# Total vegetation cover soil protection Region:LGA Shoalhaven\_(C) 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.

**Date: May 2025** 

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



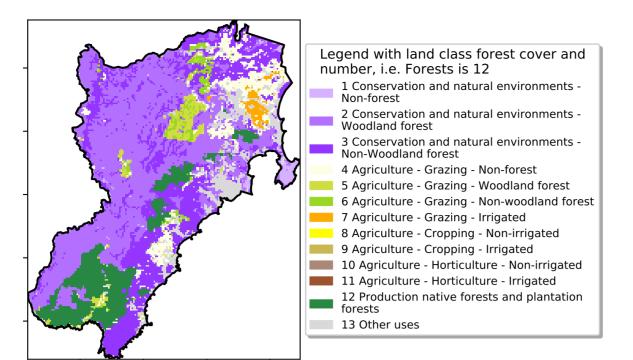






# **Vegetation Cover May 2025**

#### 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

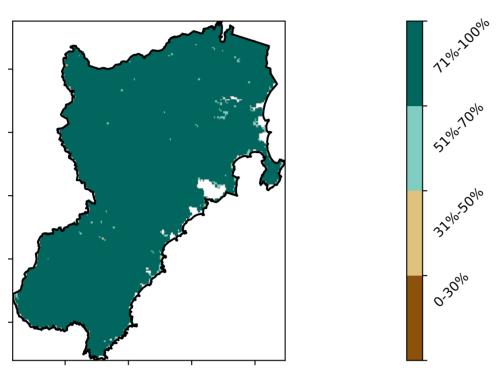
is, red pixels are about 20% lower than the

mean of that

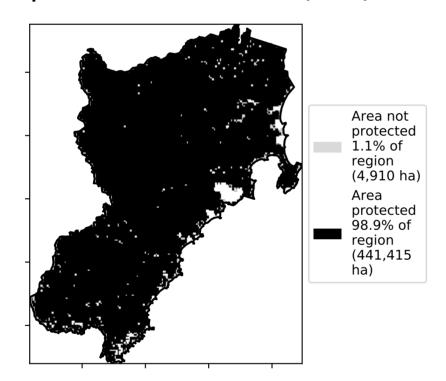
using baseline from 2001 to 2019.

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

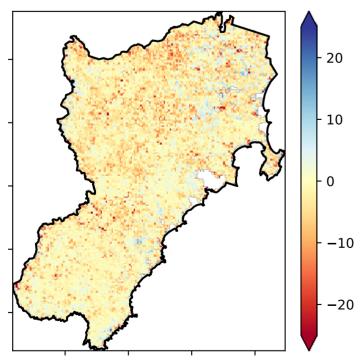
#### **Total Vegetation Cover [%]**



% Area protected from water erosion (>70%)

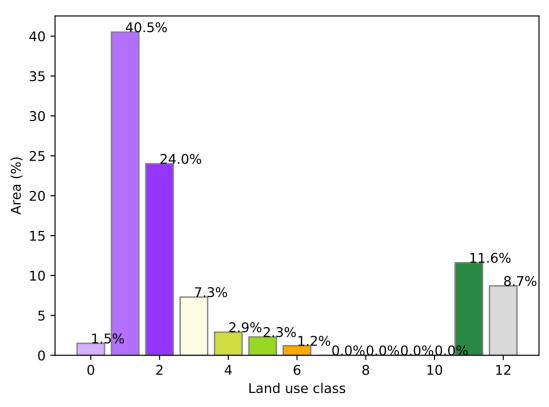


Total Vegetation Cover Anomaly [%]

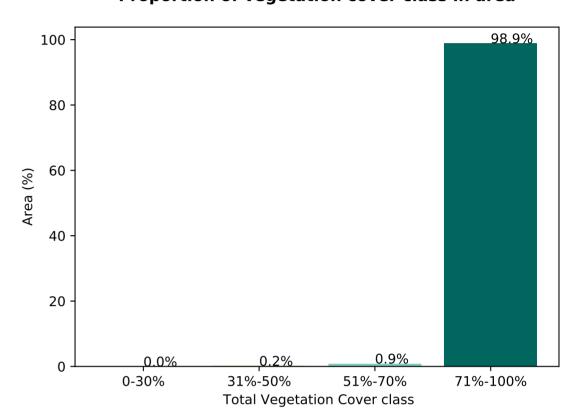


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

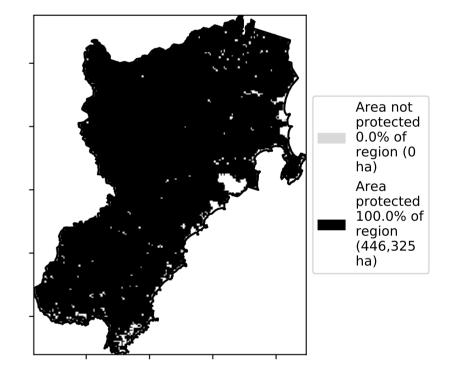
#### Proportion of each land class in area



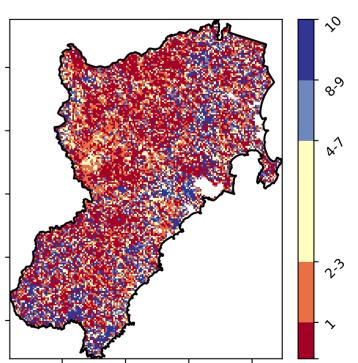
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]

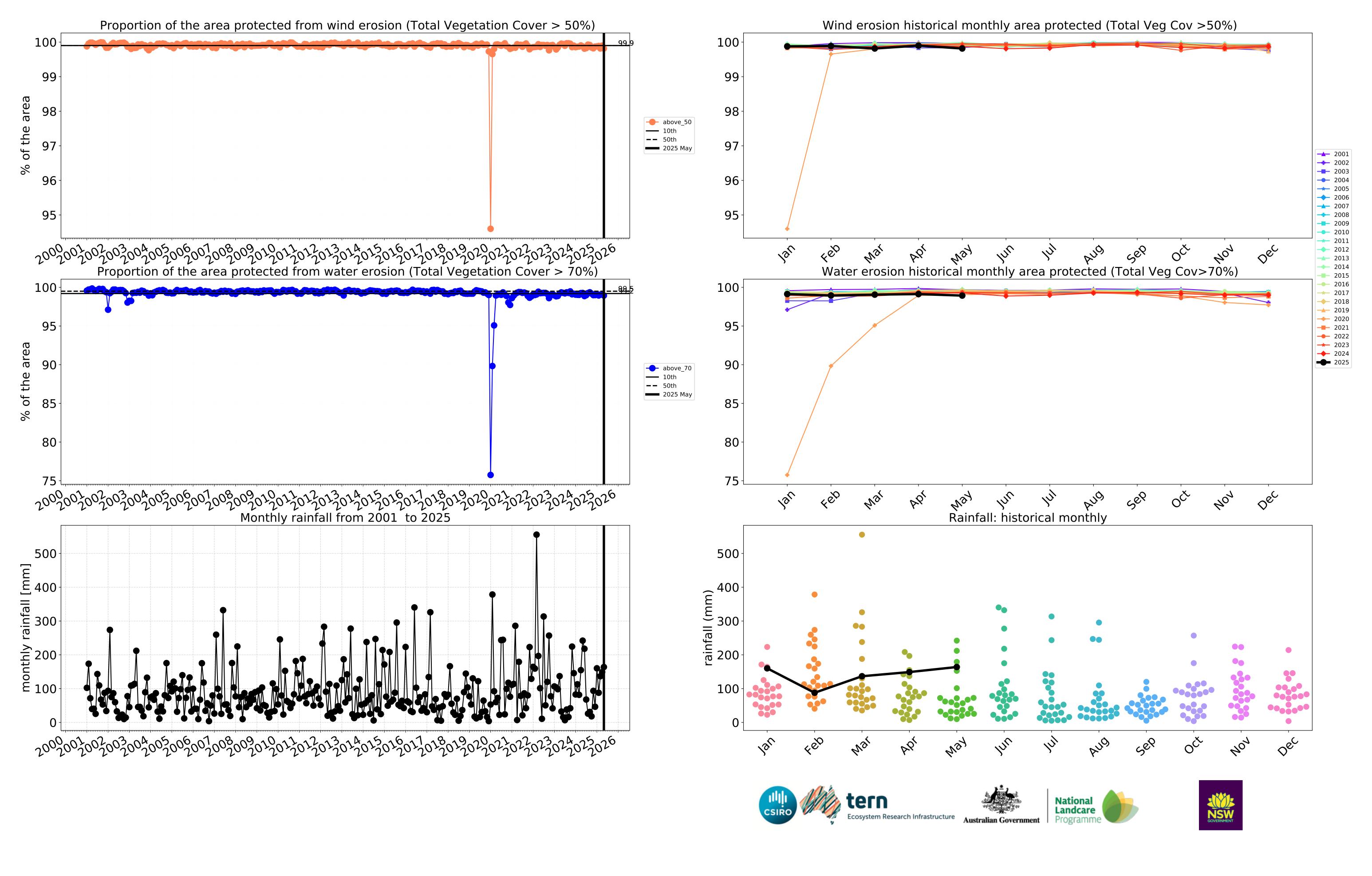


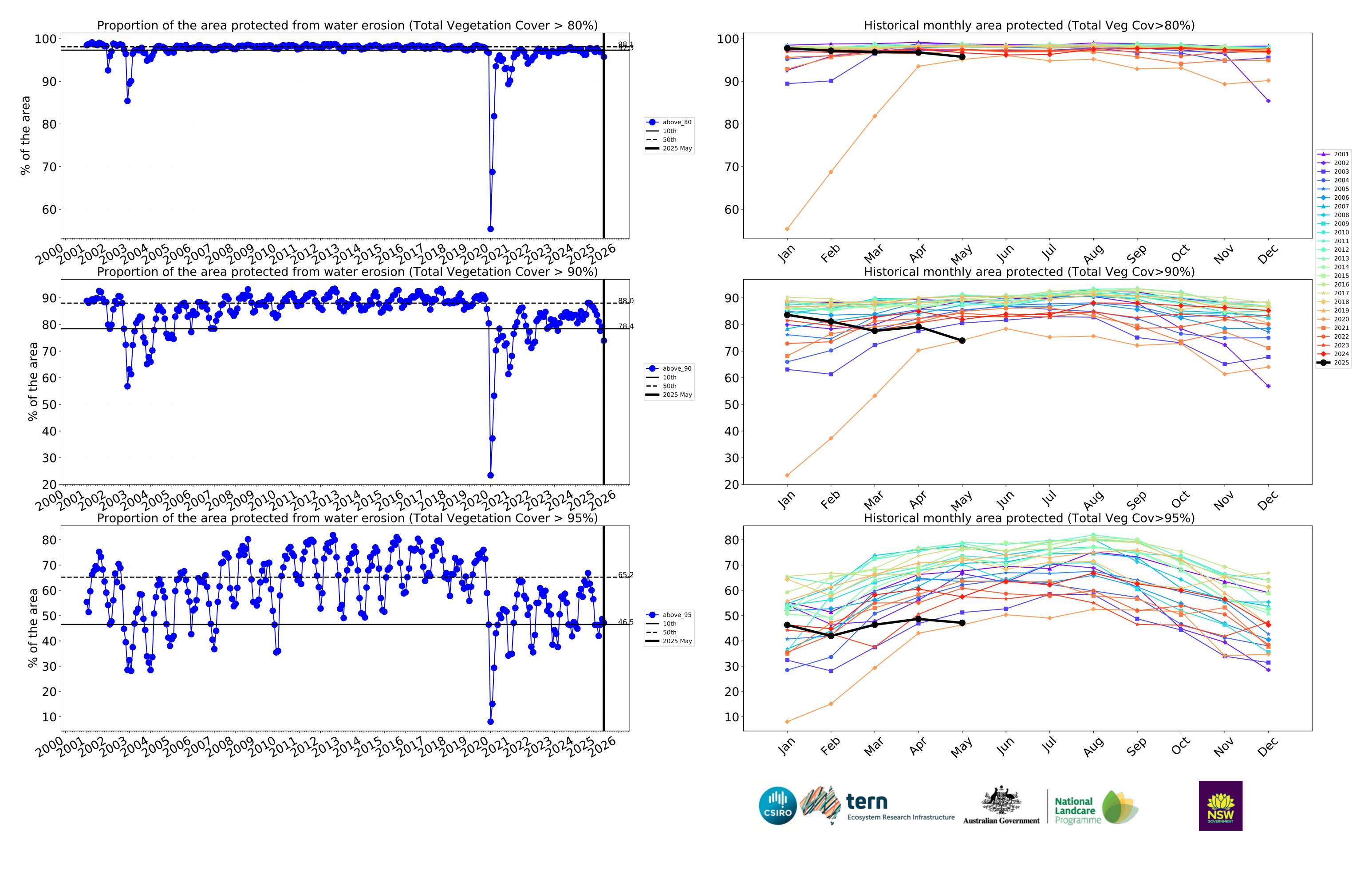












# **Conservation and natural environments**

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

Catchment Scale Land Use of Australia

(2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

pixel is from the mean. That

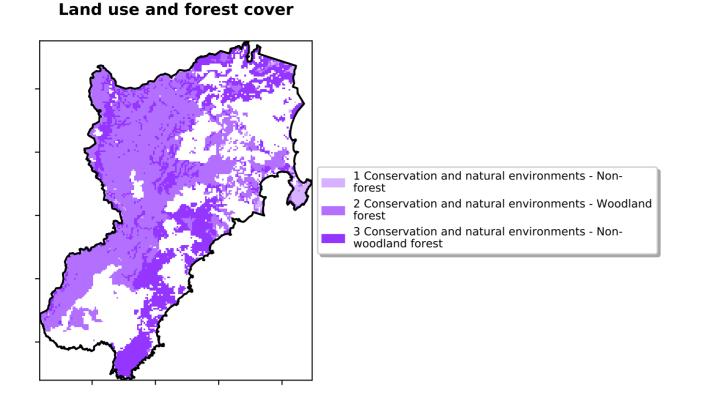
is, red pixels are about 20%

lower than the mean of that

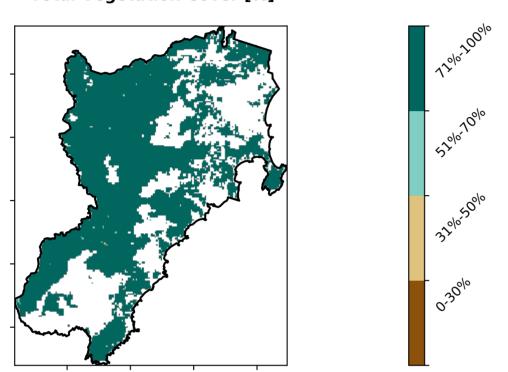
pixel. The mean

using baseline from 2001 to 2019.

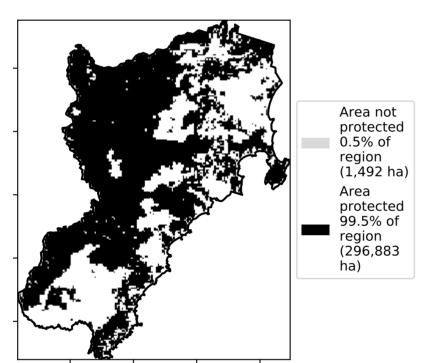
is only for the month of the map



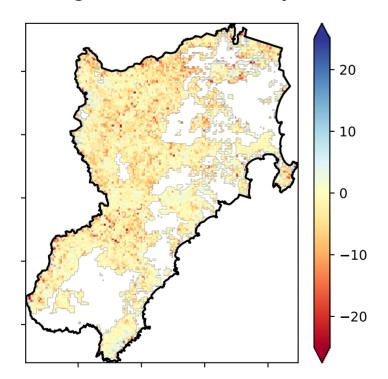
#### **Total Vegetation Cover [%]**



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

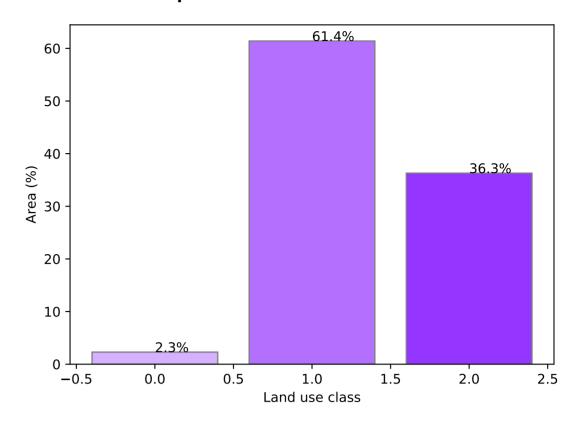


#### **Total Vegetation Cover Anomaly [%]**

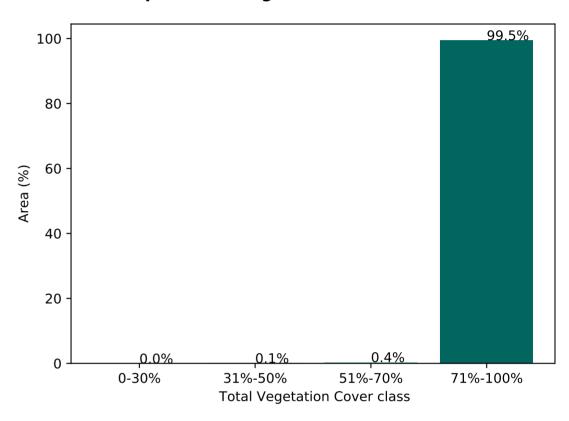


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

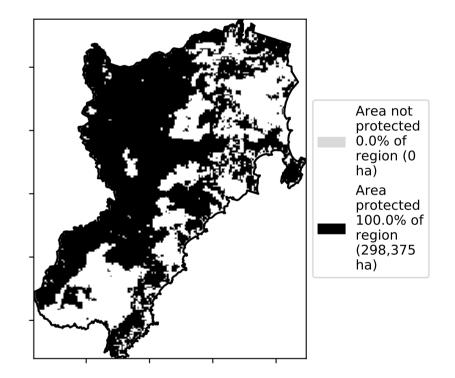
#### Proportion of each land class in area

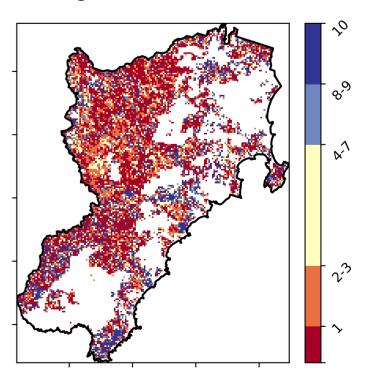


#### **Proportion of vegetation cover class in area**



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





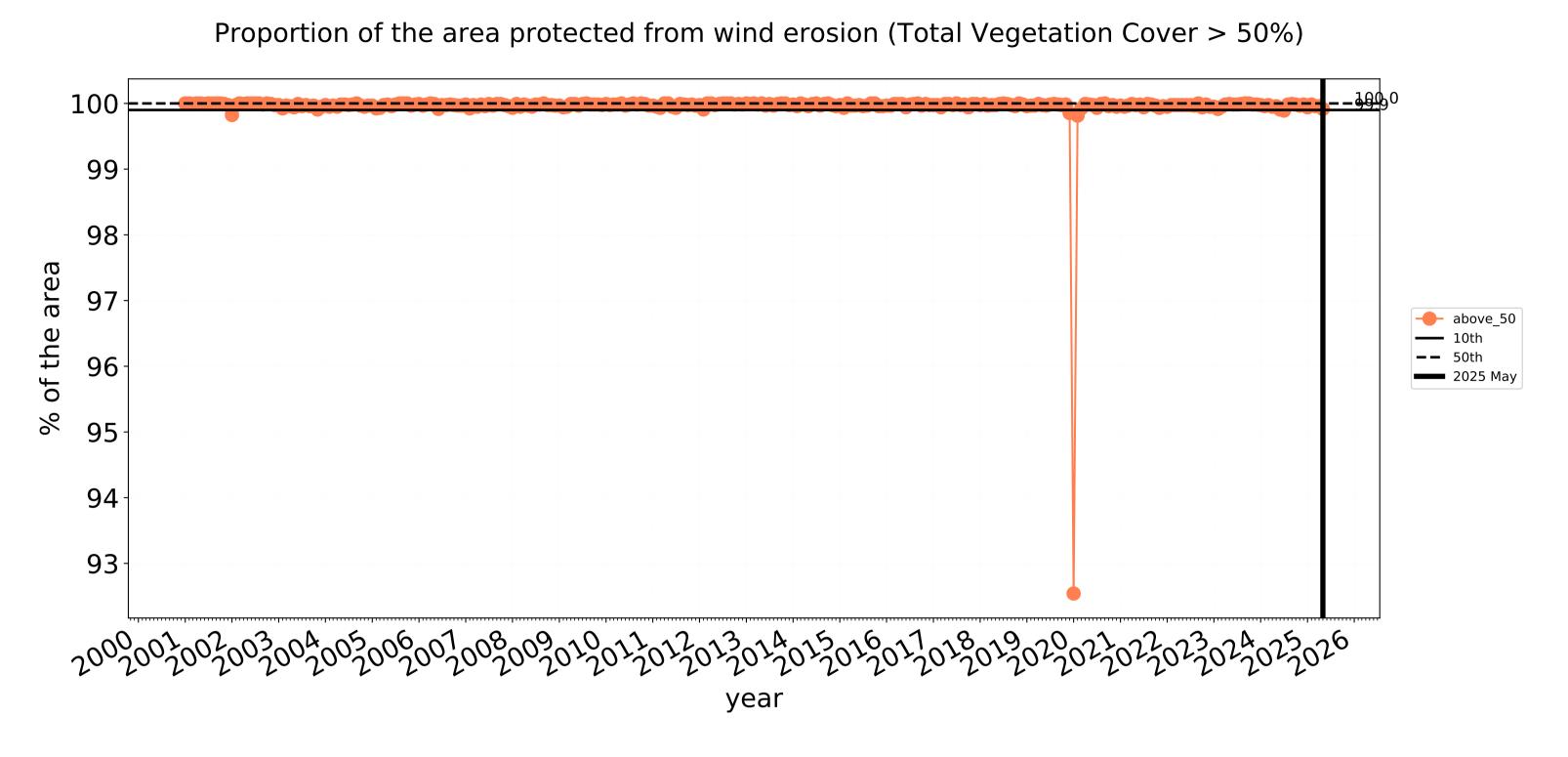


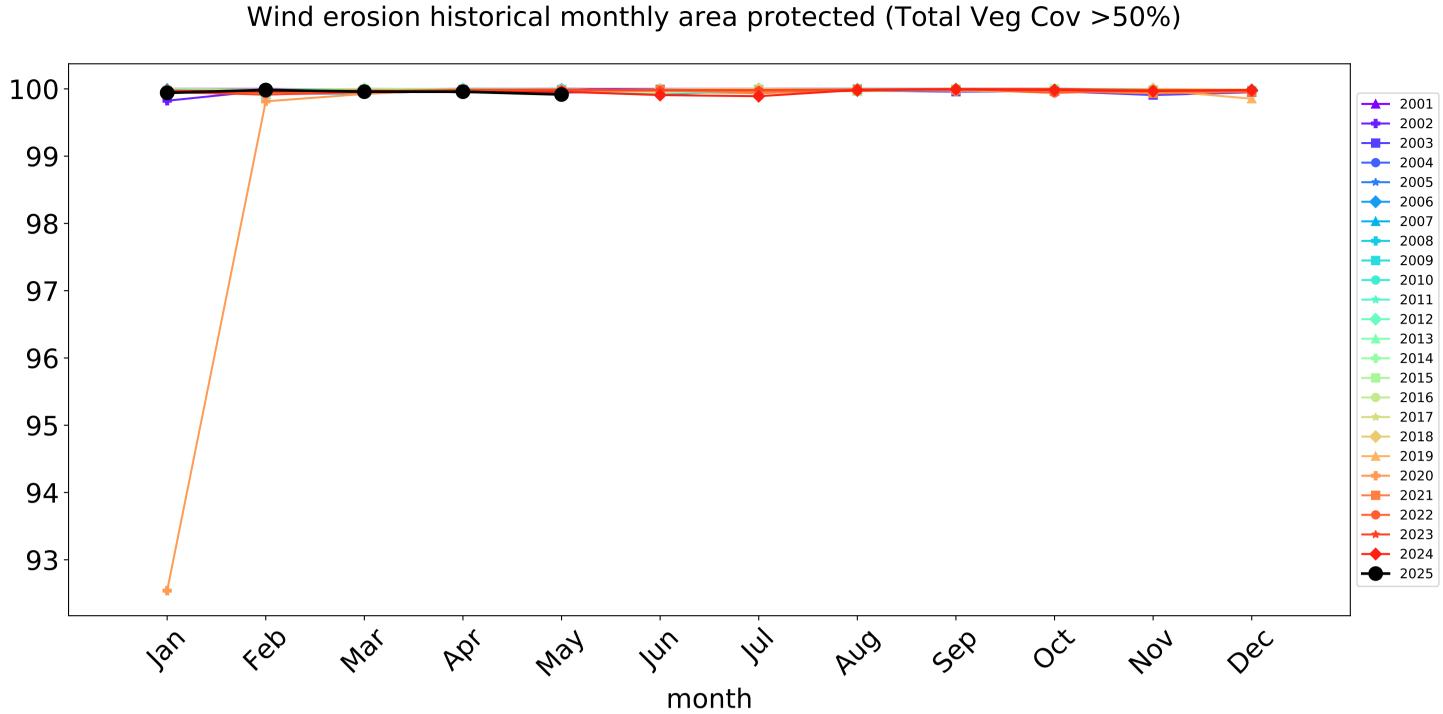


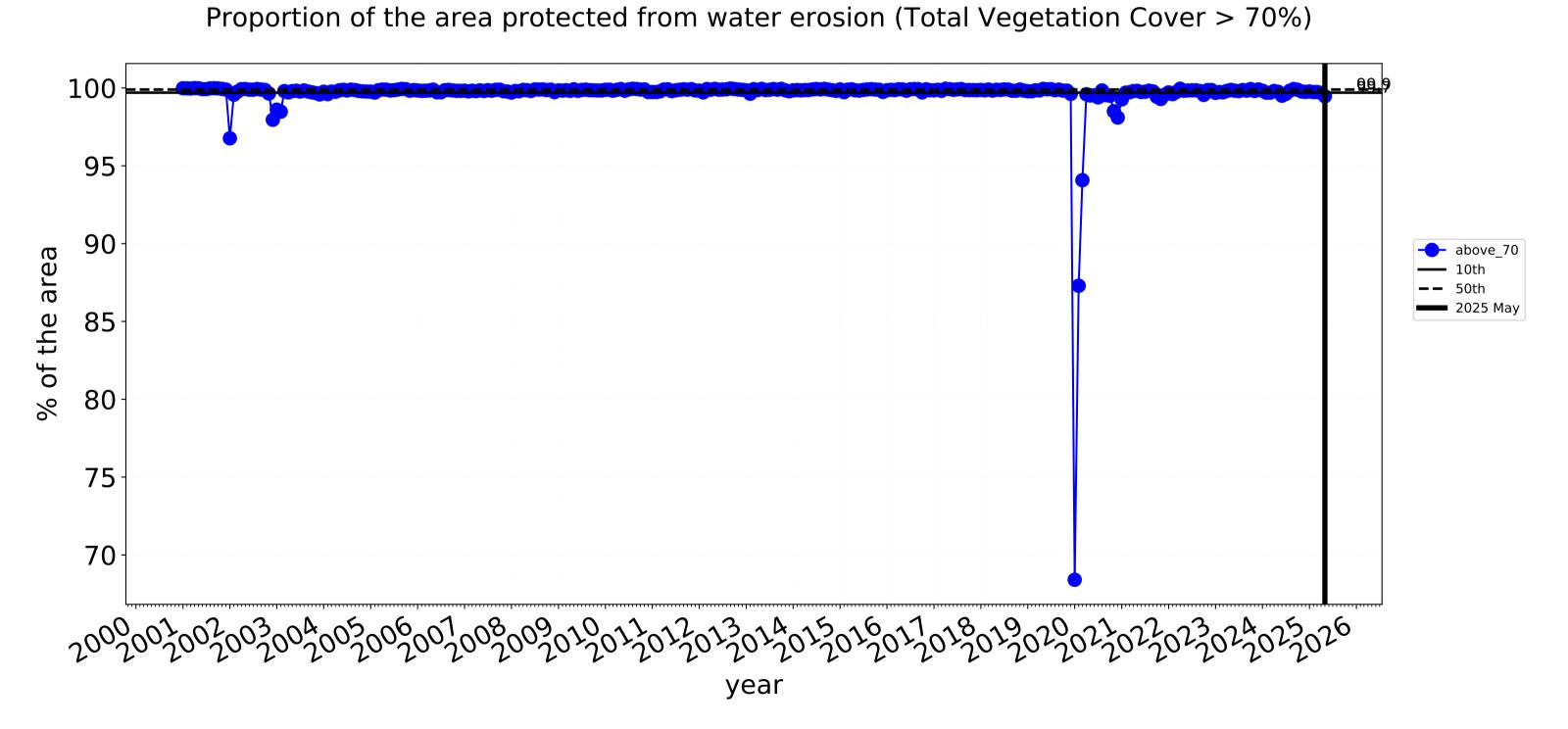


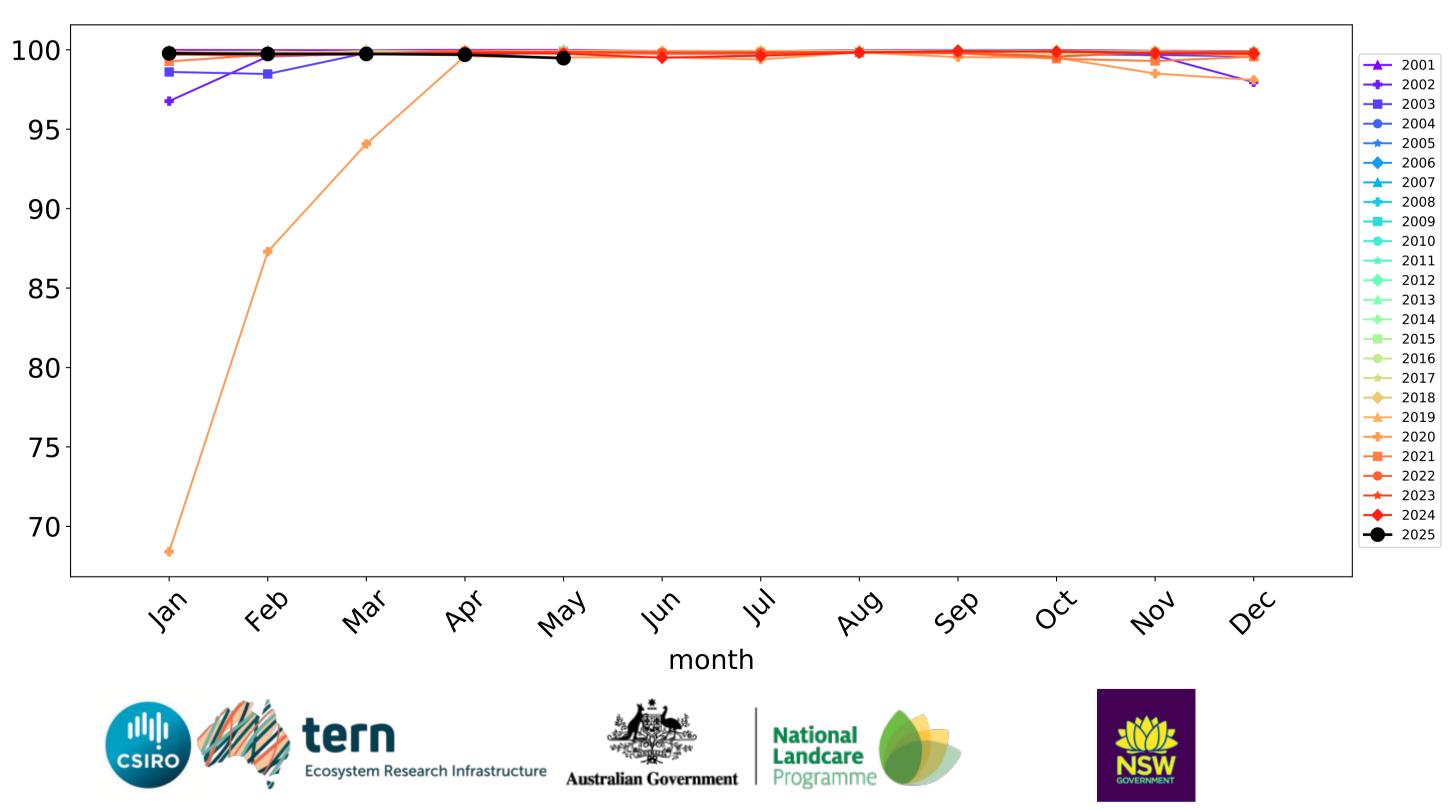


# **Conservation and natural environments timeseries**

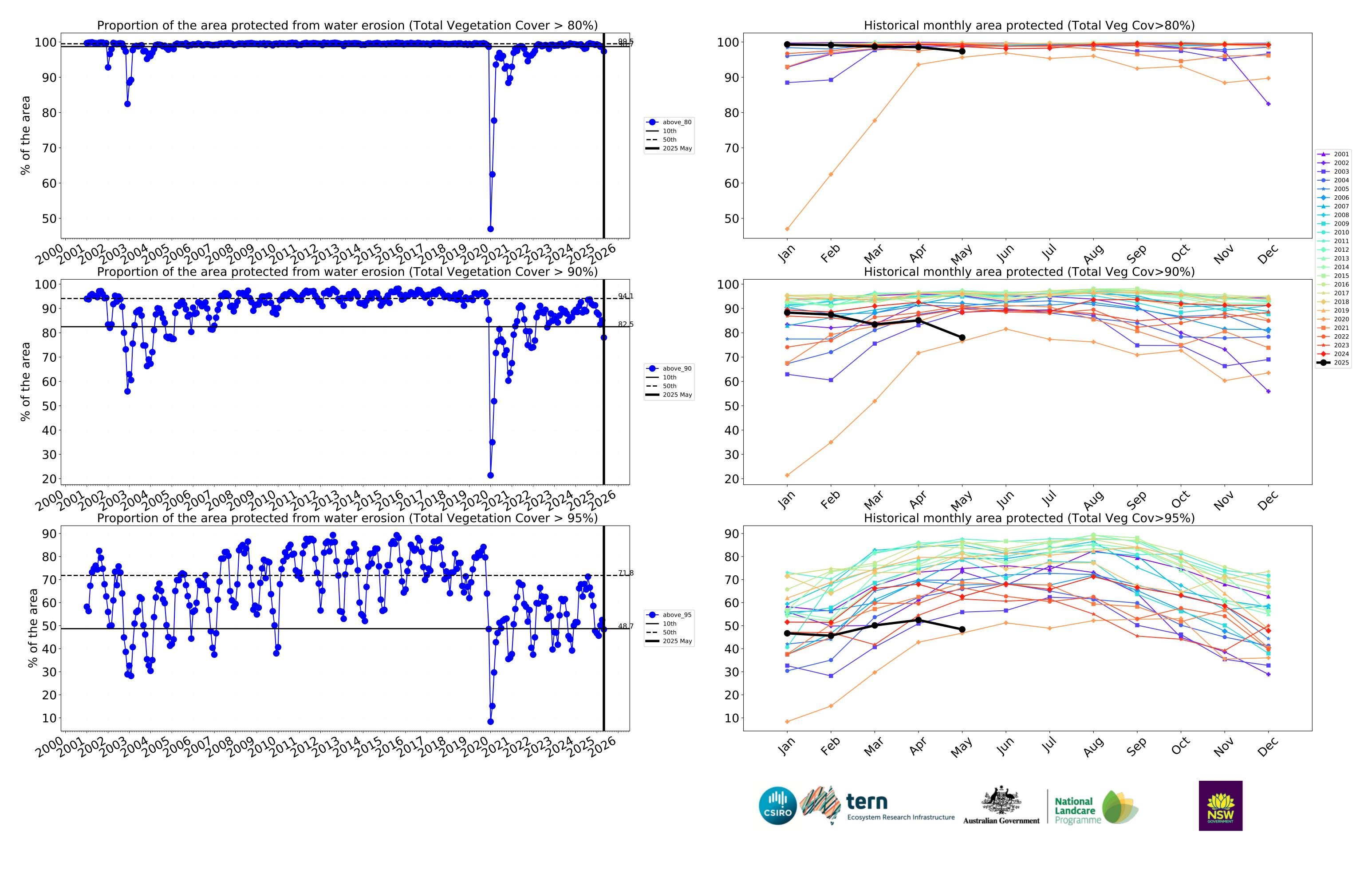








Water erosion historical monthly area protected (Total Veg Cov>70%)



# 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 the mean. That

is, red pixels

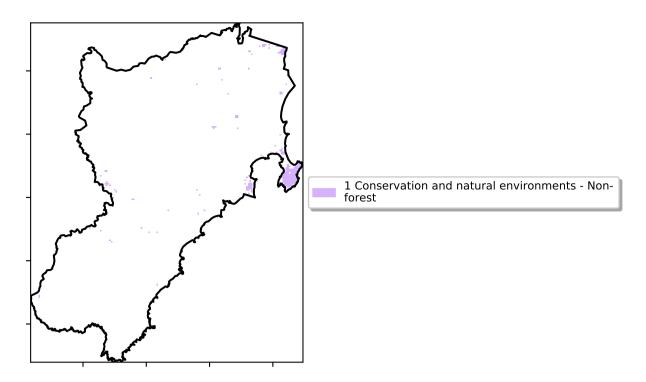
mean of that

pixel. The mean

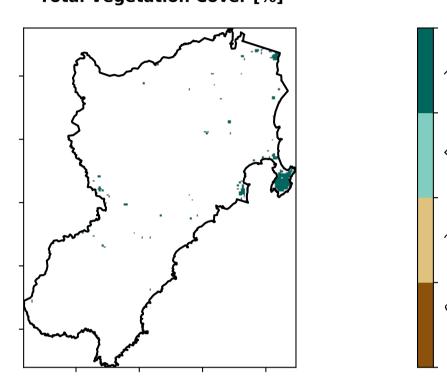
using baseline from 2001 to 2019.

is only for the month of the map

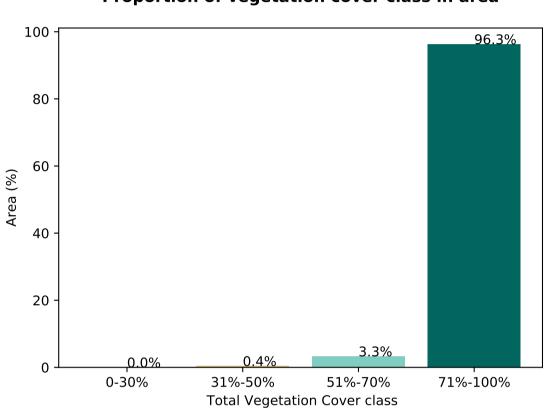
are about 20% lower than the



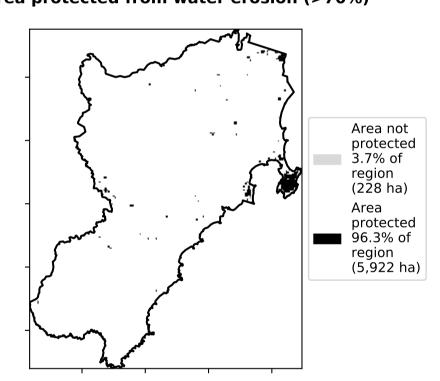
#### **Total Vegetation Cover [%]**



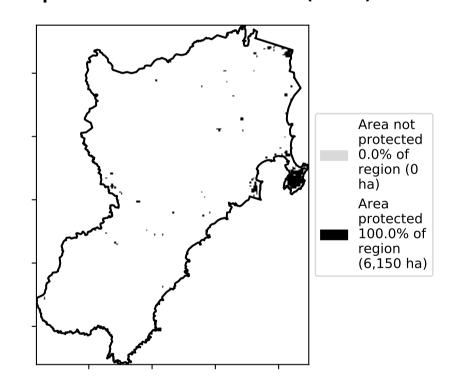
#### Proportion of vegetation cover class in area



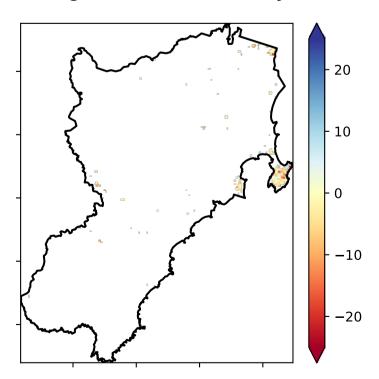
# % Area protected from water erosion (>70%)



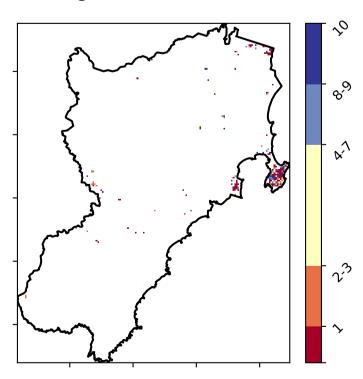
% Area protected from wind erosion (>50%)



#### **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.





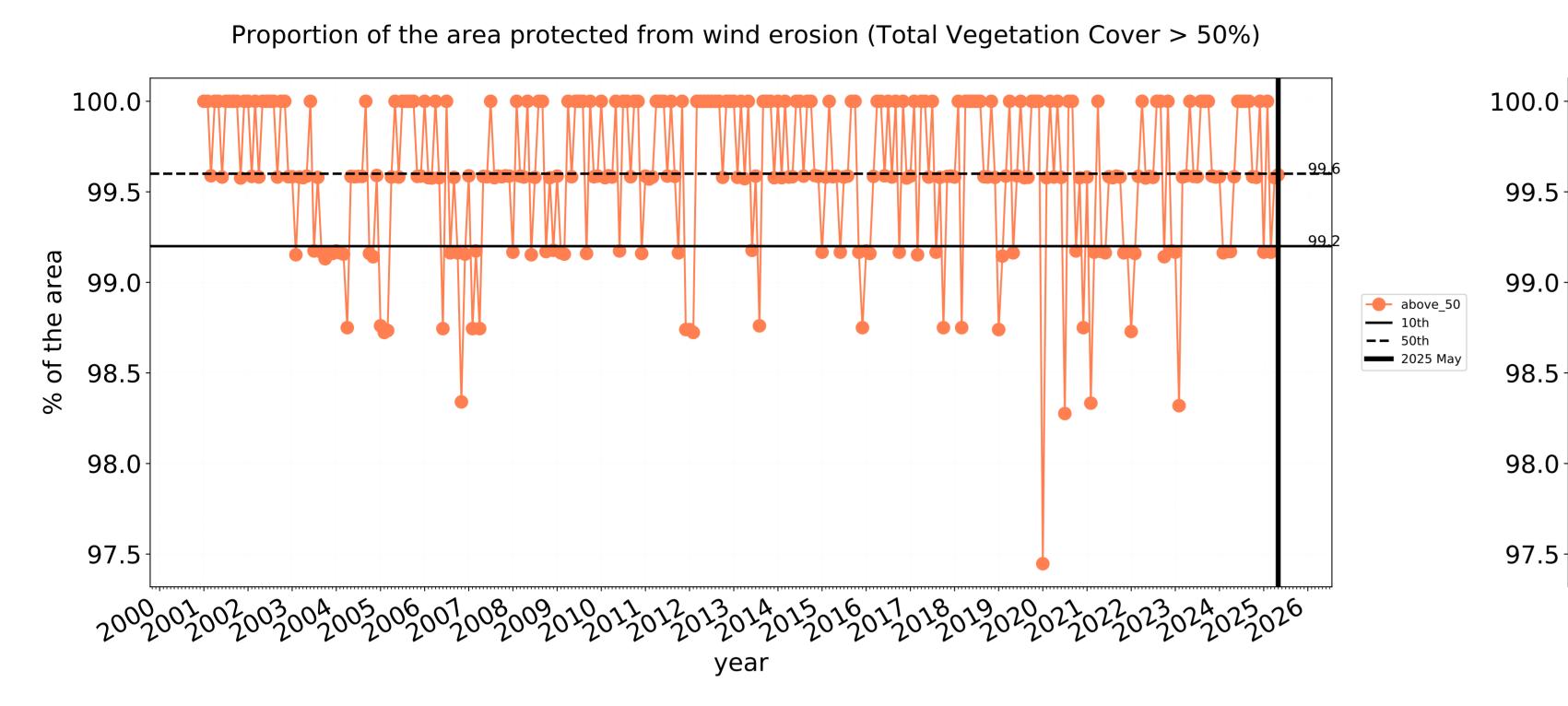








# **Conservation and natural environments non forest timeseries**



#### → 2001 → 2002 → 2003 → 2004 → 2005 → 2006 → 2007 → 2008 → 2008 → 2009 → 2010 → 2010 → 2010 → 2011 → 2011 → 2011

<del>\_\_\_\_</del> 2013

**2014** 

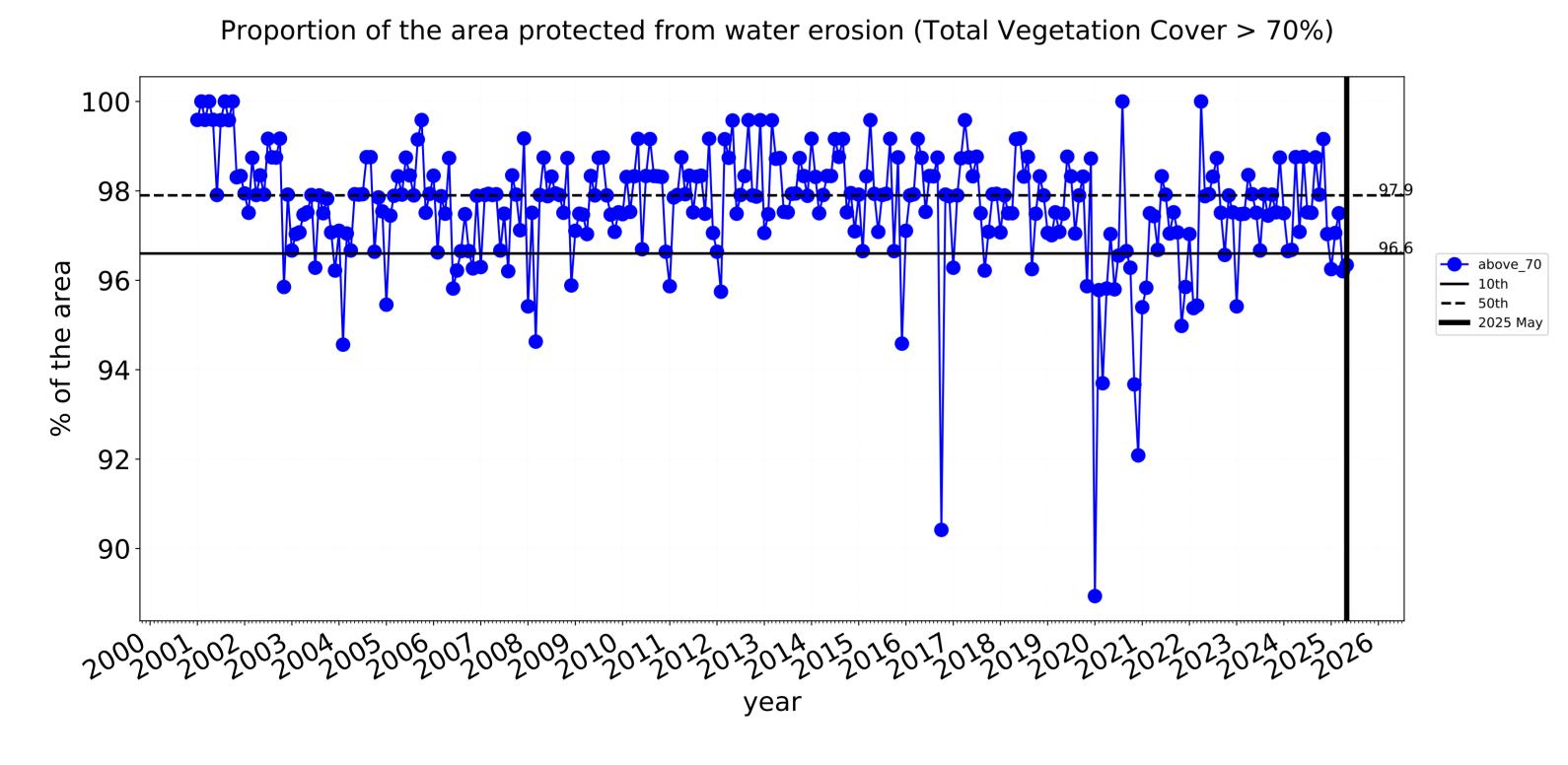
2015

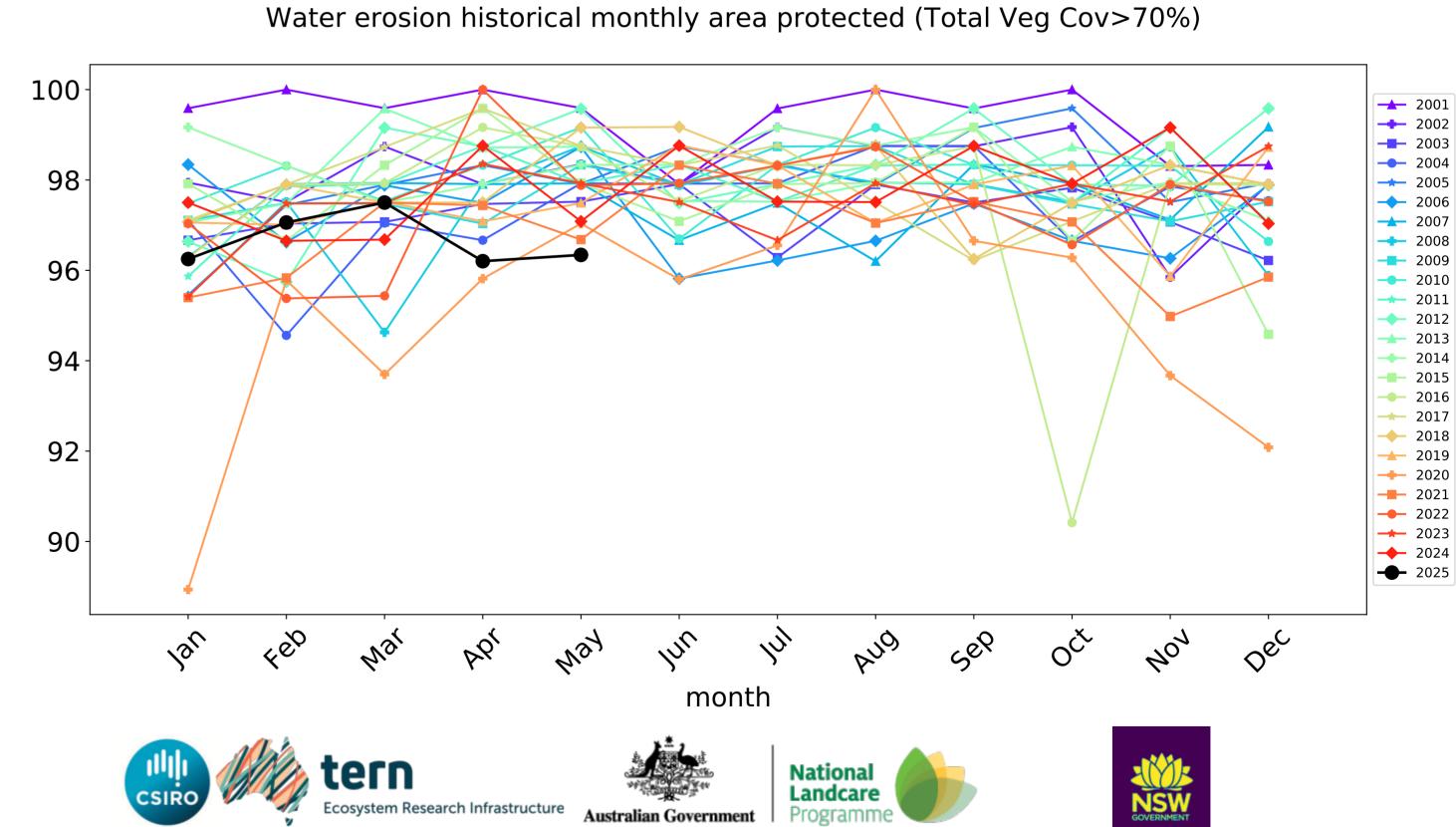
2016 2017 2018 2019

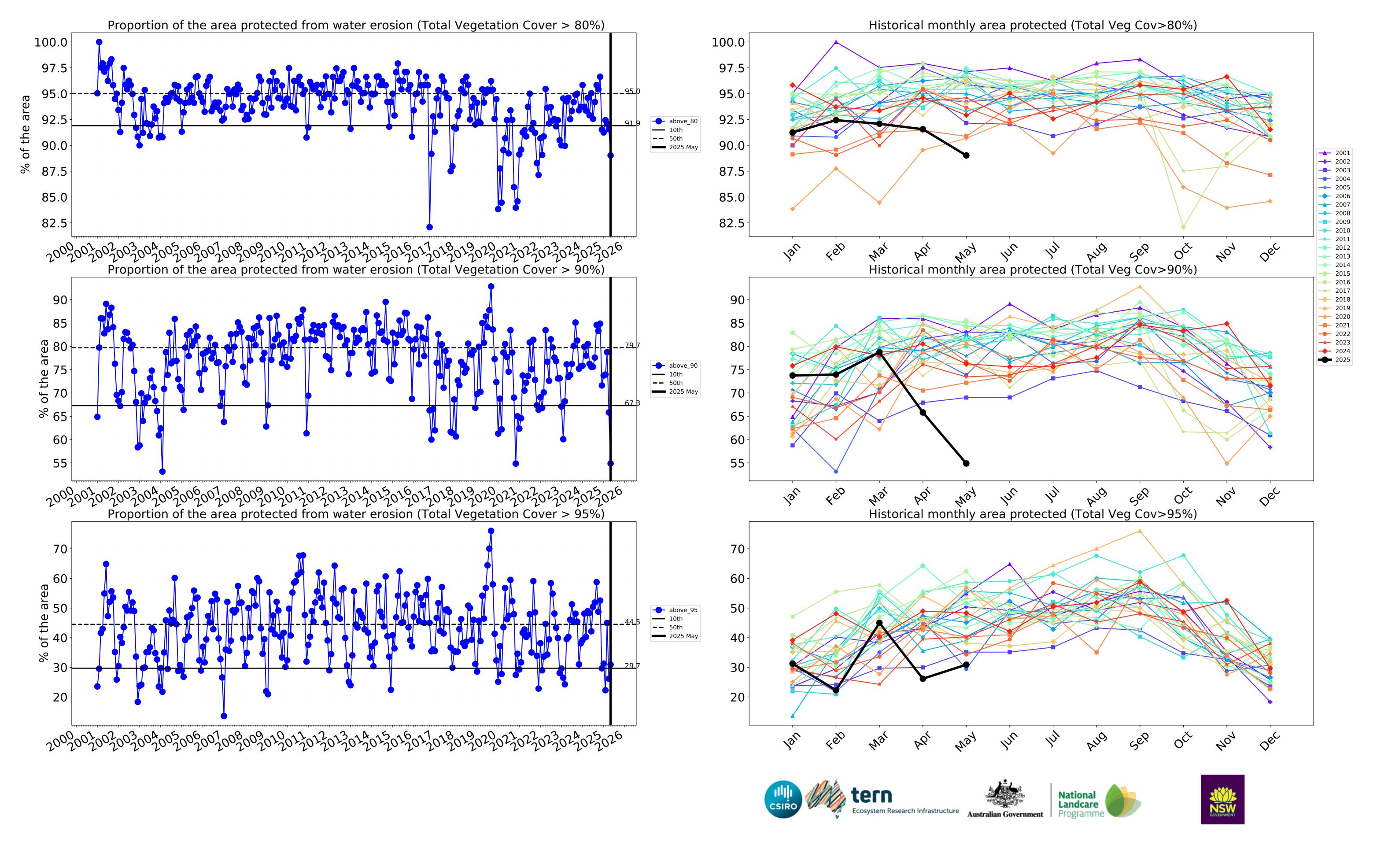
**---** 2025

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

month







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

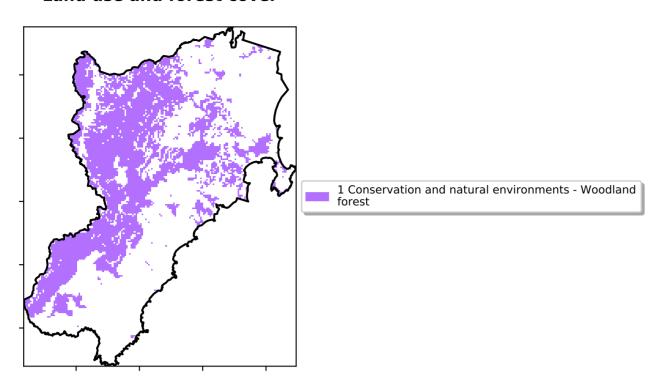
#### Land use and forest cover

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

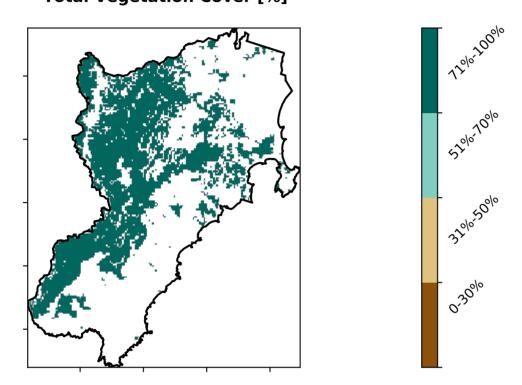
Anomaly show how many percetage points each pixel is from the mean. That

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

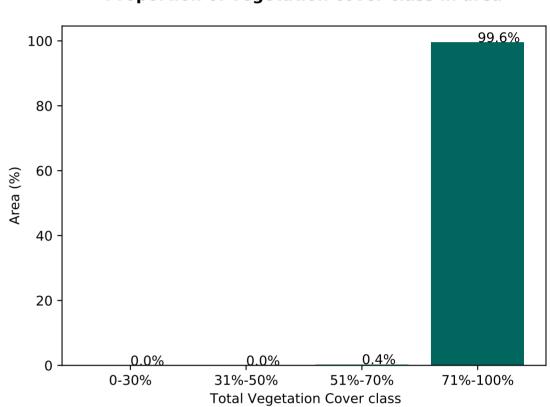
is only for the month of the map using baseline from 2001 to 2019.



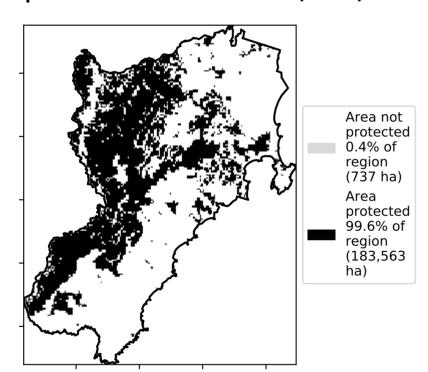
#### **Total Vegetation Cover [%]**



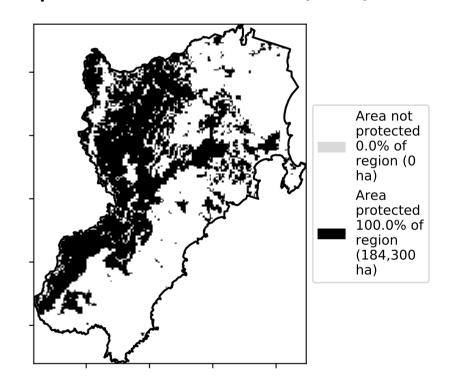
# Proportion of vegetation cover class in area



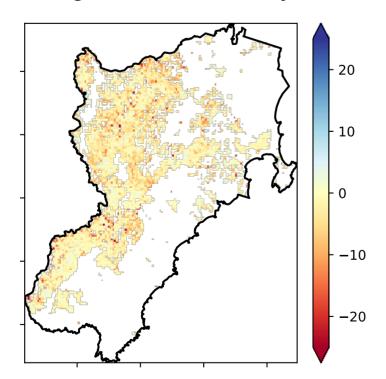
#### % Area protected from water erosion (>70%)



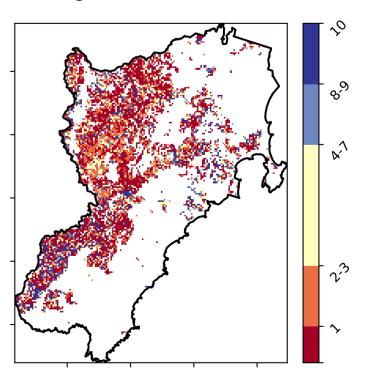
% Area protected from wind erosion (>50%)



#### **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.



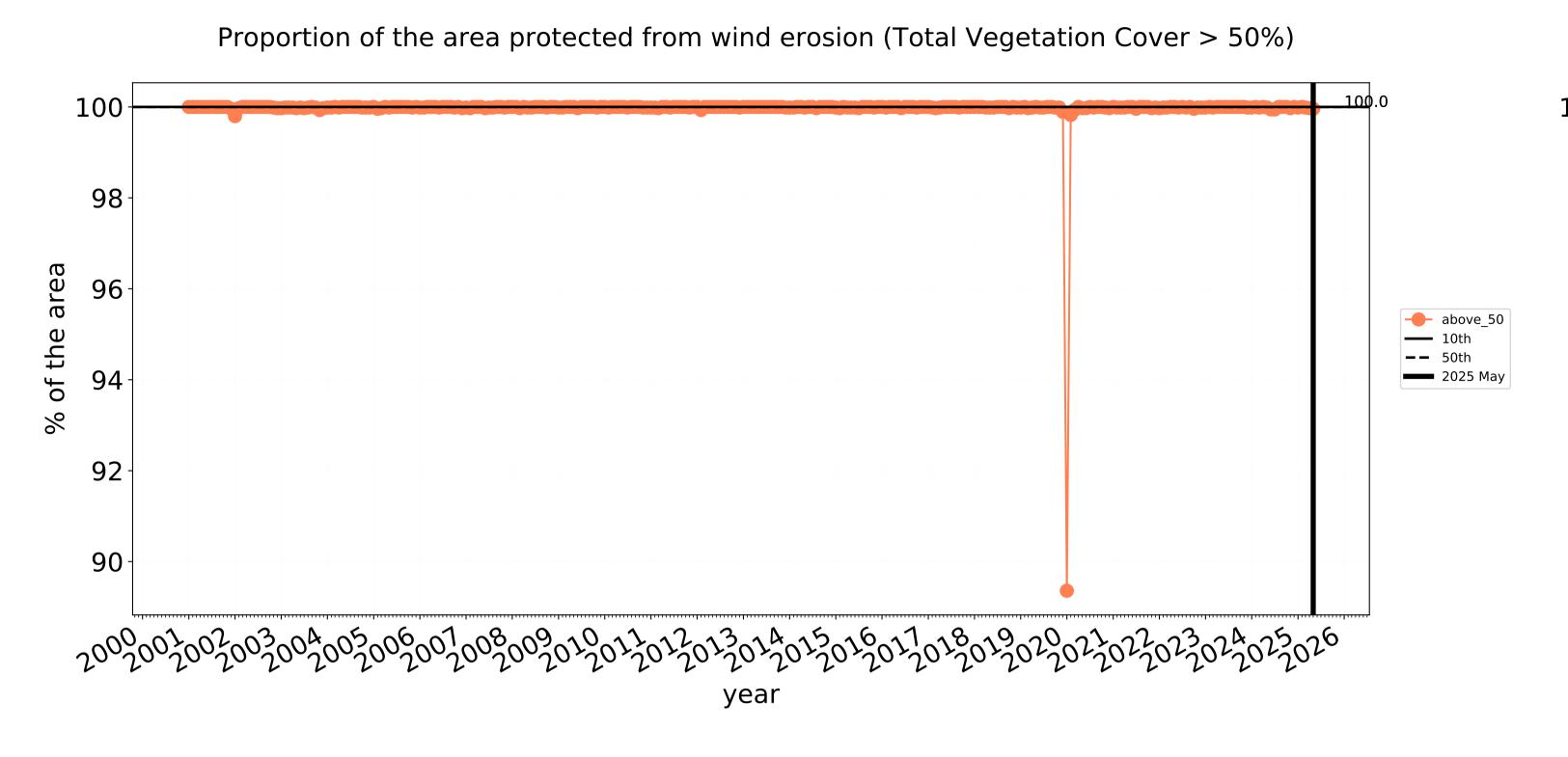


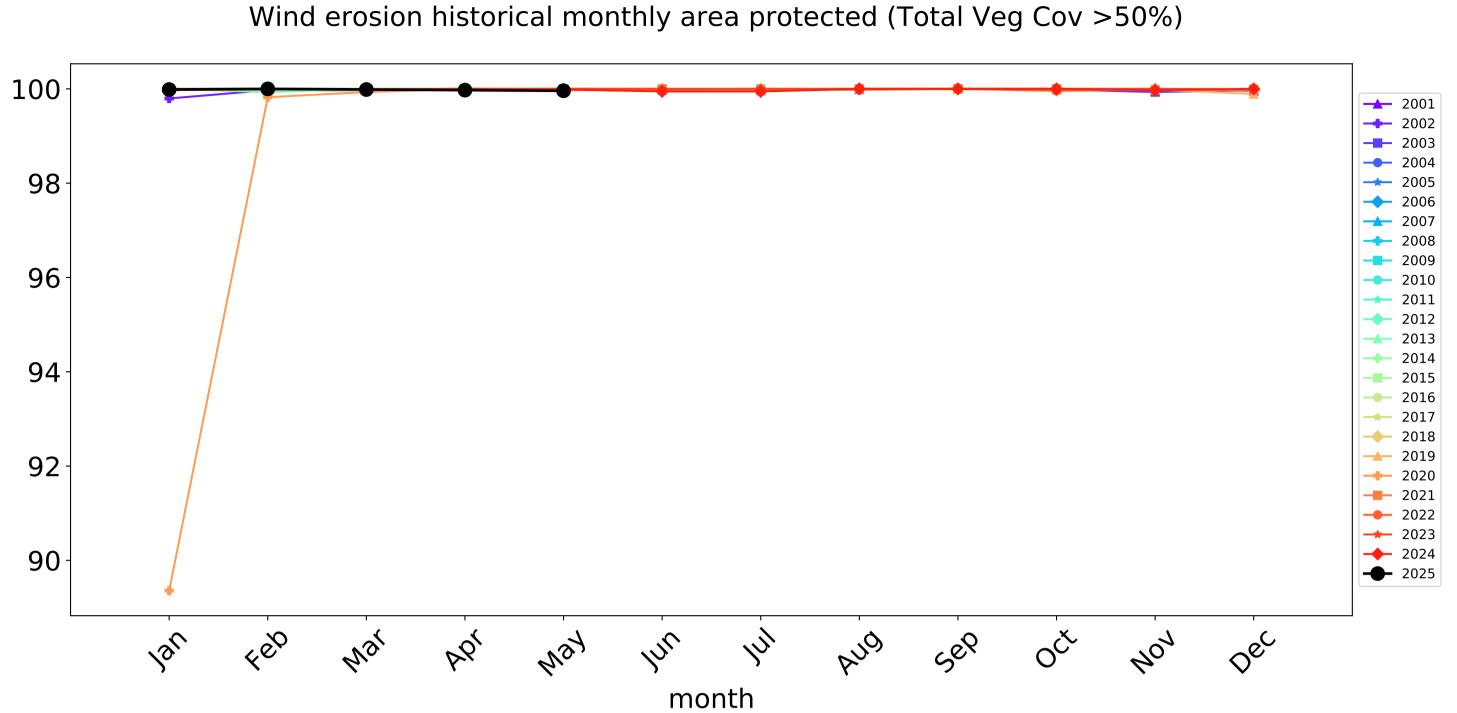


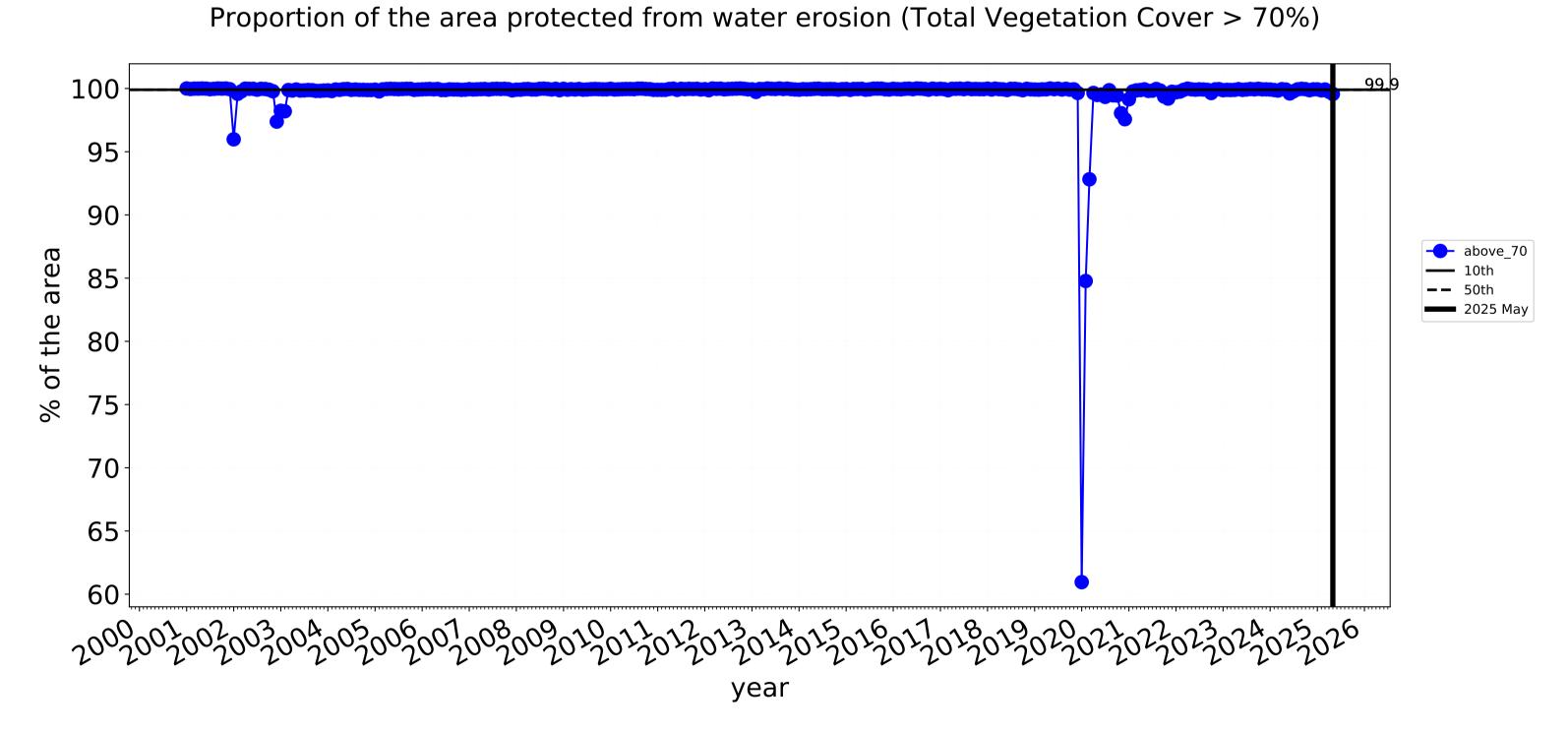


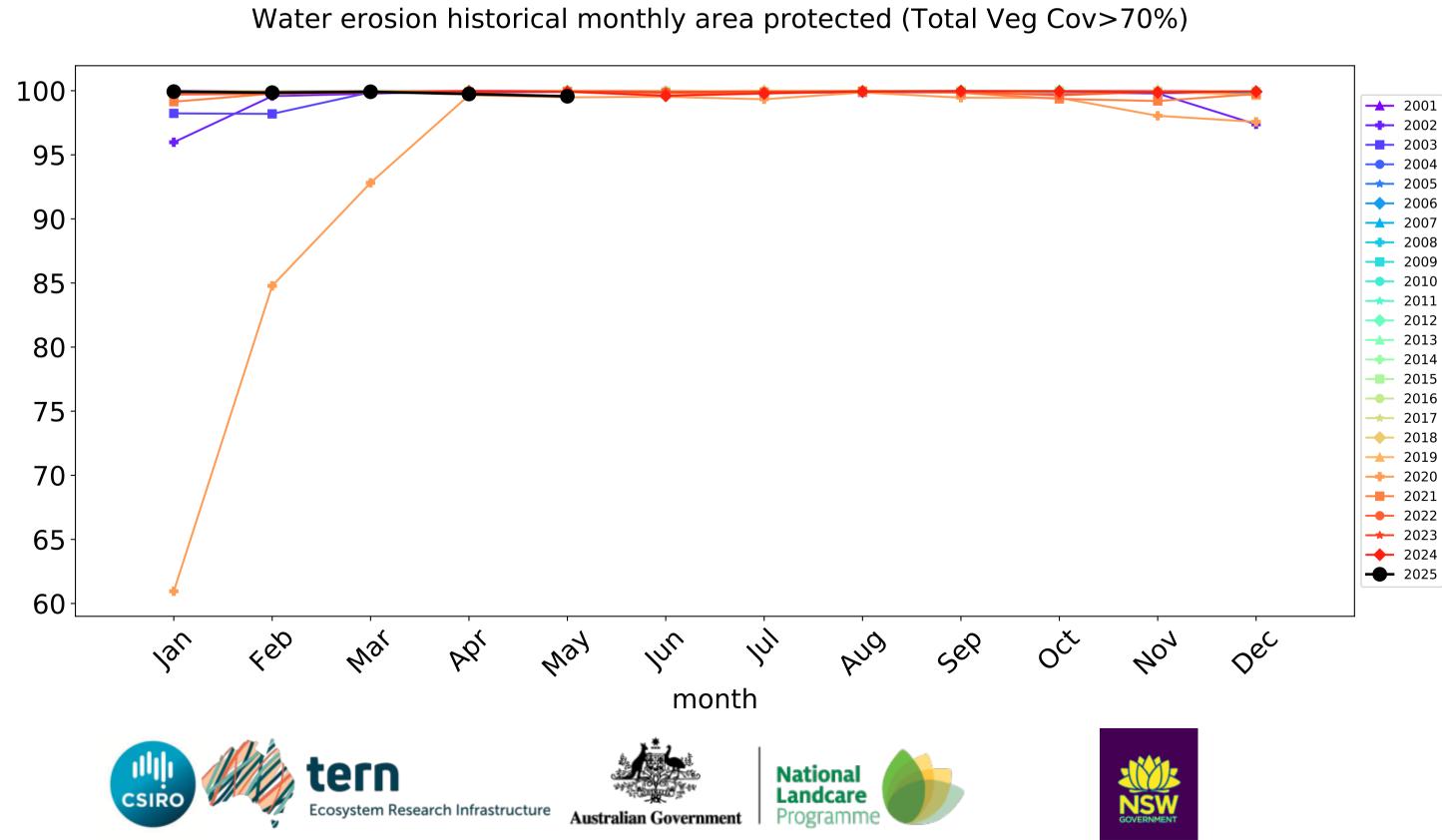


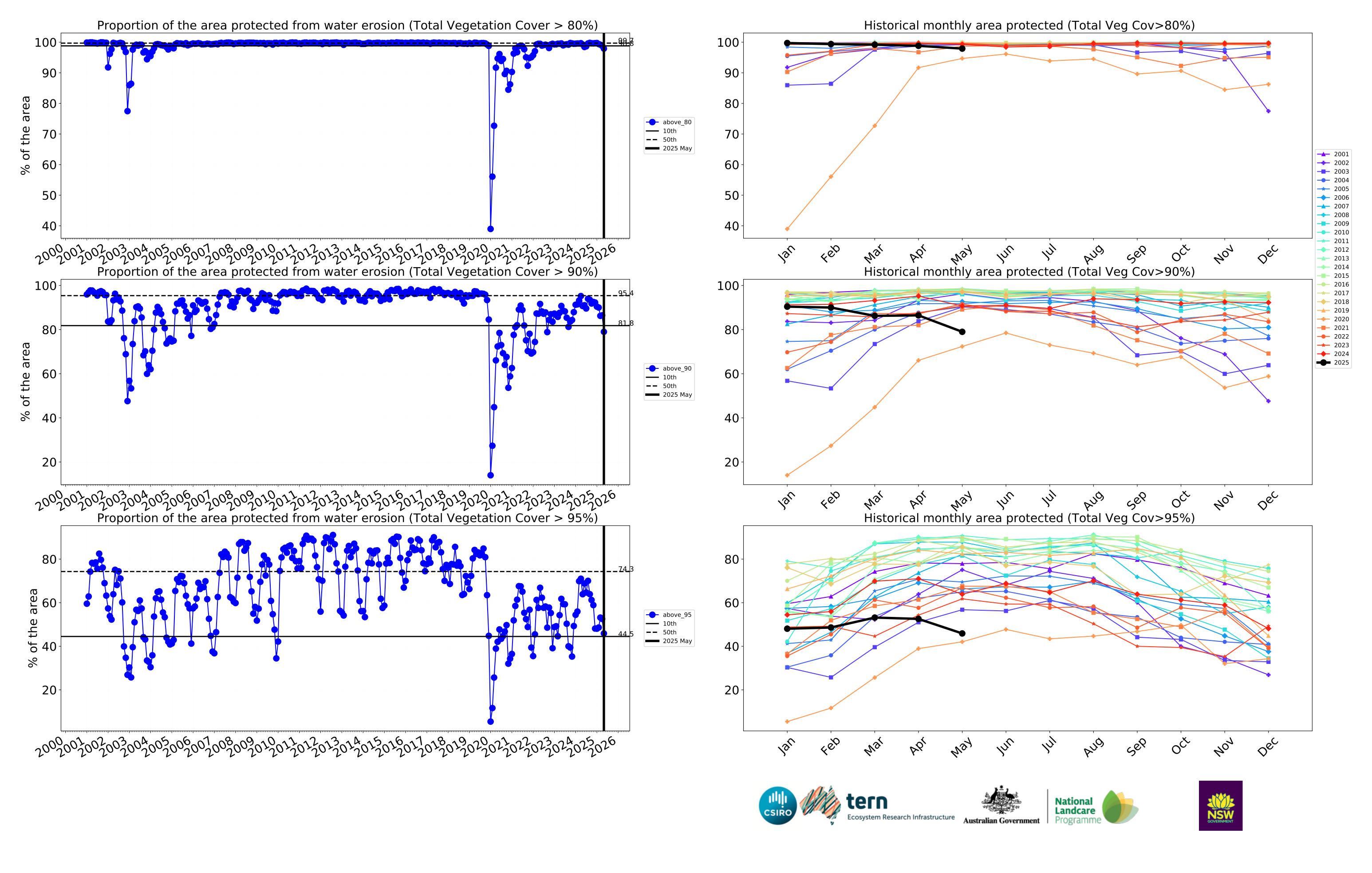
# **Conservation and natural environments Woodland forest timeseries**











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

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

Catchment Scale Land

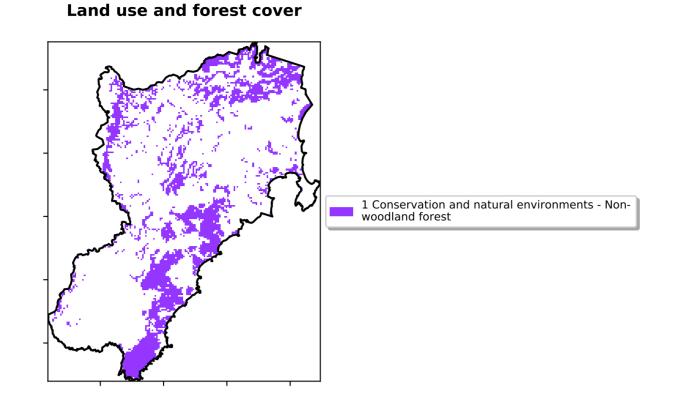
Use of Australia (2018) and Forests of Australia (2018)

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

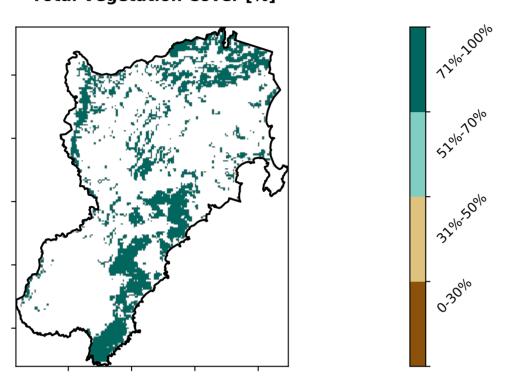
is only for the month of the map

using baseline from 2001 to 2019.

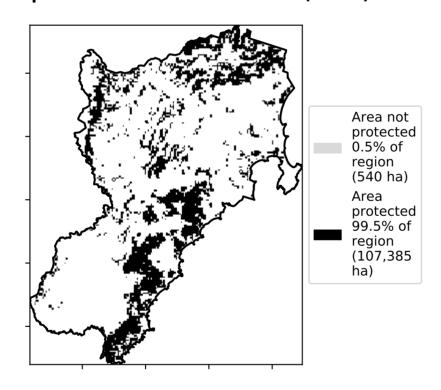
is, red pixels are about 20% lower than the mean of that pixel. The mean



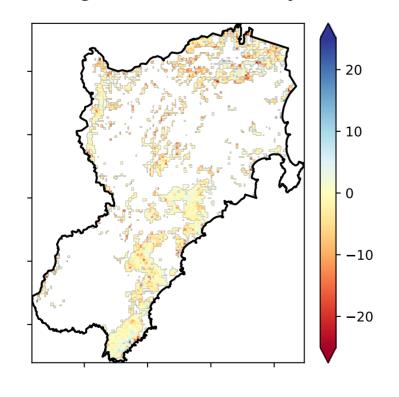
#### Total Vegetation Cover [%]



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

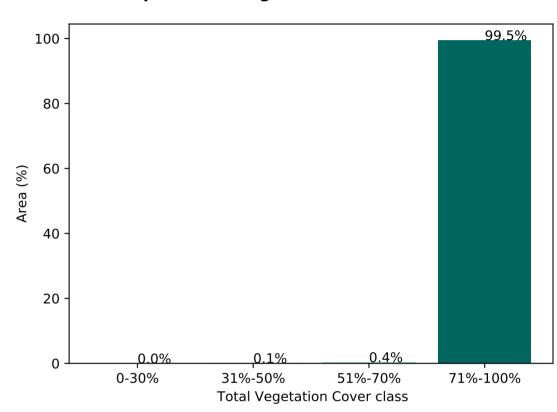


#### **Total Vegetation Cover Anomaly [%]**

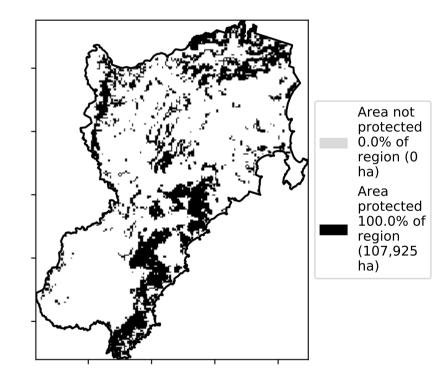


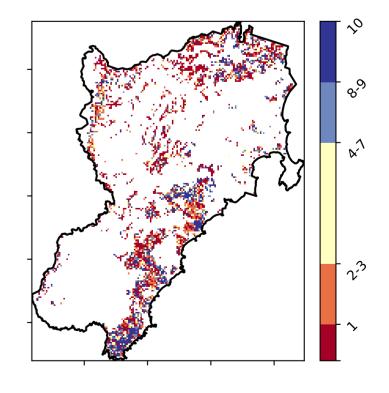
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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







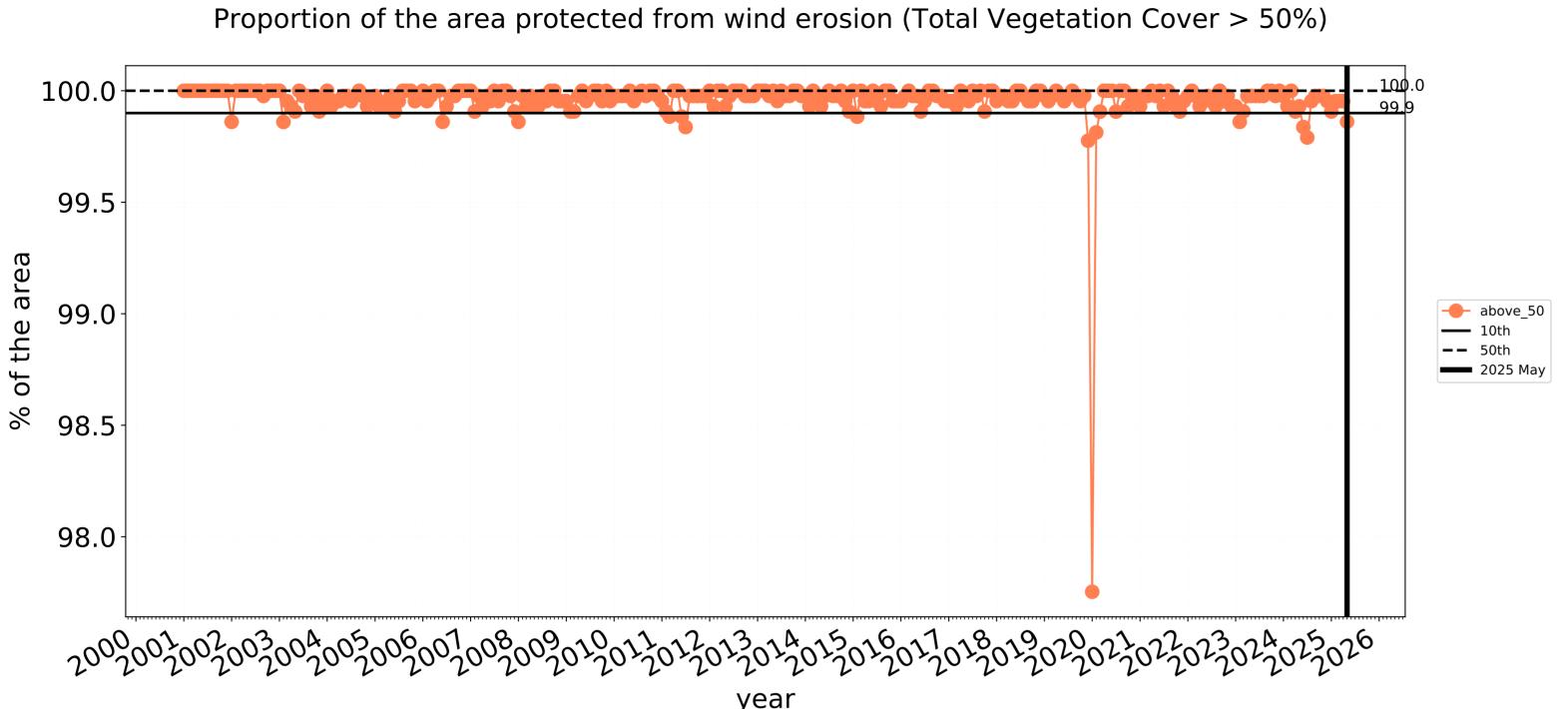


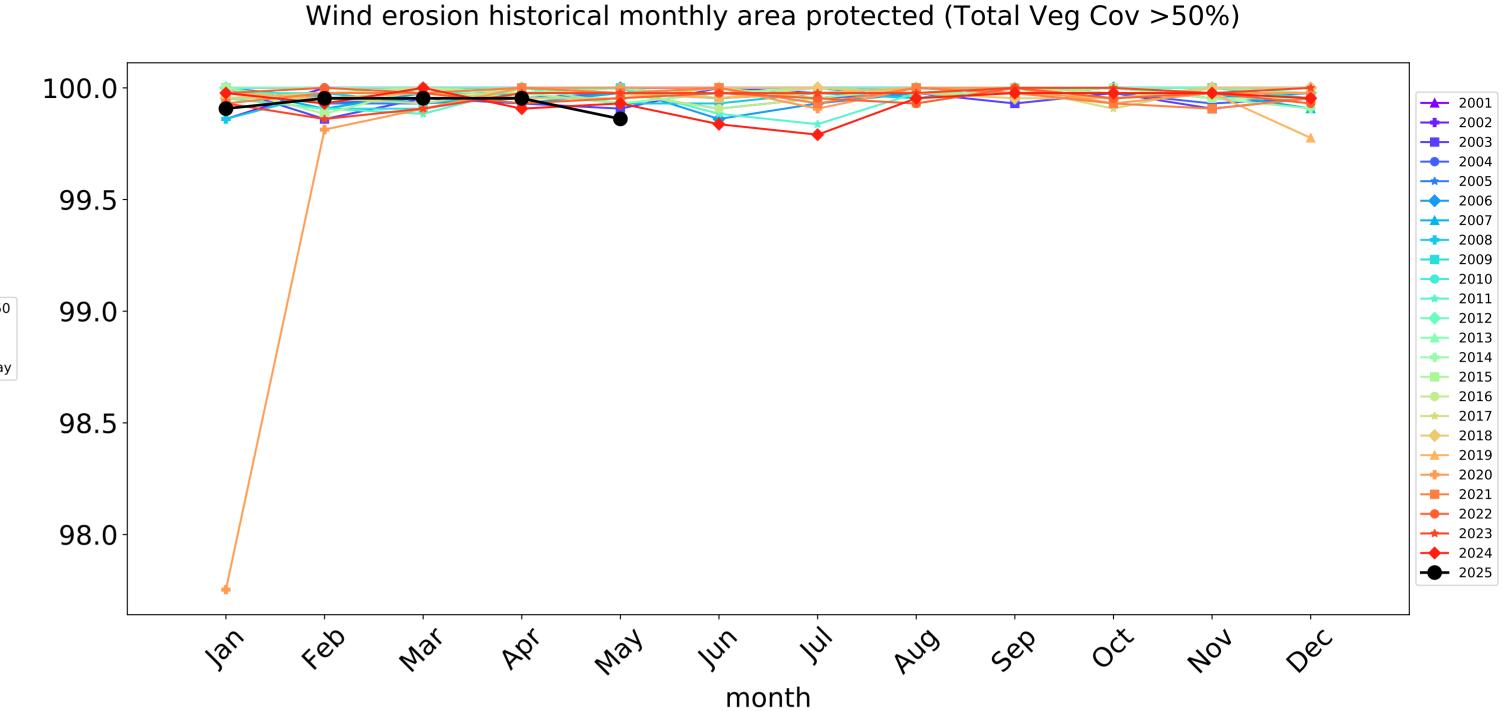


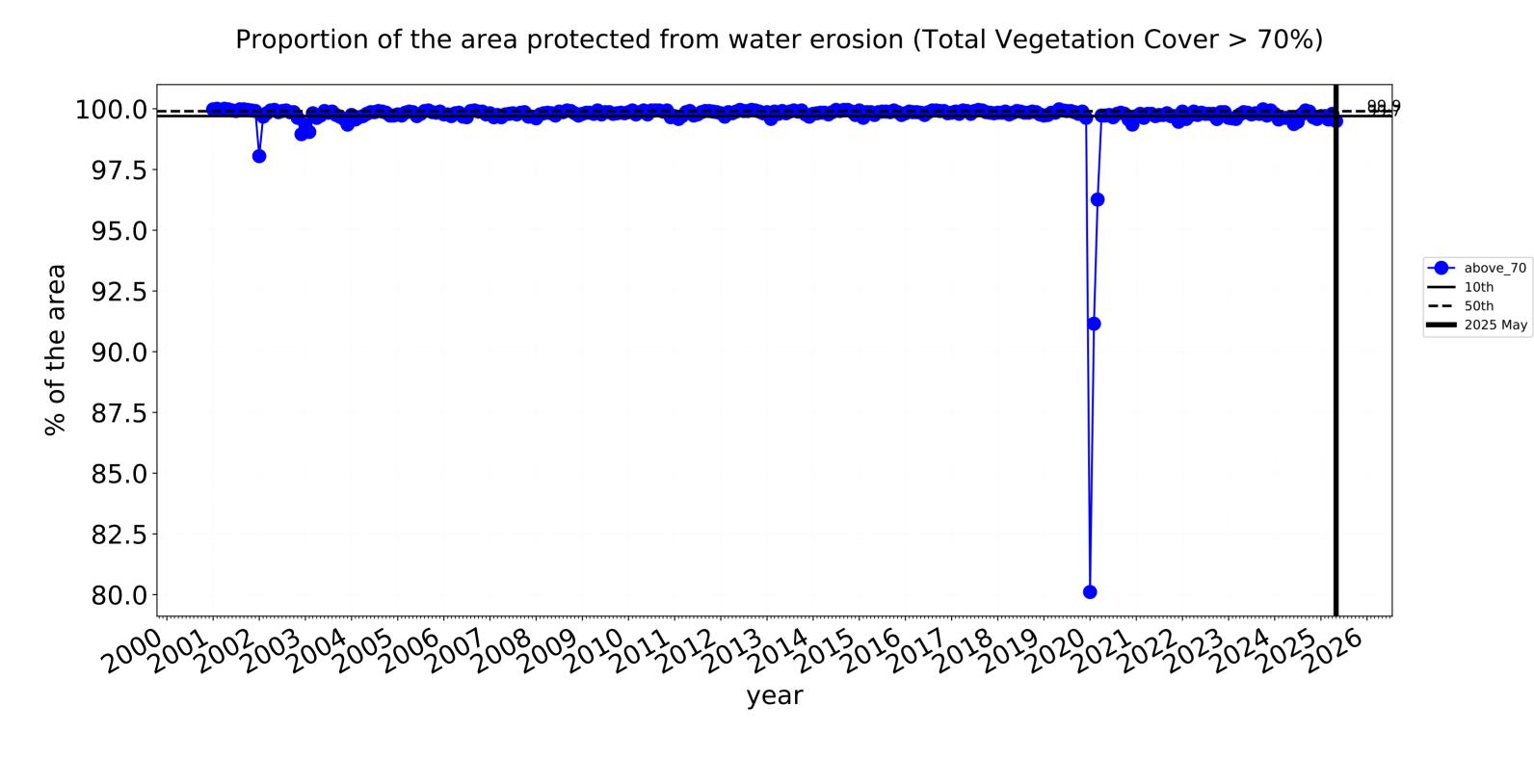


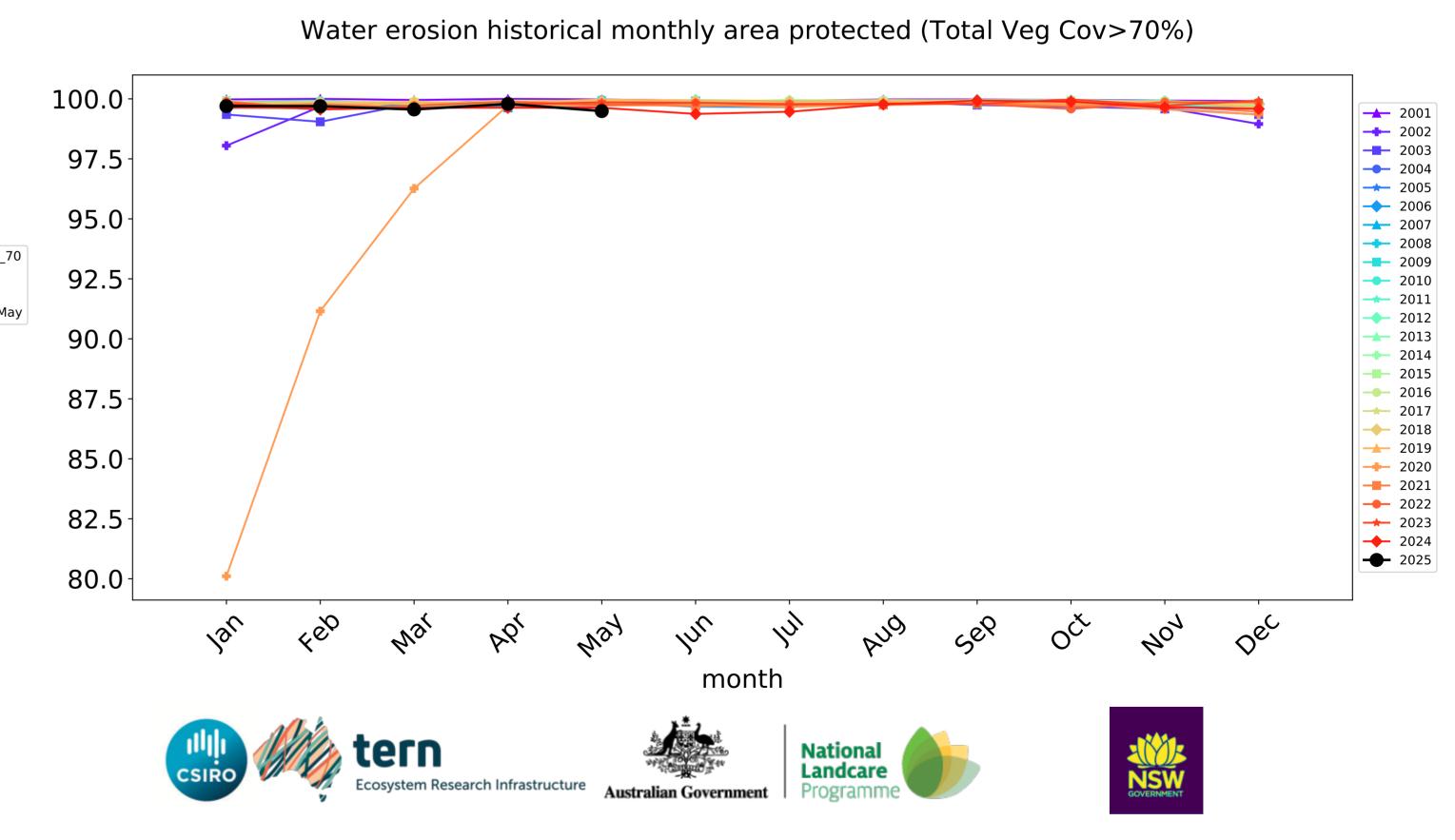


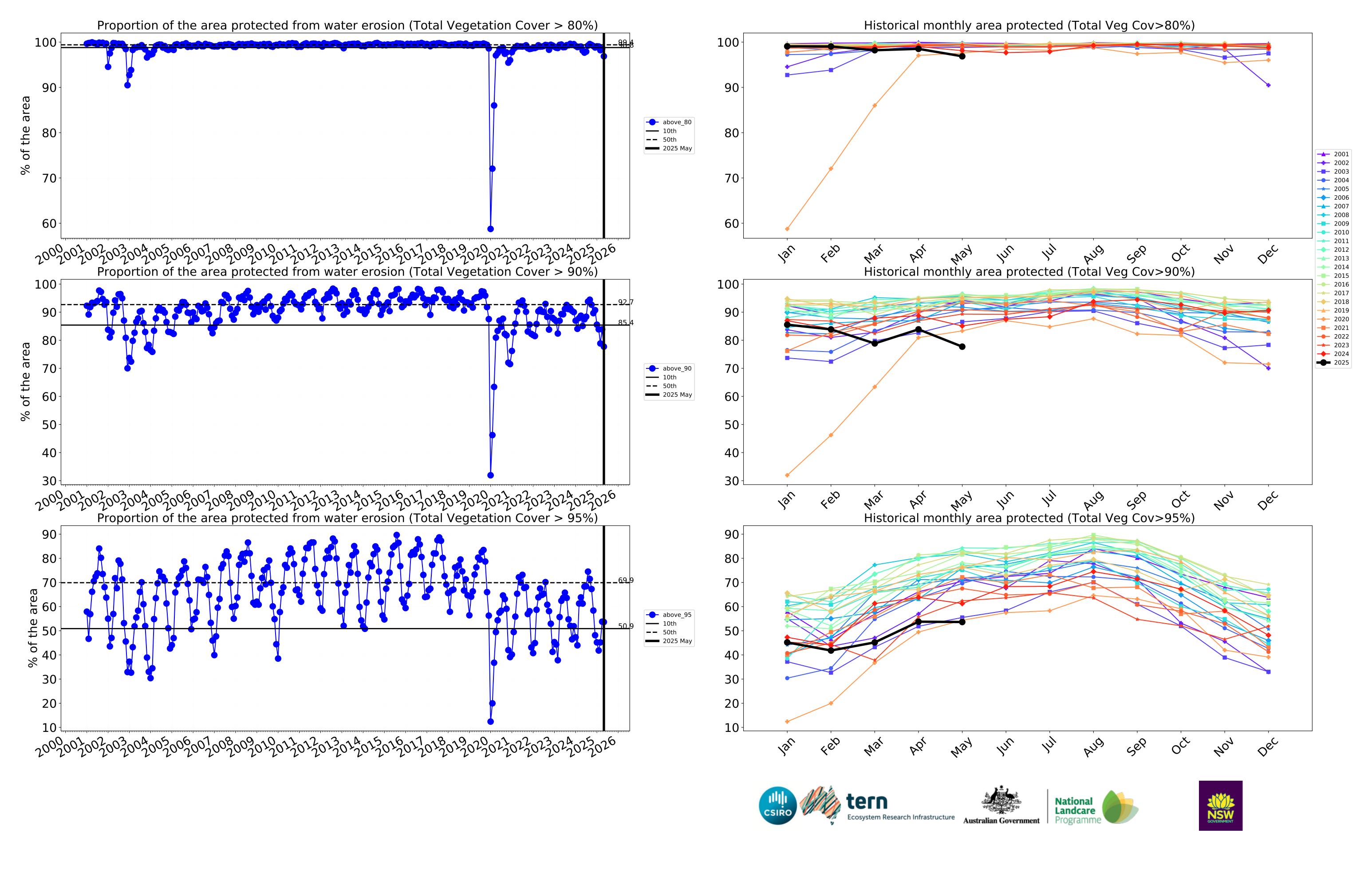












# **Agriculture**

#### Land use and forest cover

Catchment Scale

Derived from

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

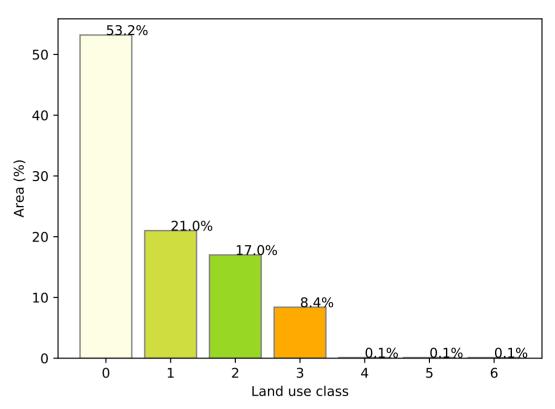
mean of that pixel. The mean

is only for the month of the map

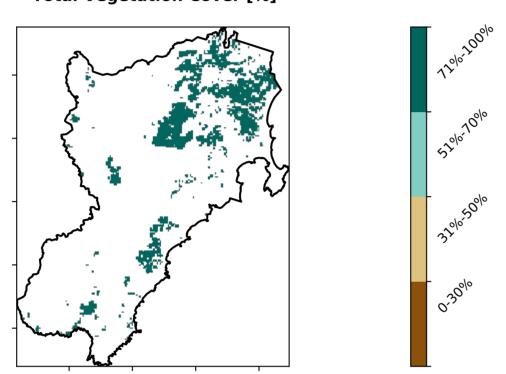
using baseline from 2001 to 2019.

# 1 Agriculture - Grazing - Non forest Land Use and Forests of Australia (2018) 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest 4 Agriculture - Grazing - Irrigated Catchment Scale Land 5 Agriculture - Cropping - Non-irrigated 6 Agriculture - Horticulture - Non-irrigated 7 Agriculture - Horticulture - Irrigated

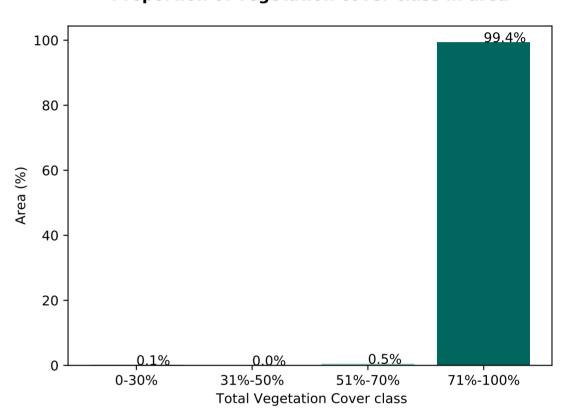
#### **Proportion of each land class in area**



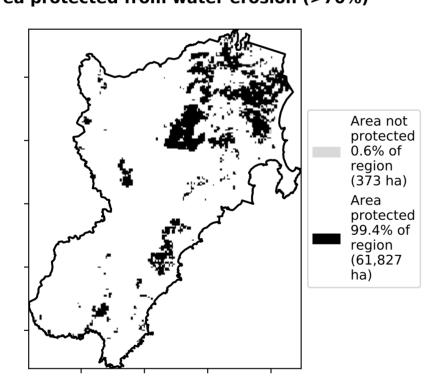
#### **Total Vegetation Cover [%]**



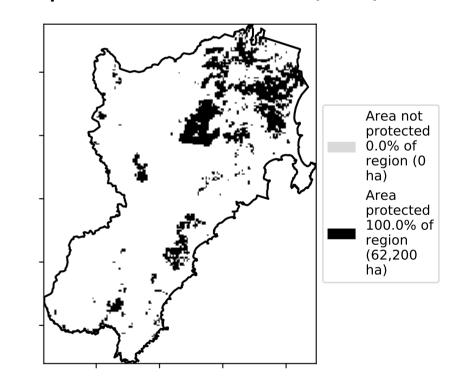
Proportion of vegetation cover class in area



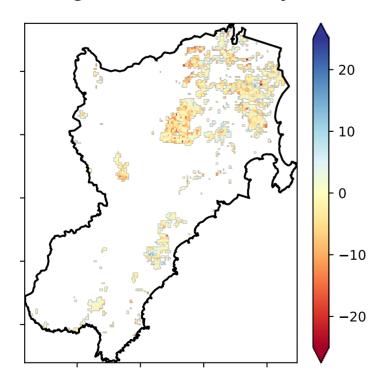
# % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

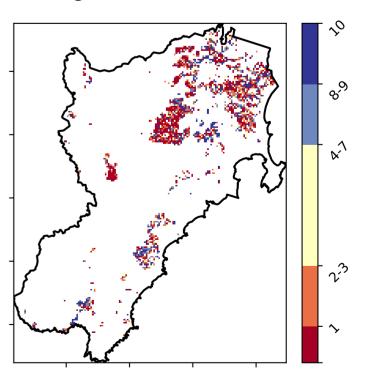


#### **Total Vegetation Cover Anomaly [%]**



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 [%]**







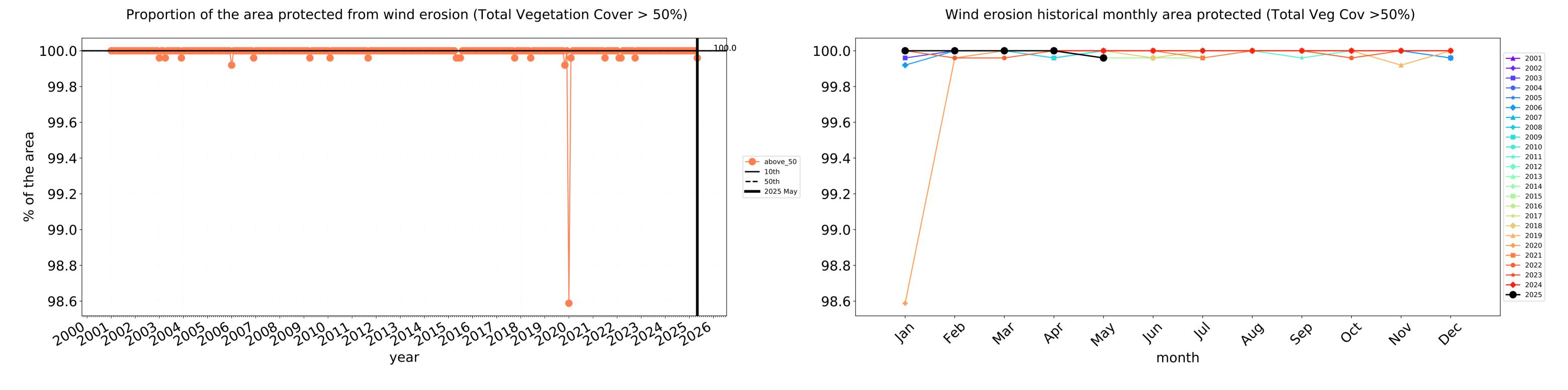


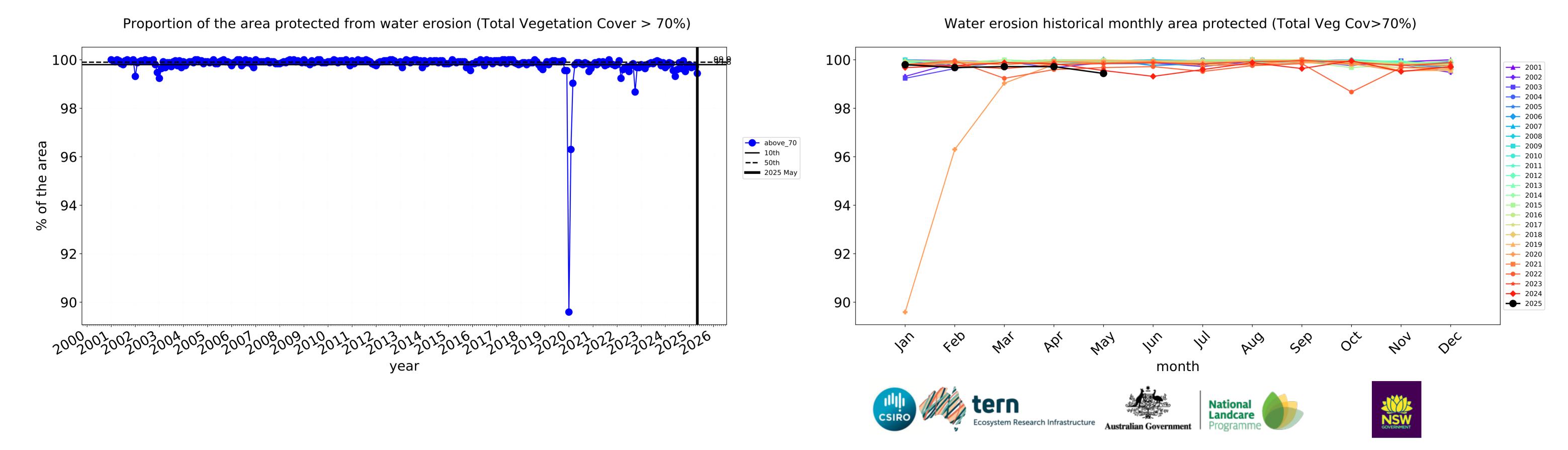
**12** 

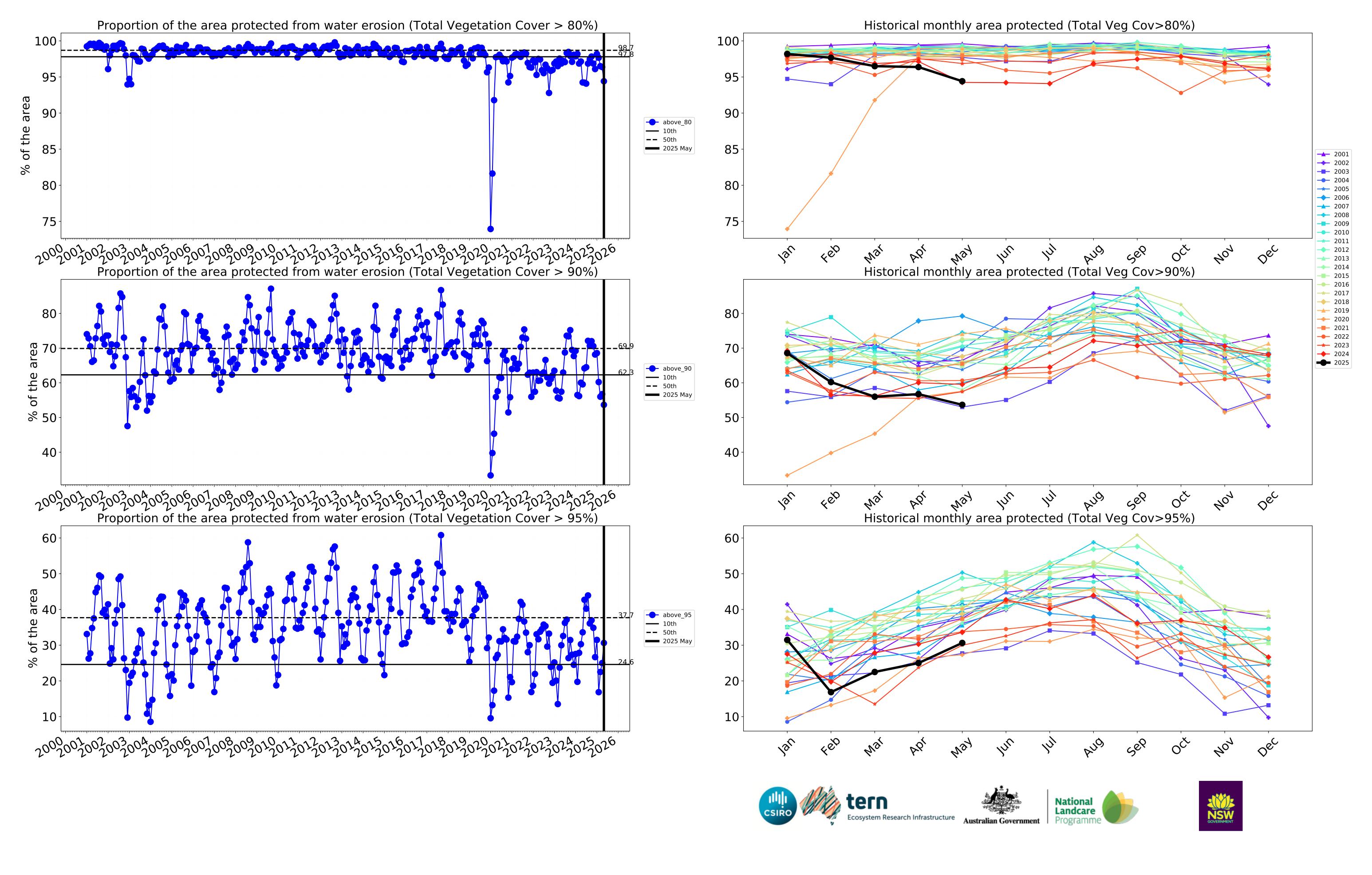




# **Agriculture timeseries**





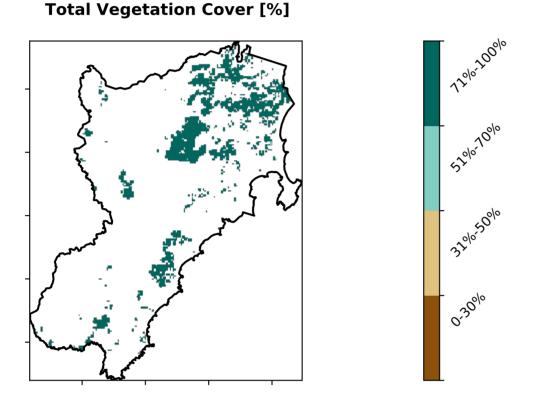


# Grazing

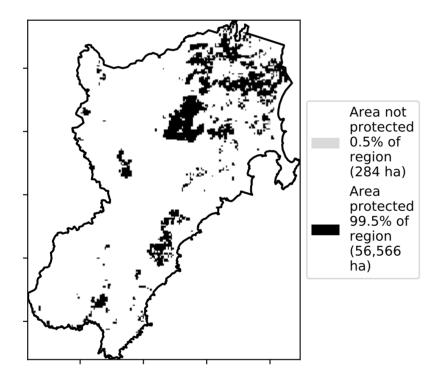
# Land use and forest cover

# Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest

#### har



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



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

Anomaly show how many percetage points each

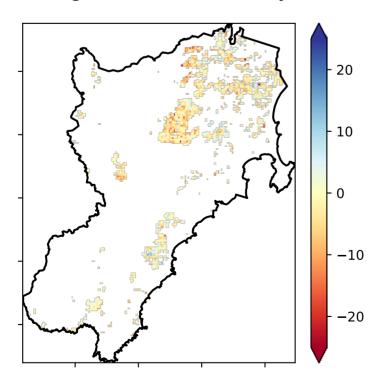
pixel is from the mean. That

is, red pixels are about 20%

lower than the mean of that pixel. The mean

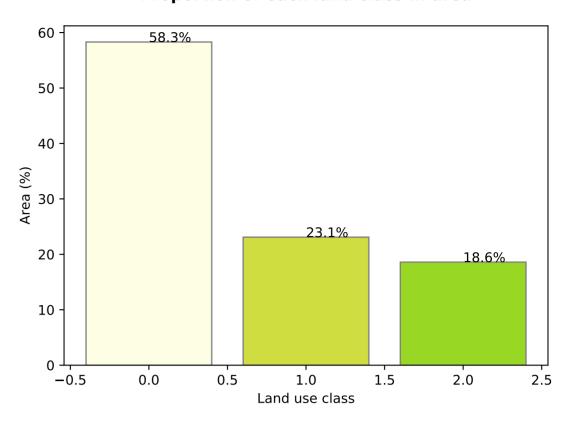
using baseline from 2001 to 2019.

is only for the month of the map

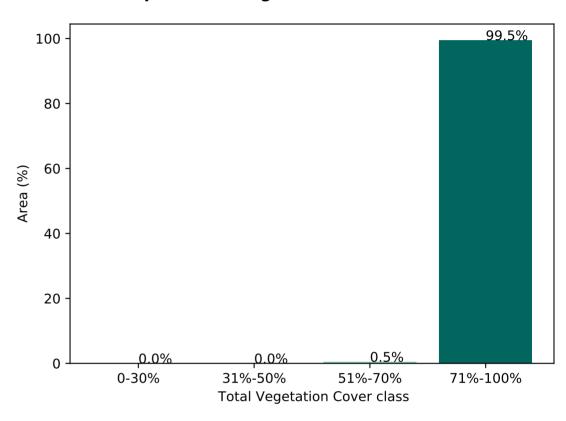


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

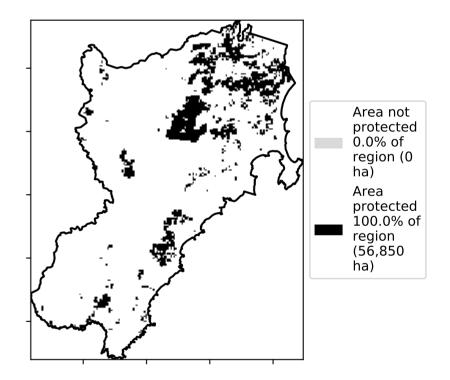
#### Proportion of each land class in area

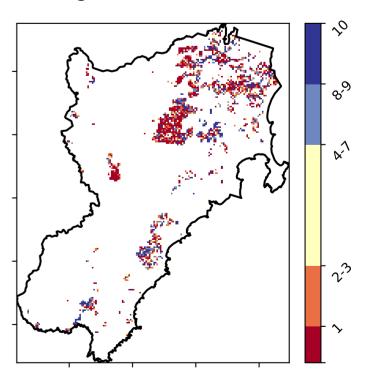


#### Proportion of vegetation cover class in area



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





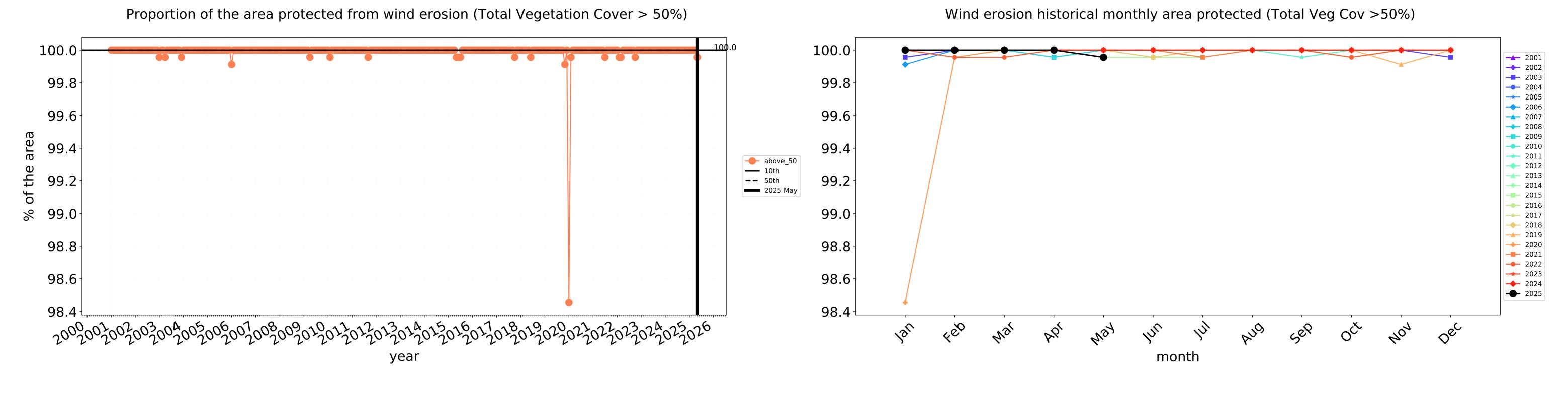


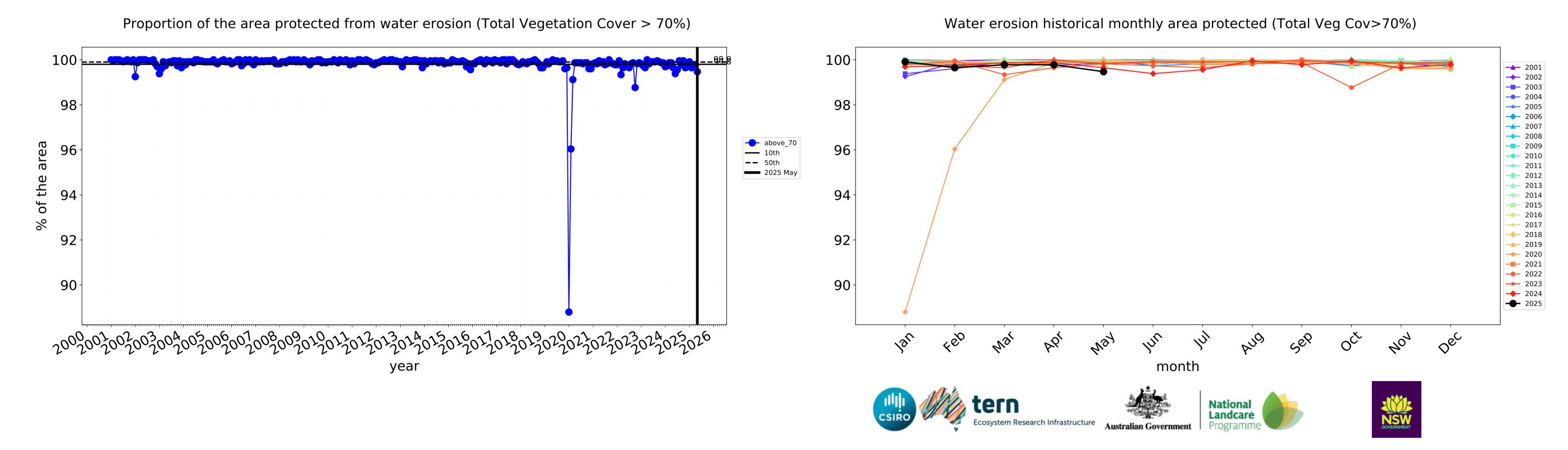


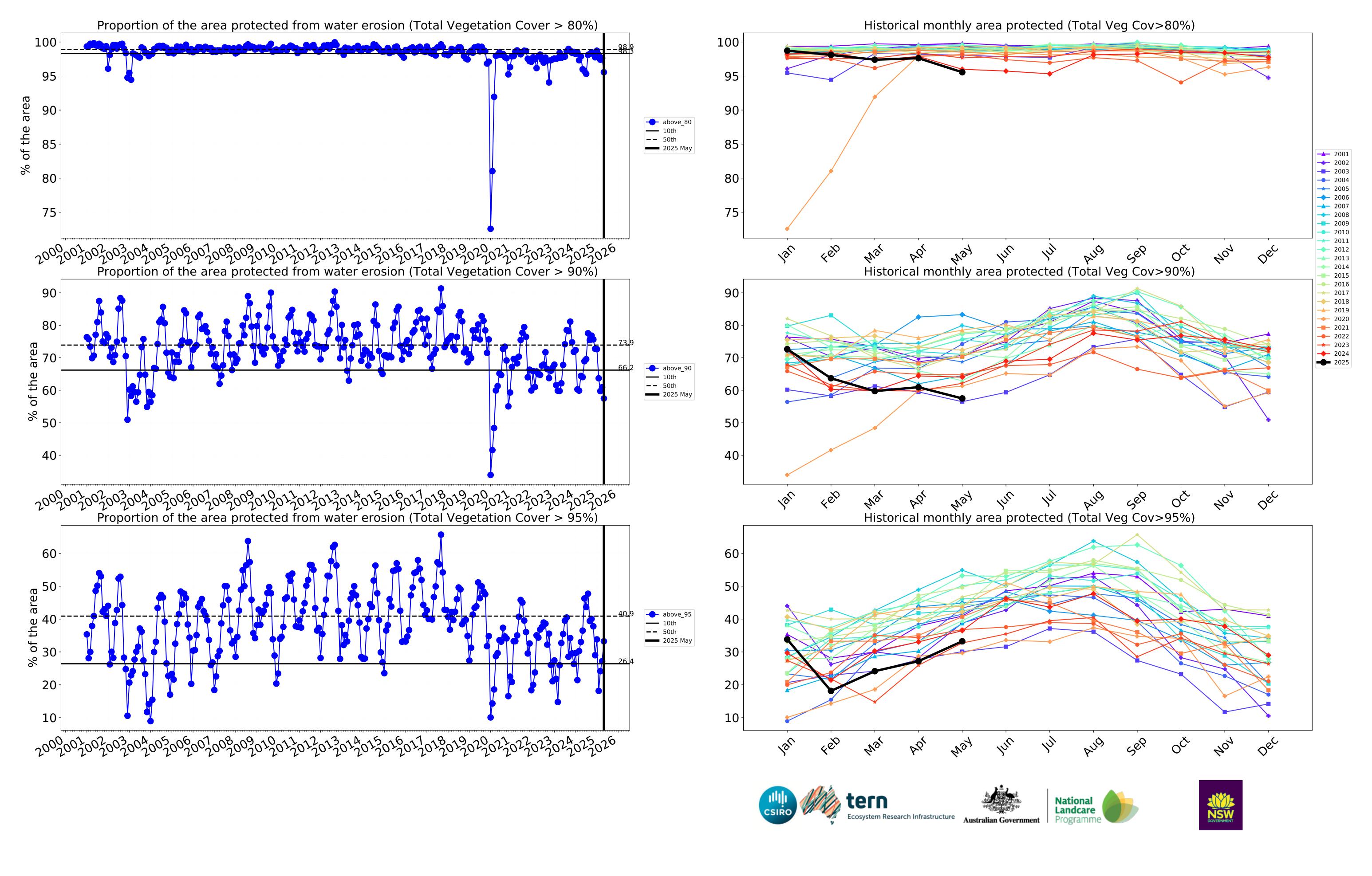




# **Grazing timeseries**







# **Grazing non forest**

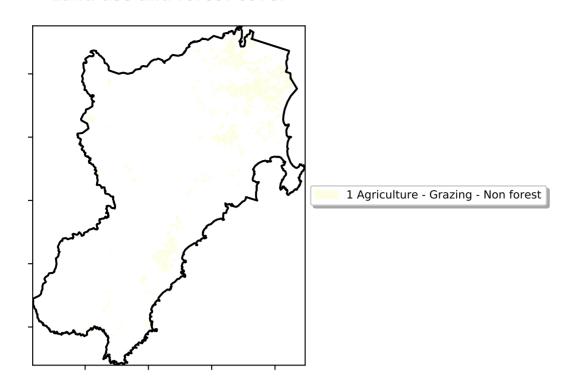
#### Land use and forest cover

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

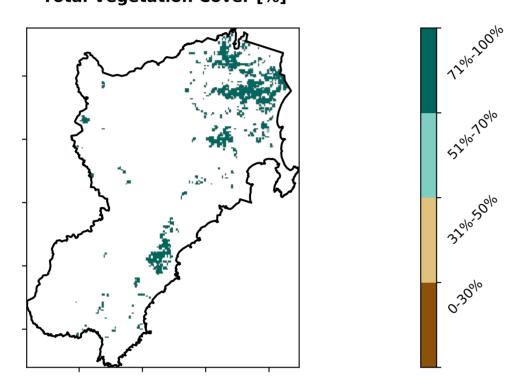
Anomaly show how many percetage points each pixel is from the mean. That

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

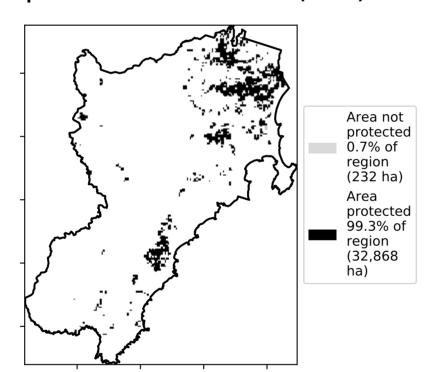
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



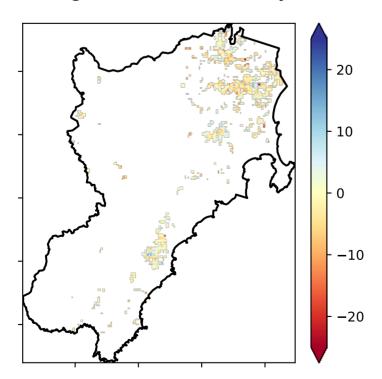
#### **Total Vegetation Cover [%]**



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

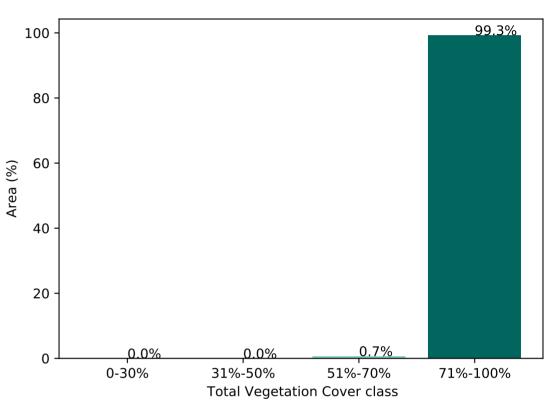


#### **Total Vegetation Cover Anomaly [%]**

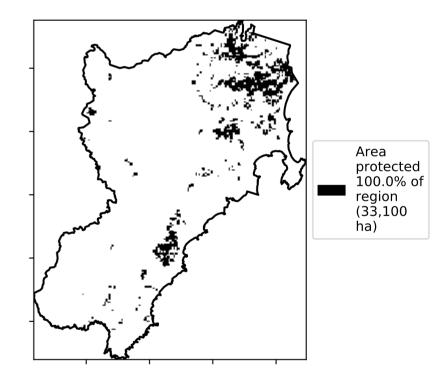


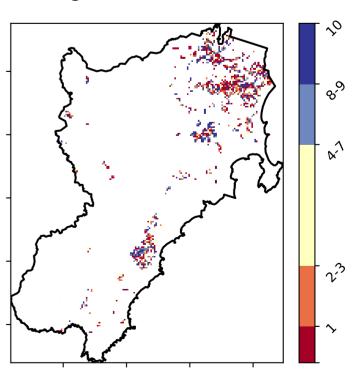
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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





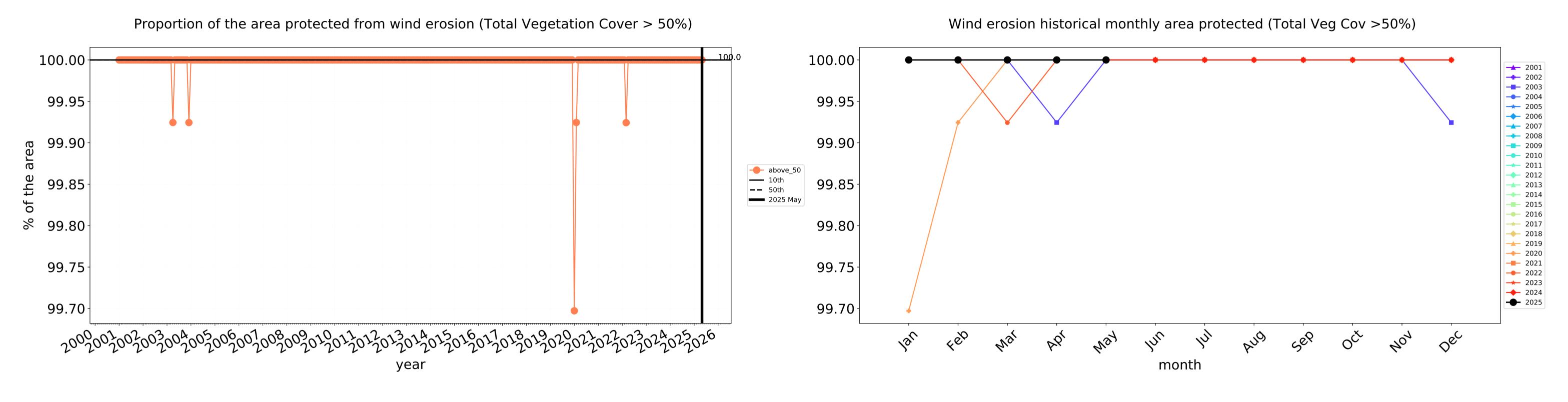


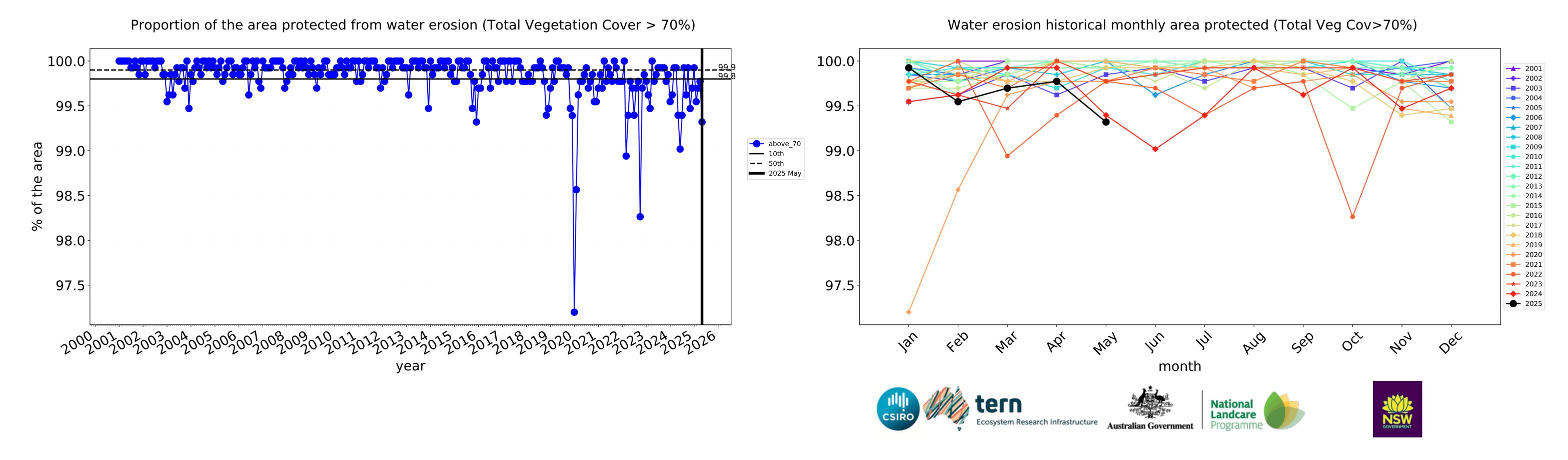


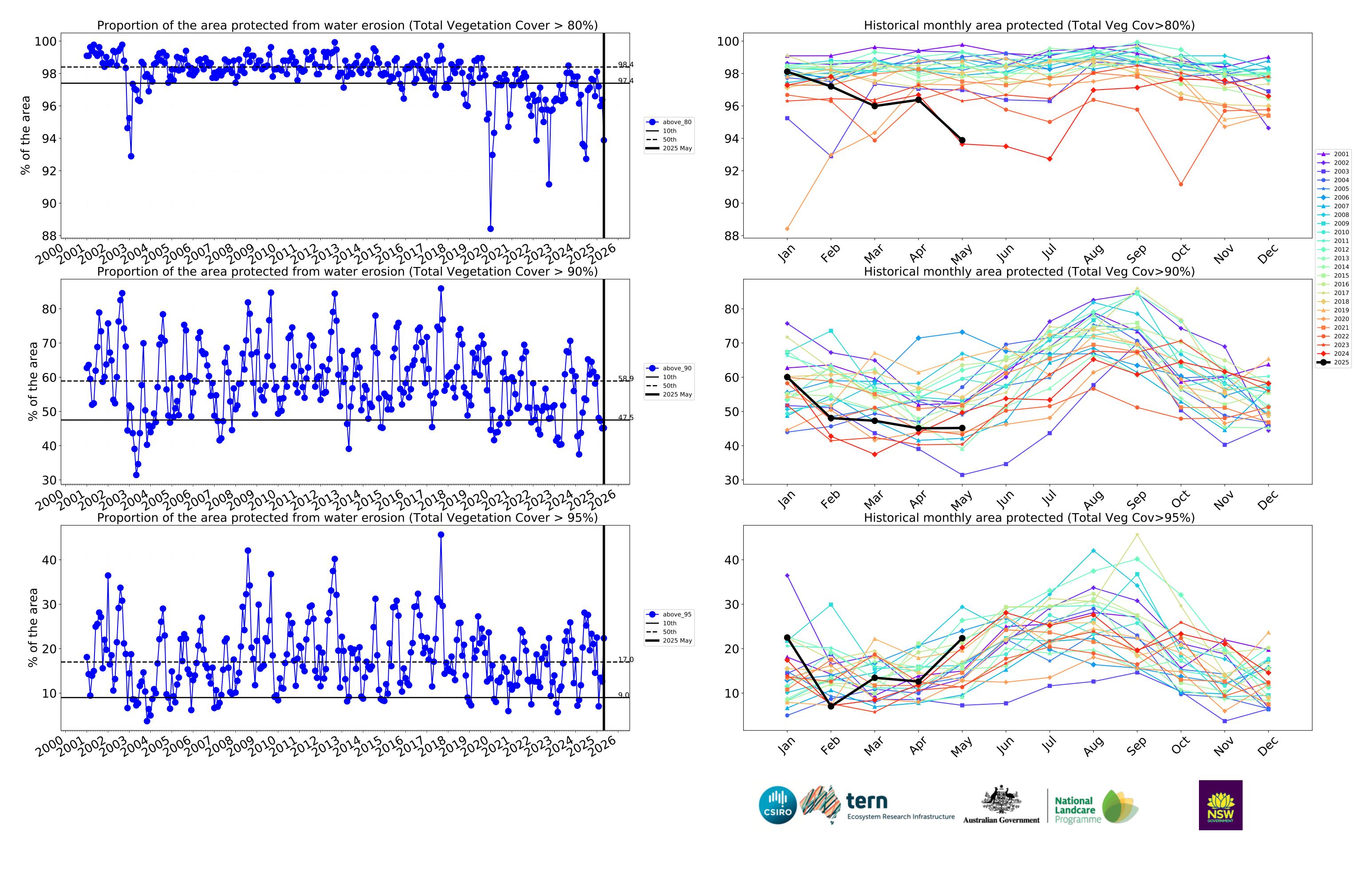




# **Grazing non forest timeseries**







# **Grazing Woodland forest**

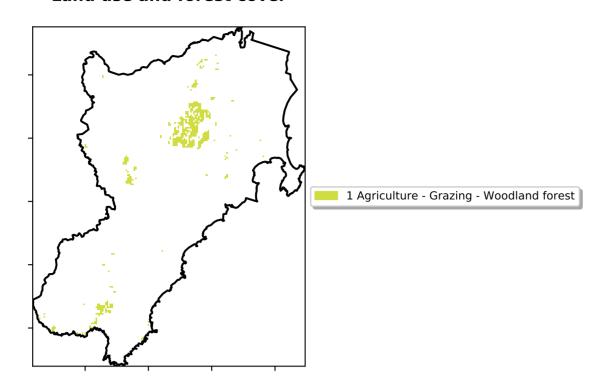
#### Land use and forest cover

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

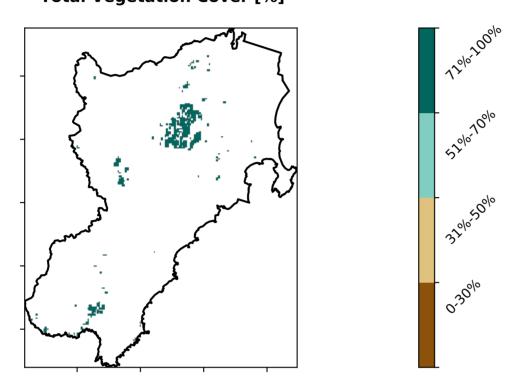
Anomaly show how many percetage points each pixel is from the mean. That

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

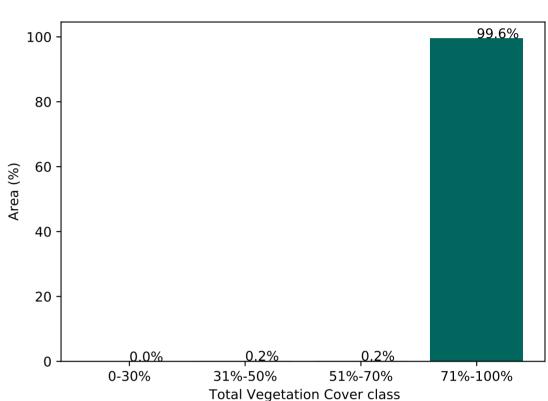
is only for the month of the map using baseline from 2001 to 2019.



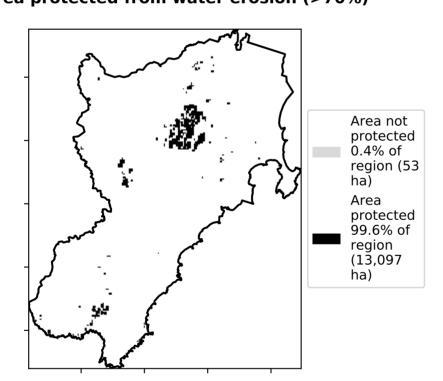
#### **Total Vegetation Cover [%]**



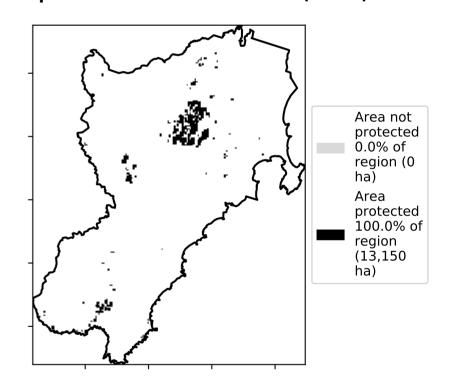
# Proportion of vegetation cover class in area



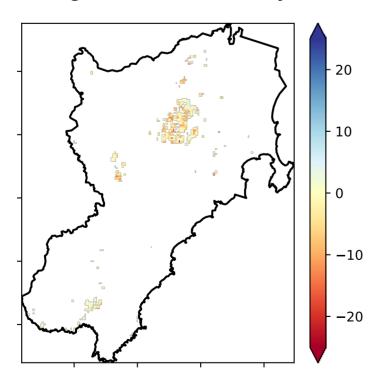
# % Area protected from water erosion (>70%)



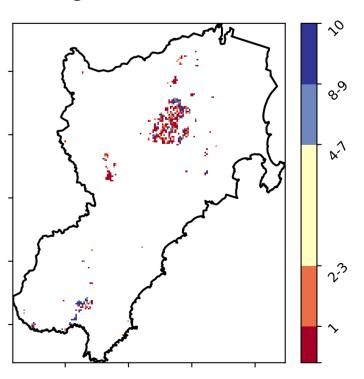
% Area protected from wind erosion (>50%)



#### **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.



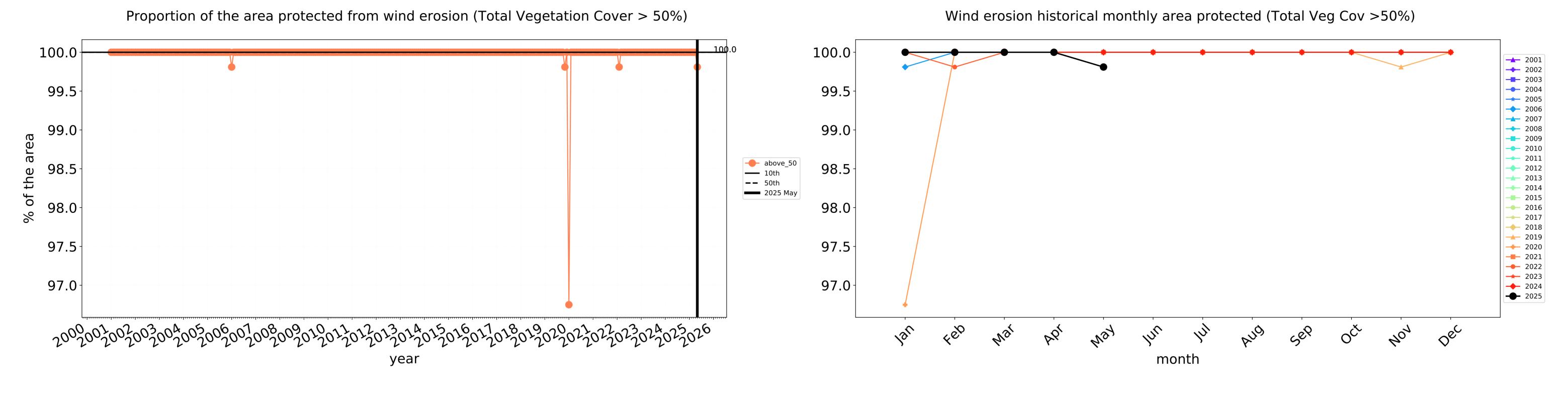


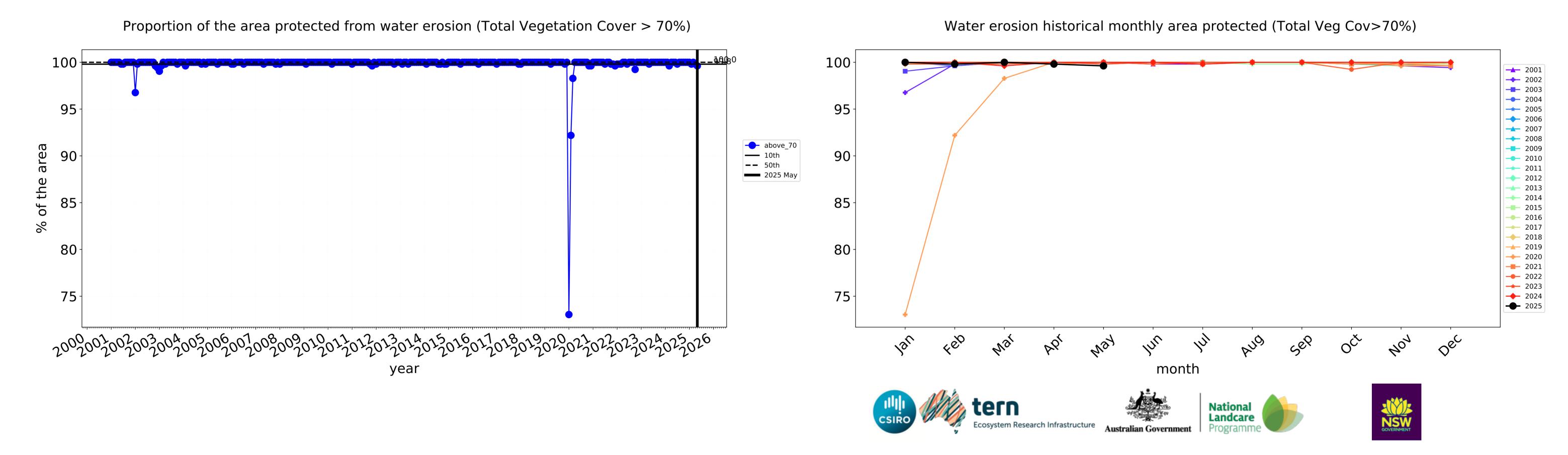


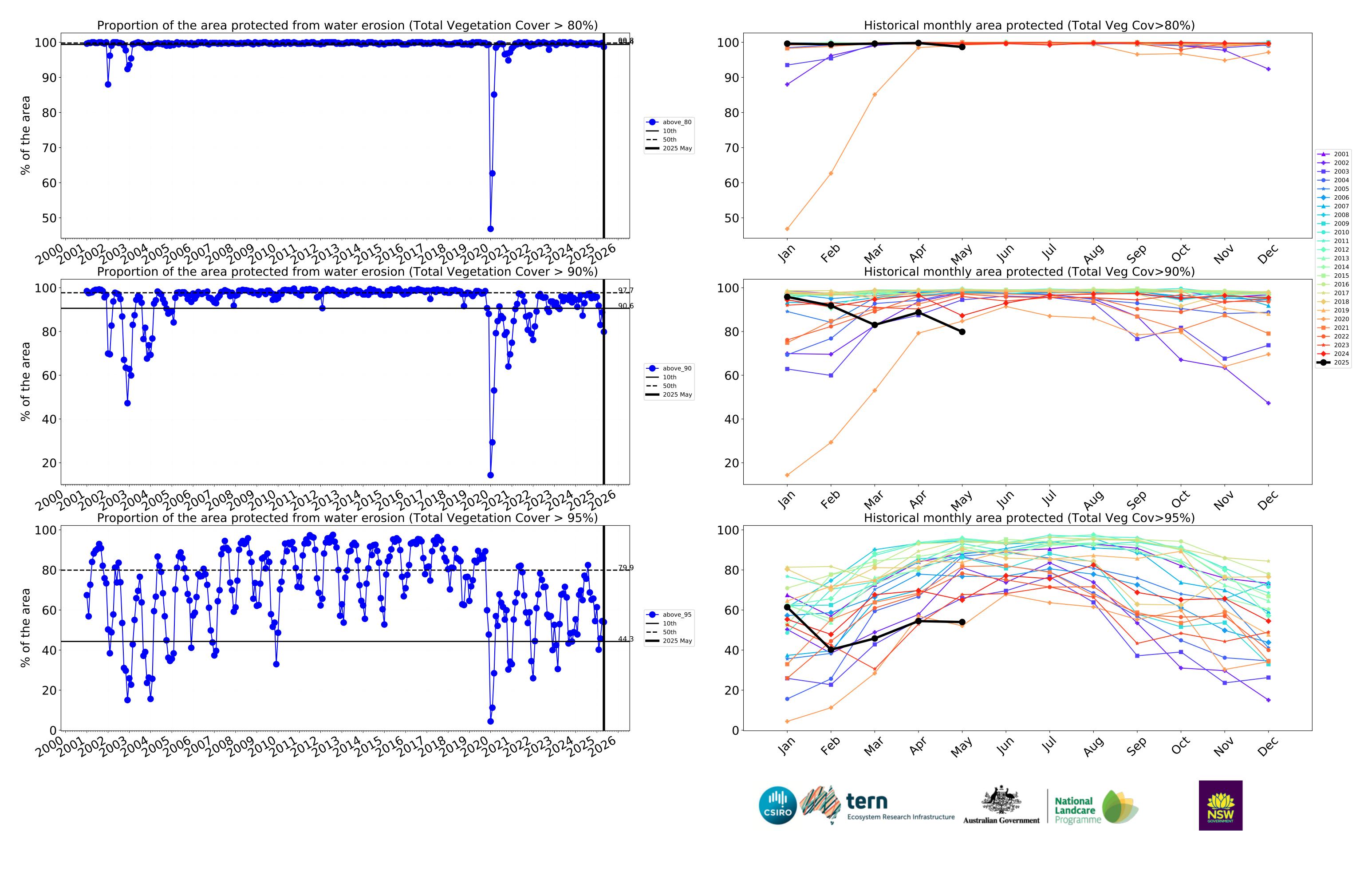




# **Grazing Woodland forest timeseries**







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

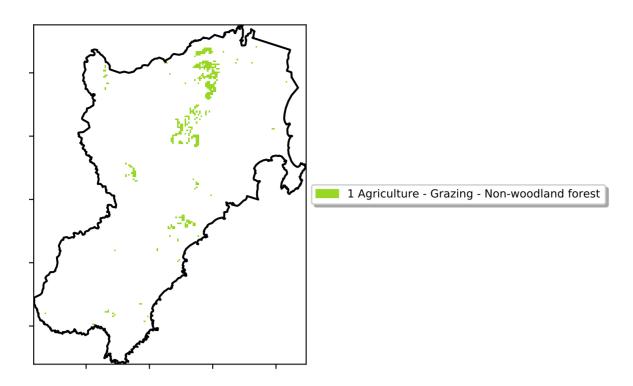
#### Land use and forest cover

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

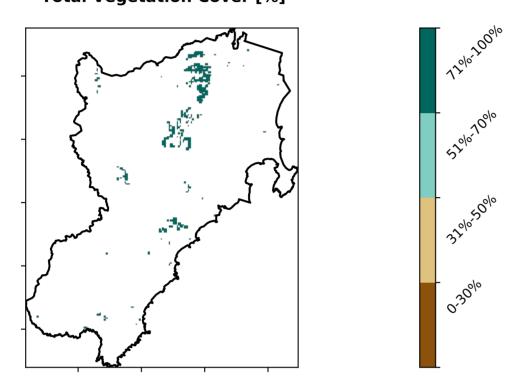
Anomaly show how many percetage points each pixel is from the mean. That

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

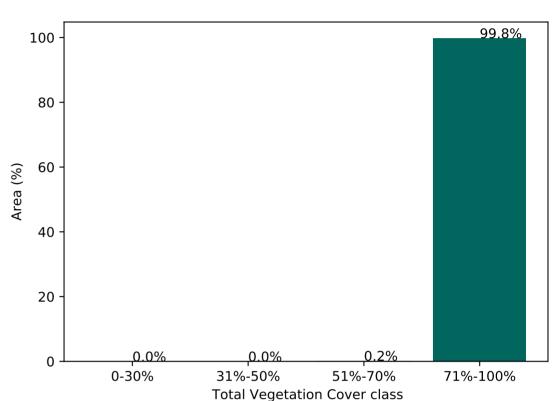
is only for the month of the map using baseline from 2001 to 2019.



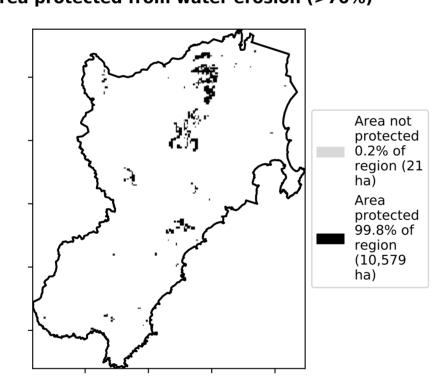
#### **Total Vegetation Cover [%]**



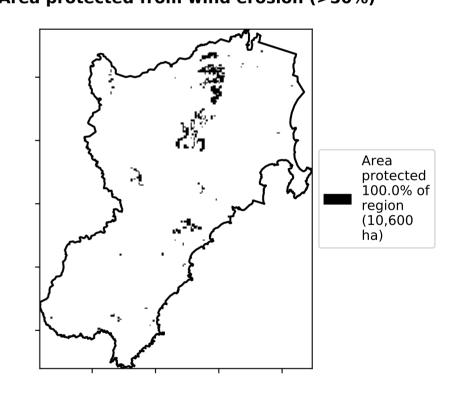
#### Proportion of vegetation cover class in area



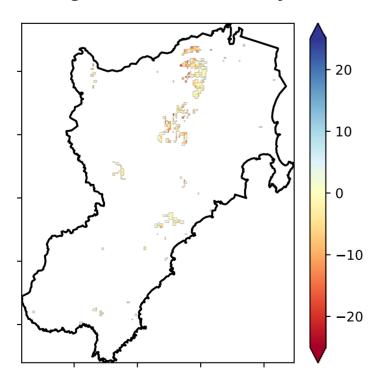
# % Area protected from water erosion (>70%)



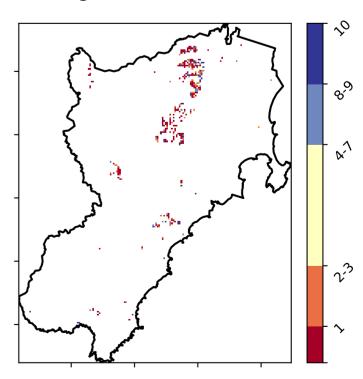
% Area protected from wind erosion (>50%)



#### **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.

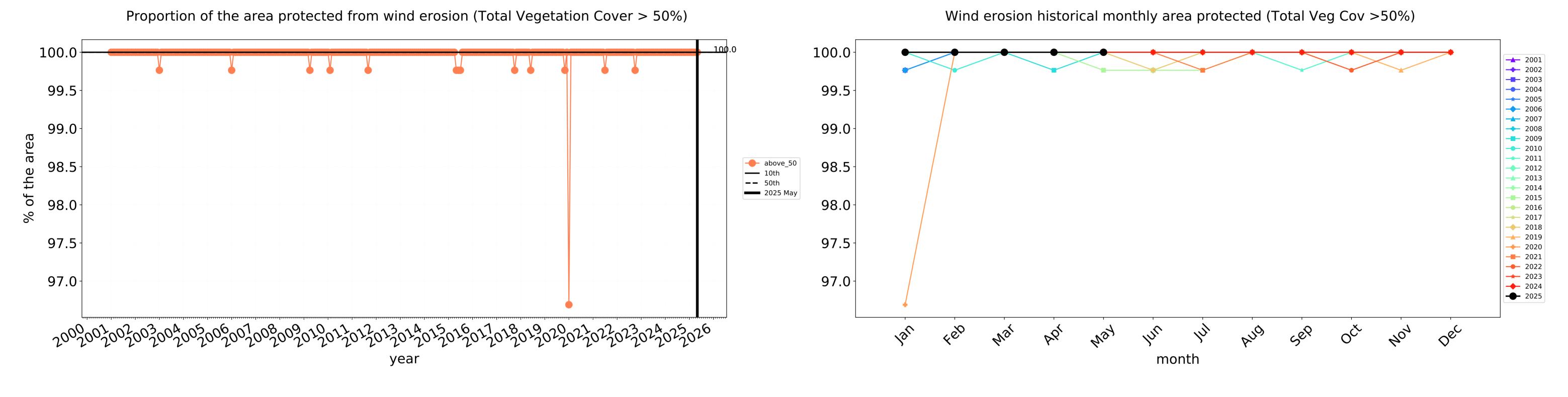


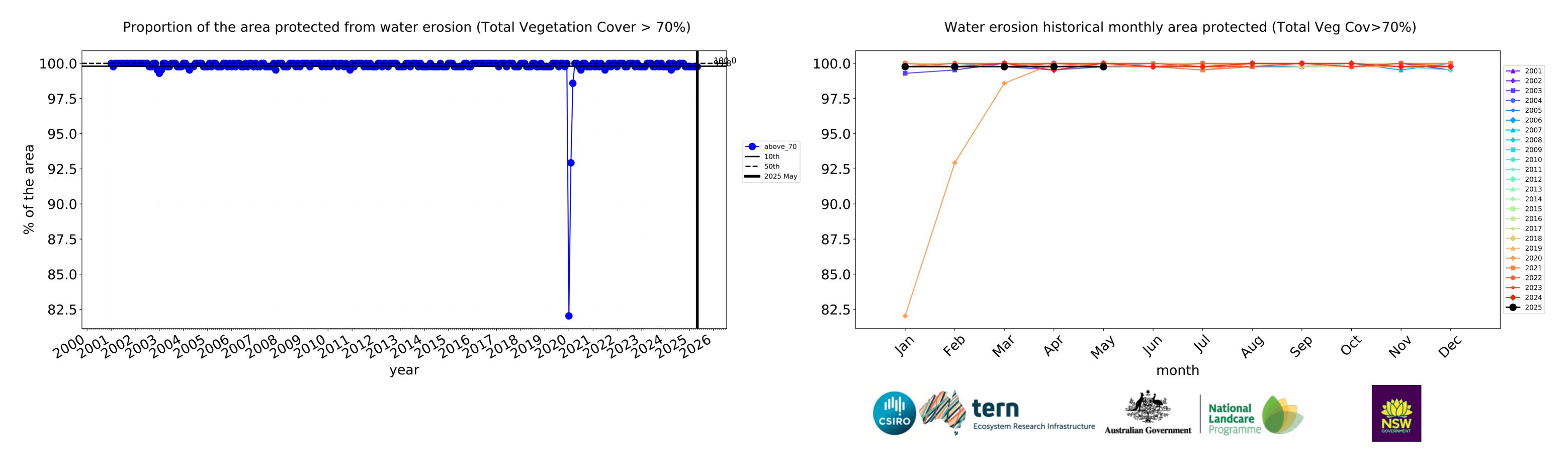


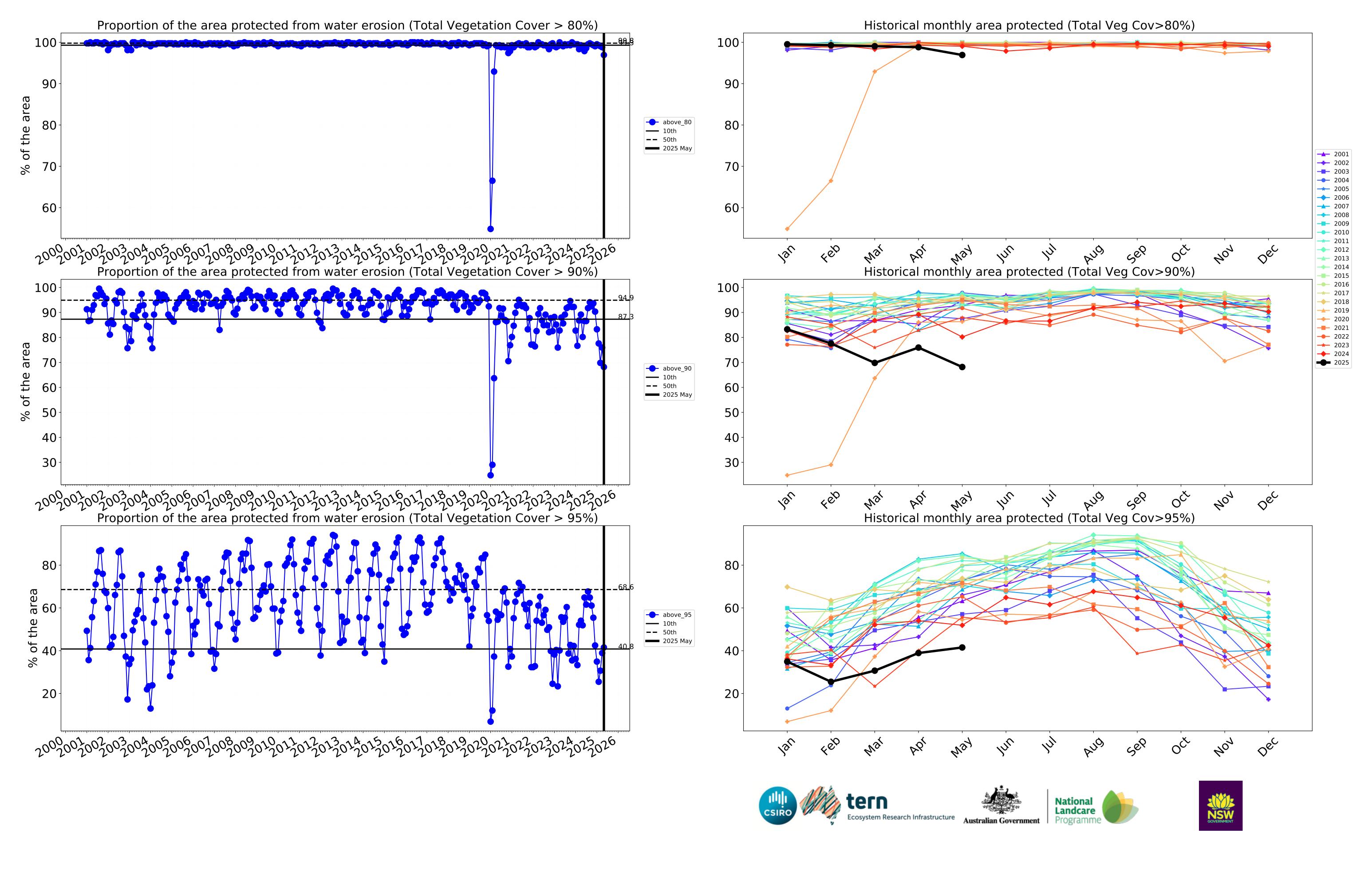












# Irrigation

#### 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

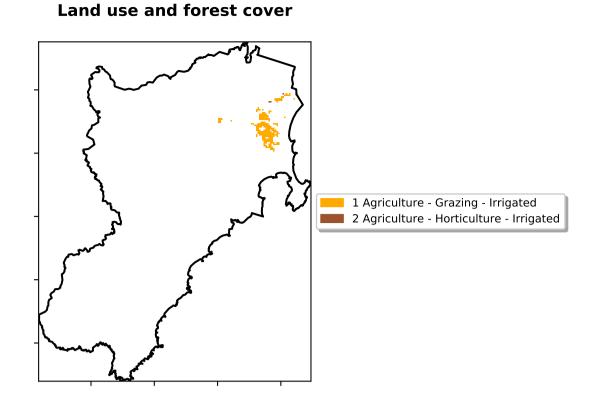
are about 20% lower than the

mean of that

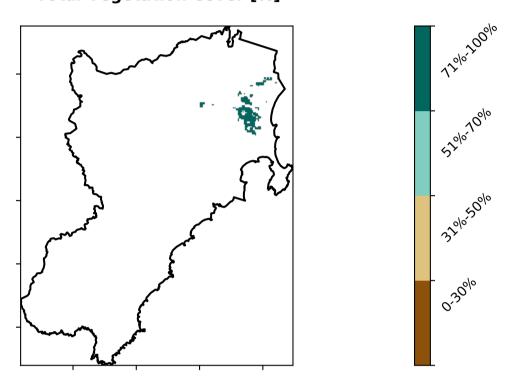
pixel. The mean

using baseline from 2001 to 2019.

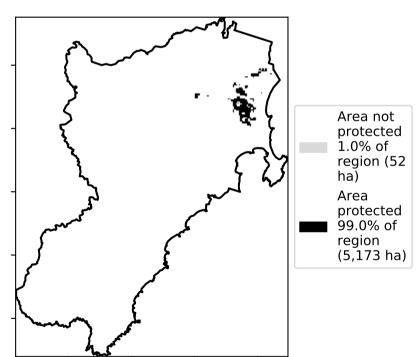
is only for the month of the map



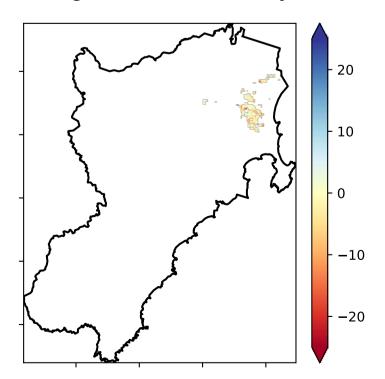
#### **Total Vegetation Cover [%]**



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

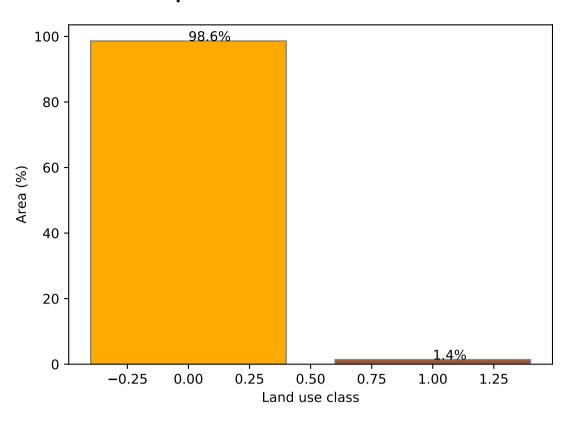


#### **Total Vegetation Cover Anomaly [%]**

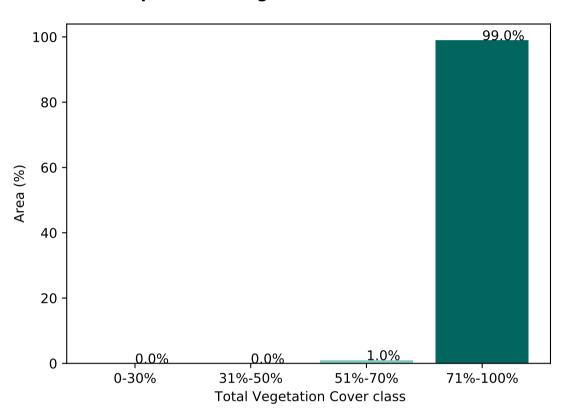


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

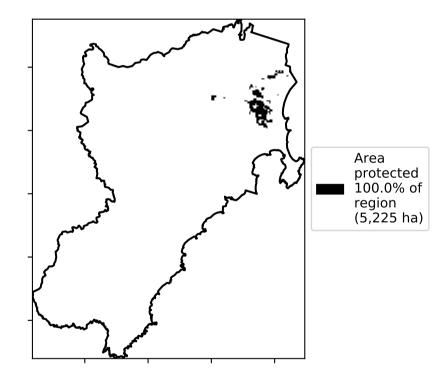
#### Proportion of each land class in area

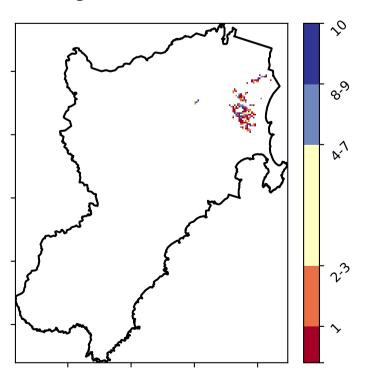


#### Proportion of vegetation cover class in area



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







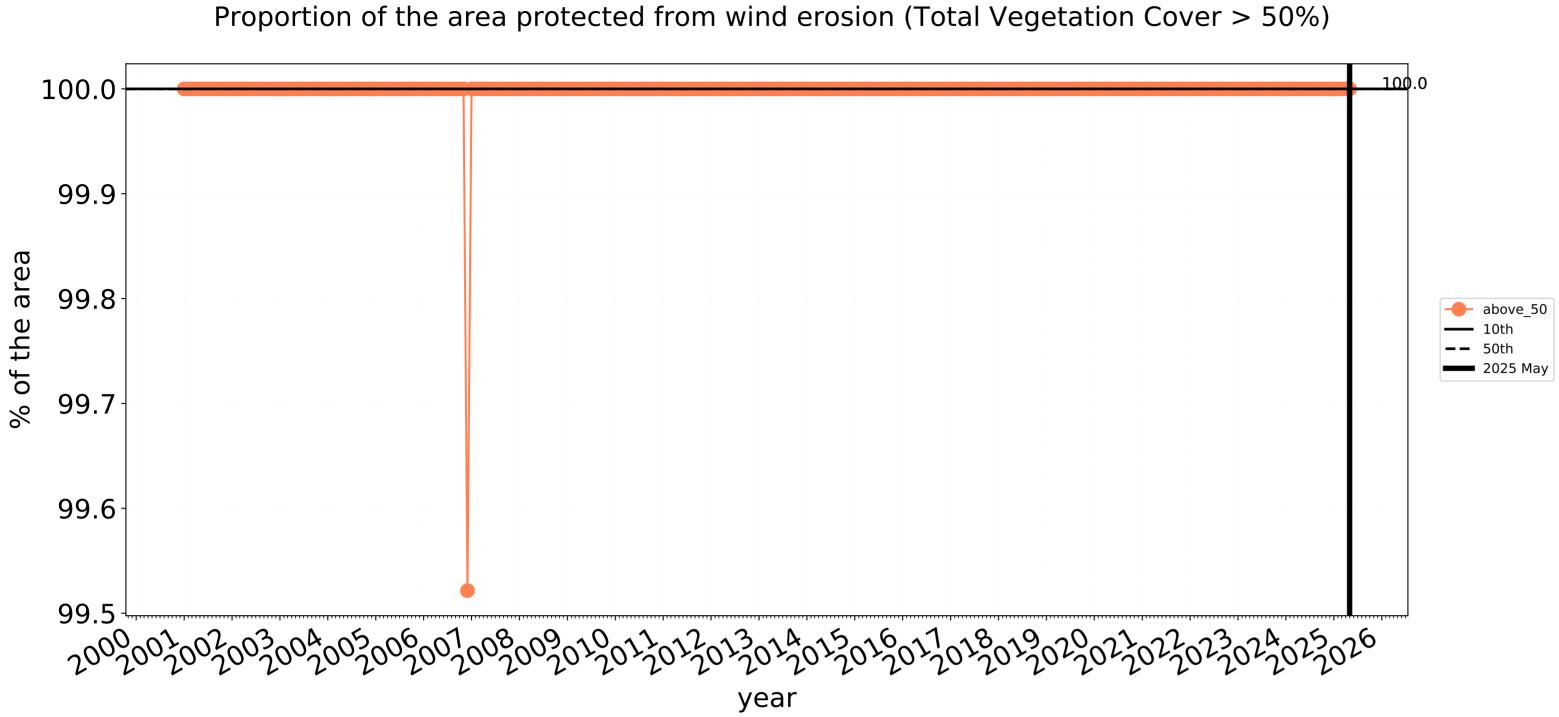


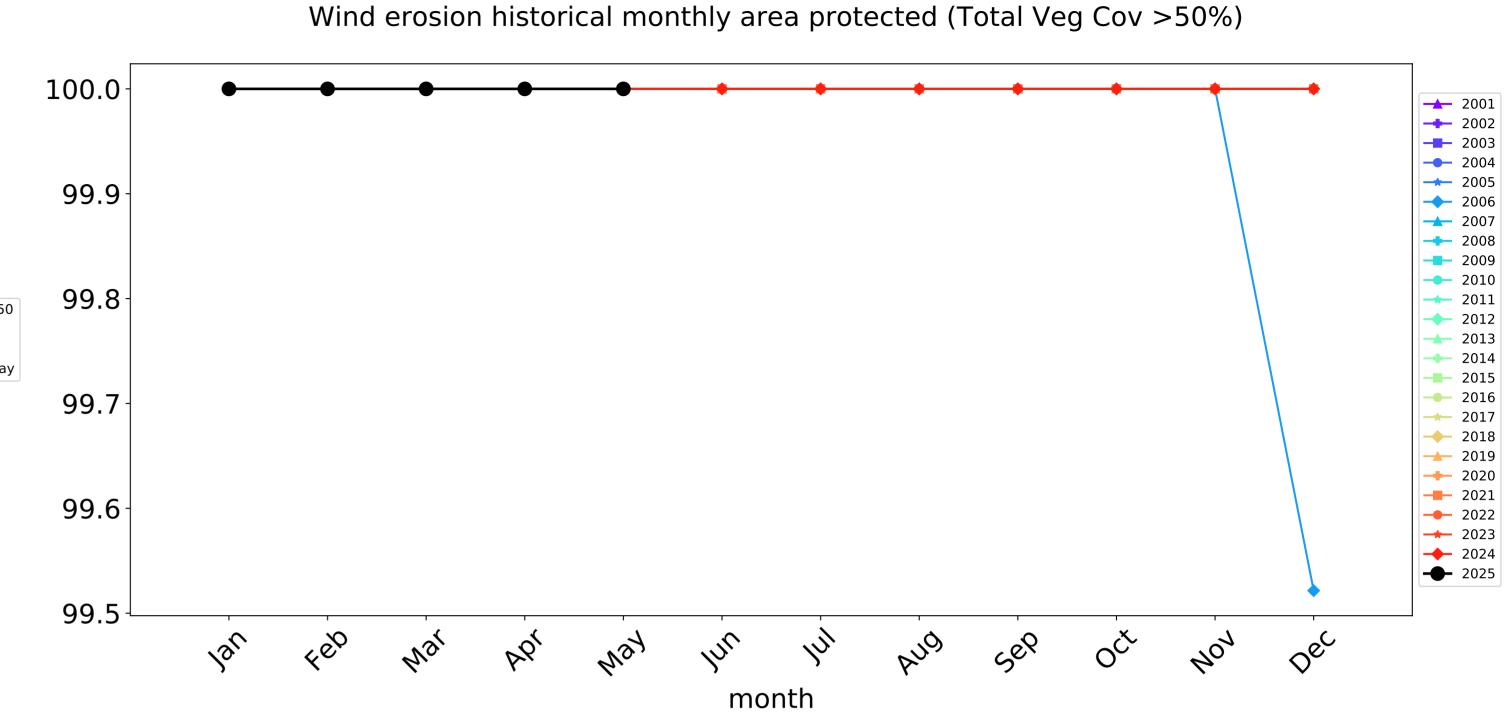


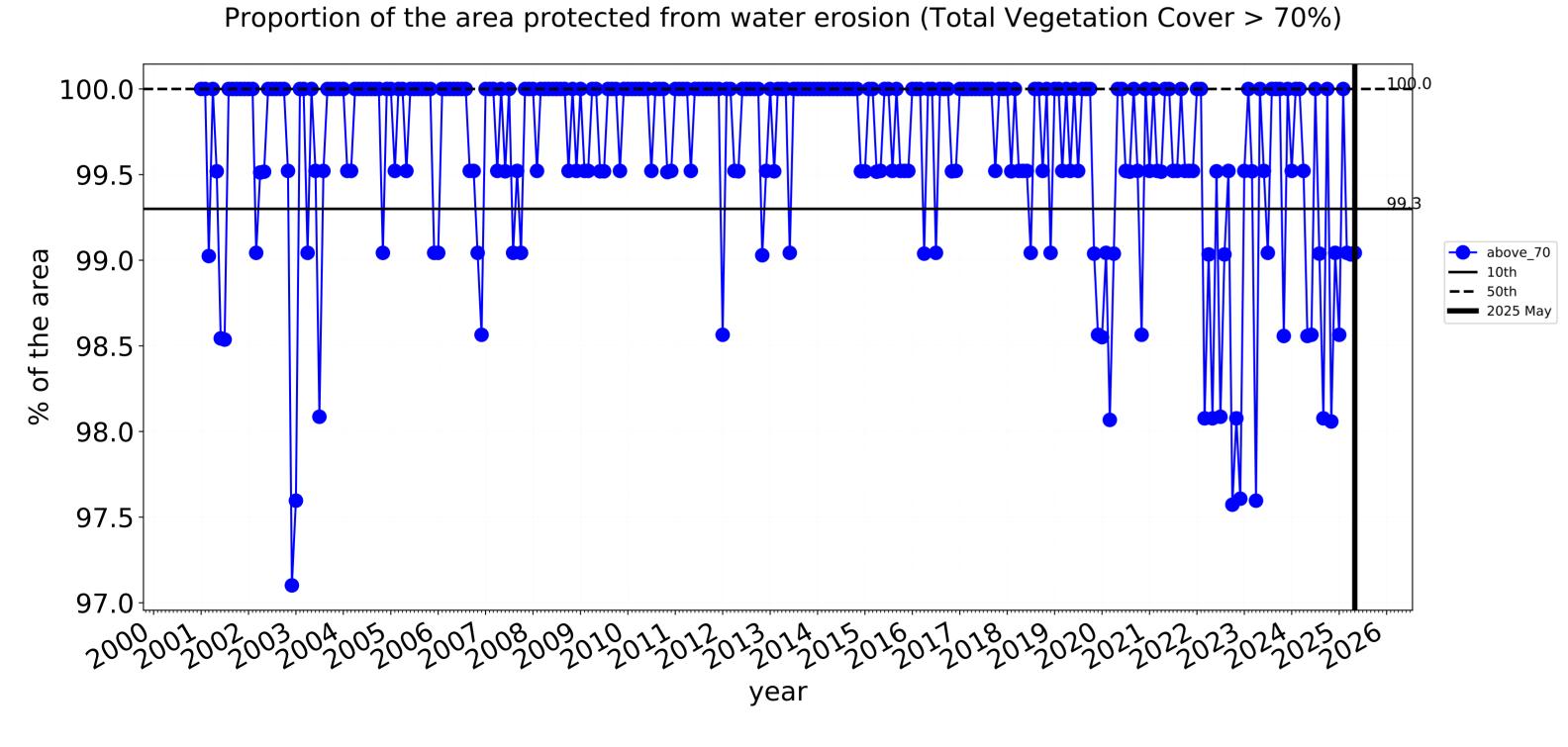


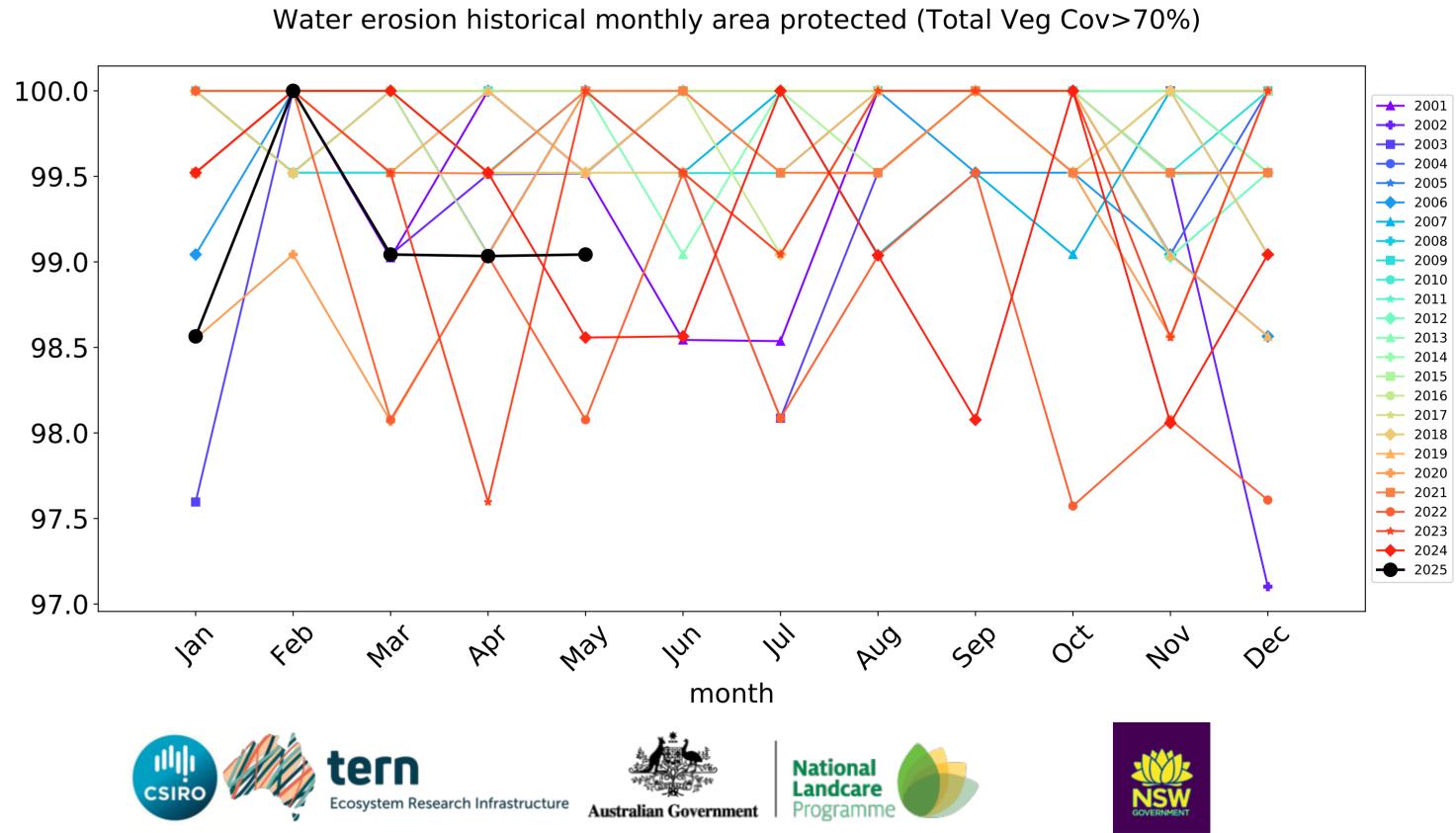


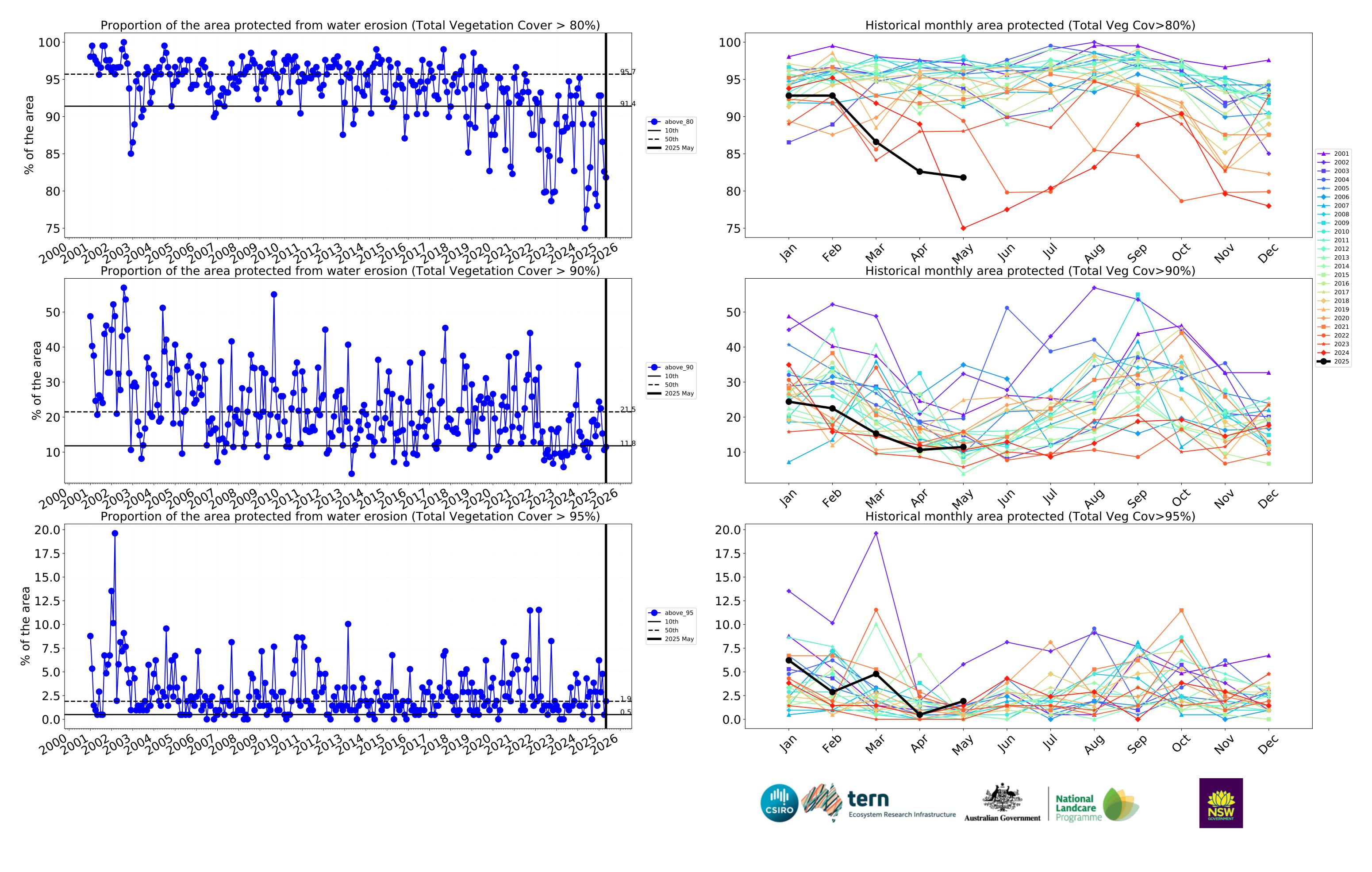
# Irrigation timeseries











# **Production native forests and plantation forests**

#### Land use and forest cover

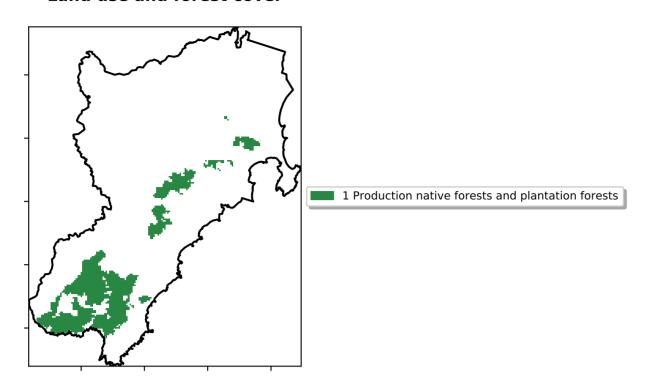
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

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

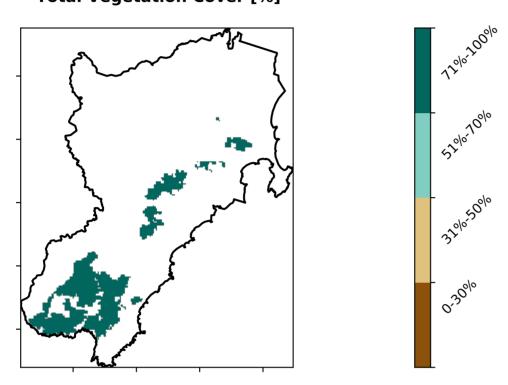
is, red pixels are about 20%

lower than the mean of that pixel. The mean

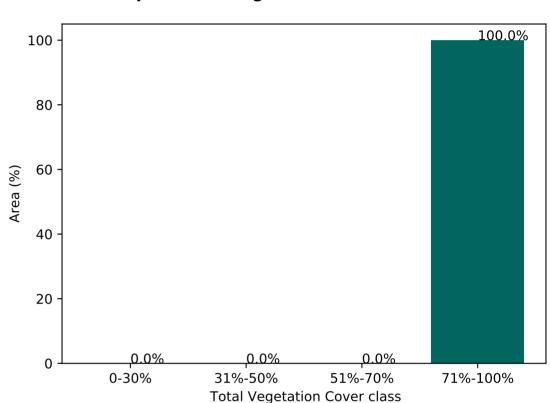
is only for the month of the map using baseline from 2001 to 2019.



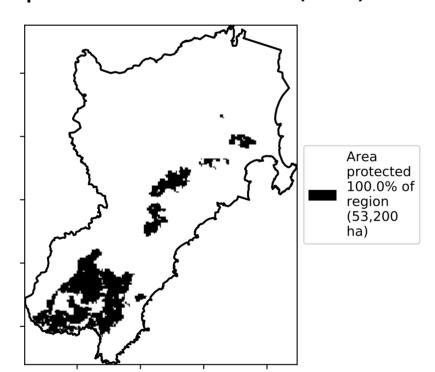
#### **Total Vegetation Cover [%]**



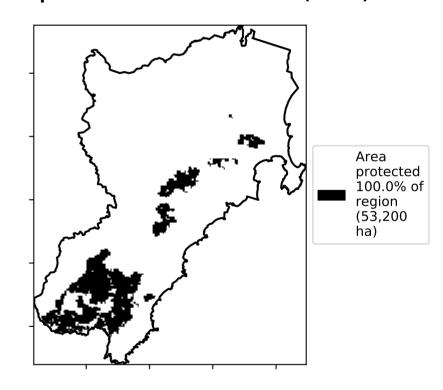
#### Proportion of vegetation cover class in area



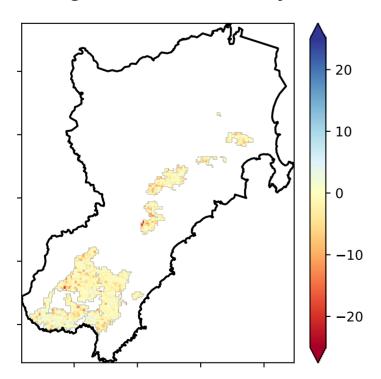
#### % Area protected from water erosion (>70%)



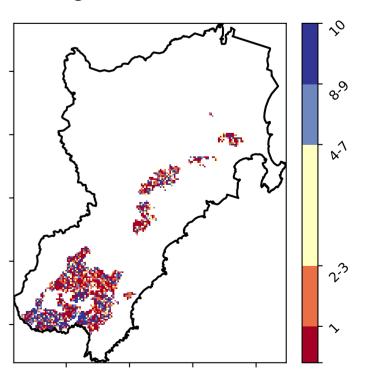
% Area protected from wind erosion (>50%)



#### **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.







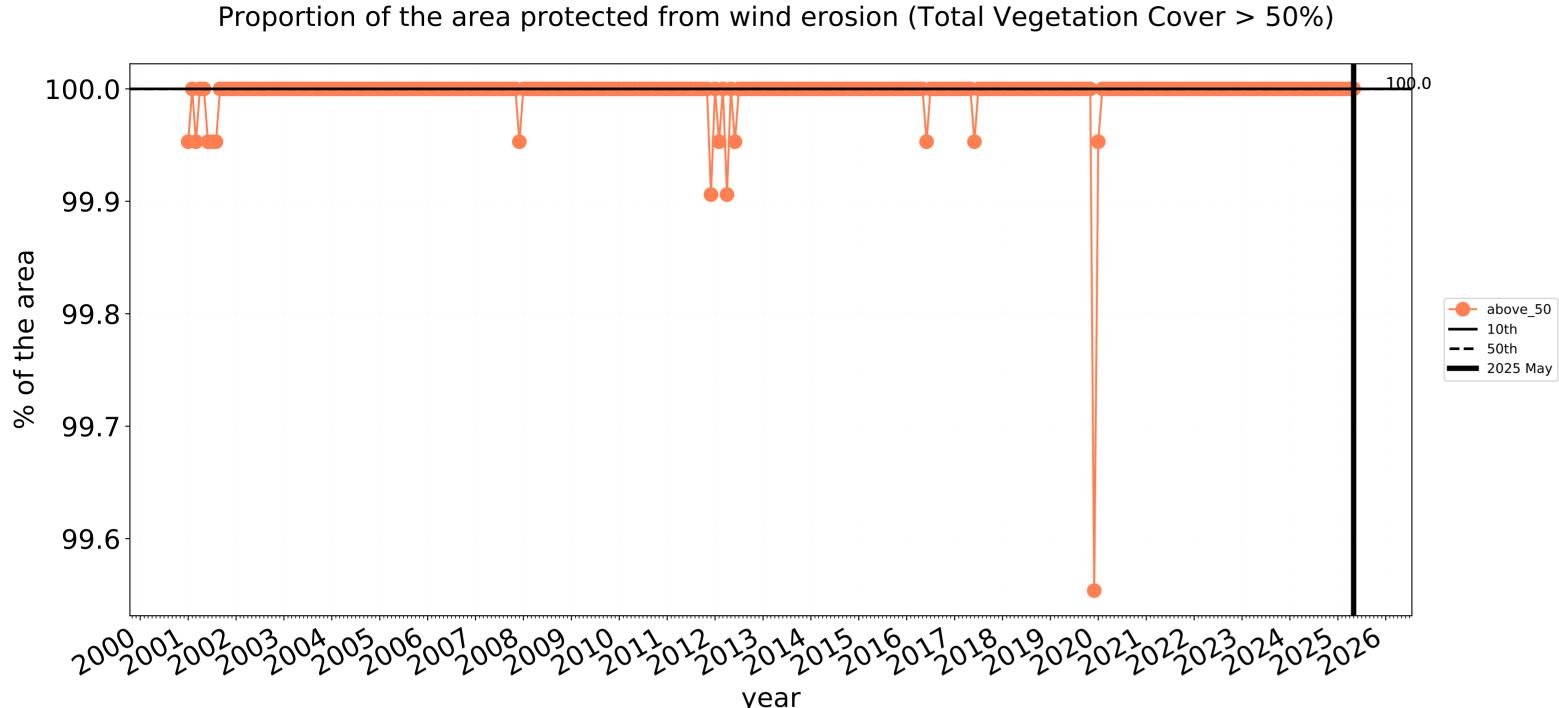


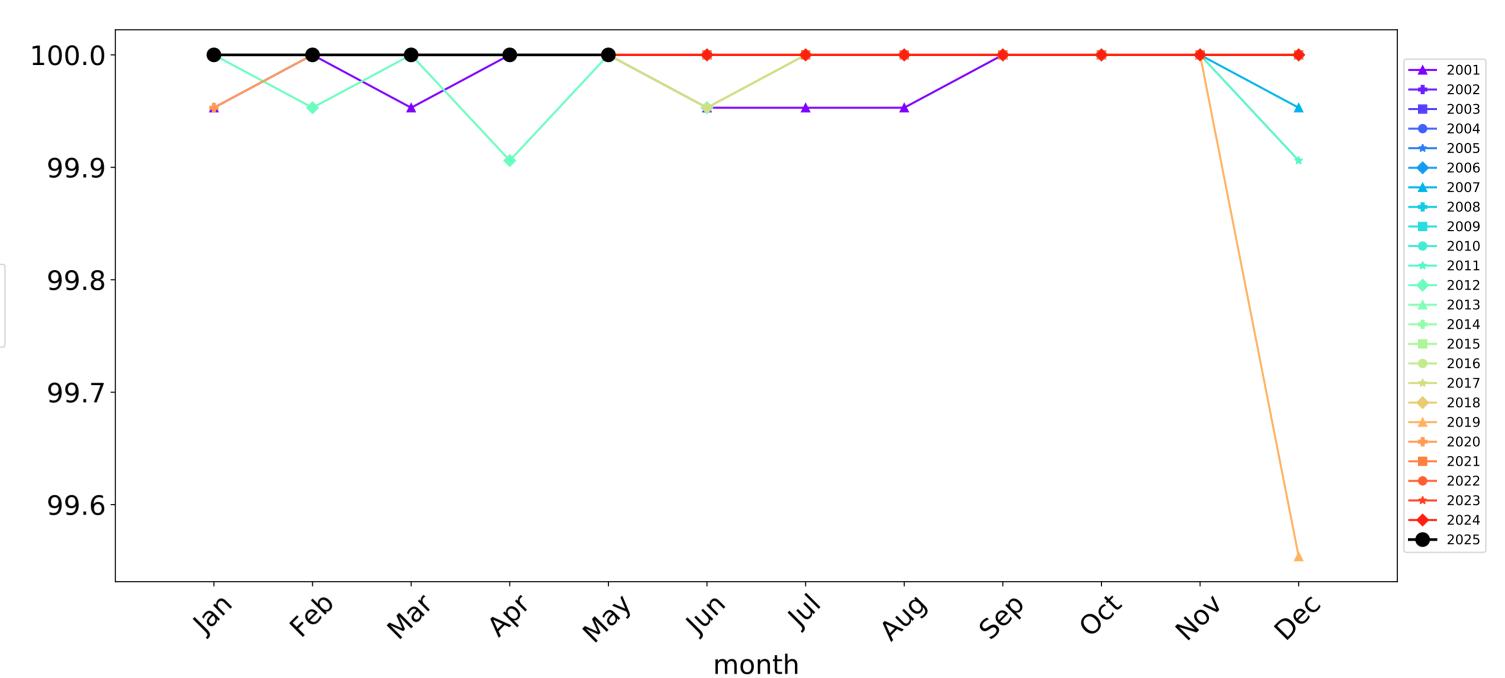




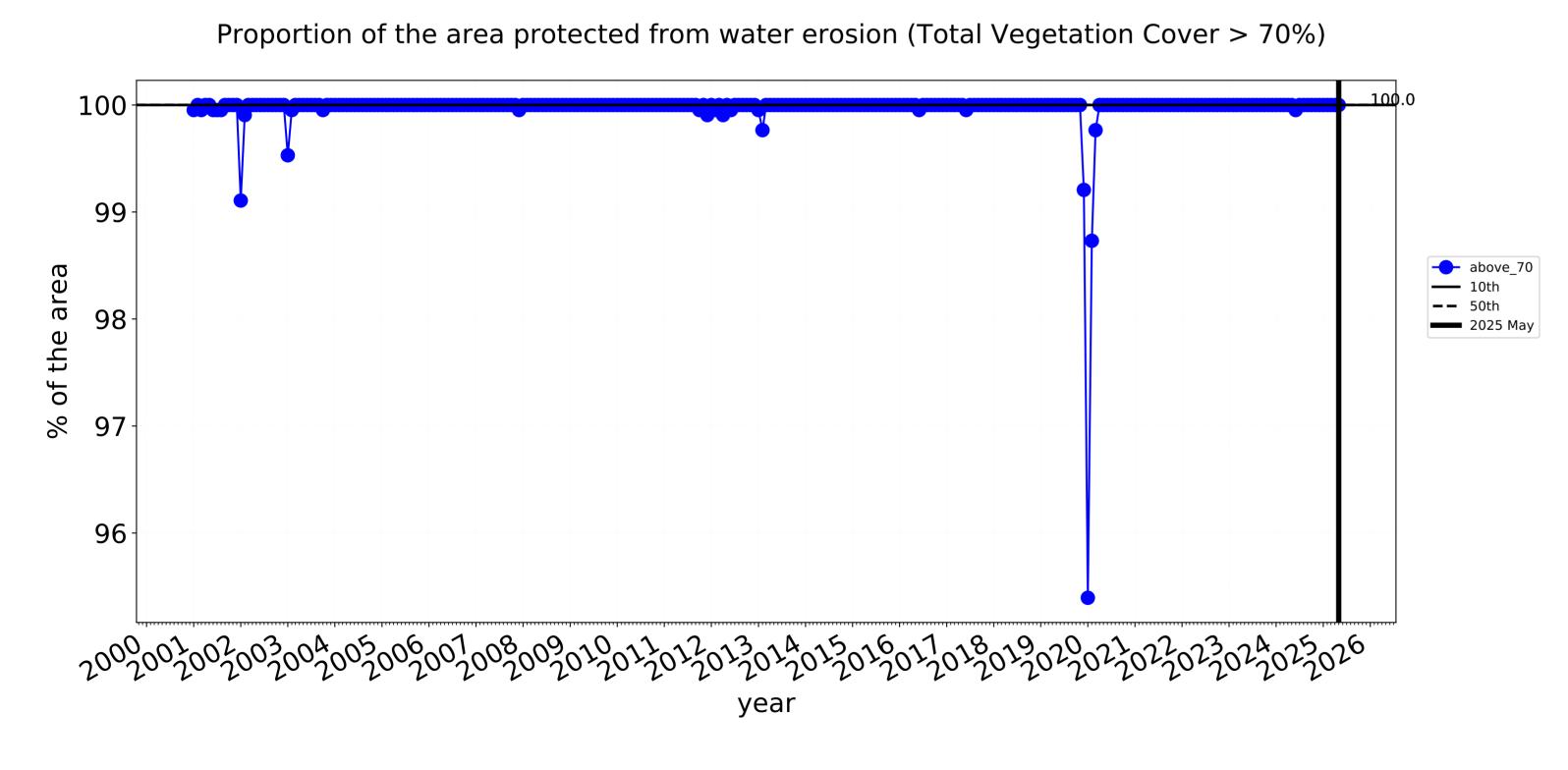


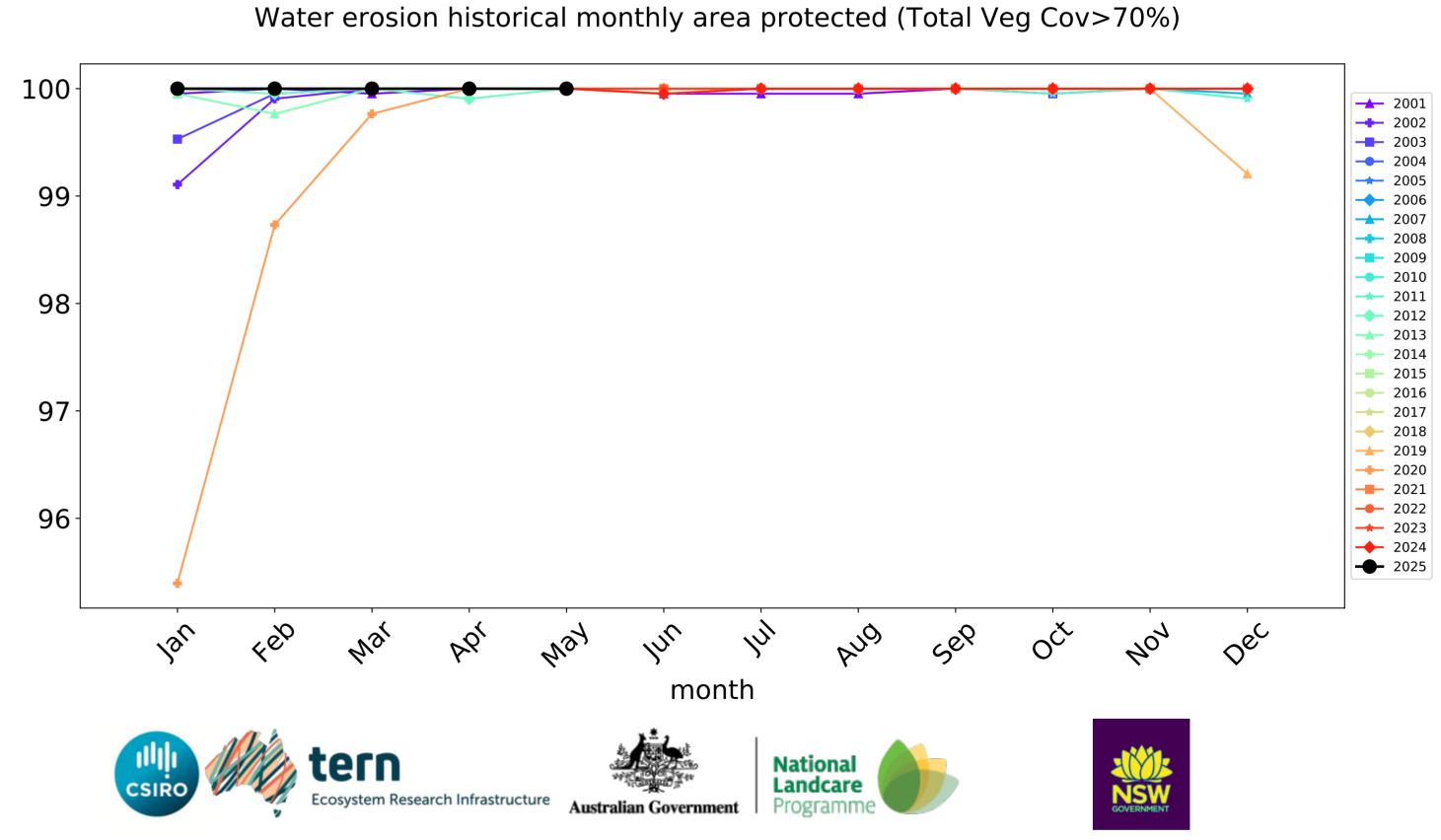
# **Production native forests and plantation forests timeseries**

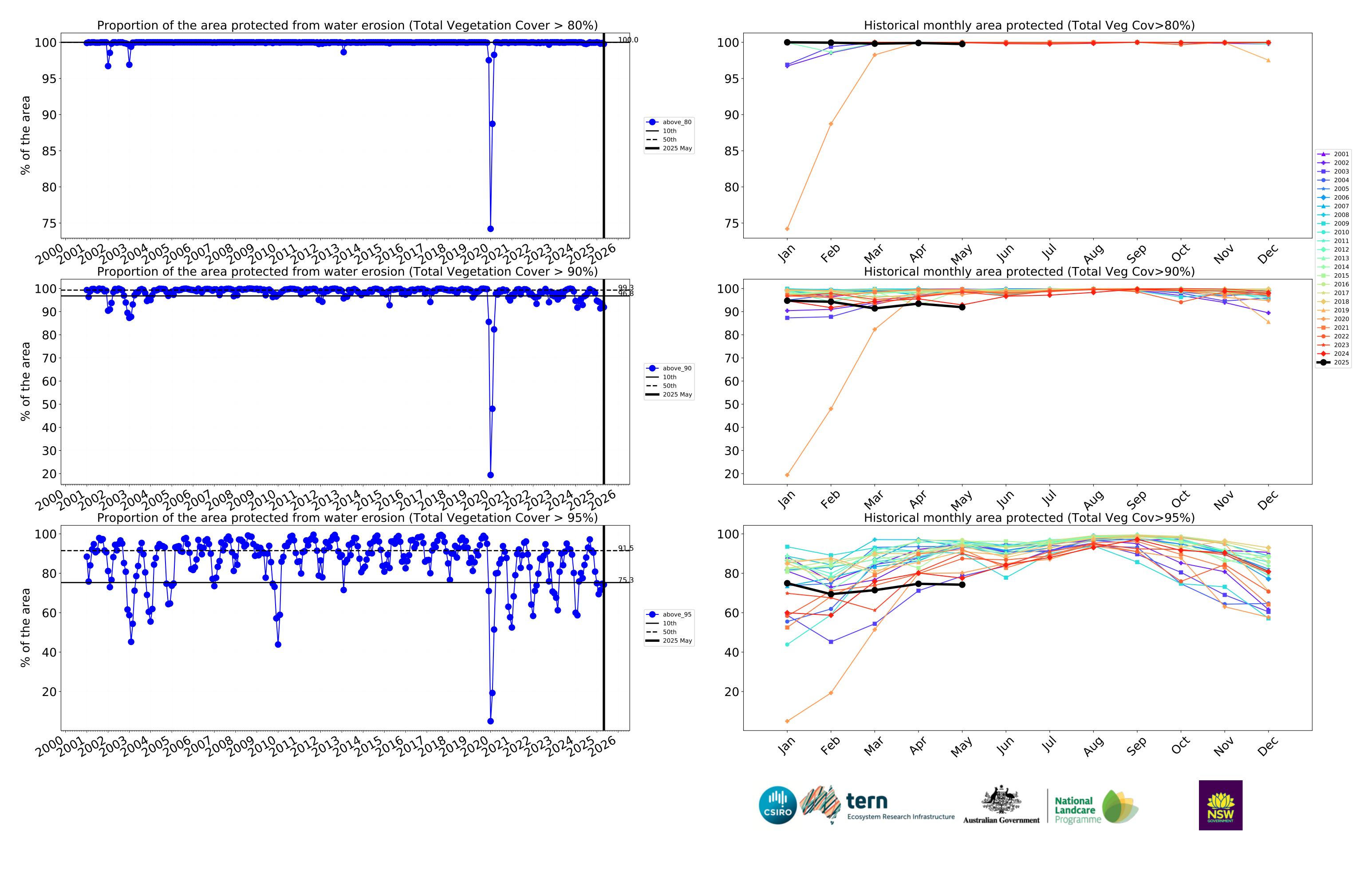




Wind erosion historical monthly area protected (Total Veg Cov >50%)







# Shoalhaven\_(C) (446,325 ha and no data 10,472 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	446,325	100.0% 446,200	99.8% 445,500	98.9% 441,575	95.7% 427,350	73.9% 330,025	47.2% 210,500
Conservation and natural environments	298,375	100.0% 298,325	99.9% 298,125	99.5% 296,800	97.4% 290,475	78.0% 232,850	48.4% 144,350
Conservation and natural environments non forest	6,150	100.0% 6,150	99.6% 6,125	96.3% 5,925	89.0% 5,475	54.9% 3,375	30.9% 1,900
Conservation and natural environments Woodland forest	184,300	100.0% 184,300	100.0% 184,225	99.6% 183,500	97.9% 180,450	79.0% 145,600	45.9% 84,575
Conservation and natural environments Forest (non woodland)	107,925	100.0% 107,875	99.9% 107,775	99.5% 107,375	96.9% 104,550	77.7% 83,875	53.6% 57,875
Agriculture	62,200	100.0% 62,200	100.0% 62,175	99.4% 61,850	94.4% 58,725	53.7% 33,375	30.6% 19,050
Grazing	56,850	100.0% 56,850	100.0% 56,825	99.5% 56,550	95.6% 54,325	57.5% 32,675	33.2% 18,900
Grazing non forest	33,100	100.0% 33,100	100.0% 33,100	99.3% 32,875	93.9% 31,075	45.2% 14,950	22.4% 7,400
Grazing Woodland forest	13,150	100.0% 13,150	99.8% 13,125	99.6% 13,100	98.7% 12,975	79.8% 10,500	54.0% 7,100
Grazing - Forest (non woodland)	10,600	100.0% 10,600	100.0% 10,600	99.8% 10,575	96.9% 10,275	68.2% 7,225	41.5% 4,400
Irrigation	5,225	100.0% 5,225	100.0% 5,225	99.0% 5,175	81.8% 4,275	11.5% 600	1.9% 100
Production native forests and plantation forests	53,200	100.0% 53,200	100.0% 53,200	100.0% 53,200	99.8% 53,075	91.9% 48,900	74.2% 39,475







