

Critically Endangered Natural Grassland Communities on the Darling Downs

SQLRG Workshop 30 March 2023

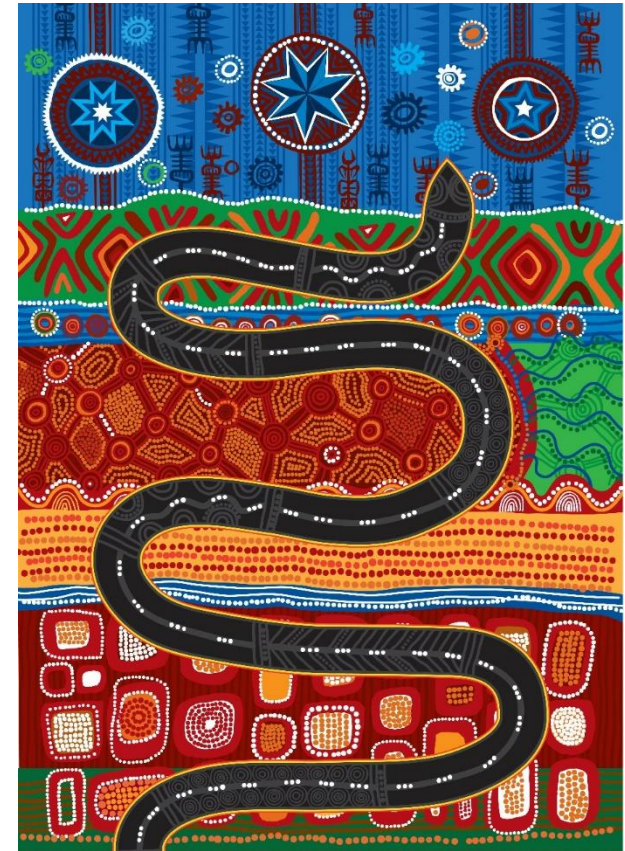
Rick Haywood, Principal Environmental Officer, South Coast Region

Department of Transport and Main Roads (TMR)

Acknowledgement of Traditional Owners and Elders

I'd like to begin by acknowledging the Traditional Owners of the land where we meet today. I would also like to pay my respects to the Elders both past and present.

I also extend that respect to the Aboriginal and Torres Strait Islander people here today.



'Travelling' by Gilimbaa

About us



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- Darling Downs Grasslands
- Significance of the TEC Grasslands
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- Summary
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*Image: Darling Downs Grasslands.
Source: TMR.*

Darling Downs Grasslands



*Image: Darling Downs Grasslands.
Source: TMR.*

What is a grassland

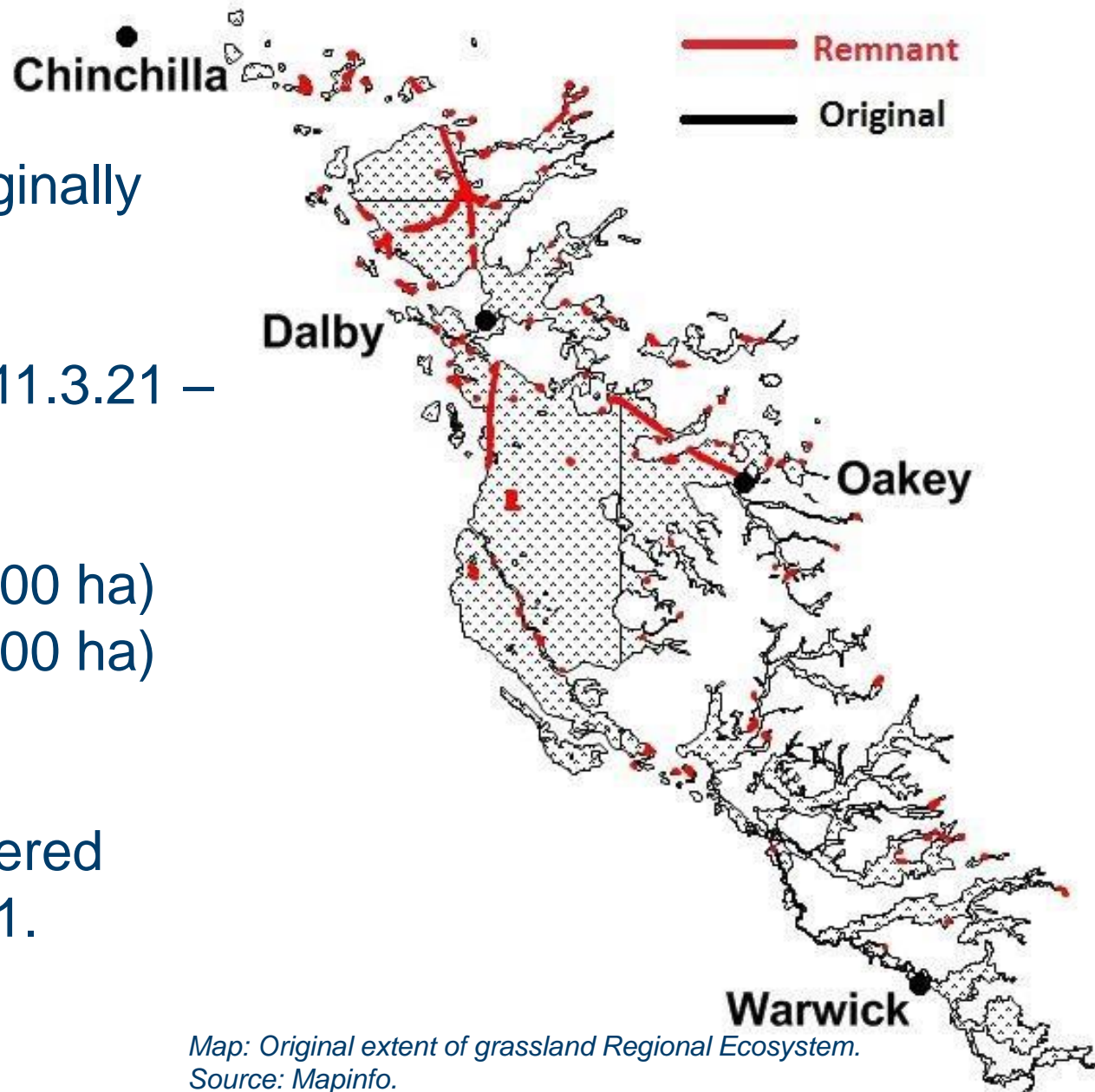
- Native grasslands are generally defined as areas of native vegetation in which the ground layer is dominated by native grasses, with few or no emergent woody species.
- These grasslands in Queensland are strongly reliant on soil type as it is associated with fine textured, often cracking clays derived from either basalt or quaternary alluvium.

What is a grassland

- 11.3.21 *Dichanthium sericeum* (Queensland bluegrass) and/or *Astrebla* spp. (Mitchell grass) grassland on alluvial plains. Cracking clay soils
- 11.3.24 *Themeda avenacea* (native oat grass) grassland on alluvial plains. Basalt derived soils
- Treeless grasslands were once the most common vegetation type across the Darling Downs.

Original and Remaining RE11.3.21

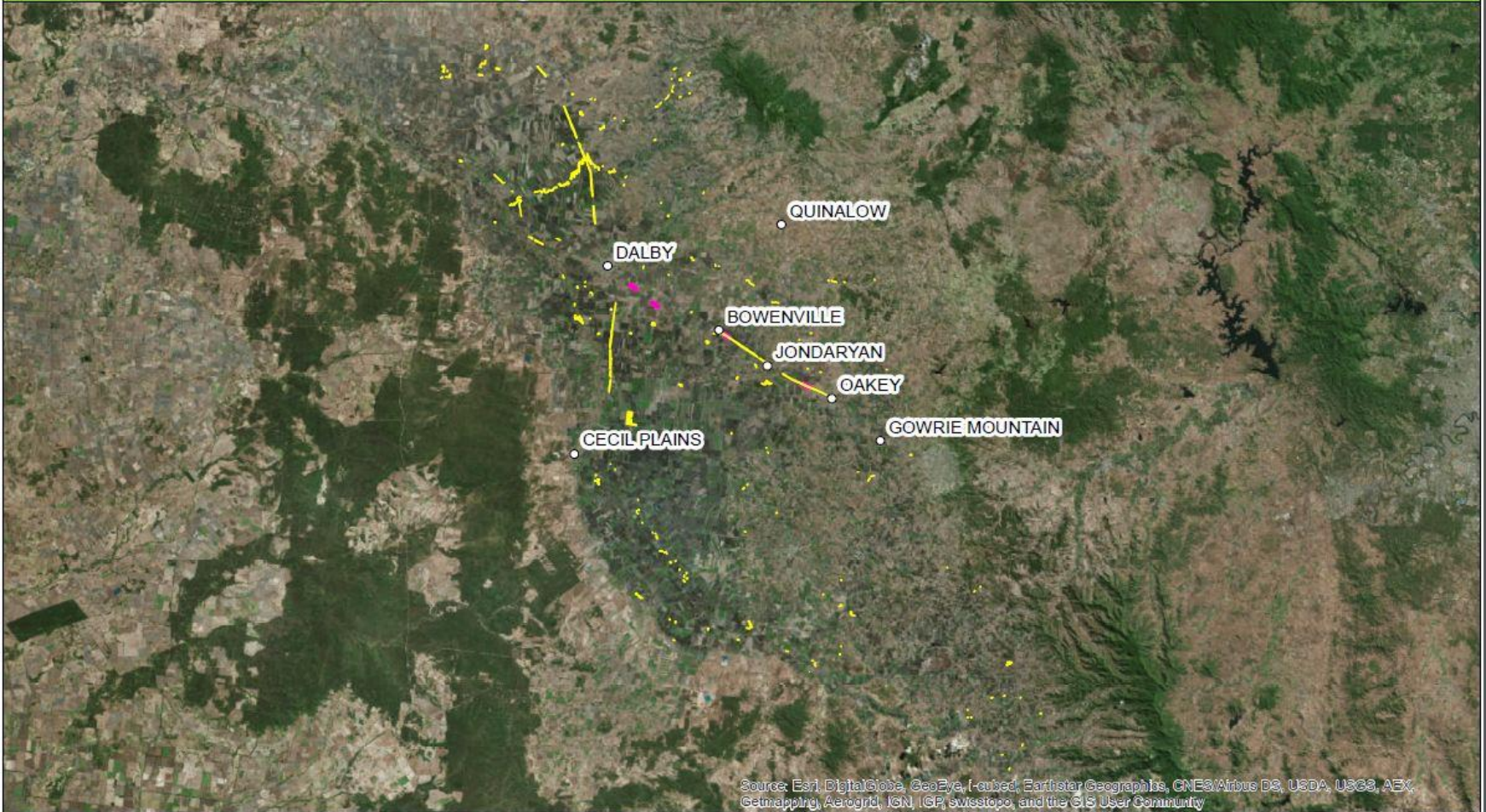
- RE 11.3.21 – Originally 330,000 ha
- Endangered RE 11.3.21 – 2600 ha
- 1996 – 1.3% (4300 ha)
- 2017 – 0.8% (2600 ha)
- (40% reduction)
- Critically Endangered TEC < RE 11.3.21.



Map: Original extent of grassland Regional Ecosystem.
Source: Mapinfo.

TEC Grasslands on the Darling Downs

Extent of the TEC Grasslands on the Darling Downs

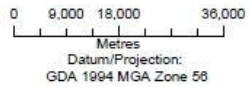


Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

- Town
- Site
- TEC Grasslands (RE 11.3.21 & 11.3.24)

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Prepared by: MB Date: 28/03/2015

What is a ecological community grassland

- An ecological community (EC) is a naturally occurring group of native plants, animals and other organisms that are interacting in a unique habitat.

For good quality EC

- At least two hectares
- At least three perennial native indicator species
- < 50% wood shrub foliage cover
- < 30% introduced species foliage cover.

Sourced from booklet: <https://www.dcceew.gov.au/sites/default/files/documents/bio237-0512-natural-grasslands-guide.docx>

What is a ecological community grassland

For best quality EC

- At least 0.5 ha
- At least four perennial native indicator species
- < 30% wood shrub foliage cover
- < 5% introduced species foliage cover.

Sourced from booklet: <https://www.dcceew.gov.au/sites/default/files/documents/bio237-0512-natural-grasslands-guide.docx>

Natural grasslands on basalt and fine-textured alluvial plains of Northern New South Wales and Southern Queensland

Some indicator species



Aristida leptopoda
(white speargrass)



Astrebla lappacea
(curley Mitchell grass)



Austrodanthonia bipartita
(wallaby grass)



Bothriochloa erianthoides
(satin top grass)



Astrebla elymoides
(hoop Mitchell grass)



Austrostipa aristiglumis
(plains grass)



Bothriochloa biloba
(lobed bluegrass)



Dichanthium sericium
(Queensland bluegrass)

Sourced from booklet: <https://www.dcceew.gov.au/sites/default/files/documents/bio237-0512-natural-grasslands-guide.docx>

Natural grasslands on basalt and fine-textured alluvial plains of Northern New South Wales and Southern Queensland

Some indicator species



Digitaria divaricatissima
(umbrella grass)



Eriochloa crebra
(cup grass)



Panicum decompositum
(native millet)



Thellungia advena
(coolabah grass)



Themeda triandra
(kangaroo grass)



Elymus plurinervis
(wheat grass)



Eulalia aurea
(silky brown top)

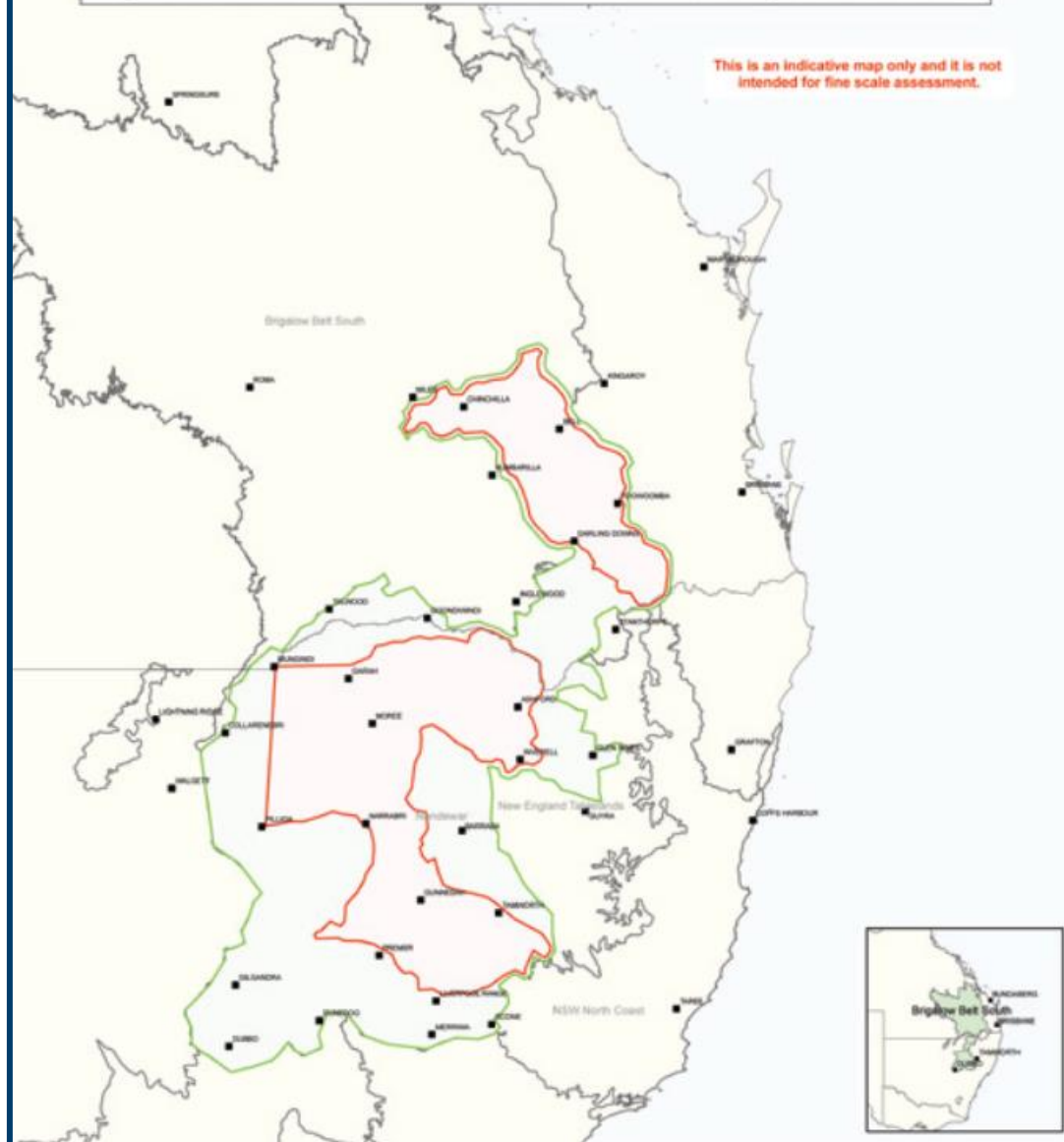


Panicum queenslandicum
(yabila grass)

Sourced from booklet: <https://www.dcceew.gov.au/sites/default/files/documents/bio237-0512-natural-grasslands-guide.docx>

Natural grasslands on basalt and fine-textured alluvial plains of northern NSW and southern Queensland

This is an indicative map only and it is not intended for fine scale assessment.



— Likely to occur

— May occur

Significance of the Threatened Ecological Community (TEC) Grasslands



*Image: Darling Downs Grasslands.
Source: TMR.*

What is a TEC

- An ecological community (EC) is a naturally occurring group of native plants, animals and other organisms that are interacting in a unique habitat
- Listing a TEC under the *Environmental protection and Biodiversity Conservation Act 1999* (EPBC Act) recognises that key natural assets are under tremendous pressure and a ‘whole of system’ approach to environmental protection is necessary.
 - It has undergone a very severe decline in extent
 - It has a very restricted distribution
 - It has undergone a very severe reduction in integrity
 - It faces continued threats.

Threatening processes on Darling Downs

- Cumulative effects of loss in extent over many years – 99% (Darling Downs)
- Occasional heavy grazing
- Weeds and pest animals (>30% weeds, not an EC)
- Disturbance to remnants on travelling stock routes, transport corridors
- Changes to hydrology
- Lack of knowledge about, and appreciation of the value of natural grasslands, while recognising:
 - Changes in the species composition, extent and distribution due to climate change.

What is a Critically Endangered TEC

- Endangered: An ecological community that is facing an extremely high risk of extinction in the wild in the near future
- Critically Endangered: An ecological community that is facing an extremely high risk of extinction in the wild in the immediate future
- Natural grasslands on basalt and fine-textured alluvial plains of Northern New South Wales and Southern Queensland were listed as Critically Endangered TEC on 7 January 2009.

Major issues



*Image: Darling Downs Grasslands.
Source: TMR.*

Major issues for the TEC Grasslands

- **Grazing:** Heavy grazing can remove palatable species reducing biodiversity, as well as compact the soil, decrease water uptake of plants and accelerate weed invasion
- **Fire:** Fire is necessary for the maintenance of some grasslands especially those dominated by Kangaroo Grass. Dense grass can smother wildflowers, and result in a loss of habitat for some native animals
- **Soil disturbance:** Soil disturbance can displace native plants and animals and create opportunities for weeds to invade. It can also remove an important crust of algae, lichens or mosses that are important for soil health
- **Exotic plant invasion:** Introduced plants compete with native plants for space, water and nutrients and may lead to pasture degradation.

Weeds



*Image: Darling Downs Grasslands.
Source: TMR.*



*Image: Darling Downs Grasslands.
Source: TMR.*

Incursion of exotic species



*Image: Darling Downs Grasslands.
Source: TMR.*



*Image: Darling Downs Grasslands.
Source: TMR.*

Other activities



*Image: Darling Downs Stockpile.
Source: TMR.*

Farm access tracks/fire breaks



*Image: Darling Downs.
Source: TMR.*

Grazing



*Image: Darling Downs.
Source: TMR.*

Public utilities



*Image: Darling Downs.
Source: TMR.*

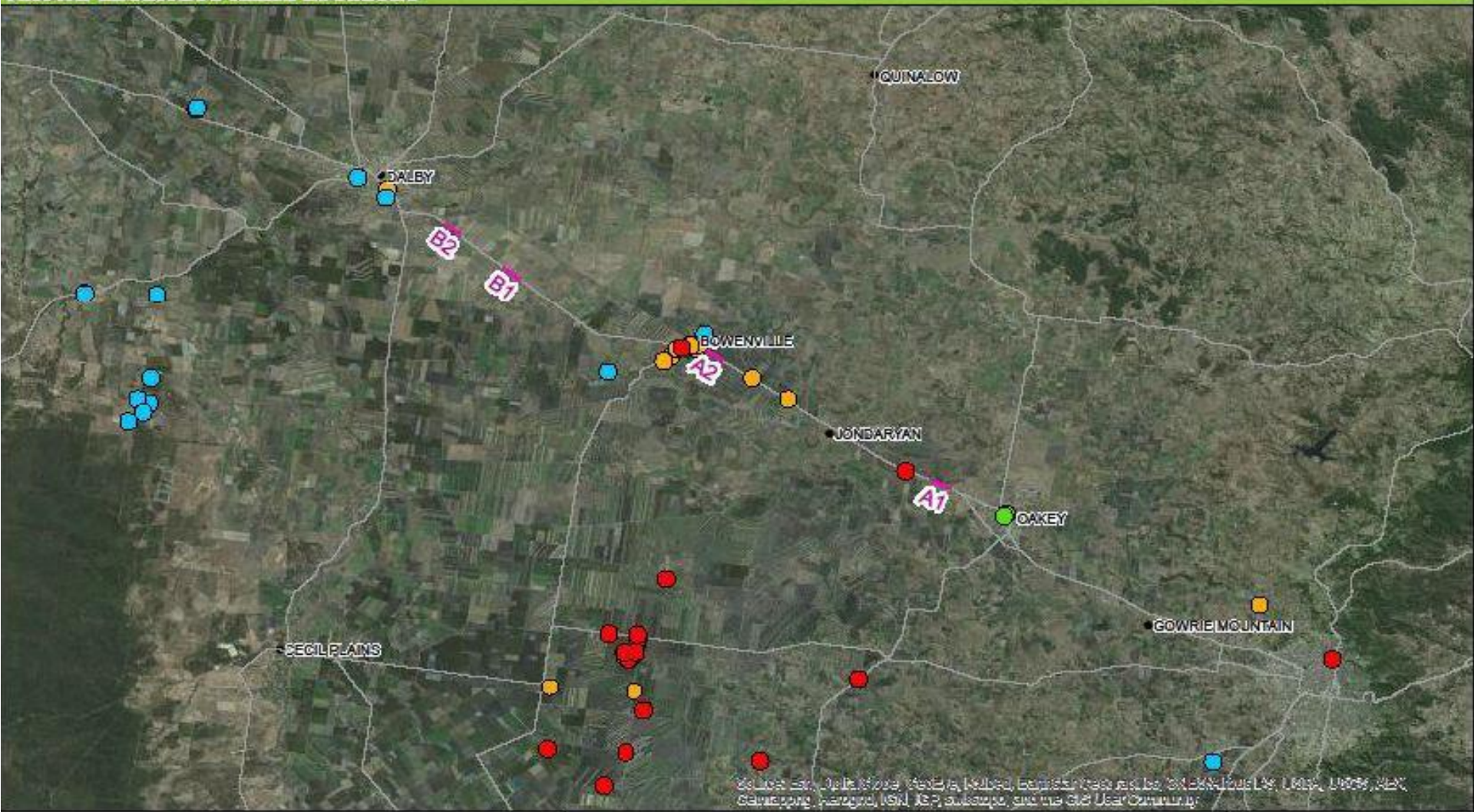
Threatened species

Note that some plant and animal species within TECs may also be protected individually under the EPBC Act and the Queensland *Nature Conservation Act 1992*

- Condamine earless dragon
- Five-clawed worm-skink
- Grey snake
- Dunnalls snake.



Known threatened fauna Locations



Legend

- Site
- Condamine Earless Dragon
- Five-Clawed Worm-Skink
- Grey Snake
- Dumalls Snake
- Town
- Road

Scale: 0 50 100 Meters

UTM-Projection: GDA 1994 MGA Zone 55

North Arrow

Data Sources: Department of Transport and Main Roads, QLD Government

Imagery: Bing Maps

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Prepared by: MB Date: 24/03/2015

King Bluegrass *Dichanthium queenslandicum* (EPBC endangered, NCA vulnerable)



*Image: Darling Downs.
Source: TMR.*

Picris barbarorum
(NCA vulnerable, Vic. presumed extinct)



Source: TMR.

Land Managers and Developers



*Image: Darling Downs,
Source: TMR.*

Land Managers and Developers

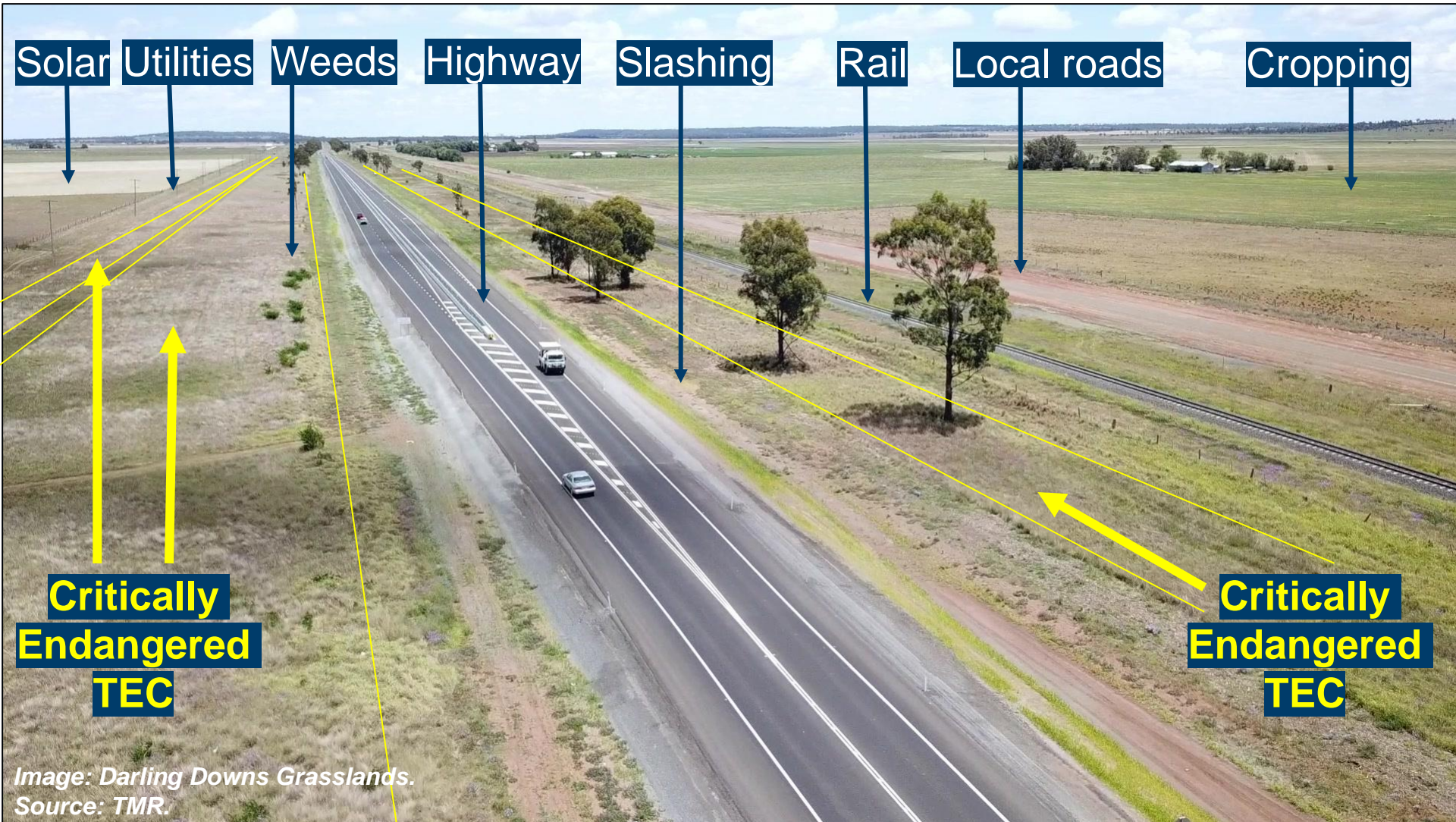
- What does a listed ecological community mean for land managers and potential developers?
- Does not prevent land managers from continuing land practices, which were started before the EPBC Act came into effect, providing the activity is lawful and not significantly intensified.
- New or intensified activities that may have a significant impact on a listed ecological community should be referred to the Australian Government Minister for the Environment for assessment.
- Land Managers can contact the Southern Queensland Landscapes Natural Resource Management Group.

Summary

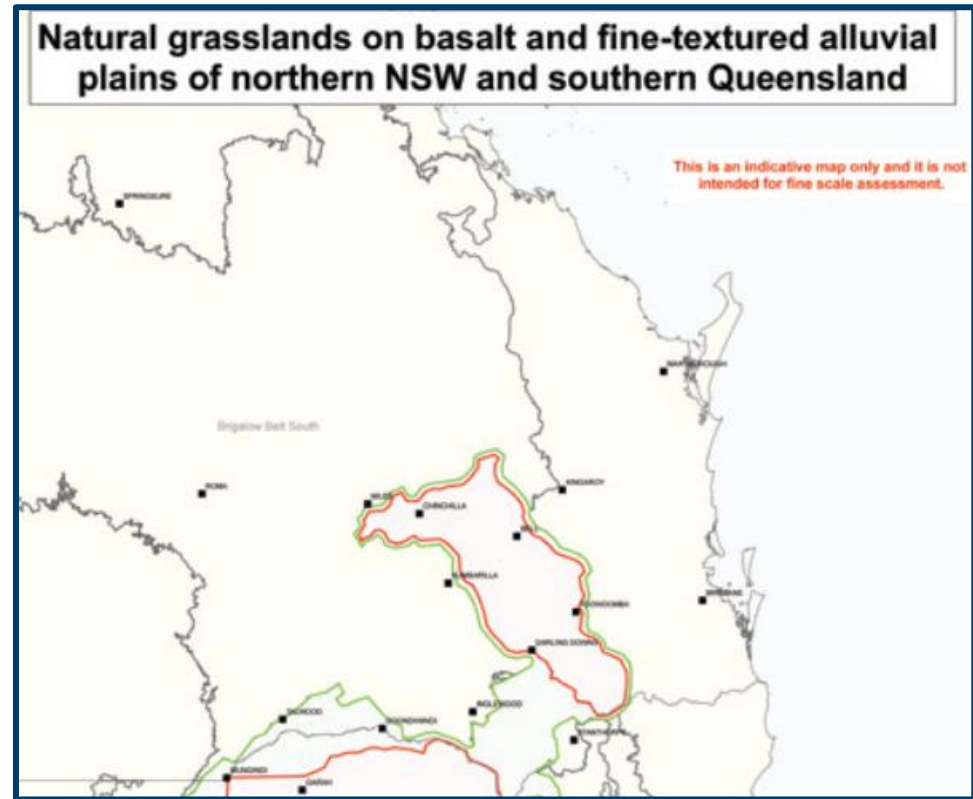
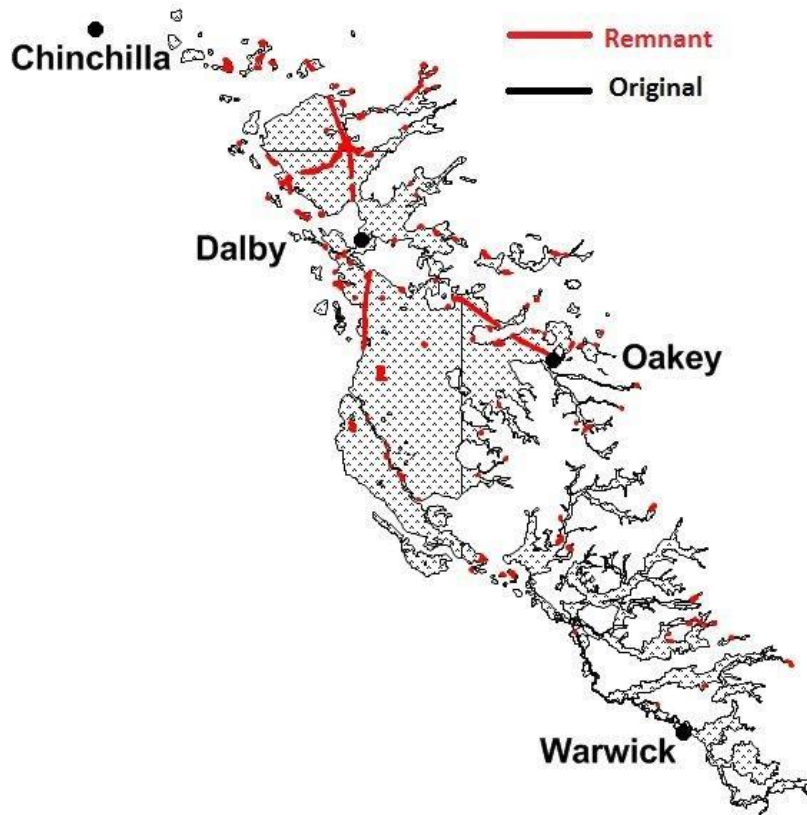


*Image: Darling Downs Grasslands.
Source: TMR.*

Existing landscape



Where is One Likely to Find TEC Grasslands?



- Likely to occur
- May occur

Major issues for the TEC Grasslands

- Critically Endangered TEC community
- Multiple species listed under both state and federal legislation
- Roads service communities
- Multiple public utilities use road corridors
- Very little TEC grassland community outside the road reserve
- No TEC in the local protected area estate
- There is no adopted or Recovery Plan.

Sources of additional information

- Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland (environment.gov.au) Department of Climate Change, Energy, the Environment and Water
- Booklet:
<https://www.dcceew.gov.au/sites/default/files/documents/bio237-0512-natural-grasslands-guide.docx>
- Fensham, R.J. (1998) The grassy vegetation of the Darling Downs, south-eastern Queensland, Australia. Floristics and grazing effects. *Biological Conservation* 84: 301-310.
- Fensham, R.J. and Fairfax, R.J. (1997) The use of the land survey record to reconstruct pre-European vegetation patterns in the Darling Downs, Queensland, Australia. *Journal of Biogeography* 24: 827-836.

Questions?



*Image: Darling Downs Grasslands.
Source: TMR.*

Thank you and stay connected



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