Total vegetation cover soil protection Region:NRM Burnett Mary QLD

Date: February 2006

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

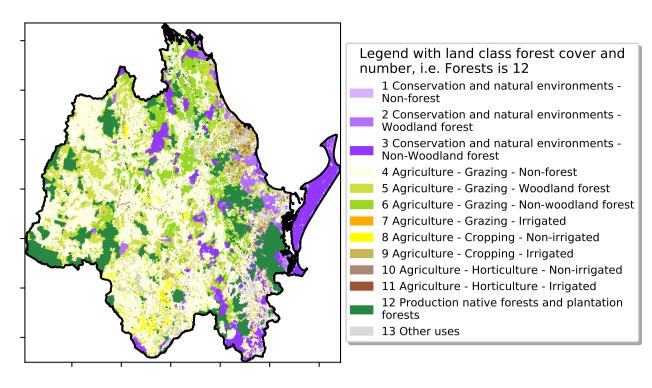


Vegetation Cover Feb 2006

Land use and forest cover

Proportion of each land class in area

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



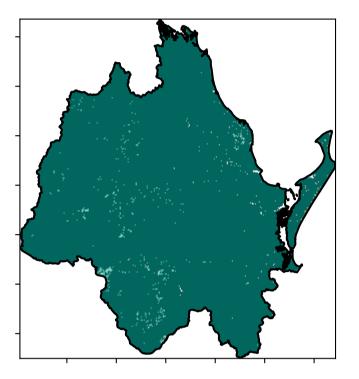
12%200

52% 70%

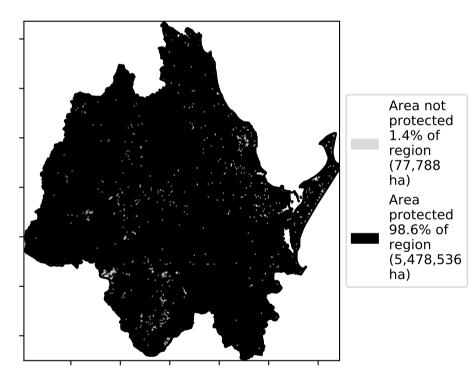
32%50%

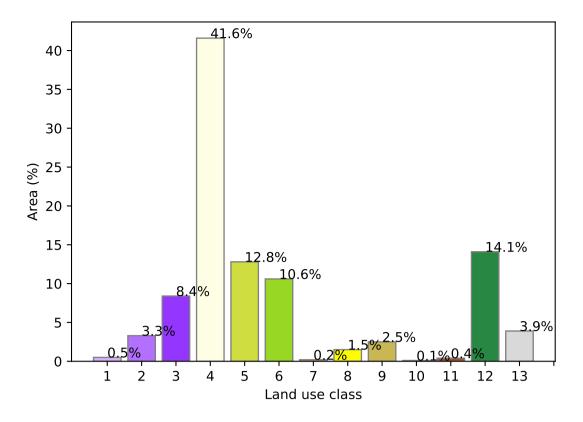
0.30%

Total Vegetation Cover [%]

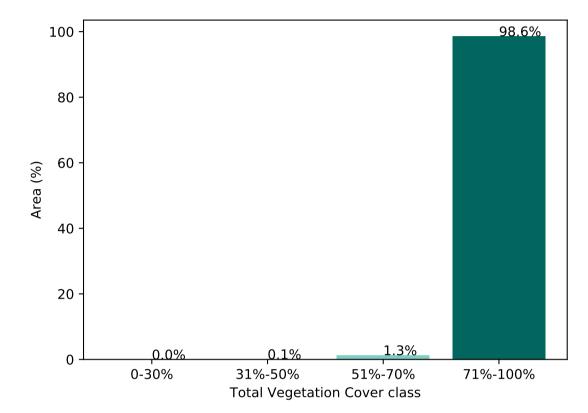


% Area protected from water erosion (>70%)

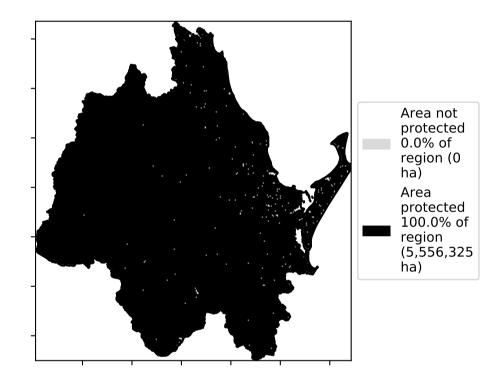




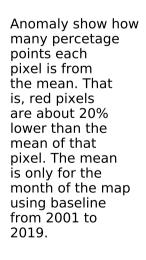
Proportion of vegetation cover class in area

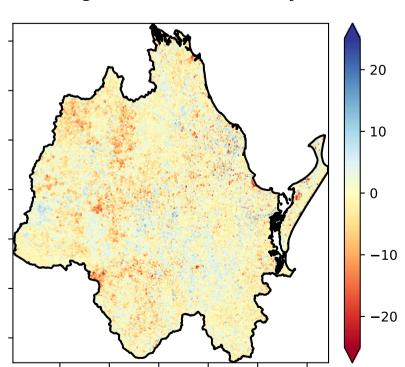


% Area protected from wind erosion (>50%)

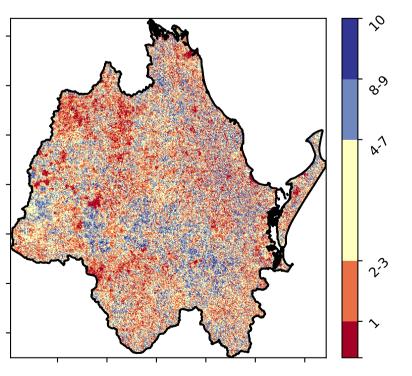


Total Vegetation Cover Anomaly [%]

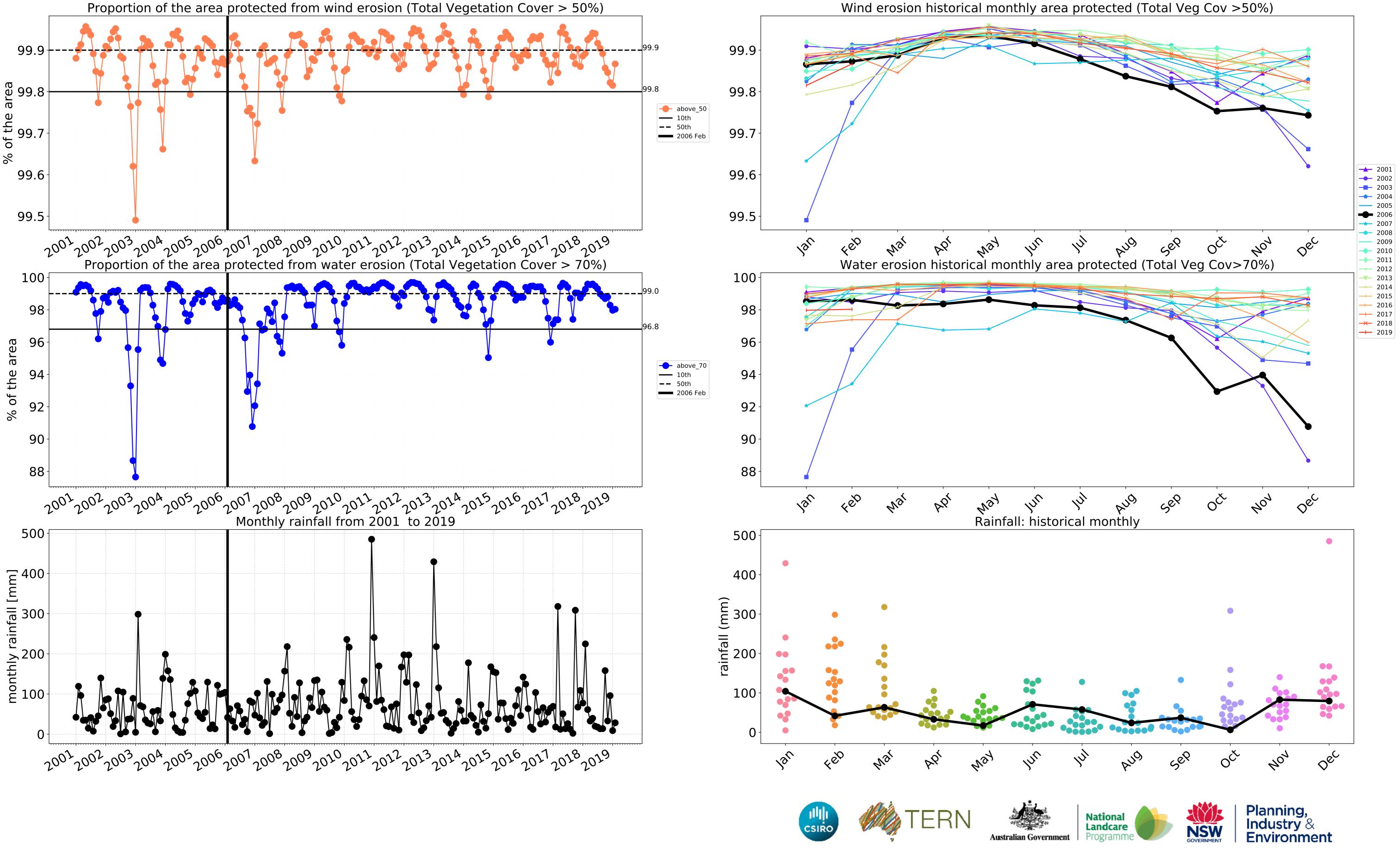


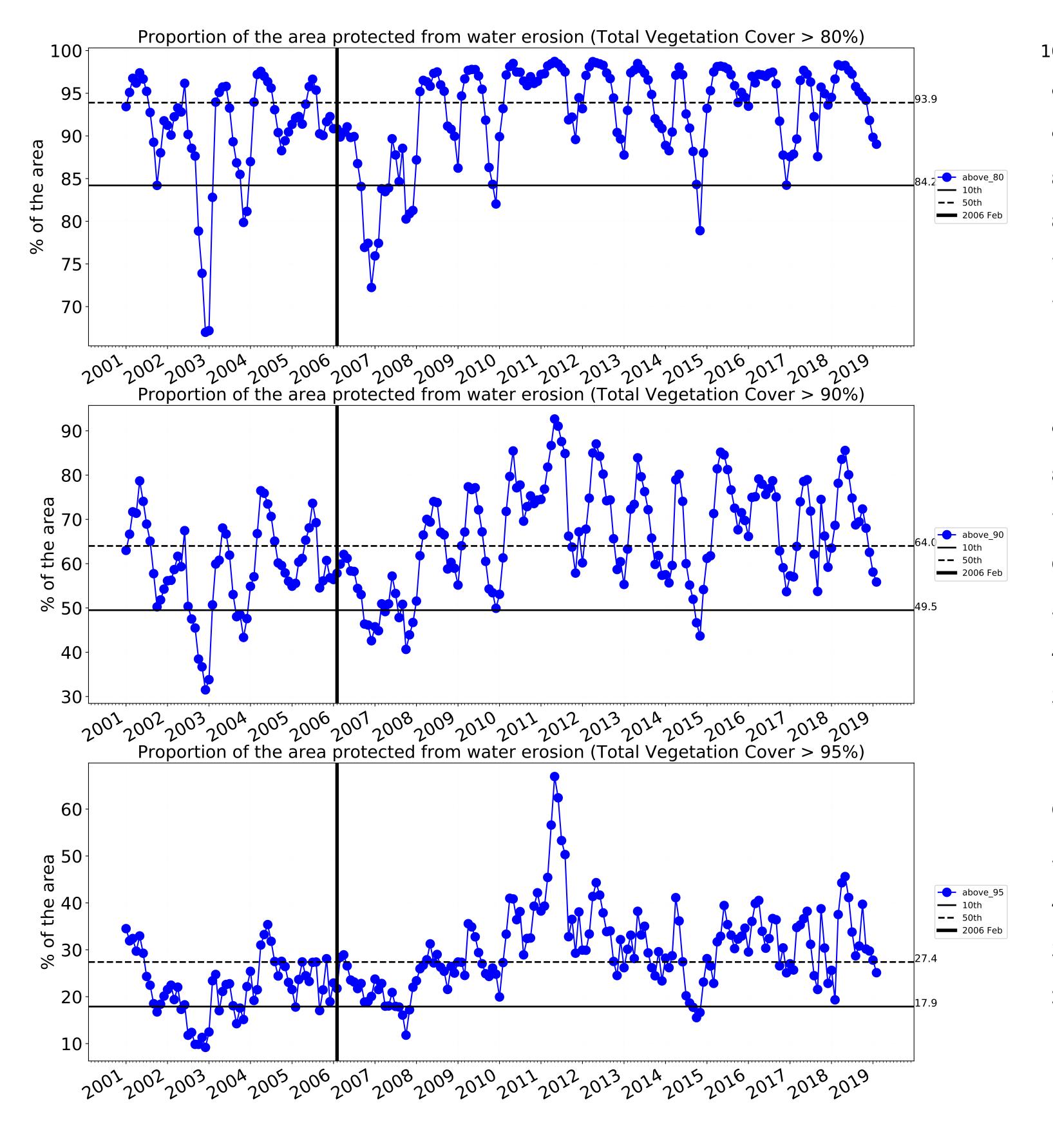


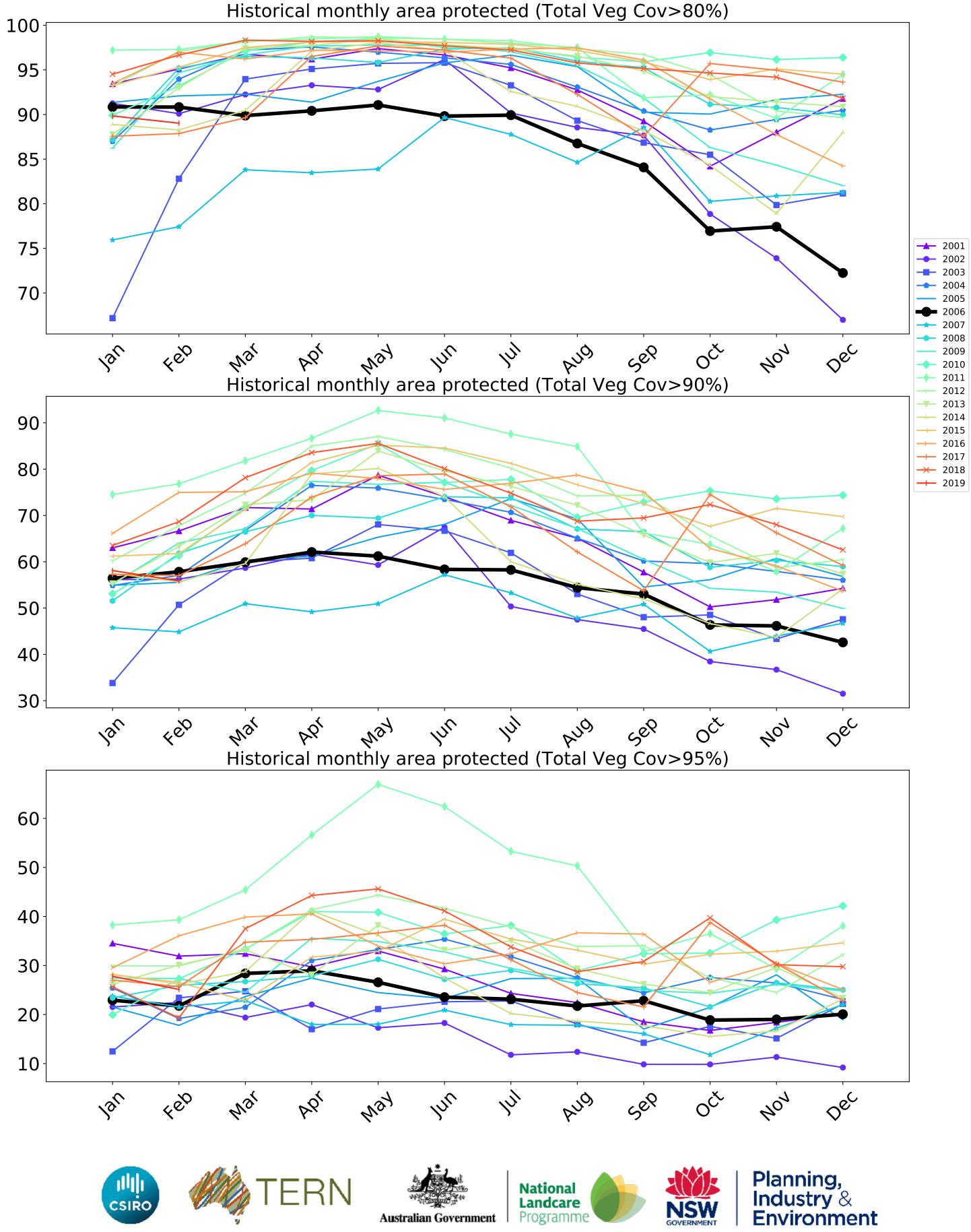
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**





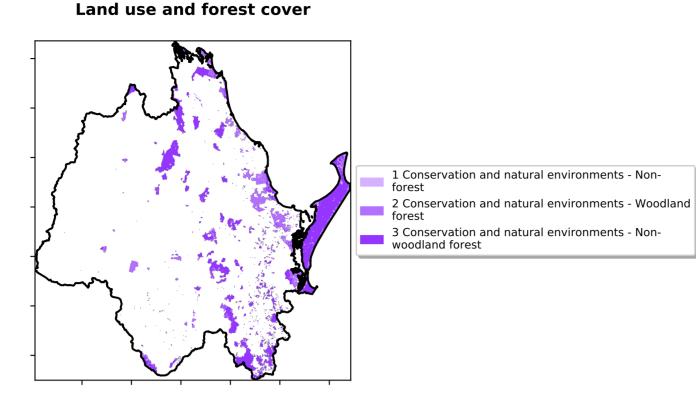




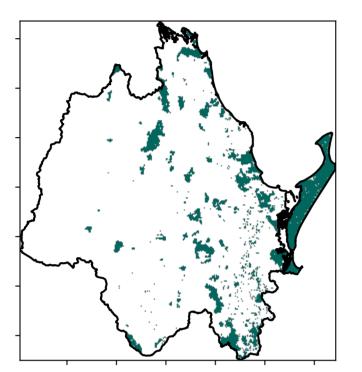


Conservation and natural environments

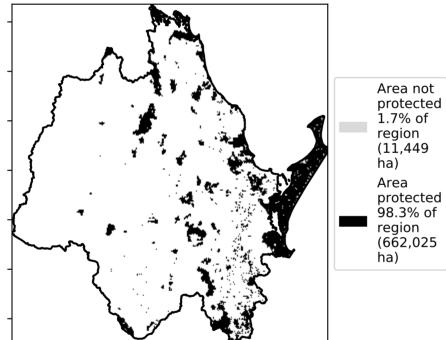
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

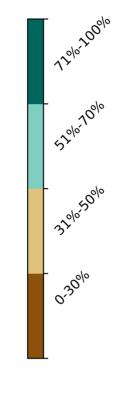


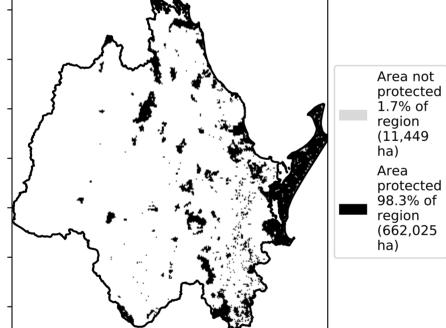
Total Vegetation Cover [%]

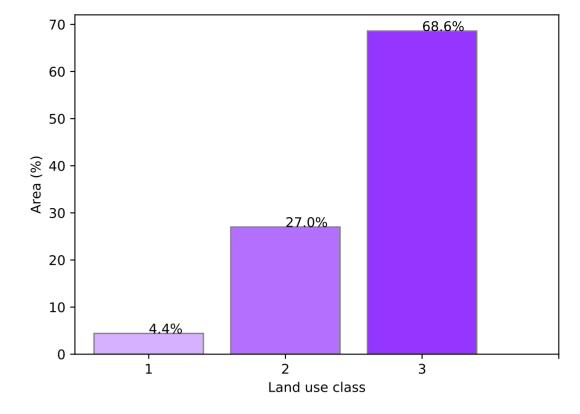


% Area protected from water erosion (>70%)



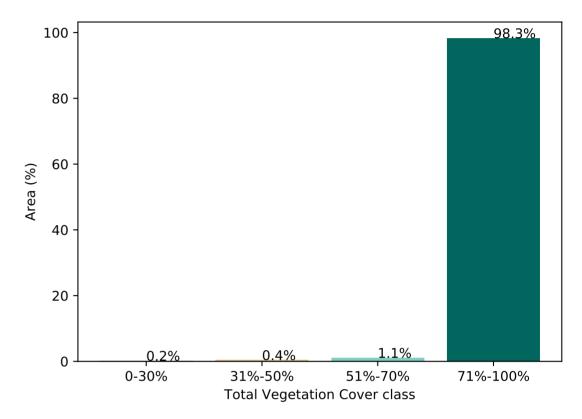




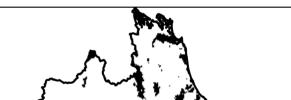


Proportion of each land class in area

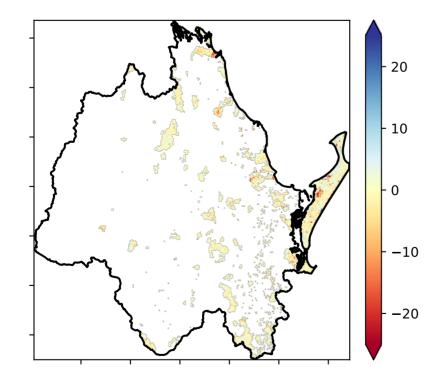
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

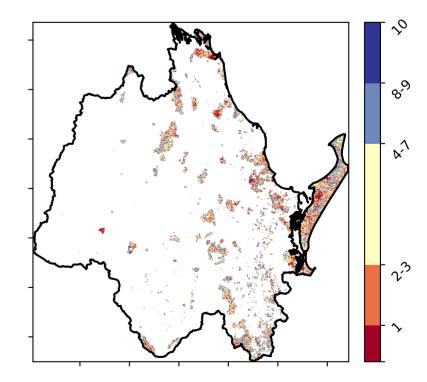


Total Vegetation Cover Anomaly [%]



Area not protected 1.0% of region (6,734 ha) Area protected 99.0% of region (666,740 ha)

Total Vegetation Cover Decile [%]





Deciles show where the

pixel value lies in the

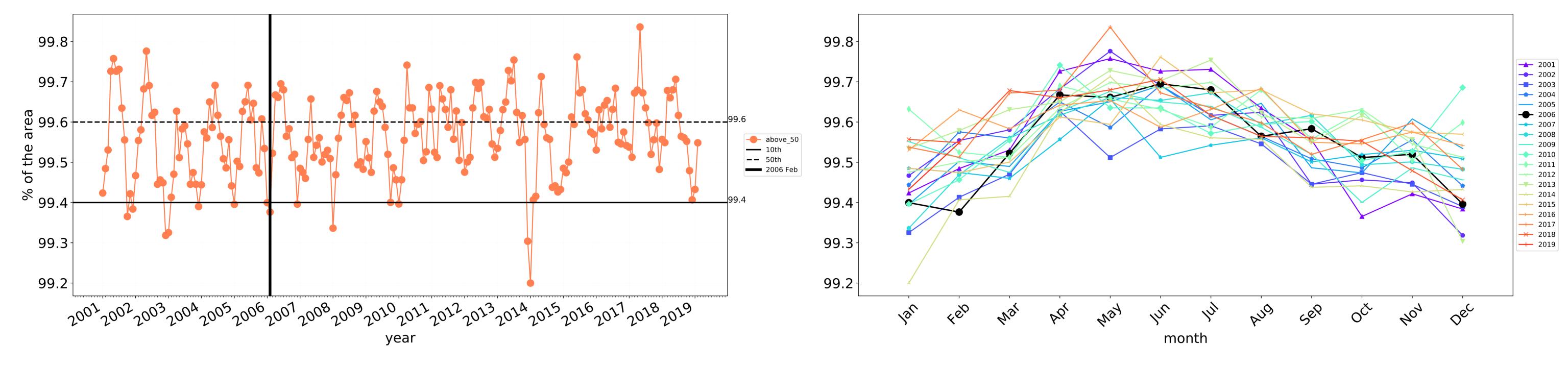
record, from highest to lowest, for that month. That is, red pixels are

records for that month of

the map using baseline from 2001 to 2019.

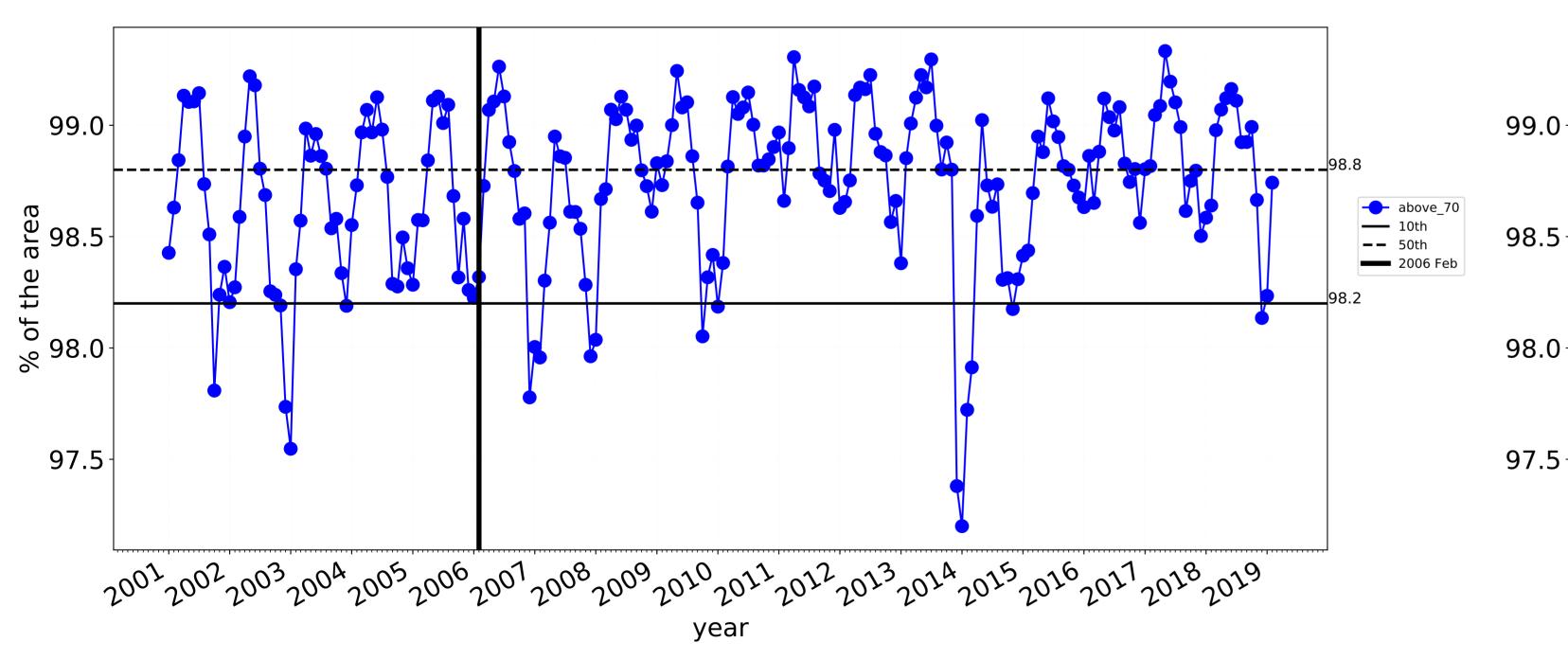
in the lowest 10% of

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 from 2001 to 2019.



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

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

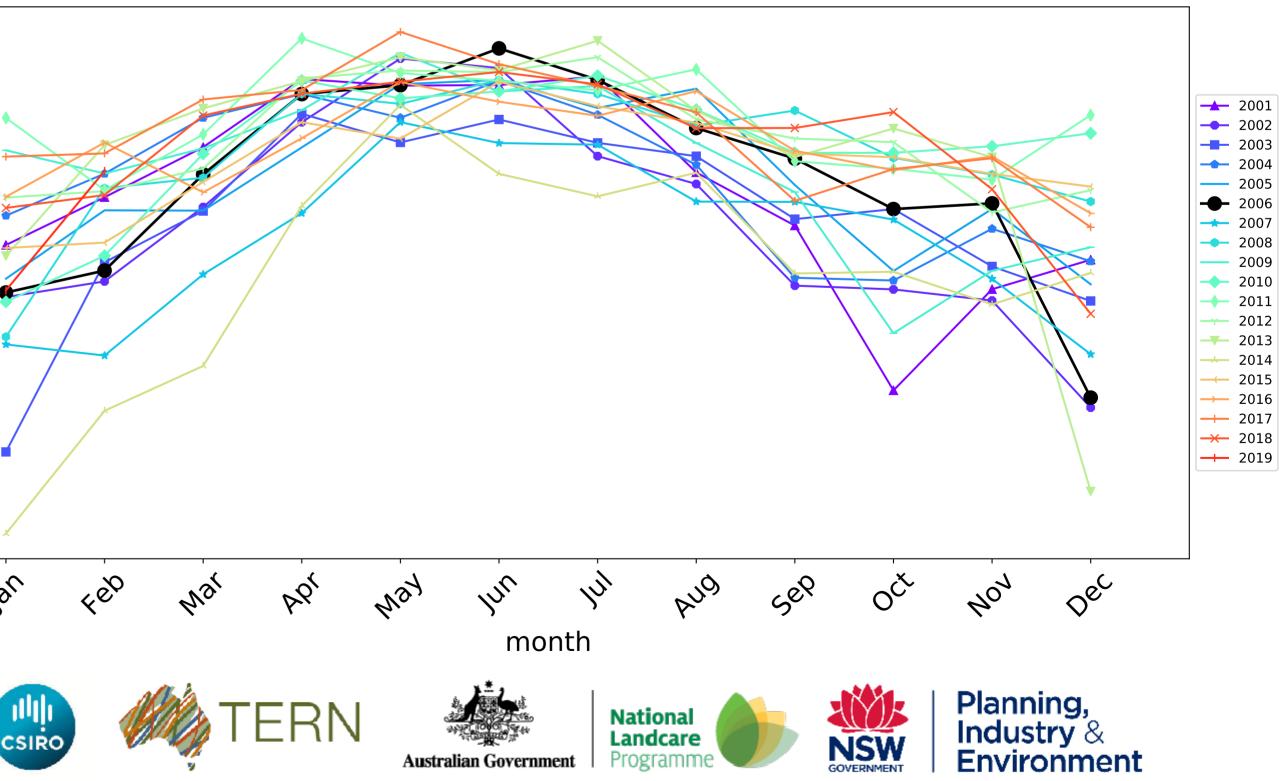




Wind erosion historical monthly area protected (Total Veg Cov >50%)

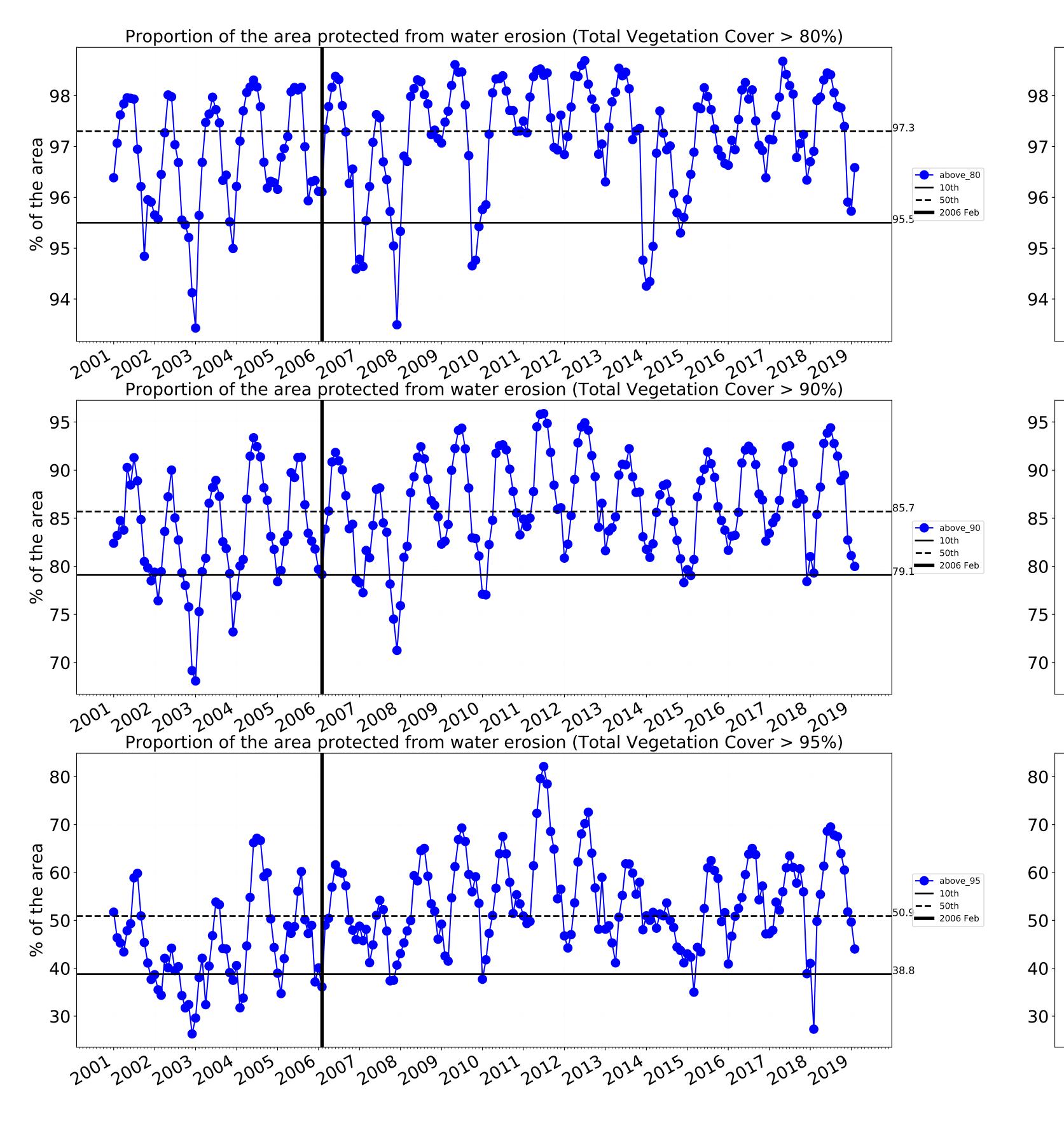


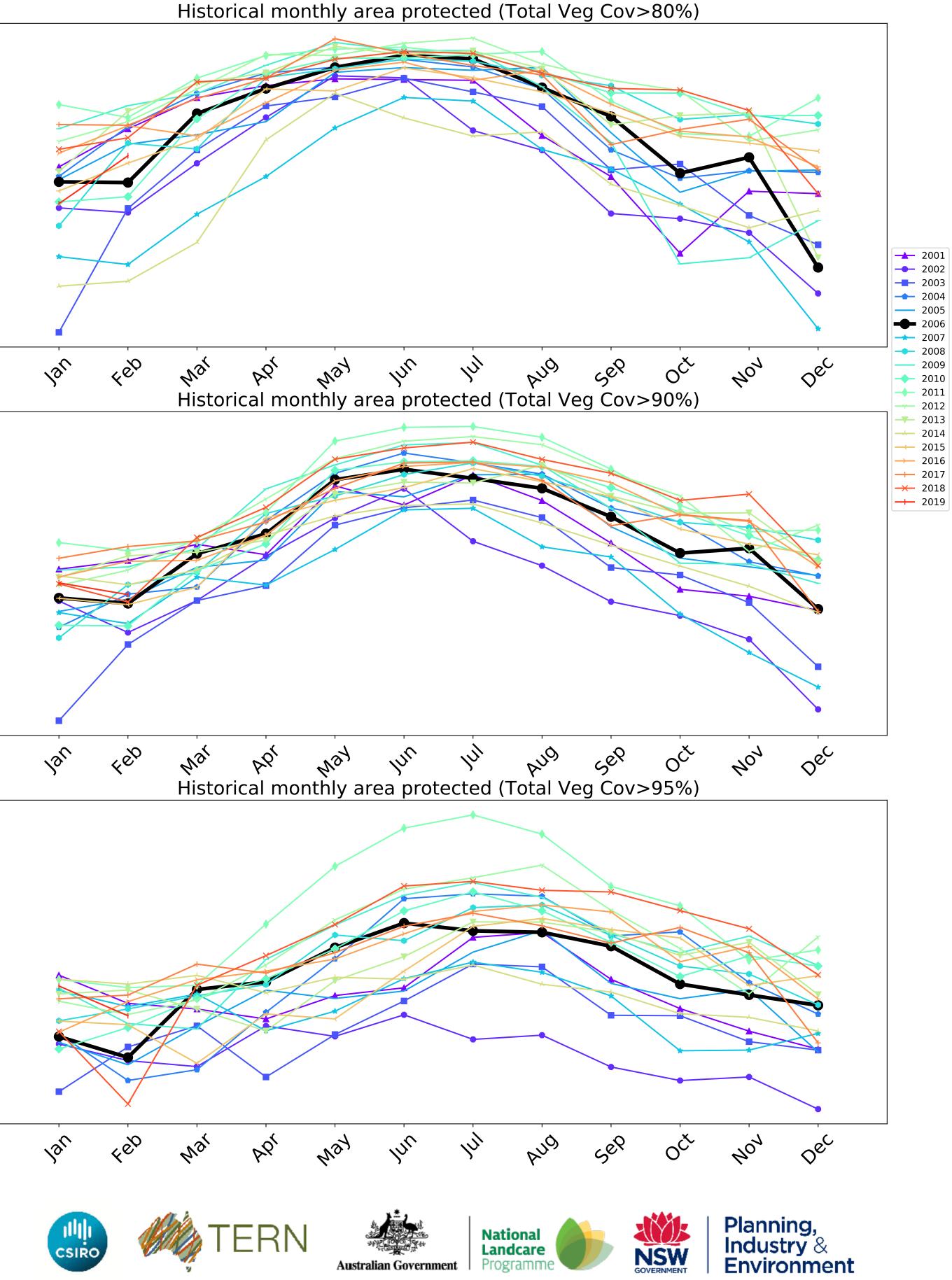
Jan





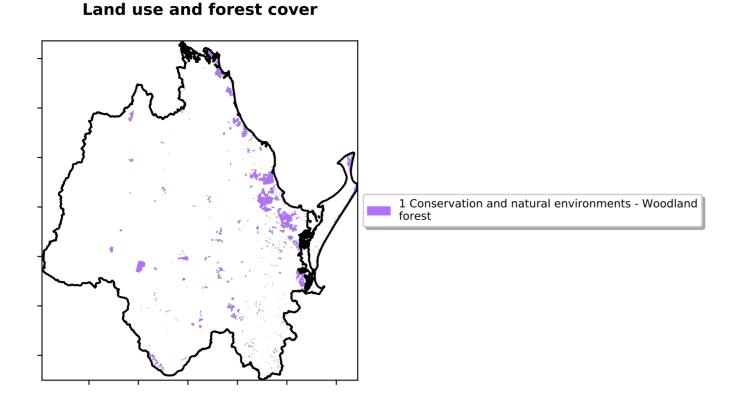
Water erosion historical monthly area protected (Total Veg Cov>70%)



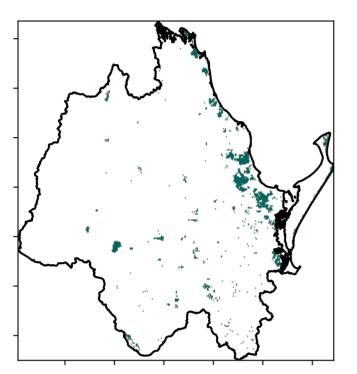


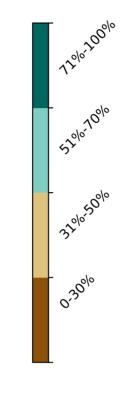
Conservation and natural environments Woodland forest

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

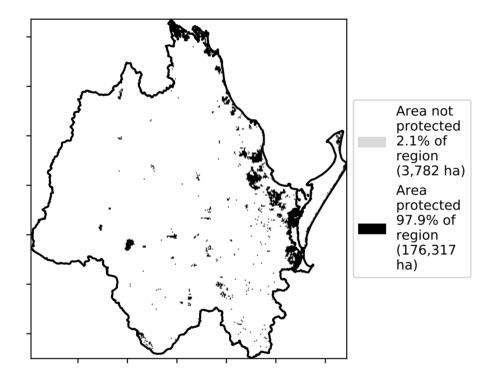


Total Vegetation Cover [%]

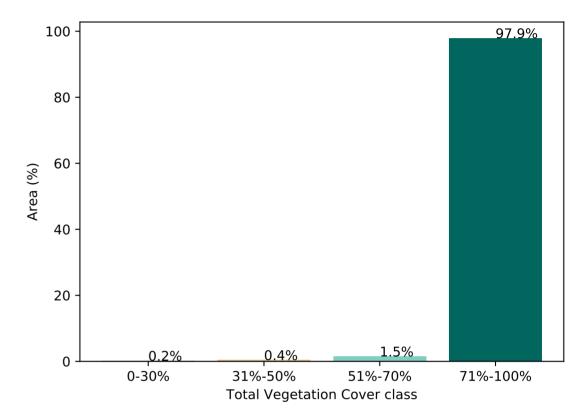




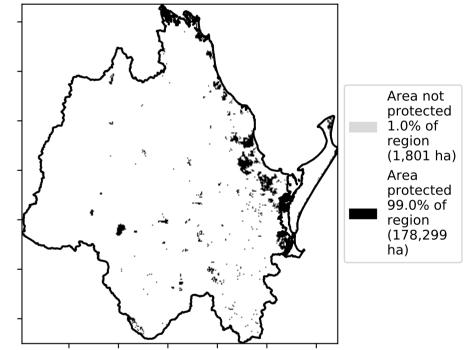
% Area protected from water erosion (>70%)



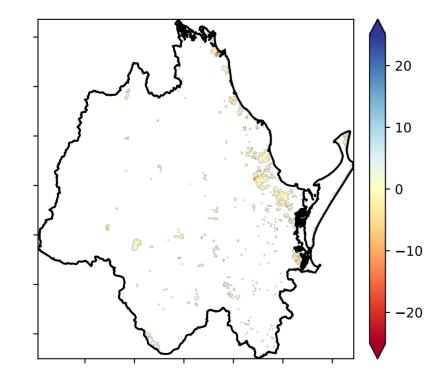




% Area protected from wind erosion (>50%)

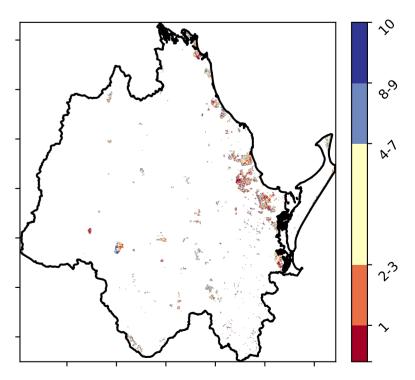


Total Vegetation Cover Anomaly [%]



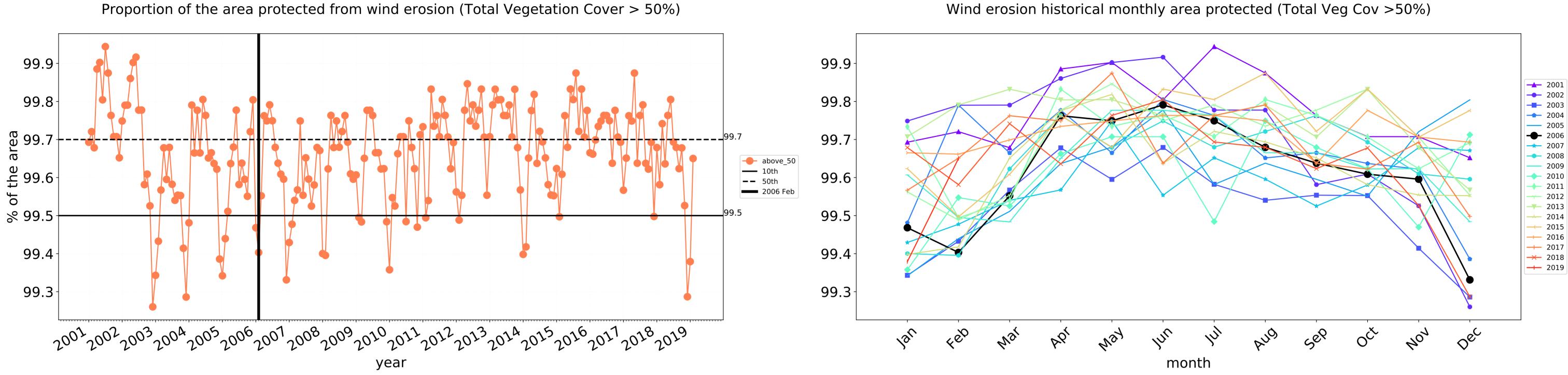
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

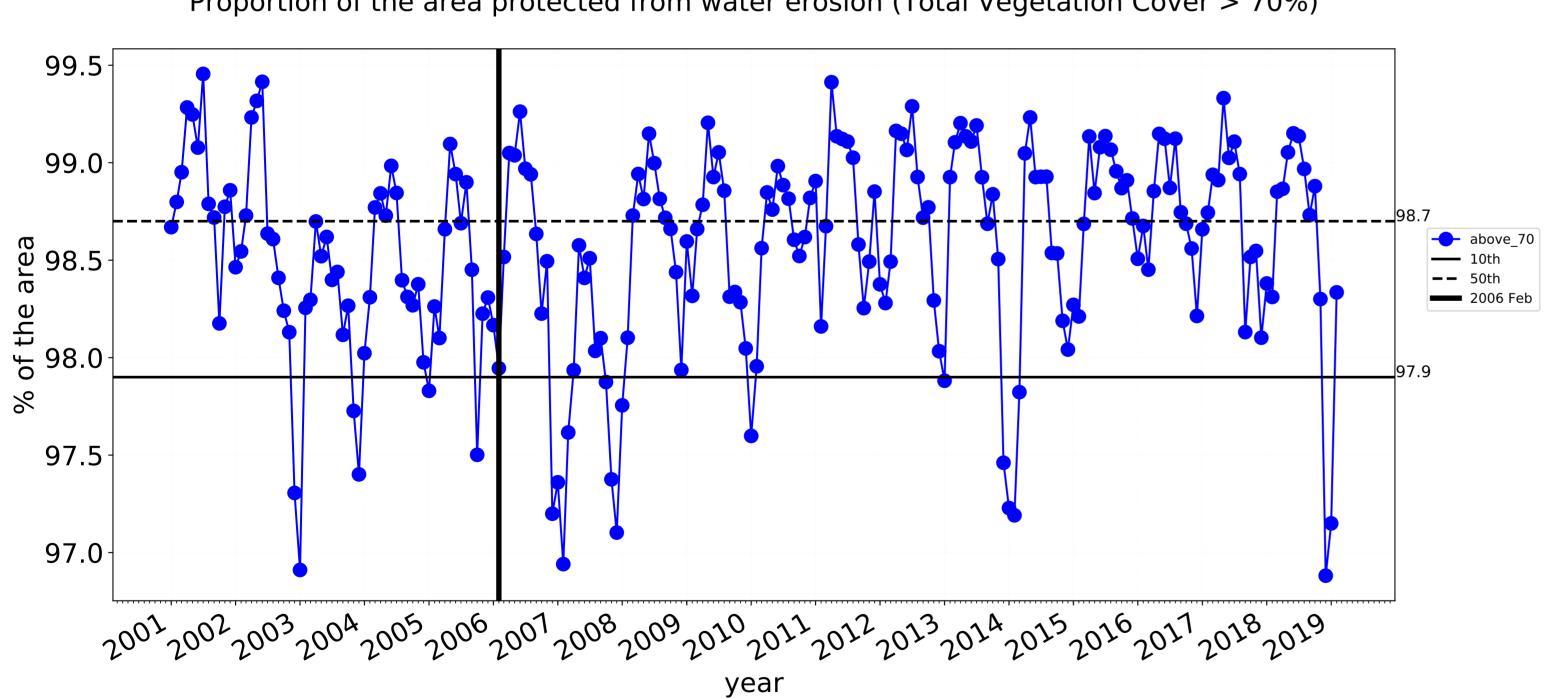




Anomaly show how many percetage points each pixel is from the mean That the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

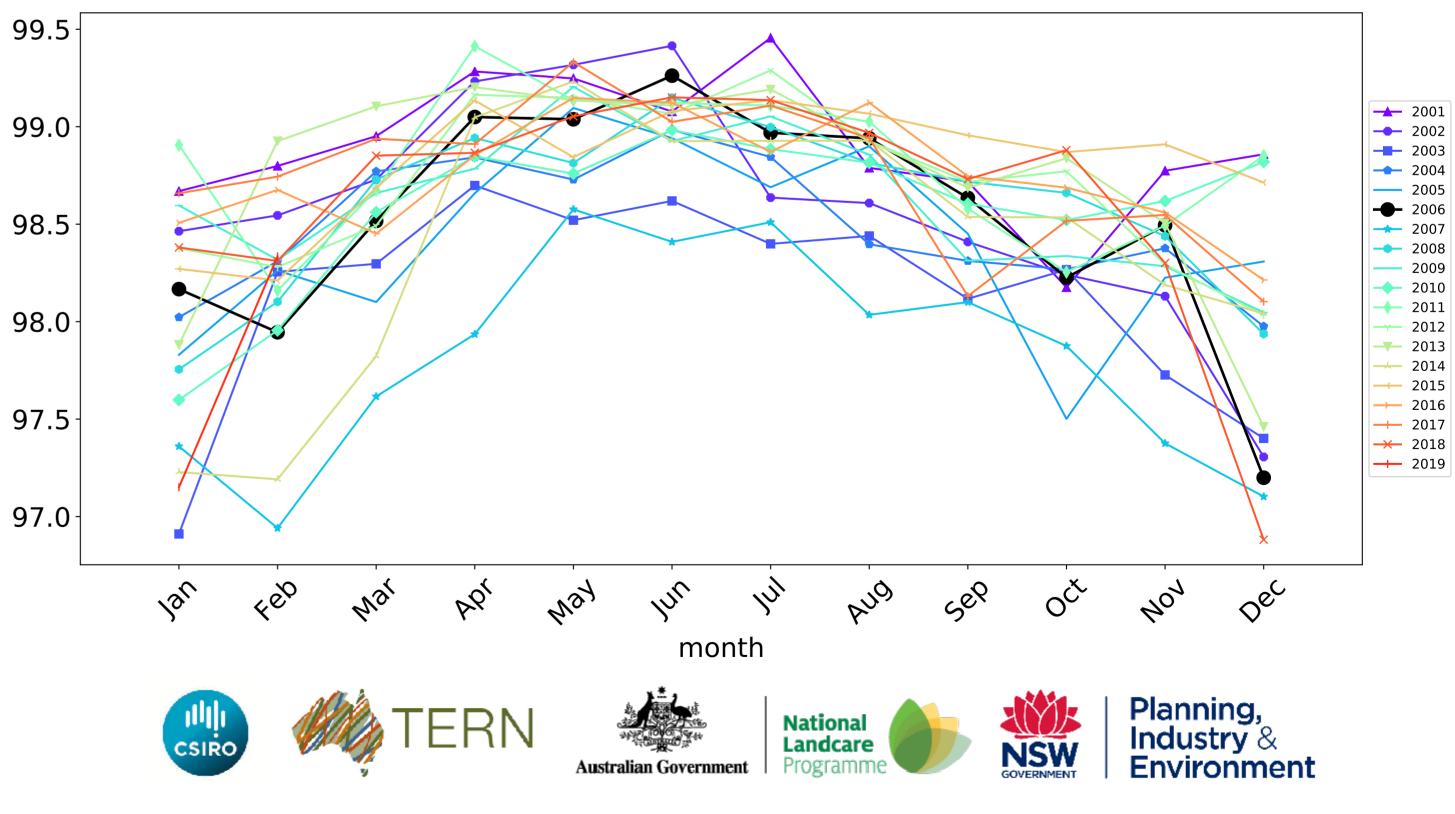


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

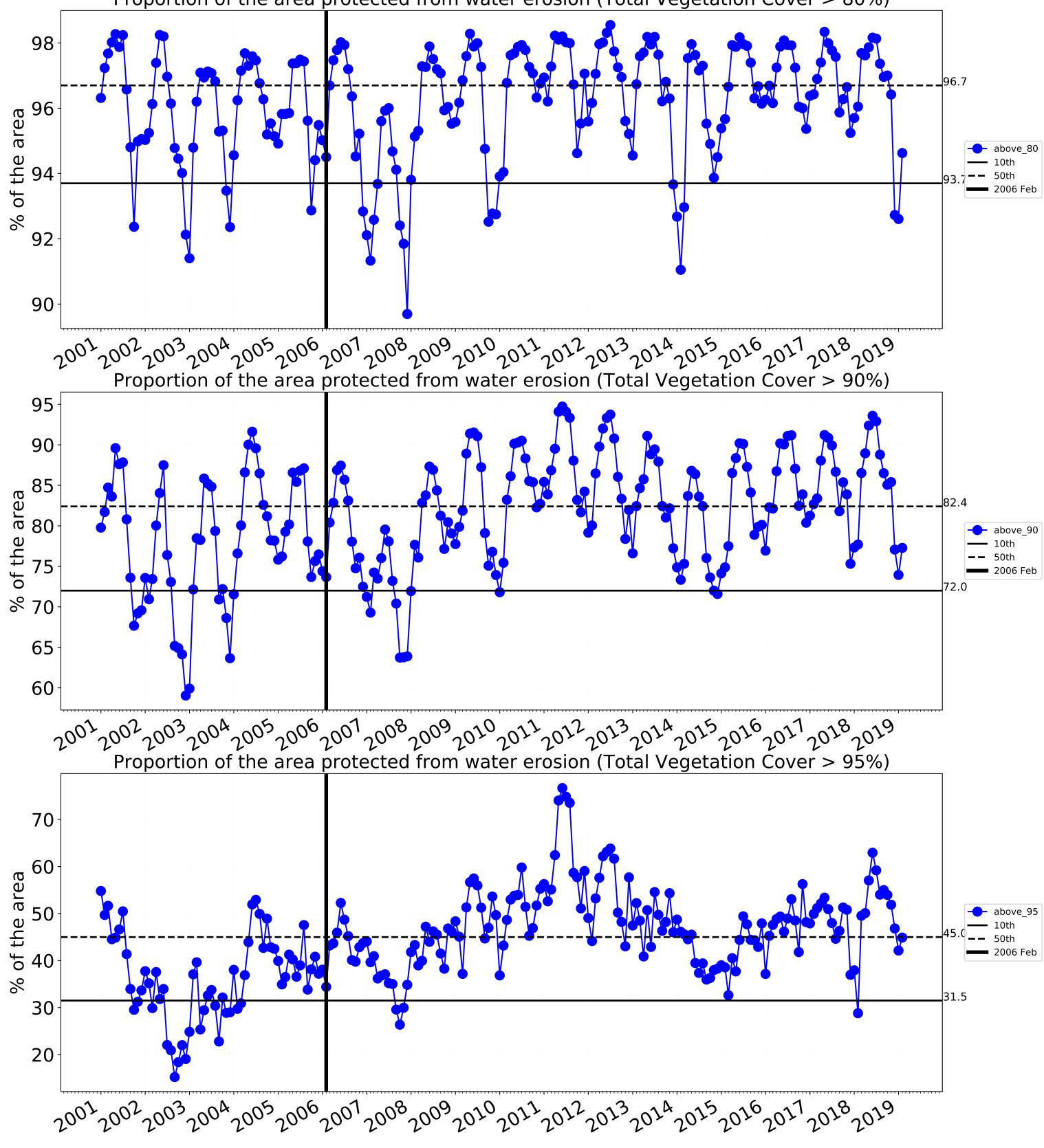


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

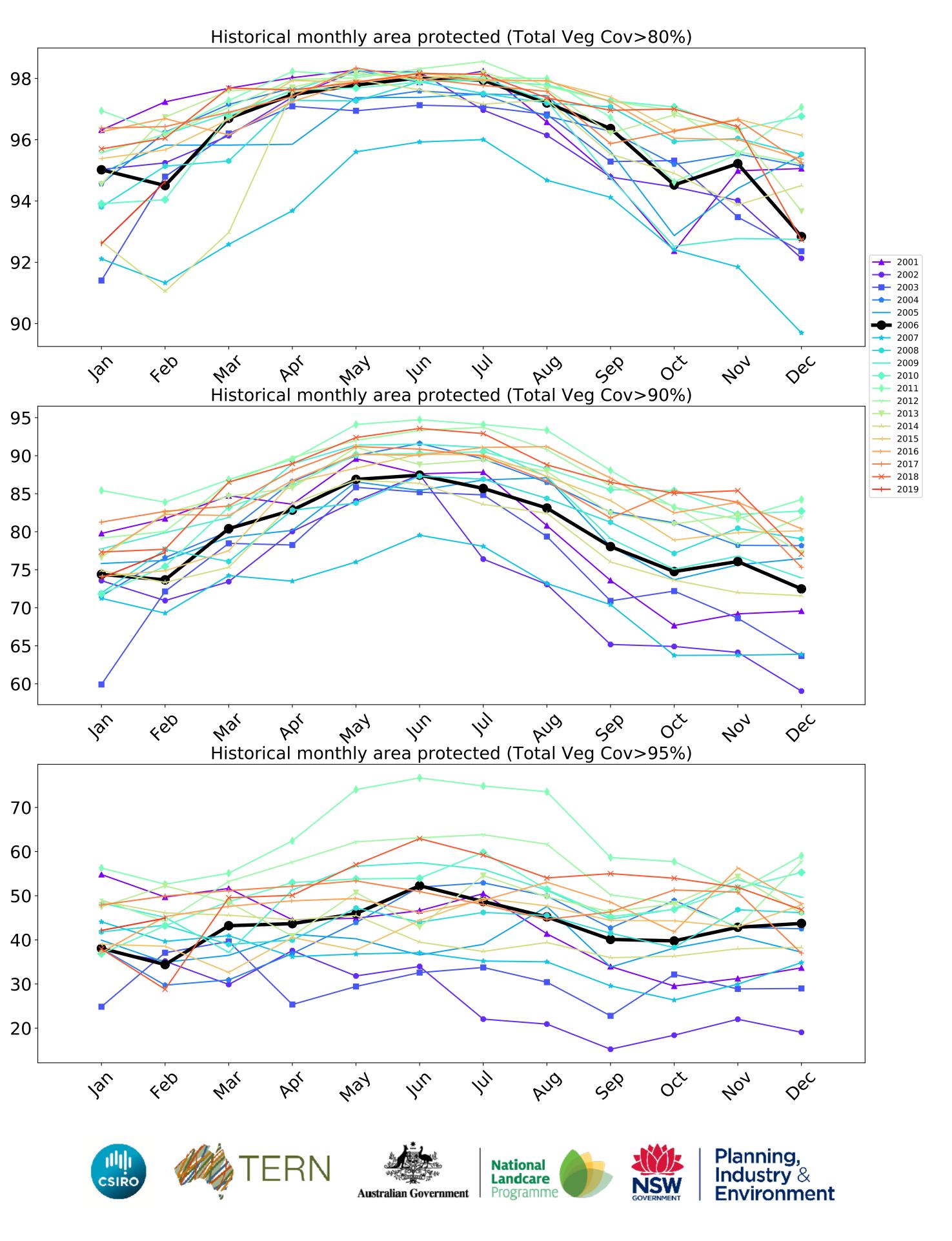
Water erosion historical monthly area protected (Total Veg Cov>70%)



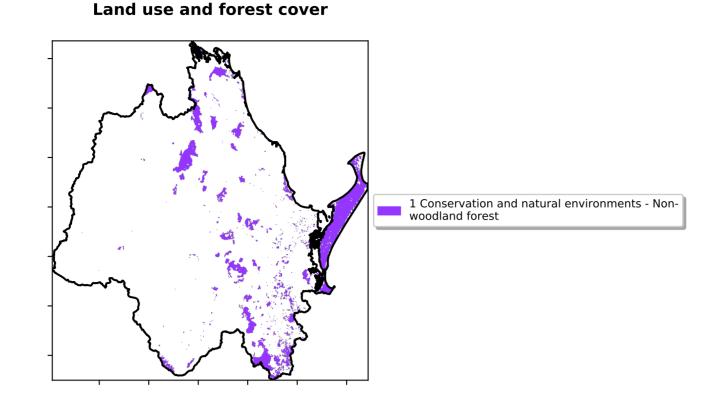
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)







Conservation and natural environments Forest (non woodland)



120/0

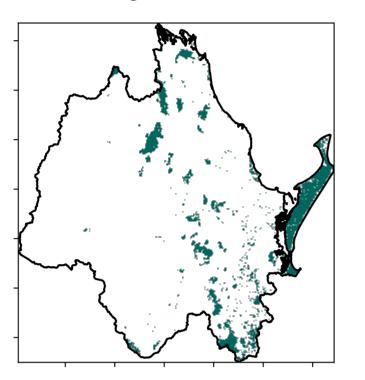
52%70%

32%50%

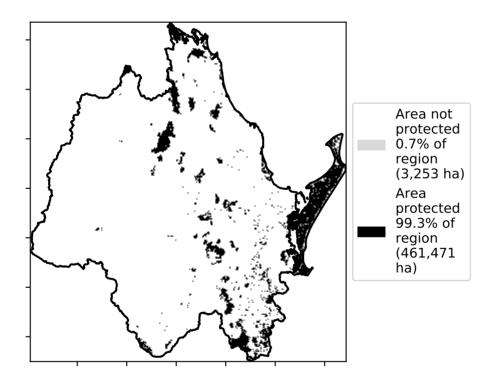
0-30%

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

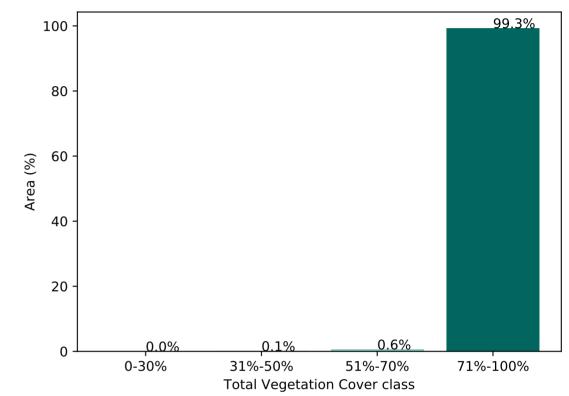
Total Vegetation Cover [%]



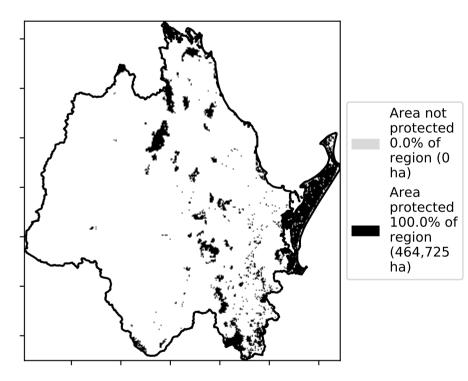
% Area protected from water erosion (>70%)





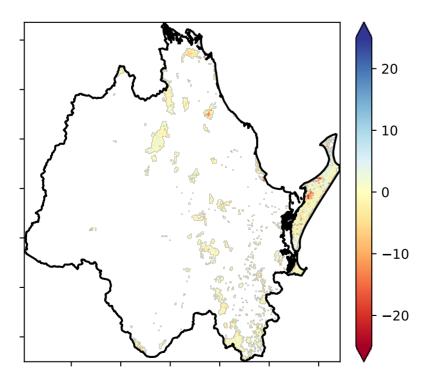


% Area protected from wind erosion (>50%)



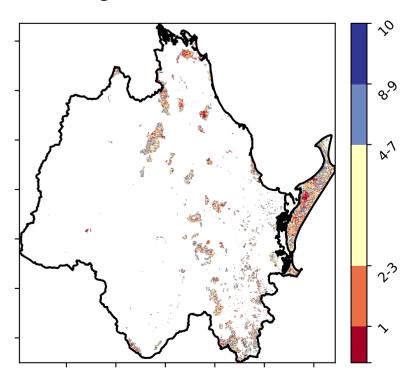
Total Vegetation Cover Anomaly [%]

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.

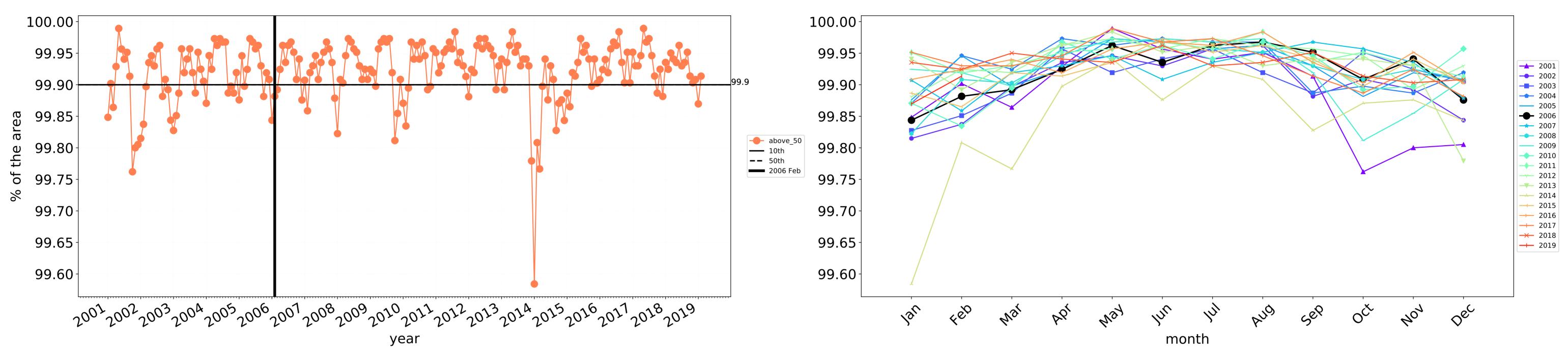


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

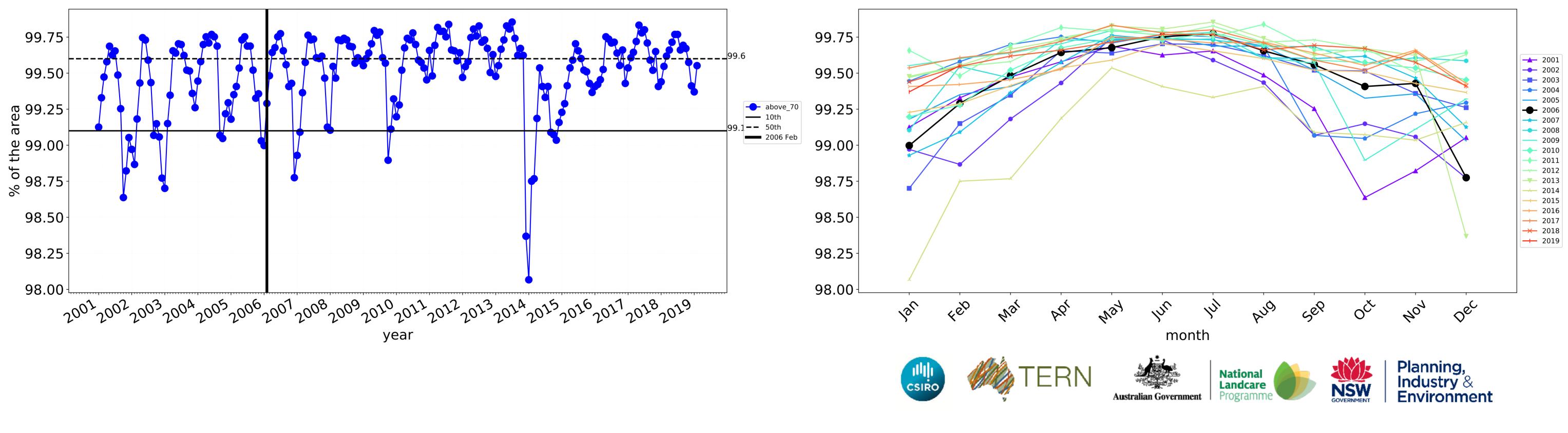






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

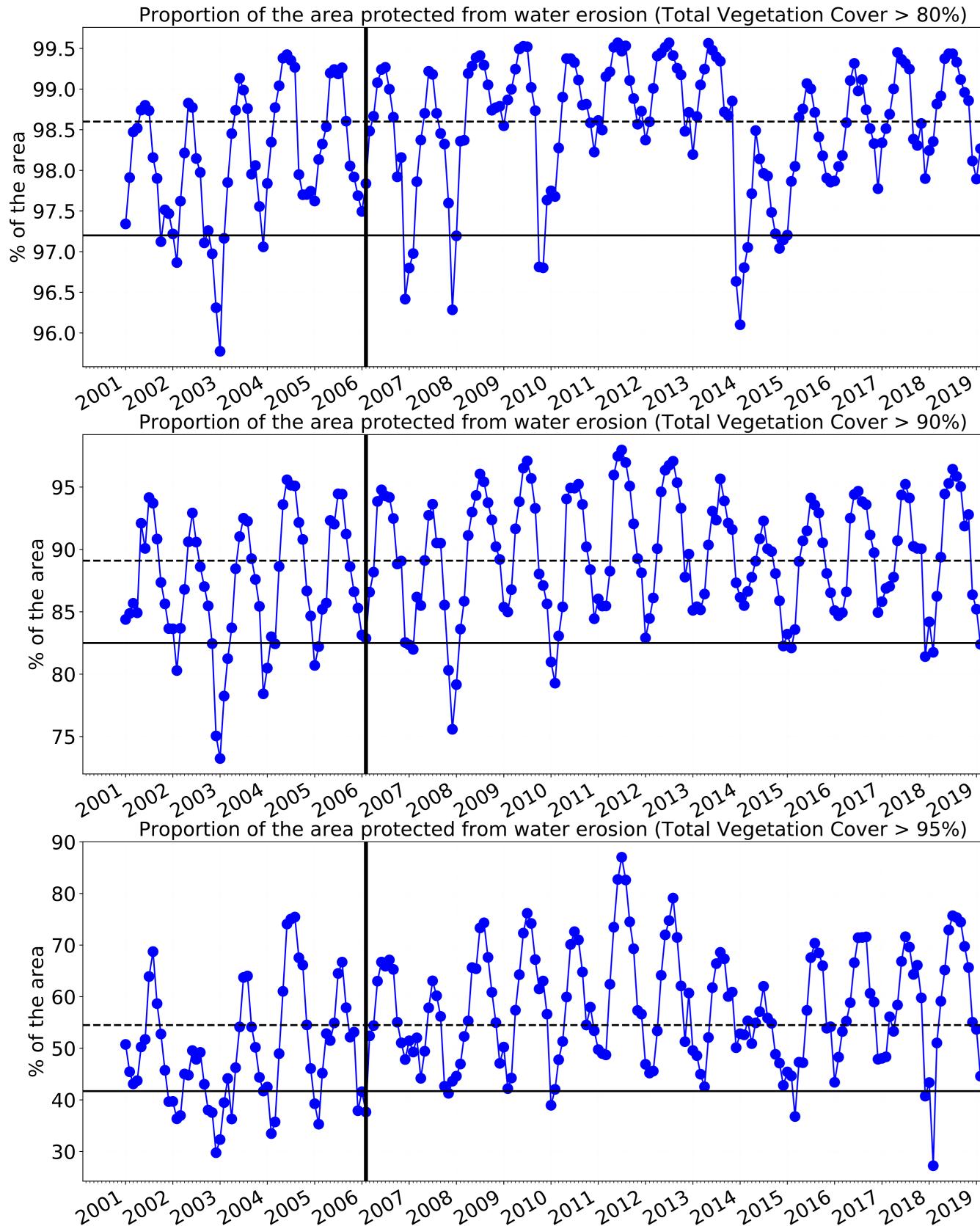
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



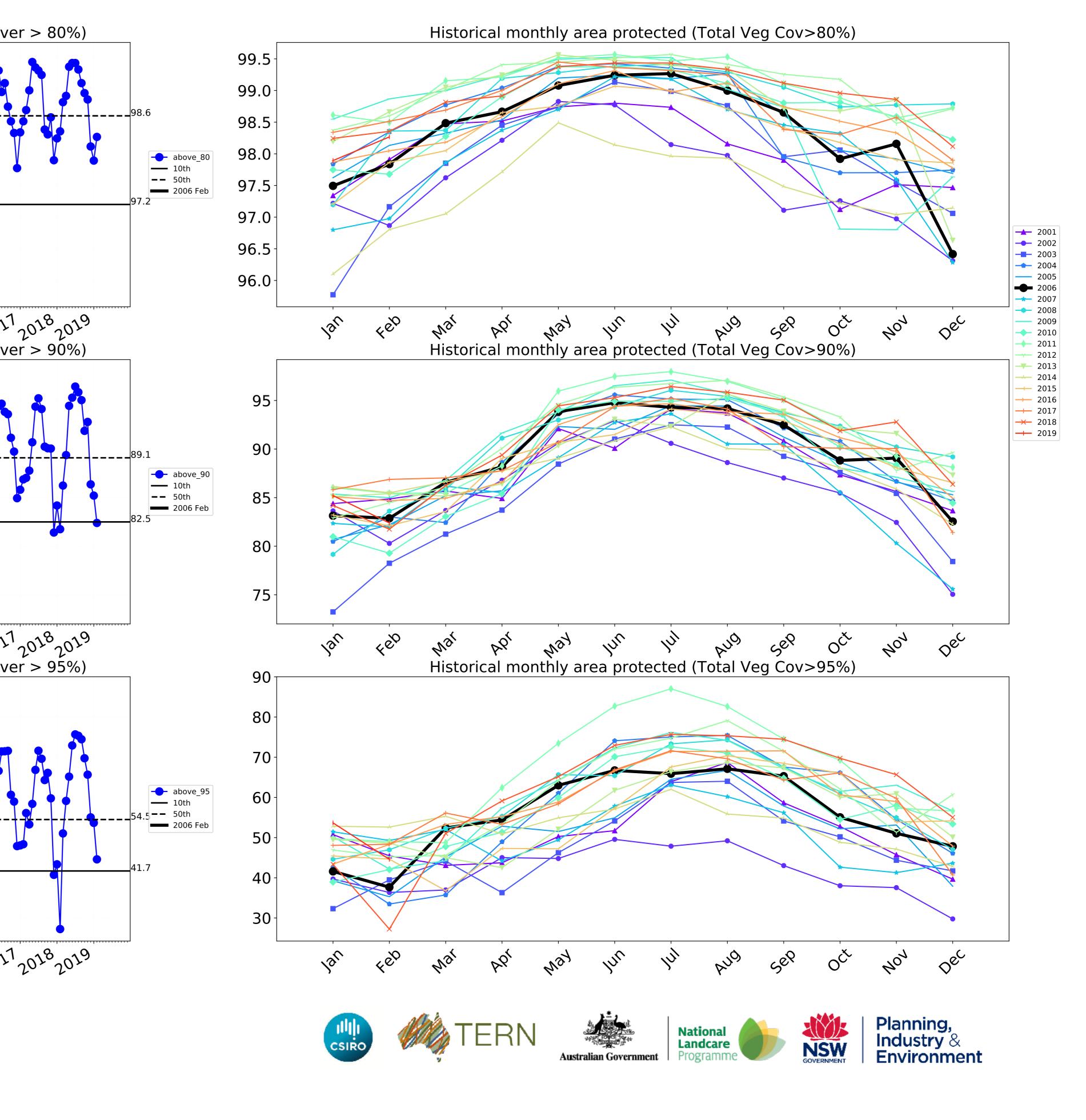


Wind erosion historical monthly area protected (Total Veg Cov >50%)

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

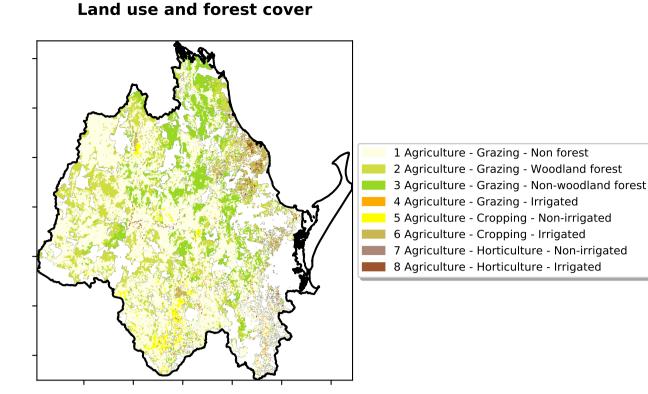


Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)

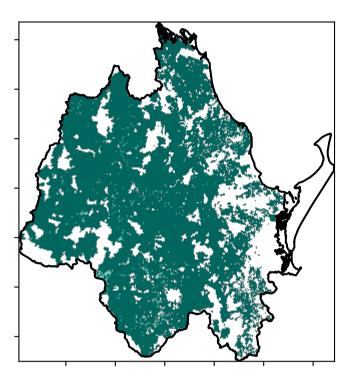


Agriculture

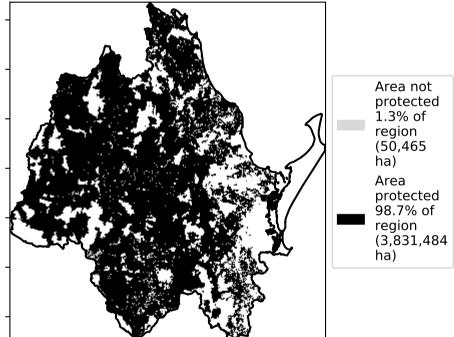
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

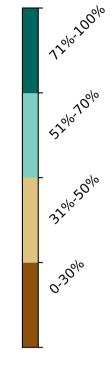


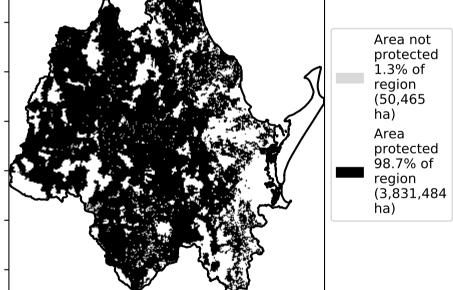
Total Vegetation Cover [%]

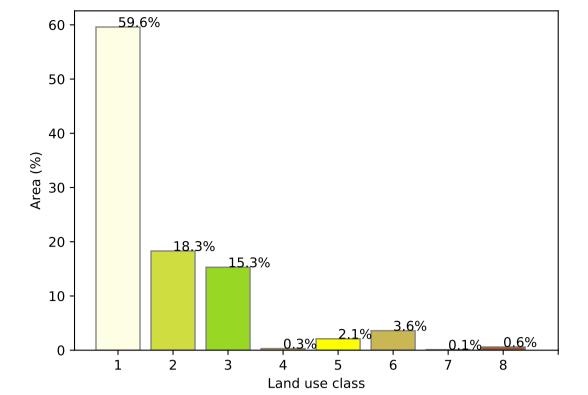


% Area protected from water erosion (>70%)



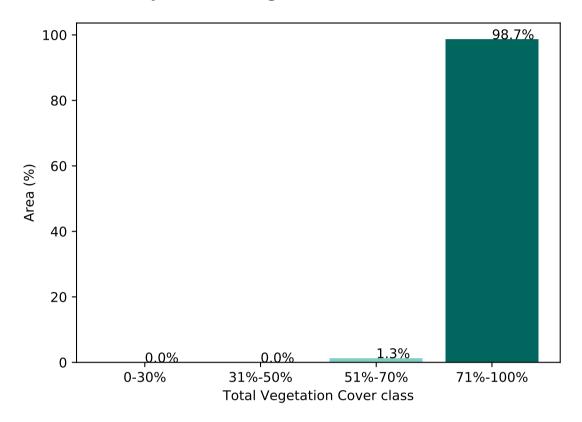




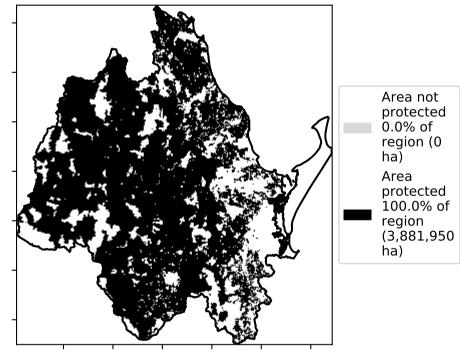


Proportion of each land class in area

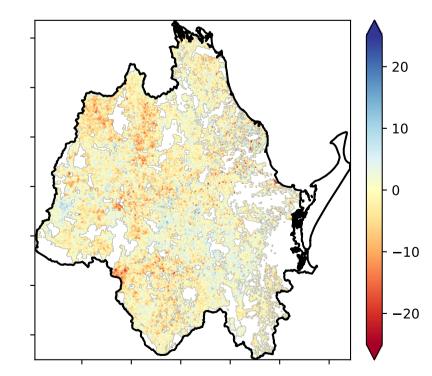
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

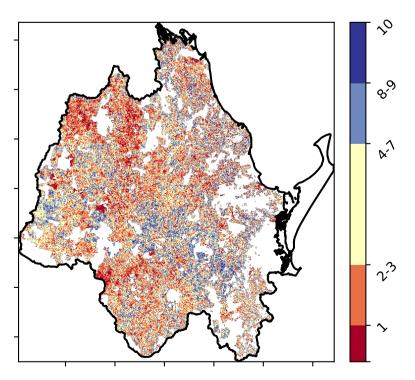


Total Vegetation Cover Anomaly [%]



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.

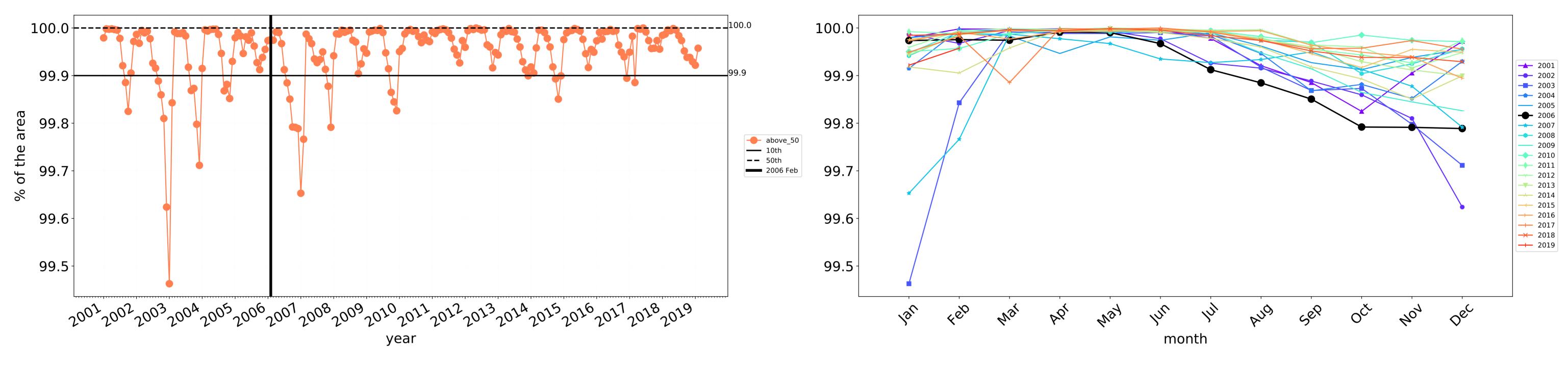
Total Vegetation Cover Decile [%]





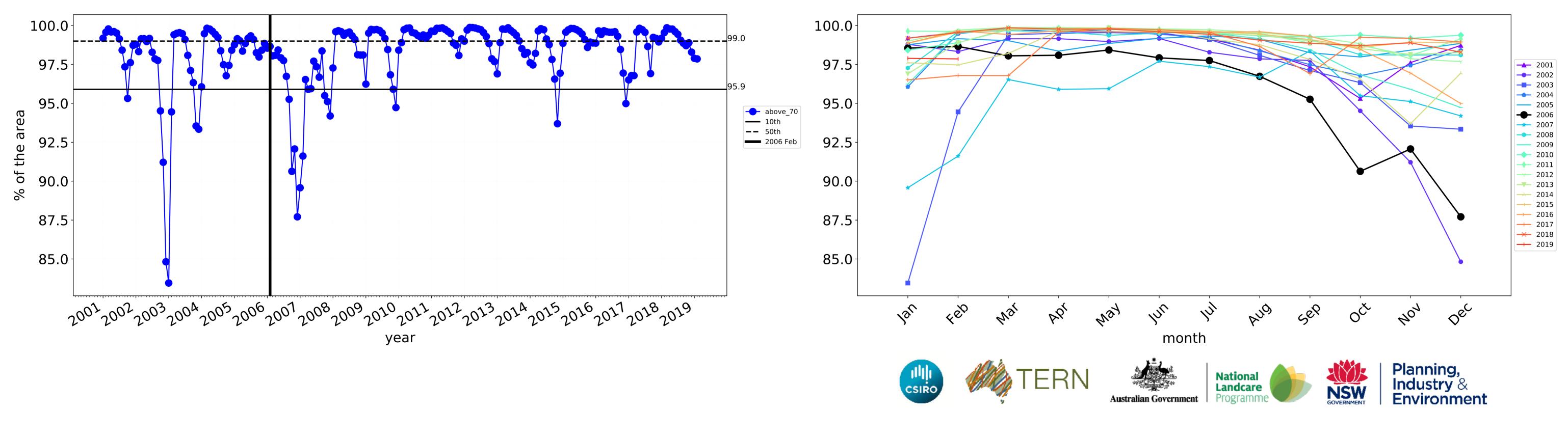
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.





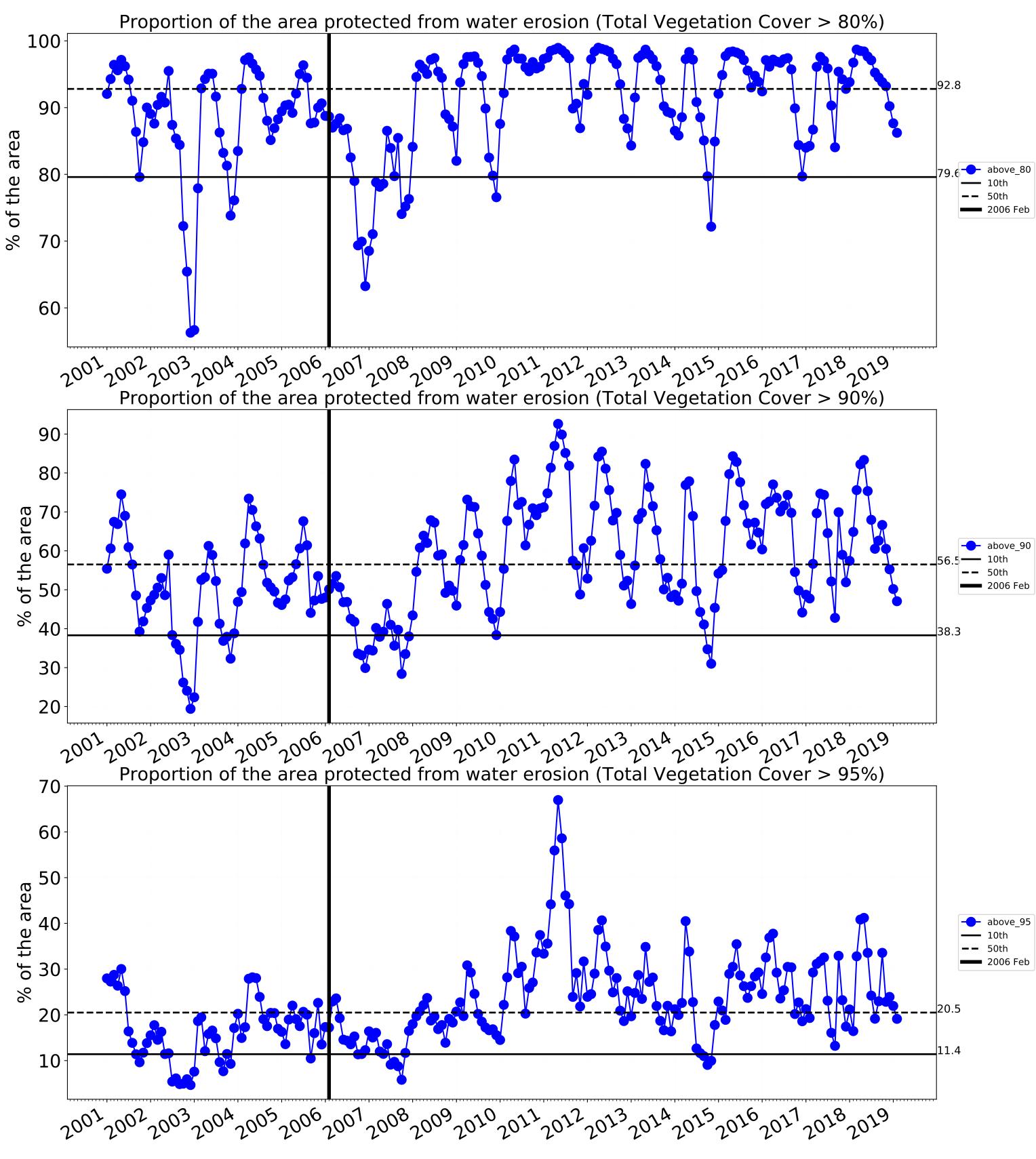
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

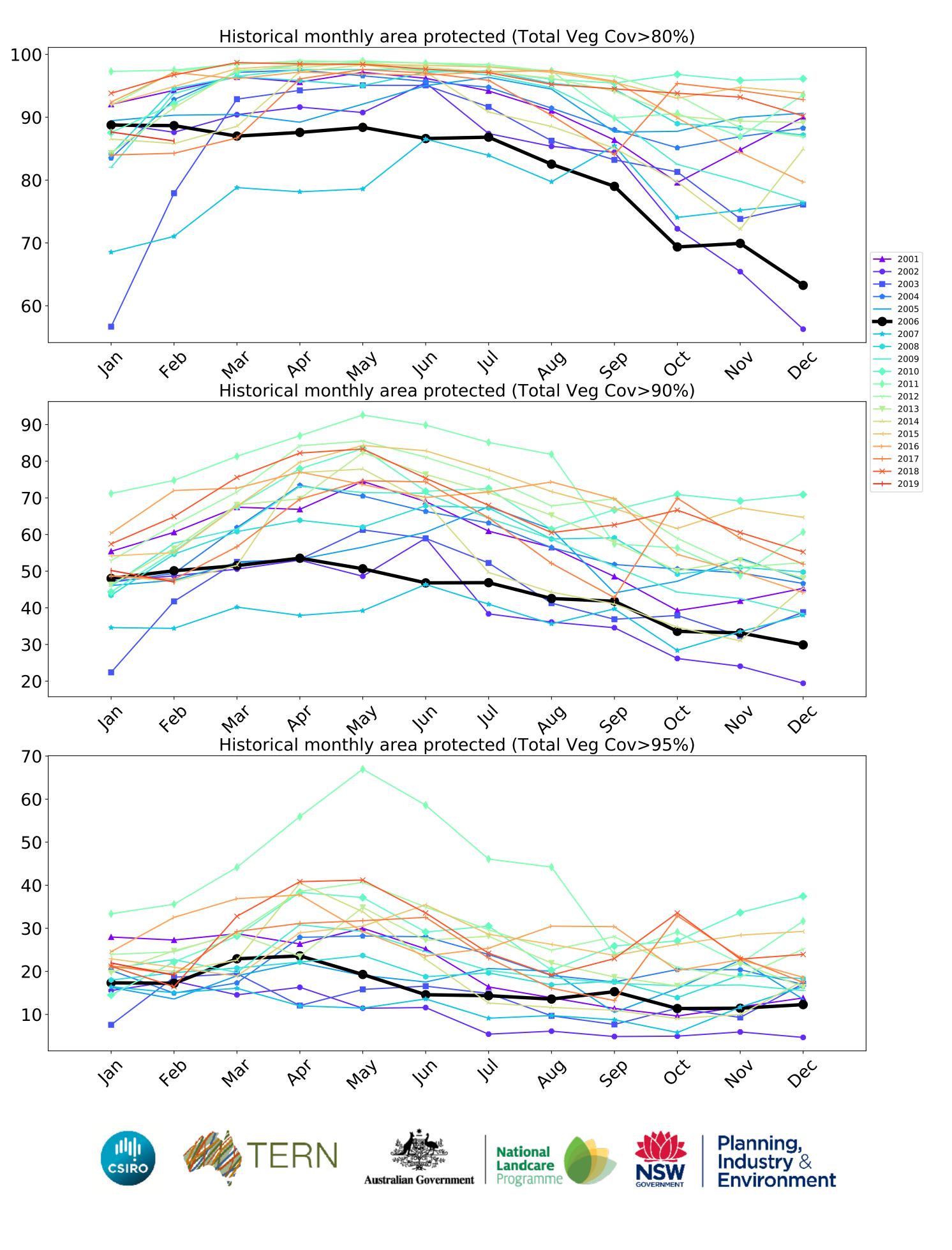
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

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





Grazing

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

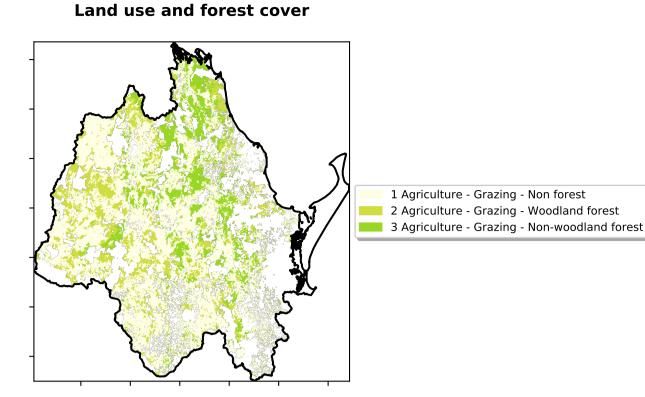
Anomaly show how many percetage points each pixel is from the mean. That

is, red pixels are about 20% lower than the

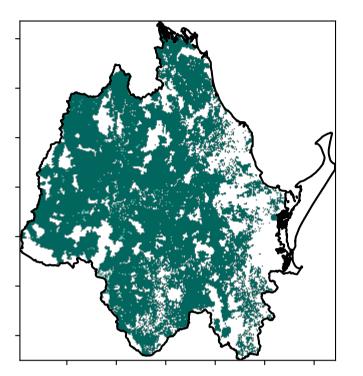
mean of that pixel. The mean

using baseline from 2001 to 2019.

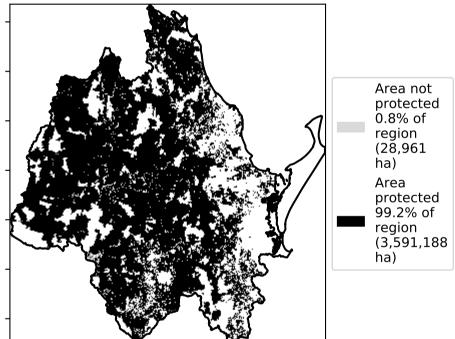
is only for the month of the map

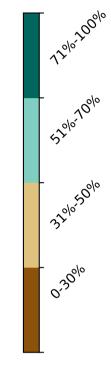


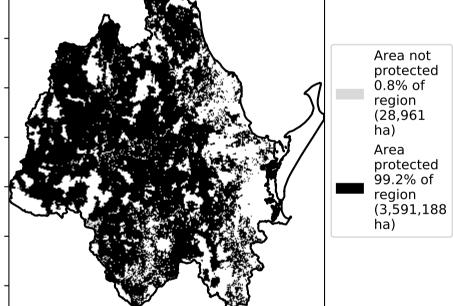
Total Vegetation Cover [%]

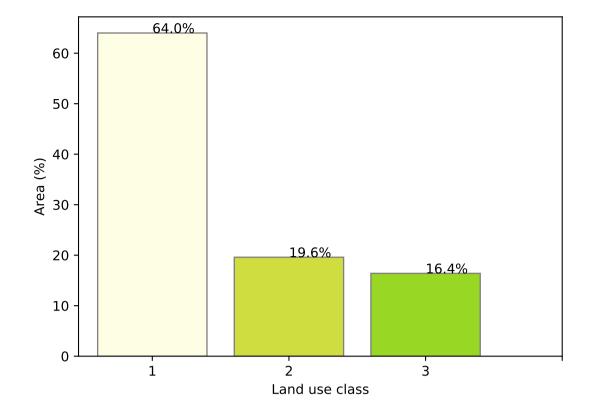


% Area protected from water erosion (>70%)



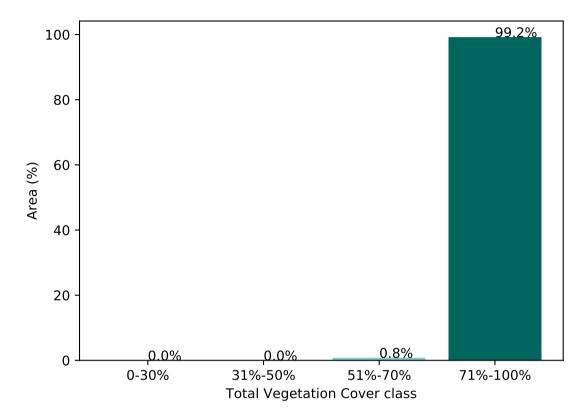




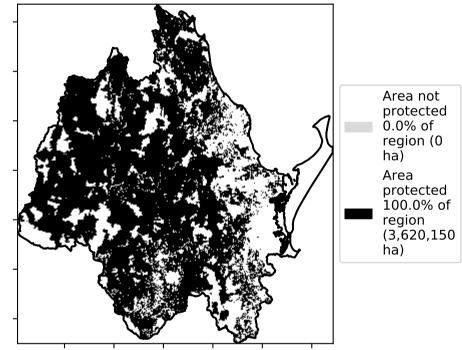


Proportion of each land class in area

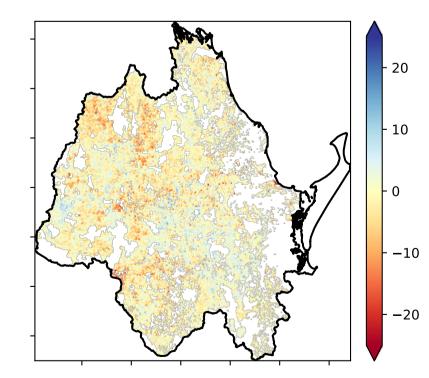
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

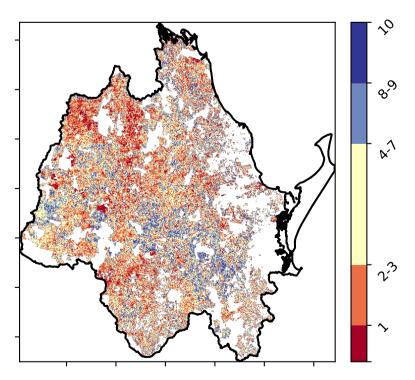


Total Vegetation Cover Anomaly [%]

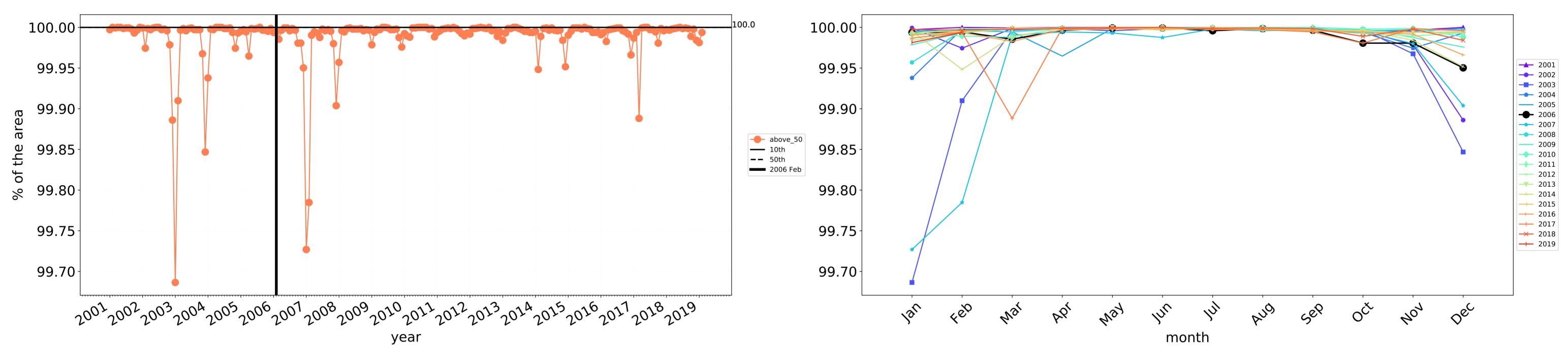


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

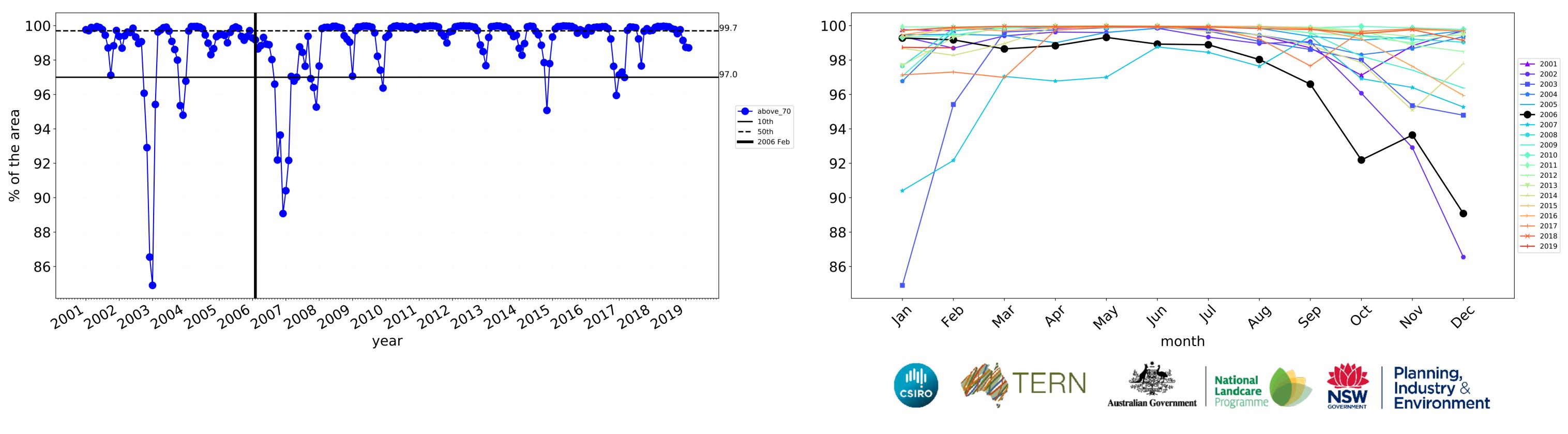






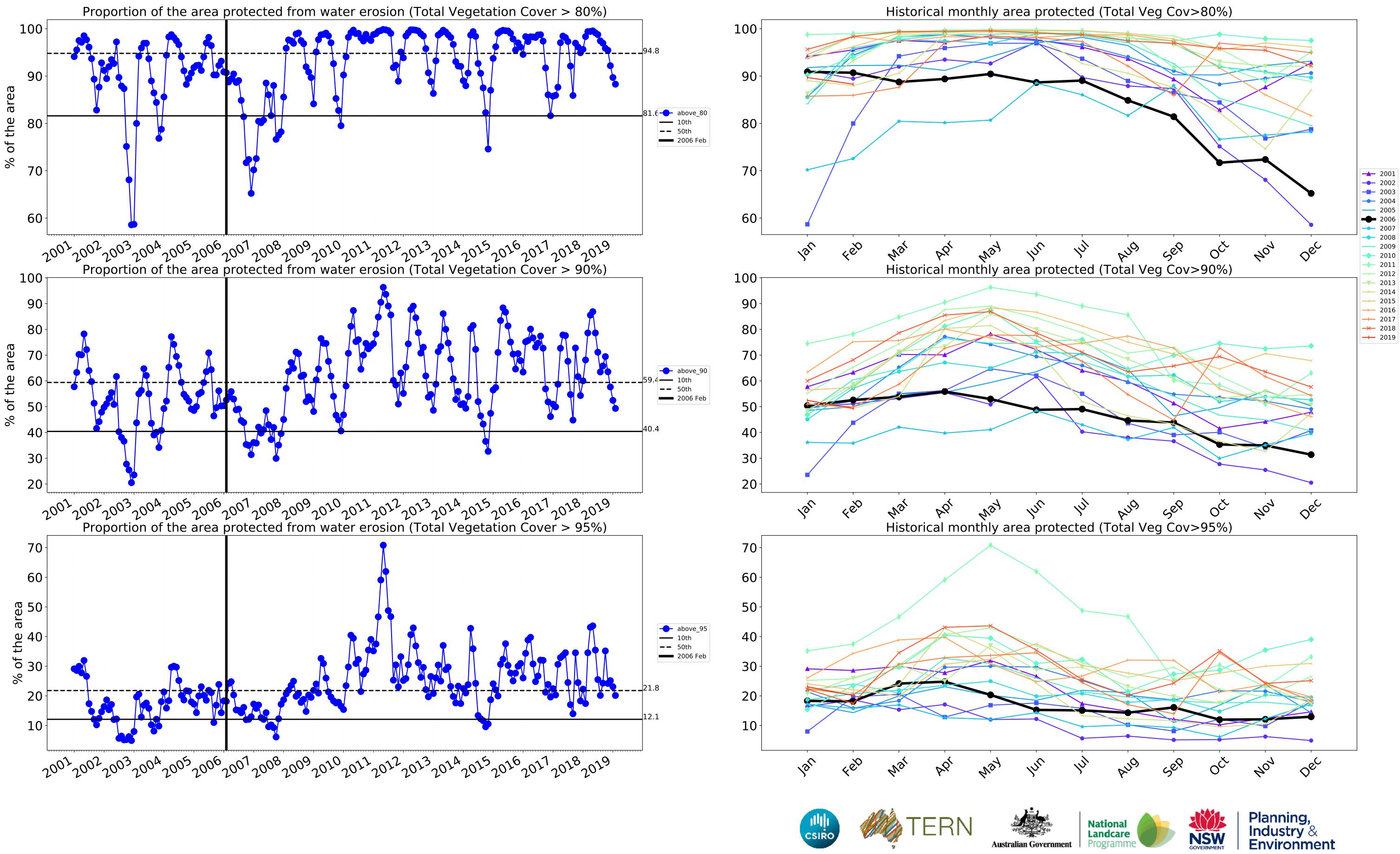
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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



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

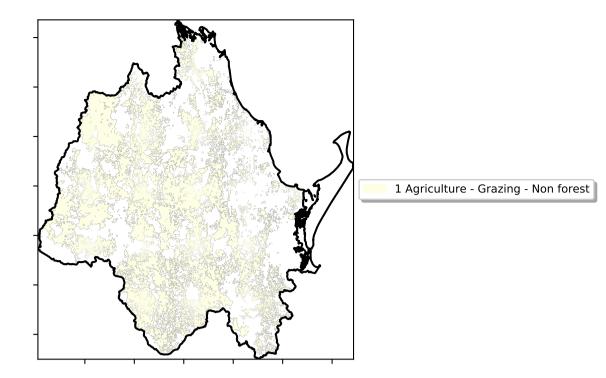
Water erosion historical monthly area protected (Total Veg Cov>70%)



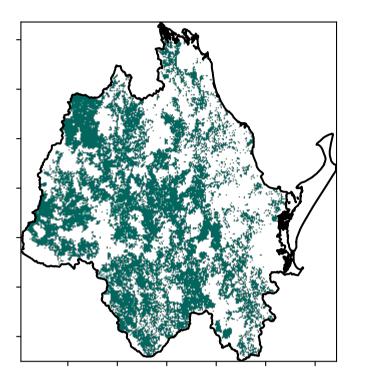


Grazing non forest

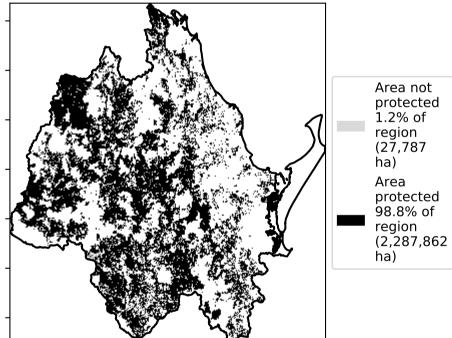
Land use and forest cover

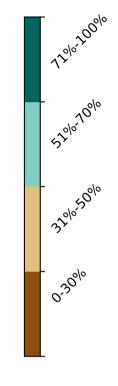


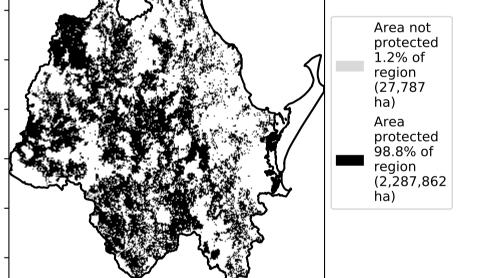
Total Vegetation Cover [%]



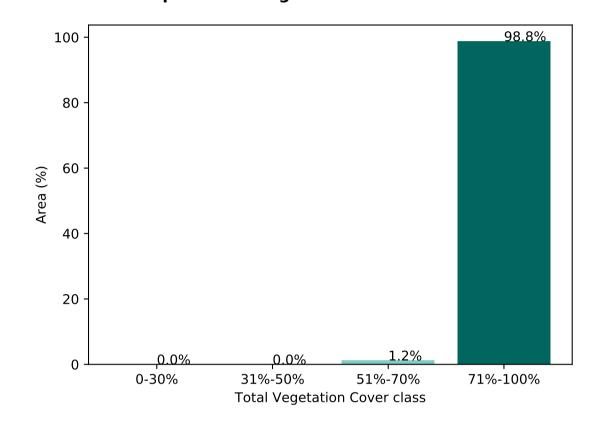




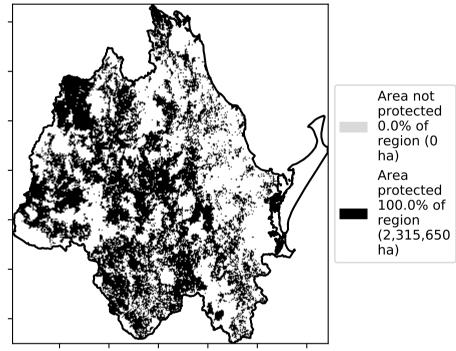




Proportion of vegetation cover class in area

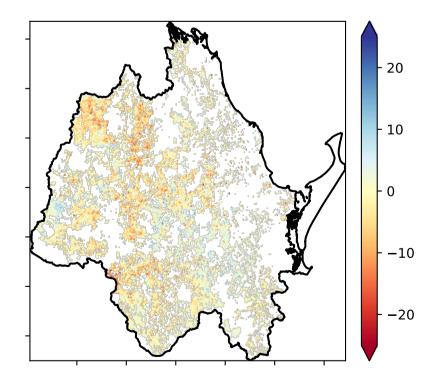


% Area protected from wind erosion (>50%)



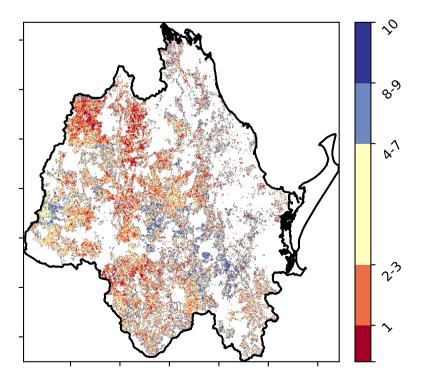
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover Anomaly [%]



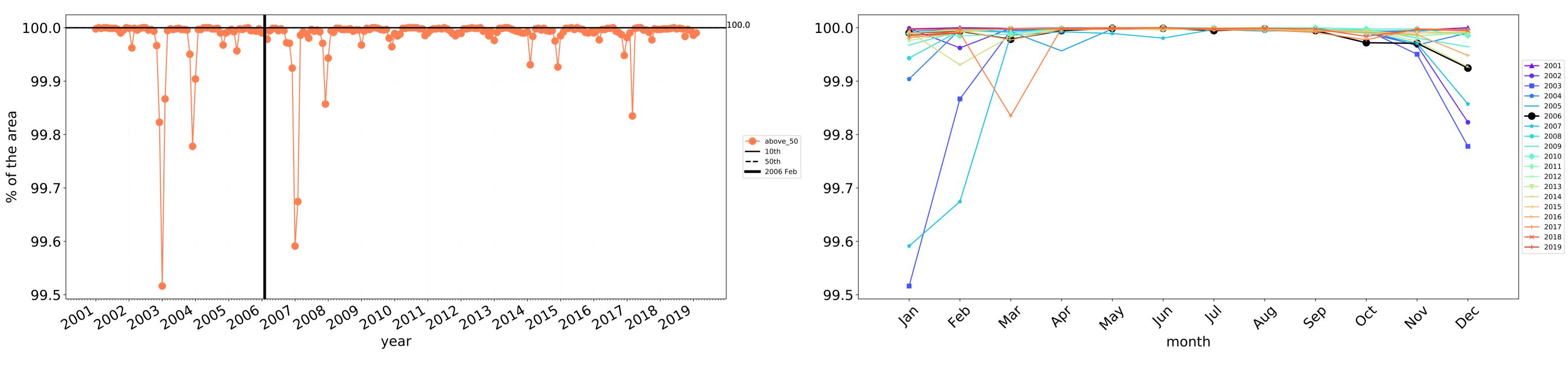
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]



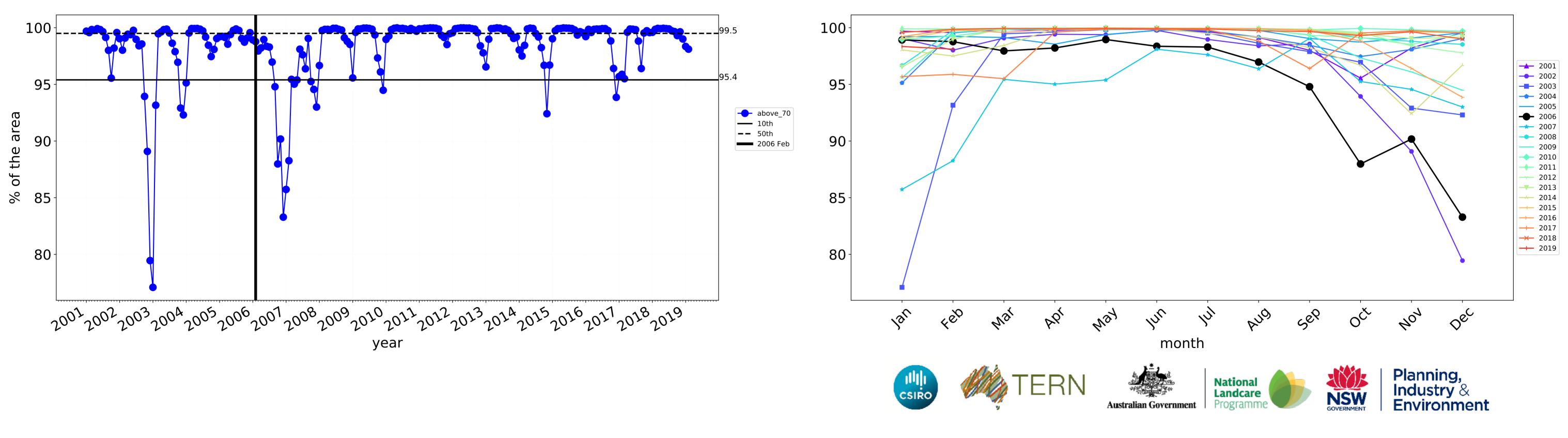


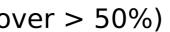
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



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

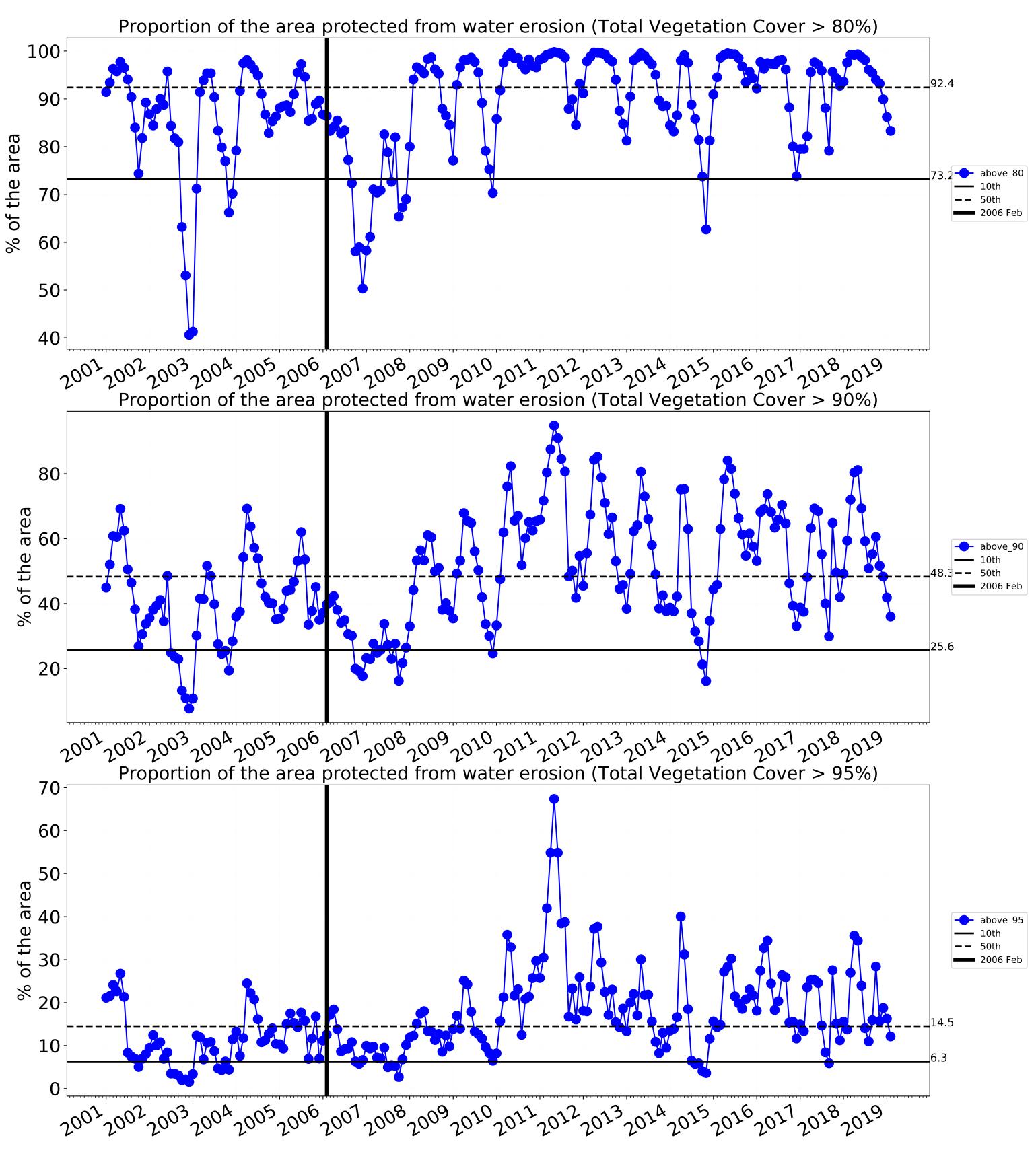
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

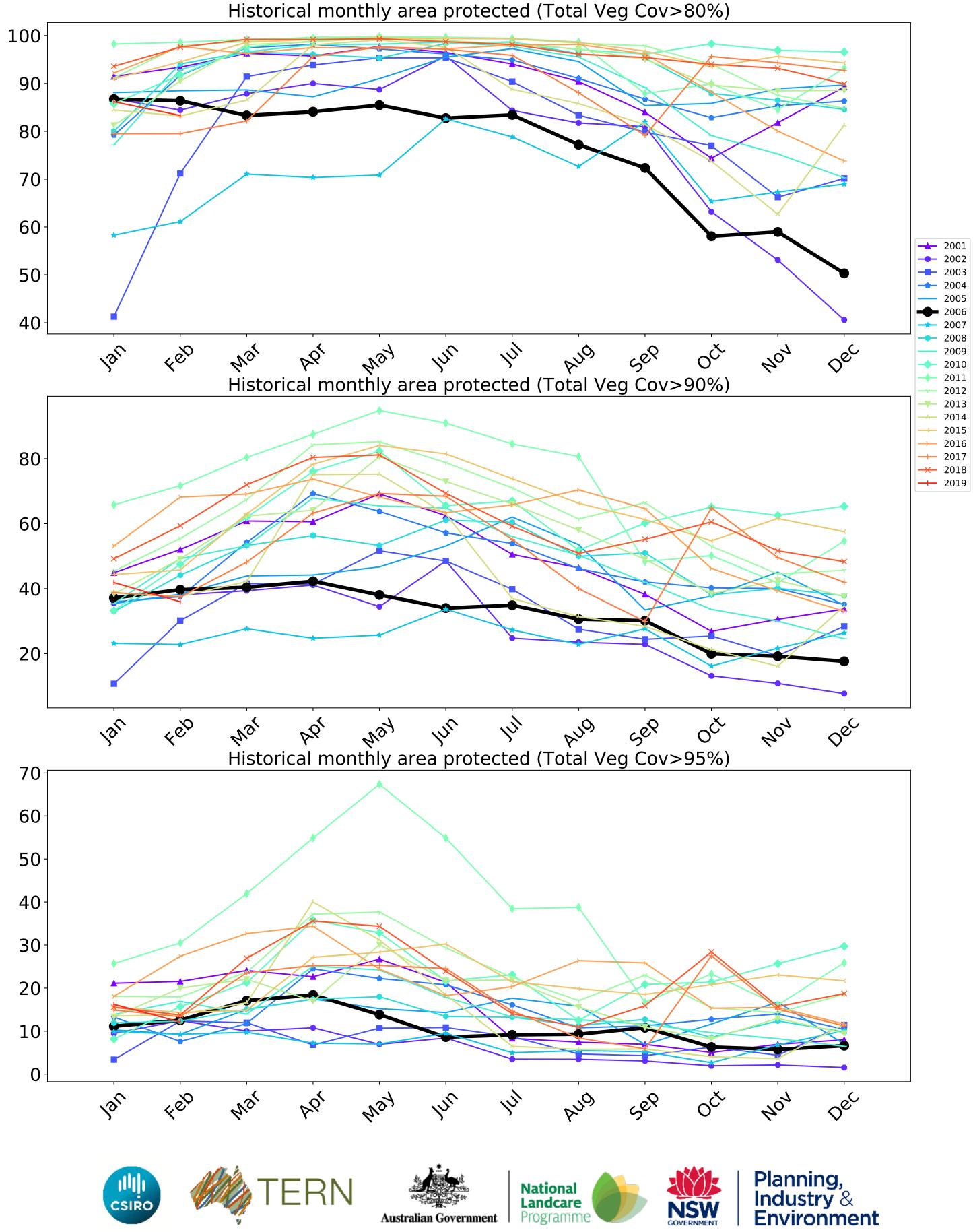




Wind erosion historical monthly area protected (Total Veg Cov >50%)

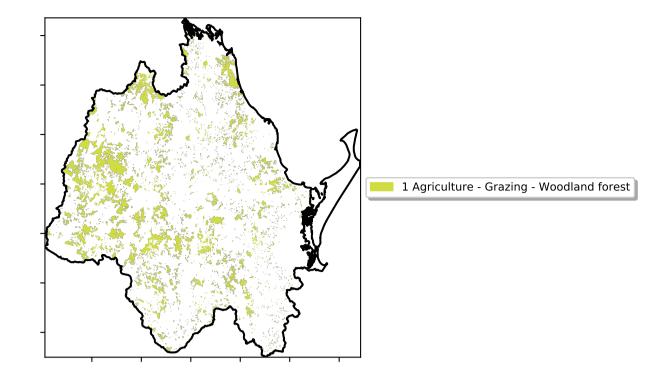
Water erosion historical monthly area protected (Total Veg Cov>70%)



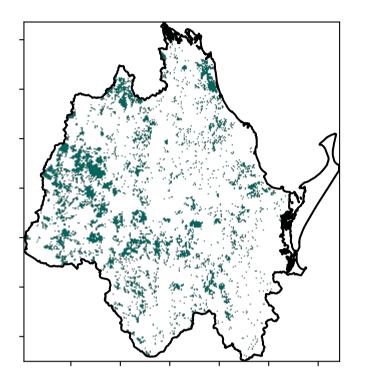


Grazing Woodland forest

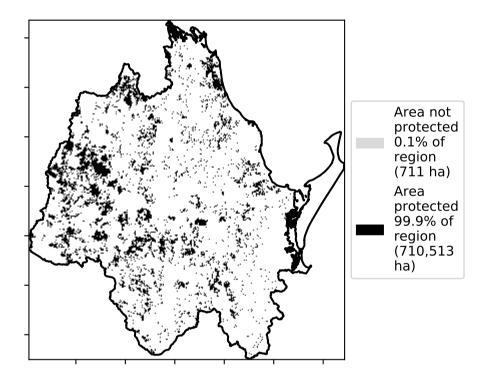
Land use and forest cover

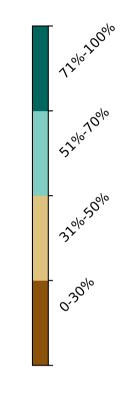


Total Vegetation Cover [%]



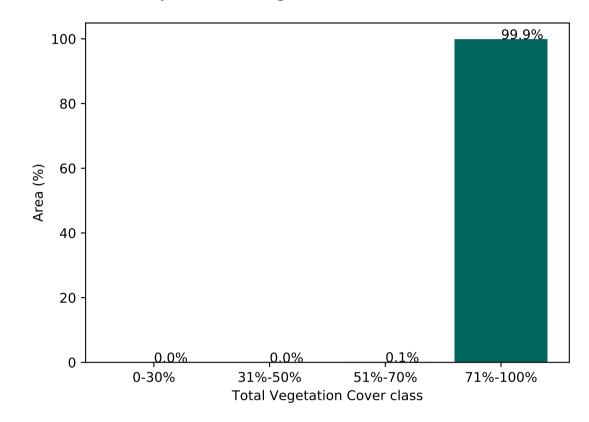




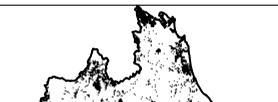




Proportion of vegetation cover class in area

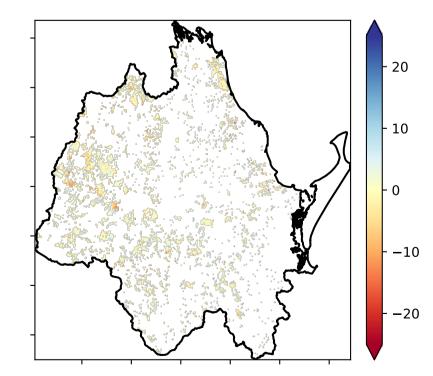


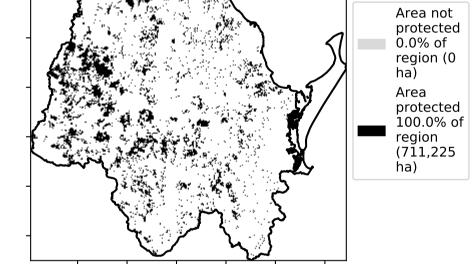
% Area protected from wind erosion (>50%)



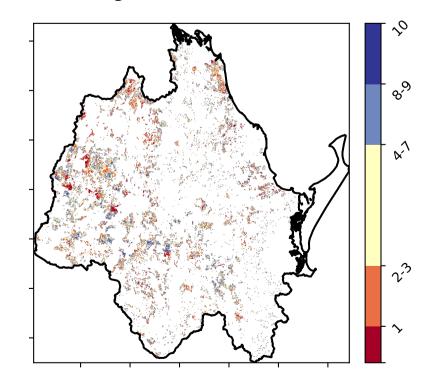
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover Anomaly [%]





Total Vegetation Cover Decile [%]

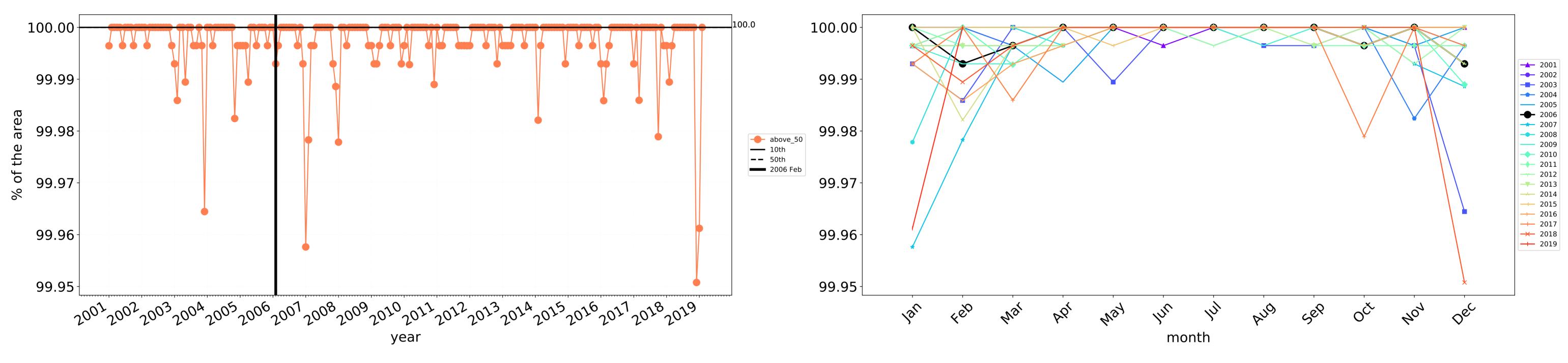




record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

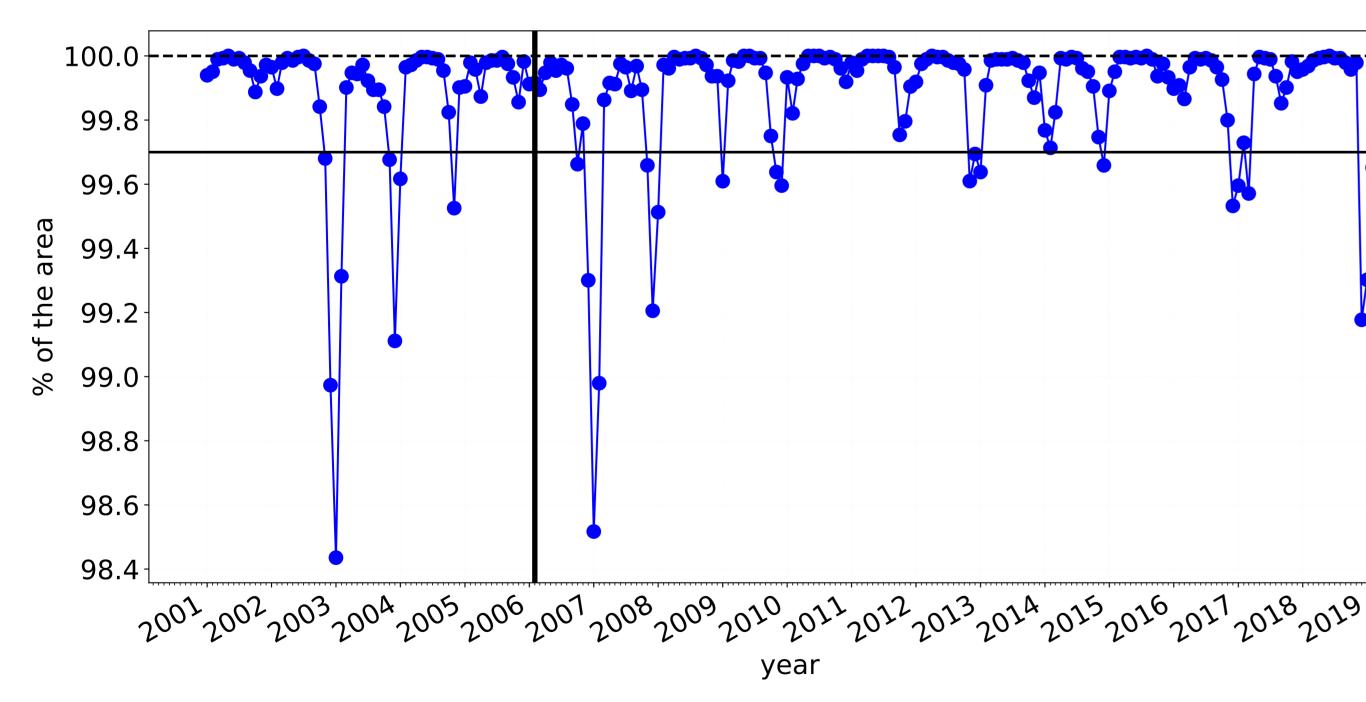
Deciles show where the pixel value lies in the

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.



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

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



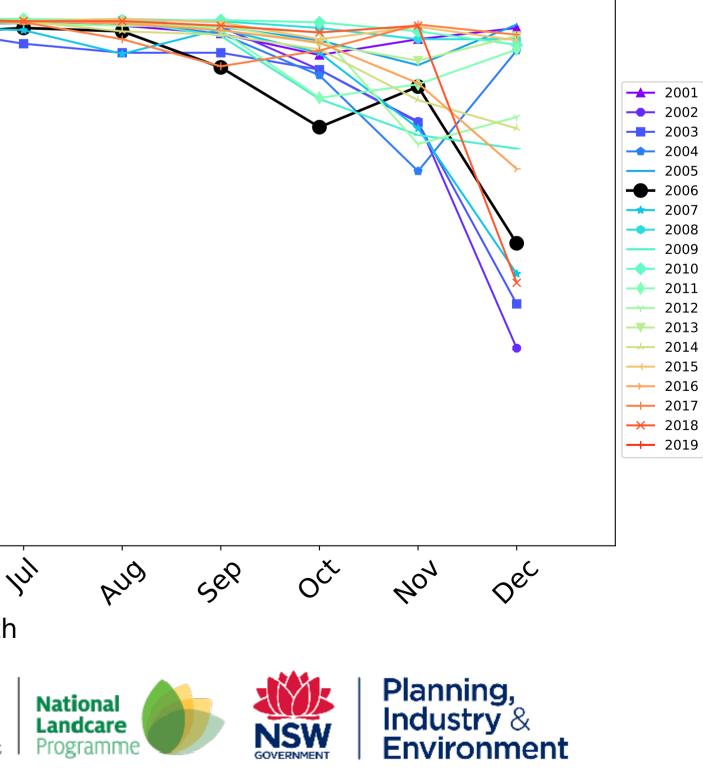
Wind erosion historical monthly area protected (Total Veg Cov >50%)

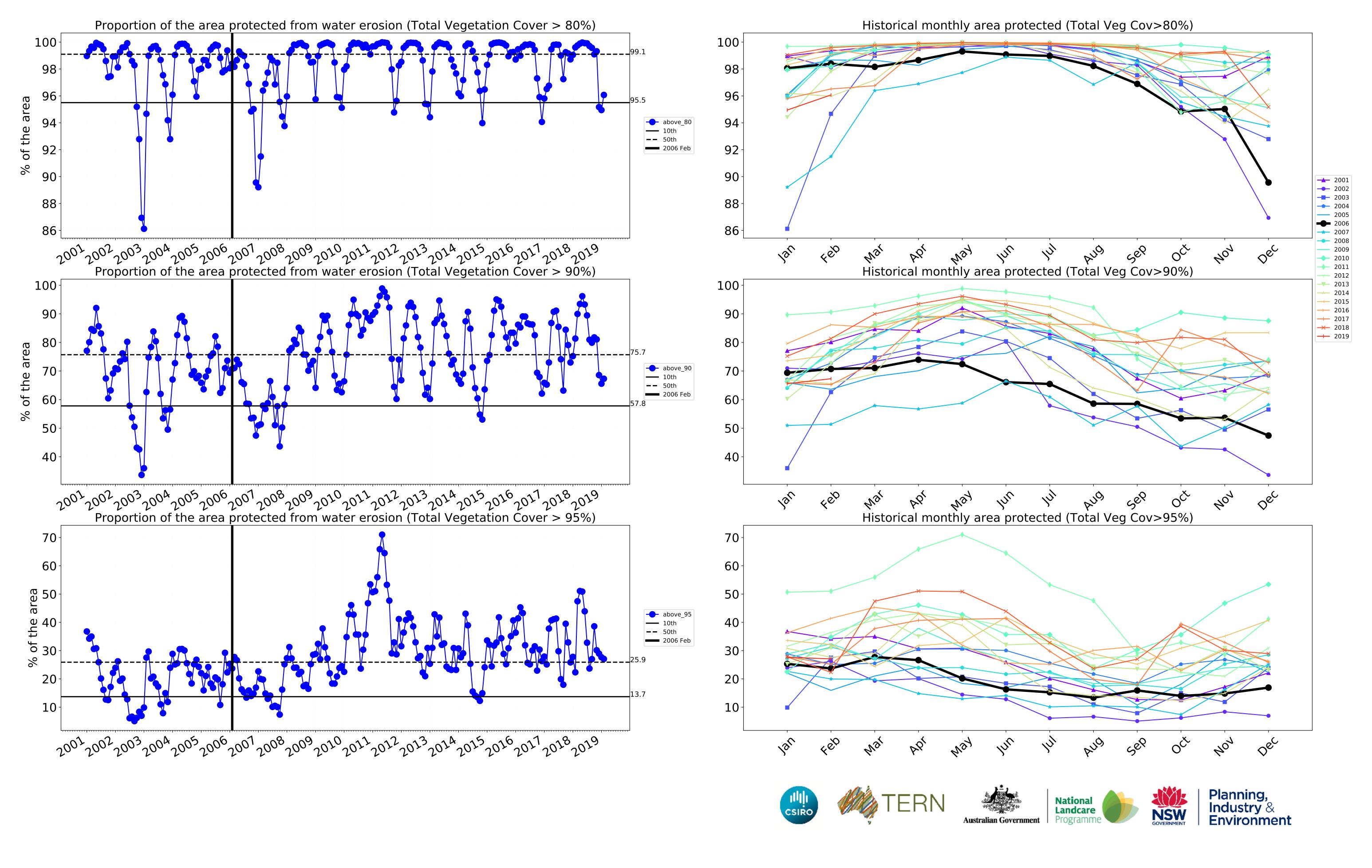
100.0 ____100.0 99.8 99.6 ---- above_70 **—** 10th 99.4 **——** 50th **——** 2006 Feb 99.2 99.0 98.8 98.6 98.4 feb Jan Inu May Mai P.Q





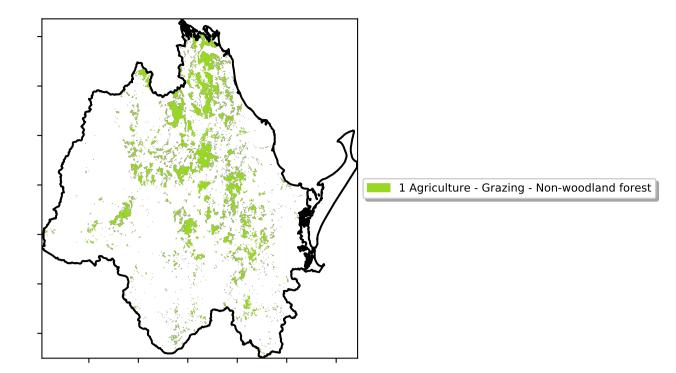
Water erosion historical monthly area protected (Total Veg Cov>70%)



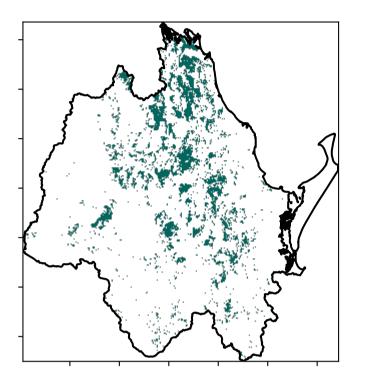


Grazing - Forest (non woodland)

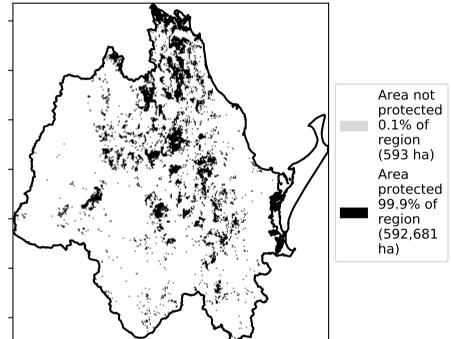
Land use and forest cover

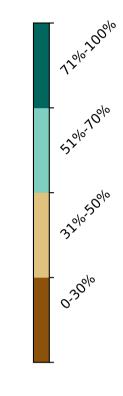


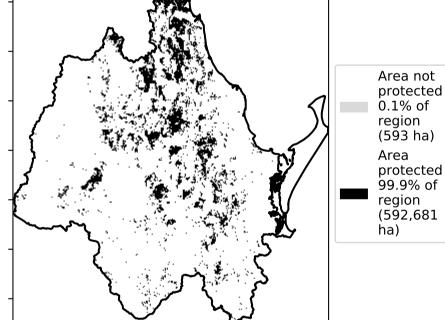
Total Vegetation Cover [%]



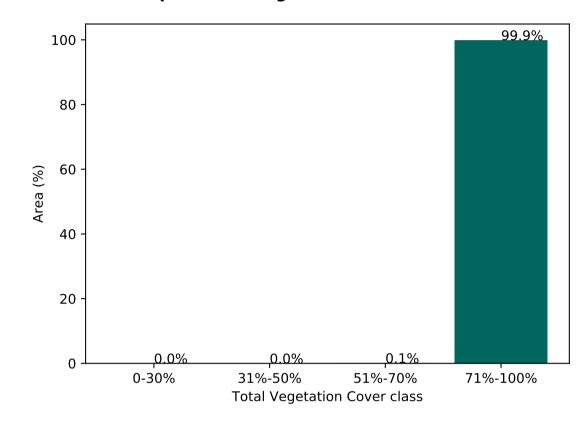








Proportion of vegetation cover class in area

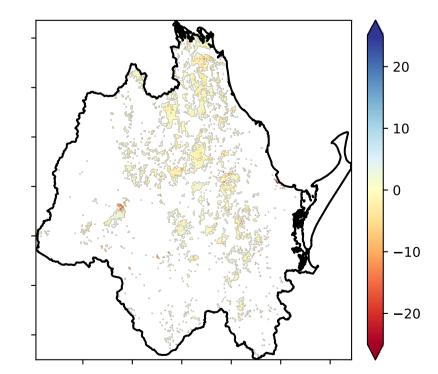


% Area protected from wind erosion (>50%)

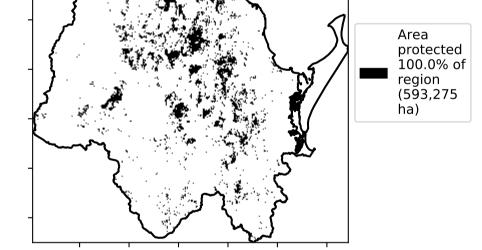


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

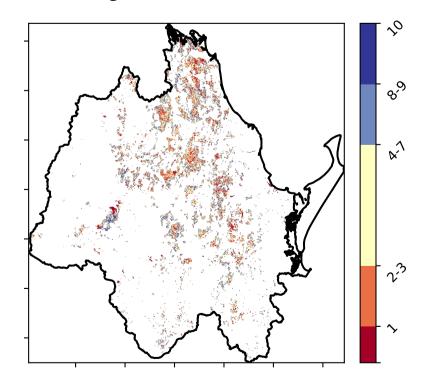
Total Vegetation Cover Anomaly [%]



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.

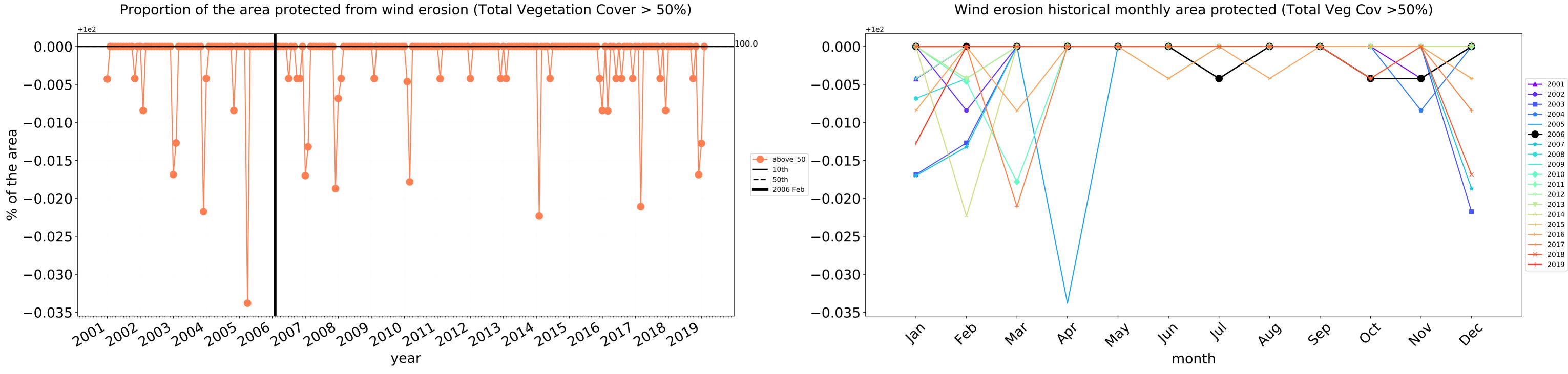


Total Vegetation Cover Decile [%]

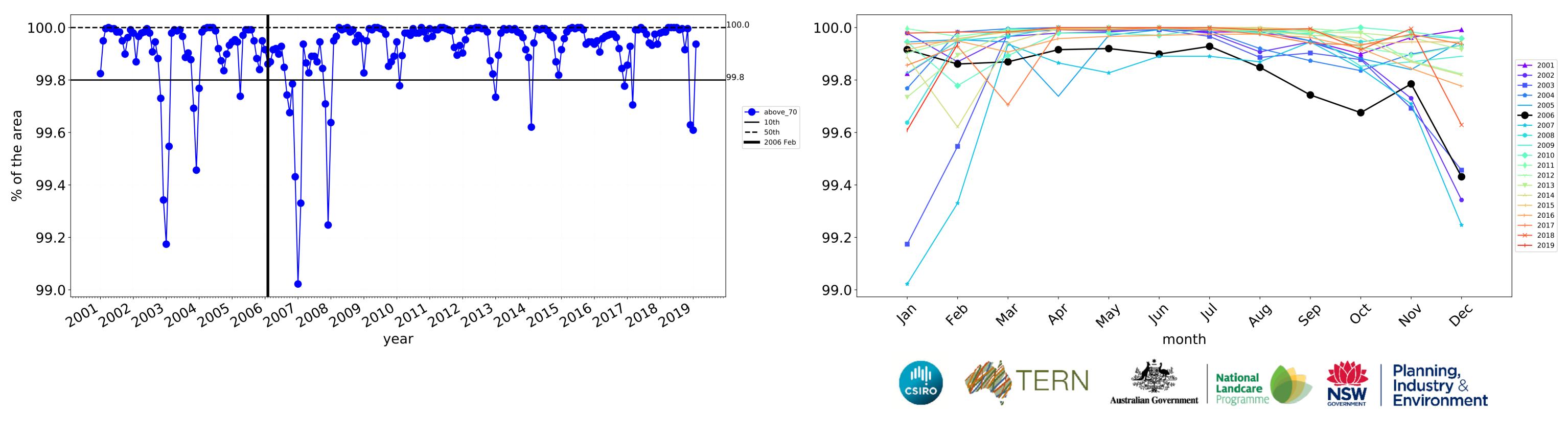




Anomaly show how many percetage points each pixel is from the mean That the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map from 2001 to 2019.

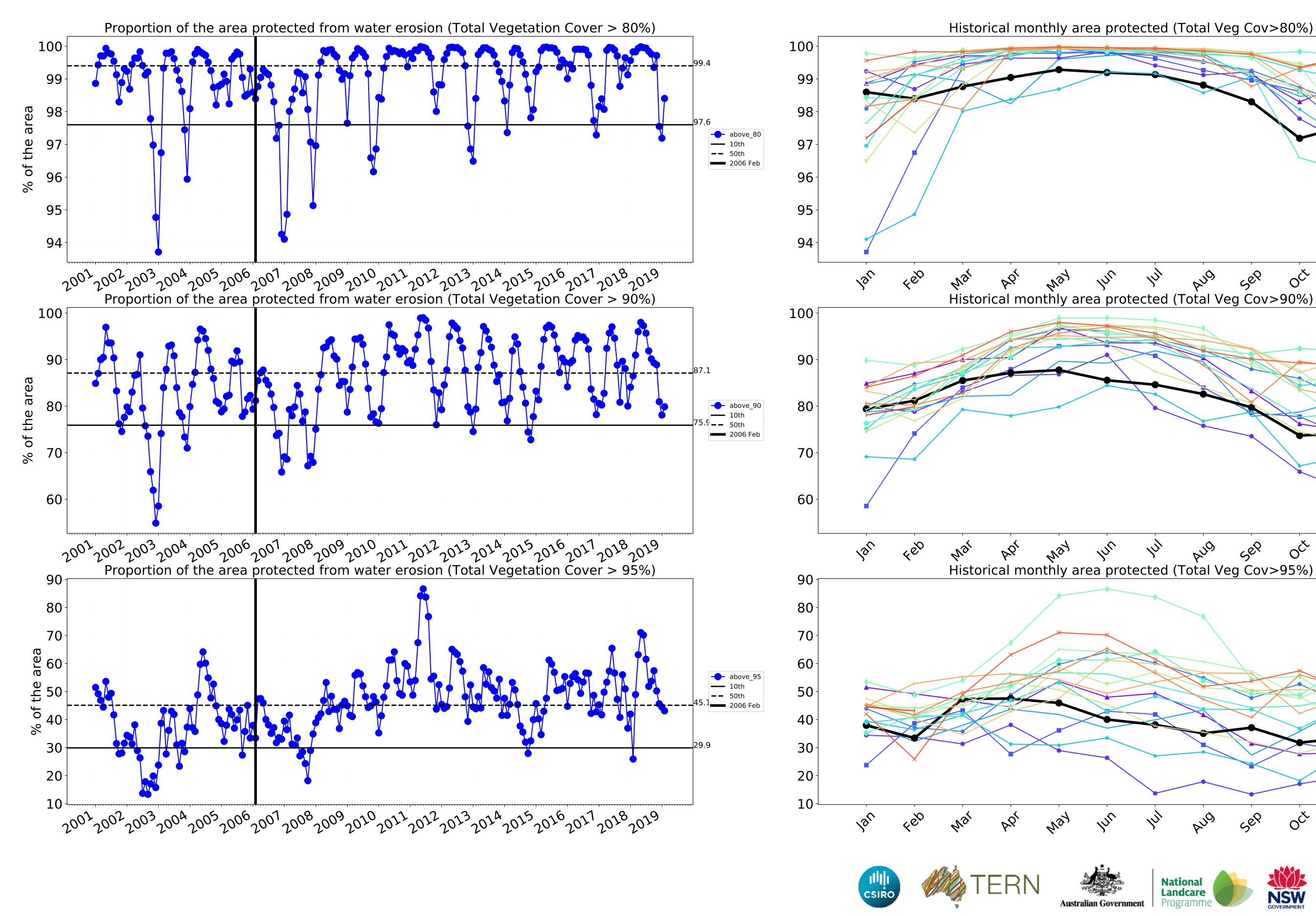


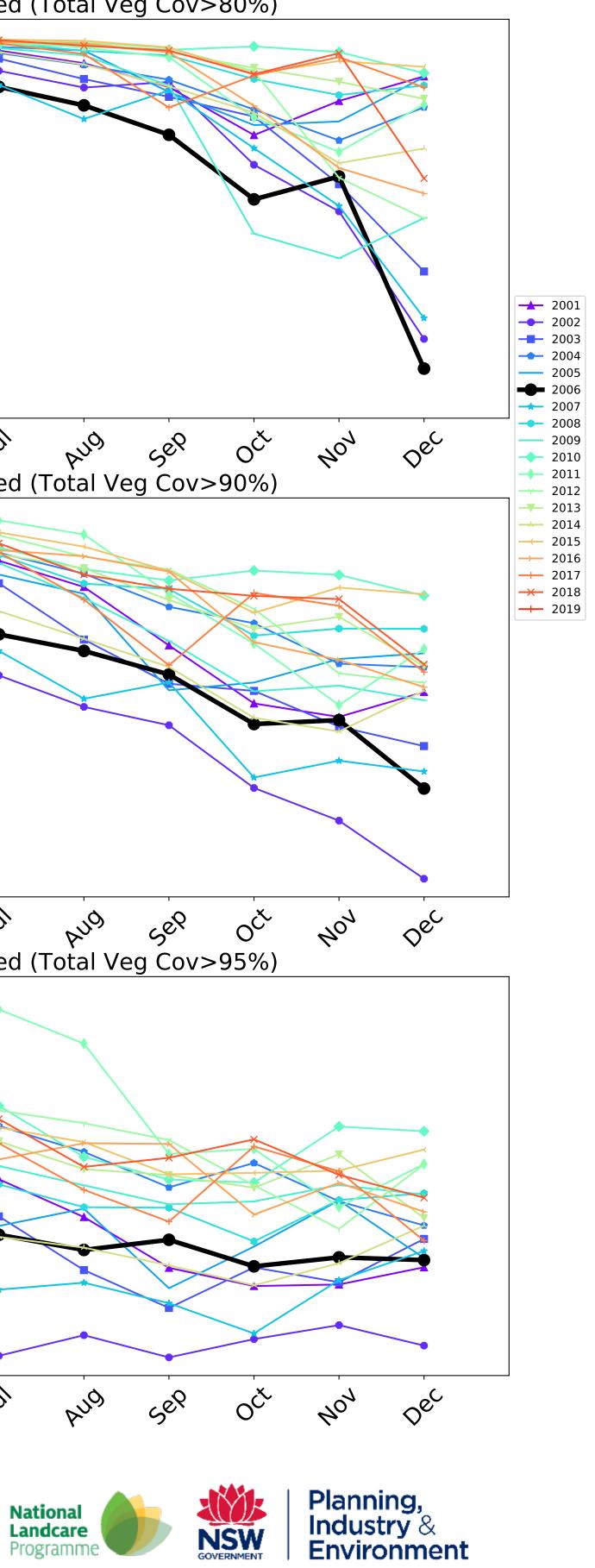
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



Grazing - Forest (non woodland) timeseries

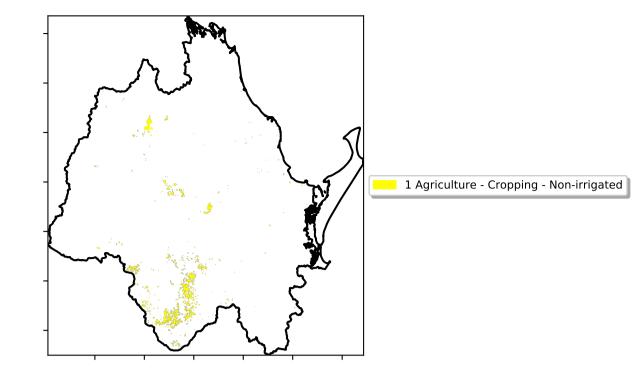
Water erosion historical monthly area protected (Total Veg Cov>70%)



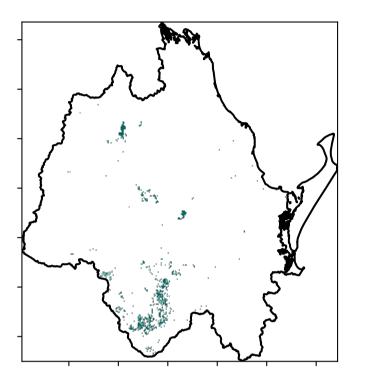


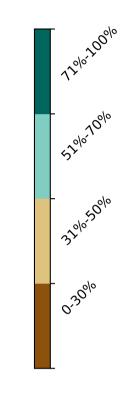
Cropping

Land use and forest cover

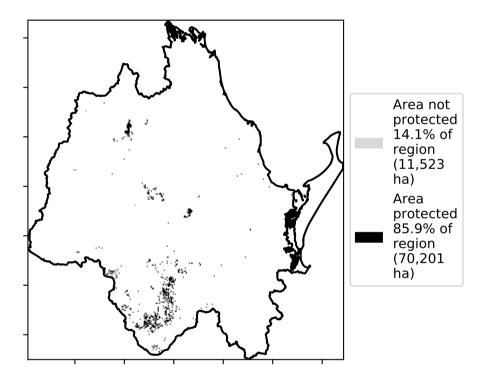


Total Vegetation Cover [%]

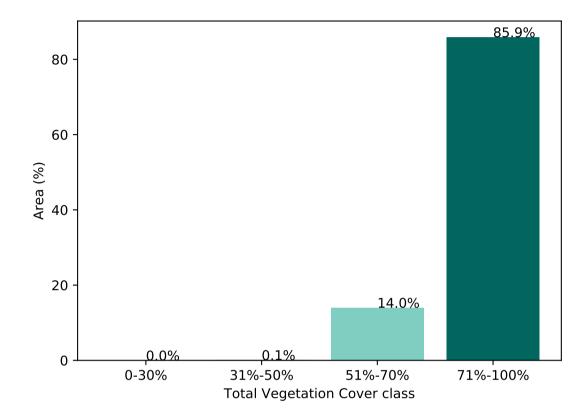




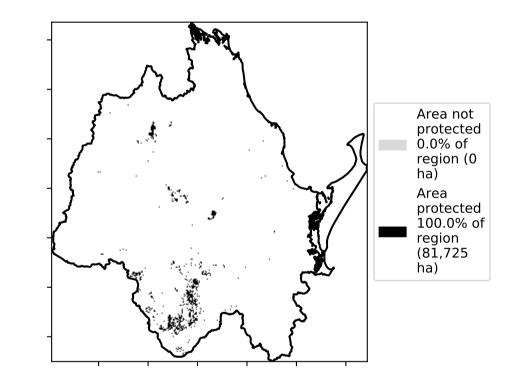
% Area protected from water erosion (>70%)





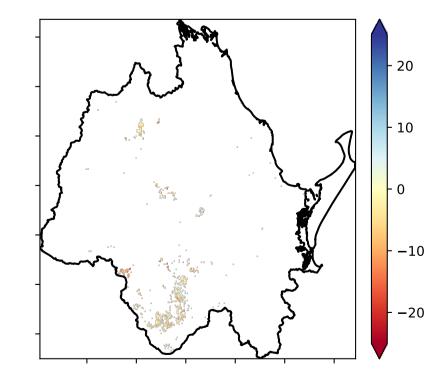


% Area protected from wind erosion (>50%)



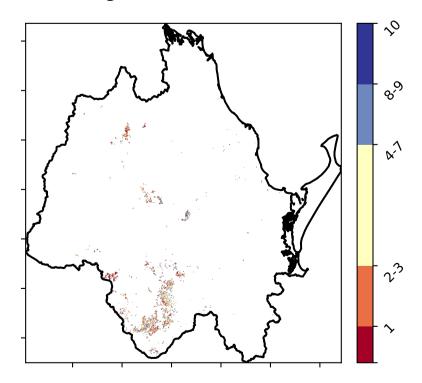
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover Anomaly [%]



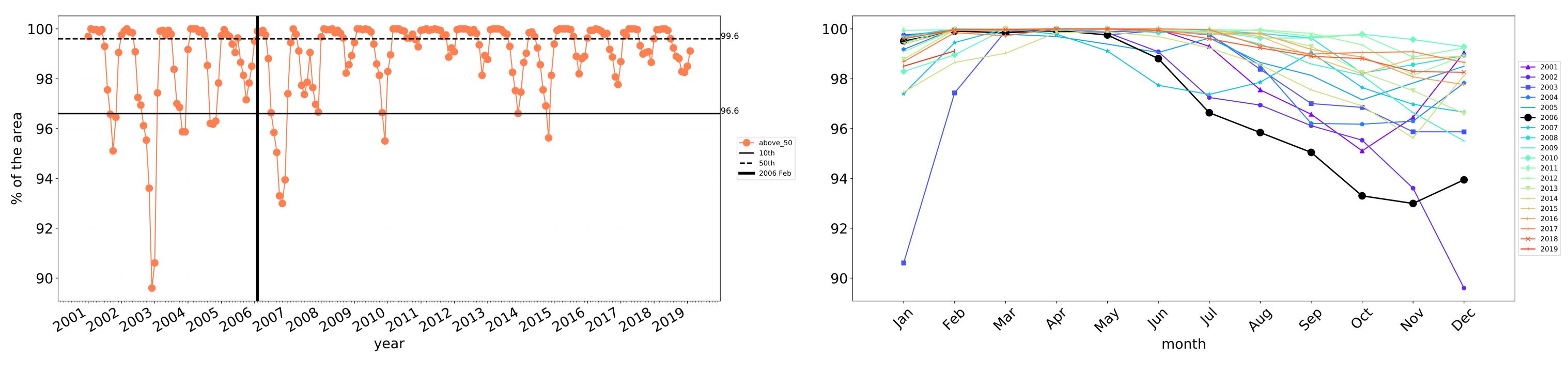
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]



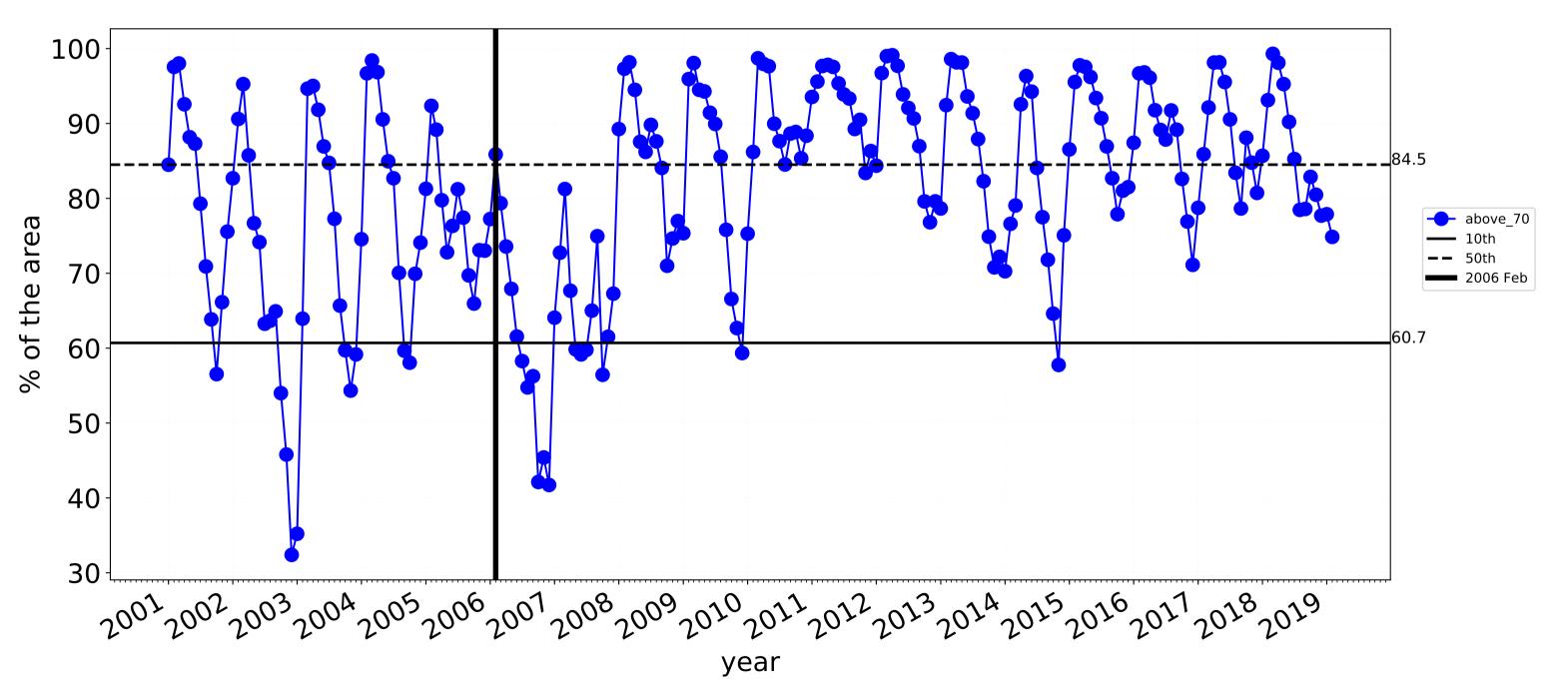


Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



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

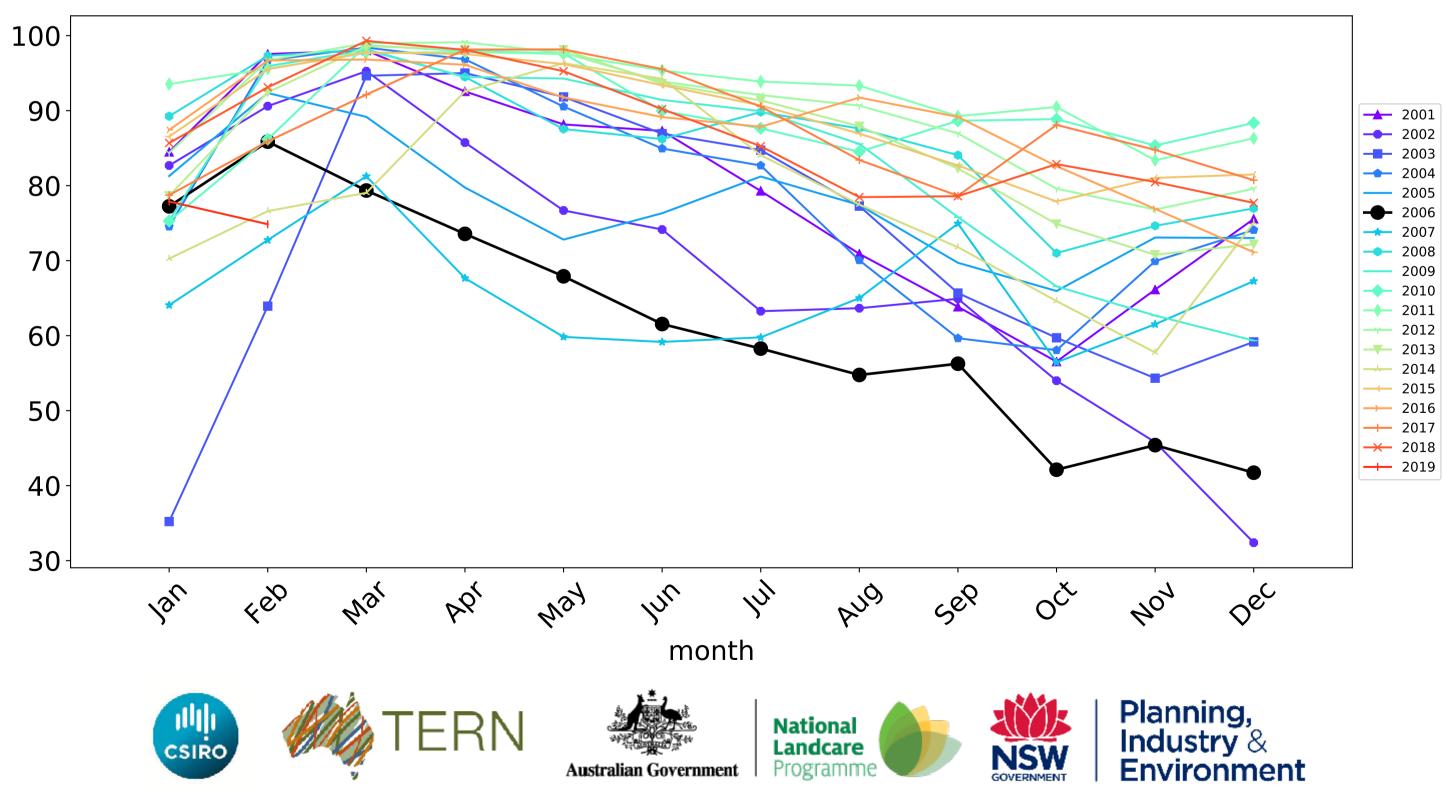




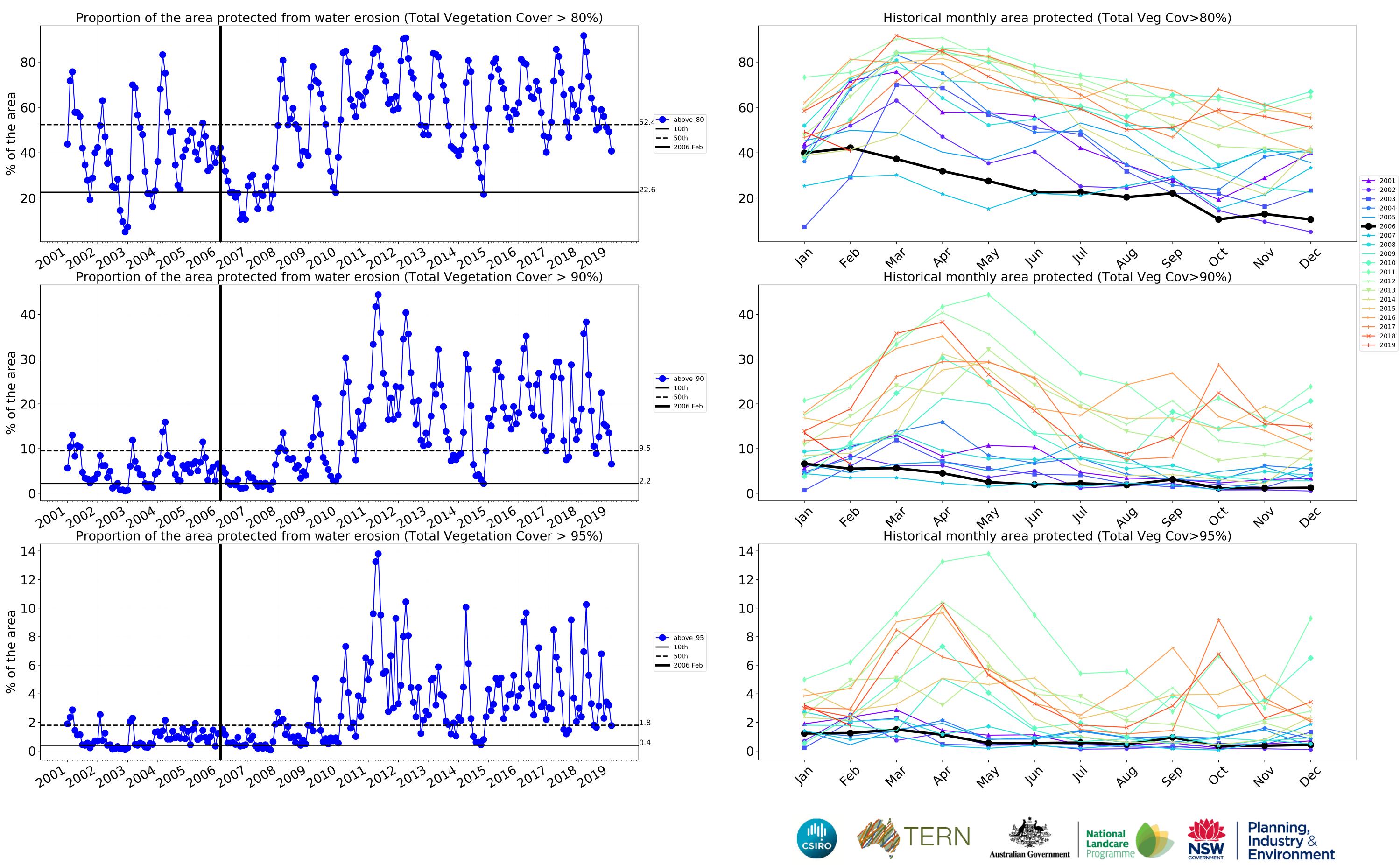
Cropping timeseries



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

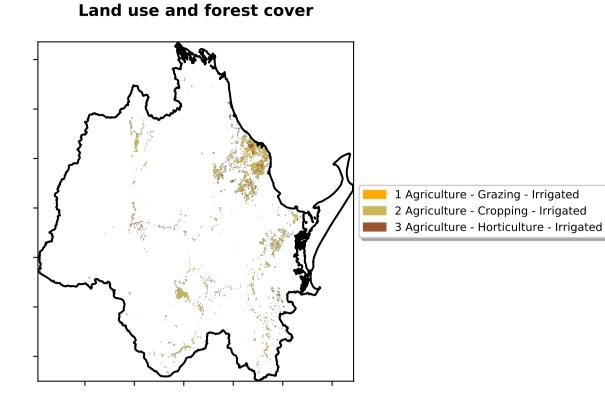


Water erosion historical monthly area protected (Total Veg Cov>70%)

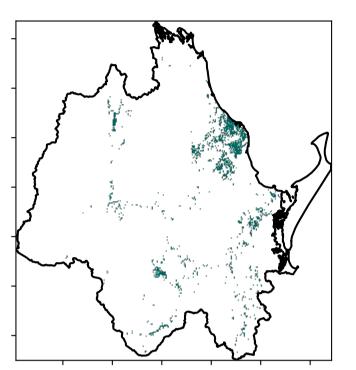


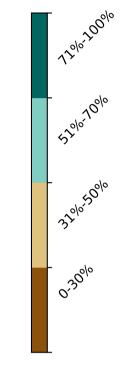
Irrigation

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

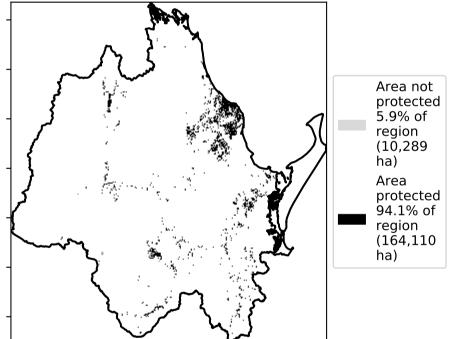


Total Vegetation Cover [%]

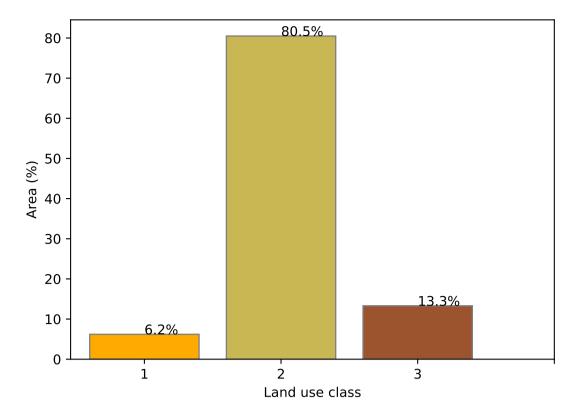




% Area protected from water erosion (>70%)

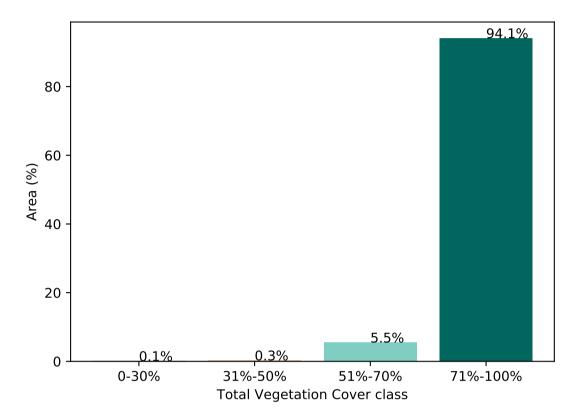






Proportion of each land class in area

Proportion of vegetation cover class in area



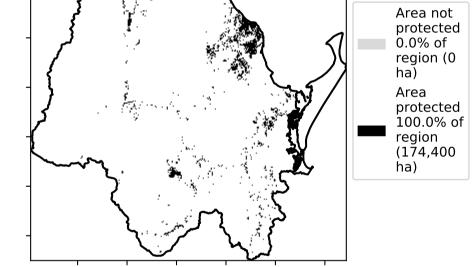
% Area protected from wind erosion (>50%)



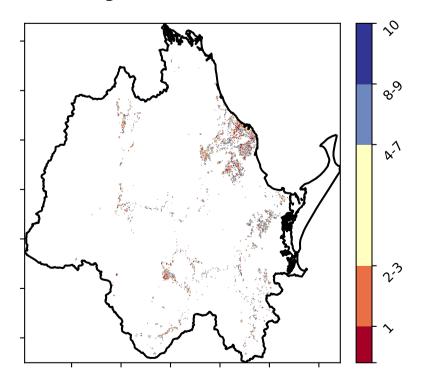
Total Vegetation Cover Anomaly [%]

£ 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.

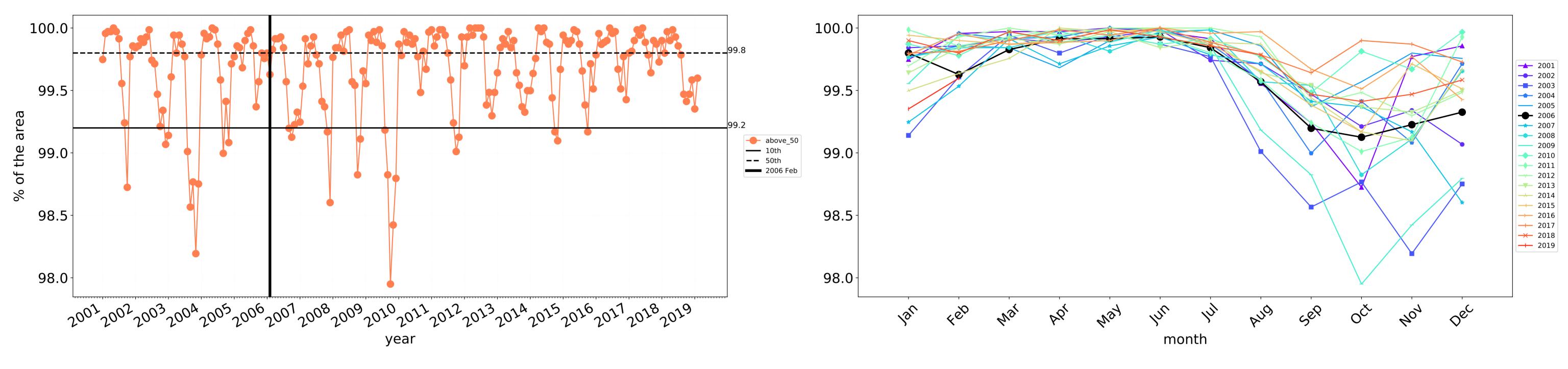


Total Vegetation Cover Decile [%]





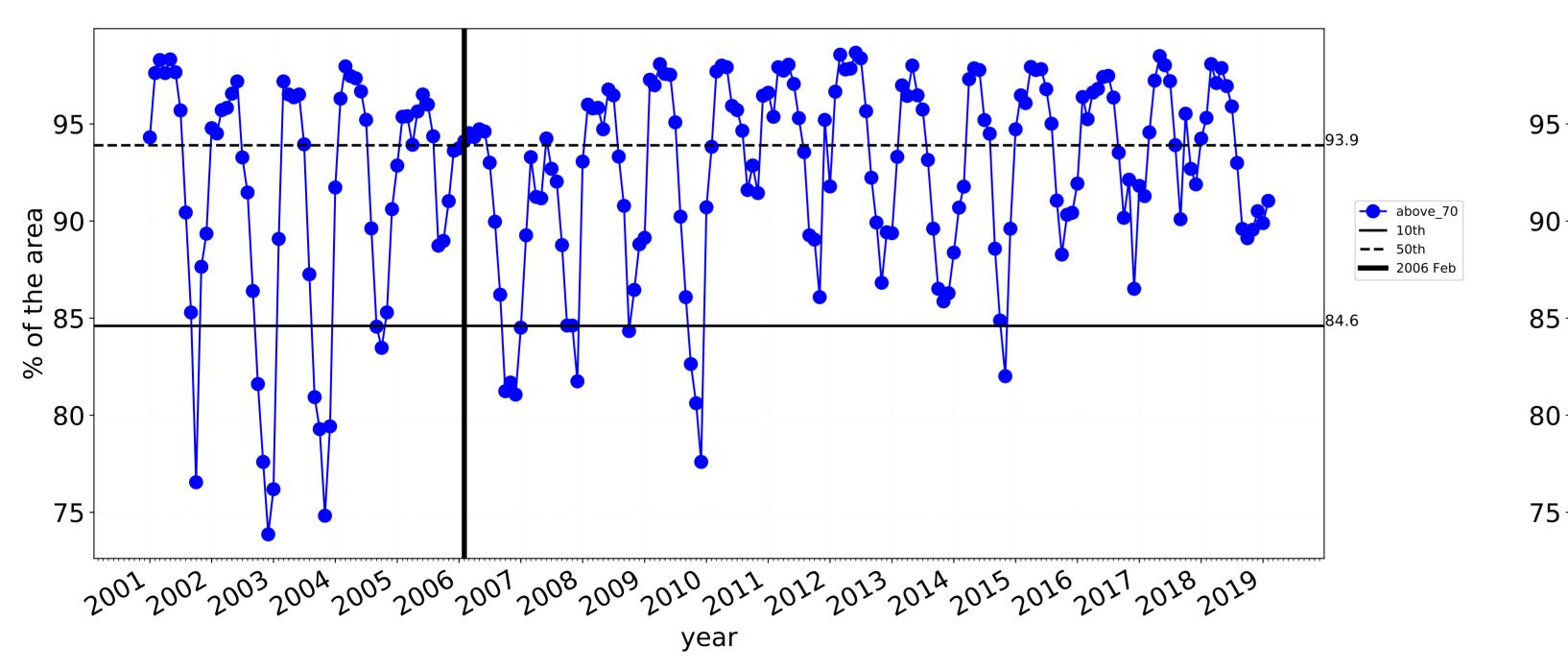
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



90

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

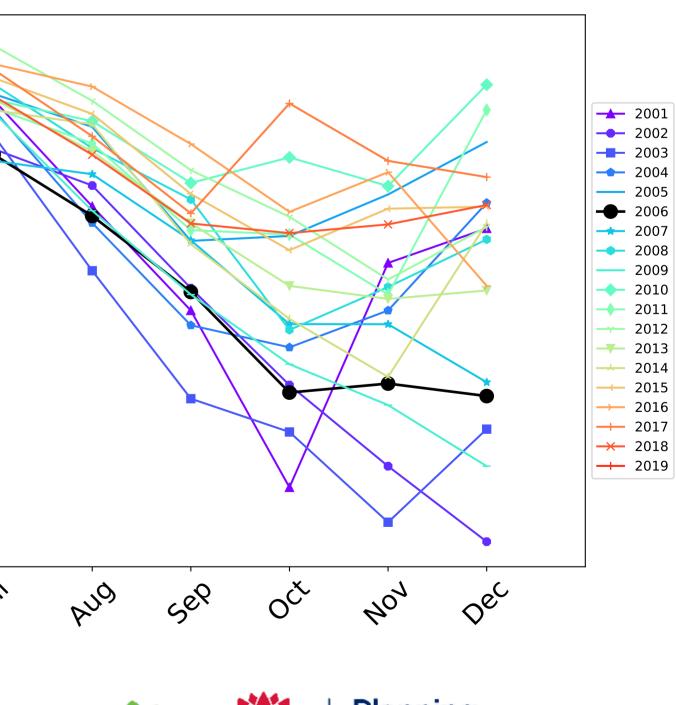
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



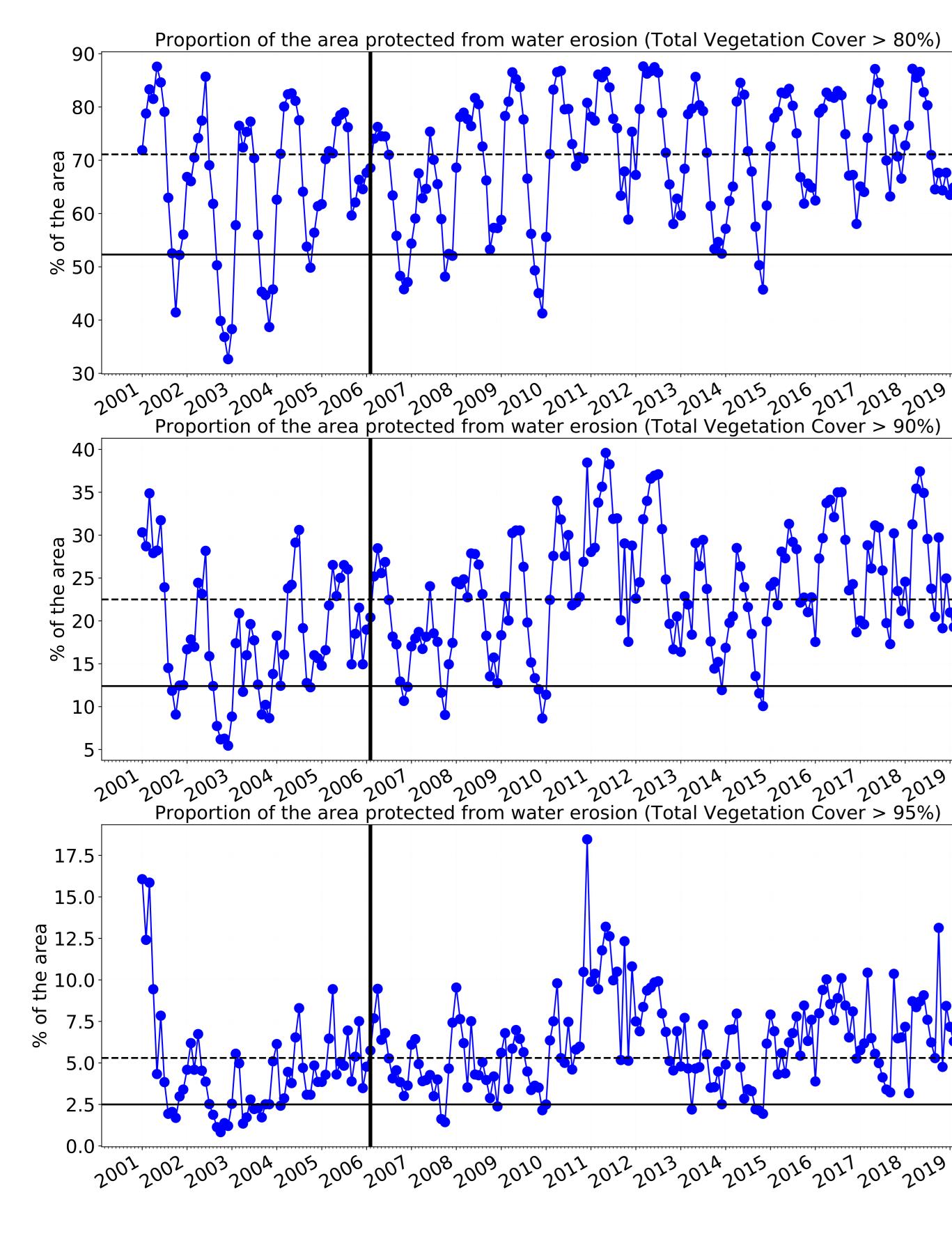
Wind erosion historical monthly area protected (Total Veg Cov >50%)

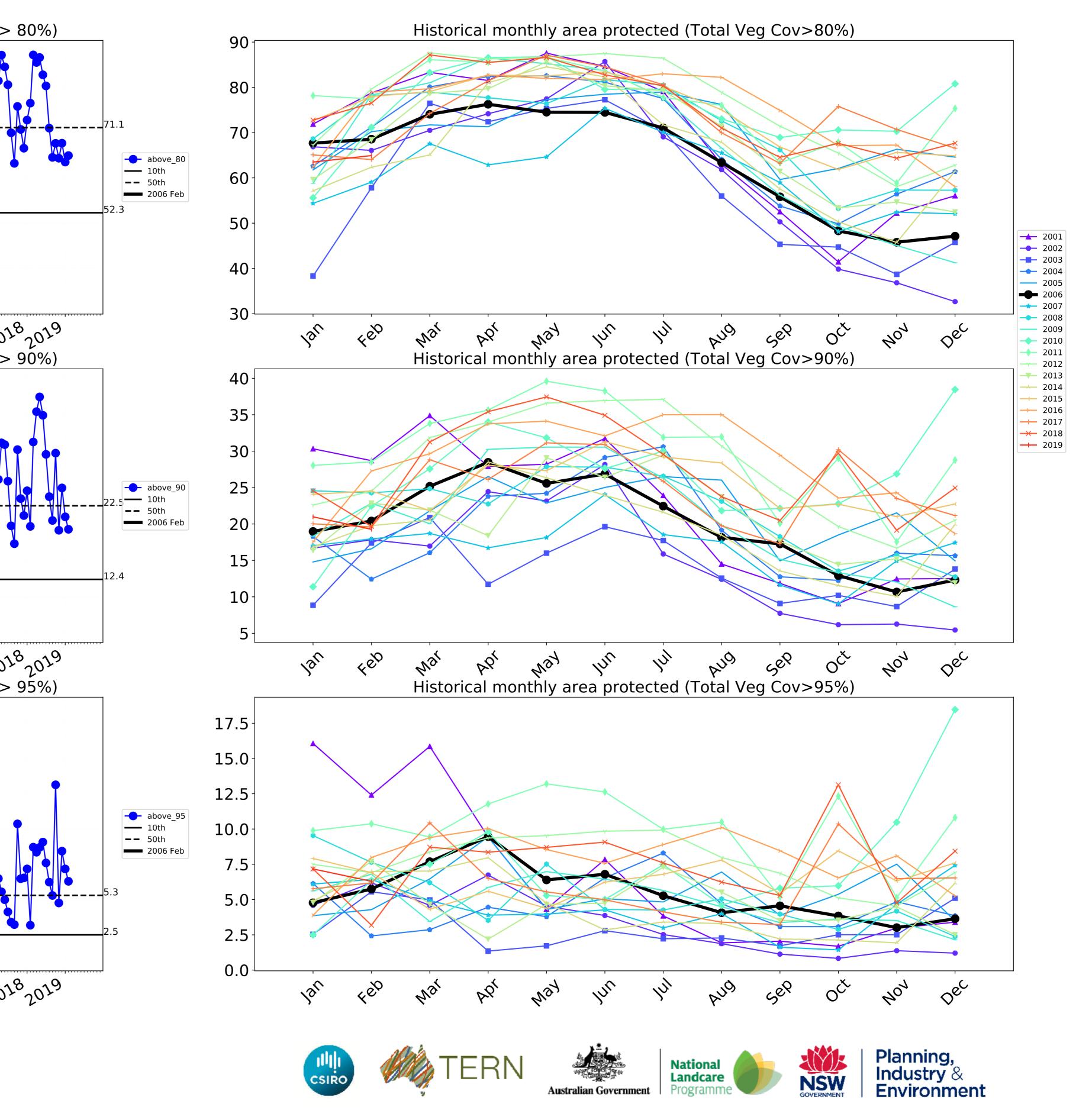
fed Par May In PQ Mai In, month ERN (COO) CSIRO Australian Government

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



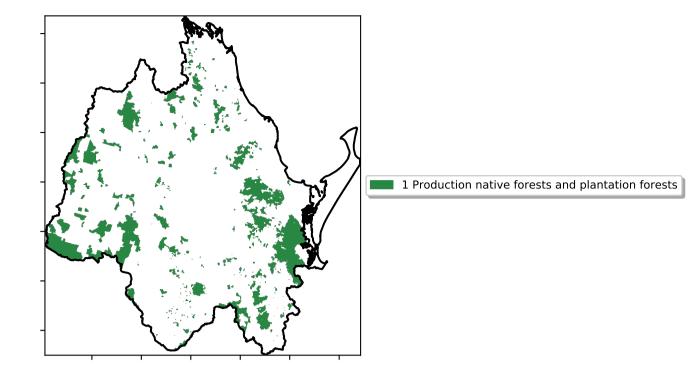




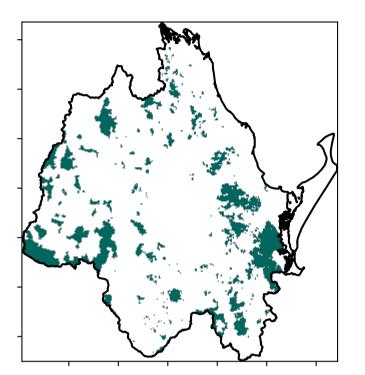


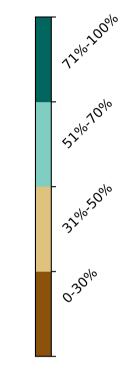
Production native forests and plantation forests

Land use and forest cover

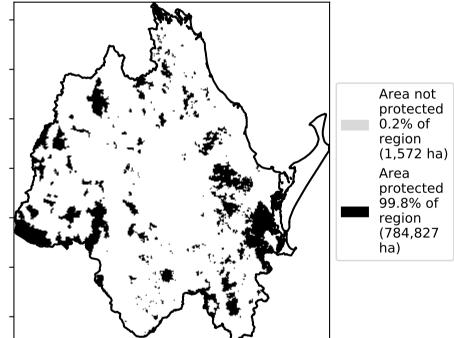


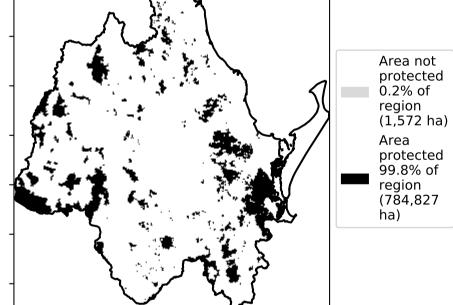
Total Vegetation Cover [%]



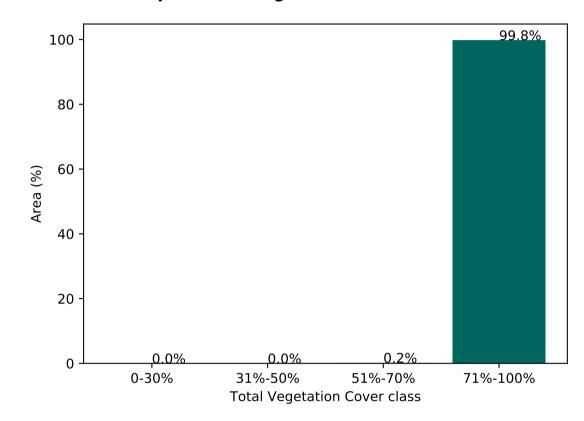


% Area protected from water erosion (>70%)

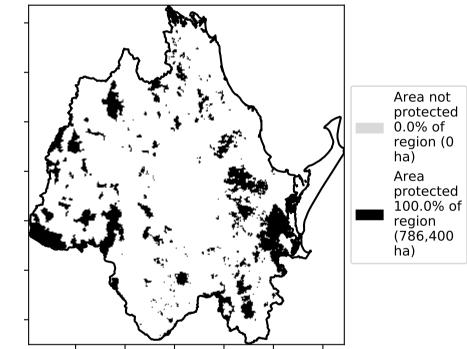




Proportion of vegetation cover class in area

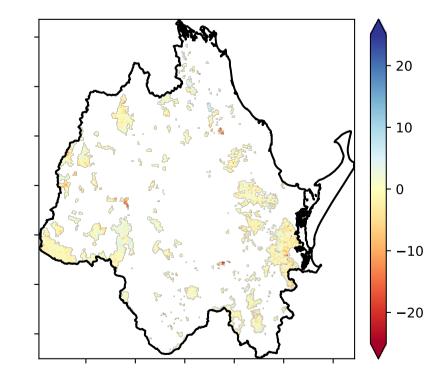


% Area protected from wind erosion (>50%)



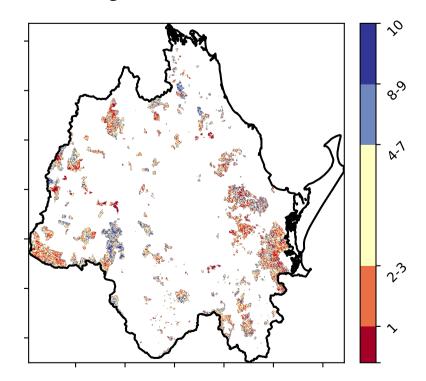
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover Anomaly [%]



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

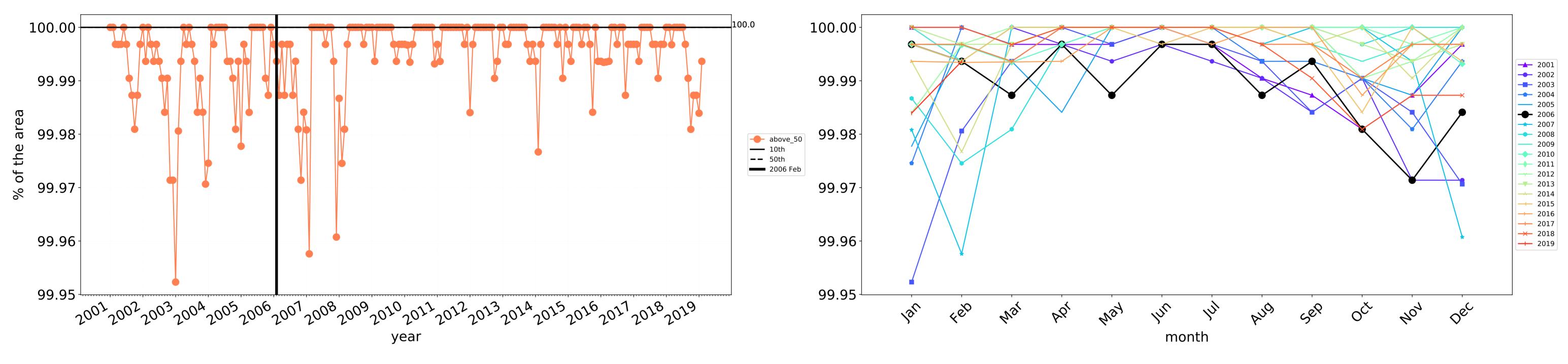
Total Vegetation Cover Decile [%]





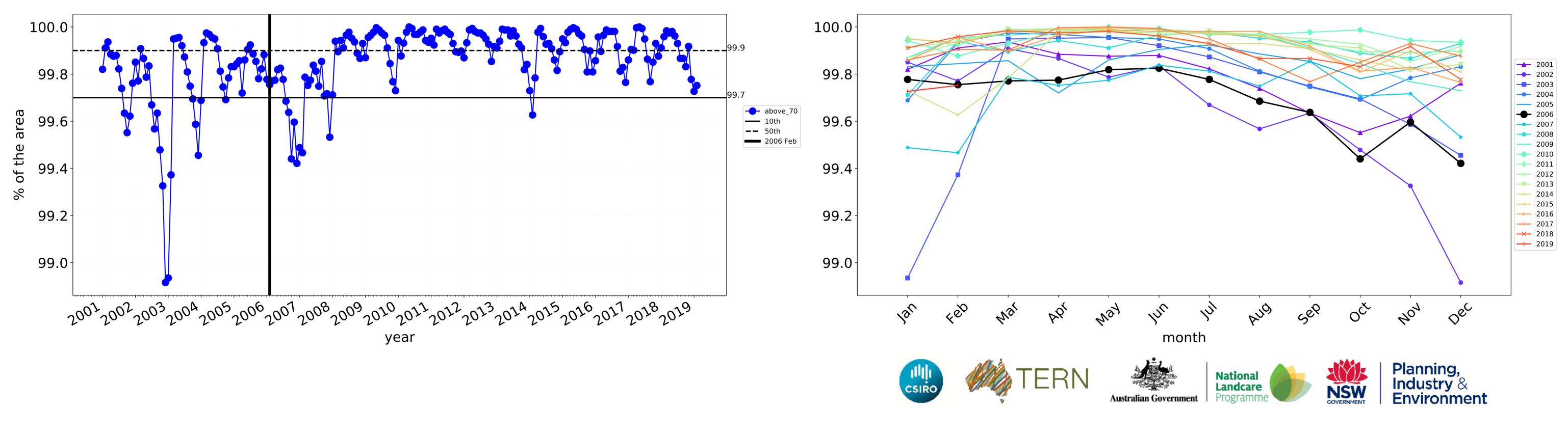
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map from 2001 to 2019.

Production native forests and plantation forests timeseries



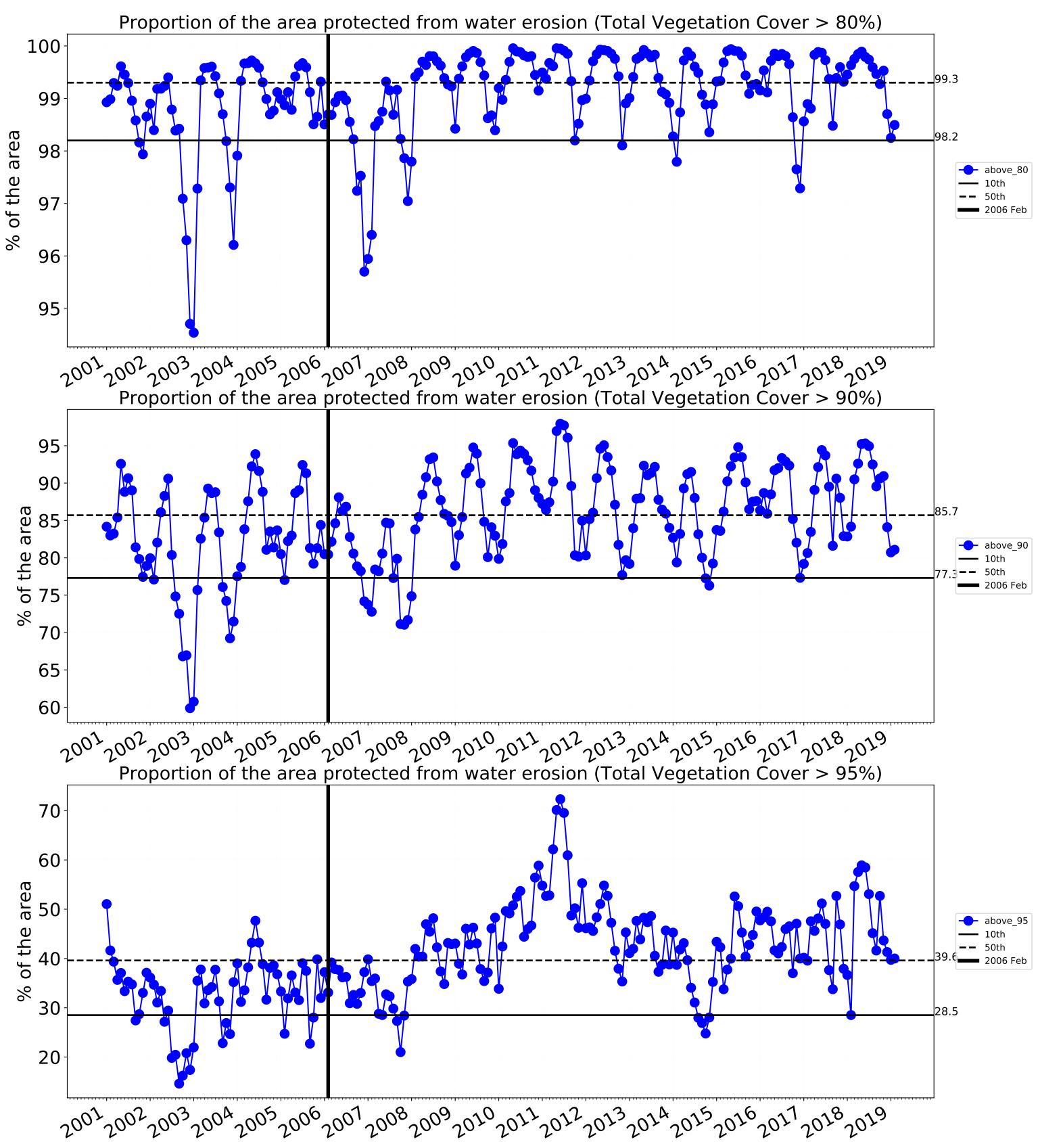
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

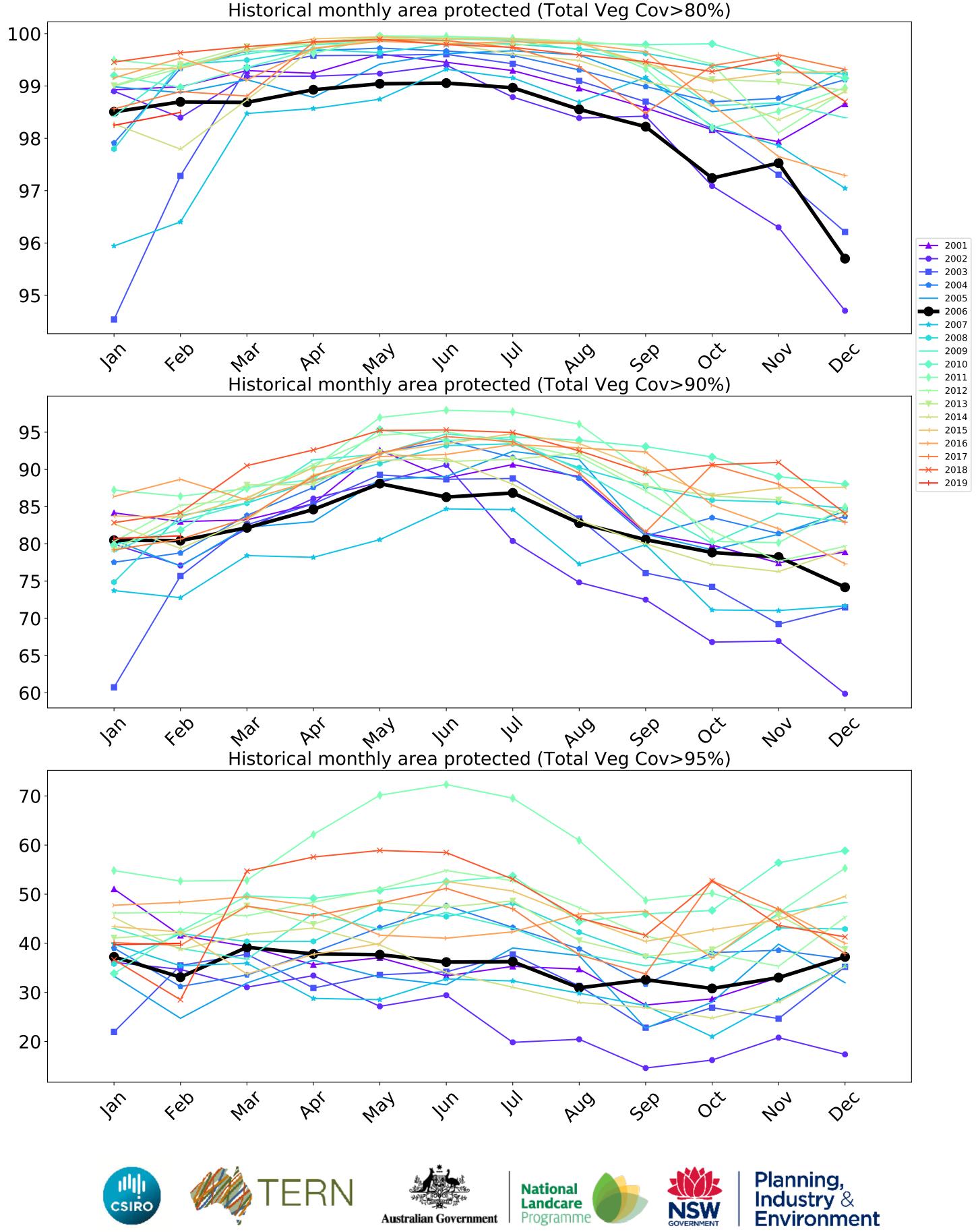
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

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





Australian Government

Burnett Mary (5,556,325 ha and no data 20,530 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	5,556,325	100.0% 5,553,873	99.9% 5,549,270	98.6% 5,479,277	90.8% 5,047,011	57.8% 3,213,305	21.8% 1,209,145
Conservation and natural environments	673,475	99.7% 671,675	99.4% 669,275	98.3% 662,150	96.1% 647,250	79.2% 533,075	36.1% 243,150
Conservation and natural environments Woodland forest	180,100	99.8% 179,775	99.4% 179,025	97.9% 176,400	94.5% 170,200	73.7% 132,675	34.4% 61,950
Conservation and natural environments Forest (non woodland)	464,725	100.0% 464,600	99.9% 464,175	99.3% 461,425	97.8% 454,675	82.9% 385,125	37.7% 175,025
Agriculture	3,881,950	100.0% 3,881,825	100.0% 3,881,000	98.7% 3,829,825	88.7% 3,442,150	50.1% 1,945,275	17.2% 668,550
Grazing	3,620,150	100.0% 3,620,075	100.0% 3,619,950	99.2% 3,590,250	90.7% 3,283,850	52.6% 1,903,450	18.1% 656,950
Grazing non forest	2,315,650	100.0% 2,315,600	100.0% 2,315,500	98.8% 2,287,175	86.4% 2,000,300	39.7% 918,950	12.5% 290,300
Grazing Woodland forest	711,225	100.0% 711,200	100.0% 711,175	99.9% 710,625	98.4% 699,800	70.7% 502,950	23.7% 168,425
Grazing - Forest (non woodland)	593,275	100.0% 593,275	100.0% 593,275	99.9% 592,450	98.4% 583,750	81.2% 481,550	33.4% 198,225
Cropping	81,725	100.0% 81,725	99.9% 81,650	85.9% 70,175	42.2% 34,500	5.5% 4,500	1.3% 1,025
Irrigation	174,400	100.0% 174,350	99.6% 173,750	94.1% 164,125	68.5% 119,550	20.4% 35,600	5.7% 10,025
Production native forests and plantation forests	786,400	100.0% 786,400	100.0% 786,350	99.8% 784,475	98.7% 776,150	80.4% 632,600	33.1% 260,300

