## Total vegetation cover soil protection Region:LGA Richmond Valley (A) NSW

This report describes vegetation protecting the soil surface from erosion during a chosen month compared to previous years. This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool https://map.geo-rapp.org/#australia. The report is based on 500 metre pixel data on monthly time steps.

Land use forest cover:

Results can be shown for the whole region (polygon), and separated by land use and forest cover classes which are likely to show different cover patterns and targets. Land use is divided into four broad classes: Conservation and natural environments, Agriculture, production native forests and plantation forests (no report), and other (no report). Agriculture is divided into grazing, crops and horticulture which are sub-divided into non-irrigated and irrigated. If forest is present land use is further divided into: non-forest, woodland forest and non-woodland forest. The area of each land use and forest class are shown as a map and chart. The report content is repeated for each land use and forest cover class that covers at least 1% of the area of the chosen region. Total vegetation Cover:

The total vegetation cover indicates where soil is likely to be protected from wind and or water hillslope erosion. Total vegetation cover for this month is shown on a map and chart classified into 4 classes.

- 71-100% High cover protected from wind and usually water erosion (high rainfall, steep slopes, and erodible soils may need greater than 80, 90, 95 and up to 100% cover)
  - 51-70% Moderate cover protected from wind erosion
  - 31-50% Low cover not protected
  - 0-30% Very Low cover not protected

Erosion protection: Wind erosion 50% total vegetation cover

The vegetation cover threshold required to prevent soil erosion is usually 50% to reduce wind erosion, 70% or 80% to reduce water (hillslope) erosion depending on the steepness and rainfall. Areas protected from erosion for the month:

- Map: water erosion protection (>70% cover) percentage area and hectares.
- Map: wind erosion protection (>50% cover) percentage area and hectares.

Comparison with previous years:

- Map: anomaly comparing this month to the average cover from the same month in previous years.
- Map: deciles rank of month against the same month in previous years.

Anomalies and deciles until September 2019 are calculated comparing to the same months 2001 to 2019. Extra monthly data will be used to calculate anomalies and deciles post September 2019 as they become available. Time series monthly from January 2001 to current:

#### **Erosion protection**

- Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month (orange lines). Horizontal lines are 10th (cover target) and 50th percentiles.
- Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month (blue line). Horizontal lines are 10th (cover target) and 50th percentiles.

#### Rainfall

• Millimetres rainfall each month (black line).

Each time series is also stacked by year. The black line shows the current year of data.

Water erosion protection for higher rainfall and steeper slopes:

Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion. The thresholds reported are:

- the percentage area with pixels greater than 80% total cover.
- the percentage area with pixels greater than 90% total cover.
- the percentage area with pixels greater than 95% total cover.

#### **Acknowledgment of data:**

- 1. http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification
- 2. http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018
- 3. https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover
- 4. MODIS Fractional cover algorithm:

https://doi.org/10.4225/08/5848a3f19a7b3









**Date: May 2025** 

#### **Vegetation Cover May 2025**

#### Land use and forest cover

Catchment Scale

of Australia (2018)

(2018) and Forests

of Australia (2018)

Anomaly show how many percetage points each

pixel is from

the mean. That

is, red pixels are about 20%

lower than the

month of the map

using baseline from 2001 to 2019.

mean of that pixel. The mean is only for the

Derived from

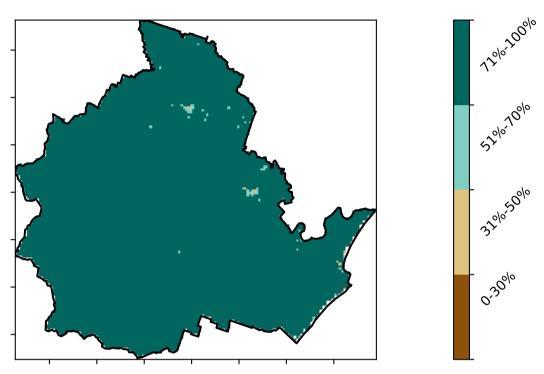
Use of Australia

Land Use and Forests

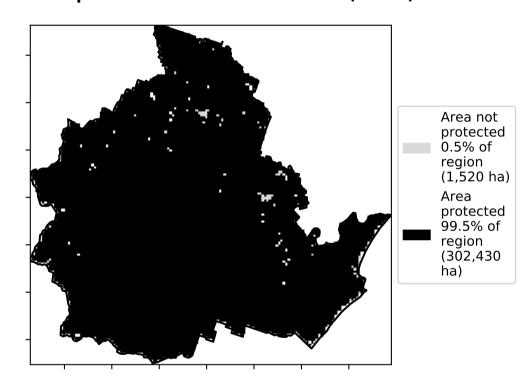
Catchment Scale Land

#### Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest 6 Agriculture - Grazing - Non-woodland forest 7 Agriculture - Grazing - Irrigated 8 Agriculture - Cropping - Non-irrigated 9 Agriculture - Cropping - Irrigated 10 Agriculture - Horticulture - Non-irrigated 11 Agriculture - Horticulture - Irrigated 12 Production native forests and plantation forests 13 Other uses

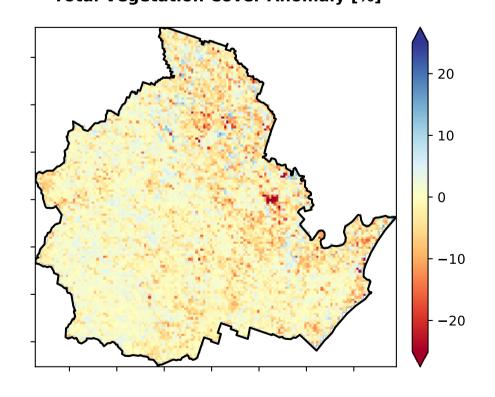
#### **Total Vegetation Cover [%]**



#### % Area protected from water erosion (>70%)



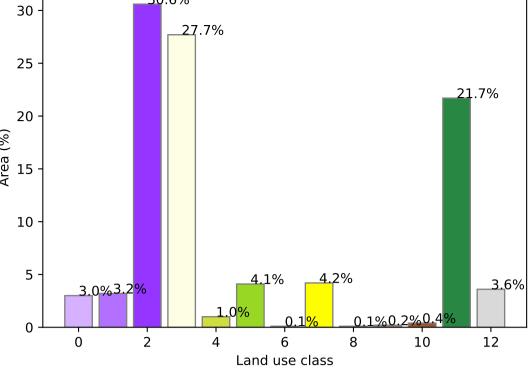
#### **Total Vegetation Cover Anomaly [%]**



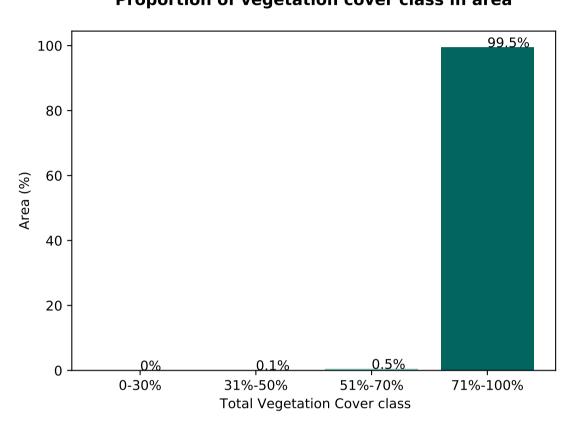
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### 30.6% 27.7% 21.7%

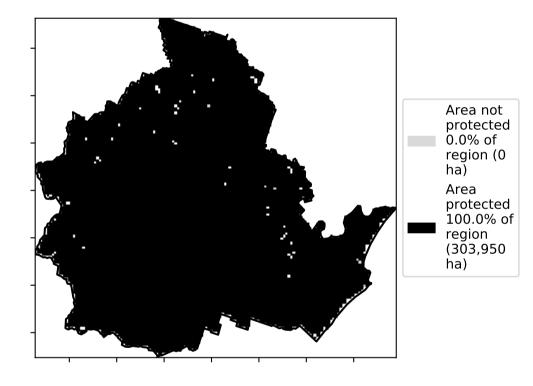
Proportion of each land class in area

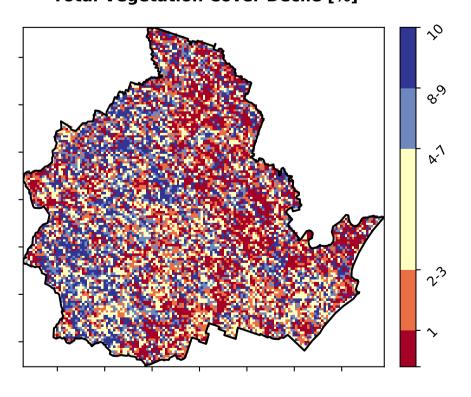


#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)



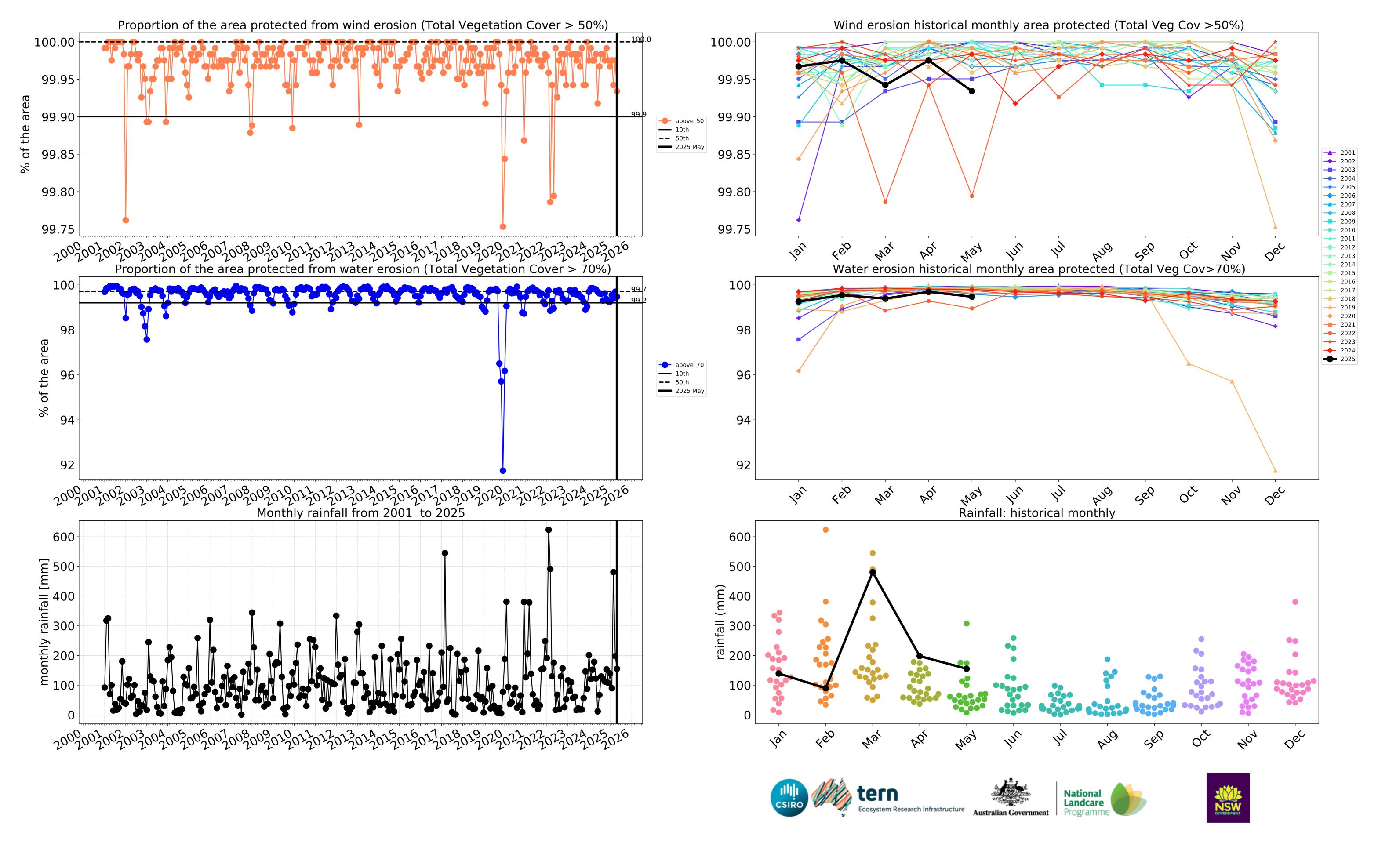


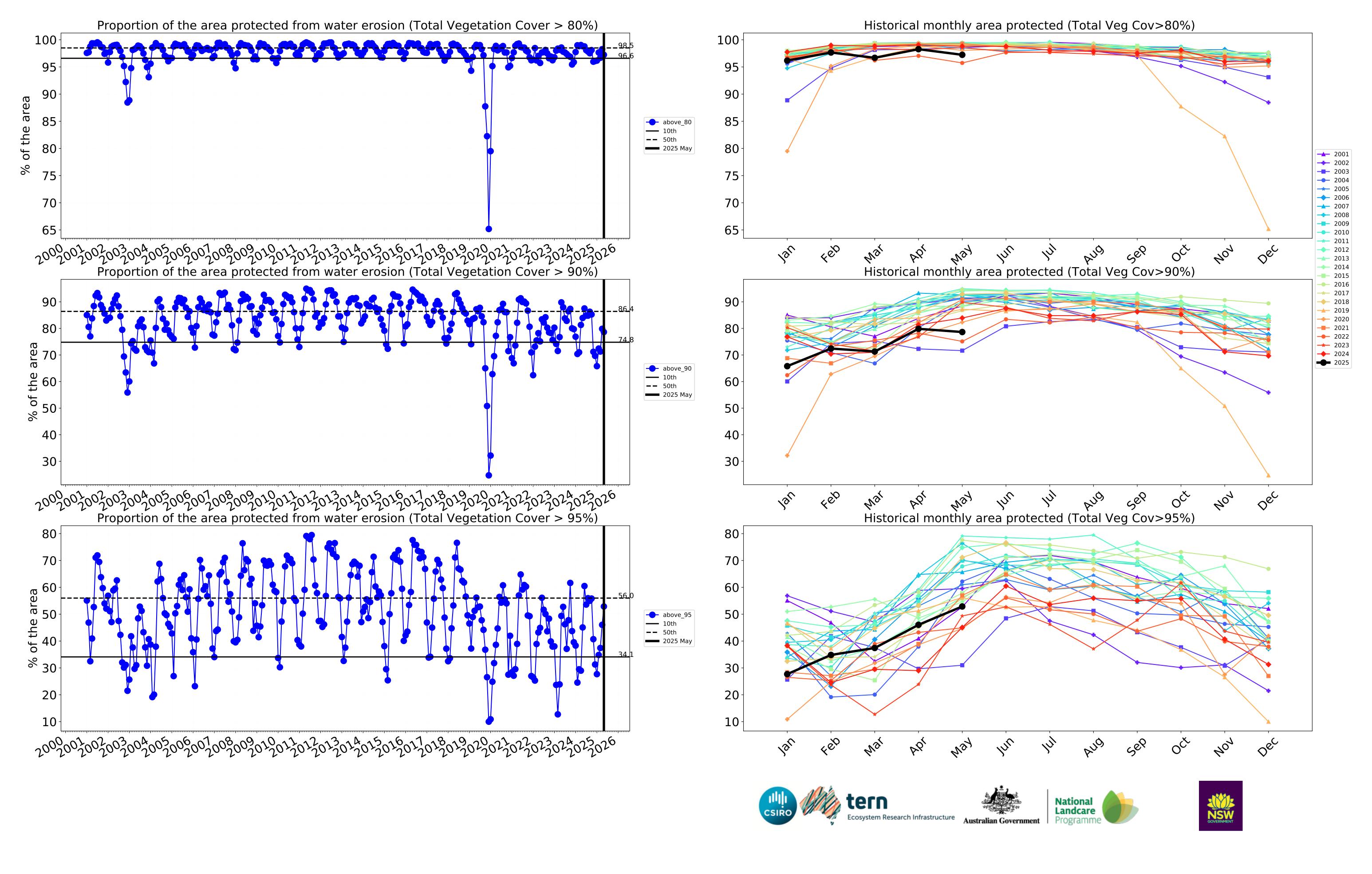










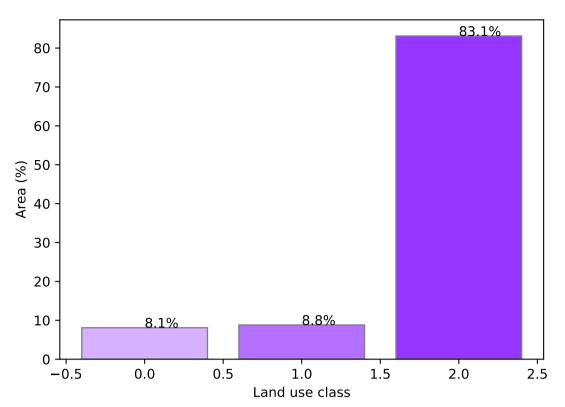


#### **Conservation and natural environments**

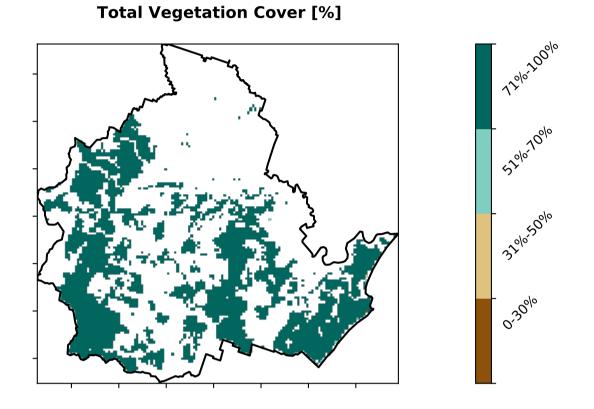
# Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Australia (2018) The conservation and natural environments - Nonforest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Nonwoodland forest

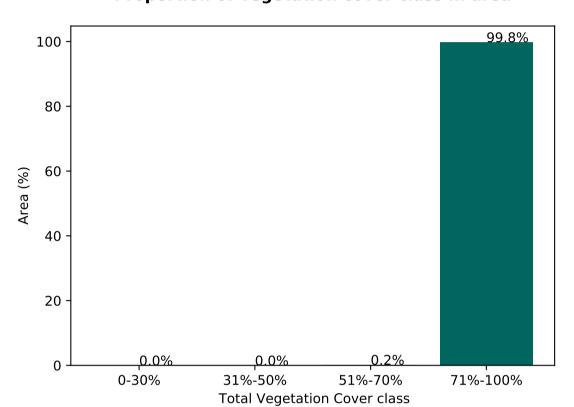
**Land use and forest cover** 

#### Proportion of each land class in area



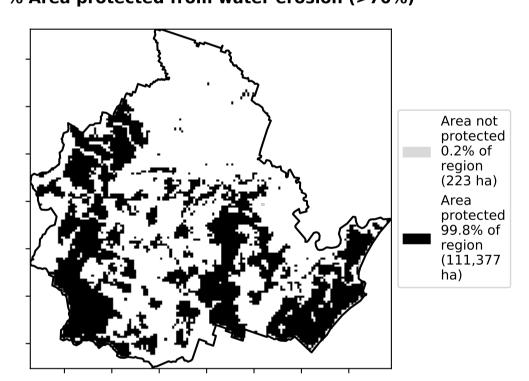
Proportion of vegetation cover class in area

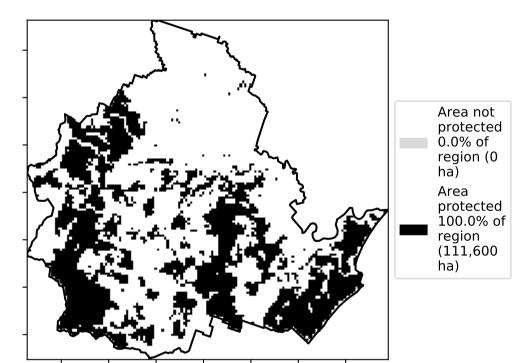




#### % Area protected from water erosion (>70%)

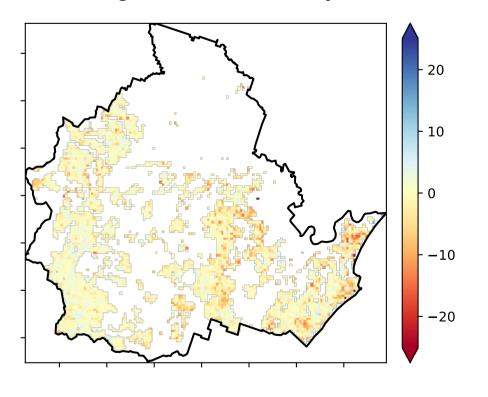
% Area protected from wind erosion (>50%)

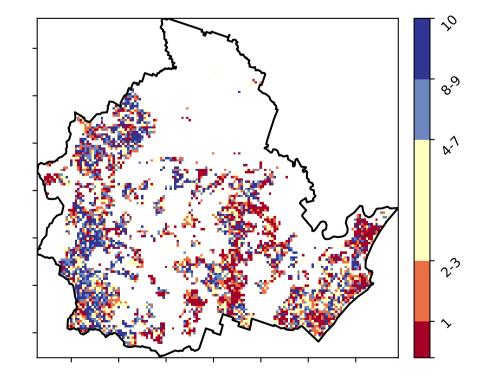




#### **Total Vegetation Cover Anomaly [%]**

Total Vegetation Cover Decile [%]





Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



Anomaly show how many percetage points each

pixel is from

is, red pixels are about 20% lower than the

mean of that

using baseline from 2001 to 2019.

pixel. The mean is only for the month of the map

the mean. That



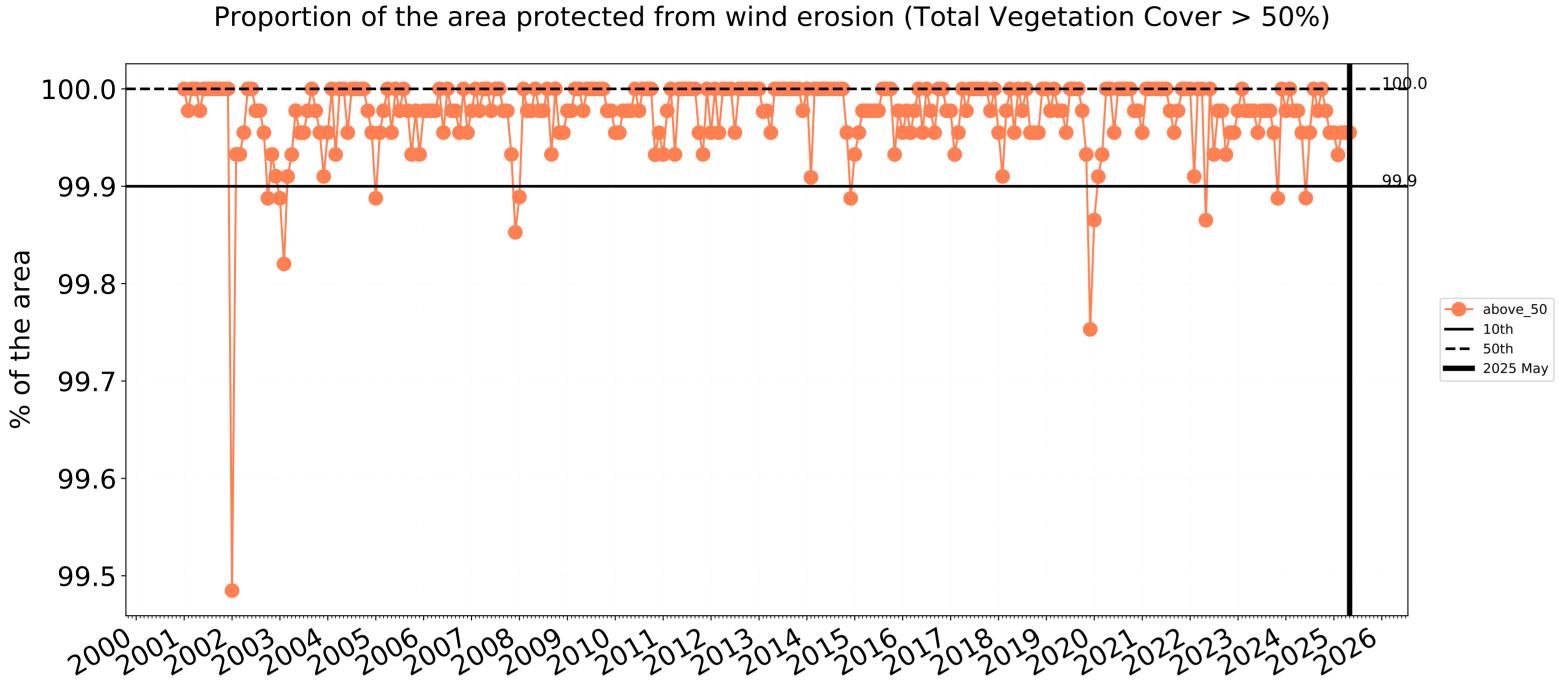


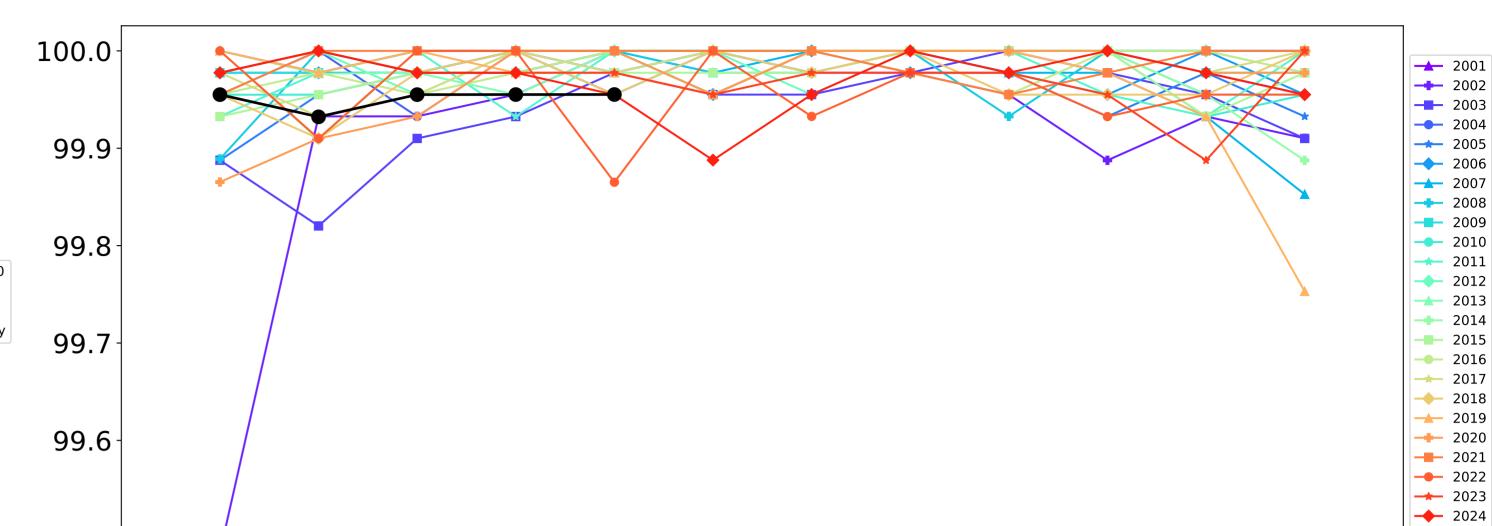




#### **Conservation and natural environments timeseries**

99.5



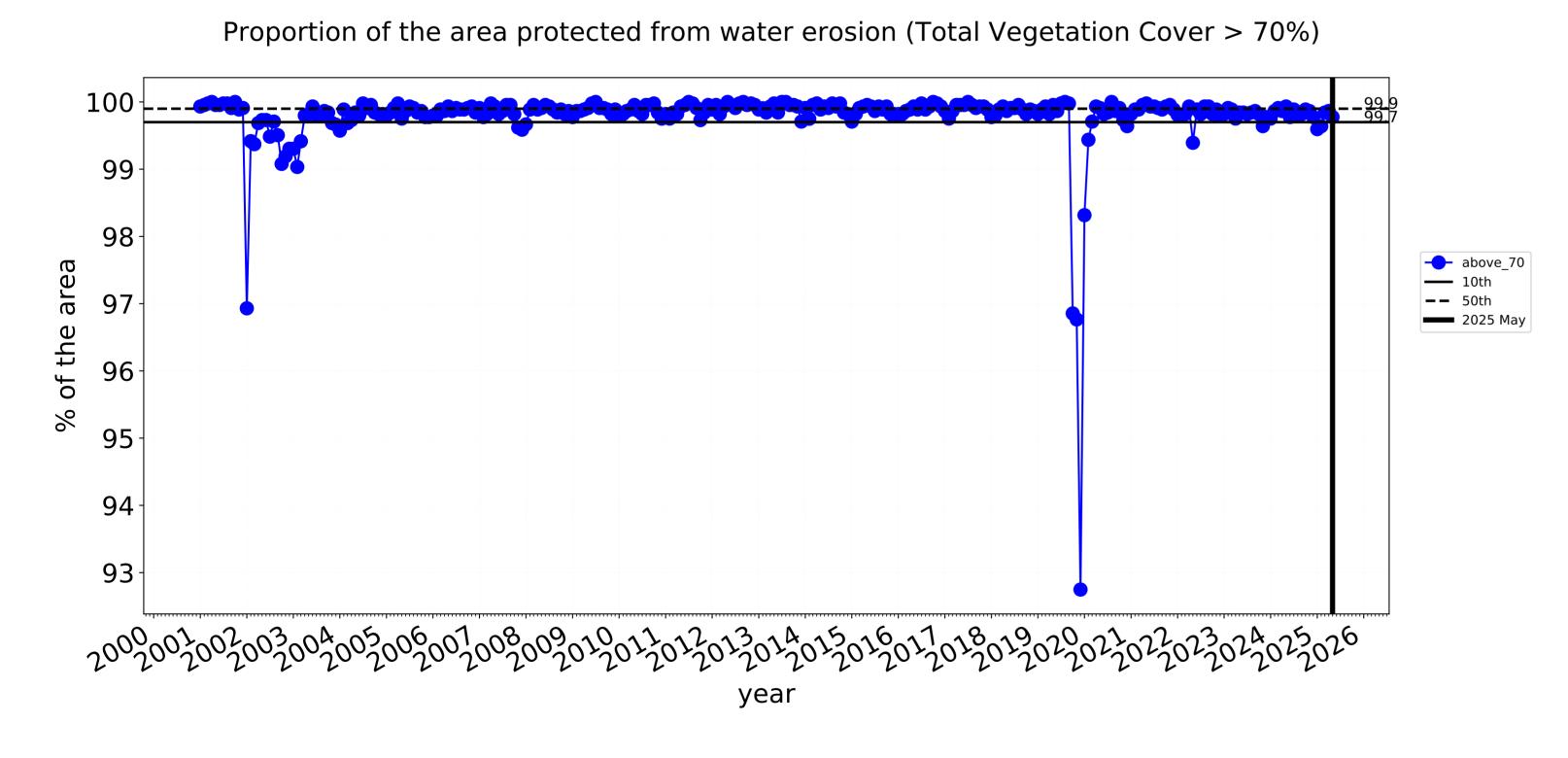


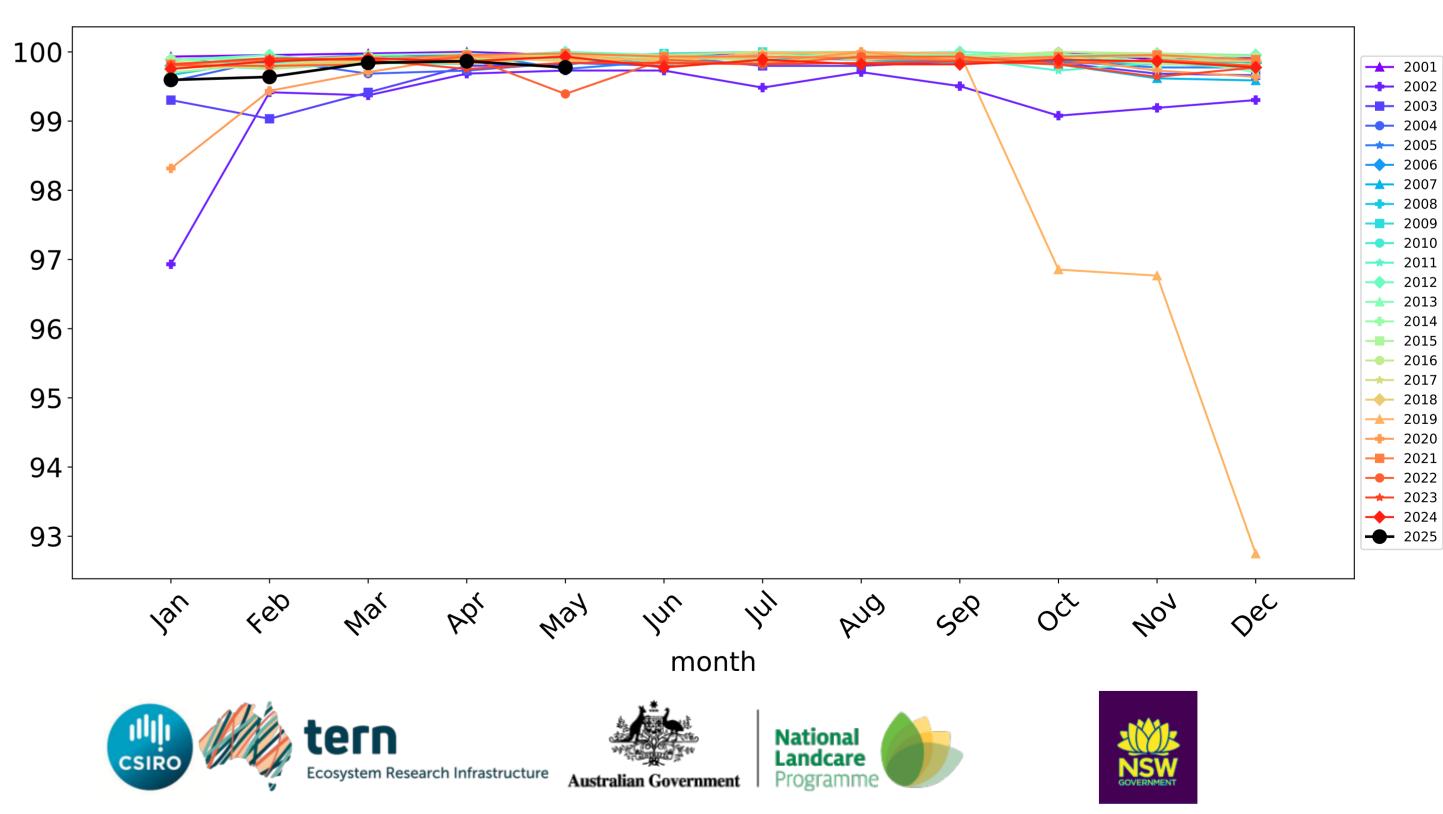
month

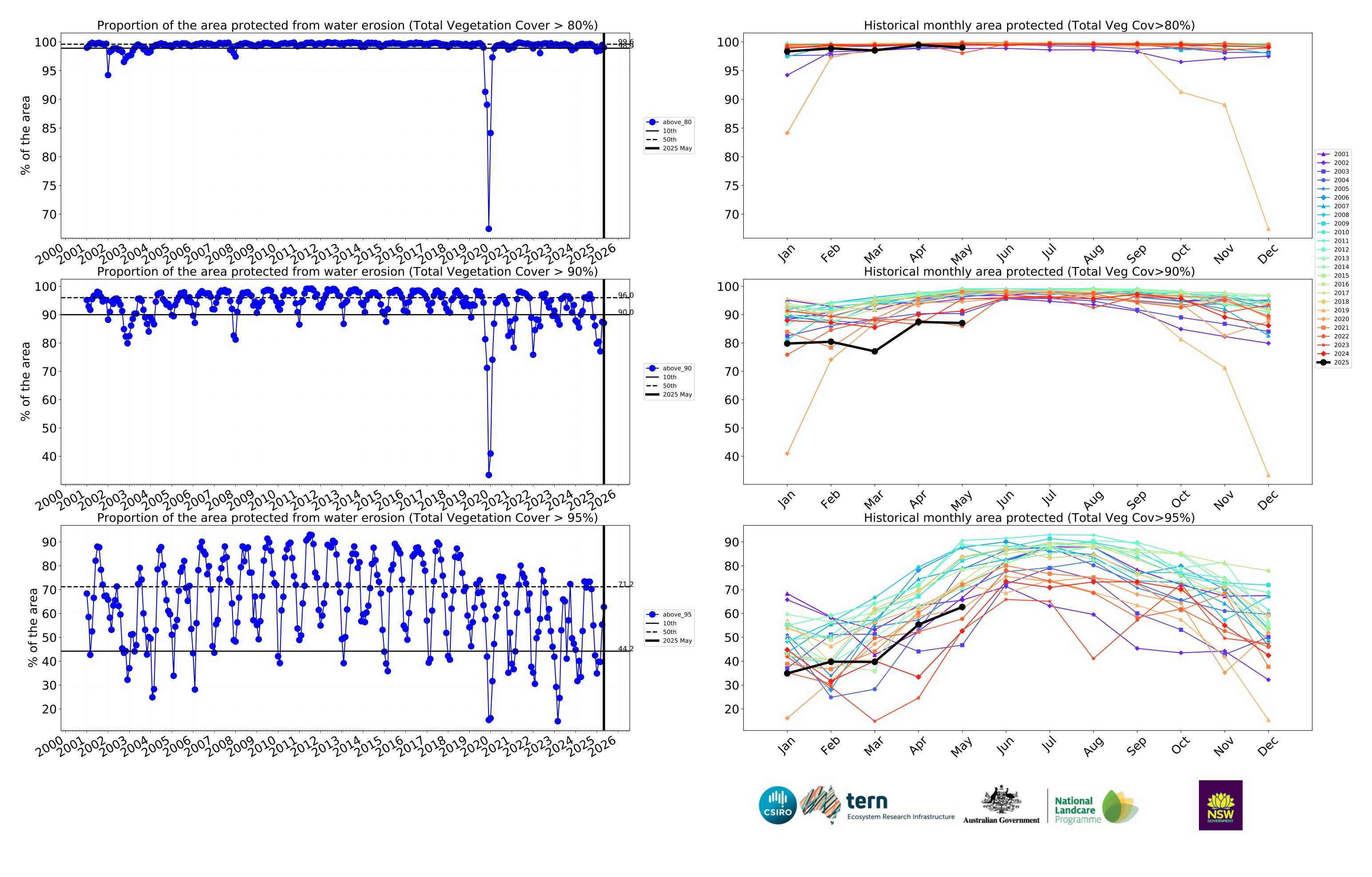
Water erosion historical monthly area protected (Total Veg Cov>70%)

2025

Wind erosion historical monthly area protected (Total Veg Cov >50%)







#### **Conservation and natural environments non forest**

#### Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

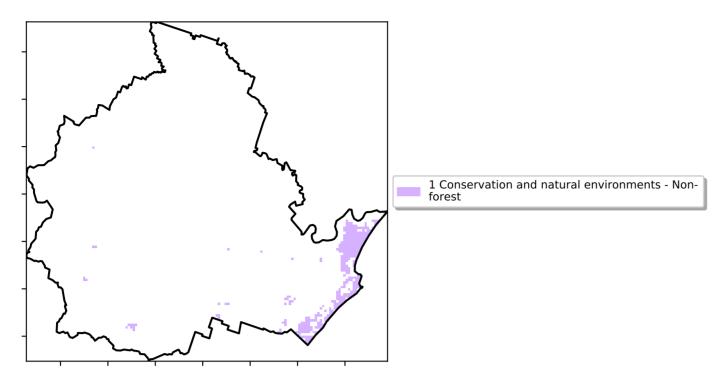
pixel is from

is, red pixels are about 20% lower than the mean of that pixel. The mean

the mean. That

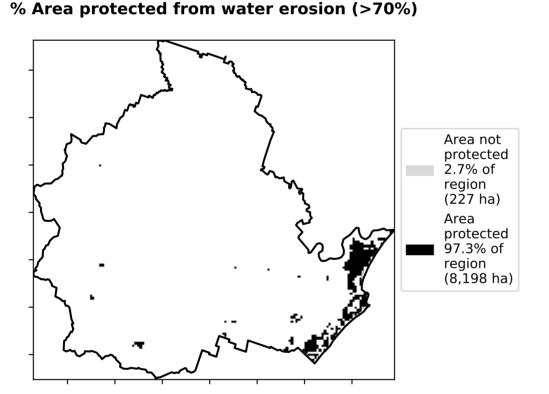
is only for the month of the map

using baseline from 2001 to 2019.

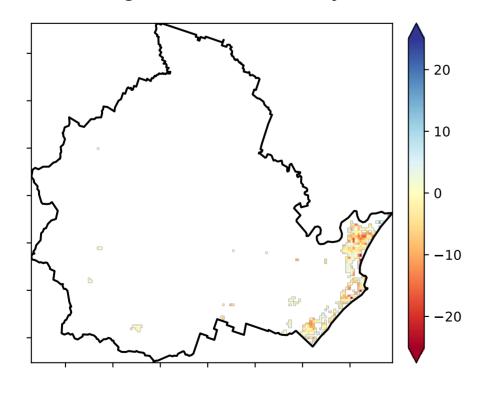


#### **Total Vegetation Cover [%]**



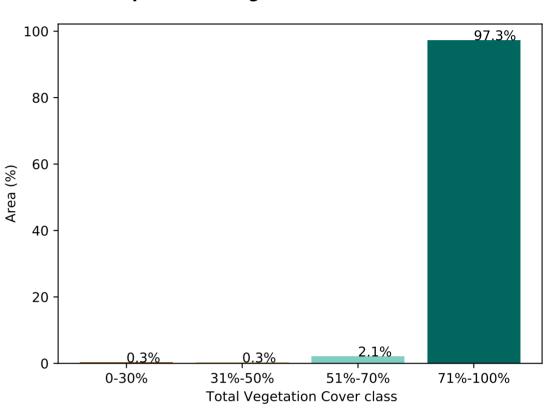


#### **Total Vegetation Cover Anomaly [%]**

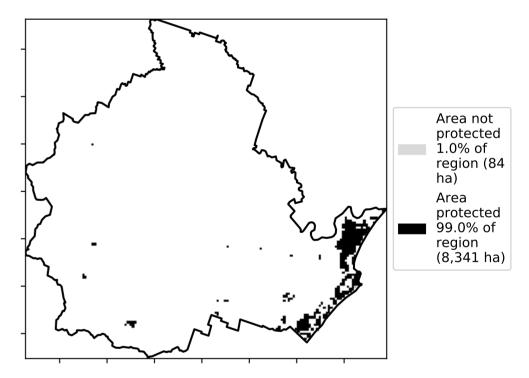


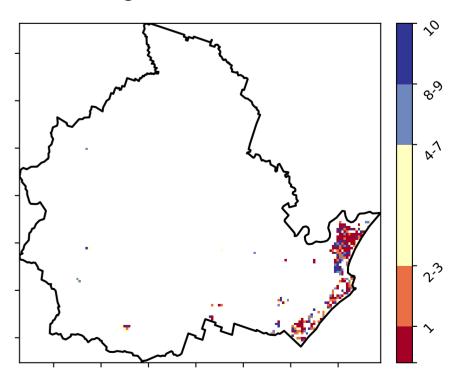
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#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)



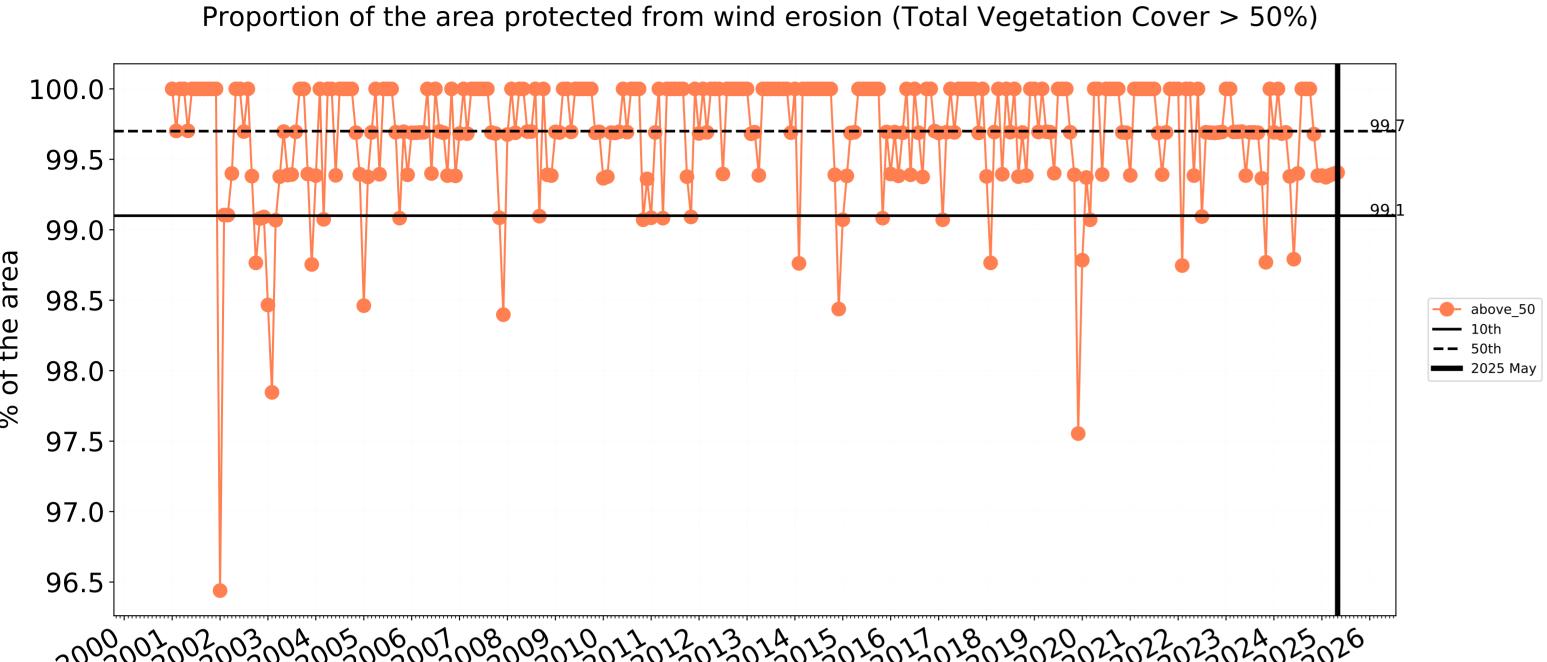




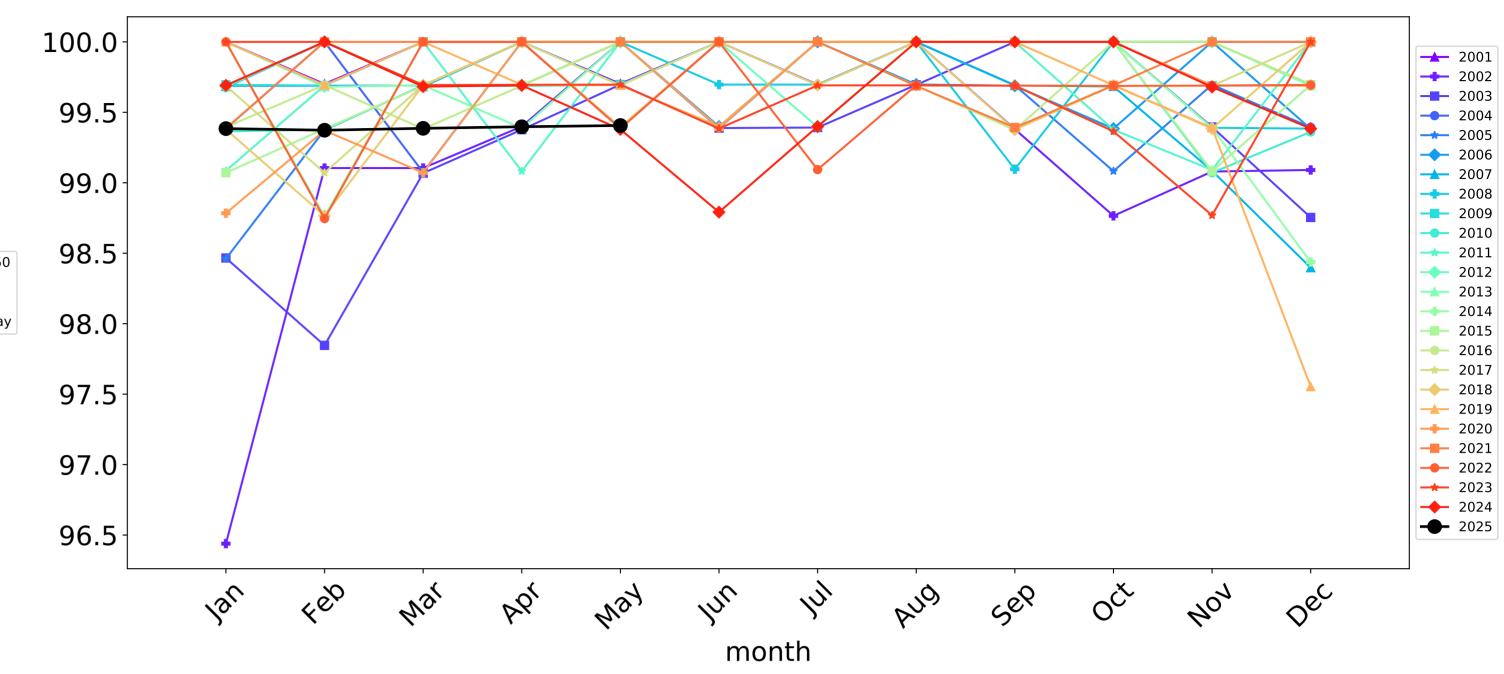


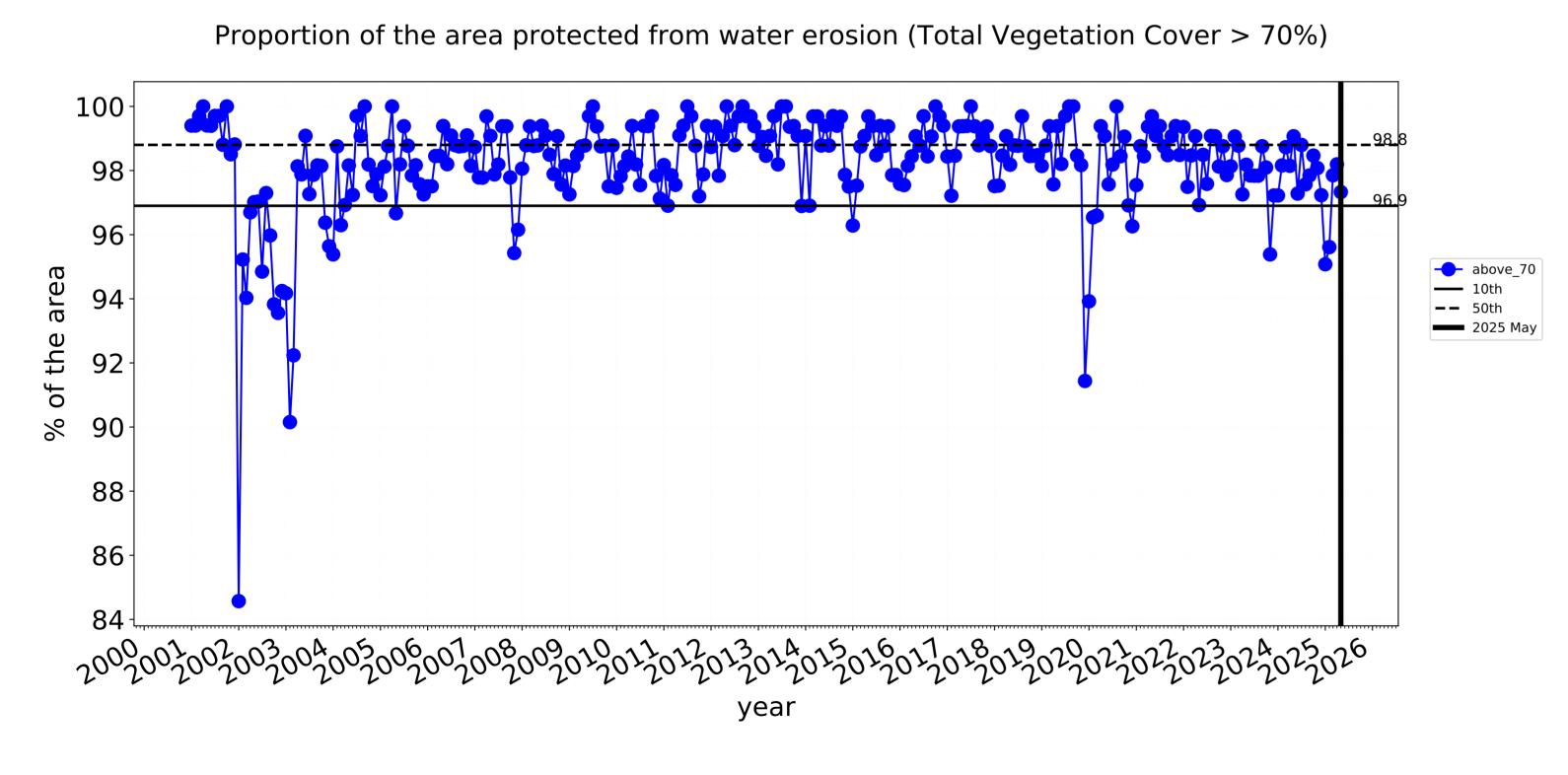






#### Wind erosion historical monthly area protected (Total Veg Cov >50%)

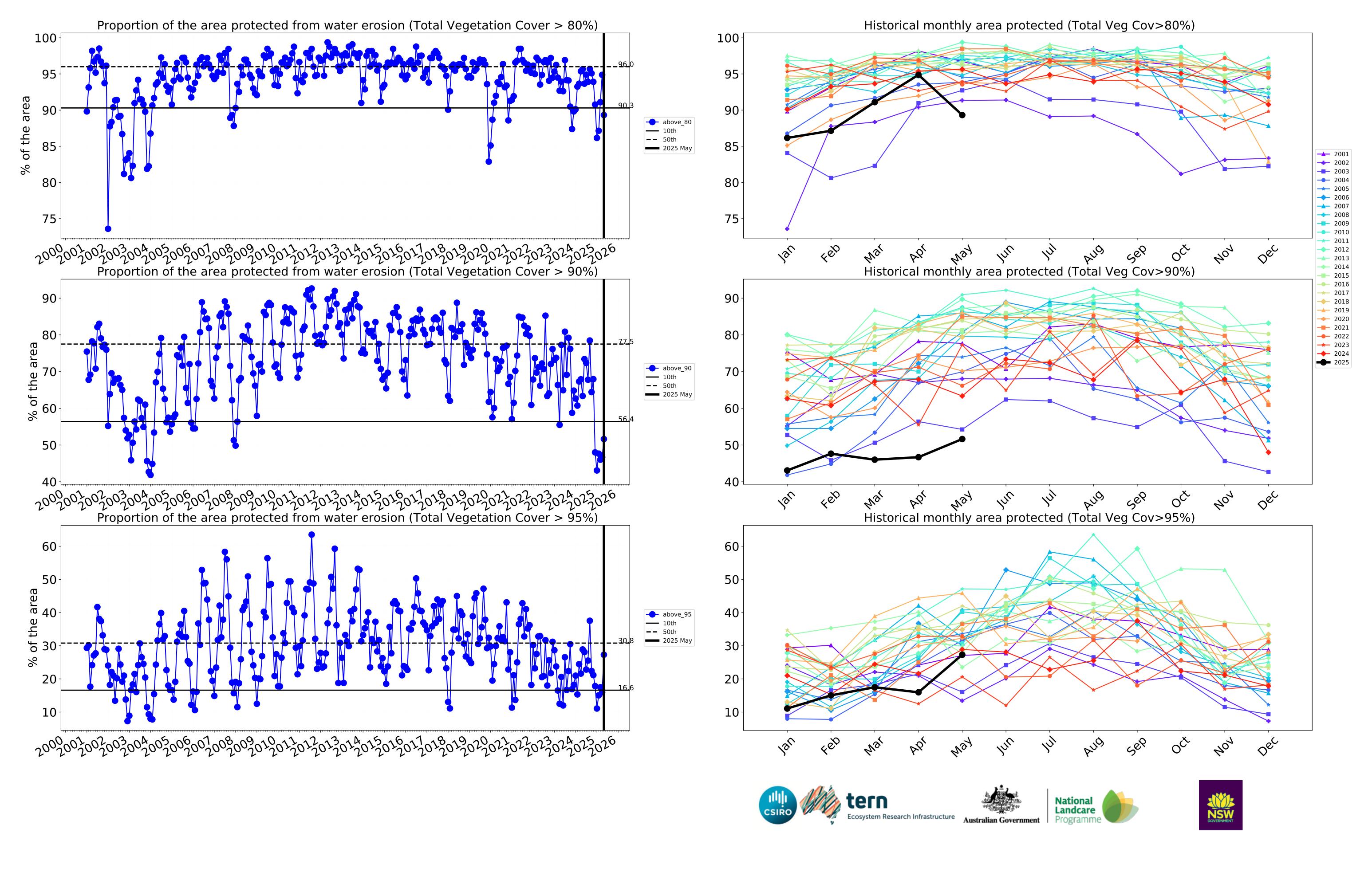




#### 100 → 2001 **---** 2002 2003 98 → 2005 → 2006 96 → 2007 2009 <del>---</del> 2010 → 2013 92 2014 2015 2016 90 → 2017 88 2021 <del>→</del> 2023 86 **----** 2024 **---** 2025 month **National** Landcare

Water erosion historical monthly area protected (Total Veg Cov>70%)

**Ecosystem Research Infrastructure** 



#### **Conservation and natural environments Woodland forest**

#### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests

of Australia (2018)

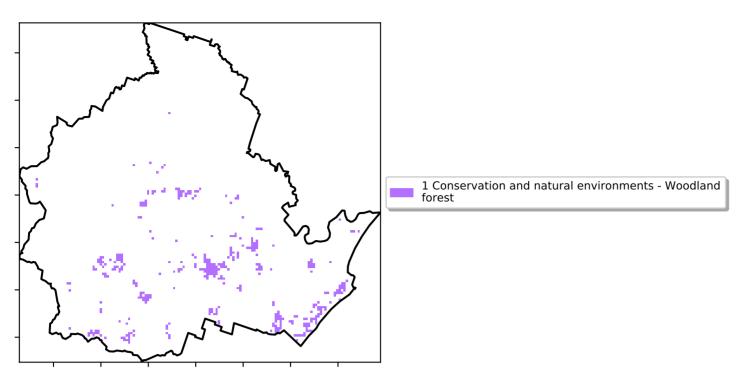
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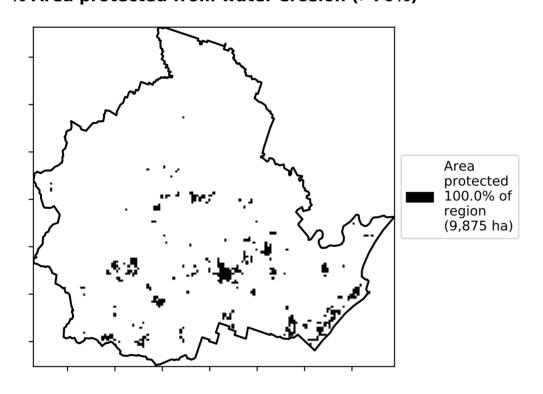


#### **Total Vegetation Cover [%]**

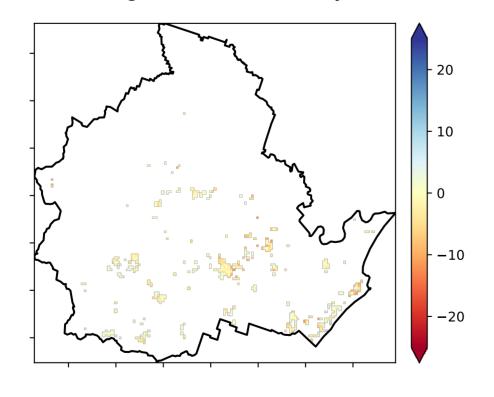
Land use and forest cover



#### % Area protected from water erosion (>70%)

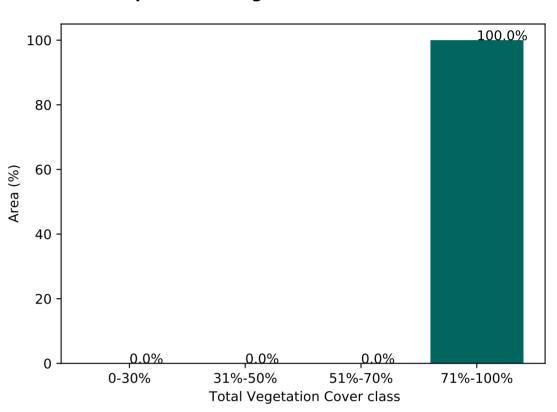


#### Total Vegetation Cover Anomaly [%]

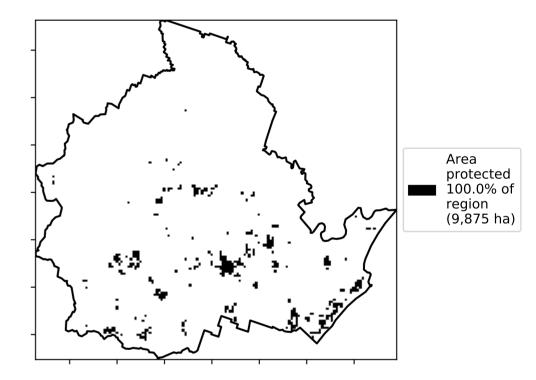


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

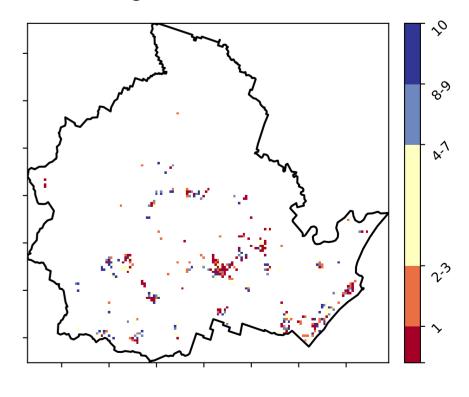
#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)



#### Total Vegetation Cover Decile [%]







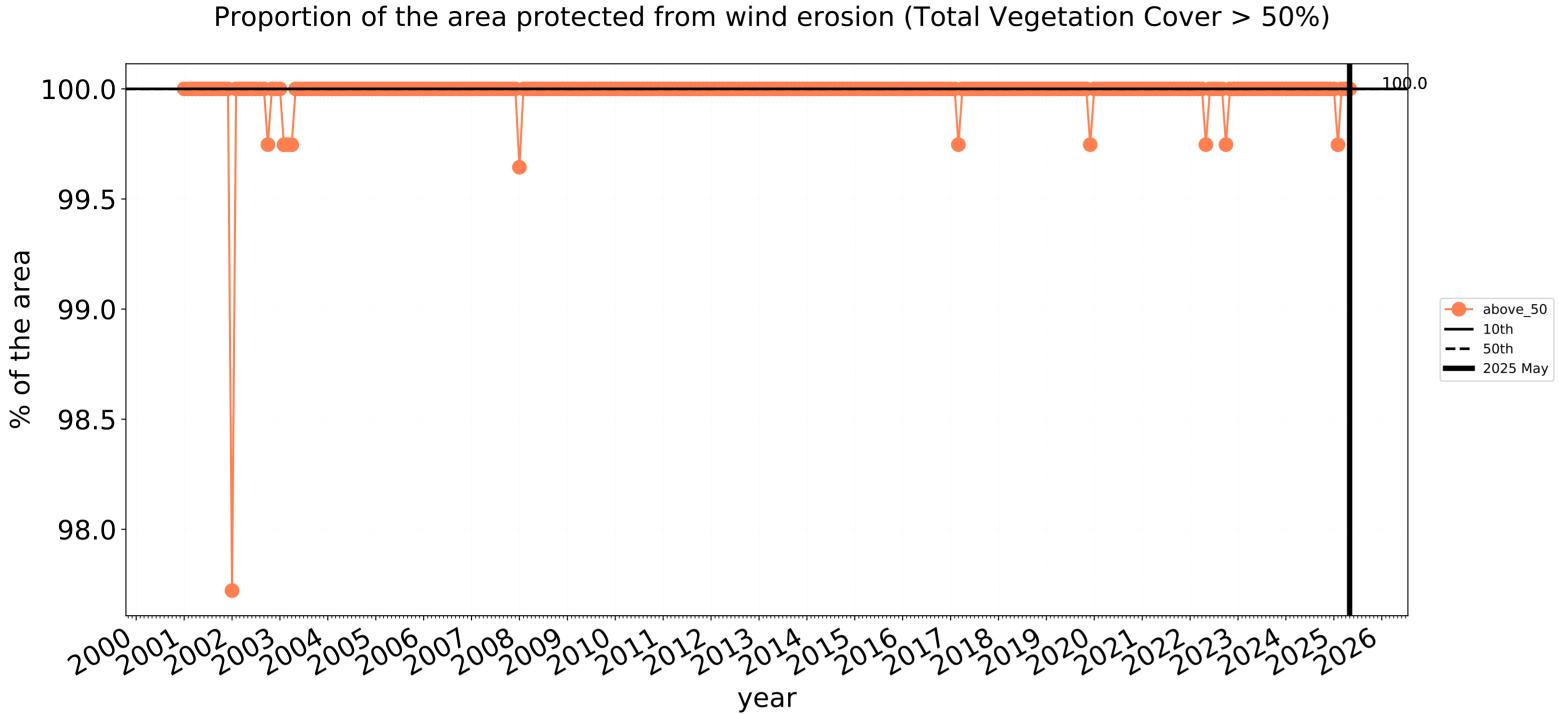
**tern**Ecosystem Research Infrastructure

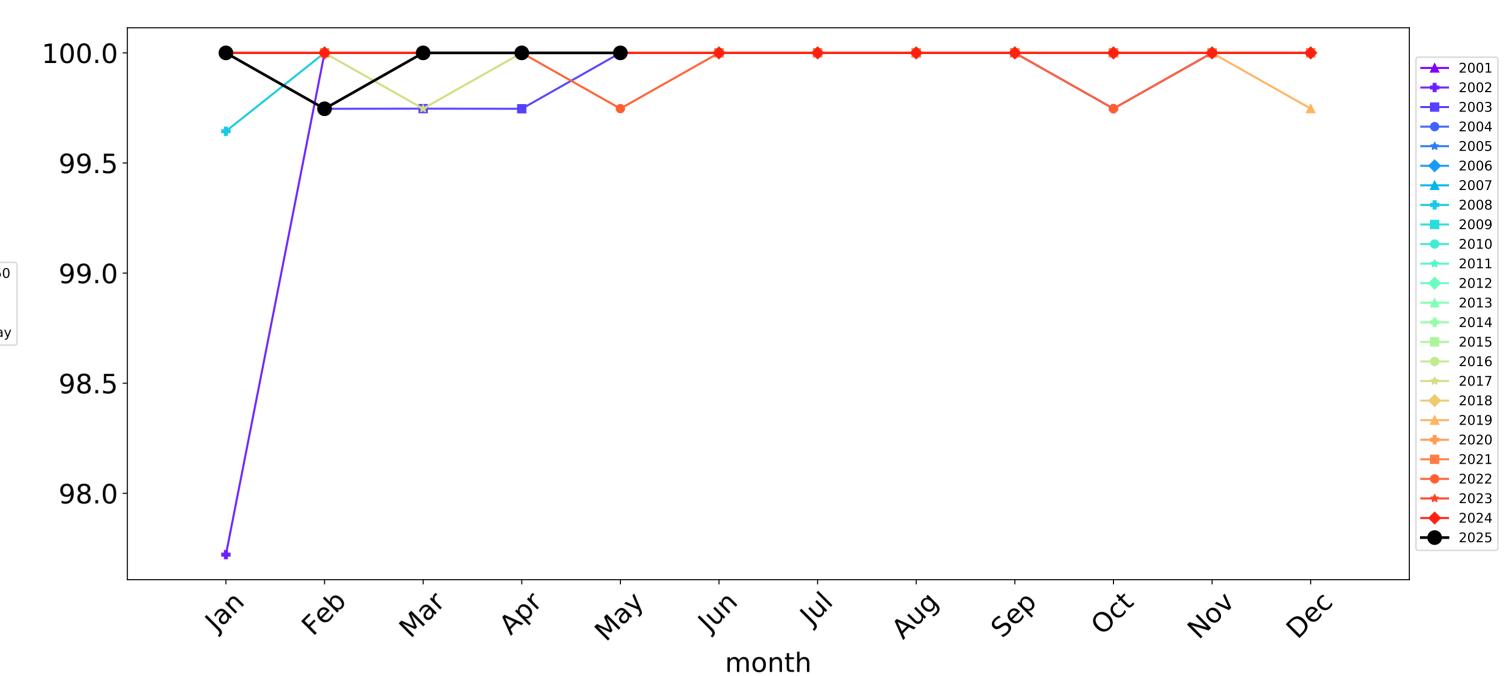




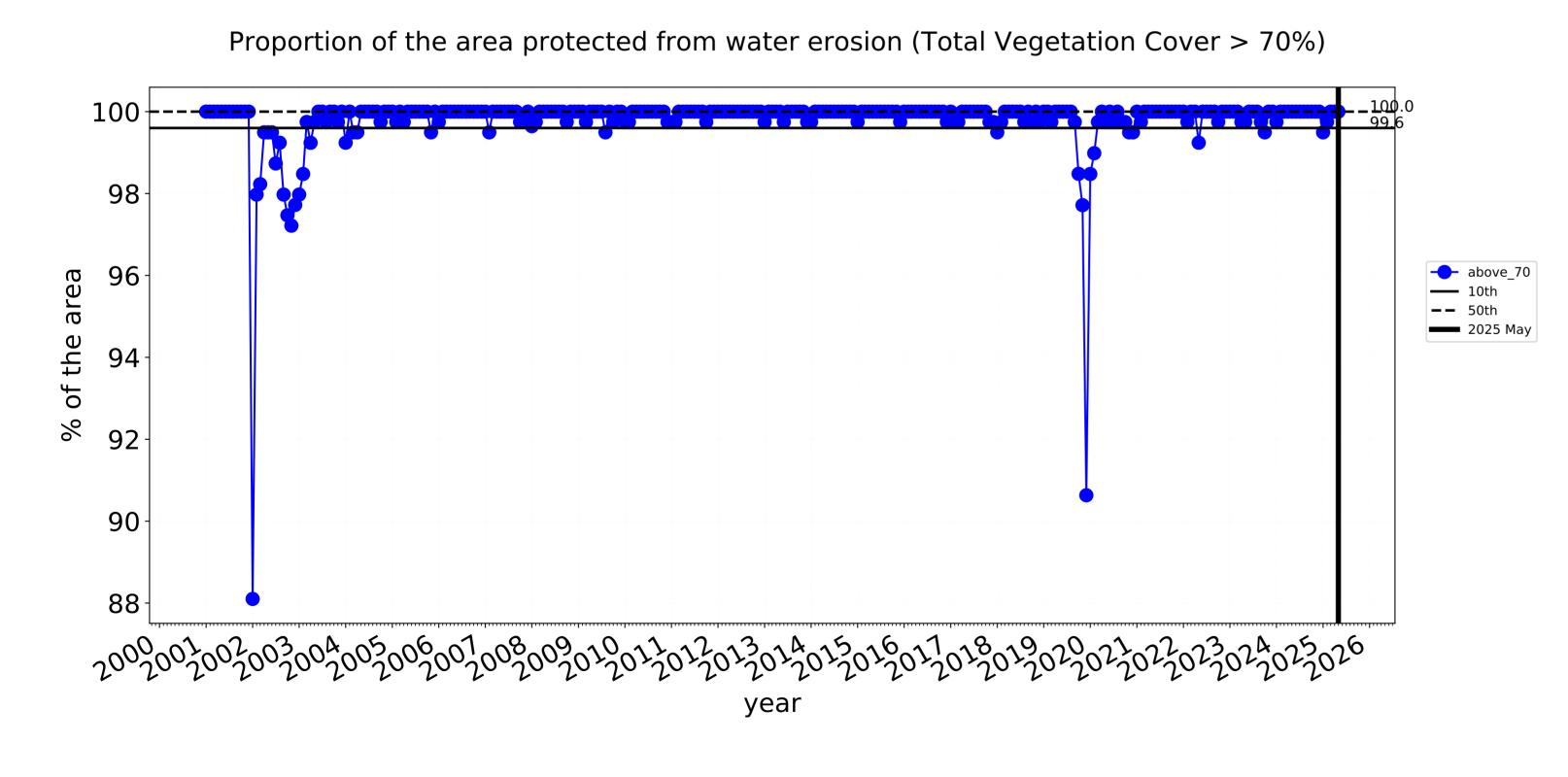


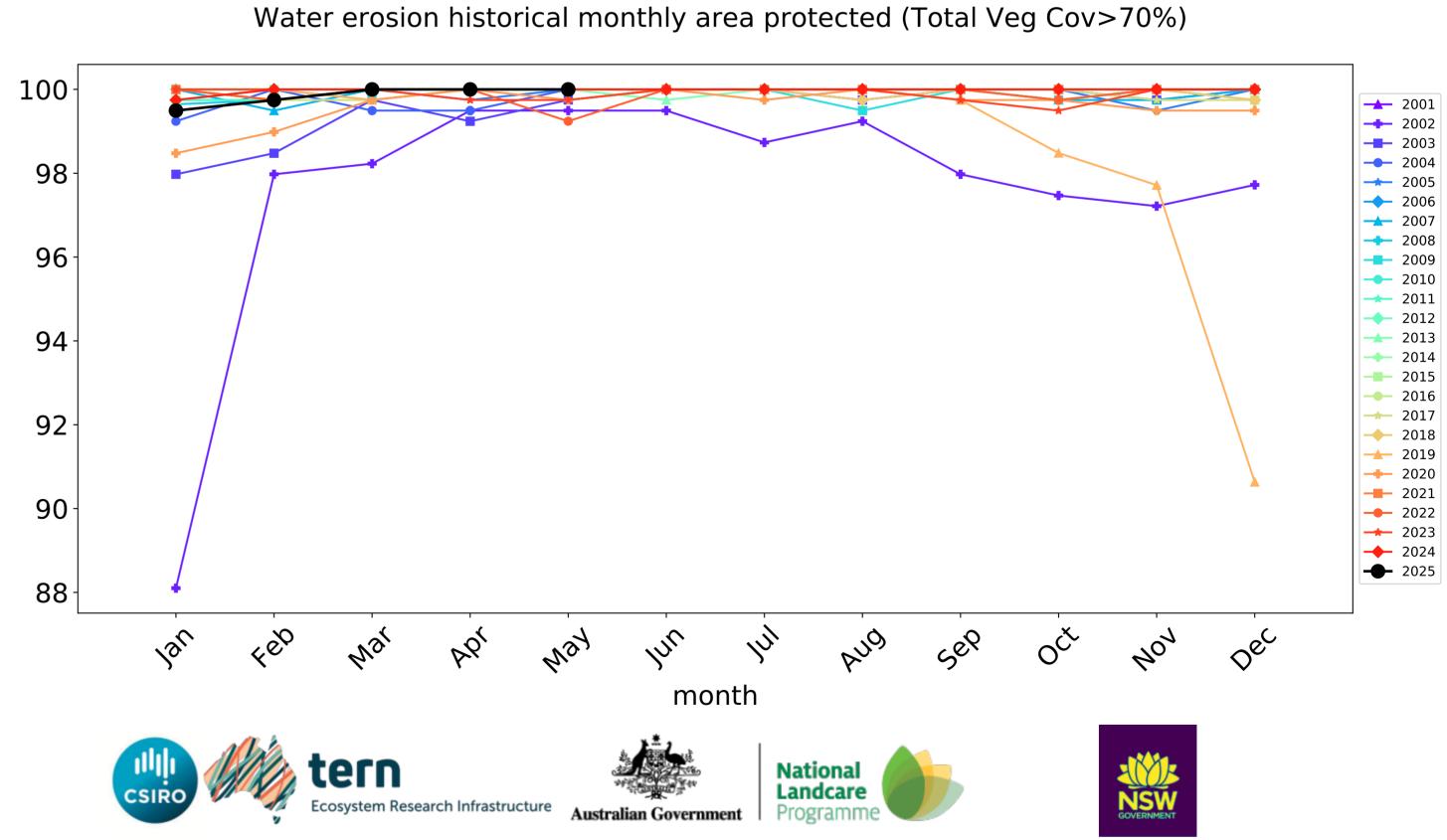
#### **Conservation and natural environments Woodland forest timeseries**

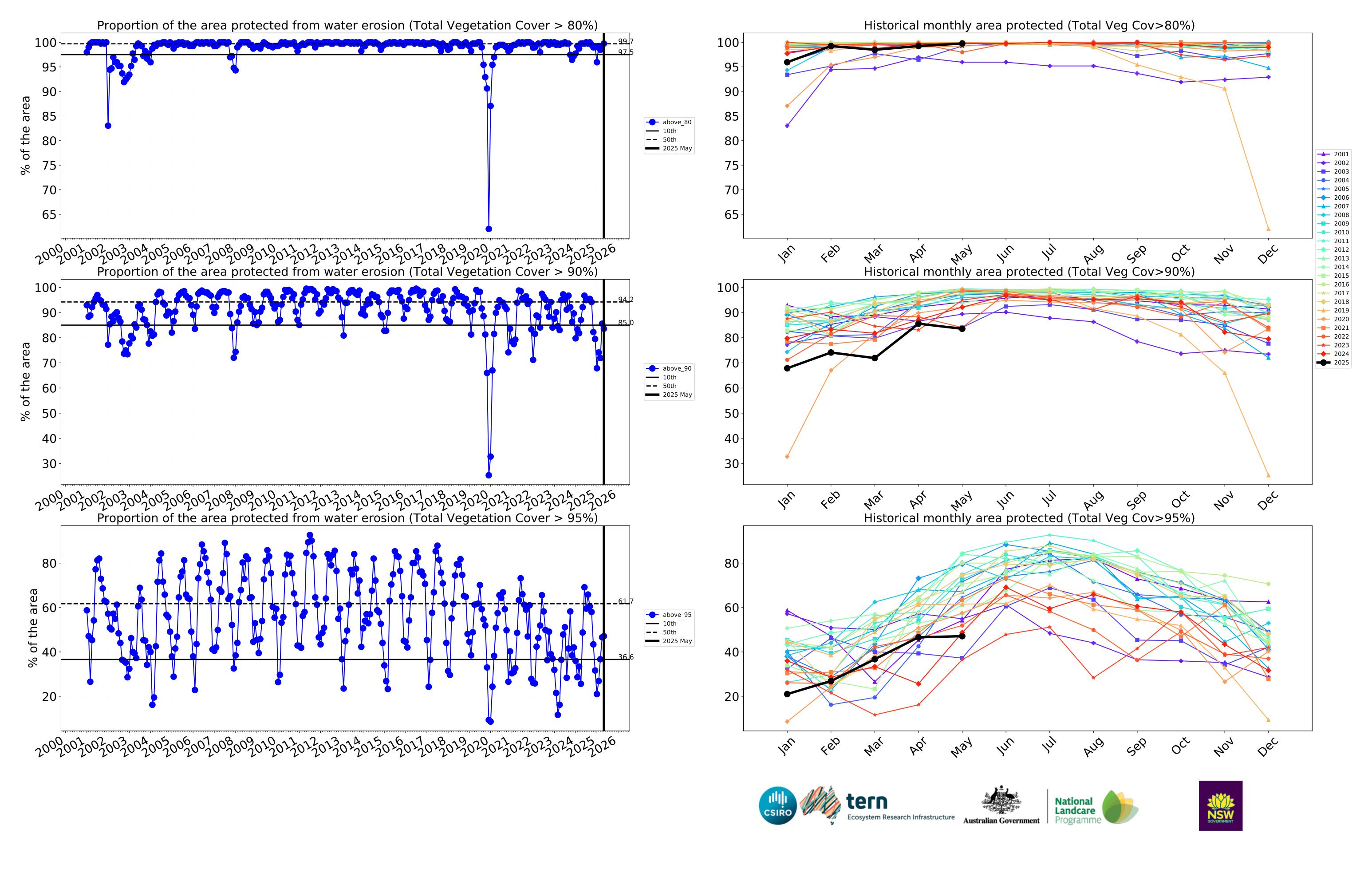




Wind erosion historical monthly area protected (Total Veg Cov >50%)



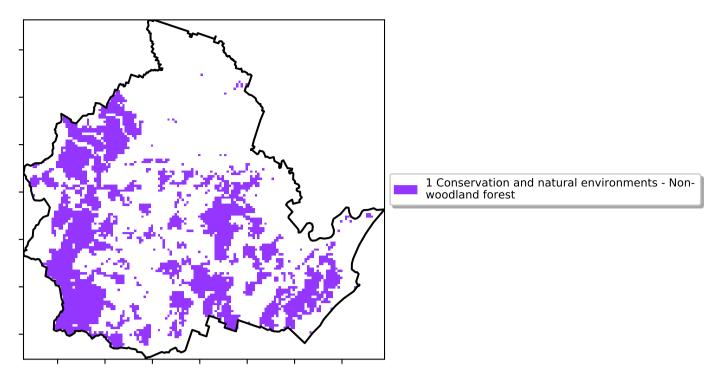




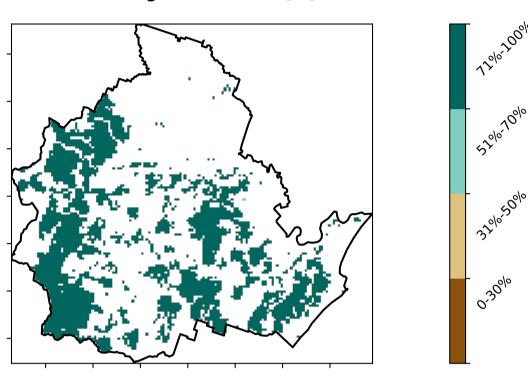
#### **Conservation and natural environments Forest (non woodland)**

#### Land use and forest cover

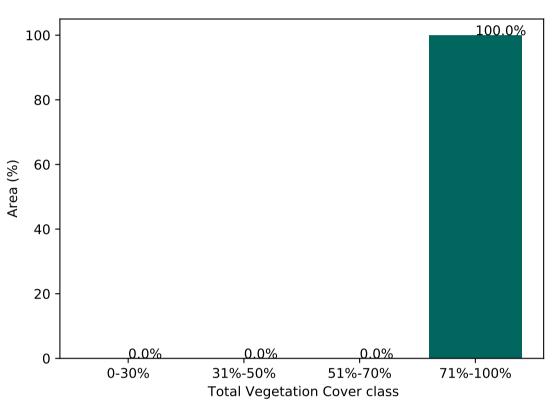
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



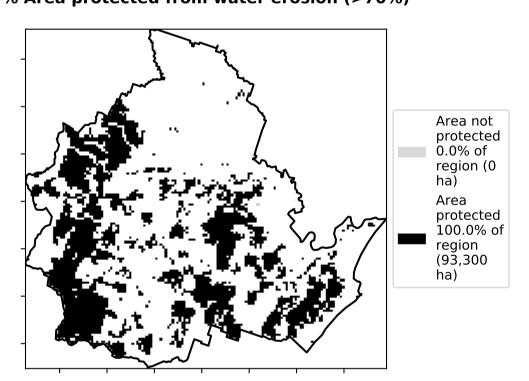
#### **Total Vegetation Cover [%]**



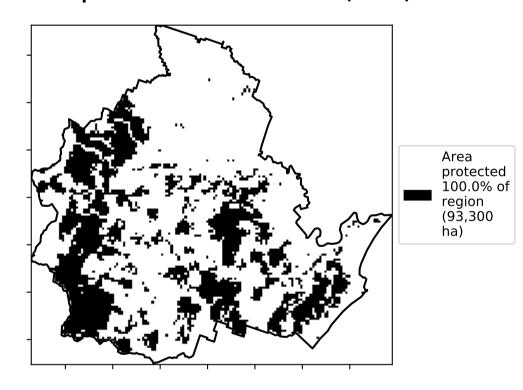
#### Proportion of vegetation cover class in area



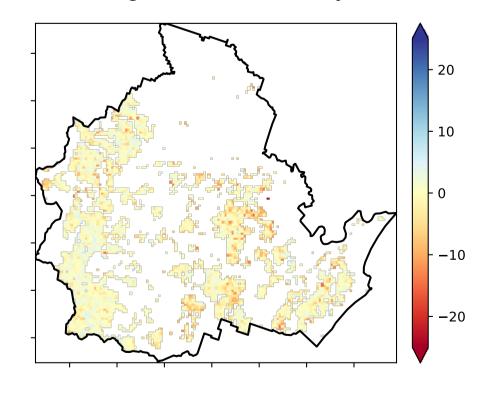
#### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

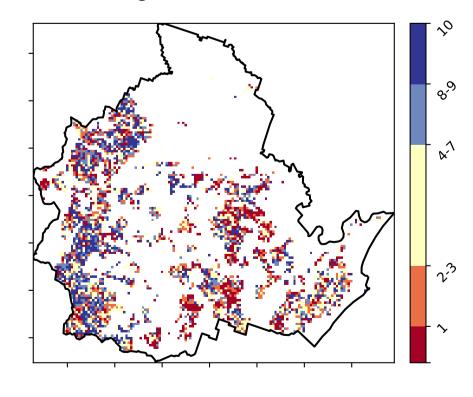


#### **Total Vegetation Cover Anomaly [%]**



Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Total Vegetation Cover Decile [%]





Anomaly show how many percetage points each pixel is from the mean. That

is, red pixels are about 20%

lower than the mean of that

pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

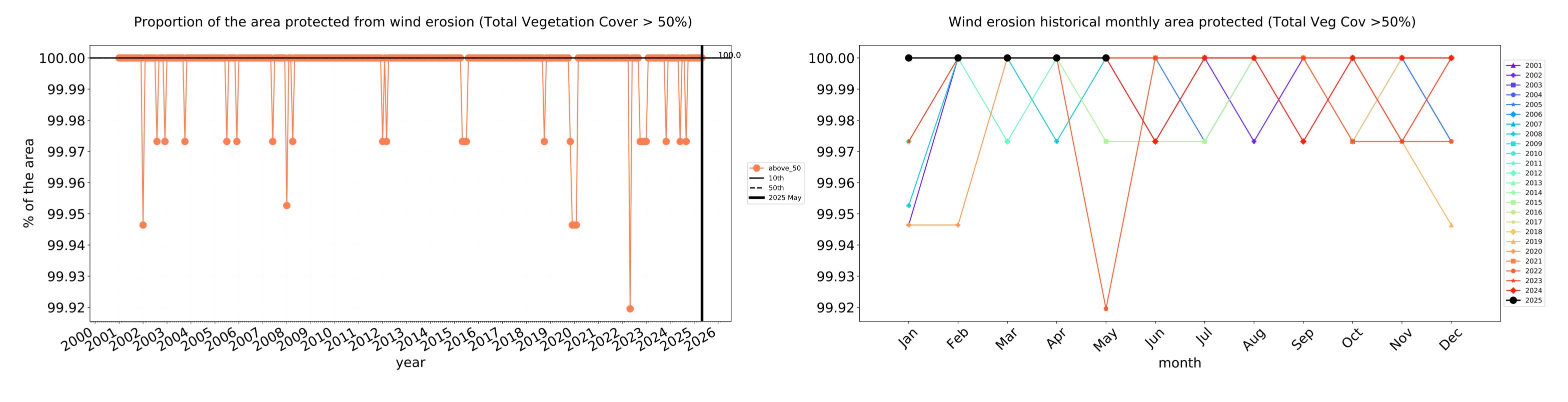


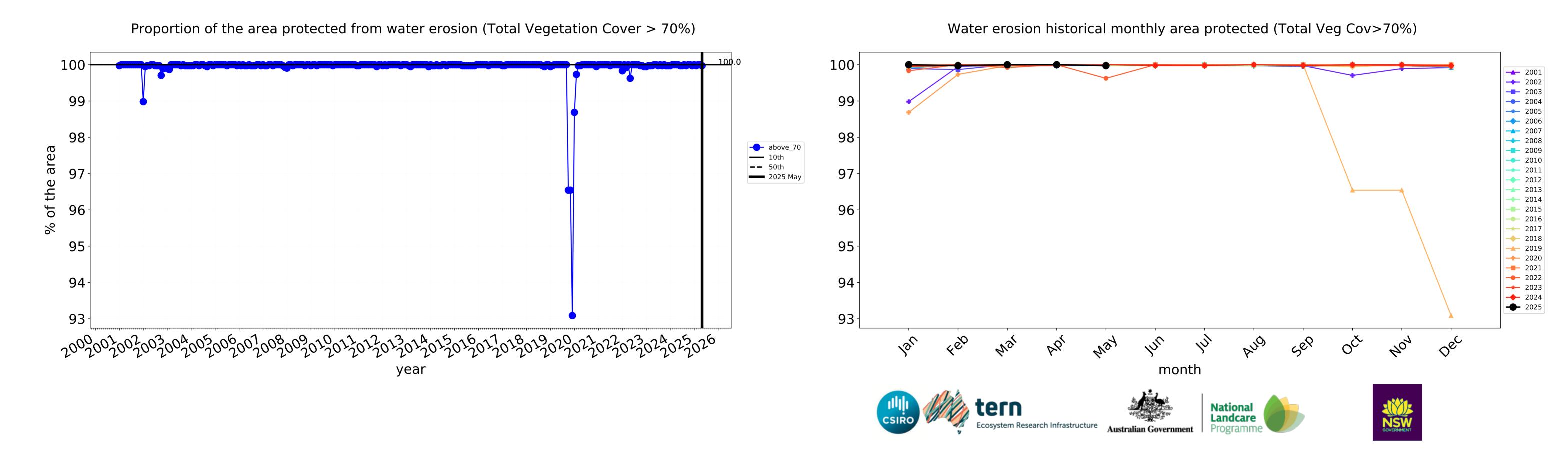


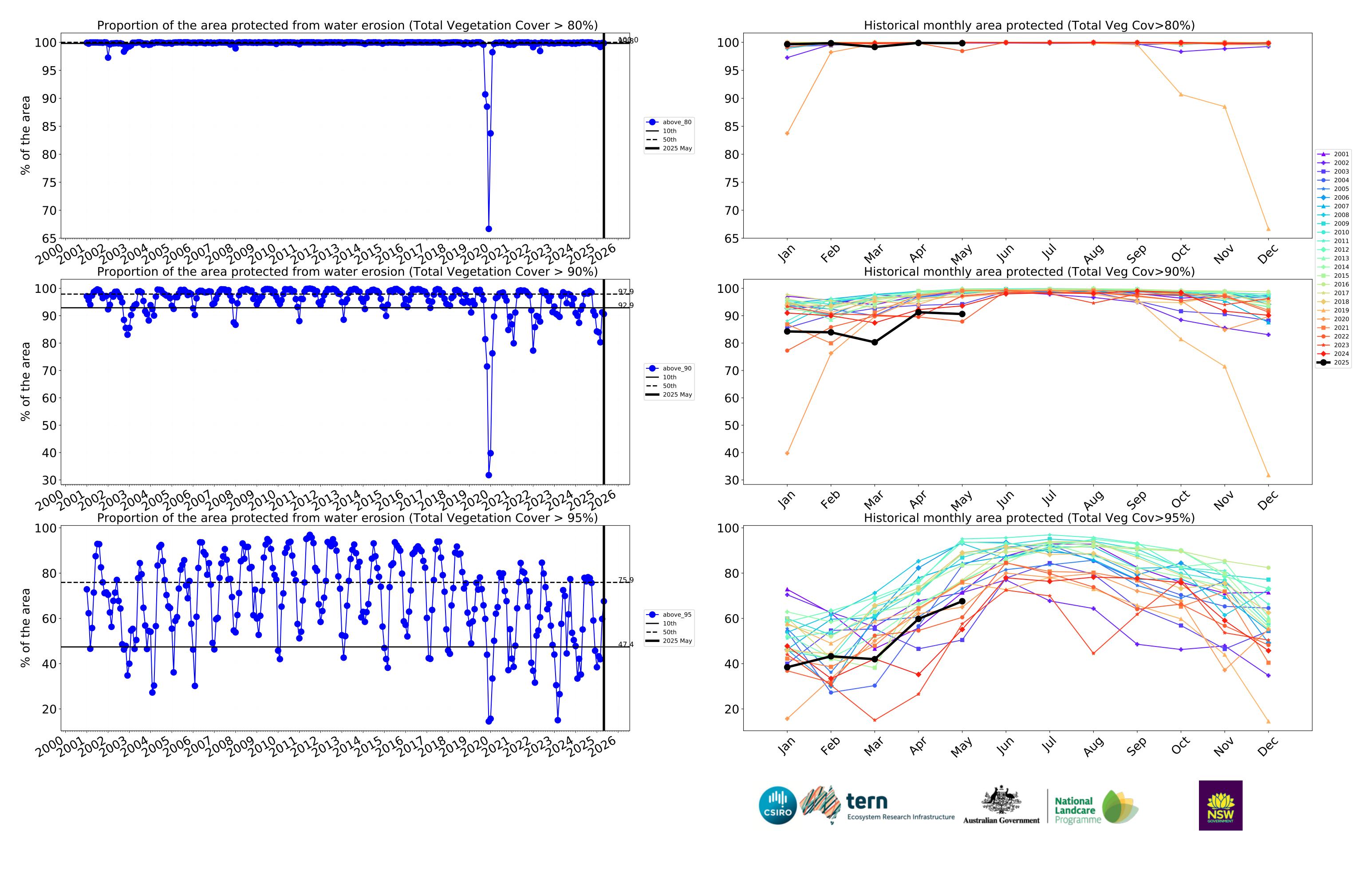












#### **Agriculture**

#### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests

of Australia (2018)

Anomaly show how many percetage points each

pixel is from

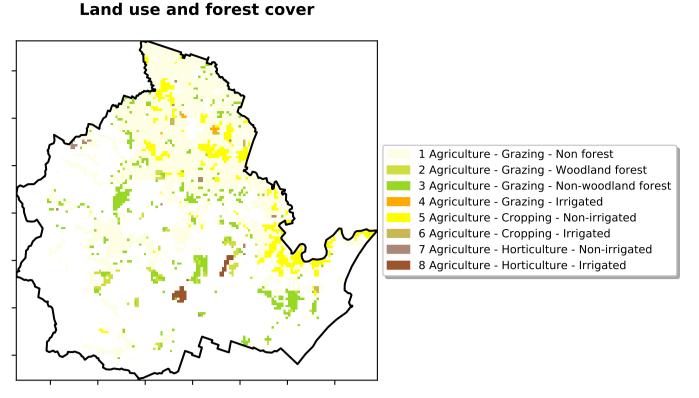
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using baseline from 2001 to 2019.

pixel. The mean is only for the month of the map

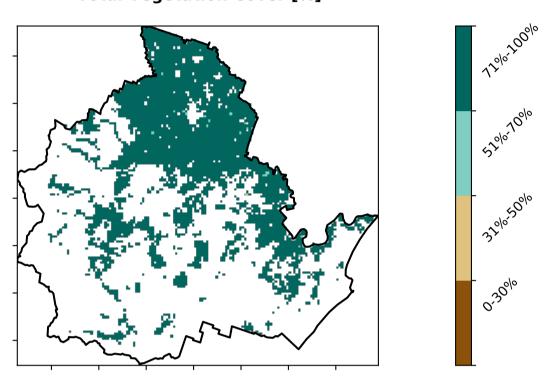
the mean. That



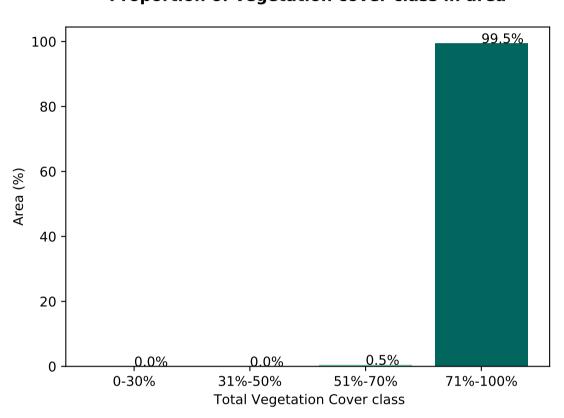
# 70 - 73.2% 60 - 50 - 20 - 10 - 2.7% 0 1 2 3 4 5 6 7 Land use class

Proportion of each land class in area

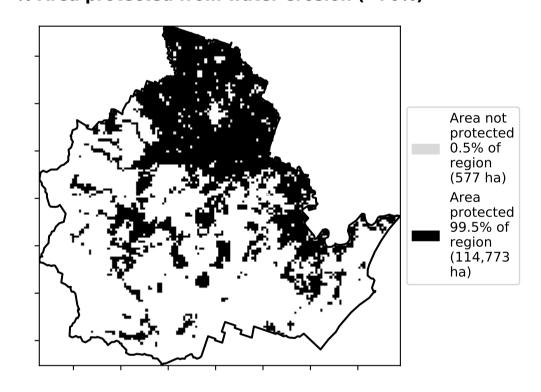




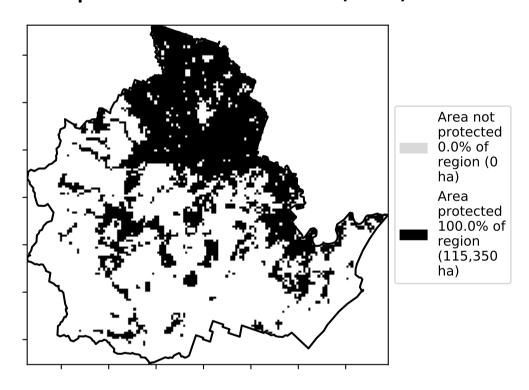
Proportion of vegetation cover class in area



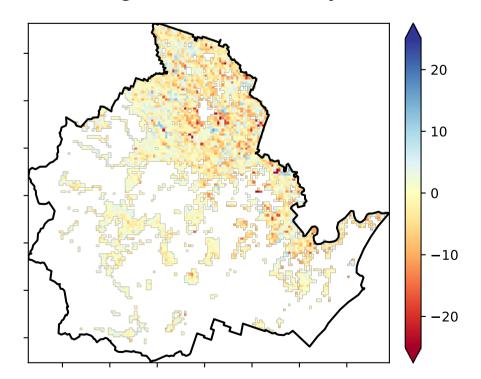
#### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

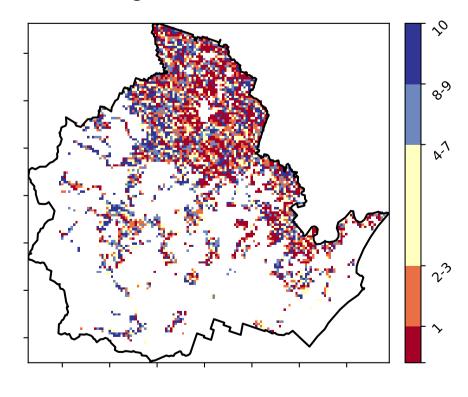


#### **Total Vegetation Cover Anomaly [%]**



Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]





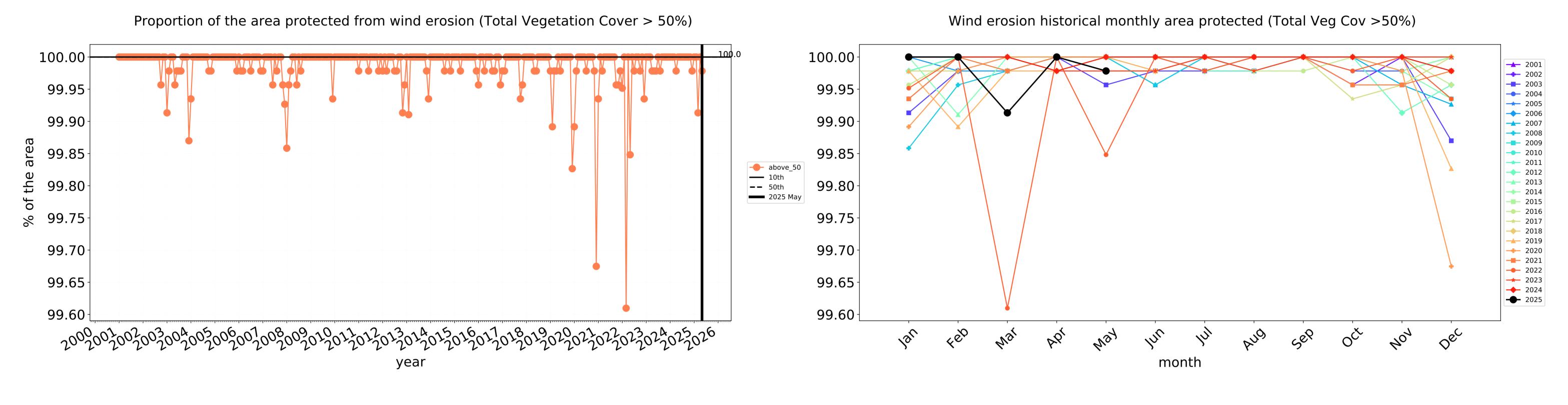


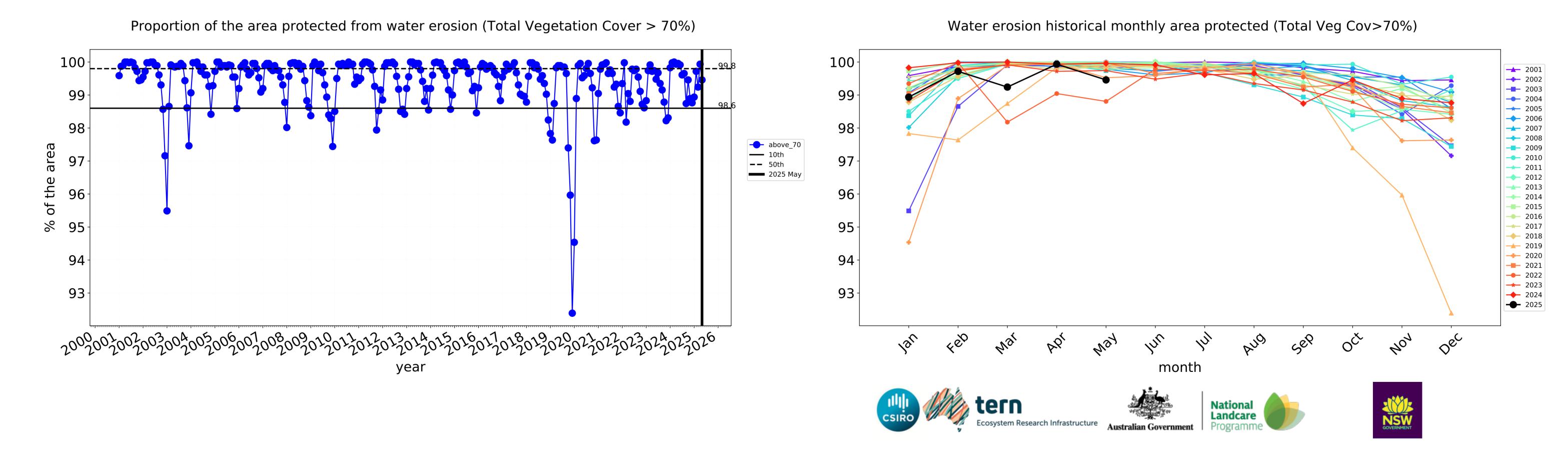


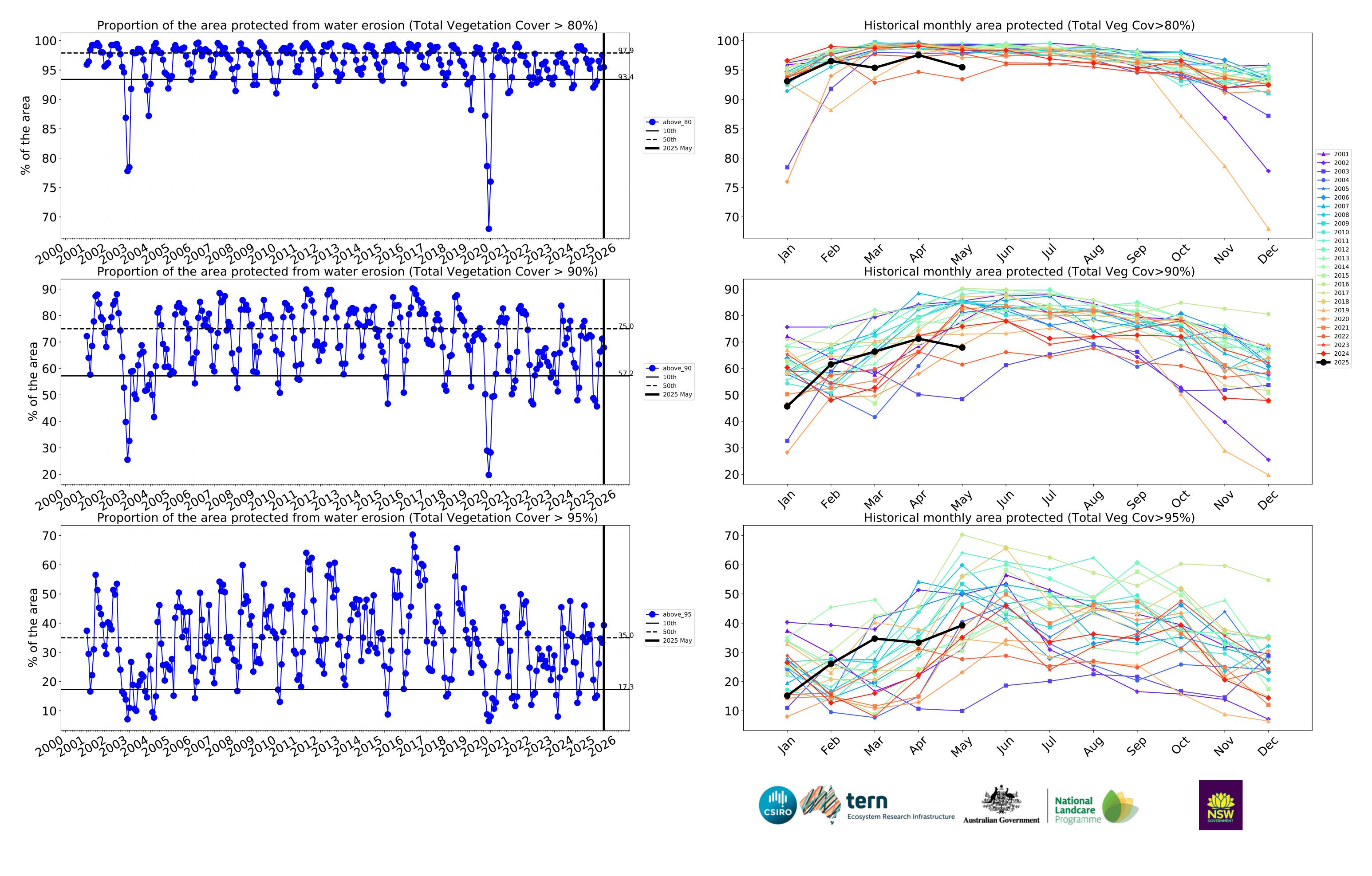




#### **Agriculture timeseries**







#### Grazing

#### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

pixel is from

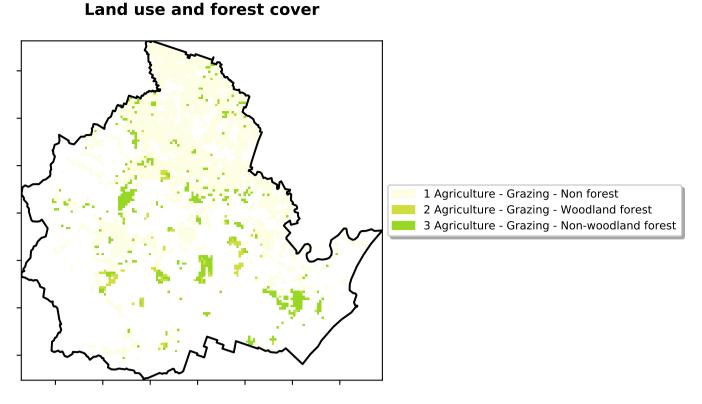
is, red pixels are about 20% lower than the

mean of that

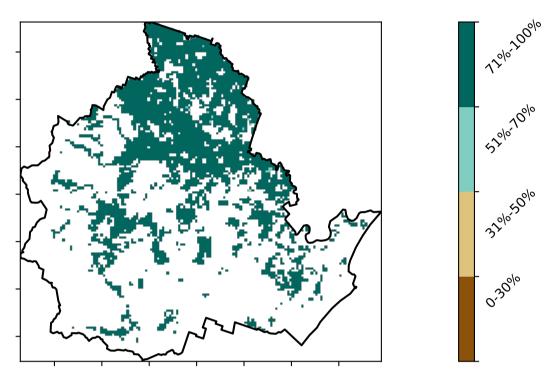
using baseline from 2001 to 2019.

pixel. The mean is only for the month of the map

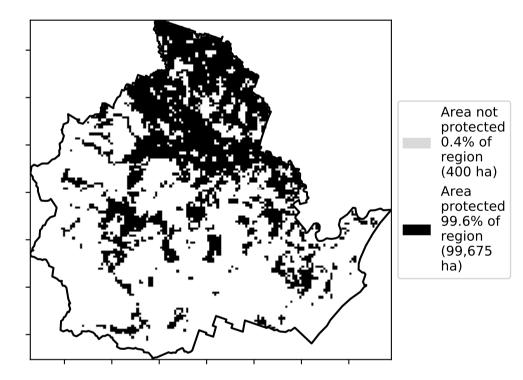
the mean. That



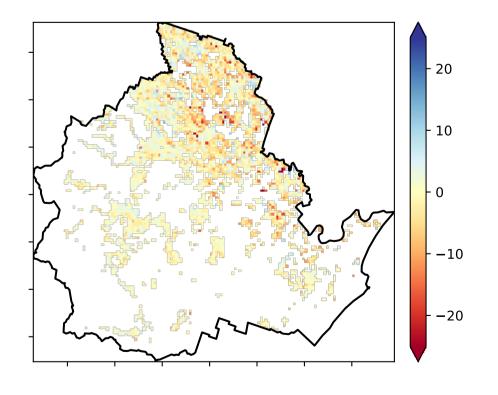
#### **Total Vegetation Cover [%]**



#### % Area protected from water erosion (>70%)

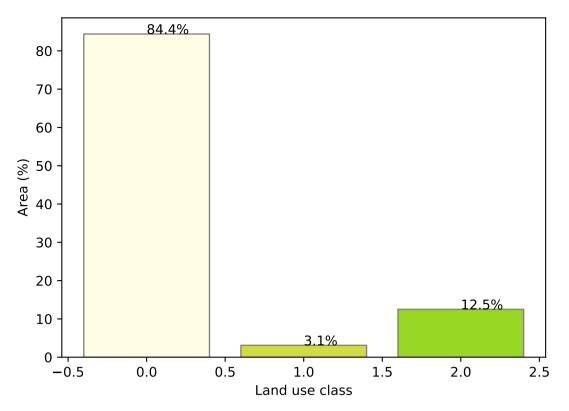


Total Vegetation Cover Anomaly [%]

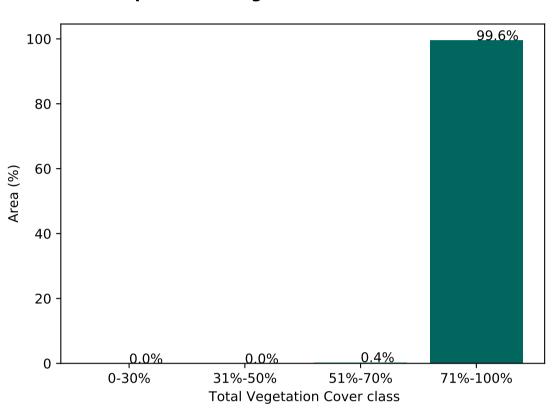


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

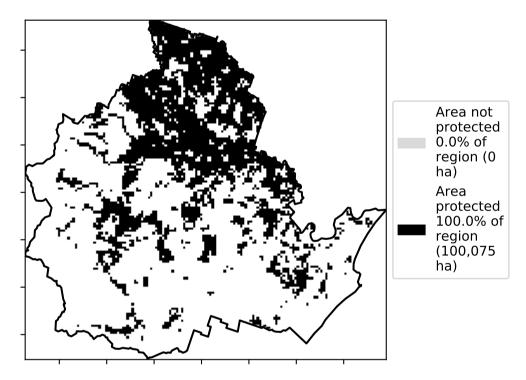
#### Proportion of each land class in area



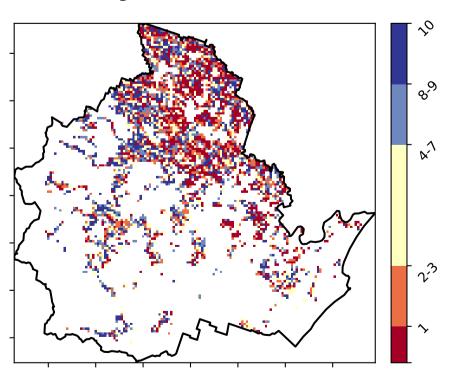
**Proportion of vegetation cover class in area** 



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







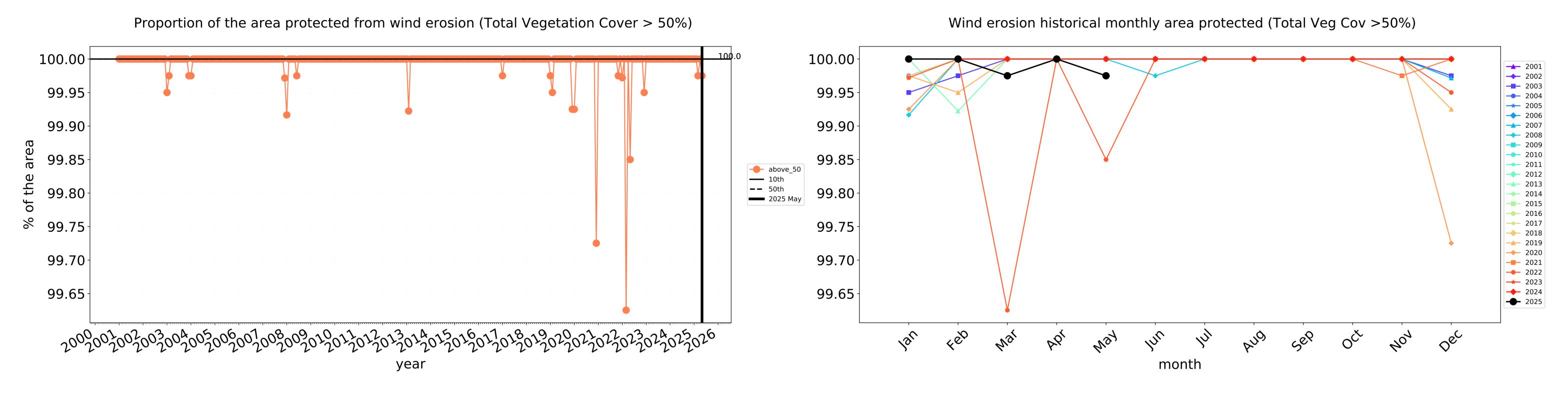
tern
Ecosystem Research Infrastructure

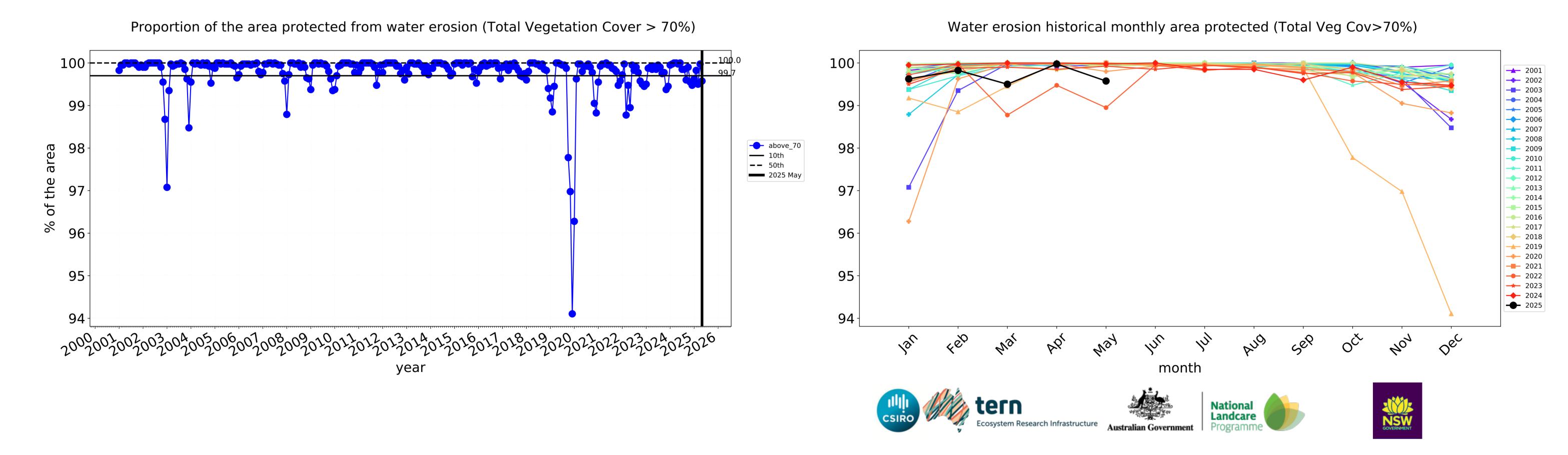


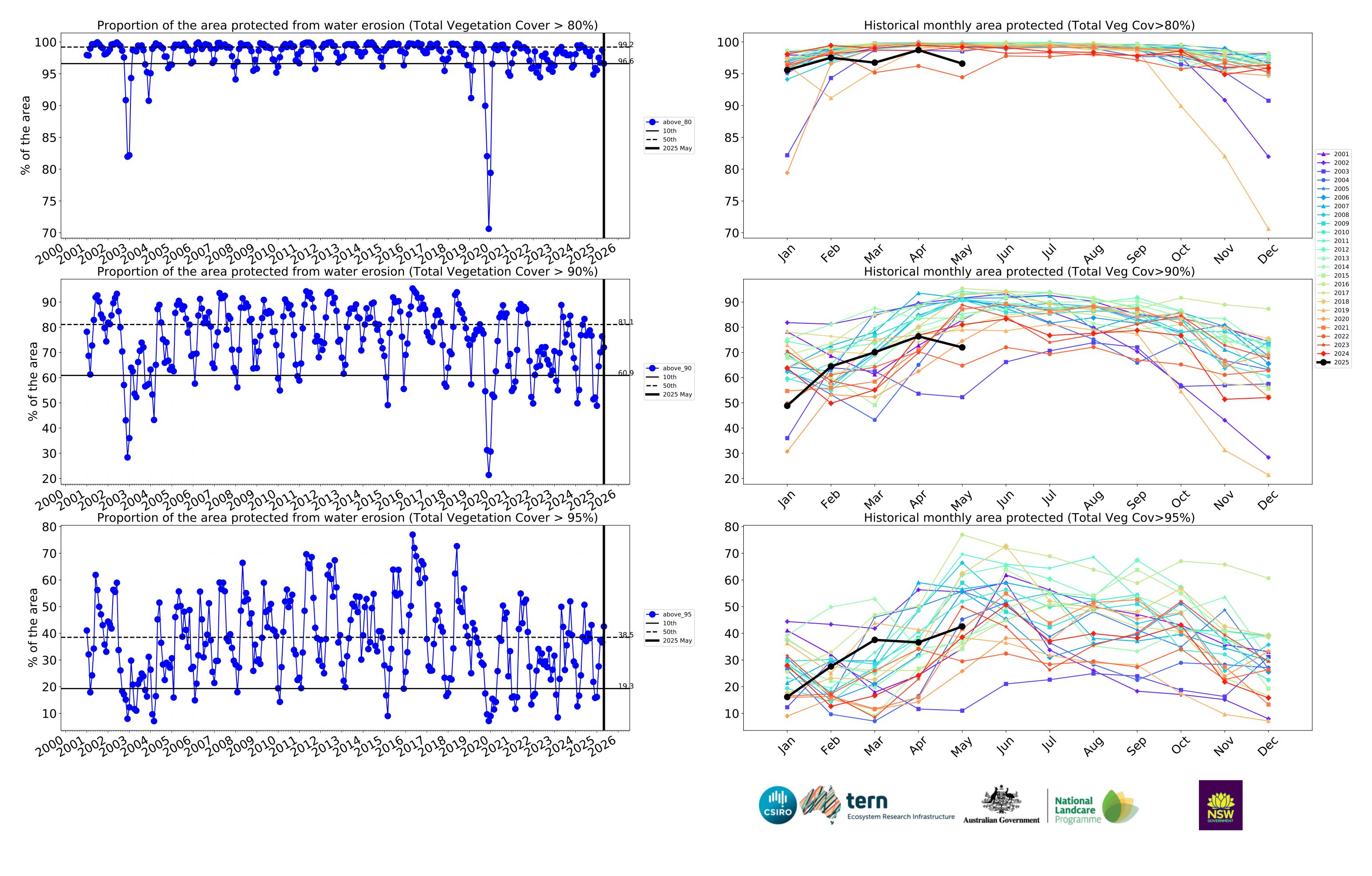




#### **Grazing timeseries**







#### **Grazing non forest**

#### Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

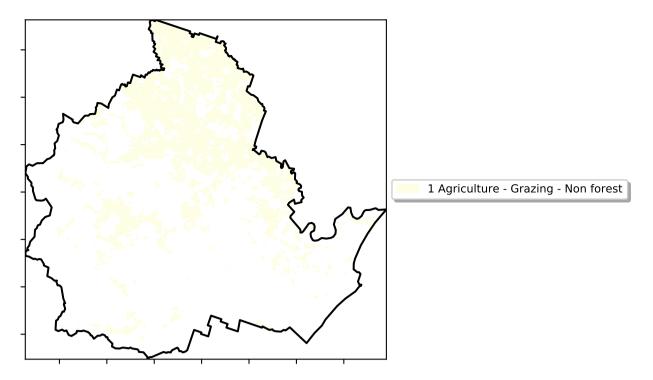
Anomaly show how many percetage points each

pixel is from the mean. That

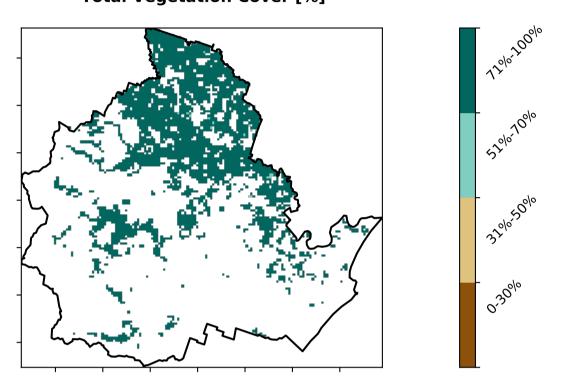
is, red pixels are about 20% lower than the

mean of that

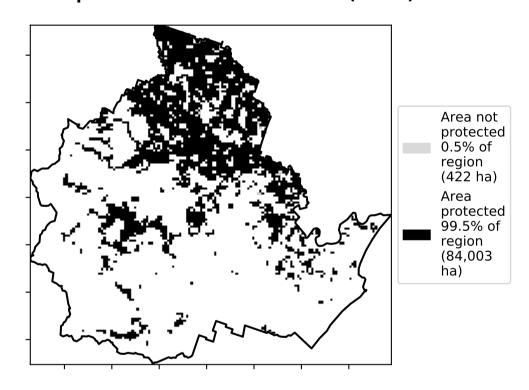
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



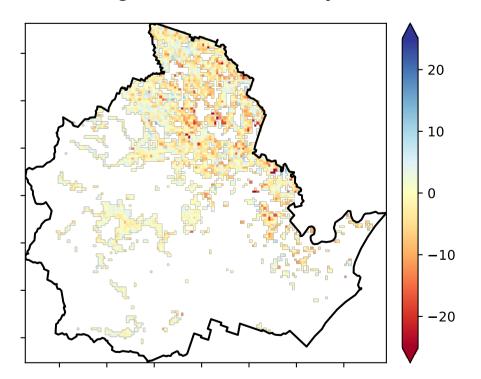
#### **Total Vegetation Cover [%]**



#### % Area protected from water erosion (>70%)

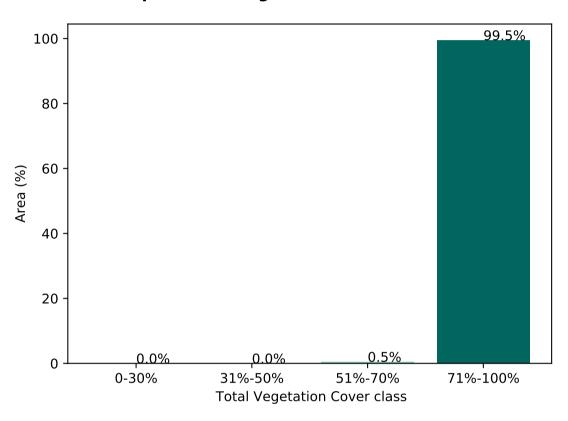


#### Total Vegetation Cover Anomaly [%]

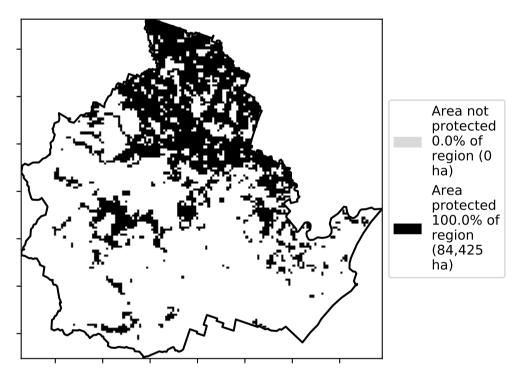


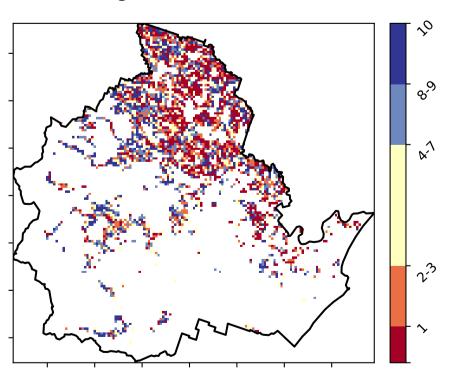
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)





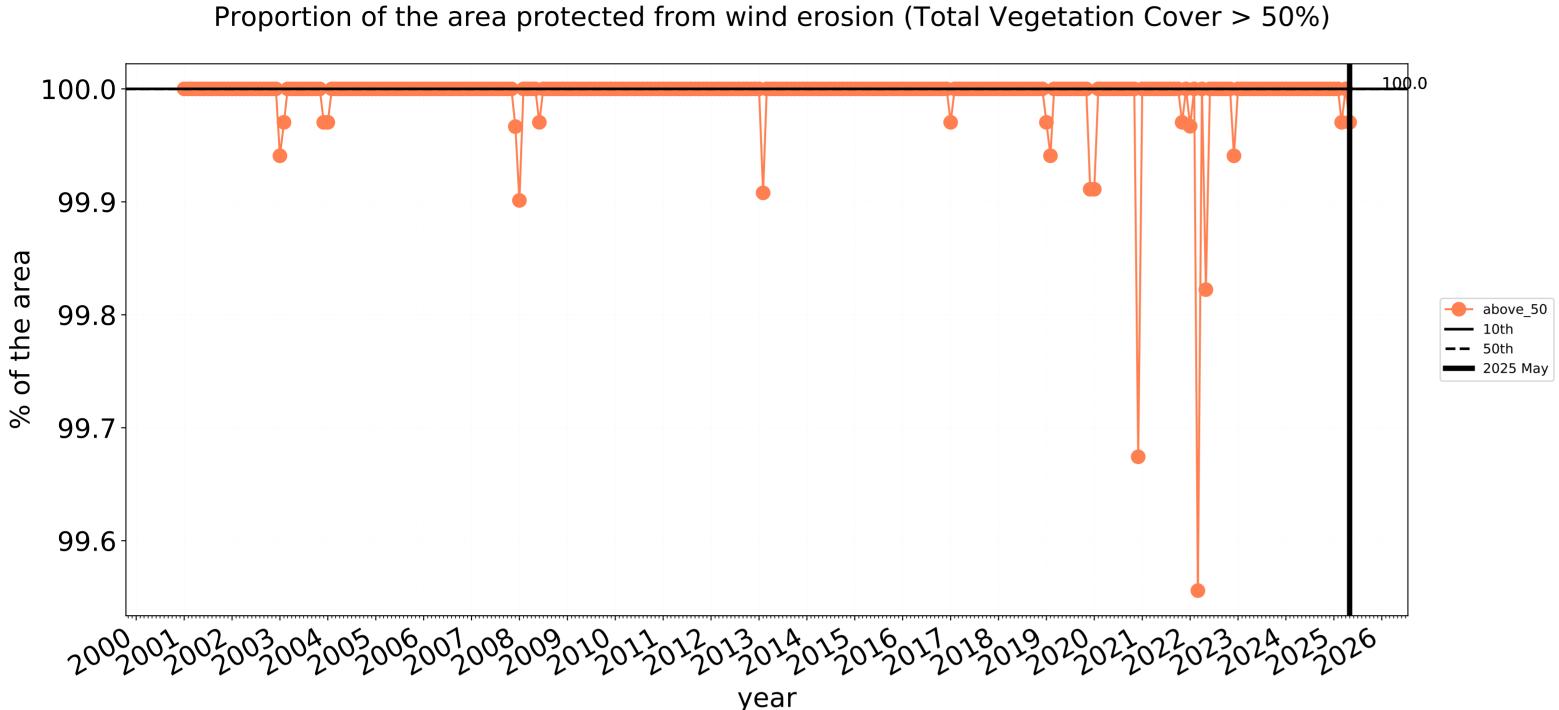


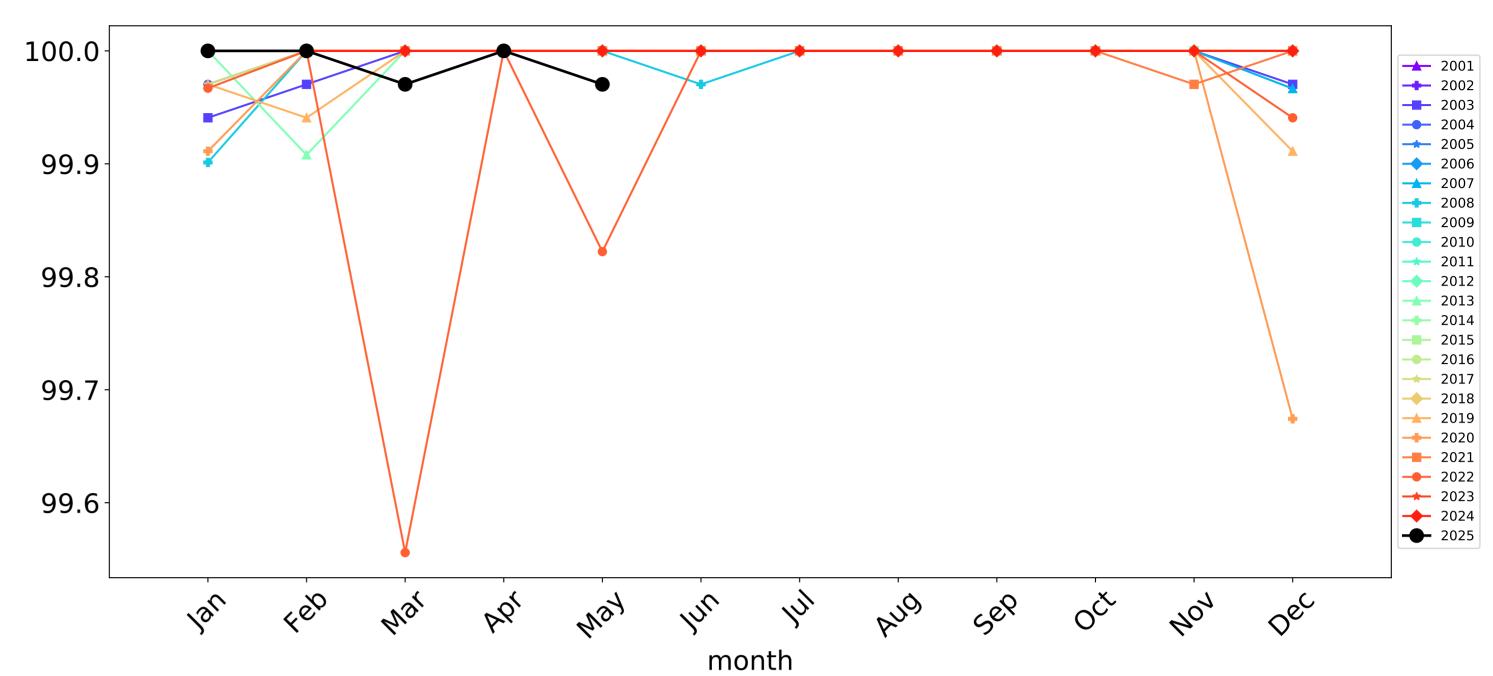




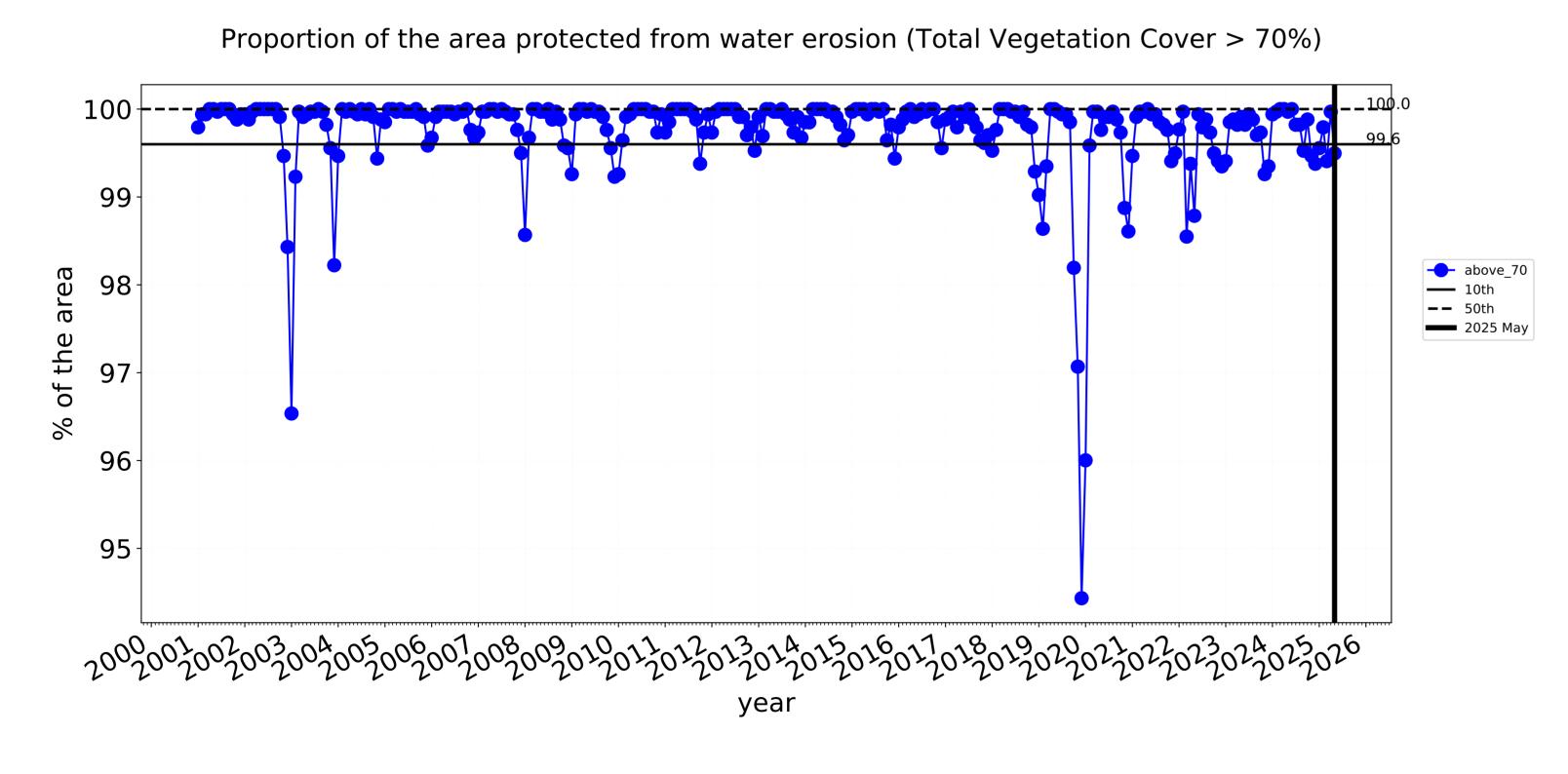


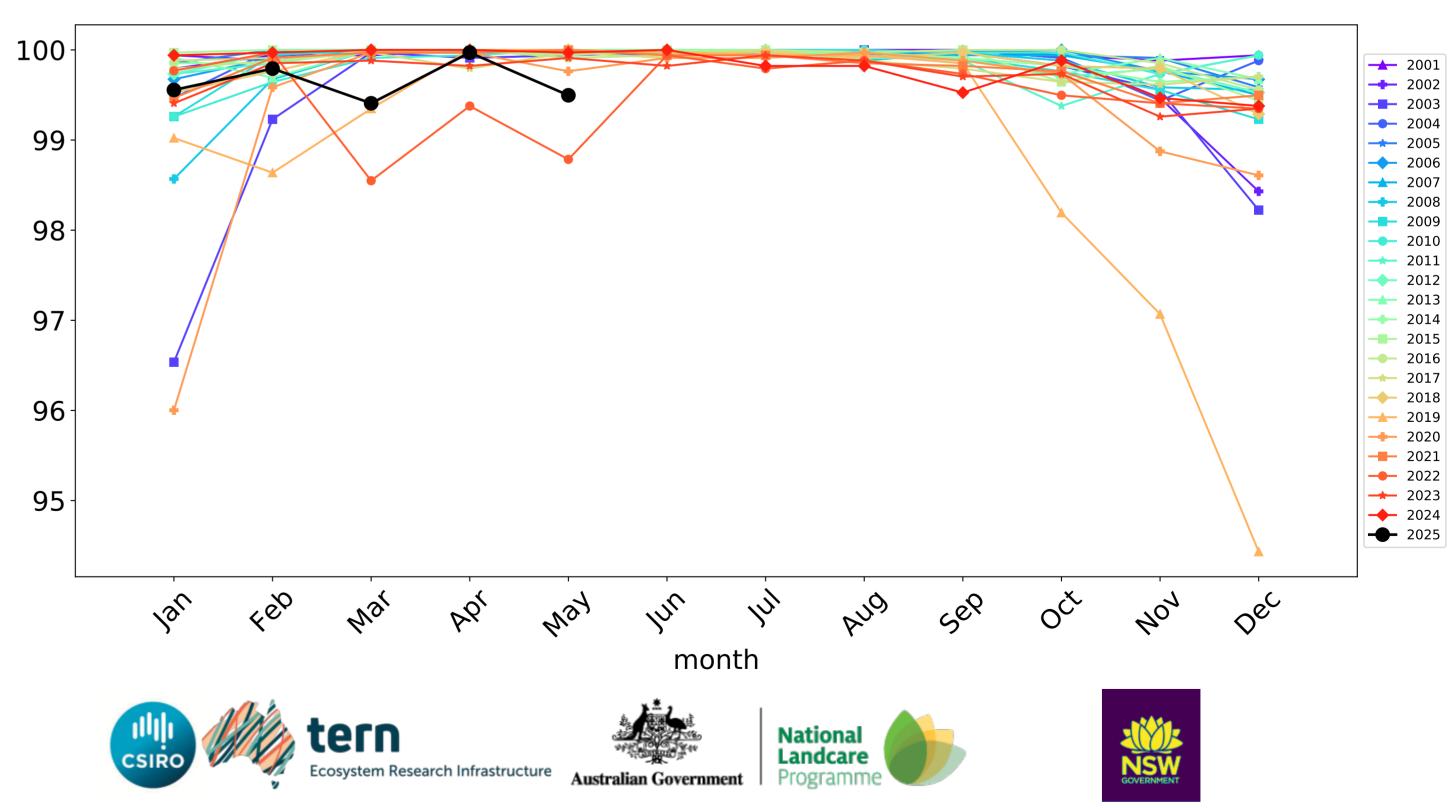
#### **Grazing non forest timeseries**



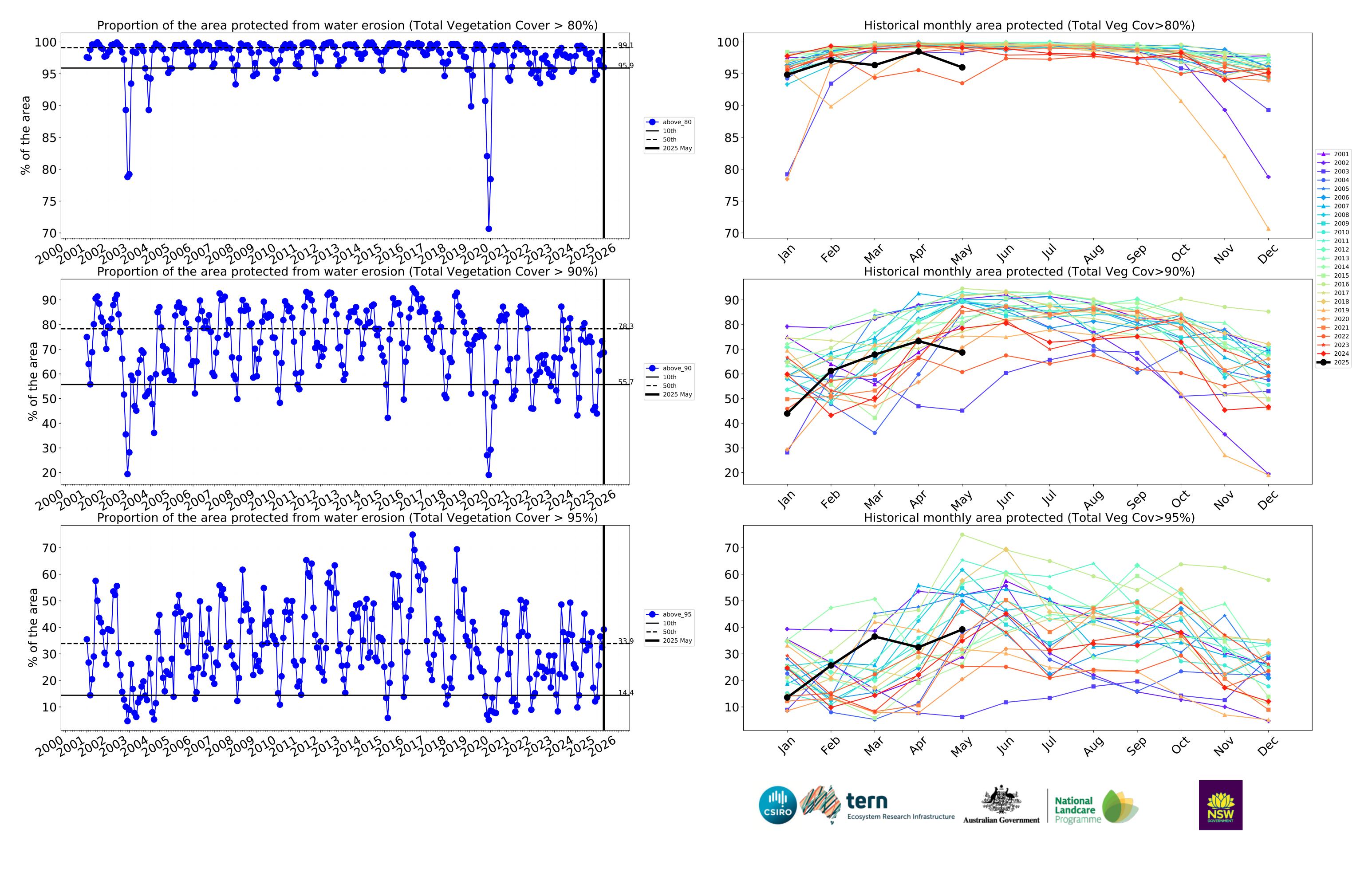


Wind erosion historical monthly area protected (Total Veg Cov >50%)





Water erosion historical monthly area protected (Total Veg Cov>70%)



#### **Grazing Woodland forest**

#### Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

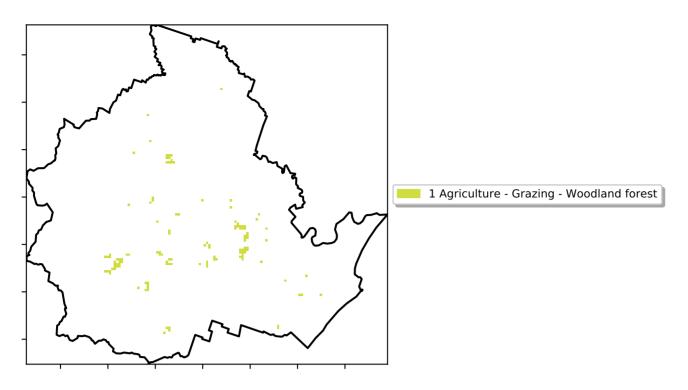
Anomaly show how many percetage points each

pixel is from

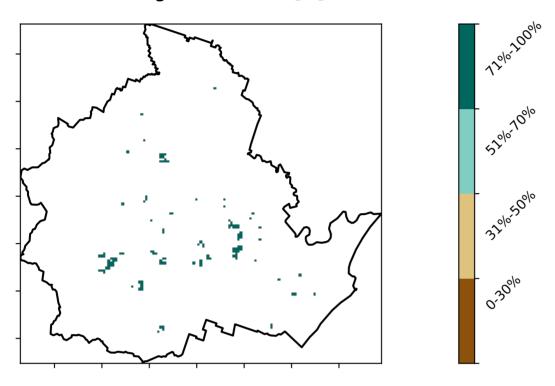
the mean. That is, red pixels are about 20% lower than the mean of that

pixel. The mean is only for the month of the map

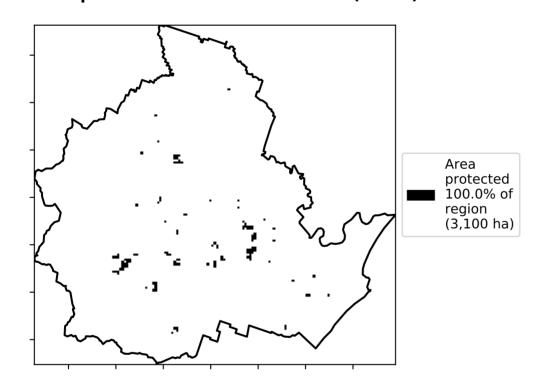
using baseline from 2001 to 2019.



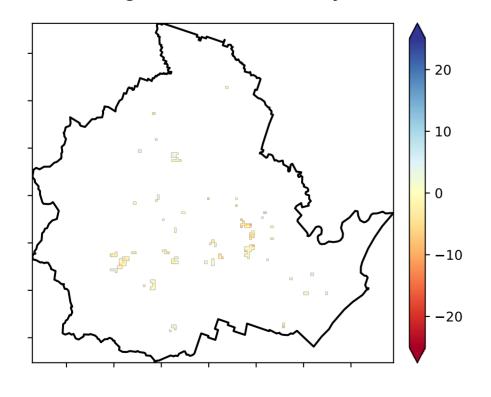
#### **Total Vegetation Cover [%]**



#### % Area protected from water erosion (>70%)

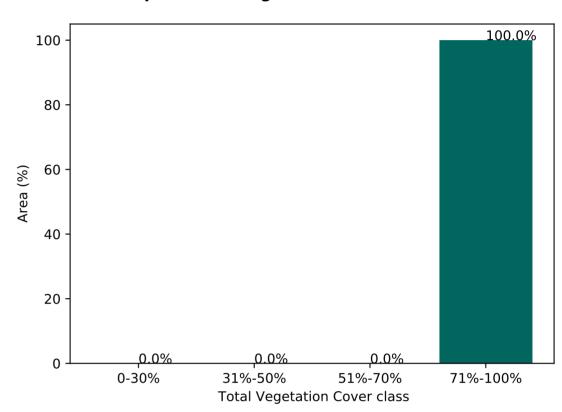


#### Total Vegetation Cover Anomaly [%]

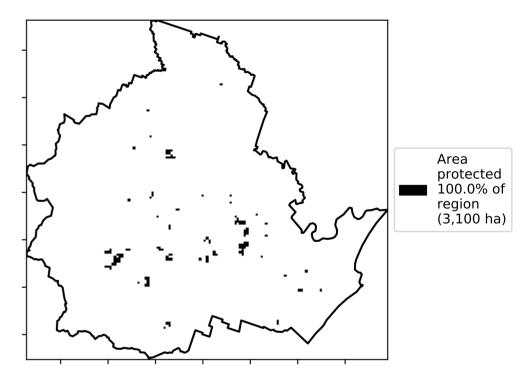


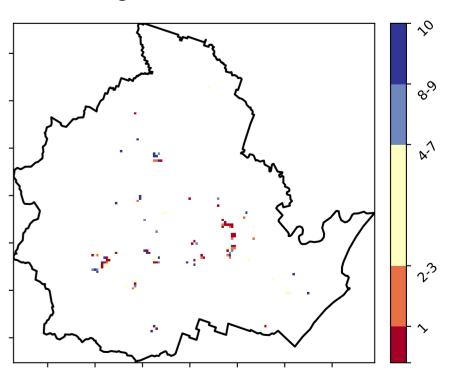
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)





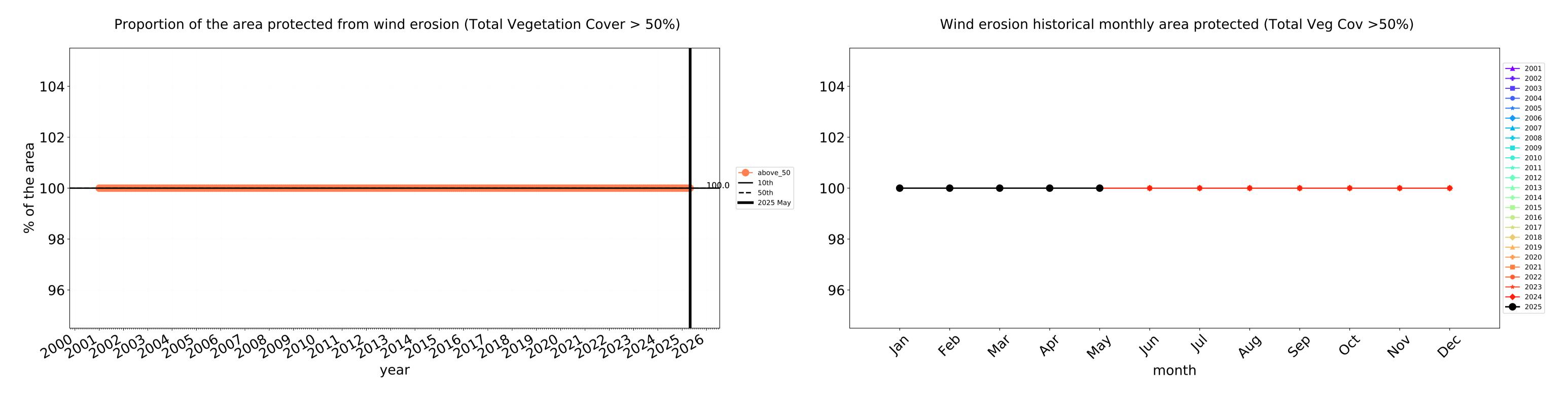


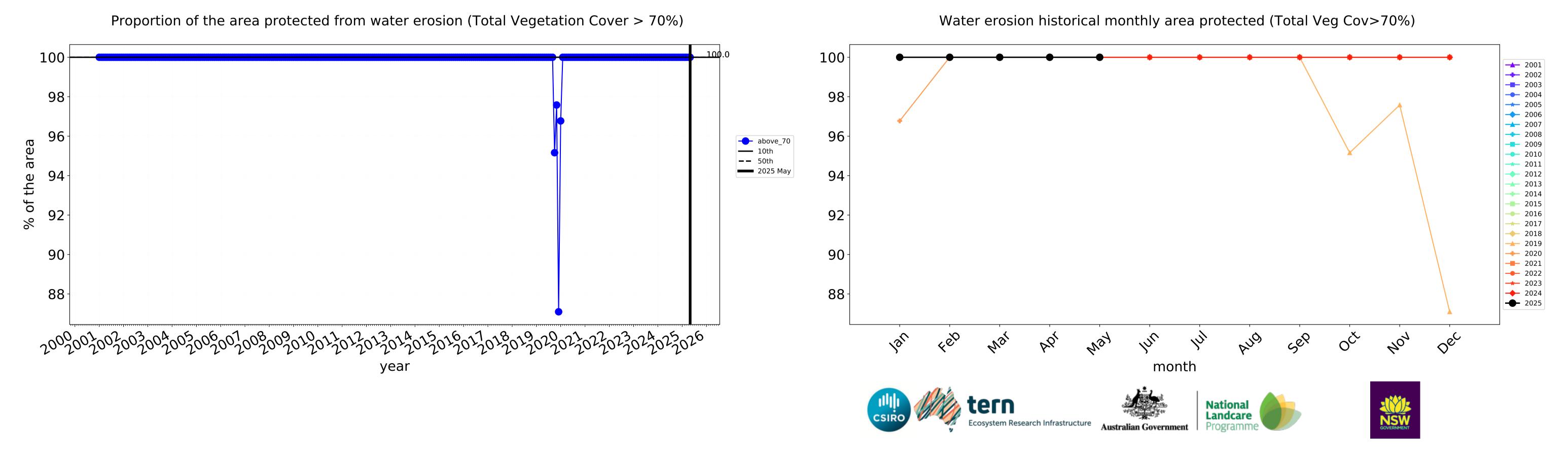


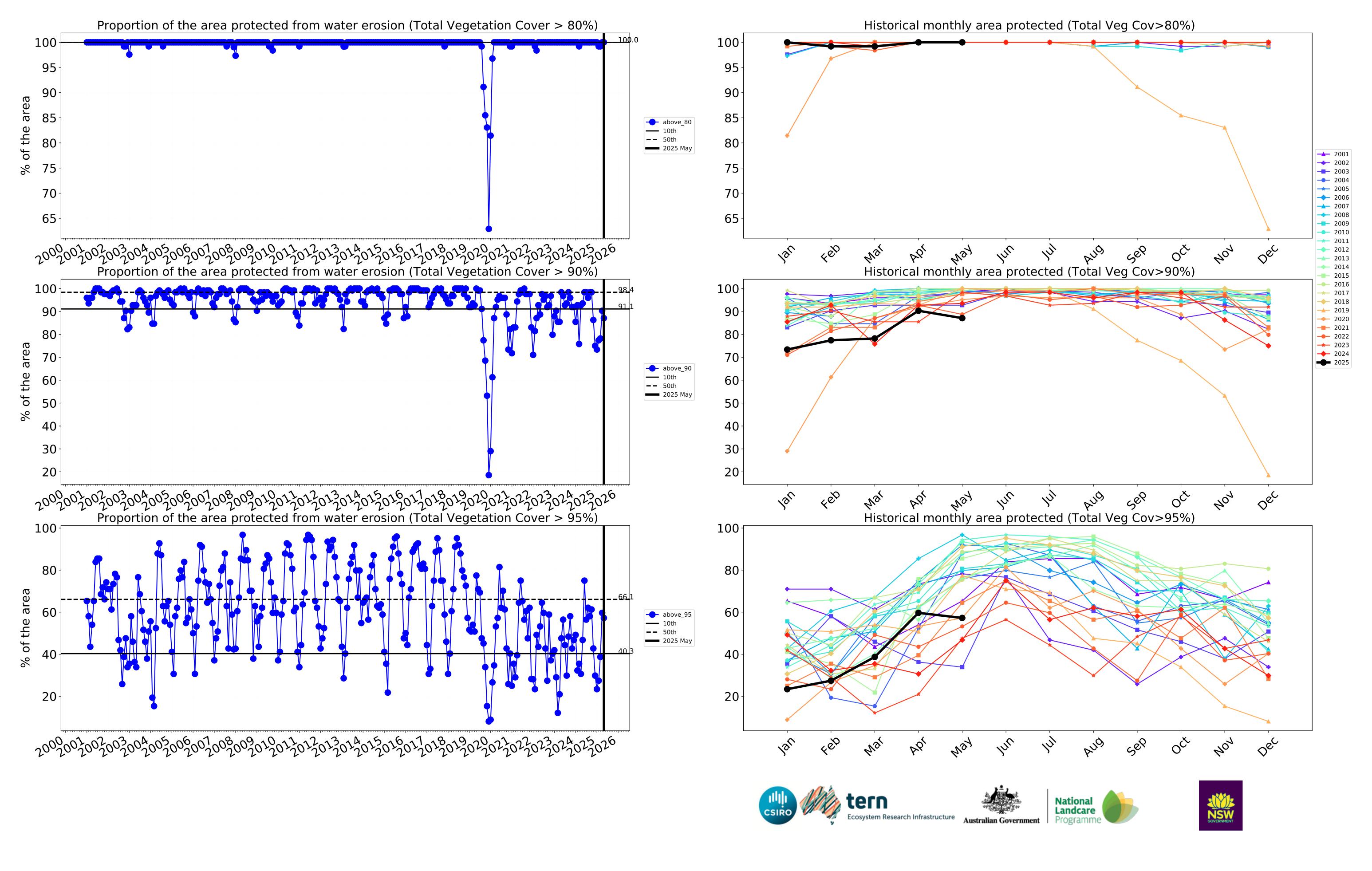




#### **Grazing Woodland forest timeseries**







#### **Grazing - Forest (non woodland)**

#### Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

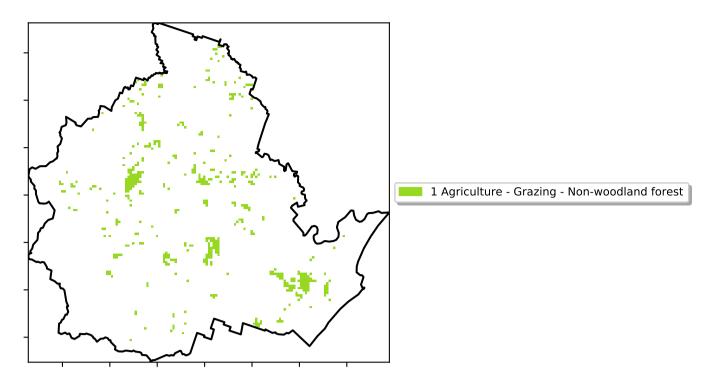
pixel is from

is, red pixels are about 20% lower than the mean of that

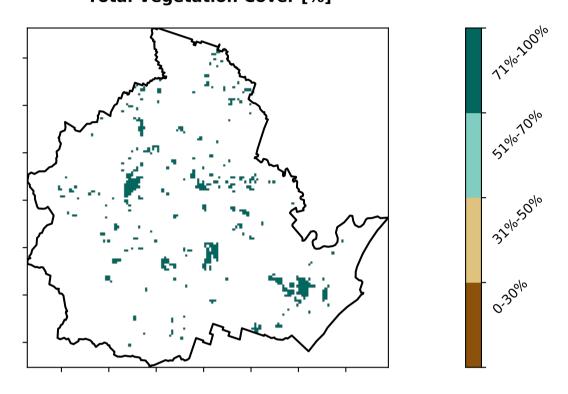
the mean. That

pixel. The mean is only for the month of the map

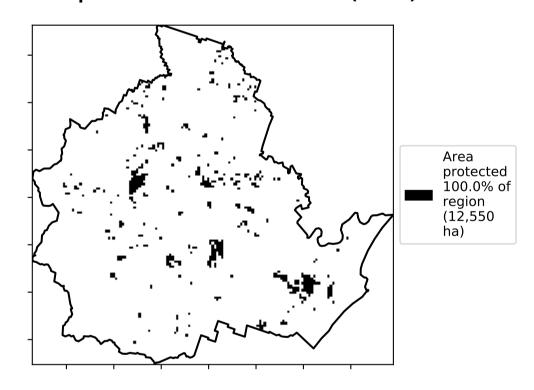
using baseline from 2001 to 2019.



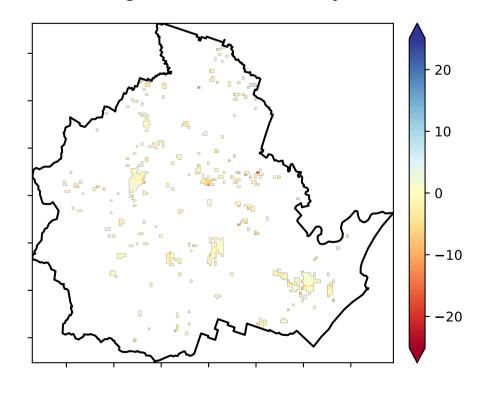
#### **Total Vegetation Cover [%]**



#### % Area protected from water erosion (>70%)

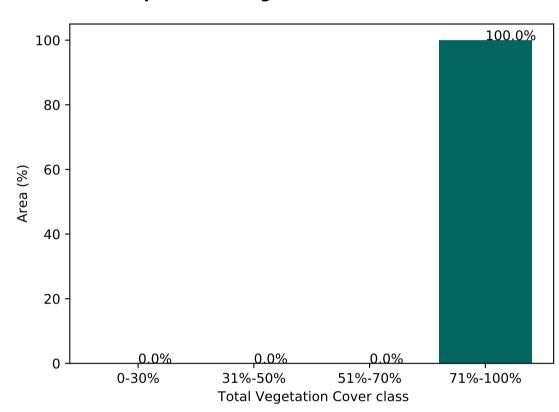


#### Total Vegetation Cover Anomaly [%]

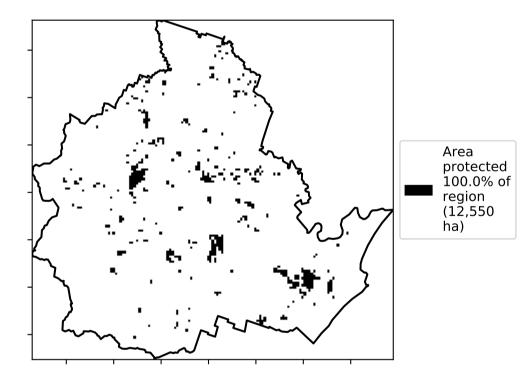


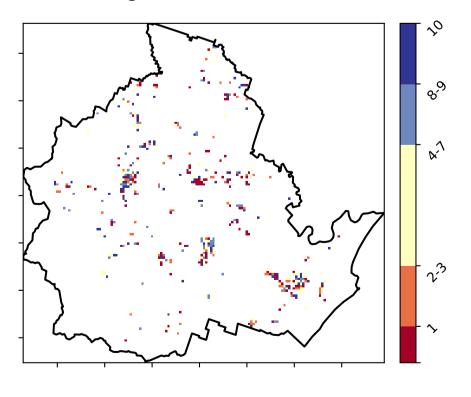
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)



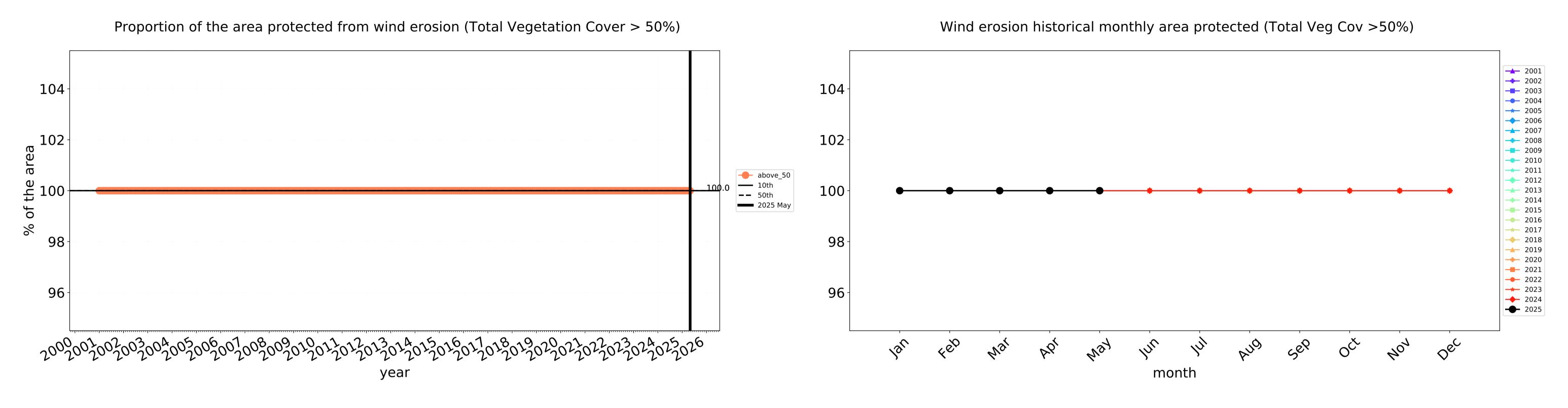


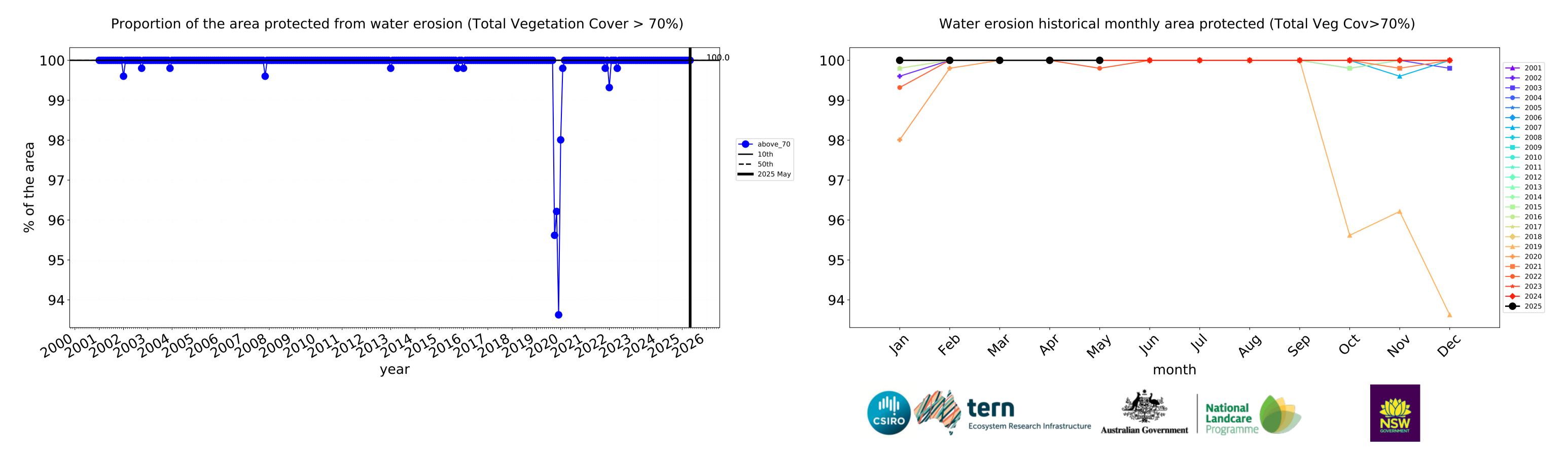


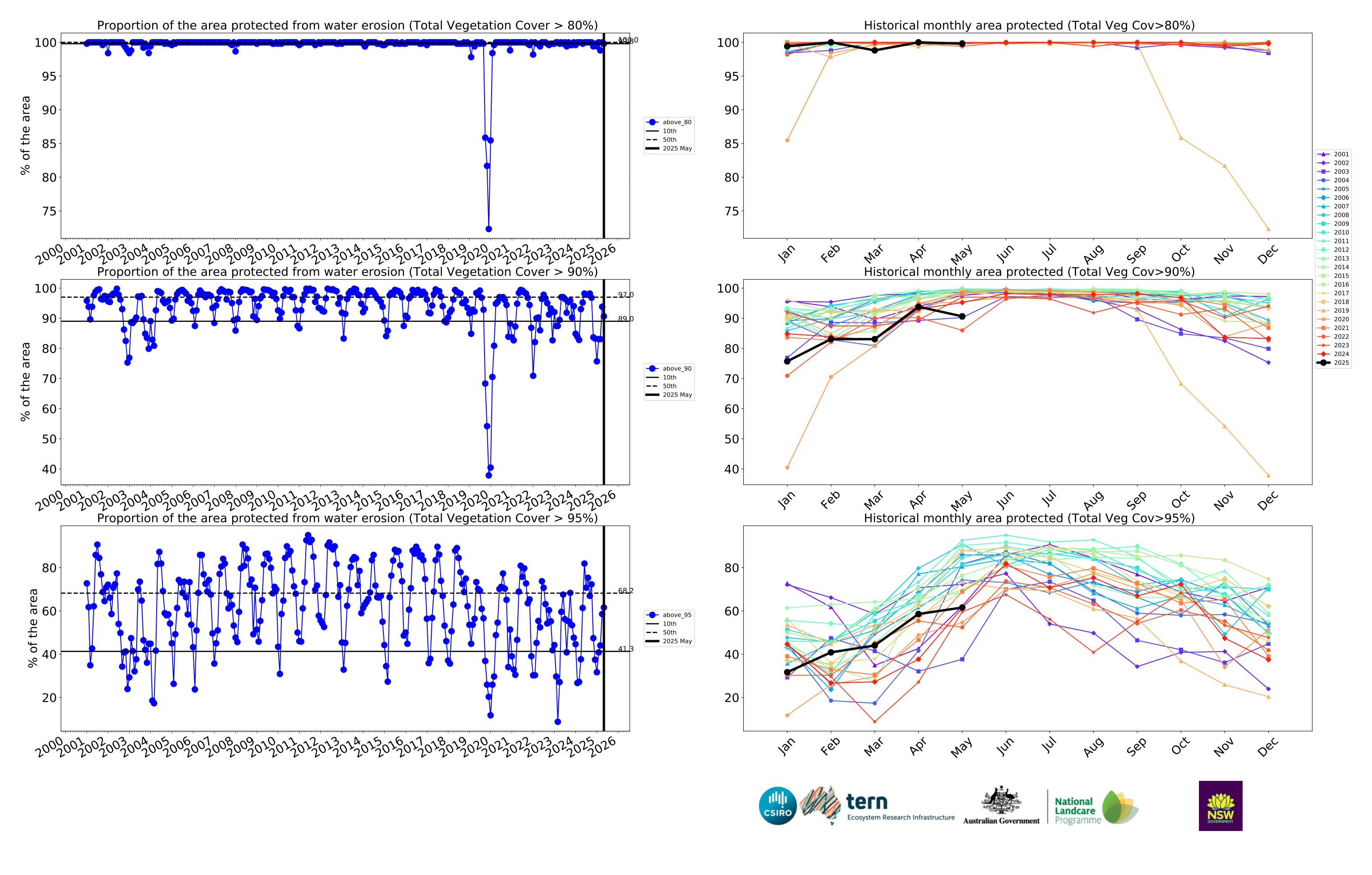












#### **Cropping**

#### Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

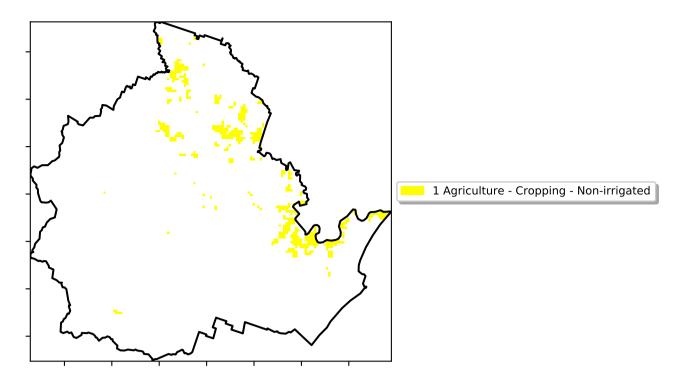
Anomaly show how many percetage points each

pixel is from the mean. That

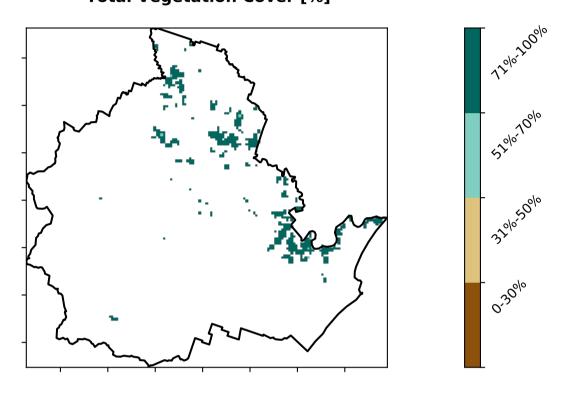
is, red pixels are about 20% lower than the

mean of that

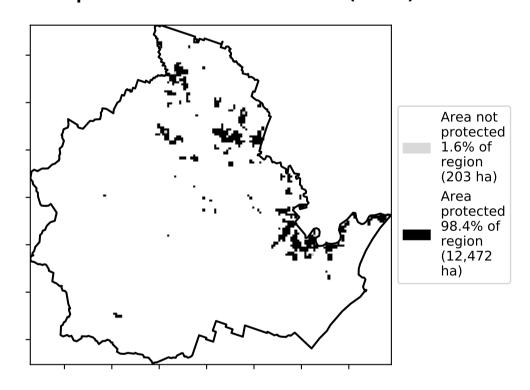
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



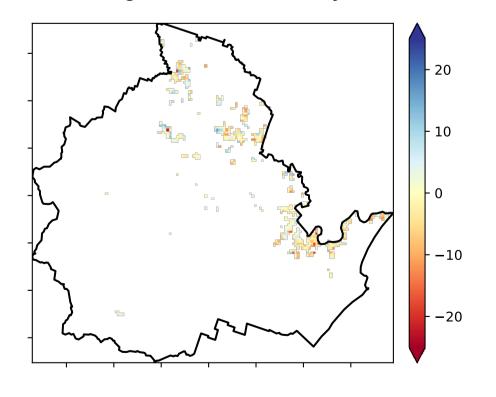
#### **Total Vegetation Cover [%]**



#### % Area protected from water erosion (>70%)

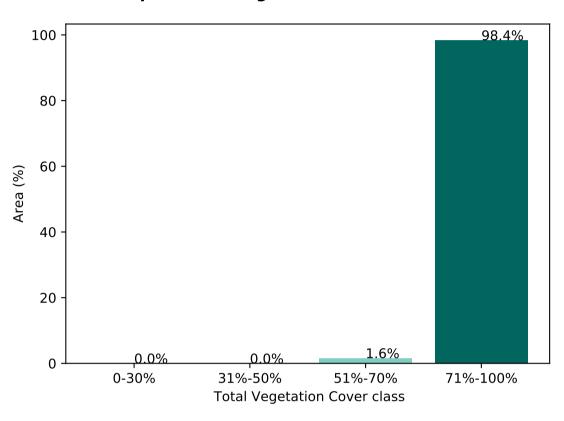


#### Total Vegetation Cover Anomaly [%]

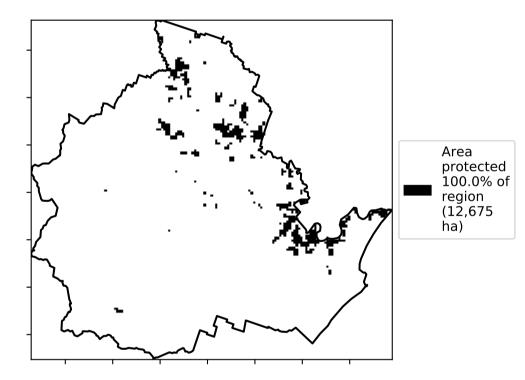


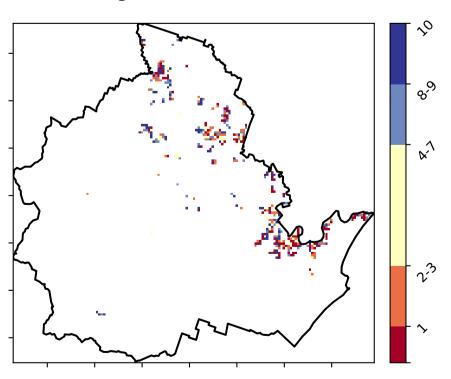
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)





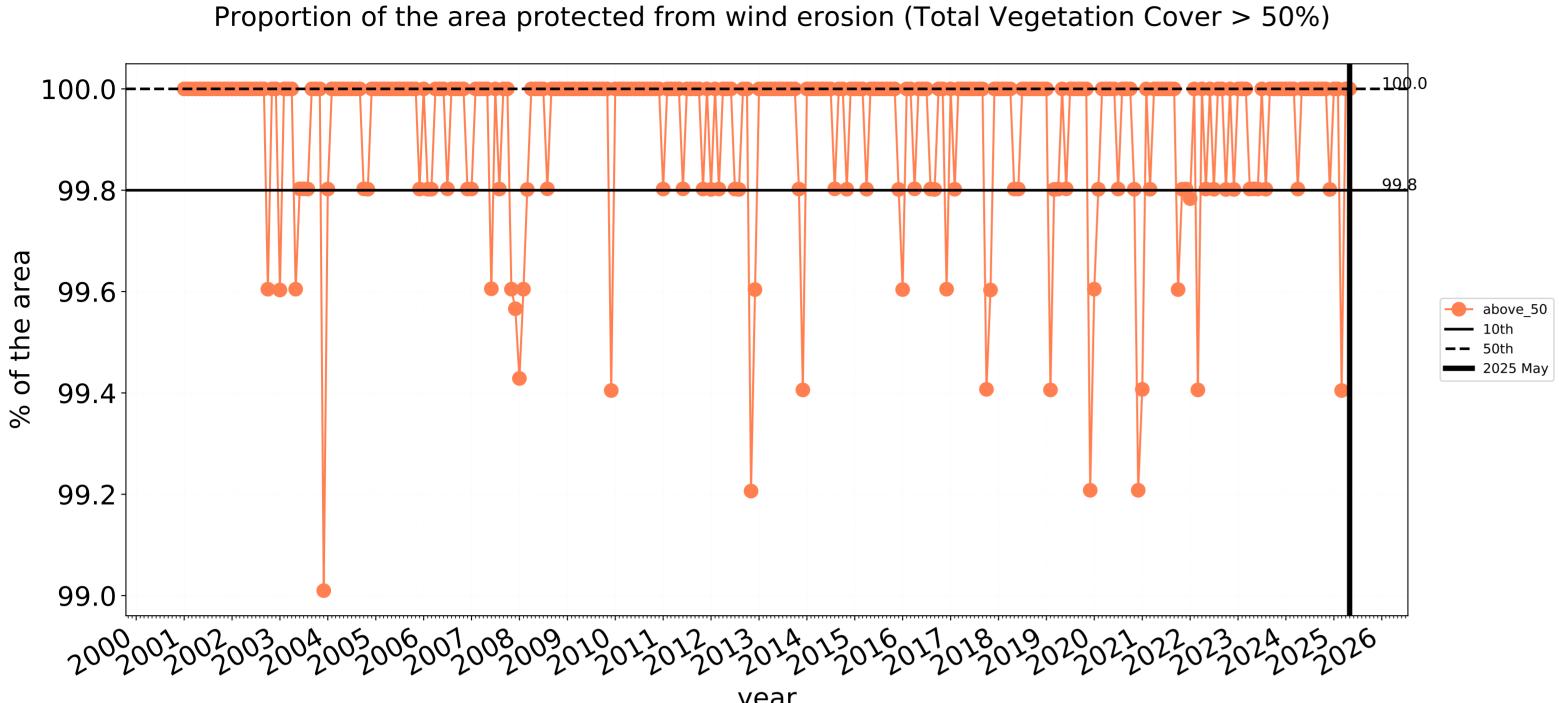


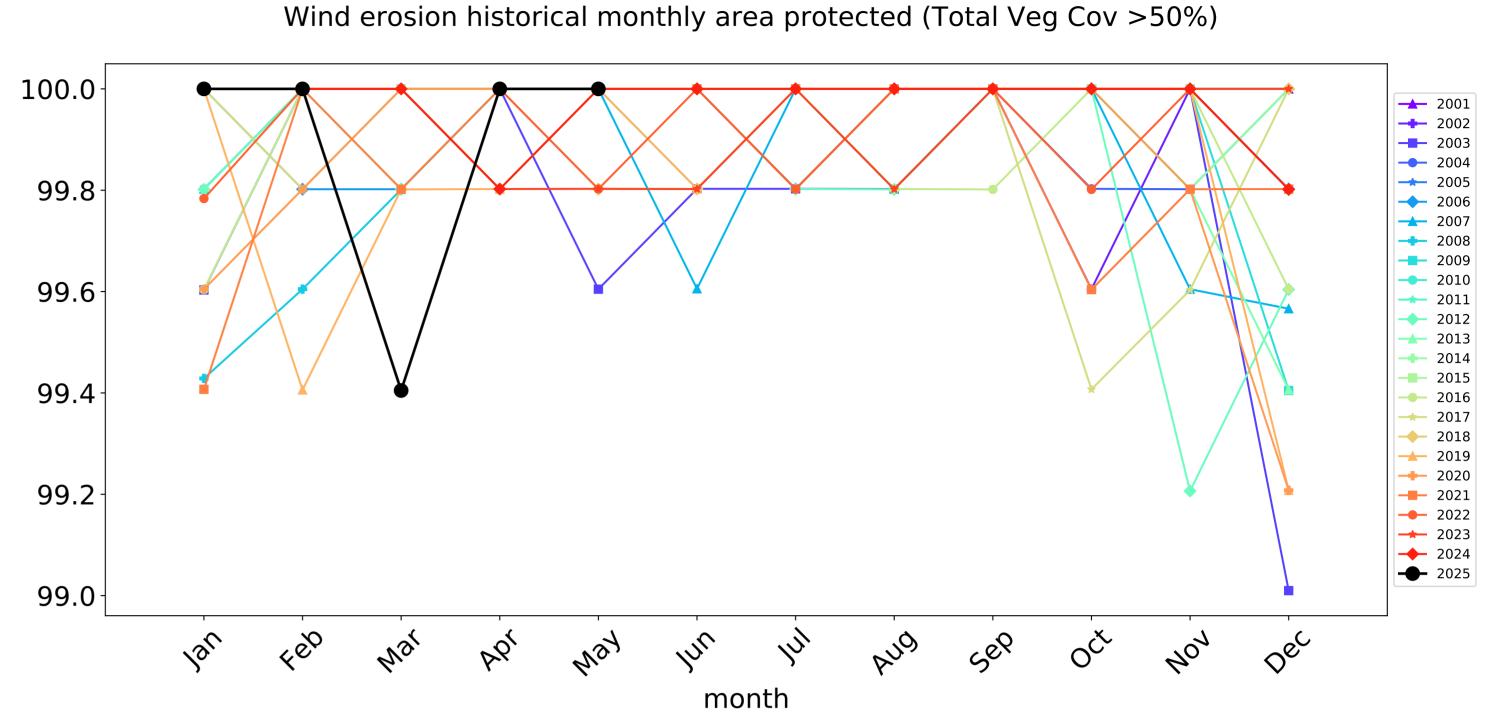


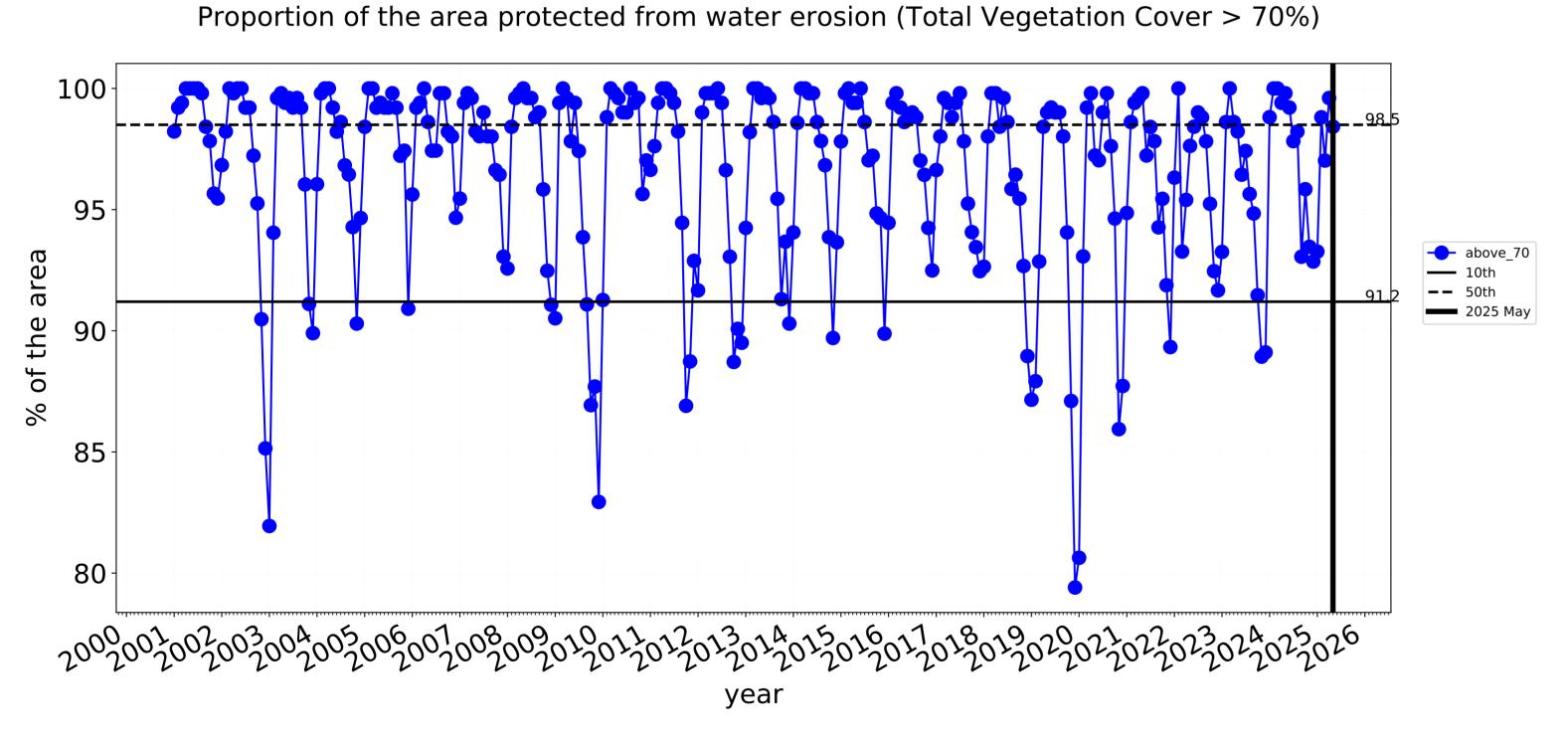


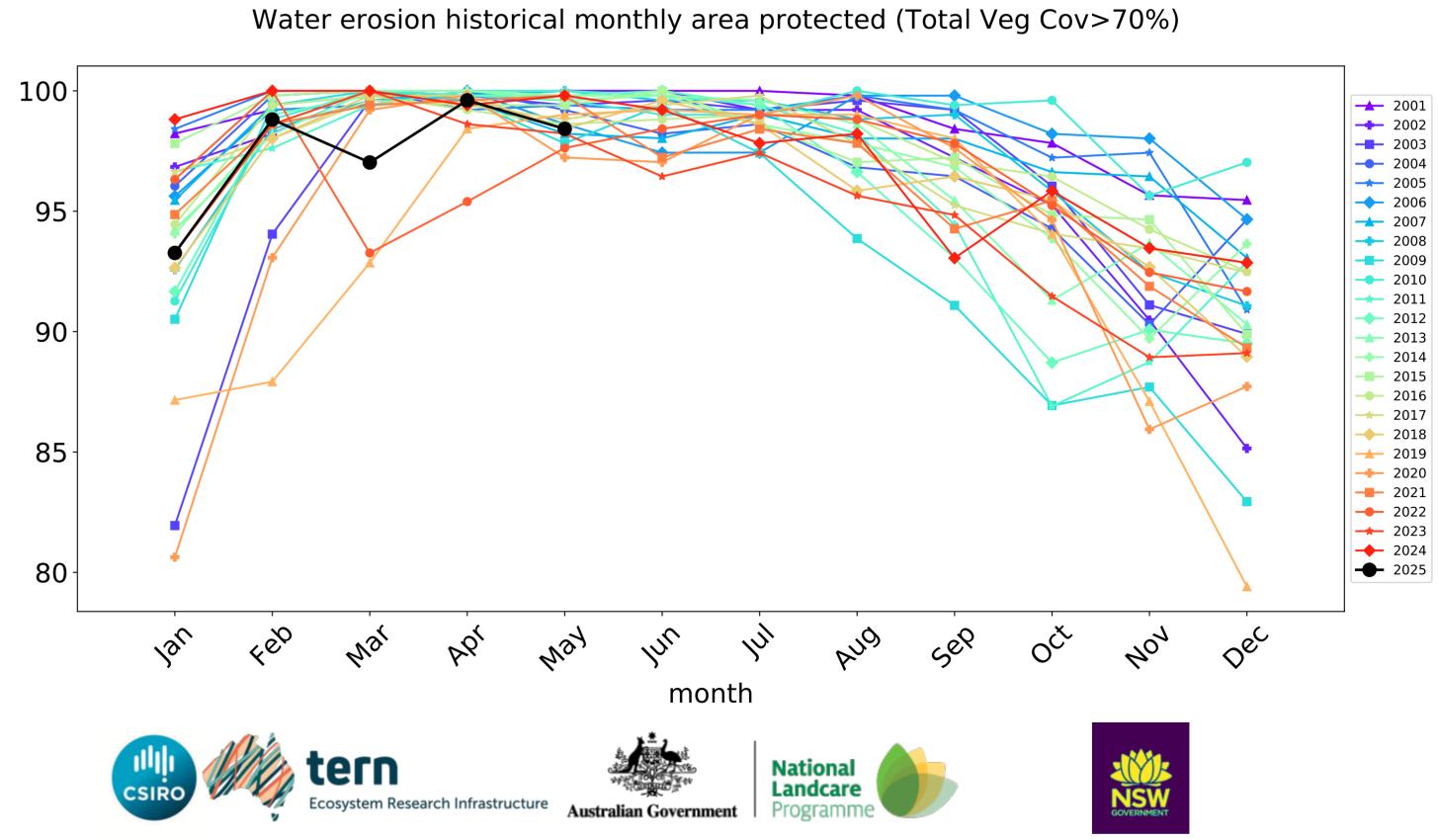


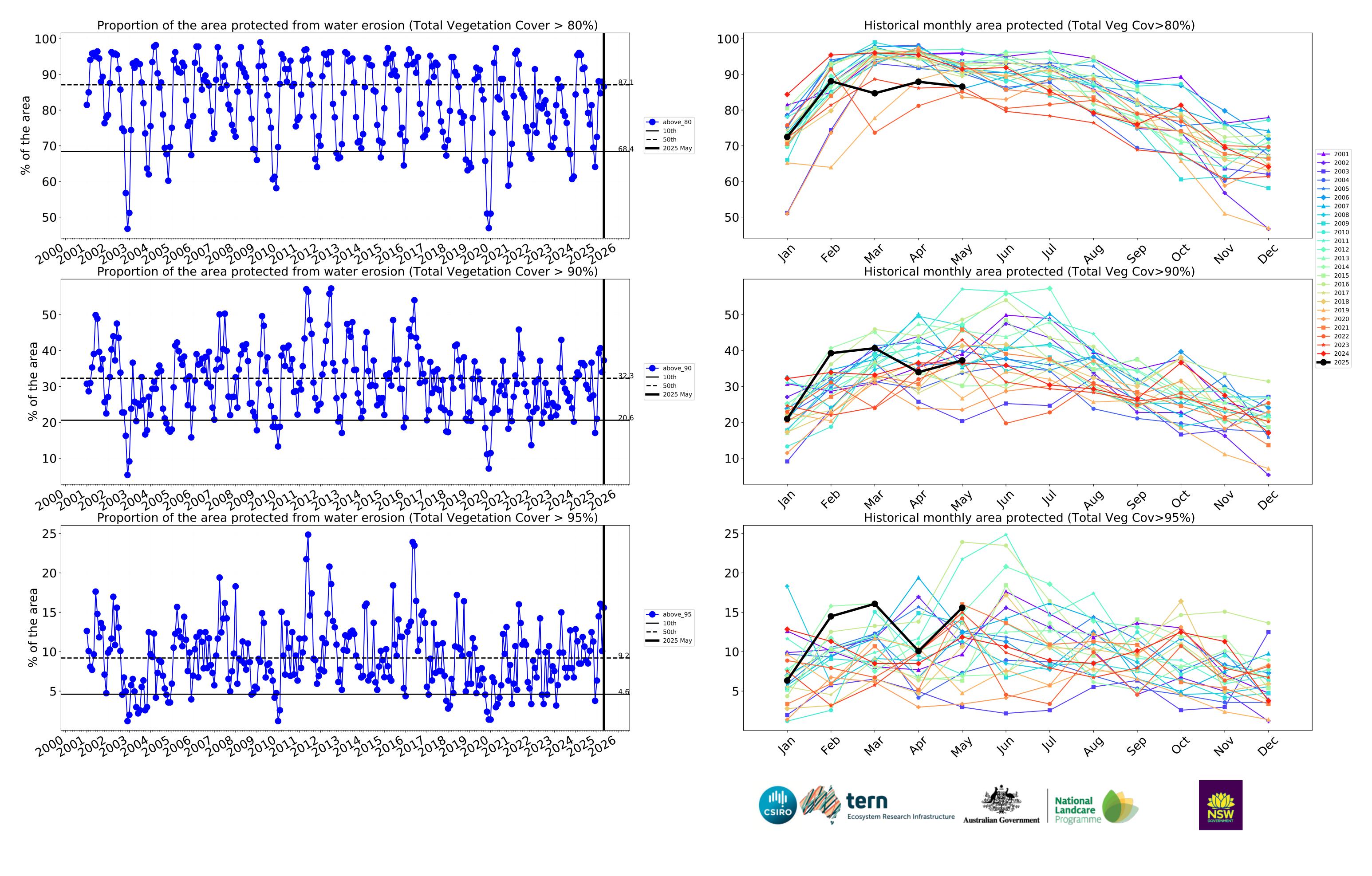
#### **Cropping timeseries**











#### **Production native forests and plantation forests**

#### Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

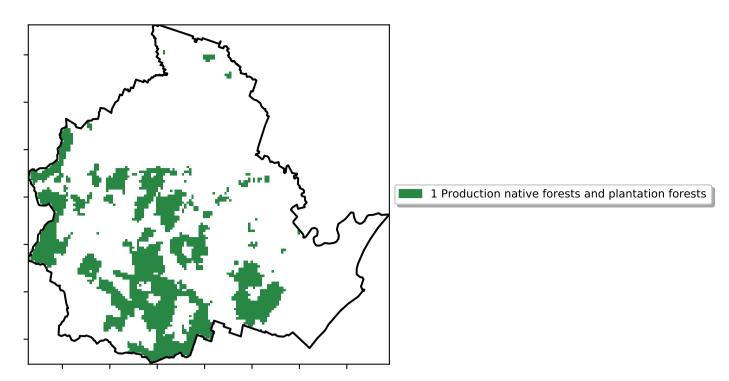
pixel is from the mean. That

is, red pixels are about 20% lower than the

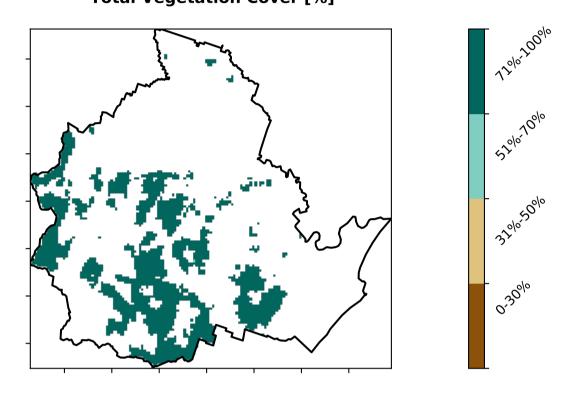
mean of that

using baseline from 2001 to 2019.

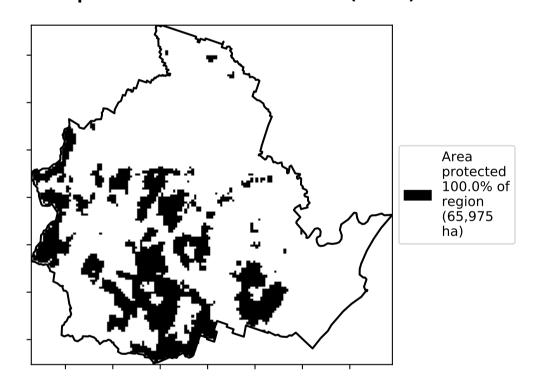
pixel. The mean is only for the month of the map



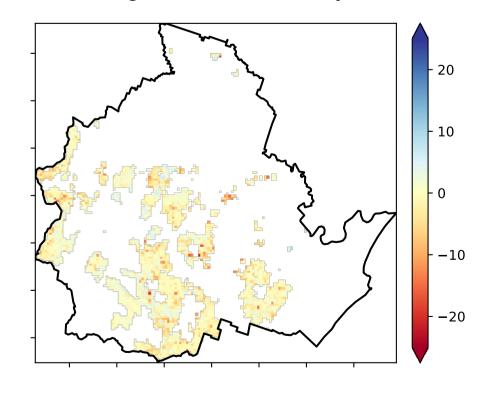
#### **Total Vegetation Cover [%]**



#### % Area protected from water erosion (>70%)

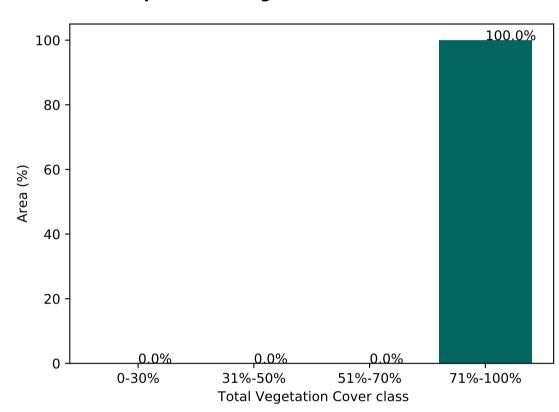


#### Total Vegetation Cover Anomaly [%]

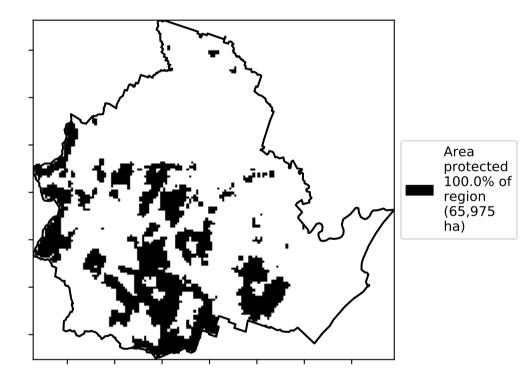


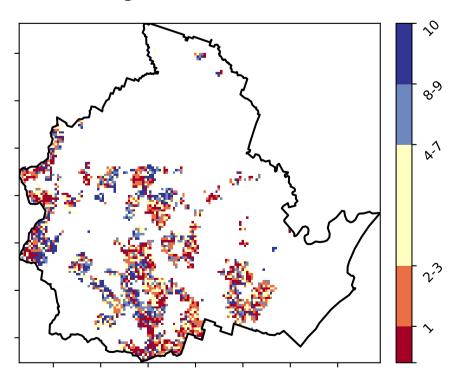
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)





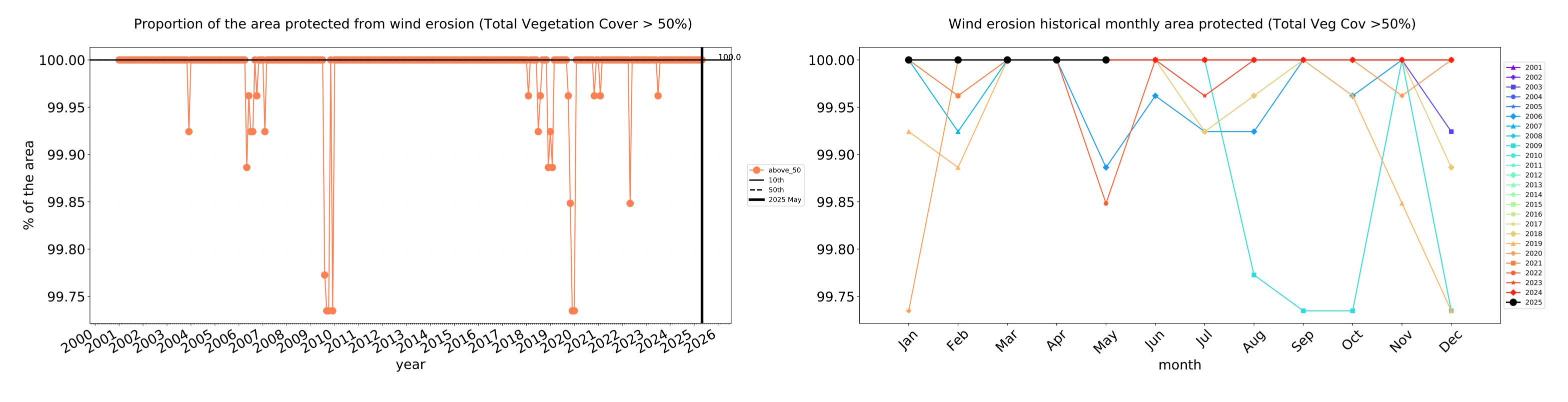


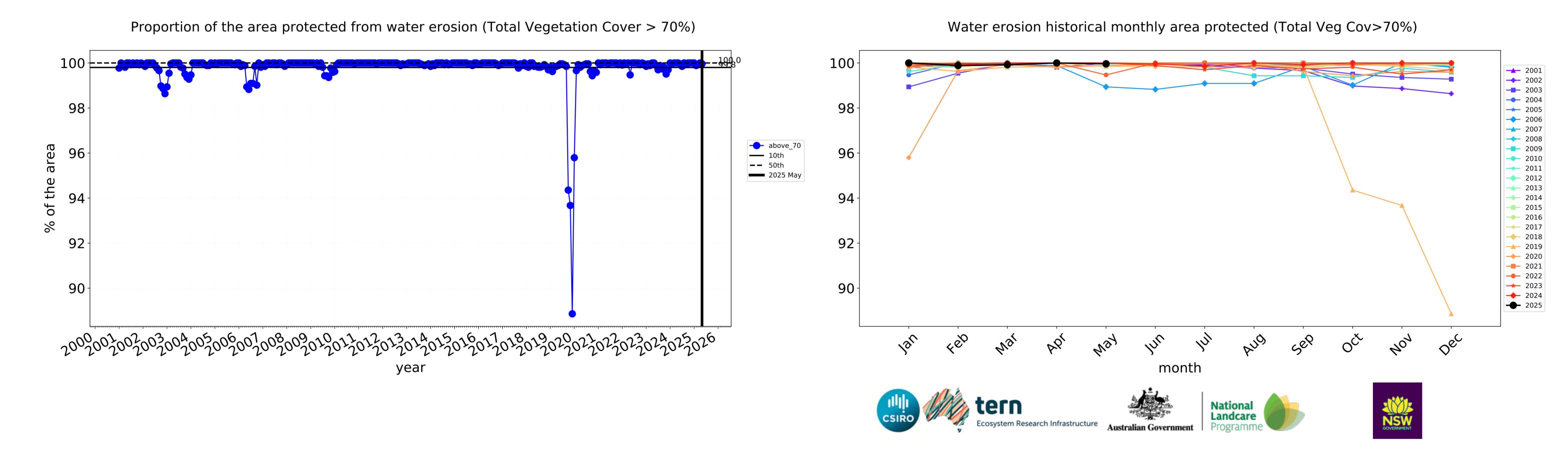


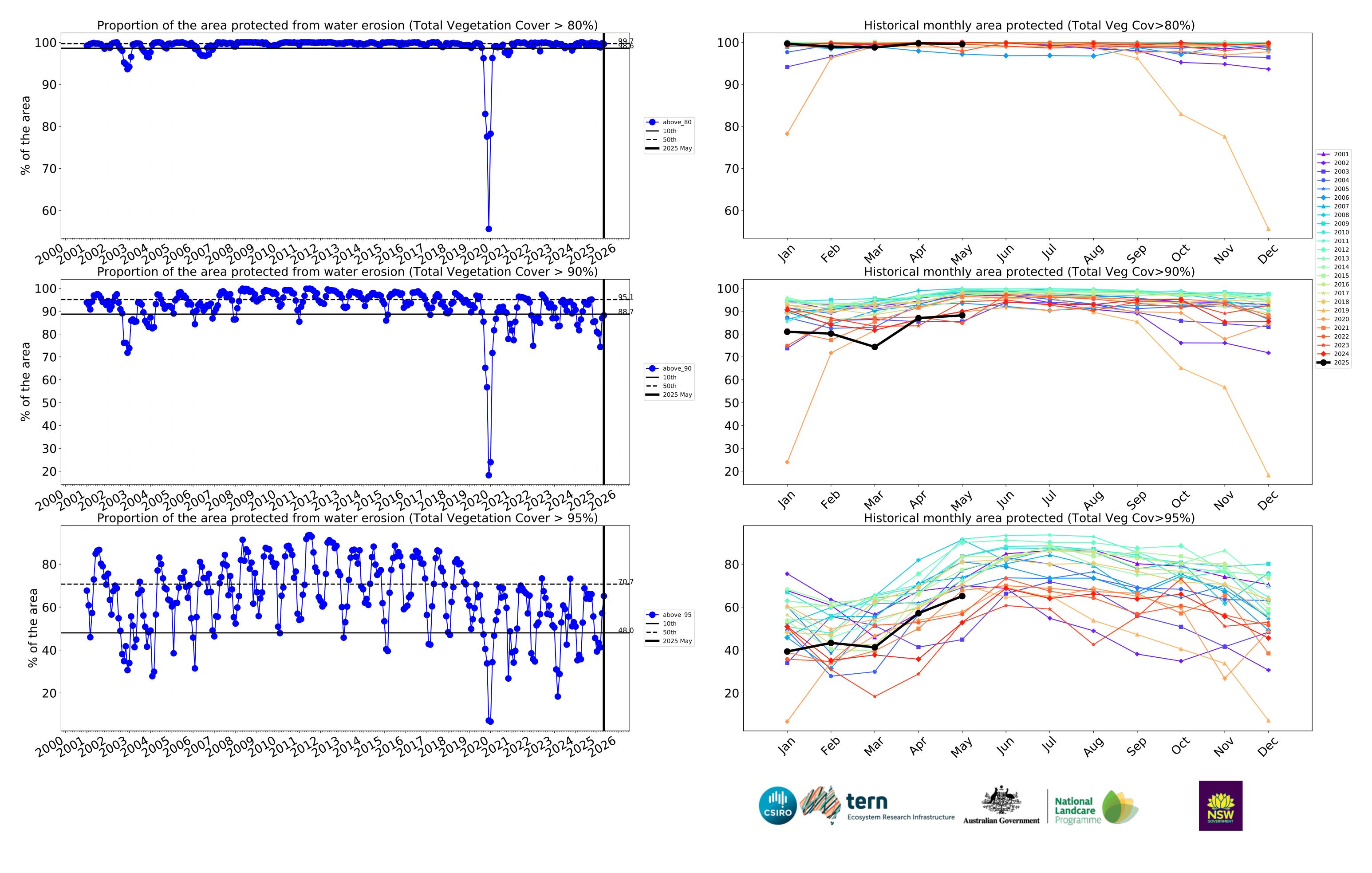




#### **Production native forests and plantation forests timeseries**







# Richmond\_Valley\_(A) (303,950 ha and no data 814 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	303,950	100.0% 303,925	99.9% 303,750	99.5% 302,350	97.2% 295,550	78.6% 239,025	52.9% 160,725
Conservation and natural environments	111,600	100.0% 111,575	100.0% 111,550	99.8% 111,350	99.0% 110,525	87.1% 97,150	62.7% 70,000
Conservation and natural environments non forest	8,425	99.7% 8,400	99.4% 8,375	97.3% 8,200	89.3% 7,525	51.6% 4,350	27.3% 2,300
Conservation and natural environments Woodland forest	9,875	100.0% 9,875	100.0% 9,875	100.0% 9,875	99.7% 9,850	83.5% 8,250	47.1% 4,650
natural environments Forest (non woodland)	93,300	100.0% 93,300	100.0% 93,300	100.0% 93,275	99.8% 93,150	90.6% 84,550	67.6% 63,050
Agriculture	115,350	100.0% 115,350	100.0% 115,325	99.5% 114,725	95.5% 110,125	67.9% 78,325	39.3% 45,325
Grazing	100,075	100.0% 100,075	100.0% 100,050	99.6% 99,650	96.6% 96,675	72.0% 72,075	42.6% 42,600
Grazing non forest	84,425	100.0% 84,425	100.0% 84,400	99.5% 84,000	96.0% 81,050	68.7% 58,000	39.2% 33,100
Grazing Woodland forest	3,100	100.0% 3,100	100.0% 3,100	100.0% 3,100	100.0% 3,100	87.1% 2,700	57.3% 1,775
Grazing - Forest (non woodland)	12,550	100.0% 12,550	100.0% 12,550	100.0% 12,550	99.8% 12,525	90.6% 11,375	61.6% 7,725
Cropping	12,675	100.0% 12,675	100.0% 12,675	98.4% 12,475	86.6% 10,975	37.3% 4,725	15.6% 1,975
Production native forests and plantation forests	65,975	100.0% 65,975	100.0% 65,975	100.0% 65,950	99.6% 65,700	88.2% 58,175	65.1% 42,975







