Total vegetation cover soil protection Region:NRM Central Tablelands 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 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:

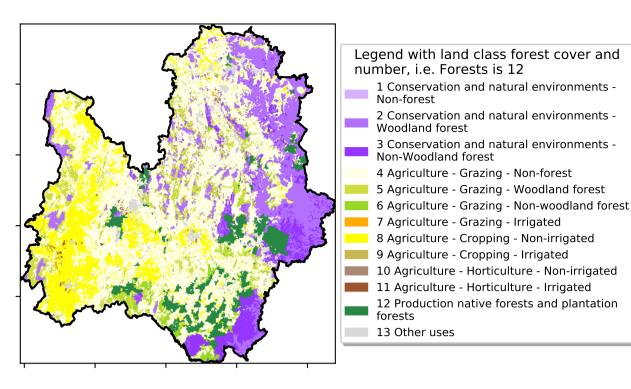
https://doi.org/10.4225/08/5848a3f19a7b3



Vegetation Cover May 2012

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)



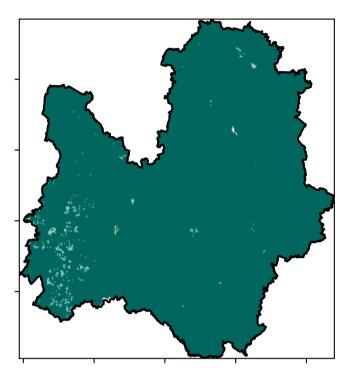
120001

52°10°10°10

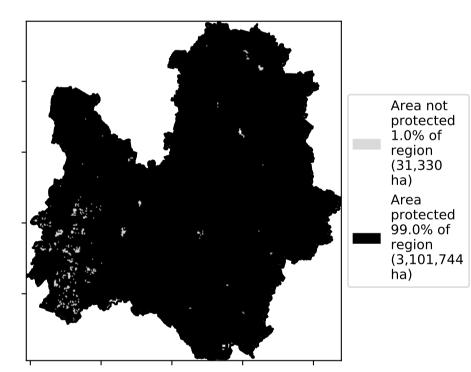
3201050010

0.30%

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



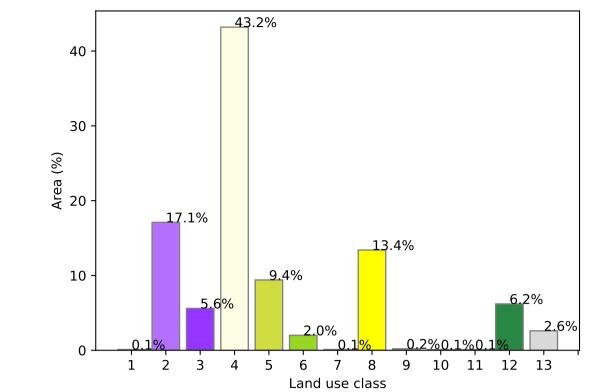
- 20

10

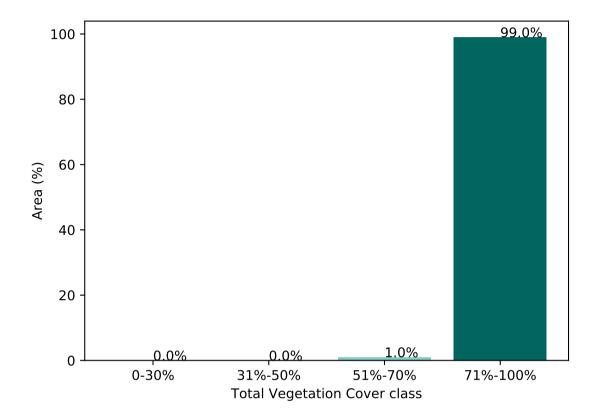
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-10

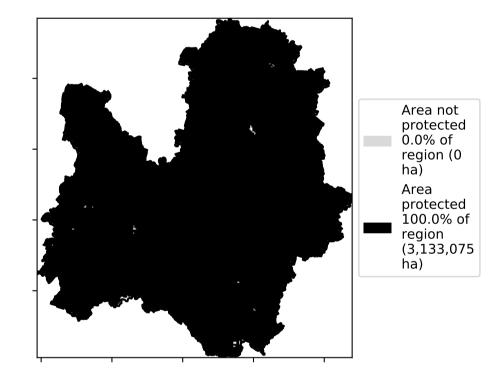
-20



Proportion of vegetation cover class in area

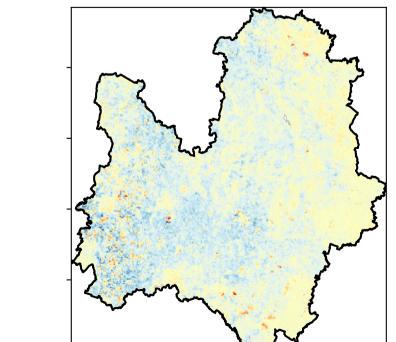


% Area protected from wind erosion (>50%)

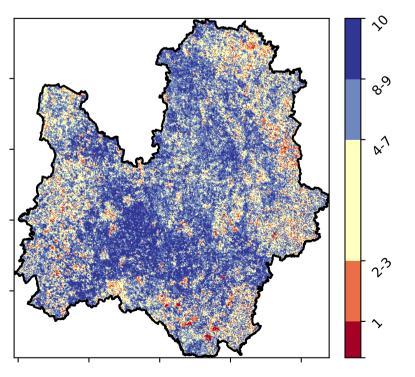


Proportion of each land class in area

Total Vegetation Cover Anomaly [%]

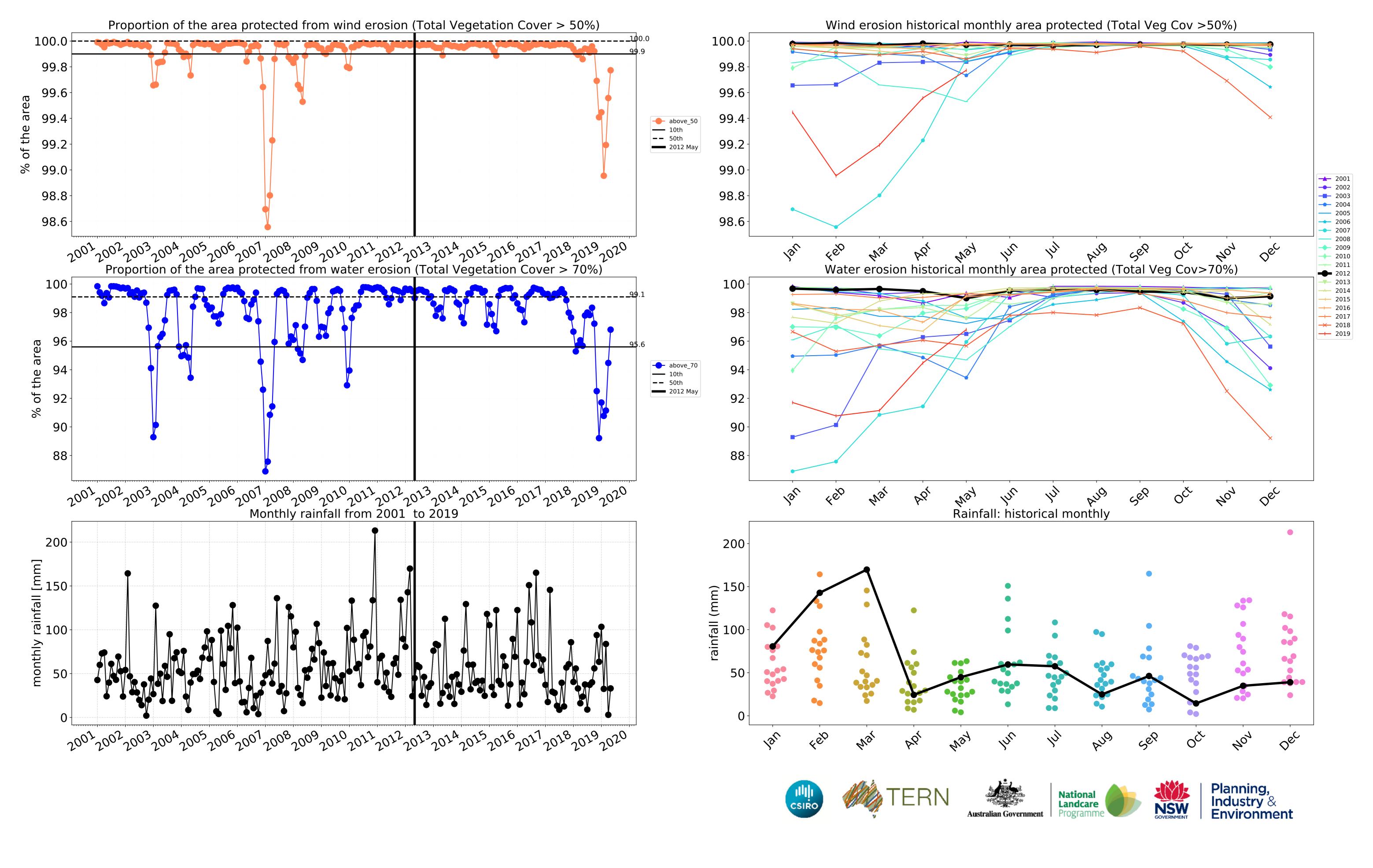


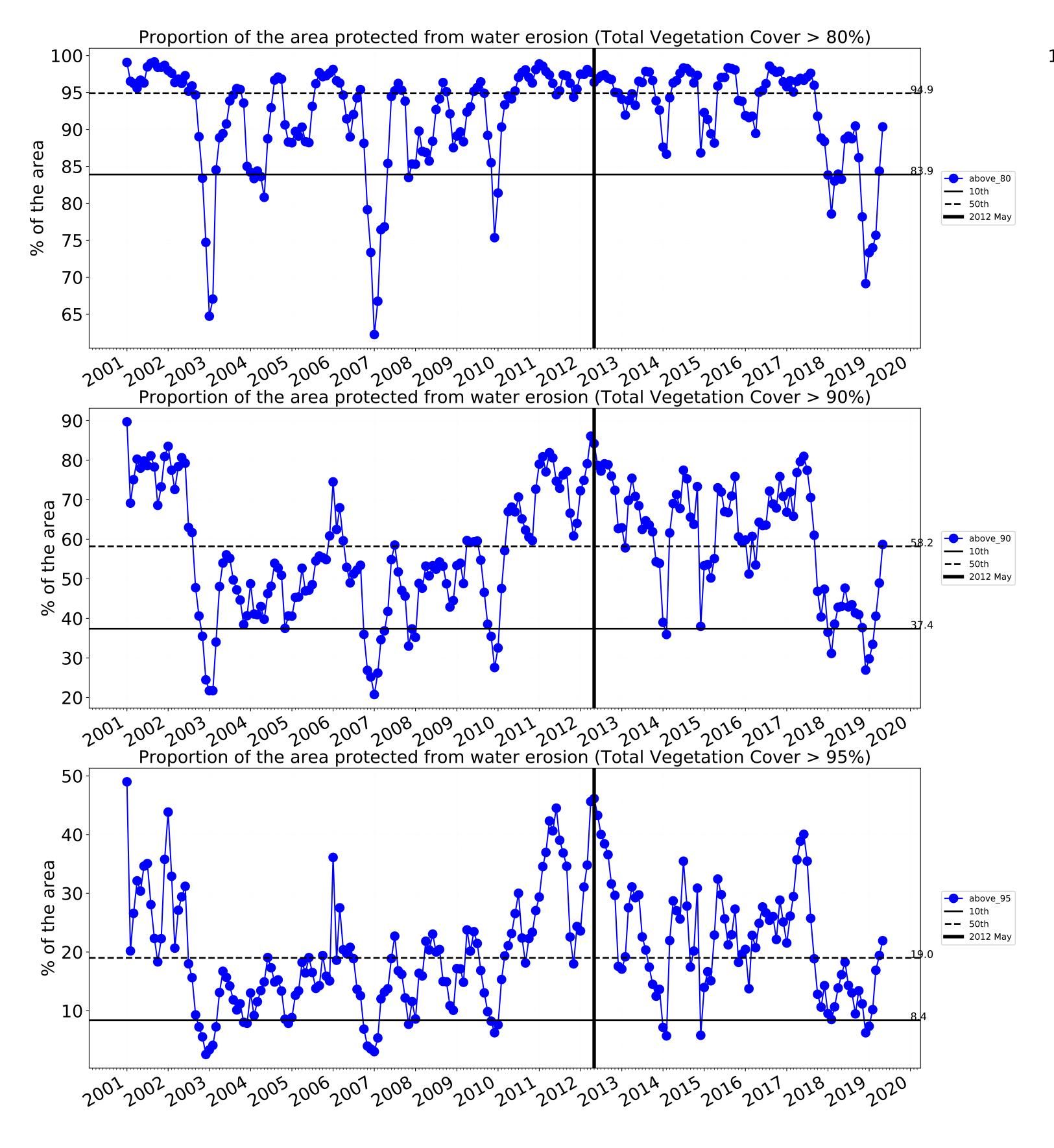
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**

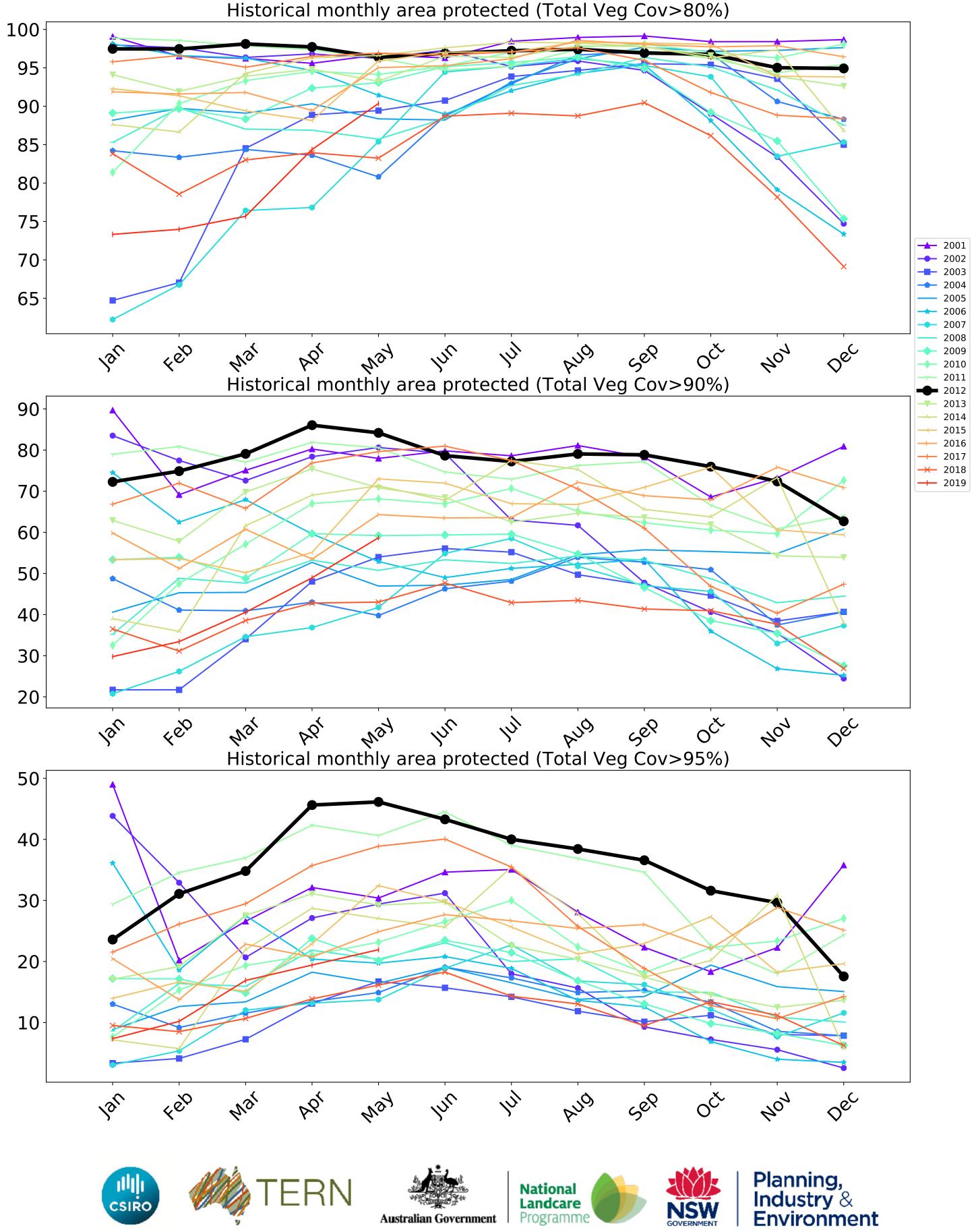




2



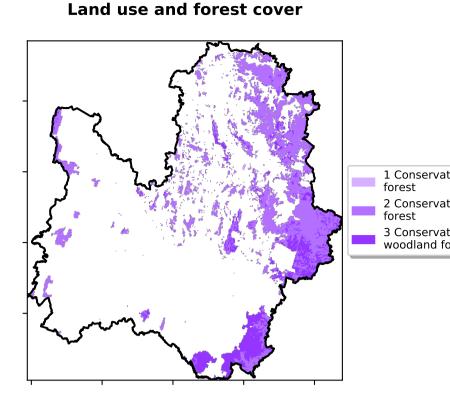




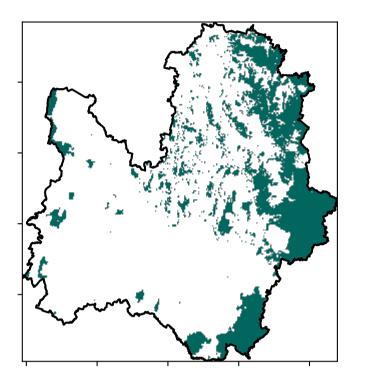


Conservation and natural environments

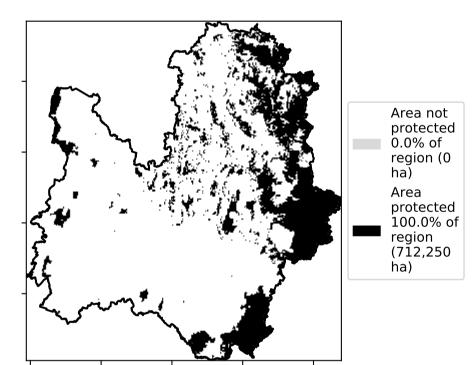
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

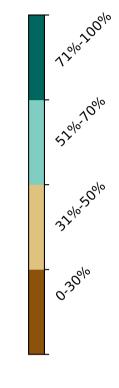


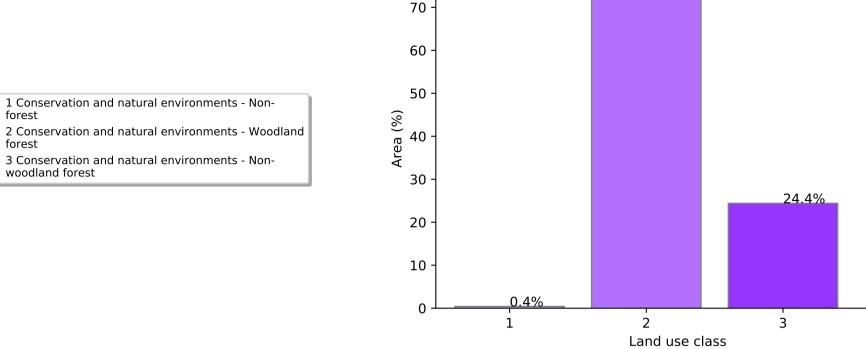
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



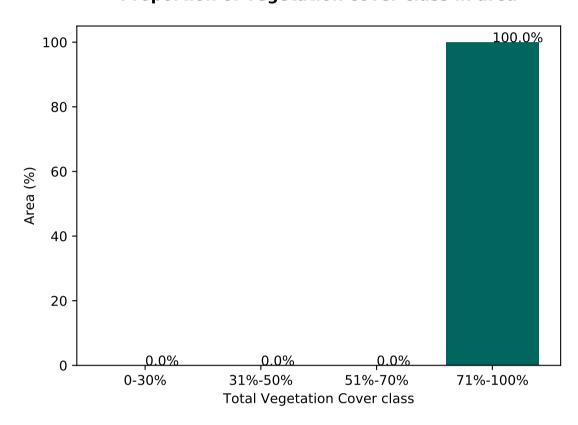




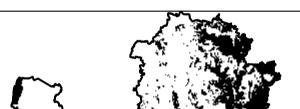
Proportion of each land class in area

75.2%

Proportion of vegetation cover class in area

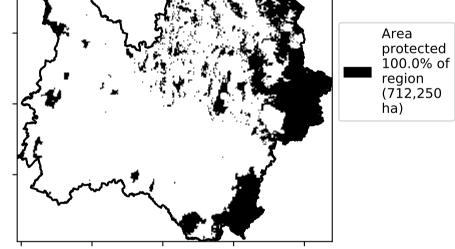


% Area protected from wind erosion (>50%)

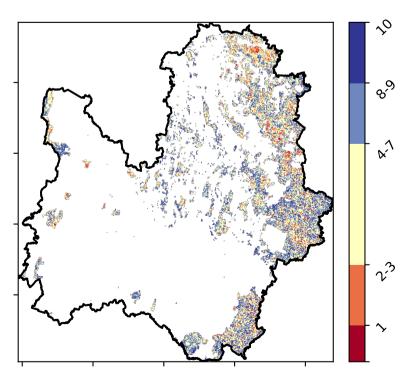


Total Vegetation Cover Anomaly [%]

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.

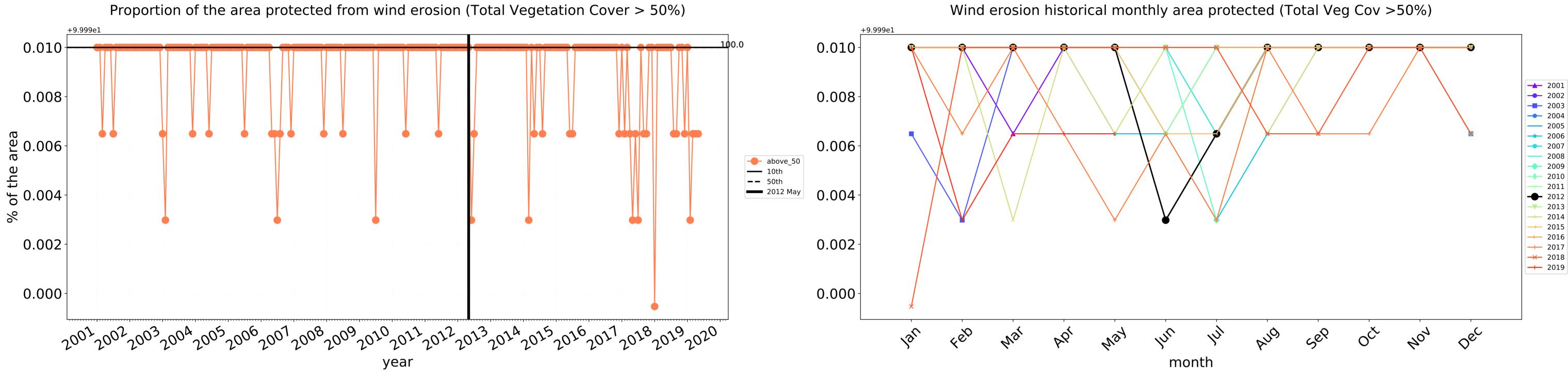


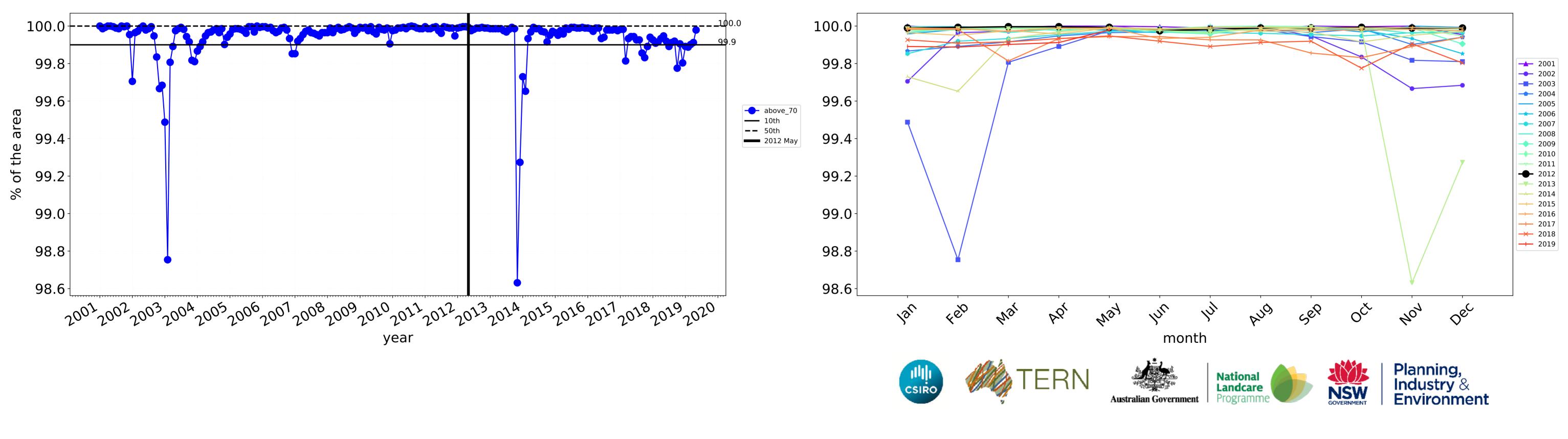
Total Vegetation Cover Decile [%]



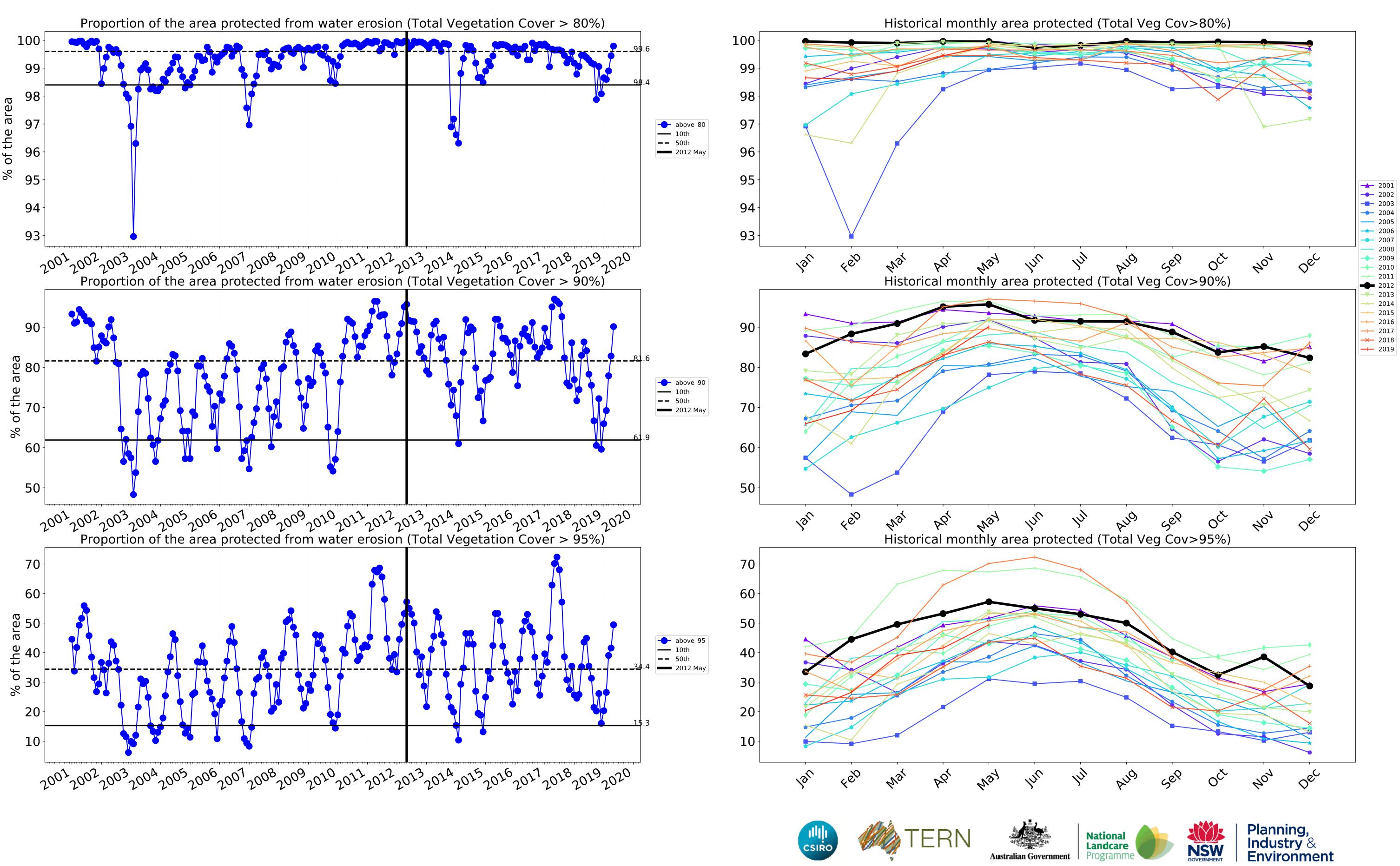






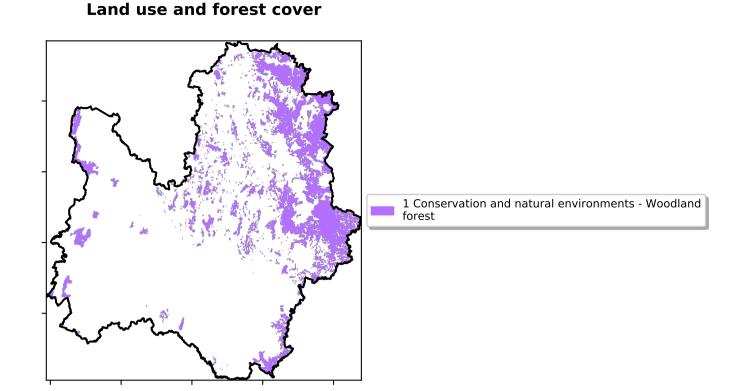


Water erosion historical monthly area protected (Total Veg Cov>70%)

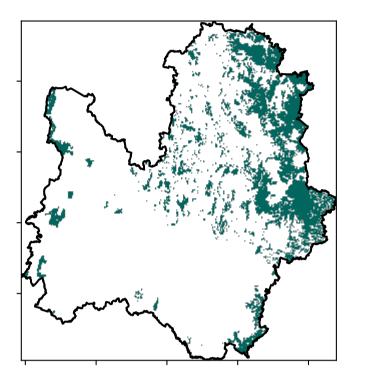


Conservation and natural environments Woodland forest

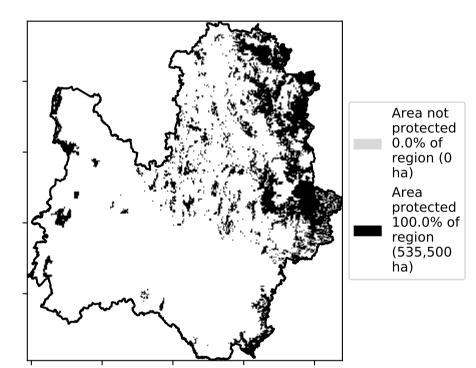
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

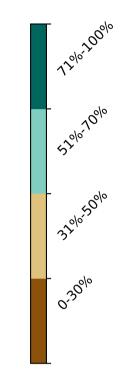


Total Vegetation Cover [%]

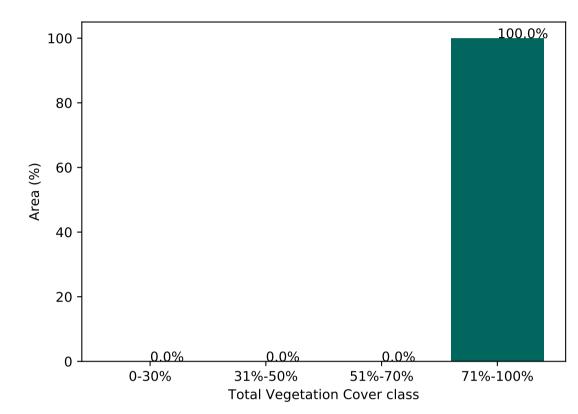


% Area protected from water erosion (>70%)

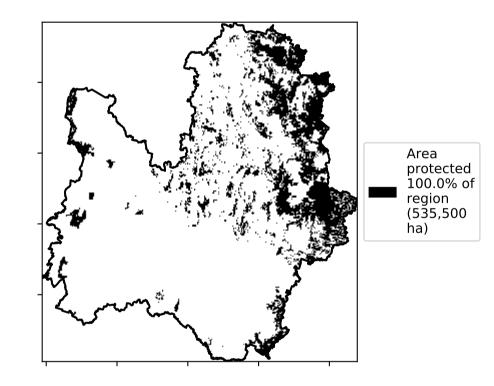




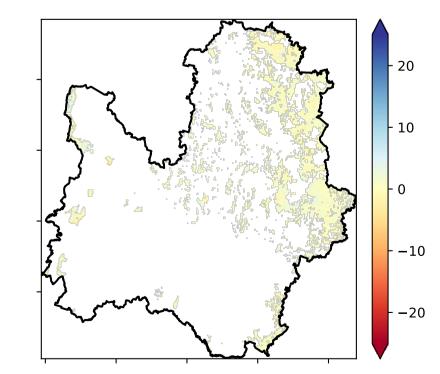
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

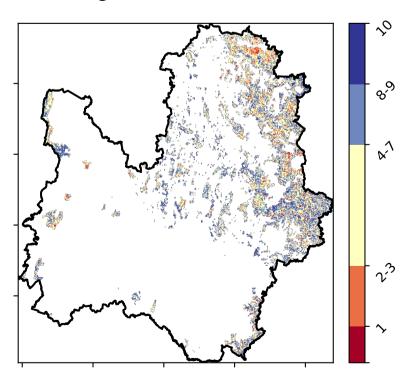


Total Vegetation Cover Anomaly [%]



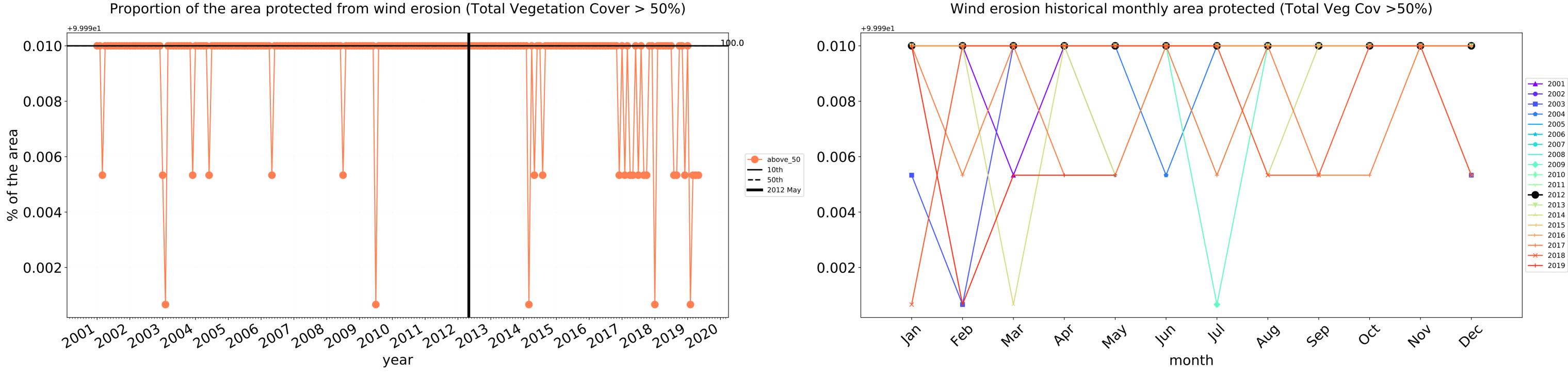
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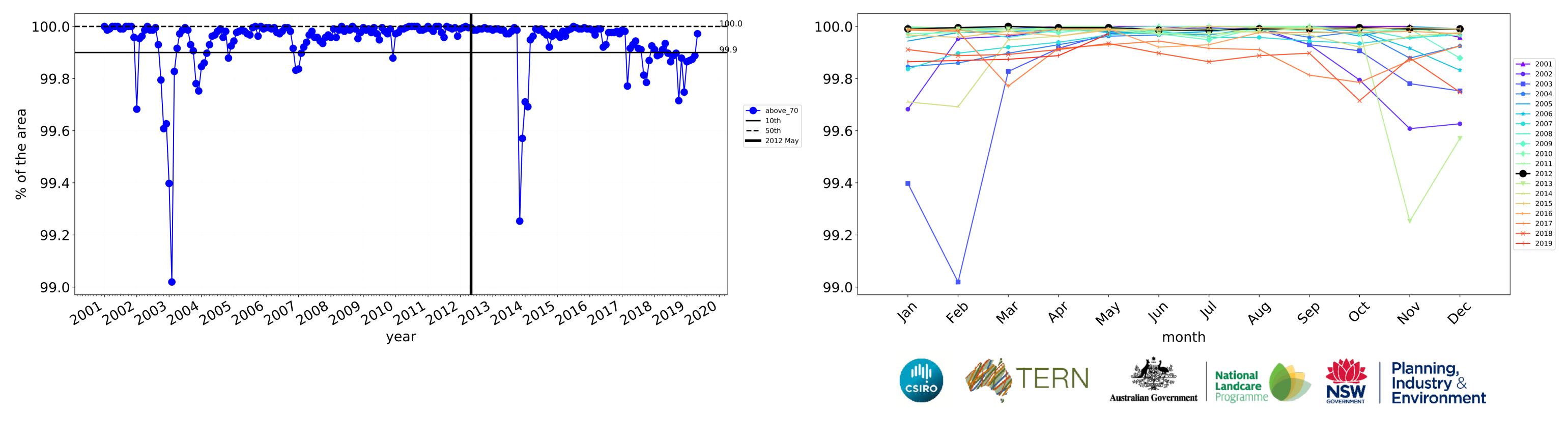
Total Vegetation Cover Decile [%]



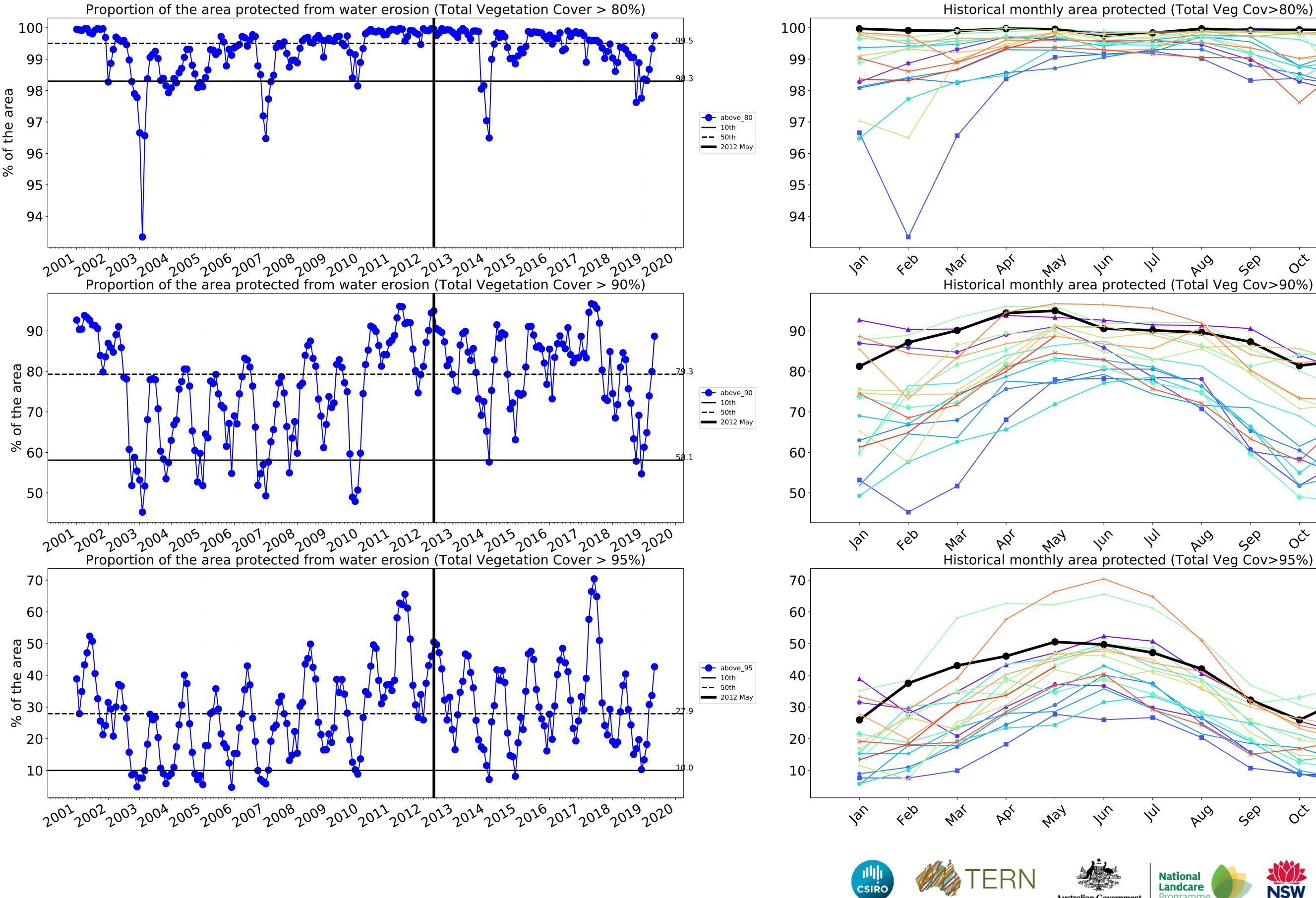






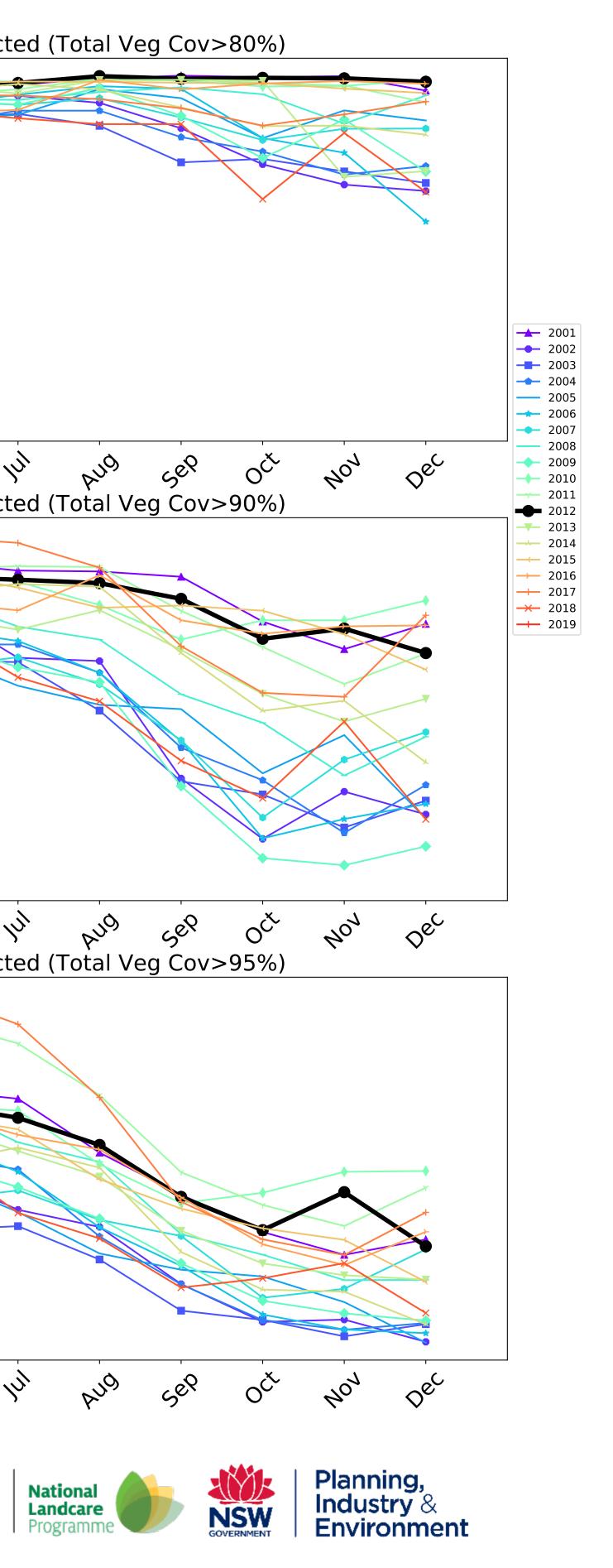


Water erosion historical monthly area protected (Total Veg Cov>70%)



Australian Government

CSIRO



Conservation and natural environments Forest (non woodland)

Land use and forest cover 1 Conservation and natural environments - Non-Catchment Scale Land woodland forest

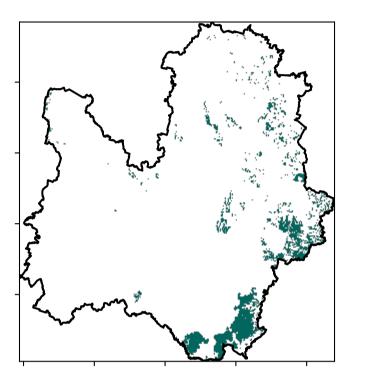
12%100

52%70%

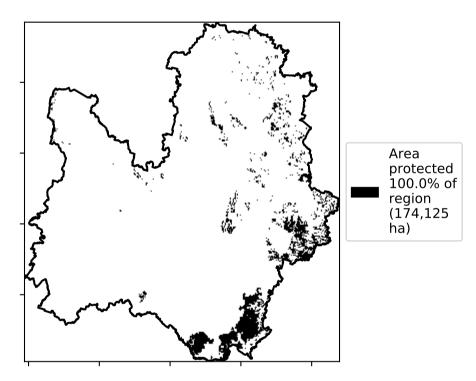
32%50%

0.30%

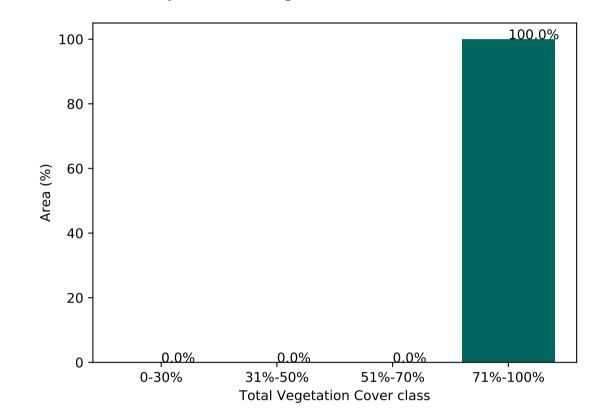
Total Vegetation Cover [%]



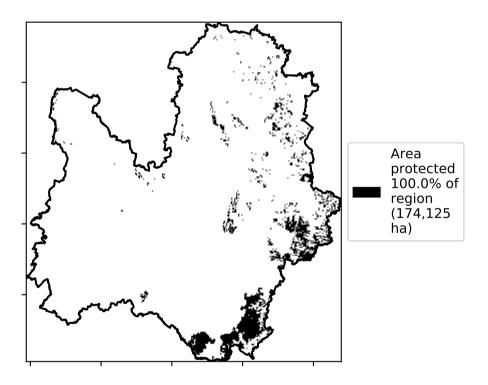
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



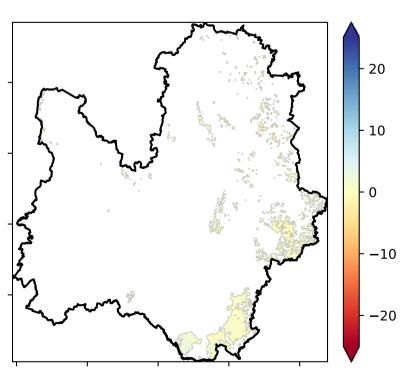
Total Vegetation Cover Anomaly [%]

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

Catchment Scale Land Use and Forests of Australia (2018)

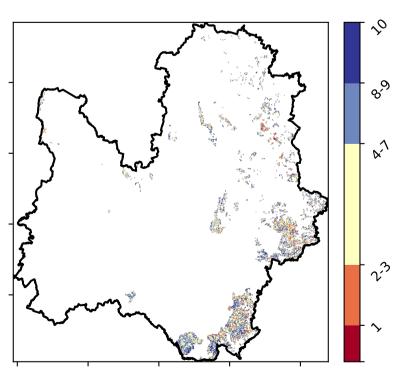
Use of Australia (2018) and Forests of Australia (2018)

Derived from



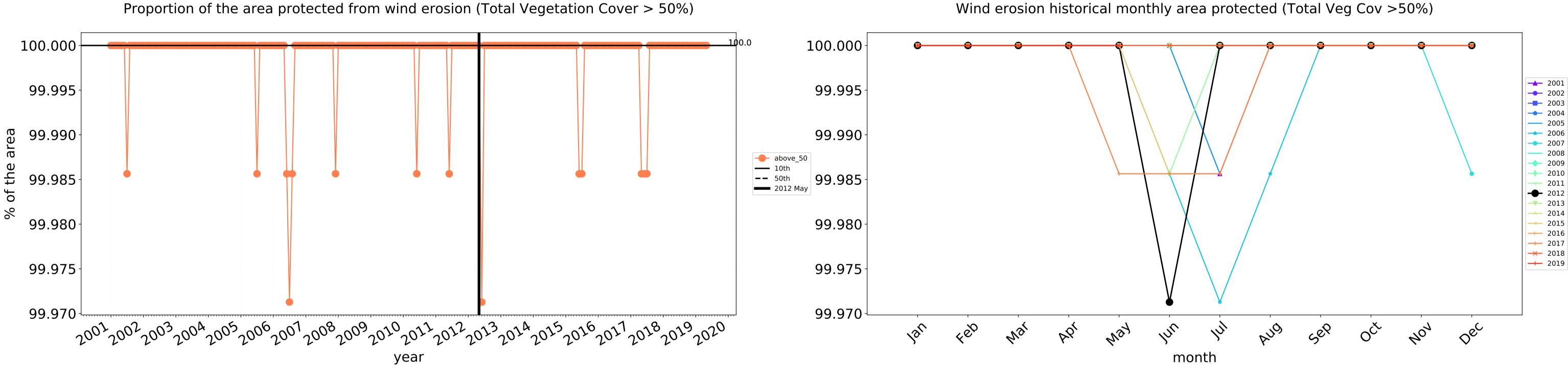
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

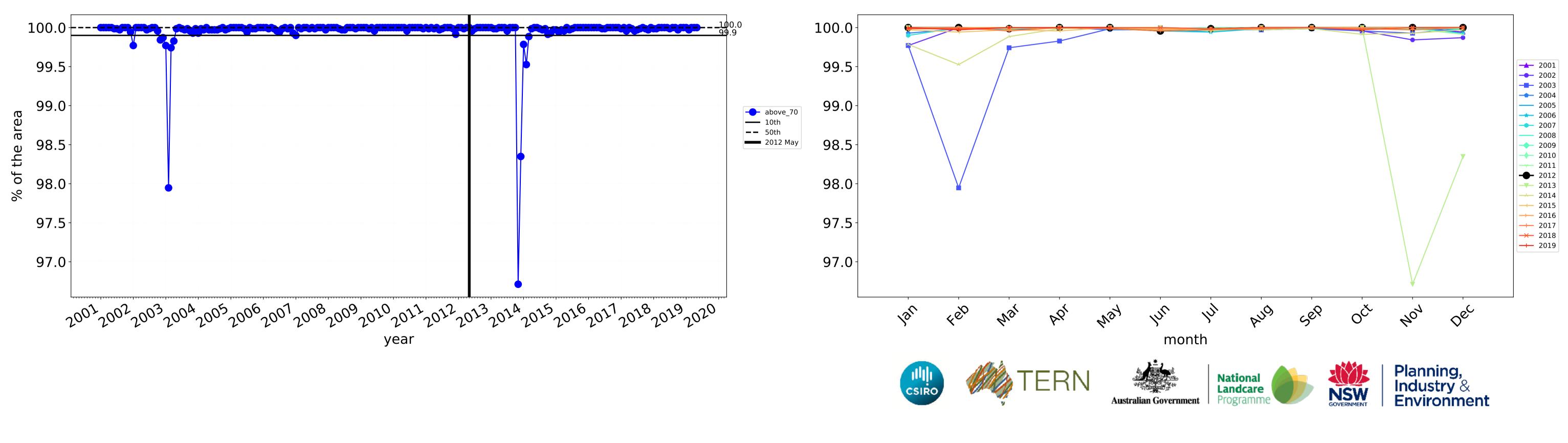
Total Vegetation Cover Decile [%]



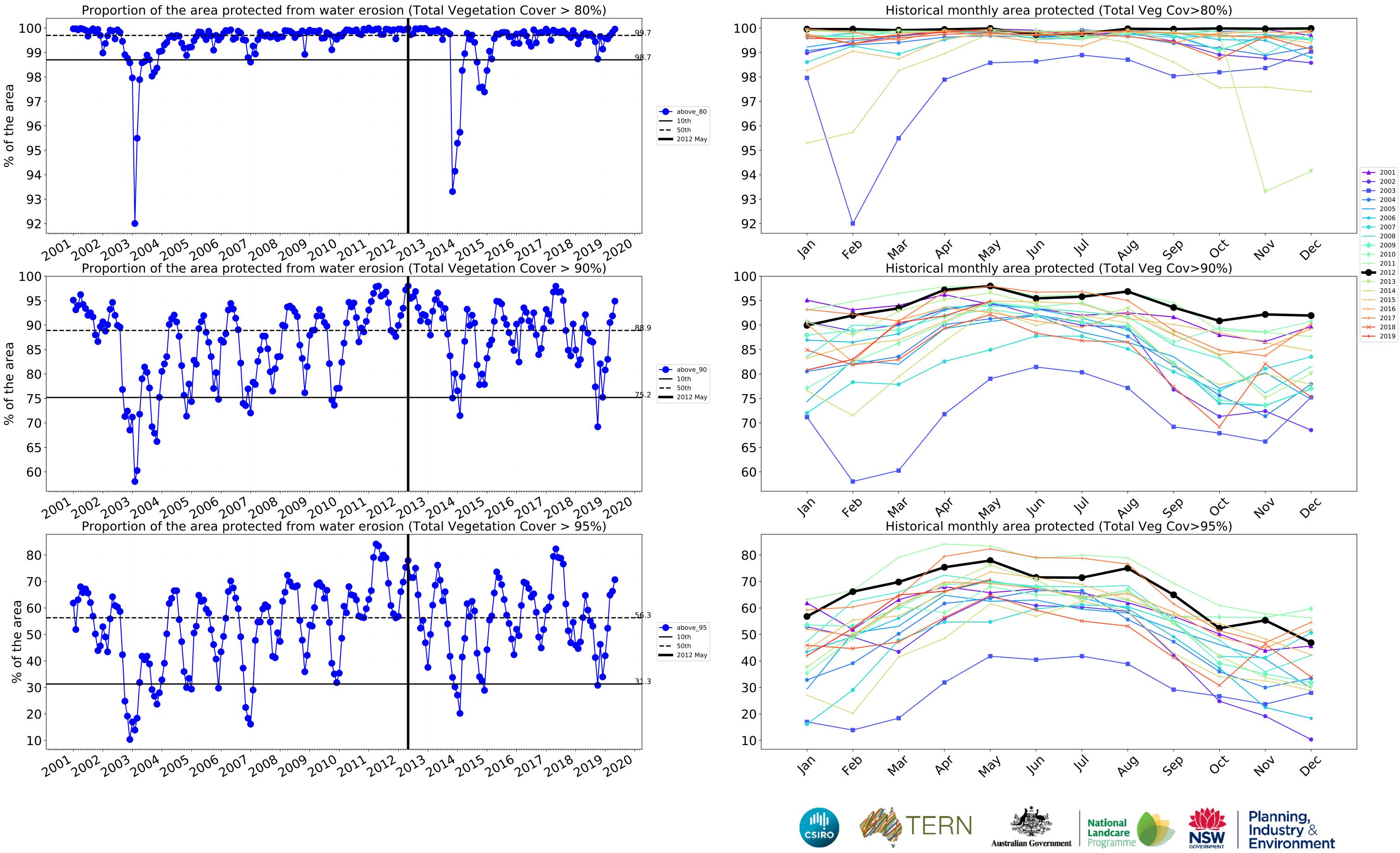


Conservation and natural environments Forest (non woodland) timeseries



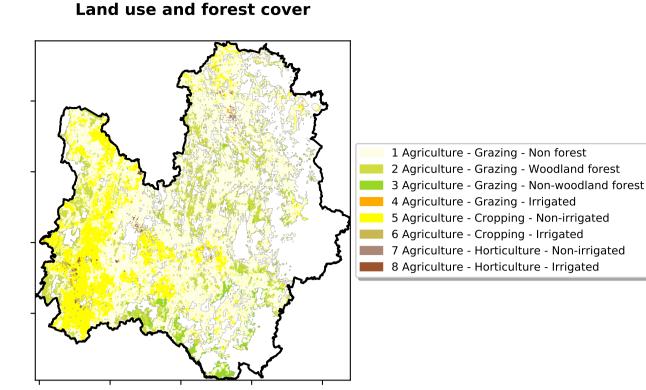


Water erosion historical monthly area protected (Total Veg Cov>70%)

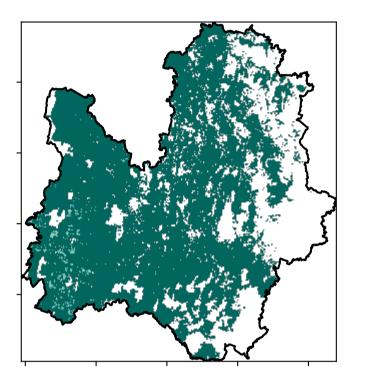


Agriculture

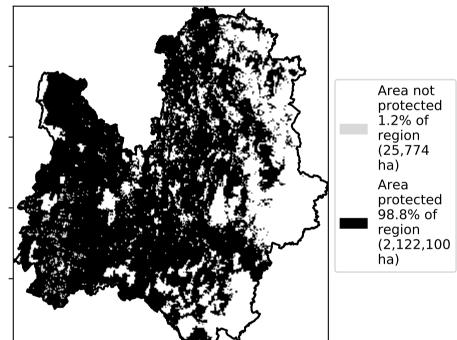
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

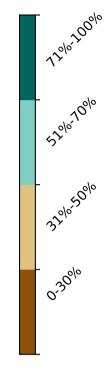


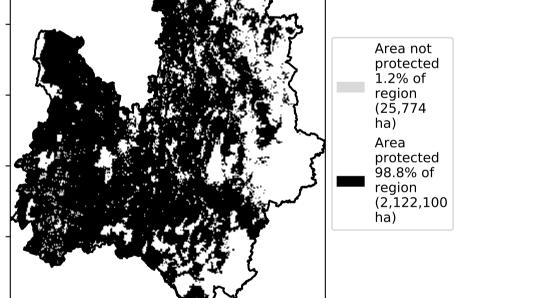
Total Vegetation Cover [%]



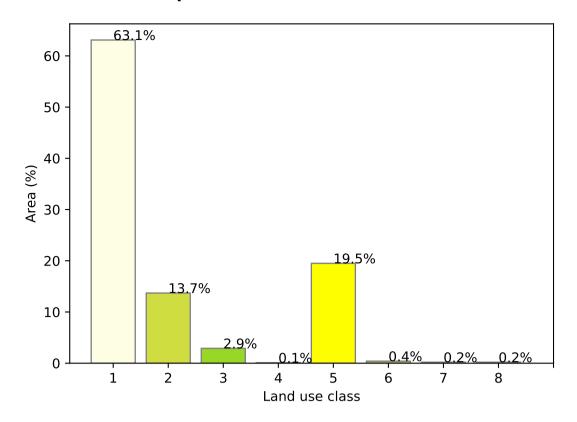
% Area protected from water erosion (>70%)



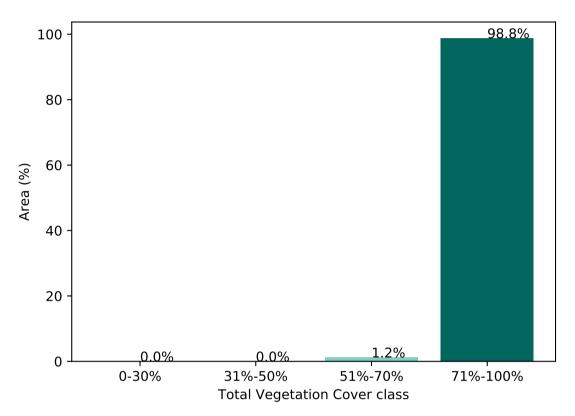




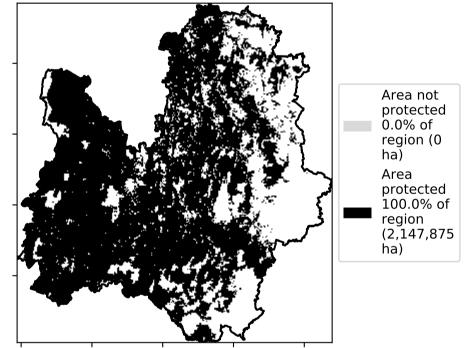
Proportion of each land class in area



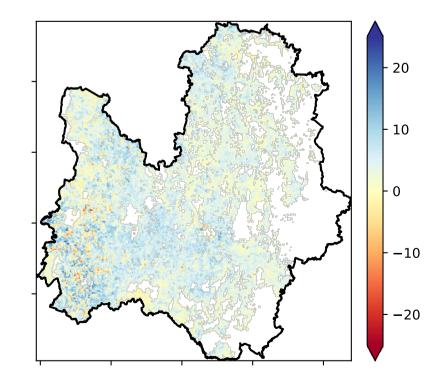
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

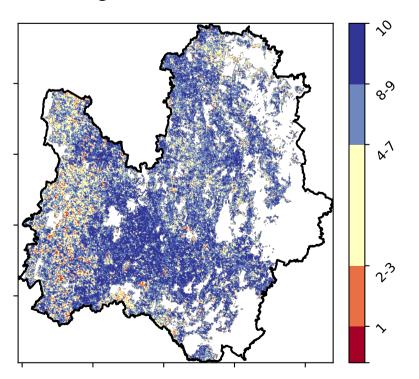


Total Vegetation Cover Anomaly [%]



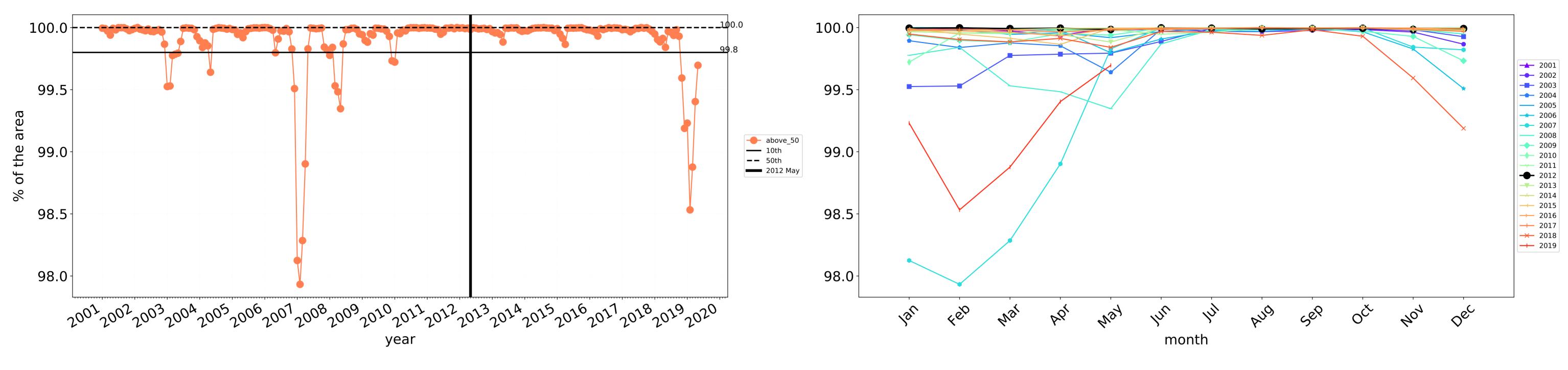
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]









100.0-

97.5

95.0

92.5

90.0

87.5

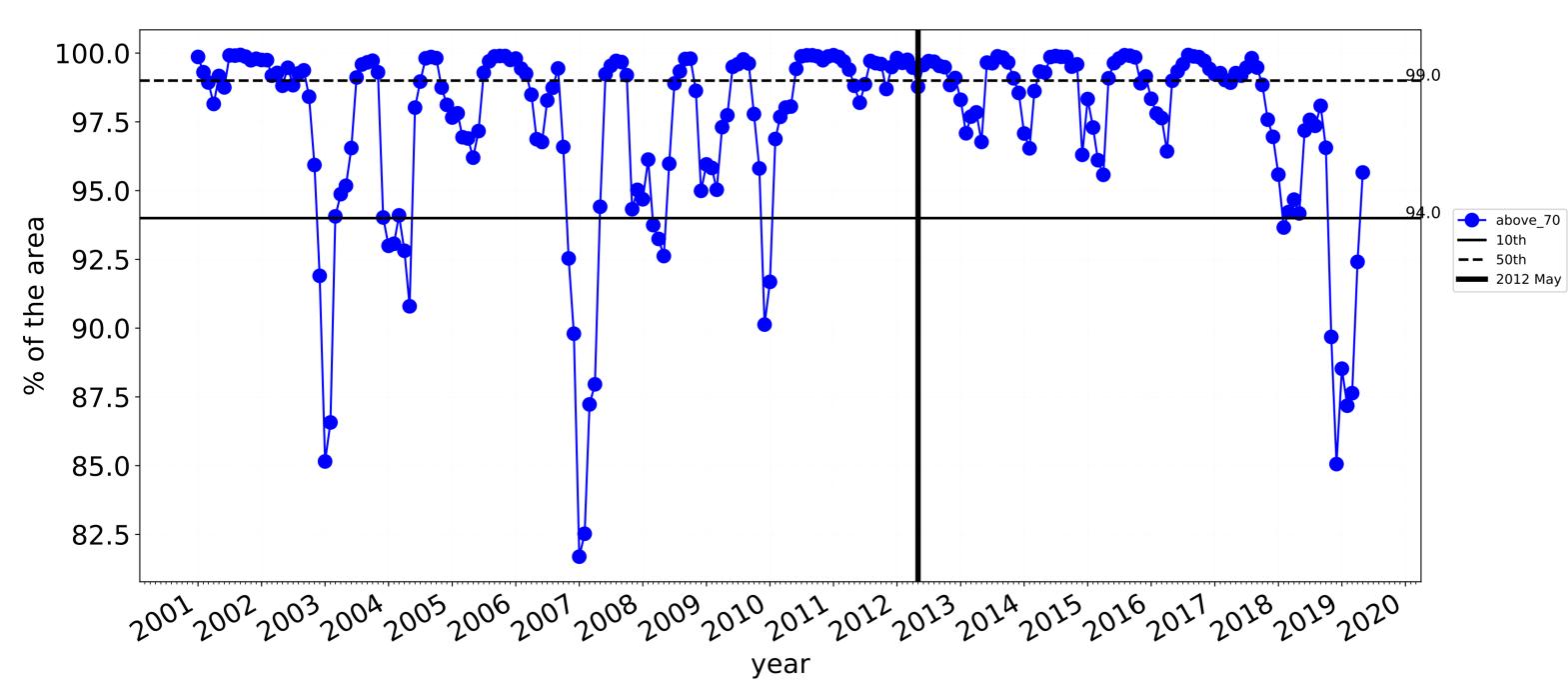
85.0-

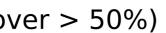
82.5

CSIRC

Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



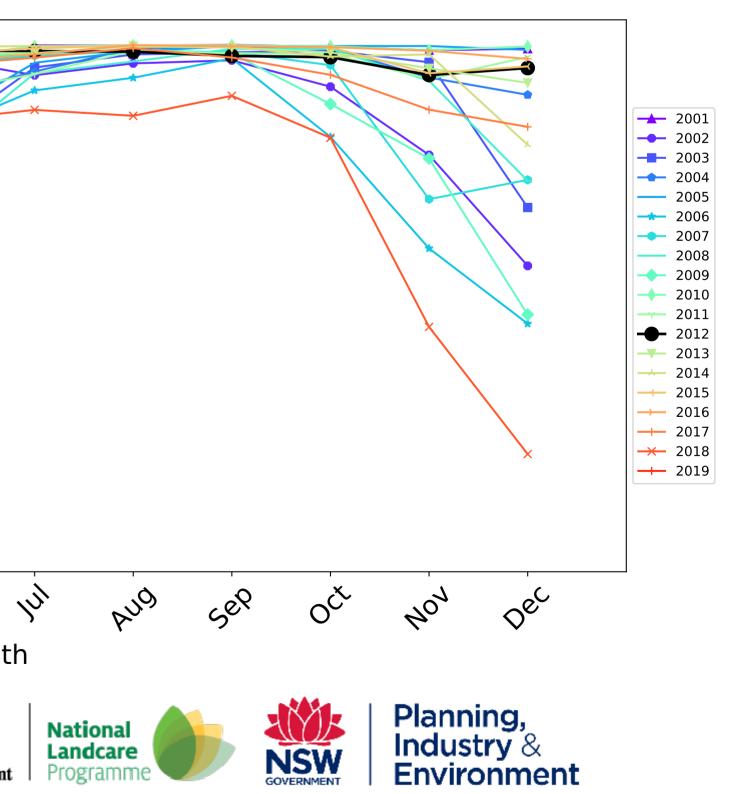


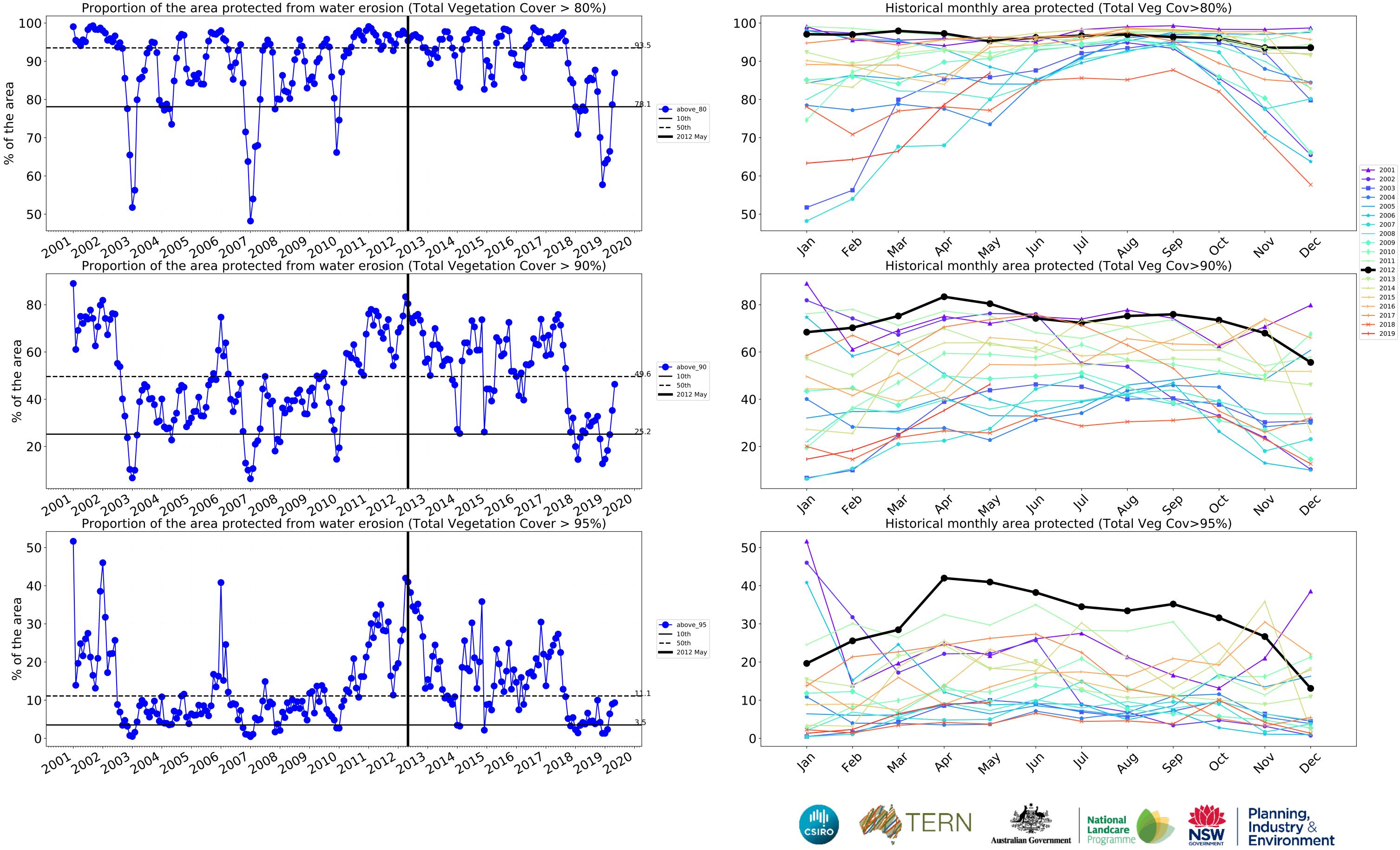
Wind erosion historical monthly area protected (Total Veg Cov >50%)

Jan feb May In Mai PQ month ERN (SOQ)

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

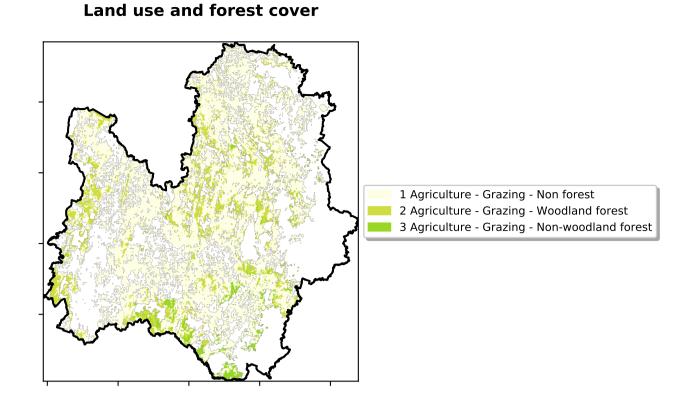
Australian Government



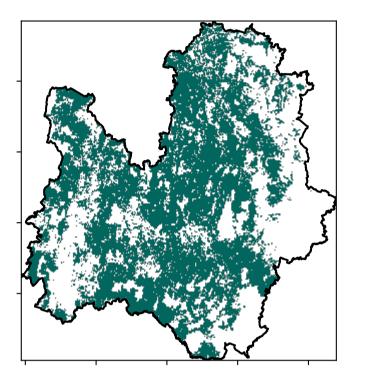


Grazing

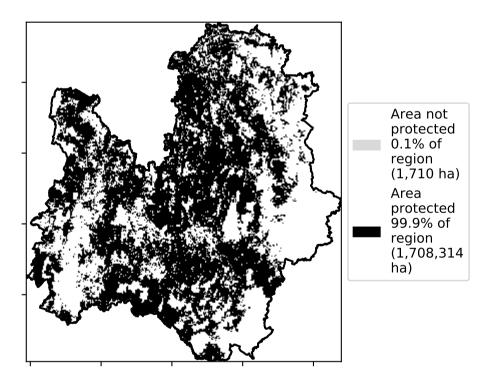
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

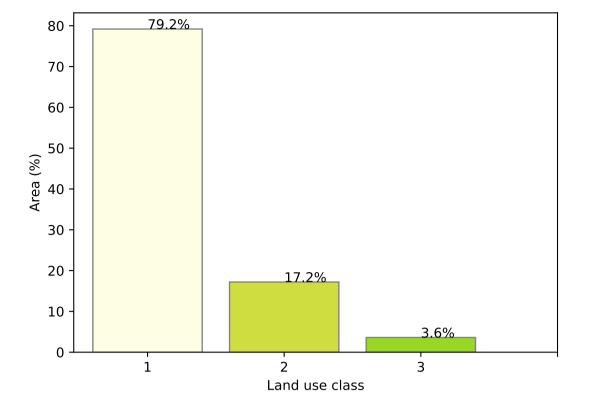


Total Vegetation Cover [%]



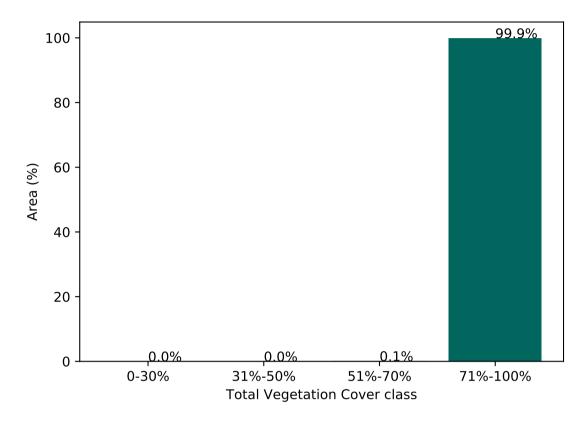
% Area protected from water erosion (>70%)



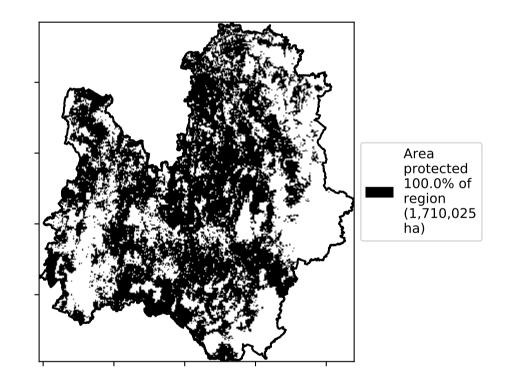


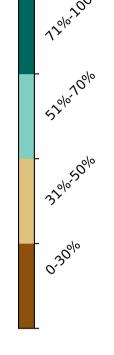
Proportion of each land class in area

Proportion of vegetation cover class in area

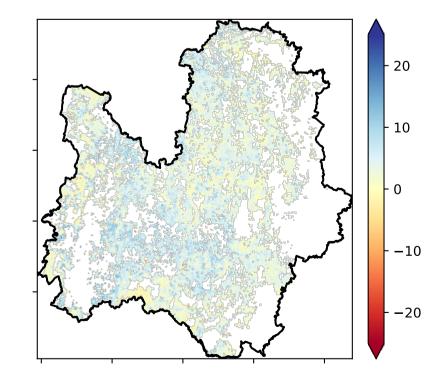


% Area protected from wind erosion (>50%)



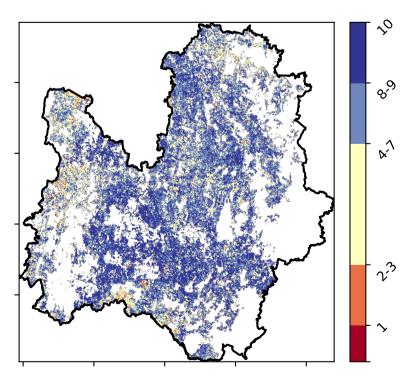


Total Vegetation Cover Anomaly [%]



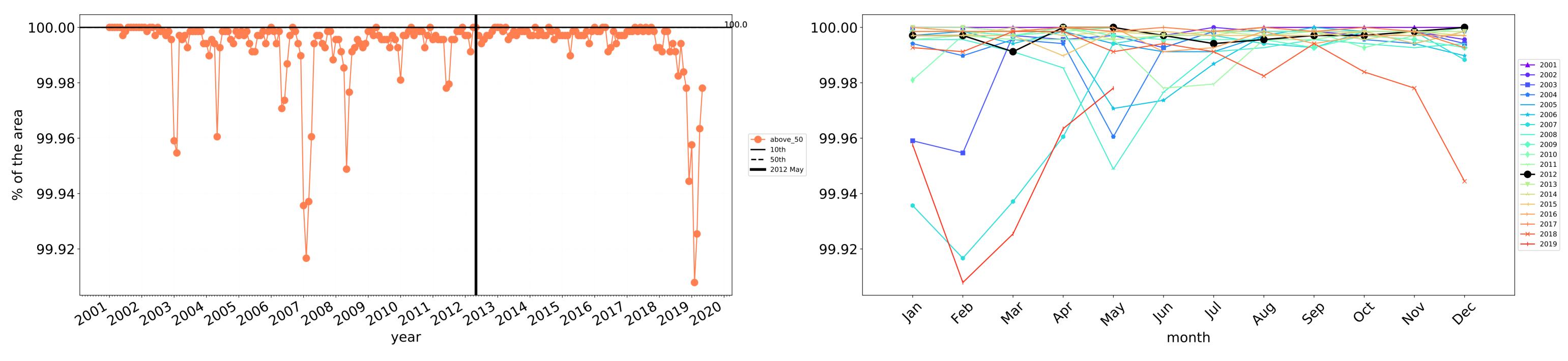
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Total Vegetation Cover Decile [%]



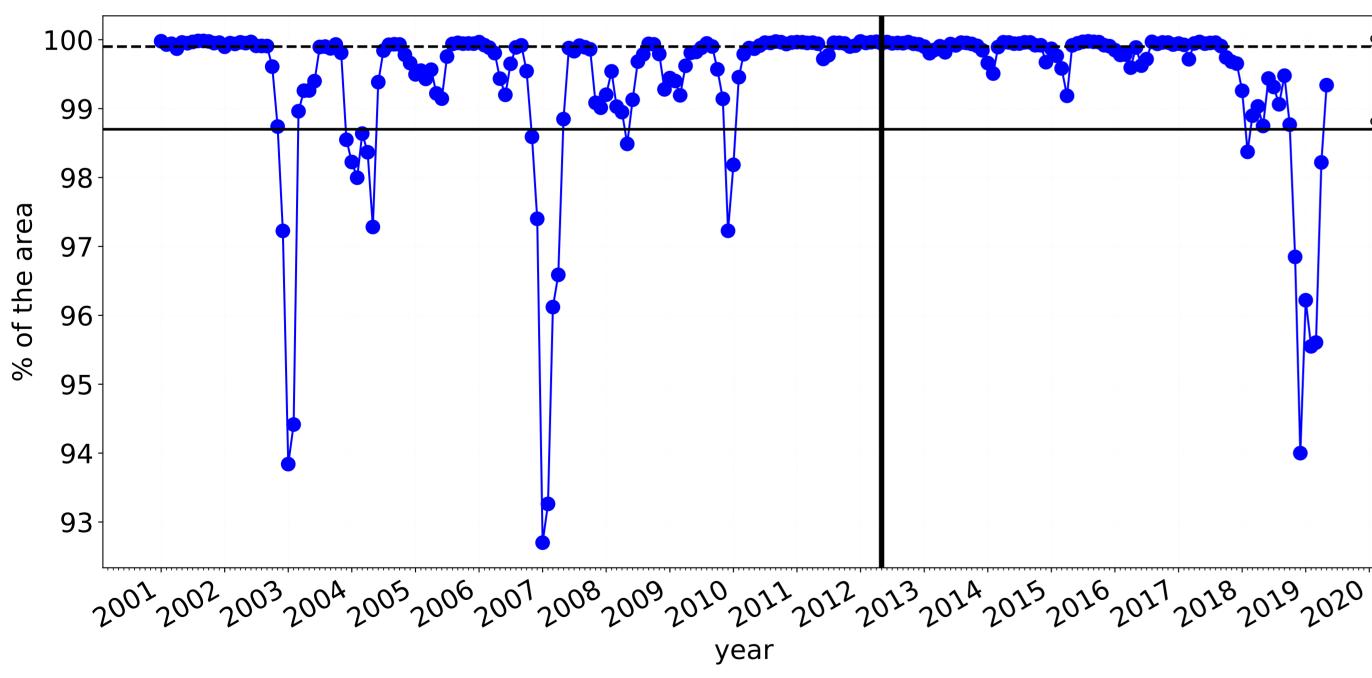




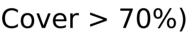


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



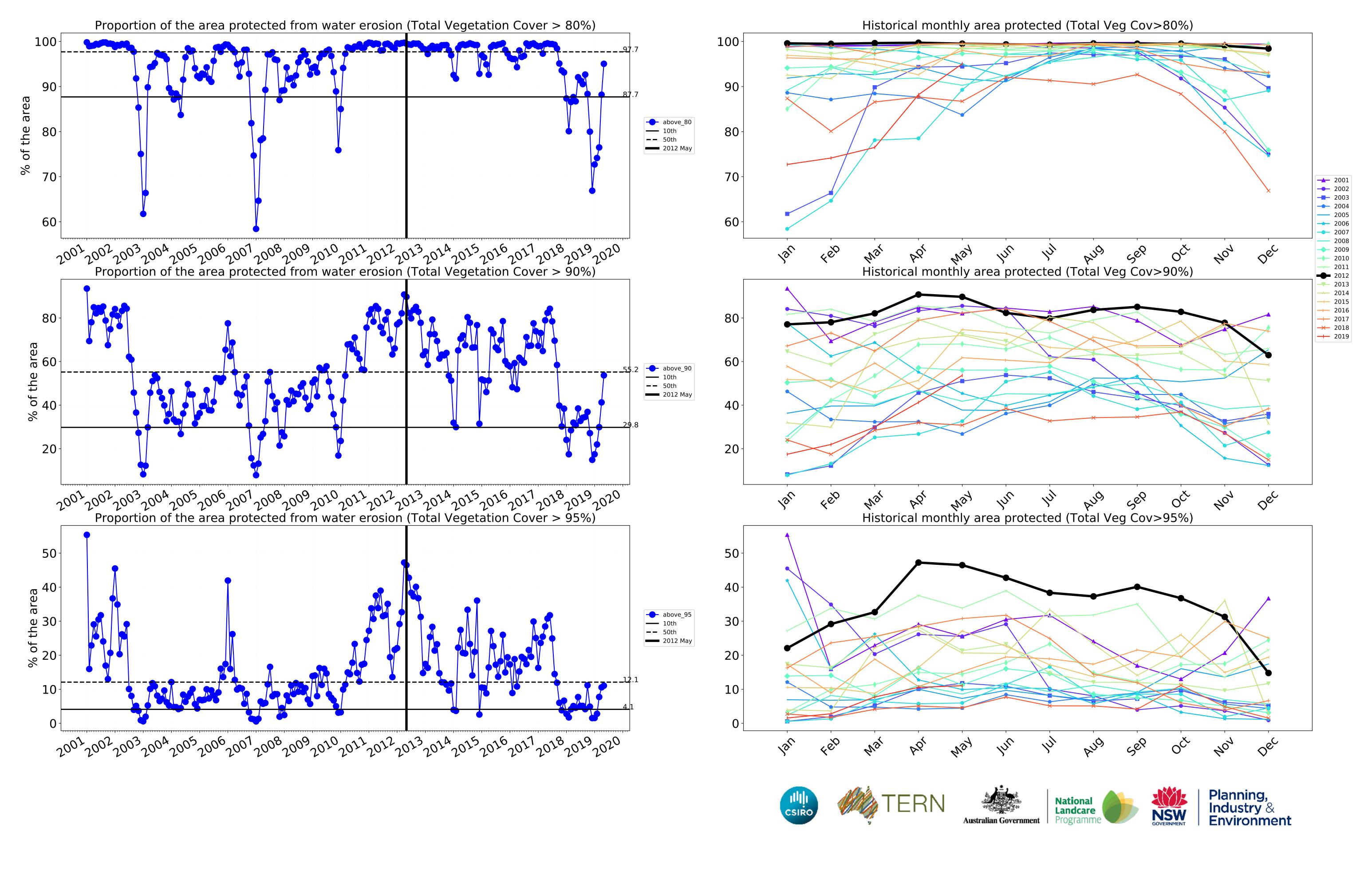
Wind erosion historical monthly area protected (Total Veg Cov >50%)



100 99 98 ---- above_70 **—** 10th 97 **——** 50th **——** 2012 May 96 95 94 93 fed Jan In way PQ War month ΓERN (SOR) Australian Government

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





Grazing non forest

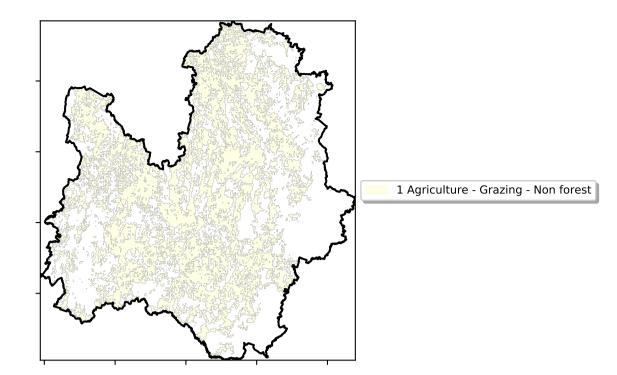
120/0-

· 52% 70%

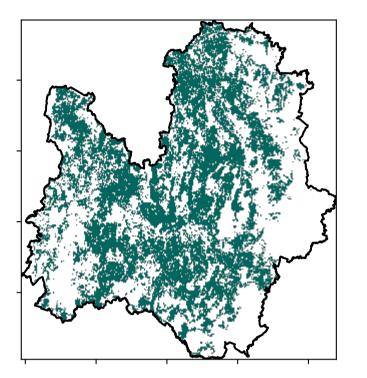
32010

0.30%

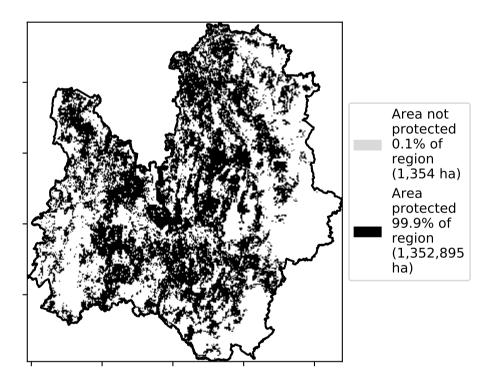
Land use and forest cover



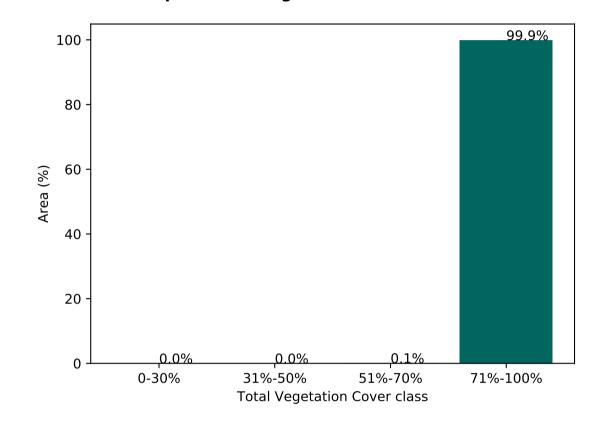
Total Vegetation Cover [%]



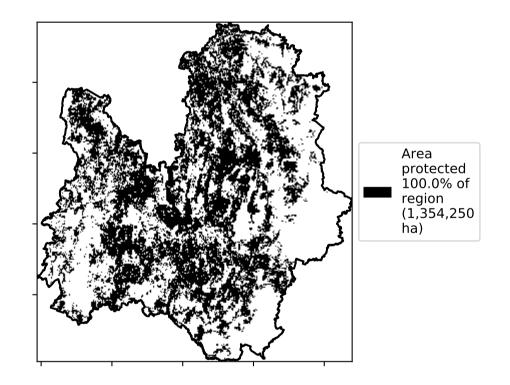
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

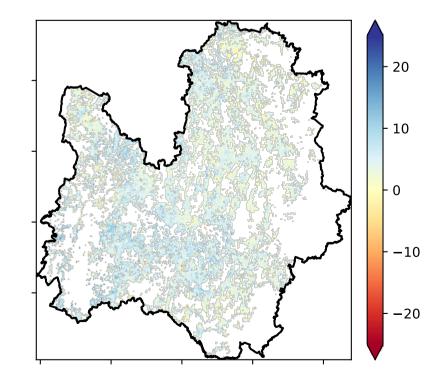


% Area protected from wind erosion (>50%)

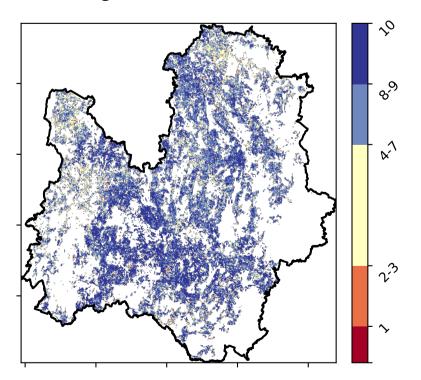


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

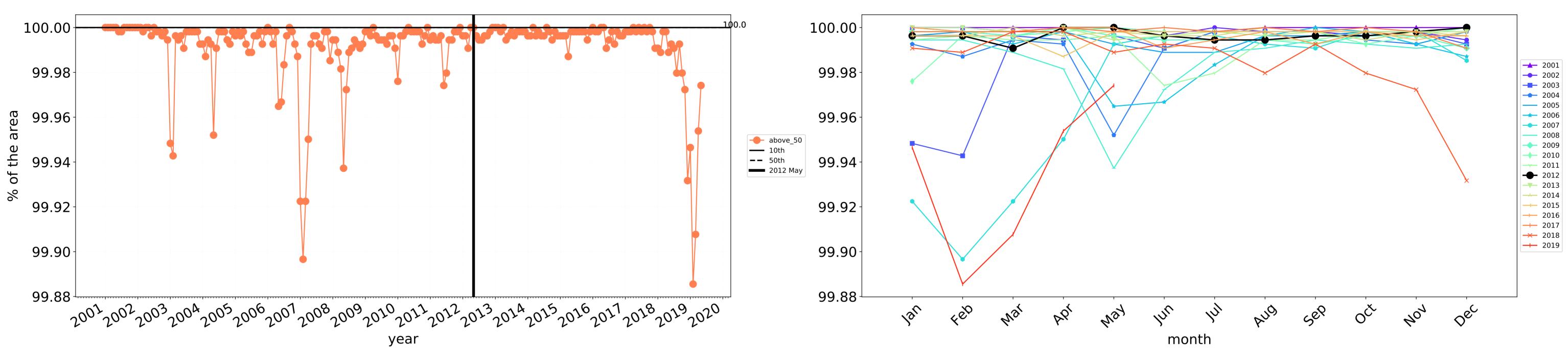
Total Vegetation Cover Anomaly [%]



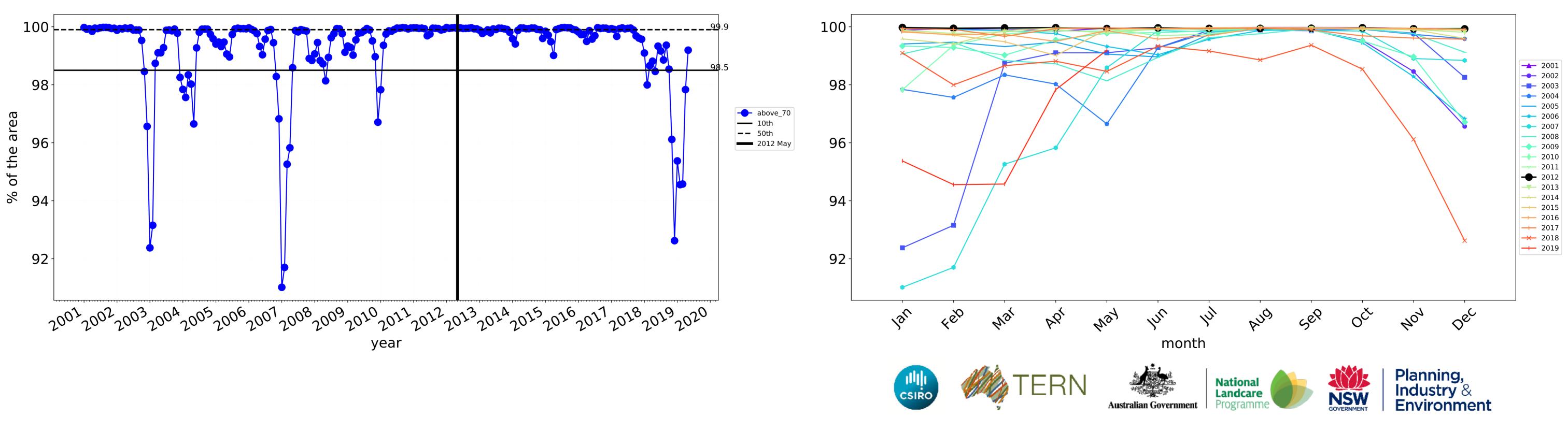
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**







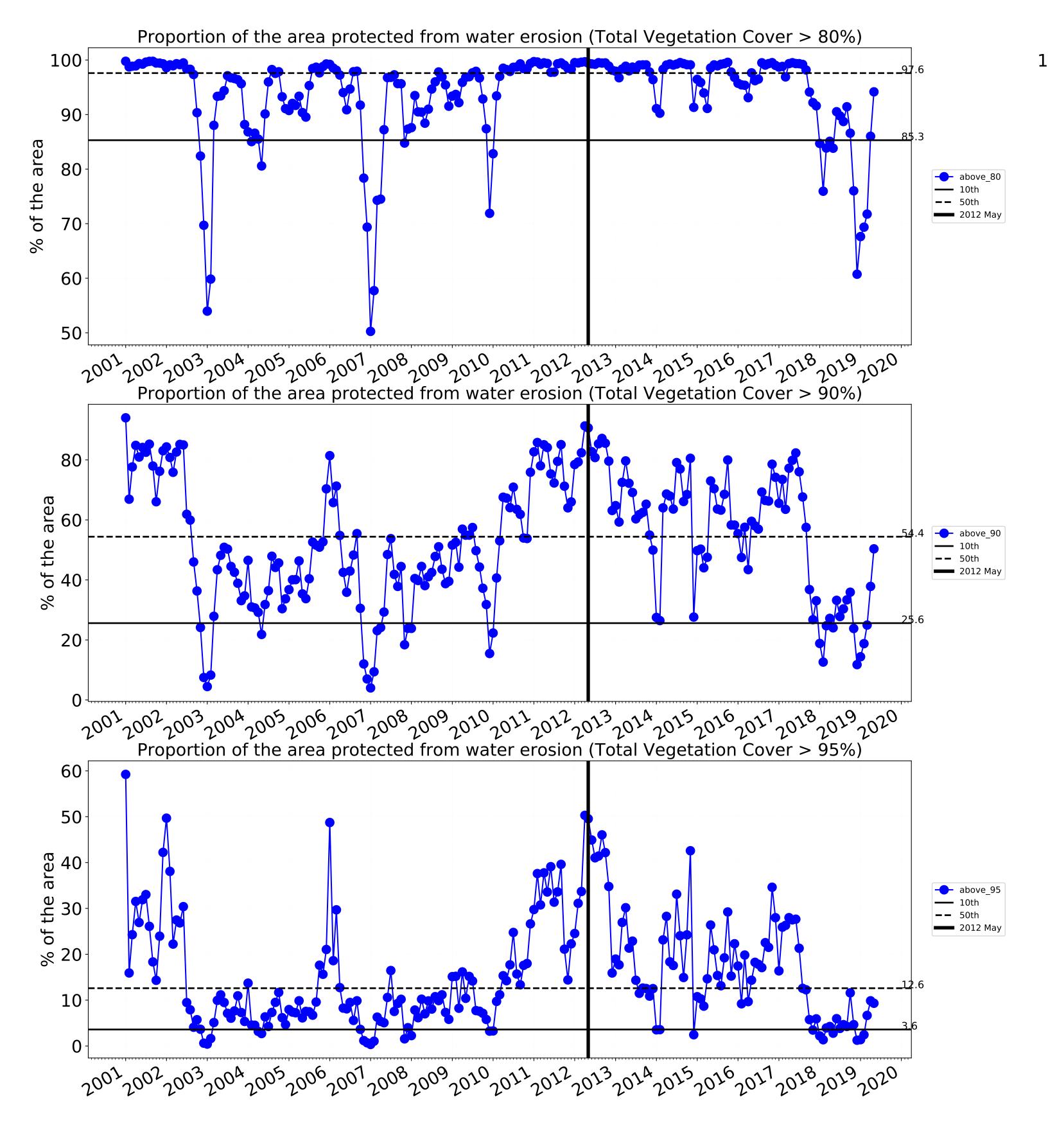
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

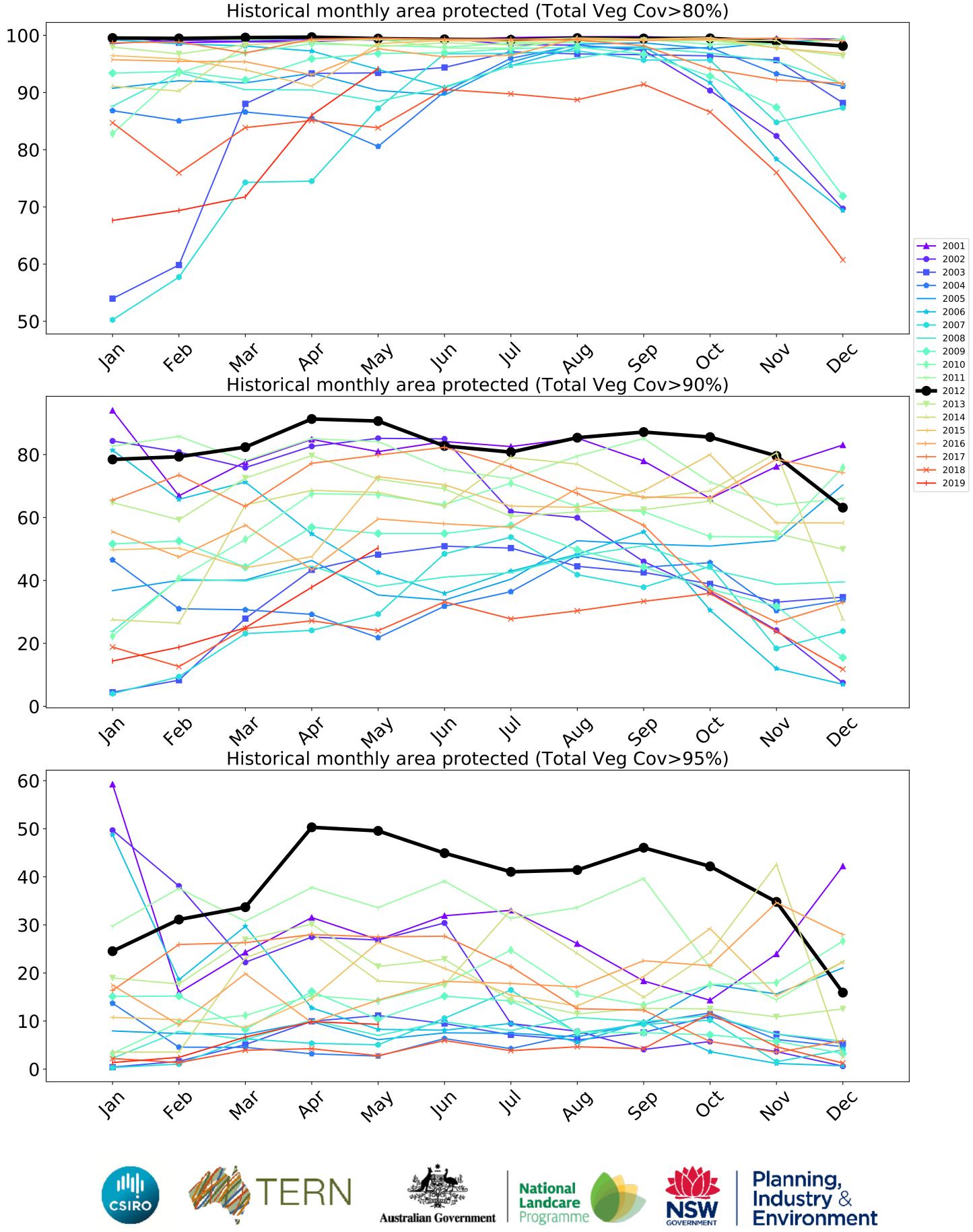


Wind erosion historical monthly area protected (Total Veg Cov >50%)

23

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





Grazing Woodland forest

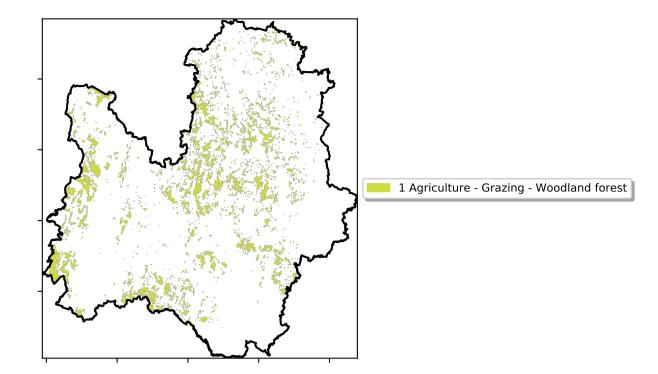
12%100

52% TON

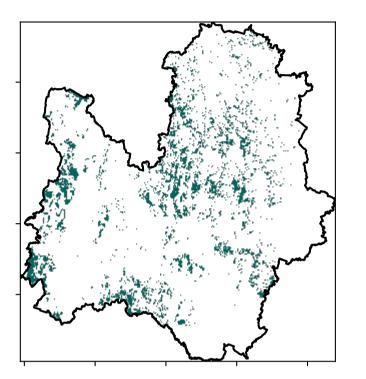
32010

0.30%

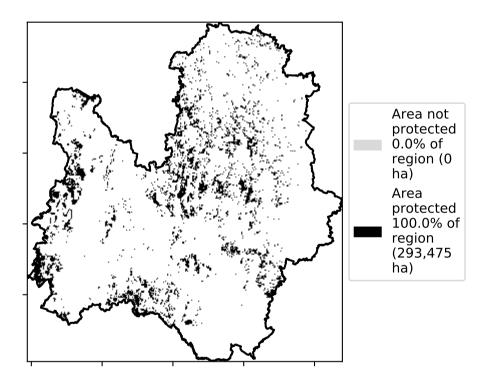
Land use and forest cover



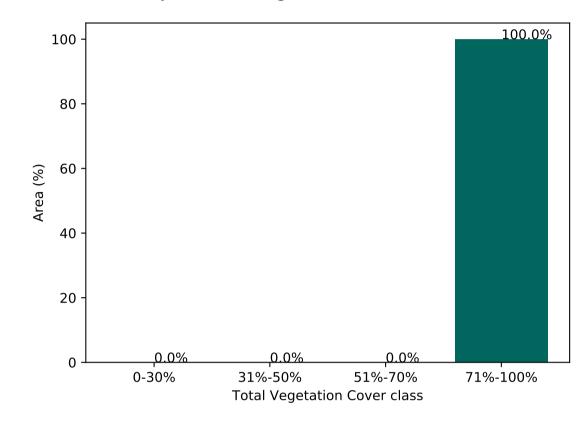
Total Vegetation Cover [%]



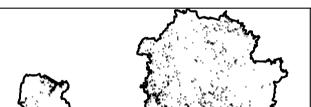
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

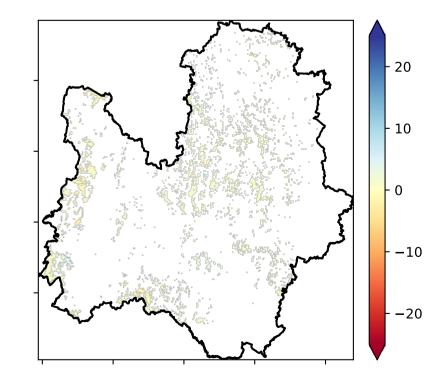


% Area protected from wind erosion (>50%)

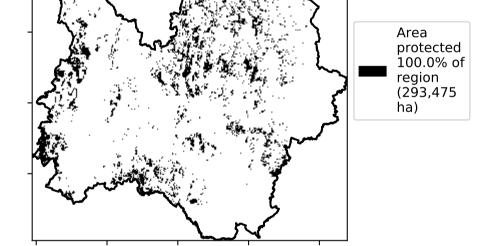




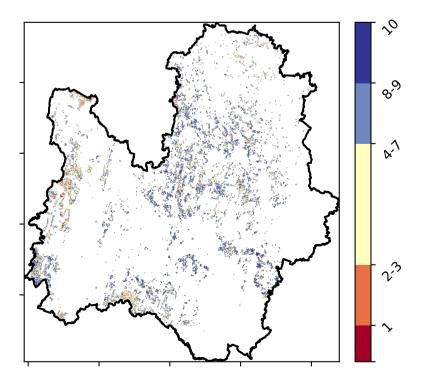
Total Vegetation Cover Anomaly [%]



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.

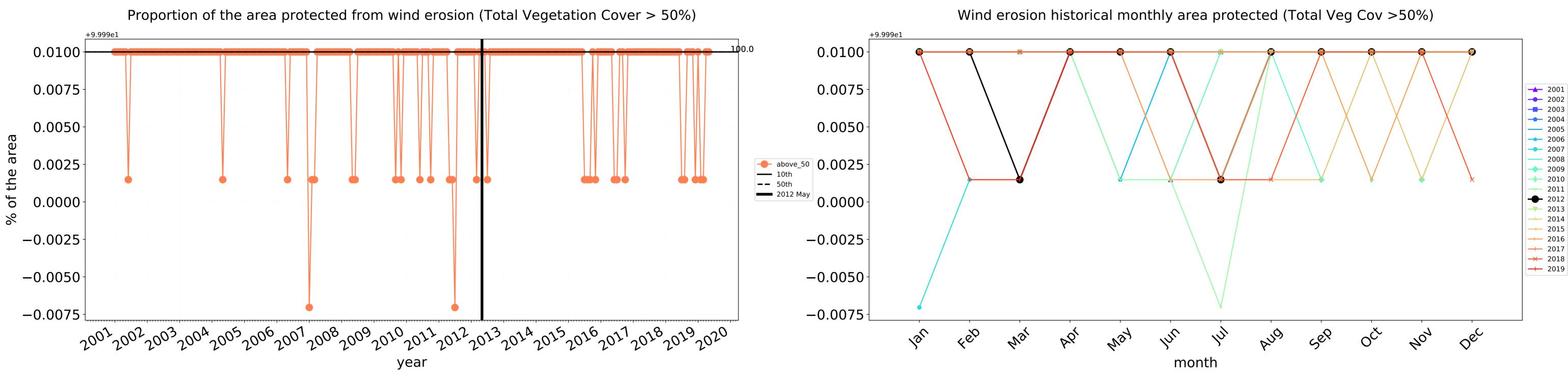


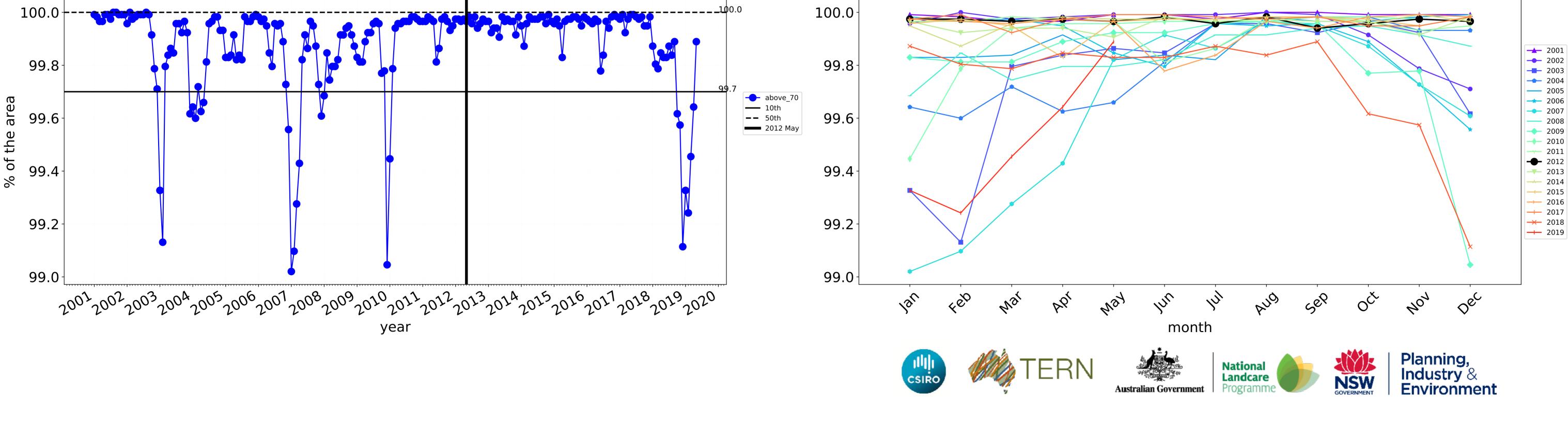
Total Vegetation Cover Decile [%]



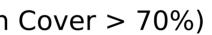


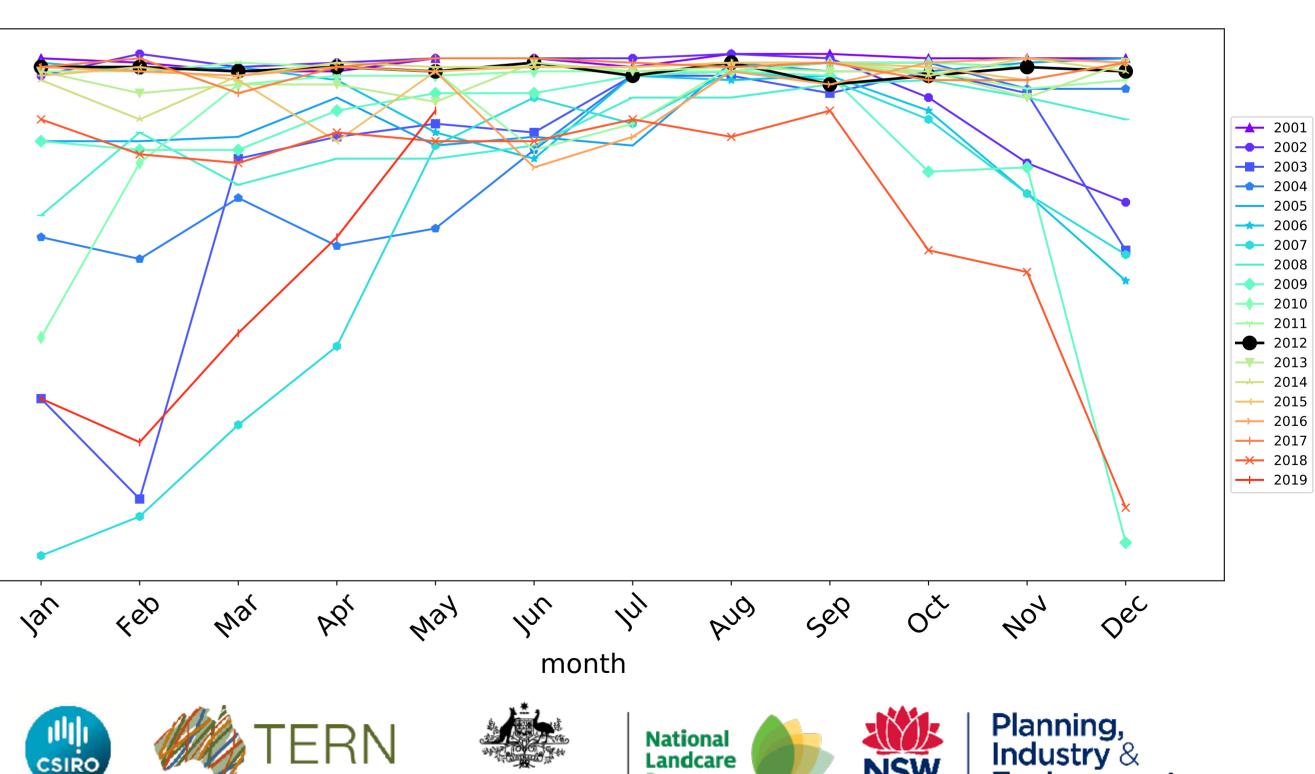




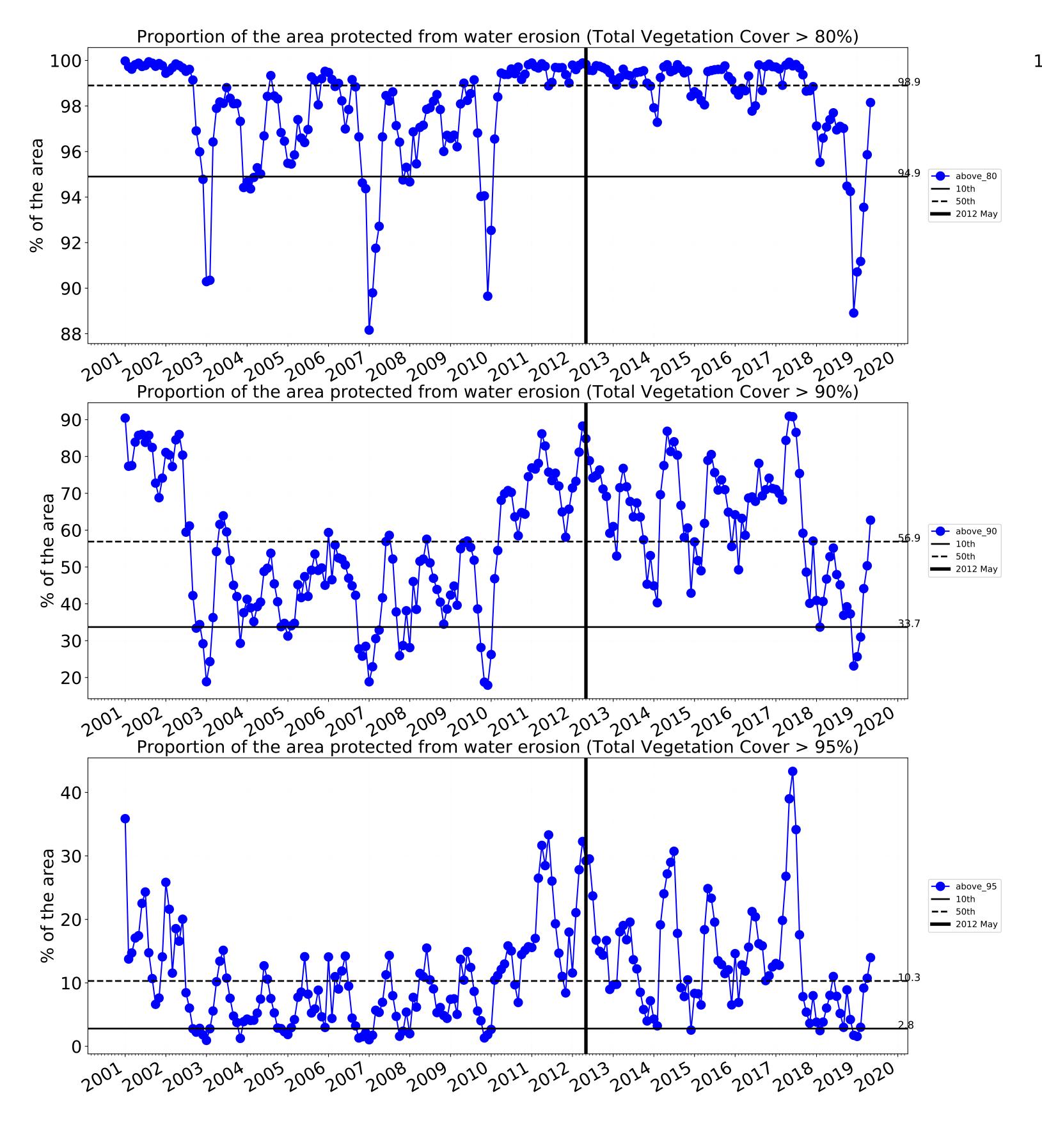


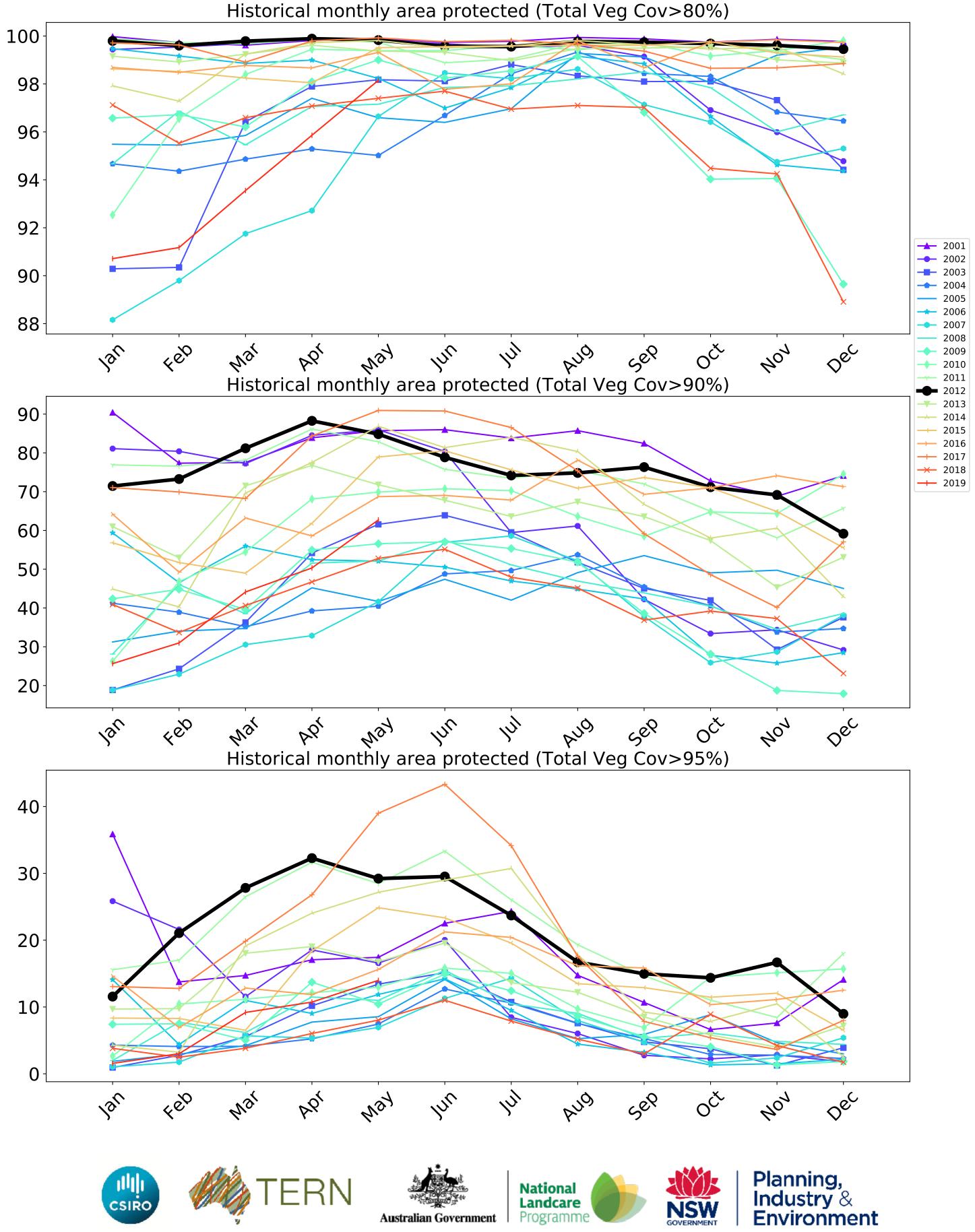
Grazing Woodland forest timeseries





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





Grazing - Forest (non woodland)

120/0-

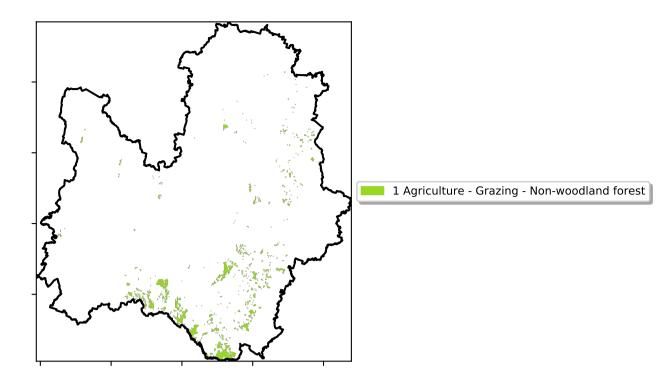
52% TO%

S

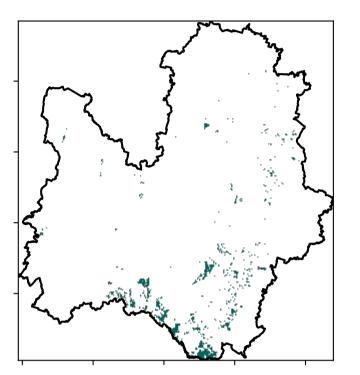
32010-

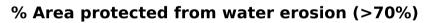
0.30%

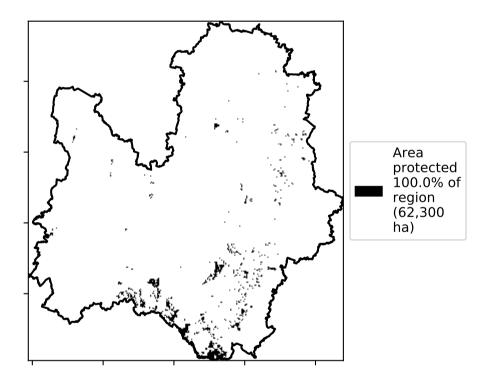
Land use and forest cover



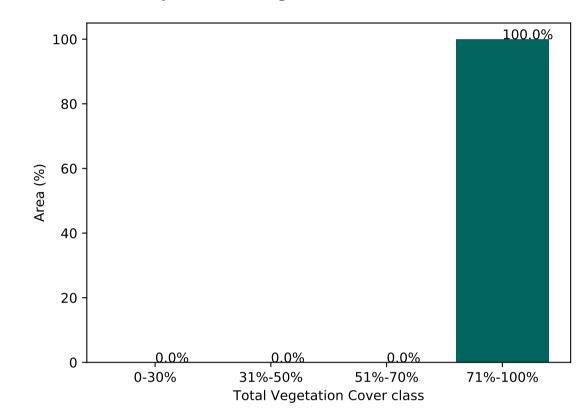
Total Vegetation Cover [%]



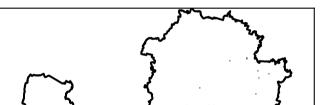




Proportion of vegetation cover class in area



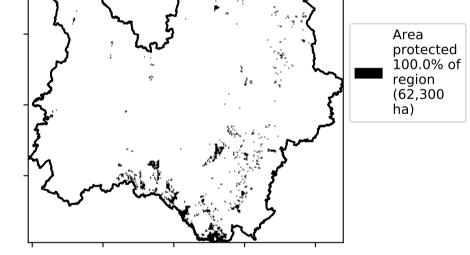
% Area protected from wind erosion (>50%)



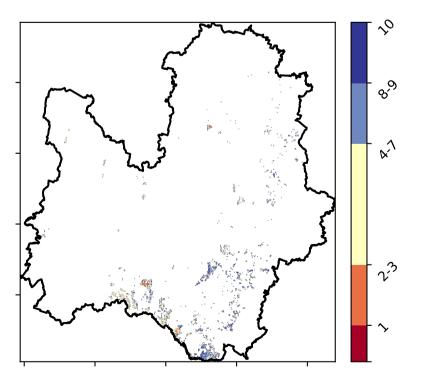


Total Vegetation Cover Anomaly [%]

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.

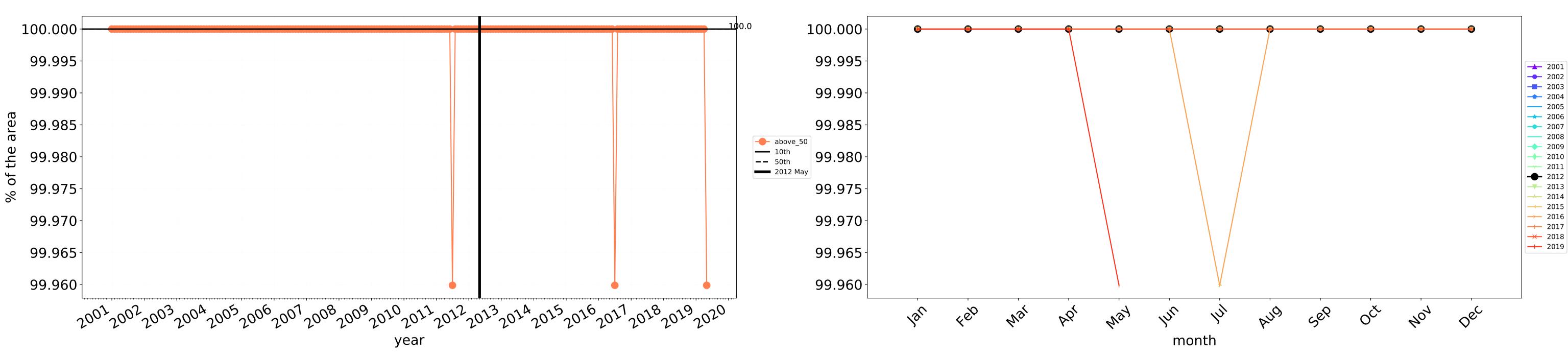


Total Vegetation Cover Decile [%]

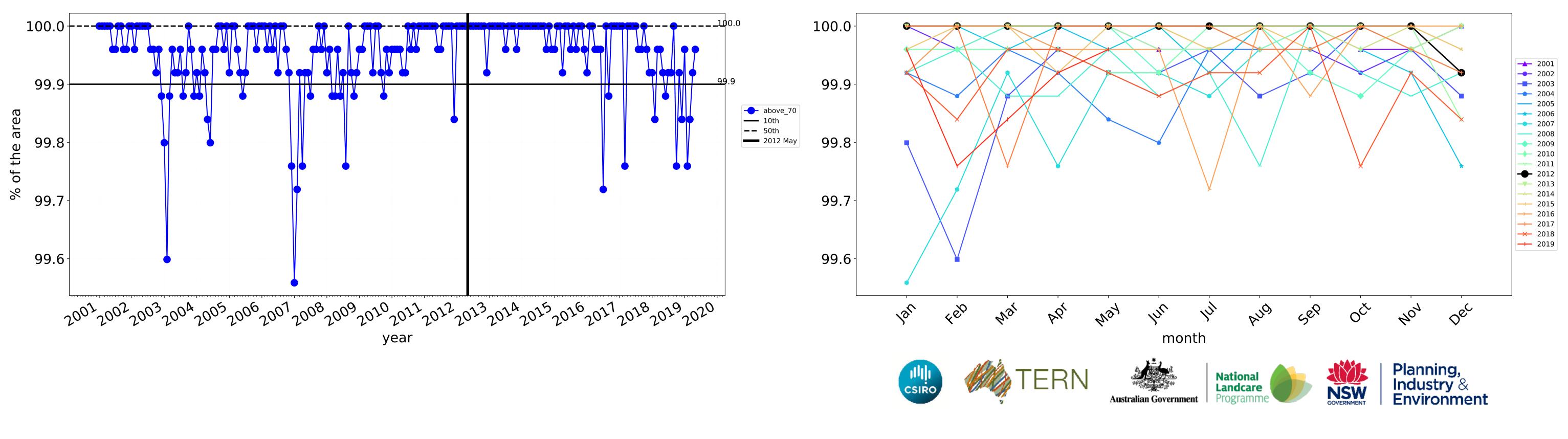


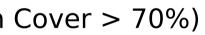






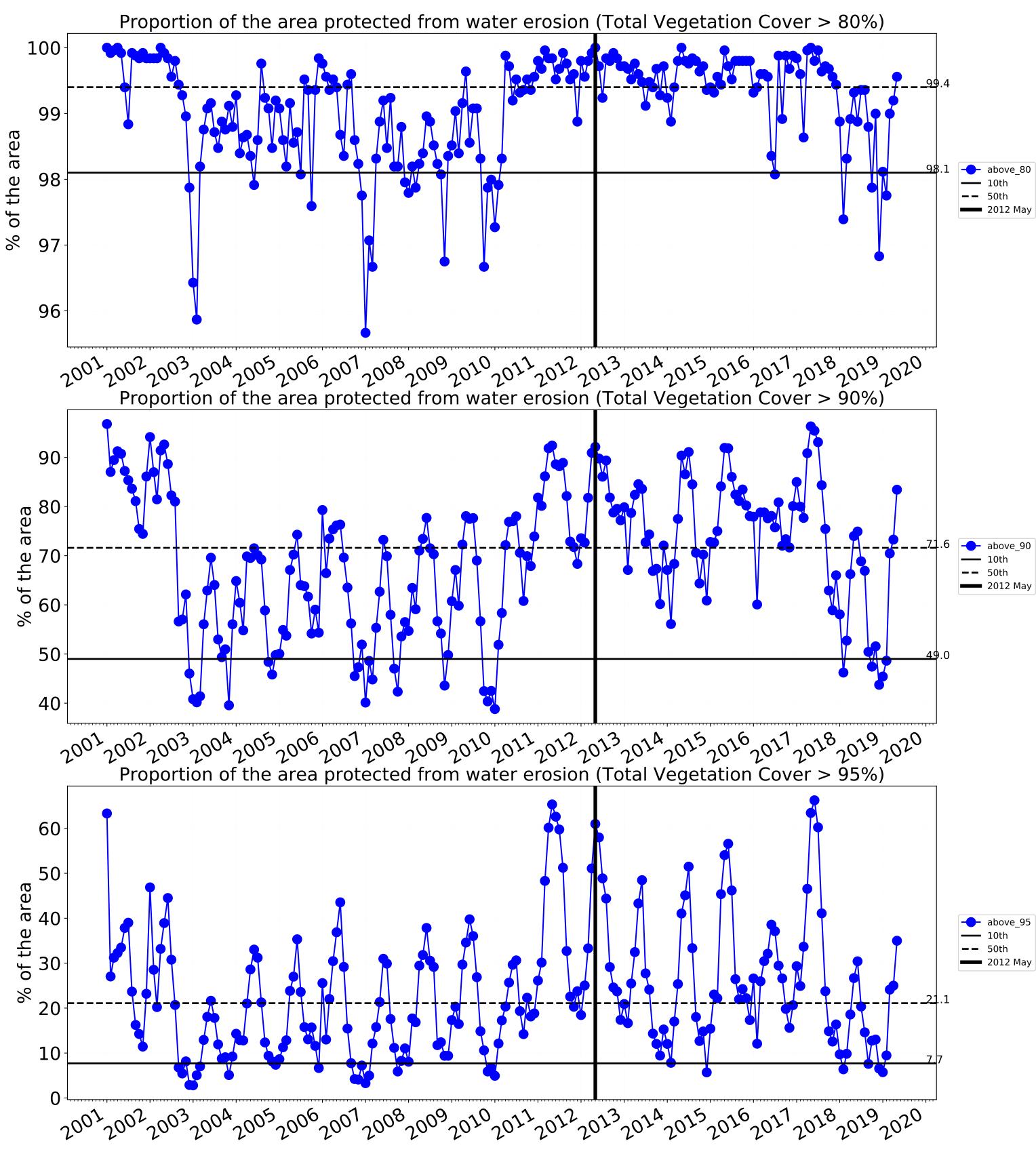
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

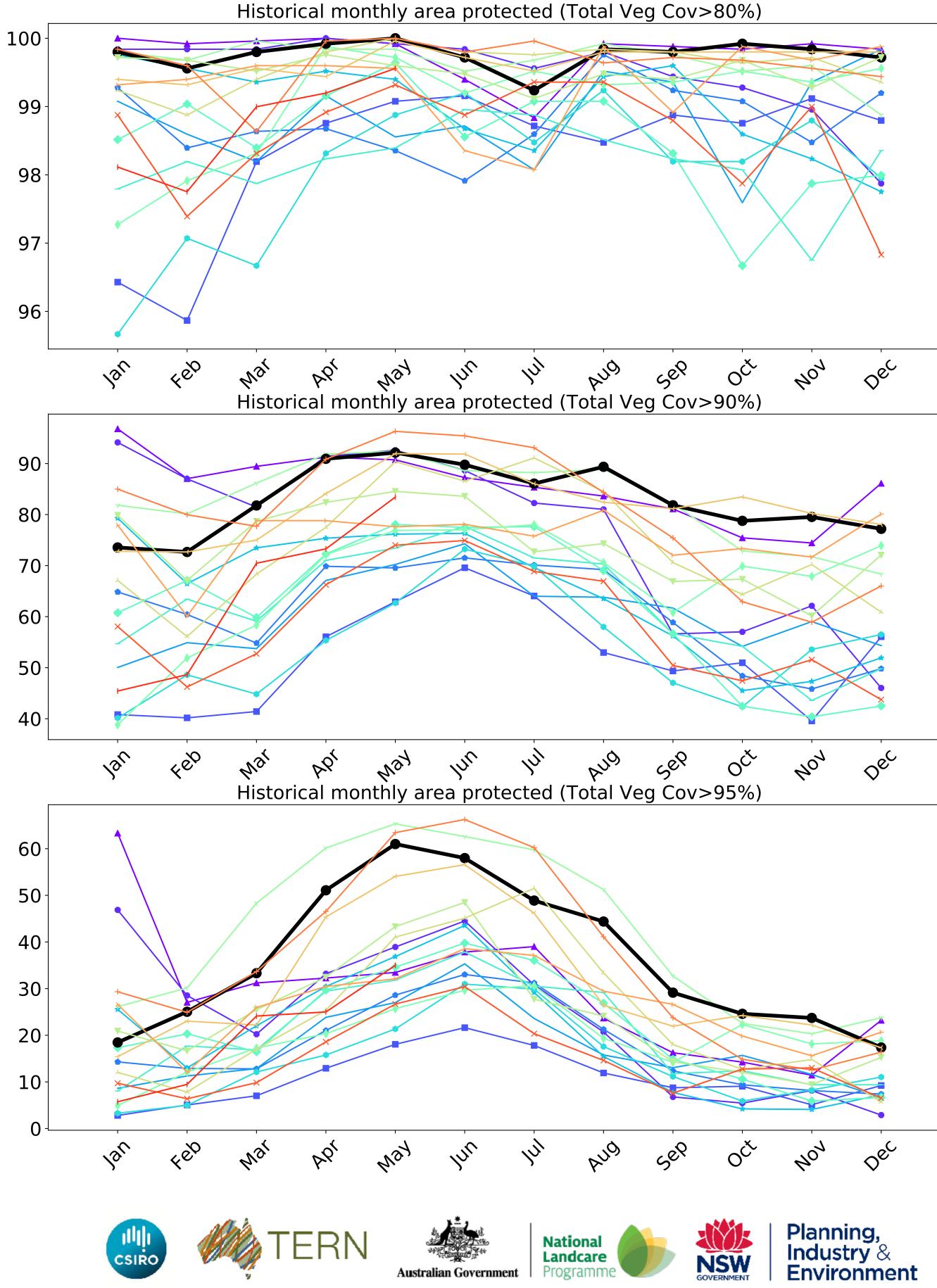




Water erosion historical monthly area protected (Total Veg Cov>70%)

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



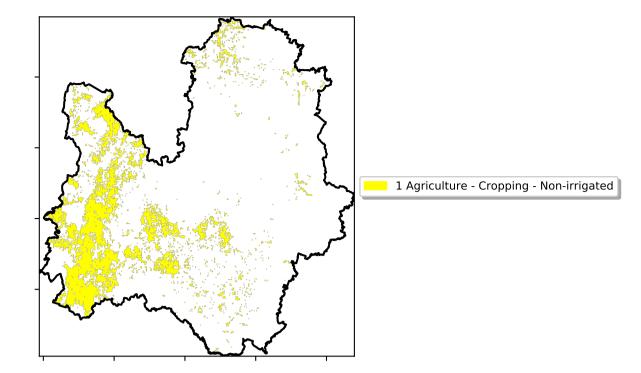




___ 2001 --- 2002 **—** 2003 **---** 2004 ____ 2005 **---** 2006 **--** 2007 2008 **---** 2009 **-** 2010 ---- 2011 ---- 2012 **—** 2013 - 2014 ← 2015 <mark>→</mark> 2016 <mark>→</mark> 2017 → 2018 → 2019

Cropping

Land use and forest cover



12%100

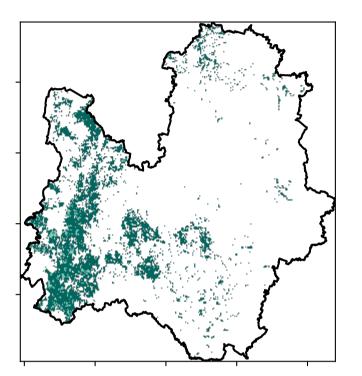
52°101001

S

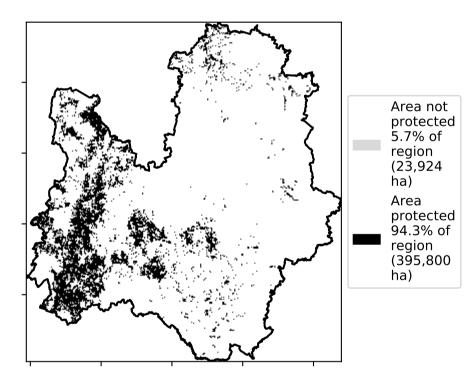
3200

0.30%

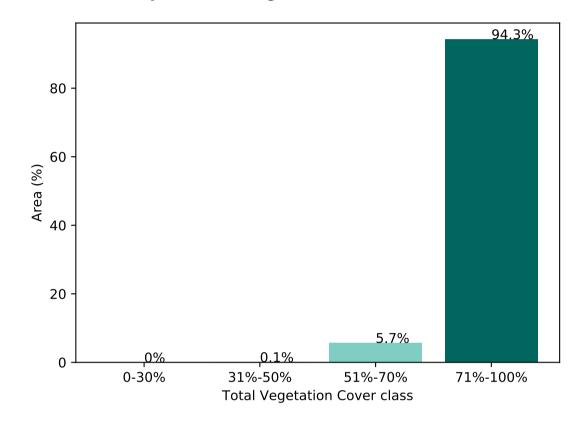
Total Vegetation Cover [%]



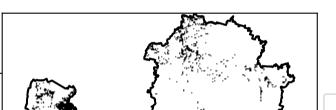
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

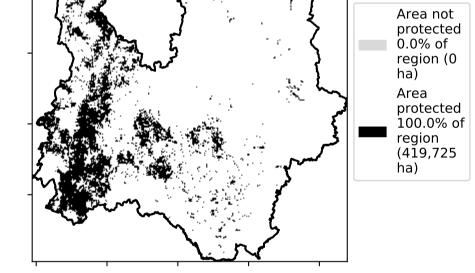


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) of Australia (2018)

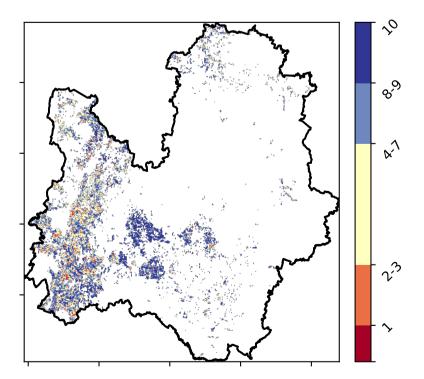
Total Vegetation Cover Anomaly [%]

- 20 10 0 -10 -20

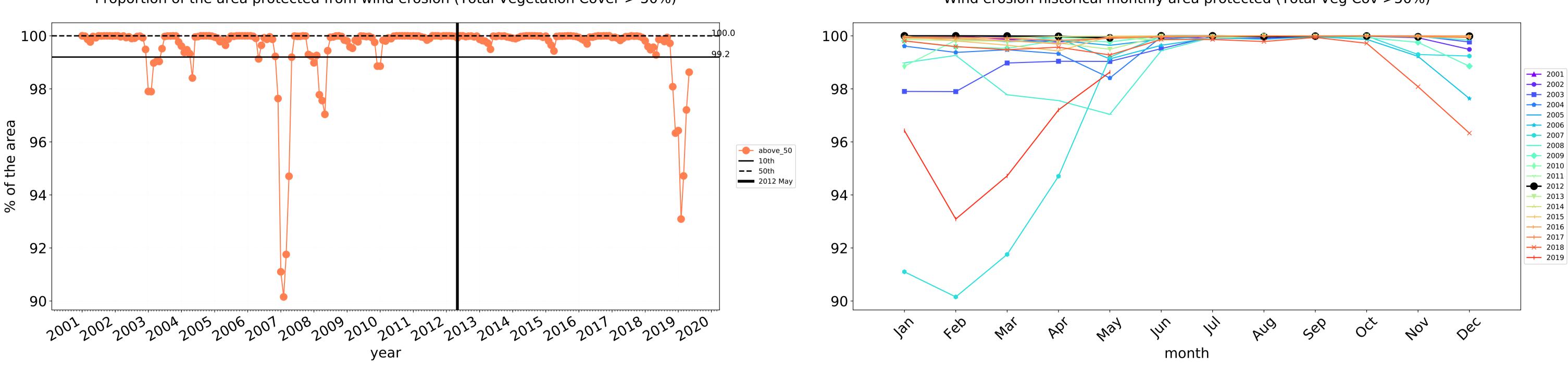
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



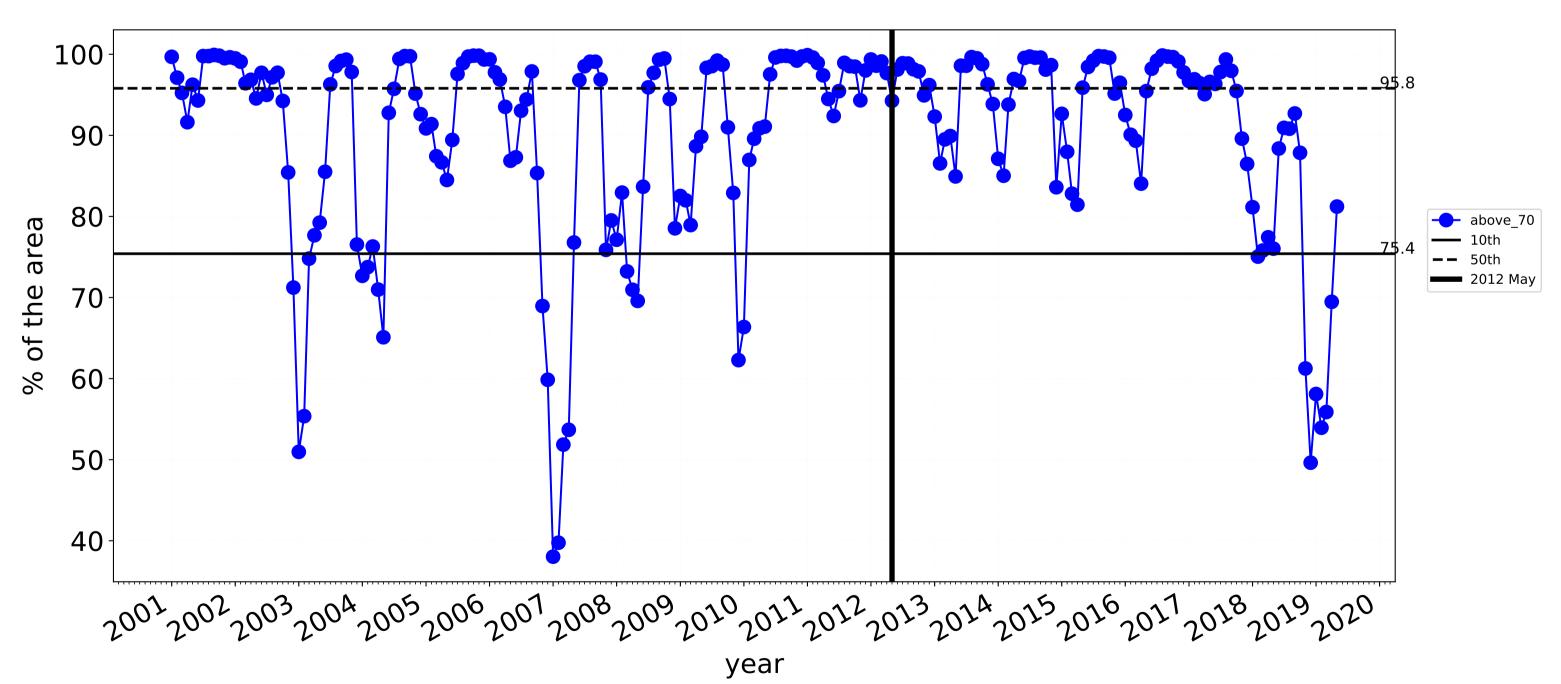
Total Vegetation Cover Decile [%]





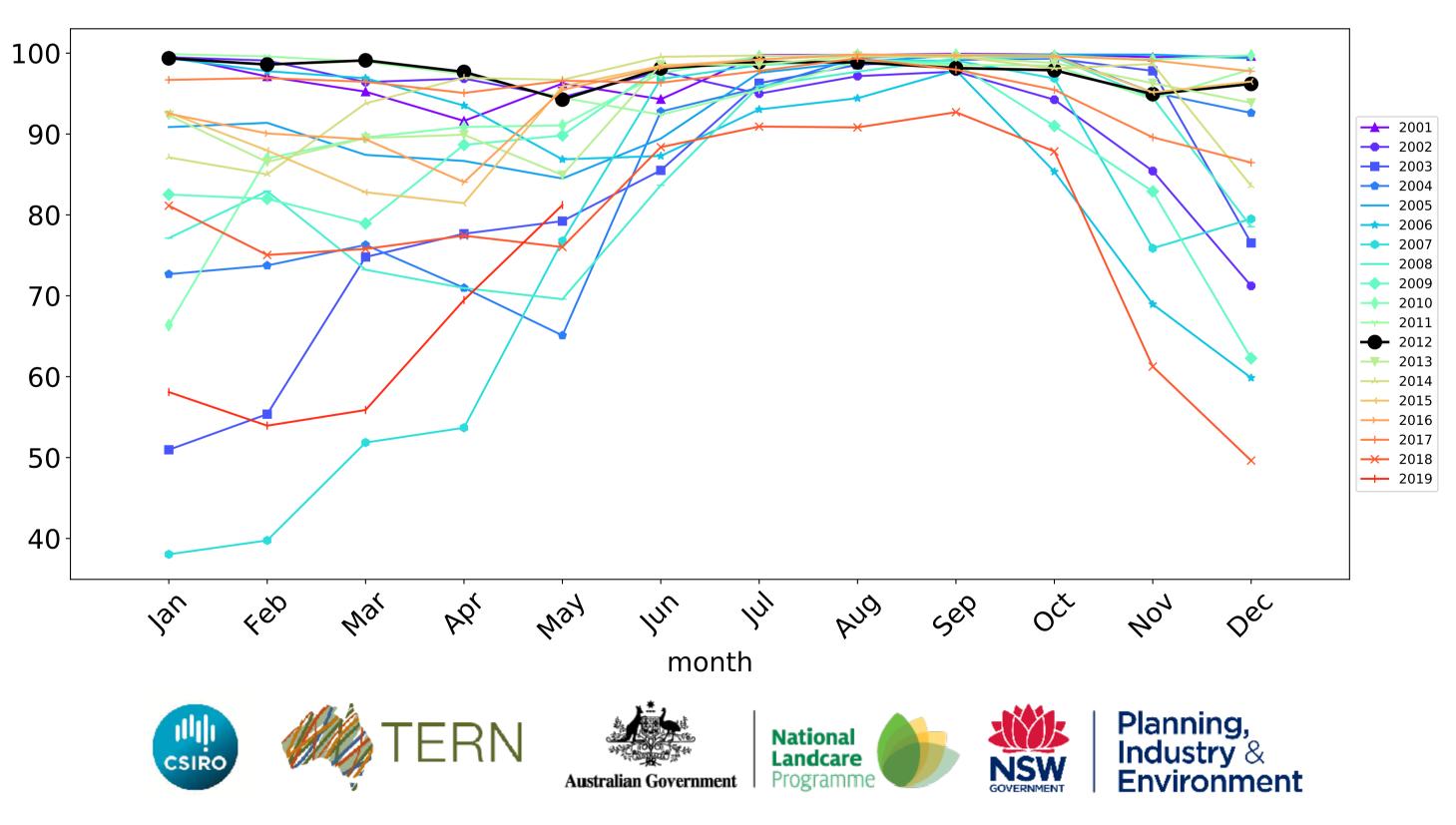


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

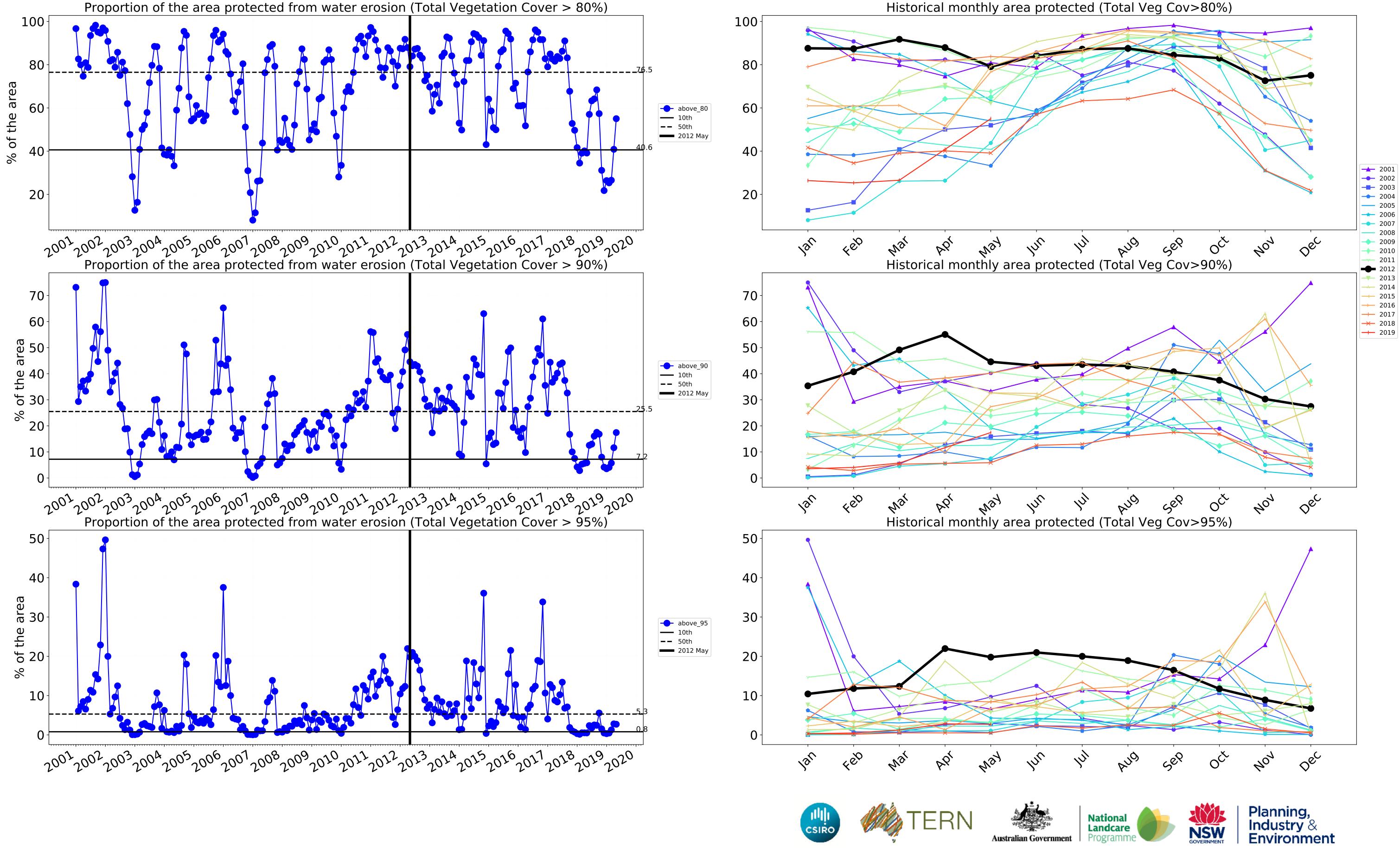


Cropping timeseries

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

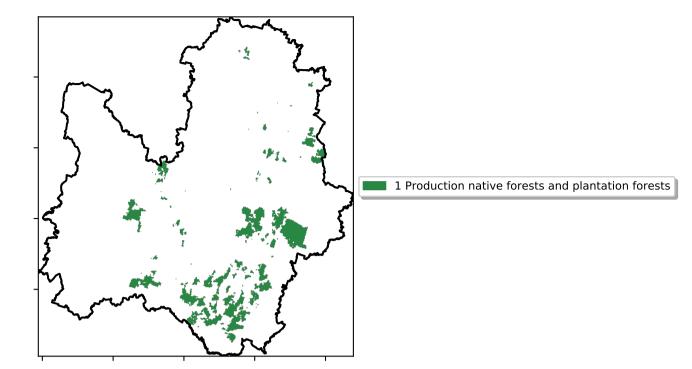


Wind erosion historical monthly area protected (Total Veg Cov >50%)

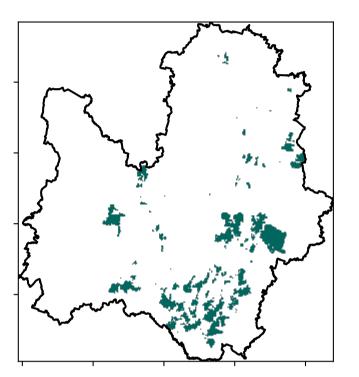


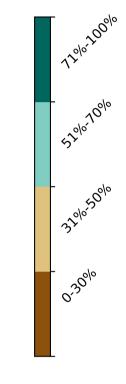
Production native forests and plantation forests

Land use and forest cover

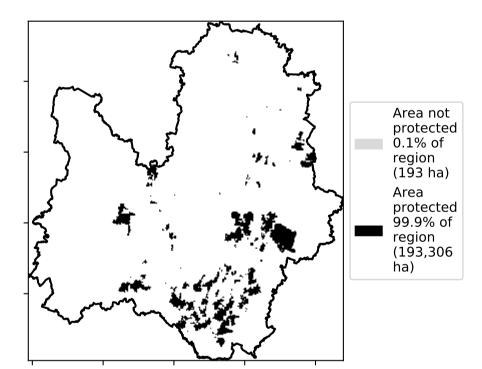


Total Vegetation Cover [%]

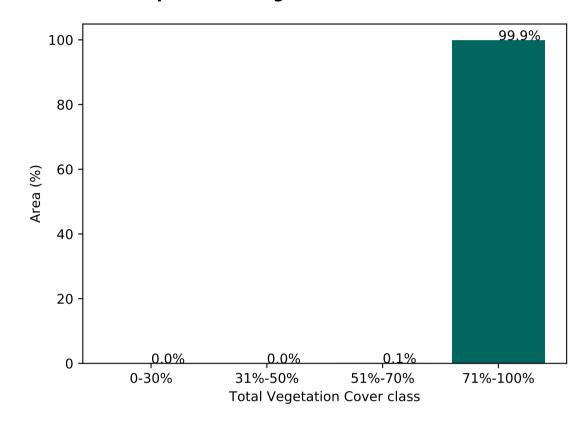




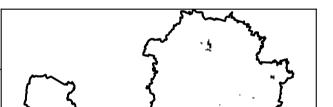
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area



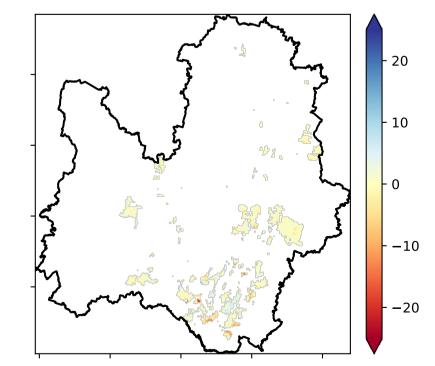
% Area protected from wind erosion (>50%)



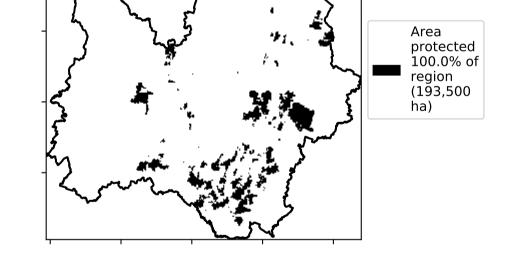
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover Anomaly [%]

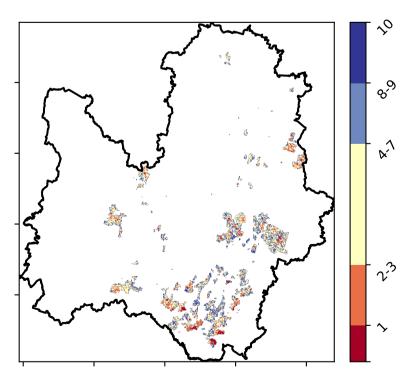
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



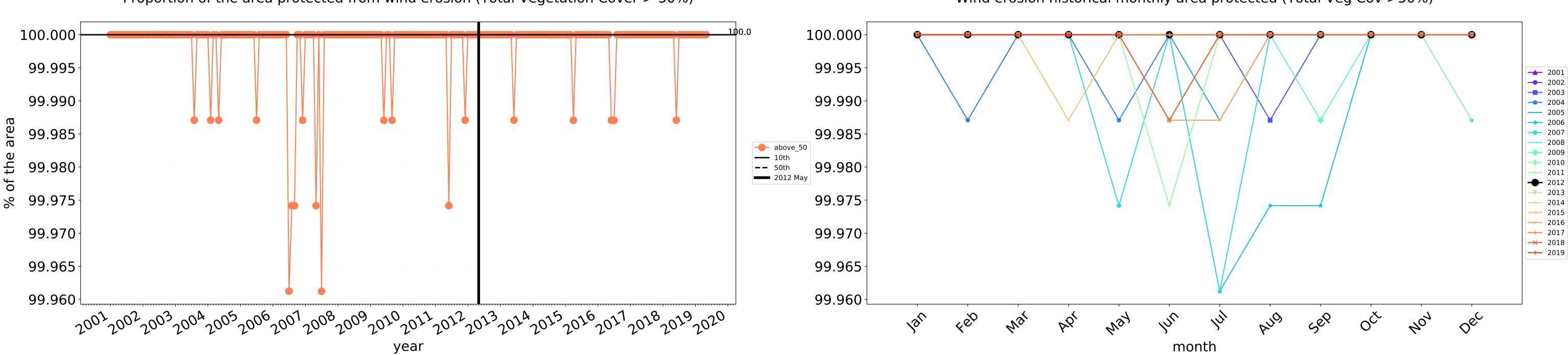
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



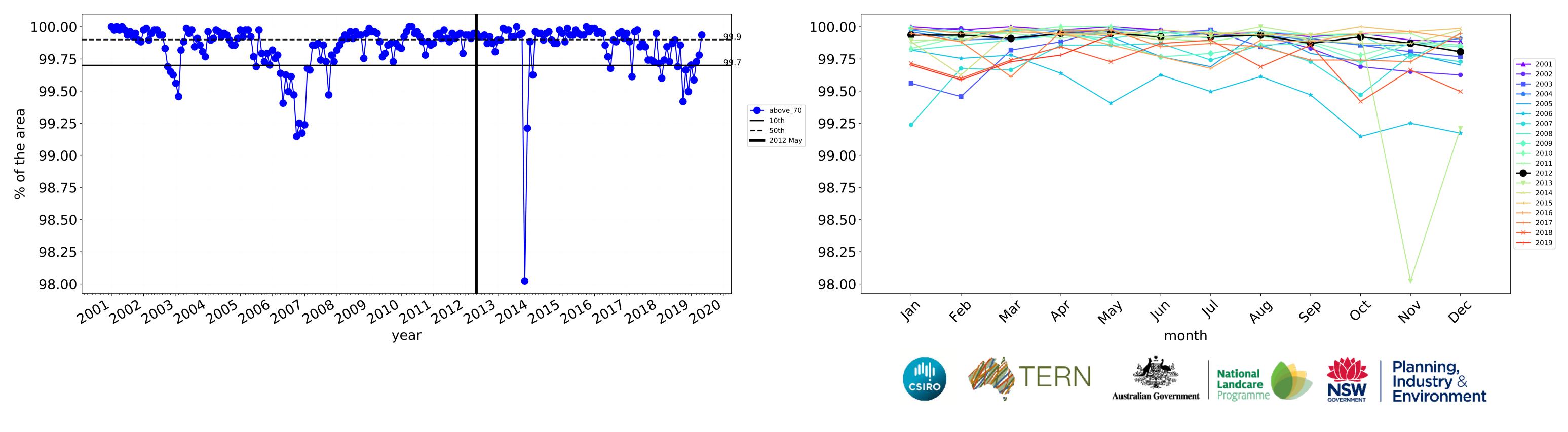
Total Vegetation Cover Decile [%]





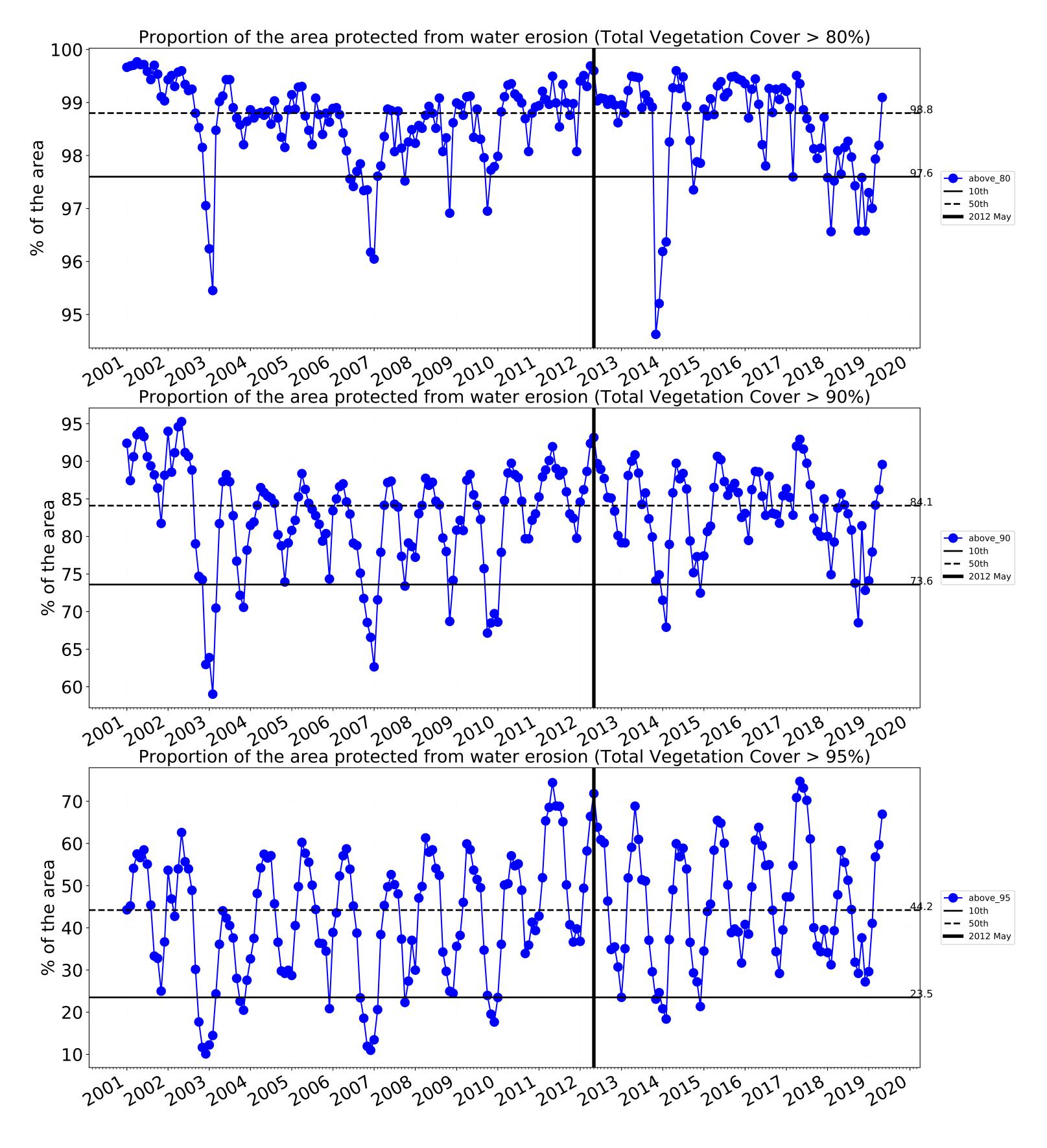


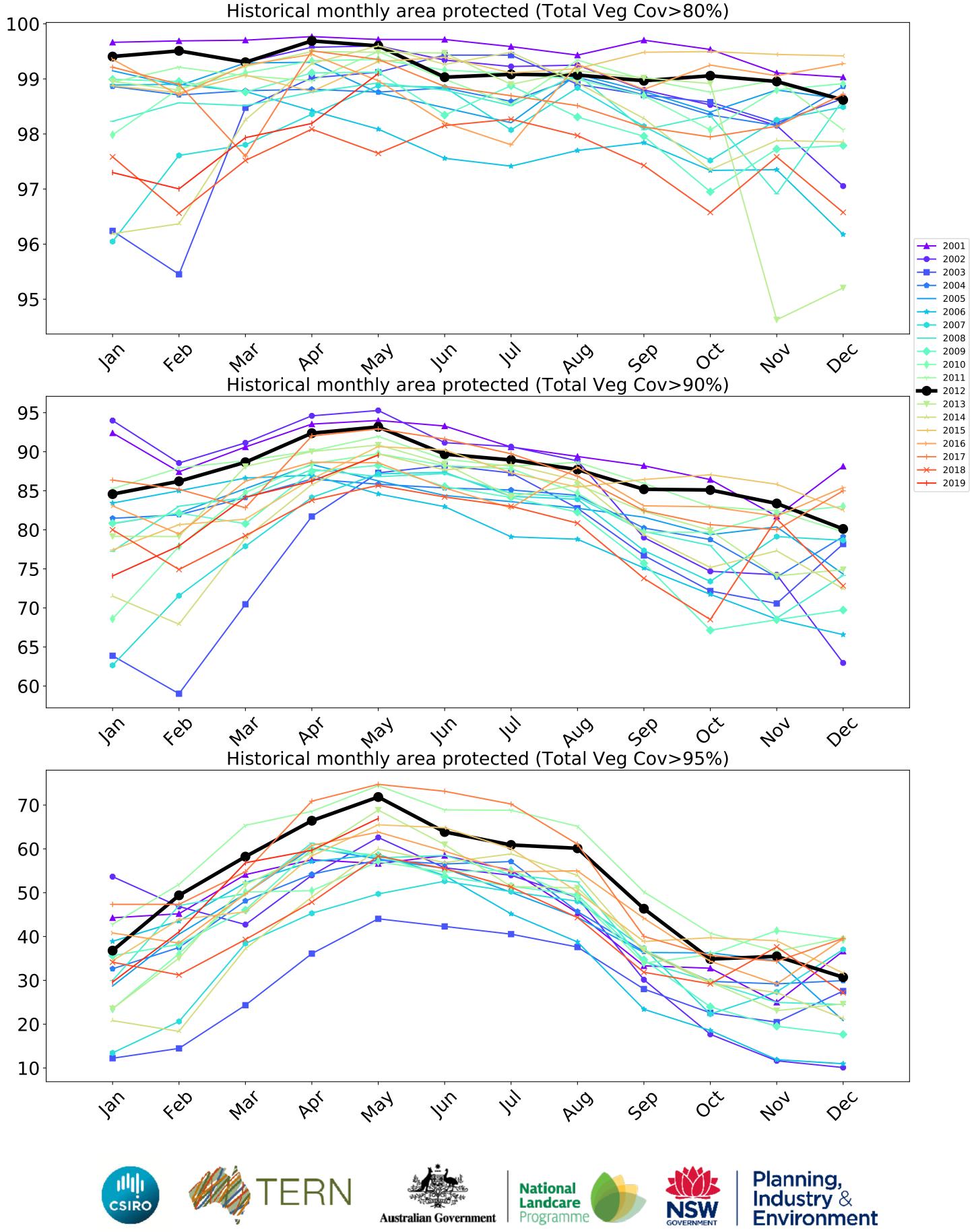
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

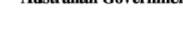


Water erosion historical monthly area protected (Total Veg Cov>70%)

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







Central Tablelands (3,133,075 ha and no data 1,590 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	3,133,075	100.0% 3,132,924	100.0% 3,132,149	99.0% 3,102,071	96.4% 3,019,611	84.2% 2,637,565	46.1% 1,445,573
Conservation and natural environments	712,250	100.0% 712,250	100.0% 712,250	100.0% 712,200	100.0% 711,950	95.7% 681,550	57.2% 407,425
Conservation and natural environments Woodland forest	535,500	100.0% 535,500	100.0% 535,500	100.0% 535,475	100.0% 535,250	95.0% 508,500	50.5% 270,625
Conservation and natural environments Forest (non woodland)	174,125	100.0% 174,125	100.0% 174,125	100.0% 174,125	100.0% 174,100	98.0% 170,600	77.9% 135,650
Agriculture	2,147,875	100.0% 2,147,875	100.0% 2,147,550	98.8% 2,121,550	95.3% 2,047,425	80.4% 1,727,625	41.0% 879,700
Grazing	1,710,025	100.0% 1,710,025	100.0% 1,710,025	99.9% 1,709,100	99.5% 1,701,750	89.7% 1,534,000	46.5% 794,800
Grazing non forest	1,354,250	100.0% 1,354,250	100.0% 1,354,250	99.9% 1,353,425	99.4% 1,346,475	90.7% 1,227,650	49.6% 671,050
Grazing Woodland forest	293,475	100.0% 293,475	100.0% 293,475	100.0% 293,375	99.8% 292,975	84.8% 248,950	29.2% 85,750
Grazing - Forest (non woodland)	62,300	100.0% 62,300	100.0% 62,300	100.0% 62,300	100.0% 62,300	92.1% 57,400	61.0% 38,000
Cropping	419,725	100.0% 419,725	99.9% 419,400	94.3% 395,625	79.1% 332,000	44.6% 187,125	19.8% 83,025
Production native forests and plantation forests	193,500	100.0% 193,500	100.0% 193,500	99.9% 193,400	99.6% 192,725	93.2% 180,300	71.8% 139,000

