Department of Primary Industries and Regional Development
GOVERNMENT OF WESTERN AUSTRALIA

Journal of the Department of Agriculture, Western Australia, Series 3

Volume 5
Number 5 *September-October, 1956*

Article 10

9-1956

Weeds of Western Australia - Paterson's curse (Echium plantagineum L. and E. italicum L.)

G. R. W. Meadly

PATERSON'S CURSE

(*Echium plantagineum* L.)

Echium plantagineum and the related *E. italicum* are known by a variety of common names including Paterson's Curse, Salvation Jane, Blue Weed and Lady Campbell Weed. Opinions differ as to the importance of Paterson's Curse as a weed. Undoubtedly it is of greatest consequence in the higher rainfall areas, but even under short season conditions, should be regarded as an undesirable plant.

WEEDS of Western Australia

By **G.R.W. MEADLY** M. Sc.
Officer in Charge, Weeds and Seeds Branch

PATERSON'S CURSE

(Echium plantagineum L. and E. italicum L.)

PATERSON'S curse is the name applied to two closely related species, Echium plantagineum and E. italicum. Although the two species have certain botanical differences, from a practical point of view they can be grouped under a single vernacular name, a procedure which will be adopted for the remainder of this article.

Paterson's curse is native to the Mediterranean region and Western Europe where it is sometimes cultivated in gardens. The first record of this plant in Australia dates back to about 1895, when it was introduced by a Mr. Paterson as a garden plant to a place near Albury. The spread was gradual until it encroached on a stock route. A rapid movement was then recorded, especially along stock routes and on reserves, until now it is widely distributed in the Eastern States, being particularly conspicuous in South Australia. In the spring, the scenic beauty of Mount Lofty Ranges near Adelaide is enhanced by the masses of violet flowers.

Its early history in this State is associated with the construction of the Great Southern Railway. Lady Campbell, wife of Sir Thomas Campbell, who was residing at the time not far from Broomehill, introduced the plant as a garden subject. It is still known in many parts of the Great Southern as Lady Campbell weed.

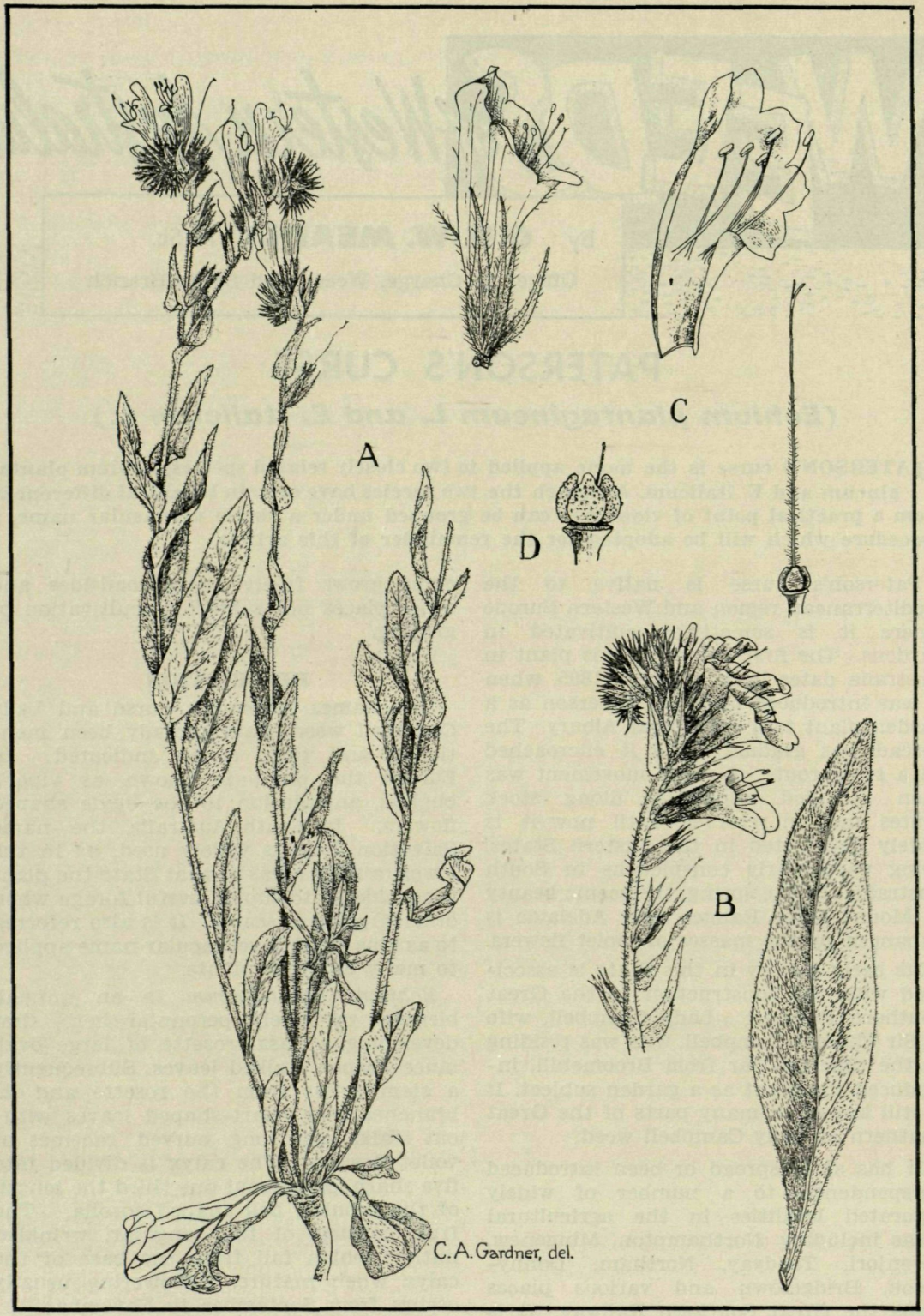
It has since spread or been introduced independently to a number of widely separated localities in the agricultural areas including Northampton, Mingenew, Perenjori, Toodyay, Northam, Donnybrook, Bridgetown and various places along the Great Southern Railway. It is also plentiful in the vicinity of Perth, including the Darling Range. Paterson's curse grows freely along roadsides and other places not subject to cultivation or grazing.

DESCRIPTION

The names Paterson's curse and Lady Campbell weed have already been mentioned and their origin indicated. In Europe the plant is known as viper's bugloss, an allusion to the bugle shaped flowers. In South Australia the name Salvation Jane is widely used, as in the lower rainfall areas of that State the plant is considered to supply useful forage when other grazing is scarce. It is also referred to as blue weed, a vernacular name applied to many different plants.

Echium plantagineum is an annual, biennial or rarely perennial herb, first developing a basal rosette of large oval, lance-shaped stalked leaves. Subsequently a stem arises from the rosette and its branches bear heart-shaped leaves without stalks and long, curved racemes of voilet flowers. The calyx is divided into five sharp lobes about one third the length of the tubular, bell shaped corolla. The fruit consists of four angular, wrinkled nutlets which fall from the base of the calyx when mature. Flowering usually occurs from September to November.

E. italicum differs in having a longer inflorescence and somewhat smaller flowers.



PATERSONS CURSE (*Echium plantagineum* L.)

A—Plant, showing habit of growth; B—Leaf and inflorescence; C—Details of Flower; D—Fruit, showing nutlets.

SIGNIFICANCE

The significance of Paterson's curse depends to no small extent on the conditions under which it is growing. In the South-West, with a long growing season it is a very undesirable weed. In the Boyanup-Donnybrook area in particular it has proved very persistent, and eradication from rich moist soils has presented many difficulties. Under such favourable conditions the strong development of basal leaves forms a large rosette which crowds the pasture species. The problem in these districts is magnified by the fact that the greater proportion of animals are cattle which are not nearly as effective as sheep for checking the growth of Paterson's curse by grazing.

Although of lesser importance as a weed in districts having a lower rainfall, despite the common name of Salvation Jane used in South Australia, it is not suggested that Paterson's curse should be encouraged under any conditions. No farmer should be satisfied to allow the plant to become established on his property. Besides interfering with pastures, the presence of the weed may necessitate additional preseeding cultivations in order to prevent excessive competition for cereal crops.

Paterson's curse belongs to the Borage family some members of which, including the common heliotrope (*Heliotropium europaeum*) have been the cause of stock losses. In one or two cases Paterson's curse has been suspected but, as already mentioned, it is grazed extensively by stock in many localities without harmful results.

It has been declared a secondary noxious weed for a number of road districts.

CONTROL

The most practical control measures depend on the extent of the weed and the conditions under which it is growing. When only a few plants occur they should be hoed or hand-pulled before flowering and the area kept under observation for subsequent germination. Where the area is too extensive for individual attention consideration must be given to pasture improvement, grazing or mowing, cultivation or the use of chemicals.

By pasture management it is possible to stimulate the pasture species, thus providing greater competition for the weed and making it relatively less important. In order to cause any significant reduction, grazing must be sufficiently severe and repeated often enough to prevent seed formation or reduce it to a low level. Best results are obtained in the case of small paddocks and sheep, especially rams, are the most effective grazing animals. If grazed on plants bearing seeds, however, these will be distributed by the animals. Mowing at the early flowering stage will also reduce seed formation. The time of mowing is important as, if carried out too early, regrowth may produce flowers which set seed while if too late, mature seeds may be present in the cut material.

Ploughing is effective, particularly in the drier areas where the plant is essentially an annual. Under moist conditions where it is a biennial or possibly a perennial, control by this method may involve several workings in one season. To be really effective these operations must be repeated over a period of several years, not only to destroy the plants present at the commencement but to cope with subsequent seedlings arising from dormant seeds.

Some trials with chemicals conducted in the York district showed that, under lighter rainfall conditions, effective results could be obtained by the application of several different preparations. A 5 per cent. solution of Atlacide (sodium chlorate) or arsenic pentoxide applied at the rate of 100 gallons per acre controlled the weed, particularly if applied at the early flowering stage when little, if any, recovery occurred. Further seedlings appeared and reached maturity following treatment when the main emergence was at an early growth stage. These treatments, although practicable for small areas, are too costly for large infestations and arsenic pentoxide has the additional disadvantage of being toxic to stock.

For chemical control, chlorates and arsenicals have been largely superseded by the 2,4-D or hormone-like weedkillers which are less costly and non-poisonous. Under pasture conditions good results with Paterson's curse have been obtained by the application of one to two pounds

of acid equivalent per acre, the ester formulations being favoured. The lower rate is sufficient when the plants are small and not very dense but as they become larger their resistance increases and for large plants 2 lb. acid equivalent per acre is often necessary. This rate of application will damage clovers but seldom causes any serious effect to grasses. When clovers are involved, the amine is sometimes used in preference to the ester as it is somewhat less severe on legumes.

Control of Paterson's curse growing in cereal crops can be obtained with lower rates as is the case with weeds in general under such conditions. With trials at Wongan Hills satisfactory results followed the low volume application of 12 oz. acid equivalent of 2,4-D amine per acre when the plants were at the rosette stage and up to eight inches across.

As a preventive measure, care should be taken to ensure that farm produce including hay and grain purchased from districts in which the weed occurs does not contain mature seeds. This precaution applies equally to other weeds.

FREE SERVICE TO FARMERS

Do you know that the Department of Agriculture provides a comprehensive service of advice and technical assistance to farmers, free of charge?

When in need of advice, get in touch with your District Officer whose name and headquarters township will be found in the list of Departmental personnel on Pages 486 and 487.

These officers are there to help you and will make personal visits to your property to assist with on-the-spot advice. In addition, they will, where necessary, arrange for the services of specialist officers—all without cost to you.