Total vegetation cover soil protection
Region:LGA Grant_(DC) SA Date: August 2022

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:

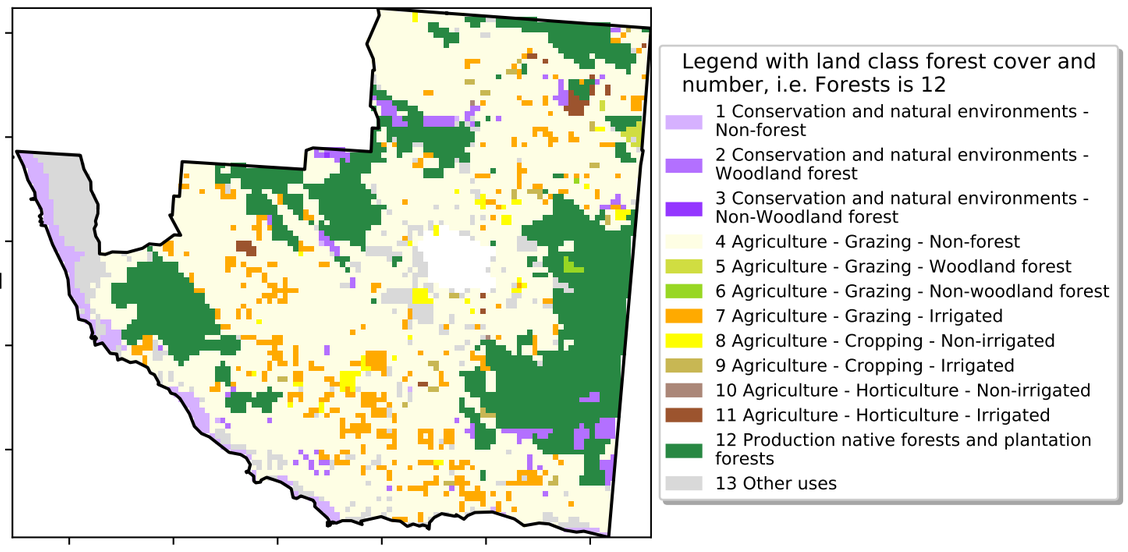
1. http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification
2. http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018
3. https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover
4. MODIS Fractional cover algorithm:

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

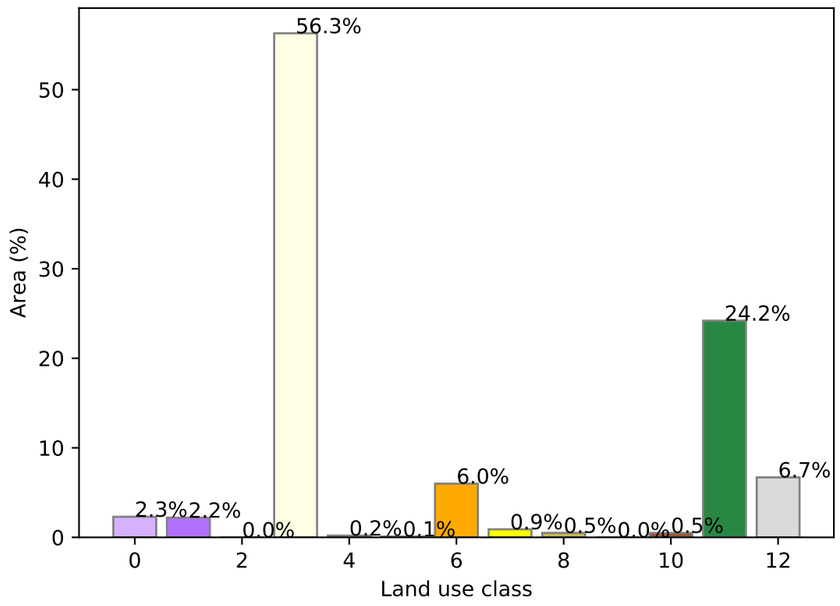
Vegetation Cover Aug 2022

Land use and forest cover

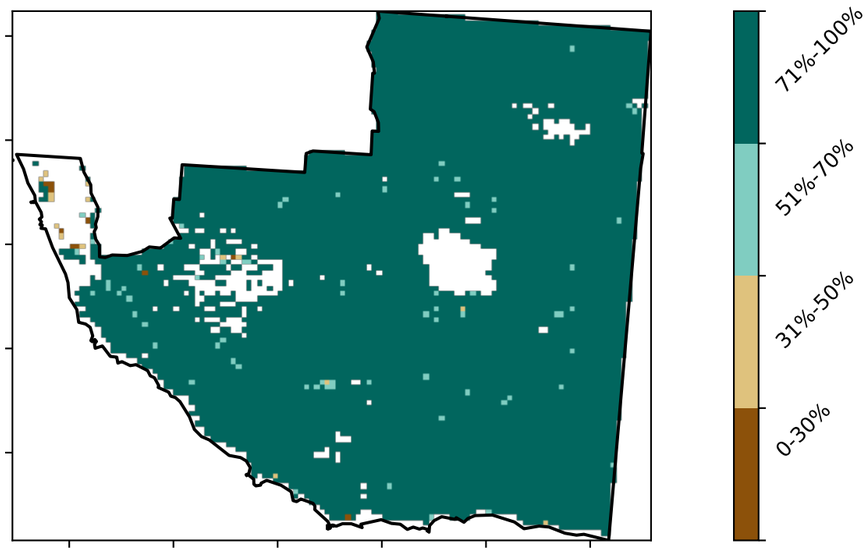
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



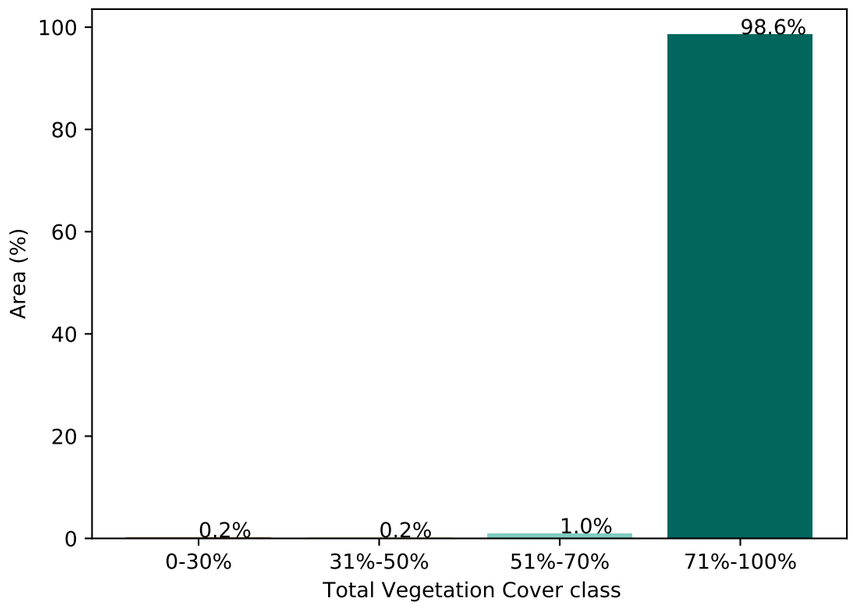
Proportion of each land class in area



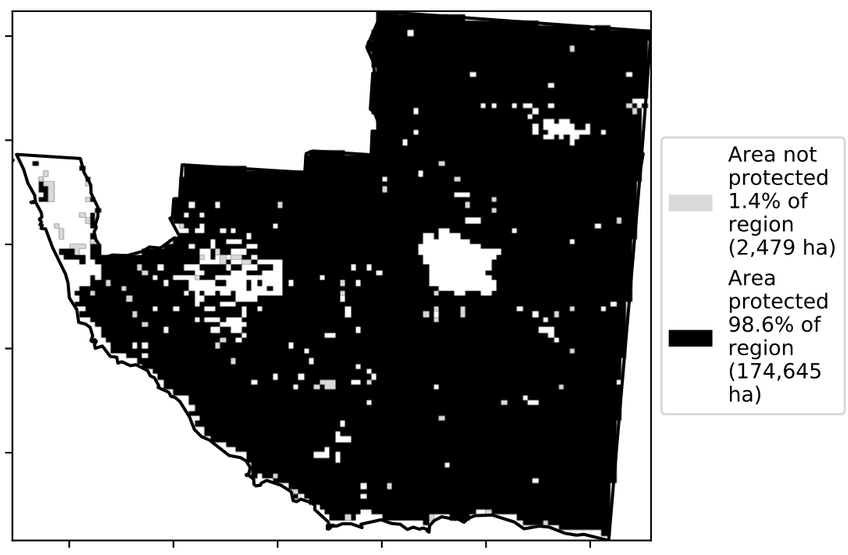
Total Vegetation Cover [%]



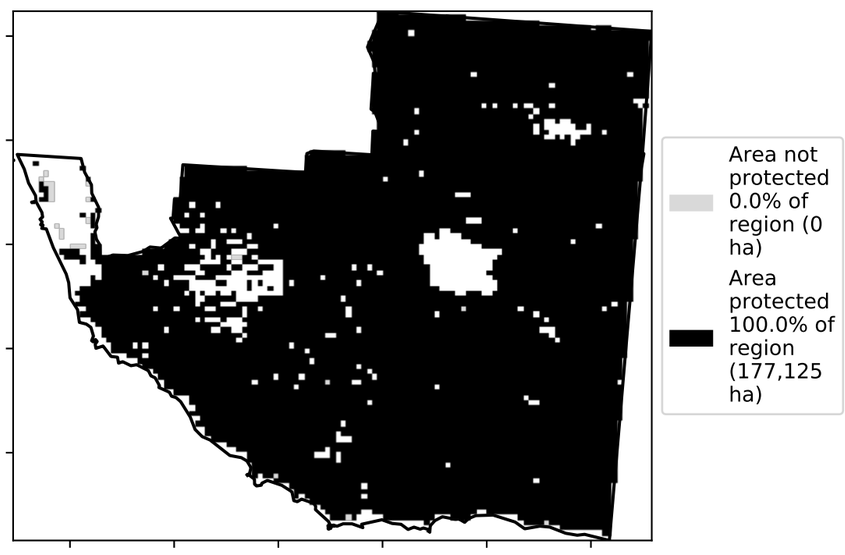
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

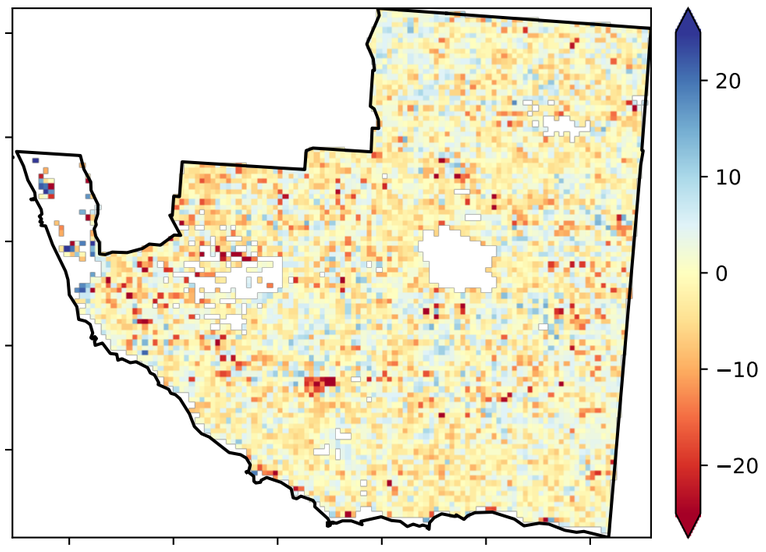


% Area protected from wind erosion (>50%)



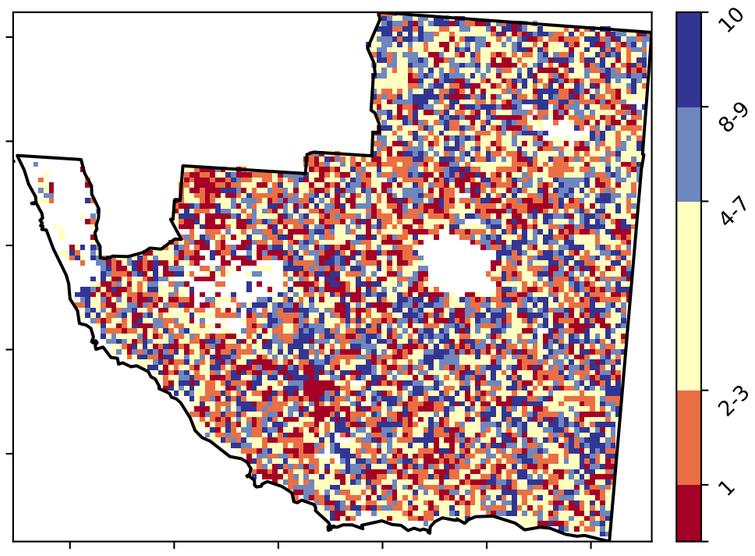
Total Vegetation Cover Anomaly [%]

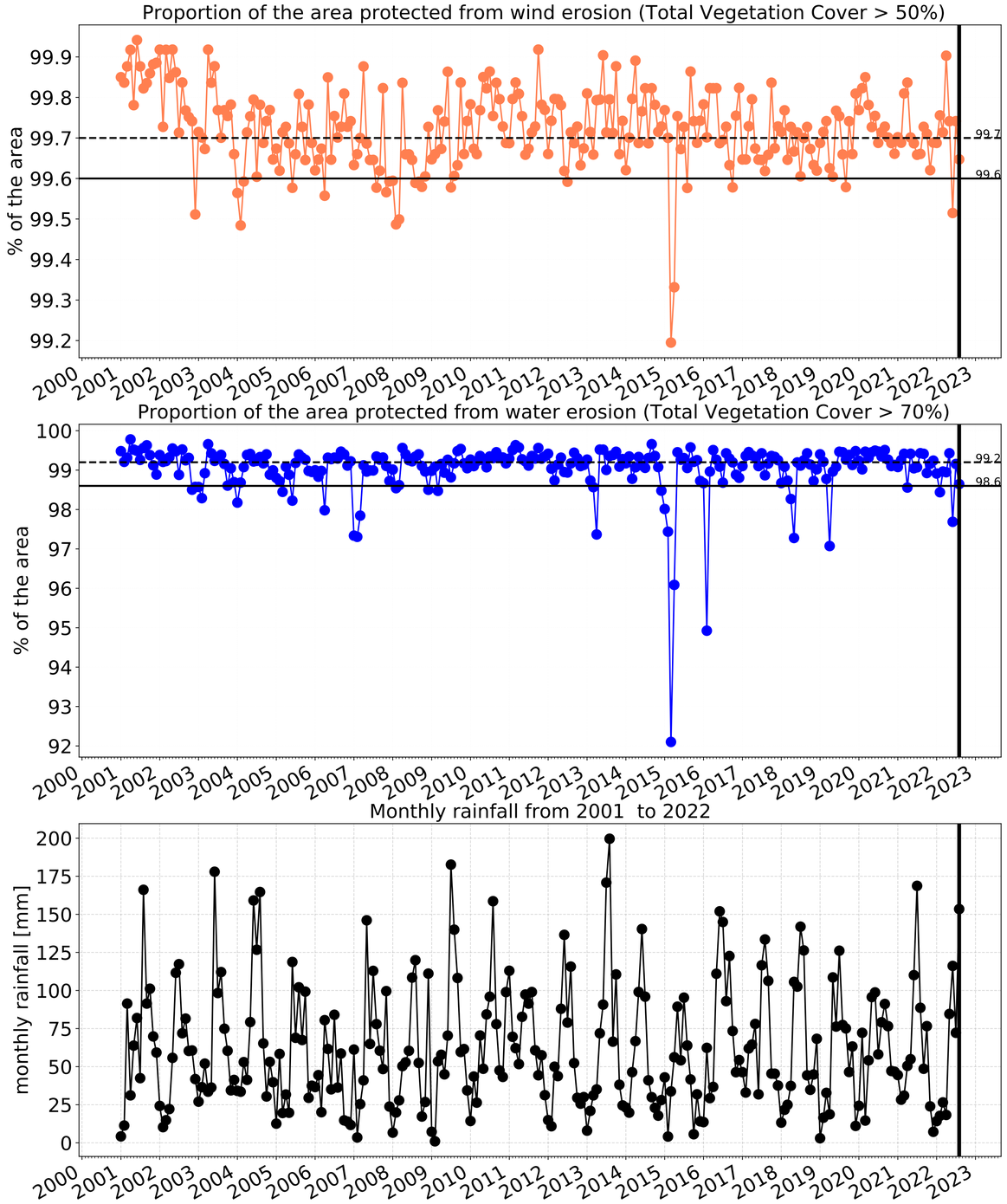
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

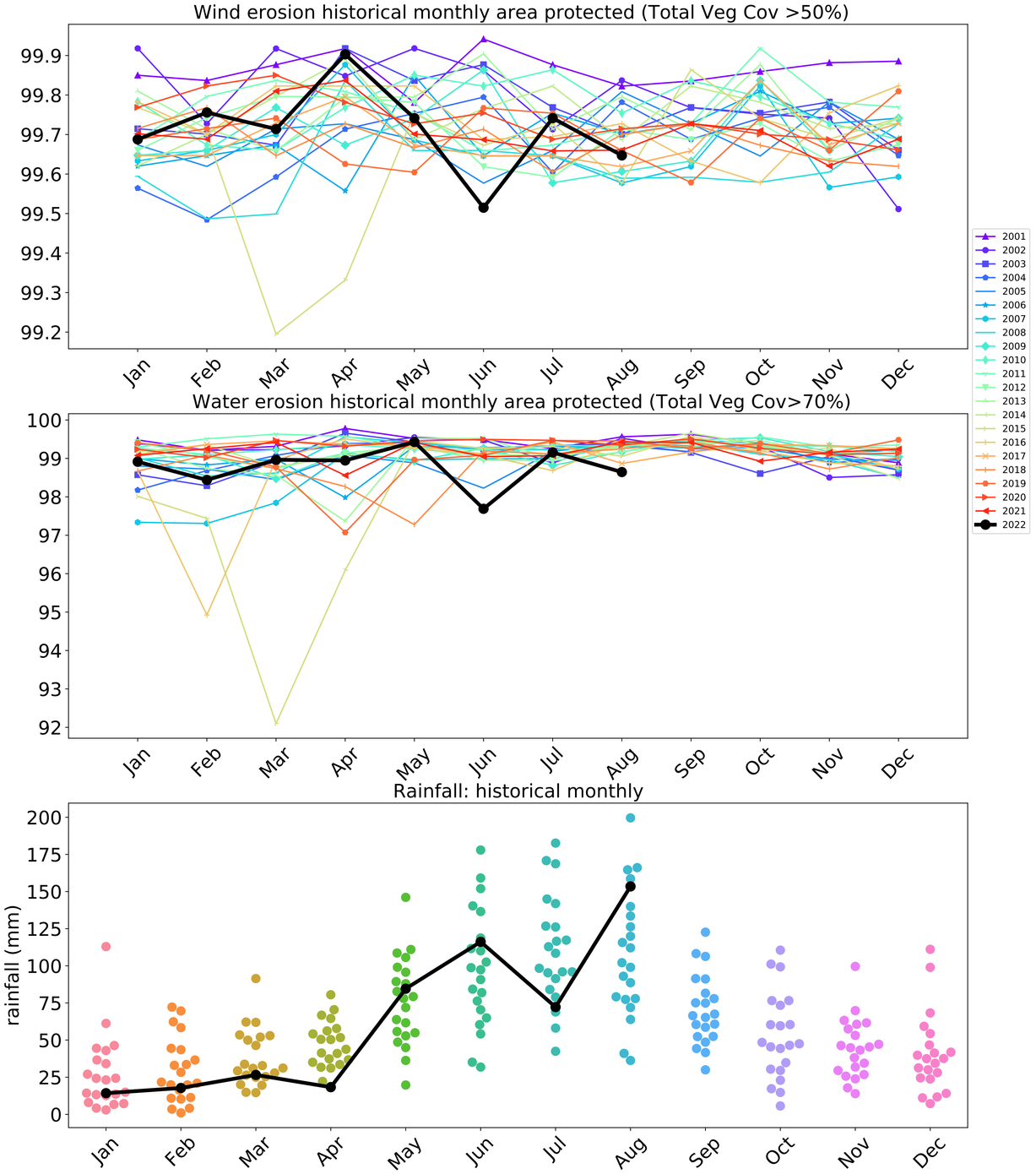


Total Vegetation Cover Decile [%]

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.




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)
% of the area
99.9
99.8
99.7
99.6
99.5
99.4
99.3
99.2
99.7
99.6
above_50
10th
50th
2022 Aug
2000 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 > 70%)
% of the area
100
99
98
97
96
95
94
93
92
99.2
98.6
above_70
10th
50th
2022 Aug
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
Monthly rainfall from 2001 to 2022
monthly rainfall [mm]
200
175
150
125
100
75
50
25
0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023


Wind erosion historical monthly area protected (Total Veg Cov >50%)
99.9
99.8
99.7
99.6
99.5
99.4
99.3
99.2
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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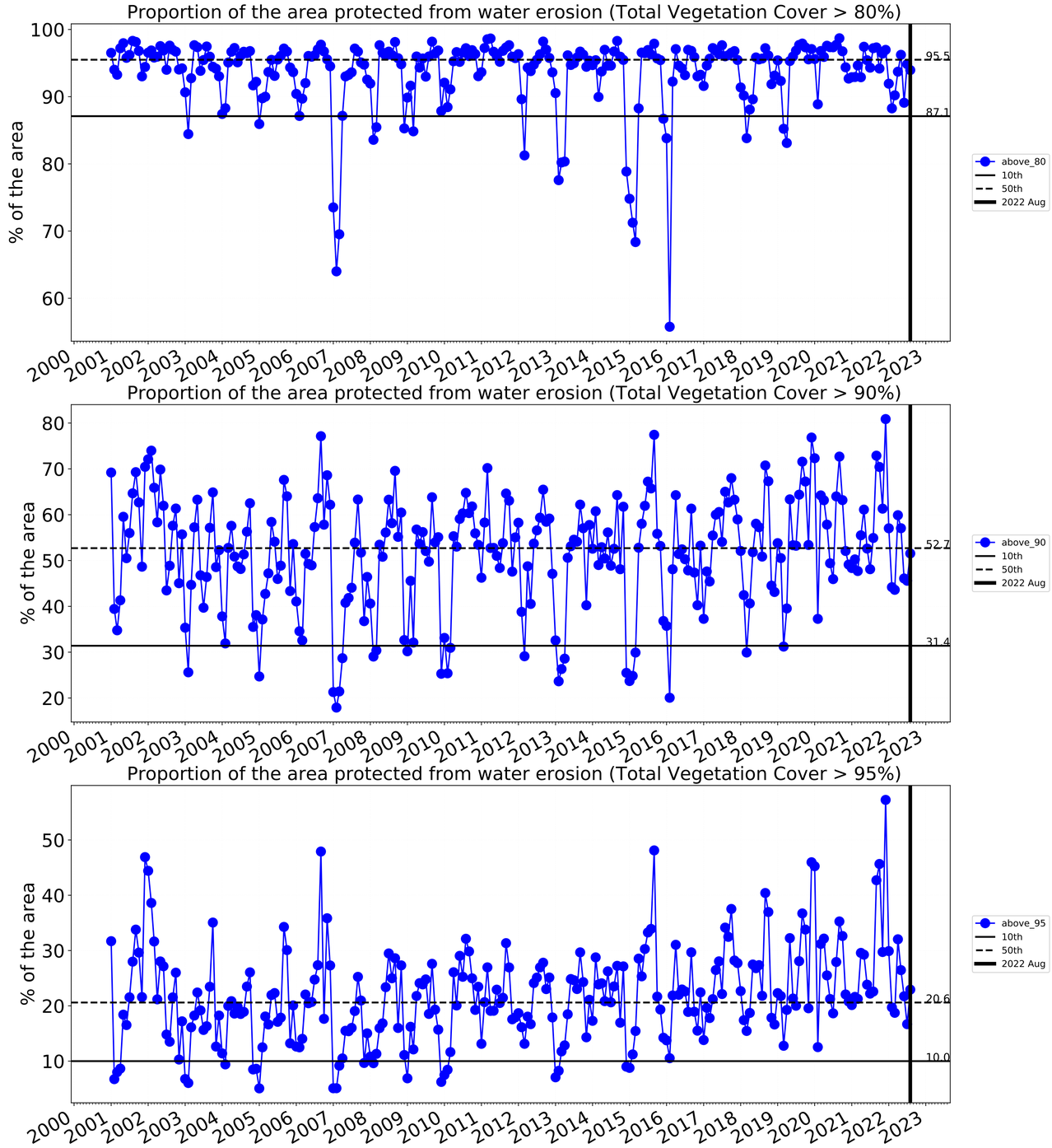
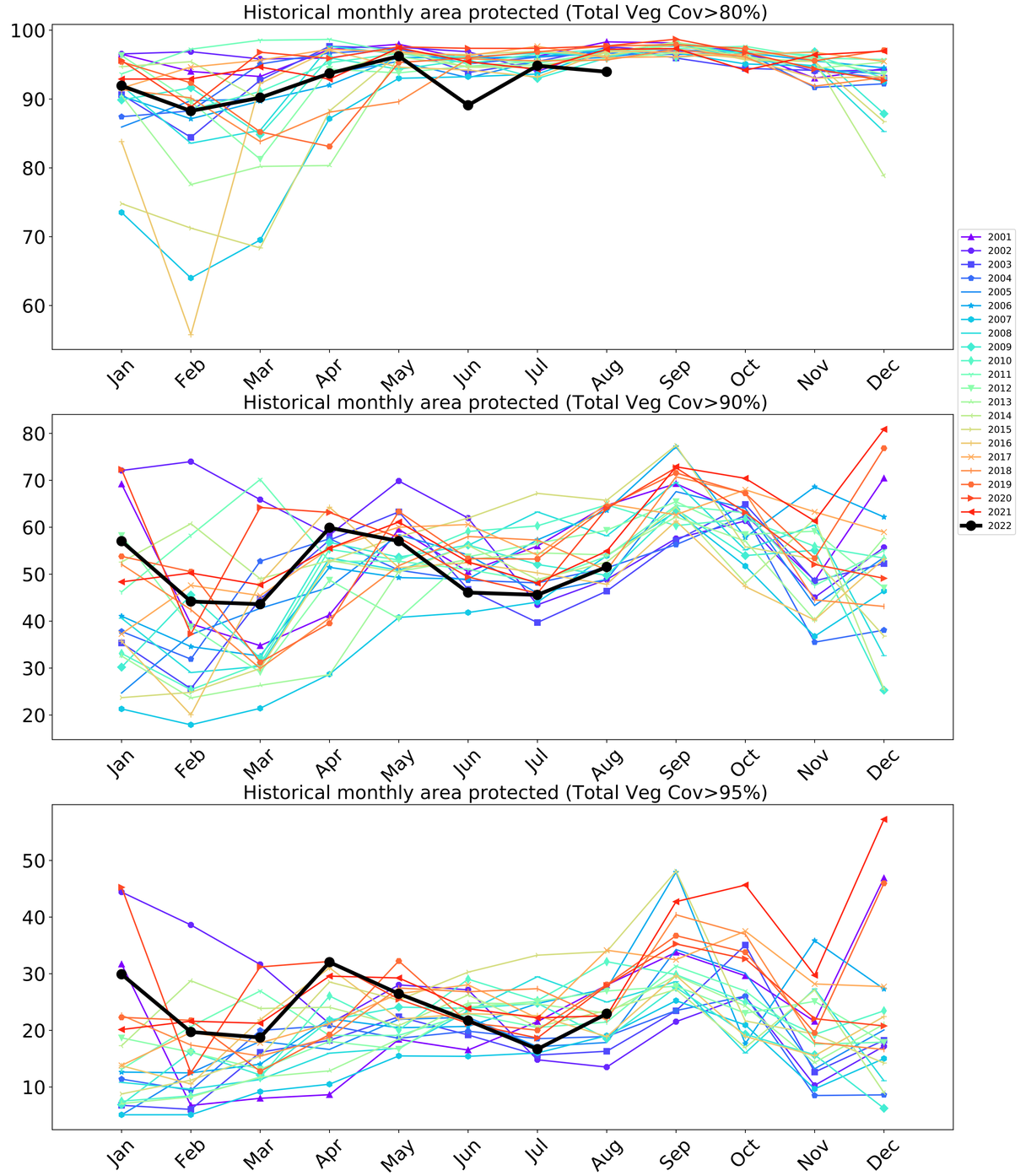
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Water erosion historical monthly area protected (Total Veg Cov>70%)
100
99
98
97
96
95
94
93
92
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Rainfall: historical monthly
rainfall (mm)
200
175
150
125
100
75
50
25
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec


Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
95.5
87.1
above_80
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
52.7
31.4
above_90
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
20.6
10.0
above_95
10th
50th
2022 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
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2021
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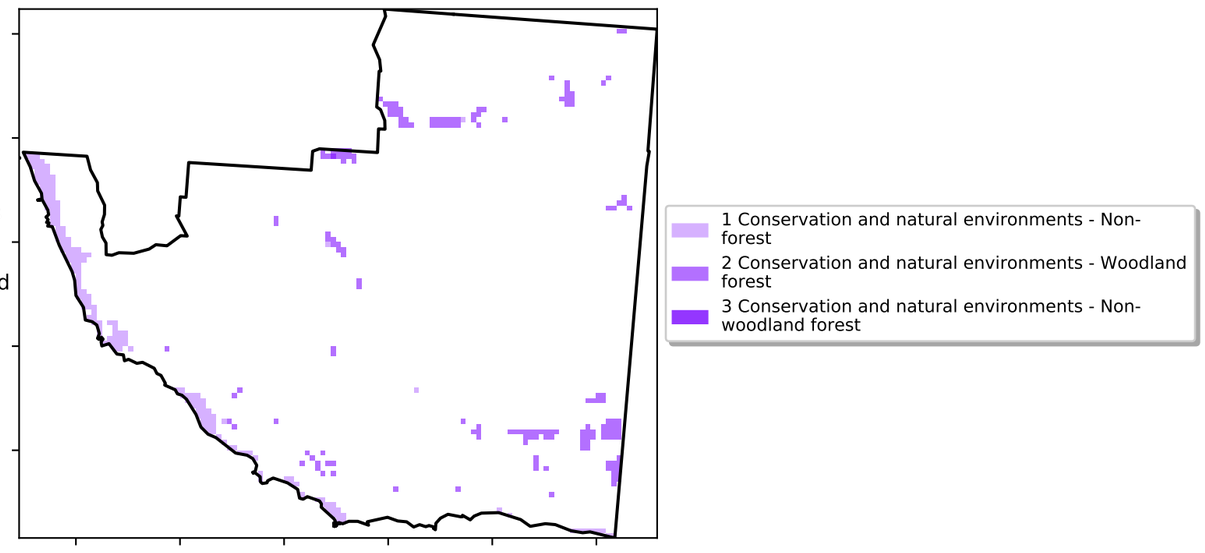
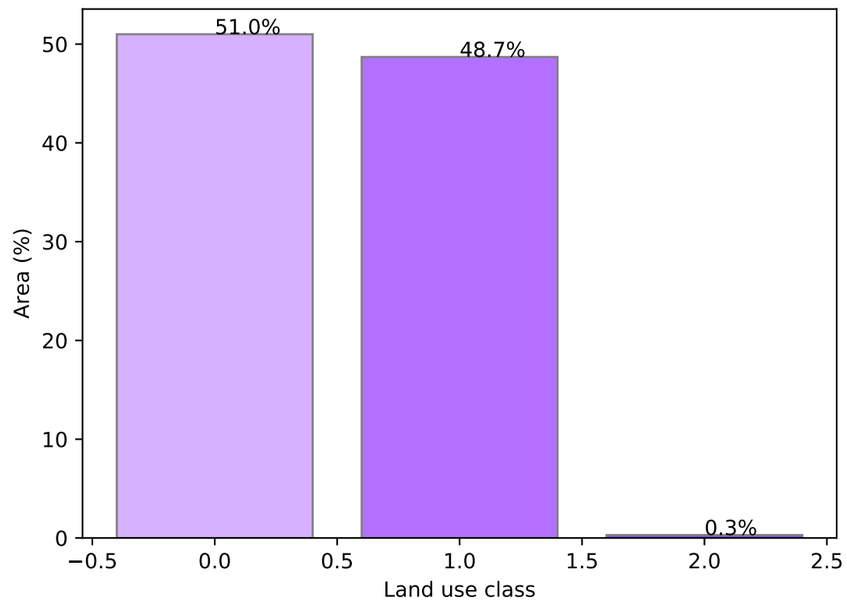
Conservation and natural environments

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

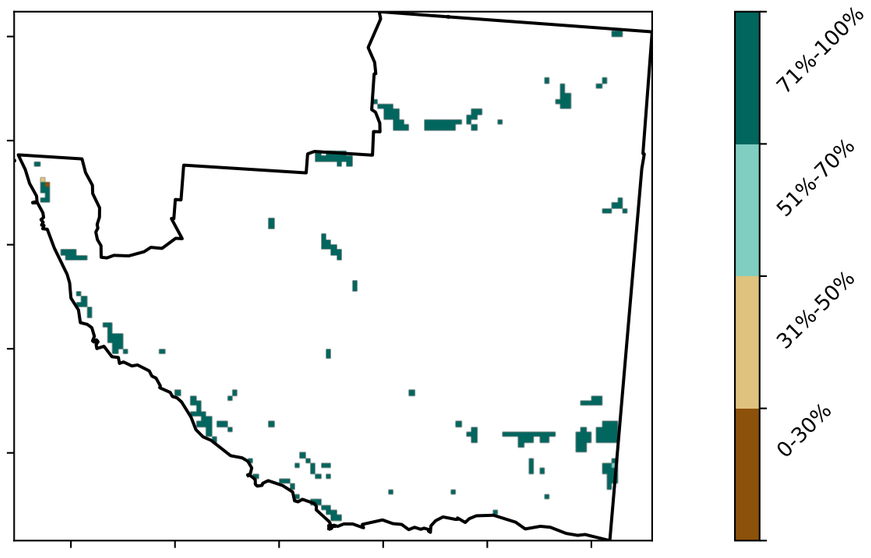
Land use and forest cover



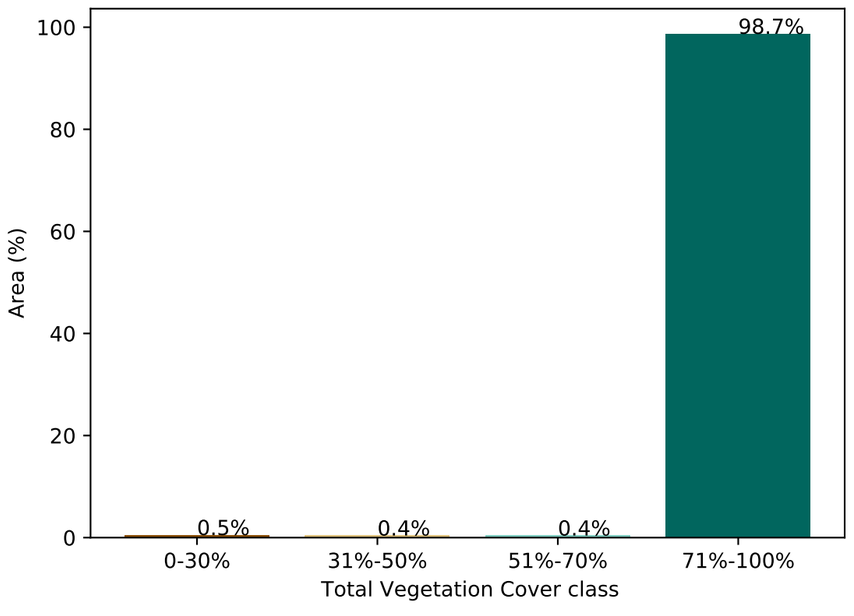
Proportion of each land class in area



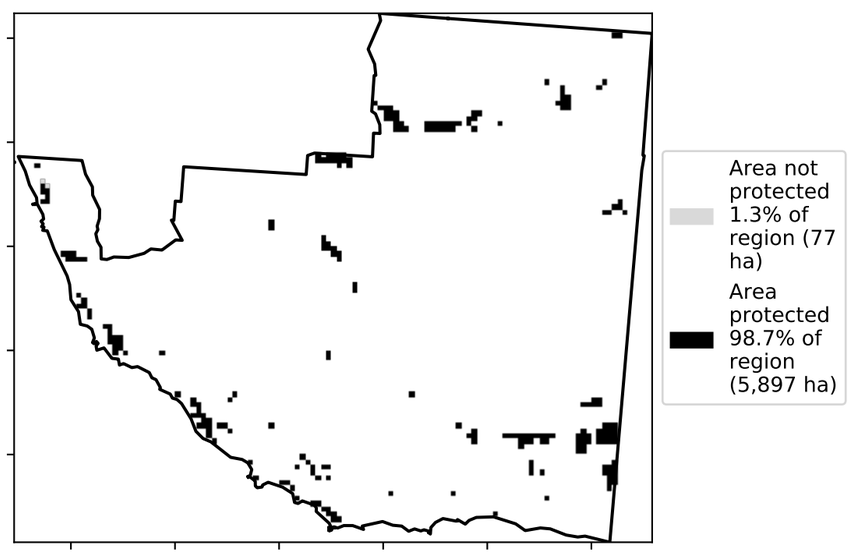
Total Vegetation Cover [%]



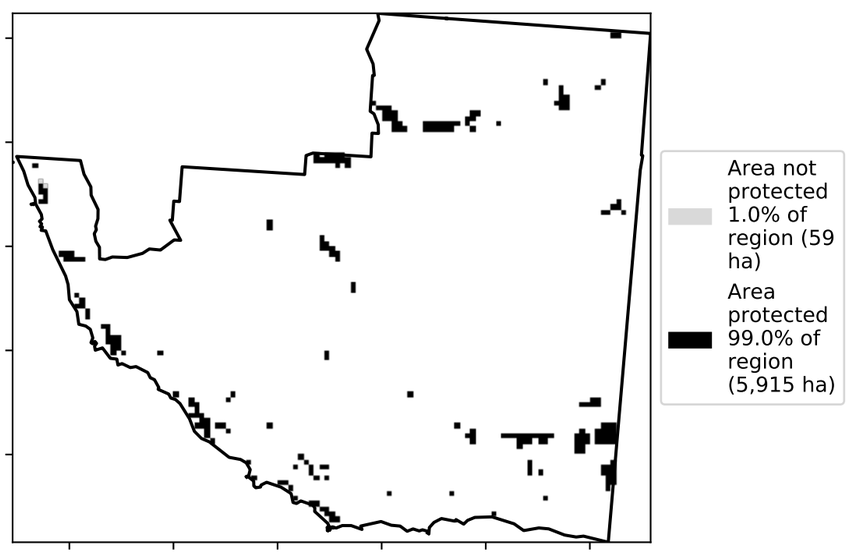
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



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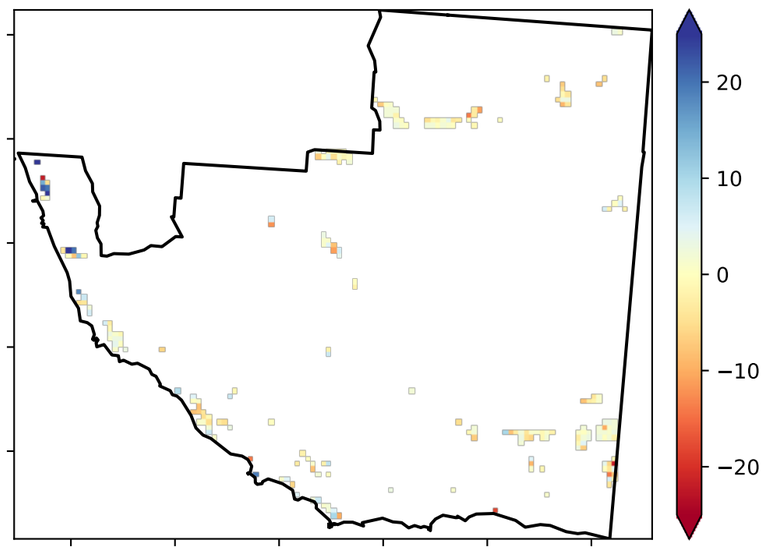

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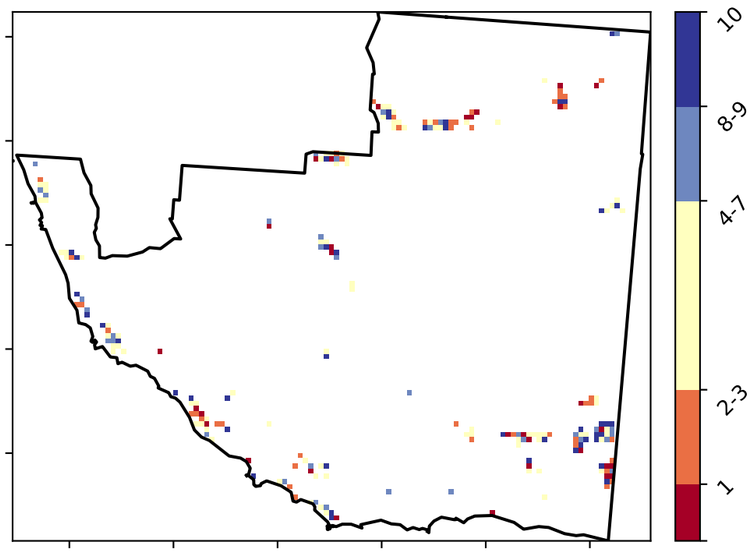
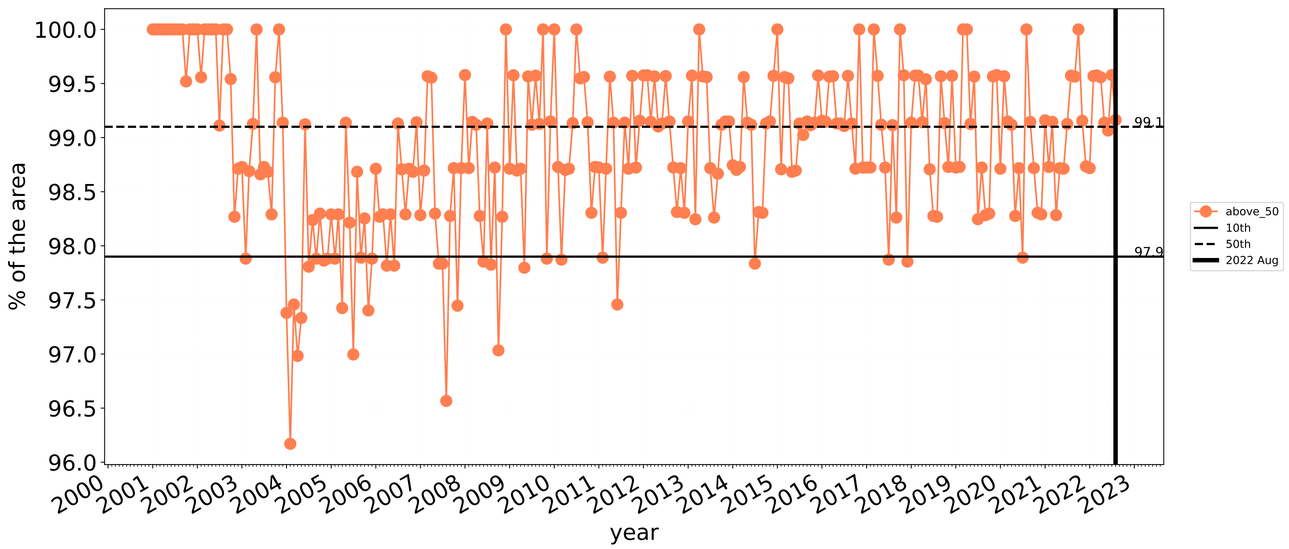
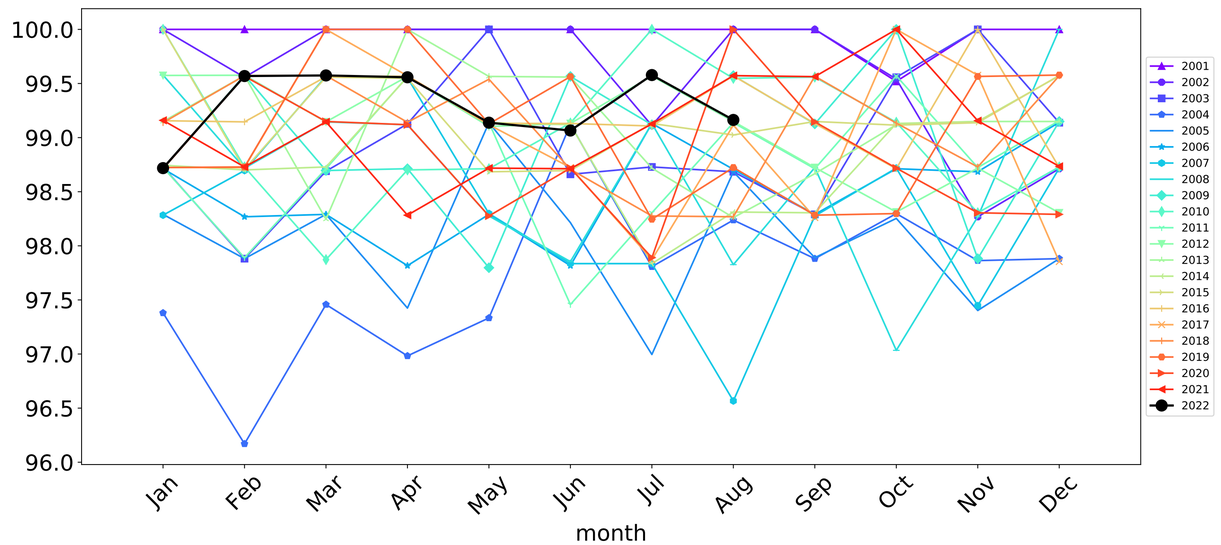


Conservation and natural environments timeseries

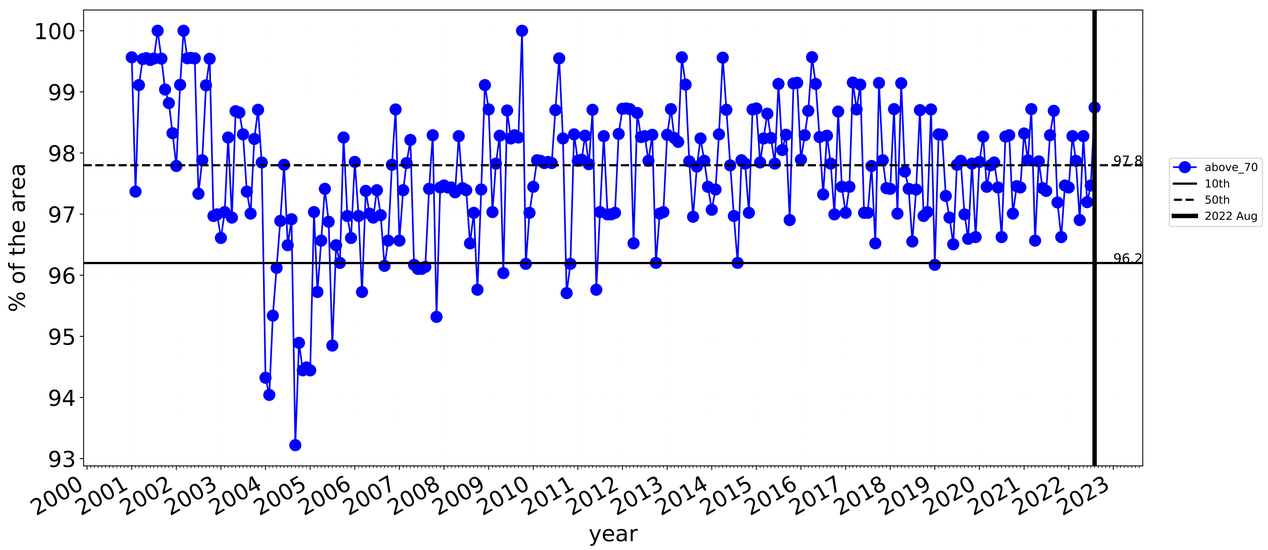
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



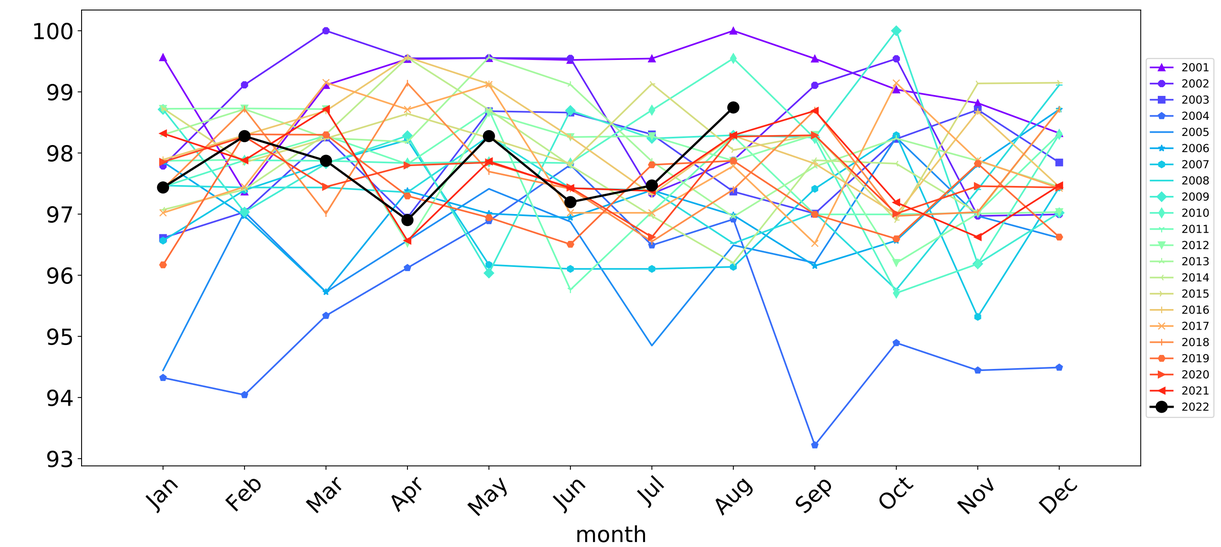
Wind erosion historical monthly area protected (Total Veg Cov >50%)

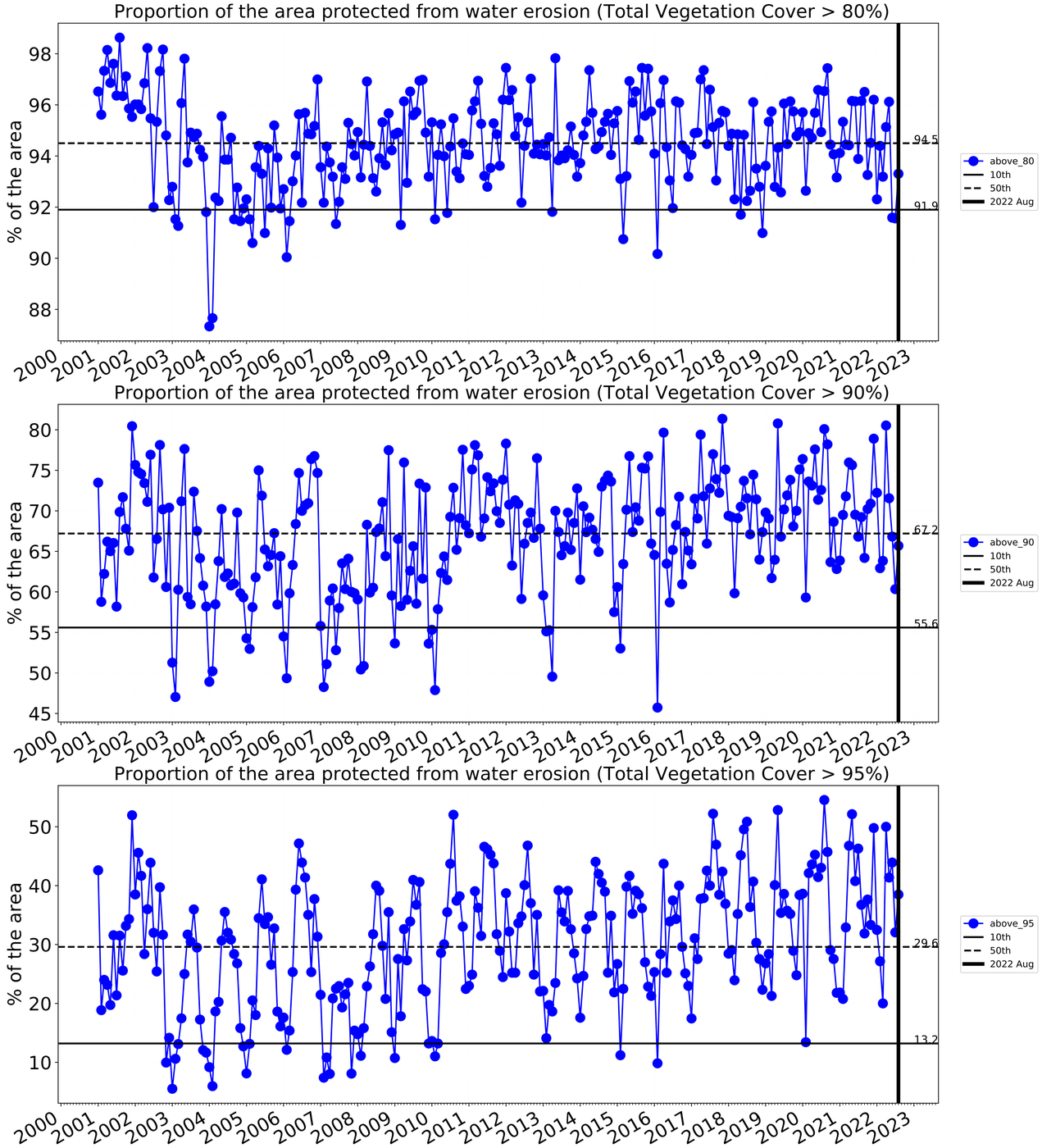


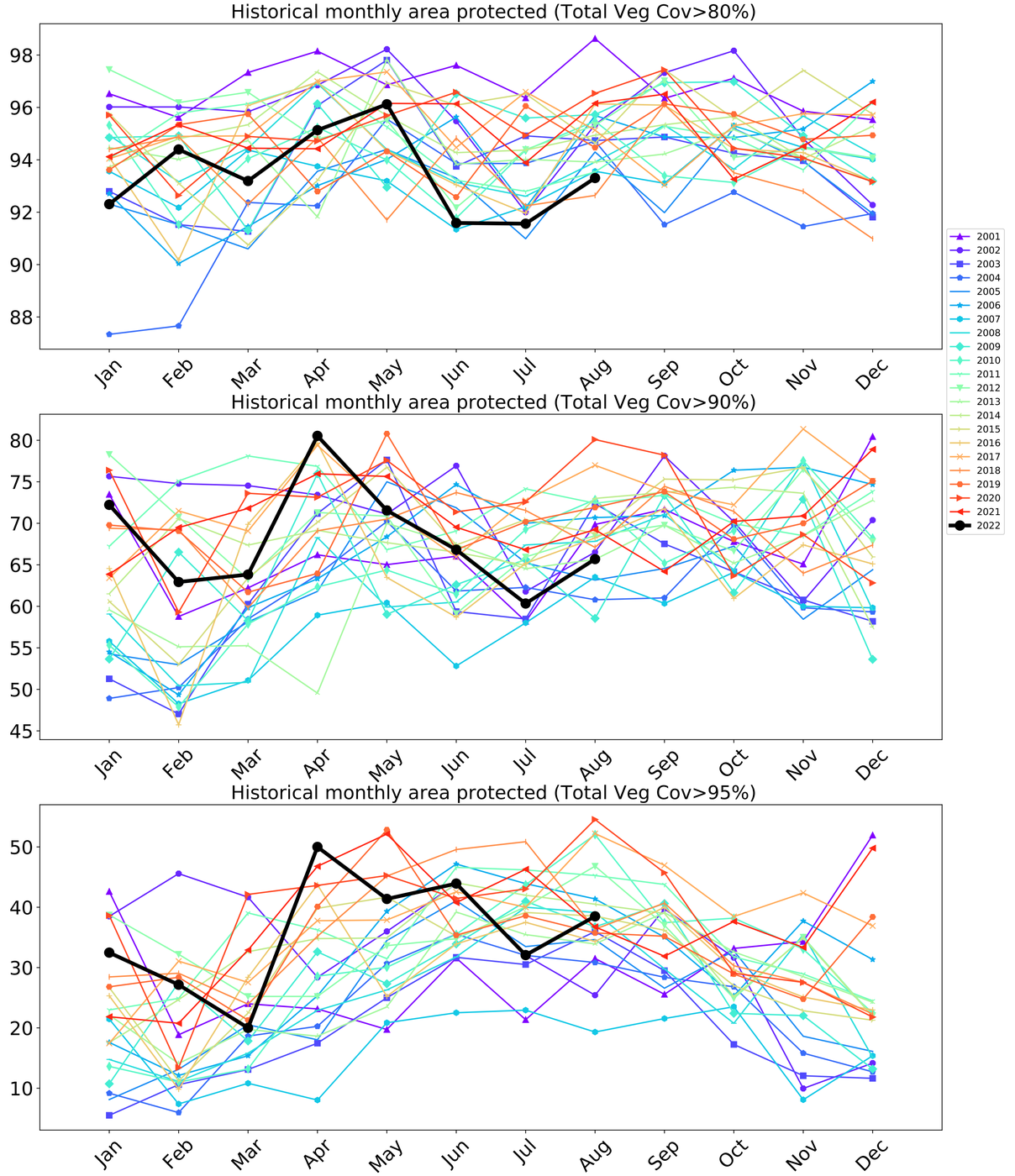
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
94.5
91.9
above_80
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
67.2
55.6
above_90
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
29.6
13.2
above_95
10th
50th
2022 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
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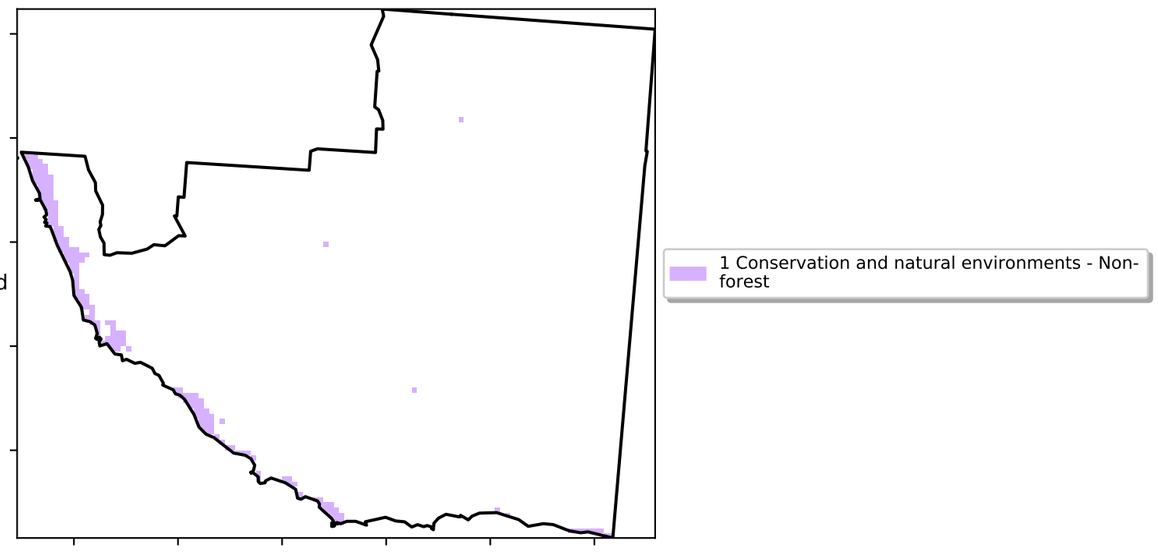
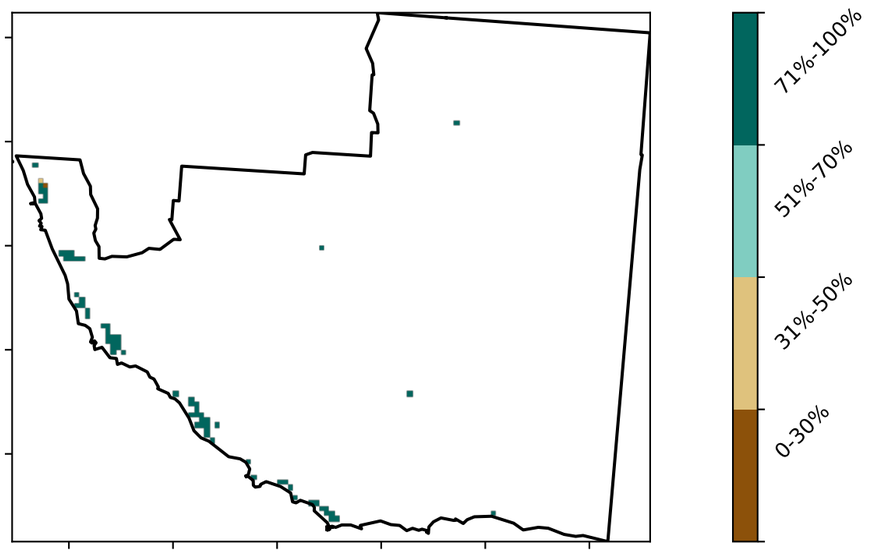
Conservation and natural environments non forest

Land use and forest cover

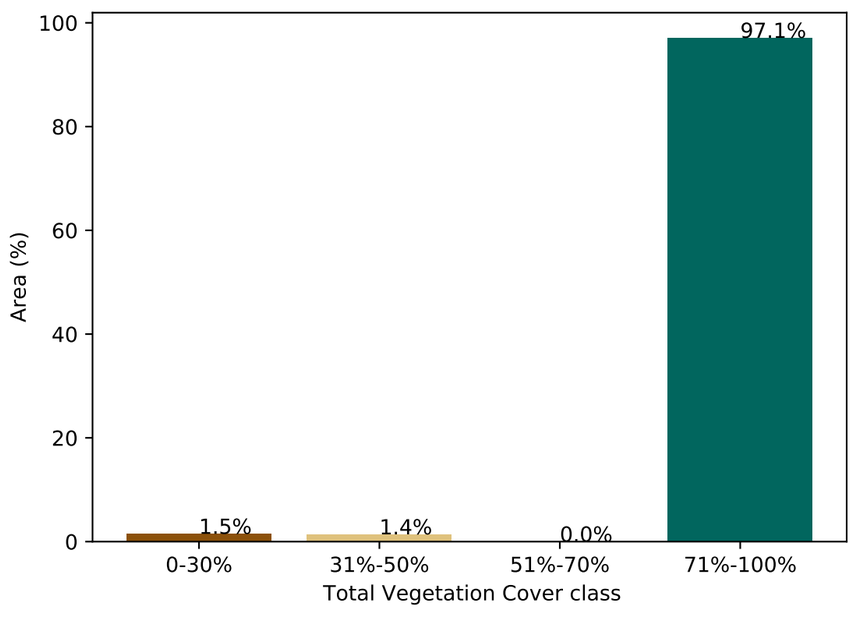


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

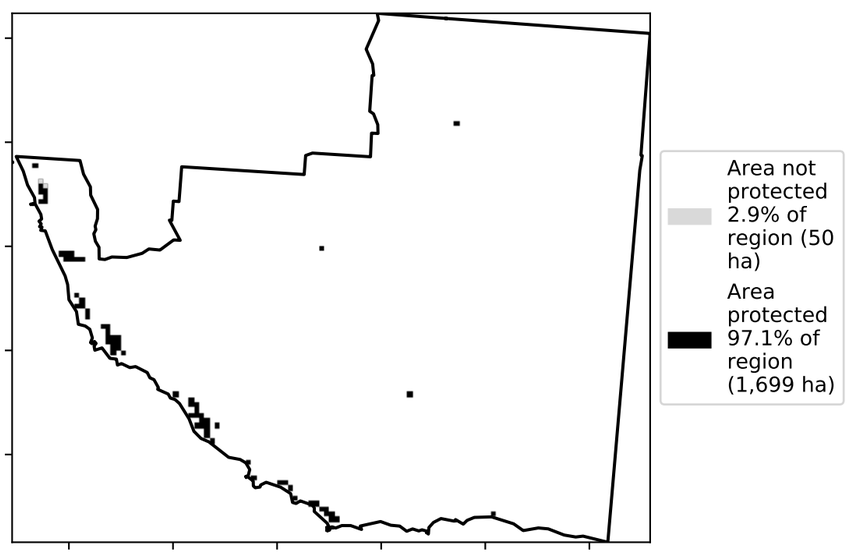
Total Vegetation Cover [%]



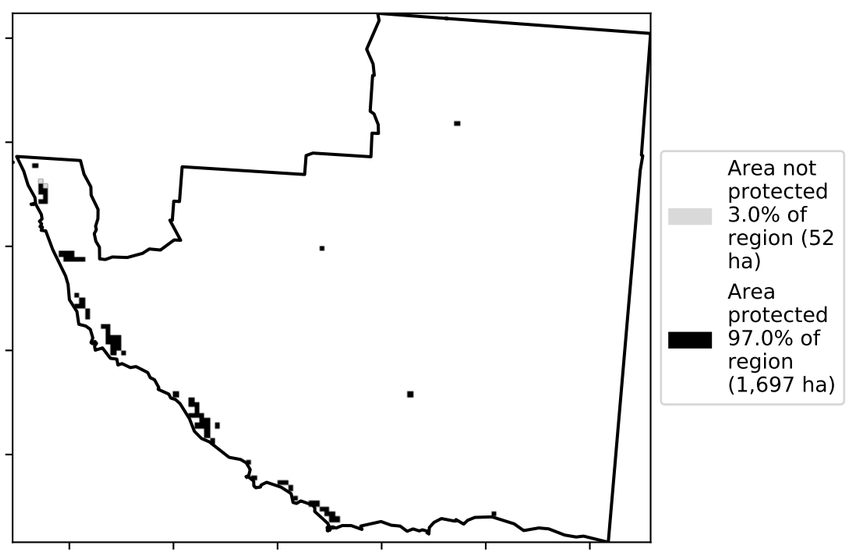
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

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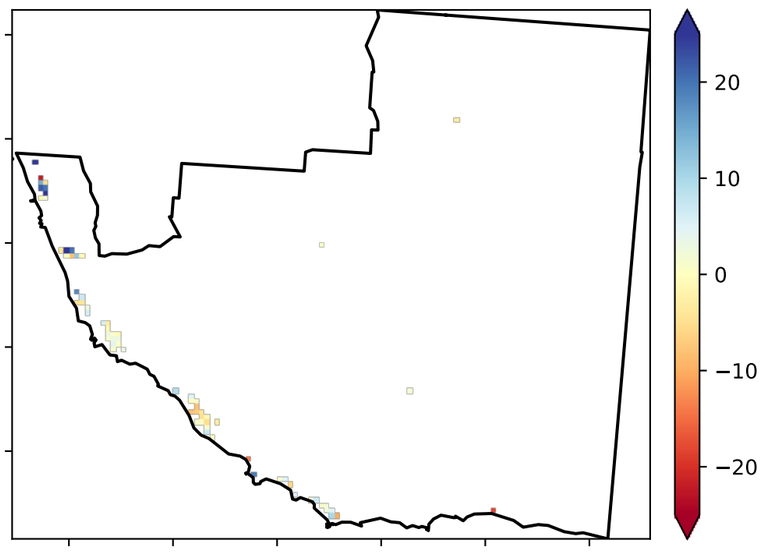
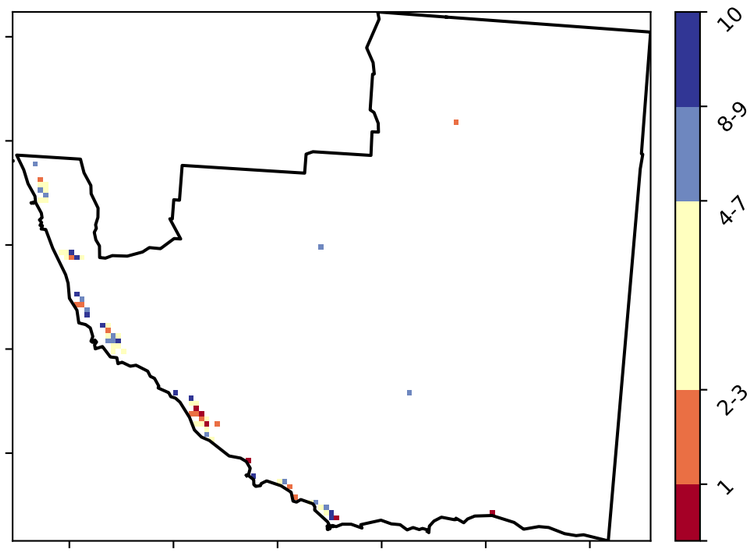


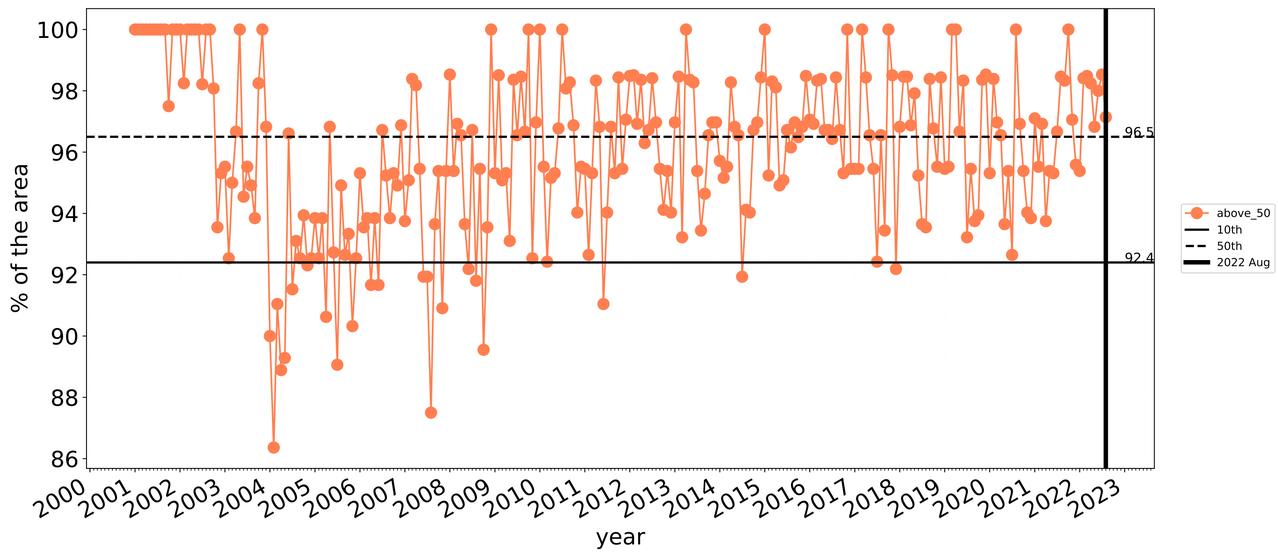
Total Vegetation Cover Decile [%]

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.

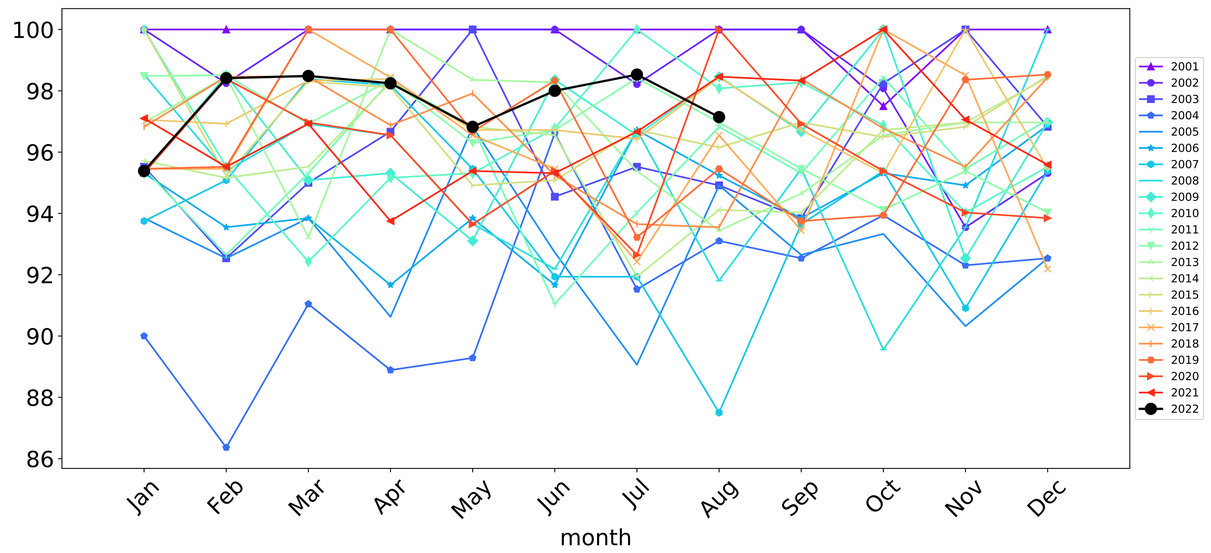


Conservation and natural environments non forest timeseries

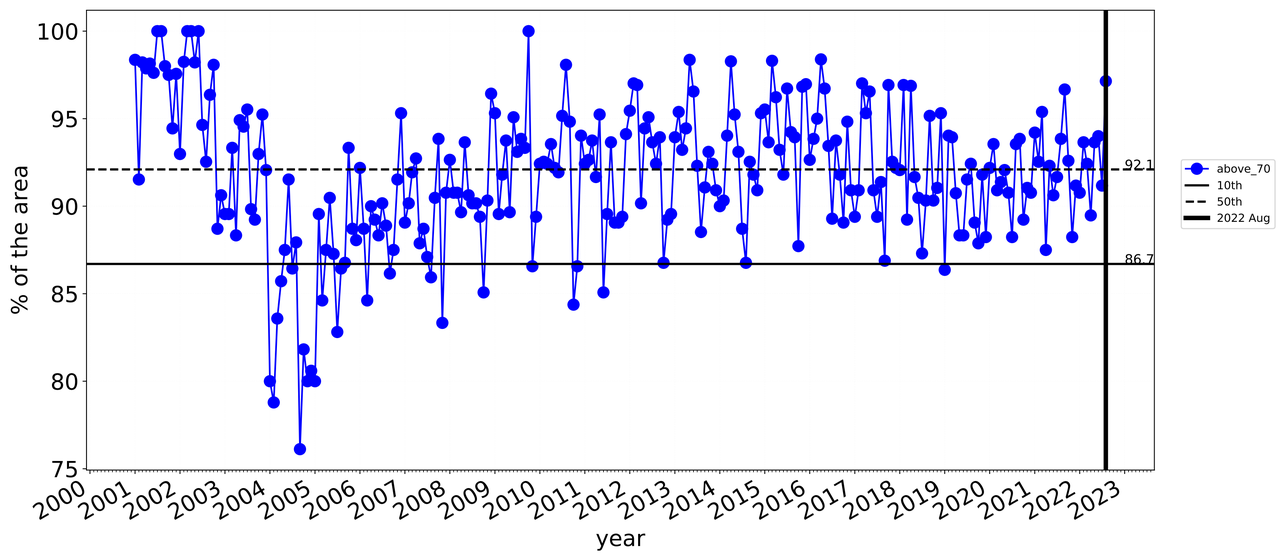
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



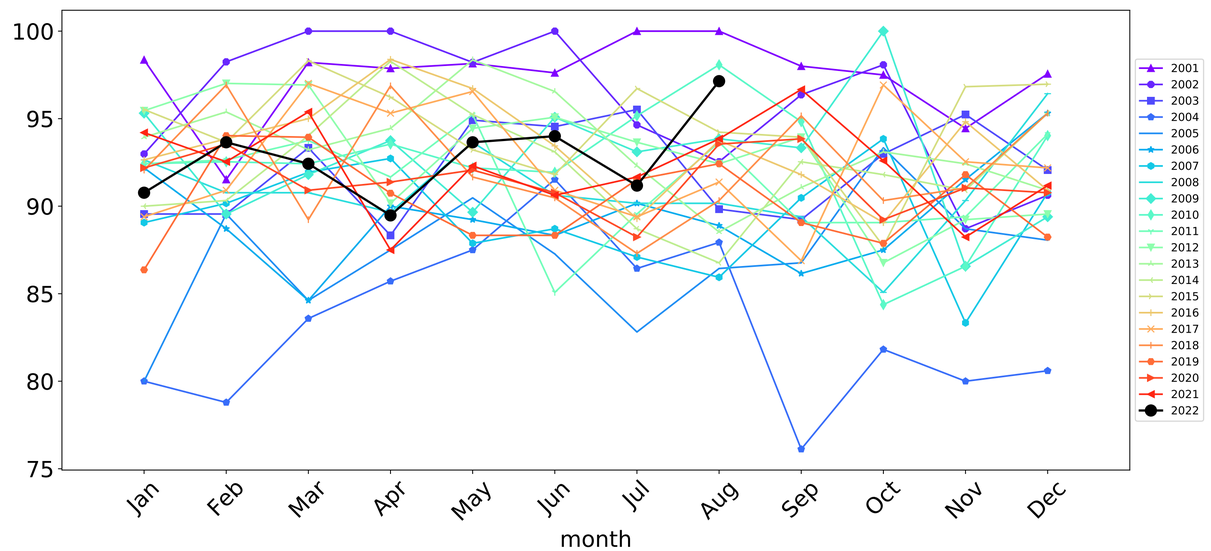
Wind erosion historical monthly area protected (Total Veg Cov >50%)

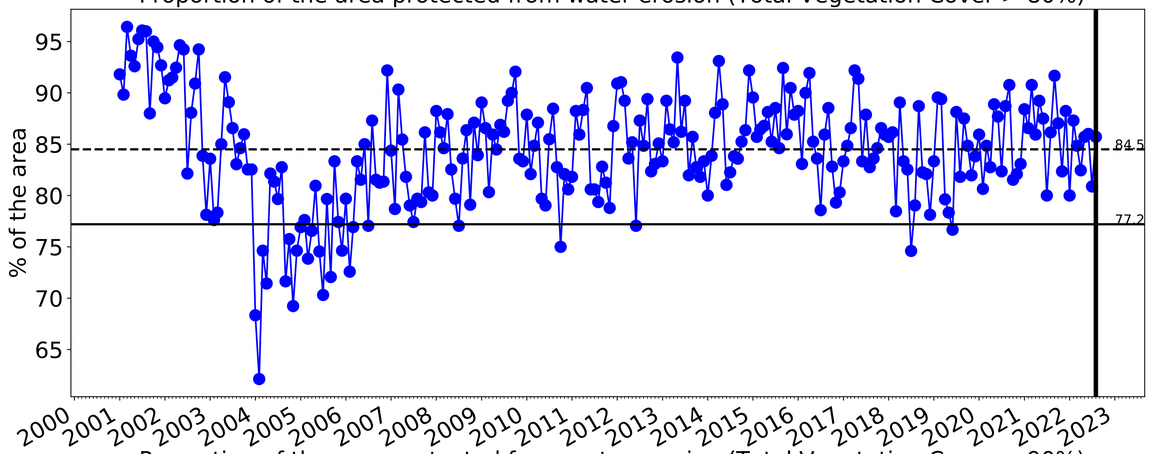


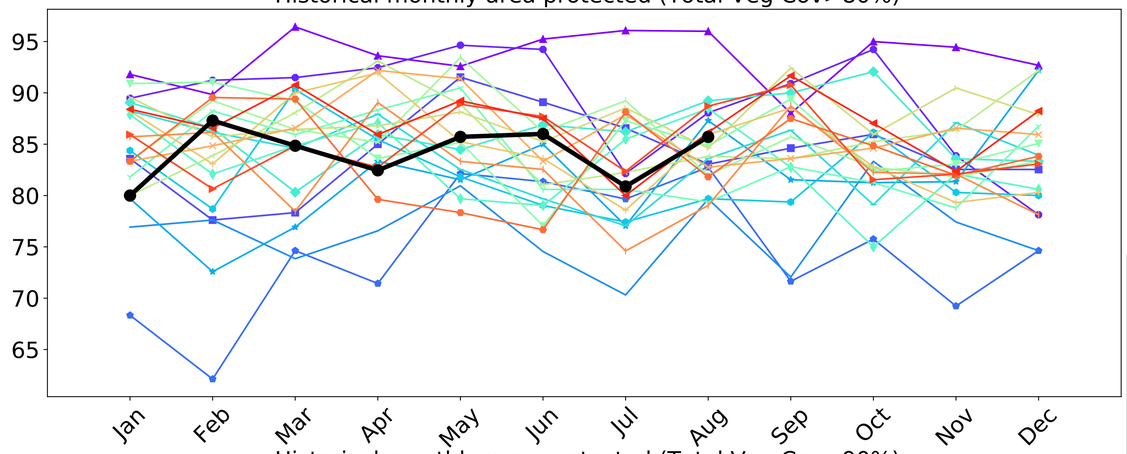
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

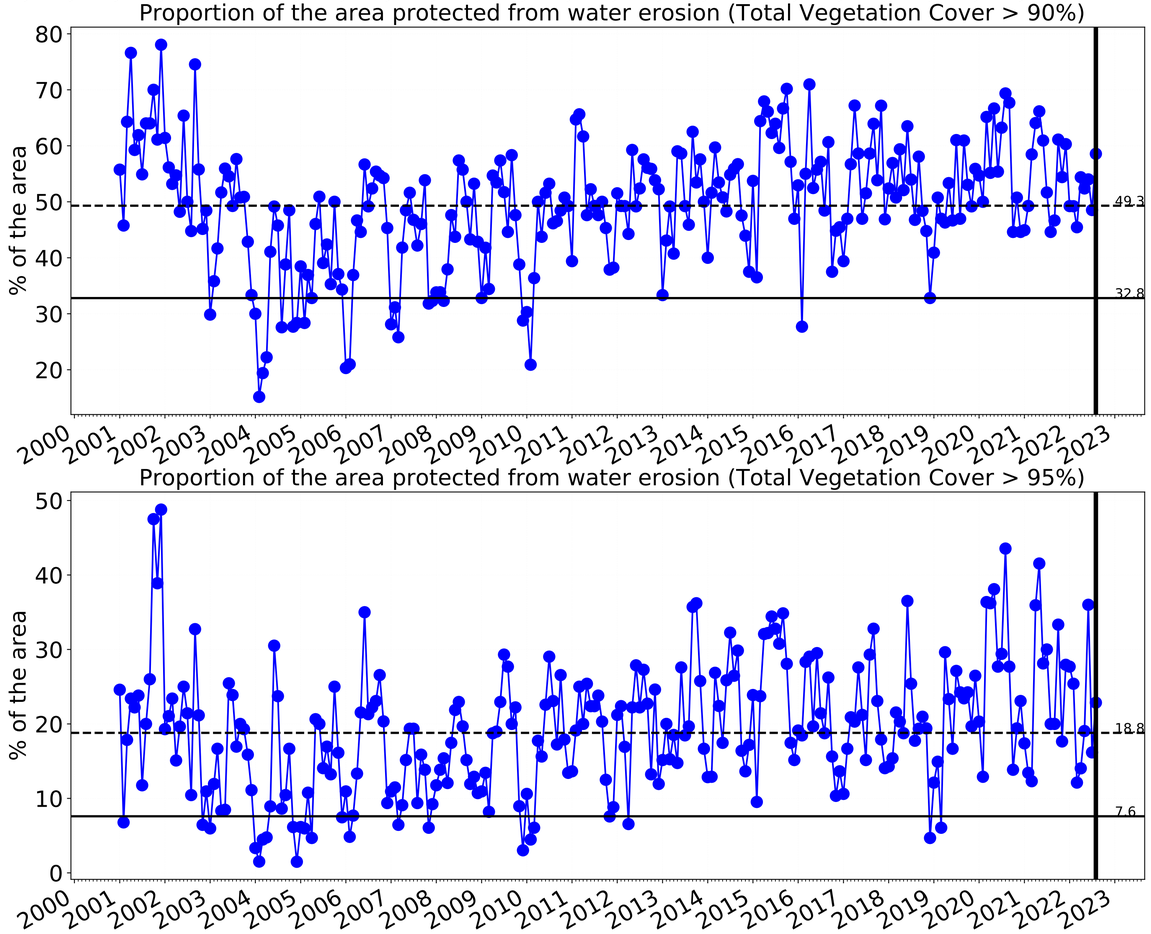


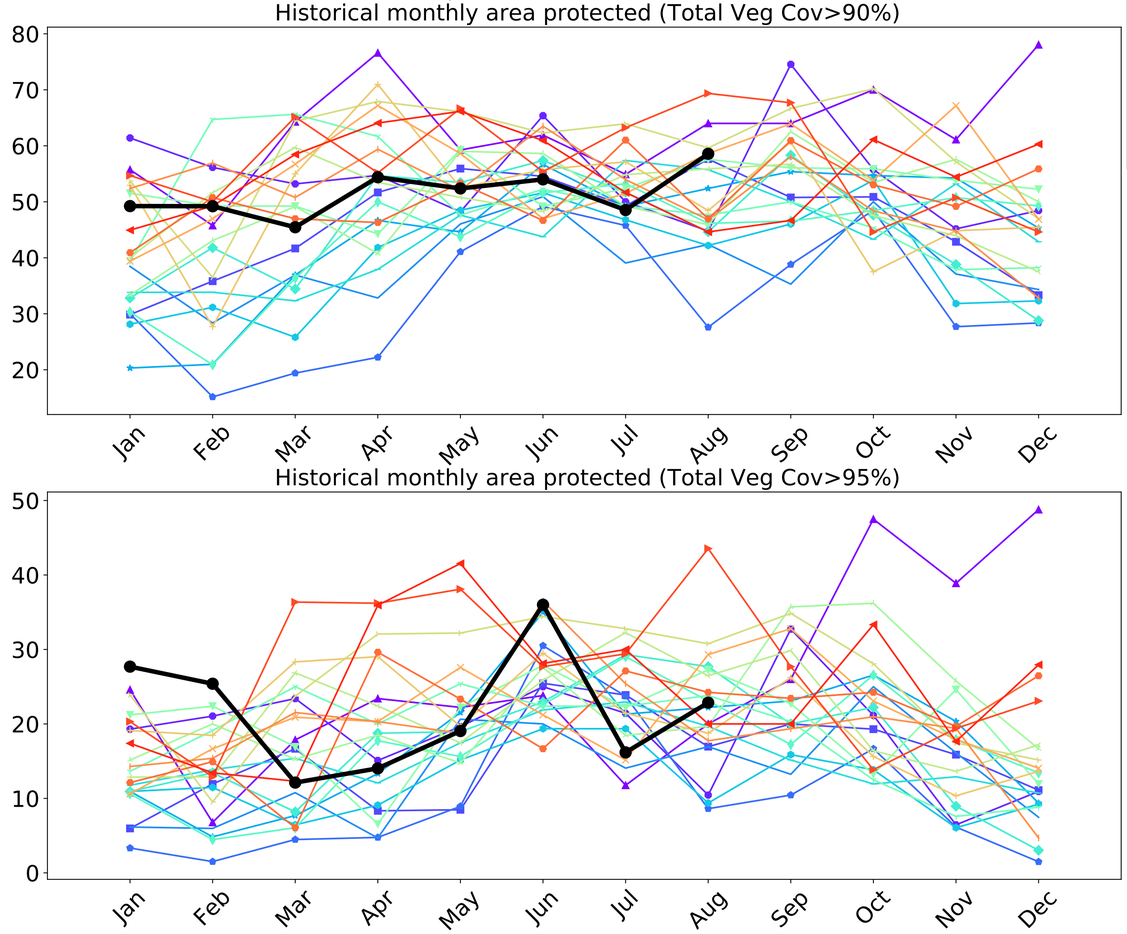
Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
84.5
77.2
above_80
10th
50th
2022 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
2020
2021
2022

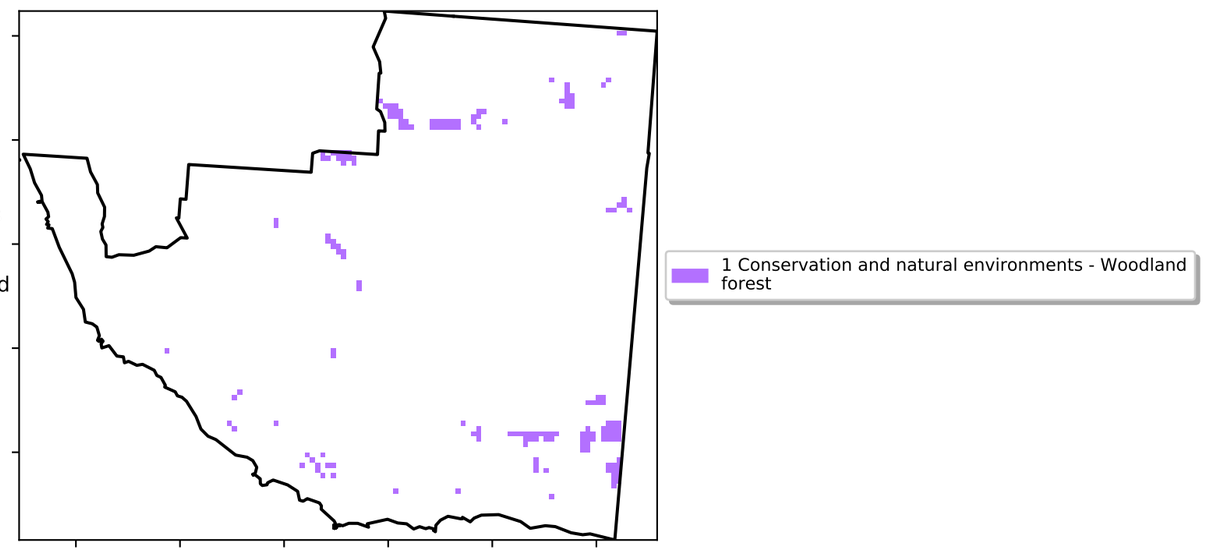

Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
49.3
32.8
above_90
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
18.8
7.6
above_95
10th
50th
2022 Aug


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
2020
2021
2022

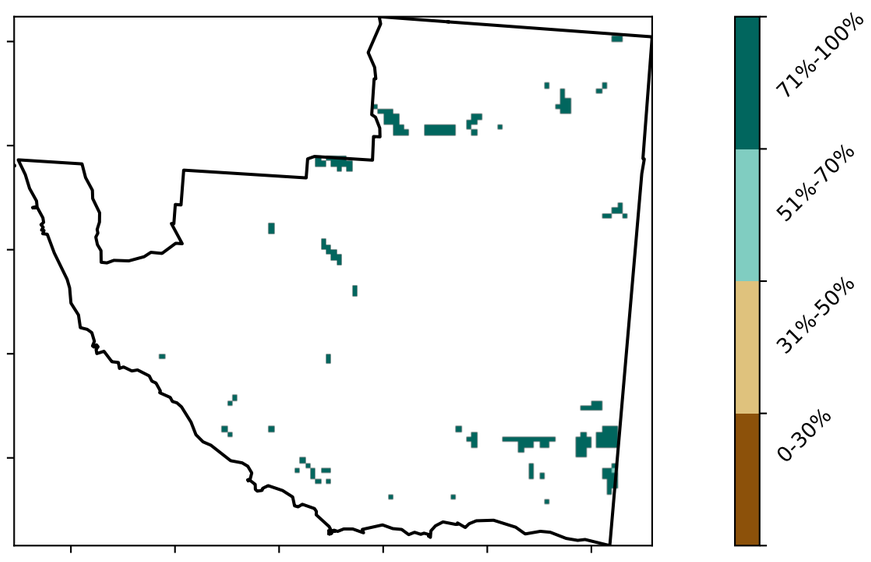
Conservation and natural environments Woodland forest

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

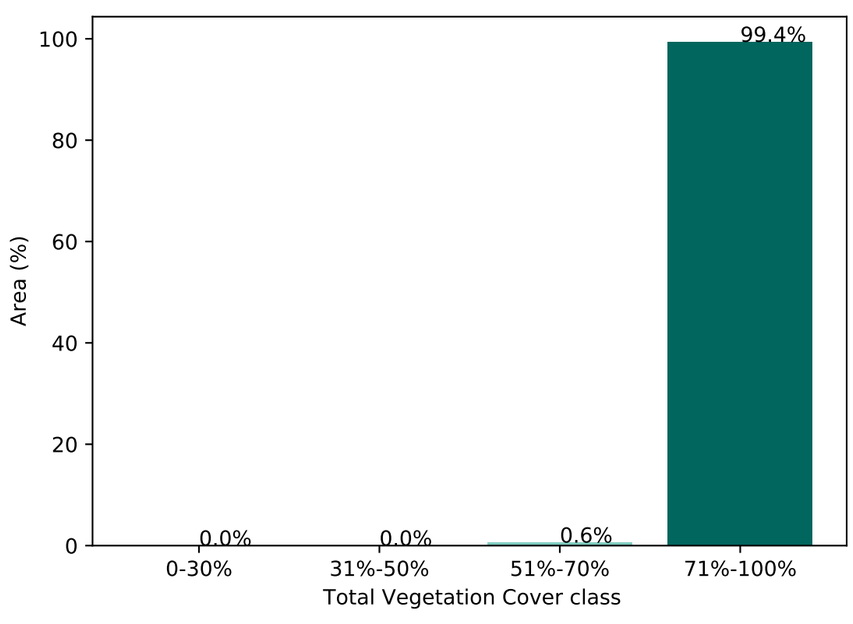
Land use and forest cover



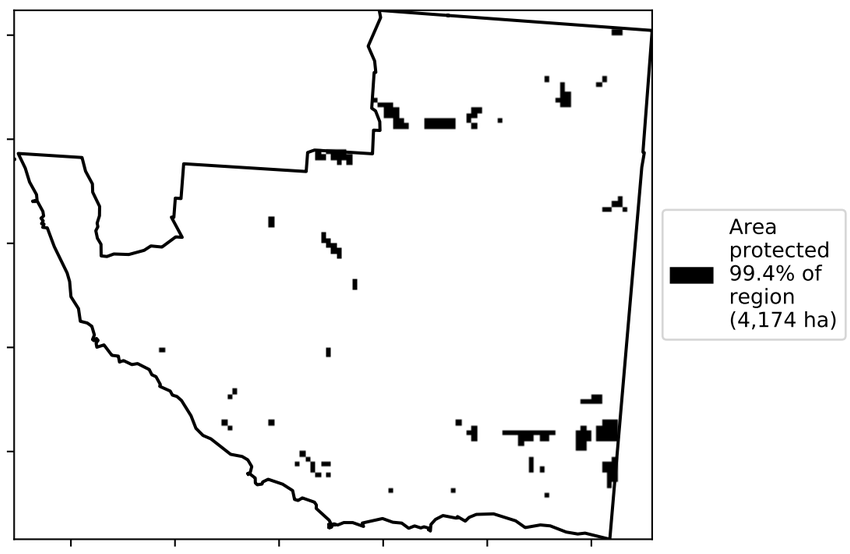
Total Vegetation Cover [%]



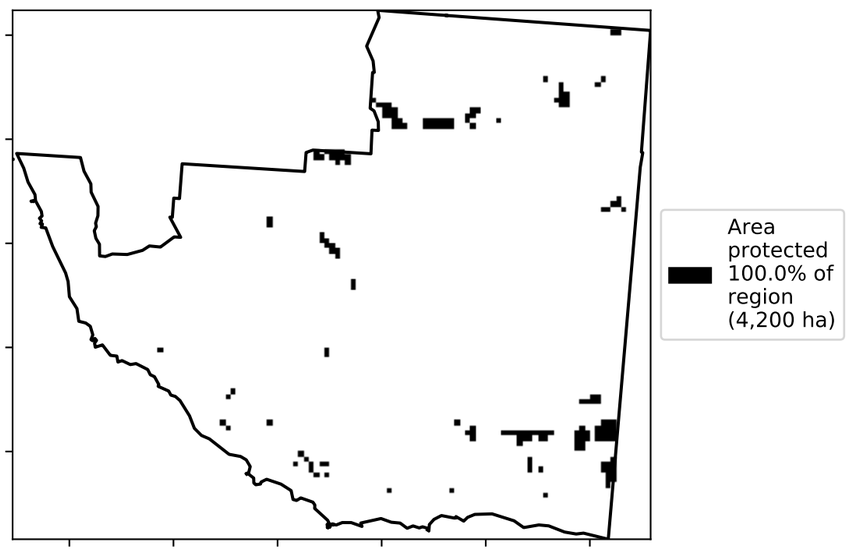
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

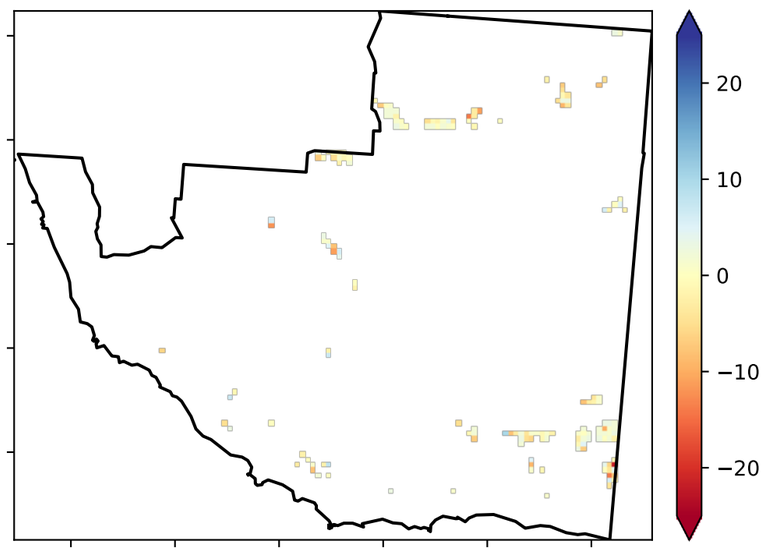


% Area protected from wind erosion (>50%)



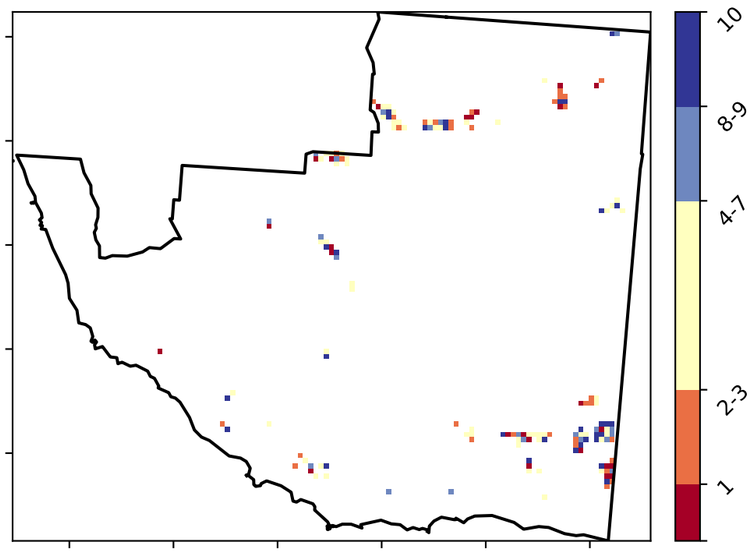
Total Vegetation Cover Anomaly [%]

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.



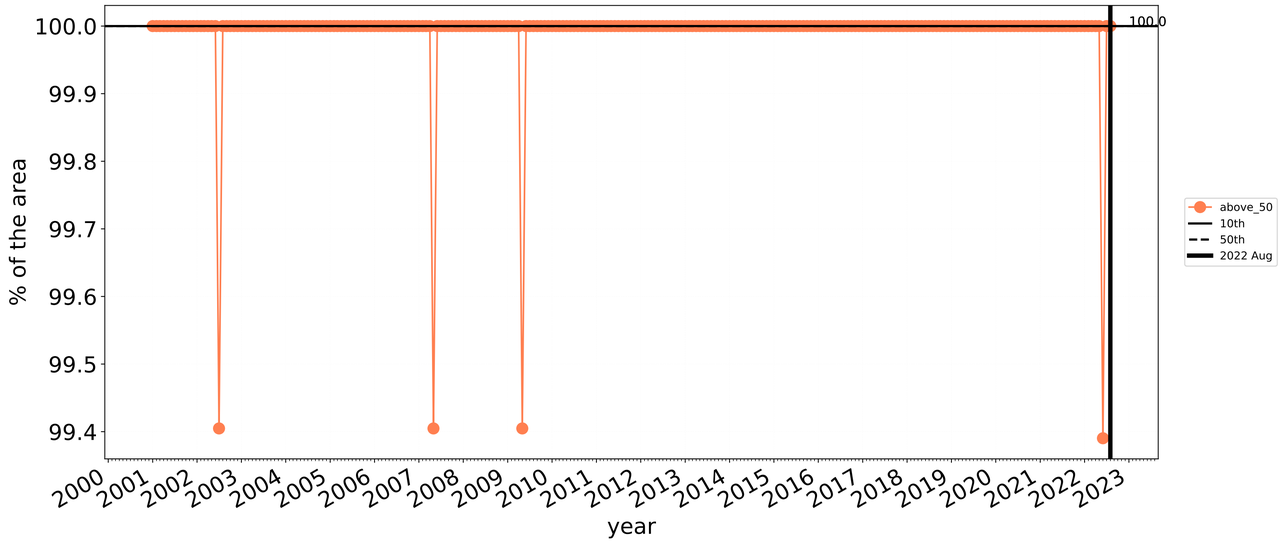
Total Vegetation Cover Decile [%]

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.

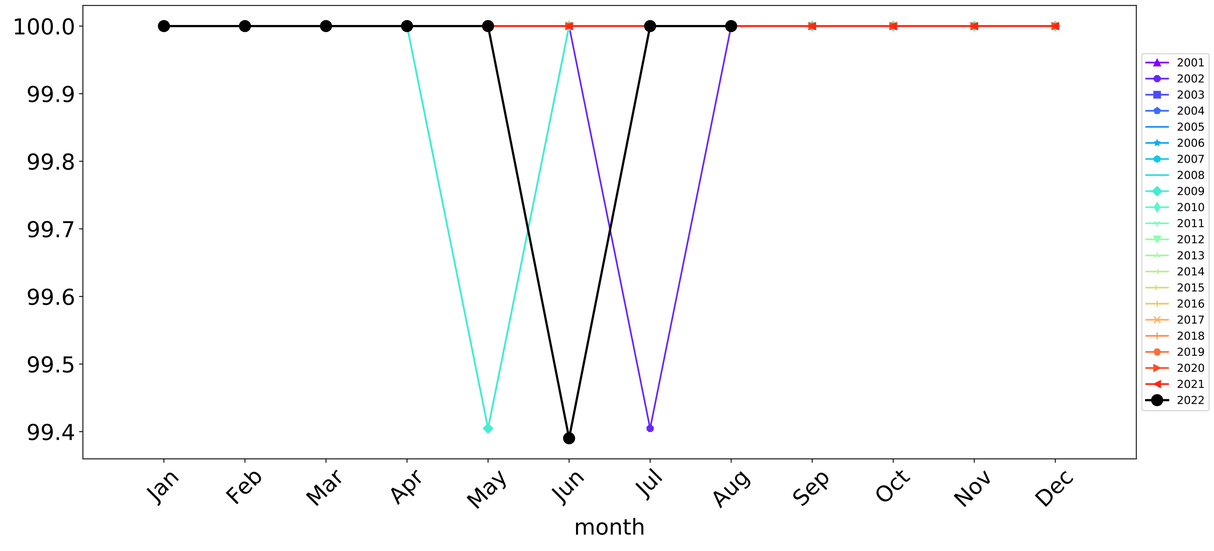


Conservation and natural environments Woodland forest timeseries

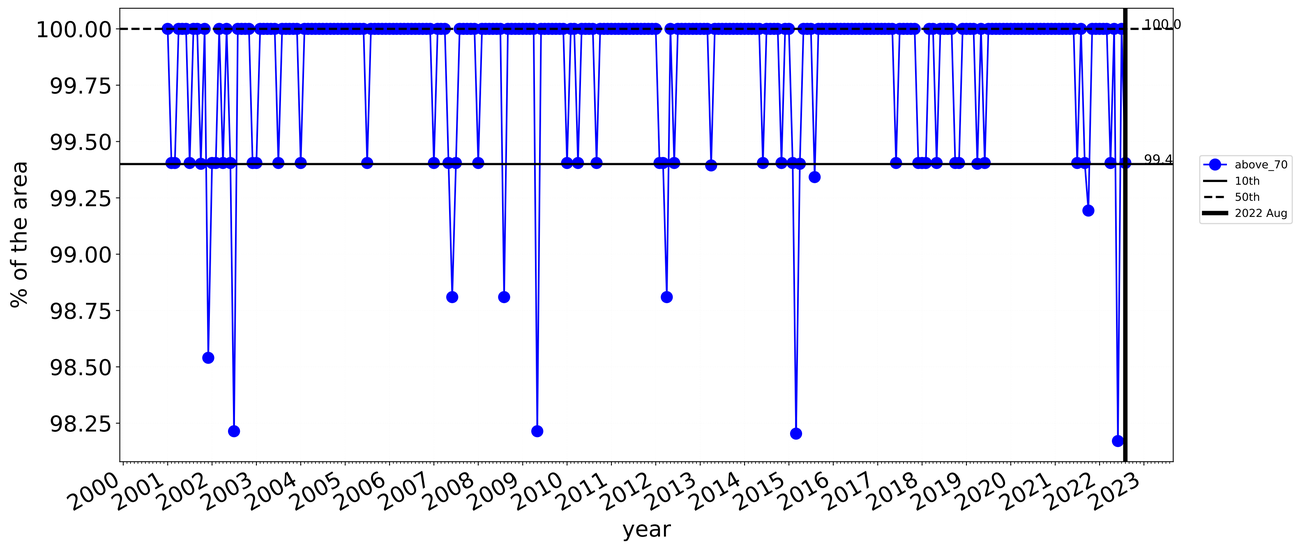
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



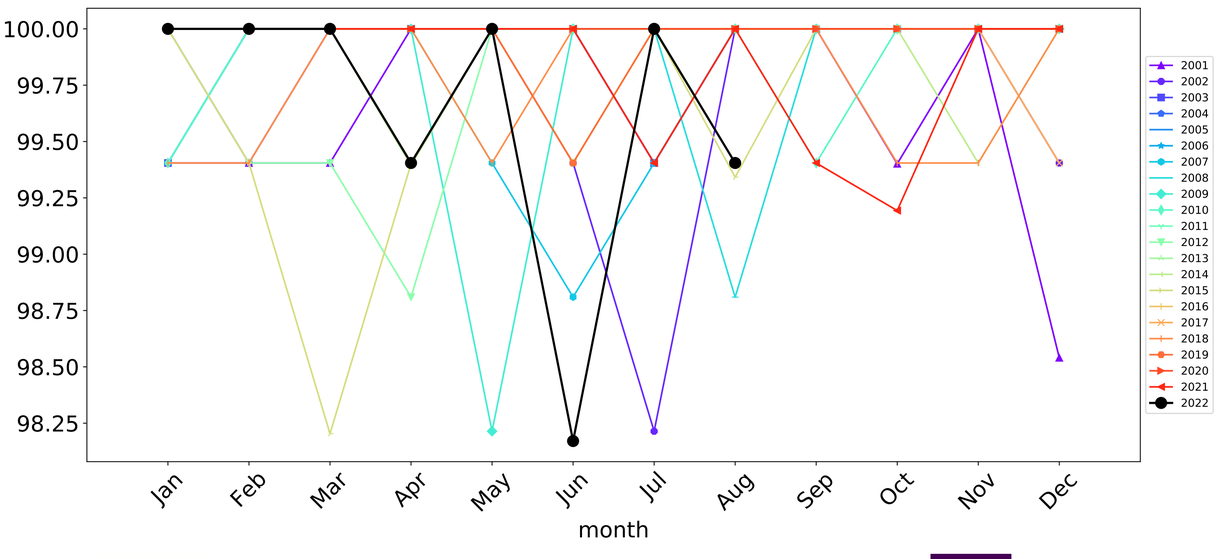
Wind erosion historical monthly area protected (Total Veg Cov >50%)

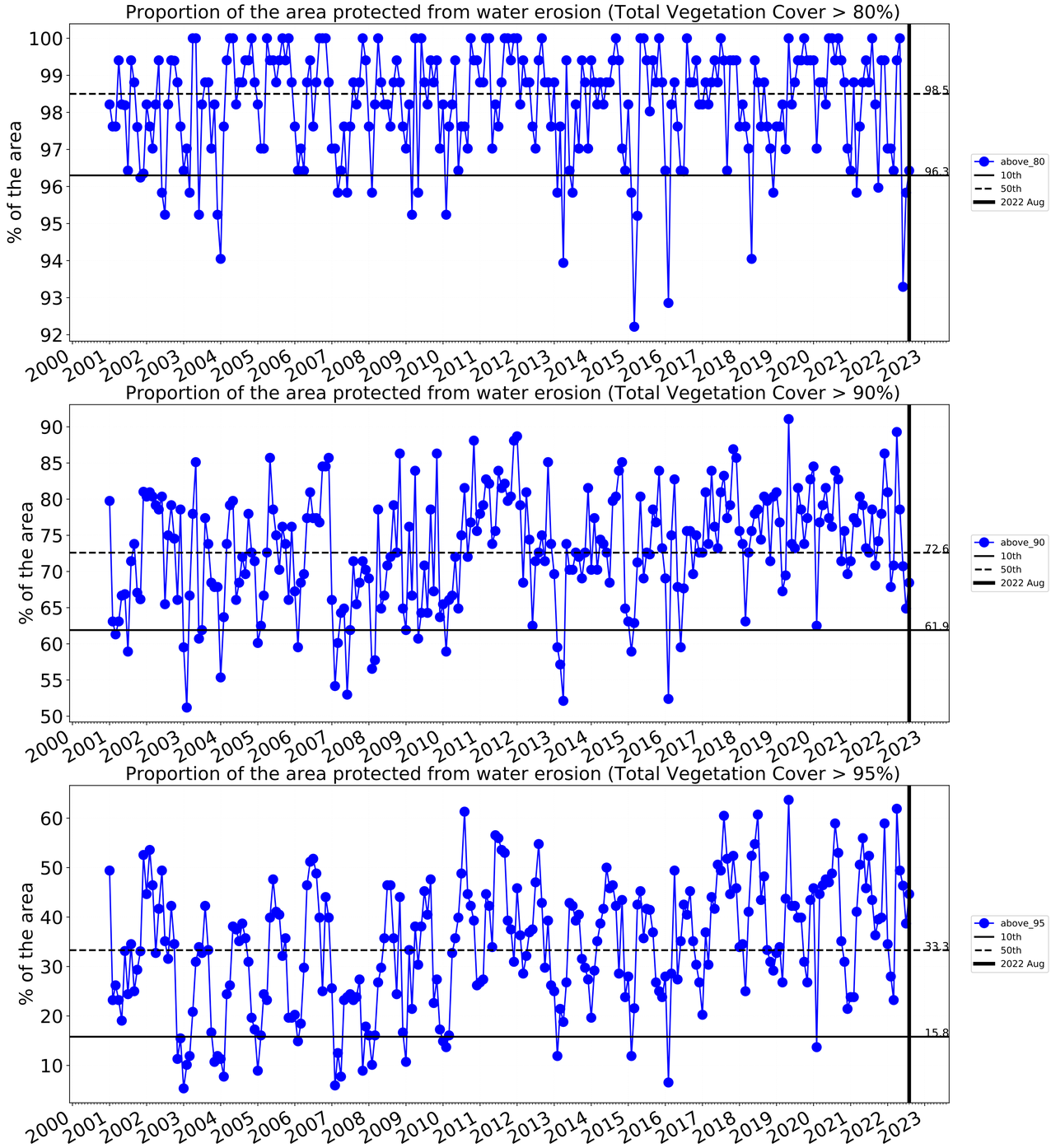


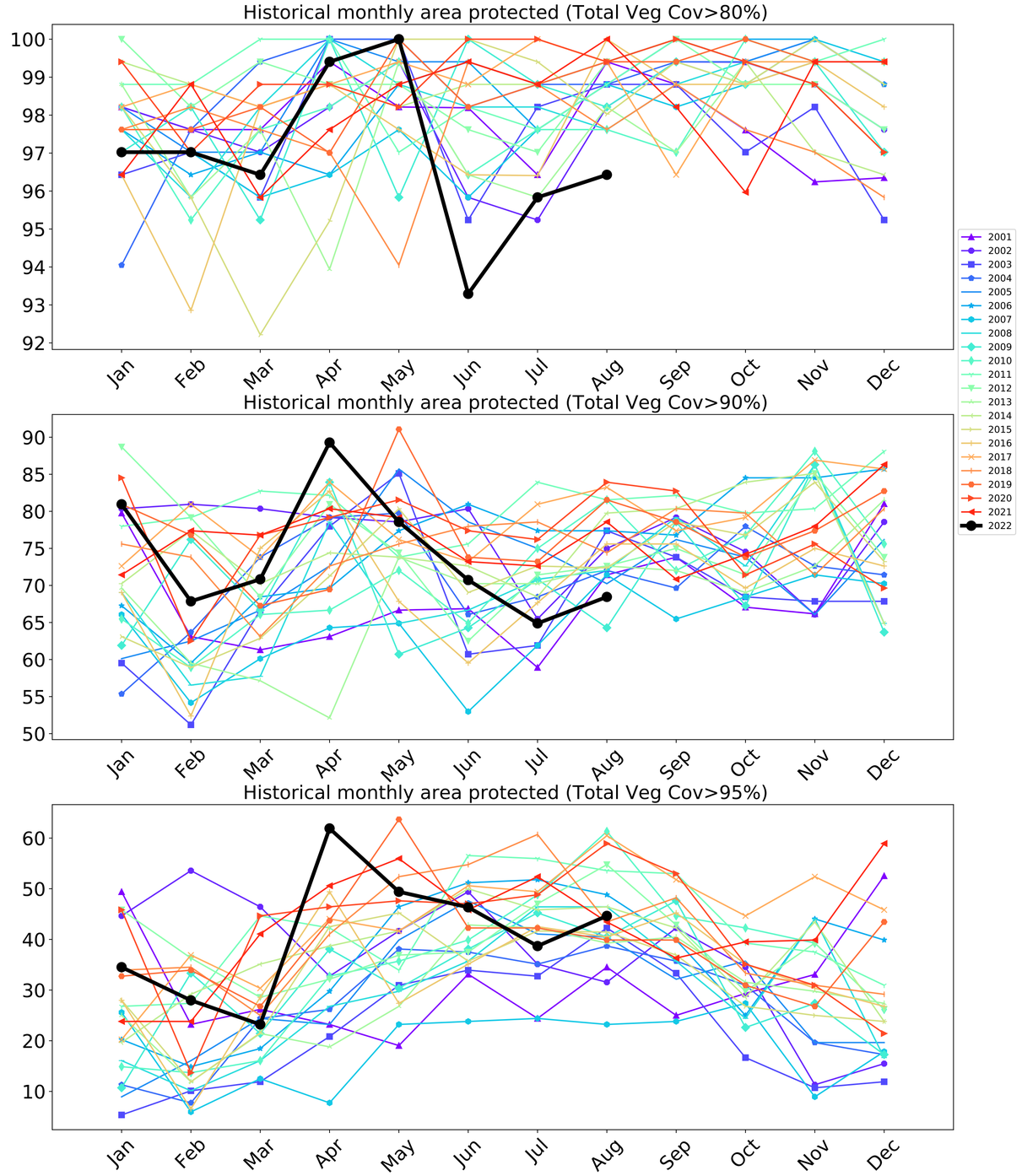
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
98.5
96.3
above_80
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
72.6
61.9
above_90
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
33.3
15.8
above_95
10th
50th
2022 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
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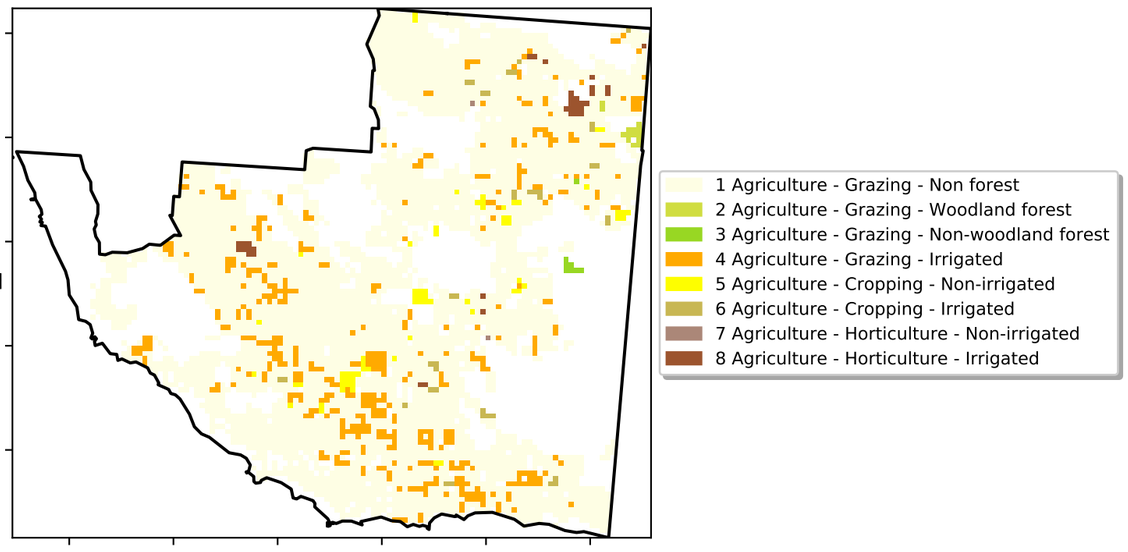
2020
2021
2022

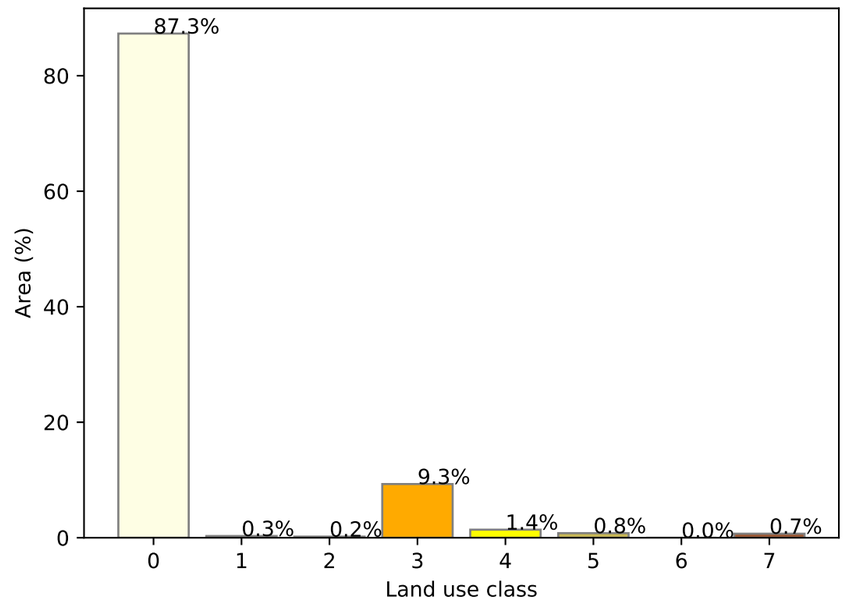
Agriculture

Land use and forest cover

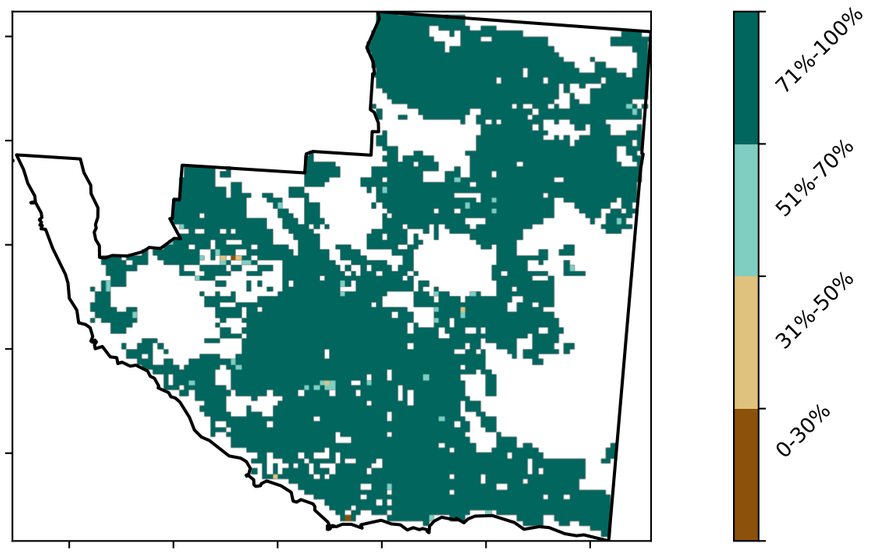


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

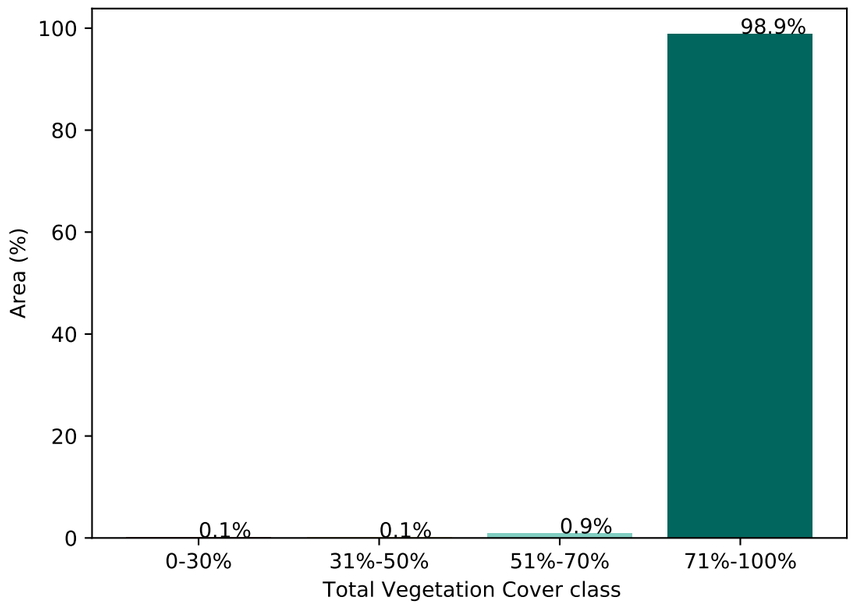
Proportion of each land class in area



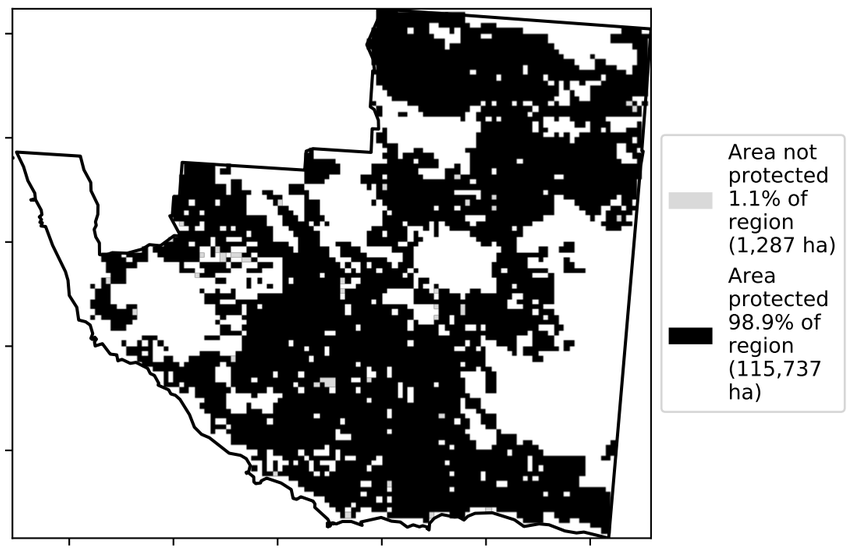
Total Vegetation Cover [%]



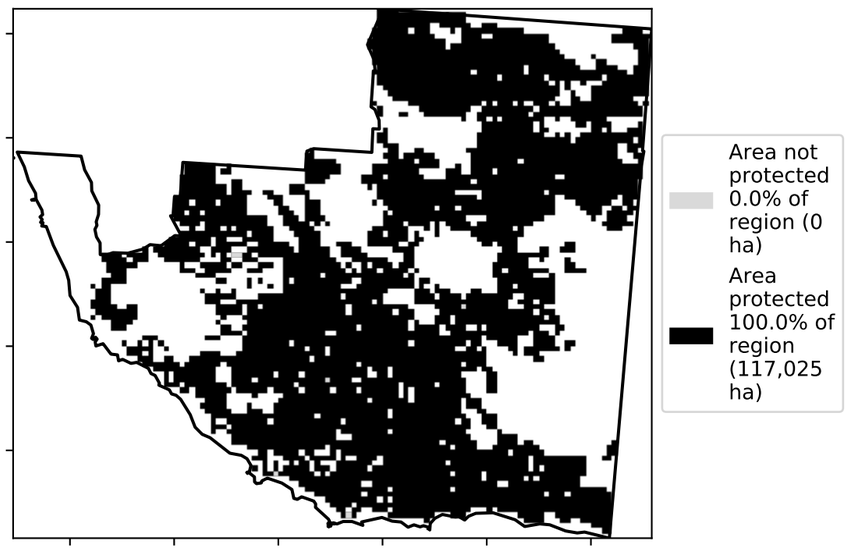
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

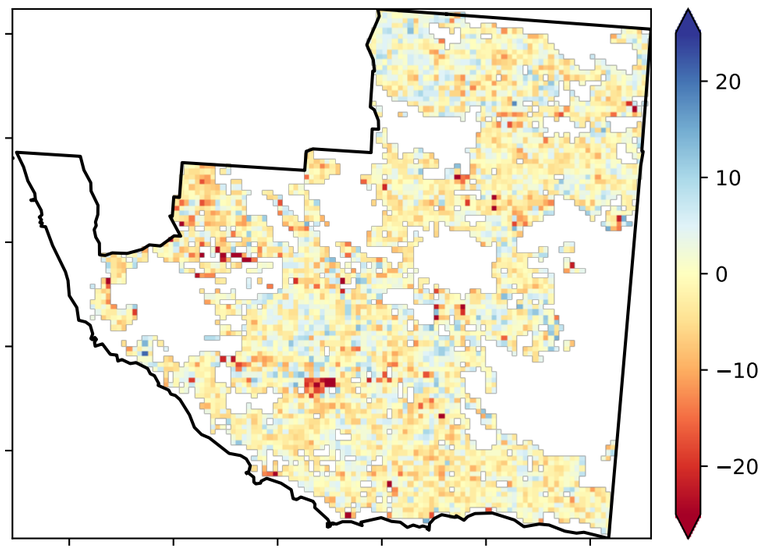


% Area protected from wind erosion (>50%)



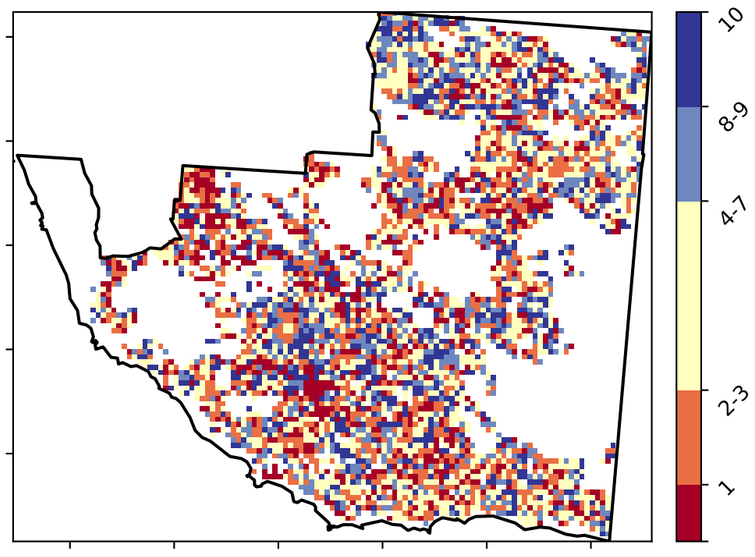
Total Vegetation Cover Anomaly [%]

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.



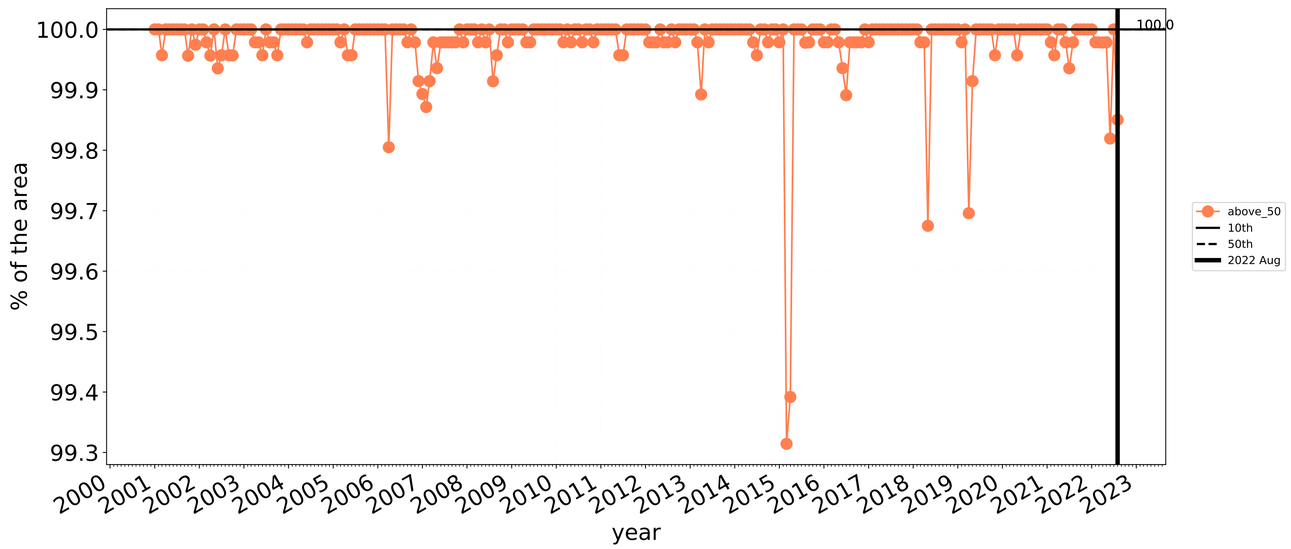
Total Vegetation Cover Decile [%]

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.

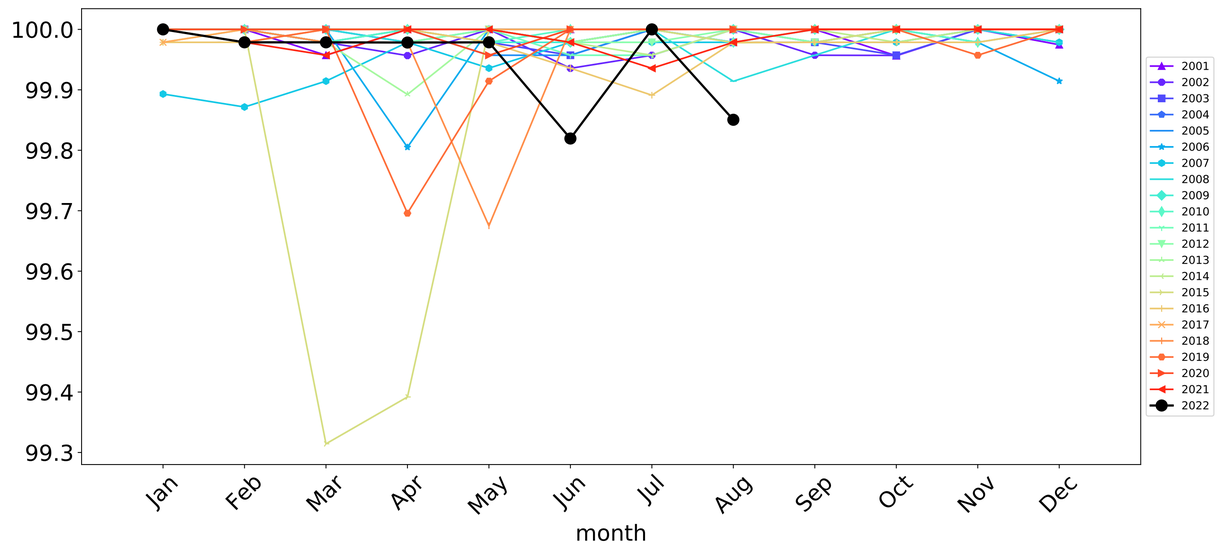


Agriculture timeseries

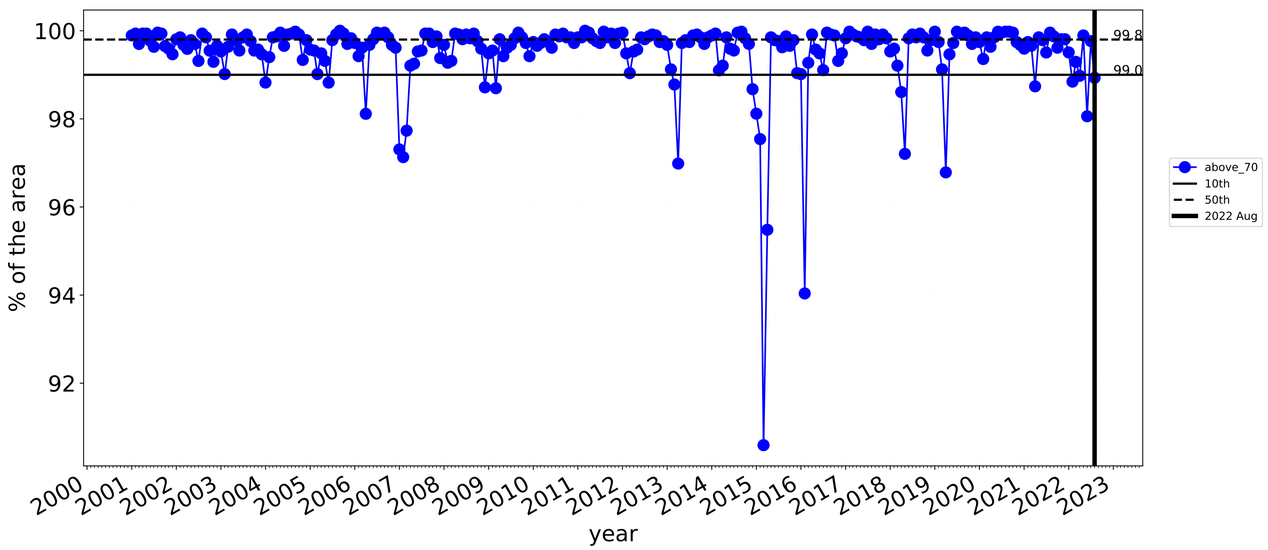
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



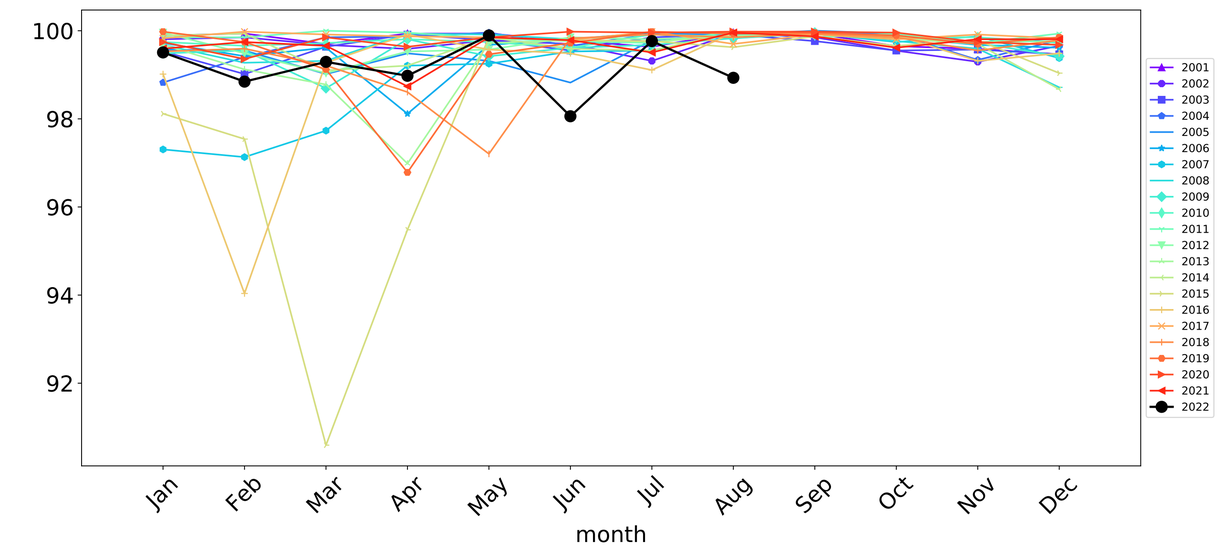
Wind erosion historical monthly area protected (Total Veg Cov >50%)

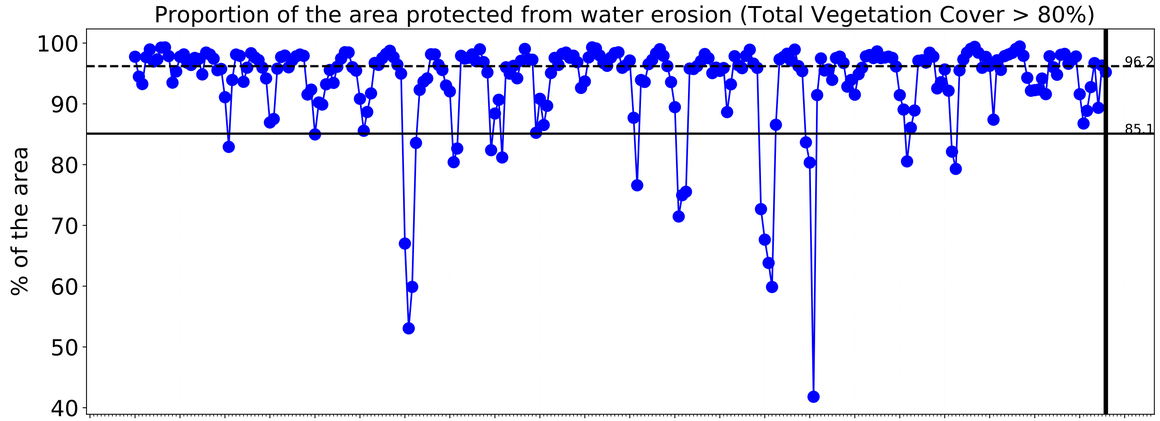


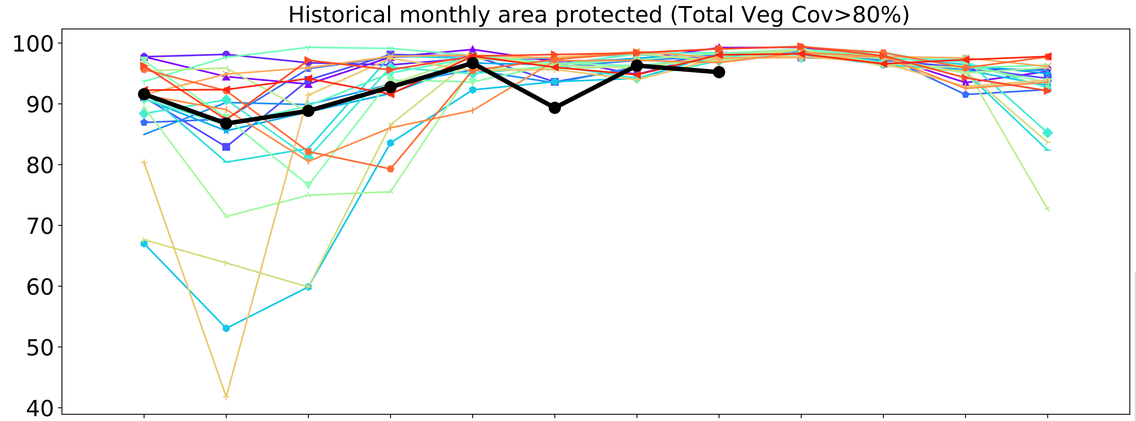
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
96.2
85.1
above_80
10th
50th
2022 Aug


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
Mar
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Oct
Nov
Dec
2001
2002
2003
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2005
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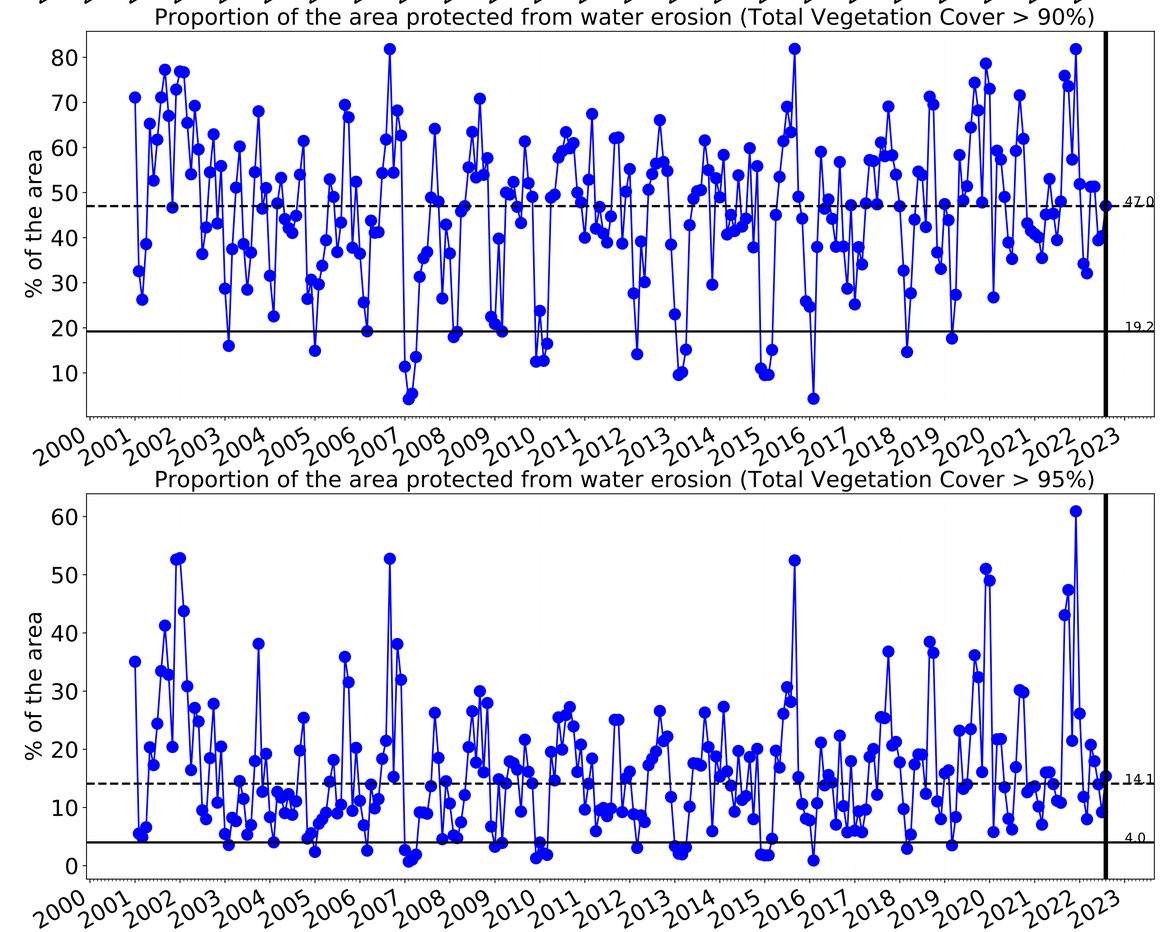
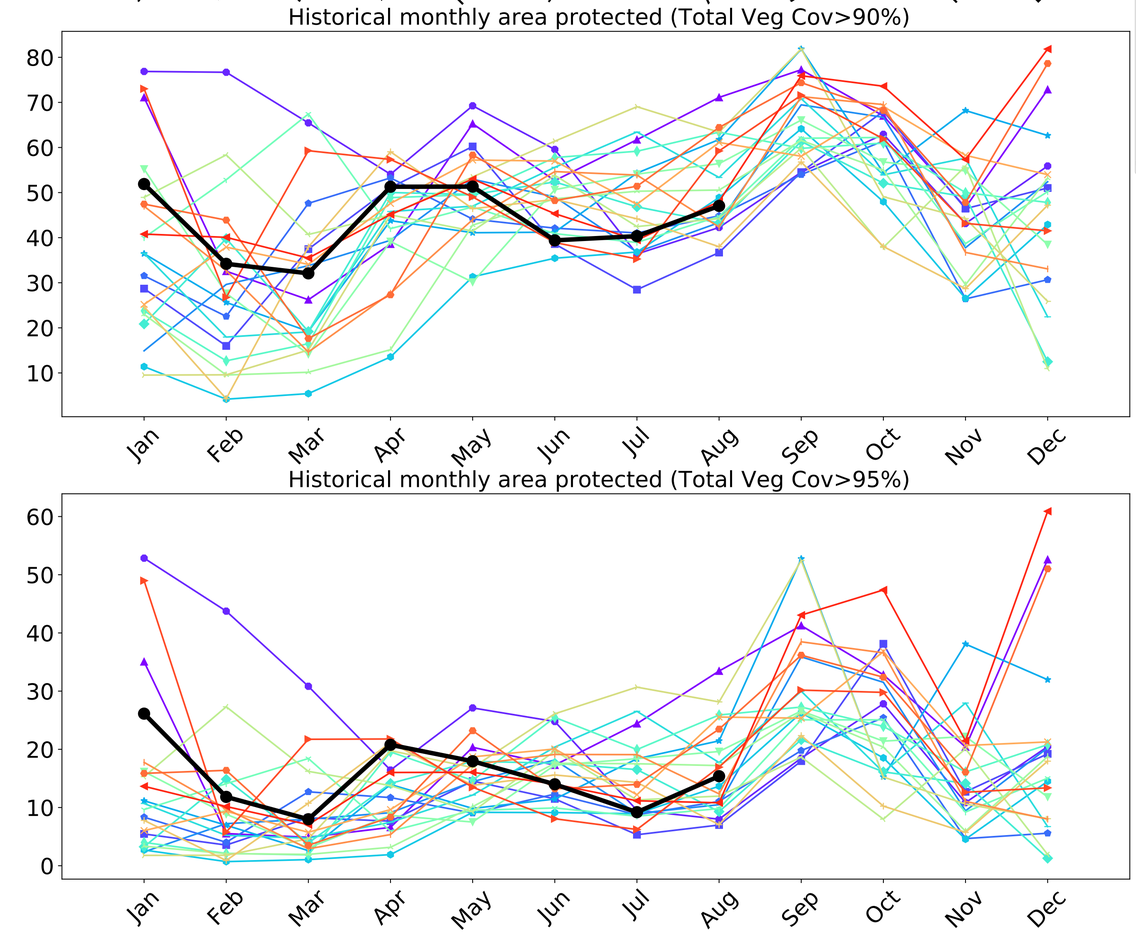
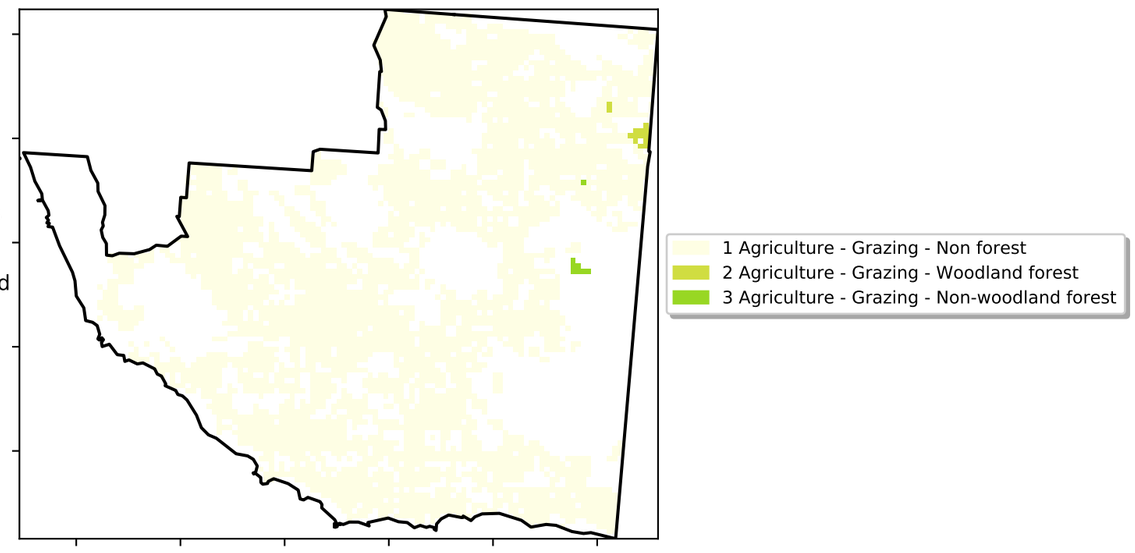
2021
2022


Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
47.0
19.2
above_90
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
14.1
4.0
above_95
10th
50th
2022 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

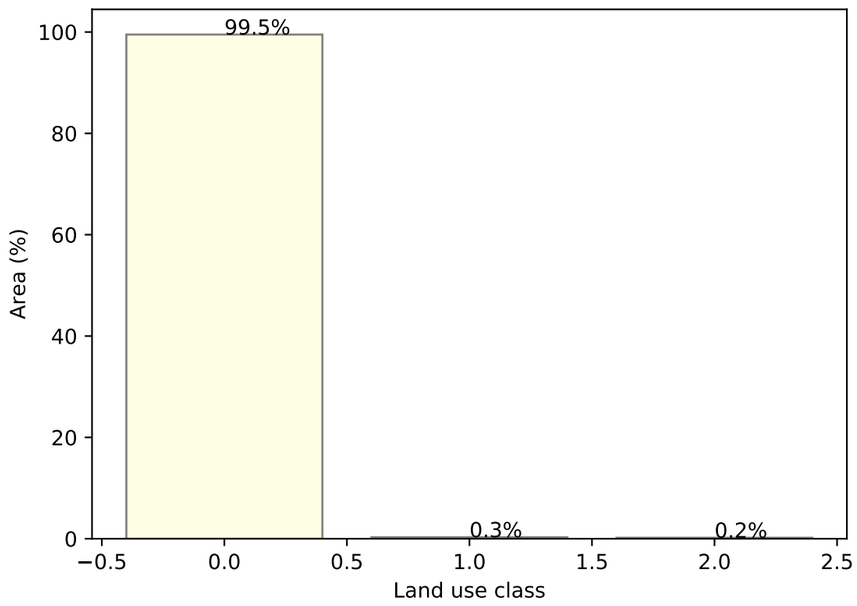
Grazing

Land use and forest cover

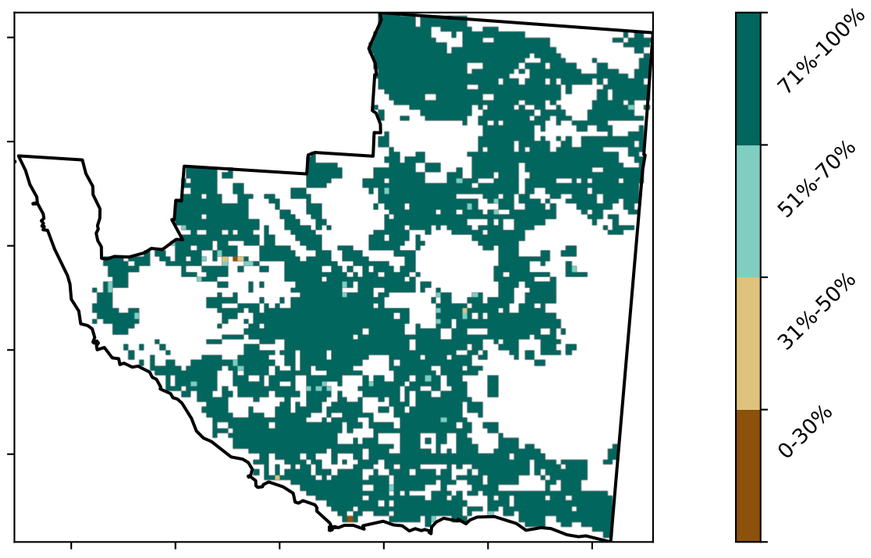


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

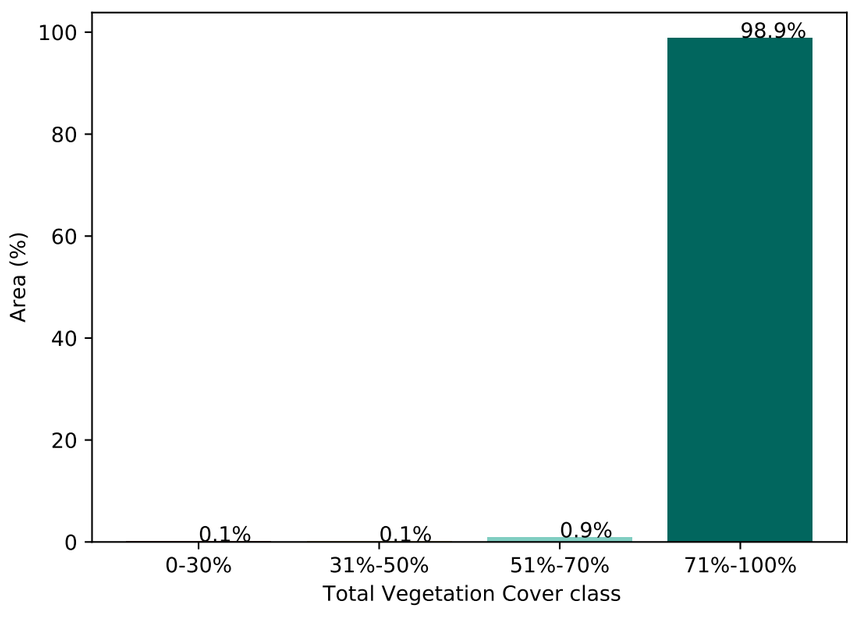
Proportion of each land class in area



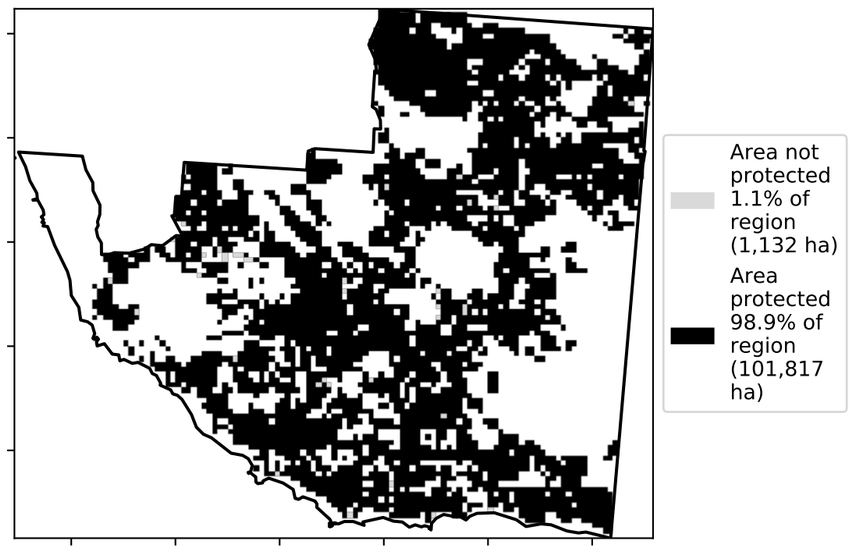
Total Vegetation Cover [%]



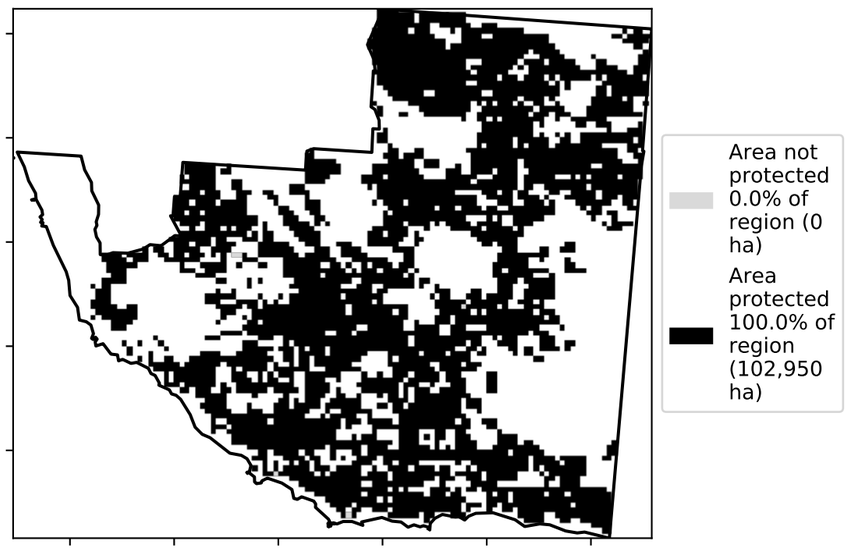
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

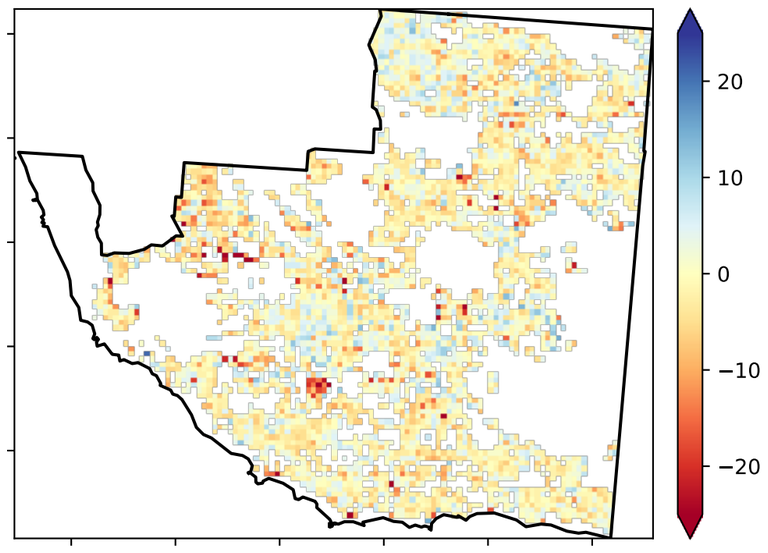


% Area protected from wind erosion (>50%)



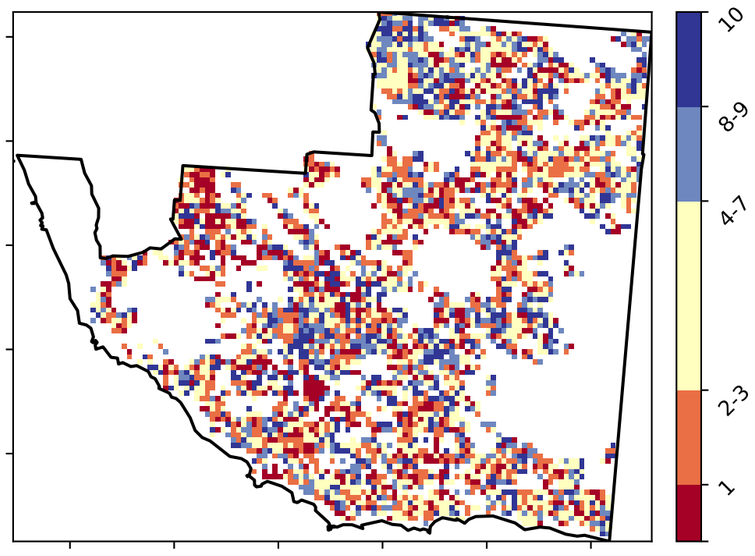
Total Vegetation Cover Anomaly [%]

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.

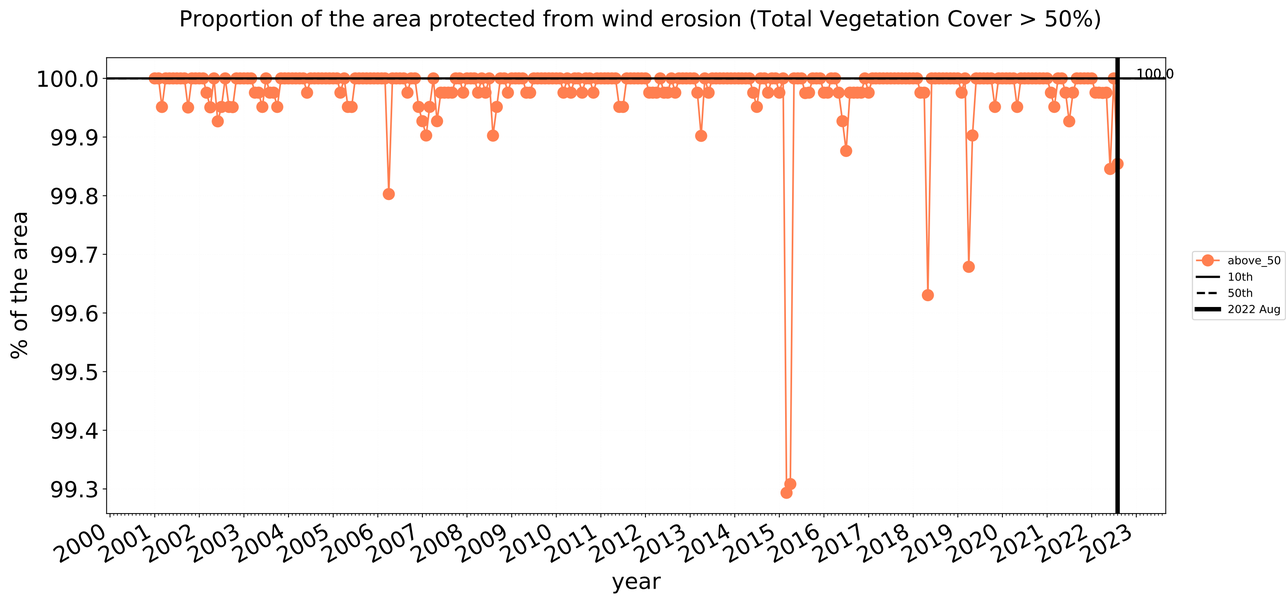


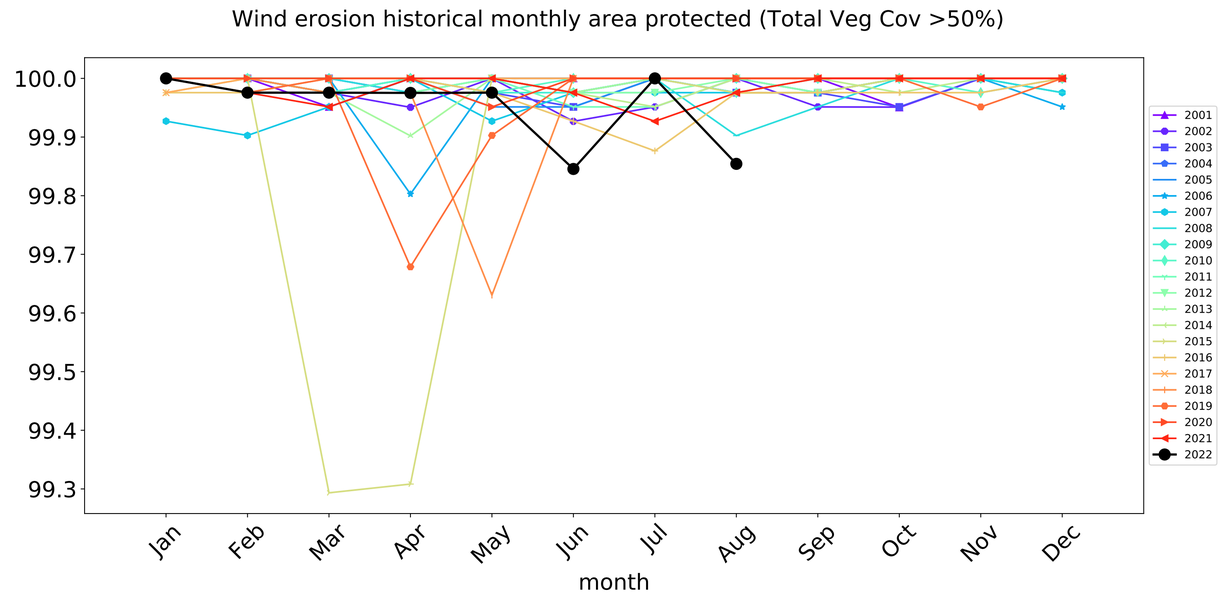
Total Vegetation Cover Decile [%]

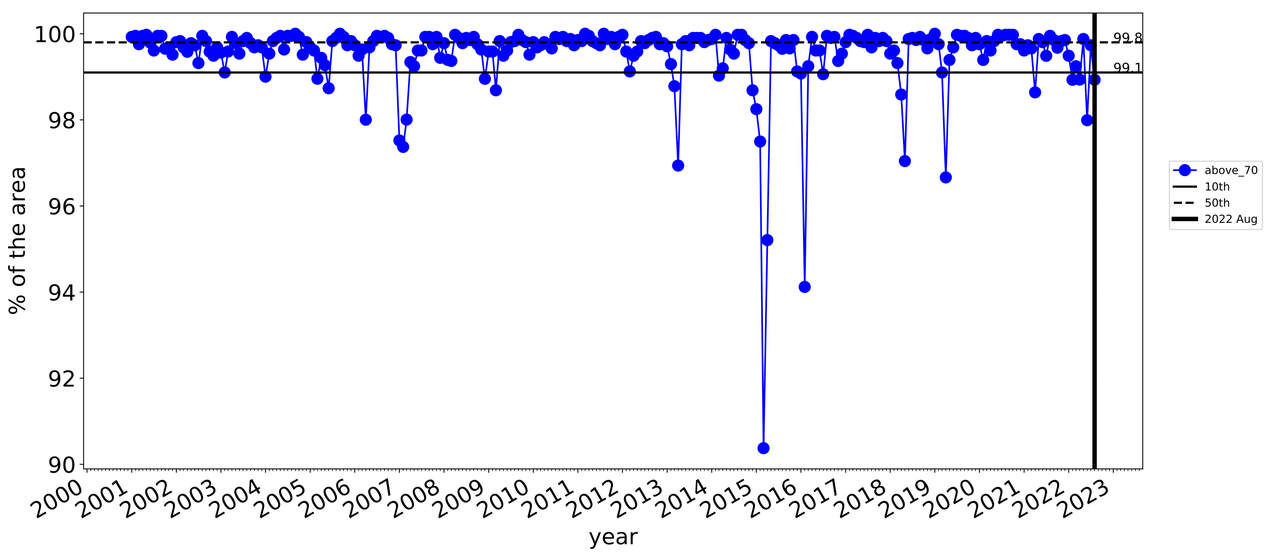
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

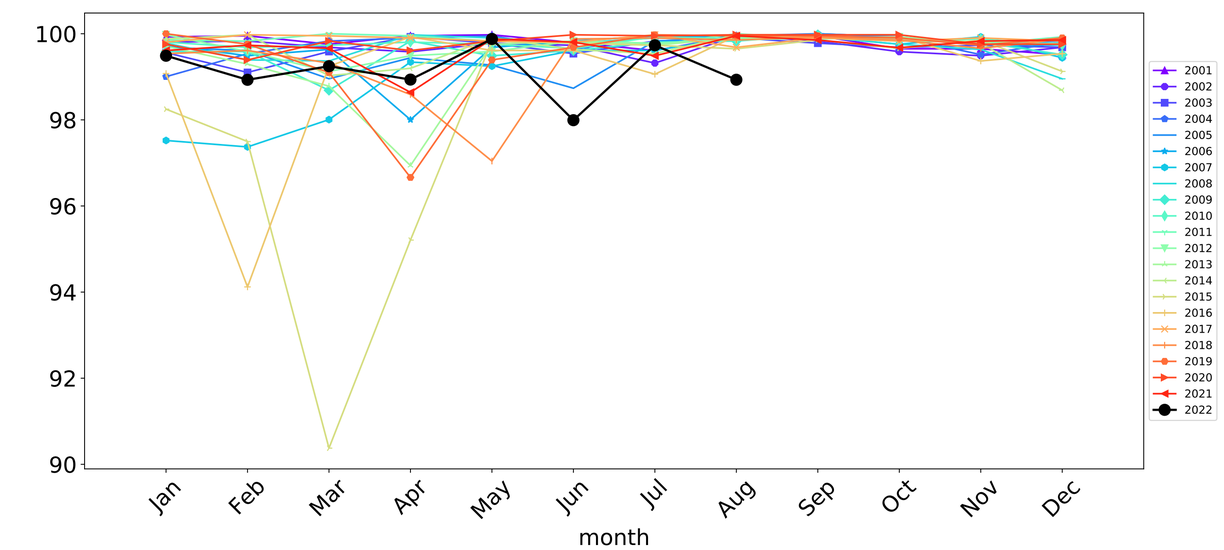


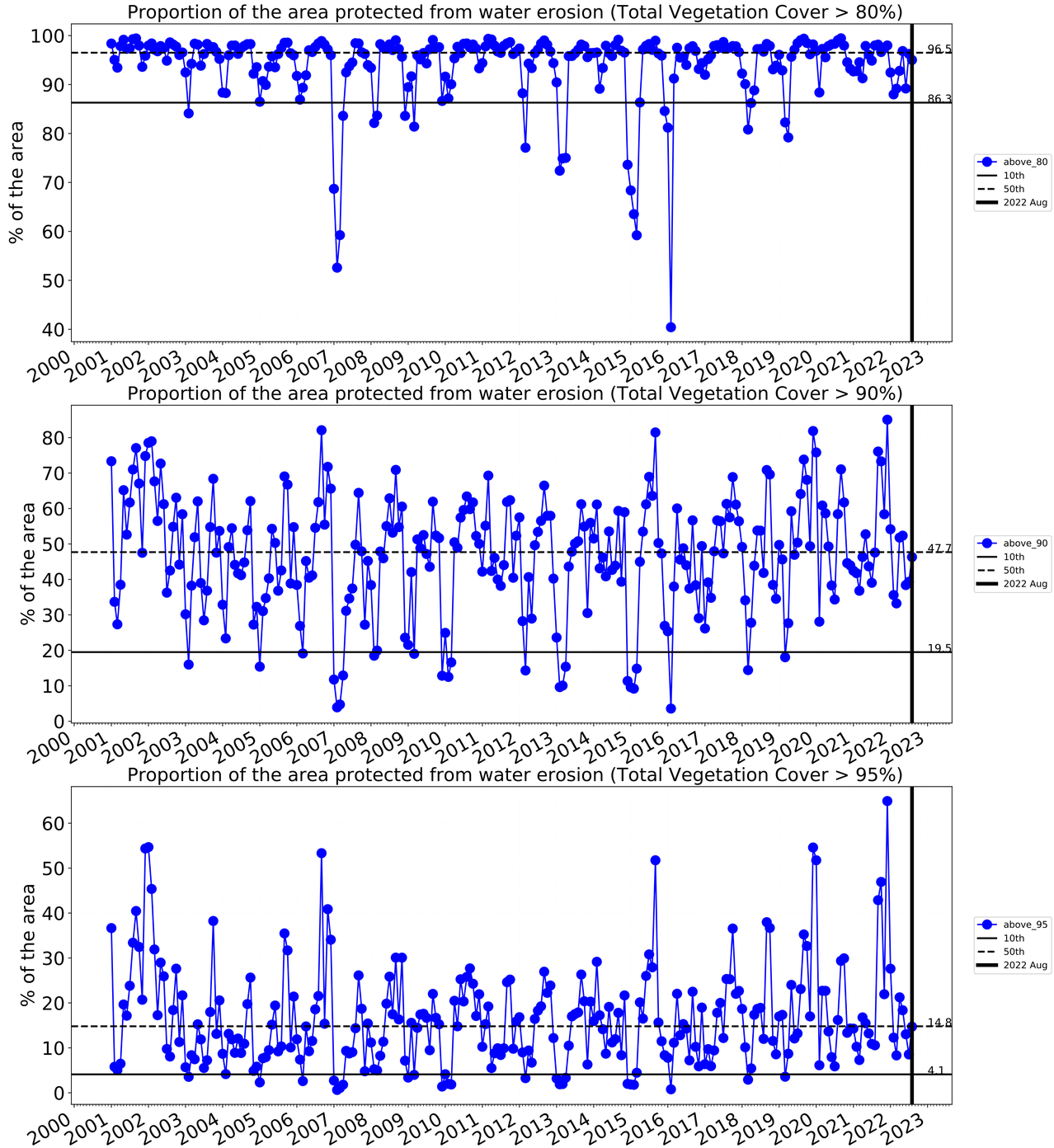
Grazing timeseries

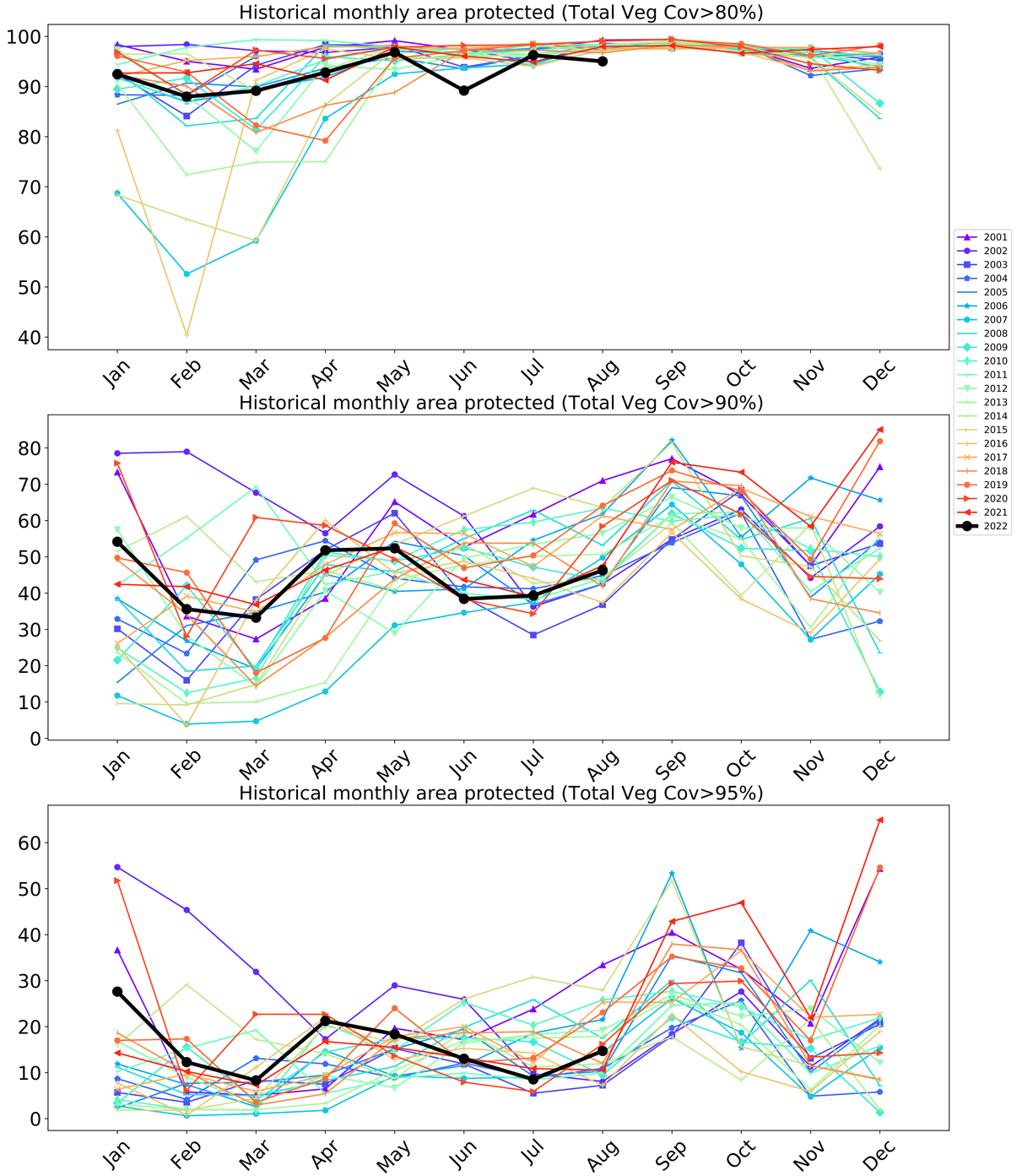









Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
96.5
86.3
above_80
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
47.7
19.5
above_90
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
14.8
4.1
above_95
10th
50th
2022 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
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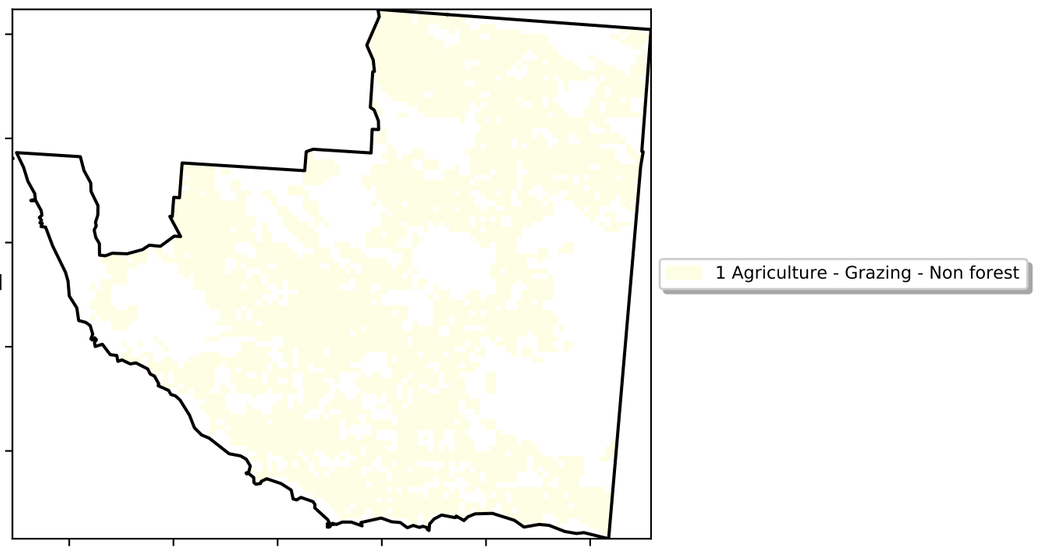
2019
2020
2021
2022

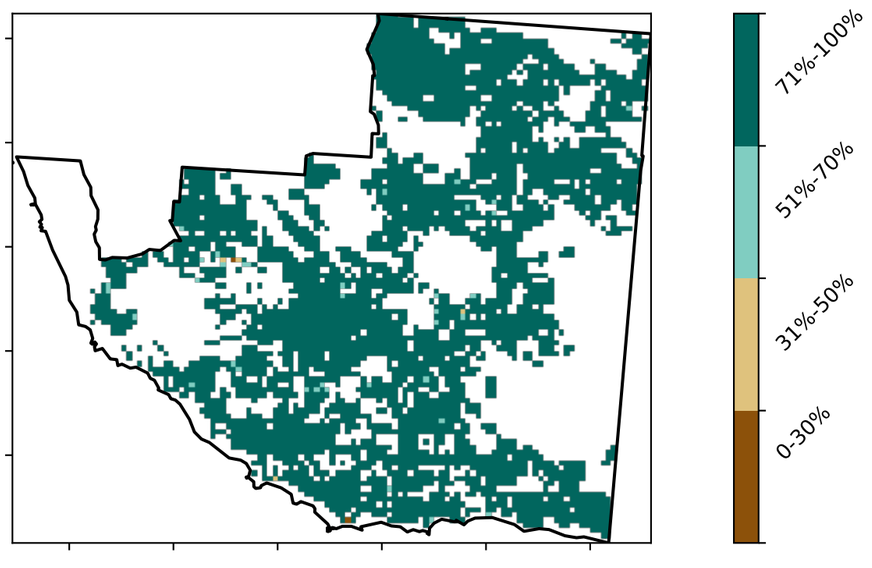
Grazing non forest

Land use and forest cover

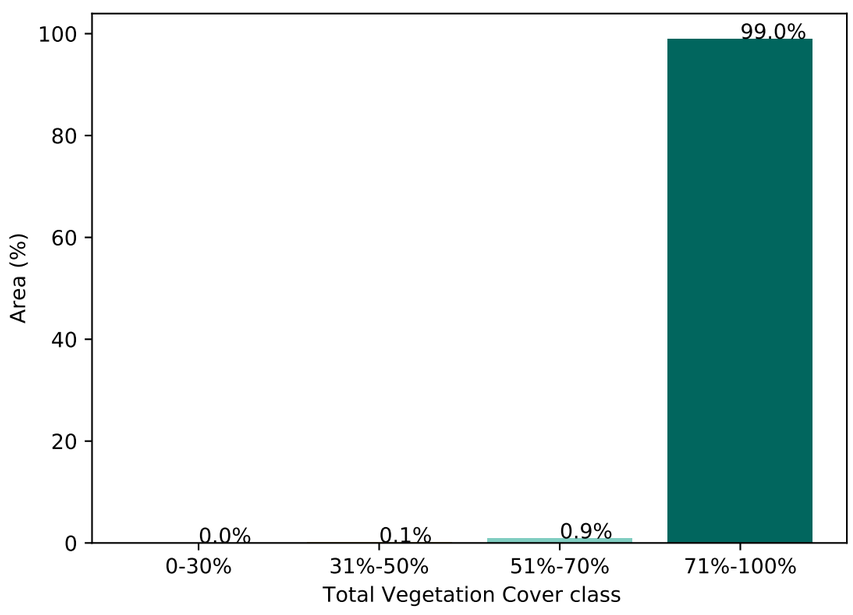


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

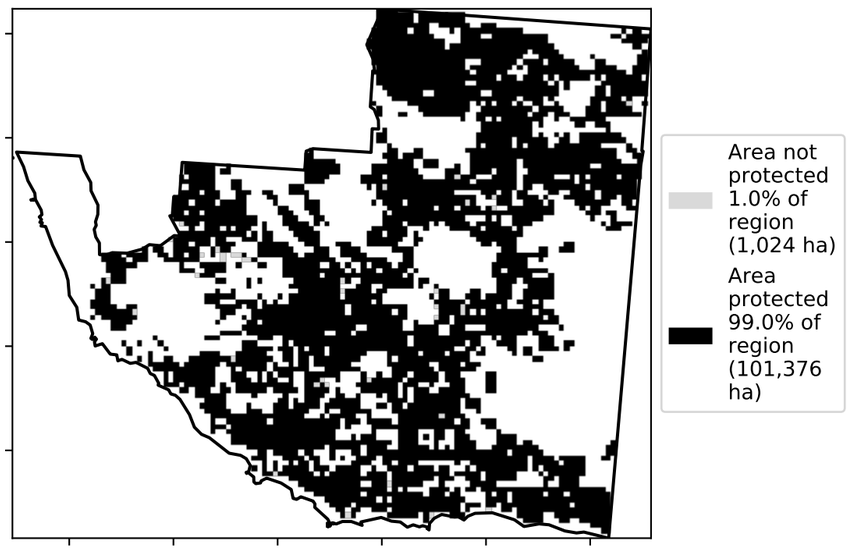
Total Vegetation Cover [%]



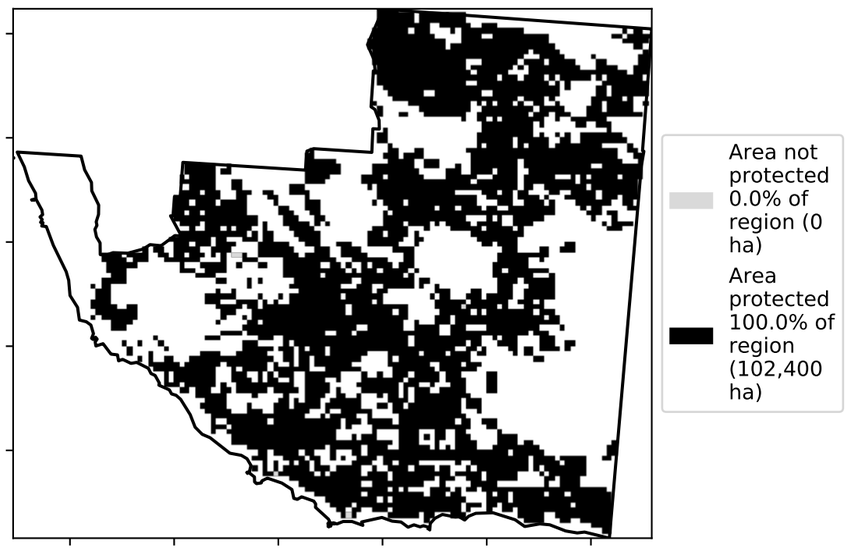
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

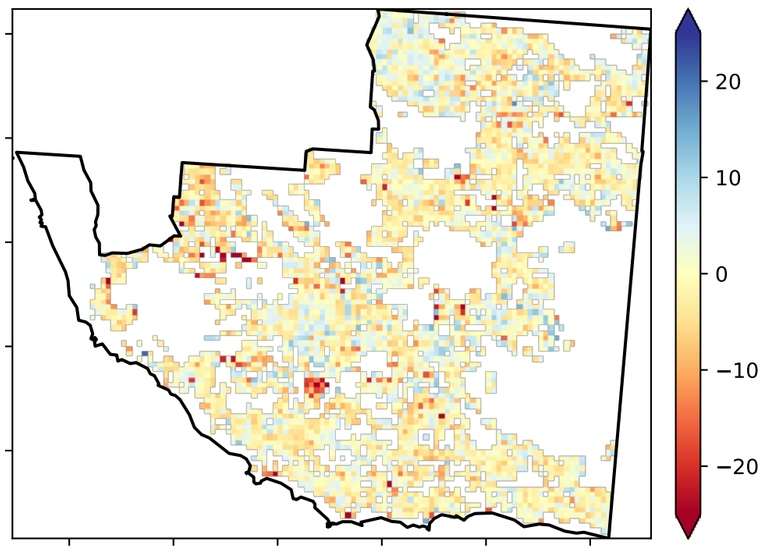


% Area protected from wind erosion (>50%)



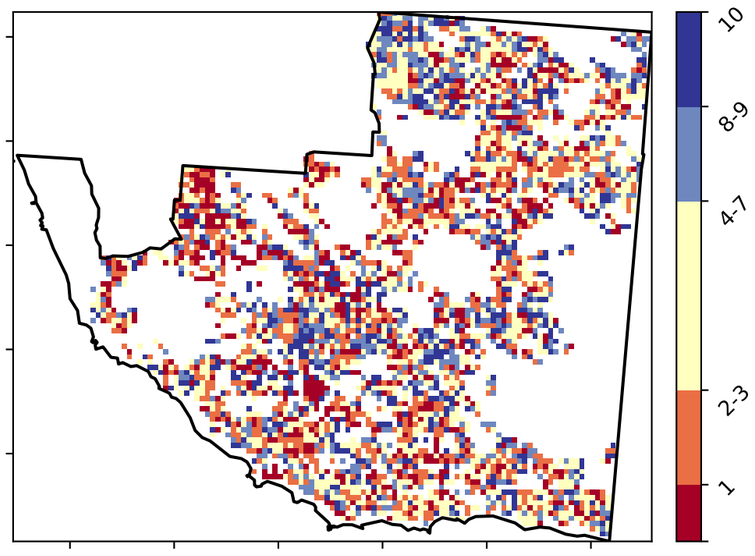
Total Vegetation Cover Anomaly [%]

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.



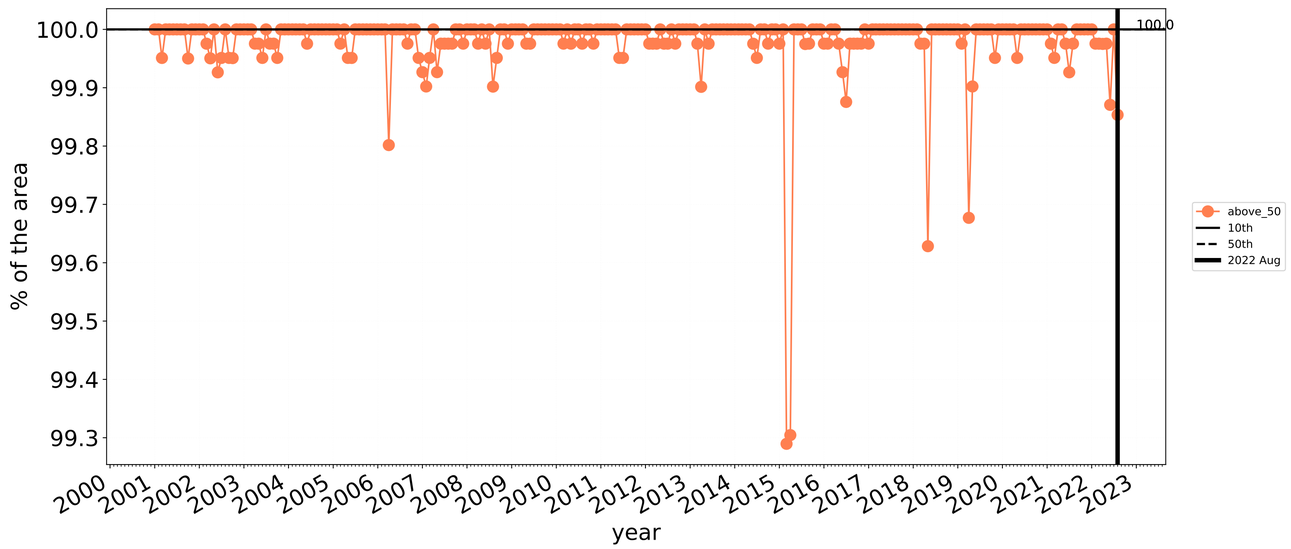
Total Vegetation Cover Decile [%]

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.

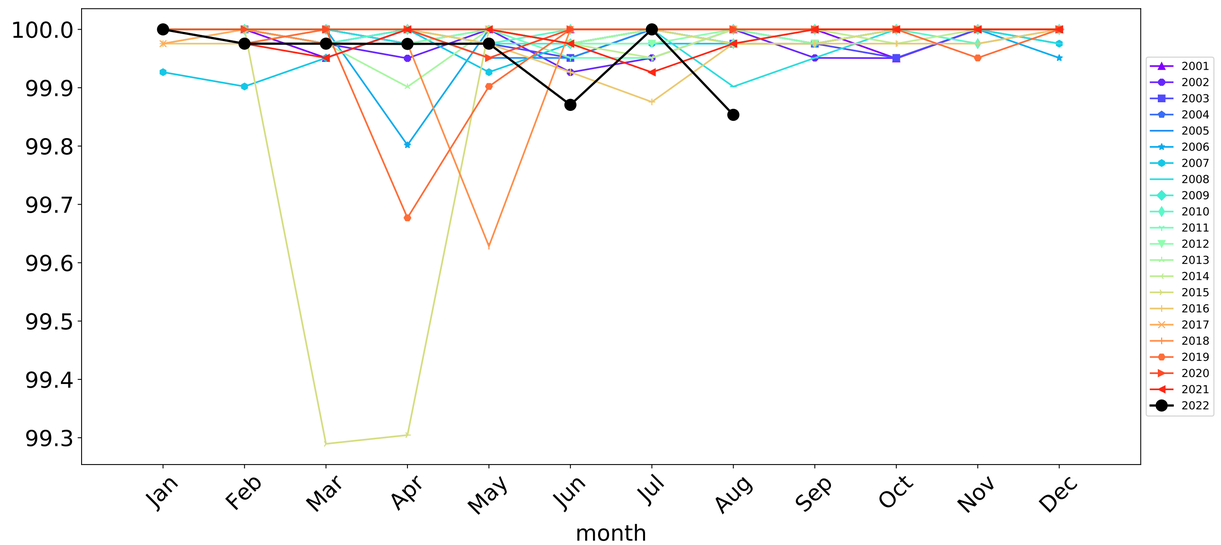


Grazing non forest timeseries

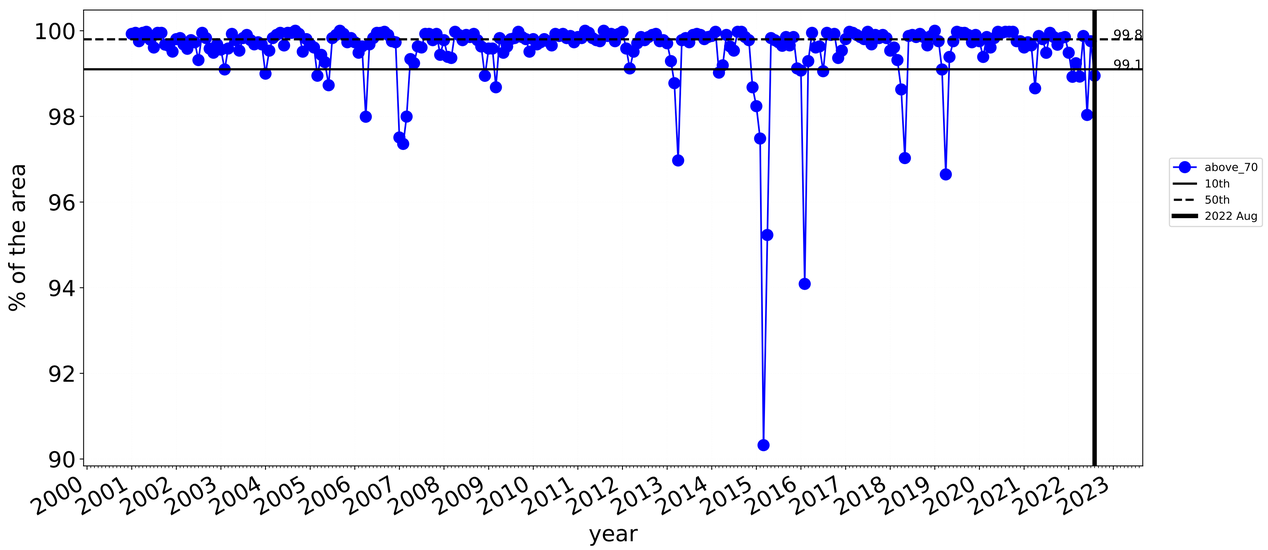
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



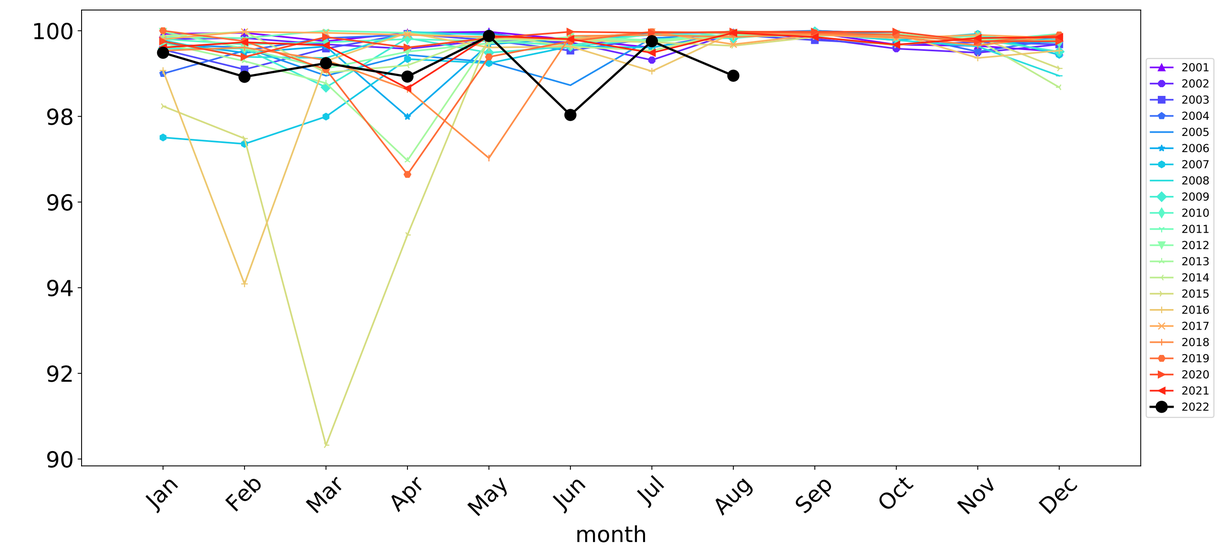
Wind erosion historical monthly area protected (Total Veg Cov >50%)

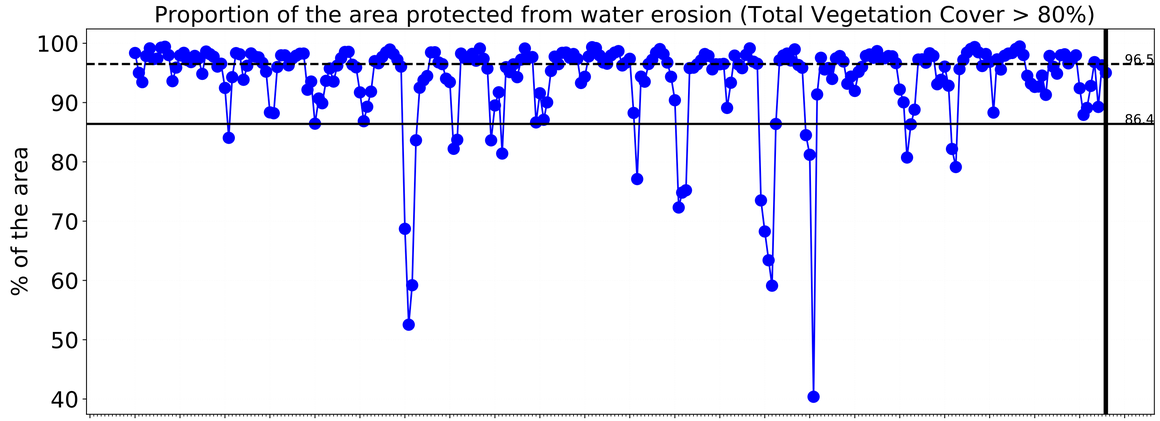


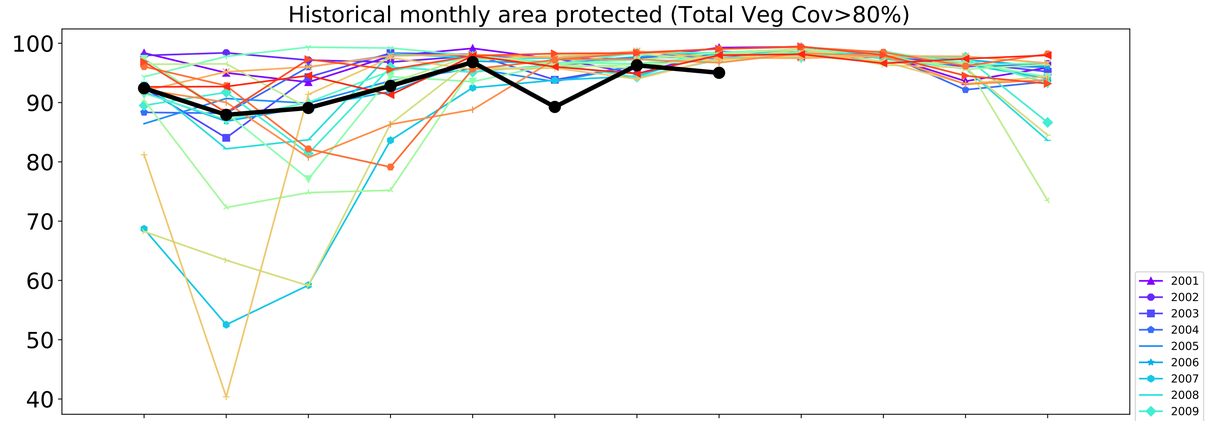
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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
96.5
86.4
above_80
10th
50th
2022 Aug


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
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May
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Oct
Nov
Dec
2001
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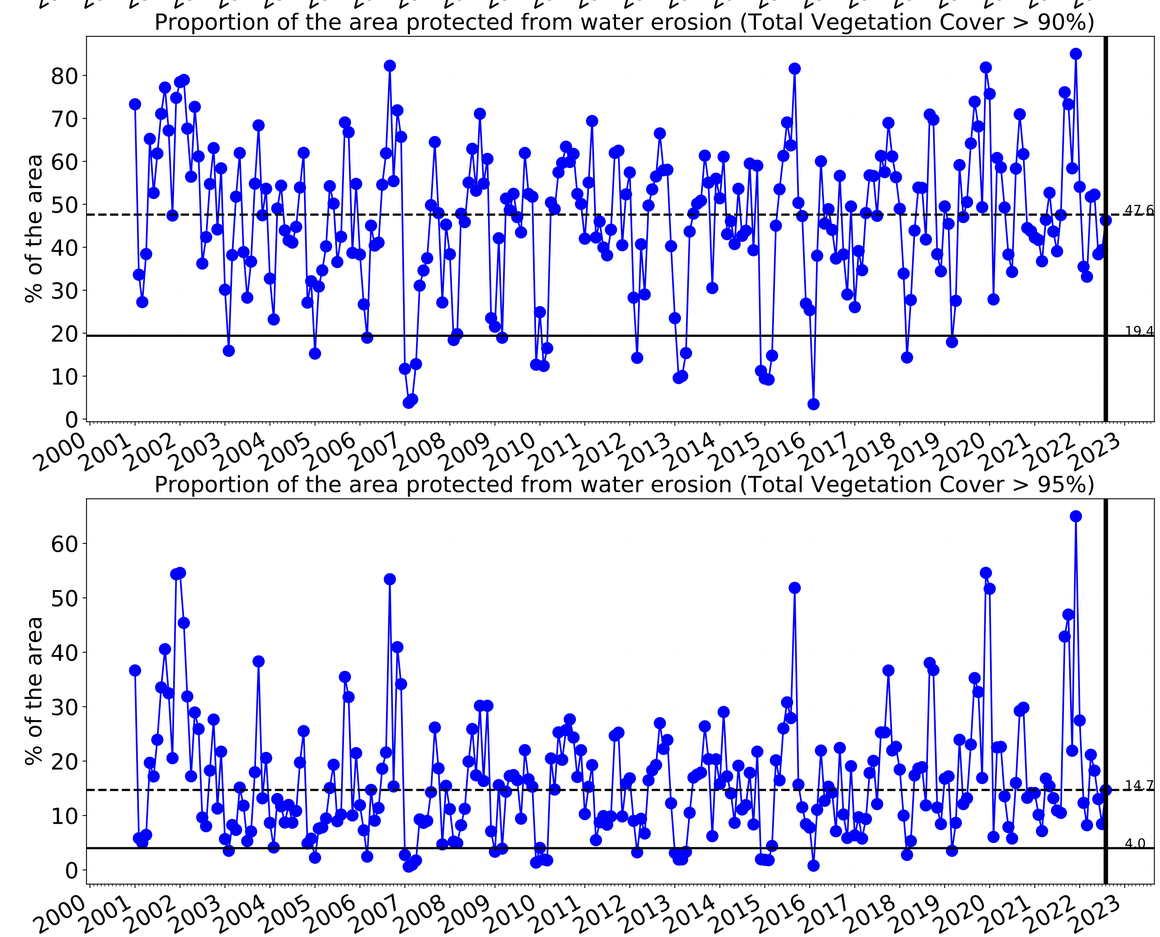
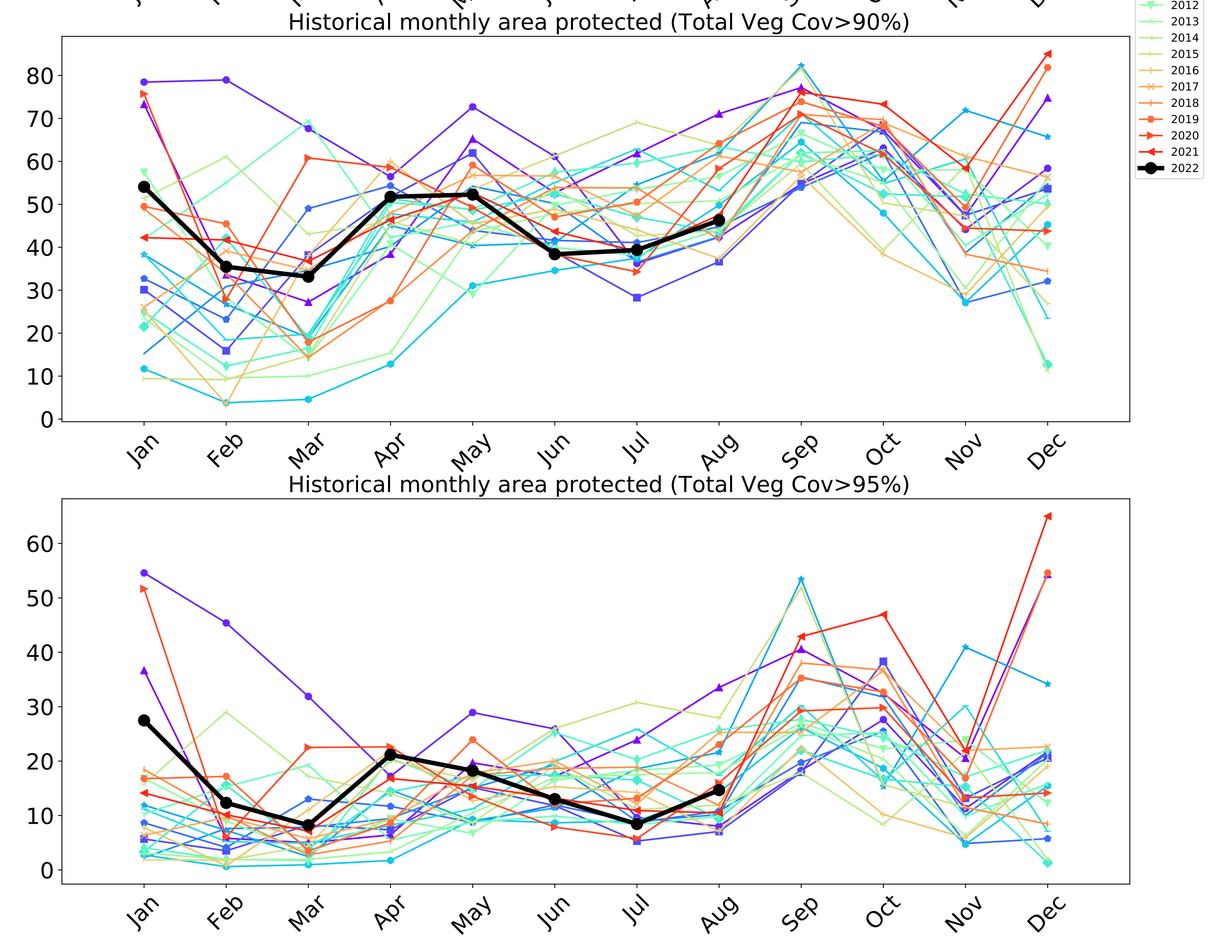
2021
2022


Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
47.6
19.4
above_90
10th
50th
2022 Aug


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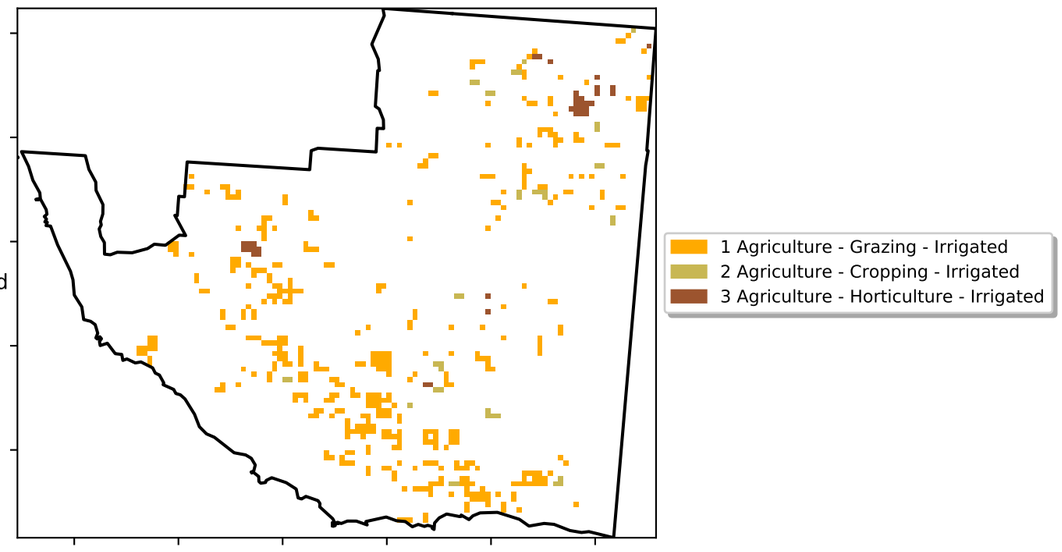
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022

Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
14.7
4.0
above_95
10th
50th
2022 Aug

Historical monthly area protected (Total Veg Cov>95%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

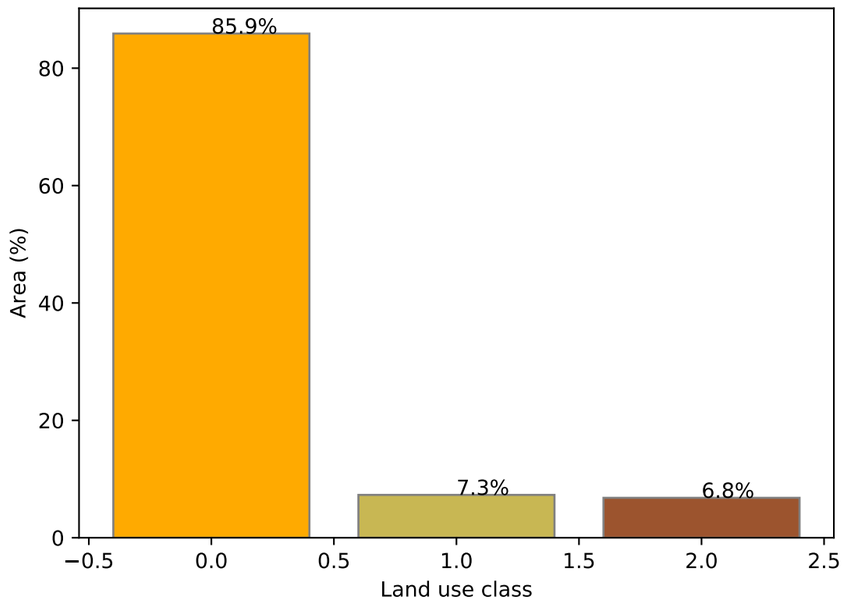
Irrigation

Land use and forest cover

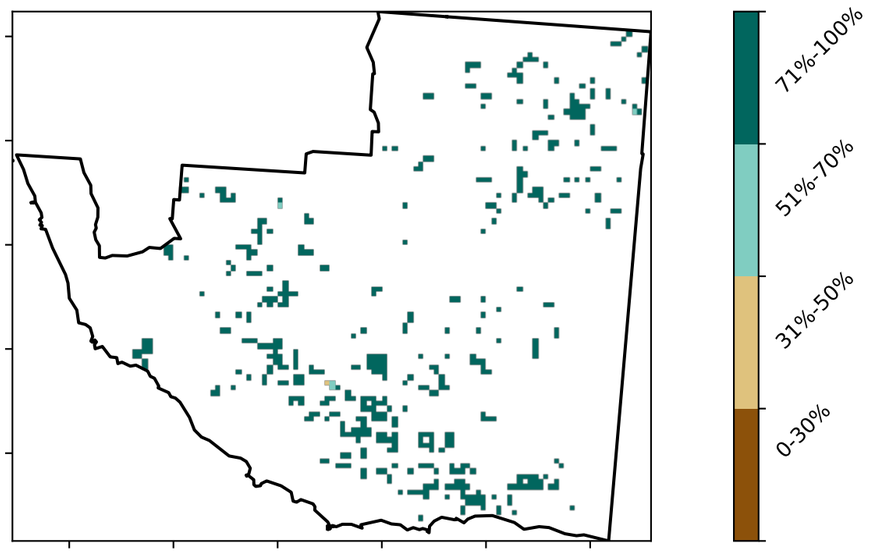


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

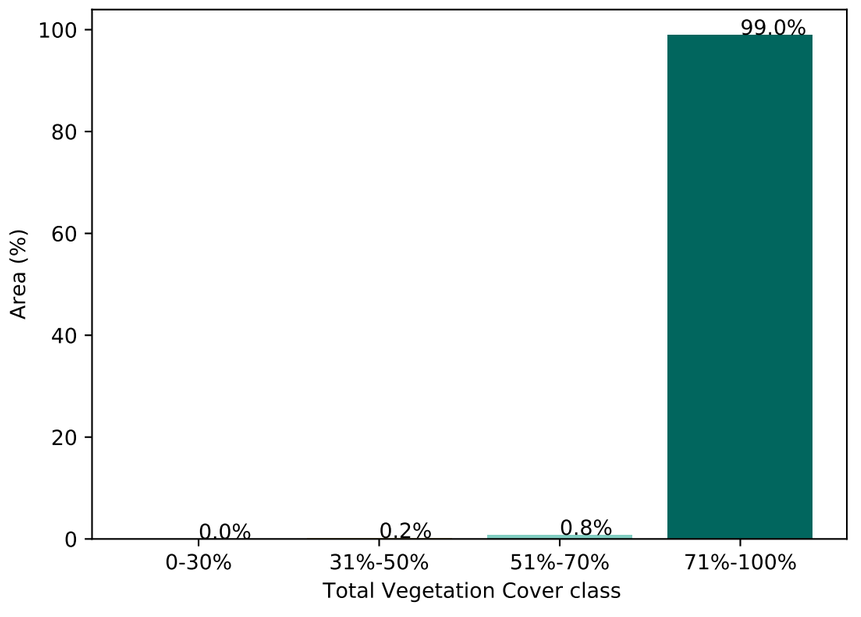
Proportion of each land class in area



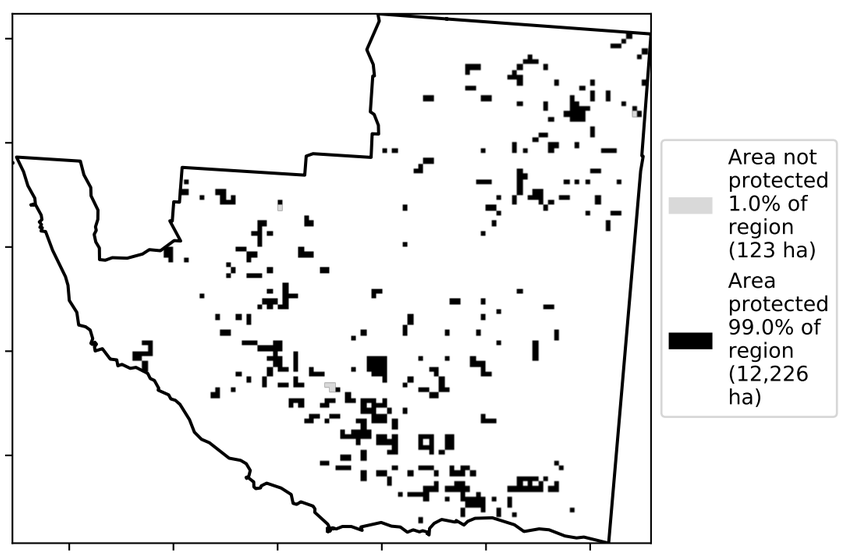
Total Vegetation Cover [%]



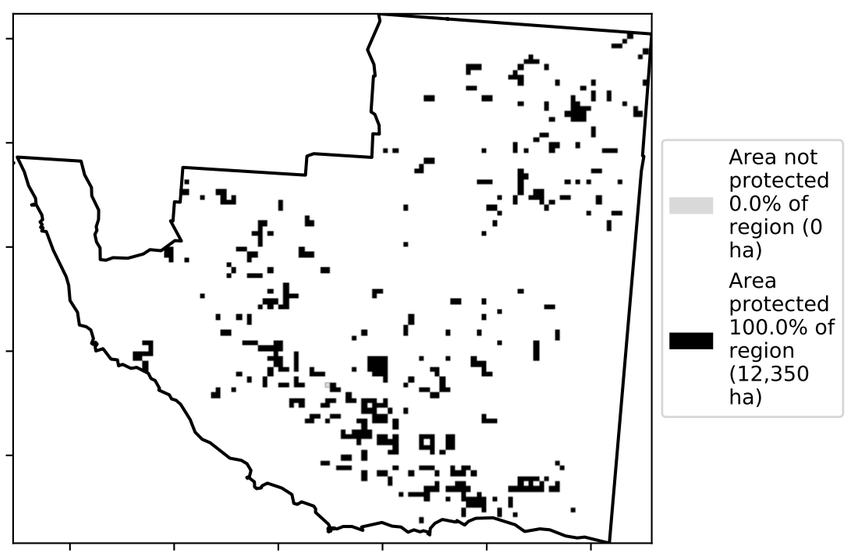
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

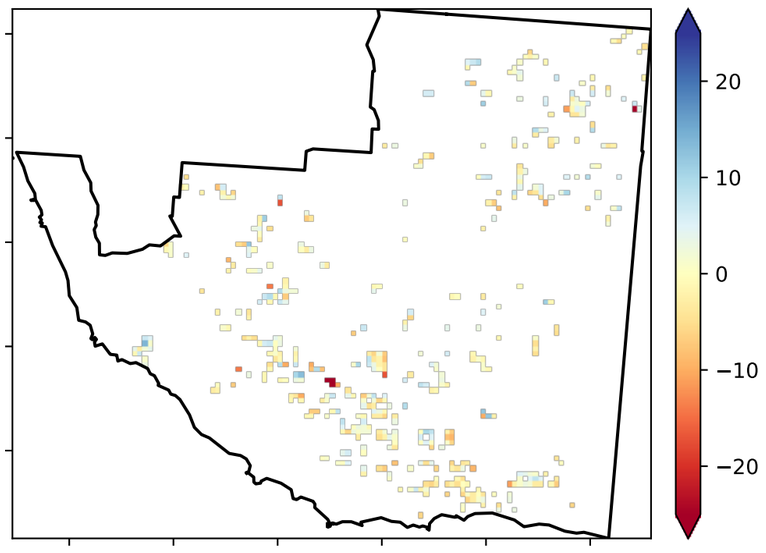


% Area protected from wind erosion (>50%)



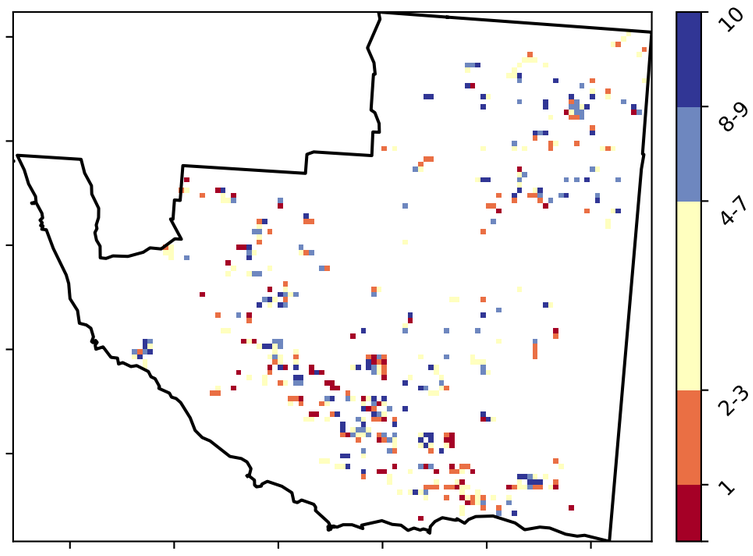
Total Vegetation Cover Anomaly [%]

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.



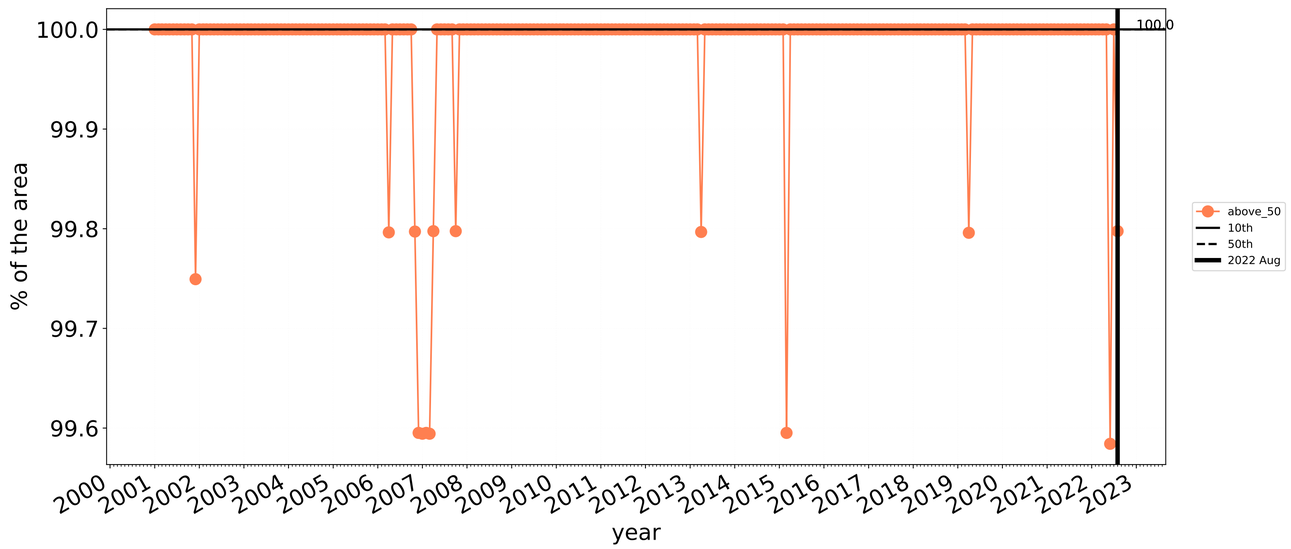
Total Vegetation Cover Decile [%]

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.

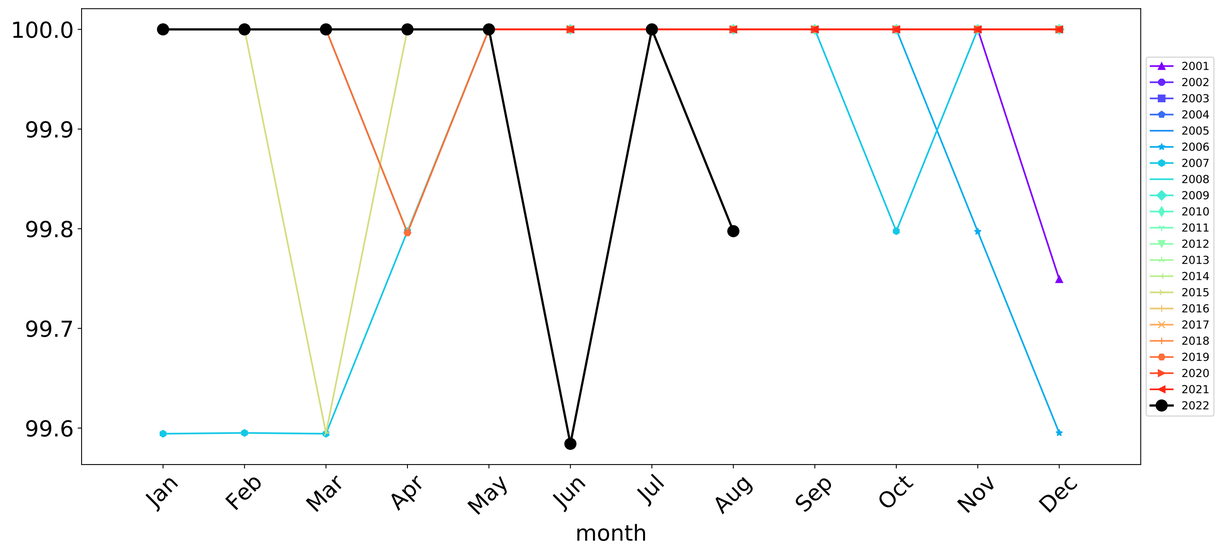


Irrigation timeseries

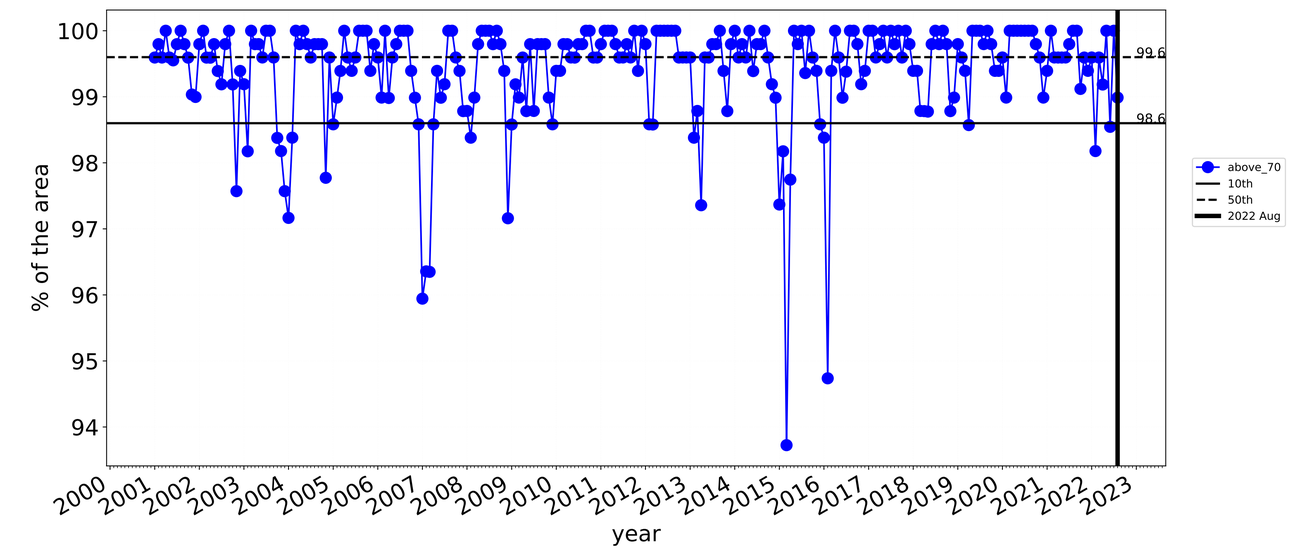
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



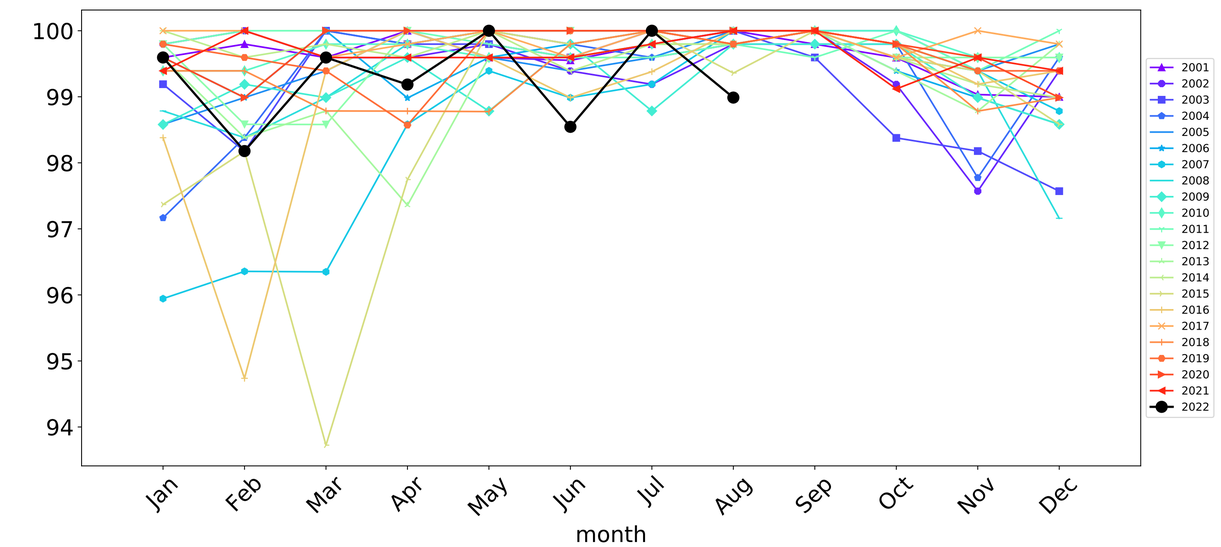
Wind erosion historical monthly area protected (Total Veg Cov >50%)

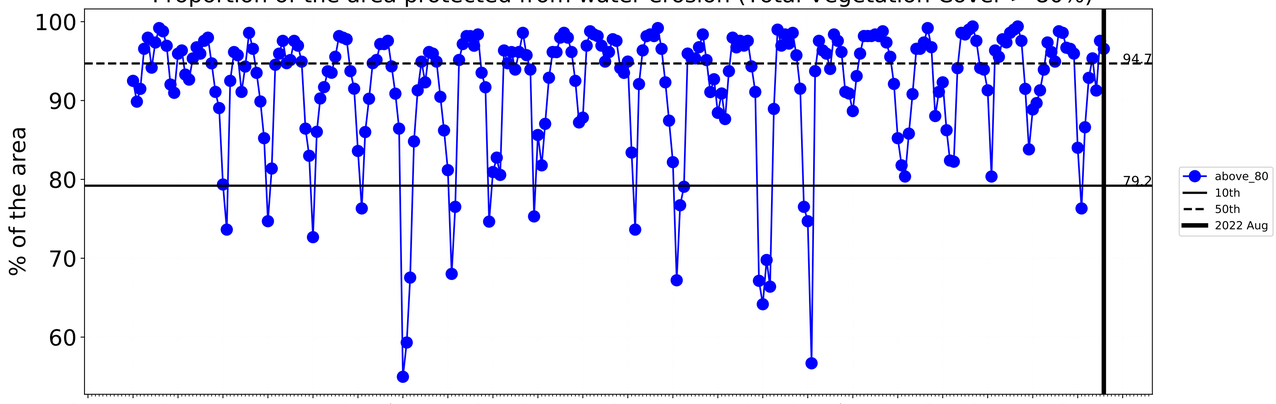


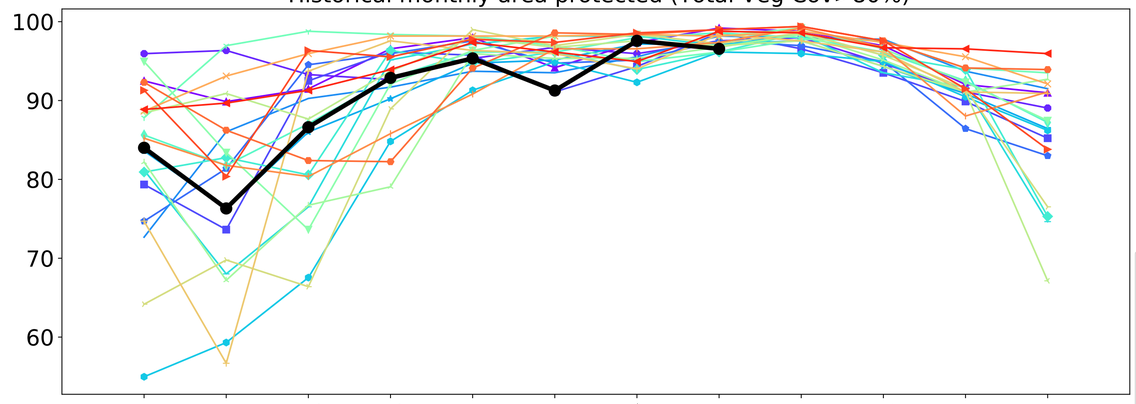
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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
94.7
79.2
above_80
10th
50th
2022 Aug


Historical monthly area protected (Total Veg Cov>80%)
Jan
Feb
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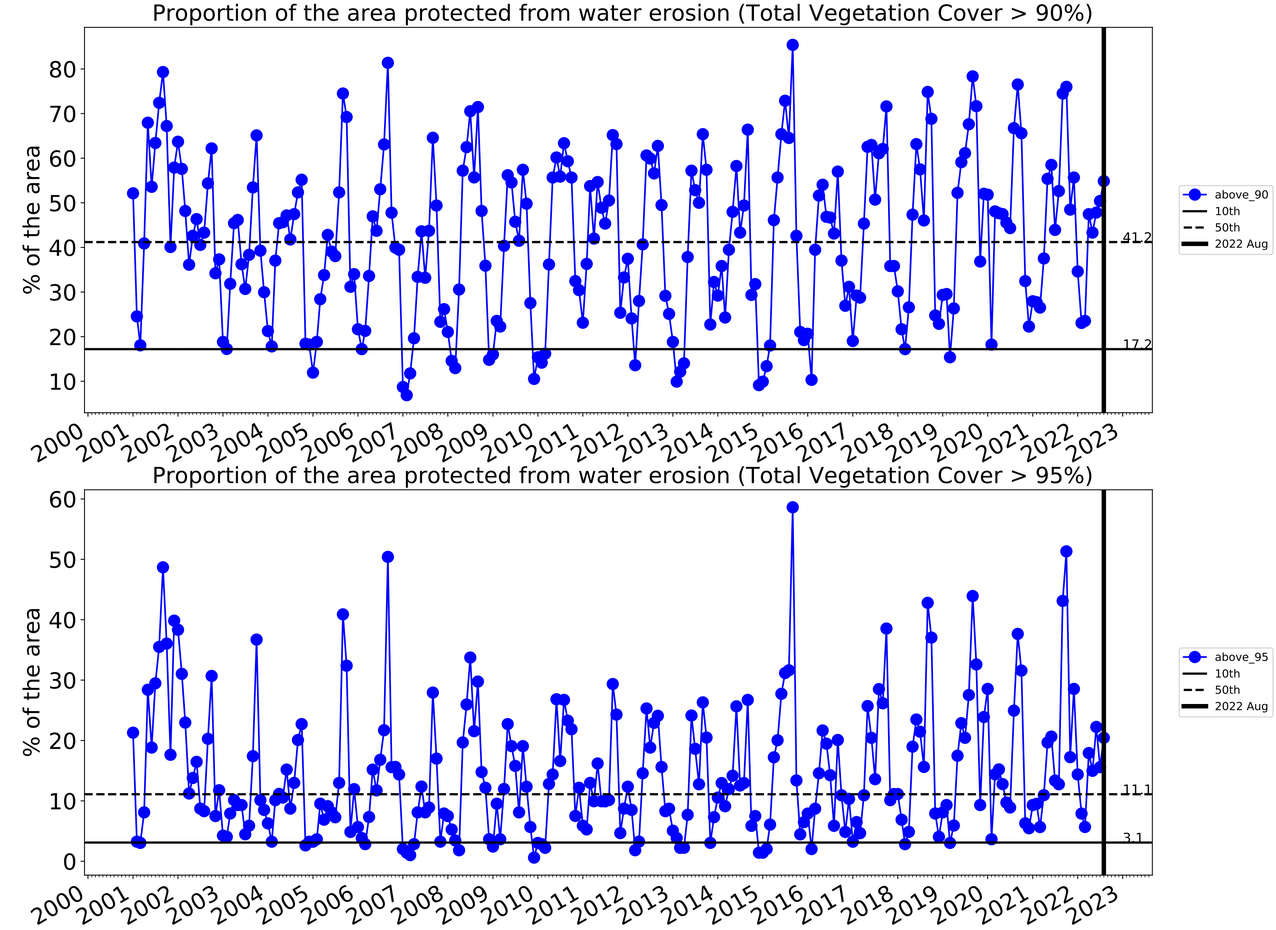
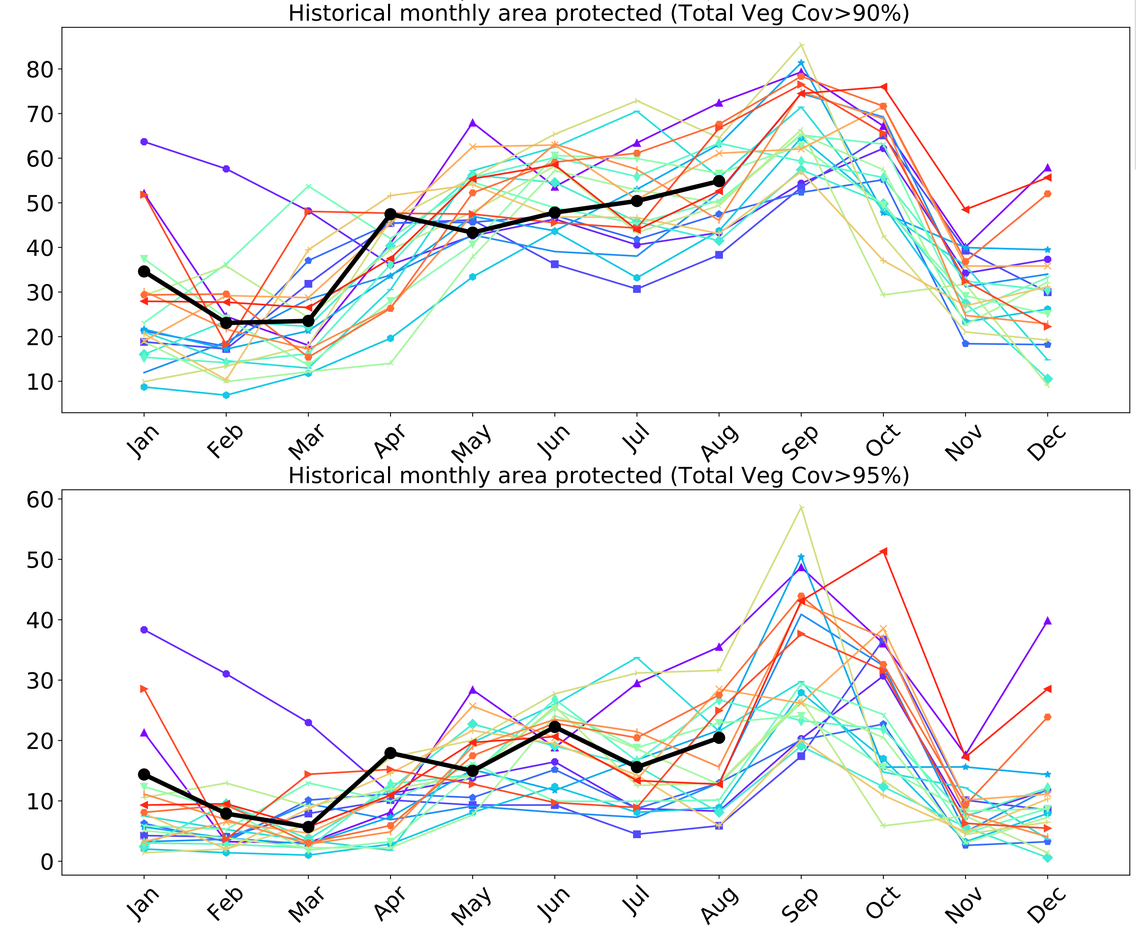
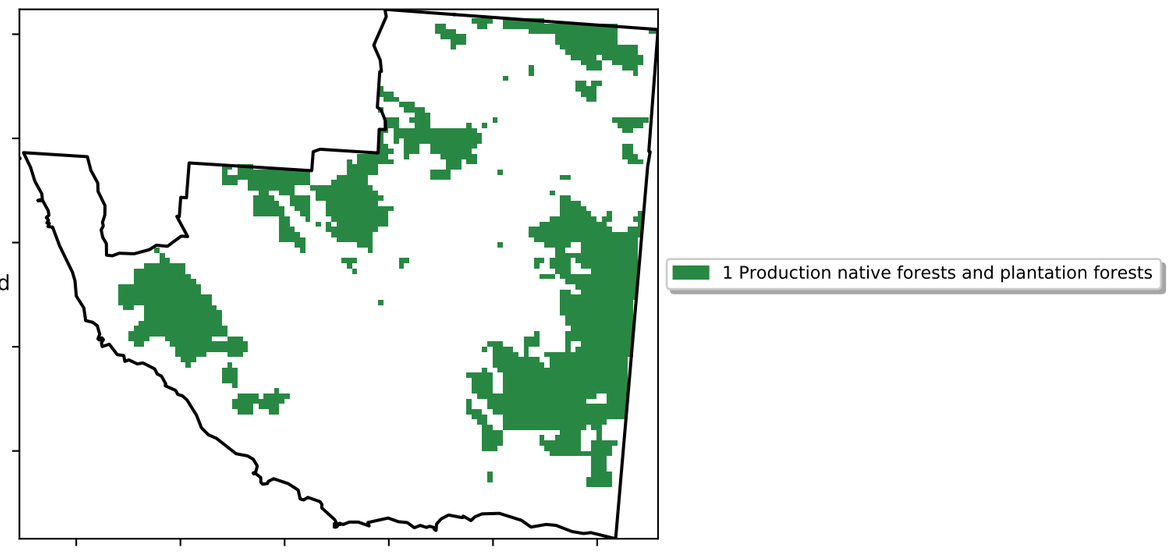
2022


Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
41.2
17.2
above_90
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
11.1
3.1
above_95
10th
50th
2022 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
2022

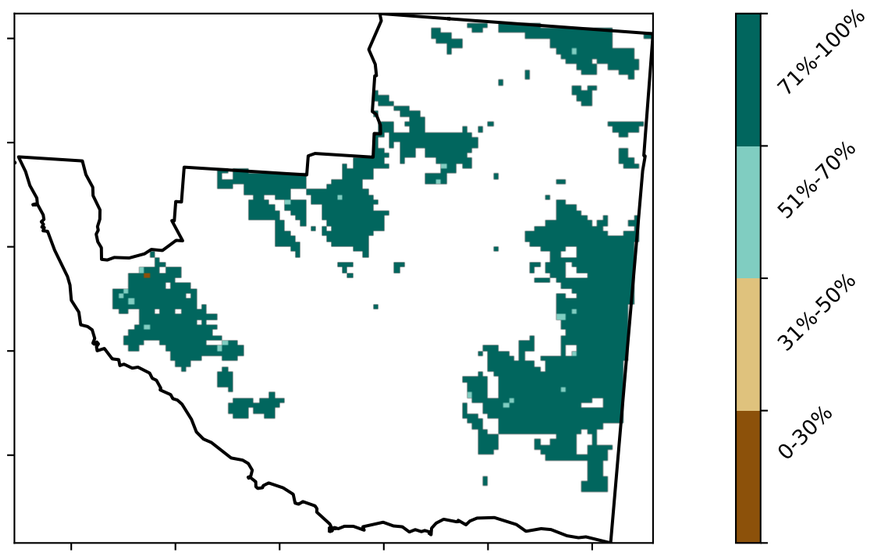
Production native forests and plantation forests

Land use and forest cover

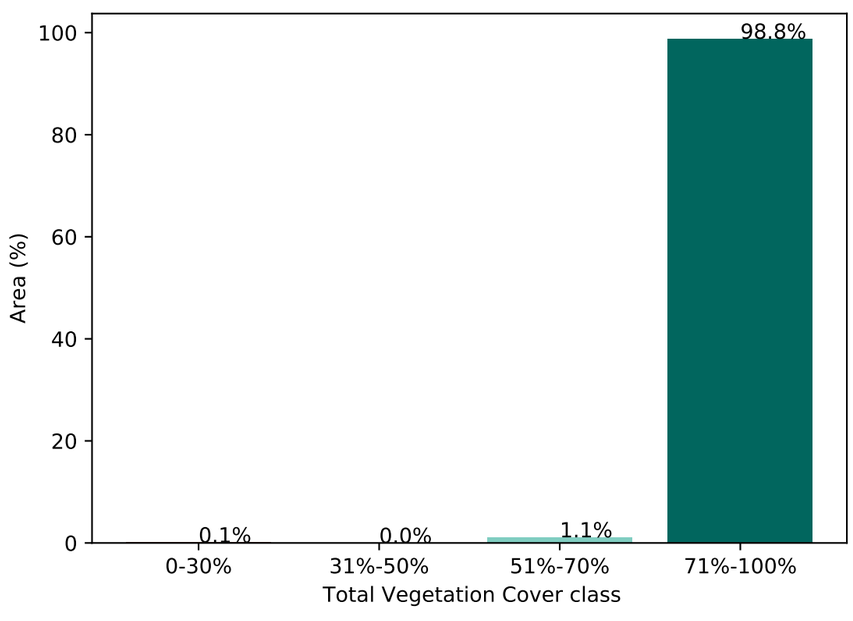


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

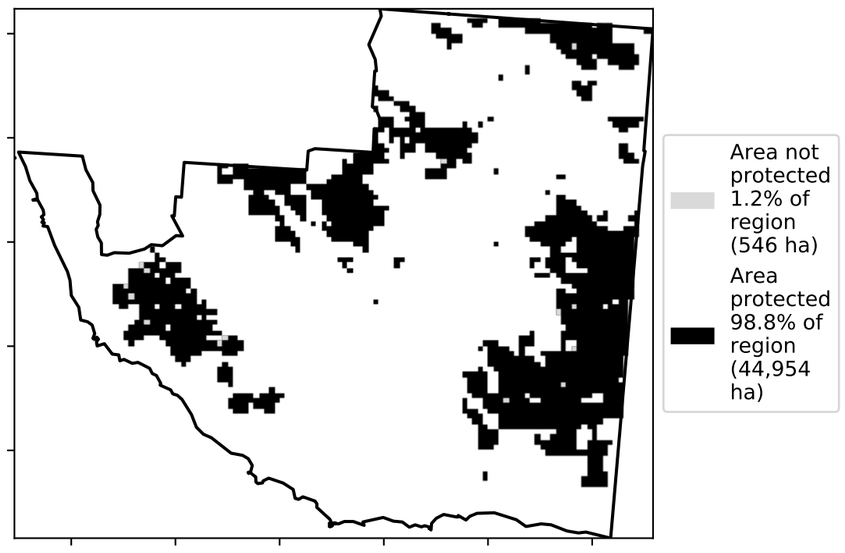
Total Vegetation Cover [%]



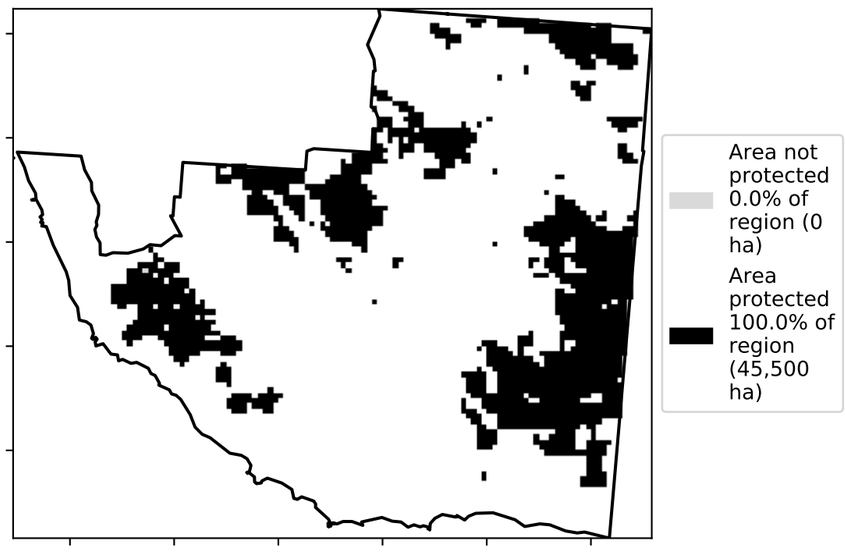
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

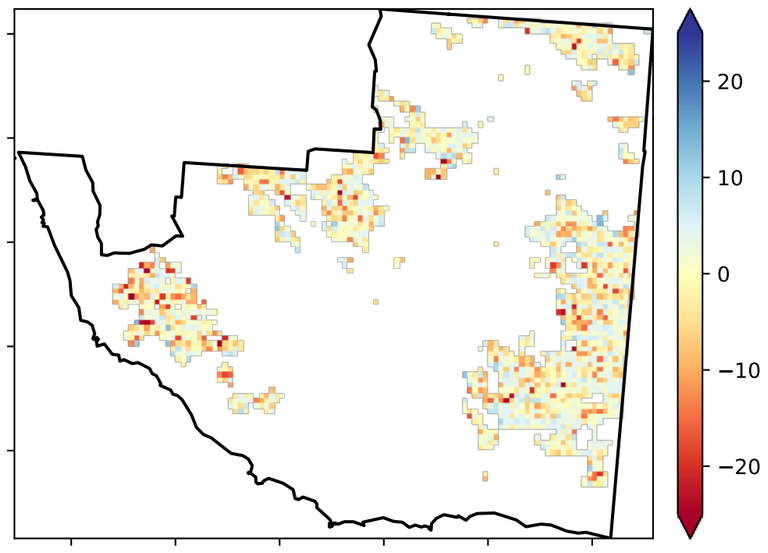


% Area protected from wind erosion (>50%)



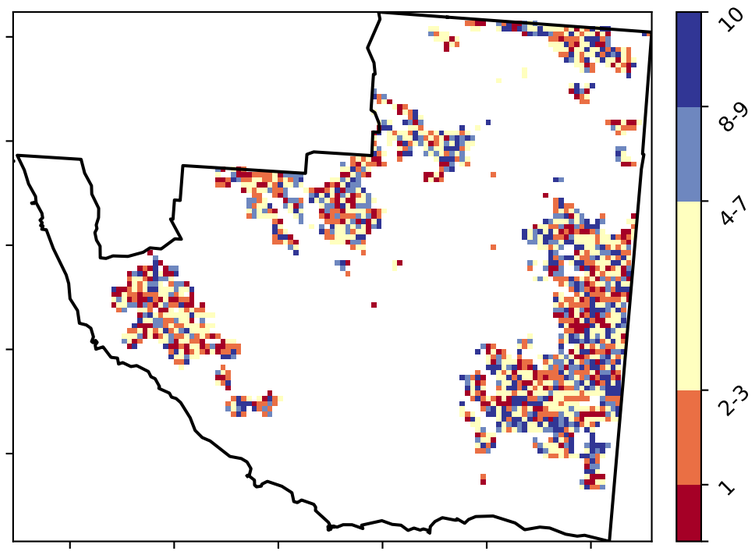
Total Vegetation Cover Anomaly [%]

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.



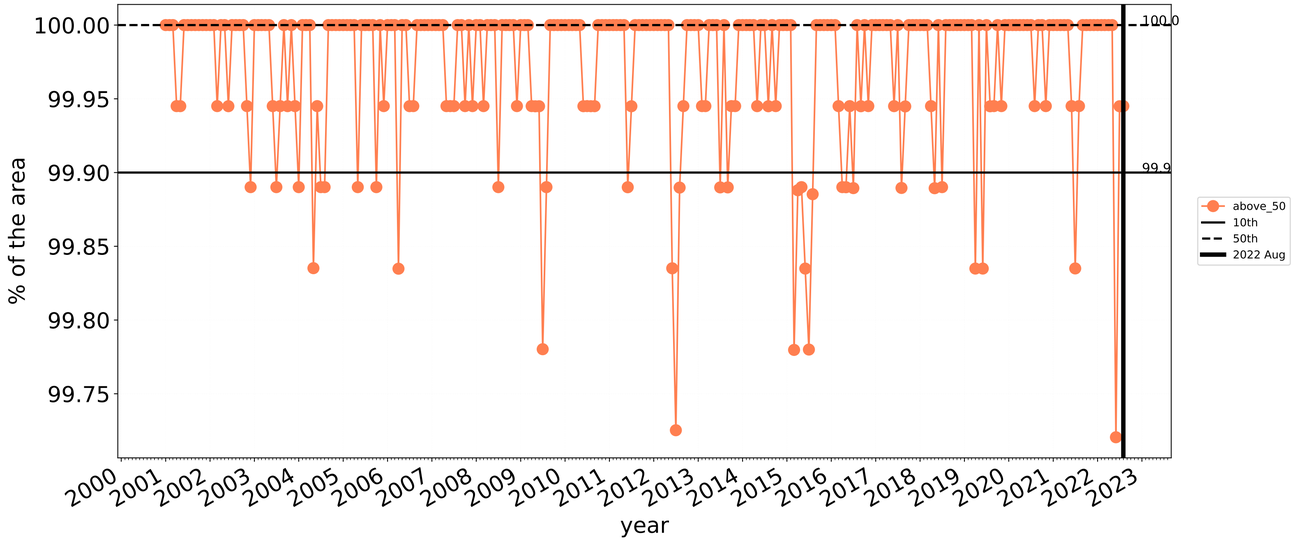
Total Vegetation Cover Decile [%]

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.

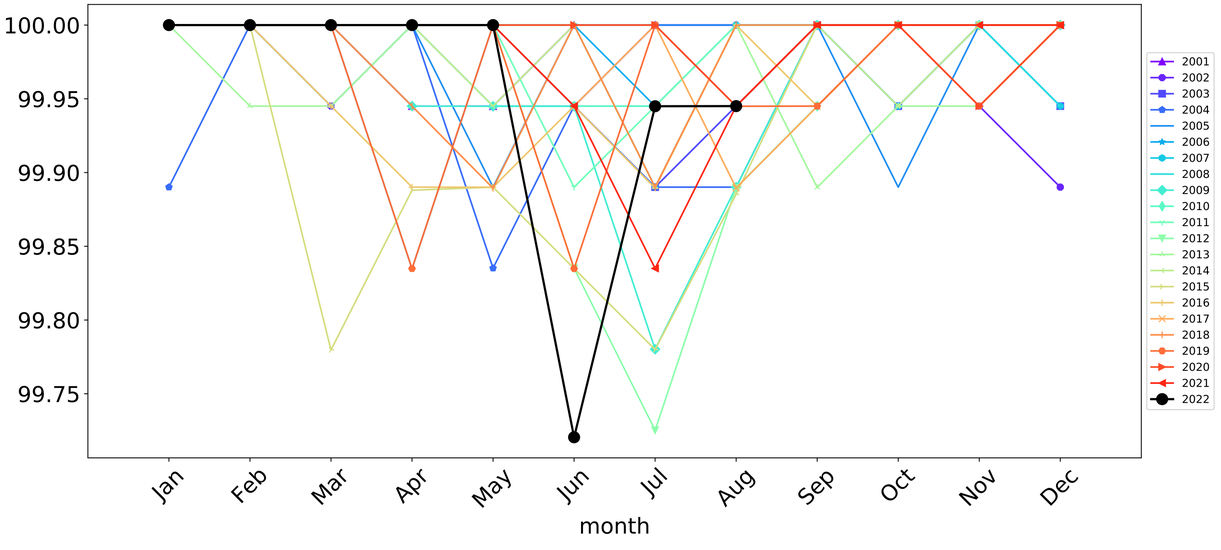


Production native forests and plantation forests timeseries

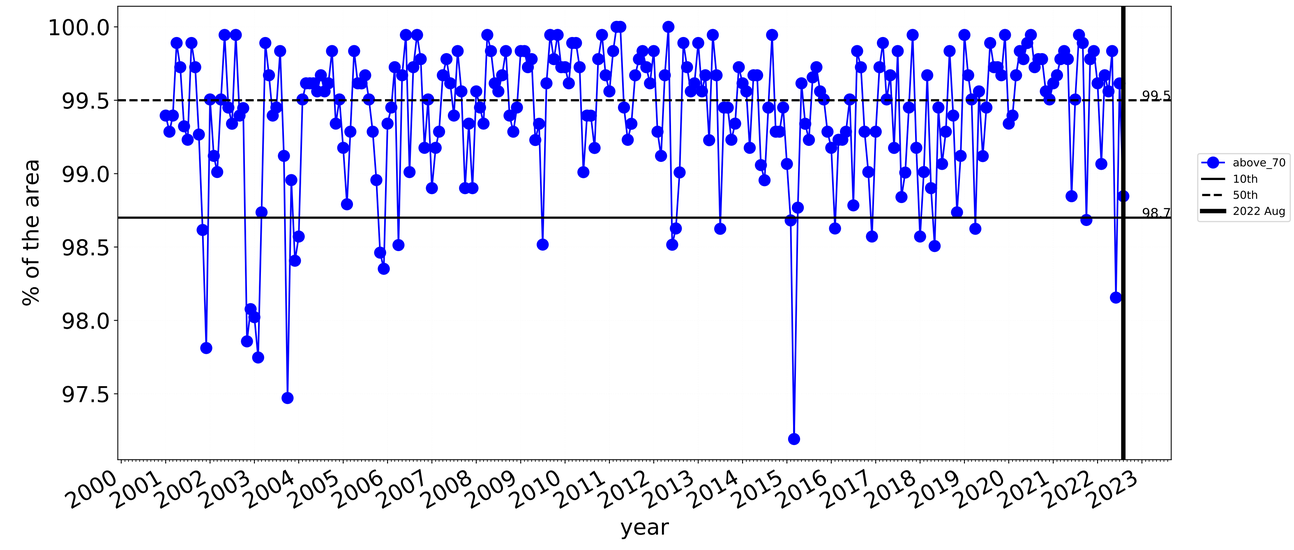
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



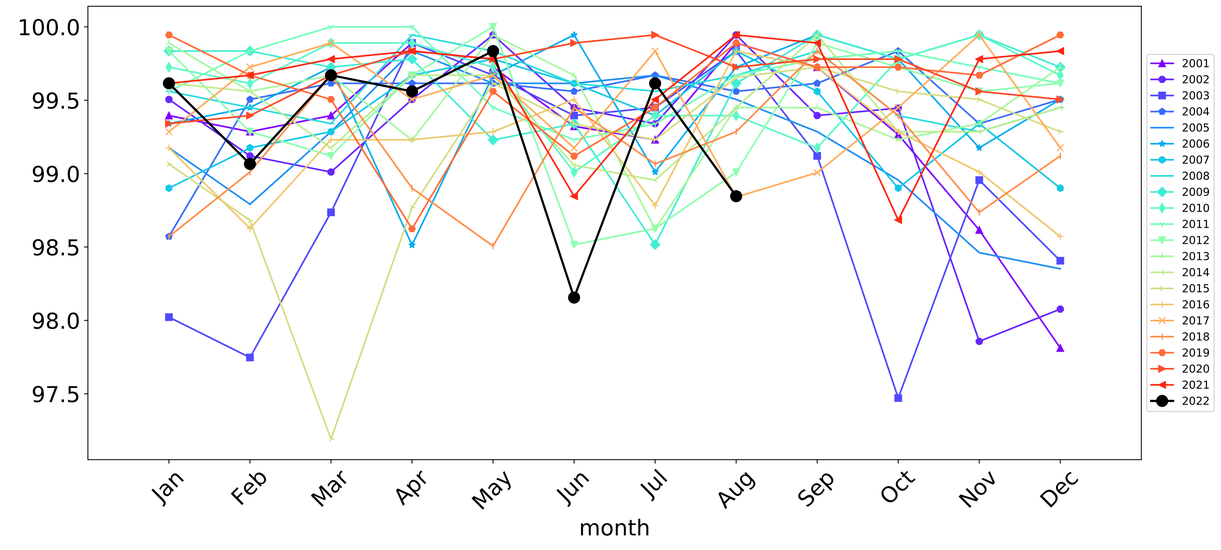
Wind erosion historical monthly area protected (Total Veg Cov >50%)

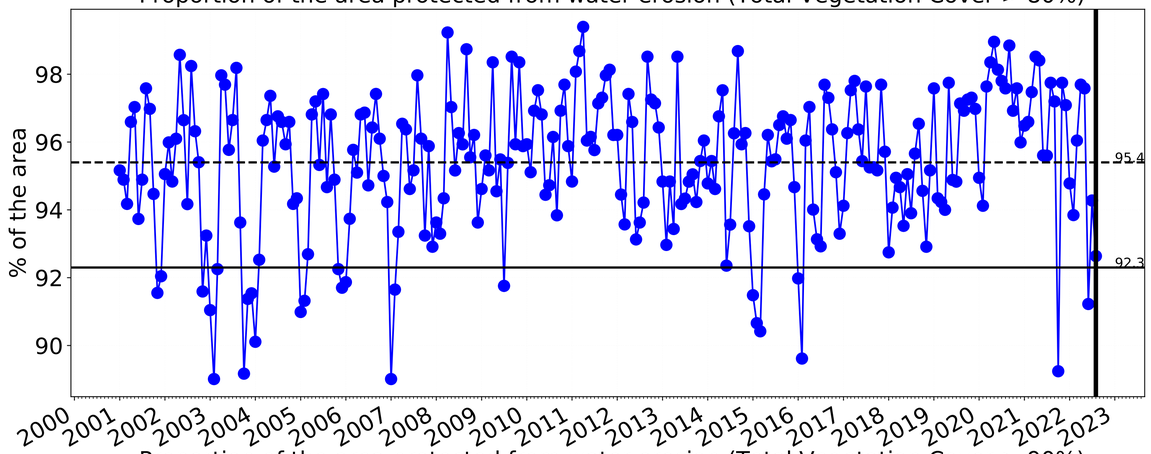


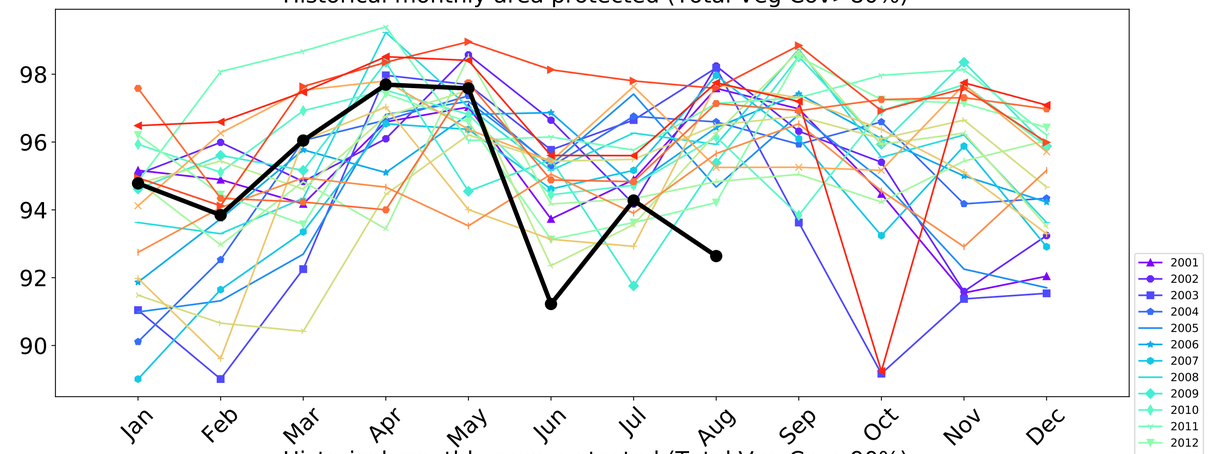
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

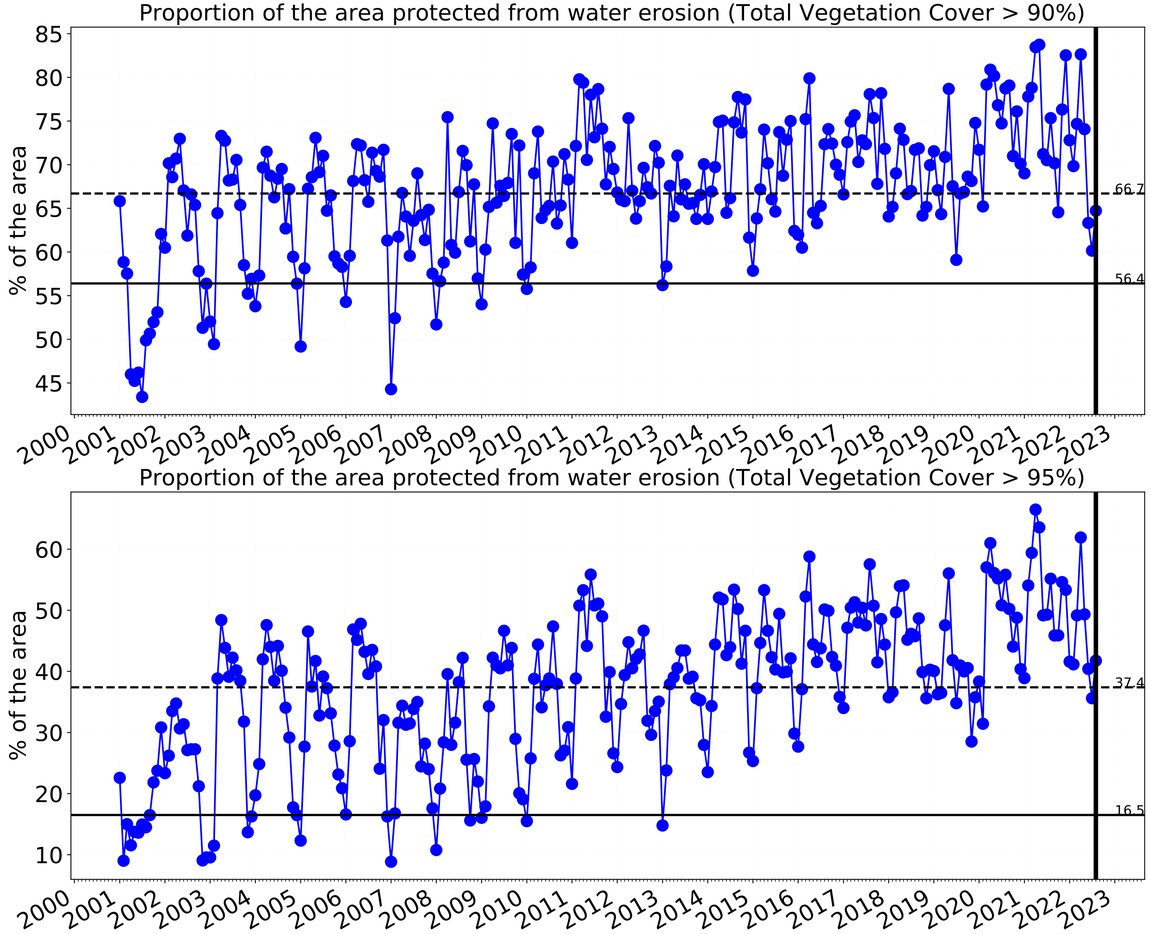


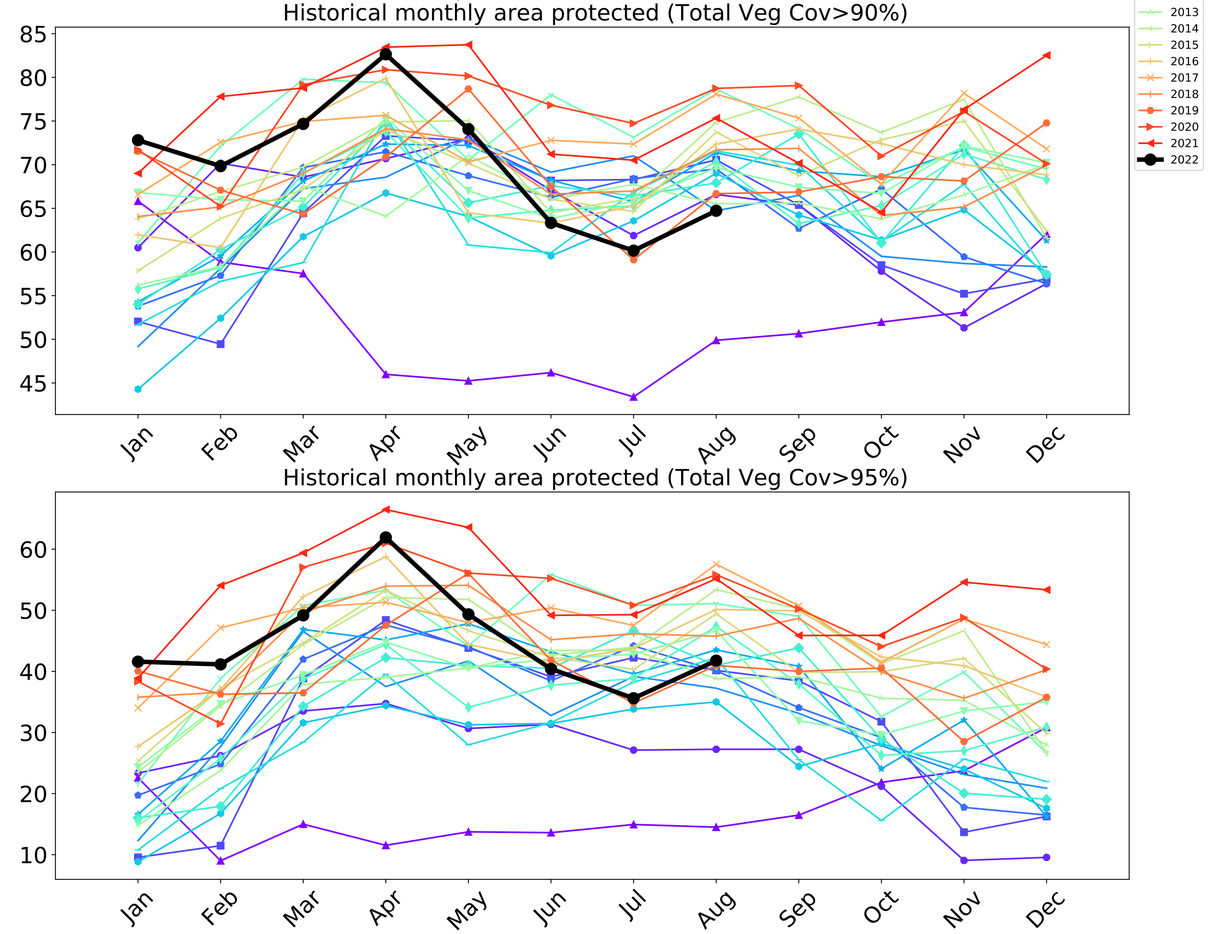
Water erosion historical monthly area protected (Total Veg Cov>70%)




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)
% of the area
95.4
92.3
above_80
10th
50th
2022 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
2020
2021
2022


Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)
% of the area
66.7
56.4
above_90
10th
50th
2022 Aug
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)
% of the area
37.4
16.5
above_95
10th
50th
2022 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
2020
2021
2022

Grant_(DC) (177,125 ha and no data 12,667 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	177,125	99.9% 176,875	99.6% 176,500	98.6% 174,725	94.0% 166,425	51.5% 91,300	22.9% 40,625
Conservation and natural environments	5,975	99.6% 5,950	99.2% 5,925	98.7% 5,900	93.3% 5,575	65.7% 3,925	38.5% 2,300
Conservation and natural environments non forest	1,750	98.6% 1,725	97.1% 1,700	97.1% 1,700	85.7% 1,500	58.6% 1,025	22.9% 400
Conservation and natural environments Woodland forest	4,200	100.0% 4,200	100.0% 4,200	99.4% 4,175	96.4% 4,050	68.5% 2,875	44.6% 1,875
Agriculture	117,025	100.0% 116,975	99.9% 116,850	98.9% 115,775	95.2% 111,425	47.0% 55,050	15.4% 18,000
Grazing	102,950	100.0% 102,900	99.9% 102,800	98.9% 101,850	95.0% 97,825	46.3% 47,675	14.7% 15,150
Grazing non forest	102,400	100.0% 102,350	99.9% 102,250	99.0% 101,325	95.0% 97,300	46.3% 47,375	14.7% 15,025
Irrigation	12,350	100.0% 12,350	99.8% 12,325	99.0% 12,225	96.6% 11,925	54.9% 6,775	20.4% 2,525
Production native forests and plantation forests	45,500	99.9% 45,475	99.9% 45,475	98.8% 44,975	92.6% 42,150	64.7% 29,450	41.8% 19,000