

Parthenium weed

Philip Blackmore

Regional Weed Control Coordinator, Armidale

Peter Gray

Regional Weed Control Coordinator, Dubbo

Introduction

Parthenium weed (*Parthenium hysterophorus*) is regarded as one of New South Wales (NSW) most serious weed threats. It is native to the Carribean region and is thought to have been introduced to Australia from the USA on machinery during World War II and as a contaminant of imported pasture seed during the 1950s.

Parthenium weed is a Weed of National Significance (WoNS). It is a vigorous coloniser of bare ground,

degraded pastures and disturbed sites. It is a fast growing annual plant with prolific seed production.

Once established, parthenium weed very quickly builds a huge seed bank in the soil that makes eradication difficult and expensive.

Parthenium weed contains powerful allergens that cause a range of human health problems, including asthma and severe contact dermatitis in sensitised individuals.

Parthenium weed is a threat to agriculture because it is unpalatable to livestock and competes with pastures and crop seedlings. Livestock carrying capacity is significantly reduced in areas where it becomes established and it adds to weed control costs for grain producers.

Parthenium weed is a Class 1 (State Prohibited) noxious weed in NSW.



Figure 1. Parthenium weed is a vigorous coloniser of bare ground. Photo: P. Blackmore.

Distribution

Parthenium weed is endemic to central Queensland and is spreading into southern Queensland.

NSW continues to be free from established populations of parthenium weed. Outbreaks occur on roadsides and particularly the Newell Highway but local government weeds officers have been very effective at finding and eradicating these infestations.

Outbreaks on private property occur in NSW but are not common. Headers and grain harvesting machinery from Queensland have previously been a source of new infestations on private property. However, compulsory NSW Department of Primary Industries (NSW DPI) inspections for harvesting machinery entering NSW from Queensland have minimised parthenium weed spread.

The potential for a permanent population of parthenium weed establishing in NSW is greater on private property than on roadsides due to the difficulty in finding new outbreaks at an early stage.

If you suspect a plant could be parthenium weed, note its location and report it to NSW DPI or your local council Weeds Officer for positive identification.

Description

Parthenium weed is an annual plant with a deep taproot and an erect main stem (Figure 2). The weed usually grows to a height of 1–1.5 m although it can grow to 2 m high.



Figure 2. Parthenium weed. Photo: Auld and Medd.



Figure 3. Parthenium weed at 6 leaf stage. Photo: J.J. Dellow.

Stem and leaves

The upper half of the main stem becomes highly-branched at flowering. The deeply-lobed leaves are alternately branched on the stems, pale green and covered with soft, fine hair.

After flowering, most leaves die. Stems appear to be striped due to longitudinal grooves or ribs and they become woody with age.

Flowers

The creamy-white flowers occur at the tips of the stems (Figure 2). Clusters of male and female florets are grouped as five-lobed flowers on the terminal branches of the flower stem and measure 4–6 mm in diameter (Figure 4).

Seeds

Seeds are small (1–2 mm across), flattened, triangular and dark brown–black with two thin, white, spoon-shaped appendages.

Similar species

Prior to late-flowering, the plant can be easily mistaken for bishop's weed (*Ammi majus*) and hemlock (*Conium maculatum*), after it has set seed and becomes woody it can then be mistaken for fleabane (*Conyza* spp) (Figure 5).



Figure 4. Parthenium weed flowers. Photo: P. Blackmore.

Lifecycle

Parthenium weed is an annual plant that in favourable conditions, can germinate, flower, and set seed within four weeks. Seed set is continuous until the plant dies producing up to 15,000 seeds in a growing season.

Buried seeds can remain dormant for many years and seed close to the soil surface will germinate readily.

Conditions for the growth of parthenium weed are ideal in most areas of NSW with the exception of very arid or wet areas.

Once established, plants will survive droughts and frosts.

Spread

The weed is spread by seed and tolerates a variety of conditions.

The main pathways for introducing this weed to NSW is by:

- harvesting machinery
- hay and grain
- livestock floats, and
- other vehicles from infested areas of Queensland.

Therefore, good hygiene practices will reduce the risk of introducing parthenium weed to your property.

Parthenium weed becomes established in disturbed, degraded or bare soil sites such as:

- overgrazed, heavily-stocked areas
- stock yards and watering points
- along roadsides and fencelines
- neglected areas
- cropping paddocks recently harvested by contract harvesters
- areas where excavation machinery have been working.

Impact

The weed adversely affects human and animal health and can cause:



- respiratory problems
- severe dermatitis
- tainted meat if stock eat the plant within one month of slaughter
- tainted milk.

Landowners are advised to never touch the plant with bare hands and always use a dust mask if working near the weed for extended periods.

Allergic reactions are not always experienced with the first contact with the plant but can develop after a number of exposures. Once a reaction to parthenium weed develops, some individuals may show similar reactions to related plants such as sunflowers. This reaction can be so severe that allergic people can be forced to move away from parthenium weed-infested areas.

Control

Preventing the spread of parthenium weed is the most cost-effective management strategy.

Anyone in NSW who suspect they have found parthenium weed **SHOULD NOT** attempt to control it themselves.

All suspected infestations should be reported to the local council Weeds Officer or NSW DPI to confirm the identification. NSW DPI staff and council Weeds Officers will coordinate and carry out the control work. The initial control costs of notified parthenium weed infestations is covered by a contingency fund allocated by the Minister for Primary Industries.

The location of all parthenium weed outbreaks on private property is kept strictly confidential.



Figure 5. Species sometimes mistaken for Parthenium weed. Left: bishop's weed *Ammi majus*. Right: Canadian fleabance *Conyza parva*. Photos: A. Storrie and Auld and Medd.

Biological control

Researchers in Queensland have located and tested numerous biological control agents against parthenium weed. These have included a gall-forming moth, leaf-miner, weevil, beetles, and two rust fungi. Five of these agents have established since their first releases in the 1980s but have not effectively controlled the weed.

This work is now limited to the natural spread of these established agents or by landholders and community projects.

Legislation

Parthenium weed is a Class 1 noxious weed throughout NSW under the *NSW Noxious Weeds Act 1993*.

As such, the weed must be eradicated from the land and the land must be kept free of the plant. As a notifiable weed, all outbreaks must be reported to the local council within three days.

The weeds officer will then advise the necessary action to be taken to eradicate the infestation.

This plant must not be sold anywhere within NSW.

The *Noxious Weeds Act 1993* also stipulates that agricultural machines (headers and associated grain-handling equipment) must be thoroughly cleaned by the person in charge of the machine before entering NSW.

The machinery must then be inspected by a border inspector. Inspections are made at specified crossing points and may require prior notice for inspectors. This process has greatly reduced the risk of introducing parthenium weed into NSW.

A full list of noxious weeds and requirements under the *NSW Noxious Weeds Act 1993* can be found at www.dpi.nsw.gov.au/weeds

Taskforce

A taskforce established by NSW DPI has produced a strategy for the management of parthenium weed in NSW. The document clearly assigns responsibilities for managing introduction pathways, control and the ongoing monitoring of outbreaks. The **NSW Parthenium Strategy** links with the **National Parthenium Strategy**. It fosters strong cooperation with Queensland to minimise the spread of parthenium weed into NSW.

The taskforce has members from NSW DPI, local government, industry and the Queensland government. This group also ensures the weed maintains a high public profile so early identification of new infestations by the general community is possible.



Figure 6. Parthenium weed foliage.
Photo: J. Gasparotto

Further information

For a complete list of NSW DPI publications on parthenium weed see our website at: www.dpi.nsw.gov.au/weeds or call the NSW DPI Bookshop on 1800 028 374.

In particular consult the NSW DPI brochures:

- *NSW Parthenium Weed Free* (for identification), and
- *Clean your header*.

Acknowledgments

Information for this Primefact was taken from:

- *Parthenium weed* Agfact P7.6.15
- *Parthenium weed (Parthenium hysterophorus)* Weed Management Guide, CRC for Australian Weed Management. www.weedscrc.org.au

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ISSN 1832-6668

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Job number 8190