This report provides information about vegetation covering the soil surface for a region during a single month with comparison to previous years. The total vegetation cover indicates where soil is likely to be protected from wind (>=50% total vegetation cover) and water/hillslope (>=70% total vegetation cover) erosion. Results are shown for the whole region (polygon) and also separated by land use and forest cover class. This is because different land use / forest cover classes are likely to have different cover patterns and targets. [Whitsunday (R)]

The six maps and two graphs provide a report for the month with:

- Land use and forest cover information for the area:
 - o Map: Land use and forest cover
 - o Chart: Land use and forest cover area
- Total vegetation cover for this month:
 - o Map: total vegetation cover classified into 4 classes
 - o Chart: total vegetation cover percentage area classified into 4 classes
- Areas protected from erosion for the month:
 - o Map: water erosion protection (>70% cover) percentage area and hectares
 - o Map: wind erosion protection (>50% cover) percentage area and hectares
- Comparison with previous years:
 - o Map: anomaly compare this month to the average cover from the same month in previous years
 - o Map: deciles rank this month against the same month in previous years
- Time series from January 2001 to current:
 - o Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month since January 2001 (orange line): Horizontal lines are 10th (cover target) and 50th percentiles. Vertical line is month of report.
 - o Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month since January 2001 (blue line): Horizontal lines are 10th (cover target) and 50th percentiles. Vertical line is month of report.
 - o Rainfall: millimetres rainfall each month (black line). Vertical line is month of report.
- Time series for each month stacked by year
 - o Same data as time series from January 2001 to current month, grouped by month. Black line is current year of data.
- Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion. The thresholds reported are:
 - o the percentage area with pixels greater than 80% total clover
 - o the percentage area with pixels greater than 90% total clover
 - o the percentage area with pixels greater than 95% total clover
- The following pages repeat the above sequence for each land use and forest cover class. For example
- All agricultural lands, that is grazing, cropping plus Horticulture (depending on what land use is present)
- Grazing lands by forest classes if present
- Cropping lands
- Irrigation lands
- Protected areas by forest classes if present

The following pages repeat the above sequence for each land use and forest cover class if 1% or more of area makes up a land use and forest cover class. Four land uses are reported: Conservation and natural environments, Agriculture, production native forests and plantation forests, and other. Agriculture is further divided into grazing,

crops and horticulture are then divided into non-irrigated and irrigated. Land use is further divided by forest class if present: non-forest, woodland forest and non-woodland forest.

Explanatory notes:

This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool. The report is based on an analysis of 500 metre pixel data on monthly time steps. Report uses baseline from January 2001 to September 2019 for each month to generate anomalies and deciles. Post September 2019 all similar months are used to calculate anomalies and deciles.

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

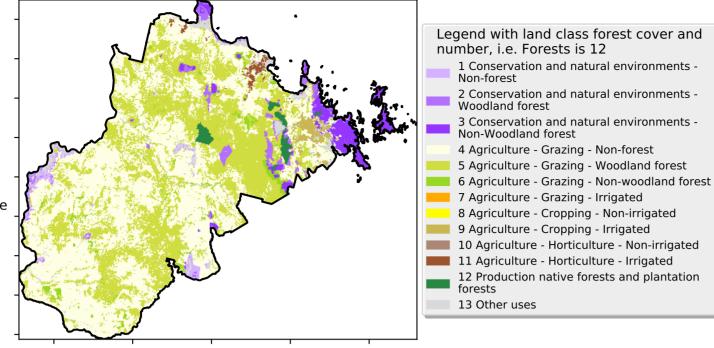


Vegetation Cover Sep 2019

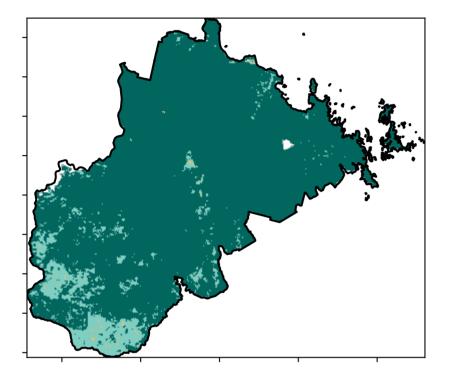
Land use and forest cover

Proportion of each land class in area

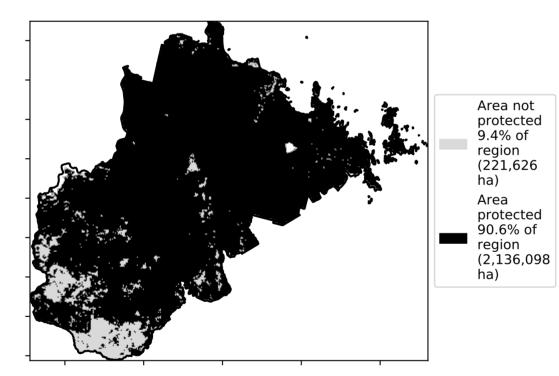
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is <20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

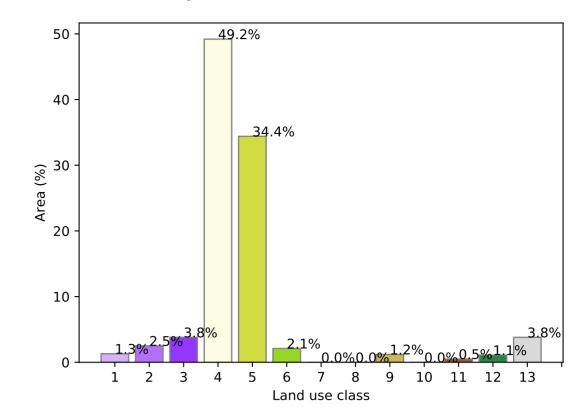


Total Vegetation Cover [%]

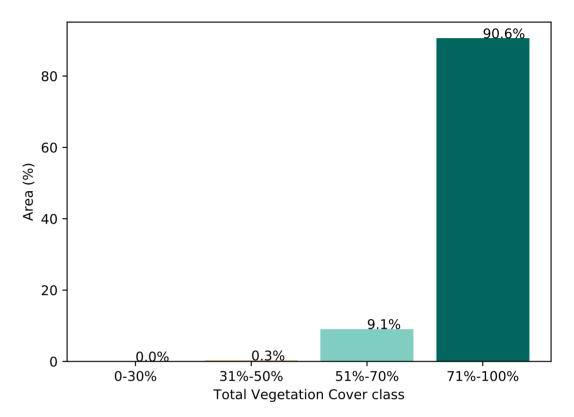


% Area protected from water erosion (>70%)

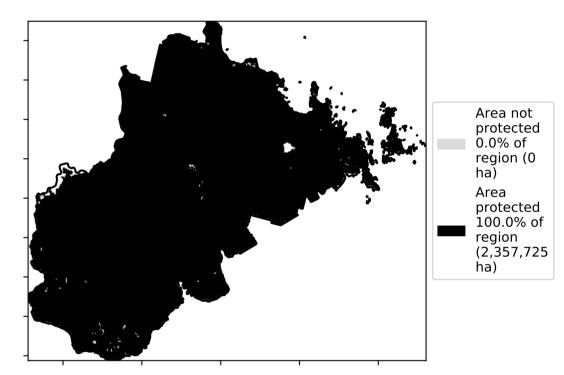




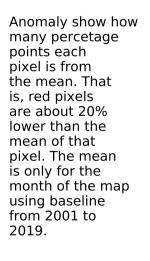
Proportion of vegetation cover class in area

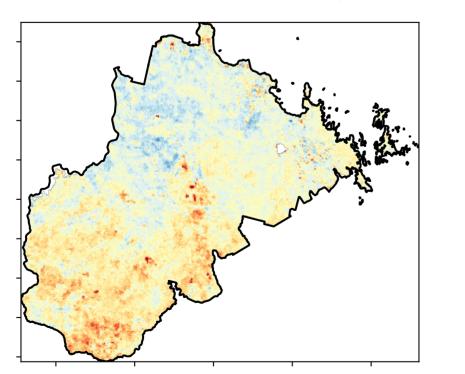


% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]





10 0 -10

-20

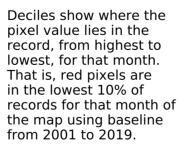
20

12%200%

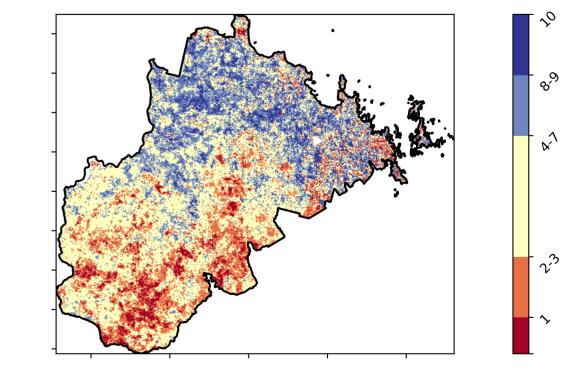
52% 70%

32%50%

0.30%

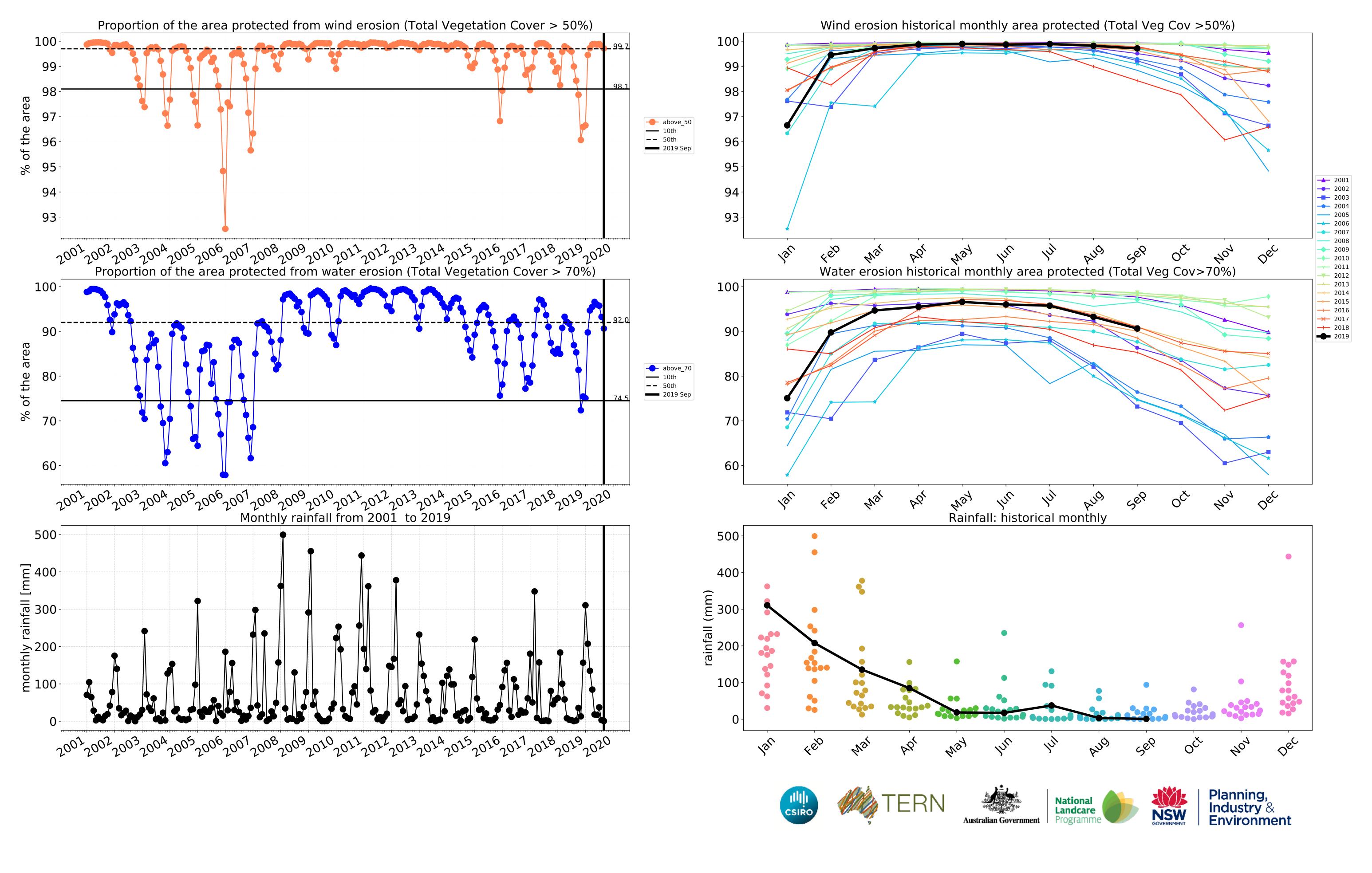


Total Vegetation Cover Decile [%]

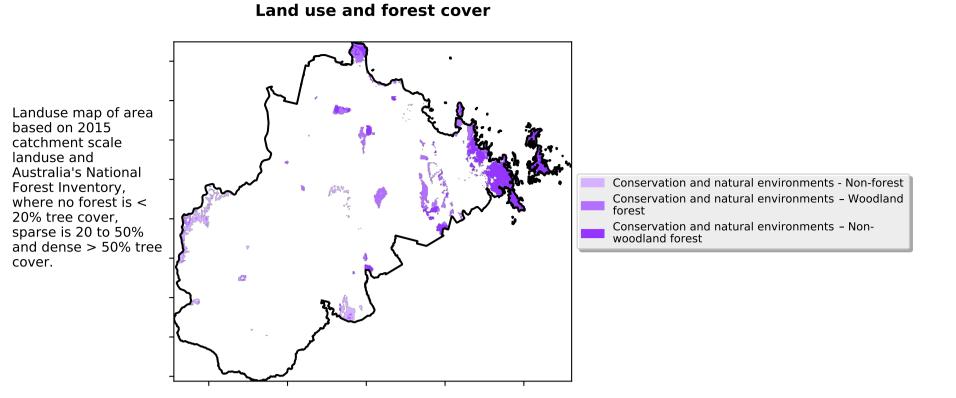




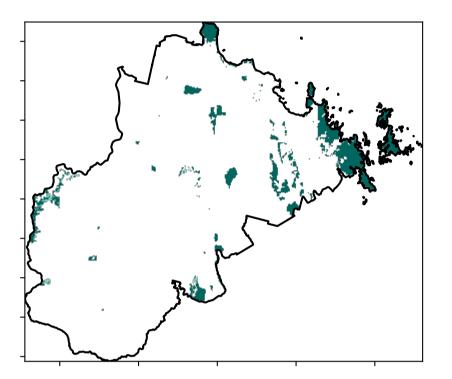
That is, red pixels are



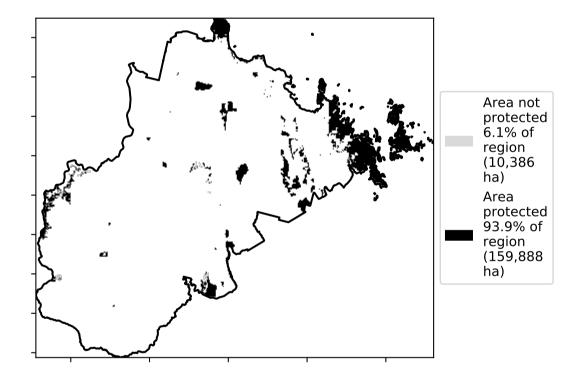
Conservation and natural environments



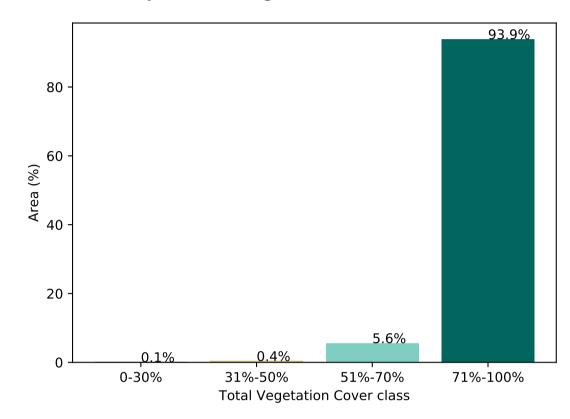
Total Vegetation Cover [%]



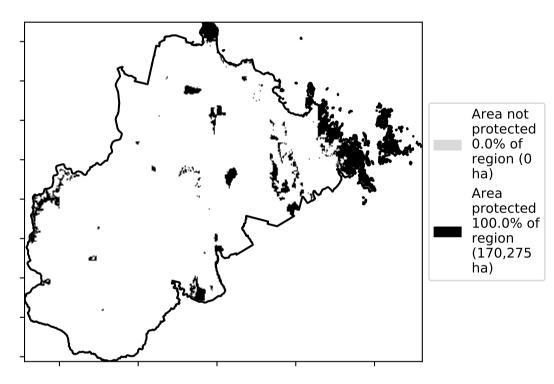
% Area protected from water erosion (>70%)







% Area protected from wind erosion (>50%)



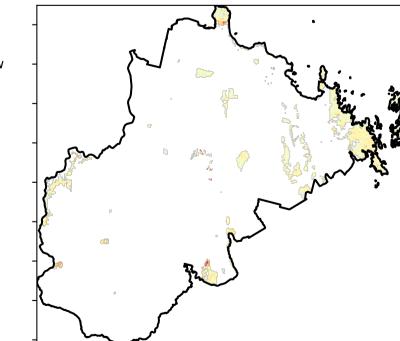
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Total Vegetation Cover Anomaly [%]





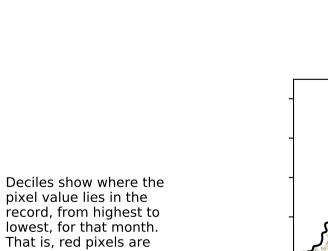
- 20

12/07/001

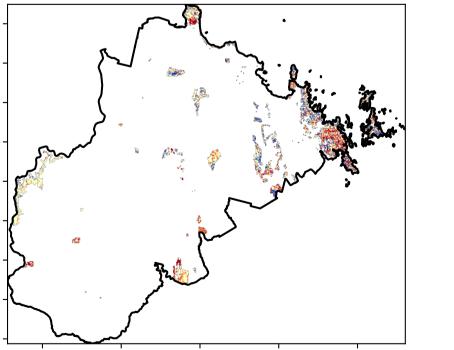
52°1070010

3201050010

0.30%



Total Vegetation Cover Decile [%]

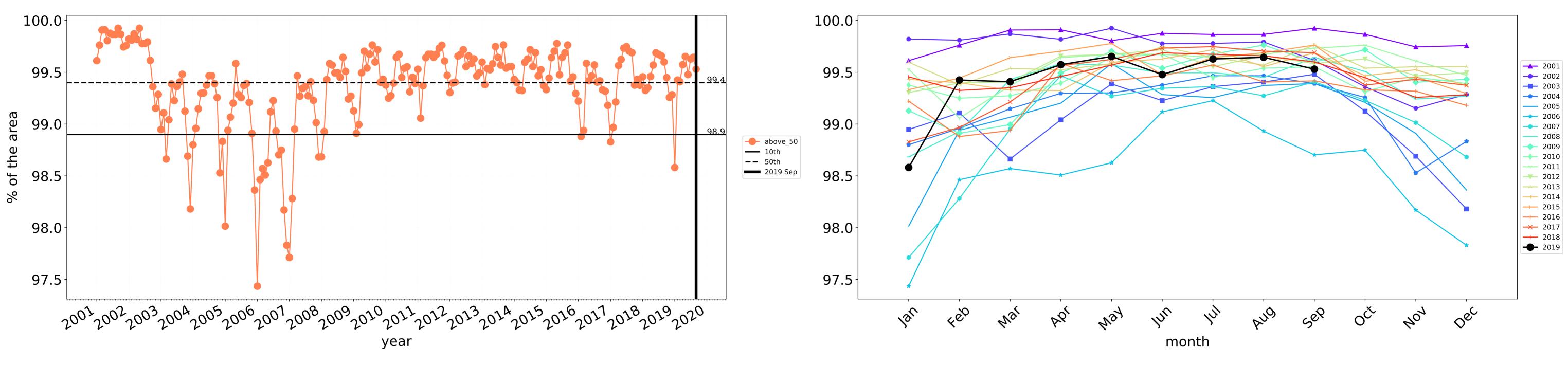




in the lowest 10% of

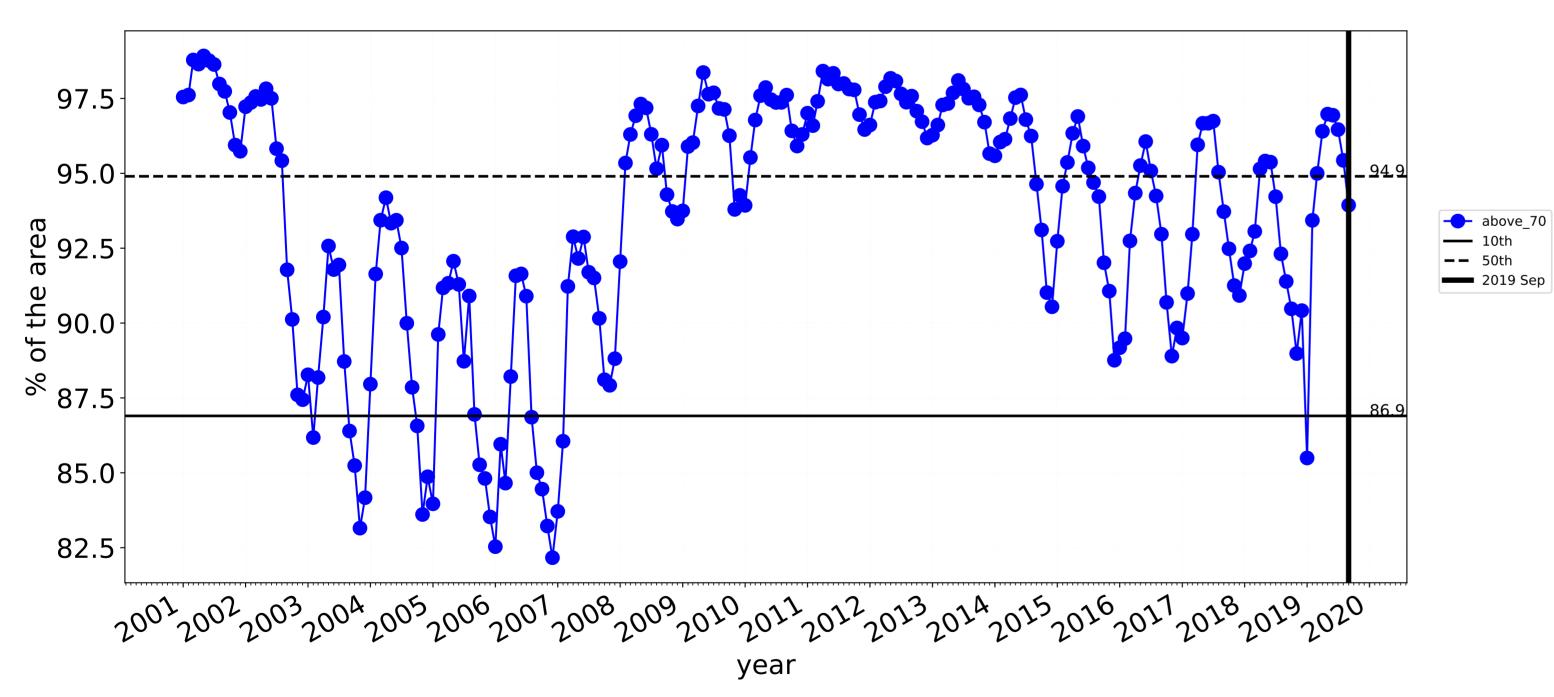
records for that month of

the map using baseline from 2001 to 2019.

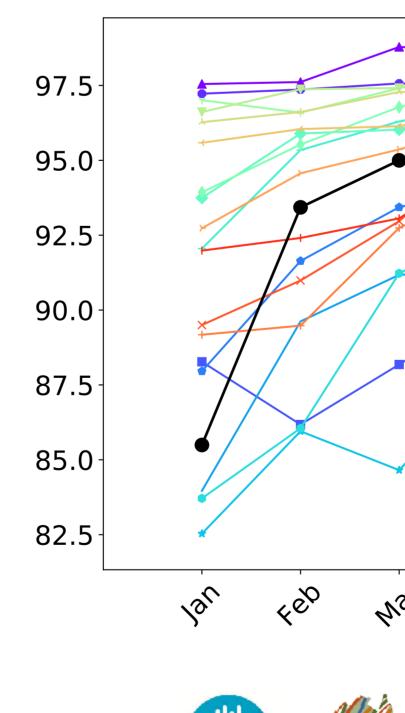


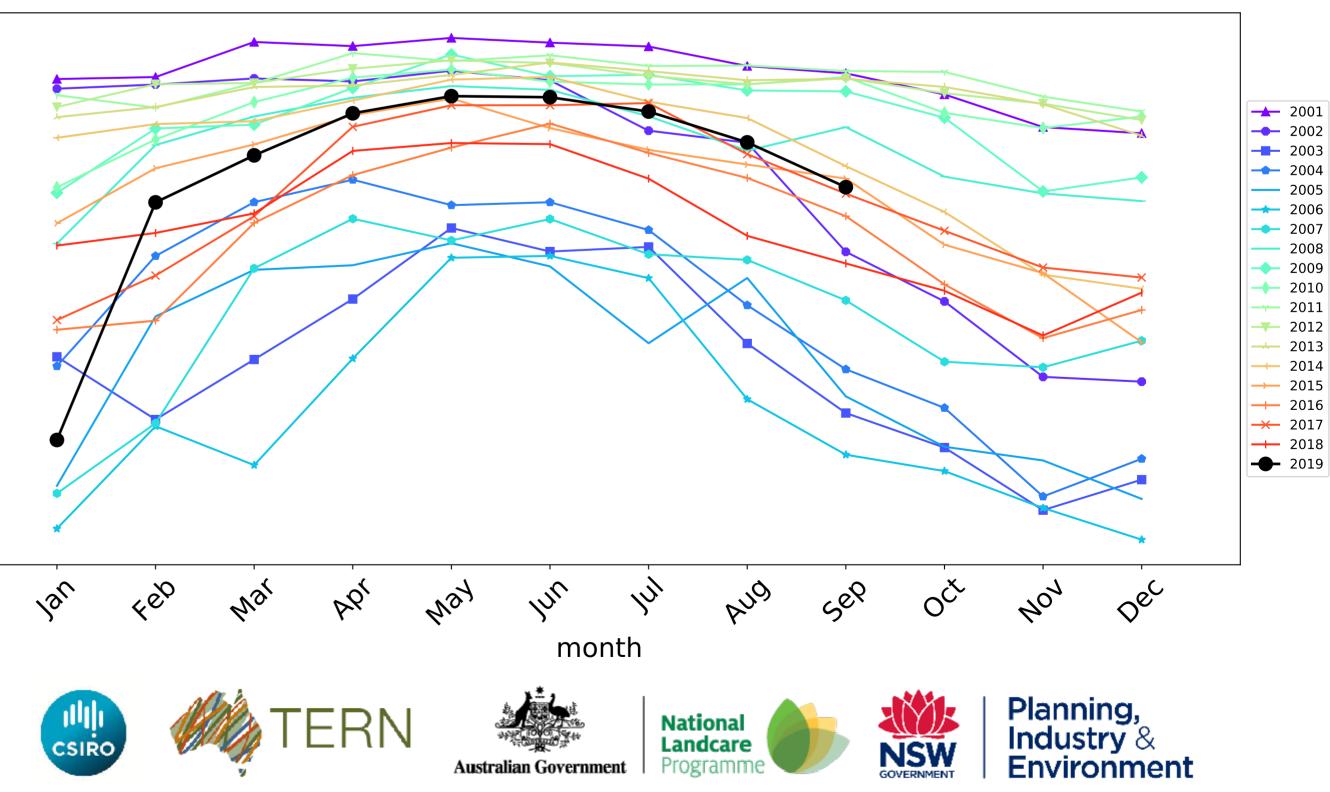
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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



Conservation and natural environments timeseries





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

Conservation and natural environments non forest

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

Land use and forest cover

Conservation and natural environments - Non-forest

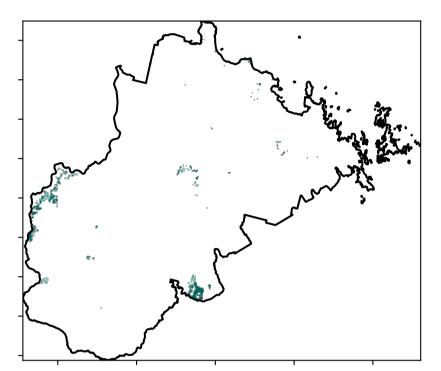
12%-100

52°1070°12

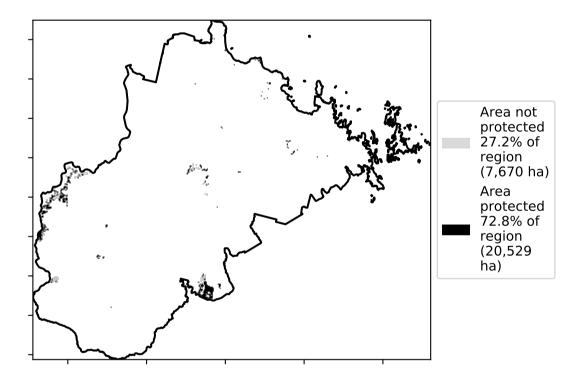
32%50%

0.30%

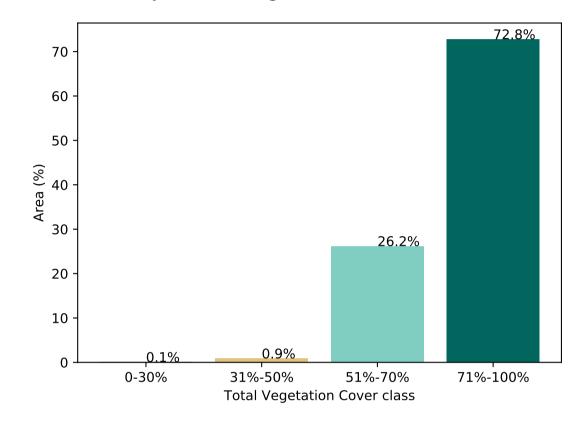
Total Vegetation Cover [%]



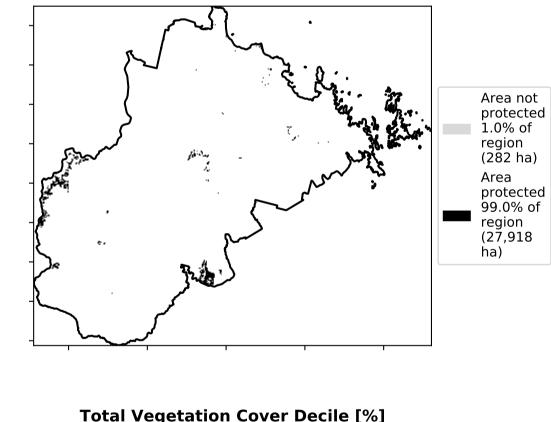




Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



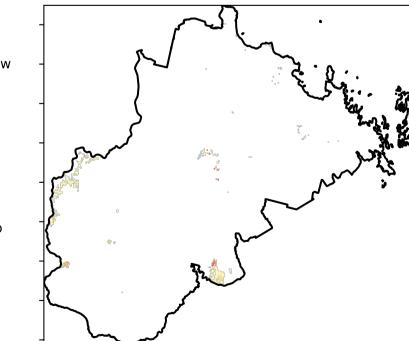
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Total Vegetation Cover Anomaly [%]

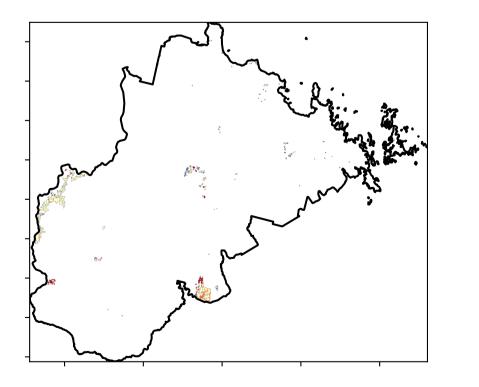


- 10 0 -10

-20

- 20

Total Vegetation Cover Decile [%]





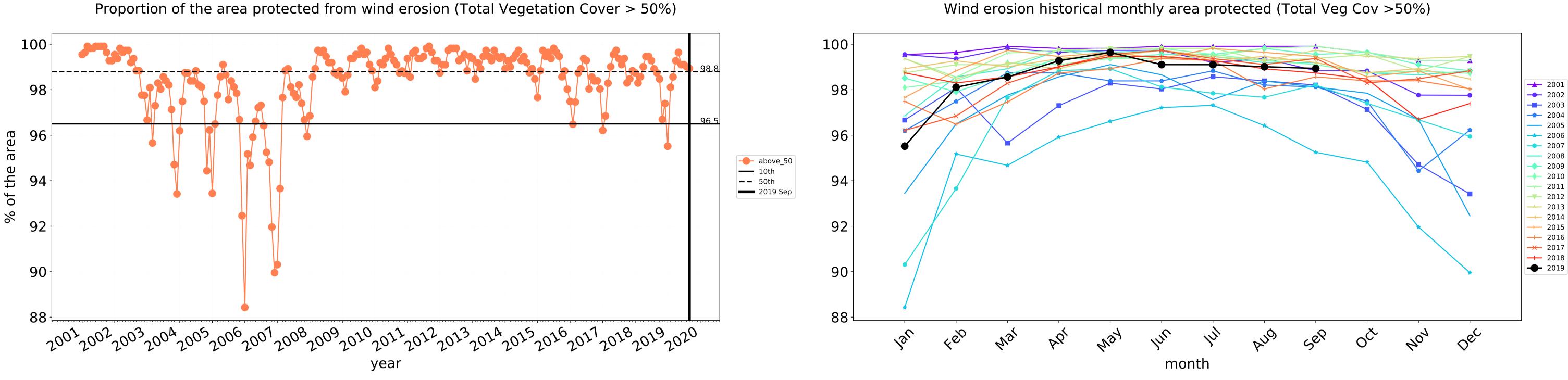
Deciles show where the pixel value lies in the

record, from highest to

lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of

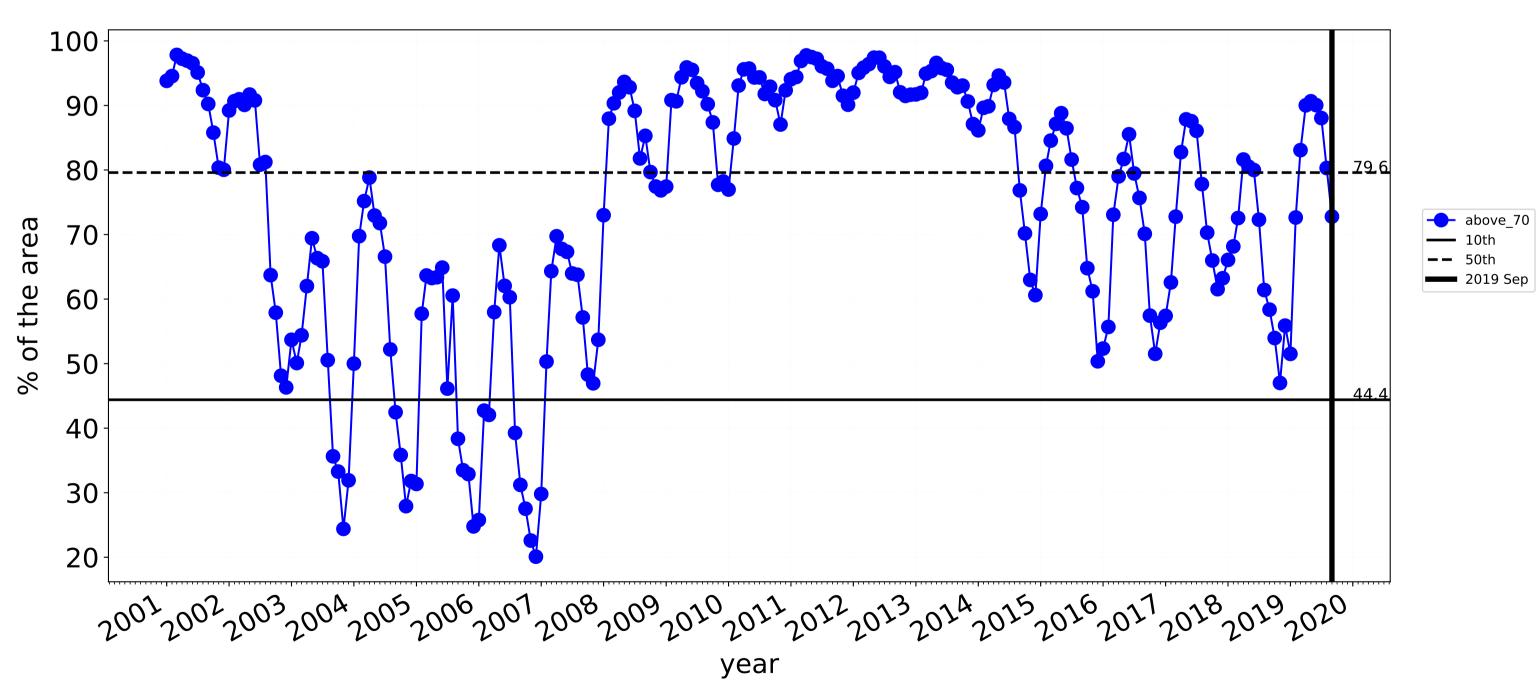
the map using baseline from 2001 to 2019.

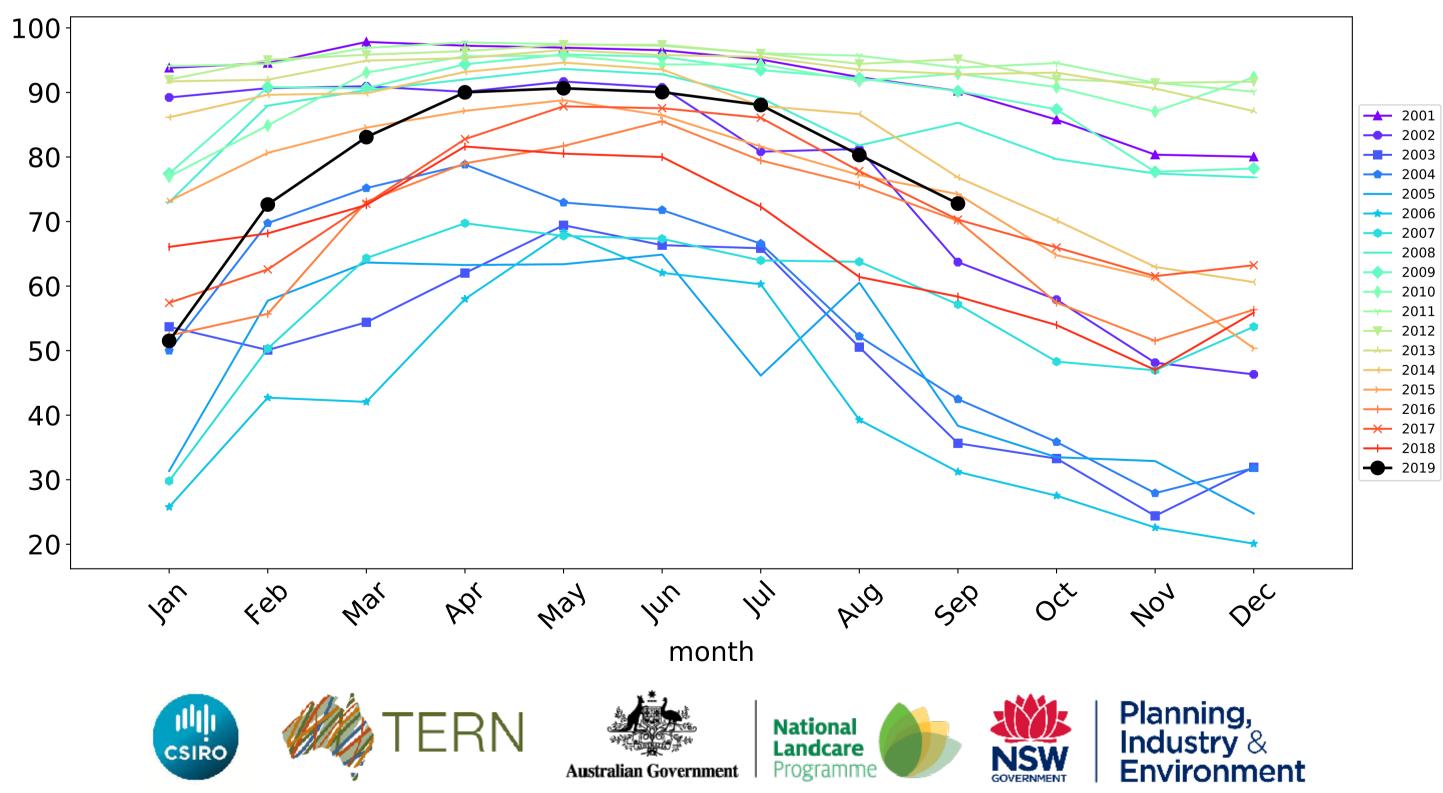




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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



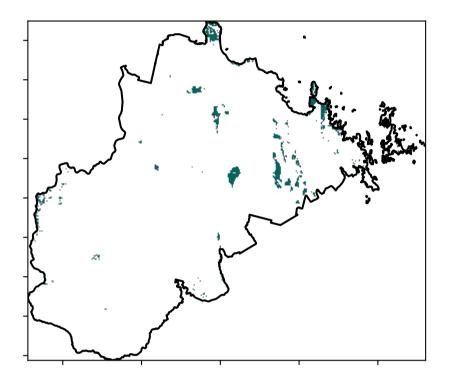


Conservation and natural environments Woodland forest

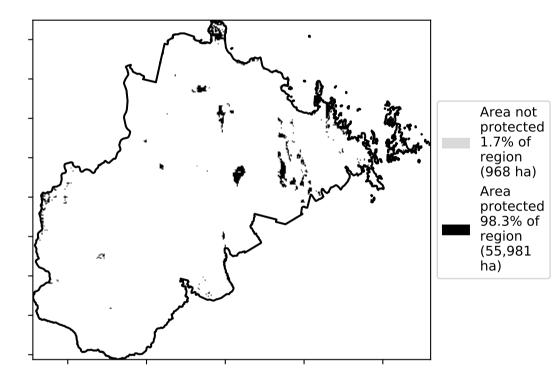
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < Conservation and natural environments – Woodland 20% tree cover, forest sparse is 20 to 50% and dense > 50% tree cover.

Total Vegetation Cover [%]

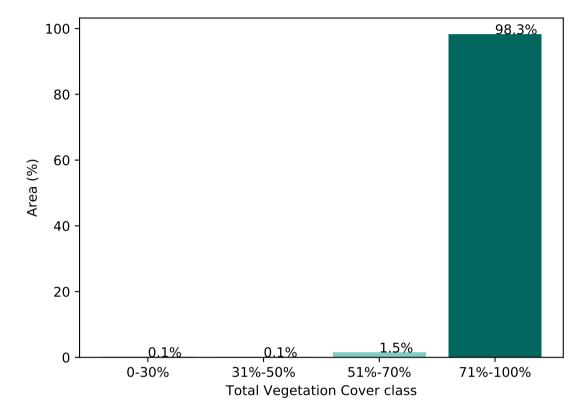
Land use and forest cover



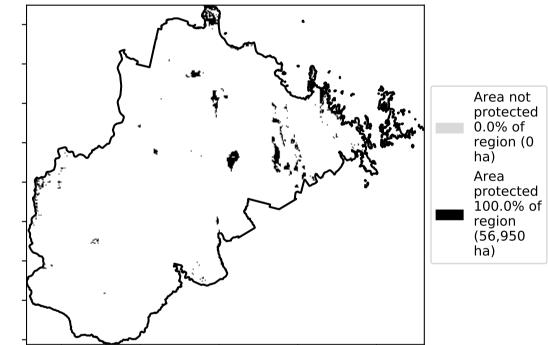
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



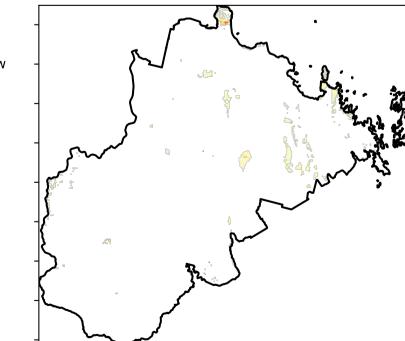
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Total Vegetation Cover Anomaly [%]



- 10 0 -10

-20

- 20

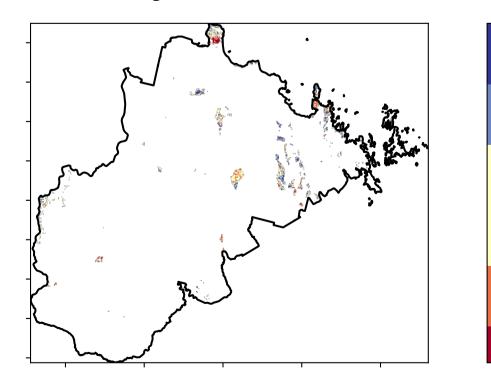
12001000

52°1070010

3201050010

0.30%

Total Vegetation Cover Decile [%]





Deciles show where the pixel value lies in the

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

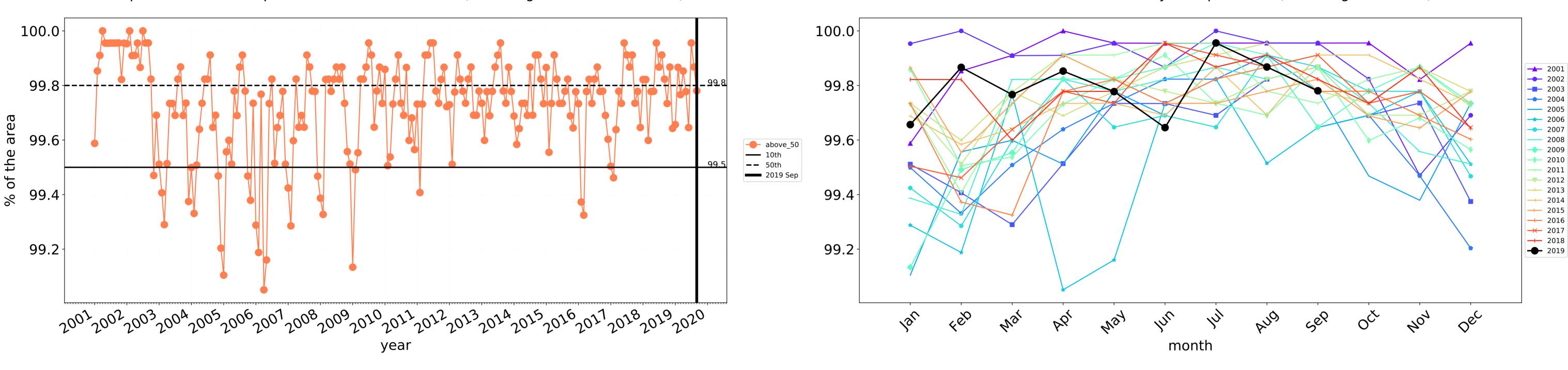
in the lowest 10% of

records for that month of

the map using baseline from 2001 to 2019.

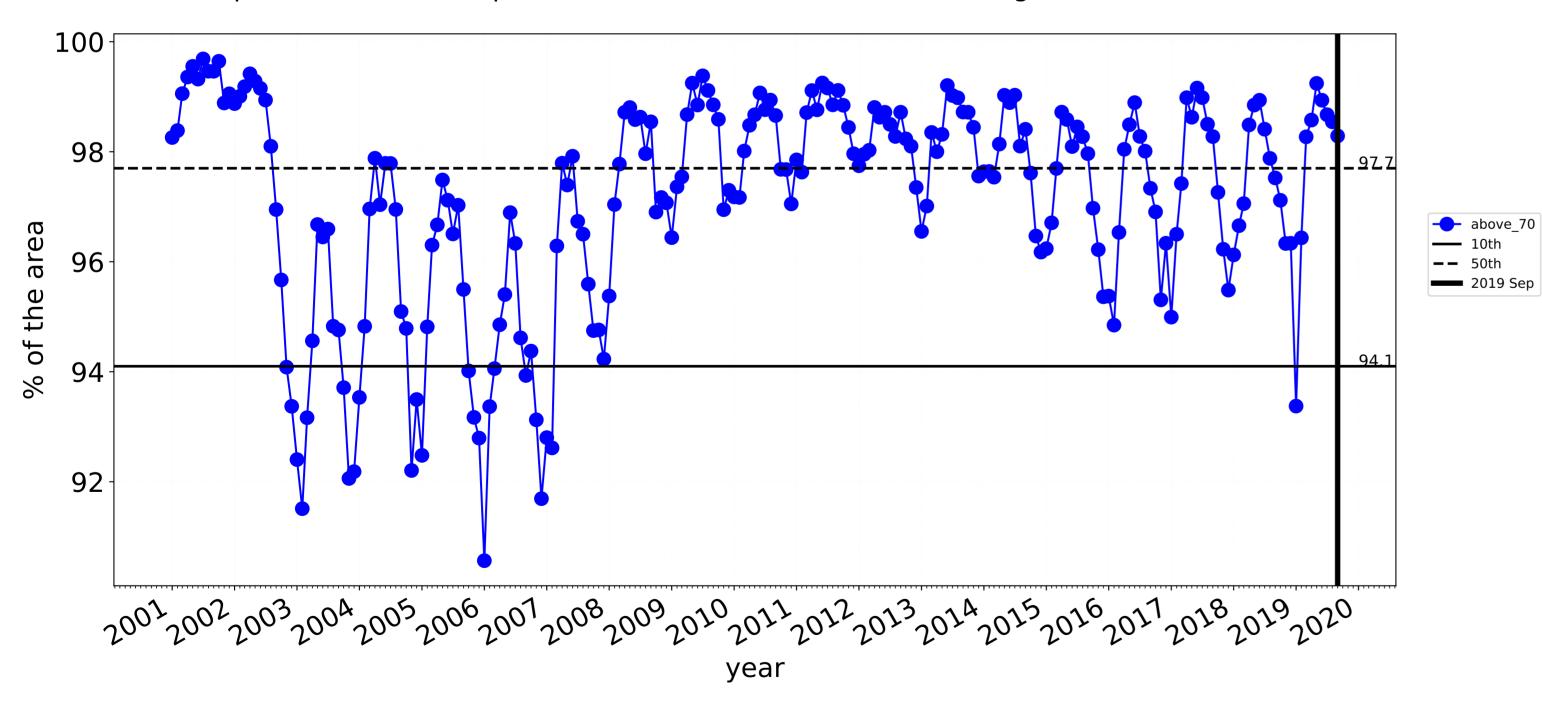
Anomaly show how many percetage points each pixel is from the mean That the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the map from 2001 to 2019.

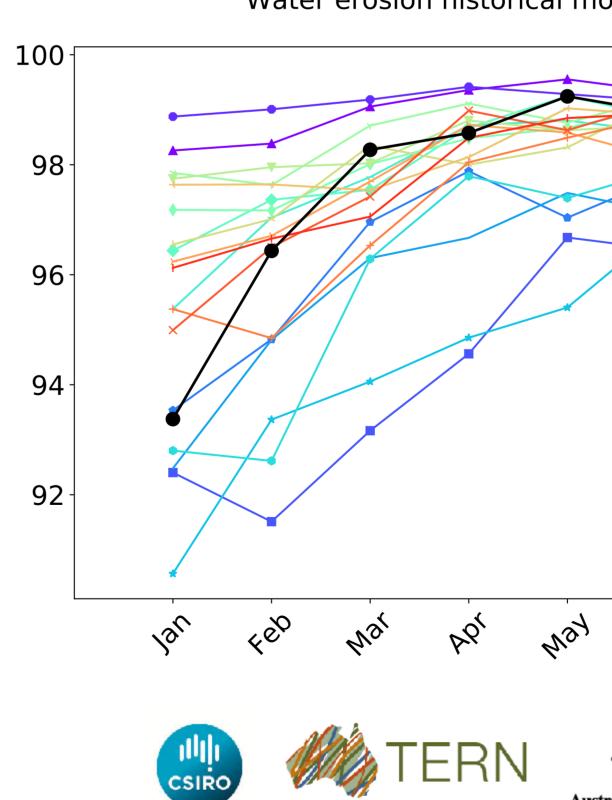




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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





CSIRC

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

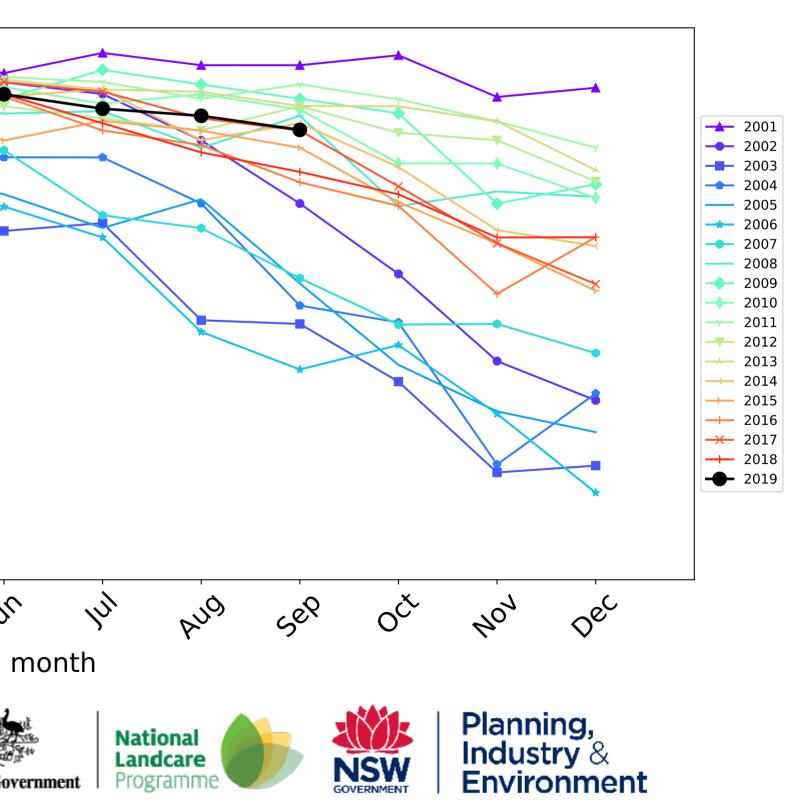
9

In

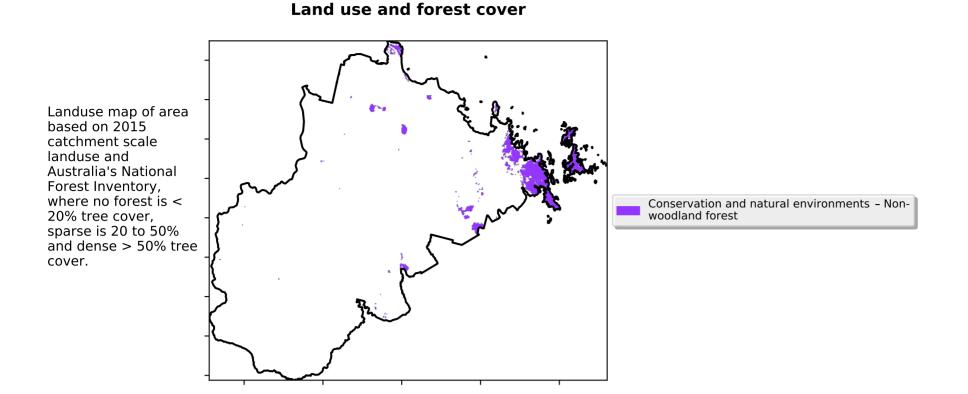
Australian Government

Programme

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



Conservation and natural environments Forest (non woodland)



12% 10°10°%

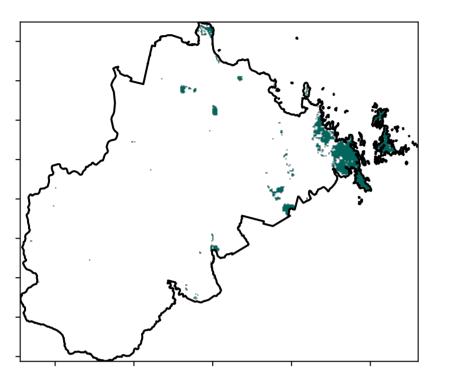
· 52°1070°10

500%

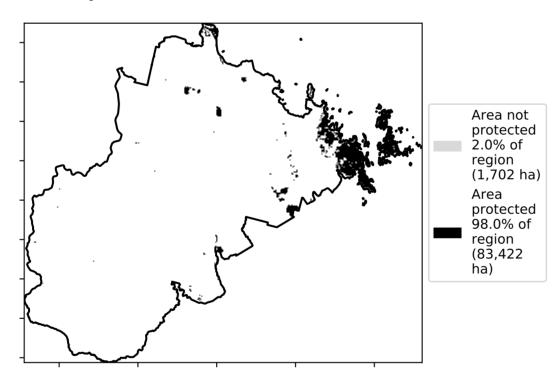
32010

0.30%

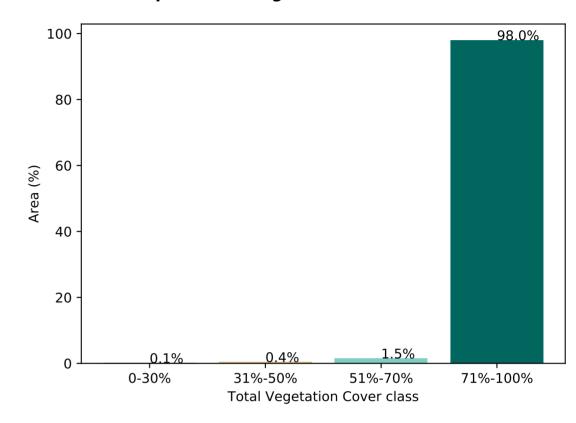
Total Vegetation Cover [%]



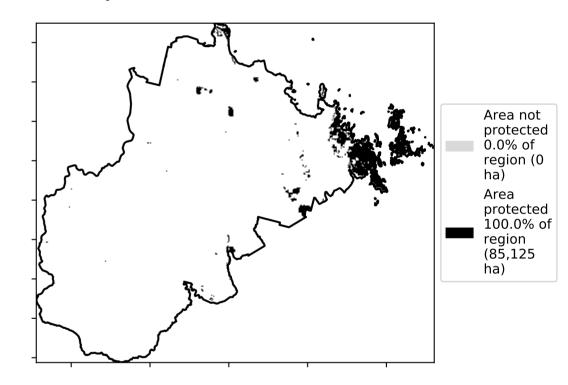
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

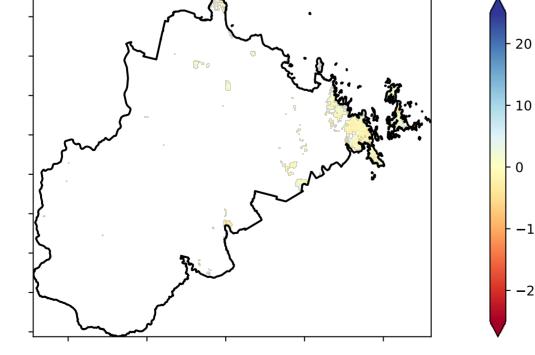


% Area protected from wind erosion (>50%)



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.



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.

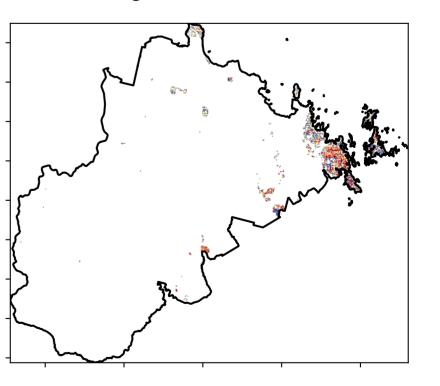
Total Vegetation Cover Decile [%]

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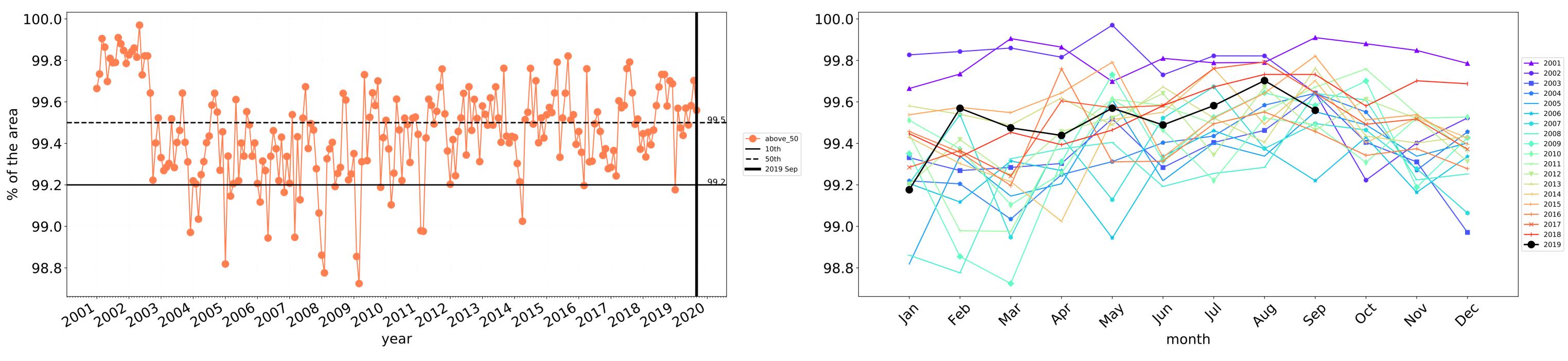
- 10

0

-10

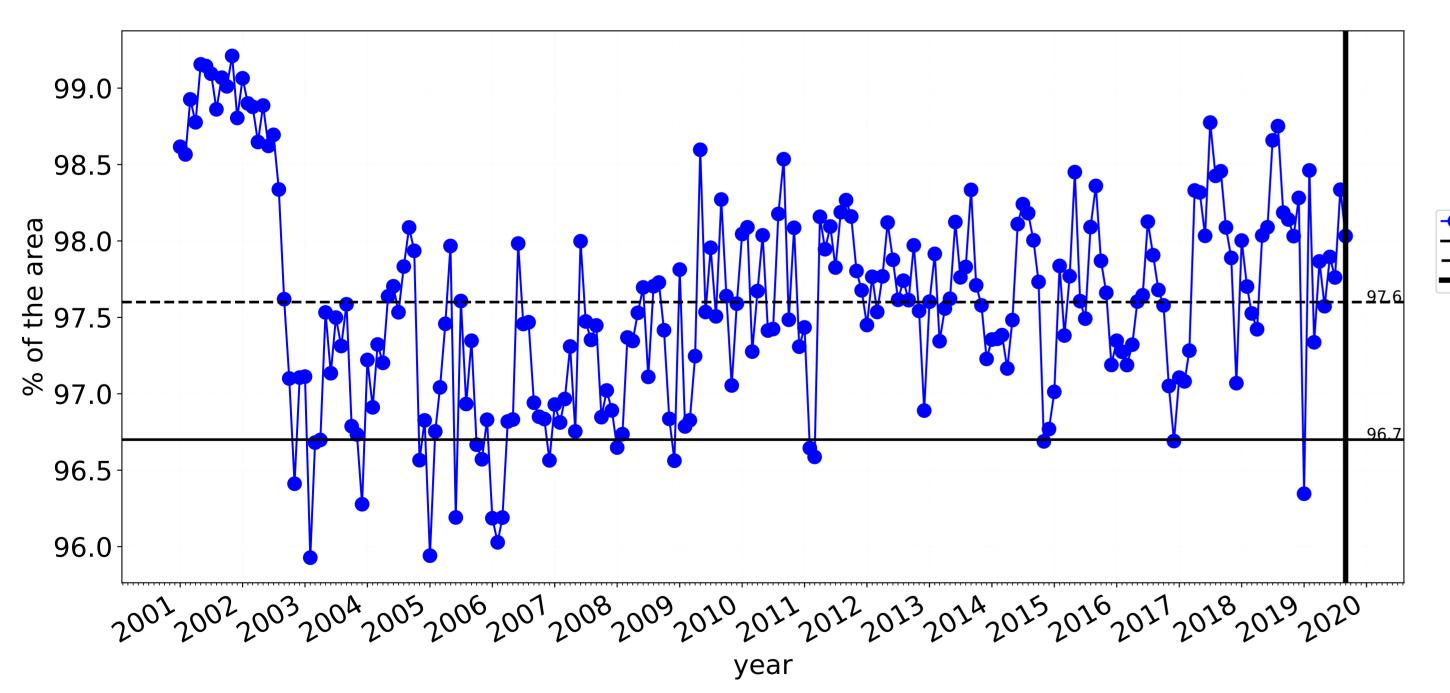
-20

Conservation and natural environments Forest (non woodland) timeseries



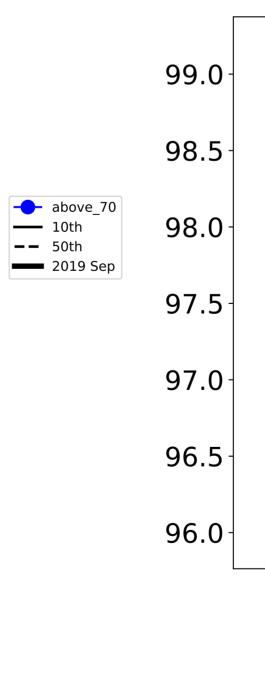
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

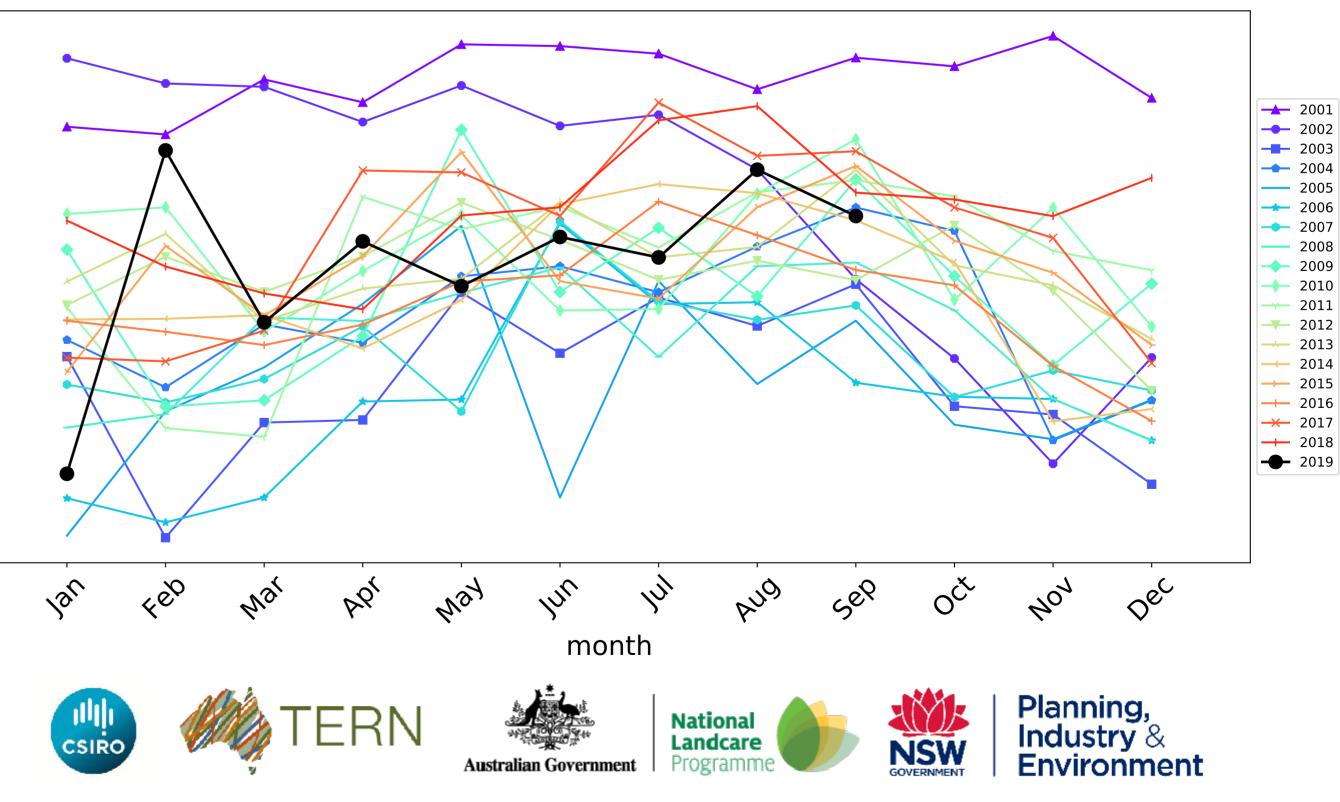
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



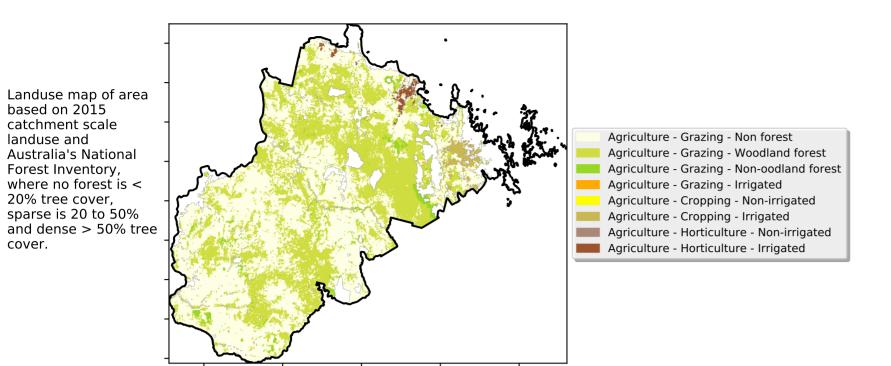


Wind erosion historical monthly area protected (Total Veg Cov >50%)



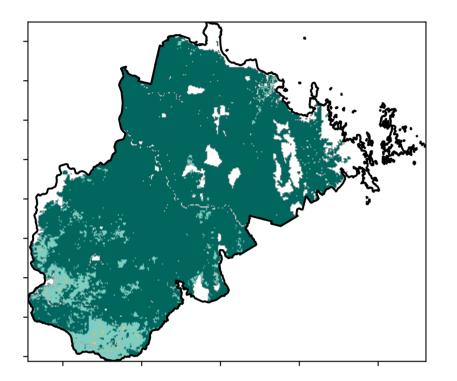


Agriculture

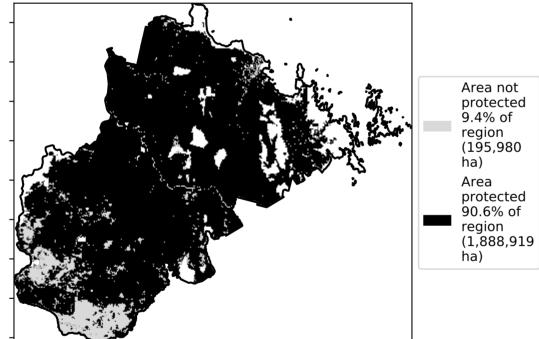


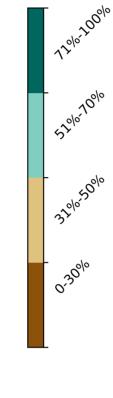
Total Vegetation Cover [%]

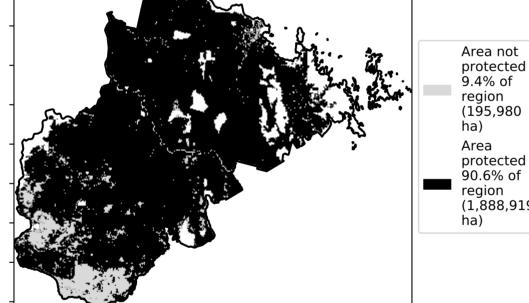
Land use and forest cover



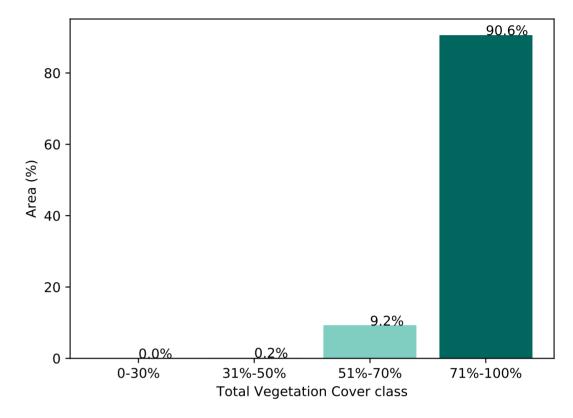
% Area protected from water erosion (>70%)



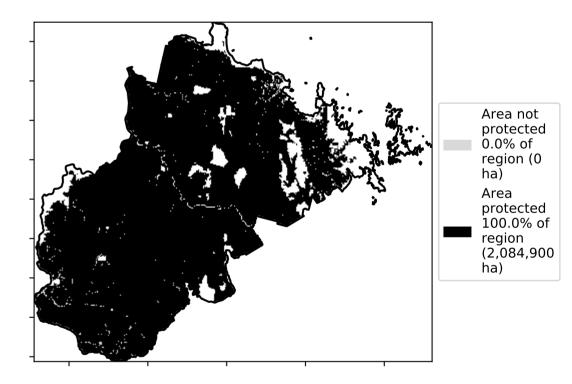








% Area protected from wind erosion (>50%)



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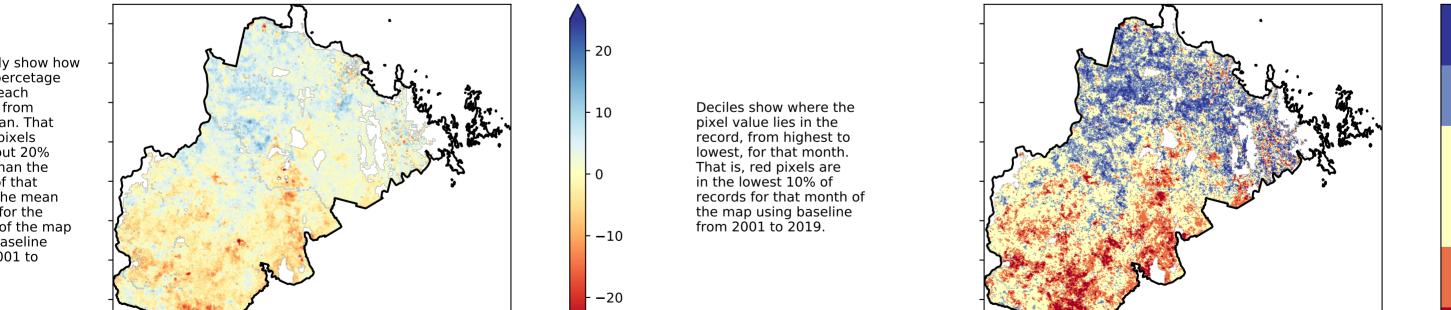
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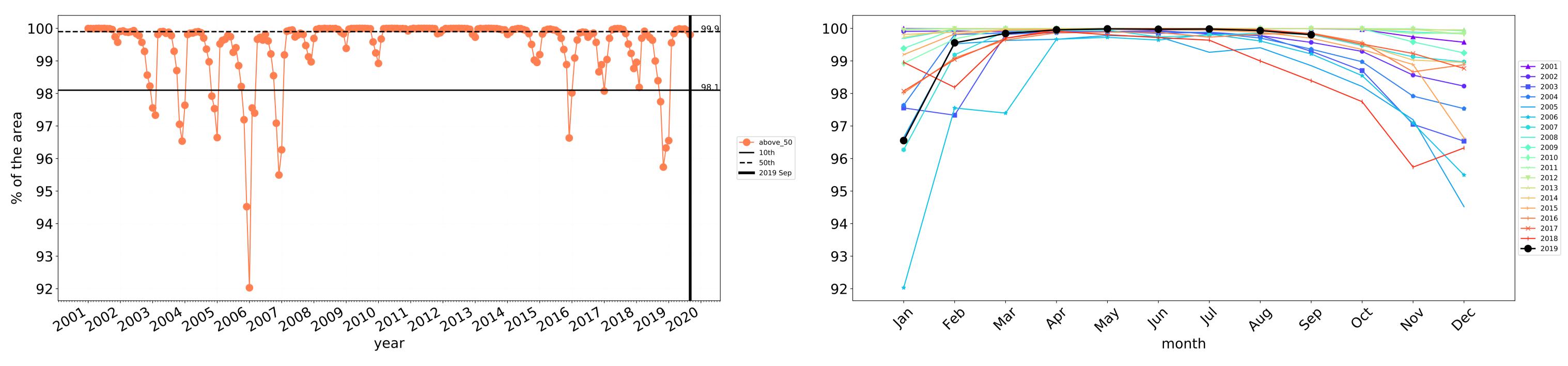
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Total Vegetation Cover Anomaly [%]

Total Vegetation Cover Decile [%]

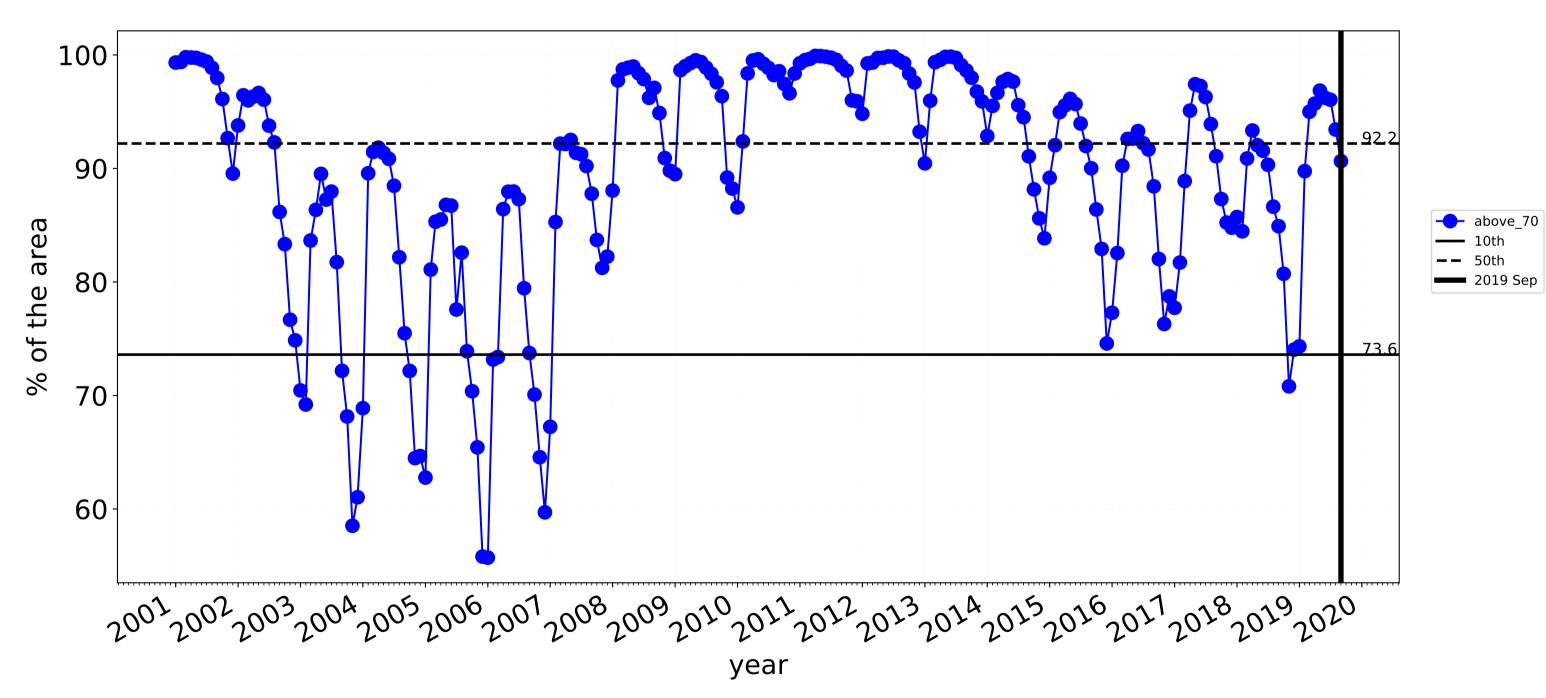






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

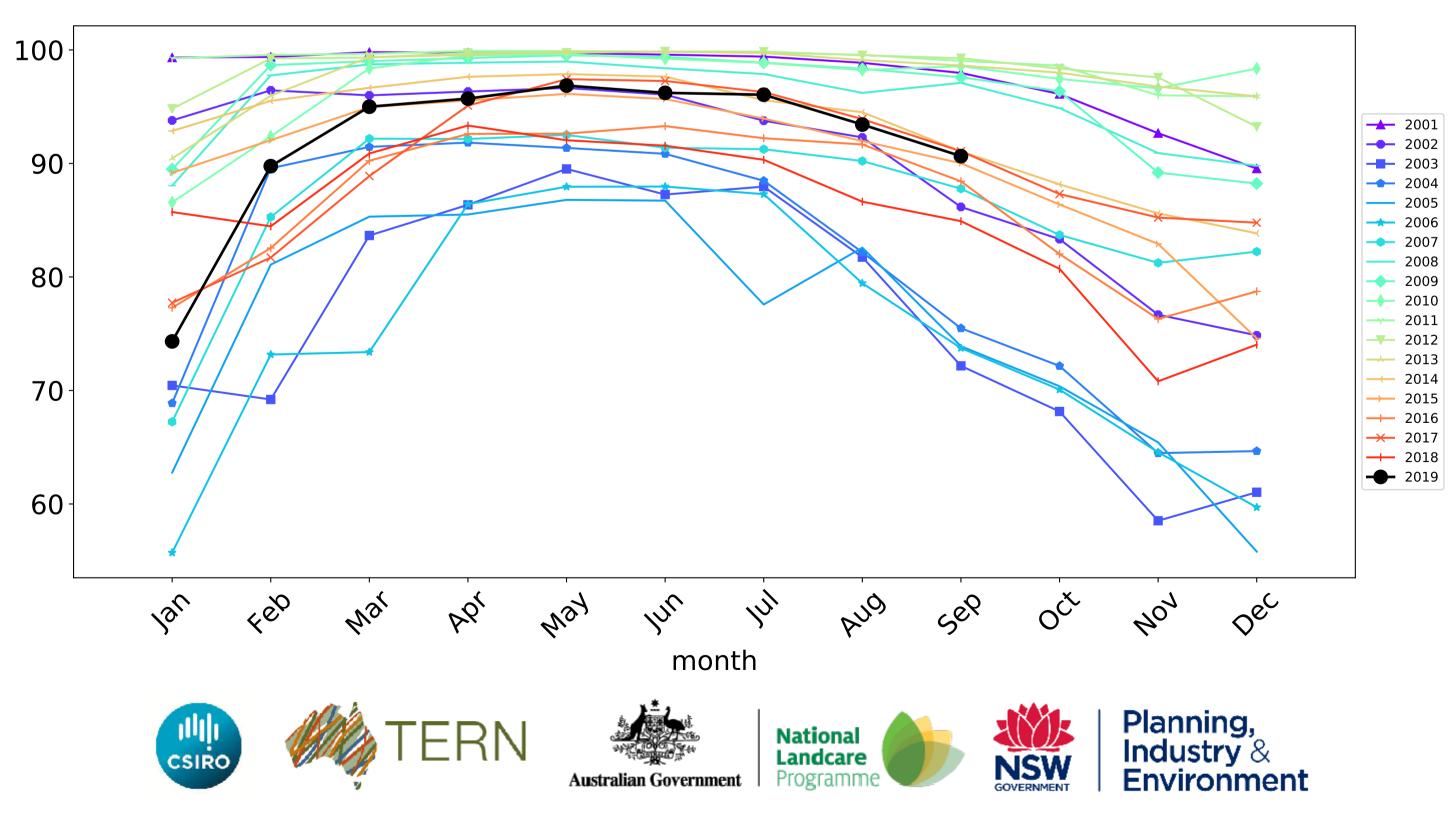
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



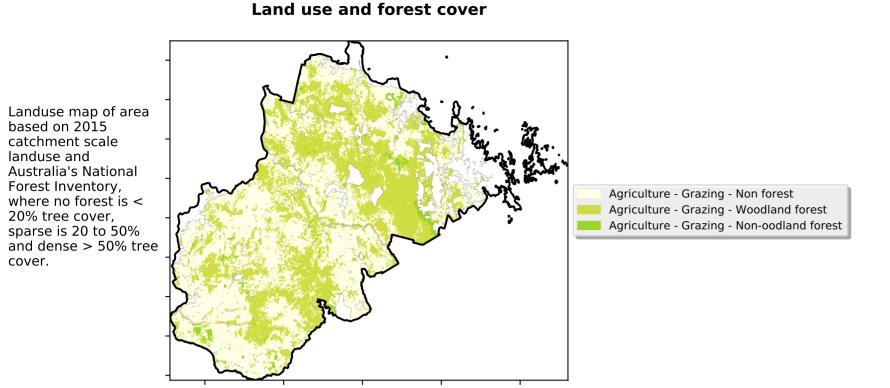
Agriculture timeseries



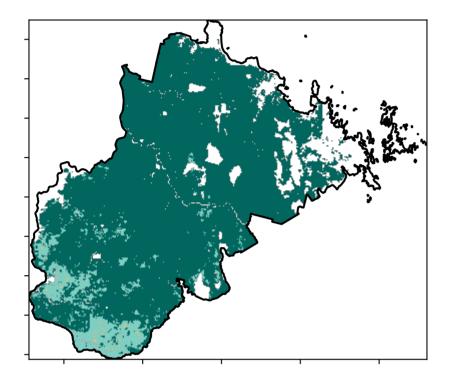
Wind erosion historical monthly area protected (Total Veg Cov >50%)



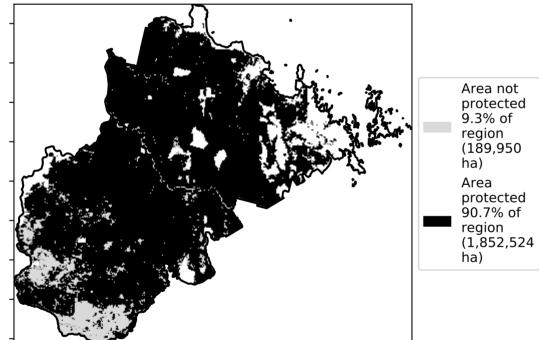
Grazing



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



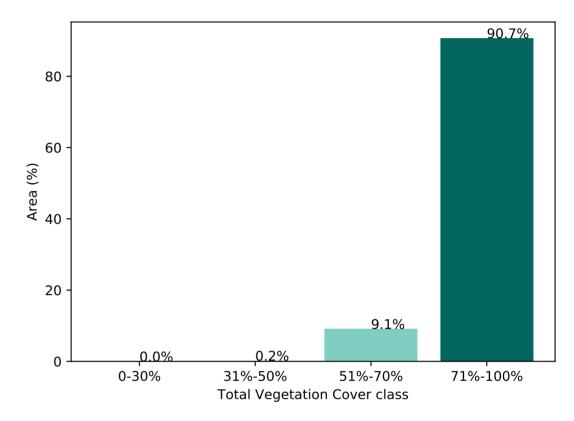
12%100%

· 52% 70%

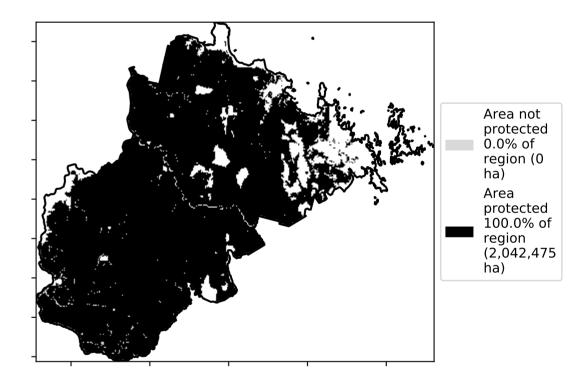
32%50%

0.30%

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



\$

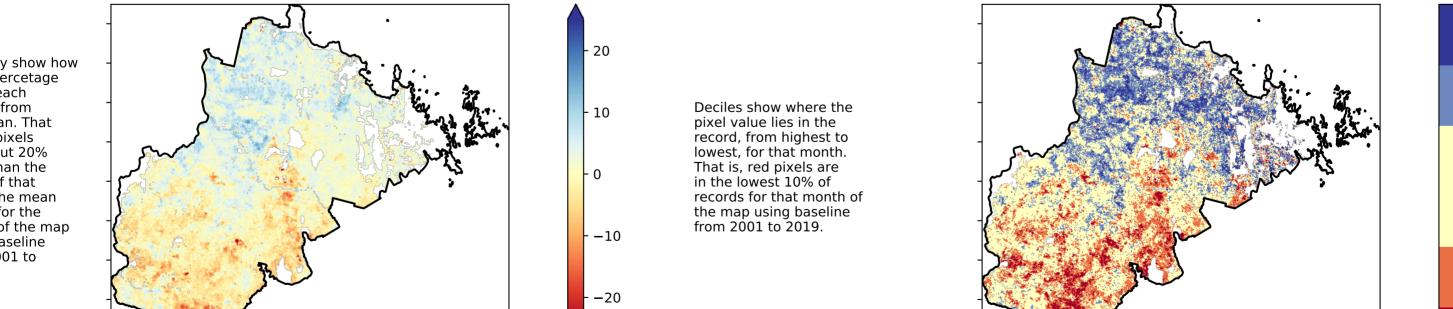
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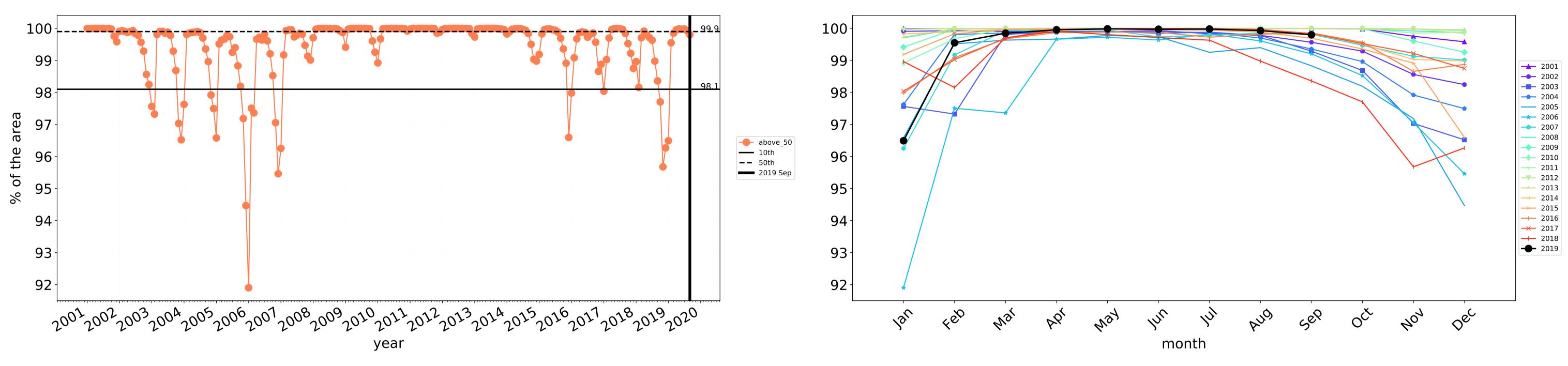
Total Vegetation Cover Anomaly [%]

Total Vegetation Cover Decile [%]



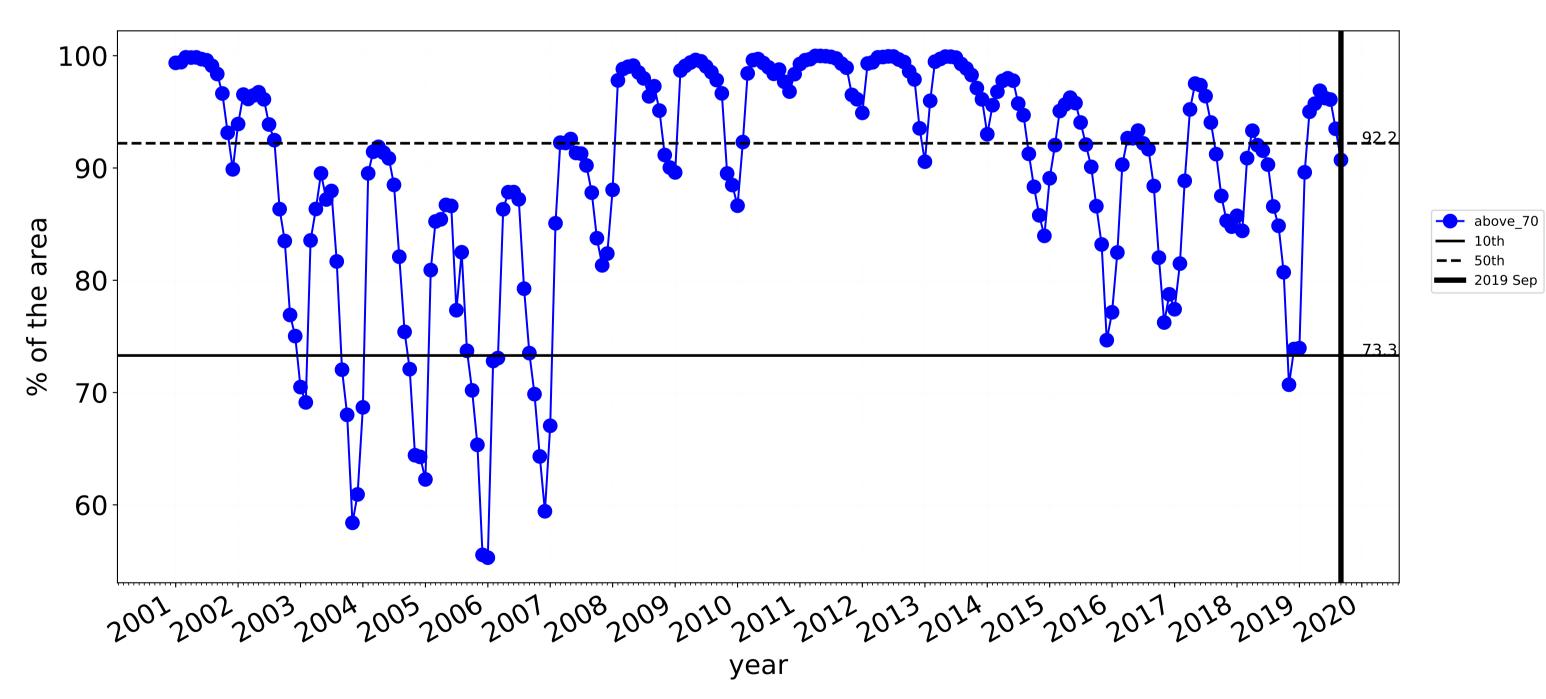






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

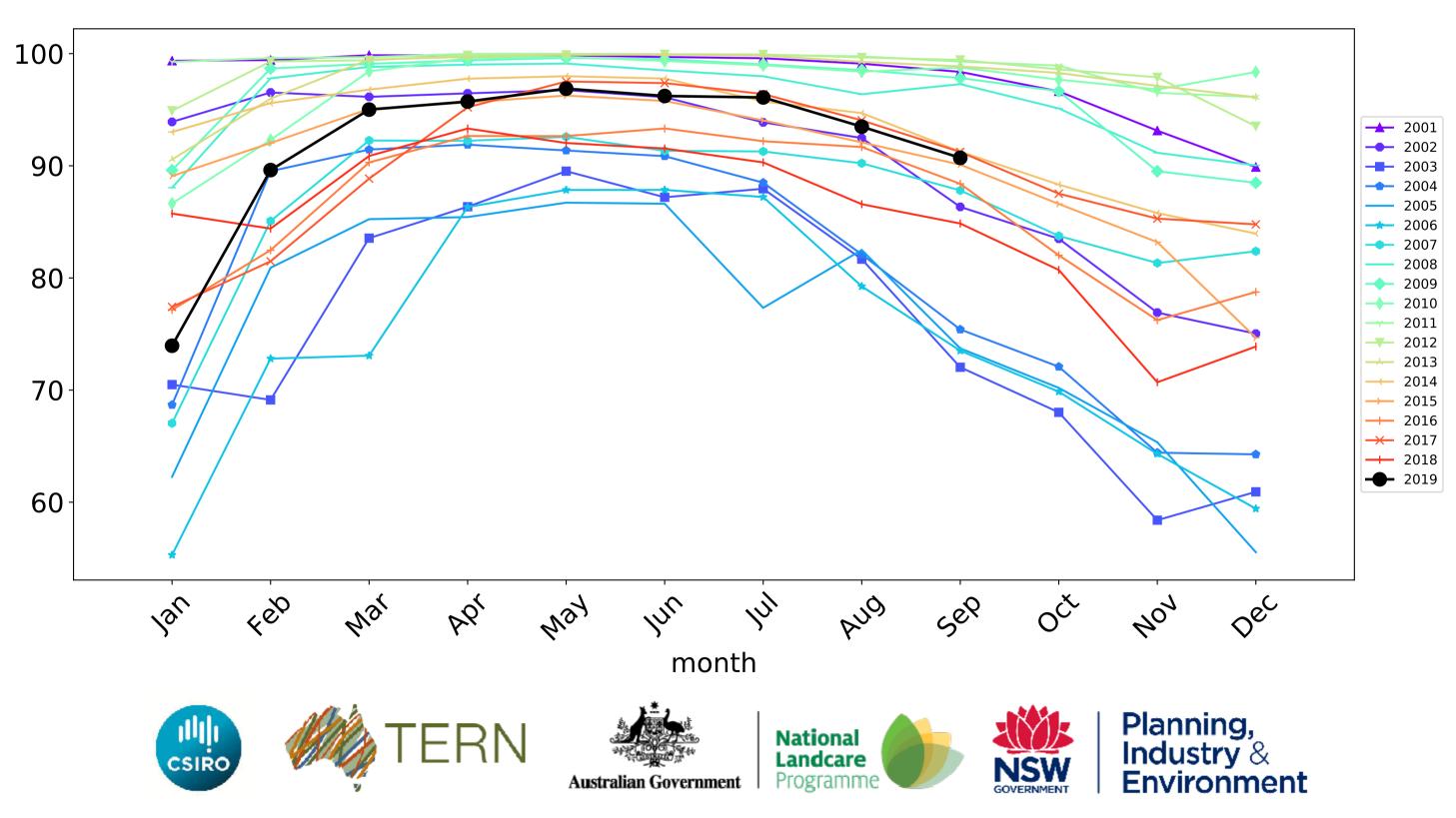
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



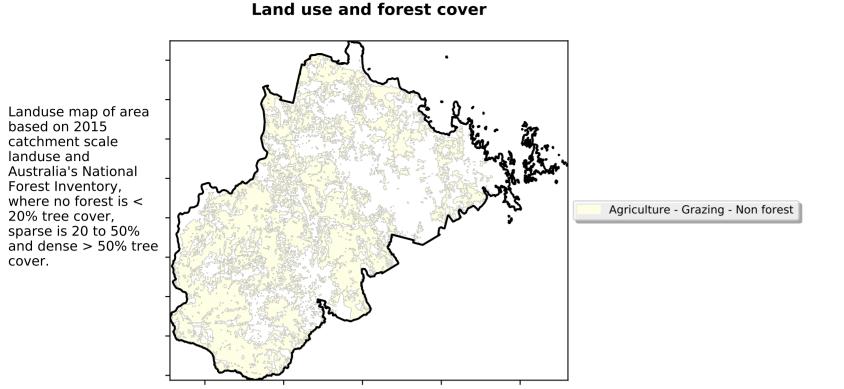
Grazing timeseries



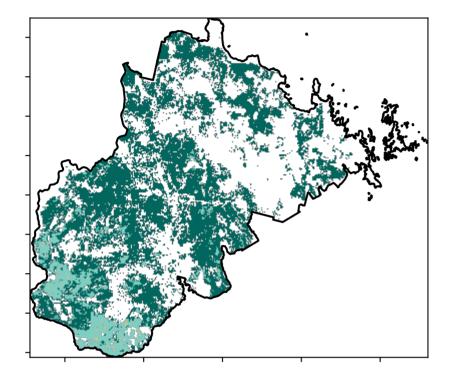
Wind erosion historical monthly area protected (Total Veg Cov >50%)



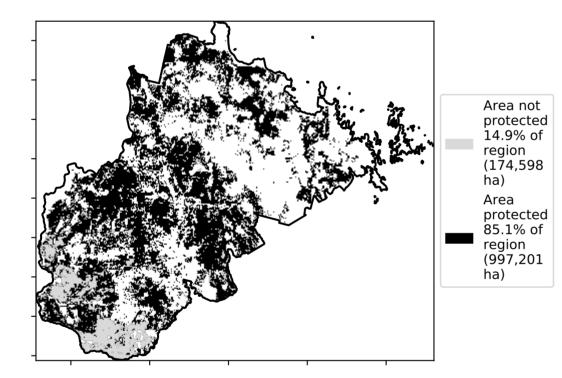
Grazing non forest



Total Vegetation Cover [%]

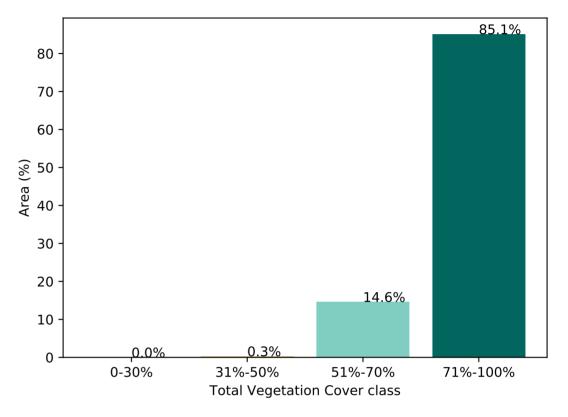


% Area protected from water erosion (>70%)

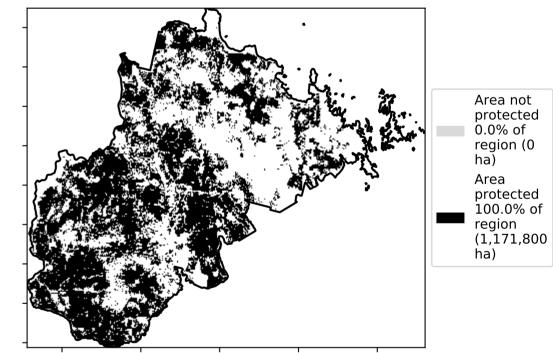


12%200% 52% 70% 32005000 0.30%

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



\$

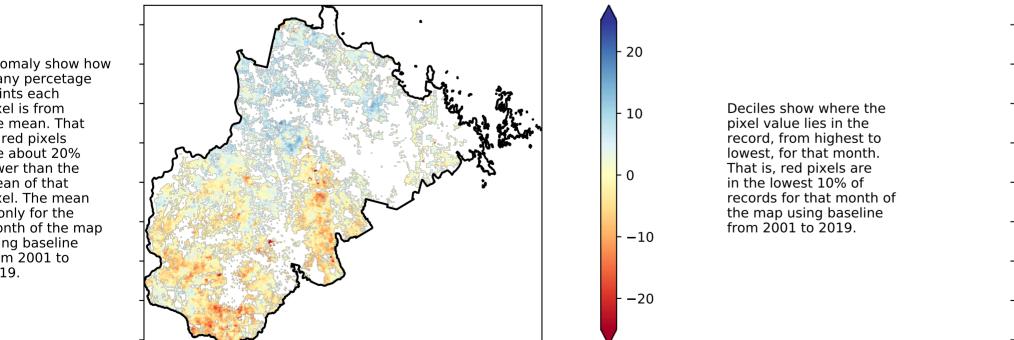
°,

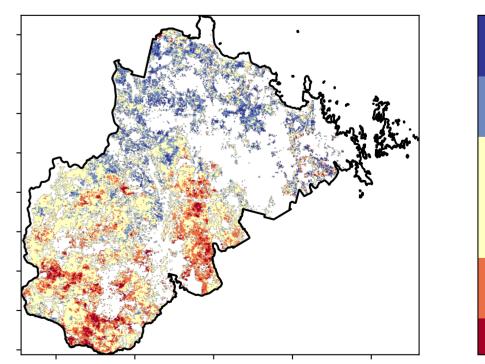
x.1

2³⁵

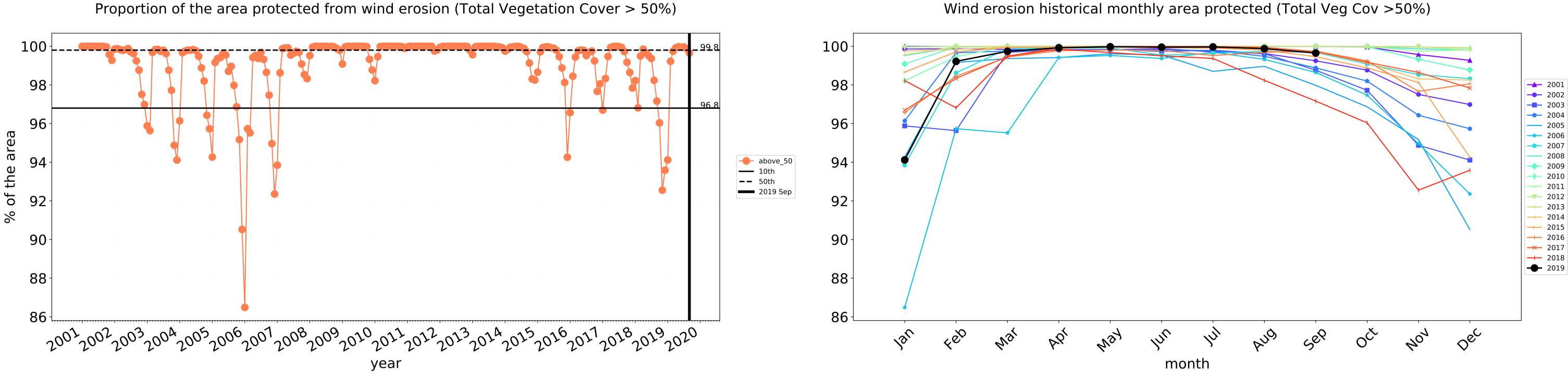
Total Vegetation Cover Anomaly [%]

Total Vegetation Cover Decile [%]



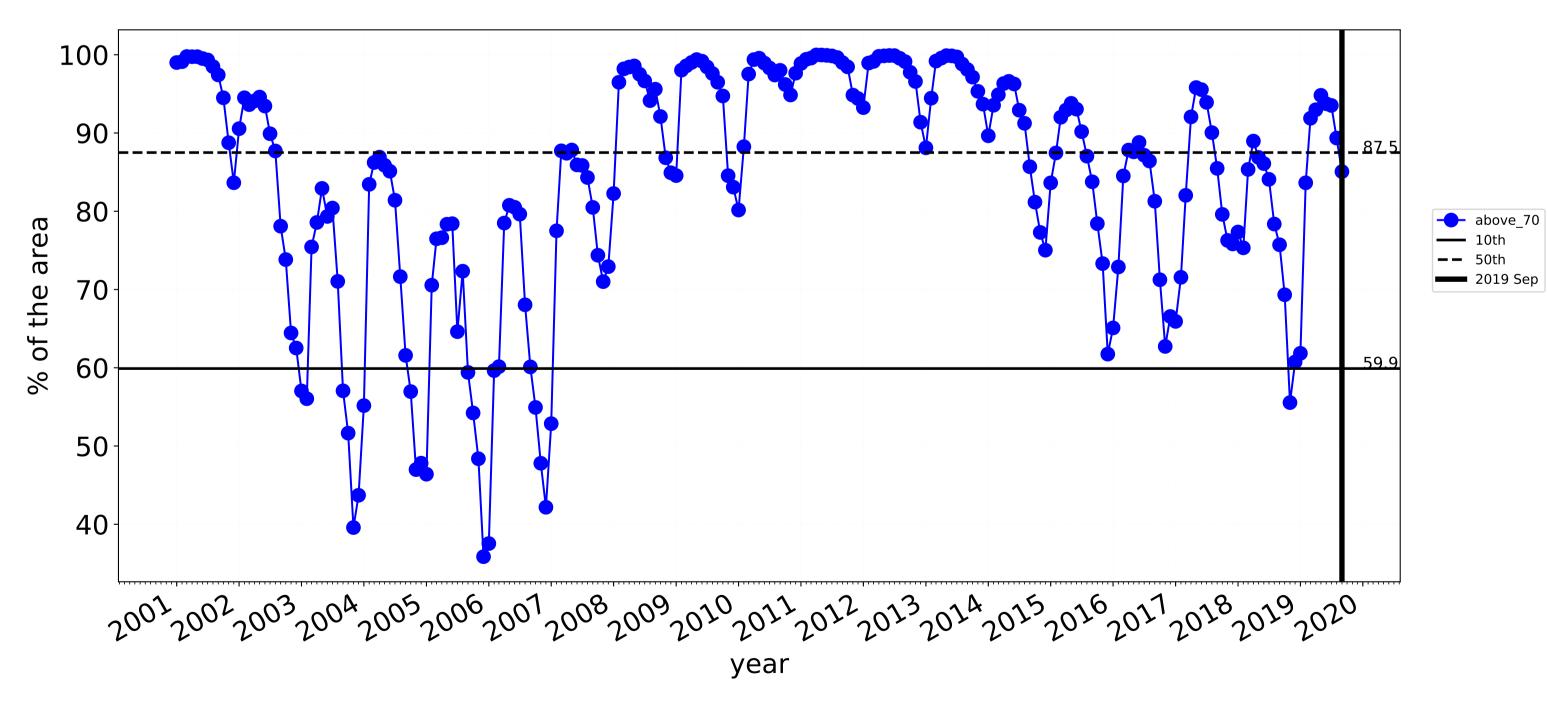




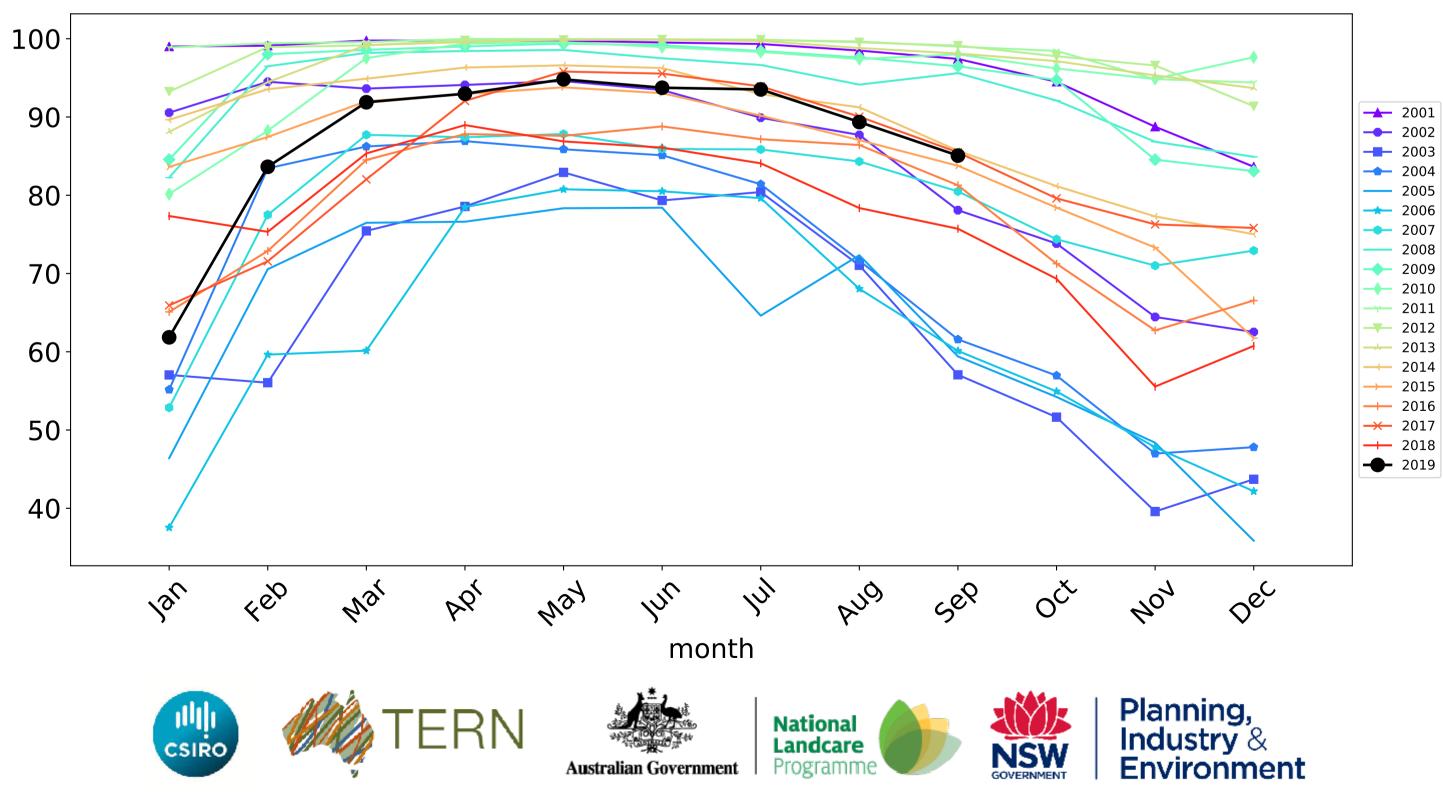


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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



Grazing non forest timeseries



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

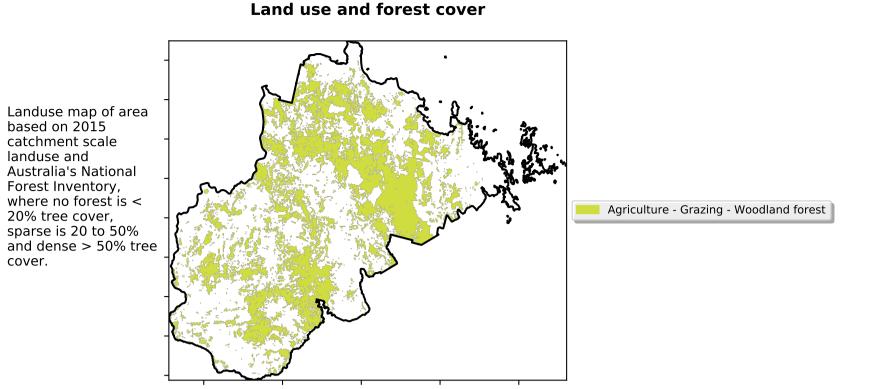
Grazing Woodland forest

12%200%

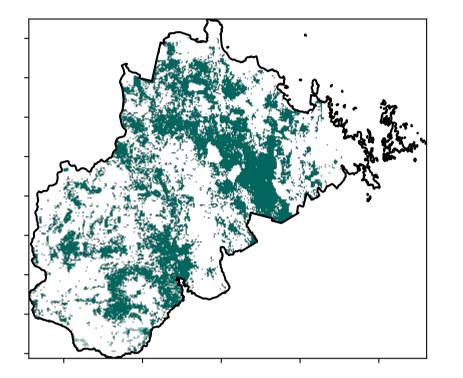
52% TON

320050010

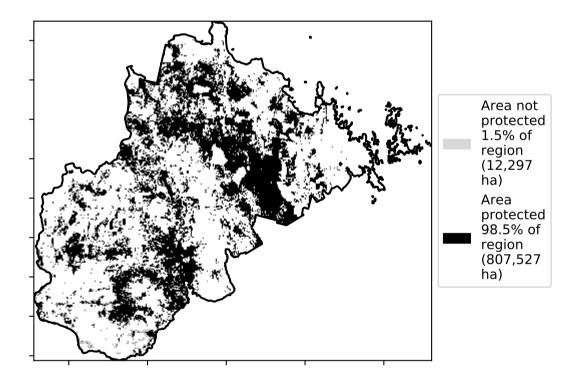
0.30%



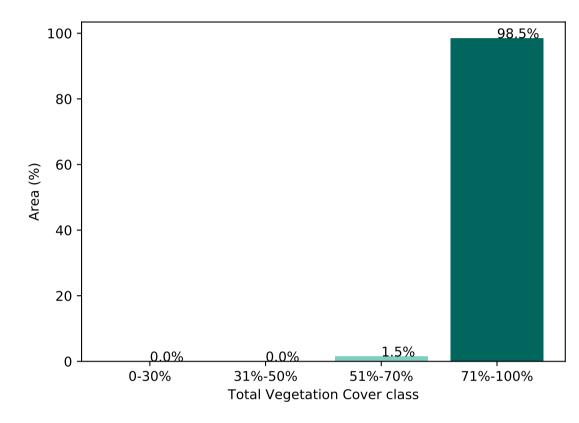
Total Vegetation Cover [%]



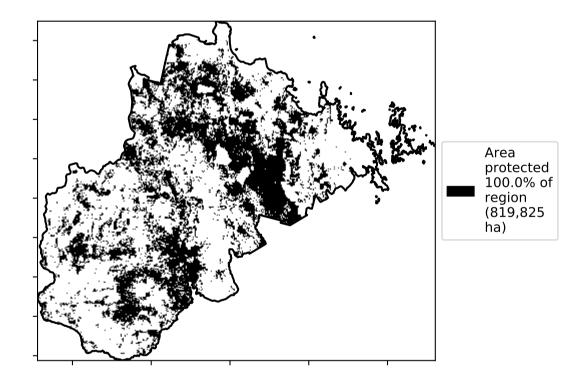
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

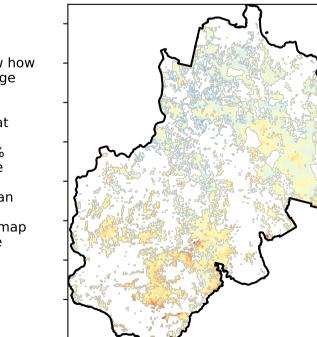


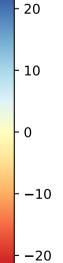
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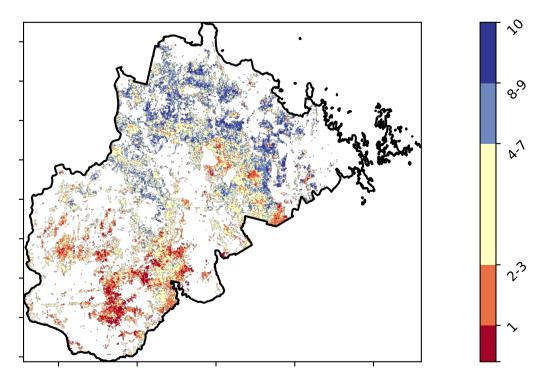
Total Vegetation Cover Anomaly [%]





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 the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]



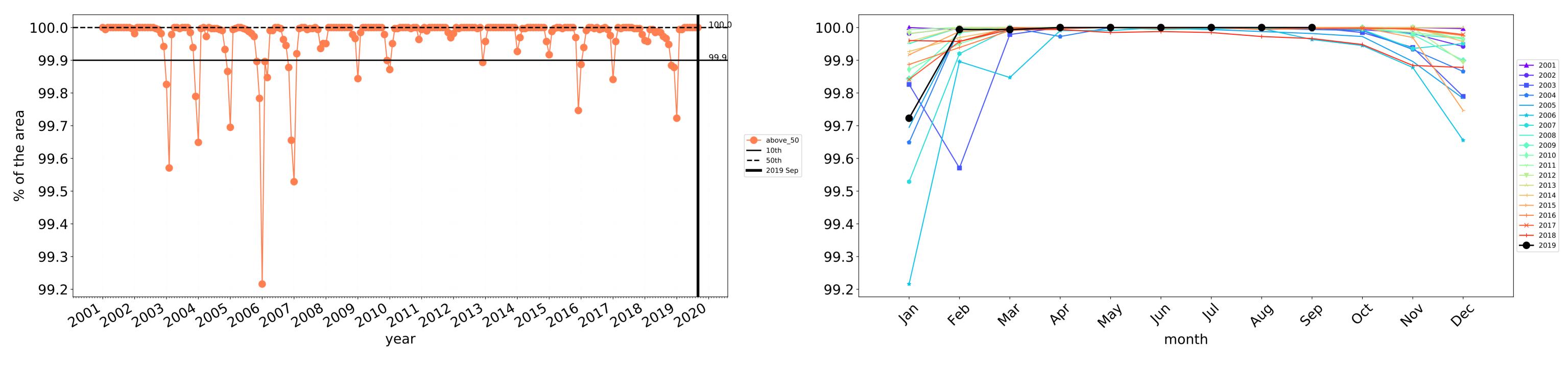


Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the lower than the mean of that pixel. The mean is only for the map using baseline from 2001 to 2019.

cover.

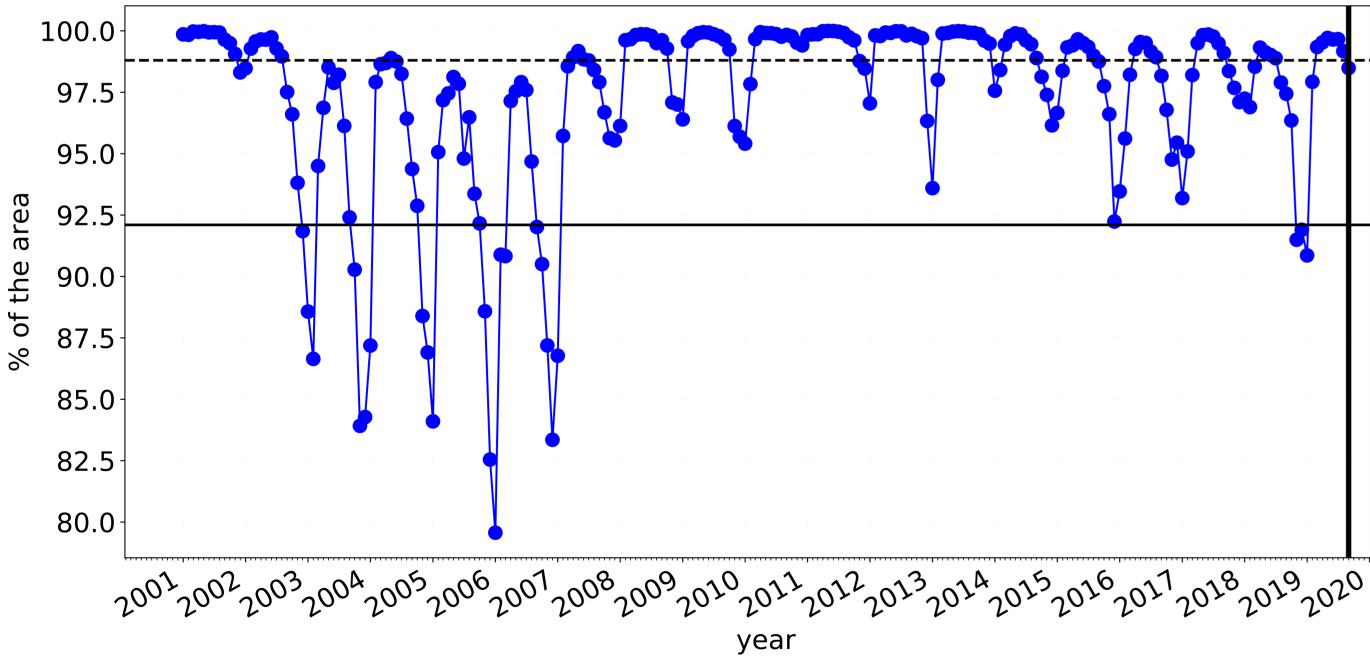


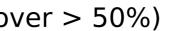
Grazing Woodland forest timeseries



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



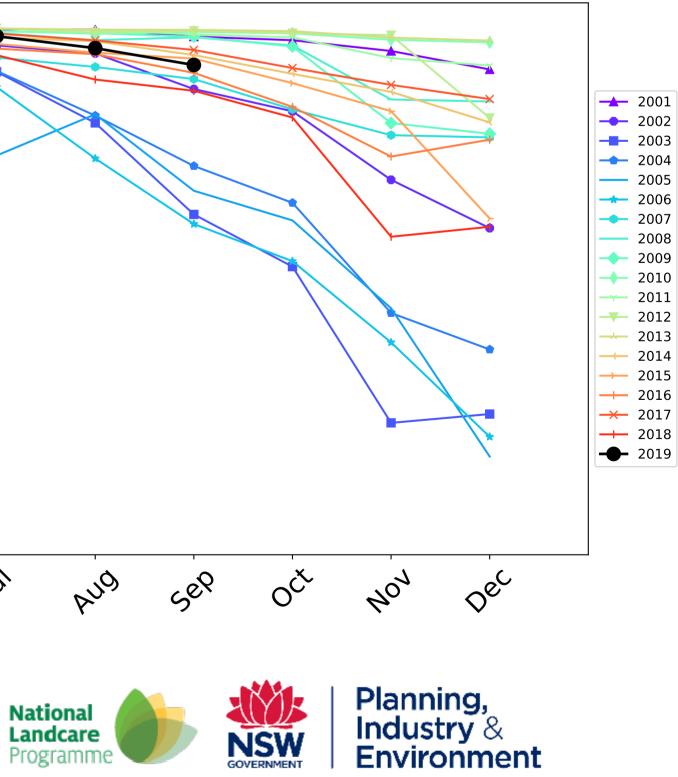




Wind erosion historical monthly area protected (Total Veg Cov >50%)

100.0 97.5⁻ 95.0 ---- above_70 92.5 **—** 10th 92 **——** 50th **——** 2019 Sep 90.0 87.5 85.0 82.5 80.0-Jan feb way In PQ 1st Mai month ERN (III) CSIRO Programme Australian Government

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



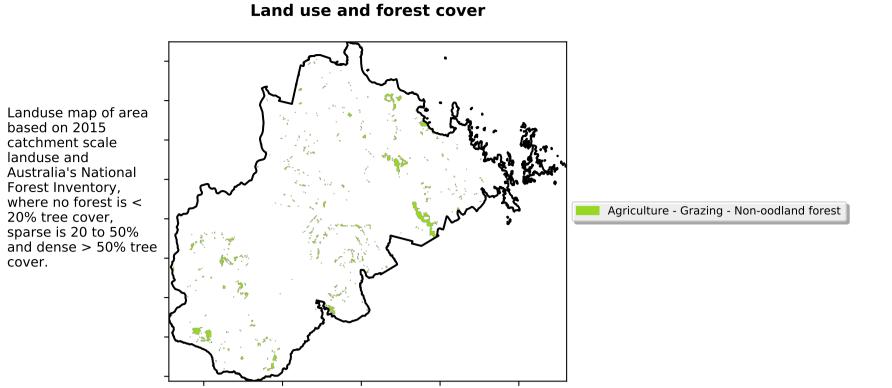
Grazing - Forest (non woodland)

· 12% 100%

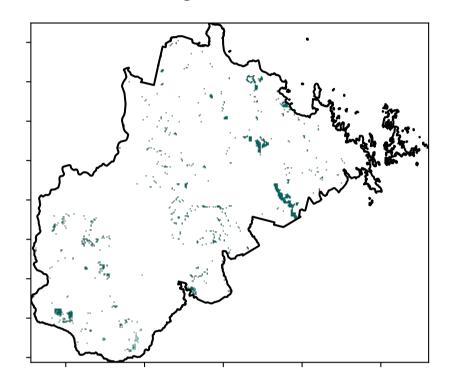
52°0070010

3201050010

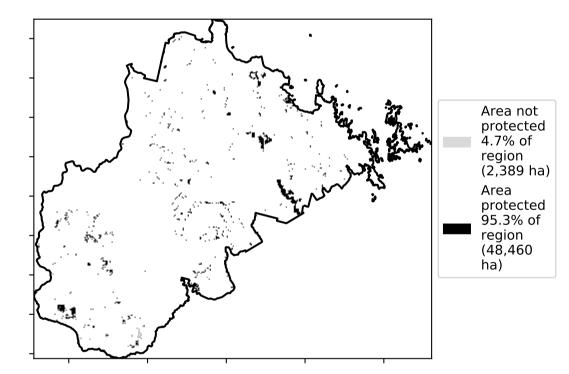
0.30%



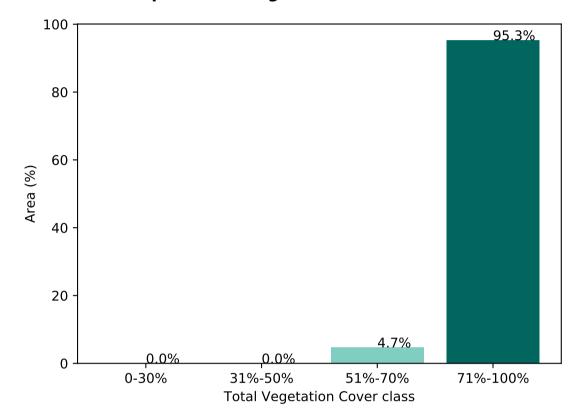
Total Vegetation Cover [%]



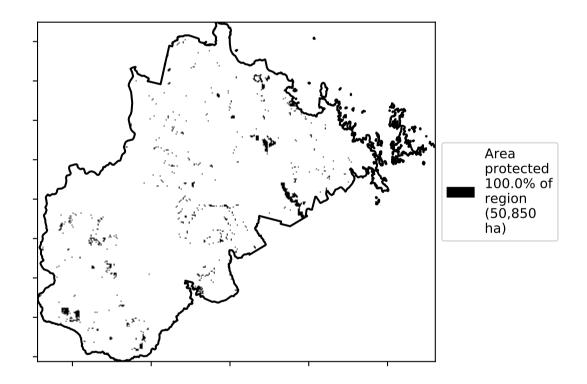
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



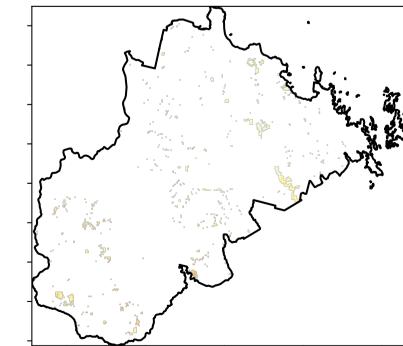
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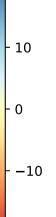
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Total Vegetation Cover Anomaly [%]

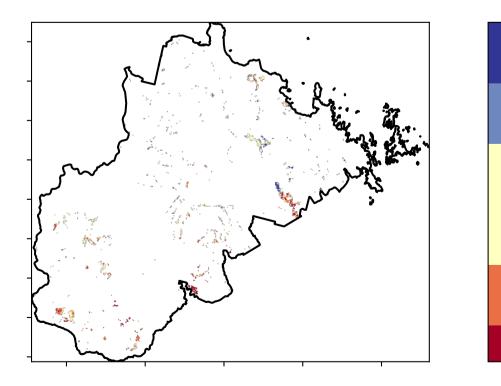




-20

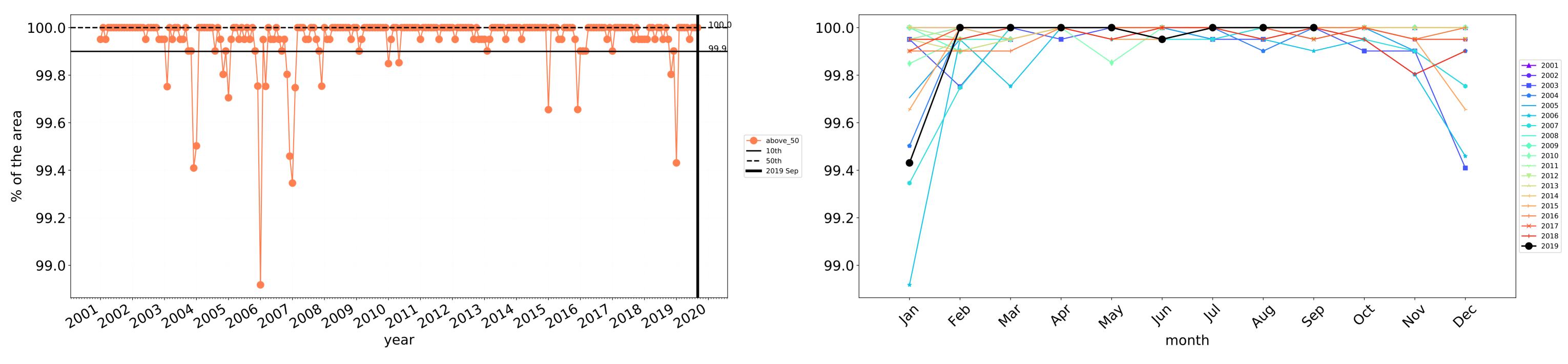
- 20

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 [%]**



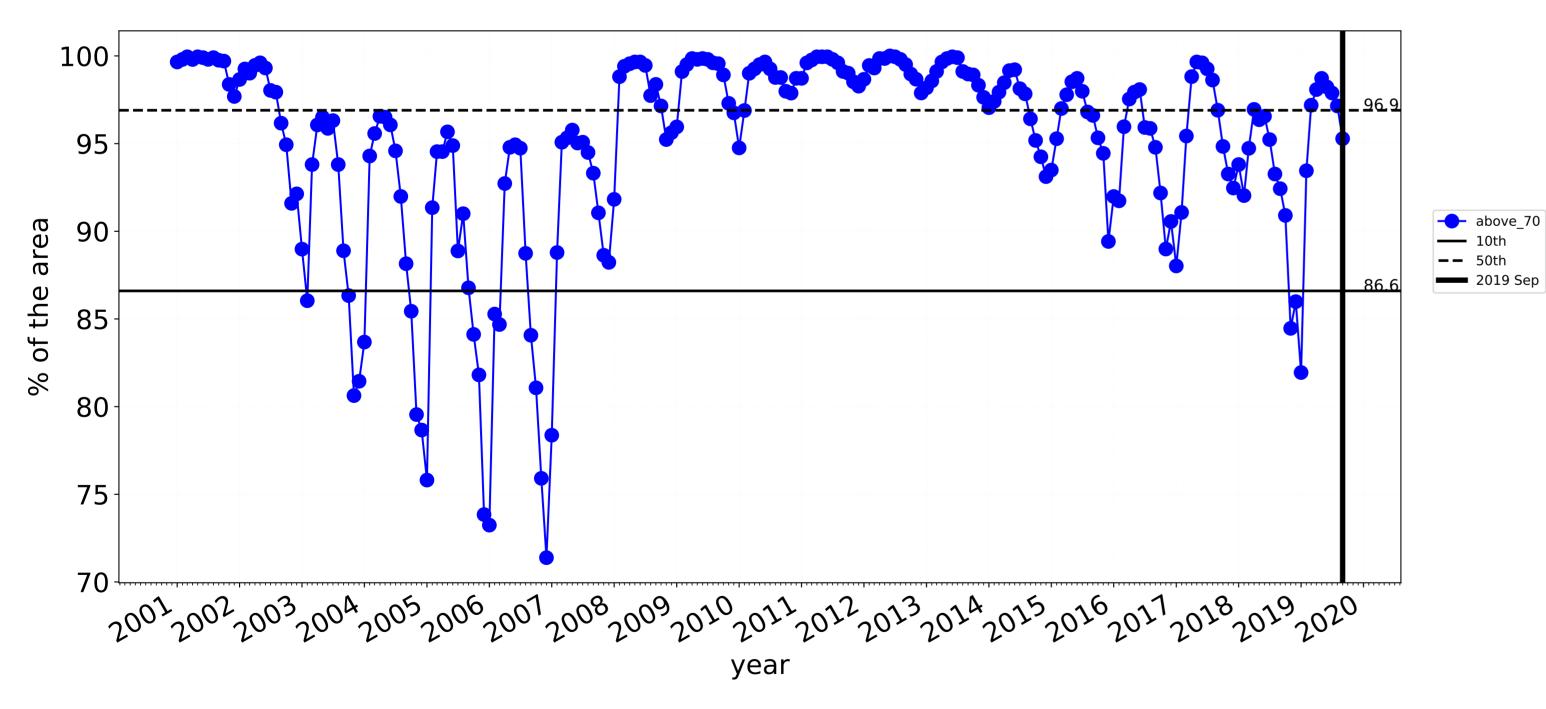


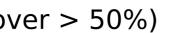
Grazing - Forest (non woodland) timeseries



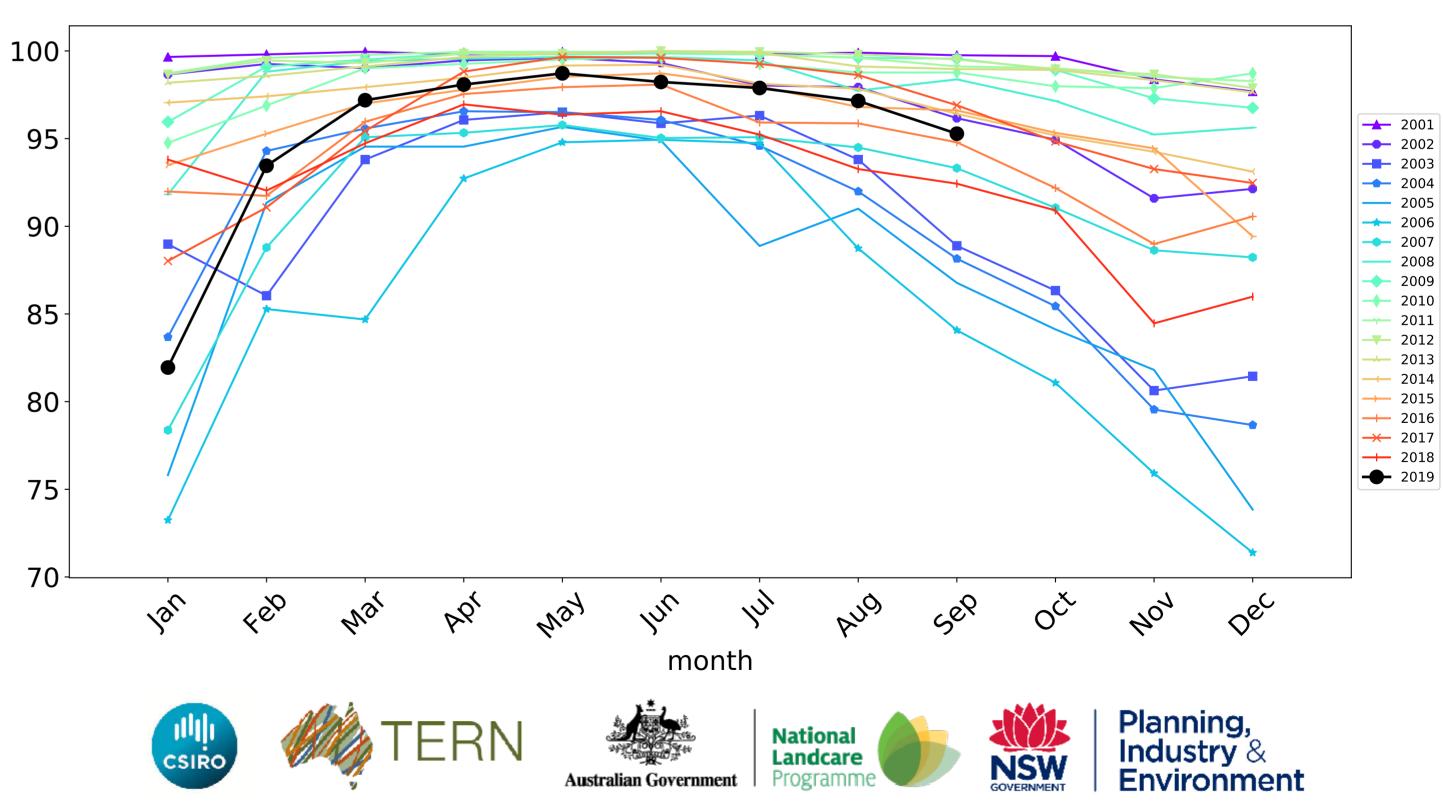
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

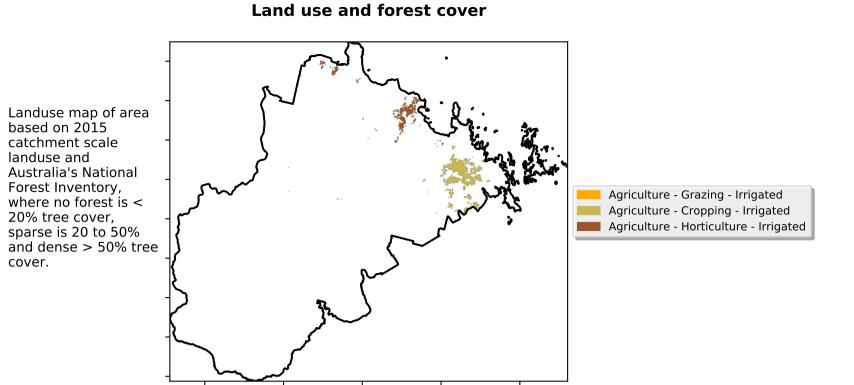




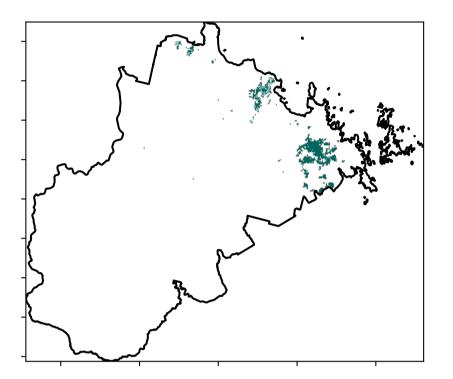
Wind erosion historical monthly area protected (Total Veg Cov >50%)



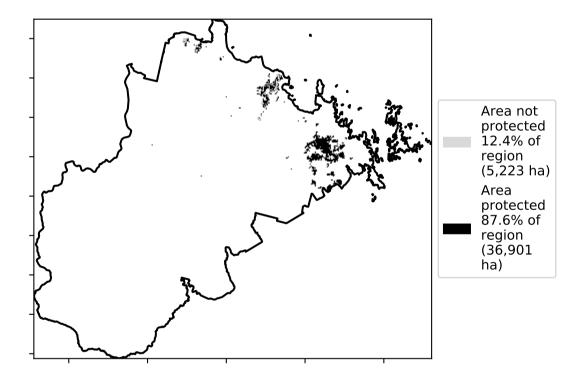
Irrigation



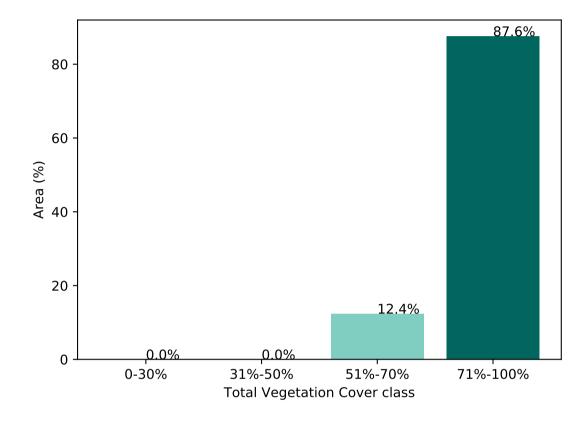
Total Vegetation Cover [%]



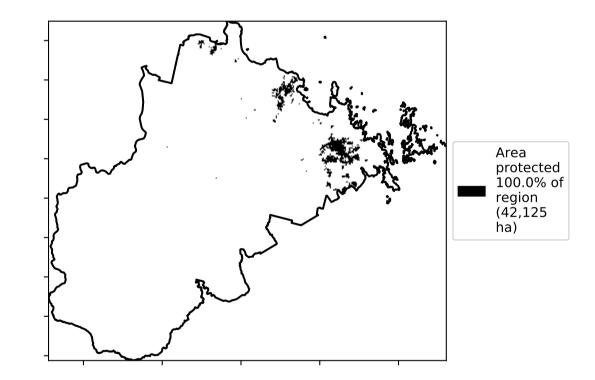
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



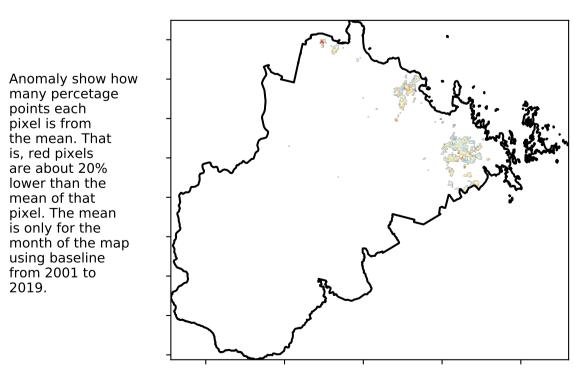
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Total Vegetation Cover Anomaly [%]



is, red pixels

mean of that

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. -10

- 20

- 10

0

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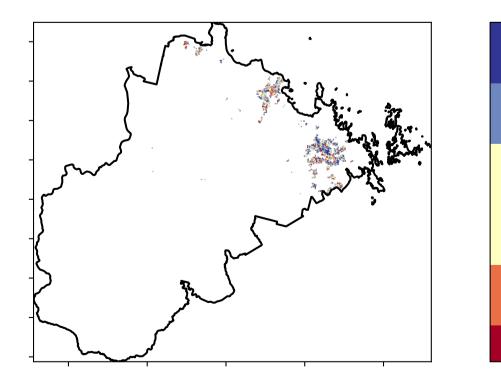
12% 100°1

52°10'70°10

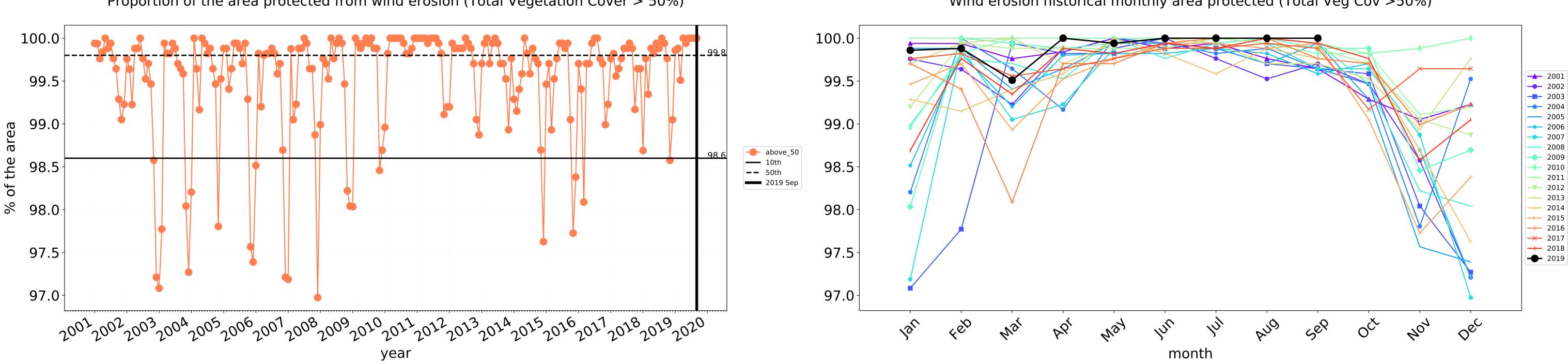
320050010

0.30%

Total Vegetation Cover Decile [%]

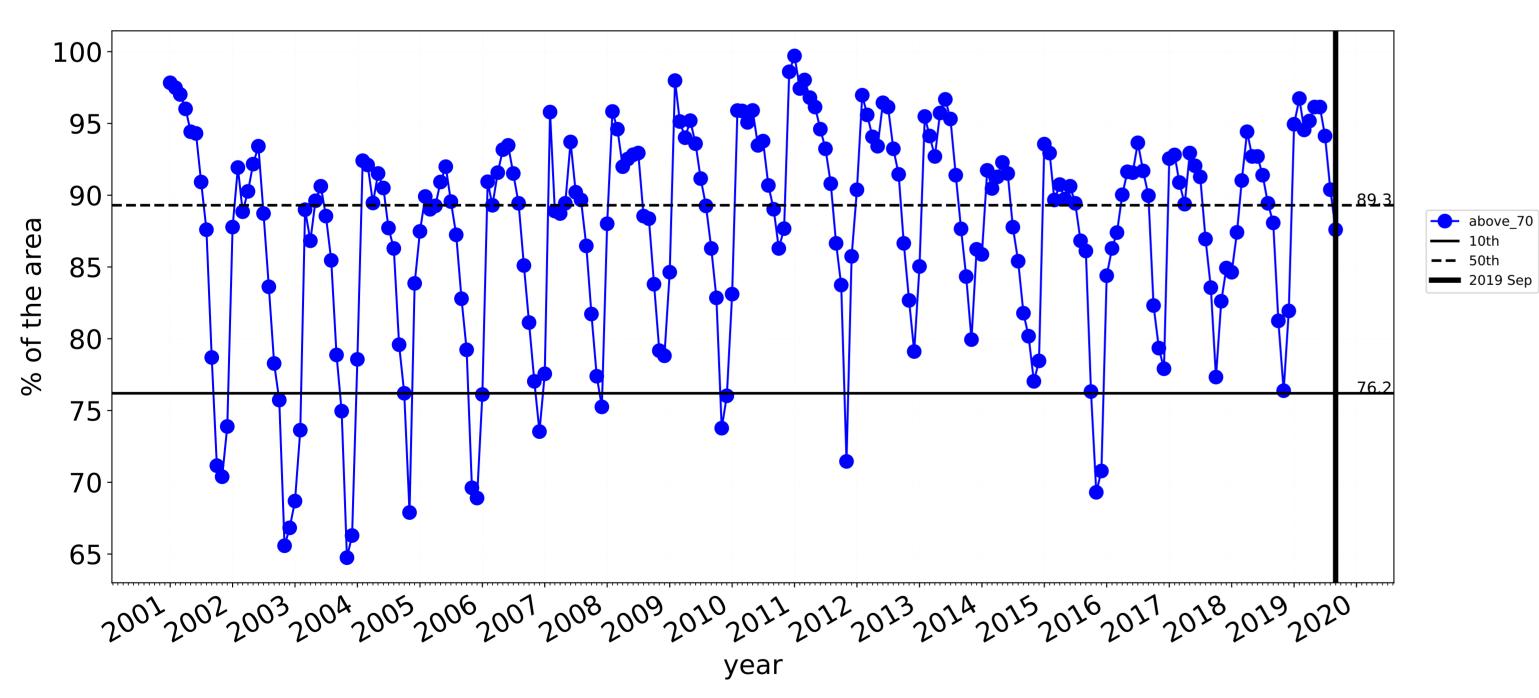






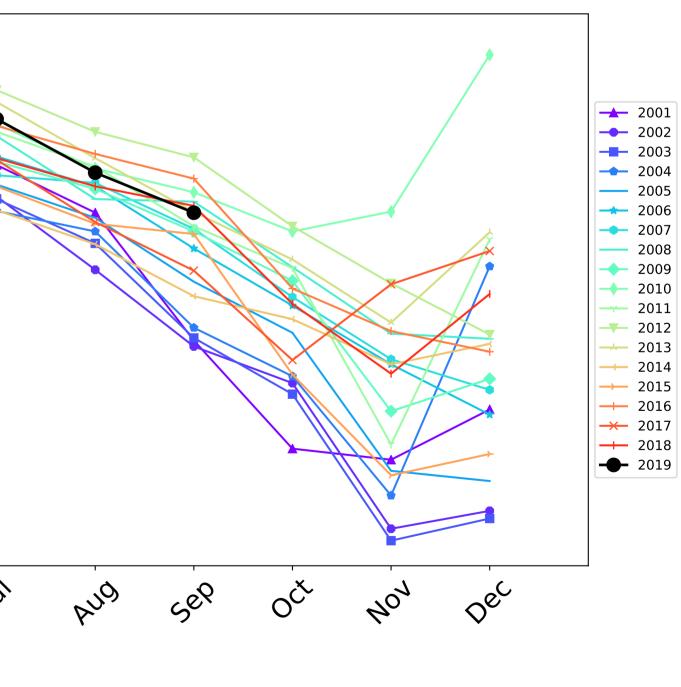
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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



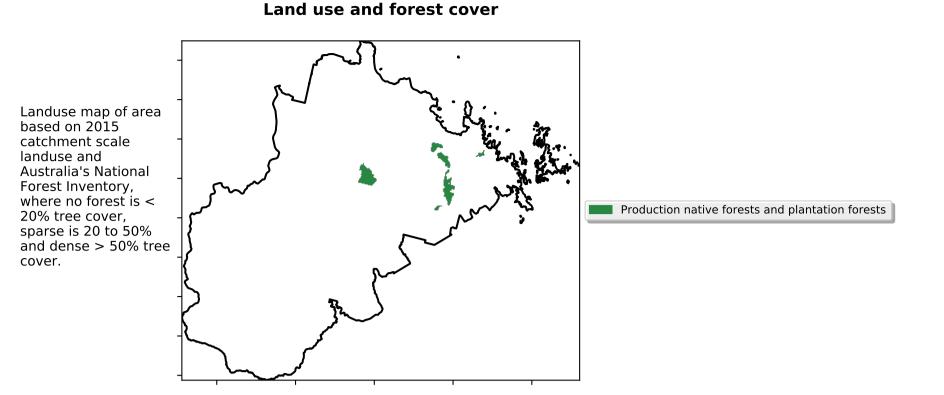
100-95 90 85 80 75 70 65 Jan fed way In 1/2/ Mal Þb, month ERN Australian Government

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





Production native forests and plantation forests



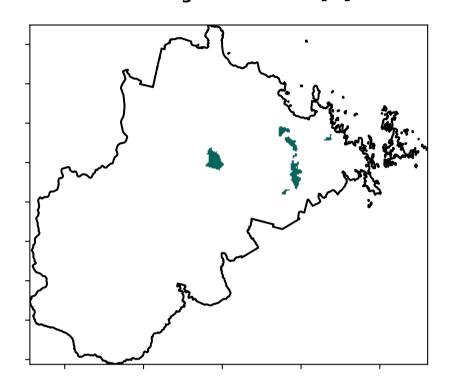
12%200%

52°1070°10

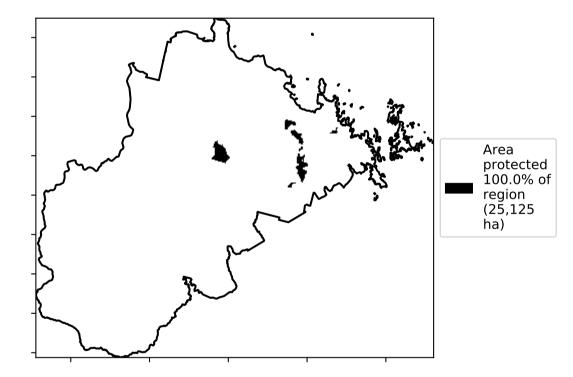
3201050010

0.30%

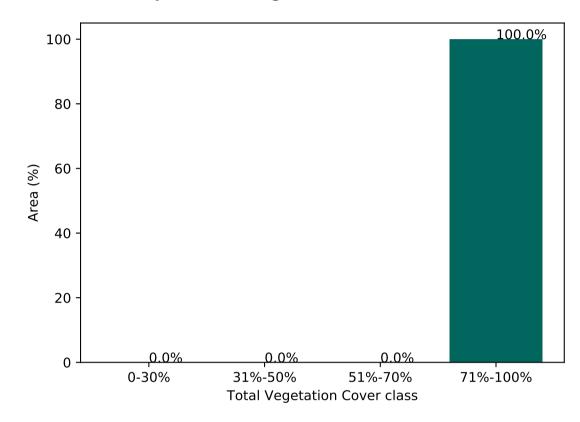
Total Vegetation Cover [%]



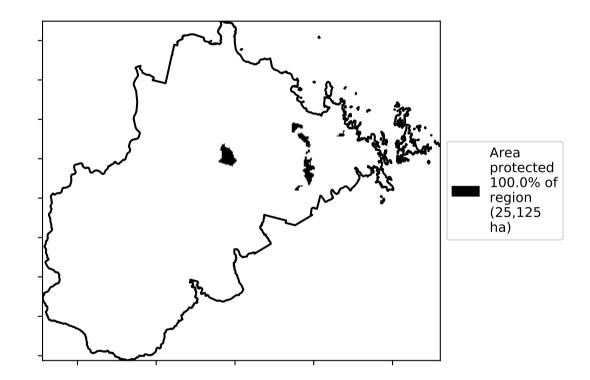
% Area protected from water erosion (>70%)







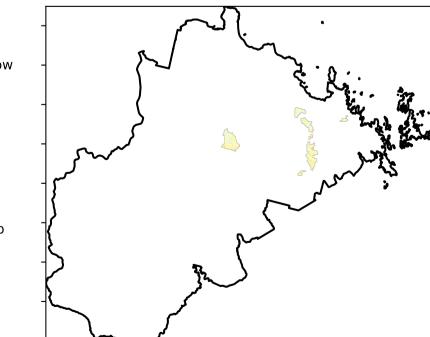
% Area protected from wind erosion (>50%)



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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.

- 20

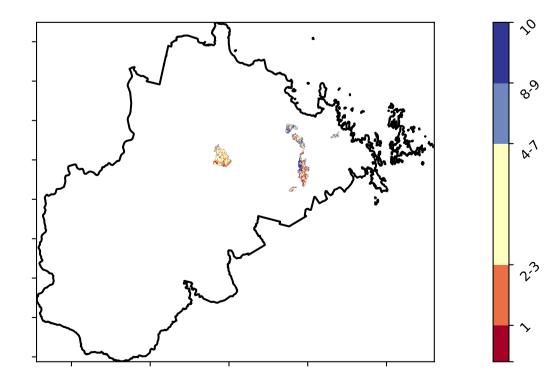
- 10

0

-10

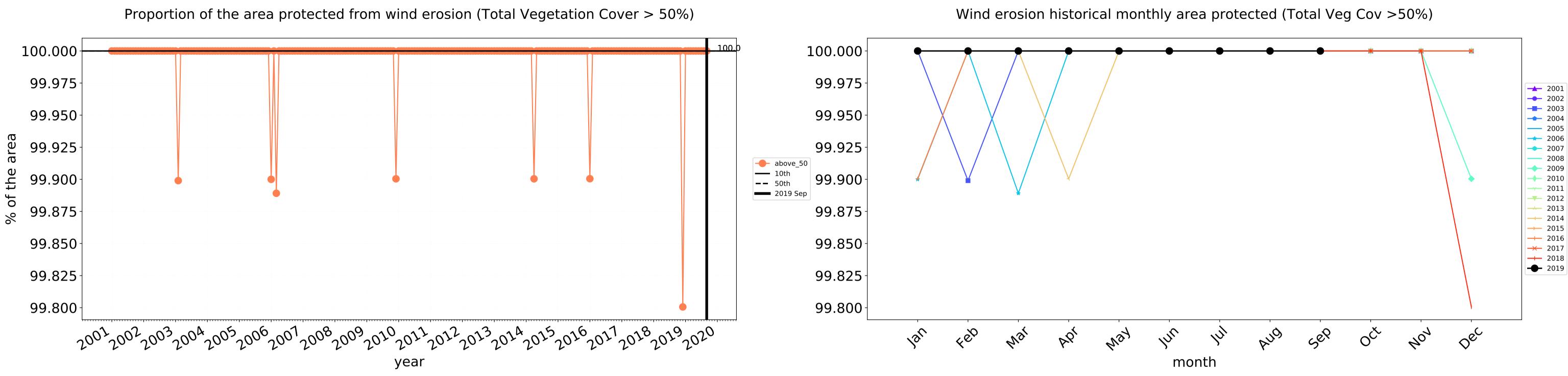
-20

Total Vegetation Cover Decile [%]

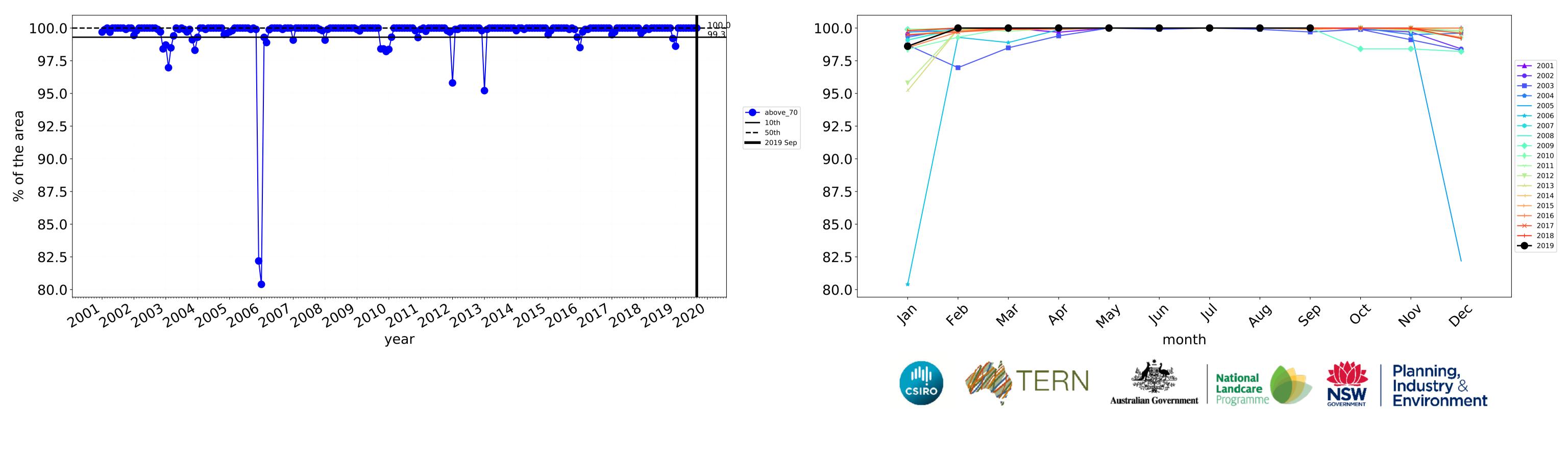




Production native forests and plantation forests timeseries



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



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

Whitsunday_(R) (2,357,725 ha and no data 24,151 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	2,357,725	100.0% 2,357,375	99.7% 2,350,975	90.6% 2,137,025	70.3% 1,656,700	35.5% 836,400	10.2% 241,025
Conservation and natural environments	179,187	99.9% 179,002	99.5% 178,345	93.9% 168,321	81.1% 145,249	58.8% 105,339	26.1% 46,855
Conservation and natural environments non forest	30,650	99.8% 30,596	98.9% 30,324	72.8% 22,308	22.9% 7,010	5.2% 1,603	1.8% 543
Conservation and natural environments Woodland forest	58,943	99.9% 58,891	99.8% 58,813	98.3% 57,934	89.7% 52,888	64.7% 38,139	29.1% 17,129
Conservation and natural environments Forest (non woodland)	89,593	99.9% 89,514	99.6% 89,198	98.0% 87,830	94.5% 84,699	72.6% 65,017	32.3% 28,917
Agriculture	2,072,440	100.0% 2,072,440	99.8% 2,068,389	90.6% 1,878,605	69.7% 1,444,440	33.6% 696,736	8.8% 181,806
Grazing	2,020,570	100.0% 2,020,570	99.8% 2,016,539	90.7% 1,832,830	69.8% 1,410,904	33.9% 684,553	8.8% 178,811
Grazing non forest	1,160,000	100.0% 1,160,000	99.7% 1,155,966	85.1% 986,787	57.1% 662,016	23.4% 270,993	5.2% 59,940
Grazing Woodland forest	811,057	100.0% 811,057	100.0% 811,057	98.5% 798,790	87.9% 712,769	48.7% 395,079	13.8% 111,989
Grazing - Forest (non woodland)	49,512	100.0% 49,512	100.0% 49,512	95.3% 47,175	72.7% 36,002	37.1% 18,378	13.8% 6,815
Irrigation	40,081	100.0% 40,081	100.0% 40,081	87.6% 35,109	63.2% 25,333	21.0% 8,420	5.0% 2,021
Production native forests and plantation forests	25,934	100.0% 25,934	100.0% 25,934	100.0% 25,934	99.7% 25,857	79.4% 20,593	30.2% 7,845

