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Managing Indian couch

Potential invasion area for Indian couch in Queensland reaches 14 million hectares.

INDIAN couch grass continues to expand its range in the Burdekin and the Fitzroy catchments.

There is also expansion occurring in the Burnett and Mary catchments.

The increase in Indian couch can be symptomatic of land and pasture condition decline.

This alone is incentive enough to combat or manage Indian couch.

A joint Meat & Livestock Australia and Department of Agriculture and Fisheries (DAF) funded project on Indian couch, ending May 2022, sheds some light on the issue.

Throughout the project journey, producer feedback and scientific findings have been carefully considered in unison and not in isolation.

The strong voice that came from Central Queensland producers for this research to proceed, highlighted that the spread of Indian couch was not just a concern for those located in the north of the state, as had previously been considered.

Producers have identified the pros and cons of Indian couch and the need for case-specific and regional management options, including options to reduce/halt the spread.

This is particularly important given the area of impact in Queensland is significant and growing.

The project has surveyed the occurrence of Indian couch in the Burdekin, Fitzroy, Burnett and Mary catchments.

The land types affected include all brigalow land types, box country, all basalt, goldfields, ironbark and bloodwood on non-cracking clay, and silver-leaved ironbark on cracking clay.

Historical survey data has shown a subcoastal distribution of Indian couch in Queensland, with a greater extent of invasion occurring in the Burdekin catchment.

Current data builds on this and shows further expansion in all three catchments with a risk of further invasion.

Based on the affected land types, a potential invasion area for Queensland could be in the order of 14 million hectares. This is very different to the 800,000 hectares reported back in 1990.

To gauge changes in Indian couch spread over the last 30 years, a subsample of historical QGRAZE sites were surveyed and current pasture data compared to earlier records.

QGRAZE is a long-term monitoring system that DAF implemented in 1991 to monitor species change and pasture condition of grazing lands throughout Queensland.

QGRAZE sites were established on-property and marked out by five star pickets spaced 50 metres apart.

Each of the five star pickets represents the centre of five x 200m transect lines that run east to west.

A total of 100 x 0.25 square metre quadrat assessments are made on pasture species and ground cover.

QGRAZE site near Springsure in Central Queensland surveyed in June 2020 with 82 per cent Indian couch frequency recorded.

> Good management of native and improved pastures such as rotational grazing, conservative stocking to reverse pasture degradation, and safe utilisation rates will assist in slowing down the spread.

Detailed survey work at 11 QGRAZE sites on properties in the Fitzroy, for instance, has shown that at six of the 11 sites, Indian couch is absent or at low frequency.

Whereas the other sites sampled have experienced increases in Indian couch frequency, such as from zero to 32 per cent in brigalow pastures and zero to 82pc in native Aristida/Bothriochloa pastures.

We are yet to look at management and climate history to understand the differences across sites and factors causing the different rates of change.

The project is currently assessing the economic and landscape function impacts of Indian couch invasion.

Anecdotally, there are both virtues and shortcomings associated with Indian couch grass.

Feedback from producers reveal it holds soil together; being able to provide high ground cover and arrest soil erosion, but "it doesn't last", having reduced drought tolerance when compared to native grasses and being a less reliable source of feed.

Of great interest to the project is understanding management options for producers. Indian couch is tolerant of heavy grazing and good at invading bare areas in a pasture.

The spread of Indian couch is known to be exacerbated by heavy grazing.

In some cases, overgrazing, often coupled with drought, has led to the loss of native perennial grasses and eventual invasion and dominance by Indian couch.

Good management of native and improved pastures such as rotational grazing, conservative stocking to reverse pasture degradation, and safe utilisation rates will assist in slowing down the spread.

Over the next six months the project will be working with producers, via a series of producer group meetings across the Burdekin, Fitzroy, Burnett and Mary catchments, to develop Indian couch best-bet management options.

Researchers will be working on refining best-bet options for producers.

Options will cover a range of circumstances from prevention, to reduction, to control measures.

Nicole Spiegel, Scientist (Grazing Management), DAF Charters Towers 0427 026 803.

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Be on the lookout for Pimelea

FOLLOWING recent winter rain and cooler temperatures across Queensland's south and south-west, producers are advised to be on the lookout for Pimelea toxicity.

There are three toxic Pimelea species commonly found in grazing pastures, which can cause significant economic losses. The species are *Pimelea elongata, Pimelea simplex and Pimelea trichostachya*. Impacts on production begin to occur when pastures are not readily available or when Pimelea grows within pastures.

Knowing the species on your property is important as the different species contain varied levels of the toxin, simplexin, within different parts of the plant.

Cattle do not generally consume Pimelea when it is green as it has a strong odour. The odour disappears when the plant dries off and this is when issues can arise as flowers and seed heads containing high concentrations of the toxin can be consumed when grazing.

Keep up-to-date with Pimelea trichostachya research updates via the MLA website.

Pimelea can also be ingested through soil or water containing plant fragments or seeds and inhalation of fragments.

Being on the front foot through understanding your pastures and cattle (introduced cattle are more susceptible), identification of Pimelea species and impacts to animals can allow for effective management options. There is currently an APVMA Minor use permit (no. 13549) for spraying small areas of Pimelea.

Other management options include strategic grazing (see *Understanding Pimelea poisoning of cattle* on the FutureBeef website) or removal of animals from paddocks when there is risk of significant consumption of Pimelea plants. When visual signs of Pimelea poisoning are observed, it is paramount to remove stock and get them on to non-Pimelea infested pastures to assist in recovery.

Visual symptoms to keep an eye out for include:

- diarrhoea
- reduced appetite and depression
- rough coat/condition
- oedema (due to build-up of fluid) of the head, brisket and abdomen
- increased respiration rate and heart rate
- reluctance to move (during exertion sudden death can occur).

A Meat & Livestock Australia funded, University of Queensland/Department of Agriculture and Fisheries (DAF) project has been undertaking research aimed at combating the impacts from toxicity. To date, research has been conducted on:

- rumen bacteria
- rumen absorbents
- bentonite
- biochar and heat-activated biochar.

For more information on Pimelea, visit futurebeef.com.au and search 'understanding pimelea poisoning of cattle'.

- Leanne Hardwick, Beef Extension Officer, DAF Roma, 0436 912 349.

UPDATED STOCKTAKE APP HELPING PRODUCERS MANAGE GRAZING LAND

STOCKTAKE GLM is an updated smart device application that assists beef and sheep producers with their grazing land management.

Based on the popular Stocktake workshop, the app provides graziers, consultants and other land managers with a simple tool to monitor land condition and undertake forage budgeting on their property.

Available in the AppStore or via Google Play, Stocktake GLM is free to download and use with no subscription fees.

The app works in remote areas without the need of mobile reception, backing up securely once a connection is restored.

Data can be synced to another device should anything happen to your device.

Setting up a property is simple as it contains the latest spatial mapping where users can quickly locate and pin their grazing property.

Using updated pasture growth modelling data, land type mapping and adult equivalent data, the app can calculate long-term carrying capacity using grazier on-ground monitoring inputs.

Stocktake GLM also guides users through a basic or detailed forage budget to determine short-term stocking rates by balancing pasture supply with stock demand.

Capable of storing rainfall records and cattle numbers, Stocktake GLM produces a variety of reports that can be exported as a PDF or alternatively a CSV for those wishing to import their data into spreadsheet format.

During land condition assessment, GPS coordinates are collected along with photos and site information to be revisited when monitored in future.

STOCKTAKE GLM

- Stocktake workshops are run on demand across Queensland.
- If you are interested in holding one in your local area or require assistance downloading and setting up your property, contact your local beef extension officer.
- Learn more about Stocktake GLM on our website stocktakeglm.com.au/.

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Assessing pasture condition

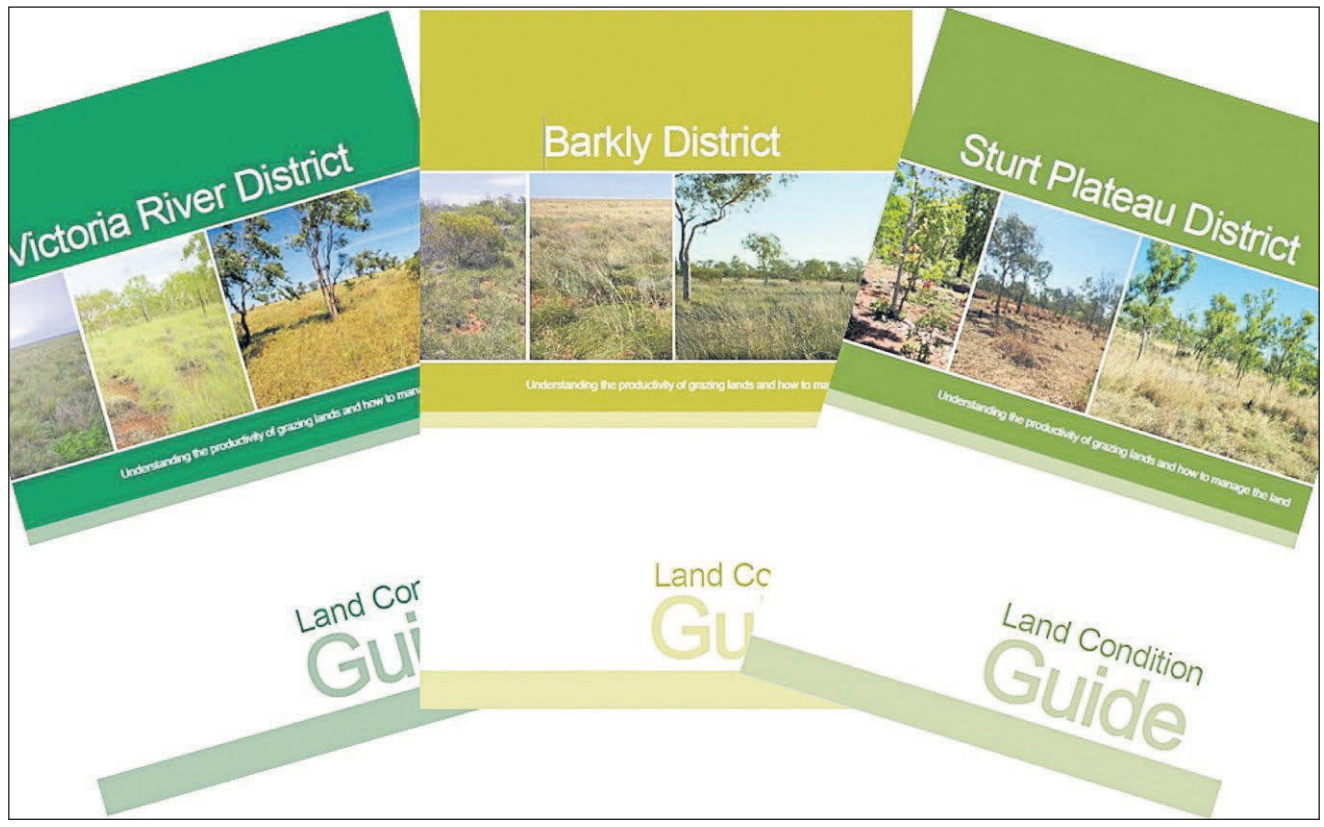
IN RECENT years, drought has impacted large parts of the Northern Territory.

The dry conditions have contributed to widespread death of Mitchell grass in some regions, prompting concern about the ability of pastures to recover.

Pastures that have declined in condition have lower densities of perennial grasses such as Mitchell grass and don't grow as much useful forage. The decline in land condition and carrying capacity can be tricky to assess. There are resources available to help assess land condition and how this affects pasture growth and carrying capacity.

The NT Land Condition Guides, written by Caroline Pettit, collate decades of research from the NT government's Department of Industry, Tourism and Trade (DITT), and include:

- How to recognise land condition change
- How land condition affects pasture growth and carrying capacity
- How pasture growth and carrying capacity vary with rainfall in the region
- Maps of the land systems in each region with pastoral lease overlay.



The DITT Rangelands and Extension teams are happy to help people use the Land Condition Guides and provide further information for pasture management decisions.

Management decisions

Understanding pasture condition can assist day-to-day stocking rate decisions. These guides can also assist with wet season spelling and destocking to preserve pasture condition.

Investment decisions

Assessing current carrying capacity and the potential carrying capacity with improved land condition can provide valuable information for those looking to invest in the northern beef industry. Understanding land condition and carrying capacity can help inform infrastructure development or pasture improvement.

Land condition should be a primary consideration when purchasing. The guides can help with assessing carrying capacity and ensuring land is valued on its current productivity. Past stocking rates are not always indicative of sustainable carrying capacity.

Land Condition Guides

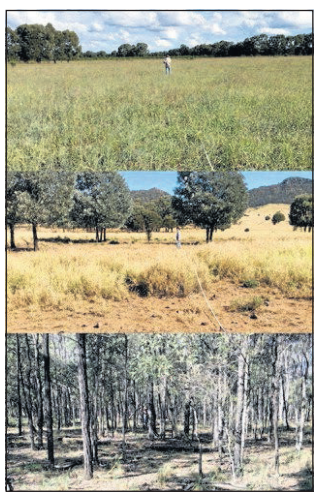
The Creswell land type, on the northern Barkly, has recently been the focus of much research.

"When these pastures are in good condition, they are dominated by palatable perennial grasses such as curly bluegrass and Mitchell grass and have an average carrying capacity of nine to 12AE/km; however, loss of perennial grasses following recent drought may have reduced the carrying capacity to about half that and it could take several years for recovery to occur," DITT senior rangeland scientist Dr Robyn Cowley said.

"Spelling and lighter stocking rates in the next few years may pay off in the longer term to restore pasture condition and increase livestock production."

Visit nt.gov.au for more information or contact Caroline Pettit or Dr. Robyn Cowley, (08) 8999 5511.

CAN GOOD GRAZING MANAGEMENT SUSTAIN BIODIVERSITY IN THE BRIGALOW?



THE From Method to Market project team has been busy evaluating on-farm biodiversity under best practice grazing management throughout the Brigalow belt of Queensland.

To date, the team have assessed flora on Brigalow land types under varying states of land condition and vegetation (i.e. improved grass pastures, grass/brigalow regrowth, grass/legume pastures and remnant vegetation). Fauna surveys will investigate whether best practice grazing management in livestock production systems, where flora tends to be highly modified, is sustaining biodiversity.

"We want to see ecosystem service markets open up to producers who've already made significant progress towards sustainable red meat production through best practice management," Department of Agriculture and Fisheries (DAF) From Method to Market project leader, Dr Hayley McMillan said.

Biodiversity findings will help inform the development of affordable remote sensing technologies such as the spatial BioCondition models being developed by the Department of Environment and Science. These technologies will allow producers to demonstrate, and be rewarded for, their environmental stewardship via future biodiversity markets and/or certification schemes.

Central Queensland project coordinator, Kerry Goodwin participated in the biodiversity surveys.

"The synergies between biodiversity and good land management for animal production purposes, particularly in the areas of brigalow regrowth, is remarkable. I'm excited for the opportunities this research will bring to the beef industry," Kerry said.

From Method to Market

- The From Method to Market project is jointly funded by DAF, the Land Restoration Fund, CIBO Labs and Meat & Livestock Australia.
- For more information, contact Dr Hayley McMillan on 0429 019 988.
- Photo: Improved pasture, Brigalow regrowth and remnant vegetation transects.