

The naturalization of *Echium plantagineum* L. in Australia

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A reassessment of early literary and herbarium records of *Echium plantagineum* L. in Australia was undertaken to clarify the time and place of the plant's naturalization in Australia. It is concluded that there were at least two separate infestations in about 1890, one near Gladstone in South Australia and another near Cumberoona via Albury in New South Wales. A later outbreak was recorded in Western Australia, and the current distribution of the species in Australia may be traced back largely to those three initial foci. The origins of several common names of the plant are also discussed.

In view of the controversy as to the merits of *E. plantagineum* L., (Rymer, 1980; Delfosse and Cullen, 1981; Parsons, 1981), a review of the course of naturalization of this plant in Australia is timely. For in spite of Piggin's (1977) painstaking accumulation of early records of the plant, two of the authors cited above ignore his paper and claim that this plant was introduced 'possibly in the 1860s via Mrs Paterson' and then quickly escaped from cultivation (Rymer, 1980) or that it was introduced in the 1890s and became naturalized within 40 years (Parsons, 1981). The third paper (Delfosse and Cullen, 1981) refers to Piggin's study but perpetuates other errors. These recent publications motivated me to reassess Piggin's data and, using other information, to clarify the story of the naturalization of this weed in Australia.

Naturalization

Piggin (1977) has shown convincingly that *E. plantagineum* was introduced to Australia as an ornamental. It is of southern European origin and had been cultivated as *E. plantagineum* in England since 1776 and under the synonym *E. violaceum* L. since 1658 (Loudon, 1830).

Whilst accidental introductions to Australia did occur (Piggin, 1977; Delfosse and Cullen, 1981) there is no evidence that these led to actual field infestations. Contemporary records, whilst recording escapes from cultivation, do not mention the types of outbreaks that one would expect to have arisen from contaminated seed. Such introductions may have occurred, but taking everything into consideration I suggest that these would have been negligible compared to horticultural introductions.

According to Piggin (1977) the earliest record of the introduction of *E. plantagineum* to Australia was to the Camden gardens of John Macarthur in 1843. Subsequently it was offered in nurserymen's catalogues under one name or the other, or even erroneously as *E. creticum* throughout the rest of the nineteenth century.

The traditional account of the naturalization of this species is that plants growing on the property of a Mr Paterson near Albury escaped onto a stock route whence the plant was carried into the Riverina, adjacent areas of Victoria and, eventually, throughout south-eastern

Australia. This story may be traced back to a letter from E. A. Hamilton of Cumberoona via Albury dated 15 March 1904. It was first cited by Maiden (1905) and reprinted in his subsequent publications on this subject. The relevant extract is as follows: 'This weed was introduced to this district by the people (Patersons) who lived in a small farm adjoining this estate, as a garden flower, about 25 years ago. It did not spread much at first but grew out on a small hill near the house gradually enlarging every year. However, about 8 years ago it got through the fence onto a travelling stock reserve and into our paddocks. Then as soon as the stock began to travel through it, it spread very quickly, and it is now all over the district.'

From this letter it appears that the introduction by Paterson was about 1880 and the beginning of the plant's spread about 1896. McBarron (1955) investigated the origins of the plant in the Albury area of New South Wales and concluded that it was introduced to Cumberoona in the late 1870s. This agrees well with the date calculated with the information given in the letter cited by Maiden (1905). McBarron (1955) suggested that family links between settlers in southern New South Wales who had migrated earlier from South Australia were the cause of movement of the plant to the Riverina.

In 1890, a specimen from Cumberoona was sent to Sydney for identification and it was noted that 'it is a difficult plant to eradicate' (Anon., 1891;

McBarron, 1955). This suggests that it was not well known but its weediness had been appreciated already.

Slightly before this time, however, there was a report from South Australia (Anon., 1889) that *E. creticum* had escaped from cultivation at Gladstone and was spreading in the neighbourhood. Together with *E. violaceum* it was then growing wild in many places. Prophetically, this report referred to it as 'a useful bee plant but stock won't touch it'. From Gladstone it spread (or perhaps escaped independently from other places) and, by early 1900, it had been collected widely. Piggin cites many references to this spread. It is clear, therefore that at least two separate episodes of naturalization occurred in south-eastern Australia, and from later records and herbarium specimens it appears that the current distribution can be related back to these foci of naturalization. Obviously, there was yet another focus in Western Australia somewhat later (Piggin, 1977).

My conclusion is that naturalization took place in about 1890. What, then, is the status of records between the earliest known date of introduction (1843) and 1890?

Early records

In my opinion the early records cited by Piggin (1977) have been misinterpreted in that introduction has been confused with establishment or naturalization. Bentham's (1869) citation of *E. violaceum* as being present in Victoria and Tasmania was based on specimens forwarded by Mueller. As two specimens cited by Piggin from Victoria were from 'Botanic Gardens' and 'Yarra' (sic) respectively, it is highly likely that these specimens were collected from cultivation or from a site where they had been cultivated previously. There are other examples in the *Flora Australiensis* of plants known only from cultivation being recorded as naturalized or at least implied as such (Kloot, unpub. data). Furthermore, Ewart and Tovey (1909) whilst recording Bentham's records as the first for Victoria, nonetheless did not include them in their discussion in the text. They referred to the north-eastern Victorian outbreaks as the first naturalization even though they erroneously located Paterson as a settler in Victoria rather than over the border in New South Wales. In my opinion, therefore, Piggin (1977) is not correct when he writes of '*E. violaceum* being naturalised [in Victoria] by 1858' for the reference he cites (Mueller, 1858) is a listing of plants 'collected and examined in 1857 and 1858 by Ferdinand Mueller' and not a catalogue of naturalized plants or first records.

The specimens upon which Bentham (1869) based his record of the plant's occurrence in Tasmania were not located, but it is even more likely that they were of horticultural origin as *E. plantagineum* is not particularly common there even now (Curtis, 1967).

Woolfs (1884) listed *E. violaceum* as a naturalized plant of New South Wales, but as he provided no other details it is difficult to assess the significance of this listing. His second listing of the plant as naturalized in the neighbourhood of Sydney (Woolfs, 1891) may have referred to some minor garden escapes in that area. Such an escape may also have been the basis of Hooker's (1860) record. Nearly 30 years after Woolfs, Maiden (1920) made no reference to *E. plantagineum* in the Sydney area, although it is now widespread in the area (Beadle *et al.*, 1972). Perhaps Woolfs' species was actually *E. vulgare*, which had been introduced as an ornamental even earlier than its congener (Piggin, 1977), and is also widespread in the Sydney area (Beadle *et al.*, 1972).

The common names

The standard common names for *E. plantagineum* in Australia are 'Paterson's curse' and 'salvation Jane' (Hartley, 1979). The use of the latter name is almost confined to South Australia, more particularly to the northern agricultural areas of that State. Some details are given as to the origin of these and other names used for the plant.

Purple bugloss, bugloss

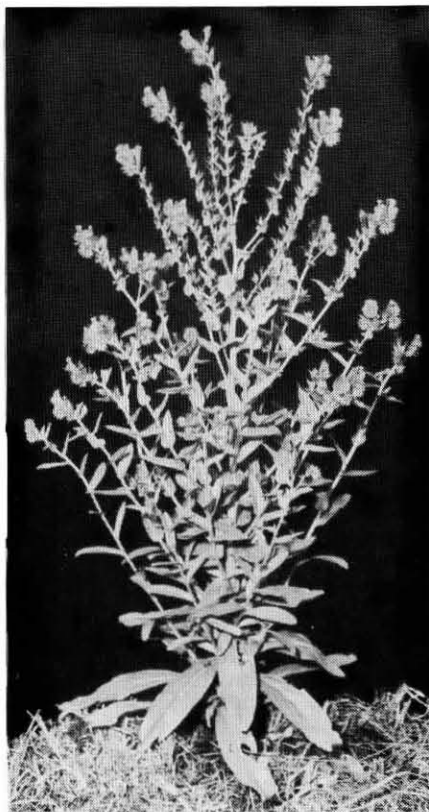
These names are surely based on the English common name 'purple viper's bugloss' (Clapham *et al.*, 1962), which has been used since 1830 at least (London, 1830). With the well-known Australian propensity for abbreviation, these names are but shortened forms of those probably imported with the original horticultural stock. These names are used rarely, if at all, in Australia at present and occur only rarely in the literature. The name 'plantain-leaved viper's bugloss' was used by Black (1909), and 'viper's bugloss' by Cleland (1945).

Blueweed

This name probably originated in New South Wales (Maiden, 1905; Black, 1909) but was also used in South Australia (Summers, 1910). It refers to the conspicuous flower colour, and is still used in some places. Blueweed is also used for *Heliotropium europaeum* L.

Riverina bluebell

Again, this name is based on the flower colour and is qualified by a reference to



Echium plantagineum L.
Photo by courtesy Vermin and Noxious Weeds Destruction Board, Victoria

its geographical origin as a weed in Australia. It is used only locally.

Lady Campbell weed

This Western Australian name recalls a lady who introduced the plant in about 1900 to the Broomehill area of that State (Carne and Gardner, 1925). Early records from Western Australia (Piggin, 1977) prove that although Lady Campbell may have been the most eminent cultivator of the plant she was not the first. It is likely that the initial spread of the weed along the railway was from her introduction (Carne and Gardner, 1925) but the plant was present in Western Australia before this.

Paterson's curse

As in the last case, this name commemorates the family from whose property the weed escaped at Cumberoona as discussed earlier. The second part of the name reflects a common assessment of the worth of the plant.

According to Parsons (1973) and later Delfosse and Cullen (1981), the original spelling was 'Patterson' and the spelling of the common name of the plant 'Paterson's curse' arose by the perpetuation of an error. Reference to the initial paper of Maiden (1905) reveals that the name was originally spelt 'Paterson' and, therefore, 'Patterson' is the corruption.

'Paterson's curse' is the name most generally used for this plant in Australia.

Salvation Jane

This name appears to have originated in South Australia and its use is still mainly confined to that State. The earliest recorded use was by Black (1909) who stated that the name was used in the northern parts of the State. Cleland (1945) concluded that it must have been in use by 1908 and reported that Black thought that he had obtained the name from his (Black's) son at Gladstone.

Two possibilities as to the origin of this name have been proposed. One is that it was named after the fanciful resemblance of the flowers to the bonnets worn by the ladies of the Salvation Army, a movement that was becoming prominent in the early years of the century. The second is that in the semi-arid grazing lands of the mid-north of South Australia, the reliable growth of this plant was a 'salvation' for the landowners. Cleland (1945) discussed both these explanations and implied that the first is correct. The explanation that it was named in honour of Paterson's wife (Curtis, 1978; Delfosse and Cullen, 1981) is absurd.

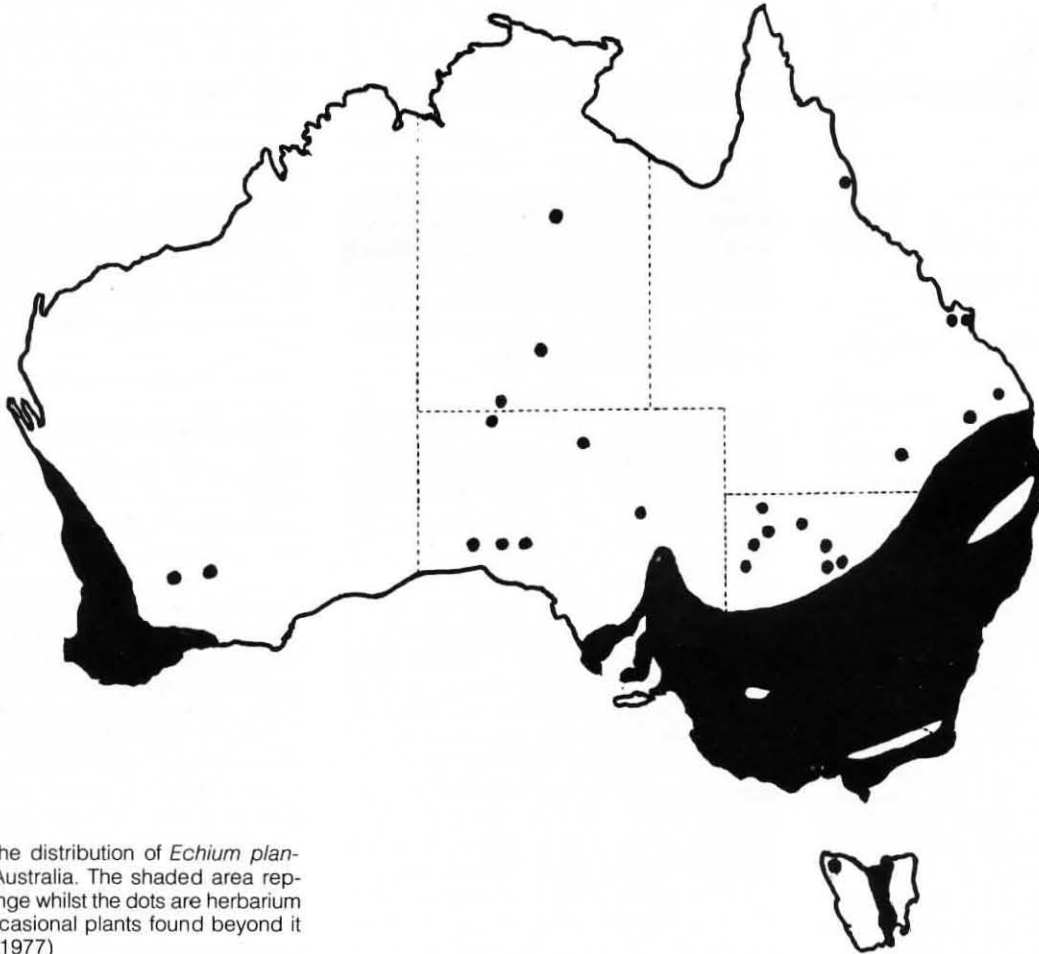
For obvious psychological reasons, in the current confrontation, those who favour the biological control of this plant refer to it as 'Paterson's curse' whilst those who oppose it prefer 'salvation Jane' regardless of their State of residence (Curtis, 1978).

Conclusion

From a critical examination of the literature and other extant sources, the following picture emerges. *E. plantagineum* had been introduced to Australia as an ornamental by 1843 and was re-introduced a number of times under different names by the various Botanic Gardens and commercial nurserymen (see references cited by Piggin, 1977). Until about 1890, or slightly earlier, its status would have been adventive, but coincidentally it became naturalized and began its spread from the mid-north region of South Australia (particularly from Gladstone) and from the Cumberoona area of New South Wales. Later it became established in Western Australia, and from these initial outbreaks spread to its present distribution, as shown in the map.

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The distribution of *Echium plantagineum* in Australia. The shaded area represents the range whilst the dots are herbarium records of occasional plants found beyond it (after Piggin, 1977)

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