



## Onion weed. What threat to the arid rangeland in Western Australia?

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### Background

Recent reports by goldfields pastoralists regarding the spread of onion weed have prompted discussion and preliminary research into the topic by Department staff. The weed is common throughout the winter rainfall rangelands, frequently occurring in high density on the sides of public roads and rail lines.

### Onion weed biology

A number of closely related plants are referred to as onion weed. The common onion weed in Western Australia's southern rangelands is *Asphodelus fistulosus*. *A. fistulosus* is a native to southern Europe, North Africa and eastwards to India. The plant usually grows as an annual herb but can be weakly perennial when soil moisture levels remain high. It has hollow onion-like basal leaves up to 25 cm in length and produces erect flower spikes with sequentially flowering six petalled white or pinkish flowers, up to 20 mm across. Each petal has a conspicuous darker central nerve. The flower spike 'stems' are hollow and usually branched in their upper half. Seed production is usually prolific with each flower forming a three-celled globular capsule. Each capsule carries three to six small black, triangular and wrinkled seeds.

Common onion weed is unpalatable and shunned by stock. The plant had a reputation in the past for being potentially toxic and for causing dermatitis in cattle but recent research does not support these suggestions. Significant consumption is unlikely except in the most extreme situations of feed shortage. The plant does not have an onion odour. It favours disturbed sandy soils, particularly those that are calcium rich.

*Bulbinopsis semibarbata* is a native onion weed in Western Australia, commonly called native leek. *B. semibarbata* favours the same disturbed sandy soil types that may support *A. fistulosus* but can be distinguished as it is readily eaten by stock and carries golden yellow flowers up to 15 mm across, with six petals. Like common onion weed, native leek usually grows as an annual herb but can persist and start new growth after summer rains. Like common onion weed, this plant has been considered toxic in the past, but current research finds no convincing evidence of toxicity.

A third potential onion weed species in southern and western parts of our Western Australian rangeland is *Trachyandra divaricata*. This exotic perennial species is increasingly common and naturalised between Perth and Walpole, generally near the coast. *T. divaricata* is not expected to become a common weed in arid areas but may occasionally become established under the eaves of outbuildings and in other sandy locations favoured by run-off. Its flowers are more numerous than those of common onion weed and whitish but with distinctive yellow stamens. Its leaves are thick and flattened and not hollow.



Common onion weed *Asphodelus fistulosus*, in flower.

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## The negative impact of onion weed on rangelands

An abundance of onion weed is thought to be a symptom of excessive grazing pressure or of soil disturbance. In holding paddocks onion weed is especially favoured when paddocks are routinely heavily used in winter. The spelling of paddocks after use may not ease the situation if high stock numbers early in the season prevent establishment of more preferred pasture species.

Chemical control of onion weed is expensive as the plant leaves are shiny and hairless, presenting a difficult target for leaf-acting herbicides. John Peirce is responding to industry concern this year by establishing a small



*Onion weed, including juvenile plants.*

comparative herbicide trial site close to Kalgoorlie. Chemical control cannot be expected to be economic over extensive areas.

Common onion weed is not a new weed in our rangeland. In the 1980s on Boolathana Station north of Carnarvon, the Department of Agriculture conducted a comparative grazing trial using sheep, on both good condition and poor condition coastal rangelands. Onion weed occurred throughout the trial area. The trial found that when seed stocks of more palatable and productive annual pastures were exhausted, the process of re-establishment by more palatable pasture species was very slow. Grazing animals of all classes are selective in their feeding and target rare but attractive feed species, hindering effective seed set.

In the Carnarvon area, the potential economic loss is less than the loss that threatens producers further south. Carnarvon has a relatively high incidence of summer rainfall and is extensively colonised by exotic buffel grass. Buffel grass is a prolifically seeding weedy species that can persist as an annual on some shallow duplex soils that host onion weed. In those years when summer rainfall or early, relatively warm winter rain was recorded, buffel grass germination improved the annual plant feed composition of the Boolathana Trial pastures, boosting complementary germinations of native windgrass and offsetting the unproductive dominance of onion weed.

### Conclusion

When the seed stocks of palatable and more productive annual pasture species have been exhausted, onion weed may be a dominant plant in annual pastures. Stock and other grazing animals shun onion weed and seed production is usually prolific. Re-establishment of more palatable pasture species can be a very slow process.

Density of onion weed is indicative of land use. The plant is not an environmental threat and locally dense populations are not likely to overwhelm neighbouring areas provided grazing levels do not smother the establishment and seed production of competing, more palatable alternative species.

Whenever road making and earth moving machinery is used or relocated, the usual biosecurity precautions should be taken to minimise transfer of unwanted plant material and seed. No specific stringent precaution is needed with onion weed.