LGA Byron_(A) (NSW) - 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.

Byron_(A)

- 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:
 - the percentage area with pixels greater than 200/ total ele
 - 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

Landuse map of area based on 2015

catchment scale landuse and

Australia's National

where no forest is <

sparse is 20 to 50%

Anomaly show how many percetage points each pixel is from

the mean. That

is, red pixels

are about 20%

lower than the

month of the map

using baseline from 2001 to

2019.

mean of that pixel. The mean is only for the

and dense > 50% tree

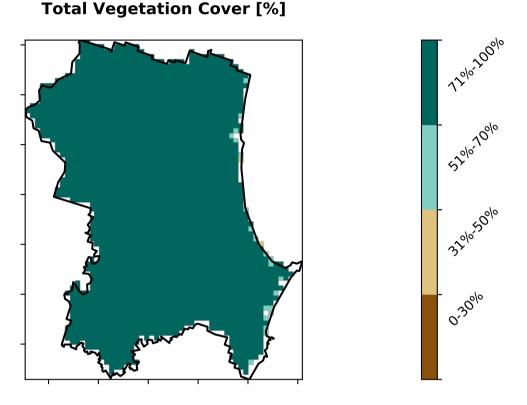
Forest Inventory,

20% tree cover,

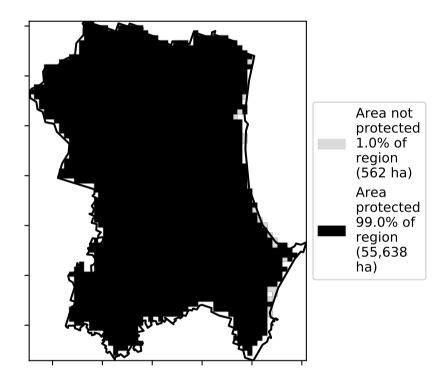
cover.

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

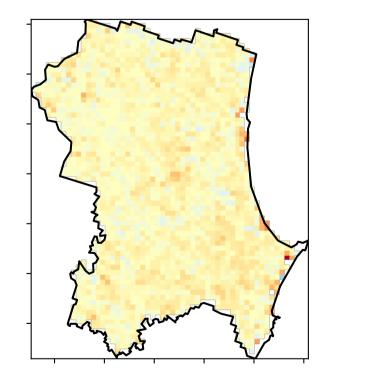
Total Vagatation Cover [9/1



% Area protected from water erosion (>70%)



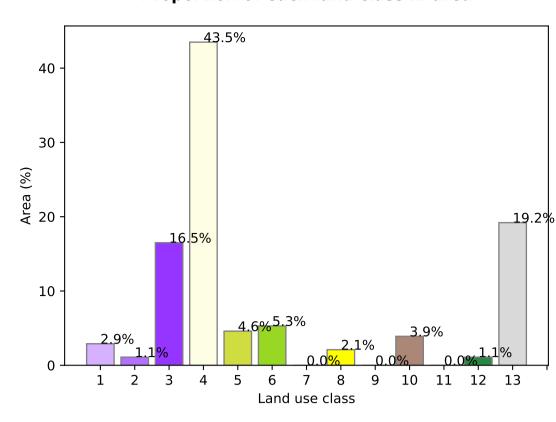
Total Vegetation Cover Anomaly [%]



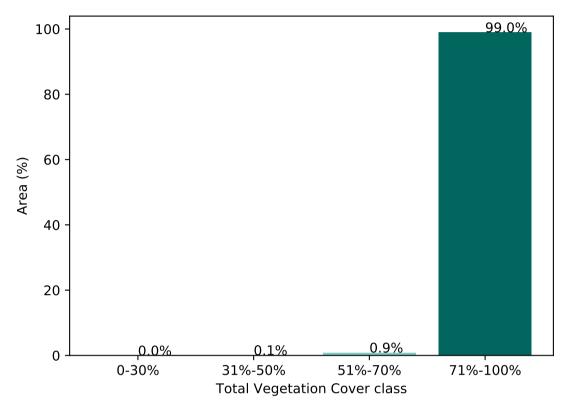
- 20 - 10 - 0 - -10 - -20

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.

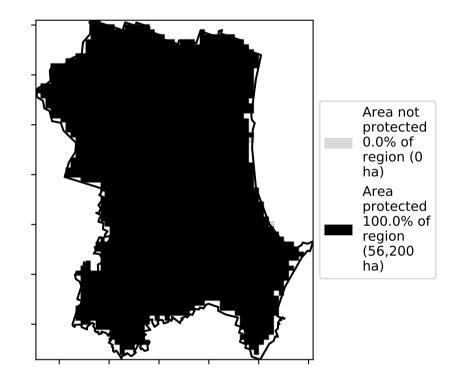
Proportion of each land class in area

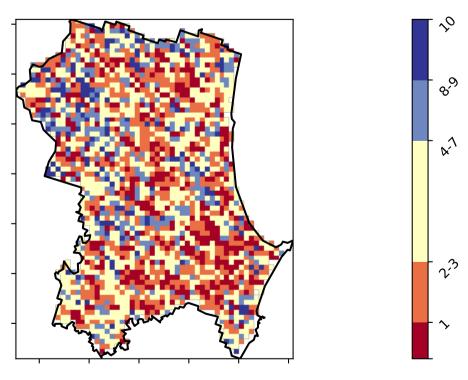


Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)







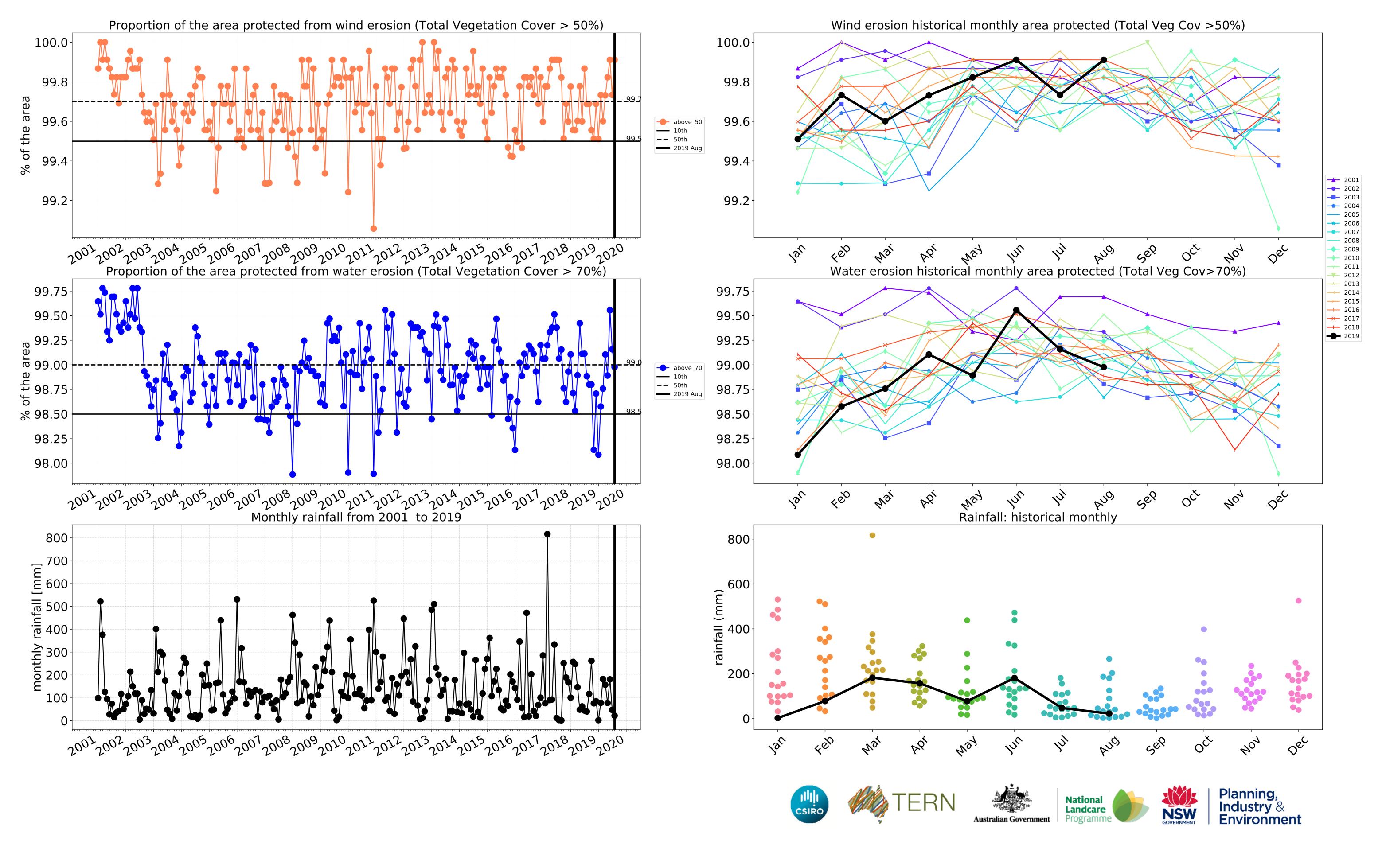


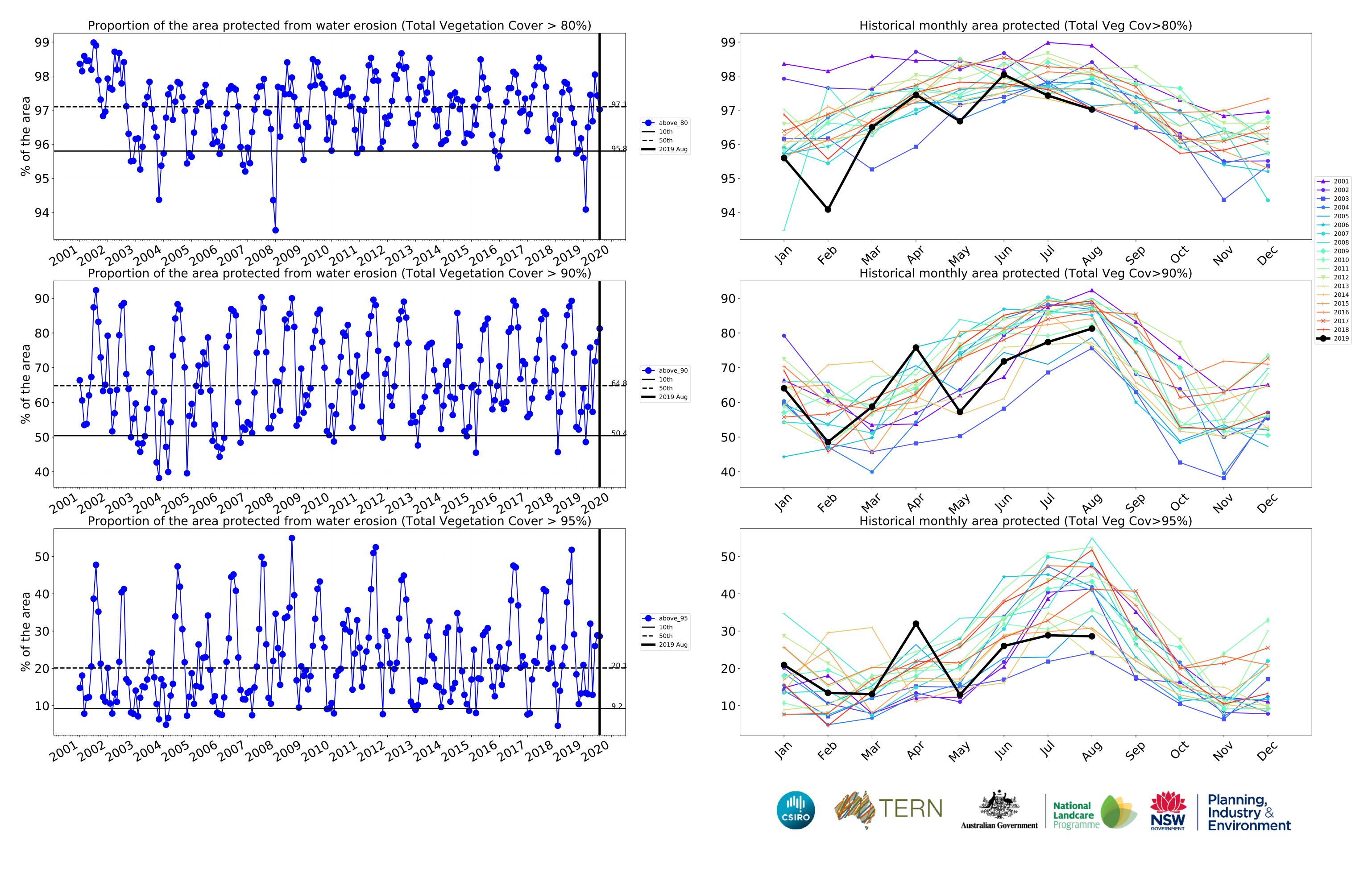












Conservation and natural environments

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

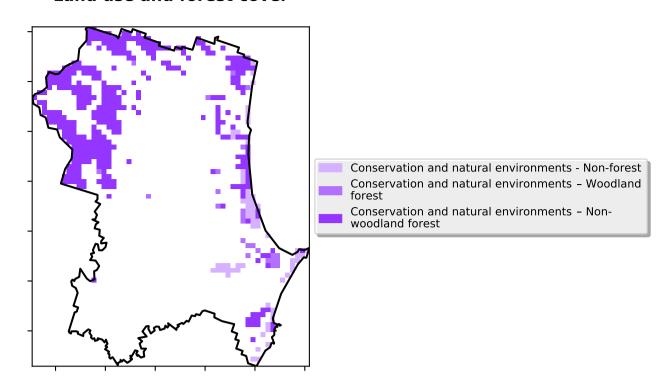
mean of that

pixel. The mean

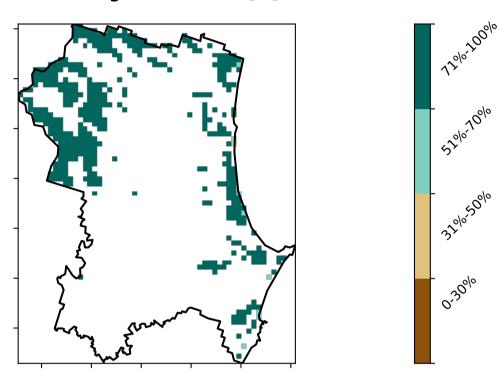
using baseline from 2001 to 2019.

is only for the month of the map

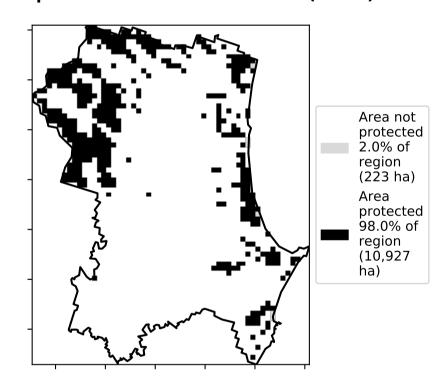
the mean. That



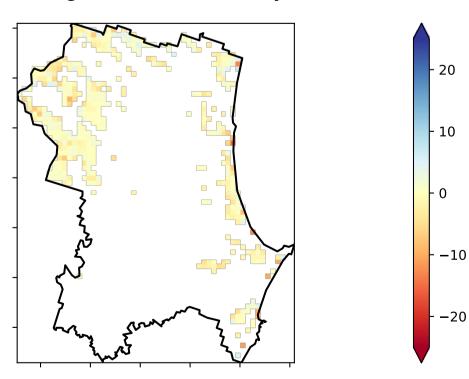
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

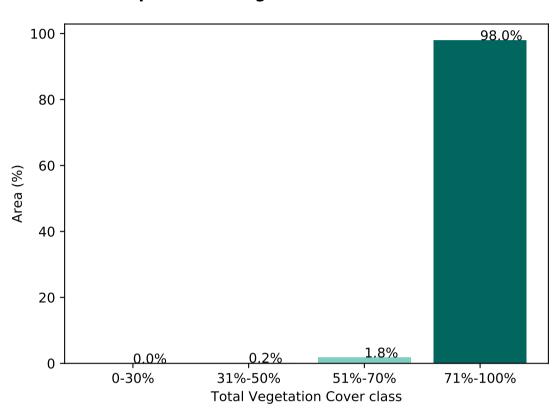


Total Vegetation Cover Anomaly [%]

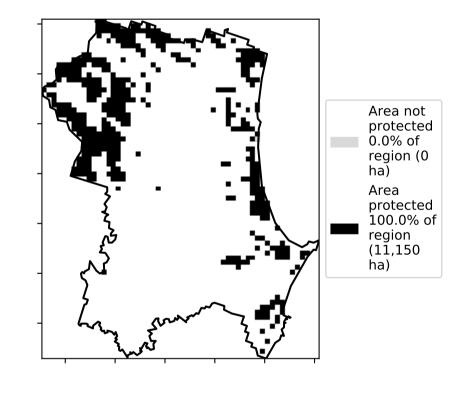


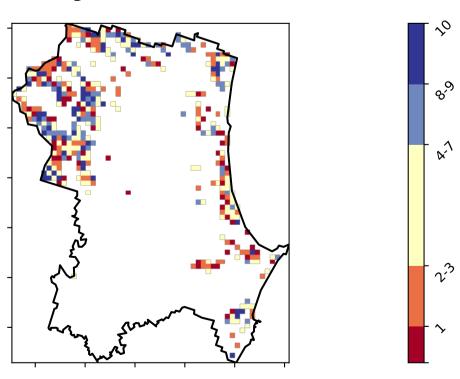
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









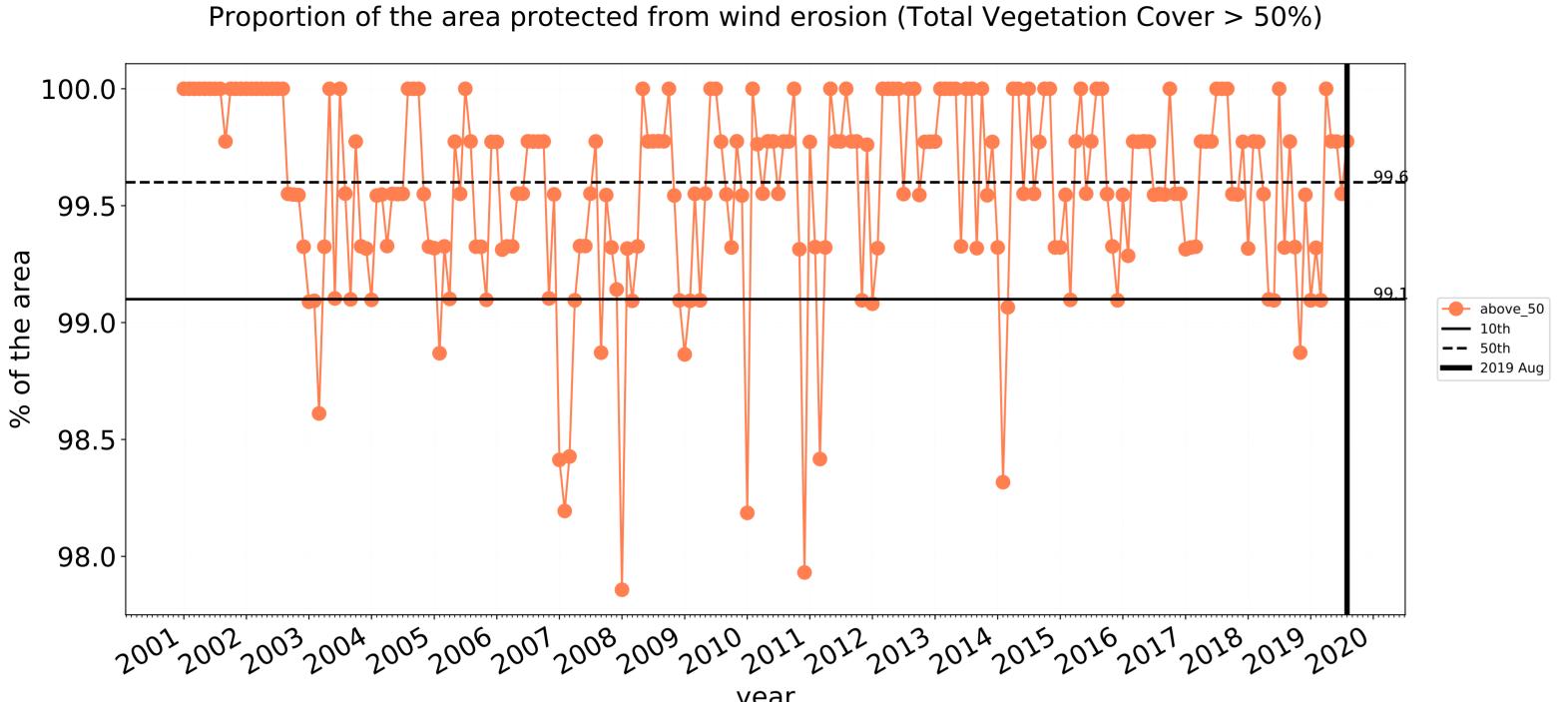


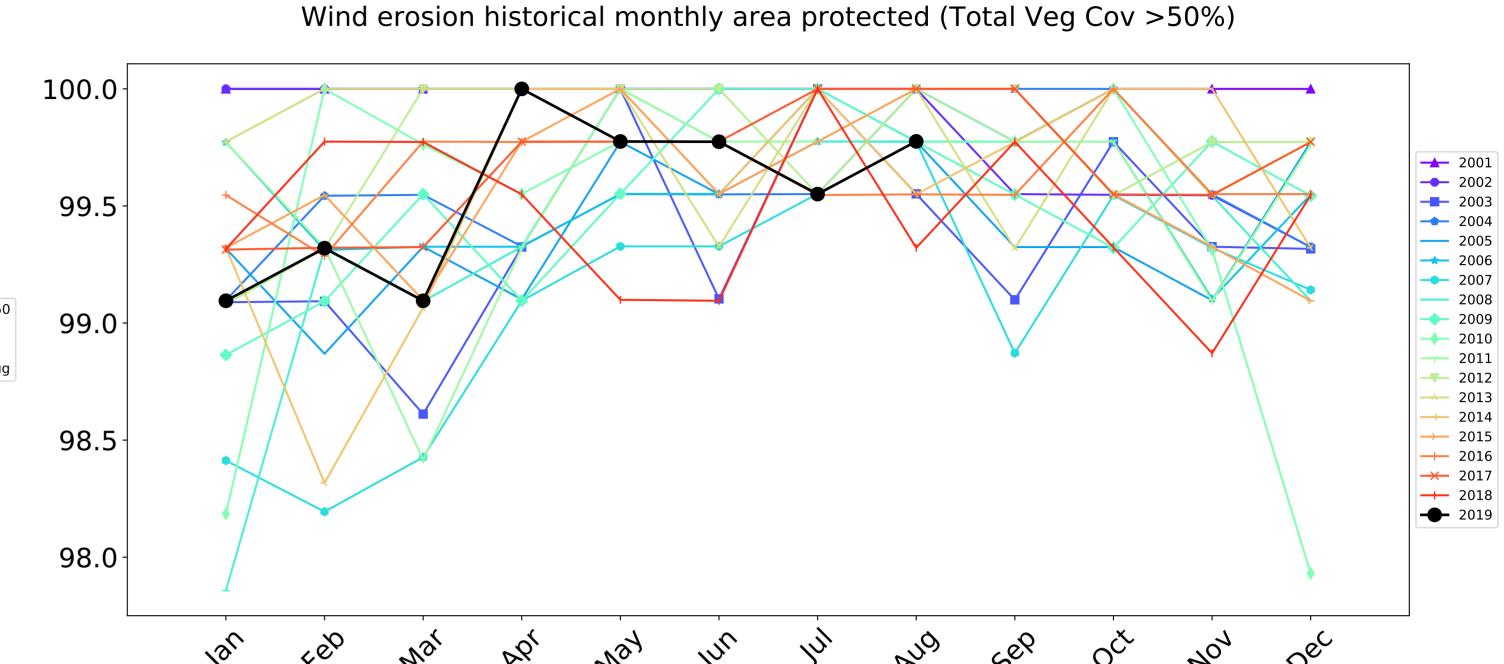




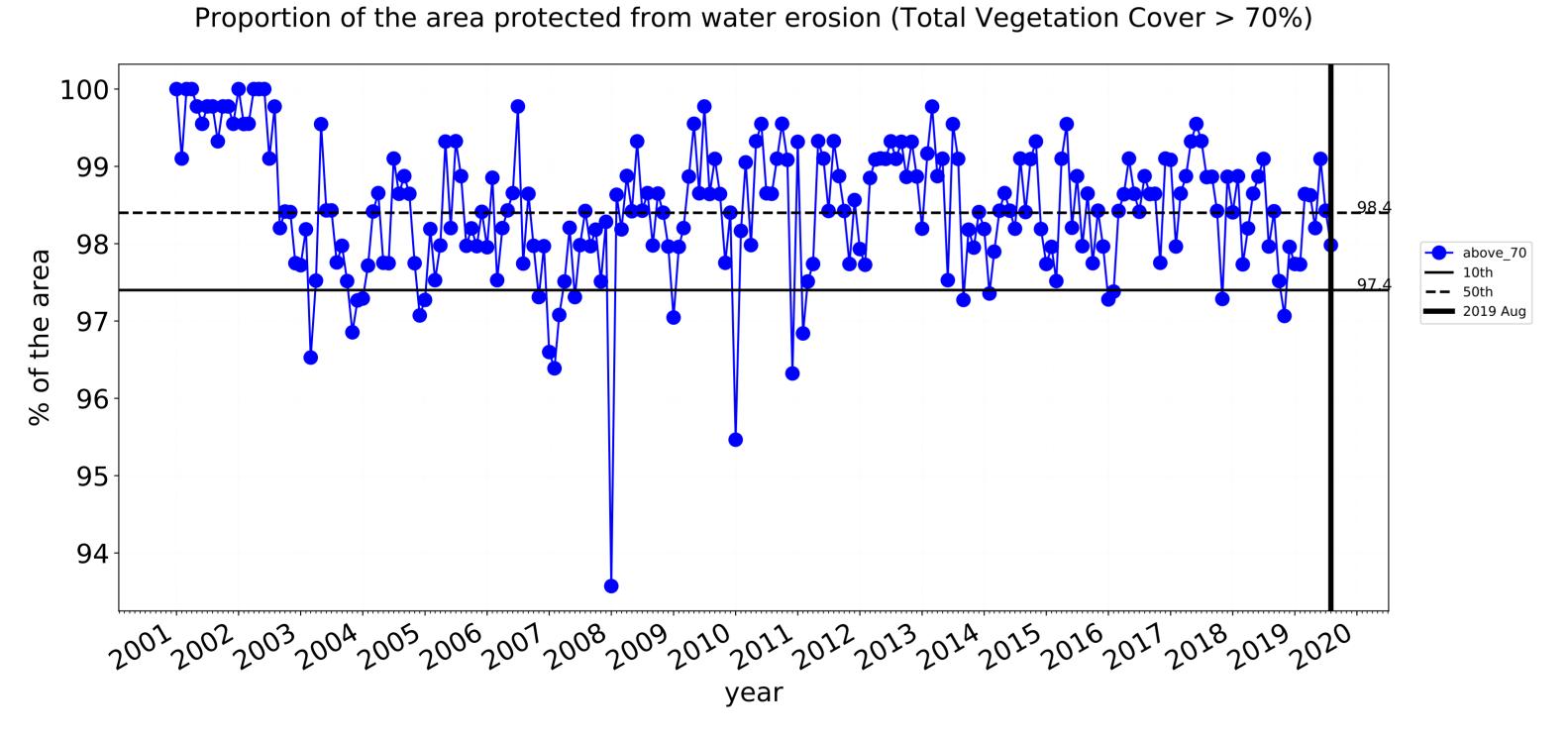


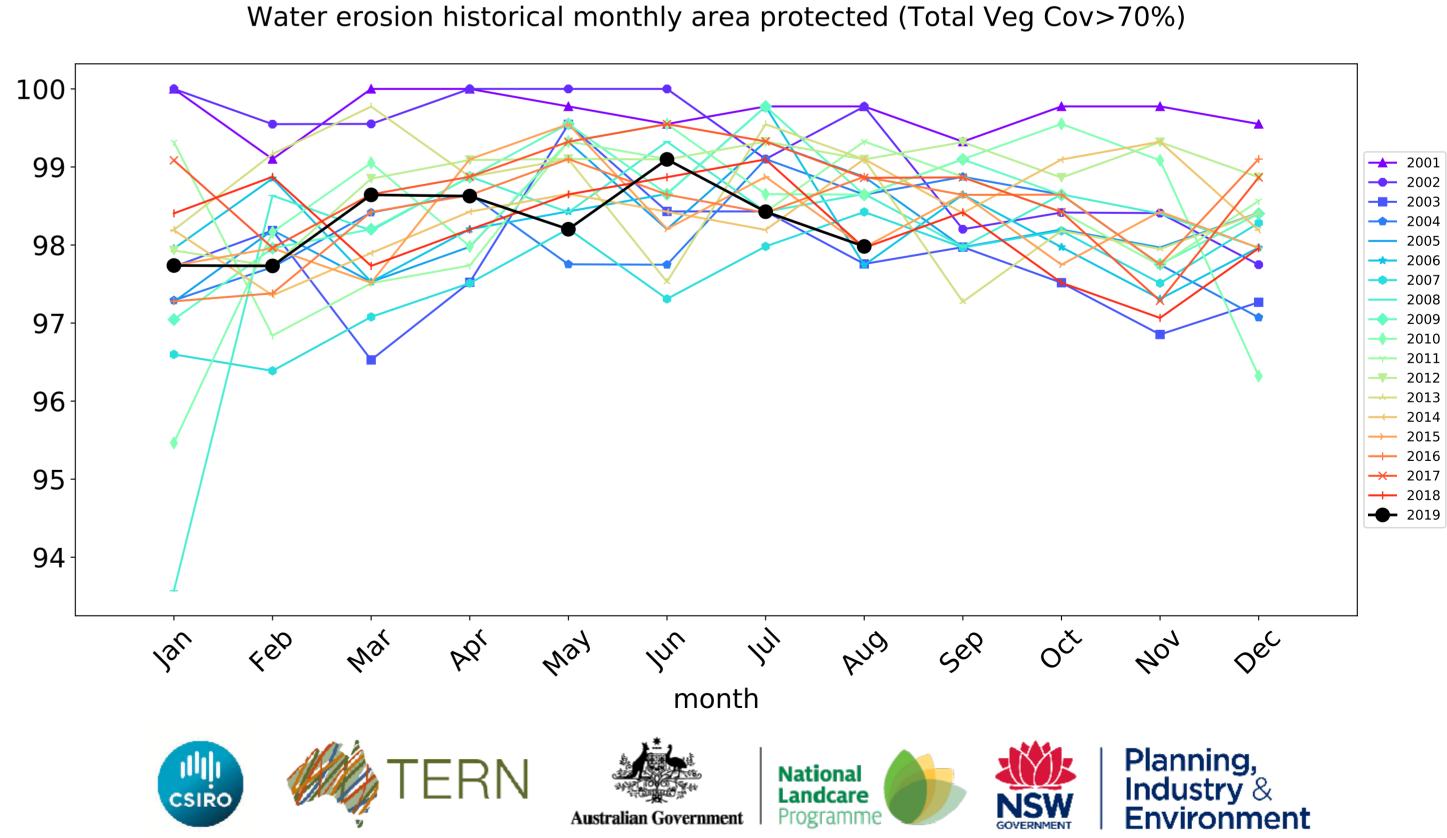
Conservation and natural environments timeseries

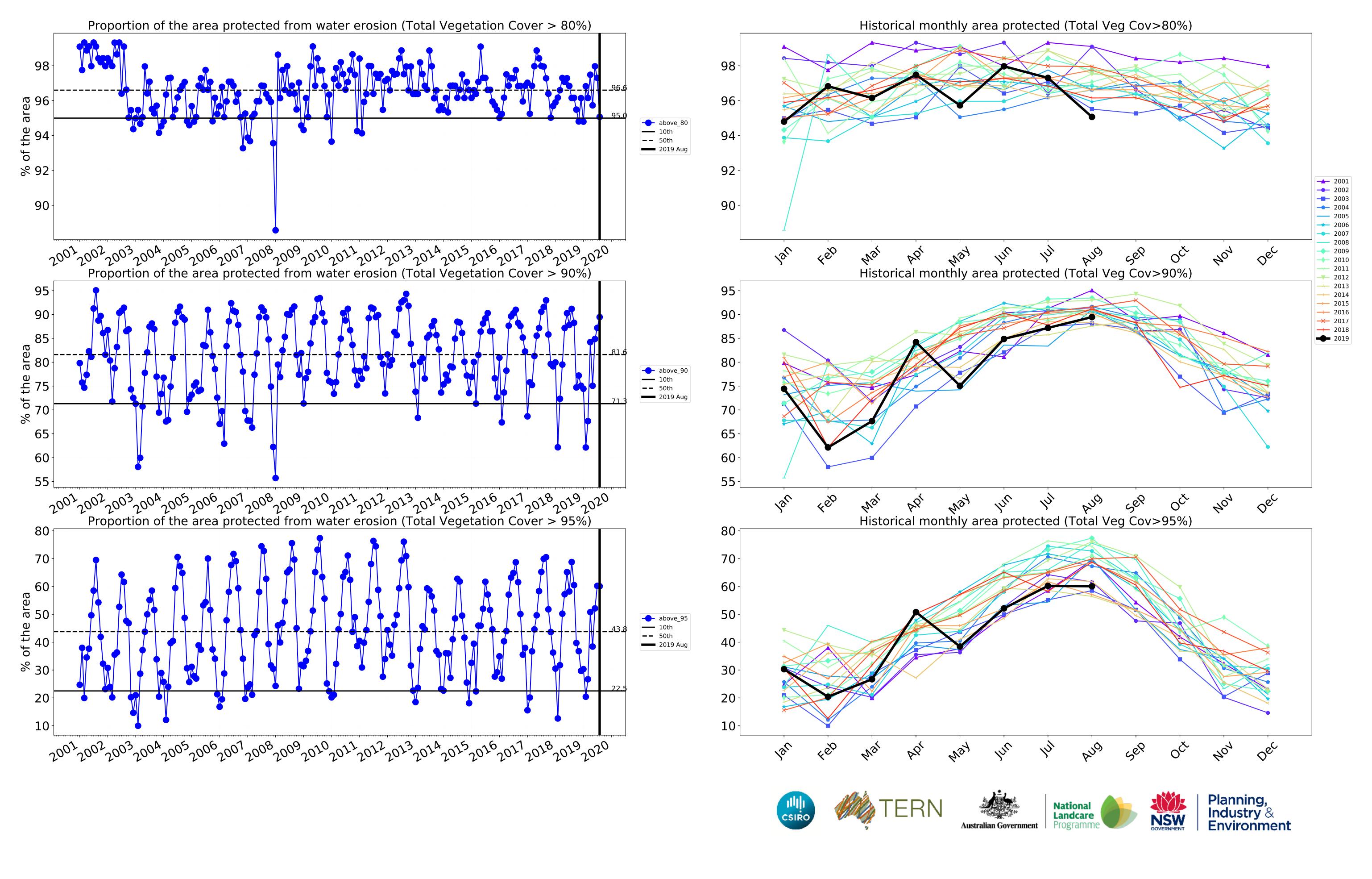




month







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.

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

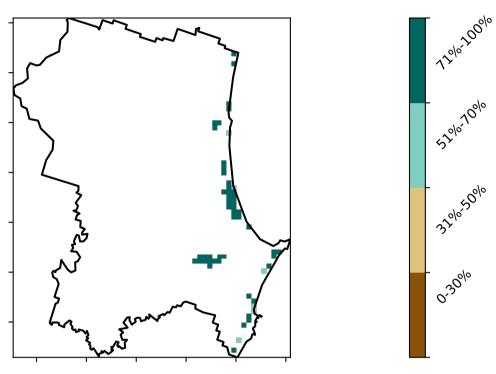
is only for the month of the map

using baseline from 2001 to 2019.

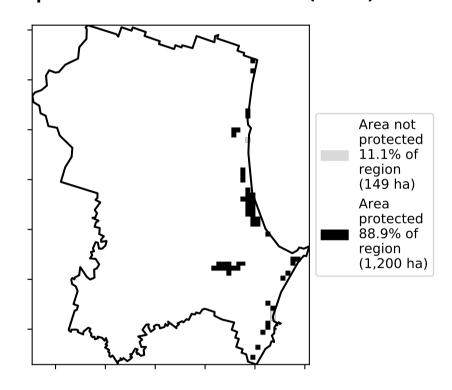
Conservation and natural environments - Non-forest

Total Vegetation Cover [%]

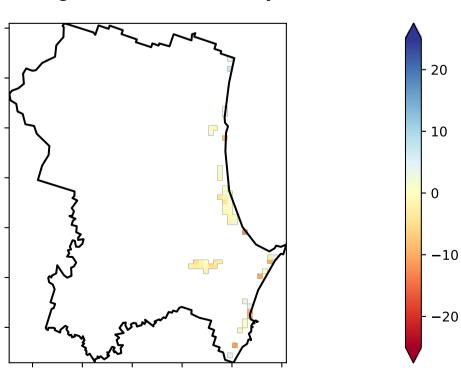
Land use and forest cover



% Area protected from water erosion (>70%)

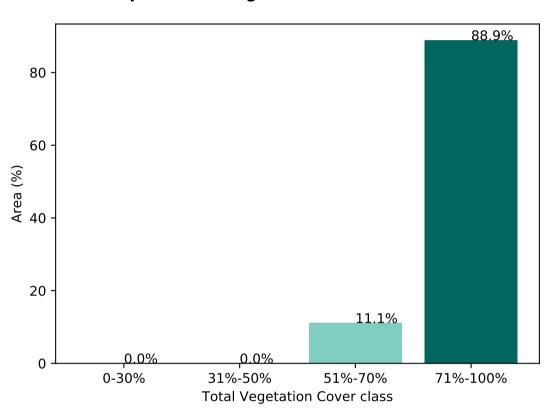


Total Vegetation Cover Anomaly [%]

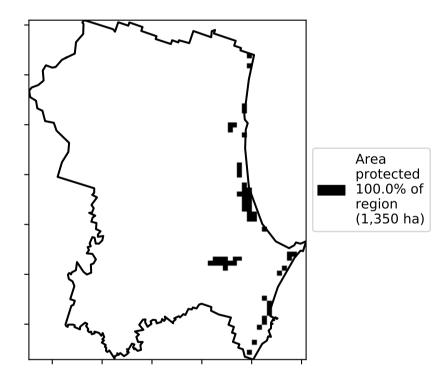


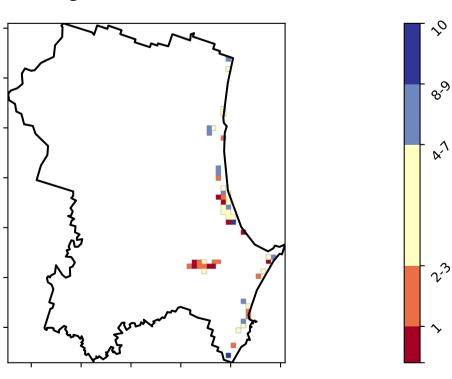
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









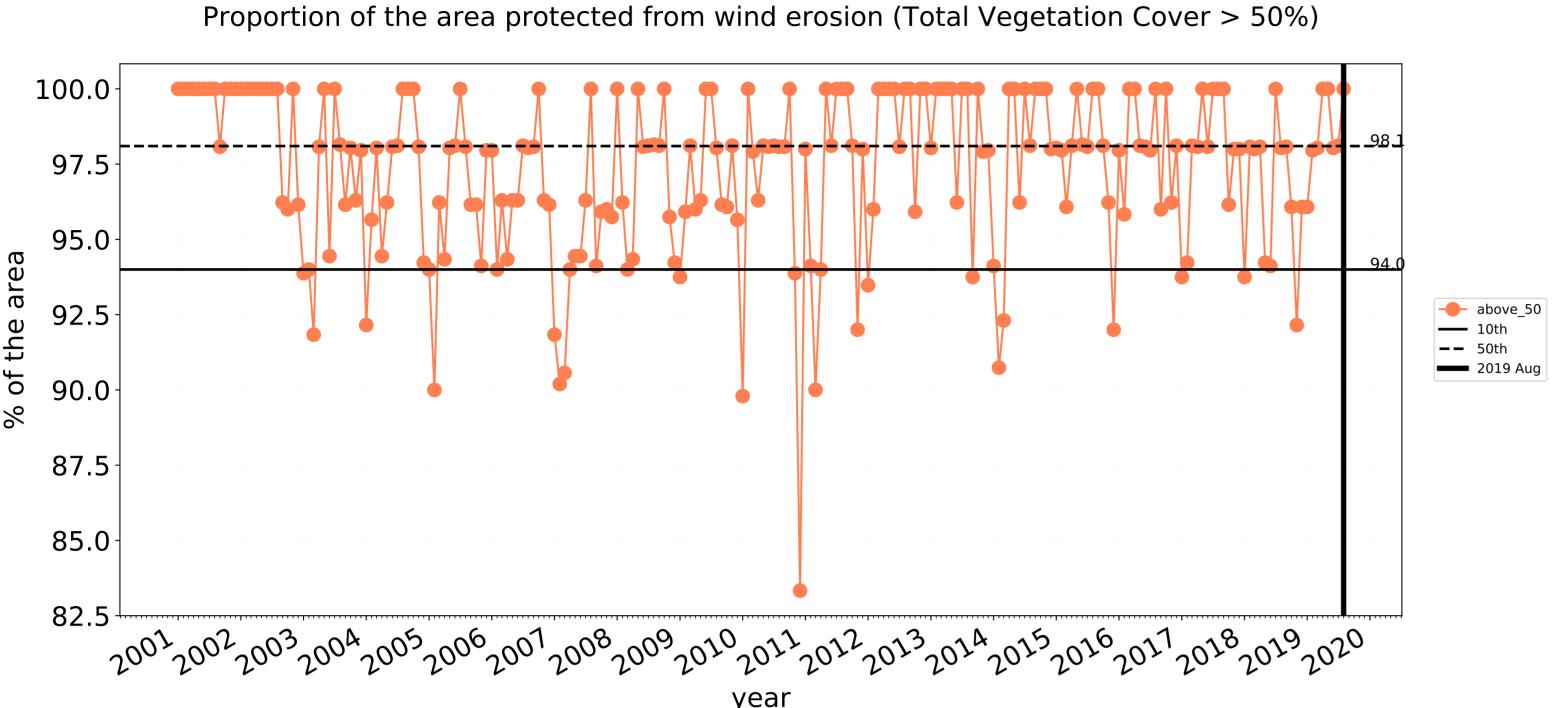


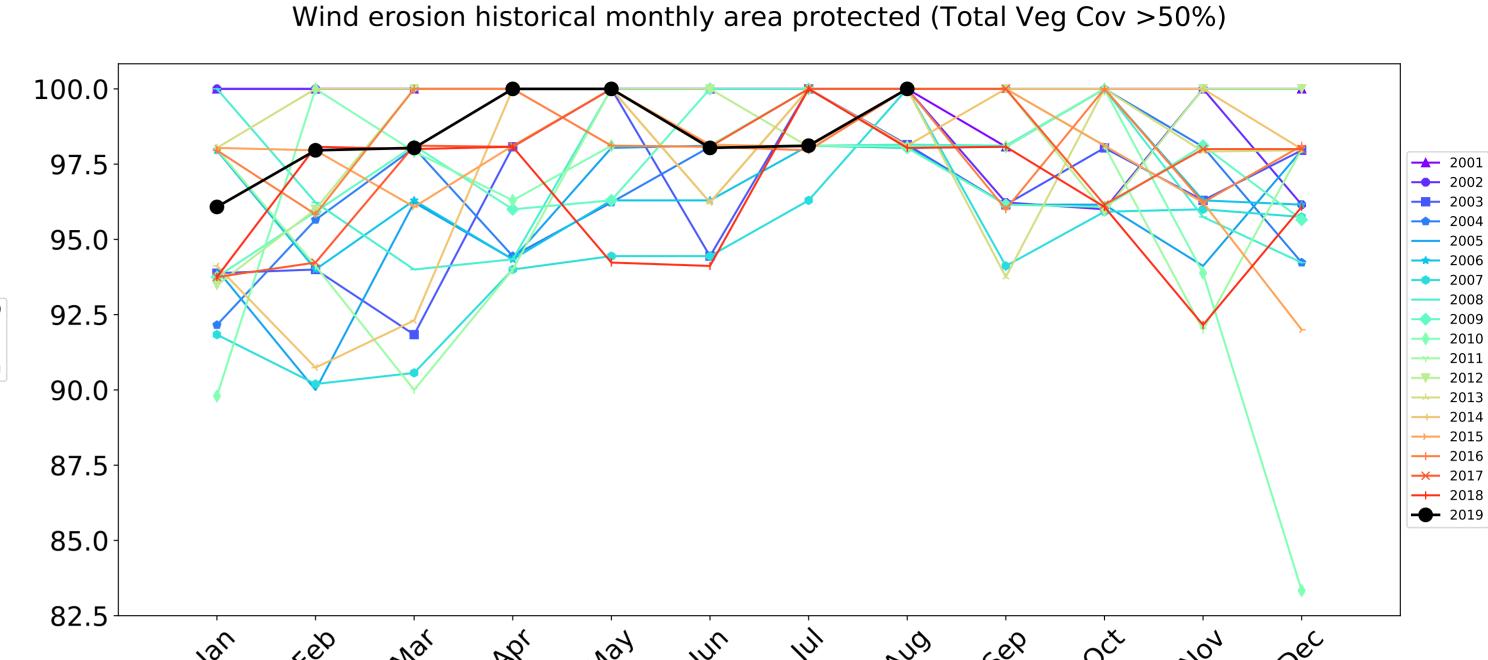




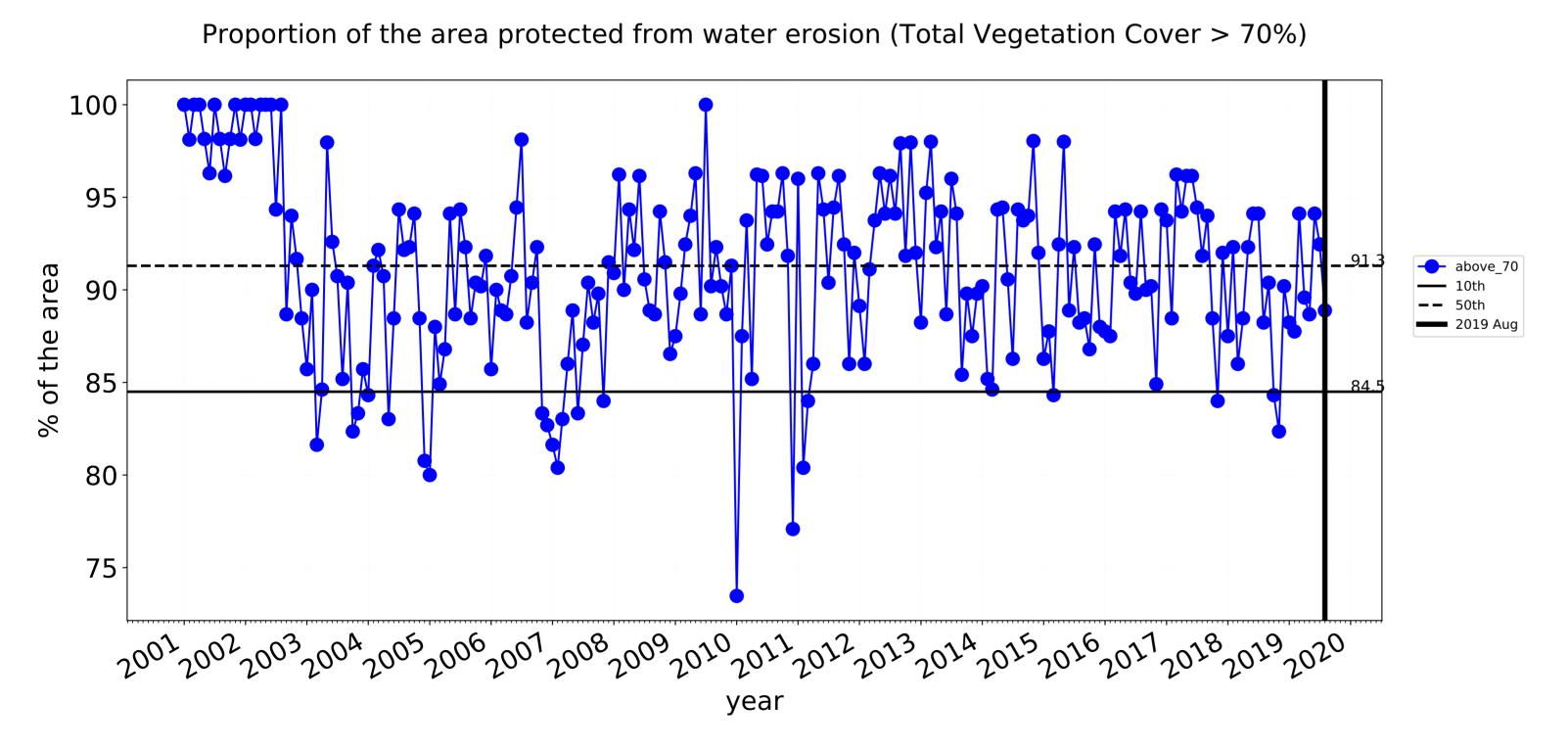


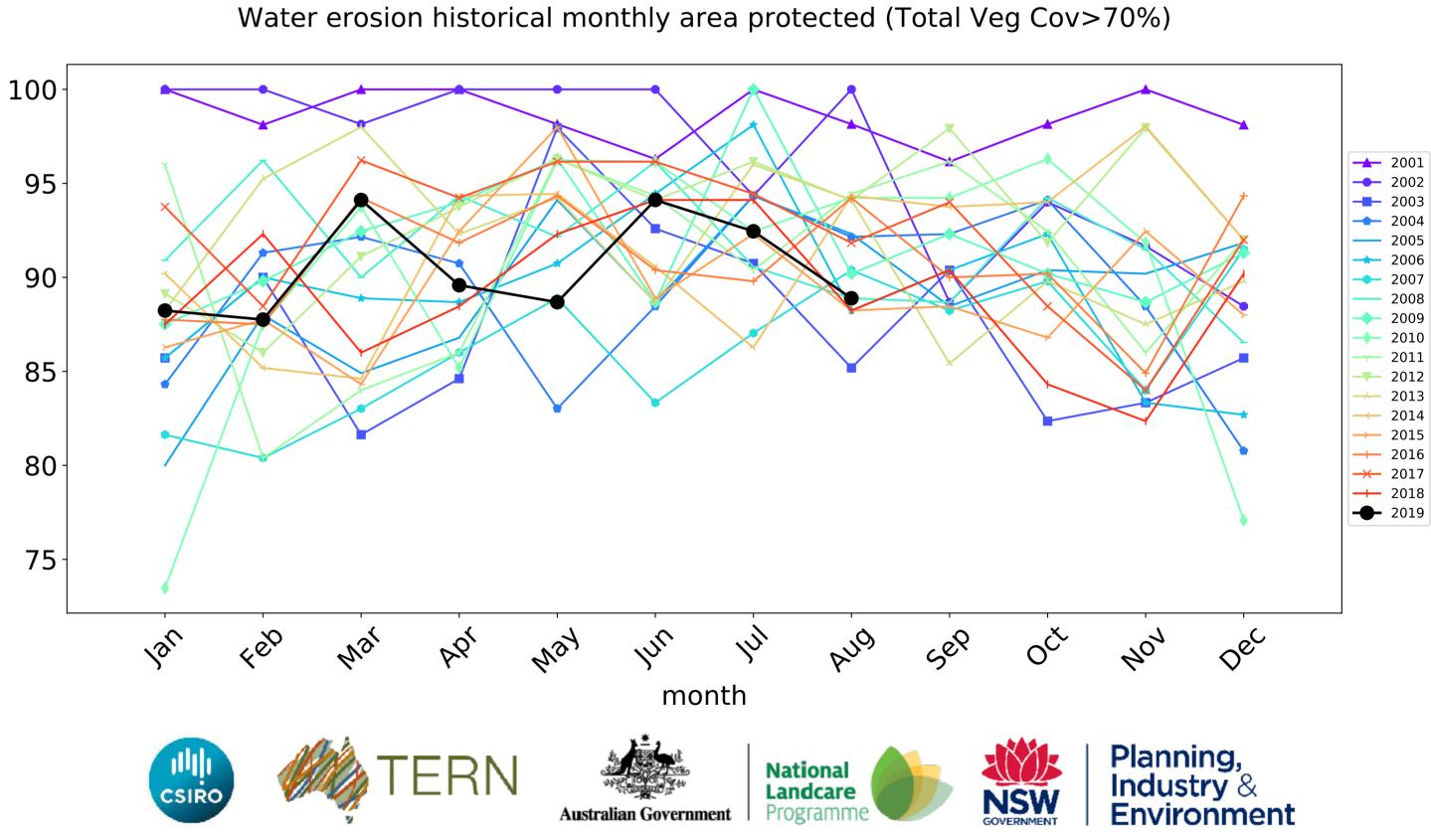
Conservation and natural environments non forest timeseries

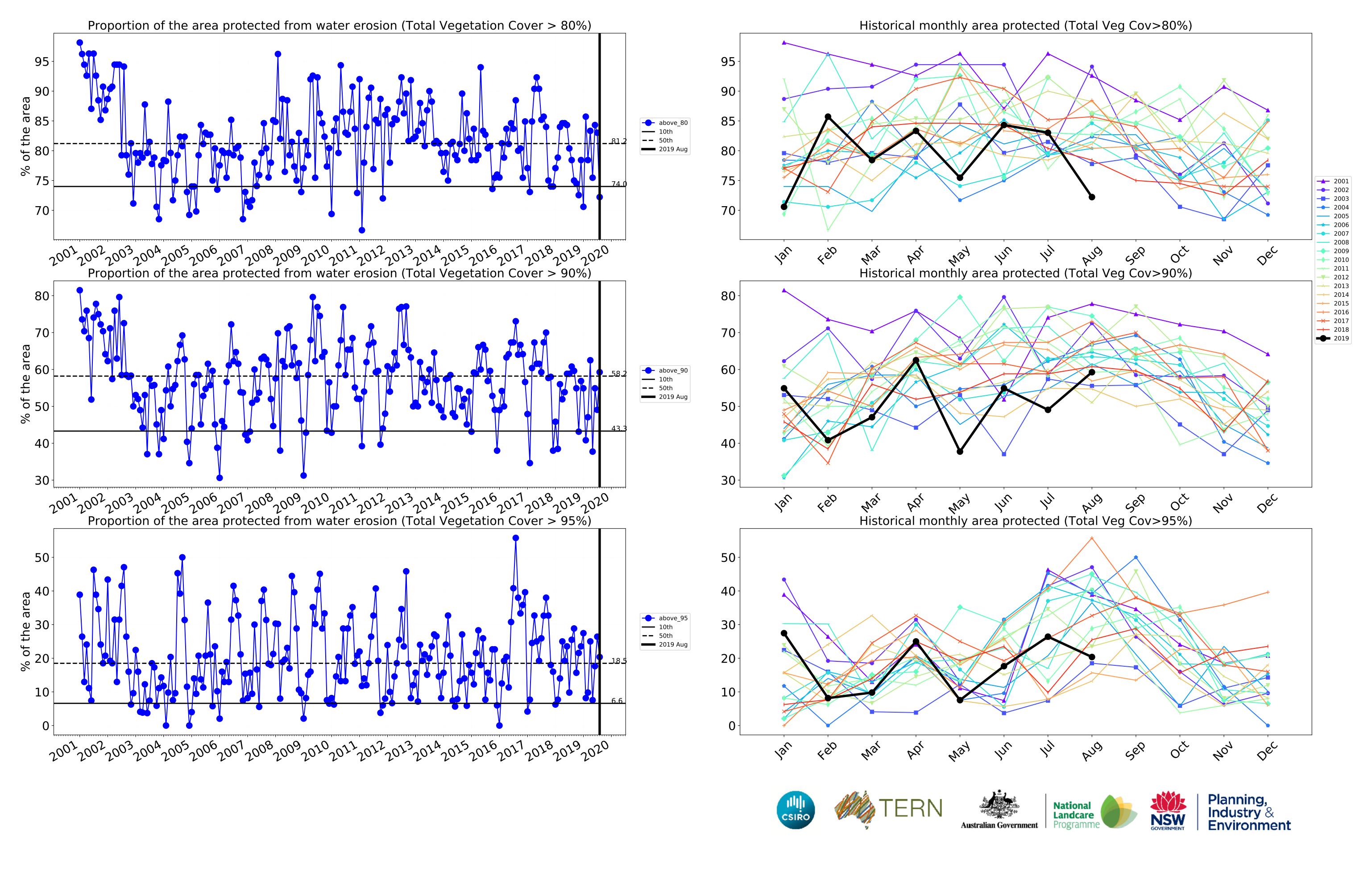




month







Conservation and natural environments Woodland 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

mean of that

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

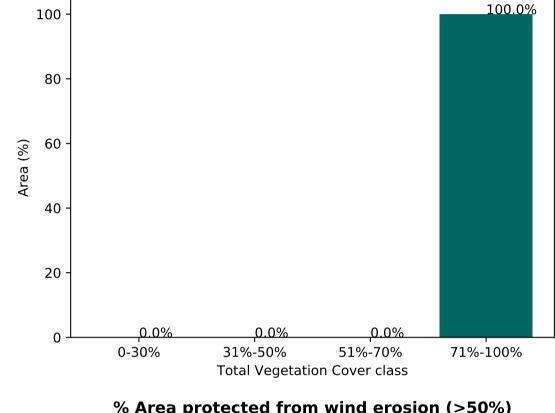
using baseline from 2001 to 2019.

are about 20% lower than the

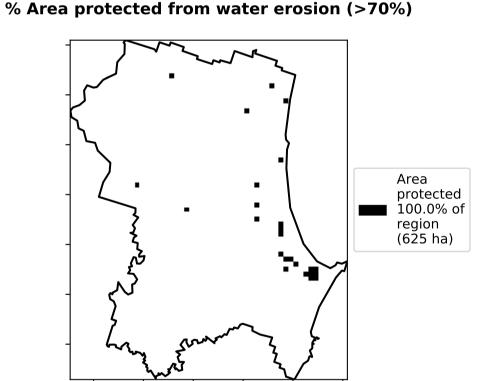
the mean. That

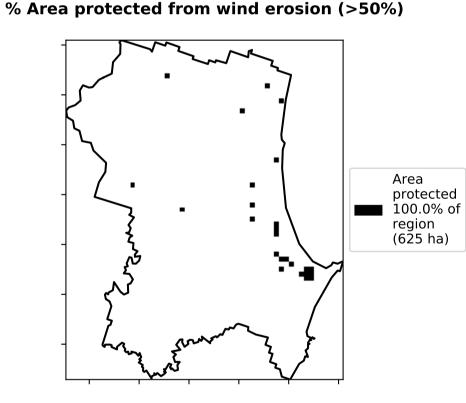
Conservation and natural environments – Woodland

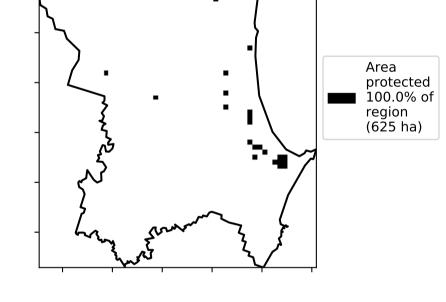
Total Vegetation Cover [%]



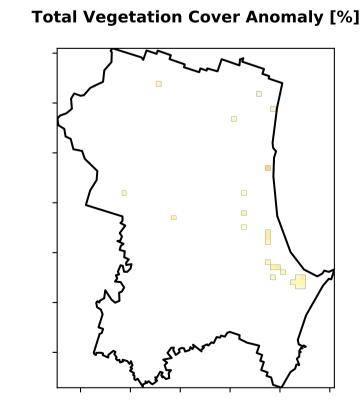
Proportion of vegetation cover class in area

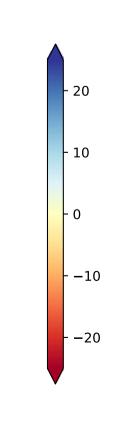




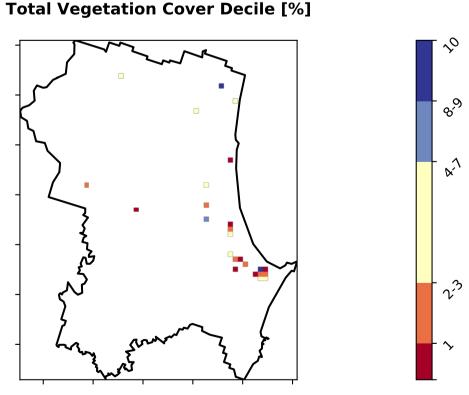








Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.





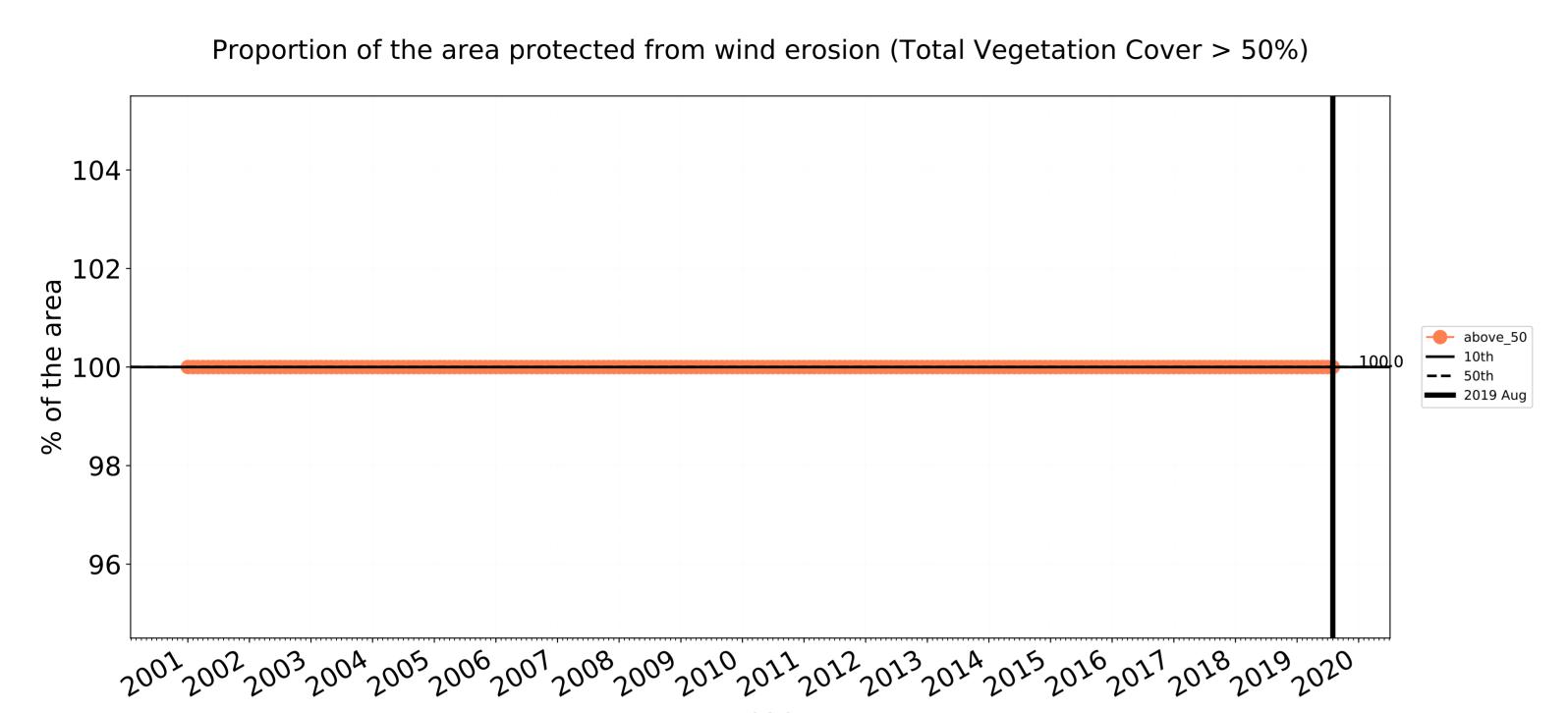




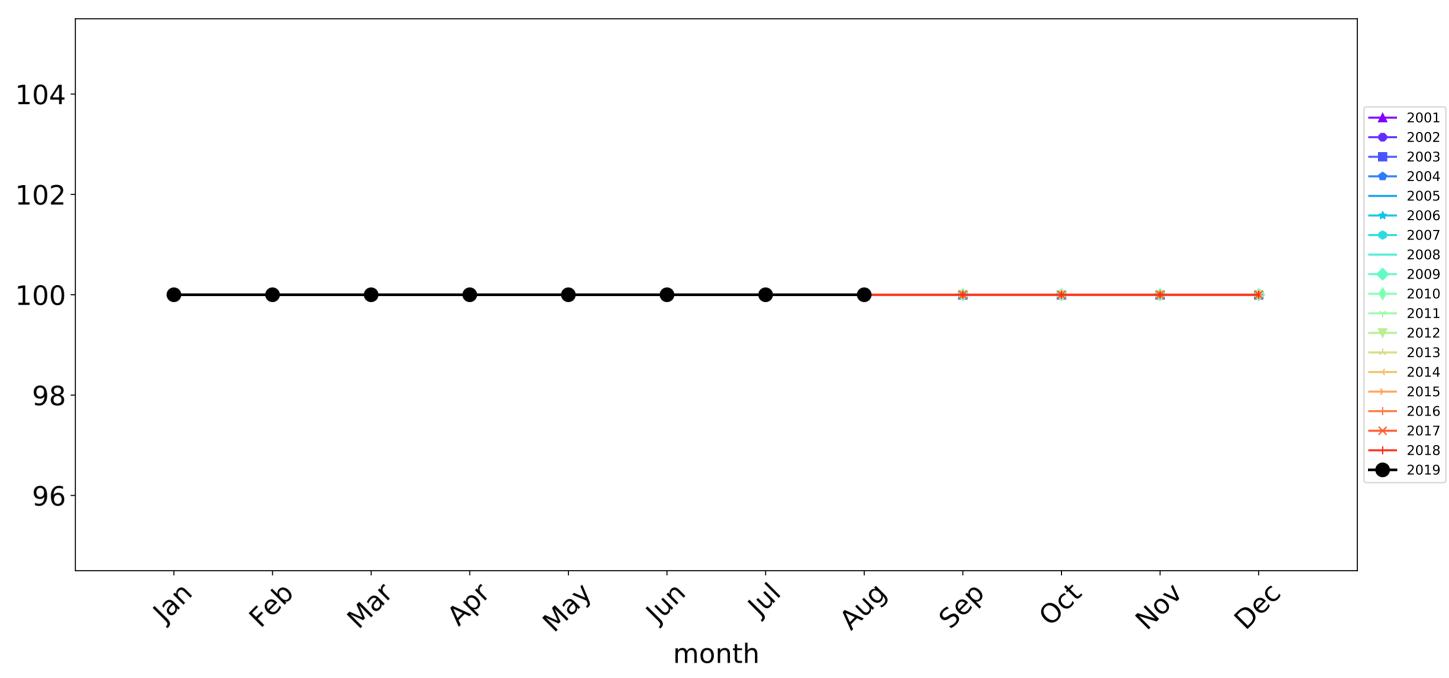


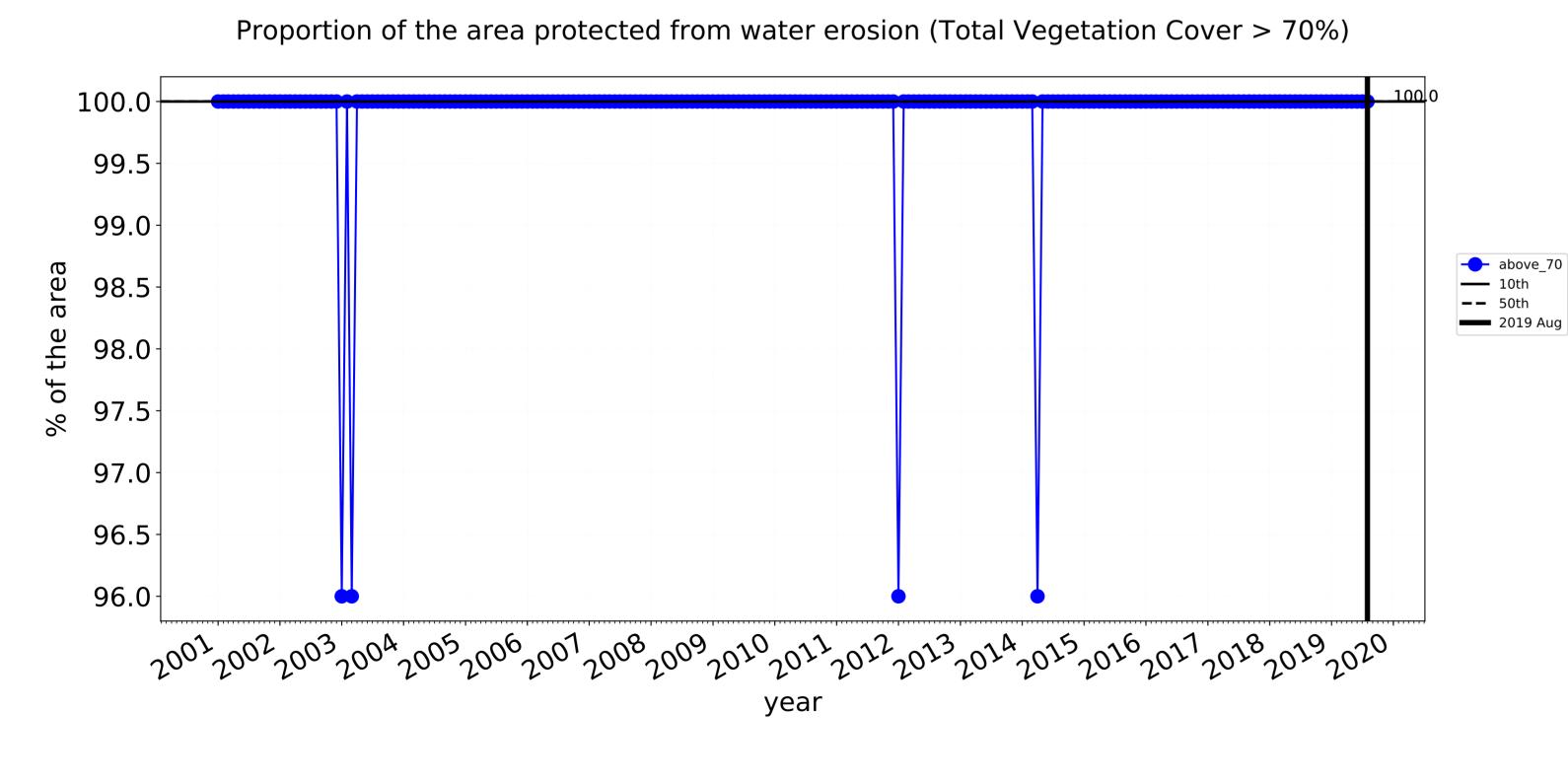


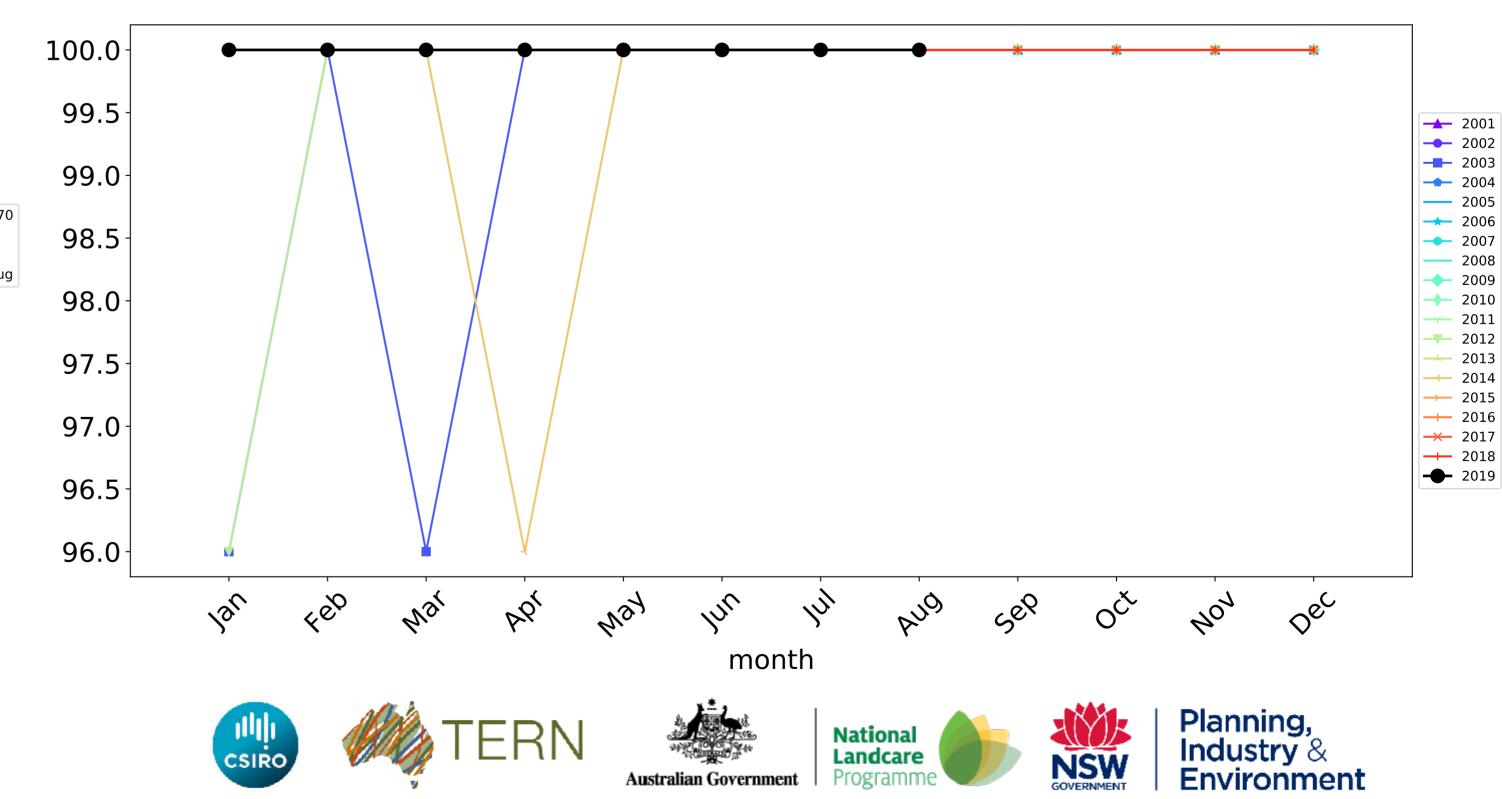




Wind erosion historical monthly area protected (Total Veg Cov >50%)

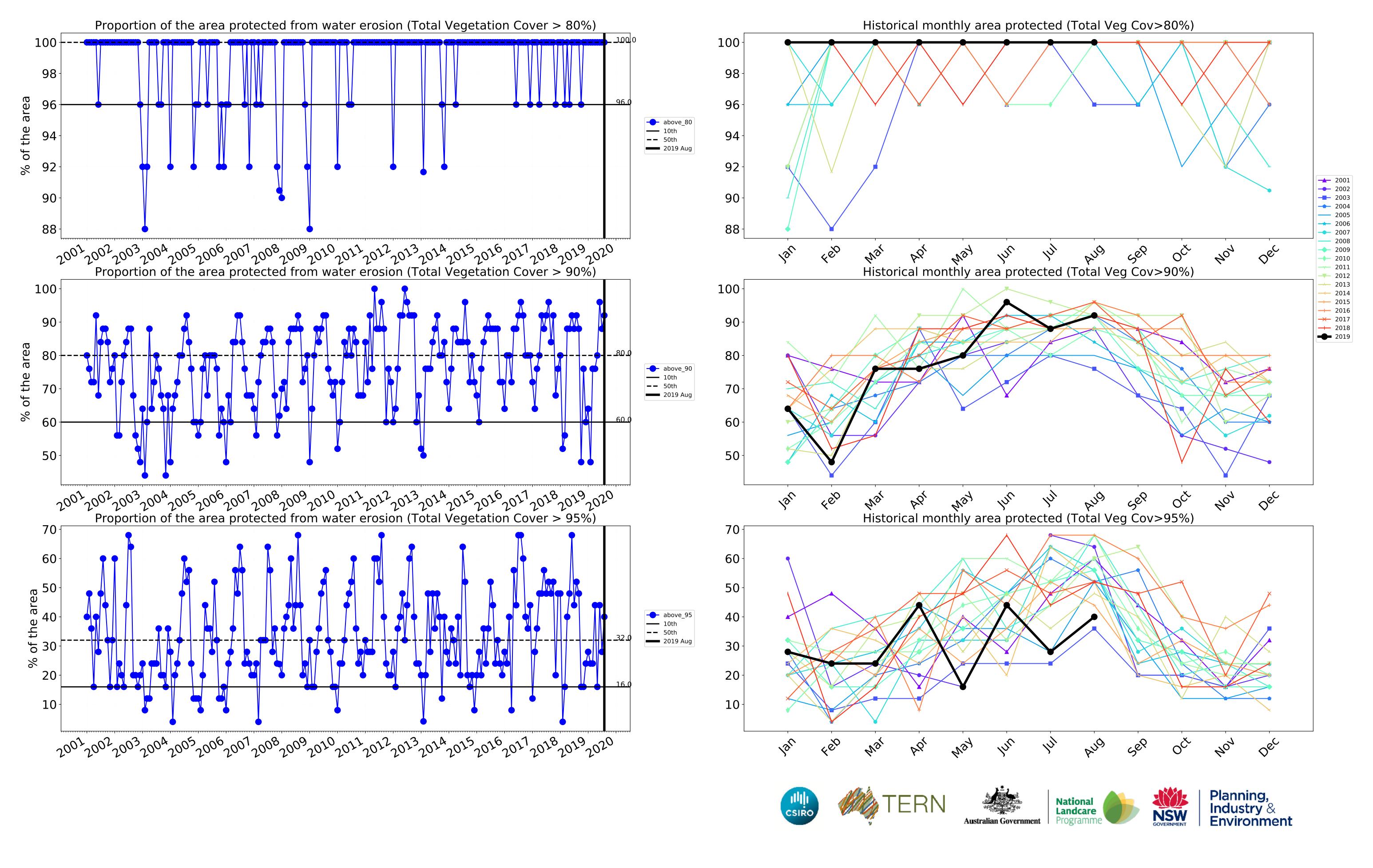






Landcare

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



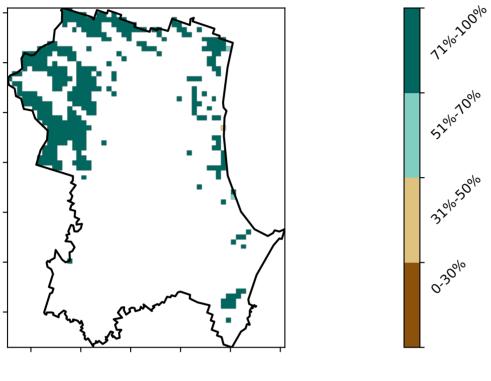
Conservation and natural environments Forest (non woodland)

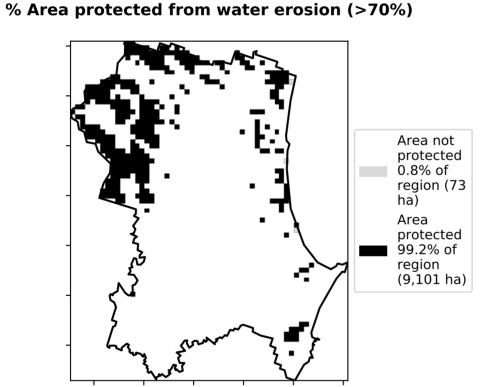
Land use and forest cover

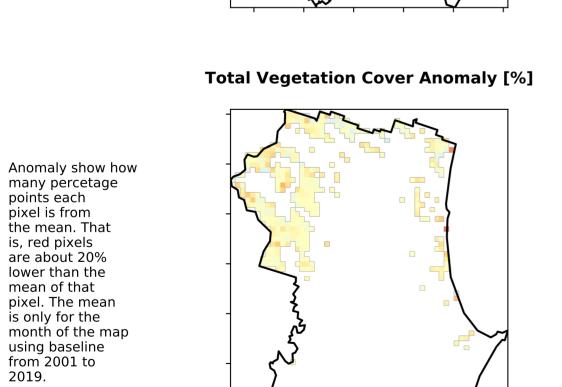
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

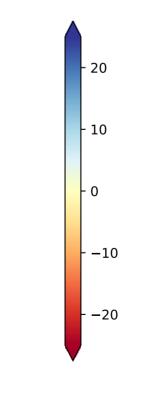
Conservation and natural environments - Non-

Total Vegetation Cover [%]



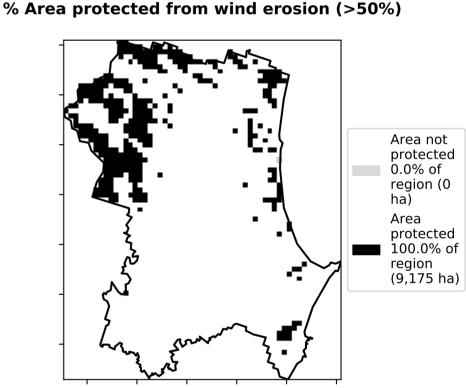


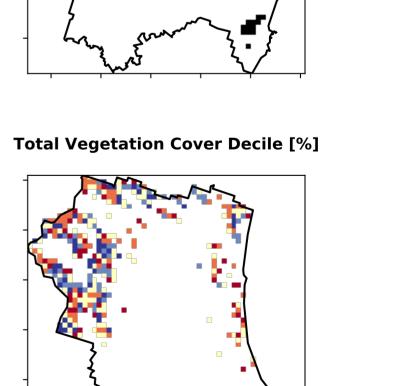




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area 99.2% 100 80 Area (%) 20 -0.0% 0.3% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**







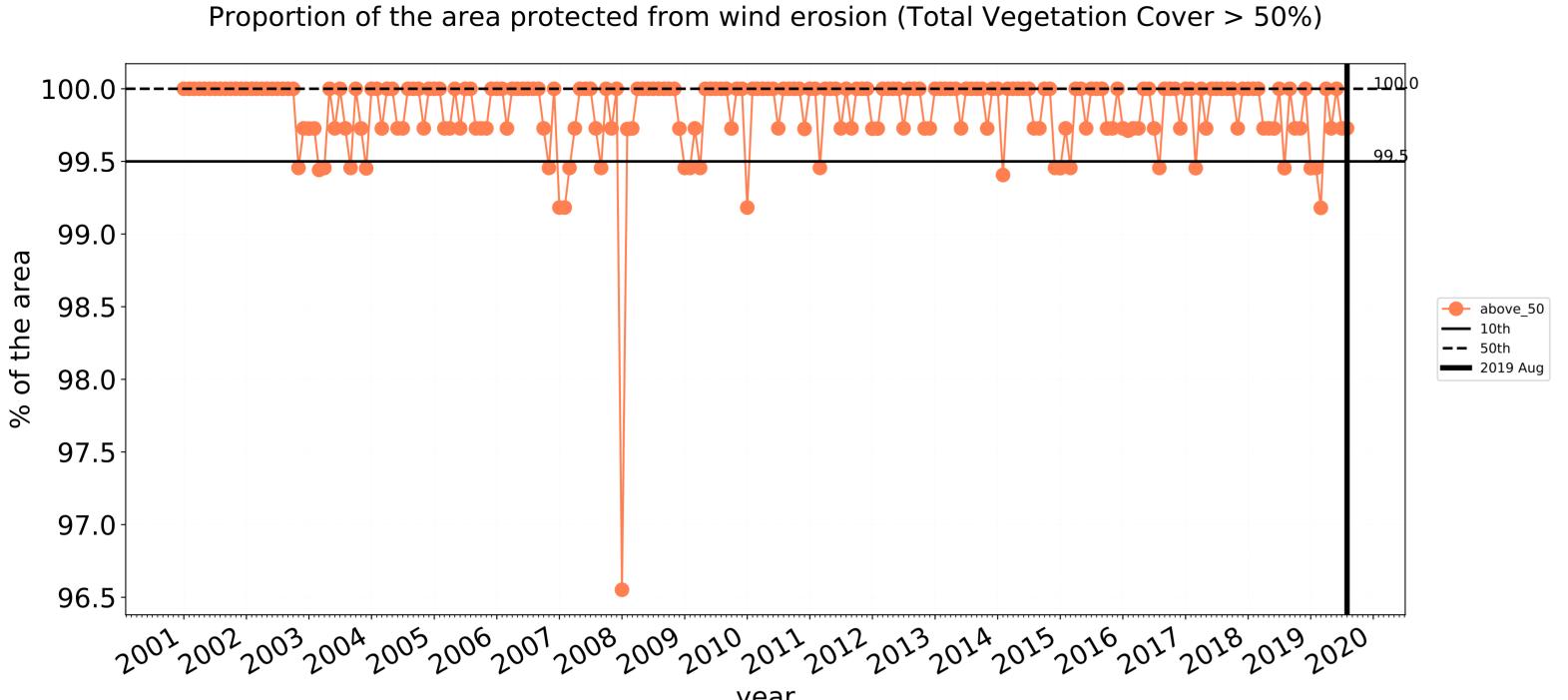


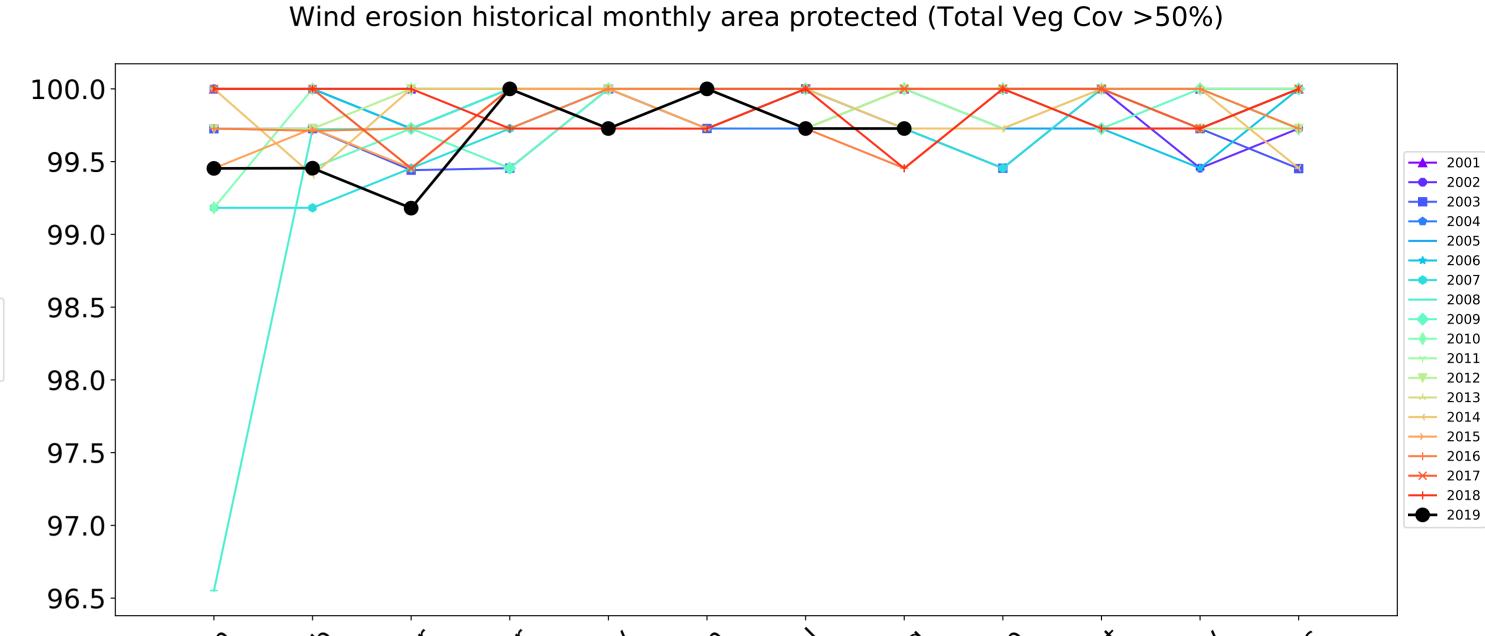




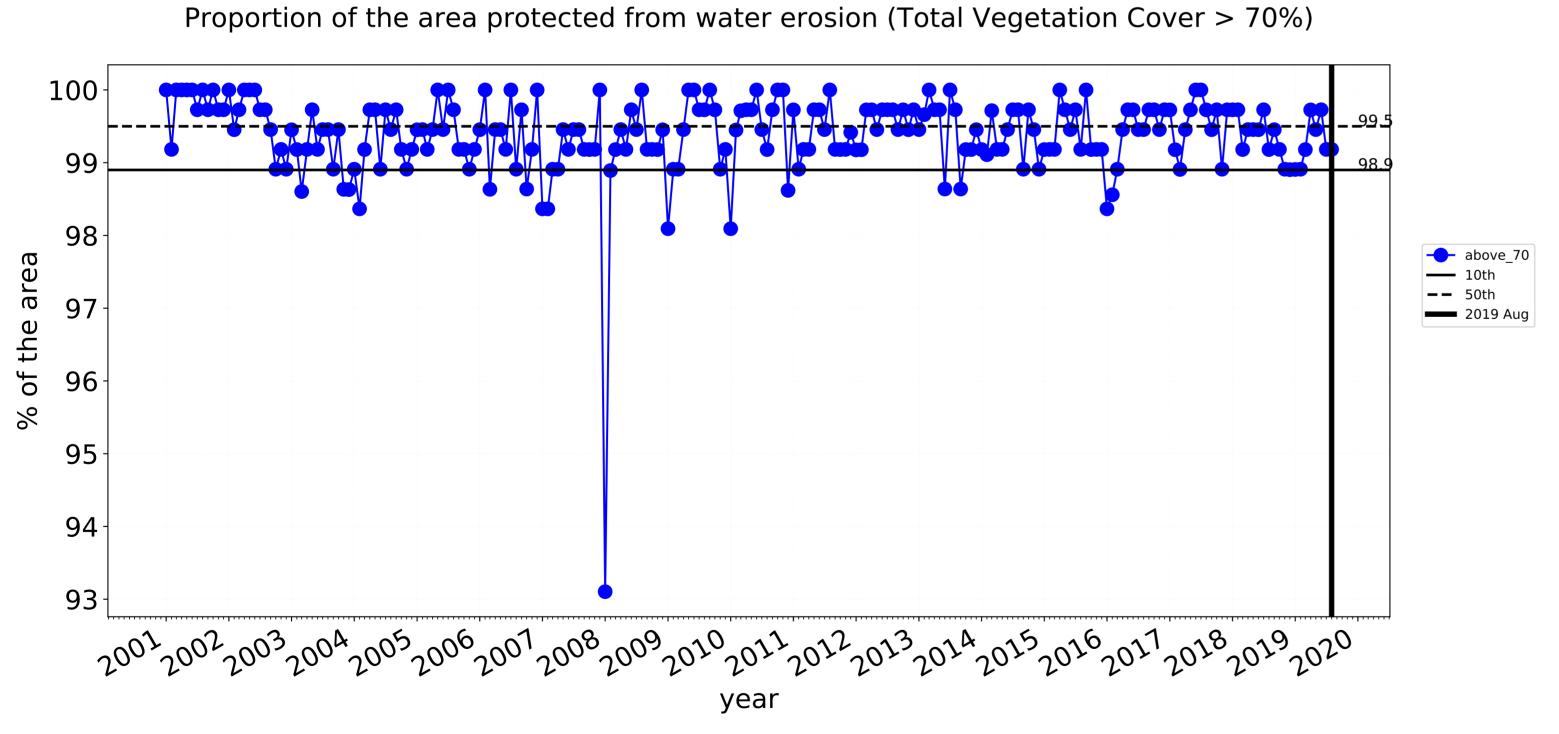


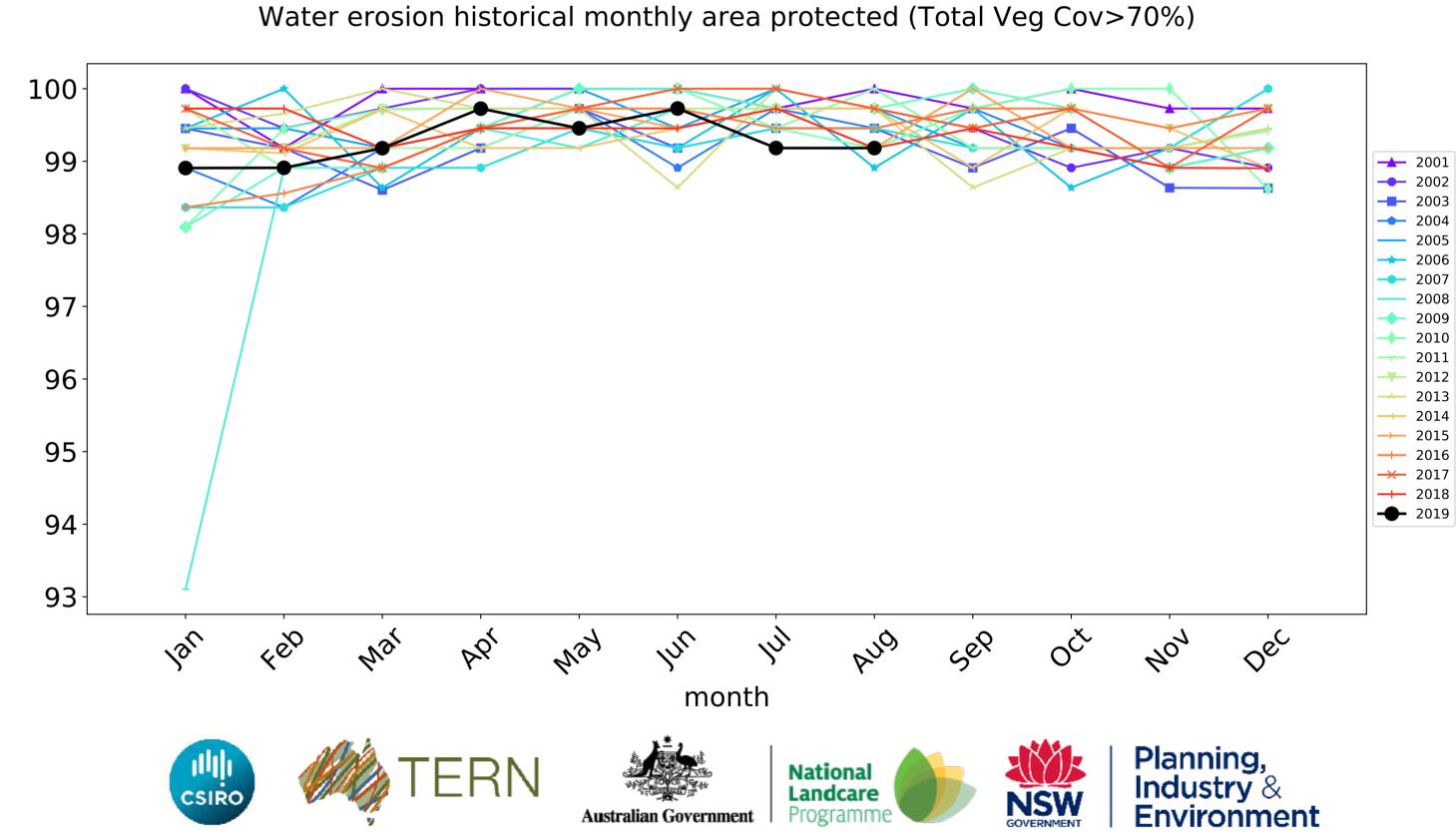


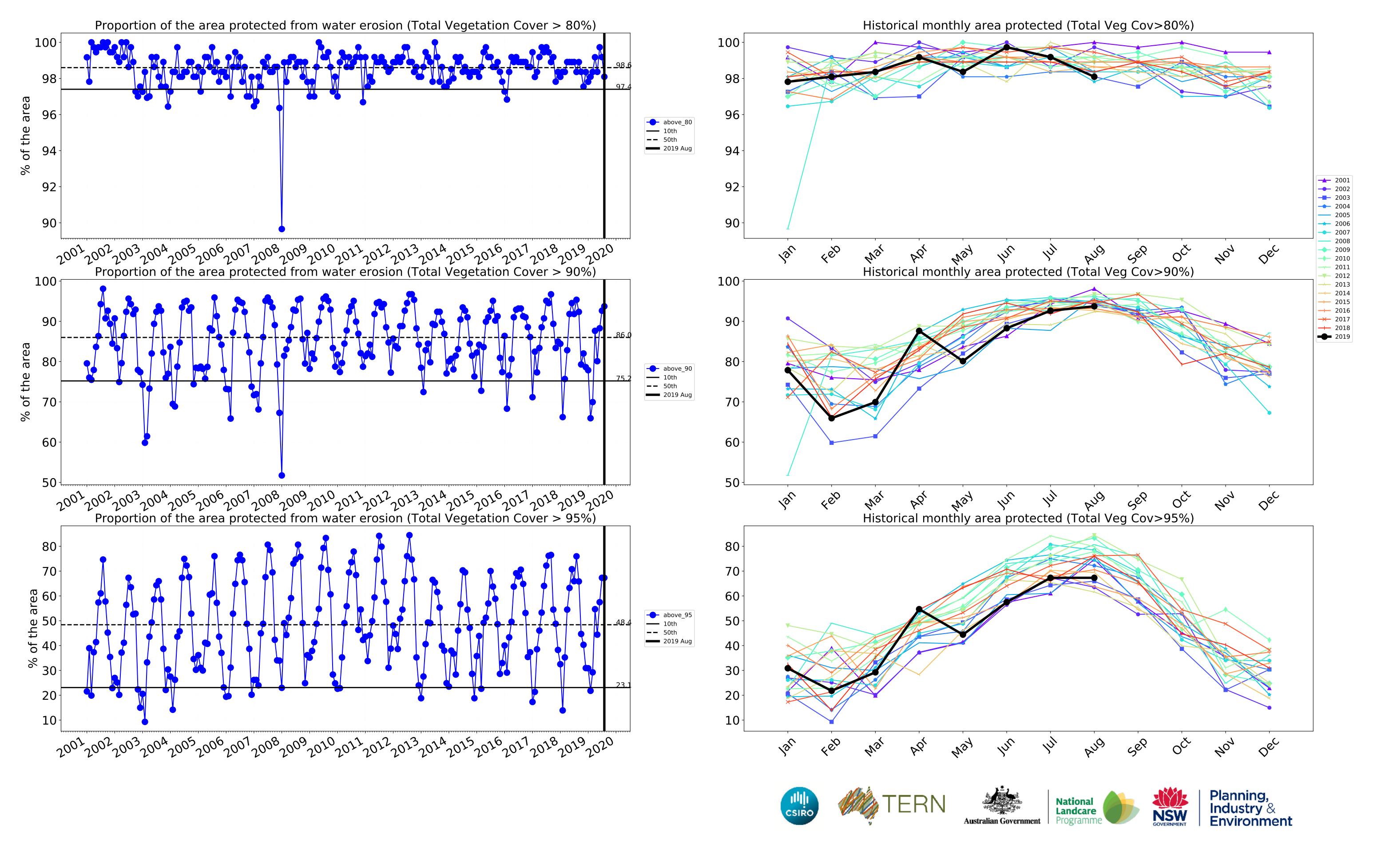




month







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

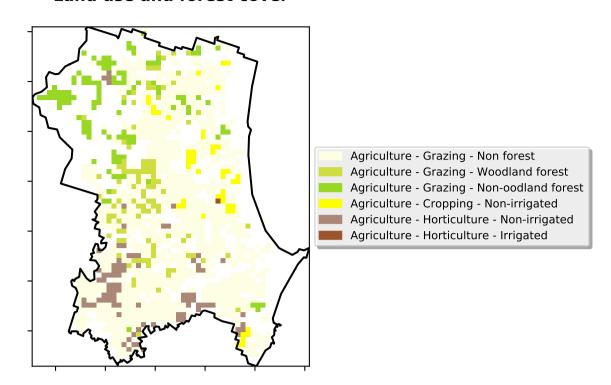
is, red pixels are about 20% lower than the

mean of that pixel. The mean

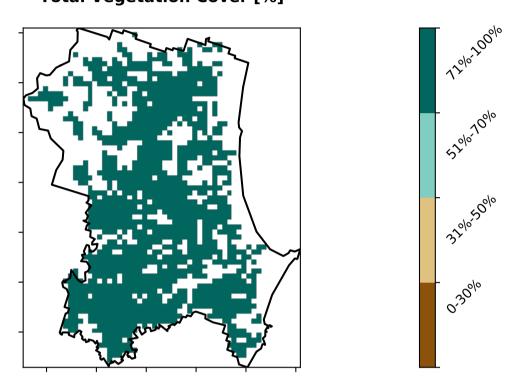
is only for the month of the map

using baseline from 2001 to 2019.

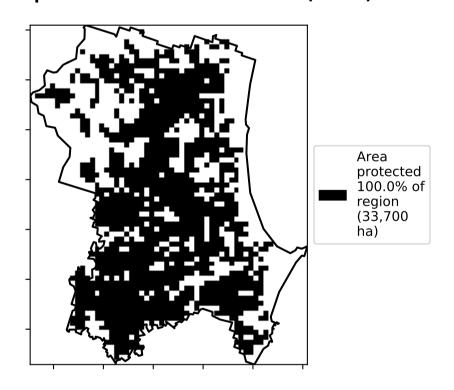
the mean. That



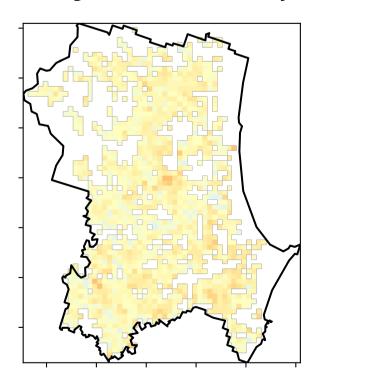
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

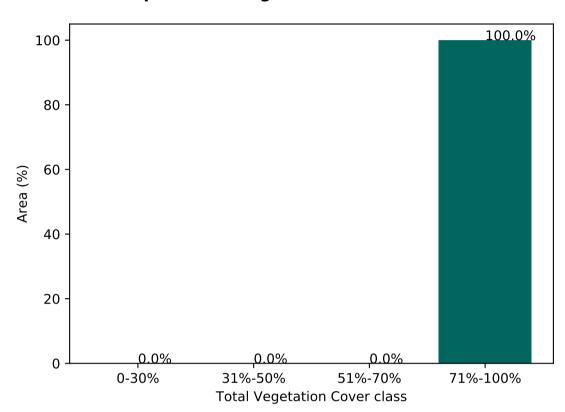


Total Vegetation Cover Anomaly [%]

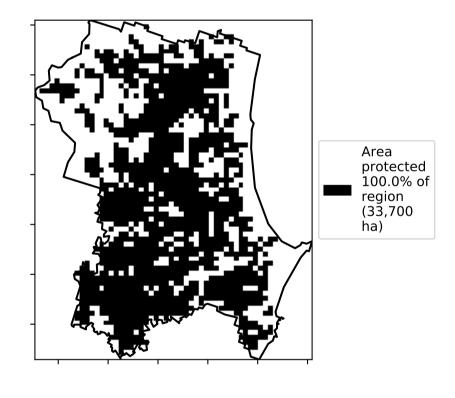


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

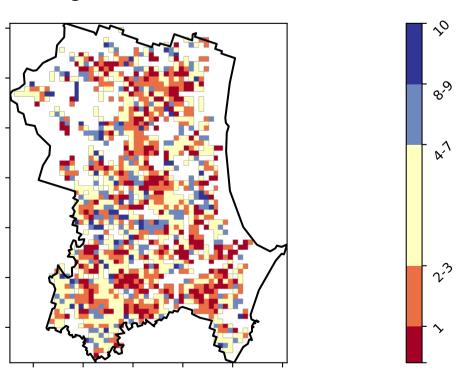
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]















- 20

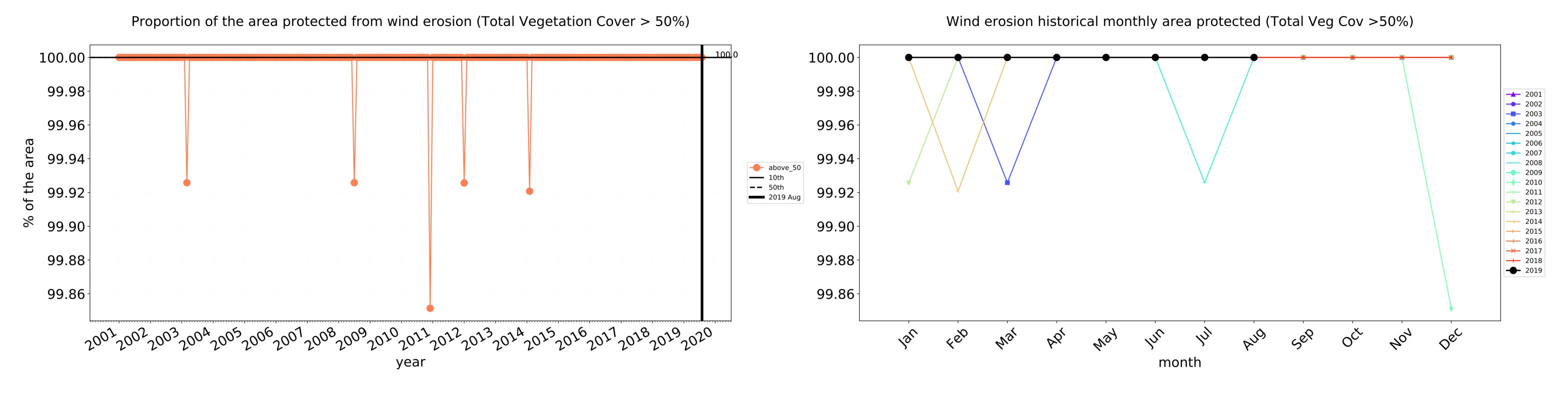
- 10

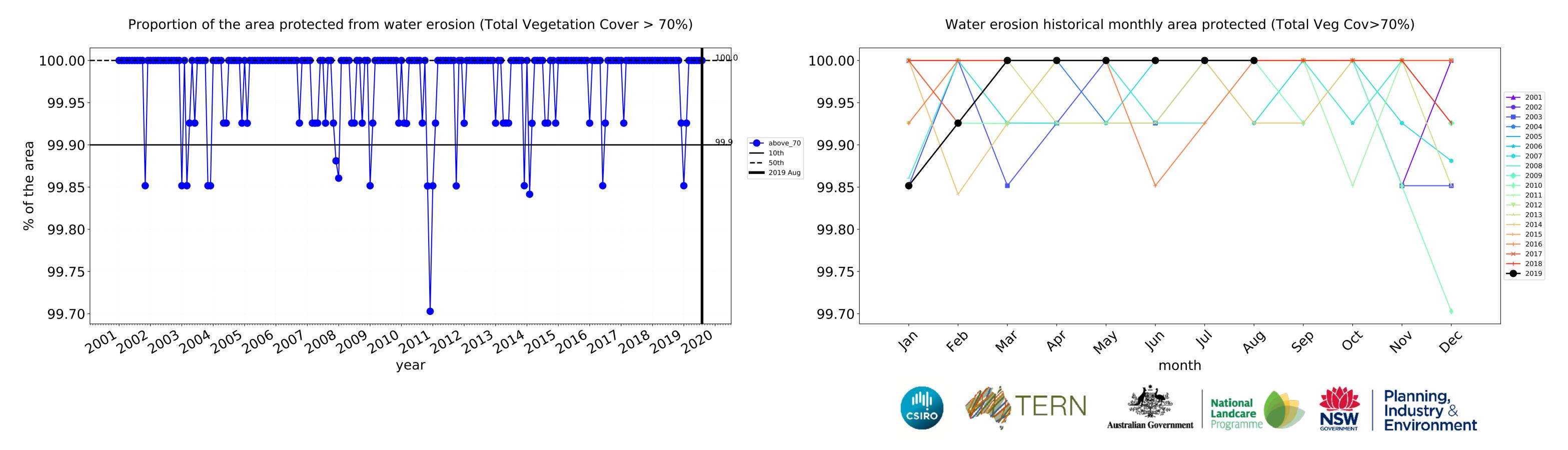
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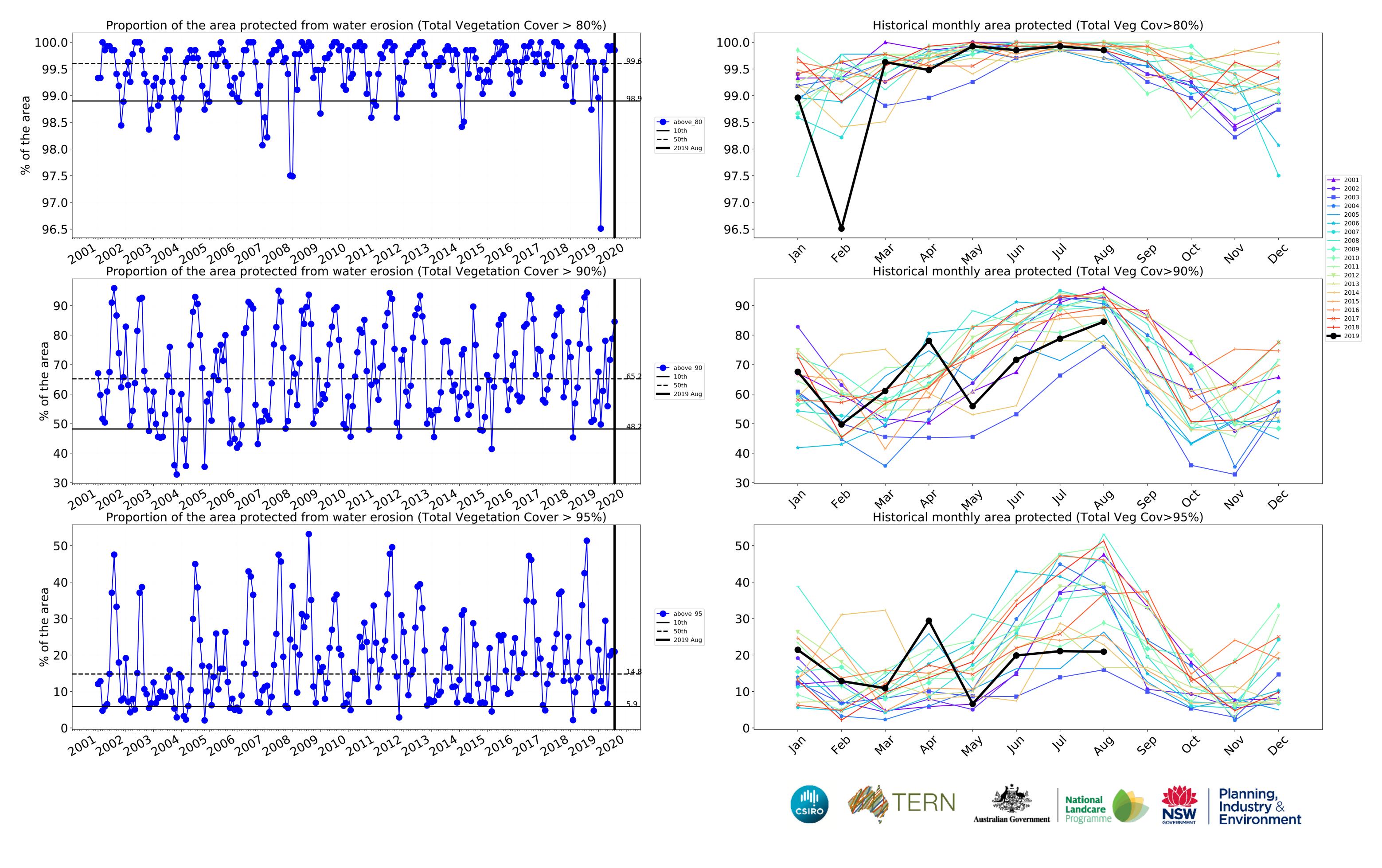
-10

-20

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

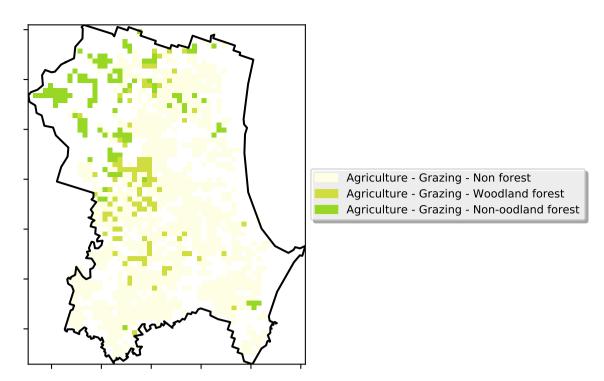
pixel is from

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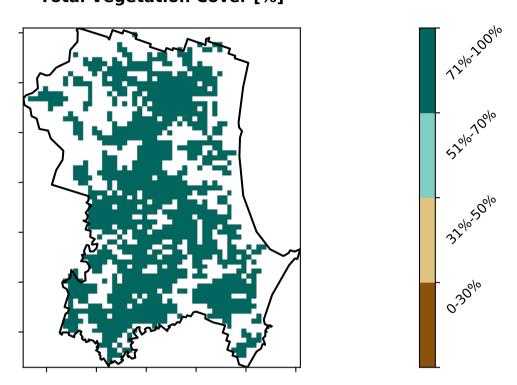
mean of that pixel. The mean

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

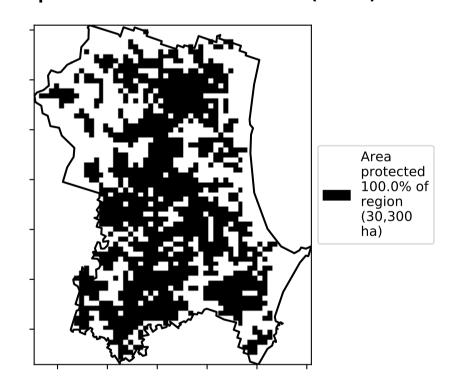
the mean. That



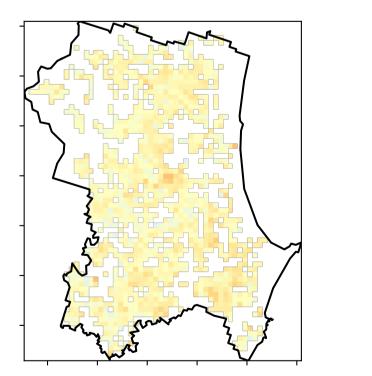
Total Vegetation Cover [%]

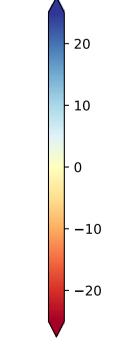


% Area protected from water erosion (>70%)



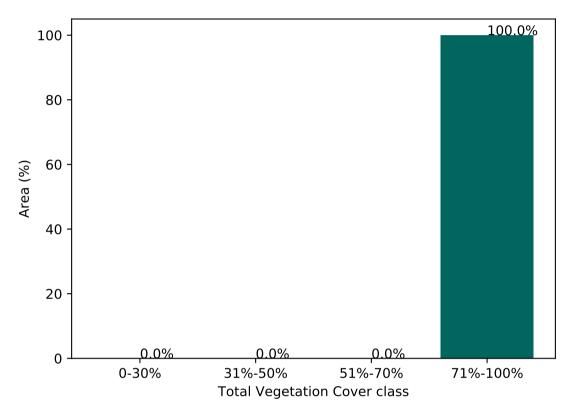
Total Vegetation Cover Anomaly [%]



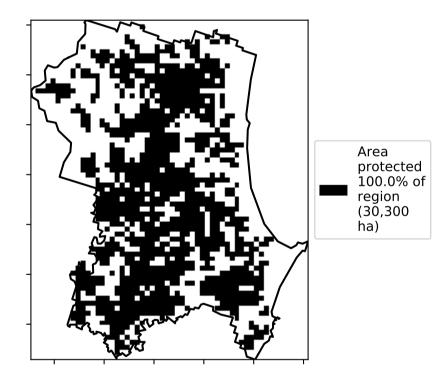


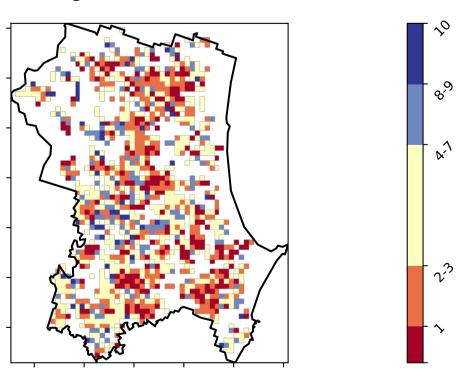
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









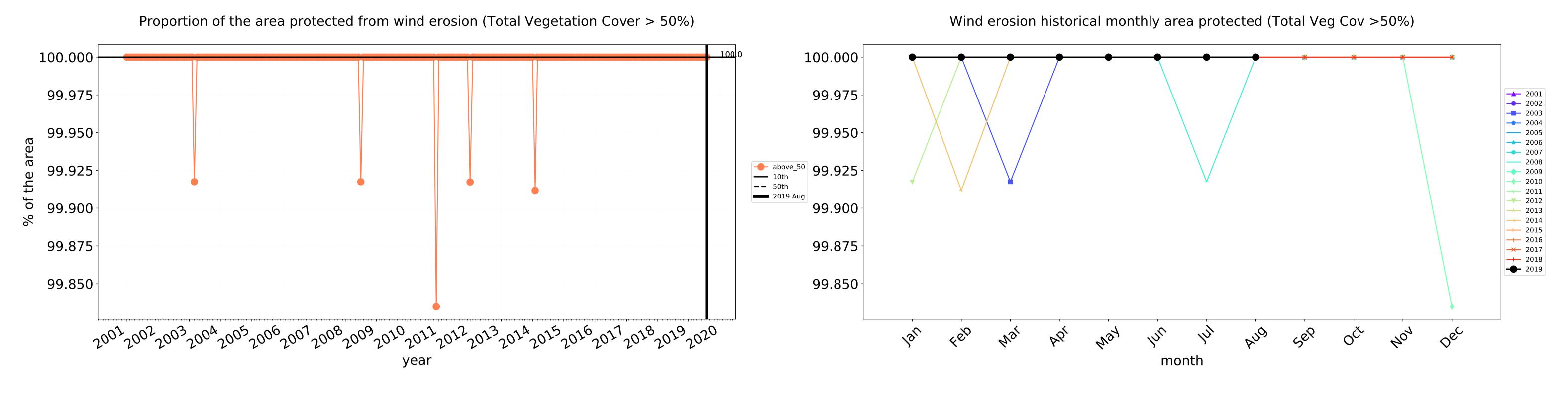


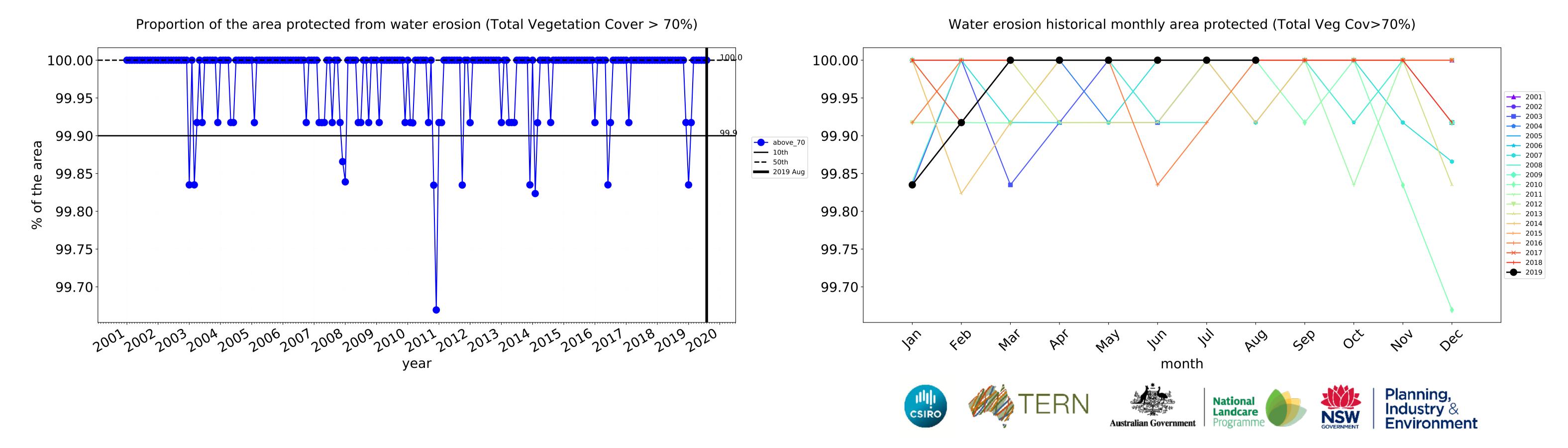


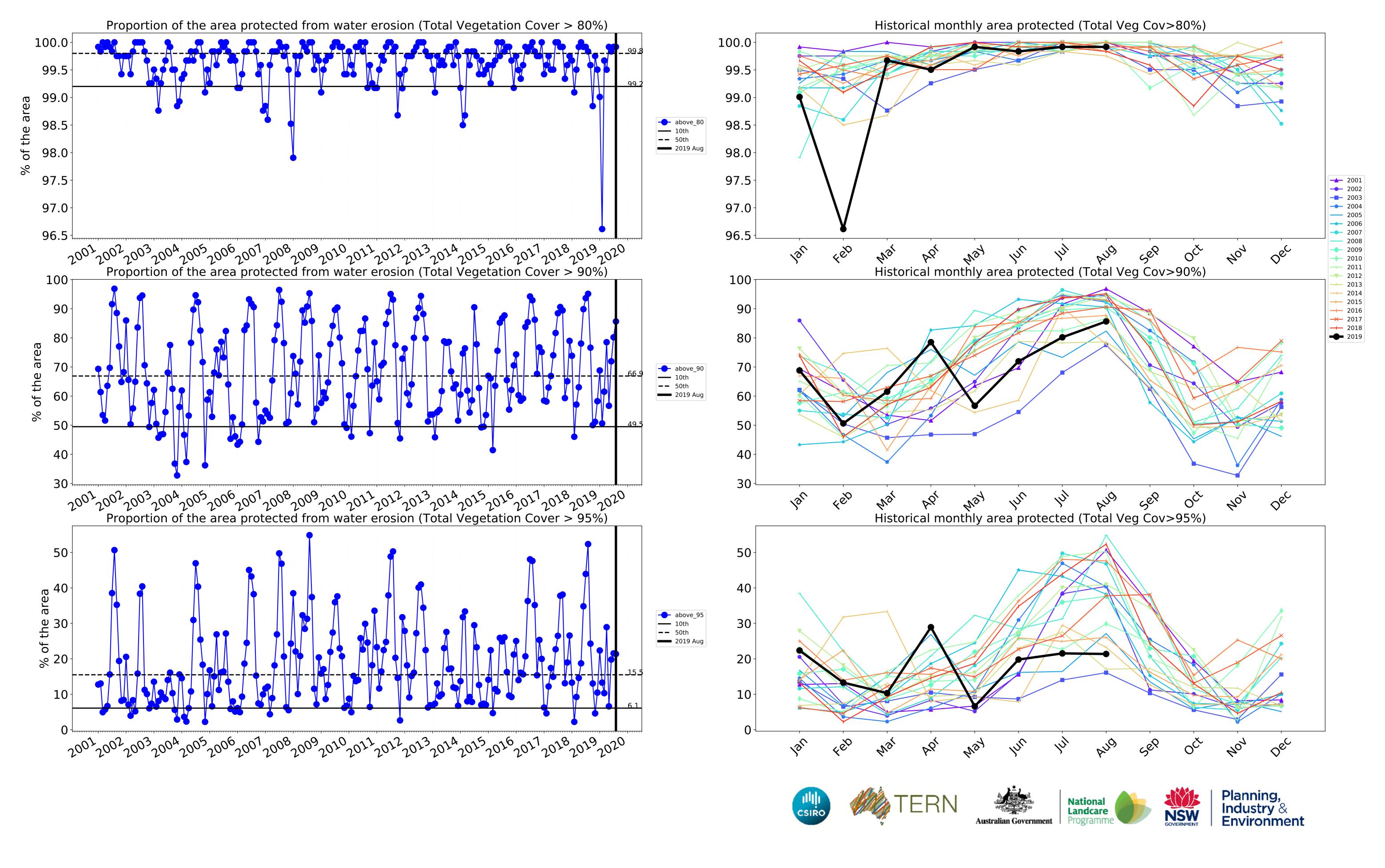




Grazing timeseries







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

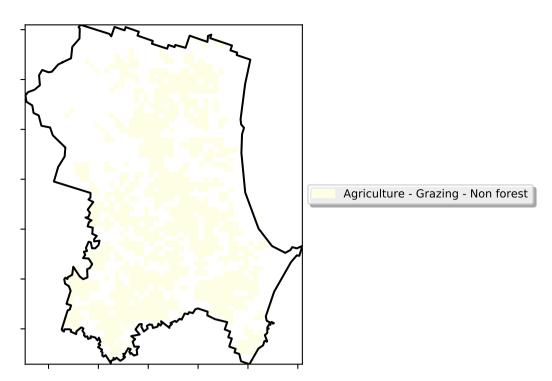
pixel is from

is, red pixels are about 20% lower than the

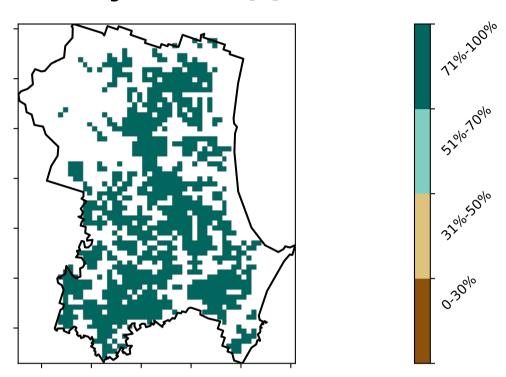
mean of that

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

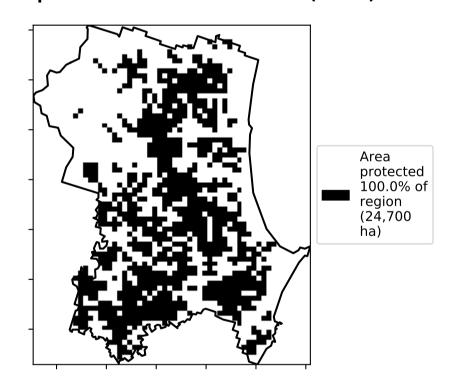
the mean. That



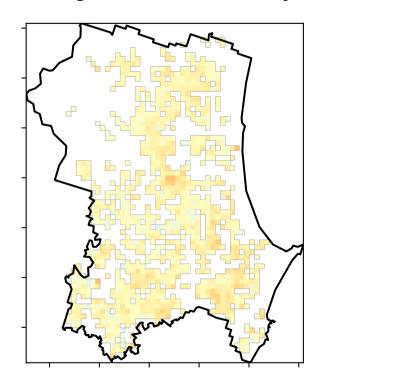
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

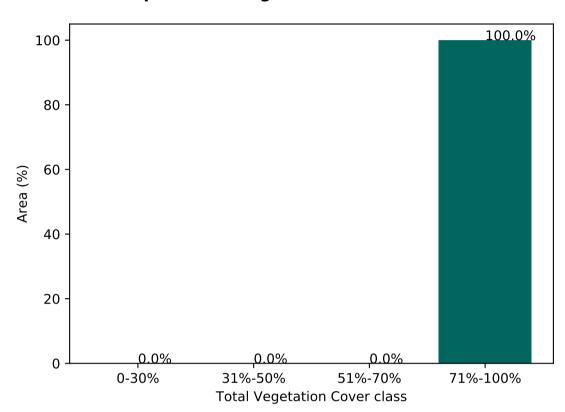


Total Vegetation Cover Anomaly [%]

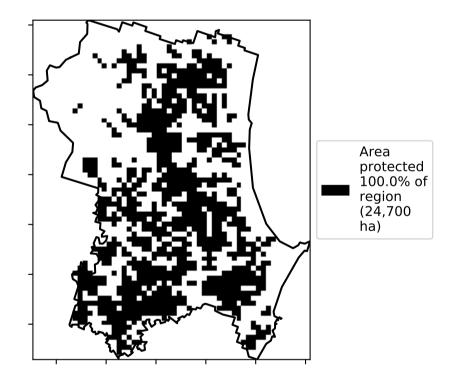


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

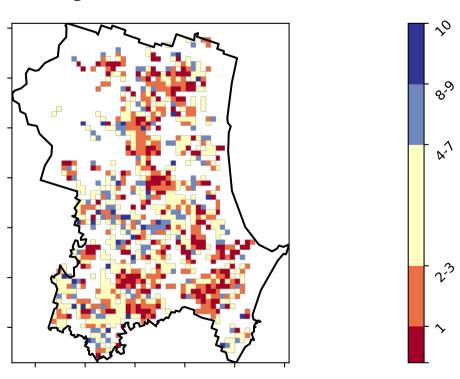
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]















- 20

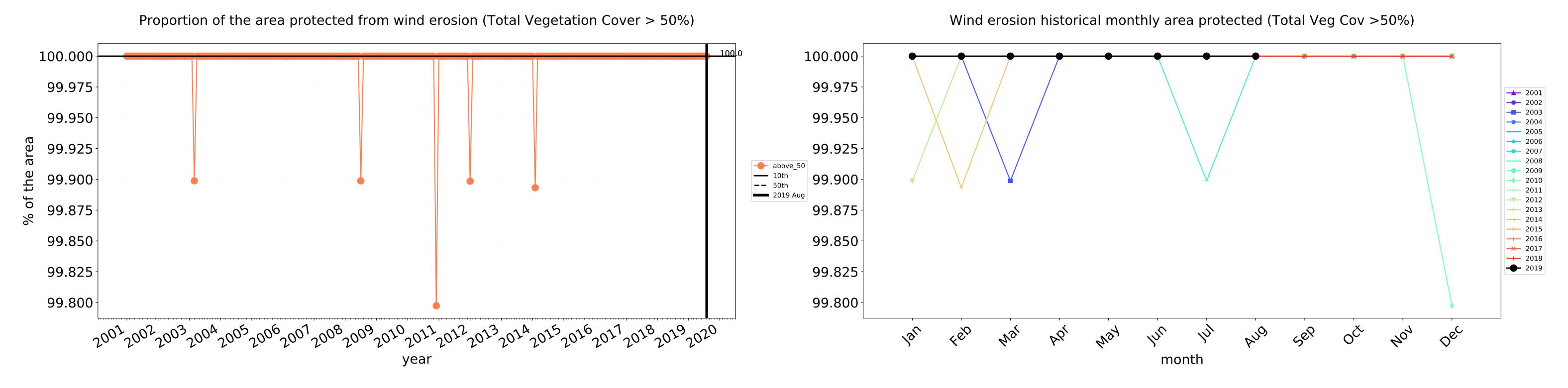
- 10

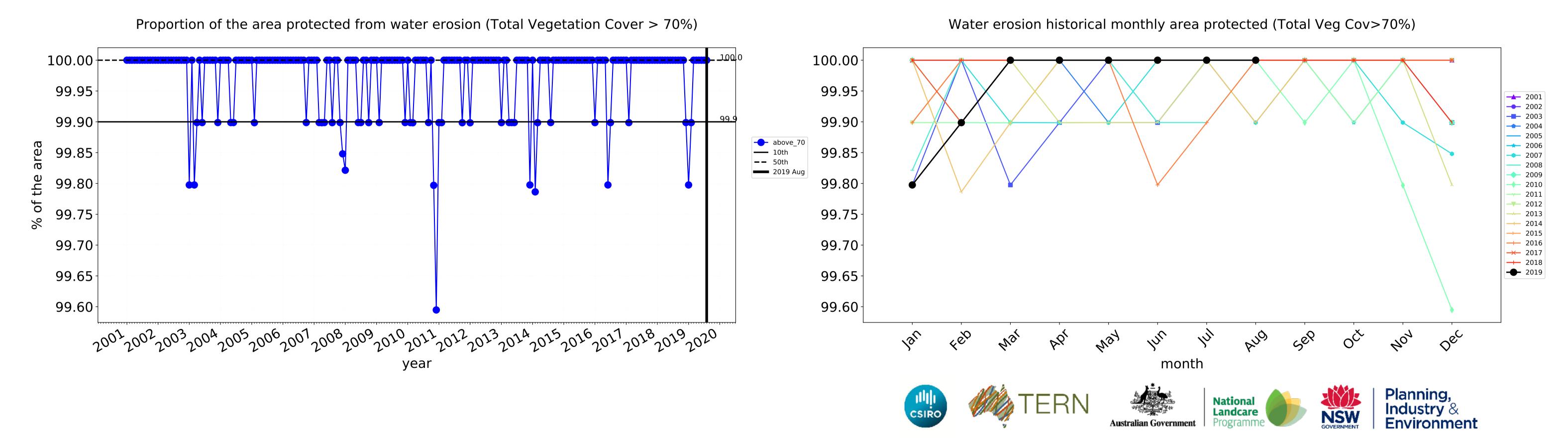
0

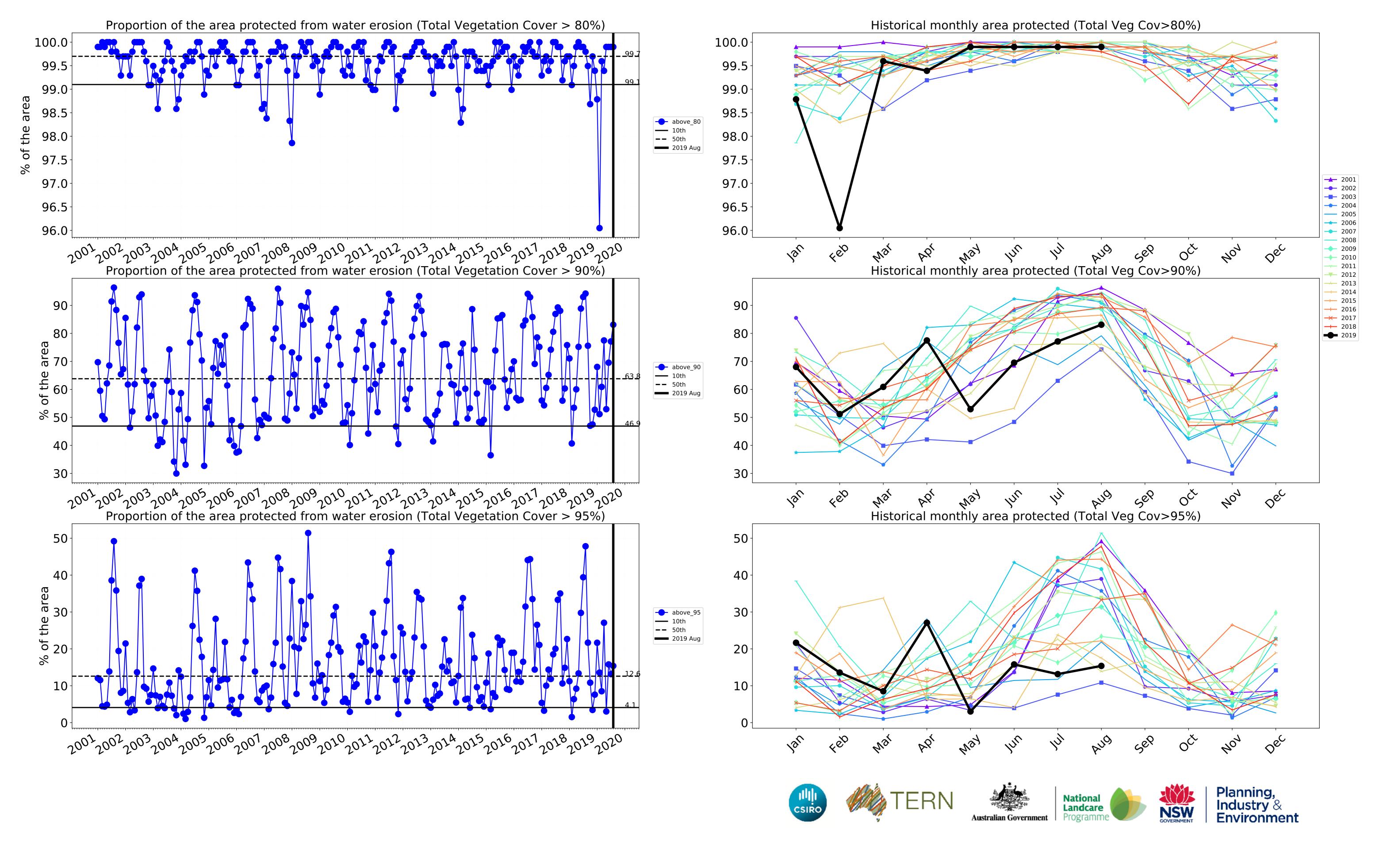
-10

-20

Grazing non forest timeseries







Grazing 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

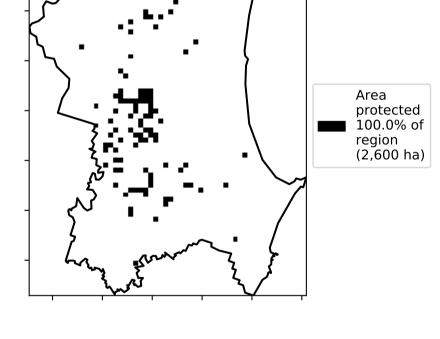
cover.

Agriculture - Grazing - Woodland forest

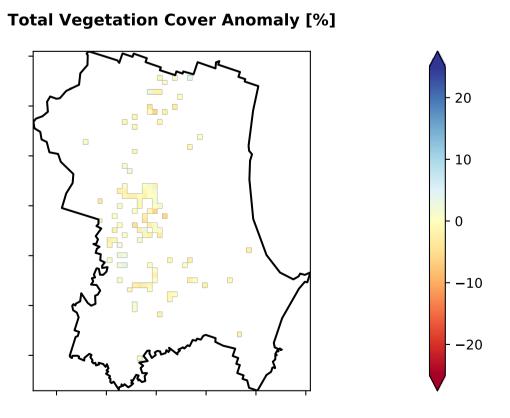
Land use and forest cover

Total Vegetation Cover [%]

% Area protected from water erosion (>70%) Area protected 100.0% of region (2,600 ha)

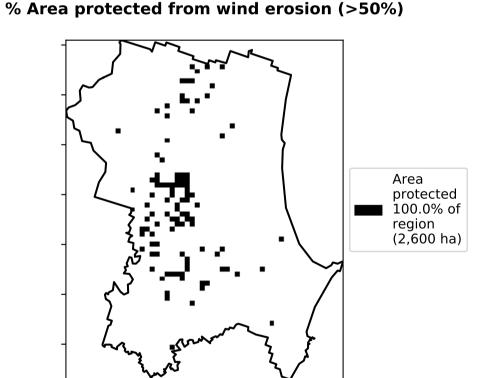


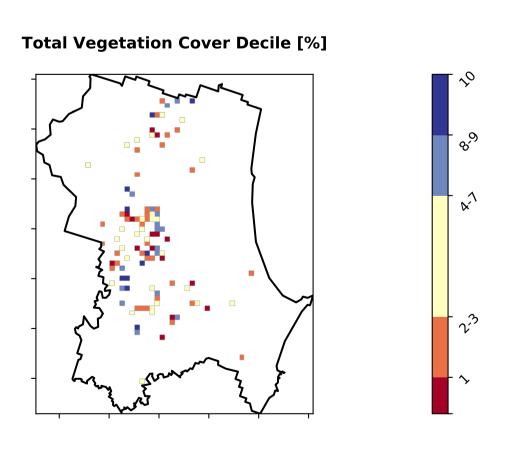
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



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.

Proportion of vegetation cover class in area 100.0% 100 80 60 40 20 0.0% 0.0% 0.0% 31%-50% 51%-70% 0-30% 71%-100% **Total Vegetation Cover class**









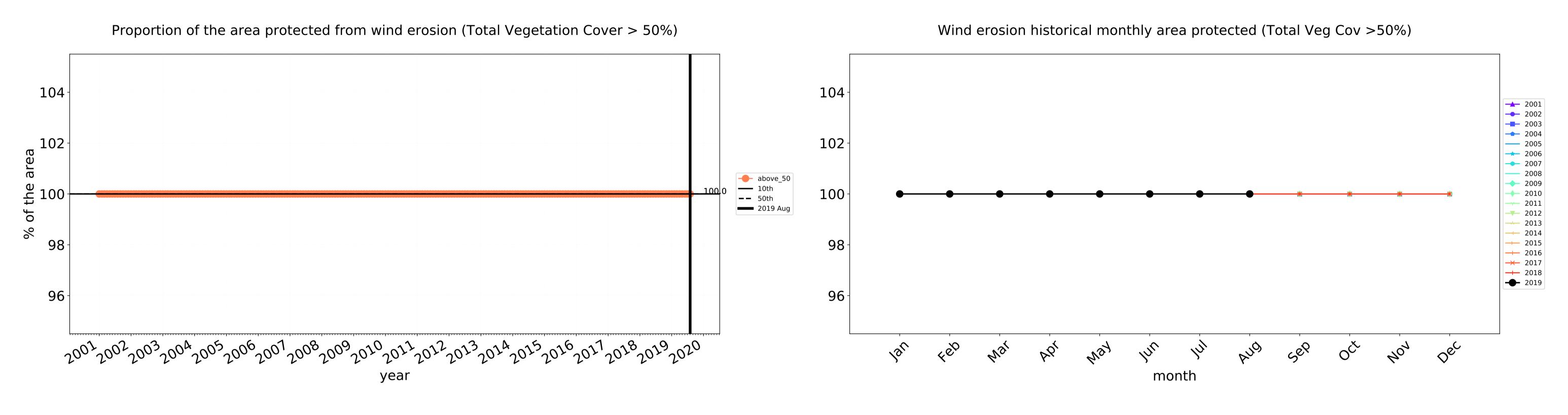


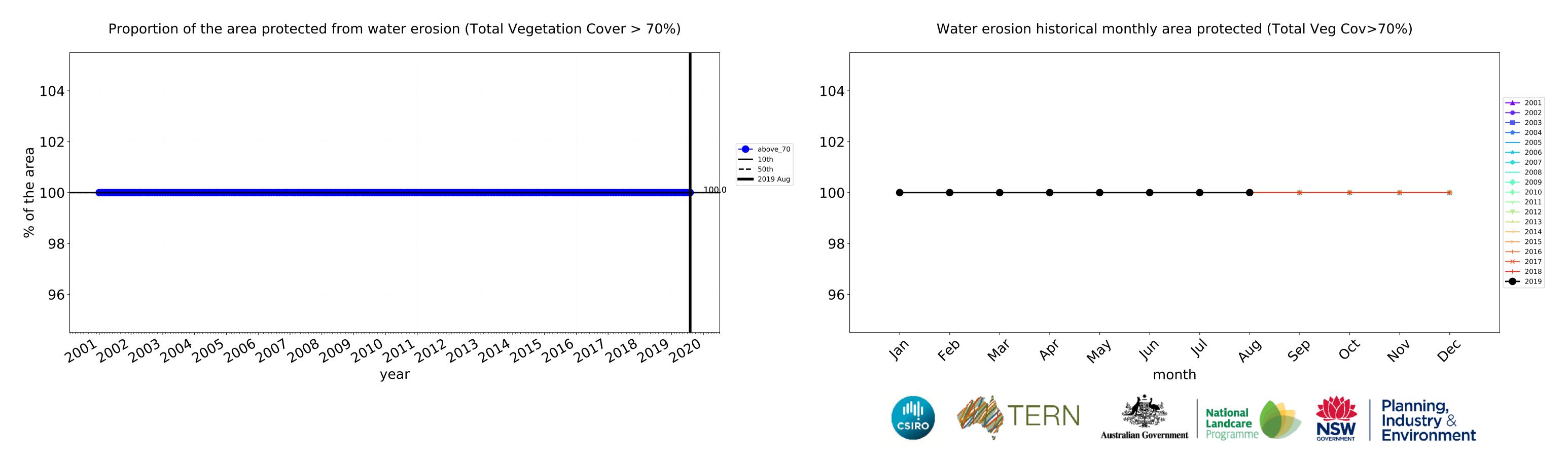


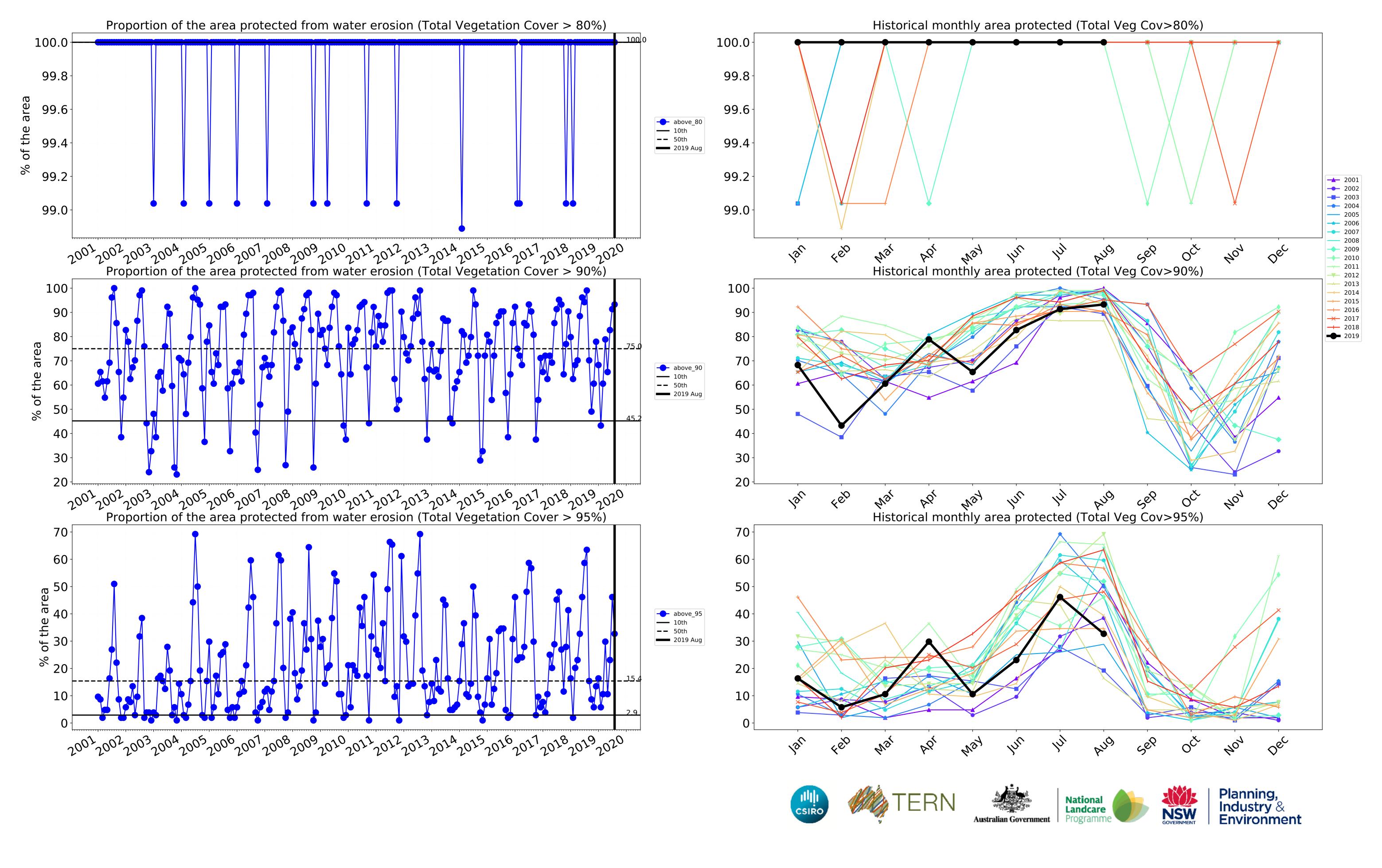




Grazing Woodland forest timeseries







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

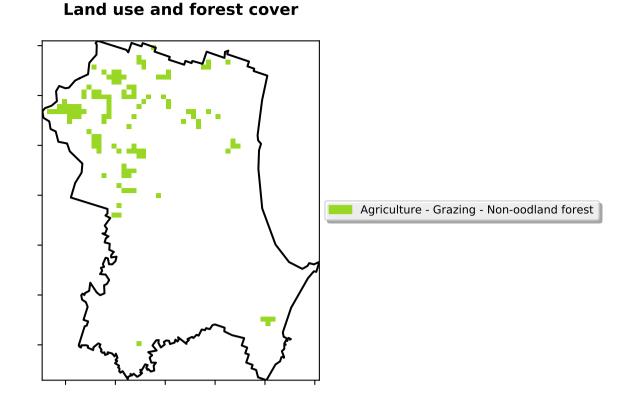
mean of that pixel. The mean

is only for the month of the map

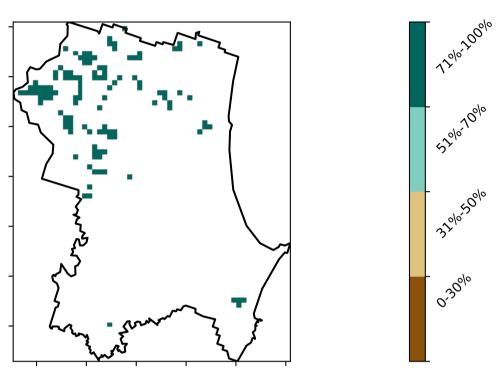
using baseline from 2001 to 2019.

the mean. That

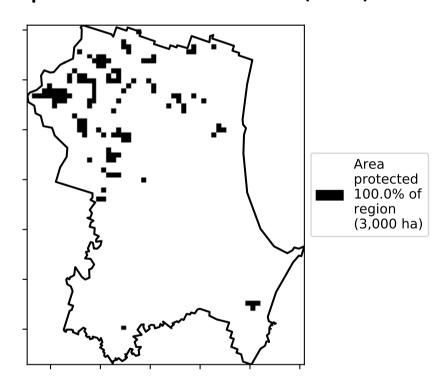
cover.



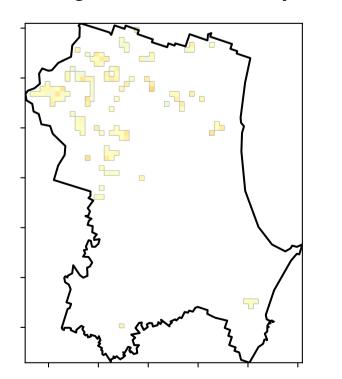
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

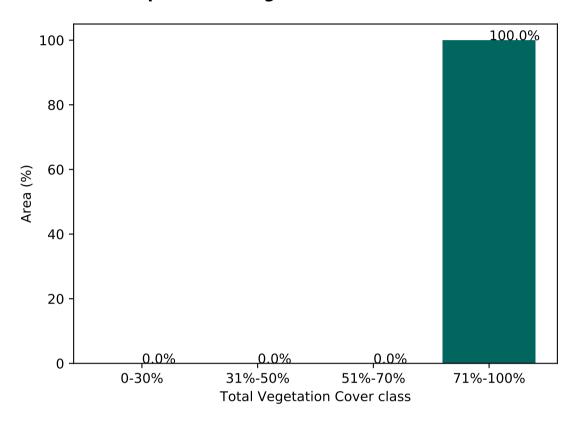


Total Vegetation Cover Anomaly [%]

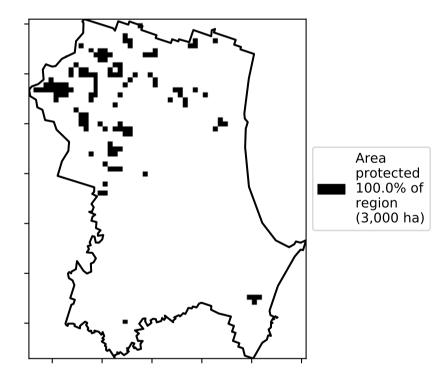


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

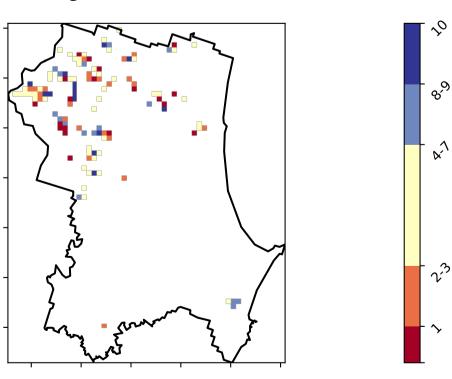
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]















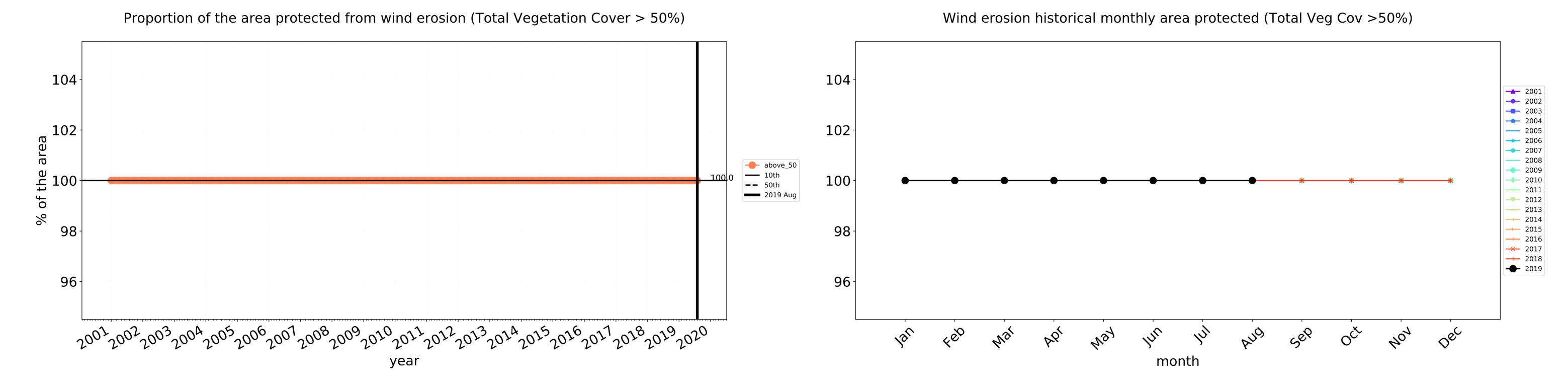
- 20

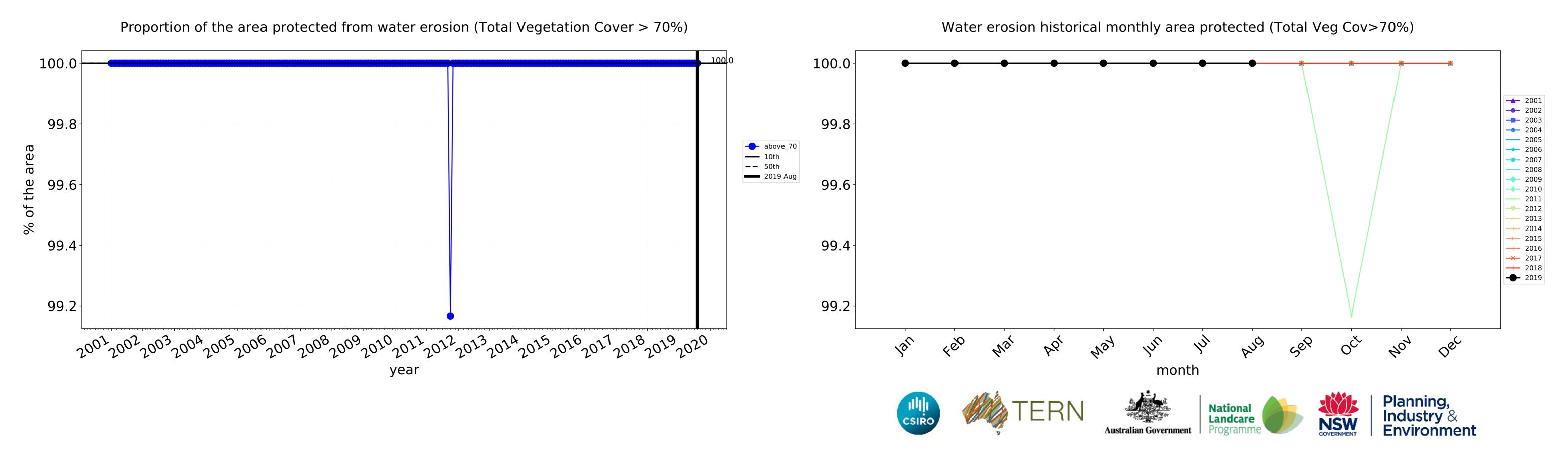
- 10

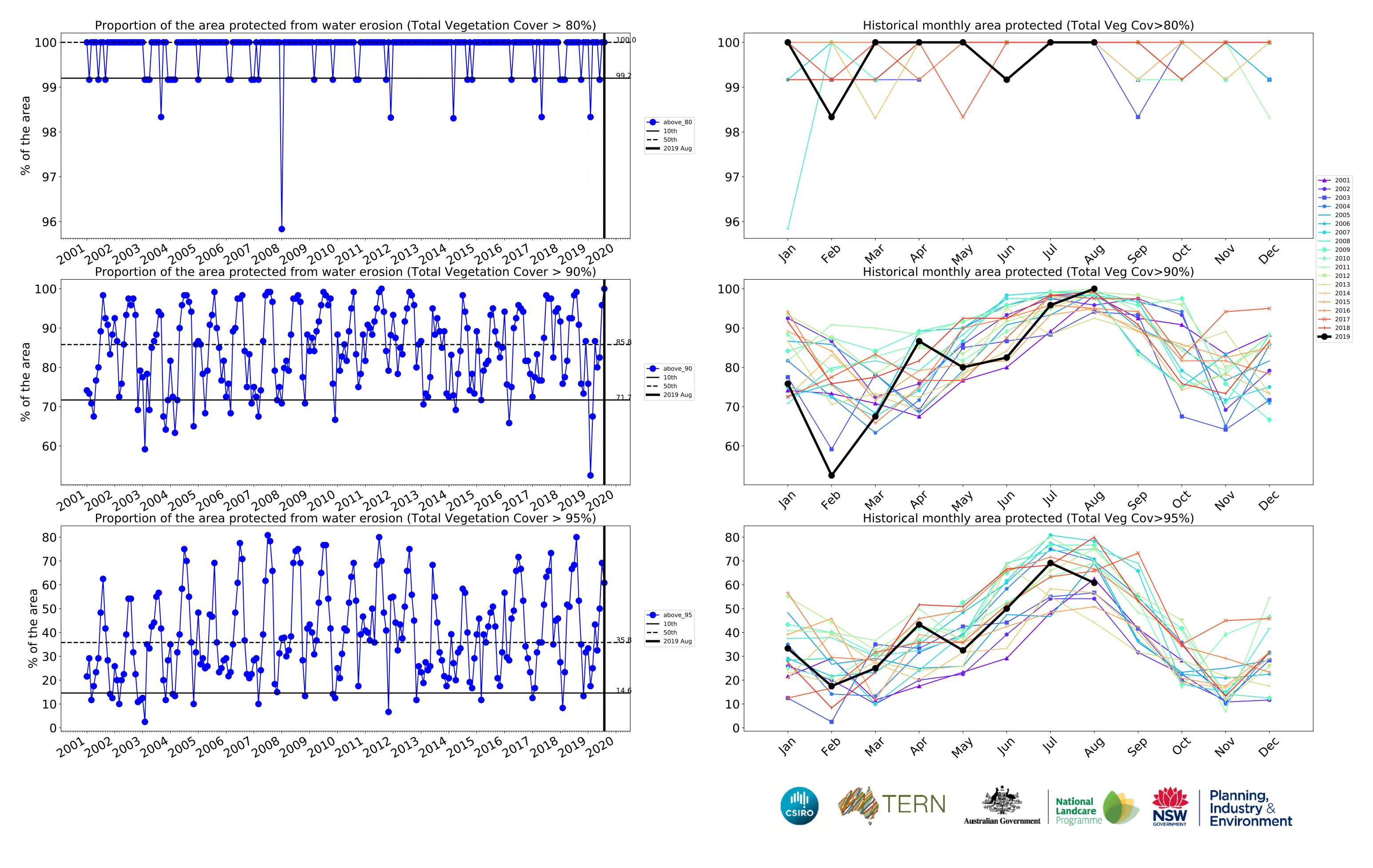
0

-10

-20







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 cover.

Anomaly show how many percetage points each

pixel is from

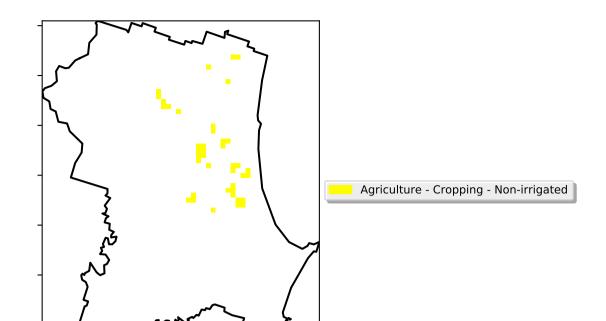
is, red pixels are about 20% lower than the

mean of that pixel. The mean

is only for the month of the map

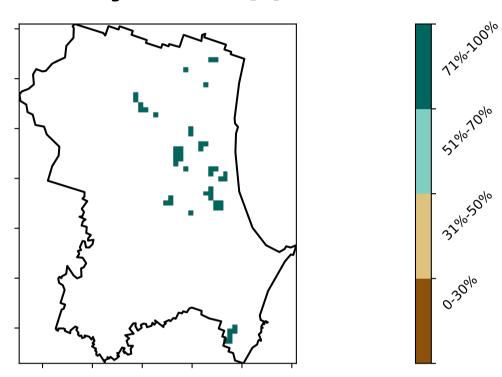
using baseline from 2001 to 2019.

the mean. That

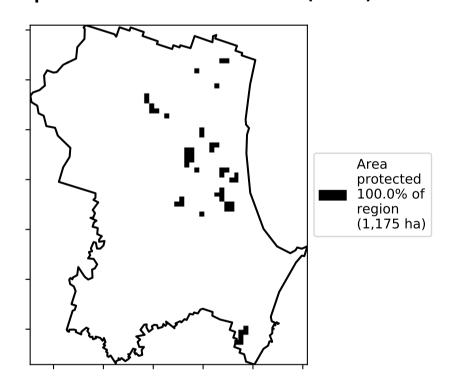


Total Vegetation Cover [%]

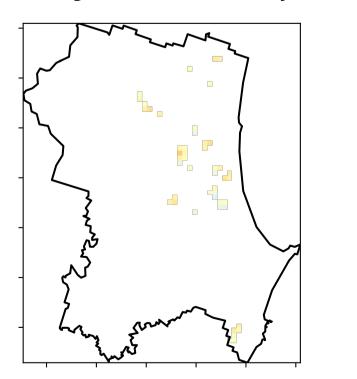
Land use and forest cover



% Area protected from water erosion (>70%)

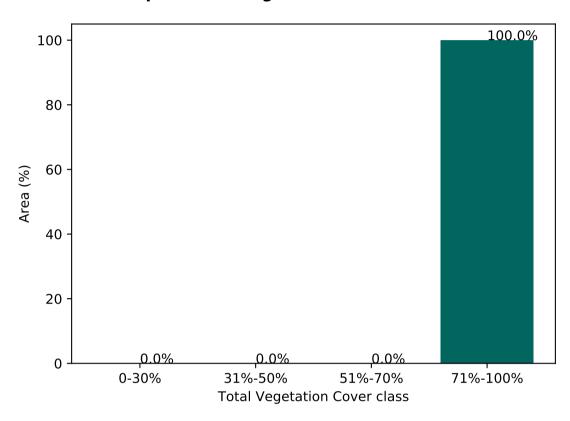


Total Vegetation Cover Anomaly [%]

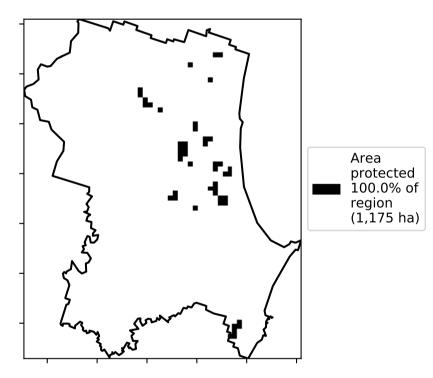


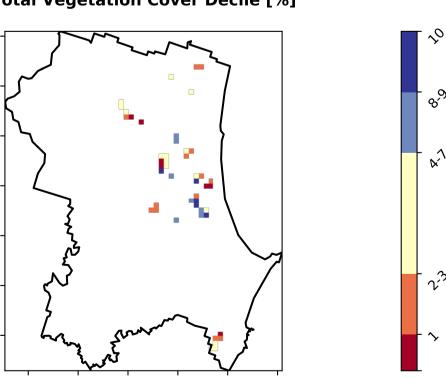
- 20 Deciles show where the pixel value lies in the - 10 record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of 0 records for that month of the map using baseline from 2001 to 2019. -10**-**20

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









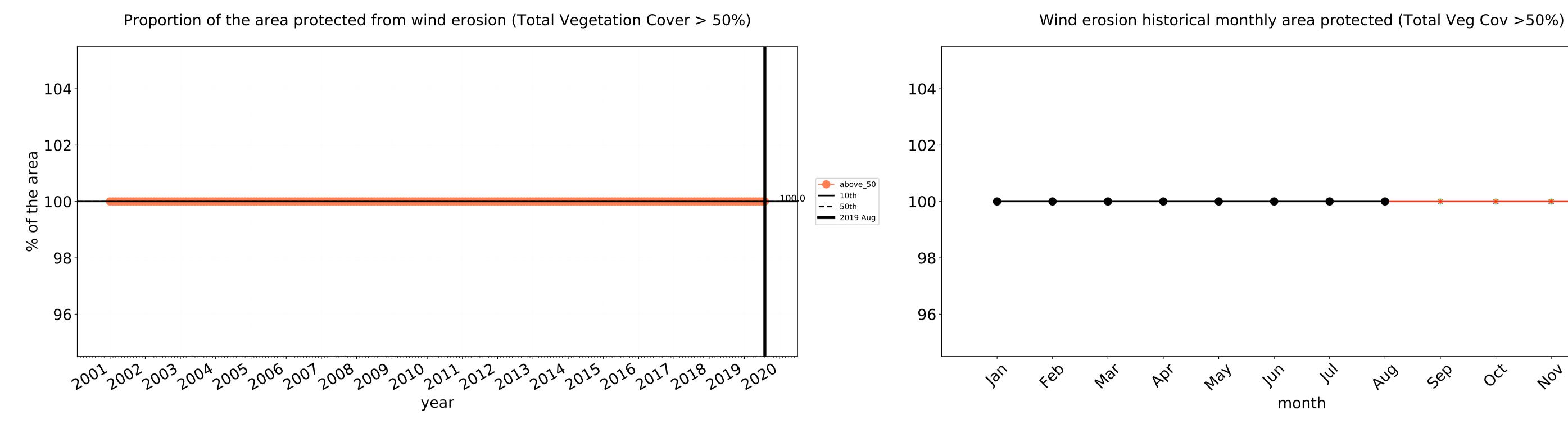


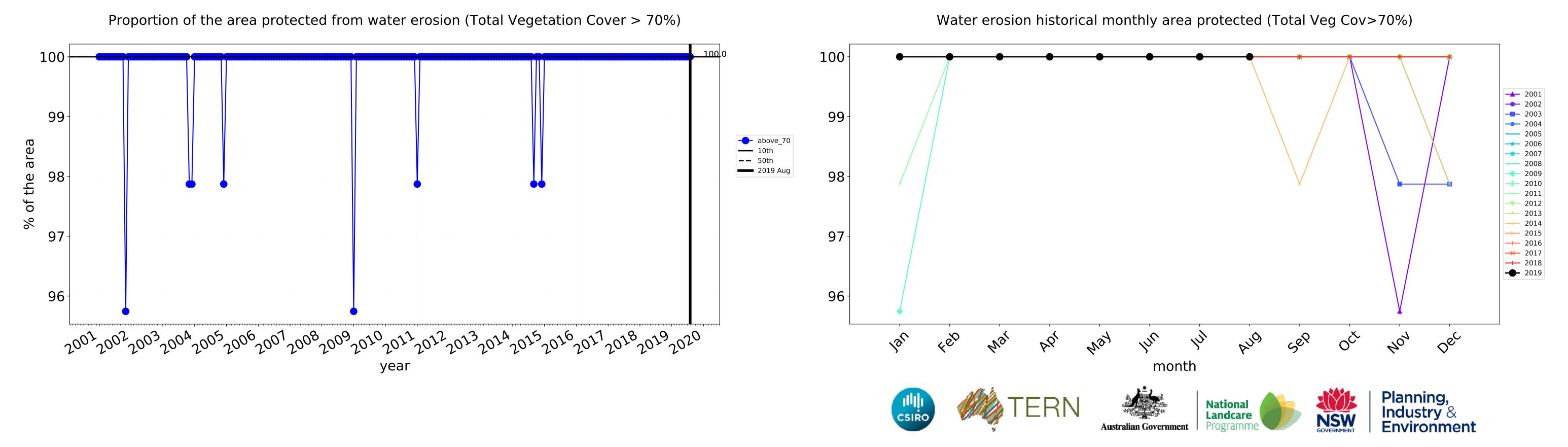






Cropping timeseries





→ 2001

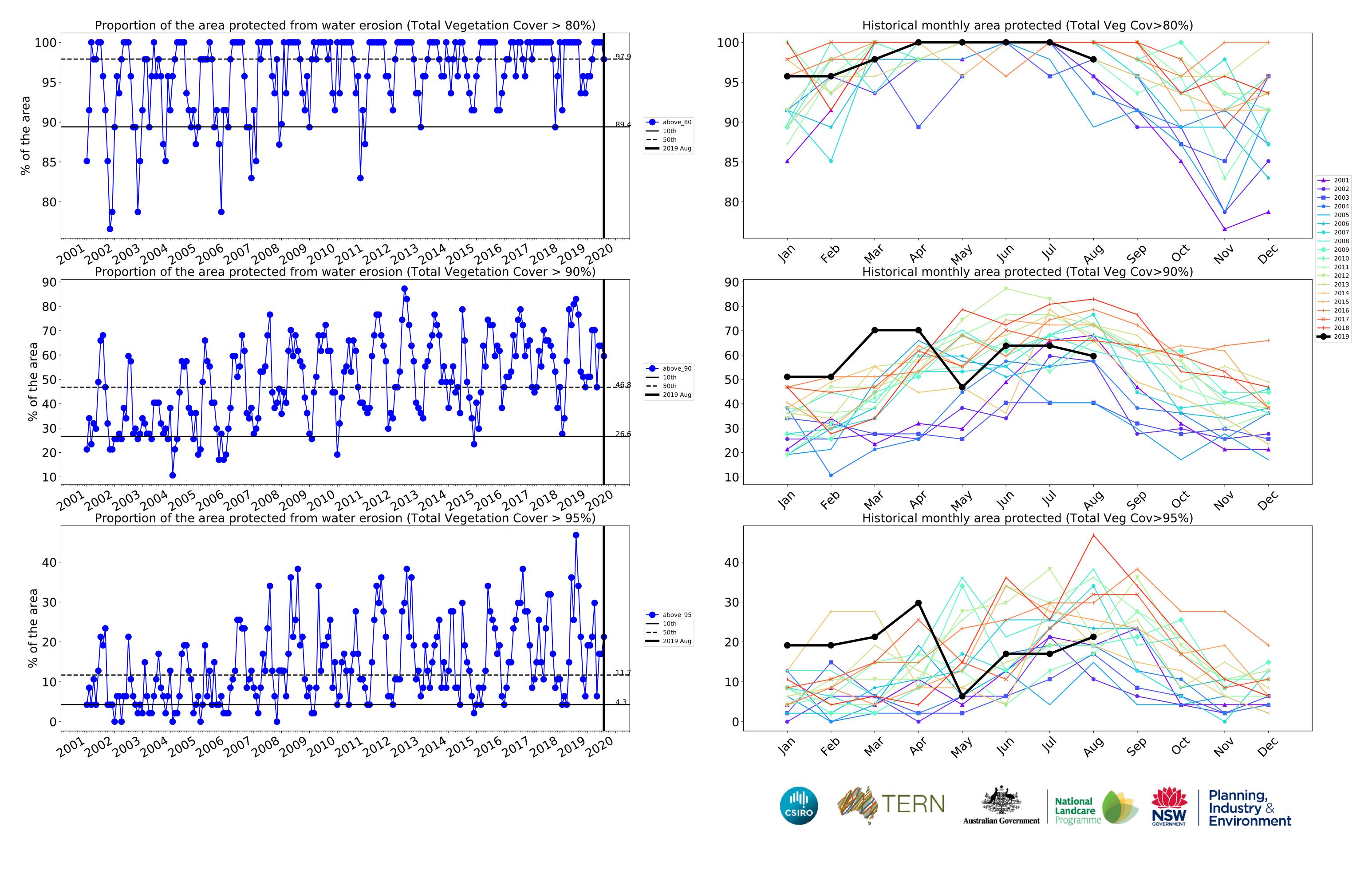
2006 2007 2008

2009

2011

2012 2013 2014

→ 2015 → 2016 → 2017 → 2018 • 2019



Horticulture

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

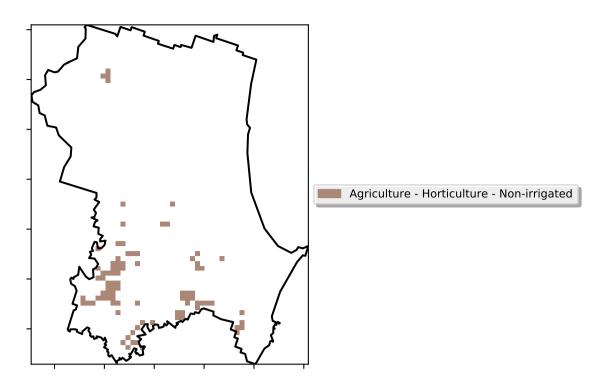
is, red pixels are about 20% lower than the

mean of that pixel. The mean

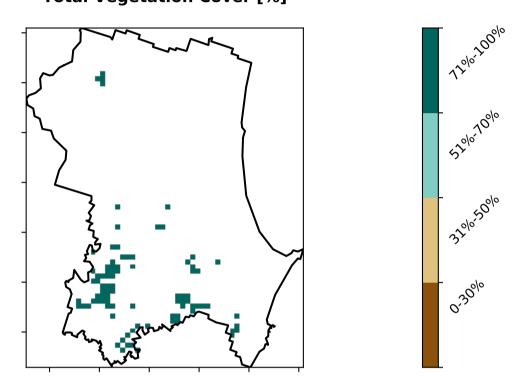
is only for the month of the map

using baseline from 2001 to 2019.

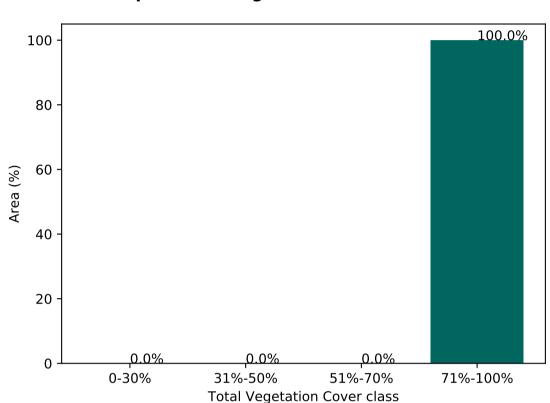
the mean. That



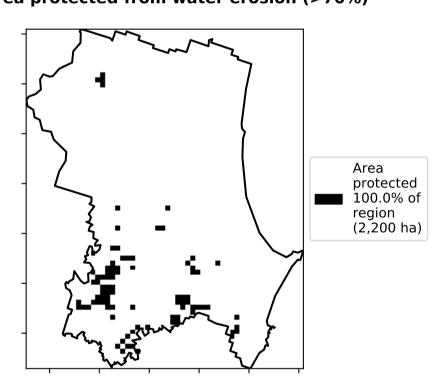
Total Vegetation Cover [%]



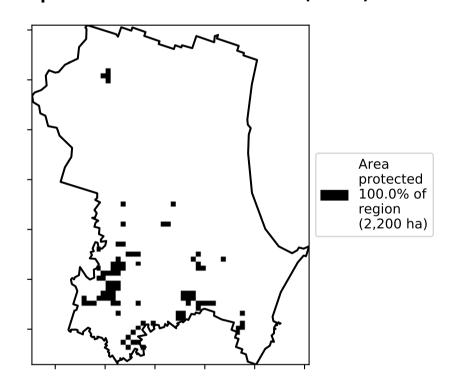
Proportion of vegetation cover class in area



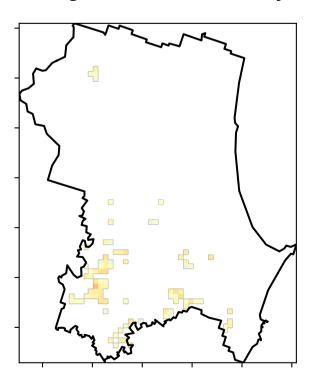
% Area protected from water erosion (>70%)

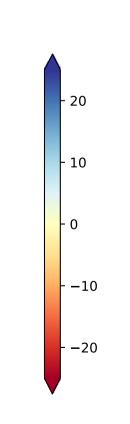


% Area protected from wind erosion (>50%)

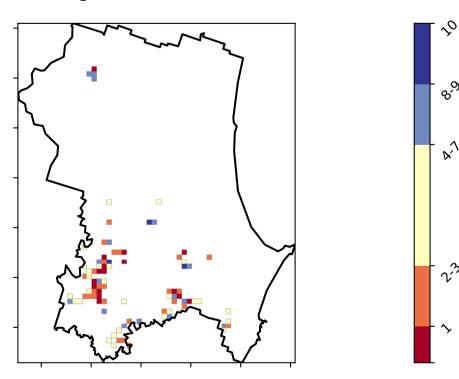


Total Vegetation Cover Anomaly [%]





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.







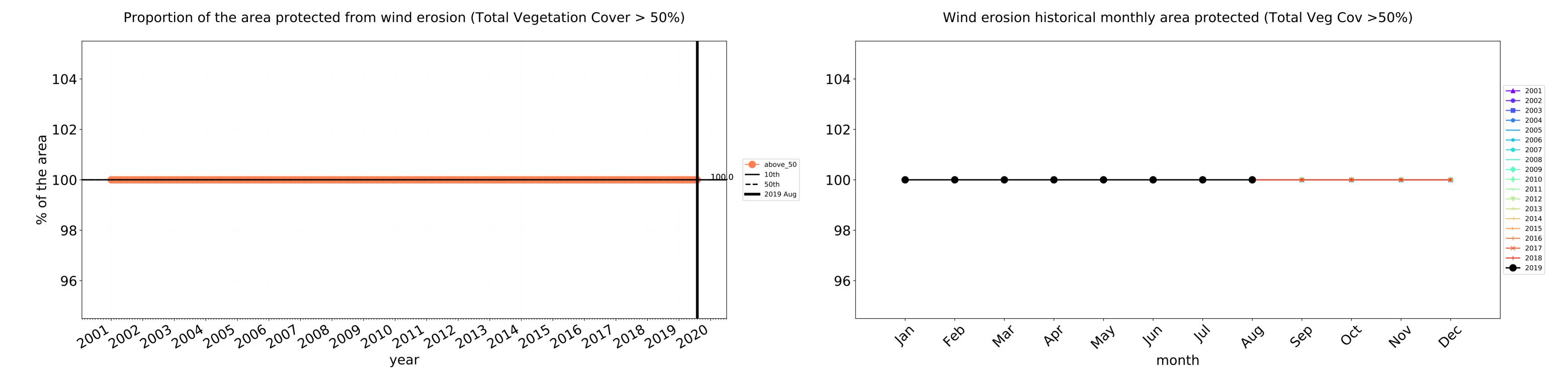


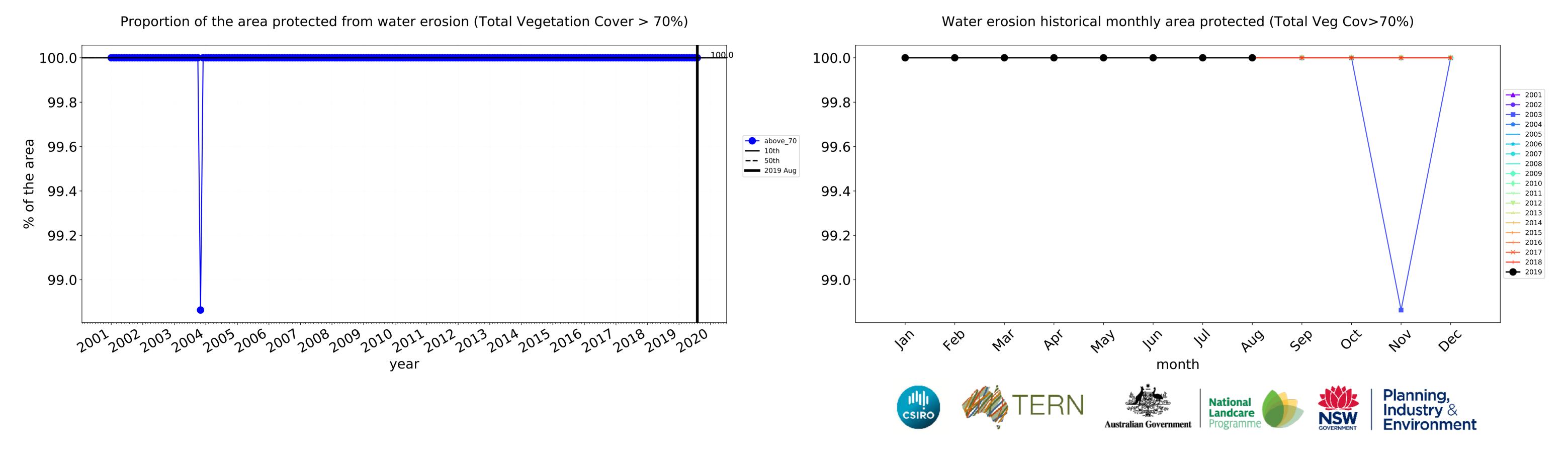


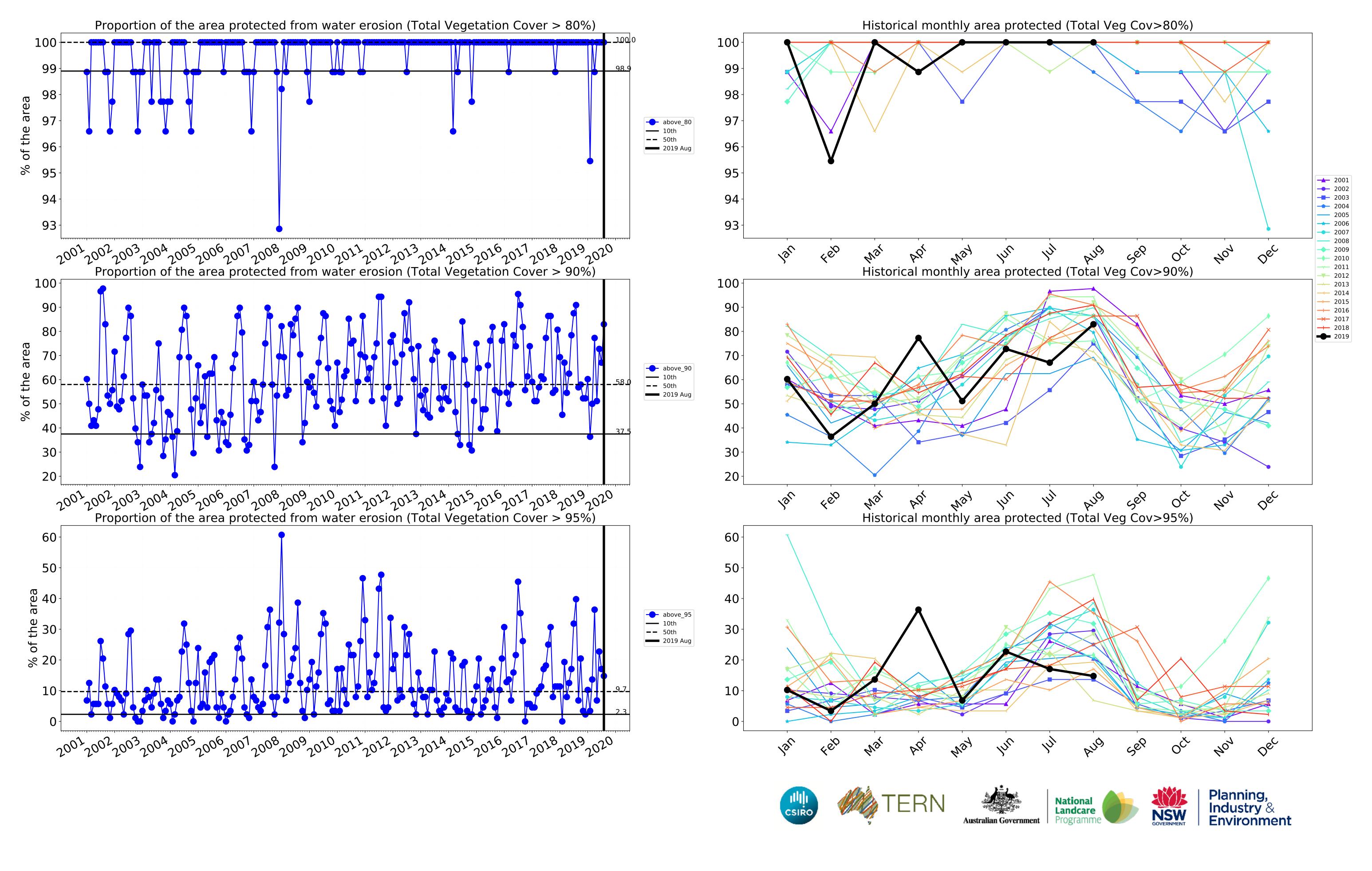




Horticulture timeseries







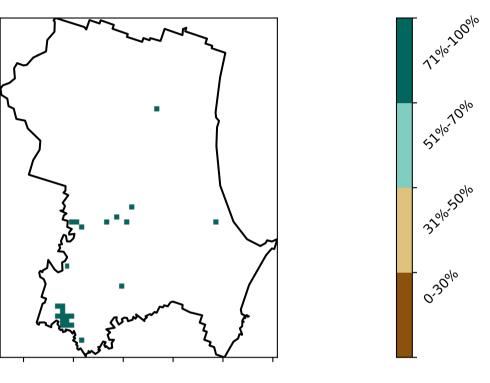
Production native forests and plantation forests

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.

Production native forests and plantation forests

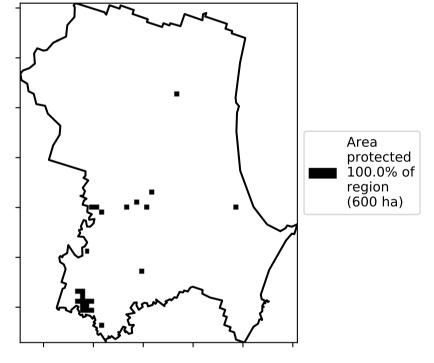
Total Vegetation Cover [%]

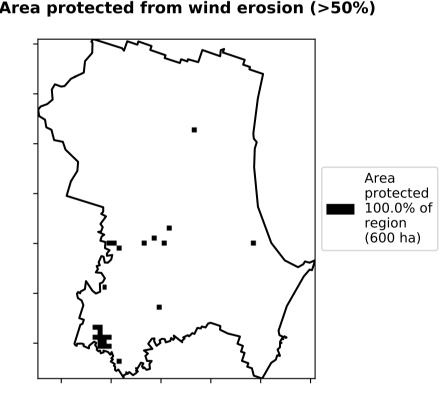


60 40 20 0.0% 0.0% 0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class** % Area protected from water erosion (>70%) % Area protected from wind erosion (>50%)

100

80

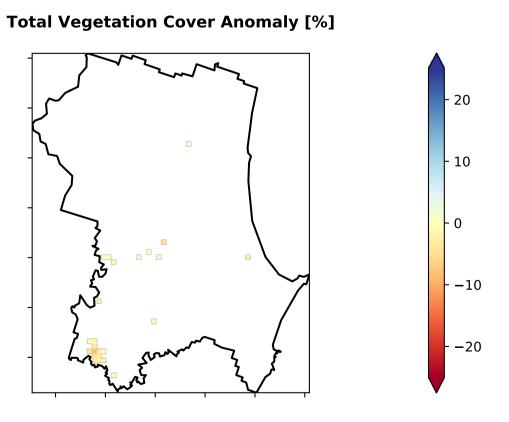




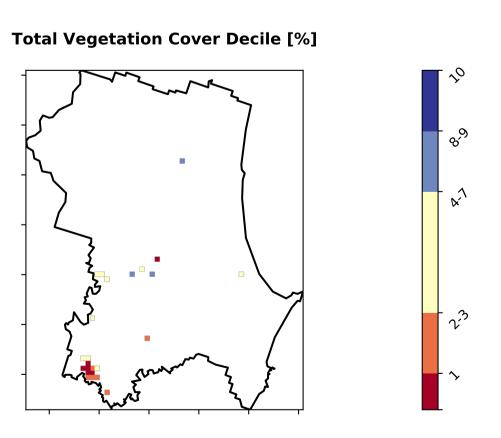
Proportion of vegetation cover class in area

100.0%

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.







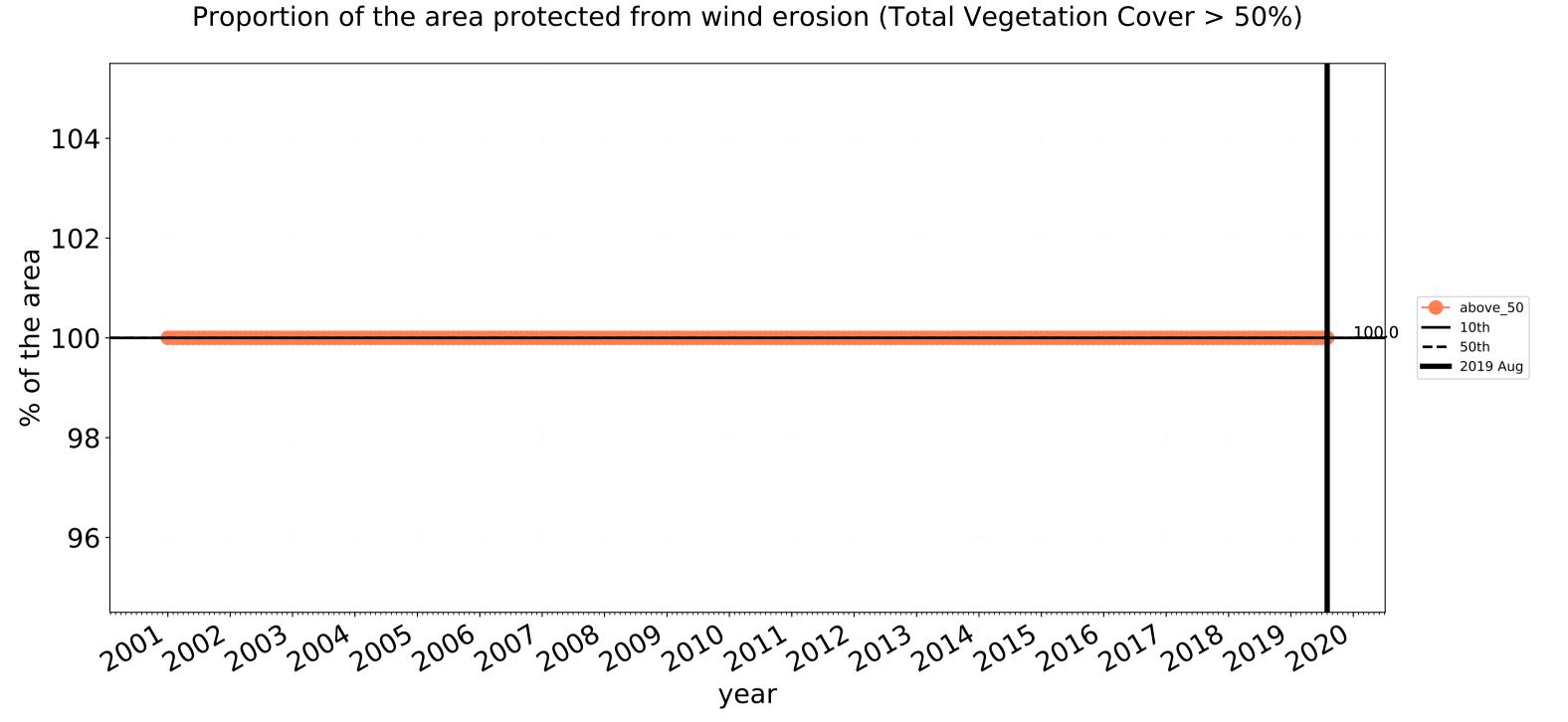




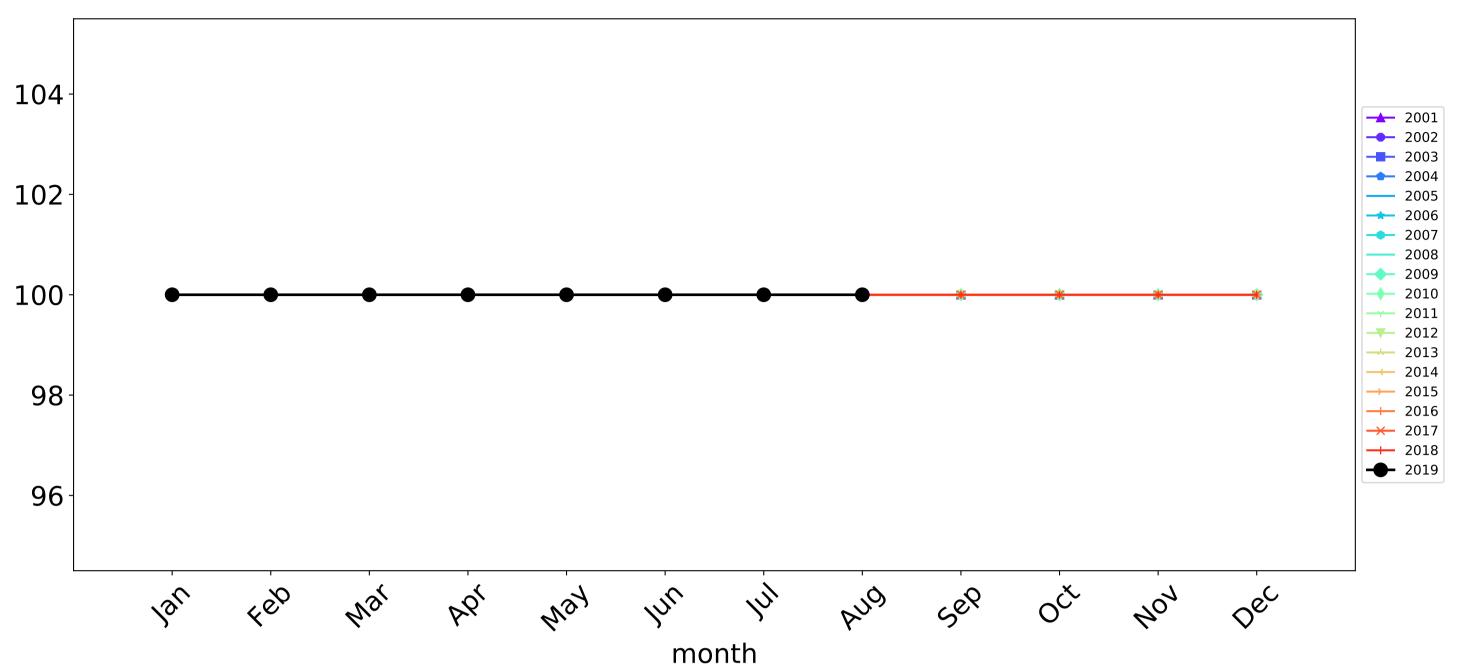




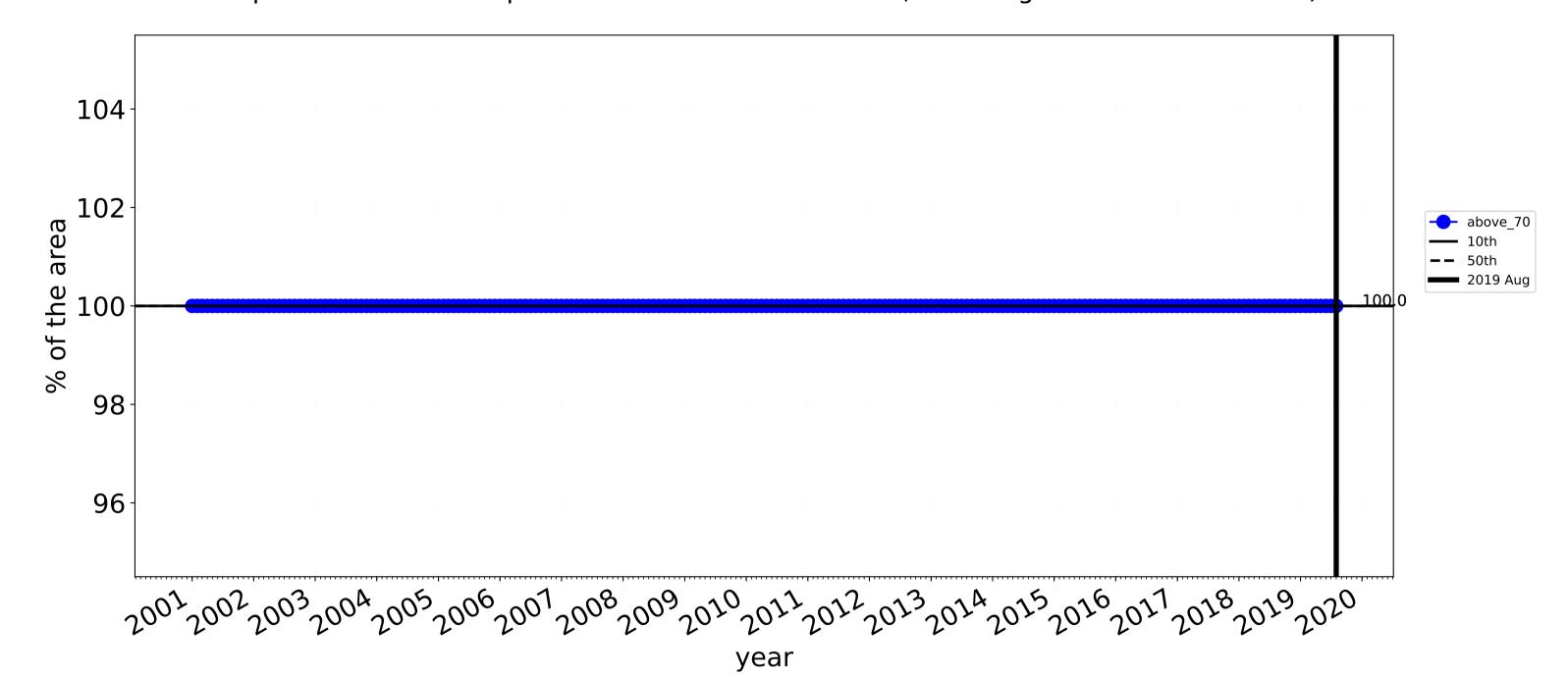
Production native forests and plantation forests timeseries



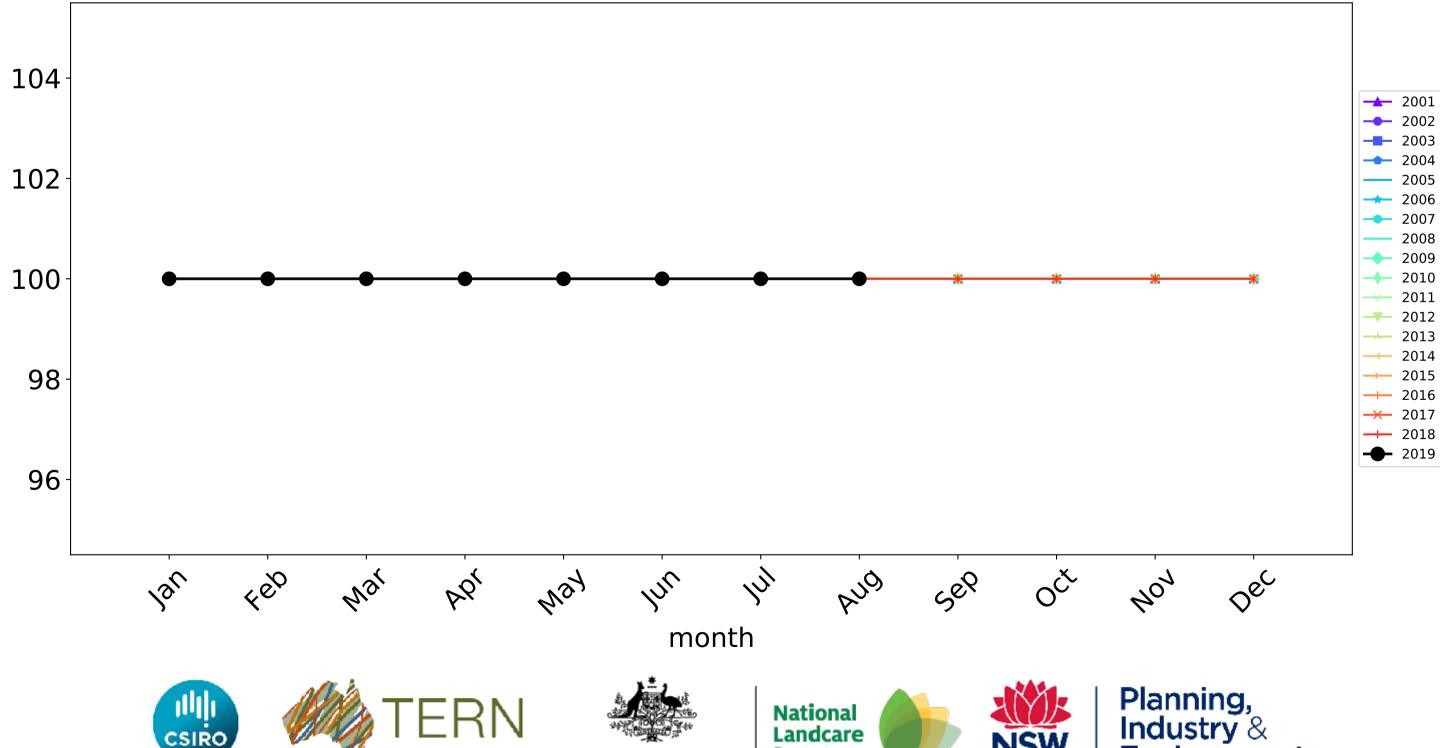
Wind erosion historical monthly area protected (Total Veg Cov >50%)







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



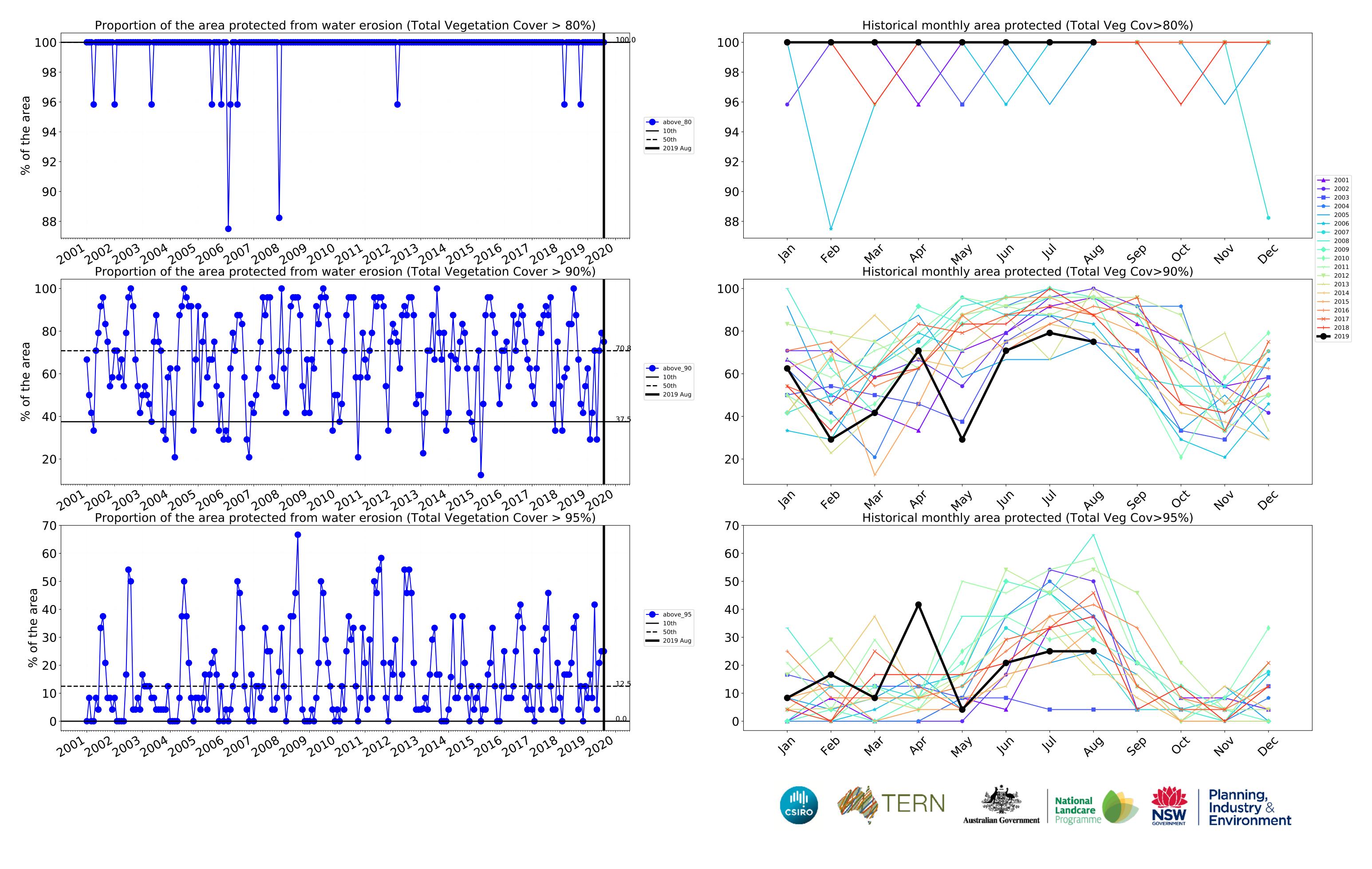












Byron_(A) (56,200 ha and no data 495 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	56,200	100.0% 56,200	99.9% 56,150	99.0% 55,625	97.0% 54,525	81.3% 45,675	28.6% 16,075
Conservation and natural environments	11,521	100.0% 11,521	99.8% 11,495	98.0% 11,288	95.1% 10,952	89.5% 10,306	60.1% 6,922
Conservation and natural environments non forest	1,629	100.0% 1,629	100.0% 1,629	88.9% 1,448	72.2% 1,177	59.3% 965	20.4% 331
Conservation and natural environments Woodland forest	618	100.0% 618	100.0% 618	100.0% 618	100.0% 618	92.0% 568	40.0% 247
Conservation and natural environments Forest (non woodland)	9,273	100.0% 9,273	99.7% 9,247	99.2% 9,197	98.1% 9,096	93.7% 8,691	67.3% 6,240
Agriculture	33,382	100.0% 33,382	100.0% 33,382	100.0% 33,382	99.9% 33,333	84.6% 28,231	20.9% 6,983
Grazing	30,010	100.0% 30,010	100.0% 30,010	100.0% 30,010	99.9% 29,986	85.6% 25,702	21.4% 6,413
Grazing non forest	24,447	100.0% 24,447	100.0% 24,447	100.0% 24,447	99.9% 24,422	83.1% 20,314	15.4% 3,761
Grazing Woodland forest	2,585	100.0% 2,585	100.0% 2,585	100.0% 2,585	100.0% 2,585	93.3% 2,411	32.7% 845
Grazing - Forest (non woodland)	2,978	100.0% 2,978	100.0% 2,978	100.0% 2,978	100.0% 2,978	100.0% 2,978	60.8% 1,811
Cropping	1,180	100.0% 1,180	100.0% 1,180	100.0% 1,180	97.9% 1,155	59.6% 703	21.3% 251
Horticulture	2,191	100.0% 2,191	100.0% 2,191	100.0% 2,191	100.0% 2,191	83.0% 1,818	14.8% 323
Production native forests and plantation forests	618	100.0% 618	100.0% 618	100.0% 618	100.0% 618	75.0% 463	25.0% 154











