WEEDpak section A2
Weed and Plant Identification Guide July 2014 Update

About This Guide

This document lists many of the common plants plants, found in and around Australian cotton fields. Whilst comprehensive there will be more weeds and information added as information becomes available. Please check the CottonInfo site for any updates.

Tips on PDF use

This document is comprehensively bookmarked.

Be sure to view bookmarks if viewing on a tablet or computer.

Hot regions circled – (NB you may need to update to a more comprehensive PDF viewer than those provided as a standard on some tablets to access this functionality).

• Seed, Seedling and Adult images link forward you to weed of choice.

• Hot regions of ID pages return to respective seed, seedling, or adult index. See Figure below.

Unknown weeds may be identified from a collection of seed, seedling and adult pictures, or by leafing through the collection.

The seed index is ordered by seed size.

The seedling collection has been orders by similar cotyledon shapes.

The adult collection places plants in family groups Allowing you to easily compare similar plants.

Red Circles indicate links - all the thumbnails on seed, cotyledon and adult index pages link through to appropriate complete information.

Areas at the top left of adult, cotyledon and seed Images on the description pages will link to start of appropriate photographic index.

The preferred common names are generally those adopted by Shepherd et. al. (2001). However, an alternative preferred common name has been adopted where a weed is more widely known throughout the Australian cotton industry by a name other than the preferred common name.

Figure 1. Document navigation:

Go To:

Seed Index
Seedling Index
Adult Index
Full description
Full Description Contents

Acknowledgements:

Information and Images in this guide compiled by Graham Charles , NSW DPI and CRDC unless otherwise acknowledged.

Layout and implementation: David Larsen NSW DPI and CRDC.

WEEDpak section A2: Disclaimer / copyright

This document is part of a larger publication. The remaining parts and full version of the publication can be found at: http://www.cottoncrc.org.au/industry/Publications/Weeds

Updated versions (when available) of this document and more weed information can also be found at the above web address.

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This document is a work in progress –as new weed become available they will be added.

Whilst every attempt has been made to ensure the accuracy and integrity of the information and description sheets supplied in this manual, it should be understood that (due to new research information, new industry experiences, unpredictable weather and variations in the way individual growers set up equipment or have access to equipment) no warranty or guarantee is given or implied by the above organizations nor the people working for or contracted by those organisations to supply the information.

The manual does not claim to be complete and all-inclusive, but it aims to grow with the input of all who use and report on it.

Where trade names or products and equipment are used, no endorsement is intended nor is criticism implied of products not mentioned. Label information provided with chemicals regarding chemical use must be adhered to.

This manual does not contain a complete statement of all relevant legal obligations. You should seek your own legal advice as to both legislative and general legal obligations, in particular those legal obligations rising under environmental laws and the general laws of negligence.

No portion, in whole or part, of this manual may be reproduced without permission of the authors. This document is a work in progress –as new weeds become available they will be added.

Seed Identification

Ludo wild oats
mm:22.00

Wild oats
mm:19.00

Noogoora burr
mm:18.00

Oats
mm:14.50

Faba bean
mm:13.00

Native oatgrass
mm:13.00

Bathurst burr
mm:12.50

Castor oil plant
mm:12.00

Cobbler's peg
mm:11.00

Sunflower
mm:11.00

Cotton
mm:11.00

Barley grass
mm:10.70

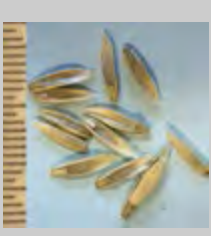
Wild melon
mm:9.00

White flatweed
mm:9.00

Spiny emex
mm:8.70

Desert cowvine
mm:7.70

Mimosa bush
mm:7.60



Annual ryegrass
mm:7.50

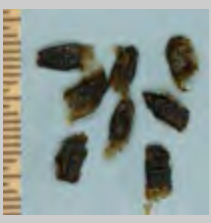
Safflower
mm:7.00

Wild cotton
mm:6.70

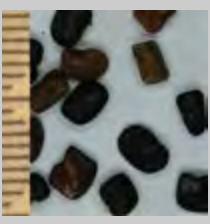
Spotted golden thistle
mm:6.40

Saffron thistle
mm:6.30

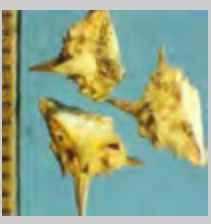
Gomphrena weed
mm:6.30



Stinking passionflower
mm:6.20

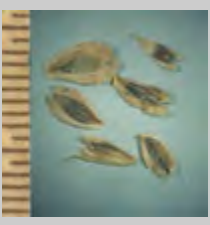


Butterfly pea
mm:6.10



Cathead
mm:6.00

Dwarf marigold
mm:6.00

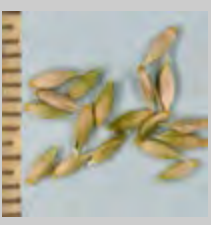


Wild sunflower
mm:5.80

Downy thornapple
mm:5.10

Maloga bean
mm:5.00

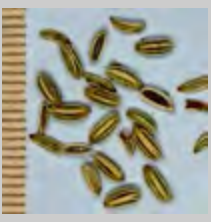
Yellow vine
mm:5.00



Spring grass
mm:4.90

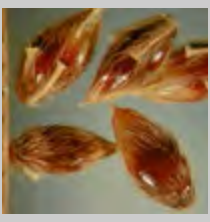
Wheat
mm:4.80

Sorghum
mm:4.40



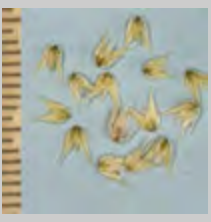
Fennel
mm:4.30

Common morning glory
mm:4.30



Johnson grass
mm:4.30

Fierce thornapple
mm:4.20

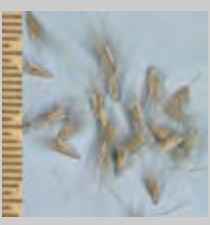


Khaki weed
mm:4.20

Wild radish
mm:4.10

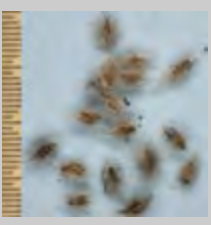
Anoda
mm:4.10

Littlebell
mm:4.10

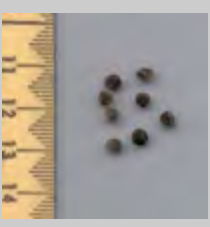


Feathertop Rhodes grass
mm:4.00

Vigna takeall
mm:4.00



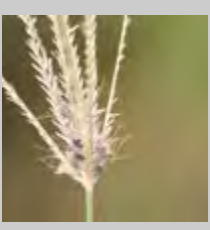
Cotton panic grass
mm:4.00



Cowvine
mm:4.00

Siratro
mm:3.70

Slender bamboo grass
mm:3.60



Rhodes grass
mm:3.60

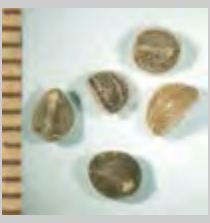
Budda pea
mm:3.60

Native rosella
mm:3.50

Velvetleaf
mm:3.50

Wild phalaris
mm:3.50

Chicory
mm:3.50



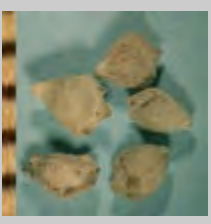
Bellvine
mm:3.40

Ryncho
mm:3.30

Grey rattlepod
mm:3.30

Sesbania
mm:3.20

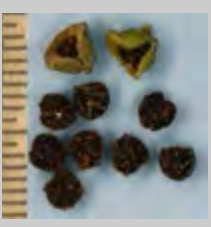
Annual polymeria
mm:3.20



Annual saltbush
mm:3.20

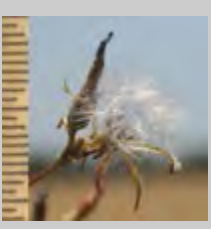
Turnip weed
mm:3.20

Scurvy grass
mm:3.10

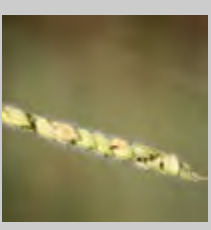


Hogweed
mm:3.10

Liverseed grass
mm:3.10

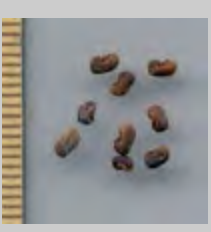


Prickly lettuce
mm:3.10

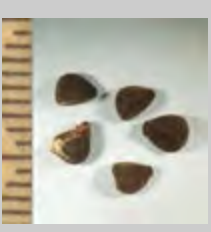


Paspalum
mm:3.00

Red Natal grass
mm:3.00

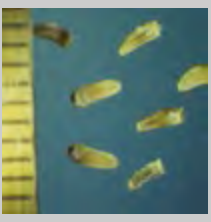


Phasey bean
mm:3.00



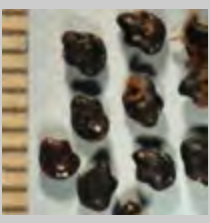
Australian bindweed
mm:3.00

Windmill grass
mm:3.00



Spear thistle
mm:2.80

Burr medic
mm:2.80

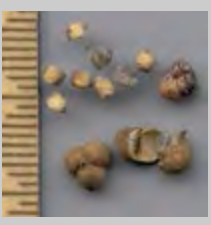


Velvet tree pear
mm:2.80

Capeweed
mm:2.70

Plains spurge
mm:2.70

Milkweed
mm:2.70

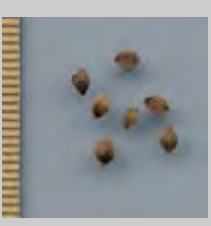


David's spurge
mm:2.60

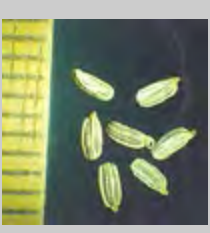
Leek lilly
mm:2.60

Corrugated sida
mm:2.60

Tridax
mm:2.50



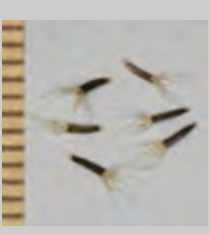
Black bindweed
mm:2.50



Bishop's weed
mm:2.50

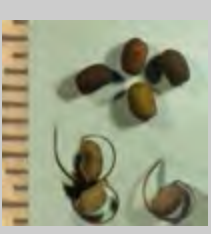
Canola
mm:2.40

Curled dock
mm:2.40

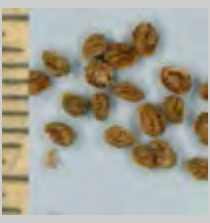


Billygoat weed
mm:2.40

Lucerne
mm:2.40

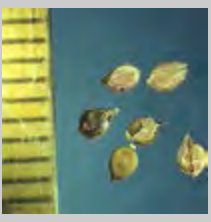


Australian cranesbill
mm:2.30

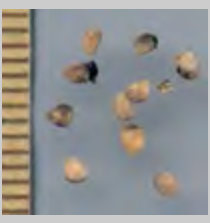


Common heliotrope
mm:2.30

Mint weed
mm:2.30

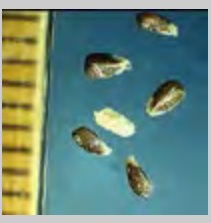


Wireweed
mm:2.20



Blackberry nightshade
mm:2.10

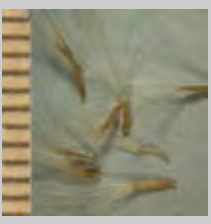
Stagger weed
mm:2.10



Deadnettle
mm:2.10

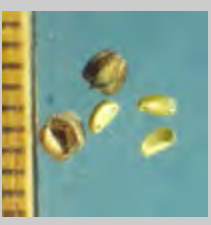
Pale knotweed
mm:2.00

Awnless barn-yard grass
mm:2.00



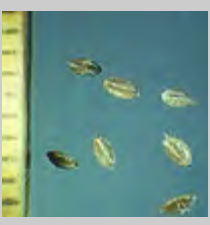
Flaxleaf fleabane
mm:2.00

Black pigweed
mm:2.00



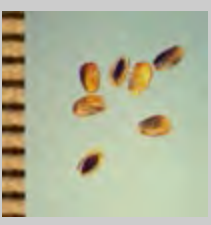
Caustic weed
mm:2.00

Parthenium weed
mm:2.00

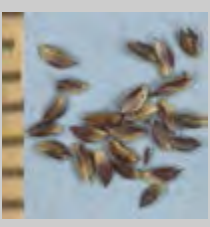


Nutgrass
mm:1.80

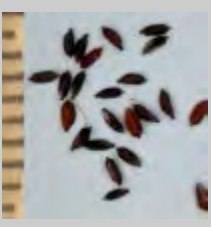
Green amaranth
mm:1.80



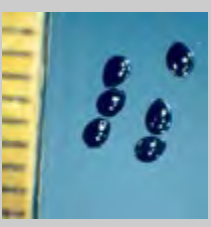
Lippia
mm:1.80



Couch
mm:1.70



Dense flatsedge
mm:1.60



Dwarf amaranth
mm:1.50

Climbing saltbush
mm:1.40

Mullumbimby couch
mm:1.40

Downs nutgrass
mm:1.40

Purpletop
mm:1.38

African turnip weed
mm:1.30

Umbrella sedge
mm:1.20

Blowngrass
mm:1.20

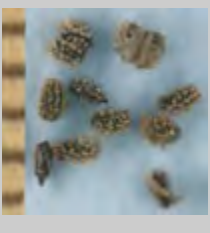
Scarlet pimpernel
mm:1.20

Redroot amaranth
mm:1.20

Common joyweed
mm:1.10

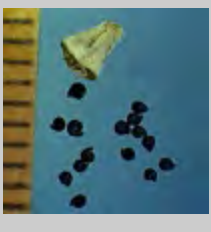
Indian hedge mustard
mm:1.00

Button grass
mm:1.00



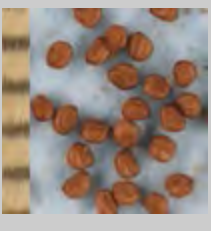
Red water milfoil
mm:1.00

Great mullein
mm:0.83

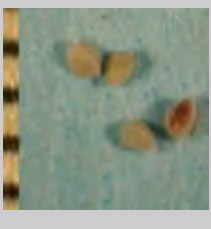


Pigweed
mm:0.80

Hairy pigweed
mm:0.80



Willow primrose
mm:0.70

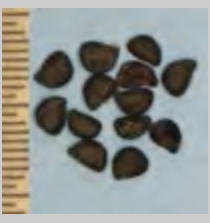


Dirty Dora
mm:0.70

White clover
mm:0.70

Handsome lovegrass
mm:0.40

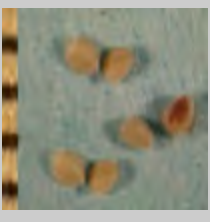
Elephant creeper
mm:6.0



Smooth senna
mm:4.5

Ringed wallaby grass
mm:3.2

Japanese millet
mm:3.5



Rice flatsedge
mm:.73

Seedling Identification for Broadleaf Weeds

Ordered by Cotyledon shape

Bi-Lobed
Cotyledon length mm:

Desert cowvine
Cotyledon length mm:40

Cowvine
Cotyledon length mm:35

Elephant creeper
Cotyledon length mm:32.5

Onion vine
Cotyledon length mm:32.5

Littlebell
Cotyledon length mm:27.5

Bellvine
Cotyledon length mm:27.5

Common morning glory
Cotyledon length mm:24

Polymeria take-all
Cotyledon length mm:17.5

Wild radish
Cotyledon length mm:13

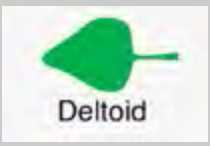
Canola
Cotyledon length mm:11

Turnip weed
Cotyledon length mm:11

Annual polymeria
Cotyledon length mm:10

Australian bindweed
Cotyledon length mm:7

Australian cranesbill
Cotyledon length mm:5



Deltiod
Cotyledon length mm:

Yellow-flowered Devil's claw
Cotyledon length mm:37

Small-flowered mallow
Cotyledon length mm:8.75

Mint weed
Cotyledon length mm:6

Corrugated sida
Cotyledon length mm:3.5

Mung bean
Cotyledon length mm:70

Noogoora burr
Cotyledon length mm:37.5

Pigeon pea
Cotyledon length mm:35

Vigna takeall
Cotyledon length mm:22.5

Italian cockleburr
Cotyledon length mm:19.5

Californian burr
Cotyledon length mm:19.5

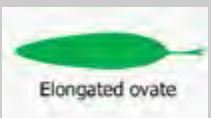
Velvet tree pear
Cotyledon length mm:12

Climbing saltbush
Cotyledon length mm:7.5

Annual saltbush
Cotyledon length mm:7

Fathen
Cotyledon length mm:7

Willow primrose
Cotyledon length mm:5



Elongated ovate
Cotyledon length mm:

Spiny emex
Cotyledon length mm:35

Cobbler's peg
Cotyledon length mm:17.5

Bathurst burr
Cotyledon length mm:15

Black pigweed
Cotyledon length mm:15

Redroot amaranth
Cotyledon length mm:14

Bishop's weed
Cotyledon length mm:12

Green amaranth
Cotyledon length mm:11

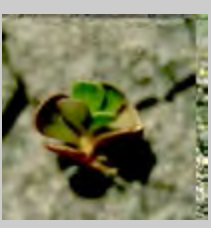
Hogweed
Cotyledon length mm:10

Black bindweed
Cotyledon length mm:9

Khaki weed
Cotyledon length mm:7.5

Shepherd's purse
Cotyledon length mm:7

Dwarf marigold
Cotyledon length mm:6.5



Pigweed
Cotyledon length mm:6

Hairy pigweed
Cotyledon length mm:5

Dwarf amaranth
Cotyledon length mm:4.4

Pale knotweed
Cotyledon length mm:4

Flaxleaf fleabane
Cotyledon length mm:3

Linear
Cotyledon length mm:

Scurvy grass
Cotyledon length mm:32.5

Soft roly-poly
Cotyledon length mm:32.5

Maloga bean
Cotyledon length mm:30

Mexican poppy ochroleuca
Cotyledon length mm:26

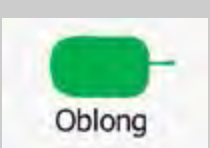
Downy thornapple
Cotyledon length mm:24

Fierce thornapple
Cotyledon length mm:24

Milkweed
Cotyledon length mm:22

Fennel
Cotyledon length mm:16.5

Gomphrena weed
Cotyledon length mm:15



Oblong
Cotyledon length mm:

Castor oil plant
Cotyledon length mm:40

Sunflower
Cotyledon length mm:17.5

Sesbania
Cotyledon length mm:17.5

Purple-flowered devil's claw
Cotyledon length mm:15

Butterfly pea
Cotyledon length mm:14

Stinking passionflower
Cotyledon length mm:14

Smooth senna
Cotyledon length mm:13

Mimosa bush
Cotyledon length mm:12.5

Grey rattlepod
Cotyledon length mm:12

Wild cotton
Cotyledon length mm:11.5

Burr medic
Cotyledon length mm:11

Budda pea
Cotyledon length mm:9

St. Barnaby's thistle
Cotyledon length mm:8

Yellow vine
Cotyledon length mm:8

Cathead
Cotyledon length mm:8

Ovate
Cotyledon length mm:

Faba bean
Cotyledon length mm:35

Wild melon
Cotyledon length mm:30

Safflower
Cotyledon length mm:22.5

Cotton
Cotyledon length mm:20

Native rosella
Cotyledon length mm:17.5

Wide-leaf bladder ketmia
Cotyledon length mm:18

Variegated thistle
Cotyledon length mm:17.5

Spear thistle
Cotyledon length mm:17

Scarlet pimpernel
Cotyledon length mm:15

Anoda
Cotyledon length mm:11.5

Narrow-leaf bladder ketmia
Cotyledon length mm:11.5

Wild sunflower
Cotyledon length mm:12

David's spurge
Cotyledon length mm:12

Rycho
Cotyledon length mm:9.5

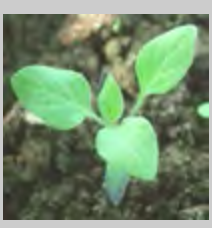
Patterson's curse
Cotyledon length mm:10

Curled dock
Cotyledon length mm:10

Plains spurge
Cotyledon length mm:10

Phasey bean
Cotyledon length mm:8

Common joyweed
Cotyledon length mm:7.5



Blackberry nightshade
Cotyledon length mm:7.5

Wild gooseberry
Cotyledon length mm:8

Maltese cockspur
Cotyledon length mm:5.5

Lucerne
Cotyledon length mm:6

Emu foot (broad leaf type)
Cotyledon length mm:5

Dwarf nettle
Cotyledon length mm:4

Common heliotrope
Cotyledon length mm:3.5

Deadnettle
Cotyledon length mm:4

White clover
Cotyledon length mm:3.5

Parthenium weed
Cotyledon length mm:3.5

Purpletop
Cotyledon length mm:2.5

Hare's foot clover
Cotyledon length mm:2.5

Pinnate
Cotyledon length mm:

Woolly pod vetch
Cotyledon length mm:9

Chickpea
Cotyledon length mm:4

Round
Cotyledon length mm:

Siratro
Cotyledon length mm:11

Pepper-leaf senna
Cotyledon length mm:9

Velvetleaf
Cotyledon length mm:7.5

Tridax
Cotyledon length mm:6

Native sensitive plant
Cotyledon length mm:6

Indian hedge mustard
Cotyledon length mm:5.5

Prickly lettuce
Cotyledon length mm:5

Tarvine
Cotyledon length mm:3.5

Ox-tongue
Cotyledon length mm:4.5

Common sowthistle
Cotyledon length mm:4.5

Stagger weed
Cotyledon length mm:4.5

Billygoat weed
Cotyledon length mm:3

Caustic weed
Cotyledon length mm:2.5

Spatulate
Cotyledon length mm:

Saffron thistle
Cotyledon length mm:14.5

Spotted golden thistle
Cotyledon length mm:12.5

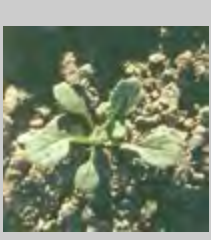
Chicory
Cotyledon length mm:10

White flatweed
Cotyledon length mm:9.5

Capeweed
Cotyledon length mm:8

Wireweed
Cotyledon length mm:8.5

Twiggy mullein
Cotyledon length mm:4.5



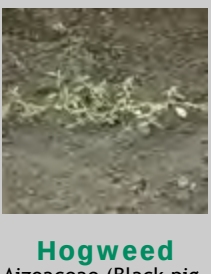
African turnip weed
Cotyledon length mm:4.5

Lippia
Cotyledon length mm:2.5

Great mullein
Cotyledon length mm:2

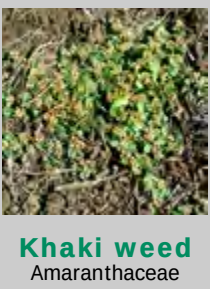
Adult Weeds by Family 1 / 4

Black pigweed
Aizoaceae

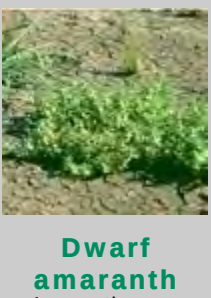


Hogweed
Aizoaceae (Black pigweed family).

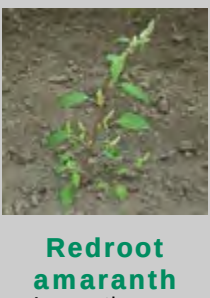
Common joyweed
Amaranthaceae (Amaranth family).



Khaki weed
Amaranthaceae (Amaranth family).

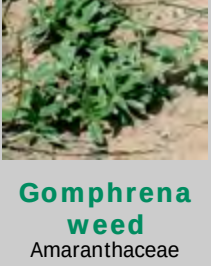


Dwarf amaranth
Amaranthaceae (Amaranth family).

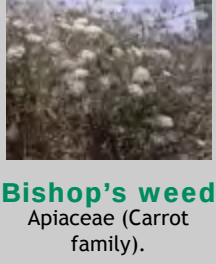


Redroot amaranth
Amaranthaceae (Amaranth family).

Green amaranth
Amaranthaceae (Amaranth family).



Gomphrena weed
Amaranthaceae (Amaranth family).

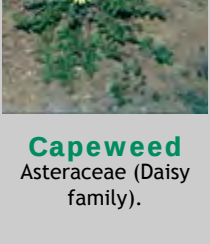


Bishop's weed
Apiaceae (Carrot family).

Fennel
Apiaceae (Carrot family).

Wild cotton
Asclepiadaceae (Milkweed family).

Billygoat weed
Asteraceae (Daisy family).



Capeweed
Asteraceae (Daisy family).

Cobbler's peg
Asteraceae (Daisy family).

Saffron thistle
Asteraceae (Daisy family).

Safflower
Asteraceae (Daisy family).

Maltese cockspur
Asteraceae (Daisy family).

St. Barnaby's thistle
Asteraceae (Daisy family).

Chicory
Asteraceae (Daisy family).

Spear thistle
Asteraceae (Daisy family).

Flaxleaf fleabane
Asteraceae (Daisy family).

Sunflower
Asteraceae (Daisy family).

Ox-tongue
Asteraceae (Daisy family).

White flatweed
Asteraceae (Daisy family).

Prickly lettuce
Asteraceae (Daisy family).

Parthenium weed
Asteraceae (Daisy family).

Dwarf marigold
Asteraceae (Daisy family).

Spotted golden thistle
Asteraceae (Daisy family).

Variegated thistle
Asteraceae (Daisy family).

Common sowthistle
Asteraceae (Daisy family).

Tridax
Asteraceae (Daisy family).

Wild sunflower
Asteraceae (Daisy family).

Italian cockleburr
Asteraceae (Daisy family).

Noogoora burr
Asteraceae (Daisy family).

Californian burr
Asteraceae (Daisy family).

Bathurst burr
Asteraceae (Daisy family).

Patterson's curse
Boraginaceae (Heliotrope family).

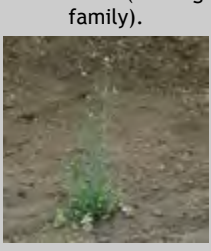
Common heliotrope
Boraginaceae (Heliotrope family).

Canola
Brassicaceae (Cabbage family).

Shepherd's purse
Brassicaceae (Cabbage family).

Wild radish
Brassicaceae (Cabbage family).

Turnip weed
Brassicaceae (Cabbage family).



Indian hedge mustard
Brassicaceae (Cabbage family).

African turnip weed
Brassicaceae (Cabbage family).

Velvety tree pear
Cactaceae (Cactus family).

Pepper-leaf senna
Caesalpiniaceae (Cassia family).

Smooth senna
Caesalpiniaceae (Cassia family).

Annual saltbush
Chenopodiaceae (Saltbush family).

Fathen
Chenopodiaceae (Saltbush family).

Climbing saltbush
Chenopodiaceae (Saltbush family).

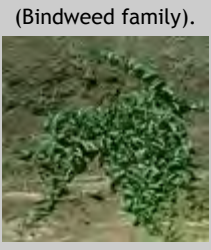
Soft roly-poly
Chenopodiaceae (Saltbush family).

Scurvy grass
Commelinaceae (Dayflower family).

Elephant creeper
Convolvulaceae (Bindweed family).

Australian bindweed
Convolvulaceae (Bindweed family).

Desert cowvine
Convolvulaceae (Bindweed family).



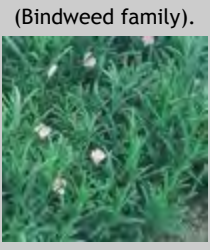
Cowvine
Convolvulaceae (Bindweed family).

Bellvine
Convolvulaceae (Bindweed family).

Common morning glory
Convolvulaceae (Bindweed family).

Littlebell
Convolvulaceae (Bindweed family).

Onion vine
Convolvulaceae (Bindweed family).



Polymeria take-all
Convolvulaceae (Bindweed family).

Annual polymeria
Convolvulaceae (Bindweed family).

Wild melon
Cucurbitaceae (Melon family).

Caustic weed
Euphorbiaceae (Spurge family).

David's spurge
Euphorbiaceae (Spurge family).

Milkweed
Euphorbiaceae (Spurge family).

Plains spurge
Euphorbiaceae (Spurge family).

Castor oil plant
Euphorbiaceae (Spurge family).

Chickpea
Fabaceae (Pea family).

Butterfly pea
Fabaceae (Pea family).

Grey rattlepod
Fabaceae (Pea family).

Phasey bean
Fabaceae (Pea family).

Burr medic
Fabaceae (Pea family).

Lucerne
Fabaceae (Pea family).

Rycho
Fabaceae (Pea family).

Sesbania
Fabaceae (Pea family).

Hare's foot clover
Fabaceae (Pea family).

White clover
Fabaceae (Pea family).

Faba bean
Fabaceae (Pea family).

Woolly pod vetch
Fabaceae (Pea family).

Maloga bean
Fabaceae (Pea family).

Vigna takeall
Fabaceae (Pea family).

Mung bean
Fabaceae (Pea family).

Emu foot (broad leaf type)
Fabeaceae (Pea family).

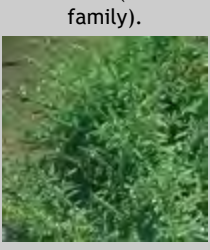
Emu foot (fine leaf type)
Fabeaceae (Pea family).

Siratro
Fabeaceae (Pea family).

Australian cranesbill
Geraniaceae (Geranium family).

Red water milfoil
Haloragaceae (Watermilfoil family).

Deadnettle
Lamiaceae (Mint family).



Mint weed
Lamiaceae (Mint family).

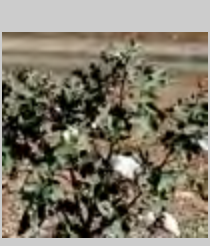
Stagger weed
Lamiaceae (Mint family).

Thin duckweed
Lemnaceae (Duckweed family).

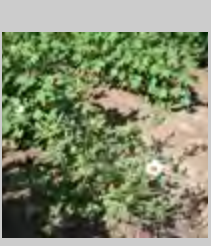
Native rosella
Malvaceae (Hibiscus family).

Velvetleaf
Malvaceae (Hibiscus family).

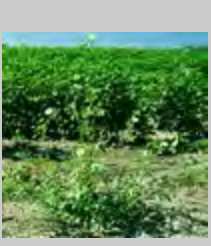
Anoda
Malvaceae (Hibiscus family).



Cotton
Malvaceae (Hibiscus family).



Narrow-leaf bladder ketmia
Malvaceae (Hibiscus family).



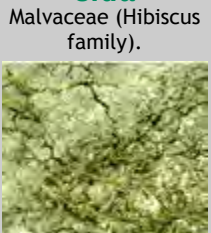
Wide-leaf bladder ketmia
Malvaceae (Hibiscus family).

Small-flowered mallow
Malvaceae (Hibiscus family).

Corrugated sida
Malvaceae (Hibiscus family).

Yellow-flowered Devil's claw
Martyniaceae (Devil's claw family)

Purple-flowered devil's claw
Martyniaceae (Devil's claw family).



Native sensitive plant
Mimosaceae (Wattle family).

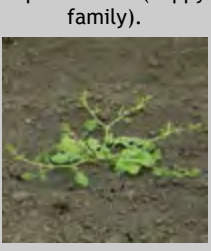
Tarvine
Nyctaginaceae (Tarvine family).

Willow primrose
Onagraceae (Evening primrose family).

Tropical mexican poppy
Papaveraceae (Poppy family).

Mexican poppy ochroleuca
Papaveraceae (Poppy family).

Stinking passionflower
Passifloraceae (Passionflower family).



Spiny emex
Polygonaceae (Dock family).

Black bindweed
Polygonaceae (Dock family).

Pale knotweed
Polygonaceae (Dock family).

Wireweed
Polygonaceae (Dock family).

Curled dock
Polygonaceae (Dock family).

Pigweed
Portulacaceae (Portulaca family).

Hairy pigweed
Portulaceae (Portulaca family).

Scarlet pimpernel
Primulaceae (Primula family).

Twiggy mullein
Scrophulariaceae (Figwort family).

Great mullein
Scrophulariaceae (Figwort family).

Fierce thornapple
Solanaceae (Tomato family).

Wild gooseberry
Solanaceae (Tomato family).

Blackberry nightshade
Solanaceae (Tomato family).

Downy thornapple
Solanaceae (Tomatoe family).

Dwarf nettle
Urticaceae (Nettle family).

Lippia
Verbenaceae (Verbena family).

Purpletop
Verbenaceae (Verbena family).

Yellow vine
Zygophyllaceae

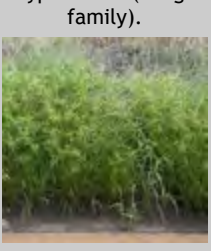
Cathead
Zygophyllaceae.

Downs nutgrass
Cyperaceae (Sedge family).

Mullumbimby couch
Cyperaceae (Sedge family).

Dense flatsedge
Cyperaceae (Sedge family).

Dirty Dora
Cyperaceae (Sedge family).



Umbrella sedge
Cyperaceae (Sedge family).

Yellow nutgrass
Cyperaceae (Sedge family).

Rice flatsedge
Cyperaceae (Sedge family).

Nutgrass
Cyperaceae (Sedge family).

Leek lilly
Liliaceae (Lilly family).

Purple wire-grass
Poaceae (Grass family).

Ringed wallaby grass
Poaceae (Grass family).

Slender bamboo grass
Poaceae (Grass family).

Wild oats
Poaceae (Grass family).

Ludo wild oats
Poaceae (Grass family).

Oats
Poaceae (Grass family).

Prairie grass
Poaceae (Grass family).

Spiny burrgrass
Poaceae (Grass family).

Rhodes grass
Poaceae (Grass family).

Windmill grass
Poaceae (Grass family).

Feathertop Rhodes grass
Poaceae (Grass family).

Barbed-wire grass
Poaceae (Grass family).

Couch
Poaceae (Grass family).

Button grass
Poaceae (Grass family).

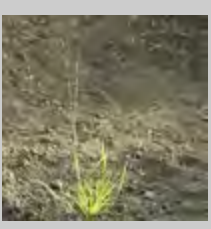
Queensland bluegrass
Poaceae (Grass family).

Cotton panic grass
Poaceae (Grass family).

Awnless barn-yard grass
Poaceae (Grass family).

Japanese millet
Poaceae (Grass family).

Handsome lovegrass
Poaceae (Grass family).



Spring grass
Poaceae (Grass family).

Two row barley
Poaceae (Grass family).

Barley grass
Poaceae (Grass family)

Coolati grass
Poaceae (Grass family).

Blowngrass
Poaceae (Grass family).

Brown beetle grass
Poaceae (Grass family).

Annual ryegrass
Poaceae (Grass family).

Red Natal grass
Poaceae (Grass family).

Paspalum
Poaceae (Grass family).

Bahia grass
Poaceae (Grass family).

Wild phalaris
Poaceae (Grass family).

Sugarcane
Poaceae (Grass family).

Sorghum
Poaceae (Grass family).

Johnson grass
Poaceae (Grass family).

Western rat's tail grass
Poaceae (Grass family).

Native oatgrass
Poaceae (Grass family).

Wheat
Poaceae (Grass family).

Liverseed grass
Poaceae (Grass family).

Trianthema portulactastrum L.

Black pigweed

Family: Aizoaceae

Common names: Black pigweed, Giant pigweed.

Confused with:

Description:

Seedling Leaves – are fleshy and waxy, have an elongated oval shape and are 15 mm long by 5 mm wide. The first true leaf is club-shaped, has purple margins and is borne on a short stalk about 1 mm long.

Leaves – are fleshy, borne opposite each other on the stem, broadly oval-shaped, and are flattened or slightly notched at the tip. One of the pair of opposite leaves is smaller than the other, both in the seedlings and adult plants. The adult leaves have purple margins, are crinkly, 5 - 50 mm long and 4 - 45 mm wide. The leaf stalks are variable in length from 2 – 35 mm long and swollen to form a cup at the base.

Plants – are prostrate or ascending with green to red/purple fleshy stems, 50 cm or more in length. Young stems may be covered in very short hairs.

Flowers – single pink, white or purple flowers occur in cup-like structures in the leaf forks. The five flower lobes are each 2 – 5 mm long.

Seeds – the seed head is a capsule with an inverted-cone shape, 2 - 4 mm long. There are between 3 and 15 small, round, brown to dull-black, flattened, snail-shaped seeds released from each capsule at maturity. The seeds are 3 - 5 mm long and 1.8 – 2.5 mm wide.

Lifecycle / Biology: An annual plant that grows vigourously during spring and summer. This plant may grow throughout the year when sheltered from frost. Seeds germinate readily between 20 and 40oC in alternating light and dark conditions. Emergence occurs after early season rains from up to 7.5 cm depth, although emergence is greatest in the top 2.5 cm of the soil. The plant is known for its rapid growth, flowering during summer and autumn, 20 to 30 days after emergence. Seeds mature 15 - 20 days after flowering, with around 7,000 seeds produced per plant. Freshly shed seeds have some dormancy.

Ecology: Black pigweed is often found along rivers and in other damp areas, pastures, wasteland, beside roads and in lawns and gardens. It tolerates saline soils.

The Problem: Black pigweed is a weed of cultivation and summer cropping, particularly dryland cotton and can form dense mats after rainfall in spring and summer, choking out struggling cotton plants.

Distribution: Found in Central and Northern Australia.

Origin:

Reference:

Crop Weeds of Northern Australia, p. 71.

Compiler: Graham Charles and Stephen Johnson

Zaleya galericulata subsp. Australis (Melville) S. Jacobs

Hogweed

Family: Aizoaceae (Black pigweed family).

Common names: Hogweed, Garden pigweed, Zaleya.

Confused with: The name hogweed is commonly used for both hogweed (Zaleya galericulata) and wireweed (Polygonum aviculare), and on occasions for tarvine (Boerhavia dominii).

There is a 2nd, introduced subspecies, Z. galericulata, which can be separated from this sub-species by the shape of the seed cap (shown in the identification photo with the seed). The seed cap of Z. galericulata has a more key-hole shaped gap at the front, with the gap not going all the way to the apex.

Description:

Seedling Leaves – the cotyledon leaves are paddle shaped, 10 mm long and 3.5 mm wide, with short stalks. The 1st true leaves are more oval shaped, 16 mm long by 7 mm wide.

Leaves – later leaves are oval to wedge shaped, with a wavy edge, 20 – 50 mm long and 15 – 25 mm wide, borne on stalks 6 – 20 mm long. Leaves are opposite, green on the upper surface but paler underneath, with new leaves emerging from the leaf axils.

Plants – are prostrate with many branches, plants to 100 cm wide. The branches may have a reddish tinge.

Flowers – develop in a cluster of 3 to 7 flowers in the leaf axils, on short stems 3 – 4 mm long. The flowers are white to light pink or purple, with 5 petals 5 – 6 mm across.

Seeds – 4 seeds develop from each flower in a green capsule of 2 segments, 4 – 5 mm across. The seeds are released when the capsule falls, 2 seed commonly released with the capsule, while 2 seeds are initially retained on the plant. Seeds are 1.5 – 2.2 mm across, black, wrinkled and roughly spherical.

Lifecycle / Biology: A perennial weed that often acts as an annual, germinating during spring and summer and dying back to the roots over winter. Plants flower and set seed from summer and autumn.

Ecology: A weed of pastures, cultivated and fallow land, along roadsides, and in watercourse and river areas. Hogweed is more common on lighter soils but will grow on clay soils.

The Problem: A minor weed of cereals and summer cropping, but established plants are difficult to control as they have relatively few leaves in spring and a large taproot.

Distribution: A common weed of pastures and cropping throughout Australia.

Origin: Native to Australia.

Reference:

Plants of Western New South Wales, p. 297.

WEEDS of the South-East, p. 91.

Compiler: Graham Charles

Alternanthera nodiflora R.Br

Common joyweed

Family: Amaranthaceae (Amaranth family).

Common names: Common joyweed, Joyweed, Native carpetweed.

Confused with:

Description:

Seedlings – cotyledons leaves are roughly elliptical in shape, being broadest at about 1/3rd of their length and tapering to a rounded tip. They have a noticeable mid-rib. Both the mid-rib and the leaf margins may have a red tinge.

Adult Leaves – are arranged in opposite pairs along the stems. Leaves are 2 - 8 cm long and 6 - 8 mm wide, with a light green central rib.

Mature plant – a semi-prostrate annual plant which may have ascending stems to 30 cm in length. Adventitious roots may develop from the stem nodes.

Flowers – are clustered in the leaf axils. Clusters are white and up to 10 – 25 mm in diameter.

Seeds – seeds are brown and covered in fine protrusions. They are elongated, 1.1 mm in length and 3 mm in width.

Lifecycle / Biology: Seedlings emerge in winter and spring and summer and flower over spring and early summer.

Ecology: Occur on a wide variety of soil types and is most common in wetter spots. Plants that establish in moist and shaded locations may survive well into summer.

The Problem: Common joyweed is a minor weed in the cotton cropping system but can occur in high densities when conditions allow. It can be a weed of winter fallows and cereal crops.

Distribution: Common in all states of Australia and throughout the cotton growing area.

Origin: A native species.

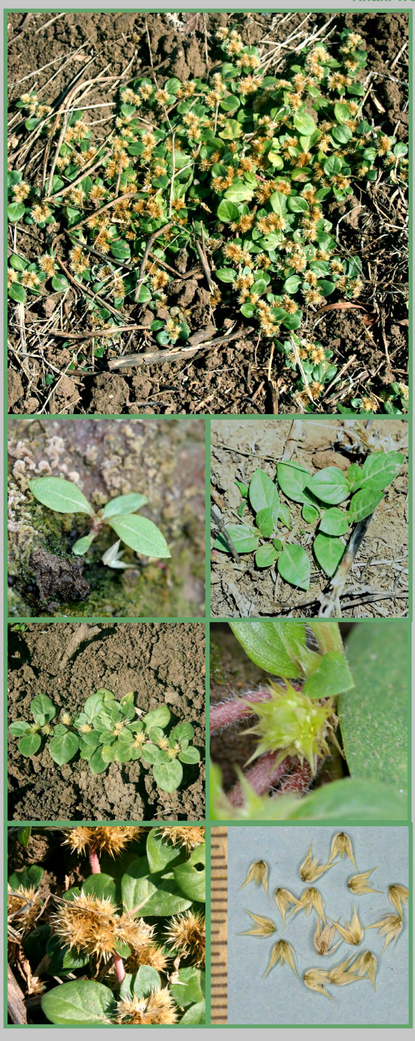
Reference:

Plants of Western New South Wales, p. 281 - 282- WEEDS of the South-East, p. 92.

Compiler: Graham Charles

Alternanthera pungens Kunth

Khaki weed



Family: Amaranthaceae (Amaranth family).

Common names: Khaki weed, Creeping chaffweed, Khaki burr.

Confused with: Can be confused with gomphrena weed (Gomphrena celosioides), but is readily distinguished by the rounder leaf shape and the spiny burrs that develop in clusters along the length of the branches. Gomphrena weed has less rounded leaves and soft, spineless "burrs" that develop in clusters at the ends of the branches.

Description:

Seedlings – cotyledons leaves are a broad spear-head in shape, 7 – 8 mm long and 2 – 3 mm wide, tapering to a rounded tip. They have a pale mid-rib, tinged with red towards the base.

Leaves – are arranged in opposite pairs along the stems. Leaves are glossy green, a flattened oval in shape, 8 - 50 mm long and 5 - 24 mm wide, rounding to a point, with a pale green mid-rib. The under-side of the leaves is paler in colour.

Mature Plants – a prostrate annual plant to 80 cm in diameter with a large tap-root. Stems are reddish and covered in fine hairs. Adventitious roots develop from the stem nodes.

Flowers – are clustered in the leaf axils along the stems. The clusters are initially green but become more golden with age and 6 - 10 mm in diameter. The flowers are yellow, but minute and not readily apparent.

Fruit – a spiny burr with 2 prongs, 4 – 5 mm long and 3 – 4 mm across.

Lifecycle / Biology: A perennial weed that is burnt-off by frosts and re-emerges in spring from the tap-root. Seedlings emerge in spring and summer and flower over the warmer months. Plants can spread from stem fragments as well as seeds.

Ecology: Occurs on a wide variety of soil types, especially the lighter soils. It persists on heavy clay soils.

The Problem: Khaki weed is a minor weed in the cotton cropping system but can occur in high densities around buildings, roadways and structures, forming thick, burry mats. Burrs are readily transported on foot ware and tyres, readily establishing in lawns and around dwellings.

Distribution: Common in most states of Australia and throughout the cotton growing area.

Origin: An introduced weed from tropical America.

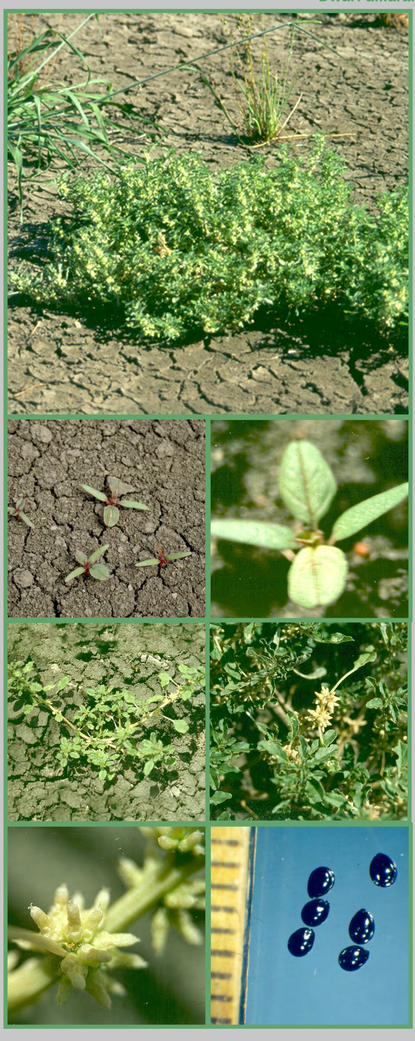
Reference:

Plants of Western New South Wales, p. 282.WEEDS of the South-East, p. 92.

Compiler: Graham Charles

Amaranthus macrocarpus Benth. var. pallidus

Dwarf amaranth



Family: Amaranthaceae (Amaranth family).

Common names: Dwarf amaranth, Amaranthus, Boggabri weed, Desert amaranth.

Confused with: Boggabri weed (A. mitchellii).

Description:

There are two varieties of Dwarf amaranth, A. macrocarpus var. pallidus and var. macrocarpus. The stems of var. macrocarpus are white to red in colour. The flowers of var. macrocarpus are red/brown in colour. The mature seed heads of var. macrocarpus are vary from red, brown to almost black in colour.

Seedlings – the green seedling leaves have purple leaf margins and veins. These seedlings are more prostrate than other Amaranthus species, with the exception of native amaranth (A. interruptus).

Adult Leaves – these leaves are alternate, an elongated oval-shape, short and rounded but notched at the tip, 5 - 25 mm long, 4 – 13 mm wide, and have stalks 4 – 25 mm long.

Mature Plants – mature plants either lie flat along the ground, or are semi-erect. The white or straw coloured stems are hairless and up to 30 cm long.

Flowers – the flowers are white or straw-coloured and found in dense globular clusters in the upper leaf forks.

Seed heads – the seed head is a capsule, 3 – 5 mm long, pear-shaped, spongy and wrinkled, and straw-coloured, when mature.

Lifecycle / Biology: An annual species that germinates and grows in spring, summer and autumn. Flowering commonly occurs in summer with var. macrocarpus flowering slightly earlier than var. pallidus. Mature seed heads are often found in late spring and through summer and autumn.

Ecology: A common plant in a wide range of vegetation types, particularly on clay soils but not restricted to them. It is often found in depressions and in other wet areas.

The Problem: A common weed of summer cropping, particularly in irrigated crops like cotton. The weed is also found in summer fallows. It can be an alternative host to some pathogens which cause cotton diseases.

Distribution: A common weed in the eastern states of Australia. Only var. macrocarpus has been recorded in Southern NSW.

Origin: A native weed.

Reference:

Crop Weeds of Northern Australia, p.113 – 118.

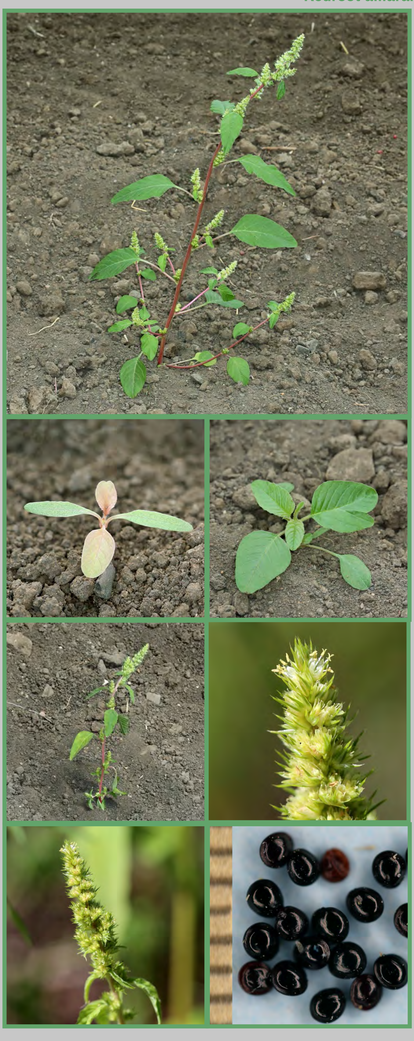
Plants of Western New South Wales, p. 282 – 283.

WEEDS of the South-East, p. 94.

Compiler: Graham Charles and Stephen Johnson

Amaranthus retroflexus L.

Redroot amaranth



Family: Amaranthaceae (Amaranth family).

Common names: Redroot amaranth, American pigweed, Careless weed, Redroot, Redroot pigweed, Reflexed amaranth.

Confused with: There are a number of native and introduced amaranths in Australia, many of which are reasonably similar. They can be distinguished by their growth habit and flowering heads. Redroot can easily be identified by pulling out a plant and checking the root colour – which for redroot amaranth is red.

Description:

Seedlings – are a rounded paddle-shape, tapering gently to the end with rounded ends, 13 – 15 mm long and 3 – 4 mm wide, borne on stalks 10 – 12 mm long. They are pale green and may be reddish towards the base. The 1st true leaves are more rounded, 20 – 30 mm long by 15 – 20 mm wide, borne on stalks 25 – 30 mm long. The main veins are lighter in colour, as are the undersides of the leaves, where the veins are more prominent.

Adult Leaves – are alternate, a broad spear head in shape, 4 - 7 cm long, 2 – 4 cm wide, borne on stalks 1 – 3 cm long.

Mature Plants – an erect annual weed to 1 m tall with a stout red tap-root and often with a reddish tinge on the stems. The leaves and stems are covered with fine, pale hairs to 1 mm in length.

Flowers – are borne in dense clusters at the leaf nodes, becoming most prominent tat the ends of the main stems. The clusters are initially green, becoming brown at maturity.

Seeds – are glossy black, 1 – 1.2 mm long, circular, with an indented centre.

Lifecycle / Biology: A summer growing annual weed that germinates and grows in spring, summer and autumn. Flowering occurs in summer and autumn and seeds may have a high degree of dormancy, lasting in the seed bank for several years.

Ecology: A minor weed of roadsides, cultivation and disturbed places. Redroot amaranth is a highly competitive weed of cropping elsewhere in the world, adapted to a wide range of soil types and situations.

The Problem: A relatively uncommon weed of roadsides and cropping in Australia, but a very serious weed that has developed resistance to many herbicide modes of action elsewhere in the world. This weed is highly competitive and grows much more vigorously to around 3 m in height in the US, for example.

Distribution: Redroot amaranth occurs throughout eastern NSW and Victoria.

Origin: An introduced weed from tropical America.

Reference:

Plants of Western New South Wales, p. 284.

WEEDS of the South-East, p. 94

Compiler: Graham Charles

Amaranthus viridis L.

Green amaranth

Family: Amaranthaceae (Amaranth family).

Common names: Green amaranth, Kerb weed, Prince of Wales' feather.

Confused with: There are a number of native and introduced amaranths in Australia, many of which are reasonably similar. They can be distinguished by their growth habit and flowering heads.

Description:

Seedlings – are a rounded paddle-shape, tapering gently to the end with rounded ends, 10 – 12 mm long and 2.5 – 3 mm wide, borne on stalks 4 – 6 mm long. The upper surface is green, but the lower surface reddish. The first true leaves are more of a rounded diamond in shape, 12 – 15 mm long by 8 – 11 mm wide, borne on stalks 5 – 9 mm long. The main veins are lighter in colour, as are the undersides of the leaves, where the veins are more prominent.

Adult Leaves – are alternate, a broad spear head in shape, 14 - 85 mm long, 9 – 60 mm wide, borne on stalks 7 – 70 mm long.

Mature Plants – are erect and spreading, often with a reddish tinge on the stems. The leaves and stems are mostly hairless.

Flowers – are yellow, borne in dense clusters at the ends of the stems and the upper leaf forks. The clusters are green to brown, 4 - 12 cm long.

Seeds – are dirty brown, 1.5 – 2 mm long, a pointed sphere, with a lighter coloured membranous attachment remaining. The seed surface is highly wrinkled.

Lifecycle / Biology: A spreading annual species to 60 cm high or more, that germinates and grows in spring, summer and autumn. Flowering commonly occurs in summer and autumn. It is a prolific seeder, with large numbers of seedlings often emerging following summer rains.

Ecology: A weed of disturbed places and wetter areas. Frequently occurring in gardens.

The Problem: A weed of summer cropping, more likely in wetter years and more problematic in the wetter areas.

Distribution:

Origin: An introduced weed from tropical America.

Reference:

Crop Weeds of Northern Australia, p.113 – 118.

Plants of Western New South Wales, p. 284.

WEEDS of the South-East, p. 94.

Compiler: Graham Charles

Gomphrena celosioides Mart.

Gomphrena weed

Family: Amaranthaceae (Amaranth family).

Common names: Gomphrena weed, Soft khaki weed, White-eye.

Confused with: Can be confused with khaki weed (Alternanthera pungens), but is readily distinguished by the less rounded leaf shape and the soft, spineless "burrs" that develop in clusters at the ends of the branches.

Khaki weed has rounder leaves and spiny burrs that develop in clusters along the length of the branches.

Description:

Seedlings – Cotyledon leaves are long and narrow, with rounded ends. The cotyledons are light, glossy green, but are pale and pinkish towards the base.

Early Leaves – plants initially develop in a loose rosette shape. The early leaves are glossy, dark green and noticeably hairy on the margins, long and narrow, broadening for most of their length before rounding to a slightly pointed tip. Leaves are 10 – 15 cm long and 1 – 2 cm wide. The have a pale centre-rib that may become reddish towards the base. The underside of the leaves is greyish and covered in short hairs.

Later Leaves – plants enter the reproductive stage while still quite small and later leaves are borne on red stems that are covered in hairs. These leaves are opposite, shorter and rounder than the earlier leaves, 40 – 80 mm long and 15 – 20 mm wide.

Plants – a spreading annual or perennial plant to 50 cm width with ascending flower heads to 25 cm height.

Flowers – are bright yellow but very small, persisting in the seed heads. The heads contain dense clusters of flowers and are 10 – 40 mm long and 10 – 12 mm wide. The heads occur on the terminal ends of branches, cm long.

Seeds – are enclosed in a hairy burr-like white capsule 6 – 7 mm long.

Lifecycle / Biology: A tap-rooted annual or short-lived perennial species that emerges mainly in spring and flowers and sets seed during the warmer months.

Ecology: Occurs on a range of soil types and situations. It is most common on sandy soils but will persist on heavy clays.

The Problem: Gomphrena weed is a minor weed of cotton but can be persistent in cultivation due to its strong tap-root. It is more problematic in wetter areas, including irrigation fields. It is commonly seen in lawns and gardens.

Distribution: Found throughout the cotton area.

Origin: A native of South America.

Reference:

Plants of Western New South Wales, p. 284 - 285.

Compiler: Graham Charles

Ammi majus L.

Bishop's weed

Family: Apiaceae (Carrot family).

Common names: Bishop's Weed, Bullwort, Meadowsweet, Queen Anne's Lace, Woodnep.

Confused with: Parthenium weed (Parthenium hysterophorus) and Hemlock (Conium maculatum).

Description:

Seedling Leaves – the seedling leaves have a long oval-shape and are hairless.

Early Leaves – the first true leaf may be oval or divided, with serrated leaf margins. Later seedling leaves are usually divided into three to five leaflets.

Adult Leaves – the leaves at the base of the plant are 30 - 150 mm long, but are divided into oval-shaped segments, 10 - 60 mm long and 2 - 20 mm wide. The leaves on the upper stem have narrower segments. All the leaves have toothed or serrated margins.

Mature Plants – mature plants grow upright from 25 - 130 cm high, are hairless and also have divided leaves.

Flowers – the flowers are white, flat topped and numerous, clustered into a 30 - 70 mm wide umbel (a flower head shaped like an inside out umbrella in which all the flower stalks all arise from a single point). The stem of this flower head is up to 20 cm long. Beneath each umbel is a ring of leaf-life bracts that may be up to 50 mm long. Individual flowers have five petals, are 1.5 - 3 mm in diameter and are borne on stalks 1 - 10 mm long.

Seed heads – each flower produces a seed head with two oblong- or egg-shaped segments, 1.5 - 2 mm long, with pale ridges.

Lifecycle / Biology: An annual or biennial plant that germinates during winter and spring . Flowering mainly occurs in spring and summer but may continue through until July.

Ecology: Commonly found in disturbed wasteland near habitation, roadsides and pastures.

The Problem: Rarely found in cultivated cotton fields but is a common weed on disturbed ground beside fields, roads and in waste areas on farm.

Distribution: Found throughout most of Australia. Common on the roadsides throughout the cotton area, although its presence is very seasonal. It can occur at very high densities when suitable wet winter and spring conditions occur.

Origin: An introduced species. A native of Europe, Asia and North Africa.

Reference:

Plants of Western New South Wales, p. 539 - 540.

WEEDS of the South-East, p. 98.

Compiler: Graham Charles

Foeniculum vulgare Mill.

Fennel

Family: Apiaceae (Carrot family).

Common names: Fennel, Anise, Aniseed, Aniseed weed, Dill, Sweet anise.

Confused with:

Description:

Seedling Leaves – the cotyledons are long and fine with a rounded tip, 15 – 18 mm long and 1 mm wide. The 1st true leaf is radically different, feathery, with 4 or 5 sets of fine leaflets, collectively 35 – 40 mm long, 65 – 70 mm wide and borne on a petiole 40 – 45 mm long. Later leaves are progressively larger, borne on increasingly robust stems.

Leaves – are alternate along the stems, feathery, 30 – 50 cm long, with multiple sets of thread-like leaflets 1 - 10 cm long. The leaves are borne on stems 5 – 15 cm long that have a clasping, hollow sheath.

Plants – a tall, multi-stemmed strongly aromatic annual or short-lived perennial herb 1 – 3 m tall with a stout, branched taproot. Plants can be very bushy in the vegetative stage but rapidly elongate and become less compact in the reproductive phase. Plants may regrow from the crown.

Flowers – are borne on the ends of the branches in clusters 3 – 20 cm in diameter borne on stems to 12 cm long. These clusters are made up of 8 – 30 smaller clusters, 5 – 15 mm diameter, of 10 – 30 small yellow flowers with yellow petals around 1 mm long.

Seeds – are greyish-brown, 4 – 10 mm long, with 5 raised pale yellow ribs running the length of the seed.

Lifecycle / Biology: An annual or short-lived perennial herb that germinates at any time of the year and grows mainly from late winter through to autumn, flowering over spring and summer.

Ecology: Occurs on a range of soil types and situations.

The Problem: Fennel is a minor weed in the southern cotton area, growing on road sides, channel banks and waste areas.

Distribution: Occurs in most states of Australia. Fennel is established on waste areas, roadsides, channel banks and in pastures.

Origin: An introduced species from Europe and Asia. Selected cultivars are grown as a vegetable and for flavouring and medicines.

Reference:

Plants of Western New South Wales, p. 542.

WEEDS of the South-East, p. 102.

Compiler: Graham Charles

Gomphocarpus fruticosus (L.) W.A.Aiton

Wild cotton

Family: Asclepiadaceae (Milkweed family).

Common names: Wild cotton, Arghel of Syria, Balloon cotton, Balloon cotton bush, Cape cotton, Cotton bush, Duck bush, Milkweed, Narrow-leaf cotton bush, Swan plant, Wild cotton bush.

Confused with: Easily confused with balloon cotton bush (G. physocarpus), which is very similar in the vegetative stage but has a more rounded fruit pod without a beaked end.

Description:

Seedlings – Cotyledon leaves are paddle shaped, with rounded ends, 10 – 13 mm long and 4 – 6 mm wide. The cotyledons are light green, but are pale towards the base, with a reddish, finely haired stem. The 1st true leaves much longer and initially narrower, with a more pointed tip, expanding to 30 – 35 mm long and 6 – 8 mm wide with a short petiole. Leaves emerge as opposite pairs. The 2nd pair of true leaves is 45 – 50 mm long and 10 – 12 mm wide.

Leaves – are smooth, 4 – 12 cm long and 5 – 18 mm wide, with petioles 3 – 10 mm long, Leaves taper over most of their length to a fine point. They have a pale mid-rib and are slightly folded about the rib.

Plants – a 0.5 – 2 m tall slender biennial or perennial shrub with few branches or only a single main stem. Plants have woody branches and are sticky, with a milky sap.

Flowers – are creamish-white, borne in drooping clusters of 3 – 10, on stems 25 – 30 mm long, emerging from the tops of the branches. The flowers emerge from the cluster on stems 20 – 30 mm long and are 12 – 20 mm across, with 5 petals. The centre of the flower is raised above the level of the petals, with 5 pouched segments around the centre.

Fruit – are balloon like, 4 – 6 cm long, ending in a beak and covered in soft spines on both the inner and outer surfaces. The fruit contain numerous seeds

Seeds – are dark brown, 6 – 7 mm long, with a tuft of white, silky hair. Seeds have a distinctive folded shape.

Lifecycle / Biology: A biennial or perennial shrub that emerges at any time of the year, mainly growing over the warmer months and flowering from spring to autumn.

Ecology: Occurs on a range of soil types, from sandy soils to heavy clays, but more common with higher fertility. Often present along river banks and around dams and fence lines.

The Problem: Wild cotton is a minor weed of cotton, spreading along the river banks and around channels etc. It is more problematic in pastures where dense populations can develop as it is avoided by stock. It is very poisonous to both humans and livestock but rarely eaten.

Distribution: Found throughout the central and northern parts of the cotton area, most commonly on waste areas, river banks and in pastures.

Origin: A native of South Africa.

Reference:

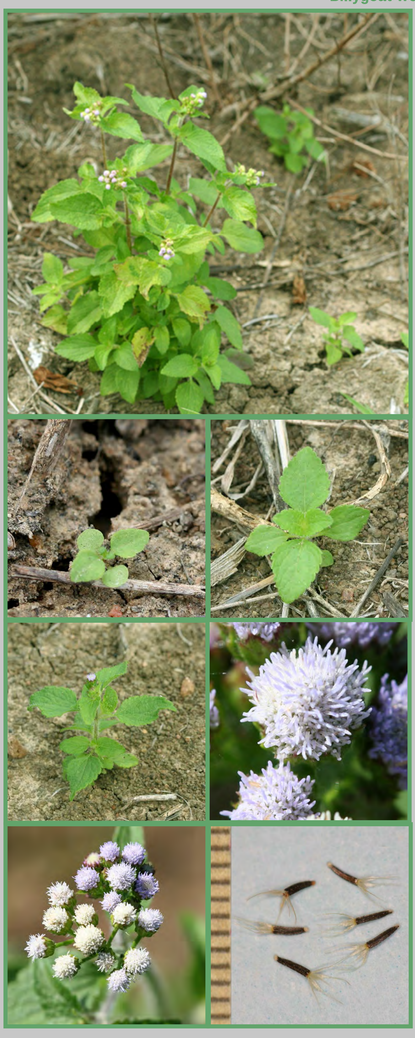
Plants of Western New South Wales, p. 554.

WEEDS of the South-East, p. 109.

Compiler: Graham Charles

Ageratum conyzoides L.

Billygoat weed



Family: Asteraceae (Daisy family).

Common names: Billygoat weed, Blue bonnet, Bluetop, Goatweed.

Confused with: Billygoat weed and blue billygoat weed (A. houstonianum) are very similar and readily confused. Billygoat weed is more common in northern Queensland.

Description:

Seedlings – cotyledons leaves are circular to egg shape, 3 mm long by 3.5 mm wide.

Early Leaves – are broadly egg-shaped, with lightly serrated margins. The serrations are widely spaced, rounded and shallow. Later leaves have obviously serrated margins and clearly defined veins.

Adult Leaves – are egg shaped to triangular, arranged in opposite pairs along the stems. Leaves are 10 – 100 mm long and 10 - 60 mm wide, borne on stems 5 – 50 mm long. Leaves are mid-green and lightly hairy.

Mature plant – an erect annual or short-lived perennial plant 30 – 100 cm high with hairy stems.

Flowers – are 4 – 5 mm across, pale lavender blue to white. They occur in fluffy clusters on the end of erect or slightly drooping stems.

eds – seeds 1 - 3 mm in length, black and topped by a fluffy pappus of 5 white hairs, 1.5 - 3 mm in length which assists the seeds in wind dispersal.

Lifecycle / Biology: An annual or short-lived perennial plant which emerges and flowers year round.

Ecology: Occur on a wide variety of soil types.

The Problem: Billygoat weed is a major weed of cropping in northern Queensland and a common weed of pastures and disturbed areas.

Distribution: Occurs New South Wales north coast, Queensland and the Northern Territory. It is most common in northern Queensland and the Northern territory. It is a major weed in the Burdekin region.

Origin: An introduced species from tropical America.

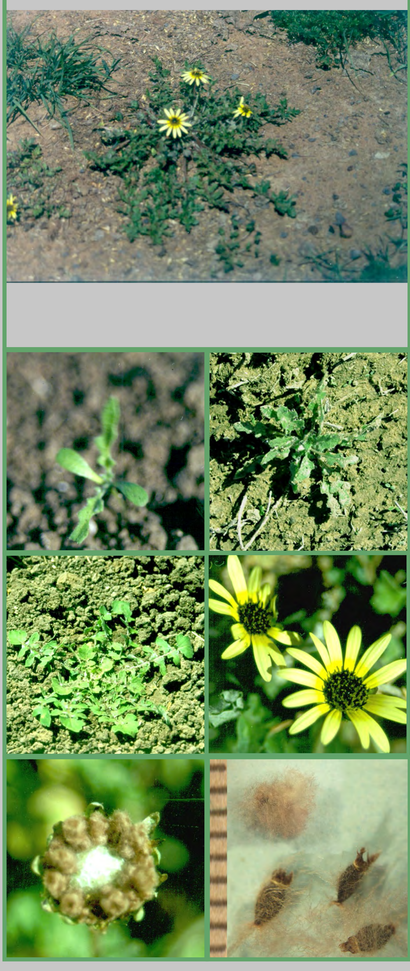
Reference:

Crop Weeds of Northern Australia, p. 104 - 105-WEEDS of the South-East, p. 113.

Compiler: Graham Charles

Arctotheca calendula (L.) Levyns

Capeweed



Family: Asteraceae (Daisy family).

Common names: Capeweed, African marigold, Cape dandelion.

Confused with:

Description:

Seedlings – cotyledon leaves are long with a rounded end. Leaf width increases from the base to the end. The first true leaves have a wavy outline which becomes lobed in later leaves.

Leaves – 5 – 25 cm long and 2 – 6 cm wide, becoming increasingly lobed with age. Leaves are green, but their undersides are paler to white and covered in fine down. Leaves have a prominent lighter coloured rib.

Plants – a succulent annual with a strong rosette up to 50 cm in diameter. The stems are soft and juicy, covered with fine white hairs. They can stand 30 cm tall.

Flowers – occur on the ends of the stems. Flowers have a black centre 15 mm in idameter, surrounded by 15 – 20 prominent yellow petals 12 – 25 mm in length that may become paler away from the centre.

Seeds – are enveloped in a brown cotton like mass and are difficult to extract from this envelope. Seeds are dark brown, 2.7 mm long and 1 mm wide.

Lifecycle / Biology: Seedlings germinate after rain in autumn and winter and flower in spring. Whole paddocks can be covered in yellow capeweed flowers in spring. Plants die off as temperatures increase.

Ecology: Occurs throughout the farming area of Australia. It is adapted to most soil types, although it is better suited to the lighter soil types and grows most aggressively on highly fertile soils.

The Problem: Capeweed develops a strong, highly competitive rosette, choking out most other crop and pasture plants. It is well adapted to the climate of the tablelands, slopes and plains and can occur at very high densities. It may come to dominate degraded pastures and cropping areas, limiting the reestablishment of other more desirable annual and perennial species.

Distribution: Found throughout Australia. Capeweed is a very common pest of pastures and winter crops in the farming belt of Australia.

Origin: A native of South Africa.

Reference:

Plants of Western New South Wales, p. 680 - 681.

WEEDS of the South-East, p. 115.

Compiler: Graham Charles

Bidens pilosa L.

Cobbler's peg

Family: Asteraceae (Daisy family).

Common names: Cobbler's pegs, Beggar's tick, Blackjack, Burr marigold, Cowage, Devil's pitchfork, Farmer's friend, Hairy beggar-ticks, Hairy bidens, Pitchforks, Poor man's friend, Spanish needle, Stickfast, Sticktight, Stickybeak.

Confused with: Greater beggar's ticks (B. subalternans), but is readily distinguished by the leaf shape.

- Cobbler's pegs has a rounded, 3 or occasionally 5-lobed leaf, whereas
- Greater beggar's ticks has a 5 or 7-lobed leaf with numerous lesser lobes.

Description:

Seedlings – cotyledons leaves are a long spear shape, 10 – 25 mm long and 1.5 – 4 mm wide, tapering to a rounded tip, borne on a short stalk, 2 – 3 mm long. The 1st true leaves are 5-lobed, 20 – 25 mm long and wide, borne on a stalk 5 – 7 mm long. The basal lobes develop after the leaf emerges and are more rounded, with a serrated edge.

Leaves – are arranged in opposite pairs along the stems which may be green or purplish, borne on stems 2 – 4 cm long. The leaves are 6 – 12 cm long with 3 o r occasionally 5-lobes, with the lobes varying from oval to shovel-shaped or diamond shaped, with serrated edges. These lobes are 1.5 – 8 cm long and 0.5 – 5 cm wide, borne on stems 1 – 6.5 cm long

Mature Plants – a spreading, erect annual plant to 1 m in height. Stems are purplish and squarish, and may develop adventitious roots develop from the stem nodes if these touch the ground.

Flowers – are clustered at the ends of the stems. The flowers are yellow, 5 – 15 mm across, sometimes with white ray-flowers on the outside up to 15 mm long. At maturity, the flowers spread to a spherical ball, 25 – 30 mm across, with the burrs sticking out.

Fruit – a sticky burr with 2 or 3 creamy-white prongs, 2 – 4 mm long at the end. The burr is dark brown, 4 – 16 mm long, with parallel indentations running the length of the burr and short, white barbs along the sides that point towards the prongs. The prongs are also barbed, with the barbs pointing back to the burr.

Lifecycle / Biology: Seedlings emerge in spring and summer following rain and can flower soon after emergence, depending on soil moisture. Plants generally flower over summer and autumn.

Ecology: Is adapted to a wide range of conditions, occurring throughout mainland Australia, but most commonly occurs on loam or clay soils.

The Problem: Cobbler's pegs is a major weed of cropping in the tropics and semi-tropics around the world. It can be a serious weed of pastures and creeks. It can be a serious weed of cropping, but is generally managed with herbicides. It is a serious contaminator of wool but only a minor irritant for cattle.

Distribution: Occurs throughout the mainland states of Australia and throughout the cotton growing area, but most common in the easterly parts of central and northern NSW and southern Qld.

Origin: An introduced weed from tropical America.

Reference:

Crop weeds of Northern Australia, p. 108 - 109.

Plants of Western New South Wales, p. 665.

WEEDS of the South-East, p. 119.

Compiler: Graham Charles

Carthamus lanatus L.

Saffron thistle

Family: Asteraceae (Daisy family).

Common names: Saffron thistle, Distaff thistle, False star thistle, Woolly safflower, Woolly star thistle, Woolly thistle, Yellow star thistle.

Confused with: There are a number of thistles which may appear similar in the rosette stage. Saffron thistle is distinctive at the mature stage, but in the vegetative stage could be confused with safflower (C. tinctorius), star thistle (Centaurea calcitrapa), golden thistle (Scolymus hispanicus) or spotted golden thistle (S. maculates).

Description:

Seedlings – the cotyledon leaves are glossy green and spoon shaped, 12 – 17 mm long by 6 – 9 mm wide.

Early Leaves – the first true leaves are spoon shaped, but with a more pointed tip. They are lightly serrated, with each serration tipped by a short spine, and have an indented, white central vein. Later leaves are more heavily serrated and become highly multi-lobed with each protrusion tipped by a sharp spine. Leaves grow up to 150 mm long. Plants form a dense rosette.

Later Leaves – plants develop a central rigid, erect stem as temperatures rise in spring. Clasping, stalkless, rigid leaves develop along the stem. They are prominently veined, lobed and terminate with long, rigid, sharp spines. Numerous smaller spines tip the lobes along the sides of the leaves.

Plants – an erect annual herb, 80 - 120 cm tall with rigid stems. Plants are unbranched at the base, but become multi-branched towards the top. Each branch terminates with a flower head.

Flower heads – single heads develop at the end of each branch. The flowers are creamy yellow and are clasped within the flower head. The flowered head is surrounded by several rows of rigid, lobed leaves tipped and edged with spines. Head are 50 – 70 mm wide, including the spined leaves.

Seeds – are 5 – 7 mm long, grey-brown and wedge shaped. They are topped with a stiff pappus 7 – 10 mm long.

Lifecycle / Biology: An annual plant that germinates after rain in autumn or early winter and forms a dense, competitive rosette. In spring a rigid, erect central stem develops and the rosette leaves die off. Flowers develop in spring and early summer. Some plants may germinate following rain in spring and flower in late summer and autumn. Seeds of saffron thistle may remain dormant in the soil for several years.

Ecology: Adapted to a range of soil types, but most common on better soils with high fertility. Saffron thistle is a common invader of improved pastures and winter crops.

The Problem: A competitive, widely occurring, major weed of winter crops, pastures and waste areas. Plants are palatable to livestock in the rosette stage, but are not eaten once the central stem develops. Spines can cause injuries and remain problematic for months after the plants mature. Mature plants can be a serious problem in cereal crops, choking harvesting equipment and contaminating grain samples. Seeds are difficult to remove by grading. Saffron thistle is readily controlled with herbicides such as 2,4-D amine in cereal crops, but is difficult to control in pastures where legumes are a valuable component of the pasture.

Distribution: One of the most widely distributed introduced weeds in Australia. Saffron thistle occurs in every state.

Origin: Originating from Europe.

Reference:

Plants of Western New South Wales, p. 721 - 722.

WEEDS of the South-East, p. 122.

Compiler: Graham Charles

Carthamus tinctorius L.

Safflower

Family: Asteraceae (Daisy family).

Common names: Safflower.

Confused with: Safflower could be confused with saffron thistle (C. lanatus), star thistle (Centaurea calcitrapa), golden thistle (Scolymus hispanicus) or spotted golden thistle (S. maculates). However, it differs to the other species in that safflower has undivided leaves.

Description:

A range of varieties of safflower are available and could range widely in their appearance, not necessarily conforming to the description given here.

Seedlings – the cotyledon leaves oval shaped with a slightly flattened end, 20 – 25 mm long and 10 – 15 mm wide.

Leaves – the first true leaves spoon shaped, but with a more pointed tip, an indented, white central vein and are lightly serrated, with each serration tipped by a short spine. Later leaves are larger, up to 12 cm long ad 3 cm wide, but retain the same basic shape.

Plants – an erect annual multi-branched herb, 0.6 - 1 m tall which looks thistle-like but does not have harsh spines during the early and mid-growth stages while still green. Depending on the variety and time of emergence, plants may develop a rosette or may grow directly from a seedling into an erect plant, as in the identification photos. The rosette stage is more likely to develop in plants that emerge in autumn and early winter, especially in the more southern areas.

Flower heads – single heads 2 – 5 cm diameter develop at the end of each branch, with 1 – 5 sub-branches developing at the end of each main branch and each sub-branch terminating in a head. The flowers are yellow, orange or reddish and are clasped within the flower head.

Seeds – are 5 – 9 mm long, depending on the variety, light-brown, glossy and roughly wedge shaped.

Lifecycle / Biology: An annual plant that germinates after rain in autumn and early winter and flowers in spring and early summer. Safflower has little hard seed and is not frost-tolerant in the flowering stage.

Ecology: Adapted to a range of soil types, but most common on better soils with high fertility. Safflower has a deep tap root and is relatively drought tolerant and able to compete for moisture and nutrients.

The Problem: Not a common weed, but plants may occur along roadsides and volunteers can be an issue in a following crop.

Distribution: Safflower could be grown anywhere in the cropping zone, but is a relatively uncommon crop.

Origin: Originating from Europe.

Reference:

Plants of Western New South Wales, p. 721

WEEDS of the South-East, p. 122 - 123.

Compiler: Graham Charles

Centaurea melitensis L.

Maltese cockspur

Family: Asteraceae (Daisy family).

Common names: Maltese cockspur, Cockspur thistle, Malta thistle, Maltese thistle, Napa star thistle, Saucy Jack, Wild Irishman, Yellow burr cockspur, Yellow cockspur.

Confused with: St. Barnaby's thistle (C. solstitialis). The species are similar in all growth stages, but the heads of Maltese cockspur have numerous spines 4 – 10 mm long, whereas the heads of St. Barnaby's thistle have a lesser number of prominent spines 15 – 20 mm long.

Description:

Seedling Leaves – are oval, 5 - 6 mm long by 4 mm wide. The first true leaves are initially oval, 10 – 25 mm long and 7 – 12 mm wide, borne on stalks 7 – 11 mm long. The leaves are noticeably hairy and become increasingly elongated with time, developing lightly lobed edges. Successive leaves are longer and more lobed.

Rosette **Leaves –** are covered in short, soft white hairs. The leaves are 4 – 14 cm long, 1 – 6 cm wide and highly lobed.

Adult Leaves – the leaves on the stems are much smaller, 1 – 7 cm long, but with the lower half of the leaf connected to the stem, creating wings on the stems. The leaves are widest where they are fused to the stems, 6 – 12 mm wide and narrower 3 – 8 mm where they are free. They are mainly paddle-pop stick shaped, with slightly wavy edges.

Plants – a semi-erect annual 0.2 - 1 m tall, with highly branched stems covered in hairs to 1 mm in length.

Flowers – are bright yellow, emerging from a tight green head 8 – 12 mm across, surrounded by spines that may be reddish. The spines are multi-pronged, the main spine 4 – 10 mm long, with short lateral spines towards the base. Heads are borne singularly at the ends of the branches or in groups of 2 or 3 heads.

Seeds – are glossy, light brown with a pale longitudinal stripe, 3 mm long and 1 mm wide, with an indented hook at the end. The seeds are topped with a parachute of pale hairs 2.5 – 3 mm long.

Lifecycle / Biology: An annual weed that germinates following rain in autumn and early winter, forming a rosette. Flowering branches develop in spring, with plants flowering from spring into summer.

Ecology: An introduced weed that grows on disturbed and over-grazed areas. Adapted to a range of soil types from sandy to loamy red earths through to heavy black clays.

The Problem: Maltese cockspur is a minor weed, normally controlled by cultivation or grazing management.

Distribution: A weed throughout southern and central Australia, common from the Darling Downs through to Victoria. Found on disturbed and over-grazed areas, pastures and roadsides.

Origin: Native to Europe.

Reference:

Crop Weeds of Northern Australia, p. 59 - 60.

Plants of Western New South Wales, p. 720.

WEEDS of the South-East, p. 125

Compiler: Graham Charles

Centaurea solstitialis L.

St. Barnaby's thistle

Family: Asteraceae (Daisy family).

Common names: St. Barnaby's thistle, Golden star thistle, yellow centaurea thistle, Yellow cocksspur, Yellow star thistle.

Confused with: Maltese cockspur (C. melitensis). The species are similar in all growth stages, but the heads of Maltese cockspur have numerous spines 4 – 10 mm long, whereas the heads of St. Barnaby's thistle have a lesser number of prominent spines 15 – 20 mm long.

Description:

Seedling Leaves – are oblong, 8 mm long by 5 - 6 mm wide. The first true leaves are initially oval, 10 – 15 mm long and 5 – 6 mm wide, borne on stalks 2 – 5 mm long. These leaves are noticeably hairy and become increasingly elongated with time, developing lightly lobed edges. Successive leaves are longer and more lobed.

Rosette **Leaves –** are greyish, covered in short, soft white hairs. The leaves are 6 – 20 cm long, 1 – 6 cm wide and highly lobed.

Adult Leaves – the leaves on the stems are much smaller and thin, 1 – 11 cm long and 2 – 20 mm wide, but with the base of the leaf merging with the stem, creating narrow wings on the stems. The lower leaves are lobed, but the upper leaves are much smaller, with slightly wavy edges.

Plants – an annual weed 0.2 - 1 m tall, with one to several greyish, branched stems covered in fine hairs, with much longer hairs in the stem junction, to 6 mm in length.

Flowers – are bright yellow, emerging from a tight green head 4 – 15 mm across, surrounded by stout spines. The main spines are yellowish, 10 – 30 mm long, with a pair of short spines at the base of each main spine and additional short spines to 2 mm long towards the base of the head. Heads are borne singularly at the ends of the branches.

Seeds – are of two types. Either glossy, mottled pale brown, 1 - 4 mm long and to 2 mm wide, with a parachute of pale hairs 4 – 6 mm long, or mottled dark brown, 3 - 4 mm long and 1 – 2 mm wide, with no parachute.

Lifecycle / Biology: An annual or occasionally biennial weed that germinates following rain in autumn and early winter, forming a rosette. Flowering branches develop in spring, with plants flowering mainly from spring into summer.

Ecology: An introduced weed that grows on damp and disturbed. Adapted to a wide range of soil types.

The Problem: St. Barnaby's thistle is a minor weed, normally controlled by cultivation or grazing management.

Distribution: A widespread weed throughout southern and eastern Australia, common from central Queensland through to Victoria. Found on disturbed and over-grazed areas, pastures, crops and road-sides.

Origin: Native to Europe and western Asia.

Reference:

Crop Weeds of Northern Australia, p. 59 - 60.

Plants of Western New South Wales, p. 720

WEEDS of the South-East, p. 126.

Compiler: Graham Charles

Cichorium intybus L.

Chicory

Family: Asteraceae (Daisy family).

Common names: Chicory, Belgian endive, Succory, Wild succory, Witloof.

Confused with:

Description:

Seedling Leaves – are initially rounded in shape with a squared end, but become more club-shaped with age and are unequal in size. The cotyledons are 8 – 12 mm long and 4 – 10 mm across, borne on short stalks 2 – 3 mm long, light green in colour. The first true leaf is oblong to club-shaped with a lightly irregular edge, with short hairs obvious on the edge. The leaf grows to 25 - 30 mm long by 15 - 20 mm wide, borne on a stalk 15 mm long. The 2nd and 3rd true leaves are much longer, 150 – 200 mm long by 30 - 40 mm wide and have serrated edges

Early Leaves – are lobed, 5 – 30 cm long, 1 – 12 cm wide and borne on stems 6 – 8 cm long. These leaves develop in a rosette about the plant base.

Adult Leaves – clasp the stems and become smaller and less lobed up the stems, with almost no leaves at the top of the stems.

Plants – a perennial herb that initially forms a rosette and later an erect plant 30 – 120 cm high with multiple stems and a thick tap root.

Flowers – develop at the ends of the branches and in the stem axils, singularly or in clusters. The flowers are mauve-blue, 25 – 50 mm across, with12 petals that are squared and toothed at the ends.

Seeds – are straw coloured, wedge shaped with a rounded end, terminating in a crown of short, white hairs. Seeds are 1.5 - 3 mm long and 0.7 – 1.5 mm wide.

Lifecycle / Biology: A perennial plant herb can act as an annual in cultivation. Seeds germinate in the autumn and winter, flowering in spring and summer. Plants may continue to re-grow from the crown for many years.

Ecology: An introduced herb, used both for human consumption and as a pasture species. It is well adapted to the higher rainfall areas and heavier soils.

The Problem: Chicory is not a common weed of cotton production. It is a weed of roadsides, channels and waste areas, and can be problematic in cultivation.

Distribution: Chicory was widely cultivated as a salad vegetable and is grown as a pasture species in the higher rainfall areas. It has also become a widespread weed, occasionally problematic in cropping. It occurs widely throughout Australia.

Origin: A native of Europe, North Africa and Asia.

Reference:

Crop weeds of Northern Australia, p. 65 - 66.

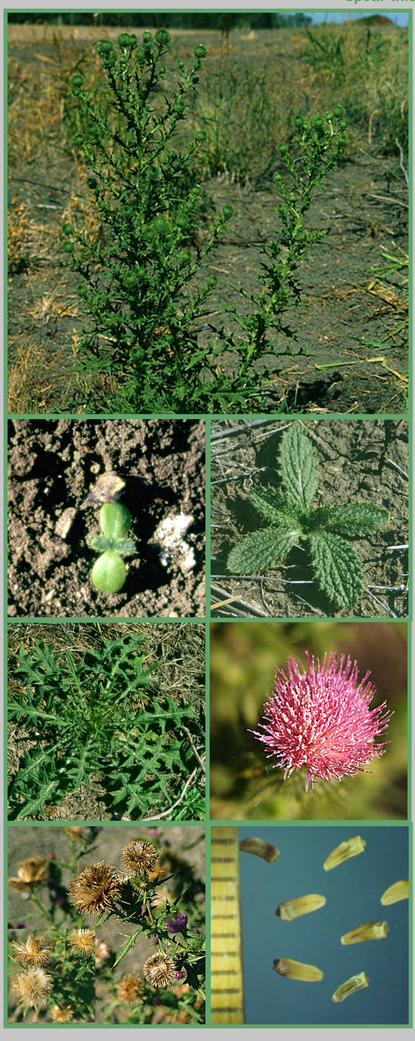
Plants of Western New South Wales, p. 714.

WEEDS of the South-East, p. 128.

Compiler: Graham Charles

Cirsium vulgare (Savi) Ten.

Spear thistle



Family: Asteraceae (Daisy family).

Common names: Spear thistle, Black thistle, Bull thistle, Fuller's thistle, Green thistle, Scotch thistle.

Confused with: Scotch thistle (Onopordum acanthium)

Description:

Seedlings – the cotyledon leaves are almost circular in shape, but longer than broad. The early true leaves are similar in shape, although more elongated and have prominent spines on their leaf margins. They are bright, waxy green in appearance

Leaves – older leaves are up to 30 cm long and 10 cm wide. They are deeply divided, with prominent long, sharp spines terminating each protrusion. Leaves on the stems and branches are alternate, becoming smaller on the higher branches. Leaves are dark green above, but white and woolly underneath.

Plants – an annual or biennial hairy weed that forms a dense rosette to 60 cm in diameter. A strong, spiny, branched stem to 1 m in height forms from the rosette, with each branch terminating in a flower head. The branches are winged and spiny.

Flower heads – are green to whitish and globular to ovoid in shape, 25 – 35 mm in diameter. They are covered in spines. The flower is bright crimson to purple in colour, with the colourful florets protruding from the top of the flower head.

Seeds – are grey to light brown, smooth, an elongated spade in shape, 2.5 – 6 mm in length. They are capped by a parachute of spreading hairs 8 – 11 mm in length that allows for some wind dispersion of this weed.

Lifecycle / Biology: Commonly germinates in autumn and winter, running up to head in spring. However, this weed is capable of establishing and flowering at any time of the year when conditions allow.

Ecology: Most common on fertile and heavy clay soils. A weed of irrigation, cultivation and pastures. Best adapted to more productive areas, drains, irrigation channels etc.

The Problem: Spear thistle develops into a large, highly competitive weed that is unpalatable to livestock and unacceptable in cropping.

Distribution: Found throughout most of Australia.

Origin: A native of the Mediterranean region.

Reference:

Crop weeds of Northern Australia, p. 58 - 59.

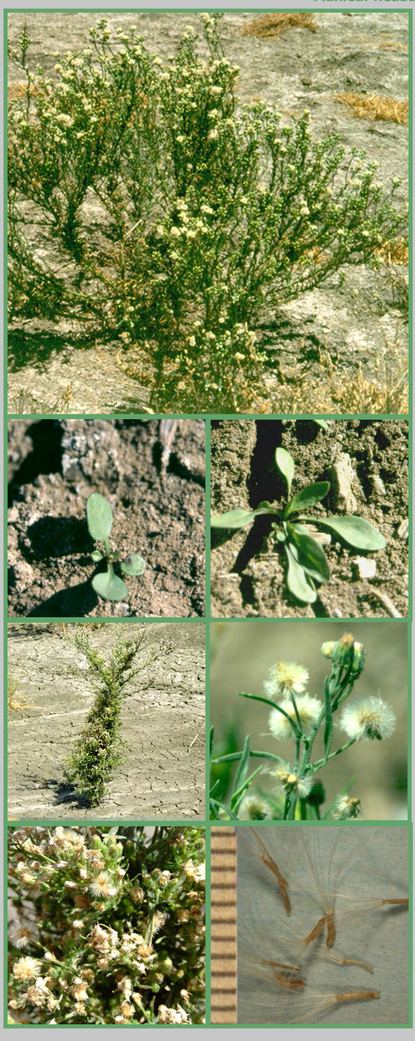
Plants of Western New South Wales, p. 723

WEEDS of the South-East, p. 129.

Compiler: Graham Charles

Conyza bonariesis (L.) Cronquist

Flaxleaf fleabane



Family: Asteraceae (Daisy family).

Common names: Flaxleaf fleabane, Ragweed, Rough conyza, Tall fleabane.

Confused with: Canadian fleabane (C. canadensis) and Tall fleabane (C. sumatrensis). The species can be distinguished by:

- **Branching –** the lateral branches of flaxleaf fleabane are at least as long as the main stem, whereas the main stem of tall fleabane is longer than the laterals.
- **Mature plant height –** flaxleaf fleabane are up to 1 m, where tall fleabane can be up to 2 m
- **Flowers –** Canadian fleabane flowers when flattened are about 5 mm across, in contrast to the other species where the flowers are about much larger at about 10 mm across.

Description:

Seedlings – the cotyledon leaves are long and thin (3 mm by 1 mm) with a rounded tip and hairless. The first true leaves are almost circular, 4 mm in diameter and are covered with short hairs.

Leaves –later leaves are more spoon shaped and may have notched margins. They are 2 - 10 cm long and to 15 mm wide and are softly haired. Later leaves on the stems are much smaller than the rosette leaves.

Plants – an annual or short-lived perennial plant that initially forms a rosette. The mature plant is large, erect and spreading to 1 m in height, and may be wider than height. It typically have numerous main branches that arise from the base of the plant. Numerous additional short secondary branches may develop towards the ends of the main branches.

Flower heads – are numerous, pale green to whitish and located at the end of each branch, about 1 cm across when pressed. They are often clustered around the end of a main branch.

Seeds – Seeds are light brown, 1.5 - 2 mm long and thin (about 0.5 mm), and tufted by a parachute of 16 – 20 fine hairs 4 – 6 mm in length that assist in the aerial dispersion of this weed.

Lifecycle / Biology: Generally emerges in autumn and winter and matures in spring, flowering from spring to autumn.

Ecology: Found on most soil types and situations. Common in pastures, waste areas and cultivation. Very well adapted to the minimum tillage cropping system. It is a prolific seed producer and seeds are readily dispersed by wind and water.

The Problem: Flaxleaf fleabane is becoming a serious weed of minimum tillage farming systems. It is relatively tolerant to glyphosate, is a prolific seed producer, and its establishment from its small seed is favoured by the microenvironment created by minimum tillage and stubble retention.

Distribution: Found throughout Australia.

Origin: A native of South America.

Reference:

Crop weeds of Northern Australia, p. 61 – 62

Plants of Western New South Wales, p. 662.

WEEDS of the South-East, p. 130.

Compiler: Graham Charles

Helianthus annuus L.

Sunflower

Family: Asteraceae (Daisy family).

Common names: Sunflower, Annual sunflower, Common sunflower.

Confused with: Wild sunflower (Verbesina encelioides). These plants can be distinguished by:

- **seedling leaf shape** – sunflower leaves are a slightly flattened oval shape with a pointed end. Wild sunflower are a blade shape, with a tapering, pointed end.
- **Adult plants** – sunflowers have dark green leaves and a single stem or may have some branching towards the top. Wild sunflowers are blue/green in colour and highly branched, with branches emerging from near the base.
- **Seeds** – sunflower has a flattened, wedge shape black seed with grey stripes. Wild sunflower has a smaller brown seed. The inner seeds in the head are winged, with a prominent pale wing surrounding the seed

Description:

Seedlings – can emerge from very deep in the soil. Cotyledon leaves are oar-shaped, 15 – 20 mm long and 5 – 8 mm wide. The first true leaves are rounded, with a pointed tip and prominent, white central vein, 20 – 30 mm long and 10 – 15 mm wide. A strong, hairy central stem quickly develops, lifting these leaves above the ground.

Leaves – are large, alternate, spade shaped, with a pointed and prominent veins. They have serrated edges and are up to 30 – 40 cm long and to 35 cm wide, borne on stalks 15 – 25 cm long.

Plants – in cultivation may be large, to 2 m in height, terminating in a large, dinner plate sized flower head. Sunflowers have a long taproot. In waste areas, plants are often shorter, multi-branched, with much smaller leaves and many, much smaller flower heads.

Flower heads – may be up to 30 cm across, with a ring of bright yellow "petals" 2 – 4 cm long surrounding the centre of the flower head. The flower head arranged in a complex pattern of whorls and is surrounded by 2 layers of green, pointed bracts. Flower heads generally face the sun, following the sun's path during the day. This pattern ceases as the heads mature. Heads become black at maturity as the flower parts drop off, exposing the seeds.

Seeds – are large, wedge shaped and flattened, 5 – 16 mm long, grey to black with longitudinal streaks.

Lifecycle / Biology: An annual or biennial, summer growing plant which is relatively drought tolerant. Volunteer plants can be seen at most times of the year, following rain, and will flower from spring through to autumn.

Ecology: Can occur on a range of soil types and situations, but prefers sandy soils and wetter places. Can be found on road sides, disturbed areas, waste area and fallow paddocks wherever sunflower is grown.

The Problem: Sunflower is a minor weed, with scattered plants occurring along roadsides wherever sunflowers are grown.

Distribution: Found throughout most of Australia where sunflowers are grown. It can also be a garden escape.

Origin: A native of North America.

Reference:

Plants of Western New South Wales, p. 679 - 680.

Compiler: Graham Charles

Helminthotheca enchoides (L.) Holub

Ox-tongue

Family: Asteraceae (Daisy family).

Common names: Ox-tongue, Bristley ox-tongue.

Confused with: There are a number of weeds that form rosettes and can easily be confused in the seedling stage. However, ox-tongue can be readily identified by the bristley raised spots on the leaves.

Description:

Seedlings – the cotyledon leaves are a slightly elongated circle in shape with a squarish and sometimes slightly indented end, 4 – 5 mm long and 3 – 4 mm wide. The 1st true leaf and subsequent leaves are covered in bristley hairs, with many hairs on the edges of the leaves and arising from raised spots on the leaves. The 1st true leaf is club-shaped, 15 – 20 mm long and 8 - 10 mm wide, thinning down to a stem-like base 3 – 5 mm long. The leaves have wavy edges and a prominent indented white mid-rib.

Rosette **Leaves –** plants develop in dense rosette 30 – 70 cm wide. The rosette leaves multi-lobed, 4 – 35 cm long and 1 – 10 cm wide.

Later Leaves – become progressively smaller up the plant, 10 - 55 mm long and 3 – 6 mm wide.

Plants – an erect, branched annual or biennial weed 0.3 - 1 m high.

Flowers – are bright yellow 10 – 30 mm across, with numerous flowers developing from the leaf axils along the stems. The flowers are borne on stalks 10 – 60 mm long.

Seeds – are brown 1.5 – 3 mm long and 0.5 - 1 mm wide, with a beak of similar length at the end, topped by a parachute of white feathery hairs 4 – 5 mm long. The seeds readily blow in the wind.

Lifecycle / Biology: A tap-rooted annual or biennial species that emerges mainly in autumn and winter and flowers and sets seed over the warmer months.

Ecology: Generally a weed of roadsides and waste areas, but does occur in pastures and cultivation country and in wetter areas, more commonly on heavier soils.

The Problem: Ox-tongue is a minor weed due to its limited distribution, but may be problematic locally. Its ready dispersal in wind and small seed suggests it is could become more problematic with minimal tillage farming.

Distribution: Ox-tongue occurs mainly in Victoria, eastern South Australia and southern NSW, but has been found up into southern Queensland.

Origin: A native of Europe, Asia and Africa.

Reference:

Plants of Western New South Wales, p717.

(Note. The genus name has changed from Picris to Helminthotheca.)

WEEDS of the South-East, p. 142.

Compiler: Graham Charles

Hypochaeris microcephala (Schultz-Bip.) Cabrera var. albiflora (Kuntze) Cabrera.

White flatweed

Family: Asteraceae (Daisy family).

Common names: White flatweed, Dandelion, Flatweed, White-flowered flatweed.

Confused with: • **Adult plants –** dandelion has a simple unbranched stem that ends in a flower head, while the flatweeds all have multi-branched stems.

• **Adult plants –** dandelion has a simple unbranched stem that ends in a flower head, while the flatweeds all have multi-branched stems.

• **Flowers –** white flatweed has a compact white flower, while the other species have bright yellow flowers that open more fully.

Description:

Seedlings – the cotyledon leaves are a rounded club-shape, 9 - 10 mm long and 1.5 - 2 mm wide. The first true leaves are much broader, with a wavy outline, 25 – 30 mm long and 13 – 15 mm wide. Successive leaves are longer and more deeply indented.

Older **Leaves –** are smooth and shiny, 5 - 30 cm long and 2 - 6 cm wide, with numerous deep lobes and a prominent white central vein.

Plants – develop a rosette up to 50 – 60 cm in diameter and have multiple branched branches 10 - 60 cm in height. The branches have much reduced leaves at the junctions and terminate in flower heads. These leaves are to 12 cm in length and 7 mm wide, but much smaller towards the terminals. The larger lower leaves may have minor protrusions reminisent of the lobes of the rosette leaves, but the upper leaves are sword shaped with 2 small protrusions at the leaf base.

Flowers – white, 4 – 10 mm across and 15 - 25 mm long, enclosed by numerous leafy bracts. At maturity, the flowers burst open to form a white sphere of seeds 35 mm across.

Seeds – are brown and slender, 5 – 6 mm long and 0.5 mm across, with a thin neck 5 mm long, topped by a parachute of branched white hairs 5 – 8 mm long. This parachute of hairs enables the seeds to be spread by wind.

Lifecycle / Biology: A perennial weed with a fleshy taproot that can act as an annual, germinating in autumn and winter and flowering in spring and less commonly summer and autumn.

Ecology: Adapted to a range of soil types and situations. Most commonly found in lawns and disturbed areas in the central part of the cotton region.

The Problem: White flatweed is a minor weed that can occur in the central cotton area. As a wind-spread perennial with a fleshy taproot it has the potential to be problematic in zero till systems.

Distribution: An occasional weed in northern NSW and southern Qld, most commonly in lawns and disturbed sites. The seeds are wind-borne and can travel for considerable distances.

Origin: An introduced species native to Europe, Asia and Africa.

Reference:

WEEDS of the South-East, p. 144-145.

Compiler: Graham Charles

Lactuca serriola L.

Prickly lettuce

Family: Asteraceae (Daisy family).

Common names: Prickly lettuce, Compass plant, Milk thistle, Whip thistle.

Confused with: Wild lettuce (L. saligna). These species can be distinguished by:

- **Leaves –** wild lettuce leaves are heavily lobed with most lobes separated.

Description:

Seedling Leaves – the cotyledon leaves are almost circular with short marginal hairs, 4 - 6 mm across. The first true leaves emerge singularly and are more oval in shape, rapidly elongating after emergence with indented margins. The 1st leaf is 9 – 13 mm long and 5 – 6 mm wide, the 2nd leaf 40 - 50 mm long and 15 mm wide and successive leaves larger.

Leaves – the lower rosette adult leaves are 15 – 20 cm long and 5 - 7 cm wide, developing a more club shape, with most of the leaf towards the outer end. These leaves are lobed, with serrated margins, although the points of the serrations are soft. The hairs on the margins of the leaves become less apparent as the leaves mature, but the leaves have a row of soft thorns along the central rib on the back of the leaves.

Plants – initially develop a rosette, but elongate prior to flowering, standing 1 – 2 m tall. Lateral stems also develop from the base, each stem topped with a profusion of flower heads at maturity. The stems exude a milky sap if broken. The upper leaves are smaller than the lower leaves and clasp the elongated stems with rounded lobes at their base.

Flowers – are yellow, 5 – 10 mm across and borne in tube-like heads 8 – 15 mm long.

Seeds – are brownish/grey and flattened, 3 – 3.5 mm long and 0.9 mm thick. Each seed has an umbrella-like silky pappus, with the stem 5 – 6 mm long, ending in numerous bristles 4 – 5 mm long. This pappus enables the seed to disperse in the wind.

Lifecycle / Biology: An annual or biennial plant that normally germinates in the spring and early summer, although it can emerge at other times. Flowering occurs over the warmer months. Plants can produce a large number of seeds which may be wind dispersed. Seedlings will not emerge from more than a few mm in the soil.

Ecology: Prickly lettuce is a weed of disturbed areas like cropped fields, fallows, roadsides, grazing land and waste areas. It is found on a range of soil types including heavy cracking clays and is most common in wetter areas.

The Problem: Prickly lettuce is a widespread weed of cropping, pastures and waste areas. It produces a large amount of seed that can be transported in strong winds and is difficult to eradicate with zero-tillage once established. Seedlings only emerge from the soil surface and are more common in zero-tillage systems.

Distribution: A common weed, occurring throughout the wetter areas of Australia. Commonly occurring in table drains on road sides and around irrigation structures.

Origin: An introduced weed from Europe and Asia.

Reference:

Crop Weeds of Northern Australia, p. 62 - 63.

Plants of Western New South Wales, p. 718 - 719

Compiler: Graham Charles

Parthenium hysterophorus L.

Parthenium weed

Family: Asteraceae (Daisy family).

Common names: Parthenium weed, Bitterweed, Carrot grass, Congress grass, Escoba amarga, False ragweed, Feverfew, Parthenium, Ragweed, Ragweed parthenium, Whitetop.

Confused with:

Description:

Seedlings – cotyledons are a rounded paddle shape, 3 - 4 mm long, borne on short stalks 1 – 2 mm long. The first true leaves are egg-shaped and covered in fine, white hairs. Older leaves become increasingly lobed and deeply divided.

Young **Plants –** develop into a rosette, with leaves to 80 - 200 mm long and 40 - 50 mm wide.

Older **Plants –** develop an erect, highly branched stem 30 – 150 cm high, and a deep taproot. Deeply divided leaves develop along the stem, which is deeply grooved. Stems and leaves are covered in short, white hairs. Plants develop a bluish or greyish appearance.

Flower heads – occur in clusters at the top of the plant, borne on short stalks, arising from the leaf forks. Flower heads are white, 4 - 10 mm across and form an unusual, 5-sided shape, with longer white flowerlets (ray flowers) in the corners. Flower heads become hard and brown as they mature.

Seeds – are striped grey to black and a narrow diamond shape, 2 mm long and flattened. They have a brown tuft on the end formed from 2 broad scales 0.5 mm long. Seeds are tightly grasped in a brown outer coat, which gives them more of a tufted triangle appearance. Generally only 4 seeds develop in each head.

Lifecycle / Biology: Parthenium weed can germinate at any time of the year, with the main germination in spring and early summer. Plants can flower 4 – 8 weeks after germination, and flowering may continue for 6 to 8 months. Seed has no dormancy. Mature plants have some frost tolerance.

Ecology: Parthenium weed is a perennial plant which is well adapted to invade much of the Australian farmland area.

The Problem: Parthenium weed is an aggressive invader of fallows, wastelands, roadsides, overgrazed pastures and less competitive crops. It produces a range of toxins which affect other plants and animals. It is not commonly eaten by livestock but can taint meat and toxins will pass into milk. Regular contact with parthenium causes dermatitis in animals and humans and can cause respiratory problems including asthma.

Distribution: Parthenium weed has become established in central and northern Queensland, the western Downs and the Northern Territory.

New South Wales is a parthenium weed exclusion zone. Any parthenium plants observed in New South Wales must be immediately reported to the NSW Dept. Primary Industries or a Local Council Weeds Inspector who will organise for their eradication.

Farmers should pay particular attention to sites of header breakdowns, as these have been a common source of infestation due to the release of parthenium seeds following the removal of panels during repairs.

Origin: An introduced weed from North and South America.

Reference:

Crop Weeds of Northern Australia, p. 63 - 64.

WEEDS of the South-East, p. 151.

Compiler: Graham Charles

Schkuhria pinnata (Lam.) Cabrera var. abrotanoides (Roth) Cabrera

Dwarf marigold

Family: Asteraceae (Daisy family).

Common names: Dwarf marigold, Curious weed, Schkuhria.

Confused with: Although the asteraceae is a large family, with nearly 1000 species known to be present in Australia, dwarf marigold is relatively unusual and not readily confused with other weeds.

Description:

Seedlings – the cotyledon leaves are paddle shaped, 6 – 7 mm long and 1.5 – 2 mm wide, borne on stalks 2 - 3 mm long.

Leaves – the true leaves are branched. The 1st true leaves are 3-pronged, 10 – 15 mm long and slightly wider, borne on stalks 10 – 15 mm long. These 3 prongs are further divided on later leaves, with each prong divided into multiple prongs. Leaves become less complex towards the top of the plant, with branches emerging from each leaf base, the outermost leaves reduced to a single leaflet, to 40 mm long and 1 – 2 mm wide.

Plants – a heavily branched annual 30 to 50 cm in height and diameter. The plant develops from its ribbed central stem, with numerous side braches which are themselves highly branched.

Flowers – develop at the tips of the branches, with a single yellow ray flower, with a small protruding petal 1.5 – 2 mm long and 4 – 6 disc yellow flowers. The flowers are 5 – 7 mm long and 2 – 3 mm wide, surrounded by a leafy green sheath and borne on slender stems to 25 mm long.

Seedpods – are mottled brown and torch-like in shape, 4 - 5 mm long, crowned with a skirt membranous bristles 1 – 2 mm long.

Lifecycle / Biology: Seedlings emerge in spring and summer, and can rapidly become reproductive if moisture becomes limiting. Plants flower from spring through to early winter.

Ecology: Well adapted to the lighter cropping and grazing soils. Its rapid life cycle favours its domination following summer rain.

The Problem: Dwarf marigold is a minor weed of pastures and cultivation in the northern area, but can come to dominate grazing areas as it is not grazed. It is most apparent following summer rains.

Distribution: A widespread weed, mainly found in pastures, cultivation and on roadsides on the lighter soils throughout the cotton area.

Origin: A native of Chile.

Reference:

Plants of Western New South Wales, p. 667 - 668.

WEEDS of the South-East, p. 154.

Compiler: Graham Charles

Scolymus maculatus L.

Spotted golden thistle

Family: Asteraceae (Daisy family).

Common names: Spotted golden thistle, Spotted thistle.

Confused with: A number of other thistles occur in the cotton area.

Description:

Seedlings – the cotyledon leaves are bottle shaped 10 – 15 mm long and 7 – 9 mm wide. The true leaves are longer, with a serrated edge and taper to the stem. They have a prominent, indented, lighter coloured central vein.

Leaves –older rosette leaves are longer, 4 – 20 cm and 2 – 8 cm wide, and highly lobed, with spines terminating the lobes.

Plants – an annual weed with a strong taproot that forms a rosette 40 - 50 cm in diameter. As the plant matures, a strong, branched central stem forms from the rosette to 1 m high. Leaves form from the branches, but the branches are also ribbed with lines of much reduced leaflets from the leaf bases. The stems are much lighter in colour than the leaves. The margins of the leaves and stems are thickened and white.

Flowers – a yellow flower, tightly clasped within a thorny head 10 – 25 mm in diameter.

Seeds – are papery, 3 – 7 mm long, wedge shaped and light brown with some darker speckling.

Lifecycle / Biology: Seedlings emerge in autumn and winter, and plants develop rapidly in spring. They flowers in spring and early summer and then die off, leaving a spiny bush that may stand for many months.

Ecology: A weed of pastures and roadsides, most common on heavy grey clay soils.

The Problem: Spotted golden thistle forms a competitive rosette and develops into a very thorny bush.

Distribution: Only found in Central and Northern New South Wales and Queensland.

Origin: A native of the Mediterranean region.

Reference:

Plants of Western New South Wales, p. 722

WEEDS of the South-East, p. 155.

Compiler: Graham Charles

Silybum marianum (L.) Gaertn.

Variegated thistle

Family: Asteraceae (Daisy family).

Common names: Variegated thistle, Blessed milk thistle, Bull thistle, Cabbage thistle, Gundagai thistle, Gundy, Holly thistle, Lady's thistle, Milk thistle, Spotted milk thistle, Spotted thistle, St. Mary's thistle, Variegated artichoke.

Confused with: Variegated thistle could be confused with a number of other thistles that grow in the area, but plants are larger than most other thistles and leaves have a pronounced mottled, or variegated appearance, with almost equal areas of green 'leaf' and white 'veins'.

Description:

Seedlings – the cotyledon leaves are oval in shape 15 – 20 mm long and 10 – 15 mm wide. The true leaves are longer and taper more towards the base and tip, and are mottled, or variegated in colour, with a mix of white and green. Leaves are shinny and lightly toothed with small spines.

Leaves – are heavily lobed, 20 – 50 cm long and 5 – 25 cm wide, with numerous spines on the margins. They form a dense rosette to 90 cm in diameter.

Plants – a robust annual or biennial weed to 2 m high. Plants develop stout, branched stems as they mature that end in bright red/purple flowers. The leaves on the stems are much smaller than the rosette leaves, becoming smaller towards the flowers, and become little more than spiny protrusions clasping the stem.

Flowers – a heavily spined flower head 5 – 12 cm in diameter topped by a dense bright red/purple cluster.

Seeds – are dark brown to black, 5 – 8 mm long and 2.5 – 4 mm wide, topped by a dense tuft of silky bristles 12 – 20 mm long..

Lifecycle / Biology: Seedlings emerge predominantly in the cooler months and plants grow rapidly as temperatures increase, flowering in spring and summer. Plants generally die off as temperatures increase, but can survive through summer under favourable conditions.

Ecology: Variegated thistle grows in most situations where moisture is adequate, including pastures, flood plains, cultivation and roadsides. It develops a large, competitive rosette and plant, displacing most other species. Plants often grow in dense clumps, producing masses of seed in late spring and summer.

The Problem: Variegated thistle is very competitive and produces a large plant that would interfere with any farming operations. It is not favoured by livestock.

Distribution: A common weed in most Australian States.

Origin: A native of the Mediterranean region.

Reference:

Crop weeds of Northern Australia, p. 55.

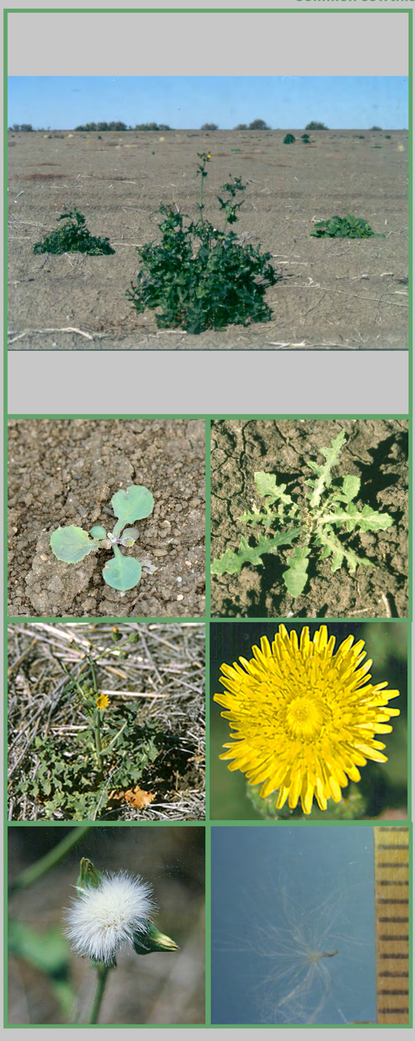
Plants of Western New South Wales, p. 724 – 725

WEEDS of the South-East, p. 159.

Compiler: Graham Charles

Sonchus oleraceus L.

Common sowthistle



Family: Asteraceae (Daisy family).

Common names: Common sowthistle, Annual sowthistle, Common milk thistle, Milk thistle, Milkweed, Sowthistle, Thalaak.

Confused with: Rough sowthistle (S. asper) The main difference between common sowthistle and rough sowthistle is that the latter has stiffer, less divided leaves, with the spines on the leaf margins more pronounced. Intermediate forms between the two species may occur.

Description:

Seedling Leaves – are round, 3 - 6 mm in diameter and bluish-green. The first true leaf is wider than the cotyledons, almost circular, and has a few spines on the leaf margin. The second true leaf has many backward-pointing spines.

Leaves – are bluish-green to dark green, 6 - 35 cm long and 3 - 12 cm wide. They are thin and soft, becoming increasingly lobed as they mature and are irregularly-toothed with small, soft spines.

Flowers – are borne on long stalks at the ends of branches. These branches arise from the upper leaf forks, are hollow, cylindrical or slightly angular, and have purple pigmentation. The flower heads are about 5 - 18 mm long with swollen bases and a tuft of bright yellow florets at the top.

Seeds – are 1 - 3 mm long, up to 1 mm wide and brown. The seeds are light with white parachutes of silky hairs, 6 - 7 mm long which allow them to be dispersed in the wind.

Lifecycle / Biology: An annual species that emerges, grows and flowers at anytime of the year. The plant is particularly abundant in winter and spring. Common sowthistle has a small seed that is only able to emerge from the soil surface or very shallow depths. It is favoured by reduced tillage and stubble retention systems that can provide an ideal microenvironment for establishment.

Ecology: A common weed of reduced tillage and stubble retention systems, well adapted on most soil types and a range of environments.

The Problem: Common sowthistle is a competitive weed and problem in pastures and an increasing problem in both summer and winter cropping systems. Some populations of the weed collected from wheat fields around the Darling Downs, Macintyre and Gwydir valleys have resistance to chlorsulfuron herbicides. Plants are more of a problem in zero-tillage fields and readily establish in retained, standing stubble. Common sowthistle plants can establish after any rainfall event year round, rapidly producing seed from small plants, and masses of seed from larger plants if left uncontrolled. Management is particularly difficult in standing stubble.

Distribution: A widespread weed, naturalised throughout Australia.

Origin: An introduced species from Europe.

Reference:

Crop Weeds of Northern Australia, p. 53

Plants of Western New South Wales, p. 718.

WEEDS of the South-East, p. 161.

Compiler: Graham Charles

Tridax procumbens L.

Tridax

Family: Asteraceae (Daisy family).

Common names: Tridax, Tridax daisy.

Confused with:

Description:

Seedling Leaves – the cotyledon leaves are almost circular in shape, with an indented end, 4 - 8 mm across, with short hairs, most obvious on the edges of the cotyledons, borne on stalks 4 – 5 mm long, with hairs around 0.7 mm long. The 1st true leaves are more oval and lightly notched, 20 – 25 mm long by 16 mm wide, borne on a stem 8 mm long and covered in fine hairs. The next leaves are more a rounded diamond in shape.

Adult Leaves – are elliptic in shape, 30 – 60 mm long and 10 – 35 mm wide, but with large serrations or lobes on the edges and are covered with short, stout hairs, bristly to the touch. Leaves are darker green on top and lighter green underneath. The leaf margins may have a red tinge and the leaves are borne on short, red – purplish stalks, 3 – 10 mm long.

Plants – a perennial spreading plant to 50 cm tall covered in bristly hairs to 4 mm in length. Plants are highly branched, with the first branches arising before the 3rd true leaves are fully open, and can root from the stem nodes.

Flowers – are on at the terminals of long, sometimes twisted stems 25 – 40 cm in length. These stems may be reddish and heavily haired at the base, but are green and hairless along most of their length. The flower heads are yellow in the centre, surrounded by 5 or 6 creamy to yellowish ray flowers, 10 – 16 mm across and 10 – 12 mm long. The petals of the ray flowers are lobed, with 3 teeth, each petal 4 – 7 mm long and wide.

Heads – at maturity the heads open up to a sphere of radial parts 17 – 20 mm across from which the seeds are shed. The sphere remains on the plant for some time after the seed is shed.

Seeds – are grey, 1.5 – 3 mm long and 0.5 – 1.4 mm wide, crowed by a parachute of feathery hairs 5 – 6 mm long.

Lifecycle / Biology: A summer-growing perennial plant that germinates after rainfall over the warmer months. Plants flower throughout the warmer months.

Ecology: Well adapted to the heavy clay soils of the northern irrigation areas.

The Problem: A minor weed through the central and northern cotton areas that has the potential to be a major weed. Tridax is a major weed throughout many of the tropical and sub-tropical areas of the world.

Distribution: Present through tropical and sub-tropical Australia. Tridax is a background weed, found most commonly in the Central Qld cotton area, but present down into Northern NSW. It grows in pastures, fallows, cultivation, on roadsides and in disturbed areas.

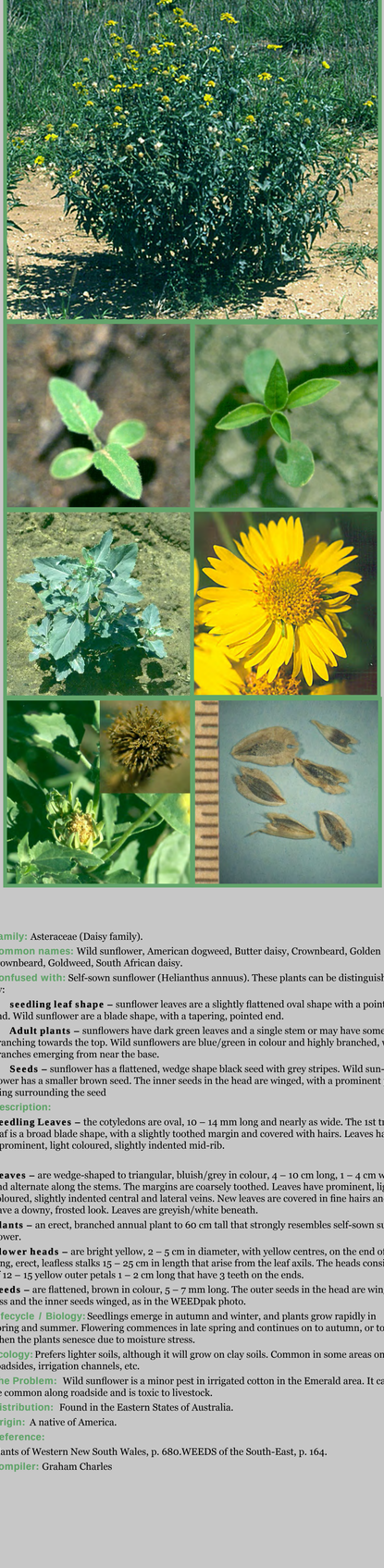
Origin: An introduced weed from Central America.

Reference:

Compiler: Graham Charles

Verbesina encelioides (Cav.) A.Gray

Wild sunflower



Family: Asteraceae (Daisy family).

Common names: Wild sunflower, American dogweed, Butter daisy, Crownbeard, Golden crownbeard, Goldweed, South African daisy.

Confused with: Self-sown sunflower (Helianthus annuus). These plants can be distinguished by:

- **seedling leaf shape –** sunflower leaves are a slightly flattened oval shape with a pointed end. Wild sunflower are a blade shape, with a tapering, pointed end.
- **Adult plants –** sunflowers have dark green leaves and a single stem or may have some branching towards the top. Wild sunflowers are blue/green in colour and highly branched, with branches emerging from near the base.
- **Seeds –** sunflower has a flattened, wedge shape black seed with grey stripes. Wild sunflower has a smaller brown seed. The inner seeds in the head are winged, with a prominent pale wing surrounding the seed

Description:

Seedling Leaves – the cotyledons are oval, 10 – 14 mm long and nearly as wide. The 1st true leaf is a broad blade shape, with a slightly toothed margin and covered with hairs. Leaves have a prominent, light coloured, slightly indented mid-rib.

Leaves – are wedge-shaped to triangular, bluish/grey in colour, 4 – 10 cm long, 1 – 4 cm wide and alternate along the stems. The margins are coarsely toothed. Leaves have prominent, light coloured, slightly indented central and lateral veins. New leaves are covered in fine hairs and have a downy, frosted look. Leaves are greyish/white beneath.

Plants – an erect, branched annual plant to 60 cm tall that strongly resembles self-sown sunflower.

Flower heads – are bright yellow, 2 – 5 cm in diameter, with yellow centres, on the end of long, erect, leafless stalks 15 – 25 cm in length that arise from the leaf axils. The heads consist of 12 – 15 yellow outer petals 1 – 2 cm long that have 3 teeth on the ends.

Seeds – are flattened, brown in colour, 5 – 7 mm long. The outer seeds in the head are wingless and the inner seeds winged, as in the WEEDpak photo.

Lifecycle / Biology: Seedlings emerge in autumn and winter, and plants grow rapidly in spring and summer. Flowering commences in late spring and continues on to autumn, or to when the plants senesce due to moisture stress.

Ecology: Prefers lighter soils, although it will grow on clay soils. Common in some areas on roadsides, irrigation channels, etc.

The Problem: Wild sunflower is a minor pest in irrigated cotton in the Emerald area. It can be common along roadside and is toxic to livestock.

Distribution: Found in the Eastern States of Australia.

Origin: A native of America.

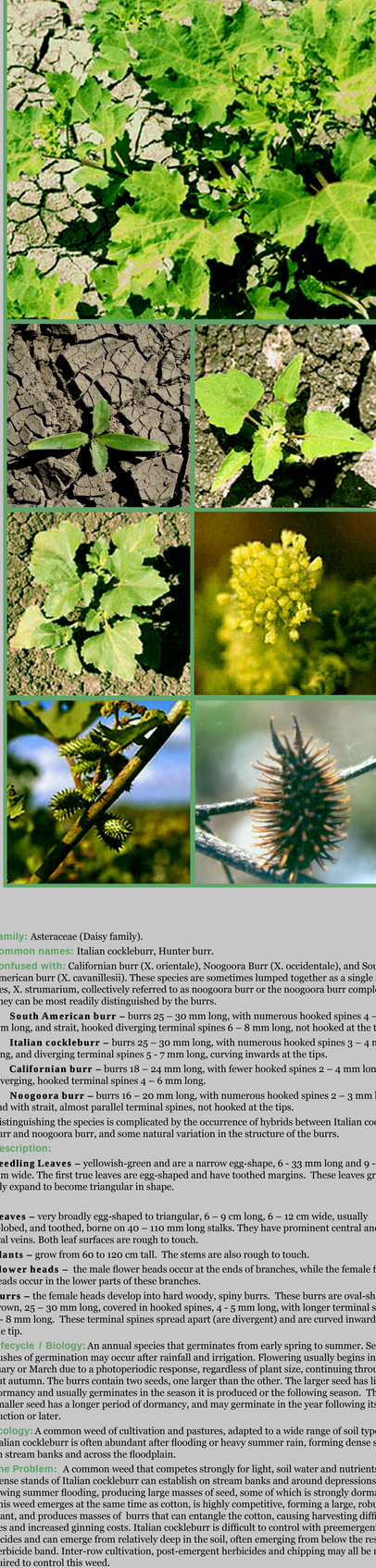
Reference:

Plants of Western New South Wales, p. 680.WEEDS of the South-East, p. 164.

Compiler: Graham Charles

Xanthium italicum Moretti

Italian cockleburr



Family: Asteraceae (Daisy family).

Common names: Italian cockleburr, Hunter burr.

Confused with: Californian burr (X. orientale), Noogoora Burr (X. occidentale), and South American burr (X. cavanillesii). These species are sometimes lumped together as a single species, X. strumarium, collectively referred to as noogoora burr or the noogoora burr complex. They can be most readily distinguished by the burrs.

- **South American burr –** burrs 25 – 30 mm long, with numerous hooked spines 4 – 5 mm long, and strait, hooked diverging terminal spines 6 – 8 mm long, not hooked at the tips.
- **Italian cockleburr –** burrs 25 – 30 mm long, with numerous hooked spines 3 – 4 mm long, and diverging terminal spines 5 - 7 mm long, curving inwards at the tips.
- **Californian burr –** burrs 18 – 24 mm long, with fewer hooked spines 2 – 4 mm long and diverging, hooked terminal spines 4 – 6 mm long.
- **Noogoora burr –** burrs 16 – 20 mm long, with numerous hooked spines 2 – 3 mm long, and with strait, almost parallel terminal spines, not hooked at the tips.

Distinguishing the species is complicated by the occurrence of hybrids between Italian cockleburr and noogoora burr, and some natural variation in the structure of the burrs.

Description:

Seedling Leaves – yellowish-green and are a narrow egg-shape, 6 - 33 mm long and 9 - 10 mm wide. The first true leaves are egg-shaped and have toothed margins. These leaves gradually expand to become triangular in shape.

Leaves – very broadly egg-shaped to triangular, 6 – 9 cm long, 6 – 12 cm wide, usually 3-lobed, and toothed, borne on 40 – 110 mm long stalks. They have prominent central and lateral veins. Both leaf surfaces are rough to touch.

Plants – grow from 60 to 120 cm tall. The stems are also rough to touch.

Flower heads – the male flower heads occur at the ends of branches, while the female flower heads occur in the lower parts of these branches.

Burrs – the female heads develop into hard woody, spiny burrs. These burrs are oval-shaped, brown, 25 – 30 mm long, covered in hooked spines, 4 - 5 mm long, with longer terminal spines, 6 - 8 mm long. These terminal spines spread apart (are divergent) and are curved inward at the tip.

Lifecycle / Biology: An annual species that germinates from early spring to summer. Several flushes of germination may occur after rainfall and irrigation. Flowering usually begins in February or March due to a photoperiodic response, regardless of plant size, continuing throughout autumn. The burrs contain two seeds, one larger than the other. The larger seed has limited dormancy and usually germinates in the season it is produced or the following season. The smaller seed has a longer period of dormancy, and may germinate in the year following its production or later.

Ecology: A common weed of cultivation and pastures, adapted to a wide range of soil types. Italian cockleburr is often abundant after flooding or heavy summer rain, forming dense stands on stream banks and across the floodplain.

The Problem: A common weed that competes strongly for light, soil water and nutrients. Dense stands of Italian cockleburr can establish on stream banks and around depressions following summer flooding, producing large masses of seed, some of which is strongly dormant. This weed emerges at the same time as cotton, is highly competitive, forming a large, robust plant, and produces masses of burrs that can entangle the cotton, causing harvesting difficulties and increased ginning costs. Italian cockleburr is difficult to control with preemergent herbicides and can emerge from relatively deep in the soil, often emerging from below the residual herbicide band. Inter-row cultivation, post-emergent herbicides and chipping may all be required to control this weed.

Distribution: New South Wales and possibly Southern Queensland.

Origin: An introduced species from America.

Reference:

Compiler: Graham Charles and Stephen Johnson

Xanthium occidentale Bertol.

Noogoora burr

Family: Asteraceae (Daisy family).

Common names: Noogoora burr, Beach cockleburr, Burrweed, Clotburr, Cockleburr, European cockleburr, Large cockleburr, Italian cockleburr, Rough cockleburr, Sheep's burr.

Confused with: Californian burr (X. orientale), Italian cockleburr (X. orientale), and South American burr (X. cavanillesii). These species are sometimes lumped together as a single species, X. strumarium, collectively referred to as noogoora burr or the noogoora burr complex. They can be most readily distinguished by the burrs.

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- **Californian burr –** burrs 18 – 24 mm long, with fewer hooked spines 2 – 4 mm long and diverging, hooked terminal spines 4 – 6 mm long.
- **Noogoora burr –** burrs 16 – 22 mm long, with numerous hooked spines 1 – 2 mm long, and with strait, almost parallel terminal spines, not hooked at the tips.

Distinguishing the species is complicated by the occurrence of hybrids between Italian cockleburr and noogoora burr and some natural variation in the structure of the burrs.

Description:

Seedling Leaves – yellowish-green and are a narrow egg-shape, 30 - 45 mm long and 10 - 12 mm wide, on petioles 10 – 14 mm long. The first true leaves are egg-shaped with a squarish base and have toothed margins. These leaves gradually expand to become triangular in shape, 40 – 40 mm long and 20 – 30 mm wide. They are borne on petioles 10 – 25 mm long

Leaves – very broadly triangular, 5 – 15 cm long, 5 – 15 cm wide, usually 3- or 5-lobed, and toothed, borne on 20 – 120 mm long stalks. They have prominent central and lateral veins. Both leaf surfaces are rough to touch and the lower surface is lighter in colour. Leaves alternate on the stems.

Plants – grow from 60 to 200 cm tall. The stems are also rough to touch and often have a purplish colouration.

Flower heads – the male flower heads occur at the ends of branches, with the female flower heads occur in the lower parts of these branches.

Burrs – the female heads develop into hard woody, spiny burrs. These burrs are oval-shaped, brown, 16 – 20 mm long, covered in hooked spines, 2 - 3 mm long, with longer terminal spines, 4 - 5 mm long. These terminal spines strait with on obvious hook at the tip.

Lifecycle / Biology: An annual species that germinates from early spring to summer. Several flushes of germination may occur after rainfall and irrigation. Flowering usually begins in February or March due to a photoperiodic response, regardless of plant size, continuing throughout autumn. The burrs contain two seeds, one larger than the other. The larger seed has limited dormancy and usually germinates in the season it is produced or the following season. The smaller seed has a longer period of dormancy, and may germinate in the year following its production or later.

Ecology: A common weed of waterways and pastures, adapted to a wide range of soil types. Noogoora burr is often abundant after flooding or heavy summer rain, forming dense stands on stream banks and across the floodplain. It is a relatively uncommon weed in cropping areas.

The Problem: A common weed that competes strongly for light, soil water and nutrients. Dense stands of noogoora burr can establish on stream banks and around depressions following summer flooding, producing large masses of seed, some of which is strongly dormant.

Distribution: New South Wales and Queensland.

Origin: An introduced species from America.

Reference:

Plants of Western New South Wales, p. 726-727

WEEDS of the South-East, p. 165.

Compiler: Graham Charles

Xanthium orientale L.

Californian burr

Family: Asteraceae (Daisy family).

Common names: Californian burr, Beach cockleburr, Burrweed, Clotburr, Cockleburr, European cockleburr, Italian cockleburr, Large cockleburr, Rough cockleburr, Sheep's burr.

Confused with: Italian cockleburr (X. italicum), Noogoora Burr (X. occidentale), and South American burr (X. cavanillesii). These species are sometimes lumped together as a single species, X. strumarium, collectively referred to as noogoora burr or the noogoora burr complex. They can be most readily distinguished by the burrs.

- **South American burr –** burrs 25 – 30 mm long, with numerous hooked spines 4 – 5 mm long, and strait, hooked diverging terminal spines 6 – 8 mm long, not hooked at the tips.
- **Italian cockleburr –** burrs 25 – 30 mm long, with numerous hooked spines 3 – 4 mm long, and diverging terminal spines 5 - 7 mm long, curving inwards at the tips.
- **Californian burr –** burrs 18 – 24 mm long, with fewer hooked spines 2 – 4 mm long and diverging, hooked terminal spines 4 – 6 mm long.
- **Noogoora burr –** burrs 16 – 20 mm long, with numerous hooked spines 2 – 3 mm long, and with strait, almost parallel terminal spines, not hooked at the tips.

Distinguishing these species is complicated by the occurrence of hybrids between Italian cockleburr and noogoora burr, and some natural variation in the structure of the burrs.

Description:

Seedling Leaves – yellowish-green and are a narrow egg-shape, 6 - 33 mm long and 9 - 10 mm wide. The first true leaves are egg-shaped and have toothed margins. These leaves gradually expand to become triangular in shape.

Leaves – very broadly egg-shaped to triangular, 5 – 14 cm long, 5 – 15 cm wide, usually 3-lobed, and toothed, borne on 3 – 8 cm long stalks. They have prominent central and lateral veins. Both leaf surfaces are rough to touch.

Plants – grow from 60 to 100 cm tall. The stems are also rough to touch.

Flower heads – the male flower heads occur at the ends of branches, with the female flowers in the lower parts of these branches.

Burrs – the female heads develop into hard woody, spiny burrs. These burrs are oval-shaped, brown, 18 – 24 mm long, covered in hooked spines, 2 - 4 mm long, with longer terminal spines, 4 - 6 mm long. These terminal spines spread apart (are divergent) and are hooked at the tip.

Lifecycle / Biology: An annual species that germinates from early spring to summer. Several flushes of germination may occur after rainfall and irrigation. Flowering is triggered by reducing daylength, usually beginning in February or March, regardless of plant size, and continuing through autumn. Burrs contain two seeds, one larger than the other. The larger seed has limited dormancy and usually germinates in the season it is produced or the following season. The smaller seed has a longer period of dormancy, and may germinate in the year following its production or later.

Ecology: A common weed of cultivation and pastures, adapted to a wide range of soil types. Californian burr is often abundant after flooding or heavy summer rain, forming dense stands on stream banks and across the floodplain.

The Problem: A common weed that competes strongly for light, water and nutrients. Dense stands can establish on stream banks and around depressions following summer flooding, producing large masses of seed, some of which is strongly dormant. This weed emerges at the same time as cotton, is highly competitive, forming a large, robust plant, and produces masses of burrs that can entangle the cotton, causing harvesting difficulties and increased ginning costs. Californian burr is difficult to control with pre-emergent herbicides and can emerge from relatively deep in the soil, below the residual herbicide band. Inter-row cultivation, post-emergent herbicides and chipping are required to control it in cotton.

Distribution: Found throughout the Eastern States of Australia, although more common in the south.

Origin: An introduced species from America.

Reference:

Plants of Western New South Wales, p. 727.

WEEDS of the South-East, p. 165.

Compiler: Graham Charles and Stephen Johnson

Xanthium spinosum L.

Bathurst burr

Family: Asteraceae (Daisy family).

Common names: Bathurst burr, Burrweed, Cat's eggs, Common cockleburr, Prickly burr-weed, Spiny clotburr, Spiny cockleburr.

Confused with:

Description:

Seedling Leaves – the cotyledon leaves are dark-green and are an elongated oval in shape, 15 mm long and 5 mm wide, with short stalks, 4 mm long. The first true leaves are egg-shaped, with notches on the lower part of the leaf margins and are covered in fine white hairs. They are borne on white stalks 15 – 20 mm long, and have prominent, indented white central and lateral veins.

Leaves – have three to five irregular lobes, are dark-green on the upper surface, 3 – 8 cm long and 8 – 20 mm wide, and are paler on the lower surface. These leaves are covered with fine white hairs, borne on white stalks 1 - 3 cm long. The leaves have sparse hairs and prominent white veins.

Plants – are compact bushes with many branches, 60 to 100 cm tall. The stems of mature plants have many yellow, 3-pronged spines. These spines are 7 – 25 mm long. One or two of these spines occur at the base of each leaf or branch. The plant has a deep taproot and an extensive lateral root system.

Flower heads – there are a few male flower heads, borne in clusters at the branch ends or in the forks of the upper leaves. Solitary female flower heads can be found in the leaf forks.

Burrs – the female heads develop into oval, brown, woody burrs, 8 –15 mm long and 4 – 5 mm wide. These burrs are covered in numerous hooked spines, to 3 mm long, with two longer, straight, unequal spines at the tip of the burr. Two seeds are enclosed within each burr. One of the seeds is slightly larger than the other.

Lifecycle / Biology: An annual species that germinates during spring and summer, with several germination flushes likely. Plants flower and set seed from mid-summer into autumn. Plants that emerge in late summer can produce burrs within several weeks. Seed has some degree of dormancy. The smaller seed in the burr usually germinates in the first season after production, while the larger seed will not germinate until several seasons later. Plants usually die in early winter. Many burrs are retained on dead plants.

Ecology: A common weed of pastures, cultivated and fallow land, along roadsides, and in watercourse and river areas. Dense stands often develop after flooding or heavy summer rains. Bathurst burr is adapted to on a wide range of soil types and environmental conditions, and is common on high fertility soils. It is a major weed problem on the lighter soils of the Western grazing zone where sheep are the primary grazing animal.

The Problem: A common weed that competes strongly for light, soil water and nutrients. Bathurst burr is often problematic on lighter soils, and in recently developed cotton fields that were previously used for grazing, especially on paddocks with a long history of grazing with sheep and around trees and stock camps. Seed dormancy, multiple germinations and the relatively large size of mature bushes contribute to the problematic nature of this weed. The burrs of the weed can entangle the cotton lint and increase ginning costs. Hand hoeing is an effective control measure for Bathurst burr. Plants with green seed heads should be removed from fields and burnt so that they do not mature and contribute to the seed bank.

Distribution: A common weed of pastures and cropping throughout Australia.

Origin: A native of South America.

Reference:

Crop Weeds of Northern Australia, p. 139

Plants of Western New South Wales, p. 727 - 728.

WEEDS of the South-East, p. 165.

Compiler: Graham Charles and Stephen Johnson

Echium plantagineum L.

Patterson's curse

Family: Boraginaceae (Heliotrope family).

Common names: Paterson's curse, Blue echium, Blueweed, Lady Campbell weed, Plantain-leaf viper's bugloss, Purple bugloss, Purple echium, Purple vipers bugloss, Riverina bluebell, Salvation Jane.

Confused with:

Description:

Seedlings – cotyledon leaves are oblong, 10 mm long by 6 mm wide with a rounded tip. Leaves and stems are covered in short hairs about 1.5 mm in length.

Leaves – older leaves are less rounded at the tip and are heavily veined. Leaves to 30 cm long and 8 cm wide, are on stalks up to 8 cm in length. These stalks are white at the base and may have red/brown strips on each side running parallel with the stalk. After the rosette stage, the upper leaves on the stems are much smaller and have no stalk.

Plants – an annual or biennial plant with a short, stout taproot, initially forming a large, dense rosette to 60 cm diameter. Mature plants are multi-branched and erect standing to 1.2 m. Stems and branches are covered with short bristles and are unpleasant to the touch.

Flowers – are bright purple, with a reddish tinge towards the base, or occasionally pink or white, 2 – 3 cm long and bell shaped. Flowers have 5 stamens, 2 of which protrude beyond the flower. Flowers are grouped together at the ends of the main and auxiliary branches.

Seeds – a rough, angular brown seed 2.7 mm in length

Lifecycle / Biology: Germinates in autumn and winter and flowers mainly in spring and early summer. In cooler conditions it may persist through the summer and regrow in the following season.

Ecology: Paterson's curse is adapted to all soil types. It is most commonly found in disturbed areas, cultivation and over-grazed areas.

The Problem: Is a highly competitive weed with a large, aggressive rosette that competes strongly with crops and pastures. Paterson's curse is toxic to all livestock if eaten in sufficient quantities.

Distribution: An important weed through all Australia. It is most problematic in pastures that are set-stocked, especially in areas where horses are the main grazer.

Origin: A native of Europe.

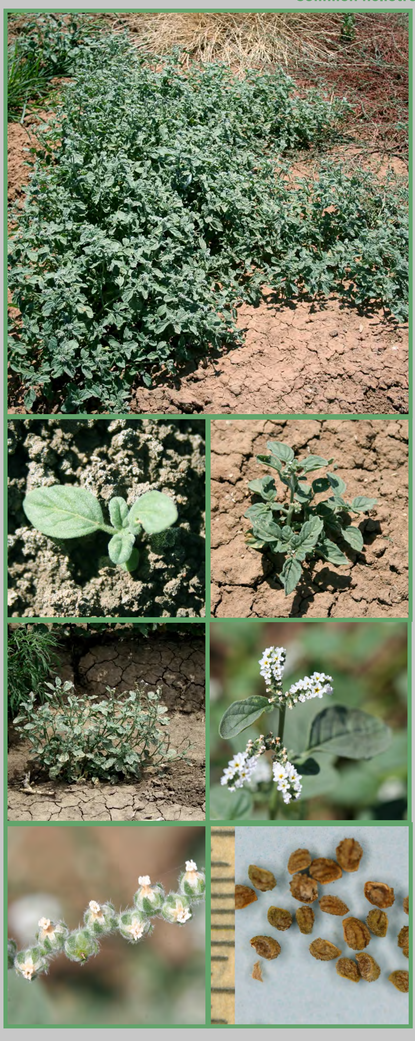
Reference:

Plants of Western New South Wales, p. 561.

Compiler: Graham Charles

Heliotropium europeaum L.

Common heliotrope



Family: Boraginaceae (Heliotrope family).

Common names: Common heliotrope, Barooga weed, Bishop's beard, Caterpillar weed, European heliotrope, Heliotrope, Potato weed, Wandary curse, wild heliotrope.

Confused with: Blue heliotrope (H. amplexicaule), smooth heliotrope (H. curassavicum) and prostrate heliotrope (H. supinum). These plants can be distinguished by:

- hairs – common heliotrope is covered in short hairs, giving it a greyish-green appearance, whereas smooth heliotrope is hairless.
- **Adult plants –** prostrate heliotrope has a prostrate growth habit, to 5 cm high, while the other species are 15 – 40 tall.
- **Flowers –** blue heliotrope has purplish flowers with yellow throats, whereas the other species have white flowers with yellow throats.

Description:

Seedlings – cotyledon leaves are a rounded club-shape, 3 – 4 mm long and 3 mm wide, borne on a very short stalk. The first true leaves are more oar shaped, with deeply indented venation, 30 – 40 mm long and 15 – 20 mm wide, borne on a stalk 8 – 10 mm long. The leaves and stems are noticeably hairy.

Leaves – are alternate, a flattened circle in shape, with prominent veins, 20 – 80 mm long and 10 - 40 mm wide, borne on stalks 30 – 40 mm long.

Plants – to 30 cm in height and may be much wider than they are tall. They are bluish-green in appearance (due to the short hairs) and multi-branched, with new branches developing from the lower leaf junctions.

Seeds – are light brown, almost snail shell shaped, with dark-brown bands running the length. Seeds to 2.3 mm long and 1.5 mm wide.

Lifecycle / Biology: An annual, summer growing weed, flowering in summer and autumn.

Ecology: Can occur on a range of soil types and situations, generally in the southern part of the cotton region. It is often associated with cultivation and areas heavily grazed by livestock.

The Problem: Common heliotrope is a minor weed of cotton, but an important weed of grazing as it is poisonous to livestock.

Distribution: Found throughout much of southern Australia.

Origin: An introduced species from Europe.

Reference:

Plants of Western New South Wales, p. 563.

WEEDS of the South-East, p. 176.

Compiler: Graham Charles

Brassica x napus L. var. napus

Canola

Family: Brassicaceae (Cabbage family).

Common names: Canola, Rape, Coleseed.

Confused with: A number of weedy brassicas are similar to canola, including wild turnip (B. tournefortii) and turnip (B. rapa).

- Turnip can only be botanically separated from canola in that turnip has a greener leaf and brighter yellow flowers.
- The flowers of wild turnip are pale yellow to white and the seed-pod has a beak 8 – 20 mm long containing 1 – 2 seeds.

Description:

Canola is a widely grown winter crop. A wide range of varieties are available, including especially bred herbicide tolerant varieties and varieties genetically modified for herbicide tolerance.

Seedlings – the cotyledon leaves are broadly heart shaped, 11 mm long and 12 – 14 mm wide, borne on stalks 6 – 10 mm long.

Leaves – the first true leaves are oval to circular in shape, with a wavy edge, more heavily notched towards the base. Later leaves are more heavily lobed, to 30 cm long and 20 cm across. Leaves have a prominent, pale indented central and lateral veins.

Plants – an annual plant that forms a rosette to 50 cm in diameter. The plant has a woody taproot and at maturity develops a tall main-stem to 1.6 m high, with some branching. No leaves are apparent on the upper-half of the stems where the flowers and seed pods are borne.

Flowers – form at the tops of the branches, with 4 yellow – pale yellow petals to 2 cm in diameter.

Seeds – seedpods are 5 – 10 cm long and 4 – 5 mm in diameter, borne on stalks 2 – 3 cm in length. Pods contain 20 – 50 seeds and will split length-wise when mature.

Lifecycle / Biology: Seedlings emerge in late autumn and winter, growing through winter and flowering in spring.

Ecology: Adapted to a range of soil types in both southern and northern cropping zones.

The Problem: Canola has a proportion of hard-seed, which may germinate months or years after the crop is planted. This seed, together with seed lost at harvest can lead to a problem with weedy canola in subsequent crops. This characteristic, together with the herbicide tolerance traits incorporated into some canola lines can make this a problematic weed.

Distribution: Found widely throughout southern Australia and becoming increasingly common in the northern cropping zone.

Origin: An introduced plant.

Reference:

WEEDS of the South-East, p. 182.

Compiler: Graham Charles

Capsella bursa-pastoris (L.) Medik

Shepherd's purse

Family: Brassicaceae (Cabbage family)
Common names: Shepherd's purse, Locowort, Pickpocket, Shepherd's heart, St. James weed, Toywort.
Confused with:
Description: Common in pastures and cultivation. Often found along roadways and fence lines.

Lifecycle / Biology: It can become very plentiful in favourable seasons.
Ecology:
The Problem: Can establish and compete with crops and pastures. A weed of cereal crops.
Distribution: Found throughout Australia and the world.
Origin: A native of Europe.
Reference:

Plants of Western New South Wales, p. 320.

WEEDS of the South-East, p. 185.

Compiler: Graham Charles

Raphanus raphanistrum L.

Wild radish

Family: Brassicaceae (Cabbage family).

Common names: Wild radish, Jointed charlock, Radish, Radish weed, Runch, White charlock, Wild charlock, Wild kale, Wild turnip.

Confused with: Turnip weed (Rapistrum rugosum) and Wild turnip (Brassica tournefortii). These species can be distinguished by:

Cotyledons – the cotyledons of wild radish have 12 – 20 mm long stalks, where the stalks of turnip weed are 8 mm long. Wild turnip cotyledons are kidney shaped, rather than heart shaped.

Flowers – wild radish flower are white or pale yellow with purple veins. Turnip weed has a bright yellow flower, and wild turnip a pale yellow flower which becomes white with age.

Seed pods – wild radish has a highly segmented pod containing multiple seeds. These pods break off at maturity and enclose the seed. Turnip weed has a short, bulbous pod that does not break apart at maturity. Wild turnip pods are long and cylindrical, breaking apart at maturity to release the seeds.

Description:

Seedlings – the cotyledon leaves are broadly heart shaped, 13 mm long and 12 – 14 mm wide, borne on stalks 12 – 20 mm long.

Leaves – the first true leaves are oval to rectangular in shape, with a wavy edge, more heavily notched at the base. Later leaves are more heavily lobed, 15 - 20 cm long, 5 – 10 cm across. Leaves have prominent, indented central and lateral veins.

Plants – an annual or biennial weed that forms a rosette to 40 cm in diameter. The plant has a woody taproot and at maturity develops numerous erect stems and branches, 30 – 60 cm high, with numerous bristles on the lower stems. Leaves are smaller towards the tops of the stems and branches and may not be lobed.

Flowers – develop at the tips of the branches, with 4 white or pale yellow petals, to 4 cm in diameter.

Seeds – seedpods are 2 – 9 cm long and 3 – 6 mm in diameter, with a slender beak at the end 6 – 12 mm long, borne on stalks 15 mm long. Pods are segmented, containing 3 – 9 seeds, with a restriction between each seed. These segments readily break off at maturity, with the seed remaining enclosed in its segment about 4 – 6 mm long.

Lifecycle / Biology: Seedlings emerge in late autumn or winter, growing over winter and early spring and flowering in spring and early summer. The lifecycle can match closely that of a wheat crop, with seeds maturing with the crop.

Ecology: Well adapted to both southern and northern cropping zones. Wild radish can be a major weed problem in all winter cropping areas.

The Problem: Wild radish emerges with the winter crop and competes very strongly with the crop. Plants set seed as the crop is maturing, and the seed is difficult to remove from the crop sample, especially in wheat samples.

Distribution: Found in nearly all states of Australia. Wild radish is a major problem weed of winter cropping, and especially wheat as the seed segments of wild radish is difficult to remove from a wheat sample.

Origin: A native of the Mediterranean region.

Reference:

Crop weeds of Northern Australia, p. 45 – 47

Plants of Western New South Wales, p. 330.

WEEDS of the South-East, p. 194.

Compiler: Graham Charles

Rapistrum rugosum (L.) All.

Turnip weed

Family: Brassicaceae (Cabbage family).

Common names: Turnip weed, Ball turnip, Giant mustard, Rapistrum weed, Short-fruited turnip, Short-fruited wild turnip, Wild turnip.

Confused with: Wild radish (Raphanus raphanistrum), and Wild turnip (Brassica tournefortii). These species can be distinguished by:

Cotyledons – the cotyledons of wild radish have 12 – 20 mm long stalks, where the stalks of turnip weed are 8 mm long. Wild turnip cotyledons are kidney shaped, rather than heart shaped.

Flowers – wild radish flower are white or pale yellow with purple veins. Turnip weed has a bright yellow flower, and wild turnip a pale yellow flower which becomes white with age.

Seed pods – wild radish has a highly segmented pod containing multiple seeds. These pods break off at maturity and enclose the seed. Turnip weed has a short, bulbous pod that does not break apart at maturity. Wild turnip pods are long and cylindrical, breaking apart at maturity to release the seeds.

Description:

Seedlings – the cotyledon leaves are broadly heart shaped, sometimes with a squarish base, 11 mm long and 13 mm wide, borne on stalks 8 mm long.

Leaves – the first true leaves are oval to circular in shape, with a wavy edge and coarsely haired. Later leaves may be heavily lobed, 8 - 25 cm long, 6 – 8 cm wide. Leaves have prominent, indented central and lateral veins.

Plants – an annual or biennial weed that forms a rosette to 40 cm in diameter. The plant has a woody taproot and at maturity develops numerous erect stems and branches, 30 – 100 cm high, with numerous bristles. Leaves are smaller towards the tops of the stems and branches and may not be lobed or stalked.

Flowers – develop at the tips of the branches, with 4 bright yellow petals, to 3 cm in diameter, on stalks 2 – 5 mm long.

Seeds – seedpods are bulbous in shape 3 – 10 mm long and 3 – 4 mm in diameter, with a short beak at the end 2 – 3 mm long, borne on stalks 2 - 5 mm long. Pods contain 1 - 3 seeds that are retained within the pod at maturity.

Lifecycle / Biology: Seedlings emerge in late autumn and winter, growing over winter and early spring and flowering in spring and early summer. The lifecycle can match closely that of a cereal crop, with seeds maturing with the crop.

Ecology: Well adapted to both southern and northern cropping and grazing zones. Turnip weed may dominate pastures in winter and spring, out competing other more valuable species and can be a major weed problem in fallows and winter crops.

The Problem: Turnip weed emerges with the winter crop and competes very strongly with the crop. Plants set seed as the crop is maturing.

Distribution: Found in all states of Australia. Turnip weed is a major problem weed of winter cropping.

Origin: A native of Europe.

Reference:

Crop weeds of Northern Australia, p. 45 – 47

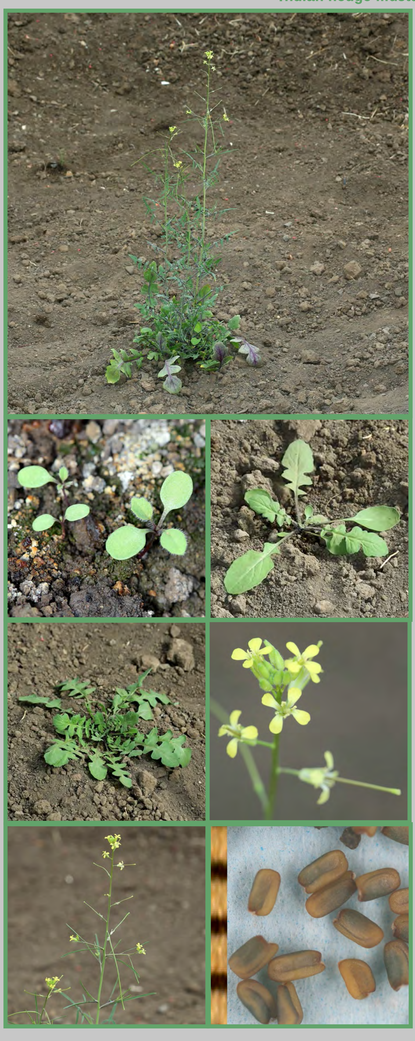
Plants of Western New South Wales, p. 330 - 331.

WEEDS of the South-East, p. 194.

Compiler: Graham Charles

Sisybrium orientale L.

Indian hedge mustard



Family: Brassicaceae (Cabbage family).

Common names: Indian hedge mustard, Eastern rocket, Mustard, Oriental rocket, Wild mustard.

Confused with: There are a number of similar brassica weeds. Indian hedge mustard can be distinguished at the adult stage by the terminal light yellow flowers and long, fine, unsegmented seed pods.

Description:

Seedlings – the cotyledon leaves are a slightly flattened circle in shape, 4 – 7 mm long and 3 – 6 mm wide, borne on stalks 2 - 3 mm long.

Leaves – the first true leaves are oval to circular in shape, 25 – 30 mm long and 15 – 20 mm wide, borne on stalks 30 – 40 mm long and coarsely haired on the margins and the under-sides. Later leaves become progressively more lobed, 8 - 12 cm long, 3 - 6 cm wide on petioles 2 – 6 cm long. Leaves have 4 – 5 pairs of lobes and are noticeably hairy on the margins and undersides. Leaves have prominent, indented purple central and lateral veins.

Plants – a hairy annual or biennial weed that forms a rosette to 40 cm in diameter. The plant has a woody taproot and at maturity develops erect stems and branches, 25 – 130 cm high (most commonly 60 – 80 cm). These stems are more noticeably hairy, with a purplish tinge towards the base. The leaves on the stems are much smaller than the rosette leaves, with petioles 15 – 35 mm long, 2 – 8 narrow lobes and an arrow like terminal. These leaves are progressively small up the stems.

Flowers – develop at the tips of the branches, with 4 light yellow petals 4 – 10 mm long and 2 – 3 mm wide. The flowers are about 7 - 11 mm in diameter.

Seedpods – are stem-like in shape, 4 – 12 cm long and 1 – 2 mm in diameter, on stalks 3 – 10 mm long. Pods contain 120 seeds or more that are retained within the pod at maturity.

Seeds – are light brown and irregular in shape, with a central furrow, 0.8 - 1 mm in length.

Lifecycle / Biology: Seedlings emerge in late autumn and winter, growing over winter and early spring and flowering in spring and early summer. The lifecycle can match closely that of a cereal crop, with seeds maturing before or with the crop. Plants can persist over summer under mild conditions and will flower through autumn and winter.

Ecology: Well adapted to most of the cropping and grazing zones. Indian hedge mustard can dominate pastures in winter and spring, out competing other more valuable species and can be a major weed problem in fallows and winter crops.

The Problem: Indian hedge mustard emerges with the winter crop and competes strongly with the crop. Plants are well adapted to dry conditions and grow aggressively even when soil moisture is limiting to the crop. Plants set seed before the crop is matures.

Distribution: A widespread weed, found throughout the cropping belts and higher rainfall areas in most states. It is an important weed through the central and northern cotton growing areas.

Origin: A native of the Mediterranean region and western Asia.

Reference:

Crop weeds of Northern Australia, p. 48 – 51

Plants of Western New South Wales, p. 335 (note Indian hedge mustard has been incorrectly labelled hedge mustard and vice versa).

WEEDS of the South-East, p. 197.

Compiler: Graham Charles

Sisybrium thellingii O.E.Schulz

African turnip weed

Family: Brassicaceae (Cabbage family).

Common names: African turnip weed.

Confused with: Turnip weed (Rapistrum rugosum), Wild radish (Raphanus raphanistrum), and Wild turnip (Brassica tournefortii). These species can be distinguished by:

Cotyledons – the cotyledons of African turnip weed are squarish, with a notched tip, and 2 – 3 mm long stems. Wild radish cotyledons have 12 – 20 mm long stalks and are heart shapes, where turnip weed are also heart shaped, but the stalks of are 8 mm long. Wild turnip cotyledons are kidney shaped, rather than heart shaped.

Flowers – wild radish flower are white or pale yellow with purple veins. Turnip weed has a bright yellow flower with rounded petals5 – 10 mm long and wide, and wild turnip a pale yellow flower which becomes white with age. The petals are 5 – 8 mm long and 2 – 3 mm wide. African turnip weed has a bright yellow flower, with petals 6 – 8 mm long and 2 – 3 mm wide.

Seed pods – wild radish has a highly segmented pod containing multiple seeds. These pods break off at maturity and enclose the seed. Turnip weed has a short, bulbous pod that does not break apart at maturity. Wild turnip and African turnip weed pods are long and cylindrical, breaking apart at maturity to release the seeds. Wild turnip pods have a beak 1 – 2 cm long at the tip, where African turnip weed pods have no beak.

Description:

Seedlings – the cotyledon leaves are squarish in shape with a notched tip, 4 – 5 mm long and wide, borne on stalks 2 - 3 mm long.

Leaves – the first true leaves are oval in shape, 10 – 15 mm long and 7 – 8 mm wide and coarsely haired. Later leaves may be heavily lobed, 10 - 30 cm long, 8 - 12 cm wide. Leaves have prominent, indented central and lateral veins.

Plants – a hairy annual weed that forms a rosette to 1 m in diameter. The plant has a woody taproot and at maturity develops numerous erect stems and branches, 70 – 100 cm high. Leaves are smaller towards the tops of the stems and branches and are not lobed or stalked.

Flowers – develop at the tips of the branches, with 4 bright yellow petals 6 – 8 mm long and 2 – 3 mm wide. The flowers are about 2 cm in diameter.

Seeds – seedpods are stem-like in shape 3 – 11 cm long and 2 mm in diameter, on stalks 1 – 3 cm long. Pods contain 60 - 80 seeds or more that are retained within the pod at maturity. Seeds are brown, egg-shaped, 1 -1.5 mm in length.

Lifecycle / Biology: Seedlings emerge in late autumn and winter, growing over winter and early spring and flowering in spring and early summer. The lifecycle can match closely that of a cereal crop, with seeds maturing before or with the crop.

Ecology: Well adapted to the more westerly cropping and grazing zones. African turnip weed can dominate pastures in winter and spring, out competing other more valuable species and can be a major weed problem in fallows and winter crops.

The Problem: African turnip weed emerges with the winter crop and competes very strongly with the crop. Plants are well adapted to dry conditions and grow aggressively even when soil moisture is limiting to the crop, as is the case in the WEEDpak photos. Plants set seed before the crop is matures.

Distribution: A weed of Northern New South Wales and Queensland.

Origin: A native of South Africa.

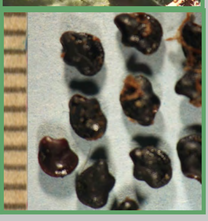
Reference:

Crop weeds of Northern Australia, p. 48 - 51.

Compiler: Graham Charles

Opuntia tomentosa Salm-Dyck

Velvet tree pear



Family: Cactaceae (Cactus family).

Common names: Velvet tree pear.

Confused with: A number of other cactus species may be found in the cotton area

Description:

Seedlings – small, succulent seedlings, with glossy, blade shaped cotyledons and densely haired initial "true" leaves.

Leaves – consist of a series of connected, green segments 15 – 30 cm long, 6 – 12 cm wide, and flattened, 15 – 30 mm thick. Leaves have some spines 10 – 25 mm long.

Plants – can develop into a small, compact perennial tree up to 6 m in height.

Flowers – are a deep orange/ red 4 - 5 cm in diameter with bright yellow flower parts.**Flowers –** are a deep orange/ red 4 - 5 cm in diameter with bright yellow flower parts.

Seeds – develop in a fleshy red fruit 5 cm long by 3.5 cm in diameter, with an indented, white cap on the end. The fruit have a few short, hairy spines. Seeds are glossy black, irregularly shaped, 2.5 - 3 mm in length.

Lifecycle / Biology: Seedlings may emerge with cotton in spring and early summer. Older plants flower in spring and summer, with fruits forming some weeks later.

Ecology: Well adapted to the heavy black soils of the brigalow belt, through to much lighter soils.

The Problem: Velvet tree pair was a major weed of the brigalow belt of Queensland and is still common on road sides and in pastures. Scattered plants may establish in crops. This weed can be highly competitive and large plants can be a major problem for livestock and machinery. Plants are generally kept under control by insect predation.

Distribution: Found in the Eastern States of Australia. Scattered populations still occur through the Western Downs and Southern Queensland.

Origin: A native of Mexico.

Reference:

Compiler: Graham Charles

Senna barclayana (Sweet) Randell

Pepper-leaf senna

Family: Caesalpiniaceae (Cassia family).

Common names: Pepper-leaf senna, Antbush, Smooth senna, Yellow peabush.

Confused with: There are many native and naturilised sennas in Australia, but the species most likely to be confused with pepper-leaf senna is smooth senna (S. clavigera). The species can be distinguished by the gland located at or near the base of the leaf stem. The gland is located:

At the leaf/stem junction in pepper-leaf senna. Whereas It is 5 – 8 mm from the base of the leaf in smooth senna,

Description:

Seedlings – cotyledon leaves are circular, 8 – 10 mm in diameter, with lighter veination. The 1st true leaves and subsequent leaves have multiple pairs of leaflets, initially with 2 pairs, one pair terminal.

Leaves – are 8 – 12 cm long, with a gland at the base of the leaf and comprise of 4 – 10 pairs of pointed oval shaped leaflets, each 2 – 5 cm long and 4 – 10 mm across, borne on stalks 1 – 3 cm long.

Plants – a multi-stemmed perennial shrub to 1.5 m high and 2 m wide.

Flowers – develop from the upper leaf axils. They are bright yellow, with 5 petals, each 1 cm long, and are borne of stalks 2 – 3.5 cm long

Seeds – develop in a green, slightly curved pod 3 - 5 cm long and 6 - 9 mm in diameter, that becomes brown and brittle as it matures. The pod splits at maturity, releasing broadly bean shaped, flattened seeds 3 – 4 mm in diameter. The seed colour varies from mottled whitish/ brown to brown.

Lifecycle / Biology: Plants emerge in spring and flower over the warmer months. Pepper-leaf senna is very drought tolerant, and flourishes after heavy rains in summer.

Ecology: Commonly on roadsides and stream banks, on a variety of soil types.

The Problem: Becoming a more common weed of pastures and roadsides. It is unpalatable to stock and can invade cultivation areas.

Distribution: Most common in inland New South Wales and Queensland.

Origin: Uncertain. May be a native species.

Reference:

Plants of Western New South Wales, p. 378

WEEDS of the South-East, p. 251.

Compiler: Graham Charles

Senna clavigera (Domin) Randell

Smooth senna

Family: Caesalpiniaceae (Cassia family).

Common names: Smooth senna, Pepper-leaf senna.

Confused with: There are many native and naturilised sennas in Australia, but the species most likely to be confused with smooth senna is pepper-leaf senna (S. barclayana). The species can be distinguished by the gland located at or near the base of the leaf stem. The gland is located:

5 – 8 mm from the base of the leaf in smooth senna, whereas

It is at the leaf/stem junction in pepper-leaf senna.

Description:

Seedlings – the cotyledon leaves are oblong, 11 – 15 mm long and 10 – 11 mm across, with lighter veination. The true leaves have multiple pairs of leaflets, initially with 2 pairs, one pair terminal. The 1st true leaves are 20 – 25 mm long and 10 - 15 mm wide. The 2nd leaves have 3 pairs of leaflets, 30 – 35 mm long and 10 – 15 mm wide.

Leaves – are 10 – 20 cm long, with a gland 5 – 8 mm in from the base of the leaf. Leaves comprise of 4 – 8 pairs of pointed oval shaped leaflets, each 3 – 7 cm long and 5 – 12 mm across.

Plants – a perennial shrub 0.6 - 1.5 m high.

Flowers – develop from the upper leaf axils. They are bright yellow, with 5 petals, each 8 mm long, and are borne of stalks 20 – 35 mm long

Seeds – develop in a green, slightly curved cylindrical pod 4 - 7 cm long and 5 - 9 mm in diameter, that becomes brown and brittle as it matures. The pod splits at maturity, releasing around 40 – 50 roughly segment-shaped seeds 3 – 5 mm long and 2 – 4 mm across. The seed colour varies from mottled whitish/brown to brown.

Lifecycle / Biology: Plants emerge in spring and flower over the warmer months. Smooth senna is very drought tolerant, and flourishes after heavy rains in summer.

Ecology: Most commonly found in wet sclerophyll forests and rainforest margins, but has spread to some surrounding areas.

The Problem: Smooth senna rarely occurs in cultivation areas, but has established as a problematic weed in some cotton fields in the Darling Downs, where it emerges with cotton and is difficult to control.

Distribution: Most common in coastal and northern New South Wales and into coastal, southern and central Queensland.

Origin: A native species.

Reference:

Compiler: Graham Charles

Atriplex muelleri Benth.

Annual saltbush

Family: Chenopodiaceae (Saltbush family).

Common names: Annual saltbush, Mueller's saltbush, Green saltbush, Lagoon saltbush, Queensland saltbush.

Confused with:

Description:

Seedlings – have very long, narrow cotyledon leaves with rounded ends. The first true leaves are spade shaped with pointed or rounded tips. The stems and leaf margins may have a reddish tinge.

Leaves – are alternate, 1 – 7 cm long, 0.6 – 3.5 cm wide on stalks 1 – 10 cm long. Leaves are green, but the underside is whitish in colour.

Plants –a spreading annual plant with woody stems growing to 60 cm.

Flowers – small and creamy coloured clustered in the leaf axils

Seeds – are held in a light brown, fan shaped and flattened capsule with 3 shallow protrusions at the end. Capsules are 2 – 3 mm in length. Seeds are brown, teardrop shaped and 1.5 mm in diameter.

Lifecycle / Biology: Emerges after rain and flowers most of the year round.

Ecology: Most commonly found on grey and brown clay soils.

The Problem: Annual saltbush is a minor weed on channel banks and roadways.

Distribution: Found throughout much of Australia. Present in Western NSW and Queensland.

Origin: A native Australian plant.

Reference:

Crop weeds of Northern Australia, p. 98 - 99.

Plants of Western New South Wales, p. 241.

Compiler: Graham Charles

Chenopodium album L.

Fathen

Family: Chenopodiaceae (Saltbush family).

Common names: Fathen, Blueweed, Fat hen, Giant fathen, Goosefoot, Lamb's quarters, White goosefoot.

Confused with:

Description:

Seedlings – the cotyledon leaves are oblong in shape with a rounded end, about 7 mm long and 2 mm wide. The first true leaves are broader and rounder than the cotyledon leaves, but later leaves are more triangular in shape and have a wavy margin. New leaves have the typical whitish waxy saltbush appearance, but this appearance disappears as the leaves age.

Leaves – are alternate along the stems, triangular to diamond shaped 2 – 10 cm long and 1 – 7 cm wide with wavy to toothed margins. Leaves appear bluish/green in colour and are greyish/green or whitish underneath.

Plants – an erect, branched annual plant up to 2 m in height with stout, ribbed, green or reddish stems.

Flowers – are in clusters at the ends of the branches. They are very small, green or greyish.

Seeds – are very small, 0.35 - 1 mm in length, light brown to black and may have a furrow running down their length.

Lifecycle / Biology: Fathen can grow year round. In the northern areas it is a winter weed, but in the southern areas it is more a summer weed.

Ecology: A common weed of roadsides, stockyards, gardens.

The Problem: Fathen can be a minor weed of cultivation and may become apparent at or after picking in wet years. It can grow very rapidly in warm conditions. Its size and seed producing ability can make it an important weed.

Distribution: A common weed throughout Australia and much of the world.

Origin: A native of the Mediterranean region.

Reference:

Crop weeds of Northern Australia, p. 136 - 138.

Plants of Western New South Wales, p. 258.

WEEDS of the South-East, p. 223.

Compiler: Graham Charles

Einadia nutans A.J. Scott subsp. oxycarpa (Gauba) P.G. Wilson

Climbing saltbush

Family: Chenopodiaceae (Saltbush family).

Common names: Climbing saltbush, Berry saltbush, Nodding saltbush.

Confused with: While there are many native species of saltbush, climbing saltbush can be readily distinguished from the other species by its trailing habit, sword leaf shape and red berries.

Description:

Seedlings – the cotyledon leaves are paddle shaped with a rounded end, 5 - 10 mm long by 2 - 3 mm wide, green on top, but bordered with red and red underneath. The stem is also red. The 1st true leaves are a flattened, rounded diamond in shape, 8 – 10 mm long and 3 – 4 mm wide, borne on stalks 5 – 6 mm long. Subsequent seedling leaves are similar in size, but more pointed at the end, and with lobed developing at the outer-ends of the leaf base. The older leaves and stem are less red, more grey-green in colour underneath.

Leaves – older leaves are a broad sword-shape, with lobes on either side of the base. The leaves are 10 - 35 mm long and 7 - 25 mm wide, on stalks 2 - 25 mm in length.

Plants – a native perennial saltbush with a spreading, prostrate, trailing and sometimes climbing habit, with stems to 1 m long. Plants commonly climb around fence lines and the bases of trees.

Flowers – are in a series of clusters 3 – 7 cm long at the ends of the stems. The flowers are small "berries" and not obvious.

Seeds – develop in a red or yellow fruit 2 – 3 mm in diameter, the fruit often clustered together. The seeds are black and shiny, 1.4 mm in diameter.

Lifecycle / Biology: A perennial native plant that germinates following rain and mostly flowers in summer and autumn.

Ecology: Climbing saltbush is a well adapted native species that occurs throughout much of mainland Australia. It can be found on a wide range of soil types but favours heavy clay soils and can often be found on fence lines and around trees in the western area.

The Problem: Climbing saltbush occurs throughout the western cotton area but is not problematic. It has value in grazing country.

Distribution:

Origin: A native of saltbush.

Reference:

Crop Weeds of Northern Australia, p. 94.

Plants of Western New South Wales, p. 278.

Compiler: Graham Charles

Salsola australis R.Br.

Soft roly-poly

Family: Chenopodiaceae (Saltbush family).

Common names: Soft roly-poly, Buckbush, Prickly roly-poly, Prickly Russian thistle, Prickly saltwort, Roly-poly, Russian thistle, Saltwort, Tumbleweed.

Confused with: A large number of the saltbush family occur in the western part of the cotton growing area. Soft roly-poly can be distinguished from most of these species by its attractive pink flower and softness, especially while still green

Soft roly-poly has had several name changes and has several forms which may be separate species.

Description:

Seedlings – cotyledon leaves are succulent, cylindrical, linear, 30 – 35 mm long and 1 mm diameter, powdery blue/green in colour. The early true leaves are similar in shape, but longer and broader, ending in a prickly point. The 1st true leaves 55 – 60 mm long and 1 – 1.5 mm wide.

Leaves – are alternate, cylindrical and linear, up to 5 cm long and 4 mm wide, ending in a prickly point and becoming smaller towards the tips of the branches.

Plants – an erect, compact, spreading annual or biennial bush 0.3 – 1 m high.

Flowers – are papery, white to mauve in colour, located in the terminals along the branches. The flowers are 4 – 8 mm in diameter and remain with the seed as a wing.

Seeds – are brown and half-spherical in shape, 1 – 1.5 mm across, enclosed in a winged capsule, the capsule including wings 4 – 8 mm across and 1.5 – 2 mm deep.

Lifecycle / Biology: Emerges following rain and flowers during the warmer months, dying off in autumn/winter.

Ecology: Well adapted to a wide range of conditions in the lower rainfall areas. Soft roly-poly can dominate pastures of the lower rainfall area, colonizing degraded pastures.

The Problem: Soft roly-poly can dominates pastures in the western part of the cotton area, but has no grazing value once mature. Plants die after maturity and break off at the base, leaving a 1 – 2 m diameter mass that blows in the wind and can move considerable distances. Plants are a minor hazard to vehicles, can choke irrigation channels and can lodge in cotton fields. Soft roly-poly is also a minor weed in fallows, on irrigation structures etc.

Distribution: Found throughout Australia. A very common plant in the western part of the cotton area.

Origin: An Australian native species.

Reference:

Crop weeds of Northern Australia, p. 99 – 100 (Referred to a S. kali.)

Plants of Western New South Wales, p. 279.

(Referred to a S. kali.)

WEEDS of the South-East, p. 226. (Referred to a S. targus.)

Compiler: Graham Charles

Commelina ensifolia R.Br.

Scurvy grass

Family: Commelinaceae (Dayflower family).

Common names: Scurvy grass, Scurvy weed, Wandering Jew.

Confused with: Scurvy weed (C. cyanea), Hairy wandering Jew (C. benghalensis), and wandering Jew (Tradescantia albiflora).

These species can be distinguished by their flowers:

- Wandering Jew has multiple flowers in the head, whereas the other species have 1 – 3 flowers per head
- The flowers of hairy wandering Jew stand well above the leaf-like flower head,
- The back of the leaf-like flower head of scurvy grass is in-line with the stem, and
- The back of the leaf-like flower head of scurvy weed protrudes behind the line of the stem.

Description:

Seedlings – the 1st seedling leaf is paddle-shaped, 25 - 40 mm long and 6 – 10 mm wide. Each successive leaf is much longer, with the 2nd leaf 60 mm long, and the 3rd, 90 – 100 mm long and 12 mm wide.

Leaves – the seedling leaves are erect, with widely spreading leaves. Older leaves are alternate, 50 – 120 mm long and 5 – 12 mm wide, tapering over most of their length to a fine point. Leaves have a cluster of hairs at their base. The leaves are a glossy, dark green, with a pale green mid-rib most noticeable from mid-leaf and widening towards the base. Leaves are spaced along the stems, 80 – 100 mm apart and new branches may develop from the nodes.

Mature Plants – a spreading plant as the ends of the stems remain erect but the stems tend towards the ground under their own weight, occasionally rooting at the nodes.

Flowers – are bright blue, with 2 large and a smaller 3rd petal, 9 – 12 mm across, borne in a leaf-like inverted cone, covered in short hairs and open only at the top. The flowering structures are borne in the upper leaf nodes, supported on short stems, 5 – 15 mm in length.

Seeds – are mottled brown, 3 – 4 mm across, in a capsule within the leaf-like cone, with 3 seeds per capsule.

Lifecycle / Biology: A creeping perennial plant most commonly found in wet areas. Seedlings may emerge following rain and flower over the warmer months. Plants can grow from seed or from stem-sections.

Ecology: An occasional weed in the wetter areas of northern Australia, adapted to heavy clay and lighter soils, most commonly found along creek lines.

The Problem: Scurvy grass is a minor, but problematic weed. It often occurs as single plants or small clumps, especially on irrigation structures, but is difficult to control, with clumps gradually expanding over time. Scurvy grass tolerates normal field rates of glyphosate and appears to be favoured by minimum tillage systems.

Distribution: Scurvy grass occurs throughout much of the wetter parts of northern Australia. It is most common in moist places, creeks and woodlands, but occurs in dryland and irrigated paddocks, generally near creeks.

Origin: A native Australian plant.

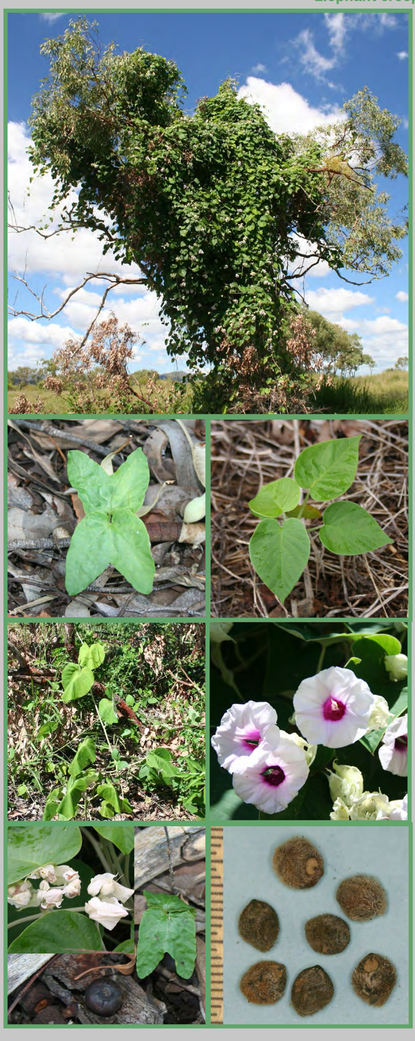
Reference:

Plants of Western New South Wales, p. 175.

Compiler: Graham Charles

Argyreia nervosa (Burm. f.) Bojer

Elephant creeper



Family: Convolvulaceae (Bindweed family).

Common names: Elephant creeper, Baby woodrose, Elephant climber, Elephant ear vine, Hawaiian baby woodrose, Mile-a-minute, Monkey rose, Silver morning glory, Snake vine, Wood rose, Woolly morning glory.

Confused with:

Description:

Seedlings – a large, succulent, butterfly shaped seedling, with each cotyledon 30 – 35 mm wide and 40 – 50 mm long. The early true leaves are an elongated heart-shape, 50 – 55 mm wide and 60 – 80 mm long, but later leaves become progressively larger.

Leaves – leaves become progressively larger and develop a more circular shape of dinner-plate dimensions, 13 - 30 cm wide by 15 – 30 cm, long. Leaves have a deep central vein and are borne on stalks up to 20 – 30 cm long. Leaves are smooth on top, but densely hairy underneath, having a silvery appearance. The stems are also densely hairy and silvery in appearance.

Plants – a clumping perennial vine that is a robust climber given opportunity, and can grow to cover trees.

Flowers – a large, white to pinkish trumpet-shaped flower, 50 – 75 mm long and 50 mm diameter. The flower centre is dark pink to purple. Flowers are borne on stems up to 15 cm long.

Seeds – develop in a brown, spherical berry 15 – 20 mm across which is enclosed by 5 silvery outer leaves. Each berry contains 4 – 6 angular seeds that are light brown, densely haired and 4 – 7 mm in length.

Lifecycle / Biology: Emerges in spring and flowers in spring and summer. Plants mostly regenerate from seed but can grow from stem pieces.

Ecology:

The Problem: Only a few plants have been found in cotton, but this weed has the potential to be a major problem due to its size, twining across multiple cotton rows. Plants have been observed to emerge, flower and produce viable seed within a cotton crop and could become a major pest should it become established.

Distribution: Scattered across coastal northern and central Queensland. Plants have been found in cotton at Emerald.

Origin: An introduced plant from India. It is commonly grown as a garden ornamental in northern Queensland.

Reference:

Compiler: Graham Charles

Convolvulus erubescens Sims

Australian bindweed

Family: Convolvulaceae (Bindweed family).

Common names: Australian bindweed, Australian dodder, Blushing bindweed, Pink bindweed.

Confused with: Field bindweed (Convolvulus arvensis).

Botanists now recognise a large number of distinct species and subspecies of the species formerly known as C. erubescens. The most common species found throughout most cotton growing areas include C.graminetinus, C.clementii and C.remotus. The following description is generalised to cover all such species. The plant photos in WEEDpak may be a mixture of C.remotus and C.graminetinus.

Description:

Seedling Leaves – the seedling leaves are almost square with a rounded base and a deeply notched tip, 7 mm long and 8 mm wide. This is in contrast to field bindweed where only the seedling leaf tips are slightly notched.

Seedlings – the seedlings are initially erect, but become prostrate as they mature.

Adult Leaves – are variable in shape, sometimes oblong to oval-shaped, but often shaped like an arrowhead with deeply divided lobes at the leaf base. These leaves are 10 – 80 mm long and 2 – 40 mm wide, and are borne on leaf stalks that are up 5 – 30 mm long. The margins of the leaves are toothed.

Mature Plants – have hairy, prostrate, trailing or climbing stems that arise from a thick taproot. The stems may be more than one metre long and are grey to light-green in colour.

Flowers – are trumpet-shaped and pink or white, 10 – 20 mm in diameter and borne singly, or in groups of up to four, on slender stalks that are up to 45 mm long. The flowers are borne in the leaf forks.

Seed head – is an egg-shaped to spherical, papery capsule, 5 – 10 mm long and wide containing four dark-brown to black angular seeds that are up to 4 mm long. The seeds may be warty, smooth, or covered in short hairs.

Lifecycle / Biology: A perennial plant with a thick taproot that allows the plant to persist during periods of low soil moisture and to re-shoot if shoot material is damaged. The species regenerates from taproot material and seedlings during the cooler autumn – spring months and flowers throughout the year, often during the spring-autumn period. In excess of 220 seeds have been recorded on large plants. Plants appear to have some frost tolerance.

Ecology: A common weed in high rainfall and irrigated areas, but also of drainage lines cultivated and wasteland areas. It grows on a wide variety of soil types, from alluvium, to clay, loams and sands.

The Problem: Australian bindweed is a common weed of channel banks and could become a problem in minimum tillage and dryland cotton where it twines through the branches of surrounding cotton plants. Mature plants are difficult to eradicate with herbicides or light cultivation and will regrow from the tap root.

Distribution: Common throughout all of Australia.

Origin: A native Australian plant.

Reference:

Crop Weeds of Northern Australia, p. 126.

Plants of Western New South Wales, p. 556

WEEDS of the South-East, p. 232.

Compiler: Graham Charles and Stephen Johnson

Ipomoea diamantinensis

Desert cowvine

Family: Convolvulaceae (Bindweed family).

Common names: Desert cowvine.

Confused with: Cowvine (I. lonchophylla) and bellvine (I. plebeia). These species can be distinguished by:

- The cotyledon **Leaves –** Bellvine cotyledons are not deeply divided, with the base of the fingers dividing at nearly half the length of the cotyledon. Cowvine and desert cowvine have deeply divided cotyledons, with 2 long, thin fingers. These fingers are 3 – 4 cm long in cowvine and 4 – 6 cm long in desert cowvine.
- Leaf shape and size – desert cowvine leaves are 5 – 15 cm long and 2 – 8 cm wide with a pommel-like protrusion at the base. Cowvine leaves are 3 – 10 cm long, 1 – 7 cm wide and relatively flat at the base, and bellvine leaves are 3 – 8 cm long, 1 – 6 cm wide and cut up from the base of the leaf to the stem.
- Plant size – desert cowvine is a much larger, more succulent plant than the other morning glory's found in cotton, with hollow stems 5 – 6 mm in diameter.

Description:

Seedlings – a large, succulent seedling. The cotyledons are deeply divided into two long fingers with rounded tips and an indented mid-rib, each finger 3 – 5 cm long, and 4 - 6 mm across. The first true leaves are a long, thin, tapering, sword shape, with a rounded pommel at the base, 4 – 8 cm long, 1 - 1.5 cm wide.

Leaves – older leaves develop a broader shape, 5 – 15 cm long, 2 – 8 cm wide, still with a pommel-like base, although less pronounced than earlier leaves. Leaves have a deep central vein and are borne on stalks 2 – 10 cm long.

Plants – a trailing, semi-prostrate annual vine with thick, hollow stems 5 – 6 mm in diameter. Plants can grow to 5 or 6 m in diameter or more.

Flowers – a small, white trumpet-shaped flower 13 – 16 mm diameter with 5 joined petals borne on a short stalk 2 – 3 cm long.

Seeds – 4 or 5 segmented, densely haired seeds are enclosed in a capsule 9 – 17 mm in diameter that splits open at maturity. Seeds are brown and 6 – 8 mm in length.

Lifecycle / Biology: Emerges in spring and flowers in summer and autumn.

Ecology:

The Problem: Only a few plants have been found in cotton, but this weed has the potential to be a major problem as it is a prolific grower, produces a large amount of seed and is tolerant of most of the herbicides used in cotton. It may become a problem in low-input systems. The main WEEDpak identification photo was of a single young plant on the edge of a cotton field in January showing the growth potential of this weed.

Distribution: Found in the northern half of Australia.

Origin: An Australian native weed.

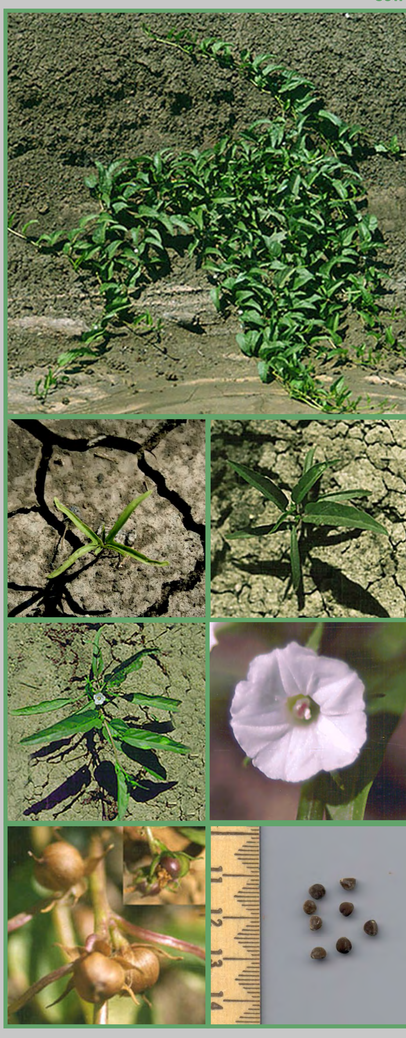
Reference:

The description of desert cowvine in Plants of Western New South Wales, p. 557, is not consistent with the plant described in WEEDpak.

Compiler: Graham Charles

Ipomoea lonchophylla J.M.Black

Cowvine



Family: Convolvulaceae (Bindweed family).

Common names: Cowvine, Common cowvine, Peachvine.

Confused with: Bellvine (I. plebeia), Common morning glory (I. purpurea), Desert cowvine (I. diamantinensis). These species can be distinguished by:

- The cotyledon **Leaves –** cowvine and desert cowvine have deeply divided cotyledons, with 2 long, thin fingers. These fingers are 3 – 4 cm long in cowvine and 4 – 6 cm long in desert cowvine. Bellvine and common morning glory cotyledons are not deeply divided, with the base of the fingers dividing at nearly half the length of the cotyledon.
- Leaf shape and size – cowvine leaves are 3 – 10 cm long, 1 – 7 cm wide and relatively flat at the base. Desert cowvine leaves are 5 – 15 cm long and 2 – 8 cm wide with a pommel-like protrusion at the base, and bellvine and common morning glory leaves are 3 – 8 cm long, 1 – 6 cm wide and cut up from the base of the leaf to the stem.

Description:

Seedling Leaves – long and deeply divided into two fingers 3 – 4 cm long by 4 mm wide.

Early Leaves – the first true leaf is long and spear-shaped and subsequent leaves are triangular and have flat or notched bases and wavy margins. **Seedlings –** the young stems may be purplish in colour.

Adult Leaves – egg-shaped with notched bases, with margins that tend to fold inwards. Leaves are 3 – 10 cm long and 1 – 7 cm wide and are generally hairless or only slightly hairy. These leaves are borne on stalks 1 – 6 cm long.

Plants – have rough or smooth stems that may be up to 40 cm long and 20 cm high. The stems rarely twine.

Flowers – are white and trumpet-shaped, about 9 - 12 mm long. Single or paired flowers arise from the leaf forks on stalks that are 5 – 30 mm long.

Seed head - a spherical, papery capsule about 7 - 9 mm in diameter, containing 3 or 4 angular downy seeds 4 - 6 mm long.

Lifecycle / Biology: An annual and occasionally perennial species that predominantly grows during spring, summer and autumn. Seedlings emerge after rainfall and irrigation throughout the year, but only surviving in frost-free periods. Plants grow rapidly and can flower within a few weeks of emergence when they are only 5 cm in height and have up to three true leaves. Plants continue to flower and produce seed throughout spring, summer and autumn. Adult plants develop long twining branches that form thick ground covering mats. At least 1000 seeds have been found on plants up to 3 m in diameter. These seeds have a strong seed dormancy and survive many years in the soil. Around 90

of seeds can survive in the soil from year to year. Seed banks of 1000 to 2500 seeds/m2 have been found, with 80

in the upper 30 cm of the soil, or 45

in the top 10 cm of the soil. Seeds seldom emerge from greater than 5 cm in depth.

Ecology: Found on the heavy clay soils of floodplains and other cotton growing areas. A common species throughout the coolibah woodlands and Mitchell grassland communities (some of which are now occupied by cotton growing areas). Dense stands of the weed may occur following summer floods or heavy rains.

The Problem: A common weed of many summer growing crops including cotton. It is difficult to control with conventional management and competes strongly for light, soil water and nutrients.

Distribution: Found throughout much of the higher rainfall areas inland of northern and central Australia.

Origin: A native species.

Reference:

Crop Weeds of Northern Australia, p. 123 - 124.

Charles, G. 2002. Managing cowvine in cotton. WEEDpak.

Plants of Western New South Wales, p. 558.

Compiler: Graham Charles and Stephen Johnson

Ipomoea plebeia R.Br.

Bellvine

Family: Convolvulaceae (Bindweed family).

Common names: Cowvine (I. lonchophylla), Common morning glory (I. purpurea), and Desert cowvine (I. diamantinensis). These species can be distinguished by:

Confused with:

- The cotyledon **Leaves –** cowvine and desert cowvine have deeply divided cotyledons, with 2 long, thin fingers. These fingers are 3 – 4 cm long in cowvine and 4 – 6 cm long in desert cowvine. Bellvine and common morning glory cotyledons are not deeply divided. Bellvine cotyledons are divided with the fingers more than half the length of the cotyledon, and the cotyledon longer than it is wide. Common morning glory cotyledons are divided with the fingers less than half the length of the cotyledon, and the cotyledon as wide as it is long.
- Leaf shape and size – bellvine leaves are 3 – 8 cm long, 1 – 6 cm wide and generally triangular in shape, cut up from the base of the leaf to the stem. Cowvine leaves are 3 – 10 cm long, 1 – 7 cm wide and relatively flat at the base. Desert cowvine leaves are 5 – 15 cm long and 2 – 8 cm wide with a pommel-like protrusion at the base. Common morning glory leaves are 2 – 10 cm long and wide, almost circular in shape, cut up from the base of the leaf to the stem and have a distinctly pointed tip.

Description:

Seedling Leaves – are v-shaped with a broad flat base that extends slightly beyond the sides, 25 - 30 mm long and wide, on 11 – 16 mm long stalks.

Early Leaves – the first true leaf is egg-shaped with a notched base. Subsequent leaves have scattered hairs and a notched base. The notch becomes more pronounced as the leaves mature and this is a consistent feature in all leaves.

Adult Leaves – are egg to oval-shaped or almost triangular 25 – 80 mm long and 10 – 60 mm wide, with lobes at the base either side of the stem and scattered hairs. The leaves are borne on stalks 10 – 60 mm long.

Plants – weak stemmed, either prostrate or climbing, twining over other plants. Plants are covered in soft hairs.

Flowers – white, trumpet-shaped 9 – 13 mm, and arise from the leaf forks on stalks 5 – 15 mm long. One to three flowers are borne in each leaf fork.

Seed head - a thin, papery spherical capsule 7 – 9 mm in diameter containing four hairy, segmented brown seeds 3 – 5 mm in length. Seeds have a light brown strip running down their length.

Lifecycle / Biology: An annual species that germinates mainly during spring and summer. Bellvine grows throughout spring, summer and autumn, but may grow throughout the year under suitable conditions when sheltered from frost. Plants flower under decreasing day length in autumn.

Ecology: A common weed of cultivation and disturbed areas. Common on heavy cracking clay soils.

The Problem: A common weed roadsides, irrigation structures and many summer growing crops including cotton; more common in Qld. The weed is difficult to control in cotton with conventional management. It can cause blockages to harvesting machinery by binding cotton plants together requiring herbicide application to kill the weed.

Distribution: Found throughout much of the higher rainfall areas of northern and central Australia.

Origin: A native species.

Reference:

Crop Weeds of Northern Australia, p. 124 – 125.

Compiler: Graham Charles and Stephen Johnson

Ipomoea purpurea (L.) Roth

Common morning glory

Family: Convolvulaceae (Bindweed family).

Common names: Common morning glory, Morning glory, Small morning glory, Tall morning glory.

Confused with: Littlebell (I. triloba), Bellvine (I. plebia), Cowvine (I. lonchophylla), and Desert cowvine (I. diamantinensis). These species can be distinguished by:

- The cotyledon **Leaves –** cowvine and desert cowvine have deeply divided cotyledons, with 2 long, thin fingers. These fingers are 3 – 4 cm long in cowvine and 4 – 6 cm long in desert cowvine. Littlebell, bellvine and common morning glory cotyledons are not deeply divided. Littlebell cotyledons are divided with the fingers about ¾ the length of a "V" shaped cotyledon leaf. Bellvine cotyledons are divided with the fingers more than half the length of the cotyledon, and the cotyledon longer than it is wide. Common morning glory cotyledons are divided with the fingers less than half the length of the cotyledon, and the cotyledon as wide as it is long.
- Leaf shape and size – common morning glory leaves are 2 – 10 cm long and wide, almost circular in shape, cut up from the base of the leaf to the stem and have a distinctly pointed tip. Cowvine leaves are 3 – 10 cm long, 1 – 7 cm wide and relatively flat at the base. Desert cowvine leaves are 5 – 15 cm long and 2 – 8 cm wide with a pommel-like protrusion at the base. Bellvine leaves are 3 – 8 cm long, 1 – 6 cm wide and generally triangular in shape, cut up from the base of the leaf to the stem. Young littlebell leaves are intermediate in shape between bellvine and common morning glory, 2 – 8 cm long and wide, heart shaped. Older leaves develop a distinctive 3-lobed shape, with all 3 lobes distinctly pointed.
- Flower colour – littlebell has a pinkish/purple flower with a darker throat. Common morning glory flowers vary from almost white to bright crimson to purplish with a lighter or white throat, and bellvine, cowvine and desert cowvine all have white flowers.

Description:

Seedling Leaves – are butterfly-shaped, 22 - 26 mm long and 23 – 27 mm wide on stalks that are 23 to 25 mm long.

Leaves – the first true leaves and subsequent adult leaves are heart-shaped. These leaves have short hairs on both leaf surfaces and are pale green underneath. The margins of the leaves may be three-lobed or entire, are 20 – 150 mm long and 20 – 120 mm wide and are borne on stalks 5 – 150 mm long.

Plants – have climbing stems that are generally greater than 50 cm long.

Flowers – are trumpet-shaped, 30 – 60 mm long and wide. Flower colour varies from white to mauve or violet/blue. Flowers occur singly or in groups of two to three on flowering stalks that are 30 – 180 mm long and arise from the leaf forks.

Seeds – the seed head is a round, papery capsule, 8 - 10 mm wide, with up to six angular brown seeds 4 – 5 mm in length that are covered in small membranous scales.

Lifecycle / Biology: A vigorous annual climber that emerges in spring and summer and can flower throughout the year, although flowering in most common in spring and summer.

Ecology: A weed of cultivated and disturbed/neglected areas. This species can grow on a wide variety of soil types from sandy/alluvium to heavy clays.

The Problem: A garden escape that is still commonly grown in gardens as an ornamental. Common morning glory competes for light, soil water and nutrients, and can twine through and over cotton plants, interfering with in-crop management and harvesting by binding cotton plants together. It has the potential to be a similar problem to bellvine in cotton. Scattered populations of common morning glory have been found in the Emerald and Byee cotton areas.

Distribution: Scattered populations occur throughout New South Wales and Queensland

Origin: An introduced species from Tropical America. It was introduced as a garden ornamental and is still commonly grown in gardens.

Reference:

Crop Weeds of Northern Australia, p. 125 – 126.

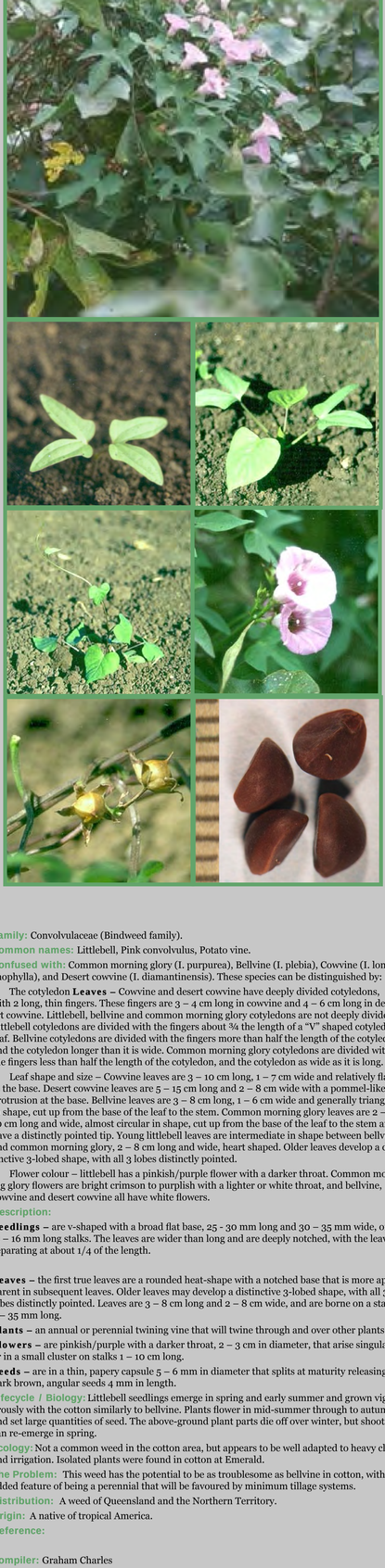
Plants of Western New South Wales, p. 557.

WEEDS of the South-East, p. 234.

Compiler: Graham Charles

Ipomoea triloba L.

Littlebell



Family: Convolvulaceae (Bindweed family).

Common names: Littlebell, Pink convolvulus, Potato vine.

Confused with: Common morning glory (I. purpurea), Bellvine (I. plebia), Cowvine (I. lonchophylla), and Desert cowvine (I. diamantinensis). These species can be distinguished by:

- The cotyledon **Leaves –** Cowvine and desert cowvine have deeply divided cotyledons, with 2 long, thin fingers. These fingers are 3 – 4 cm long in cowvine and 4 – 6 cm long in desert cowvine. Littlebell, bellvine and common morning glory cotyledons are not deeply divided. Littlebell cotyledons are divided with the fingers about ¾ the length of a "V" shaped cotyledon leaf. Bellvine cotyledons are divided with the fingers more than half the length of the cotyledon, and the cotyledon longer than it is wide. Common morning glory cotyledons are divided with the fingers less than half the length of the cotyledon, and the cotyledon as wide as it is long.
- Leaf shape and size – Cowvine leaves are 3 – 10 cm long, 1 – 7 cm wide and relatively flat at the base. Desert cowvine leaves are 5 – 15 cm long and 2 – 8 cm wide with a pommel-like protrusion at the base. Bellvine leaves are 3 – 8 cm long, 1 – 6 cm wide and generally triangular in shape, cut up from the base of the leaf to the stem. Common morning glory leaves are 2 – 10 cm long and wide, almost circular in shape, cut up from the base of the leaf to the stem and have a distinctly pointed tip. Young littlebell leaves are intermediate in shape between bellvine and common morning glory, 2 – 8 cm long and wide, heart shaped. Older leaves develop a distinctive 3-lobed shape, with all 3 lobes distinctly pointed.
- Flower colour – littlebell has a pinkish/purple flower with a darker throat. Common morning glory flowers are bright crimson to purplish with a lighter or white throat, and bellvine, cowvine and desert cowvine all have white flowers.

Description:

Seedlings – are *v*-shaped with a broad flat base, 25 - 30 mm long and 30 – 35 mm wide, on 11 – 16 mm long stalks. The leaves are wider than long and are deeply notched, with the leaves separating at about 1/4 of the length.

Leaves – the first true leaves are a rounded heat-shape with a notched base that is more apparent in subsequent leaves. Older leaves may develop a distinctive 3-lobed shape, with all 3 lobes distinctly pointed. Leaves are 3 – 8 cm long and 2 – 8 cm wide, and are borne on a stalk 5 – 35 mm long.

Plants – an annual or perennial twining vine that will twine through and over other plants.

Flowers – are pinkish/purple with a darker throat, 2 – 3 cm in diameter, that arise singularly or in a small cluster on stalks 1 – 10 cm long.

Seeds – are in a thin, papery capsule 5 – 6 mm in diameter that splits at maturity releasing 4 dark brown, angular seeds 4 mm in length.

Lifecycle / Biology: Littlebell seedlings emerge in spring and early summer and grown vigorously with the cotton similarly to bellvine. Plants flower in mid-summer through to autumn and set large quantities of seed. The above-ground plant parts die off over winter, but shoots can re-emerge in spring.

Ecology: Not a common weed in the cotton area, but appears to be well adapted to heavy clays and irrigation. Isolated plants were found in cotton at Emerald.

The Problem: This weed has the potential to be as troublesome as bellvine in cotton, with the added feature of being a perennial that will be favoured by minimum tillage systems.

Distribution: A weed of Queensland and the Northern Territory.

Origin: A native of tropical America.

Reference:

Compiler: Graham Charles

Operculina aequisepala (Domin) R.W.JohnsonOperculina aequisepala (Domin) R.W.Johnson

Onion vine

Family: Convolvulaceae (Bindweed family).

Common names: Onion vine.

Confused with: There are several other native and introduced species in this genus. O. aequisepala is most like O. turpethum, an introduced weedy species more common in India, but can be distinguished by O. aequisepala's smaller flowers and small operculum (the cap-like covering on the seed pod), which is 6 – 9 mm wide, smaller than any other members of this genus in Australia.

Description:

Seedlings – large, vigorous seedlings, with glossy green leaves. The cotyledons have the "V" shape typical of the bindweed family, but are as wide as they are long, 30 – 35 mm wide, borne on stalks around 20 mm long, with rounded tips and lighter, indented veins. The early true leaves are more of a broad-arrowhead in shape, coming to a sharp tip, 25 – 30 mm long and 35 – 40 mm wide, borne on stalks 20 – 30 mm long.

Leaves – are alternate and variable in shape, some become more circular, 2 – 20 cm across, borne on stalks 2 – 5 cm long or more. The leaves are finely hairy on the underside, giving them a velvety feel and may be spaced 20 cm or more apart along the vines.

Stems – are strongly triangular, with distinct longitudinal membranes, 1 – 2 mm wide running along the points of the triangle. The stems twist along their length, more so towards the ends of the stems.

Flowers – are a white, often borne singularly, in pairs or triplets from the junctions of the leaves. The flowers are typically 20 – 25 mm across, borne on stalks 1.5 – 7 cm long.

Seed pods – develop in globular capsule 17 - 25 mm wide, with an indented, white cap on the end. The fruit may have a few short, hairy spines. Seeds are glossy black, irregularly shaped, 2.5 - 3 mm in length.

Seeds – develop in a fleshy red fruit 5 cm long by 3.5 cm in diameter, with an indented, white cap on the end. The fruit have a few short, hairy spines. Seeds are glossy black, irregularly shaped, 2.5 - 3 mm in length.

Lifecycle / Biology: Seedlings may emerge with cotton in spring and early summer. Older plants flower in spring and summer, with fruits forming some weeks later.

Ecology: Well adapted to the heavy black soils of the brigalow belt, through to lighter soils.

The Problem: A minor weed of cotton, but very problematic where it occurs. The vine robust grows rapidly, twining through the cotton, forming an inpenertratable mass. The vine will prevent cultivation and tangle in picker heads.

Distribution: Scattered plants occur in Western Australia, the Northern Territory and Queensland. Has been found in cotton in the Emerald area.

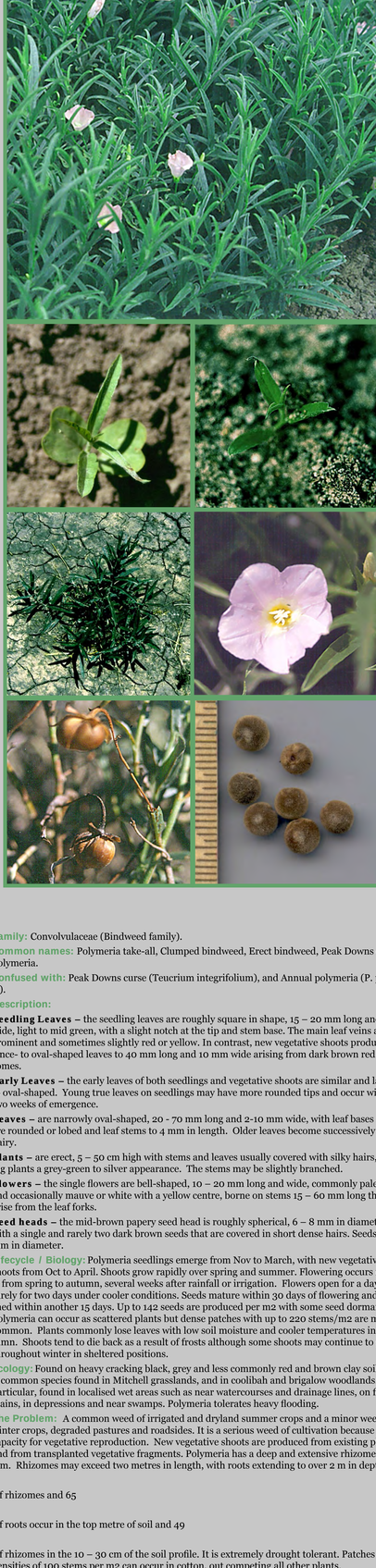
Origin: A native Australian species.

Reference:

Compiler: Graham Charles

Polymeria longifolia Lindl.

Polymeria take-all



Family: Convolvulaceae (Bindweed family).

Common names: Polymeria take-all, Clumped bindweed, Erect bindweed, Peak Downs curse, Polymeria.

Confused with: Peak Downs curse (Teucrium integrifolium), and Annual polymeria (P. pusilla).

Description:

Seedling Leaves – the seedling leaves are roughly square in shape, 15 – 20 mm long and wide, light to mid green, with a slight notch at the tip and stem base. The main leaf veins are prominent and sometimes slightly red or yellow. In contrast, new vegetative shoots produce lance- to oval-shaped leaves to 40 mm long and 10 mm wide arising from dark brown red rhizomes.

Early Leaves – the early leaves of both seedlings and vegetative shoots are similar and lance- to oval-shaped. Young true leaves on seedlings may have more rounded tips and occur within two weeks of emergence.

Leaves – are narrowly oval-shaped, 20 - 70 mm long and 2-10 mm wide, with leaf bases that are rounded or lobed and leaf stems to 4 mm in length. Older leaves become successively more hairy.

Plants – are erect, 5 – 50 cm high with stems and leaves usually covered with silky hairs, giving plants a grey-green to silver appearance. The stems may be slightly branched.

Flowers – the single flowers are bell-shaped, 10 – 20 mm long and wide, commonly pale pink, and occasionally mauve or white with a yellow centre, borne on stems 15 – 60 mm long that arise from the leaf forks.

Seed heads – the mid-brown papery seed head is roughly spherical, 6 – 8 mm in diameter with a single and rarely two dark brown seeds that are covered in short dense hairs. Seeds are 6 mm in diameter.

Lifecycle / Biology: Polymeria seedlings emerge from Nov to March, with new vegetative shoots from Oct to April. Shoots grow rapidly over spring and summer. Flowering occurs mainly from spring to autumn, several weeks after rainfall or irrigation. Flowers open for a day, or rarely for two days under cooler conditions. Seeds mature within 30 days of flowering and are shed within another 15 days. Up to 142 seeds are produced per m2 with some seed dormancy. Polymeria can occur as scattered plants but dense patches with up to 220 stems/m2 are more common. Plants commonly lose leaves with low soil moisture and cooler temperatures in autumn. Shoots tend to die back as a result of frosts although some shoots may continue to grow throughout winter in sheltered positions.

Ecology: Found on heavy cracking black, grey and less commonly red and brown clay soils. A common species found in Mitchell grasslands, and in coolibah and brigalow woodlands. In particular, found in localised wet areas such as near watercourses and drainage lines, on flood plains, in depressions and near swamps. Polymeria tolerates heavy flooding.

The Problem: A common weed of irrigated and dryland summer crops and a minor weed of winter crops, degraded pastures and roadsides. It is a serious weed of cultivation because of its capacity for vegetative reproduction. New vegetative shoots are produced from existing plants and from transplanted vegetative fragments. Polymeria has a deep and extensive rhizome system. Rhizomes may exceed two metres in length, with roots extending to over 2 m in depth. 80

of rhizomes and 65

of roots occur in the top metre of soil and 49

of rhizomes in the 10 – 30 cm of the soil profile. It is extremely drought tolerant. Patches with densities of 100 stems per m2 can occur in cotton, out competing all other plants.

Distribution: Occurs in most States of Australia, and is a common weed in much of the western part of the cotton region.

Origin: Polymeria take-all is native to Australia.

Reference:

Crop Weeds of Northern Australia, p. 32

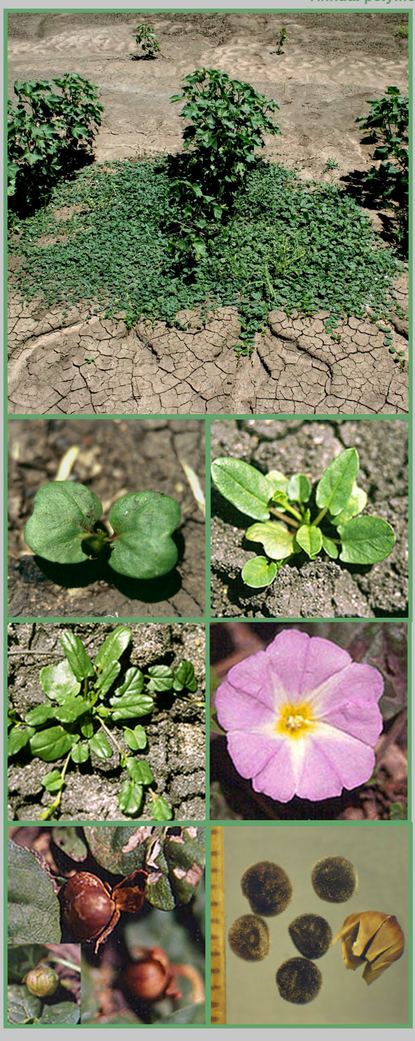
Johnson, S. B. (2000) Biology and management of the 'take-all' weed Polymeria longifolia in cotton. PhD thesis, University of New England. 326 pp.

Plants of Western New South Wales, p. 558.

Compiler: Graham Charles and Stephen Johnson

Polymeria pursilla R.Br.

Annual polymeria



Family: Convolvulaceae (Bindweed family).

Common names: Annual polymeria, Polymeria.

Confused with: Polymeria take-all (P. longifolia).

Description:

Seedling Leaves – the first two seedling leaves are roughly square shaped, up to 10 mm square, but notched at the base and tip. The first two true leaves are generally egg-shaped.

Leaves – subsequent leaves are oblong to oval-shaped, 10 - 30 mm long and 7 - 20 mm wide and are notched at the base. They have prominent, depressed central and lateral venation. The leaf stalks are 2 – 25 mm long.

Plants – are generally hairless. The stems run along the ground producing roots at the nodes. Adult plants may be 2 – 3 m in diameter, but rarely grow higher than 5 cm, with runners to at least 50 cm.

Flowers – small and trumpet-shaped 6 - 13 mm in diameter, produced over summer and autumn. The flowers are pale-pink or mauve with yellow centres. Single flowers are borne on stems.

Seeds – produced either above- or below-ground in capsules that are 4 – 6 mm in diameter and borne on a short down-turned stem. Seeds are 3 – 3.5 mm in diameter, light brown, spherical in shape and covered with short, dense hairs.

Lifecycle / Biology: Seedlings emerge in spring and summer. Flowering and seed set is rapid and occurs during summer and autumn.

Ecology: Commonly found on the heavy clay soils that were open grassy woodland, and in areas that may be flooded seasonally.

The Problem: Annual polymeria is a minor weed of reduced tillage cropping and is difficult to control with conventional management.

Distribution: Northern NSW, Southern and Central Qld. and the Northern Territory.

Origin: A native species.

Reference:

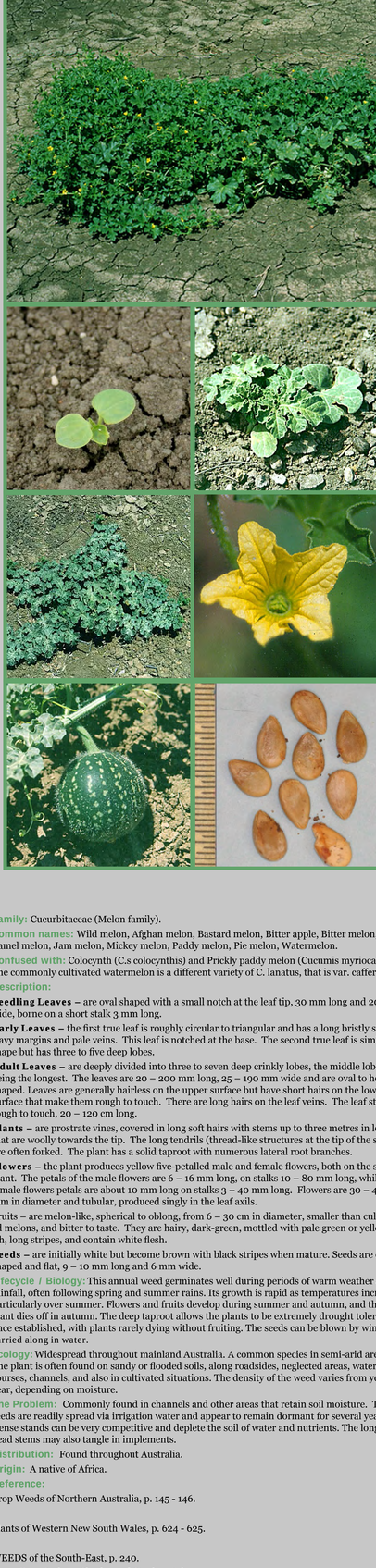
Crop Weeds of Northern Australia, p. 91 – 92

Plants of Western New South Wales, p. 558. The Polymeria sp. (aff. ambigua) is annual polymeria.

Compiler: Graham Charles and Stephen Johnson

Citrullus lanatus (Thunb.) Matsum. & Nakai var. lanatus

Wild melon



Family: Cucurbitaceae (Melon family).

Common names: Wild melon, Afghan melon, Bastard melon, Bitter apple, Bitter melon, Camel melon, Jam melon, Mickey melon, Paddy melon, Pie melon, Watermelon.

Confused with: Colocynth (C.s colocynthis) and Prickly paddy melon (Cucumis myriocarpus). The commonly cultivated watermelon is a different variety of C. lanatus, that is var. caffer.

Description:

Seedling Leaves – are oval shaped with a small notch at the leaf tip, 30 mm long and 20 mm wide, borne on a short stalk 3 mm long.

Early Leaves – the first true leaf is roughly circular to triangular and has a long bristly stalk, wavy margins and pale veins. This leaf is notched at the base. The second true leaf is similar in shape but has three to five deep lobes.

Adult Leaves – are deeply divided into three to seven deep crinkly lobes, the middle lobe being the longest. The leaves are 20 – 200 mm long, 25 – 190 mm wide and are oval to heart-shaped. Leaves are generally hairless on the upper surface but have short hairs on the lower surface that make them rough to touch. There are long hairs on the leaf veins. The leaf stalk is rough to touch, 20 – 120 cm long.

Plants – are prostrate vines, covered in long soft hairs with stems up to three metres in length that are woolly towards the tip. The long tendrils (thread-like structures at the tip of the stem) are often forked. The plant has a solid taproot with numerous lateral root branches.

Flowers – the plant produces yellow five-petalled male and female flowers, both on the same plant. The petals of the male flowers are 6 – 16 mm long, on stalks 10 – 80 mm long, while the female flowers petals are about 10 mm long on stalks 3 – 40 mm long. Flowers are 30 – 40 mm in diameter and tubular, produced singly in the leaf axils.

Fruits – are melon-like, spherical to oblong, from 6 – 30 cm in diameter, smaller than cultivated melons, and bitter to taste. They are hairy, dark-green, mottled with pale green or yellowish, long stripes, and contain white flesh.

Seeds – are initially white but become brown with black stripes when mature. Seeds are oval-shaped and flat, 9 – 10 mm long and 6 mm wide.

Lifecycle / Biology: This annual weed germinates well during periods of warm weather and rainfall, often following spring and summer rains. Its growth is rapid as temperatures increase, particularly over summer. Flowers and fruits develop during summer and autumn, and the plant dies off in autumn. The deep taproot allows the plants to be extremely drought tolerant once established, with plants rarely dying without fruiting. The seeds can be blown by wind or carried along in water.

Ecology: Widespread throughout mainland Australia. A common species in semi-arid areas. The plant is often found on sandy or flooded soils, along roadsides, neglected areas, watercourses, channels, and also in cultivated situations. The density of the weed varies from year to year, depending on moisture.

The Problem: Commonly found in channels and other areas that retain soil moisture. The seeds are readily spread via irrigation water and appear to remain dormant for several years. Dense stands can be very competitive and deplete the soil of water and nutrients. The long dead stems may also tangle in implements.

Distribution: Found throughout Australia.

Origin: A native of Africa.

Reference:

Crop Weeds of Northern Australia, p. 145 - 146.

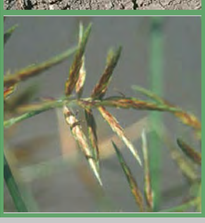
Plants of Western New South Wales, p. 624 - 625.

WEEDS of the South-East, p. 240.

Compiler: Graham Charles and Stephen Johnson

Cyperus bifax C.B. Clarke

Downs nutgrass



Family: Cyperaceae (Sedge family).

Common names: Downs nutgrass, Western nutgrass.

Confused with: Nutgrass (C. rotundus). The primary ways to distinguish nutgrass and Downs nutgrass in the field are:

- Young nutgrass leaves tend to be a darker green and the flower heads a darker red/purplish in colour. Downs nutgrass is typically yellowier in colour and the flower heads are orange, fading to white.
- Nutgrass has a purple colouring in the top few layers of leaves at the leaf base. The colour then fades to white in successive layers. This colour can be seen by removing a plant and stripping the top few layers of leaves from the base. Downs nutgrass leaves are green and then white at the leaf base.
- Downs nutgrass grows at lower density, even in heavy infestations, with bare dirt apparent between shoots.

Description:

Seedlings – fine, leaves 2 mm wide and 2 cm long, becoming pale at the base.

Mature Plants – a hairless perennial sedge that produces underground tubers at the tips of the rhizomes.

Seed heads – occur on the ends of erect, triangular stems, up to 90 cm tall and 4 mm in diameter. Seed heads are quite variable in shape and colour. They are generally orange, but can be a dark brown and fade to almost white. The seed heads can be small and compact around 5 cm in diameter, but may be large and spreading, to 30 cm in diameter (branches to 12 cm in length). Seeds are light brown in colour, 1.4 mm in length.

Tubers – are brown and firm with a white interior. They can be up to 3 cm in length and 10 mm diameter.

Lifecycle / Biology: Downs nutgrass readily establishes from both seed and underground tubers. Tubers are continuously formed as the plant grows, with new shoots emerging from each new tuber, leading to plants linked in a daisy-chain manner. Up to around 50 new tubers may be formed from a single tuber each season. Large quantities of seed can enter a cotton field in flood water and large areas of infestation have been observed following floods.

Ecology: Downs nutgrass is widely found throughout the interior floodplains but is generally not obvious until after heavy rains in the warmer months when it flowers. It is most common in depressions and wet areas. It may occur as scattered plants, but can form large thick patches.

The Problem: Downs nutgrass is established through most of the flood plains of the cotton growing region of Australia. Plants are often present prior to development and persist in cotton crops. The weed generally grows at relatively low densities and does not spread very quickly. It often appears to be a larger problem than it actually is, due to its height and brightly coloured seed heads that are apparent above the cotton canopy.

Downs nutgrass is relatively easily controlled by heavy cultivation and repeated glyphosate applications.

Distribution: Widespread through inland Australia.

Origin: A native Australian plant.

Reference:

Plants of Western New South Wales, p. 182 - 183.

Compiler: Graham Charles

Cyperus brevifolius (Rottb.) Hassk.

Mullumbimby couch

Family: Cyperaceae (Sedge family).

Common names: Mullumbimby couch, Globe kyllinga, Kyllinga.

Confused with: The are around 150 species of cyperus in Australia, some of which are serious weeds, particularly of irrigated cropping.

Mullumbimbi couch can most readily be distinguished from the other species by its short stature, rhizomatous growth habit and lack of tubers, and small, globular seed heads.

Description:

Seedlings – fine, leaves 1 mm wide and 6 - 10 mm long.

Leaves – up to 10 cm long, 2 - 3 mm wide and with a distinct keel.

Mature Plants – a hairless perennial sedge up to 15 cm high that produces masses of rhizomes 5 - 40 cm long, 0.7 – 2.5 mm thick, with new shoot arising from every 2nd node. These shoots may only have 1 or 2 leaves and end in a seed head.

Seed heads – occur on the ends of erect, triangular stems, 5 - 15 cm tall and 0.7 - 2 mm in diameter. The seed heads are small and compact globes 5 – 9 mm in diameter, each containing up to 100 flowers. One or 2 small secondary seed heads may occur at the base of the terminal seed head. Seed heads are initially green, but become brown as they mature. They have 3 or 4 leaf-like bracts at their base. These bracts are 14 – 40 mm long and 1.5 – 2 mm wide, the top bract much small then the lower bracts.

Seed – is enclosed in a light brown hull, 2 – 4 mm long and 0.9 mm wide. These 'seeds' readily break away from the core of the seed head at maturity. The enclosed, flattened seed is glossy, yellow to light brown 1 – 1.5 mm long and 0.5 – 0.7 mm wide

Lifecycle / Biology: Mullumbimby couch is a rhizomatous perennial weed that forms highly competitive, spreading clumps, spreading from both rhizomes and seed.

Ecology: It is a weed of damp, disturbed areas, and most often found in lawns and gardens. An infestation was found in a lawn near Wee Waa, in the heart of the cotton area.

The Problem: Mullumbimby couch is not known to be a problem in cotton, but is well suited to the wet conditions associated with irrigated cotton and has the potential to be a serious weed in these areas. Growers should be aware of the potential for this weed to invade.

Distribution: Occurs in all mainland states, but most common on the Queensland coast and north coast of NSW.

Origin: An introduced weed, native to tropical America, Africa and Asia.

Reference:

Compiler: Graham Charles

Cyperus congestus Vahl

Dense flatsedge

Family: Cyperaceae (Sedge family).

Common names: Dense flatsedge, clustered flatsedge.

Confused with: The are around 150 species of cyperus in Australia, some of which are serious weeds, particularly of irrigated cropping.

Dense flatsedge couch can most readily be distinguished from the other species by head.

Description:

Seedlings – fine, leaves 0.6 mm wide and 10 - 12 mm long.

Leaves – generally on 1 or 2 leaves per stem, the leaves are up to 22 cm long and 9 mm wide, with a distinct, deep keel.

Mature Plants – a hairless perennial sedge up to 60 cm high that produces masses of seed heads at the end of each stem. Stems are to 9 mm wide and strongly triangular with a central indent running the length of the stem.

Seed heads – a cluster of seed heads occur on the ends of erect, triangular stems, 40 - 60 cm tall. The seed heads are globular 1 – 5 cm in diameter, each containing dozens of radiating spear-head like spikes 10 – 28 mm long and 1 – 2.2 mm wide, with 8 - 24 flowers per spike. Each cluster of seed heads has a central head and 2 – 7 radiating heads, borne on stalks of increasing length, to 10 cm. Seed heads are initially green, but become brown as they mature. They have 4 or 5 leaf-like bracts at their base. These bracts are 2 – 20 cm long and 1 – 9 mm wide.

Seed – is enclosed in a purple/brown hull that fades to light brown with age, 3 – 4 mm long and 0.7 – 0.9 mm wide. The enclosed, triangular seed is glossy, reddish-brown to black 1.5 – 2 mm long and 0.5 – 0.6 mm wide.

Lifecycle / Biology: Dense flatsedge is a tufted perennial weed that forms spreading clumps, spreading from both rhizomes and seed.

Ecology: It is a weed of damp, disturbed areas.

The Problem: Dense flatsedge is not a serious problem in cotton, but is well suited to the wet conditions associated with irrigated cotton and has the potential to be a more serious weed in these areas. Growers should be aware of the potential for this weed to invade.

Distribution: Occurs in the wetter areas of NSW and the other southern states.

Origin: An introduced weed from southern Africa.

Reference:

Compiler: Graham Charles

Cyperus difformis L.

Dirty Dora

Family: Cyperaceae (Sedge family).

Common names: Dirty Dora, Rice sedge, Variable flatsedge.

Confused with: Nutgrass (C. rotundus).

Description:

Seedlings – very fine, leaves 1 mm wide and 10 mm long.

Leaves – up to 50 cm long, 2-4 mm wide, often a pale green or yellowish colour.

Mature Plants – a hairless annual sedge without tubers with reddish fibrous roots. Stems are sharply triangular to 50 cm on length.

Seed heads – The stems end in 1 – 3 spreading leaves, the longest of which may be up to 15 cm . The seed head is positioned above these leaves and produces masses of very small, dust like light brown seed in a clustered seed head with 3 – 11 branches, each up to 5 cm in length. Seed are dusty brown in colour, 0.7 mm in length.

Lifecycle / Biology: Dirty Dora may grow and flower year round.

Ecology: Background populations of dirty Dora appear to be present through much of the cotton growing area. This weed can rapidly establish and spread under suitable conditions. Its growth is probably suppressed by the residual herbicides used with cotton production and it may become more problematic in transgenic cotton where few residual herbicides are used.

The Problem: Dirty Dora is a prolific seed producer and seedlings can emerge in most wet areas including irrigation structures. It is not generally a problem in well drained fields but is a major weed or rice production and can be a pest in irrigation structures.

Distribution: Widespread through inland Australia and most common in the southern irrigation area. Dirty Dora seedlings have emerged from soil samples taken from throughout the cotton industry, even though this weed was not apparent at most of these sites.

Origin: A native of Asia.

Reference:

Plants of Western New South Wales, p. 159.

WEEDS of the South-East, p. 18.

Compiler: Graham Charles

Cyperus eragrostis Lam.

Umbrella sedge

Family: Cyperaceae (Sedge family).

Common names: Umbrella sedge, Drain flatsedge, Umbrella grass, Victorian nutgrass.

Confused with:

Description:

Seedlings – fine, leaves 1.5 mm wide and 15 mm long.

Leaves – are erect, bright green and up to 100 cm in length, 4 – 8 mm in width.

Mature Plants – a strongly tufted perennial sedge without tubers. It often occurs in dense clumps.

Seed heads – Stems are 25 – 100 cm long and rounded-triangular in cross section, ending in 5 – 9 leaves below the seed head. These leaves may be up to 30 cm in length. The seed head is relatively compact, with masses of seed in clusters arising from up to 12 branches that may be up to 12 cm in length. The seed heads are initially green but become brown with age. The seed is dark brown, about 1.2 mm in length.

Lifecycle / Biology: Umbrella sedge can grow year round.

Ecology: A common plant in drains, irrigation channels and other wet areas. The plant will die back to the base during dry times and re-shoot after rain.

The Problem: Umbrella sedge can grow prolifically on irrigation channels, especially where the water level remains relatively stable. The sedge will establish on the water line and can reduce water flow, will catch sediment, and makes it difficult to manage other weeds which may be present.

Distribution: A common plant through most of Australia. Occurs mainly on irrigation supply channels that remain wet most of the season.

Origin: A native of North and South America.

Reference:

Plants of Western New South Wales, p. 159

WEEDS of the South-East, p. 18-19.

Compiler: Graham Charles

Cyperus esculentus L.

Yellow nutgrass

Family: Cyperaceae (Sedge family).

Common names: Yellow nutgrass, Chufa, Nutsedge, Tigernut, Yellow nutsedge.

Confused with: Although a large number of the Cyperaceae occur throughout the cotton area, this species can be distinguished by its large, bushy yellow head.

Description:

Seedlings – fine, the initial leaf 6 – 8 mm long and 0.6 mm wide. Successive leaves are longer and broader, the 4th leaf around 35 mm long and 1.3 mm wide, tapering to a point.

Leaves – are 15 – 30 cm long, 3 – 6 mm wide, glossy yellowish to green and deeply furrowed, with a deep central rib.

Mature Plants – a perennial sedge that grows from underground tubers and seedlings. Plants are typically around 30 cm high, but can be up to 70 cm tall.

Seed head – is yellow and spreading, borne on a stout triangular stem, the height of the plant. At the top of the stem are 5 – 6 or more leaf-like bracts, the first (longest) around 25 cm long, with each successive bract shorter. The seed head has 5 – 6 and up to 10 branches, each up to 10 cm in length, terminating in a seed head; the full head including long and shorter branches. The base of the bracts and branches has a reddish-purple tinge.

Seed – are orange-brown in colour, 1 – 1.5 mm in length and triangular in cross-section, 0.7 – 0.8 mm wide. Tubers – are yellow-brown, smooth or with a slightly fibrous coat, typically 15 to 20 mm long and to 10 mm in diameter.

Lifecycle / Biology: Yellow nutgrass is not frost tolerant. Leaves are burnt off by frost over winter and tubers enter a dormant state. Shoots emerge from these tubers in spring, before cotton is planted. Plants then rapidly grow as temperatures increase and begin flowering in early summer. New tubers and new plants are continuously produced until frosts again cause growth to cease in late autumn or winter.

Ecology: A minor weed of irrigation and cropping in the tropics and sub-tropics. Yellow nutgrass appears to be more suited to wetter areas and is less problematic in inland Australia, even under irrigation.

The Problem: Yellow nutgrass produces masses of viable seed and spreads extremely quickly from this seed, especially in wetter areas, such as ditches and channels. It also produces tubers, although not as prolifically as nutgrass (C. rotundus). Seeds and tubers can be readily transported on machinery and in irrigation water ensuring the rapid spread of this weed. Yellow nutgrass is a major weed, highly competitive with many summer crops in the US and elsewhere, but is less problematic in Australia, generally confined to coastal areas, although infestations have been found further inland. It is a difficult weed to manage, but can be controlled with strategic cultivation and glyphosate applications.

Distribution: Occurs occasionally in coastal NSW and Queensland, and rarely inland. Yellow nutgrass is a major weed elsewhere in the world, problematic in a wide range of crops in tropical and sub-tropical areas.

Tubers of yellow nutsedge can be eaten or used for their oil. There is a risk of seed of this weed being deliberately introduced, as some internet sites promote the value of the tubers for human consumption.

Origin: Probably a native of the Africa and the Mediterranean region. It is now widespread in many tropical and sub-tropical countries.

Reference:

Crop Weeds of Northern Australia, p. 24-25.

Compiler: Graham Charles

Cyperus iria L.

Rice flatsedge

Family: Cyperaceae (Sedge family).

Common names: Rice flatsedge, Rice sedge.

Confused with:

Description:

Seedlings – are grass-like in appearance with erect leaves 4 - 10 cm long and 2 - 3 mm wide.

Leaves – up to 80 cm long and 4 mm in width.

Mature Plants – an annual sedge with fibrous roots and rigid, erect stems.

Seed heads – Stems are triangular in section and up to 60 cm tall and 2 mm in diameter. They end in 2 to 5 leaves and a seed head with 3 – 8 branches of up to 10 cm length which end in seed heads.

Lifecycle / Biology:

Ecology: Grows in wet areas, drains and irrigation structures.

The Problem: Rice flatsedge can be an occasional problem in tail drains and other wet areas. It is a major weed of rice and sugar cane production in Northern Australia.

Distribution: Rice flatsedge occurs throughout Australia

Origin: An Australian native sedge.

Reference:

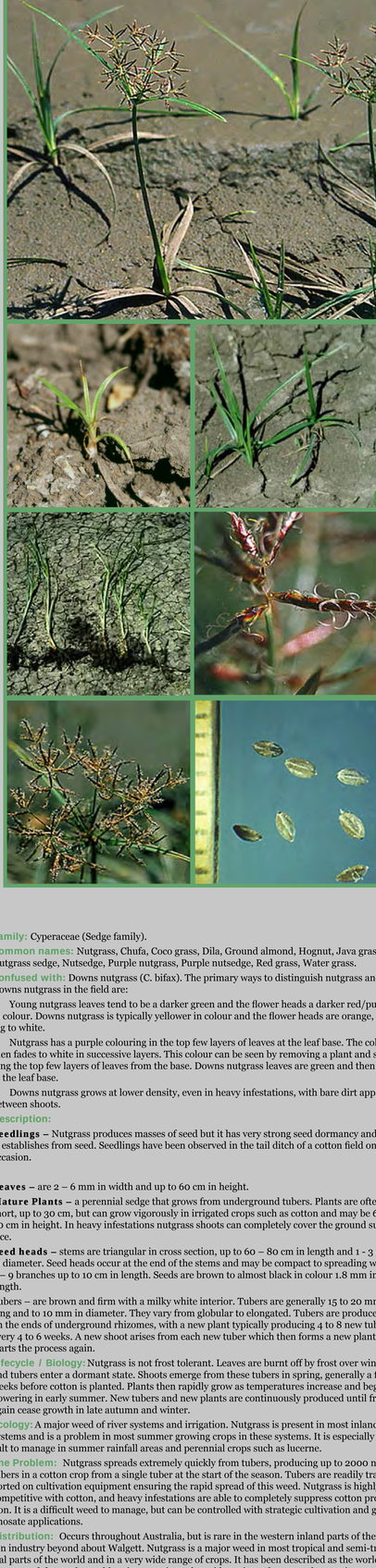
Crop Weeds of Northern Australia, p. 26 – 27

Plants of Western New South Wales, p. 161 – 162

Compiler: Graham Charles

Cyperus rotundus L.

Nutgrass



Family: Cyperaceae (Sedge family).

Common names: Nutgrass, Chufa, Coco grass, Dila, Ground almond, Hognut, Java grass, Nutgrass sedge, Nutsedge, Purple nutgrass, Purple nutsedge, Red grass, Water grass.

Confused with: Downs nutgrass (C. bifax). The primary ways to distinguish nutgrass and Downs nutgrass in the field are:

- Young nutgrass leaves tend to be a darker green and the flower heads a darker red/purplish in colour. Downs nutgrass is typically yellower in colour and the flower heads are orange, fading to white.
- Nutgrass has a purple colouring in the top few layers of leaves at the leaf base. The colour then fades to white in successive layers. This colour can be seen by removing a plant and stripping the top few layers of leaves from the base. Downs nutgrass leaves are green and then white at the leaf base.
- Downs nutgrass grows at lower density, even in heavy infestations, with bare dirt apparent between shoots.

Description:

Seedlings – Nutgrass produces masses of seed but it has very strong seed dormancy and rarely establishes from seed. Seedlings have been observed in the tail ditch of a cotton field on one occasion.

Leaves – are 2 – 6 mm in width and up to 60 cm in height.

Mature Plants – a perennial sedge that grows from underground tubers. Plants are often short, up to 30 cm, but can grow vigorously in irrigated crops such as cotton and may be 60 to 80 cm in height. In heavy infestations nutgrass shoots can completely cover the ground surface.

Seed heads – stems are triangular in cross section, up to 60 – 80 cm in length and 1 - 3 mm in diameter. Seed heads occur at the end of the stems and may be compact to spreading with 3 – 9 branches up to 10 cm in length. Seeds are brown to almost black in colour 1.8 mm in length.

Tubers – are brown and firm with a milky white interior. Tubers are generally 15 to 20 mm long and to 10 mm in diameter. They vary from globular to elongated. Tubers are produced on the ends of underground rhizomes, with a new plant typically producing 4 to 8 new tubers every 4 to 6 weeks. A new shoot arises from each new tuber which then forms a new plant and starts the process again.

Lifecycle / Biology: Nutgrass is not frost tolerant. Leaves are burnt off by frost over winter and tubers enter a dormant state. Shoots emerge from these tubers in spring, generally a few weeks before cotton is planted. Plants then rapidly grow as temperatures increase and begin flowering in early summer. New tubers and new plants are continuously produced until frosts again cease growth in late autumn and winter.

Ecology: A major weed of river systems and irrigation. Nutgrass is present in most inland river systems and is a problem in most summer growing crops in these systems. It is especially difficult to manage in summer rainfall areas and perennial crops such as lucerne.

The Problem: Nutgrass spreads extremely quickly from tubers, producing up to 2000 new tubers in a cotton crop from a single tuber at the start of the season. Tubers are readily transported on cultivation equipment ensuring the rapid spread of this weed. Nutgrass is highly competitive with cotton, and heavy infestations are able to completely suppress cotton production. It is a difficult weed to manage, but can be controlled with strategic cultivation and glyphosate applications.

Distribution: Occurs throughout Australia, but is rare in the western inland parts of the cotton industry beyond about Walgett. Nutgrass is a major weed in most tropical and semi-tropical parts of the world and in a very wide range of crops. It has been described as the world's worst weed due to the problem it causes in such a wide variety of crops and countries.

Origin: A native of tropical Asia, but now a major weed in nearly every tropical and sub-tropical country of the world.

Reference:

Charles, G. W. (pers. comm.)

Crop Weeds of Northern Australia, p. 24.

WEEDS of the South-East, p. 19.

Compiler: Graham Charles

Chamaesyce drummondii (Boiss.) D.C. Hassall

Caustic weed

Family: Euphorbiaceae (Spurge family).

Common names: Caustic weed, Caustic creeper, Creeping spurge, Doily weed, Flat spurge, Mat spurge, Milkweed, Spurgewort. Formerly named Euphorbia drummondii.

Confused with: Red caustic creeper (C. prostrata), and Hairy caustic weed (C. australis).

Description:

Seedlings – cotyledon leaves are roughly circular in shape and very small, 2 - 3 mm across. Older leaves are blue/green in colour , oblong to oval in shape and may have a red to margins.

Leaves – older leaves are similar in shape 2 - 10 mm long and 2 - 5 mm wide but with a minute tooth near the tip. The leaves are produced opposite each other on the stems. The leaves are almost stalkless and may have a reddish tinge.

Plants – a hairless, prostrate annual or short-lived perennial that grows in a compact doily shape up to 60 cm in diameter. The plant is variable in colour. Stems are green to red/purple. When broken, the stems contain a white milky sap. These stems become woody at the base as they age. Plants may be produced from a thick or woody rhizome.

Flowers – are tiny, pink/white and are produced in the leaf forks.

Seeds – are enclosed in a yellow/green capsule, 2 - 3 mm across and with three lobes, each containing a seed. These seeds readily separate when mature, with each seed roughly a 1/3rd segment of a sphere, about 2 mm long.

Lifecycle / Biology: An annual or short-lived perennial species that germinates at any time of the year. Spring and summer are the main growth periods of the weed. Flowering occurs in spring and summer.

Ecology: The plant is a weed of disturbed ground/cultivated fields and found on a wide range of soil types. It is relatively drought tolerant.

The Problem: Caustic weed is difficult to control with herbicides, cultivation or chipping and at high densities can compete with the crop early in the season. It can also impede in-field water movement.

Distribution: Found in all states of Australia, it is a very common weed throughout the cotton industry.

Origin: A native Australian plant.

Reference:

Crop Weeds of Northern Australia, p. 93.

Plants of Western New South Wales, p. 455 - 456

Compiler: Graham Charles

Euphorbia davidii Subils

David's spurge

Family: Euphorbiaceae (Spurge family).

Common names: David's spurge.

Confused with:

Description:

Seedling Leaves – the seedling leaves are oval-shaped to 100 mm long.

Early Leaves – the first true leaves are also oval-shaped but have serrated edges.

Adult Leaves – are oval to lance shaped, borne opposite each other on the stem, and to 60 mm long and 20 mm wide with indented veins on stalks 5 – 10 mm long. The leaves may be alternate near the base and smaller on flowering branches.

Mature Plants – are erect, 5 – 50 cm tall, generally with some lateral branching on stems that are red/purple at the base. The plant is covered in short sparse hairs. The plant turns bright red in autumn and early winter.

Flowers – are in clusters at the end of the branches.

Seed heads – are 2 – 3 mm long and 4 – 5 mm wide with seeds that are around 2.6 mm long, covered in small wart like growths and mottled light brown or grey in colour.

Lifecycle / Biology: Very little is known about the lifecycle and biology of this summer annual species. Germination occurs throughout spring and summer and there appear to be two seed production flushes on some plants, the first on very small plants to 5 cm high in late spring/ early summer and the second on the same, larger plants during autumn. The seeds have considerable seed dormancy.

Ecology: There are only isolated occurrences of this weed but it is often locally abundant when it occurs. The plant grows well on heavy clay soils.

The Problem: A comparatively rare cotton cropping weed that occurs as scattered plants and in dense stands in places. David's spurge is difficult to control with the current management tools available. The plants probably produce a large amount of seed making control difficult.

Distribution: Scattered populations in NSW and Southern Qld.

Origin: An introduced species from South America.

Reference:

Weeds The Ute Guide p. 123.

Compiler: Graham Charles and Stephen Johnson

Euphorbia heterophylla L.

Milkweed

Family: Euphorbiaceae (Spurge family).

Common names: Milkweed, Desert spurge, Mexican fireweed, Wild poinsettia, Yellow spurge.

Confused with:

Description:

Seedling Leaves – the seedling leaves are elliptical, 22 mm long or more by 8 mm wide on stalks 5 mm long.

Early Leaves – the first true leaves are longer, coming to a point. Older leaves become progressively broader up the plant.

Adult Leaves – become broader up the plant and more lance shaped, borne on petioles 5 – 40 mm long. The basal leaves are opposite, but alternate along most of the stem and become opposite again near the flowering heads. Leaves are 10 – 120 mm long and 8 - 50 mm wide with indented, lighter coloured veins.

Mature Plants – are erect, 20 – 80 cm tall and branched. The stems may be reddish towards the base. Plant parts exude a milky white sap when broken.

Flowers – are in clusters at the end of the branches, surrounded by green leaf-like bracts.

Seed heads – are 3 – 4 mm long and 5 – 6 mm, containing 3 seeds, around 2.7 mm long. The seeds are mottled brown in colour and have 3 ridges running along the seed.

Lifecycle / Biology: A summer annual species.

Ecology: Well adapted to tropical climates and fertile soils.

The Problem: A major weed of cropping along the Queensland coast and Atherton Tablelands. The plants produce a large amount of seed and are difficult to control with most herbicides.

Distribution: Along the Queensland coast and Atherton Tablelands, and widespread in the top of the Northern Territory.

Origin: An introduced species from tropical America.

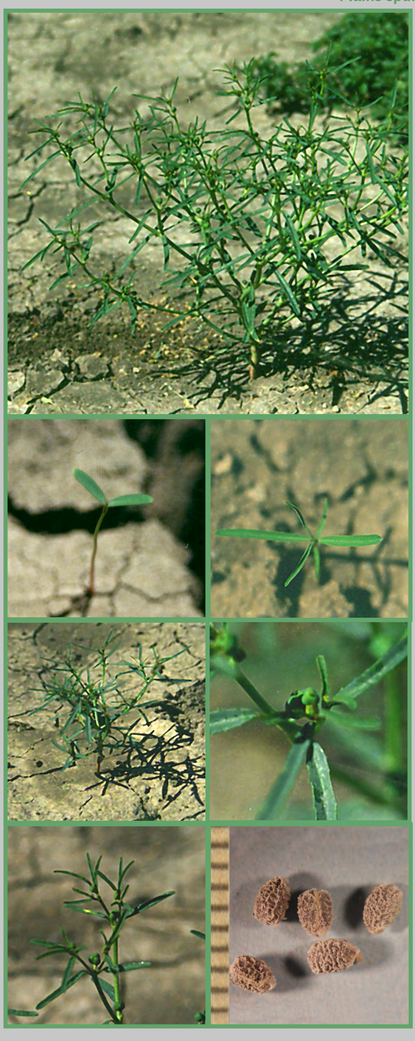
Reference:

Crop Weeds of Northern Australia p. 143-144.

Compiler: Graham Charles

Euphorbia planiticola D.C.Hassall

Plains spurge



Family: Euphorbiaceae (Spurge family).

Common names: Plains spurge.

Confused with: A number of other spurges occur throughout the area.

Description:

Seedlings – has a very fine seedling, with long, fine leaves to 10 mm long and 3 mm wide with a rounded tip, on a long stem.

Leaves – older leaves are similar in shape but even longer to 50 mm long and 5 mm wide with a slight keel.

Plants – a fine, much branched annual plant 30 – 50 cm in height. The fine stems contain a latex-like sap that is exposed when the stems are broken.

Flowers – are yellow, very small and borne on short stalks 3 - 5 mm long in the leaf axils.

Seeds – are in a 3-seeded dark green pod that becomes brown at maturity. Seeds are 2.7 mm in length, angular, light brown and deeply pitted

Lifecycle / Biology: Seedlings emerge in spring with the cotton or after the first irrigation. Flowering occurs in summer and autumn

Ecology: Plains spurge grows on open areas of heavy clay soils of the western plains.

The Problem: Plains spurge is a minor weed of cotton, but significant numbers can emerge with cotton in early spring and require control.

Distribution: More common in the more westerly areas of the cotton belt.

Origin: An Australian native species.

Reference:

Plants of Western New South Wales, p. 457.

Compiler: Graham Charles

Ricinus communis L.

Castor oil plant

Family: Euphorbiaceae (Spurge family).

Common names: Castor oil plant, Castor bean, Castor oil bush, Palma-christi.

Confused with:

Description:

Seedlings – the seedling leaves are bright-green and broadly oval-shaped, 40 mm long and 20 mm wide, on stalks 15 - 20 mm long.

Leaves – the first true leaves have a distinctive shape, with 2 basal lobes below a broad spear on a short stalk. Later leaves are deeply lobed, 100 – 400 mm long, with 7 – 9 lobes. Lobes have a prominent, indented mid-vein. The leaves are distributed alternately up the plant and the leaf margins are toothed. Leaves are borne on stems around twice the length of the leaves and be green, tinged with red through to bright orange/red in colour. The leaves have a strong, nauseating odour when crushed. They are commonly glossy green but can be reddish-brown.

Plants – are tall, branching perennial plant, generally 3 - 4 m in height, woody and tree-like. Plants can be to 6 m tall under ideal condition.

Flowers – are produced from December to March, borne on erect spikes in the axils of the upper branches, with the red female flowers above the pale, globular male flowers.

Seeds – the seeds develop in a burr-like green capsule 10 – 30 mm across, containing 3 smooth, glossy, mottled brown seeds, 10 – 15 mm in length, 6 – 10 mm across and slightly flattened. The pods explode at maturity, spreading the seeds several metres.

Lifecycle / Biology: A perennial species that germinates in spring and grows rapidly in moist, warm conditions. It will grow as an annual plant in cooler areas subject to heavy frosts and can occur as a sub-storey plant, protected by larger trees.

Ecology: Well adapted to alluvial soils and can be common following heavy rain or flooding. Seeds can emerge from up to 30 cm in the seed bank.

The Problem: As well as being a large, aggressive weed, the seeds contain phytotoxins that are very toxic to humans. These toxins are also present in the leaves and flower parts, but these are rarely consumed by animals due to the plant's strong, nauseating odour. Catsor oil can be toxic to animals if the leaves, seeds or oil contaminate stock feed.

Distribution: Occurs in most mainland states of Australia, often along creek and river banks.

Origin: An introduced species from Africa and Asia, introduced as a cultivated plant, used for its oil.

Reference:

Plants of Western New South Wales, p. 465.

WEEDS of the South-East, p. 248.

Compiler: Graham Charles

Acacia farnesiana (L.) Willd.

Mimosa bush

Family: Fabaceae (Pea family).

Common names: Mimosa bush, Briar bush, Cassie, Cassie flower, Cassy, Dead finish, Downs mimosa, Ellington curse, False mesquite, Farnese wattle, Mimosa, Mimosa wattle, Needle bush, Needlebush, North-west curara, Perfumed wattle, Prickly bush, Prickly mimosa, Prickly mimosa bush, Prickly Moses, Sheep's briar, Sponge flower, Sponge wattle, Sweet acacia, Thorny acacia, Thorny feather-wattle, Thorny wattle flower.

Confused with: There are around 960 native and introduced acacias in Australia. Mimosa bush can be readily distinguished from most of these species by:

The **Leaves –** it has bipinnate leaves (leaves made up of multiple, paired leaflets), with the leaflets < 2 mm wide, and

The pods – are cylindrical, large and woody, commonly 3 – 5 cm long and 1 – 1.4 cm wide, becoming black with age.

Description:

Seedlings – - are oblong in shape, 10 - 15 mm long and 9 – 10 mm wide on stems 2 mm long. The 1st true leaf is 9 – 12 mm long and 8 – 10 mm wide, with has 4 – 5 sets of leaflets. Each leaflet is around 6 mm long by 2 mm wide.

Adult Leaves – are feathery and compound. The leaf is composed of 1 – 7 pairs of leaf sections, each 10 – 40 mm long and 8 – 10 mm wide, with 5 – 23 pairs of leaflets in each leaf section, each leaflet 3 – 10 mm long and 1 – 2 mm wide. These leaves are borne on stems 7 – 10 mm long, with a gland near the base of the first leaf section pair.

Mature plant – are erect, thorny, and brambly short-lived perennial bushes, 1 - 4 m high and occasionally to 7 m high. A pair of rigid spines 2 – 25 mm long emerges from the stem at each leaf junction.

Flowers – Flower heads – are a bright yellow or orange-yellow ball, 11 – 15 mm in diameter, borne on stalks 3 – 30 mm long. 1 - 3 flower heads may arise from the leaf/stem junction.

Fruit –are woody, cylindrical, 2 – 9 cm long and 8 – 17 mm diameter, initially green, but becoming brown and black at maturity

Seeds – are roughly circular and flattened, 7 – 8 mm across and 3 – 4 mm deep.

Lifecycle / Biology: Seedlings emerge after rain, readily establishing in pastures. Plants can flower most of the year, but predominantly flowering occurs in late winter – early summer.

Ecology: Mimosa bush is adapted to a wide range of soil types from sandy loams through to grey clays. It is well adapted to the drier inland areas, but grows most aggressively in wetter areas such as drains.

The Problem: Mimosa bush is becoming an increasingly dominant weed on road sides and stock routes, invading pasture country. It is grazed by sheep but has limited grazing value for cattle and is readily spread by them, eventually forming dense, almost impenetrable thickets.

Distribution: A common weed found throughout much of Australia that is becoming increasingly common on the stock routes of northern NSW.

Origin: An introduced species from tropical America that has become naturalised throughout much of Australia and is spreading. Its introduction appears to predate European settlement.

Reference:

Plants of Western New South Wales, p. 361& WEEDS of the South-East, p. 280.

Compiler: Graham Charles

Aeschynomene indica L.

Budda pea

Family: Fabaceae (Pea family).

Common names: Budda pea, Butter pea.

Confused with: Sesbania (Sesbania canabina) Budda pea and sesbania can be easily distinguished:

Seedling Leaves – budda pea true leaves emerge after the cotyledon leaves whereas sesbania has a 3rd cotyledon type seedling leaf before the true leaves

in older **Plants –** budda pea's leaflets are about 4 – 8 mm long, compared to 7 – 18 mm for sesbania

the **Flowers –** of budda pea have a red throat, whereas sesbania flowers are all yellow, with some brown specking on the outside

the fruit - are distinctly different. The pods of budda pea are short (20 – 35 mm long) and segmented with 3 – 9 segments per pod, each seed breaking off enclosed in a separate segment. Sesbania pods are very long (10 – 20 cm), thin and bean-like, splitting down the middle to expose 20 – 35 seeds per pod.

Description:

Seedlings – the cotyledon leaves are oval to circular in shape and around 9 mm long. The first true leaves emerge immediately after the cotylodon leaves.

Early Leaves – the first and second true leaves have between 5 - 6 pairs of leaflets (smaller leaves along the leaf stem).

Adult Leaves – are made up of 15 - 70 pairs of long oblong-shaped leaflets, 4 - 12 mm long and 1 - 4 mm wide. Leaflets are rounded at the tip.

Mature plant – is erect or spreading with multiple branches, growing 30 - 200 cm high with many slightly rough branches.

Flowers – are yellow with a red throat, pea-like and about 9 mm long. Two to four flowers are borne in the leaf axils.

Fruit –is a compressed brown segmented pod 20 – 35 mm long, with 3 – 9 segments per pod, each seed breaking off enclosed in a separate segment 4 mm in length. Pods are borne on a stalk 5 - 10 mm long. Seeds are dark brown, about 3.8 mm in length.

Lifecycle / Biology: An annual species that may become a short-lived perennial, living for two to three years if favourable moisture conditions are present. Budda pea germinates in spring and summer and will grow rapidly over summer, flowering in summer and autumn. Seed set and dispersal occurs within four weeks of flowering

Ecology: Often found in flooded areas, usually on grey heavy clay soils and in Mitchell grass communities.

The Problem: This weed has a prolific seed production with the seeds dispersing within four weeks of flowering. Although this weed is often confused with Sesbania, management for Budda pea differs slightly.

Distribution: Found in all states of Australia except Victoria. It is not a common weed, but is prolific in some parts of the Gwydir river system.

Origin: An Australian native plant.

Reference:

Plants of Western New South Wales, p. 383.

Charles, G. (1999)- Weed Alert: Budda pea, Australian Cottongrower 20, (5): p. 18 - 20.

Compiler: Graham Charles

Cajanus cajan (L.) Millsp.

Pigeon pea

Family: Fabaceae (Pea family).

Common names: Pigeon pea, Congo pea, No-eye pea, Red gram, Tree pea.

Confused with:

Description:

Seedlings – the cotyledon leaves are oblong, 30 – 40 mm long and 10 - 15 mm wide, with an indented, central vein.

Early Leaves – the first true leaves and all subsequent leaves are trifoliate, the central leaflet longer than the side leaflets.

Leaflets – are broadly spear shaped, 25 – 100 mm long and 10 – 35 mm wide. The central leaflet is longer than the side leaflets and is borne on a short stalk, 10 – 16 mm long. Leaves are green, with a velvety upper surface. The underneath of the leaf is silvery green, covered with whitish hairs. Leaves have small, yellowish glands which give them a subtle golden hue.

Plants – an annual or short-lived erect perennial, 1 - 3 m tall. Plants may regenerate from the taproot, allowing them to perenniate.

Flowers – are produced along slender stalks 20 – 70 mm long, that emerge from the leaf axils, with 6 – 12 flowers per stalk. Flowers are a typical pea-shape, bright yellow, with reddish-brown markings on the backs of the petals.

Pods – are 45 – 100 mm long, 8 – 15 mm wide and contain 4 – 7 seeds.

Seeds – are ovoid, 4 - 7 mm in length and reddish-brown.

Lifecycle / Biology: An annual or short-lived perennial plant that flowers in spring, summer and autumn. Plants are frost-sensitive.

Ecology: Adapted to a range of soil types. Plants generally occur as volunteers following a pigeon pea crop. Isolated plants may occur on channels, beside roads or in other areas where trash has accumulated.

The Problem: Grown as an insect refuge in combination with Bollgard II cotton varieties. Volunteer pigeon pea plants can be problematic in following crops.

Distribution: Commonly planted throughout the cotton area. May be planted as a commercial grain crop. Small naturalised populations occur in northern New South Wales and Queensland.

Origin: May have originated in India.

Reference:

Compiler: Graham Charles

Cicer arietinum L.

Chickpea

Family: Fabaceae (Pea family).

Common names: Chickpea, Garbanzo bean, Gram.

Confused with: A diverse range of chickpea varieties can be grown. They may vary widely in leaf shape, flower colour, and seed colour and shape. Only one type is described here.

Description:

Seedlings – the first leaves have 2 or 3 pairs of leaflets with a terminal leaflet. Leaflets are 3 – 5 mm long and 2 – 3 mm wide, with serrated edges. Pairs are arranged along a short stem 15 – 20 mm long, borne on a stem 4 – 6 mm long. These leaves continue to grow as new leaves emerge.

Older **Leaves –** are made up of 4 to 8 pairs of leaflets with a terminal leaflet. Leaflets are 6 – 20 mm long, 3 – 14 mm wide with a serrated margin. Leaves are green to bluish in colour.

Plants – a multi-branched annual plant growing into a clumpy bush 30 – 50 cm high. The leaves have a very distinctive oily feel due to a secretion of malic and oxidic acid from glandular heirs that cover the leaves and stems.

Flowers – are a typical pea shape, with bright maroon red petals borne on stems 6 – 20 mm long which emerge from the leaf axils. Flowers are 10 – 20 mm in width.

Seeds – are borne in a light green pea-pod 25 – 35 mm long, with 2 – 3 seeds per pod. Pods become brown as they dry. Seeds are an unusual, angular shape, brown and 8 – 10 mm long, depending on variety.

Lifecycle / Biology: Germinates in autumn and winter, flowering in spring.

Ecology: Most commonly grown on fertile and heavy clay soils. Isolated plants may grow from seed lost from trucks etc.

The Problem: Volunteer chickpeas can be a minor weed in a following crop. Volunteers can be very problematic if a crop such as cotton is planted immediately following a chickpea crop, as emerging chickpeas may be readily predated by heliothus grubs. These grubs will move to the main crop when the volunteers are controlled.

Distribution: An alternative winter legume crop grown in most States.

Origin: A native of the Mediterranean region.

Reference:

Compiler: Graham Charles

Clitoria ternatea L.

Butterfly pea

Family: Fabaceae (Pea family).

Common names: Butterfly pea, Blue pea, Blue vine, Bunga biru.

Confused with:

Description:

Seedling Leaves – are a blocky-oblong shape, 14 mm long by 9 mm wide, indented at the base against the stem.

Early Leaves – the first true leaves are elliptic and opposite, growing to 55 mm by 25 mm, with an indented main rib. The second and third true leaves have 3 leaflets, with the top leaflet the largest, 30 mm long by 13 mm wide. Leaves develop alternately along the stem, borne on stems to 40 mm long, with progressively shorter sections between the leaflets. Each leaflet has two stipules at the base, 2 – 3 mm long. The leaflets are borne on very short petioles, 2 mm long.

Adult Leaves – later leaves are elliptic with 5 to 7 leaflets, each leaflet 30 – 70 mm long by 13 – 40 mm wide with an indented main rib.

Plants – are initially erect, but become bushy with age. Young stems will twine around other growth and can be up to 3 m long.

Flowers – plants have a large, prominent pea shaped flower, borne in the leaf axils on stems 3 – 9 mm long. They range in colour from white and light blue to dark blue with a white centre, 40 – 50 mm long by 35 – 40 mm wide. The flowers are orientated upside-down compared to a normal pea flower.

Fruits – a typical bean-like pod, to 4 - 13 cm long, 8 – 12 mm wide, containing 6 - 11 seeds. Pods turn brown at maturity and readily split, flinging out the seeds.

Seeds – are brown to dark brown/black, blocky to bean shaped, 4.5 - 7 mm long, 3 - 5 mm wide and 2 - 3 mm deep. Seeds may be mottled.

Lifecycle / Biology: A vigorous perennial plant that can act as an annual in cultivation and cooler areas. Seeds readily germinate in the spring and summer. Plants grow quickly over the hotter months, rapidly developing to produce new seed.

Ecology: An introduced pasture legume for central and northern Queensland. Adapted to a wide range of soil types with high fertility and high water holding capacity.

The Problem: Butterfly pea is not a common weed of cotton but is well suited by the typical conditions of irrigated cotton and is able to set seed by mid-season. Plants can be readily controlled with herbicides.

Distribution: An introduced tropical pasture species.

Origin: A native of tropical Asia.

Reference:

Compiler: Graham Charles

Crotalaria dissitiflora Benth.

Grey rattlepod

Family: Fabaceae (Pea family).

Common names: Grey rattlepod, Crotalaria takeall, Plains rattlepod, Wild liquorice.

Confused with: Gambia Pea (C. goreensis) and Yellow/Sand Rattlepod (C. mitchellii).

Description:

Seedling Leaves – oblong to oval-shaped and waxy in appearance. Seedlings and young plants have silvery hairy stems.

Adult Leaves – are grey-green, with three oval-shaped leaflets, each 7 - 40 mm long and 4 – 18 mm wide with tiny dots on the surface. The leaflets are hairless on the upper surface and downy underneath. The leaf stalks are up to 11 - 28 mm long.

Plants – are erect or sprawling to bushy, generally less than 30 cm high but up to 100 cm tall and much branched. Stems may or may not be covered in short hairs while the young growth is covered in silvery hairs.

Flowers – are pea-like, rounded, 8 – 11 mm long, bright golden-yellow and borne in groups of 10 - 30 on long flowering stems that are 80 – 260 mm long. Flowering stems occur at the tips of stems and branches, with the uppermost flowers on the flowering stems opening first.

Seed heads – are slightly hairy, rounded oblong pods, 13 - 30 mm long and 4 – 8 mm wide, with an upturned point. The seeds are yellow and 3 mm long. The loose seeds rattle in the seed head when shaken.

Lifecycle / Biology: A perennial species that grows from seed, but also grows vegetatively from thick underground woody roots. Germination occurs after summer rains followed by rapid growth. Flowering occurs after rainfall year round, but is most common in summer and autumn. It sheds its leaves during winter.

Ecology: Found in cultivation, rangeland and roadside situations, on heavy clay soils.

The Problem: Grey Rattlepod is known as a take-all species because of its woody underground root system and ability to form dense competitive stands. It is capable of surviving long dry spells and quickly re-shoots after rain. It is difficult to control because of this regenerative potential.

Distribution: Occurs throughout central and northern Australia.

Origin: A native Australian species.

Reference:

Crop Weeds of Northern Australia, p. 76

Plants of Western New South Wales, p. 387.

Compiler: Graham Charles

Macroptilium lathyroides (L.) Urb

Phasey bean

Family: Fabaceae (Pea family).

Common names:

Confused with:

Description:

Seedlings – cotyledons are a flattened oval in shape 6 – 10 mm long and 4 – 8 mm wide, borne on stalks 4 – 5 mm long. The stem are reddish towards the base and covered in fine hairs.

Early Leaves – the first and subsequent leaves have three leaflets, the terminal leaflet larger than the lower two leaflets and on a short stalk 10 – 15 mm long.

Leaves – have three lance- to oval-shaped leaflets each, 40 - 80 mm long and 10 -30 mm wide. The leaflets may have short hairs. The leaf stalk is 10 – 40 mm long.

Plants – have erect or climbing stems to 100 cm. The stems are covered in short hairs. In cotton, phasey bean can develop into a stout, branched bush to 1 m in height with robust, woody stems.

Flowers – are pea-like, 10 – 15 mm long, pink to crimson in colour, sometimes tinged with green and borne on flowering stems are up to 400 mm long. The flowers have a twisted keel (the lower two flower petals).

Seed heads – are softly hairy, linear to curved brown pods, 80 - 100 mm long and around 3 mm wide. There are up to 20 bean-like seeds in each pod, each 3 - 4 mm long, and mottled orange/brown in colour. Seeds are dispersed when the pod twists in a spiral fashion at maturity spilling the seeds.

Lifecycle / Biology: An annual species that germinates after rainfall in spring and summer, and flowers in summer and autumn.

Ecology: Found in pastures and along roadsides and found on heavy clay soils. A major weed in the Theodore and Emerald cotton areas.

The Problem: A major weed of cotton in Central Queensland. Very dense populations of phasey bean can establish and compete strongly with cotton. Plants are relatively tolerant of glyphosate and are very difficult to remove from the cotton plant line. Plants can produce a lot of seed which has strong dormancy characteristics, ensuring staggered germination over many seasons.

Distribution: An occasional weed in Northern NSW, and found throughout most of Eastern Queensland.

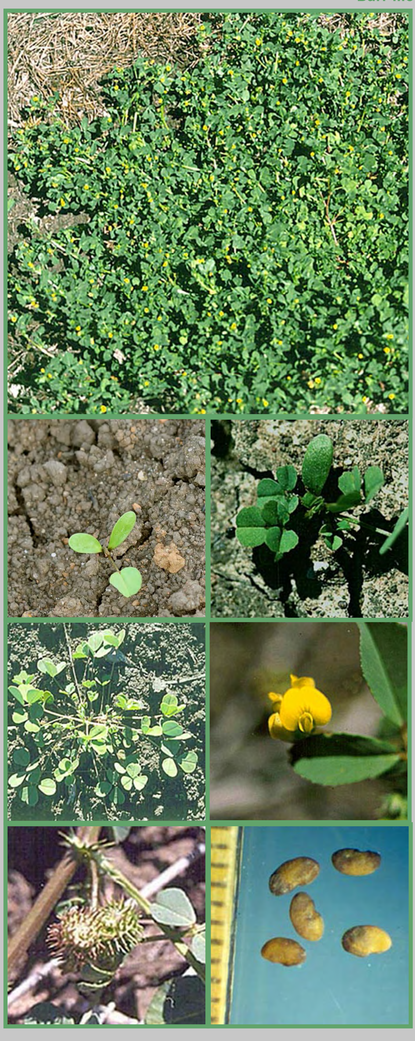
Origin: An introduced species from Central America.

Reference:

Compiler: Graham Charles

Medicago polymorpha L.

Burr medic



Family: Fabaceae (Pea family).

Common names: Burr medic, Burr clover, Burr trefoil, Creeping burr, Medic clover, Medic burr, Native trefoil, Rough medic, Shinnier's burr medic, Toothed burr clover, Toothed medic, Trefoil, Trefoil clover.

Confused with: A number of other medic species occur throughout the cotton growing area including Barrel medic (M. truncatula), Woolly burr medic (M. minima), Cut-leaved medic (M. laciniata) and Spotted burr medic (M. arabica).

Description:

Seedling Leaves – are oval- to club-shaped, up to 11 mm long and 6 mm wide.

Early Leaves – the first true leaf is a single, broadly kidney shaped leaf to 13 mm wide. The second and subsequent leaves are trifoliate with the terminal leaflet on a slightly longer stalk.

Adult Leaves – are trifoliate with heart- to wedge-shaped leaflets, often with toothed margins, particularly near the blunt tip, 8 – 27 mm long and 7 – 20 mm wide. The upper leaflet surfaces may have dark flecks or a darker basal patch. The lower leaf surfaces may or may not have hairs. Each leaf has a leafy, toothed sheath to 10 mm long where it joins the main stem.

Mature Plants – are prostrate, sometimes twining and growing erect when surrounded by taller plants, are hairless and have stems up to 50 cm long. The stems are square in cross-section.

Flowers – the flowers are pea-like and yellow, 3 – 6 mm long. Flowering heads have 1 to 10 flowers.

Seed head - the seed heads are cylindrical, with 1.5 to 7 coils, covered in 4 mm long, thin and slightly hooked spines, 2 - 10 mm long, 2.5 - 9 mm in diameter, containing 3 - 11 bean-shaped seeds that are 2 – 4 mm long and 1 mm wide. Seed heads are covered in short warty outgrowths giving the overall burr characteristic.

Lifecycle / Biology: An annual species which predominantly germinates in autumn and winter. Plants grow predominantly during winter and spring and flower in spring. In-field observations have shown that burr medic plants not uncommonly emerge, grow and flower year-round in cotton fields, with plants emerging following rain or irrigation even in mid-summer.

Ecology: Burr medic can be found growing in a wide range of habitats from open grasslands and improved pastures to woodlands. It also grows on a wide variety of soil types and is particularly suited to heavy clay soils.

The Problem: Burr medic is tolerant of most of the cotton herbicides including glyphosate and is favoured by a reduced tillage system. Increasing numbers of plants can build up in cotton over several seasons and eventually become a significant competitor for soil moisture. A build-up of plants has been observed in both dryland and irrigated cotton fields.

Distribution: A common plant throughout Australia. Burr medic has become naturalized in pastures through much of the cotton growing area.

Origin: Introduced from the Mediterranean region.

Reference:

Plants of Western New South Wales, p. 402 - 403.

WEEDS of the South-East, p. 265.

Compiler: Graham Charles

Medicago sativa L. ssp. Sativa

Lucerne

Family: Fabaceae (Pea family).

Common names: Lucerne, Alfalfa, Perennial lucerne, Violet-flowered lucerne.

Confused with: Seedlings of lucerne are easily confused with number of similar plants in this family. Adult plants are readily distinguished by their erect growth habit, flower colour and seed pods.

Description:

Seedlings – the cotyledon leaves are oar-shaped, with a rounded end, 5 – 7 mm long and 3 – 5 mm wide.

Leaves – the true leaves are trifoliate, with 3 leaflets with lightly serrated edges. All leaflet are borne on short stalks, the stalk of the terminal leaflet is longer than the side leaflets, at about 4 mm. The leaflets are a pointed oval shape, 8 – 28 mm long and 3 – 15 mm wide. The leaves are borne on stems 20 to 40 mm long

Plants – an erect, multi-branched perennial plant with a very deep tap root. Plants develop a woody crown at ground level, with stems rising from the crown to around 1 m height.

Flowers – are purplish/mauve, with lighter strips. Flowers are a typical pea shape 12 – 15 mm long and develop in dense clusters of 20 – 30 flowers at the tips of the branches.

Seeds – form in a pod which develops in a whorl shape 5 – 9 mm across with 2 to 4 loose coils. Pods are initially green, but become brown and tough as they mature. The seeds are a typical bean shape, light- to mid-brown in colour, 2 – 3 mm in length, with 2 – 6 per pod.

Lifecycle / Biology: Lucence is a perennial plant which will grow year round, but grows most actively in the warmer months. Some lucerne varieties grow more actively over winter, while others will be relatively dormant (winter active and winter dormant varieties). Plants can flower and set seed throughout the warmer months.

Ecology: Lucerne grows on most soil types, but prefers alkaline soils and doesn't tolerate water logging.

The Problem: Established and volunteer lucerne plants can be very difficult to control in fallows and following crops.

Distribution: A widely planted species, used in pastures and for hay production in much of temperate and sub-tropical Australia. Lucerne strips have been used in conjunction with cotton production on some properties. Established plants can be very difficult to remove after the lucerne phase is completed and volunteer seedlings can be problematic in crops and fallows. The plant is not highly competitive, but develops a very deep tap-root which allows it to continue to grow through dry conditions.

Origin: Introduced from the Mediterranean region.

Reference:

Plants of Western New South Wales, p. 404.

WEEDS of the South-East, p. 265.

Compiler: Graham Charles

Rhynchosia minima (L.) DC.

Ryncho

Family: Fabaceae (Pea family).

Common names: Ryncho, Rhynchosia.

Confused with: Tinaroo glycine (Neonotonia wightii).

Description:

Seedlings – the seedling leaves are dark-green and broadly egg-shaped with notched bases, 9 - 10 mm long and 7 - 9 mm wide, on stalks 4 - 5 mm long. The cotyledons have a deeply indented central vein, giving the leaf an overall V shape.

Leaves – the first true leaves and adult leaves have three leaflets with two green, hairy outgrowths at the leaf fork to 2 mm long. Each leaflet is broadly oval in shape, 5 – 30 mm long and wide, although generally wider than longer. The terminal leaflet stalk is slightly longer than the other leaflets. The lower surface of leaflets usually has a number of small brown resin glands. The leaf stalk is 1 - 6 cm long. Leaves have prominent, indented central and lateral veins.

Plants – have slender trailing or twining green vine stems. Plants vary from hairless to those covered in velvety hairs, may have slightly sticky stems and are 100 – 200 cm long.

Flowers – are borne on erect and sometimes branched stalks 2 – 10 cm long arising from leaf forks. The flowers are pea-like, yellow with reddish-brown-purple markings and are 4 - 10 mm long. Between 2 and 15 flowers occur on each stalk.

Seeds – the seed beads are flattened, oblong, slightly curved, 1 – 2 cm long and 2 – 6 mm wide, pale brown, do not have segments and are covered in short fine hairs. Each seed head contains 1 - 2 compressed, kidney-shaped grey, brown, black or mottled in colour seeds 2 - 3 mm long.

Lifecycle / Biology: A perennial species that may lose its leaves in early winter. It germinates after rain in spring, summer and autumn, flowers spring to summer and produces seed is summer.

Ecology: Ryncho is common on heavy self-mulching clay soils but also grows in a wide variety of habitats on loamy and even gravel soils.

The Problem: Ryncho is a hard seeded species, persisting for many years in the seed bank. Under suitable conditions it grows rapidly and produces an abundance of seed.

Distribution: Occurs in most mainland states of Australia.

Origin: A native species.

Reference:

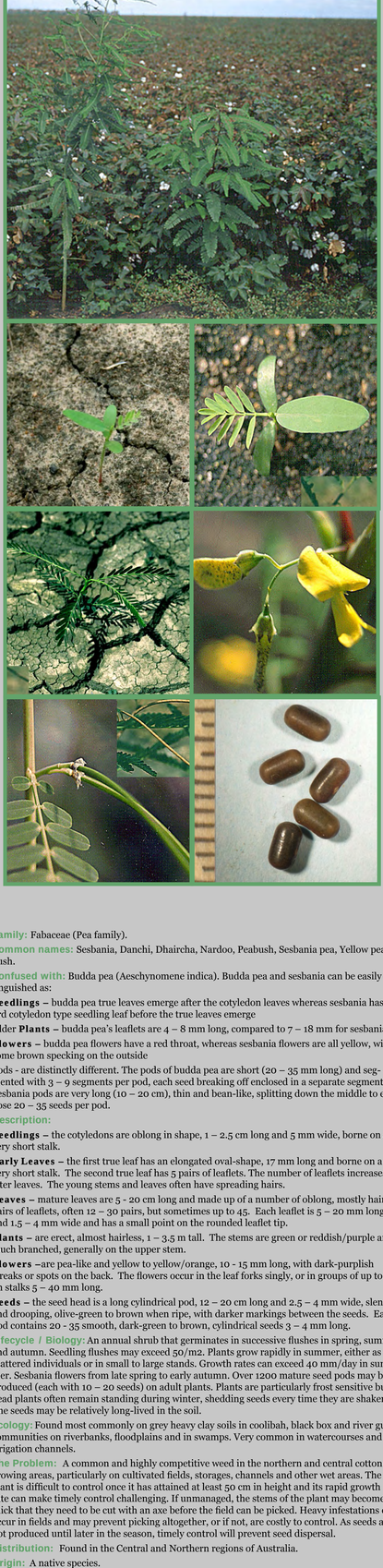
Crop Weeds of Northern Australia, p. 78 - 79.

Plants of Western New South Wales, p. 410 - 411.

Compiler: Graham Charles and Stephen Johnson

Sesbania canabina (Retz.) Pers.

Sesbania



Family: Fabaceae (Pea family).

Common names: Sesbania, Danchi, Dhaircha, Nardoo, Peabush, Sesbania pea, Yellow pea-bush.

Confused with: Budda pea (Aeschynomene indica). Budda pea and sesbania can be easily distinguished as:

Seedlings – budda pea true leaves emerge after the cotyledon leaves whereas sesbania has a 3rd cotyledon type seedling leaf before the true leaves emerge

Older **Plants –** budda pea's leaflets are 4 – 8 mm long, compared to 7 – 18 mm for sesbania

Flowers – budda pea flowers have a red throat, whereas sesbania flowers are all yellow, with some brown specking on the outside

Pods - are distinctly different. The pods of budda pea are short (20 – 35 mm long) and segmented with 3 – 9 segments per pod, each seed breaking off enclosed in a separate segment. Sesbania pods are very long (10 – 20 cm), thin and bean-like, splitting down the middle to expose 20 – 35 seeds per pod.

Description:

Seedlings – the cotyledons are oblong in shape, 1 – 2.5 cm long and 5 mm wide, borne on a very short stalk.

Early Leaves – the first true leaf has an elongated oval-shape, 17 mm long and borne on a very short stalk. The second true leaf has 5 pairs of leaflets. The number of leaflets increases on later leaves. The young stems and leaves often have spreading hairs.

Leaves – mature leaves are 5 - 20 cm long and made up of a number of oblong, mostly hairy pairs of leaflets, often 12 – 30 pairs, but sometimes up to 45. Each leaflet is 5 – 20 mm long and 1.5 – 4 mm wide and has a small point on the rounded leaflet tip.

Plants – are erect, almost hairless, 1 – 3.5 m tall. The stems are green or reddish/purple and much branched, generally on the upper stem.

Flowers –are pea-like and yellow to yellow/orange, 10 - 15 mm long, with dark-purplish streaks or spots on the back. The flowers occur in the leaf forks singly, or in groups of up to six, on stalks 5 – 40 mm long.

Seeds – the seed head is a long cylindrical pod, 12 – 20 cm long and 2.5 – 4 mm wide, slender and drooping, olive-green to brown when ripe, with darker markings between the seeds. Each pod contains 20 - 35 smooth, dark-green to brown, cylindrical seeds 3 – 4 mm long.

Lifecycle / Biology: An annual shrub that germinates in successive flushes in spring, summer and autumn. Seedling flushes may exceed 50/m2. Plants grow rapidly in summer, either as scattered individuals or in small to large stands. Growth rates can exceed 40 mm/day in summer. Sesbania flowers from late spring to early autumn. Over 1200 mature seed pods may be produced (each with 10 – 20 seeds) on adult plants. Plants are particularly frost sensitive but dead plants often remain standing during winter, shedding seeds every time they are shaken. The seeds may be relatively long-lived in the soil.

Ecology: Found most commonly on grey heavy clay soils in coolibah, black box and river gum communities on riverbanks, floodplains and in swamps. Very common in watercourses and irrigation channels.

The Problem: A common and highly competitive weed in the northern and central cotton growing areas, particularly on cultivated fields, storages, channels and other wet areas. The plant is difficult to control once it has attained at least 50 cm in height and its rapid growth rate can make timely control challenging. If unmanaged, the stems of the plant may become so thick that they need to be cut with an axe before the field can be picked. Heavy infestations do occur in fields and may prevent picking altogether, or if not, are costly to control. As seeds are not produced until later in the season, timely control will prevent seed dispersal.

Distribution: Found in the Central and Northern regions of Australia.

Origin: A native species.

Reference:

Crop Weeds of Northern Australia, p. 75.

Plants of Western New South Wales, p. 411 – 412.

WEEDS of the South-East, p. 270.

Compiler: Graham Charles and Stephen Johnson

Trifolium arvense L.

Hare's foot clover

Family: Fabaceae (Pea family).

Common names: Hare's foot clover, Calf clover, Haresfoot clover, Pussy clover, Rabbit's foot clover, Stone clover.

Confused with: Clovers are very important to the pastoral industry and a large range of clovers have been introduced to Australia, with at least 37 species naturalized. There are also over 1000 other species in this sub-family (the Faboideae) in Australia, some of which might be confused with the clovers during the seedling growth stage.

Hare's foot clover is most readily distinguished by its relatively small size, narrow and small leaves and unusual flower and seed head.

Description:

Seedling Leaves – the cotyledon leaves are oval-shaped, 2 - 3 mm long and 1 - 1.5 mm wide, borne on short stalks. The 1st leaf is circular, compressed at the tip and bottom, 4 mm long by 5 mm wide, borne on a stem 4 mm long and covered in fine hairs.

Leaves – The true leaves are trifoliate, with each leaflet 10 – 20 mm long and 2 – 5 mm wide. The leaves are arranged alternately along the stems and are borne either directly on the stems or on short stalks, up to 5 mm in length.

Plants – all plant parts are covered in fine hairs less than 1 mm in length. Plants are erect or semi-erect to 40 cm in height. Leaf-like stipules 5 – 6 mm long surround the stem junctions, with clasping fingers at the ends.

Flowers – occur in cylindrical spikes, 8 – 13 mm in diameter and 10 – 30 mm in length at the ends of the branches. The flowers are pea-shaped, 3 – 6 mm in length, pink to mauve or white.

Seeds – mature seeds are enclosed in a hairy pod, to 2.4 mm long, with a tuft of 4 or 5 course hairs towards the end. Both the pods and the course hair-like protrusions are covered in fine, white hair around 1 mm in length.

Lifecycle / Biology: An annual plant that germinates after rainfall in autumn and winter. Plants flower in spring and will normally hay-off in spring or early-summer when soil moisture becomes limiting.

Ecology: A common annual clover, best adapted to the lighter soils. It is often a small plant which only becomes obvious at and post-flowering.

The Problem: A useful pasture plant, providing high protein feed as well as adding to soil nitrogen. Hare's foot clover is rarely a problematic weed in cropping, due to its relatively small size and ability to fix nitrogen.

Distribution: A common annual clover, naturalized in all states.

Origin: A widespread plant, originating in the Europe, the Mediterranean and North Africa.

Reference:

Plants of Western New South Wales, p. 425

WEEDS of the South-East, p. 272.

Compiler: Graham Charles

Trifolium repens L.

White clover

Family: Fabaceae (Pea family).

Common names: White clover, Dutch clover, White Dutch clover.

Confused with: Clovers are very important to the pastoral industry and a large range of clovers have been introduced to Australia, with at least 37 species naturalized. There are also over 1000 other species in this sub-family (the Faboideae) in Australia, some of which might be confused with the clovers during the seedling growth stage.

White clover is most readily distinguished by the white markings on its rounded leaves and the large, white, ball seed head that arise on leafless stems.

A range of varieties of white clover are available and some varieties may differ from the description given in this guide.

Description:

Seedling Leaves – the cotyledon leaves are oval-shaped, 3 - 4 mm long and 1.5 - 2.5 mm wide, borne on short stalks. The 1st leaf is semi-circular, with a squared-off base and lightly serrated edge, 4 - 6 mm long and wide, borne on a stem 7 - 8 mm long. The 2nd leaf is trifoliate, with each leaflet having a triangular base and lightly serrated edge, 4 - 6 mm long and slightly wider, borne on a stem 9 - 12 mm long.

Leaves – all true leaves are trifoliate, with each leaflet 4 – 40 mm long and 10 – 15 mm wide with serrated edges. The leaflets have a white circular to triangular band about half way down the leaflet.

Plants – a spreading perennial plant rooting from the stem nodes, with roots penetrating to a metre depth.

Flowers – occur in white or pink balls 15 – 35 mm in diameter held on the ends of erect stems that raise the flowers above leaf height. Each ball contains 30 – 40 flowers.

Seeds – seeds are enclosed in a 4 – 6 mm long and 2 – 3 mm wide pod containing 1 – 7 seeds. The seeds are yellow, tan or brown and a flattened sphere in shape, 6 – 8 mm across.

Lifecycle / Biology: A prostrate perennial plant that can germinate and grow all year round provided there is adequate moisture, with the majority of growth in late winter and spring. Plants flower in spring and early summer but have limited drought tolerance and cease growth under high summer temperatures.

Ecology: A perennial clover, best adapted to wetter areas and more fertile soils. Plants spread from seed and from roots that develop from the stem nodes, often resulting in large clumps of white clover to 1 m or so in width.

The Problem: A highly valued pasture plant, providing high protein feed as well as adding to soil nitrogen. White clover is rarely a problematic weed in cropping but is perennial and relatively tolerant of both glyphosate and 2,4-D. It can become the dominant legume species in pastures but is less common in the dryer areas where it is more restricted to wetter places such as drains and lawns.

Distribution: A common perennial clover occurring predominantly in Victoria and the NSW coast, tablelands and slopes, up into the Darling Downs and coastal Qld. In the drier areas it may act as an annual species and is mainly restricted to road sides drains, lawns and other wetter places.

Origin: A widespread plant, originating in the Europe, the Mediterranean and North Africa.

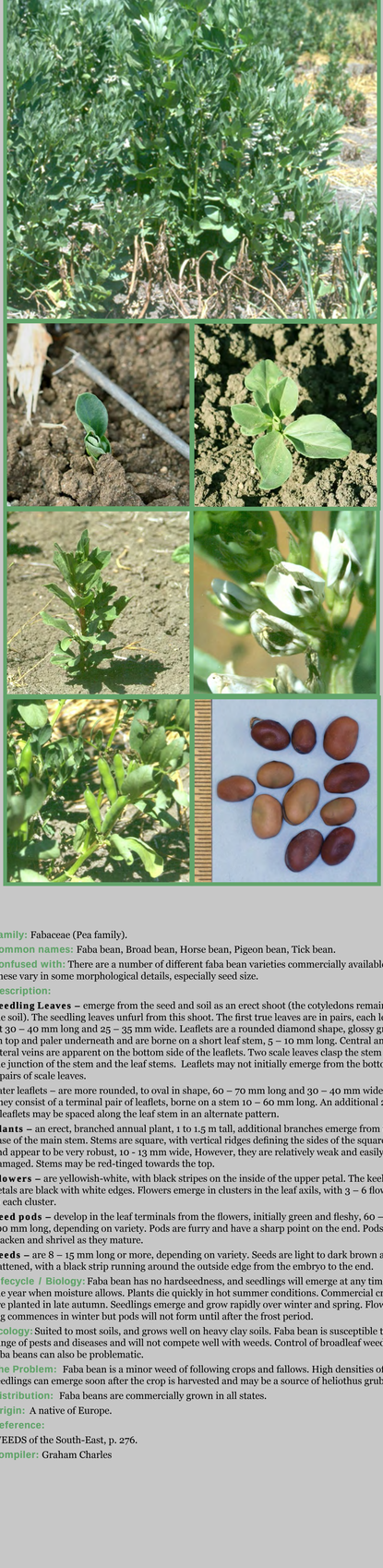
Reference:

WEEDS of the South-East, p. 274.

Compiler: Graham Charles

Vicia faba L.

Faba bean



Family: Fabaceae (Pea family).

Common names: Faba bean, Broad bean, Horse bean, Pigeon bean, Tick bean.

Confused with: There are a number of different faba bean varieties commercially available. These vary in some morphological details, especially seed size.

Description:

Seedling Leaves – emerge from the seed and soil as an erect shoot (the cotyledons remain in the soil). The seedling leaves unfurl from this shoot. The first true leaves are in pairs, each leaflet 30 – 40 mm long and 25 – 35 mm wide. Leaflets are a rounded diamond shape, glossy green on top and paler underneath and are borne on a short leaf stem, 5 – 10 mm long. Central and lateral veins are apparent on the bottom side of the leaflets. Two scale leaves clasp the stem at the junction of the stem and the leaf stems. Leaflets may not initially emerge from the bottom 2 pairs of scale leaves.

Later leaflets – are more rounded, to oval in shape, 60 – 70 mm long and 30 – 40 mm wide. They consist of a terminal pair of leaflets, borne on a stem 10 – 60 mm long. An additional 2 to 4 leaflets may be spaced along the leaf stem in an alternate pattern.

Plants – an erect, branched annual plant, 1 to 1.5 m tall, additional branches emerge from the base of the main stem. Stems are square, with vertical ridges defining the sides of the square and appear to be very robust, 10 - 13 mm wide, However, they are relatively weak and easily damaged. Stems may be red-tinged towards the top.

Flowers – are yellowish-white, with black stripes on the inside of the upper petal. The keel petals are black with white edges. Flowers emerge in clusters in the leaf axils, with 3 – 6 flowers in each cluster.

Seed pods – develop in the leaf terminals from the flowers, initially green and fleshy, 60 – 100 mm long, depending on variety. Pods are furry and have a sharp point on the end. Pods blacken and shrivel as they mature.

Seeds – are 8 – 15 mm long or more, depending on variety. Seeds are light to dark brown and flattened, with a black strip running around the outside edge from the embryo to the end.

Lifecycle / Biology: Faba bean has no hardseedness, and seedlings will emerge at any time of the year when moisture allows. Plants die quickly in hot summer conditions. Commercial crops are planted in late autumn. Seedlings emerge and grow rapidly over winter and spring. Flowering commences in winter but pods will not form until after the frost period.

Ecology: Suited to most soils, and grows well on heavy clay soils. Faba bean is susceptible to a range of pests and diseases and will not compete well with weeds. Control of broadleaf weeds in faba beans can also be problematic.

The Problem: Faba bean is a minor weed of following crops and fallows. High densities of seedlings can emerge soon after the crop is harvested and may be a source of heliothus grubs.

Distribution: Faba beans are commercially grown in all states.

Origin: A native of Europe.

Reference:

WEEDS of the South-East, p. 276.

Compiler: Graham Charles

Vicia villosa Roth. subsp. Eriocarpa (Hausskn) P.W. Ball

Woolly pod vetch

Family: Fabaceae (Pea family).

Common names: Woollypod vetch.

Confused with: There are a number of similar naturalised vetch species and varieties. Woollypod vetch can be readily distinguished by the flowers, with 3 – 30 flowers along a stem which arises from the leaf axil; the flower stem is 25 – 70 mm long. Other vetch species have around 1 to 5 flowers in each cluster.

Description:

Seedling Leaves – emerge from the seed and soil as an erect shoot (the cotyledons remain in the soil). The seedling leaves unfurl from this shoot. The first true leaves have around 5 leaflets, each leaflet 8 – 10 mm long and 1 – 2 mm wide. Leaflets are a narrow, rounded oblong in shape, darker green on top and paler underneath and are borne on a short leaf stem, 5 – 10 mm long. Two small scale leaves 4 – 8 mm long and 1 – 3 mm wide clasp the stem at the junction of the stem and the leaf stems.

Later leaflets – are more rounded, oblong in shape, 5 – 40 mm long and 2 – 8 mm wide. They are borne on a stem 40 – 50 mm long, which terminates in 2 or 3 clasping tendrils. Leaves are 50 – 110 mm long, with 8 – 24 leaflets.

Plants – a spreading, branched annual or biennial plant, 30 – 40 cm tall.

Flowers – are deep purplish-red, 10 – 20 mm long. 3 – 40 flowers are clustered along a flower stem, 25 – 70 mm long, with the first flower about half way along the stem, and subsequent flowers spaced along the stem. Flower stems arise from the leaf axils.

Seed pods – develop along the flower stems. They are initially green, but become light-tan with age. Pods are 20 – 40 mm long, 6 – 12 mm wide, and flattened, 3 – 6 mm wide.

Seeds – are 3 – 6 mm wide, light to dark brown and may be mottled, with a black strip running around the outside edge from the embryo to the end.

Lifecycle / Biology: Woollypod vetch seedlings normally emerge in autumn and winter, and begin flowering in late winter and spring. Woollypod vetch can persist in suitable conditions, but plants normally die in hot summer conditions. Commercial crops are planted in late autumn. Most vetch varieties are very hardseeded, and seed may persist in the soil for many years.

Ecology: Suited to most soils and does well on heavy clay and alkaline soils. Woollypod vetch is susceptible to a range of pests and diseases and does not compete well with weeds during early growth. Control of broadleaf weeds in vetch can be problematic.

The Problem: Ideally woollypod vetch is grown as a green manure crop, plowed in before it can set seed. If vetch does set seed, it may be an annoying weed for many years in following crops and fallows. Some woollypod vetch varieties are very hardseeded, so seed can persist for many years, with weedy escapes adding to the seed bank over time. Seedlings may emerge after a following crop is watered up and can be difficult to remove from the crop.

Distribution: Woollypod vetch is grown as a pasture, for hay production and as a green manure crop in all states except the Northern Territory and has become naturalised in many of the wetter areas. It is readily eater by livestock

Origin: A native of Europe.

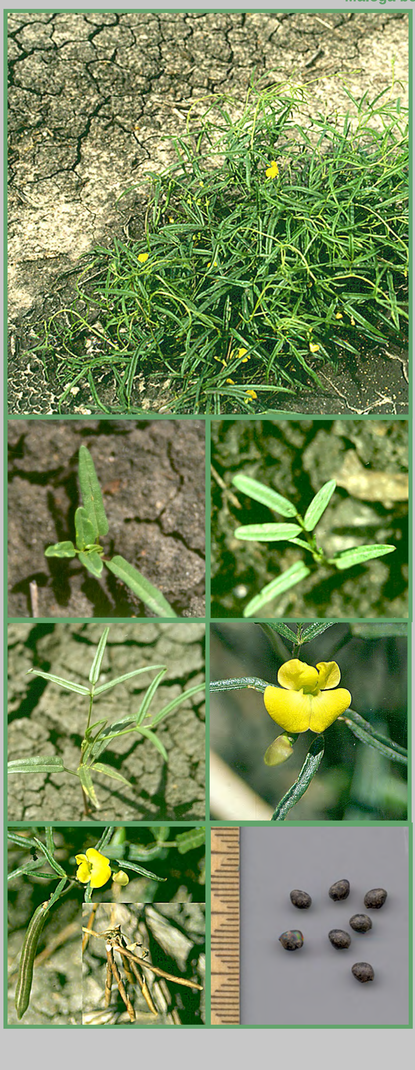
Reference:

WEEDS of the South-East, p. 277.

Compiler: Graham Charles

Vigna lanceolata var. filiformis Benth.

Maloga bean



Family: Fabaceae (Pea family).

Common names: Maloga bean, Native bean, Parsnip bean, Vigna take-all.

Confused with: There are three recognised varieties of this species, V. lanceolata var. filiformis (maloga bean), V. lanceolata var. latifolia (vigna takeall) and V. lanceolata var. lanceolata (native bean). These varieties can be distinguished by leaf shape & size:

- var. latifolia (vigna takeall) has a wedge shaped leaf, 2 – 6 cm long and 10 – 35 mm wide with a slightly lobed base (lobed to each side, see Plants of Western New South Wales, p. 430),
- var. lanceolata (native bean) has a much narrower leaf, 2 – 7 cm long and 3 – 10 mm wide with a slightly lobed base (lobed to each side, see Crop Weeds of Northern Australia, p. 77 - 78).
- var. filiformis (maloga bean) has a narrower leaf, 4 – 8 cm long and 2 – 7 cm wide that is not lobed at the base.

Description:

Seedling Leaves – the cotyledon leaves are narrow and spear-shaped, to 3 cm long and 6 mm wide, on stalks up to 10 mm long. These and later leaves have a pronounced, indented mid-rib. The 1st true leaf and subsequent leaves have three long narrow leaflets. The tips of the early leaves are rounded, but become more pointed on later leaves.

Leaves – are long and narrow, 40 – 80 mm long and 2 – 7 mm wide, with a pointed tip and indented mid-rib. There are 2 small outgrowths in each leaf fork with the leaf stalk 20 – 60 mm long.

Plants – are slender, twining or sometimes erect. The stems are fairly hairless, growing to 2 m long, spreading out from a long taproot that is at least 30 - 40 cm deep. Plants often twine up cotton plants.

Flowers – are pea-like, bright yellow, 7 - 10 mm long, in groups of up to 5, at the ends of flowering stems 8 - 20 cm long that are borne in leaf forks. The lower petals of the flower are curved inwards.

Seed heads – are cylindrical pods 2 – 4 cm long and 4 – 8 mm wide, slightly segmented, turning from mid green to brown when ripe. There are 4 - 7 mottled black and roughly oval-shaped seeds in a pod, each 4 mm long and 3 mm wide.

Lifecycle / Biology: A perennial species that establishes readily from seed in spring and early summer, and can reshoot from the taproot in reduced cultivation systems. Plants flower in summer and autumn.

Ecology: The plant is common on sandy soils of creek beds and banks, and also in cultivation on black clay soils.

The Problem: Maloga bean may occur as scattered plants and as more localised dense stands that are very competitive primarily due to the deep taproot and perennial nature. Plants emerge with cotton and twine through and over cotton plants.

Distribution: Found in the northern parts of Australia. Maloga bean is a minor weed on the Darling Downs.

Origin: An Australian native species.

Reference:

Crop Weeds of Northern Australia, p. 77 - 78 (V. lanceolata var. lanceolata).

Plants of Western New South Wales, p. 430 (V. lanceolata var. latifolia).

Compiler: Graham Charles

Vigna lanceolata var. latifolia Benth.

Vigna takeall

Family: Fabaceae (Pea family).

Common names: Vigna take-all, Maloga bean, Native bean, Parsnip bean.

Confused with: There are three recognised varieties of this species, V. lanceolata var. filiformis (maloga bean), V. lanceolata var. latifolia (vigna takeall) and V. lanceolata var. lanceolata (native bean). These varieties can be distinguished by leaf shape & size:

- var. latifolia (vigna takeall) has a wedge shaped leaf, 2 – 6 cm long and 10 – 35 mm wide with a slightly lobed base (lobed to each side, see Plants of Western New South Wales, p. 430),
- var. lanceolata (native bean) has a much narrower leaf, 2 – 7 cm long and 3 – 10 mm wide with a slightly lobed base (lobed to each side, see Crop Weeds of Northern Australia, p. 77 - 78).
- var. filiformis (maloga bean) has a narrower leaf, 4 – 8 cm long and 2 – 7 cm wide that is not lobed at the base.

Description:

Seedling Leaves – the cotyledon leaves are wedge shaped, to 20 - 25 mm long and 7 mm wide, on stalks 7 - 10 mm long. These and later leaves have a pronounced, indented mid-rib. The 1st true leaf and subsequent leaves have three wedge shaped leaflets. The tips of the early leaves are rounded, but become more pointed on later leaves.

Leaves – are long and narrow, 2 - 6 cm long and 10 – 35 mm wide, with a tightly rounded tip and indented mid-rib, on stalks 2 – 4 cm long. There are 2 small outgrowths in each leaf fork with the leaf stalk 20 – 60 mm long.

Plants – are twining to semi-erect. The stems are fairly hairless, growing to 2 m long, spreading out from a long taproot that is at least 30 - 40 cm deep. Plants often twine up cotton plants.

Flowers – are pea-like, bright yellow, 7 - 10 mm long, in groups of up to 5, at the ends of flowering stems 8 - 20 cm long that are borne in leaf forks. The lower petals of the flower are curved inwards.

Seed heads – are cylindrical pods 2 – 5 cm long and 4 – 5 mm wide, slightly segmented, turning from mid-green to brown when ripe. There are 4 - 7 mottled brown and oval bean shaped seeds in a pod, each 4 mm long and 3 mm wide.

Lifecycle / Biology: A perennial species that establishes readily from seed in spring and early summer, and can reshoot from the taproot in reduced cultivation systems. Plants flower in summer and autumn.

Ecology: The plant is common on sandy soils of creek beds and banks, and also in cultivation on black clay soils.

The Problem: Maloga bean may occur as scattered plants and as more localised dense stands that are very competitive primarily due to the deep taproot and perennial nature. Plants emerge with cotton and grow with the crop. Light infestations are of little concern, but this weed is difficult to control with glyphosate and has the potential to become a major weed problem in minimum tillage Roundup Ready systems.

Distribution: Found in the northern parts of Australia. Common on the lower Gwydir and Macintyre systems.

Origin: An Australian native species.

Reference:

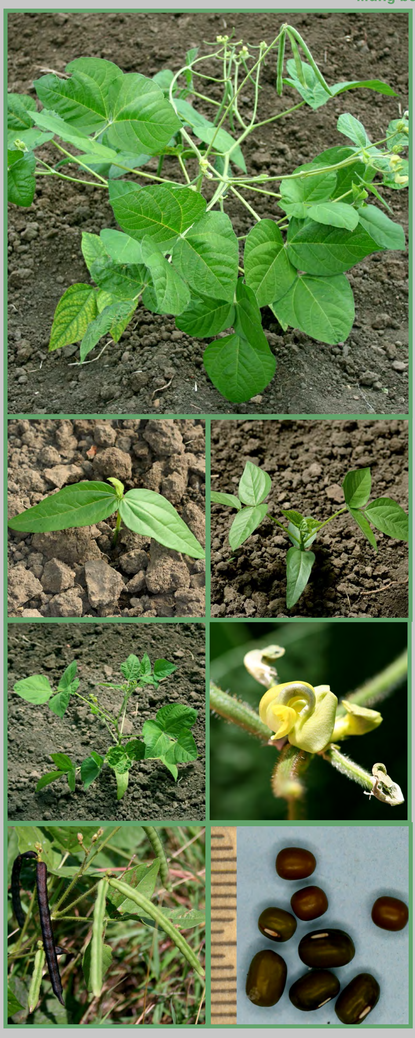
Crop Weeds of Northern Australia, p. 77 - 78 (V. lanceolata var. lanceolata).

Plants of Western New South Wales, p. 430 (V. lanceolata var. latifolia).

Compiler: Graham Charles

Vigna radiata (L.) R.Wilczek

Mung bean



Family: Fabaceae (Pea family).

Common names: Mung bean, Celera bean, Golden gram, Green gram, Moong bean.

Confused with:

Description:

Seedling Leaves – the cotyledon leaves shrivel to stubs and have all but disappeared by the time the 1st leaves have expanded. The 1st leaves are a broad spear-shape, 7 cm long by 3 cm wide. Subsequent leaves have three leaflets, successively becoming more rounded, 8 – 9 cm long 4 – 5 cm wide.

Leaves – the true leaves are trifoliate, with the leaflets 9 – 11 cm long by 8 – 9 cm wide.

Plants – are semi-erect. The stems covered in yellow-brown hairs, to 2 mm long.

Flowers – are pea-like but distorted, pale yellow, occurring at the ends of the branches 3 – 10 cm long, in groups of up to 4, but more commonly 2 or 3.

Seed heads – are cylindrical pods 4 – 12 cm long and 5 – 8 mm wide, slightly segmented, turning from mid-green to dark brown when ripe. There are 6 - 13 green to brown oval bean shaped seeds in a pod, each 4 - 6 mm long and 3 - 4 mm wide.

Lifecycle / Biology: An short annual crop, sown in spring and summer, with flowering commencing around 1 month after planting and maturity in a further 2 months. Plants will continue to grow until they are defoliated, harvested, or cut by frost.

Ecology: Mung bean is adapted to a range of soil types, from sandy soils to black clays. It occurs most commonly as a volunteer following a commercial crop, but can be naturalized in coastal districts.

The Problem: Mung bean is not an important weed in cropping but is generally present as a contaminant following a commercial crop, establishing both from seed lost at harvest and from hard-seed which didn't germinate when the crop was planted. Some varieties have more hard-seed than others, and should be avoided if a following crop is likely to be compromised by volunteer plants.

Distribution: Mung beans are grown throughout the eastern cropping belt from the Burdekin to the Victorian border, largely mirroring the area suited to cotton production.

Origin: A native of Asia.

Reference:

Compiler: Graham Charles

Cullen tenax (Lindl.) J.W. Grimes

Emu foot (broad leaf type)

Family: Fabeaceae (Pea family).

Common names: Emu foot, Emu grass, Native lucerne, Tough scurfpea, Tough psoralea, Wild lucerne.

Confused with: There are two distinctly different varieties of this weed, a fine-leaf and a broad-leaf variety. Within the broad-leaf variety are glossy leaf and a dull leaf varieties.

Description:

Seedlings – cotyledon leaves are bright to dark green and glossy. They are oval in shape 4-6 mm long, 3 mm wide, borne on short stems. The two first true leaves are almost circular in shape, 6 mm in length, with a prominent mid-rib, on stems to 20 mm in length. Later leaves are divided.

Leaves – are divided into hands of 5 – 7 finger-like leaflets 4 cm long and 1.5 cm wide. They are glossy to dull green and heavily veined.

Plants – a perennial dense semi-prostrate bush to 50 cm in height.

Flowers – purple, typical pea-like flowers in clusters along the end of branches up to 15 cm long that arise from the leaf axils. Flowers are followed by clusters of black seed pods clasped to the stem.

Seeds – a black, shinny bean-like seed 2.5 – 3 mm long enclosed in tight rough blank pod.

Lifecycle / Biology: Can germinate, grow and flower year-round and flowers over the summer months. It commonly emerges with cotton after irrigation and will grow with the crop, setting seed from mid-summer on.

Ecology: Common on heavy clays and lighter soils around water courses.

The Problem: Emu foot is a minor weed, but is becoming more problematic in cotton as it is a perennial that is not well controlled by minimum tillage and reduced tillage systems and it is tolerant of glyphosate. Consequently, plants are establishing in cotton crops and setting seed, with the population increasing over time. This weed has the potential to be problematic if the problem is allowed to continue uncontrolled.

Distribution: A common plant in the eastern states.

Origin: An Australian native plant.

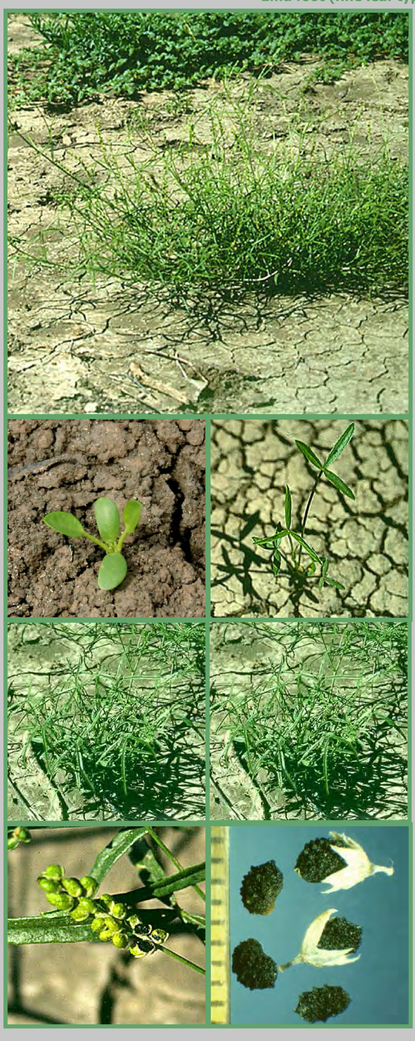
Reference:

Plants of Western New South Wales, p. 408 – 409 (a description of the fine-leaf variety).

Compiler: Graham Charles

Cullen tenax (Lindl.) J.W. Grimes

Emu foot (fine leaf type)



Family: Fabeaceae (Pea family).

Common names: Emu foot, Emu grass, Native lucerne, Tough scurfpea, Tough psoralea, Wild lucerne.

Confused with: There are two distinctly different varieties of this weed, a fine-leaf and a broad-leaf variety.

Description:

Seedlings – cotyledon leaves are bright to dark green and glossy. They are oval in shape 4-6 mm long, 3 mm wide, borne on short stems. The two first true leaves are more circular in shape, 6 mm in length, with a prominent mid-rib, on stems to 20 mm in length. Later leaves are highly divided.

Leaves – are divided into hands of 3 – 7 finger-like leaflets 2 – 6 cm long and 0.2 - 1 cm wide. They are glossy green.

Plants – a perennial dense semi-prostrate bush to 50 cm in height.

Flowers – purple, typical pea-like flowers in clusters along the end of branches up to 15 cm long that arise from the leaf axils. Flowers are followed by clusters of black seed pods clasped to the stem.

Seeds – a black, shinny bean-like seed 2.5 – 3 mm long enclosed in tight rough blank pod.

Lifecycle / Biology: Can germinate, grow and flower year-round and flowers over the summer months. It commonly emerges with cotton after irrigation and will grow with the crop, setting seed from mid-summer on.

Ecology: Common on heavy clays and lighter soils around water courses.

The Problem: Emu foot is a minor weed, but is becoming more problematic in cotton as it is a perennial that is not well controlled by minimum tillage and reduced tillage systems and it is tolerant of glyphosate. Consequently, plants are establishing in cotton crops and setting seed, with the population increasing over time. This weed has the potential to be problematic if the problem is allowed to continue uncontrolled.

Distribution: A common plant in the eastern states.

Origin: An Australian native plant.

Reference:

Plants of Western New South Wales, p. 408 – 409.

Compiler: Graham Charles

Macroptilium atropurpureum (Moç. & Sessé ex DC.) Urb.

Siratro

Family: Fabeaceae (Pea family).

Common names: Siratro, Purple bean.

Confused with:

Description:

Seedlings – the cotyledons are almost circular 8 – 14 mm in diameter with a slightly notched base. Leaves have indented, lighter coloured main and sub-veins and are borne on stems 1 – 2 cm in length.

Leaves – the first true leaves and subsequent leaves are trifoliate 2 – 7 cm long and 2 – 5 cm wide with obvious indented, lighter coloured main and sub-veins. Leaves are borne on stems 2 – 5 cm long. The undersides of the leaves are covered with short, dense hairs making them appear lighter in colour. The leaflets are oblong in shape with pointed tips and may develop a wavy edge. The top leaflet has a short stem 5 – 10 mm in length.

Plants – a perennial semi-prostrate plant with long, densely haired stems 2 – 3 m long that are able to climb obstacles and other plants. Plants can form very dense clumps to 3 – 4 m in diameter.

Flowers – are large, pea shaped, 15 – 20 mm in diameter and deep red to burgundy or purple in colour.

Seeds – are borne in long, narrow, hairy pods 5 – 10 cm long by 3 – 5 mm wide, that become light brown at maturity. The pods split when mature and curl, flicking out the seeds that are 3 – 4 mm in length, bean shaped and mottled orange/brown in colour.

Lifecycle / Biology: A trailing perennial plant that can emerge, grow and flower year round in a tropical environment. Plants form a dense clump and can climb through higher vegetation.

Ecology: Well adapted to tropical environments. Plants grow well on a range of soil types including heavy clays.

The Problem: Siratro is well suited to the northern cotton areas such as Emerald and can become naturalized on channels, road sides etc. It is an aggressive perennial plant that is naturally tolerant of glyphosate and difficult to remove from channels.

Distribution: Siratro is an introduced, and highly desirable tropical pasture species that has become naturalized in pastures and along roadsides in tropical and sub-tropical areas of Australia. Its success in pastures is limited by its attractiveness to grazing animals and it is generally selectively grazed out unless pastures are well managed with rotational grazing.

Origin: A native of Central and North America.

Reference:

WEEDS of the South-East, p. 263.

Compiler: Graham Charles

Geranium solanderi var. solanderi
Carolin

Australian cranesbill

Family: Geraniaceae (Geranium family).

Common names: Australian cransebill, Native geranium, Austral cranesbill, Cut-leaf cranesbill, Hairy geranium.

Confused with: Several other of the cranesbill family occur in the area of which the most common is Common cranesbill (G. retrorsum).

Description:

Seedlings – Cotyledon leaves are 2-lobed, with a distinct middle vein, 5 mm long by 7 mm wide. The cotyledon stems have a reddish tinge. The first true leaves are circular, but divided into 5 – 8 lobes and have a reddish centre and stems. Older leaves are increasingly more heavily lobed, with further lobes developing at the ends of the lobes.

Leaves – are 1 – 3 cm long, 1 – 5 cm wide and deeply divided into 5 – 10 lobes, that again divide towards the tip into 3 – 5 additional lobes. Leaf stalks are to 5 cm in length and covered in fine hairs.

Plants – a squat or spreading, annual or perennial plant covered with fine, soft hairs. Stems to 50 cm length developing from a swollen taproot.

Flowers – are 1 – 1.5 cm across, with 5 pale pink petals, with lighter veins. Single or more commonly double flowers occur on the ends of stalks 2.5 – 5 cm in length, arising from a common stalk 1 – 6 cm long.

Seeds – are enclosed in a hairy capsule with a prominent awn 9 – 12 mm long that curves around the capsule. Seeds are dark brown to almost black, 1.5 – 2.5 mm in length and covered with fine pits that are not obvious to the naked eye.

Lifecycle / Biology: A winter growing species that flowers and sets seed in spring.

Ecology: Occurs on a range of soil types and situations. Can be found in cotton fields from the Namoi through to Dirranbandi.

The Problem: Australian cranesbill is a minor weed of cotton, with scattered plants occurring in occasional fields. Plants will be favoured and may perenniate in minimum tillage systems.

Distribution: Found throughout most of Australia.

Origin: A native of Australia.

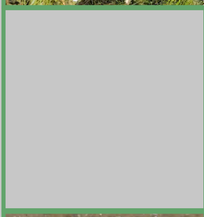
Reference:

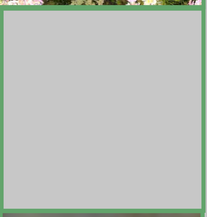
Plants of Western New South Wales, p. 433.

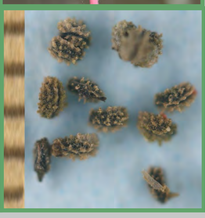
Compiler: Graham Charles

Myriophyllum verrucosum Lidl.

Red water milfoil







Family: Haloragaceae (Watermilfoil family).

Common names: Red water milfoil, Duckweed, Red milfoil, Water milfoil.

Confused with: The are 36 species of Myrriophyllum in Australia, with 16 known to occur in NSW. Red water milfoil is the more common species to be problematic in the cotton area and can be identified from the reddish colour on the emergent stems when these develop above the water line.

Description:

Leaves – plants have distinctly different submerged and emergent leaves.

Submerged **Leaves –** leaves occur in whorls of 3 – 4 leaves along the reddish stems that are 1 – 3 mm wide. The leaves are green and very fine, feathery, 0.1 – 0.2 mm wide, with 5 – 8 pairs of leaflets arranged along a central leaf-stem 4 – 10 mm long.

Emergent **Leaves –** are reddish, borne on reddish stems more deeply coloured than the submerged stems. The leaves are borne in whorls of 2 – 4 leaves, each on short stems, to 2 mm long, and are spear-head shaped, 3 – 9 mm long and 2 – 3 mm wide, edged with a series of lobes to 2 mm long

Plants – an aquatic perennial weed that roots in the mud from the lower stem nodes, grows up to the surface and extends flowering stems above the water surface.

Flowers – occur in the axils of the emergent leaves, the male petals yellowish and 1.5 - 2.5 mm long.

Seed – is light brown, 1 – 1.5 mm long and 0.5 – 0.7 mm wide. It can be almost smooth or very rough, as in the identification photo.

Lifecycle / Biology: A perennial water weed that can develop dense mats in the water and spreads mostly from stem fragments, but can also regenerate from seed. Plants grow most actively in early summer.

Ecology: It is a perennial water weed that can grow on damp mud but is most aggressive in shallow water. Plants can spread from fragments but also freely produce seed. It is best adapted to still and slow moving water at depths of around 2 m, but can grown at shallower or greater depth and in fast-moving water.

The Problem: Red water milfoil is a perennial water weed that can build up to high densities in irrigation channels and will clog irrigation pipes. It is especially difficult to manage with lateral move irrigation systems. Plants grow most actively in early summer and are most problematic in channels that remain full for much of the year.

Distribution: Occurs widely throughout mainland Australia, particularly in the eastern states.

Origin: A native Australian water weed.

Reference:

Plants of Western New South Wales, p. 538 – 539.

Compiler: Graham Charles

Lamium amplexicaule L.

Deadnettle

Family: Lamiaceae (Mint family).

Common names: Deadnettle, Henbit, Henbit deadnettle, Pink weed, Stingless nettle.

Confused with: Stagger weed (Stachys arvensis) and dwarf nettle (Urtica urens). These species can be distinguished by:

- **Seedlings –** dwarf nettle leaves are dark green with sharply serrated edges. Stems are reddish towards the base. Stagger weed leaves are yellowish-green and egg-shaped, longer than they are wide. Stagger weed leaves have a minty smell when crushed. Deadnettle are darker green than stagger weed and more of a pointed-fan shape, wider than they are long.
- **Flowers –** Dwarf nettle flower are white and very small. The flower head is green. Stagger weed pale pink to pale lilac. Deadnettle flowers are purple to bright red.

Description:

Seedling Leaves – the seedling leaves are oval-shaped, to 4 mm long and 3 mm wide, with a slightly notched base. These leaves have stalks that are 4 mm long.

Early Leaves – the first true leaves are mid-green, hairy, egg-shaped, again with a notched base and with rounded teeth along the margin.

Leaves – the lower adult leaves are 7 - 20 mm long, 10 - 25 mm wide, are broadly egg-shaped with a flattened leaf base, again with rounded teeth along the margins. The leaves are borne opposite each other on the stem on 10 - 60 mm long stalks. The upper leaves are 20 - 40 mm in diameter and do not have stalks but have stem-clasping leaf bases.

Plants – have few to many fine hairs with square, hollow, green to purple stems, 15 - 45 cm tall. The upper leaves are stalkless, instead the bases clasp the stem. The plant branches from the base and stems root at the nodes when in contact with the ground. The plant arises from a fibrous taproot to 20 cm depth with some tap root material.

Flowers – the flowers are pink/red to purple, sometimes with darker spots. The flowers are tube-like, 12 - 20 mm long and clustered in groups of 6 - 12, in the forks of the upper leaf pairs. These flower clusters appear to ring the stem. Each individual flower has two lip like structures at the top, the upper lip hooded and the lower lip three-lobed.

Seeds – the seed head has four small brown-grey pear-shaped nuts or seeds that are white spotted on the inner face, 2.5 – 3 mm long and 1 – 1.5 mm wide.

Lifecycle / Biology: An annual or biennial plant that may germinate throughout the year with flushes in the winter/spring period. Flowering occurs most of the year, particularly from April to November. Between 2,000 and 60,000 seeds have been recorded per plant. Newly shed seeds are dormant and generally require one or more winters before germinating.

Ecology: Deadnettle is a weed of disturbed areas like cropped fields, fallows, roadsides, grazing land and waste areas. It is found on a range of soil types including heavy cracking clays and is most common in cooler, wetter areas.

The Problem: Deadnettle is a widespread weed of winter crops and fallow areas. It produces a large amount of seed and is difficult to eradicate once established. It is important to control seedling flushes to ensure seed is not added to the soil.

Distribution: A common weed in southern and central Australia.

Origin: A weed of Europe, Asia and Africa.

Reference:

Crop Weeds of Northern Australia, p. 85 – 86

Plants of Western New South Wales, p. 572

WEEDS of the South-East, p. 294.

Compiler: Graham Charles

Salvia reflexa Hornem.

Mint weed

Family: Lamiaceae (Mint family).

Common names: Mintweed, Lance-leaf sage, Narrow-leaf sage, Wild mint.

Confused with:

Description:

This plant has a strong mint smell when crushed. This feature can be used to readily identify young plants.

Seedling Leaves – cotyledons are triangular, with a cut off, notched tip, 6 mm long and 7.5 mm wide, on stems 4 mm long. They are greyish/green in colour and covered in glands. The first pair of true leaves are oval-shaped, with several shallow teeth and very fine hairs on the margins. These leaves are compressed, in a V shape around the prominent, indented central vein which is lighter in colour than the rest of the leaf. All leaves are borne in opposite pairs and have a strong mint smell when crushed.

Leaves –are an elongated oval in shape and pale grey-green-blue, 15 - 60 mm long and 3 - 12 mm wide, on 3 - 20 mm long stalks. Leaves

Plants – have erect, square-shaped stems, are multi-branched and grow from 20 – 70 cm high. Plants may be covered in short, dense, grey-white hairs. Leaves are a flattened V shape, with prominent, indented central and lateral veins.

Flowers – the flowers are pale mauve/blue, tubular, 7 – 12 mm long, borne in pairs opposite each other, or in groups of three or four, found on the stem and at the ends of flowering branches. The flowers have two lips with the lower lip longer than the upper lip.

Seeds – each brown-coloured cup-shaped seed head has up to four fawn to cream-coloured seeds 2.5 - 3 mm long and 1 – 1.5 mm wide.

Lifecycle / Biology: Mintweed is an annual plant germinating during the period August – March, under good soil moisture conditions when temperatures are between 4 and 300C. Flowering occurs rapidly during the October – May period. The time between emergence and flowering is shorter in late season germination flushes (32 days in February compared to 56 days for August). Seed set can occur 6 - 8 weeks after emergence and generally occurs from late spring onwards, with up to 179,000 seeds produced per plant. Seed dormancy prevents germination up to six months after the seed is shed. Chilling breaks this dormancy, commonly producing seedling flushes in spring and autumn. Plants die in late autumn and early winter.

Ecology: Mintweed is mainly on the floodplains on grey and black cracking self-mulching clay soils and is less commonly found on other soils that are periodically flooded. A common weed of cotton fields as well as other summer and winter crops, degraded pastures, flood plains and roadsides.

The Problem: Mintweed often occurs in dense competitive stands and competes strongly with cotton.

Distribution: A common weed in Australia, especially the Southern States.

Origin: An introduced species from the Americas.

Reference:

Crop Weeds of Northern Australia, p. 96 – 97

Plants of Western New South Wales, p. 575 - 576.

WEEDS of the South-East, p. 300.

Compiler: Graham Charles and Stephen Johnson

Stachys arvensis (L.) L.

Stagger weed

Family: Lamiaceae (Mint family).

Common names: Stagger weed, Corn woundwort, Field stachys, Field wound root, Field woundwort, Hedge nettle, Mintweed, Woundwort.

Confused with: Deadnettle (Lamium amplexicaule) and dwarf nettle (Urtica urens). These can be distinguished by:

Seedlings – dwarf nettle leaves are dark green with sharply serrated edges. Stems are reddish towards the base. Stagger weed leaves are yellowish-green and egg-shaped, longer than they are wide. Stagger weed leaves have a minty smell when crushed. Deadnettle are darker green than stagger weed and more of a pointed-fan shape, wider than they are long.

Flowers – Dwarf nettle flower are white and very small. The flower head is green. Stagger weed pale pink to pale lilac. Deadnettle flowers are purple to bright red.

Description:

Seedling Leaves – are round, 3 - 5 mm in diameter and yellowish-green with short stalks. The first true leaves are broadly egg-shaped, with an indented base where they meet the leaf stalk. Leaves are lightly covered in hairs, and are corrugated by central and lateral veins. The leaf margins are roundly toothed.

Older **Leaves –** are yellowish-green, opposite and on stems less than 20 mm long. New branches arise from the leaf axils. Leaves are 8 – 45 mm long and 4 – 32 mm wide. Leaves are lightly covered in hairs, and are corrugated by central and lateral veins. The leaf margins are roundly toothed.

Plants – a semi-erect annual to 35 cm high, yellowish-green in colour. Stems are slender and 4-angled, 15 – 45 cm high and covered with spreading hairs. Plants emit a mint-like odour when crushed.

Flowers – are white to pale pink, 5 – 7 mm long, borne in clusters of 2 – 6 in the forks of the leaves.

Seeds – 1 – 4 seeds develop in a "cup" in the leaf forks. Seeds are dark brown and lightly mottled, 2 – 2.5 mm long.

Lifecycle / Biology: An annual plant that emerges in autumn and winter, flowering in winter and spring.

Ecology: A common weed of cereal cops and winter fallows, and will established in pastures.

The Problem: Stagger weed is a minor pest of cereal crops and winter fallows, irrigation channels and waste areas. Stagger weed can be eaten by livestock and will cause staggers. The poison is cumulative and the effects become apparent in stressed stock. Stagger weed can kill stock.

Distribution: A widespread weed, occurring in all states, except the Northern Territory.

Origin: An introduced species from Europe and the Mediterranean region.

Reference:

Crop Weeds of Northern Australia, p. 84 – 85

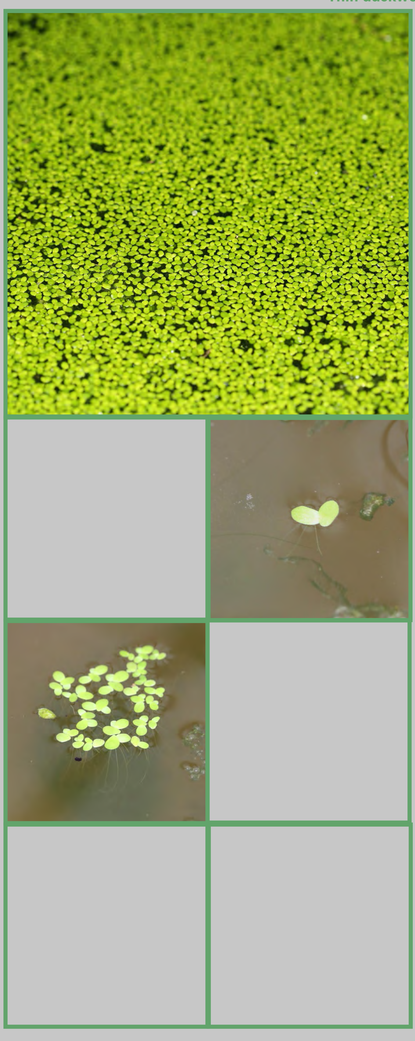
Plants of Western New South Wales, p. 576 - 577.

WEEDS of the South-East, p. 301.

Compiler: Graham Charles

Spirodela punctata (G. Mey.) J.V. Thomps

Thin duckweed



Family: Lemnaceae (Duckweed family).

Common names: Thin duckweed, Bungweed, Small duckweed.

Confused with:

Description:

Thallus – are small and rounded, shiny green, 2-5 mm long and 1.2 – 3.5 mm wide. The thallus are bordered with a reddish tinge and are reddish on the underside.

Plants – a floating aquatic weed that consists of a single roundish "leaf" or thallus. Plants mainly reproduce vegetatively, with daughter thalli budding from pouches in the margins of the thallus. These daughter plants remain attached to the parent plant as they grow and eventually split off as new plants.

Roots – plants have 1 – 11 roots, though generally 5 – 11, 10 – 13 mm long that emerge from the centre of the thallus. These roots terminate in a short, darker cap. In addition, there may be up to 20 or more short hair-like roots, distributed on the remainder of the underside of the thallus.

Lifecycle / Biology: A floating water weed that can develop dense mats on the water and spread mostly from subdivision, but can also regenerate from seed. Plants may flower in spring and summer.

Ecology: It is a floating water weed that grows on still or slowly moving water. Plants can produce seed but mainly spread from almost continual subdivision, with daughter plants regularly dividing from the main plant. While plants are mostly floating, they can be forced down by disturbances and may remain submerged for extended periods before they re-emerge and continue growing.

The Problem: Thin duckweed is a floating water weed that can build up to high densities on the surface of irrigation channels and storage dams and will clog irrigation pipes. It is especially difficult to manage with lateral move irrigation systems.

Distribution: Occurs widely throughout mainland Australia, particularly in the eastern states.

Origin: A native Australian water weed.

Reference:

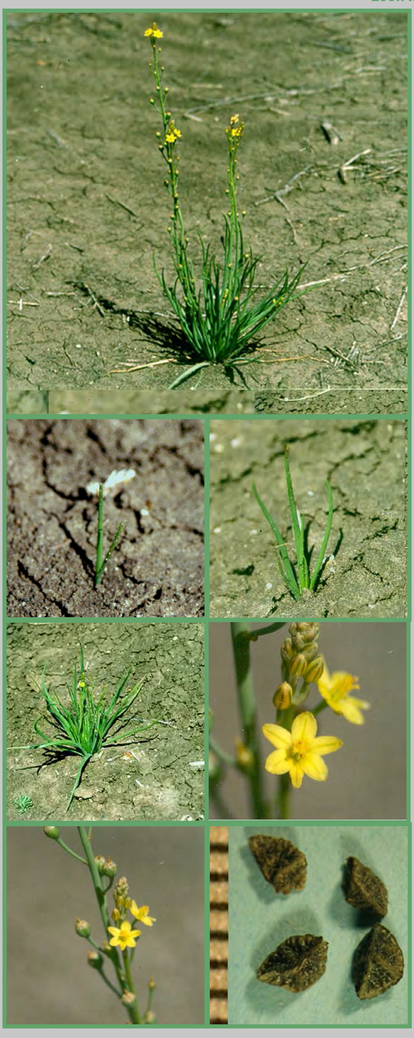
Plants of Western New South Wales, p. 173

WEEDS of the South-East, p. 34.

Compiler: Graham Charles

Bulbine semibarbata (R.Br.) Haw

Leek lilly



Family: Liliaceae (Lilly family).

Common names: Leek lilly, Native leek, native onion weed, small onion weed, wild onion, wild yam.

Confused with: Native leek (B. bulbosa)

Description:

Seedlings – erect, fine 3 cm in length and 1 – 2 mm diameter.

Leaves – emerge from the plant base. They are narrow, succulent, hollow, channelled 15 - 30 cm long and up to 5 mm in diameter.

Mature Plants – are 30 - 50 cm high.**Roots –** are fibrous without a tuber.

Flowers – Plant can have numerous flowers usually found in spring - summer. Flowers have 6 yellow petals about 6 mm long

Seeds – occur in a roughly globular 3-celled capsule 3 - 4 mm in diameter. Seeds are dark in colour, about 2 mm in diameter, 2.6 mm long and distinctly 3-sided.

Lifecycle / Biology: An annual or biannual herb that will grow after summer rains and re-sponds rapidly to autumn rains.

Ecology: Occurs on open areas.

The Problem: A minor pest on roadways and irrigation structures.

Distribution: Can be found through out Australia from heavy through to sandy soils.

Origin: An Australian native plant.

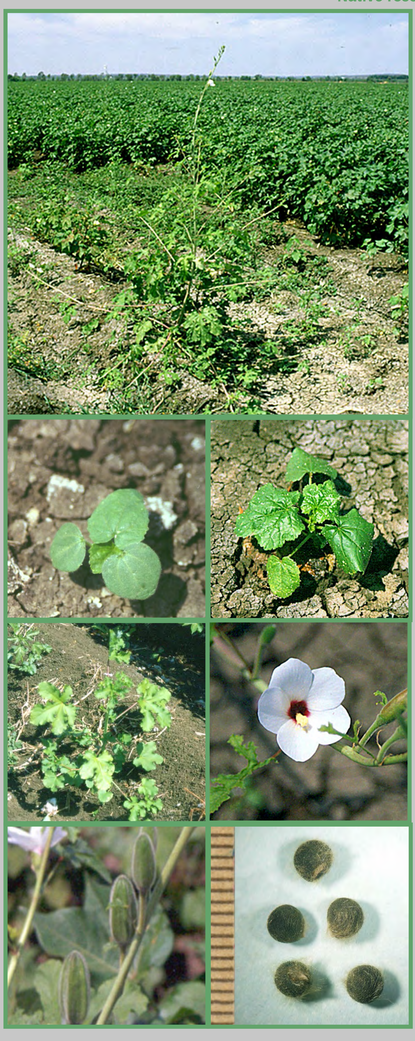
Reference:

Plants of Western New South Wales, p. 182 - 183.

Compiler: Graham Charles

Abelmoschus ficulneus (L.) Wight & Arn. Ex Wight

Native rosella



Family: Malvaceae (Hibiscus family).

Common names: Native rosella

Confused with: Wide-leaf bladder ketmia (Hibiscus trionum var. vesicarius) in the early seedling stages.

Description:

Seedlings – are similar in shape with one leaf almost circular with a slightly flattened base and the other broadly egg-shaped often with a notched base, and larger. Both leaves are hairy, 16 – 19 mm long and 20 – 21 mm wide, on stalks 14 – 18 mm long.

Early Leaves – the first true leaf is roughly egg-shaped with a notched base, wrinkled in appearance, hairy, and has shallow teeth around the margins. The second and subsequent leaves become increasingly wrinkled, toothed around the margin with more prominent veins.

Adult Leaves – are three to five lobed, up to 14 cm long and wide, sparsely to coarsely hairy, with heart-shaped bases and borne on stems 1 - 20 cm long.

Mature plant – are erect, woody, to 2 m high, with hairy green or red stems.

Flowers – has white hibiscus-like five-petalled flowers with deep red or purple-black centres, to 3 cm wide and on stalks 1 – 2 cm long. Flowers are borne in the upper leaf forks and, on older plants, on long flowering stems to 30 cm with 5 to at least 20 flowers.

Fruit –are hairy and sticky, oval-cylindrical in shape, 25 – 40 mm long and 13 – 20 mm wide, have five prominent ribs and a short beak. Initially mid to dark green these pods turn dark brown on maturity and split from the tip into five segments to release 10 – 20 dark brown to black spherical seeds, 2.5 – 4 mm in diameter, covered in hairs.

Lifecycle / Biology: Native rosella germinates in spring and summer after rainfall and irrigation. It grows rapidly over spring and summer, flowering through summer and autumn. Mature seed is produced within a month of flowering during late-summer and autumn when the long seed head stalks are a common sight above the cotton canopy.

Ecology: The plant is found on heavy cracking black clay soils and is a common weed of cultivation from Central Queensland into northern Australia.

The Problem: Native rosella is a weed of summer crops including dryland and irrigated cotton in Central Queensland. It produces a large number of seeds that have a long seedbank life in the soil, making control and eradication difficult. There are no herbicides registered for controlling this weed.

Distribution: Found throughout the northern half of Australia.

Origin: A native species

Reference:

Crop Weeds of Northern Australia, p. 135 - 136.

Compiler: Graham Charles

Abutilon theophrasti Medik.

Velvetleaf

Family: Malvaceae (Hibiscus family).

Common names: Velvetleaf, American jute, Chinese hemp, Chinese jute, Chinese lantern, Chingma lantern, Indian mallow, Lanternflower, Swamp Chinese lantern.

Confused with: A. tubulosum (a similar species found in central Qld. with large yellow flowers).

Description:

Seedlings – are similar in shape, both with indented bases, one leaf circular to broadly oval in shape and the other broadly egg-shaped, 7 - 8 mm long and wide on stems to 10 mm long. The upper surface of the seedling leaves and stems are covered in small hairs to 0.5 mm long.

Early Leaves – the first true leaf is roughly circular with subsequent leaves increasingly heart-shaped with slightly toothed margins and prominent leaf veins. Seedlings with only two true leaves have a deep tap root to 40+ cm.

Adult Leaves – are heart-shaped, light- to mid-green, with a lobed base and pointed leaf tip, variable in size from 20 – 100 mm long and wide in drier areas, but to 300 mm wide in wet areas, borne on stems as long as the leaves and reddish to yellow-green in colour. The leaves are covered in a dense cover of soft silvery velvet-like hairs (hence the name velvetleaf). A dew-like exudate can sometimes be felt on adult leaves. The leaves have shallow teeth along the margins.

Mature plant – are erect, to 140 cm, arise from a deep taproot, with branches and stems covered in soft whitish hairs.

Flowers – the single hibiscus-like flowers are borne in the leaf forks, with yellow petals, 15 – 18 mm wide, on stalks 20 – 40 mm long.

Fruit – are cup- to crown-shaped, covered in fine hairs, initially mid-green with soft green awns at the tip with a flattened top. On maturity the seed head turns to a mid- to dark-brown or black in colour, is 10 - 20 mm in diameter, with 10 – 15 awned valves that open vertically. Each valve contains two to three light grey, dark brown to nearly black kidney-shaped seeds, to 3 mm long and 2.5 mm wide. These seed heads are easily broken off the plants on maturity.

Lifecycle / Biology: Seedlings emerge in successive flushes after rainfall or irrigation in spring, summer and autumn. Dense flushes in excess of 100 seedlings/m2 may occur. Rapid growth occurs with flowering starting within 43 days. Flowering occurs throughout summer and autumn. Mature seed is set within 62 days of emergence, peaking in mid-summer to autumn with between 1,000 – 12,000 seeds produced on medium sized plants. Veltetleaf is an annual plant that is killed by frosts. The seed has strong dormancy, with very little fresh seed germinating. Seed may persist of up to 50 years.

Ecology: This plant is an uncommon weed found in shallow depressions beside rivers, in swamp areas, and beside creek banks, water courses and on flood plain country. It is generally associated with clay soils.

The Problem: Relatively rare in irrigated and dryland cotton in Australia, but a significant weed in the USA. It may form persistent, dense patches, occurring in parts of the Gwydir, Namoi and Macquarie valleys, with isolated occurrences of the elsewhere. Seedlings emerge in successive flushes after rainfall and irrigation. This makes control particularly difficult. It is highly competitive and produces a large number of seeds, resulting in a persistent seed bank and problems in controlling this weed over a number of years. Seeds are easily spread in flood and irrigation water. New plants grow on the edge of water bodies shedding seeds into the water as they mature. Seeds are also spread by machinery and animals. Seeds can mature on chipped or hand-pulled plants so it is important to avoid spreading the seeds when destroying plants. Early control is important to prevent seed set, particularly by chipping and cultivation since no herbicides are registered for its control in Australia.

Distribution: Northern NSW, Central NSW, Southern NSW, Southern Qld and Central Qld.

Origin: An introduced species coming from the Mediterranean and Asia.

Reference:

Plants of Western New South Wales, p. 483

WEEDS of the South-East, p. 306.

Compiler: Graham Charles and Stephen Johnson

Anoda cristata (L.) Schltdl

Anoda

Family: Malvaceae (Hibiscus family).

Common names: Anoda, Spurred anoda.

Confused with:

Description:

Seedling Leaves – are similar in shape, one leaf almost circular with a slight notch at the base and the other broadly egg-shaped with a deeper notch, 10 – 13 mm long and 11 – 14 mm wide, on stems to 7 mm long. The edges of the seedling leaves and stems are covered in small hairs to 0.5 mm long.

Early Leaves – the first true leaf has a broad egg-shape with shallow teeth around the margin. Older leaves become more triangular in shape.

Adult Leaves – are triangular to oval-shaped, 35 - 100 mm long, 30 - 95 mm wide, with three to five shallow lobes and irregular teeth on the margins. The leaves are light- to mid-green sometimes with a scarlet splash of colour where the leaf is attached. The leaf stalk is 20 – 35 mm long.

Mature Plants – grow up to 200 cm, with many semi-erect branches, the stems and leaves may be covered in small hairs.

Flowers – the single hibiscus-like flowers are borne in the upper leaf forks, range from nearly white to lavender–blue, and paler at the centre, to 25 mm wide, on stalks 20 – 60 mm long.

Seed heads – are star-shaped, 15 - 35 mm wide, hairy, with a central round section much like a sliced pie with 9 - 20 segments, each containing one seed. The seed head turns from mid-green to brown once it matures. The seeds are brown to black, broadly kidney-shaped, are to 4 mm long and 3 mm wide.

Lifecycle / Biology: Seedlings emerge in successive flushes after rainfall or irrigation in spring, summer and autumn. Flushes in excess of 100 seedlings/m2 may occur. Seedlings grow rapidly, with flowering starting within 56 days of emergence, and peak flowering during February. Mature seed can be produced within 73 days of emergence and small amounts of seed may be produced in Dec and Jan. Seed production peaks in late March - May. Up to 4,000 seed can be produced on medium sized plants. Anoda is a frost sensitive annual plant. Seeds have strong dormancy with little fresh seed germinating, but a relatively short seed bank life. Seed longevity increases with burial depth, 40

of seed remaining viable after two years of burial.

Ecology: An uncommon weed of crops and pastures, generally associated with heavy cracking clay soils.

The Problem: A common weed in cotton in Qld, and spreading in NSW. Also a weed of peanuts, summer grain and forage crops, and pastures. Seedlings emerge in successive flushes after rainfall and irrigation, making control particularly difficult. A large number of seeds are produced resulting in a persistent seed bank and problems in controlling this weed over a number of years. The seeds persist for some time in the soil. The seeds are easily spread by harvesting machinery, and in mud, cotton lint, forage and hay. Young plants are similar in colour to cotton and are difficult to detect in the plant line. Plants may only become apparent as they grow above the crop canopy from January onwards. Early control is important for preventing seed set.

Distribution: Found through much of Australia. Scattered populations of anoda occur in most valleys of the cotton growing region.

Origin: An introduced species from tropical America.

Reference:

Crop Weeds of Northern Australia, p. 133.

Johnson, S. B. Ecology and management of bladder ketmia (Hibiscus trionum) and other emerging problem Malvaceae weeds.

Compiler: Graham Charles and Stephen Johnson

Gossypium hirsutum L.

Cotton

Family: Malvaceae (Hibiscus family).

Common names: Cotton, Upland cotton.

Confused with:

Description:

A range of cultivated cotton varieties is grown in Australia, varying in size and leave shape. The plant described is of the more common "normal" leaf shape. A palmate "okra" leaf shape may also be grown.

Seedlings – Cotyledon leaves are oval, 15 – 25 mm long by 30 - 45 mm wide, with lighter coloured veins, sometime with a red tinge. The cotyledons initially emerge from a stem 20 – 25 mm above the ground, but this stem grows to be 50 – 70 mm long as the plant grows, and the cotyledon leaf stems grow to a further 15 – 40 mm long. The stems have a reddish tinge. The 1st true leaves are more circular, with a pointed end, 40 – 55 mm long by 35 – 55 mm wide. Older leaves are increasingly more heavily lobed, with three distinct lobes.

Leaves – are arranged alternately along the stems, 55 – 90 mm long by 75 – 120 mm wide, borne on stalks 50 – 100 mm long. Small leaf like appendages develop in the junction of the leaves and the stem, 5 – 10 mm long by 2 – 4 mm wide and new auxiliary stems often emerge from the lower stem junctions as the plant grow.

Plants – a generally compact, tap-rooted perennial plant around 1 m in height that can exceed 2 m in favourable conditions.

Flowers – initially emerge from the stem junctions as "squares", a small flower ball surrounded by 3 leaf-like, heavily fingered bracts. These bracts continue to surround the flower as it develops. Flowers have 5 petals, white to creamy, becoming pink or reddish as they age, and are 6 – 7 cm wide when fully open, borne on stalks 3 – 6 cm long.

Seed heads – After flowering, the seeds develop in a hard, green "boll", made of 5 segments, 45 – 50 mm long and 30 – 40 mm wide. The boll splits open at maturity, exposing the 5 locks of white cotton lint.

Seeds – are black and wedge-shaped, 6 – 11 mm long by 3 – 6 mm wide. Seeds are covered with long white hairs 20 – 30 mm long. These hairs, the cotton lint, are not easily removed from the seed even by the ginning process, such that white cotton seed (seed with a short residue of lint remaining) is the normal by-product of cotton production that is fed to livestock.

Lifecycle / Biology: A summer growing species that flowers and sets seed in summer and autumn. Cotton is a perennial plant that is grown as an annual crop in Australia. Plants are frost sensitive and will lose all leaves over winter and regrow in spring. These volunteer ratoon plants are very difficult to kill with herbicides.

Ecology: Adapted on a range of soil types and situations. Volunteer cotton plants are common in rotation crops following cotton and occur wherever cotton trash is lost, often on road sides, the edges of fields and irrigation structures. Cotton seed is also used as a high-quality stock feed supplement, potentially resulting in a scattering of plants occurring in pastures.

The Problem: Volunteer and ratoon cotton plants are difficult to kill with herbicides and can be an important host of insect pests and diseases. Plants are not normally a problem in pastures as non-ideal conditions lead to small, relatively unproductive plants that are readily grazed by livestock. Volunteer cotton plants can be more problematic in more tropical areas.

Distribution: Found from the Victorian border to northern Queensland.

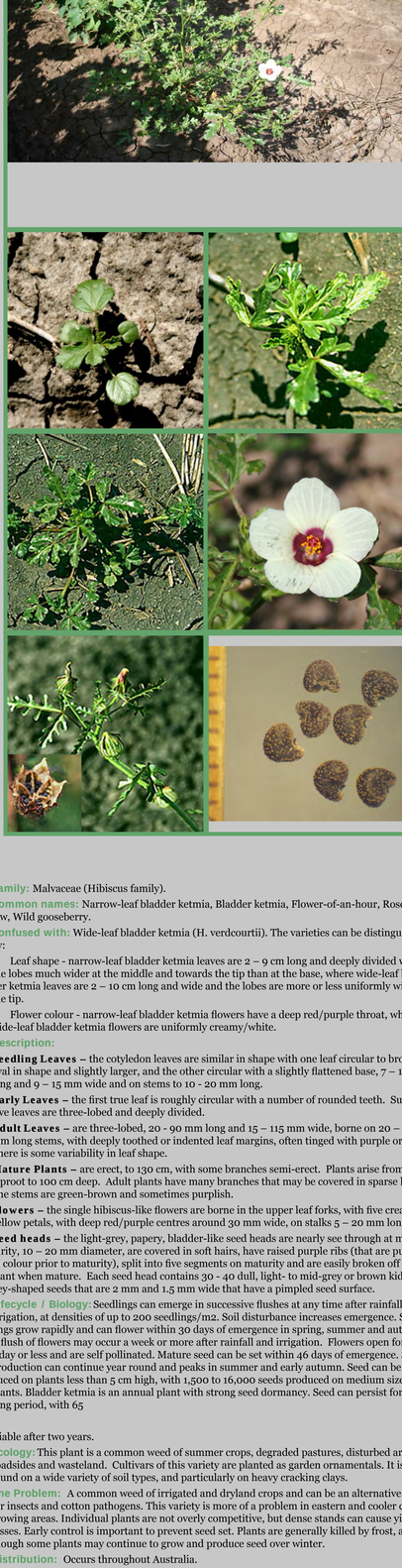
Origin: A native of America.

Reference:

Compiler: Graham Charles

Hibiscus tridactylites Lindley

Narrow-leaf bladder ketmia



Family: Malvaceae (Hibiscus family).

Common names: Narrow-leaf bladder ketmia, Bladder ketmia, Flower-of-an-hour, Rose mallow, Wild gooseberry.

Confused with: Wide-leaf bladder ketmia (H. verdcourtii). The varieties can be distinguished by:

- Leaf shape - narrow-leaf bladder ketmia leaves are 2 – 9 cm long and deeply divided with the lobes much wider at the middle and towards the tip than at the base, where wide-leaf bladder ketmia leaves are 2 – 10 cm long and wide and the lobes are more or less uniformly wide to the tip.
- Flower colour - narrow-leaf bladder ketmia flowers have a deep red/purple throat, where wide-leaf bladder ketmia flowers are uniformly creamy/white.

Description:

Seedling Leaves – the cotyledon leaves are similar in shape with one leaf circular to broadly oval in shape and slightly larger, and the other circular with a slightly flattened base, 7 – 16 mm long and 9 – 15 mm wide and on stems to 10 - 20 mm long.

Early Leaves – the first true leaf is roughly circular with a number of rounded teeth. Successive leaves are three-lobed and deeply divided.

Adult Leaves – are three-lobed, 20 - 90 mm long and 15 – 115 mm wide, borne on 20 – 65 mm long stems, with deeply toothed or indented leaf margins, often tinged with purple or red. There is some variability in leaf shape.

Mature Plants – are erect, to 130 cm, with some branches semi-erect. Plants arise from a taproot to 100 cm deep. Adult plants have many branches that may be covered in sparse hairs. The stems are green-brown and sometimes purplish.

Flowers – the single hibiscus-like flowers are borne in the upper leaf forks, with five cream to yellow petals, with deep red/purple centres around 30 mm wide, on stalks 5 – 20 mm long.

Seed heads – the light-grey, papery, bladder-like seed heads are nearly see through at maturity, 10 – 20 mm diameter, are covered in soft hairs, have raised purple ribs (that are purple in colour prior to maturity), split into five segments on maturity and are easily broken off the plant when mature. Each seed head contains 30 - 40 dull, light- to mid-grey or brown kidney-shaped seeds that are 2 mm and 1.5 mm wide that have a pimpled seed surface.

Lifecycle / Biology: Seedlings can emerge in successive flushes at any time after rainfall or irrigation, at densities of up to 200 seedlings/m2. Soil disturbance increases emergence. Seedlings grow rapidly and can flower within 30 days of emergence in spring, summer and autumn, A flush of flowers may occur a week or more after rainfall and irrigation. Flowers open for only a day or less and are self pollinated. Mature seed can be set within 46 days of emergence. Seed production can continue year round and peaks in summer and early autumn. Seed can be produced on plants less than 5 cm high, with 1,500 to 16,000 seeds produced on medium sized plants. Bladder ketmia is an annual plant with strong seed dormancy. Seed can persist for a long period, with 65

viable after two years.

Ecology: This plant is a common weed of summer crops, degraded pastures, disturbed areas, roadsides and wasteland. Cultivars of this variety are planted as garden ornamentals. It is found on a wide variety of soil types, and particularly on heavy cracking clays.

The Problem: A common weed of irrigated and dryland crops and can be an alternative host for insects and cotton pathogens. This variety is more of a problem in eastern and cooler cotton growing areas. Individual plants are not overly competitive, but dense stands can cause yield losses. Early control is important to prevent seed set. Plants are generally killed by frost, although some plants may continue to grow and produce seed over winter.

Distribution: Occurs throughout Australia.

Origin: A native Australian species, formally misidentified as H. trionum, not native to Australia.

Reference:

Crop Weeds of Northern Australia, p. 134 - 135. The description fits both varieties. The wide-leaf variety is shown on page 135.

Plants of Western New South Wales, p. 481.

Compiler: Graham Charles and Stephen Johnson

Hibiscus verdcourtii Craven

Wide-leaf bladder ketmia

Family: Malvaceae (Hibiscus family).

Common names: Wide-leaf bladder ketmia, Bladder ketmia, Flower-of-an-hour, Rose mallow, Wild gooseberry.

Confused with: Narrow-leaf bladder ketmia (H. tridactylites), and Native rosella (Abelmoschus ficulneus) at the seedling stage. The bladder ketmia varieties can be distinguished by:

- Leaf shape - narrow-leaf bladder ketmia leaves are 2 – 9 cm long and deeply divided with the lobes much wider at the middle and towards the tip than at the base. Wide-leaf bladder ketmia leaves are 2 – 10 cm long and wide and the lobes are more or less uniformly wide to their base.
- Flower colour - narrow-leaf bladder ketmia flowers have a deep red/purple throat. Wide-leaf bladder ketmia flowers are uniformly creamy/white.

Description:

There are two types of wide-leaf bladder ketmia, differentiated by the colour of the flower centre. The yellow centre flower type (pictured) is common throughout NSW and Southern Qld. The red centre flower type (on the cover of WEEDpak) co-occurs on the Darling Downs and is found in Central Qld. The types are similar in growth and lifecycle and in the problems they cause.

Seedling Leaves – the cotyledon leaves are similar in shape with one leaf circular to broadly oval in shape and slightly larger, and the other circular with a slightly flattened base, 14 – 22 mm long and wide, and on stems 10 – 20 mm long.

Early Leaves – the first true leaf is broadly oval-shaped with shallow rounded teeth along the margins. The second and third true leaves are generally unlobed, while the fourth true has three shallow lobes.

Adult Leaves – are three to five-lobed, the yellow centre flower type 20 – 105 mm long, 15 – 105 mm wide, and borne on stems 20 – 35 mm long. The leaves of the red centre flower type are 20 - 110 mm long and 15 – 75 mm wide borne on stems 30 mm long. Leaves usually have a shiny waxy texture and feel with shallow and irregular teeth.

Mature Plants – are erect, to 150 cm high and sometimes with coarse hairs on the stem, have some branching and a deep taproot to 100 cm depth. Stems are always green.

Flowers – the single hibiscus-like flowers are borne in the upper leaf forks, with five cream to white petals, and either yellow or cream coloured centres, or deep red-maroon centres, depending on type. Flowers are around 30 mm wide, borne on stems 5 – 20 mm long and are often longer on plants of the red centre flower type.

Seed heads – are straw to brown-coloured and bladder-like, covered in rough hairs, with raised ribs, 10 – 20 mm long that split into five valves at maturity. Seed heads contain 25 - 40 shiny black kidney shaped seeds 3 mm long by 2 mm wide.

Lifecycle / Biology: Seedlings emerge in successive flushes of up to 200 seedlings/m2 after rainfall or irrigation during the spring - autumn period. Seedlings grow rapidly and can begin flowering within 40 days of emergence. Flowering occurs from late-spring, to autumn, with flushes of flowers a week or more after rainfall and irrigation. Flowers open for a day, or less. Mature seed can be set within 50 - 60 days of emergence on plants less than 5 cm high. Seed production peaks in late summer and early autumn. Medium sized plants produce up to 8,000 seeds. Wide-leaf bladder ketmia is a frost sensitive annual with strong seed dormancy. Seed can persist for long periods with 50

remaining viability after one year and 15

after two years.

Ecology: A common weed of summer crops, disturbed areas and of wasteland. Common on heavy clay soils, particularly after flooding and heavy rainfall.

The Problem: A common weed of irrigated and dryland crops and may be an alternate host to some insect and crop pathogens. This variety is more a problem in the western and warmer areas where cotton is grown. While individual plants are not overly competitive, dense stands can cause yield losses and early control is important to prevent seed set.

Distribution: Occurs throughout Australia

Origin: A native Australian species, formally misidentified as H. trionum, which is not native to Australia.

Reference:

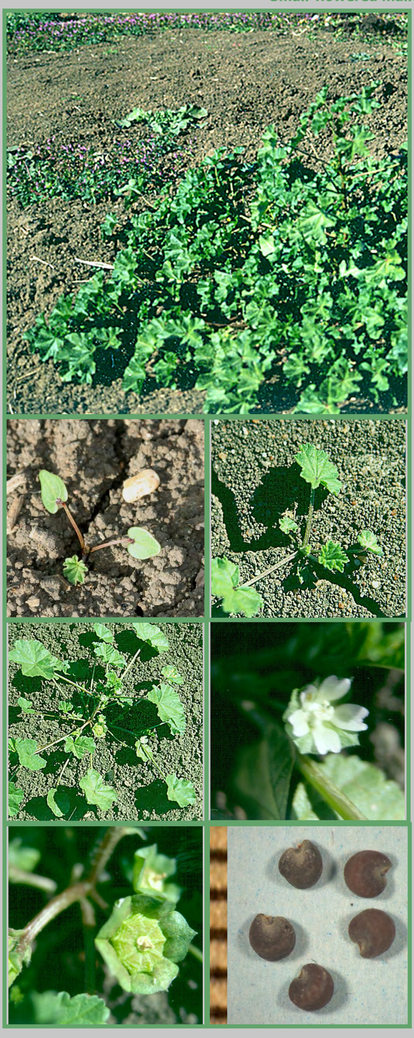
Crop Weeds of Northern Australia, p. 134 - 135. The description is relevant for both wide-leaf and narrow-leaf varieties. The central Qld specimen on page 135 is probably the red centre flower type.

Johnson, S. B. Ecology and management of bladder ketmia (Hibiscus trionum) and other emerging problem Malvaceae weeds

Compiler: Graham Charles and Stephen Johnson

Malva parviflora L.

Small-flowered mallow



Family: Malvaceae (Hibiscus family).

Common names: Small-flowered mallow, Egyptian mallow, Little mallow, Marshmallow, Ring-leaf mallow, Small-flowered marshmallow, Whorl-flowered mallow, Whorl mallow.

Confused with: Australian hollyhock (Lavatera plebeia).

Description:

Seedling Leaves – are reverse heart-shaped, 8 – 9.5 mm long and 6 – 7 mm wide, with the base of the heart at the long, purple leaf stalks, 11.5 – 13 mm in length.

Early Leaves – the first true leaf is round, has a notched base and teeth around its margin. Leaves have prominent veins and are borne on purple stalks that are longer with each successive leaf.

Leaves – are rounded and wrinkled, 17 – 100 mm in diameter, with prominent veins and have 5 – 7 shallow lobes, toothed margins, notched bases and are borne on green to purple/green stalks that are sometimes up to 24 cm long.

Plants – are woody with spreading and upright branches 30 - 100 cm high with stems covered in stiff hairs. Plants are initial semi-prostrate, but become more erect with maturity.

Flowers – the pale pink to white hibiscus-like flowers with five petals are 4 - 6 mm long, and are in small clusters of 2 - 5 in the leaf forks, on stalks 7 – 22 mm long.

Seed heads – are light to dark-brown, flattened and circular, 5 – 10 mm across, with 8 – 12 hard woody wedge-shaped segments that are wrinkled on the outside edges. The seeds are red/brown and rounded, 1 – 2 mm in diameter.

Lifecycle / Biology: Small-flowered mallow is an annual weed that emerge after rainfall or irrigation in late autumn and winter. Plants grow quickly throughout winter and spring and flower during spring and summer (7 – 13 weeks after emergence). Seed can be set within two weeks of flowering. The seed has strong dormancy with very little fresh seed germinating, but only a shortish seed-bank life with only 25

of seed remaining viable after one year of burial and less than 12

after two years.

Ecology: This plant is a widespread weed of wasteland, cultivation, degraded pasture, roadsides, along watercourses and in gardens. It can be found on a wide variety of soil types.

The Problem: This weed has become more common under reduced tillage conditions. It tolerates a wide range of herbicides including glyphosate and can be a host of many insects and pathogens that are important for cotton production.

Distribution: A common weed throughout all states of Australia.

Origin: Introduced from the Mediterranean region.

Reference:

Crop Weeds of Northern Australia, p. 89 – 90

Plants of Western New South Wales, p. 482.

WEEDS of the South-East, p. 308.

Compiler: Graham Charles and Stephen Johnson

Sida corrugata Lindl.

Corrugated sida

Family: Malvaceae (Hibiscus family).

Common names: Corrugated sida, Dwarf sida, Native sida, Sage weed, Variable sida.

Confused with: The sida genus has not been well defined. There are over 40 sida species in Australia, many of which occur in the regions where cotton is grown. The species Sida corrugata is described as being very variable and may include a number of different species which have not yet been classified.

Description:

Seedling Leaves – the cotyledon leaves are shiny green and spade shaped, with a blunt point, 3 – 4 mm long and wide.

Early Leaves – the first true leaves are roughly circular in shape with a number of rounded teeth along the edge. Successive leaves become more elongated, becoming almost triangular. They are prominently veined, with "corrugated" indented mid-rib and veins.

Adult Leaves – are oval to triangular, about twice as long as broad, 10 - 40 mm long and 6 – 30 mm wide. They are borne on stems 2 - 30 mm long. The leaves are deep green and have toothed margins. There is some variability in leaf shape. The underneath side of the leaves is covered in short, fine hairs.

Mature Plants – are prostrate to semi-erect, to 30 cm high, with some branches semi-erect. Plants arise from a thick, woody taproot.

Flowers – single flowers are borne in the leaf forks. Flowers are 8 - 12 mm wide with five yellow petals and a yellow centre, borne on slender stalks 2 – 35 mm long.

Seed heads – are circular and flattened on top, green, becoming brown at maturity, 5 – 9 mm diameter. Seed heads split into six to ten segments on maturity and easily break apart when mature. The segments are brown, 2 – 4 mm in diameter and have a highly corrugated surface.

Lifecycle / Biology: Seedlings can emerge in early spring after rainfall or irrigation. Plants flower in late spring and summer.

Ecology: This plant is a relatively common minor weed of the summer cropping area. It is very drought tolerant and is found on a wide variety of soil types including heavy clay and sandy soils. It is considered a valuable pasture species in the dryer areas.

The Problem: A minor weed of irrigated and dryland crops. It may be an alternate host for insects and cotton pathogens.

Distribution: Occurs throughout much of mainland Australia.

Origin: A native Australian plant.

Reference:

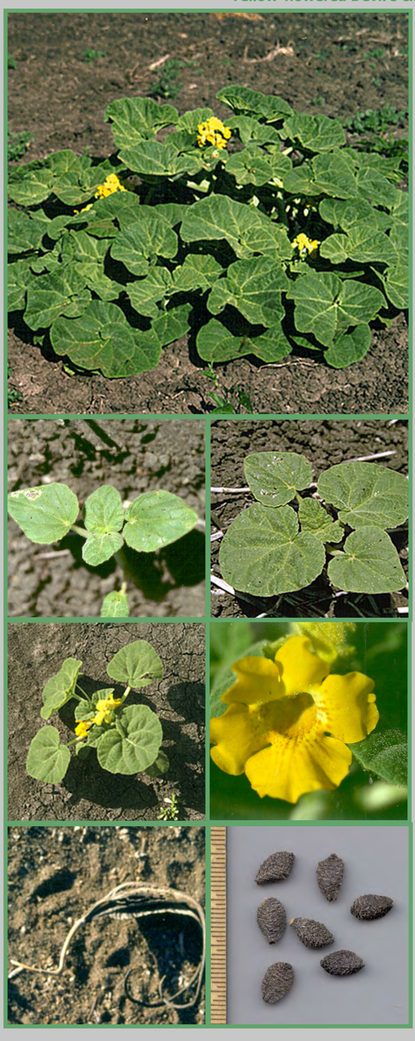
Plants of Western New South Wales, p. 487. The plant photographed here is only broadly similar to the plant described in WEEDpak.

WEEDS of the South-East, p. 310.

Compiler: Graham Charles

Ibicella lutea (Lindl.) Van Eselt.

Yellow-flowered Devil's claw



Family: Martyniaceae (Devil's claw family)

Common names: Yellow-flowered devil's claw, Devil's grip, Double claw, Eagle's claw, Elephant tusks, Goat's head, Pumpkin vine, Ram's horn, Unicorn plant.

Confused with: Purple-flowered devil's claw (Proboscidea louisianica). The species can be distinguished by:

- **Flowers –** yellow-flowered devil's claw has golden/yellow flowers with darker orange streaks inside the flowers which are clustered at the end of the stems. Purple-flowered devil's claw has pale/lilac flowers often spotted with yellow or purple inside which as borne on short stalks.

Description:

Seedlings – the cotyledon leaves are triangular with a rounded tip and gently rounded base, to 4 cm in width, with prominent lighter veins. The leaves and stems are covered with dense hairs.

Leaves – round or heart shaped hairy leaves 5 – 20 cm in diameter, opposite, on stalks10 – 15 cm long. Leaves have prominent light green to white veins.

Plants – a spreading, pumpkin like annual plant to 30 cm high and up to 2 m diameter with a strong smell. Plants are covered with short hairs which exude a sticky material that makes the plant clammy to the touch.

Flowers – trumpet shaped with 5 unequal lobes, 2 – 5 cm long, 4 – 6 cm in diameter, golden/yellow with darker orange streaks inside borne in dense clusters at the ends of the stems.

Seed pods – are initially green but becoming brown at maturity. Pods become a distinctive clasping, 2 clawed hand at maturity, with inward curving claws 5 – 15 cm long in total. Seeds are black, rough, angular 1 cm in length

Lifecycle / Biology: Emerges in spring and flowers in late summer and autumn. Plants are killed by frost.

Ecology: Occurs in pastures and cultivation. Well adapted to lighter clays.

The Problem: Devil's claw is a large, spreading plant that can be competitive with cotton and can cause difficulties for cultivation and harvesting equipment.

Distribution: Found throughout the Eastern States of Australia.

Origin: A native of South America.

Reference:

Plants of Western New South Wales, p. 603.

WEEDS of the South-East, p. 334.

Compiler: Graham Charles

Proboscidea louisianica (Mill.) Thell

Purple-flowered devil's claw

Family: Martyniaceae (Devil's claw family).

Common names: Purple-flowered devil's-claw, Devil's claw, Elephant tusks, Goat's head, Proboscis flower, Ram's horn, Unicorn plant.

Confused with: Yellow-flowered devil's claw (Ibicella lutea).

The species can be distinguished by:

Flowers – purple-flowered devil's claw has pale/lilac flowers often spotted with yellow or purple inside which as borne on short stalks. Yellow-flowered devil's claw has golden/yellow flowers with darker orange streaks inside the flowers which are clustered at the end of the stems.

Description:

Seedling Leaves – the seedling leaves are paddle shaped, 15 mm long and 11 mm wide on 17 mm long stalk. The seedlings are distinctly hairy, covered in fine, short glandular hairs that give the plant a sticky feel.

Early Leaves – the first true leaves are more oval in shape, 50 mm long and 34 mm wide, on stems 29 mm long, with obvious, indented, white veins.

Leaves – leaves are opposite, roundish, with an indented base, 5 – 20 cm in diameter, with indented, paler veins, borne on stalks up to 20 cm long.

Plants – are pumpkin-like, around 30 m high and can be up to 1 m in diameter. Adult plants are distinctly hairy, covered in fine, short glandular hairs that give the plant a sticky feel. The lower surfaces of the leaves are more densely haired than the upper surfaces. The plant parts exude a distinctive, but not unpleasant odour when crushed.

Flowers – are trumpet shaped, 20 – 60 mm long and 15 – 30 mm wide, with 5 lobes, all but the bottom lobe folding back. Flowers are borne singularly on the stems on short stems around 30 mm long. The flowers are whitish in colour, dotted with pale-lilac spots, and a bright yellow stripping in the throat of the lower lobe. The flowers are hairy on the outside and the inside of the two upper lobes.

Seed pods – are 15 – 35 cm long, 1 – 2 cm wide, bulbous at the base and tapering into a long, incurved beak. They are initially green but become brown at maturity when the outer skin of the pod peels off to expose the woody inner pod. The beak splits into two claws, exposing the seeds.

Seeds – are black, wrinkled and ruggedly triangular in shape, 6 – 12 mm in length.

Lifecycle / Biology: An annual species that germinates and grows in the warmer months, flowering in summer and autumn.

Ecology: Occurs in pastures and cultivation. Well adapted to the lighter clays.

The Problem: A minor weed of irrigated cropping, but can form a large plant that will compete with cotton and can cause difficulties for cultivation and harvesting equipment. Pods readily tangle in cotton lint and can cause blockages.

Distribution: Occurs through much of southern Australia, excluding Victoria and is a declared noxious weed in Victoria and some shires of NSW.

Origin: A native of North America.

Reference:

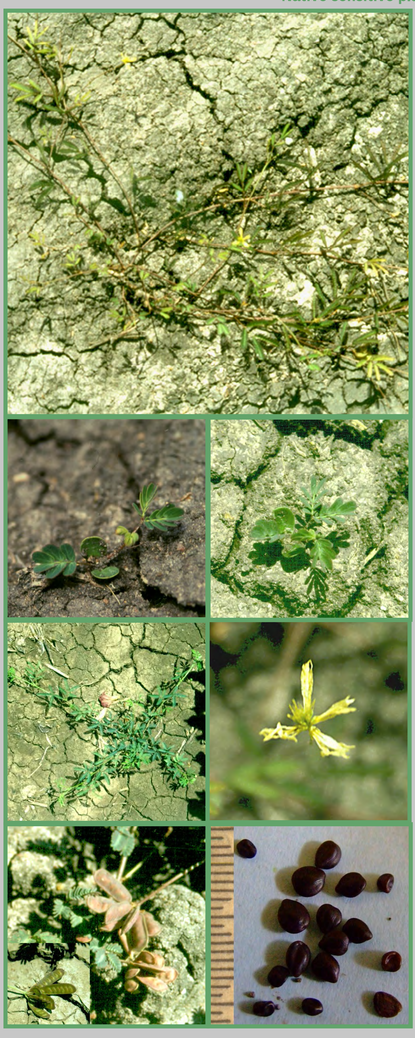
Plants of Western New South Wales, p. 604

WEEDS of the South-East, p. 334.

Compiler: Graham Charles

Neptunia gracilis Benth.

Native sensitive plant



Family: Mimosaceae (Wattle family).

Common names: Native sensitive plant, Selenium weed, Sensitive plant.

Confused with:

Description:

Seedlings – the cotyledon leaves are circular to oval 5 – 7 mm long by 4 – 6 mm wide, with an indented base. Three lighter coloured veins run the length of the cotyledons, 1 in the centre and 2 parallel towards the margins of the leaves. The first true leaf is comprised of 6 oblong leaflets, 2 pairs opposite on the leaf stem and 2 leaflets at the apex. The leaflets are 3 – 6 mm long and 2 mm wide. The stems and the leaf margins have a reddish tinge.

Leaves – later leaves consist of 2 to 6 pairs of groups of leaflets, with 6 - 22 leaflets in each group. Leaflets are 4 – 11 mm long by 1 – 3 mm wide and are sensitive to the touch; the leaflets fold in to the centre in response to touch. They are borne on stems 8 – 30 mm long.

Plant – a semi-prostrate, perennial plant that can grow to 2 m in diameter with numerous branched stems, and can develop into a small shrub.

Flowers – are in clusters of 15 – 35 yellow flowers 2 – 3 cm in diameter, borne on stalks 3 – 14 cm long that arise from the leaf axils, each flower 2 – 3 mm long.

Seeds – seed pods develop in from the clusters of flowers. Pods are flat 15 – 30 mm long and 5 – 8 mm wide, reddish, and becoming browner at maturity. Pods split to release 3 – 8 roughly circular, flattened seeds 2 – 5 mm in length. Seeds are dark brown and glossy, with a peak at the end.

Lifecycle / Biology: Seedlings emerge in spring and flower in summer and autumn. Plants may die off in late autumn but can re-shoot in spring.

Ecology: Scattered plants grow on the heavy brown and grey clays of the floodplains and on the coast.

The Problem: Native sensitive plant is a minor weed in cotton. Plants emerge through spring and are difficult to control with the commonly used herbicides.

Distribution: Occurs though New South Wales and Queensland.

Origin: A native weed.

Reference:

Crop weeds of Northern Australia, p. 82 - 83.

Plants of Western New South Wales, p. 375 - 376.

Compiler: Graham Charles

Boerhavia dominii Meikle & Hewson

Tarvine

Family: Nyctaginaceae (Tarvine family).

Common names: Tarvine, Common spiderling, Hogweed, Giotcho, Murra, Tah-vine.

Confused with:

Description:

This species can be quite variable in leaf structure and flower colour.

Seedlings – the cotyledon leaves are nearly circular, 3 – 4 mm in diameter. Early true leaves are broadly diamond in shape, though flattened and rounded to 10 mm long and 6 mm wide. Leaves occur in pairs, one smaller than the other.

Leaves – become darker and glossy as the plant matures. The underside of the leaves is paler. Older leaves are heavily veined and the stems may be reddish in colour. Leaves are 1 – 4 cm in length and 5 – 25 mm wide, growing from stalks 3 – 35 mm long.

Plants – an annual or perennial, prostrate spreading plant that can grow to 2 m in diameter or more. The plant has a stout taproot from which it can regenerate, allowing it to perenniate.

Flowers – are produced on long, slender stalks that emerge from the leaf axils. Flowers can be white, pink or purplish in colour, 5 mm in length, arrange singularly or in clusters of up to 4 flowers.

Seeds – are 3 - 4 mm in length, brown, and have 5 prominent darker brown ribs. They are sticky, and readily attaching to hair and clothing.

Lifecycle / Biology: A summer growing, annual or perennial plant that flowers in summer and autumn. The plant will die off in winter and then regenerate from the taproot or seed.

Ecology: Adapted to a range of soil types, but more common in summer rainfall areas.

The Problem: A summer growing weed of cropping and pastures. Tarvine is quite hardy, but can grow rapidly following summer rain. The plants open architecture allows it to grow amongst other plants and exploit any open areas.

Distribution: Found throughout Australia. It is common on throughout the cotton area.

Origin: An Australian native plant.

Reference:

Crop weeds of Northern Australia, p. 92.

Plants of Western New South Wales, p. 289 - 290.

Compiler: Graham Charles

Ludwigia octovalvis (Jacq.) P.H. Raven

Willow primrose

Family: Onagraceae (Evening primrose family).

Common names: Willow primrose.

Confused with: There are 38 species of Onagraceae in Australia, many of which have similar appearance. Willow primrose can be separated from the other species by a number of characteristics, including:

- The leaves do not have a wavy or serrated edge,
- The sepals (green leaf-like structures on the end of the pods) remain on the end of the pods after the flower opens, and
- The seed pod is cylindrical in shap. At maturity, the seeds readily fall from the fractured pods.

Description:

Seedling Leaves – the seedlings are very small, with glossy, light green leaves. The cotyledon leaves are initially circular, but become more oval with time, 3 - 7 mm long and 1.5 – 5 mm across. The 1st true leaves are egg-shaped, 5 – 10 mm long and 3 – 7 mm wide, the 2nd leaves much larger, 15 - 20 mm long and 6 - 8 mm wide. The leaves are initially arranged opposite, each other, but alternate further up the stems. Plants have multiple stems, with the first lateral branches developing by the time the 4th true leaf is fully expanded.

Leaves – are long and narrow with an indented main vein, 1 – 15 cm long and 1 - 4 cm wide, both leaf surfaces covered in pale hairs.

Plants – a branching perennial weed to 4 m high, but often much shorter in the sub-tropical areas.

Flowers – are yellow with 4 petals 10 – 20 mm long and nearly as wide, borne on the top of tube-like pods 20 – 45 mm long and 2 – 8 mm diameter. The petals flatten out when open to form flower 25 – 50 mm across. Directly beneath the petals are 4 leaf-like sepals, 5 – 7 mm long and 4 – 5 mm across that remain at the ends of the pods for some time after fertilization in a claw-like arrangement.

Pods – are initially green, becoming brown at maturity, with 8 linear ribs. The pods split along the ribs at maturity, releasing numerous seeds.

Seeds – are brown and roughly spherical, 0.6 – 0.8 mm long with an indent down the centre.

Lifecycle / Biology: A perennial weed that may act as an annual in cooler areas, germinating in spring and early summer, flowering over summer and autumn.

Ecology: Willow primrose is a weed of wetter areas, most abundant in the tropics. In the cooler areas it generally occurs in wetter areas such as table drains on road sides, flood ways and around irrigation structures.

The Problem: Willow primrose is not a problematic weed in the sub-tropics and cooler areas but can be problematic in the tropics where its woody growth habit, large size and large seed production make it difficult to manage, especially in drains and around structures.

Distribution: A common weed throughout much of tropical Australia, occurring down into NSW. Generally occurs in wetter areas such as table drains on road sides, flood ways and around irrigation structures.

Origin: A cosmopolitan weed, present throughout much of the tropics.

Reference:

Compiler: Graham Charles

Argemone mexicana L.

Tropical mexican poppy

Family: Papaveraceae (Poppy family).

Common names: Mexican poppy.

Confused with: Mexican poppy (A. ochroleuca ssp. ochroleuca) and American poppy (A. subfusiformis subsp. subfusiformis). These species can be distinguished by:

- American poppy is not a common weed of cultivation. Mexican poppy (A. mexicana) occurs in central and northern Queensland and the Northern Territory, whereas Mexican poppy (A. ochroleuca is a very common weed in New South Wales and southern Queensland.
- **Flowers –** Mexican poppy's flowers are bright yellow in colour (A. mexicana). The flowers of Mexican poppy (A. ochroleuca) are cream to pale yellow, and the flowers of American poppy are butter yellow.

Description:

Seedling Leaves – are narrow and spear-shaped, curved, 26 mm long and 2 mm wide, pale green in colour and without stalks.

Early Leaves – the first true leaf has 2 - 3 triangular pointed lobes at the leaf tip with a tapering base, while the second true leaf has many lobes. Early leaves are lobed, prickly and form a rosette (ring or cluster of leaves). They are pale green and have white veins.

Adult Leaves – have 6 – 10 lobes each ending in a prickle, are generally stem-clasping on the upper stem, white-greeny/turquoise or blotched with white veins, 60 - 200 mm long and 30 -100 mm wide.

Mature Plants – are erect, 30 – 100 cm tall, arising from a branching taproot. Plants are blue-green and have prickly leaves and stems. The stem exudes yellow sap when broken.

Flowers – the buds are oblong to spherical, 10 – 15 mm long and 9 – 13 mm wide and the poppy-like flower petals are creamy to bright yellow, 25 - 30 mm long and 14 – 40 mm wide. Flowers are borne singly, generally without stalks at the ends of branches, with 4 - 6 petals, and are 40 - 70 mm wide. The petals are readily shed.

Seed heads – are 25 – 45 mm long and 12 - 20 mm wide, covered in spines and full of small round dark brown to black speckled seeds to 1.8 mm in diameter. Seeds are shed through small holes at the top of the seed head before the seed head splits opens.

Lifecycle / Biology: An annual plant with germination at any time of the year provided there is soil moisture. Plants rosette during winter and produce flowering stems during spring and summer. Seed production can vary between 4,000 and 30,000 seeds/plant. Most seeds fall close to the parent plant, move in surface water flows, in mud, on machinery and as grain impurities. Seed dormancy prevents the germination of newly shed seed until several weeks to months later.

Ecology: A common weed of the more tropical areas. Found on disturbed areas and alluvial areas beside water courses where it may form dense stands. Occurs on a wide range of soil types including heavy clays and is common on sandy/loamy soils. The weed appears to favour low fertility areas and is a common weed in degraded pasture.

The Problem: A widespread and common weed of crops, recently cultivated land, roadsides and wasteland. Although not particularly aggressive it is a minor weed of cotton crops. It is difficult to eradicate as it tolerate most herbicides and because of the large number of seeds it produces.

Distribution: Found in much of Queensland and the wetter areas of the Northern Territory.

Origin: A native of America.

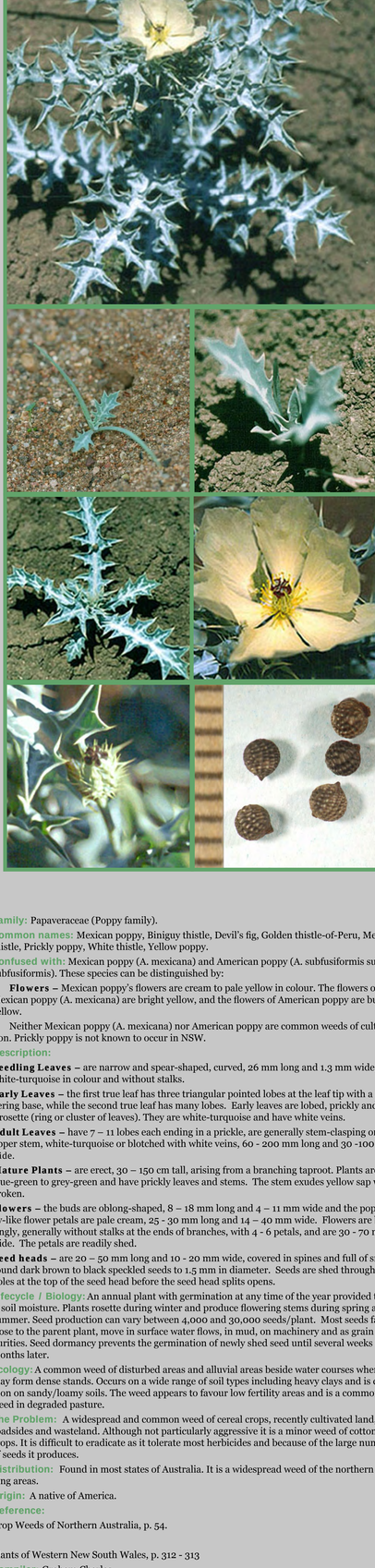
Reference:

Crop Weeds of Northern Australia, p. 54.

Compiler: Graham Charles

Argemone ochroleuca Sweet ssp. Ochroleuca

Mexican poppy ochroleuca



Family: Papaveraceae (Poppy family).

Common names: Mexican poppy, Biniguy thistle, Devil's fig, Golden thistle-of-Peru, Mexican thistle, Prickly poppy, White thistle, Yellow poppy.

Confused with: Mexican poppy (A. mexicana) and American poppy (A. subfusiformis subsp. subfusiformis). These species can be distinguished by:

- **Flowers –** Mexican poppy's flowers are cream to pale yellow in colour. The flowers of Mexican poppy (A. mexicana) are bright yellow, and the flowers of American poppy are butter yellow.
- Neither Mexican poppy (A. mexicana) nor American poppy are common weeds of cultivation. Prickly poppy is not known to occur in NSW.

Description:

Seedling Leaves – are narrow and spear-shaped, curved, 26 mm long and 1.3 mm wide, white-turquoise in colour and without stalks.

Early Leaves – the first true leaf has three triangular pointed lobes at the leaf tip with a tapering base, while the second true leaf has many lobes. Early leaves are lobed, prickly and form a rosette (ring or cluster of leaves). They are white-turquoise and have white veins.

Adult Leaves – have 7 – 11 lobes each ending in a prickle, are generally stem-clasping on the upper stem, white-turquoise or blotched with white veins, 60 - 200 mm long and 30 -100 mm wide.

Mature Plants – are erect, 30 – 150 cm tall, arising from a branching taproot. Plants are blue-green to grey-green and have prickly leaves and stems. The stem exudes yellow sap when broken.

Flowers – the buds are oblong-shaped, 8 – 18 mm long and 4 – 11 mm wide and the poppy-like flower petals are pale cream, 25 - 30 mm long and 14 – 40 mm wide. Flowers are borne singly, generally without stalks at the ends of branches, with 4 - 6 petals, and are 30 - 70 mm wide. The petals are readily shed.

Seed heads – are 20 – 50 mm long and 10 - 20 mm wide, covered in spines and full of small round dark brown to black speckled seeds to 1.5 mm in diameter. Seeds are shed through small holes at the top of the seed head before the seed head splits opens.

Lifecycle / Biology: An annual plant with germination at any time of the year provided there is soil moisture. Plants rosette during winter and produce flowering stems during spring and summer. Seed production can vary between 4,000 and 30,000 seeds/plant. Most seeds fall close to the parent plant, move in surface water flows, in mud, on machinery and as grain impurities. Seed dormancy prevents the germination of newly shed seed until several weeks to months later.

Ecology: A common weed of disturbed areas and alluvial areas beside water courses where it may form dense stands. Occurs on a wide range of soil types including heavy clays and is common on sandy/loamy soils. The weed appears to favour low fertility areas and is a common weed in degraded pasture.

The Problem: A widespread and common weed of cereal crops, recently cultivated land, roadsides and wasteland. Although not particularly aggressive it is a minor weed of cotton crops. It is difficult to eradicate as it tolerate most herbicides and because of the large number of seeds it produces.

Distribution: Found in most states of Australia. It is a widespread weed of the northern cropping areas.

Origin: A native of America.

Reference:

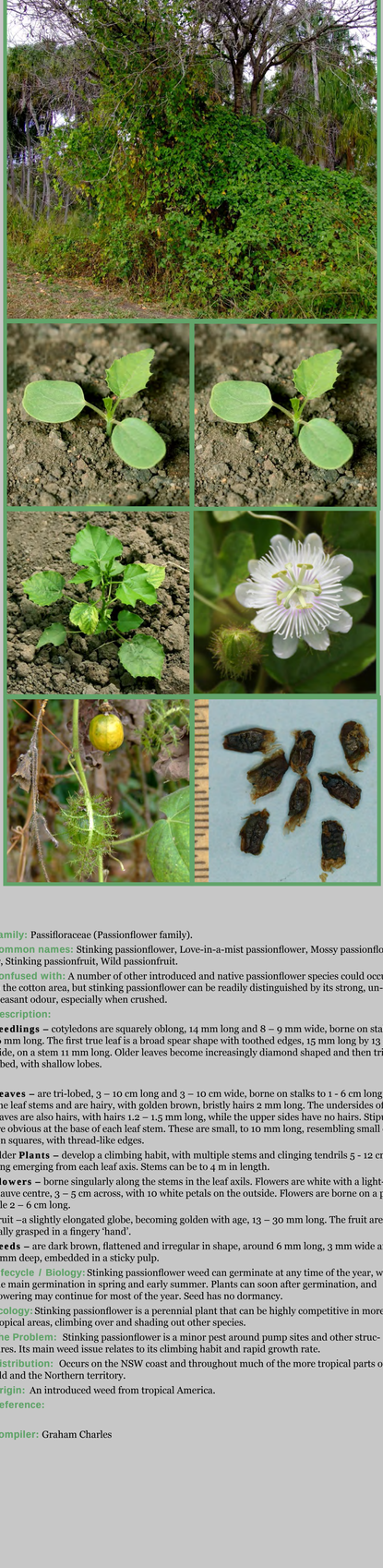
Crop Weeds of Northern Australia, p. 54.

Plants of Western New South Wales, p. 312 - 313

Compiler: Graham Charles

Passiflora foetida L.

Stinking passionflower



Family: Passifloraceae (Passionflower family).

Common names: Stinking passionflower, Love-in-a-mist passionflower, Mossy passionflower, Stinking passionfruit, Wild passionfruit.

Confused with: A number of other introduced and native passionflower species could occur in the cotton area, but stinking passionflower can be readily distinguished by its strong, unpleasant odour, especially when crushed.

Description:

Seedlings – cotyledons are squarely oblong, 14 mm long and 8 – 9 mm wide, borne on stalks 16 mm long. The first true leaf is a broad spear shape with toothed edges, 15 mm long by 13 mm wide, on a stem 11 mm long. Older leaves become increasingly diamond shaped and then trilobed, with shallow lobes.

Leaves – are tri-lobed, 3 – 10 cm long and 3 – 10 cm wide, borne on stalks to 1 - 6 cm long. The leaf stems and are hairy, with golden brown, bristly hairs 2 mm long. The undersides of the leaves are also hairs, with hairs 1.2 – 1.5 mm long, while the upper sides have no hairs. Stipules are obvious at the base of each leaf stem. These are small, to 10 mm long, resembling small cotton squares, with thread-like edges.

Older **Plants –** develop a climbing habit, with multiple stems and clinging tendrils 5 - 12 cm long emerging from each leaf axis. Stems can be to 4 m in length.

Flowers – borne singularly along the stems in the leaf axils. Flowers are white with a light-mauve centre, 3 – 5 cm across, with 10 white petals on the outside. Flowers are borne on a petiole 2 – 6 cm long.

Fruit –a slightly elongated globe, becoming golden with age, 13 – 30 mm long. The fruit are initially grasped in a fingery 'hand'.

Seeds – are dark brown, flattened and irregular in shape, around 6 mm long, 3 mm wide and 2 mm deep, embedded in a sticky pulp.

Lifecycle / Biology: Stinking passionflower weed can germinate at any time of the year, with the main germination in spring and early summer. Plants can soon after germination, and flowering may continue for most of the year. Seed has no dormancy.

Ecology: Stinking passionflower is a perennial plant that can be highly competitive in more tropical areas, climbing over and shading out other species.

The Problem: Stinking passionflower is a minor pest around pump sites and other structures. Its main weed issue relates to its climbing habit and rapid growth rate.

Distribution: Occurs on the NSW coast and throughout much of the more tropical parts of Qld and the Northern territory.

Origin: An introduced weed from tropical America.

Reference:

Compiler: Graham Charles

Aristida personata Henrard

Purple wire-grass

Family: Poaceae (Grass family).

Common names: Purple wire-grass.

Confused with: There are 54 species in the wiregrass family in Australia, many of which may occur in the area growing cotton and some species are not readily separated. Purple wire-grass could easily be confused with some of the other wiregrass species.

Description:

Seedlings – a relatively weak grass seedling, the 1st leaf 40 – 60 mm long and 1 mm wide and often curved. The leaf has a rounded tip and emerges from a reddish sheath. Successive leaves are longer.

Leaves – are narrow 8 - 16 cm long and 2 - 3 mm wide, terminating in a point.

Plants – a tussocky perennial grass 0.6 – 1.2 m tall, with multiple, branched, wiry thin stems 1 – 1.5 mm thick.

Seed heads – are 8 – 30 cm long. The heads are initially open, 6 – 12 cm wide, but close up as they mature to 3 – 4 cm wide.

Seeds – are long and thin, 8 – 12 mm long and 0.4 – 0.5 mm wide, with a ring of short hairs at the base. Seeds are pale, with mottled purple colouring and 3 thin awns at the top, the main awn 17 – 25 mm long and the lateral awns 14 – 22 mm long.

Lifecycle / Biology: A perennial native grass that is frost and drought tolerant. Seedlings emerge following rain and grow throughout the year, especially following summer rains. Plants flower following rain at any time of the year.

Ecology: Common in brigalow, eucalyptus and casuarina grasslands, on soils ranging from clays through to sandy loams. A common native pasture species that can tolerate moderate to heavy levels of grazing.

The Problem: Purple wire-grass is not problematic in the cotton system, and is a common, though not highly desirable native pasture species. The leaves only remains green for a short time following rain and the seeds of purple wire-grass are problematic in pastures grazed by sheep, contaminating wool and causing injury.

Distribution: Widely found throughout eastern Australia, most commonly in southern and central Qld.

Origin: A grass native to the cotton area.

Reference:

Plants of Western New South Wales, p. 60.

Compiler: Graham Charles

Austrodanthonia caespitosa (Gaud-ich.) H.P. Linder

Ringed wallaby grass

Family:

Common names: Ringed wallaby grass, Common wallaby grass, Wallaby grass, Whitetop.

Confused with: There are 26 species in the wallaby grass family, 19 of which occur in NSW. Of these, 14 occur on the slopes or plains and are not readily separated. Ringed wallaby grass could easily be confused with some of the other wallaby grass species.

Description:

Seedlings – a tufted grass seedling, the first leaf 8 – 10 mm long and 1 mm wide and often curved. Successive leaves are longer, the 3rd leaf 60 – 70 mm long and 2 – 3 mm wide and tillering commences by the time the 3rd or 4th leaf has expanded.

Leaves – are narrow and may be folded, tapering to a sharp point, 20 - 40 cm long and 2 - 4 mm wide; the leaves may fold when stressed. The stems are 2 – 3 mm wide, with a tuft of pale hairs 5 – 8 mm long at the leaf junctions.

Plants – a tussocky erect perennial grass, 1 – 1.2 m tall.

Seed heads – are multi-branched, 15 – 20 cm long. The heads are initially open, 6 – 12 cm wide, but close up as they mature to 3 – 4 cm wide.

Seeds – are pale, with 3 rings of hairs, a basal ring of hairs 1 – 1.5 mm long, a 2nd ring 1.5 – 2 mm long and 3rd ring 4 - 5 mm long. The body of the seed is 3 – 6 mm long, terminating in 2 bristles 4 – 5 mm long, and with an awn 2 – 10 mm long.

Lifecycle / Biology:

Ecology:

The Problem:

Distribution:

Origin:

Reference:

Compiler:

Austrostipa verticillata (Nees ex Spreng.) S.W.L. Jacobs & J. Everett

Slender bamboo grass

Family: Poaceae (Grass family).

Common names: Slender bamboo grass, Bamboo grass, Bamboo speargrass.

Confused with:

Description:

Seedlings – a slender grass seedling, the first leaf 15 – 20 mm long and 0.6 mm wide and often curved. Successive leaves are longer, and tillering commences by the time the 3rd or 4th leaf has expanded.

Leaves – are flat and taper to a fine point, 9 - 40 cm long and 1 - 5 mm wide.

Plants – a robust, erect tufted perennial grass, 1 - 2 m tall. Can be rhizomatous and stems may branch from the lower nodes.

Seed heads – are compound, multi-branched, weeping head 15 – 60 cm long. The seeds are borne on fine stems that vary from 3 – 25 mm in length.

Seeds – are initially light brown but darken at maturity. They are 2.5 – 4 mm long and 0.7 mm wide, and enclosed by a dark brown lemma that is slightly shorter than the seed, covered with short white hairs and has a long terminal awn, 20 - 50 mm long with a bend about ¼ the way along the length.

Lifecycle / Biology: A perennial native grass that is frost and drought tolerant. Seedlings emerge following rain and plants flower over the summer months.

Ecology: Common in damp areas including stream banks, gullies and waterways, generally on lighter soils. Slender bamboo grass is a drought-tolerant native but the population will decline under heavy grazing pressure.

The Problem: Slender bamboo grass is not problematic in the cotton system. Once mature, it has little grazing value due to its tough stems, but is a desirable native species in riparian areas.

Distribution: Found throughout NSW and up into Central Qld.

Origin: A grass native to the cotton area.

Reference:

Plants of Western New South Wales, p. 147.

Compiler: Graham Charles

Avena fatua L.

Wild oats

Family: Poaceae (Grass family).

Common names: Wild oat, Black oat, Spring oat.

Confused with: There are 3 species of wild oats as well as cultivated oats, that are not distinguishable in the vegetative stages. The wild oat species can be separated by their seed.

- The seeds of ludo wild oats (A. ludoviciana) remain as a pair at maturity, falling from the seedhead as a pair,
- The seed pair of wild oats and bearded oats (A. barbata) readily separate at maturity, falling as individual seeds.\
- The leaves of wild oats are 5 – 15 mm wide compared to 3 – 8 mm for bearded oats, and
- The wild oats seed terminates in 2 short teeth < 2 mm long, compared to bearded oats that terminates in 2 bristles 3 – 12 mm long.

Description:

Seedlings – a robust grass seedling, the first leaf 80 – 90 mm long and 4 mm wide and twisted anti-clockwise. Successive leaves are longer, the 2nd leaf around 150 mm long.

Leaves – are flat to 45 cm long and 5 - 15 mm wide, relatively uniform in width and gradually tapering to a point. The ligule at the leaf junction is membranous, 3 – 8 mm long, with a scattering of fine hairs 1 – 2 mm long at the leaf junction and the base of the leaf.

Plants – a robust, erect annual grass, 1 – 1.6 m high at maturity. The seedling leaves are erect, but the early growth can be prostrate. Plants typically hay-off and die as the seeds are maturing.

Seed heads – emerge from each stem to 40 cm long, each with multiple seedheads, and each head containing 2 or occasionally 3 seeds.

Seeds – are robust, light to dark brown, and covered in bristly hair on the lower half of the seed. The upper half narrows to a fine point. Seeds are 15 – 25 mm long and 1.5 – 3 mm wide, with a stiff awn 18 – 44 mm long. The awn is dark brown and bent near the middle, with the upper portion much lighter in colour, The seeds separate at maturity, falling to the ground as individuals.

Lifecycle / Biology: Wild oats are common weeds of cereal cropping, with seedlings often emerging with the crop in autumn and early winter and flowering slightly earlier than the crop, such that much of the seed can be shed before the crop is harvested.

Ecology: Wild oats are well adapted to the soils of the cropping zone. Low numbers may be found in most farming and grazing situations, with numbers potentially building rapidly under a winter cropping regime. The population will decline under summer cropping or grazing pressure.

The Problem: Wild oats plants compete strongly with cereal crops and seed can be a problematic contaminant at harvest. Only a limited range of herbicides are available for managing wild oats and resistance to these herbicides can appear after only a few applications.

Distribution: Found throughout the cropping areas of Australia

Origin: Introduced, a native of Europe and western Asia.

Reference:

Crop Weeds of Northern Australia, p. 5

Plants of Western New South Wales, p. 62 - 63.

WEEDS of the South-East, p. 51.

Compiler: Graham Charles

Avena ludoviciana Durieu

Ludo wild oats

Family: Poaceae (Grass family).

Common names: Ludo wild oat, Animated oat, Sterile oat, Wild oat.

Confused with: There are 3 species of wild oats as well as cultivated oats, that are not distinguishable in the vegetative stages. The wild oat species can be separated by their seed.

- The seeds of ludo wild oats remain as a pair at maturity, falling from the seedhead as a pair, and
- The seed pair of wild oats (A. fatua) and bearded oats (A. barbata) readily separate at maturity, falling as individual seeds.

Description:

Seedlings – a robust grass seedling, the first leaf 60 – 70 mm long and 4 mm wide and twisted anti-clockwise. Successive leaves are longer, the 2nd leaf around 90 mm long, and the 3rd around 120 mm and 5 mm wide.

Leaves – are flat to 45 cm long and 18 mm wide, relatively uniform in width and gradually tapering to a fine point. The leaf sheaths have a scattering of fine hairs, to 1 mm long and there may also be a line of fine hairs, 1 mm long, sticking out from the leaf margins. The ligule at the leaf junction is membranous, 0.5 – 8 mm long.

Plants – a robust, erect annual grass, 100 - 150 cm high at maturity. The seedling leaves are erect, but the early growth can be prostrate. Plants typically hay-off and die as the seeds are maturing.

Seed heads – emerge from each stem, each with multiple seedheads, and each head containing 2 or occasionally 3 seeds.

Seeds – are robust, dark brown, and covered in dark, bristly hair on the lower half of the seed. The upper half narrows to a fine point. Seeds are 20 – 30 mm long and 2 – 3 mm wide, with a stiff awn 20 – 75 mm long. The awn is dark brown and twisted for the bottom third, followed by a sharp bend, with the upper portion much lighter in colour and not twisted.

The seeds remain as a pair at maturity, falling to the ground as a pair.

Lifecycle / Biology: Wild oats are common weeds of cereal cropping, with seedlings often emerging with the crop in autumn and early winter and flowering slightly earlier than the crop, such that much of the seed can be shed before the crop is harvested.

Ecology: Wild oats are well adapted to the soils of the cropping zone. Low numbers may be found in most farming and grazing situations, with numbers potentially building rapidly under a winter cropping regime. The population will decline under summer cropping or grazing pressure.

The Problem: Wild oats plants compete strongly with cereal crops and seed can be a problematic contaminant at harvest. Only a limited range of herbicides are available for managing wild oats and resistance to these herbicides can appear after only a few applications.

Distribution: Found throughout the cropping areas of Australia.

Origin: Introduced, a native of southern Europe.

Reference:

Crop Weeds of Northern Australia, p. 5

Plants of Western New South Wales, p. 62 - 63.

Compiler: Graham Charles

Avena sativa L.

Oats

Family: Poaceae (Grass family).

Common names: Oats, Common oat, Cultivated oat.

Confused with: There are 3 species of wild oats as well as cultivated oats, that are not distinguishable in the vegetative stages, and a range of cultivated oats varieties that vary in their growth habits.

The following description is for the oats variety Taipan with allowances made for some of the variations in other varieties.

Description:

Seedlings – a robust grass seedling, the first leaf 60 – 80 mm long and 4 - 5 mm wide and often twisted. Successive leaves are longer, the 2nd leaf growing to 17 cm long, and the 3rd growing to around 30 cm and 7 - 8 mm wide.

Leaves – are flat to 45 cm long and 3 - 20 mm wide, relatively uniform in width and gradually tapering to a fine point. The leaves and sheaths are hairless. The ligule at the leaf junction is membranous and robust, to 3 - 8 mm long.

Plants – a robust, erect tufted annual grass with hollow stems, 50 - 150 cm high at maturity (grain varieties tend to be shorter, while grazing and hay varieties are taller). The first seedling leaves are erect, but the early growth can be prostrate. Plants typically hay-off and die as the seeds are maturing.

Seed heads – 15 – 30 cm long emerge from each stem, each with multiple seedheads, and each head containing 2 or occasionally 3 seeds.

Seeds – are robust, golden brown and hairless. The upper half narrows to a fine point. Seeds are 10 – 45 mm long and 1.5 – 3 mm wide, in some varieties with a stiff awn 15 – 45 mm long emerging from the back of the bottom seed. The base of the awn is dark brown and lightly twisted, the upper portion much lighter in colour and not twisted. There may be a distinct bend between the two parts of the awn. The seeds may separate or remain as a pair at maturity, falling to the ground as a pair.

Lifecycle / Biology: Oats is a commonly grown crop in much of the cereal cropping and grazing areas, with a range of varieties selected for seed quality, hay production or grazing and some dual purpose varieties. Oats is planted in autumn and early winter, flowering in late spring or early summer, depending on conditions.

Ecology: Oats are well adapted to the soils of the cropping and higher-rainfall grazing zone, but are susceptible to a range of diseases.

The Problem: Volunteer oats may occur as a problem in a following winter crop but will only be a short term problem in cotton, not tolerating the high summer temperatures. Cultivated oats has little or no hard seed and will not persist from seed over years.

Distribution: Found throughout the cropping and higher rainfall grazing areas of Australia. Naturilised populations may occur along roadsides and in other areas.

Origin: Introduced, a native of Europe and Asia.

Reference:

Plants of Western New South Wales, p. 62 – 63

WEEDS of the South-East, p. 52.

Compiler: Graham Charles

Bromus catharticus Vahl.

Prairie grass

Family: Poaceae (Grass family).

Common names: Prairie grass, Annual prairie grass, Brome grass, Rescue grass.

Confused with: Seedlings are indistinguishable from black oats

Description:

Seedlings – are initially erect with a hairy base and have hairs on the lower part of the leaves. Leaves 3 - 4 mm wide and 6 - 8 cm long.

Leaves – are flat to 30 cm long and 8 mm wide, with short hairs on the upper surface, tapering gradually to a point from about the middle of the leaf. Leaves have a rounded, papery ligule 4 – 5 mm long. Leaf margins are rough to the touch.

Plants – a densely tufted annual or perennial plant with erect or spreading stems 40 - 100 cm high. The stems are stout, unbranched and smooth with pigmented hairless nodes.

Seed heads – are a large open pyramid shape, 10 – 30 cm long which will often droop under its own weight. The spikelets are large 15 – 35 mm long, pale green and flattened with 6 – 12 flowers on each spikelet. Seeds are covered by lemma and palea 14 -18 and 8 - 12 mm long with a short awn arising from slightly below the lemma tip.

Lifecycle / Biology: Prairie grass generally grows in the cooler months and sets seed in spring, but it can be a biannual or perennial in favourable conditions.

Ecology: Low numbers may be found in most farming and grazing situations under favourable conditions. Most common in lightly grazed, moist and shady areas.

The Problem: Prairie grass is a valuable pasture grass and a minor weed of cropping.

Distribution: Found throughout Australia

Origin: Introduced, a native of South America, Asia and Africa. Commercial pasture varieties of prairie grass are available and are suited to the tablelands.

Reference:

Crop Weeds of Northern Australia, p. 7

Plants of Western New South Wales, p. 71

WEEDS of the South-East, p. 52.

Compiler: Graham Charles

Cenchrus incertus M.A. Curtis

Spiny burrgrass

Family: Poaceae (Grass family).

Common names: Spiny burrgrass, American burrgrass, Bayonet burr, Bayonet grass, Bohena beauty, Burr grass, Coast sandburr, Dune sandburr, Gentle Annie, Hedgehog grass, Innocent weed, Lesser burrgrass, Mexican burr, Sandburr, Spiny burr grass, Spring burrgrass, Spring burr grass.

Confused with: Spiny burrgrass (C. longispinus). The two species are very similar, but the plant and the burr of C. longispinus are slightly larger and the burr has more spines (40 – 70, compared to 8 – 40 for C. incertus).

Description:

Seedlings – the 1st leaf is 20 – 30 mm long and 3 – 4 mm wide with a rounded tip and emerges from the leaf sheaf above the soil, with around 10 mm of sheaf exposed. The tip of the 2nd leaf is more wedge-shaped and later leaves taper to a point. Tillering commences by the time the 3rd or 4th leaf has expanded.

Adult Leaves – are 2 - 18 cm long and 2 – 6 mm wide, tapering to a point and can be flat or folded. Leaves may have a number of hairs to 4 mm long at the leaf node.

Mature Plants – a short, much tillered annual or sometimes biennial grass 5 – 80 cm in height, but mostly 20 – 30 cm in height. The stems are flattened and prostrate to erect, depending on the competition for light.

Seed heads – are a cluster of burrs at the top of the stems, 1.5 – 8.5 cm long and 1 – 2 cm wide.

Burrs – surround the seeds, with 8 – 40 spines of various lengths, 1 – 5 mm long. The burrs are 4.5 – 10 mm long and oval to spherical in shape, initially yellowy-green in colour, but becoming light brown at maturity. Each burr contains 1 – 4 seeds 1 – 3 mm long.

Lifecycle / Biology: An annual or occasionally biennial grass that emerges following rain in spring and summer, and begins to set seed soon after emergence. It can grow prolifically following summer rains, but is not frost tolerant.

Ecology: A weed of sandy and lighter soils and over-grazing, not commonly found on the heavy clay soils. It grows prolifically following heavy spring and summer rains, quickly setting seed. It is readily spread by stock and on tyres, and once established, is difficult to remove.

The Problem: Spiny burrgrass is a nuisance but minor pest in cultivation and cotton and not commonly found on the heavy clay soils. It is more problematic on lighter soils and in pastures, where the vegetative plant is good feed, but the seeds contaminate wool and cause mouth issues.

Distribution: Widely found throughout the central and southern cotton area.

Origin: Introduced from America.

Reference:

Plants of Western New South Wales, p. 72

WEEDS of the South-East, p. 54.

Compiler: Graham Charles

Chloris gayana Kunth

Rhodes grass

Family: Poaceae (Grass family).

Common names: Rhodes grass, Abyssinian Rhodes grass, Callide Rhodes grass, Common Rhodes grass.

Confused with: Feathertop Rhodes grass (C. ventricosa)

Description:

Seedlings – leaves are up to 14 cm long and 3 mm wide and hang away from the main stem.

Adult Leaves – are up to 50 cm long and 5 – 10 mm wide, folded towards the base and tapering to a fine point. Leaves have a few long hairs on their upper surface, predominantly towards the base.

Mature Plants – a tufted, stoloniferous grass to 1.2 m in height. It spreads from both stolons and seed.

Seed heads – consist of 6 to 18 spikes positioned at the top of the stems. Spikes are 5 – 10 cm long and arranged in a spreading to erect hand. Both lemma and palea are awned, with awns up to 6 and 3 mm in length. Seed (enclosed in lemma and palea) is light brown in colour, 3.6 mm in length.

Lifecycle / Biology: Rhodes grass is a tropical grass, growing over the frost-free months and flowering in summer and autumn. It can grow prolifically following summer rains.

Ecology:

The Problem: Rhodes grass can be prolific along roadways and is a minor pest in cultivation, spreading from seed.

Distribution: Widely found throughout Australia and very common through Queensland, especially on road sides.

Origin: Introduced from Africa. Widely planted as a pasture species and to stabilise roadsides.

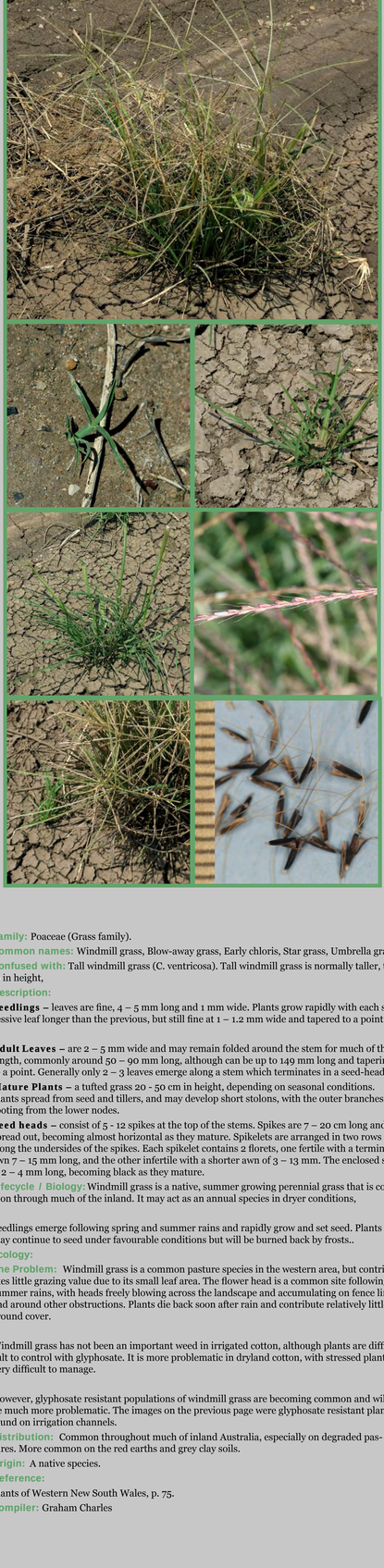
Reference:

Plants of Western New South Wales, p. 74WEEDS of the South-East, p. 54.

Compiler: Graham Charles

Chloris truncata R.Br.

Windmill grass



Family: Poaceae (Grass family).

Common names: Windmill grass, Blow-away grass, Early chloris, Star grass, Umbrella grass.

Confused with: Tall windmill grass (C. ventricosa). Tall windmill grass is normally taller, to 1 m in height,

Description:

Seedlings – leaves are fine, 4 – 5 mm long and 1 mm wide. Plants grow rapidly with each successive leaf longer than the previous, but still fine at 1 – 1.2 mm wide and tapered to a point.

Adult Leaves – are 2 – 5 mm wide and may remain folded around the stem for much of their length, commonly around 50 – 90 mm long, although can be up to 149 mm long and tapering to a point. Generally only 2 – 3 leaves emerge along a stem which terminates in a seed-head.

Mature Plants – a tufted grass 20 - 50 cm in height, depending on seasonal conditions. Plants spread from seed and tillers, and may develop short stolons, with the outer branches rooting from the lower nodes.

Seed heads – consist of 5 - 12 spikes at the top of the stems. Spikes are 7 – 20 cm long and spread out, becoming almost horizontal as they mature. Spikelets are arranged in two rows along the undersides of the spikes. Each spikelet contains 2 florets, one fertile with a terminal awn 7 – 15 mm long, and the other infertile with a shorter awn of 3 – 13 mm. The enclosed seed is 2 – 4 mm long, becoming black as they mature.

Lifecycle / Biology: Windmill grass is a native, summer growing perennial grass that is common through much of the inland. It may act as an annual species in dryer conditions,

Seedlings emerge following spring and summer rains and rapidly grow and set seed. Plants may continue to seed under favourable conditions but will be burned back by frosts..

Ecology:

The Problem: Windmill grass is a common pasture species in the western area, but contributes little grazing value due to its small leaf area. The flower head is a common site following summer rains, with heads freely blowing across the landscape and accumulating on fence lines and around other obstructions. Plants die back soon after rain and contribute relatively little to ground cover.

Windmill grass has not been an important weed in irrigated cotton, although plants are difficult to control with glyphosate. It is more problematic in dryland cotton, with stressed plants very difficult to manage.

However, glyphosate resistant populations of windmill grass are becoming common and will be much more problematic. The images on the previous page were glyphosate resistant plants found on irrigation channels.

Distribution: Common throughout much of inland Australia, especially on degraded pastures. More common on the red earths and grey clay soils.

Origin: A native species.

Reference:

Plants of Western New South Wales, p. 75.

Compiler: Graham Charles

Chloris virgata Sw.

Feathertop Rhodes grass

Family: Poaceae (Grass family).

Common names: Feathertop Rhodes grass, Feather finger grass, Feather windmill grass, Feathertop chloris, Hairy Rhodes grass, Windmill grass, Woollytop Rhodes grass.

Confused with: Rhodes grass (C. gayana)

Description:

Seedlings – leaves are 6 mm long and 1.4 mm wide and hairy on the outer surface. Plants grow rapidly with each successive leaf larger than the previous. Lower leaves are strongly folded against the stem, opening towards the tip.

Adult Leaves – are up to 15 cm long and 6 mm wide, folded along their length and tapering to a fine point. Leaves have sharp edges and numerous hairs on their upper surface, around 5 mm long, predominantly towards the base, shorter and more sparse towards the tip. The ligule is composed of numerous hairs up to 4 mm long.

Mature Plants – a tufted, spreading stoloniferous grass to 1.2 m in height. It spreads from both stolons and seed. The stoloniferous branches emerge horizontally from the plant, but bend at each node to become erect.

Seed heads – consist of 7 to 19 feathery spikes at the top of the stems. Spikes are 3 – 7.5 cm long and remain erect, in a tight bundle. Spikelets are densely crowded in two rows along the spikes. Seeds are paired, with the upper seed small and infertile and two awns, 8 – 12 mm long. The fertile seeds have a tuft of short hairs, 3 – 4 mm long at the tip.

Lifecycle / Biology: Feathertop Rhodes grass is a tropical grass, growing over the frost-free months and flowering in summer and autumn. It emerges in spring and summer and can grow prolifically following summer rains.

Ecology:

The Problem: Feathertop Rhodes grass can be prolific along roadways and is a major pest in cultivation, spreading from seed. It can be a valuable pasture species but is not preferred by stock and will compete strongly with other more desirable species. Feathertop Rhodes grass is highly tolerant of glyphosate and consequently difficult to manage in cropping fallows where glyphosate is used as the primary method of weed control. Repeated use of glyphosate can result in feathertop Rhodes grass becoming the dominant weed species.

Distribution: Occurs throughout Australia and becoming very widespread through Queensland and northern New South Wales, especially on road sides, often concentrated in the sprayed areas around guide posts.

Origin: Introduced from America. Becoming wide spread on road-sides.

Reference:

Crop Weeds of Northern Australia, p.12

Plants of Western New South Wales, p. 76.

WEEDS of the South-East, p. 55.

Compiler: Graham Charles

Cymbopogon refractus (R.Br.) A. Camus

Barbed-wire grass

Family: Poaceae (Grass family).

Common names: Barbed-wire grass, Kangaroo grass, Turpentine grass.

Confused with:

Description:

Seedlings – the 1st leaf is a flattened oval in shape, 8 – 10 mm long and 3 – 3.5 mm wide with a blunt tip. The 2nd leaf is longer and narrower, 25 – 30 mm long and 1 – 2 mm wide, with a pointed tip. The 3rd leaf longer again, 55 – 60 mm long and 1 – 2 mm wide. Each of the first emerging leaves is erect, but droops as the next leaf emerges. Plants grow rapidly with each successive leaf longer than the previous, but still fine at 1 – 2 mm wide and tapered to a point.

Adult Leaves – are 1 - 4 mm wide and 20 – 30 cm long, often rolled and tapering to a fine point.

Mature Plants – a tufted, perennial leafy grass to 20 - 50 cm in height, with long, erect seed heads to 1.5 m long. The seed head bearing stems are multi-jointed with 5 – 10 nodes, with the 1st inter-node around 25 cm long, and successive nodes shorter. Seed heads terminate on 1 - 3 short branches from all but the basal nodes.

Seed heads – are in pairs on the ends of the branches in a 'Y' or 'T' shape, initially bluish-green but becoming red and pointing down at maturity. Each spike is 15 – 30 mm long, with 2 – 6 pairs of spikelets. These pairs are arranged in a tight 'U' shape and may remain together or separate at maturity. The spikelet pair is 6 – 8 mm long and 4 – 6 mm wide.

Lifecycle / Biology: A native perennial grass that emerges and establishes following rain and grows most actively over the warmer months, flowering over spring, summer and autumn.

Ecology: Barbed-wire grass is most common on light and poor soils and eroded areas, in open pastures and timbered country. It does not compete well with other more aggressive species in improved pastures and doesn't tolerate heavy, continuous grazing. It is actively grazed by stock when young, is drought tolerant and maintains a short mass of green leaves for extended periods following rain.

The Problem: Is not a problematic weed in cultivation country and is desirable as a coloniser on degraded soils.

Distribution: Widespread throughout eastern Australia and most common in northern NSW.

Origin: A native Australian grass.

Reference:

Plants of Western New South Wales, p. 78.

Compiler: Graham Charles

Cynodon dactylon (L.) Pers.

Couch

Family: Poaceae (Grass family).

Common names: Couch, Bahama grass, Bermuda grass, Common couch, Couch grass, Creeping finger grass, Devil grass, Green couch, Indian couch, Indian daub grass, Native couch, Star grass, Swamp couch.

Confused with:

Description:

Seedlings – leaves are 4 mm long and 1 mm wide. Plants grow rapidly with each successive leaf longer than the previous, but still fine at 1 – 1.2 mm wide and tapered to a point.

Adult Leaves – are 1 - 4 mm wide and commonly around 50 – 60 mm long and up to 150 mm long, tapering to a fine point, with a tuft of short hairs at the joint 1.5 – 2 mm long.

Mature Plants – a tufted, spreading stoloniferous grass to 50 cm in height. It spreads from rhizomes, stolons and seed. The stoloniferous branches emerge horizontally from the plant, rooting at the lower nodes and bending to become erect. The rhizomes can grow 30 – 40 cm or more underground, emerging to form what may appear to be new plants.

Seed heads – consist of 2 - 7 spikes at the top of the stems. Spikes are 2 – 6 cm long and spread out, becoming almost horizontal as they mature. Spikelets are densely crowded in two rows along the spikes. The enclosed seed is 1.6 – 2 mm long, pale at the base and darker brown towards the tip.

Lifecycle / Biology: Couch is a temperate perennial grass that is burned back by frost, and grows actively over the warmer months, flowering in summer and early autumn. Seedlings emerge in spring and summer and can grow prolifically following summer rains.

While couch can grow from seed, it most commonly spreads from rhizomes and stolons.

Ecology:

The Problem: Couch often occurs in small patches that spread over time where moisture is adequate. It is not well controlled with typical rates of glyphosate and rhizomes can be spread by cultivation.

Distribution: Occurs throughout Australia, often used as a lawn grass. It is a very common weed of gardens and around structures, growing on a wide range of soil types. Couch has naturalised in wetter areas such as creek banks, irrigation channels and levees.

Origin: A cosmopolitan grass.

Reference:

Crop Weeds of Northern Australia, p.4.

Plants of Western New South Wales, p. 78.

WEEDS of the South-East, p. 55.

Compiler: Graham Charles

Dactyloctenium radulans (R.Br) P.Beauv

Button grass

Family: Poaceae (Grass family).

Common names: Button grass, Coast button grass, Eight-day grass, Finger grass, Small crowsfoot.

Confused with: Coast button grass (D. aegyptium).

Description:

Seedlings – are erect, but plants become prostrate as they get older. Leaves are 2 – 5 mm in width and 5 cm in length. The ligule is a low, papery rim (0.5 mm wide) capped with hairs.

Adult Leaves –are 2.5 – 12 cm long and 2 - 6 mm wide at the base, tapering to the tip.

Mature Plants – A short, sprawling summer growing annual grass with stems to 20 cm in length.

Seed heads – consists of a tight hand of 3 – 10 spikes, 5 – 12 mm long forming compact globular heads at the ends of the stems. Seeds are 1 mm in length and light brown with a very rough seed coat and short beak above the embryo.

Lifecycle / Biology: Plants emerge rapidly after summer rain and quickly produce new seed. Button grass is generally a short-lived annual and is not frost tolerant, but can be a short-lived perennial.

Ecology: A rapidly growing summer grass valued as a pasture grass in the drier areas. It is more common on lighter soils.

The Problem: Button grass will grow in fields and along ditches, roadways etc. It is not highly competitive due to its prostrate nature but can be a nuisance.

Distribution: Widespread throughout Australia. A major weed of cultivation in Central Queensland and a minor weed elsewhere. Valued as a pasture grass in the drier areas.

Origin: A native Australian grass.

Reference:

Crop Weeds of Northern Australia, p. 19.

Plants of Western New South Wales, p. 79

Compiler: Graham Charles

Dichanthium sericeum S.T. Blake ssp. Sericeum

Queensland bluegrass

Family: Poaceae (Grass family).

Common names: Queensland bluegrass, Silky bluegrass.

Confused with: Queensland bluegrass can be distinguished from other similar grasses by the ring of hairs on the nodes and the persistence of the last few seeds on the heads.

Description:

Seedlings – the first leaf is blunt, with a rounded end, 10 – 15 mm long and 2 - 3 mm wide. Following leaves have pointed ends, the 2nd leaf around 30 mm long and 2.6 mm wide, the 3rd leaf 45 mm long and 3.5 mm wide. Plants develop side tillers from about the 4th leaf.

Adult Leaves – are 8 – 35 cm long and 2 – 6 mm wide, tapering to a fine tip, with an indented mid-rib. The stems are green to bluish – purple in colour. The stem nodes have an obvious ring of white hairs 1 – 2 mm long, with hairs 4 – 6 mm long also at the base of the leaves.

Mature Plants – a tussocky perennial grass to 1.2 m in height, depending on seasonal conditions, densely branched at the base. Plants spread from seed and tillers.

Seed heads – consist of 1 – 7 erect finger like spikes at the top of the stems. The spikes are hairy, and green through to purplish – brown, 4 – 7 cm long. Seeds are arranged alternately along the spikes, breaking off initially from the top and progressively down the spikelet. The bottom few seeds tend to persist on the stems, giving a tufted appearance

Seeds – are pale, 4 – 5 mm long, with a bent and twisted dark terminal awn 14 – 25 mm long. The seeds appear to be hairy with a tuft of pale hairs at the base and longer hairs to 6 mm towards the apex.

Lifecycle / Biology: Windmill grass is a perennial native, summer growing grass that is common through much of the mainland Australia. It more common in wetter areas and may act as an annual species in dryer conditions

Seedlings emerge following spring and summer rains and rapidly grow and set seed. Flowering continues over the farmer months, but plants hay-off in dry conditions and remain largely dormant over winter.

Ecology: A rapidly growing summer grass valued as a pasture grass in the drier areas. It is more common on heavier clay soils but is found over a range of soil types.

The Problem: Queensland bluegrass is a desirable native pasture species although it may remain attractive to stock for only a short period after rain. It is not normally problematic in cropping although plants will creep into farming country from surrounding remnant vegetation.

Distribution: Common throughout much of mainland Australia.

Origin: A native species.

Reference:

Plants of Western New South Wales, p. 83 – 84.

Compiler: Graham Charles

Digitaria brownii (Roem. & Schult.) Hughes

Cotton panic grass

Family: Poaceae (Grass family).

Common names: Cotton panic grass, Cotton grass, Cotton panic, Silver spikegrass, Woolly finger.

Confused with: The woolly seeds of cotton panic grass are quite distinctive.

Description:

Seedlings – leaves are relatively fine, 10 – 15 mm long and 2 - 3 mm wide, tapering to a point. Successive leaves are longer, the 3rd leaf around 70 mm long by 4 mm wide.

Adult Leaves – are 40 – 160 mm long by 4 – 6 mm wide, tapering to a point, although the upper leaves are much shorter. Leaves are rough to the touch and have a membranous ligule 1 – 4 mm long and short clasping auricles that reach most of the way around the stem.

Mature Plants – a tall, tussocky perennial grass 60 - 100 cm in height with fine stems that may bend and branch at the lower nodes.

Seed heads – usually consisting of 3 erect spike-like heads at the top of the stems, but can be between 1 and 7 heads. Heads are 4 – 16 cm long, the terminal head erect and the lateral heads spreading. Spikelets appear to be closely arranged along the heads which curve around each spikelet. However, manipulation reveals that the spikelets generally are in pairs on short stalks and separate from the head. The base 1 – 2 cm of the head can be bare of spikelets or spiklets can occur along the full length of the head.

Seeds – a pale seed 4 – 5 mm long that at maturity is surrounded by a woolly mass of hairs 3 - 5 mm long.

Lifecycle / Biology: Cotton panic is a native, summer growing perennial grass that is common through much of the inland. Seedlings emerge following spring and summer rains and rapidly grow and set seed. Plants may continue to seed under favourable conditions but will be burned back by frosts.

Ecology: Is found on a range of soil types. More common on sandy and lighter soils in areas that are not heavily grazed.

The Problem: Cotton panic grass is a desirable summer growing pasture species that is susceptible to over grazing.

Distribution: Common throughout mainland Australia.

Origin: A desirable native species.

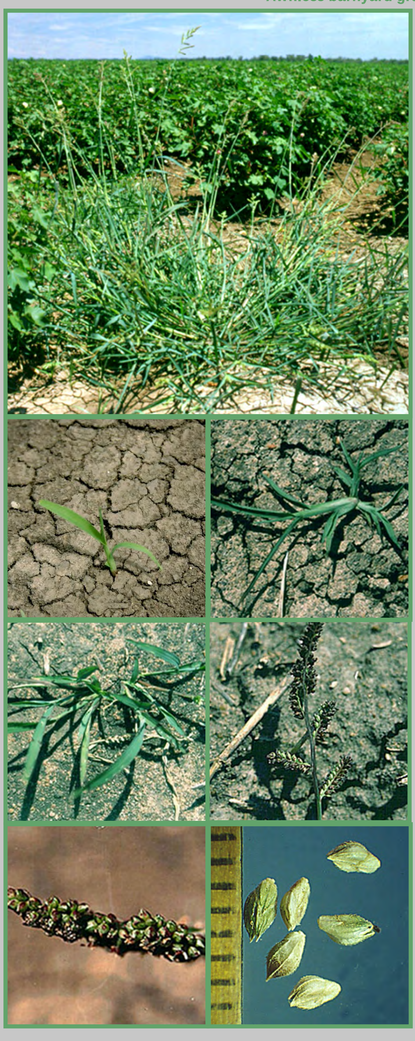
Reference:

Plants of Western New South Wales, p. 85.

Compiler: Graham Charles

Echinochloa colona (L.) Link

Awnless barnyard grass



Family: Poaceae (Grass family).

Common names: Awnless barnyard grass, Barnyard grass, River grass, Swamp grass, Tiger millet, Zebra grass.

Confused with: Barnyard grass (E. crus-galli), Prickly barnyard grass (E. muricata var. microstachya and Hairy millet (E. oryzoides).

Description:

Seedlings – the seedling shoots are flattened and have a purple colouration at the base. Leaves are 20 – 30 mm long and 4 – 6 mm wide. Seedlings and adult plants do not have a ligule (a papery or hairy outgrowth at the leaf/stem junction) and this is a key identification point when comparing this species to other grasses.

Leaves – the adult leaves may have purple, red or black bands across the dull green surface. These stripes show variants within the species that are known as Tiger millet or Zebra grass. The leaves are hairless, 50 – 300 mm long and 3 – 10 mm wide, tapering to a fine point.

Mature Plants – the plants either lay flat, or are semi-erect, tufted and 15 to 60 cm tall. The stems are slender and hairless, hollow, branched and may have a purple colouration at the base. The stems often root at the lower nodes with the nodes brown and thickened.

Seed heads – the seed head is pyramid-shaped, 40 – 150 mm long, 6 – 20 mm wide, with a number of racemes (smaller heads) that are each 7 - 40 mm long. This is in contrast to barnyard grass with racemes that are 100 mm long. The racemes of awnless barnyard grass become smaller towards the tips and the spikelets (a group of small flower heads) are formed in four irregular rows along one side of the raceme. The spikelets are 2 – 3 mm long.

Seeds – in contrast to barnyard grass, the seed covering does not have a stiff bristle-like hair (an awn) and the seed is pale in colour, 2 mm in length. The seed of barnyard grass is a pale brown. Seeds are able to emerge from depths greater than 75 mm.

Lifecycle / Biology: An annual species that grows rapidly during the spring to autumn period. Flowering occurs during summer and autumn, particularly in response to rain. The seed is commonly spread in water.

Ecology: The plant is common along stream banks, levees, irrigation channels, around waterholes and in gilgai country. The species is found on a wide range of soils, particularly heavy grey and black soils that are periodically flooded.

The Problem: The plant grows rapidly following establishment and seeding is prolific. The seeds are readily spread by irrigation or river water. Awnless barnyard grass is often found growing along irrigation channels, storage banks and in cultivated fields.

Distribution: Northern NSW, Central NSW, Southern NSW, Southern Qld and Central Qld.

Origin: There is uncertain as to whether this is a native or an introduced species.

Reference:

Crop Weeds of Northern Australia, p. 8

Plants of Western New South Wales, p. 88 – 89, (incorrectly spelt as Echinochloa colonum).

WEEDS of the South-East, p. 58.

Compiler: Graham Charles and Stephen Johnson

Echinochloa esculenta (A. Braun) H. Scholz

Japanese millet

Family: Poaceae (Grass family).

Common names:

Confused with:

Description:

Seedlings – the seedling shoots are flattened and boat shaped. Leaves are 20 – 30 mm long and 4 – 6 mm wide.

Leaves – the adult leaves are flat, 15 – 350 mm long and 5 – 25 mm wide, gradually tapering to the tip.

Mature Plants – an erect annual grass to 1 m tall. The stems are stout, to 7 mm diameter and hairless and hollow. The stems often root at the lower nodes with the nodes brown and thickened.

Seed heads – the seed head is erect, 7 – 20 cm long, with a number of racemes (smaller heads) that are each 7 - 40 mm long. The racemes become smaller towards the tips and the spikelets (a group of small flower heads) are formed in irregular rows along the raceme. The spikelets are 3 – 4 mm long.

Seeds – the seed is pale brown, 2.5 – 3.5 mm in length.

Lifecycle / Biology: An annual species that grows rapidly during the spring to autumn period. Flowering occurs during summer and autumn, particularly in response to rain.

Ecology: The plant grows on a range of soil types but is very palatable to stock and quickly becomes grazed out of pastures.

The Problem: A minor weed, most commonly present as a volunteer in a following crop.

Distribution: A widely found species, used as a crop, in pastures and hay making, and often included in bird seed mixes.

Origin: Introduced from Asia.

Reference:

Plants of Western New South Wales, p. 90, (note the species name has changed from E. utilis)

WEEDS of the South-East, p. 58.

Compiler: Graham Charles

Eragrostis speciosa (Roem. & Schull.) Steud.

Handsome lovegrass

Family: Poaceae (Grass family).

Common names: Handsome lovegrass.

Confused with: There are 67 species of lovegrasses in Australia, many of which are difficult to positively identify and could occur in the cotton area.

Description:

Seedlings – a small grass seedling, the 1st leaf 10 – 15 mm long and 1 mm wide, tapering over its length. Successive leaves are longer, but do not remain erect. The 3rd leaf 30 – 35 mm long and 1 – 2 mm wide. Tillering commences by the time the 4th or 5th leaf has expanded.

Leaves – are narrow and often folded, tapering to a sharp point, 15 - 40 cm long and 1 – 3.5 mm wide; the leaves fold when stressed. The stems are long and fine, 1 - 2 mm wide.

Plants – a tussocky, drooping perennial grass, with branched stems, 0.15 – 1.5 m tall.

Seed heads – are a long, slender panicle 10 – 50 cm long and 5 – 30 mm wide, with the flowers on short spikes that run along the main stem, 25 – 75 mm long. The spikes are initially tightly against the stem but become more open as they mature, with clusters of spikelets along each spike. The spikelets are flattened, 5 – 50 mm long and 1.5 – 2 mm wide, with 10 – 100 flowers per spikelet.

Seeds – are pale brown, egg shaped 0.4 – 0.5 mm long, with the darker brown embryo apparent at the end.

Lifecycle / Biology: A perennial native grass that establishes following rain and primarily grows over the warmer months. Plants flower all year round.

Ecology: Most commonly a grass of sandy soils, floodways and creeks, but is well adapted to grow on heavy clays in wetter areas.

The Problem: Handsome lovegrass is not problematic in cotton, but is a background weed species that is present in and around many fields. It is likely to occur around most northern waterways and creeks, creating a seed source that ensures its presence in fields.

Distribution: Widely found throughout central and northern Australia.

Origin: A grass native to the northern cotton area.

Reference:

Plants of Western New South Wales, p. 105.

Compiler: Graham Charles

Eriochloa procera (Retz.) C.E.Hubb

Spring grass

Family: Poaceae (Grass family).

Common names: Spring grass, Cupgrass, Slender cupgrass.

Confused with:

Description:

Seedlings – the seedling shoots are relatively slender, 17 – 24 mm long and 2 – 3 mm wide. Later leaves are longer, the 3rd leaf around 70 mm long and 5 – 6 mm wide.

Leaves – the adult leaves are flat, 50 to 200 mm long and 1 - 7 mm wide, gradually tapering to the tip.

Mature Plants – a hairless annual or perennial grass to 80 cm tall. The stems are fine, to 1 - 2 mm in diameter and may be semi-erect or weeping, with the 1st node at the base of the outer stems almost horizontal and successive nodes more erect, but the top stem section drooping. Stems may branch at the lower nodes.

Seed heads – the seed head is 6 – 15 cm long, with 4 – 7 and up to 25 racemes (lesser heads) that are each 15 - 45 mm long. The racemes become smaller towards the tips and seeds develop in alternating positions along the racemes. The spikelets are 3.5 – 5 mm long.

Seeds – the seed is pale green to pale brown, covered in fine white hairs on the lower ¾, 3.5 – 5 mm in length, with a small knob at the base and a pointed beak at the tip. Seeds readily fall at maturity.

Lifecycle / Biology: A perennial species that may act as an annual grass in cropping situations, growing rapidly during the spring to autumn period. Flowering occurs during spring and summer, particularly in response to rain.

Ecology: The plant grows on a range of soil types but is very palatable to stock and quickly becomes grazed out of pastures. It is more common in wetter areas.

The Problem: Spring grass is not recognised as a common weed of cotton, but can occur at low levels through much of the central and northern cotton area. It is not highly competitive in cotton and readily controlled with both grass herbicides and glyphosate.

Distribution: A widely found species, throughout much of central and northern Australia.

Origin: An Australian native grass.

Reference:

Plants of Western New South Wales, p. 107-108.

Compiler: Graham Charles

Hordeum distichon L.

Two row barley

Family: Poaceae (Grass family).

Common names: Two row barley, barley.

Confused with: Six row barley (H. vulgare). The two can be readily separated by the heads.

Description:

Seedlings – are erect, the first leaf 50 - 60 mm long and 5 - 6 mm wide, with a rounded point. Successive leaves are longer, with the second leaf 80 mm long and the third leaf 160 mm long and 5 - 6 mm wide, the leaves tapering to a point.

Leaves – the adult leaves are 20 – 25 cm long and 10 – 13 mm wide, gradually tapering to a point. The ligule is membranous, to 2 mm long and the auricles are membranous and clasp the stem.

Mature Plants – an erect annual grass to 1 m tall.

Heads - are erect, 40 – 100 mm long and 11 – 13 mm wide, with a row of seeds on either side of the central axis. The seed have long awns, to 18 cm long.

Seeds – are initially green but mature to a golden yellow, and remain within the husk, 9 – 10 mm long and 3 - 4 mm wide. Harvested seed is awnless as the awns break off during the harvesting process.

Lifecycle / Biology: A valued annual crop species used for both grain and forage production. Crops are generally planted in autumn and early winter, maturing and harvested in late spring and early summer. Volunteer plants will emerge over summer following rain but generally will be killed by the hot summer conditions.

Ecology: The plant is relatively salt tolerant and adapted to a range of soil types and climatic conditions, from the tablelands out to the plains.

The Problem: Barley is rarely a weed of cotton production, although volunteer plants can be a minor problem in summer fallows. Barley is readily controlled with a range of grass herbicides.

Distribution: Barley is grown throughout the cropping areas of Australia. Most cultivated barley is two row barley.

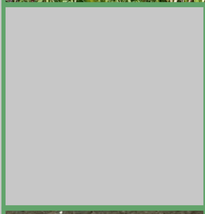
Origin: Native to the Mediterranean region.

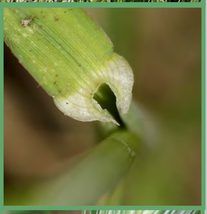
Reference:

Compiler: Graham Charles

Hordeum leporinum Link

Barley grass





Family: Poaceae (Grass family).

Common names: :Barley grass, mouse barley grass, sea barley grass.

Confused with: Northern barley grass (H. glaucum) and Mediterranean barley grass (H. hystrix). The species can be separated by:

- The auricles. Mediterranean barley grass has no auricles at the leaf node, and
- The anthers of barley grass emerge from the seed head, whereas the anthers of Northern barley grass remain in the seed.

Description:

Seedlings – the leaves are long with almost no taper, ending in a blunted point and twist anti-clockwise. The 1st leaf is 35 – 45 mm long and 1 – 2 mm wide. The 2nd leaf is longer, 50 – 60 mm but no wider, and the 3rd leaf 80 – 90 mm long but only 2 – 3 mm wide.

Leaves – later leaves are 2 – 22 cm long and 1 – 7 mm wide, covered in minute hairs.

Mature Plants – a tufted, multi-branched annual grass 15 - 45 cm tall.

Heads - are erect, 3 – 10 cm long and 1 – 2 cm wide, with rows of seeds on both sides of the central axis. The seed are 12 – 17 mm long and have long awns, to 20 - 40 mm long and stiff hairs to 22 mm long.

Seeds – are initially green but mature from the top to a golden yellow, progressively breaking off and falling from the plant at maturity. Each seed group has a central fertile seed with male seed structures on either side.

Lifecycle / Biology: An annual weed that germinates following autumn and winter rain and runs to head in spring and early summer, dying as temperatures increase.

Ecology: The plant is adapted to a wide range of soil types, but is most abundant of fertile soils and areas such as sheep camps.

The Problem: Barley grass is a nuisance weed of cotton production, most commonly occurring on fence lines, road ways and waste areas. It is a valuable pasture species while in the vegetative stage but the seeds contaminate wool and can cause eye damage to grazing animals. Barley grass can come to dominate a legume based pasture if not well managed. It is less commonly a cropping weed.

Distribution: Barley grass is a very common weed of pastures, road sides and waste areas throughout central and southern Australia, well adapted to a Mediterranean climate.

Origin: Native to Europe and Asia.

Reference:

Plants of Western New South Wales, p. 110 - 111.

WEEDS of the South-East, p. 64.

Compiler: Graham Charles

Hyparrhenia hirta (L.) Stapf

Coolati grass

Family: Poaceae (Grass family).

Common names: Coolati grass, South African bluestem, Tambookie grass.

Confused with:

Description:

Seedlings – are erect, the first leaf 7 mm long and 2 - 3 mm wide, and successive leaves longer, with the second leaf 13 mm long and the third leaf 60 mm long and 4.5 mm wide, the leaves tapering to a fine point.

Leaves – the adult leaves are bluish-green and 'V' shaped, with an indented mid-rib, 15 – 35 cm long and 2 – 11 mm wide, gradually tapering to a fine point. The ligule is membranous, 2 – 3 mm long. Leaves may have a scattering of fine hairs 4 – 8 mm long towards the base. The leaf stems of young plants are purplish towards the base.

Mature Plants – a densely tufted, erect perennial grass to 1.2 m tall. Plants have a striped appearance, with contrasting yellowish flowerings stems, reddish seedheads and bluish-green leaves.

Seed heads – are erect, 15 – 40 cm long, with a number of smaller heads (racemes), each 15 - 50 mm long. The racemes become smaller towards the tips and the spikelets (a group of small flower heads) are formed in irregular rows along the raceme. The spikelets are 3 – 4 mm long.

Seeds – the seed is pale brown, 3 – 7 mm long with a darker brown awn 15 – 35 mm long. The awns have numerous bends.

Lifecycle / Biology: A highly competitive perennial species that invades and forms dense clumps. It spread both from seeds and short rhizomes.

Ecology: The plant is deep rooted and well adapted to a range of soil types and climatic conditions, readily establishing on grazing country and roadsides from the tablelands out to the plains. It is palatable to stock while young and most readily spreads along roadways from where it invades pastures and treed areas. It is primarily a summer growing species.

The Problem: A minor weed of irrigated cropping, but becoming a major weed of pastures. Coolati grass is an extremely competitive perennial that forms dense clumps, excluding most other species. It is readily grazed by stock while young, but old clumps have little grazing value and exclude other species, including both winter and summer legumes.

Distribution: Coolati grass occurs in most states and is rapidly spreading along roadsides, invading adjacent land.

Origin: A native of the Mediterranean region.

Reference:

WEEDS of the South-East, p. 64.

Compiler: Graham Charles

Lachnagrostis filiformis (G. Frost.) Trin.

Blowngrass

Family: Poaceae (Grass family).

Common names: Blowngrass, Blown grass, Common blowngrass, Fairy grass, Oatgrass.

Confused with:

Description:

Seedlings – a slender grass seedling, the first leaf 15 – 25 mm long and 1 mm wide. Successive leaves are longer, and tillering commences by the time the 4th or 5th leaf has expanded.

Leaves – are very variable in size, 8 - 50 cm long and 1 - 6 mm wide, and tapering from about the middle to a fine point. The ligule is membranous, a rounded wedge shape, 3 – 8 mm long with purple colouration.

Plants – a spreading to erect annual or perennial native grass, 15 - 90 cm tall. The stems are rigid and purplish around the nodes. The outer stems tend to droop and may root from the lower nodes.

Seed heads – emerge as a plume, but expand at maturity, becoming very open and spreading, 10 – 30 cm long and nearly as wide. The seedheads are pale green to straw coloured and occur in clusters at the ends of the plume branches, with 7 – 20 flowers in each cluster. Each flower in the cluster is separate, borne on a stalk 1 - 5 mm long.

Seeds – are pale brown, 1 – 1.5 mm long and covered in hairs, with an awn 3 – 4 mm long, bent about a ¼ of the way along the length. The awn is darker near the base, but pale above the bend.

Lifecycle / Biology: An annual or perennial native grass that emerges in autumn and early winter and grows rapidly following summer rains, often flowering as plants senesce.

Ecology: Common on heavy clay and clay loam soils in damp areas, flood plains, gilgais and swamp margins. Blowngrass generally becomes very obvious following heavy summer rain, with the seed heads accumulating on fence lines etc. as the plants senesce.

The Problem: Blowngrass is a minor pest of cotton production, easily controlled with many of the herbicides commonly used in the production system. However, blowngrass heads can be a significant contaminant in cotton lint, leading to downgrading of the fibre when large numbers of blowngrass heads are blown onto crops from surrounding pastures following summer rains.

Distribution: Blowngrass occurs widely throughout Australia and commonly found throughout the cotton area. It is a useful pasture species while young and green but not grazed when the plants senesce.

Origin: An Australian native grass.

Reference:

Plants of Western New South Wales, p. 52

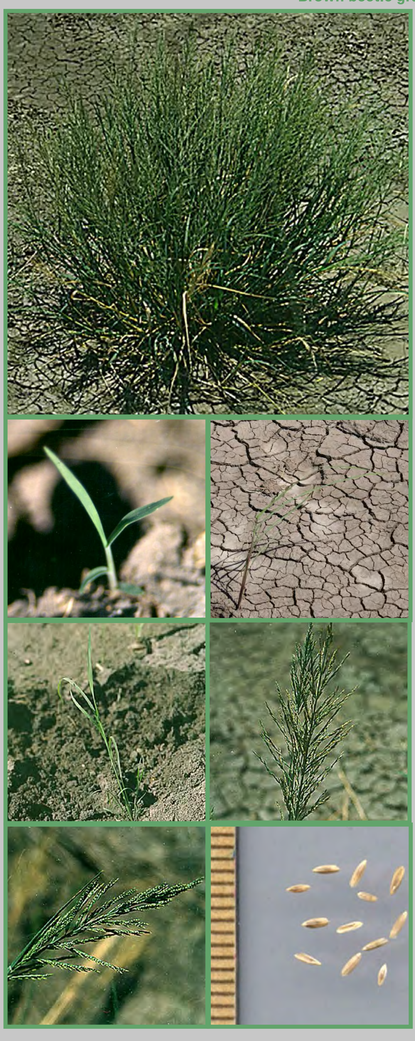
(Note. The grass is called Agrostis avenacea here)

WEEDS of the South-East, p. 65.

Compiler: Graham Charles

Leptochloa fusca subs. fusca (L.) Kunth

Brown beetle grass



Family: Poaceae (Grass family).

Common names: Brown beetle grass, Small-flowered beetle grass.

Confused with: Pale beetle grass (L. fusca subsp. muelleri previously Diplachne muelleri).

L. fusca subsp. fusca was previously known as D. fusca before it was combined with small-flowered beetle grass (D. parviflora) into the new subspecies.

Description:

Seedling Leaves – seedlings are fine and erect with drooping leaves. Seedling leaves are 1- 4 cm long and 2 – 4 mm wide.

Adult Leaves – are deep-green to purple, to 300 mm long and 5 mm wide, narrowed to a long slender point, rough with minute bristles and rolling inwards when dry.

Mature Plants – are tussocks with fibrous roots and sometimes developing a short thick rhizome, 20 – 150 cm tall, with numerous hairless hollow stems that are straight or bent at the lower nodes and also with purple/black stem nodes.

Seed heads – the flowers are borne in heads that are branched, 10 – 50 cm long and 1 – 4 cm wide. Each spikelet (a group of small flower heads or florets) is nearly stalkless to stalked, and 7 – 15 mm long overall, olive to grey/green or partly purple when young but straw-coloured when older. Each spikelet contains 5 – 14 overlapping florets (sheathed flowers), each floret 2.5 – 5 mm long, fringed with short silky-white hairs. Seeds are pale brown in colour and 2 - 3 mm in length.

Lifecycle / Biology: Brown beetle grass is a perennial or biennial plant, living for more than one year. The plant grows actively over summer after germinating in shallow water. It can maintain its growth for a considerable time after water has receded. Plants flower mainly in summer and autumn in response to rain and flooding. Mature seed develops rapidly. Fresh seed germinates well but may have some dormancy ensuring survival in future years. Seeds are spread easily in water and also in mud, on machinery and on clothing.

Ecology: This plant is almost always found in or near water, for example in channels, ditches, drains, in melon-hole country, or in periodically flooded areas. It occurs in a wide range of soil types from clays to sandy lays, and on red earths. The plant is moderately salt-tolerant.

The Problem: Since the weed germinates and grows under and in water, there are a limited range of tools that can be used to manage it. It forms dense monocultures which can impede irrigation flow. The large seed production of this weed and its ability to spread in water make it difficult to control.

Distribution: Northern NSW, Central NSW, Southern NSW and Southern Qld.

Origin: A native Australian species.

Reference:

Plants of Western New South Wales, p. 88 (listed as Diplachne fusca).

Compiler: Graham Charles and Stephen Johnson

Lolium rigidum Gaudin

Annual ryegrass

Family: Poaceae (Grass family).

Common names: Annual ryegrass, Natal grass, Wimmera rye, Wimmera ryegrass.

Confused with:

Description:

Seedlings – the 1st leaf is rolled, 25 - 50 mm long and 1 – 2 mm wide, not opening before the 2nd leaf emerges.. The 2nd leaf is shiny green, 90 – 100 mm long and 2 – 3 mm wide. The 3rd leaf 100 – 120 mm long and 3 – 4 mm wide. Leaves taper over their length, ending in a point.

Leaves – the leaves are glossy green and highly ribbed, 4 – 12 cm long and 2 – 6 mm wide, tapering to a point.

Mature Plants – an erect highly-tillered annual grass with an open tussock 0.3 – 1 m tall. Plants are initially prostrate or sprawling but become erect in the reproductive phase. The stems have clasping auricles and a purplish appearance towards the base and around the nodes, which are deep purple. Stressed plants can be almost red in colour.

Seed heads – are erect, 7 – 32 cm long and 10 – 15 mm wide with 12 – 25 set of spikelets alternating along the stems. Each set of spikelets contains 3 – 9 flowers.

Seeds – the seeds are light brown, 6 - 8 mm long and 2 – 3 mm wide, with individual seeds breaking off from the stem at maturity.

Lifecycle / Biology: An annual species that emerges following autumn and winter rain, growing over winter, entering the reproductive phase in spring and maturing in late spring and early summer at about the same time as cereal crops. In the cooler areas, annual ryegrass can grow well into summer provided there is adequate moisture.

Ecology: An invasive and highly competitive weed species adapted to the full range of soils used in the cropping zone. Annual ryegrass in adapted to a Mediterranean climate and is not a common weed in northern Australia.

The Problem: Annual ryegrass is a very competitive weed in cereal crops, emerging at very high densities with the cereal and growing at a similar rate to the crop. Herbicides have been widely used to control this weed over the last couple of decades, but resistance has developed to most of the commonly used herbicide modes of action, making this weed very problematic. Annual ryegrass has not been a weed of cotton production, but glyphosate resistant ryegrass is becoming an issue in irrigated cotton, particularly in the cooler areas.

Conversely, ryegrass is a very valuable pasture species, highly nutritious and readily grazed by all livestock.

Distribution: A very abundant weed of cereal cropping in southern and central cropping areas, up into the Darling Downs.

Origin: A native of Europe.

Reference:

Plants of Western New South Wales, p. 114

WEEDS of the South-East, p. 67.

Compiler: Graham Charles

Melinis repens (Willd.) Zizka

Red Natal grass

Family: Poaceae (Grass family).

Common names: Red Natal grass, Natal grass, Natal redtop.

Confused with:

Description:

Seedlings – the 1st leaf is a flattened oval in shape, 7 – 8 mm long and 3 – 4 mm wide with short hairs obvious on the edge of the leaf. Some reddening is apparent on the stem, which is also hairy. The 2nd and successive leaves are longer and spear head in shape, with a sharp point. The leaf is 10 – 15 mm long and 3 – 4 mm wide, with short hairs obvious on the edge of the leaf. The 3rd leaf is 50 – 80 mm long and 5 – 7 mm wide.

Leaves – the leaves are 5 – 30 cm long and 2 – 10 mm wide, tapering to a sharp point.

Mature Plants – an erect annual or perennial grass with an open tussock to 1.5 m tall. Plants have a purplish appearance, with reddening on the lower stems and on the veins and blades of some leaves. Stems can branch at the nodes and may root from the lower nodes.

Seed heads – are erect, 5 – 20 cm long and 2 – 10 cm wide. The heads are initially strongly purple in colour, with contrasting yellowy-orange flowers, but become pale with age.

Seeds – the seeds are dark brown, 3 mm long and 2 mm wide, with a halo of purple hairs 3 – 6 mm long which give the head the purple appearance. These hairs lose their colour with age, retaining a tinge of colour at maturity.

Lifecycle / Biology: An annual or perennial species that emerges following rain in the warmer months and sets seed over summer. Plants will also spread by rooting from the stem nodes under favourable conditions.

Ecology: An invasive species in tropical conditions adapted to a range of conditions. In the more southerly areas it is mostly a much shorter grass of roadsides, favoured by the extra moisture.

The Problem: A major weed of pastures and cropping in northern Queensland, but elsewhere a minor weed of roadsides and waste areas.

Distribution: Red Natal grass is a major weed in northern Queensland and a lesser problem throughout central and southern Queensland and down into New South Wales and Victoria.

Origin: A native of tropical Africa.

Reference:

Crop Weeds of Northern Australia, p. 15.

WEEDS of the South-East, p. 67.

Compiler: Graham Charles

Paspalum dilatatum Poir.

Paspalum

Family: Poaceae (Grass family).

Common names: Paspaulm, Caterpillar grass, Crown grass, Dallis grass, Golden crown grass, Water couch.

Confused with:

Description:

Seedlings – the 1st leaf is 10 – 15 mm long and 2 mm wide with a rounded tip and numerous long, silky hairs towards the base on the outer side of the leaf. It emerges from a reddened stem. The leaf is initially erect but droops as the 2nd leaf emerges. The 2nd and successive leaves are longer and more pointed. The leaf is 20 – 25 mm long and 2 – 2.5 mm wide, with hairs obvious on the outer base. The 3rd leaf is 30 – 50 mm long and 3 – 4 mm wide.

Leaves – the leaves are dull green, 6 – 45 cm long and 3 – 12 mm wide, often with a tuft of silky white hairs at the node to 8 mm long. Leaves are flatish, with an indented mid-rib and may have a reddish tinge at the margins. The ligule is membranous, 3 – 4 mm long.

Mature Plants – an erect perennial grass to 2 m tall with a dense, tussocky base from which a multitude of leaves arises.

Seed heads – emerge at the end of long stems, 40 – 175 cm long, with 2 – 11 spreading fingers of seeds on each stem. These fingers are 30 – 110 mm long and 4 – 6 mm wide, with 4 rows of seeds along the finger and a fringe of short, silky hairs around each seed. The heads are initially green in colour, with contrasting purple - black feathery flowers protruding from each seed. The heads become brown at maturity.

Seeds – the seeds are initially green, becoming golden brown at maturity, shaped like a plate, 3 mm long, 2 mm wide and 0.5 mm deep, with a fringe of silky white hairs on the outer edge.

Lifecycle / Biology: A tufted perennial grass that flowers and sets seed from spring to late-autumn. Plants spread from the sticky seeds that readily adhere to animals and clothing, and by short rhizomes spreading from the tussock. Seedlings establish following rain during the warmer months. Seedlings are relatively slow to grow, but established plants can produce a mass of bulk following rain in the warmer months.

Ecology: A widely naturilised species throughout Australia. Common in pastures in the higher rainfall areas and in wetter areas such as table drains, river banks and irrigation drains. Paspalum is a valuable summer growing pasture species and well adapted to grazing. It becomes dormant over winter.

The Problem: A minor weed of roadsides, channels, drains and waste areas.

Distribution: An invasive species, introduced as a pasture species in the higher rainfall areas and now widely naturilised throughout Australia. Commonly found in wetter areas, such as table drains.

Origin: A native of South America, introduced as a pasture species.

Reference:

Plants of Western New South Wales, p. 127

WEEDS of the South-East, p. 71.

Compiler: Graham Charles

Paspalum notatum Flüggé

Bahia grass

Family: Poaceae (Grass family).

Common names: Bahia grass.

Confused with:

Description:

Seedlings – the 1st leaf is 15 – 20 mm long and 1 mm wide with a pointed tip. It is fairly erect, with a slight curve outwards and emerges from a reddened stem. The leaf droops as the 2nd leaf emerges. The 2nd and successive leaves are longer and broader. The 2nd leaf is 20 – 25 mm long and 2 mm wide, the 3rd leaf 40 mm long and 2 mm wide.

Leaves – the leaves are glossy green and deeply 'V' shaped, 8 – 35 cm long and 2 – 10 mm wide. Leaves emerge both from fine, semi-erect stems and from course, heavily rooted stolons from which leaves emerge every 1 – 2 cm. The leaf sheaths are deeply purple in colour.

Mature Plants – a course, spreading stoloniferous perennial grass to 80 cm tall that develops a dense mat.

Seed heads – emerge at the end of stems, 4 – 15 cm long, with 2 – 3 slightly spreading fingers of seeds on each stem. These fingers are 3 – 12 cm long and 2 - 3 mm wide, with 2 rows of seeds along the finger. The heads are initially green in colour, becoming purplish at flowering, and quickly fade to straw-colour.

Seeds – the seeds are initially green and fade to straw-colour, 3.2 mm long, 1.9 mm wide and 0.8 mm deep.

Lifecycle / Biology: A spreading perennial grass that flowers and sets seed from mid-summer to late-autumn. Plants spread from seed and by spreading stolons. Seedlings establish following rain during the warmer months. Seedlings are relatively slow to grow, but established plants can produce a dense, highly competitive mat.

Ecology: A naturilised grass introduced as a pasture species for poorer soils in higher rainfall areas. It is relatively drought tolerant, tolerates flooding, has some salt tolerance and has value for stabilizing water ways but produces masses of seed. It tolerates heavy grazing, moderate shading and moderate fire but does not tolerate regular cultivation.

The Problem: A minor weed of roadsides, channels, drains and waste areas. Bahia grass was introduced as a pasture species but mature plants are not readily grazed, it does not produce a bulk of feed and tends to dominate once it becomes established. It can be very weedy in more fertile areas

Distribution: An invasive species, introduced as a pasture species in the higher rainfall areas and now widely naturilised throughout Australia. Commonly found in wetter areas, particularly in coastal northern NSW and southern Qld.

Origin: A native of America, introduced as a pasture species.

Reference:

Compiler: Graham Charles

Phalaris paradoxa L.

Wild phalaris

Family: Poaceae (Grass family).

Common names: Wild phalaris, Bristle-spiked canary grass, Paradoxa grass, Paradoxical canary grass.

Confused with:

Description:

Seedlings – are erect, with a distinctive red base. Seedlings become semi-prostrate as tillers develop.

Leaves – has a papery, rounded ligule 3 – 5 mm in length. Leaf blades are dark green 10 – 20 cm long and 2 – 9 mm wide.

Mature Plants – an erect, hairless, tufted annual grass up to 1 m.

Seed heads – a dense, cylindrical head on the top of the stems that barely emerges above the upper leaves, 2 – 9 cm long and 1 - 2 cm wide. Seeds are pale and glossy, slippery to the touch, up to 3.5 mm in length. They mature from the top and fall out, leaving the top of the stem exposed.

Lifecycle / Biology: A winter/spring growing annual weed that often emerges with a winter crop and sets seed in late spring before the crop has reached maturity.

Ecology: A winter growing annual species that produces a bulk of useful pasture forage but is a major weed of winter cropping systems, particularly on heavy soils.

The Problem: Wild phalaris emerges at around planting time and competes strongly with winter crops. It is able to set seed before most crops are ready for harvest.

Distribution: Found throughout the southern and central cropping areas of Australia.

Origin: Native to the Mediterranean region.

Reference:

Crop Weeds of Northern Australia, p. 6

Plants of Western New South Wales, p. 131.

WEEDS of the South-East, p. 74.

Compiler: Graham Charles

Saccharum officinarum L.

Sugarcane

Family: Poaceae (Grass family).

Common names: Sugarcane, Nobel cane.

Confused with:

Description:

A cultivated crop plant producing sugar, widely grown in coastal Queensland and on the North Coast of New South Wales.

Seedlings – cane is normally propagated from stem sections. These sections (setts) produce strong, vigorous seedlings genetically identical to the parent plant. Early leaves are 10 - 40 cm length and 1 – 2 cm wide with a prominent mid-rib.

Leaves – up to 2 - 3 m in length and to 5 cm width. The ligule is membranous and triangular 4 – 5 mm long.

Mature Plants – erect, robust, tufted perennial growing to 6 m height. Stems are to 5 cm in width and very strong. Adventitious roots can develop at each node along the stem, enabling new plants to readily develop from stem sections.

Seed heads – a large open panicle up to 40 - 60 cm long and to 20 cm wide, containing many spikelets. Spikelets are 3 – 4 mm long, in pairs, with a ring of hairs at the base, 4 – 12 mm long. Flowering plants are uncommon outside the tropics.

Lifecycle / Biology: Sugarcane will emerge and grow at any time during the warmer months, but is generally planted in late spring/early summer. It is frost sensitive. Ratoon plants are commonly found in following crops but are readily controlled with herbicides, such as glyphosate.

Ecology: A common volunteer crop plant following cane. It is occasionally found naturilized around cane areas.

The Problem: Can be a minor problem in following crops.

Distribution: Commonly grown coastal crop plant in Qld. and Northern NSW.

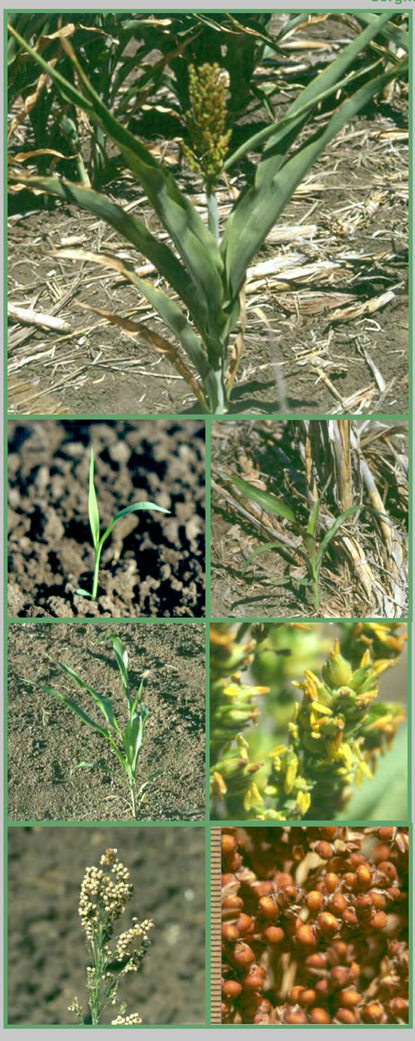
Origin: Native to New Guinea, and is widely grown throughout the wetter tropics.

Reference:

Compiler: Graham Charles

Sorghum bicolor subsp. bicolor (L.) Moench

Sorghum



Family: Poaceae (Grass family).

Common names: Sorghum, Broom millet, Forage sorghum, Grain sorghum, Great millet, Sweet sorghum.

Confused with: Johnson grass (S. halepense). This species (S. bicolour) also includes 3 other subspecies.

Description:

A range of grain and forage sorghums are available, giving rise to a wide range of plant characteristics. Hybrids between this and other species are also common.

Seedlings – erect and robust seedling. Leaves to 9 cm length and 1 cm width. Leaves of stressed seedlings and plants can develop red margins or stripes.

Leaves – up to 1 m in length and 8 cm width. The ligule is membranous, to 3 mm long.

Mature Plants – erect, robust annual to short-lived perennial grass standing 1 – 3 m high. Stems are 1 – 3 cm in width and very strong.

Seed heads – a large loose panicle up to 45 cm long and 23 cm wide. Seeds are 4 – 5 mm in diameter and are commonly red or white in colour.

Roots – plants commonly develop adventitious roots on the bottom 5 – 7 cm of the stems.

Lifecycle / Biology: Ratoon sorghum plants are common in zero tillage systems and sorghum establishes readily from seed during the warmer months. Sorghum is frost sensitive and will be burnt off over winter but ratoon plants can readily re-establish in spring.

Ecology: A common volunteer crop plant. Sorghum can have a high cyanide content and may be toxic to grazing animals but sorghum stubble is commonly cut for hay for livestock.

The Problem: Volunteer sorghum plants can be major weeds of fallows and other crops. Volunteers along roadways and irrigation structures can also be troublesome.

Distribution: Commonly grown summer crop plant in Qld. and Northern NSW.

Origin: Introduced from Africa.

Reference:

Plants of Western New South Wales, p. 139.WEEDS of the South-East, p. 79.

Compiler: Graham Charles

Sorghum halapense (L.) Pers.

Johnson grass

Family: Poaceae (Grass family).

Common names: Johnson grass, Aleppo grass, Evergreen millet.

Confused with: Sorghum (S. bicolor).

Description:

Seedlings – erect and robust seedling. The leaf sheath of young seedlings is purplish-red. Leaves to 4 cm length and 3 mm width. Leaves of stressed seedlings and plants can develop red margins or stripes.

Leaves – are predominantly flat, with a prominent midrib, up to 45 cm in length and 5 – 20 mm width. The ligule is membranous, 1 - 3 mm long, capped with hairs to 2 mm in length and surrounded with shorter (1 mm) hairs across the leaf sheath.

Mature Plants – an erect, robust perennial grass standing 1 – 2 m high. Stems are up to 1 cm in width and very strong.

Seed heads – a large open panicle 10 to 45 cm long and 20 cm wide. Seeds are 4 – 5 mm in length and covered with fine hairs. They are orange/red in colour.

Rhizomes – plants emerge both from seeds and from underground rhizomes.

Lifecycle / Biology: Johnson grass establishes from seed and underground rhizomes during the warmer months. It is frost sensitive and is burnt off over winter but plants readily re-establish in spring from rhizomes.

Ecology: A common weed along roadsides, crops and pastures, predominantly in wetter areas.

The Problem: Johnson grass can be a major weed of crops, pastures and fallows. It is readily grazed by livestock but can be toxic during dry times when plants are frosted, wilted or stunted. Johnson grass can hybridize with cultivated sorghum (S. bicolor) leading to problems with contamination, pests and diseases.

Distribution: Found throughout most of Australia. Common along road ways.

Origin: Introduced as a pasture grass but now considered a serious weed. A native of the Mediterranean area.

Reference:

Crop Weeds of Northern Australia, p. 3.

Plants of Western New South Wales, p. 139 - 140.

WEEDS of the South-East, p. 79.

Compiler: Graham Charles

Sporobolus creber De Nardi

Western rat's tail grass

Family: Poaceae (Grass family).

Common names: Western rat's tail grass, Slender rat's tail grass.

Confused with:

Description:

Seedlings – are initially erect, the 1st leaf 10 – 15 mm long and 1 – 2 mm wide, tapering to a point. The lateral ribs very obvious on the leaf surface. The 2nd leaf is 15 - 20 mm long and 3 – 4 mm wide. Successive leaves are longer, and tillers emerge by the time the 4th or 5th leaves have emerged. Although initially erect, the leaves bend under their own weight as the seedlings grow.

Mature **Leaves –** are 20 - 50 cm long and 2 – 4 mm wide, flat to partly folded when green and folded when dry. The ribs are apparent on the undersides of the leaves.

Mature Plants – an erect, tussocky rhizomatous perennial native grass 0.4 – 1.4 m high, with long stems that generally have only 2 – 3 nodes.

Seed heads – develop along the length of the upper stems, 20 – 60 cm long, 30 – 40 cm above the top leaf, with the first spikes 8 - 10 cm or so apart, gradually getting closer towards the terminal.

Seeds – are initially dark green or grey, becoming light brown at maturity, 0.7 mm in length, a blunt wedge shape, 0.6 mm wide and 0.4 mm deep.

Lifecycle / Biology: A summer growing perennial that flowers in summer and autumn.

Ecology: Found in wet areas, along sandy creek beds, and the heavy clays of the floodplains, most commonly in depressions.

The Problem: Western rat's tail grass is not a problematic species, but has little value in a pasture and indicates possibly water-logged soils.

Distribution: Found throughout the eastern half of NSW and southern Qld., generally occurring in moister areas such as creeks and depressions.

Origin: A native Australian species.

Reference:

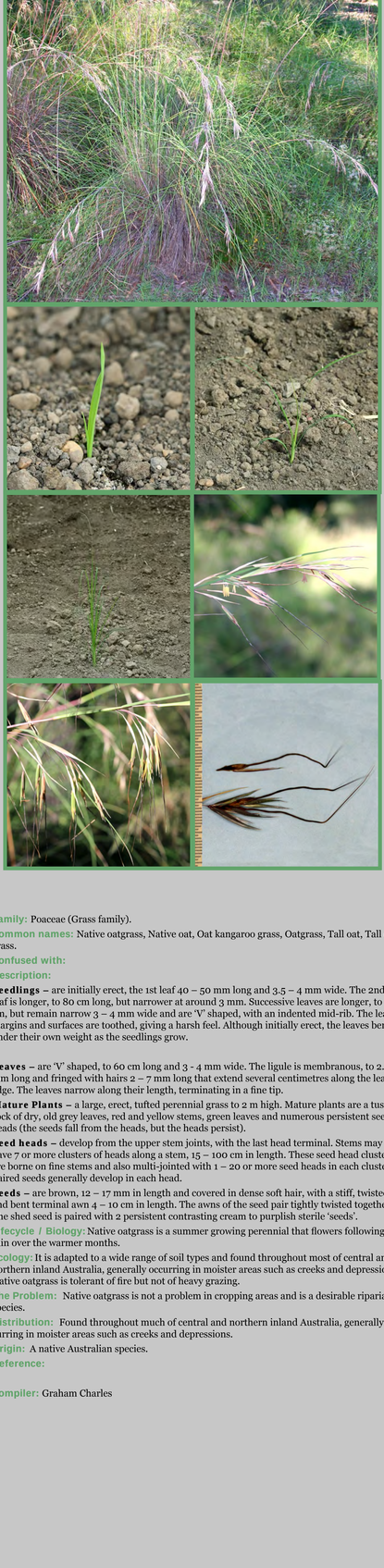
Plants of Western New South Wales, p. 141

WEEDS of the South-East, p. 80

Compiler: Graham Charles

Themoda avenacea (F. Muell.) Maiden & Betche

Native oatgrass



Family: Poaceae (Grass family).

Common names: Native oatgrass, Native oat, Oat kangaroo grass, Oatgrass, Tall oat, Tall oat-grass.

Confused with:

Description:

Seedlings – are initially erect, the 1st leaf 40 – 50 mm long and 3.5 – 4 mm wide. The 2nd leaf is longer, to 80 cm long, but narrower at around 3 mm. Successive leaves are longer, to 45 cm, but remain narrow 3 – 4 mm wide and are 'V' shaped, with an indented mid-rib. The leaf margins and surfaces are toothed, giving a harsh feel. Although initially erect, the leaves bend under their own weight as the seedlings grow.

Leaves – are 'V' shaped, to 60 cm long and 3 - 4 mm wide. The ligule is membranous, to 2.5 mm long and fringed with hairs 2 – 7 mm long that extend several centimetres along the leaf edge. The leaves narrow along their length, terminating in a fine tip.

Mature Plants – a large, erect, tufted perennial grass to 2 m high. Mature plants are a tussock of dry, old grey leaves, red and yellow stems, green leaves and numerous persistent seed heads (the seeds fall from the heads, but the heads persist).

Seed heads – develop from the upper stem joints, with the last head terminal. Stems may have 7 or more clusters of heads along a stem, 15 – 100 cm in length. These seed head clusters are borne on fine stems and also multi-jointed with 1 – 20 or more seed heads in each cluster. Paired seeds generally develop in each head.

Seeds – are brown, 12 – 17 mm in length and covered in dense soft hair, with a stiff, twisted and bent terminal awn 4 – 10 cm in length. The awns of the seed pair tightly twisted together. The shed seed is paired with 2 persistent contrasting cream to purplish sterile 'seeds'.

Lifecycle / Biology: Native oatgrass is a summer growing perennial that flowers following rain over the warmer months.

Ecology: It is adapted to a wide range of soil types and found throughout most of central and northern inland Australia, generally occurring in moister areas such as creeks and depressions. Native oatgrass is tolerant of fire but not of heavy grazing.

The Problem: Native oatgrass is not a problem in cropping areas and is a desirable riparian species.

Distribution: Found throughout much of central and northern inland Australia, generally occurring in moister areas such as creeks and depressions.

Origin: A native Australian species.

Reference:

Compiler: Graham Charles

Triticum aestivum L.

Wheat

Family: Poaceae (Grass family).

Common names: Wheat, Bread wheat, Common wheat.

Confused with:

Description:

Wheat is a widely grown winter crop. A wide range of varieties are available including dwarf, semi-dwarf and bearded varieties. Specialist grazing varieties, and tall varieties for hay production are also available.

Seedlings – an erect seedling. Leaves are 10 – 20 cm long and up to 15 mm wide. Seedlings begin to tiller soon after emergence, with multiple tillers forming from the plant base.

Leaves – are largely flat, up to 40 cm long and 20 mm wide. The ligule is membranous, 0.5 – 2 mm long and broadly rounded. The auricles are membranous.

Mature Plants – an erect annual grass to 1 m high.

Seed heads – form on the end of the stems. Heads are 5 – 10 cm in length, up to 2 cm in width and flattened with 2 rows of alternating seeds. They can be bearded, with stiff terminal awns up to 6 cm in length, or may be awnless. Seeds are typically around 4 – 5 mm in length.

Lifecycle / Biology: Wheat is a winter growing annual plant that flowers in spring and senesces as temperatures increase in late spring. Volunteers may establish in early summer, but will quickly senesce in hot, dry conditions.

Ecology: Wheat is adapted to a wide range of conditions. Volunteers are common in spring and early summer growing in fallows and rotation crops, on road sides, and in water ways.

The Problem: Volunteer wheat plants are common in fallows and rotation crops, on road sides, and in water ways. They are easily managed using glyphosate.

Distribution: The most widely cultivated crop plant in Australia. Wheat is the most common rotation crop used in the cotton system.

Origin: From the Mediterranean region.

Reference:

Compiler: Graham Charles

Urochloa panicoides P.Beauv

Liverseed grass

Family: Poaceae (Grass family).

Common names: Liverseed Grass, Urochloa grass.

Confused with:

Description:

Seedling Leaves – the seedling leaves are yellow/green, very broad, 4 – 7 mm wide, with hairs on the leaf margins and sheaths.

Adult Leaves – the adult leaves are light-green to yellow/green, usually with long hairs that may be scattered or dense. The leaves are 2 - 20 cm long and 3 - 15 mm wide with crinkled or wavy leaf margins. The leaf blades expand at the point of attachment to the stem.

Mature Plants – the stems either lie flat or bend upwards into an erect position, growing 15 – 80 cm high. The stems sometimes take root where the lower joints touch the ground. Plants may be tufted, or form a dense leafy mat.

Seed head – the seed head is about 10 cm long, has two to seven spikes (smaller heads) that arise off the main seed head stem. These spikes are 10 – 70 mm long. Seeds are produced in two rows along one side of each spike. The seed is produced in a spikelet (a group of small flower heads) that is 4 – 5 mm long. Seeds are light in colour, about 3 mm in length.

Lifecycle / Biology: An annual species that germinates mostly in late spring and summer and into autumn. The bulk of seedlings appear to emerge early season (spring and early summer). Rapid growth and flowering occurs during late winter, spring, summer and autumn.

Ecology: The plant is found on a wide variety of soils varying from clays to sands. The species is known to be a weed of disturbed ground, roadsides and cultivated areas.

The Problem: A troublesome weed in irrigated summer crops, including cotton. Liverseed grass produces a large number of seeds, making its management difficult.

Distribution: Northern NSW, Central NSW, Southern NSW, Southern Qld and Central Qld.

Origin: An introduced species.

Reference:

Crop Weeds of Northern Australia, p. 11.

Plants of Western New South Wales, p. 152.

WEEDS of the South-East, p. 82.

Compiler: Graham Charles and Stephen Johnson

Emex australis Steinh.

Spiny emex

Family: Polygonaceae (Dock family).

Common names: Spiny emex, Cape spinach, Devil's face, Doublegee, Goat's head burr, Jackie, Prickly jack, Three-cornered jack.

Confused with: Spiny emex looks similar to many of the other dock species during early growth but remains prostrate in the reproductive phase and is readily distinguished by its burrs.

Spiny emex can be distinguished from lesser jack (E. spinosa) by its larger burrs, where the lesser jack burrs are about half the size at 4 – 5 mm in length.

Description:

Seedlings – cotyledon leaves are long and narrow, 20 - 50 mm long by 4 - 10 mm wide with a rounded tip. Subsequent leaves are distinctly different, rounded, with long petioles and indented, pale venation. The 1st true leaves are 20 - 55 mm long by 15 - 35 mm wide borne on petioles 15 - 40 mm long. The 2nd true leaves, 50 – 70 mm long by 35 – 60 mm wide, on petioles 40 – 60 mm long.

Leaves – older leaves are more elongated and heavily veined. Leaves are arranged alternately, 3 - 15 cm long and 2 - 10 cm wide, on stalks 1 - 10 cm in length.

Plants – an annual or short-lived perennial weed with a well developed tap-root and spreading, prostrate stems to 1 m long. Plants are often darker green than the plants in the photographs.

Flowers – are bisexual, emerging from the leaf nodes. The male flowers are small, in loose clusters 2 – 5 cm long on short stalks to 2 cm long. The female flowers are in clusters in the leaf nodes and at the base of the male flowers. These flowers form the spiny burrs which give the plant its name.

Burrs – are woody and triangular in cross-section, brown, 6 - 11 mm in length and to 12 mm in width. Burrs have 3 stiff spines to 5 mm in length that are the apex of each face. Each burr encloses a single brown triangular seed 2 - 4 mm long.

Lifecycle / Biology: Most commonly germinates in autumn and winter and flowers in spring and early summer. However, plants can germinate and set seed at any time, and may become dormant in dry conditions and regrow from the crown. Large plants may produce a 1000 or more hard (dormant) seeds that may remain viable for at least 8 years.

Ecology: Spiny emex occurs mainly on alkaline and sandy soils, but will grow on heavier soils provided they are well drained. It is most commonly found in disturbed areas, cultivation and pastures.

The Problem: A competitive weed with a large, aggressive rosette that competes strongly with crops and pastures. Spiny emex burrs can cause injuries to livestock and operators. The weed is easily spread as the burrs readily become hooked in tyres, on clothing and are carried by animals.

Distribution: Found in most states and throughout the cotton area. It is most problematic in pastures, along roadways, in cultivation and in waste areas.

Origin: A native of South Africa.

Reference:

Crop Weeds of Northern Australia, p. 52.

Plants of Western New South Wales, p. 229.

Compiler: Graham Charles

Fallopia convolvulus (L.) Á.Löve

Black bindweed

Family: Polygonaceae (Dock family).

Common names: Black bindweed, Climbing buckwheat, Knot bindweed, Wild buckwheat.

Confused with: New Zealand spinach (Tetragonia tetragoniodes) and Spiny emex (Emex australis) at the seedling stage.

Description:

Seedling Leaves – are pale green and have an elongated, oval-shape.

Early Leaves – the first true leaves are egg-shaped, have a notched base and an arrow-head-shape.

Adult Leaves – are arrowhead-shaped tapering to a narrow point, 15 – 70 mm long and 8 - 40 mm wide.

Plants – an annual or biennial wining plant with thin stems to at least 100 cm long. The plants may be hairless or covered in very small fine hairs.

Flowers – are small, with white or pale green petal-like structures 3 - 4 mm long. Flowers occur in either small clusters at the end of stems or on long flowering stems that arise from the leaf forks.

Seeds – are three-angled, 4 - 5 mm long, hard and dark brown or black with a roughened surface. Seeds have the same general shape and are tightly enclosed in these heads, smooth, glossy black 2.5 – 4 mm in length.

Lifecycle / Biology: Germinates in spring and summer, and flowers during late spring and summer.

Ecology: Common on heavy clay soils. A common weed in wheat cropping systems.

The Problem: Black bindweed is a common weed of winter cropping and fallows, and can be an early season weed of cotton crops as well as gardens and waste areas. Problems generally occur when it is not adequately controlled in preceding wheat crops. It is difficult to control and if left to grow unchecked will form dense competitive patches where it climbs over cotton plants smothering and binding them together.

Distribution: Occurs in most states of Australia.

Origin: An introduced species from Europe/Asia.

Reference:

Crop Weeds of Northern Australia, p. 112 - 113.

Plants of Western New South Wales, p. 231 (this species was previously known as Polygonum convolvulus).

WEEDS of the South-East, p. 342.

Compiler: Graham Charles

Persicaria lapathifolia (L.) Gray

Pale knotweed

Family: Polygonaceae (Dock family).

Common names: Pale knotweed, Pale persicaria, Pink knotweed.

Confused with:

Description:

Seedlings – the cotyledon leaves are small, an elongated oval in shape, 4 mm long by 2 mm wide, borne on stalks 1 – 1.5 mm in length. The first true leaf is similar, although slightly longer, without a stalk and with an indented central vein. The 2nd true leaf is much larger and elongated, 5 mm long by 4 mm wide. The seedling stem is reddish in colour.

Leaves – are alternate along the stem, blade shaped 6 - 20 cm long and 1 - 6 cm wide borne on a short stalk 5 – 22 mm long, and with indented, often pink to brown central and lateral venation. The lower surface of the leaves is covered in glands, with fewer on the upper surface.

Plants – an erect, persistent annual plant with long, reddish stems to 1.8 m. Stems in contact with damp soil or water may develop adventitious roots from the nodes.

Flowers – are pink, but very small, in clusters 2 – 7 cm long and 4 – 7 mm in diameter, running up the tips of the branches

Seeds – a small brown seed 1.5 - 2 mm in length.

Lifecycle / Biology: Plants emerge year round and flower in summer. Dense stands of pale knotweed may persist throughout the year giving the impression of a perennial weed.

Ecology: Common on the banks of streams and around swamps and water ways, especially on alluvial and heavy clay soils. Dense populations can develop in irrigation ditches and drains.

The Problem: Pale knotweed can form very dense clumps in drains and irrigation channels, often growing in water and obstructing water movement. It is difficult to control with herbicides due to the proximity with water and troublesome to remove mechanically.

Distribution: Common throughout the Eastern States of Australia.

Origin: Uncertain. This may be a native weed.

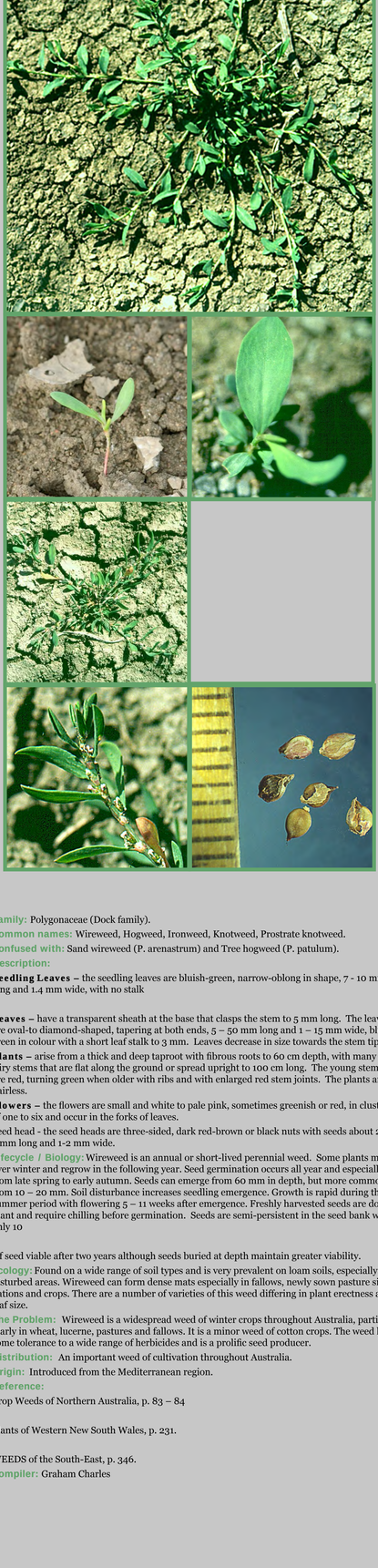
Reference:

Plants of Western New South Wales, p. 232. Note the change of genus name from Polygonum to Persicaria.

Compiler: Graham Charles

Polygonum aviculare L.

Wireweed



Family: Polygonaceae (Dock family).

Common names: Wireweed, Hogweed, Ironweed, Knotweed, Prostrate knotweed.

Confused with: Sand wireweed (P. arenastrum) and Tree hogweed (P. patulum).

Description:

Seedling Leaves – the seedling leaves are bluish-green, narrow-oblong in shape, 7 - 10 mm long and 1.4 mm wide, with no stalk

Leaves – have a transparent sheath at the base that clasps the stem to 5 mm long. The leaves are oval-to diamond-shaped, tapering at both ends, 5 – 50 mm long and 1 – 15 mm wide, blue-green in colour with a short leaf stalk to 3 mm. Leaves decrease in size towards the stem tips.

Plants – arise from a thick and deep taproot with fibrous roots to 60 cm depth, with many stiff wiry stems that are flat along the ground or spread upright to 100 cm long. The young stems are red, turning green when older with ribs and with enlarged red stem joints. The plants are hairless.

Flowers – the flowers are small and white to pale pink, sometimes greenish or red, in clusters of one to six and occur in the forks of leaves.

Seed head - the seed heads are three-sided, dark red-brown or black nuts with seeds about 2.2 - 3 mm long and 1-2 mm wide.

Lifecycle / Biology: Wireweed is an annual or short-lived perennial weed. Some plants may over winter and regrow in the following year. Seed germination occurs all year and especially from late spring to early autumn. Seeds can emerge from 60 mm in depth, but more commonly from 10 – 20 mm. Soil disturbance increases seedling emergence. Growth is rapid during the summer period with flowering 5 – 11 weeks after emergence. Freshly harvested seeds are dormant and require chilling before germination. Seeds are semi-persistent in the seed bank with only 10

of seed viable after two years although seeds buried at depth maintain greater viability.

Ecology: Found on a wide range of soil types and is very prevalent on loam soils, especially in disturbed areas. Wireweed can form dense mats especially in fallows, newly sown pasture situations and crops. There are a number of varieties of this weed differing in plant erectness and leaf size.

The Problem: Wireweed is a widespread weed of winter crops throughout Australia, particularly in wheat, lucerne, pastures and fallows. It is a minor weed of cotton crops. The weed has some tolerance to a wide range of herbicides and is a prolific seed producer.

Distribution: An important weed of cultivation throughout Australia.

Origin: Introduced from the Mediterranean region.

Reference:

Crop Weeds of Northern Australia, p. 83 – 84

Plants of Western New South Wales, p. 231.

WEEDS of the South-East, p. 346.

Compiler: Graham Charles

Rumex crispus L.

Curled dock

Family: Polygonaceae (Dock family).

Common names: Curled dock, Yellow dock.

Confused with: A number of different dock species grow in the cotton area.

Description:

Seedlings – the cotyledon leaves are lance shaped, 10 mm long and 3 mm wide. They may be green or purplish. The 1st true leaf is more oval shaped, larger and wider, 20 – 25 mm long and 14 – 15 mm wide, with a prominent, indented, lighter coloured main vein and has a 13 – 15 mm long stalk. Later leaves are larger again

Leaves – are blade shaped, wavy, with serrated margins, 11 – 40 cm long and 2 – 10 cm wide on long stalks, with prominent, indented, lighter coloured main and lateral veins.

Plants – a perennial weed with a large, long taproot. Plants initially form a dense rosette, and develop long, erect, robust branched stems to 1.5 m high as they mature. The upper leaves are smaller and narrower than the lower leaves.

Flowers – large numbers of flowers develop on the upper ends of the stems.

Seeds – are enclosed in a reddish/brown, 3-winged fruit 3 - 6 mm long. Seeds are similar in colour, angular, 3 sided, 2 – 3 mm in length.

Lifecycle / Biology: Curly dock seedlings emerge in autumn and winter, forming dense rosettes in the cooler months and flowering in late spring and early summer. Plants then die off or flourish in wet conditions over summer. They will re-shoot from the taproot after rainfall in autumn or winter.

Ecology: Adapted to a wide range of situations, including cultivation, pastures, road sides and creek banks. Often occurs in dense stands in suitable positions.

The Problem: A highly competitive winter and spring growing weed that will flourish in wet conditions. Established plants are difficult to control with herbicides and perenniate from the taproot.

Distribution: A widespread weed that grows throughout Australia.

Origin: A native of Europe.

Reference:

Crop weeds of Northern Australia, p. 56 - 57.

Plants of Western New South Wales, p. 234 - 235.

WEEDS of the South-East, p. 347.

Compiler: Graham Charles

Portulaca oleracea L.

Pigweed

Family: Portulacaceae (Portulaca family).

Common names: Pigweed, Common pigweed, Common purslane, Munyeroo, Neverdie, Perennial pigweed, Portulaca weed, Purslane, Red pigweed.

Confused with: Hairy pigweed (P. pilosa).

Description:

Pigweed is a variable species.

Seedling Leaves – the seedling leaves are 6 mm long and 2 mm wide and have an elongated, oval shape and a short leaf stalk. Both the seedling and first true leaves are purple/green in colouration and have purple leaf margins.

Early Leaves – the first true leaves are club-shaped and waxy, 7 mm long and 4 mm wide.

Leaves – can be opposite, or alternate, and are often clustered towards the ends of the branches. Adult leaves are shiny, oblong-, wedge- or club-shaped, 5 – 25 mm long, 3 – 10 mm wide and borne on stalks 2 – 5 mm long.

Plants – have fleshy circular stems that lie along the ground and vary in colour from green/brown to red/brown. The stems are 30 – 40 cm long and are easily broken.

Flowers – are yellow, 8 mm across and have four to six petals 4 - 7 mm long. Flowers are found in the leaf axils, are solitary, or in groups of between two and thirty flowers. The flowers remain open for only one day and then fall off to reveal a green cup that becomes the seed head capsule.

Seeds – the seed capsule is 3 – 6 mm long and contains numerous red/brown or black seeds that are released when the capsule top breaks off at maturity. The seeds are 0.5 – 1 mm in length, roughly circular and flattened, with a protruding rounded beak at the base.

Lifecycle / Biology: An annual or sometimes perennial species that germinates, grows and flowers in the warmer months. Mature seed is shed soon after flowering, when the upper part of the seed capsule lifts off to release numerous black seeds which have a high degree of hard seededness. Pigweed also propagates from stem sections that are easily broken off and transplanted with cultivation. It is very drought tolerant. Plants and stem sections disturbed by cultivation can sit on the soil surface for many weeks even in the middle of summer, before developing roots and re-establishing following rain or irrigation. Dense mats of pigweed can occur and tend to prevent the growth of other plants.

Ecology: Pigweed is adapted to a wide range of soil types and grows in most vegetation communities. It is a common weed of disturbed places, such as cultivation country, summer fallows and heavily grazed areas.

The Problem: A common weed in irrigated cropping, cultivated fields, along headlands, roads and channel banks. A difficult weed to control, particularly due to the weeds' ability to reproduce vegetatively.

Distribution: A very common weed, found throughout Australia.

Origin: Pigweed is found throughout the world.

Reference:

Crop Weeds of Northern Australia, p. 70.

Plants of Western New South Wales, p. 300.

WEEDS of the South-East, p. 348.

Compiler: Graham Charles and Stephen Johnson

Portulaca pilosa L.

Hairy pigweed

Family: Portulaceae (Portulaca family).

Common names: Hairy pigweed.

Confused with: Pigweed (P. oleracea). However, there are a number of obvious differences between the 2 species.

Leaf shape – hairy pigweed has much longer, narrower leaves, the leaves being 4 – 5 times longer than wide.

Stems – hairy pigweed has numerous hairs on the stems at the leaf junctions.

Flowers – pigweed has yellow flowers, whereas hairy pigweed has a red to purplish flowers or occasionally yellow.

Pods – hairy pigweed has numerous silky hairs around the flowers and pods.

Description:

Seedling Leaves – the seedling leaves are green, fleshy, 5 mm long and 2 mm wide, a very flattened oval in shape, ending in a pointed tip. Successive leaves are longer but remain slender, the 4th true leaf around 14 mm long by 2.5 mm wide. Silky hairs 5 – 8 mm in length are apparent arising from the leaf nodes.

Leaves – are alternate, shiny, long and narrow with a pointed tip, 15 – 25 mm long and 2 – 4 mm wide and are hairy at the leaf nodes.

Plants – a prostrate annual forming a mat 40 – 50 cm across, but often much smaller. Plants are green and succulent with some reddening on the stems under good conditions but are much smaller and more compact, red to greyish under harder conditions.

Flowers – are red to purplish or sometimes yellow, 6 - 12 mm across with five petals 3 - 8 mm long, the colour contrasting with the yellow pollen on the stamens. Flowers occur in clusters at the stem terminals, with 1 – 7 flowers in the cluster. The flowers remain open for only one day, with only 1 flower in the head open at a time. Once closed, the flower structures are partly obscured by the mass of silky hairs that surround the structures. A green pod develops under the fertilized flower which falls off to reveal the pointed brown cap of the seed capsule.

Seeds – the seed capsule is 2 – 4 mm wide and contains numerous black seeds that are released after the capsule top breaks off at maturity. The seeds are 0.4 – 0.8 mm in length, roughly circular, flattened and pitted.

Lifecycle / Biology: An annual that germinates, grows and flowers in the warmer months. Mature seed is shed soon after flowering, when the upper part of the seed capsule lifts off to release numerous black seeds.

Ecology: Hairy pigweed is adapted to lighter soil types and minimum cultivation although it can establish on heavy clay soils. It is a weed of disturbed places, such as lawns, cultivation, summer fallows and heavily grazed areas.

The Problem: Not normally a weed on the heavier soils used in irrigated cropping, but produces a mass of seed and is relatively difficult to control with glyphosate or cultivation.

Distribution: A weed of the tropics and semi-tropics, found in northern NSW, Qld the Northern Territory and northern WA, from open tropical rainforest though to cultivation and grasslands.

Origin: Native to the tropics.

Reference:

Compiler: Graham Charles

Anagallis arvensis L.

Scarlet pimpernel

Family: Primulaceae (Primula family).

Common names: Scarlet pimpernel, Blue pimpernel, Pimpernel, Red pimpernel.

Confused with:

Description:

Seedling Leaves – are glossy, angular and diamond to egg shaped, 6 mm long and 6 mm wide.

Leaves – are egg shaped with a pointed end, hairless and with no stalk, 5 - 25 mm long and 3 - 10 mm wide. The leaves are lightly glossy, yellowish-green to mid-green, soft and dotted with small black glands on the under side. Mature leaves have a prominent, indented mid-vein.

Mature Plants – a small, prostrate to semi-prostrate annual plant with spreading branches and weak 4-angled stems 5 - 30 cm long.

Flowers – are 5 – 12 mm across with 5 petals. They are very open, almost flat in sunlight but fold up in the dark. Flowers can be bright red, orange-red, or violet-blue with a dark purplish centre. Flowers emerge from the leaf forks, borne on slender stalks 7 – 12 mm in length

Seeds – form in a green, spherical capsule 3 – 5 mm across. The capsule is thin walled and becomes brown and brittle as it dries. When dry it splits around the middle, releasing the seeds. It is surrounded at the base by five, narrow, pointed sepals 5 – 7.5 mm long which remain attached to the capsule. Seeds are very small, 1 – 1.5 mm long, dark brown and angular with 3 sides.

Lifecycle / Biology: A winter-growing annual herb which flowers in late winter and spring. Plants can flower over the summer and perenniate under suitable conditions, but will not survive in hot summers.

Ecology: A common weed of pastures, fallows, gardens and waste areas. Scarlet pimpernel grows on a range of soil types, usually in moister situations.

The Problem: A common but minor weed in temperate areas.

Distribution: Found through much of Australia.

Origin: An introduced species from the Mediterranean region.

Reference:

Crop Weeds of Northern Australia, p. 86 - 87.

Plants of Western New South Wales, p. 546 - 547.

WEEDS of the South-East, p. 349.

Compiler: Graham Charles

Verbascum virgatum Stokes

Twiggy mullein

Family: Scrophulariaceae (Figwort family).

Common names: Twiggy mullein, Green mullein, Slender mullein.

Confused with: Great mullein (V. thaspus), which in older seedlings and plants is a robust, velvety-grey plant, covered in fine hairs on the leaves. The early seedlings of the 2 species may be similar, but by the 8th true leaf or so, the great mullein leaves are obviously greyish and densely haired (velvety).

Description:

Seedlings – the cotyledon leaves are a broad spoon in shape, 4 - 5 mm long by 4 - 7 mm wide, borne on stalks 2 - 3 mm long. The leaves are densely hairy and velvety to the touch. The first true leaves are oval to triangular in shape, 10 – 20 mm long and 8 – 17 mm wide, with no stalks and noticeably indented veins. Later leaves are progressively longer, with lightly lobed edges.

Leaves – plants develop a prostrate rosette of leaves to 50 cm across. The leaves are 8 – 30 cm long and 2 - 10 cm wide. They have a velvety feel to the touch but have few hairs on the upper surface. The stems emerge from this rosette, with progressively smaller leaves developing up the stems.

Plants – an erect biennial weed, 0.5 - 2 m tall with branching, erect stems. Plants die after reproducing.

Flowers – are densely packed along the upper portion of the stems, 30 - 80 cm in length. The flowers are yellow with a purple centre, 3 – 4 cm in diameter with 5 petals.

Seedpods – are a brown and woody globe, 5 – 9 mm across, borne on short stems, 3 - 6 mm long. The pods are made of 4 segments that come together in a central peak. Each pod contains numerous seeds.

Seeds – are cylindrical to a blunt pyramid in shape, 1 mm in length and 0.7 mm across. The seeds are brown, with a regular, indented pattern.

Lifecycle / Biology: Seedlings emerge in autumn and spring, growing over summer. Plants enter the reproductive phase in the following year flowering in late spring to early autumn.

Ecology: Adapted to a range of soil types but most common on roadsides, in pastures and disturbed areas. The small seeds and long life-cycle make this plant poorly suited to surviving in cultivation.

The Problem: Twiggy mullein is not a problematic weed in cotton, but is an alternative over-wintering host for heliothus and as such is undesirable in and around cotton fields.

Distribution: A widespread weed, found throughout most of Australia.

Origin: A native of western Europe.

Reference:

Plants of Western New South Wales, p. 601WEEDS of the South-East, p. 382-383.

Compiler: Graham Charles

Verbascum thapsus L. subsp. Thapsus

Great mullein

Family: Scrophulariaceae (Figwort family).

Common names: Great mullein, Aaron's rod, Blanket weed, Candlewick, Common mullein, Flannel leaf, Jacob's staff, Shepherd's club, Torches, Velvet dock, Wild tobacco.

Confused with: Twiggy mullein (V. virgatum), which is a greener, less robust plant, with few or no hairs on the leaves. The early seedlings of the 2 species may be similar, but by the 8th true leaf or so, the great mullein leaves are obviously greyish and densely haired (velvety).

Description:

Seedlings – the cotyledon leaves are spoon shaped, 2 mm long by 2 mm wide, borne on stalks 2 mm long. The leaves are densely hairy and velvety to the touch. The first true leaves are oval to circular in shape, 45 – 50 mm long and 30 – 35 mm wide, borne on stalks 10 – 15 mm long. Later leaves are progressively longer and pointed towards the tip. The veins are pale and indented and leaves have a greyish appearance and velvety surface.

Leaves – plants develop a rosette of semi-erect leaves to 50 cm long and 14 cm wide. The stem emerges from this rosette. The lower portion of the stem is surrounded by leaves that become progressively smaller towards the head.

Plants – a velvety biennial weed to 80 cm wide (in the rosette stage) and 2.5 m tall. Plants die after reproducing.

Flowers – are densely packed along the upper portion of the stem, up to 1 m in length, with some shorter branches on the lower portion. The flowers are yellow, 15 – 30 mm in diameter with 5 petals.

Seedpods – are a brown and woody globe, 7 – 10 mm long and broad, borne on short stems, to 7 mm long. Each pod contains numerous seeds.

Seeds – are a blunt pyramid in shape, 0.8 – 0.9 mm in length. The seeds are brown, with a series of ribs running along the length.

Lifecycle / Biology: Seedlings emerge in autumn and spring, growing over summer. Plants enter the reproductive phase in the following year flowering in late spring to early autumn.

Ecology: Adapted to a range of soil types but most common in pastures, woodlands and disturbed areas. The small seeds and long life-cycle make this plant poorly suited to surviving in cultivation.

The Problem: Great mullein is not a problematic weed in cotton, but is an alternative over-wintering host for heliothus and as such is undesirable in and around cotton fields.

Distribution: A widespread weed, found throughout much of southern Australia, especially in woodlands, pastures and disturbed areas.

Origin: A native of Europe and Asia.

Reference:

Plants of Western New South Wales, p. 600.

WEEDS of the South-East, p. 382.

Compiler: Graham Charles

Datura ferox L.

Fierce thornapple

Family: Solanaceae (Tomato family).

Common names: Fierce thornapple, Castor oil, False castor oil, Long-spined thornapple, Long-spurred thornapple, Thornapple.

Confused with: Common thornapple (D. stramonium), Downy thornapple (D. inoxia) and Hairy thornapple (D. wrightii). Natural hybridisation between fierce thornapple and common thornapple may occur. The species can be distinguished by:

Seedlings – fierce thornapple stems are purplish-black in colour whereas the stems of common thornapple are green.

• Fruit – the mature fruit of fierce thornapple and common thornapple stand erect, but the fruit of the other thornapple species hang down. The fruit of fierce thornapple and common thornapple can be readily distinguished as fierce thornapple fruit have 40 – 60 stout (fierce) spines 15 – 35 mm in length, whereas the fruit of common thornapple have many more (100 – 200) fine spines 6 – 16 mm long.

Description:

Seedling Leaves – spear or lance-shaped, 18 - 30 mm long and 4 mm wide, on stalks 2 - 4 mm long.

arly **Leaves –** the first two leaves are shovel-shaped. Subsequent leaves are broadly oval, and angular to triangular in shape, with wavy, scalloped margins.

Leaves – are arranged alternately along the branches 8 - 17 cm long and 6 – 16 cm wide, dark-green and have an unpleasant odour when crushed. The leaves tend to be borne near the branch tips.

Plants – grow up to 2 m high and have smooth, repeatedly forked stems. Stems are green or purple towards the base and may have some hairs.

Flowers – are pink to white, trumpet-shaped and up to 7 cm long. Flowers are borne singly on short stalks in the forks of the branches. They are made of 5 segments, with each segment ending in a fine point.

Seed heads – oval-shaped, 2 – 4.5 cm long, 1.5 – 3.5 cm diameter, grow upright and are covered with forty to sixty long, 15 - 35 mm, sharp, stout spines. These seed heads are initially green but become brown as they mature and split into 4 segments as they dry. The seeds are kidney-shaped, black or grey, pitted and 4 - 5 mm long.

Lifecycle / Biology: An annual summer growing species with a vigorous growth habit, particularly under wet conditions. Growth rates of up to two centimetres per day have been recorded. Germinates predominantly in spring and summer from depths of up to 7 - 8 cm in temperatures of 20 to 350C. Seeds may however germinate at any time of the year given at least 10 mm of rainfall or irrigation. Cultivation appears to stimulate germination by exposing the seeds to light. Flowering occurs from late spring to autumn and can occur within two weeks of emergence. Fierce thornapple is hard seeded coat.

Ecology: A common weed of cultivation and disturbed areas, often found in summer crops. Widespread throughout many cotton-growing areas, but more common on lighter alluvial soils rather than heavy clays.

The Problem: A large weed that strongly competes with cotton for water, light and nutrients and has the potential to obstruct harvesting machinery.

Distribution: A common weed throughout Australia.

Origin: A native of China.

Reference:

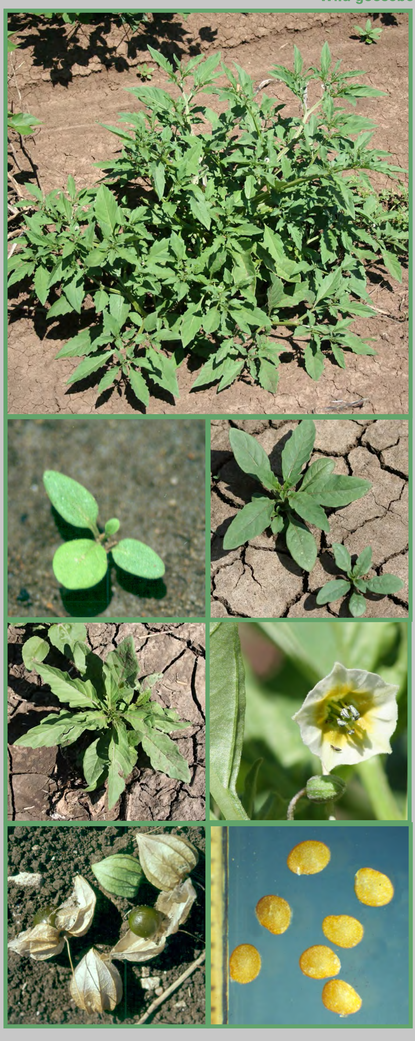
Crop Weeds of Northern Australia, p. 95 - 96.

Plants of Western New South Wales, p. 585.

Compiler: Graham Charles and Stephen Johnson

Physalis minima L.

Wild gooseberry



Family: Solanaceae (Tomato family).

Common names: Wild gooseberry, Chinese lantern, Indian gooseberry weed, Native gooseberry, Perennial gooseberry.

Confused with: Ground cherry (P. ixocarpa), Perennial ground cherry (P. virginiana), and Apple-of-Peru (Nicandra physalodes). There is some dispute as to whether this plant is P. minima or P. angulata. However, the plant in WEEDpak most closely fits the description of P. minima.

Description:

Seedling Leaves – egg-shaped and pale green, 8 mm long and 4.5 mm wide. These leaves have stalks 1 mm long.

Early Leaves – the first two leaves are oval, and subsequent leaves are egg-shaped with notched, wavy margins and prominent, indented central and lateral veins.

Leaves – oval to spear shaped with tapering tips and irregularly toothed margins. The leaves are alternate, 3 - 10 cm long and 2 – 4 cm wide, borne on stalks 4 – 6 cm long.

Plants – erect, soft and pale green, 30 - 80 cm tall with spreading, bushy branches. Some small hairs may be present on the plant.

Flowers – white to creamy yellow with five large brown spots in the centre, cup-shaped, about 5 - 10 mm in diameter and borne singly in the forks of the leaves on stalks 15 - 25 mm long. This is in contrast to the shorter flower stalks of ground cherry, that are 5 - 10 mm in length.

Seeds – the mature seed head has a yellow gooseberry-like berry, enclosed within a papery husk with ten ribs, five ribs more distinct than the other five. The seed head is initially pale green, becoming pale brown to straw coloured when mature. It is 22 - 30 mm long, and borne on a stalk that is 12 - 25 mm long. Each seed head contains a fleshy berry 8 - 14 mm in diameter. The berries contain numerous roughly circular, flattened, yellow seeds 2 mm across.

Lifecycle / Biology: An annual species that germinates predominantly during spring and early summer, grows and flowers in summer and autumn, and is killed by frosts. Plants can flower with 8 weeks of emergence and produce up to 500 seed berries per plant. Each berry contains numerous seeds that have strong seed dormancy.

Ecology: Commonly found near rivers, growing quickly after flooding has occurred.

The Problem: Wild gooseberry is a highly competitive plant with strong seed dormancy that can emerge and grow with young cotton, rapidly swamping cotton seedlings. Mature berries can also contaminate and stain the cotton lint.

Distribution: Occurs in most Australian States.

Origin: Crop Weeds of Northern Australia, p. 121 - 122.

Reference: WEEDS of the South-East, p. 390.

Compiler: Graham Charles

Solanum nigrum L.

Blackberry nightshade

Family: Solanaceae (Tomato family).

Common names: Blackberry nightshade, Black nightshade, Nightshade, Potato bush, Tomato bush, Wild currents.

Confused with: Glossy nightshade (S. americanum), Greenberry nightshade (S. opacum), and Cherry nightshade (S. physalifolium var. nitidibaccutum).

Description:

Seedling Leaves – are egg-shaped often with a pointed tip, 6 – 9 mm long and 3 – 5 mm wide, covered in soft hairs, and have leaf stalks 1.5 – 3 mm long. The stems and cotyledons may have a purple tinge. The first true leaves are similar in shape to the cotyledon leaves, but longer and broader.

Leaves – are egg-shaped with wavy margins, soft to touch, 2 – 14 cm long and 1 – 8 cm wide. These leaves are deep-green or purple-tinged with few to many hairs. The leaf stalks have narrow wings in the upper section of the stalk and are 5 – 40 mm long.

Plants – are erect with many branches and grow 30 - 120 cm tall. The stems are often ribbed, with purple or green stems and leaf mid-veins, and able to develop adventitious roots from the nodes. Adult plants are generally hairy.

Flowers – are star-shaped, with five white or purple-tinged petals, and are 8 – 12 mm in diameter. There is a central ring of five bright yellow stamens in the centre of each flower. The flowers/berries are produced in groups of 4 - 12 on stalks that are up to 1 cm long.

Seeds – the fruit is a green berry, 6 – 8 mm in diameter that turns purple-black or black when ripe. The berries are borne in clusters, with each berry arising at intervals along the stalk and not all from the same point (similar to a bunch of grapes). The fruit stalks turn downwards when in fruit. The berries produce small, flat, circular light brown seeds 2 – 2.5 mm in diameter.

Lifecycle / Biology: An annual or short-lived perennial weed that germinates throughout the year, though mostly from late winter to mid summer. Plants are able to reshoot from deep seated taproot material producing a number of stems that rapidly produce seed heads and compete with cotton early season. Flowering occurs mainly during the warmer months. Several thousand individual berries flower and ripen at slightly different times over a period of several weeks. Berries contain a large number of seeds. Plants may over-winter in standing stubble or in wheat crops and rapidly produce mature berries in warmer weather.

Ecology: A common weed of cultivated fields and wasteland. Blackberry nightshade grows in a wide range of soil and vegetation types.

The Problem: Blackberry nightshade is a competitive weed that can emerge with the cotton stand and out-compete young cotton plants. It is a weed favoured by reduced cultivation systems and can perenniate from the taproots. Mature berries can stain the cotton lint.

Distribution: A widespread weed, naturalised throughout Australia.

Origin: A native of Europe.

Reference:

Crop Weeds of Northern Australia, p. 118 - 119.

Plants of Western New South Wales, p. 588.

WEEDS of the South-East, p. 395.

Compiler: Graham Charles and Stephen Johnson

Datura inoxia Mill.

Downy thornapple

Family: Solanaceae (Tomatoe family).

Common names: Downy thornapple, Hoary thornapple, Recurved thornapple.

Confused with: Common thornapple (D. stramonium), Fierce thornapple (D. ferox) and Hairy thornapple (D. wrightii). The species can be distinguished by:

- Leaves and stems – downy thornapple is covered by a velvety down of fine hairs, particularly on the stems and the undersides of the leaves. None of the other thornapple species are covered with fine hairs except for hairy thornapple which is a relatively uncommon weed.

Description:

Seedling Leaves – spear- or lance-shaped, 18 - 30 mm long and 4 mm wide, on stalks 2 - 4 mm long.

Early Leaves – the first two leaves are shovel-shaped. Subsequent leaves are broadly oval, and angular to triangular in shape.

Leaves – (and stems) are densely haired, especially on the underside. Leaves are arranged alternately along the branches 6 - 20 cm long and 3 – 12 cm wide and dark-green. The leaves tend to be borne near the branch tips.

Plants – an annual or perennial summer growing weed up to 1.5 m high with velvety, repeatedly forked stems.

Flowers – are white, trumpet-shaped and 15 - 17 cm long. The flowers are borne singly, on short stalks in the forks of the branches. They are made of 5 segments.

Seed heads – spherical in shape, 3.5 - 5 cm in diameter and sit above a thickish collar. Flower buds are initially erect, but tend to droop at flowering and the seed heads point downwards. Seed heads are covered with numerous spines 5 – 10 mm in length. These seed heads are initially green but become brown as they mature, and may split irregularly as they dry. The seeds resemble small pebbles and are black, pitted and 3 - 5 mm in length.

Lifecycle / Biology: Germinates in spring and summer. Flowering occurs from late spring to autumn and can commence within only a few weeks of emergence. Plants are killed by frost in winter but may regenerate in spring from the root stock.

Ecology: A weed of waterways, cultivation and disturbed areas, Occurs throughout the cotton-growing area.

The Problem: A smaller, less competitive weed than fierce thornapple, but can still compete strongly with cotton for water, light and nutrients and has the potential to obstruct harvesting machinery.

Distribution: Found throughout mainland Australia.

Origin: A native of the Americas.

Reference:

Plants of Western New South Wales, p. 585.

Compiler: Graham Charles

Urtica urens L.

Dwarf nettle

Family: Urticaceae (Nettle family).

Common names: Dwarf nettle, Annual nettle, Burning nettle, English stinging nettle, Lesser nettle, Lesser stinging nettle, Nettle, Small nettle, Stinging nettle.

Confused with: Deadnettle and stagger weed. The species can be distinguished by:

- **Seedlings –** dwarf nettle leaves are dark green with sharply serrated edges. Stems are reddish towards the base. Stagger weed leaves are yellowish-green and egg-shaped, longer than they are wide. Stagger weed leaves have a minty smell when crushed. Deadnettle are darker green than stagger weed and more of a pointed-fan shape, wider than they are long.
- **Flowers –** Dwarf nettle flower are white and very small. The flower head is green. Stagger weed pale pink to pale lilac. Deadnettle flowers are purple to bright red.

Description:

Seedling Leaves – are roundly oval, 3 - 5 mm in diameter and with stalks 1 – 2 mm long. The first true leaves are broadly circular, with noticeable indentations on the sides. Leaves are lightly covered in hairs, and are corrugated by central and lateral veins. The leaf margins are roundly toothed.

Older **Leaves –** are dark green, 10 – 50 mm long and 10 – 40 mm wide, borne on leaf stems 10 – 30 mm long. The underside of the leaf is paler in colour than the top. Leaves are lightly covered in stinging hairs, and are corrugated by central and lateral veins. The leaf margins are sharply toothed, with a serrated appearance.

Plants – an erect annual to 60 cm high, dark green in colour. Stems are green at the top with vertical red stripes for much of the length and covered with stinging hairs.

Flowers – are very small and white, and occur in clusters in the upper leaf axils. The green flowering structures are much more apparent than the flowers.

Seeds – are a pointed oval shape, flattened, light brown, 2 – 2.5 mm long.

Lifecycle / Biology: An annual plant that emerges over the cooler months, flowering soon after emergence in winter and spring.

Ecology: A weed of gardens, waste areas, cultivation and stock camps. Well adapted to all soil types, but favours high organic matter content.

The Problem: A common and minor weed of cultivation. Dwarf nettle is not controlled by typical field rates of glyphosate and rarely eaten by livestock.

Distribution: Common in all states.

Origin: A cosmopolitan weed, originating in Europe.

Reference:

Plants of Western New South Wales, p. 210 - 211.

WEEDS of the South-East, p. 402.

Compiler: Graham Charles

Phyla canescens (Kunth) Greene

Lippia

Family: Verbenaceae (Verbena family).

Common names: Lippia, Carpetweed, Fog fruit.

Confused with:

Description:

Seedlings – cotyledons are a broad club shape and very small, 2.5 mm long. The first true leaf is roughly the same shape, but much larger, 8 – 10 mm long by 3 – 4 mm wide. Later leaves are again larger, and are serrated towards the tip.

Leaves – are broadly club shaped, with serrated teeth towards the tip, 5 – 15 mm long, 2 – 4 mm wide, and opposite along the stems. Leaves are borne on a short stalk 1 – 8 mm long.

Plants – a highly invasive, prostrate, matting, perennial weed with an extensive root system. Stems are 30 – 90 cm long and highly branched. Plants readily root at the stem nodes and can establish from short stem sections.

Flowers – are in small clusters on the end of stalks 1 – 10 cm long. Flowers are generally white with a light yellow centre, but can be pink or mauve. Flowers are each 2 – 2.5 mm in diameter.

Seeds – each fruit contains 2 light brown seeds 1.8 mm in length.

Lifecycle / Biology: Lippia flowers through spring, summer and autumn, setting large quantities of seed. It also readily establishes from small pieces, particularly after flooding. Plants become dormant in winter, but grow actively during the warmer months.

Ecology: Lippia grows in flood plains and damp area, such as road table drains. In favourable conditions, lippia grows very rapidly and spreads through the plant under story, eventually choking out other plants. It is able to climb up and over most pasture plants.

The Problem: Lippia does not tolerate cultivation, and so is not a problem in cultivation country. However, it is a major weed of pastures and could be increasingly problematic in zero-tillage cultivation and on irrigation structures. Lippia produces only a relatively small bulk of feed and has a major negative impact on pastures by replacing other species in what are often the most productive areas. Lippia also has a major negative impact on water ways, as its extensive root system dries the soil to depth, leading to extensive soil cracking, leaving the soil very open to erosion. This characteristic could easily lead to cracking and failure of storages and irrigation banks if this weed becomes established on these places. Lippia is not difficult to kill with herbicides, but can re-establish rapidly from seed.

Distribution: Has become established in many of the river systems of Australia.

Origin:

Reference:

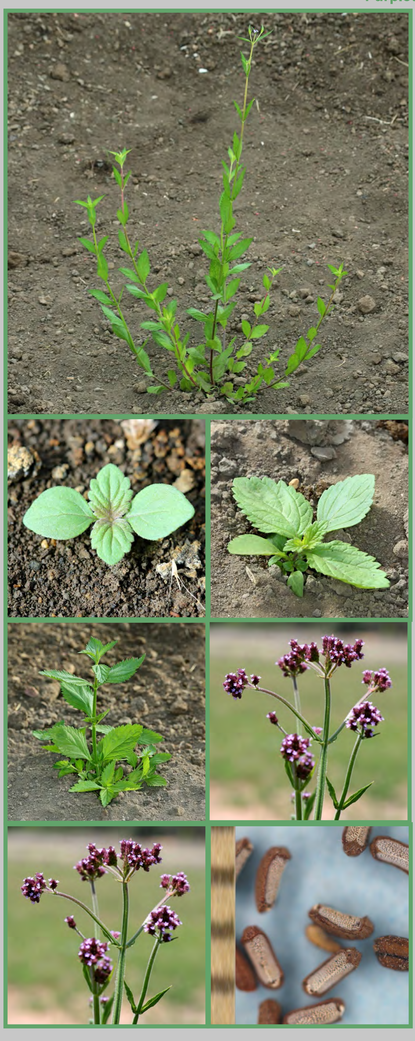
Plants of Western New South Wales, p. 568.

WEEDS of the South-East, p. 404.

Compiler: Graham Charles

Verbena bonariensis L.

Purpletop



Family: Verbenaceae (Verbena family).

Common names: Purpletop, Bluetop, Blanket weed, Cluster-flowered verbena, Cluster-flowered vervain, Purpletop verbena, Purpletop vervain, Tall verbena.

Confused with: There are 8 species of verbena in Australia but mature purpletop plants are typically much taller than any of the other species and can be separated from these species on height alone.

Description:

Seedlings – the cotyledon leaves are oval in shape with a slightly pointed tip, 2 – 3 mm long by 3 - 4 mm wide, with indented veins that may be purpleish. The cotyledons are hairy with the hairs most obvious on the edges of the cotyledons. The hairs are around 0.3 mm long. The 1st true leaves are similar in shape, growing to 25 – 30 mm long and 15 – 20 mm wide and have a serrated edge. The 2nd true leaves are larger again, with more heavily serrated edges and indented veins.

Leaves – plants begin branching from the base by the time the 3rd true leaf is fully expanded and the central stem begins to elongate soon after. Leaves develop in pairs along the stems, 40 – 200 mm long and 10 – 70 mm wide, a flattened diamond in shape, with serrated edges. The leaves are much smaller towards the tops of the stems, with additional stems emerging from the leaf nodes towards the tips. The stems are rigid, squarish and hairy on the edges, purplish for most of their length but green towards the top. The leaves also can be purplish, especially on the veins. The hairs on the leaves make the leaves rough to the touch.

Plants – a branching erect biennial weed 1.5 - 2 m tall.

Flowers – are densely packed in compound heads 1 – 5 cm long at the ends of the branches. The flowers are pale to dark purple, 3 – 4 mm in diameter with 5 petals.

Seeds – are small, 1.4 – 1.8 mm long and 0.6 - 0.8 mm wide and almost a bean shape, with a mottled darken brown outside and a pale brown inside.

Lifecycle / Biology: Seedlings emerge in spring, growing mainly over the warmer months, becoming progressively more dense and bushy over time. Plants flower over the warmer months.

Ecology: Occurs in moist areas such as drains, creek lines and floodways.

The Problem: Purpletop is not a problem weed in cotton fields but can be problematic in creeks and drains, around pump sites and on fence lines. It is a weed of cultivation, pastures and roadsides.

Distribution: A common weed in wetter areas such as drains and creek lines on the Downs and throughout NSW.

Origin: A native of South America.

Reference:

Crop Weeds of Northern Australia, p. 101 – 104.

Plants of Western New South Wales, p. 569.

WEEDS of the South-East, p. 404.

Compiler: Graham Charles

Tribulus micrococcus Domin

Yellow vine

Family: Zygophyllaceae

Common names: Yellow vine, Native yellow vine, Spineless caltrop.

Confused with: Cat-head (T. terrestris). There has been some confusion between yellow vine and cat-head, and different varieties within yellow vine itself. The species can be distinguished by:

Leaves – yellow vine's leaflets are bright green, 6 - 13 mm long and 3 - 5 mm wide, where as cat-head's are a bluish/grey colour generally 4 – 8 mm long and 2 – 4 mm wide.

Flowers – yellow vine has open, bright yellow flowers with petals 6 – 13 mm in length, where as cat-head's flowers are normally not prominently open, with petals 3 – 6 mm long.

Seed head – the yellow vine seed and seed head is spineless, or nearly so, where as cat-head seeds each have 4 robust spines, 2 spines that spread near the tip, 3 – 8 mm long, and 2 shorter spines at the base, 1 – 4 mm long.

Description:

Seedling Leaves – the cotyledon leaves are oval-shaped, 8 mm long and 5 mm wide, with a flattened tip and are borne on stalks about 1 – 2 mm long. Seedlings grow prostrate, along the ground. The 1st and 2nd true leaves have two and three pairs of leaflets (smaller leaves on a short stem) respectively. The number of leaflets increases on later leaves.

Leaves – have 3 - 7 pairs of oblong-shaped leaflets, 6 - 13 mm long and 3 - 5 mm wide. These leaves appear to shine and have hairs on the leaf margins.

Plants – the mature plants lie flat on the ground. The adult stems are red or purple/brown in colour and 1 – 2 m in length. The stem tips are covered in fine white hairs. A taproot aids in the survival of this species.

Flowers – occur singly and have five, bright yellow, broadly paddle shaped petals each 6 - 13 mm long and 8 – 10 mm across. The flower diameter ranges from 15 – 25 mm.

Seeds – the seed head is a globular burr, initially green, but becoming pale red/brown at maturity, 7 – 12 mm wide with five woody segments, each containing 1 – 3 seeds, and with 2 short very spines that spread near the tip 0.5 - 2.5 mm long.

Lifecycle / Biology: Normally an annual weed, responding very quickly to summer rain, and dieing off as soil moisture levels drop. Germination occurs after effective rainfall in the warmer months. Flowering and seed head production occurs from spring to autumn. The burr segments protect the seeds and allow them to remain viable for many years before germinating.

Ecology: A common plant found on clay and clay-loam soils, and a weed of disturbed situations.

The Problem: Yellow vine can be a major summer weed in summer fallows. It is able to respond very quickly to rain, forming a thick mat within a few weeks of rain that is very difficult to manage with cultivation.

Distribution: Occurs mainly in New South Wales and Queensland. A common weed in the inland farming area.

Origin: Probably a native species.

Reference:

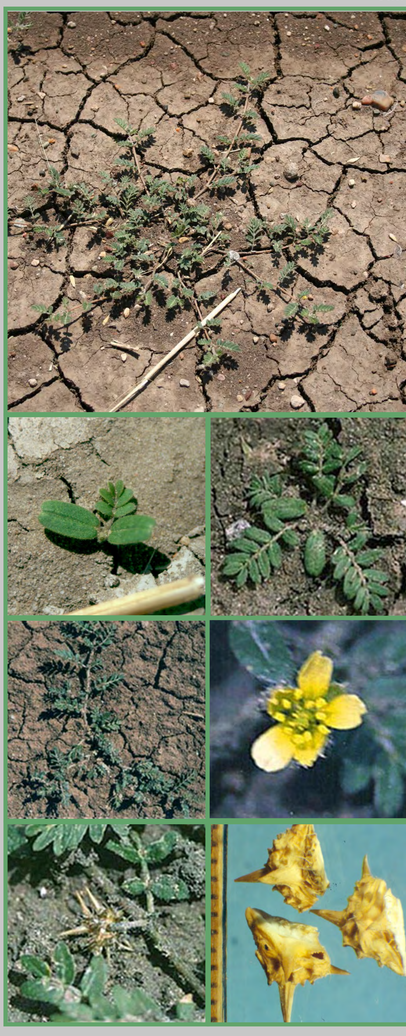
Crop Weeds of Northern Australia, p. 74

WEEDS of the South-East, p. 408.

Compiler: Graham Charles and Stephen Johnson

Tribulus terrestris L.

Cathead



Family: Zygophyllaceae.

Common names: Cathead, Bindyi, Burnut, Bullhead, Bull's head, Caltrop, Cat's head, Devil's thorn, Goathead, Goat head burr, Goat's head, Puncture vine.

Confused with: Yellow vine (T. micrococcus). There has been some confusion between yellow vine and cat-head, and different varieties within yellow vine itself. The species can be distinguished by:

- **Leaves –** yellow vine's leaflets are bright green, 6 - 13 mm long and 3 - 5 mm wide, where as cat-head's are a bluish/grey colour generally 4 – 8 mm long and 2 – 4 mm wide.
- **Flowers –** yellow vine has open, bright yellow flowers with petals 6 – 13 mm in length, where as cat-head's flowers are normally not prominently open, with petals 3 – 6 mm long.
- Seed head – the yellow vine seed and seed head is spineless, or nearly so, where as cat-head seeds each have 4 robust spines, 2 spines that spread near the tip, 3 – 8 mm long, and 2 shorter spines at the base, 1 – 4 mm long.

Description:

Seedling Leaves – the cotyledon leaves are oval-shaped with a flattened tip, 8 mm long and 4.5 mm wide, borne on stalks 1 – 2 mm long. They have a prominent, indented, central mid-rib. The 1st and 2nd true leaves have 2 and 3 pairs of leaflets, respectively. The number of leaflets increases on later leaves. The early leaflets are mid to dark green, shiny and have hairs on their margins.

Leaves – have 4 – 8 pairs of elongated oval-shaped leaflets, 4 – 10 mm long, 2 – 4 mm wide and have short stalks or no stalk at all. The leaflet pairs are not equal in length. The upper leaflet surface is green to greyish/blue. The lower leaf surface is paler and also hairy giving the surface a silvery appearance. Leaves are opposite on the stem.

Plants – young stems and leaves are covered in long silky hairs. Plants have a prostrate growth habit with the adult stems much branched, purple/brown to red/brown, to 2 m in length. The weed often forms mats and radiates out from a deep woody taproot that extends to 2.6 metres in depth and has a number of fibrous lateral roots.

Flowers – occur singly and have 5 yellow petals, 3 - 6 mm long. The flower diameter ranges from 6.5 – 12 mm. Flowers are borne in the leaf fork of the smaller leaf in the leaflet pair and last only one day.

Seeds – the mature seed head is a star-shaped, woody, brown to red burr, 6 – 15 mm in diameter, with 5 wedge-shaped woody segments. Each segment has 4 hard spines, 2 spines that spread near the tip, 3 – 8 mm long, and 2 shorter spines at the base, 1 – 4 mm long. The seeds are yellow, oval-shaped, 2 – 5 mm long. There are 2 to 4 seeds in each segment, or up to 20 per burr.

Lifecycle / Biology: An annual or biennial plant that germinates after rainfall in late spring and summer, from up to 5 cm depth in lighter soils. Plants grow rapidly, developing a deep root system within a few weeks. First flowers can appear within 3 weeks of emergence and the first seed heads in 5 - 6 weeks. 100 - 500 seed heads can be produced by a mature plant. Flowering continues over summer and autumn, until the plants are frosted off and die. Very few seeds germinate after shedding, but dormancy disappears within six months. The woody covering protects the seeds and allows buried seed to remain viable for many years. The plant can re-grow from the taproot and in more tropical areas may reshoot from the taproot in the following season. The burr segments are easily dispersed as they stick to tyres, shoes etc.

Ecology: A weed of cultivation, degraded pastures, roadsides, irrigation channels and mechanically disturbed areas. Well adapted to all soil types, growing particularly well on lighter soils.

The Problem: A common but troublesome weed to control on irrigation structures and rotabucks, and in many cultivated crops, particularly on recently developed fields. Control of this weed is difficult to achieve through cultivation alone because of successive germination events and the ability of the plant to reshoot from the taproot. The hard spines can puncture tyres and cause physical injury.

Distribution: Common in all mainland States of Australia.

Origin: A cosmopolitan weed originating in the Mediterranean region.

Reference:

Crop Weeds of Northern Australia, p. 74

Plants of Western New South Wales, p. 438.

WEEDS of the South-East, p. 408.

Compiler: Graham Charles and Stephen Johnson

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