pubescent, lobes shorter than tube. Petals 4–7 mm long, yellow with a reddish centre.
- **Flowering time** August – January
- **Fruit** a pod 5–7 mm long, broadly and asymmetrically egg-shaped or oblong. Seeds shiny, without an expanded funicle.
- **Status** SE

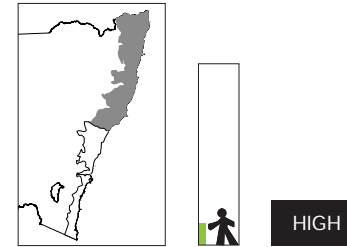
- **Notes** this population is disjunct from other populations in western and south-western Sydney, and from two isolated occurrences on the south coast, as well as the bulk of the distribution further north.

## *Zieria smithii* (low growing form)

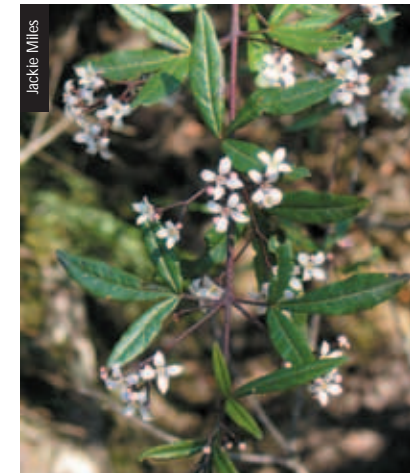
Diggers Head Zieria

RUTACEAE

heath maritime



Leaves



Flowers and leaves

A sprawling prostrate shrub to 1 m high and 2 m wide with smooth branches and young parts covered with fine hairs. Found only in low heath with *Themeda australis* from near Coffs Harbour.

- **Leaves** compound, consisting of 3 leaflets. Central leaflet 25–50 mm long, 10–14 mm wide, oblong-lanceolate, margins entire, discolorous, dotted with oil glands on both sides, apex broadly rounded. Lateral leaves similar though shorter in length, petiole 10–13 mm long.
- **Flowers** inflorescence a 7–60-flowered cyme, axillary, shorter than leaves. Sepals basally fused, with triangular lobes 1–1.5 mm long. Petals 4, 2–4 mm long, pubescent, pink.
- **Flowering time** March – May and September – November
- **Fruit** a green, dry, hairless capsule, egg-shaped, 4-chambered, separating into segments that forcibly release a single black seed upon maturity.
- **Status** SE
- **Notes** varies from the typical upright form of *Z. smithii* by its low growing habit, a lack of warts on branches, dense fine hairs on young parts, and the broadly rounded leaf apices. A recent survey of headland communities found several new locations of this form.





Habit

© CPBR: Helen Hadobas



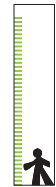
Leaves, fruit (pods) and stems

© CPBR: Helen Hadobas

## *Glycine clandestina* (broad leaf form)

FABACEAE

maritime grassland



HIGH

A wiry, twining climber with stems 0.3–2 m in length and with white, grey or dark rusty, soft hairs. Plants that form this threatened population have broad leaves. Found only in coastal grassland at Scotts Head.

- **Leaves** compound, consisting of 3 leaflets. Leaflets 1–8 cm long, broad-elliptic, lower surface densely covered in white hairs, petiole to 4 cm long.
- **Flowers** inflorescence a 4–18-flowered raceme 1–21 cm long. Sepals form a tube, finely pubescent or covered with rigid bristly hairs, with 3 lower teeth. Standard (petal) 5–9 mm long, mauve, blue or pink in colour.
- **Flowering time** throughout the year, peak September – November
- **Fruit** a sparsely hairy to hairy pod 12–53 mm long, 2.5–4 mm wide, without purple flecks. Seeds 4–12.
- **Status** SE

▪ **Notes** varies from the more common form of *Glycine clandestina* by its broad elliptical leaflets which have a dense cover of white hairs on the lower surface. Additional populations of this form have also been documented in the Sutherland Shire.

## ECOLOGICAL COMMUNITY DESCRIPTIONS



## Dry Rainforest (of the South East Forests in the South East Corner bioregion)



Jackie Miles



Jackie Miles

rainforest



LOW

A rainforest community with a dense canopy to 10 m high and dominated by *Ficus rubiginosa*. Commonly associated with extensive outcropping of granites on steep north-facing slopes. A naturally restricted and fragmented community occurring as small patches, mostly less than 10 hectares in extent. Found between Towamba and Cobargo.

▪ **Characteristic species** the canopy is dominated by *F. rubiginosa* with occasional *Pittosporum undulatum* and *Brachybiton populneus* and scattered emergent *Eucalyptus bosistoana* and *E. tereticornis*. Other species include *Alectryon subcinereus*, *Asplenium flabellifolium*, *Celastrus australis*, *Clematis glycinoides*, *Deeringia amaranthoides*, *Dendrocnide excelsa*, *Dichondra repens*, *E. polyanthemos* var.

*vestita*, *E. sieberi*, *Geitonoplesium cymosum*, *Lomandra longifolia*, *Meliclytus dentata*, *Notelaea venosa*, *Oplismenus imbecillis*, *Pellaea falcata* var. *falcata*, *Plectranthus graveolens*, *Poa meionectes*, *Pteridium esculentum*, *Sigesbeckia orientalis*, *Solanum aviculare* and *Urtica incisa*.

▪ **Distinguishing features** its occurrence on steep, north-facing granite outcrops in the Bega area and the dominance of *F. rubiginosa* in the canopy. Disjunct from littoral rainforest communities in the area due to its preference for granite outcrops situated further inland.

▪ **Status** SEEC

## Littoral Rainforest

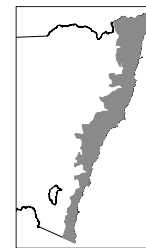


Shane Ruming



Shane Ruming

rainforest maritime



HIGH

A closed forest community often present as dense, wind-sheared thickets (in the most exposed situations). Several species have compound leaves and vines may be a major component of the canopy. The structure and composition is strongly influenced by proximity to the sea. Found on a variety of substrates, mostly within two kilometres of the sea or occasionally further inland in areas subject to a prevailing maritime influence. Occurs in numerous, small and fragmented stands north from Bega.

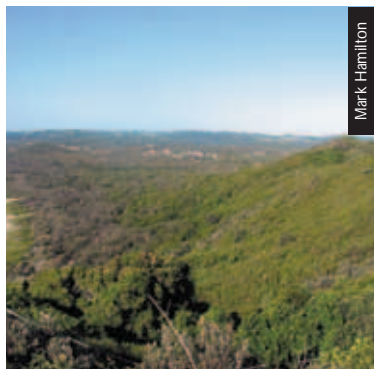
▪ **Characteristic species** a large and diverse array of predominantly rainforest species that include *Acmena hemilampra*, *A. smithii*, *Cupaniopsis anacardioides*, *Drypetes* spp., *Elaeodendron* spp., *Ficus* spp., *Livistona australis*,

*Lophostemon confertus*, *Podocarpus* spp., *Sarcomelicope simplicifolia* subsp. *simplicifolia*, *Syzygium leuhmannii*, *Myrsine howittiana* and *Pittosporum undulatum*. Some stands contain emergent individuals of sclerophyll species such as *Angophora costata*, *Banksia integrifolia*, *Eucalyptus botryoides* and *E. tereticornis*. See NSW Scientific Committee's determinations for more details.

▪ **Distinguishing features** the floristic definition of the community varies from north to south, with littoral rainforest on the south coast having very few species diagnostic of the community. This makes it difficult to reliably distinguish from other rainforest communities. The key distinguishing feature is the high extent to which maritime influences (e.g. nutrient loads in salt spray and protection from fire and climatic extremes) govern the community's presence at a particular site.

▪ **Status** SEEC, SEPP 26

## Coastal Scrub (*Drypetes deplanchei*/*Elaeodendron australe*)



Mark Hamilton



Mark Hamilton

rainforest



MEDIUM

A low to medium height closed forest community dominated by *Drypetes deplanchei* and *Elaeodendron australe*. Often representing a modified littoral rainforest-type community, typically in exposed locations. Characterised by plant species with small and narrow leaves (microphyll) or leaves 7.5–12.5 cm long (notophyll). Found primarily on sedimentary substrates, mostly on steep hillslopes that face east to south-east, north from Dungog.

▪ **Characteristic species** include dominants *D. deplanchei*, *E. australe*, *Podocarpus elatus* and *Sarcomelicope simplicifolia* subsp. *simplicifolia*. Other minor species may include *Arthropteris tenella*, *Baloghia inophylla*, *Cissus antarctica*, *Doodia aspera*, *Dysoxylum fraserianum*, *Euroschinus falcatus* var. *falcatus*, *Ficus watkinsiana*, *Gossia bidwillii*, *Heritiera actinophylla*, *Olea paniculata*, *Pellaea falcata*, *Platynerium bifurcatum* and *Smilax australis*.

▪ **Distinguishing features** similar to Littoral Rainforest but distinguishable by the impoverished species composition and the lower canopy height, such that the community is often present as a dense wind-sheared thicket that may be more structured than the Littoral Rainforest community.

▪ **Status** not listed

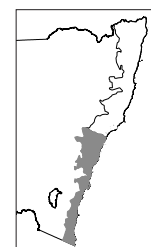
## Bangalay Sand Forest (of the Sydney Basin and South East Corner bioregions)



Jackie Milles



Nick Skelton

dry sclerophyll forest  
maritime

MEDIUM

A relatively dense or open canopy forest, 5–20 m high with an open understorey of mesophyllous or sclerophyllous small trees and shrubs, and a variable groundcover dominated by sedges, grasses or ferns. Found on deep, freely draining to damp sandy soils of marine or wind-blown origin. Occurs on moderately sloped coastal sand plains, from Bega to Sydney.

▪ **Characteristic species** trees include the dominant *Eucalyptus botryooides* and others such as *Acmena smithii*, *Banksia integrifolia* subsp. *integrifolia*, *Casuarina glauca*, and *Eucalyptus pilularis*. Shrubs include *Banksia serrata*, *Bremia oblongifolia*, *Leptospermum laevigatum*, *Monotoca elliptica*, and *Pittosporum undulatum*. Groundcover species include *Desmodium gunnii*, *Dianella* spp., *Dichondra repens*, *Glycine clandestina*, *Hardenbergia violacea*, *Imperata cylindrica*, *Kennedia rubicunda*, *Lepidosperma concavum*, *Lomandra longifolia*, *Marsdenia rostrata*, *Microlaena stipoides* var. *stipoides*, *Pratia purpurascens*, *Pteridium esculentum*, *Stephania japonica* var. *discolor*, *Themeda australis* and *Viola beederacea*. See NSW Scientific Committee's determinations for more details.

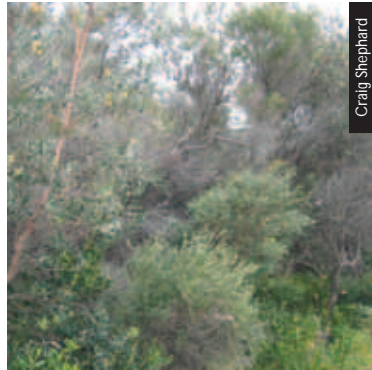
▪ **Distinguishing features** in Sydney this community co-occurs with Kurnell Dune Forest (KDF), where it occupies foredunes and hinddunes, and lacks many of the characteristic species of KDF (see page 168 for more information). While north of Sydney the Umina Coastal Sandplain Woodland EEC occupies a similar habitat, but includes a greater diversity of mesophyllous understorey species.

▪ **Status** SEEC

### Kurnell Dune Forest (in the Sutherland Shire and City of Rockdale)



Craig Shephard



Craig Shephard

dry sclerophyll forest  
dunefield

A low open sclerophyll forest community with a distinctive moist forest component. Occurs on coastal dunes and is often found in association with areas of sclerophyll heath and scrub. Highly restricted in distribution, confined to the eastern suburbs of Sydney from Bundeena to Rockdale.



HIGH

▪ **Characteristic species** composed of sclerophyllous and mesophyllous species that include *Angophora costata*, *Banksia ericifolia*, *B. serrata*, *Breynia oblongifolia*, *Cissus antarctica*, *C. hypoglauca*, *Clerodendrum tomentosum*, *Cupaniopsis anacardioides*, *Elaeocarpus reticulatus*, *Endiandra sieberi*, *Eucalyptus botryoides*, *E. robusta*, *Glochidion ferdinandi*, *Leptospermum laevigatum*, *Maclura cochinchinensis*, *Monotoca elliptica*, *Notelaea longifolia*, *Rapanea variabilis*, and *Stephania japonica* var. *discolor*.

See NSW Scientific Committee's determinations for more details.

▪ **Distinguishing features** can be distinguished from Eastern Suburbs Banksia Scrub (ESBS) which also occurs in eastern Sydney in that it: (1) has a forest structure rather than a predominantly scrub structure; (2) has a considerable mesomorphic element in the flora, absent or less dominant in ESBS; and (3) occurs on younger sands (see page 179).

▪ **Status** SEEC

### Pittwater Spotted Gum Forest (and equivalent community at Wagstaff)



Mia Dalby-Ball



Mia Dalby-Ball

dry sclerophyll forest  
woodland

An open forest community characterised by the canopy dominant *Corymbia maculata* (spotted gum). Occurs on shale-derived soils with high rainfall on the Barrenjoey Peninsula, western Pittwater foreshores, and at Wagstaff (north of the Hawkesbury River).



LOW

▪ **Characteristic species** dominant canopy species include *C. maculata* and *Eucalyptus paniculata*, and associated trees *Angophora costata*, *A. floribunda*, *Corymbia gummifera*, *Eucalyptus botryoides*, *E. punctata*, *E. umbra* and *Syncarpia glomulifera*. Shrub and groundcover species include *Acacia floribunda*, *Billardiera scandens*, *Breynia oblongifolia*, *Dianella caerulea*, *Entolasia stricta*, *Eustrephus latifolius*, *Gymnostachys anceps*, *Hakea sericea*, *Lomandra longifolia*, *Macrozamia communis*, *Notelaea longifolia*, *Oxylobium*

*ilicifolium*, *Pandorea pandorana*, *Platylobium formosum*, *Pultenaea flexilis*, *Synoum glandulosum* and *Xanthorrhoea macronema*.

▪ **Distinguishing features** distinguished from adjacent communities on sandstone soils (part of the Hawkesbury Sandstone complex) by the shale-derived soils it occupies, its restricted distribution in the Pittwater area and the canopy dominance of *C. maculata*.

▪ **Status** SEEC

▪ **Notes** floristic composition and structural diversity are influenced strongly by remnant size, disturbance history and fire history. In some fragments *C. maculata* may exist as woodland dominant or as remnant trees.

### River-Flat Eucalypt Forest on Coastal Floodplains (of the NSW North Coast, Sydney Basin and South East Corner bioregions)

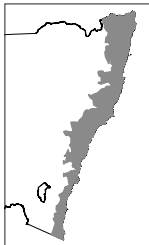


Lucas McKinnon



Lucas McKinnon

#### dry sclerophyll forest



LOW

A tall open forest to woodland community with a canopy that may exceed 40 m in height. Dominant trees include *Eucalyptus tereticornis*, *E. amplifolia*, *Angophora floribunda* and *A. subvelutina*. Found on soils rich in silt and loam. Occupying <30% of its original range. Occurs in central to upper parts of coastal floodplains on periodically inundated alluvial flats, drainage lines and river terraces north from Bega.

▪ **Characteristic species** *A. floribunda*, *A. subvelutina*, *Backhousia myrtifolia*, *Breynia oblongifolia*, *Bursaria spinosa*, *Casuarina cunninghamiana*, *C. glauca*, *Desmodium gunnii*, *Dichondra repens*, *Entolasia marginata*, *Eucalyptus amplifolia*, *E. baueriana*, *E. benthamii*, *E. botryoides*, *E. elata*, *E. grandis*, *E. ovata*, *E. saligna*, *E. tereticornis*,

*Glycine clandestina*, *Melaleuca decona*, *M. styphelioides*, *Melia azedarach*, *Melicytus dentata*, *Microlaena stipoides*, *Oplismenus aemulus*, *Oxalis perennans*, *Ozothamnus diosmifolius*, *Pratia purpurascens*, *Phyllanthus gunnii*, *Rubus parvifolius*, *Solanum prinophyllum* and *Veronica plebeia*. See NSW Scientific Committee's determinations for more details.

▪ **Distinguishing features** it occurs in association with five other EECs on coastal floodplains. The key indicators for this community are: (1) the dominance of *Eucalyptus* or *Angophora* species; (2) the relatively low abundance or dominance of *Casuarina* and *Melaleuca* species; (3) the relatively low abundance of *E. robusta*; and (4) the prominent groundcover of soft-leaved herbs and grasses.

▪ **Status** SEEC

### Swamp Oak Floodplain Forest (of the NSW North Coast, Sydney Basin and South East Corner bioregions)

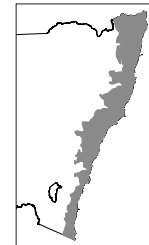


Shane Ruming



Shane Ruming

#### saline wetland



LOW

A community dominated by the trees *Casuarina glauca* and/or *Melaleuca ericifolia* that varies in structure from open forest to low woodland or scrub, or reedland with scattered trees. Found on humic clay and sandy loam soils with a saline influence. Occurs in close proximity to rivers and estuaries, in areas that include waterlogged or periodically inundated flats, drainage lines, lake margins and estuarine fringes, throughout coastal New South Wales.

▪ **Characteristic species** tree species include *Acmena smithii*, *C. glauca*, *Glochidion* spp., *M. ericifolia* and other *Melaleuca* spp. Understorey species include *Alexfloydia repens*, *Baumea juncea*, *Carex appressa*, *Centella asiatica*, *Commelina cyanea*, *Gabnia clarkei*, *Geitonoplesium cymosum*, *Hypolepis muelleri*,

*Juncus kraussii*, *Lomandra longifolia*, *Oplismenus imbecillis*, *Parsonia straminea*, *Persicaria decipiens*, *Phragmites australis*, *Selliera radicans*, *Stephania japonica* var. *discolor* and *Viola banksii*. See NSW Scientific Committee's determinations for more details.

▪ **Distinguishing features** it occurs in association with five other EECs on coastal floodplains. The following features are key indicators for this community: (1) it occurs on saline-influenced humic clay or sandy loam soils; (2) it is dominated by *C. glauca* and/or *M. ericifolia*; (3) the relatively low abundance of *Eucalyptus* species; and (4) the prominent grass and herb groundcover species.

▪ **Status** SEEC

## Swamp Sclerophyll Forest on Coastal Floodplains (of the NSW North Coast, Sydney Basin and South East Corner bioregions)

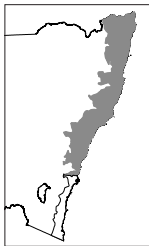


Nick Skelton



Shane Ruming

wet sclerophyll forest  
freshwater wetland



LOW

An open to closed forest community with a shrub- or reed/fern-dominated understorey and canopy to 25 m high that is typically dominated by *Eucalyptus robusta*, *Melaleuca quinquenervia* and *E. botryoides*. Found on humic clay loams and sandy loams on the flats, drainage lines and river terraces of coastal floodplains north from Shoalhaven River.

▪ **Characteristic species** *Acacia irrorata*, *A. longifolia*, *Acmena smithii*, *Callistemon salignus*, *Calochlaena dubia*, *Casuarina glauca*, *Dianella caerulea*, *Dodonaea triquetra*, *Elaeocarpus reticulatus*, *Entolasia marginata*, *Eucalyptus botryoides*, *E. longifolia*, *E. resinifera* subsp. *hemilampra*, *E. robusta*, *Ficus coronata*, *Gahnia clarkei*, *Glochidion ferdinandi*, *Hypolepis muelleri*, *Imperata cylindrica*, *Leptospermum polygalifolium* subsp. *polygalifolium*, *Livistona australis*, *Lomandra longifolia*, *Lophostemon suaveolens*, *Melaleuca linariifolia*, *M. quinquenervia*, *M. styphelioides*, *Parsonia straminea*, *Pteridium esculentum*, *Stephania japonica* var. *discolor* and *Viola hederacea*. See NSW Scientific Committee's determinations for more details.

▪ **Distinguishing features** it occurs in association with five other EECs on coastal floodplains. The key indicators for this community are: (1) the relatively dense tree canopy dominated by *E. robusta*, *M. quinquenervia* or *E. botryoides*; (2) the relatively infrequent occurrence of other eucalypts, *C. glauca* or *L. suaveolens*; (3) the occasional presence of rainforest elements as scattered trees or understorey plants; and (4) the prominence of large sedges and ferns in the groundcover.

▪ **Status** SEEC

## Coastal Banksia Woodland (*Banksia integrifolia*)



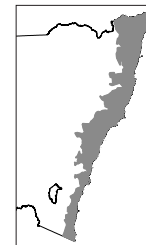
Shane Ruming



Paul Downey

*Banksia integrifolia* subsp. *integrifolia*

woodland maritime



HIGH

An open forest to shrubland community on deep sandy soils, dominated by *Banksia integrifolia* subsp. *integrifolia*. Occurs in coastal areas usually in close proximity to the sea, or with a maritime influence.

▪ **Characteristic species** other characteristic species include *Acacia aulacocarpa*, *A. longifolia* subsp. *sophorae*, *A. melanoxylon*, other *Banksia* spp., *Callitris columellaris*, *Casuarina equisetifolia*, *C. glauca*, *Hibiscus tiliaceus*, *Glochidion* spp. and *Lophostemon confertus*.

▪ **Distinguishing features** this community is distinct from numerous other coastal communities on sand by the dominance of *Banksia integrifolia* subsp. *integrifolia* in the canopy.

▪ **Status** not listed

## Headland Woodland



Mark Hamilton



Mark Hamilton

woodland  
maritime



MEDIUM

A low woodland to closed scrub community dominated by *Banksia integrifolia* subsp. *integrifolia*. The canopy reaches an average height of 10 m, though in situations exposed to high windshear this is much reduced. Occurs on rocky coastal headlands exposed to strong, salt-laden winds.

▪ **Characteristic species** tree species occur in sheltered situations and include *Angophora costata*, *Eucalyptus pilularis* and *E. umbra*. However, *Allocasuarina distyla* and *B. integrifolia* subsp. *integrifolia* are regularly prominent either in the mid stratum or canopy. Other shrub species include *Acacia longifolia* and *Westringia fruticosa*. Groundcover species include *Gonocarpus teucroides*, *Imperata cylindrica* var. *major*, *Kennedia rubicunda*,

*Lomandra longifolia*, *Pimelea linifolia* and *Themeda australis*.

- **Distinguishing features** distinct from other headland communities by its woodland structure (rather than heathland or grassland) and the assemblage of species detailed above.
- **Status** not listed

## Low Woodland with Heathland on Indurated Sand at Norah Head



Deb Stevenson



Deb Stevenson

woodland heath



MEDIUM

A low woodland and heathland community with an open cover of trees and a mid to dense cover of shrubs, grasses, sedges and rushes. Occurs on indurated (hardsetting) sand in varied drainage situations. Restricted to swales behind higher aeolian dunes at Norah Head near Wyong.

▪ **Characteristic species** include *Acacia longifolia*, *A. suaveolens*, *Allocasuarina distyla*, *Anisopogon avenaceus*, *Banksia oblongifolia*, *Bossiaea ensata*, *Callistemon citrinus*, *Corymbia gummifera*, *Dillwynia* spp., *Epacris microphylla*, *Eucalyptus camfieldii*, *Gonocarpus teucroides*, *Grevillea sericea*, *Haemodorum* spp., *Hakea dactyloides*, *H. teretifolia*, *Isachne globosa*, *Isopogon anemonifolius*, *Kunzea capitata*, *Lambertia formosa*, *Leptocarpus tenax*, *Lepyrodia* spp., *Melaleuca quinquenervia*, *M. sieberi*, *M. thymifolia*, *Mirbelia rubiifolia*, *Persoonia levis*, *Pimelea linifolia*, *Psilothrix deusta*, *Pultenaea* spp., *Stylidium* spp., *Themeda australis* and *Xanthorrhoea fulva*.

- **Distinguishing features** this community bears little resemblance to others in the area. Aside from the plant assemblage listed above, the most distinguishing features of this community are the hardsetting sandy soils it is restricted to at Norah Head.
- **Status** SEEC

## Byron Bay Dwarf Graminoid Clay Heath



Norman Graham



Norman Graham

heath



MEDIUM

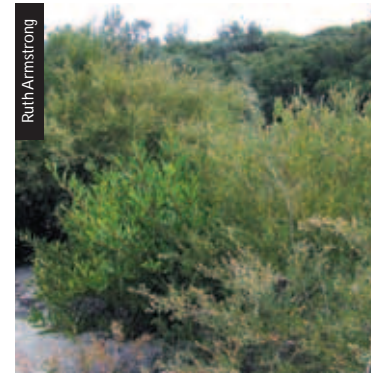
A low-growing heath to 50 cm high, dominated by woody shrubs, grasses, and grass-like plants with patches of taller shrubs and occasional emergent trees. Found on gently sloping clay ridges of low relief. Highly restricted and reduced in distribution, only occurring in Byron Bay Local Government Area. Five hectares remain in small, isolated and disturbed fragments.

▪ **Characteristic species** the most common species include *Banksia oblongifolia*, *Pultenaea villosa*, *Themeda australis* and *Lepidosperma laterale*, with occasional emergents of *Corymbia intermedia* and *Lophostemon suaveolens*. See NSW Scientific Committee's determinations for more details.

▪ **Distinguishing features** it is floristically distinct from other graminoid clay heaths found in New South Wales. It is also disjunct from (to the north of) other known graminoid clay heaths in the state.

▪ **Status** SEEC

## Coastal Scrub (*Leptospermum laevigatum*/*Acacia longifolia* subsp. *sophorae*)

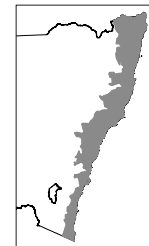


RuthArmstrong



RuthArmstrong

heath dune/field



MEDIUM

A medium to tall closed shrubland community with a canopy height to 4 m. The floristic composition may be relatively simple, with the understorey frequently sparse or unvegetated due to shading. Occurs on well-drained sands on foredunes. It is the most common foredune shrubland along the New South Wales coast north to Nambucca Heads.

▪ **Characteristic species** *Leptospermum laevigatum* and *Acacia longifolia* subsp. *sophorae* dominate the canopy in almost equivalent densities. Other species present include *Banksia integrifolia* subsp. *integrifolia*, *Carpobrotus glaucescens*, *Cupaniopsis anacardioides*, *Dianella caerulea*, *Isolepis nodosa*, *Lepidosperma concavum*, *Lomadra longifolia*, *Monotoca elliptica* and *Myoporum boninense* subsp. *australe*.

▪ **Distinguishing features** this community is associated with a number of other foredune complexes and may be difficult to distinguish where they intergrade. Dune Grasslands (*Spinifex sericeus*) occur closer to the high water level (see page 182). On the leeward side of dunes Coastal Sand Wallum Heath (see page 178) and Apple-Blackbutt Forest communities occur. These are more structured and include relatively large trees that include *Angophora costata*, *Eucalyptus pilularis*, *Banksia aemula* and *Corymbia gummifera*.

▪ **Status** not listed



## Coastal Sand Wallum Heath

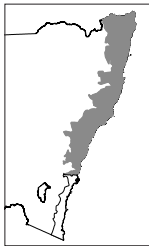


Doug Beckers



Doug Beckers

heath



HIGH

A heath community dominated by Wallum Banksia (*Banksia aemula*), usually to a height of 2 m. Occurs on well-drained sands of Pleistocene origin. Widespread and scattered along the coast north from Sydney. Commonly intergrades with open forest and other heath communities on sand.

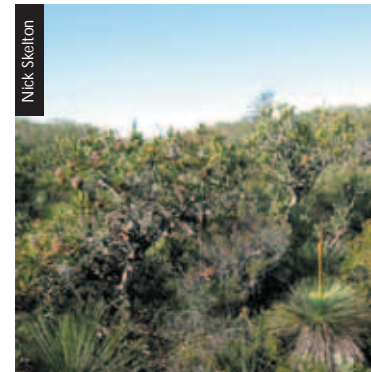
▪ **Characteristic species** dominated by *B. aemula*. Other species include *Acacia ulicifolia*, *Bossiaea ensata*, *Gonocarpus teucroides*, *Leptospermum trinervium*, *Leucopogon ericoides*, *Isopogon anemonifolius* and *Ricinocarpus pinifolius*.

▪ **Distinguishing features** it is considered an equivalent community to Eastern Suburbs Banksia Scrub (ESBS) (present only in the eastern suburbs of Sydney, see page 179). Apart from their disjunct geographic distributions,

ESBS occurs on older sands, has a greater canopy height and often includes less of a maritime element in its flora. Coastal Sand Wallum Heath also intergrades with Blackbutt-Apple Open Forest on Deeper Sands which can readily be distinguished by the presence of tall trees such as *Eucalyptus pilularis*, *Corymbia gummifera*, *Angophora costata* and *Banksia serrata*.

▪ **Status** not listed

## Eastern Suburbs Banksia Scrub



Nick Skelton



Paul Ibbelton

heath



HIGH

A sclerophyllous heath or scrub community occurring on nutrient poor wind blown dune sands that overlay Hawkesbury Sandstone. Highly reduced and restricted in distribution, occupying <3% of its original range. Some remnants contain small patches of woodland, low forest or limited swampy areas. Found in the eastern suburbs of Sydney from La Perouse to Manly.

▪ **Characteristic species** include *Banksia aemula*, *B. ericifolia*, *B. serrata*, *Eriostemon australasius*, *Lepidosperma laterale*, *Leptospermum laevigatum*, *Monotoca elliptica*, *Pteridium esculentum*, *Ricinocarpus pinifolius* and *Xanthorrhoea resinifera*. See NSW Scientific Committee's determinations for more details.

▪ **Distinguishing features** the similar Coastal Sand Wallum Heath community (page 178), can be distinguished by the following three characteristics: (1) its occurrence on soils derived either directly from sandstone or, if wind blown, of younger age than those of the Eastern Suburbs Banksia Scrub; (2) its characteristic much lower canopy height; and (3) it characteristically contains a more maritime element including *Baeckea imbricata*, *Correa alba* and *Westringia fruticosa*.

▪ **Status** NEEC, SEEC

▪ **Notes** also at risk from boneseed invasion.

## Headland Heath

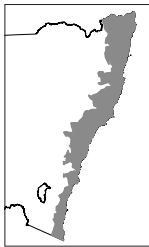


Jackie Miles



Jackie Miles

heath maritime



MEDIUM

A low to medium height closed heathland community, often with a large grass and sedge component. The canopy averages 50 cm in height with emergents to 2 m. It is restricted to steep, south-facing hillslopes overlooking the ocean that experience a high level of salt spray. Occurs on stony soils that form on sedimentary coastal headlands, from Conjola to Forster.

▪ **Characteristic species** include dominants *Allocasuarina littoralis*, *Aristida warburgii*, *Banksia oblongifolia*, *B. spinulosa* var. *collina*, *Hakea teretifolia*, *Psilothrix deusta* and *Themeda australis*. Other subsidiary or co-dominant species include *Boronia pinnata*, *Epacris pulchella*, *Gonocarpus tetragynus*, *Isopogon anemonifolius*, *Lepidosperma neesii* and *Petrophile canescens*.

▪ **Distinguishing features** similar to Byron Bay Graminoid Clay Heath which is a disjunct version of this community type and is floristically distinct (see page 176).

▪ **Status** not listed

## Themeda Grassland on Seacliffs and Coastal Headlands (in the NSW North Coast, Sydney Basin and South East Corner bioregions)

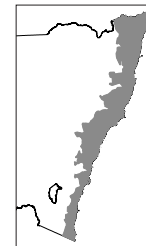


Shane Ruming



Shane Ruming

heath grassland



HIGH

A closed tussock grassland community dominated by a prostrate form of *Themeda australis*. Scattered shrubs occur in many stands resulting in an open shrubland or open heath interspersed with grassy patches. Shrubs, if present, often have dwarf growth forms. Found on a range of substrates, though more commonly found on old sand dunes above cliffs, and on basalt headlands. Distribution comprised of small but widely scattered patches along the coast.

▪ **Characteristic species** dominated by *T. australis*. Other species include *Acacia longifolia* subsp. *sophorae*, *Banksia integrifolia* subsp. *integrifolia*, *Commelina cyanea*, *Glycine clandestina*, *G. microphylla*, *Hibbertia scandens*, *Isolepis nodosa*, *Kennedia rubicunda*, *Lepidosperma* spp.,

*Leptospermum laevigatum*, *Lomandra longifolia*, *Monotoca elliptica*, *Opercularia aspera*, *Pimelea linifolia*, *Poranthera microphylla*, *Sporobolus virginicus*, *Viola banksii* and *Westringia fruticosa*.

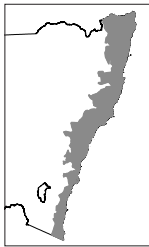
▪ **Distinguishing features** this community is relatively easy to distinguish from other coastal grassland communities on dunes and headlands (primarily *Poa poiformis*-dominated tussock grassland), by the dominance of *T. australis* and its location predominantly on headlands and seacliffs, not lower down on cliffs and steep slopes exposed to sea spray.

▪ **Status** SEEC

## Dune Grasslands (*Spinifex sericeus*)



dunefield



MEDIUM

A low to medium height, sparse to closed tussock grassland community. In most situations the community has a poorly developed structure and comprises stoloniferous species that are able to colonise the unstable sands. Occurs primarily as a mixture of bare sand and the dominant grass *Spinifex sericeus* on exposed, relatively unconsolidated foredunes just above high water level. Widespread as a narrow linear band along the coastline (beaches).

▪ **Characteristic species** *S. sericeus* dominates where vegetation occurs. Other characteristic species, though minor, may include *Cakile maritima*, *Canavalia rosea*, *Carpobrotus glaucescens*, *Ipomoea pes-caprae* subsp. *brasiliensis*, *Scaevola calendulacea*, *Sporobolus virginicus*

and *Zoysia macrantha*. Transitional areas may include *Acacia longifolia* subsp. *sophorae* and the exotic *Hydrocotyle bonariensis*.

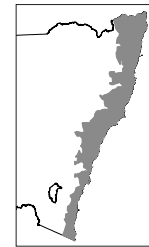
▪ **Distinguishing features** similar to and intergrading extensively with the Frontal Dune Vegetation Complex (page 183). Generally Frontal Dune Vegetation Complex grows at slightly higher elevations and is floristically and structurally more diverse than Dune Grasslands, which in many cases includes large areas of bare sand. Where Dune Grasslands include shrubby *A. longifolia* subsp. *sophorae* the boundary between this community and other frontal dune communities is unclear.

▪ **Status** not listed

## Frontal Dune Vegetation Complex



dunefield grassland



HIGH

A low to mid-high tussock grassland or shrubland of variable crown cover dominated by *Spinifex sericeus*. Occurs on exposed foredunes and to a lesser extent on exposed hinddunes. Widespread as a narrow and linear band along the coastline.

▪ **Characteristic species** include *Carex pumila*, *S. sericeus*, *Vigna marina*, along with occasional species like *Acacia longifolia* subsp. *sophorae* and *Banksia integrifolia* subsp. *integrifolia*.

▪ **Distinguishing features** similar to and intergrading extensively with Dune Grasslands (*Spinifex sericeus*) (page 182). Generally Frontal Dune Vegetation Complex grows at slightly higher elevations and is floristically and structurally more diverse than Dune Grasslands which in many cases includes large areas of bare sand. This ecological community is also closely associated with *Acacia* communities and Coastal *Banksia* Woodland from which it is readily distinguishable.

▪ **Status** not listed

## Coastal Wetlands

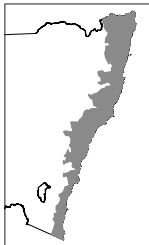


Lucas McKinnon



Shane Rinning

freshwater wetland  
saline wetland



LOW

Comprises seven broad coastal wetland types including mangroves, saltmarshes, brackish and freshwater swamps, wet meadows, *Melaleuca* forests, *Casuarina* forests and sedgelands. Determined under the State Environmental Planning Policy 14 – Coastal Wetlands (SEPP 14). Occurs throughout the coastal parts of the state.

▪ **Characteristic species** no characteristic species can be defined due to the broad nature of the seven types of coastal wetlands covered. However, for those wetlands listed as endangered ecological communities and threatened by bitou bush see the community descriptions in this book for more information on the typical species present of each (see pages 171, 185, 186 and 187).

▪ **Distinguishing features** this community comprises freshwater, brackish and saltwater wetlands occurring in the coastal zone. They may be ephemeral or permanent in nature. It includes other specific communities at risk from bitou bush invasion (i.e. Freshwater Wetlands, Sydney Freshwater Wetlands, Swamp Oak Floodplain Forest and Coastal Saltmarsh EECs). The demarcation of coastal wetland communities from transitional communities and those present on impeded drainage is dealt with in Adam *et al.* (1985).

▪ **Status** SEPP 14

## Freshwater Wetlands on Coastal Floodplains (of the NSW North Coast, Sydney Basin and South East Corner bioregions)

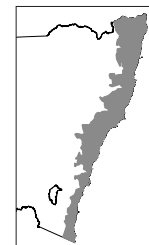


Lucas McKinnon



Lucas McKinnon

freshwater wetland



LOW

A wetland community varying from a sedgeland and reedland to a herbfield, depending on the level and frequency of freshwater inundation. Woody plant species are generally scarce. Typically occurring on silts, muds or humic loams in depressions, flats, drainage lines, lagoons and lakes associated with coastal floodplains. Occurs north from Bega.

▪ **Characteristic species** *Aldrovanda vesiculosa*, *Azolla filiculoides*, *Baumea articulata*, *Carex appressa*, *Ceratophyllum demersum*, *Eleocharis equisetina*, *Hydrilla verticillata*, *Hydrocharis dubia*, *Leersia hexandra*, *Lemna* spp., *Lepironia articulata*, *Ludwigia peploides* subsp. *montevicensis*, *Marsilea mutica*, *Myriophyllum* spp., *Najas marina*, *Nymphaea gigantea*, *Nymphoides indica*, *Ottelia ovalifolia*, *Paspalum distichum*, *Philydrum lanuginosum*, *Potamogeton* spp. and *Pseudoraphis spinescens*. See NSW Scientific Committee's determinations for more details.

▪ **Distinguishing features** this community forms part of a complex of forested wetland and treeless wetland communities found throughout the coastal floodplains of New South Wales. Where it co-occurs with Sydney Freshwater Wetlands in the Sydney Basin Bioregion (see page 186) this community can be distinguished by the scarcity of woody plants and its presence on floodplains, alluvial flats and wet areas, rather than on sandplains.

▪ **Status** SEEC

## Sydney Freshwater Wetlands (in the Sydney Basin bioregion)



Teresa James



Teresa James

### freshwater wetland dunefield



LOW

A complex of vegetation types largely restricted to freshwater swamps in coastal areas. Forms a mosaic community with considerable variation due to fluctuating water levels and seasonal conditions. There may be large areas of open water and patches of emergent shrubs and trees such as *Melaleuca quinquenervia*. Largely restricted to freshwater swamps in swales and depressions on sand dunes and low nutrient sandplains, from Wollongong to Lake Macquarie.

▪ **Characteristic species** include sedges and aquatic plants such as *Baumea articulate*, *B. juncea*, *B. rubiginosa*, *Eleocharis sphacelata*, *Gahnia clarkei*, *G. sieberiana*, *Ludwigia peploides* subsp. *montevidensis* and *Pericaria* spp. Other species may include *Baloskion tetraphyllum*, *Banksia robur*, *Callistemon citrinus*, *Casuarina glauca*, *Cladium*

*procerum*, *Eleocharis sphacelata*, *Empodisma minus*, *Gleichenia dicarpa*, *Goodenia paniculata*, *Hakea teretifolia*, *Hypolepis muelleri*, *Lepironia articulata*, *Leptocarpus tenax*, *Leptospermum juniperinum*, *Lomandra longifolia*, *Ludwigia peploides* subsp. *montevidensis*, *Melaleuca linariifolia*, *M. nodosa*, *M. quinquenervia*, *M. styphelioides*, *Philydrum lanuginosum*, *Phragmites australis*, *Pteridium esculentum*, *Schoenus brevifolius*, *Typha orientalis*, *Villarsia exaltata*, *Viminaria juncea* and *Xanthorrhoea resinifera*.

▪ **Distinguishing features** distinguished from Freshwater Wetlands on Coastal Floodplains (page 185) by the presence of woody plants and its association with sandplains, rather than floodplains, alluvial flats and wet areas not on a sand substrate.

▪ **Status** SEEC

## Coastal Saltmarsh (in the NSW North Coast, Sydney Basin and South East Corner bioregions)

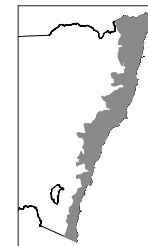


Shane Ruming



Shane Ruming

### saline wetland



LOW

A low herbland characterised by succulent herbs, salt tolerant grasses, sedges and unvegetated salt pans. Occurs in the intertidal zone on the shores of estuaries and lagoons that are permanently or intermittently open to the sea. It is frequently found as a zone on the landward side of mangrove stands. Occasional scattered mangrove trees may be present, whilst in brackish areas dense stands of tall reeds may also occur. Found throughout the coastal zone.

▪ **Characteristic species** include *Baumea juncea*, *Isolepis nodosa*, *Juncus kraussii*, *Samolus repens*, *Sarcocornia quinqueflora*, *Selliera radicans*, *Sporobolus virginicus*, *Suaeda australis*, *Triglochin striata* and *Zoysia macrantha*.

▪ **Distinguishing features** easily distinguished from other communities of coastal floodplains by its mostly treeless vegetation, its location on the landward side of mangrove stands and the presence of many succulent herbaceous species.

▪ **Status** SEEC

### List of at risk species that occur in the endangered ecological communities also at risk from bitou bush invasion

Species name	Threatened status <sup>a</sup>			Endangered Ecological Communities in which the species also occur <sup>d</sup>
	TSC Act <sup>ab</sup>	EPBC Act <sup>ab</sup>	ROTAP <sup>c</sup>	
<b>High priority species</b>				
<i>Chamaecrista maritima</i>				Themeda Grassland on Seacliffs and Coastal Headlands
<i>Plectranthus crennus</i>			3K	Themeda Grassland on Seacliffs and Coastal Headlands
<i>Poa poiformis</i>				Themeda Grassland on Seacliffs and Coastal Headlands
<i>Sophora tomentosa</i>	E			Littoral rainforest
<i>Stackhousia spathulata</i>				Themeda Grassland on Seacliffs and Coastal Headlands
<i>Westringia fruticosa</i>				Eastern Suburbs Banksia Scrub, Themeda Grassland on Seacliffs and Coastal Headlands
<i>Zieria prostrata</i>	E	E	2E	Themeda Grassland on Seacliffs and Coastal Headlands
<b>Medium priority species</b>				
<i>Acacia terminalis</i> subsp. <i>terminalis</i>	E	E	2RCi	Eastern Suburbs Banksia Scrub
<i>Acronychia imperforata</i>				Littoral Rainforest
<i>Dianella crinoides</i>				Bangalay Sand Forest
<i>Syzygium paniculatum</i>	V	V	3VCi	Littoral Rainforest
<i>Wilsonia rotundifolia</i>	E			Coastal saltmarsh
<b>Low priority species</b>				
<i>Acmena hemilampra</i>				Littoral Rainforest
<i>Aldrovanda vesiculosa</i>	E			Freshwater Wetlands on Coastal Floodplains
<i>Bridella exaltata</i>				Littoral Rainforest
<i>Celtis paniculata</i>				Littoral Rainforest
<i>Cordyline congesta</i>			2RC-	Littoral Rainforest
<i>Cryptocarya triplinervis</i> var. <i>triplinervis</i>				Littoral Rainforest
<i>Cupaniopsis anarcardioides</i>				Littoral Rainforest, Kurnell Dune Forest, Swamp Oak Floodplain Forest
<i>Cynanchum elegans</i>	E	E	3ECi	Dry rainforest, Littoral rainforest
<i>Diuris byronensis</i>	E			Themeda Grassland on Seacliffs and Coastal Headlands
<i>Eucalyptus paniculata</i> subsp. <i>matutina</i>			2K	Pittwater Spotted Gum Forest
<i>Glochidion sumatranum</i>				Swamp Oak floodplain
<i>Pisonia umbellifera</i>				Littoral Rainforest
<i>Wilsonia backhousei</i>	V			Coastal Saltmarsh

<sup>a</sup> As listed and defined under the TSC Act (NSW Threatened Species Conservation Act 1995), the EPBC ACT (Commonwealth Environment Protection and Biodiversity Conservation Act 1999) or ROTAP (Rare Or Threatened Australian Plants, see Briggs and Leigh 1996). <sup>b</sup> E = Endangered species; V = Vulnerable species. <sup>c</sup> For information on ROTAP codes see Briggs and Leigh (1996). <sup>d</sup> The Endangered Ecological Communities as listed under the TSC Act, within which the species is known to occur.

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