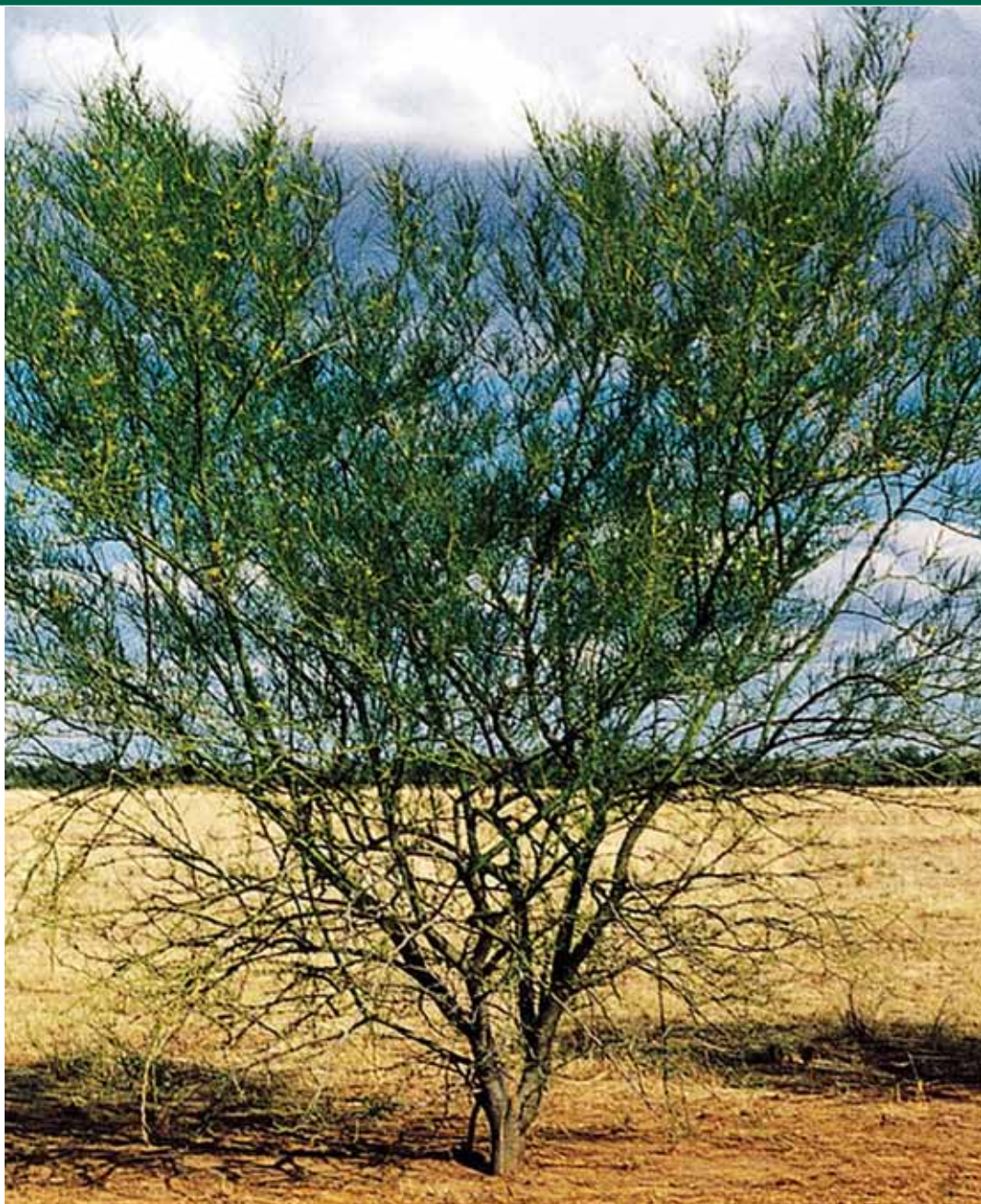


Parkinsonia

Jerusalem thorn or jelly bean tree

Parkinsonia aculeata



Parkinsonia is thought to be native to tropical America but has spread throughout the world as an ornamental and shade tree. It has been recognised in Australia as a Weed of National Significance.

Declaration details

Parkinsonia is a declared Class 2 plant under *Land Protection (Pest and Stock Route Management) Act 2002*. Declaration requires landholders to control declared pests on the land and waters under their control. A local government may serve a notice upon a landholder requiring control of declared pests.



Queensland Government



Description and general information

Size and appearance

A hairless shrub or small tree that rarely grows any more than 10 m high, Parkinsonia has slender green photosynthetic zigzag branches armed with sharp spines.

Leaves

Its leaves have a short, spine-tipped stalk, with leaf branches 20–40 cm long, flattened with small, oblong leaflets along each edge.

Flowers

Parkinsonia flowers are yellow, fragrant, five petalled, each on a long, slender drooping stalk. Seeds are oval and hard, about 15 mm long, and borne in pencil-like pods 5–10 cm long, constricted between the seeds.

Lifecycle

Parkinsonia is fast growing and may flower in early summer of its second or third year of growth. Once established, flowering can occur opportunistically to exploit variable seasonal conditions. Pods mature in late summer, float on water and hence are readily dispersed by flood waters.

Under favourable warm and wet field conditions, most seeds germinate within 2 years. However, a small proportion of seed may remain dormant for longer periods if it's under heavy pasture cover, buried deeper in the soil profile, when inundated or when insufficient rain has fallen.

Habitat and distribution

As parkinsonia is adapted to an extremely wide range of soil types, there is little doubt that it will continue to spread through watercourses and adjoining areas throughout the sub-humid and semi-arid environments of Queensland.

The most vulnerable areas are the lower Gulf of Carpentaria region, Lake Eyre catchment especially the Channel country, Central Highlands and Cape York.

Control

Biological control

Three species of insects have been introduced into Australia as biological control agents against parkinsonia.

Parkinsonia seed beetles *Penthobruchus germani* and *Mimosetes ulkei*.

Both *Penthobruchus germani* and *Mimosetes ulkei* are seed beetles that attack only parkinsonia and whose larvae destroy mature parkinsonia seeds.

Penthobruchus germani is a small (5 mm – 6 mm long) brown beetle from Argentina. It was first released in 1995 and has established much more readily than *Mimosetes*. It has established readily at all release sites and spreads rapidly.

Penthobruchus can exert heavy pressure on parkinsonia seeds in some areas. In the field its presence is indicated by white eggs against a darker background of the pods. Round holes in the pods indicate that beetles have emerged.

Mimosetes ulkei is a small (about 5 mm long) two-tone grey beetle from the USA. While it is established at several sites, it does not establish as readily as *Penthobruchus*. It has potential to contribute to the destruction of parkinsonia seeds. In the field, round emergence holes are the only external indication of its presence.

Parkinsonia leaf bug *Rhinacloa callicrates* *Rhinacloa callicrates* is a small green bug (about 3 mm long) imported from the USA. It feeds on leaves and shoots of parkinsonia resulting in tiny round white spots where it destroys photosynthetic tissue. It is well established in Queensland but it has no significant impact on parkinsonia.

Further biological control studies

Research has continued in recent years to survey the native range of parkinsonia for potential new agents. Several prospective insects have been identified and will be subject to host-testing studies prior to release.

Dieback research

Naturally occurring fungal pathogens have been identified as causing dieback within many infestations of parkinsonia across Northern Australia. Studies are continuing regarding the use of these pathogens as biological control tools.

Mechanical control

Initial clearing by stick raking, blade ploughing or ripping is effective, however:

- it is restricted to reasonably level areas away from watercourses
- clearing will hasten seed germination, necessitating follow-up control either mechanically or chemically.

Establishing improved pasture will aid in managing parkinsonia by competition.

Fire

Fire may be a useful tool for the management of parkinsonia infestations. Kill rates may vary from 30% to 90% with best results obtained from slow moving fires.

Fire will destroy seedlings if sufficient fuel load is present, but mature plants will usually survive.

Herbicide control

Herbicides registered for the control of parkinsonia are listed in Table 1.

Aerial application

Aerial application is undertaken by purpose-built applicators by helicopter. This is useful for dense, strategic infestations although it may be expensive on a broad scale.

Foliar (overall) spray

This is an effective control method for seedlings up to 1.5 m tall. Spray leaf and stems to point of runoff. A wetting agent must be used.

Basal bark spray

For stems up to 15 cm diameter, carefully spray around the base of the plant to a height of 30 cm above ground level. Larger trees may be controlled by spraying to a greater height, up to 100 cm above ground level.

Plants should be actively growing and preferably flowering. Field experience has shown that good soil moisture is essential for effective control.

Because parkinsonia infested areas are often subject to flooding, care is needed to ensure mud and flood debris does not prevent spray penetration to the bark. The trunk may need to be cleared before spraying. Addition of petrol or A-1 jet fuel will aid penetration.



Cut stump treatment

Cut stump treatment may be performed at any time of the year. Cut stems off horizontally as close to the ground as possible. Immediately (within 15 seconds) swab or spray the cut surface and associated stem with herbicide mixture.

Soil application

Use one dose of herbicide per metre of tree height. Place doses close to tree trunk, either with spot gun on clear bare ground, or underground with ground injector. Rain or sufficient soil moisture is required before herbicide is taken up by the plant.

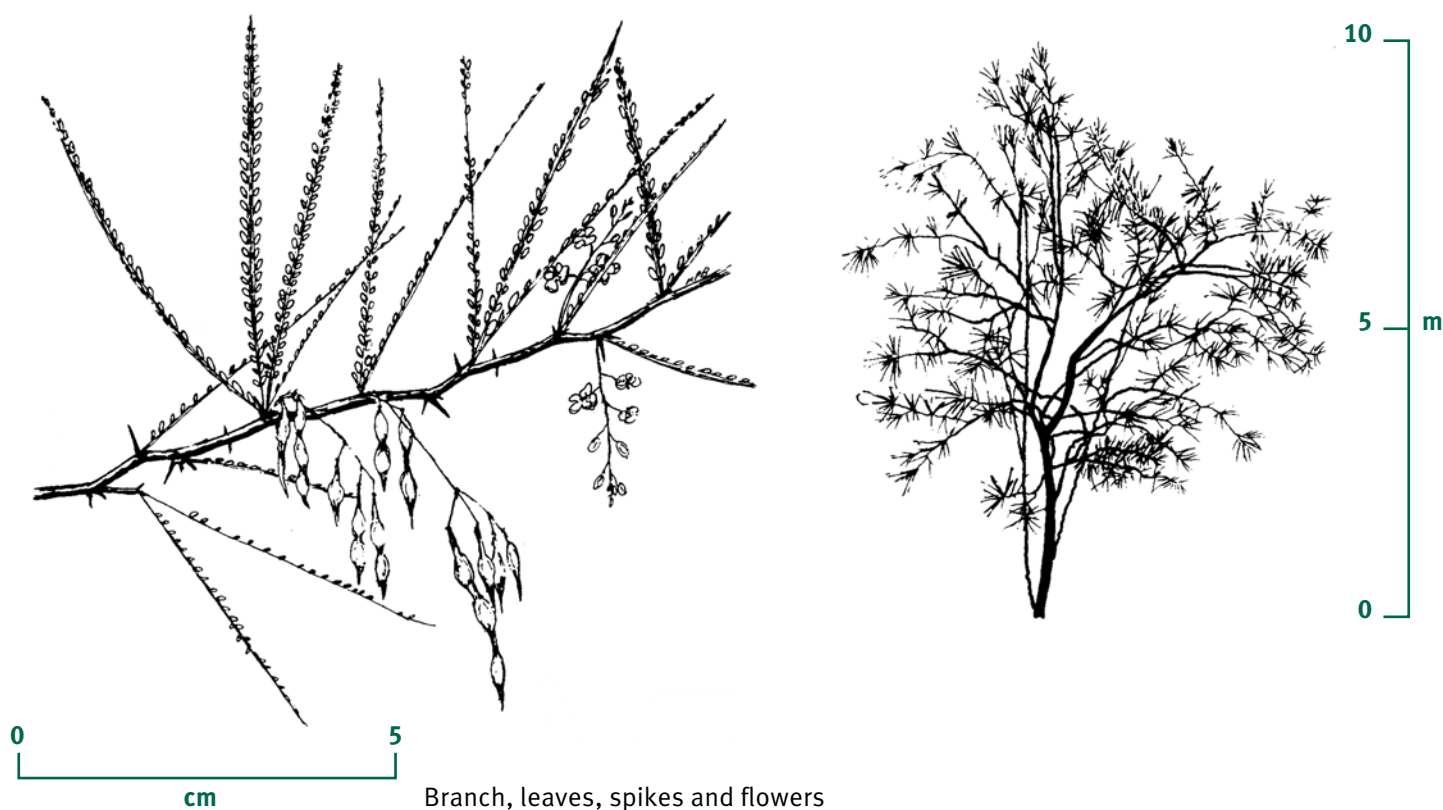
Do not use near watercourses or within a distance equal to at least twice the height of desirable trees.

Further information

Further information is available from your local government office, or by contacting Biosecurity Queensland (call 13 25 23 or visit our website at www.biosecurity.qld.gov.au).

Table 1 Herbicides registered for the control of parkinsonia.

Situation	Herbicide	Rate	Optimum stage and time	Comments
Aerial application	Aminopyralid, picloram and tricopyr e.g. Grazon Extra DS®	3 L/ha	Seedlings 1–2 m tall, or 12–24 months old	Application by helicopter only. Addition of 1 L/ha of Uptake® wetting agent
Foliar (overall spray)	Aminopyralid, picloram and tricopyr e.g. Grazon Extra DS®	0.35 L/100 L water	Seedlings less than 2 m tall and actively growing	Wet plant thoroughly. Use wetting agent
Basal bark spray	Triclopyr and picloram e.g. Access®	1 L/60 L diesel	As above. Stems up to 5 cm diameter	Do not treat wet stems
Cut stump	Triclopyr and picloram e.g. Access®	1 L/60 L diesel	Any time of year	Cut close to ground level and treat immediately
Soil application	Hexazinone e.g. Velpar L® (via spotgun)	4 ml per spot—1 spot for each shrub/tree	Any time, but needs moisture to activate chemical	Shrubs/trees up to 5 m tall
	Tebuthiuron e.g. Grazon Extra DS®	1 to 1.5 g/m ²	Any time, but needs moisture to activate chemical	Refer to label for critical comments



Fact sheets are available from Department of Employment, Economic Development and Innovation (DEEDI) service centres and our Customer Service Centre (telephone 13 25 23). Check our website at www.biosecurity.qld.gov.au to ensure you have the latest version of this fact sheet. The control methods referred to in this fact sheet should be used in accordance with the restrictions (federal and state legislation, and local government laws) directly or indirectly related to each control method. These restrictions may prevent the use of one or more of the methods referred to, depending on individual circumstances. While every care is taken to ensure the accuracy of this information, DEEDI does not invite reliance upon it, nor accept responsibility for any loss or damage caused by actions based on it.