# LGA Cabonne_(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.

Cabonne_(A)

- Context
  - Map: Land use and forest cover
  - Chart: Land use and forest cover area
- Total vegetation cover for this month
  - Map: vegetation cover classified into 4 classes
  - Chart: vegetation cover area classified into 4 classes
- Areas protected from erosion for the month
  - Map: wind erosion protection (>50% cover)
  - Map: water erosion protection (>70% cover)
- Comparison with previous years
  - Map: anomaly – compare this month to the average cover from the same month in previous years
  - Map: deciles – rank this month against the same month in previous years
- Time series
  - 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)
  - 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).
  - Rainfall: millimetres rainfall each month (black lines)
- Time series stacked by year
  - 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
  - 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 80% total clover
  - the percentage area with pixels greater than 90% total clover
  - 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:**

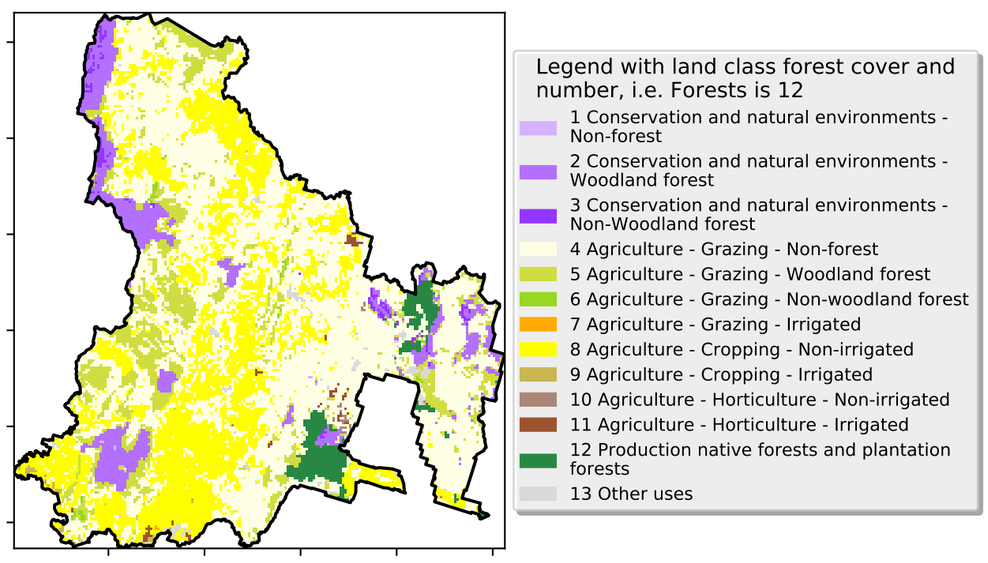

1. http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification
2. http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018
3. https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover
4. MODIS Fractional cover algorithm:

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

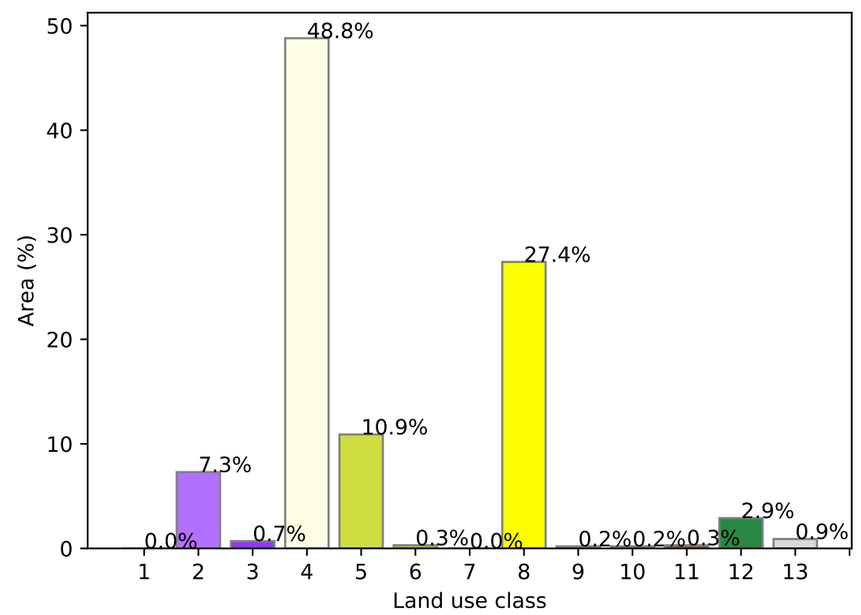
# Vegetation Cover Aug 2019

## Land use and forest cover

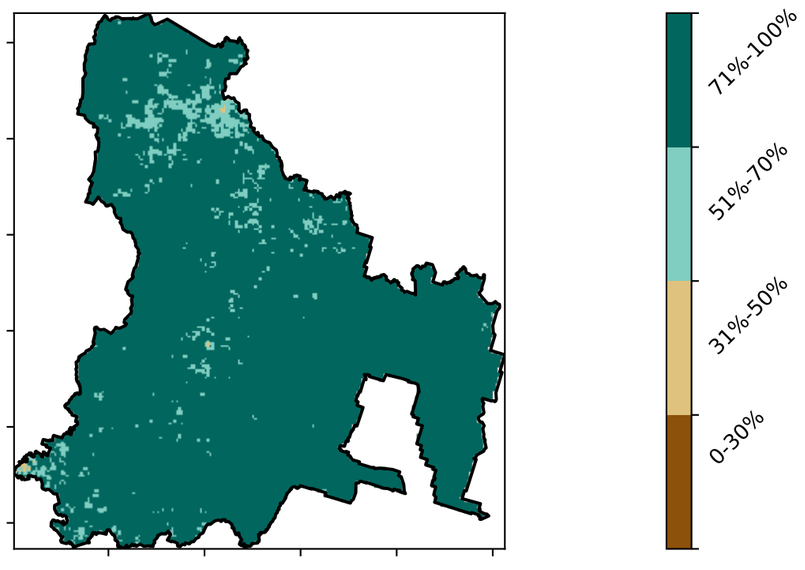
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



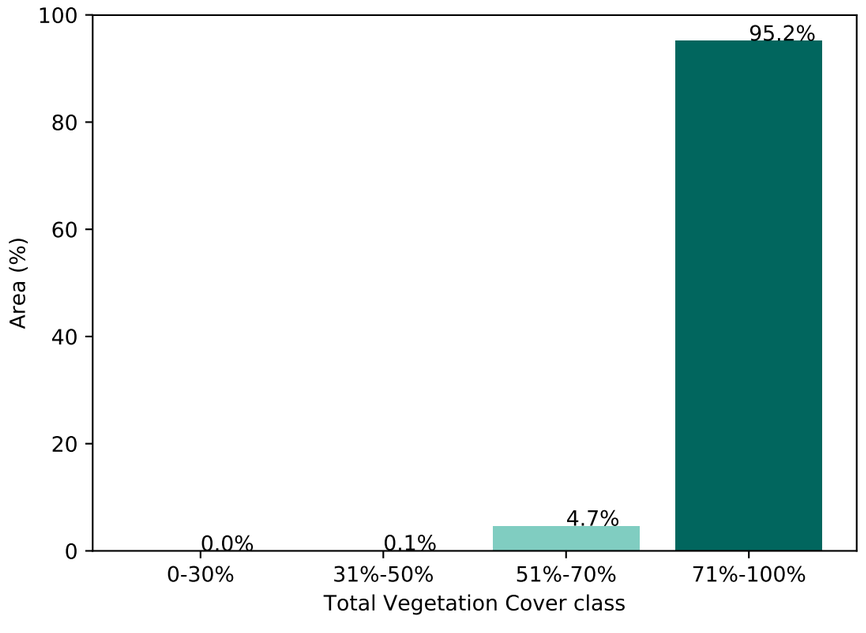

## Proportion of each land class in area



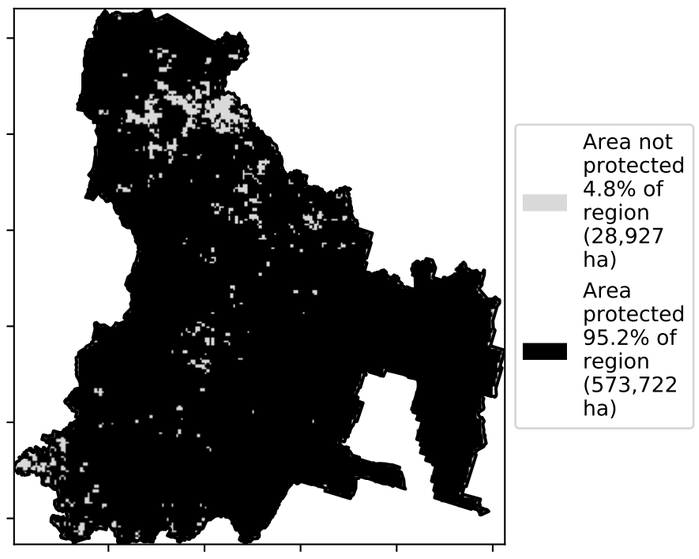

## Total Vegetation Cover [%]



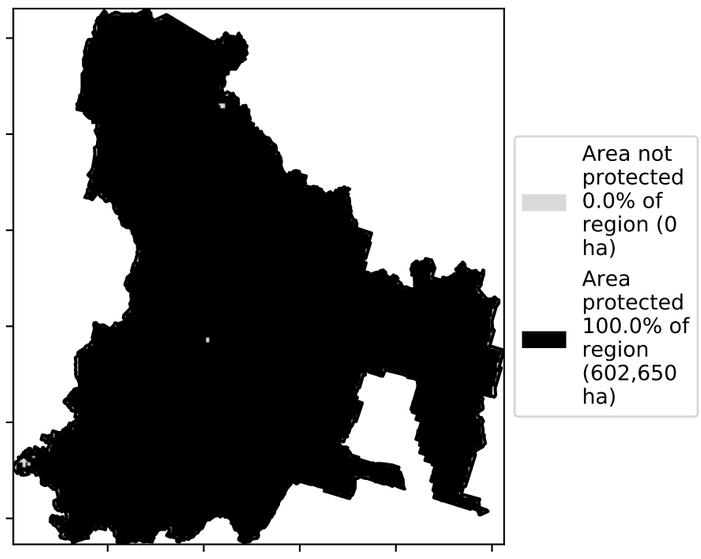

## Proportion of vegetation cover class in area




## % Area protected from water erosion (>70%)

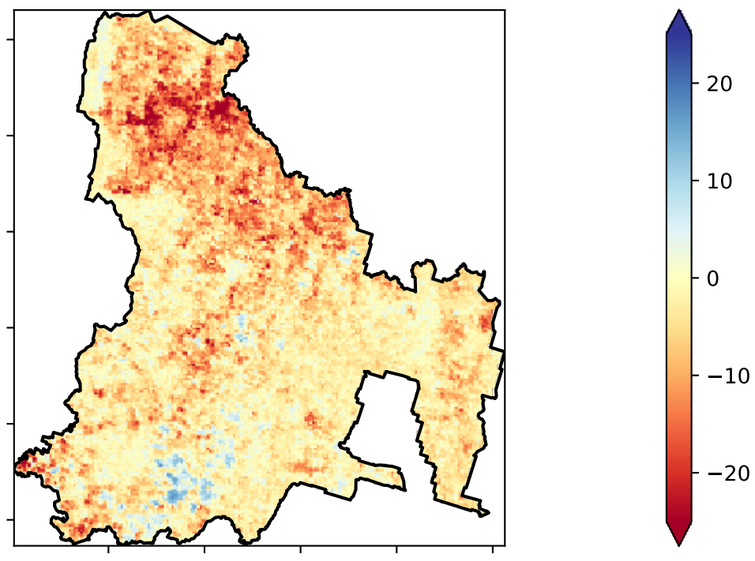



## % Area protected from wind erosion (>50%)



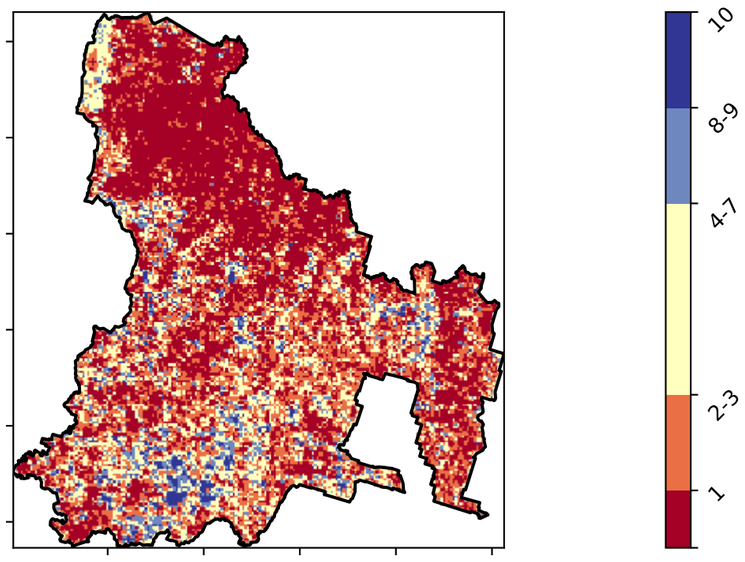

## Total Vegetation Cover Anomaly [%]

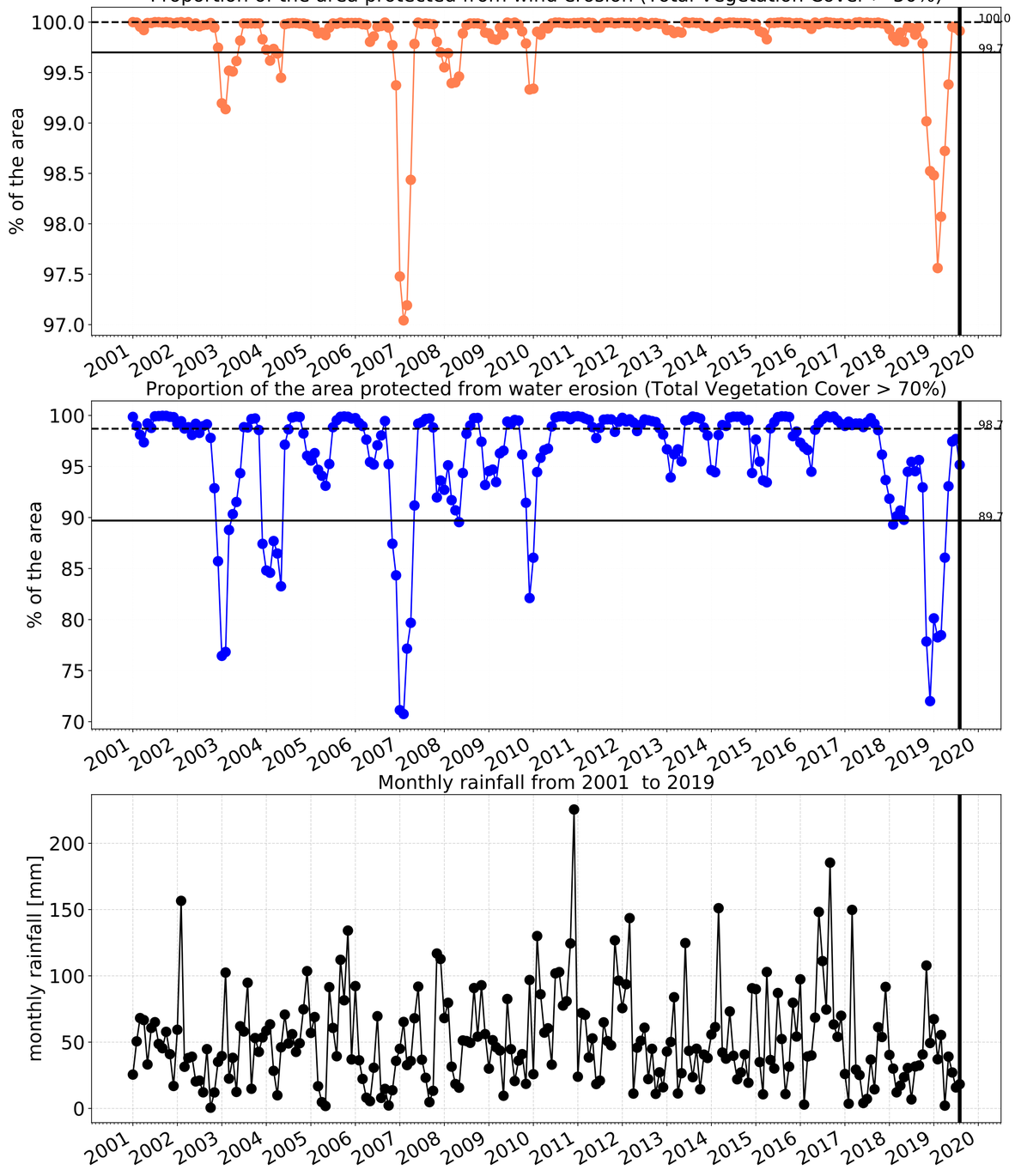
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

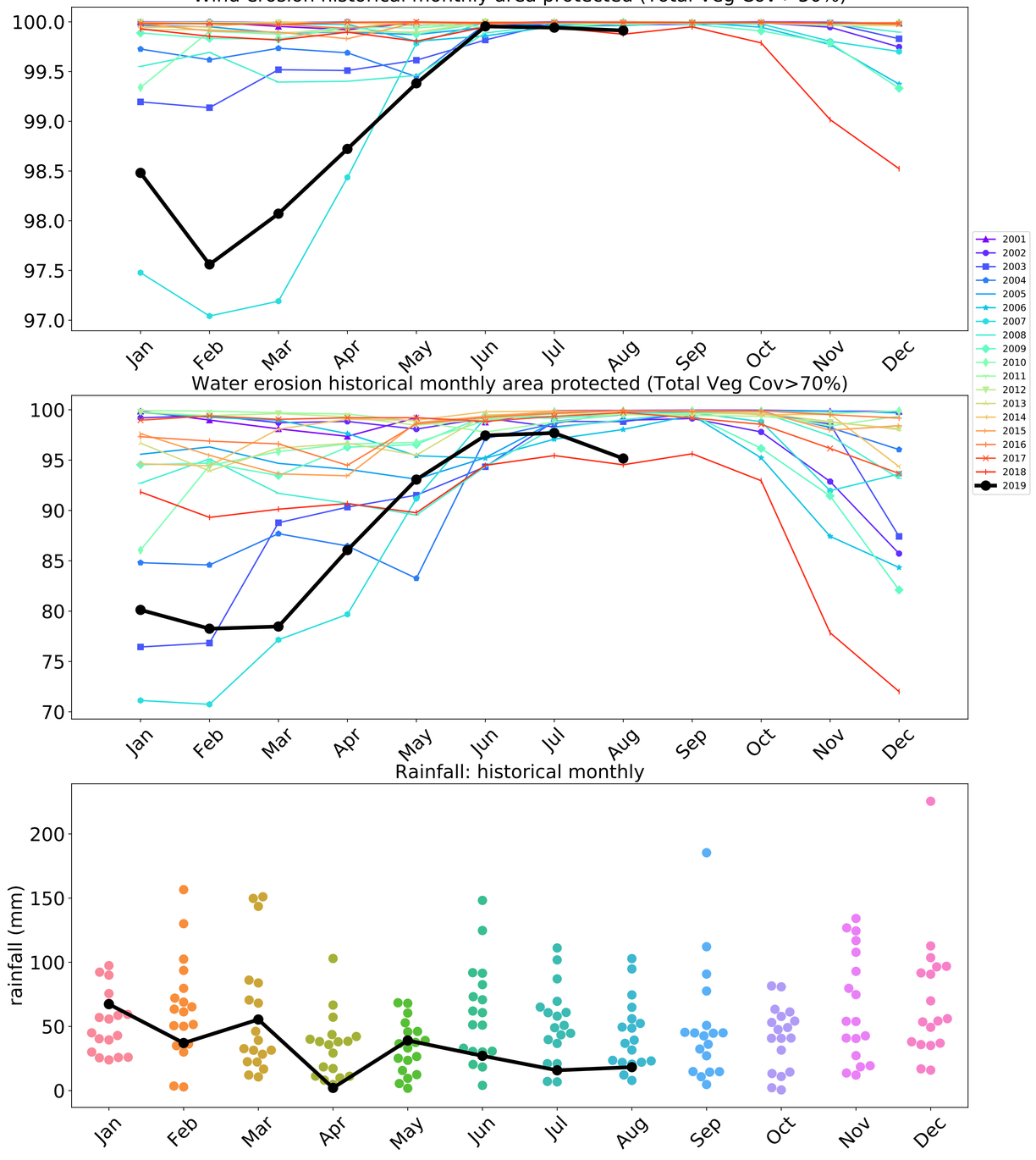


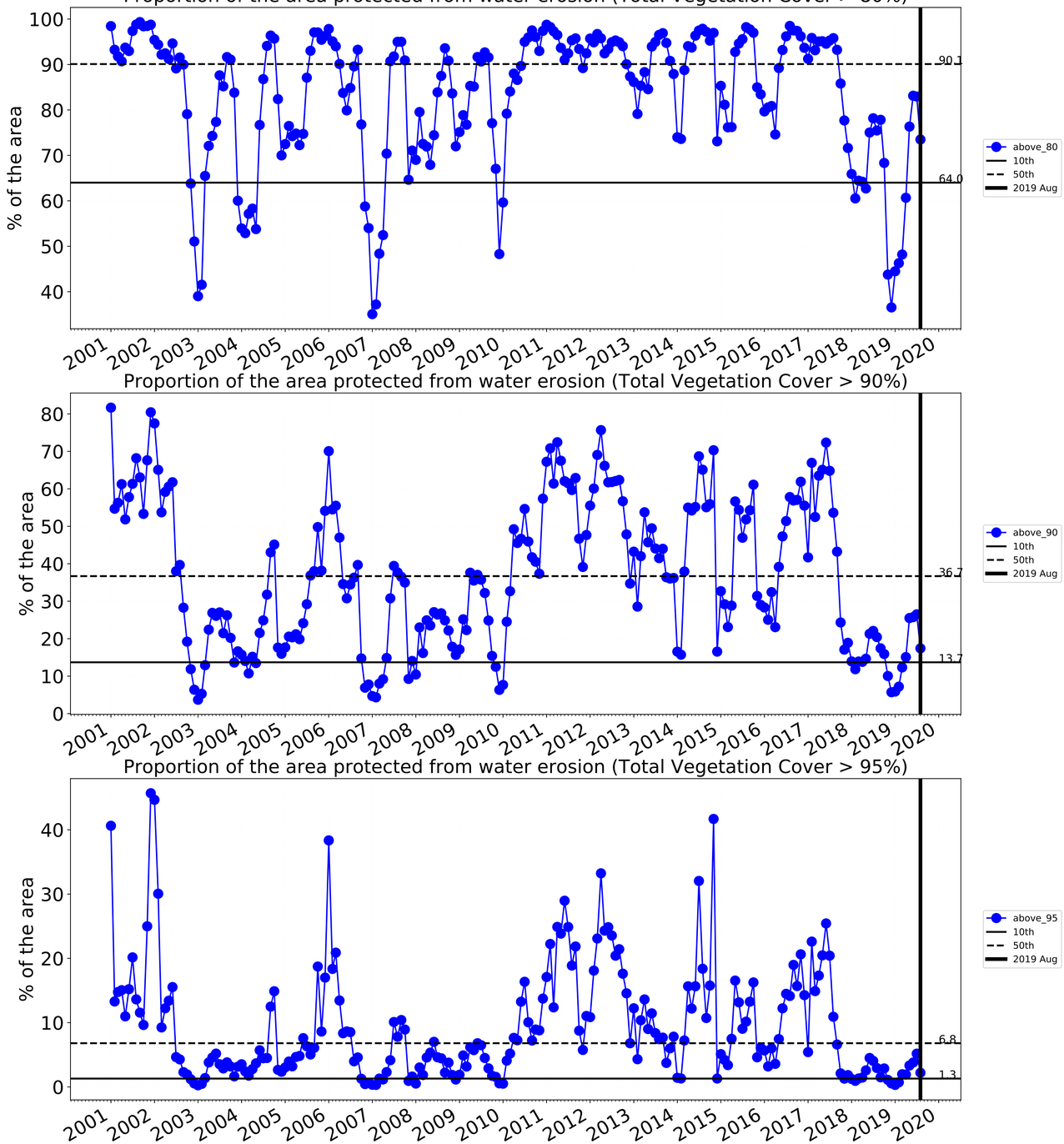

## Total Vegetation Cover Decile [%]

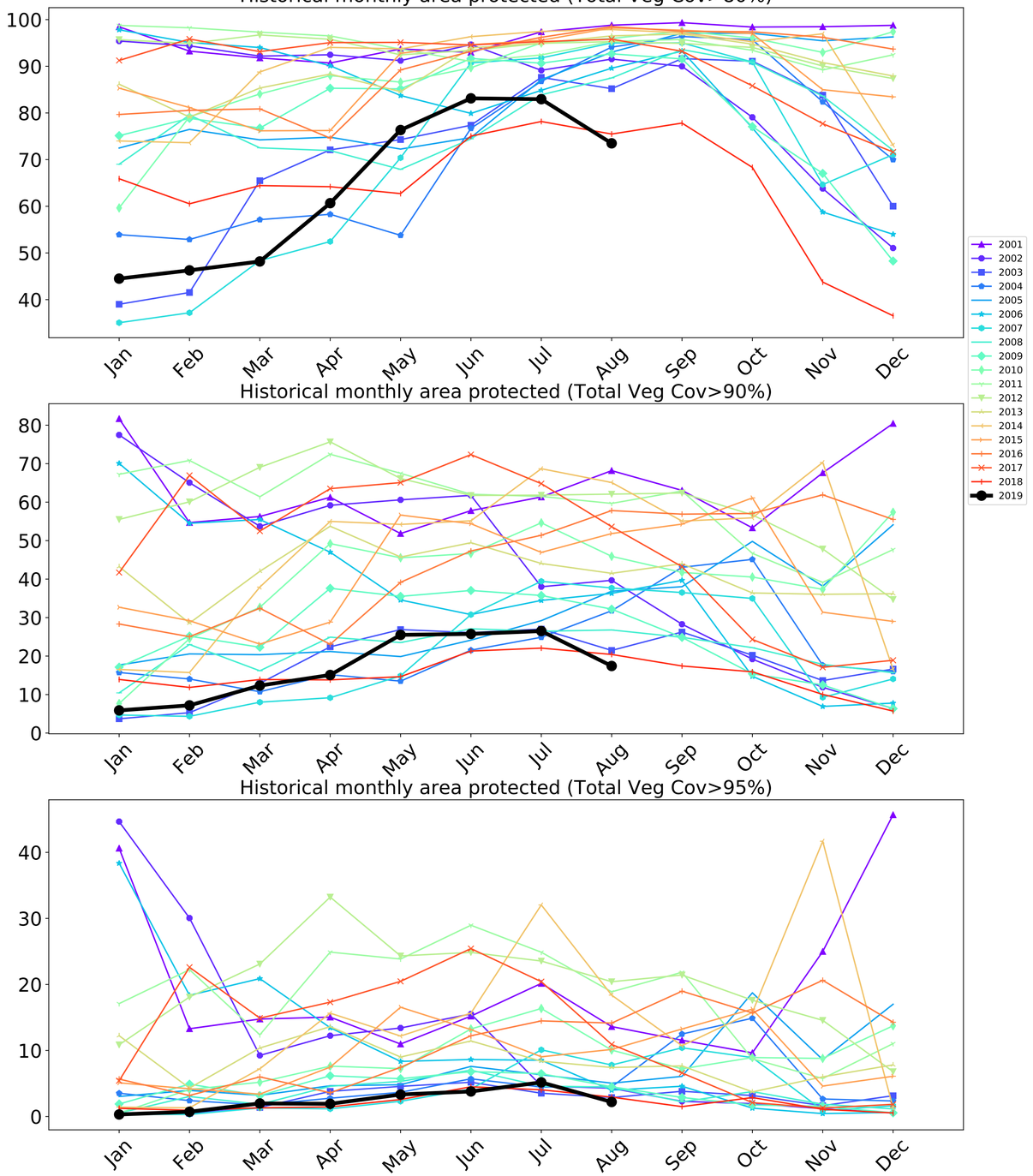
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)
% of the area
100.0
99.7
above_50
10th
50th
2019 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)
% of the area
98.7
89.7
above_70
10th
50th
2019 Aug
Monthly rainfall from 2001 to 2019
monthly rainfall [mm]


Wind erosion historical monthly area protected (Total Veg Cov >50%)
Water erosion historical monthly area protected (Total Veg Cov>70%)
Rainfall: historical monthly
rainfall (mm)
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

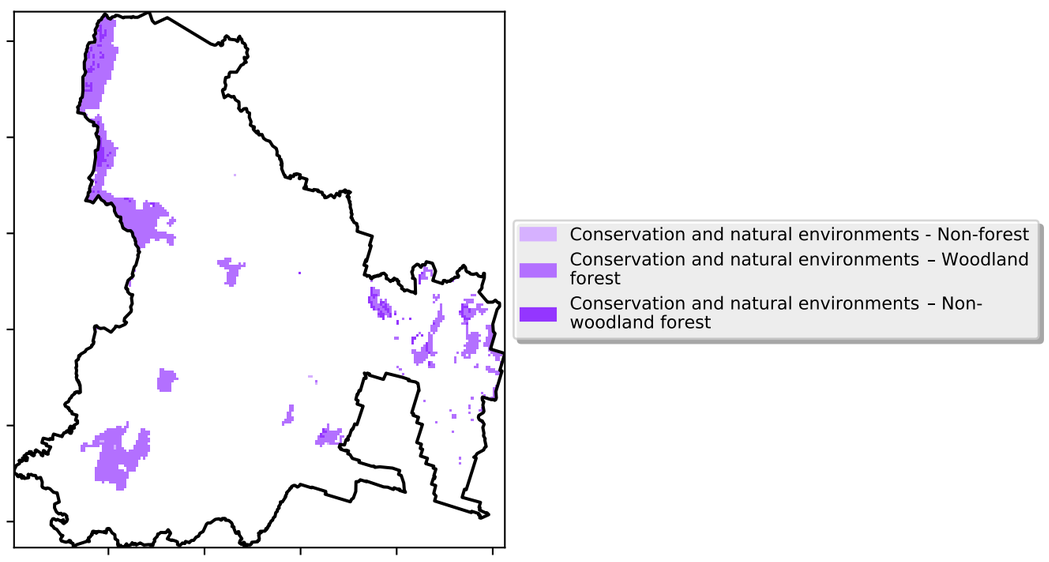

Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
90.1
64.0
above_80
10th
50th
2019 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
36.7
13.7
above_90
10th
50th
2019 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
6.8
1.3
above_95
10th
50th
2019 Aug


Historical monthly area protected (Total Veg Cov>80%)
Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

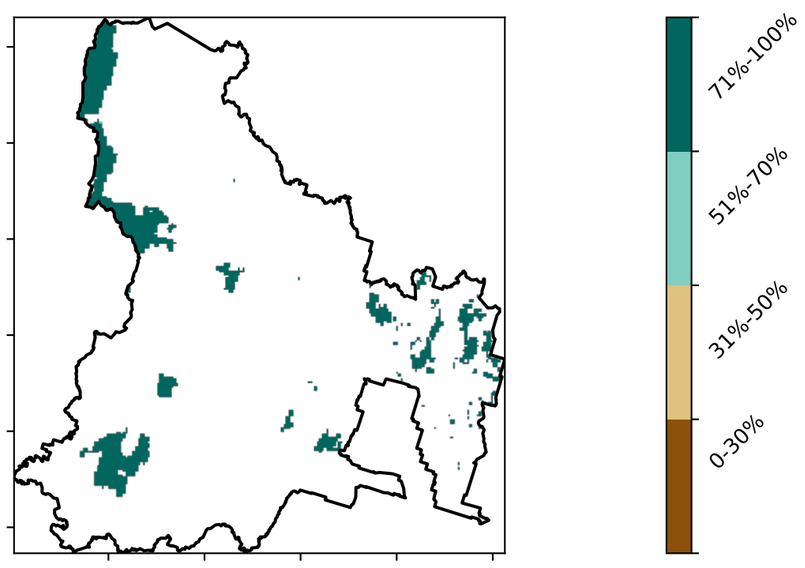
# Conservation and natural environments

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 cover.

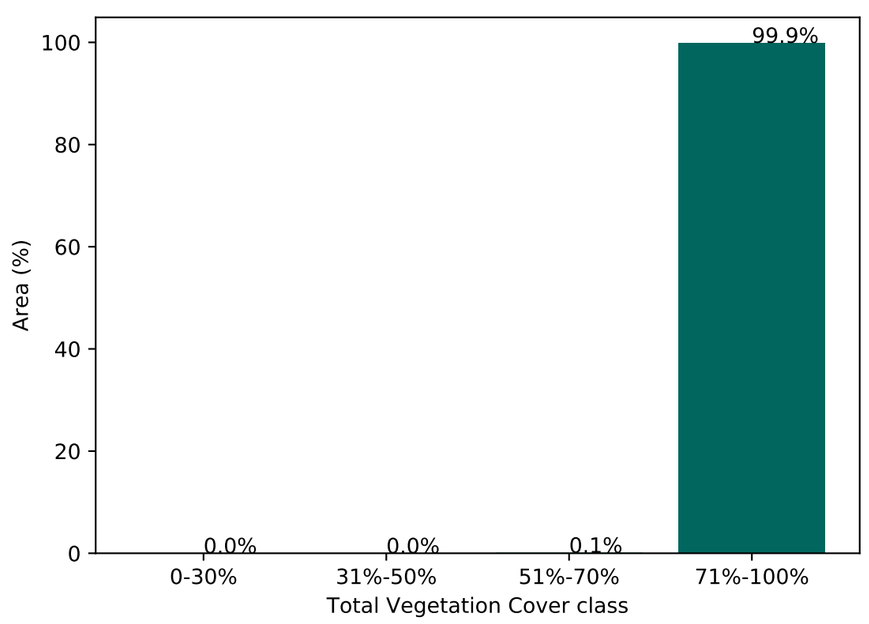
### Land use and forest cover



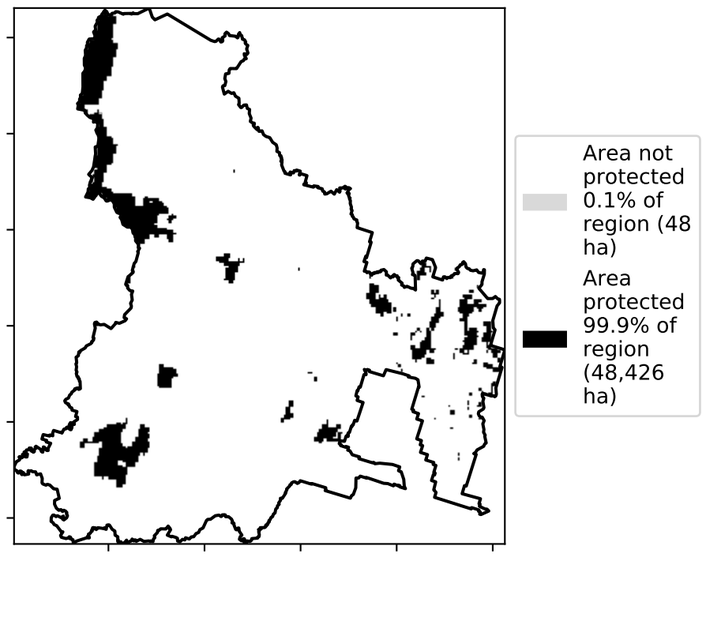

### Total Vegetation Cover [%]



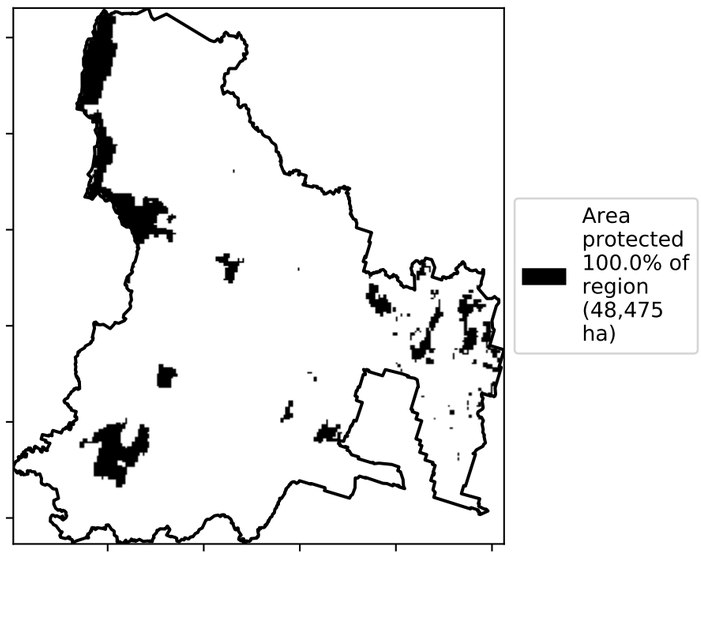

### Proportion of vegetation cover class in area




### % Area protected from water erosion (>70%)




### % Area protected from wind erosion (>50%)




### Total Vegetation Cover Anomaly [%]

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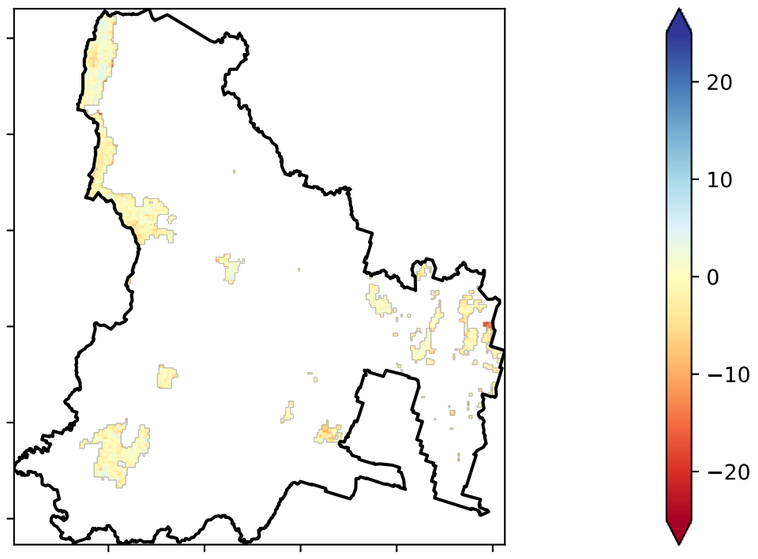
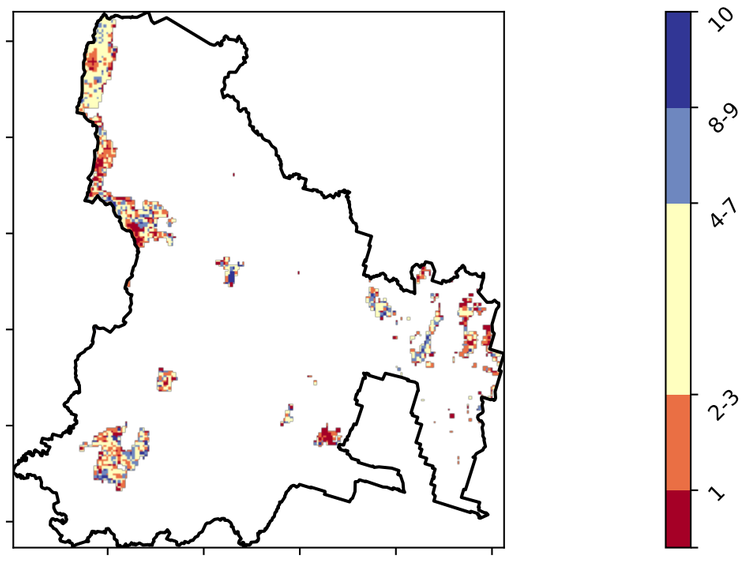


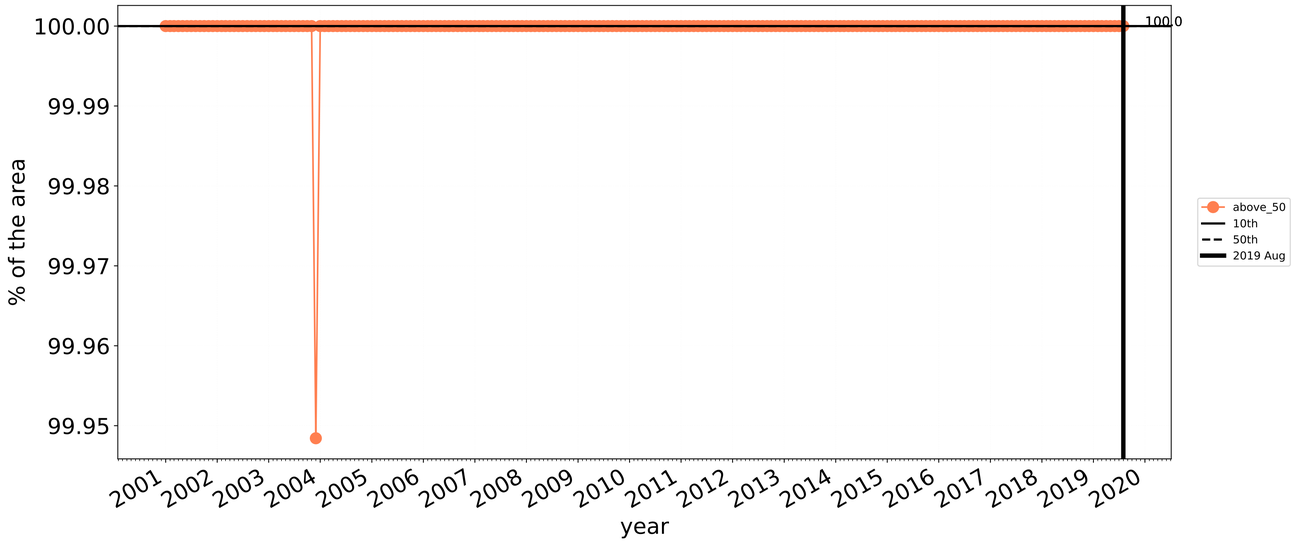

### Total Vegetation Cover Decile [%]

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

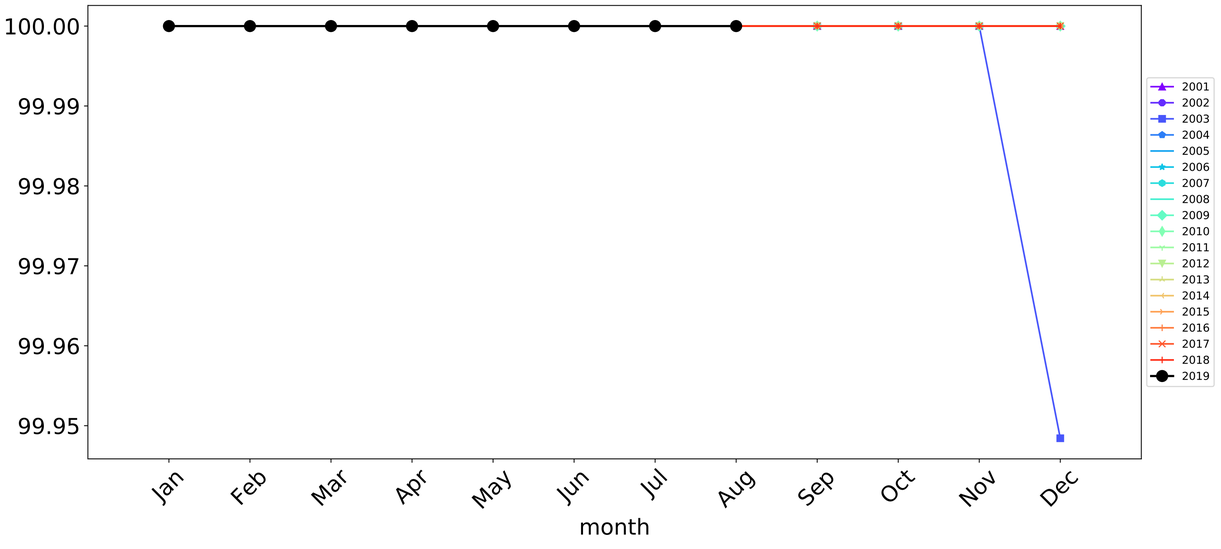


**Conservation and natural environments timeseries**

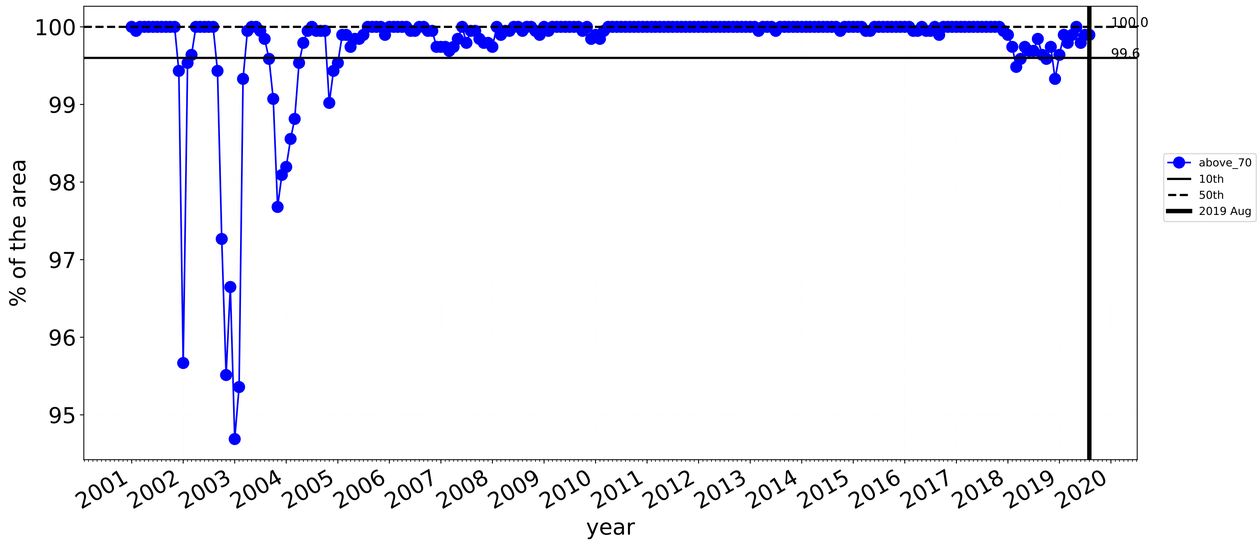
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



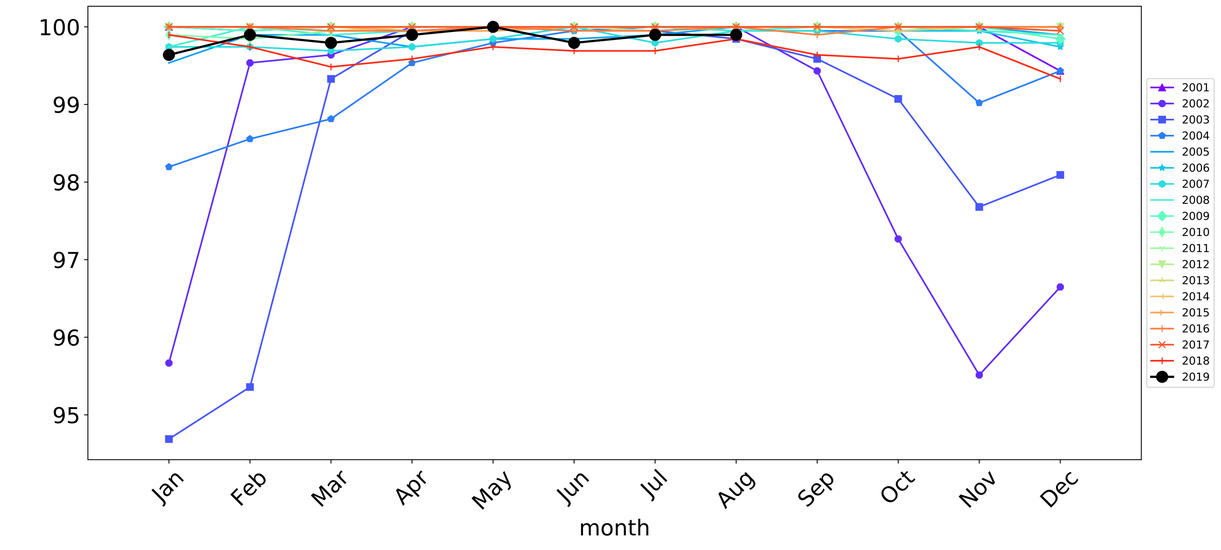

Wind erosion historical monthly area protected (Total Veg Cov >50%)

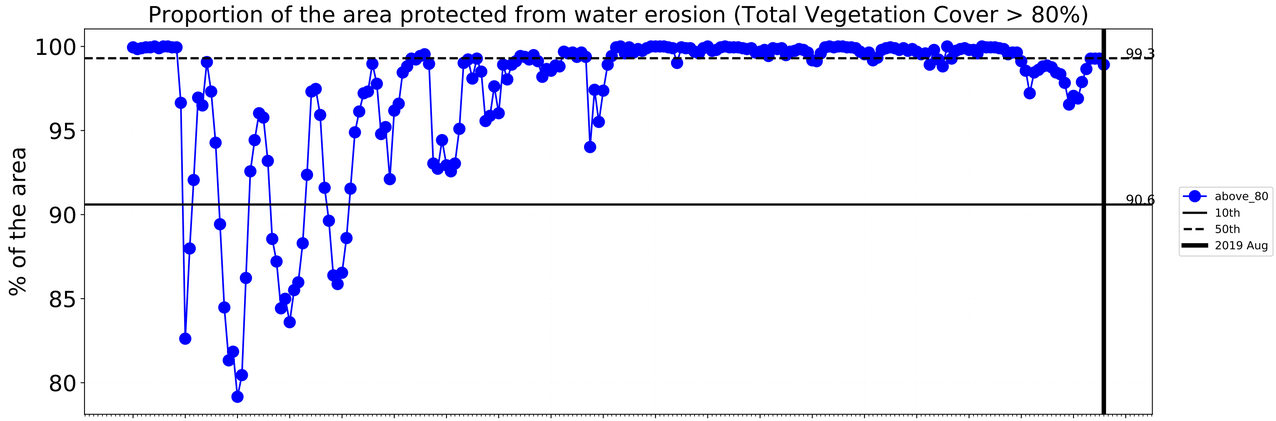


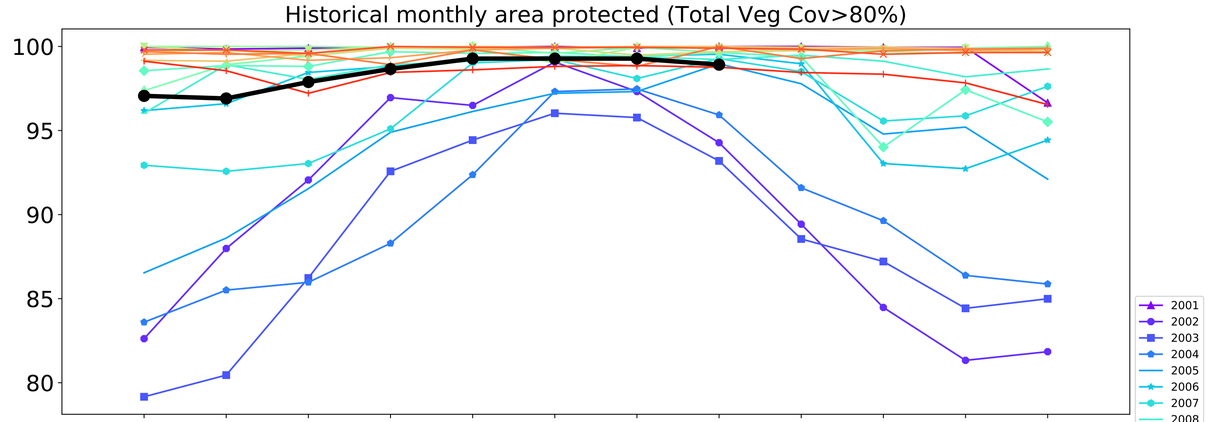

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)




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




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
99.3
90.6
above_80
10th
50th
2019 Aug


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
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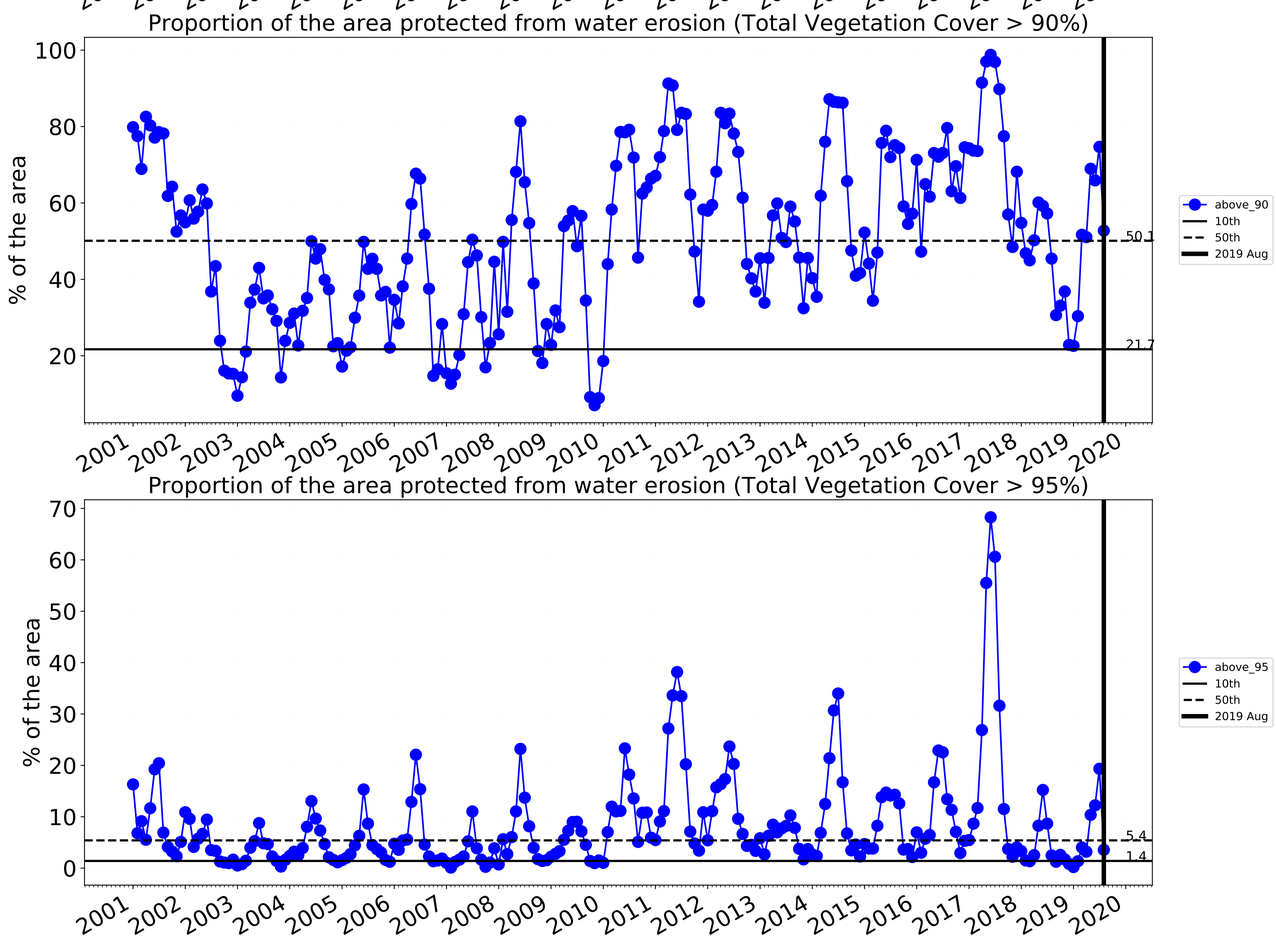
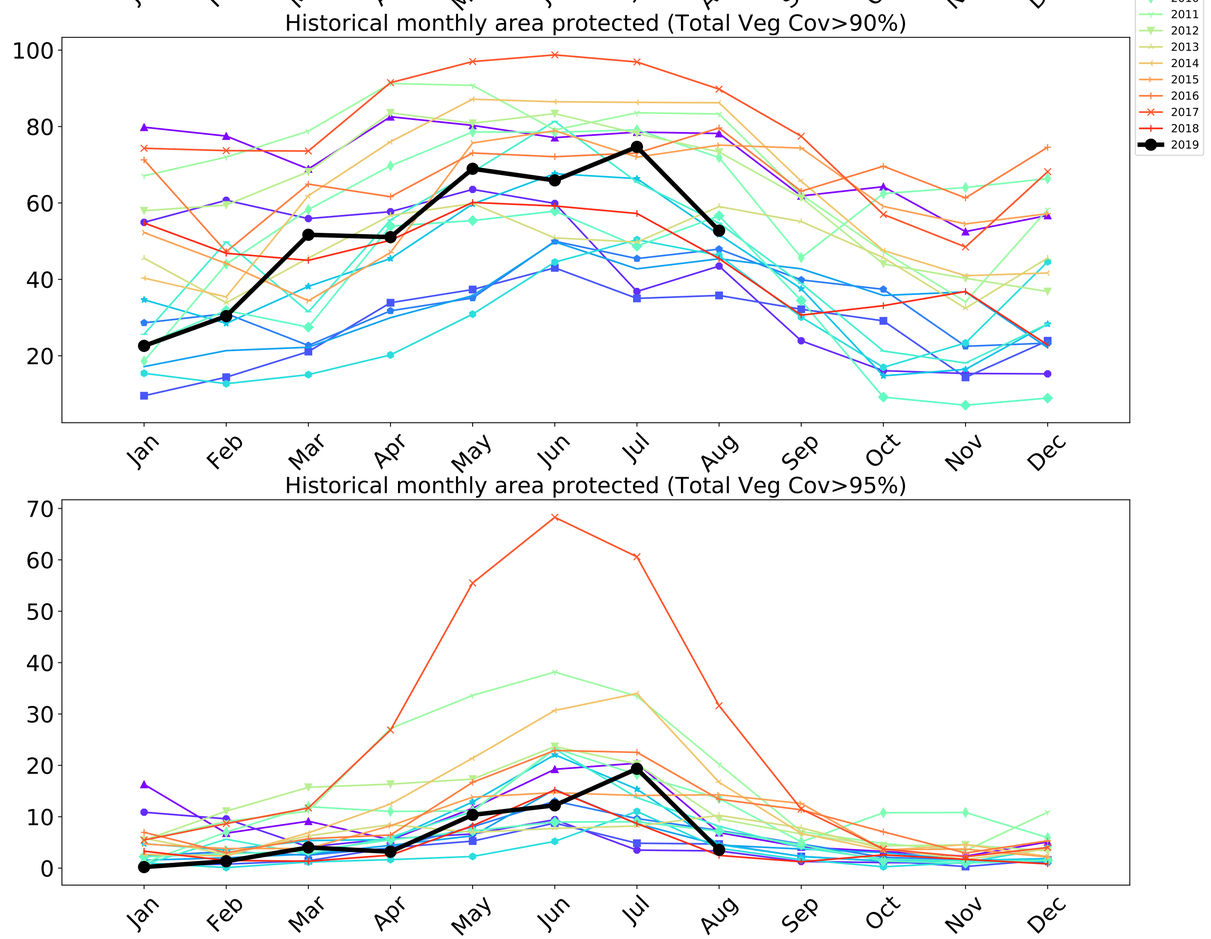

Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
50.1
21.7
above_90
10th
50th
2019 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
5.4
1.4
above_95
10th
50th
2019 Aug


Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
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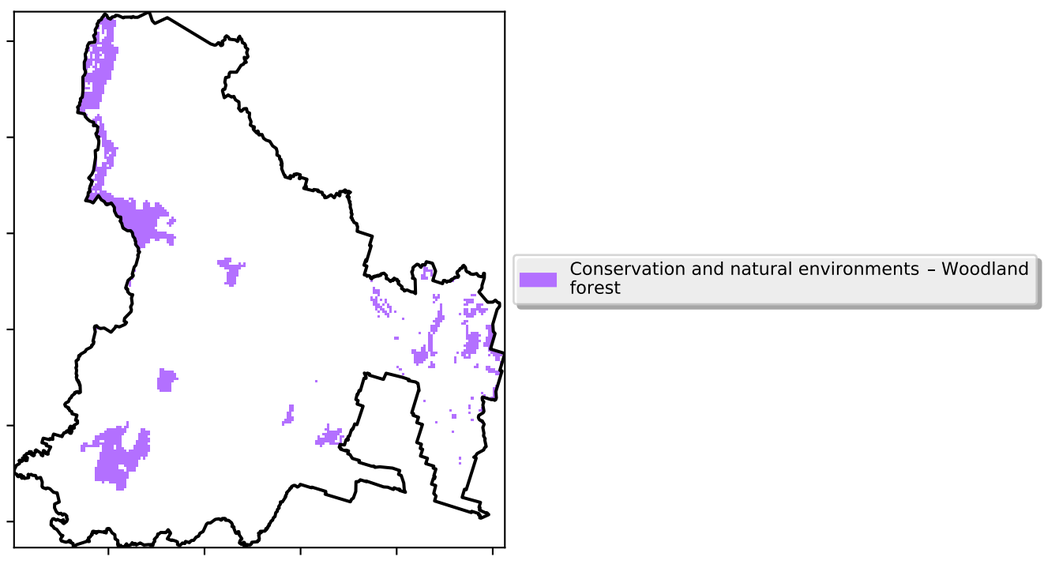
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

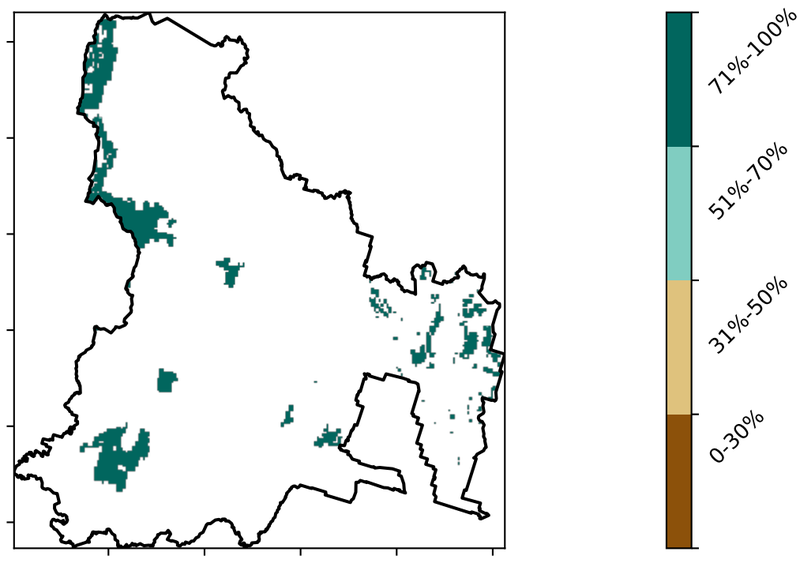
# Conservation and natural environments Woodland forest

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.

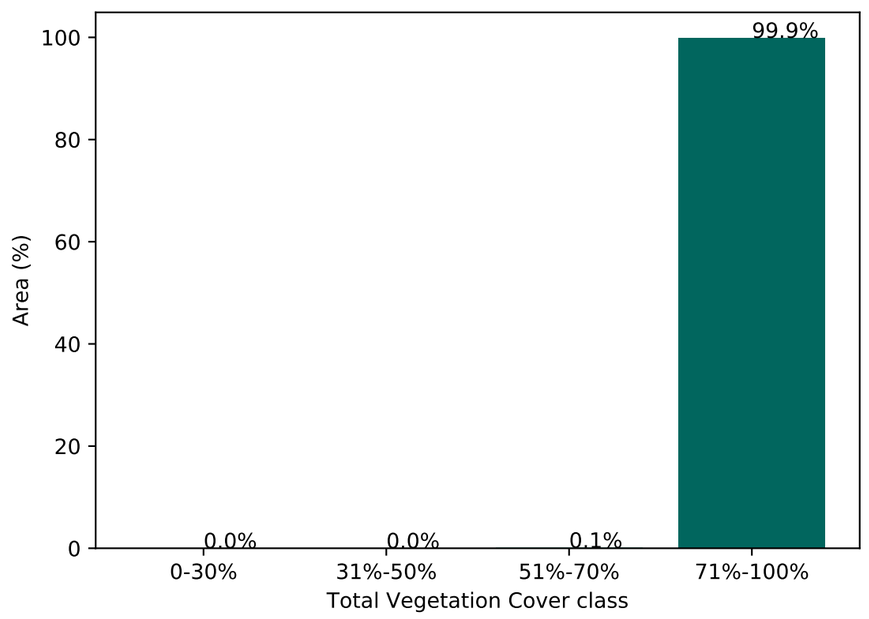
### Land use and forest cover



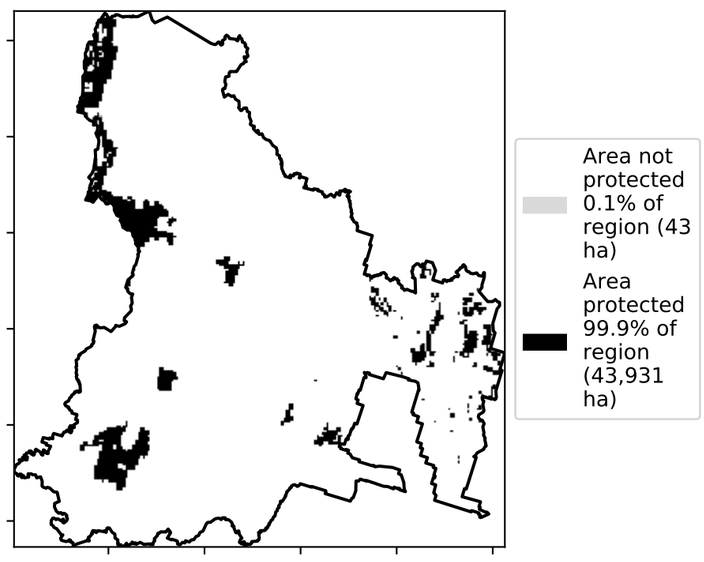

### Total Vegetation Cover [%]



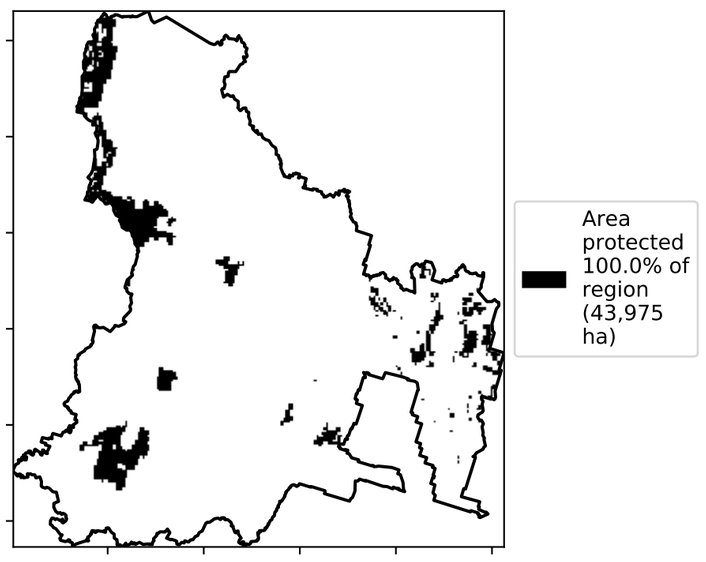

### Proportion of vegetation cover class in area




### % Area protected from water erosion (>70%)

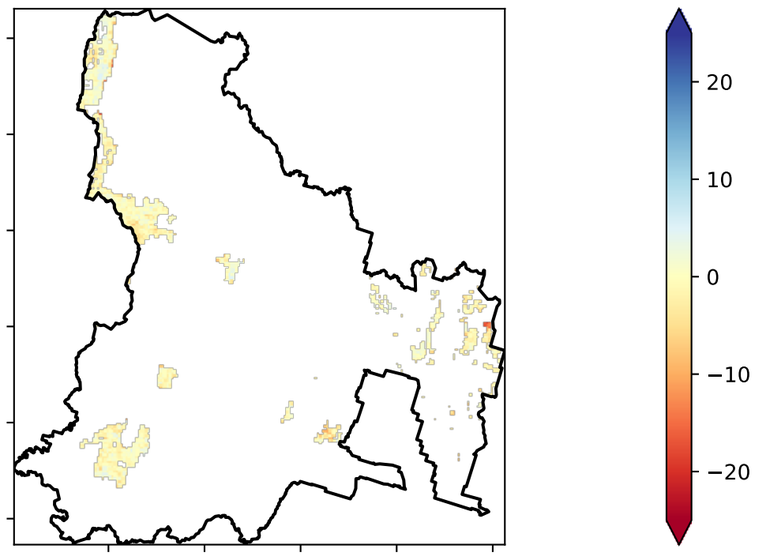



### % Area protected from wind erosion (>50%)



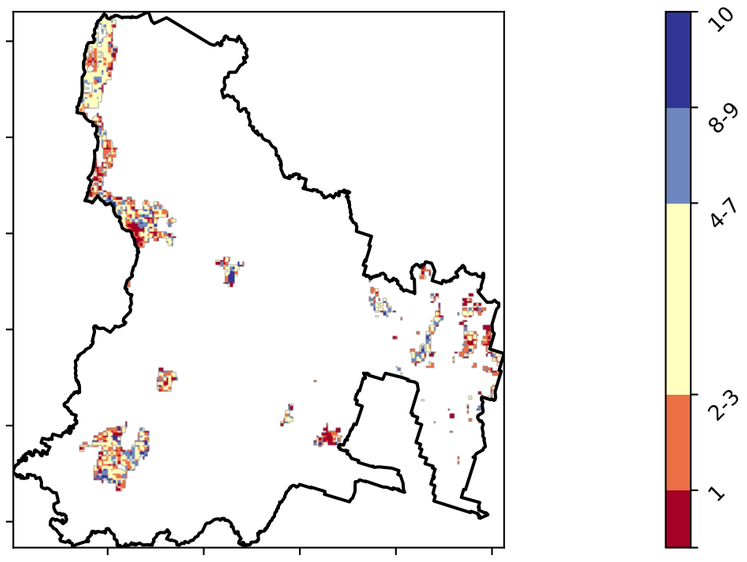

### Total Vegetation Cover Anomaly [%]

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.



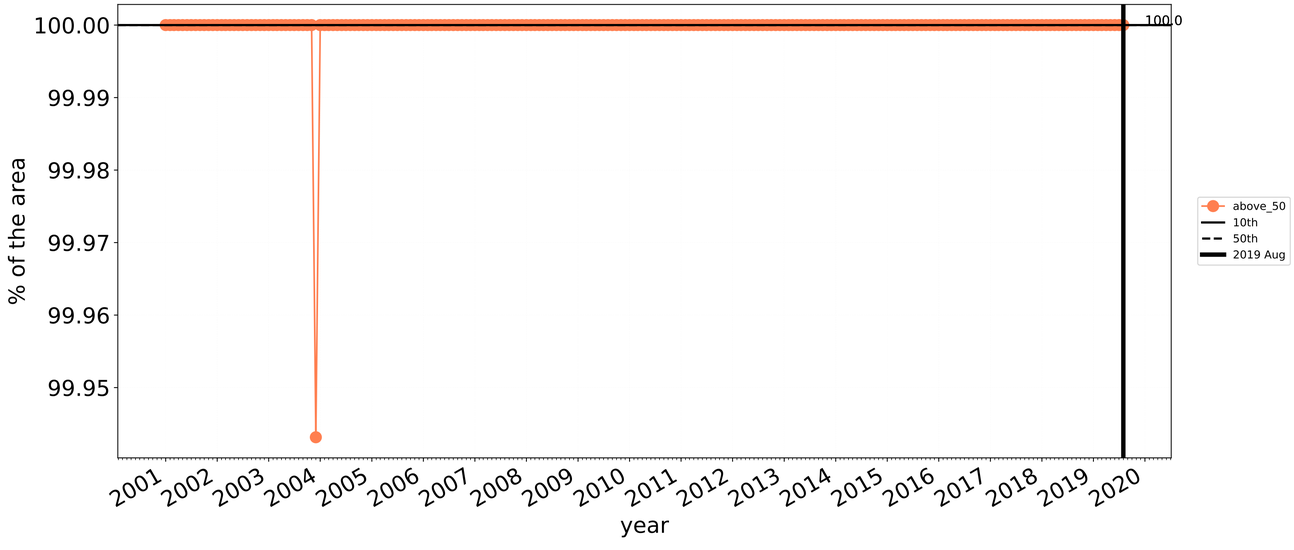

### Total Vegetation Cover Decile [%]

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

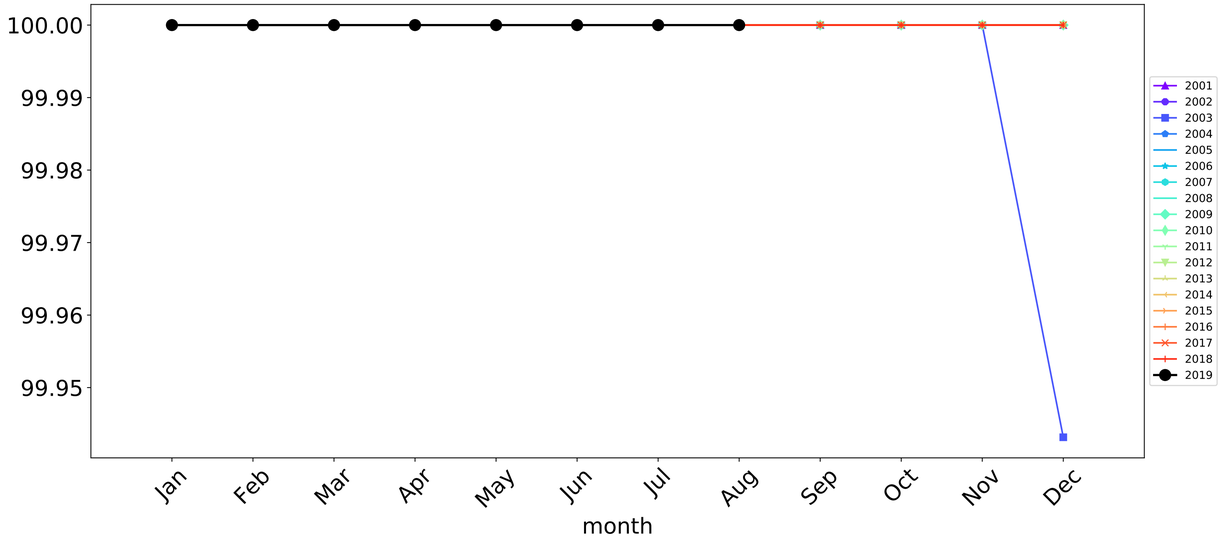


**Conservation and natural environments Woodland forest timeseries**

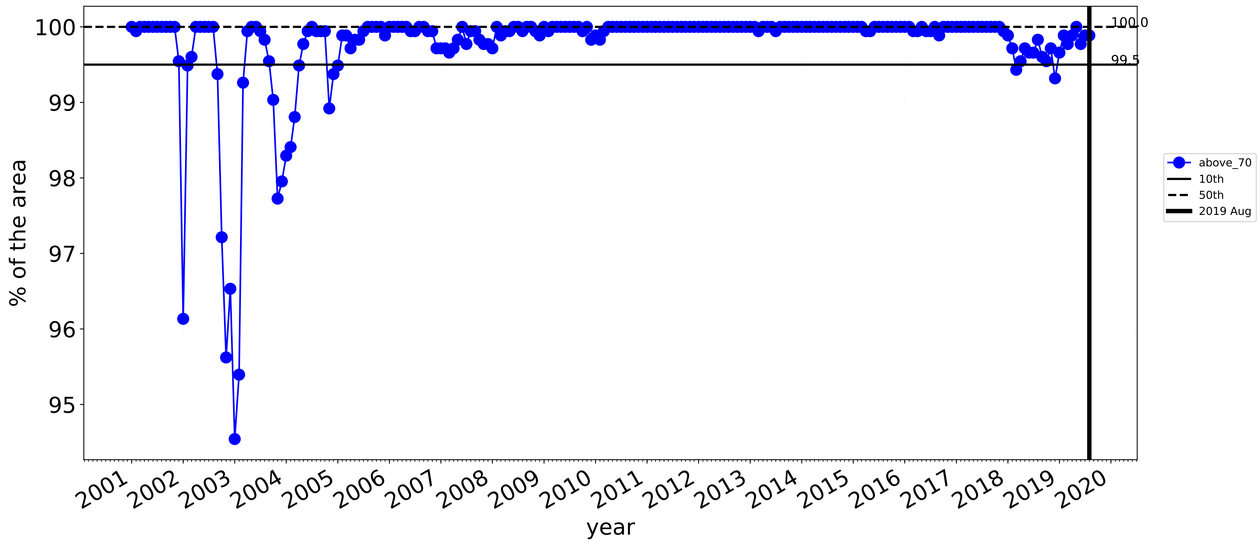
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



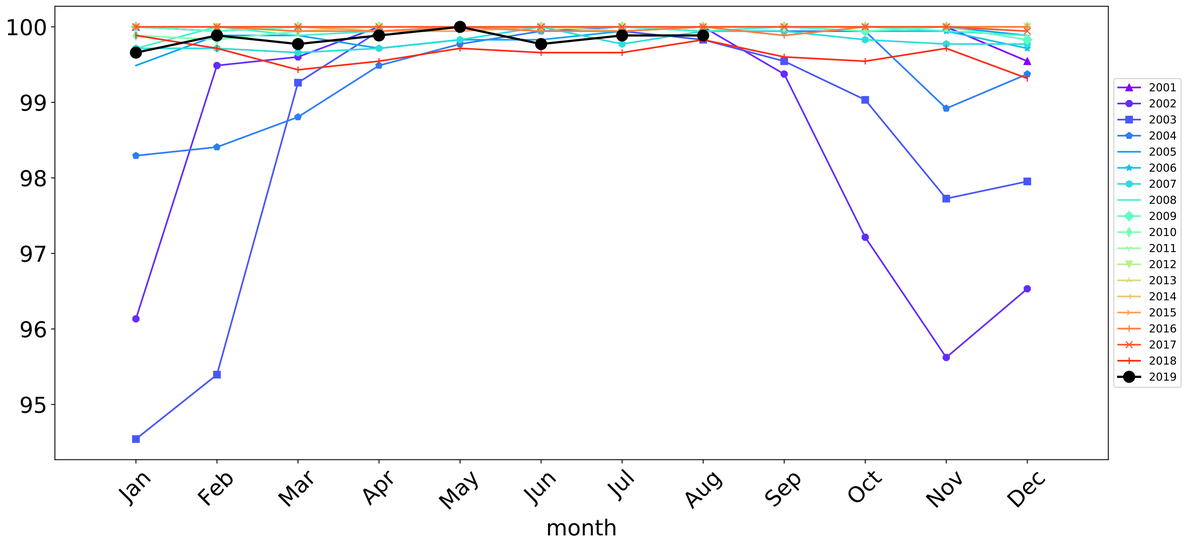

Wind erosion historical monthly area protected (Total Veg Cov >50%)



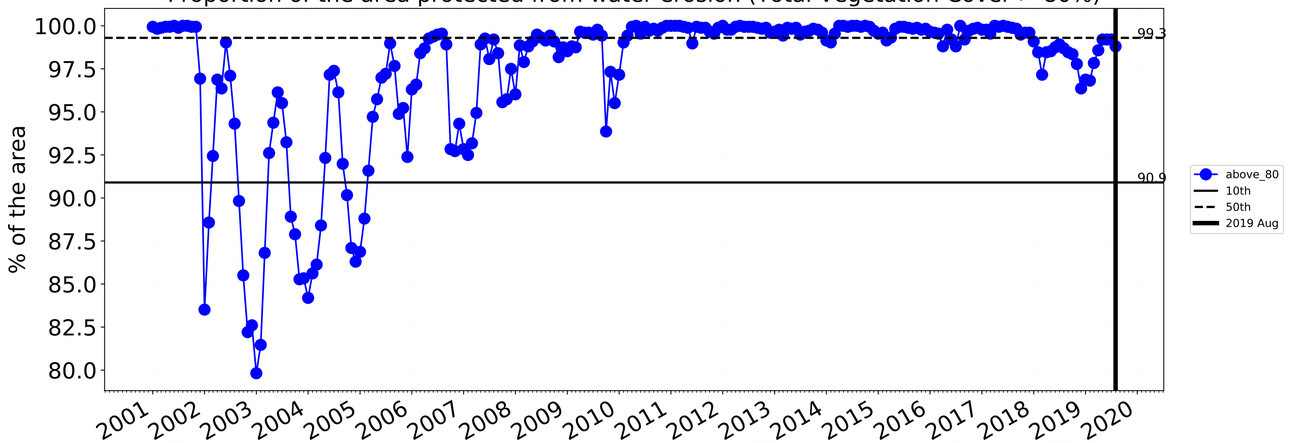

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



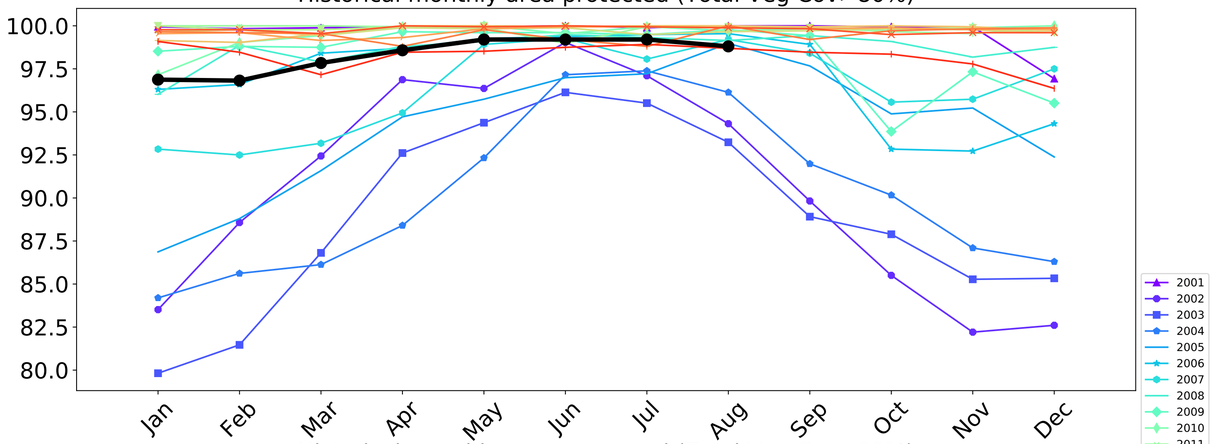

Water erosion historical monthly area protected (Total Veg Cov>70%)



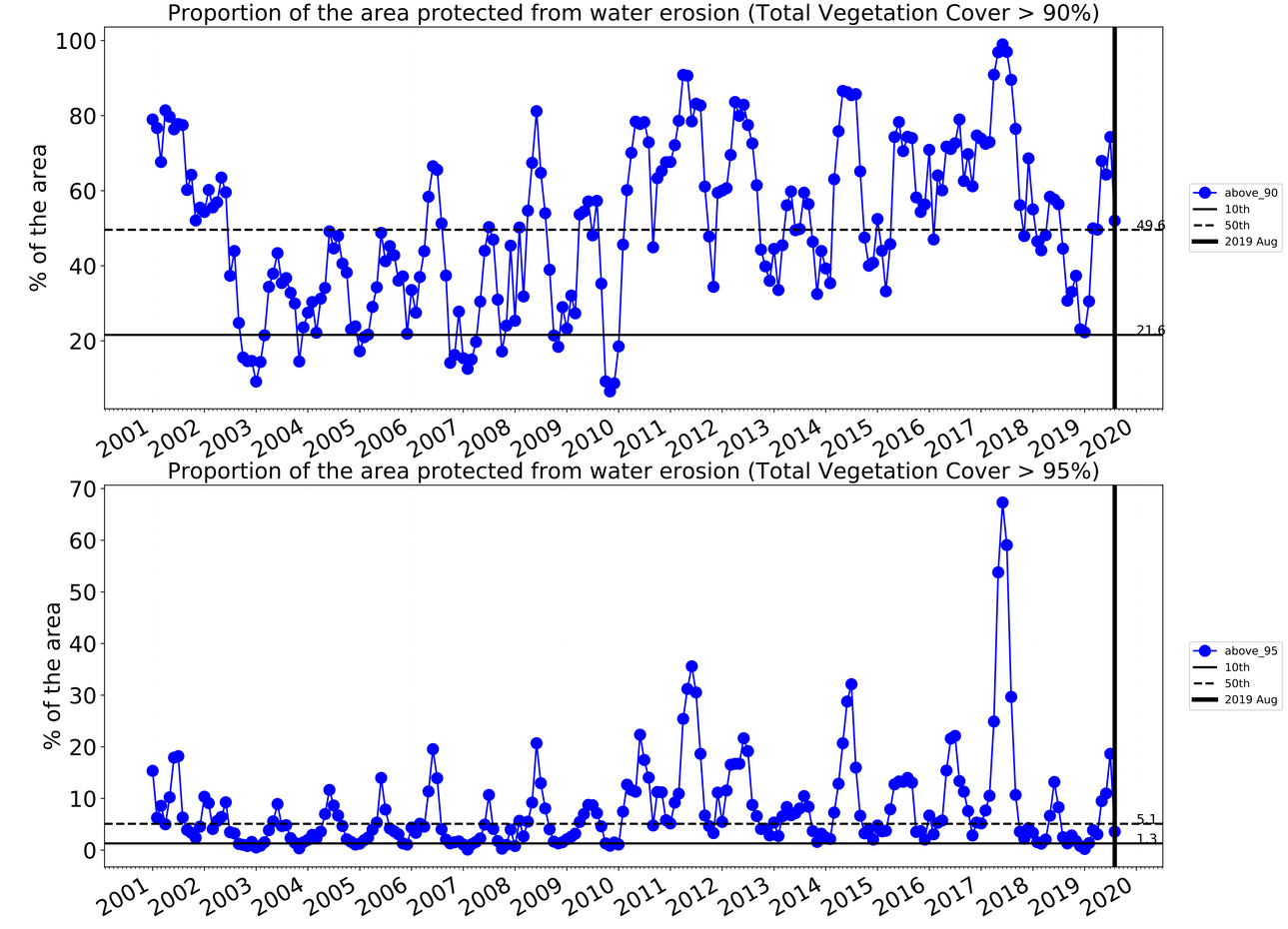
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



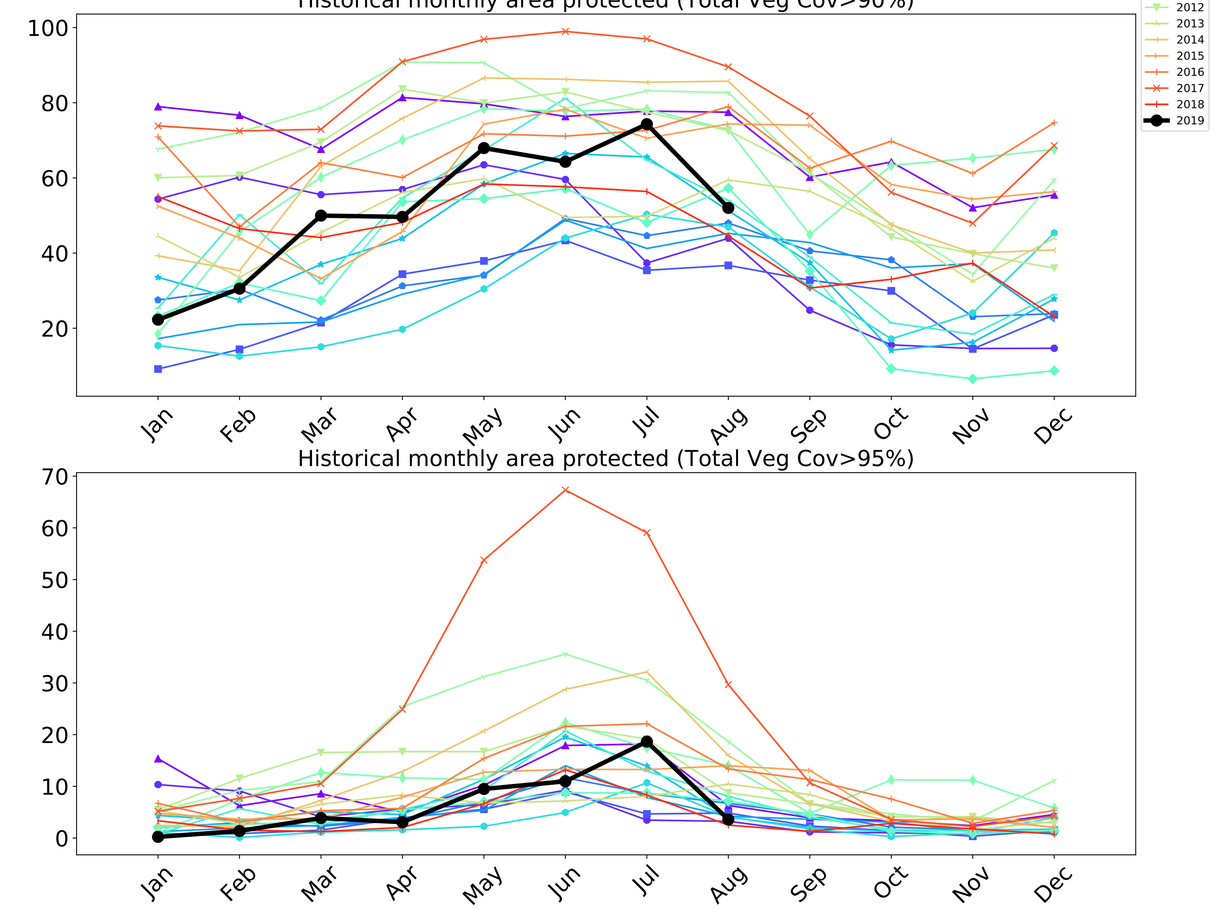

Historical monthly area protected (Total Veg Cov>80%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)




Historical monthly area protected (Total Veg Cov>90%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)

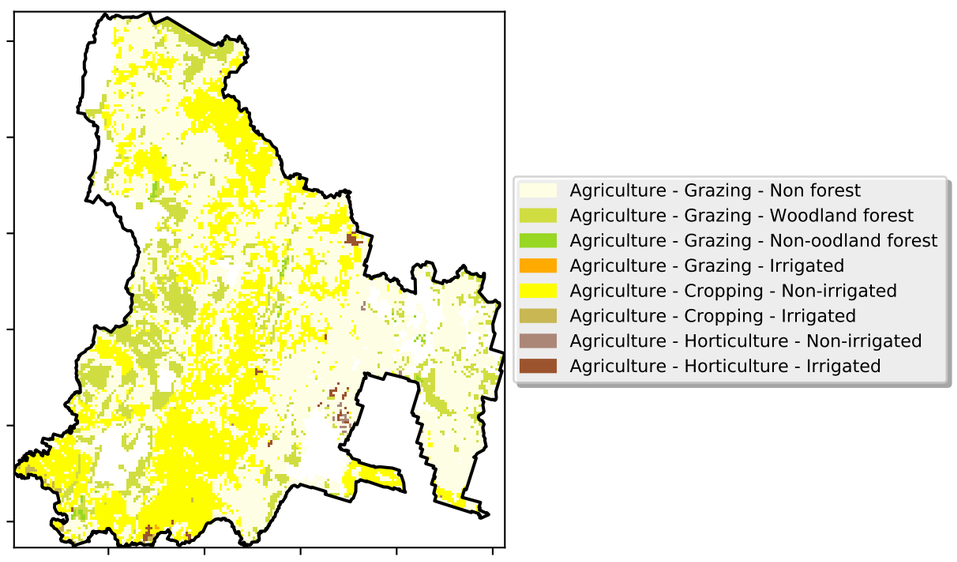



Historical monthly area protected (Total Veg Cov>95%)

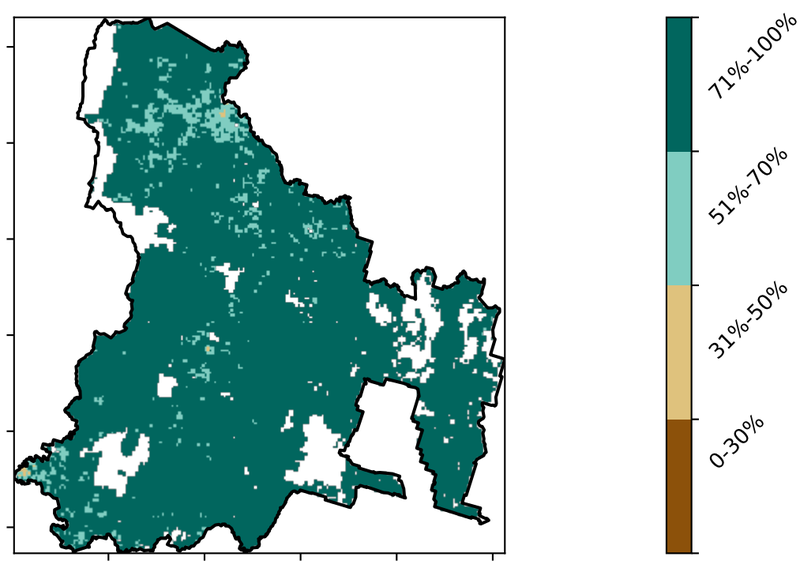
# Agriculture

### Land use and forest cover

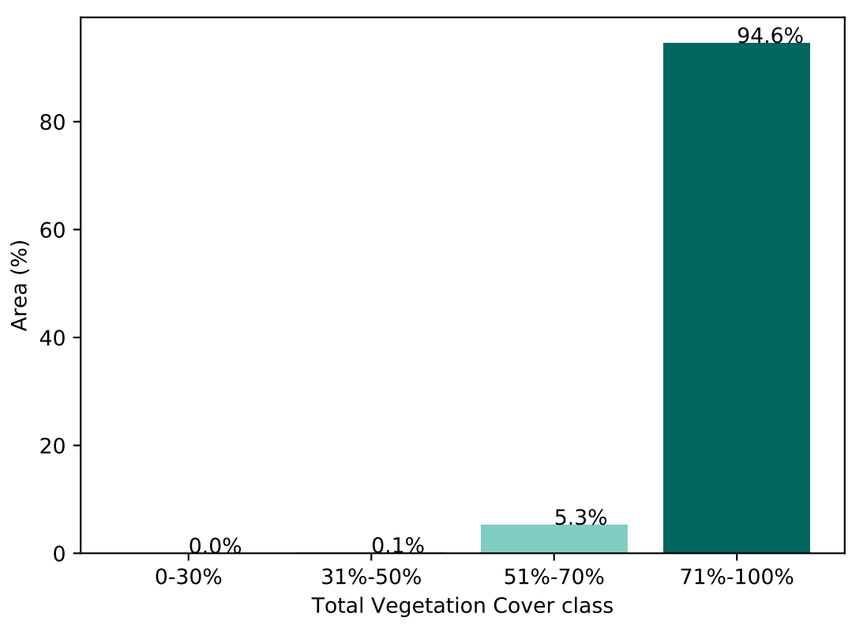
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



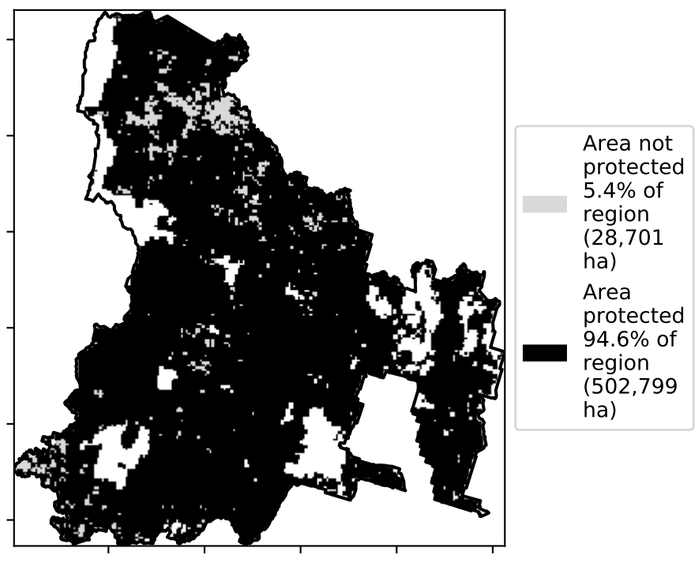

### Total Vegetation Cover [%]



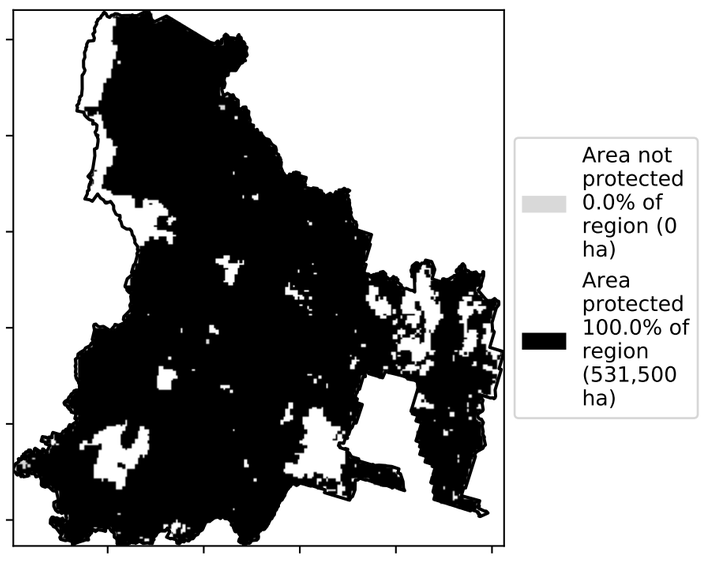

### Proportion of vegetation cover class in area




### % Area protected from water erosion (>70%)

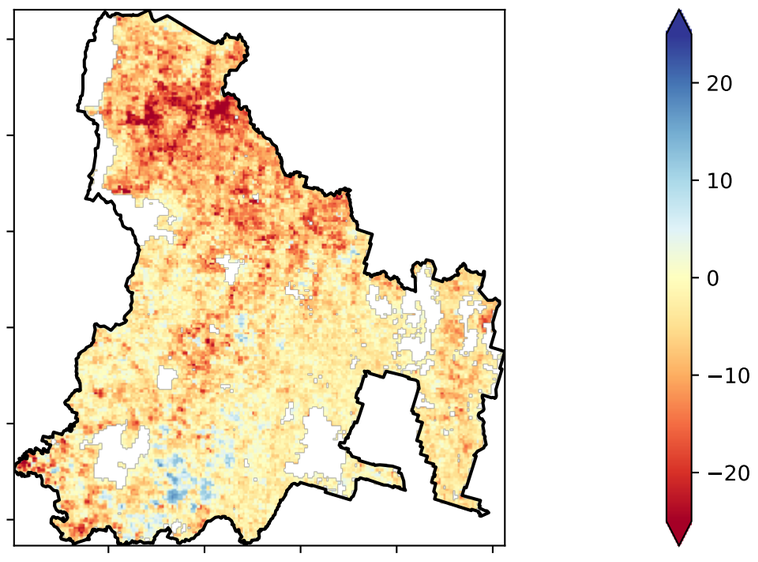



### % Area protected from wind erosion (>50%)



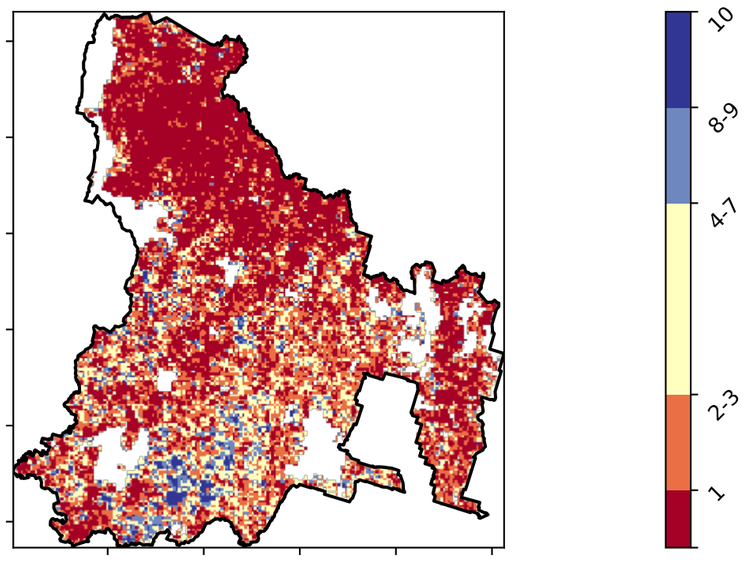

### Total Vegetation Cover Anomaly [%]

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.



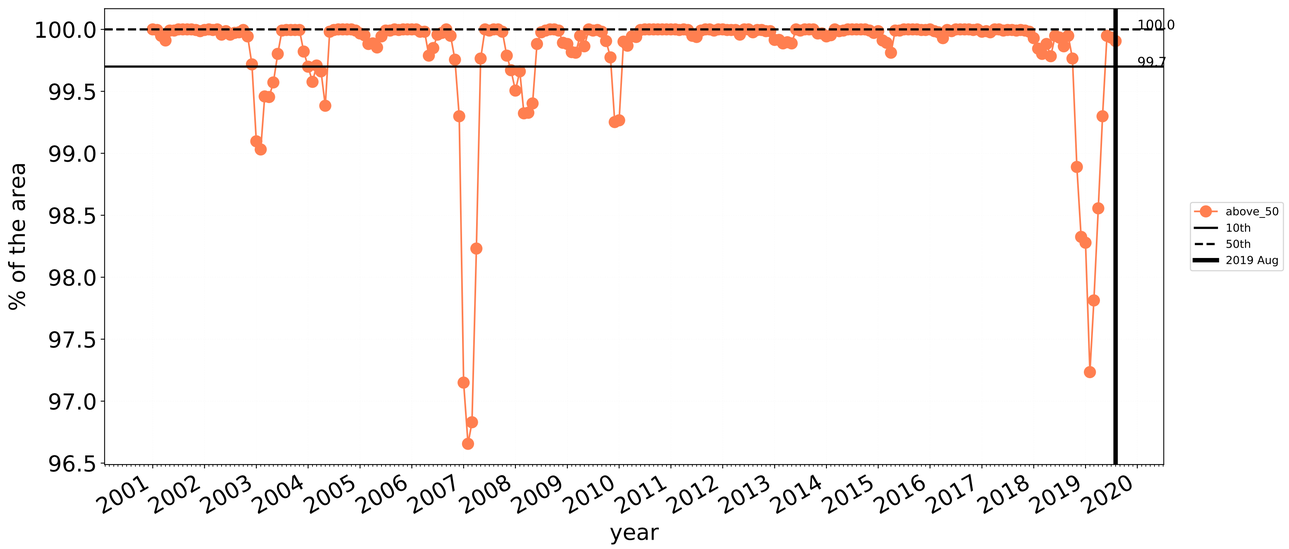

### Total Vegetation Cover Decile [%]

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

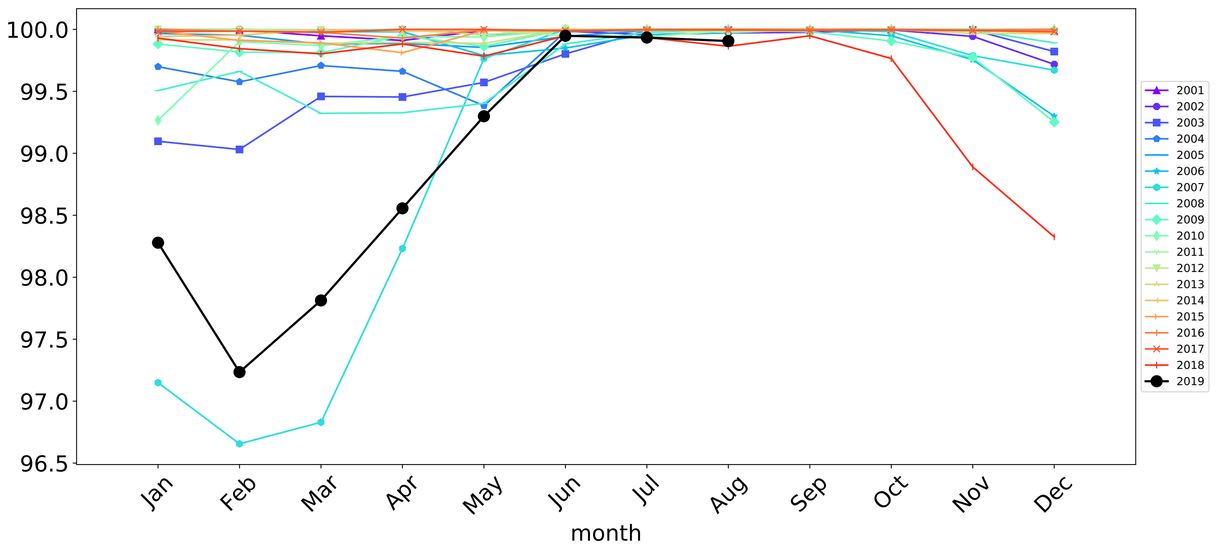


**Agriculture timeseries**

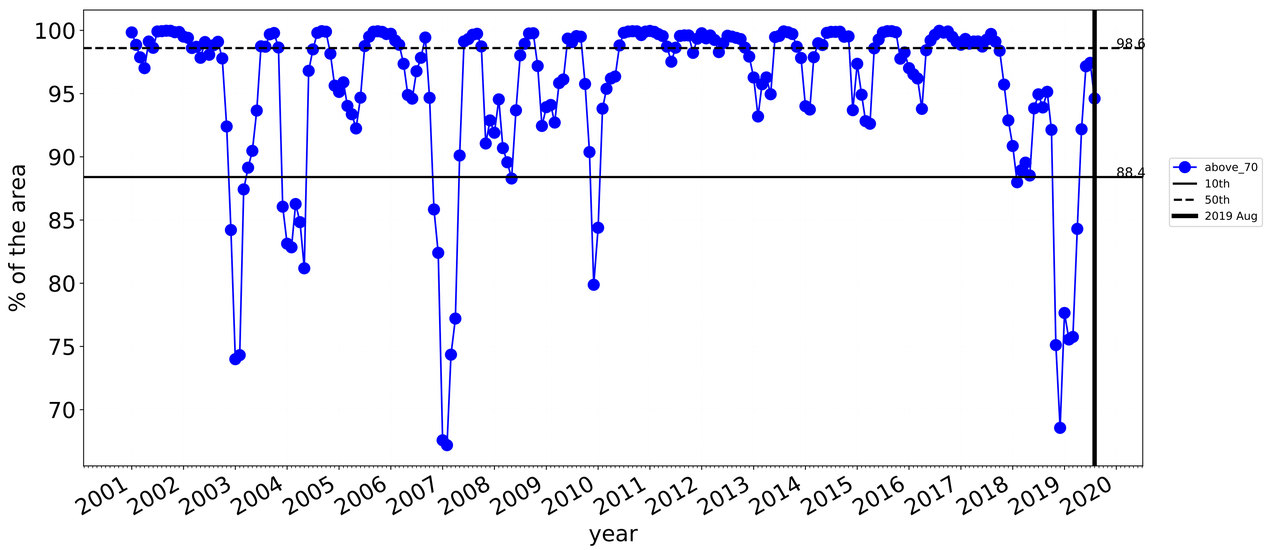
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



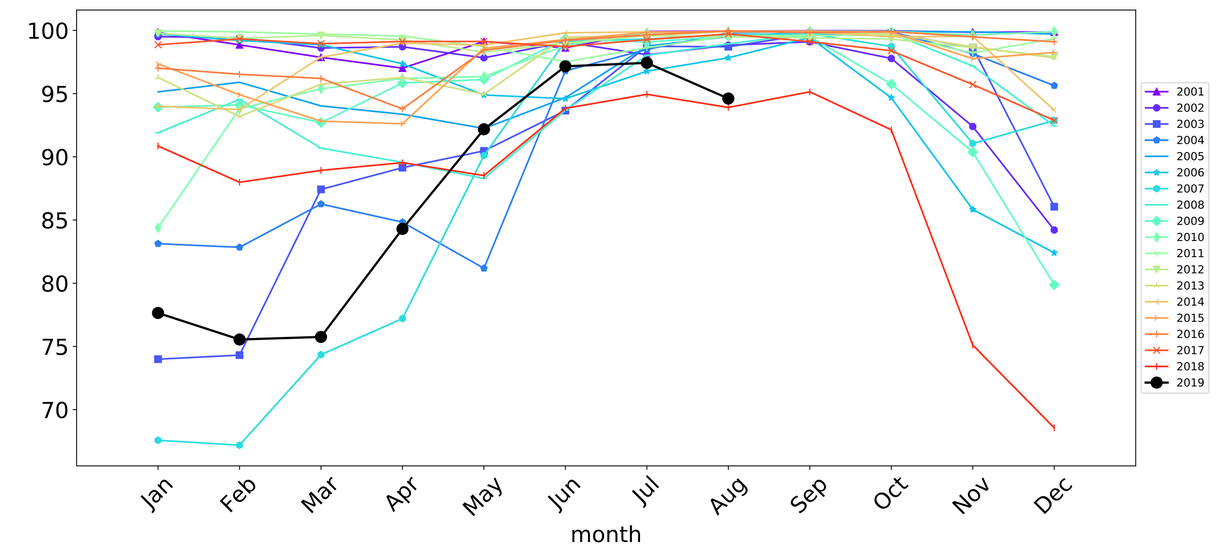

Wind erosion historical monthly area protected (Total Veg Cov >50%)



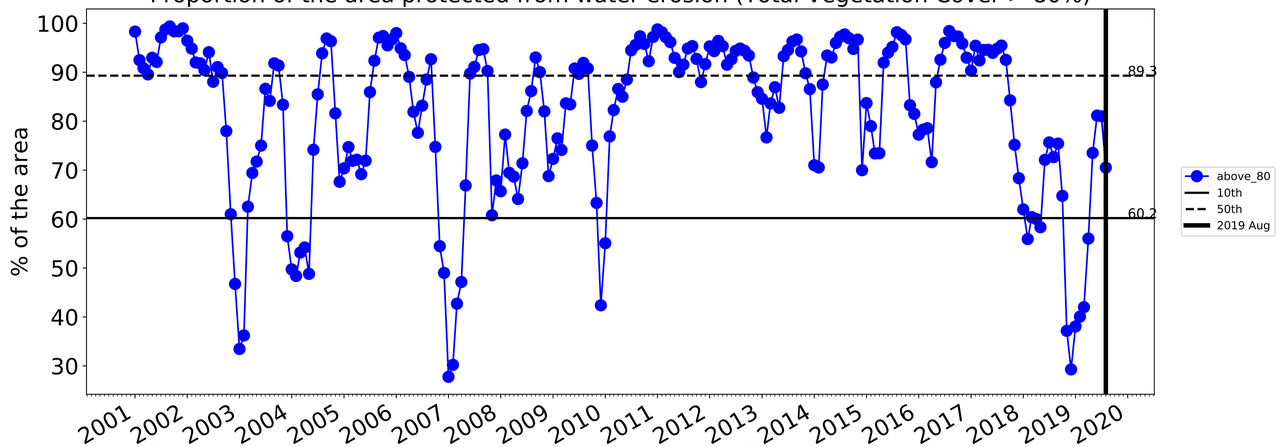

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



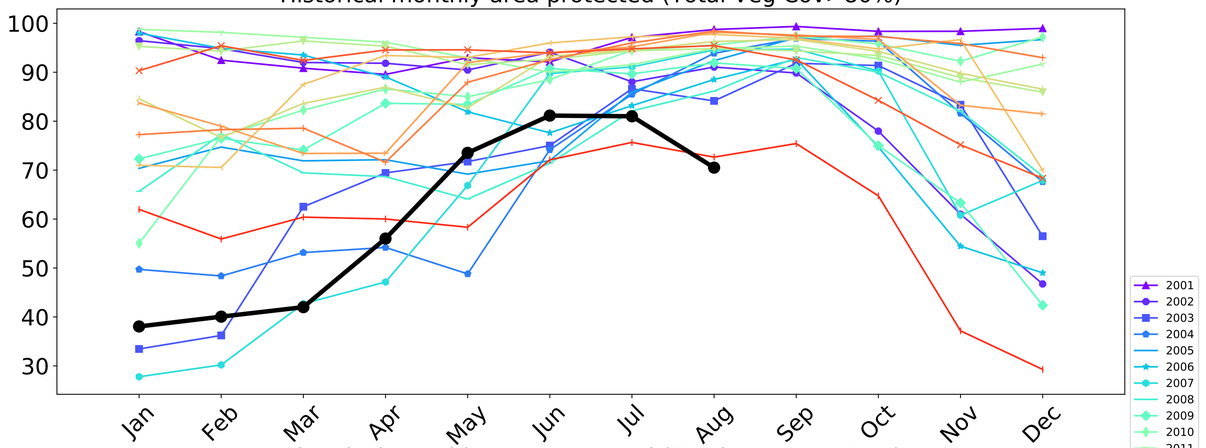

Water erosion historical monthly area protected (Total Veg Cov>70%)



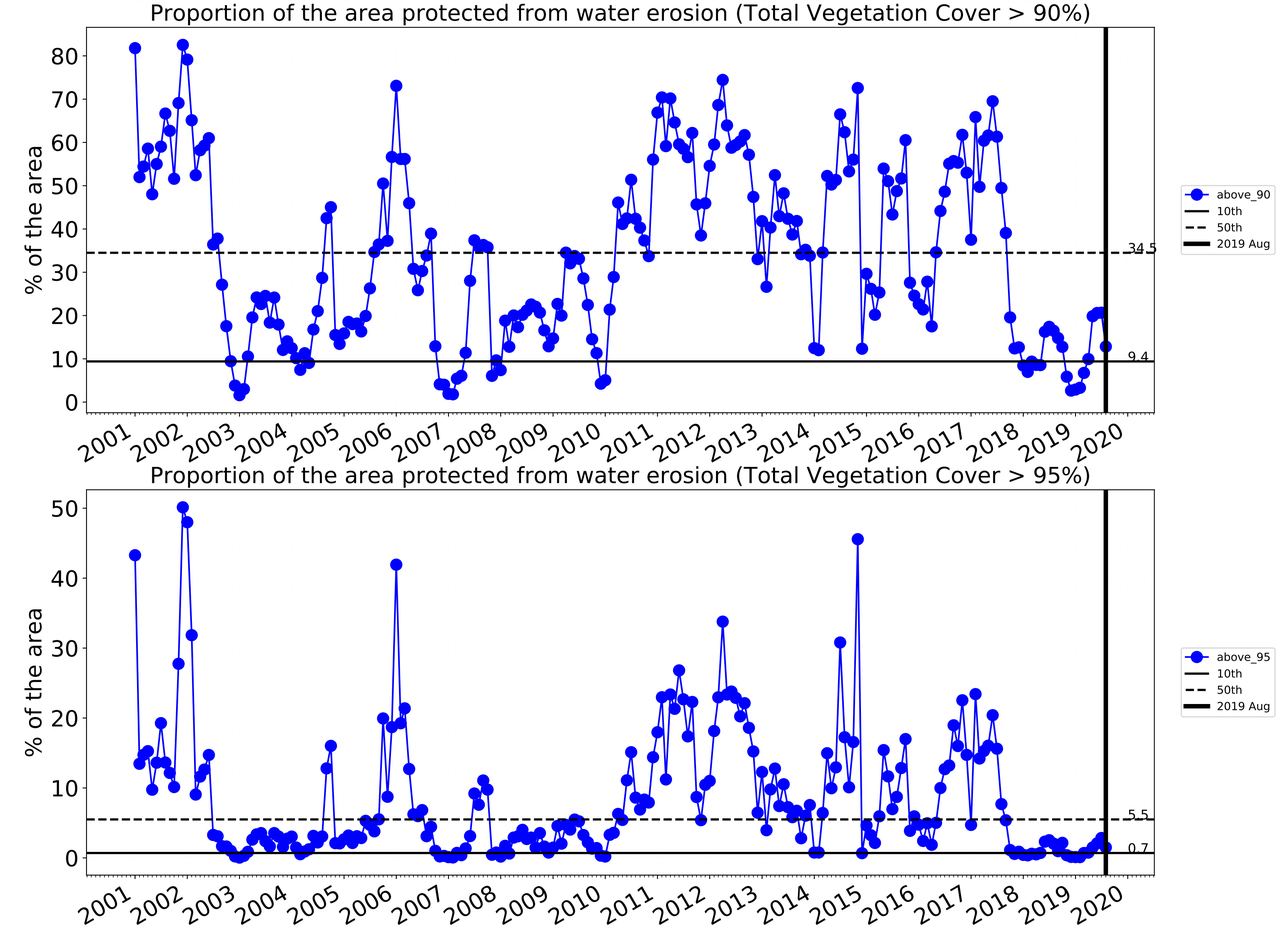
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



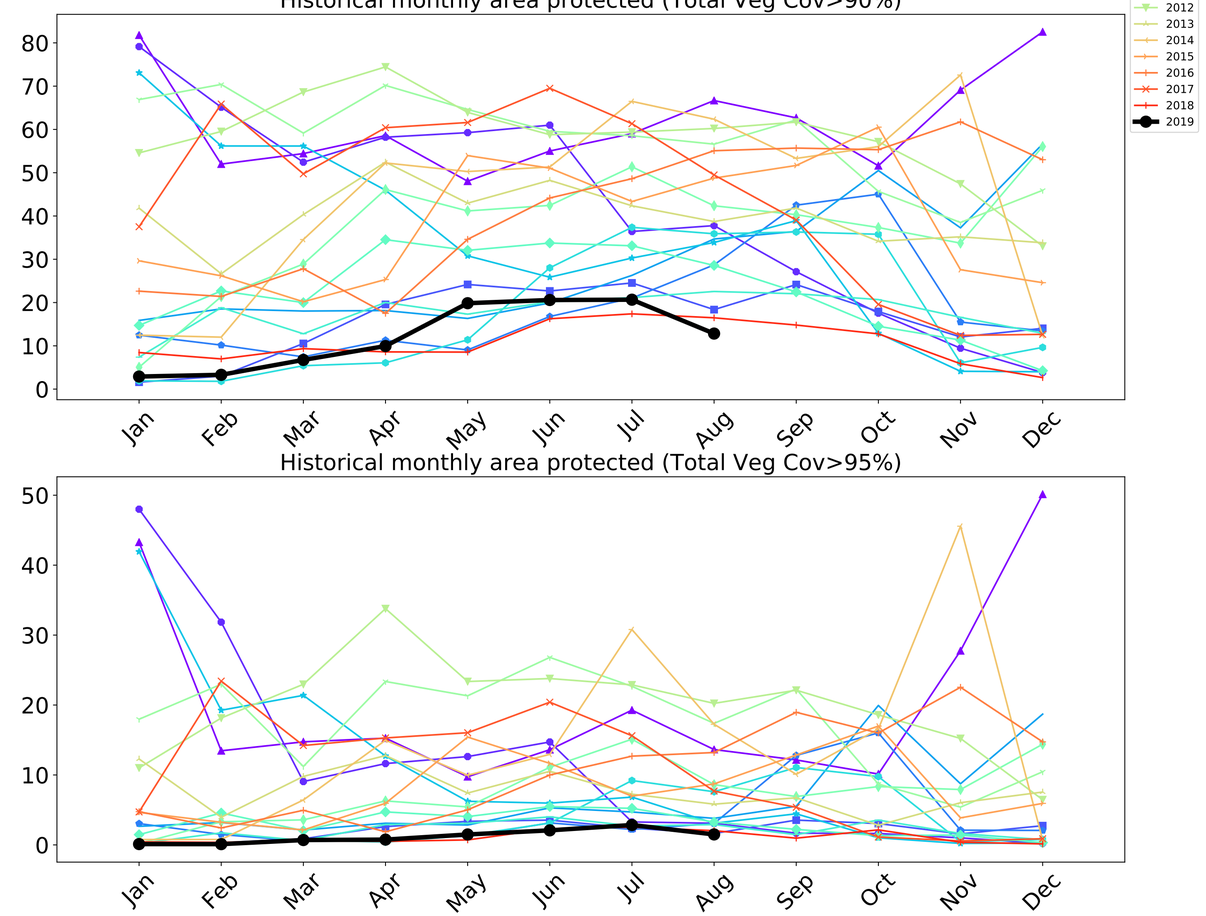

Historical monthly area protected (Total Veg Cov>80%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)




Historical monthly area protected (Total Veg Cov>90%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)

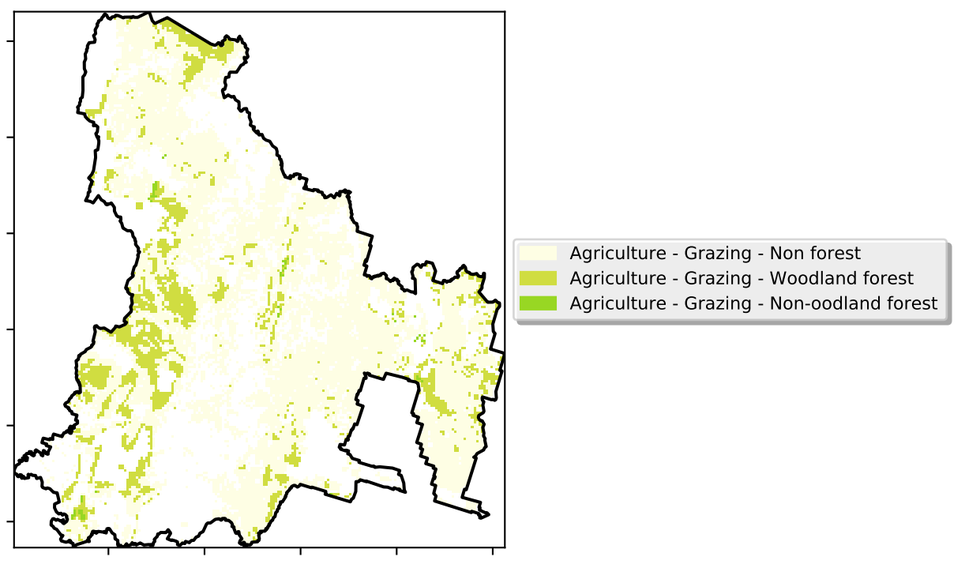



Historical monthly area protected (Total Veg Cov>95%)

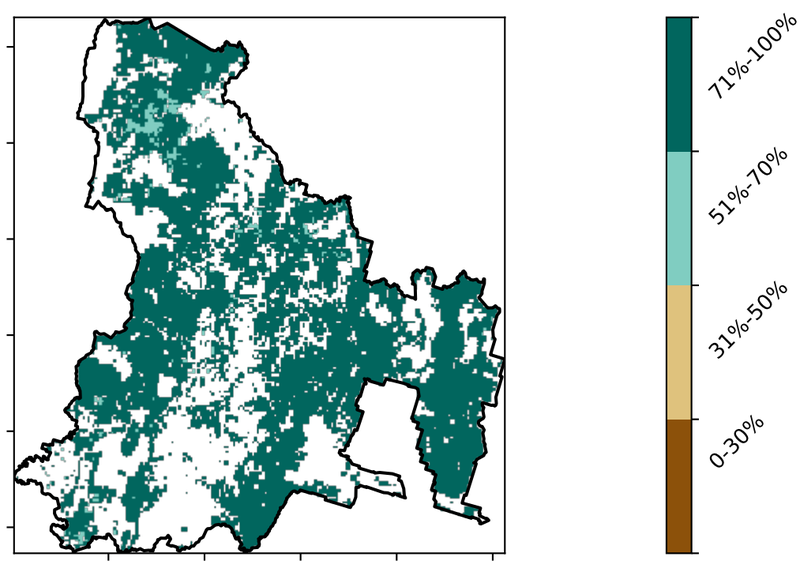
# Grazing

## Land use and forest cover

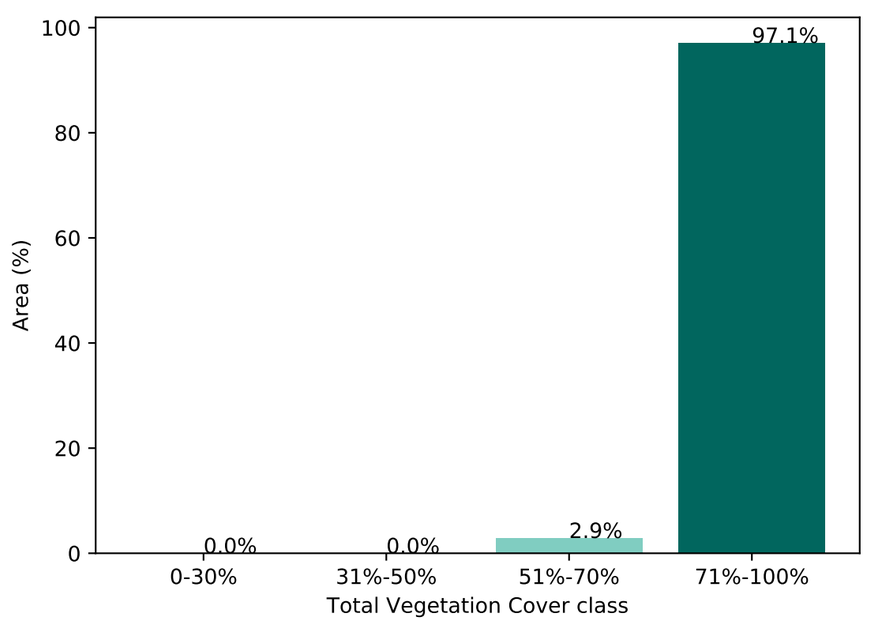
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



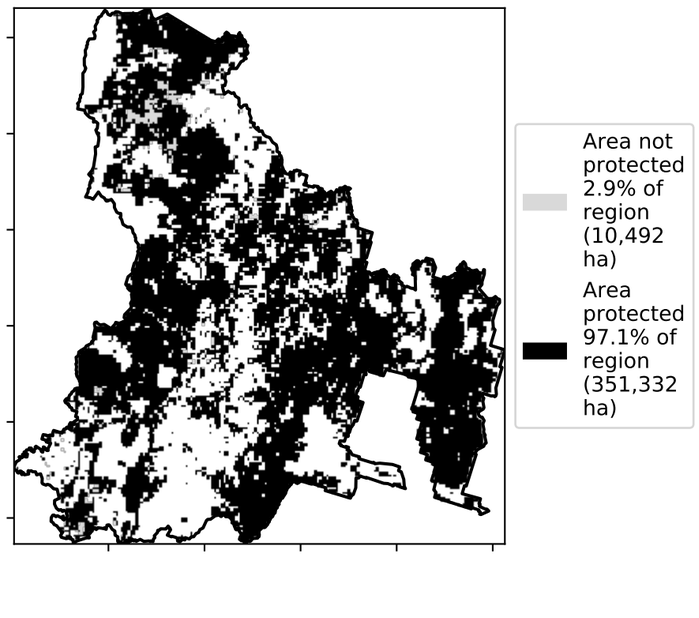

## Total Vegetation Cover [%]



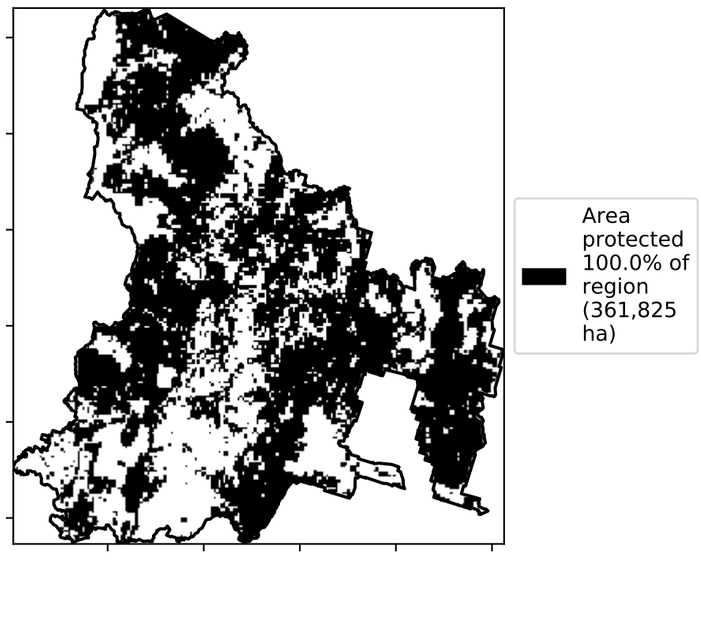

## Proportion of vegetation cover class in area




## % Area protected from water erosion (>70%)

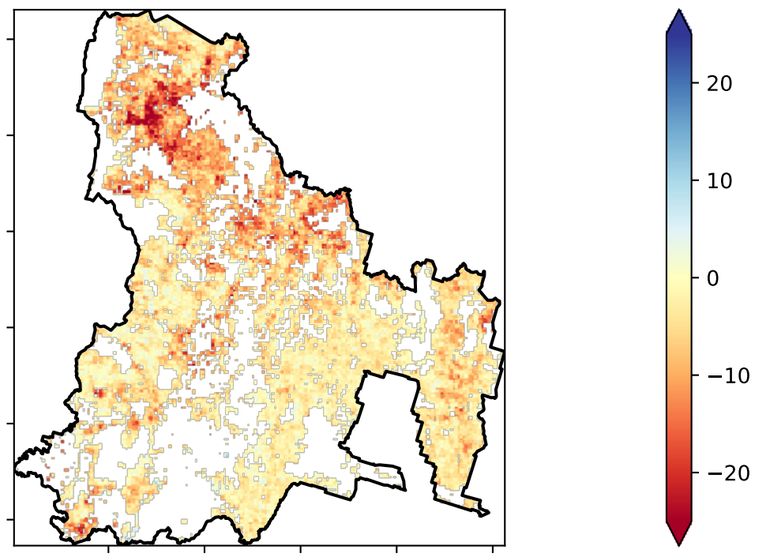



## % Area protected from wind erosion (>50%)



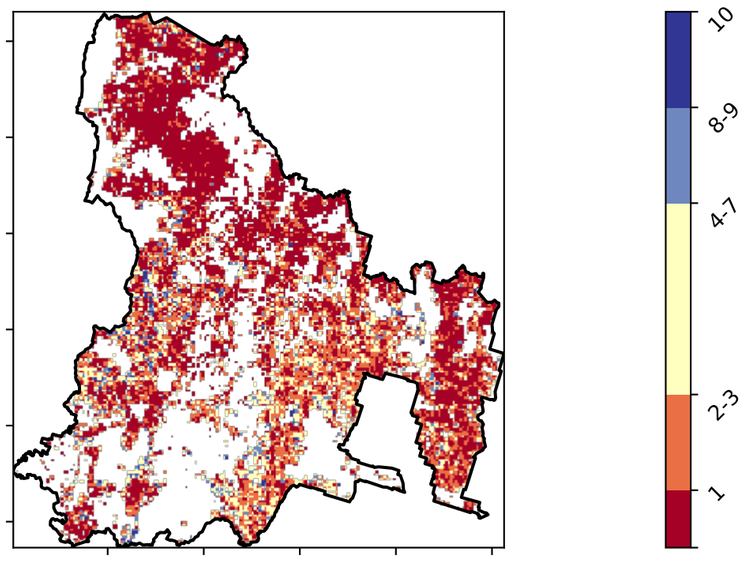

## Total Vegetation Cover Anomaly [%]

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.



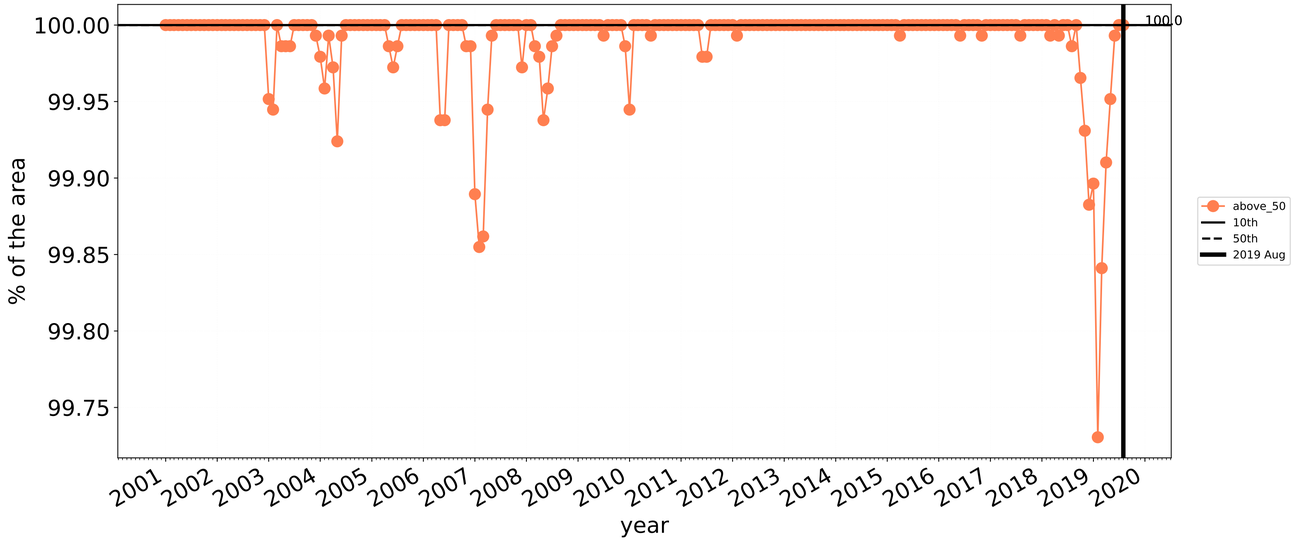

## Total Vegetation Cover Decile [%]

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

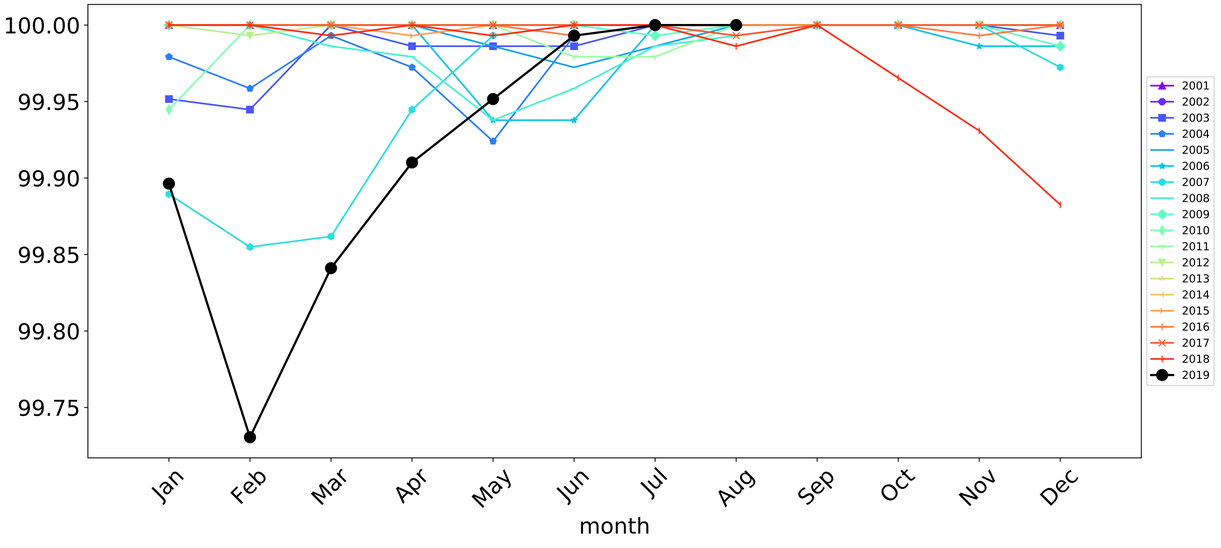


**Grazing timeseries**

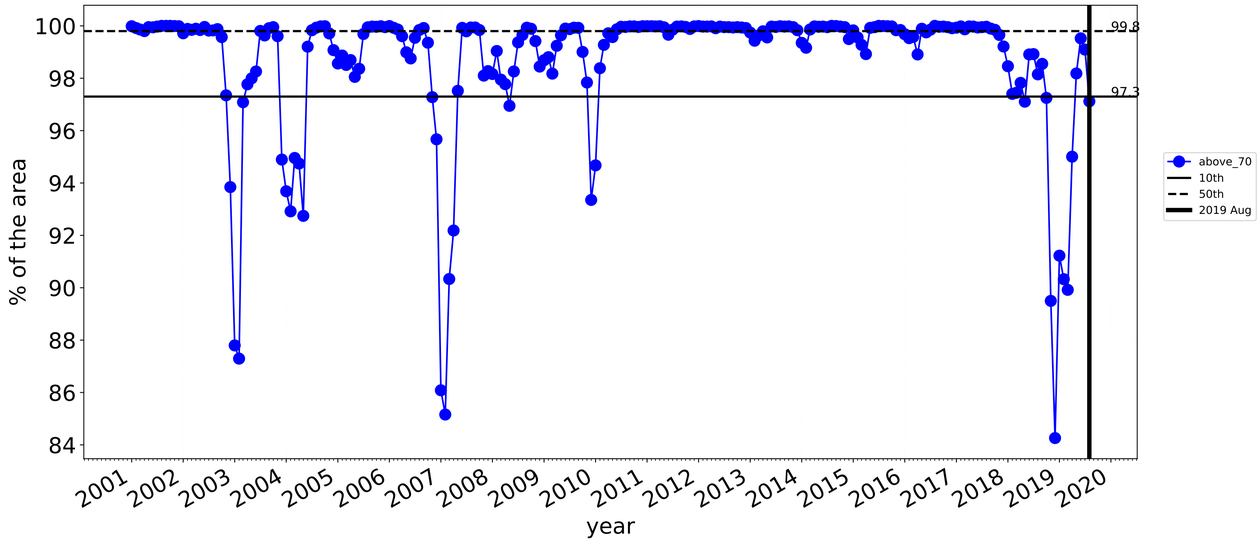
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



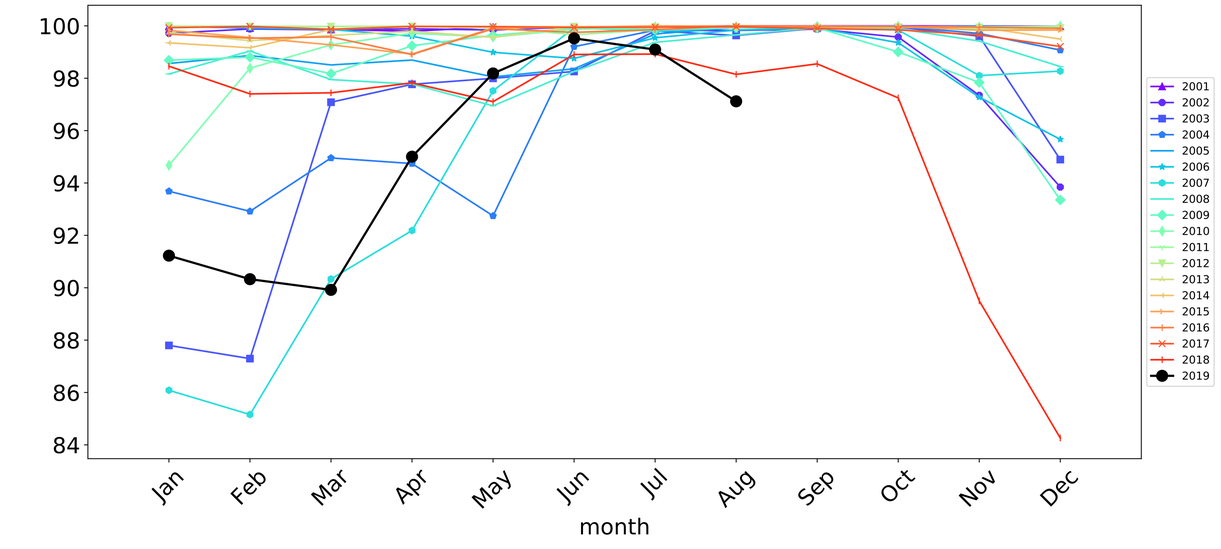

Wind erosion historical monthly area protected (Total Veg Cov >50%)

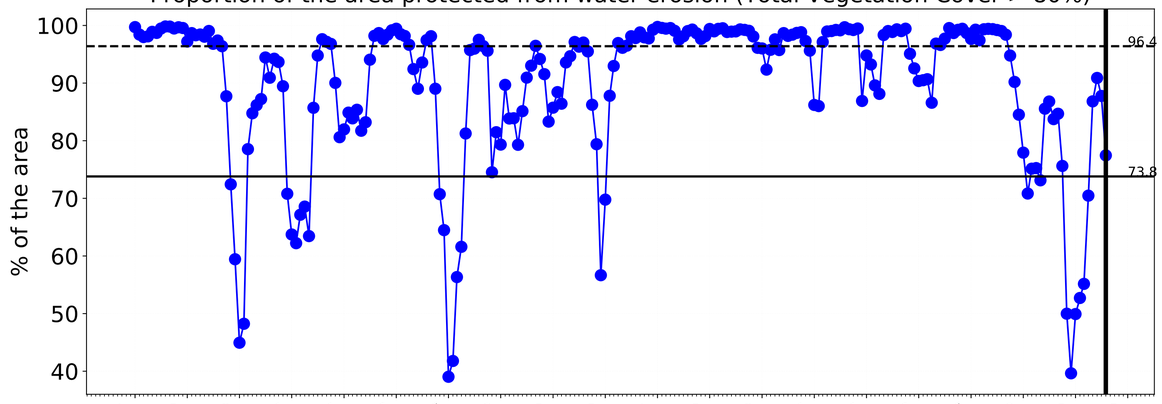


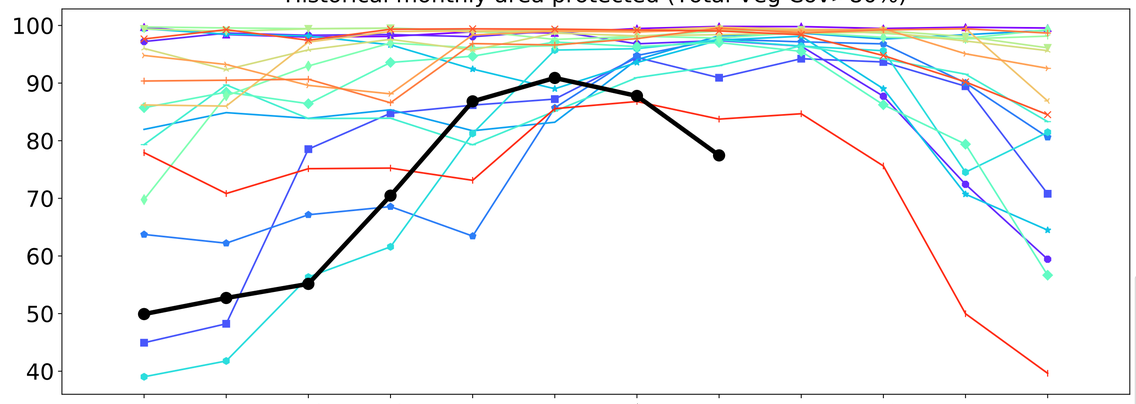

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

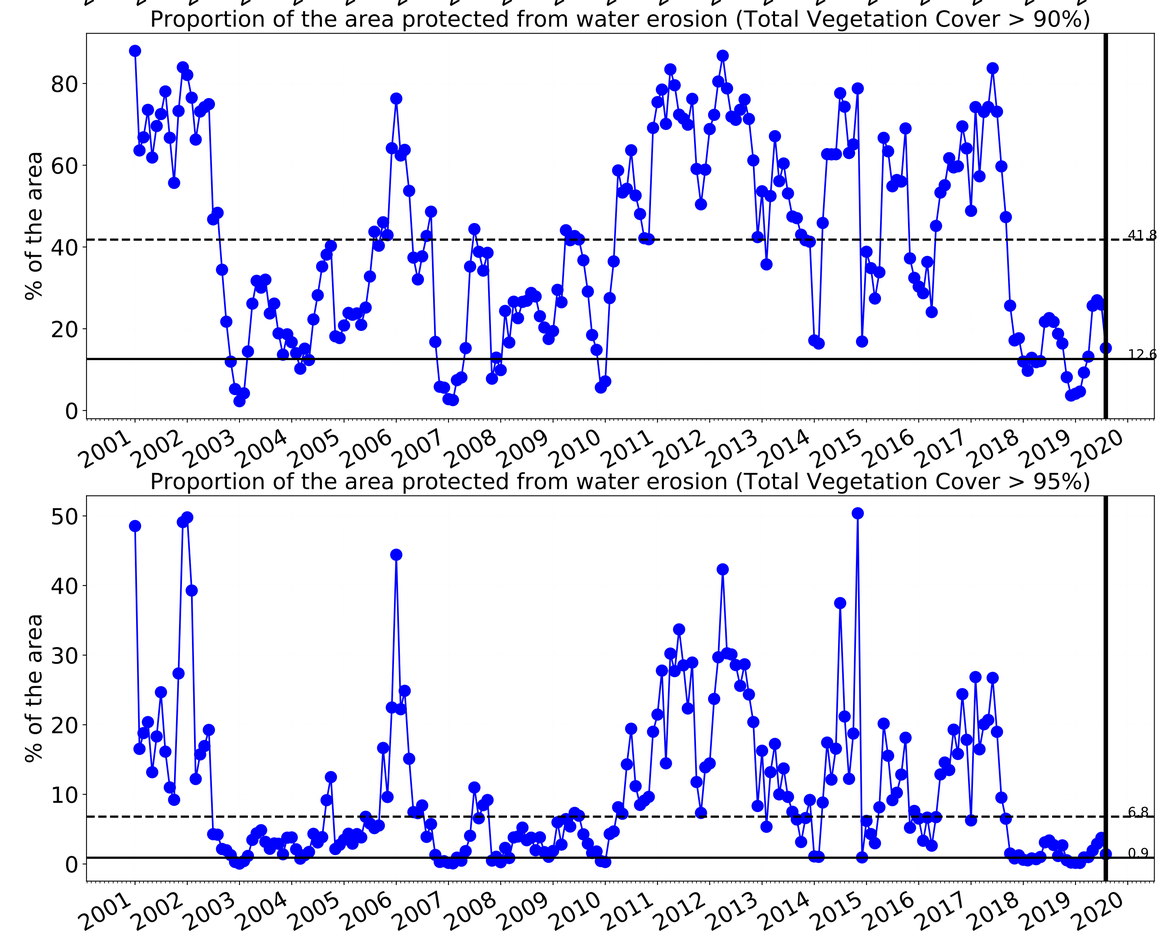


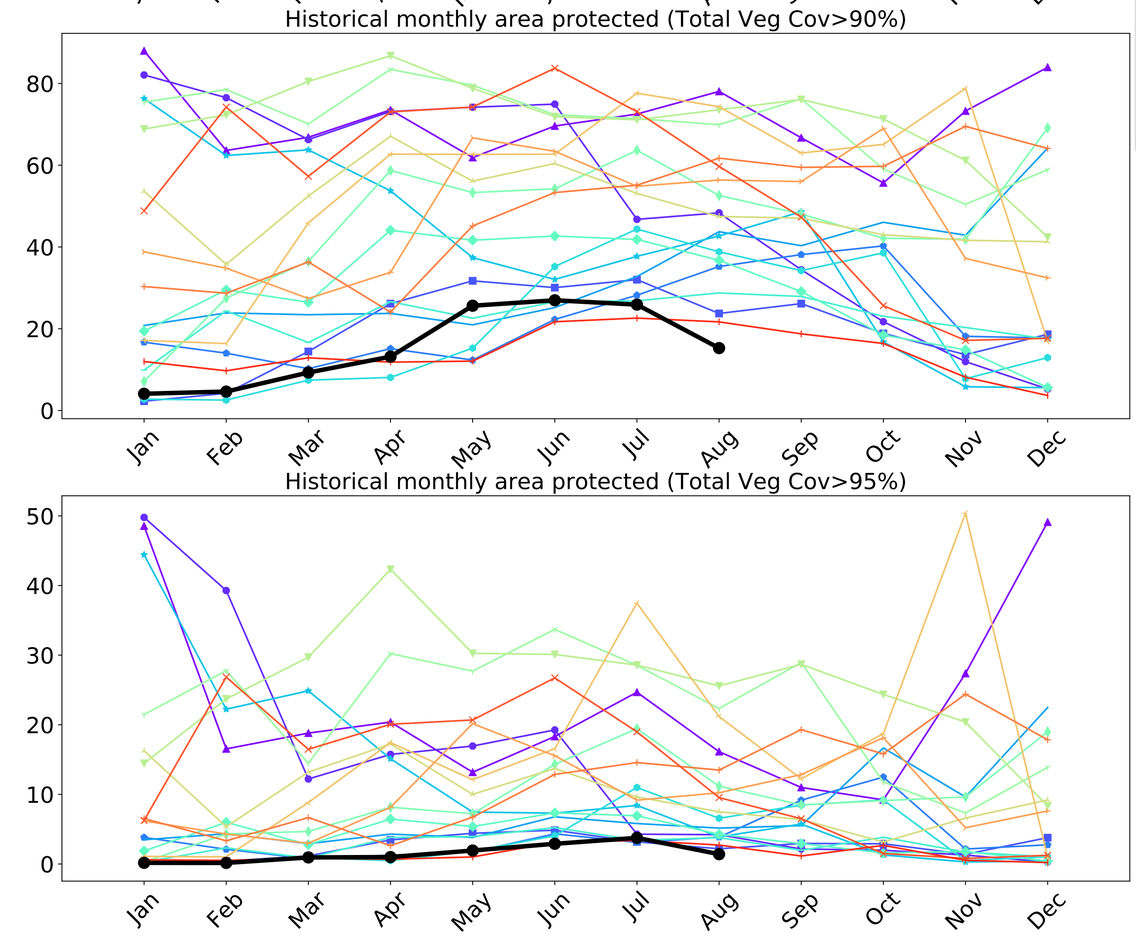

Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
96.4
73.8
above_80
10th
50th
2019 Aug


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

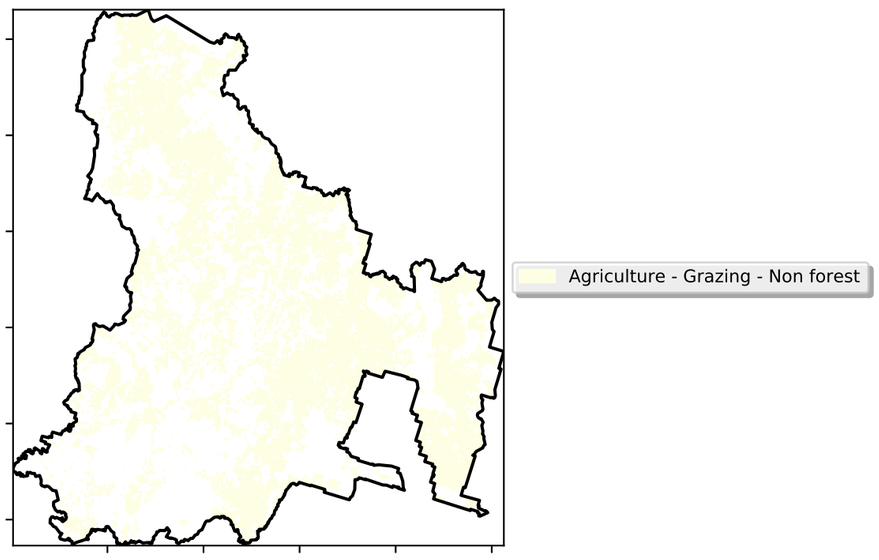

Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
41.8
12.6
above_90
10th
50th
2019 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
6.8
0.9
above_95
10th
50th
2019 Aug


Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

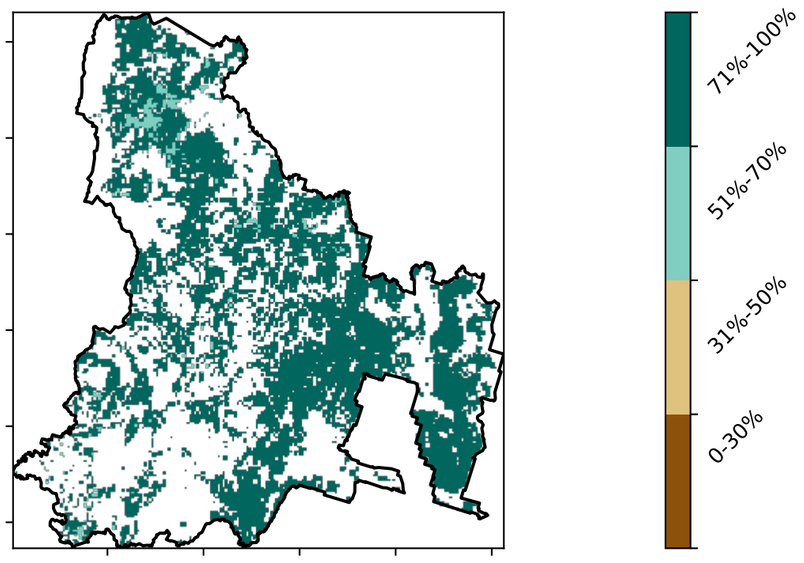
# Grazing non forest

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

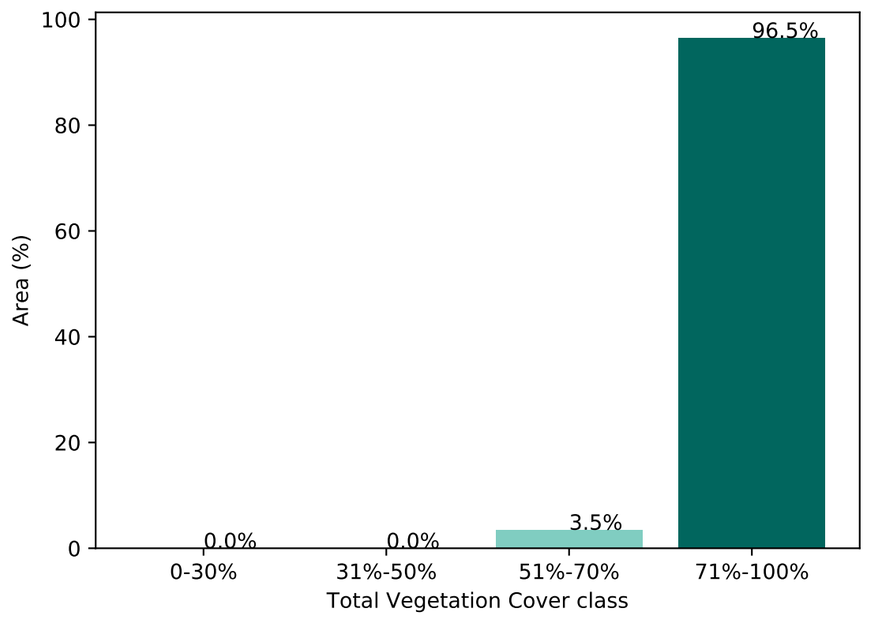
**Land use and forest cover**



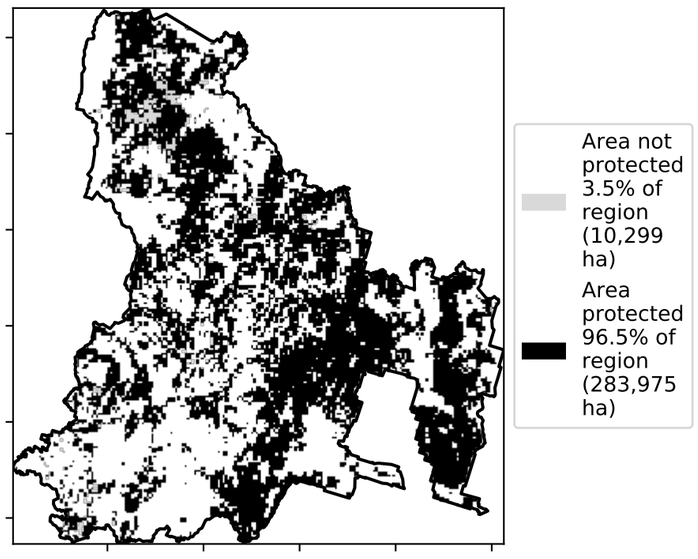

**Total Vegetation Cover [%]**



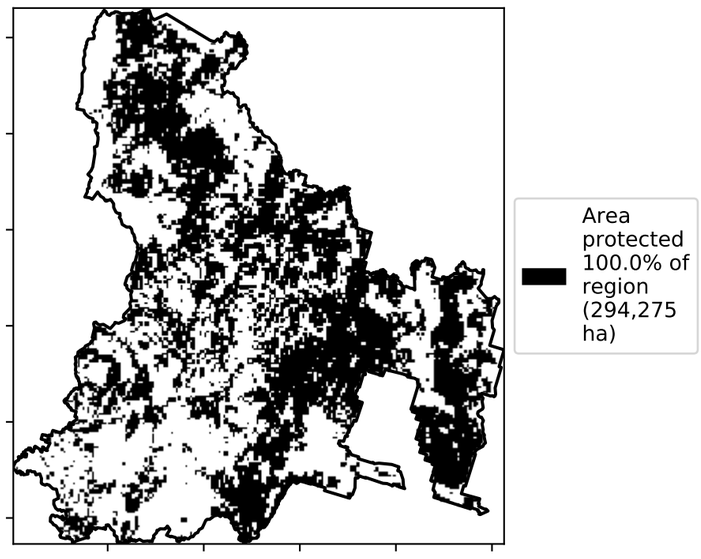

**Proportion of vegetation cover class in area**




**% Area protected from water erosion (>70%)**

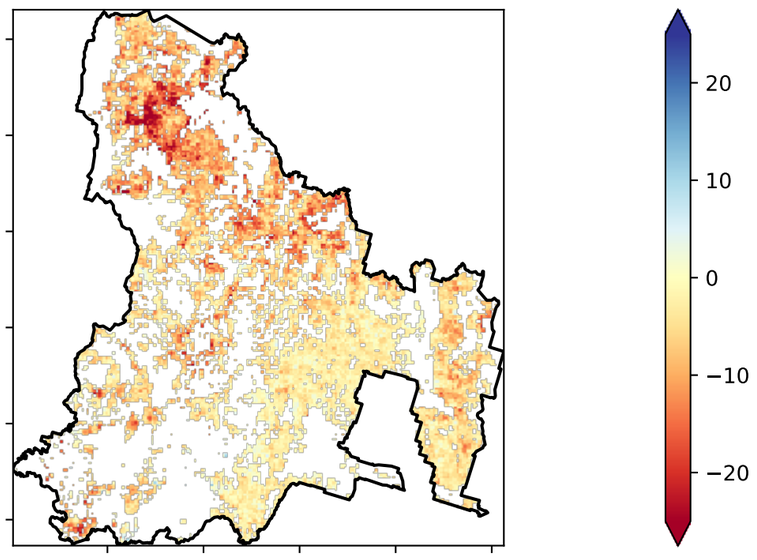



**% Area protected from wind erosion (>50%)**



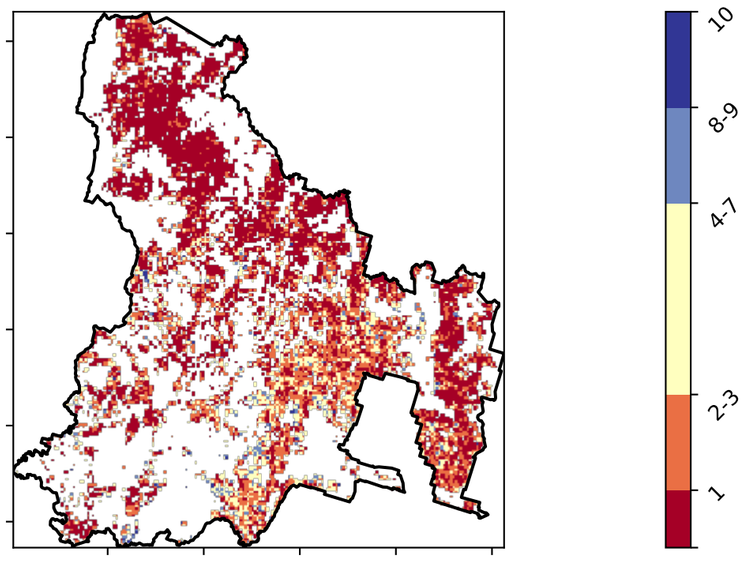

**Total Vegetation Cover Anomaly [%]**

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.



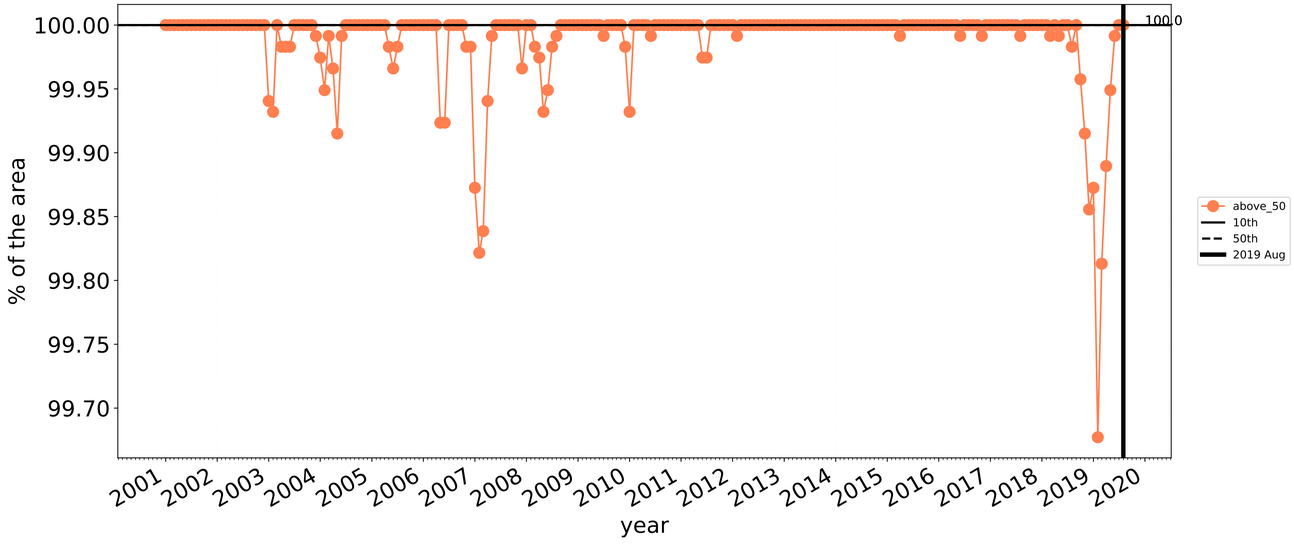

**Total Vegetation Cover Decile [%]**

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

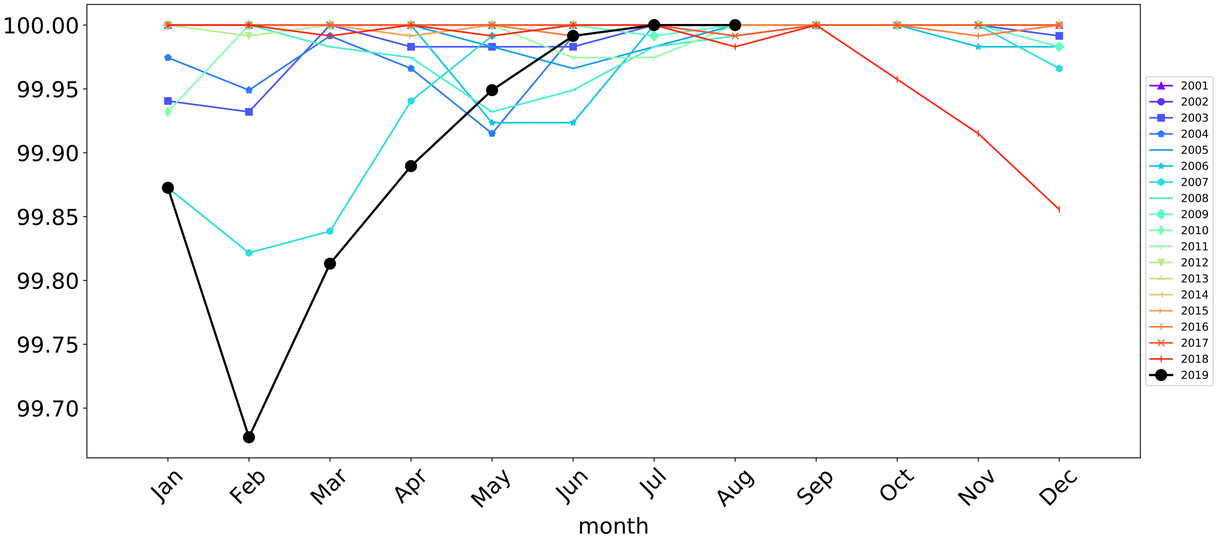


**Grazing non forest timeseries**

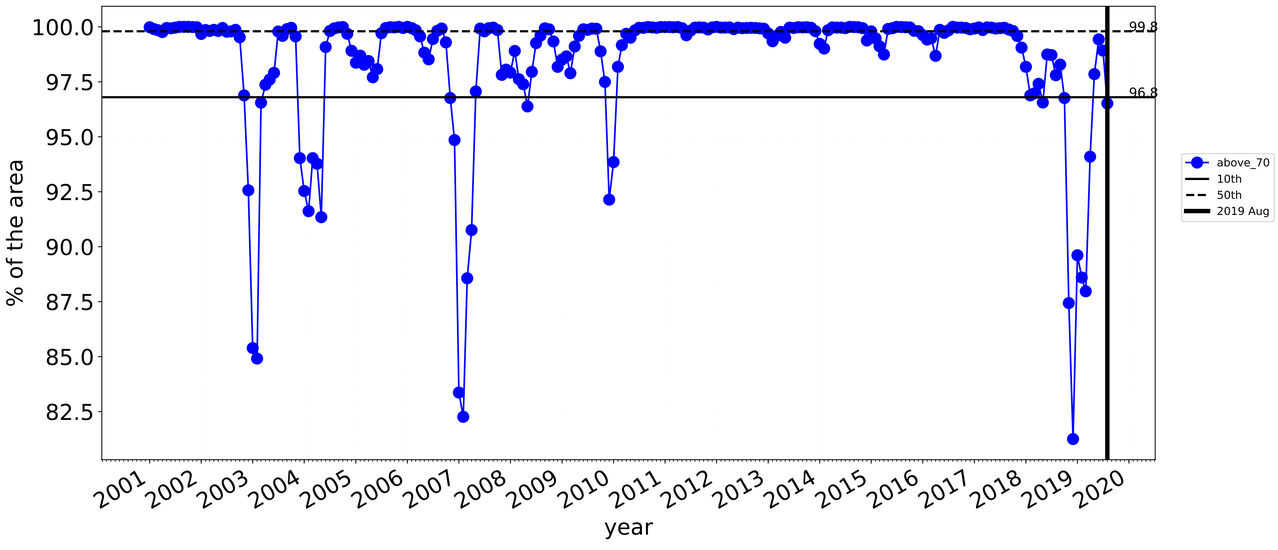
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



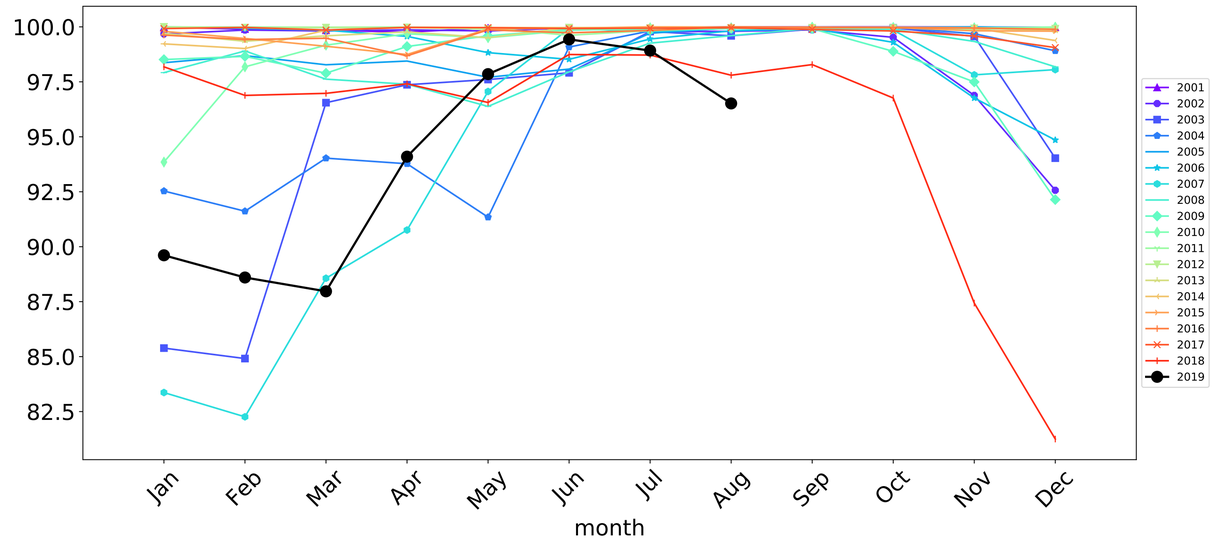

Wind erosion historical monthly area protected (Total Veg Cov >50%)

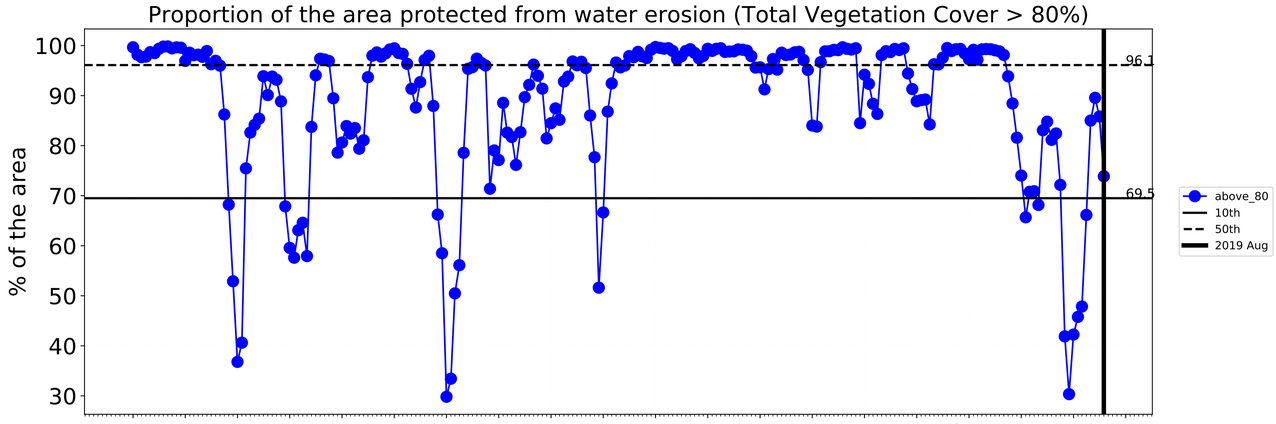


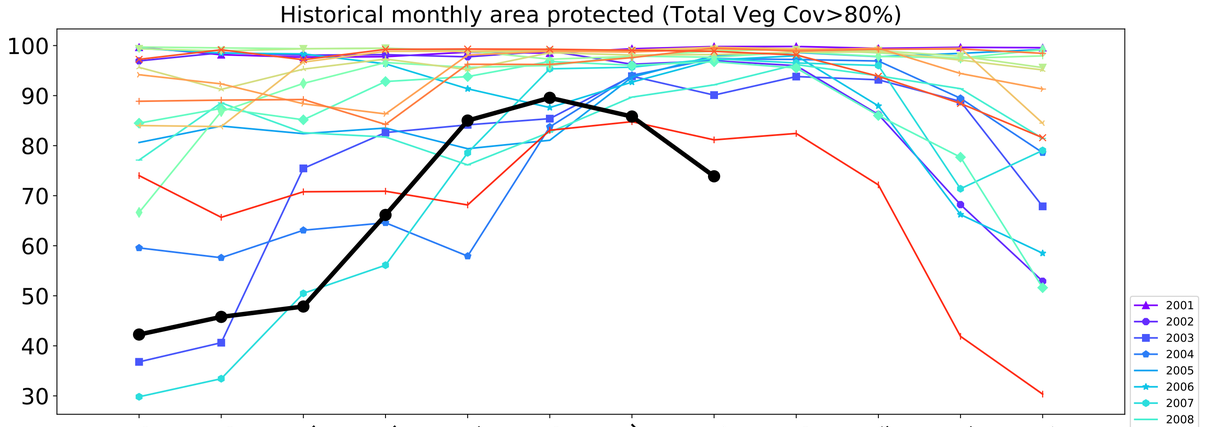

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

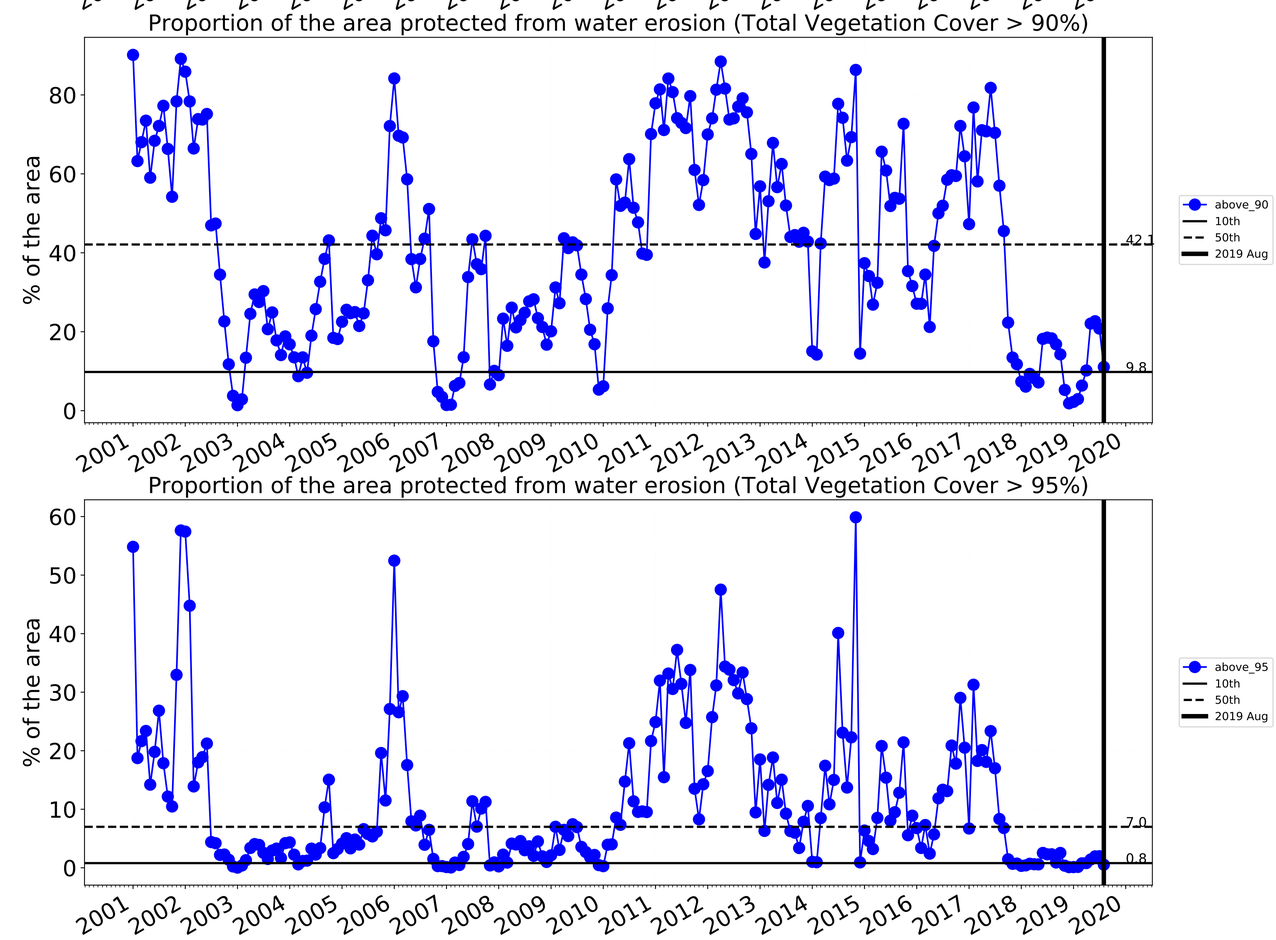


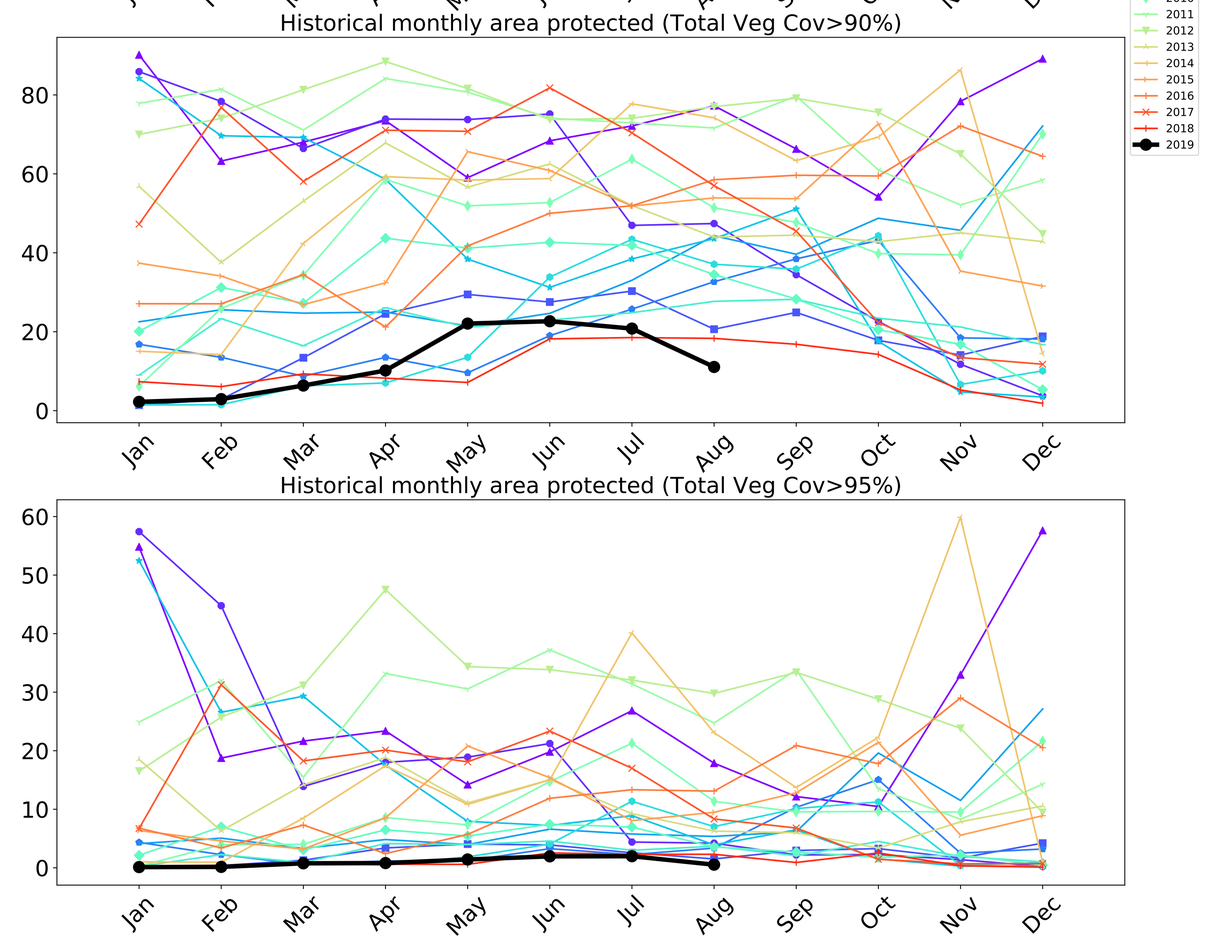

Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
96.1
69.5
above_80
10th
50th
2019 Aug


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

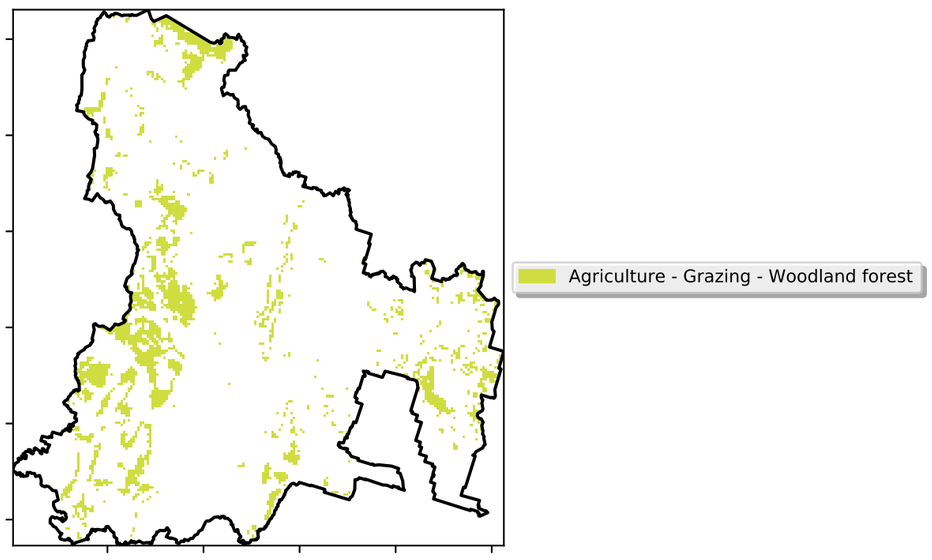

Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
42.1
9.8
above_90
10th
50th
2019 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
7.0
0.8
above_95
10th
50th
2019 Aug


Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

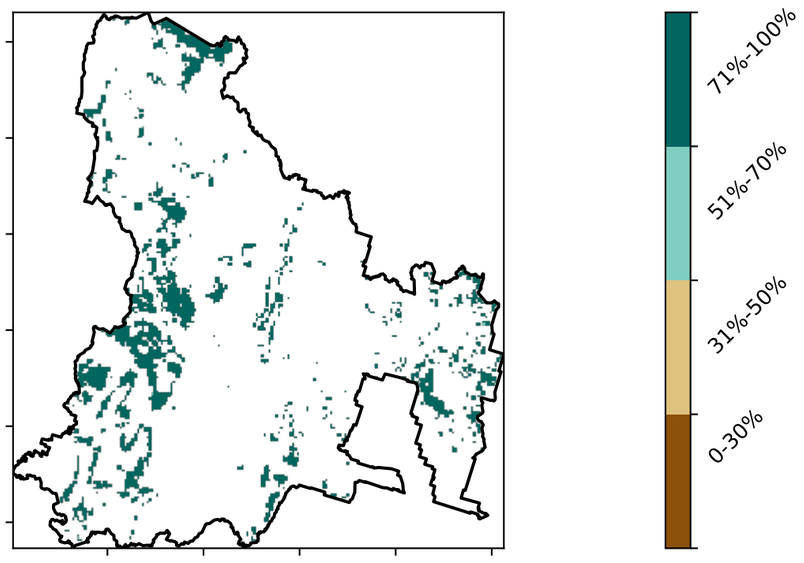
# Grazing Woodland forest

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.

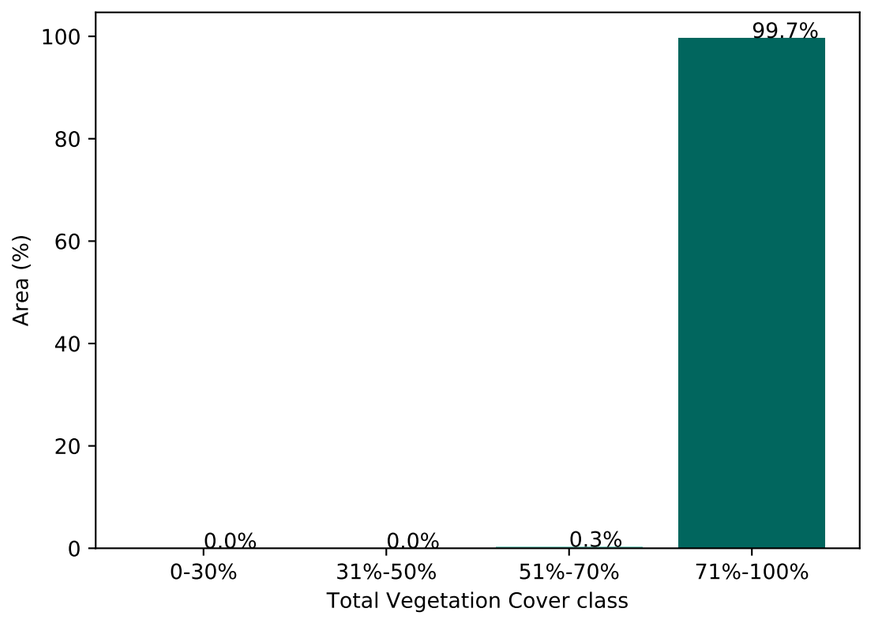
**Land use and forest cover**



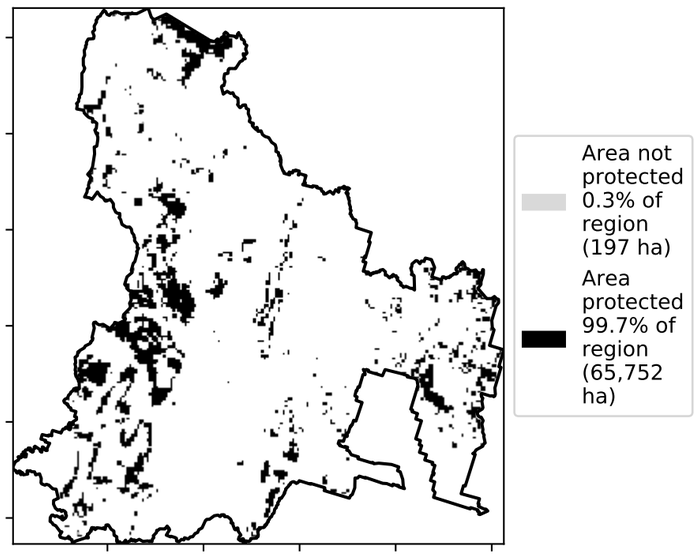

**Total Vegetation Cover [%]**



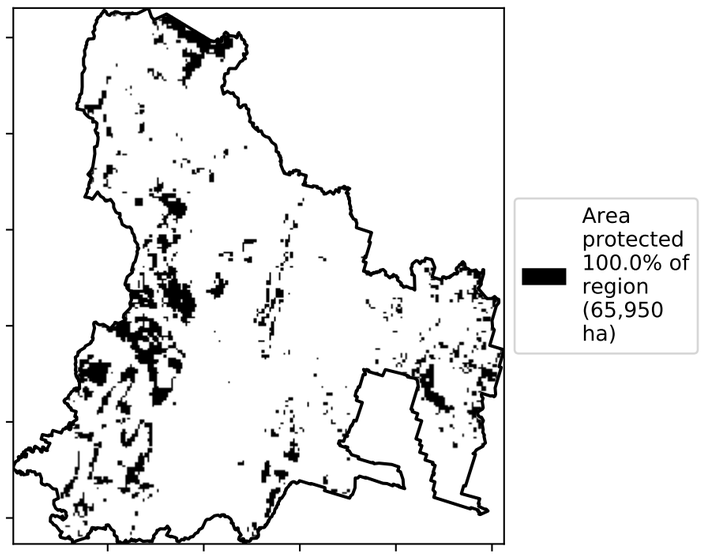

**Proportion of vegetation cover class in area**




**% Area protected from water erosion (>70%)**

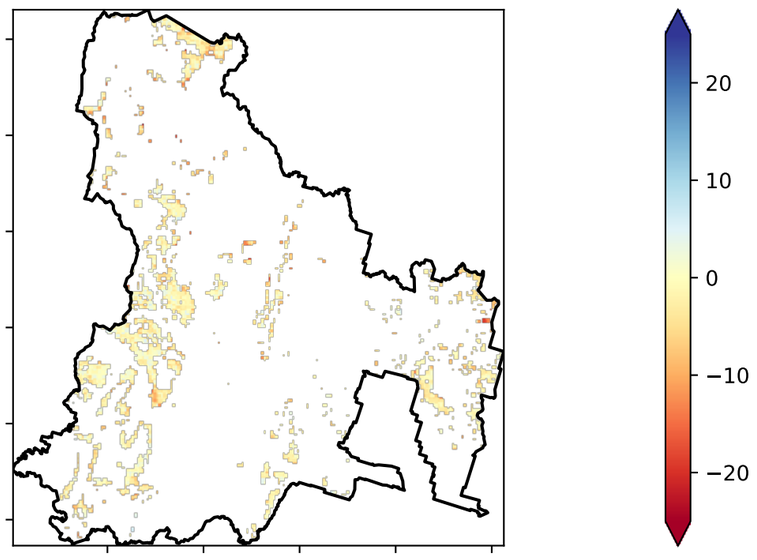



**% Area protected from wind erosion (>50%)**



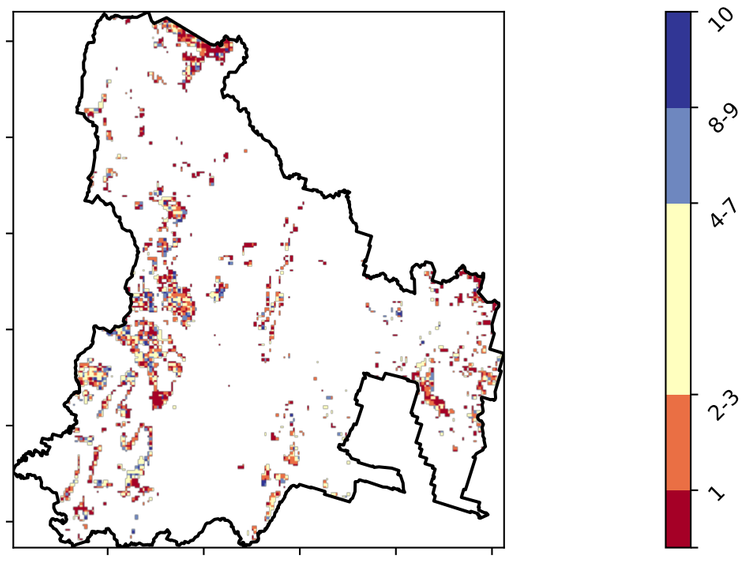

**Total Vegetation Cover Anomaly [%]**

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.



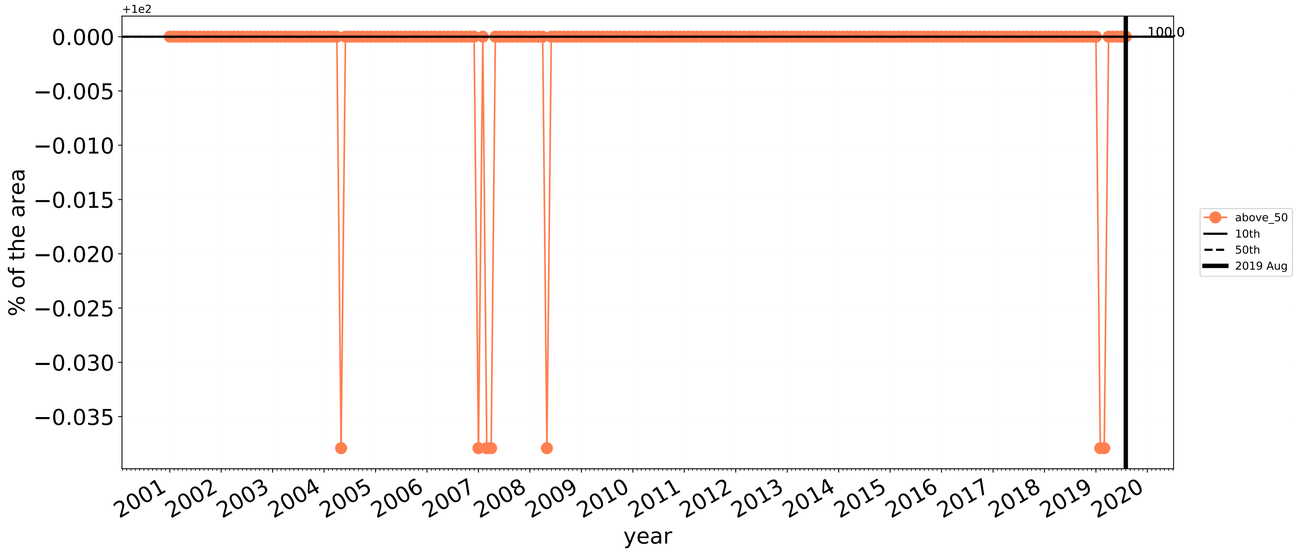

**Total Vegetation Cover Decile [%]**

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

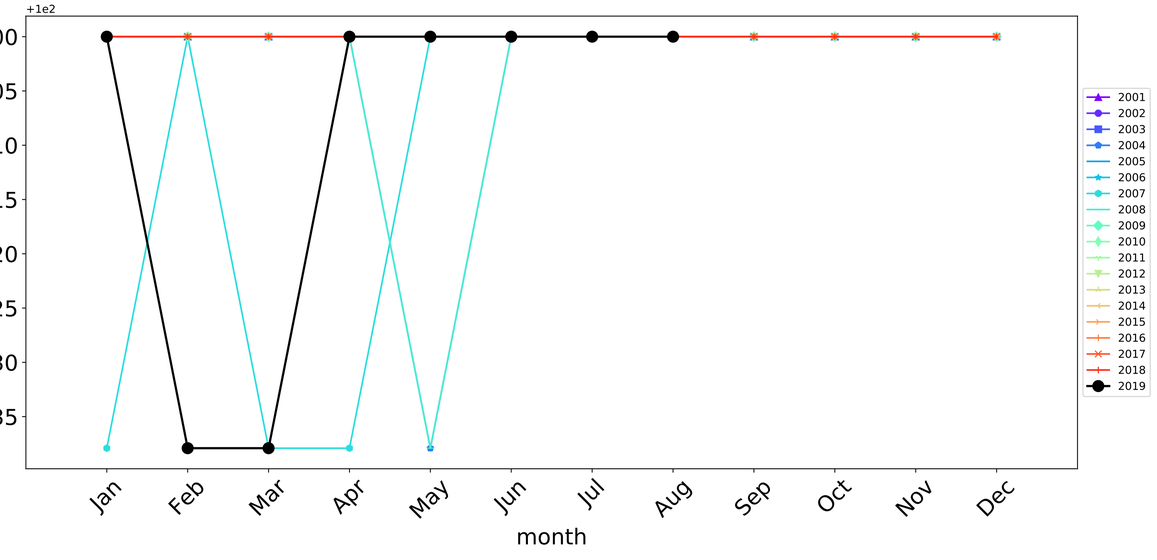


**Grazing Woodland forest timeseries**

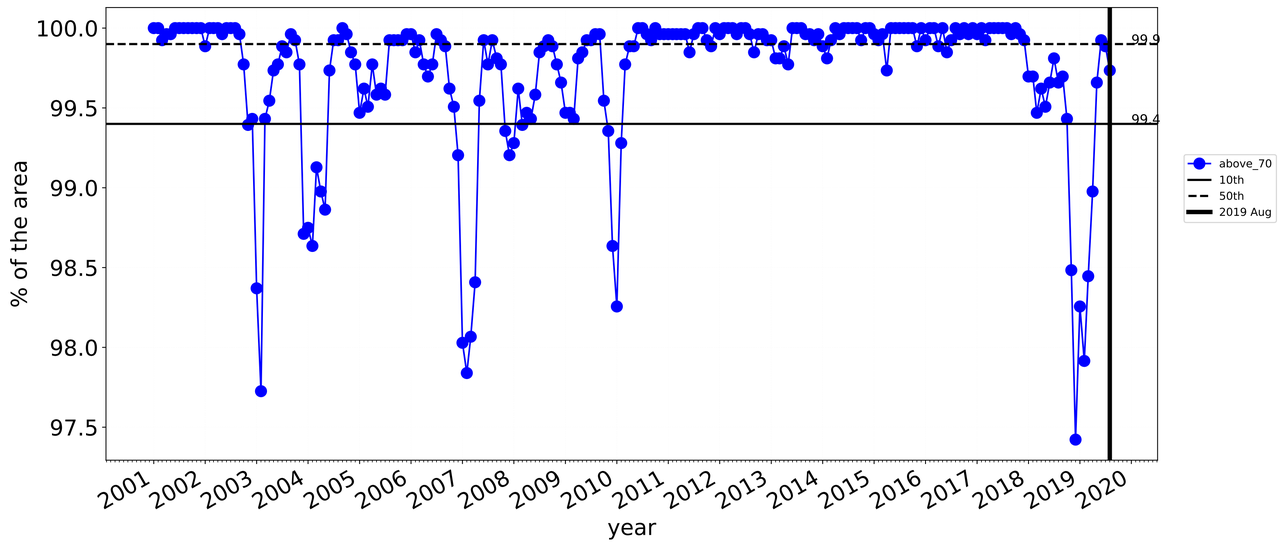
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



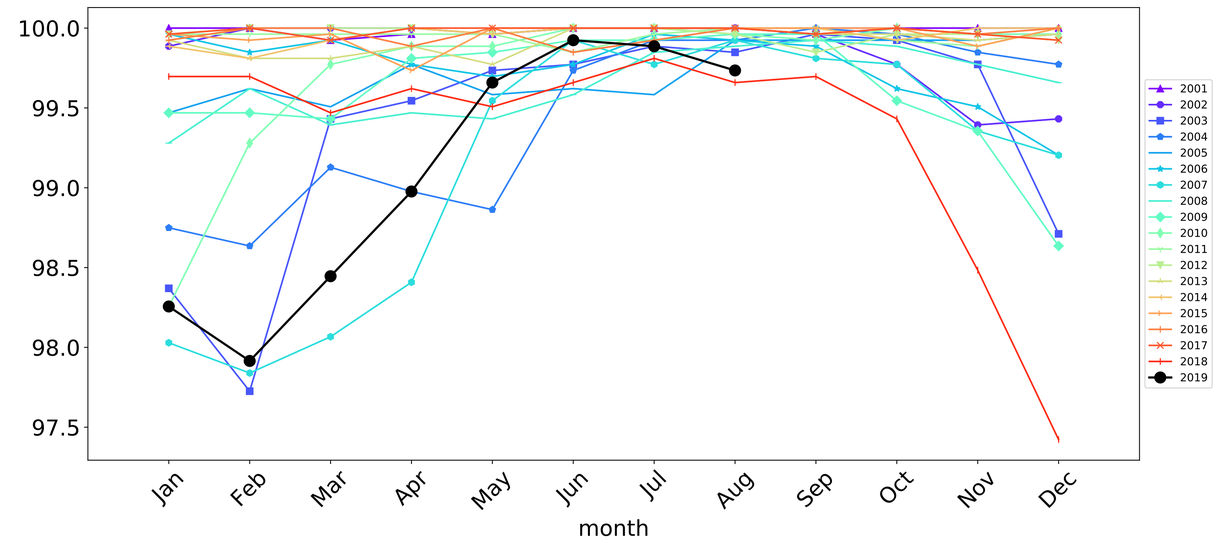

Wind erosion historical monthly area protected (Total Veg Cov >50%)

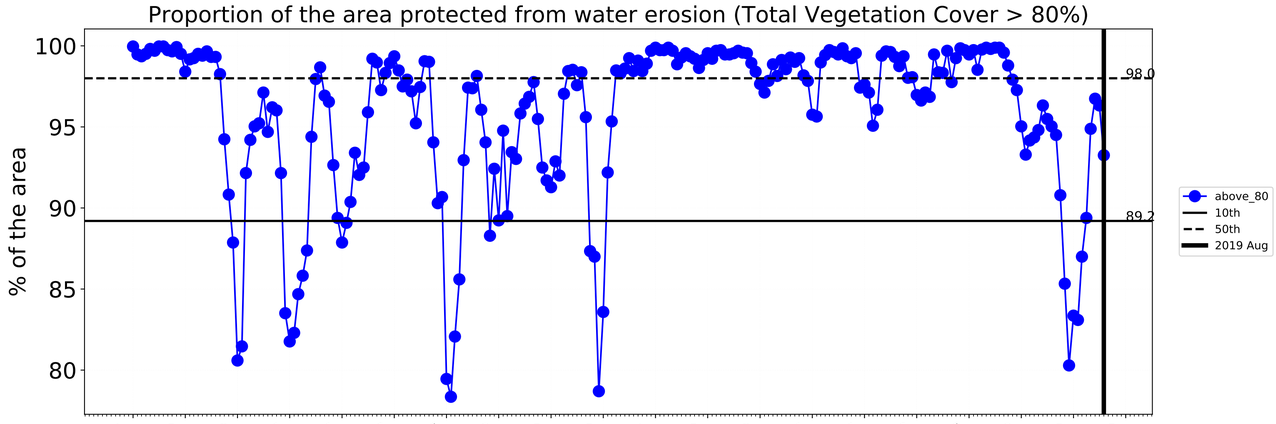


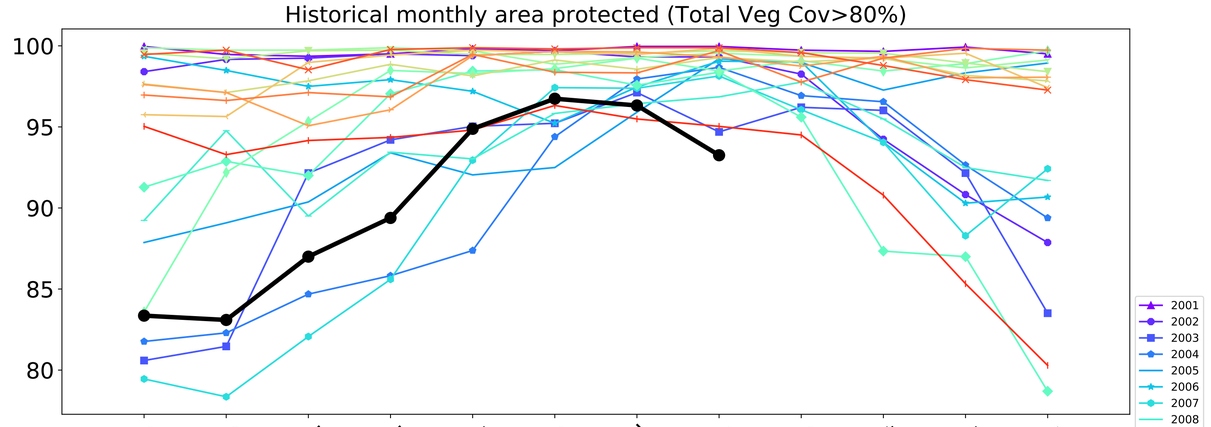

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

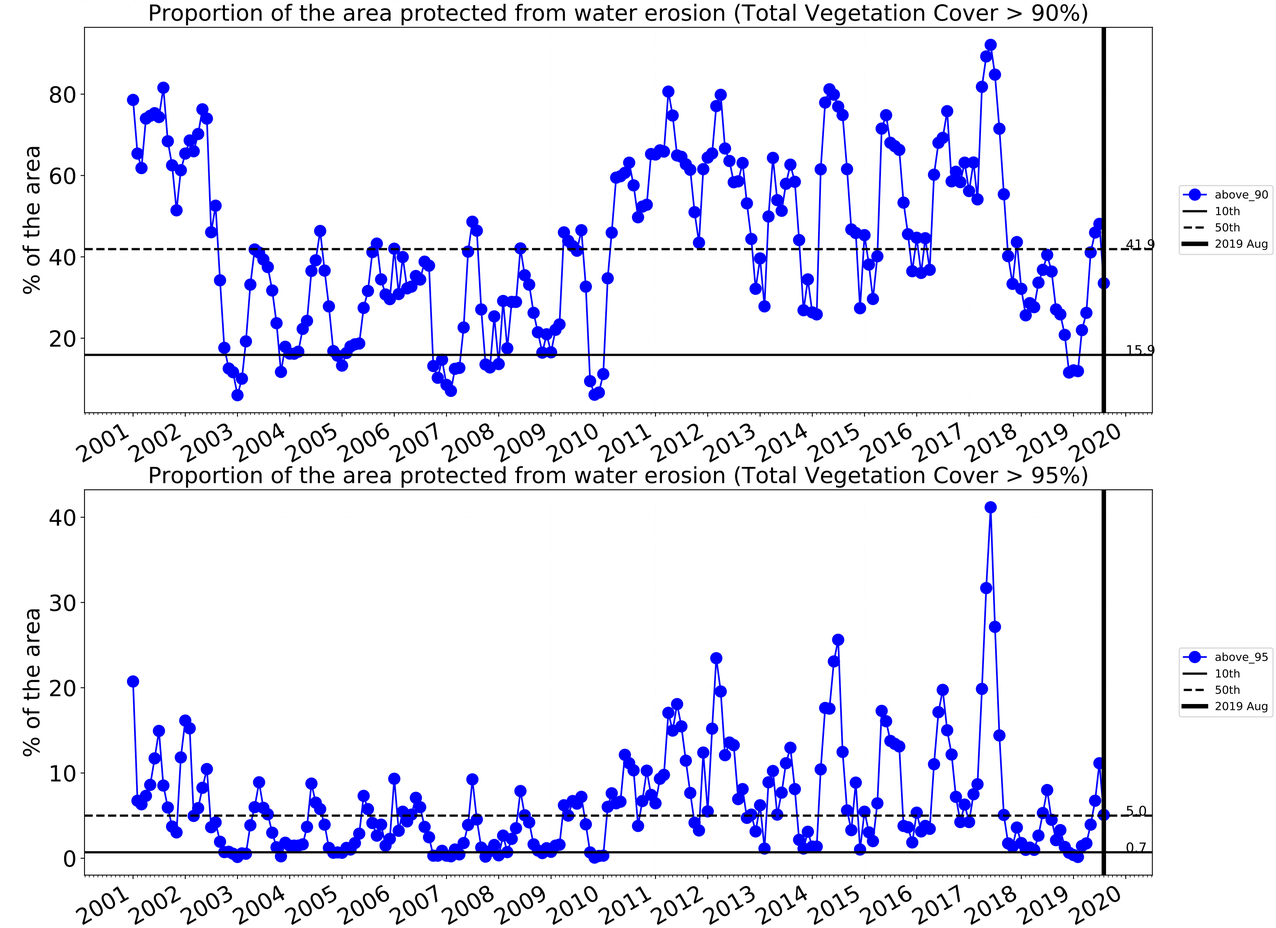


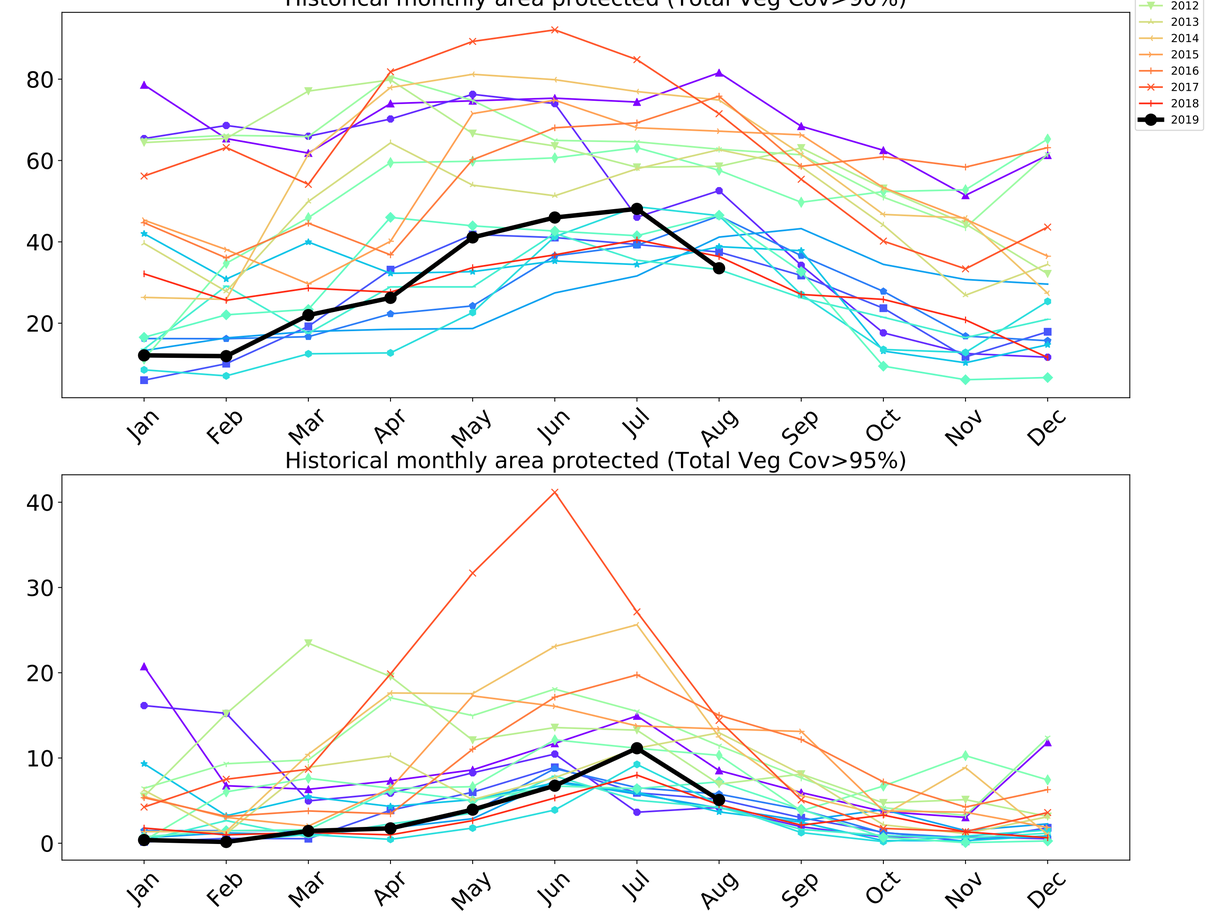

Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
98.0
89.2
above_80
10th
50th
2019 Aug


Historical monthly area protected (Total Veg Cov>80%)
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019


Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
41.9
15.9
above_90
10th
50th
2019 Aug


Historical monthly area protected (Total Veg Cov>90%)
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

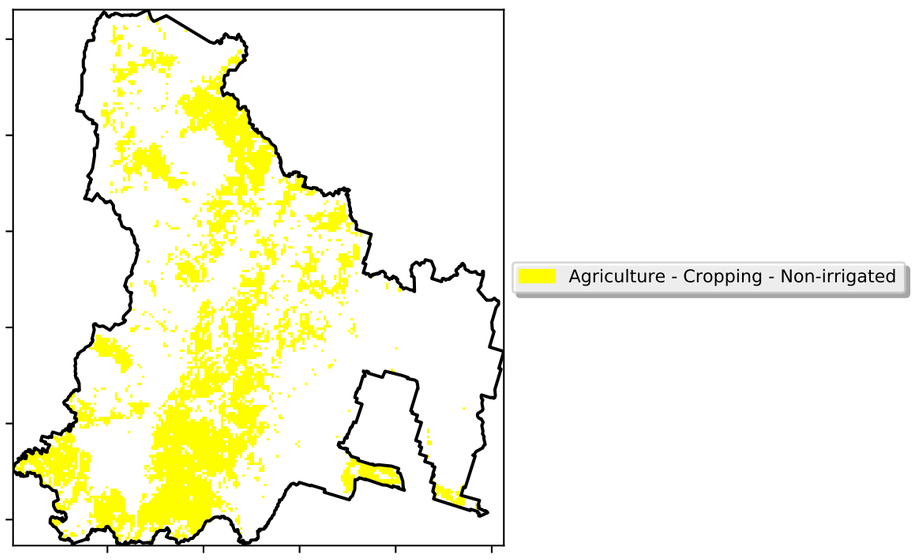

Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
5.0
0.7
above_95
10th
50th
2019 Aug


Historical monthly area protected (Total Veg Cov>95%)
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

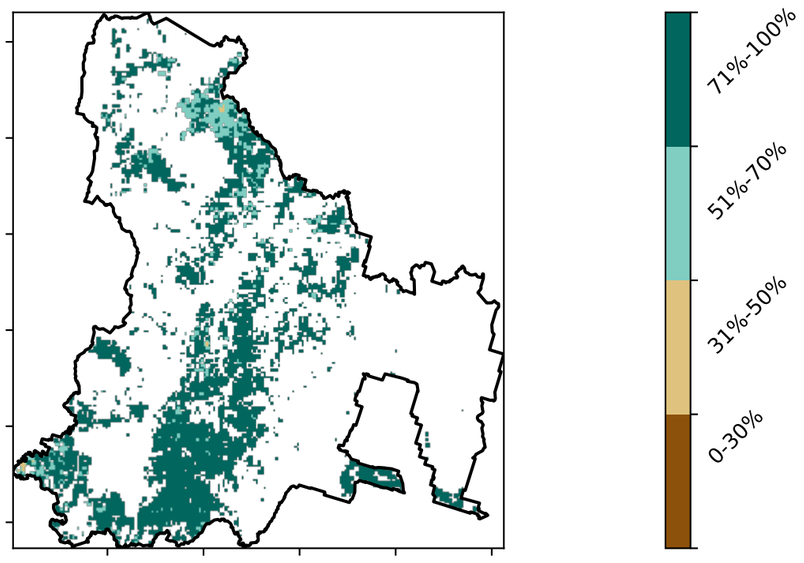
# Cropping

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.

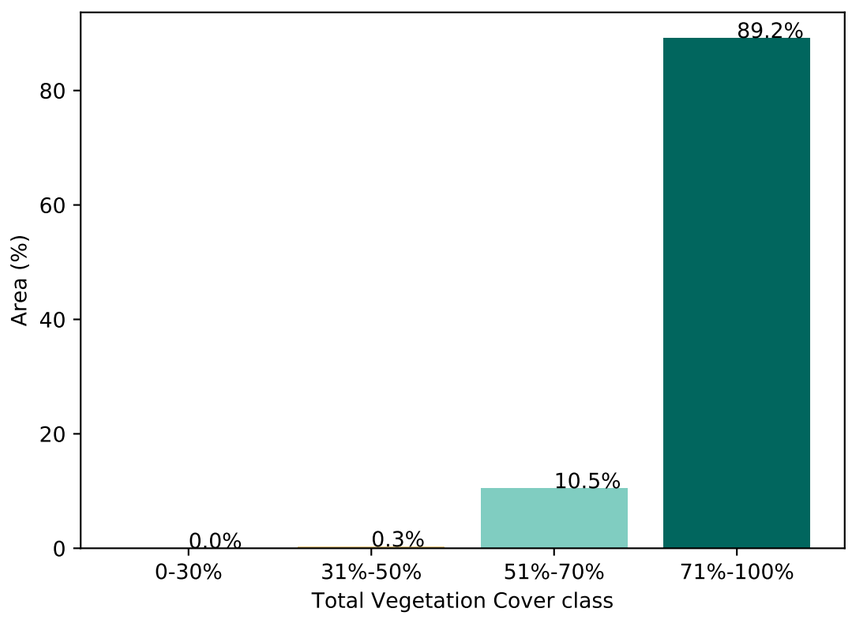
**Land use and forest cover**



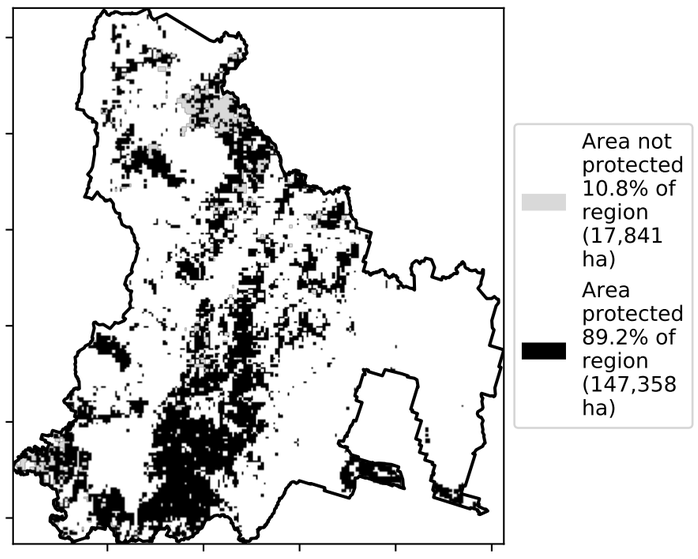

**Total Vegetation Cover [%]**



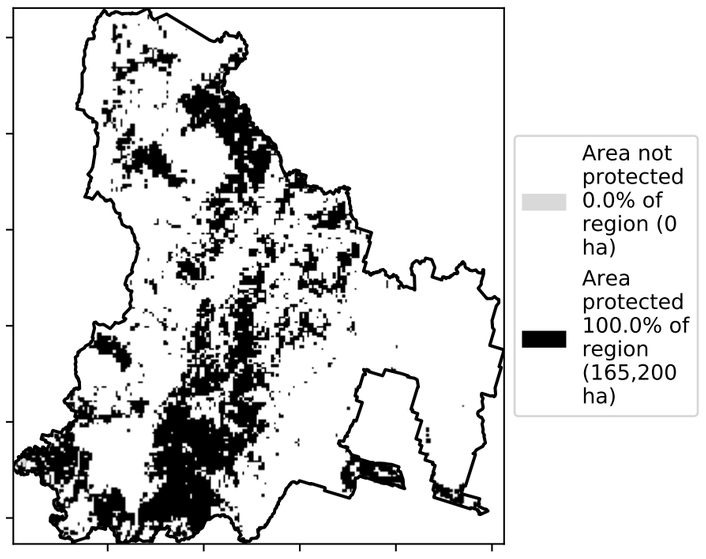

**Proportion of vegetation cover class in area**




**% Area protected from water erosion (>70%)**

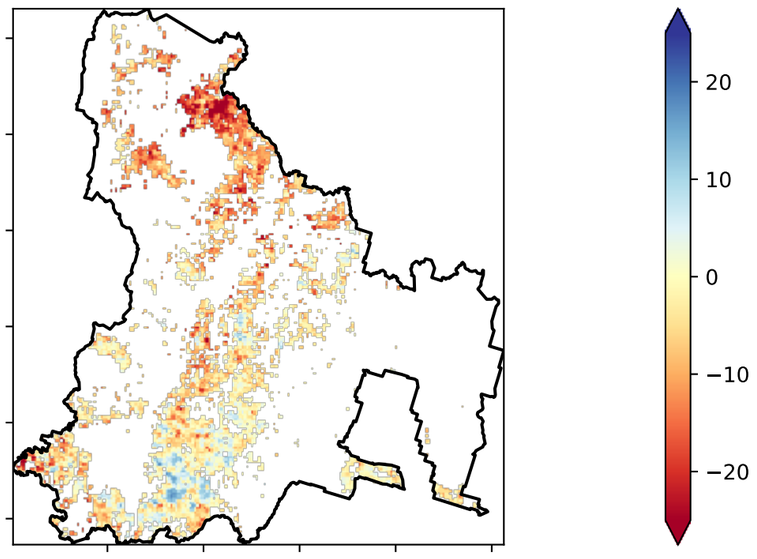



**% Area protected from wind erosion (>50%)**



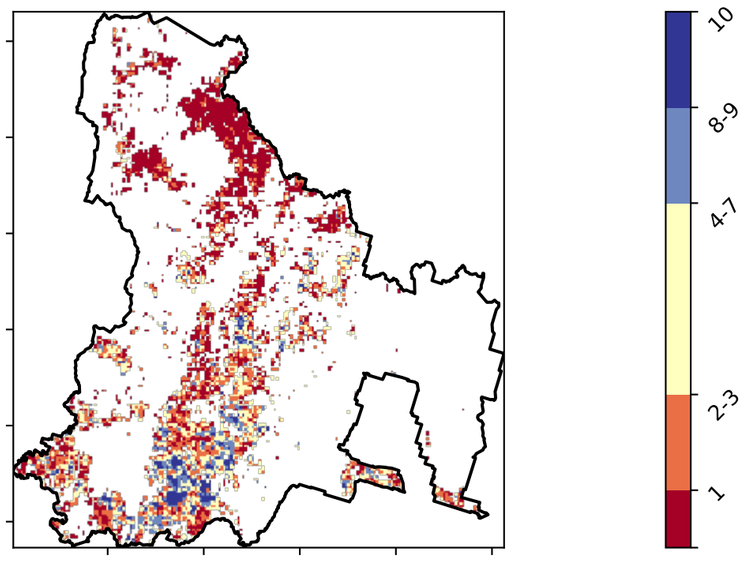

**Total Vegetation Cover Anomaly [%]**

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.



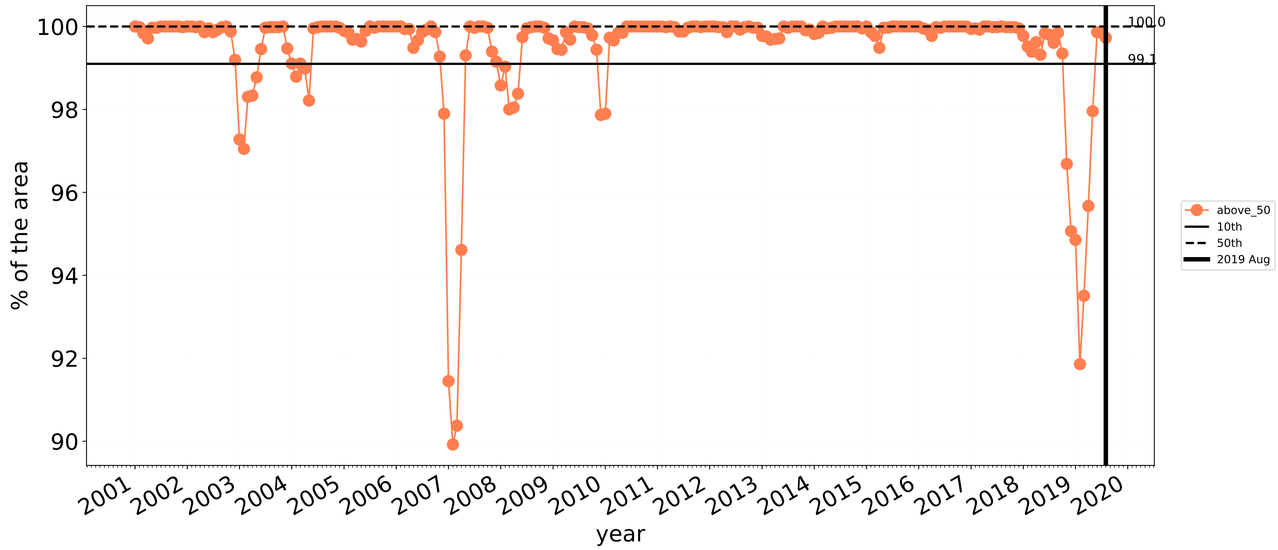

**Total Vegetation Cover Decile [%]**

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

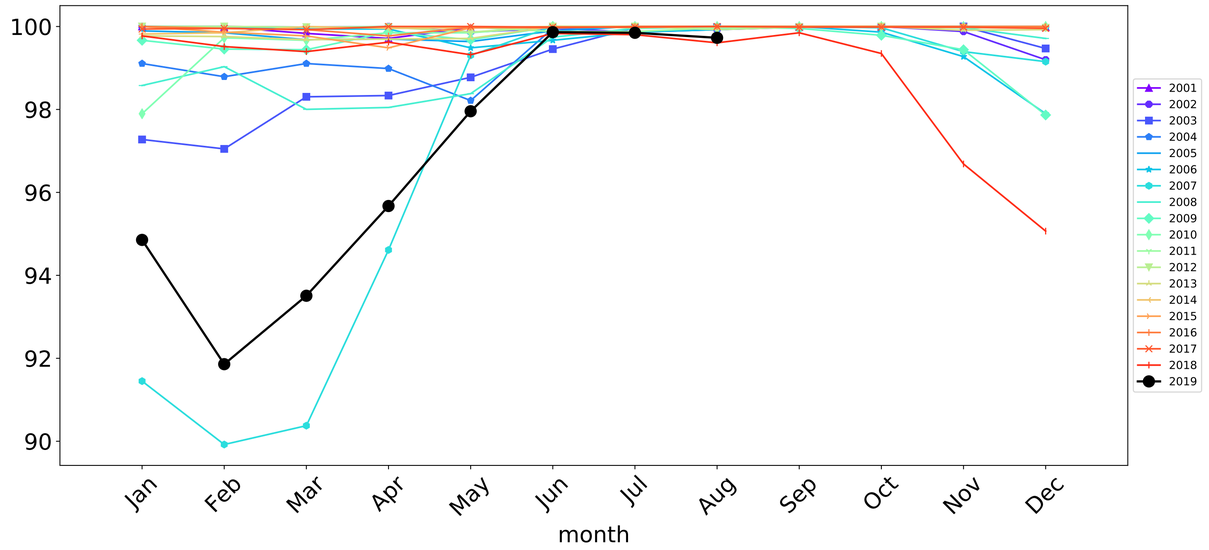


**Cropping timeseries**

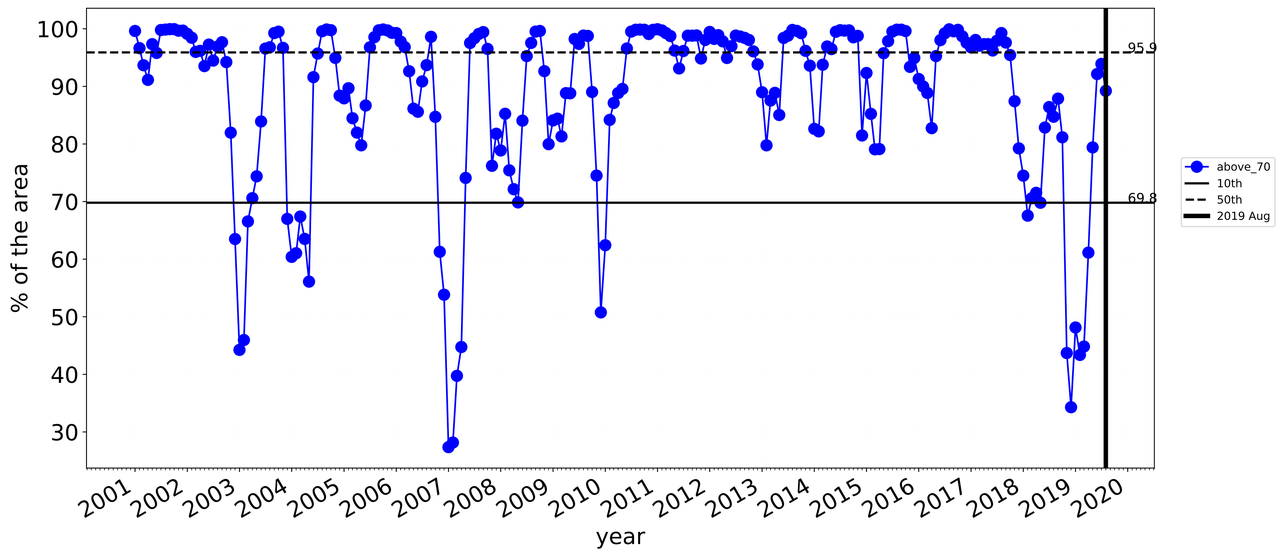
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



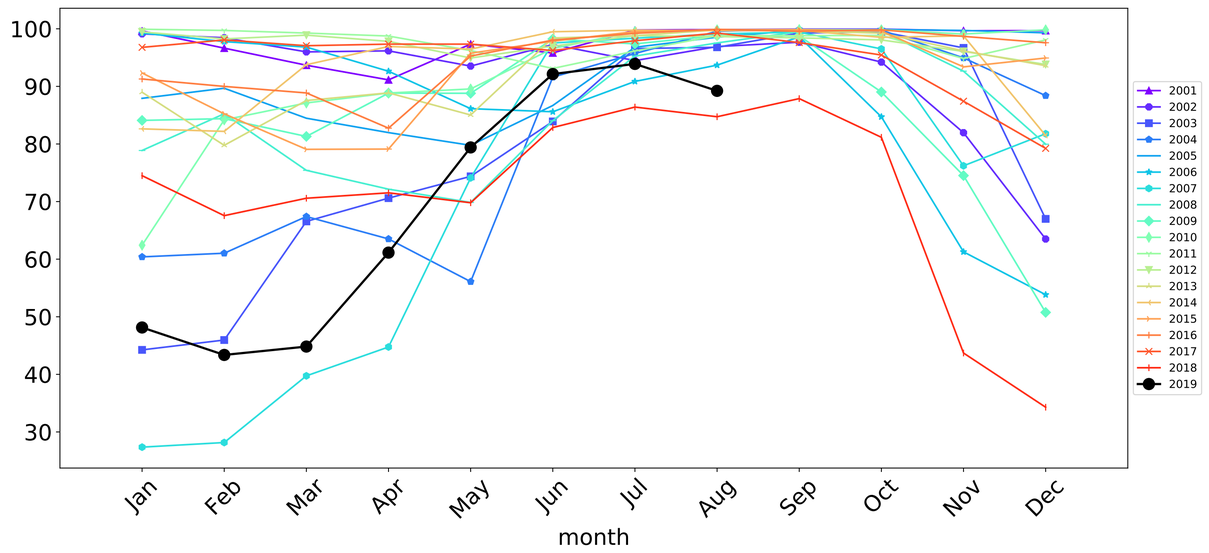

Wind erosion historical monthly area protected (Total Veg Cov >50%)



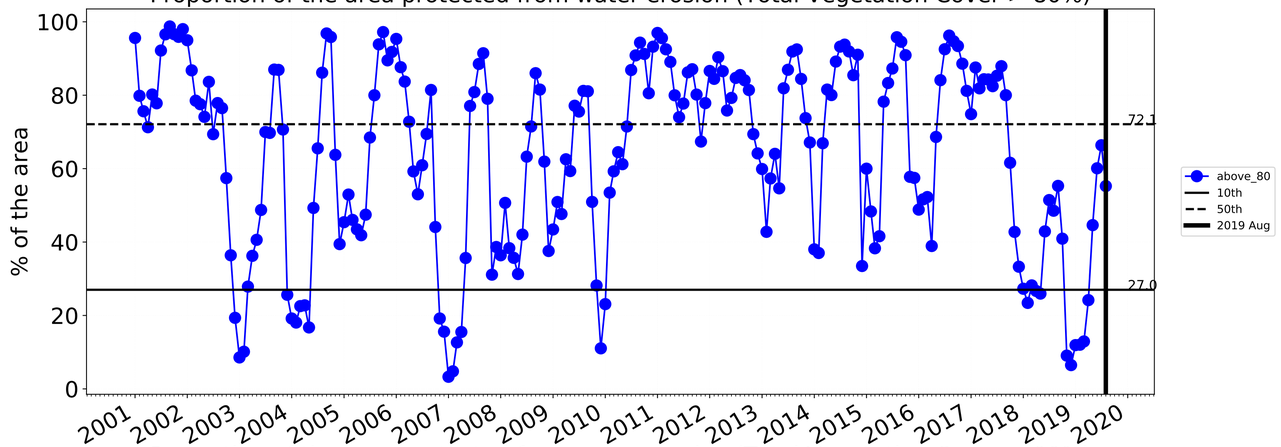

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



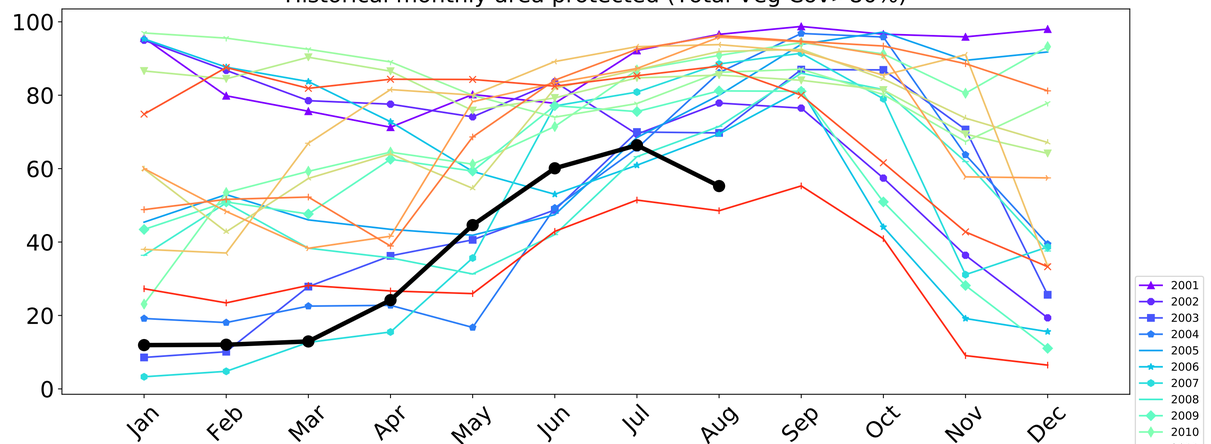

Water erosion historical monthly area protected (Total Veg Cov>70%)



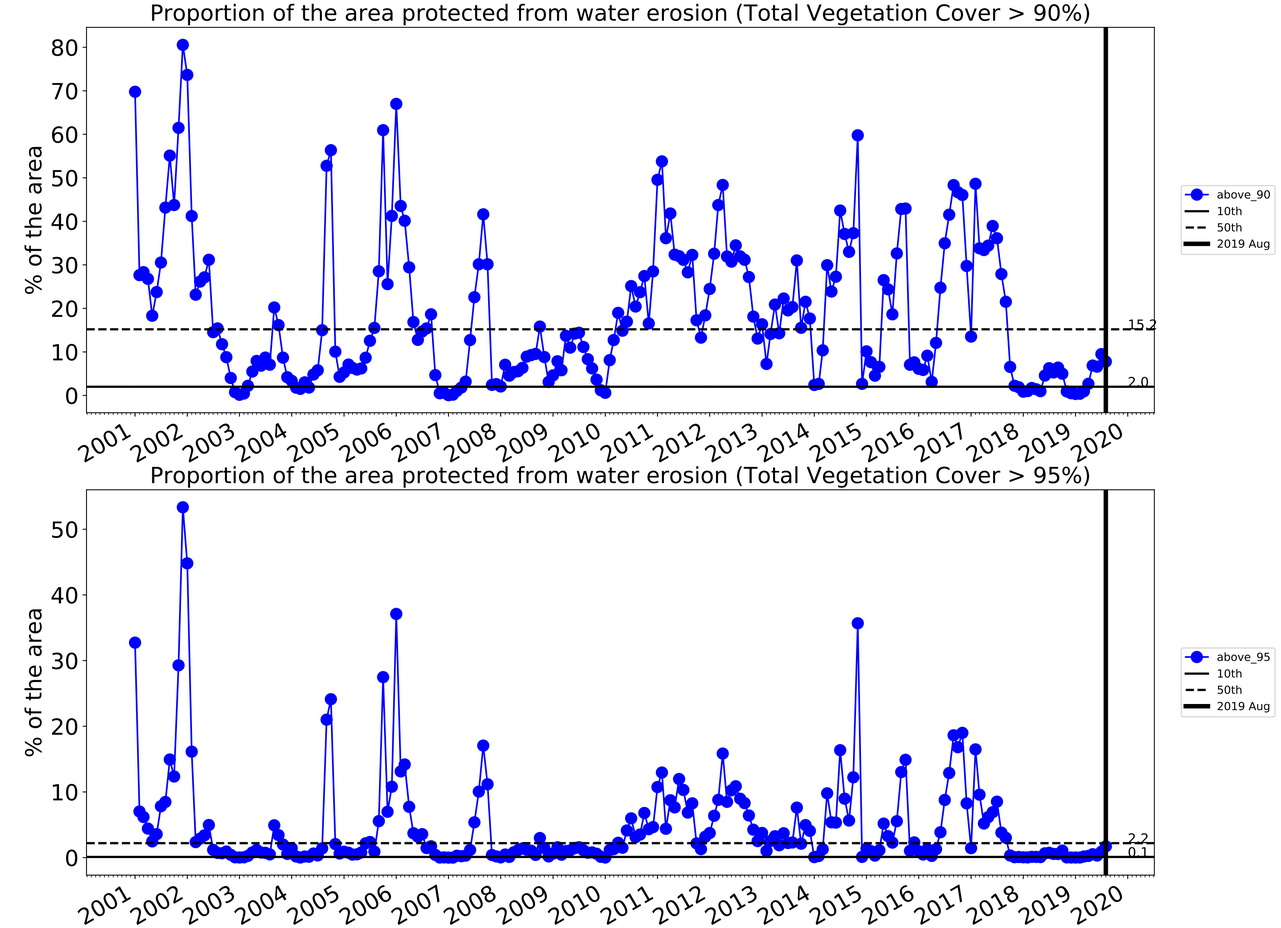
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



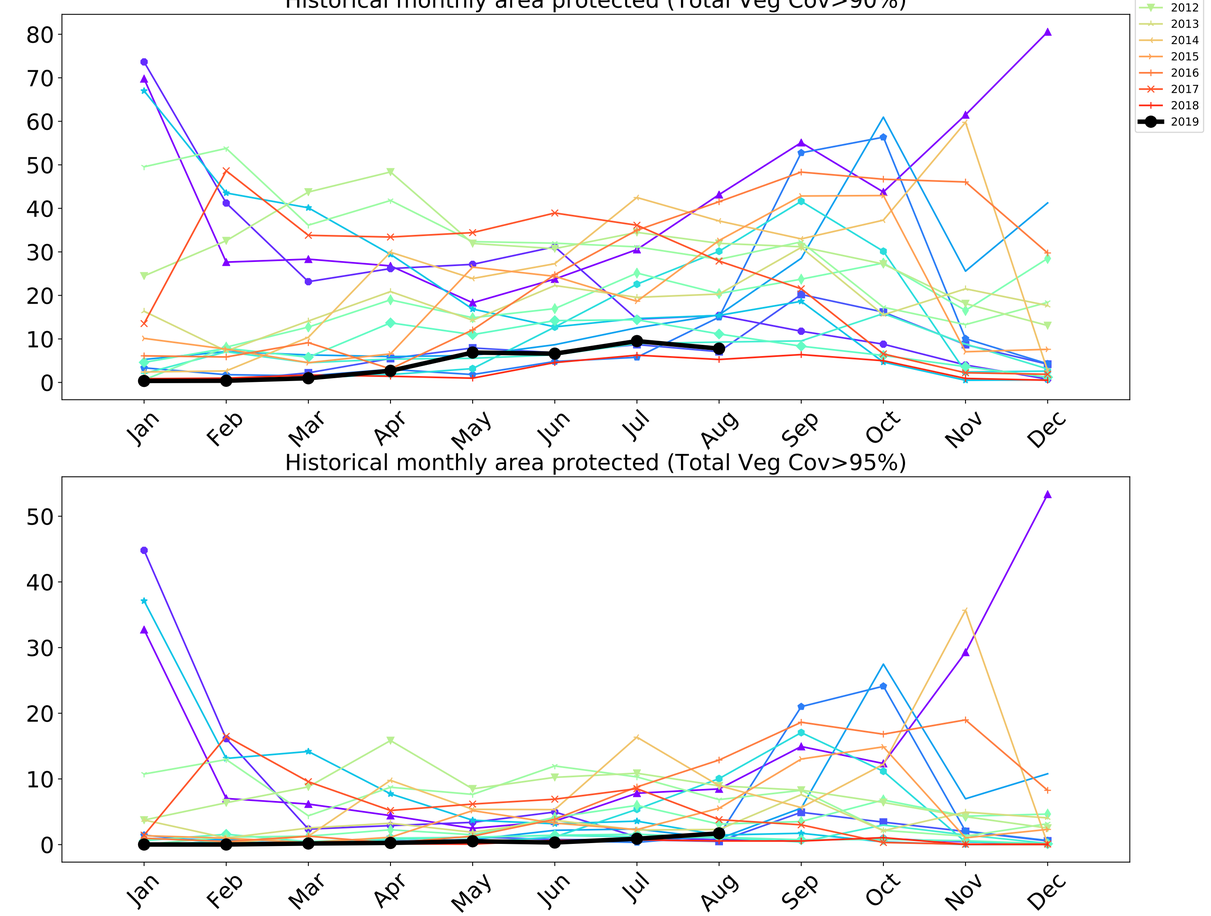

Historical monthly area protected (Total Veg Cov>80%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)




Historical monthly area protected (Total Veg Cov>90%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)

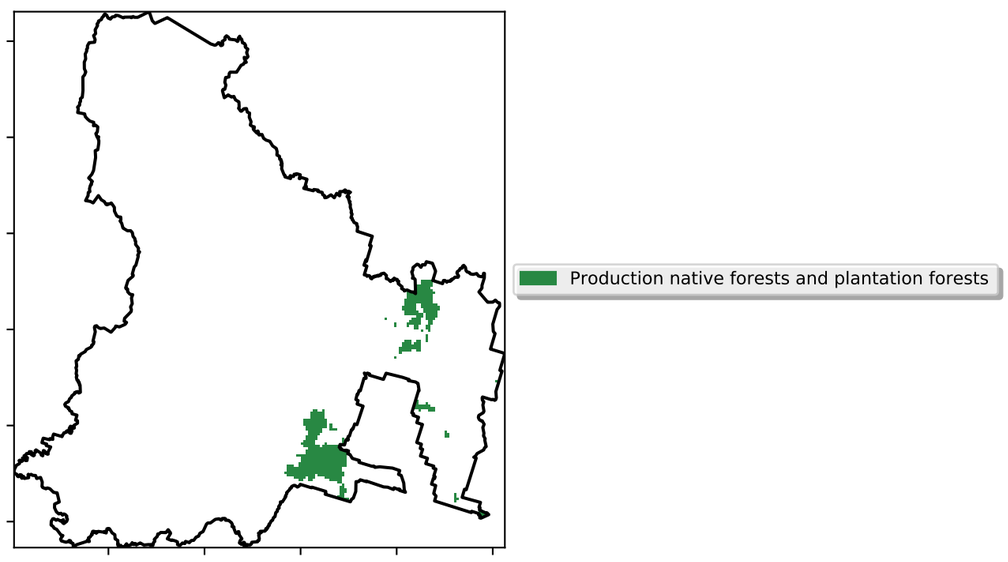



Historical monthly area protected (Total Veg Cov>95%)

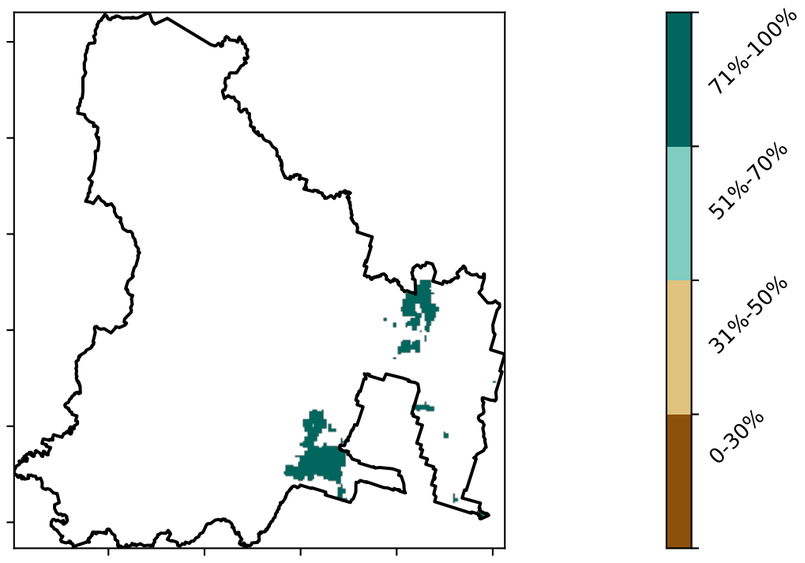
# Production native forests and plantation forests

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.

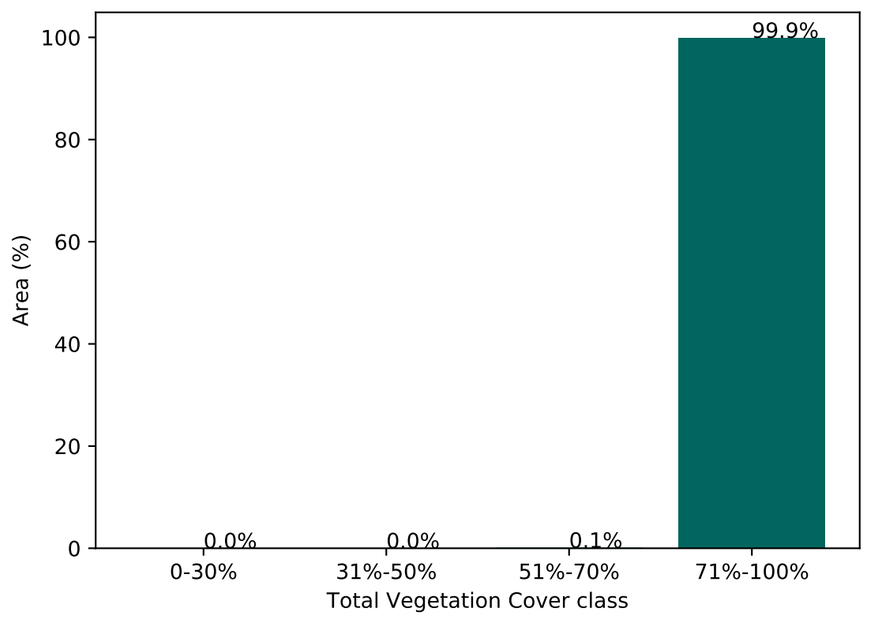
**Land use and forest cover**



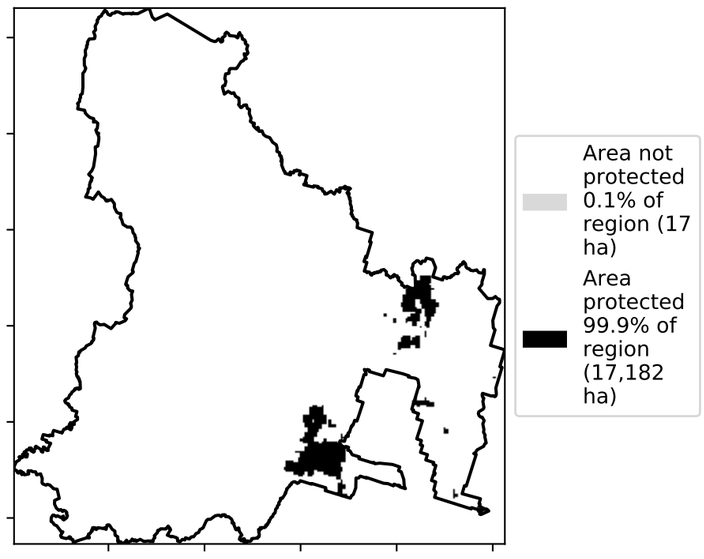

**Total Vegetation Cover [%]**



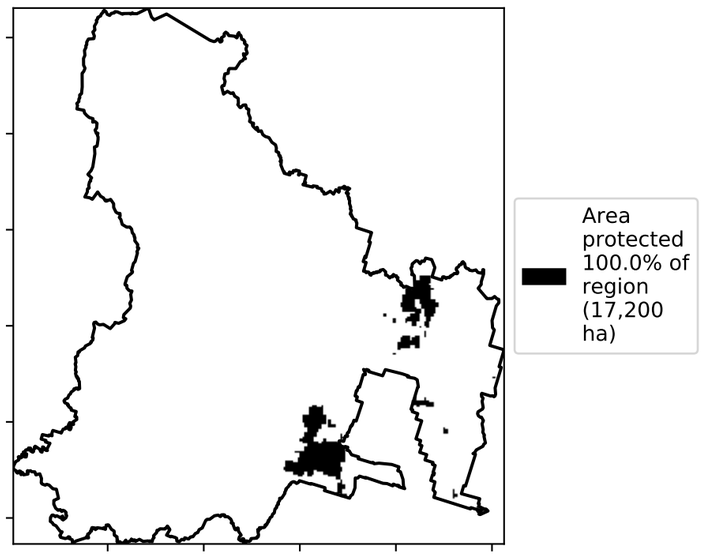

**Proportion of vegetation cover class in area**




**% Area protected from water erosion (>70%)**

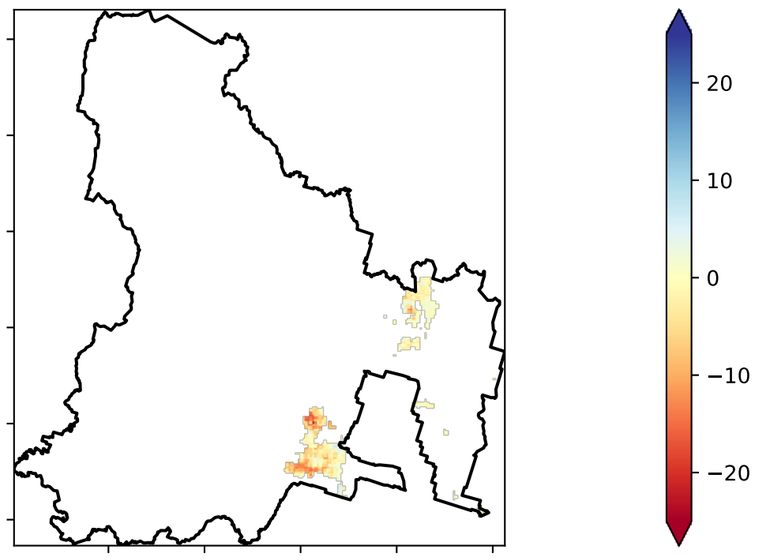



**% Area protected from wind erosion (>50%)**



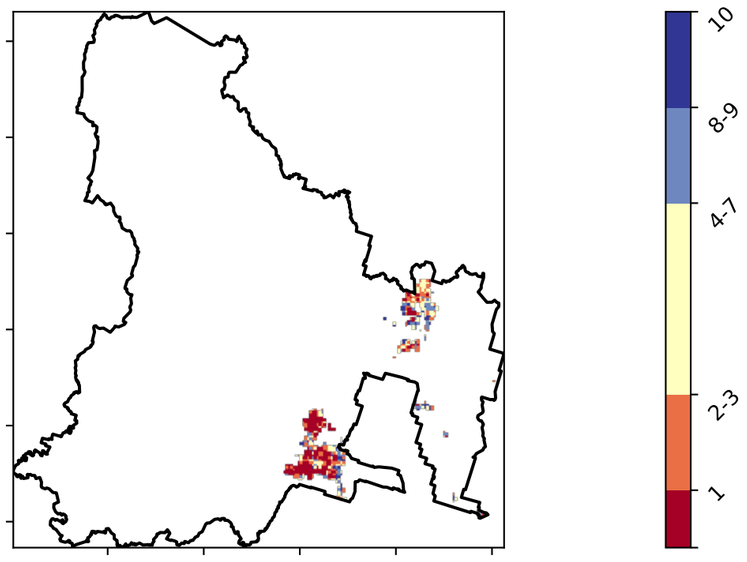

**Total Vegetation Cover Anomaly [%]**

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.



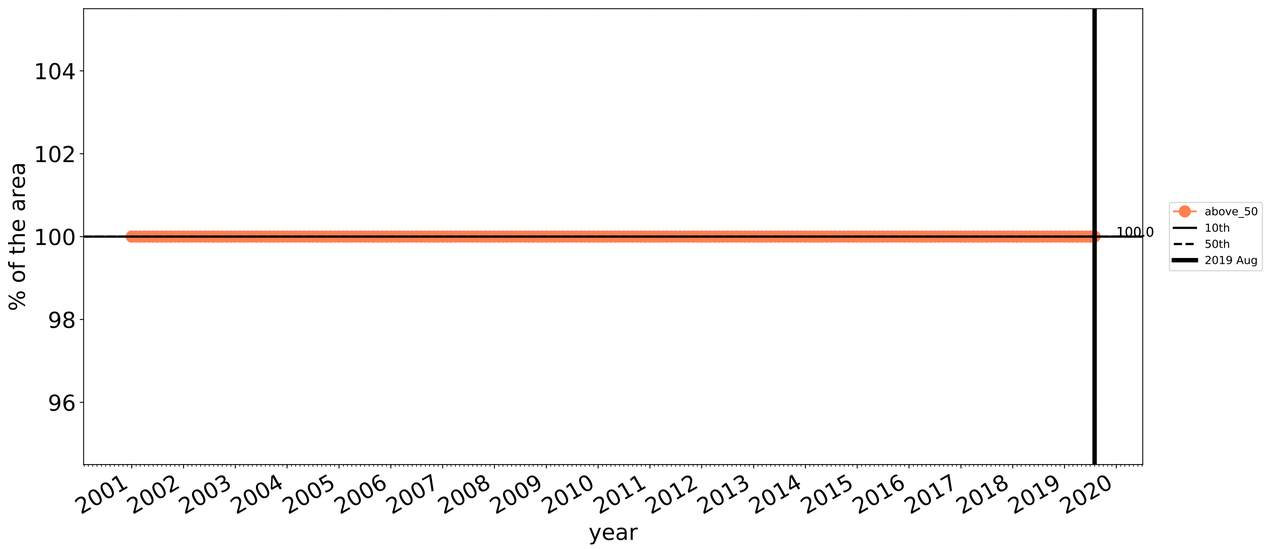

**Total Vegetation Cover Decile [%]**

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

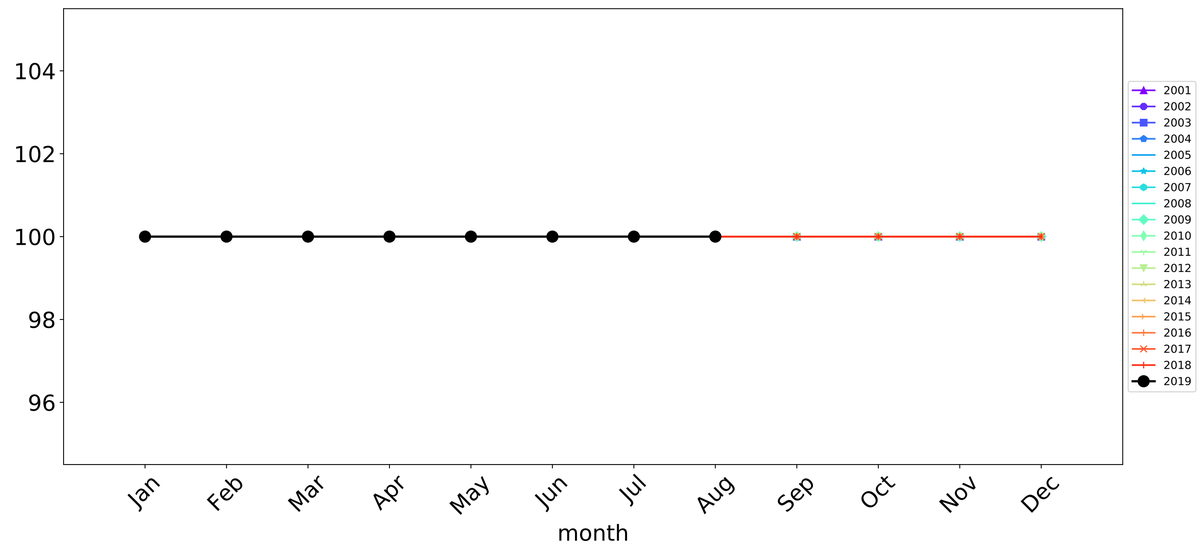


**Production native forests and plantation forests timeseries**

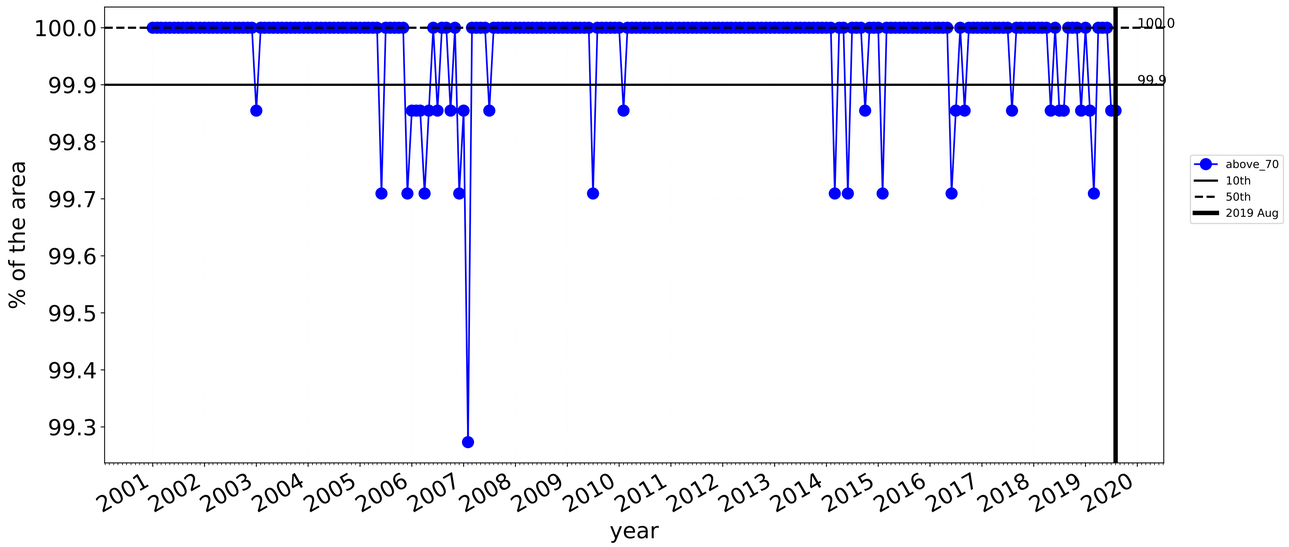
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



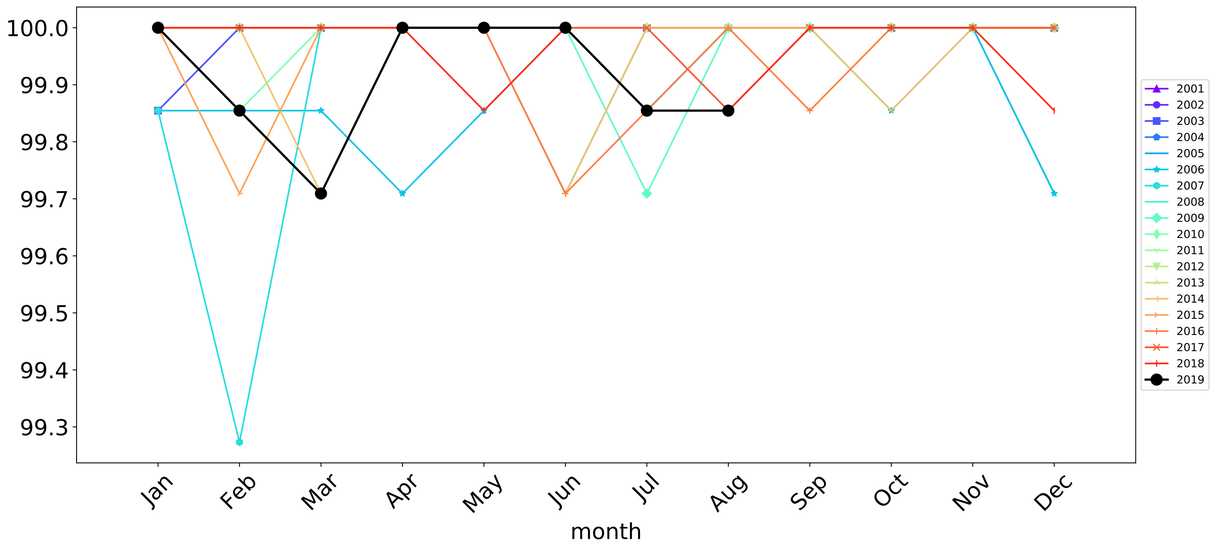

Wind erosion historical monthly area protected (Total Veg Cov >50%)

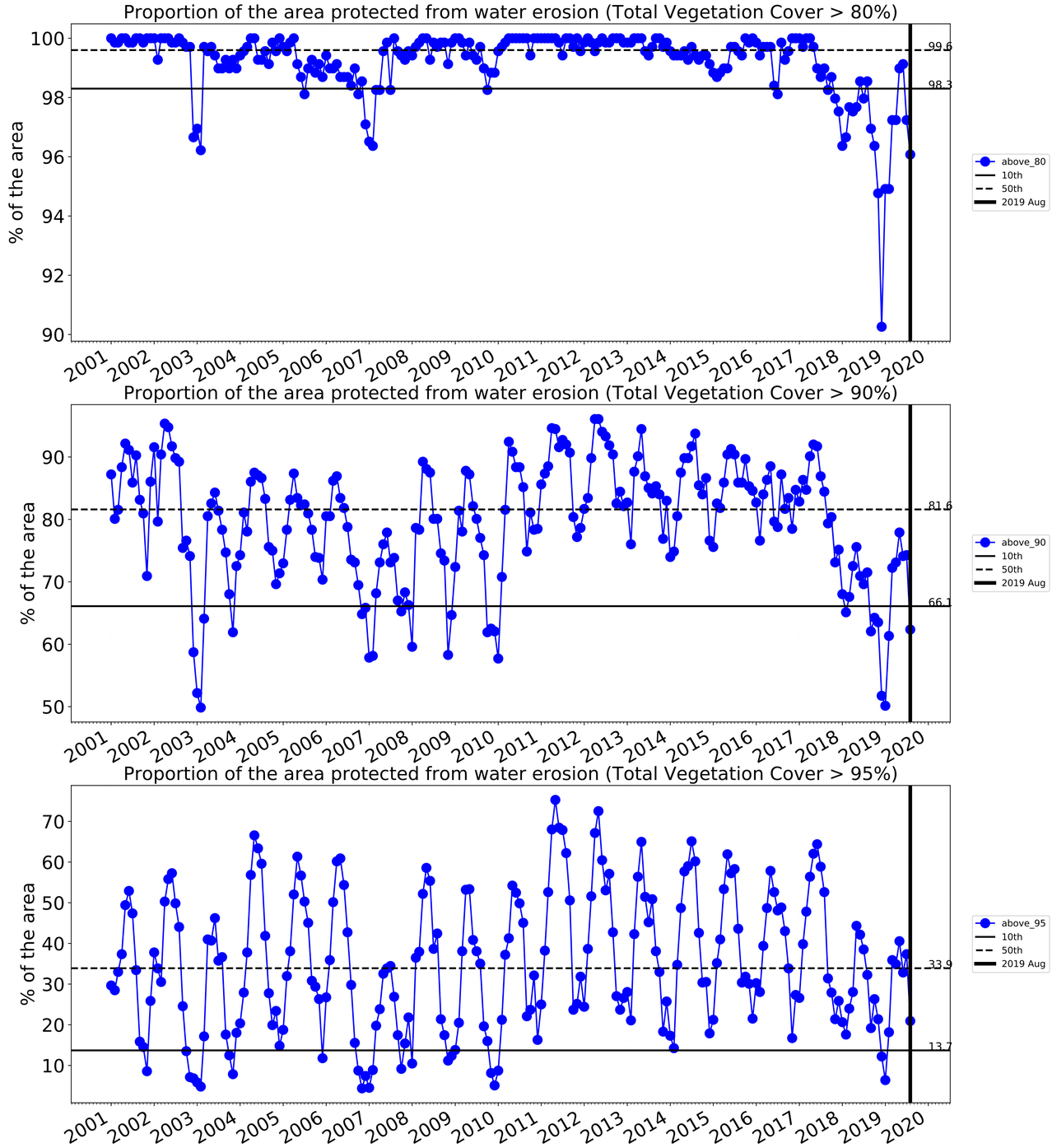


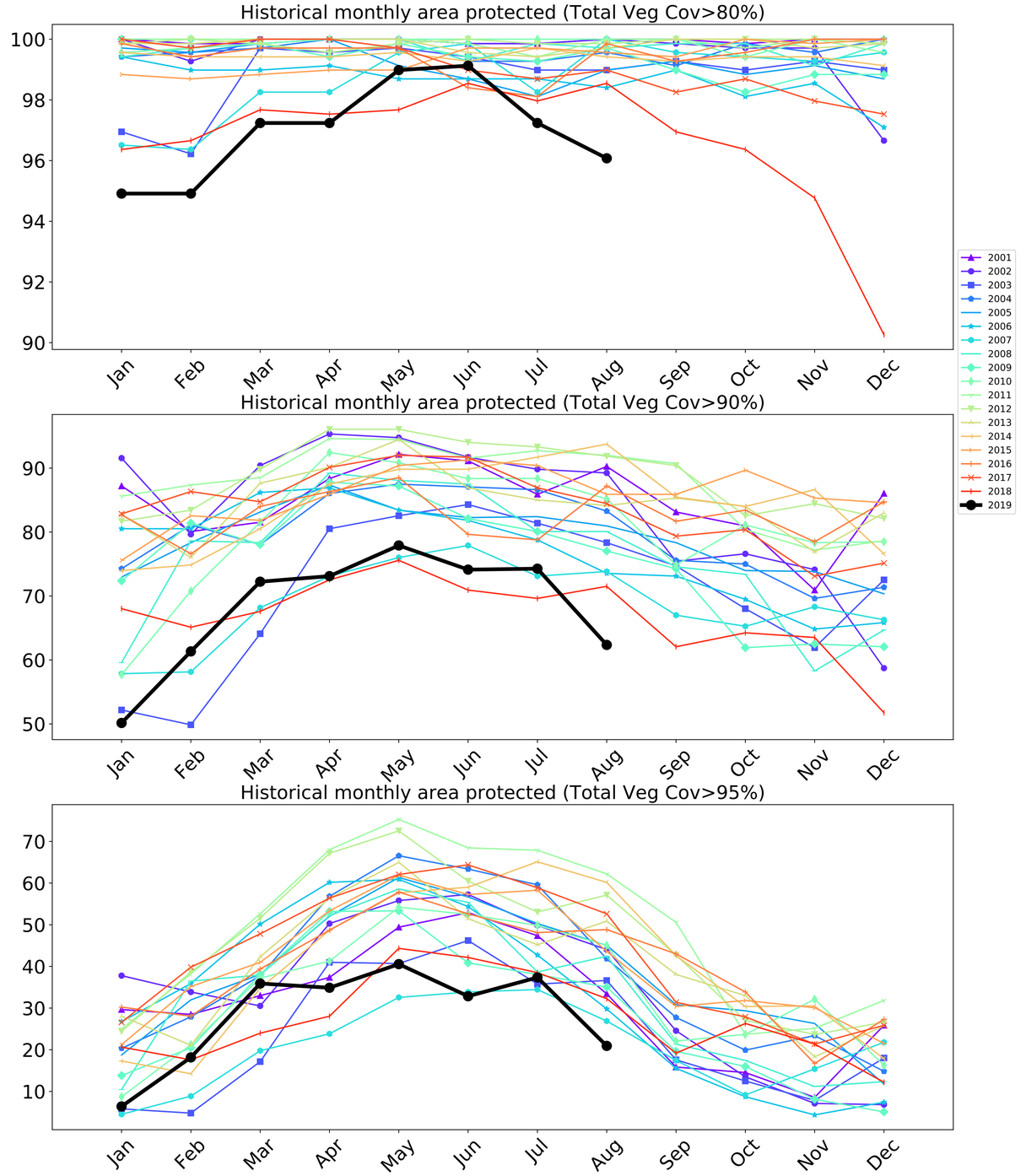

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)




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




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
99.6
98.3
above_80
10th
50th
2019 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
81.6
66.1
above_90
10th
50th
2019 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
33.9
13.7
above_95
10th
50th
2019 Aug


Historical monthly area protected (Total Veg Cov>80%)
Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

# Cabonne_(A) (total 602,650 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** | 602,650 | 100.0%<br>602,650 | 99.9%<br>602,125 | 95.2%<br>573,500 | 73.5%<br>442,900 | 17.4%<br>105,000 | 2.2%<br>13,275 |
| **Conservation and natural environments** | 48,212 | 100.0%<br>48,212 | 100.0%<br>48,212 | 99.9%<br>48,162 | 98.9%<br>47,689 | 52.8%<br>25,436 | 3.6%<br>1,715 |
| **Conservation and natural environments Woodland forest** | 43,993 | 100.0%<br>43,993 | 100.0%<br>43,993 | 99.9%<br>43,943 | 98.8%<br>43,468 | 52.0%<br>22,884 | 3.6%<br>1,575 |
| **Agriculture** | 532,742 | 100.0%<br>532,742 | 99.9%<br>532,241 | 94.6%<br>504,025 | 70.5%<br>375,626 | 12.8%<br>68,359 | 1.5%<br>7,968 |
| **Grazing** | 361,590 | 100.0%<br>361,590 | 100.0%<br>361,590 | 97.1%<br>351,171 | 77.5%<br>280,067 | 15.3%<br>55,214 | 1.4%<br>5,096 |
| **Grazing non forest** | 294,093 | 100.0%<br>294,093 | 100.0%<br>294,093 | 96.5%<br>283,849 | 73.9%<br>217,265 | 11.1%<br>32,554 | 0.5%<br>1,574 |
| **Grazing Woodland forest** | 65,688 | 100.0%<br>65,688 | 100.0%<br>65,688 | 99.7%<br>65,514 | 93.3%<br>61,256 | 33.5%<br>22,012 | 5.1%<br>3,336 |
| **Cropping** | 165,126 | 100.0%<br>165,126 | 99.7%<br>164,676 | 89.2%<br>147,334 | 55.3%<br>91,234 | 7.8%<br>12,844 | 1.7%<br>2,823 |
| **Production native forests and plantation forests** | 17,476 | 100.0%<br>17,476 | 100.0%<br>17,476 | 99.9%<br>17,451 | 96.1%<br>16,790 | 62.4%<br>10,897 | 20.9%<br>3,657 |