



Grazing native pastures — what boosts biodiversity?

By John Powell
FFI CRC

ABOVE: Direct sowings of old man saltbush at the Meckering site. (Photo: Brad Wintle, DAFWA)

There is no evidence that rotational grazing is better for biodiversity than continuous grazing, at equivalent stocking rates according to the results of a recently completed CRC Salinity project *Biodiversity in native pastures* that surveyed 24 properties with native pastures in the high rainfall zone of south eastern Australia.

“Grazing pressure and soil fertility are the main determinants of biodiversity,” said Dr Josh Dorrrough, of the Arthur Rylah Institute for Environmental Research, and a visiting scientist at CSIRO Sustainable Ecosystems in Canberra.

“Irrespective of whether rotational or continuous grazing is used, biodiversity is maximised with light grazing pressure (<4 DSE/ha) and low soil fertility (<20 mg/kg Colwell),” Josh added.

Although Josh reveals that no clear positive or negative effects of rotational grazing were observed, he suggests rotational grazing has benefits for livestock producers including being better at predicting feed supply.

“Although it will depend on management skills, potentially rotational grazing can help producers to manage their pasture for better ‘functional outcomes’ such as less bare ground and erosion,” Josh explained.

Josh’s CSIRO colleagues on the project, Jacqui Stol and Sue McIntyre, report there has been strong interest by land managers across the study area with high demand for the booklet.

“While not providing a hard and fast recipe for managing native pastures,” Josh said “*Biodiversity in the paddock* contains key principles for livestock producers who have different objectives for their native pasture and livestock systems.”

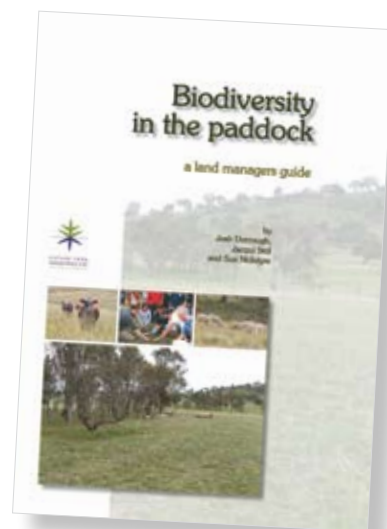
i key points

- Rotational grazing is no better for biodiversity in native pastures than continuous grazing, at equivalent stocking rates
- Grazing pressure and soil fertility are the main determinants of native pasture biodiversity
- Maintaining biodiversity in native pastures doesn’t necessarily mean low profitability.

Biodiversity can benefit profit

The project also found that maintaining biodiversity doesn’t necessarily mean low profitability – due to lower input and management costs, livestock producers are achieving gross margins up to \$150/ha while maintaining plant diversity of about 20 species/ha.

The project’s findings, together with other information to assist livestock producers assess alternative approaches to managing biodiversity in native pastures, have been published in the booklet *Biodiversity in the paddock*, available from the FFI CRC.



Putting policy into context

“At one end of the scale, producers may want to maximise biodiversity, while at the other end, they may want to maximise livestock productivity.

“Many producers want a balance between these two extremes.”

Making the most of it

Assuming native pastures are currently in sound condition, Josh offered the following suggestions:

To maximise biodiversity: choose paddocks with high structural diversity (trees, shrubs, tussock grasses, fallen timber, rocks) and with little or no fertiliser history; apply little or no fertiliser to maintain Colwell P at <10mg/kg; and maintain low grazing pressure (<4 DSE/ha)

To maximise productivity: choose paddocks with deeper, better structured soils with a strong fertiliser history and dominated by the more productive native grasses (for example *Microlaena* and *Danthonia*); apply fertiliser to maintain Colwell P at roughly 20 mg/kg; maintain high grazing pressure (up to 12 DSE/ha in good seasons).

To achieve more balance between biodiversity and productivity, paddock selection, fertiliser histories, fertiliser application rates and grazing pressures can range between the two examples above. ↘

More information

Josh Dorrrough, CSIRO Sustainable Ecosystems

T: (02) 6494 2744

E: josh.dorrrough@csiro.au

Policy is implemented in a social context. And the context counts. A UWA PhD student, Helena Clayton's thesis, *An investigation of farmer responses to economic incentives for landscape recovery*, investigates the ways in which this social context affects how receptive people are to policy – and how these lessons can be mapped onto the process of policy choice, development and design.



Studying at the UWA School of Agricultural and Resource Economics at the Faculty of Natural and Agricultural Sciences, Helena is investigating the role of environmental markets in addressing Australia's natural resource management issues for her thesis. Her PhD explores theoretical insights into behavioural economics, to better understand how farming communities might respond to the market-based policies that support their environmental recovery efforts through the provision of economic incentives.

“It provides focus on the social dimensions of market-based environmental policy, providing recommendations for socially appropriate policy design – and choice – for farming communities engaged in efforts to achieve biodiversity conservation and salinity mitigation,” Helena said.

“I draw upon ‘crowding-out theory’ to investigate the interactions between socially-based motivations and economic incentives. To better help me understand these reactions, I am using the *Auction for Landscape Recovery* (ALR) as a case study. The ALR trials an auction mechanism that provides economic incentives designed to sway farmers towards undertaking on-farm projects to achieve specific environmental outcomes.” The auction is funded through the *National Action Plan for Salinity* and is managed by WWF Australia. ↘

More information

Helena Clayton, DEC

T: (08) 6488 4633

E: clayth01@student.uwa.edu.au