

Paterson's curse

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prolific seeder that can produce more than 5000 seeds per plant per year. Large quantities of seeds may accumulate in the soil over several years. For example, a seedbank of up to 30 000 seeds per square metre has been reported. Seeds may remain dormant in the soil for up to five years.

Seeds may germinate at any time of year given sufficient moisture and warm temperatures and plants can be found at any of the growth stages at any time of year.

Flowers of a mature Paterson's curse plant.

INTRODUCTION

Paterson's curse (*Echium plantagineum*), also known as salvation Jane, is a major weed in winter pastures throughout southern Australia and can be a problem in areas of natural vegetation.

The weed is native to Mediterranean Europe and northern Africa. It was both accidentally and deliberately introduced to Australia in the 1850s and by 1890 it was showing potential as a major weed.

Paterson's curse now occurs in all States and Territories in Australia. However, the most serious infestations occur in pastoral regions of New South Wales, Victoria, South Australia and in the south-west region of Western Australia where a winter rainfall climate dominates. Although Paterson's curse is more common in winter-rainfall areas, its wide tolerance of different climates and soils allows it to grow almost anywhere in Australia.

THE WEED

Paterson's curse is a winter annual herb that often becomes the dominant species in pastures. It is a



Seeds mainly germinate following summer and autumn rains. After germination plants grow vegetatively as a rosette during autumn and winter. Flowering stems are produced in early spring, and seed in late spring to early summer. Plants that germinate in summer may produce seeds from autumn through to spring if conditions are suitable. Plants die after flowering.

In any locality the density of Paterson's curse fluctuates widely from year to year. The plant is likely to be abundant during years when the autumn break is early. It is also likely to be abundant in paddocks that have not been cropped or grazed, or have only been lightly grazed, for several years.

DISTINGUISHING PATERSON'S CURSE FROM CLOSELY RELATED WEEDS

Paterson's curse is an erect herb commonly 60 cm high, but it can grow up to 150 cm.

- Rosettes have green to light-green hairy, egg-shaped leaves that may grow to 30 cm long. The rosettes are stalked and have distinct, branched veins.

- Stem leaves are also hairy, but are smaller and narrower than rosette leaves and are almost stem-clasping.
- Stems are branched, with multiple stems often arising from the plant base. All stems are covered with stiff hairs.
- Flowers are mostly purple, but white, blue and pink flowering plants are sometimes found. The 2-3 cm long flowers are shaped like curved trumpets. Each flower has five stamens, two of which protrude past the end of the flower tube. Flowers generally appear from September to December.
- Seeds are dark-brown to grey and have a roughened seed coat. Up to four seeds develop from each flower.
- The plant has a stout taproot with numerous lateral roots.

Viper's bugloss (*Echium vulgare*) is a closely related weed. It usually grows in cool areas mainly on the Central and Southern Tablelands of New South Wales particularly along roadsides.

Paterson's curse rosette. Note leaf shape and distinct branched veins.

Paterson's curse flower. Note that two stamens protrude past the end of the flower tube.

Viper's bugloss is often confused with Paterson's curse but differs in many ways:

- It is usually a biennial, or sometimes a perennial plant, whereas Paterson's curse is usually an annual.
- Its rosette leaves are stalkless and spear-shaped.
- All its leaves have a warty appearance and are narrower than those of Paterson's curse.
- Its leaf veins are not prominent – they are longitudinal and unbranched.
- The flowers are usually more of a blue in colour and are on a pronounced flower spike. Flowers are smaller (about 1.5–2 cm long) and have four of the five stamens protruding well past the end of the flower.
- The main flowering period begins later in the season than that for Paterson's curse and extends over a longer period.

Viper's bugloss rosette. Note the shape and warty appearance of leaves.

- The stems are more erect and the stout taproot is usually much longer.

Italian bugloss (*Echium italicum*) is an uncommon plant that is found in a few small patches in south-west NSW:

- It has five protruding stamens.
- Flowers are pinkish or white.
- It is more hairy than Paterson's curse or viper's bugloss.

THE PROBLEM

Paterson's curse is considered a weed because:

- It reduces pasture productivity and is toxic to livestock.
- It can degrade the natural environment, compromising habitat values by crowding out and suppressing native vegetation.
- Hay and grain infested with it fetch lower prices.

Viper's bugloss flower. Note that four stamens protrude past the end of the flower tube.
