Total vegetation cover soil protection
Region:LGA Wodonga_(C) VIC Date: May 2023

This report describes vegetation protecting the soil surface from erosion during a chosen month compared to previous years. This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool https://map.geo-rapp.org/#australia. The report is based on 500 metre pixel data on monthly time steps.
Land use forest cover:

Results can be shown for the whole region (polygon), and separated by land use and forest cover classes which are likely to show different cover patterns and targets. Land use is divided into four broad classes: Conservation and natural environments, Agriculture, production native forests and plantation forests (no report), and other (no report). Agriculture is divided into grazing, crops and horticulture which are sub-divided into non-irrigated and irrigated. If forest is present land use is further divided into: non-forest, woodland forest and non-woodland forest. The area of each land use and forest class are shown as a map and chart. The report content is repeated for each land use and forest cover class that covers at least 1% of the area of the chosen region.
Total vegetation Cover:
The total vegetation cover indicates where soil is likely to be protected from wind and or water hillslope erosion. Total vegetation cover for this month is shown on a map and chart classified into 4 classes.

- 71-100% High cover - protected from wind and usually water erosion (high rainfall, steep slopes, and erodible soils may need greater than 80, 90, 95 and up to 100% cover)
- 51-70% Moderate cover - protected from wind erosion
- 31-50% Low cover - not protected
- 0-30% Very Low cover - not protected

Erosion protection: Wind erosion 50% total vegetation cover

The vegetation cover threshold required to prevent soil erosion is usually 50% to reduce wind erosion, 70% or 80% to reduce water (hillslope) erosion depending on the steepness and rainfall. Areas protected from erosion for the month:

- Map: water erosion protection (>70% cover) percentage area and hectares.
- Map: wind erosion protection (>50% cover) percentage area and hectares.

Comparison with previous years:

- Map: anomaly comparing this month to the average cover from the same month in previous years.
- Map: deciles rank of month against the same month in previous years.

Anomalies and deciles until September 2019 are calculated comparing to the same months 2001 to 2019. Extra monthly data will be used to calculate anomalies and deciles post September 2019 as they become available.
Time series monthly from January 2001 to current:
Erosion protection

- Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month (orange lines). Horizontal lines are 10th (cover target) and 50th percentiles.
- Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month (blue line). Horizontal lines are 10th (cover target) and 50th percentiles.

Rainfall

- Millimetres rainfall each month (black line).

Each time series is also stacked by year. The black line shows the current year of data.
Water erosion protection for higher rainfall and steeper slopes:

Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion. The thresholds reported are:

- the percentage area with pixels greater than 80% total cover.
- the percentage area with pixels greater than 90% total cover.
- the percentage area with pixels greater than 95% total cover.

Acknowledgment of data:

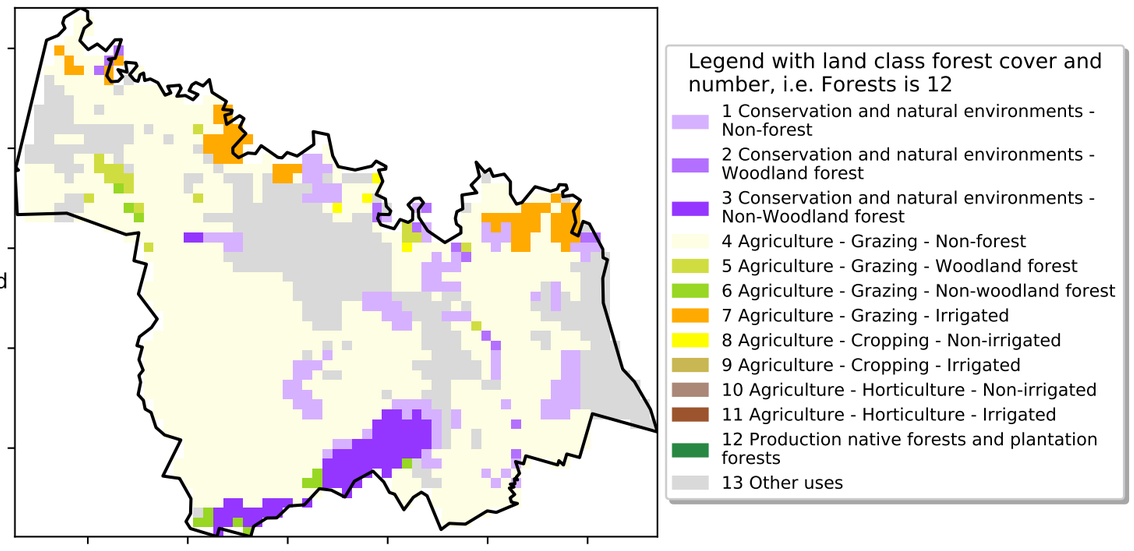
1. http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification
2. http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018
3. https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover
4. MODIS Fractional cover algorithm:

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

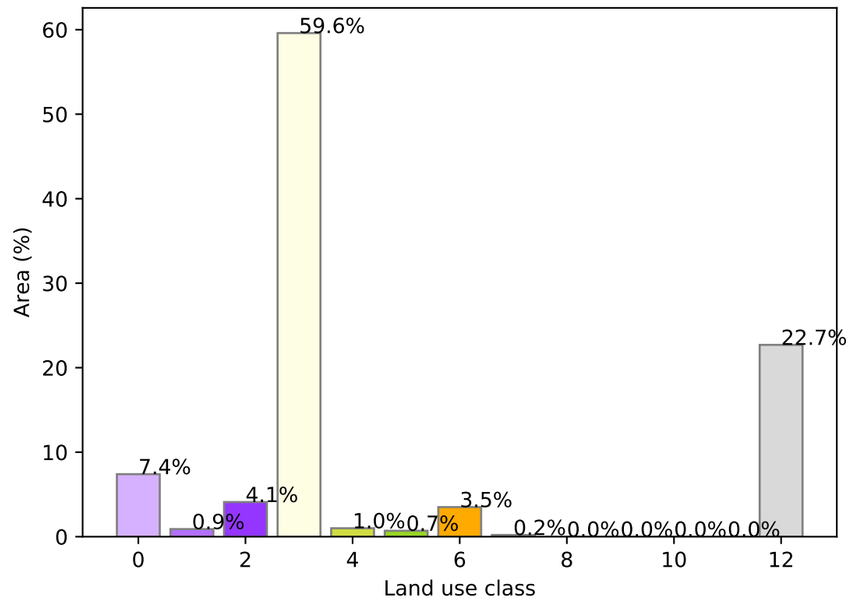
Vegetation Cover May 2023

Land use and forest cover

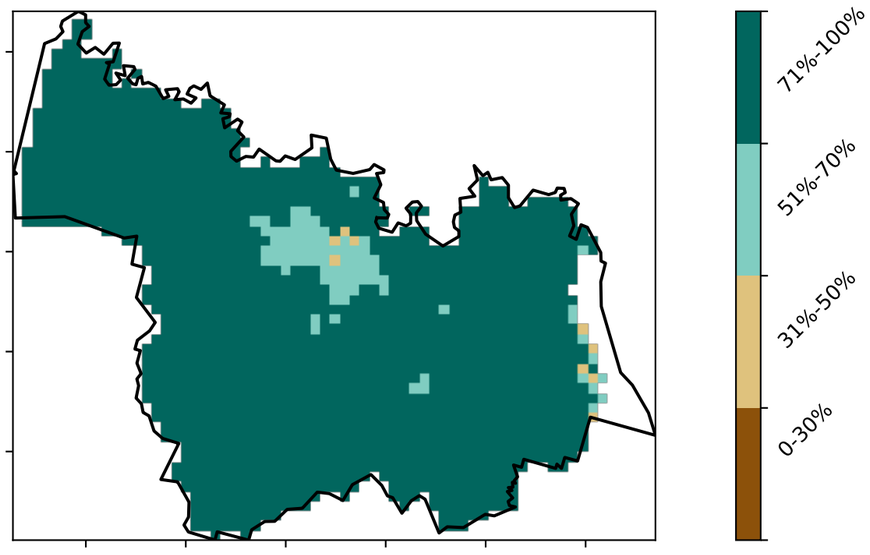
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



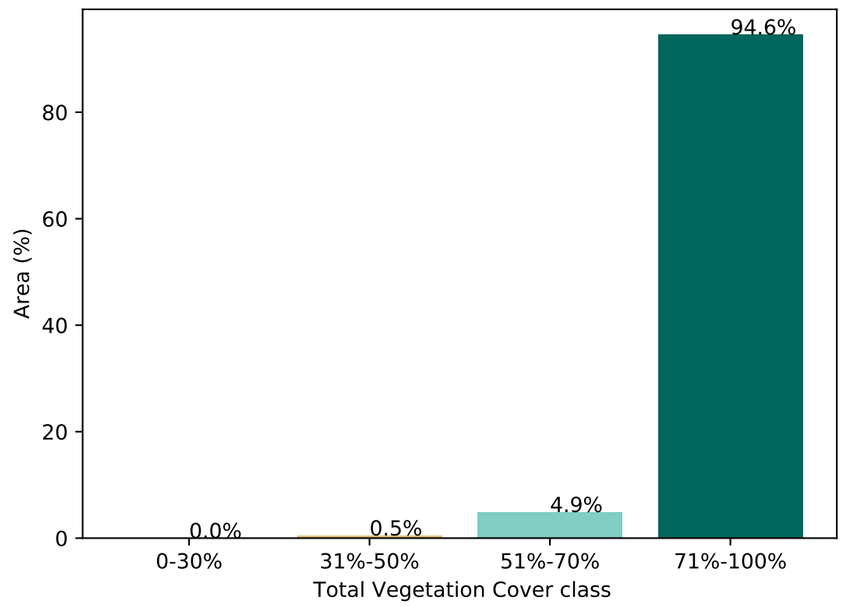
Proportion of each land class in area



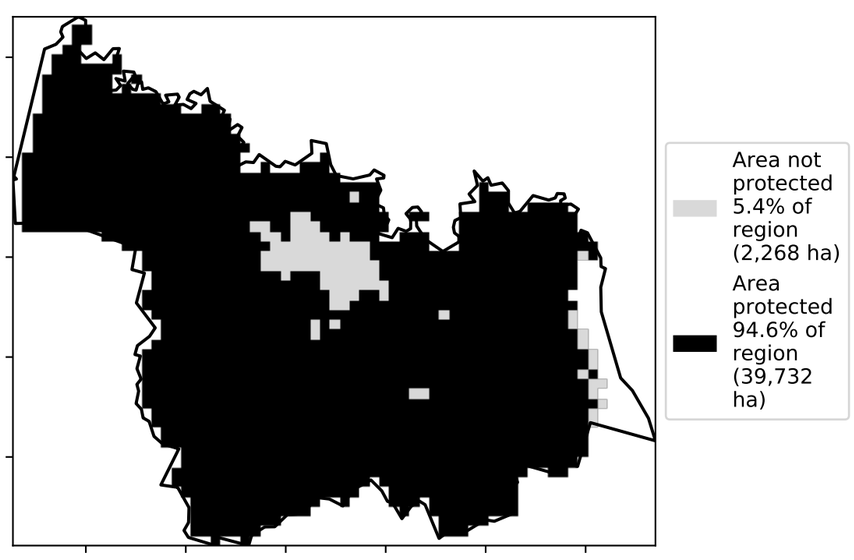
Total Vegetation Cover [%]



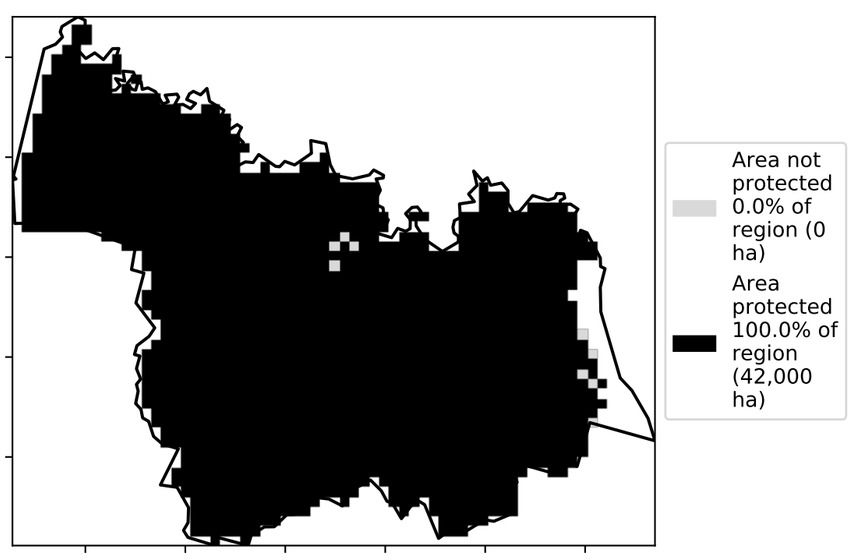
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

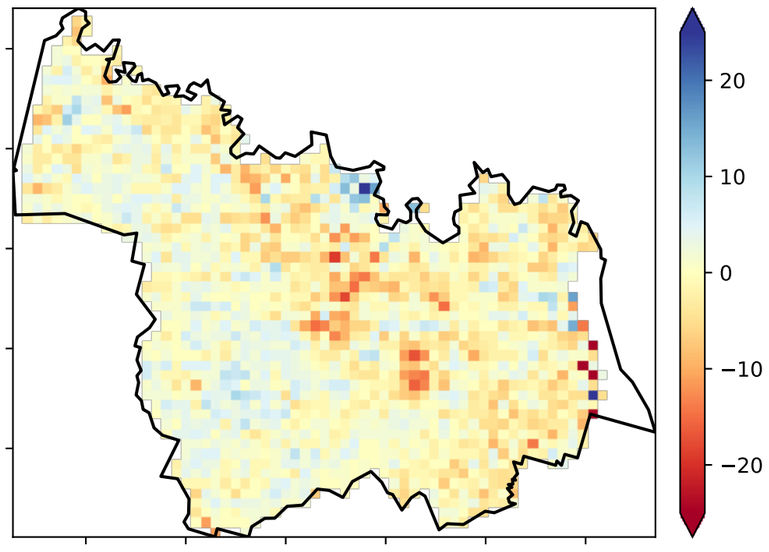


% Area protected from wind erosion (>50%)



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 [%]

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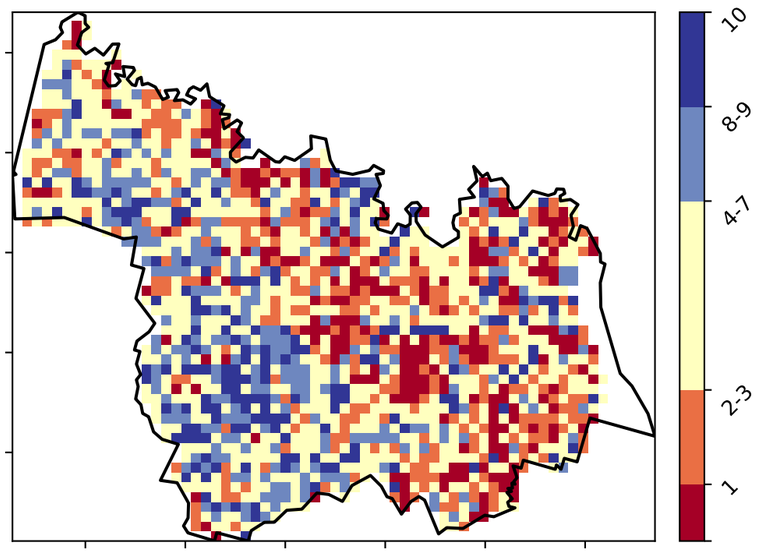
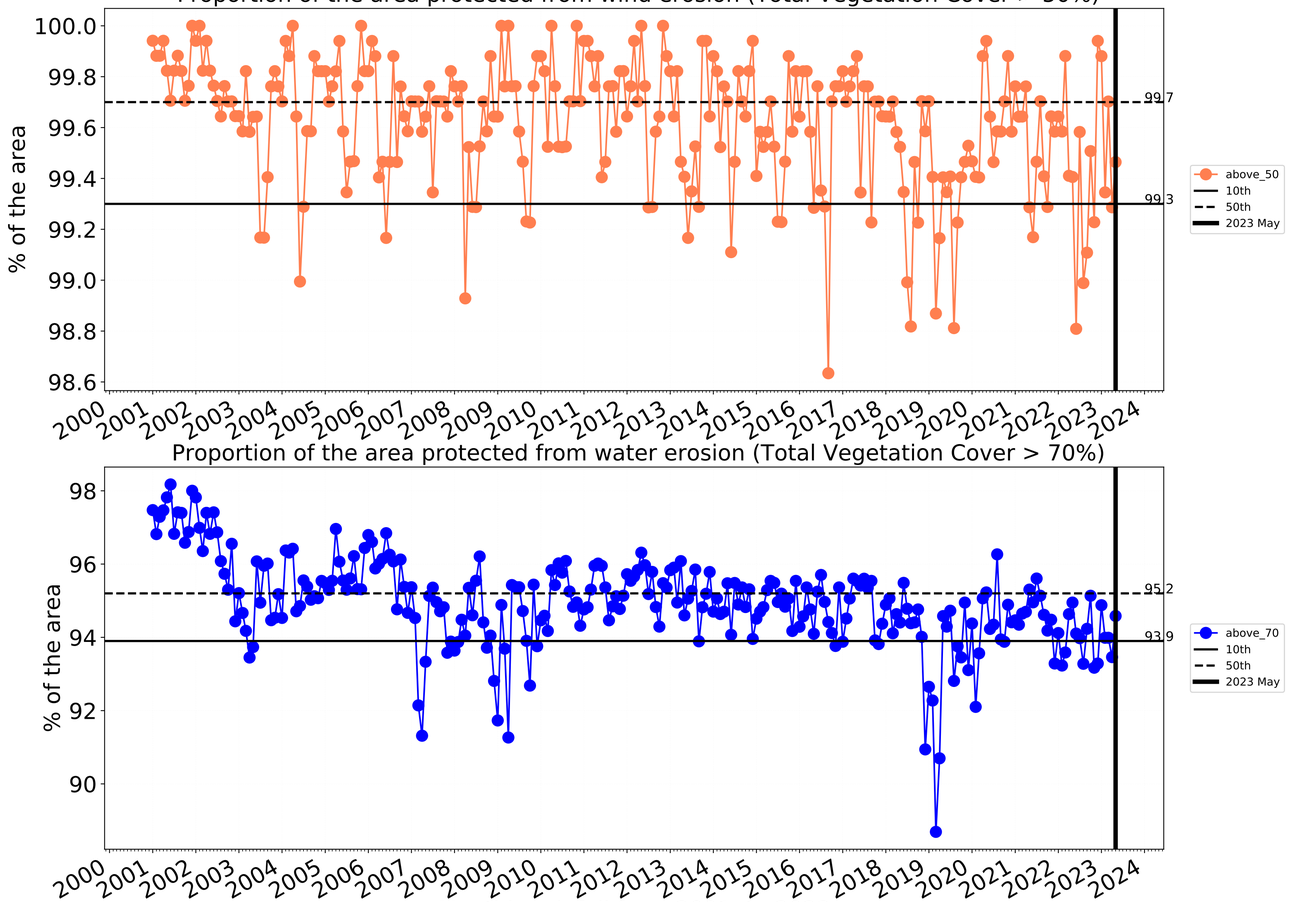
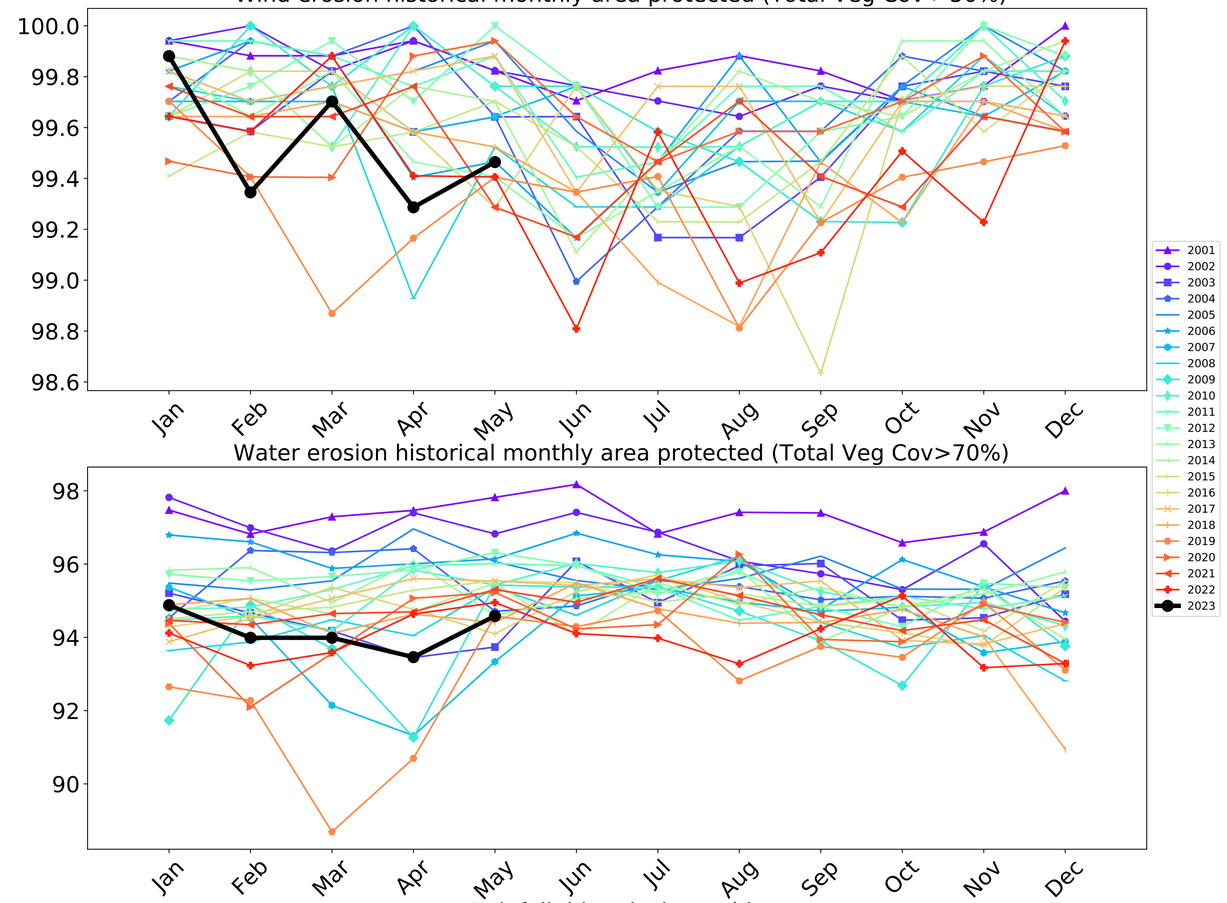


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



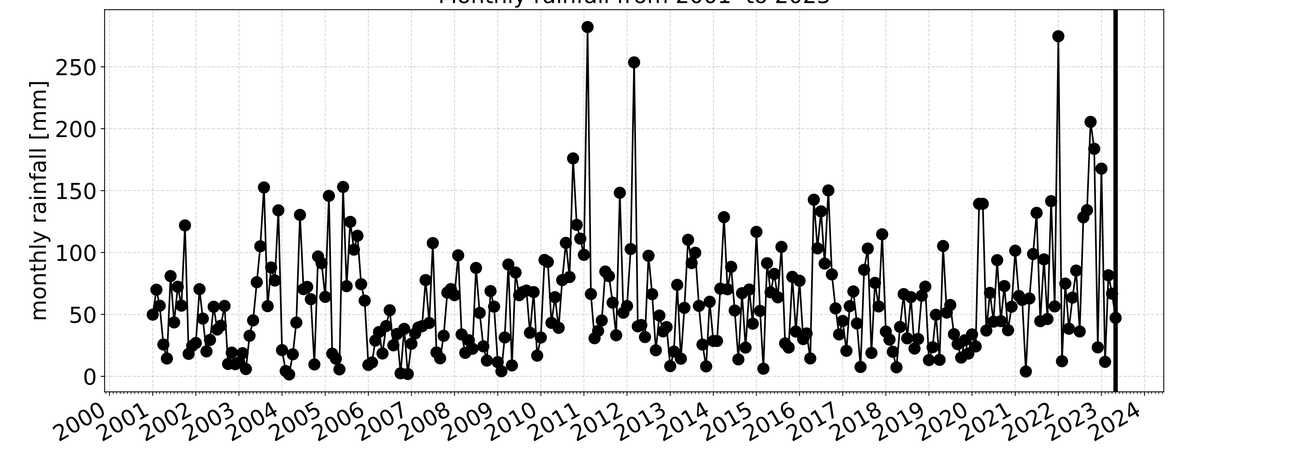
Wind erosion historical monthly area protected (Total Veg Cov >50%)



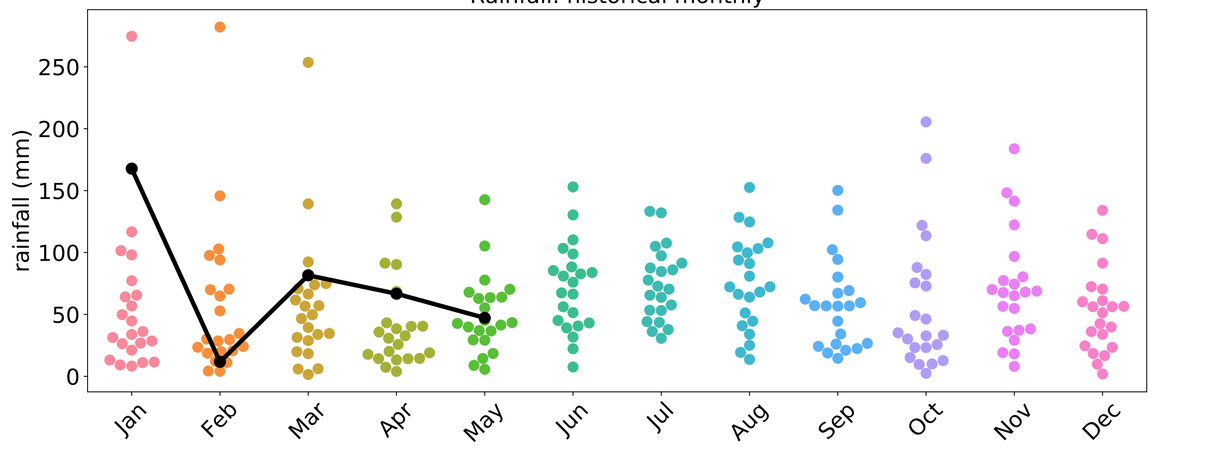
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

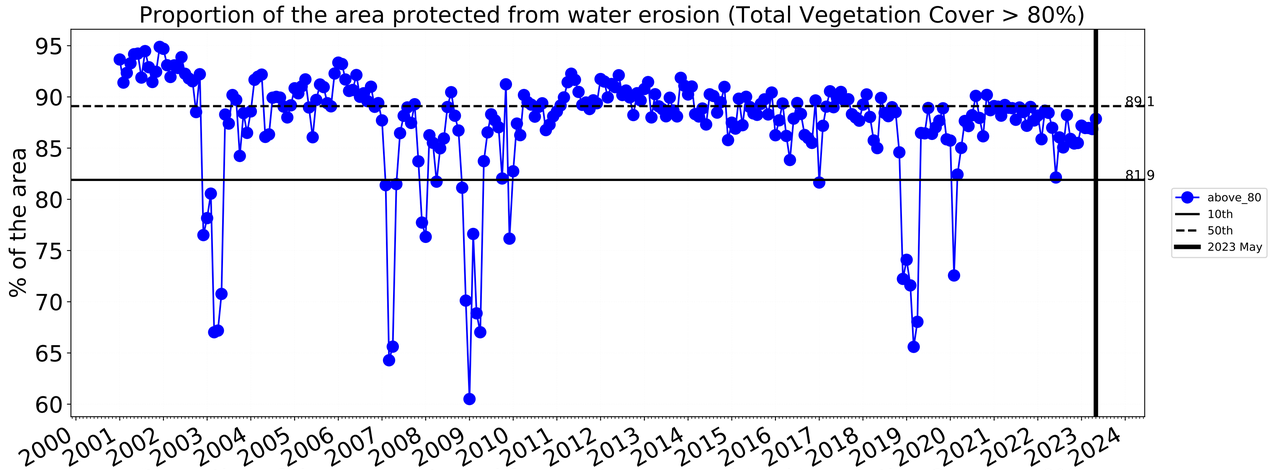
Water erosion historical monthly area protected (Total Veg Cov>70%)

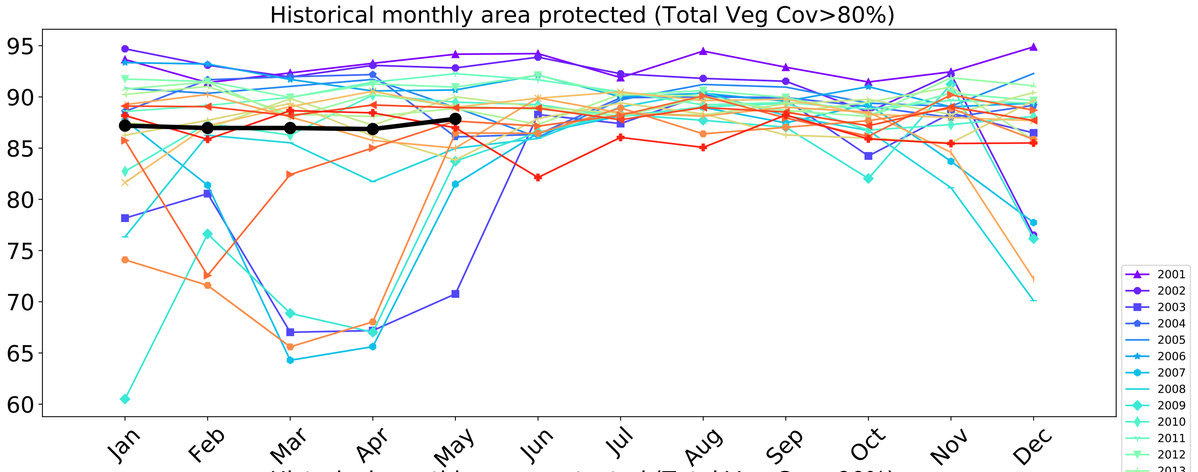
Monthly rainfall from 2001 to 2023



Rainfall: historical monthly




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
89.1
81.9
above_80
10th
50th
2023 May


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
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2016
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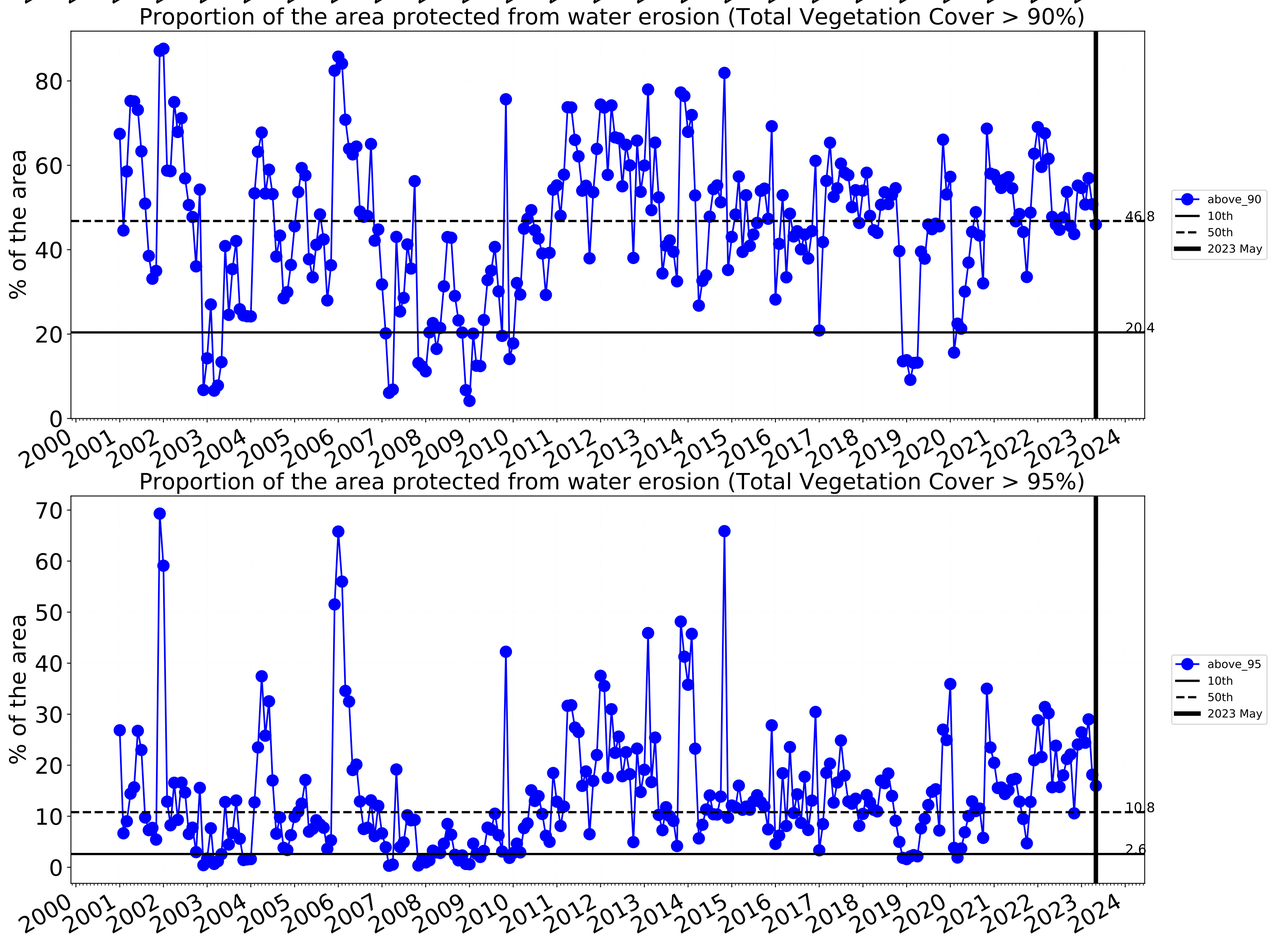
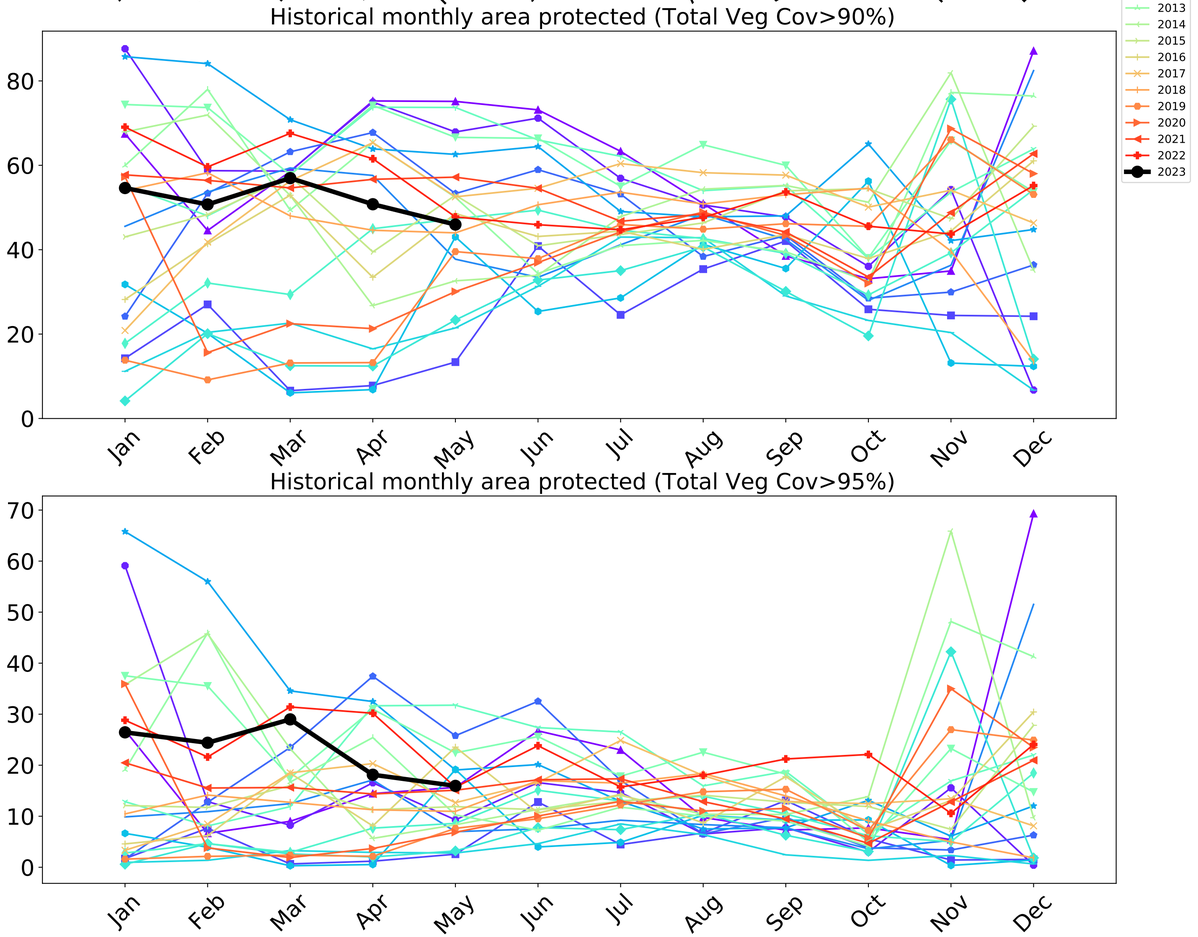
2018
2019
2020
2021
2022
2023


Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
46.8
20.4
above_90
10th
50th
2023 May
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
10.8
2.6
above_95
10th
50th
2023 May


Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
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Jul
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Sep
Oct
Nov
Dec
2001
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2003
2004
2005
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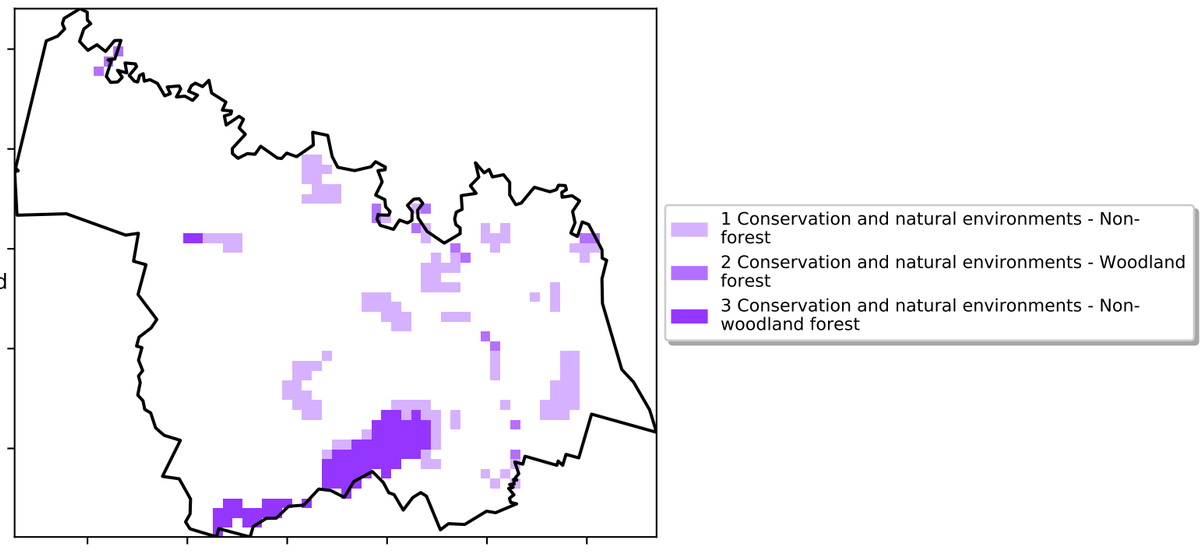
2020
2021
2022
2023

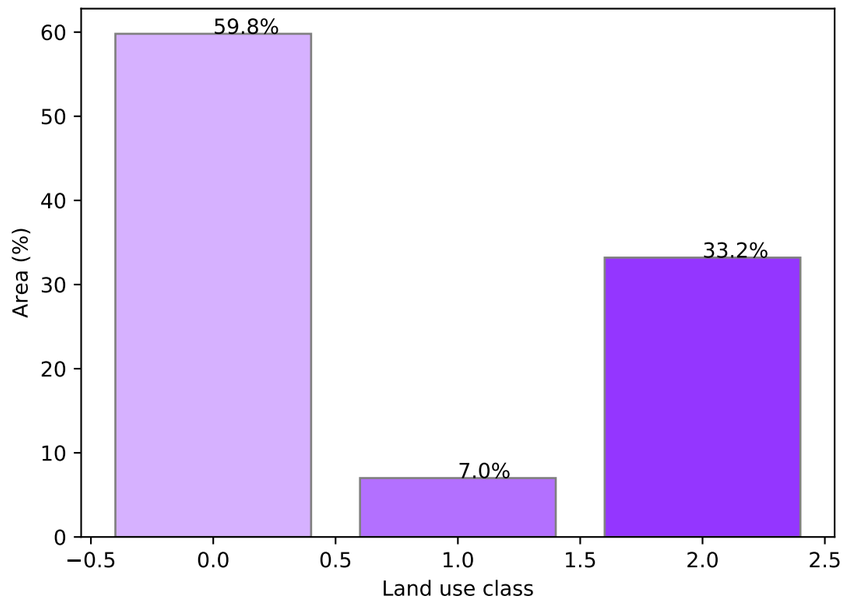
Conservation and natural environments

Land use and forest cover

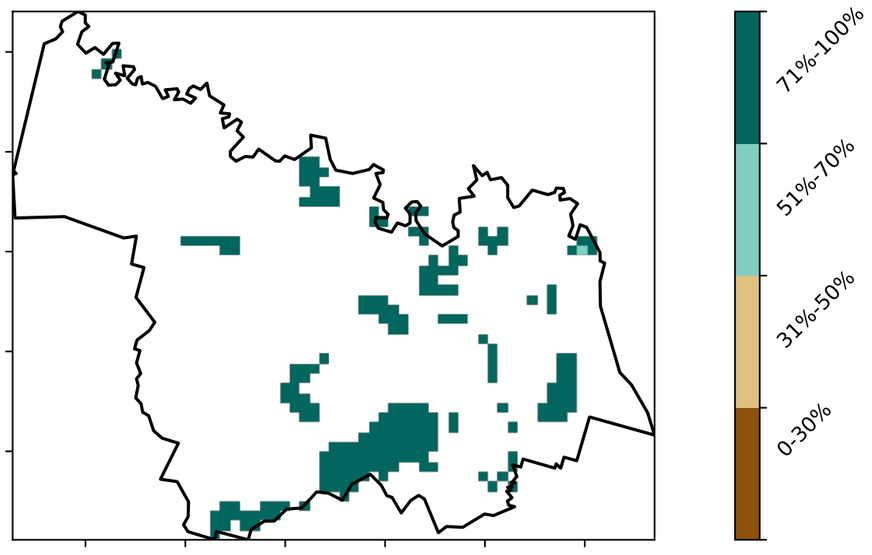


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

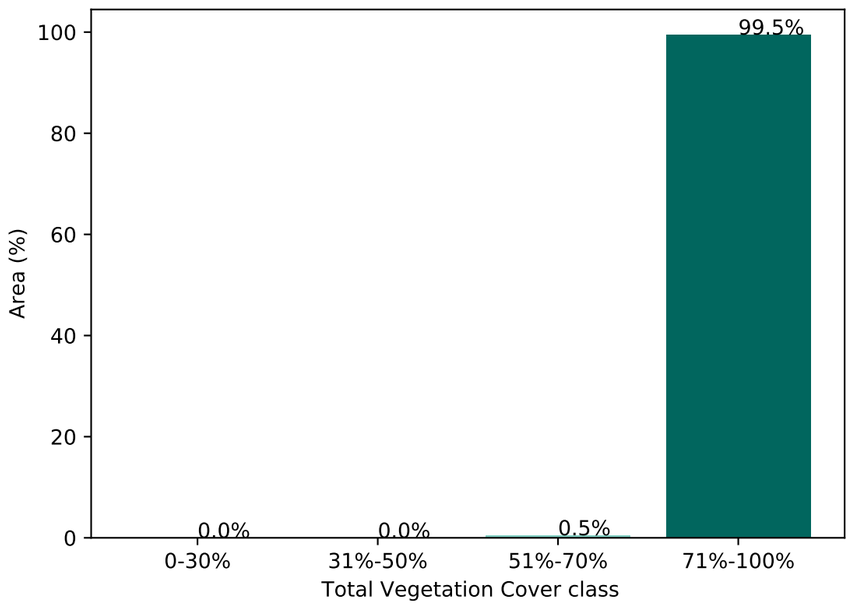
Proportion of each land class in area



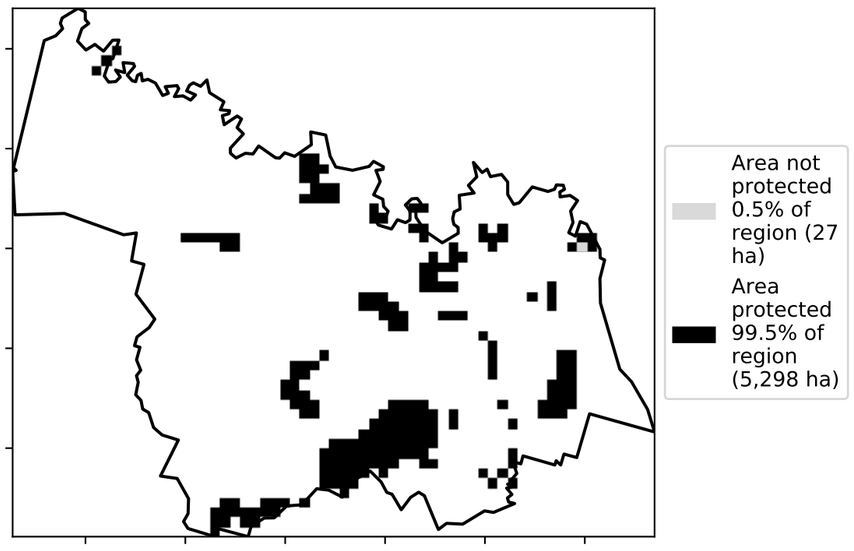
Total Vegetation Cover [%]



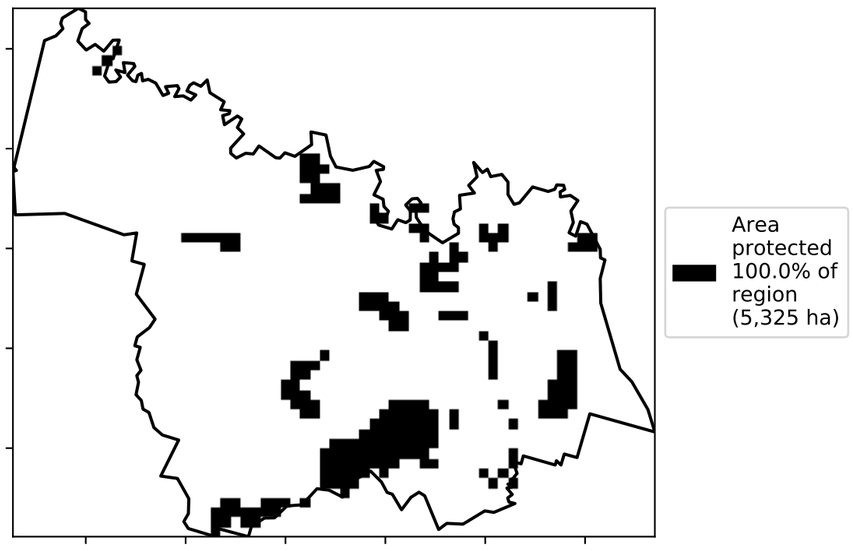
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



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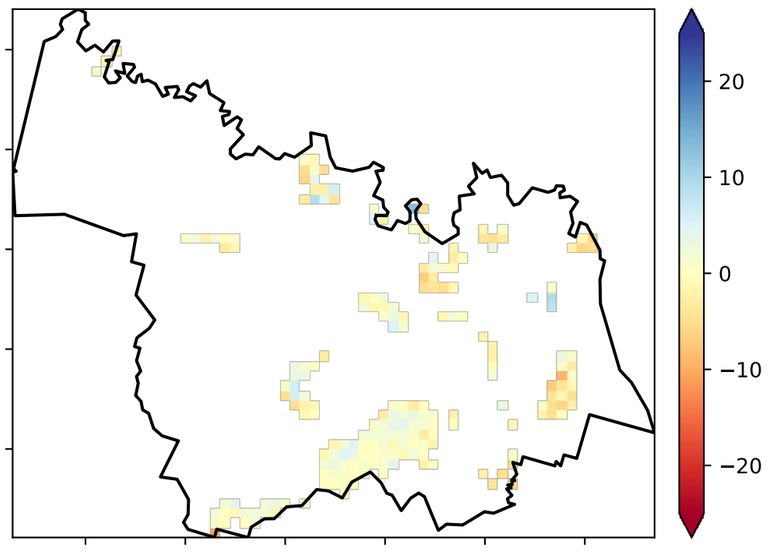

Total Vegetation Cover Decile [%]

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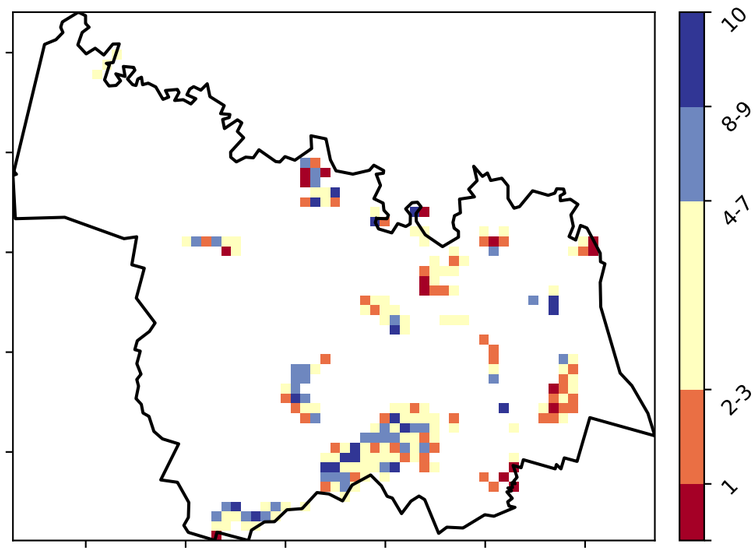
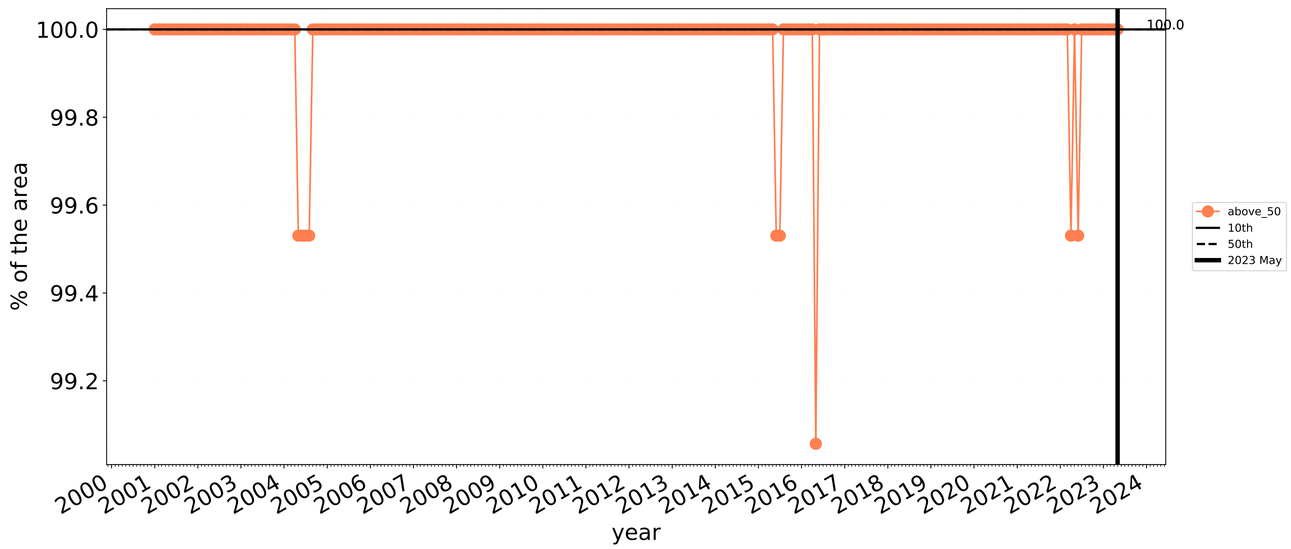
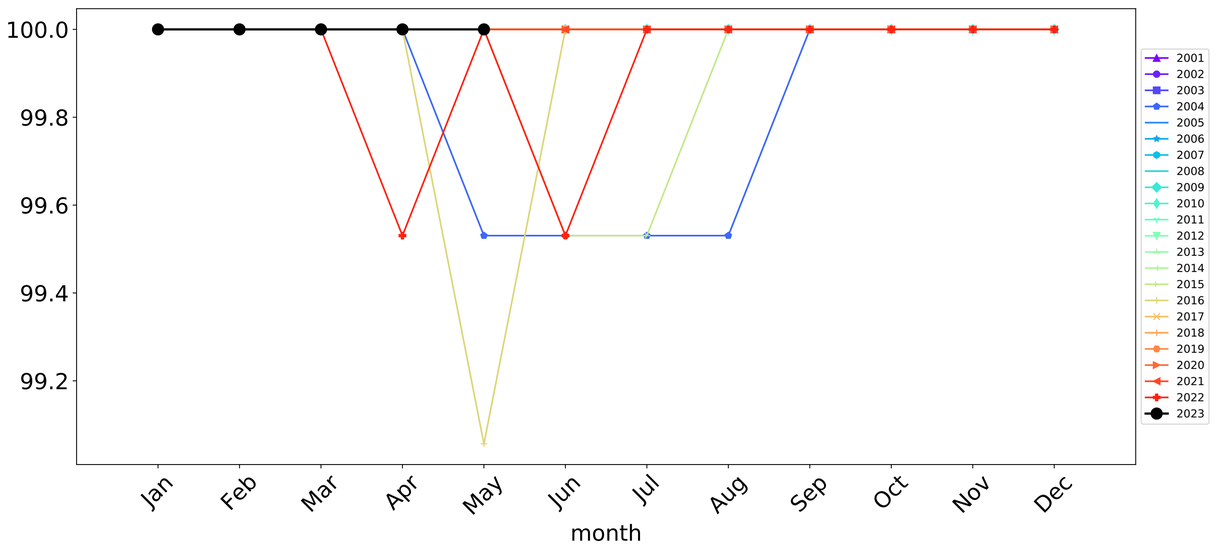


Conservation and natural environments timeseries

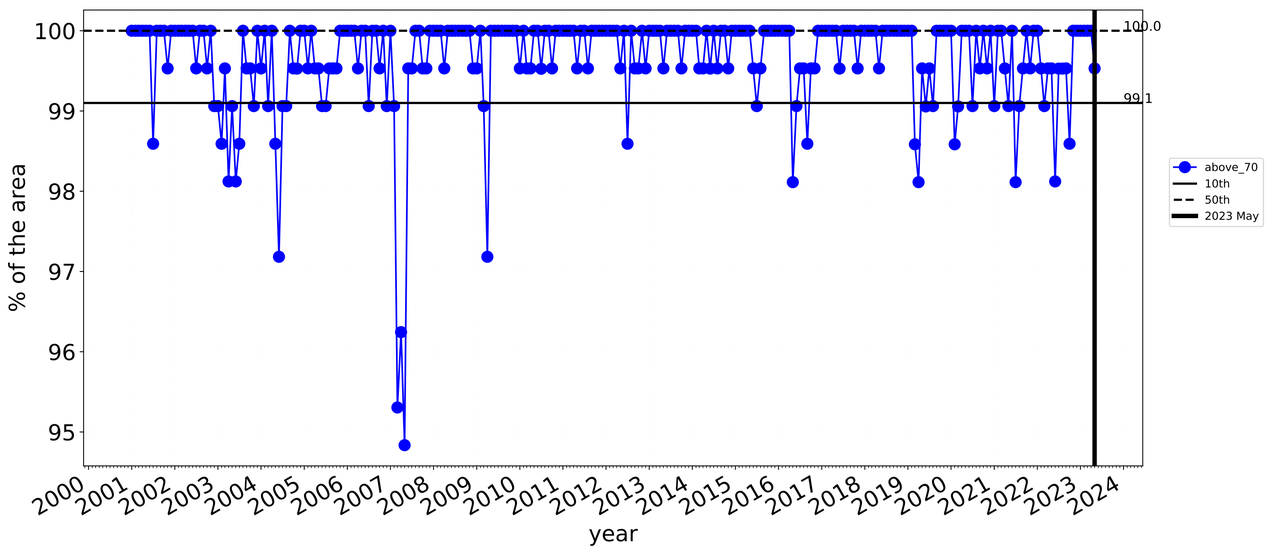
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



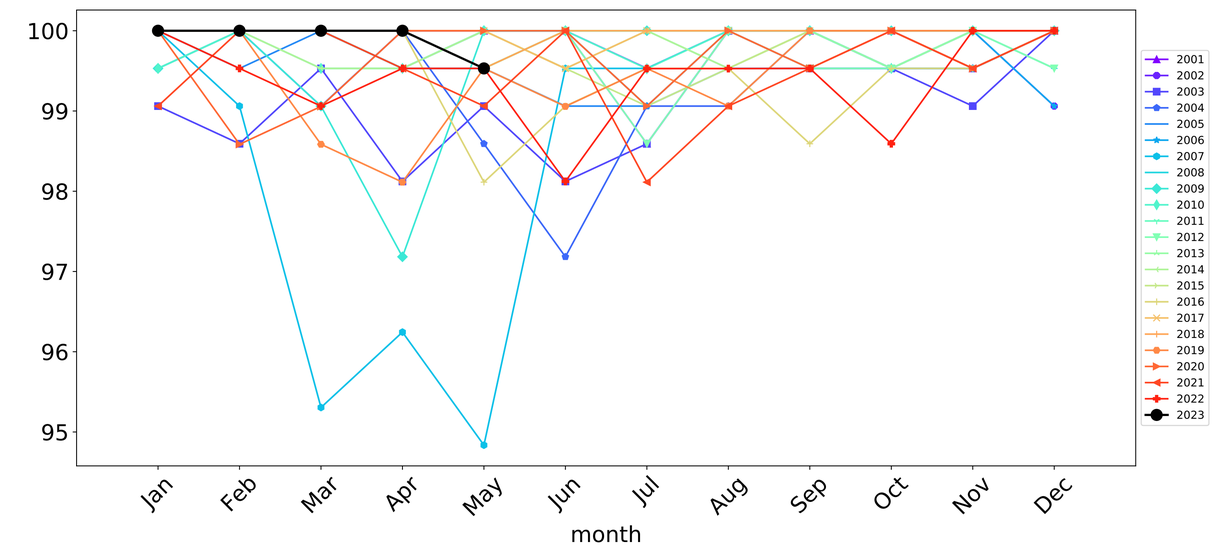
Wind erosion historical monthly area protected (Total Veg Cov >50%)



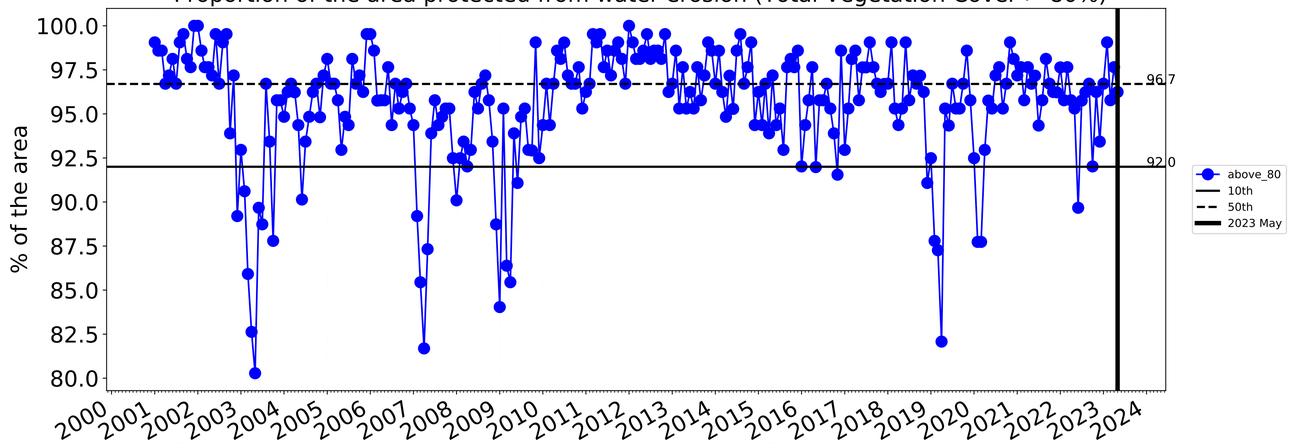
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



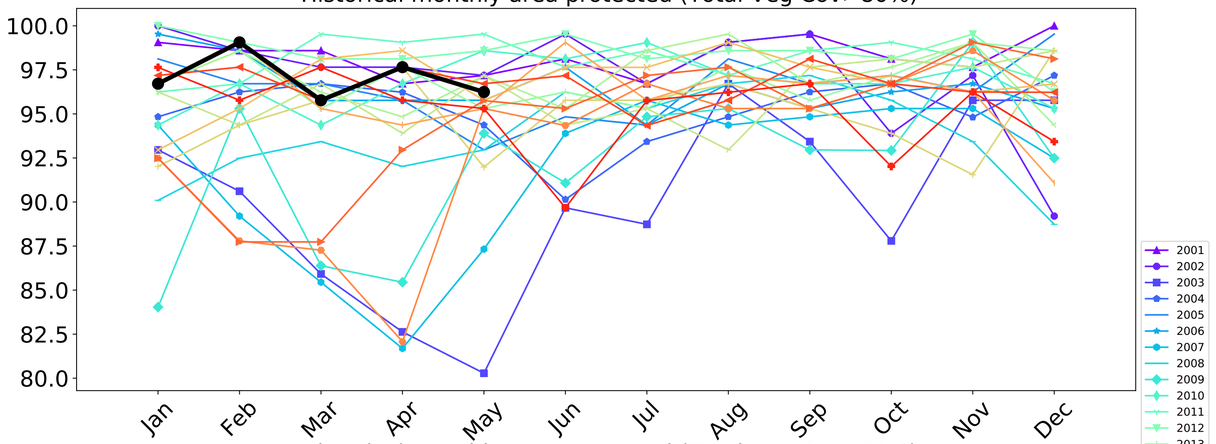
Water erosion historical monthly area protected (Total Veg Cov>70%)



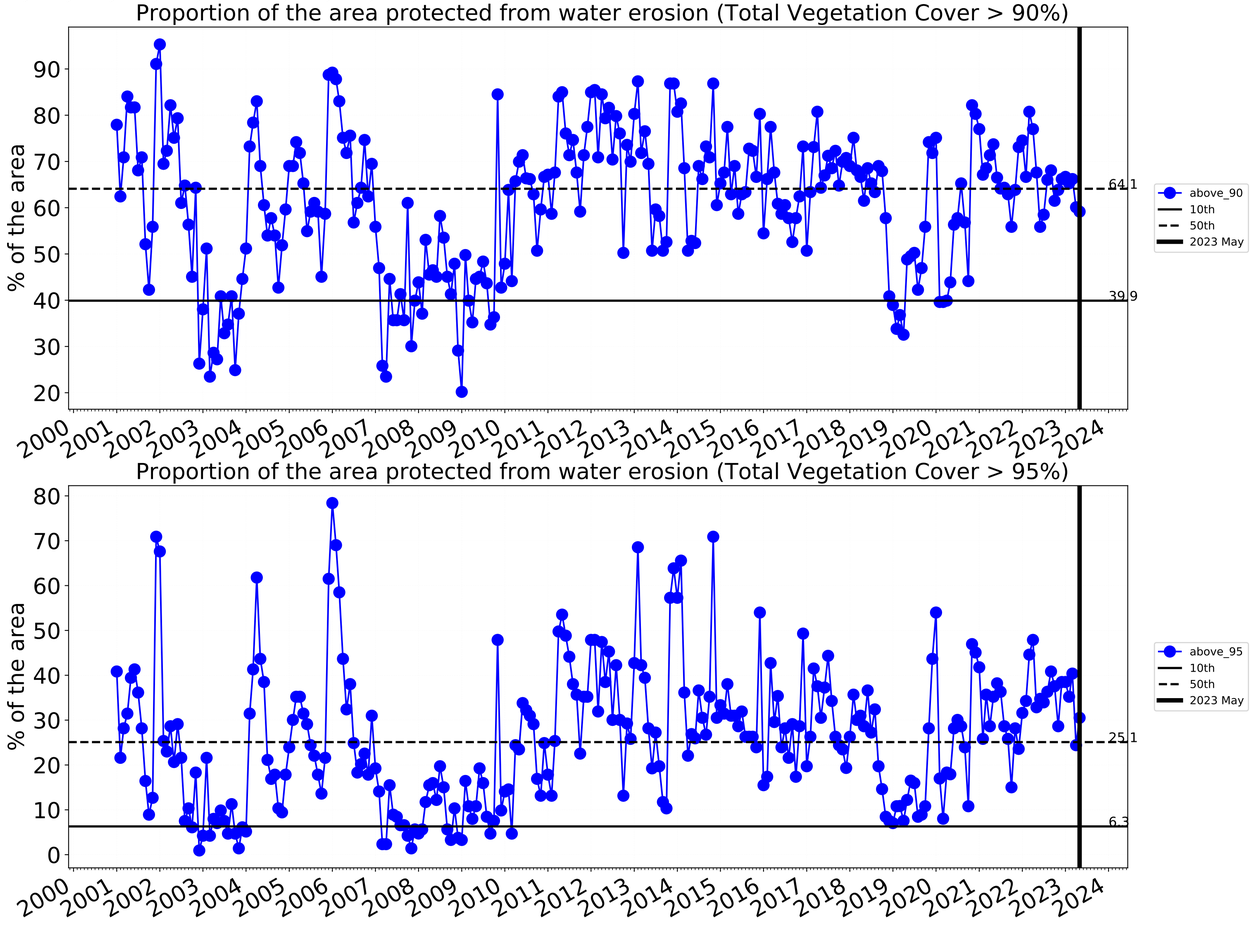
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



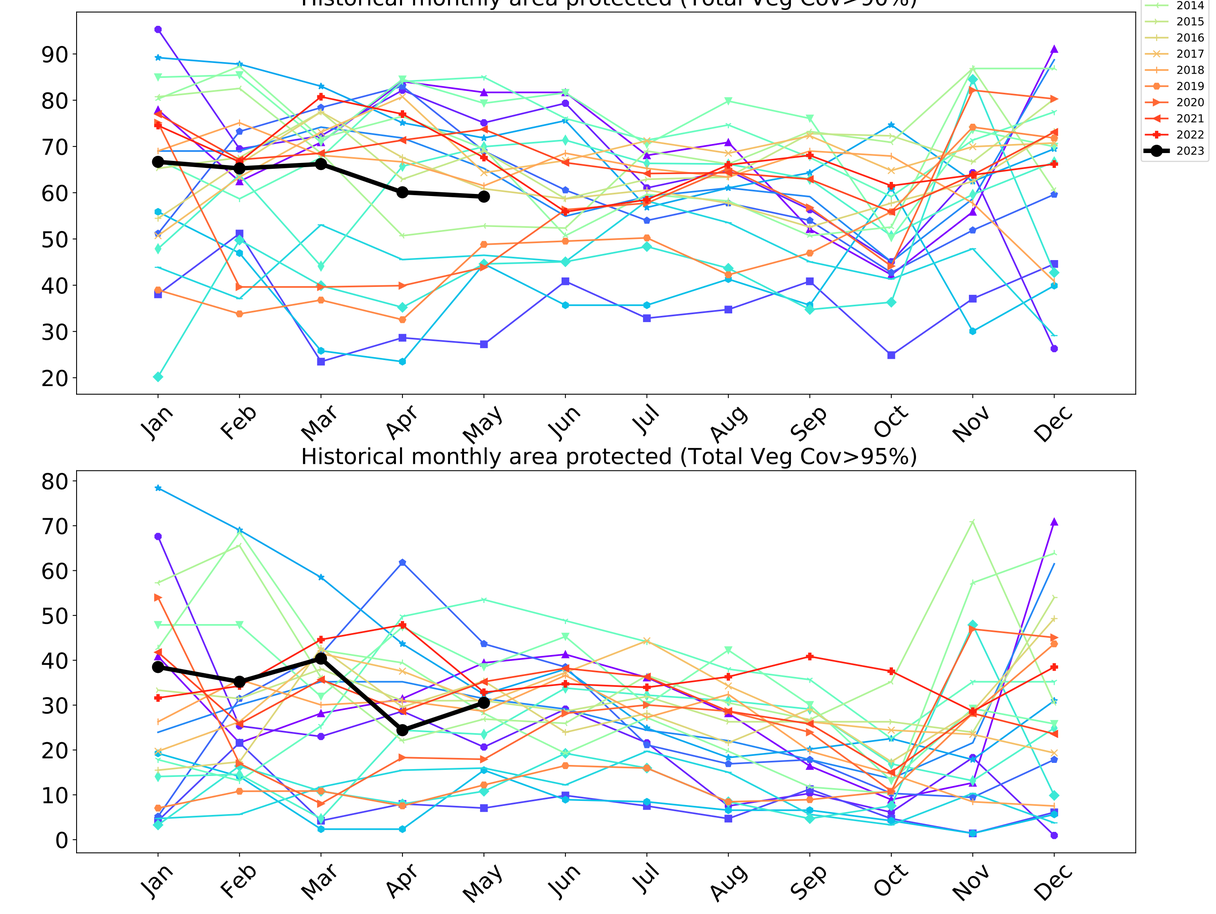
Historical monthly area protected (Total Veg Cov>80%)



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



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

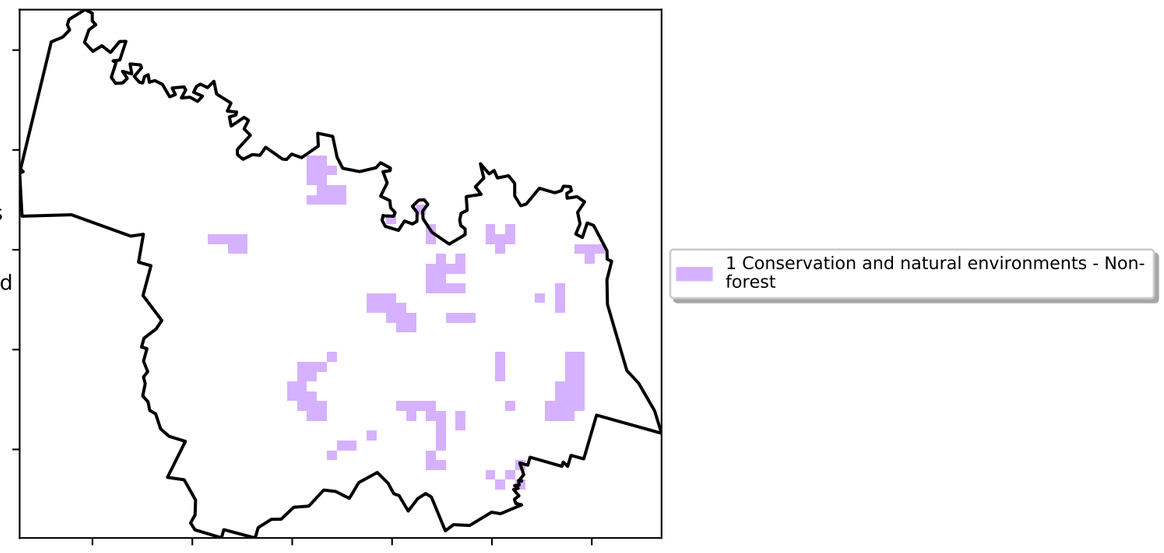


Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)

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

Conservation and natural environments non forest

Land use and forest cover



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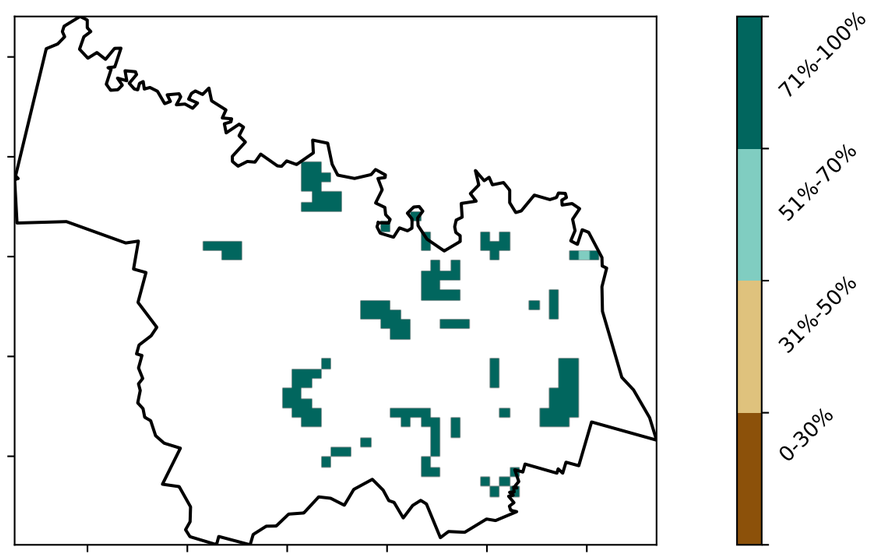
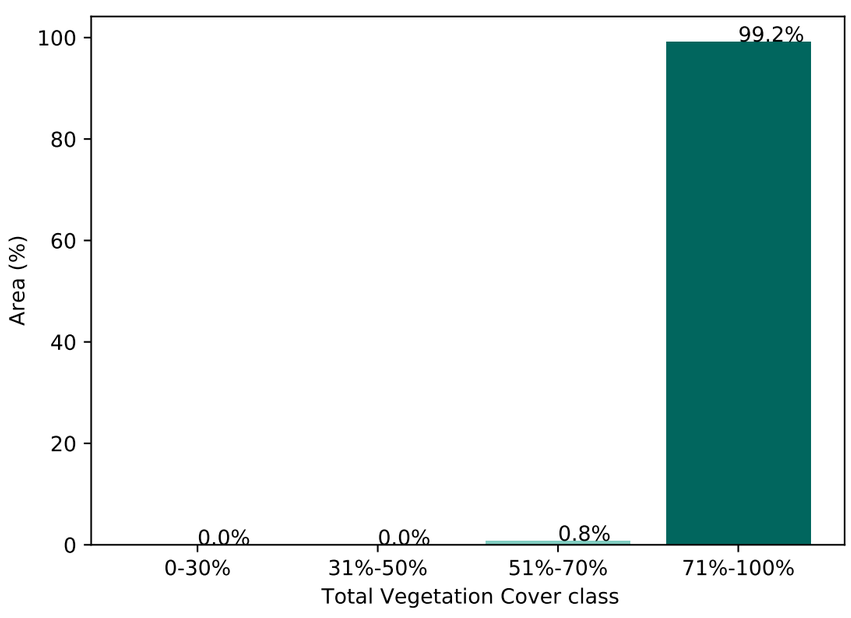
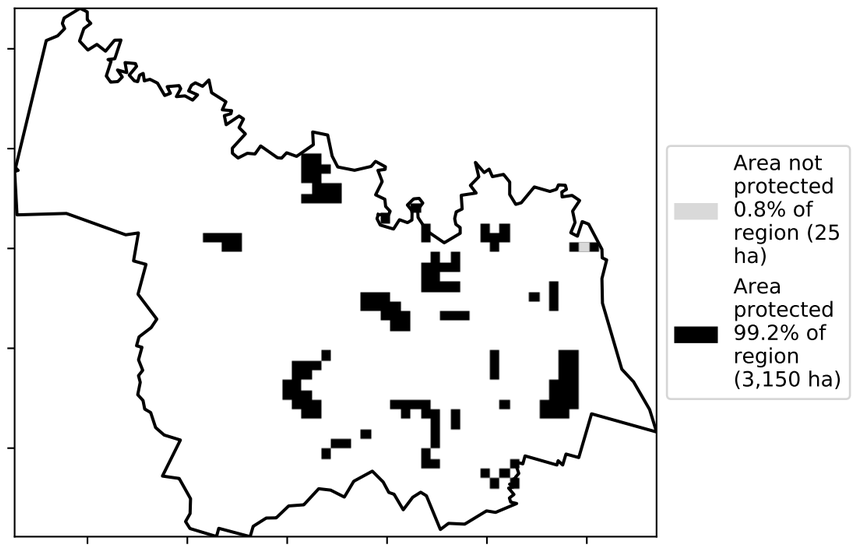


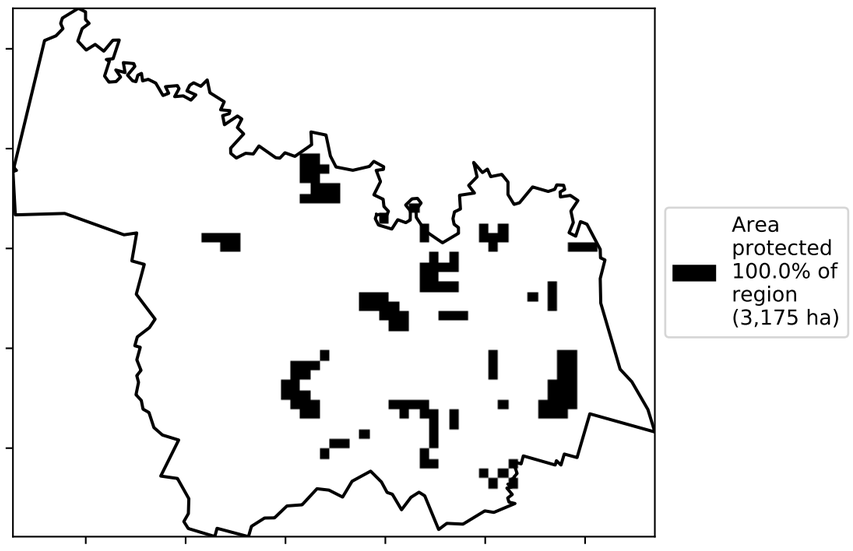
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



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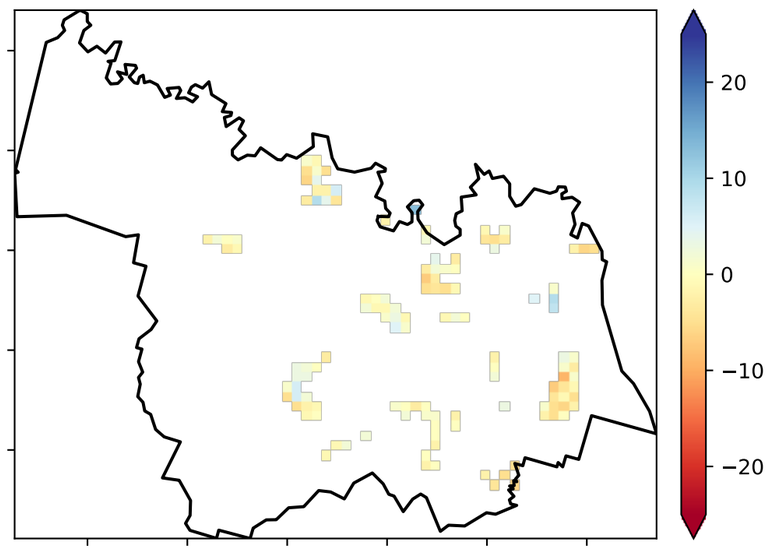
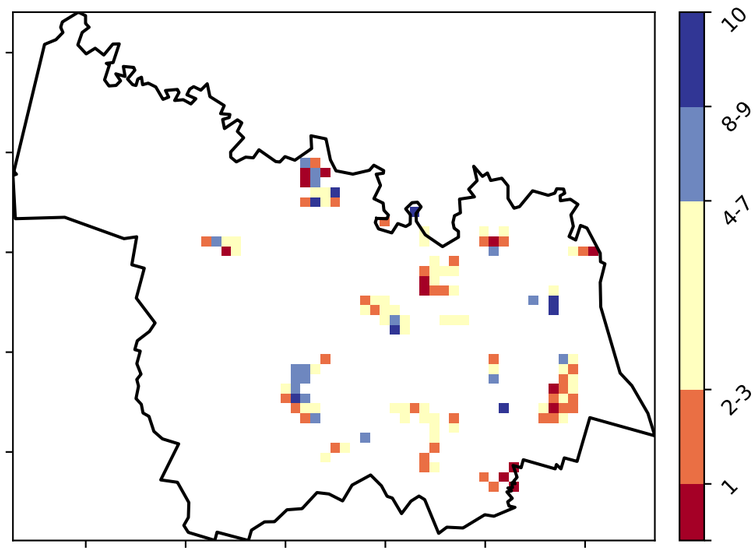


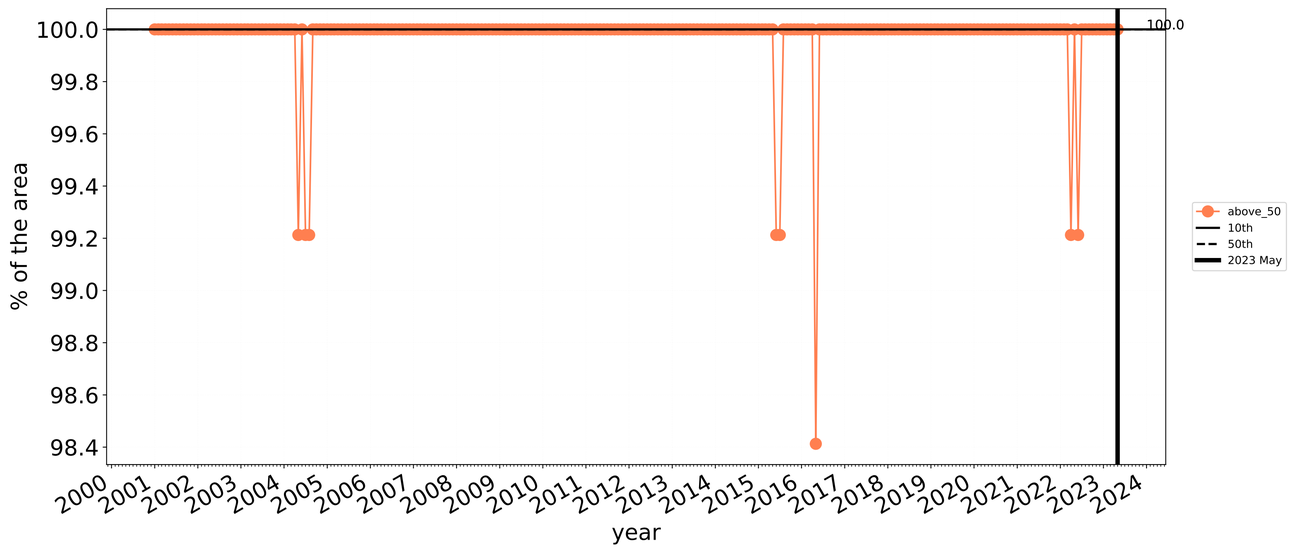
Total Vegetation Cover Decile [%]

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.

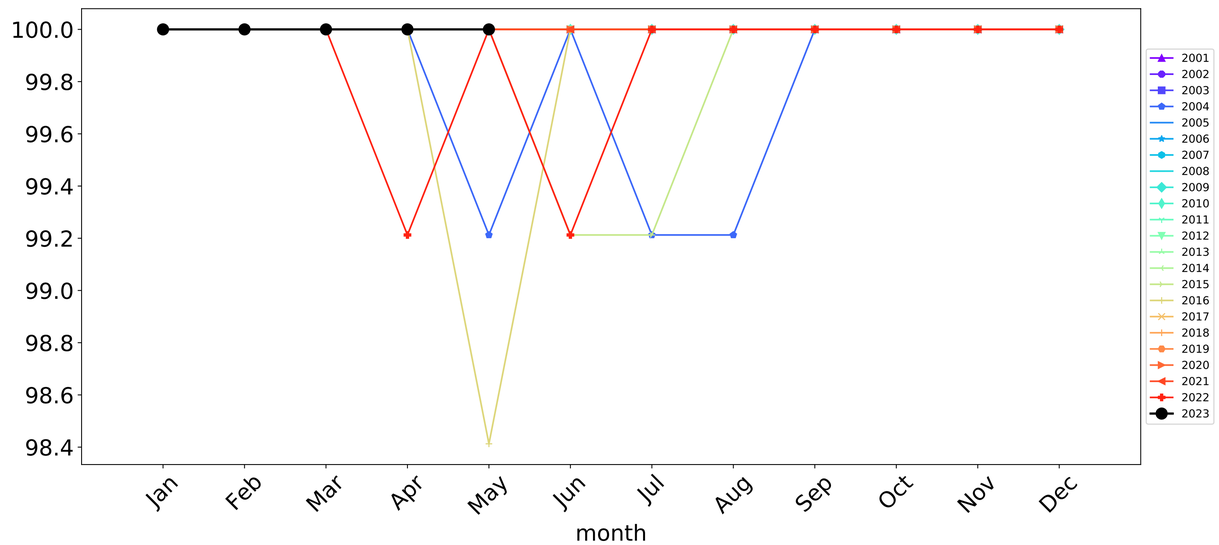


Conservation and natural environments non forest timeseries

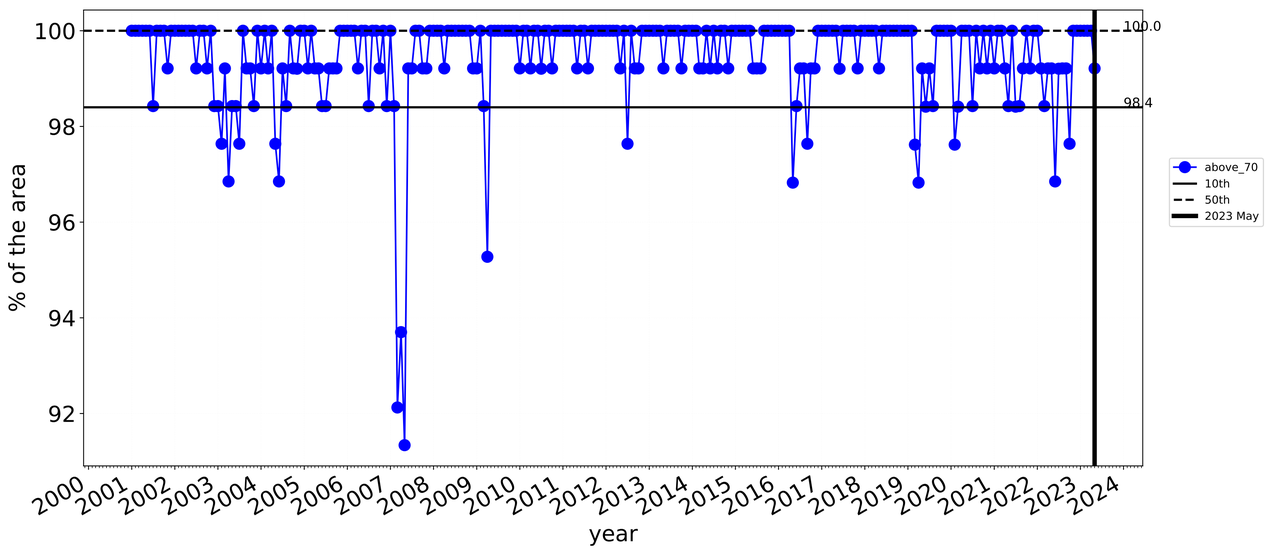
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



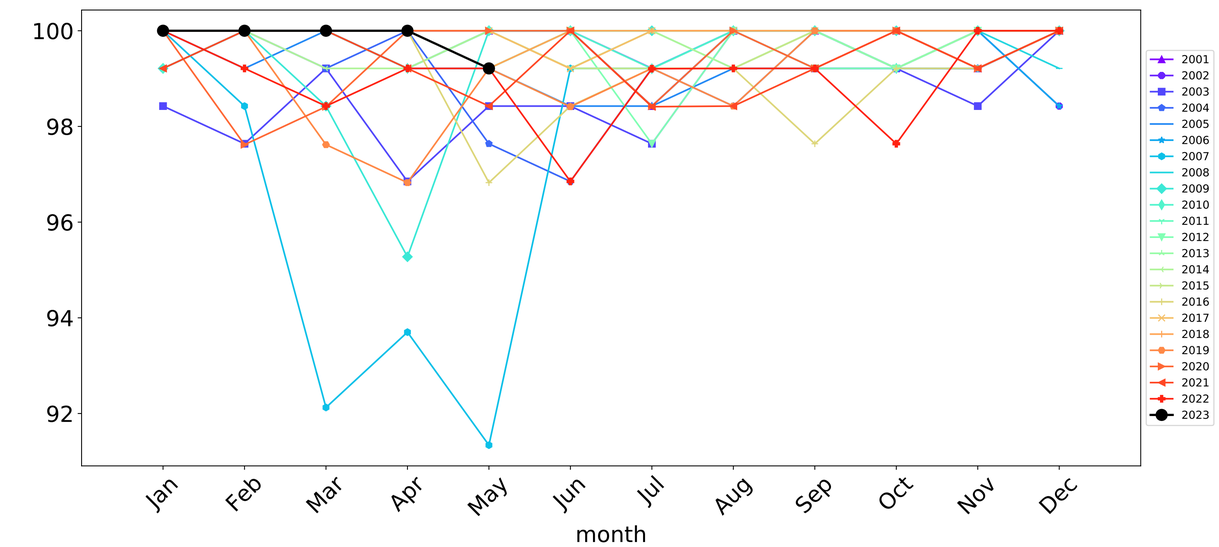
Wind erosion historical monthly area protected (Total Veg Cov >50%)

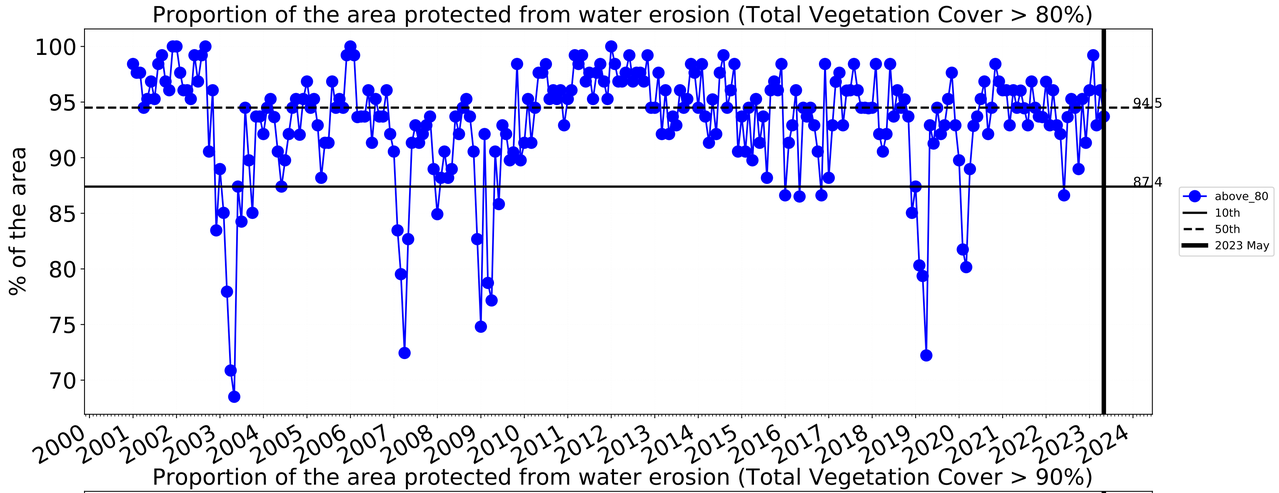


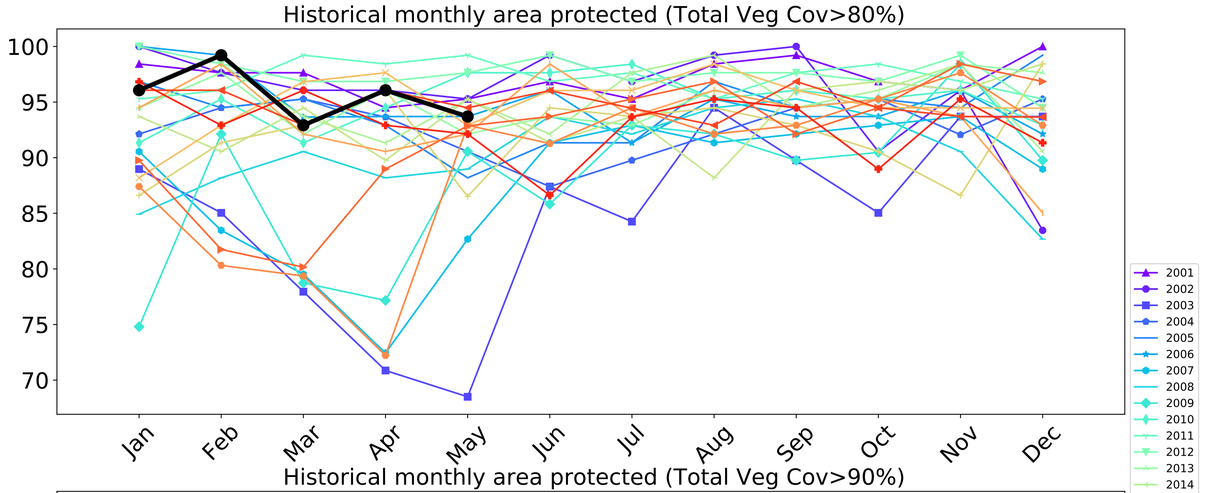
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

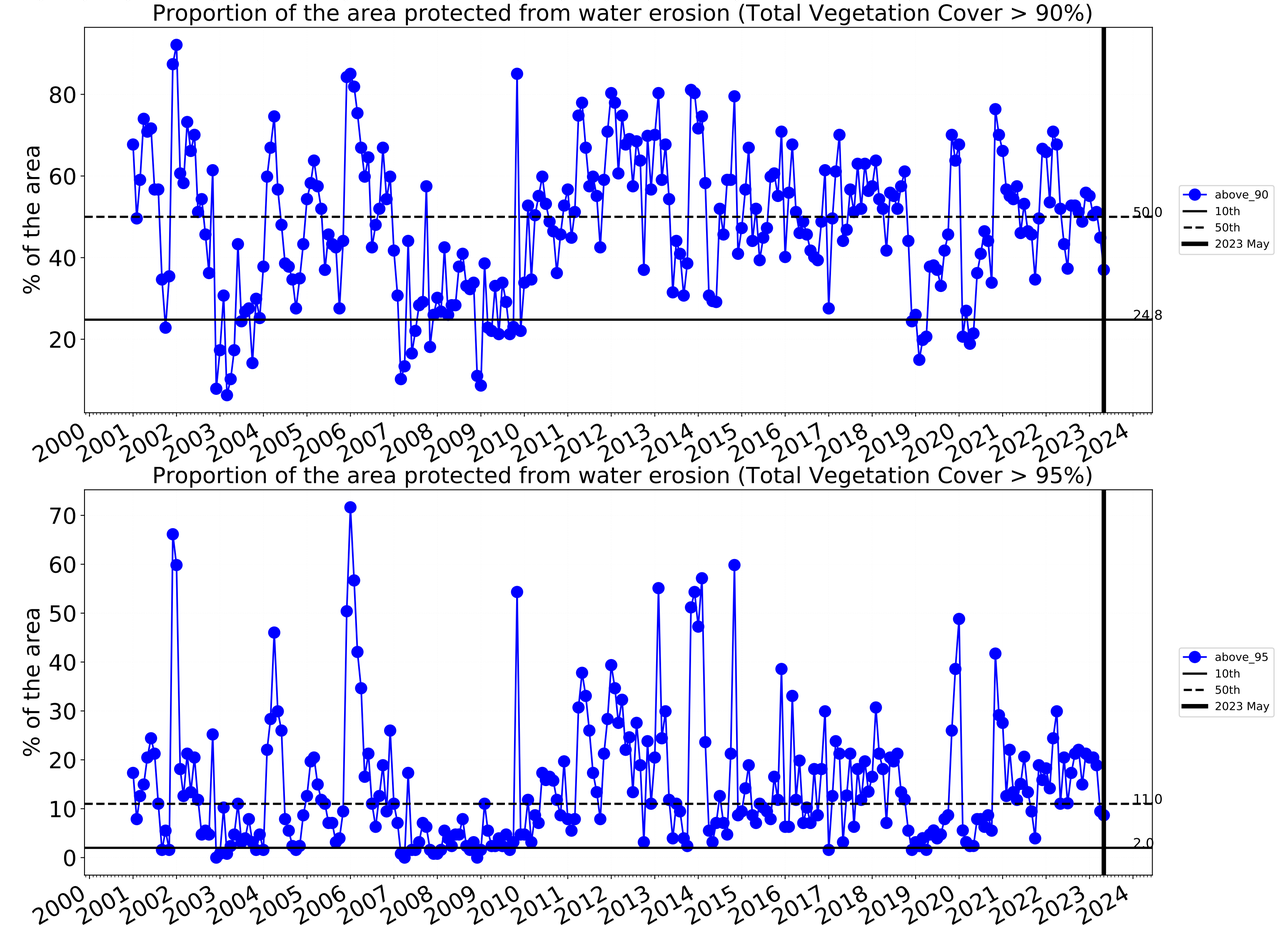


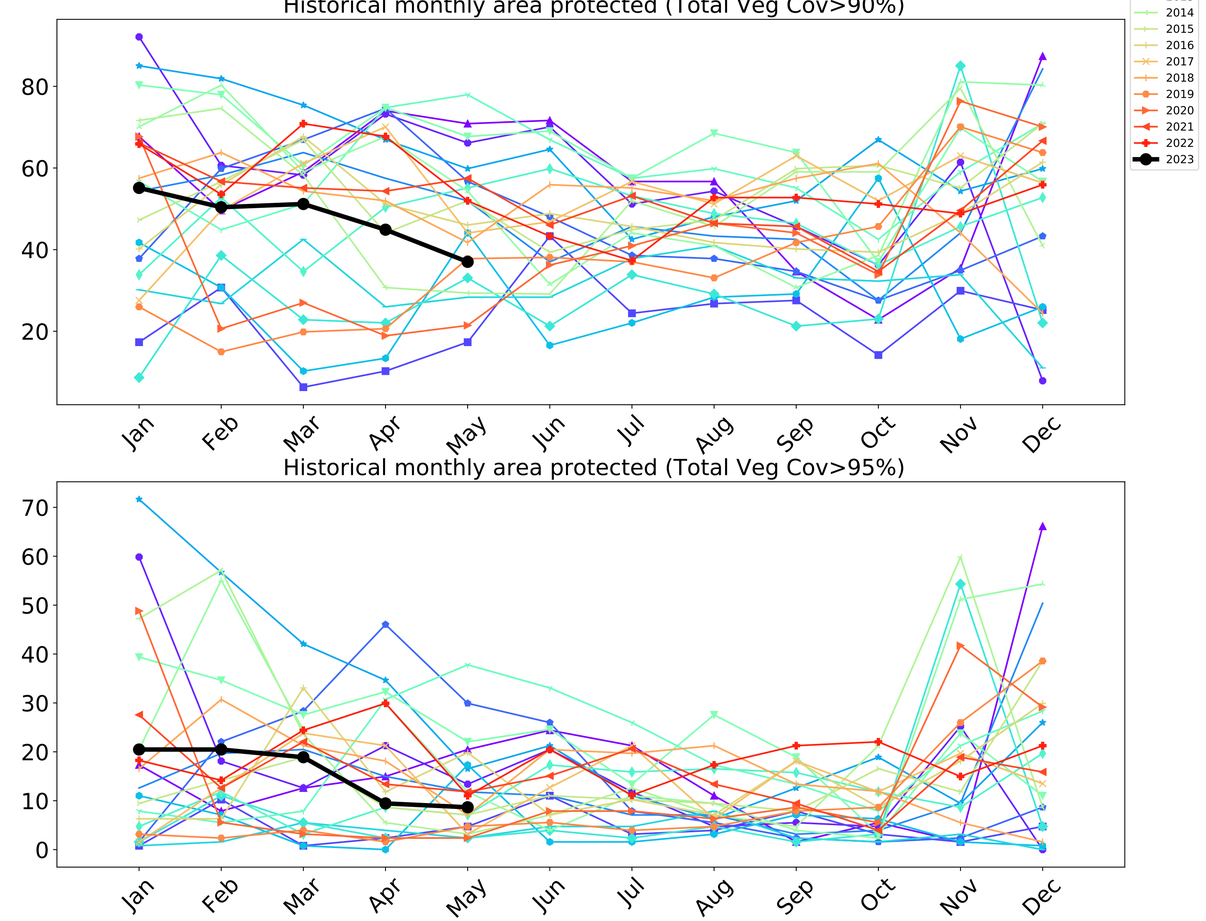
Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
94.5
87.4
above_80
10th
50th
2023 May

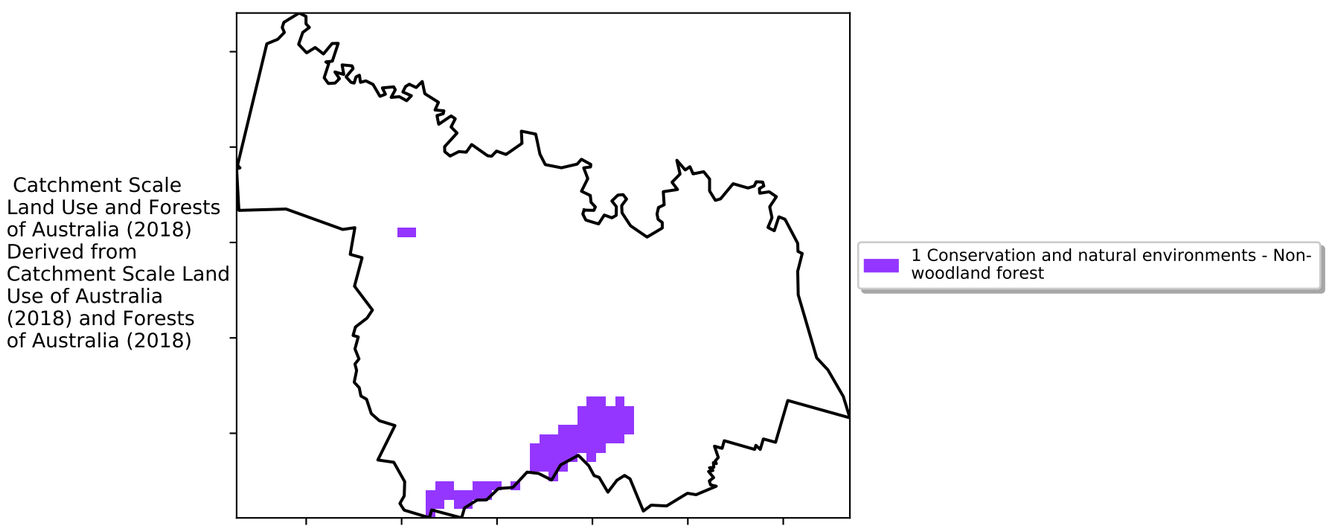

Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023


Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
50.0
24.8
above_90
10th
50th
2023 May
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
11.0
2.0
above_95
10th
50th
2023 May

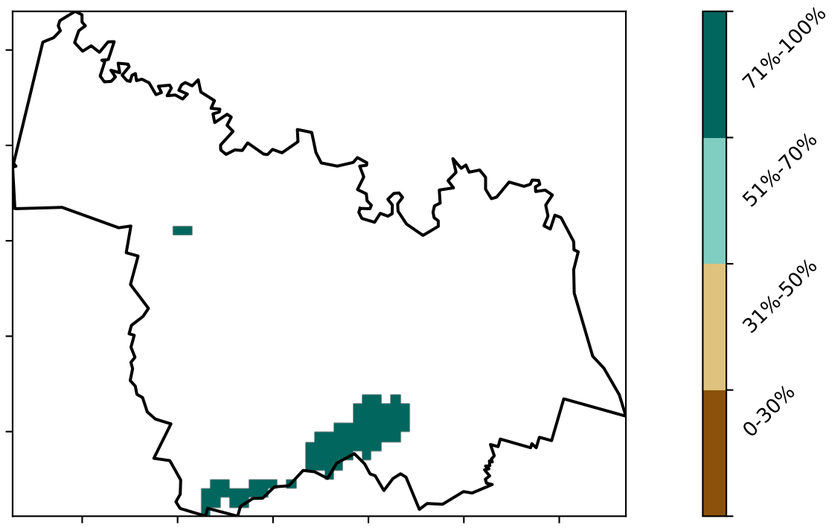

Historical monthly area protected (Total Veg Cov>90%)
Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023

Conservation and natural environments Forest (non woodland)

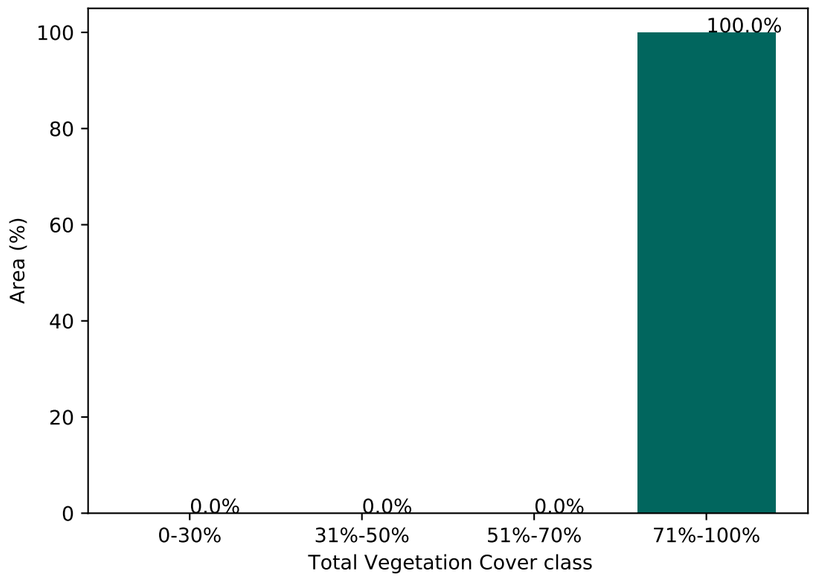
Land use and forest cover



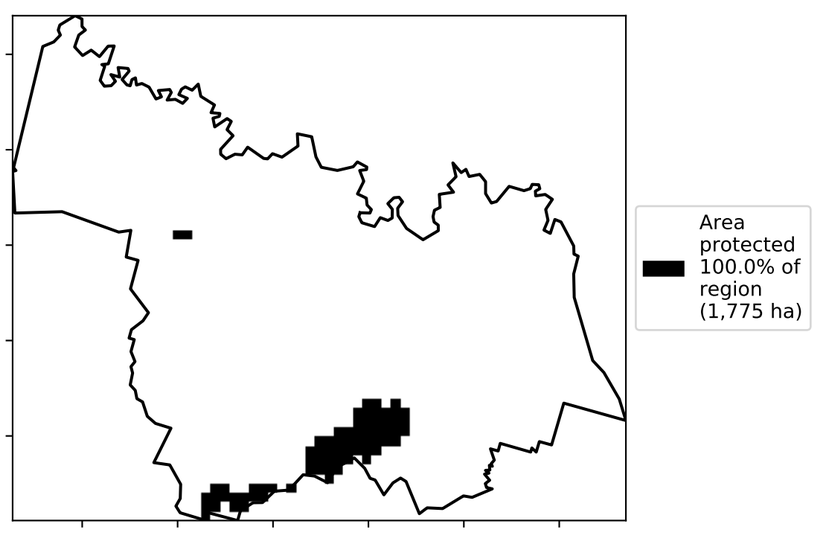
Total Vegetation Cover [%]



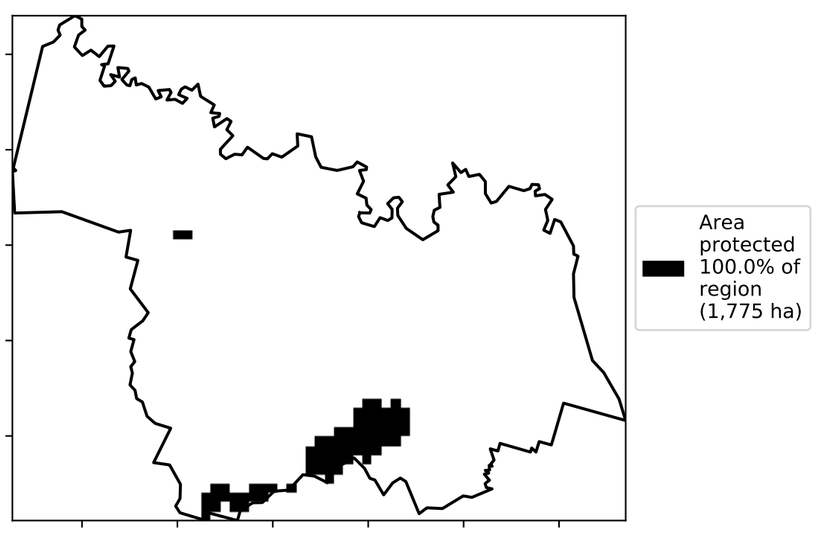
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

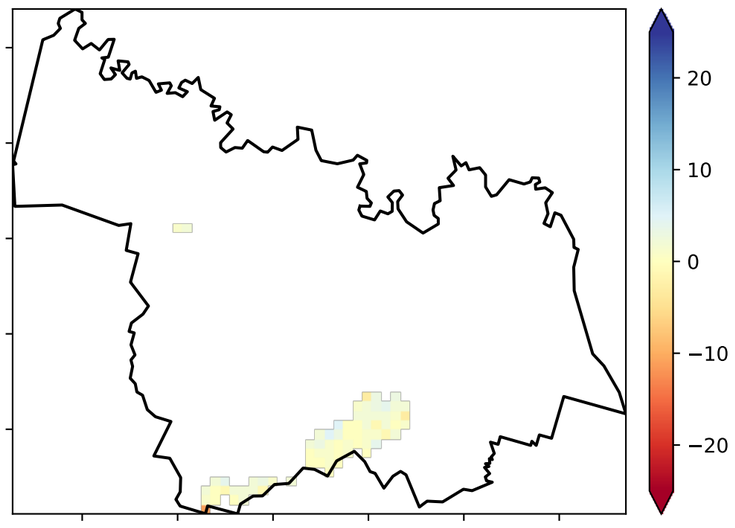


% Area protected from wind erosion (>50%)



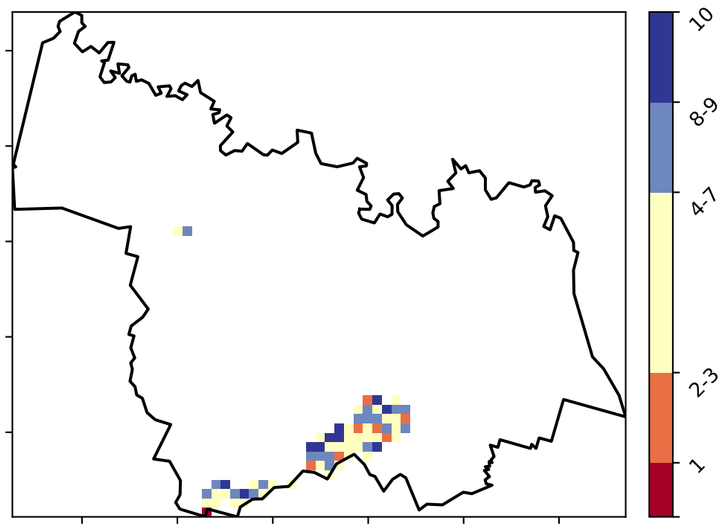
Total Vegetation Cover Anomaly [%]

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.



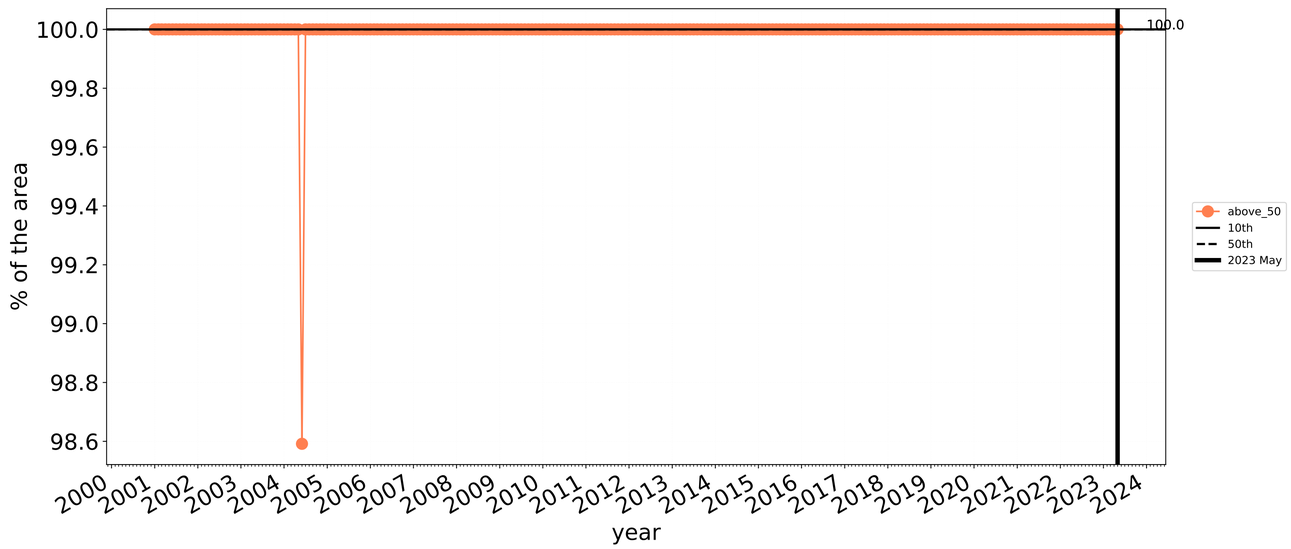
Total Vegetation Cover Decile [%]

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.

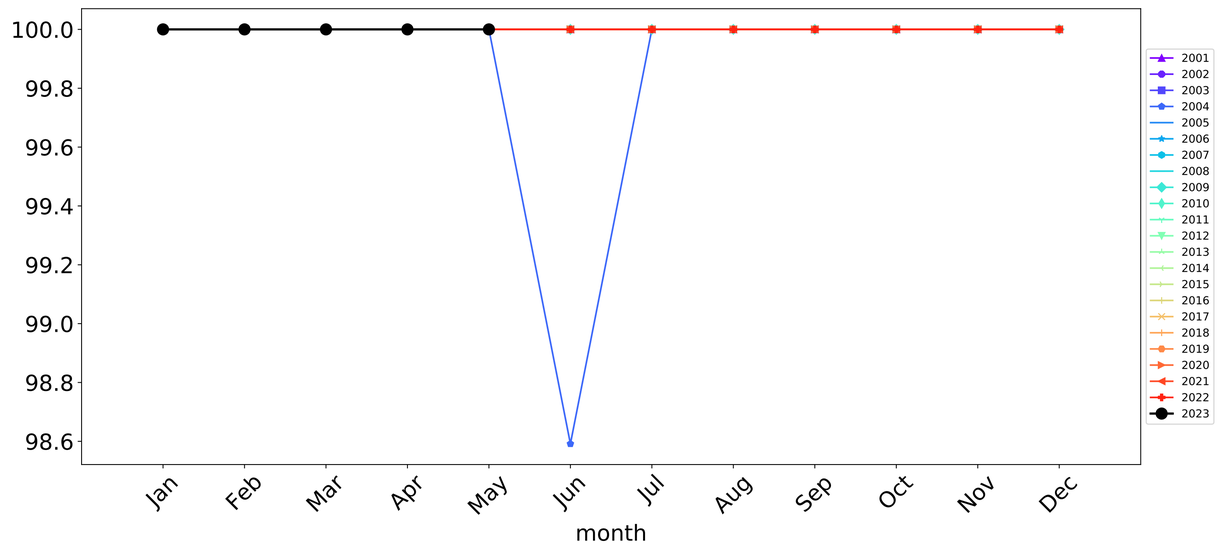


Conservation and natural environments Forest (non woodland) timeseries

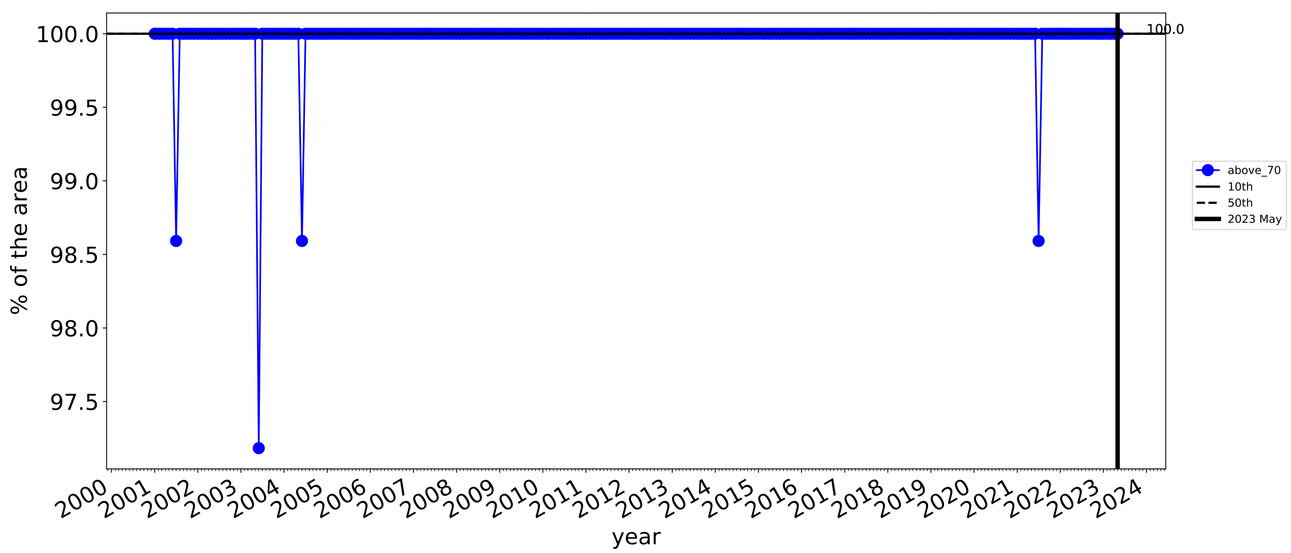
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



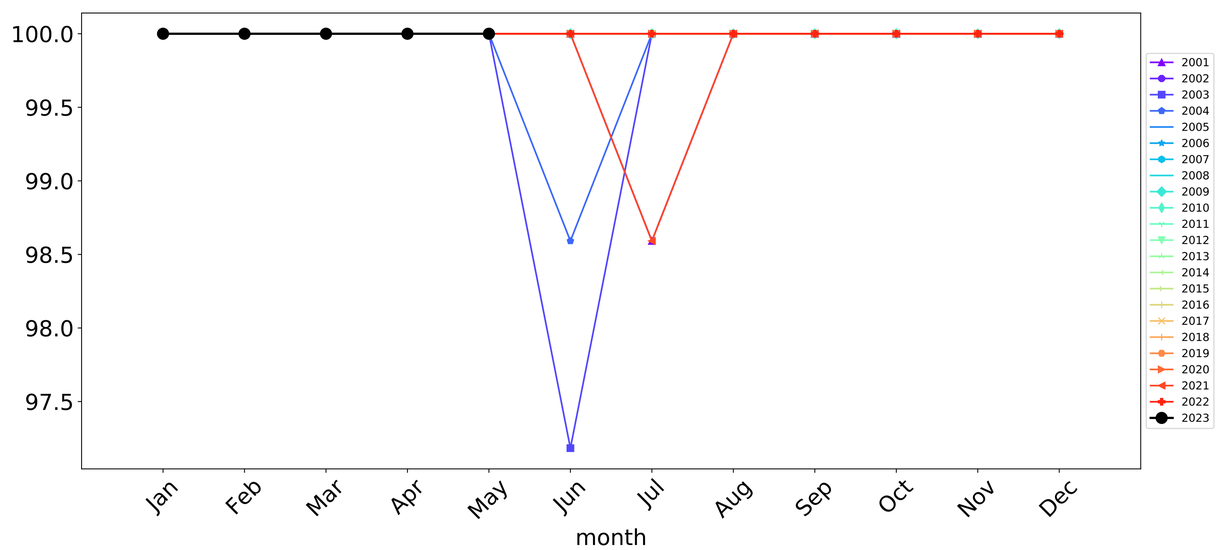
Wind erosion historical monthly area protected (Total Veg Cov >50%)

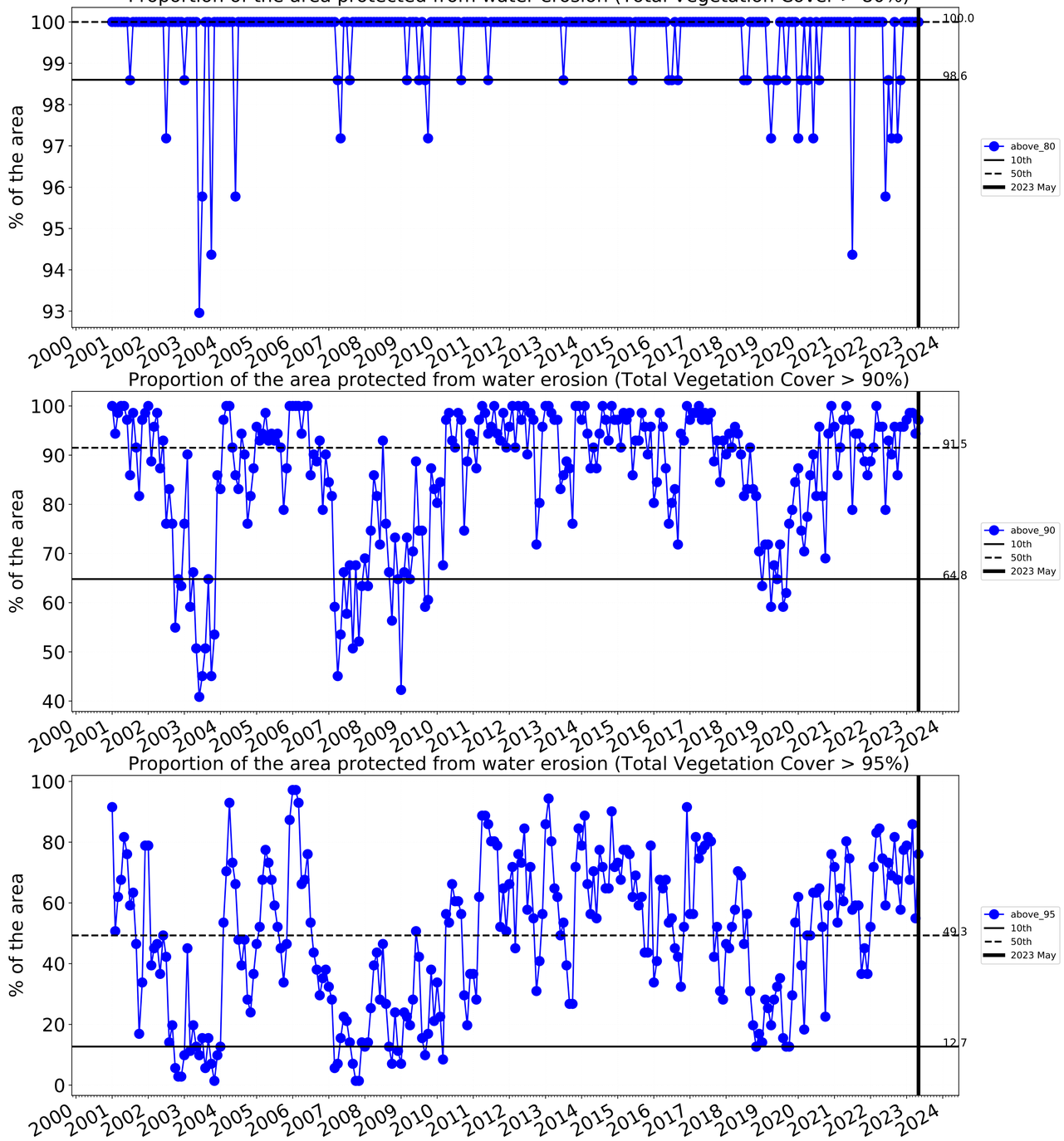


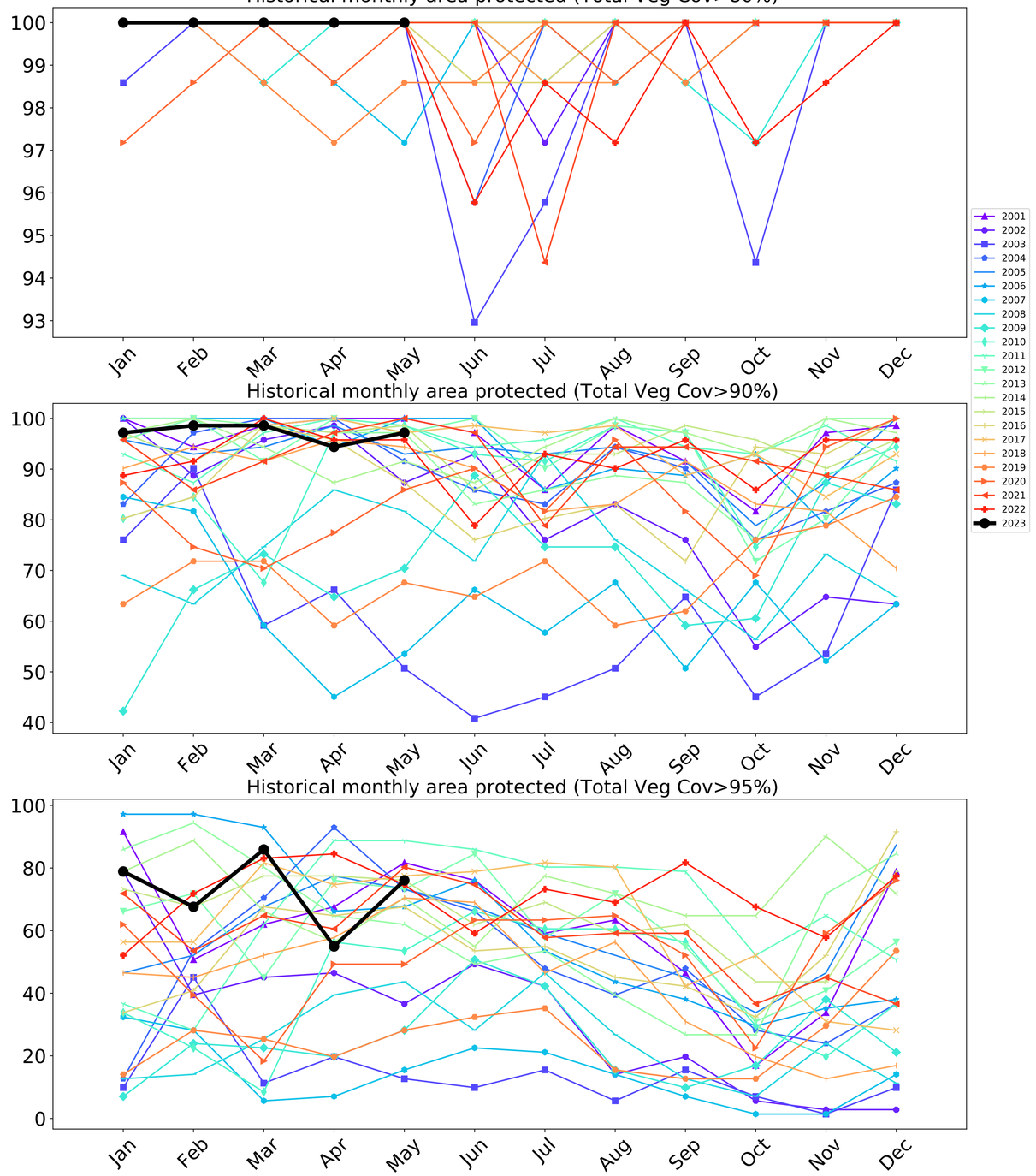
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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
100.0
98.6
above_80
10th
50th
2023 May
Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
91.5
64.8
above_90
10th
50th
2023 May
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
49.3
12.7
above_95
10th
50th
2023 May


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
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Mar
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Jun
Jul
Aug
Sep
Oct
Nov
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2001
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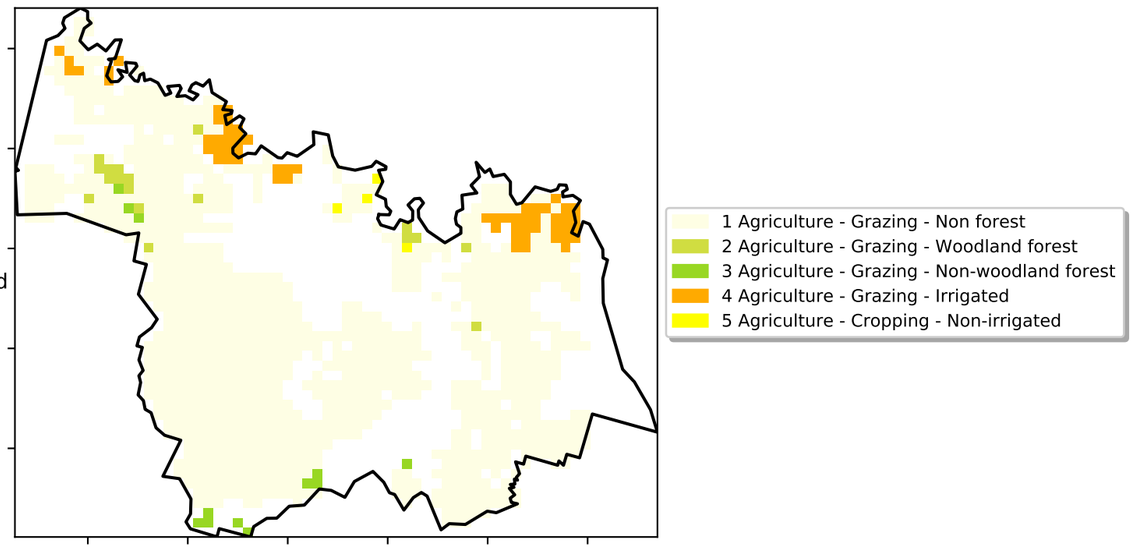
2023

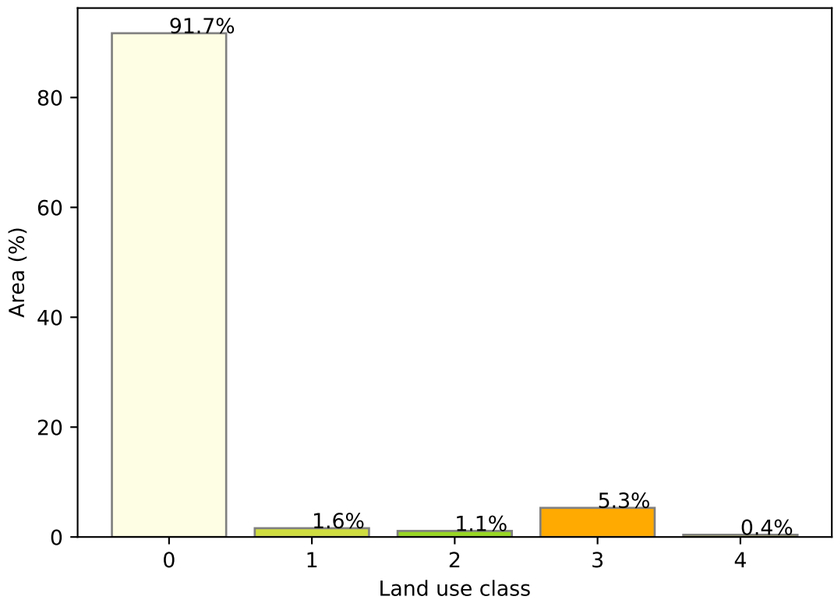
Agriculture

Land use and forest cover

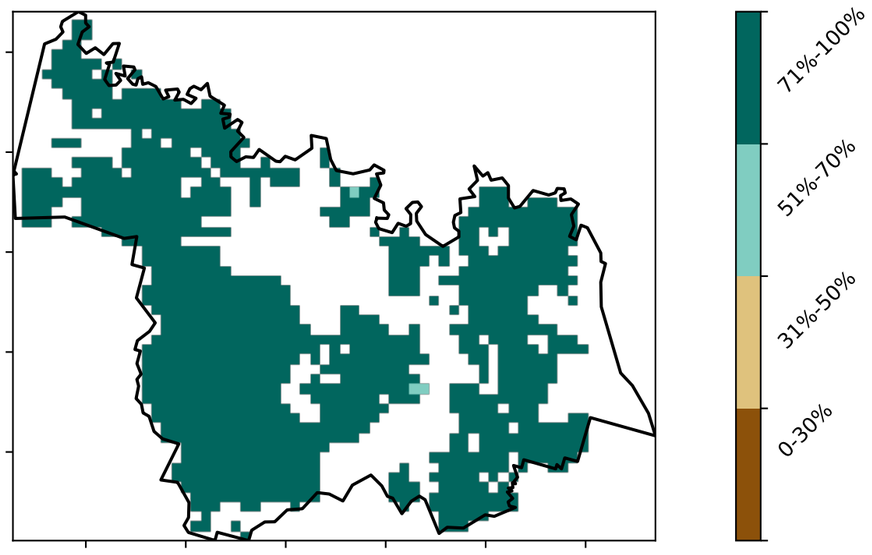


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

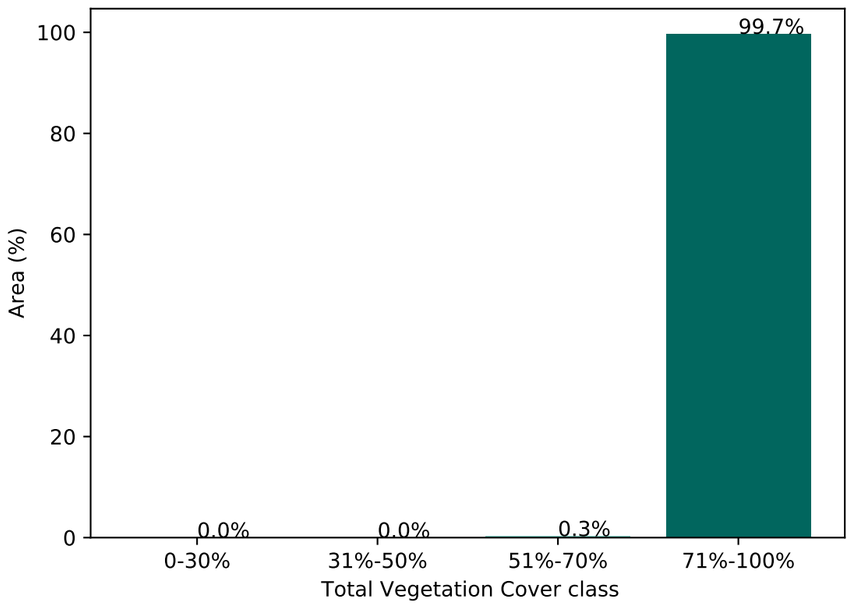
Proportion of each land class in area



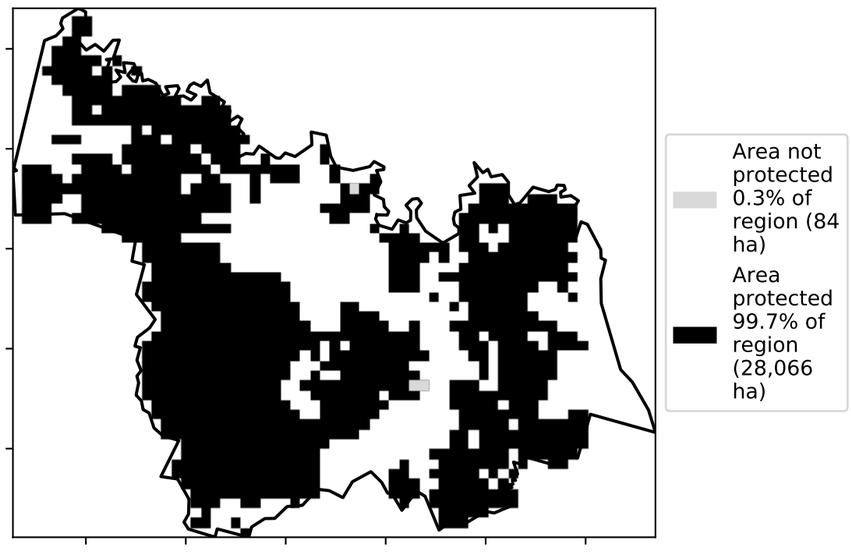
Total Vegetation Cover [%]



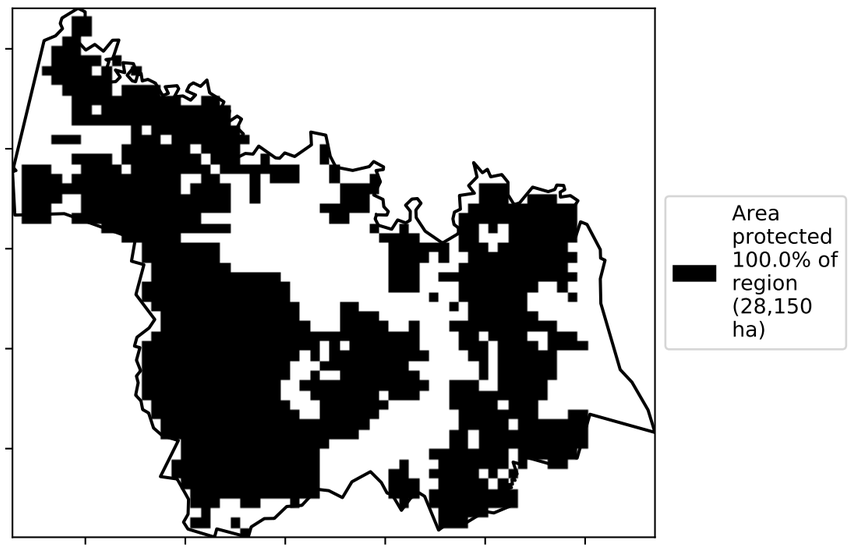
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

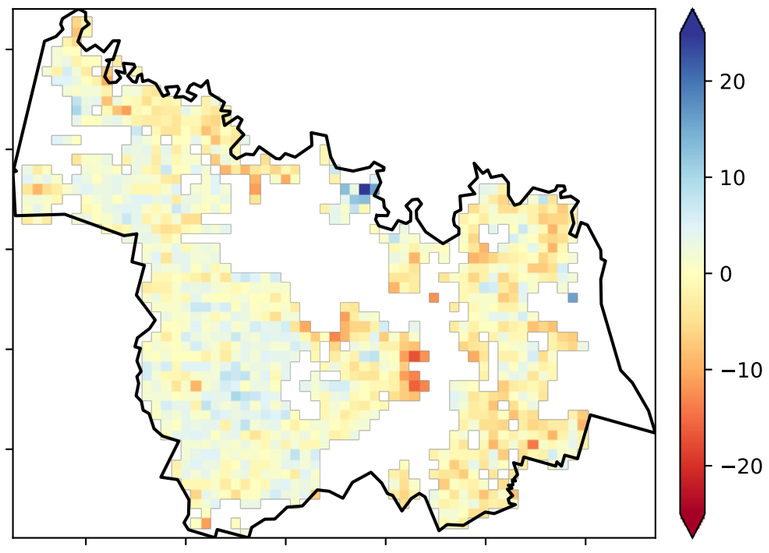


% Area protected from wind erosion (>50%)



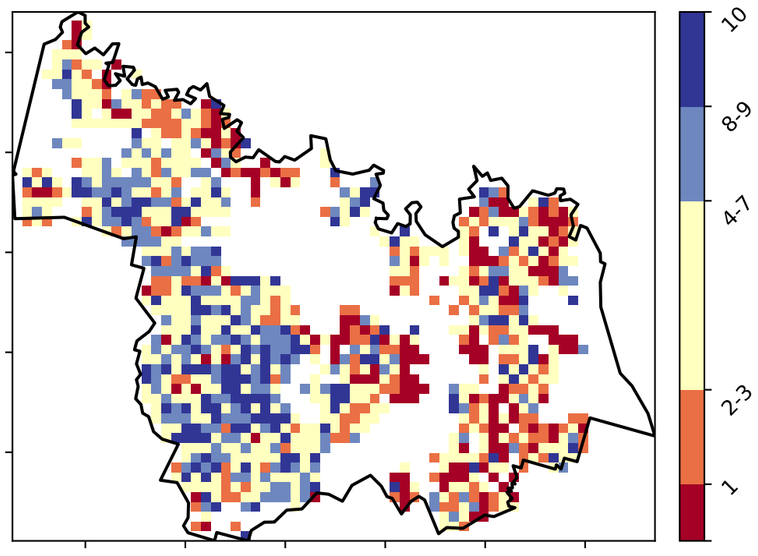
Total Vegetation Cover Anomaly [%]

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.



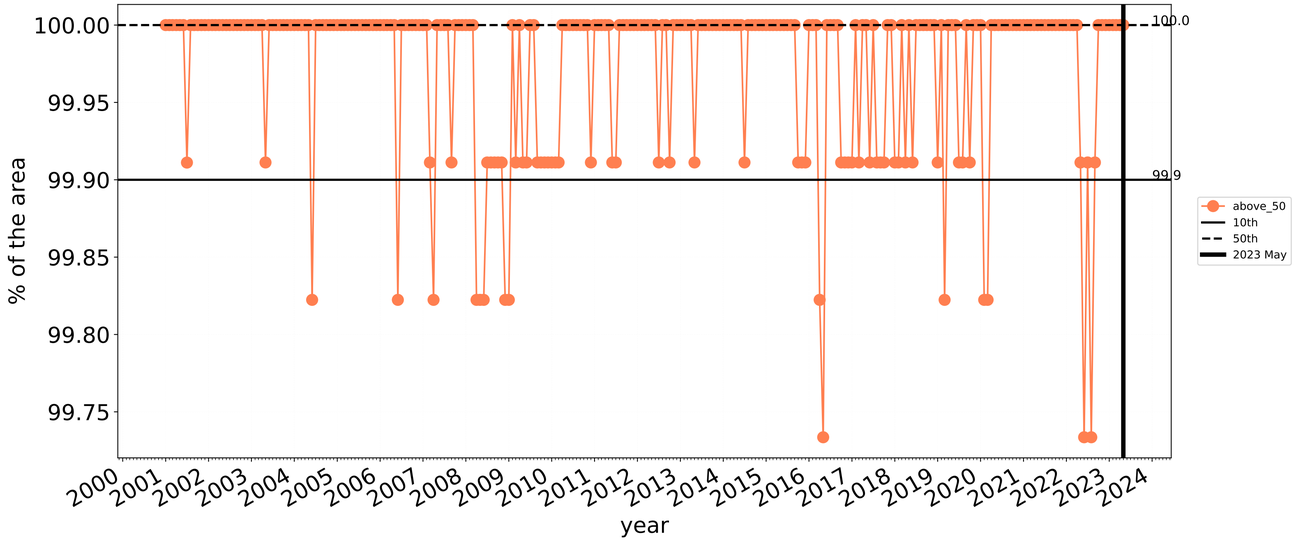
Total Vegetation Cover Decile [%]

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.

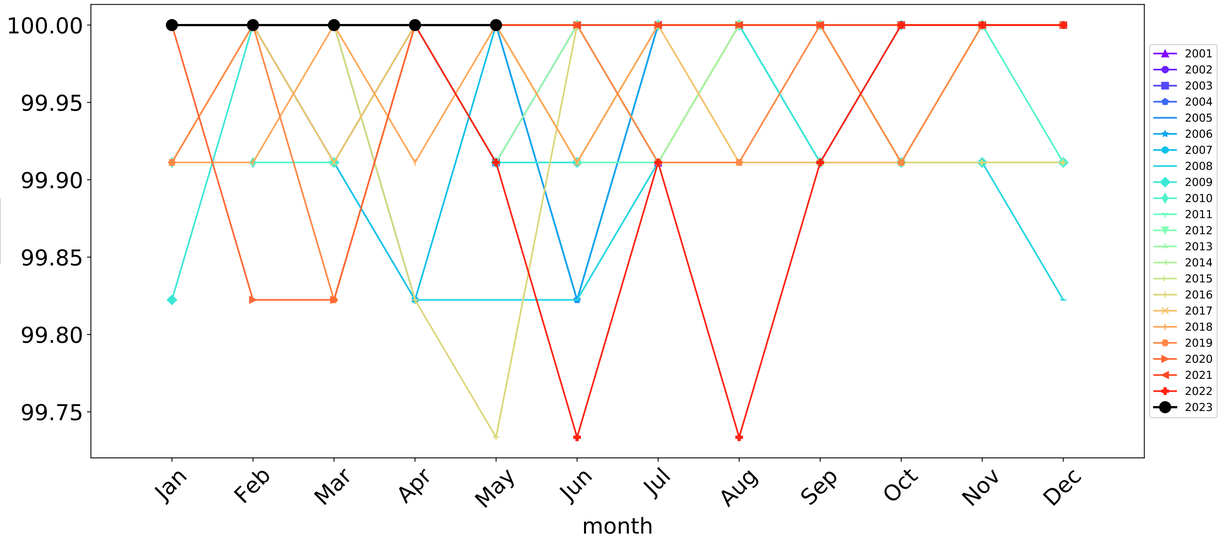


Agriculture timeseries

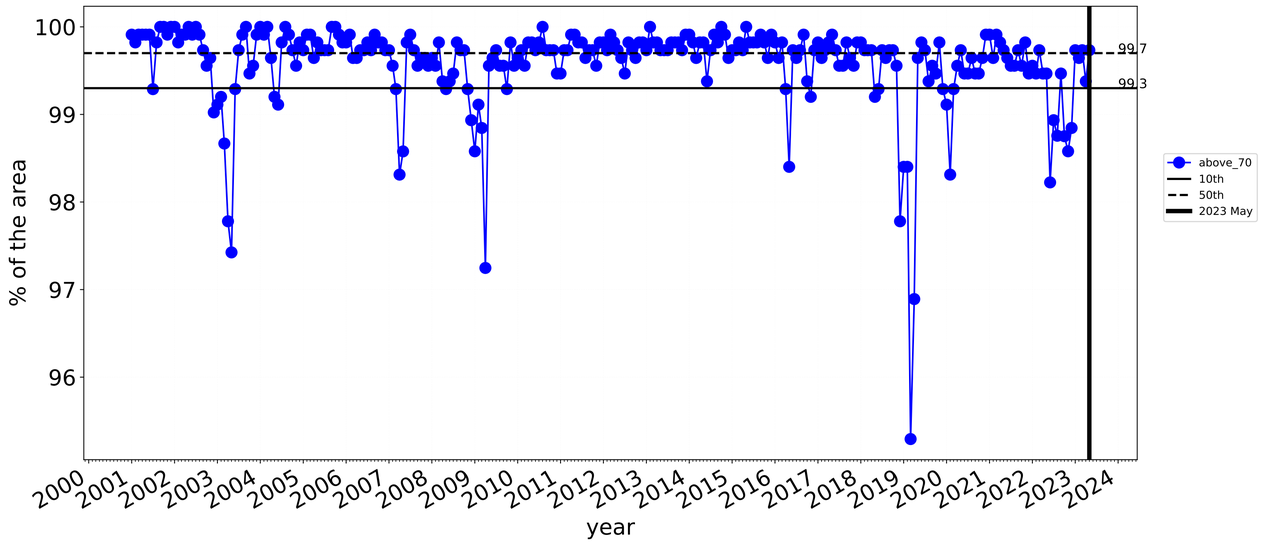
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



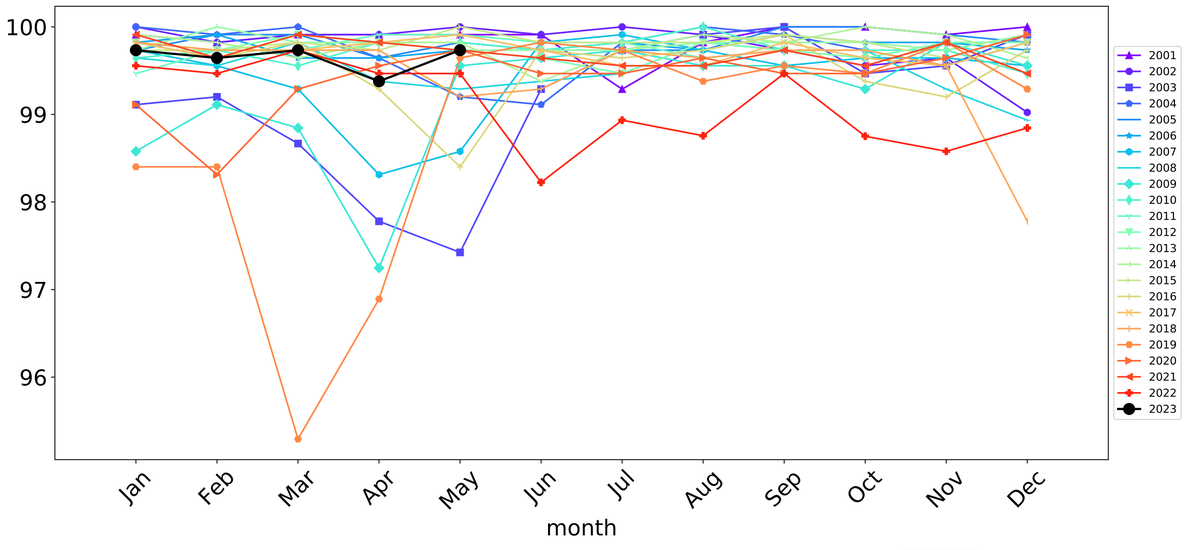
Wind erosion historical monthly area protected (Total Veg Cov >50%)



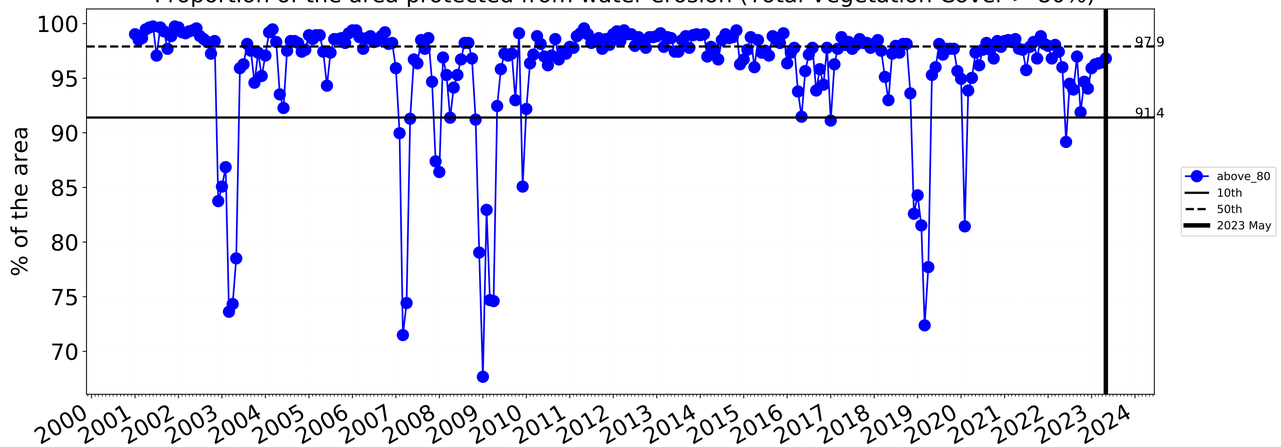
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



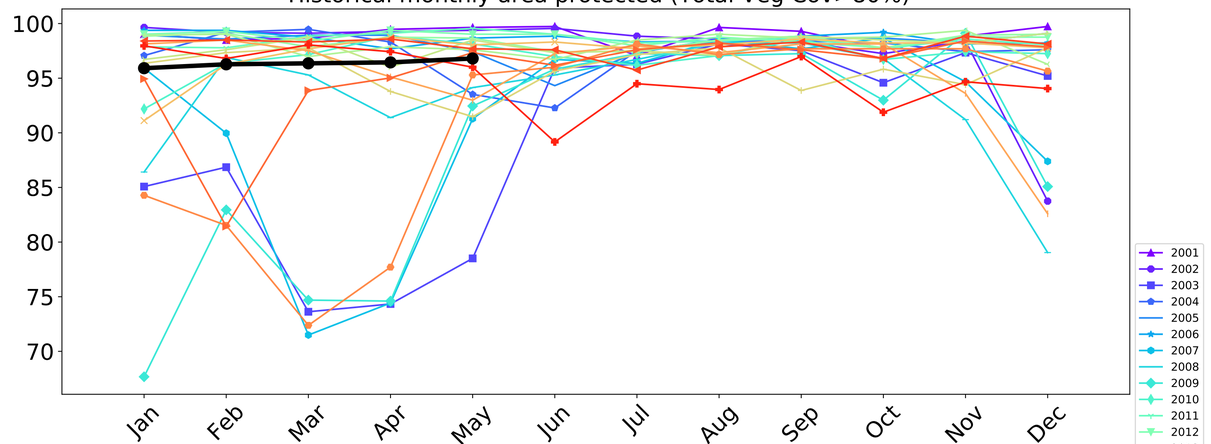
Water erosion historical monthly area protected (Total Veg Cov>70%)



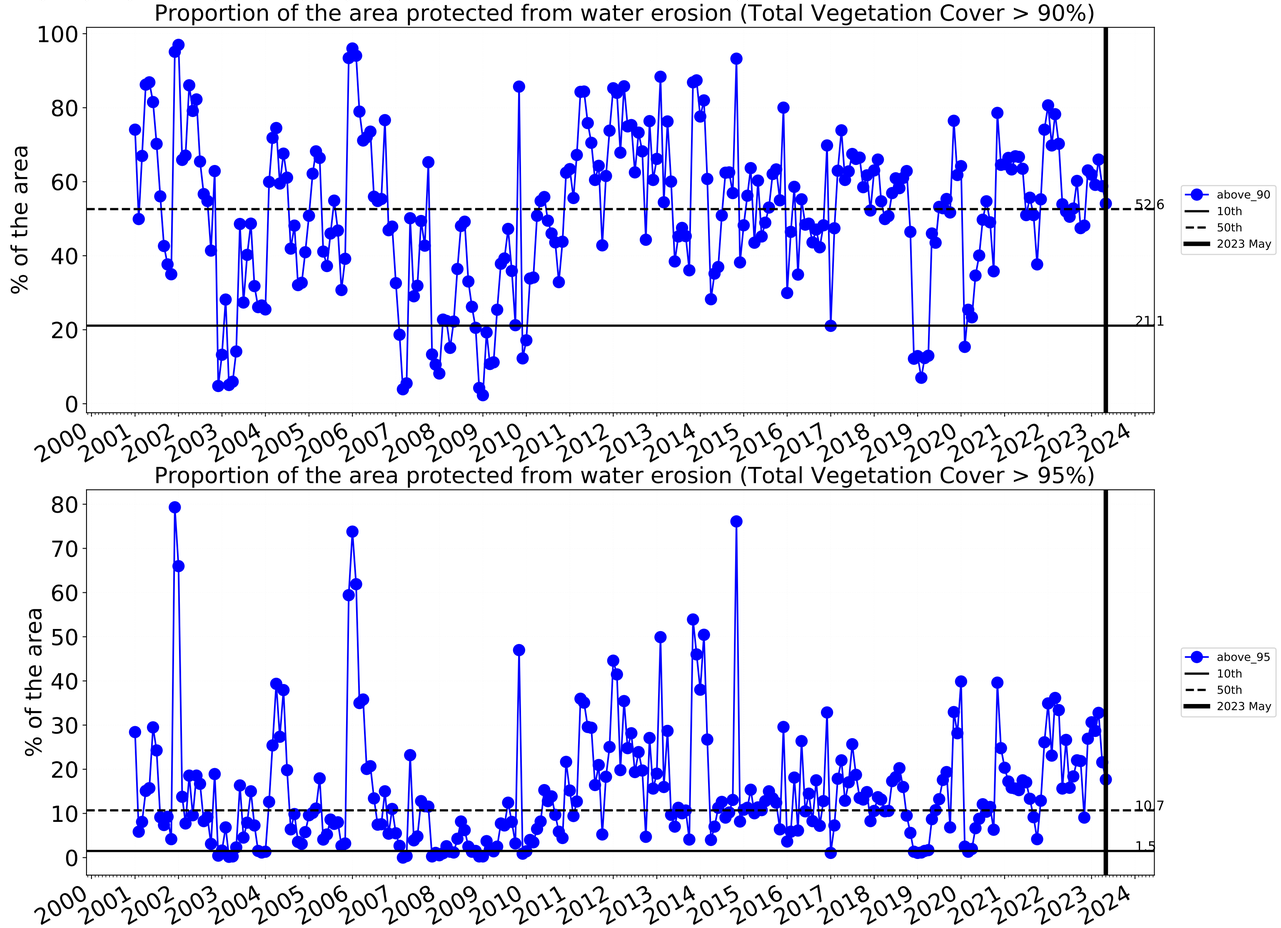
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



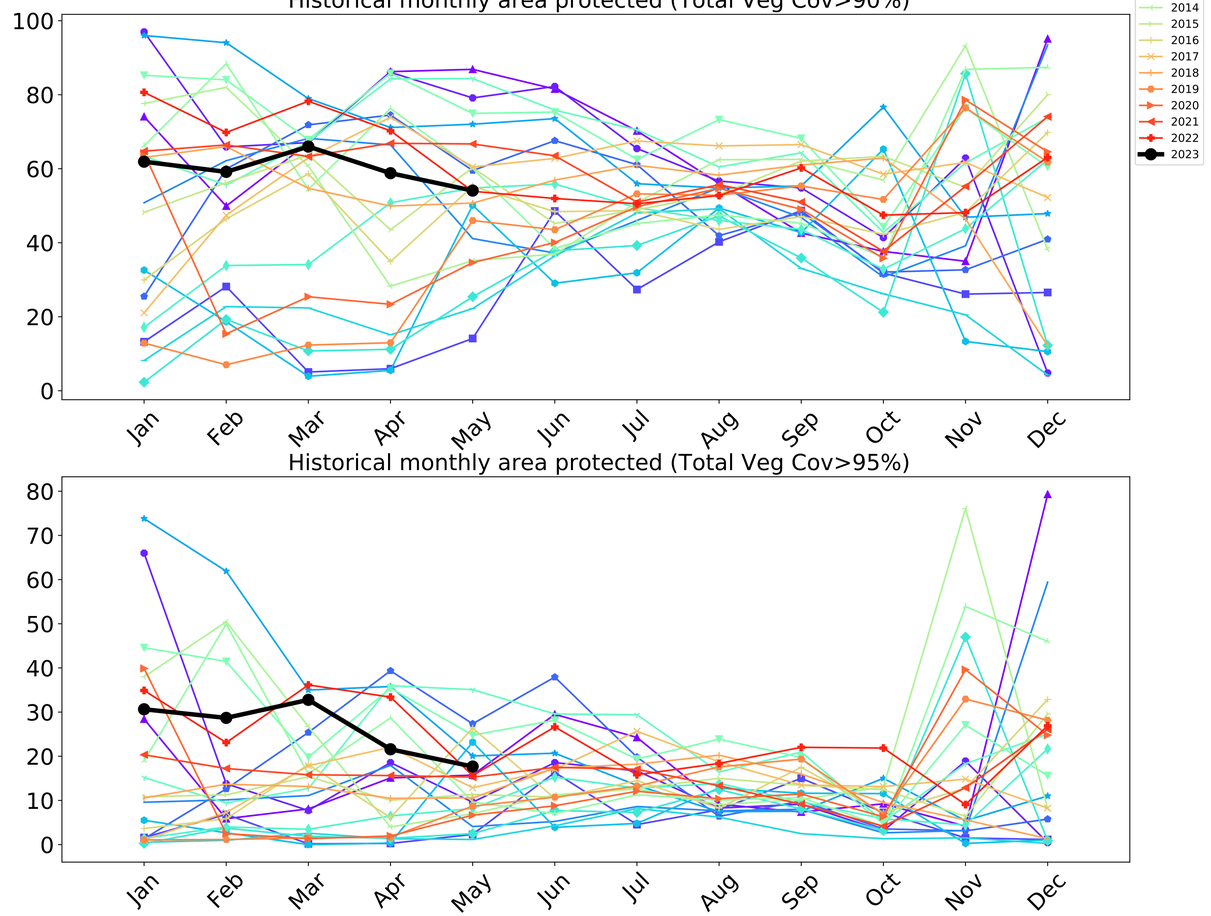
Historical monthly area protected (Total Veg Cov>80%)



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



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

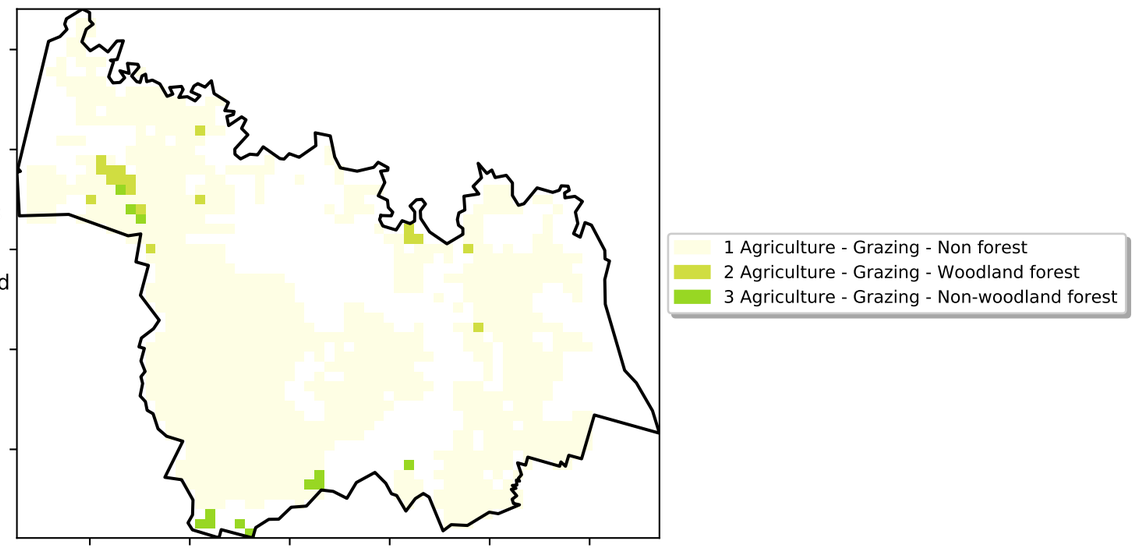


Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)

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

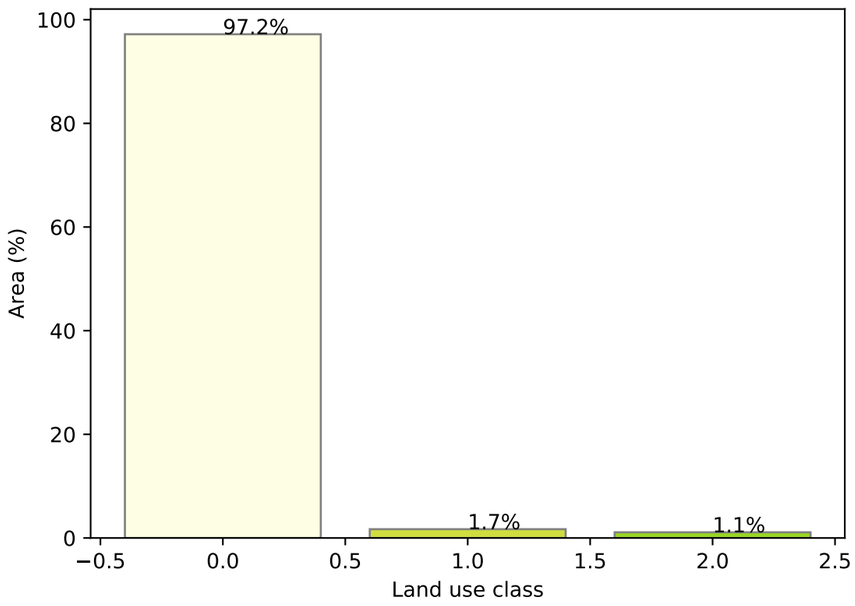
Grazing

Land use and forest cover

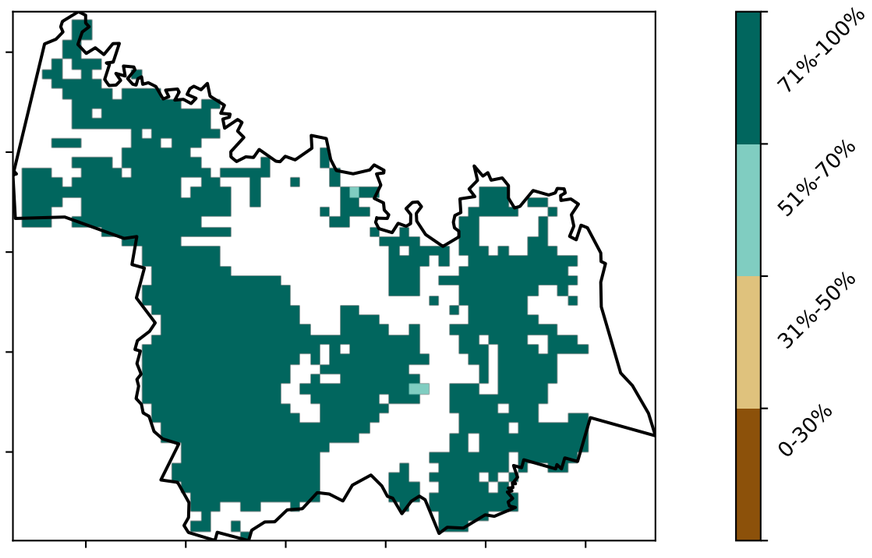


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

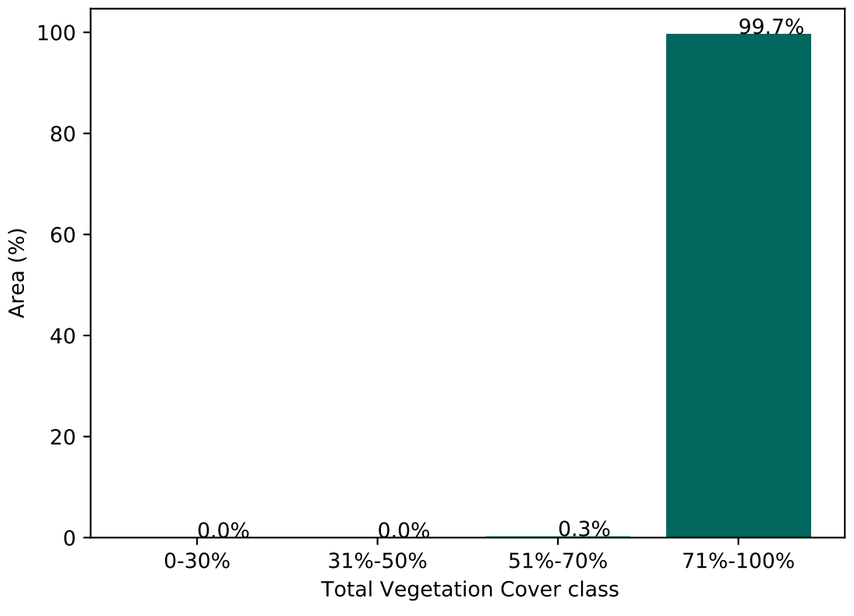
Proportion of each land class in area



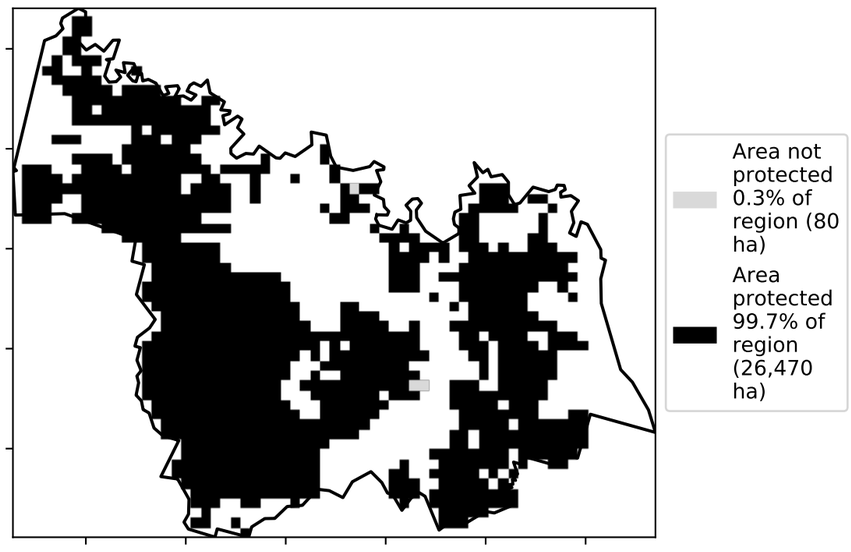
Total Vegetation Cover [%]



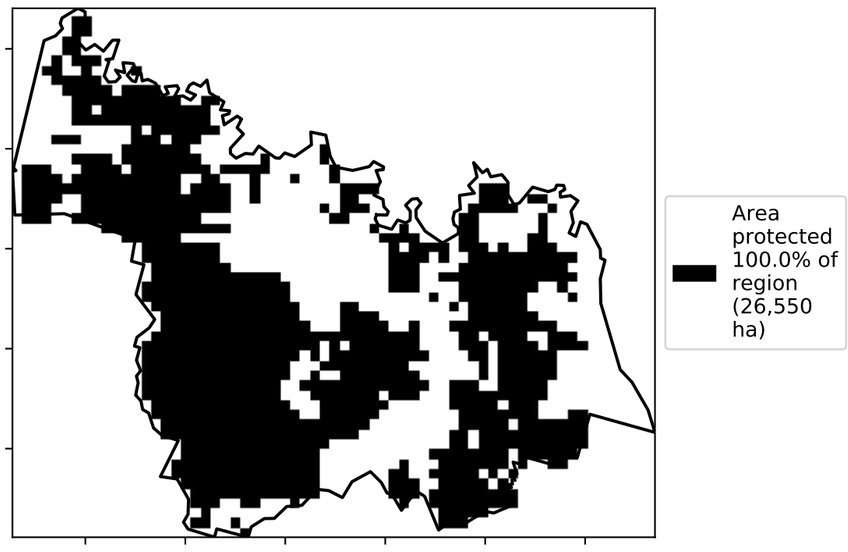
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

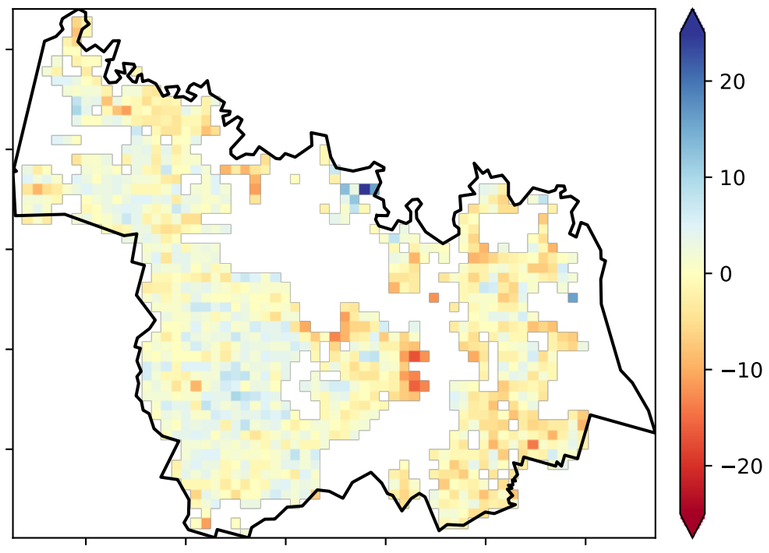


% Area protected from wind erosion (>50%)



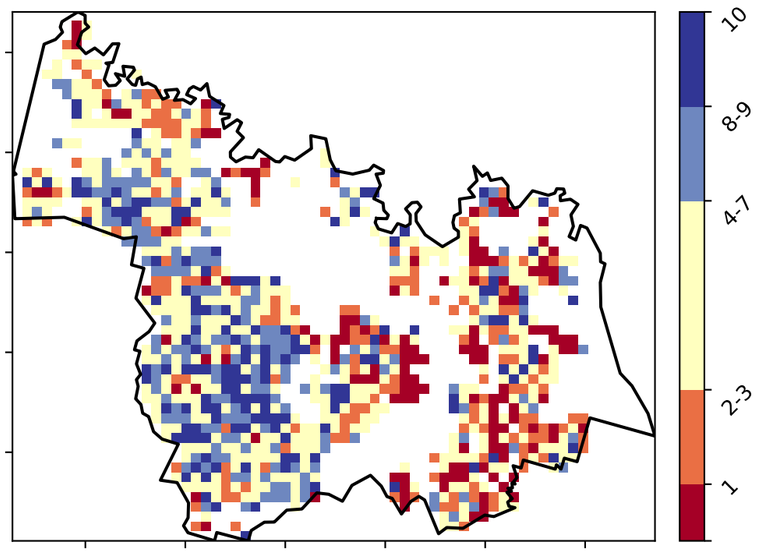
Total Vegetation Cover Anomaly [%]

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.



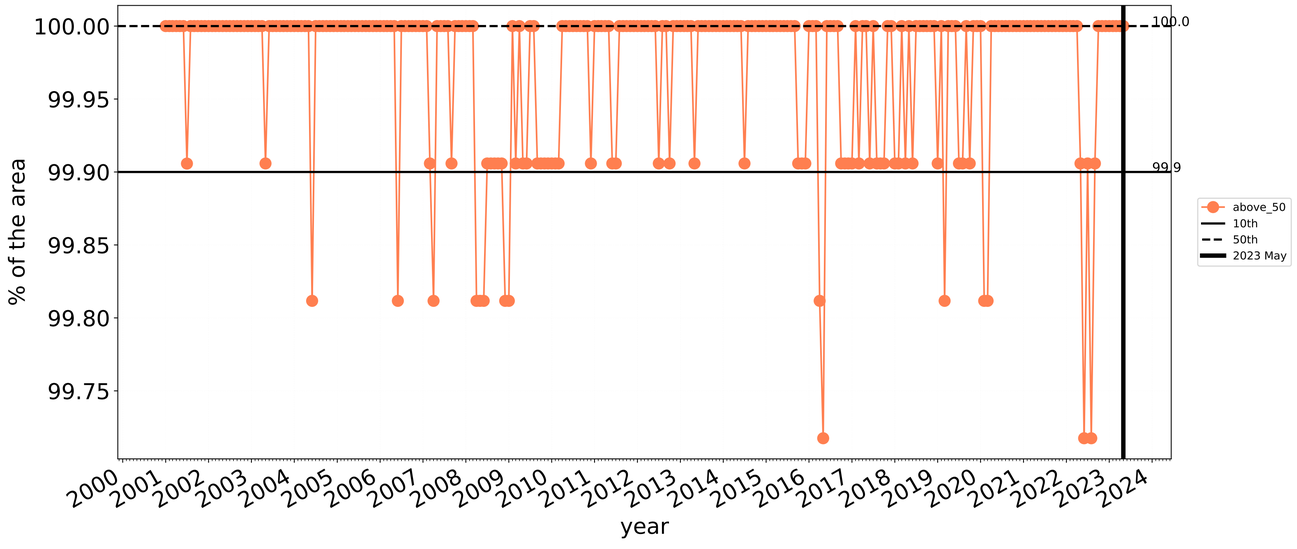
Total Vegetation Cover Decile [%]

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.

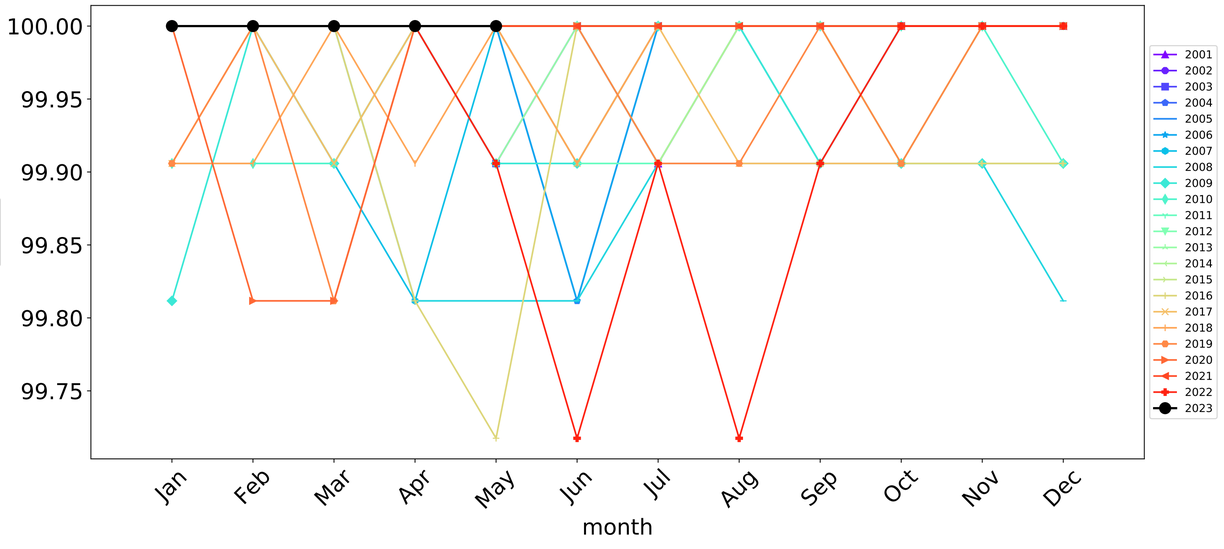


Grazing timeseries

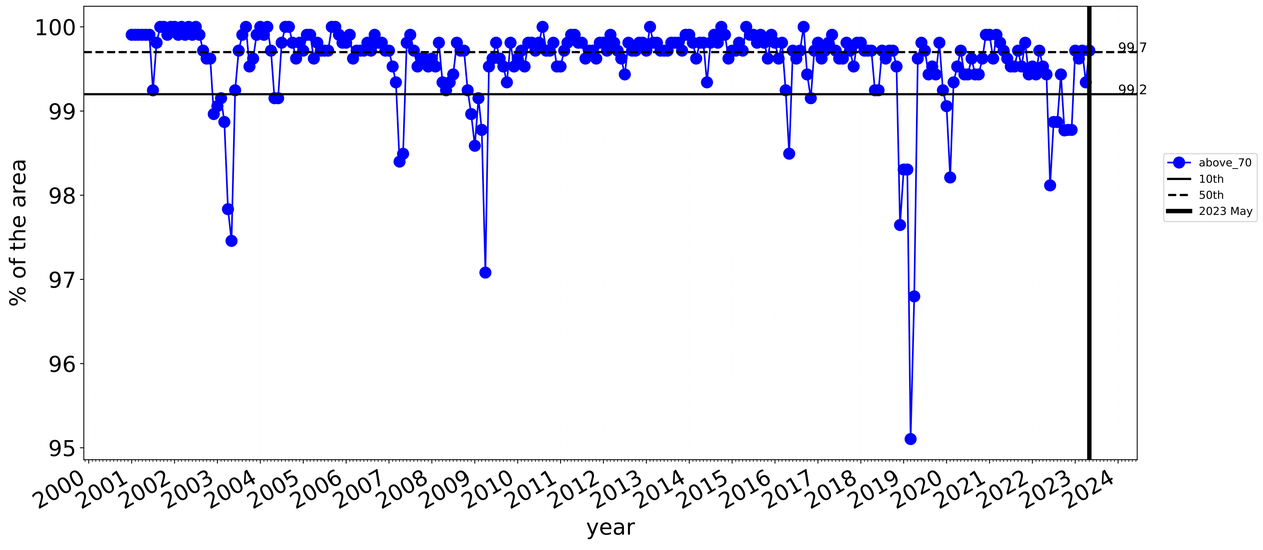
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



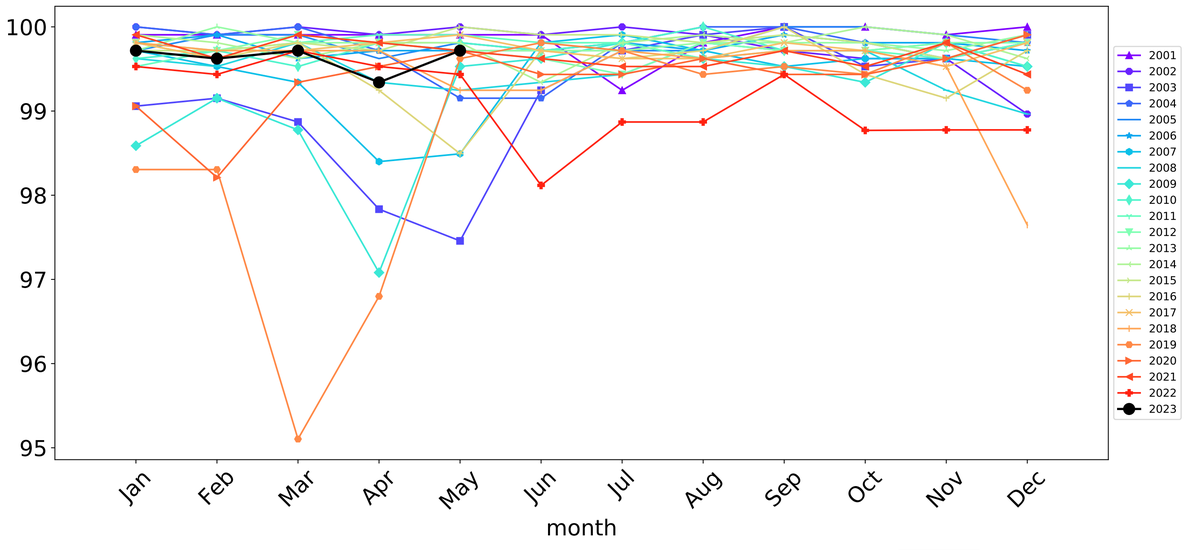
Wind erosion historical monthly area protected (Total Veg Cov >50%)



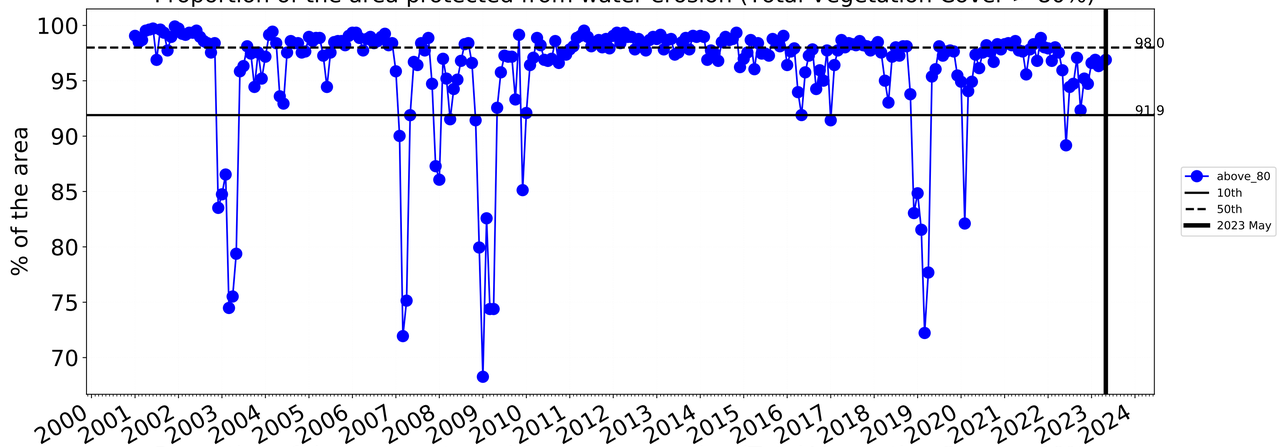
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



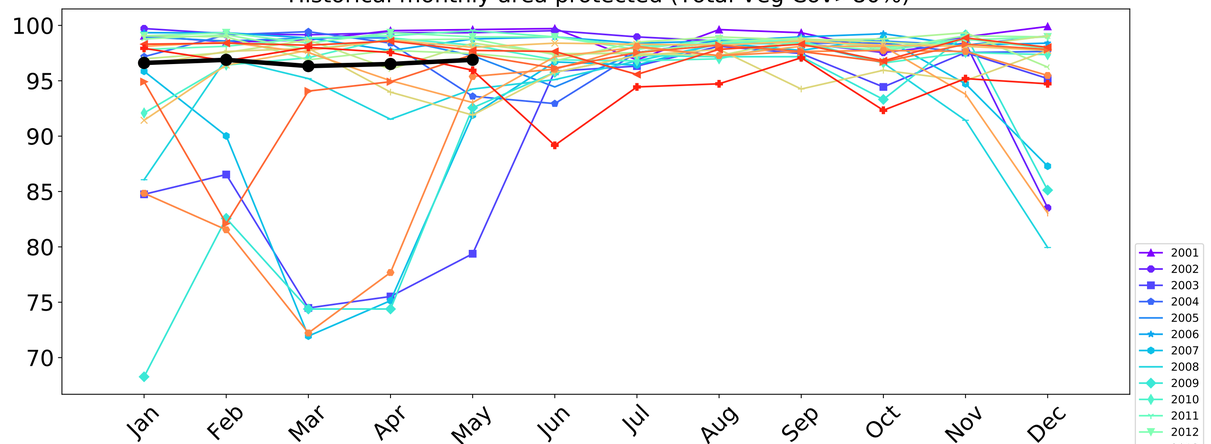
Water erosion historical monthly area protected (Total Veg Cov>70%)



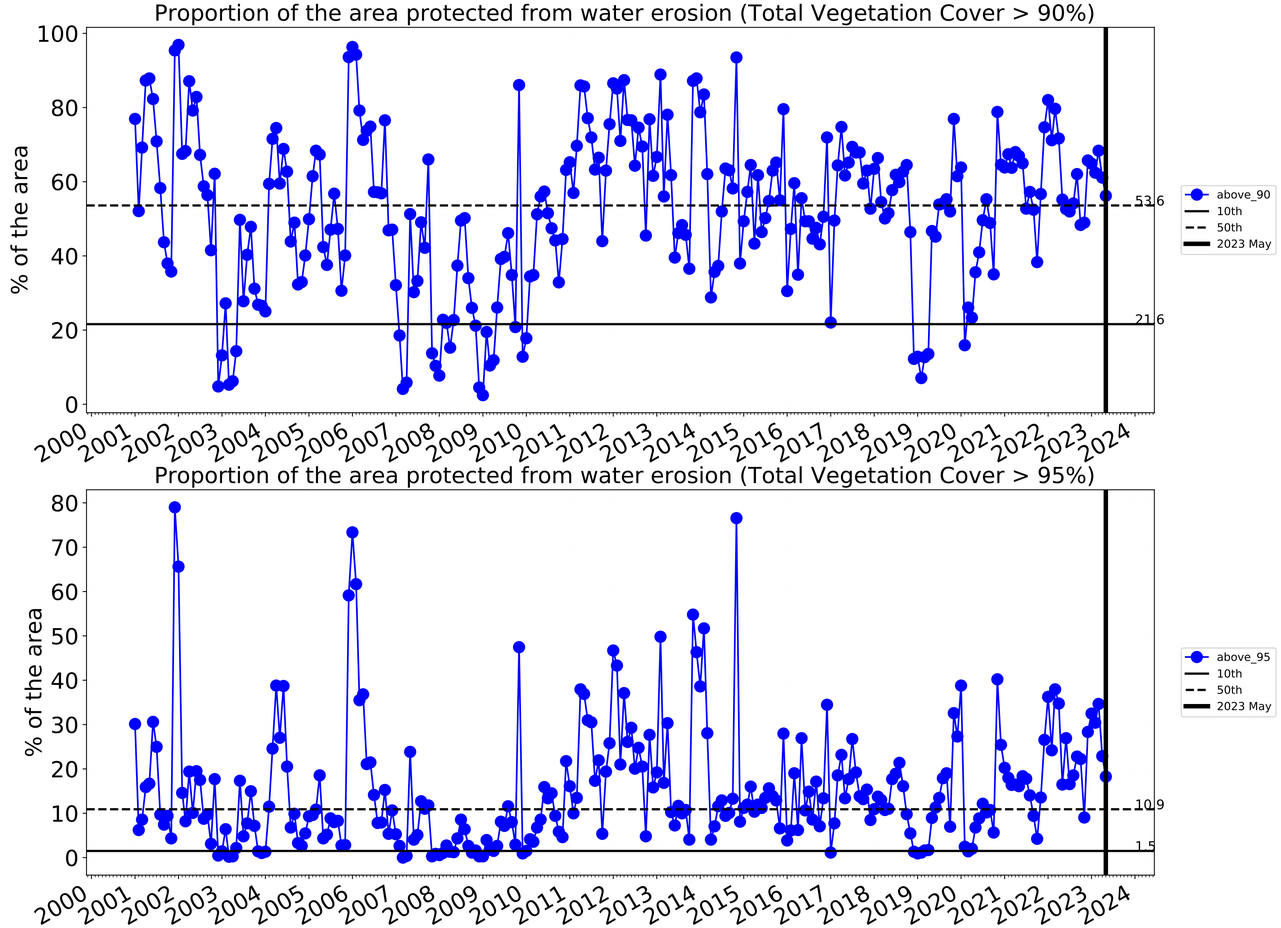
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



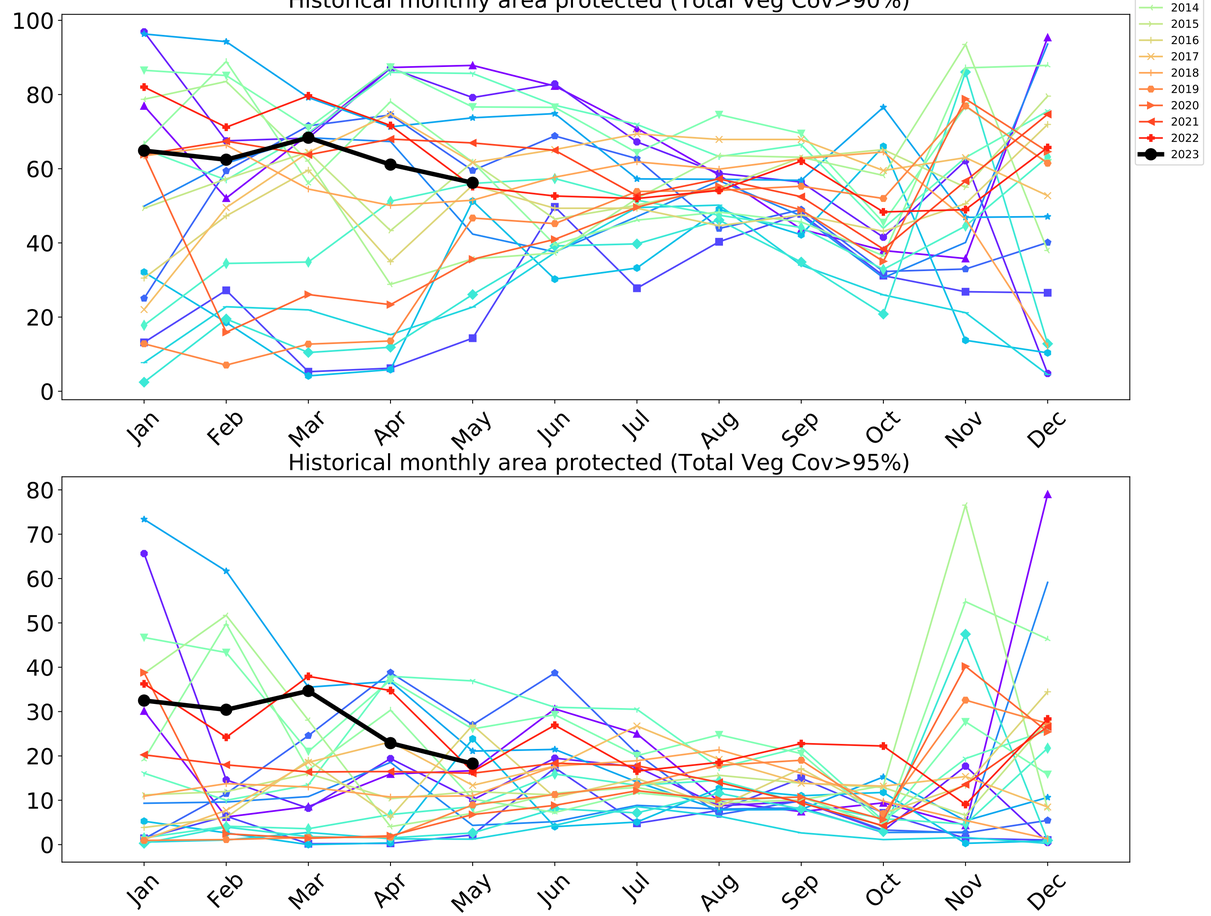
Historical monthly area protected (Total Veg Cov>80%)



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



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

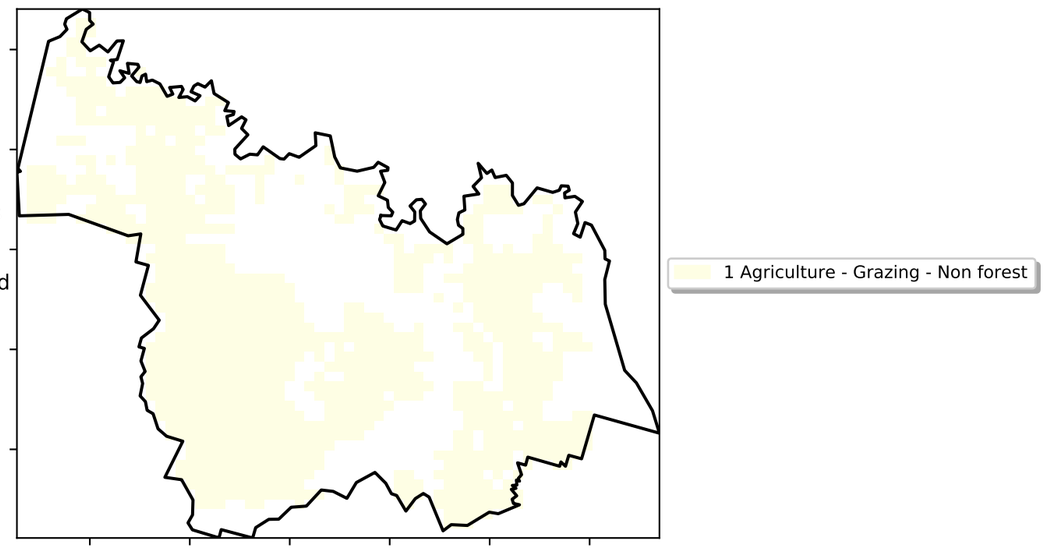


Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)

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

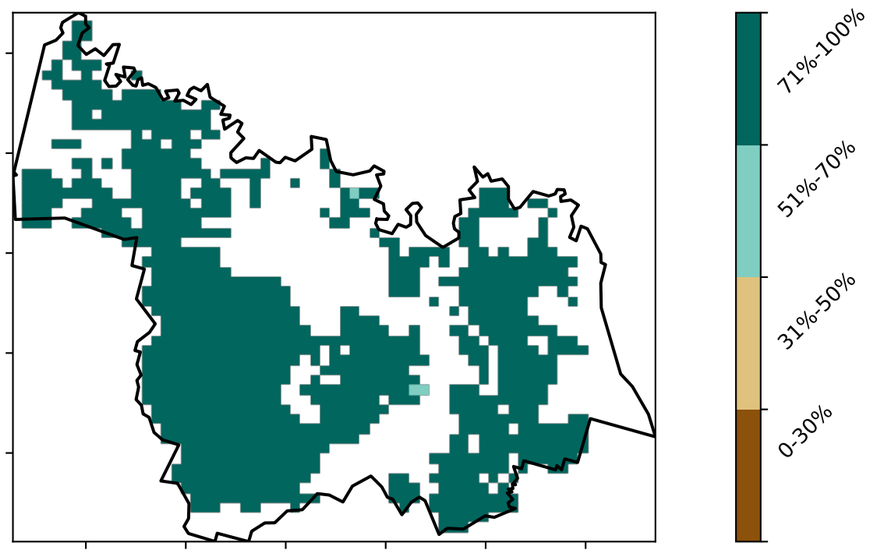
Grazing non forest

Land use and forest cover

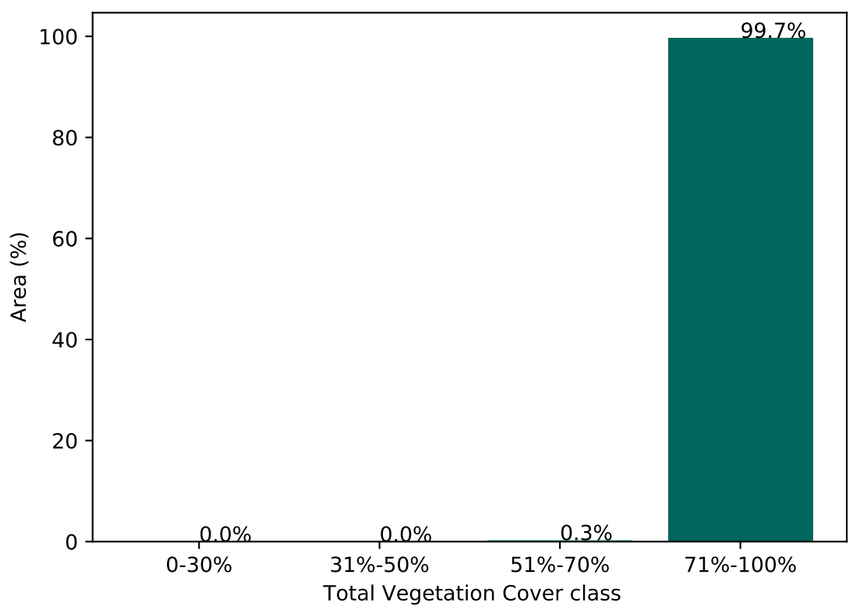


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

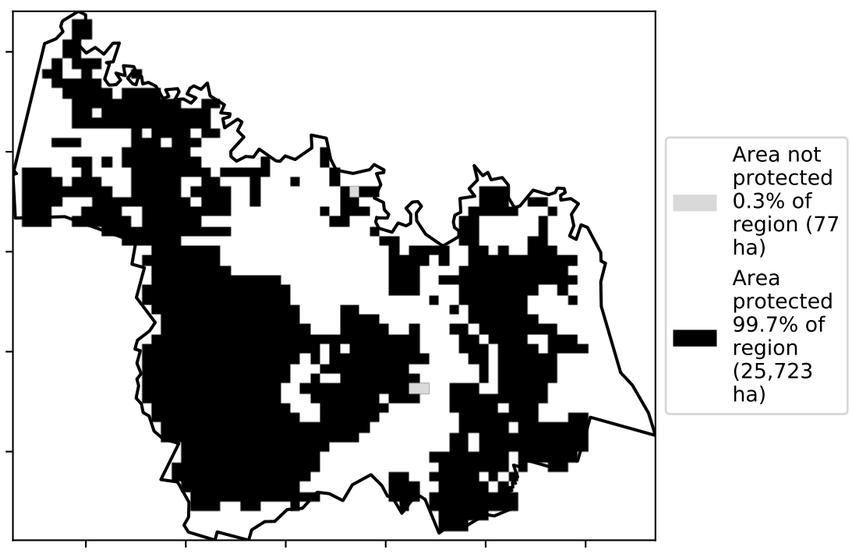
Total Vegetation Cover [%]



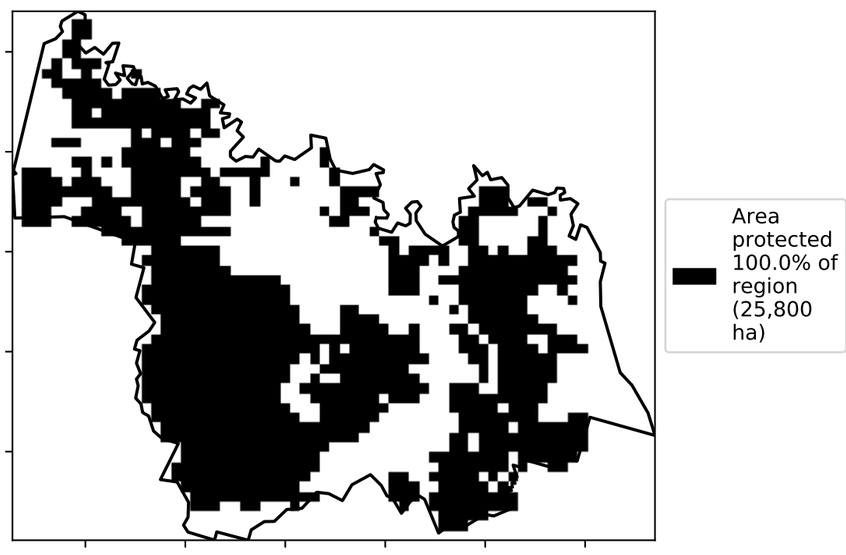
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

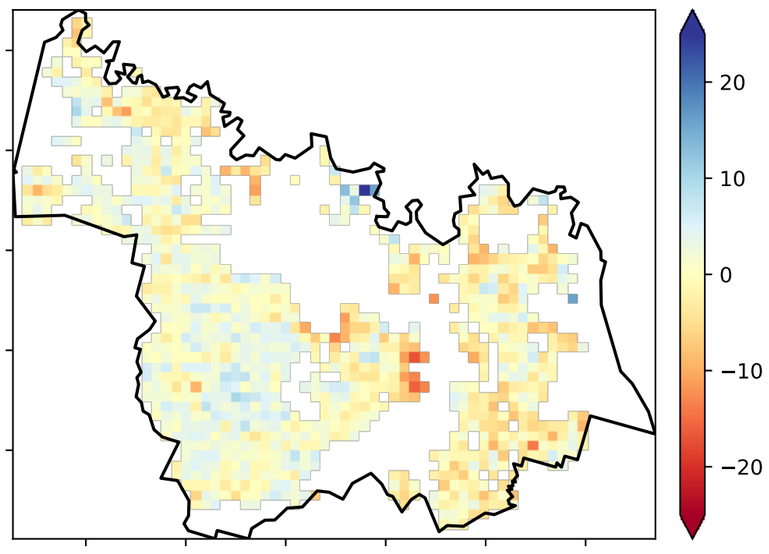


% Area protected from wind erosion (>50%)



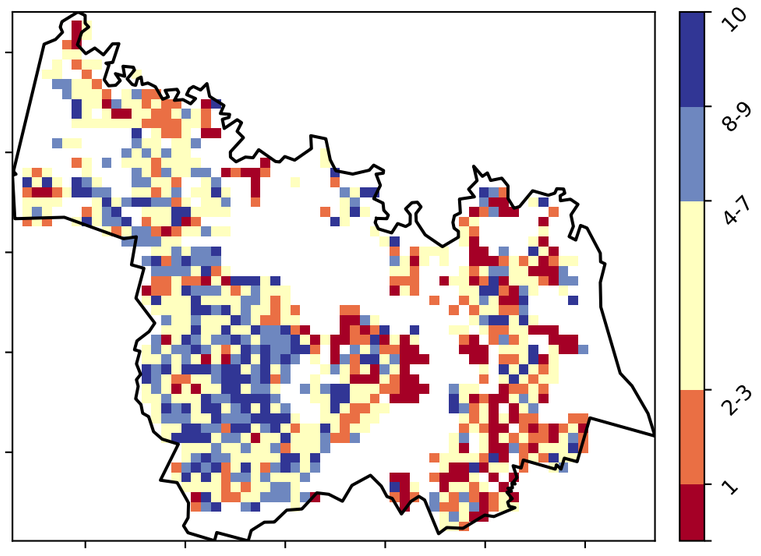
Total Vegetation Cover Anomaly [%]

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.



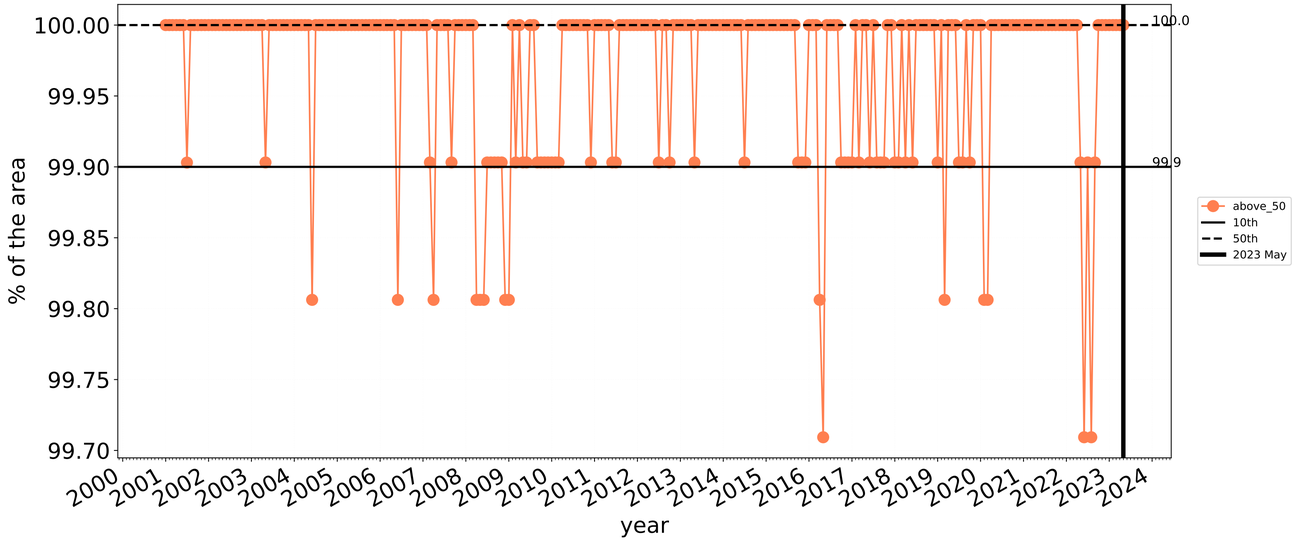
Total Vegetation Cover Decile [%]

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.

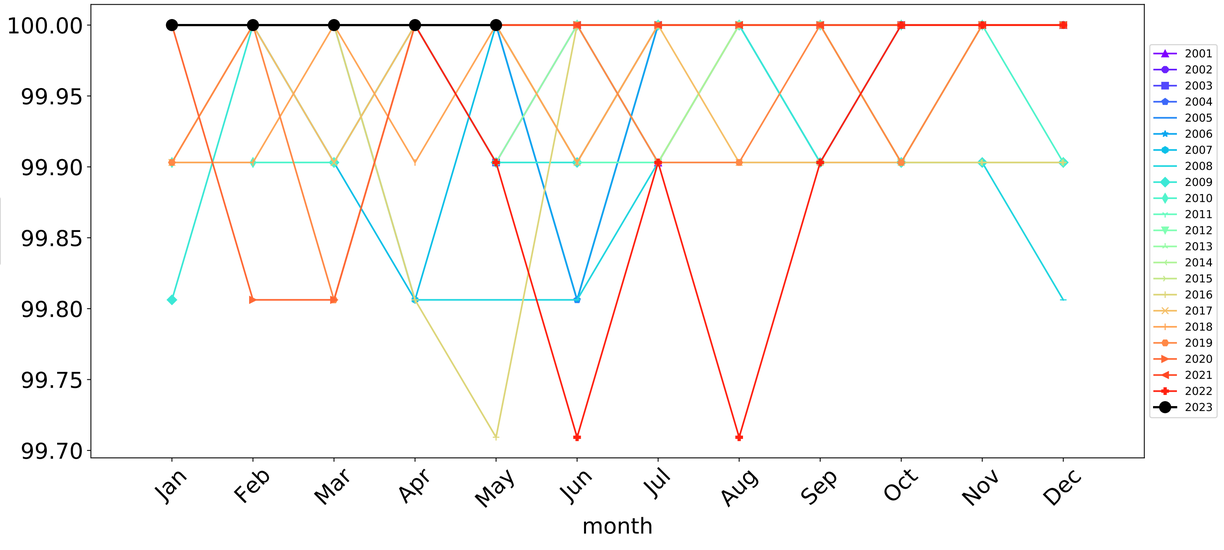


Grazing non forest timeseries

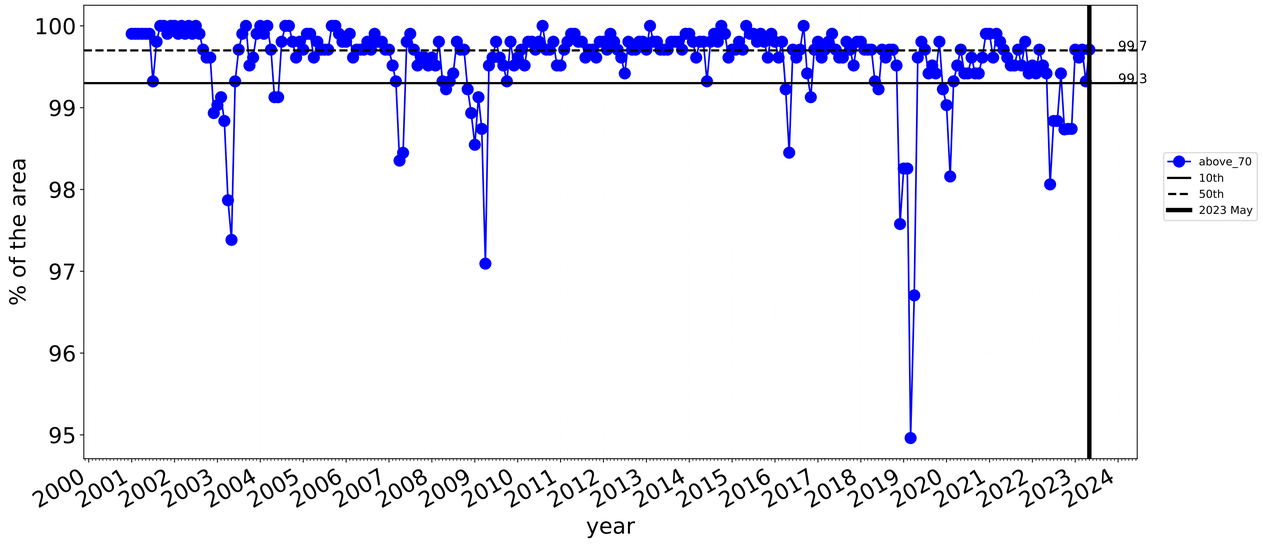
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



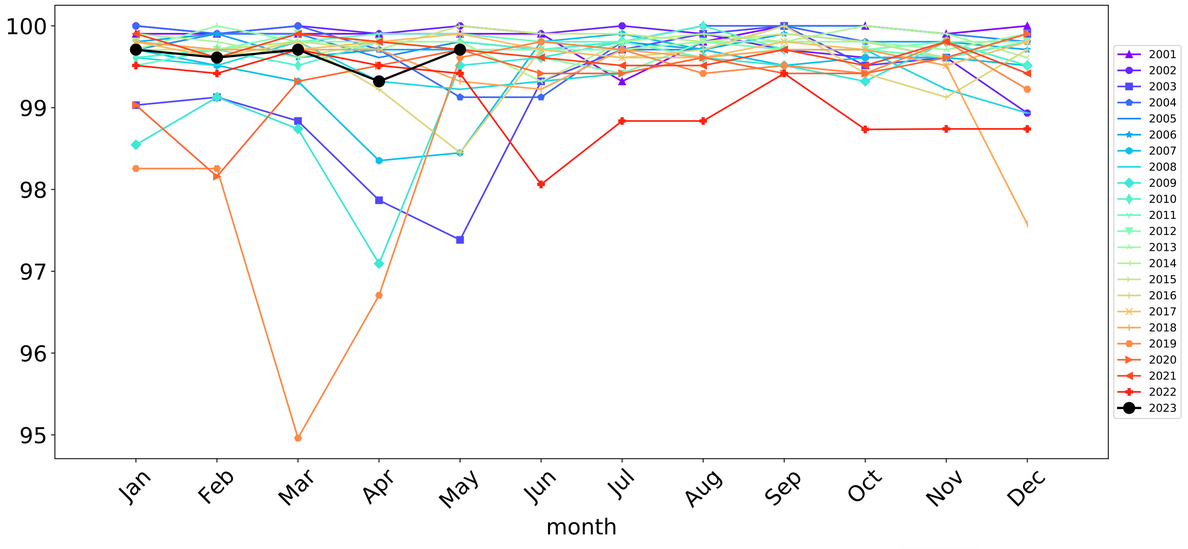
Wind erosion historical monthly area protected (Total Veg Cov >50%)

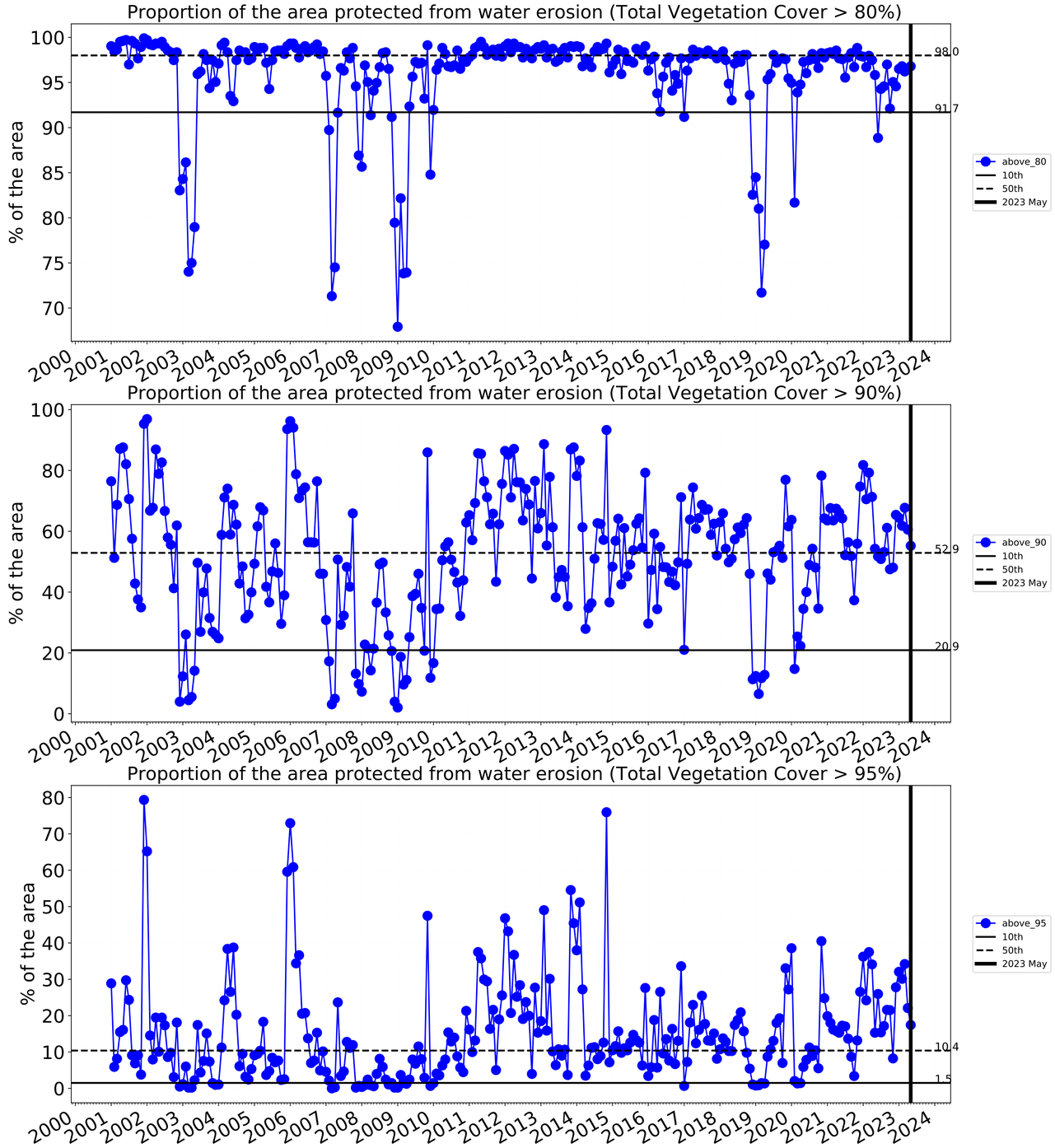


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



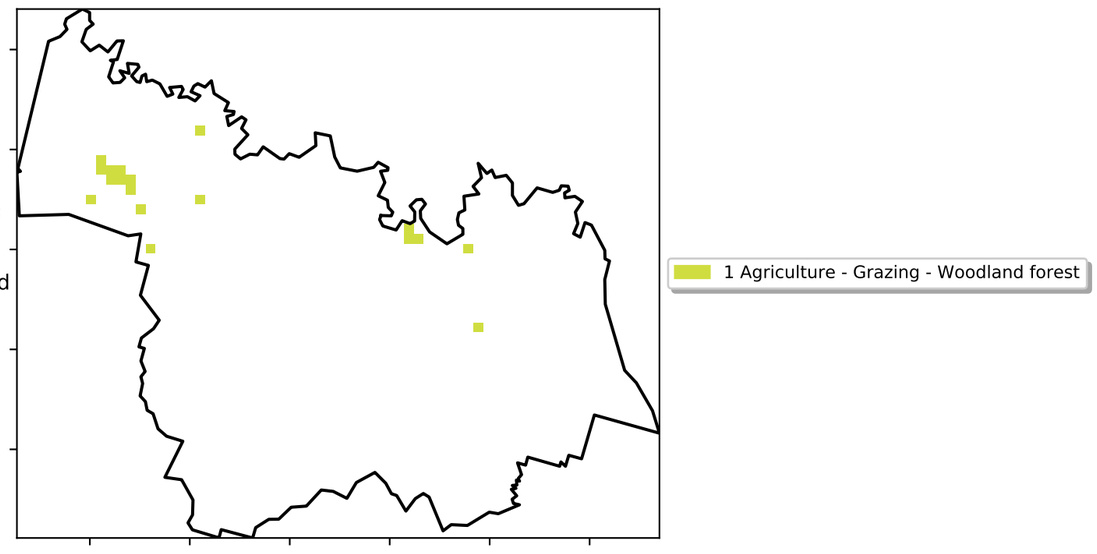
Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
98.0
91.7
above_80
10th
50th
2023 May
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
2020
2021
2022
2023
Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
52.9
20.9
above_90
10th
50th
2023 May
Historical monthly area protected (Total Veg Cov>90%)
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
10.4
1.5
above_95
10th
50th
2023 May
Historical monthly area protected (Total Veg Cov>95%)

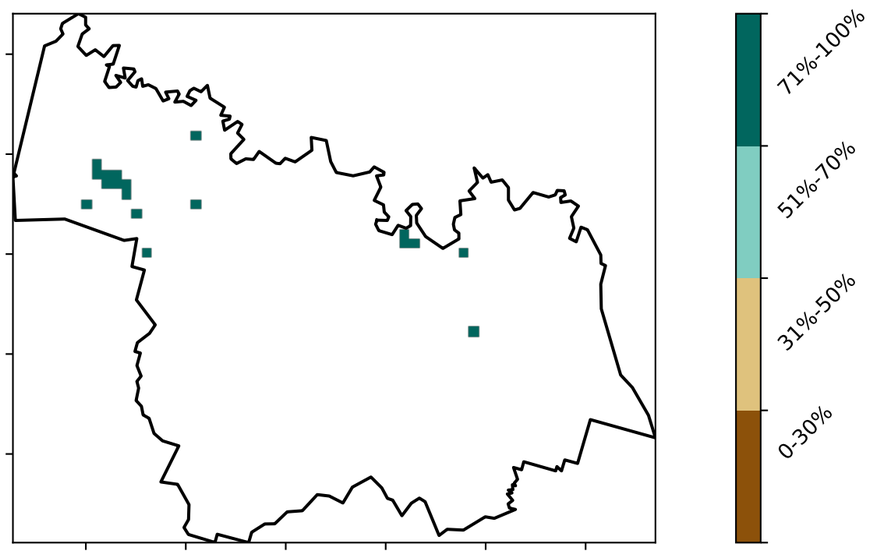
Grazing Woodland forest

Land use and forest cover

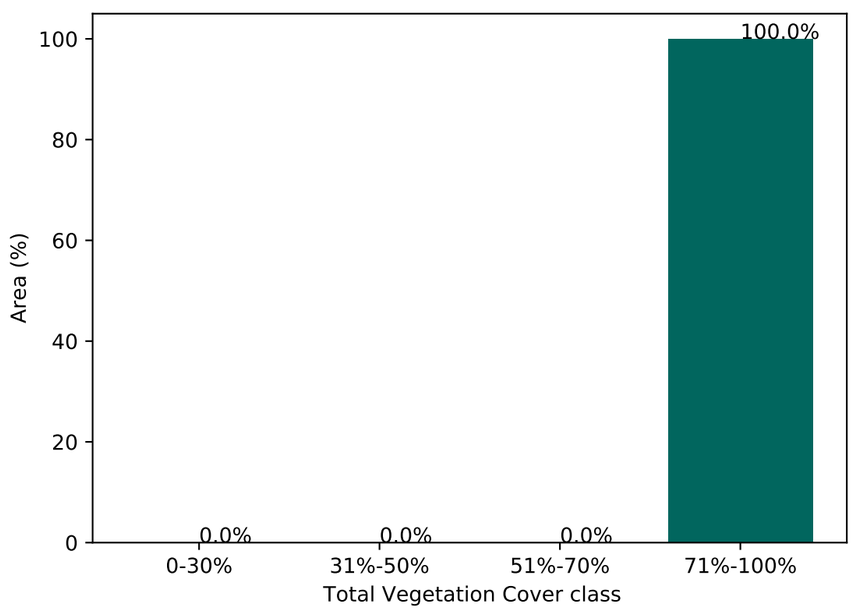


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

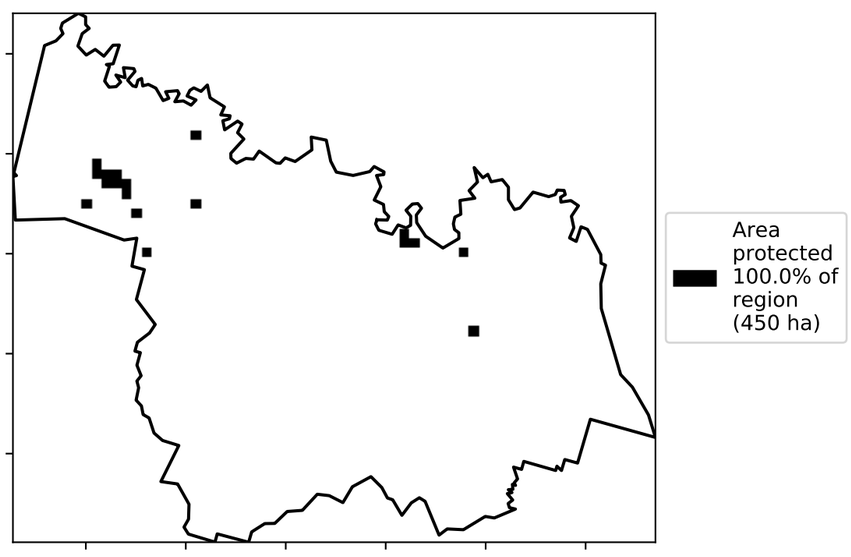
Total Vegetation Cover [%]



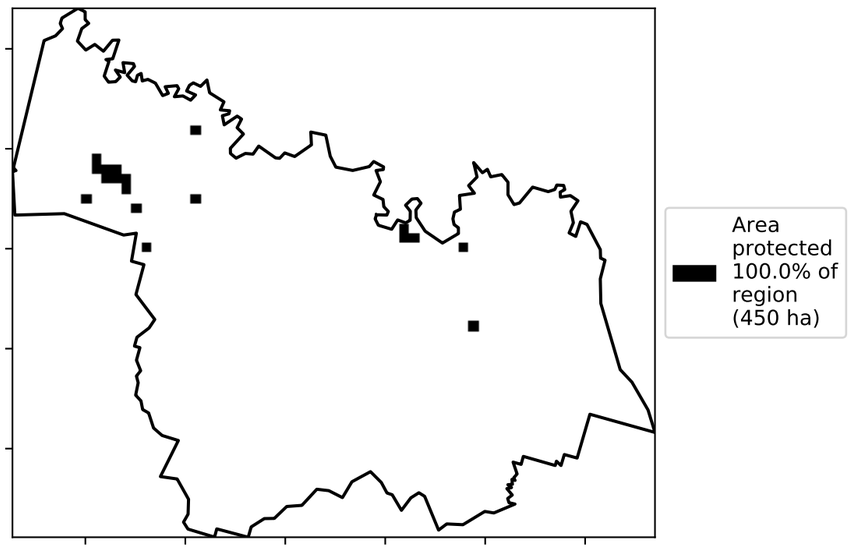
Proportion of vegetation cover class in area



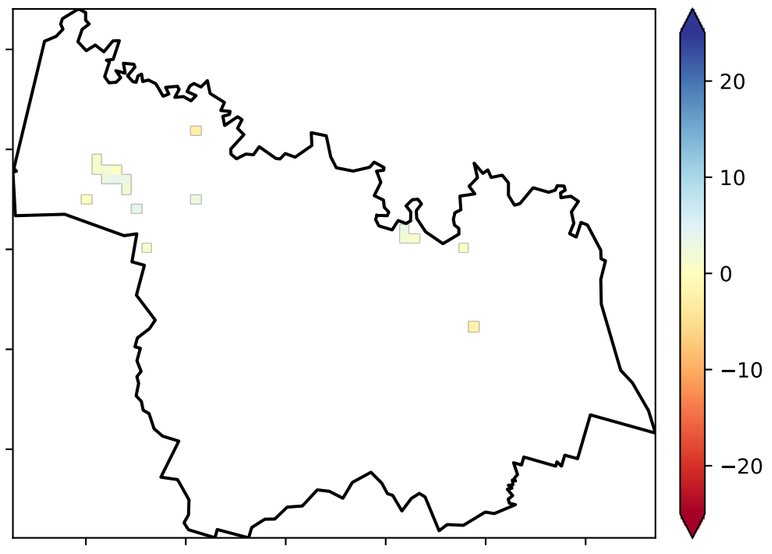
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

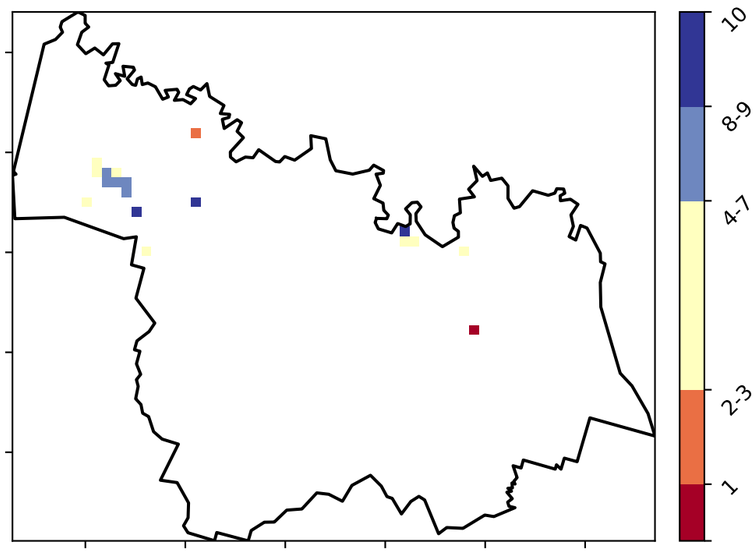


Total Vegetation Cover Anomaly [%]



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.

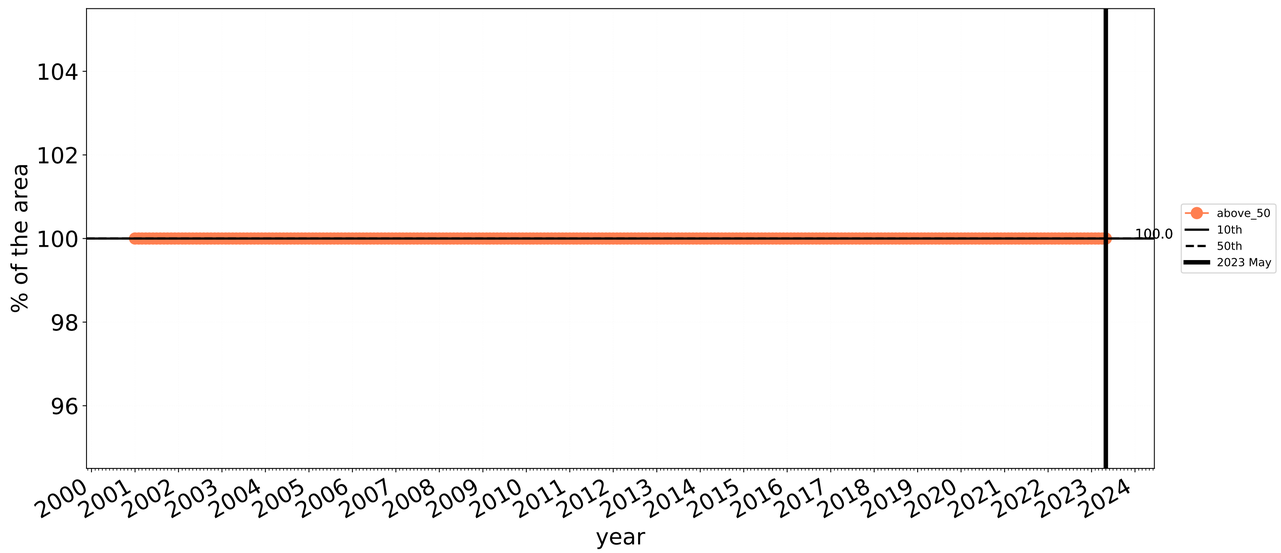
Total Vegetation Cover Decile [%]



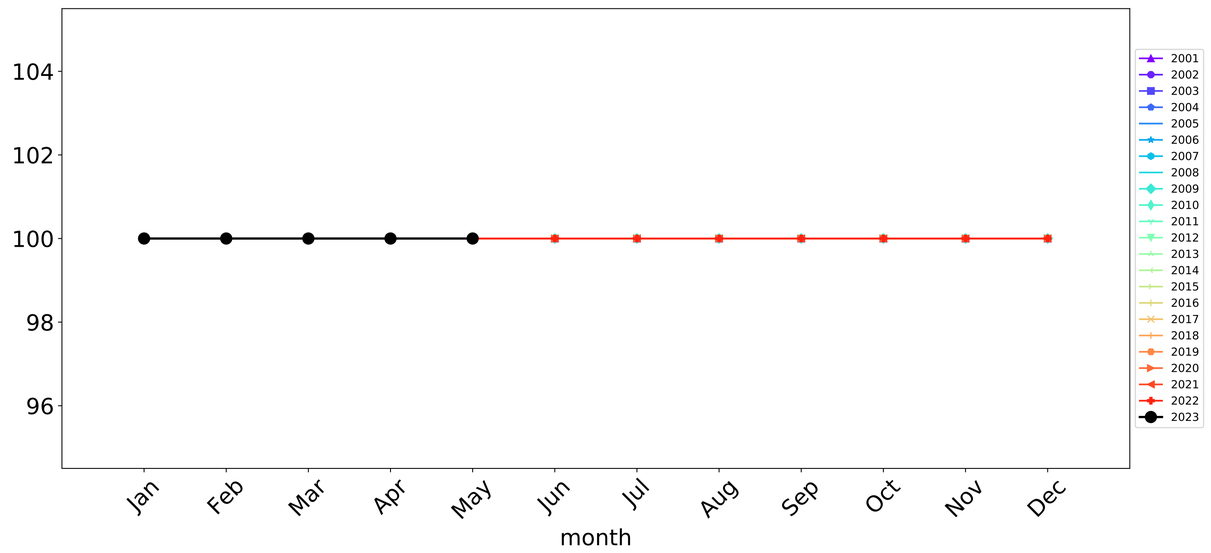
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Grazing Woodland forest timeseries

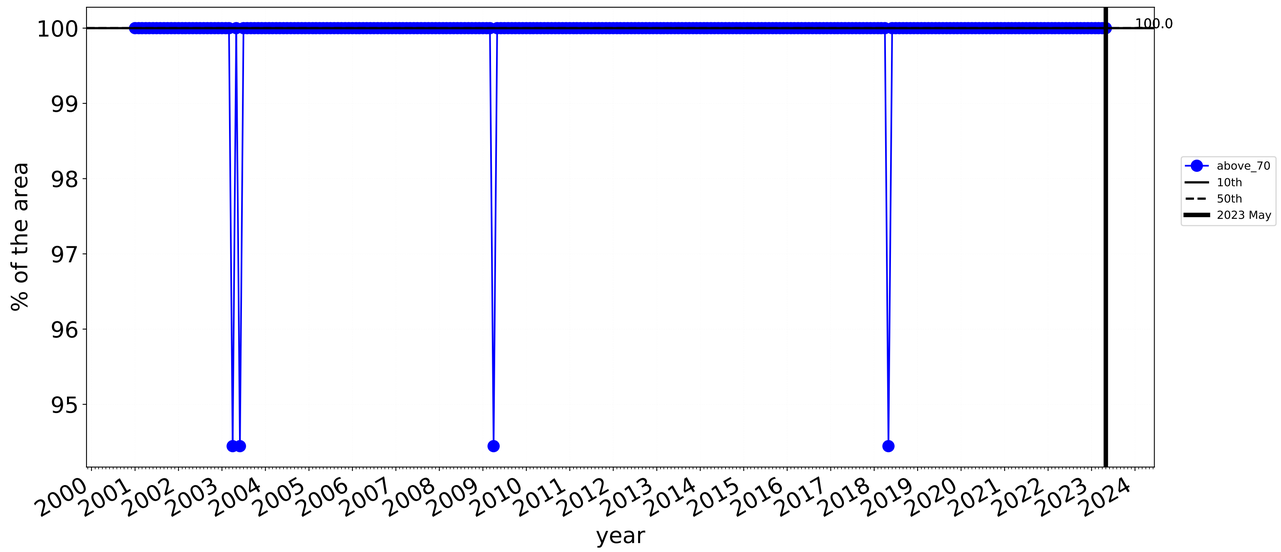
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



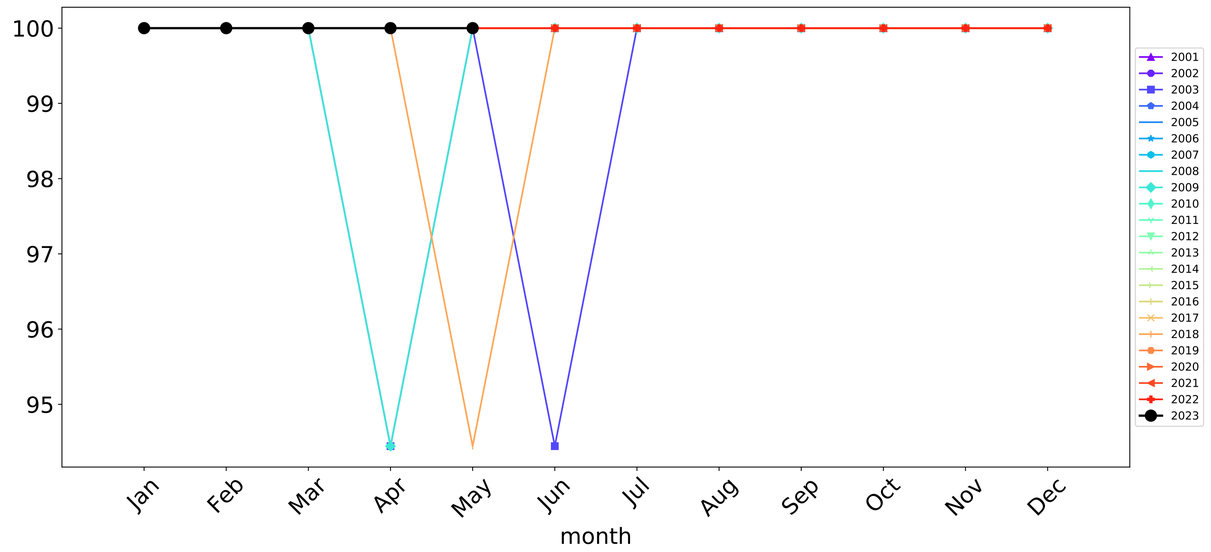
Wind erosion historical monthly area protected (Total Veg Cov >50%)

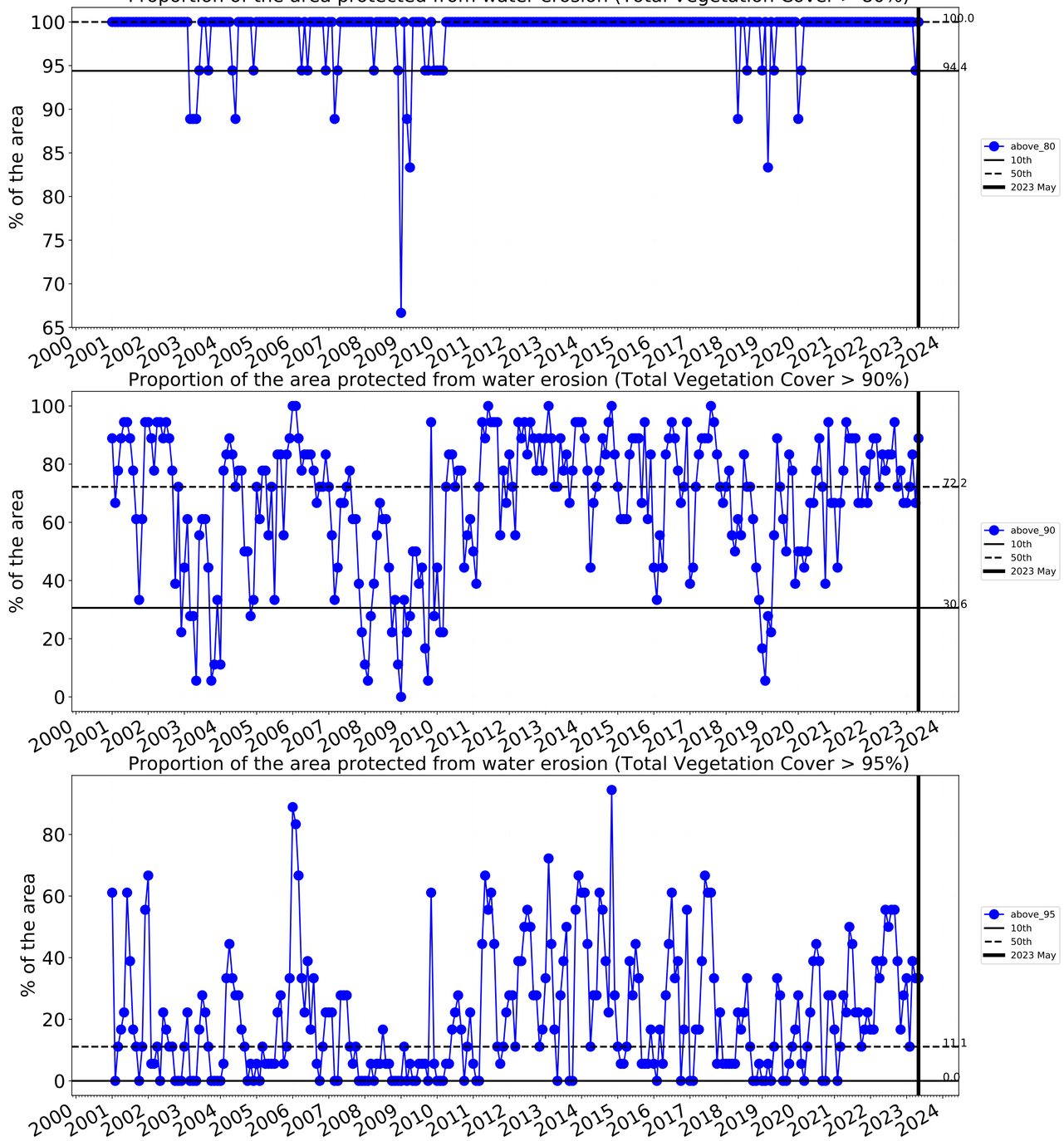


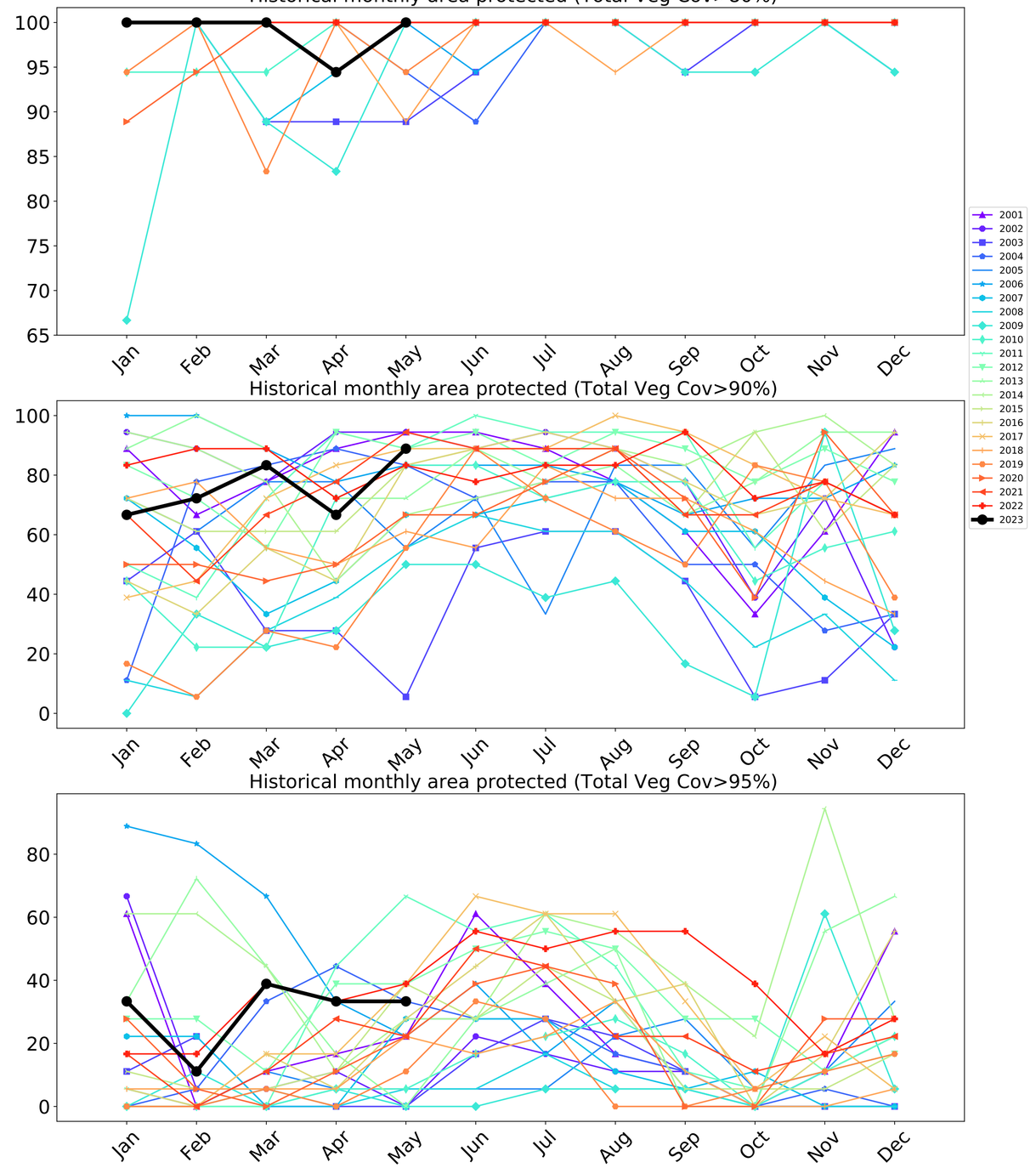
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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
100.0
94.4
above_80
10th
50th
2023 May
Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
72.2
30.6
above_90
10th
50th
2023 May
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
11.1
0.0
above_95
10th
50th
2023 May


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
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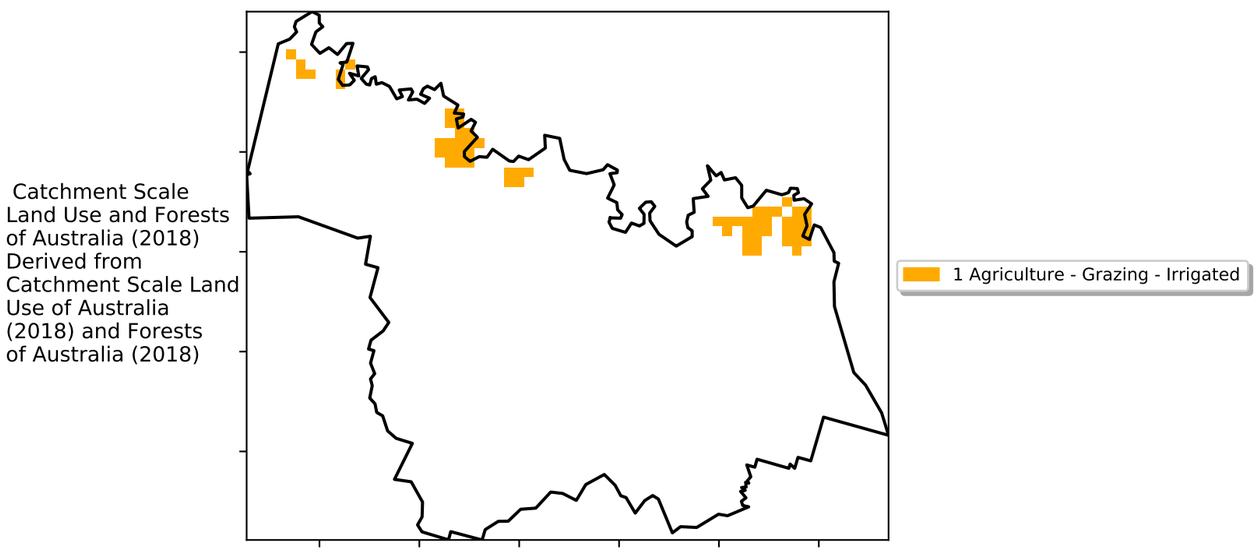
2017
2018
2019
2020
2021
2022
2023

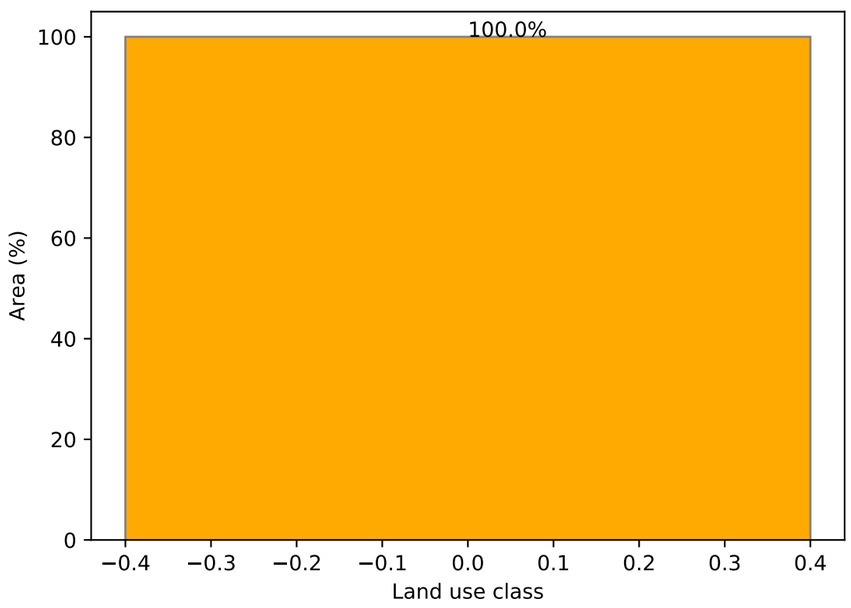
Irrigation

Land use and forest cover

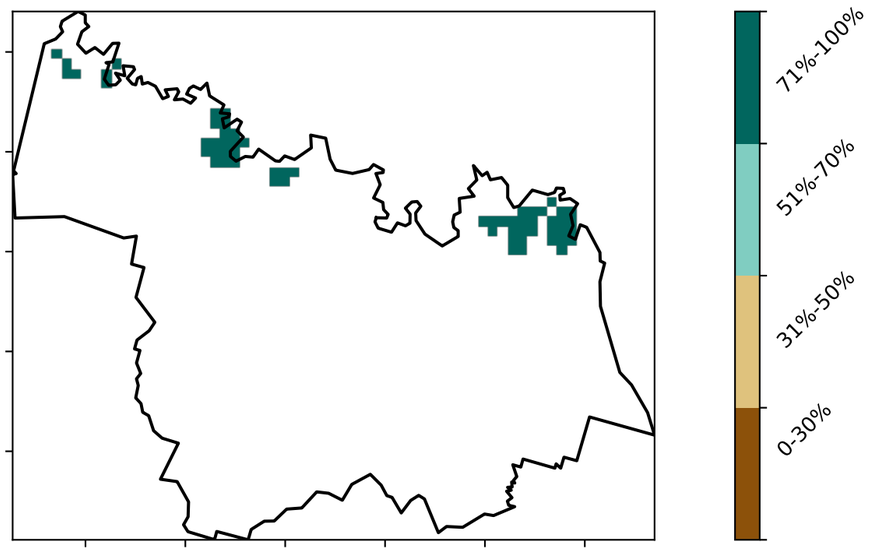


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

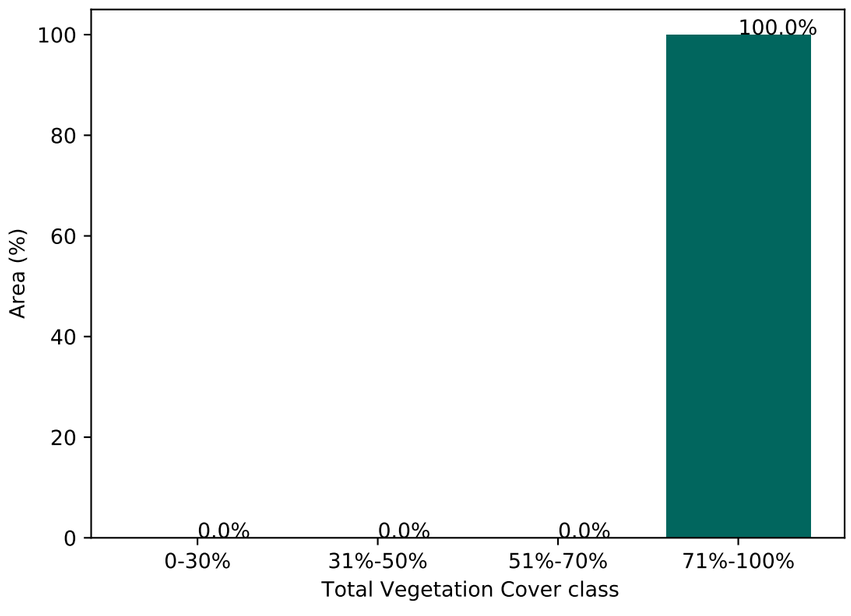
Proportion of each land class in area



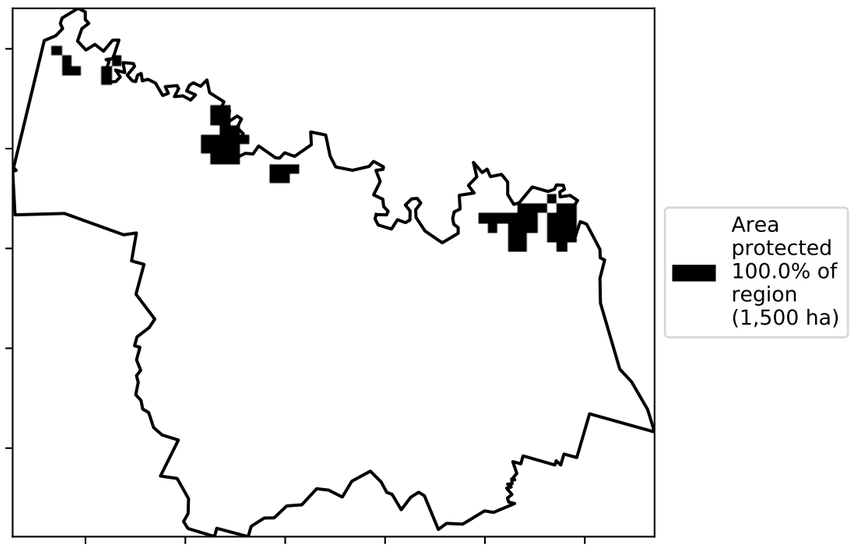
Total Vegetation Cover [%]



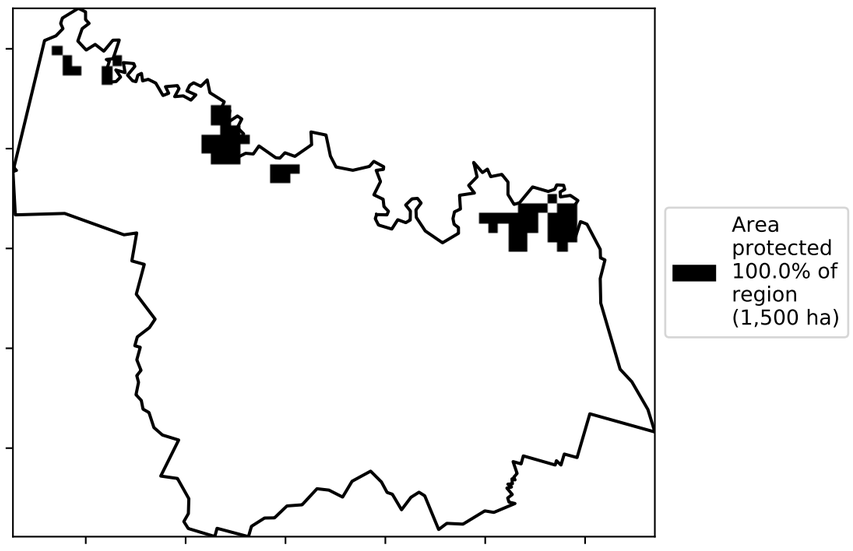
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

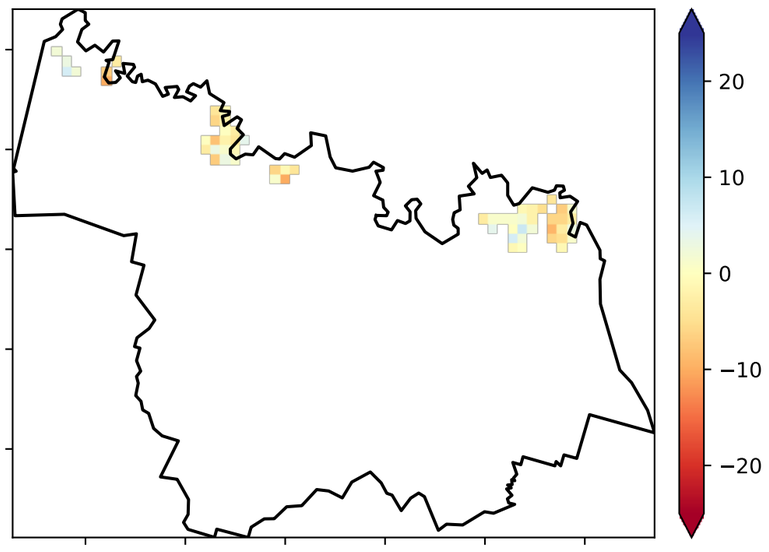


% Area protected from wind erosion (>50%)



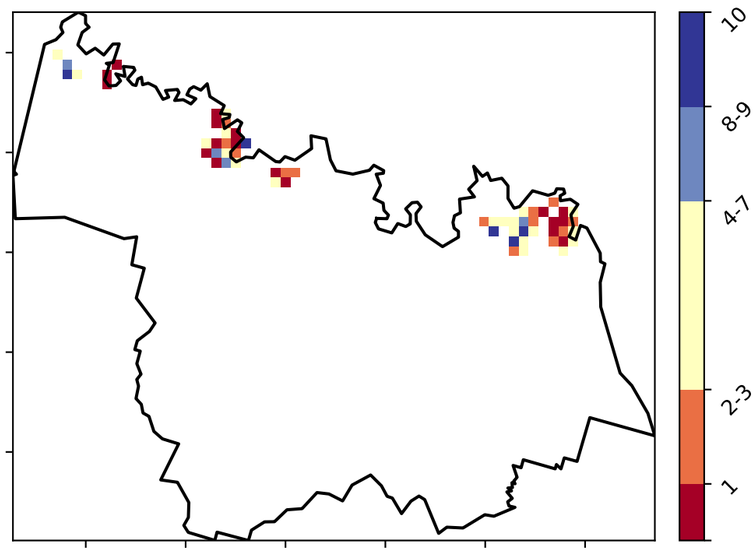
Total Vegetation Cover Anomaly [%]

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.

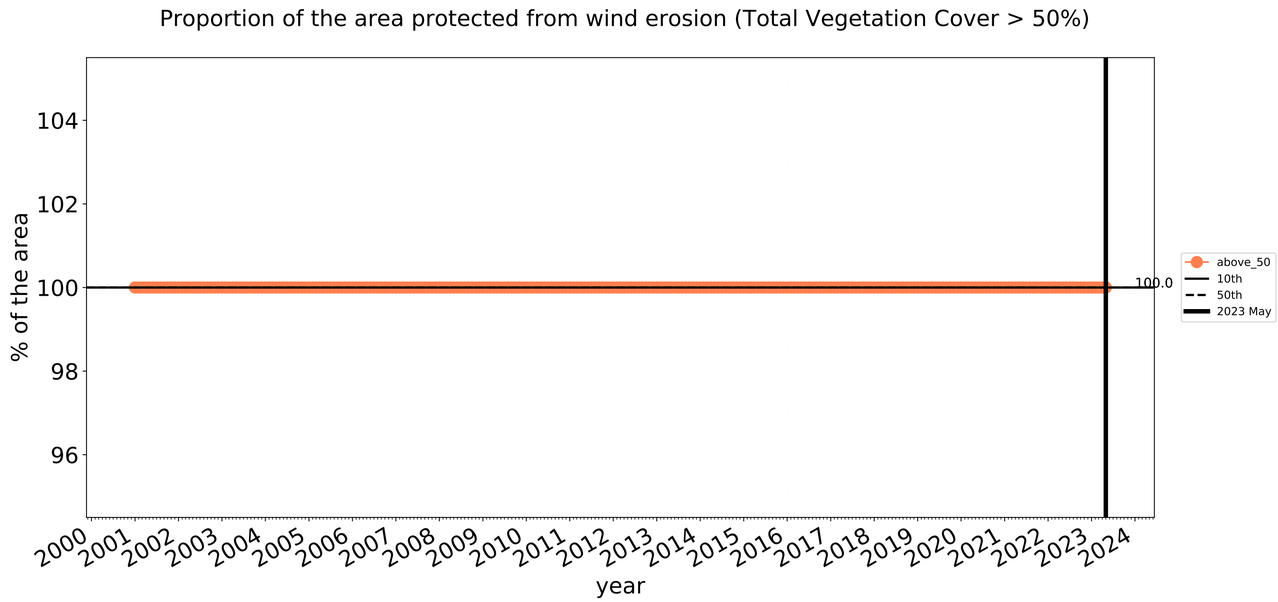


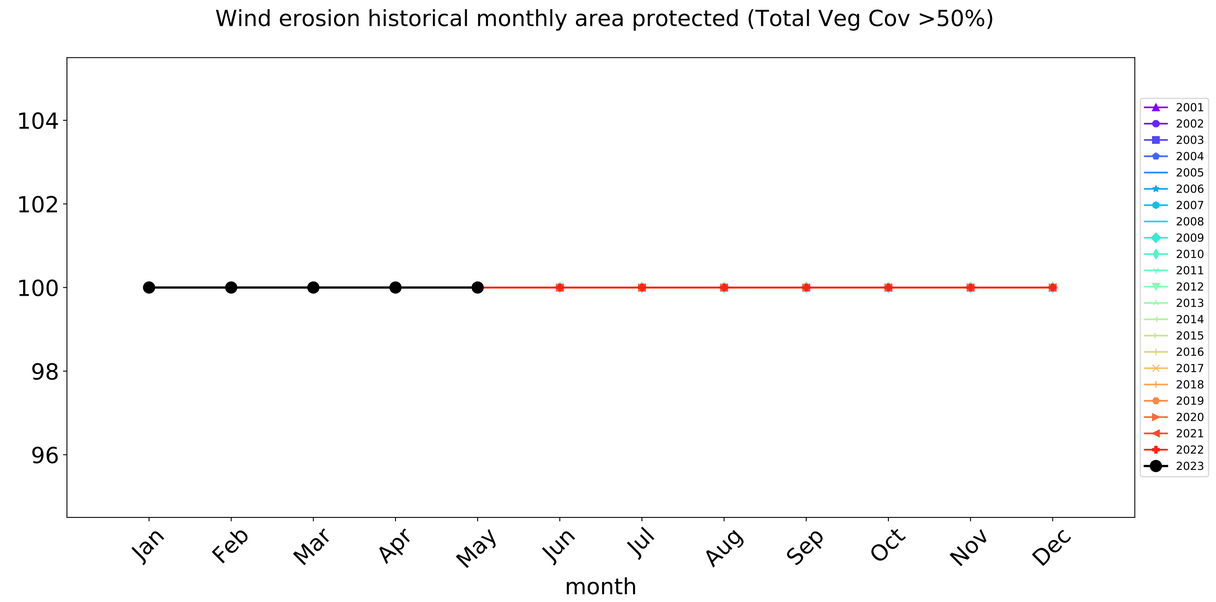
Total Vegetation Cover Decile [%]

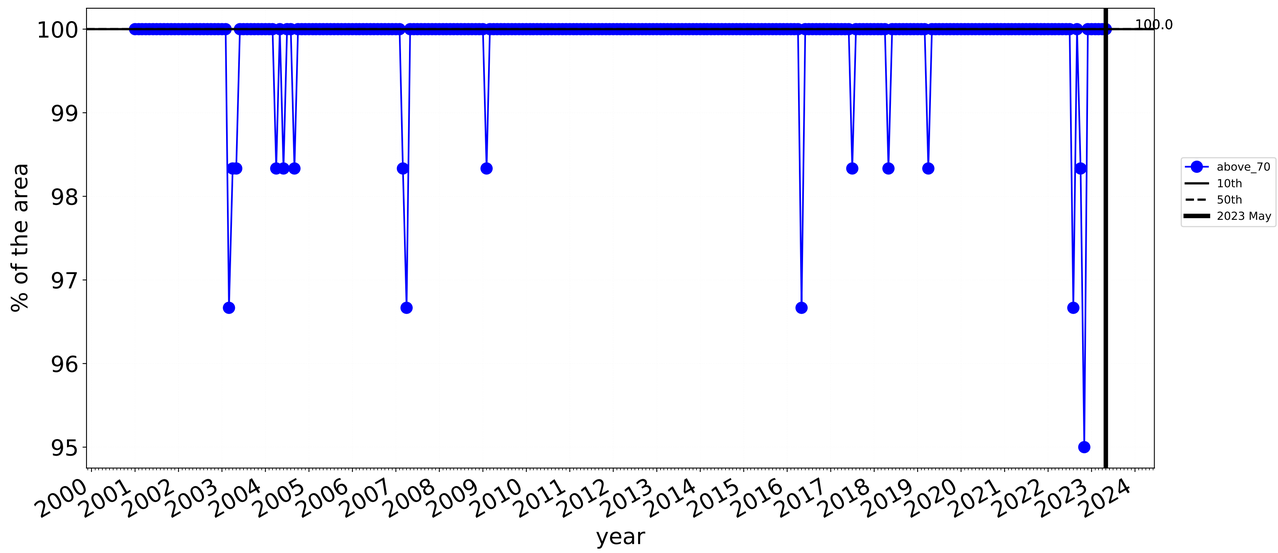
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

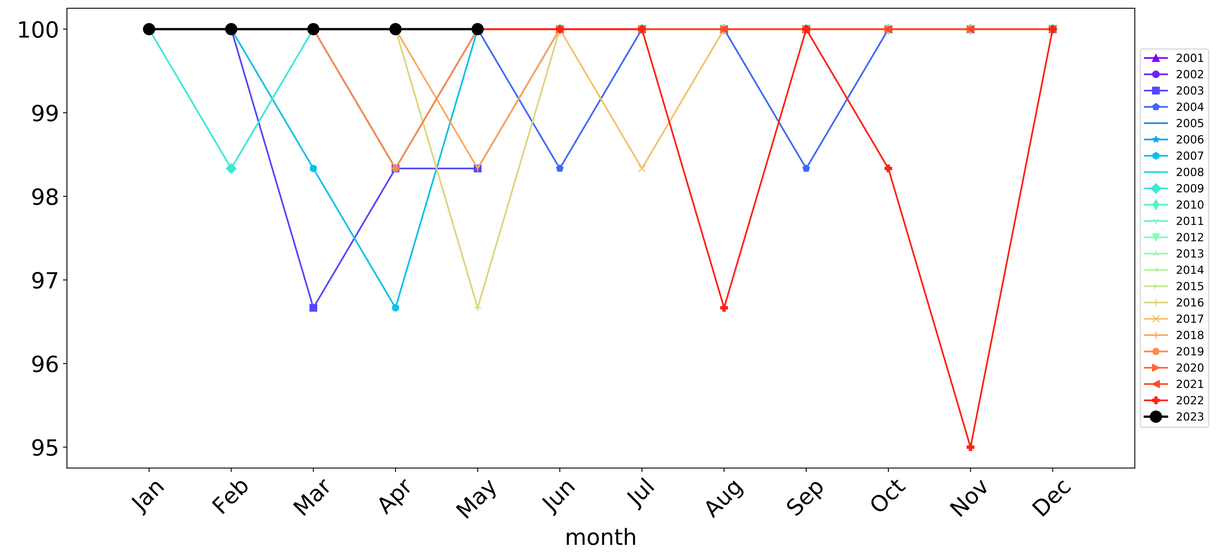


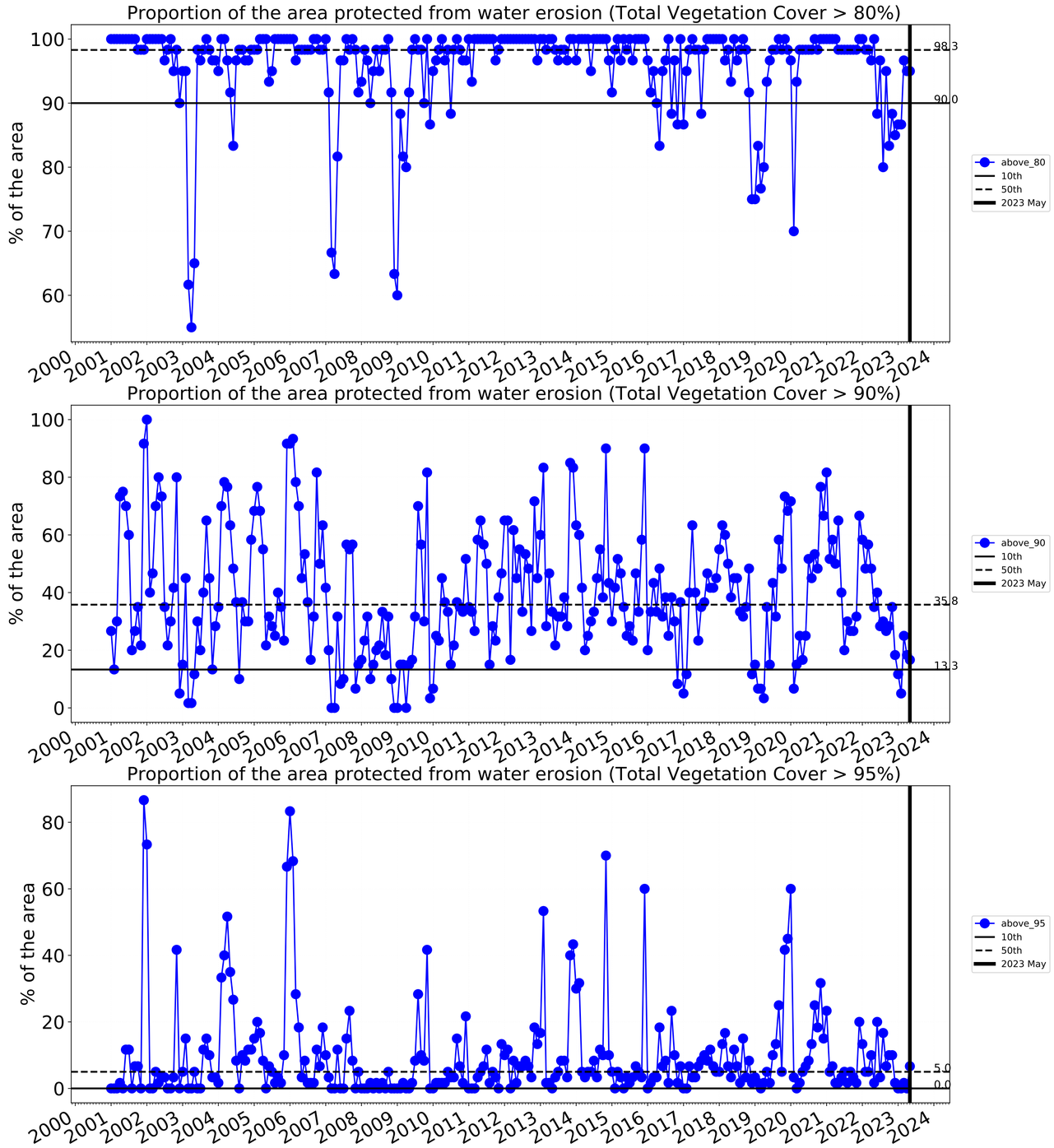
Irrigation timeseries

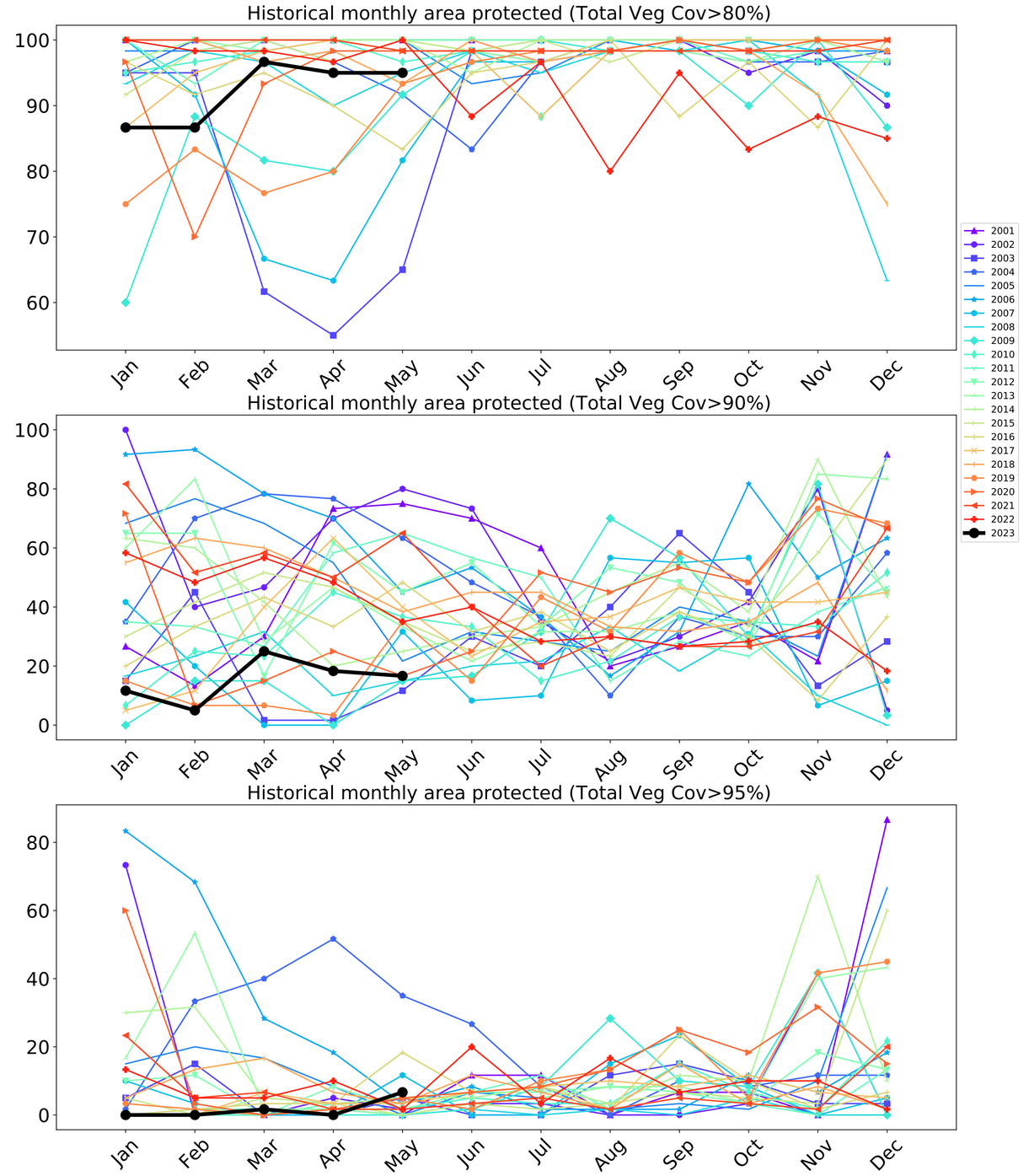









Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
98.3
90.0
above_80
10th
50th
2023 May
Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
35.8
13.3
above_90
10th
50th
2023 May
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
5.0
0.0
above_95
10th
50th
2023 May


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
2020
2021
2022
2023

Wodonga_(C) (42,000 ha and no data 1,292 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	42,000	100.0% 42,000	99.5% 41,775	94.6% 39,725	87.9% 36,900	46.0% 19,300	16.0% 6,700
Conservation and natural environments	5,325	100.0% 5,325	100.0% 5,325	99.5% 5,300	96.2% 5,125	59.2% 3,150	30.5% 1,625
Conservation and natural environments non forest	3,175	100.0% 3,175	100.0% 3,175	99.2% 3,150	93.7% 2,975	37.0% 1,175	8.7% 275
Conservation and natural environments Forest (non woodland)	1,775	100.0% 1,775	100.0% 1,775	100.0% 1,775	100.0% 1,775	97.2% 1,725	76.1% 1,350
Agriculture	28,150	100.0% 28,150	100.0% 28,150	99.7% 28,075	96.8% 27,250	54.1% 15,225	17.7% 4,975
Grazing	26,550	100.0% 26,550	100.0% 26,550	99.7% 26,475	96.9% 25,725	56.2% 14,925	18.3% 4,850
Grazing non forest	25,800	100.0% 25,800	100.0% 25,800	99.7% 25,725	96.8% 24,975	55.2% 14,250	17.4% 4,500
Grazing Woodland forest	450	100.0% 450	100.0% 450	100.0% 450	100.0% 450	88.9% 400	33.3% 150
Irrigation	1,500	100.0% 1,500	100.0% 1,500	100.0% 1,500	95.0% 1,425	16.7% 250	6.7% 100