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Hudson pear

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Introduction

Hudson pear (*Cylindropuntia rosea*) is an invasive cactus species of Mexican origin that has naturalised in a variety of habitats in north-western NSW. It seriously degrades invaded land and ecosystems and is continuing to spread.

If left unchecked, it has the potential to reduce the viability of agricultural enterprises and subsequent land values and impact adversely on native fauna and flora. Its presence on flood plains in north-western NSW is particularly worrying as a major flood event could result in a significant increase in its distribution including movement into the Darling River system.

Figure 1. Hudson pear plant (photo: R Holtkamp).

History

Hudson pear was first detected in Australia in the Lightning Ridge area during the late 1960s. It is believed to have spread from a cactus nursery at Grawin. Some reports state that this process was aided by opal miners who deliberately used the plants to protect their diggings from nocturnal prowlers and thieves but these are unable to be verified.

The plant is named after a resident of the Lightning Ridge area, Mr Hudson, who first brought the problem to the attention of the then Prickly Pear Destruction Commission and the cactus is still referred to as Hudson pear.

Description

Hudson pear is a branched cactus which grows to 1.5 m high and to 3 m wide, with a cylindrical trunk and rope-like segments (Figure 1). The segments are cylindrical with those above the trunk reaching 90 cm long and 4 cm wide.

Depressions on segments (areoles) contain small bristles (glochids) and clusters of 4–8 spines. The spines may reach up to 3.5 cm in length on the outer segments. The outer layer of the spines separates into a paper-like, detachable sheath during the first year of development, a characteristic that Hudson pear shares with other *Cylindropuntia* species.

Plants have pink flowers, about 5 cm wide, containing stamens with golden anthers and filaments that are pink towards the anthers and cream towards the base. The stigma is pale yellow. Fruit is wider towards the apex, never in chains and 2–4.5 cm long.

Older fruit have few spines and are much less spiny than younger fruit.

Figure 2. Left - *Cylindropuntia rosea* in flower. Right - *Cylindropuntia tunicata* in flower. Note the differences in flower and spine colour (photos: J Hosking).

Cylindropuntia rosea is possibly a hybrid between *Cylindropuntia tunicata*, which it resembles, and another as yet undetermined species (Figure 2). These two species occur in the same area but are easily separated when in flower. *Cylindropuntia rosea* has pink flowers and white spines while *C. tunicata* has yellowish-pink flowers and straw-coloured spines.

Distribution

The current Australian distribution of Hudson pear is north-western NSW (primarily around the opal mining areas of Lightning Ridge, Grawin and Glengarry and at Cumborah, although infestations have also been reported from Brewarrina, near Coonamble and Goodooga), South Australia and Western Australia. There are unconfirmed reports of its presence around opal mining areas in Queensland. Estimates of the area of NSW infested range from 60 000 to 100 000 hectares. This species has also naturalised in South Africa.

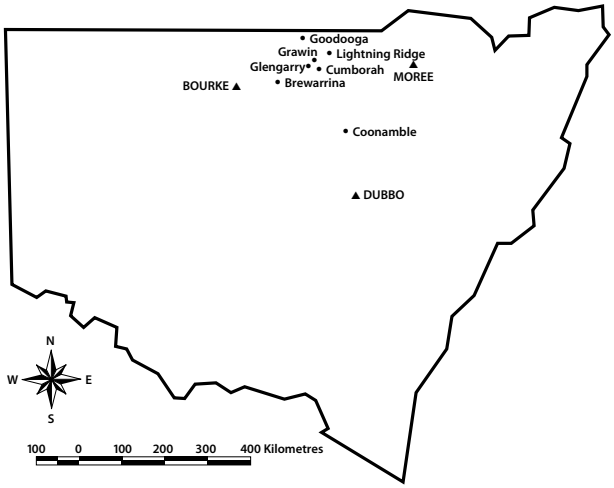

Figure 3. NSW Hudson pear infestations (map: A Maguire).

Habitat

Hudson pear occurs in a variety of habitats including eucalypt woodlands, alluvial floodplains, shrublands and rocky outcrops. It is currently mainly found on lighter soil types but will grow on most soil types.

Importance

Hudson pear has particularly vicious spines which are capable of penetrating footwear and even vehicle tyres.

Spines are encased in a detachable sheath which may remain embedded in a wound even after the body of the spine is removed. The spines are capable of causing serious injury to humans, livestock and working animals such as horses and dogs and may present a severe impediment to mustering operations.

Hudson pear also poses a threat to native fauna and has caused the deaths of native animals such as koalas. Infestations of Hudson pear can also displace native flora and may impact on biodiversity.

Growth, reproduction and development

Plants flower in late spring and summer. Hudson pear reproduces vegetatively and is believed to not produce viable seed. Like many other cactus species, Hudson pear spreads by movement of segments and fruit that root where they come in contact with the ground. The term ‘segments’ has been used here to cover both parts of the plant and fruit as they behave similarly.

Much of the spread of Hudson pear in the Lightning Ridge, Grawin and Glengarry areas appears to be associated with livestock, native and feral animals, vehicles, and water movement.

New plants are capable of growing from segments of all sizes.

Figure 4. Hudson pear is transmitted by a variety of means including vehicles (photo: G Grimshaw).

Legislation

Hudson pear is declared a noxious weed under the *NSW Noxious Weeds Act 1993.* Its control class is a Class 4 noxious weed throughout NSW. Its growth and spread must be controlled according to the measures specified in a management plan published by the Local Control Authority and the plant must not be sold, propagated or knowingly distributed.

The responsibility for the control of noxious weeds on private land rests with the land owner or occupier of the land. This responsibility extends to the middle line of any adjacent watercourse, river or inland water.

Control and management

Controlling Hudson pear using traditional methods, such as chemical application, is made more difficult by the types of terrain and vegetation in which infestations are located. As the plant occurs over an extremely large area, there is no possibility of successfully locating and destroying all cactus segments.

However, there is a place for traditional control techniques in an integrated approach to Hudson pear management. Core infestations would be best dealt with using biological control agents whilst targeting outlying areas with chemical applications or other conventional techniques such as physical removal.

Biological control agents, once established, would form self perpetuating populations that will gradually spread throughout the distribution of Hudson pear.

This Integrated Weed Management approach has the advantage of diverting limited resources to areas with the greatest potential impact as it is usually from these outlying infestations that a weed species spreads.

Herbicides

When spraying herbicides, care needs to be taken to ensure total coverage of plants as any missed plants or segments have the capacity to form new infestations if they come into contact with the ground and form roots. This is easily achieved by the addition of a marker dye to the spray mix which makes sprayed plants highly visible. Thorough spraying of Hudson pear with herbicide mixtures that incorporate a spray oil are effective at any time of the year if the plants are actively growing and not stressed. Plants sprayed during cooler months may take longer to die than those treated during warmer months. In areas that regularly flood, avoid spraying when flooding is likely.

Two herbicides are currently available for treating Hudson pear. Refer to APVMA permit number PER 6500 for these recommended chemicals. Only a registered herbicide used according to the directions on the label or permit may be used to control this weed. Always refer to the label when using agricultural chemicals for rates, methods and safety precautions. Ensure appropriate personal protective equipment (PPE) as specified on the label is worn while mixing and spraying herbicides and while cleaning equipment after spraying. PPE should be cleaned/replaced according to the label directions.

Spraying with herbicides may not be 100% successful, therefore the site should be monitored for regrowth and an appropriate follow-up treatment carried out if required.

Mechanical / physical removal

Physical removal, while successful on isolated plants, is not recommended because of the danger of serious injury occurring during the process of removal. Once uprooted, plants need to be

Figure 5. Hudson pear may form dense infestations (photo: R Holtkamp).

disposed of correctly to avoid new infestations arising from this material. Correct disposal methods include burying and burning. Adequate depth for burying has not been determined although some opal miners dispose of plant material down disused mine shafts. Burnt material requires checking for any regeneration. On larger infestations, physical removal is not viable because any missed plants or plant parts have the capacity to form new infestations if they come into contact with the ground and form roots.

Biological control

The prospects for successful biological control of Hudson pear are fairly good as previous biological control programs targeting cacti have proven highly successful. *Dactylopius tomentosus*, a species of cochineal insect introduced to control rope pear (*Cylindropuntia imbricata*) attacks Hudson pear but is not particularly damaging. Recent South African research has shown that there are several biotypes of *D. tomentosus* present in Mexico, at least one of which is likely to be more damaging to Hudson pear. There should be few host specificity issues associated with the introduction of additional *D. tomentosus* biotypes as there are no native species in the Cactaceae family. Additionally, *D. tomentosus* is already present in Australia so relatively little quarantine testing should be required to obtain approval for the release of a different biotype of this insect. Cochineal insects used to control cactus all appear to be very specific and this is likely to be the case with the biotype for Hudson pear.

Preventing spread

It is extremely important that the spread of Hudson pear be limited. Vigilance is the key to preventing spread. Hudson pear segments of all sizes should be removed as these are capable of forming new plants/infestations if they come into contact with the ground and form roots.

When travelling in Hudson pear infested areas, take care not to leave designated roads. If you do need to travel off road, check vehicle tyres and undercarriage for any sign of Hudson pear and remove before leaving the area.

If you have been outside the vehicle, remember to check clothing, footwear, any other equipment which may have come into contact with the ground and even the inside of the vehicle for Hudson pear segments. Any animals or stock should also be checked.

Any infestations should be reported to Castlereagh Macquarie County Council on 02 6822 2377 or your local NSW DPI District Agronomist or telephone the NSW DPI Weeds Hotline on 1800 680 244.

Figure 6. Hudson pear can grow from segments of all sizes (photo: R Holtkamp).

Acknowledgments

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