

# Country Energy Weed Guide



**countryenergy**  
powerfulstuff

## How to manage weed problems

Understand how the plant reproduces and disperses – and minimise its opportunity to do so.

- Cactus and many other succulents will grow from broken pieces of the parent plant. Slashing of such plants only helps them spread.
- Undertake control measures at the right time. For example, many species of the daisy family have fruits that are readily dispersed by wind (Groundsel Bush) or water (Parthenium Weed). Plants need to be killed prior to the fruits and seeds maturing. Use mechanical removal when the numbers are small or appropriate herbicides for larger populations.
- In some cases grazing at the right time can prevent seed set and at least reduce the spread of a weed. Such management needs to be applied carefully as given the choice, stock may simply avoid less palatable species such as African Love Grass. Large numbers of animals for a short time reduces grazing selectivity.

Check out any new plants that you may find. They may be overlooked natives of value or they may be new/potential weeds. Knowing their identity will help you develop appropriate management.

# Country Energy Weed Guide

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## Collection of plant specimens

If you need identification of a plant, a botanist at an herbarium is likely to help if you take or send a good specimen with associated information.

- A good specimen will usually include a stem with leaves attached (plus base of the plant for herbaceous species), flowers and/or fruits.
- Contact the institution prior to sending or taking a specimen to check whether they are happy to look at the specimen and whether you should bring it fresh or pressed and dried. Charges may apply so ask first.
- Specimens can be kept fresh in a fridge for a few days in a sealed plastic bag with a splash of water.
- Don't post specimens in a plastic bag as they will rot. If you need to post specimens you will have to press and dry them first (see photos and web sites below). Specimens should be prepared by cutting or bending to lengths of about 400 mm. Press specimens between single sheets of newspaper alternated with sheets of cardboard for rigidity, all held together under pressure. Dry with a fan heater or change papers each day until specimens are dry.
- For small and herbaceous species use whole plants including any underground parts.
- Some plants need special treatment, so check out the web sites for information or speak to a botanist before you send material.
- Keep a numbered sample yourself so you can match the name you get with your specimen.
- Information that you provide about the plant and the site is as important as a good specimen.
- Link the information and specimen using a tag with your name and a number-series.
- Record the information while you are still in the field.
- Send the information with the specimen and keep a copy.



Pressing specimens immediately after collection in the field



Whole plants; multiple individuals; sheet tagged with the collector's name and number

### Some useful internet sources

- UNE's quick guide to collecting and preparing plant specimens:  
[www.une.edu.au/botany/plant\\_collecting.htm](http://www.une.edu.au/botany/plant_collecting.htm)
- Australian National Herbarium's guide to collecting plants:  
[www.anbg.gov.au/cpbr/herbarium/collecting/index.html](http://www.anbg.gov.au/cpbr/herbarium/collecting/index.html)
- Plant Information Network System of the Botanic Gardens Trust, Sydney:  
[plantnet.rbgsyd.gov.au/](http://plantnet.rbgsyd.gov.au/)

## Tiger Pear *Opuntia aurantiaca*



(a)



(b)



(c)



(d)

## Tiger Pear *Opuntia aurantiaca*

**Alternate name:** Jumping Jack

**Origin:** Argentina, Paraguay, Uruguay

**Description:** A low-growing branching cactus with segments mostly 20–40mm in diameter and up to 100mm long. The fleshy segments bear spines up to 40mm long embedded in clusters of short, white hair-like spines. The long spines have fine barbs near their points so that they adhere to clothing, tyres and animals. The tangled mass of segments is rarely taller than 300mm and can be difficult to see in long grass.

**Flowers:** The flowers are solitary, with a cup-like base bearing clusters of hairs and spines. The inner petals are yellow and the flowers are about 25mm in diameter. The fruits are ovoid, 20–30mm long and green to reddish purple in colour.

**Other features:** Segments may be as short as 10–20mm and are readily detached from the rest of the plant. Any segment that falls on the ground can develop roots and grow. These segments often adhere to animals because of the barbed spines and grow where they fall.

**How the weed is spread:** By segments adhering to boots, clothing, animals or vehicles, or by water.

**Interesting facts:** Tiger Pear is often found along fence lines where the segments fall after being brushed off by animals rubbing against the wire.

### **Pictures:**

(a) Tiger Pear along fenceline. (b) Tiger Pear segment showing spines. (c) Magnified spine. (d) Segment sticking to a boot.



## Bathurst Burr *Xanthium spinosum*



(a)



(b)



(c)



(d)

## Bathurst Burr *Xanthium spinosum*

**Origin:** South America

**Description:** An annual herb to 1m high with glossy dark green leaves and white, prominent veins. The leaves are usually three-lobed and their undersides are whitish in colour. The stems bear rigid three pronged spines at the base of the leaves, 7–25mm long. The plants grow throughout the year in warm climates, but are killed by frost in cooler regions. The fruits are numerous and bear hooked spines.

**Flowers:** The plants bear separate male and female flowers with the male flowers clustered at the ends of the branches. The female flowers are borne in the axils of the leaves and develop into fruit, 10–12mm long and bearing numerous hooked spines about 3mm long. The terminal two spines are straight and about 2mm long.

**Other features:** Bathurst Burr is a common weed in both cropped land and pastures. It occurs on most soil types and the seeds are stimulated to germinate by soil disturbance. It often becomes abundant after floods.

**How the weed is spread:** The burrs readily adhere to clothing and to animals and represent a substantial cost to growers of contaminated wool. The plants with the burrs attached are often spread by flood waters.

**Interesting facts:** Each burr contains two seeds and one is usually more dormant than the other. The dormant seed of the pair may remain viable in the soil for many years and germinate when the soil is disturbed.

### Pictures:

- (a) Bathurst Burr plant
- (b) Lobed leaf with white veins
- (c) Hooked spines of the burr
- (d) Three pronged spine and burrs



## African Love Grass *Eragrostis curvula*



(a)



(b)



10

(c)



(d)

## African Love Grass *Eragrostis curvula*

**Origin:** South Africa

**Description:** Robust, perennials up to 1m tall, mainly summer growing. Plant colour varies between greyish to bright green. The leaves are flat or rolled and some types have a characteristic dry curl at the tip. The leaves are harsh and tough and unpalatable to livestock. The ligule is a rim of hairs to 0.5mm long and the collar region is often hairy. Very variable and includes the Curvula, Chloromelas, Robusta and Conferta types.

**Flowers:** The inflorescences are open or contracted and dark grey in colour. The spikelets contain 4–14 florets and the lemmas are up to 2mm long. The mid-vein is closer to the margin than to the fold of the lemma. The grain is more than twice as long as broad.

**Other features:** African Love Grass is common along roadsides in many regions and can take over to form mono-specific stands. Originally more common on sandy soils, but in recent years has extended its range to a wide range of soil types. It is extremely difficult to manage in pastures and gradually takes over because of its low palatability to livestock.

**How the weed is spread:** The seeds are small and easily spread along roadsides by slashers and grading equipment. From there, African Love Grass readily invades adjacent pastures or reserves.

**Interesting facts:** African Love Grass is usually considered a valuable pasture species in its native South Africa. Consol Love Grass has been selected for high palatability in Australia and is a green Conferta type.

### Pictures:

(a) African Love Grass (b) Spikelets each with about eight florets  
(c) Ligule of hairs (d) Grains of African Love Grass



## Groundsel Bush *Baccharis halimifolia*



(a)



(b)



(c)



(d)

## Groundsel Bush *Baccharis halimifolia*

**Origin:** North America

**Description:** Shrubs grow to 6m tall, mostly 2–4m, with minutely ridged stems. Leaves are scattered along stems, each up to 70mm long and 40mm wide, mostly coarsely toothed except for smaller upper leaves. ‘Seeds’ are 1 to 2mm long, pale brown, with a cluster of white hairs (pappus). Functional male and female flowers occur on separate plants. The mature fruit give the female plants a fluffy, conspicuous appearance.

**Flowers:** Flowers are white to pale yellow or green, in heads in groups at the ends of branches. Flower heads are 3–5mm in diameter and surrounded by many bracts. The male heads are smaller and the flowers on the female heads develop into fruits each with a plumose pappus.

**Other features:** Groundsel Bush is common in low-lying areas, forest woodland or pasture, often in swampy sites, particularly if disturbed. Conspicuous longitudinal markings occur on the bark and shoots. It often forms dense, impenetrable stands.

**How the weed is spread:** The plumose fruit are dispersed by the wind and carried by floodwaters.

**Interesting facts:** The pollen is suspected of causing hayfever.

### Pictures:

- (a) Groundsell plant
- (b) Characteristic leaf shapes
- (c) Flowering heads from a male plant
- (d) Heads from a female plant



## Noogoora Burr *Xanthium occidentale*



(a)



(b)



(c)



(d)

14

## Noogoora Burr *Xanthium occidentale*

**Alternate names:** Cockle Burr, Cat's Eggs. Several entities are included in this complex.

**Origin:** America

**Description:** Annual herb to 2m tall with purplish hairy stems. Leaves are scattered along stems, to 150mm long, 3- or 5-lobed, toothed, rough, dullish dark green above, paler on undersides and with purplish veins. Plants grow throughout the year in warm climates but are killed by frost. 'Fruits' are hard burrs, egg-shaped, about 18mm long, covered in hooked spines and with 12 longer thicker spines at one end.

**Flowers:** Plants bear separate male and female flowers. Male flowers are in globular clusters towards the ends of branches. Female flowers are clustered where leaves are attached to stems and develop into burrs.

**Other features:** A common weed of river and creek banks, valley flats and other low-lying areas prone to flooding. Stems are roughly hairy but lack spines (compare with spiny-stemmed Bathurst Burr).

**How the weed is spread:** Burrs are readily spread by adhering to clothing and animals. Particularly common after inundation due to spreading by floodwaters.

**Interesting facts:** Toxic to livestock when immature. Can cause dermatitis in humans and animals.

### Pictures:

- (a) Noogoora burr plant
- (b) Lobed leaves
- (c) Clusters of female flowers
- (d) Burrs



## Parthenium Weed *Parthenium hysterophorus*



(a)



(b)



(c)



(d)

## Parthenium Weed *Parthenium hysterophorus*

**Origin:** North America

**Description:** Annual herb or shrub to 2m tall, roughly hairy and with gland or resin dots making it ill-smelling. Leaves are scattered along stems, much dissected, to 200mm long, 100mm wide, white hairy, with the upper leaves becoming smaller and less divided. 'Seeds' are black, about 2mm long.

**Flowers:** Flowers are white, in small heads about 4mm diameter surrounded by bracts and grouped at the ends of branches.

**Other features:** A weed of cultivated areas, pastures and roadsides.

**How the weed is spread:** Originally arrived in New South Wales as a contaminant of grain; contaminated seed provides a means of spread of the weed. Spread also by vehicles and farm machinery.

**Interesting facts:** Causes allergic reactions in humans and livestock including contact dermatitis and respiratory problems. Can be confused with the Ragweeds (*Ambrosia* species) or Wormwoods (*Artemisia* species).

### Pictures:

- (a) Flowering plant
- (b) Seedling
- (c) Deeply divided mature leaves
- (d) Flower heads



## St. John's Wort *Hypericum perforatum*



(a)



(b)



(c)



(d)

## St. John's Wort *Hypericum perforatum*

**Origin:** Europe, western Asia and northern Africa

**Description:** Shrub with erect stems to about 1m tall from a perennial woody rhizome. Leaves are in opposite pairs along stems, each 5–25mm long, 2–10mm wide, those on side branches smaller, minutely gland-dotted. Fruit are sticky brown capsules about 5–10mm long with many tiny brown to black seeds.

**Flowers:** Flowers are usually grouped at the ends of branches. Each flower is about 20mm diameter with five yellow petals with black dots on their edges and many stamens.

**Other features:** St. John's Wort is a weed of woodland and pasture, particularly disturbed areas such as rough grass and roadsides.

**How the weed is spread:** The sticky capsules and tiny seeds can be spread by animals, machinery and water.

**Interesting facts:** Plants can cause photosensitivity in livestock if eaten. Extracts have been used medicinally for centuries. The word "perforatum" is from the appearance of the gland-dotted leaves.

### Pictures:

- (a) Flowering plant
- (b) Leaf showing glands
- (c) Flowers
- (d) Fruit



## Silverleaf Nightshade *Solanum elaeagnifolium*



(a)



20

(b)



(c)



(d)

## Silverleaf Nightshade *Solanum elaeagnifolium*

**Alternate name:** White Horse Nettle

**Origin:** North and South America

**Description:** Herbaceous plant or shrub to 1m tall with silvery or grey-green hairy stems with scattered prickles to 5mm long. Leaves are scattered along stems, each to 100mm long, 30mm wide, dull green on the upper surface, grey-green underneath, the edges usually wavy, on leaf stalks to 50mm long. Fruit are round and fleshy, about 10mm diameter, ripening yellow to orange-brown, with many seeds.

**Flowers:** Flowers are borne towards the ends of branches where the leaves are attached, several along a stalk. Each flower is 20–30mm in diameter with the five petals joined together, blue to purple, sometimes white or pink, with large yellow stamens.

**Other features:** Silverleaf Nightshade is a weed of crops, pasture and disturbed roadsides.

**How the weed is spread:** Fruit and seeds are spread by animals, vehicles and farm machinery.

**Interesting facts:** Fruit are extremely poisonous.

### Pictures:

- (a) Silverleaf Nightshade plant
- (b) Prickles on leaf stalk
- (c) Flower
- (d) Fruit



## Giant Parramatta Grass *Sporobolus fertilis*



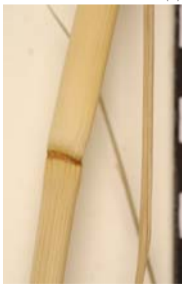
(a)



(b)



(c)



(d)

22

## Giant Parramatta Grass *Sporobolus fertilis*

**Alternate name:** *Sporobolus indicus* var. *major*

**Origin:** Asia

**Description:** Robust, tufted perennial up to about 2m tall with a warm season growth pattern. The leaves are very coarse and tough and the method of branching at the base of the tussocks results in the formation of flattened 'fans' of tiller bases. The leaves are flat or rolled, strongly ribbed without hairs, 40–500mm long and about 5mm wide. The ligule is a rim of hairs up to 0.5mm long.

**Flowers:** The inflorescences are 250–450mm long with many branches with the main axis ribbed, without hairs and visible only for about the lower 30 per cent of its length. The general colour of the inflorescence is brownish green turning to brown at maturity. The spikelets are 1.5–2mm long and each contains one floret.

**Other features:** The leaves contain a high level of silicon which has an abrasive effect on the teeth of cattle. There are other several closely related species of *Sporobolus* that are either native or naturalised in NSW but do not have the same invasive ability as Giant Parramatta Grass. However, Giant Rat's Tail Grass is also very invasive.

**How the weed is spread:** The individual seeds have an outer seed coat that readily absorbs water and becomes sticky. The seeds become attached to vehicles, machinery and stock and drop off when they dry.

**Interesting facts:** The soil seedbank under a well established stand may be as high as 20,000 seeds/m<sup>2</sup> and will last for many years. Most new seedlings appear in the spring or autumn, but usually not in mid-summer.

### Pictures:

- (a) Giant Parramatta Grass plant
- (b) Spikelets each with only one floret
- (c) Details of inflorescence
- (d) Node on a flowering stalk



23

## Spiny Burr Grass *Cenchrus longispinus*



(a)



(b)



(c)



(d)

## Spiny Burr Grass *Cenchrus longispinus*

**Alternate name:** Innocent Weed, Gentle Annie

**Origin:** Central America

**Description:** A warm season annual with many stems, a sprawling habit, and sometimes rooting at the lower nodes. The plants are generally less than 1m tall and sometimes have red stems. The leaf sheaths are strongly compressed with hairy margins and a ligule of hairs. The leaf blades are rough to hairy, usually flat and tapering, 30–190mm long and 3–7.5mm wide. Often occurs on sandy soils, particularly after disturbance.

**Flowers:** The inflorescences are spike-like and 10–100mm long bearing numerous spiny burrs. Each burr bears 40–70 extremely sharp spines, has one deep cleft and contains 2–3 individual spikelets. *Cenchrus incertus* a similar species has burrs which have two deep clefts and bear less than 40 spines.

**Other features** The points on the spines are extremely sharp and if picked up between finger and thumb, are extremely difficult to put down. On sandy soils, particularly in river beds they can form thick infestations, and cause extreme problems for animals by getting caught between dogs' toes and on the faces and noses of other animals.

**How the weed is spread:** The burrs become attached to animals, humans, vehicles and machinery and so are readily dispersed. Rivers and creeks are also important in their dispersal.

**Interesting facts:** The distribution is widespread in NSW particularly along sandy watercourses, probably because of the efficient dispersal mechanisms and the ability of the seedling to produce seed when very small.

### Pictures:

- (a) Spiny Burr Grass plant
- (b) Stem node
- (c) Two spike-like inflorescences
- (d) Ligule at the base of the leaf



## Giant Rat's Tail Grass *Sporobolus pyramidalis*



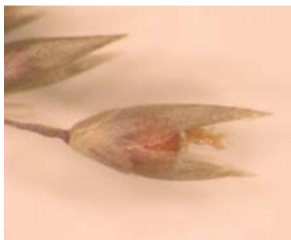
(a)



26 (b)



(c)



(d)

## Giant Rat's Tail Grass *Sporobolus pyramidalis*

**Alternate name:** Antelope Grass, Giant Rat's Tail Grass also refers to *Sporobolus natalensis*

**Origin:** Africa

**Description:** Tussocky coarse, warm season perennial up to 2m tall. Leaf sheaths are hairless but often with hairs up to 0.5mm long on the margins. Ligule is a rim of hairs less than 0.25mm long and often with hairs up to 1mm long at each end. Leaf blades are smooth and hairless, 80–700mm long and up to 8mm wide. *Sporobolus natalensis* is somewhat smaller (up to 1.5m tall) with shorter, narrower leaves but a longer ligule.

**Flowers:** The inflorescences are 250–400mm long, and often linear when green but spreading and pyramidal when mature. The main axis ribbed, without hairs and the general colour of the inflorescence is brownish green turning brown at maturity. Each spikelet only contains one floret.

**Other features:** As with Giant Parramatta Grass, the leaves contain a high level of silicon which has an abrasive effect on the teeth of cattle. The distributions of *S. pyramidalis* and *S. natalensis* overlap in NSW. The upper glume of *S. natalensis* is about a third the length of the spikelet with a jagged tip but that of *S. pyramidalis* is more than half the length and acute.

**Interesting facts:** The individual seeds have an outer seed coat that readily absorbs water and becomes sticky and the seeds become attached to vehicles, machinery and stock and drop off when they dry.

**How the weed is spread:** The soil seedbank under a well established stand may be as high as 20,000 seeds/m<sup>2</sup> and will last for many years. Most new seedlings appear in the spring or autumn, but usually not in mid-summer.

### Pictures:

- (a) Giant Rat's Tail Grass plant
- (b) Inflorescence shape
- (c) Inflorescence branch
- (d) Spikelet with one floret



## Chilean Needle Grass *Nassella neesiana*



(a)



(b)



(c)



(d)

28

## Chilean Needle Grass *Nassella neesiana*

**Alternate name:** Uruguayan Tussock Grass

**Origin:** South America

**Description:** Tufted cool season perennial up to 1m tall with bright green leaves. The ligule (look on the upper leaves) is membranous and 0.5–3mm long with tufts of hairs at the sides. The blade is flat or loosely inrolled, ribbed and hairy, and rough on the margins. The hairs on the leaves distinguish them from those of the common pasture grass, Tall Fescue (*Festuca arundinacea*).

**Flowers:** The inflorescences are 100–400mm long and have a distinctive purplish colour. Each spikelet contains one floret with a long awn (40–90mm) and a sharp callus. The top of the lemma, where it joins the awn, bears a 1.5mm crown with spines on the upper margin, distinguishing it from native *Austrostipa* species.

**Other features:** The long awns twist as they dry and those from adjacent spikelets twist together and fall as a tangled mass. On the soil surface, the awns twist and un-twist with changes in water content and rapidly bury the seeds in the soil and then become detached. The inflorescences are unpalatable to livestock and so heavy grazing in the spring and summer will not prevent seed set.

**How the weed is spread:** The sharp callus and surrounding hairs means that the seed readily become attached to animals, clothing – see picture (c) – machinery and vehicles and so can be widely dispersed.

**Interesting facts:** Stem seeds are produced at the lower nodes of the inflorescences, inside the leaf sheath. Therefore, late slashing to prevent seed maturation may result in dispersal through these stem seeds.

**Pictures:**

- (a) Chilean Needle Grass plants
- (b) Awns twisted together
- (c) Corona, hairs and the sharp callus
- (d) Leaf sheath, ligule and blade



29

## Serrated Tussock *Nassella trichotoma*



(a)



(b)



(c)



(d)

30

## Serrated Tussock *Nassella trichotoma*

**Alternate name:** Yass Tussock

**Origin:** South America

**Description:** Dense, tufted cool season perennial grass to 700mm tall with a characteristic yellow colour in winter. The ligule is white and papery and 0.5–2.5mm long. The leaf blades are tightly rolled, 0.25–0.5mm wide, straight or curved and rough to touch with fine, upward-pointing bristles. The leaves are not hairy. The inflorescences always break off at the end of the flowering season (late spring to early summer).

**Flowers:** The inflorescences are much branched and spreading with small spikelets and one floret per spikelet. The glumes are purple-tinged at flowering and straw coloured when mature. The lemma is 2–3mm long with a 25–35mm awn attached to one side of the top of the lemma.

**Other features:** Large numbers of seeds are produced and they will germinate at any season of the year but need bare ground for seedlings to become established. The seedlings are slow growing and unpalatable to sheep and cattle. Therefore, under continuous grazing, a scattered infestation will thicken up and completely cover the landscape.

**How the weed is spread:** Detached inflorescences can be blown up to 10 km, shedding seeds as they go. The small seeds are readily dispersed by animals, machinery and humans as well.

**Interesting facts:** Unlike many other perennial grassy weeds that have become naturalised in Australia, Serrated Tussock is also considered a bad weed in its native South America.

### Pictures:

- (a) Serrated Tussock plants
- (b) Ligule at the base of the blade
- (c) Detail of spikelets
- (d) Awn attached to one side of the lemma



## Glossary

<b>Awn</b>	Pointy projected midrib of a structure, e.g. awn of a lemma is the projection of the midrib of a lemma (centimetres long in <i>Nassella trichotoma</i> ).
<b>Bract</b>	A small leaf-like or scale-like structure at the base of single flowers or encircling groups of flowers.
<b>Capsule</b>	A dry fruit opening to release the seeds (includes 'gumnuts').
<b>Floret</b>	Each flower and its bracts in a grass spikelet.
<b>Fruit</b>	Structure that contains a seed or seeds (e.g. a plum is a fleshy fruit that contains one or two seeds; a 'gumnut' is a dry, woody fruit containing several to many seeds).
<b>Gland-dotted</b>	Pale, circular spots visible on leaves when held up against light that indicate where internal, aromatic oil glands are located. Check for the aromatic oil by crushing and smelling young leaves (e.g. St.John's Wort).
<b>Glume</b>	Two lowest bracts of each grass spikelet.
<b>Herbaceous</b>	Describes plants that are not woody, often with soft pithy stems, often annual or short-lived.
<b>Herbarium</b>	A plant museum that contains pressed and dried plant specimens; see <a href="http://www.une.edu.au/botany/herbw.htm">www.une.edu.au/botany/herbw.htm</a> .
<b>Leaf</b>	Leaves are attached to stems and form below each bud on a stem. Leaves are usually made up of a blade and leaf stalk (e.g. daisies) or blade and sheath (e.g. grasses).
<b>Lemma</b>	The lowest bract of a grass floret.
<b>Ligule</b>	In grasses, outgrowth of hairs and/or tissue on the inner surface at the junction of the leaf and sheath. Characteristic for a species.
<b>Seed</b>	Plant embryo, together with associated structures and coat that can germinate to produce a new plant.
<b>Sheath</b>	Lower portion of a grass leaf that wraps around other leaves and/or the stem.
<b>Shrub</b>	A plant with woody stems usually arising from, at or near ground level.
<b>Spikelet</b>	Collection of tiny flowers and bracts, repeated in the inflorescence of grasses.
<b>Stamens</b>	Male structures in flowers that contain pollen.
<b>Stem</b>	Axis of a plant bearing leaves, buds and flowers.

Words within quotation marks are used in the lay sense rather than strict botanical way (e.g. the hard burr-like 'fruit' of Noogoora Burr are actually several one-seeded fruits surrounded by bracts, while the 'seed' of Groundsel Bush and most other daisies is a one-seeded fruit). Where a scale is shown on the images each division is 1cm.

## Acknowledgements

Information was developed from the authors' knowledge and observation of the species in the field and herbaria together with information from State Floras and selected web sites.

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# Country Energy Weed Guide

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