

Leafy spurge

Euphorbia esula

Victorian Alert Weed Fact Sheet



Image: Terry Glase



Images: Terry Glase

Botanical name: *Euphorbia esula*.

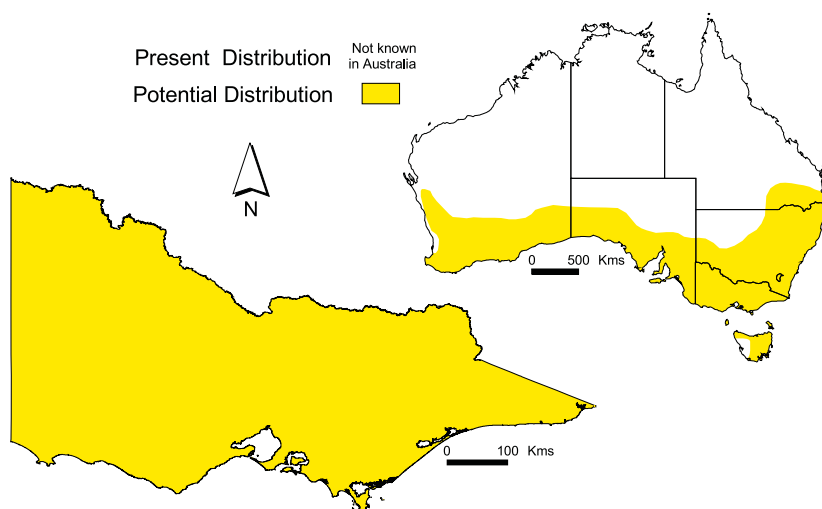
Synonyms: *Euphorbia gmelinii*, *E. discolour*, *E. glomerulans*.

Common name: Leafy spurge.

Alternatives: Hungarian spurge, wolf's milk, faitour's grass.

Family: Euphorbiaceae.

Relevant relatives: There are over 2000 *Euphorbia* species worldwide, of which about 200 are classified as being weedy by the Global Compendium of Weeds (Randall 2001). A weedy relative of leafy spurge is *Euphorbia cyparissias* (Cypress spurge), which is another Victorian Alert Weed.



Plant biology

Type of weed: Garden escape/agricultural.

Lifecycle: Deep-rooted perennial herb.

Description:

Stems: Plants are multi stemmed, branching from a single taproot. Stems are smooth and hairless, pale-blue to green in colour and anywhere from 300 mm to one metre in height. A distinguishing feature of the *Euphorbia* genus is the milky latex sap found throughout the plant.

Leaves: The leaves are bluish-green in colour, arranged alternately and attach directly to the stem. A prominent main vein runs the length of the leaves which grow from 30-80 mm in length and 3-8 mm in width. Leaves growing close to the flower clusters are usually heart-shaped.

Flowers: Flowers form in clusters at the ends of each branch with 8 to 13 flower heads forming at the ends of the flower stalks. Secondary flowering branches also sit below the main flower cluster and attach to the stem. A pair of glossy, yellowish-green, heart-shaped leaves, which are commonly mistaken for flower petals, surrounds the small flowers.

Fruits: Fruit form after flowering in a 3-4 mm long, three-chambered capsule with deep grooves. At maturity the fruit capsules dry out and harden, before exploding and projecting the seeds away from the plant.

Seeds: Seeds are smooth, oval-to-oblong in shape, light grey to brown in colour with small yellow flecks and grow 2-2.5 mm long. Ripe seeds are ejected from the fruit capsules and can travel up to five metres from the parent plant.

Roots: Each leafy spurge is supported by a penetrating tap root growing up to five metres deep. Horizontal roots send out runners that can shoot to form new plants. Mature plants store carbohydrate reserves (food) in the roots that allow them to regrow after chemical and physical treatments.

Victorian Alert Weeds

What are Victorian Alert Weeds?

Victorian Alert Weeds are potential weeds of the future. They may pose a serious threat to Victoria's agricultural and natural assets or could affect human health. Some of these weeds are thought to occur in small numbers in Victoria and are still eradicable. Other species are yet to reach Victoria, but present a serious threat if they were to arrive. Weed Spotters help the Department of Primary Industries validate the distribution of these weeds. Weed Spotters are individuals trained to look for and report high priority Weed Alert species in Victoria. They are recruited from the community, government or industry.

Why is this species a Victorian Alert Weed?

Leafy spurge is a showy, drought tolerant herb, easily propagated and attractive if grown in a garden. Growing outside a garden, leafy spurge is a highly invasive plant that can compete with and quickly dominate other species. *Euphorbia esula* forms dense and extensive stands that are very hard to eradicate due to their deep and long-lived root system and persistent seed bank. Leafy spurge is very hardy and is capable of growing in a variety of habitats, ranging from moist flood zones to dry ridges and plains (NAPPO 2003). Leafy spurge, like many other *Euphorbia* species, produces a toxic milky sap, poisonous to livestock and native wildlife. Decomposing parts of the plant have been shown to release chemicals which inhibit the growth and development of other plant species, further aiding its fast establishment and spread.

Importance & impacts

Impacts:

Ecosystems, waterways and agriculture:

Leafy spurge is an aggressive competitor because of its extensive root system and its ability to tolerate environmental extremes. It emerges earlier in spring than most other plants and can gradually out compete all other vegetation (Watson 1985). Leafy spurge can also disrupt natural processes such as fire, nutrient cycling and feed availability (Butler & Cogan 2004). A major risk to agriculture, the toxic sap of leafy spurge has led to deaths in cattle and horses. Leafy spurge often becomes dominant in agricultural areas where livestock avoid grazing the plant, helping reduce competition and favouring the invader.

Social value and health impacts:

Leafy spurge is a hardy, summer flowering species and is occasionally seen in gardens. There is potential value in its latex sap with suggestions as a possible rubber replacement or an energy source. Despite its potential uses, the financial and environmental impacts of the plant far outweigh its limited benefits. The latex sap can cause severe irritations to the skin and eyes and make leafy spurge a garden plant to avoid.

Health hazards: Leafy spurge is toxic to some grazing animals and its milky sap can cause severe skin rashes in humans. Livestock normally avoid the plant, but if large amounts are directly eaten or bailed and fed to animals, then poisoning may occur. People should handle the plant with caution because the latex sap can cause irritation, blotching, blisters and swelling in sensitive individuals.

Importance:

Weed legislative status: *Euphorbia esula* is not currently listed as a noxious weed in any state or territory of Australia.

Significance of the weed in Australia:

Whilst leafy spurge may already be in some Australian backyards and gardens, it has not yet been recorded as having naturalised populations in Australia.

Permitted/prohibited entry into Australia:

Euphorbia esula plants and seed are not permitted entry into Australia. For more information see the AQIS ICON import conditions database at www.daffa.gov.au/aqis/import/icon-icd or call 1800 020 504.

Victorian Weed Risk Assessment: Leafy spurge ranked very highly as a weed risk for Victoria due to its invasive potential and its persistence once established. The plant is toxic and it has proved to be a devastating menace in both agricultural and natural areas in a number of other countries. Leafy spurge is very hardy, can be extremely difficult to eradicate and often requires multiple treatments for long term control.

Growth & spread

Reproduction and dispersal: Leafy spurge has three methods of reproducing; via seed, having multiple branches from its root crown and sustaining new plants on its extensive lateral root system. Root crowns can form new shots from depths of more than three metres. Seeds are spread locally when the mature fruit capsule explodes and spread further by native and domesticated animals, birds, insects and flowing water (Foley 2004).

Rate of growth and spread: Nominated in the top 100 'worlds worst invaders' (ISSG 2005), leafy spurge is a fast grower and gains advantage by emerging earlier in spring than most of its competing plants. The plant can withstand drought stress by tapping into soil water with its deep and extensive root system and is often at its most invasive in semi-arid situations (USGS 2006; Galitz 1994). Seed germination can continue throughout the growing period and, due to the plant's long-lived root system and seed bank, rapid re-establishment can occur after seemingly successful management efforts.

Seed bank/propagule persistence: Flowering stems may produce as many as 200 seeds in their first year, with high germination rates of 60-80% (Goodwin *et al* 2001). Seed production varies enormously, depending on plant density and soil conditions. The seed bank of leafy spurge remains viable for periods of eight to ten years (Foley 2004, Galitz 1994).

Origin: Eurasia/Caucasus region of western Asia.

Where it grows: Leafy spurge is particularly efficient at invading disturbed areas but also has the ability to grow in undisturbed environments. It is a hardy plant persisting in wet floodplains and arid plains, or open sunny areas to full shade (Galitz 1994). Leafy spurge is well suited to growing in agricultural areas (such as pastures) but will also thrive in scrubland, forests and waste areas.

Growth calendar

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Flowering												
Seeding												
Germination												
Stem growth												
Die back												

Notes: Growth calendar is broadly based on behaviour and timing of plant changes, either from overseas populations, or from limited populations in Australia. Actual behaviour of plants may differ, depending on climate and geographical location.

Weedy distribution in Australia and overseas: Leafy spurge has spread worldwide with the exception of Australia (Biesboer & Eckhardt 1996). Overseas, the plant has become a troublesome weed menace in pastures across much of the United States and Canada.

Introductory pathway to Australia: Leafy spurge could enter Australia via the importation of contaminated seed or agricultural products, or the accidental introduction from contaminated clothing or equipment being brought into Australia. The plant may also enter the country via intentional (illegal) importation of seed via the mail system or in luggage. Leafy spurge is suspected to already occur in gardens in Australia and the actions of humans, such as dumping of garden waste and transporting of contaminated equipment, may contribute to the spread of this plant over large distances.

Choosing alternative species

When choosing an alternative plant, attempt to source local native (indigenous) species from a nursery/garden centre in your area. Advice can also be sought from Sustainable Gardening Australia - a not for profit organisation, promoting responsible plant choices - call (03) 9850 8165 or visit their website at www.sgaonline.org.au.

Further information

about leafy spurge can be found on the DPI website at www.dpi.vic.gov.au or check the references listed below. If you suspect you have found *Euphorbia esula*, report it to your local Weed Alert Contact Officer on **136 186**.

References:

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