



KIT 5

FAUNA AND FLORA IN GRAZED LANDSCAPES: INCREASER AND DECREASER SPECIES



**Queensland
Government**



Acknowledgments

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WINNERS AND LOSERS – WHAT ARE ‘INCREASER’ AND ‘DECREASER’ SPECIES?

In extensive grazing systems, there are some species that are known to be sensitive to disturbances associated with grazing. These are often described as ‘decreaser’ species, because populations decline with intensification of pastoral use. Some species are more generalist in their habitat requirements, and do not change in abundance. Then there are the ‘increaser’ species, which benefit from modification of habitat and increase in abundance.

There are winners (increaser species) and losers (decreaser species) in grazed landscapes. If most of the landscape is subject to high grazing utilisation and is in poor condition, then many decreaser species will have no refuge, and will eventually disappear.

IN LANDSCAPES THAT ARE IN POOR CONDITION FOR GRAZING AND/OR BIODIVERSITY THERE ARE WINNERS AND LOSERS.

LOSERS ARE:

- Species that decline when habitat becomes dysfunctional, and can disappear from landscapes where poor condition is widespread.
- Not found near water points.
- Tend to rely upon special habitat features to survive, eg trees with hollows, shrubby understorey, woody debris.
- Sensitive to disturbance impacts.
- Plants that are palatable to stock.
- Animals that require ground cover.
- Animals that feed on seeds of perennial plants.

WINNERS ARE:

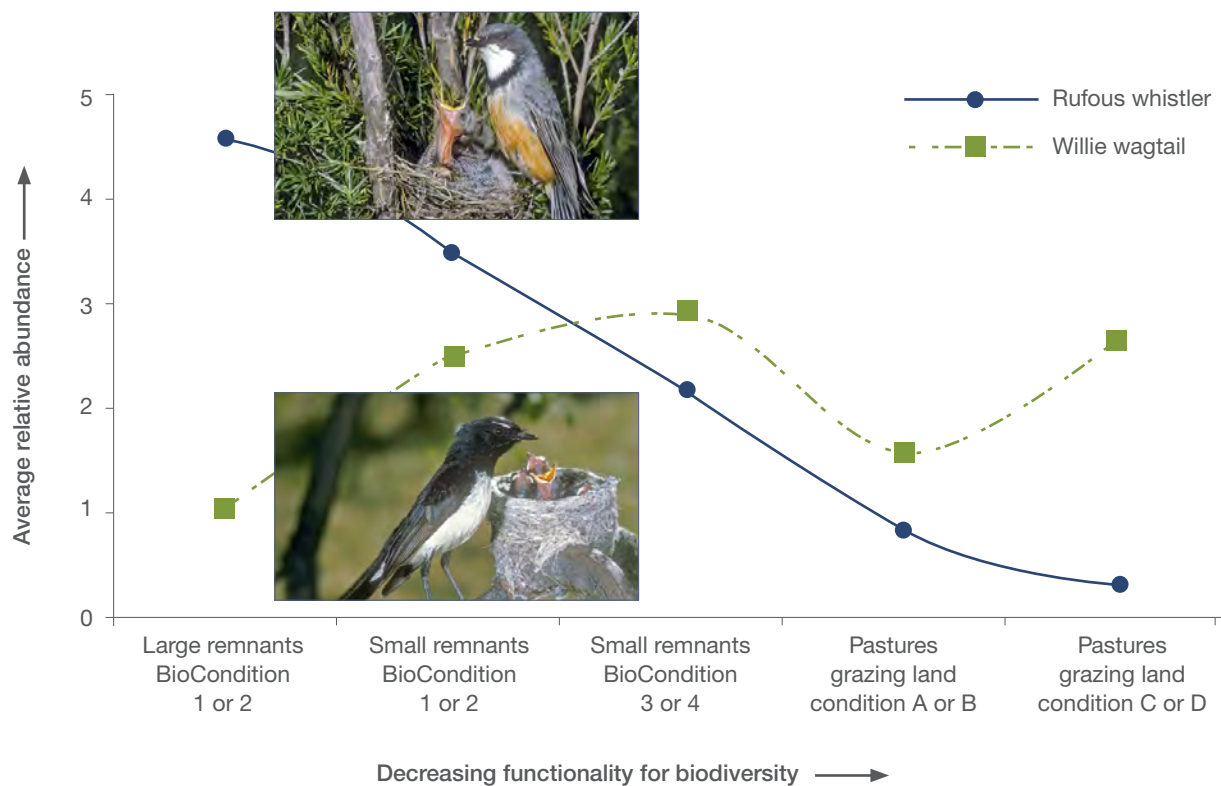
- A relatively small number of species that benefit from dysfunctional habitat condition, and increase in abundance and distribution.
- Abundant near water points.
- Tend not to need special habitat features to survive.
- More tolerant of disturbance impacts.
- Plants that are unpalatable.
- Animals that prefer lots of open ground.
- Animals that feed on seeds of weedy forbs and grasses.



GRAZING LAND CONDITION = ‘C’ or ‘D’ AND BIOCONDITION = ‘3’ or ‘4’.

Extensive areas in this condition mean many species lose their capacity to persist in the landscape. Their populations decline and will eventually disappear, unless condition is improved.

SIMILAR SPECIES, DIFFERENT RESPONSES



The above figure illustrates how two different bird species respond to variation in condition. Willie wagtails show an increasing response to reduced condition in woodland habitat and in pastures. However, the abundance of rufous whistlers declines markedly with areas in decreasing condition.

Why? Both species are small passerine birds that eat small invertebrates; both make open cup nests in trees or shrubs and both lay around two to four eggs. However, willie wagtails are less reliant on shrubs and trees for foraging, preferring open ground. They are also more defensive, and will vigorously defend their nests and territories. These traits help make the willie wagtail relatively more resistant to habitat modification.

We don't know exactly why some fauna species do not cope with declining condition of habitat. But we do know that there are more decreaser species, such as the rufous whistler, than there are increaser species, such as the willie wagtail. Therefore, a loss in habitat condition means a loss in diversity of species.

INCREASER AND DECREASER NATIVE PERENNIAL GRASSES – INDICATORS OF GRAZING LAND CONDITION

The grassy layer in native pastures and woodlands underpins the grazing industry, as well as providing shelter and foraging material for many native animals. However, grass species, like animal species, have different qualities in terms of their value as stock forage, and will decline with prolonged overgrazing. These species are the decreaser grass species, and in grazing land management many are also referred to as 3P grasses – grasses that are perennial, palatable and productive. In relatively undisturbed environments, increaser and decreaser grass species occur together but the decreaser species tend to dominate the herbaceous layer.

Increaser native perennial grass species tend to be less leafy and mature more quickly than decreaser 3P grasses, and are generally not preferred by stock. Consequently, under prolonged grazing pressure, a shift occurs in the dominance of grass species; decreaser species become less abundant (and even disappear), and increaser species appear more abundant.

AN EXAMPLE

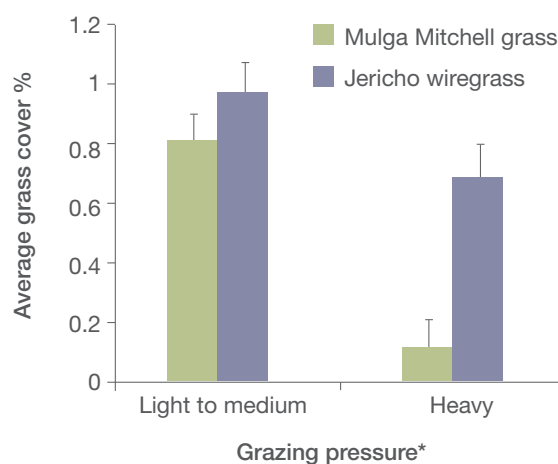


MULGA MITCHELL GRASS



JERICO WIREGRASS

In the graph below, both mulga Mitchell grass and Jericho wiregrass decline under heavy grazing pressure. Stock (cattle in particular) will eat increaser grass species if preferred decreaser species have been grazed out. The point to note is that, relative to Jericho wiregrass, mulga Mitchell grass becomes significantly less abundant in heavily grazed areas.



*Grazing pressure: was derived as a measure of stocking rate and distance to water.

“In the mulga lands, a typical 3P decreaser grass is the mulga Mitchell grass and a typical increaser grass is Jericho wiregrass”

SIMILAR SPECIES, DIFFERENT RESPONSES CONT.

Research funded by Meat & Livestock Australia on biodiversity and condition in grazed lands has identified a number of increaser species which were common and characteristic of paddocks in BioCondition class '4', or dysfunctional, condition. The project also identified a number of decreaser species. These species appear to be sensitive to habitat modification and are more abundant in areas classed as BioCondition '1' or '2', or where their special habitat features are available.

SPECIES	RESPONSE	LAND TYPE		
		BRIGALOW SCRUB	POPLAR BOX	SOFT MULGA
BIRDS				
Weebill	Decreaser	x	x	x
Rufous whistler	Decreaser	x	x	x
Chestnut-rumped thornbill	Decreaser	x	x	x
Inland thornbill	Decreaser	x		x
Yellow thornbill	Decreaser	x		x
Red-capped robin	Decreaser			x
Jacky winter	Decreaser			x
White-browed treecreeper	Decreaser			x
Australasian pipit	Increaser	x	x	
Pied butcherbird	Increaser	x		
Willie wagtail	Increaser	x		x
Australian magpie	Increaser	x	x	
Noisy miner	Increaser		x	
Torresian crow	Increaser		x	
Yellow-throated miner	Increaser			x
REPTILES				
Snake-eyed skinks	Decreaser	x	x	
Open-litter rainbow skink	Decreaser	x	x	
Tree skink	Decreaser	x		
Chain-backed tree dtella (gecko)	Decreaser	x		
Tree dtella (gecko)	Decreaser			x
Ocellated velvet gecko	Decreaser	x	x	
Wood mulch-slider (burrowing skink)	Decreaser			x

SPECIES	RESPONSE	LAND TYPE		
		BRIGALOW SCRUB	POPLAR BOX	SOFT MULGA
REPTILES				
Eastern striped skink	Increaser	x	x	
Eastern bearded dragon	Increaser	x	x	
Eastern brown snake	Increaser	x		
Bynoe's gecko	Increaser			x
PERENNIAL GRASSES				
Mulga Mitchell grass <i>Thyridolepis t. mitchelliana</i>	Decreaser			x
Purple lovegrass <i>Eragrostis lacunaria</i>	Decreaser		x	x
Cotton panic grass <i>Digitaria brownii</i>	Decreaser			x
Mulga oats <i>Monachather paradoxa</i>	Decreaser			x
Hooky grass <i>Ancistrachne uncinulata</i>	Decreaser	x		
Brigalow grass <i>Paspalidium caespitosum</i>	Decreaser	x		
Slender chloris <i>Chloris divaricata</i>	Decreaser	x	x	
Kangaroo grass <i>Themeda triandra</i>	Decreaser		x	
Lovegrass <i>Eragrostis alveiformis</i>	Decreaser		x	
Fairy grass <i>Sporobulus caroli</i>	Increaser	x		
Jericho wiregrass <i>Aristida jerichoensis</i>	Increaser			x
Five-minute grass <i>Tripogon loliiformis</i>	Increaser		x	
Coolibah grass <i>Thellungia advena</i>	Increaser		x	

BIRDS

In rural Australian landscapes, the distribution of some bird species – the increasers – is expanding in response to habitat modification. However, there is growing evidence that populations of many more bird species are in decline. These species – the decreaseers – tend to be small in size (<25cm), and forage and shelter in the ground and/or shrub layers.

INCREASER BIRD SPECIES



AUSTRALASIAN PIPIT

The Australasian pipit is a small terrestrial bird that feeds, roosts and nest on the ground. It prefers open pasture land, and its distribution has been expanded considerably with the conversion of woodland to pasture in the brigalow bioregion. The Australasian pipit is more common in pastures in 'C' grazing land condition, as it can tolerate long-term grazing pressure.



WILLIE WAGTAIL

The willie wagtail and the Australian magpie are both examples of species that like to forage in open pastures with bare ground, but still associate with woodlands. Both willie wagtails and magpies actively defend their territories. Willie wagtails and magpies are commonly found in or near fragmented remnants in class '3' or '4' BioCondition. Willie wagtails, in particular, prefer open ground with reduced cover of perennial grasses and few logs or woody debris.



NOISY MINER AND YELLOW-THROATED MINER

The noisy miner is found in the brigalow bioregion, and the closely related yellow-throated miner is found in the mulga lands bioregion. Both of these species are much more abundant in poor condition remnants in fragmented landscapes. They are rarely found in habitats with a shrubby understorey or many logs. Miners are quite aggressive towards other birds, and can actively exclude many species (notably smaller birds) from an area.

DECREASER BIRD SPECIES



WEEBILL

The weebill is a tiny bird with a wide distribution throughout the forests and woodlands of southern Queensland. In the brigalow bioregion, the weebill is highly reliant upon a shrubby understorey for foraging and shelter. In the mulga lands, large mature trees are important. Weebill populations appear to be highly impacted by the presence of miner birds and/or larger predatory birds.



CHESTNUT-RUMPED THORNBILL

The chestnut-rumped thornbill is a small passerine bird that mainly feeds on insects but occasionally eats seeds. It forages mostly in shrubs and trees, but sometimes also on the ground. Most food is gleaned from foliage and branches but they also probe beneath loose bark or on fallen trees and branches. This bird is found throughout the woodlands of southern Queensland, and is particularly reliant on large patches of remnant or regrowth vegetation in the landscape. In the mulga lands, large mulga trees provide important habitat.



RUFOUS WHISTLER

The rufous whistler occurs throughout the Brigalow and Mulga Lands bioregions of southern Queensland. It feeds on a variety of insects high up in tree canopies, and is rarely seen on the ground. The rufous whistler is very dependent on the availability of large trees and a shrubby understorey. It also needs large patches of intact forest and woodland in the landscape. In other regions of Australia the rufous whistler has been identified as a species of conservation concern.

Bird species imagery by Graeme Chapman

REPTILES

Reptiles, being cold-blooded, are dependent on their selected habitat to meet their thermal requirements, as well as provide shelter and food. Loss of vegetation and habitat cover alters the thermal environment, which advantages some species, but disadvantages others.

INCREASER REPTILE SPECIES



EASTERN STRIPED SKINK

The eastern striped skink is a sun-loving, speedy skink. It is very active during the day, and uses burrows made either by itself or made by other animals. It feeds on a wide range of insects. This skink prefers lots of bare ground, and is not reliant on fallen logs or litter for shelter. As such, the eastern striped skink was found most often in open paddocks in 'C' or 'D' grazing land condition.



EASTERN BEARDED DRAGON

The eastern bearded dragon is widespread throughout the Brigalow bioregion and the central bearded dragon is found throughout the Mulga Lands bioregion. The bearded dragons are often seen out and about, and will eat almost anything, including flowers and soft leaves, insects and small vertebrates. Although bearded dragons prefer good cover of perennial grasses, they also prefer open habitat with few large trees, litter and shrubs.



EASTERN BROWN SNAKE

The eastern brown snake is a large, venomous snake that has benefited from the expansion of agriculture throughout Queensland. It prefers more open areas as compared with forest and woodland. The introduction of house mice, which also inhabit more open areas, has also advantaged the expansion of eastern brown snakes. The eastern brown snake is more likely to be encountered in paddocks in 'C' or 'D' grazing land condition.

DECREASER REPTILE SPECIES



RAGGED SNAKE-EYED SKINK

The snake-eyed skinks are small, speedy skinks that are highly arboreal, spending most of their time on tree trunks or large logs. The ragged snake-eyed skink is found west of the Dividing Range in the Brigalow and Mulga Lands bioregions. Because these skinks are so reliant upon large mature trees and logs for habitat, snake-eyed skinks are found predominantly in woodland or forest habitat in '1' or '2' BioCondition.



OPEN-LITTER RAINBOW SKINK

The open-litter rainbow skink is a small skink found in forests and woodlands in the Brigalow bioregion. This skink is mostly only associated with habitat in good ('1' or '2') BioCondition. This is because it is highly reliant upon a number of key habitat features, including logs, native decreaser grass tussocks, and, as their name suggests, litter. Reduction of litter through removal of overstorey trees and shrubs and regular burns greatly reduces habitat suitability for this skink.



OCELLATED GECKO

The ocellated velvet gecko is an arboreal gecko found throughout the Brigalow bioregion. Their flattened body helps them find shelter in narrow crevices behind bark on trees or in small tree fissures and hollows. In brigalow scrub and poplar box woodlands, the ocellated gecko is highly dependent upon large mature trees, native perennial decreaser grass cover, fallen logs, litter and shrubs. Consequently, this species is very much tied to patches of vegetation in '1' or '2' BioCondition classes.



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