

Grazing management principles: No.5

Manage invasive native scrub

Managing invasive native scrub (INS) should be an ongoing and routine aspect of running a Western Local Region property

If not effectively managed, invasive native scrub (INS) can cause a reduction in groundcover pasture productivity, income and habitat diversity, while increasing the time and cost of managing stock.

Since European settlement, parts of the landscape have seen a spread and invasive regeneration of unpalatable native trees and shrubs. Certain species have created dense thickets that don't self thin. These are known as invasive native scrub (INS). Their prolific regeneration has altered the vegetation over vast areas.

INS species compete for resources such as light, water and nutrients and can reduce or exclude the growth of other plant species, particularly native perennial grasses. Widespread INS also reduces habitat diversity and soils in INS sites can be crusted and hard setting. The reduction in groundcover can increase soil erosion and can be made worse when combined with high total grazing pressure.

INS in the Western Local Region

INS is a major problem facing landholders in the semi-arid rangelands across the world. Before European settlement, western NSW was most likely a mosaic of open grasslands, open woodlands and areas of thicker scrub. Changes in fire and grazing patterns, combined with seasonal rainfall patterns, have increased INS in some areas.

In 1988, the NSW Soil Conservation Service estimated that almost 70%, or more than 20 million hectares, of the Western Division was affected by INS. Of that, 10% was described as severe infestation.

In many cases, 'open' paddocks have become unmanageable and 'scrubby' in only 10 to 15 years, significantly reducing productivity. The management of INS on certain land types therefore needs to be an ongoing and routine aspect of running a Western Local Region property.

What are the management principles for INS?

There are eight key management principles for controlling INS:

1. Take a tactical approach

There's no quick fix. A well-planned, long-term approach is essential to reduce the risk of failure.

2. Make INS management part of farm planning

A whole-of-property approach is needed. Schedule INS management. Monitor and follow up regularly as part of overall farm planning.

3. Adopt an integrated approach

A range of treatments may be needed to achieve effective control of INS, so develop an integrated strategy.

4. Know your INS species

Different INS species respond differently to treatment. Identify the species to ensure you can establish the best treatment option.

5. Keep open areas open

Keeping open areas open is more cost effective and makes paddocks more accessible and easier to manage. Groundcover is also easier to maintain.

6. Achieve a balanced environment

An INS management plan should aim to restore a mosaic of different vegetation types that allows greater biodiversity.

7. Control total grazing pressure (TGP)

Managing TGP is essential to improve and maintain vigorous native pastures that compete with INS growth and to ensure your efforts to treat INS by fire or other techniques are not wasted in the long term.

8. Follow-up treatment is essential

One treatment is not enough to keep INS under control. Regrowth is expected for many species and, in some circumstances, treatment will promote regrowth.

9. Keep your eyes open

INS can establish in grasslands in good times. It is best to treat in the early stages of INS growth rather than waiting until shrubs are established.

Legislation

As INS is native vegetation, landholders need to contact their Local Land Services office for advice on legal requirements under the *Native Vegetation Act 2003* (the Act). Local Land Services staff can help landholders develop a Property Vegetation Plan (PVP) to ensure any proposed INS strategies are well managed and meet the requirements of the Act.

Landholders also need to ensure INS management activities comply with all other legal requirements including due diligence regarding Aboriginal cultural heritage requirements under the *National Parks and Wildlife Act 1974*.

INS management techniques

INS can be managed effectively to restore the mosaic of native vegetation that is a natural characteristic of the Western Local Region. However, one treatment is unlikely to achieve control.

A successful INS management program needs integrated and ongoing treatments to achieve the desired outcome, or the problem may become worse. It should incorporate pasture establishment, appropriate grazing management, infrastructure (eg fencing) and monitoring. Suitable management techniques include the following:

1. Fire

Controlled burning allows landholders to reduce the amount of INS and seedlings in a paddock and reverse the encroachment process. Management burning is best carried out early in the process of encroachment when fuel load is sufficient and should not be seen as a one-off treatment. Controlled burning requires a fire permit and must follow strict conditions of approval.

2. Chemical

Chemical treatments can remove spot areas of INS. They don't disturb groundcover and the soil surface as much as other techniques as they can be directed to target plants. However, herbicides can prove expensive on dense stands of INS and over large areas.

3. Mechanical

Grubbing

Grubbing clears individual plants, with minimal disturbance to groundcover. INS shrubs are uprooted using a 'grubber' attached to a tractor. This is an effective technique against most INS, particularly species that re-sprout at the base and isolated shrubs.

Chaining

Chaining is widely used to pull down thick INS, with minimal disturbance to soil and groundcover. It involves clearing plants by dragging a heavy chain between two tractors or bulldozers and is a relatively cheap first treatment for INS

Stick raking

Stick raking uses a clawed blade attached to a front-end loader or bulldozer to break young shrubs and rake them into piles. The timber left behind provides shelter for establishing groundcover.

Rolling with a crocodile

A crocodile is a heavy offset drum with shovel-like blades used to knock down shrubs and disturb the soil surface to increase water infiltration and encourage grass growth. It is sometimes used before a controlled burn as it gives grasses a chance to establish in the short-term.

Blade ploughing

Blade ploughing uses a flat blade set below the soil surface, pulled by a tractor or bulldozer. It is best suited to sandy or loamy soils and is effective for relatively small areas if done at the right depth and with adequate follow up action.

Cultivation and short-term cropping

Cultivation with cropping can be an economical way to manage INS regrowth and restore native pastures after treating INS areas using other techniques. Ploughing destroys the root structure of re-sprouting INS, resulting in less regrowth. Appropriate grazing regimes can encourage perennial groundcover to establish after INS treatment, cultivation and cropping.

Further Reading

Other fact sheets in this series

- No.1 Actively control feral animals
- No.2 Control access to watering points
- No.3 Maintain and improve groundcover
- No.4 Manage for drought
- No.6 Manage pasture species
- No.7 Total grazing pressure
- No.8 Match stock numbers to feed availability
- No.9 Rest pastures regularly

Case study

Good management, less stress – the Mosely family

DVD

Looking over the Fence – grazing management in the rangelands, Western Catchment Management Authority, 2013

Other fact sheets

Management burning of invasive native scrub: principles, Peter Jessop, NSW DPI, 2009

Management burning of invasive native scrub: techniques, Peter Jessop, NSW DPI, 2009

Managing invasive native scrub to rehabilitate native pastures and open woodlands - A Best Practice Guide for the Central West and Western Region, Central West and Western CMAs, 2010

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