LGA Cardinia (S) (VIC) - Vegetation cover soil protection report Aug 2019

This report provides information about vegetation covering the soil surface for a region during a single month with comparison to previous years. Vegetation cover indicates where soil is likely to be protected from wind and or water (hillslope) erosion. Results are shown for the whole region (polygon) and also separated by land use and tree cover. Different land uses are likely to have different cover patterns and targets. Reporting is most reliable with less than 20% tree cover.

Cardinia (S)

- Context
 - o Map: Land use and forest cover
 - o Chart: Land use and forest cover area
- Total vegetation cover for this month
 - o Map: vegetation cover classified into 4 classes
 - o Chart: vegetation cover area classified into 4 classes
- Areas protected from erosion for the month
 - o Map: wind erosion protection (>50% cover)
 - o Map: water erosion protection (>70% cover)
- 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
 - o Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month in the archive (orange lines)
 - o Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month of the archive (blue lines).
 - o Rainfall: millimetres rainfall each month (black lines)
- Time series stacked by year
 - o Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month in the archive (orange lines) in case of 5th percentile is less than 80i
 - o Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month of the archive (blue lines). in case of 5th percentile is less than 80
- 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

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 pixels. Pixels with greater than or equal to 50% vegetation cover are generally considered to be protected from or have reduced soil loss by wind erosion, and pixels with greater than or equal to 70% vegetation cover are generally considered to also be protected from or have reduced soil loss from water (hillslope) erosion. Report used baseline from 2001 to 2019 for each month to generate anomalies and deciles. And it used threshold of 1% to create land use forest cover reports. Higher cover thresholds may be required for erosion protection in some regions. This report will be less applicable in areas with sparse forest (20-50% tree cover) or dense forest (> 50% tree cover). Therefore land use classes are divided by tree cover: 1) No forest is when there is less than 20% tree cover 2) Sparse forest, is when there is less than 20 to 50 % tree cover 3) Dense forest is greater than 50% tree 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









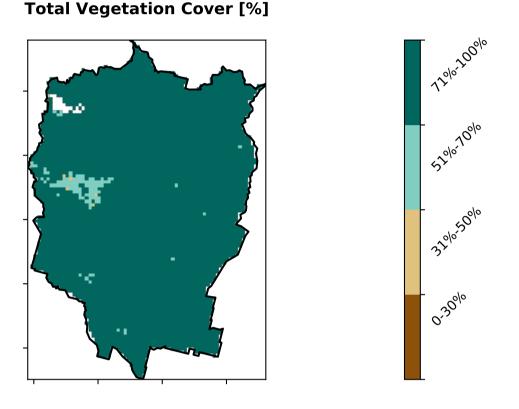




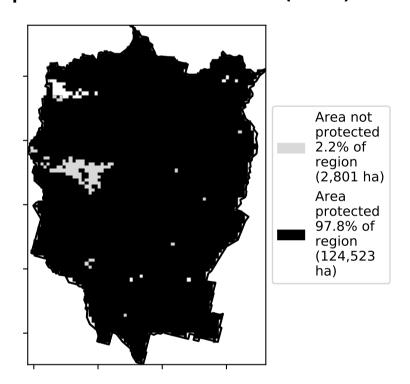
Vegetation Cover Aug 2019

Land use and forest cover

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



% Area protected from water erosion (>70%)



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.

Landuse map of area

based on 2015

catchment scale landuse and

Australia's National

where no forest is <

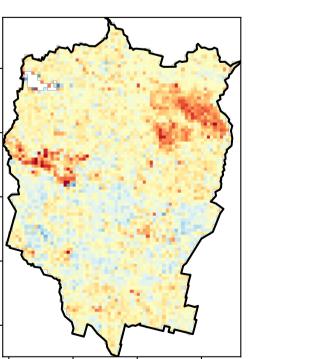
sparse is 20 to 50%

and dense > 50% tree

Forest Inventory,

20% tree cover,

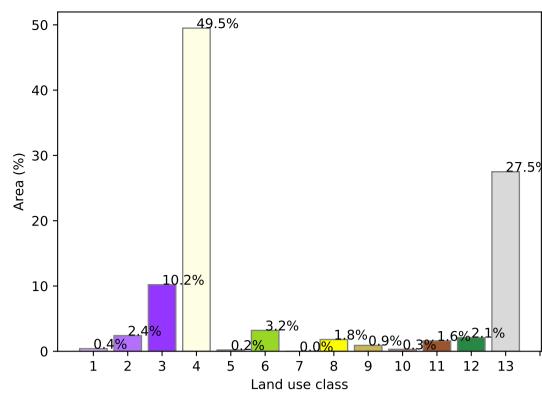
cover.



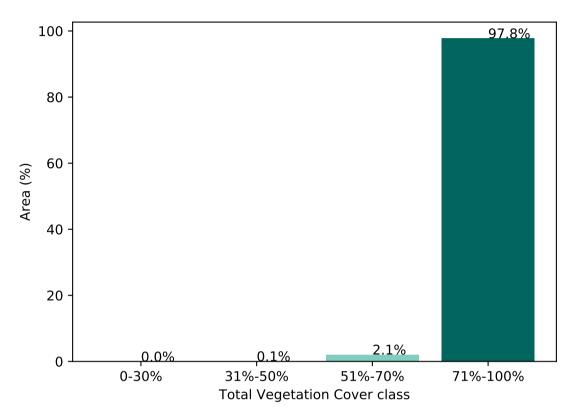
- 20 10 -10-20

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

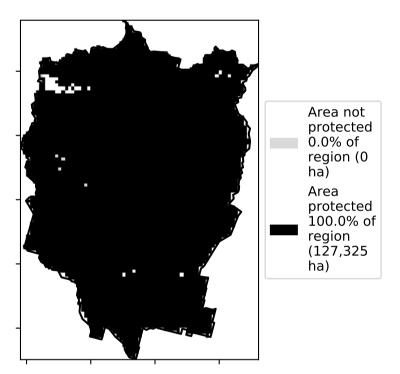
Proportion of each land class in area



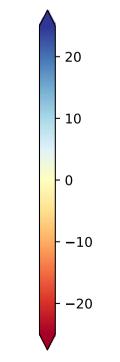
Proportion of vegetation cover class in area



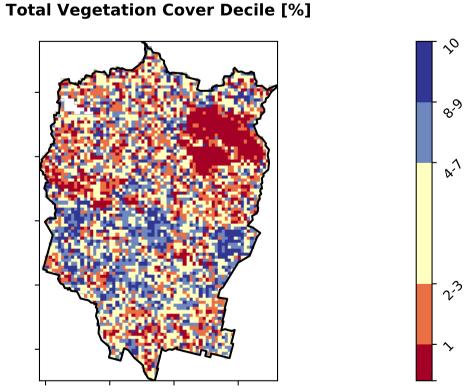
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



in the lowest 10% of records for that month of





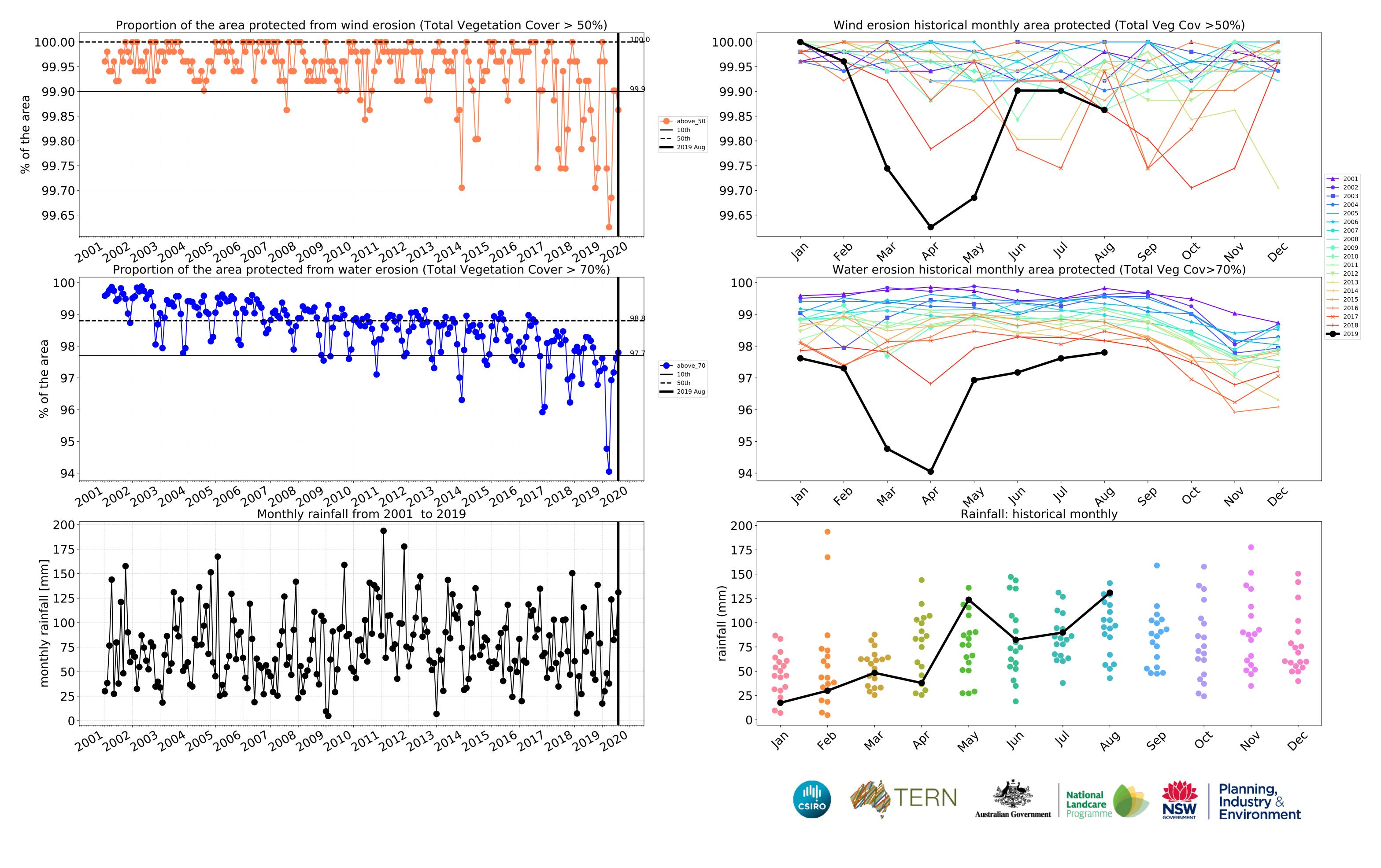


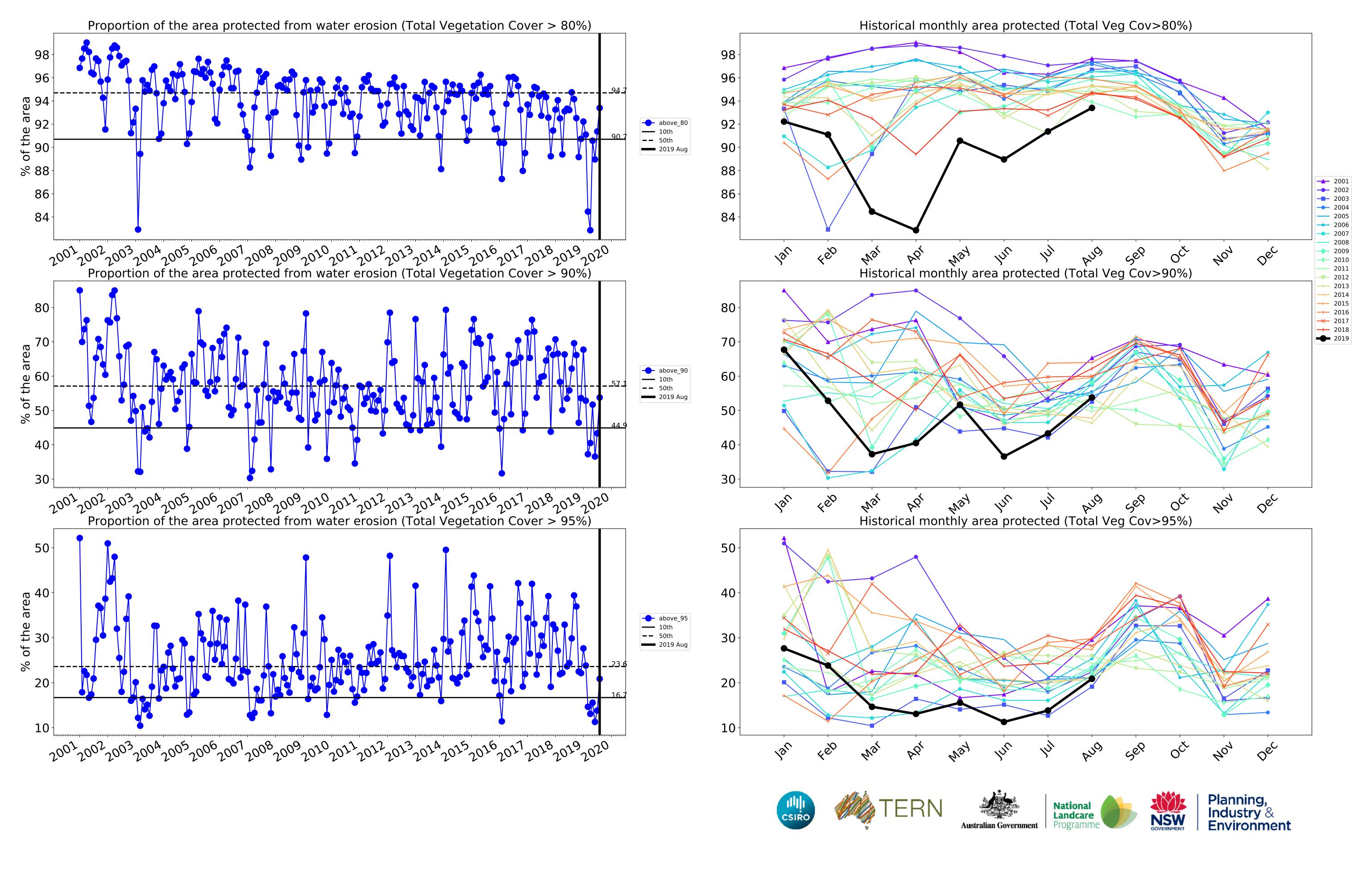












Conservation and natural environments

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

Anomaly show how many percetage points each

pixel is from

is, red pixels are about 20% lower than the

mean of that pixel. The mean

is only for the month of the map

using baseline from 2001 to 2019.

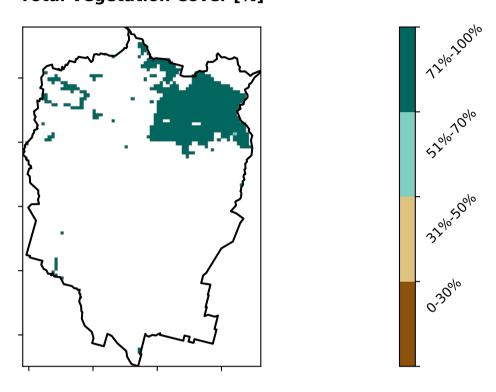
the mean. That

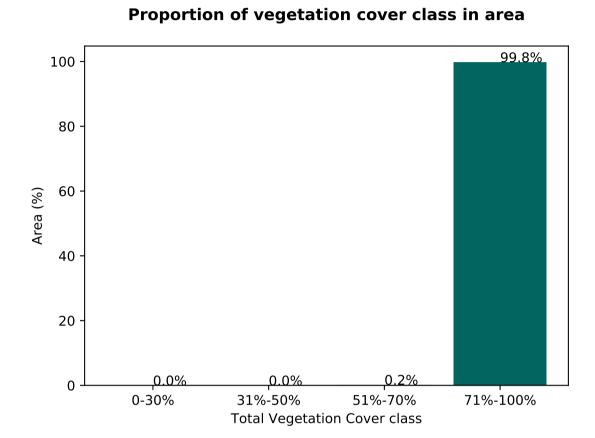
cover.

Conservation and natural environments - Non-forest Conservation and natural environments - Woodland forest Conservation and natural environments - Nonwoodland forest

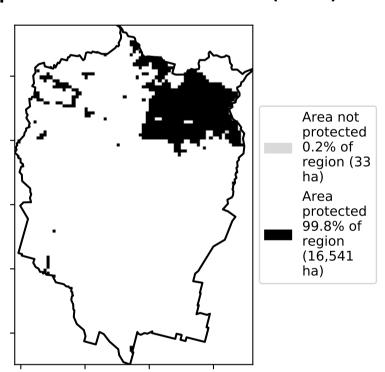
Total Vegetation Cover [%]

Land use and forest cover

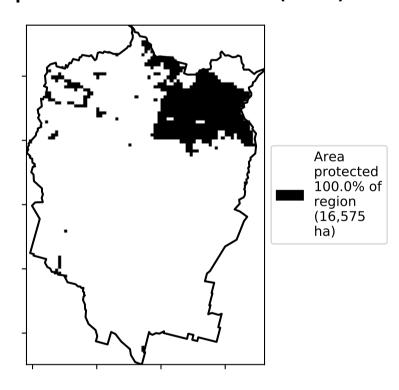




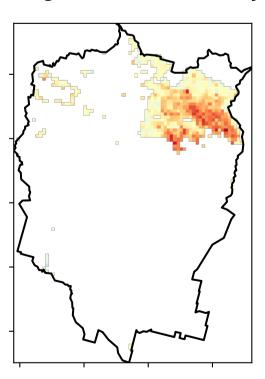
% Area protected from water erosion (>70%)

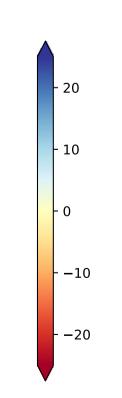


% Area protected from wind erosion (>50%)



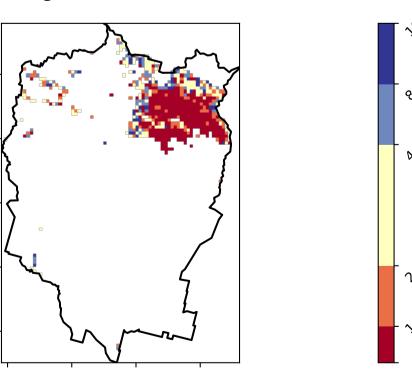
Total Vegetation Cover Anomaly [%]





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 [%]







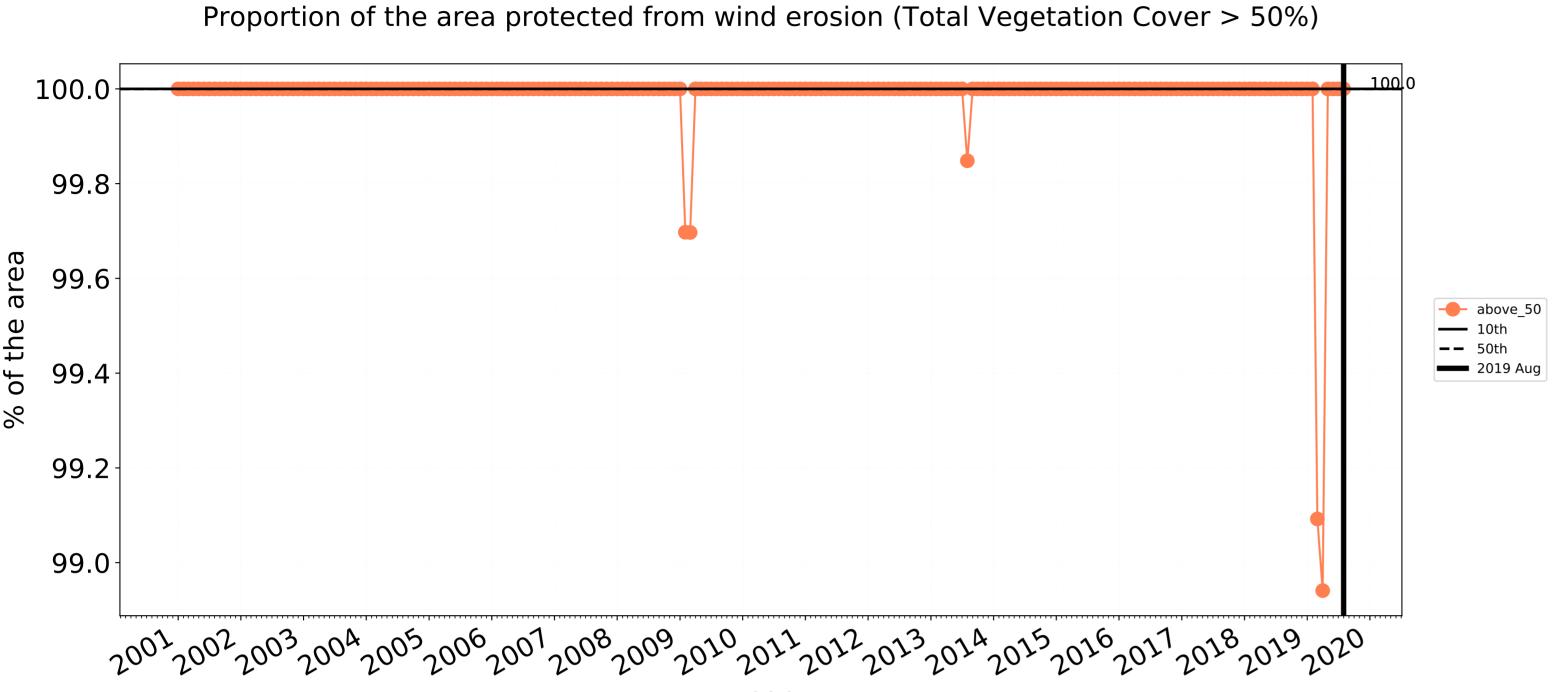


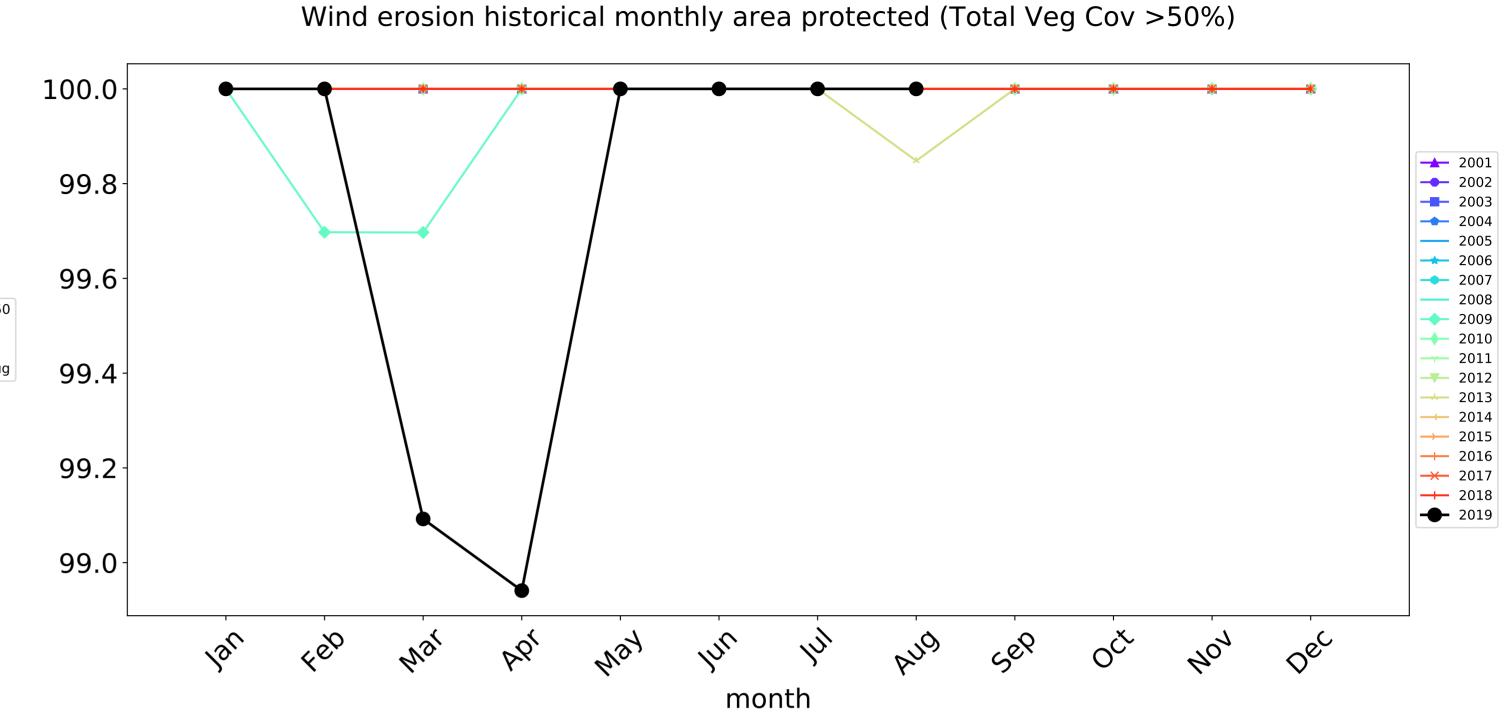


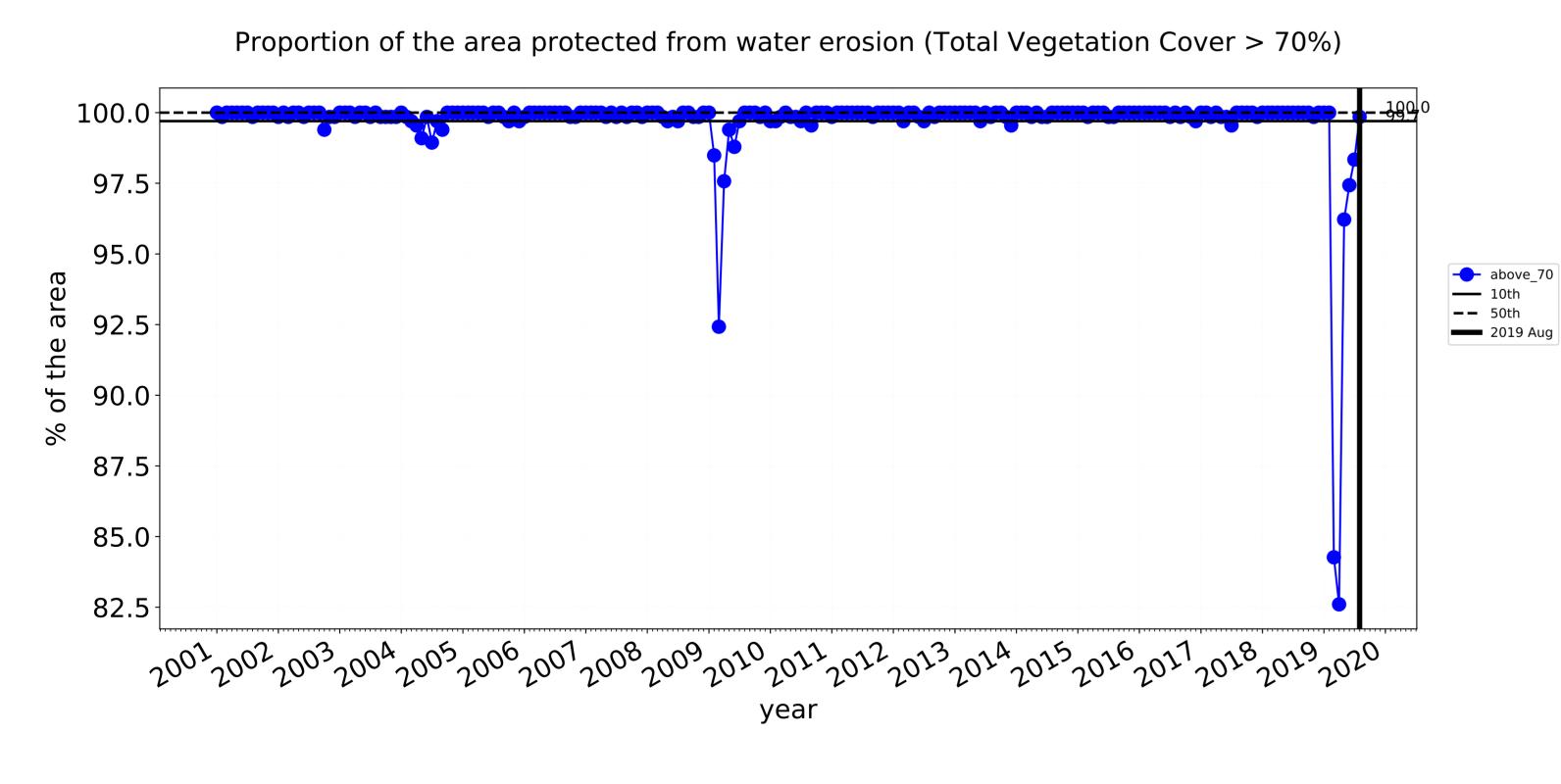


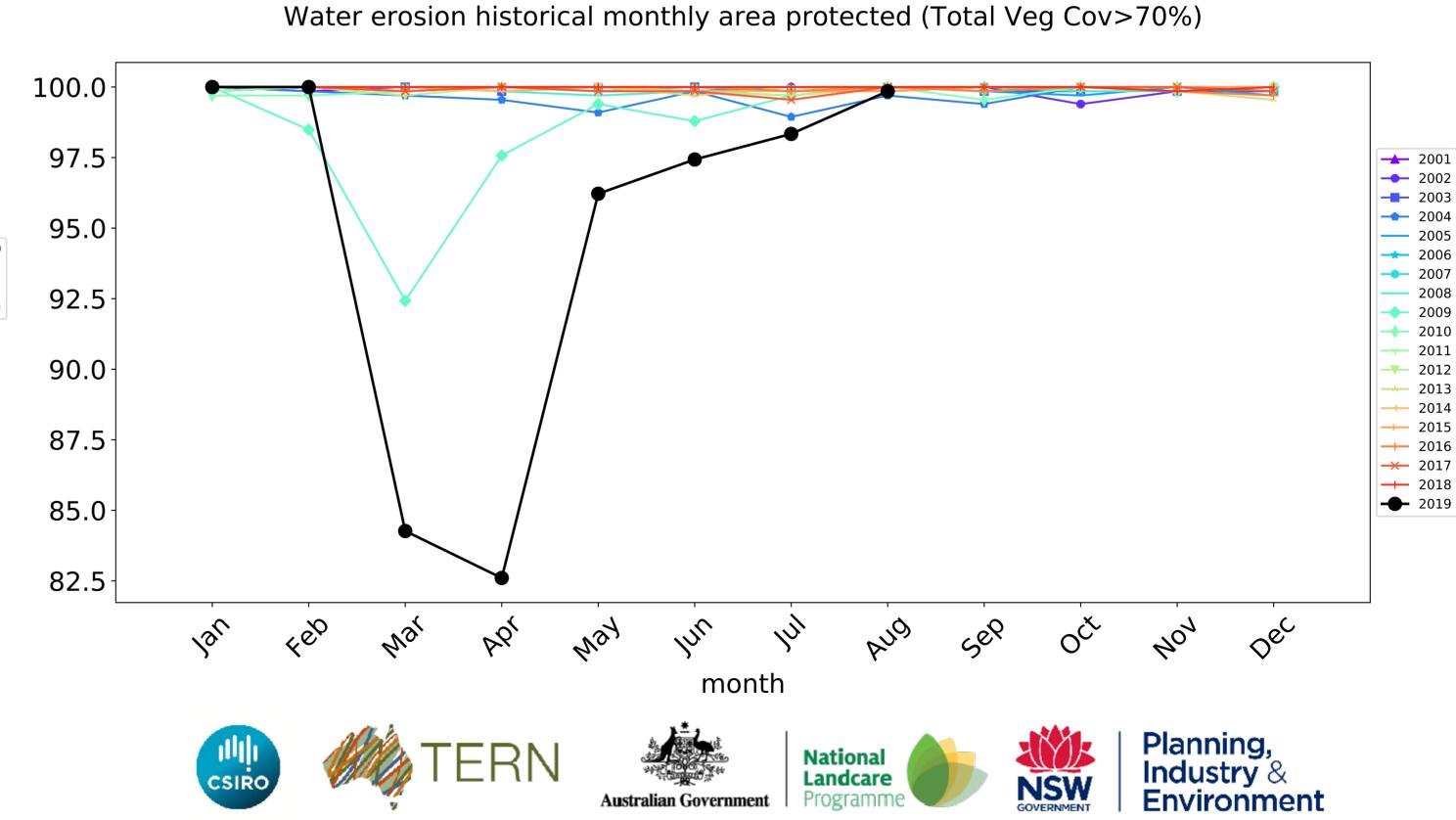


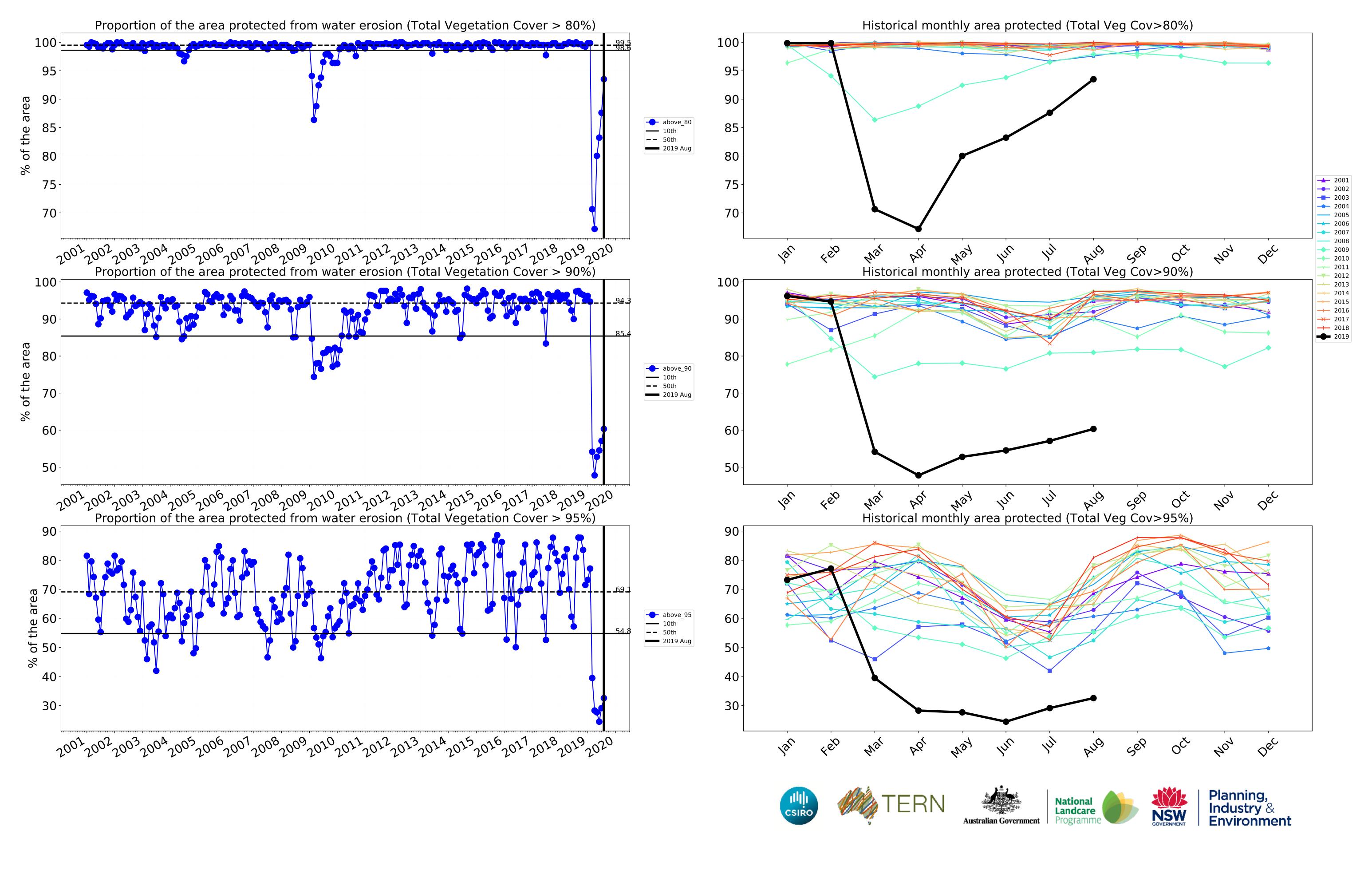
Conservation and natural environments timeseries











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 < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

Anomaly show how many percetage points each

pixel is from

is, red pixels

mean of that

pixel. The mean is only for the

using baseline from 2001 to 2019.

month of the map

are about 20% lower than the

the mean. That

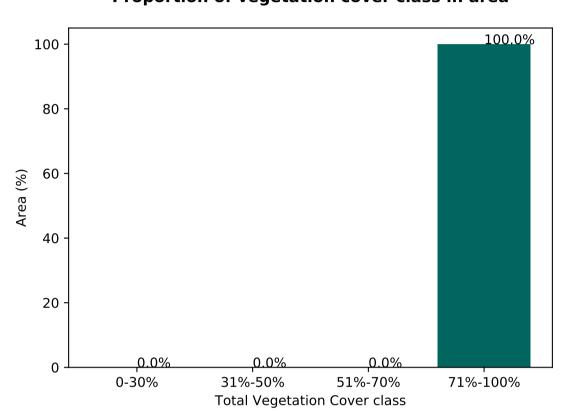
Conservation and natural environments - Woodland forest

Total Vegetation Cover [%]

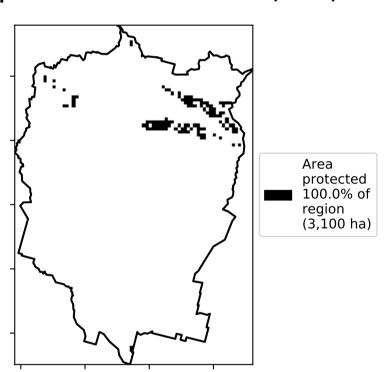
Land use and forest cover



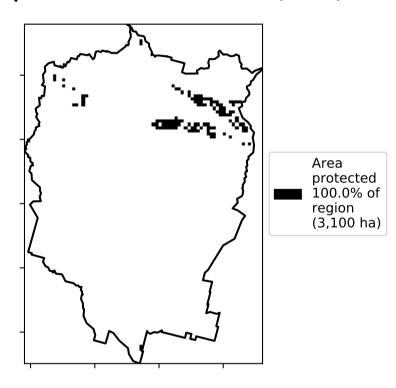
Proportion of vegetation cover class in area



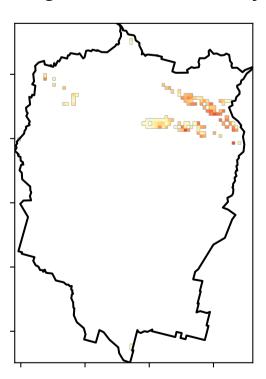
% Area protected from water erosion (>70%)

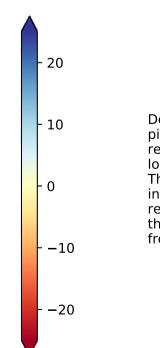


% Area protected from wind erosion (>50%)



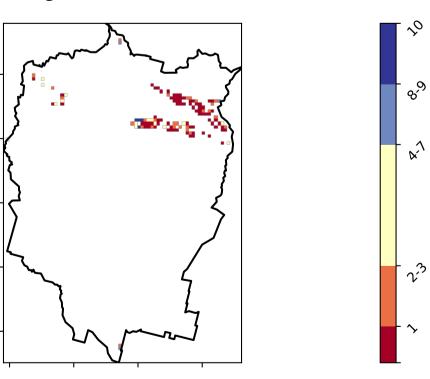
Total Vegetation Cover Anomaly [%]





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

Total Vegetation Cover Decile [%]





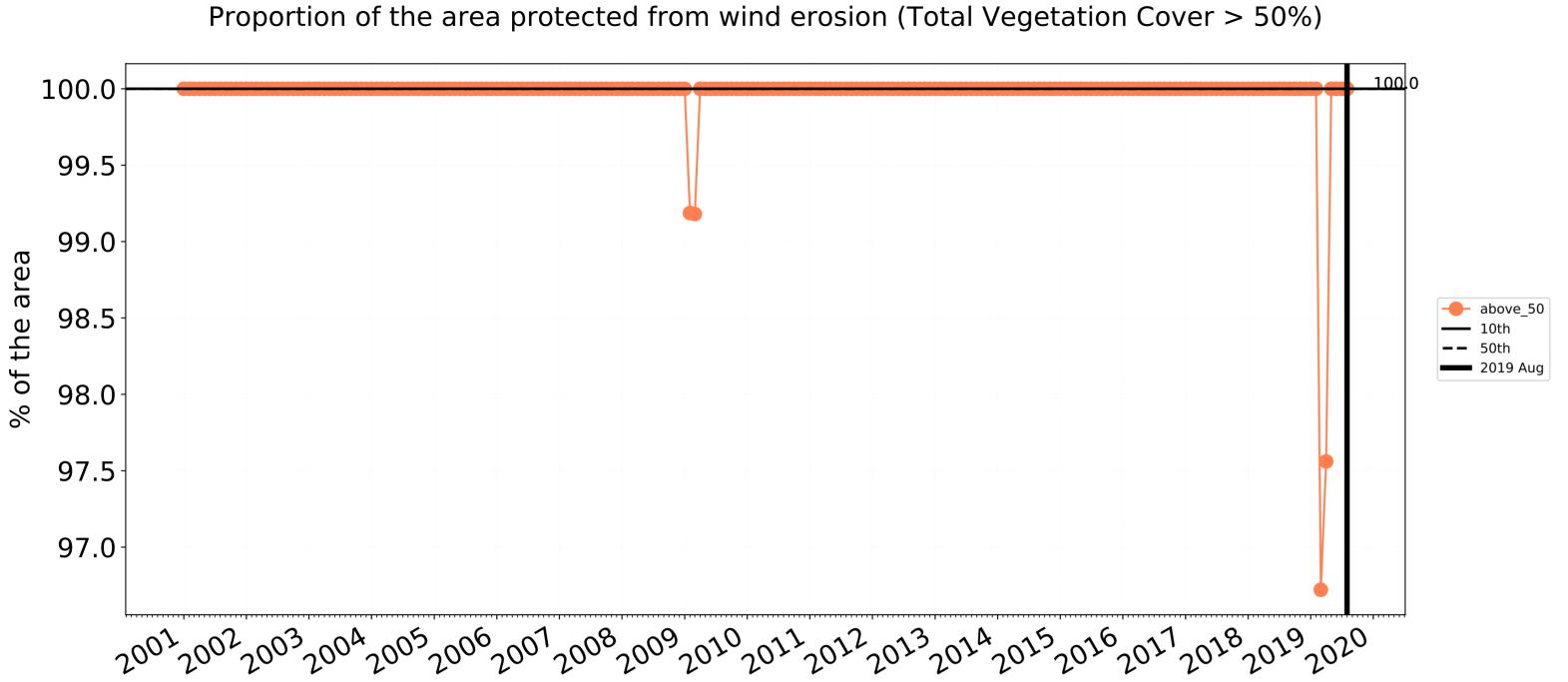


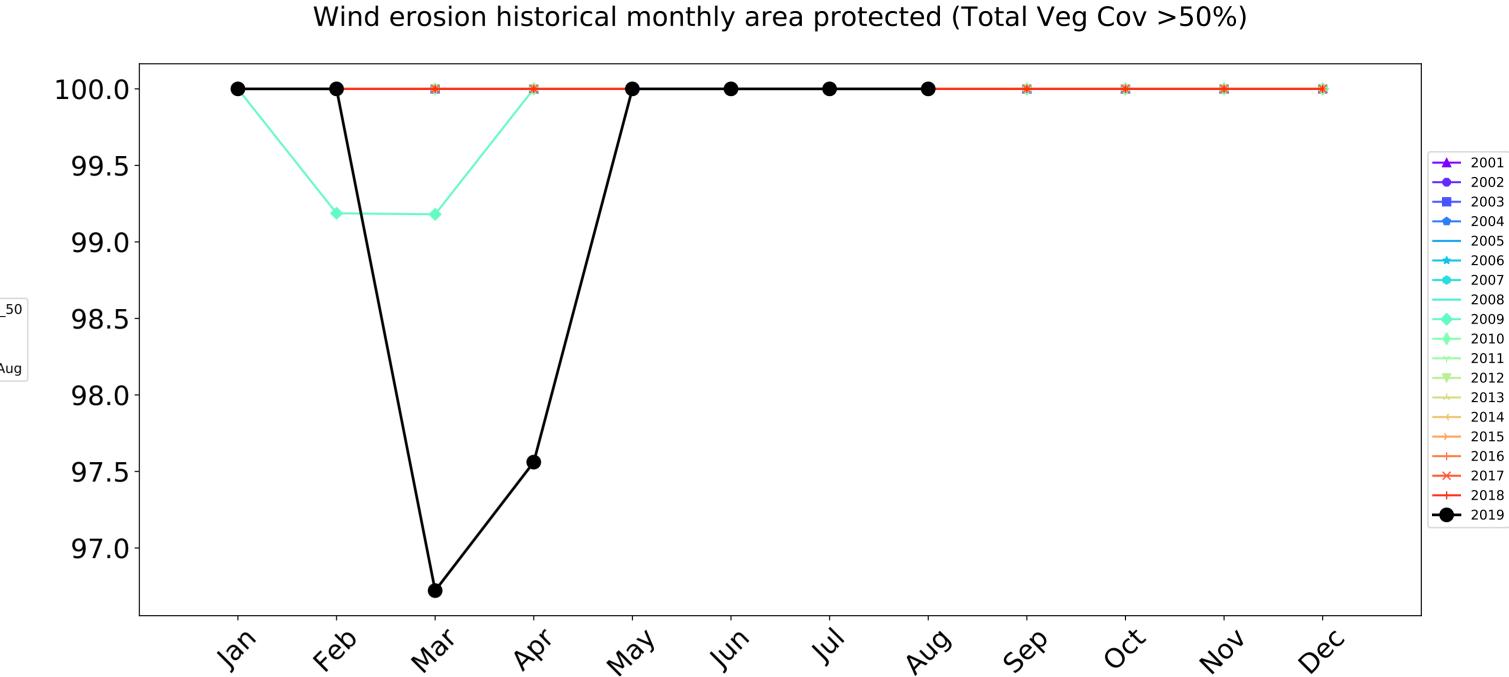




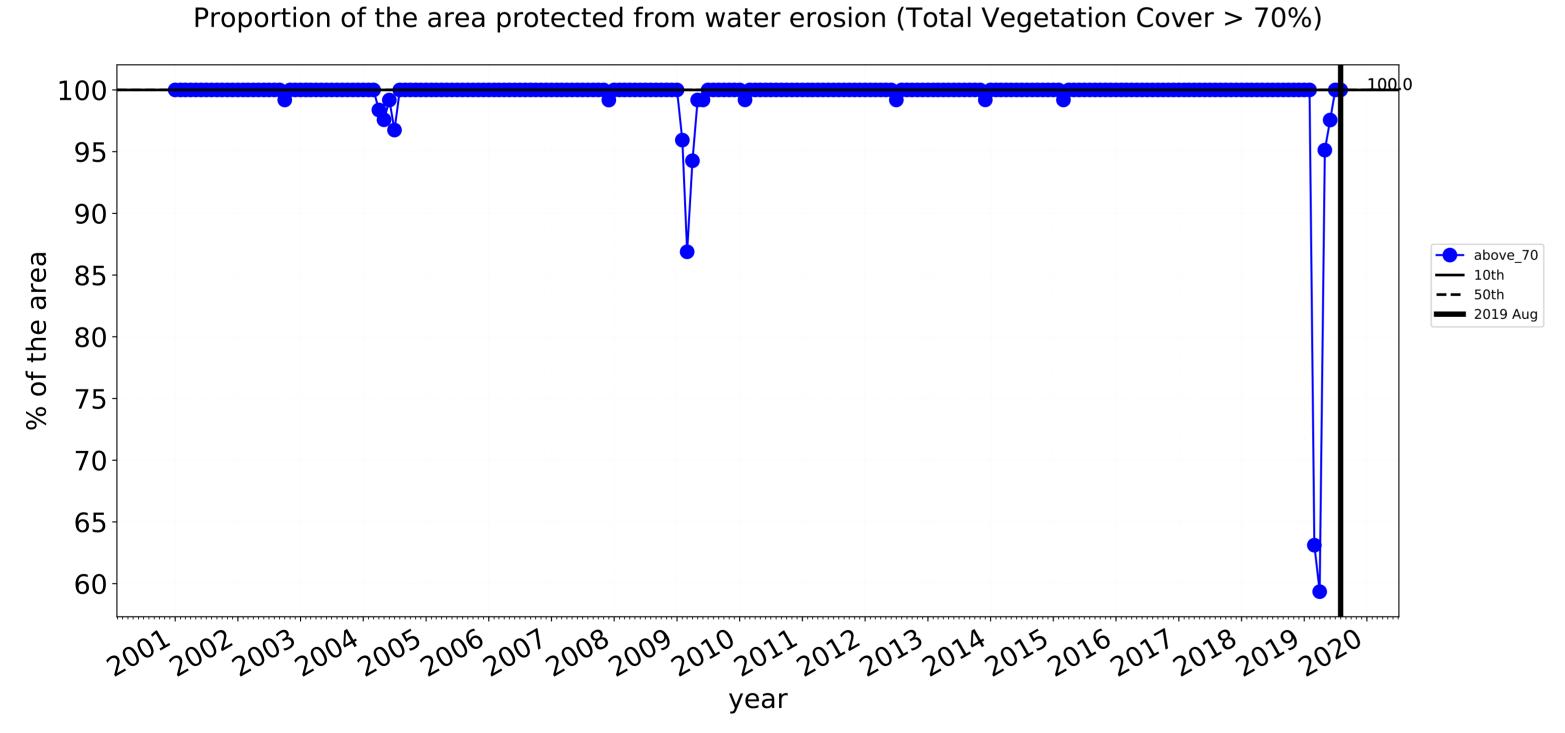


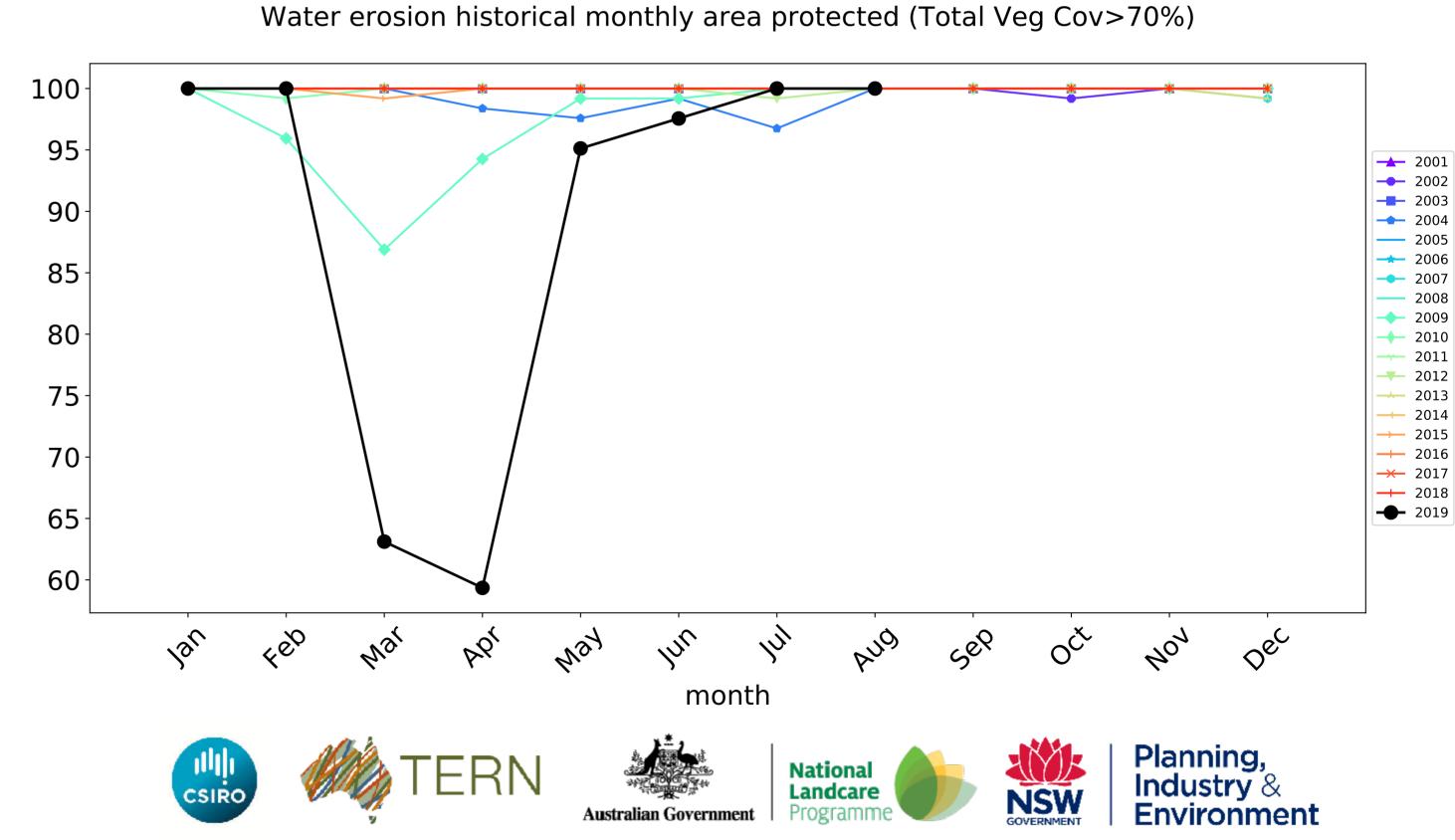


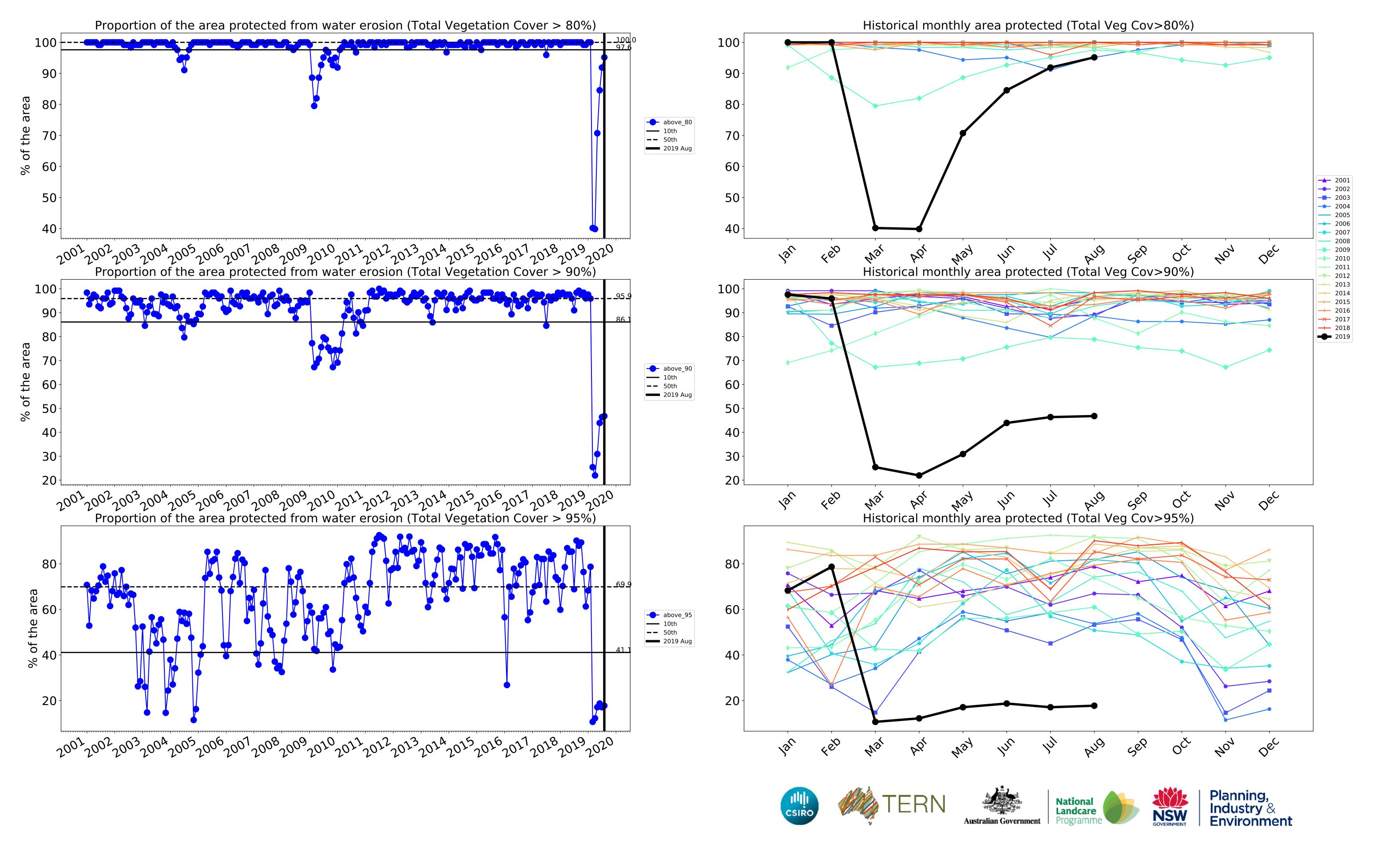




month







Conservation and natural environments Forest (non woodland)

Land use and forest cover

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.

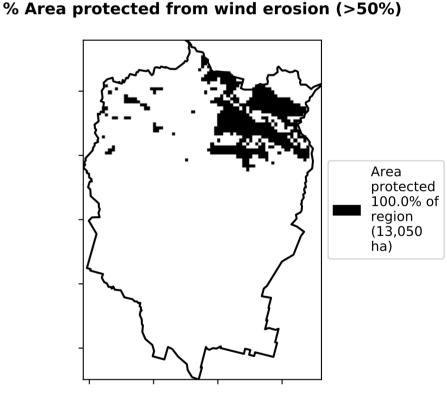
Conservation and natural environments - Nonwoodland forest

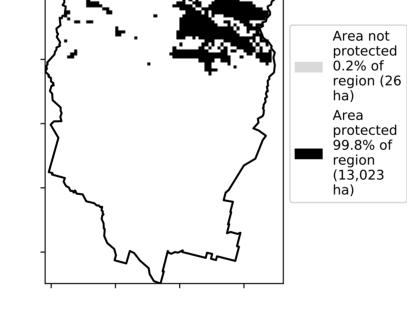
Total Vegetation Cover [%]

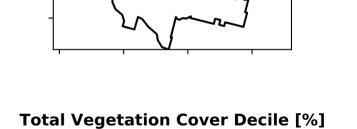
99.8% 100 80 60 Area (%) 40 -20 0.0% 0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**

Proportion of vegetation cover class in area

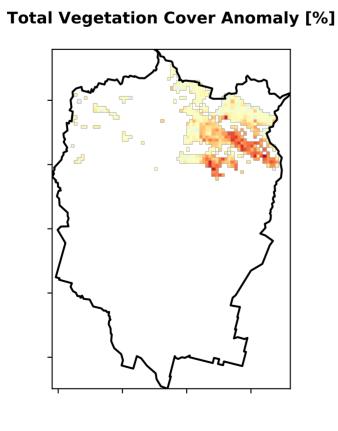
% Area protected from water erosion (>70%) Area not protected 0.2% of region (26 Area protected 99.8% of region (13,023 ha)

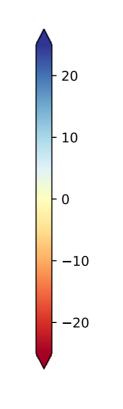




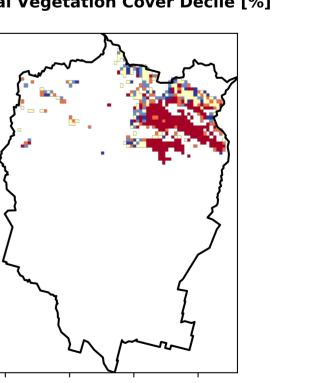


Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.





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.





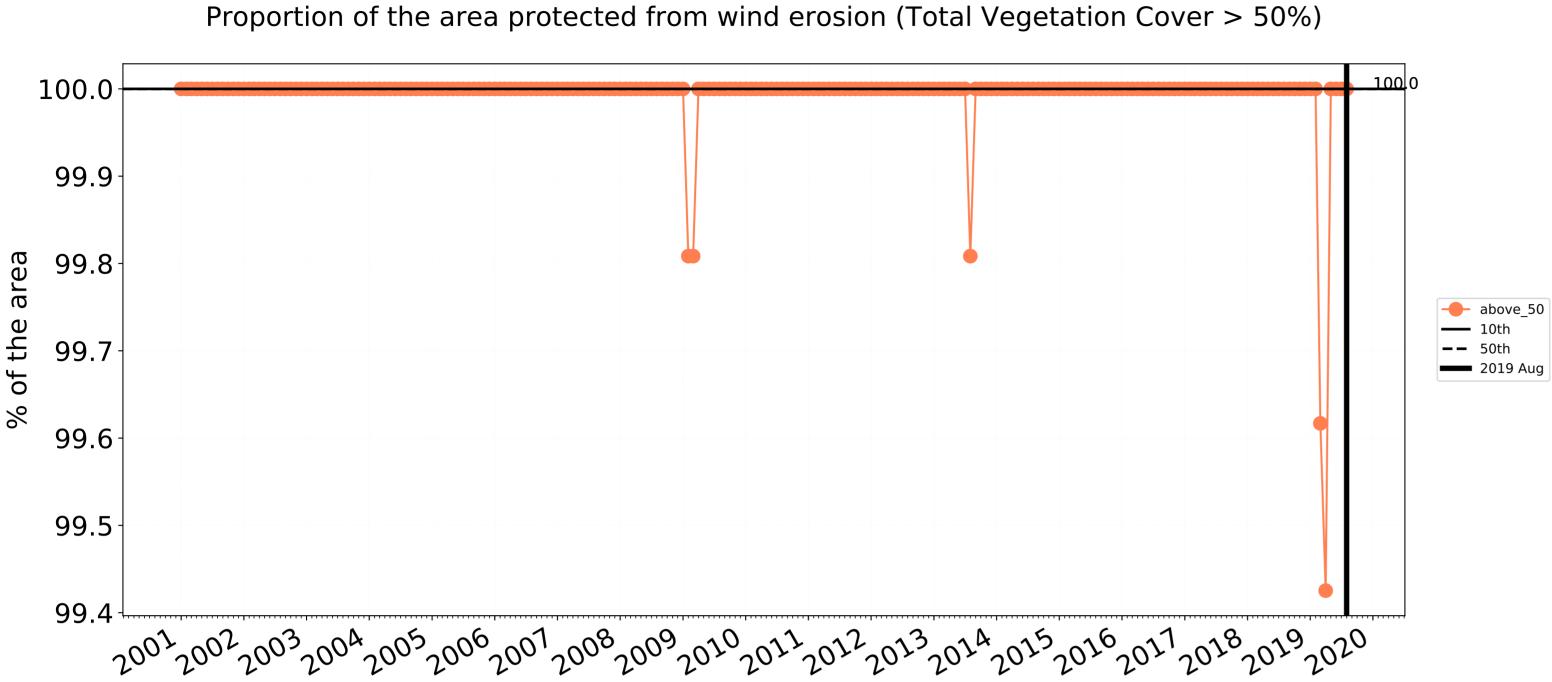


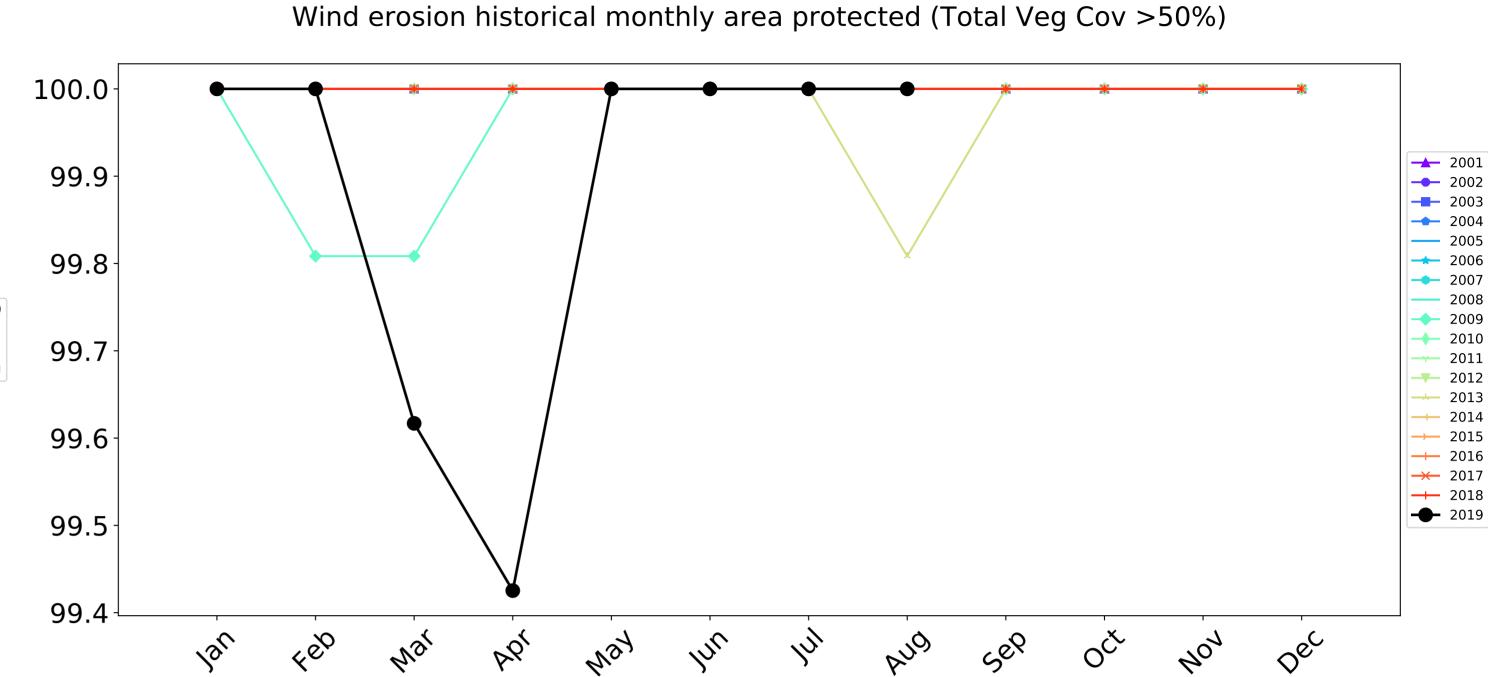




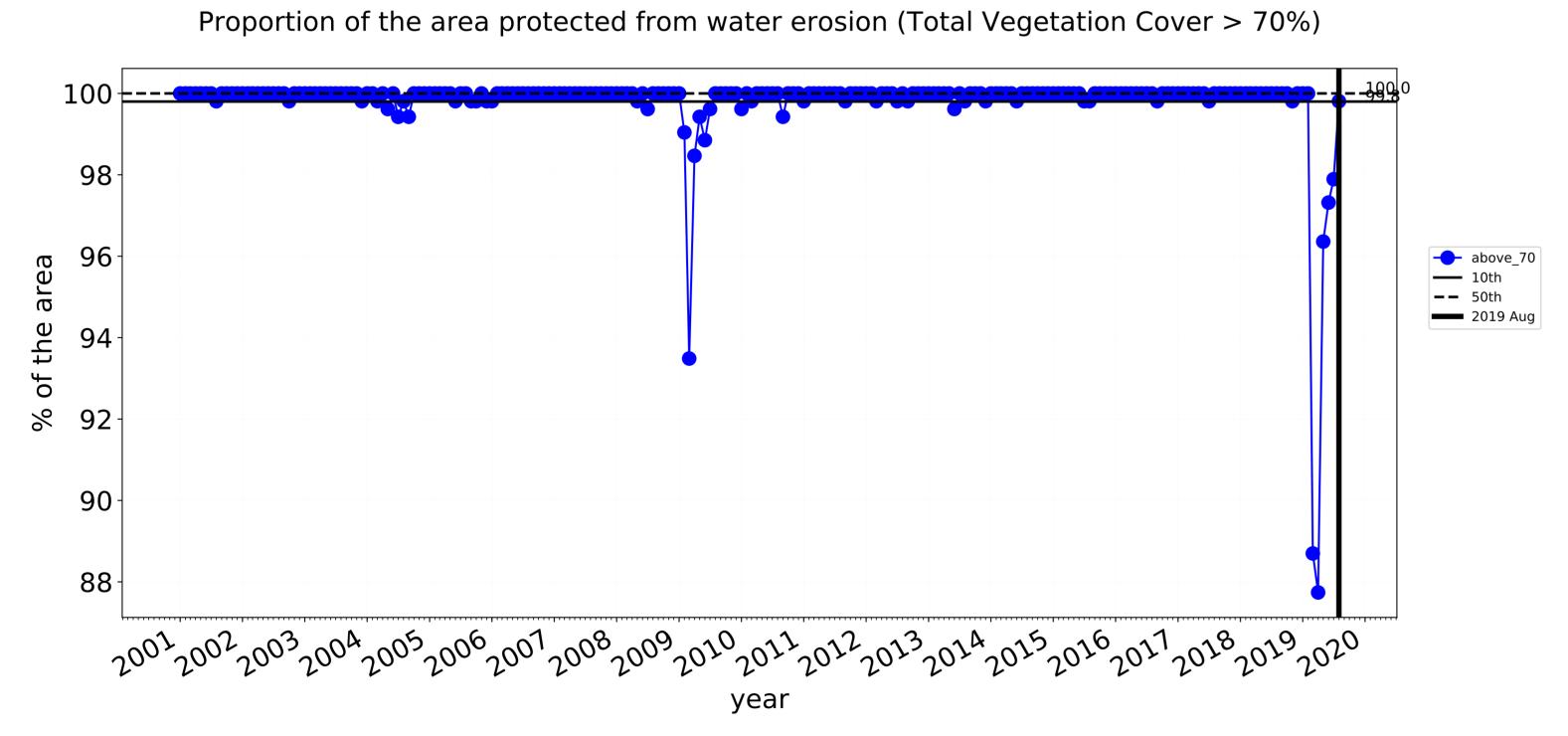


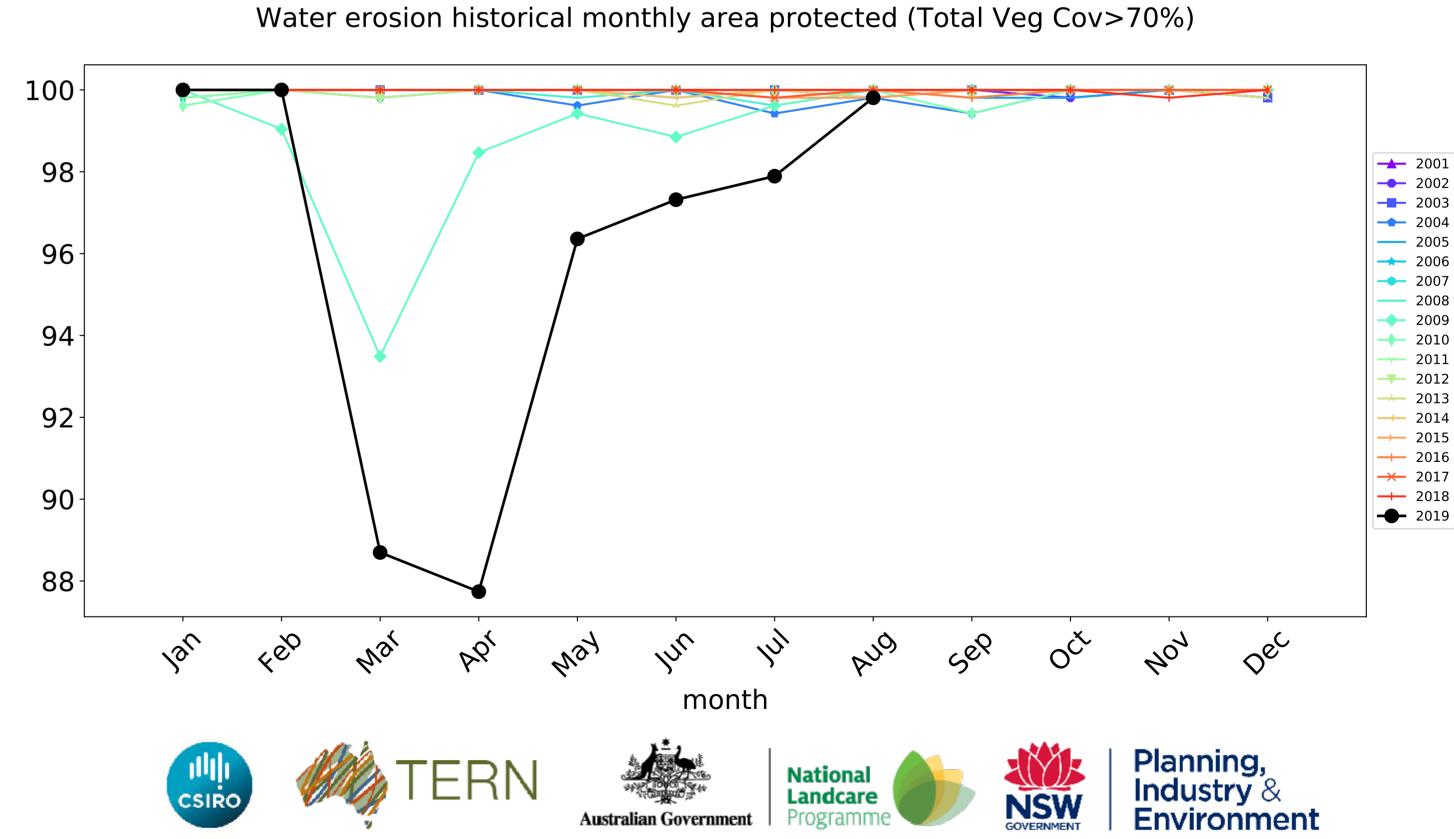


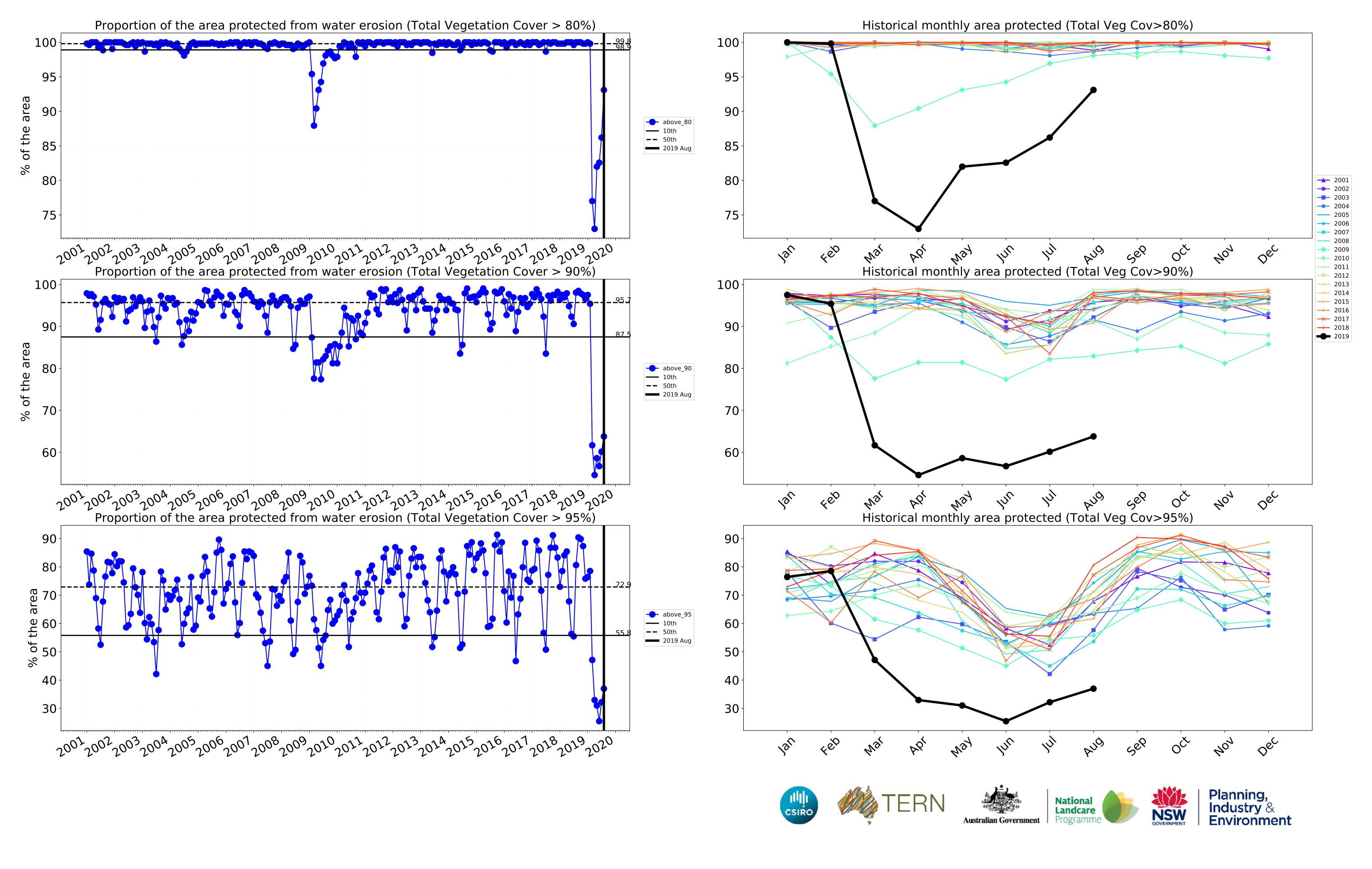




month







Agriculture

Land use and forest cover

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.

Anomaly show how many percetage points each

pixel is from

is, red pixels are about 20% lower than the

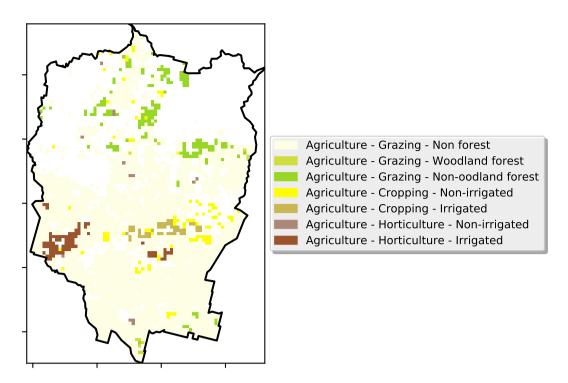
mean of that

pixel. The mean

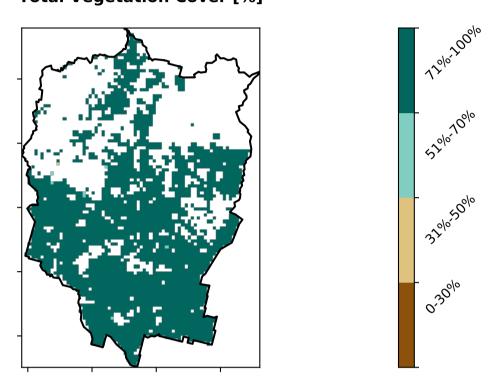
using baseline from 2001 to 2019.

is only for the month of the map

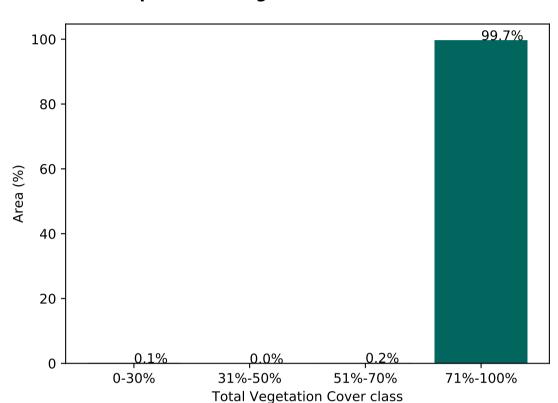
the mean. That



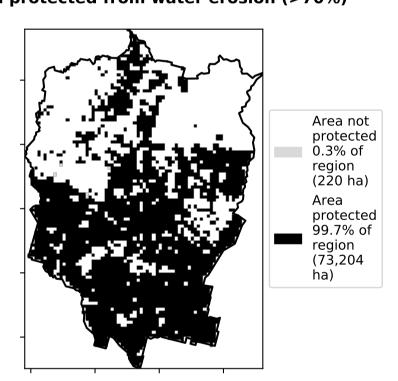
Total Vegetation Cover [%]



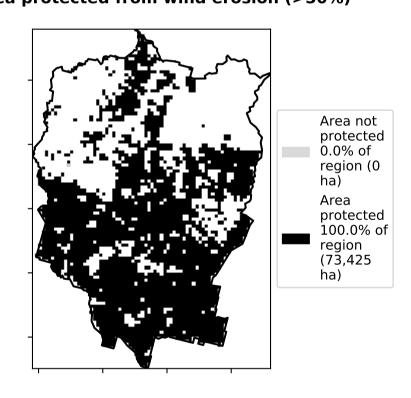
Proportion of vegetation cover class in area



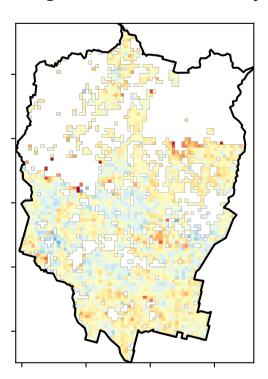
% Area protected from water erosion (>70%)

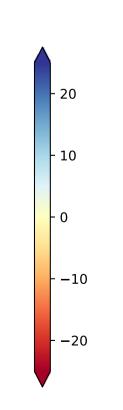


% Area protected from wind erosion (>50%)



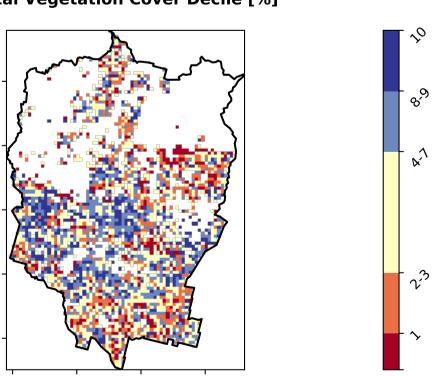
Total Vegetation Cover Anomaly [%]





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

Total Vegetation Cover Decile [%]







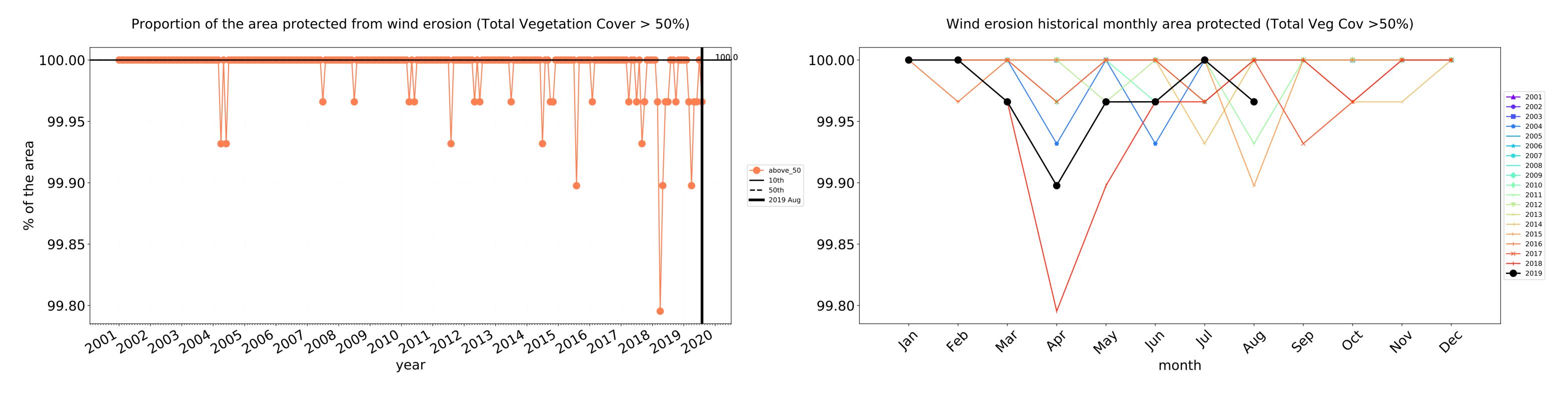


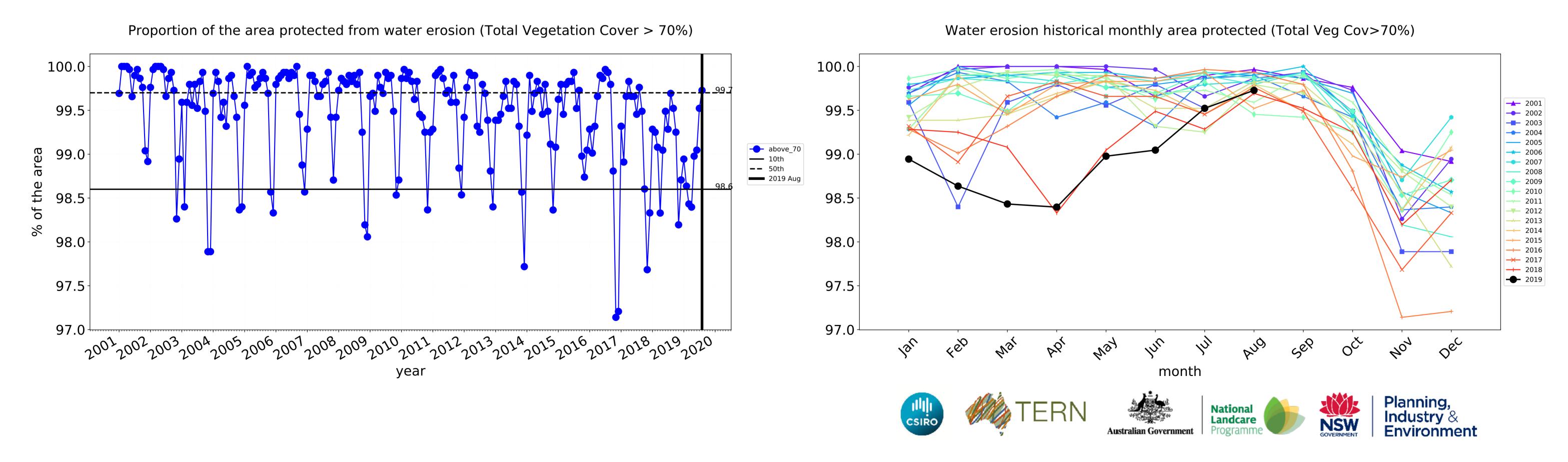


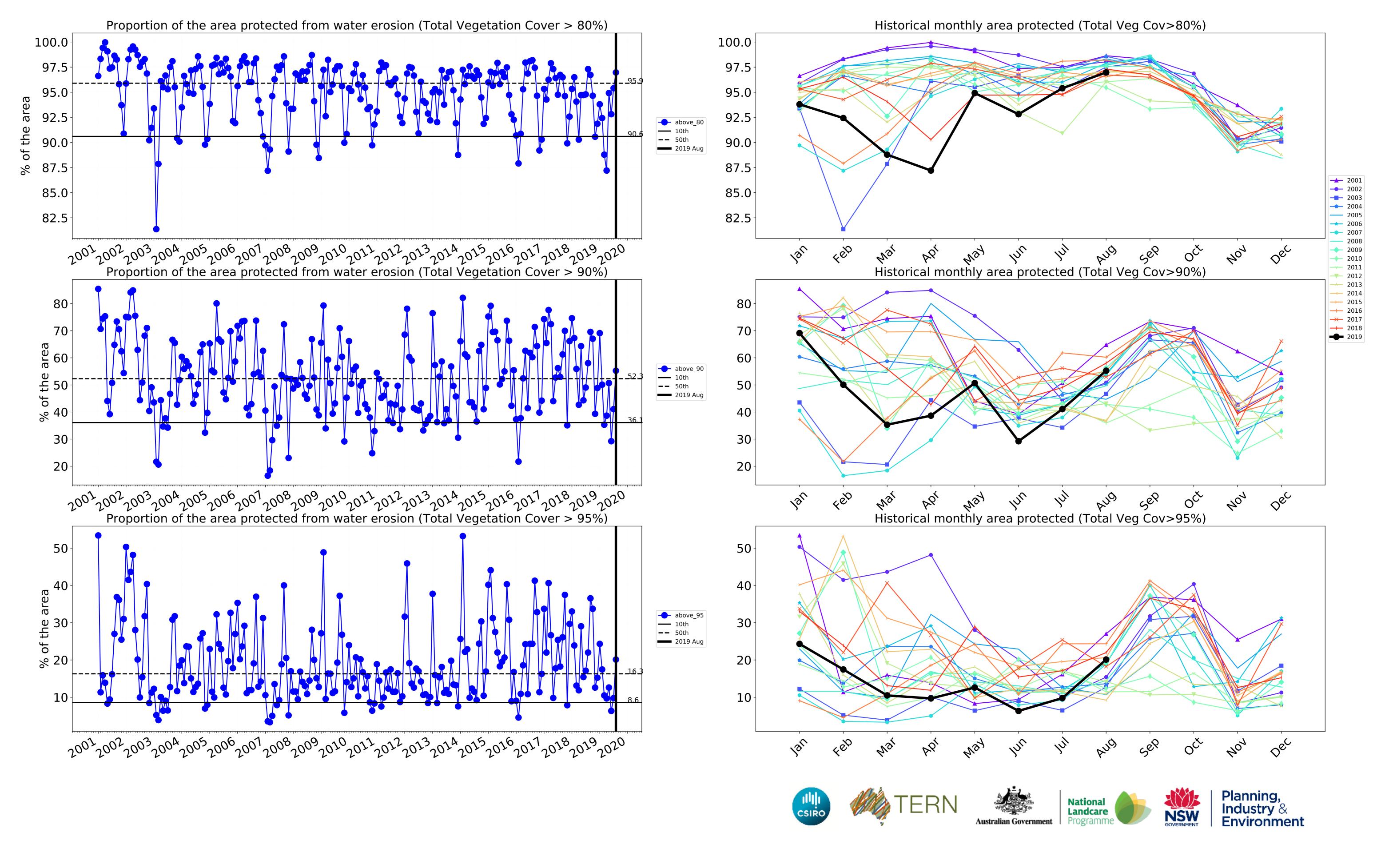




Agriculture timeseries







Grazing

Land use and forest cover

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.

Anomaly show how many percetage points each

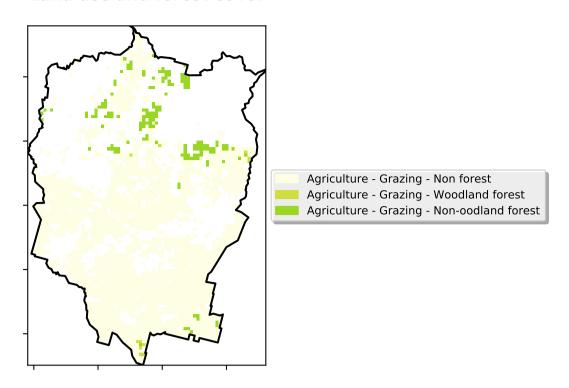
pixel is from

is, red pixels are about 20% lower than the

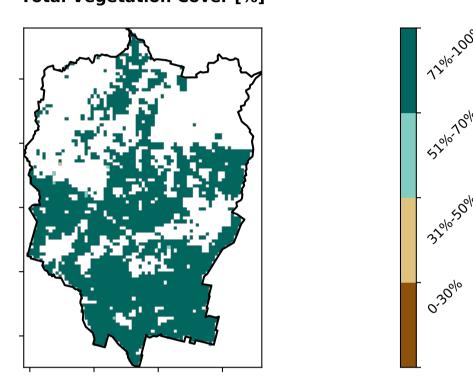
mean of that

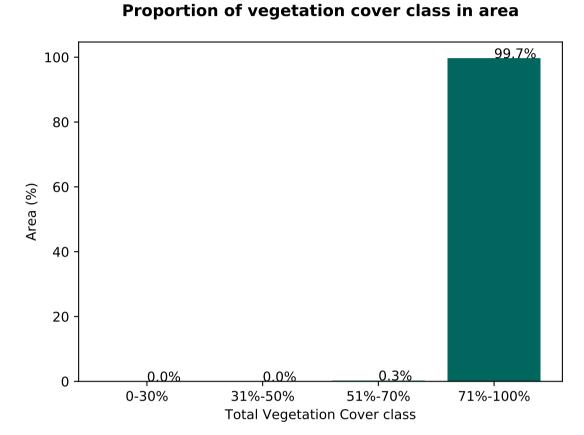
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

the mean. That

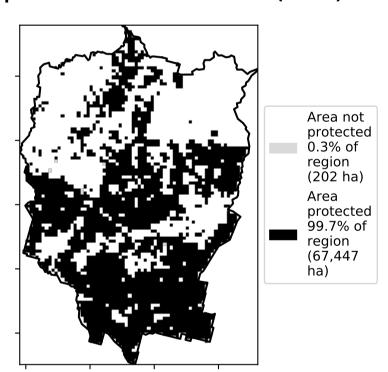


Total Vegetation Cover [%]

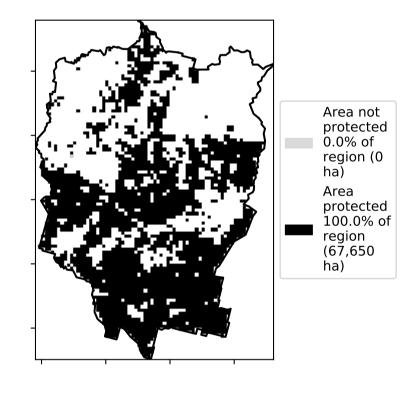




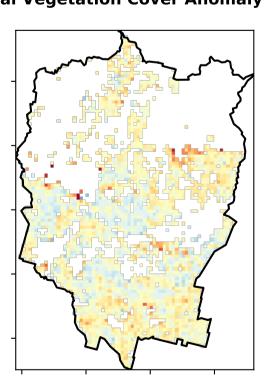
% Area protected from water erosion (>70%)

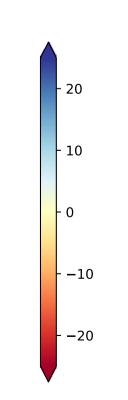


% Area protected from wind erosion (>50%)



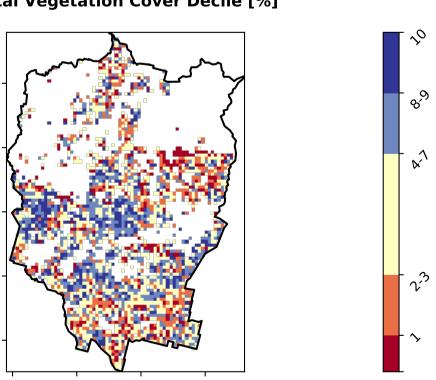
Total Vegetation Cover Anomaly [%]





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 [%]







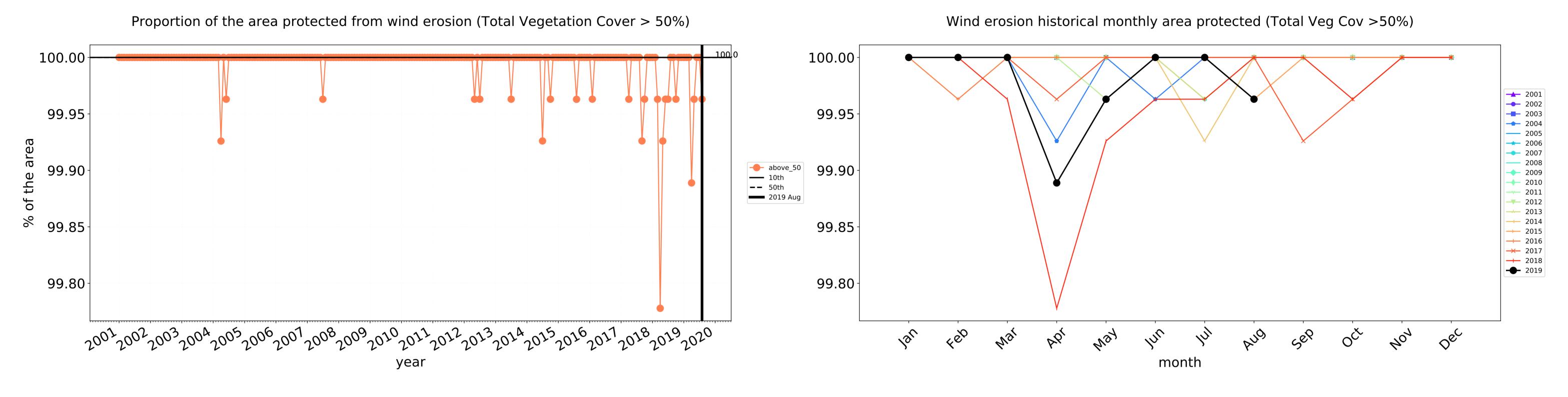


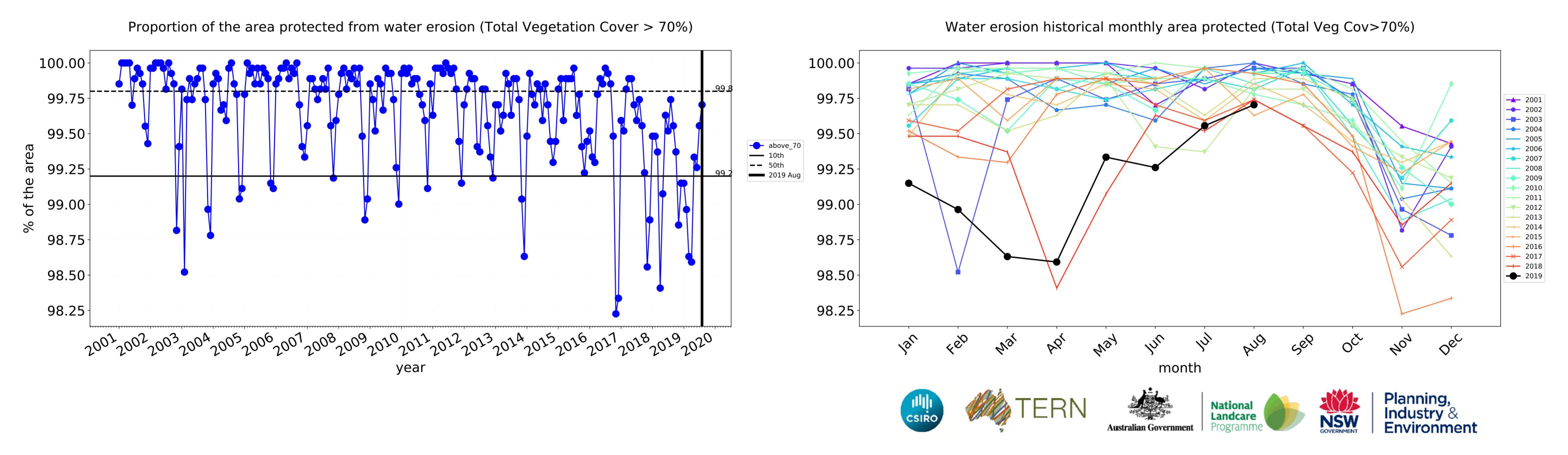


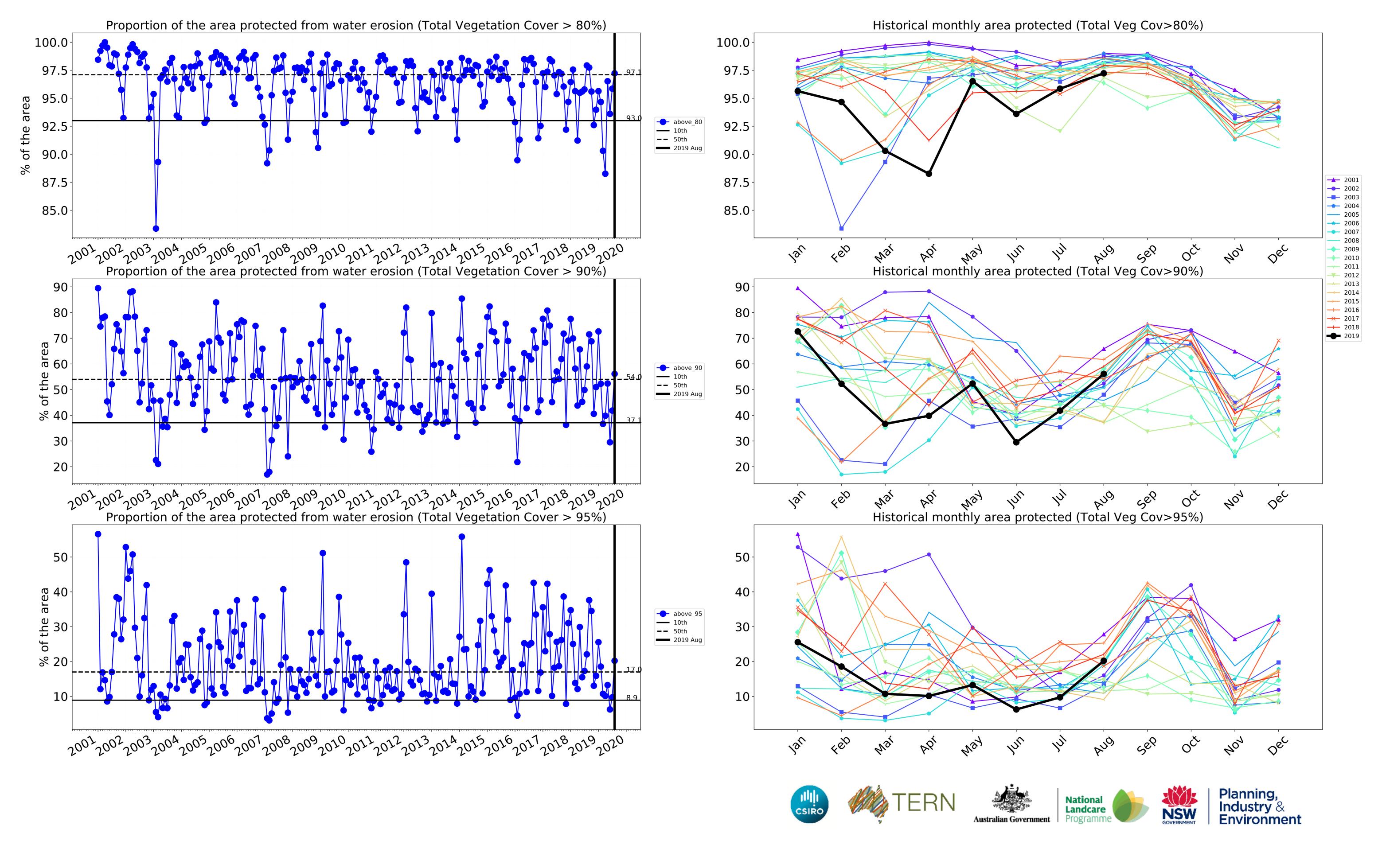




Grazing timeseries







Grazing non forest

Land use and forest cover

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.

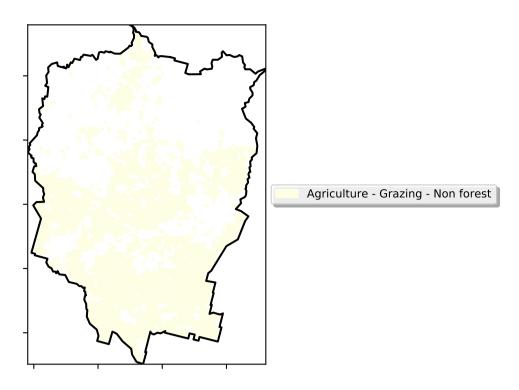
Anomaly show how many percetage points each

pixel is from

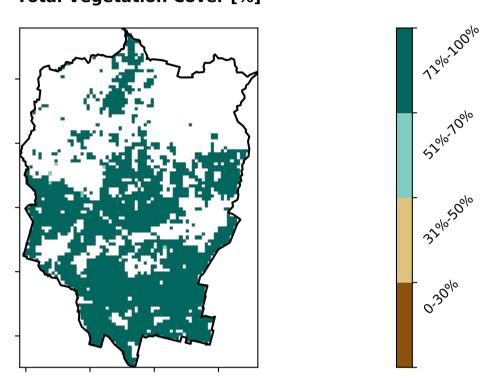
is, red pixels are about 20% lower than the mean of that

the mean. That

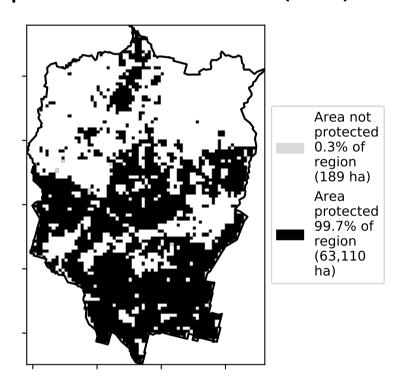
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



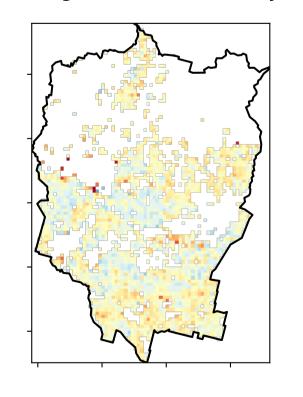
Total Vegetation Cover [%]

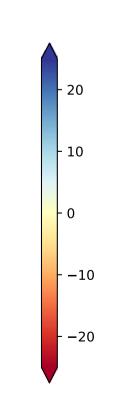


% Area protected from water erosion (>70%)



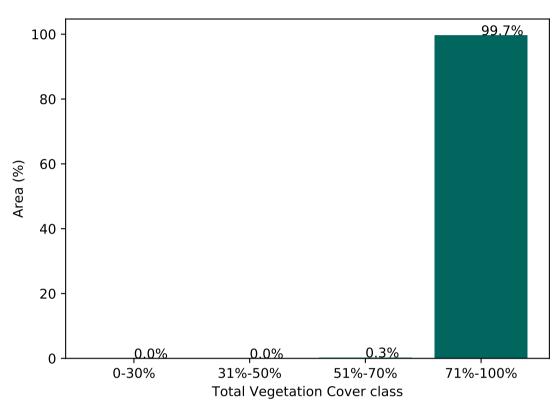
Total Vegetation Cover Anomaly [%]



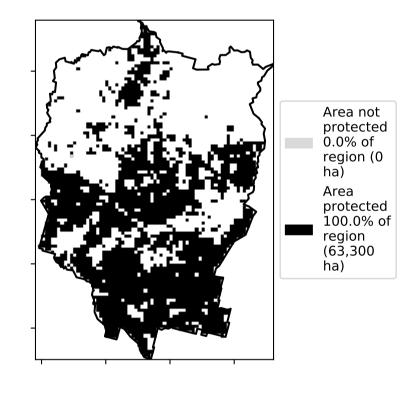


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

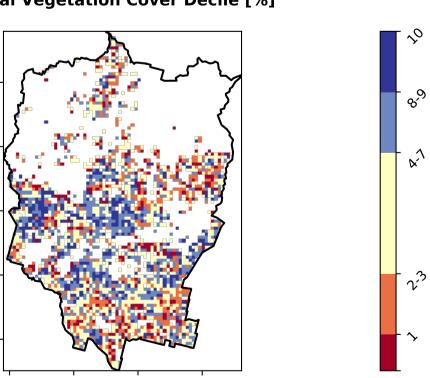
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







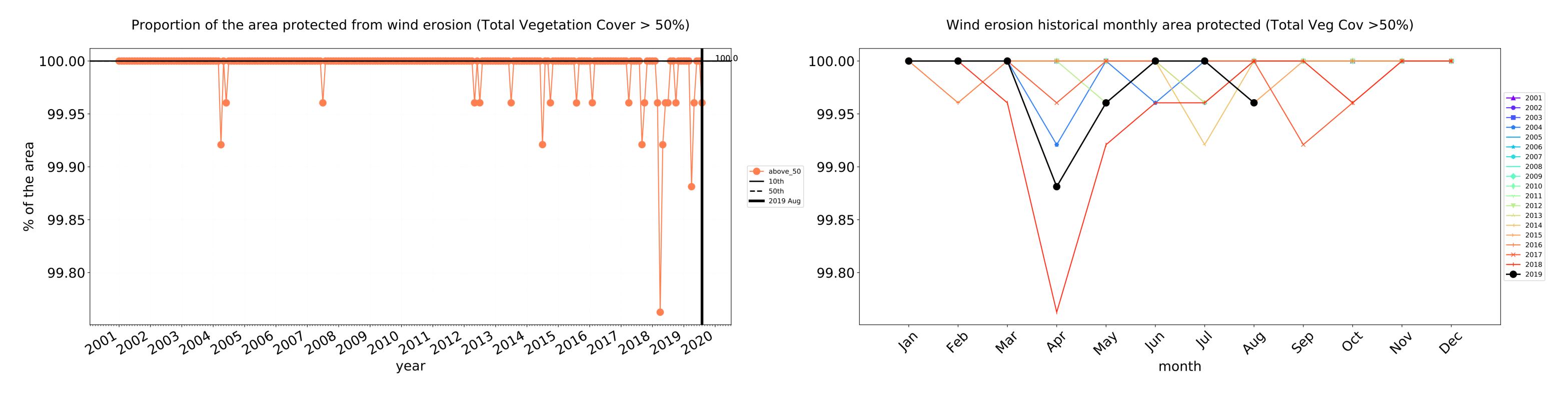


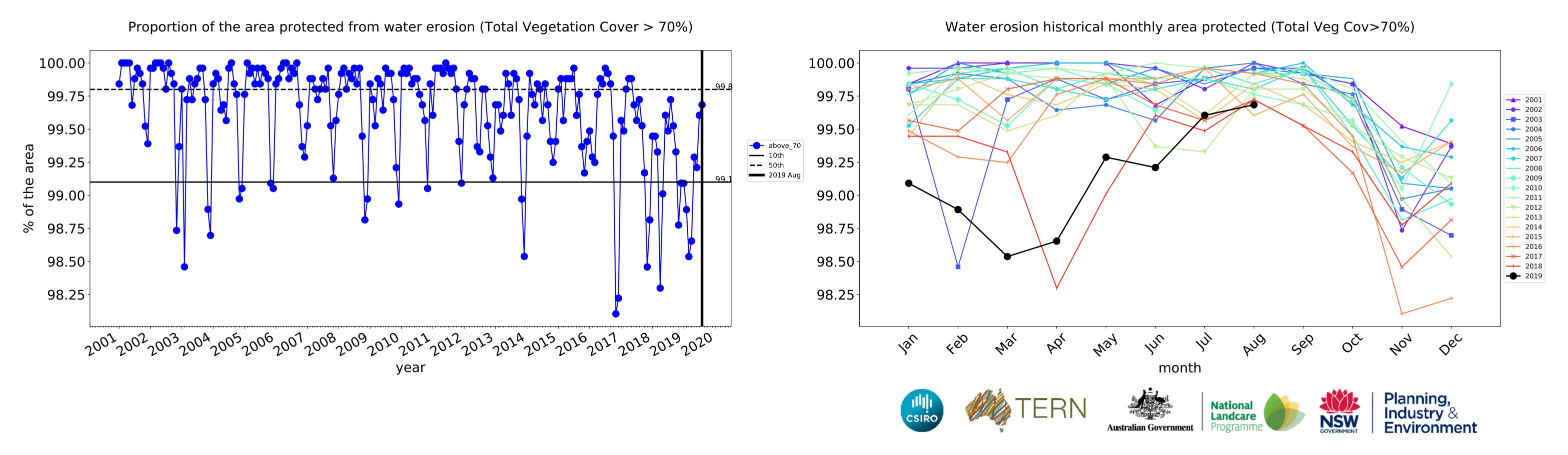


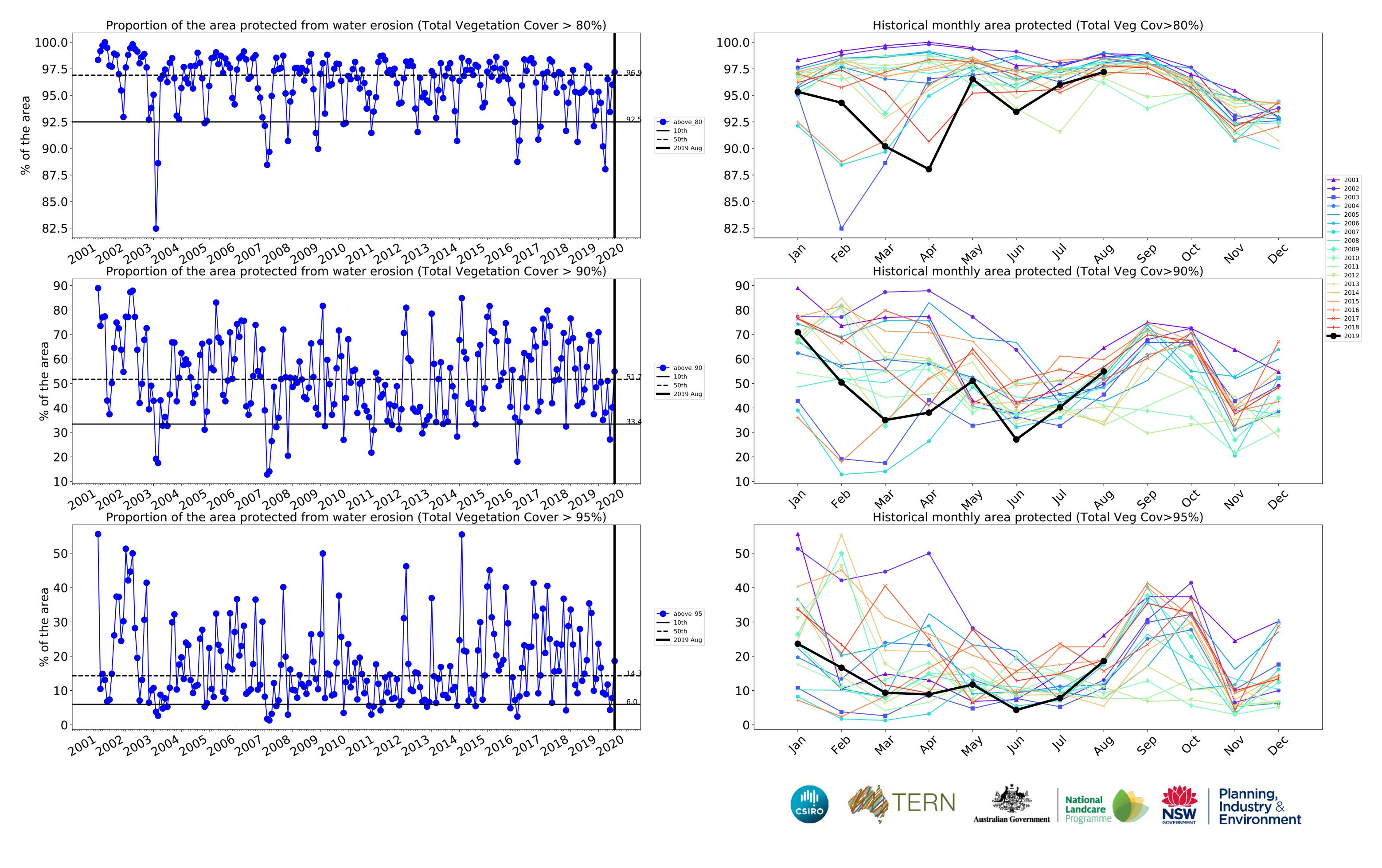




Grazing non forest timeseries







Grazing - Forest (non woodland)

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

Anomaly show how many percetage points each

pixel is from

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

the mean. That

pixel. The mean

using baseline from 2001 to 2019.

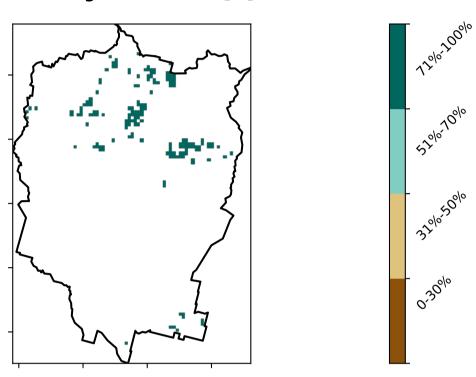
is only for the month of the map

cover.

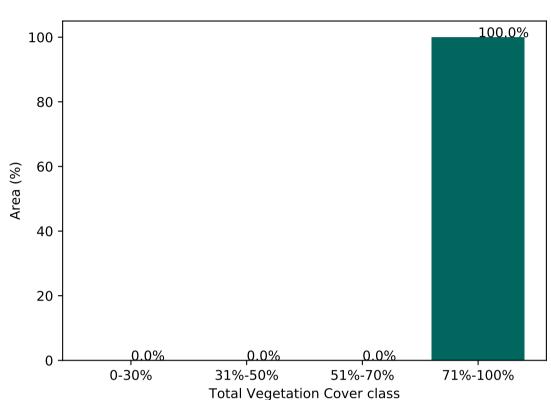
Agriculture - Grazing - Non-oodland forest

Total Vegetation Cover [%]

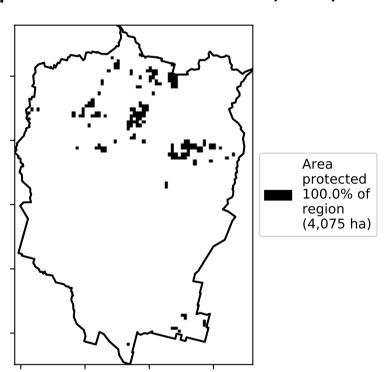
Land use and forest cover



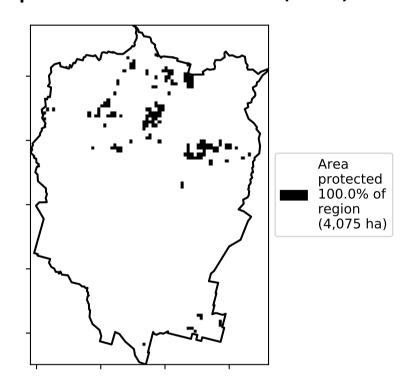
Proportion of vegetation cover class in area



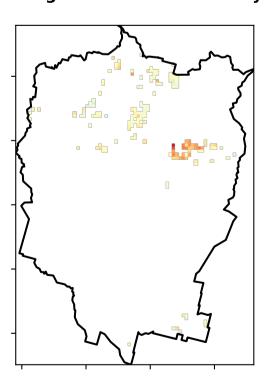
% Area protected from water erosion (>70%)

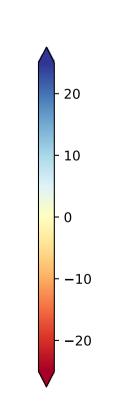


% Area protected from wind erosion (>50%)



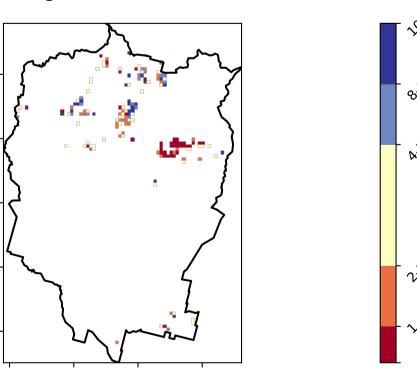
Total Vegetation Cover Anomaly [%]





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

Total Vegetation Cover Decile [%]





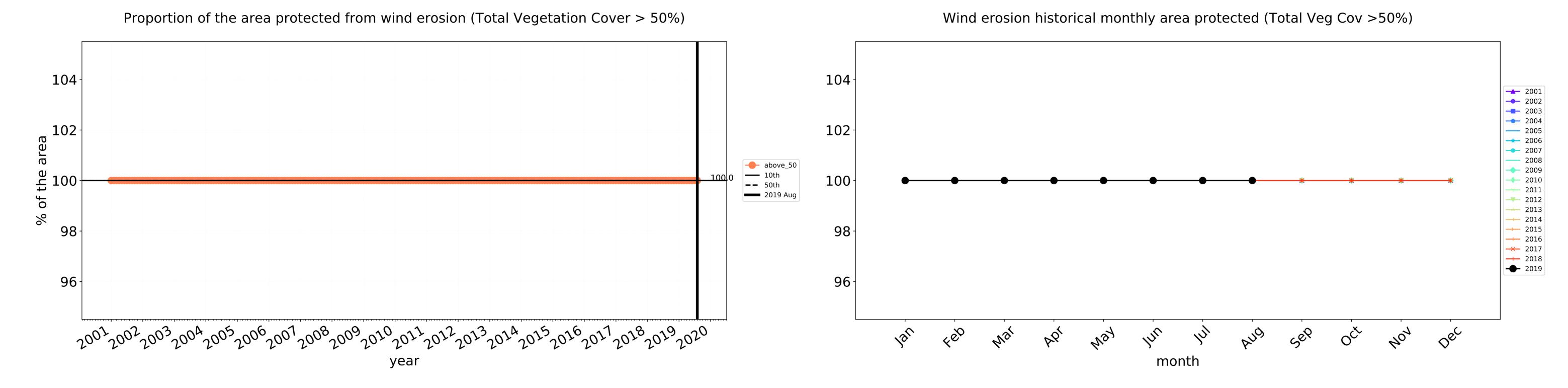


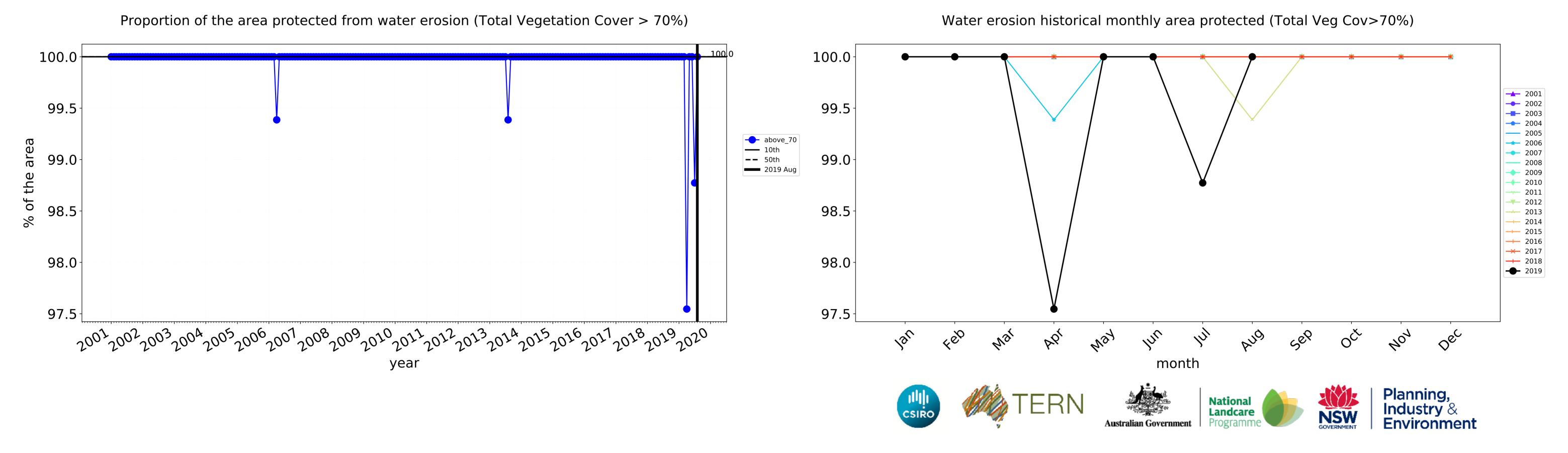


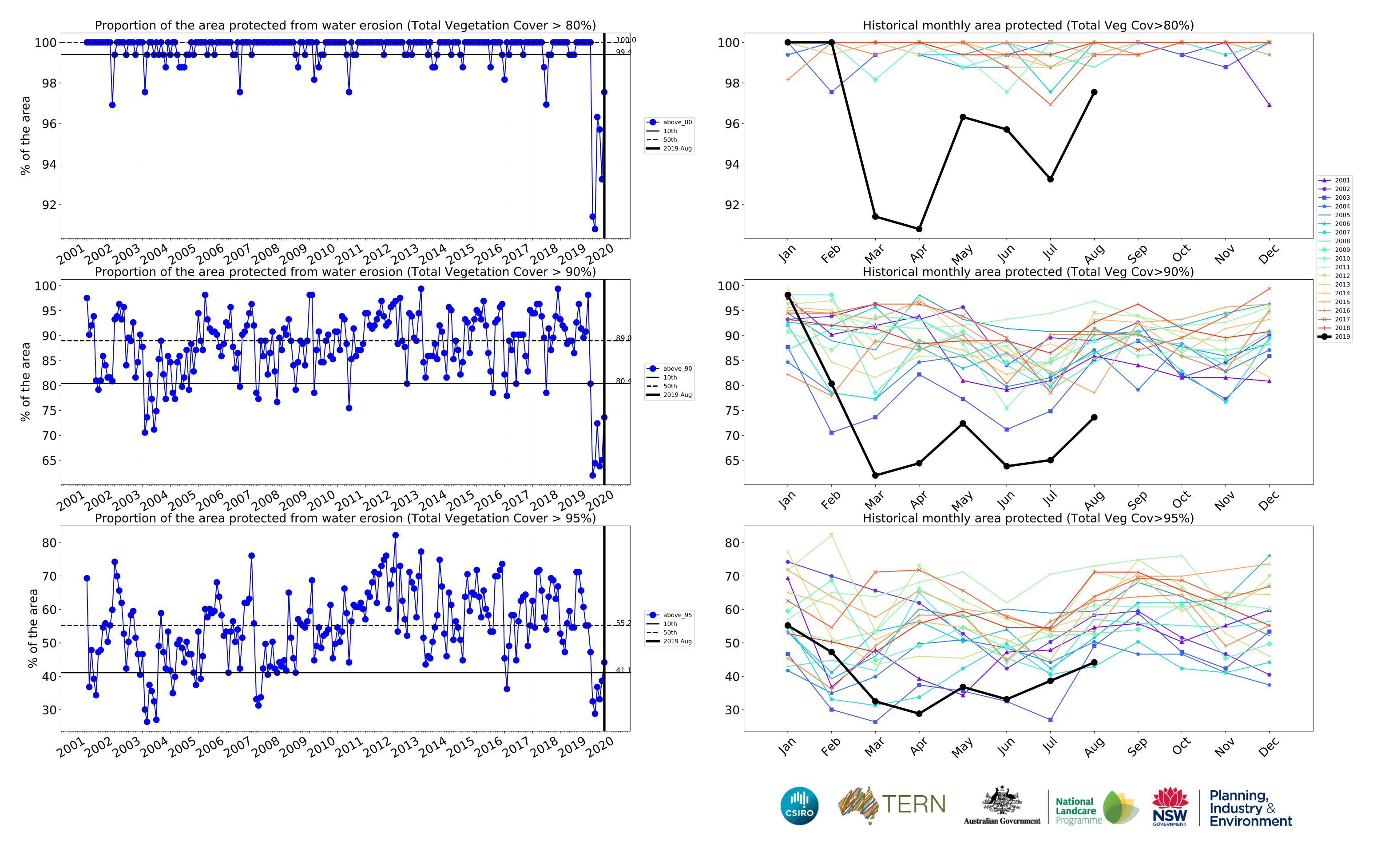












Cropping

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

Anomaly show how many percetage points each

pixel is from

is, red pixels are about 20% lower than the

mean of that pixel. The mean

is only for the month of the map

using baseline from 2001 to 2019.

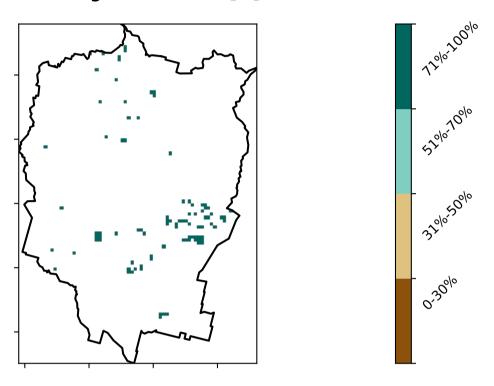
the mean. That

cover.

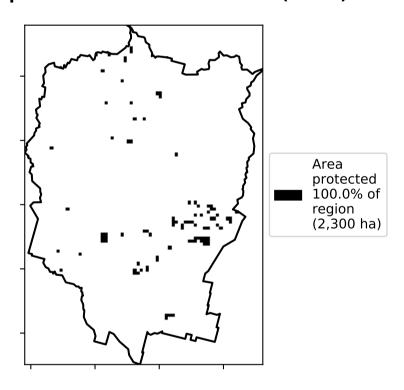
Agriculture - Cropping - Non-irrigated

Total Vegetation Cover [%]

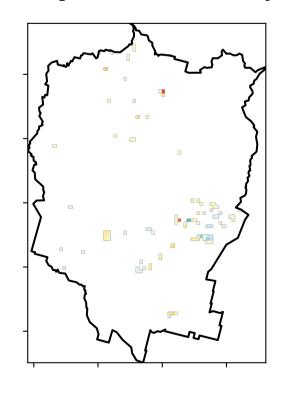
Land use and forest cover

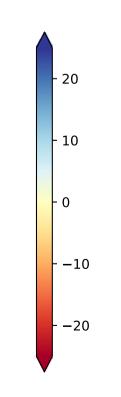


% Area protected from water erosion (>70%)



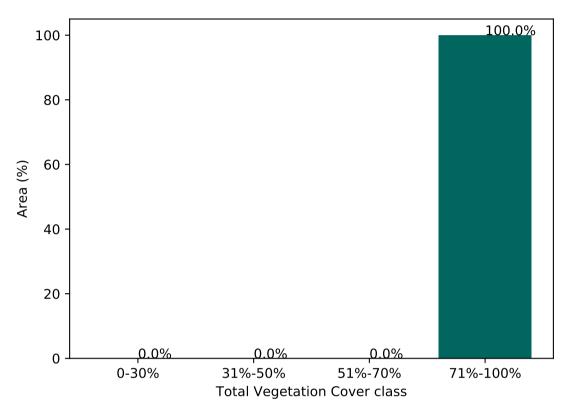
Total Vegetation Cover Anomaly [%]



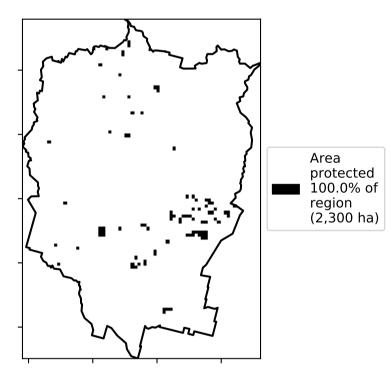


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

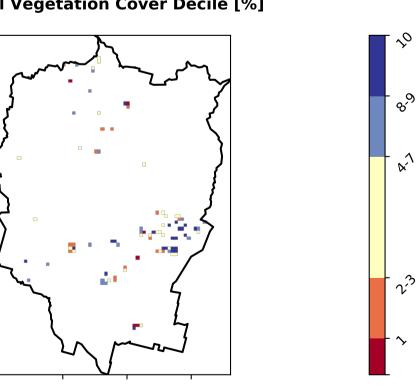
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







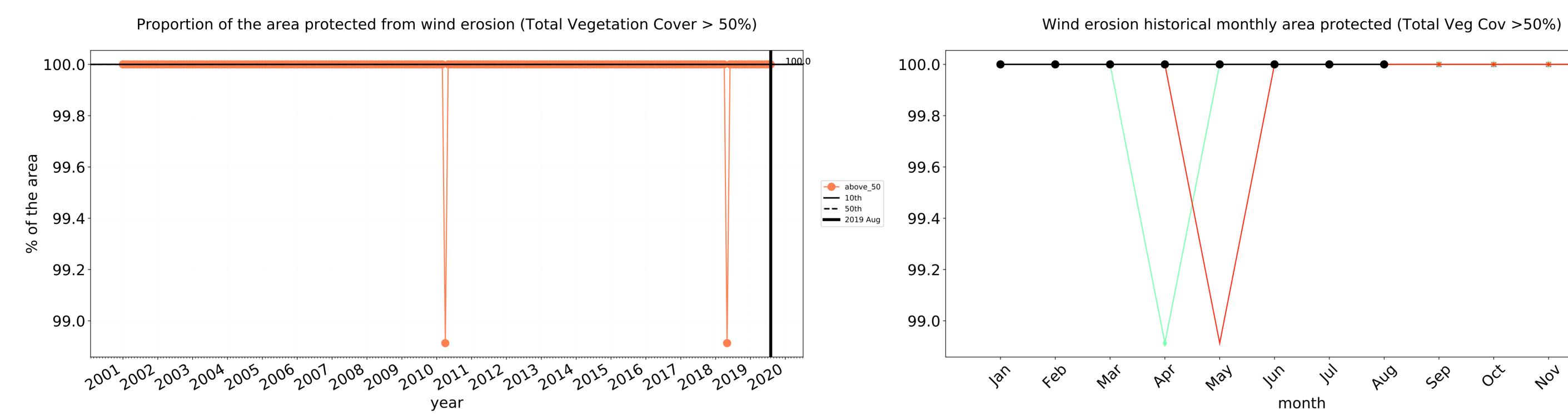


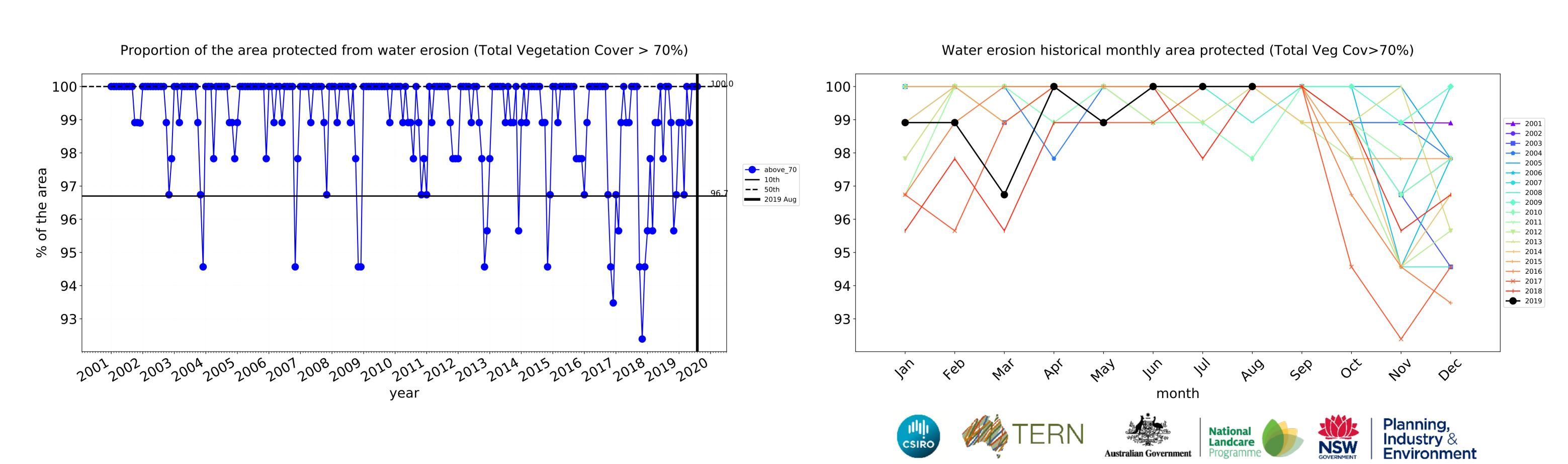






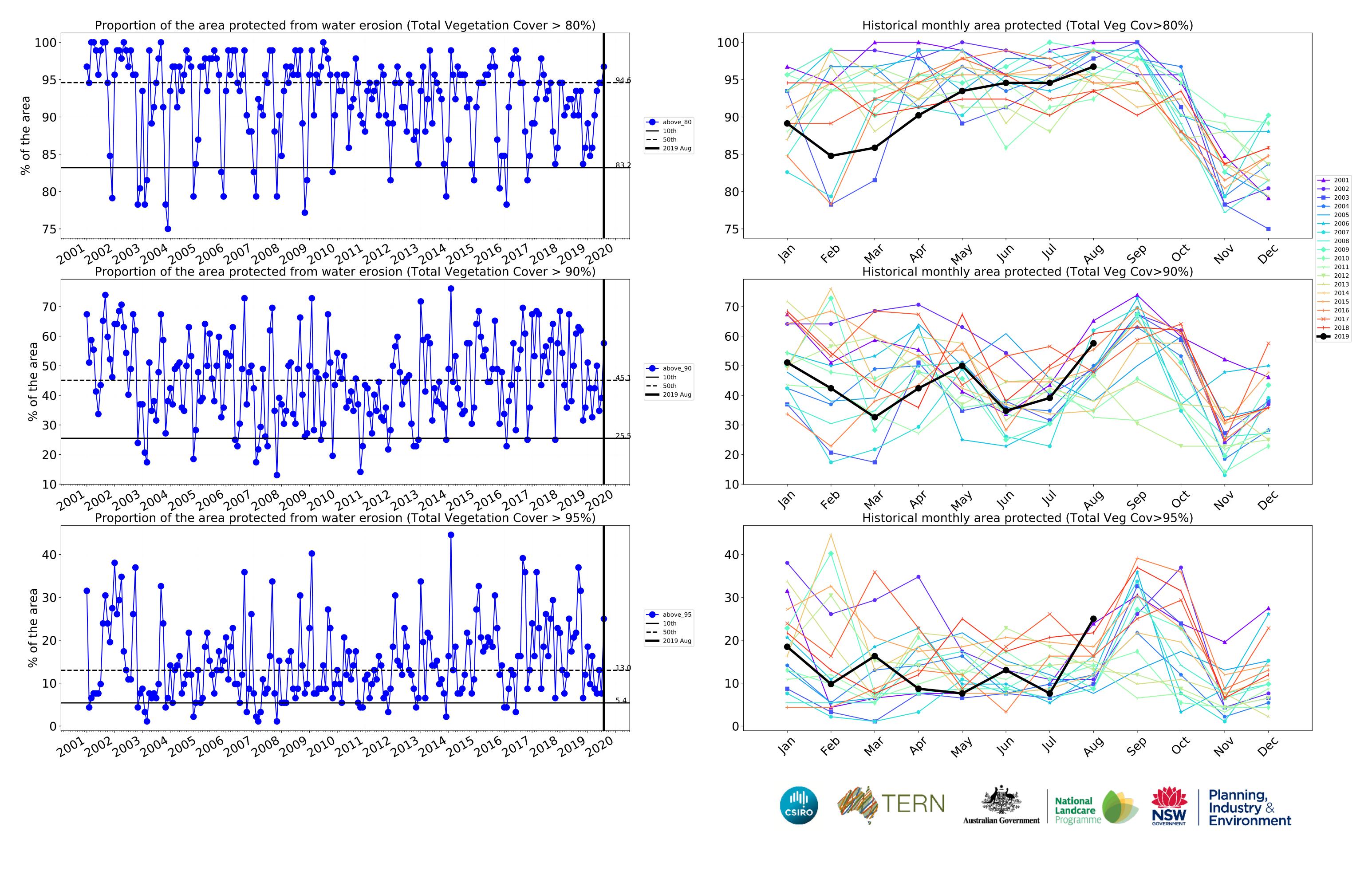
Cropping timeseries





→ 2001

2016
2017
2018
2019



Irrigation

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

Anomaly show how many percetage points each

pixel is from

is, red pixels are about 20% lower than the

mean of that

pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map

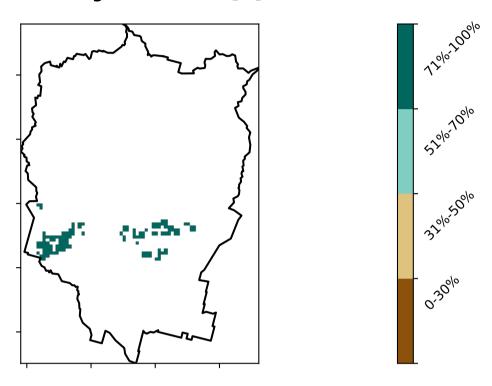
the mean. That

cover.

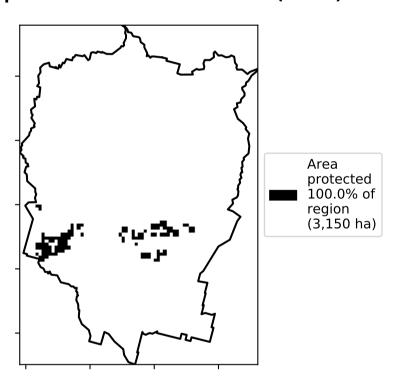
Agriculture - Cropping - Irrigated Agriculture - Horticulture - Irrigated

Total Vegetation Cover [%]

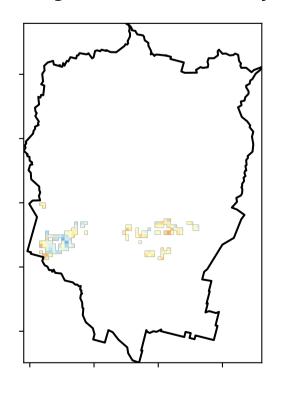
Land use and forest cover

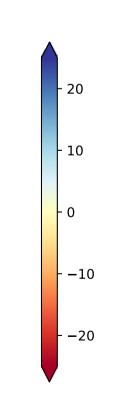


% Area protected from water erosion (>70%)



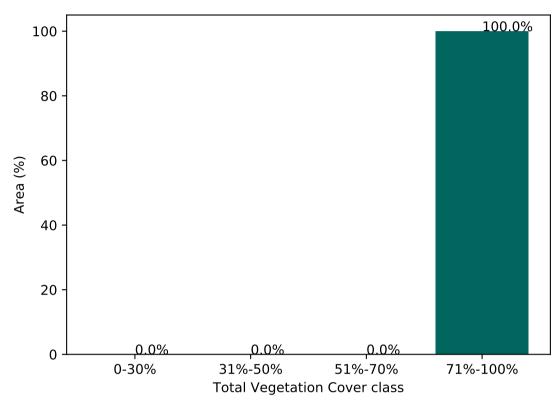
Total Vegetation Cover Anomaly [%]



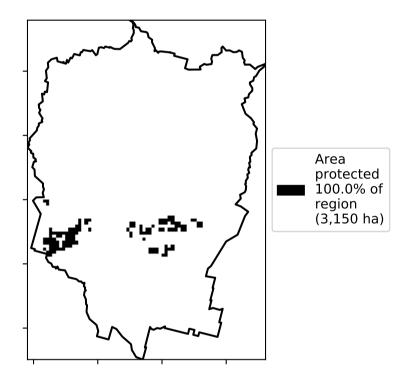


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

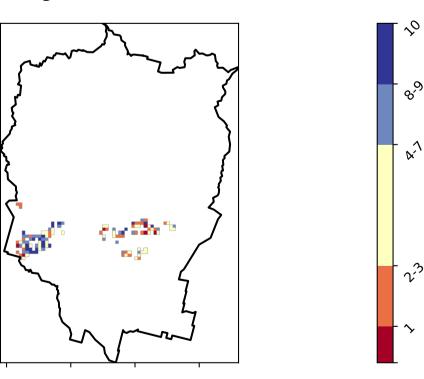
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







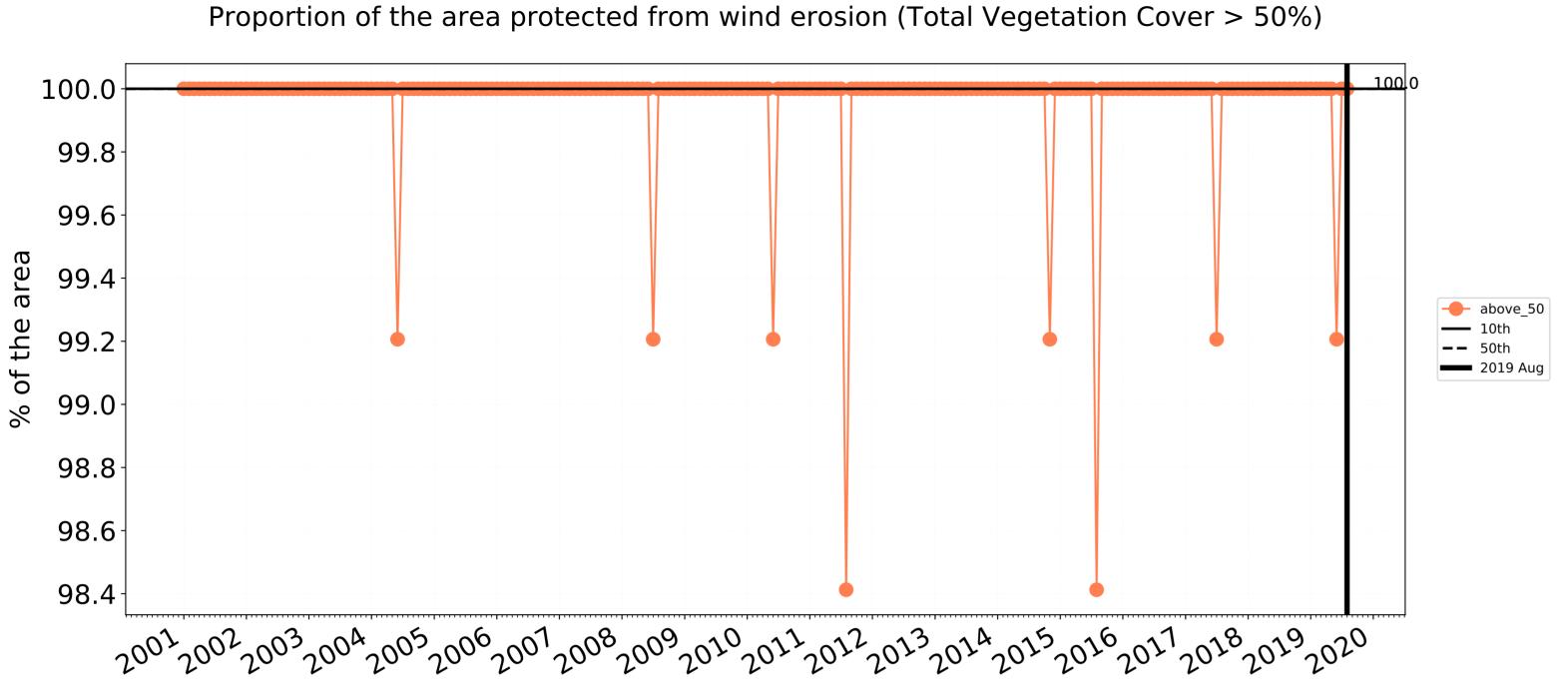


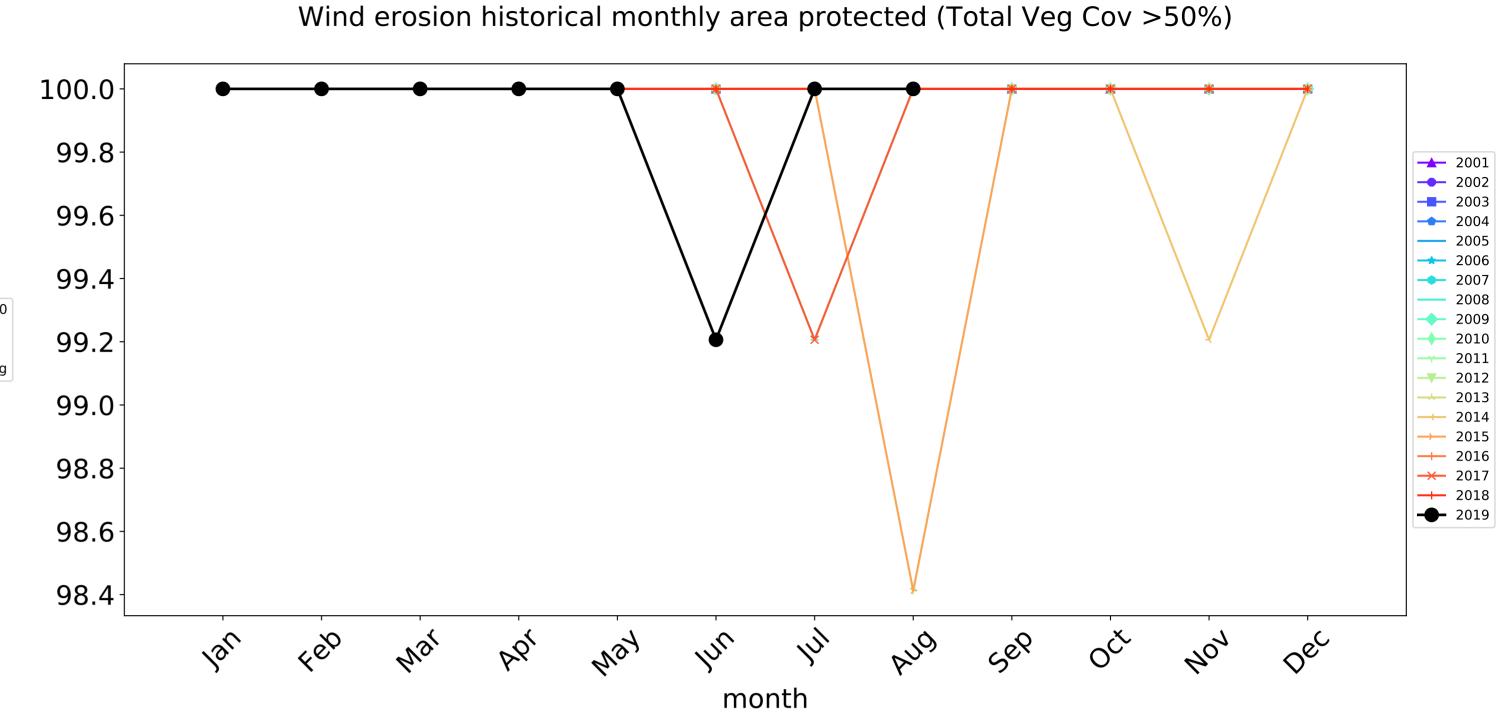


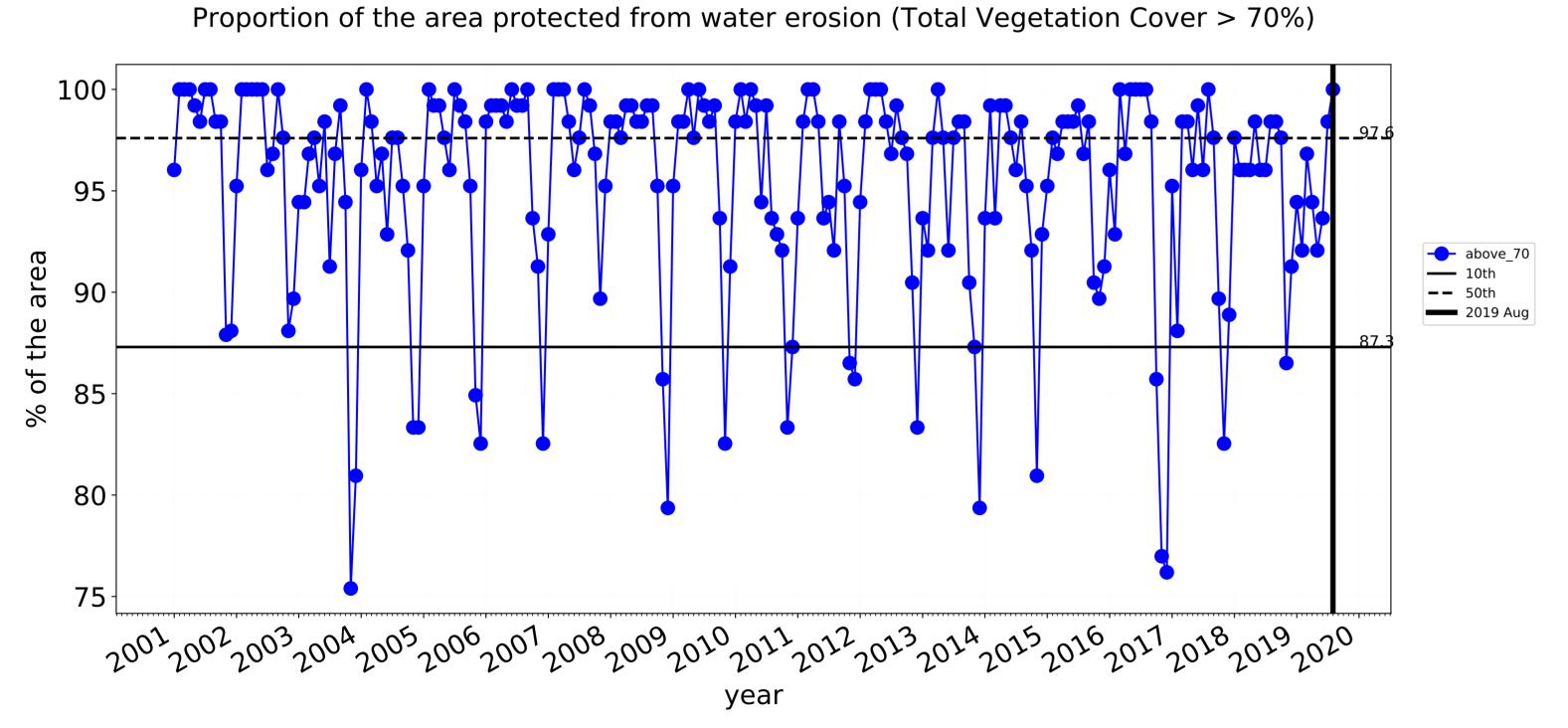


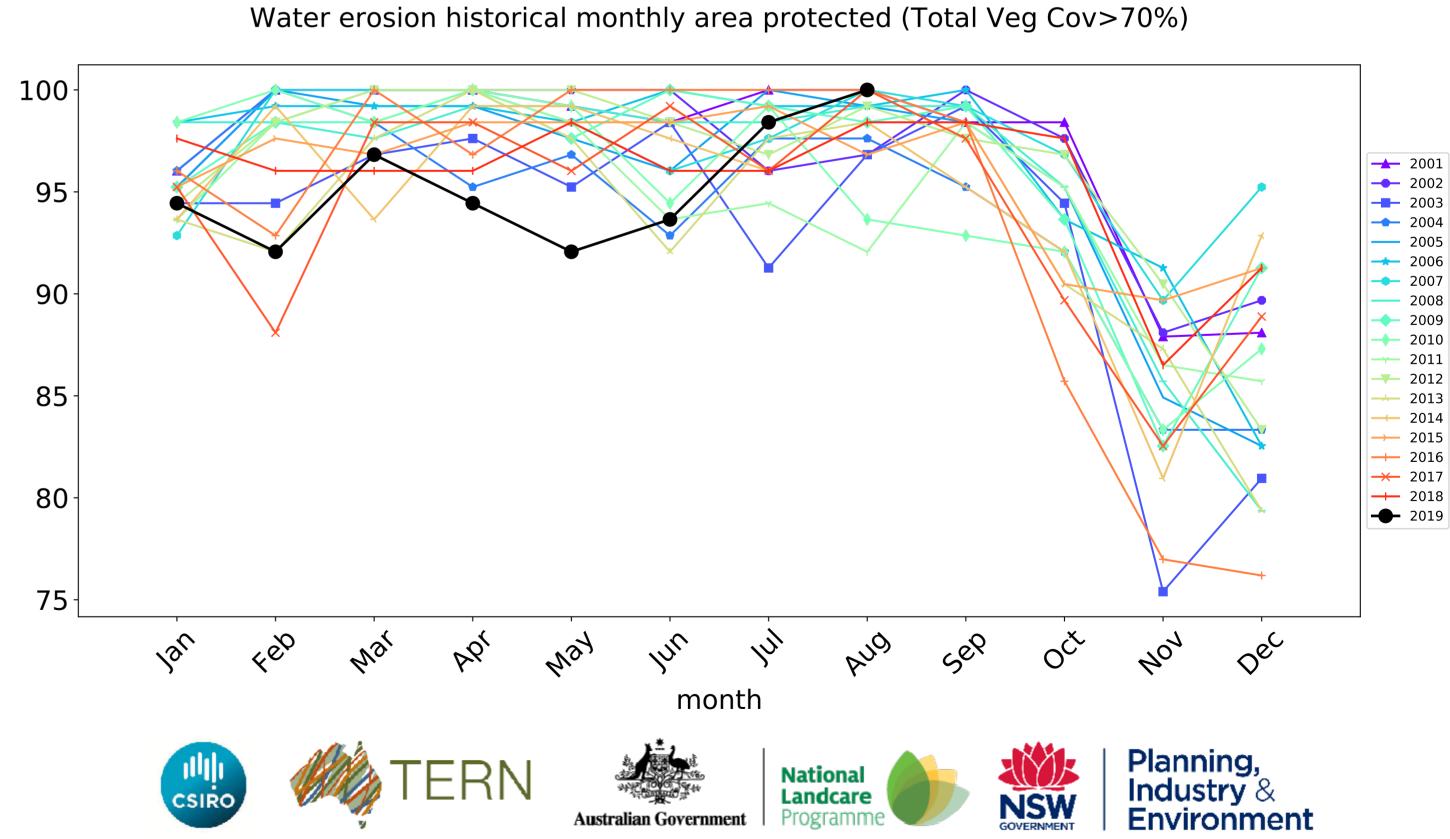


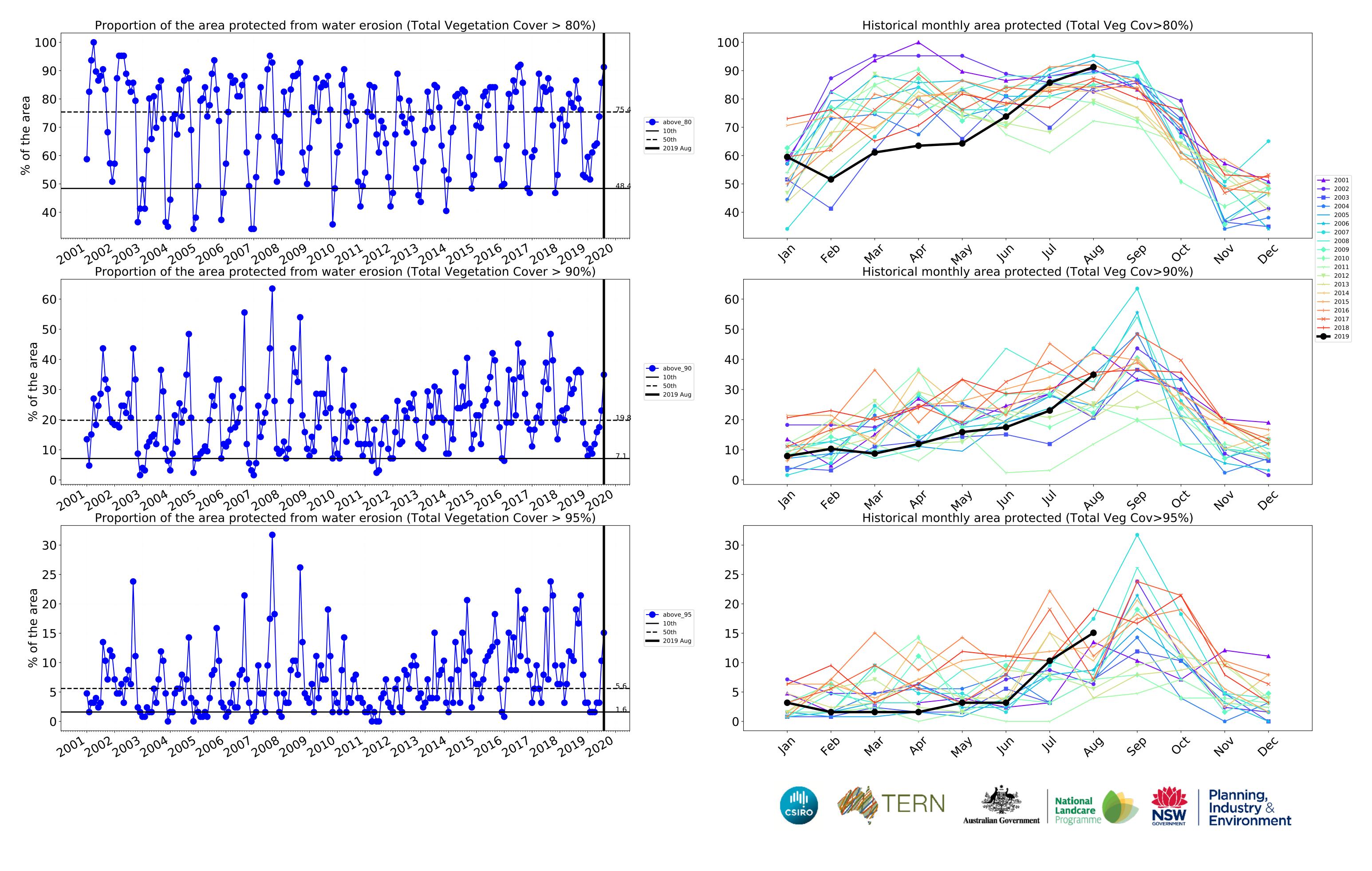
Irrigation timeseries











Production native forests and plantation forests

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.

Anomaly show how many percetage points each

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

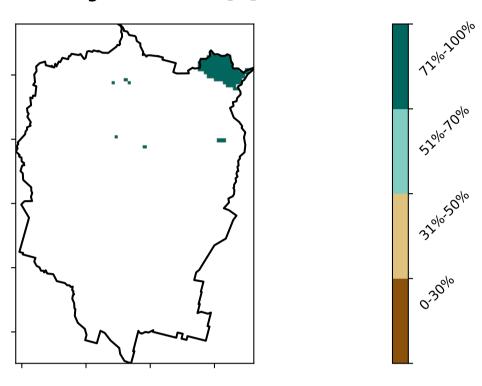
using baseline from 2001 to 2019.

the mean. That

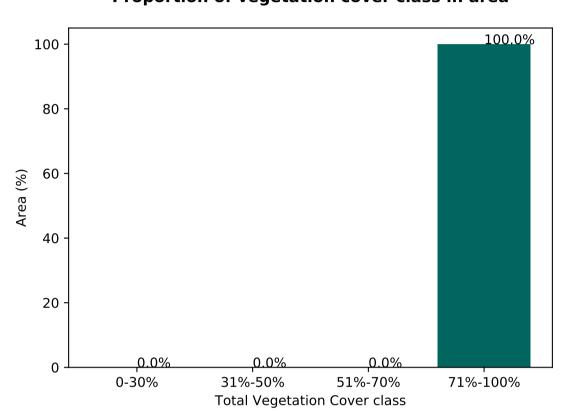
Production native forests and plantation forests

Total Vegetation Cover [%]

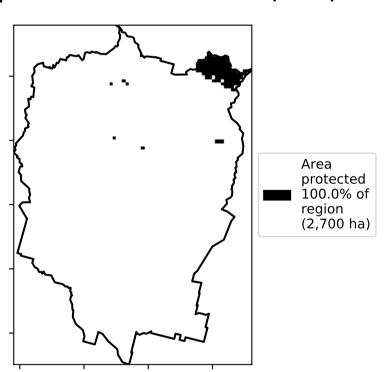
Land use and forest cover



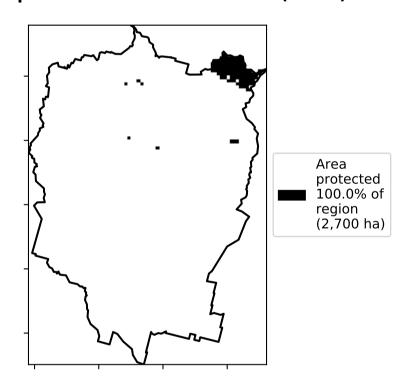
Proportion of vegetation cover class in area



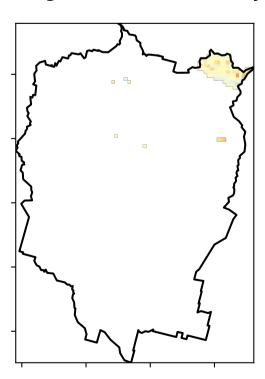
% Area protected from water erosion (>70%)

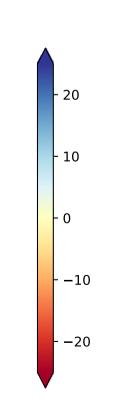


% Area protected from wind erosion (>50%)



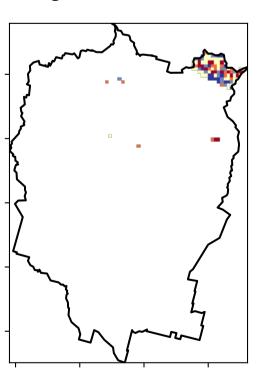
Total Vegetation Cover Anomaly [%]

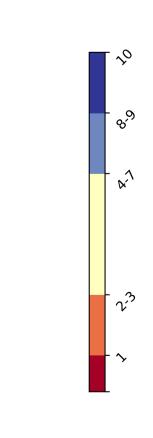




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]









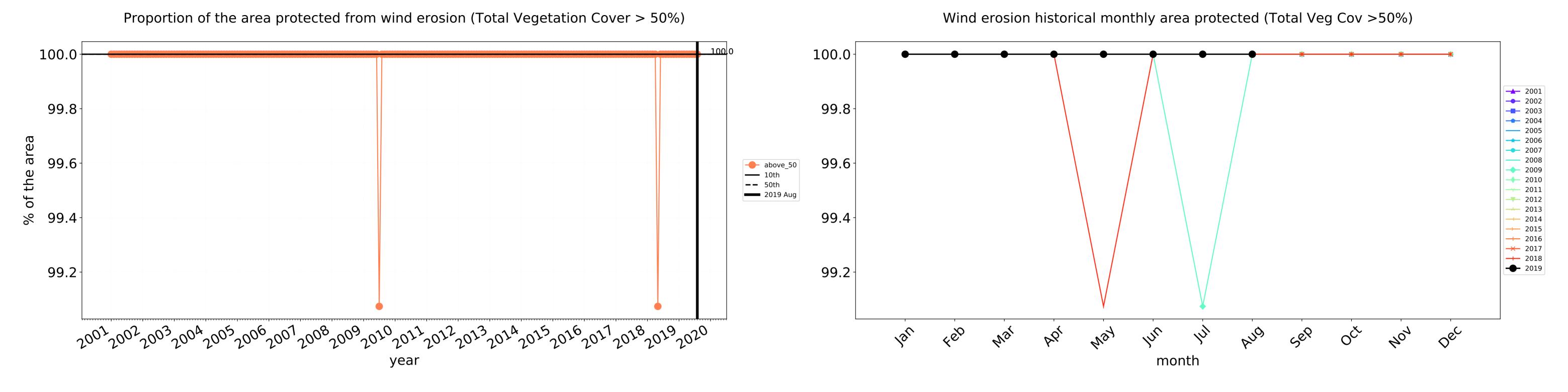


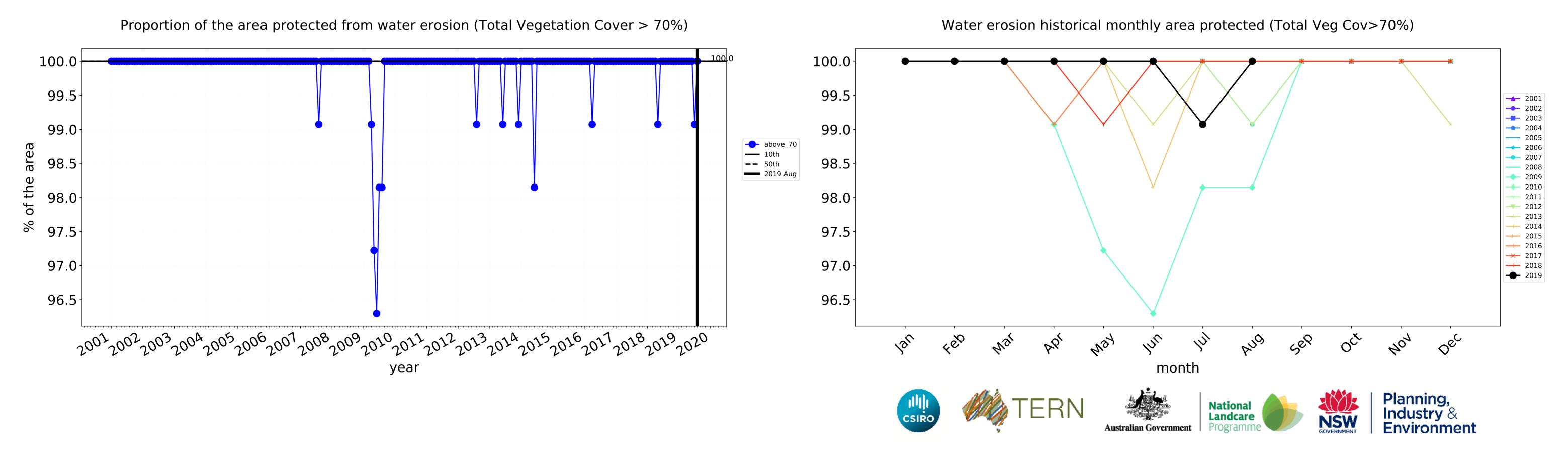


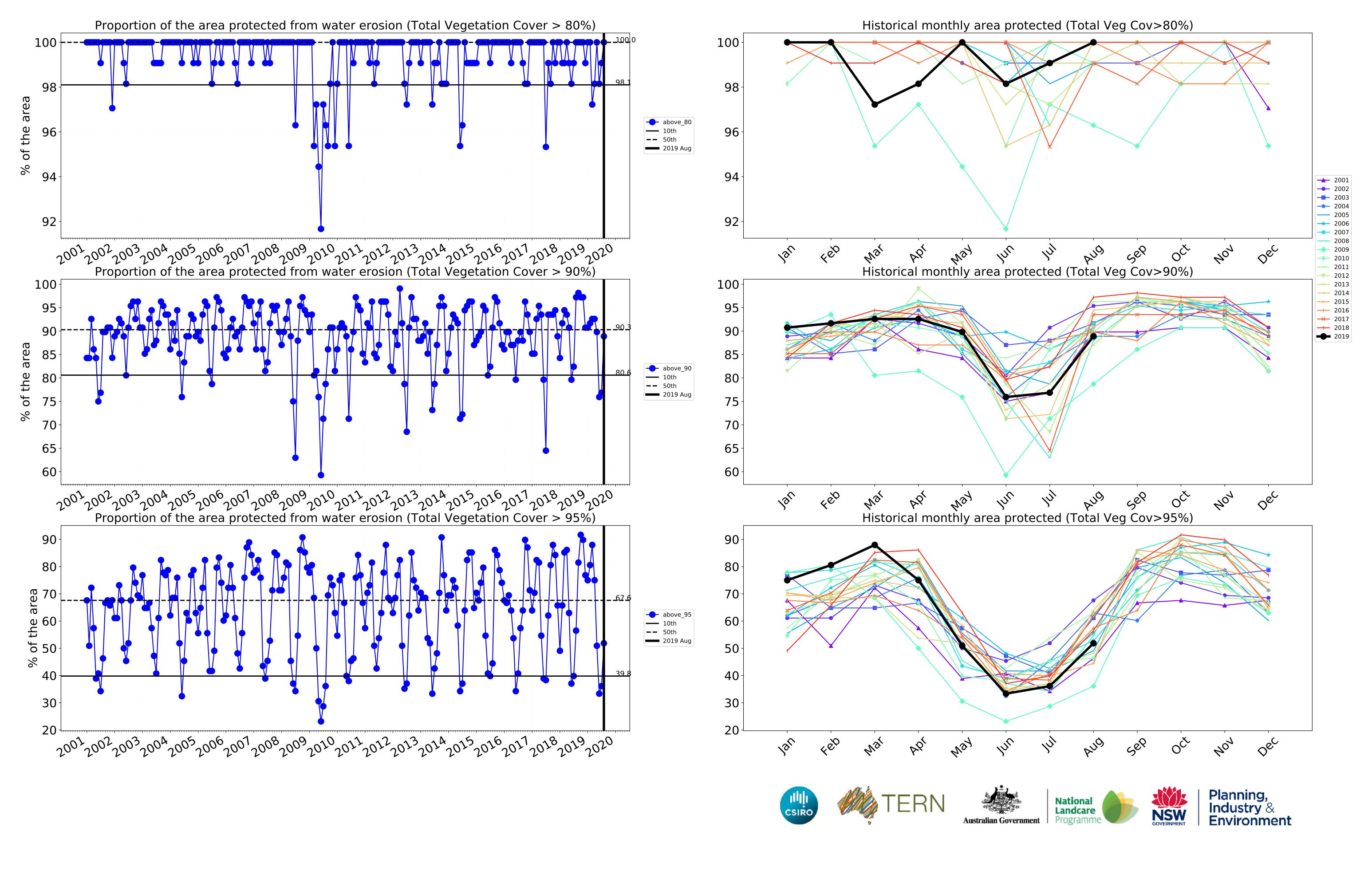




Production native forests and plantation forests timeseries







Cardinia_(S) (127,325 ha and no data 928 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	127,325	100.0% 127,300	99.9% 127,150	97.8% 124,525	93.4% 118,925	53.8% 68,475	20.9% 26,575
Conservation and natural environments	16,552	100.0% 16,552	100.0% 16,552	99.8% 16,527	93.5% 15,478	60.3% 9,986	32.6% 5,392
Conservation and natural environments Woodland forest	3,055	100.0% 3,055	100.0% 3,055	100.0% 3,055	95.2% 2,907	46.8% 1,429	17.7% 542
Conservation and natural environments Forest (non woodland)	12,987	100.0% 12,987	100.0% 12,987	99.8% 12,962	93.1% 12,091	63.8% 8,284	37.0% 4,801
Agriculture	75,249	100.0% 75,249	100.0% 75,223	99.7% 75,044	97.0% 72,968	55.3% 41,582	20.1% 15,142
Grazing	67,354	100.0% 67,354	100.0% 67,330	99.7% 67,155	97.2% 65,488	56.1% 37,809	20.2% 13,615
Grazing non forest	63,025	100.0% 63,025	100.0% 63,000	99.7% 62,826	97.2% 61,258	54.9% 34,599	18.6% 11,724
Grazing - Forest (non woodland)	4,074	100.0% 4,074	100.0% 4,074	100.0% 4,074	97.5% 3,974	73.6% 2,999	44.2% 1,799
Cropping	2,291	100.0% 2,291	100.0% 2,291	100.0% 2,291	96.7% 2,217	57.6% 1,320	25.0% 572
Irrigation	3,183	100.0% 3,183	100.0% 3,183	100.0% 3,183	91.3% 2,905	34.9% 1,111	15.1% 479
Production native forests and plantation forests	2,673	100.0% 2,673	100.0% 2,673	100.0% 2,673	100.0% 2,673	88.9% 2,376	51.9% 1,386











