Total vegetation cover soil protection
Region:LGA Wandering_(S) WA Date: July 2024

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:

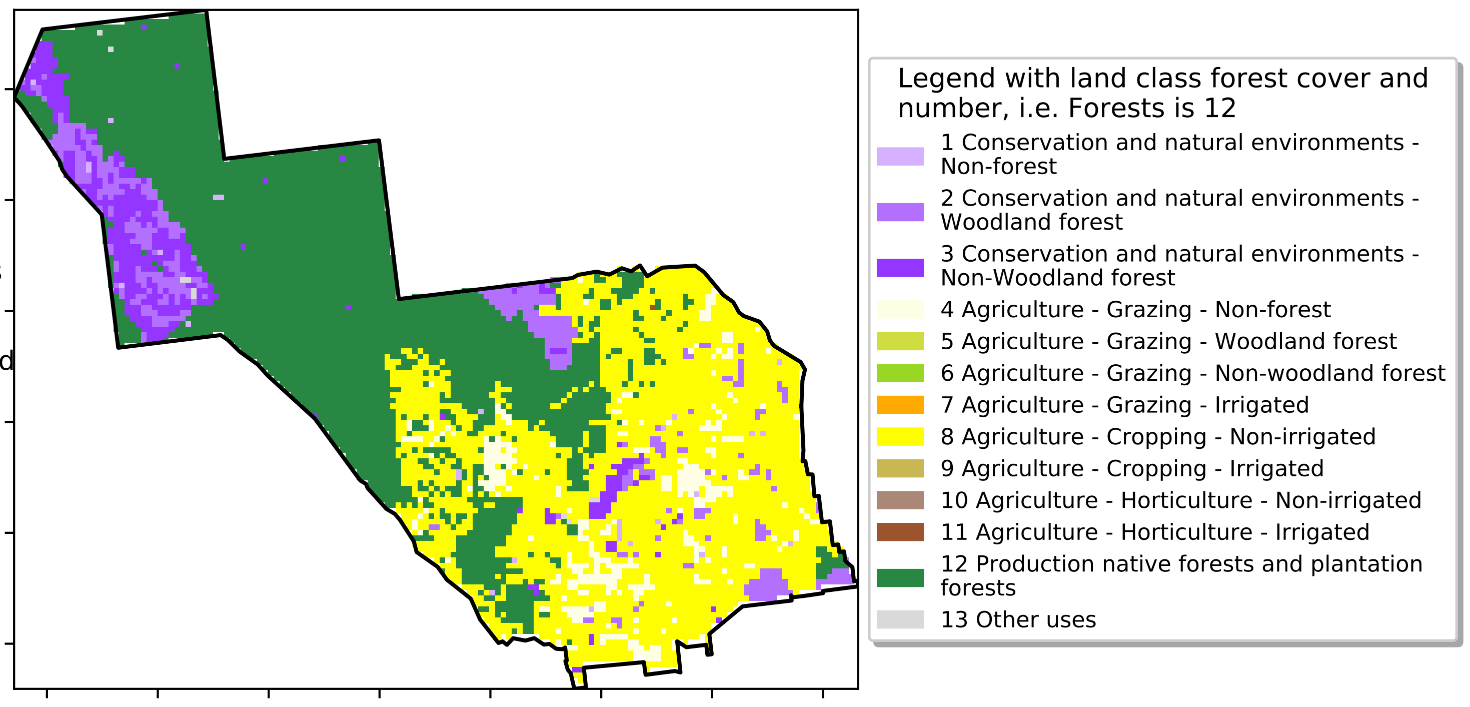
- the percentage area with pixels greater than 80% total cover.
- the percentage area with pixels greater than 90% total cover.
- the percentage area with pixels greater than 95% total cover.

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:

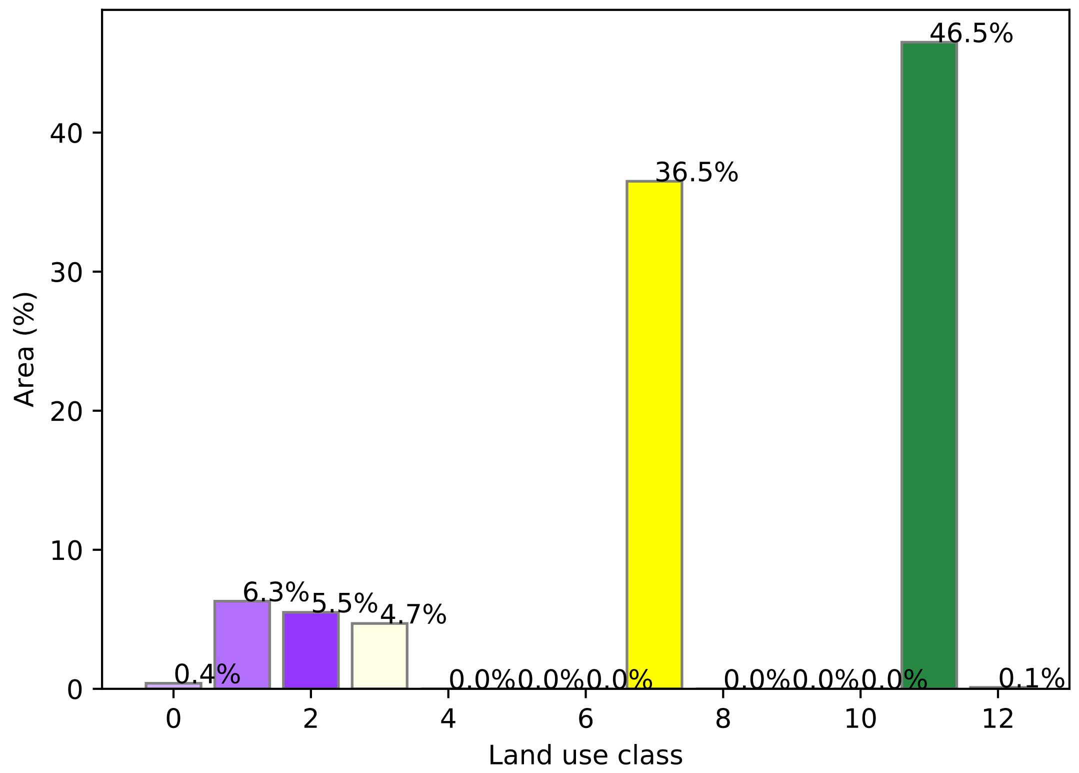
   https://doi.org/10.4225/08/5848a3f19a7b3

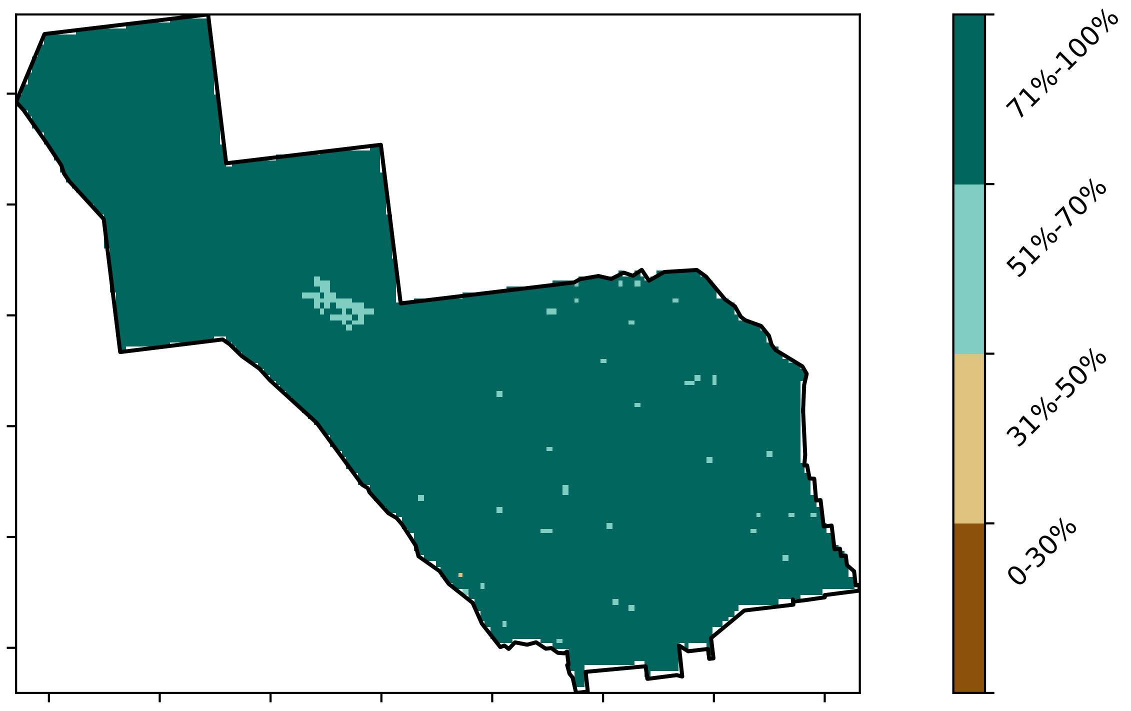
Vegetation Cover Jul 2024


Land use and forest cover

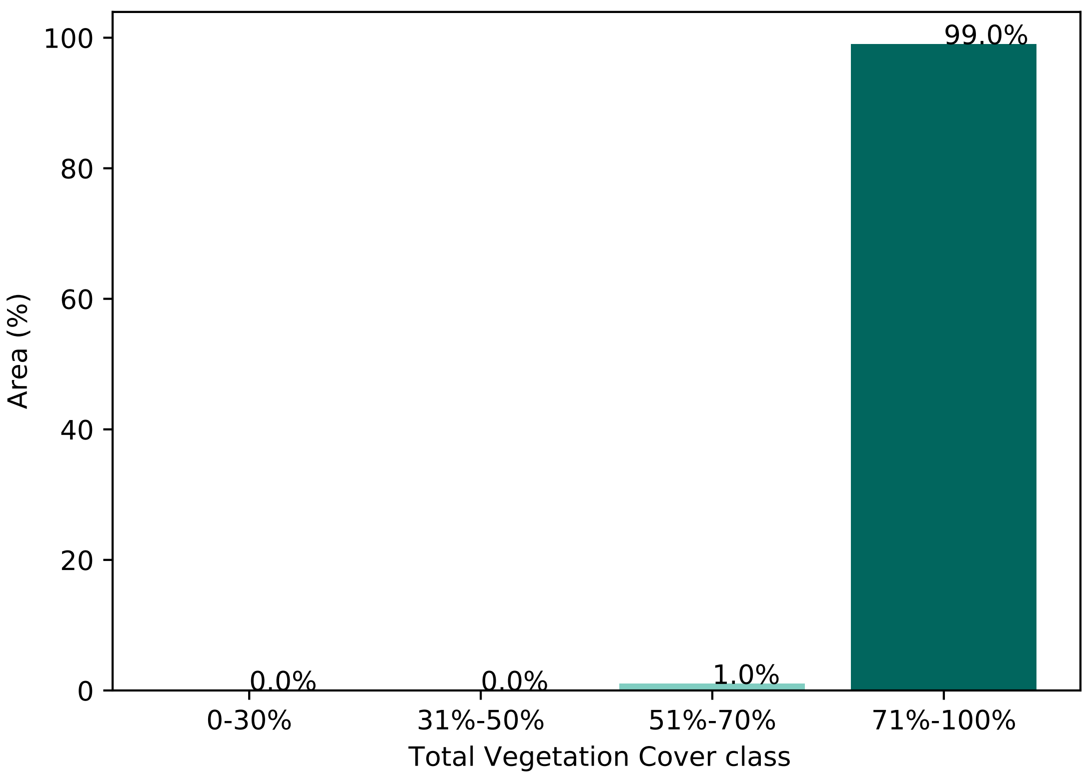
Legend with land class forest cover and number, i.e. Forests is 12
1 Conservation and natural environments - Non-forest
2 Conservation and natural environments - Woodland forest
3 Conservation and natural environments - Non-Woodland forest
4 Agriculture - Grazing - Non-forest
5 Agriculture - Grazing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

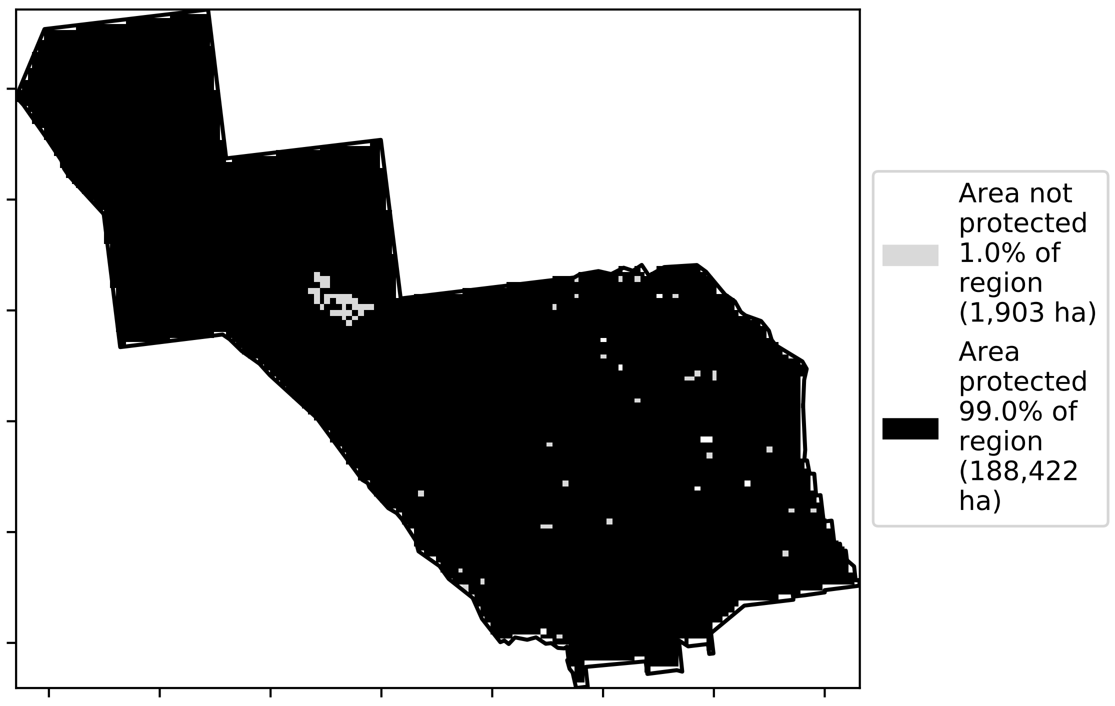
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)


Proportion of each land class in area

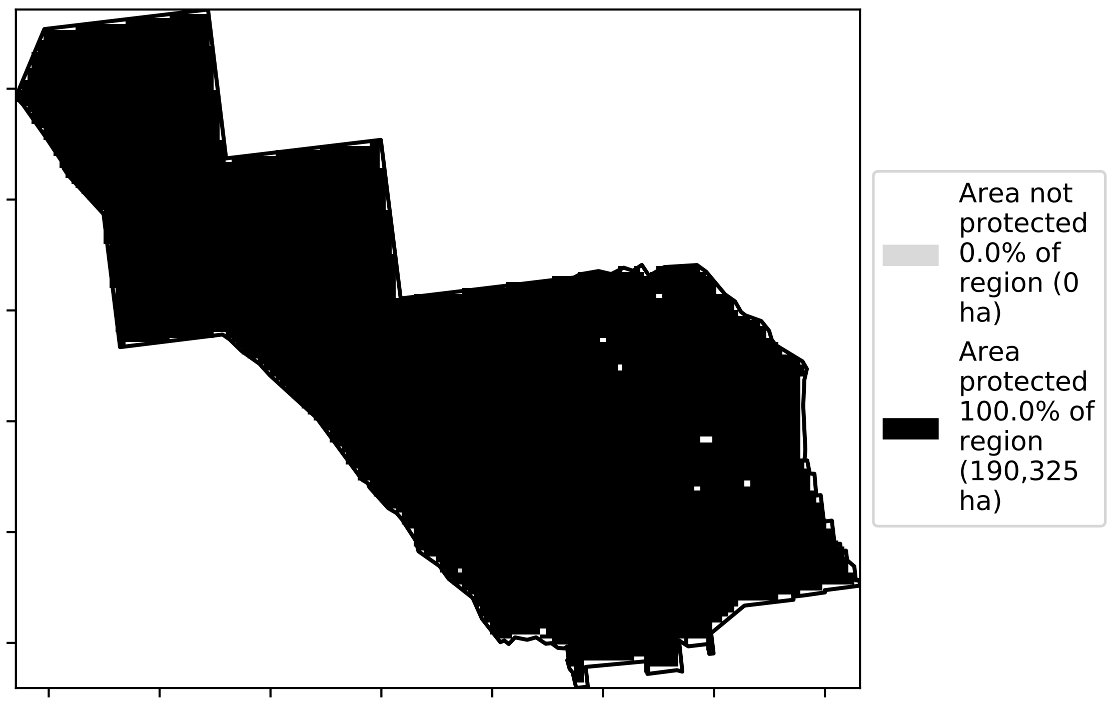

Total Vegetation Cover [%]

71%-100%
51%-70%
31%-50%
0-30%

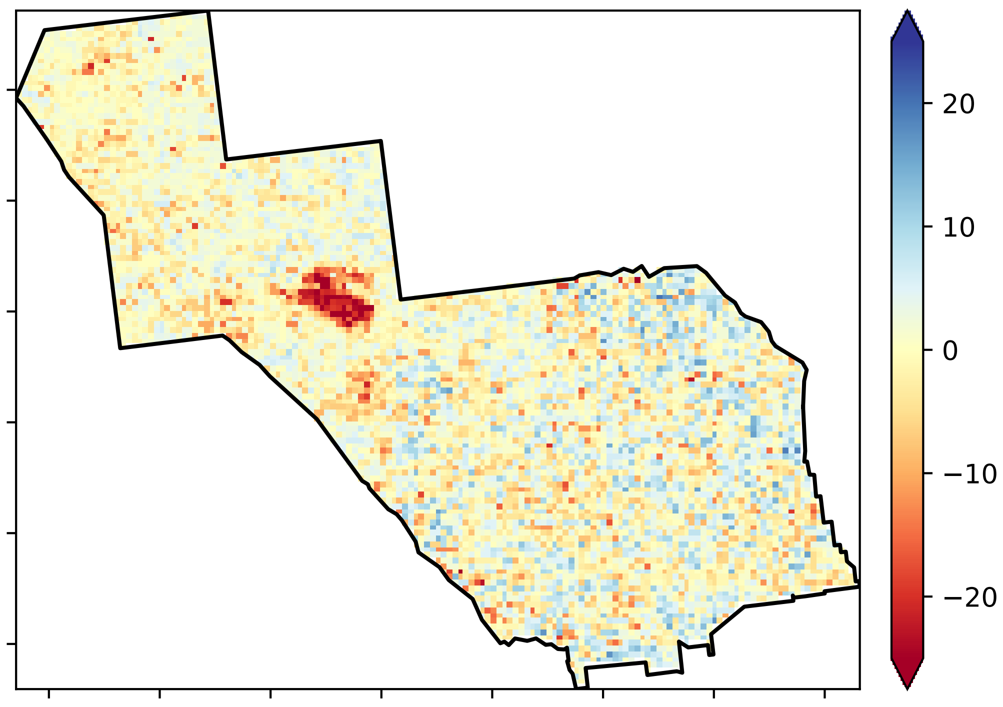

Proportion of vegetation cover class in area


% Area protected from water erosion (>70%)

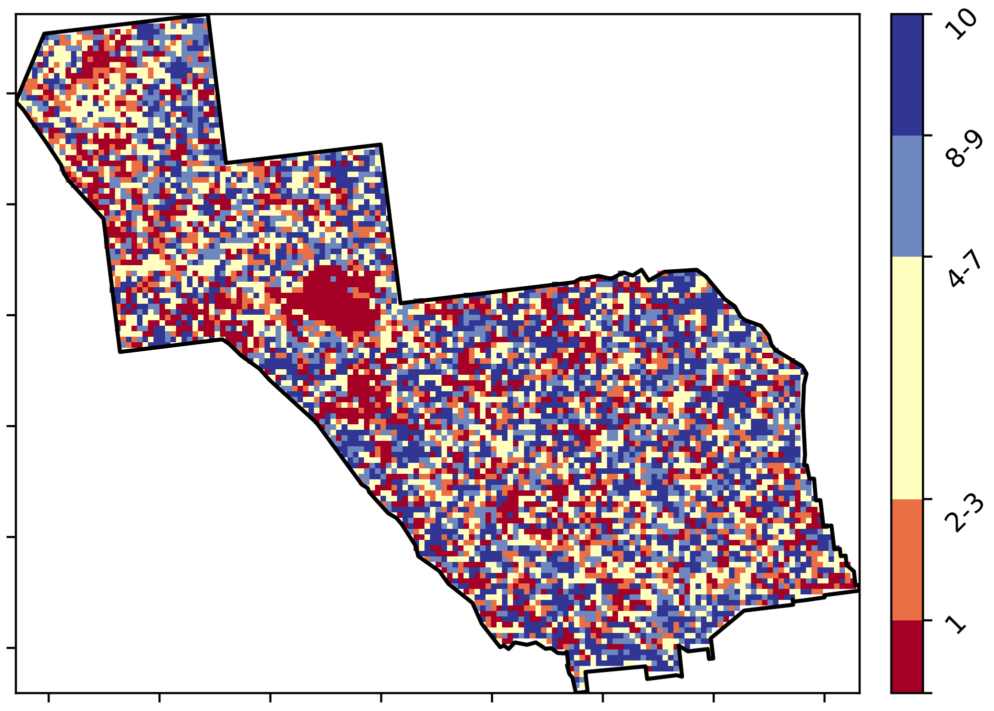
Area not protected 1.0% of region (1,903 ha)
Area protected 99.0% of region (188,422 ha)


% Area protected from wind erosion (>50%)

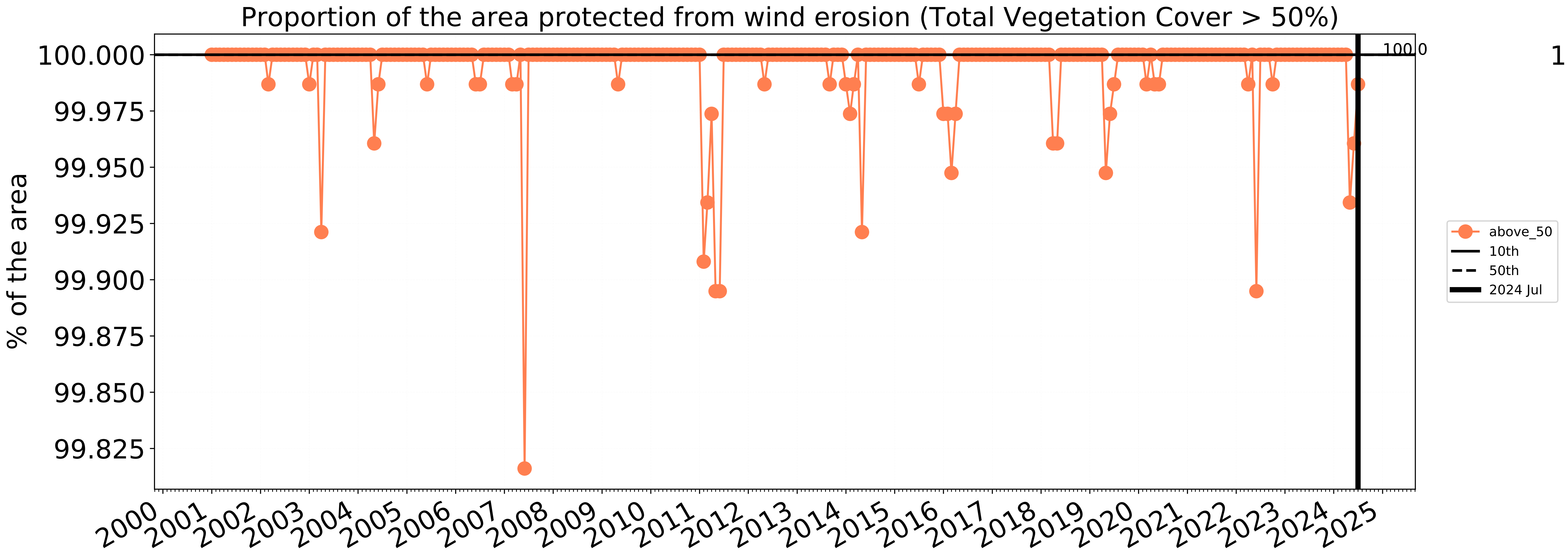
Area not protected 0.0% of region (0 ha)
Area protected 100.0% of region (190,325 ha)

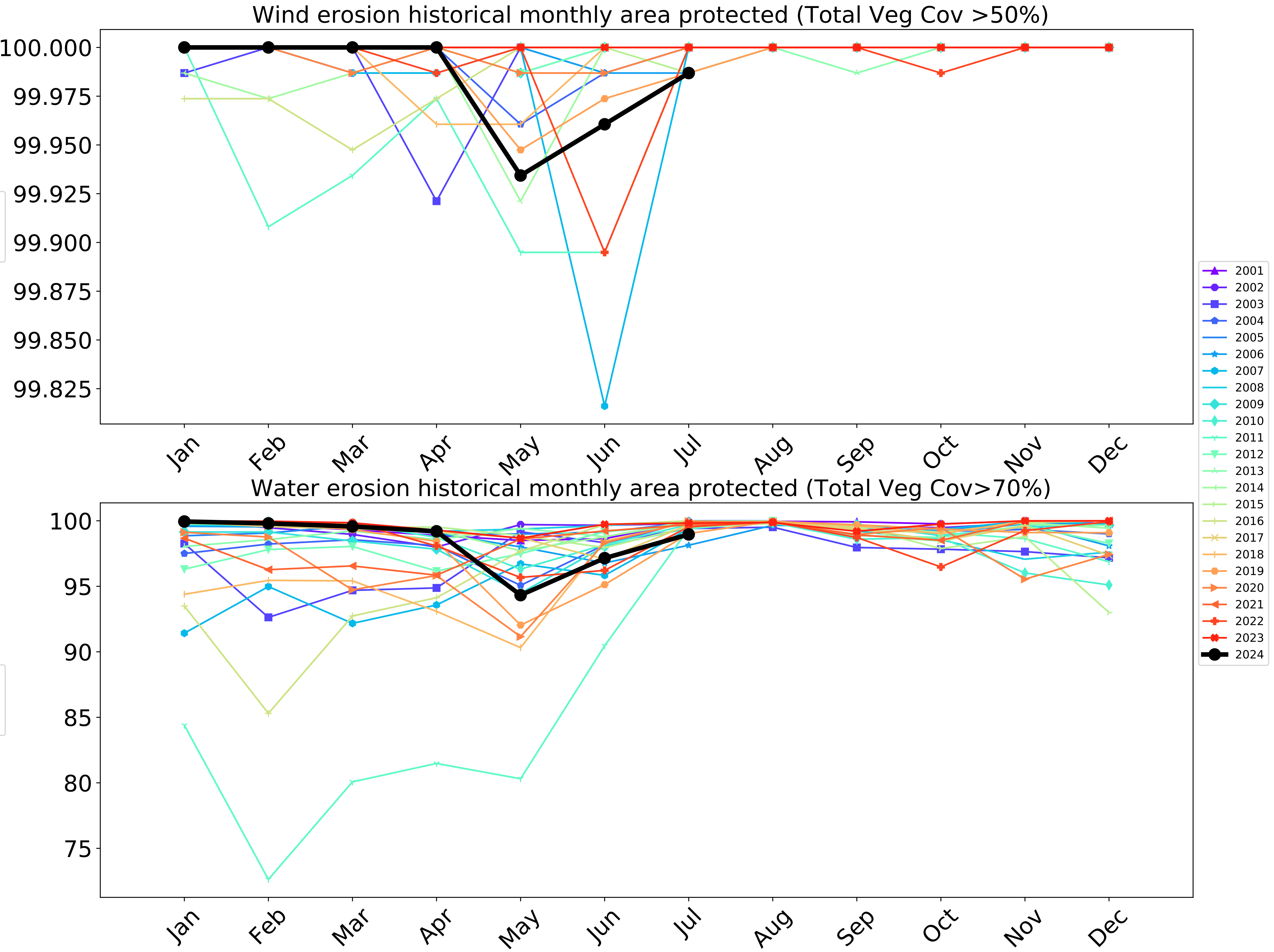

Total Vegetation Cover Anomaly [%]

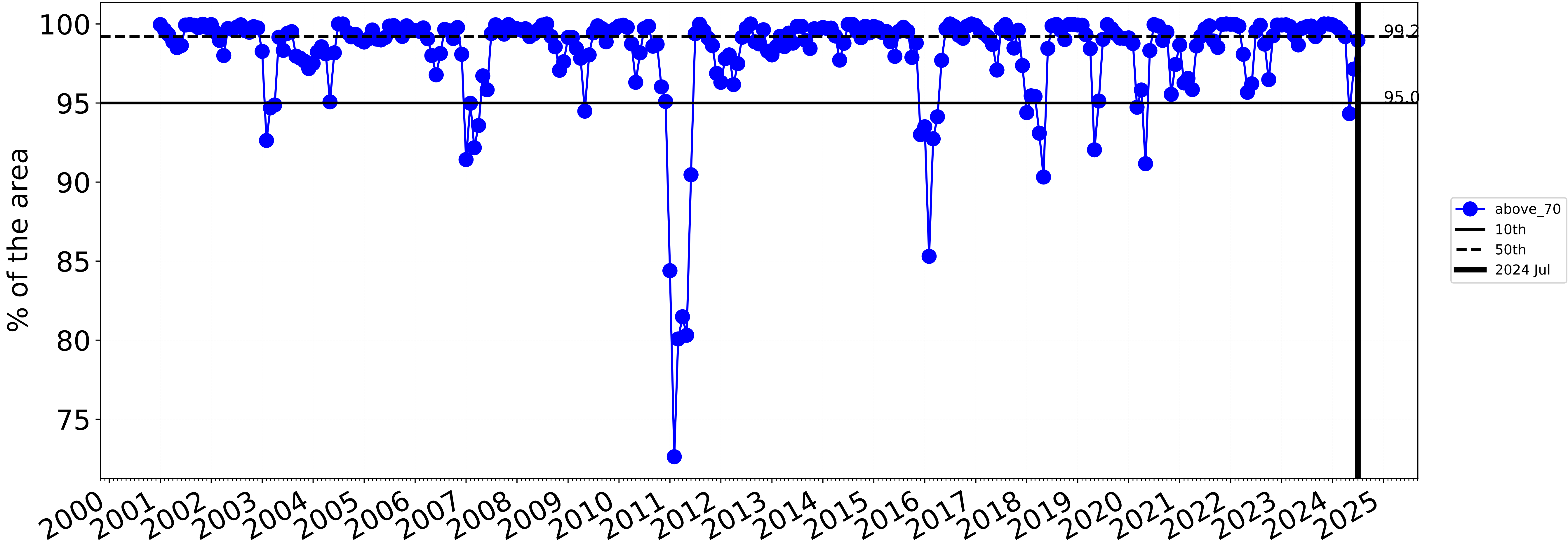
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

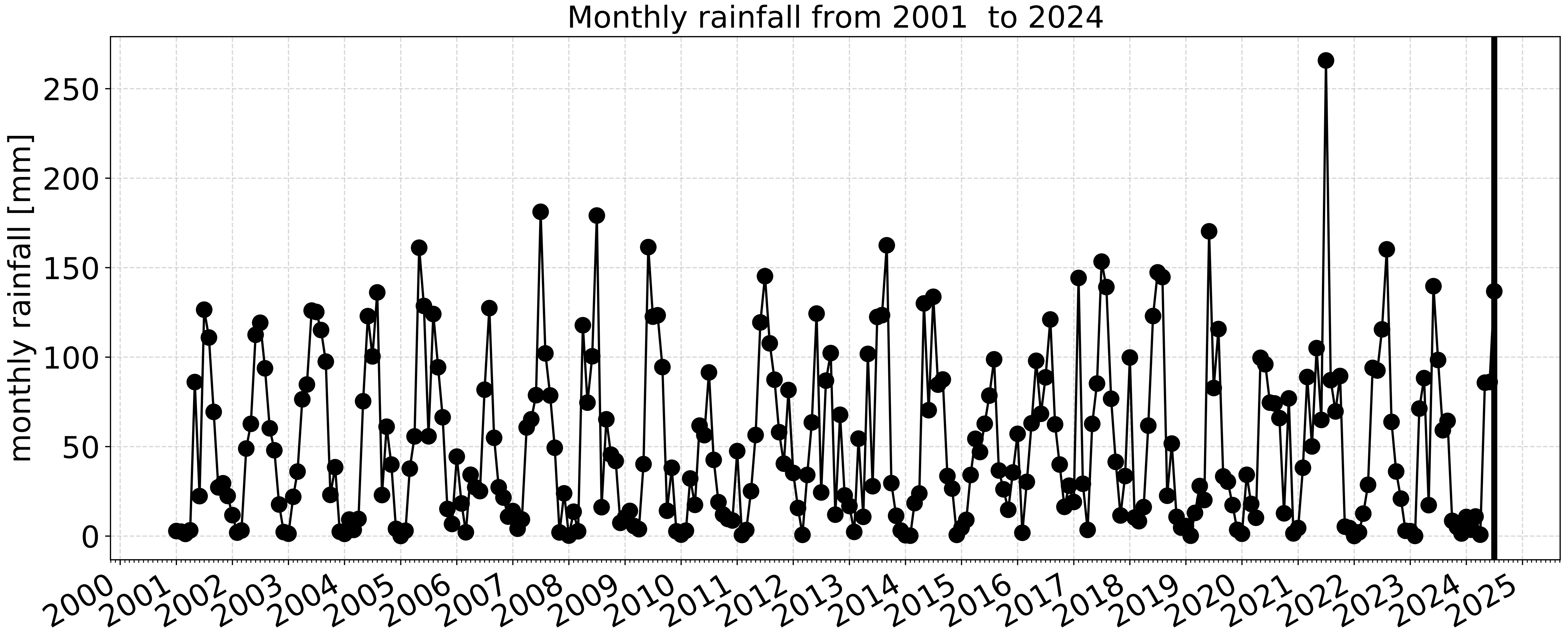

Total Vegetation Cover Decile [%]

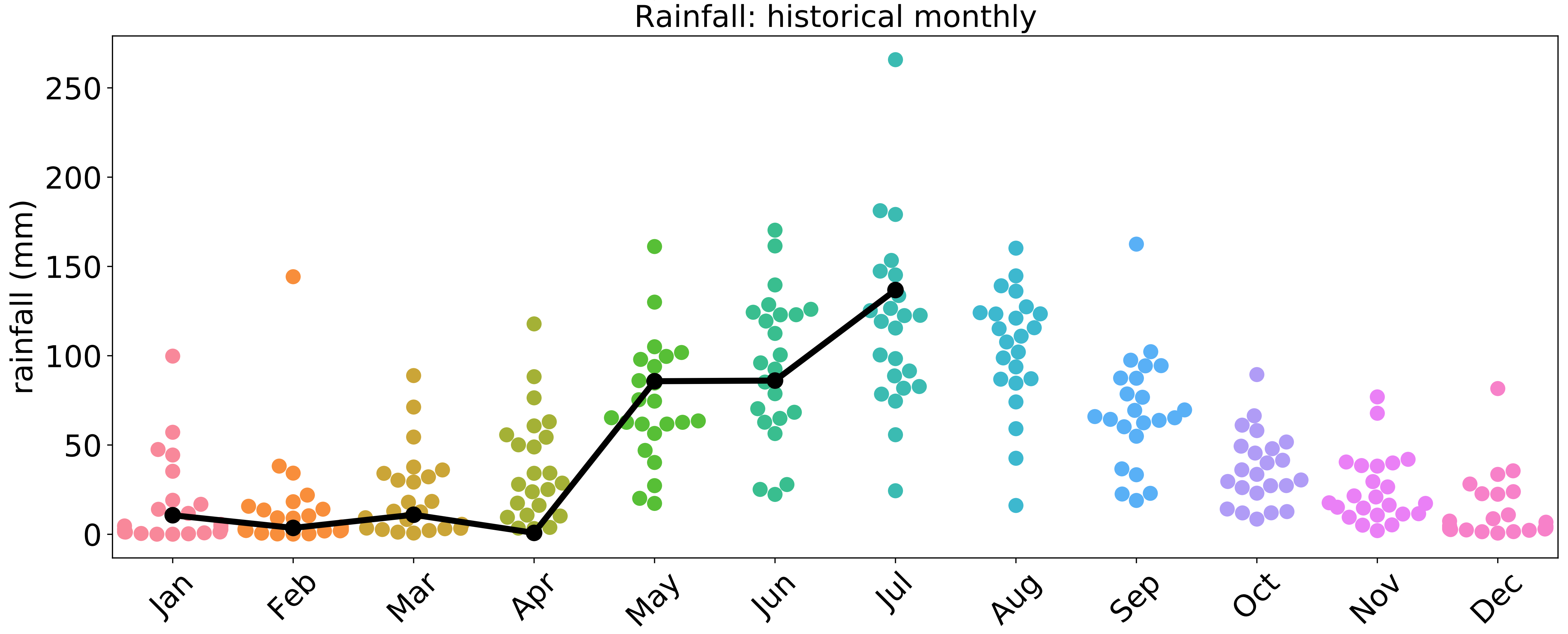
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)
% of the area
100.000
99.975
99.950
99.925
99.900
99.875
99.850
99.825
100.0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025
above_50
10th
50th
2024 Jul

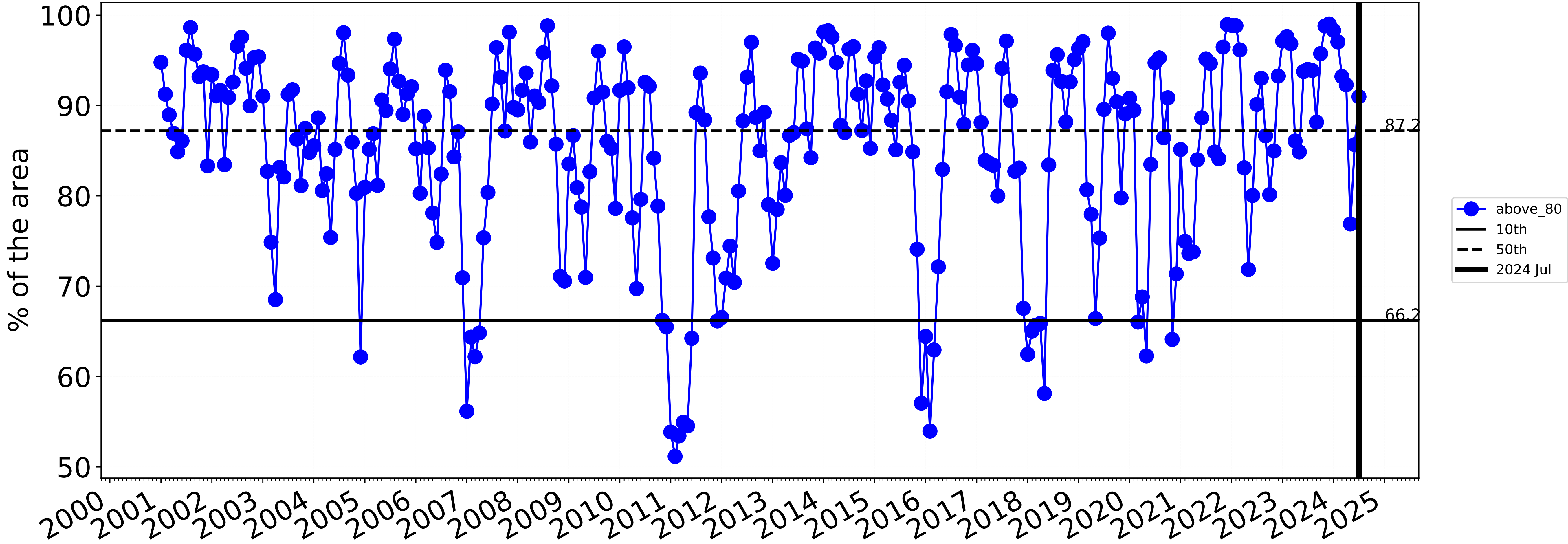

Wind erosion historical monthly area protected (Total Veg Cov >50%)
100.000
99.975
99.950
99.925
99.900
99.875
99.850
99.825
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Water erosion historical monthly area protected (Total Veg Cov>70%)
100
95
90
85
80
75
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)
% of the area
100
95
90
85
80
75
99.2
95.0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025
above_70
10th
50th
2024 Jul

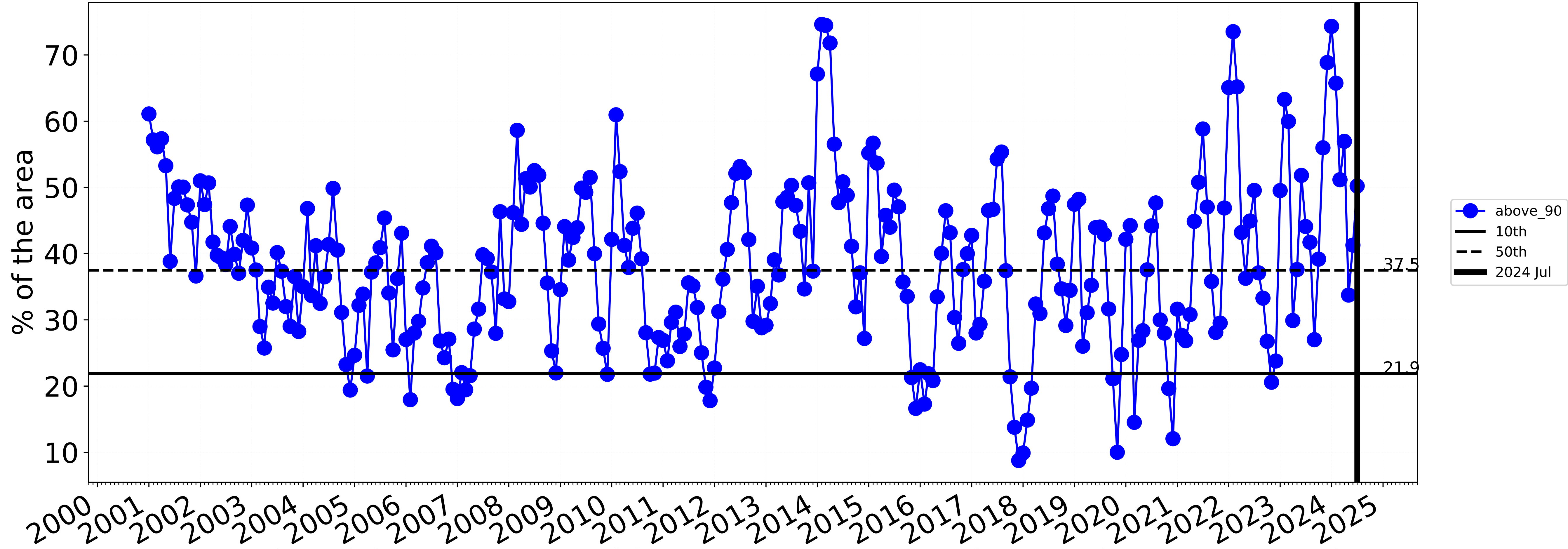

Monthly rainfall from 2001 to 2024
monthly rainfall [mm]
250
200
150
100
50
0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025


Rainfall: historical monthly
rainfall (mm)
250
200
150
100
50
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

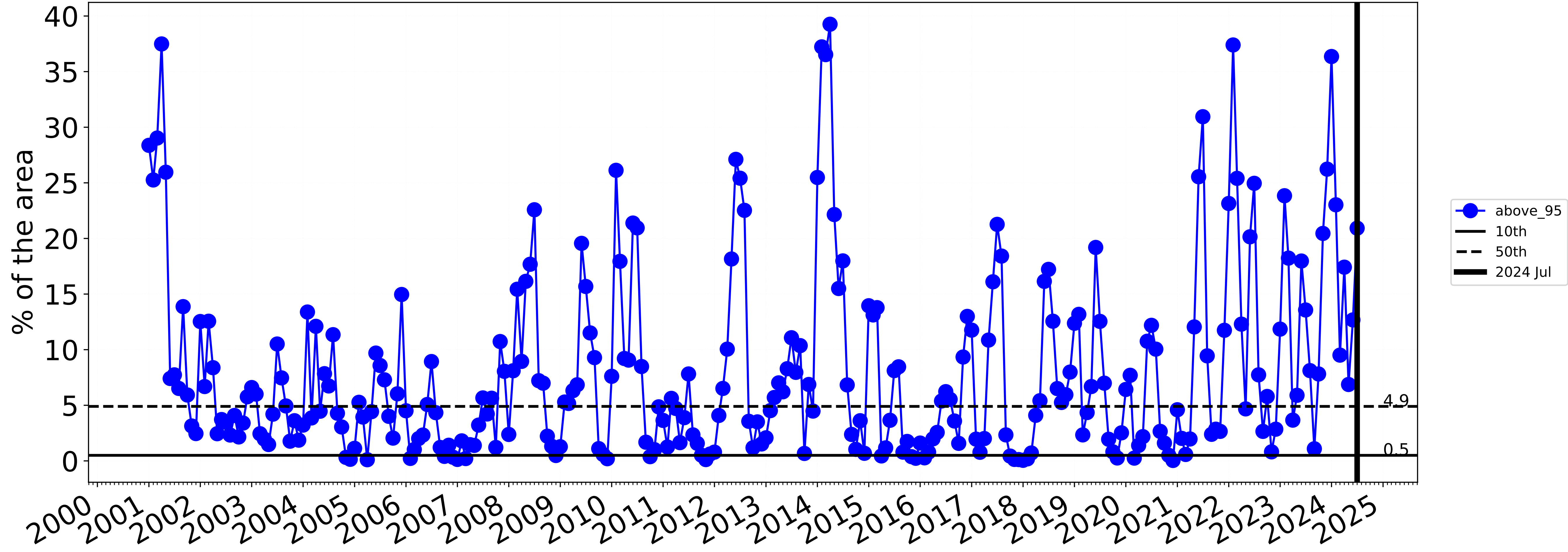
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



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



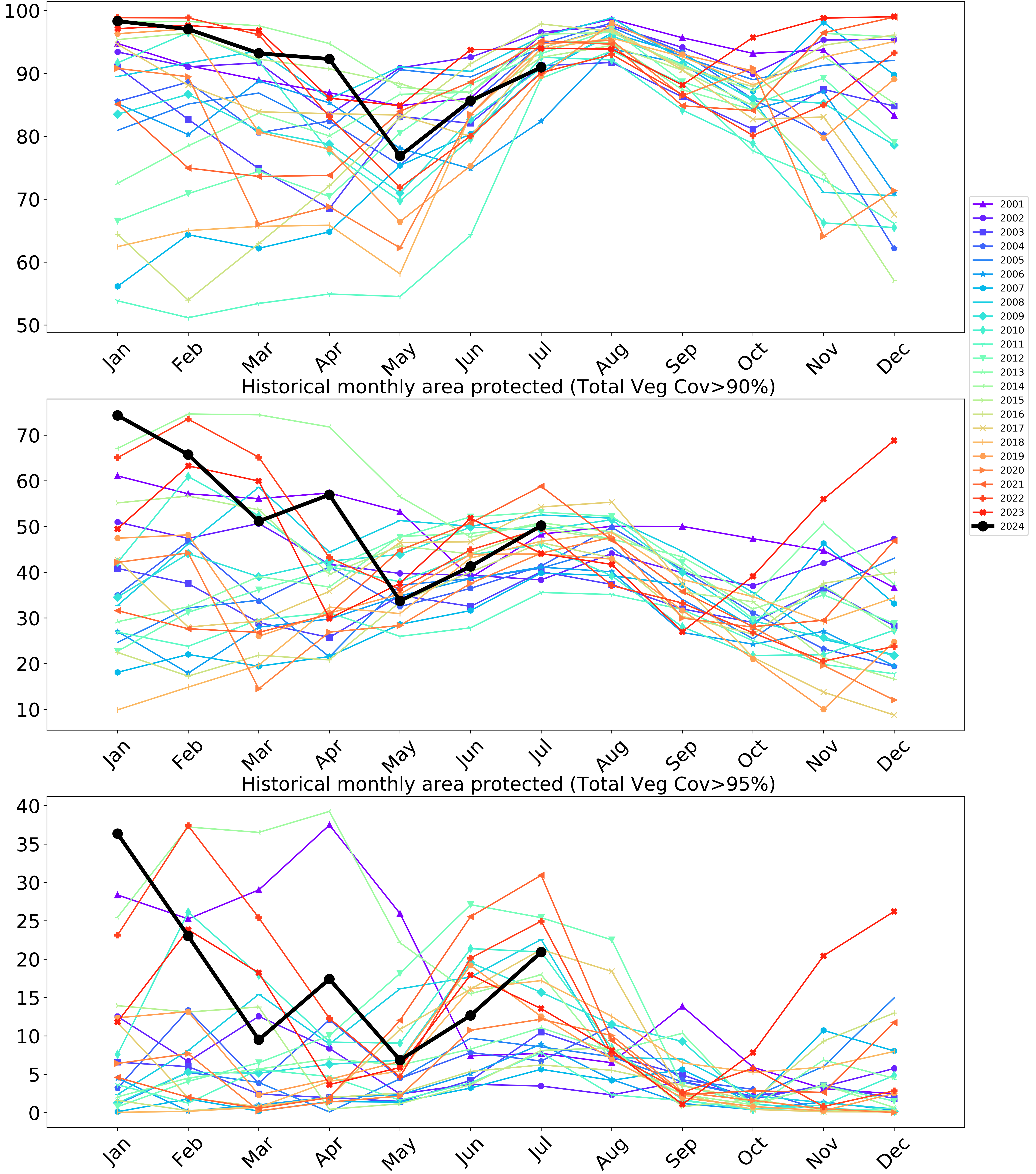
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)



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

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

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

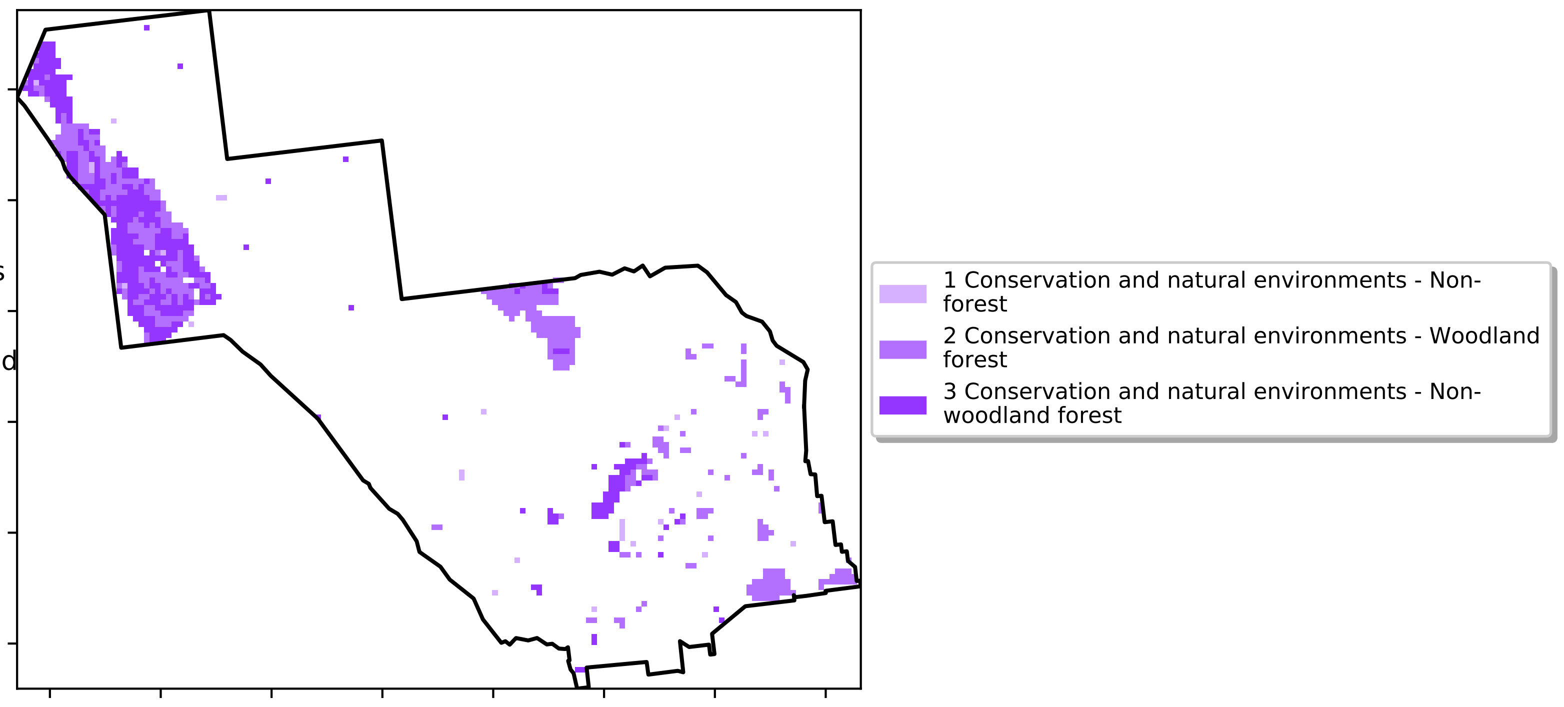


CSIRO tern Ecosystem Research Infrastructure Australian Government National Landcare Programme NSW GOVERNMENT

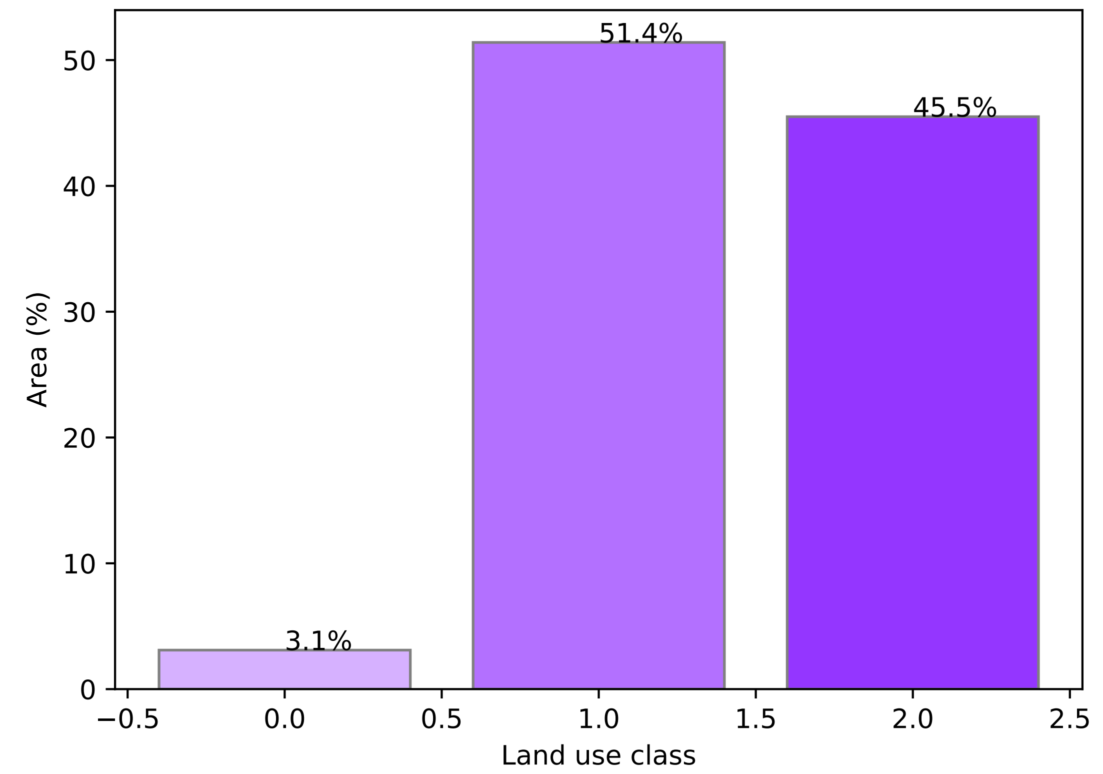
Conservation and natural environments

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

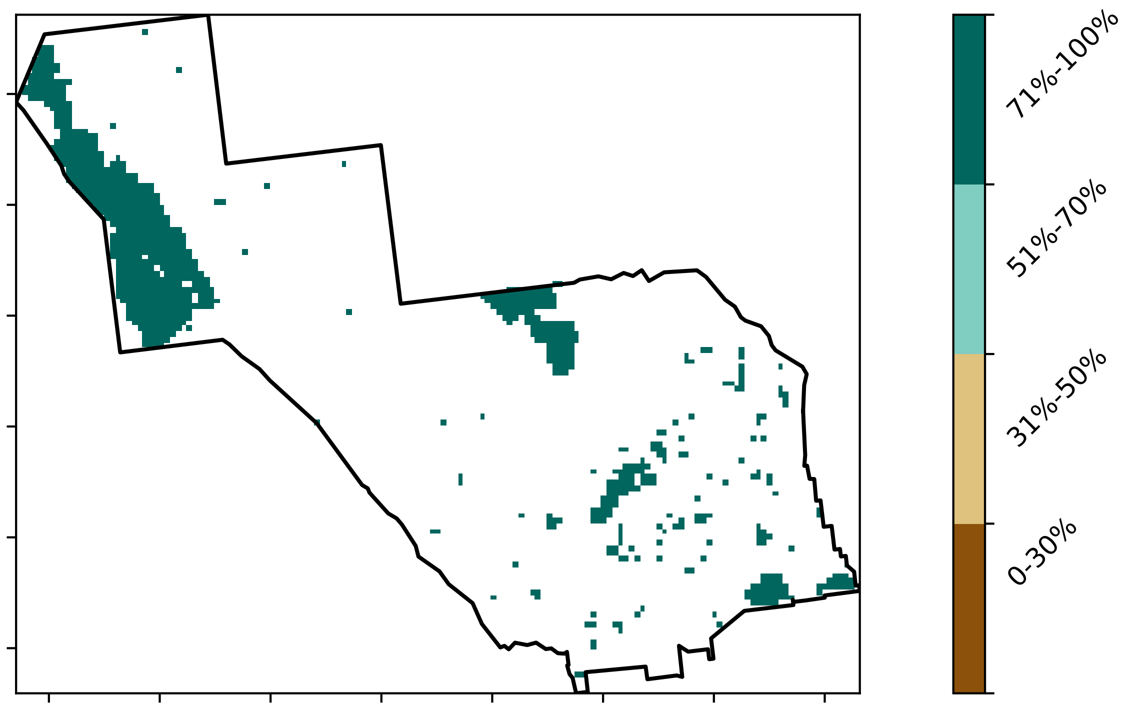
Land use and forest cover


1 Conservation and natural environments - Non-forest
2 Conservation and natural environments - Woodland forest
3 Conservation and natural environments - Non-woodland forest

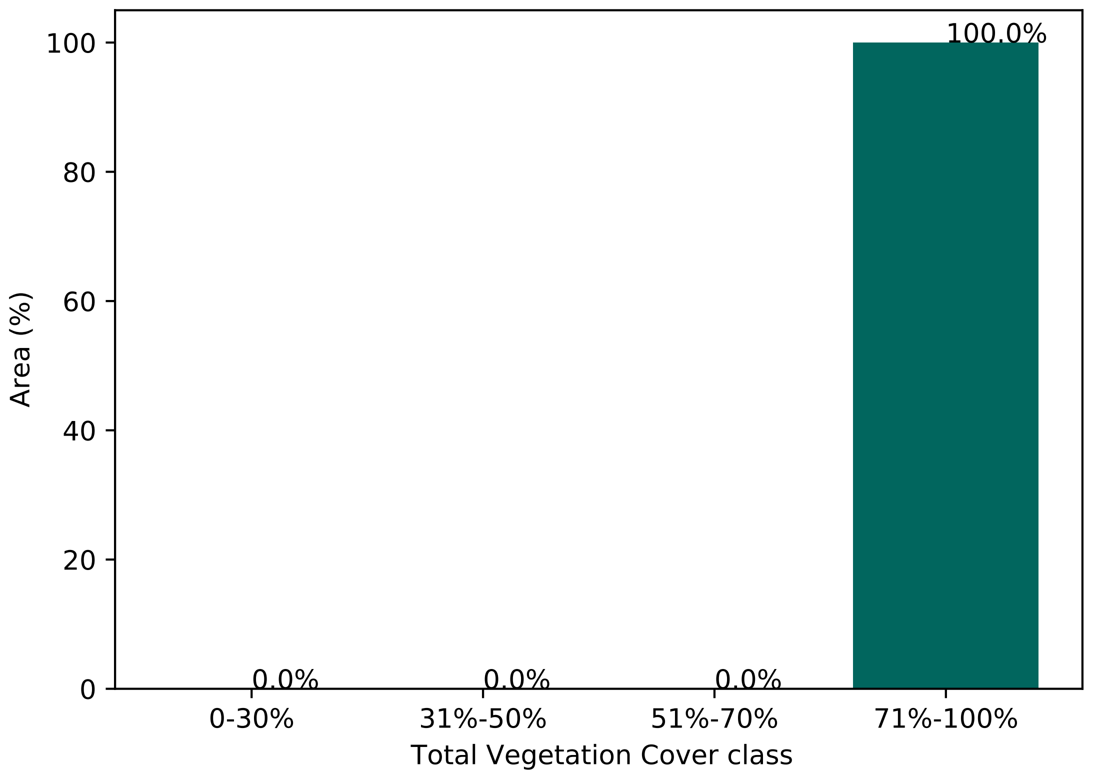
Proportion of each land class in area



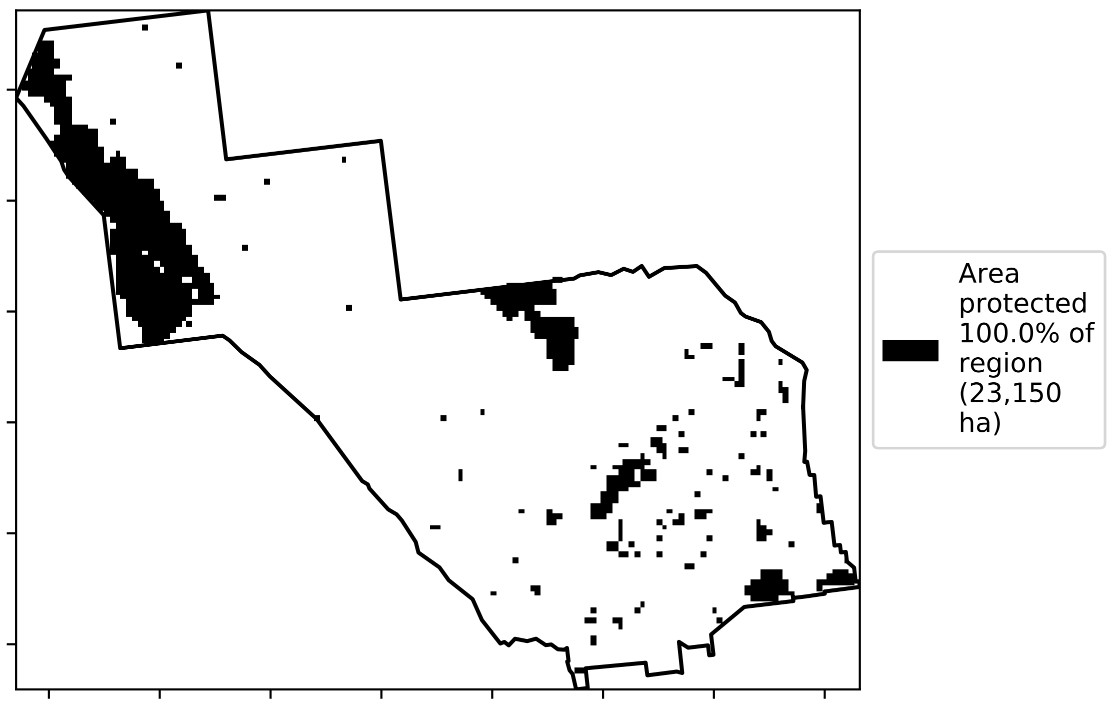
Total Vegetation Cover [%]


71%-100%
51%-70%
31%-50%
0-30%

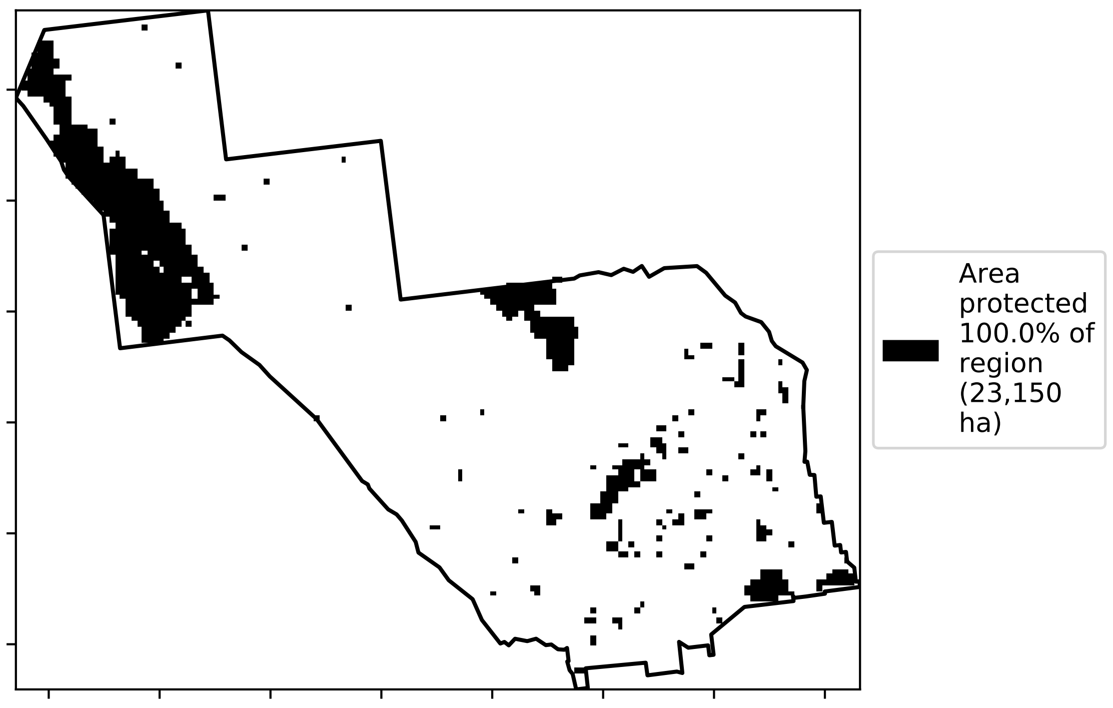
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

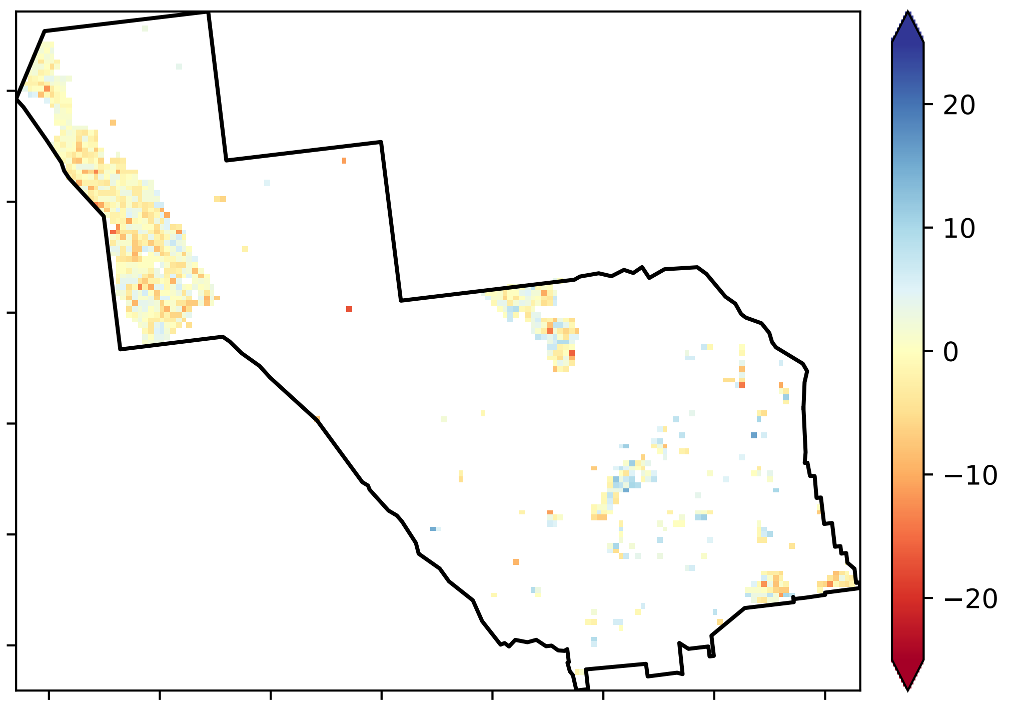

Area protected 100.0% of region (23,150 ha)

% Area protected from wind erosion (>50%)


Area protected 100.0% of region (23,150 ha)

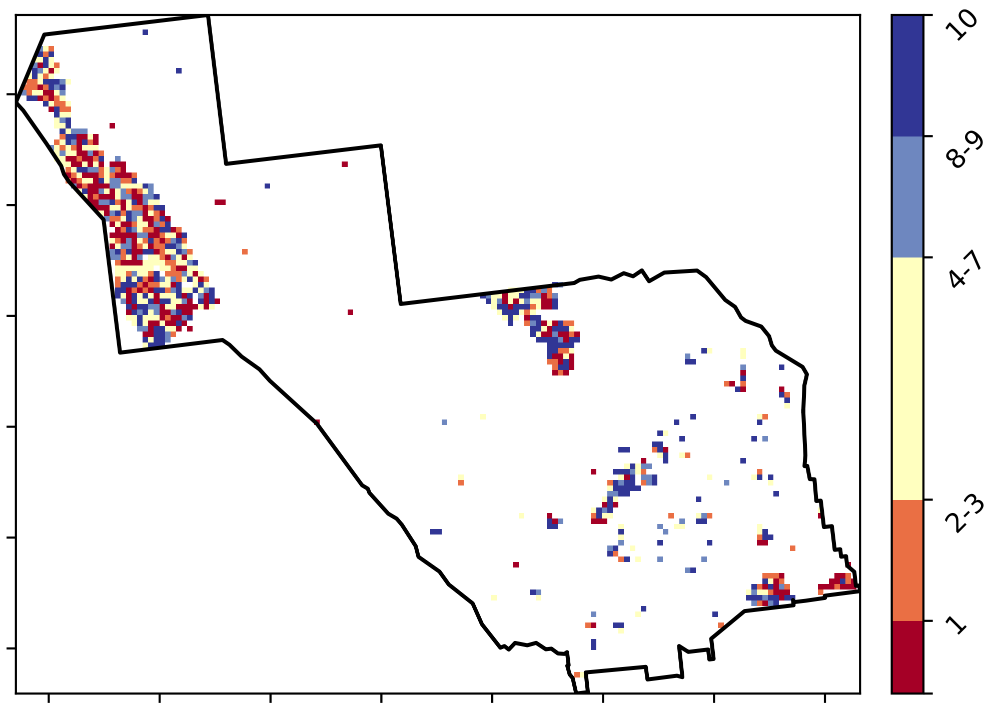
Total Vegetation Cover Anomaly [%]

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.



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

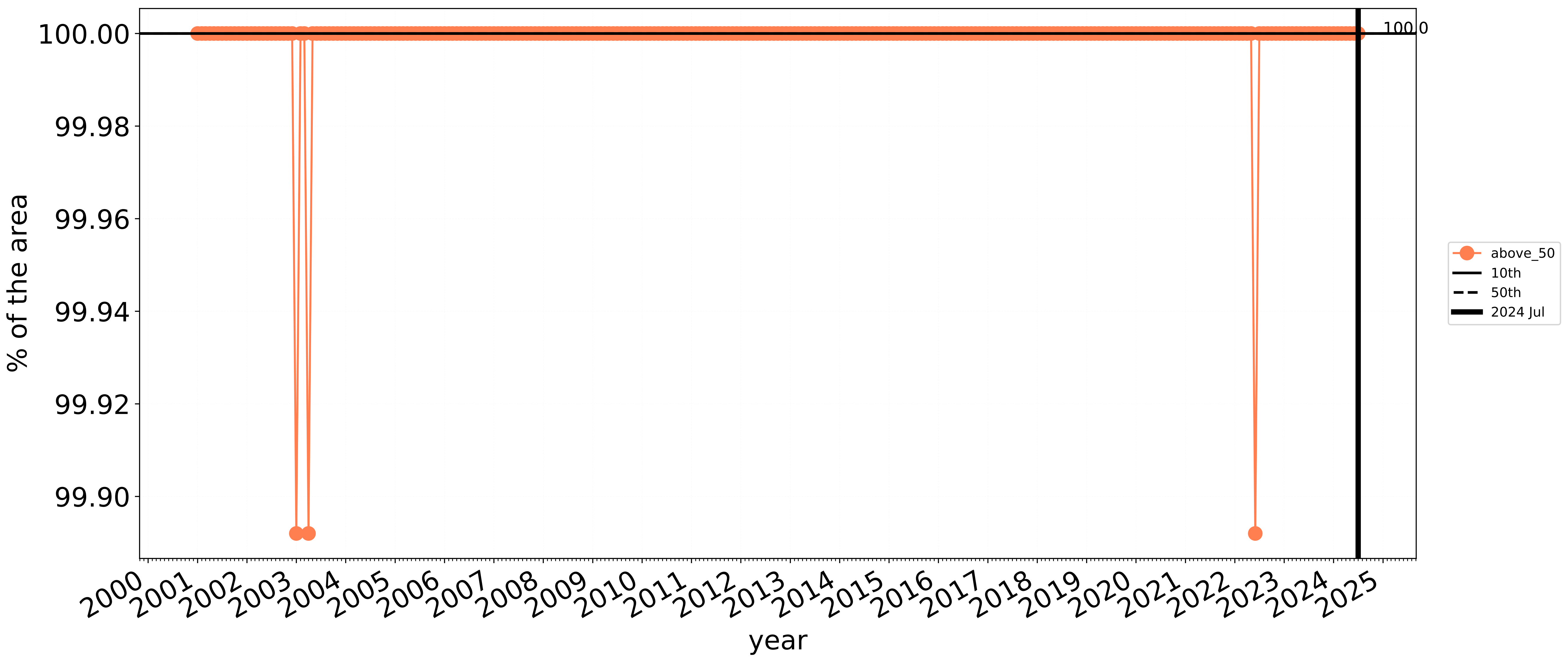
Total Vegetation Cover Decile [%]



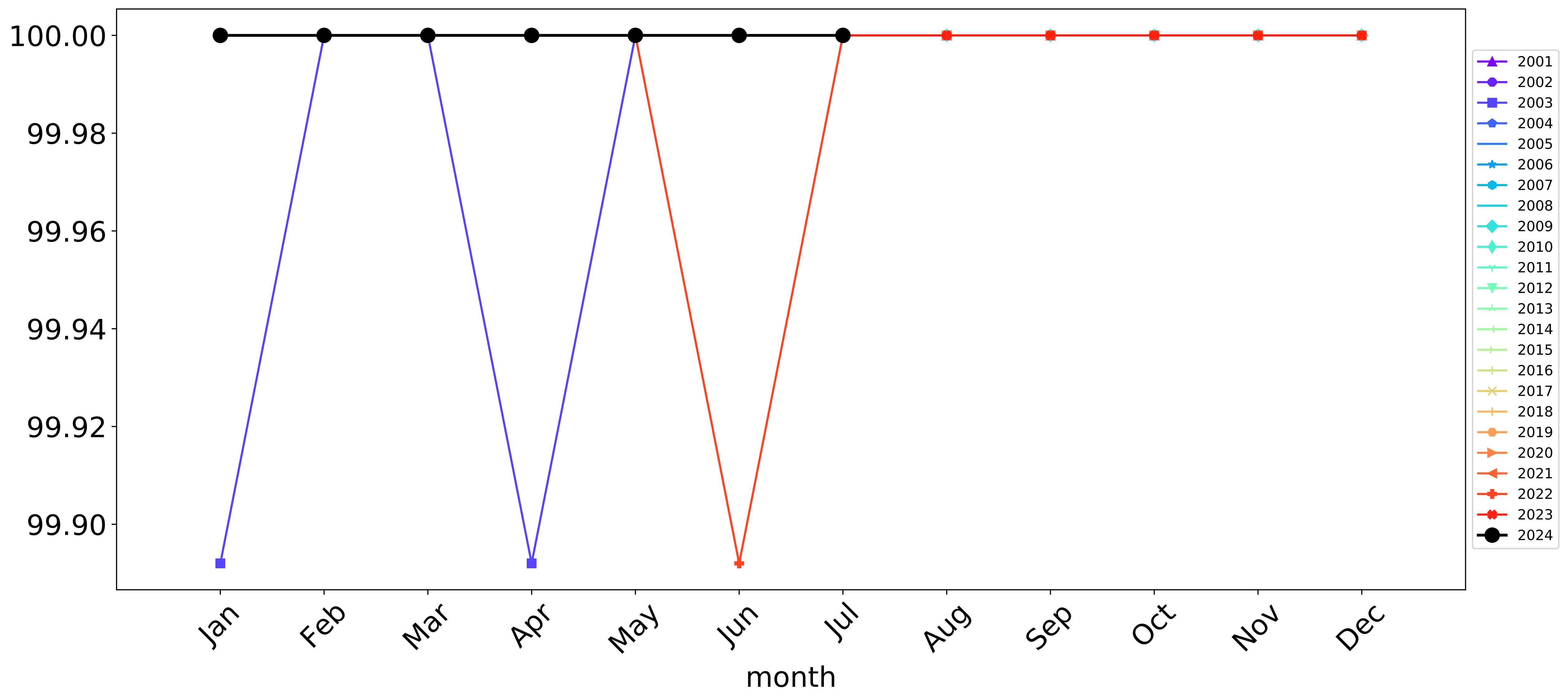
CSIRO tern Ecosystem Research Infrastructure Australian Government National Landcare Programme NSW GOVERNMENT

Conservation and natural environments timeseries

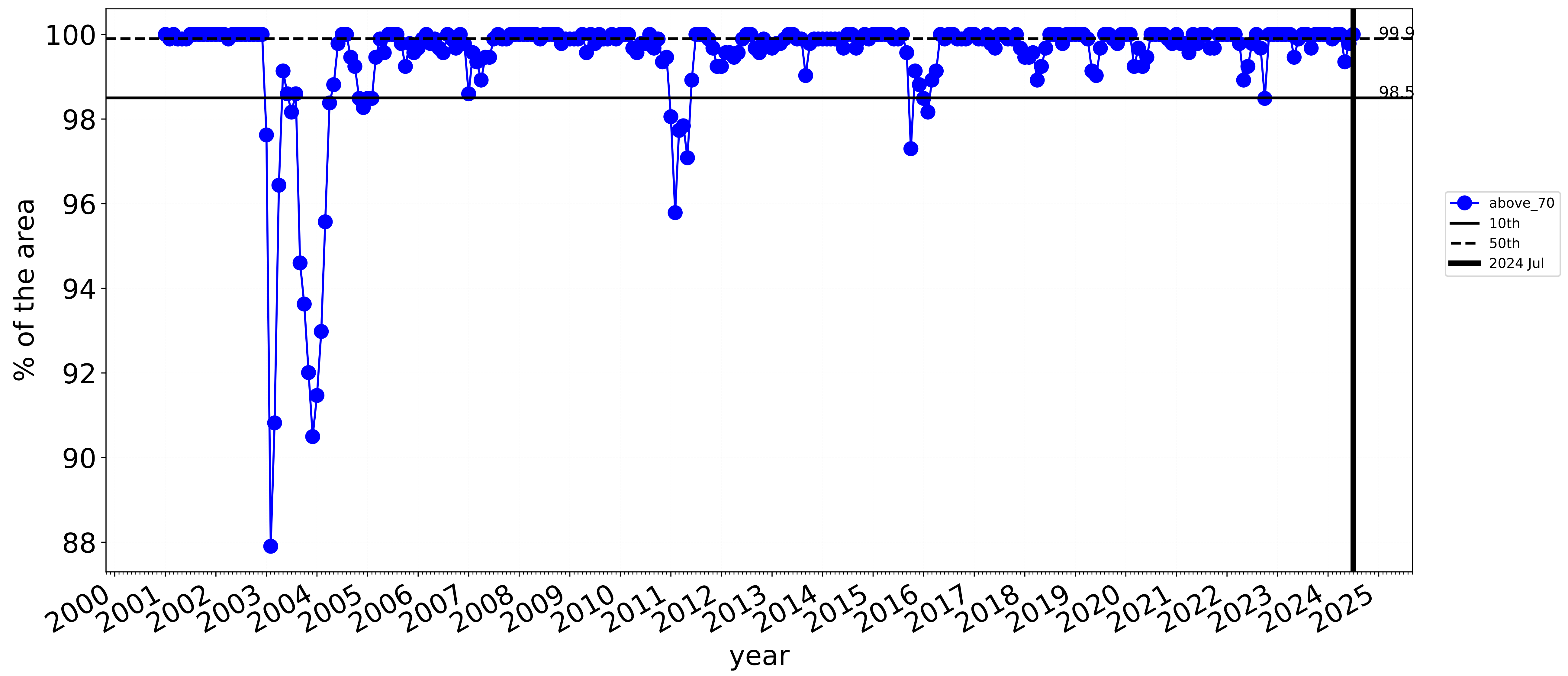
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



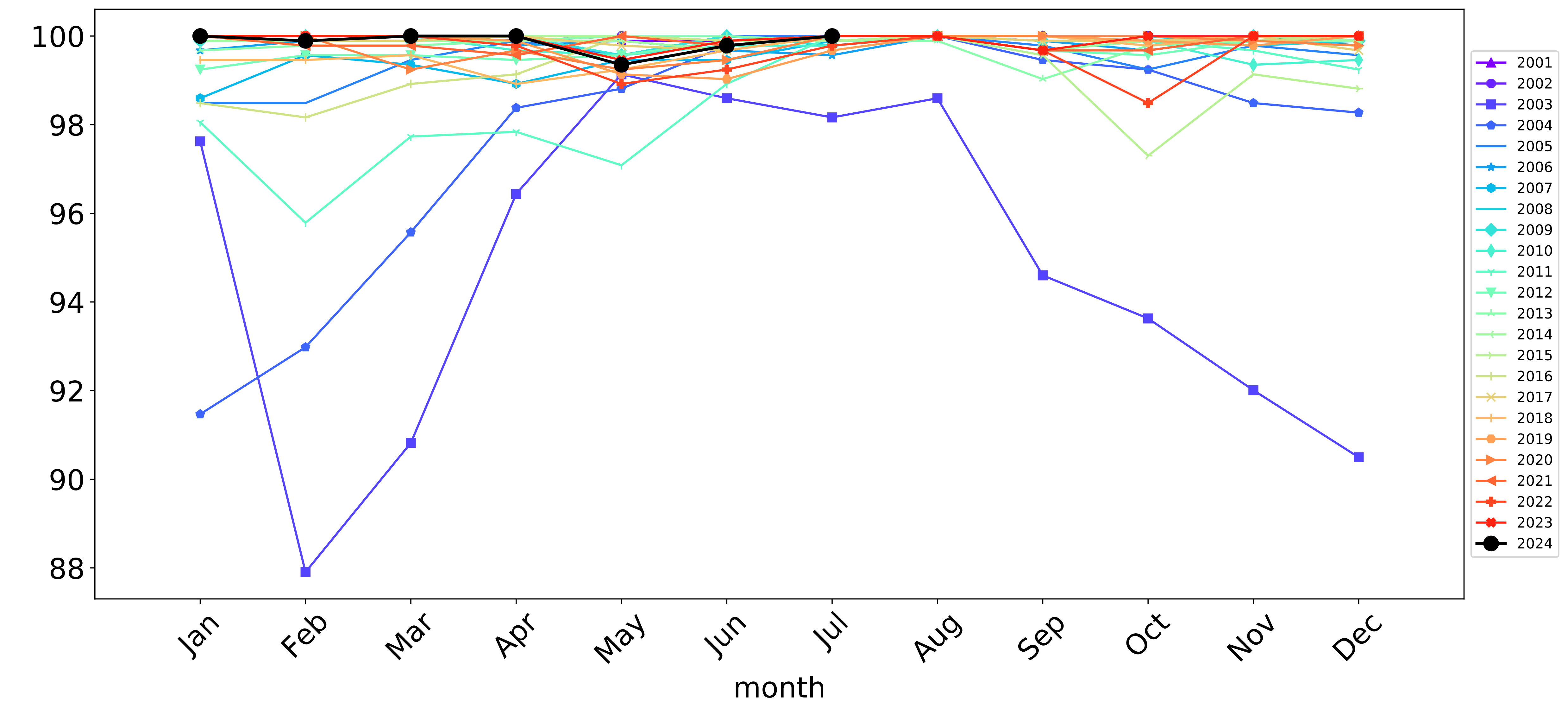
Wind erosion historical monthly area protected (Total Veg Cov >50%)



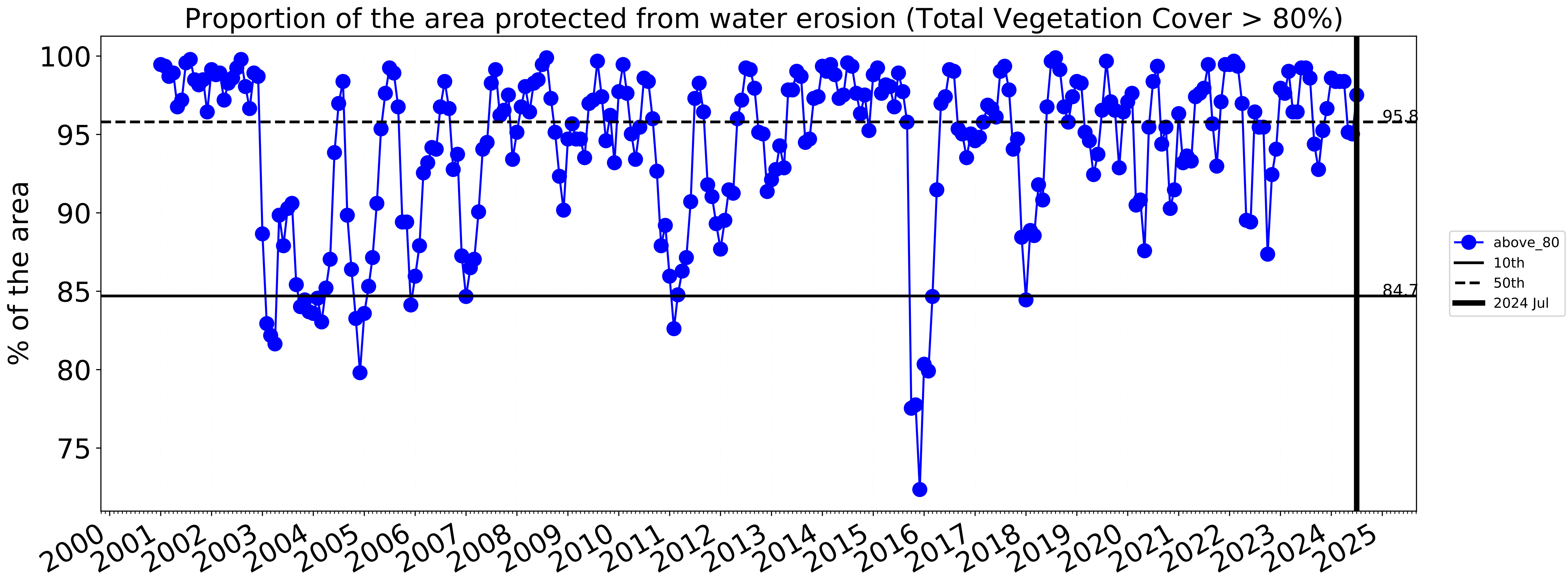
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



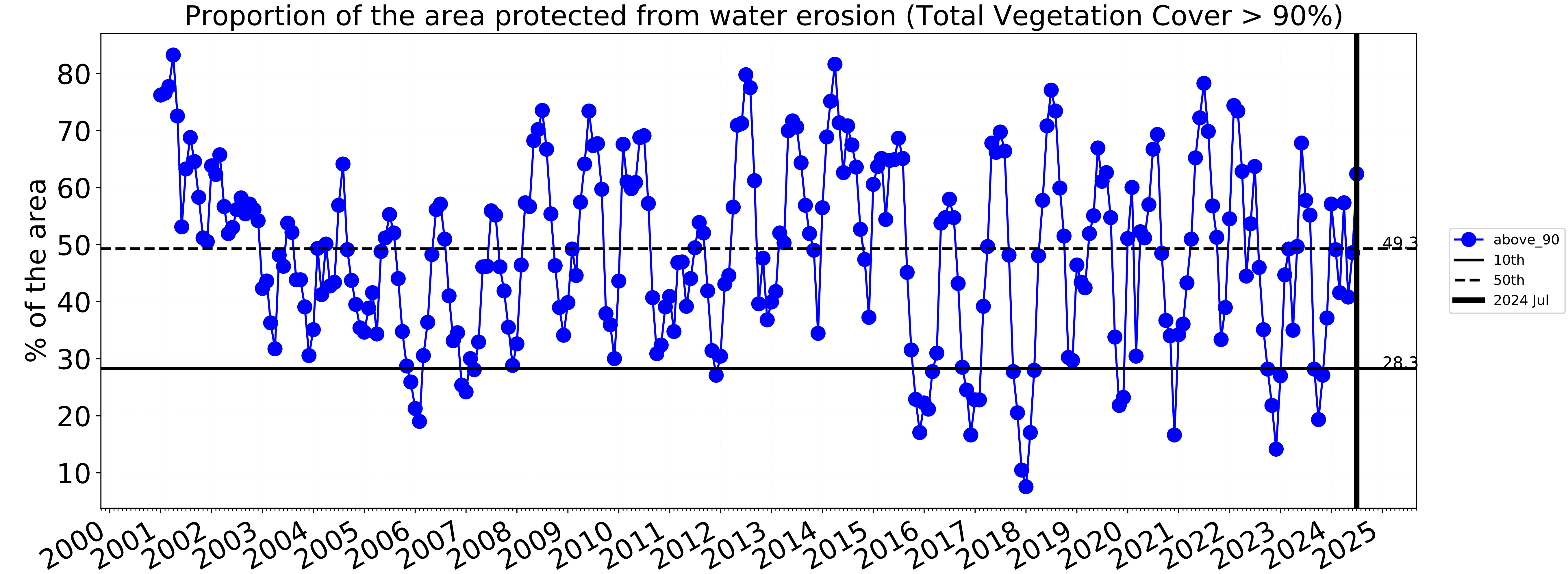
Water erosion historical monthly area protected (Total Veg Cov>70%)



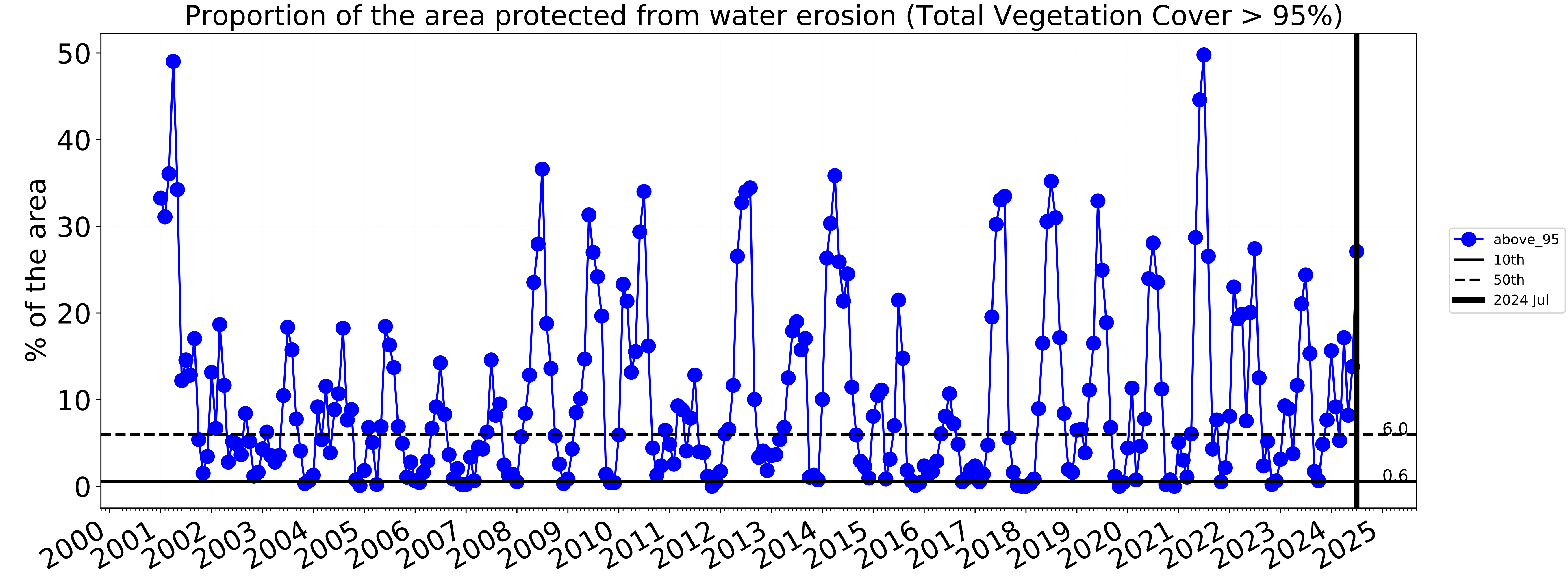
CSIRO tern Ecosystem Research Infrastructure Australian Government National Landcare Programme NSW GOVERNMENT



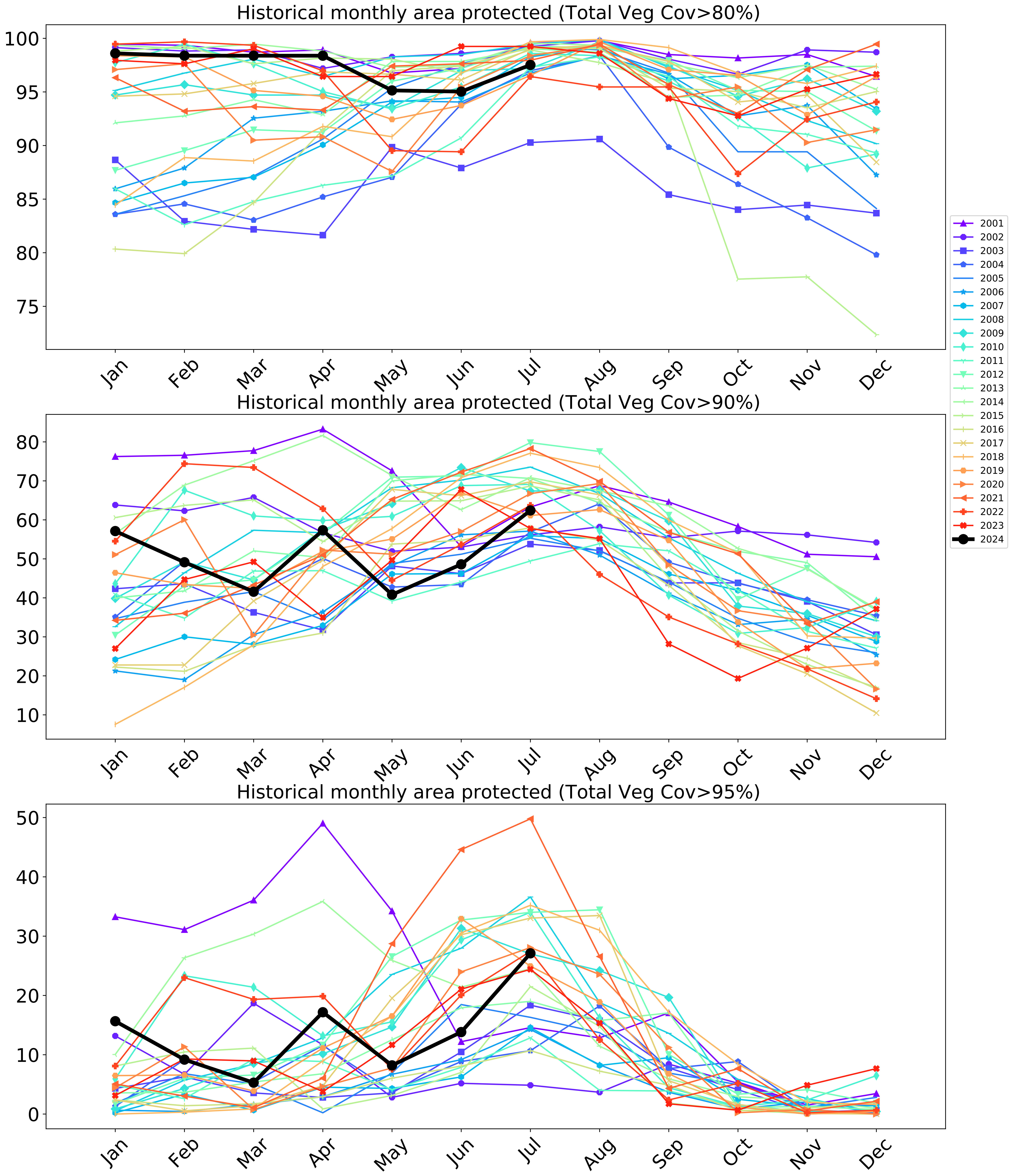
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



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



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



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

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

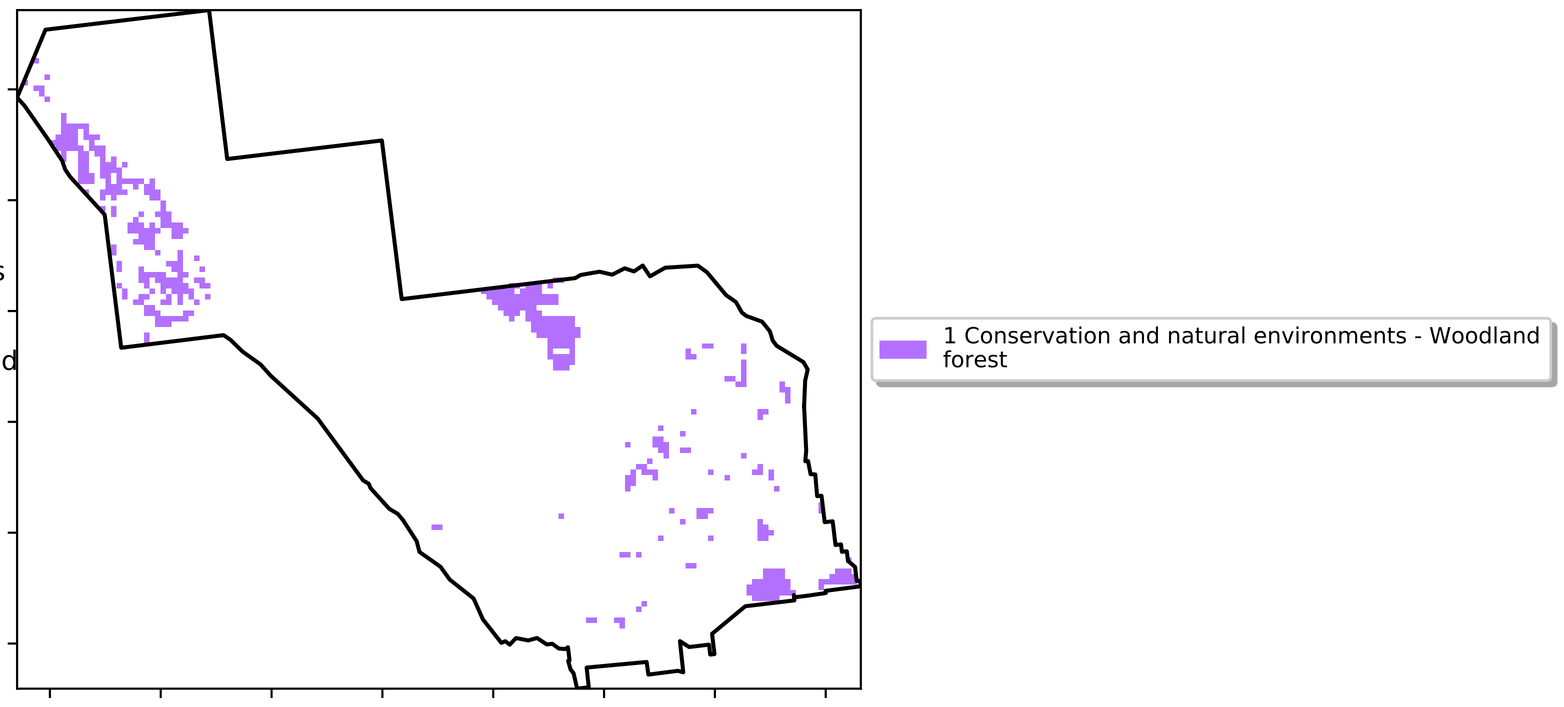
Historical monthly area protected (Total Veg Cov>95%)

CSIRO tern Ecosystem Research Infrastructure Australian Government National Landcare Programme NSW GOVERNMENT

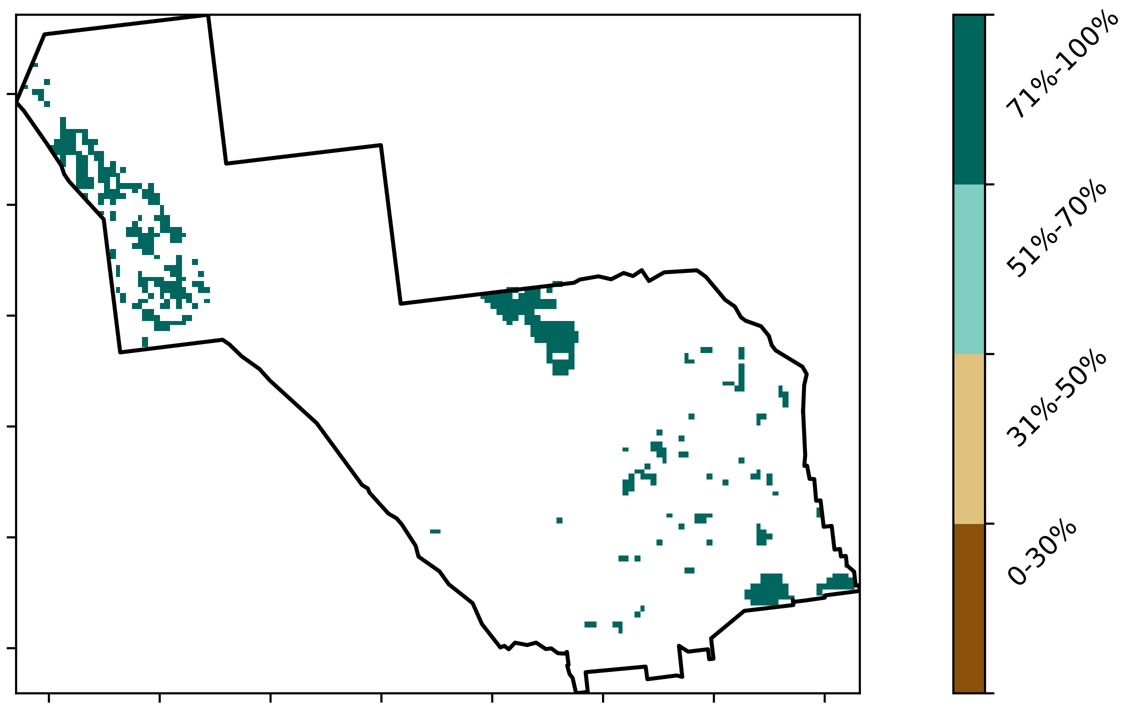
Conservation and natural environments Woodland forest

Land use and forest cover

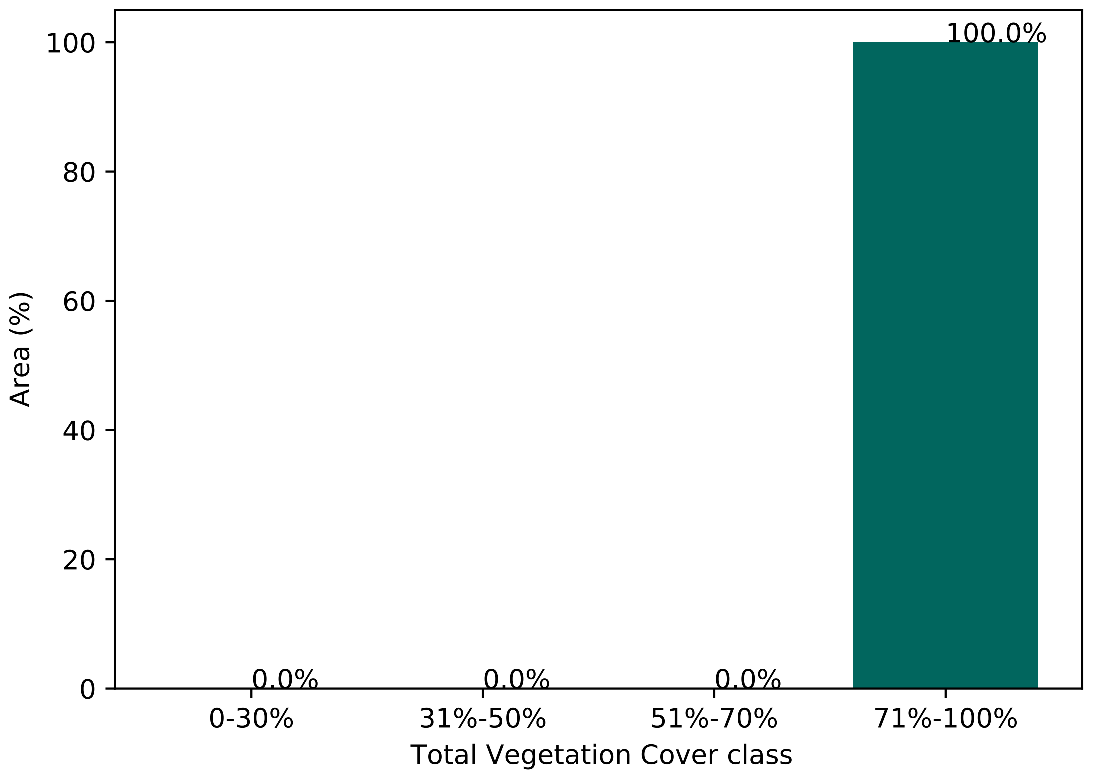
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)


1 Conservation and natural environments - Woodland forest

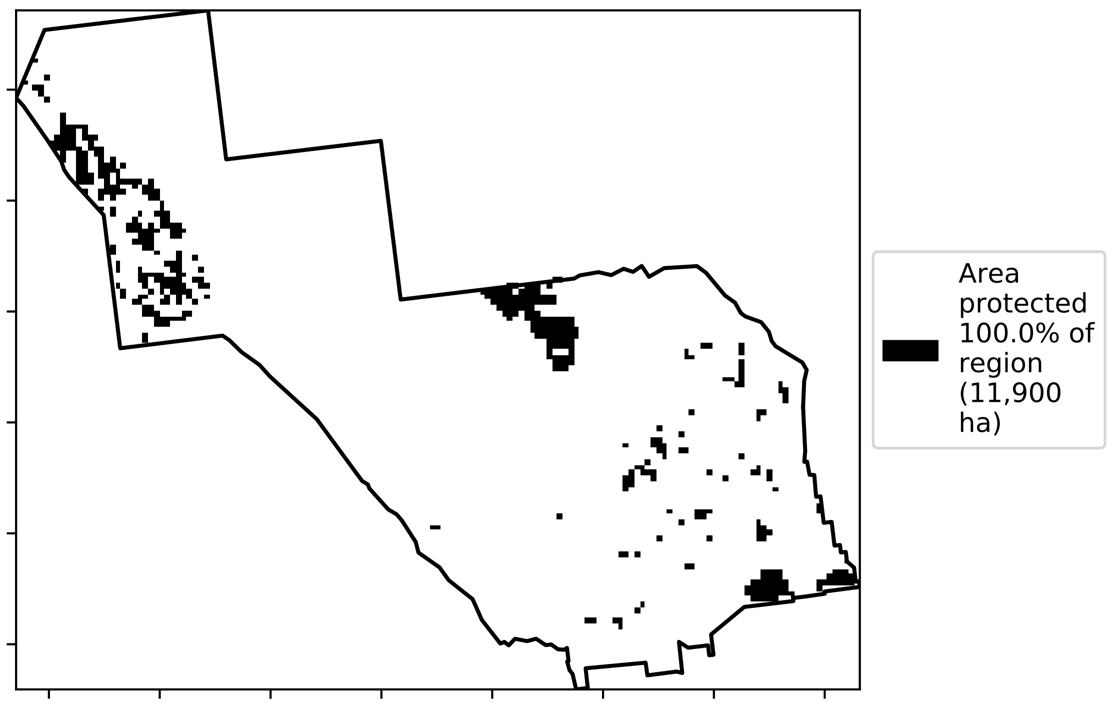
Total Vegetation Cover [%]


71%-100%
51%-70%
31%-50%
0-30%

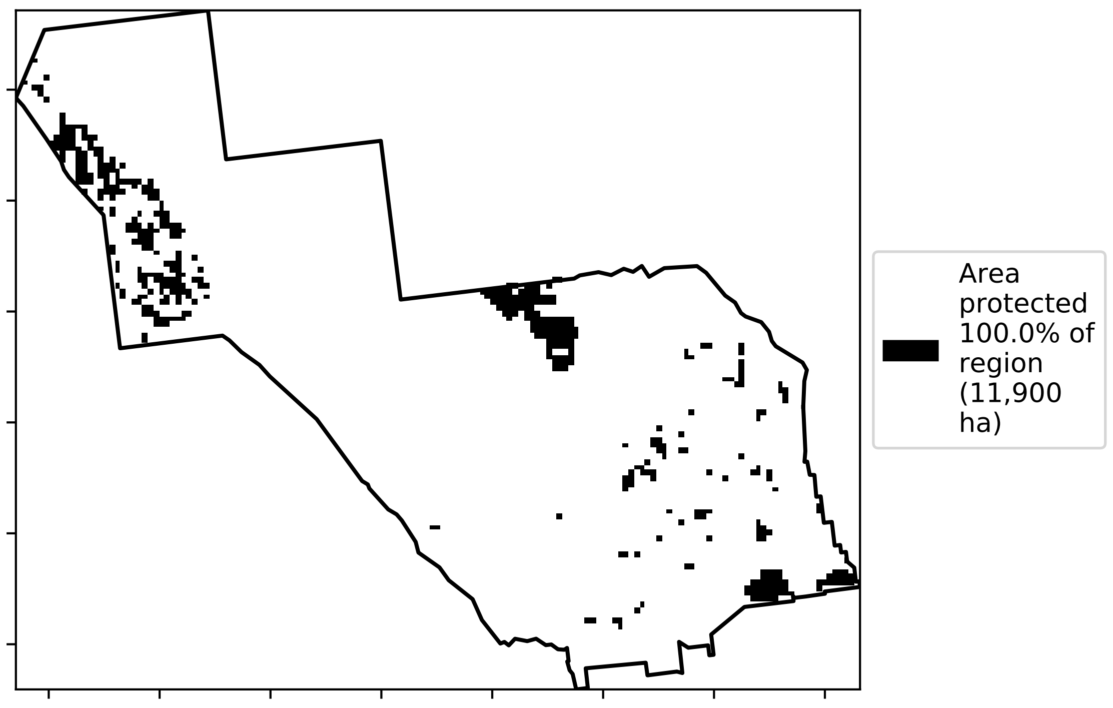
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

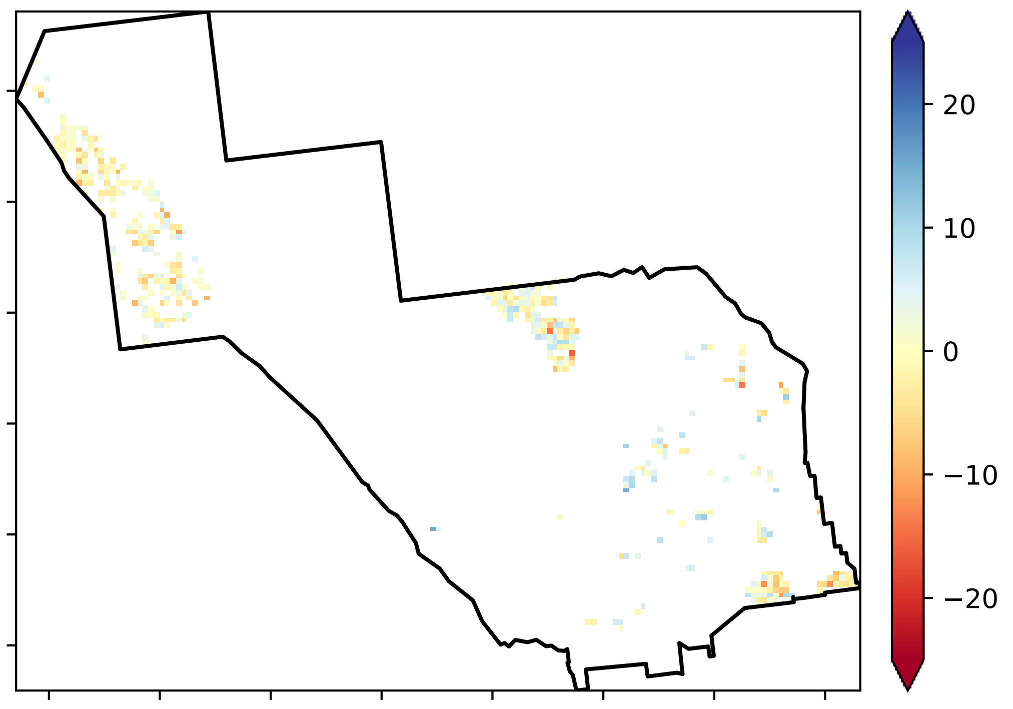

Area protected 100.0% of region (11,900 ha)

% Area protected from wind erosion (>50%)


Area protected 100.0% of region (11,900 ha)

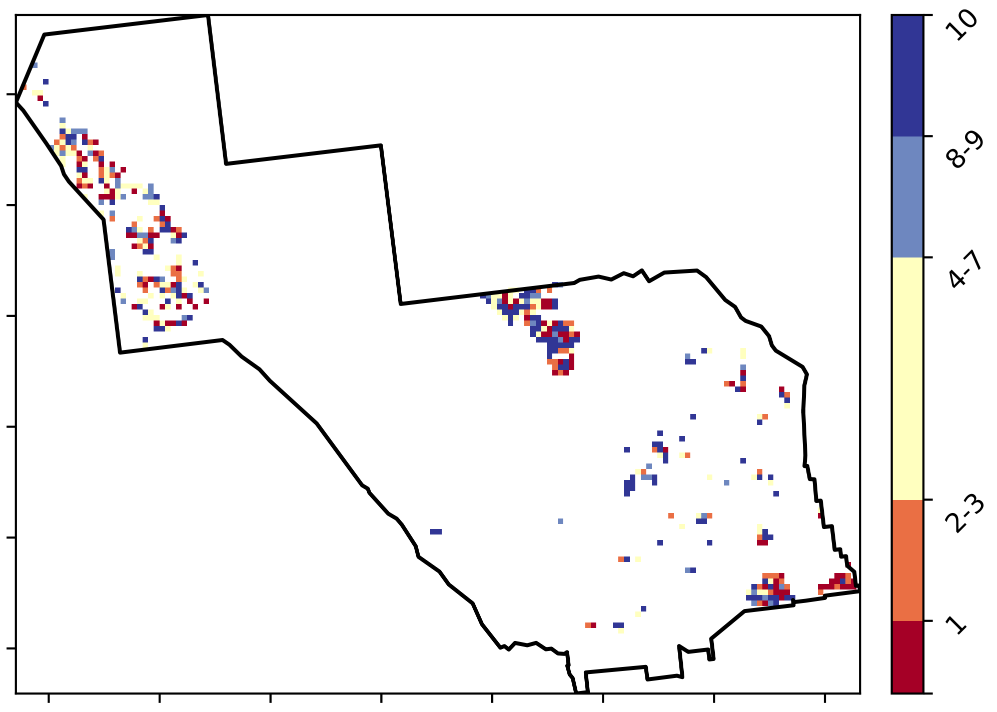
Total Vegetation Cover Anomaly [%]

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.



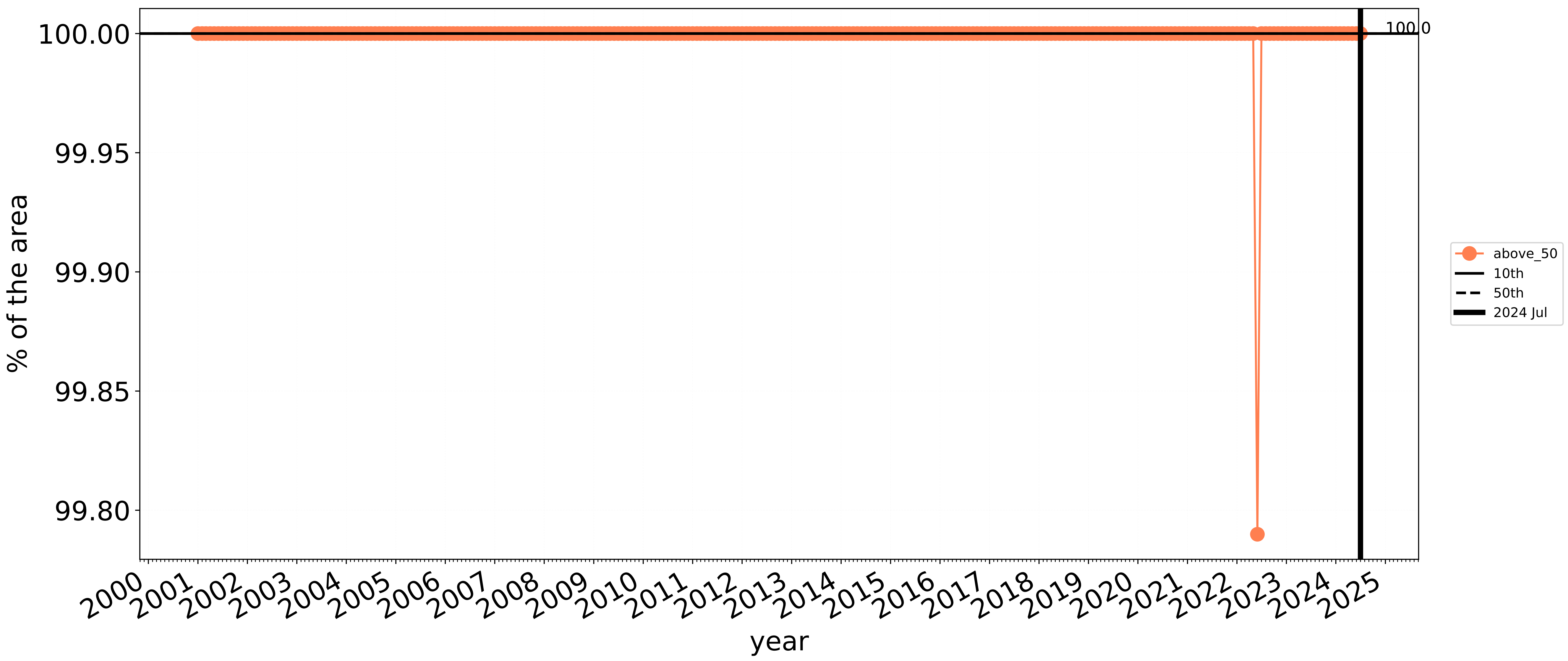
Total Vegetation Cover Decile [%]

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.

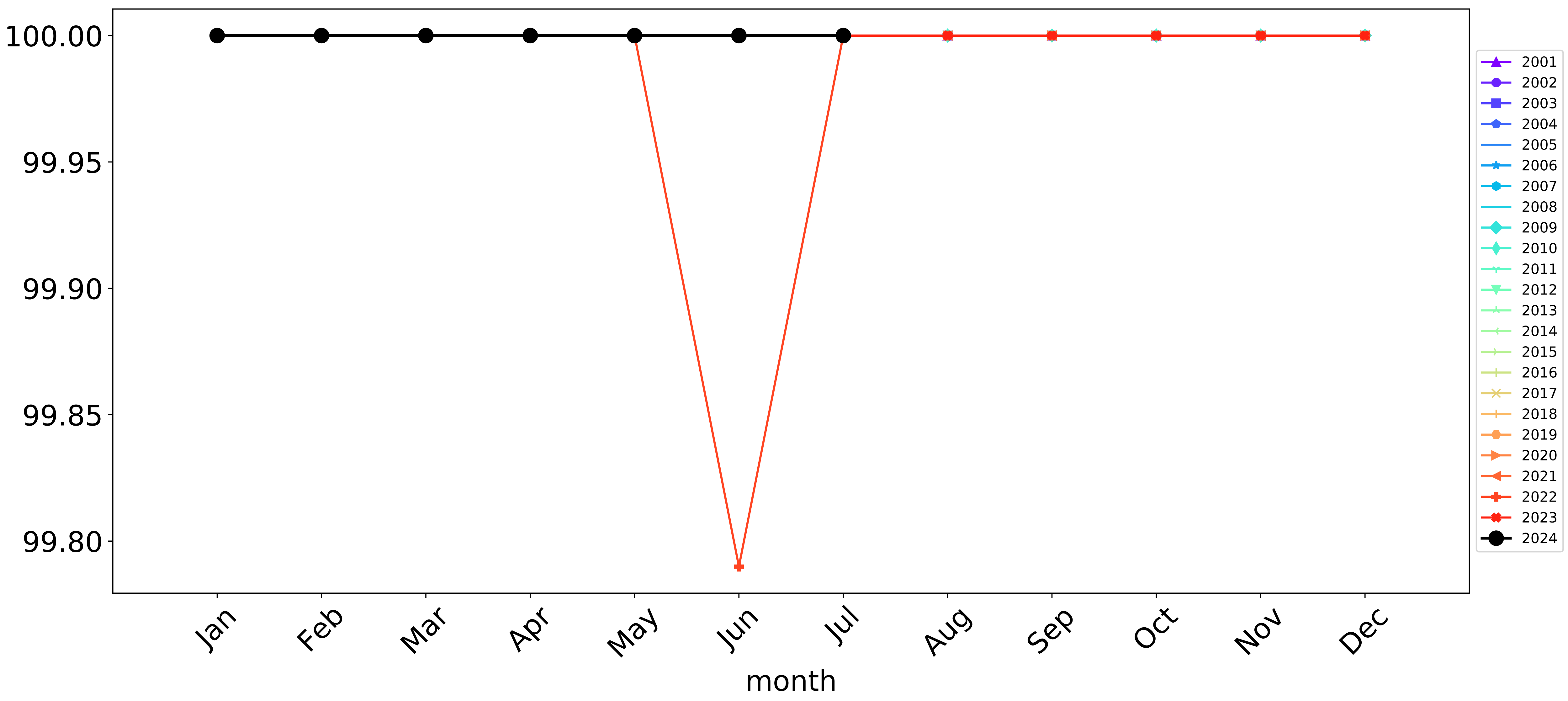


Conservation and natural environments Woodland forest timeseries

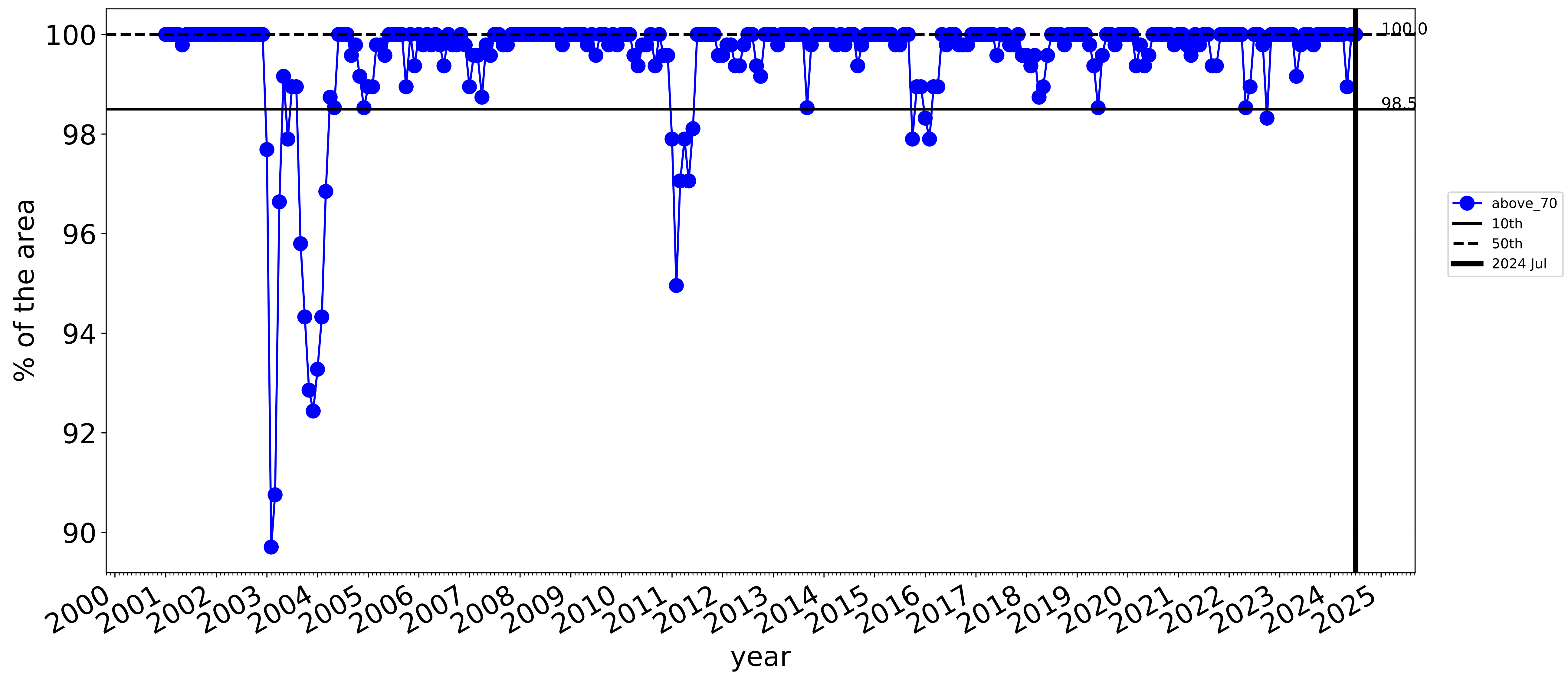
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



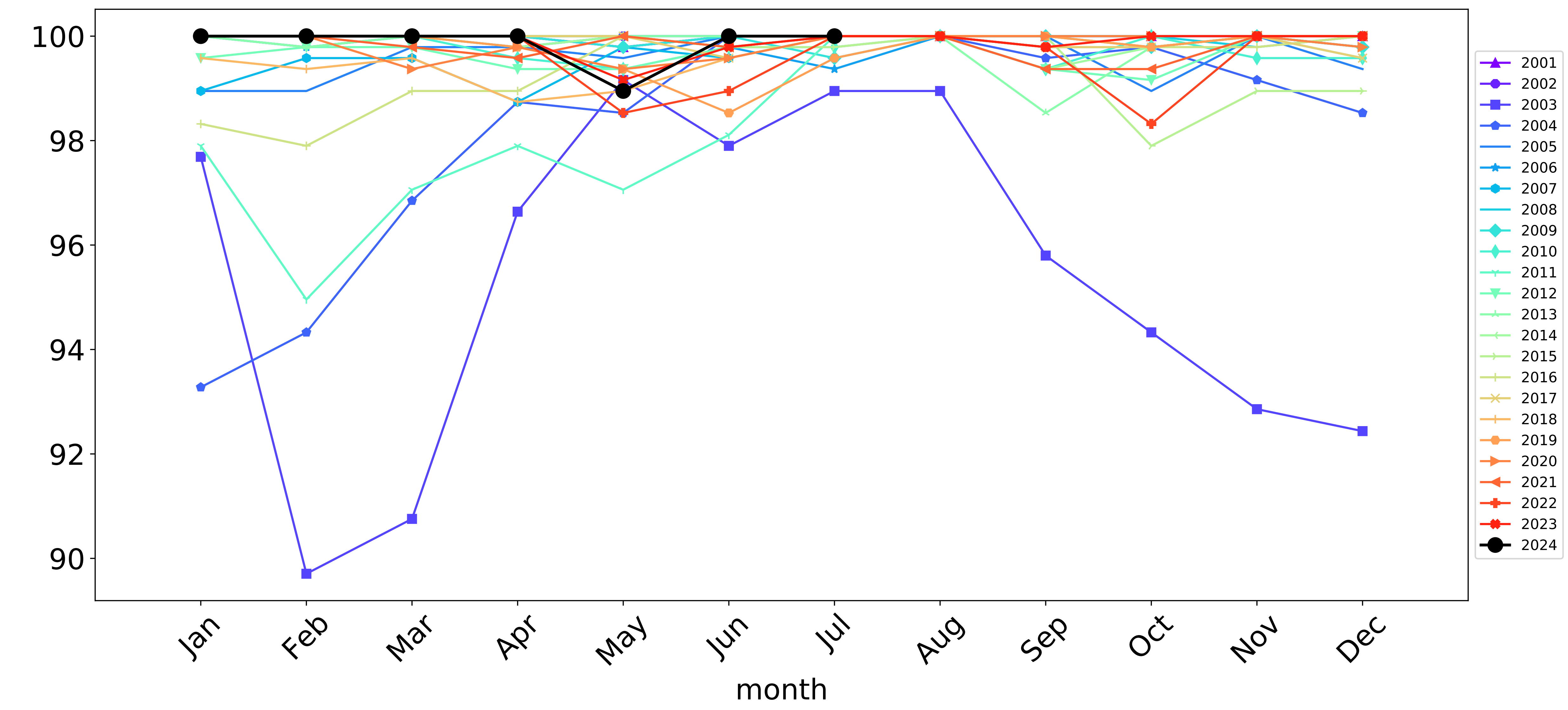
Wind erosion historical monthly area protected (Total Veg Cov >50%)

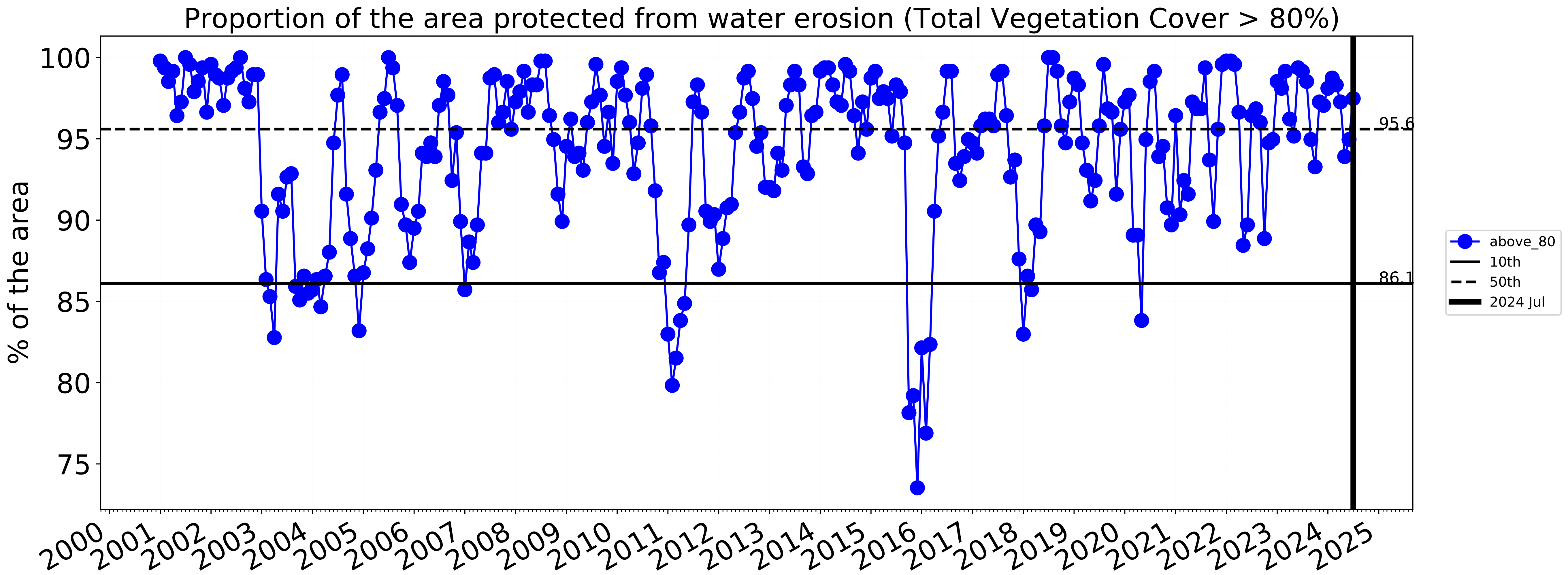


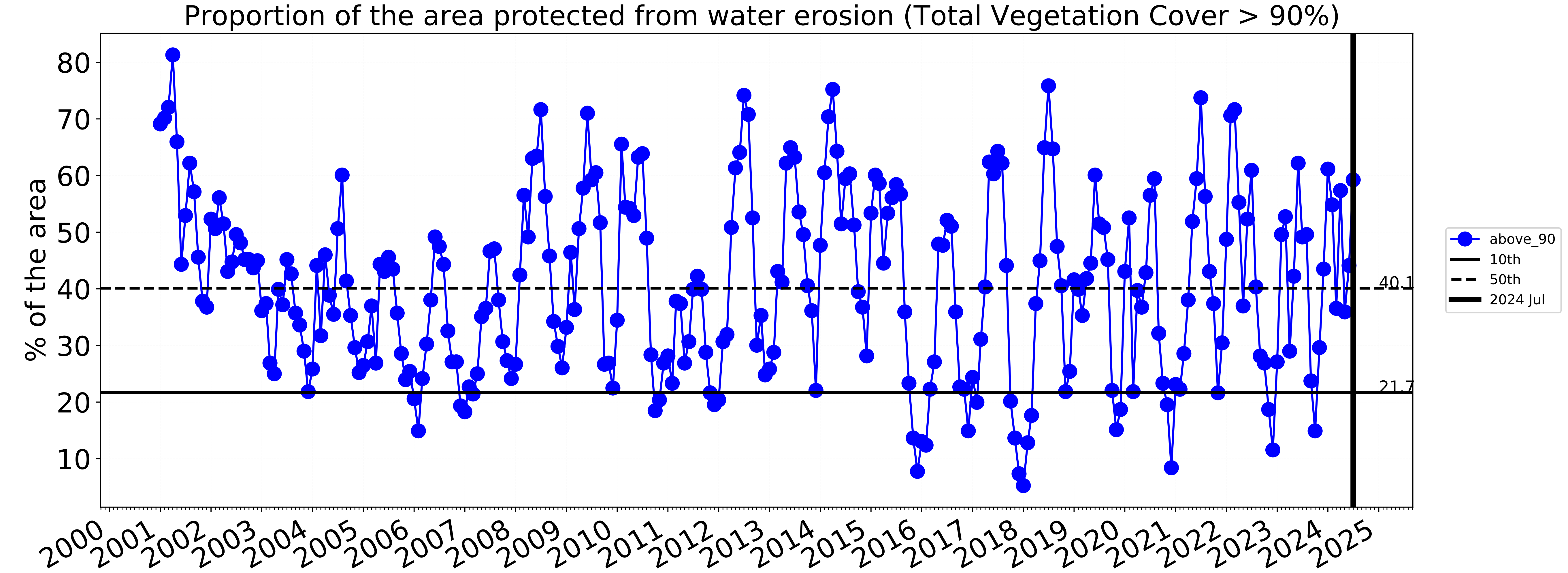
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

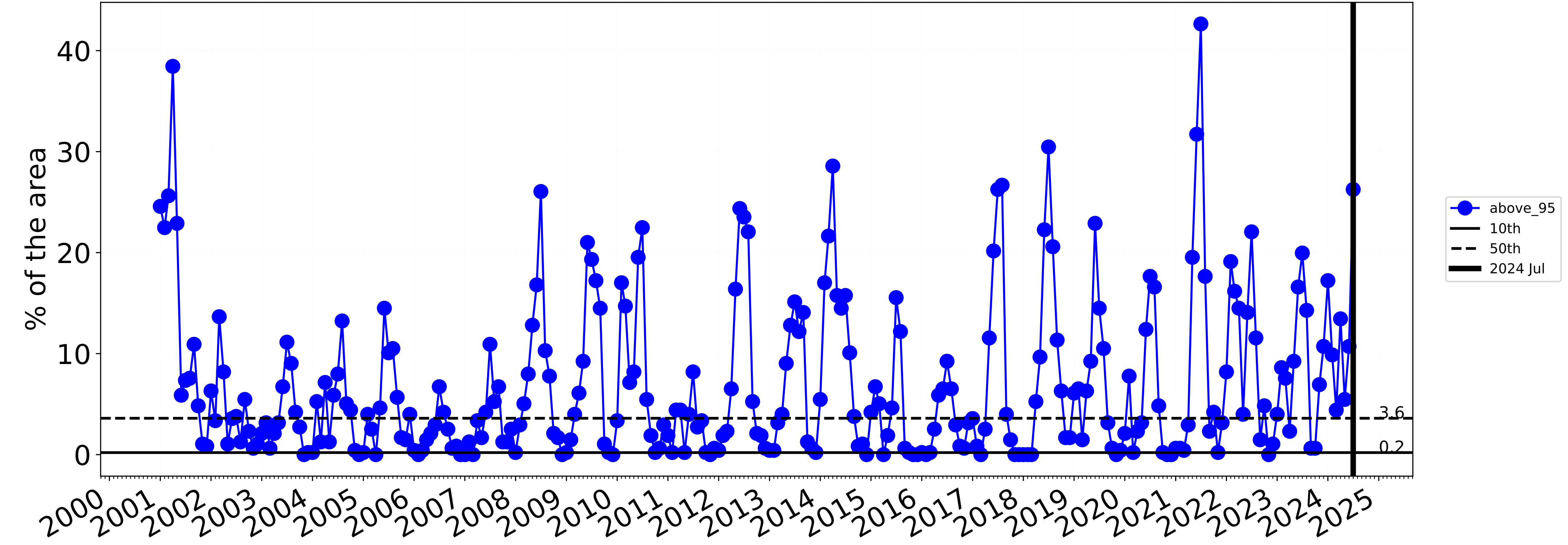


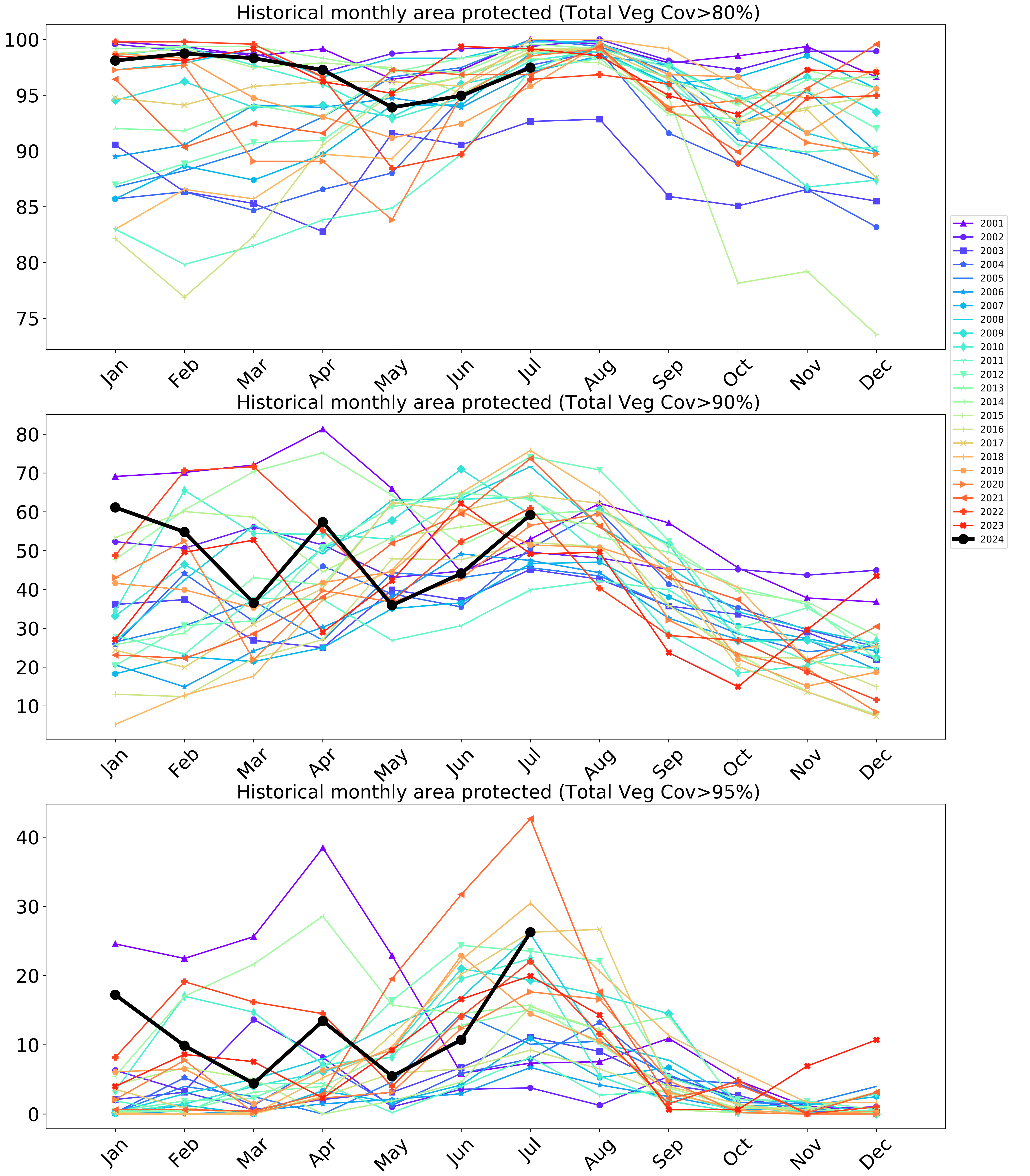
Water erosion historical monthly area protected (Total Veg Cov>70%)




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


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


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

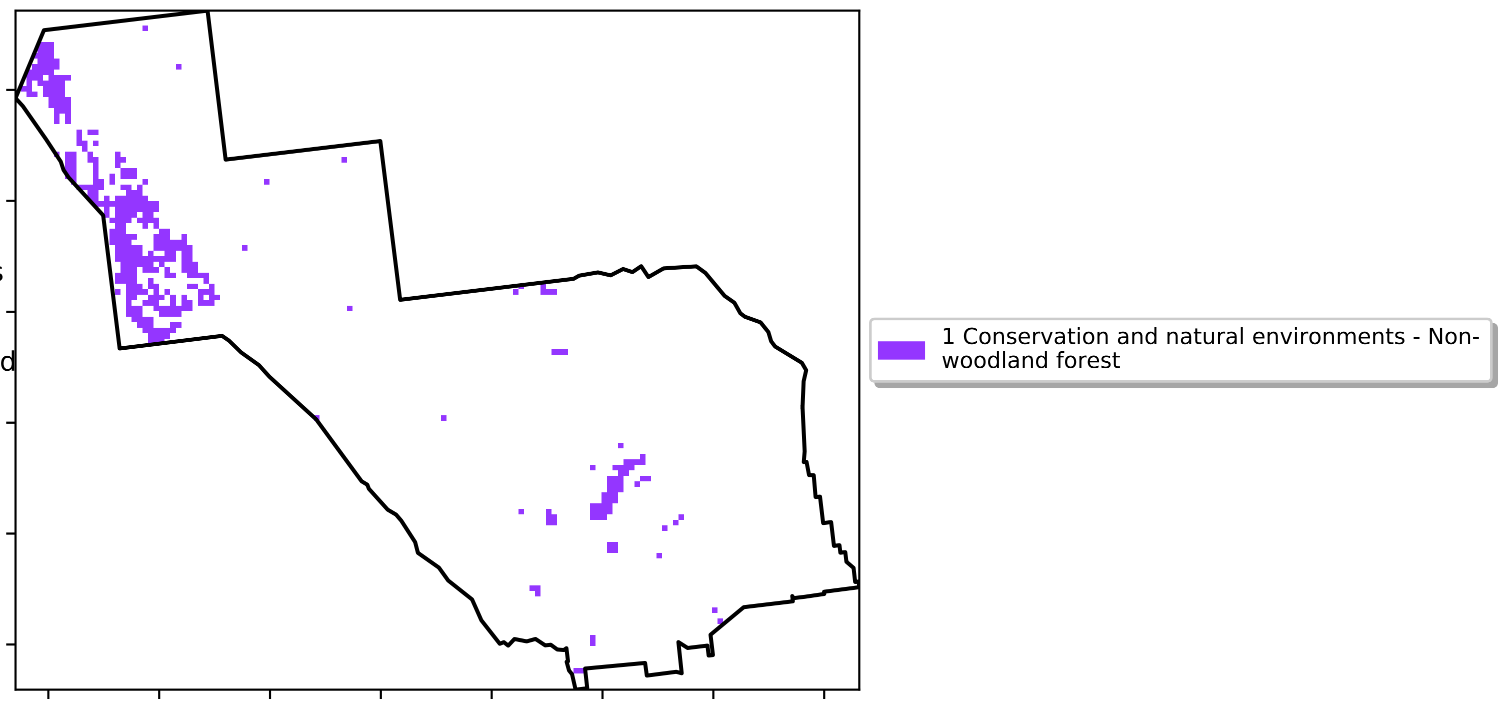

Historical monthly area protected (Total Veg Cov>80%)

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

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

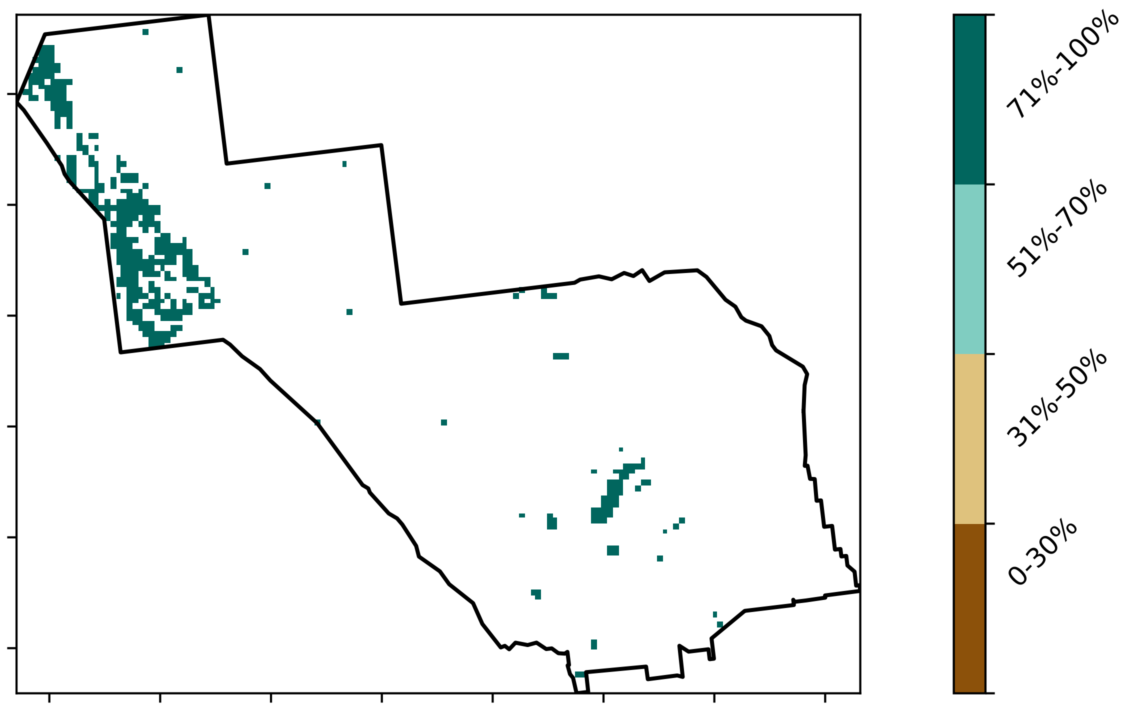
Conservation and natural environments Forest (non woodland)

Land use and forest cover

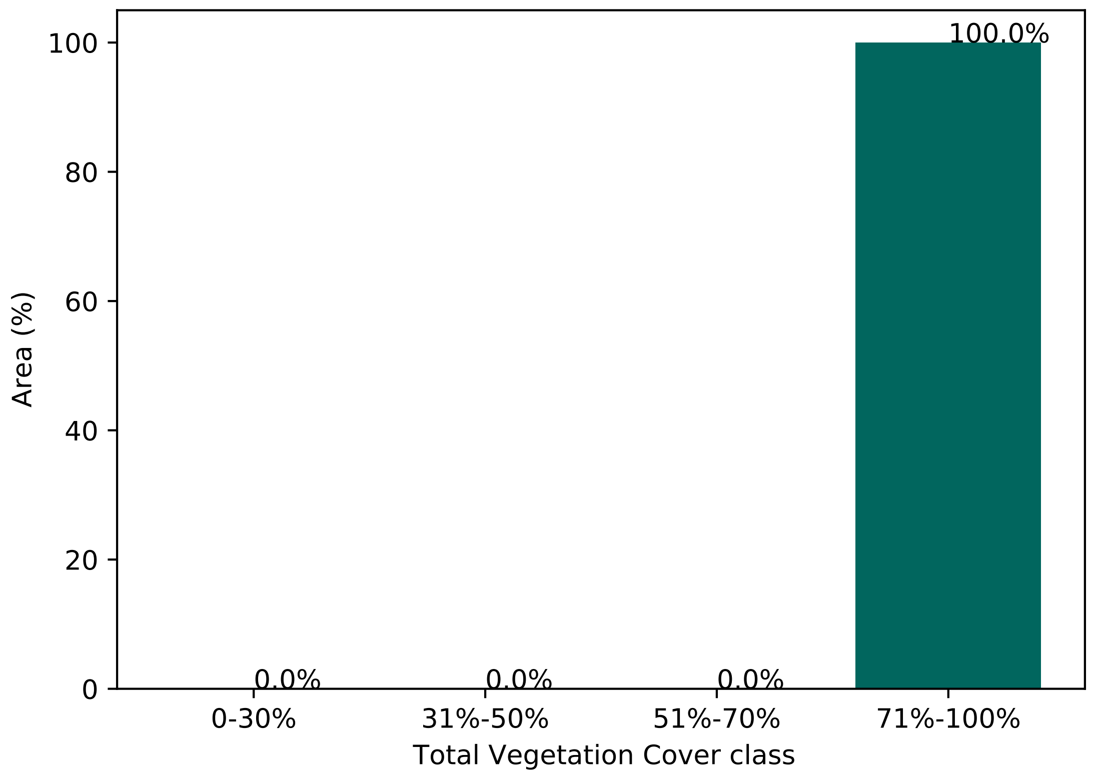

1 Conservation and natural environments - Non-woodland forest

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

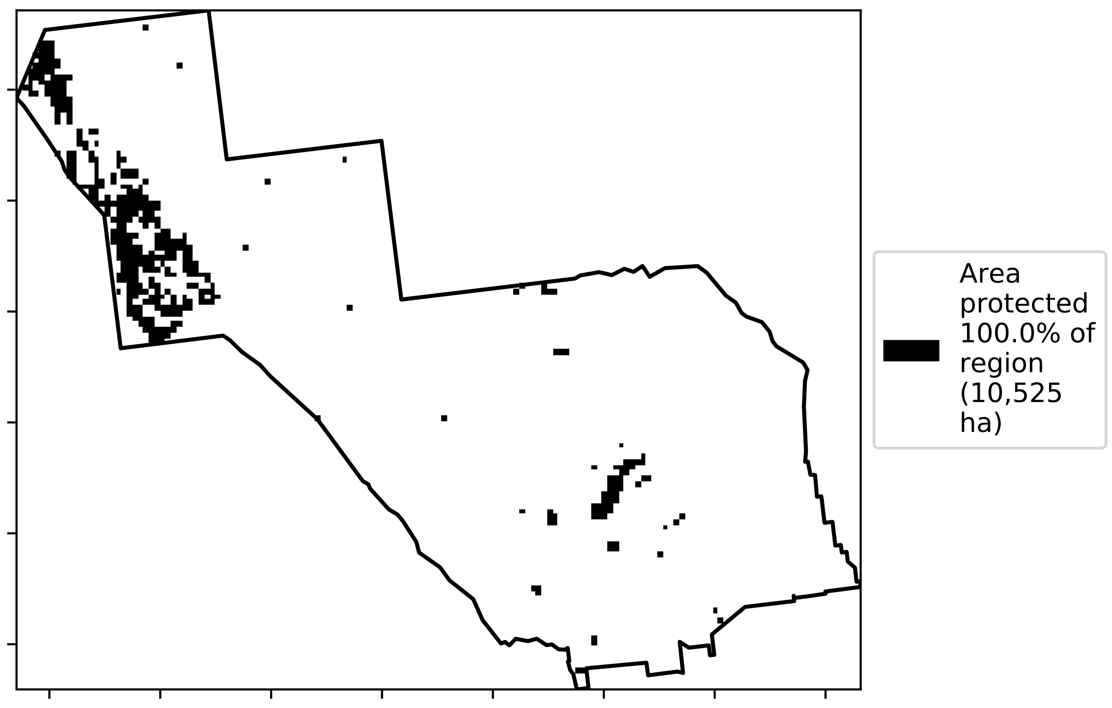
Total Vegetation Cover [%]


71%-100%
51%-70%
31%-50%
0-30%

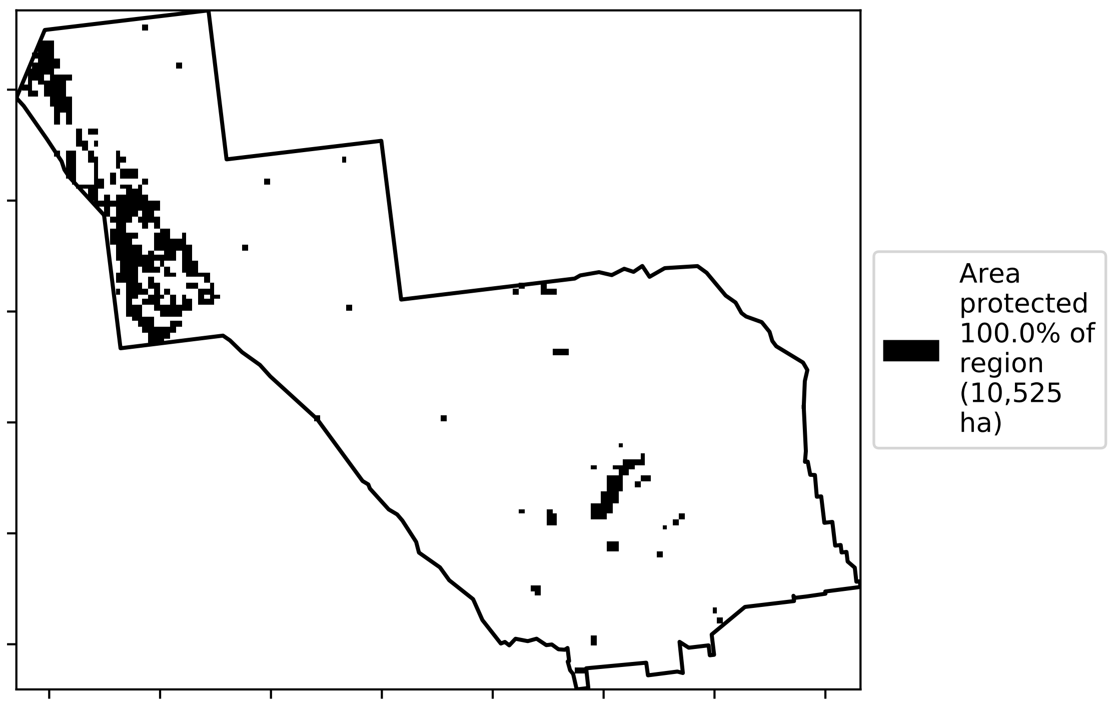
Proportion of vegetation cover class in area



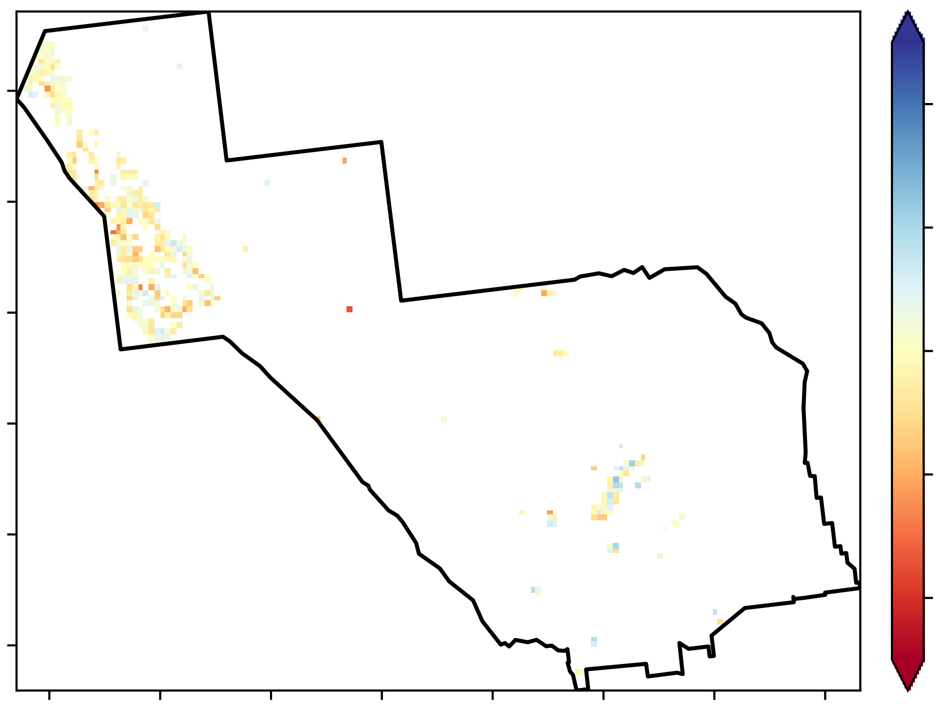
% Area protected from water erosion (>70%)


Area protected 100.0% of region (10,525 ha)

% Area protected from wind erosion (>50%)

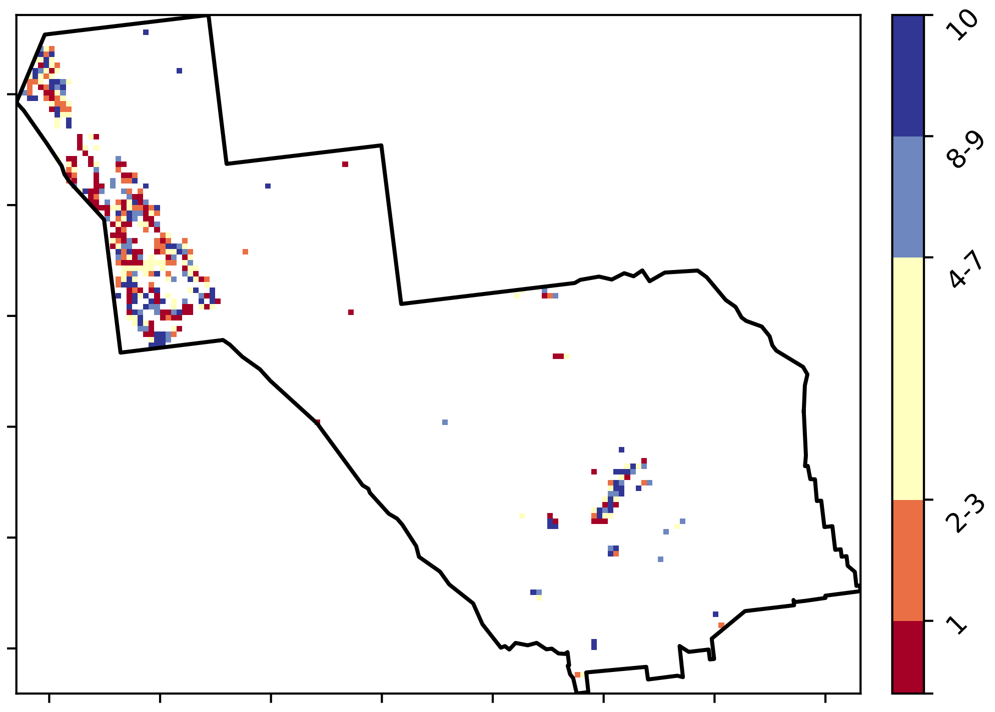

Area protected 100.0% of region (10,525 ha)

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.

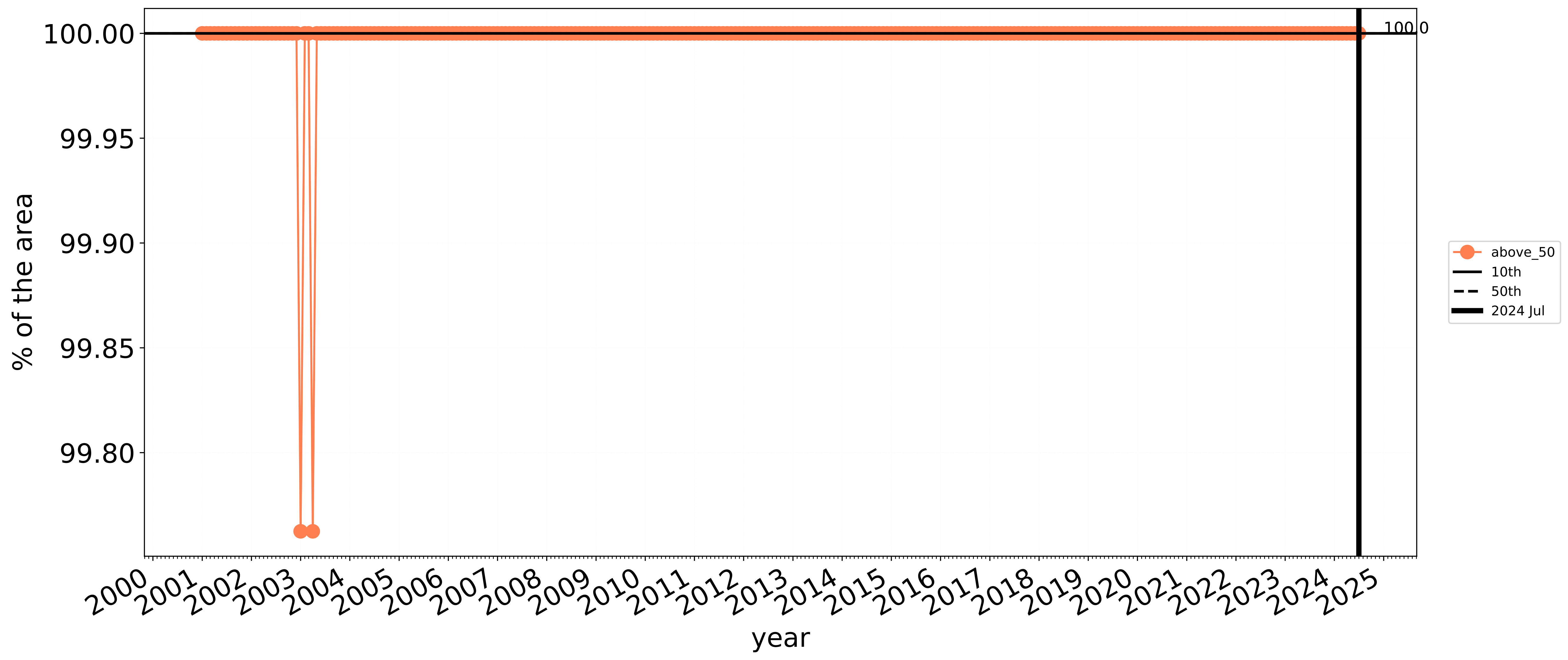
Total Vegetation Cover Decile [%]



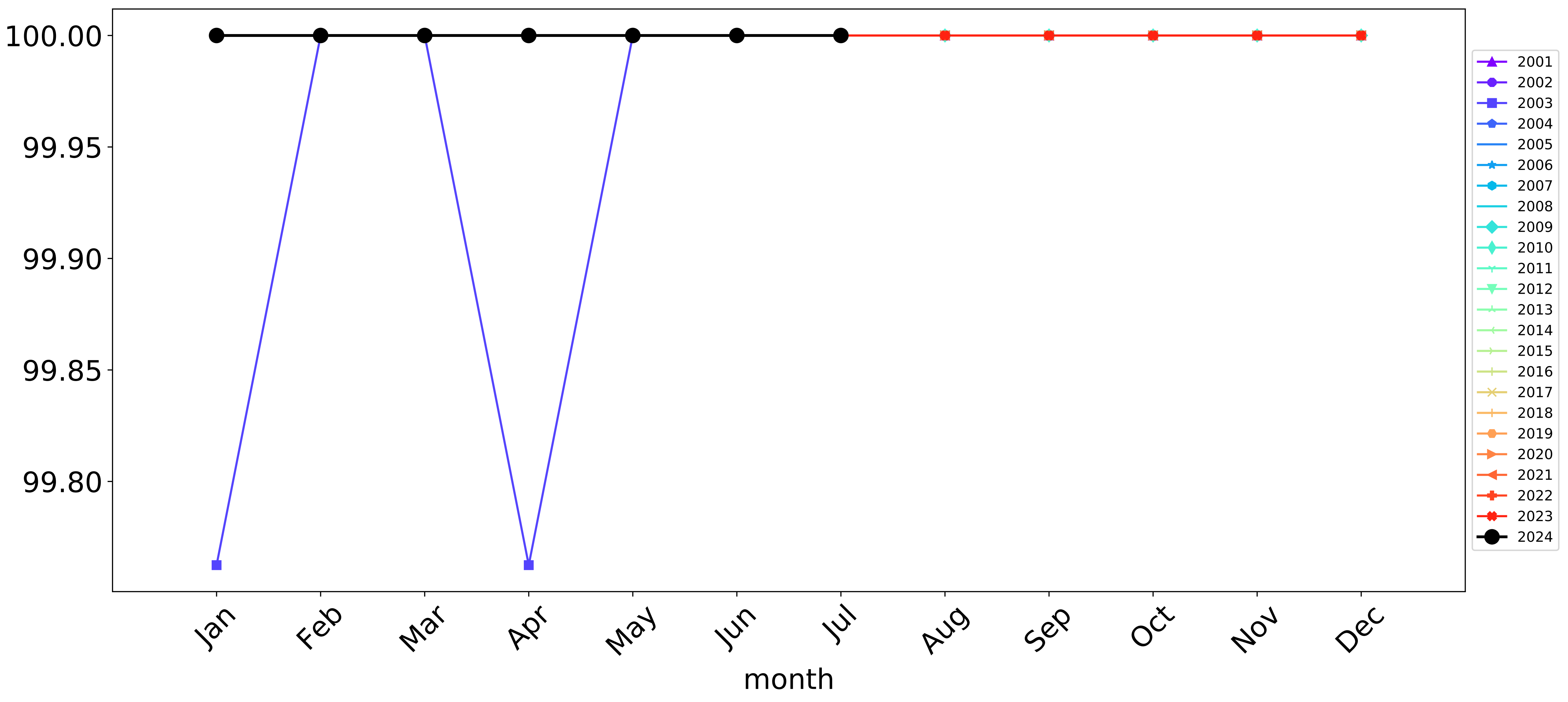
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Conservation and natural environments Forest (non woodland) timeseries

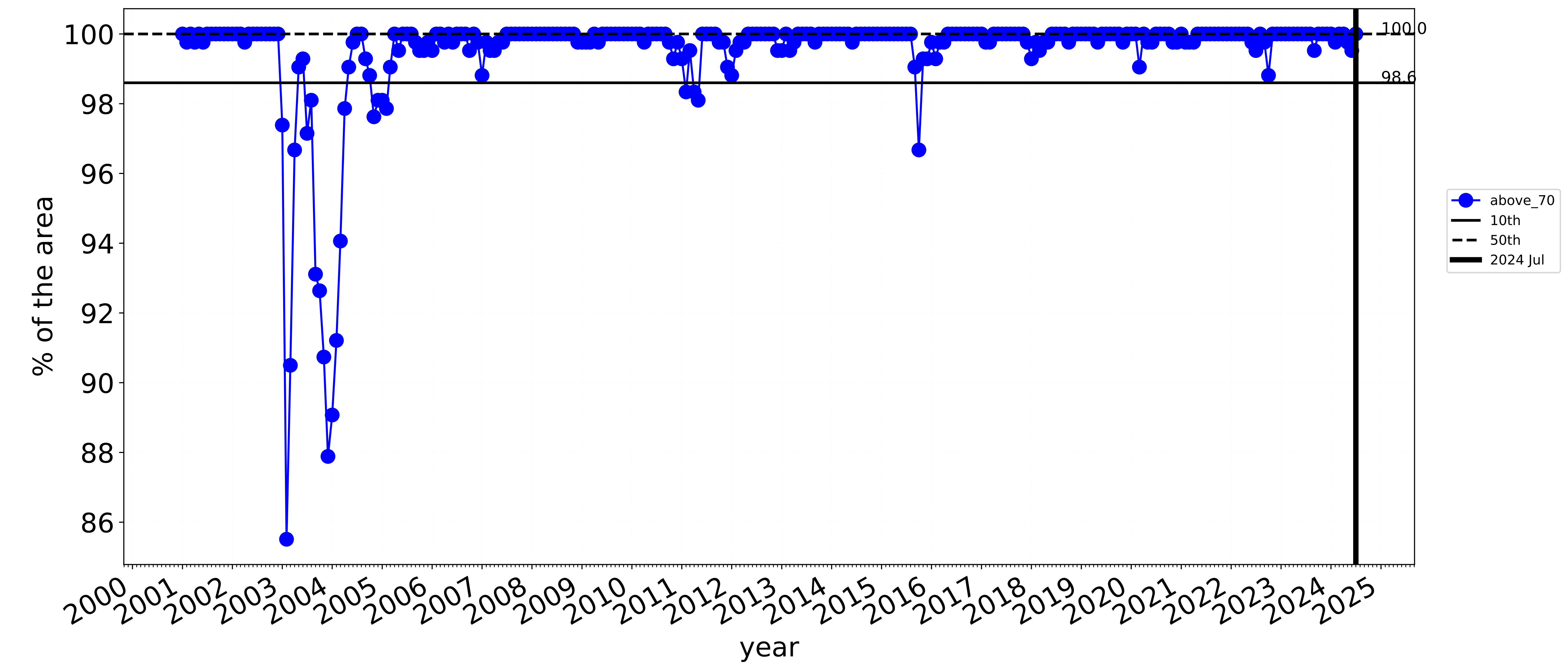
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



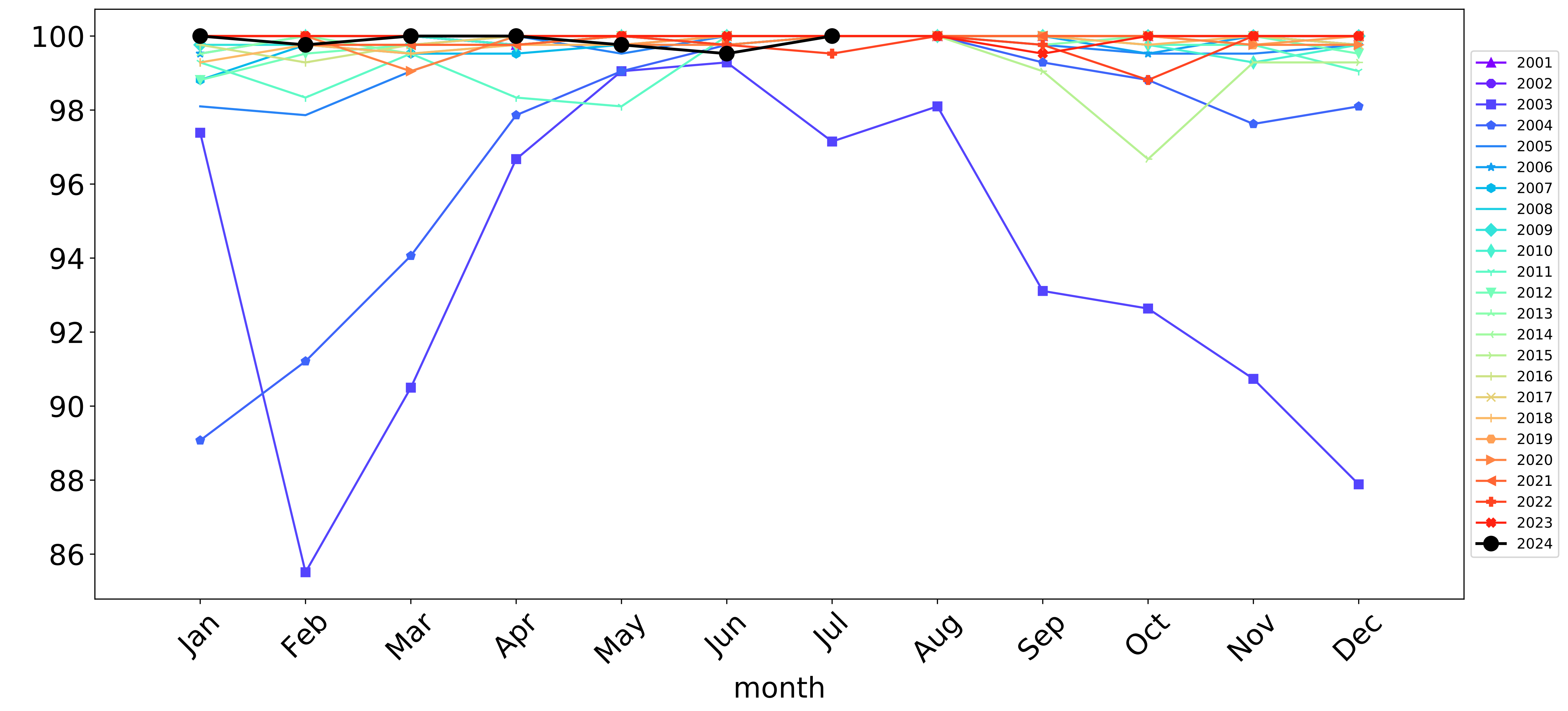
Wind erosion historical monthly area protected (Total Veg Cov >50%)

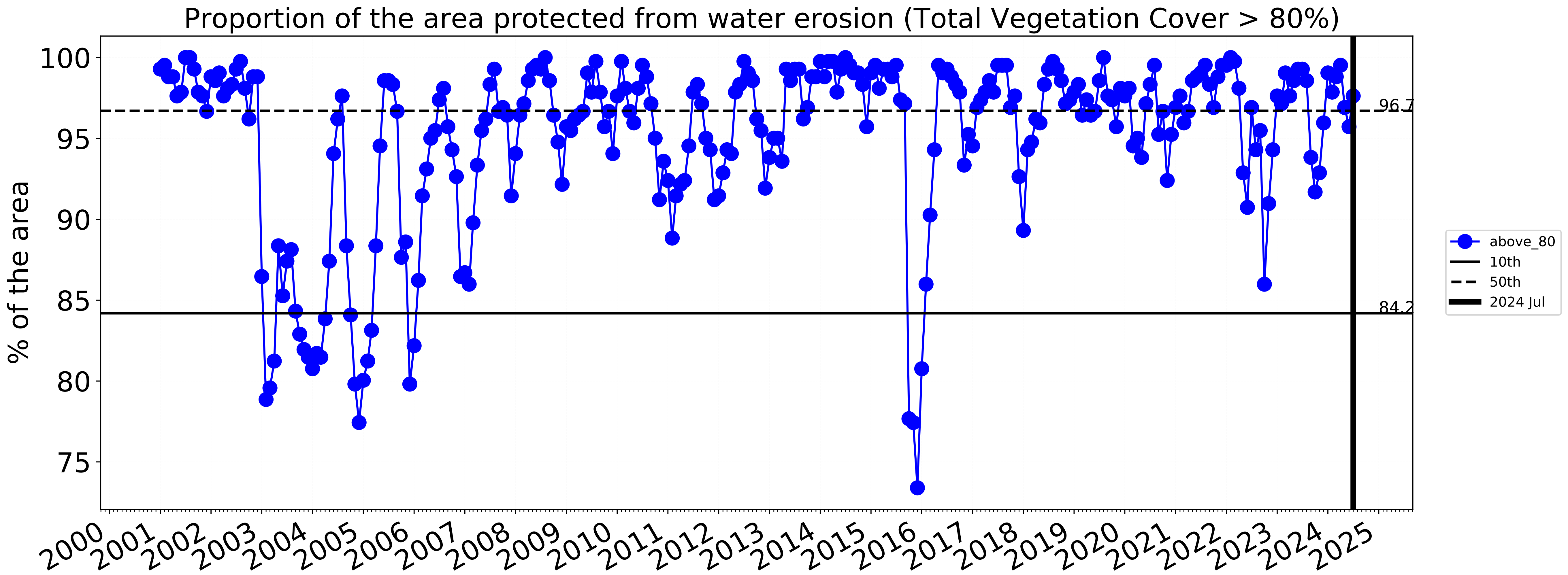


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

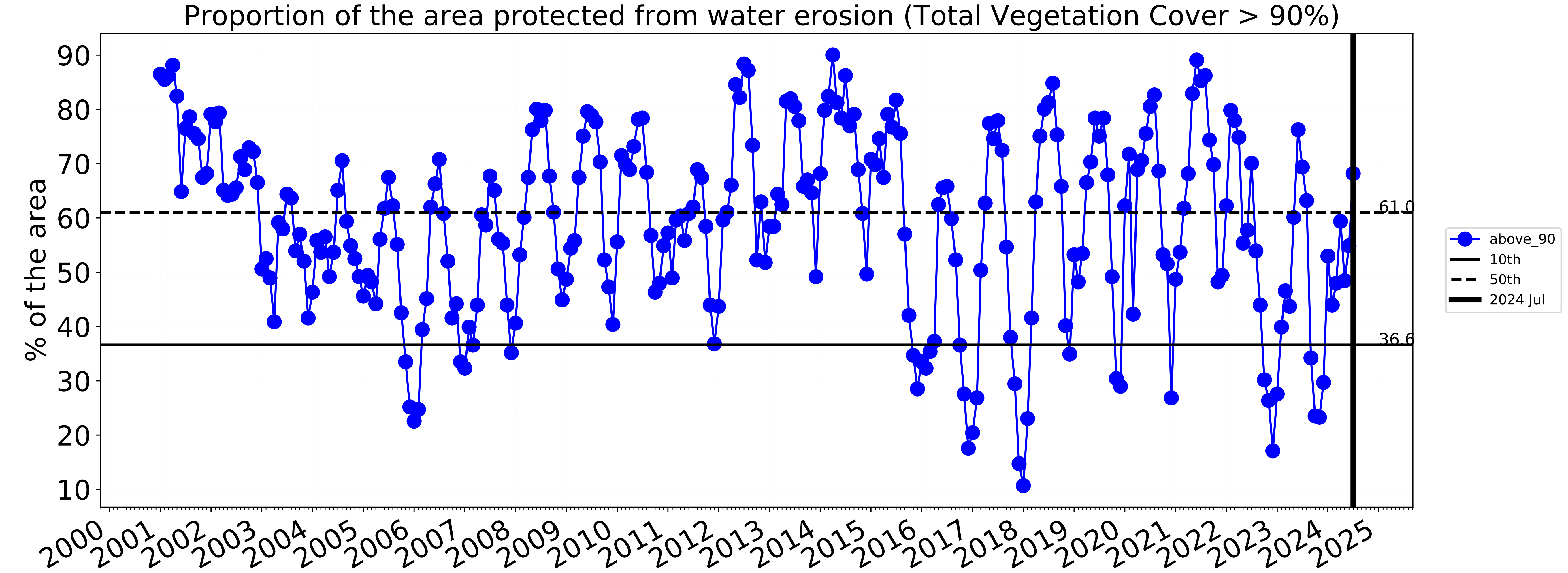


Water erosion historical monthly area protected (Total Veg Cov>70%)

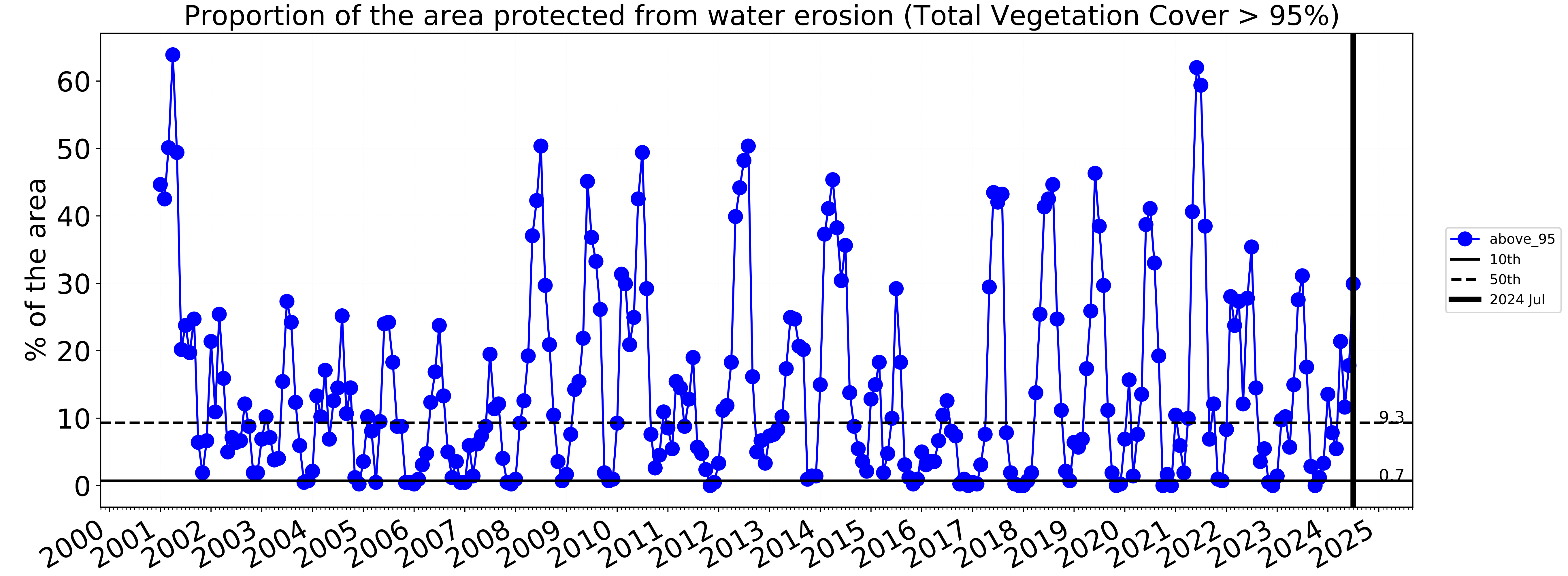




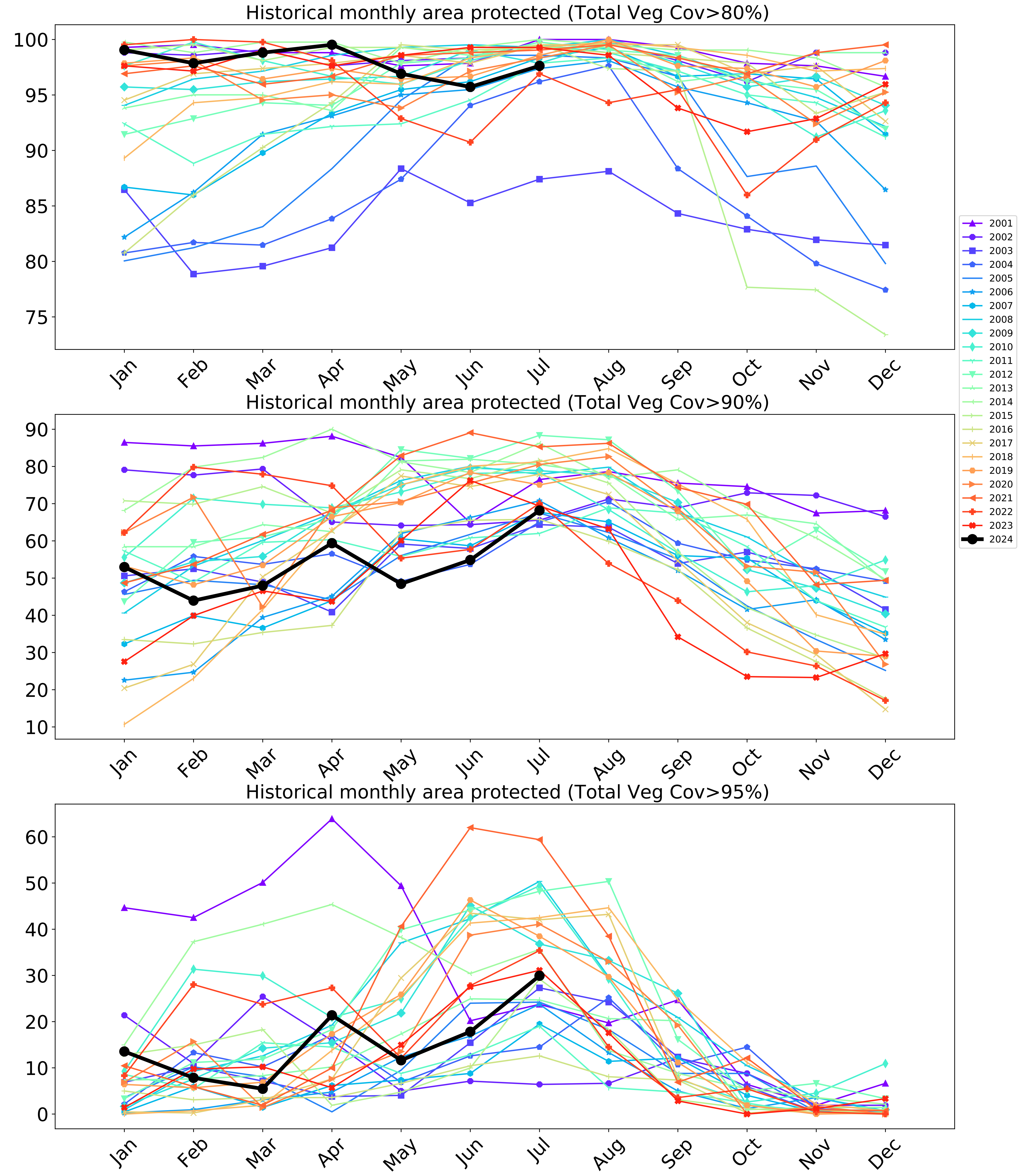
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



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



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



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

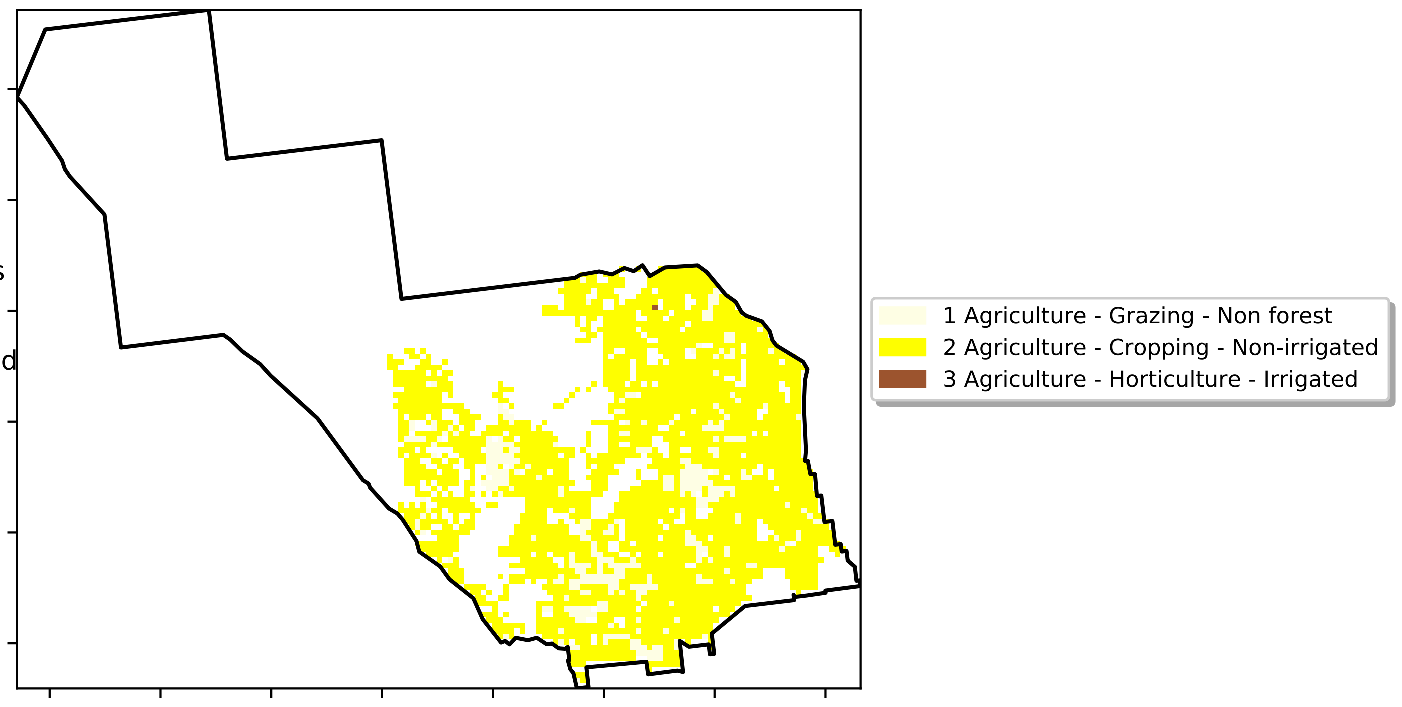
Historical monthly area protected (Total Veg Cov>90%)

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

Agriculture

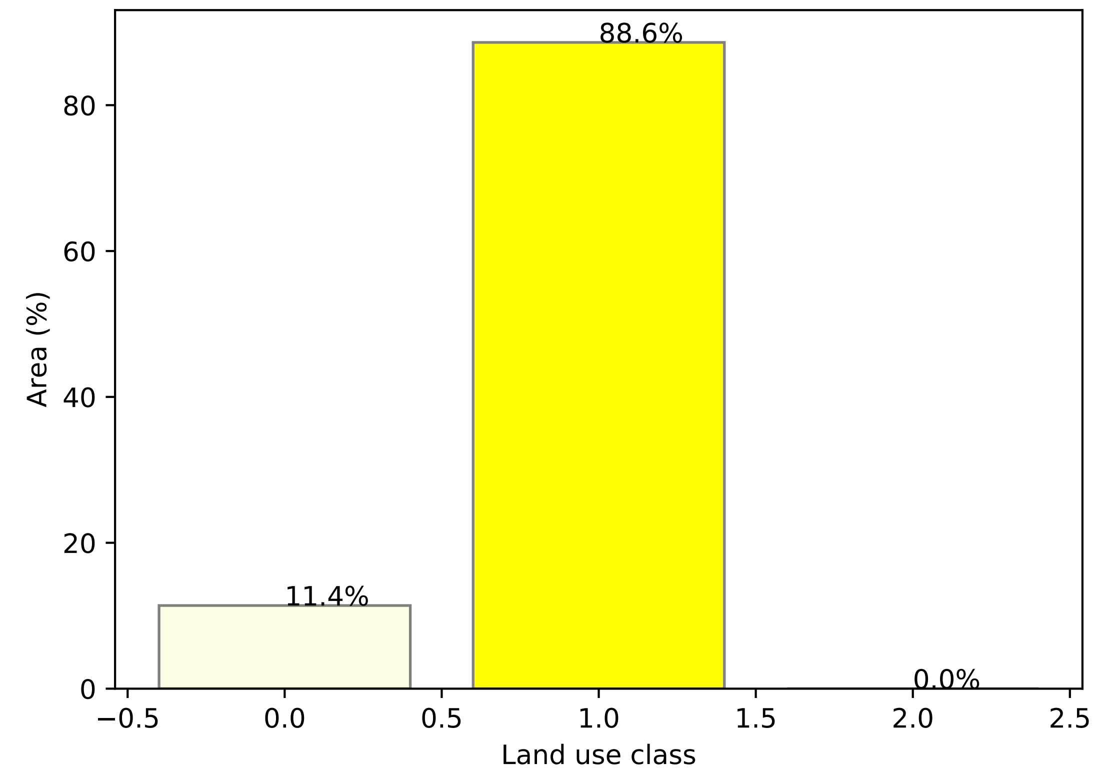
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Land use and forest cover

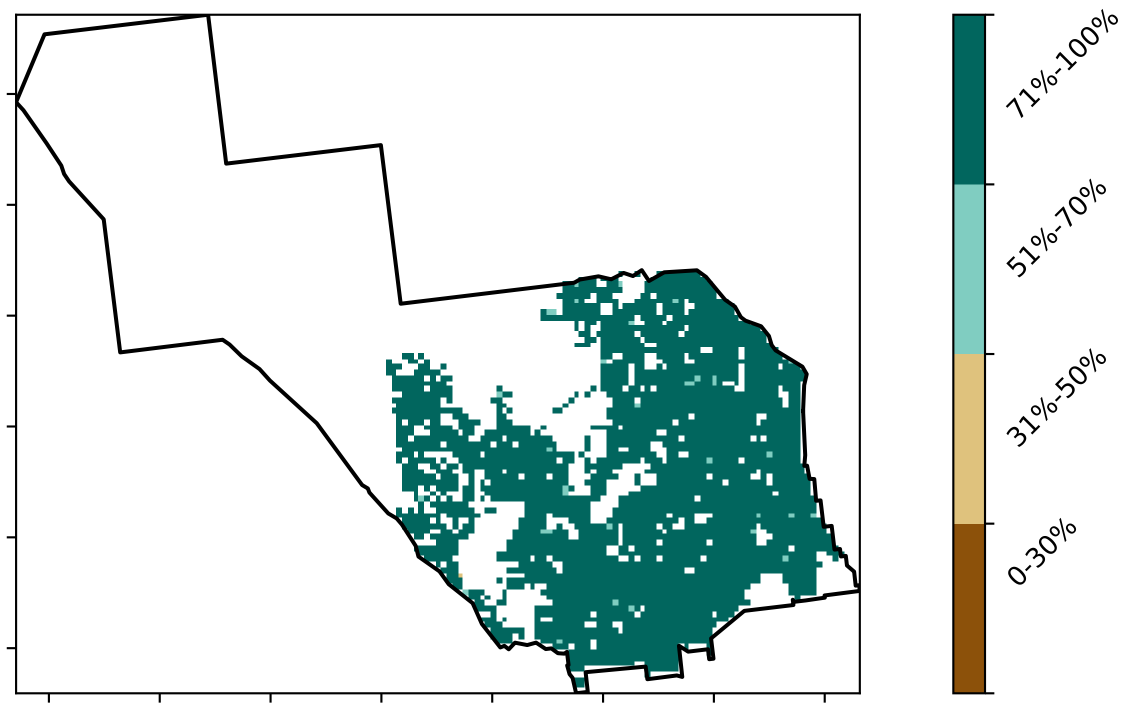


1 Agriculture - Grazing - Non forest
2 Agriculture - Cropping - Non-irrigated
3 Agriculture - Horticulture - Irrigated

Proportion of each land class in area

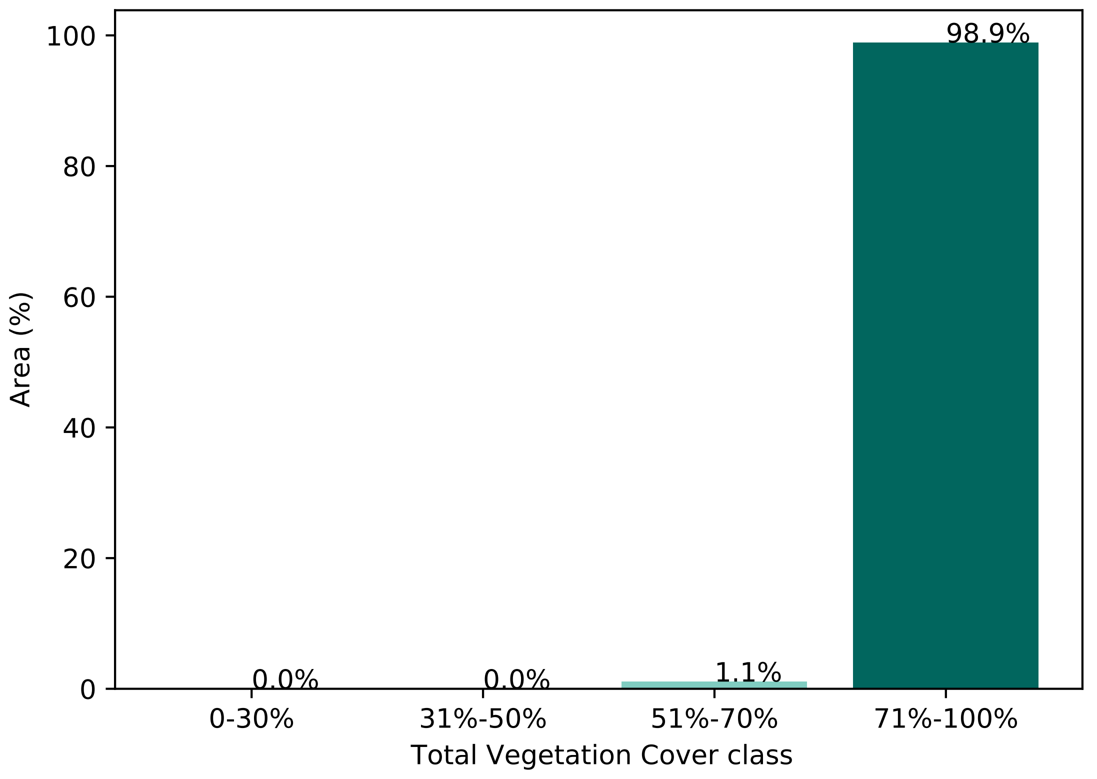


Total Vegetation Cover [%]

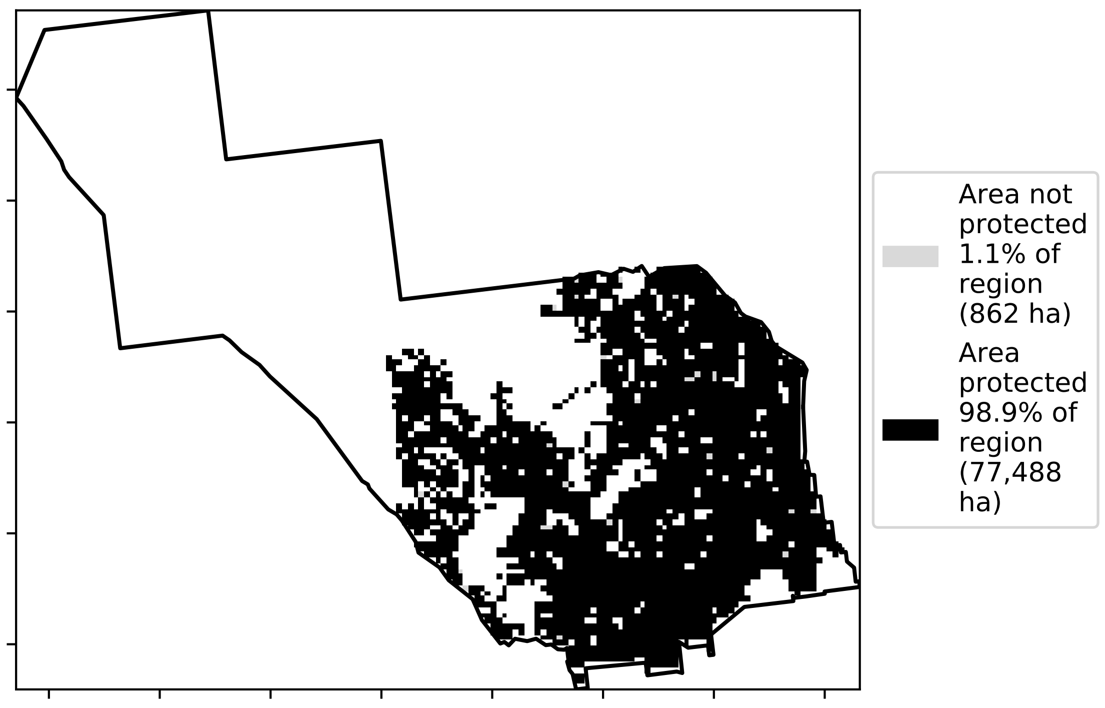


71%-100%
51%-70%
31%-50%
0-30%

Proportion of vegetation cover class in area

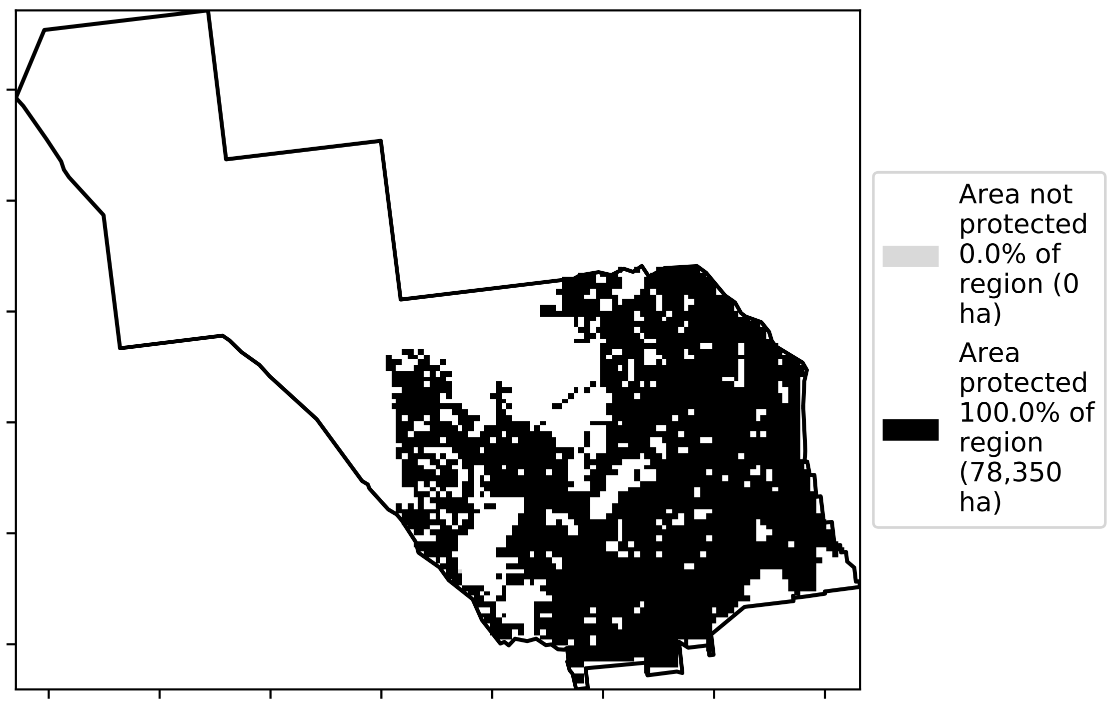


% Area protected from water erosion (>70%)



Area not protected 1.1% of region (862 ha)
Area protected 98.9% of region (77,488 ha)

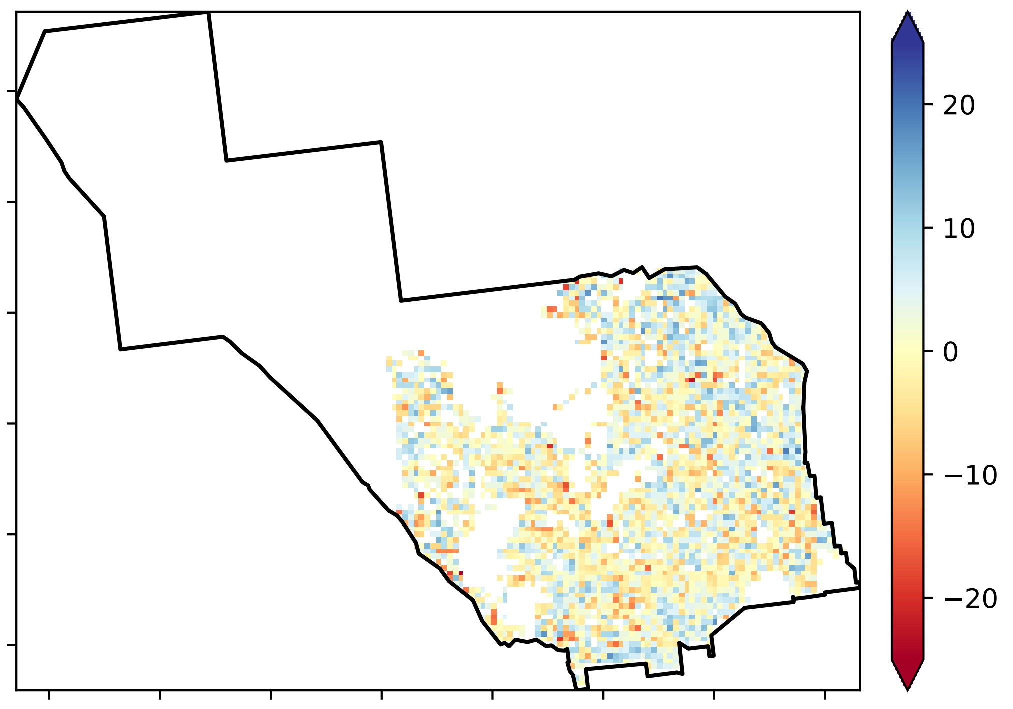
% Area protected from wind erosion (>50%)



Area not protected 0.0% of region (0 ha)
Area protected 100.0% of region (78,350 ha)

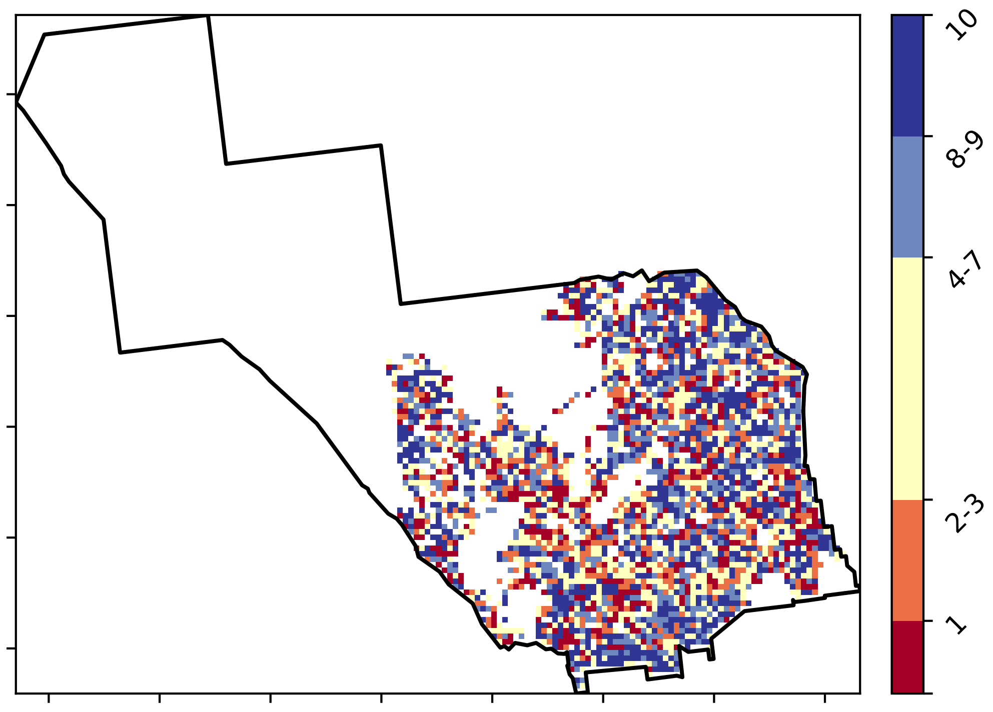
Total Vegetation Cover Anomaly [%]

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.

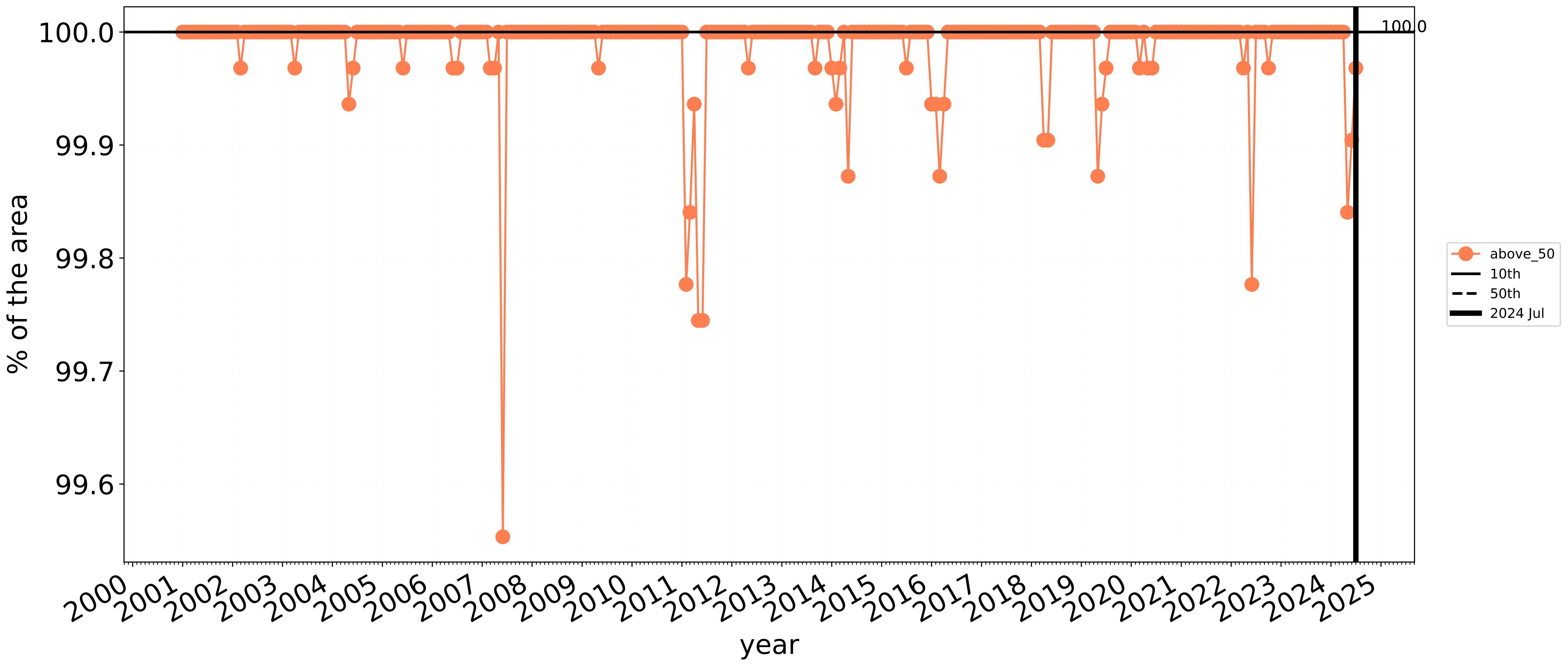


Total Vegetation Cover Decile [%]

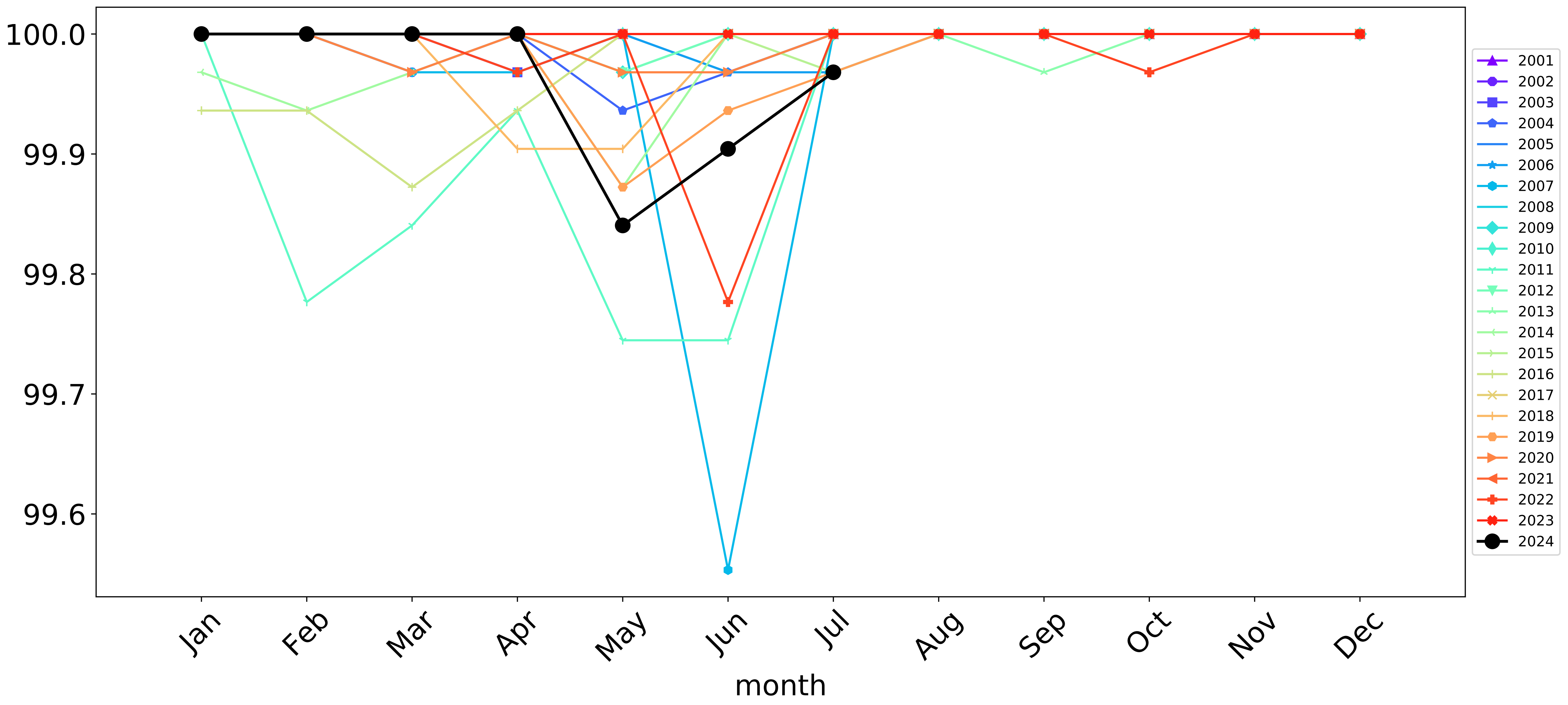
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



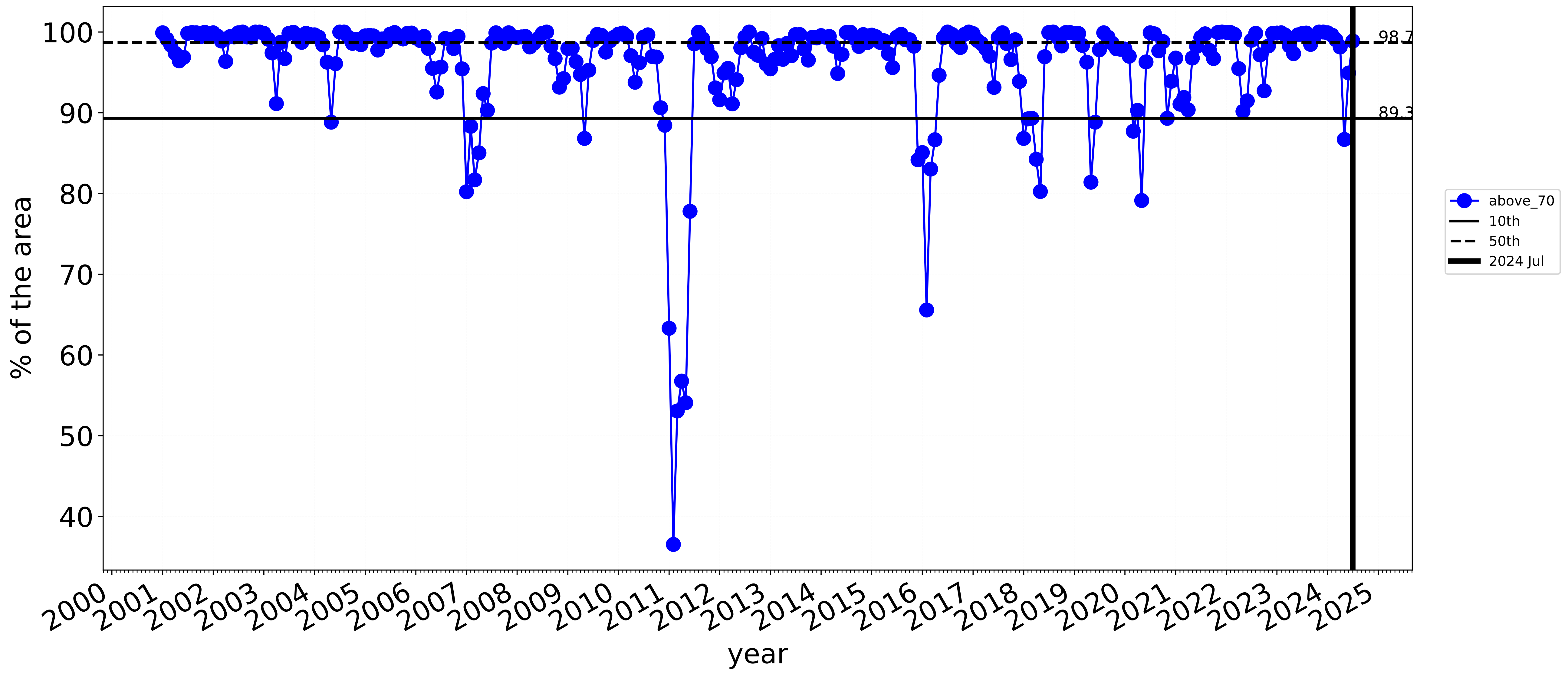
Agriculture timeseries



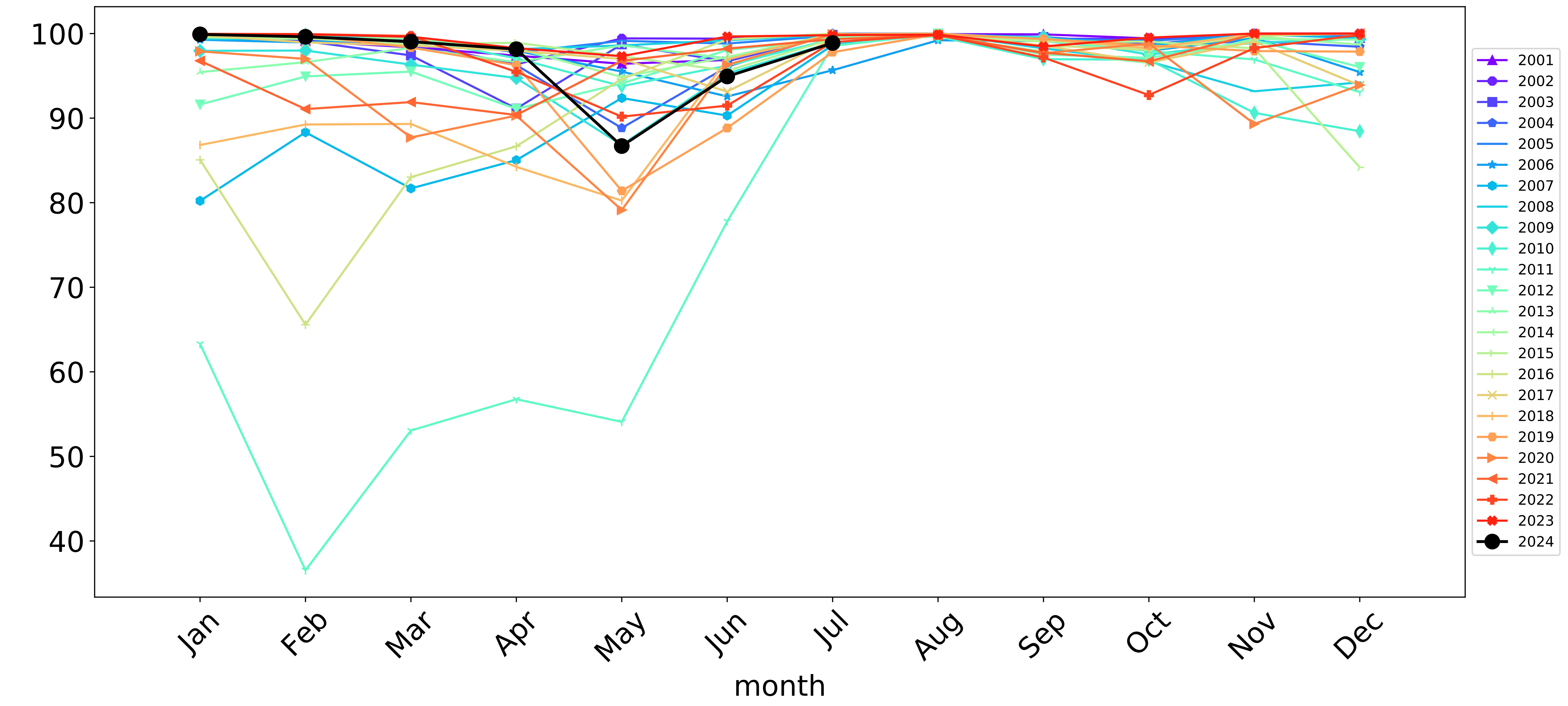
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



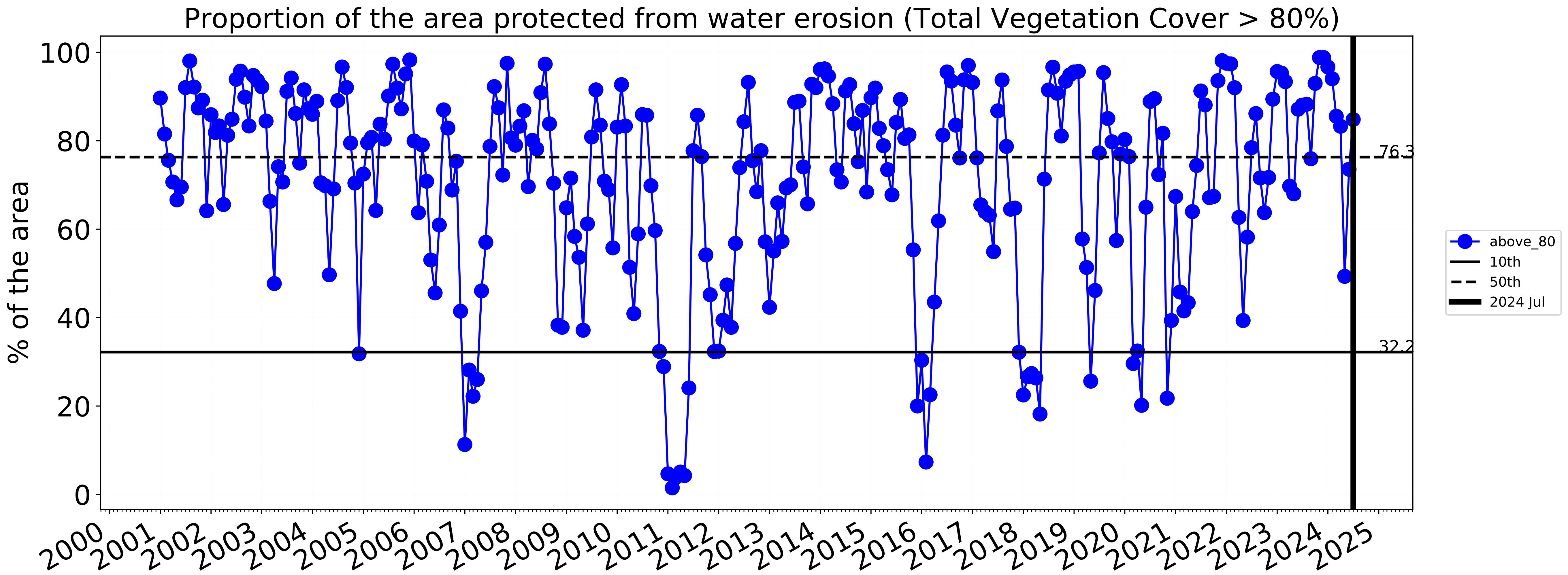
Wind erosion historical monthly area protected (Total Veg Cov >50%)

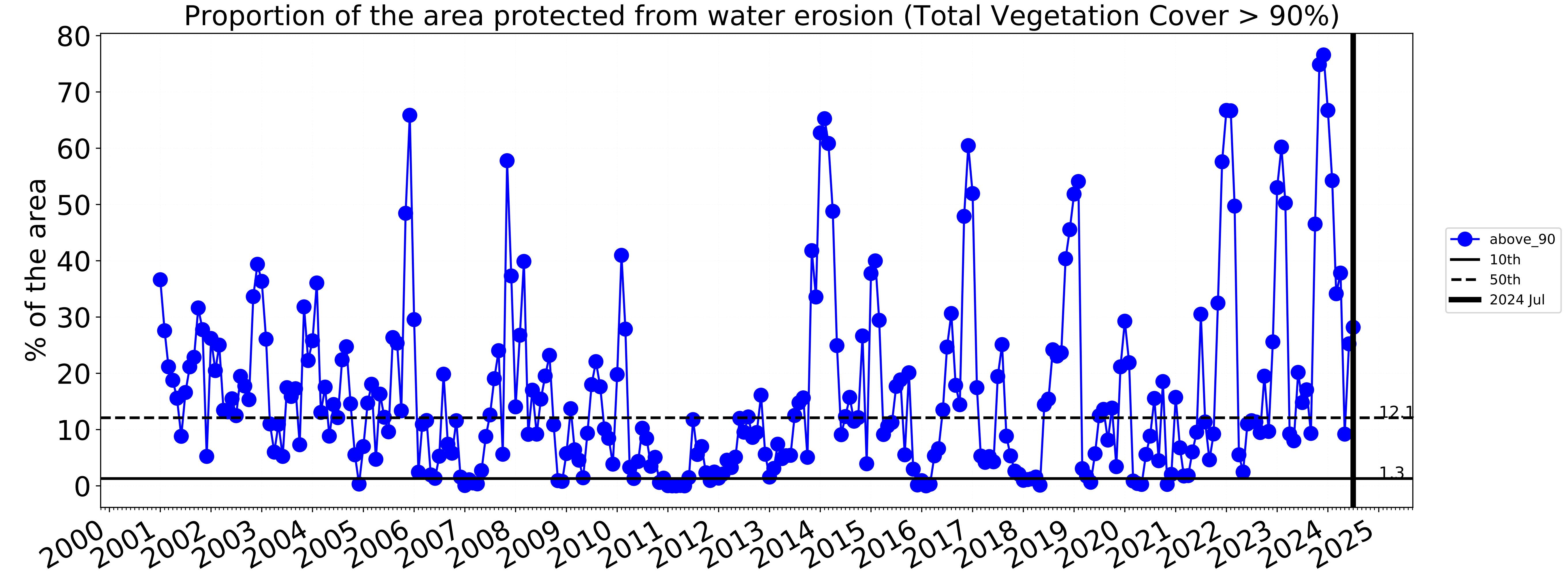


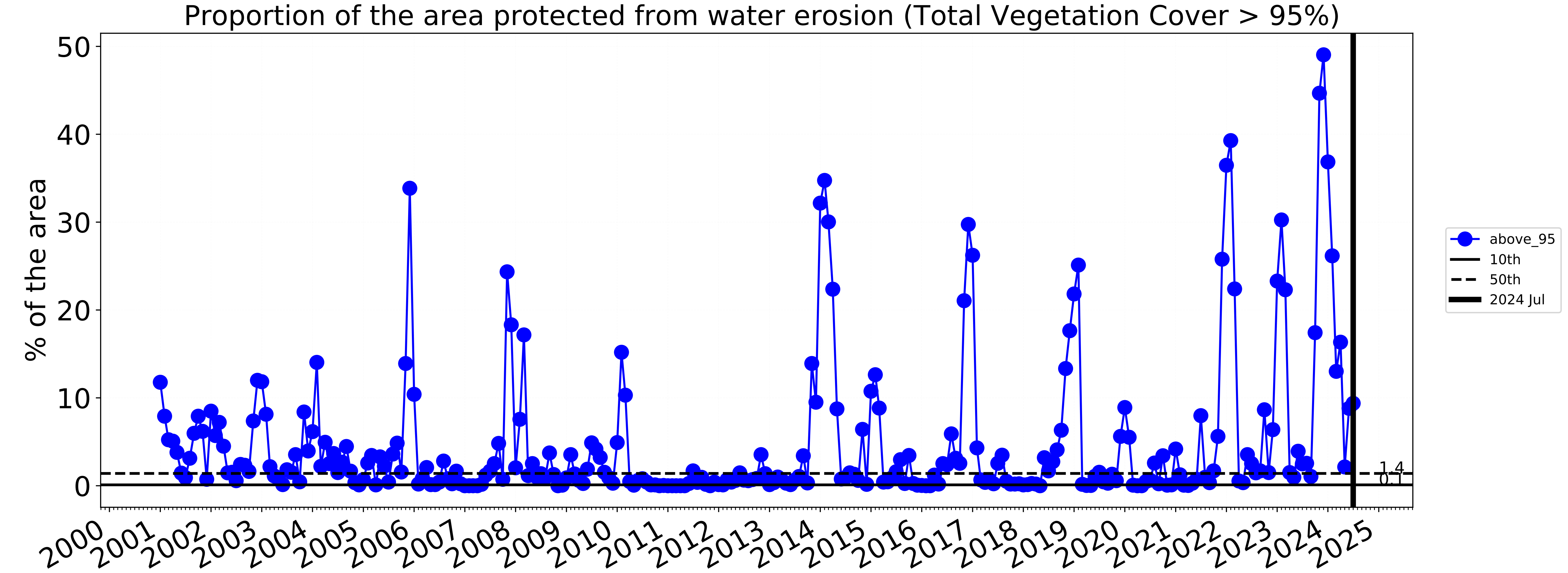
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

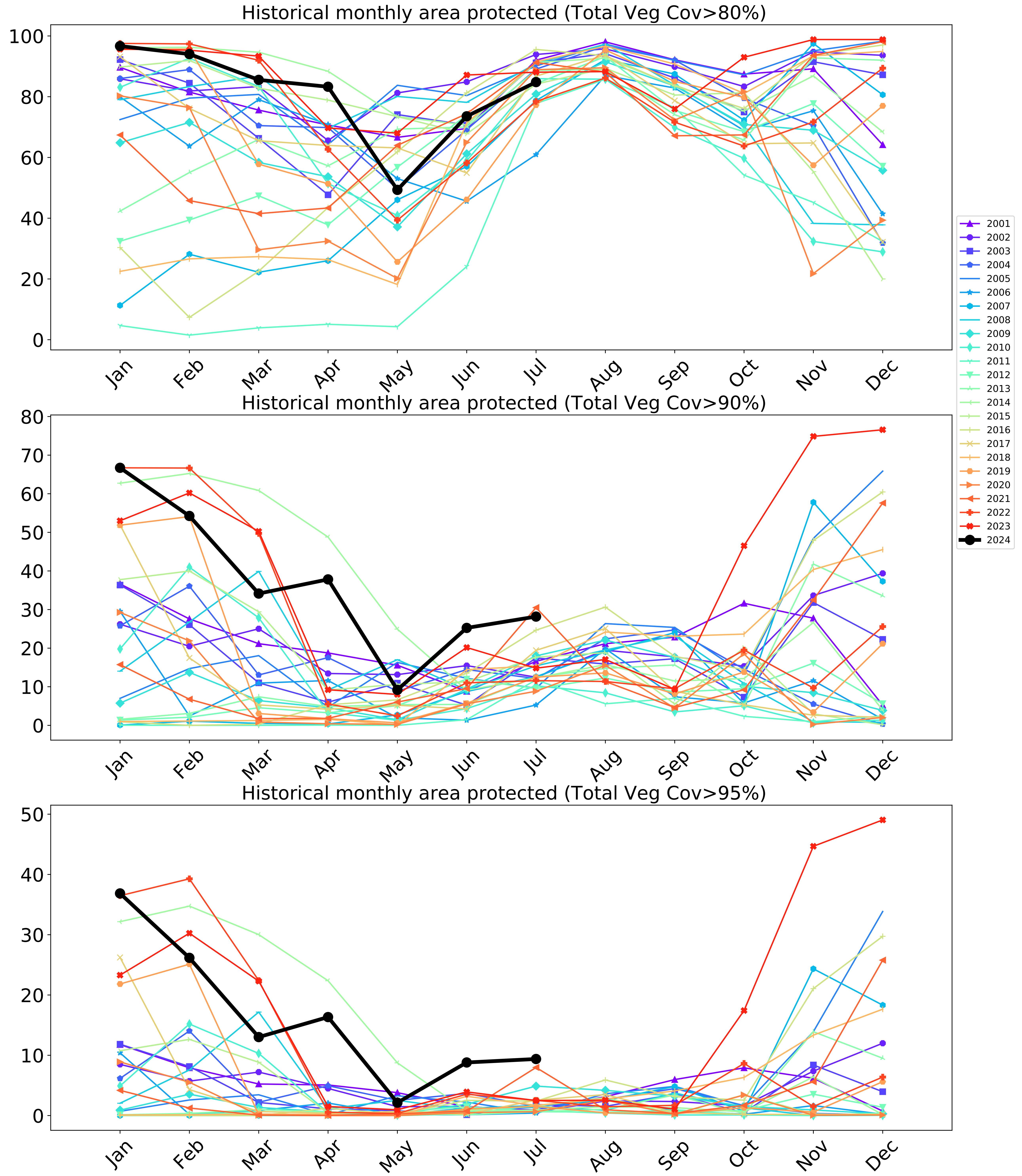


Water erosion historical monthly area protected (Total Veg Cov>70%)


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


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


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


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

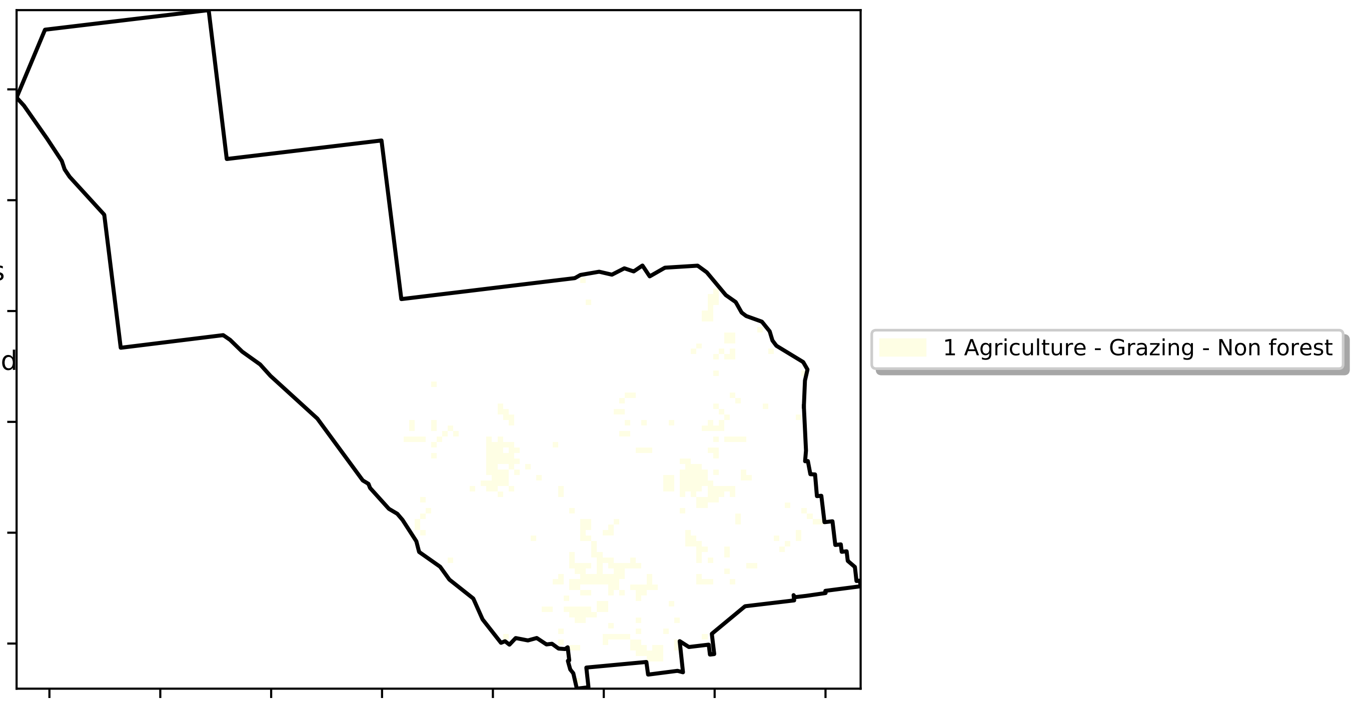
Historical monthly area protected (Total Veg Cov>90%)

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

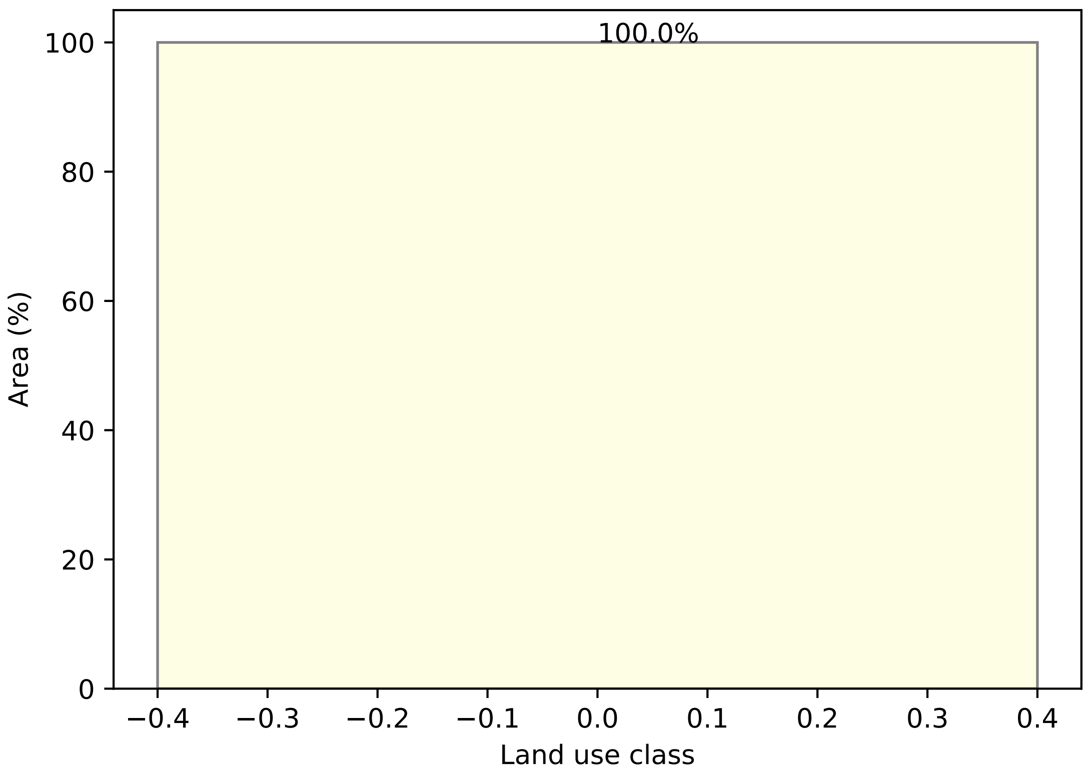
Grazing

Land use and forest cover

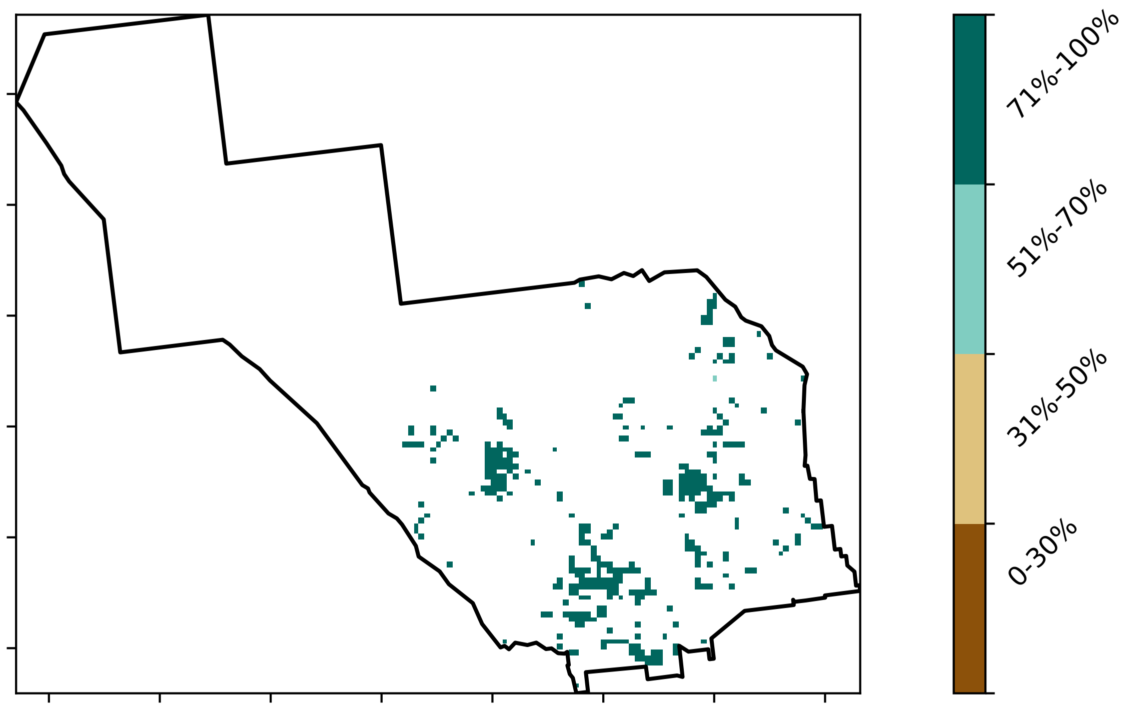
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)


1 Agriculture - Grazing - Non forest

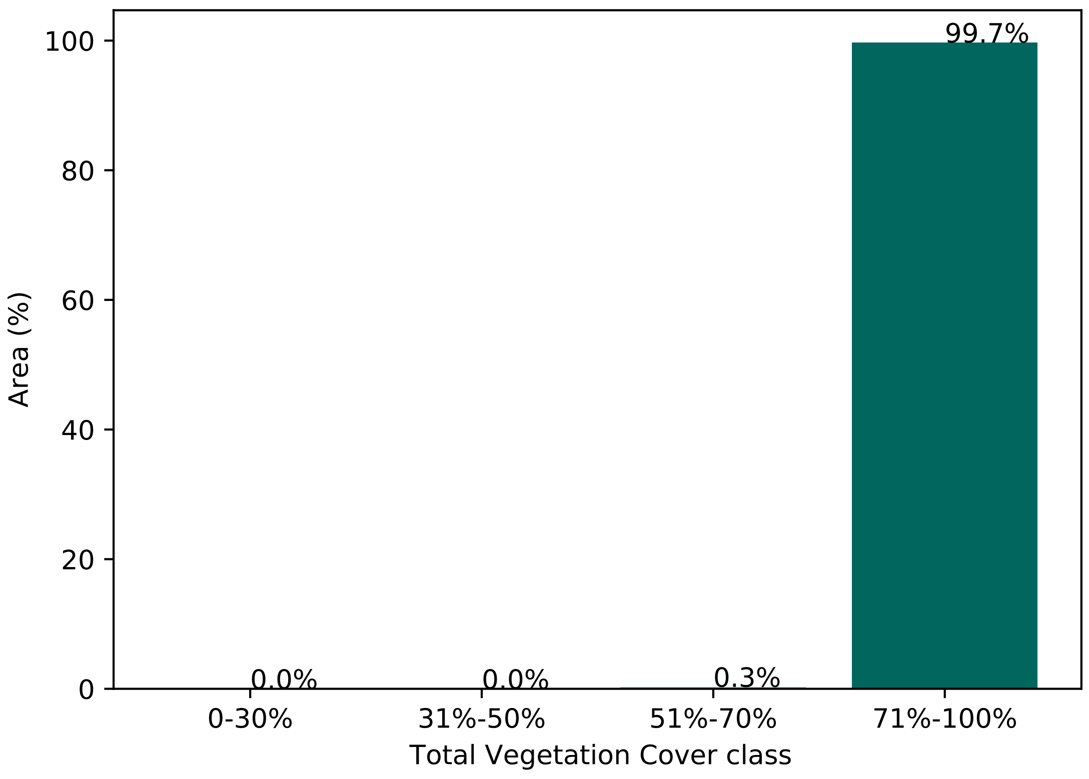
Proportion of each land class in area



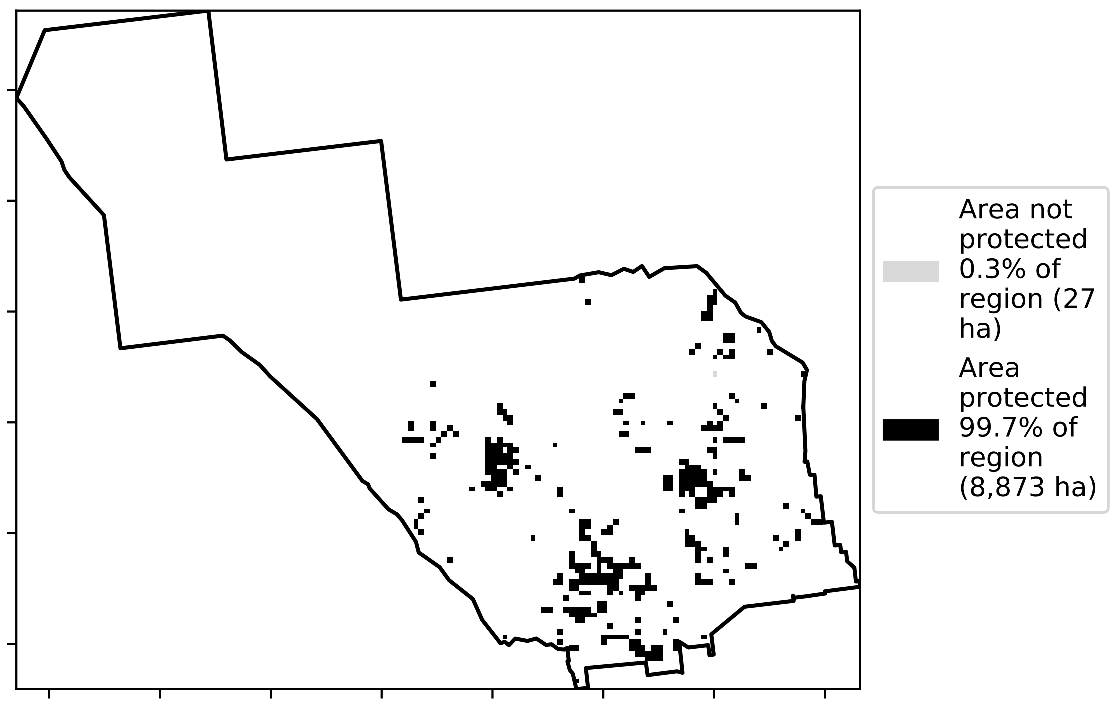
Total Vegetation Cover [%]


71%-100%
51%-70%
31%-50%
0-30%

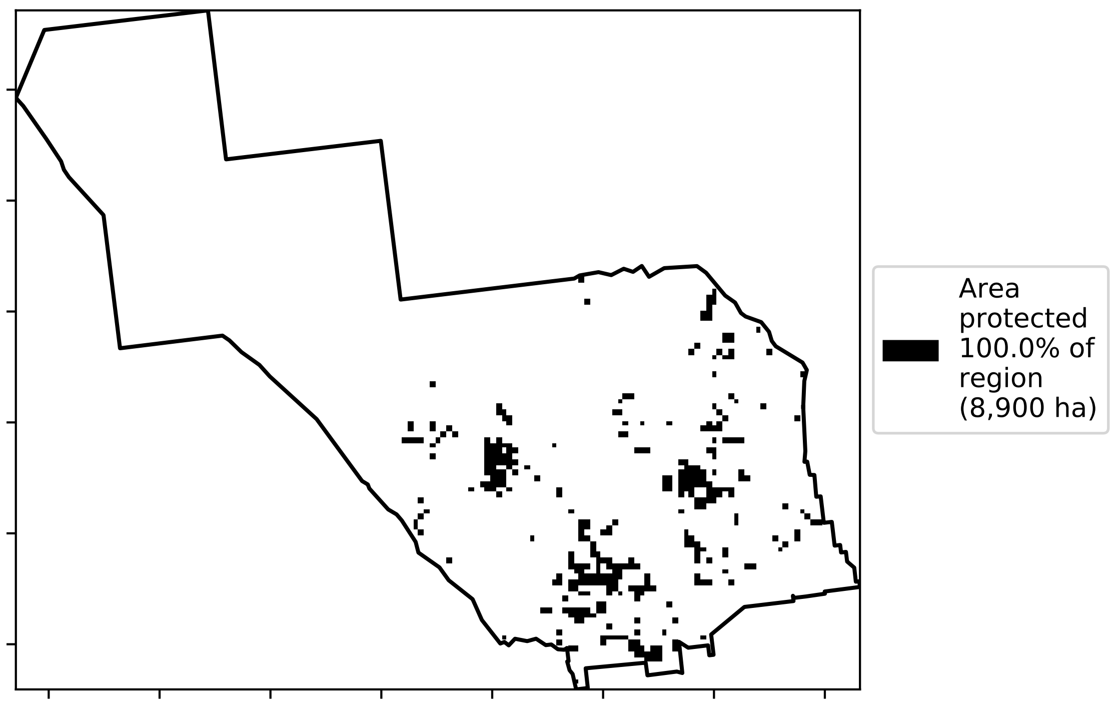
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

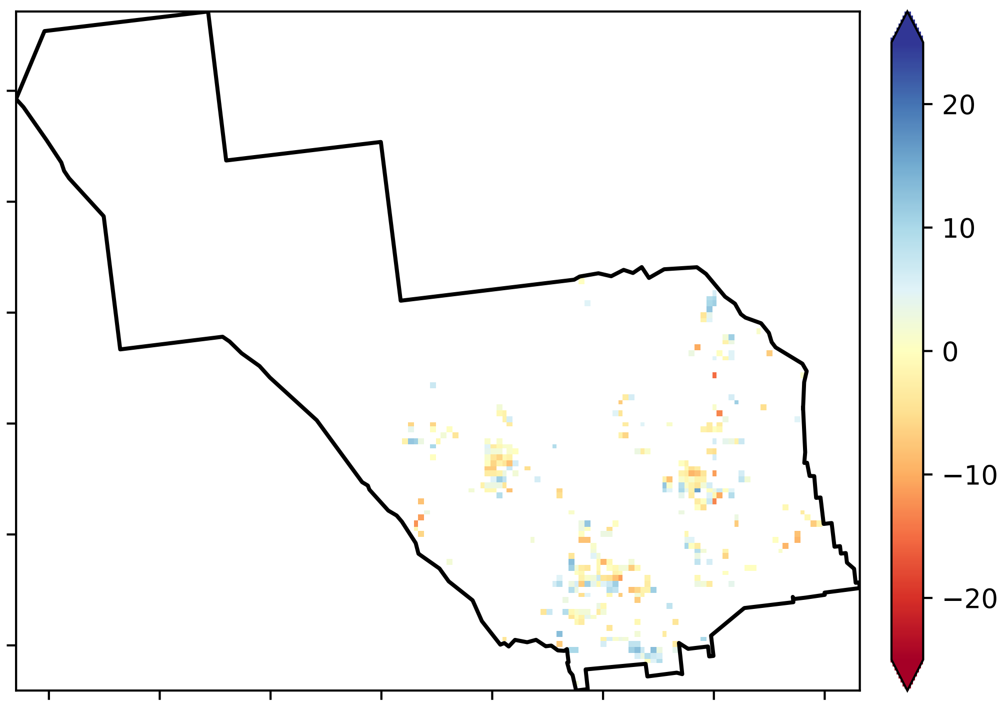

Area not protected 0.3% of region (27 ha)
Area protected 99.7% of region (8,873 ha)

% Area protected from wind erosion (>50%)


Area protected 100.0% of region (8,900 ha)

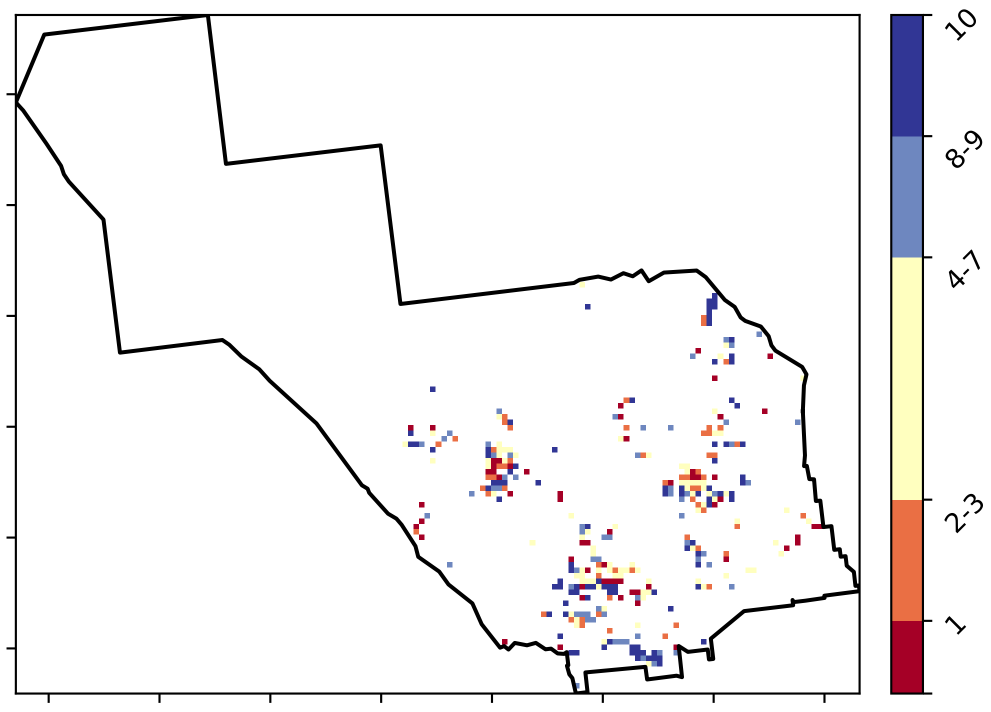
Total Vegetation Cover Anomaly [%]

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 [%]

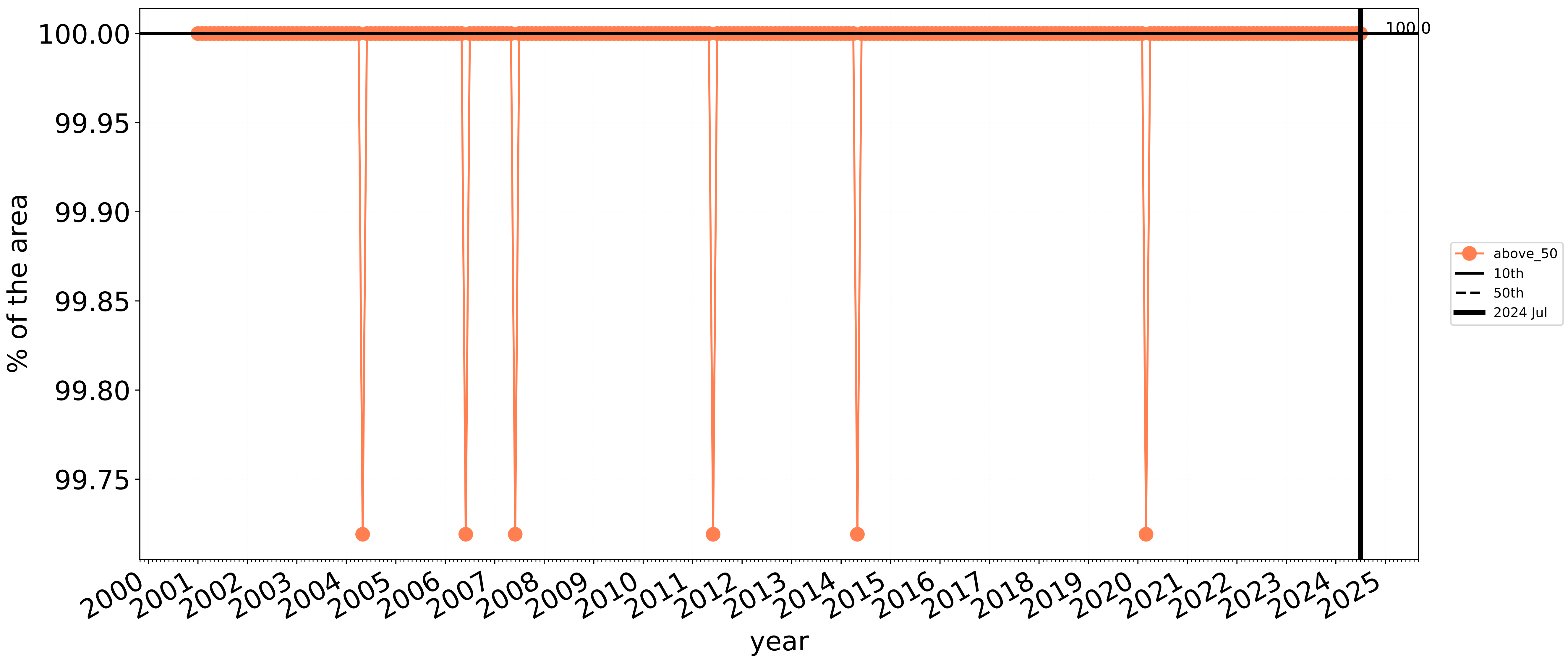
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



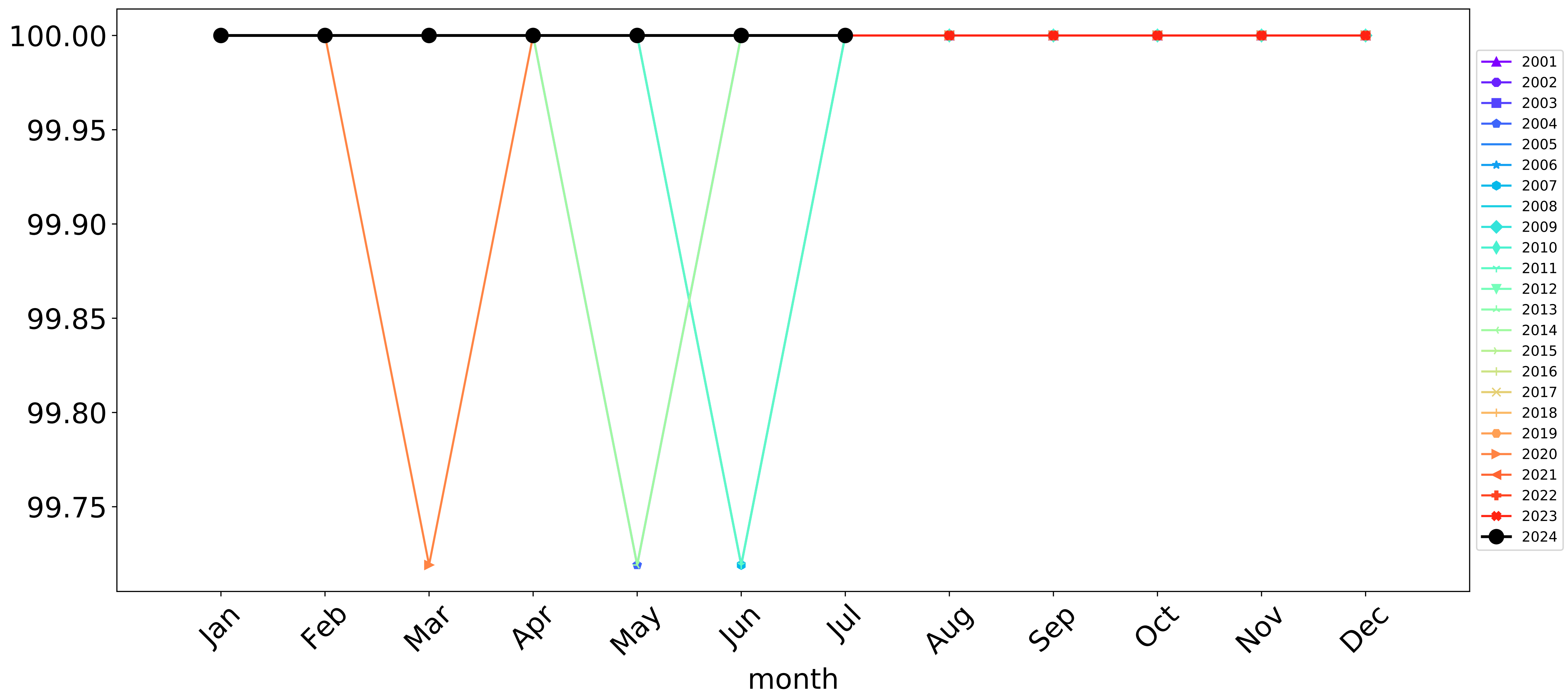
CSIRO tern Ecosystem Research Infrastructure Australian Government National Landcare Programme NSW GOVERNMENT

Grazing timeseries

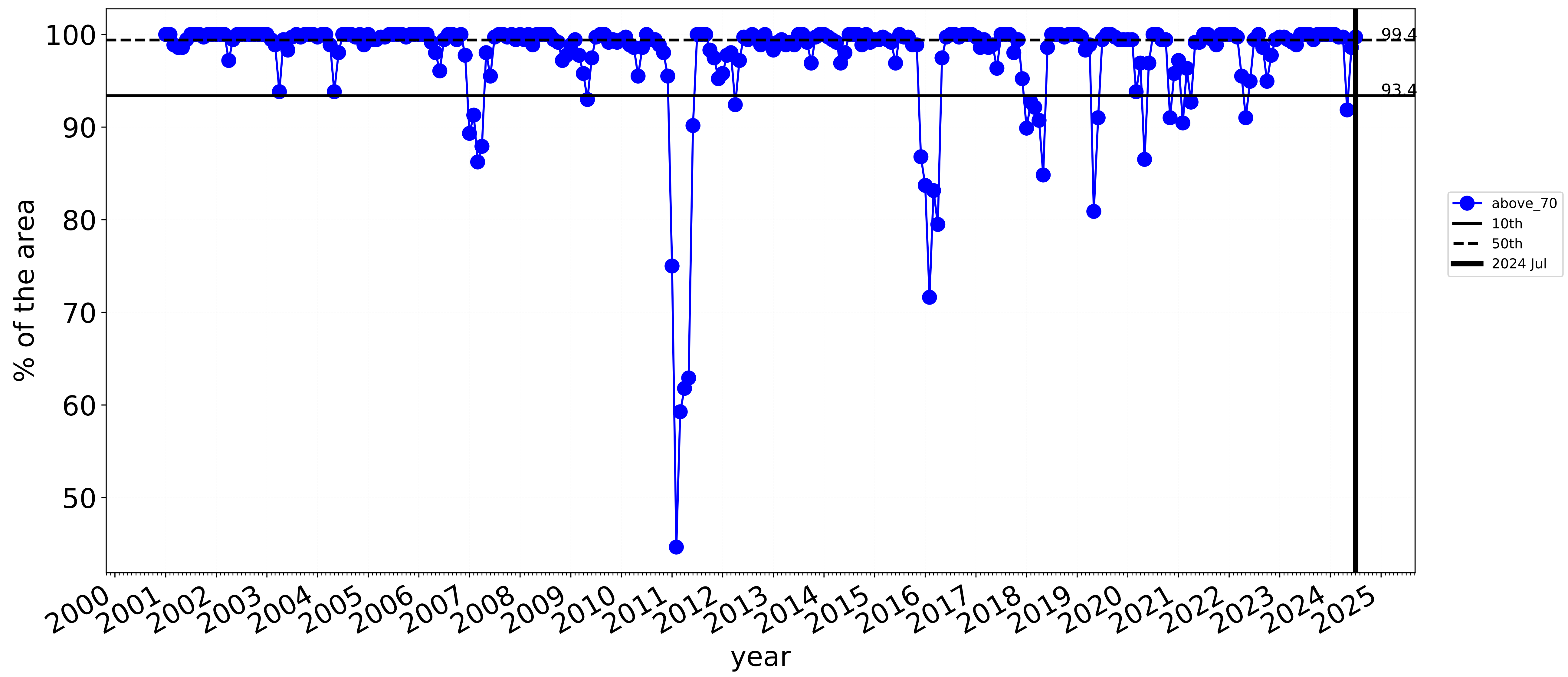
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



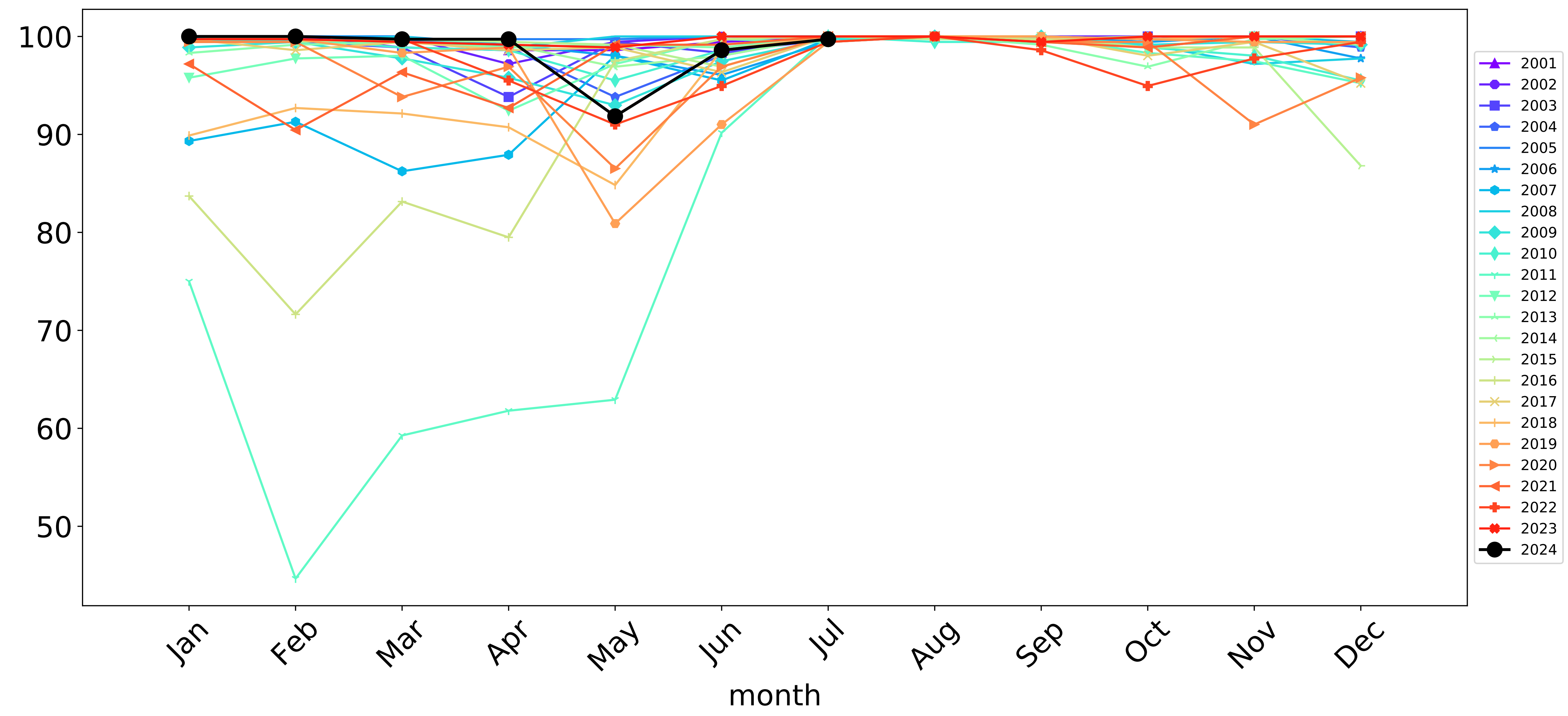
Wind erosion historical monthly area protected (Total Veg Cov >50%)

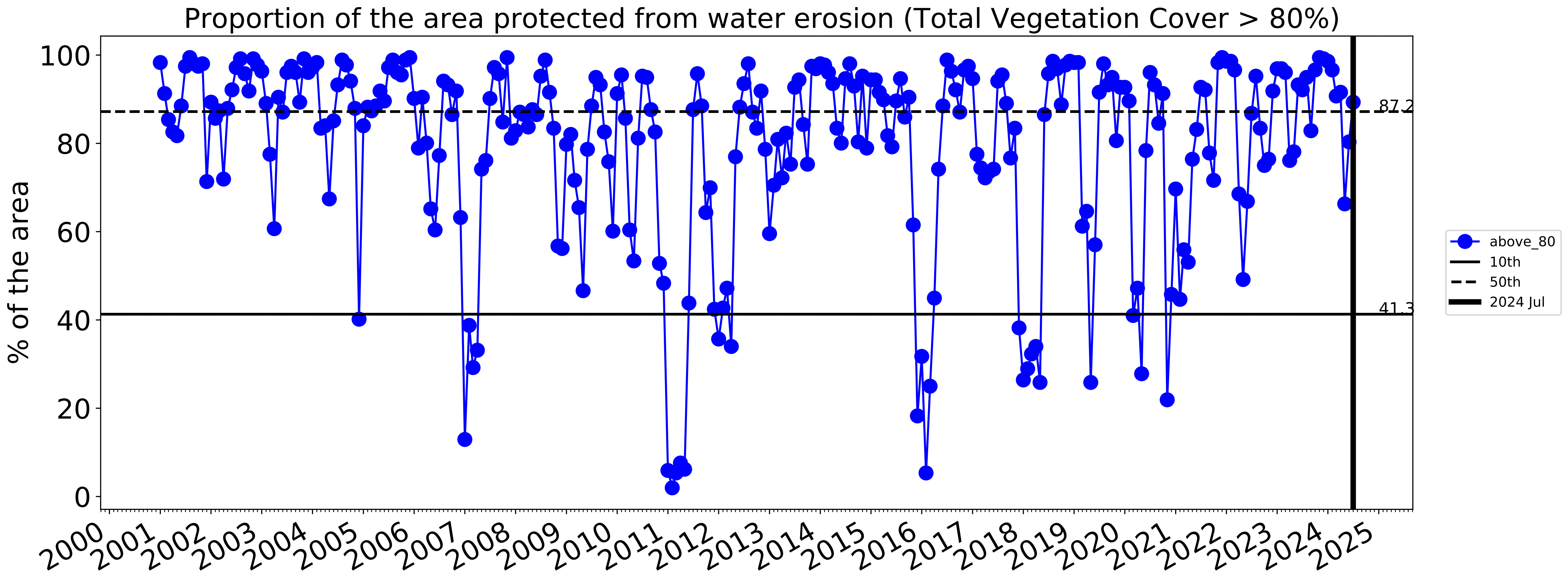


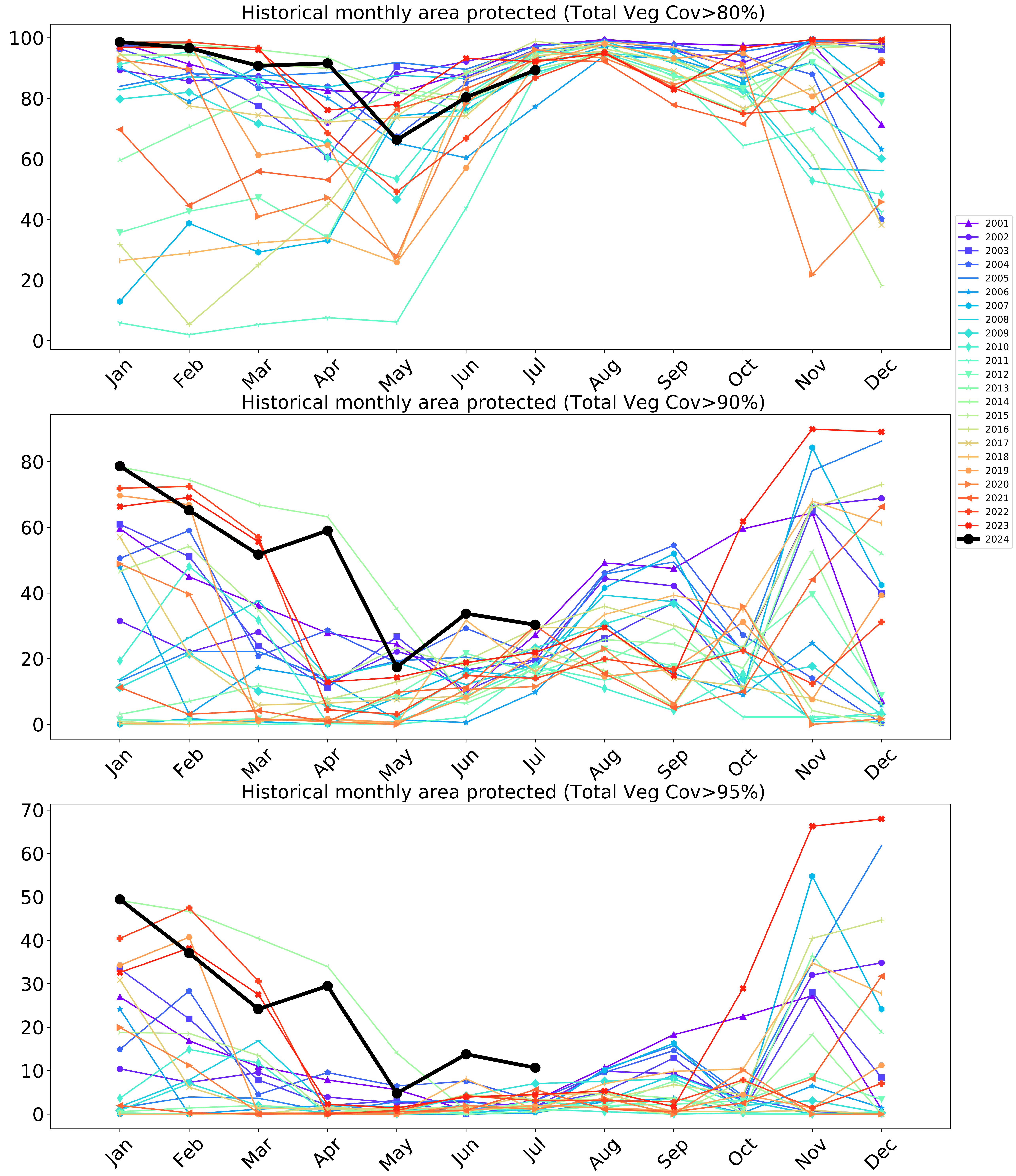
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

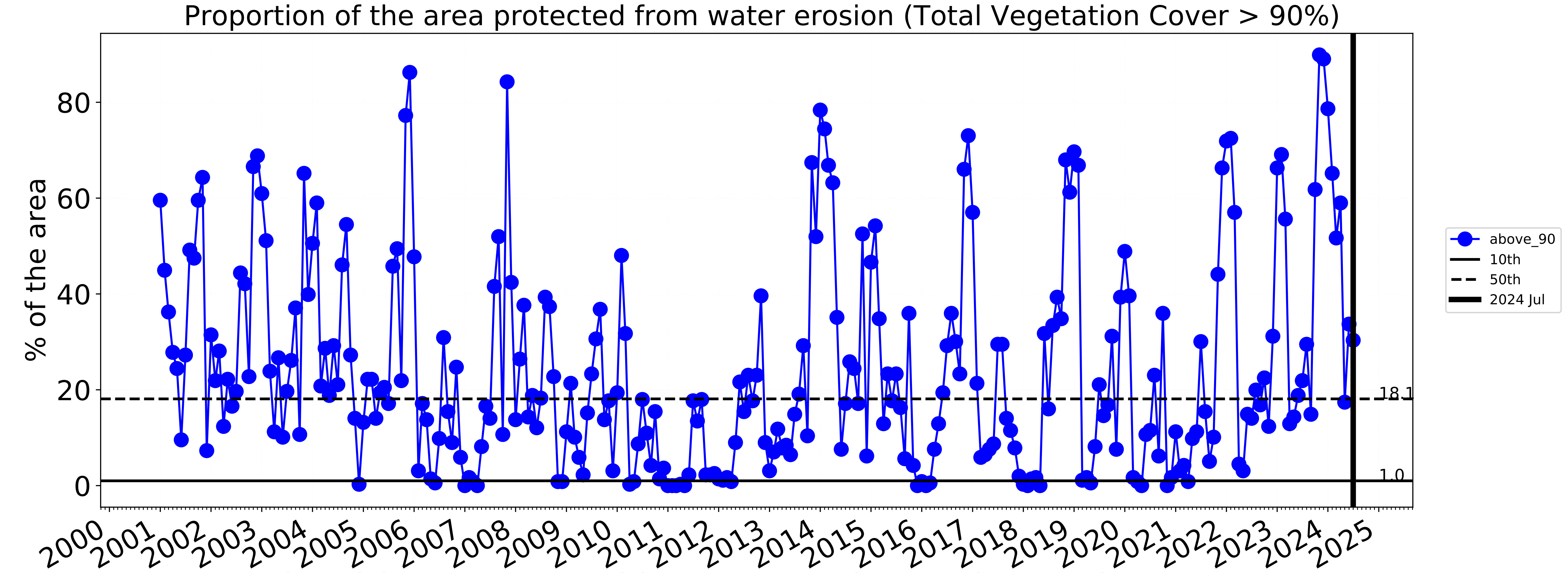


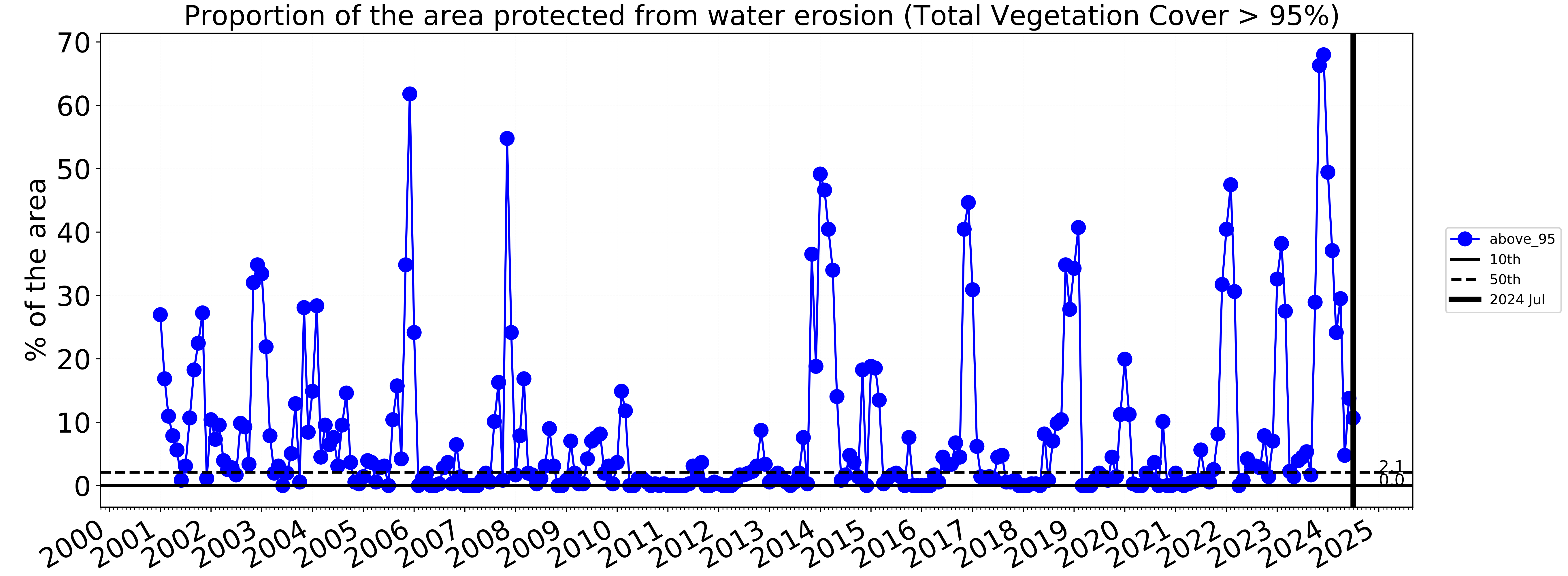

Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)


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

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

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


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


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

CSIRO

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Ecosystem Research Infrastructure

Australian Government

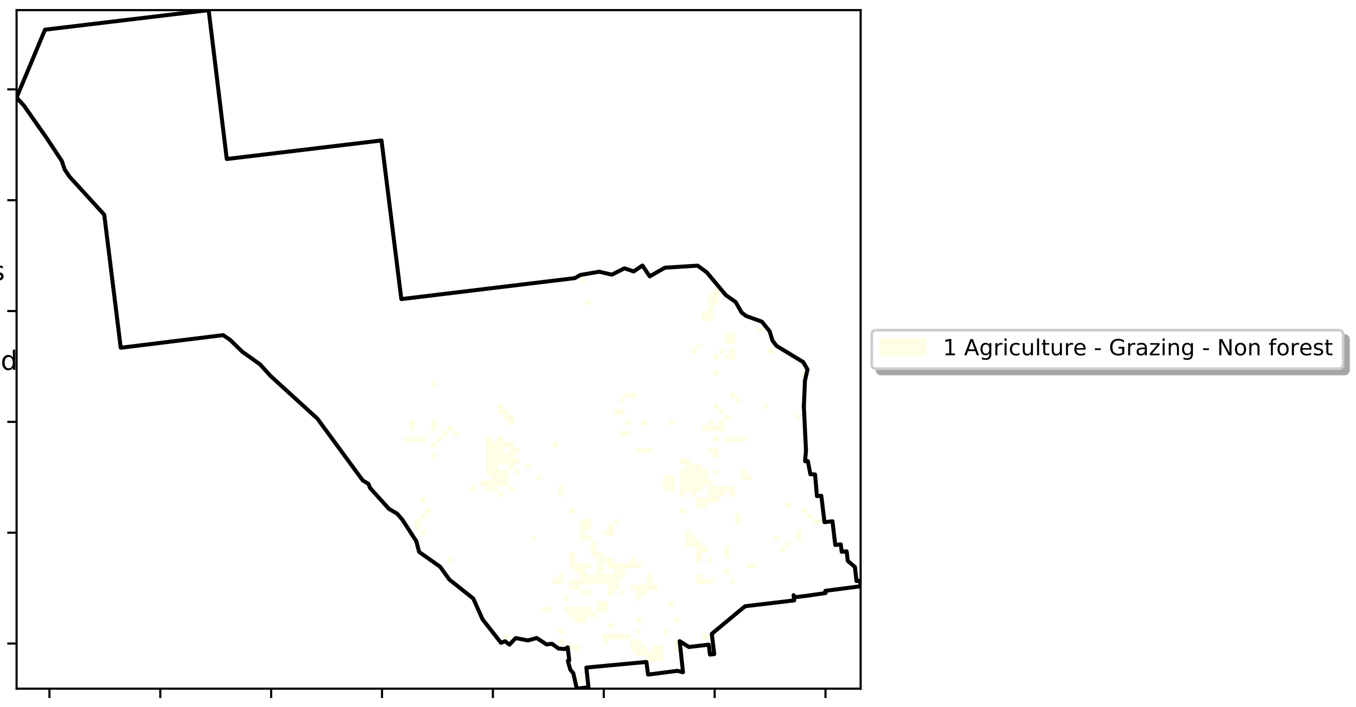
National
Landcare
Programme

NSW GOVERNMENT

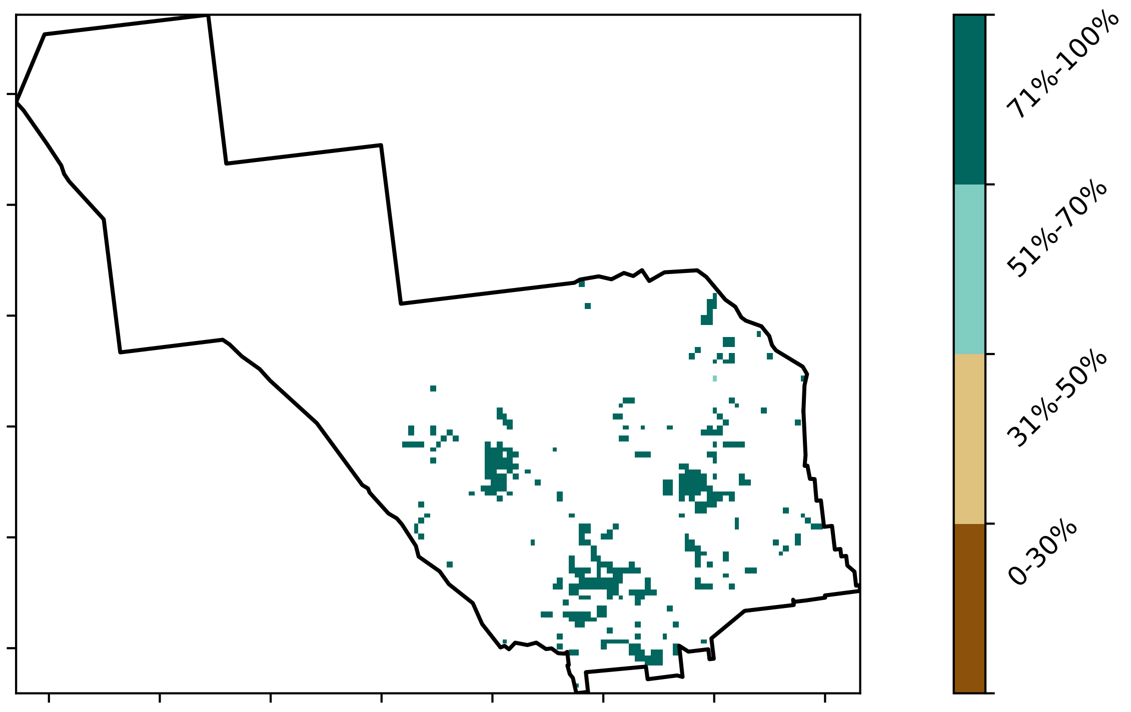
Grazing non forest

Land use and forest cover

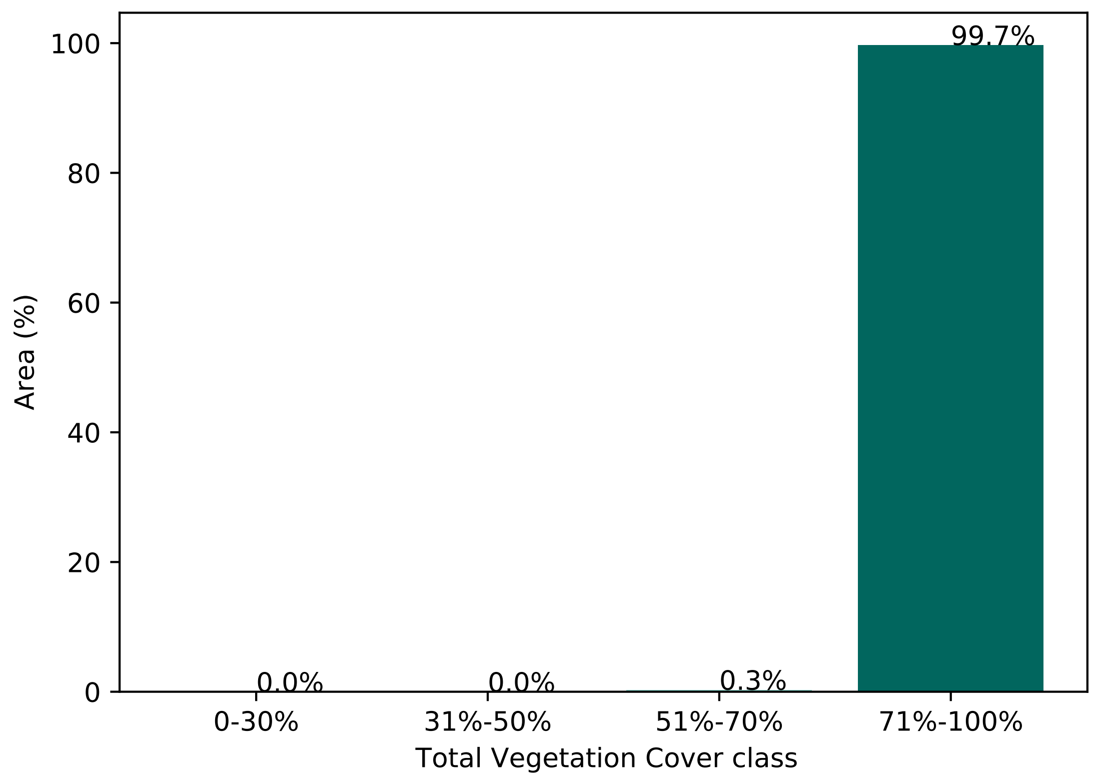
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)


1 Agriculture - Grazing - Non forest

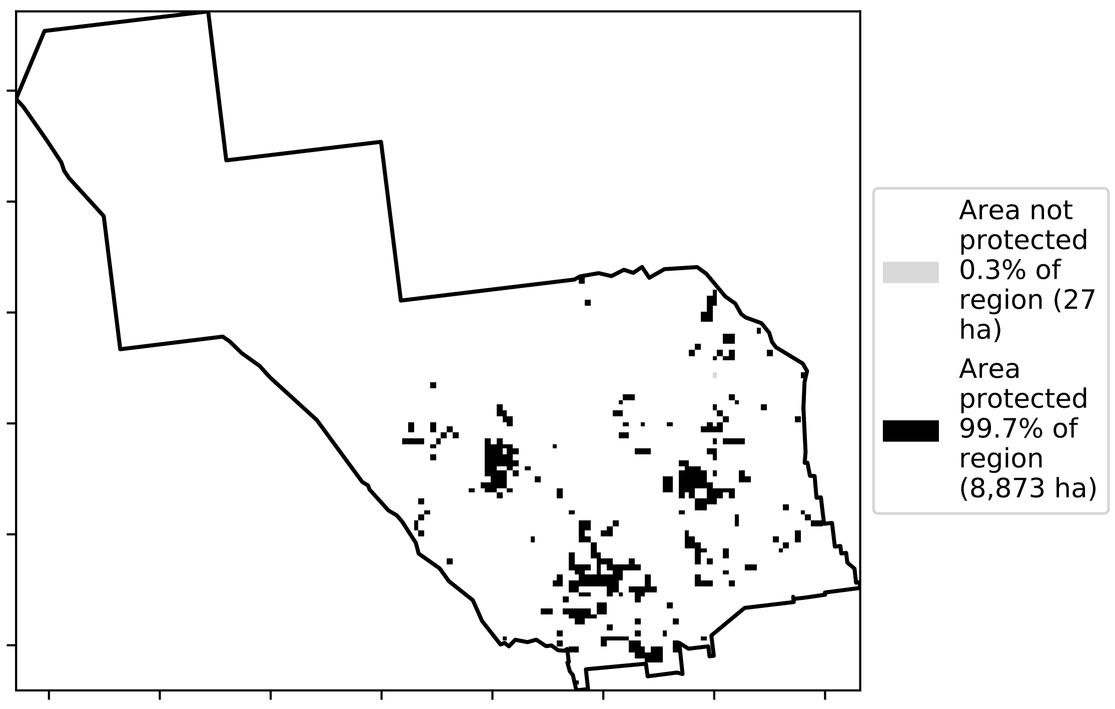
Total Vegetation Cover [%]


71%-100%
51%-70%
31%-50%
0-30%

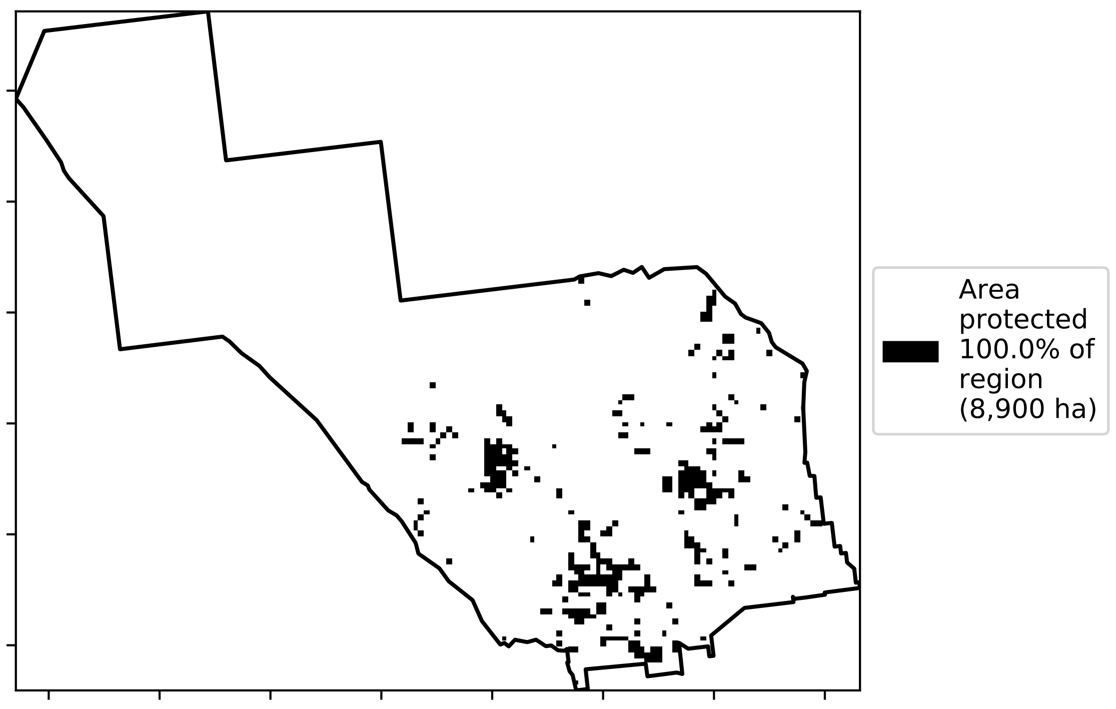
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

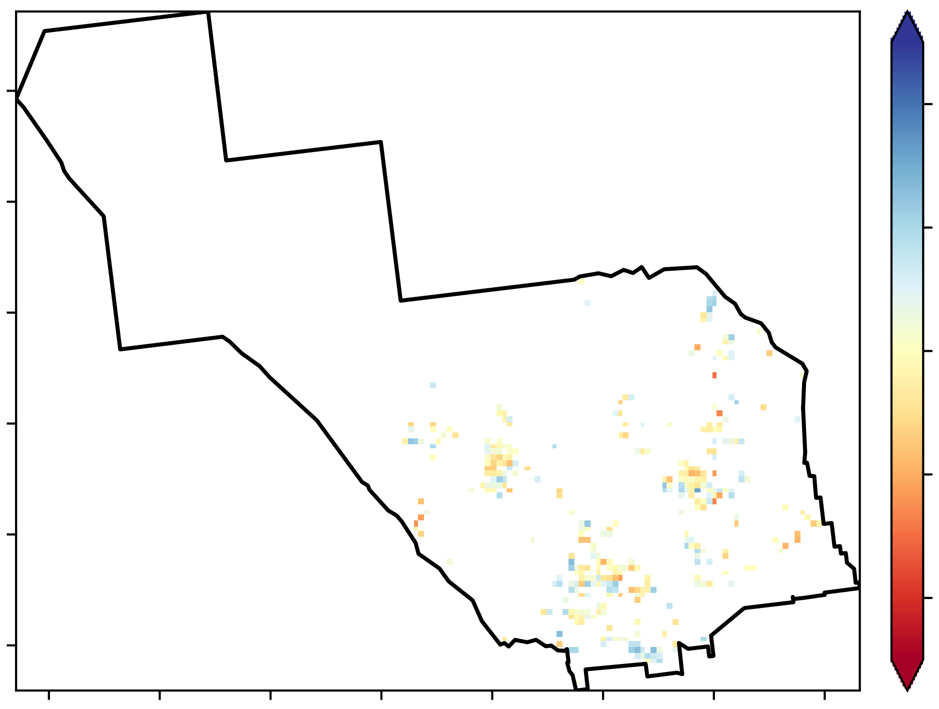

Area not protected 0.3% of region (27 ha)
Area protected 99.7% of region (8,873 ha)

% Area protected from wind erosion (>50%)


Area protected 100.0% of region (8,900 ha)

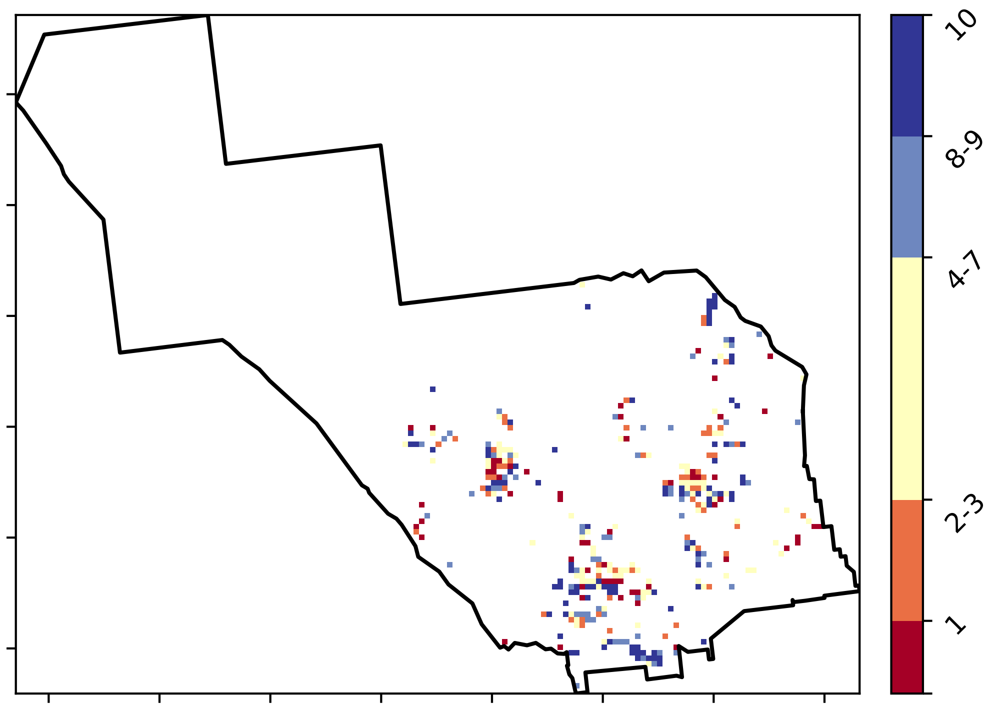
Total Vegetation Cover Anomaly [%]

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.

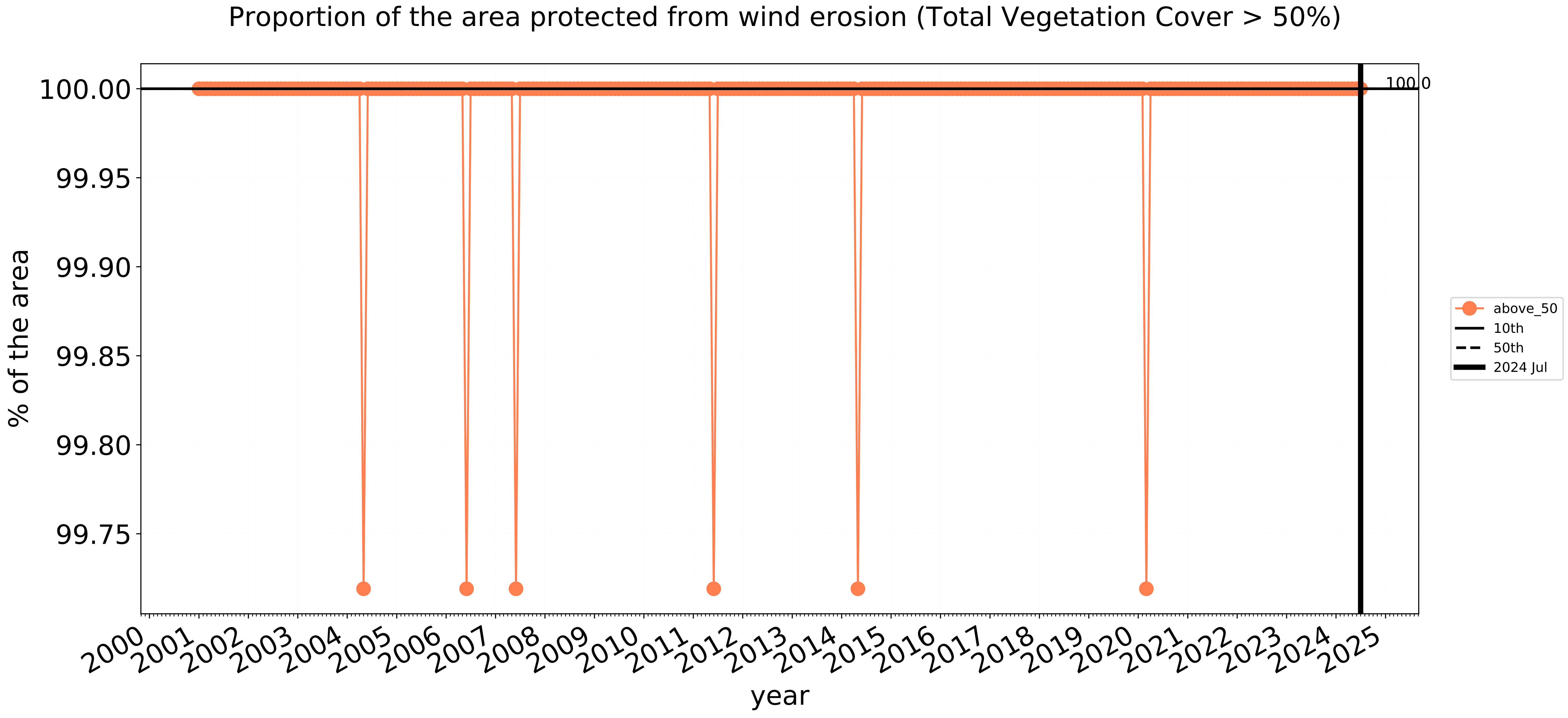


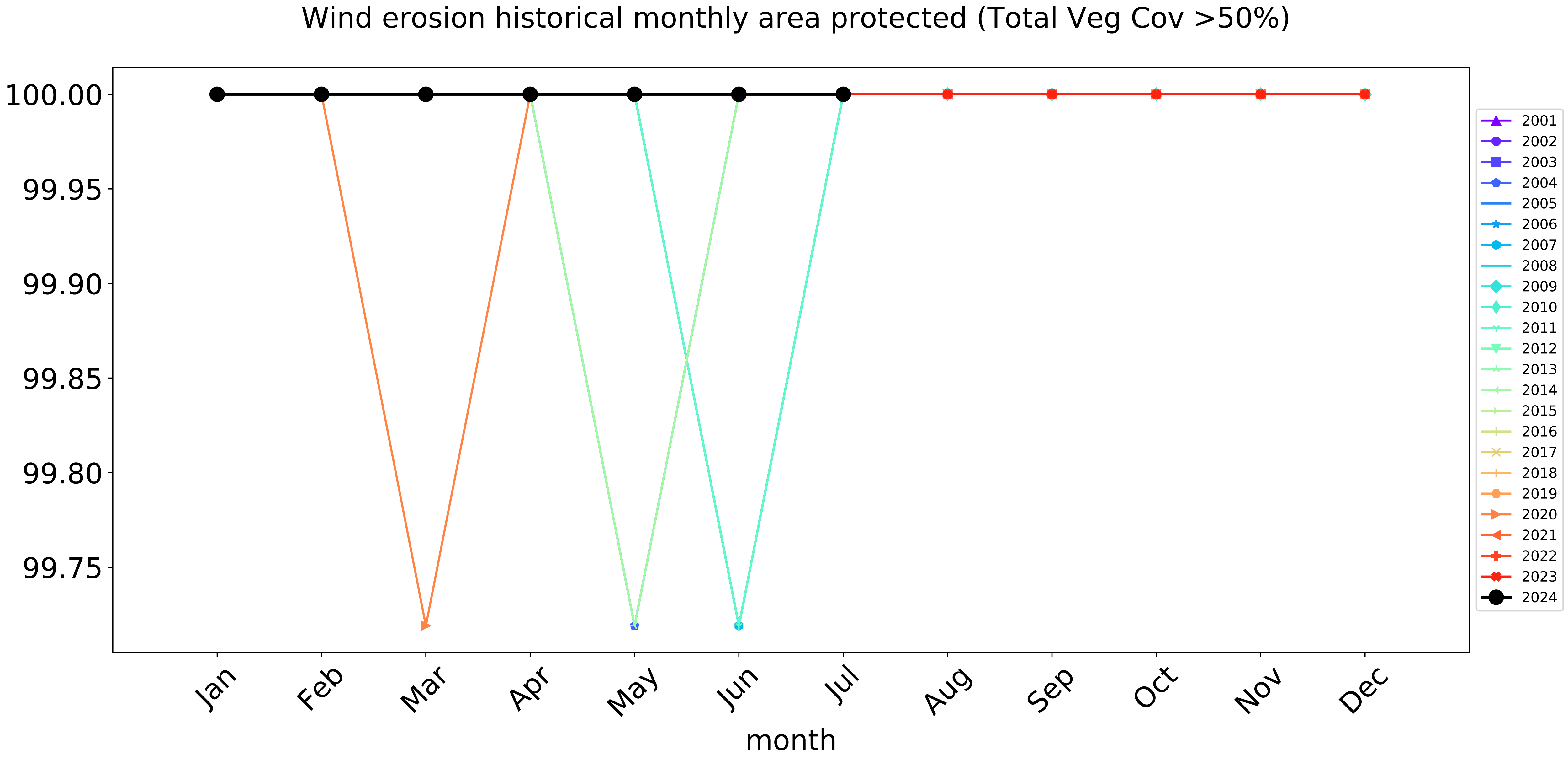
Total Vegetation Cover Decile [%]

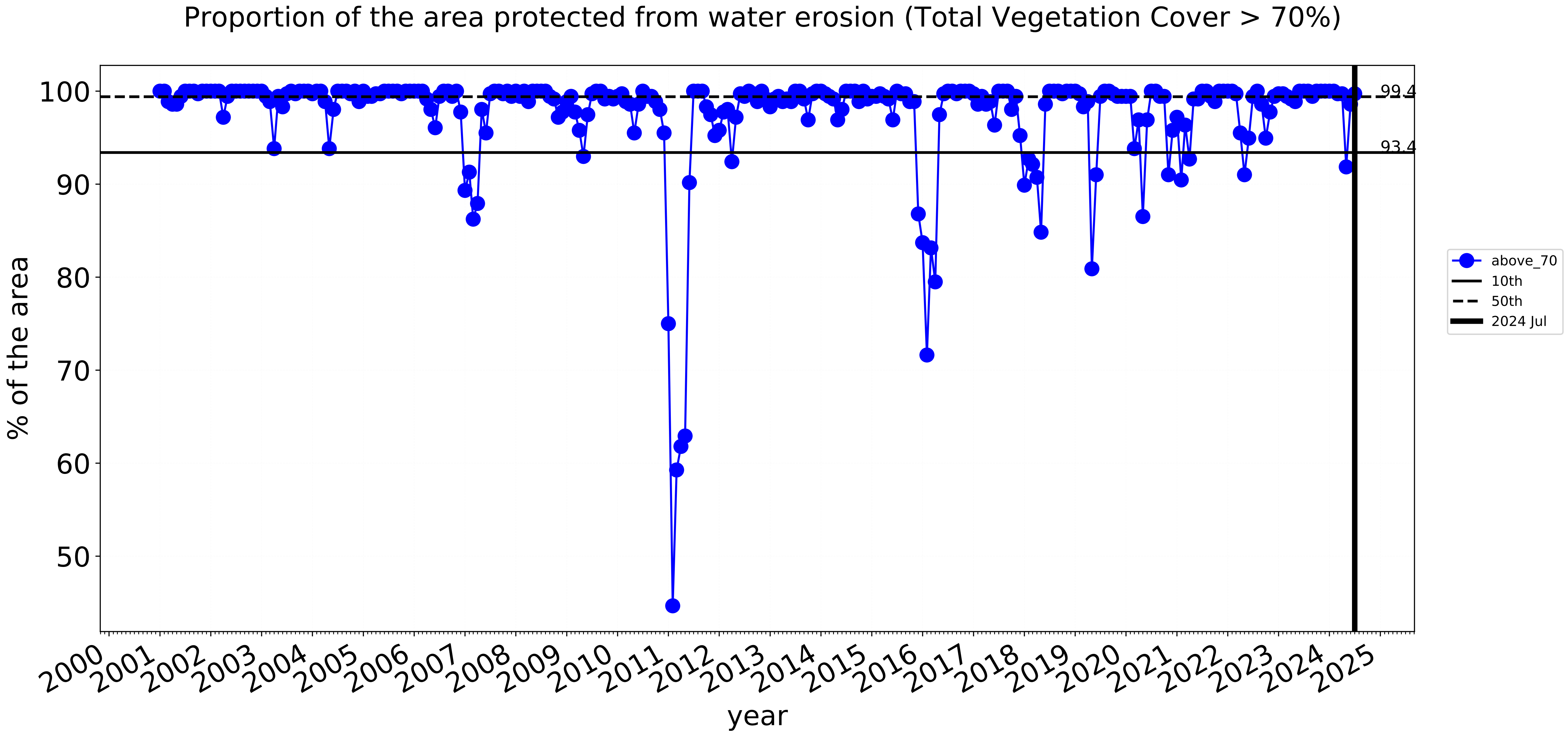
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

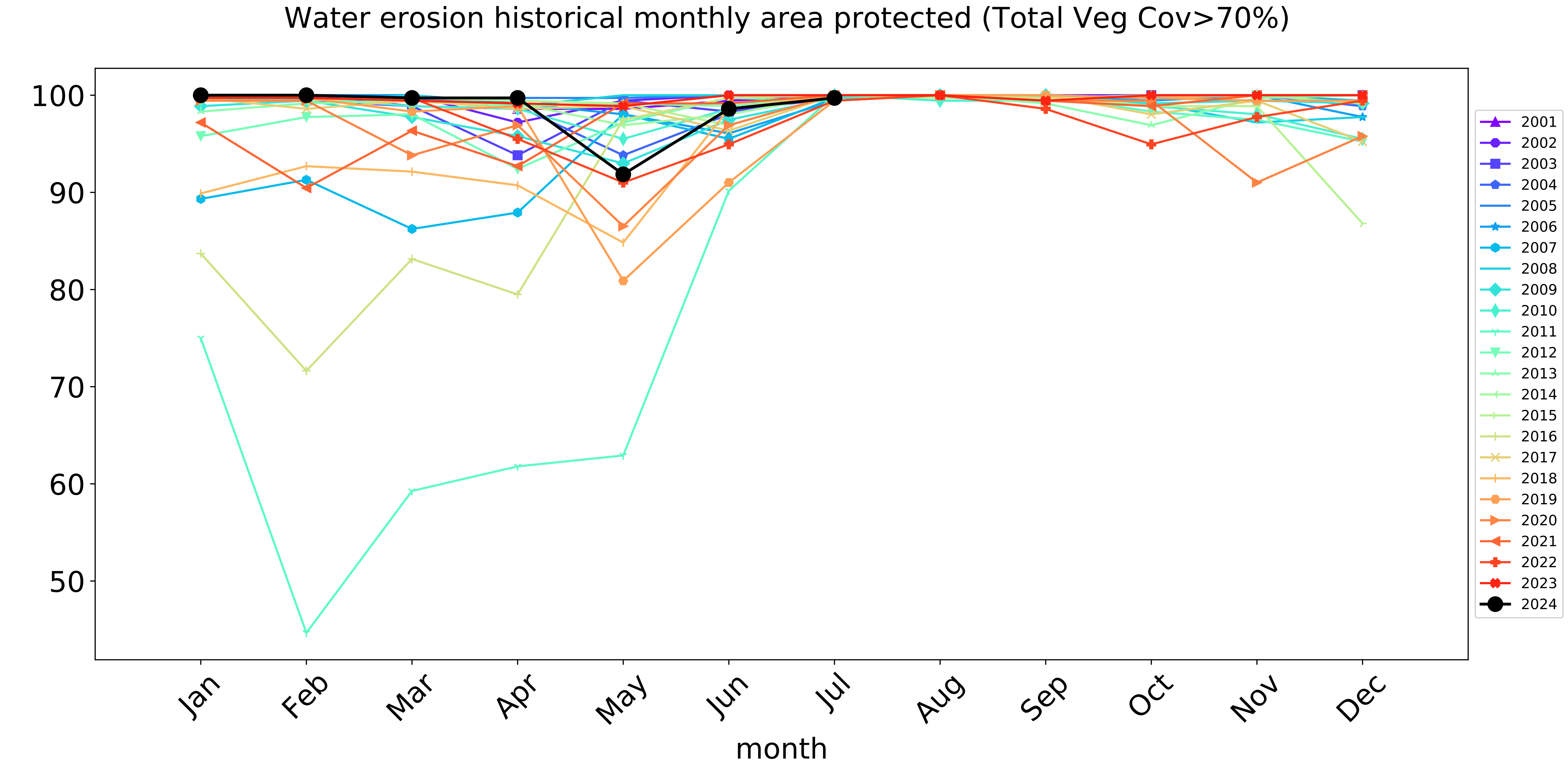


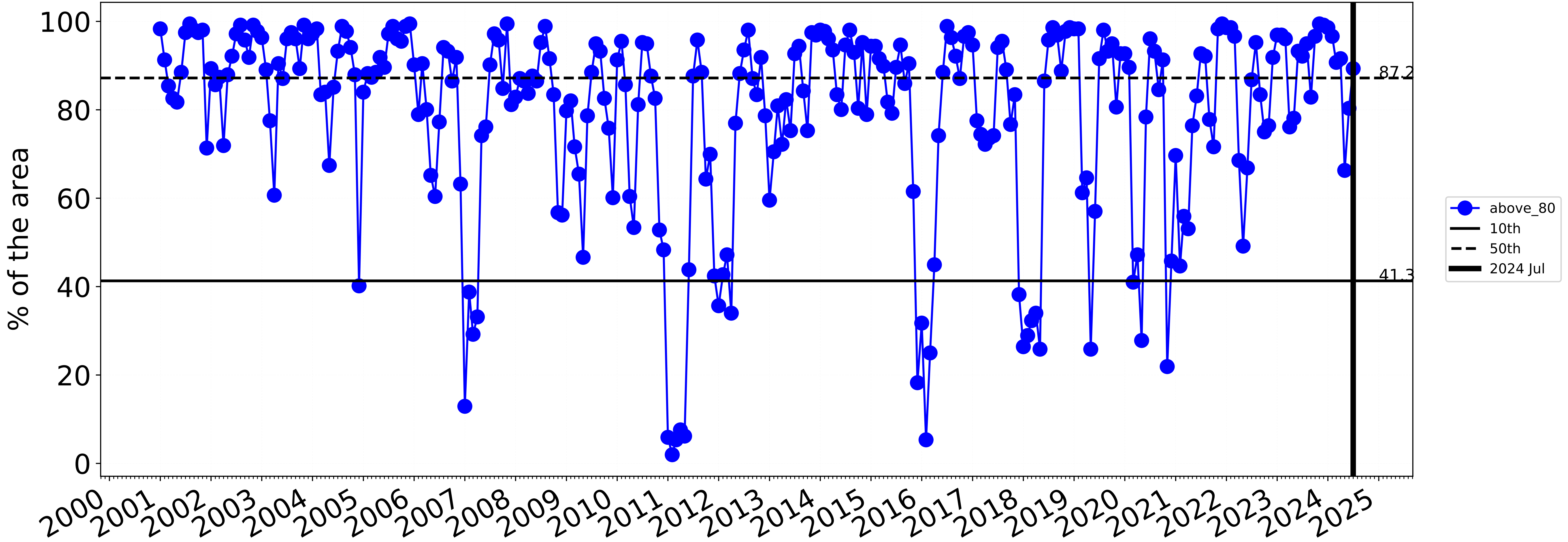
Grazing non forest timeseries

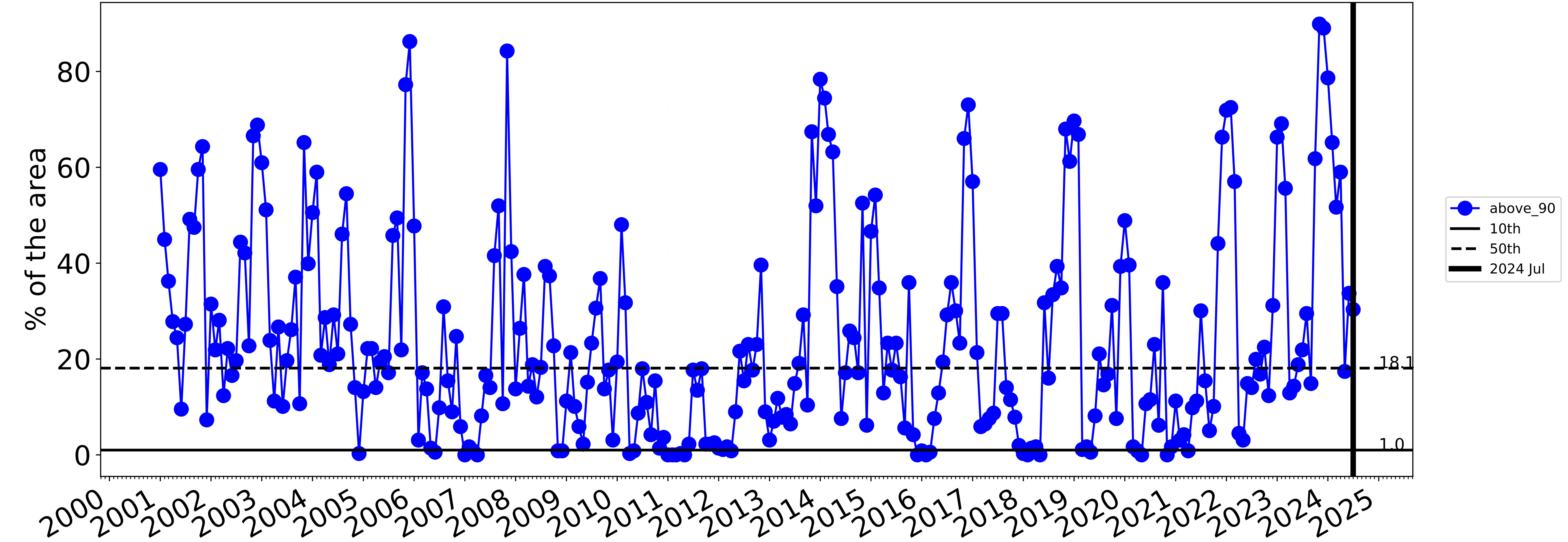

Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

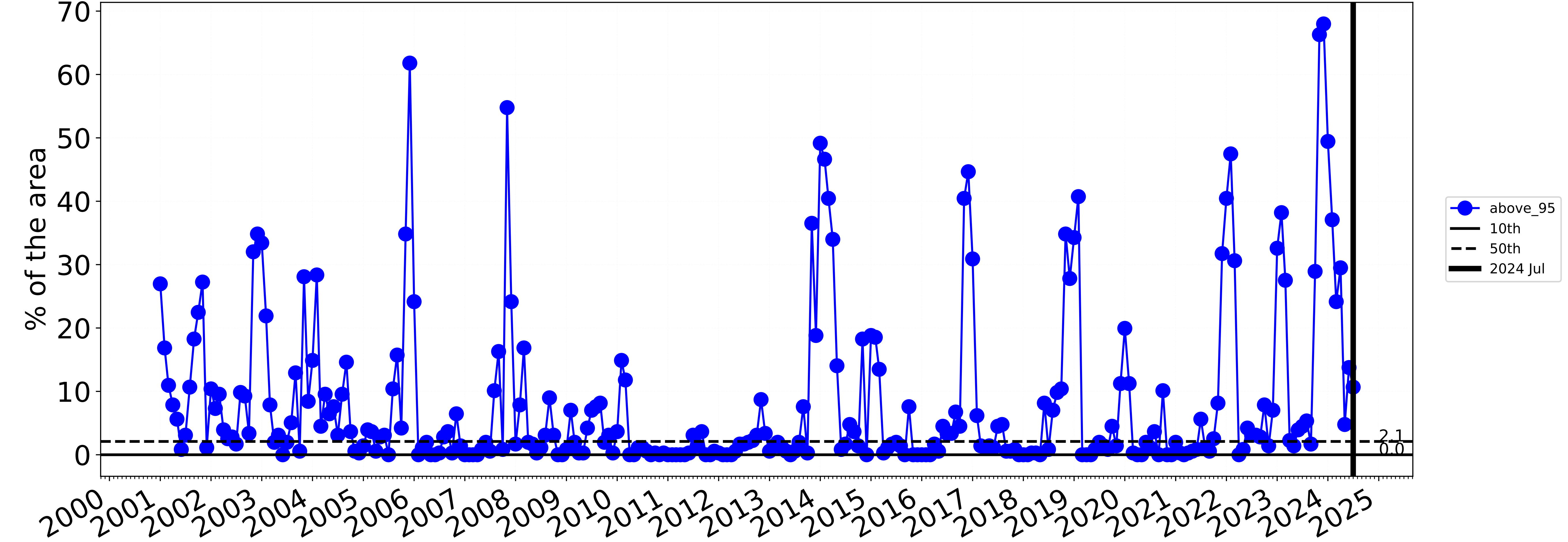

Wind erosion historical monthly area protected (Total Veg Cov >50%)

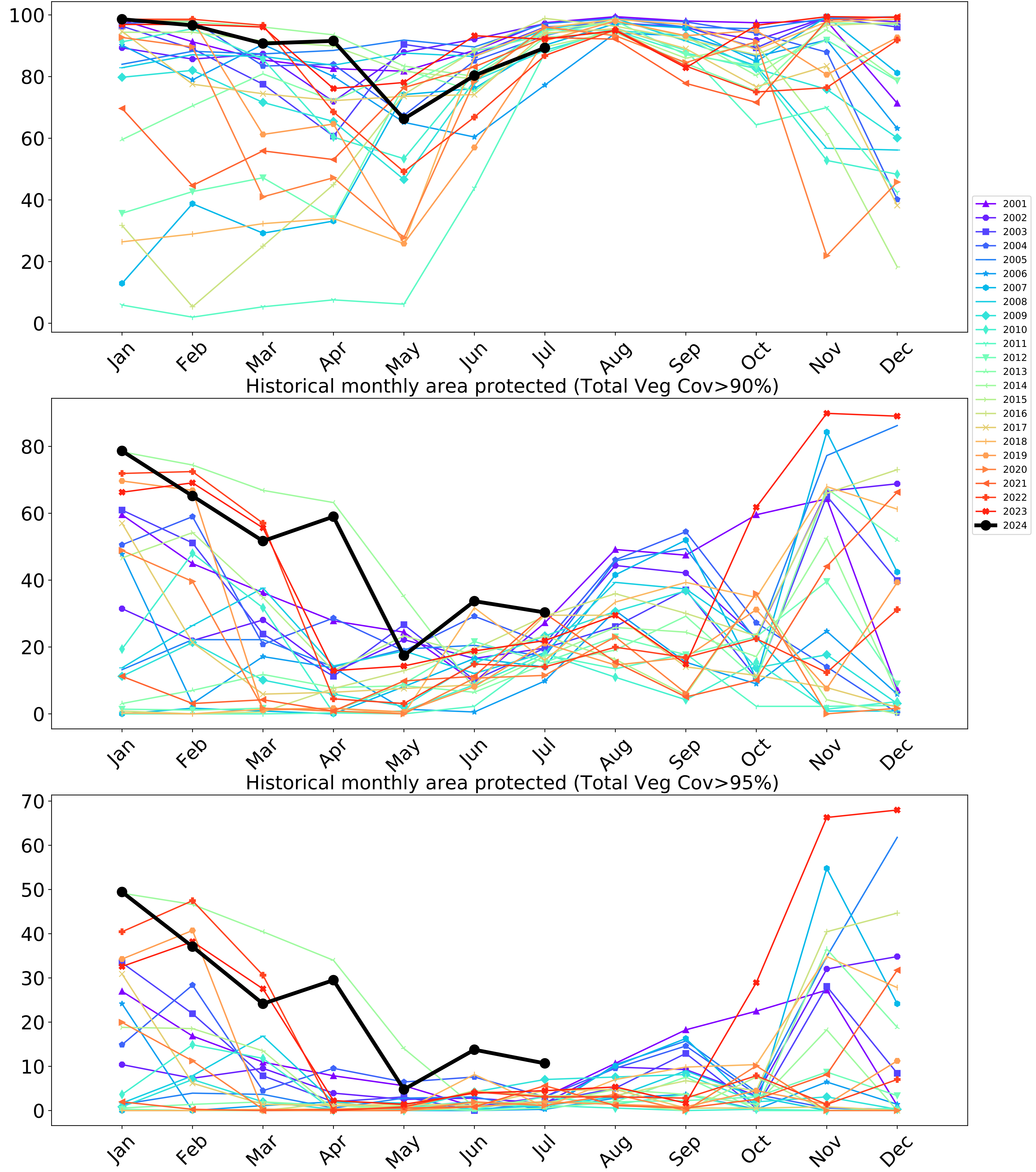

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)


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


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


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


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


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

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

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

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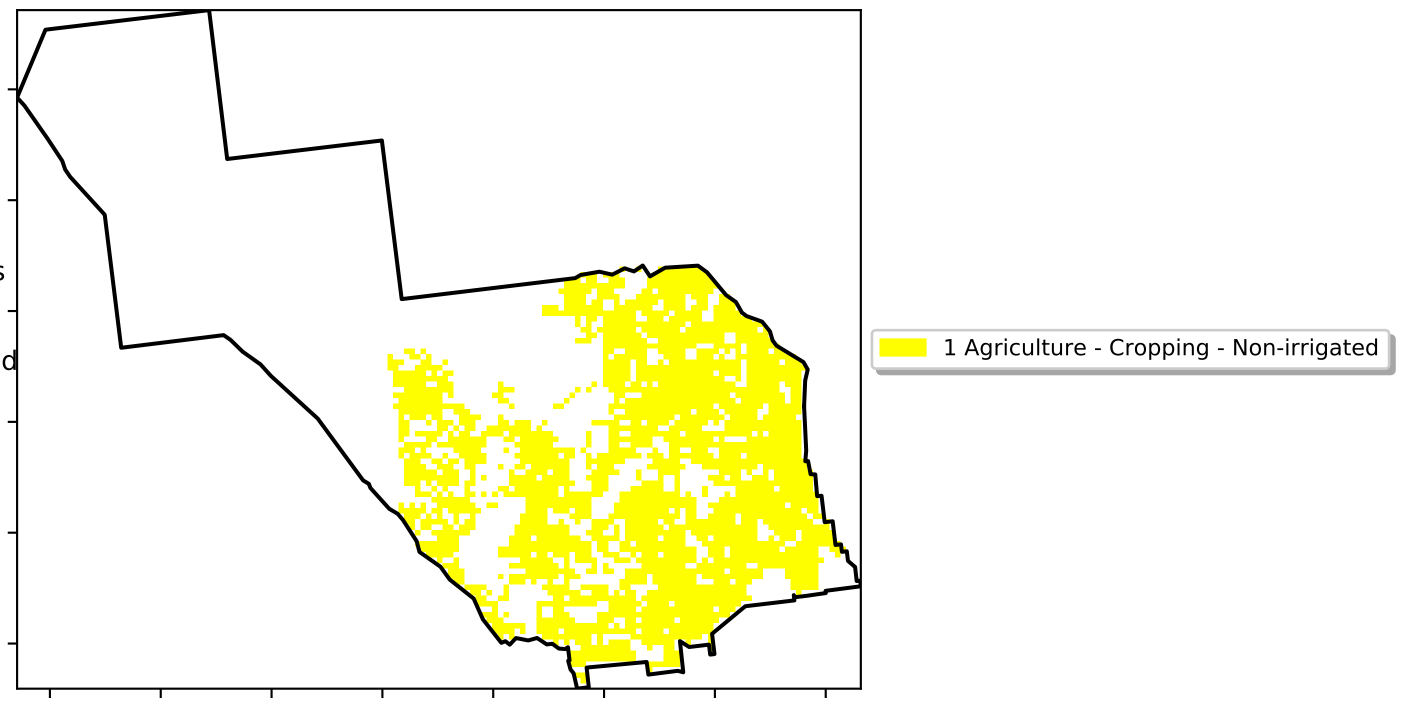
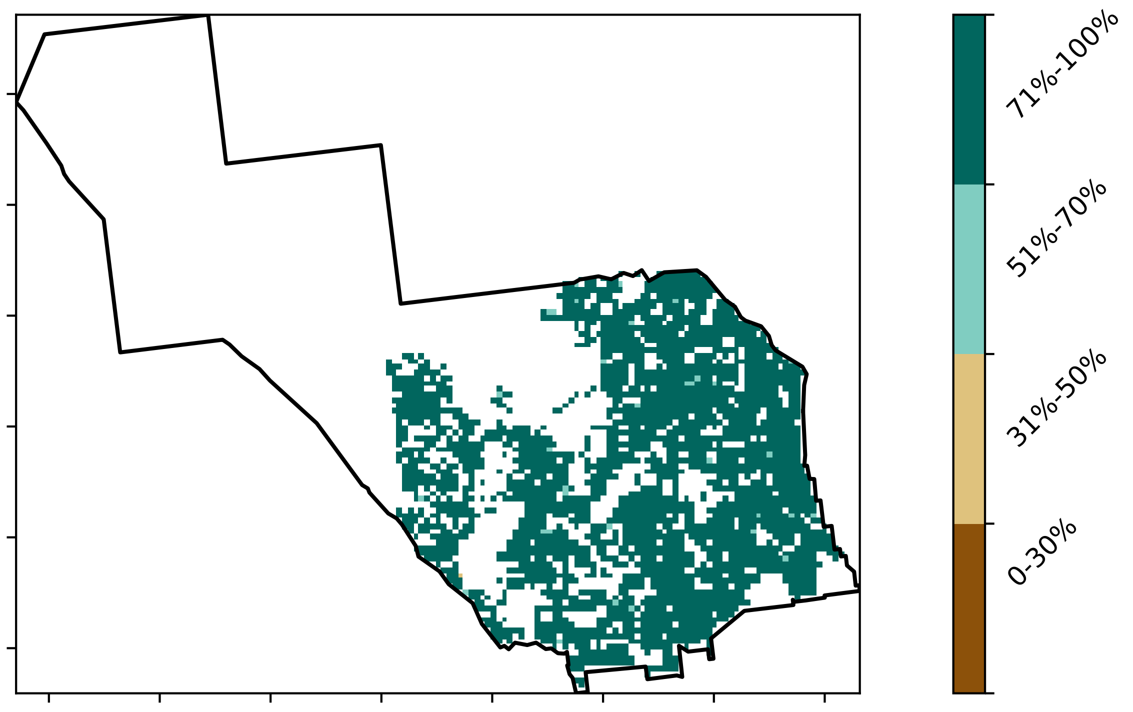
Cropping

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



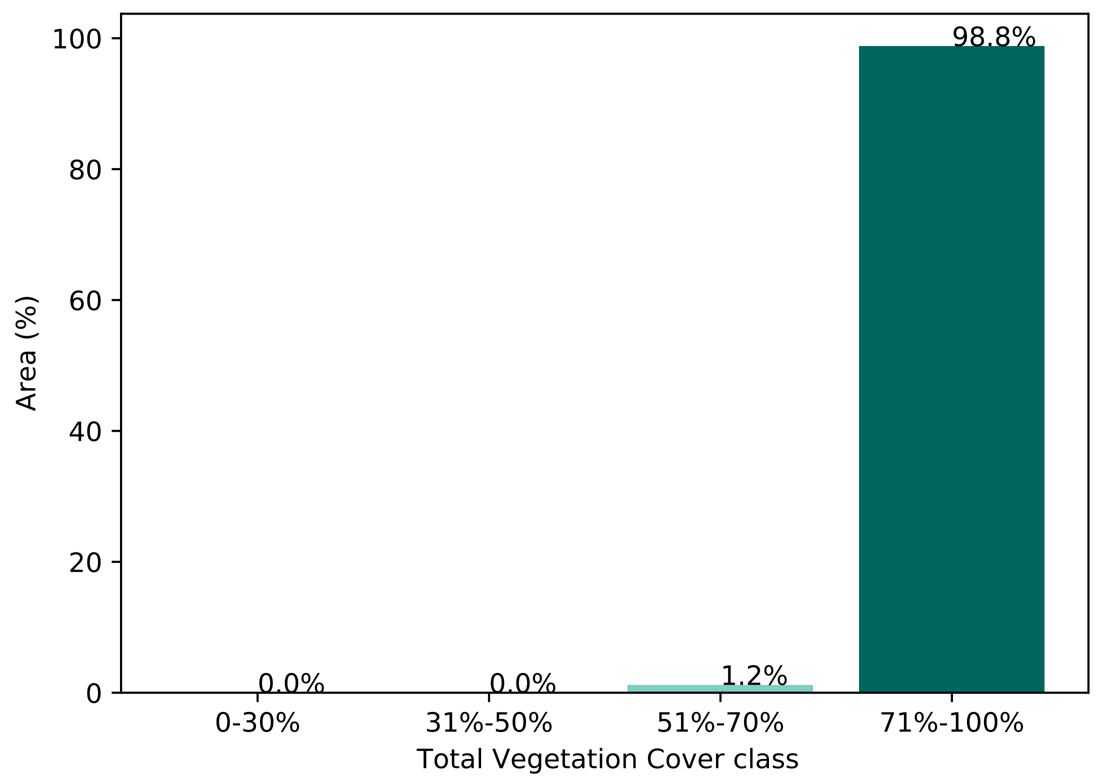
Land use and forest cover

1 Agriculture - Cropping - Non-irrigated

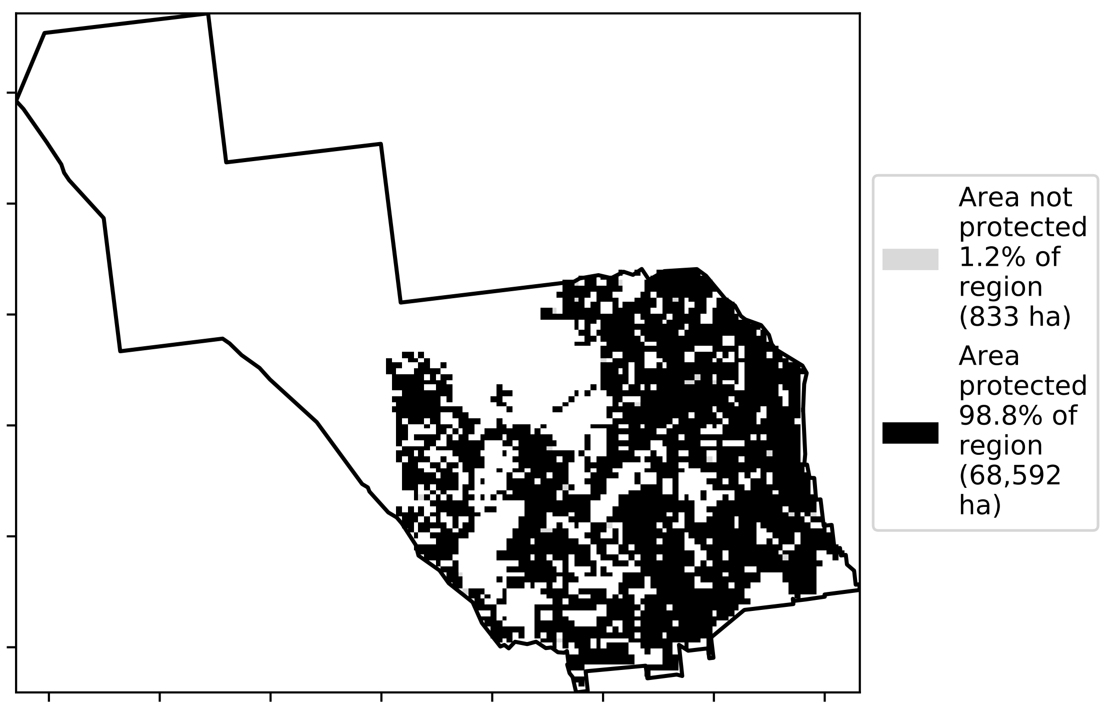


Total Vegetation Cover [%]

71%-100%
51%-70%
31%-50%
0-30%

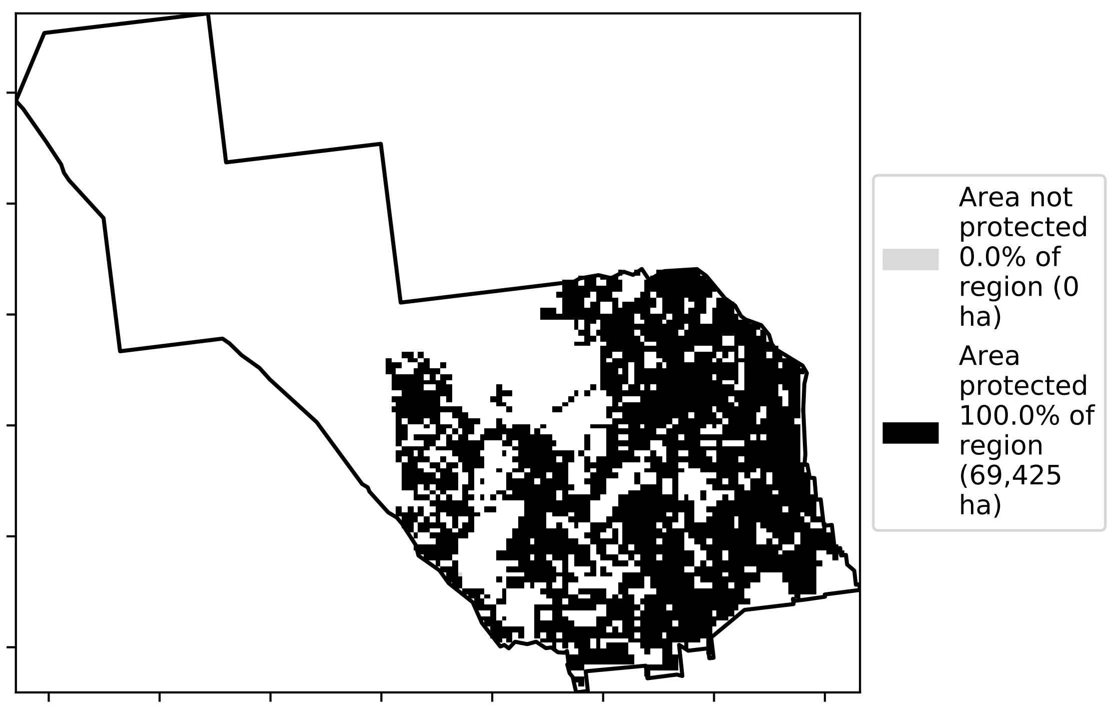


Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

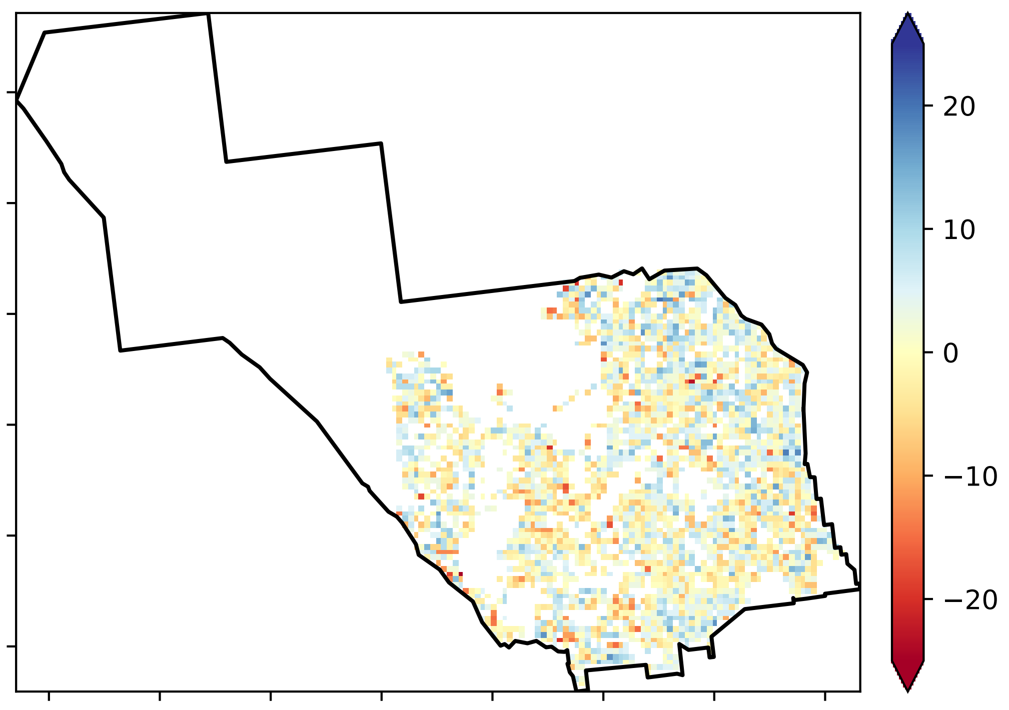
Area not protected 1.2% of region (833 ha)
Area protected 98.8% of region (68,592 ha)



% Area protected from wind erosion (>50%)

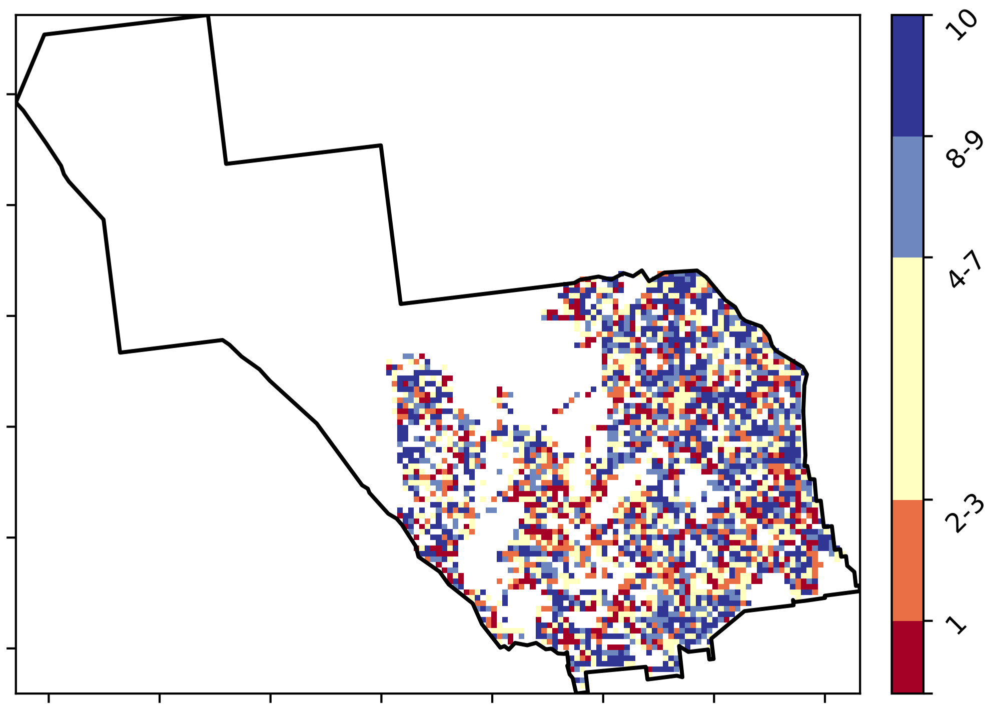
Area not protected 0.0% of region (0 ha)
Area protected 100.0% of region (69,425 ha)

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



Total Vegetation Cover Anomaly [%]

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



Total Vegetation Cover Decile [%]

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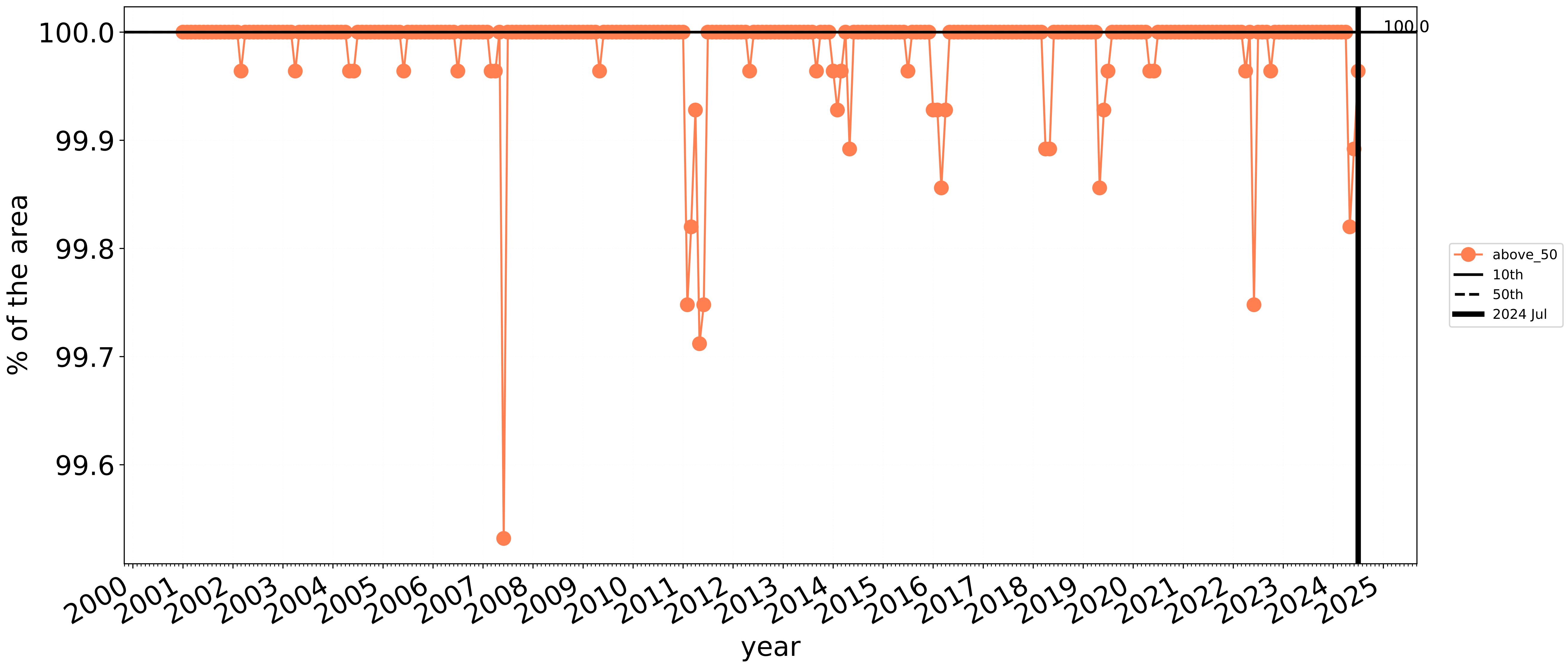
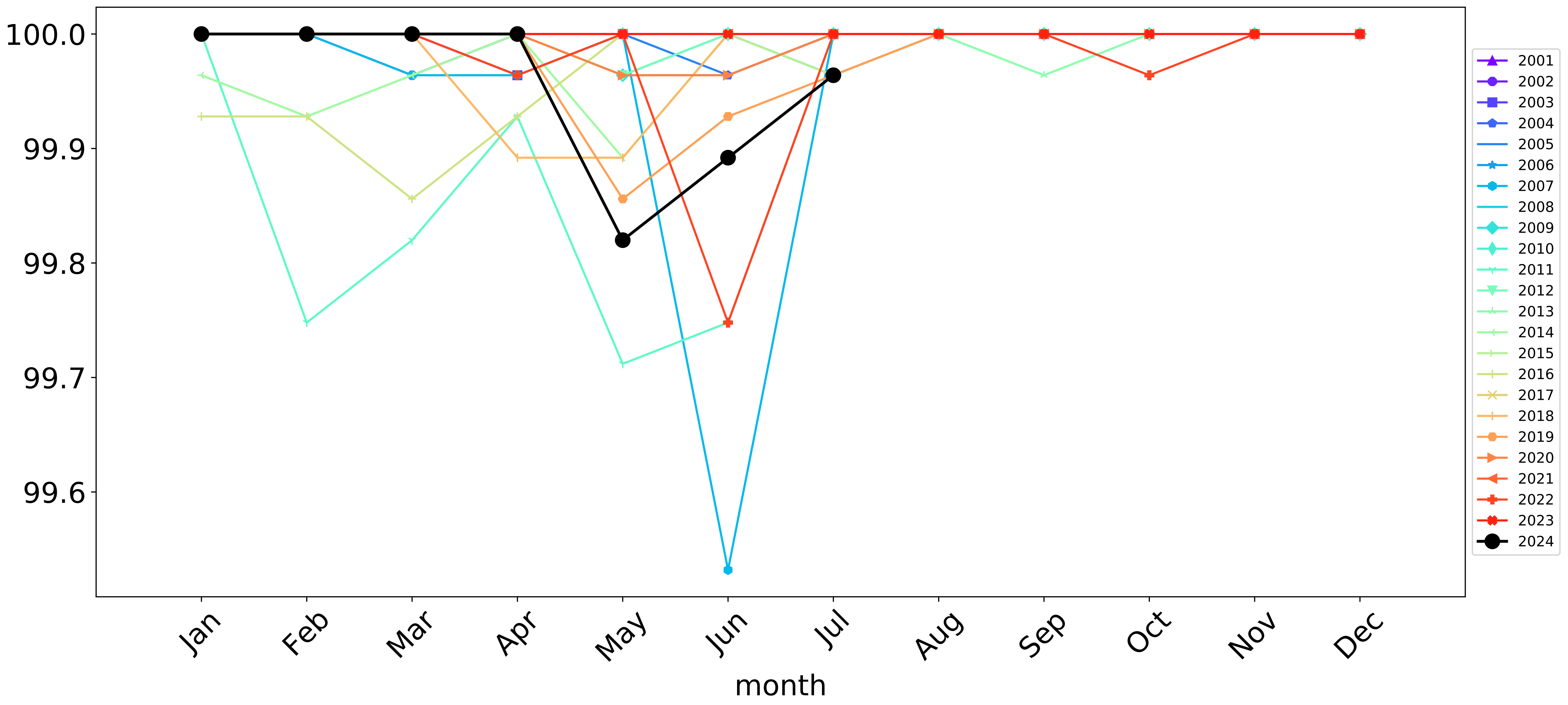
Cropping timeseries

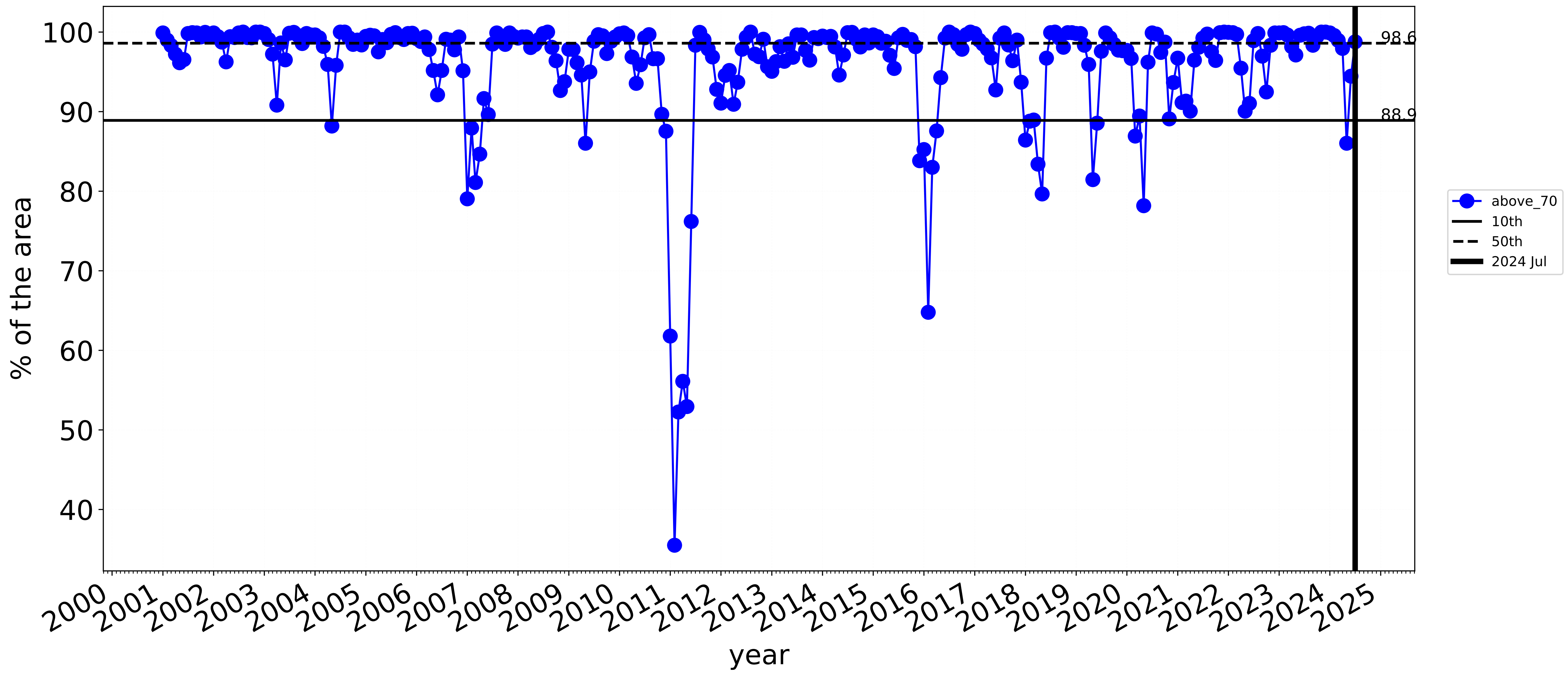
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



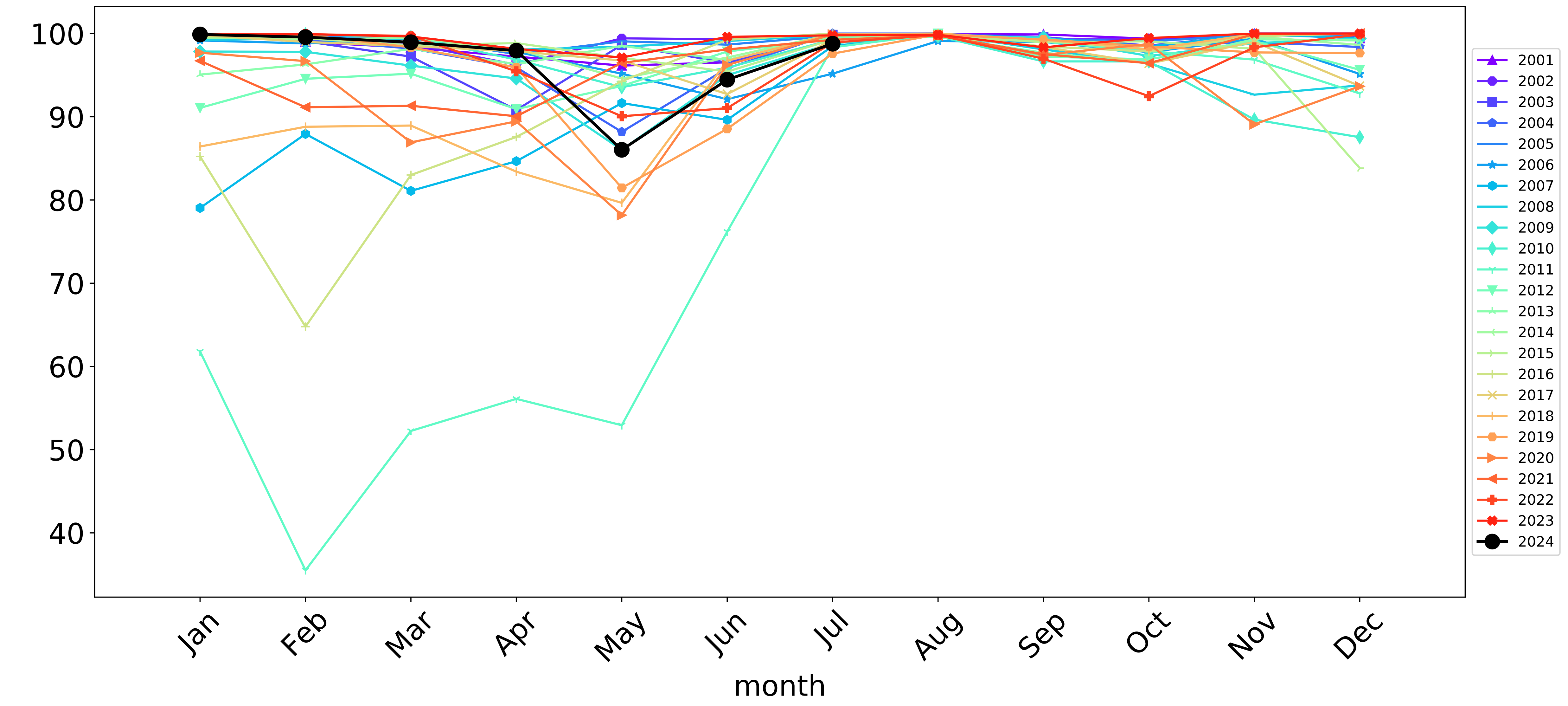
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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



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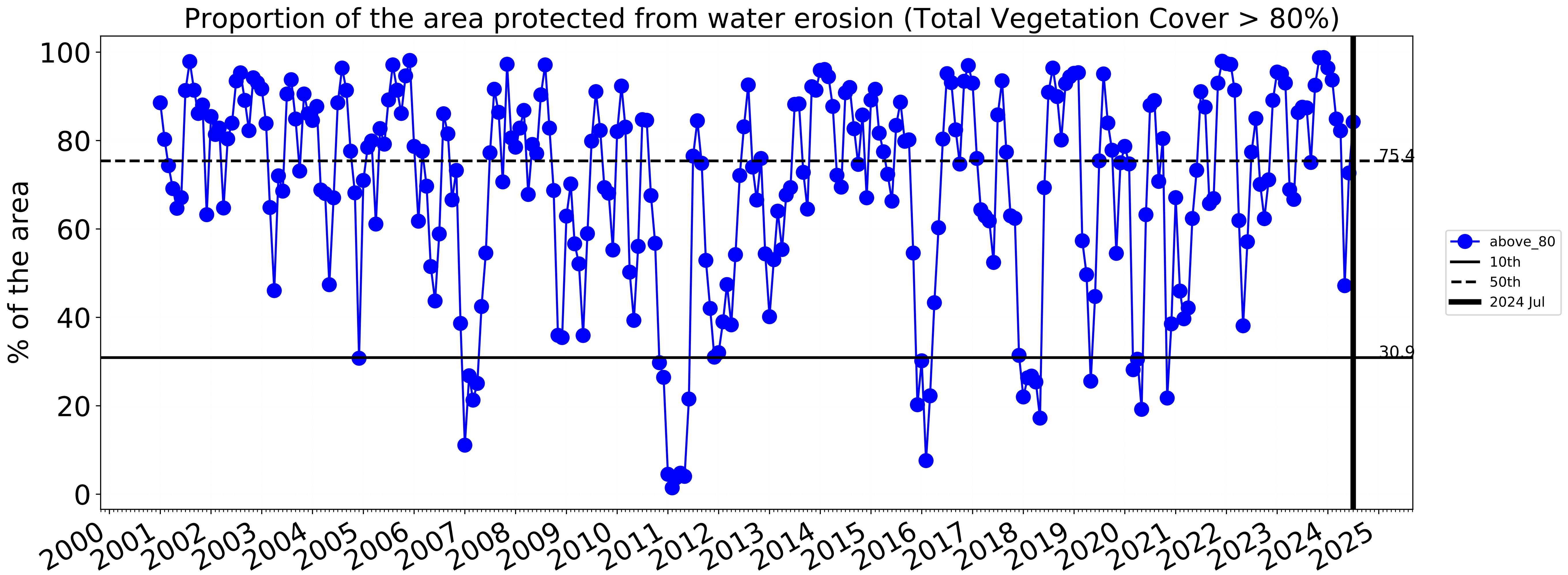

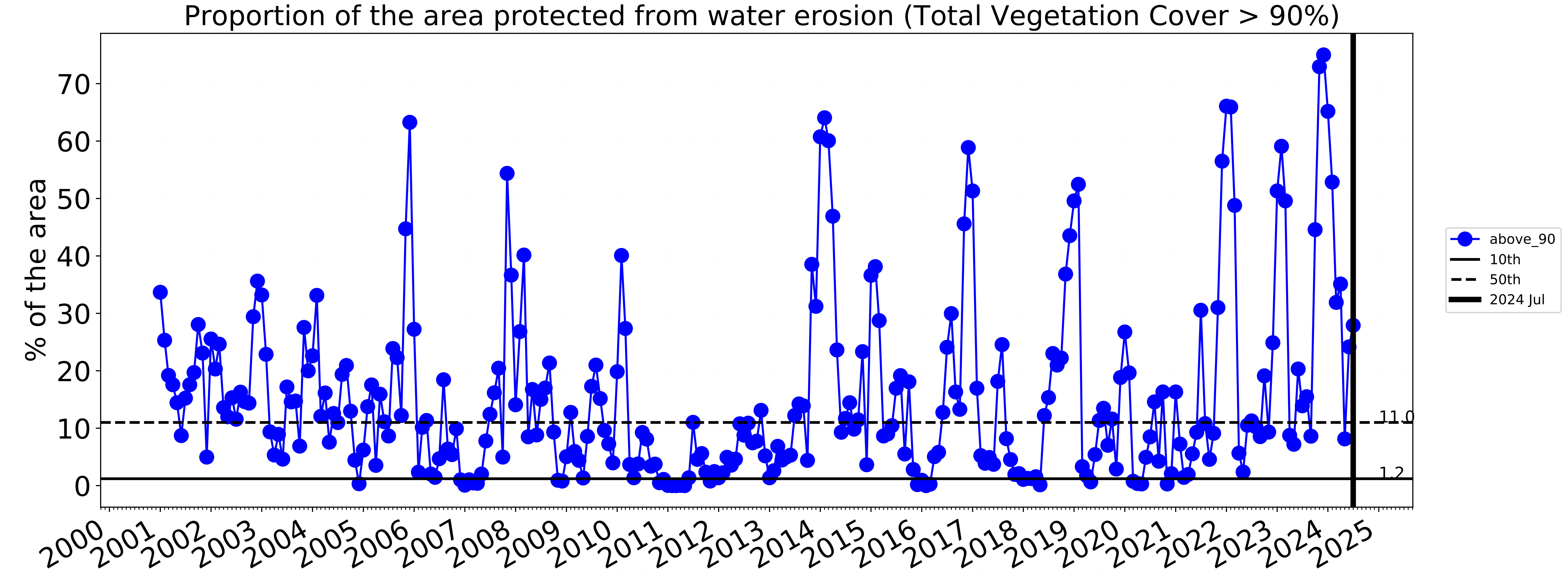

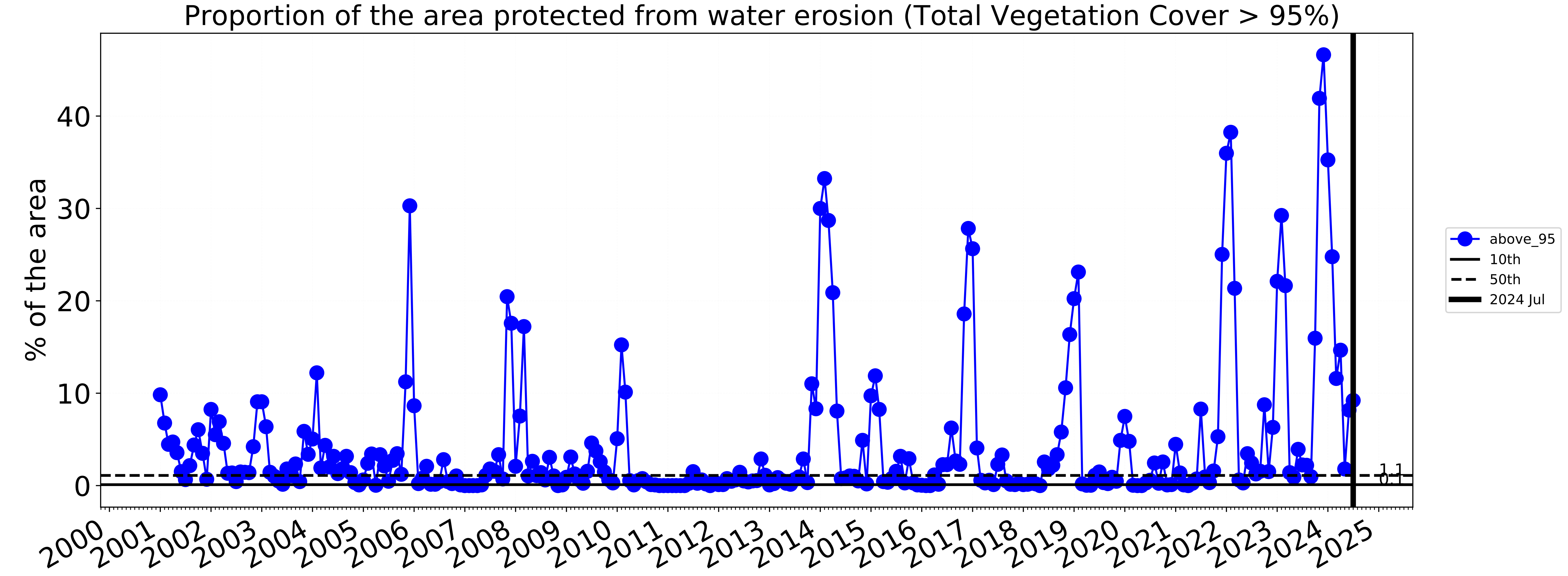

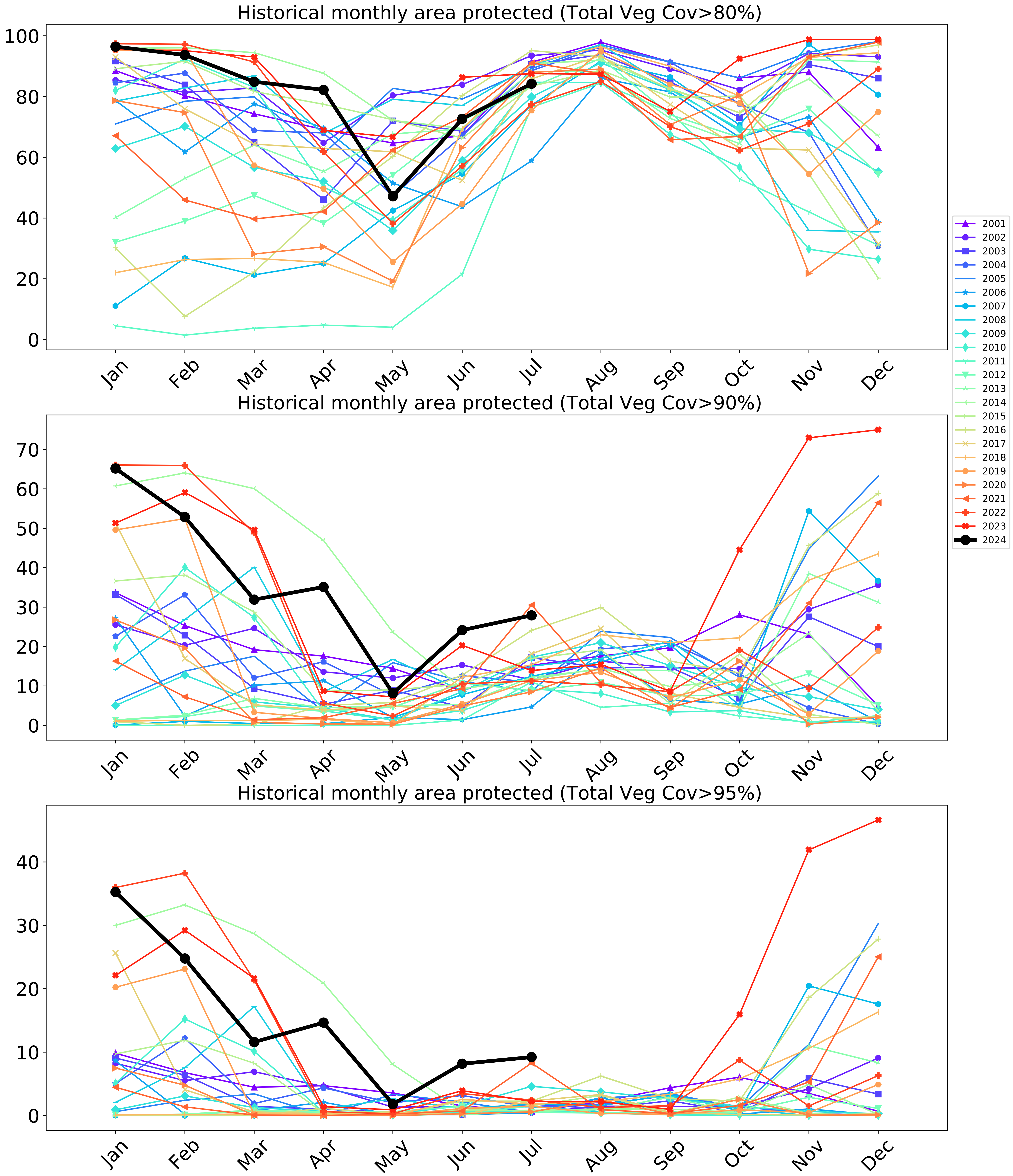

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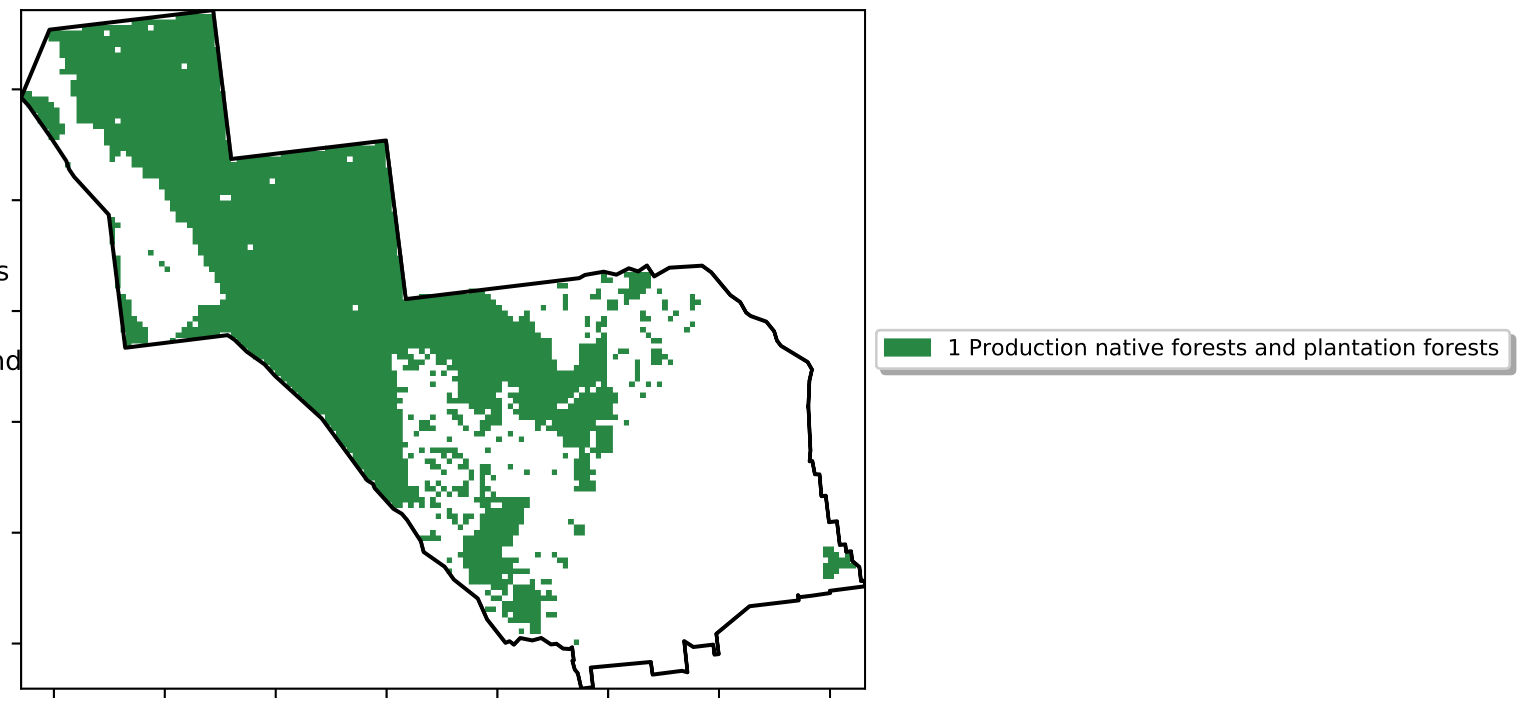
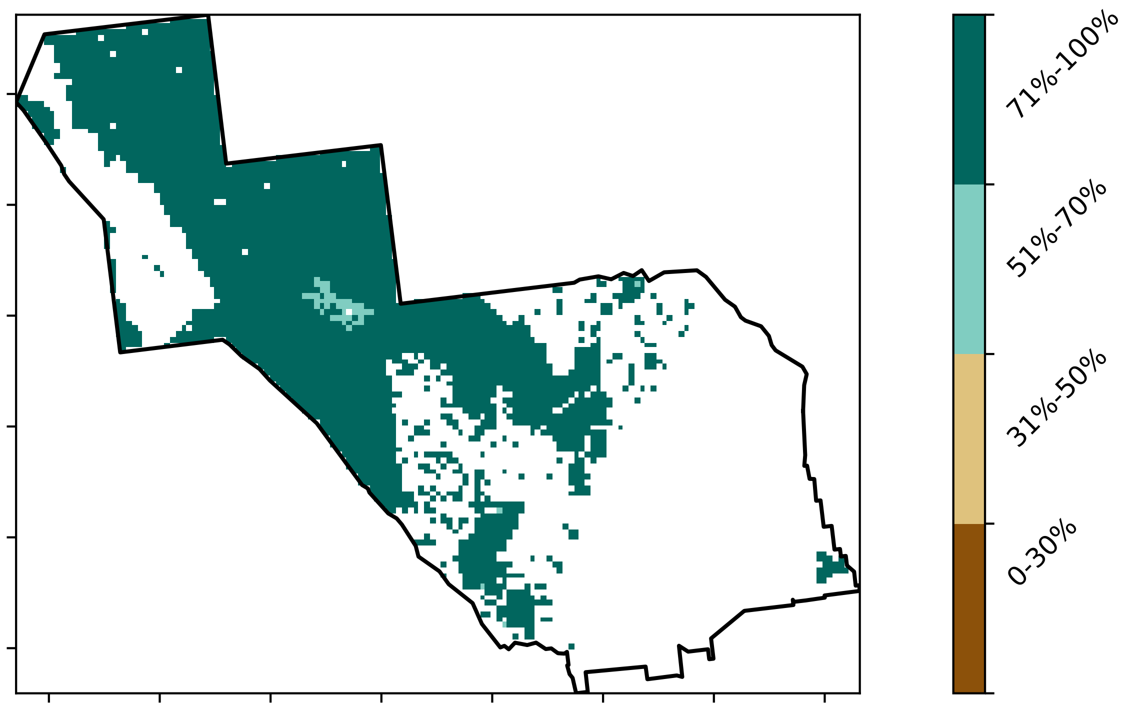
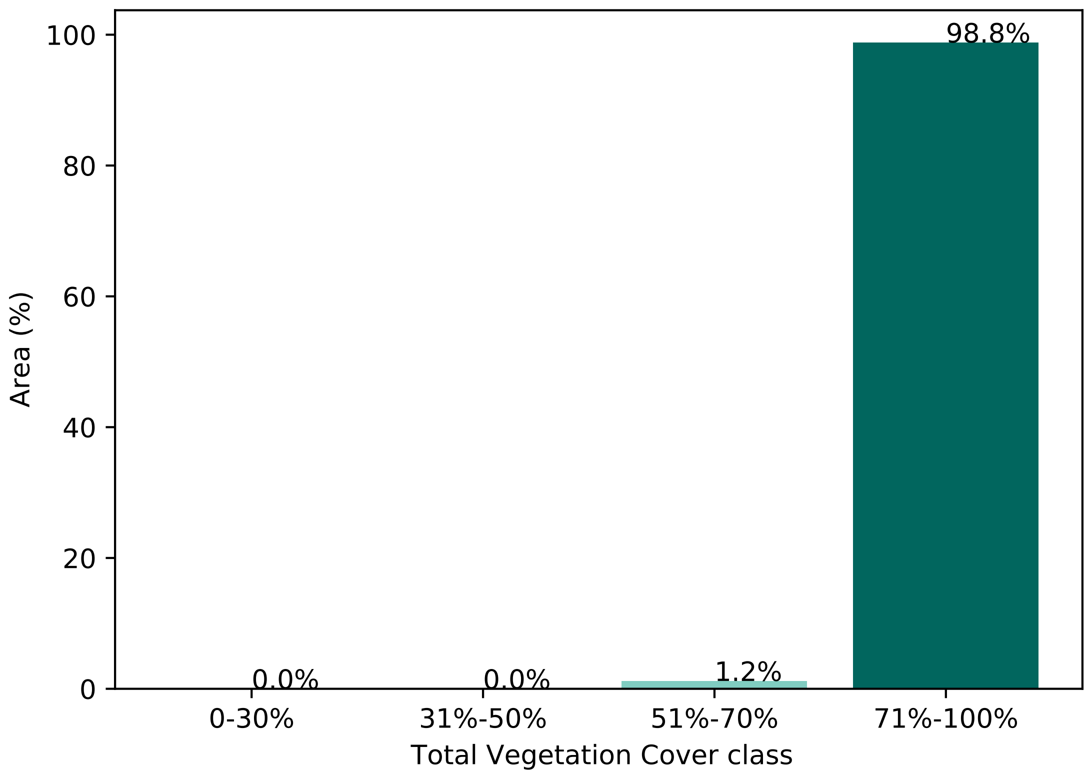
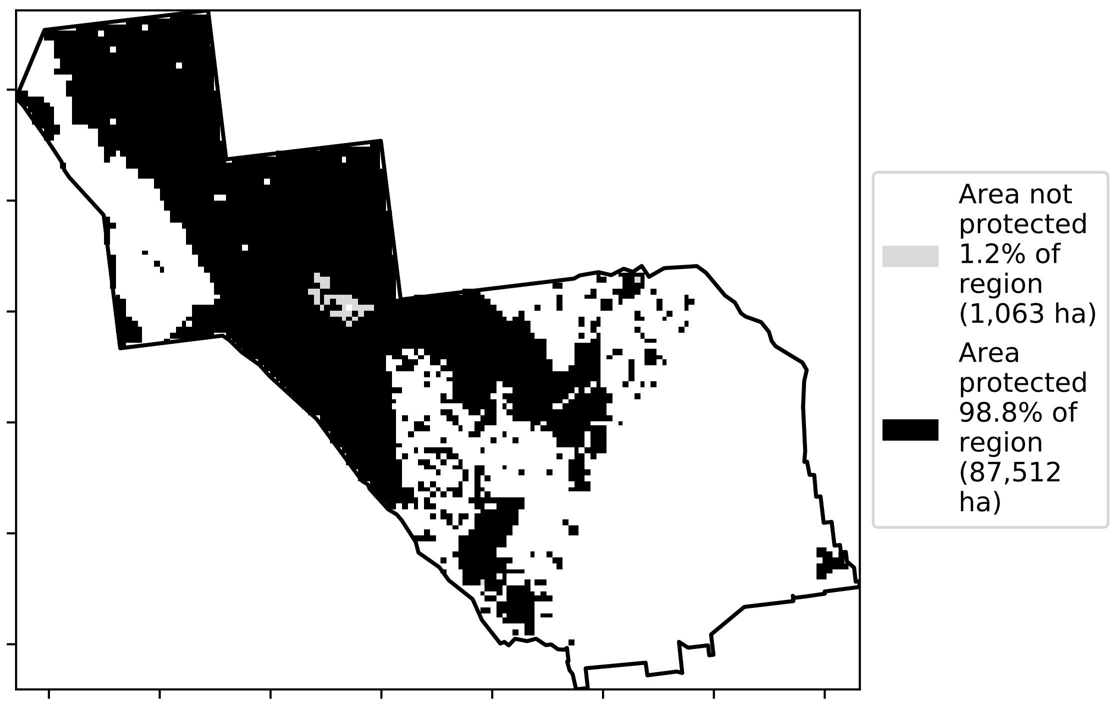
Production native forests and plantation forests

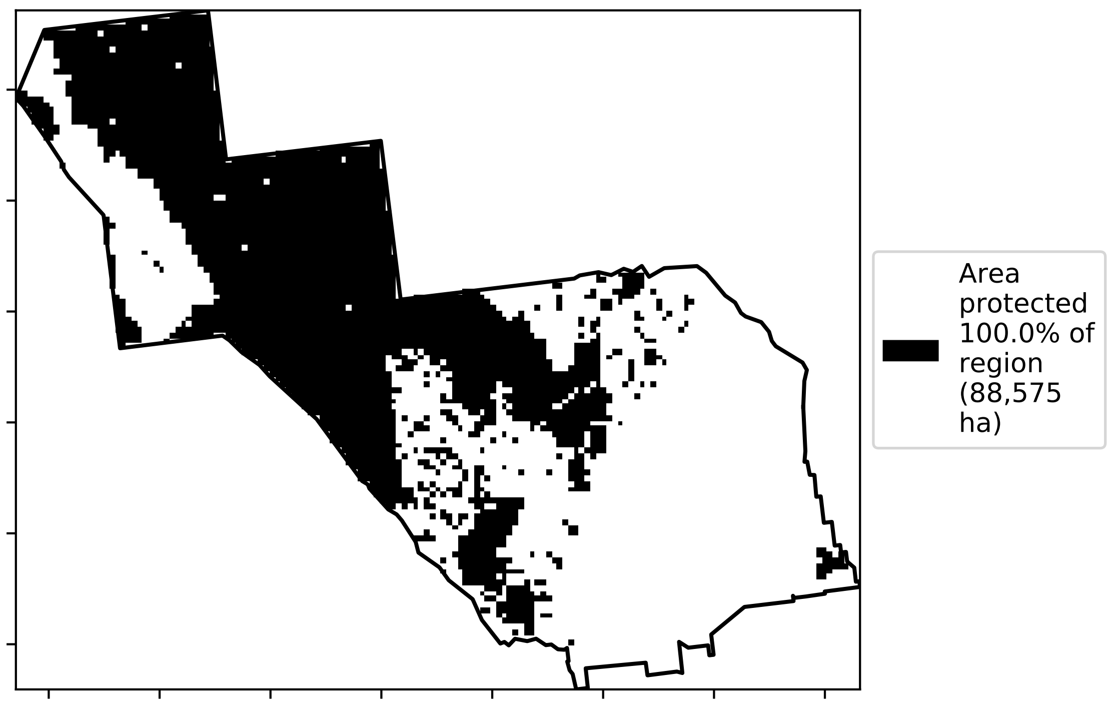
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)


Land use and forest cover
1 Production native forests and plantation forests

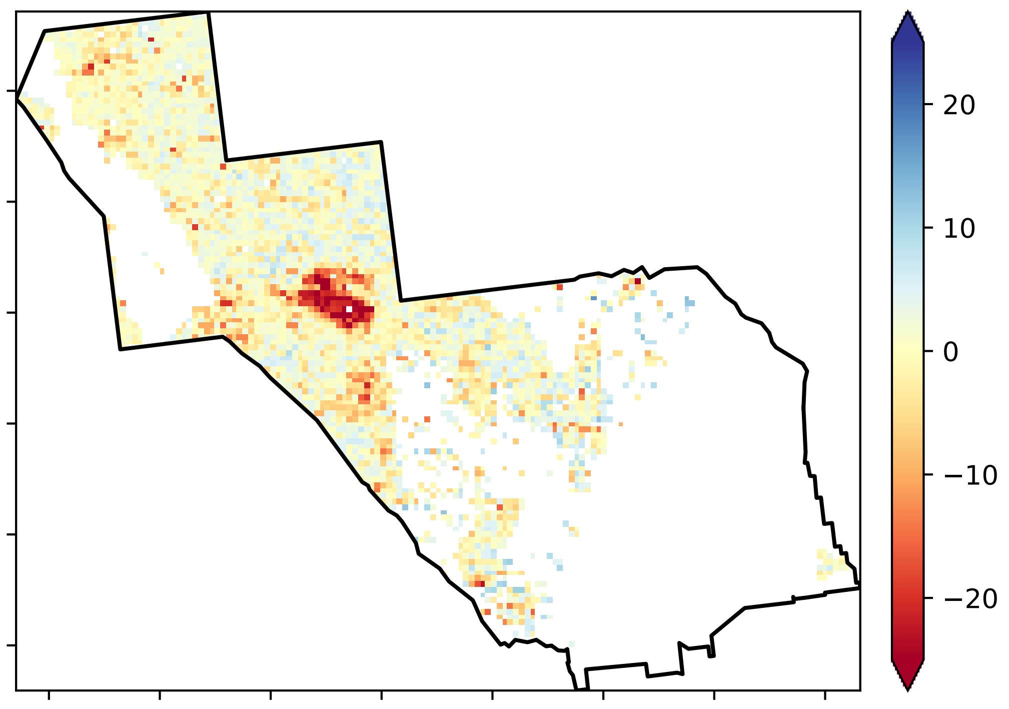

Total Vegetation Cover [%]
71%-100%
51%-70%
31%-50%
0-30%


Proportion of vegetation cover class in area

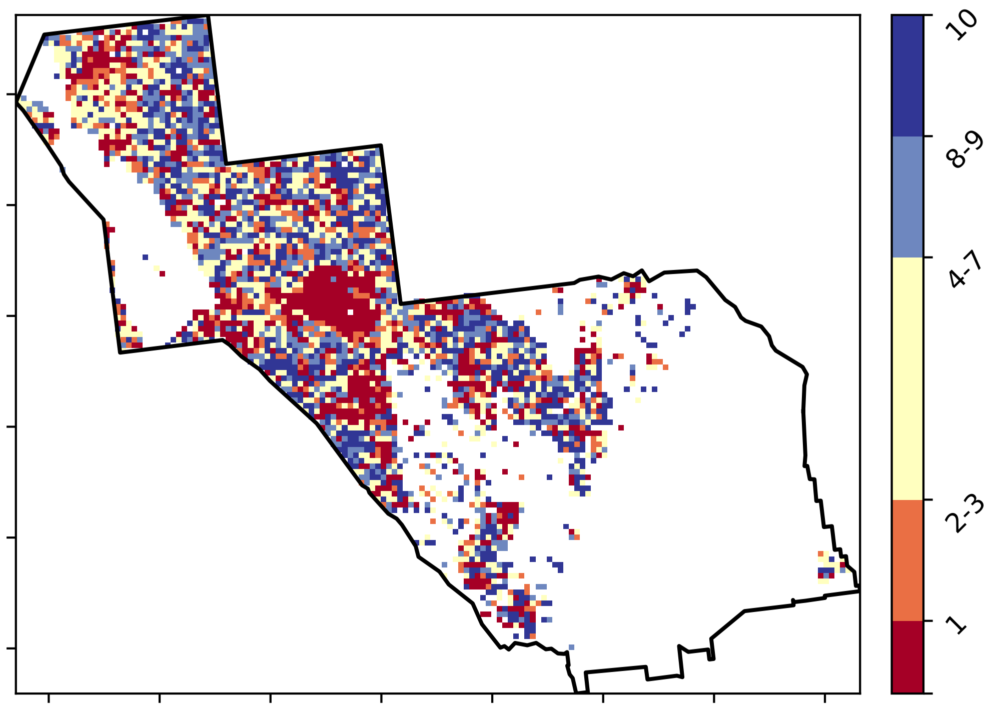

% Area protected from water erosion (>70%)
Area not protected 1.2% of region (1,063 ha)
Area protected 98.8% of region (87,512 ha)


% Area protected from wind erosion (>50%)
Area protected 100.0% of region (88,575 ha)

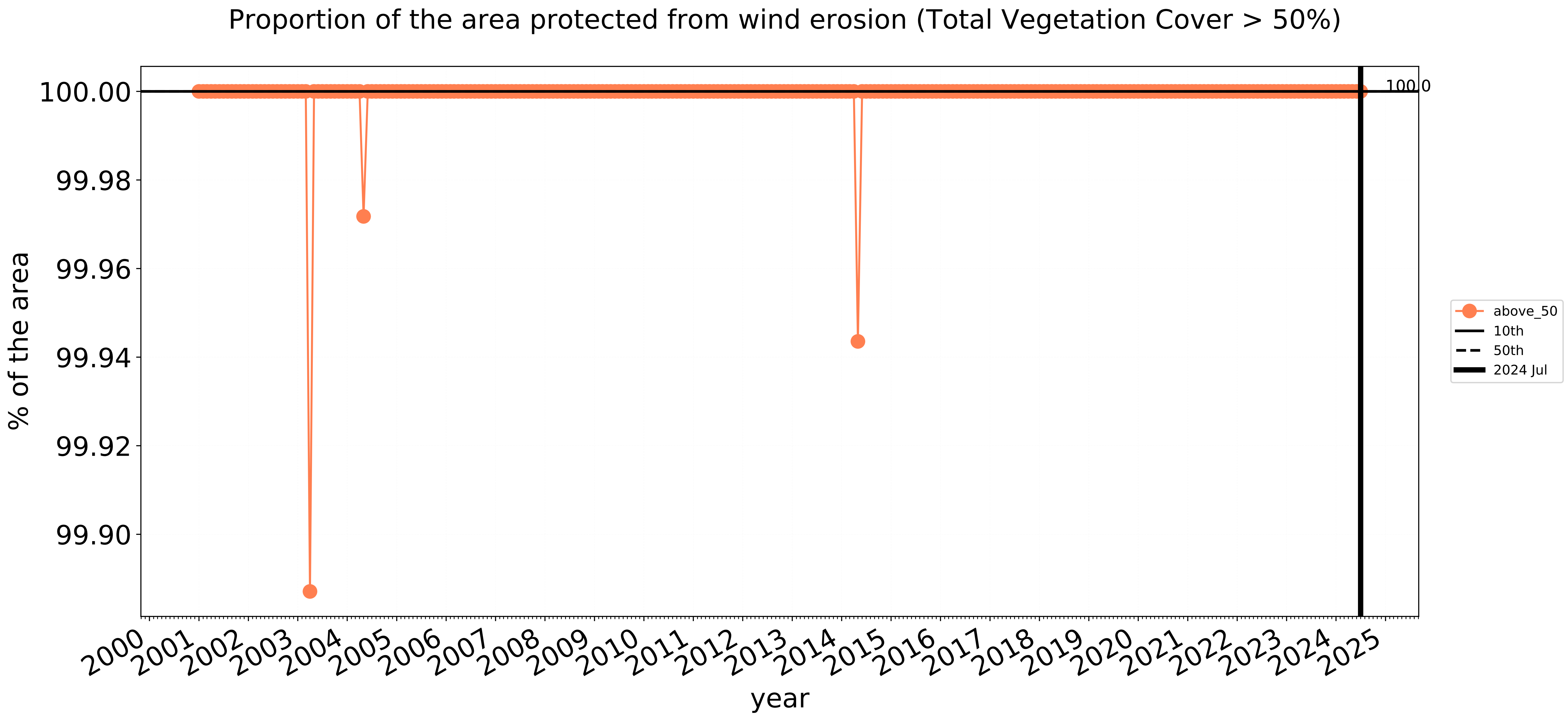
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

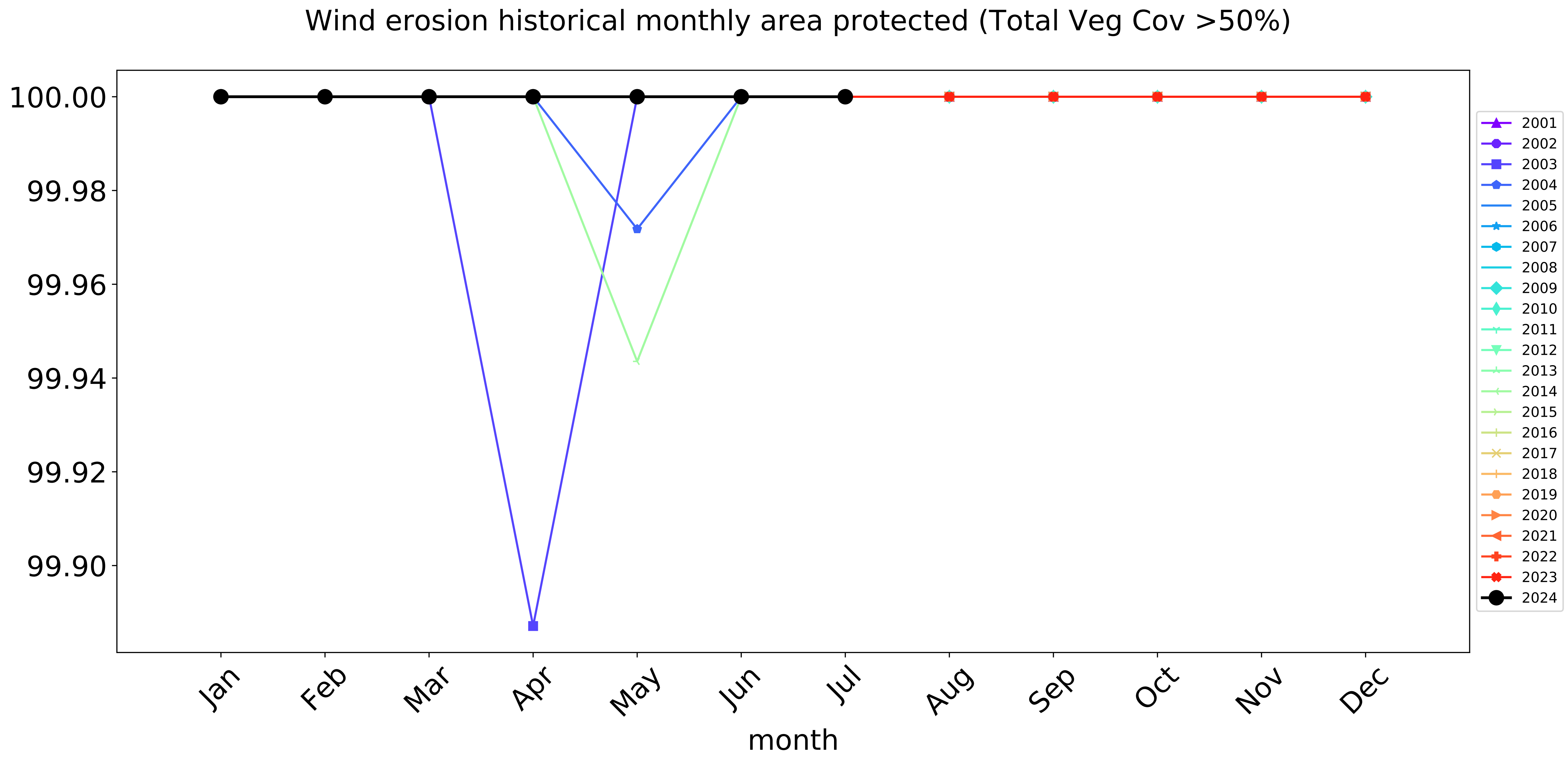

Total Vegetation Cover Anomaly [%]

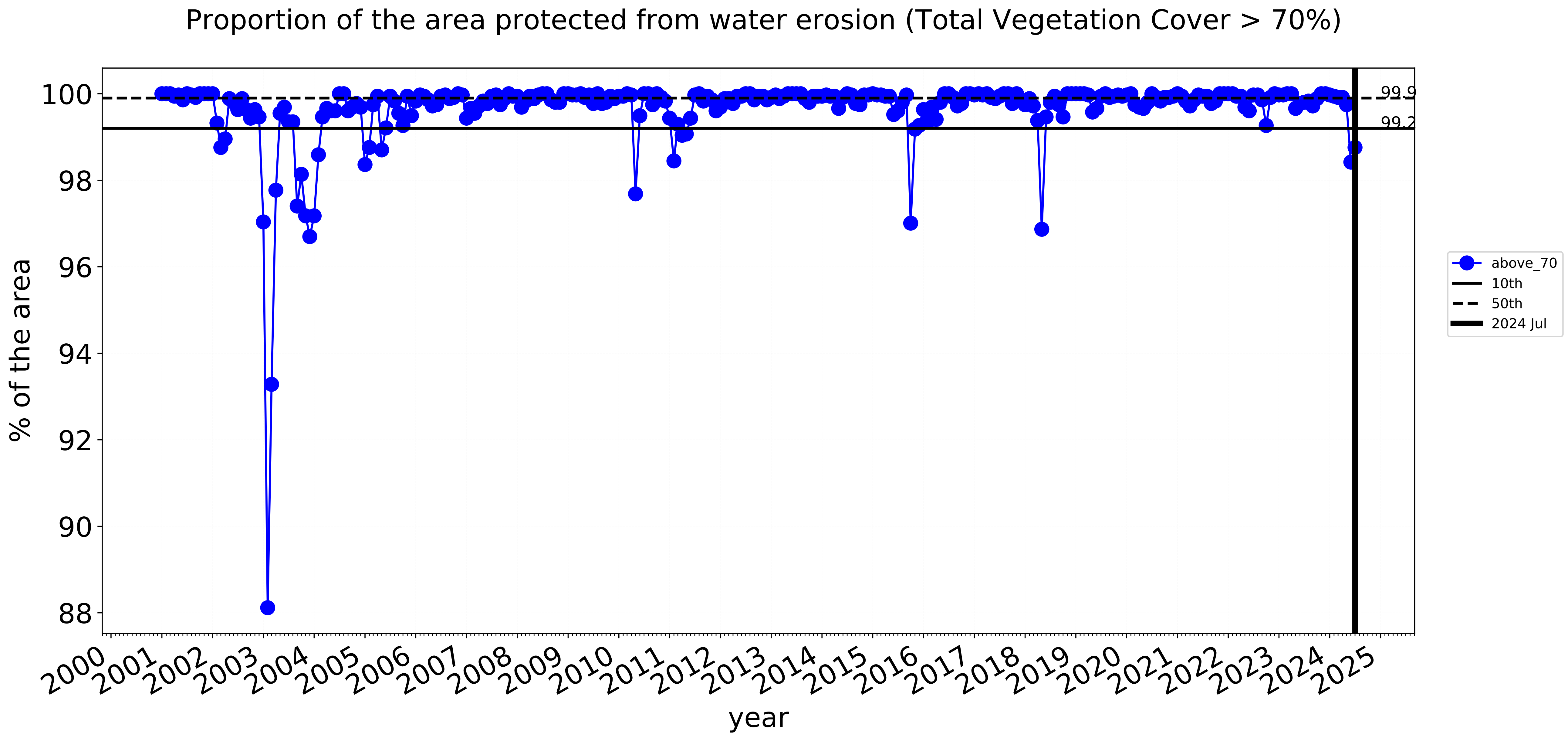
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

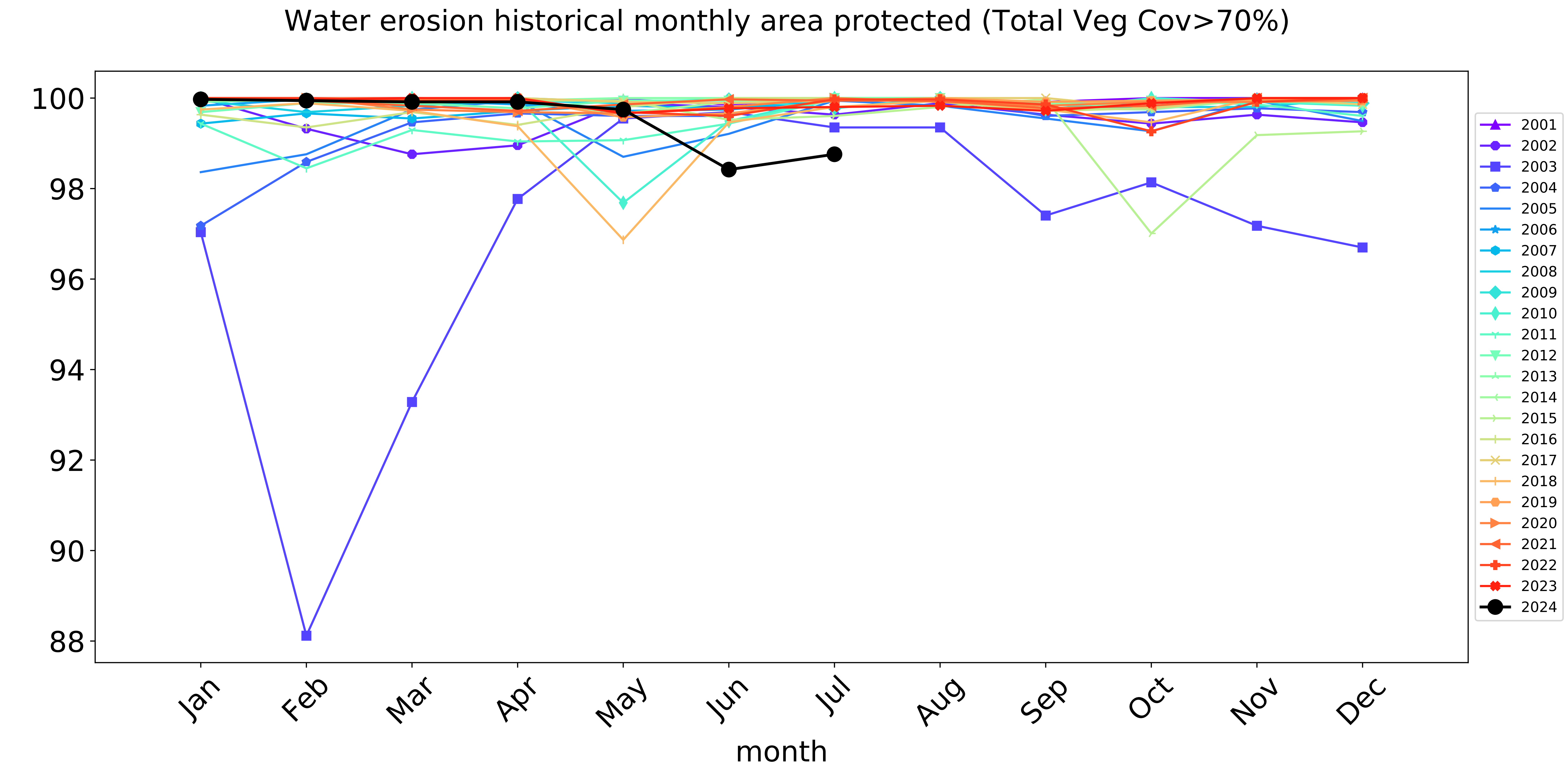

Total Vegetation Cover Decile [%]

Production native forests and plantation forests timeseries

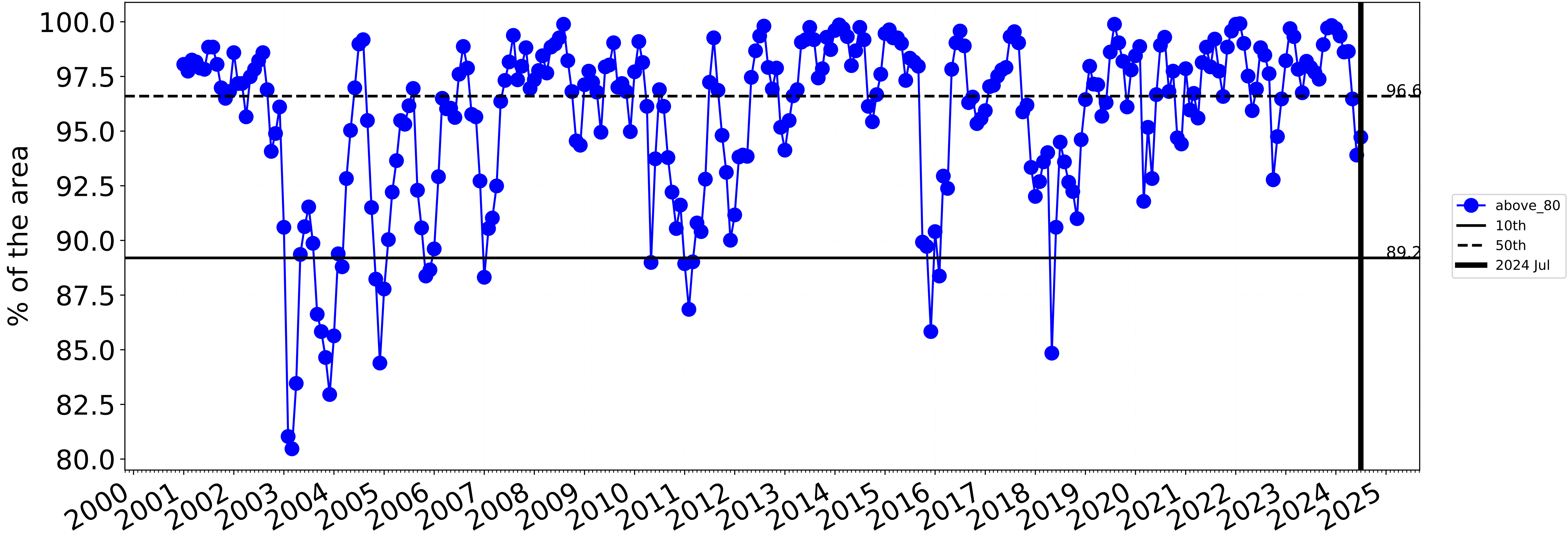

Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)


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

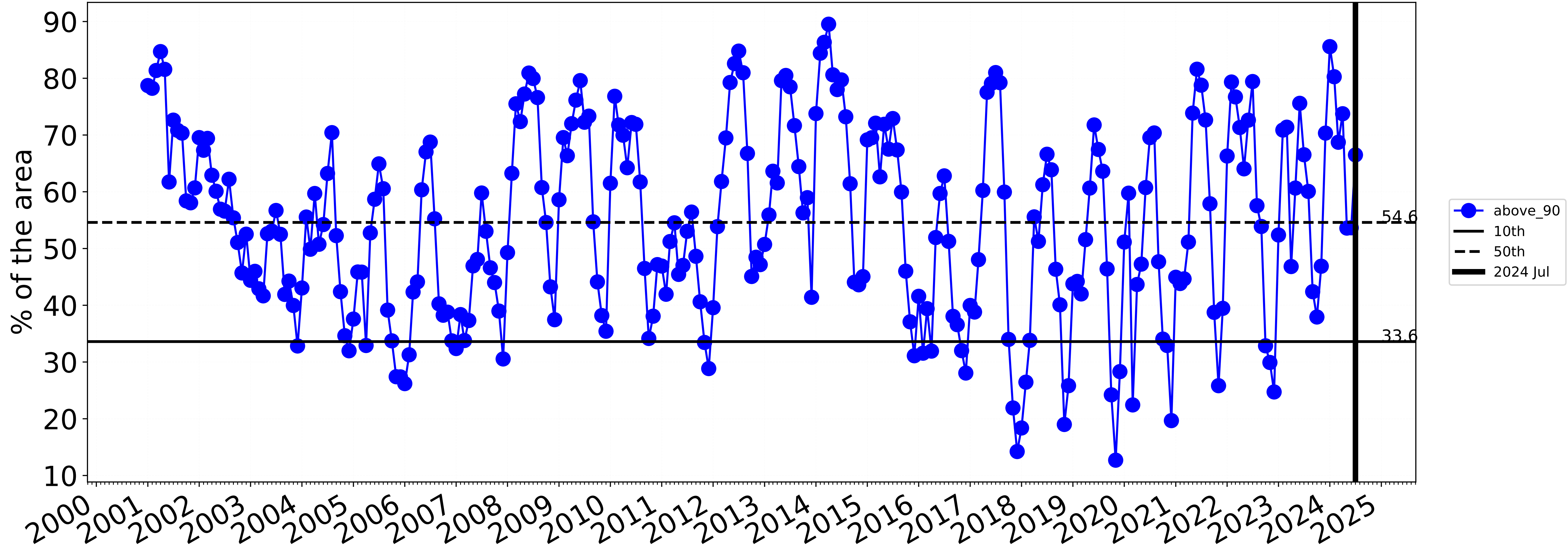

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)


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

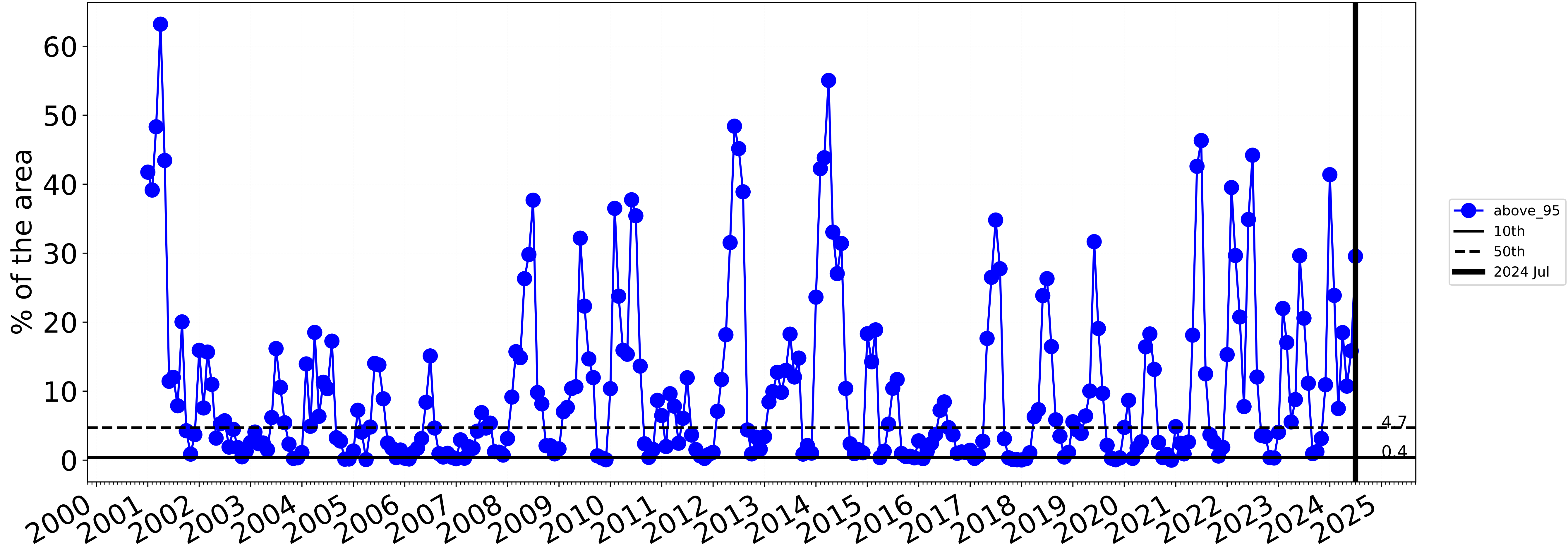
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



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

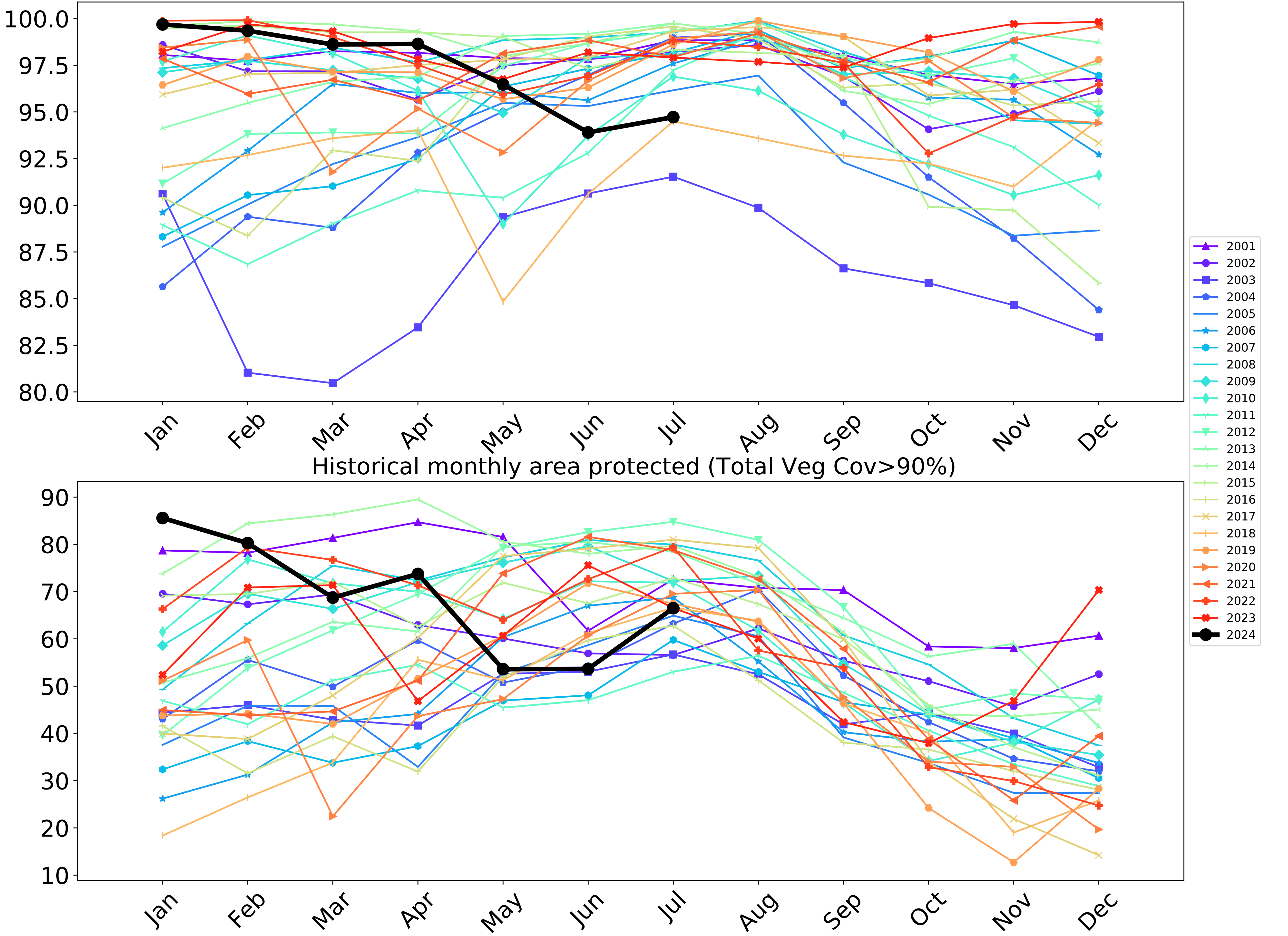


Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)

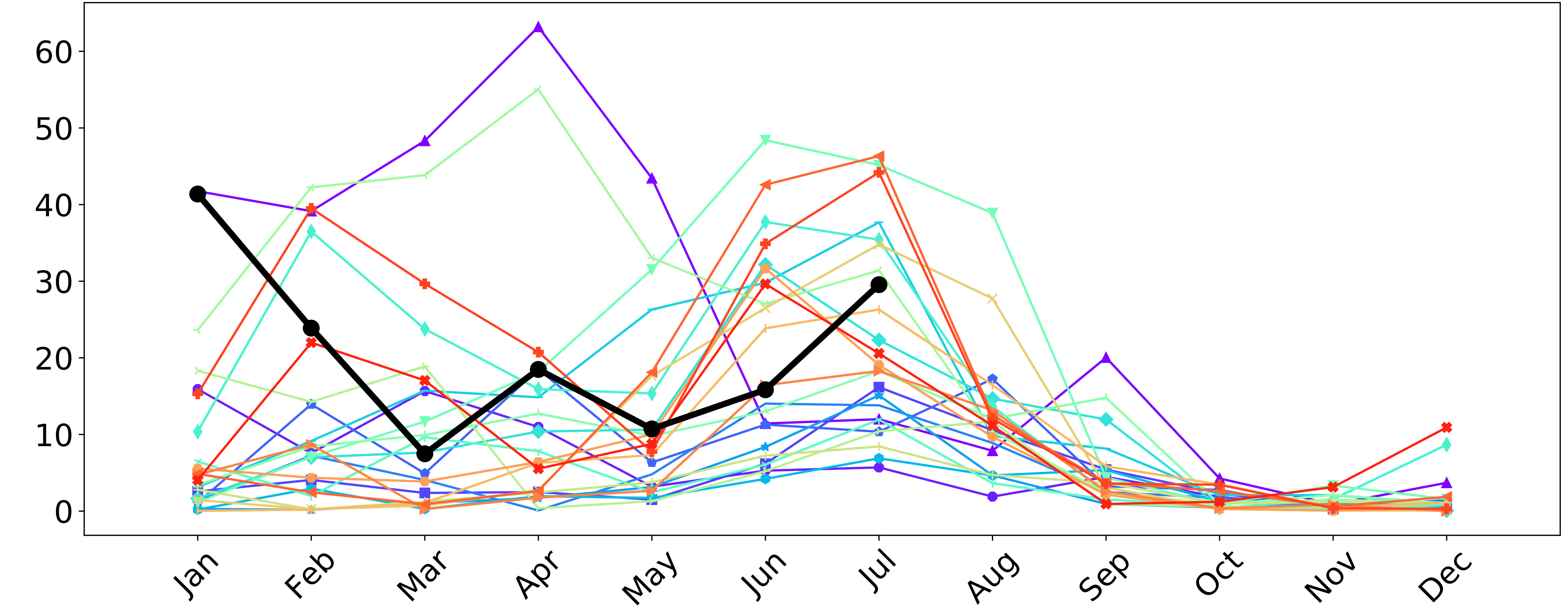


Historical monthly area protected (Total Veg Cov>80%)

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



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



Wandering_(S) (190,325 ha and no data 101 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	190,325	100.0% 190,325	100.0% 190,300	99.0% 188,350	91.0% 173,150	50.2% 95,575	20.9% 39,825
Conservation and natural environments	23,150	100.0% 23,150	100.0% 23,150	100.0% 23,150	97.5% 22,575	62.4% 14,450	27.1% 6,275
Conservation and natural environments Woodland forest	11,900	100.0% 11,900	100.0% 11,900	100.0% 11,900	97.5% 11,600	59.2% 7,050	26.3% 3,125
Conservation and natural environments Forest (non woodland)	10,525	100.0% 10,525	100.0% 10,525	100.0% 10,525	97.6% 10,275	68.2% 7,175	29.9% 3,150
Agriculture	78,350	100.0% 78,350	100.0% 78,325	98.9% 77,475	84.8% 66,450	28.2% 22,075	9.4% 7,350
Grazing	8,900	100.0% 8,900	100.0% 8,900	99.7% 8,875	89.3% 7,950	30.3% 2,700	10.7% 950
Grazing non forest	8,900	100.0% 8,900	100.0% 8,900	99.7% 8,875	89.3% 7,950	30.3% 2,700	10.7% 950
Cropping	69,425	100.0% 69,425	100.0% 69,400	98.8% 68,575	84.2% 58,475	27.9% 19,375	9.2% 6,400
Production native forests and plantation forests	88,575	100.0% 88,575	100.0% 88,575	98.8% 87,475	94.7% 83,900	66.5% 58,900	29.6% 26,175