

Total vegetation cover soil protection

Region:LGA Cowra_(A) NSW

Date: March 2023

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

Land use forest cover:

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

Total vegetation Cover:

The total vegetation cover indicates where soil is likely to be protected from wind and or water hillslope erosion. Total vegetation cover for this month is shown on a map and chart classified into 4 classes.

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

Erosion protection: Wind erosion 50% total vegetation cover

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

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

Comparison with previous years:

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

Anomalies and deciles until September 2019 are calculated comparing to the same months 2001 to 2019. Extra monthly data will be used to calculate anomalies and deciles post September 2019 as they become available.

Time series monthly from January 2001 to current:

Erosion protection

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

Rainfall

- Millimetres rainfall each month (black line).

Each time series is also stacked by year. The black line shows the current year of data.

Water erosion protection for higher rainfall and steeper slopes:

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

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

Acknowledgment of data:

1. <http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification>
2. <http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018>
3. <https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover>
4. MODIS Fractional cover algorithm:
<https://doi.org/10.4225/08/5848a3f19a7b3>



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Vegetation Cover Mar 2023

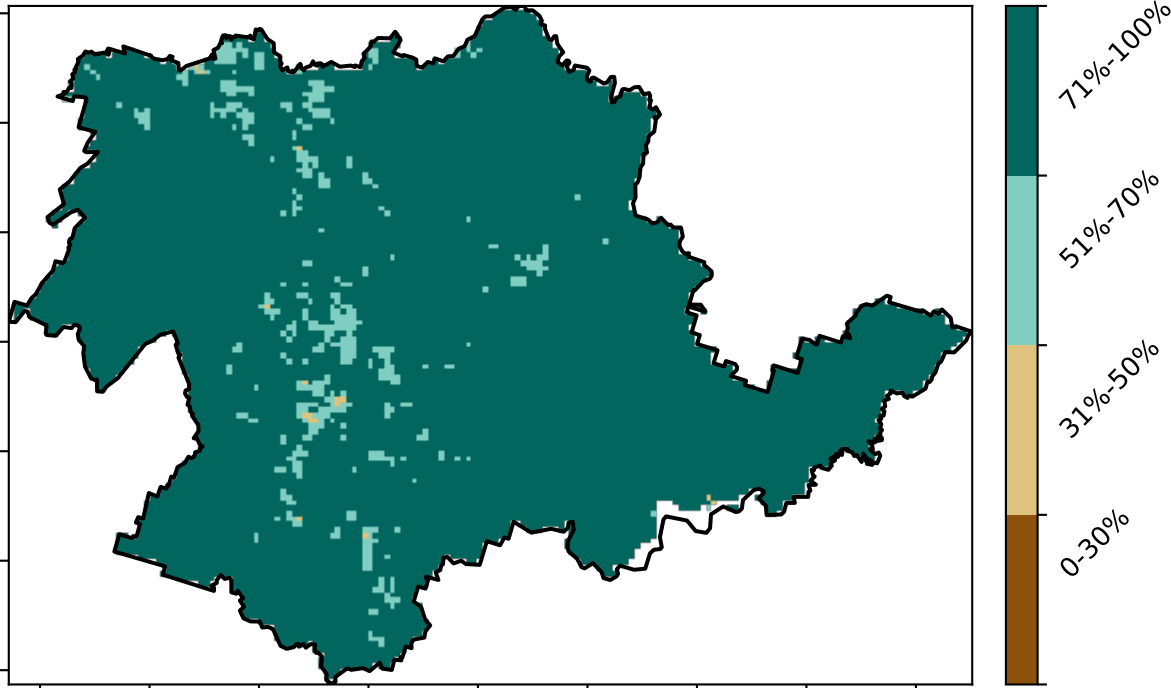
Land use and forest cover



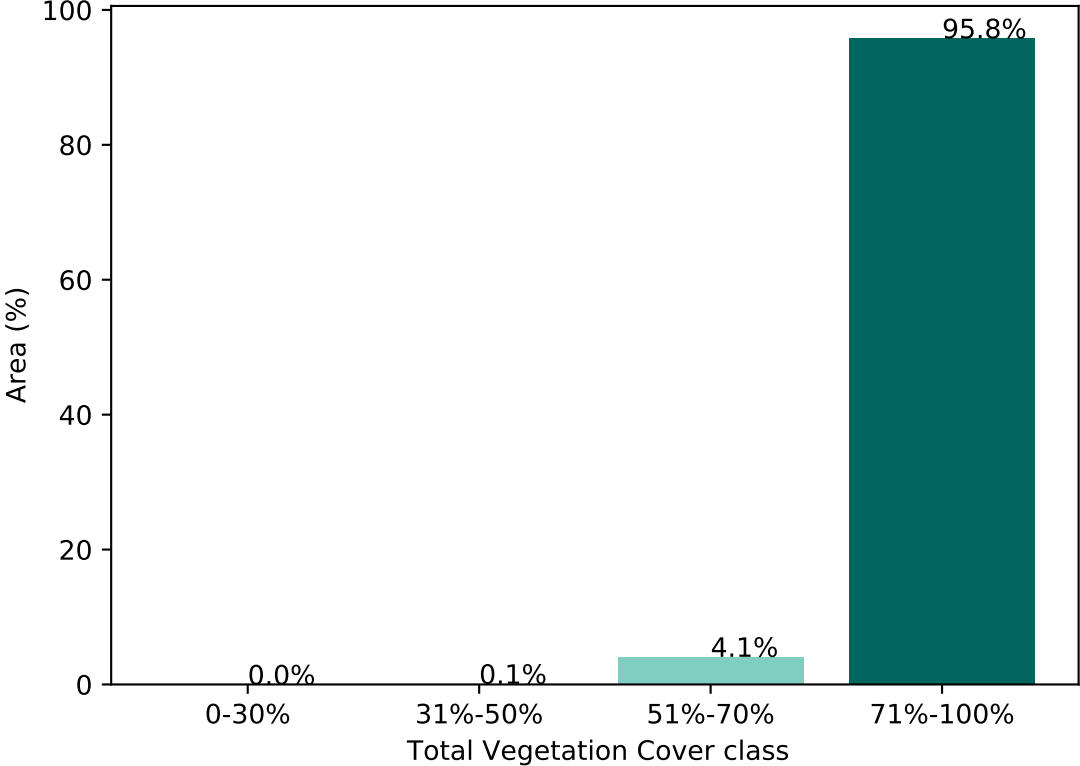
Proportion of each land class in area



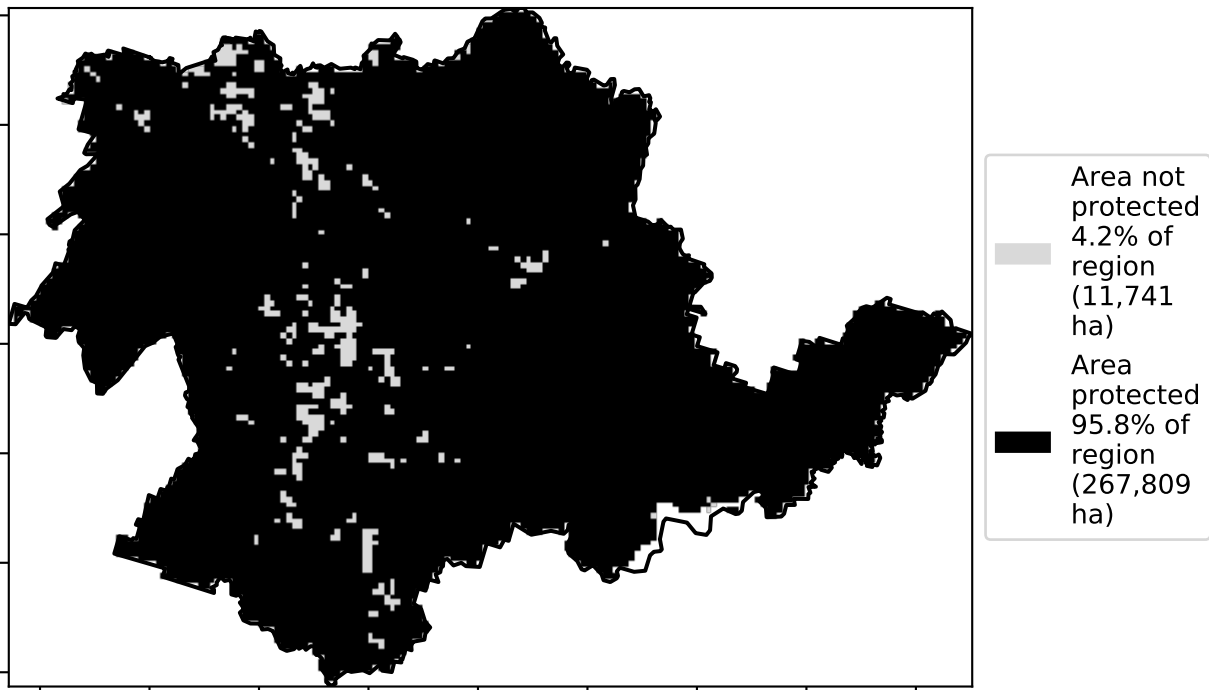
Total Vegetation Cover [%]



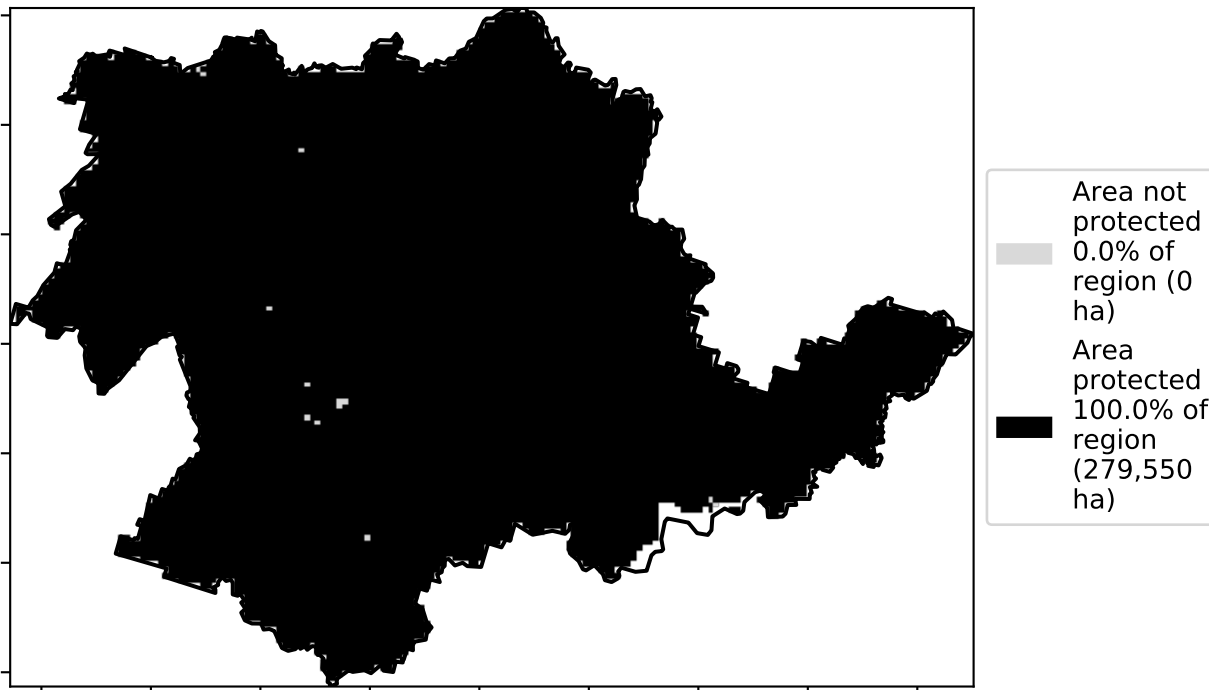
Proportion of vegetation cover class in area



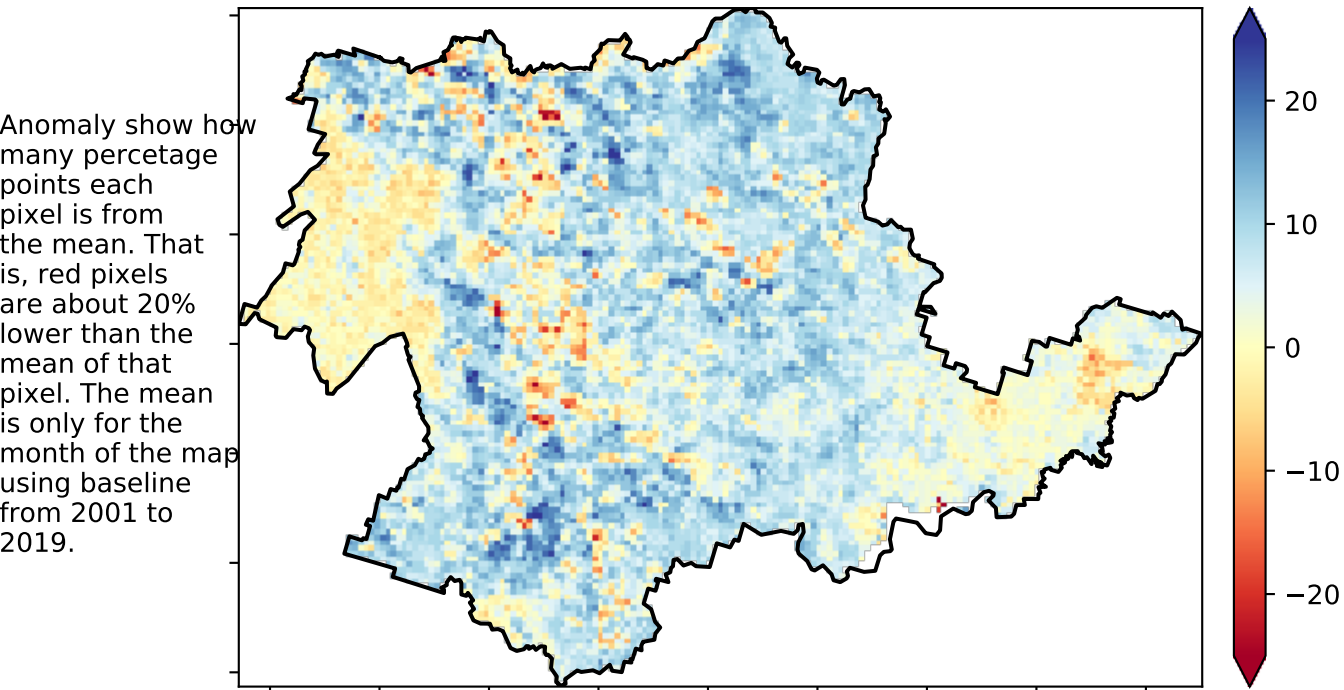
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

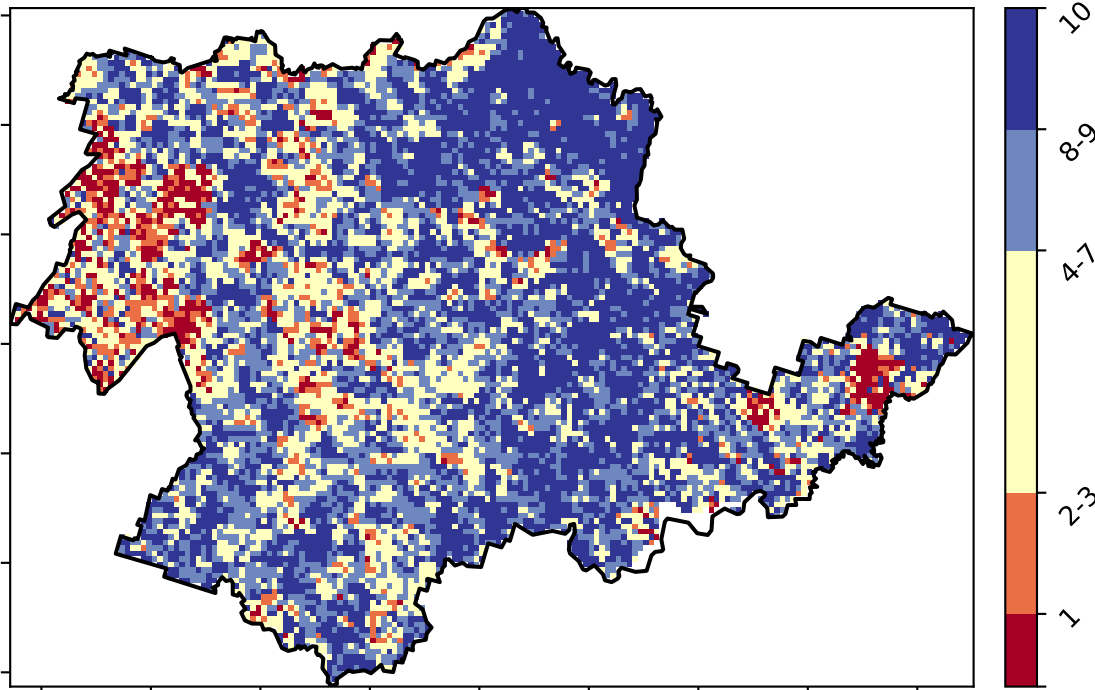


Total Vegetation Cover Anomaly [%]



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.



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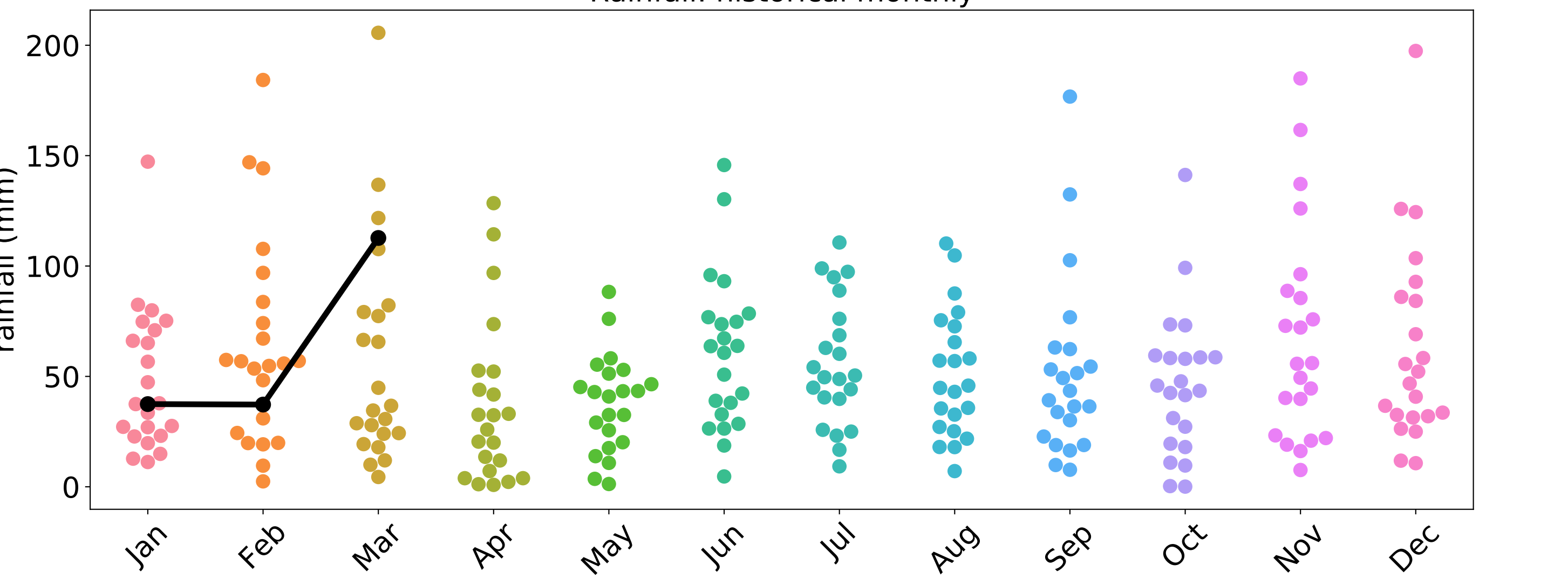
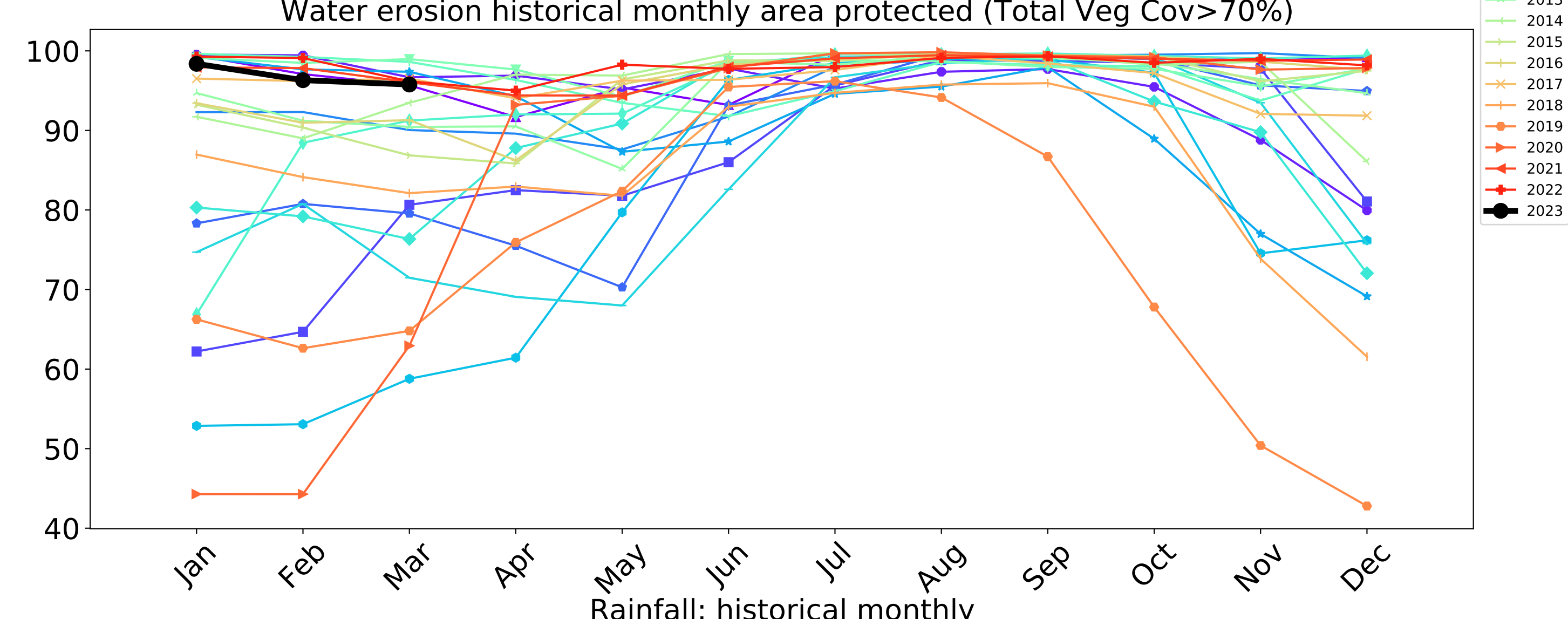
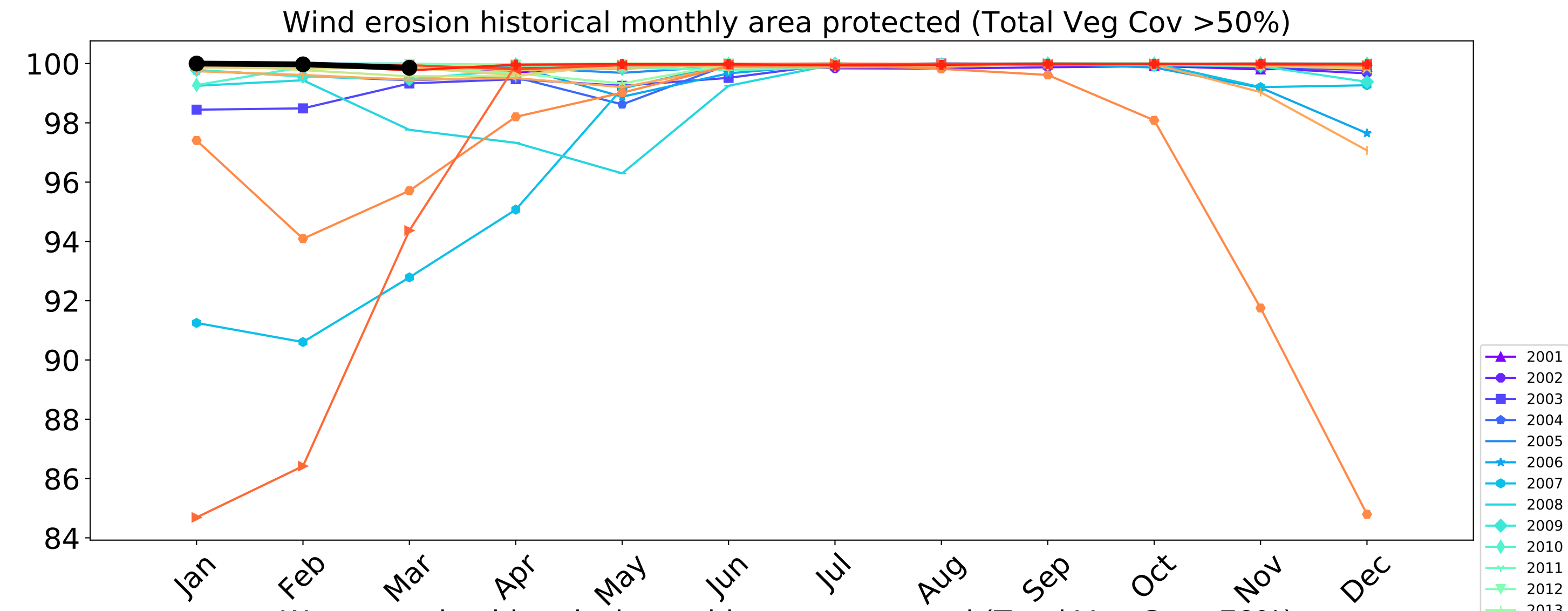
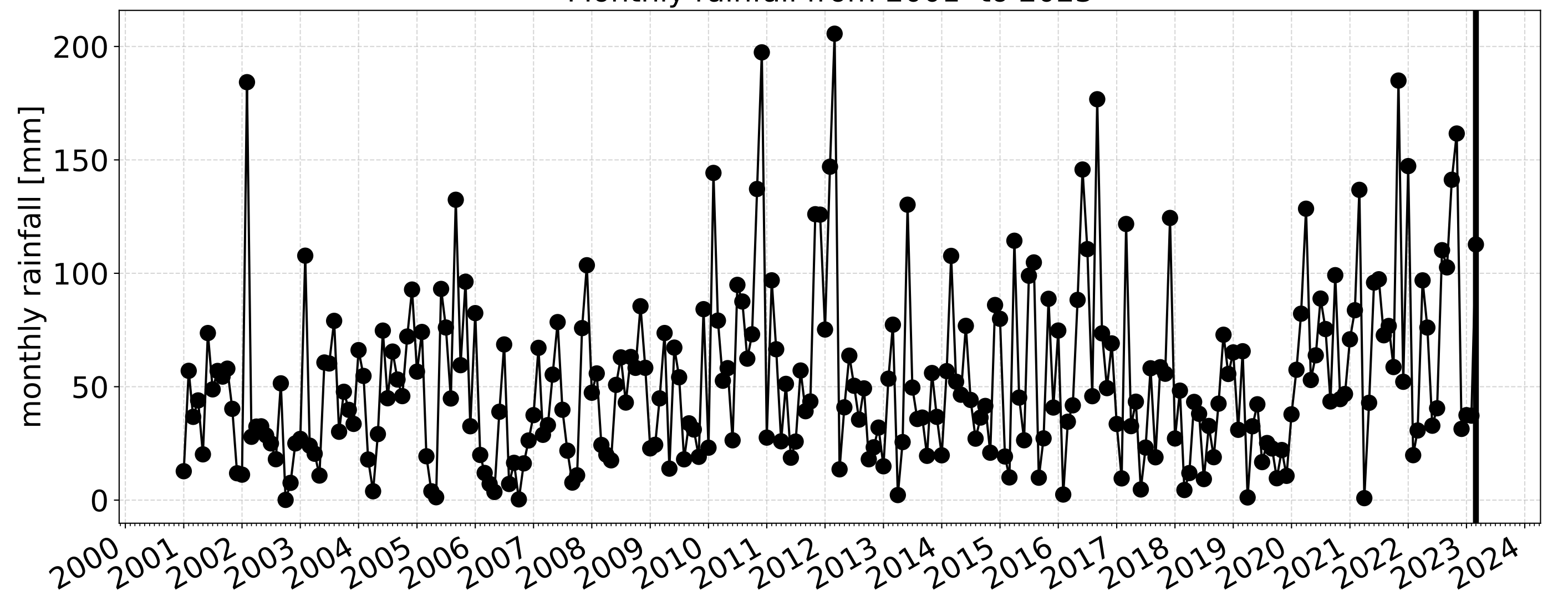
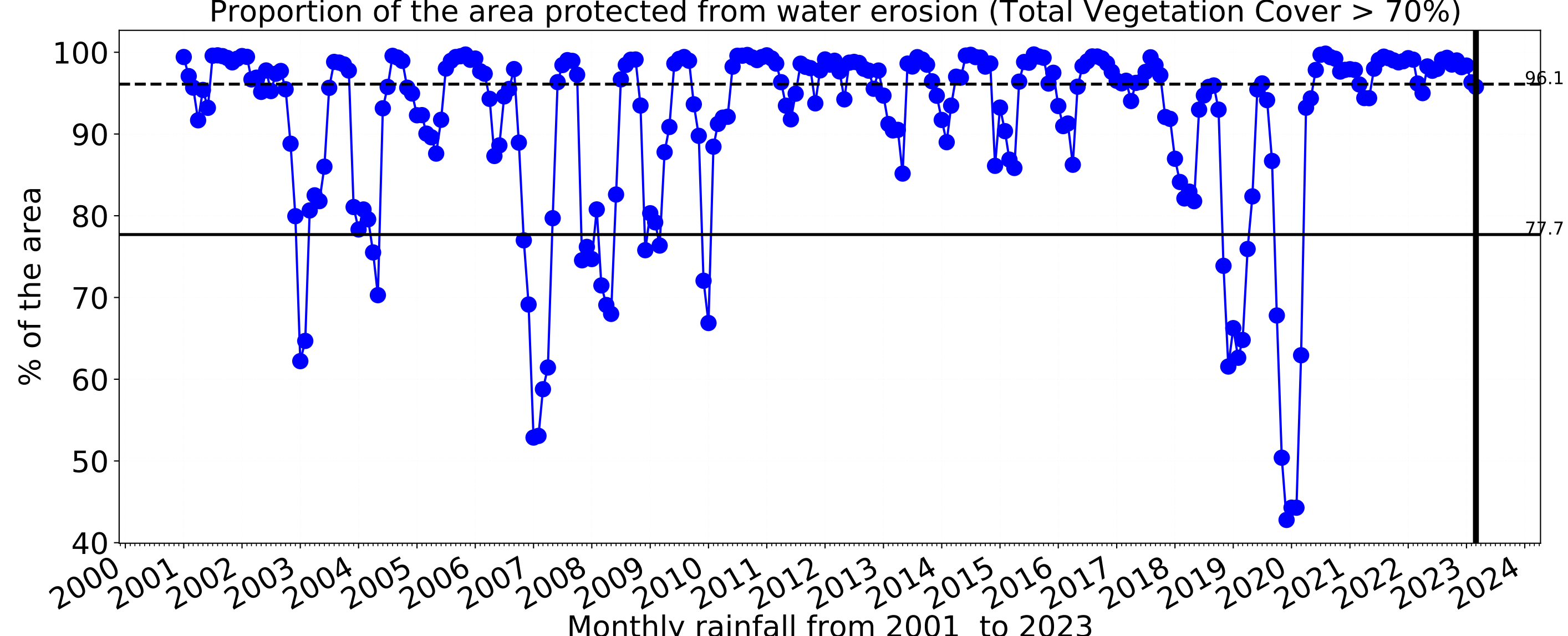
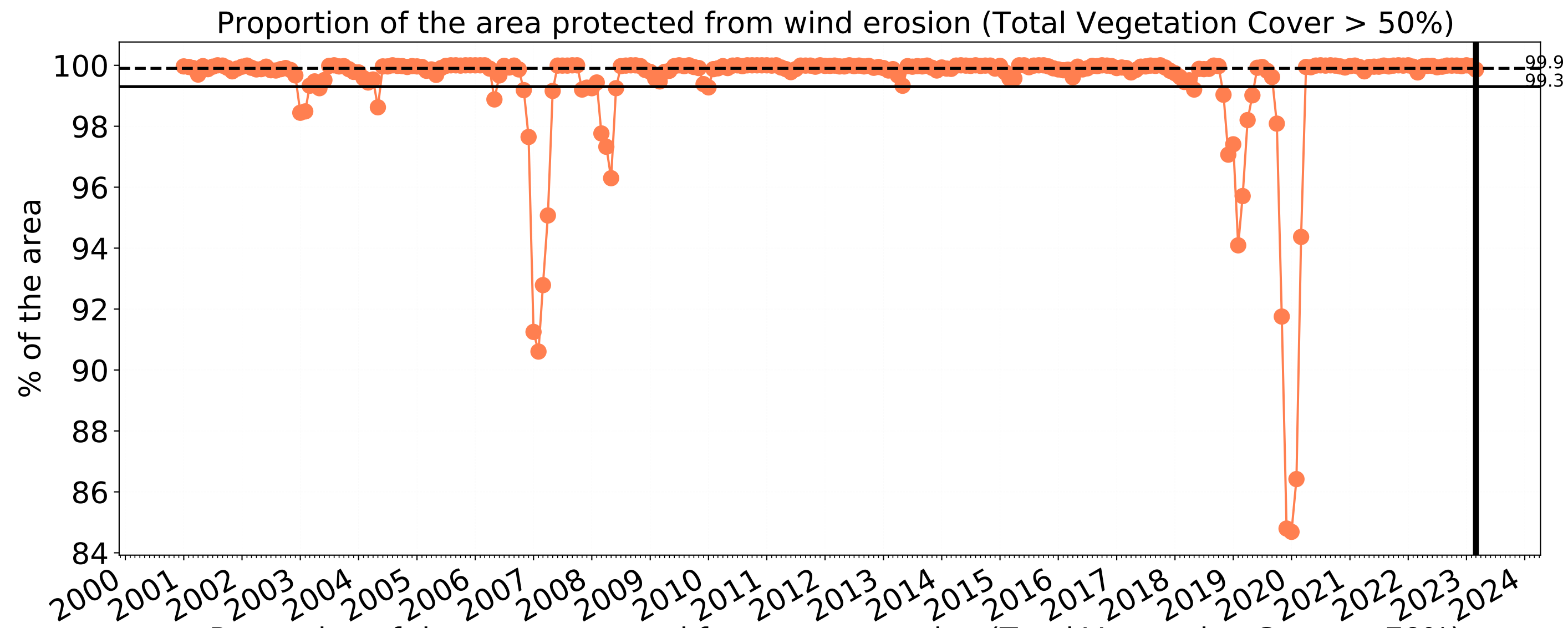
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Conservation and natural environments

Land use and forest cover

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



Proportion of each land class in area



Total Vegetation Cover [%]



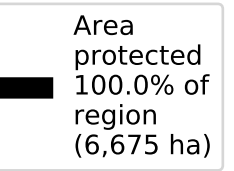
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

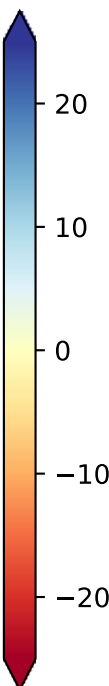
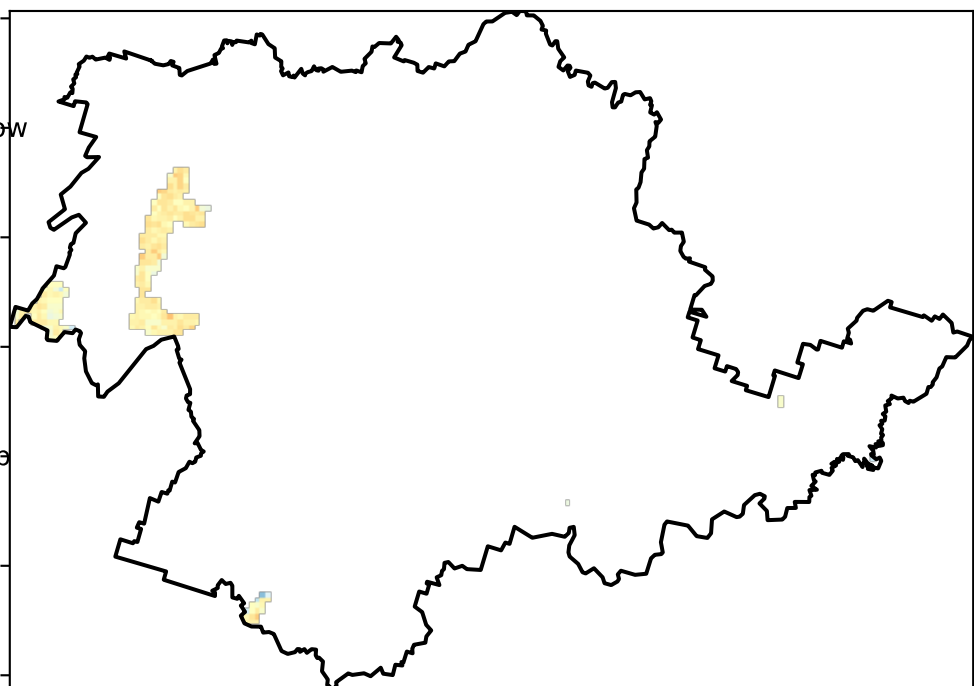


% Area protected from wind erosion (>50%)



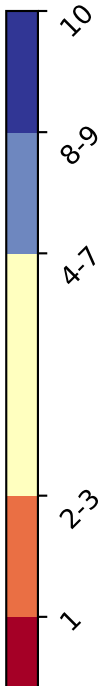
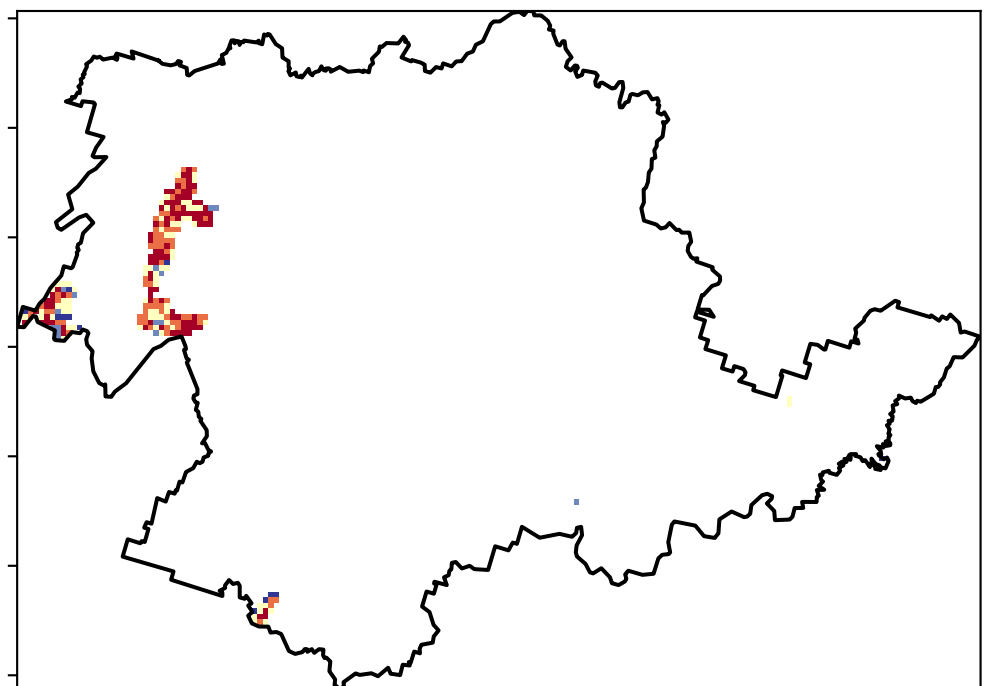
Total Vegetation Cover Anomaly [%]

Anomaly show how many percentage 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.



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Total Vegetation Cover Decile [%]



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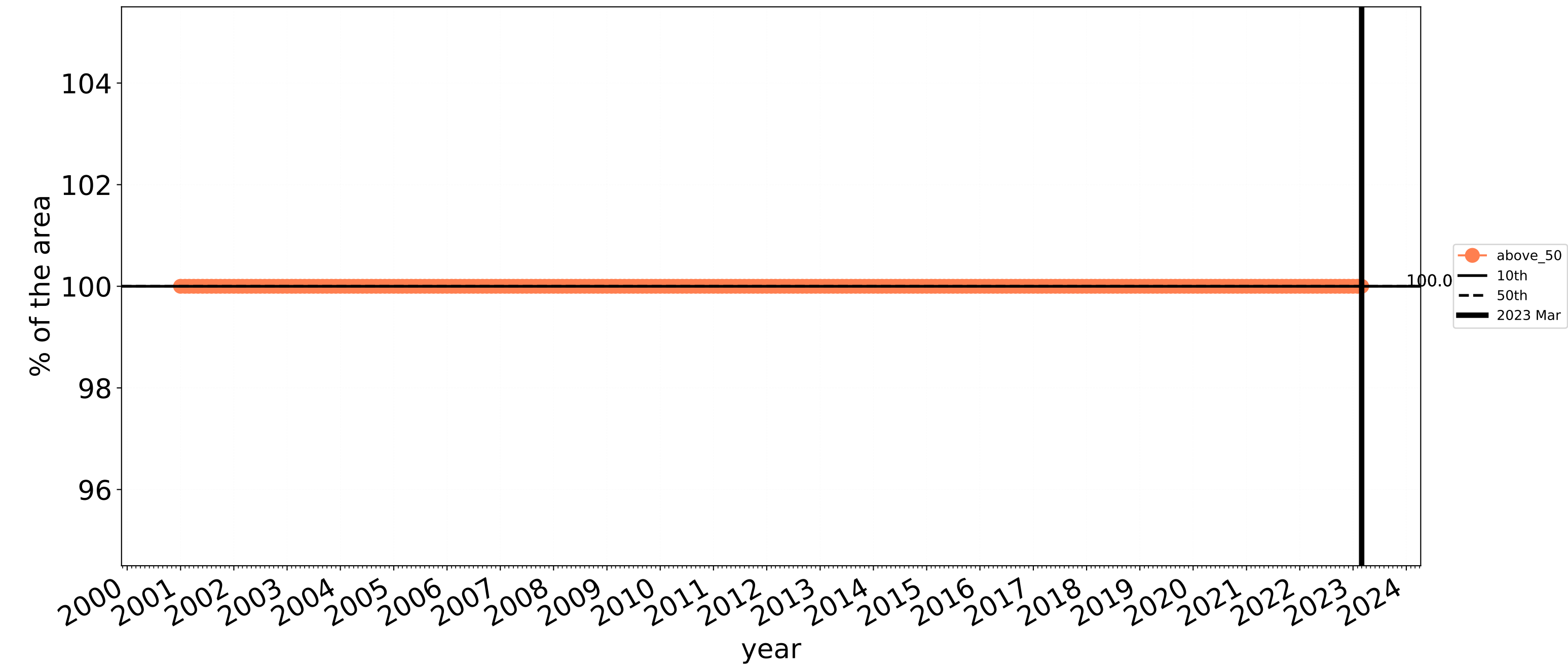


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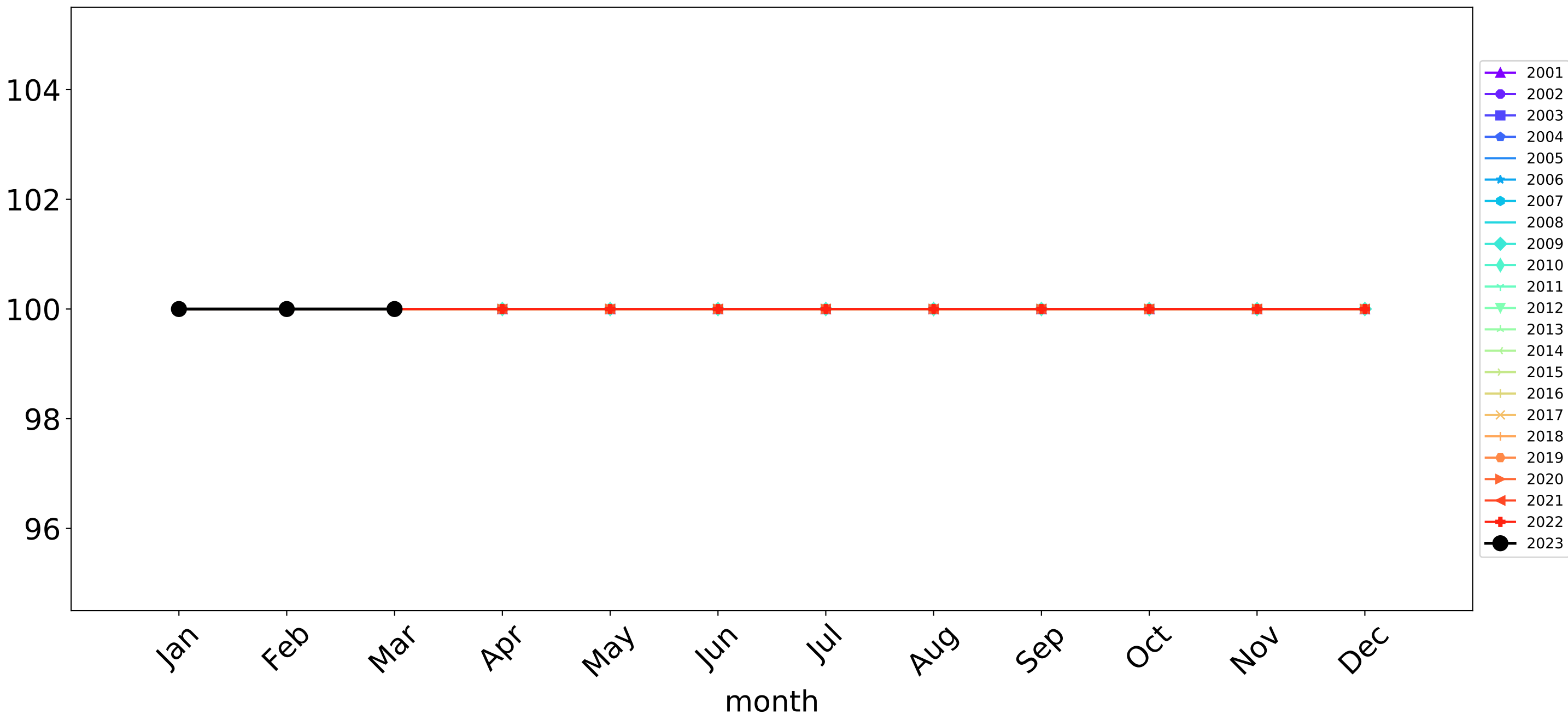


Conservation and natural environments timeseries

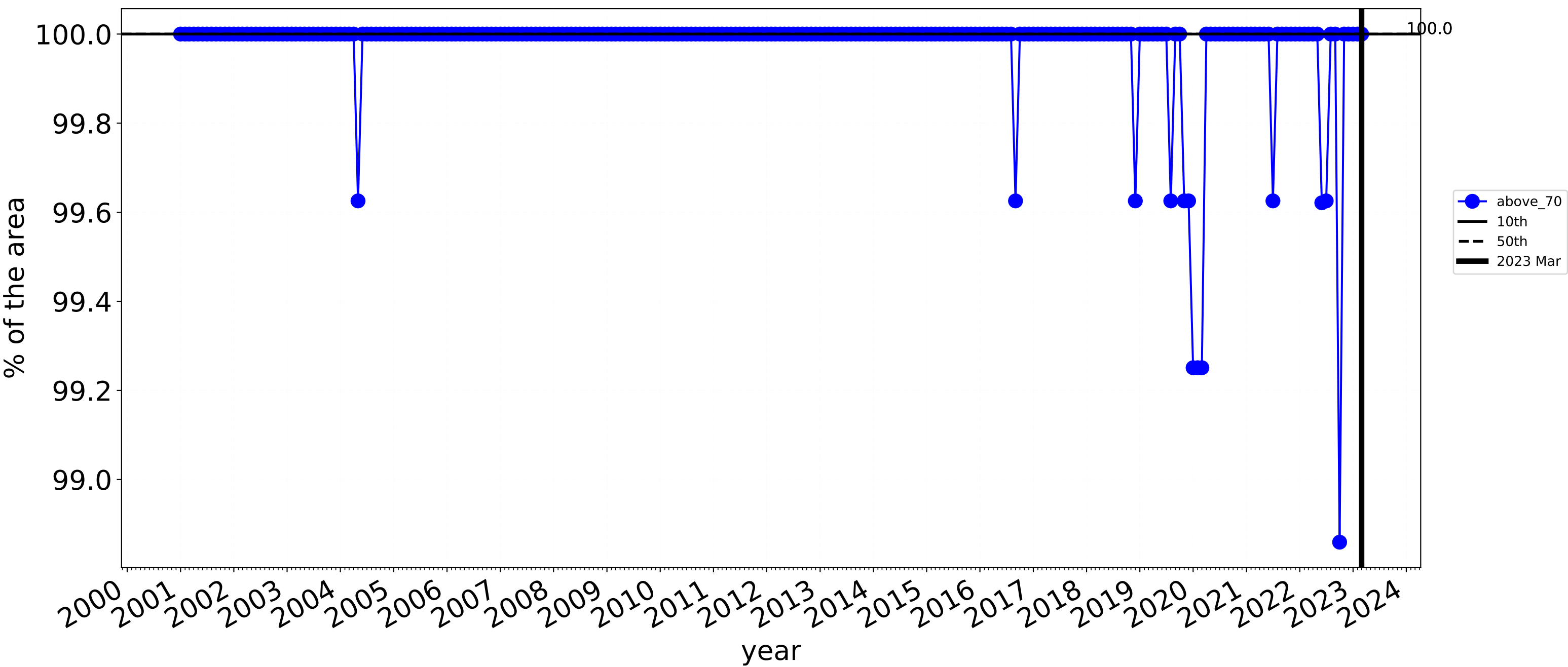
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



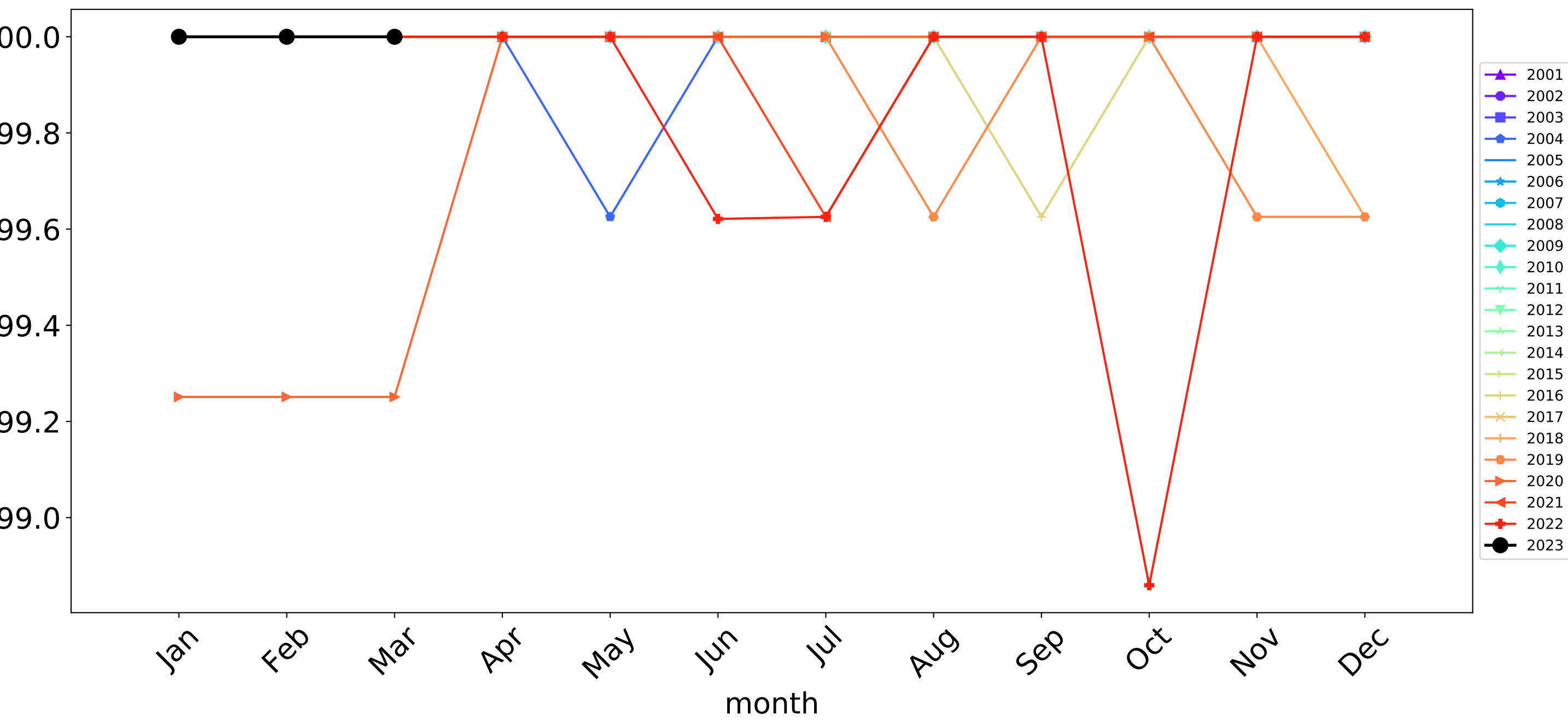
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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



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 [%]



Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



Area protected
100.0% of
region
(6,625 ha)

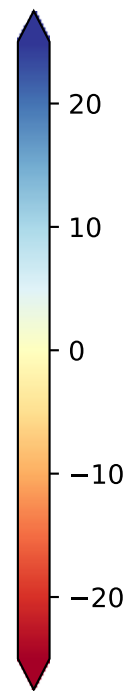
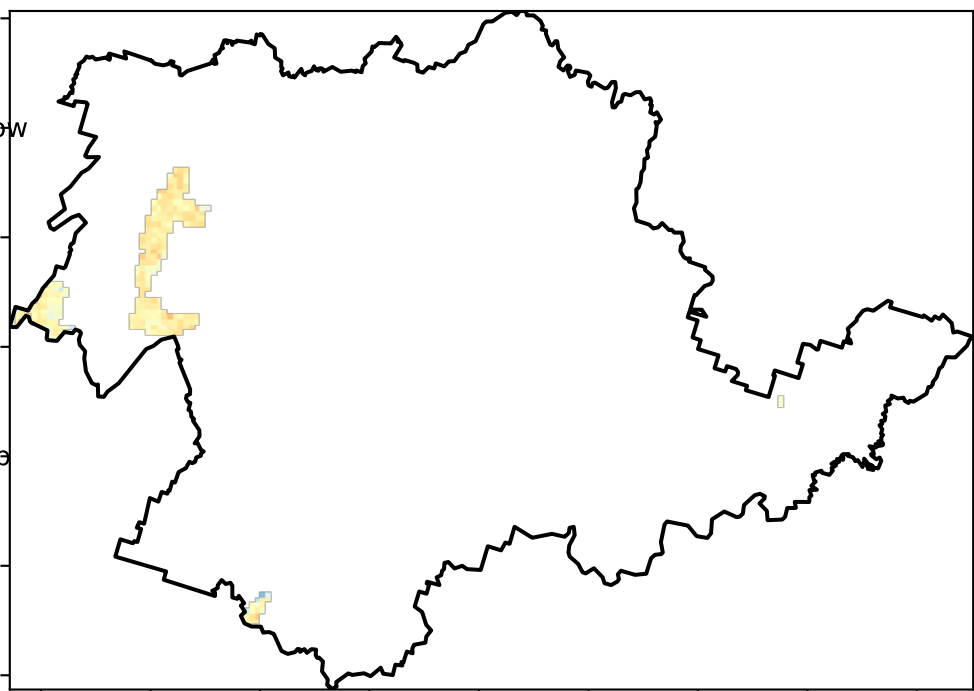
% Area protected from wind erosion (>50%)



Area protected
100.0% of
region
(6,625 ha)

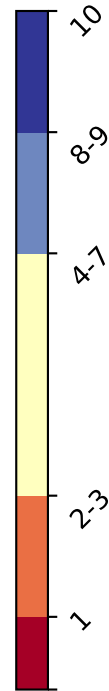
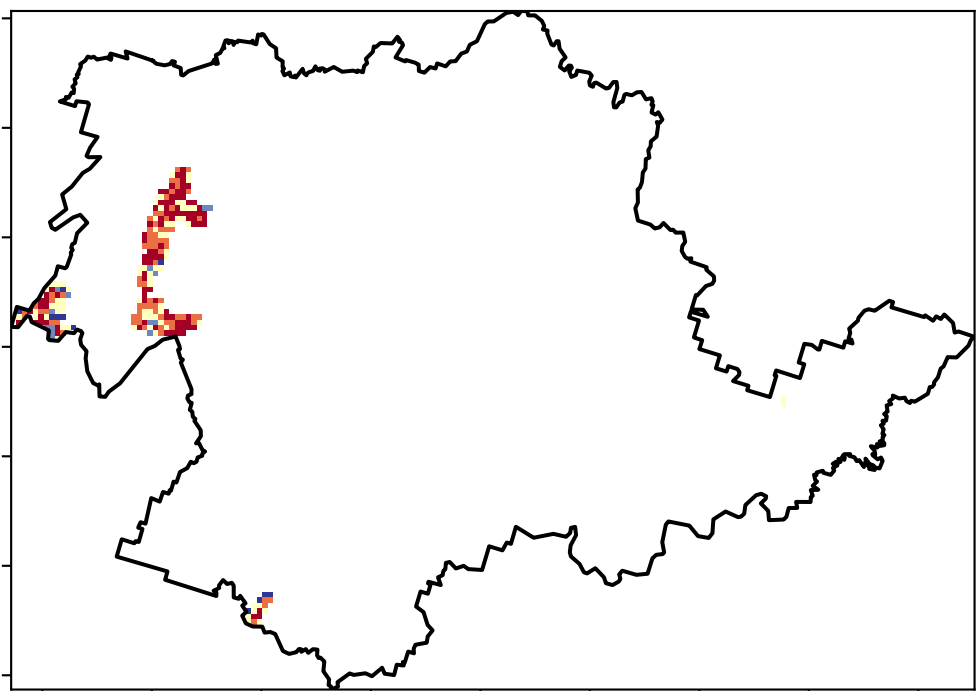
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Total Vegetation Cover Decile [%]



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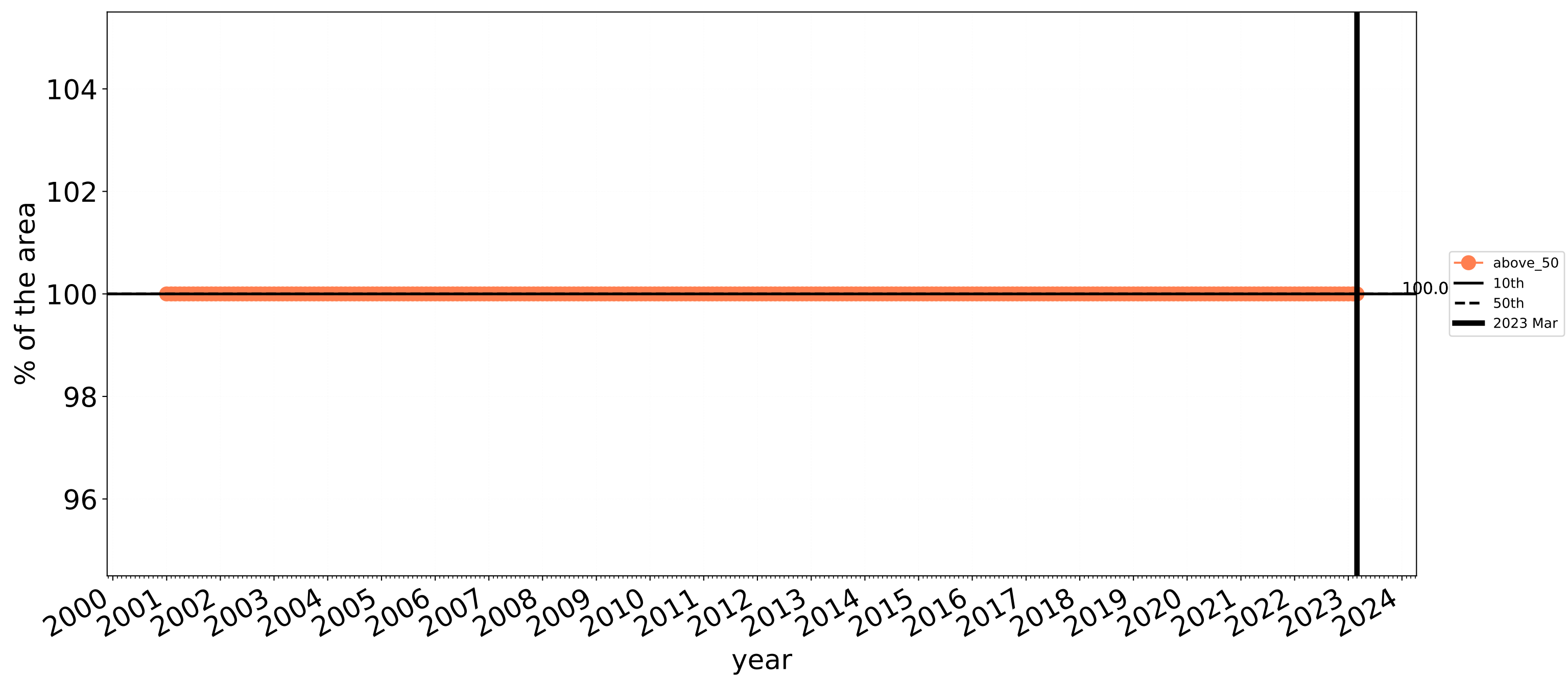
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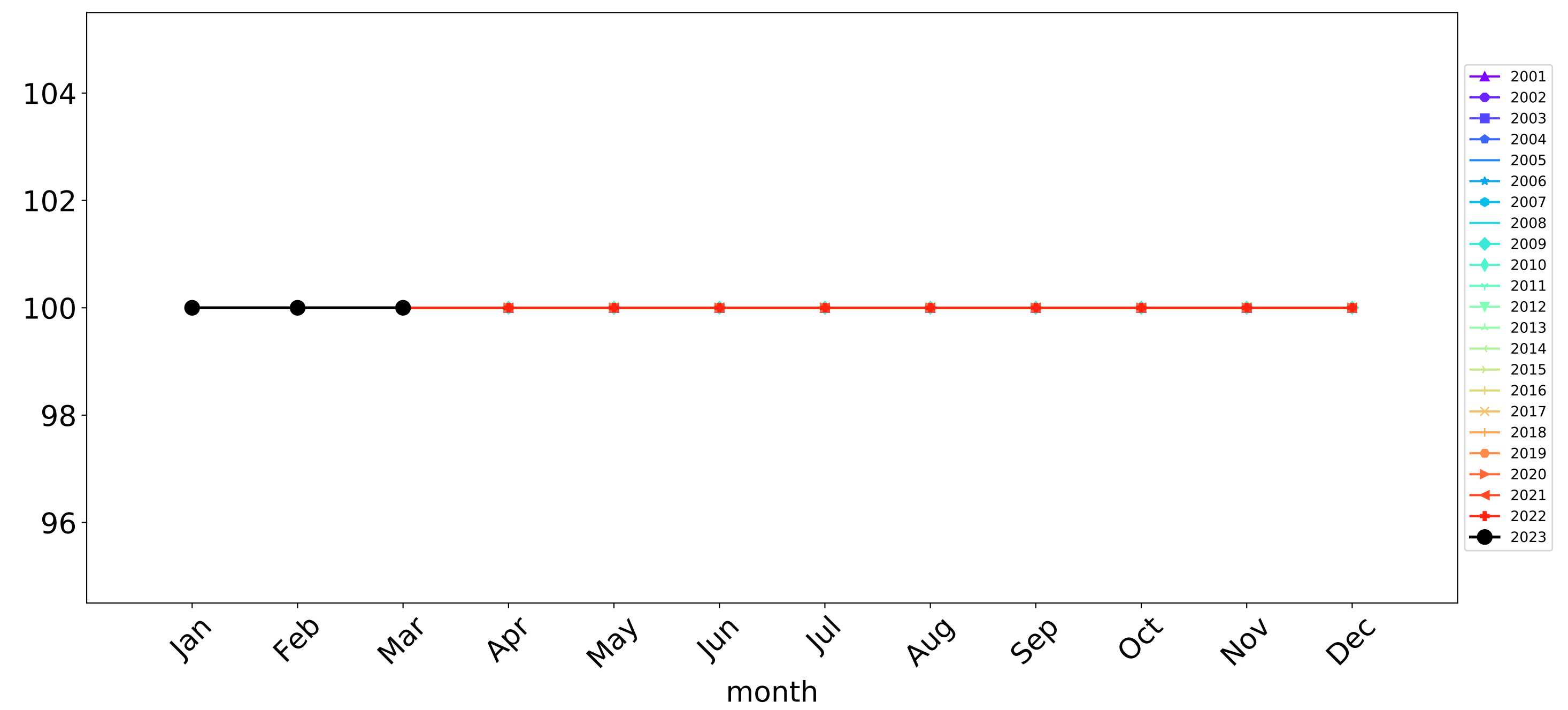


Conservation and natural environments Woodland forest timeseries

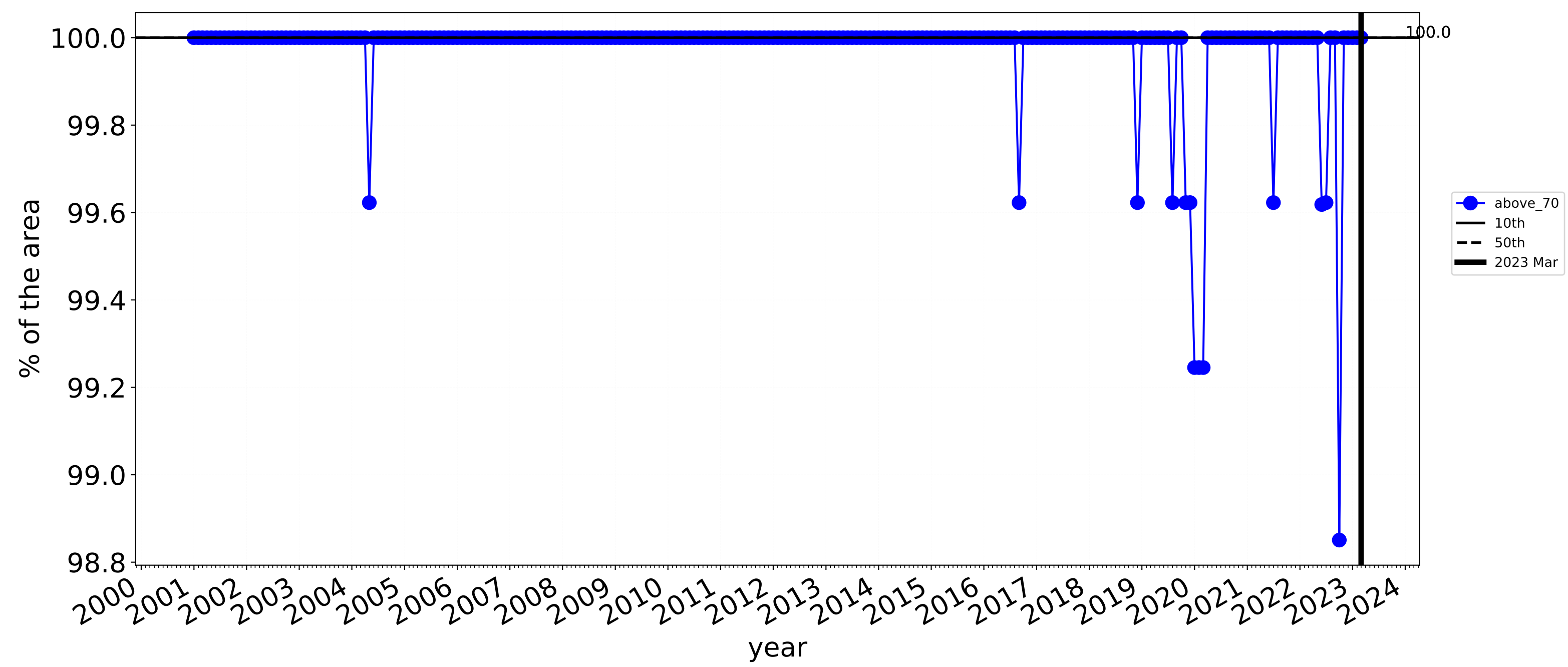
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



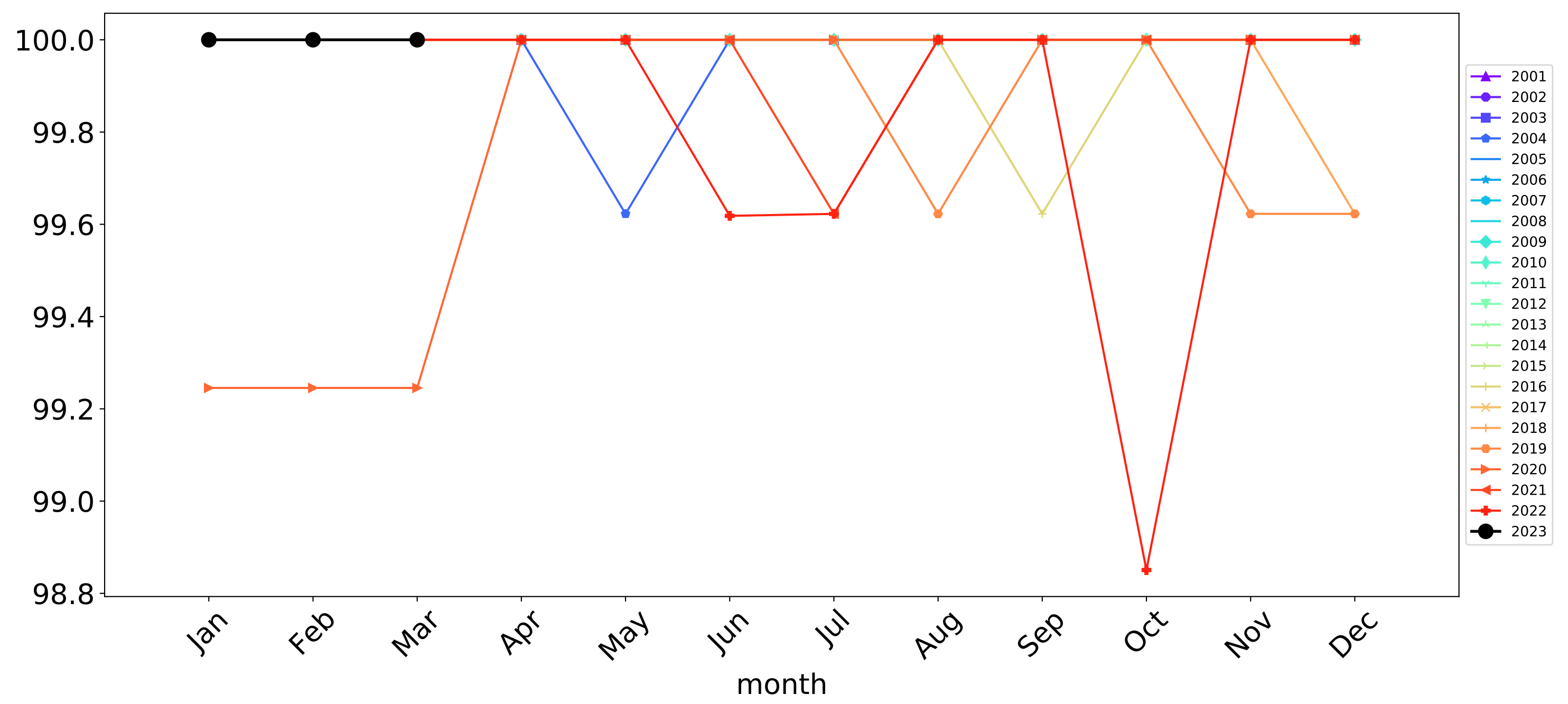
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



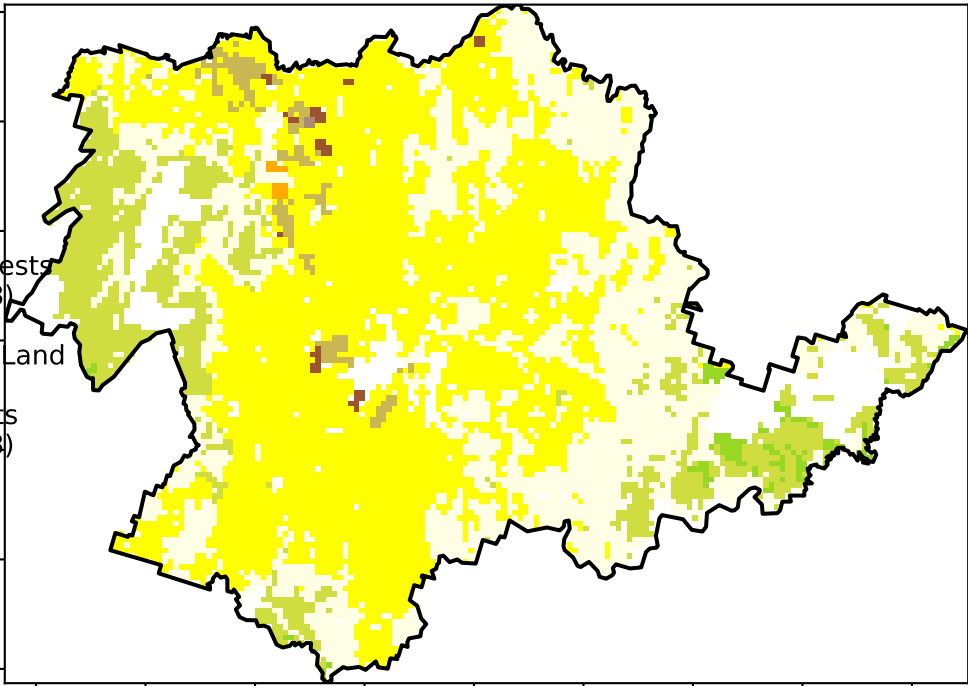
Water erosion historical monthly area protected (Total Veg Cov>70%)



Agriculture

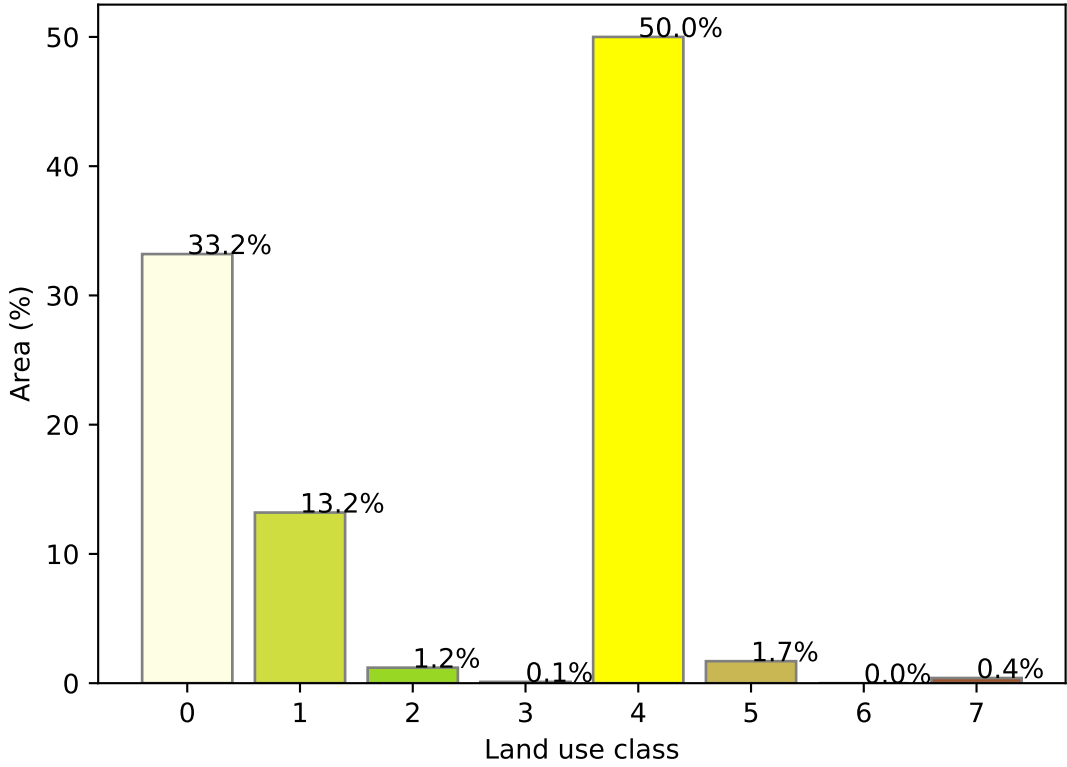
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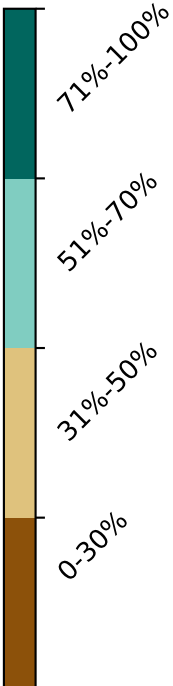
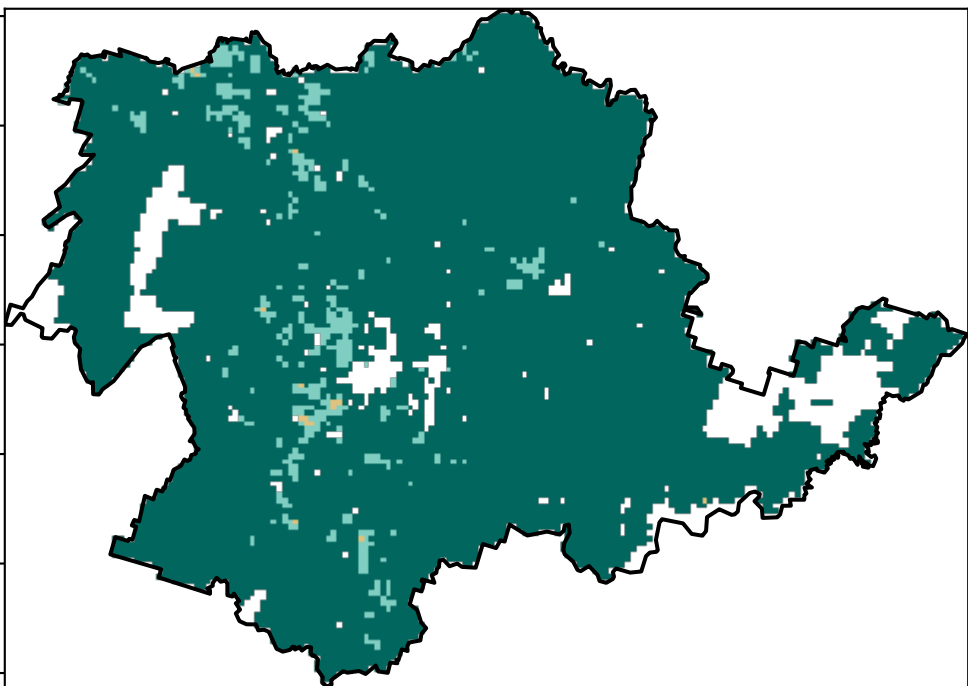


- 1 Agriculture - Grazing - Non forest
- 2 Agriculture - Grazing - Woodland forest
- 3 Agriculture - Grazing - Non-woodland forest
- 4 Agriculture - Grazing - Irrigated
- 5 Agriculture - Cropping - Non-irrigated
- 6 Agriculture - Cropping - Irrigated
- 7 Agriculture - Horticulture - Non-irrigated
- 8 Agriculture - Horticulture - Irrigated

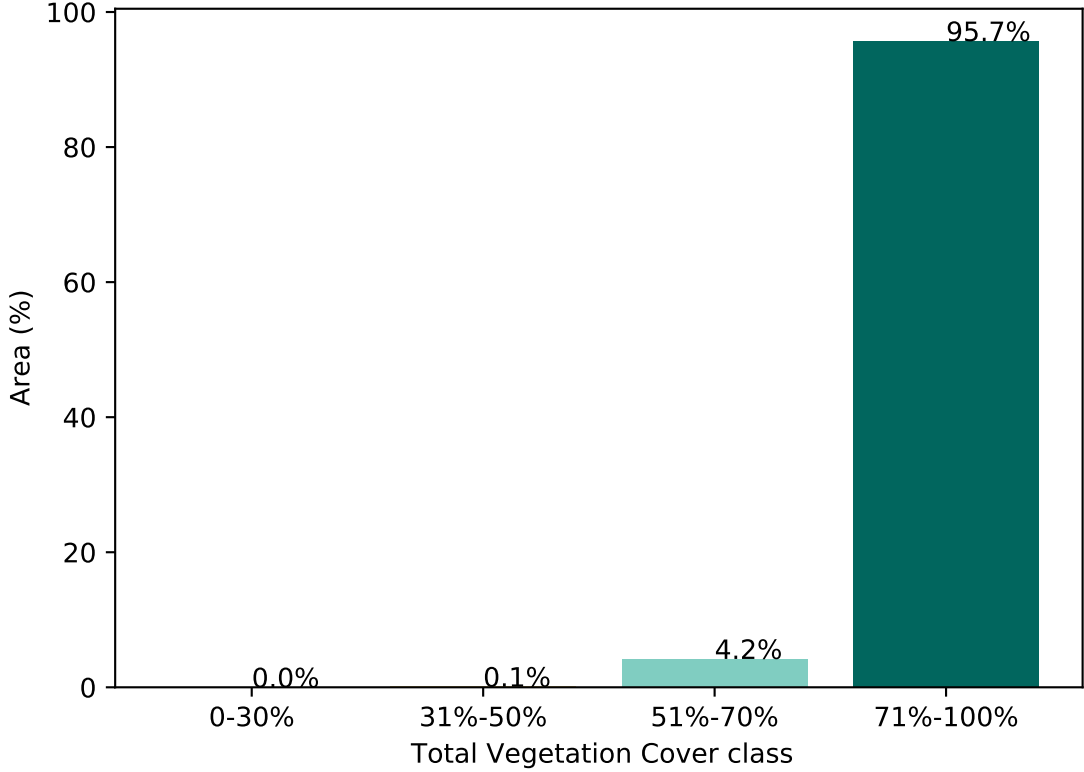
Proportion of each land class in area



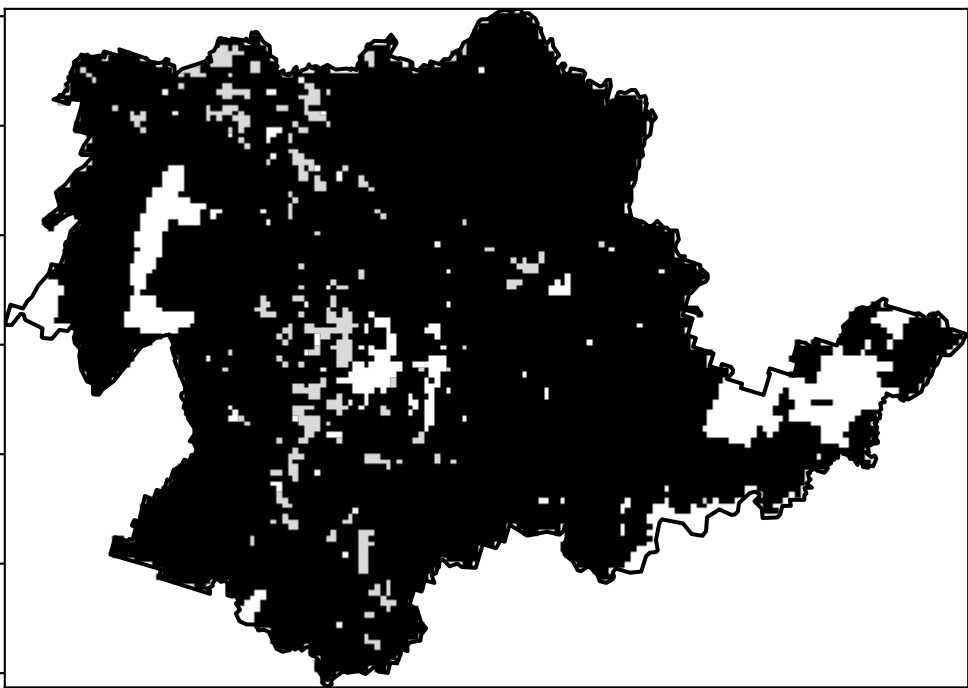
Total Vegetation Cover [%]



Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



- Area not protected 4.3% of region (11,114 ha)
- Area protected 95.7% of region (247,361 ha)

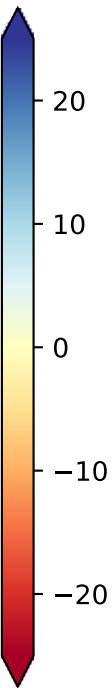
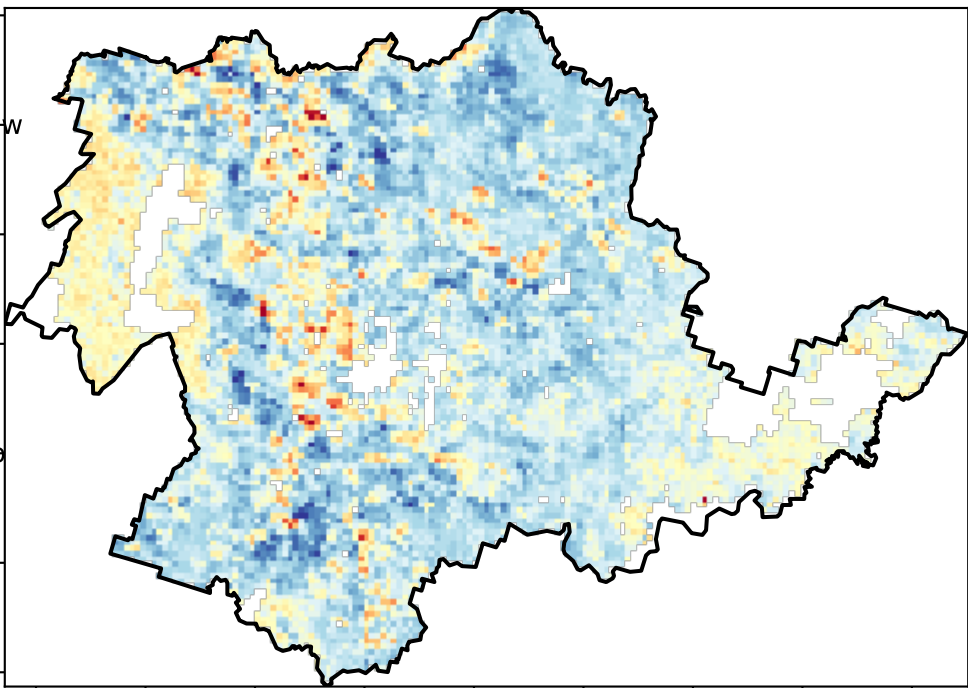
% Area protected from wind erosion (>50%)



- Area not protected 0.0% of region (0 ha)
- Area protected 100.0% of region (258,475 ha)

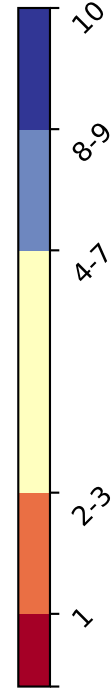
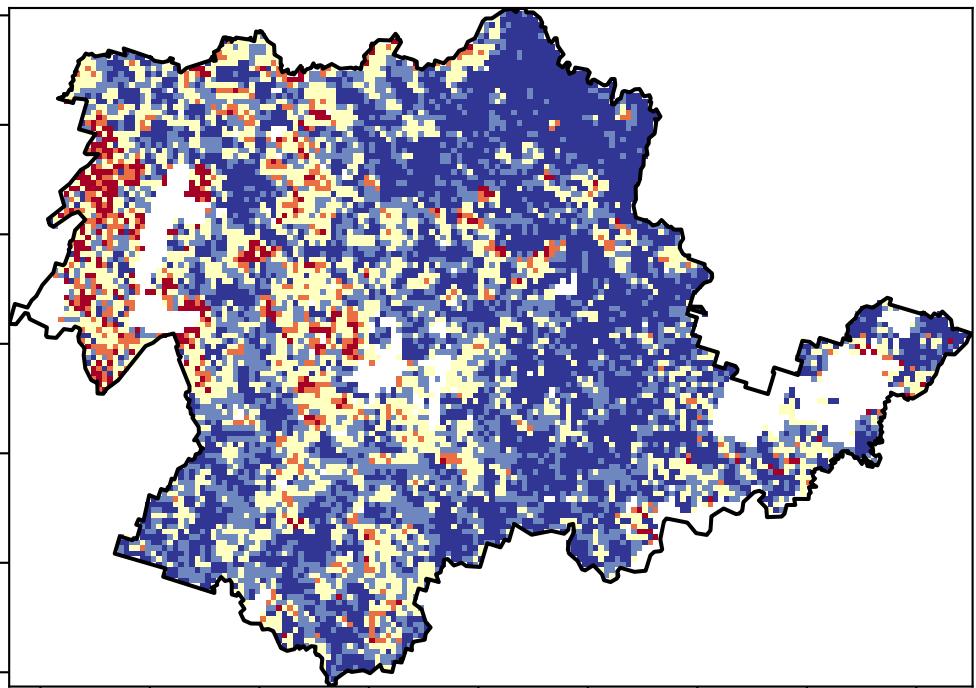
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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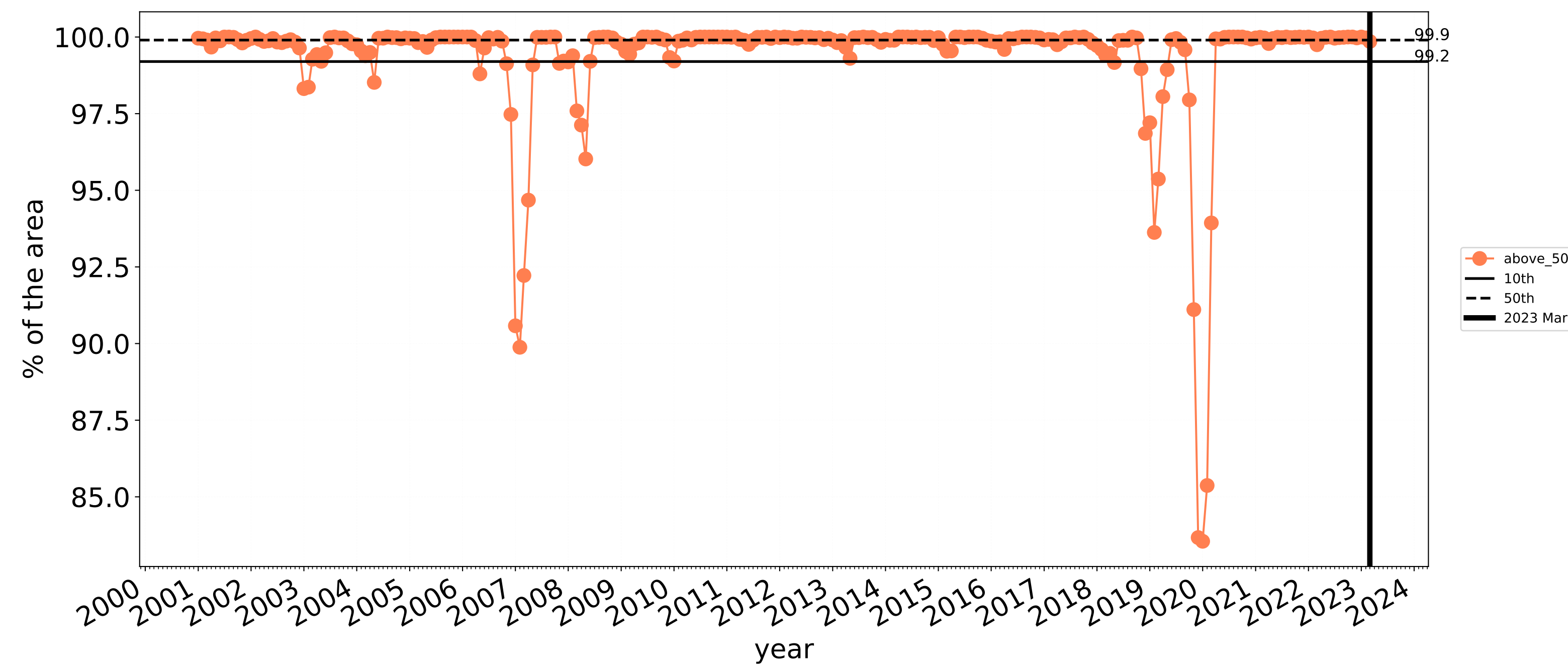
Australian Government

National Landcare Programme

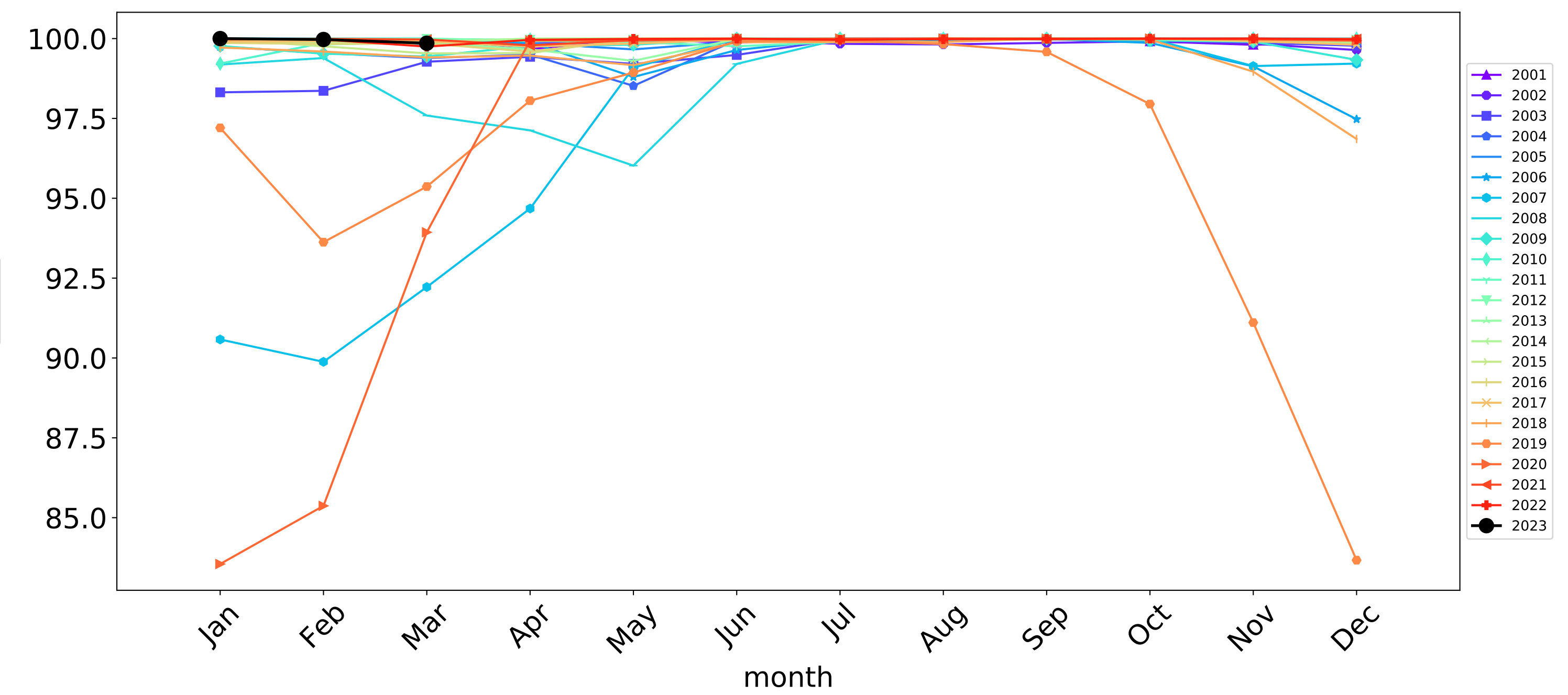


Agriculture timeseries

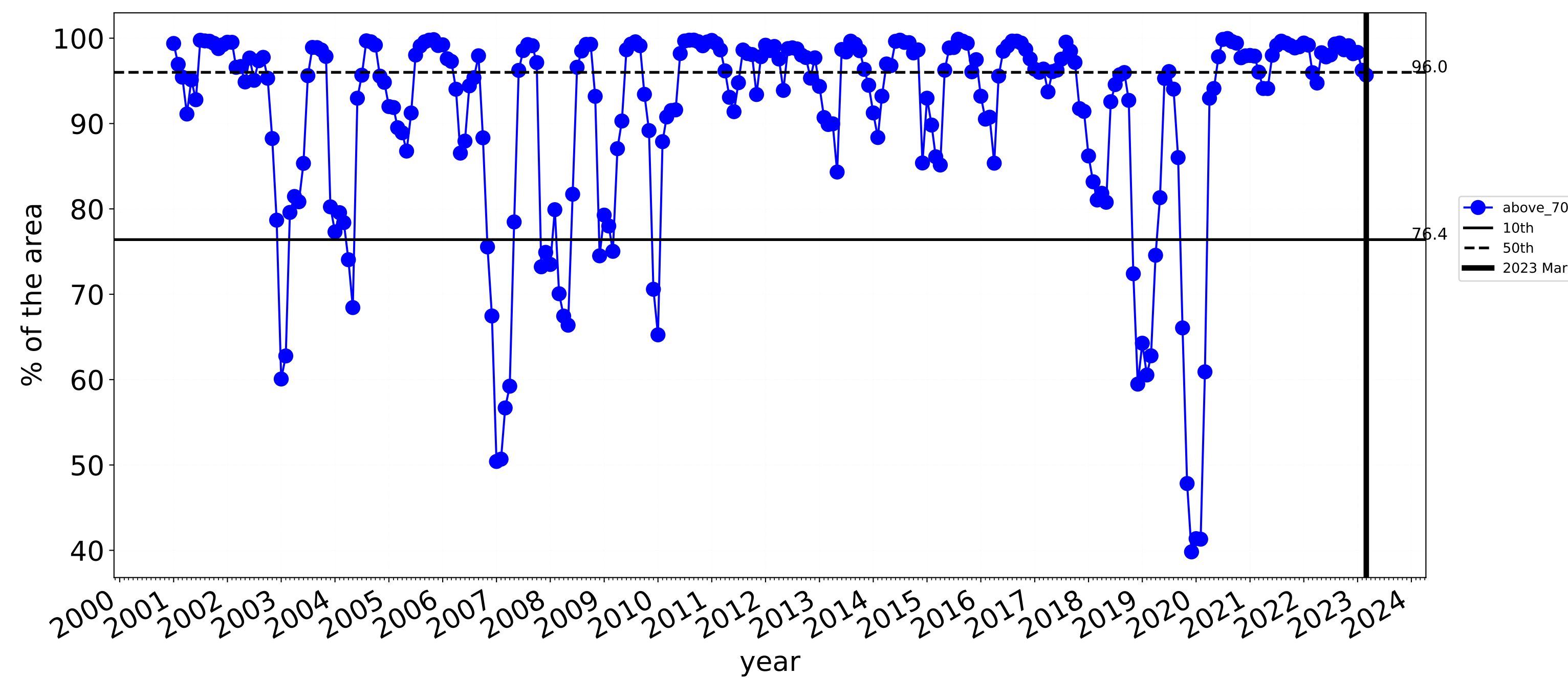
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



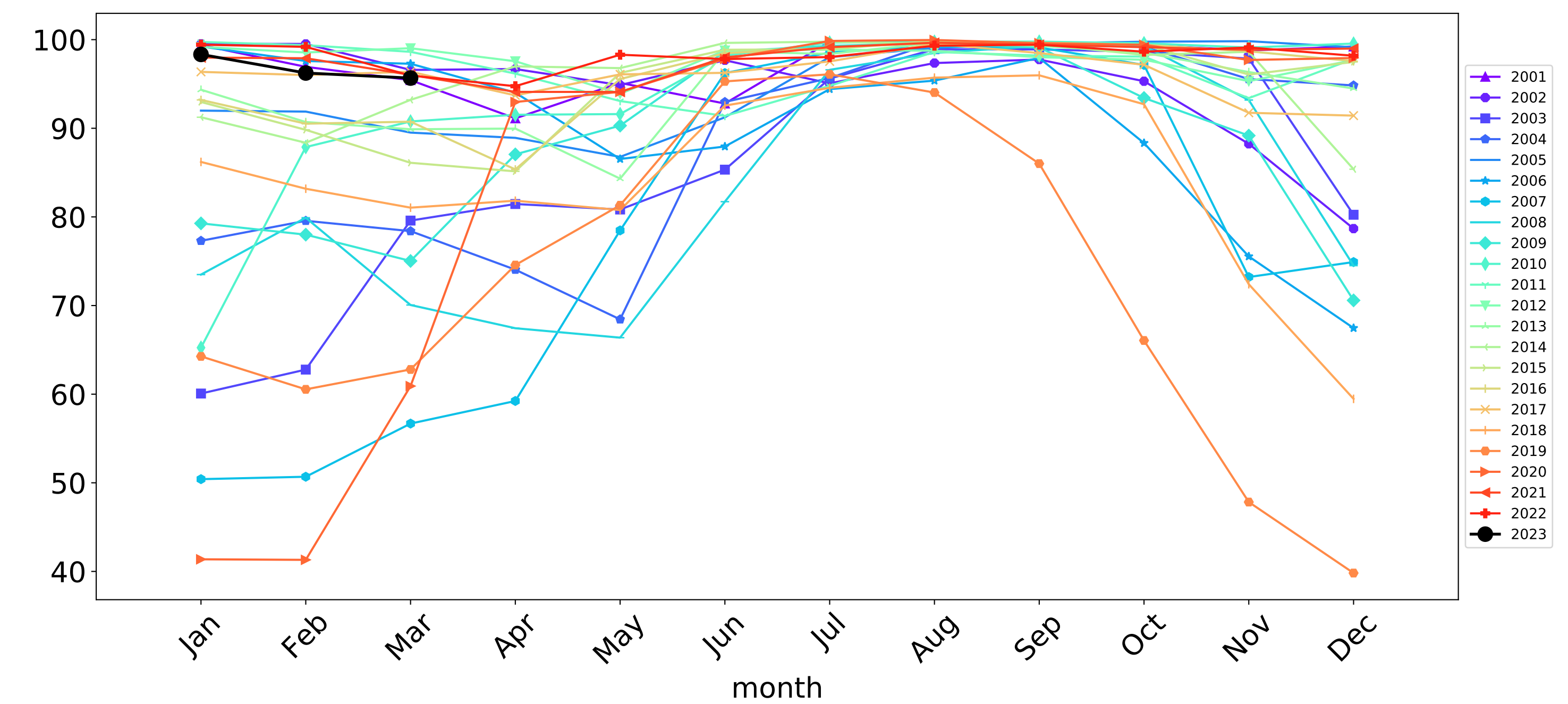
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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



Grazing

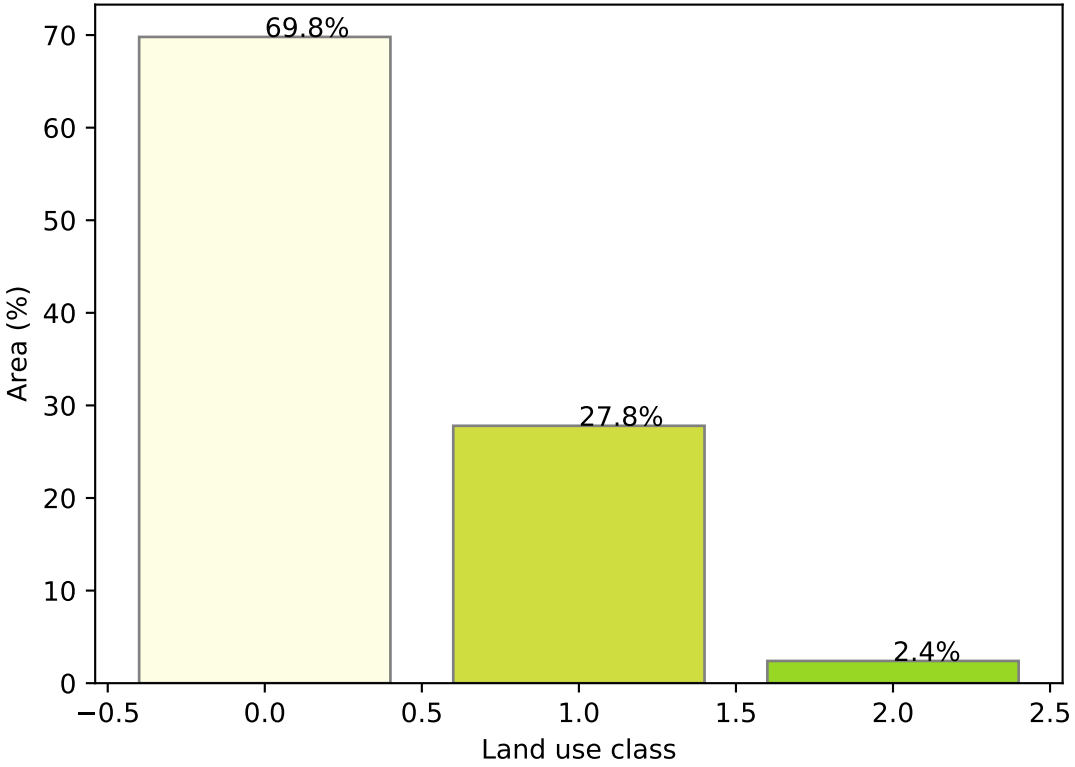
Land use and forest cover

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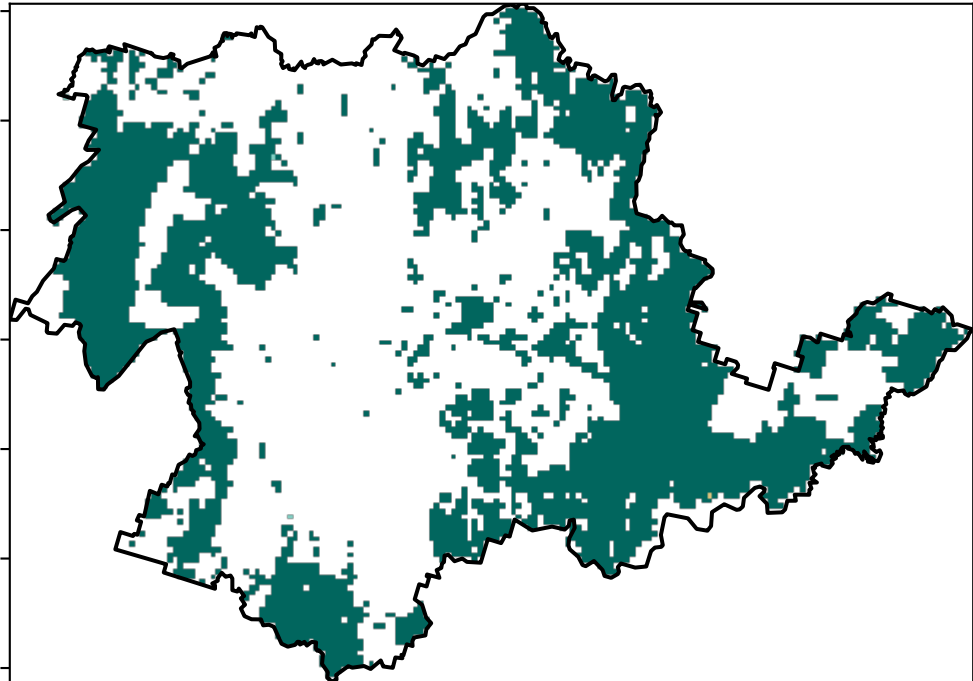


- 1 Agriculture - Grazing - Non forest
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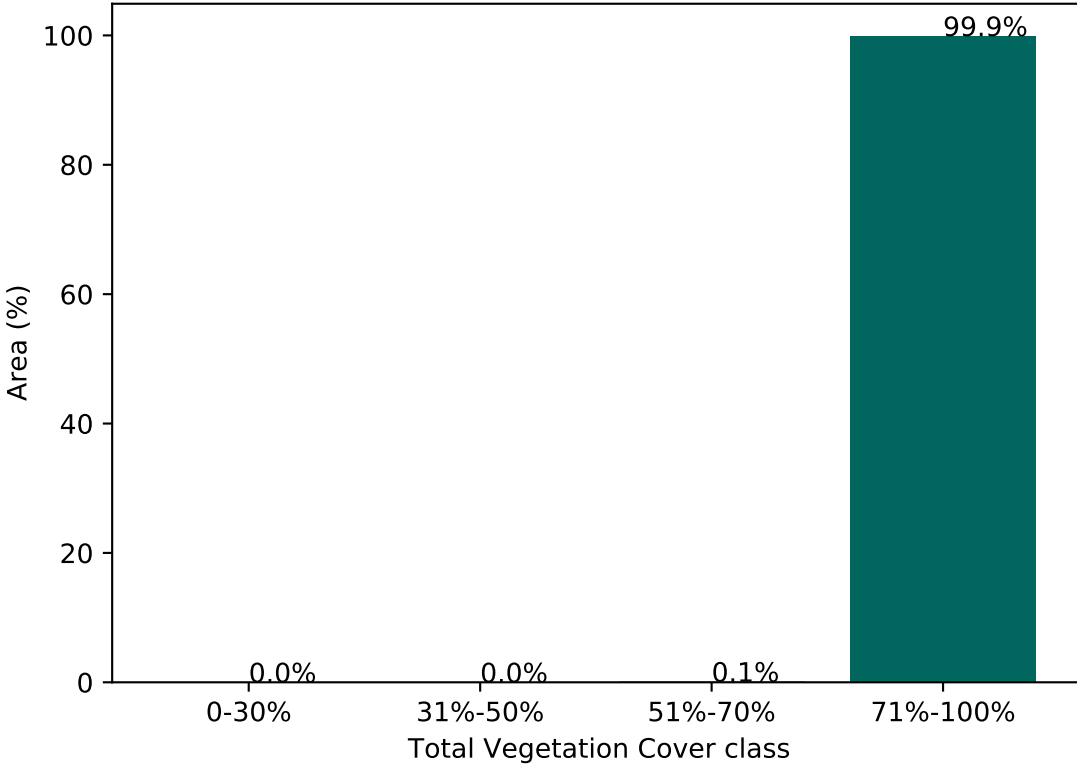
Proportion of each land class in area



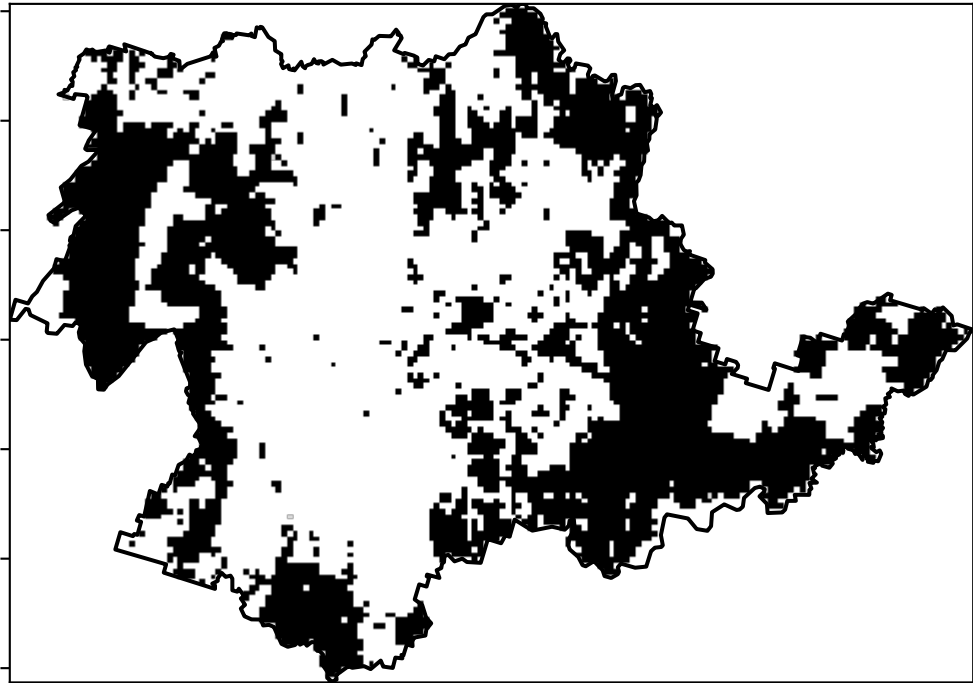
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

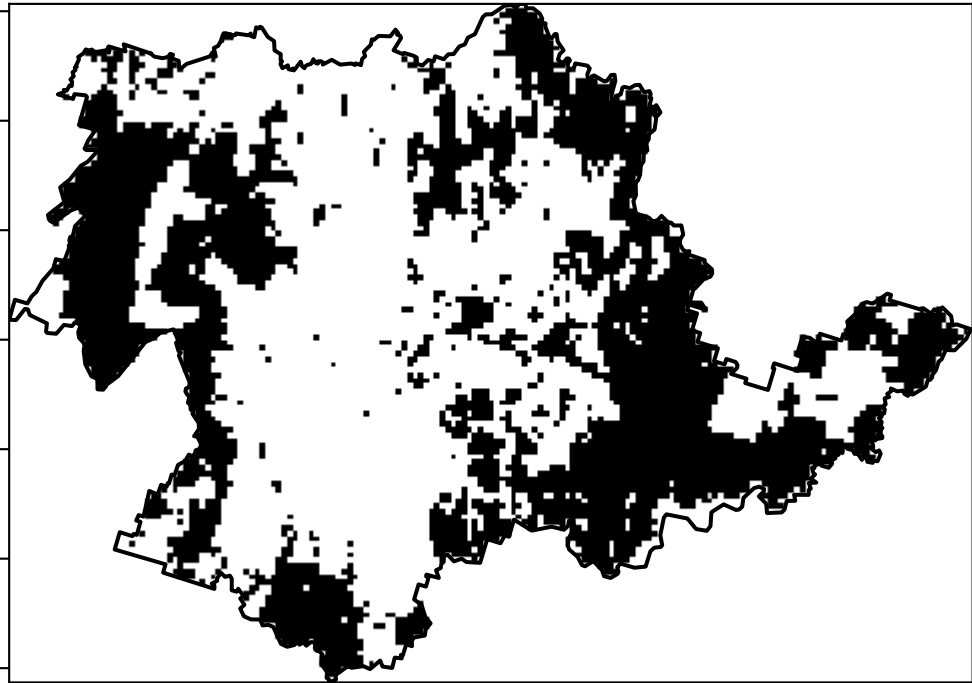


% Area protected from water erosion (>70%)



- Area not protected
0.1% of region
(123 ha)
- Area protected
99.9% of region
(122,852 ha)

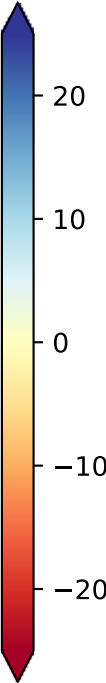
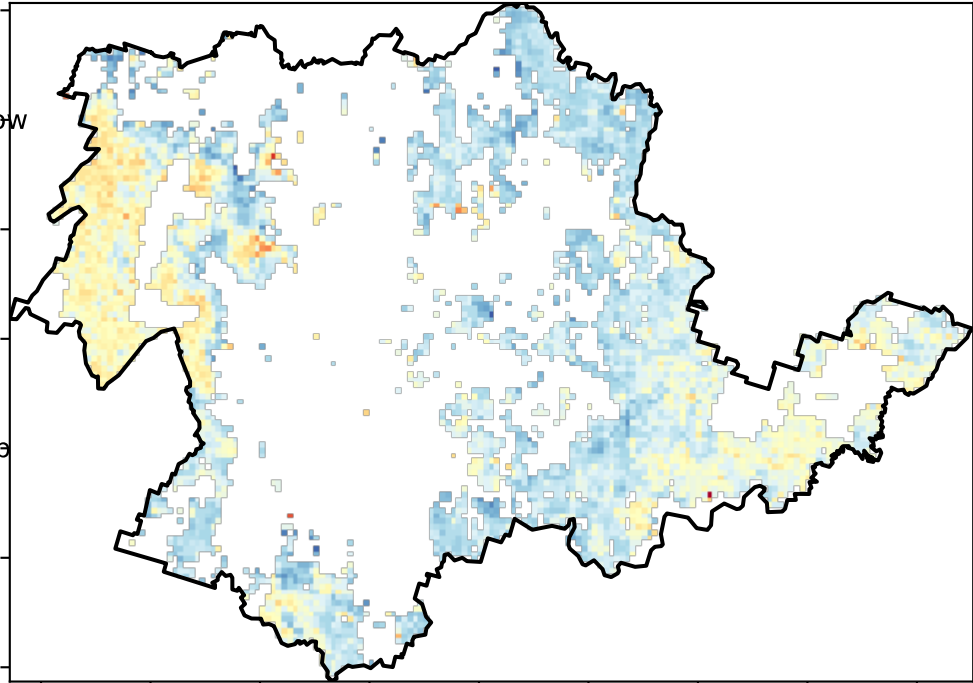
% Area protected from wind erosion (>50%)



- Area not protected
0.0% of region
(0 ha)
- Area protected
100.0% of region
(122,975 ha)

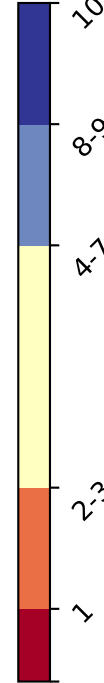
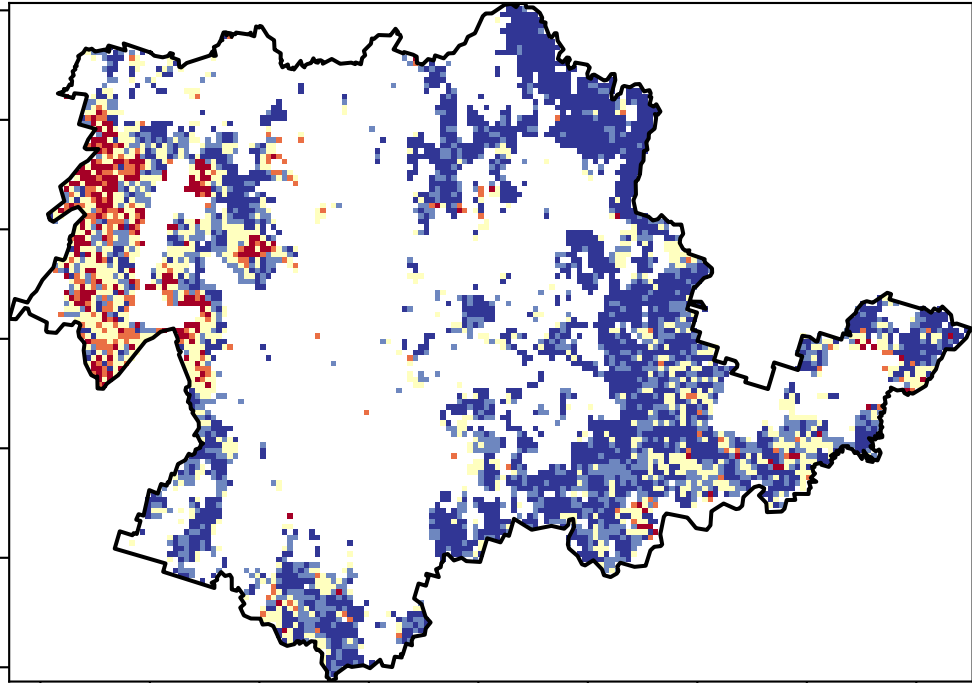
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Total Vegetation Cover Decile [%]



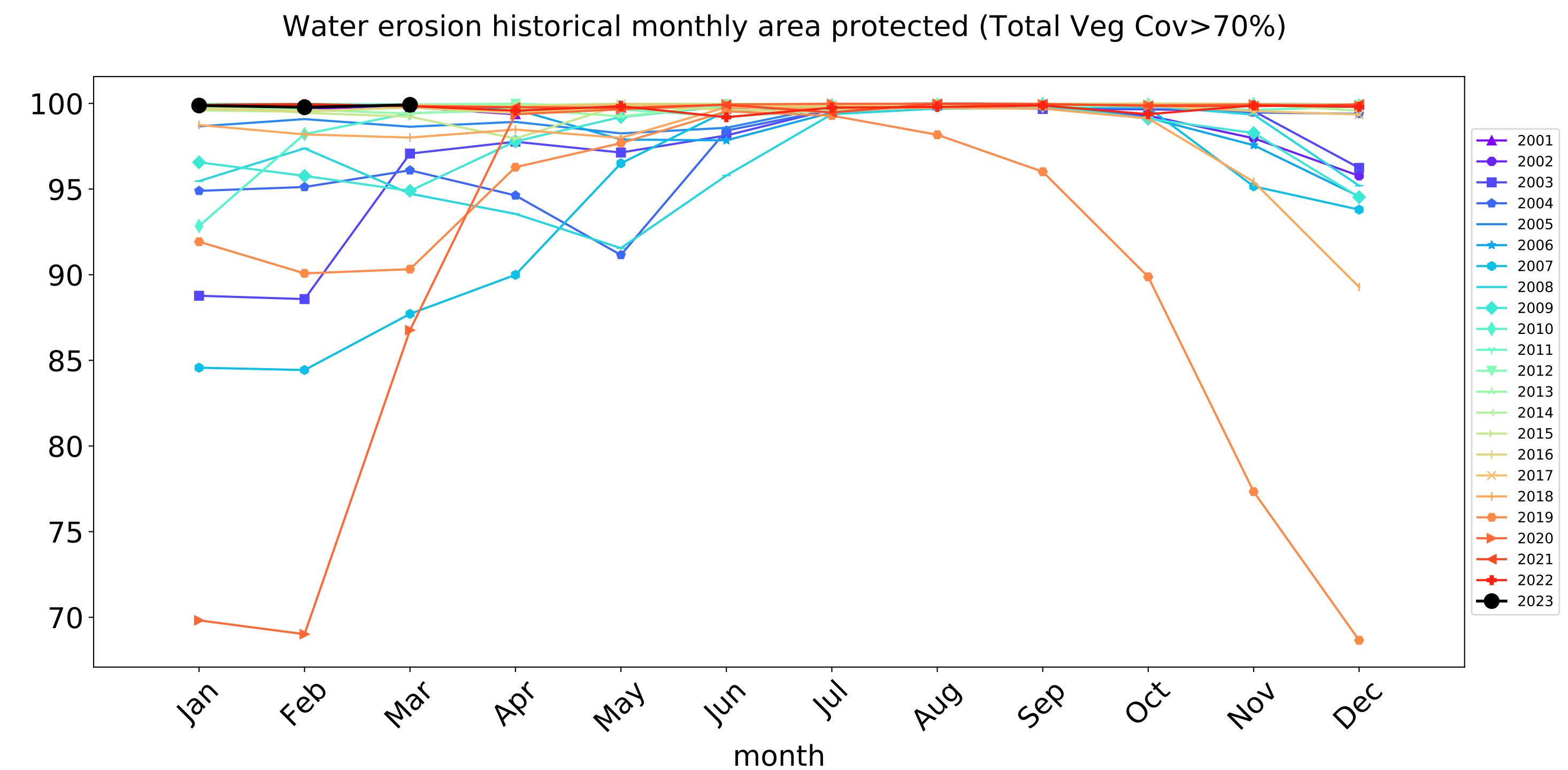
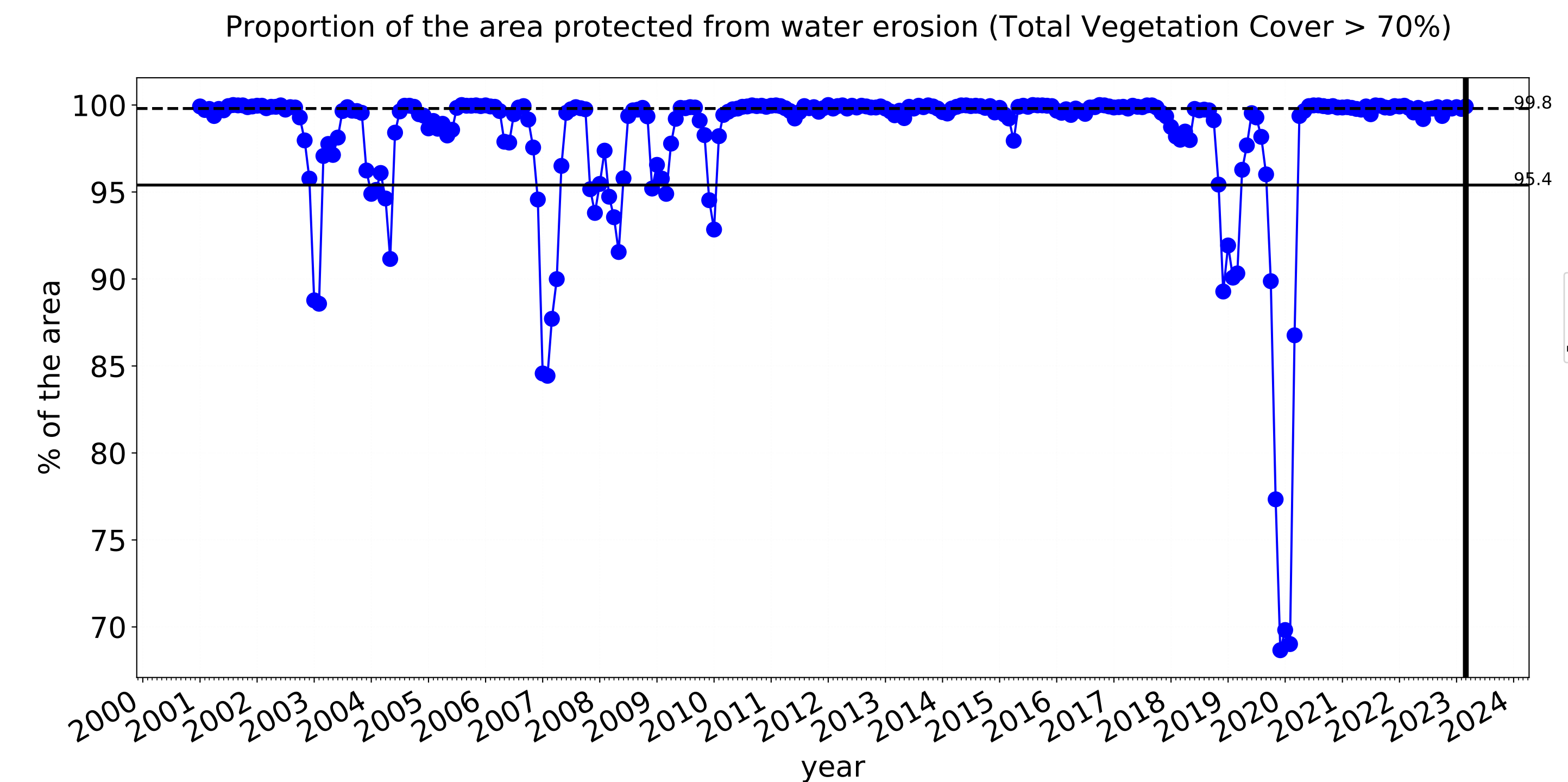
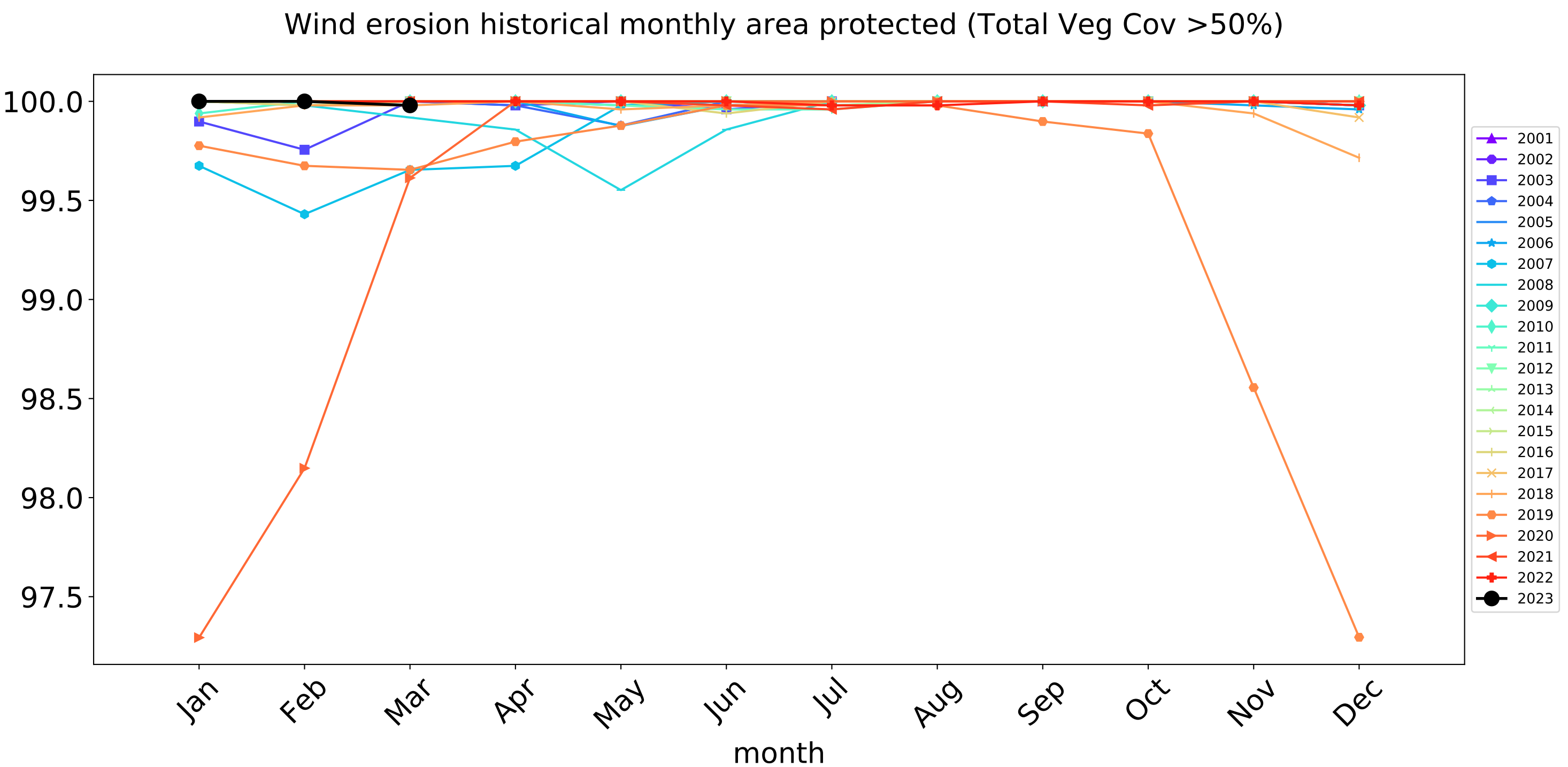
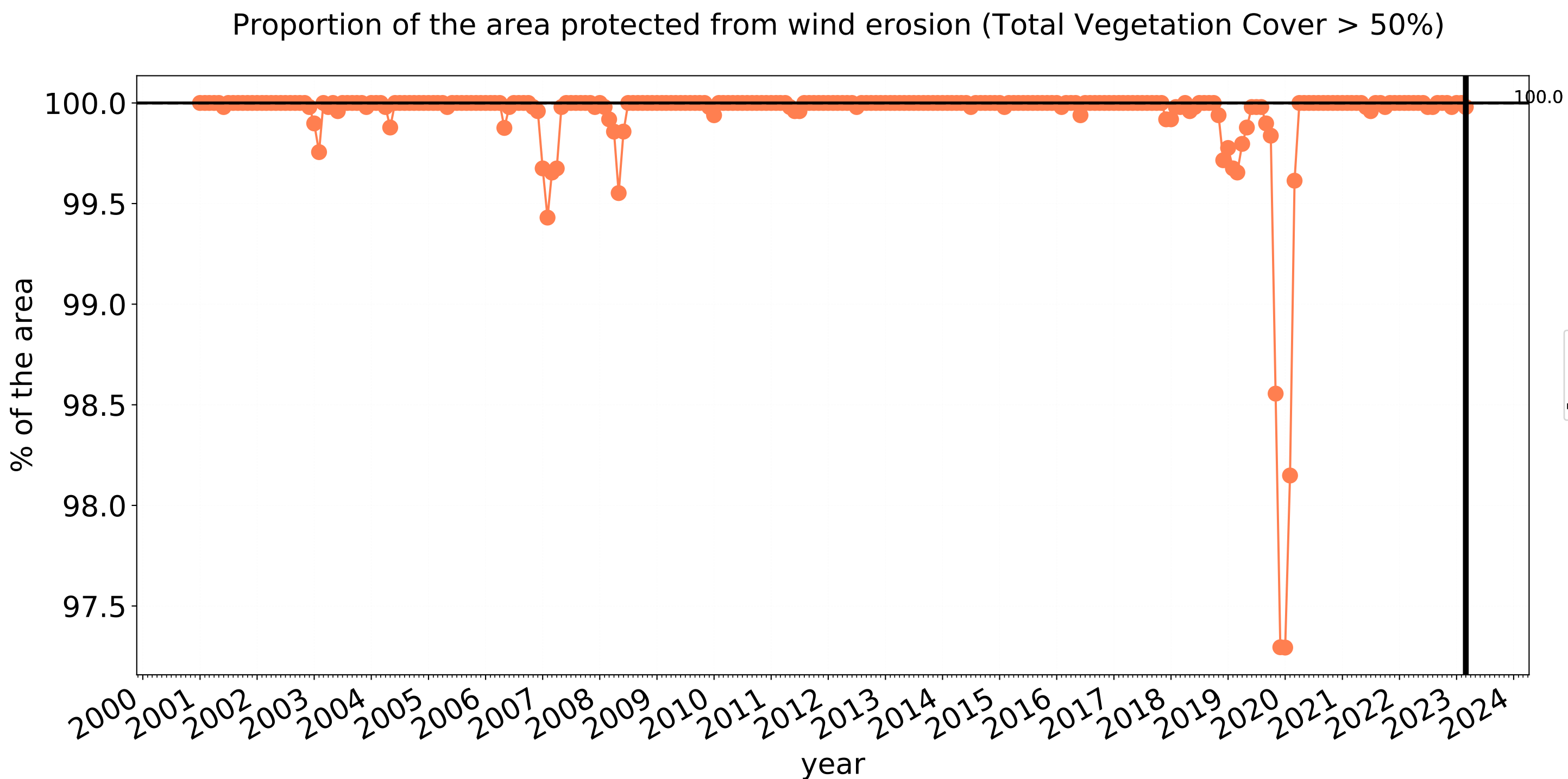
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Grazing timeseries



Ecosystem Research Infrastructure



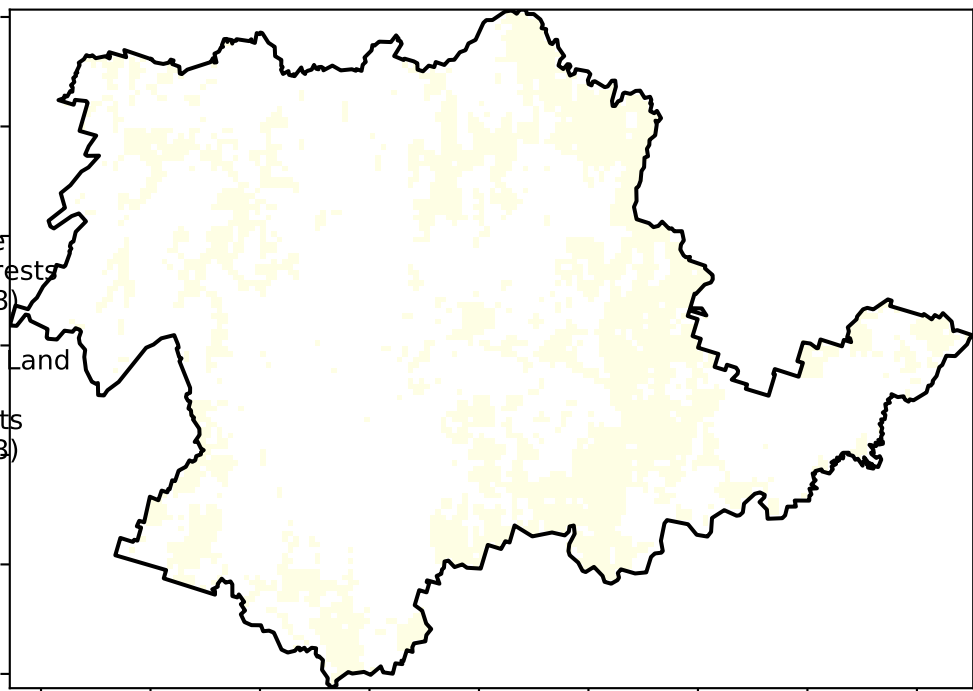
National Landcare Programme



Grazing non forest

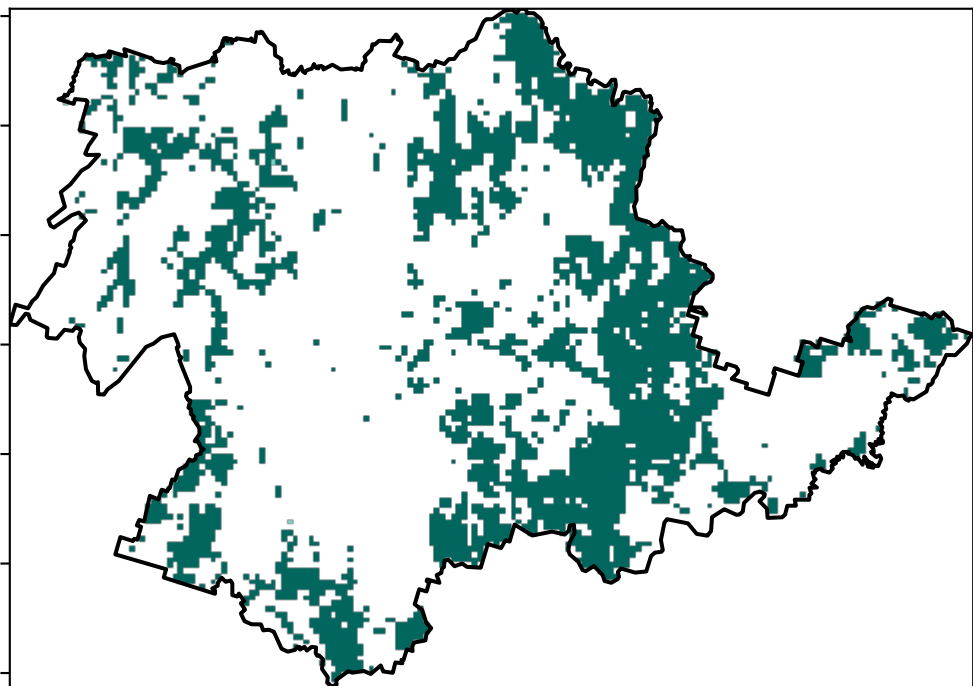
Land use and forest cover

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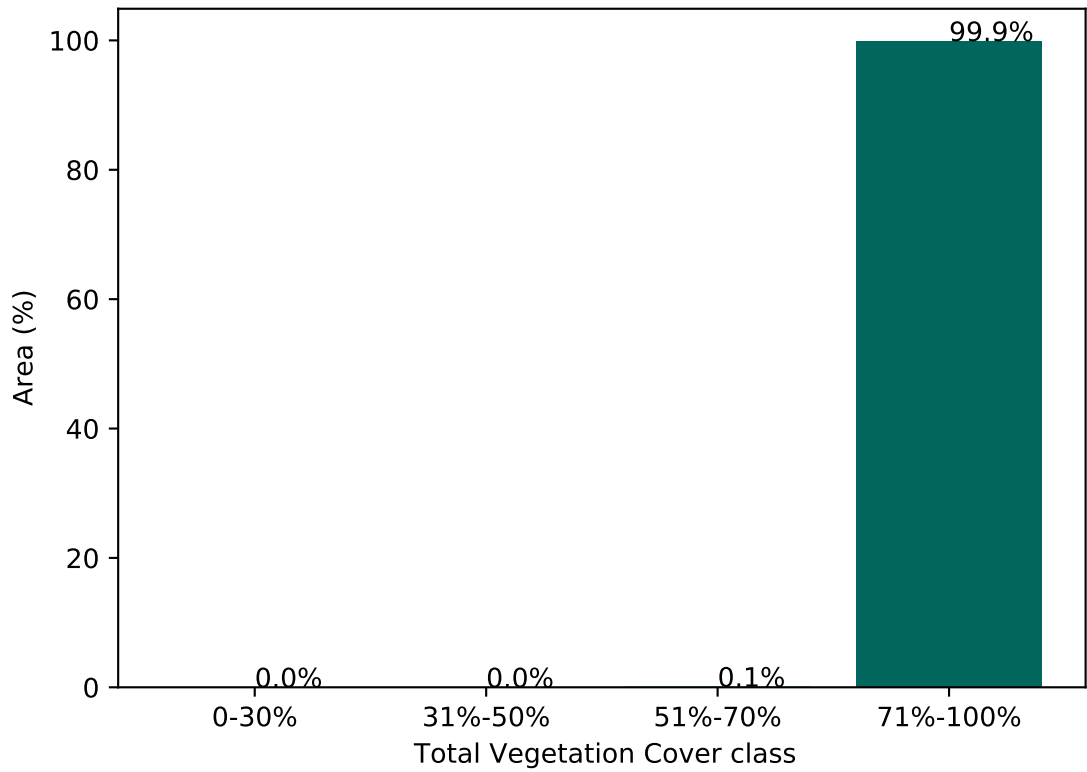


1 Agriculture - Grazing - Non forest

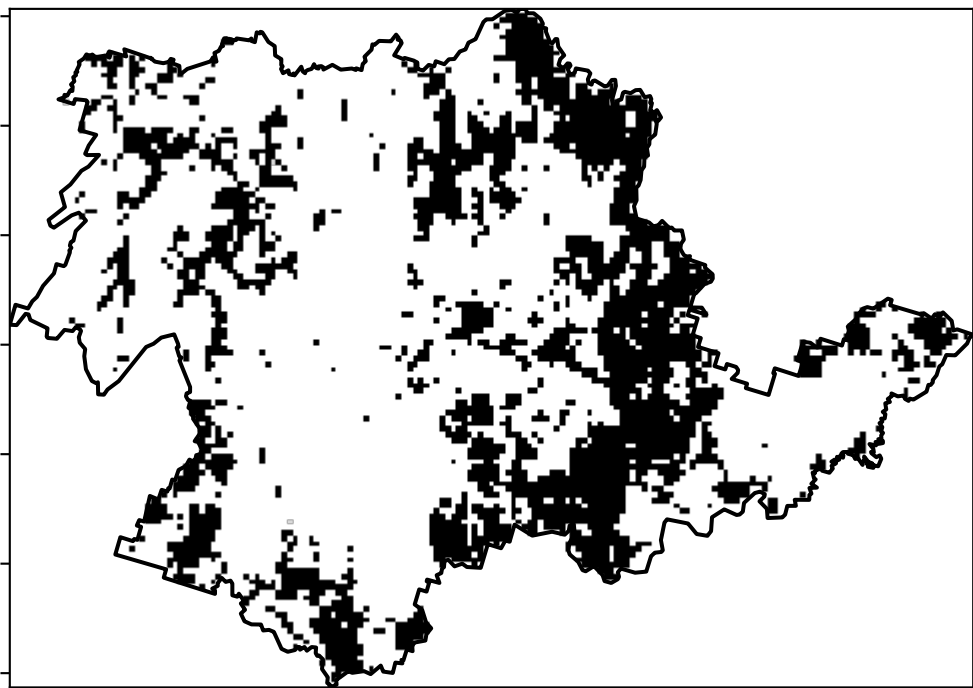
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

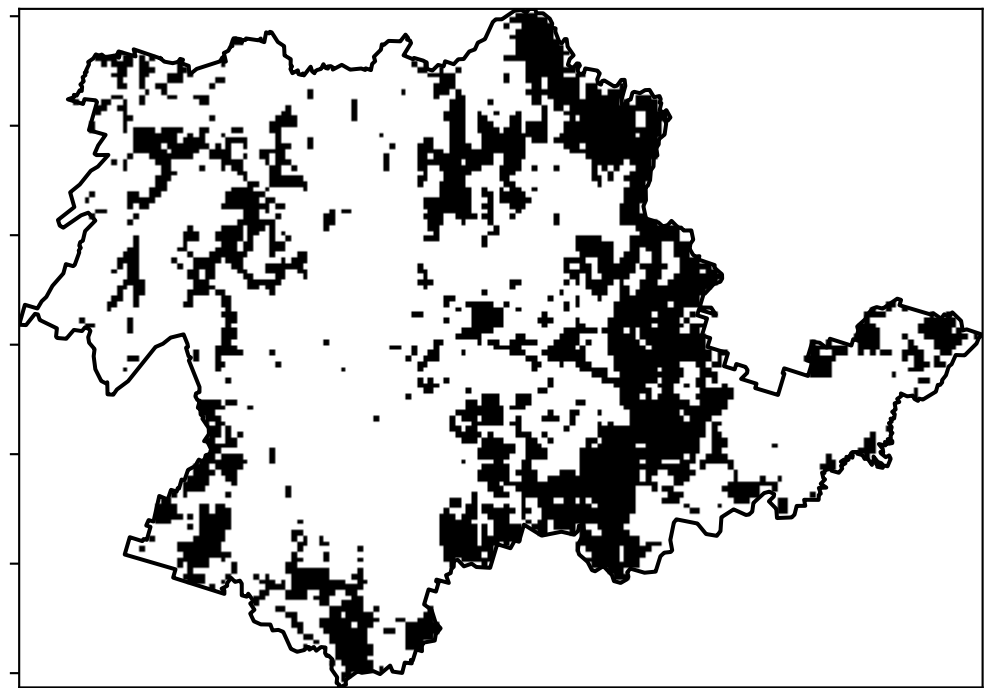


% Area protected from water erosion (>70%)



Area not protected
0.1% of region (86 ha)
Area protected
99.9% of region (85,664 ha)

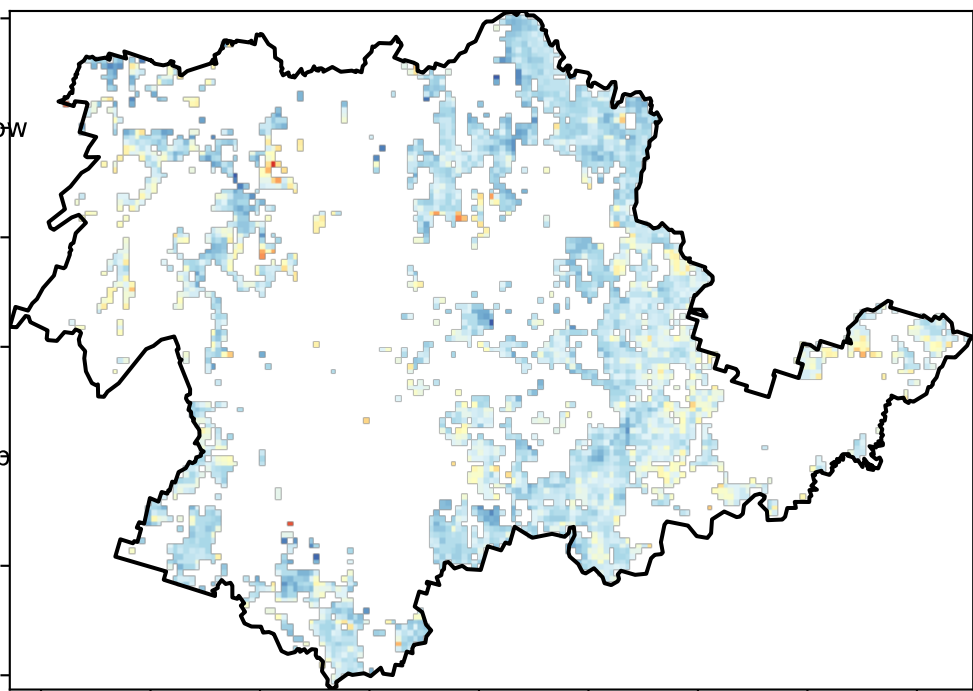
% Area protected from wind erosion (>50%)



Area protected
100.0% of region (85,750 ha)

Total Vegetation Cover Anomaly [%]

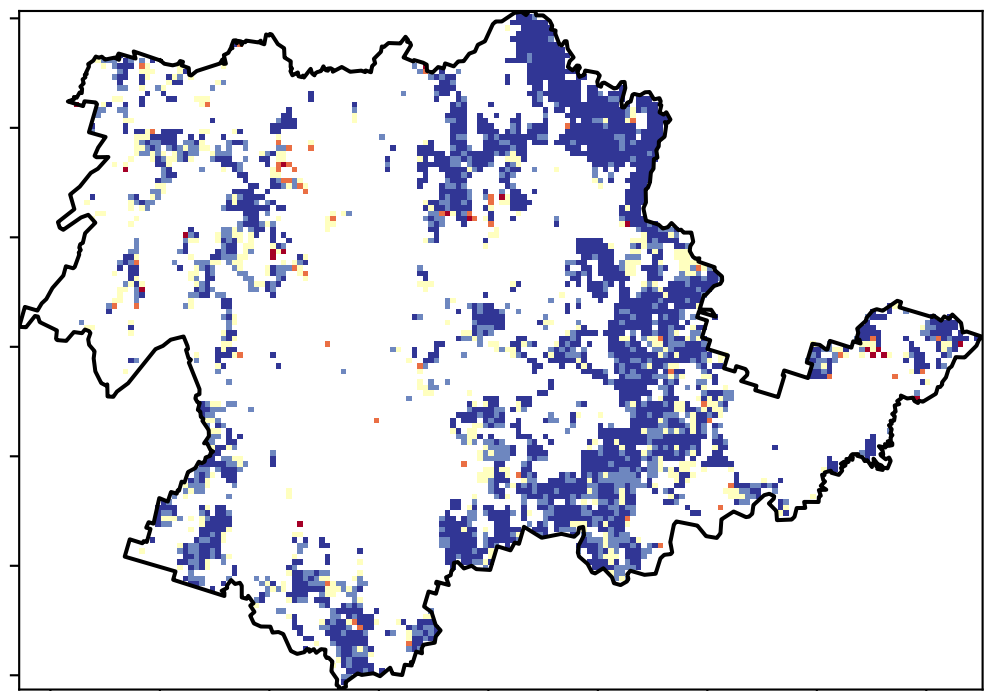
Anomaly show how many percentage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



20
10
0
-10
-20

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

Total Vegetation Cover Decile [%]



10
9
8
7
6
5
4
3
2
1



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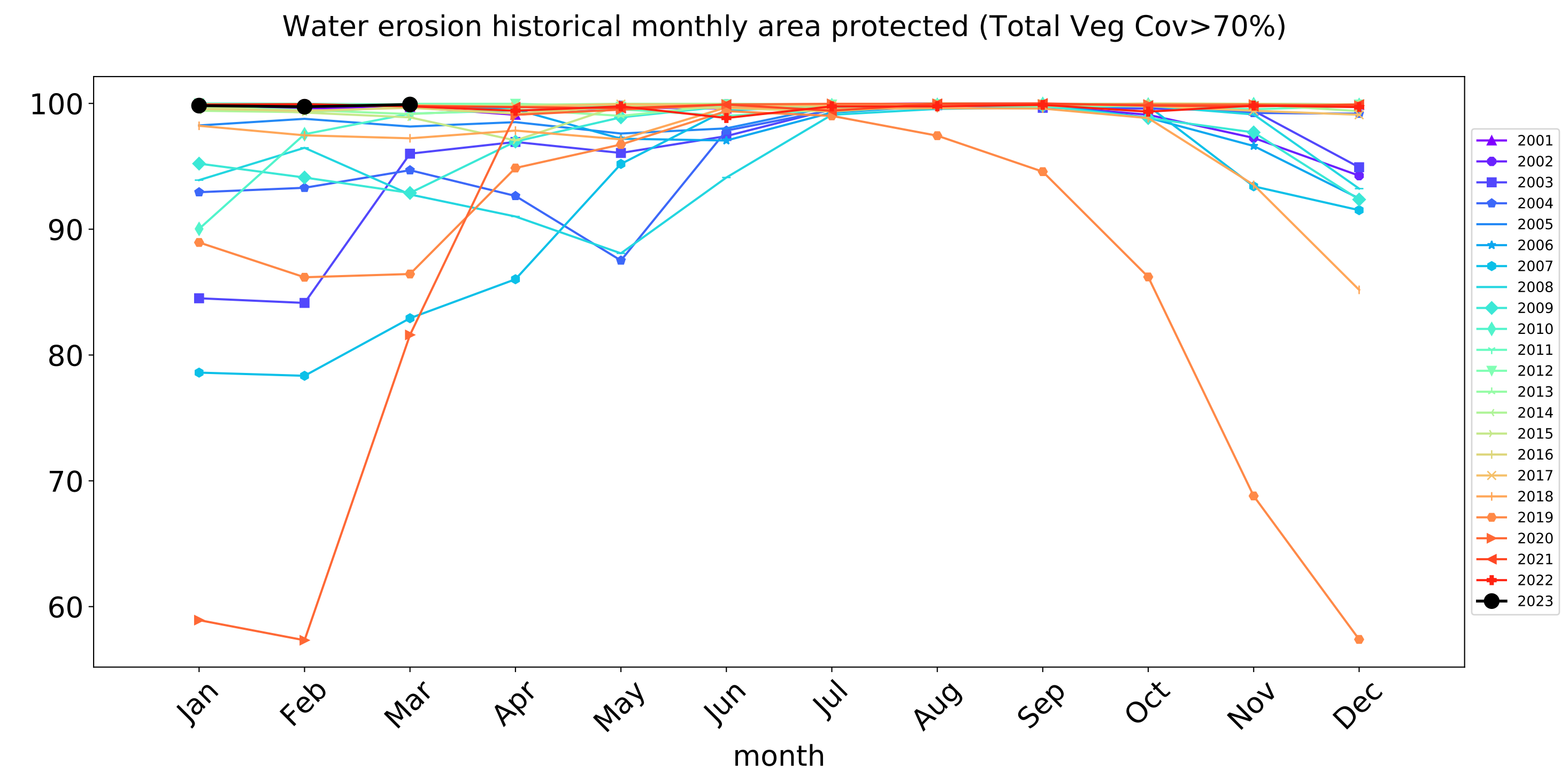
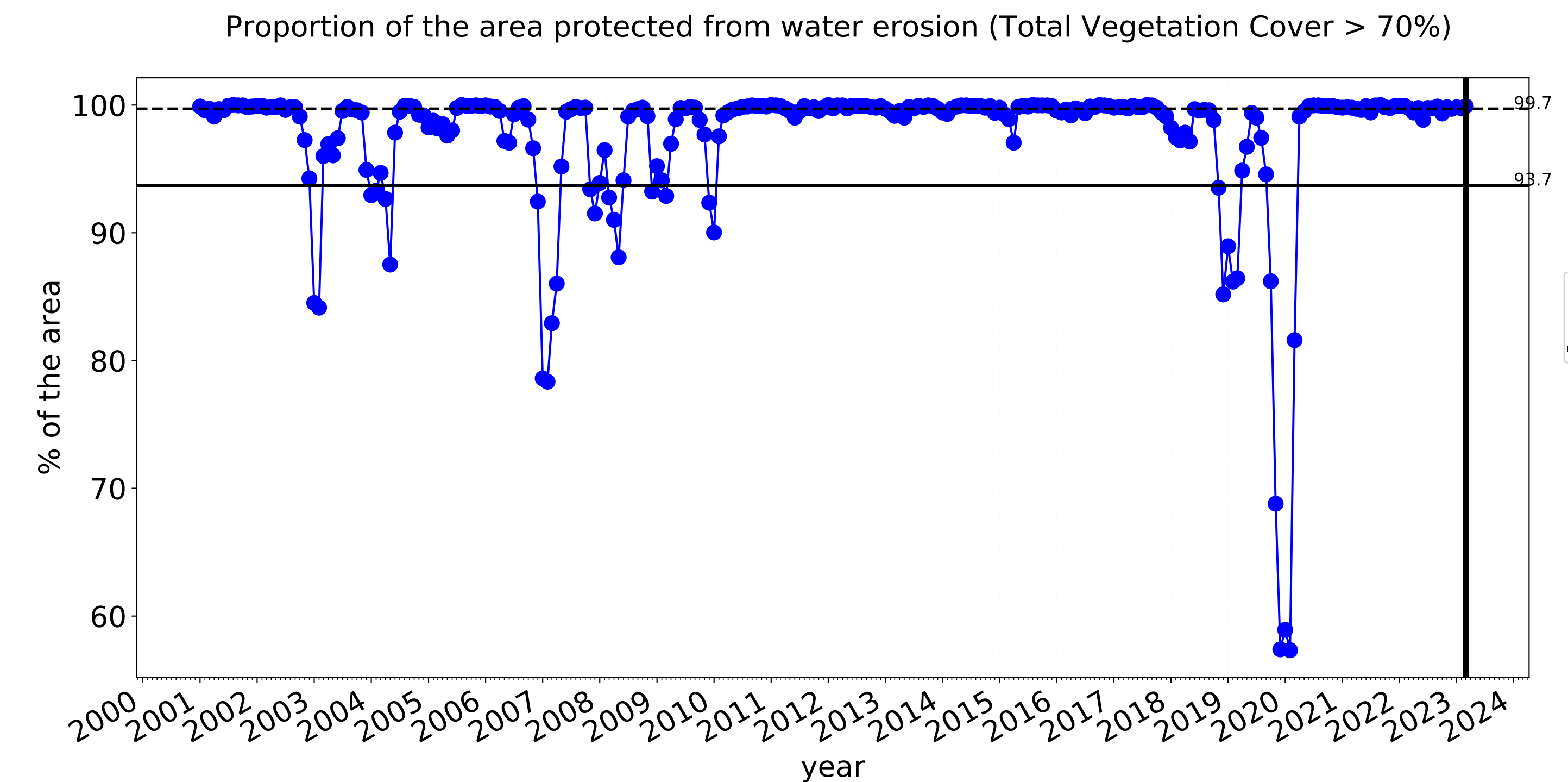
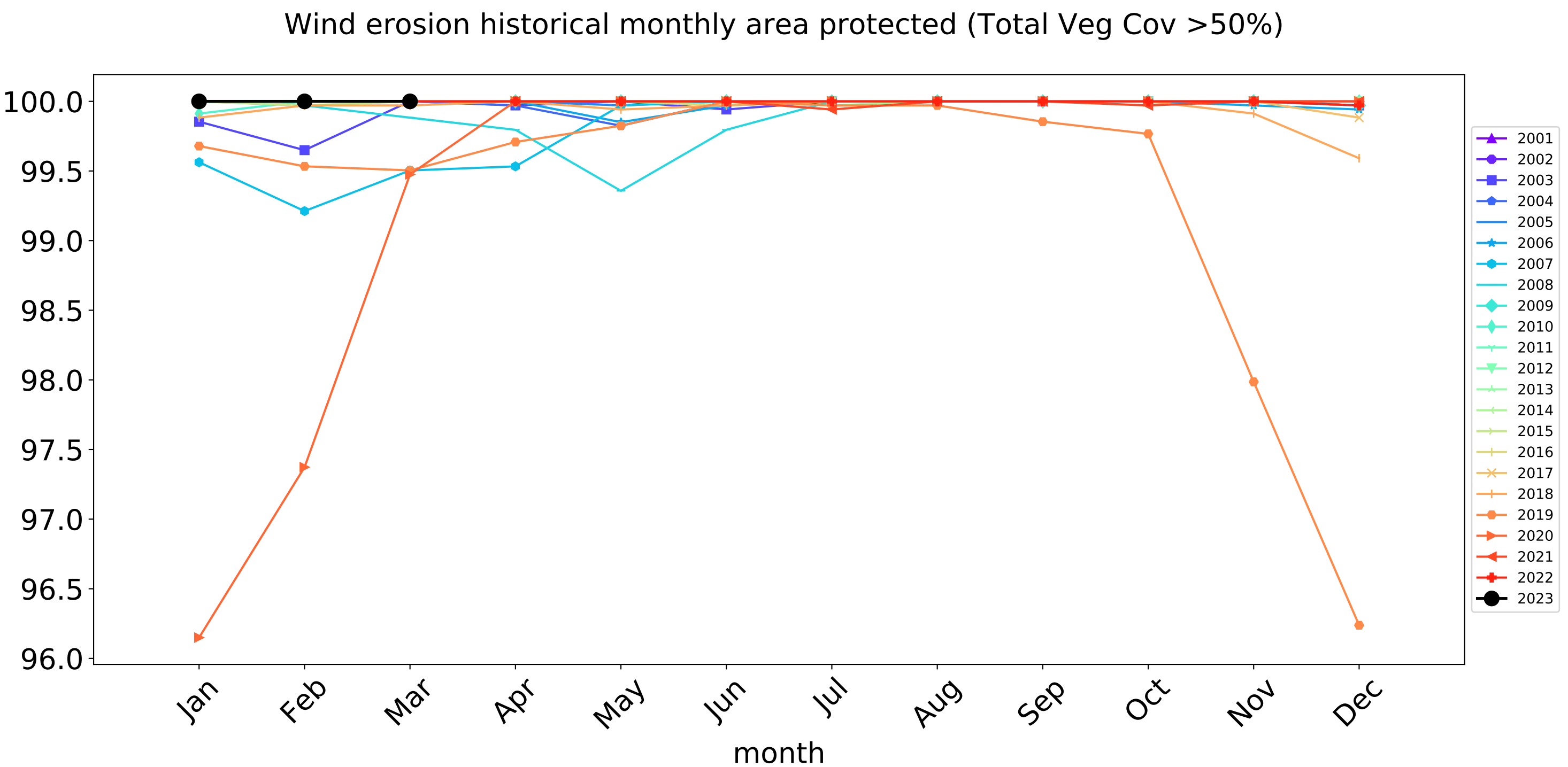
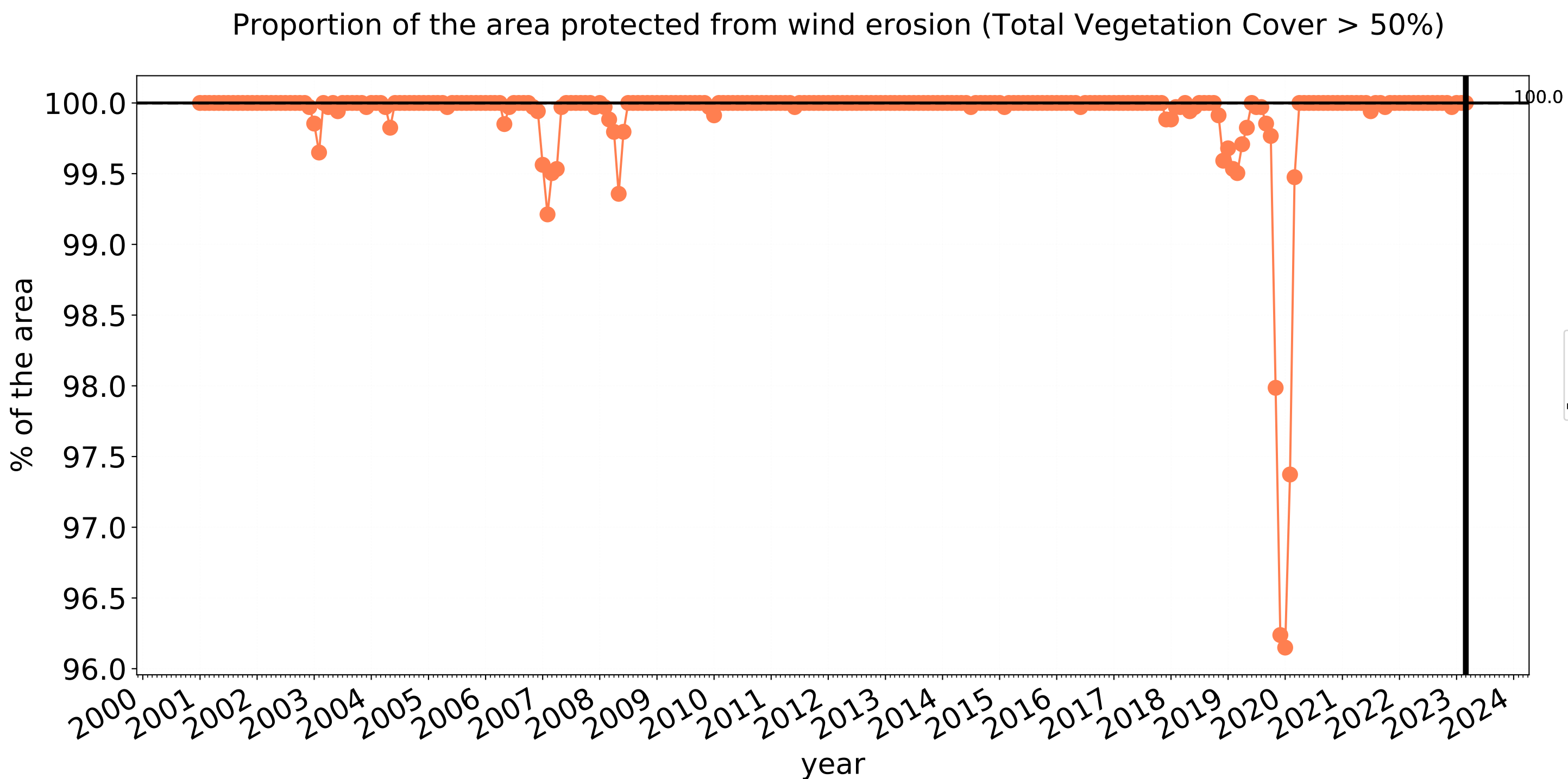


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Grazing non forest timeseries



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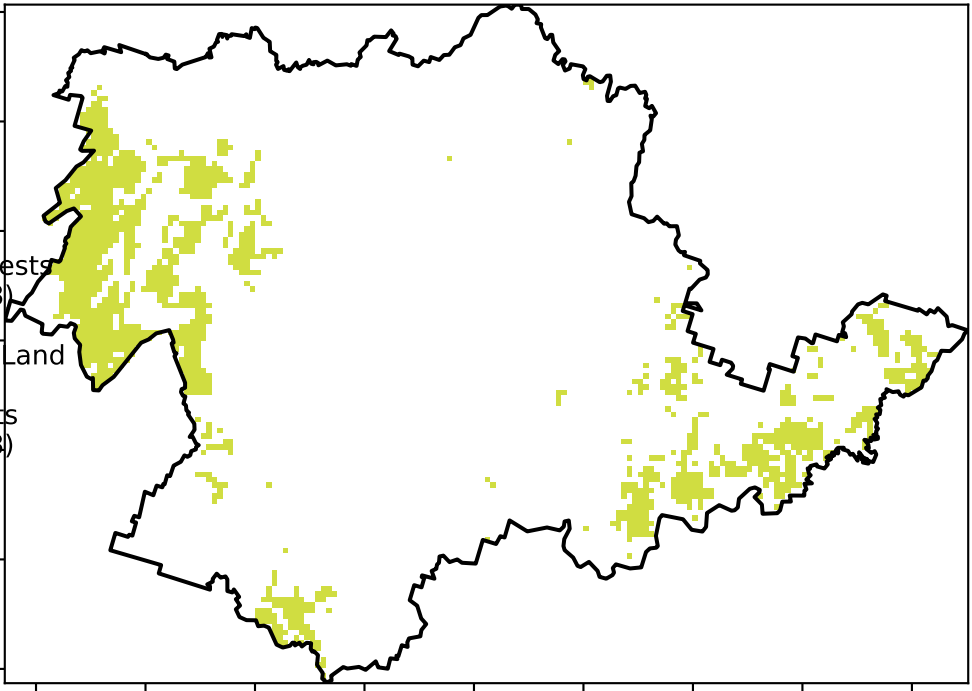
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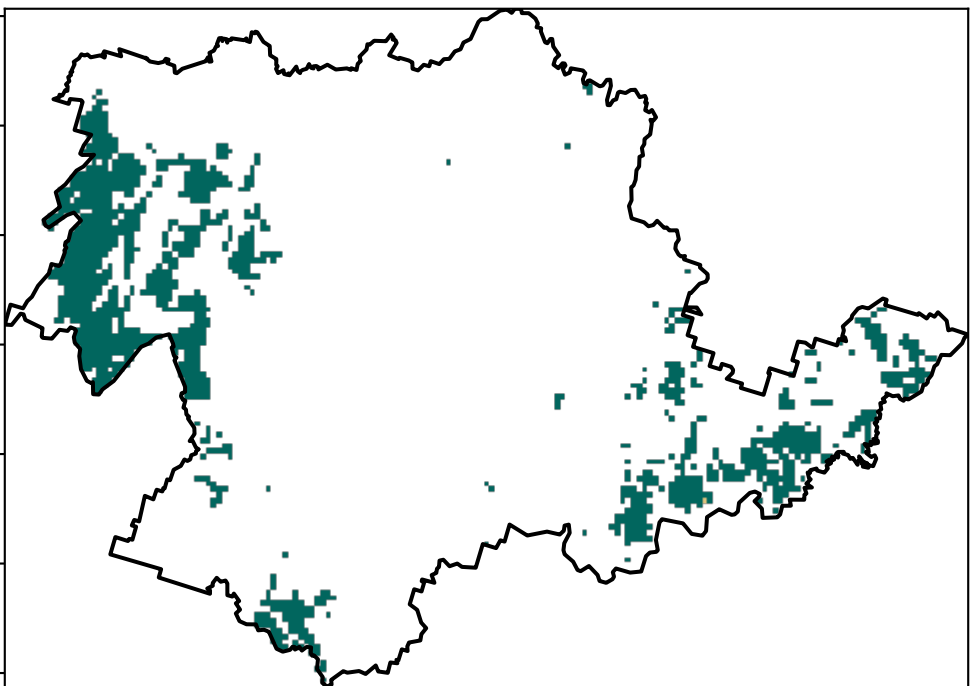
Grazing Woodland forest

Land use and forest cover

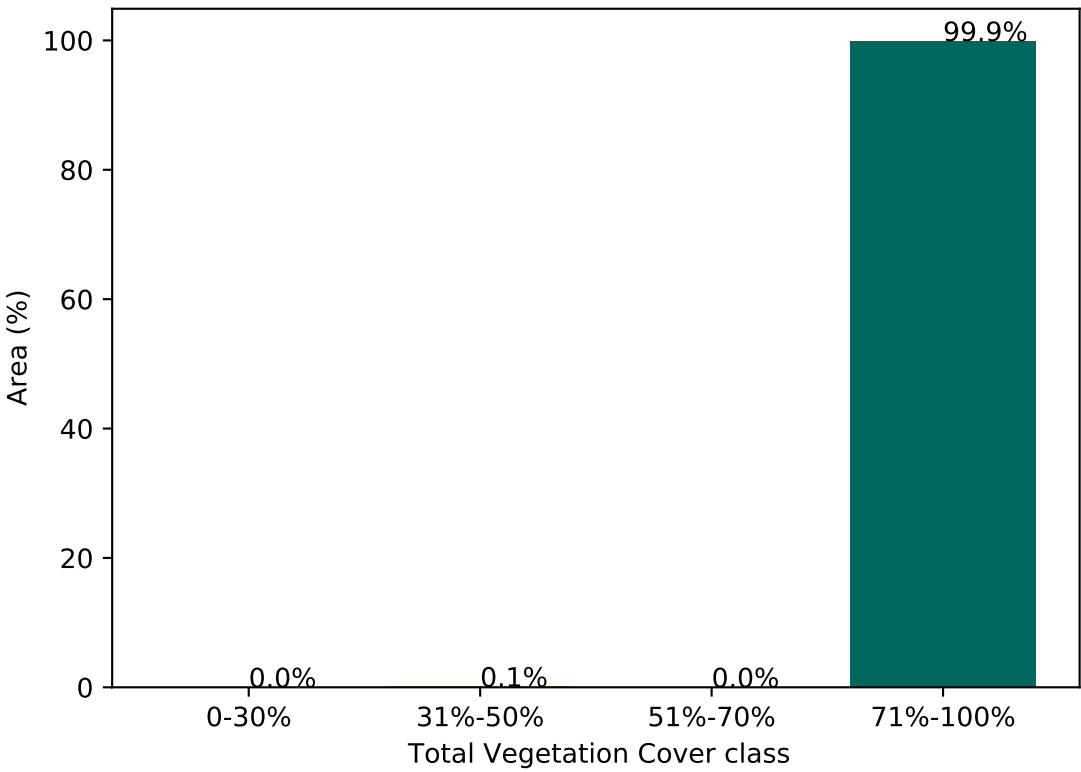
Catchment Scale
Land Use and Forests
of Australia (2018).
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



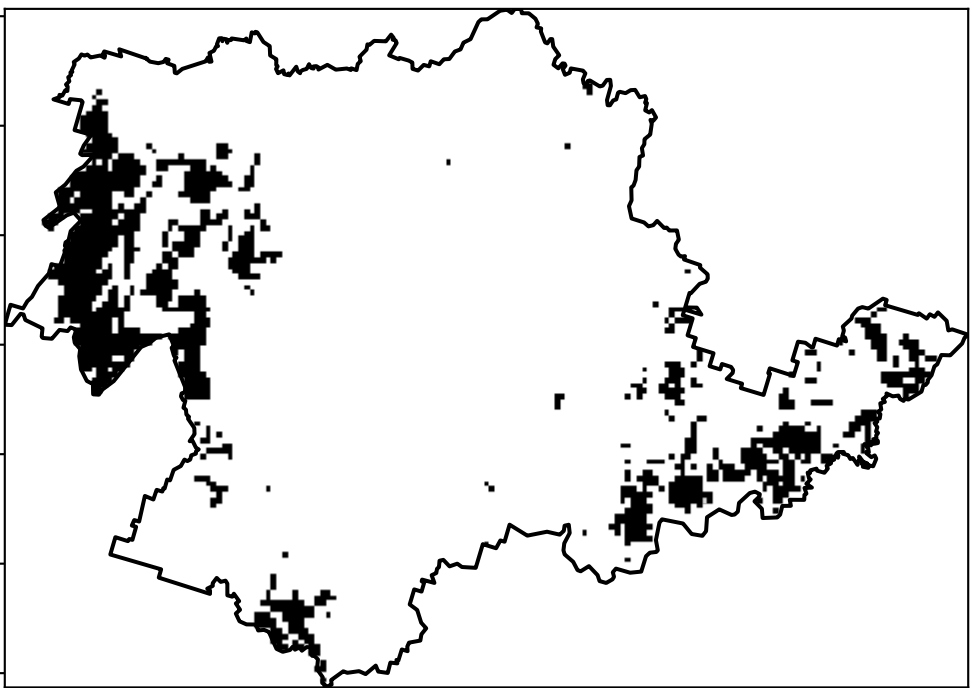
Total Vegetation Cover [%]



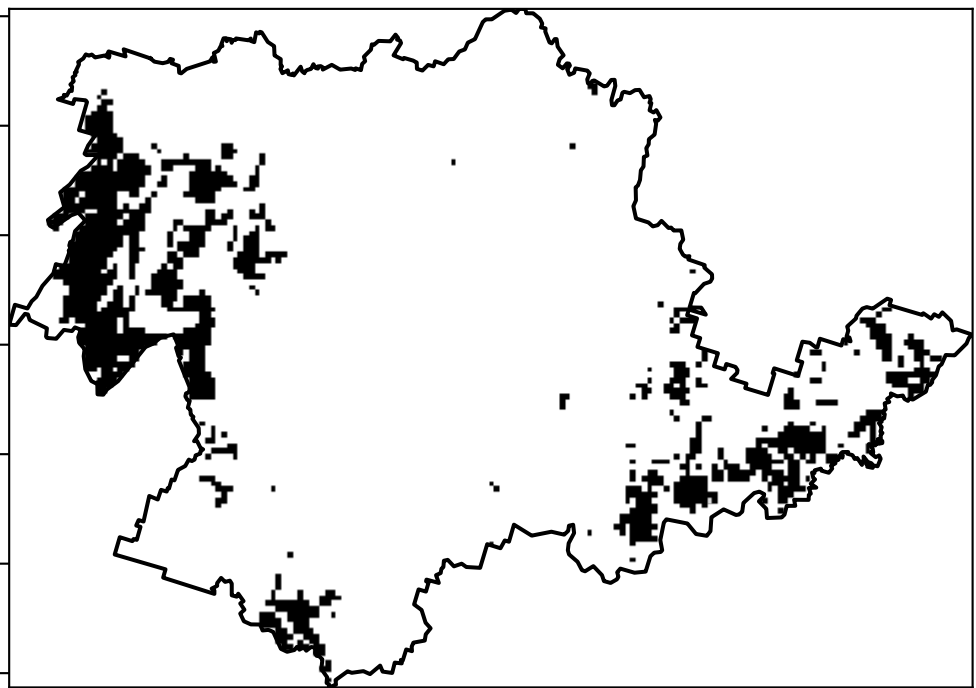
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

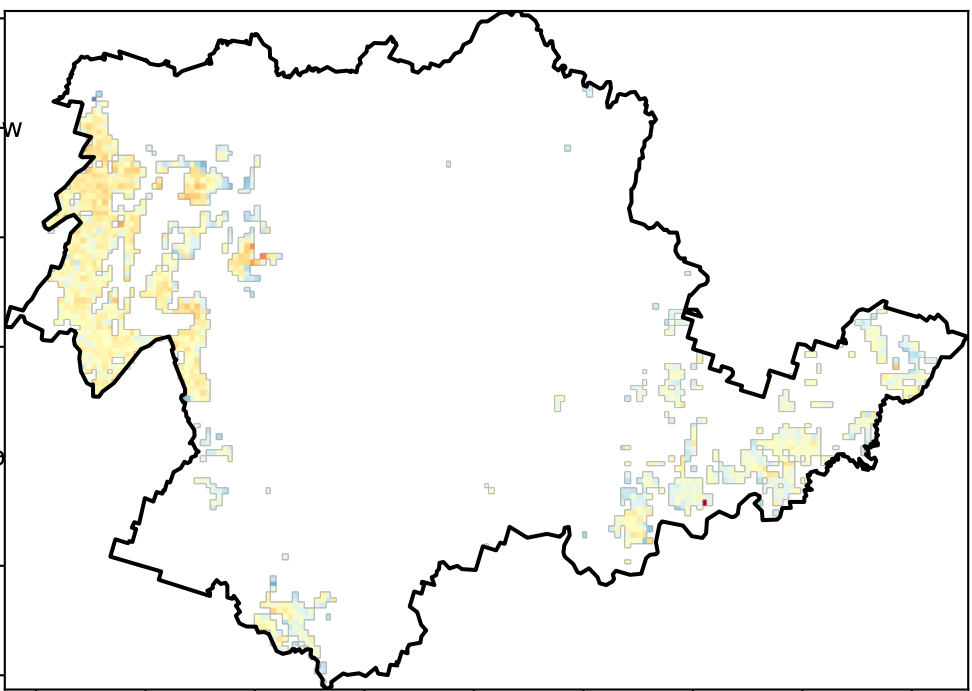


% Area protected from wind erosion (>50%)



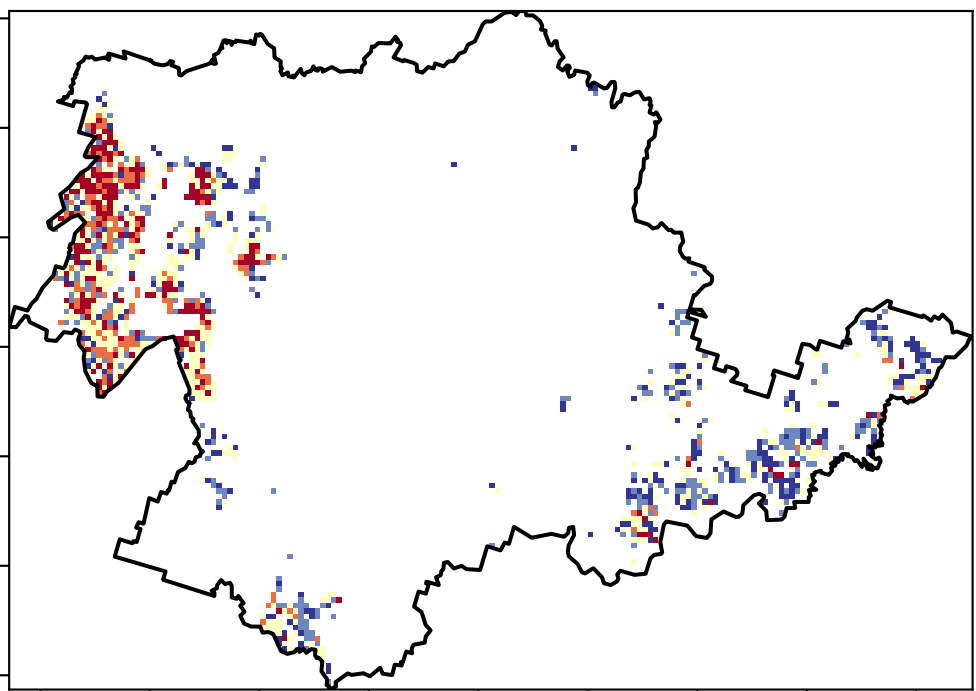
Total Vegetation Cover Anomaly [%]

Anomaly show how many percentage 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 [%]



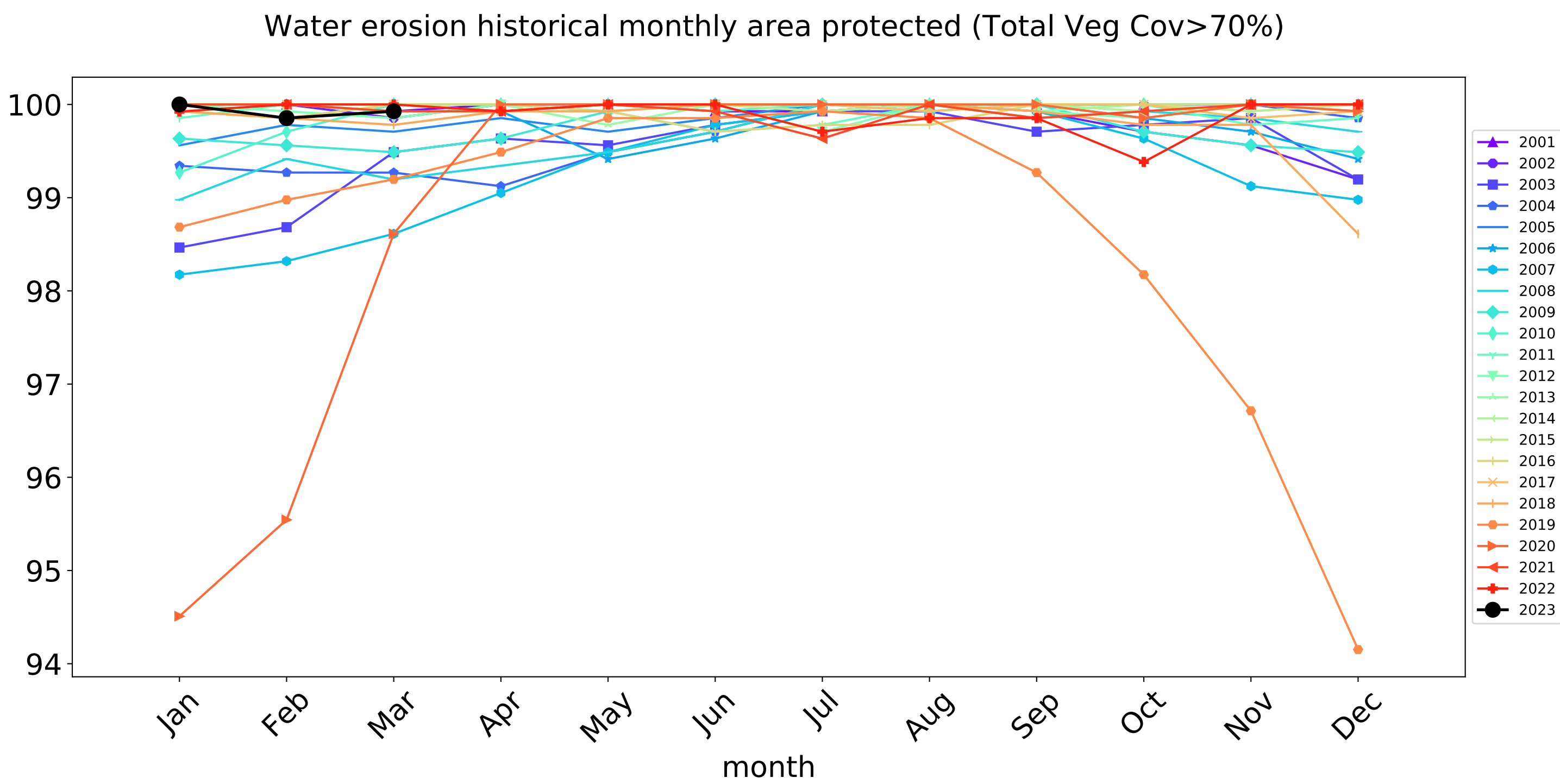
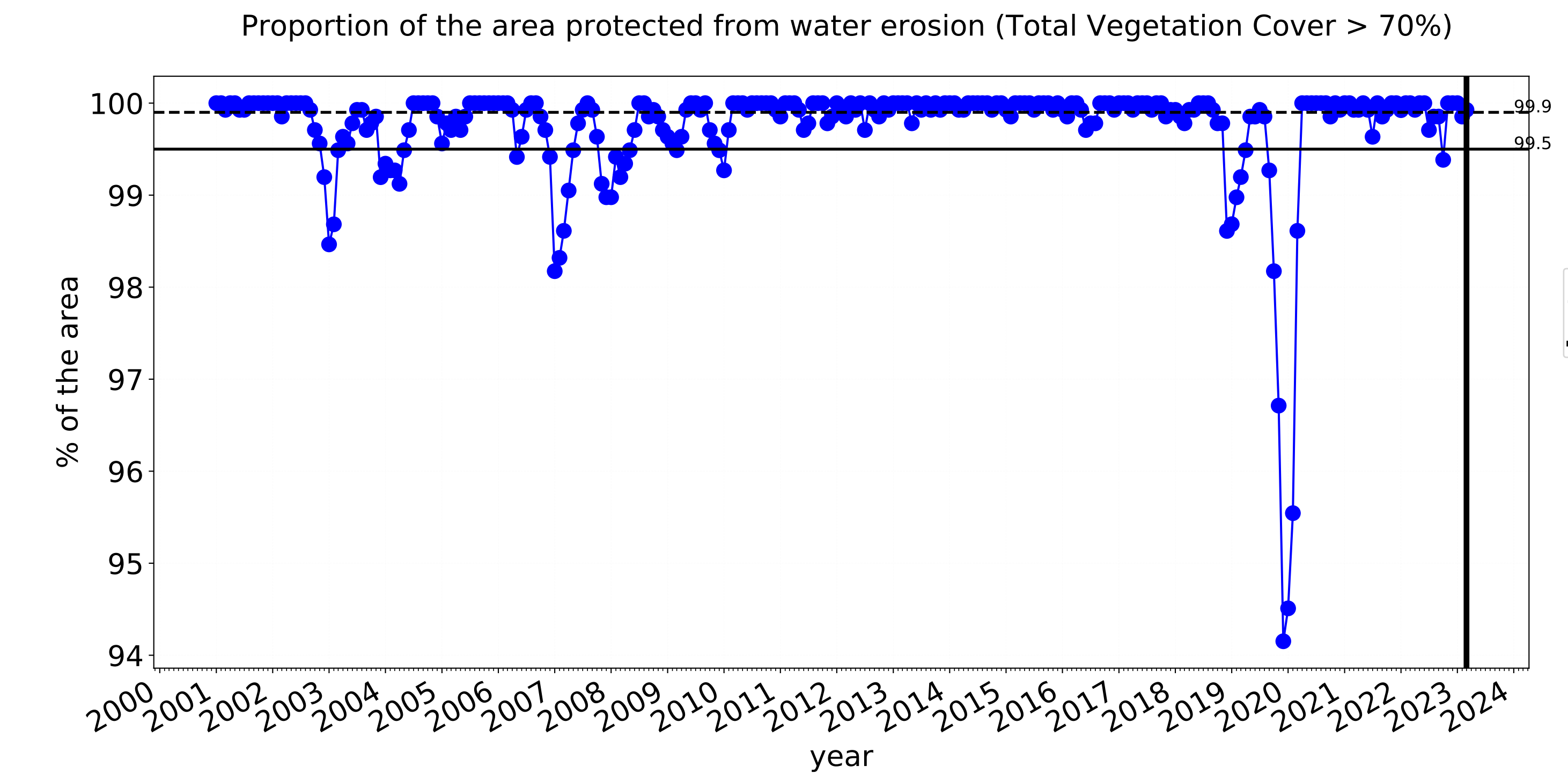
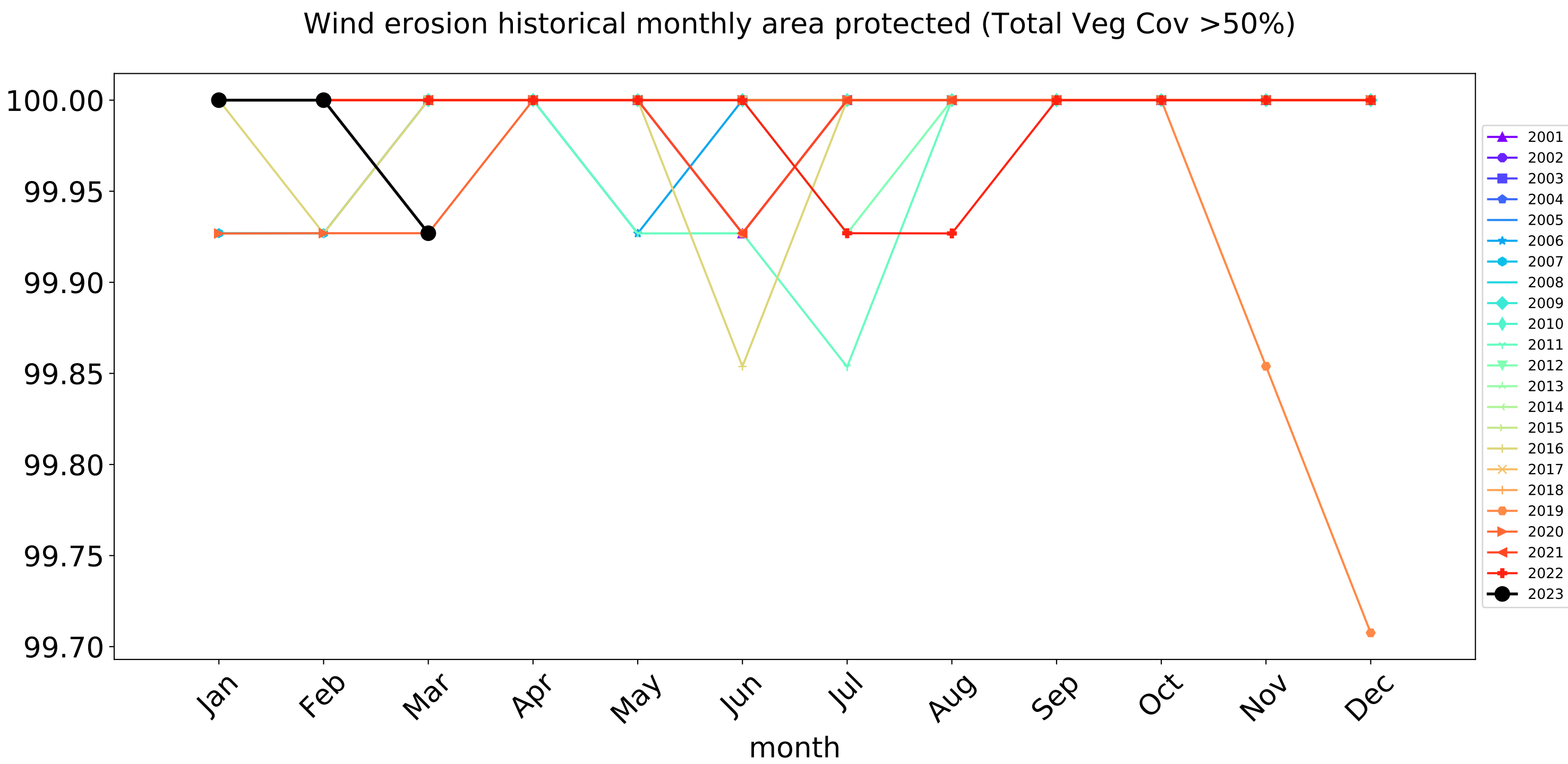
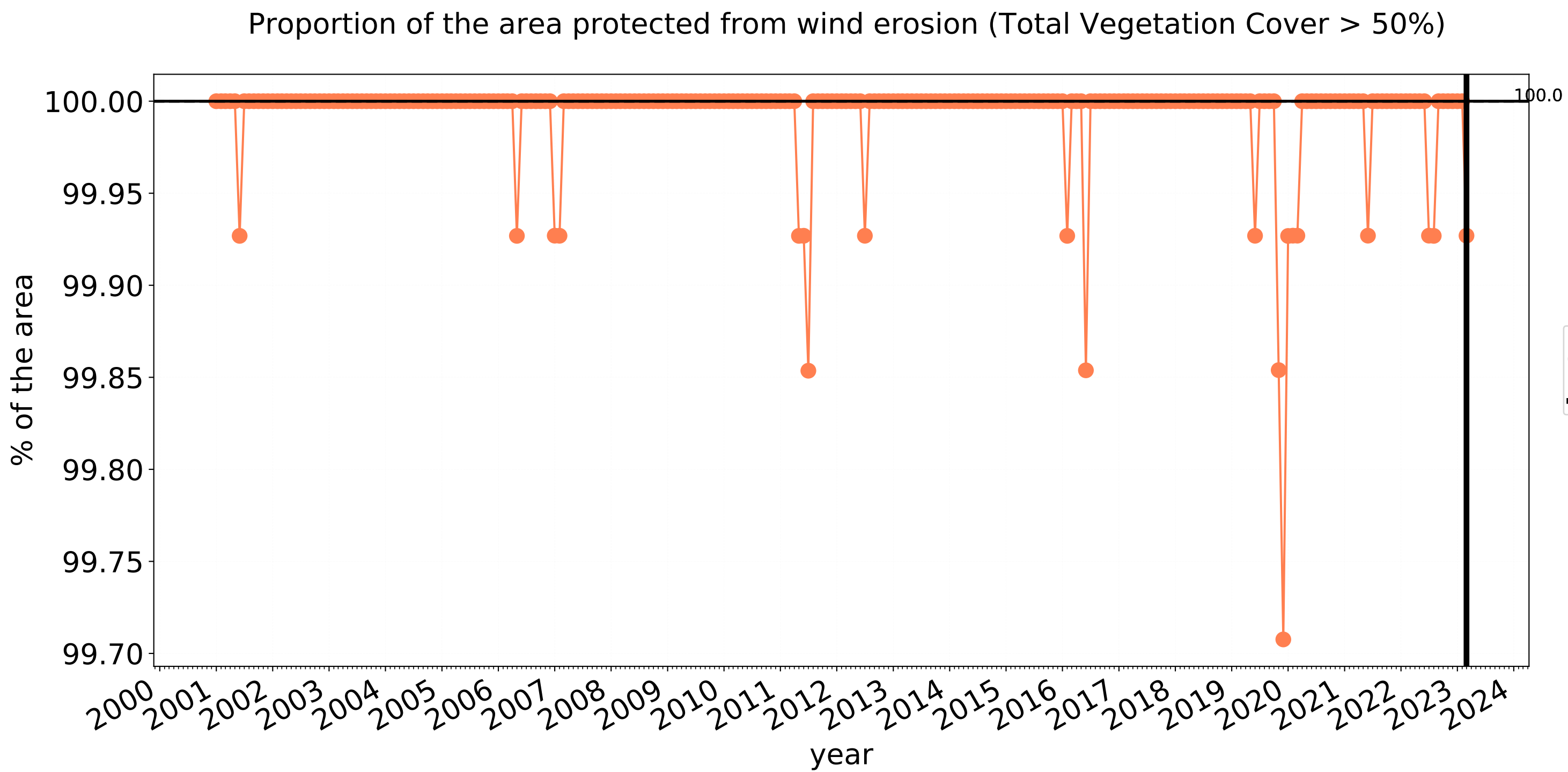
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Grazing Woodland forest timeseries



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Grazing - Forest (non woodland)

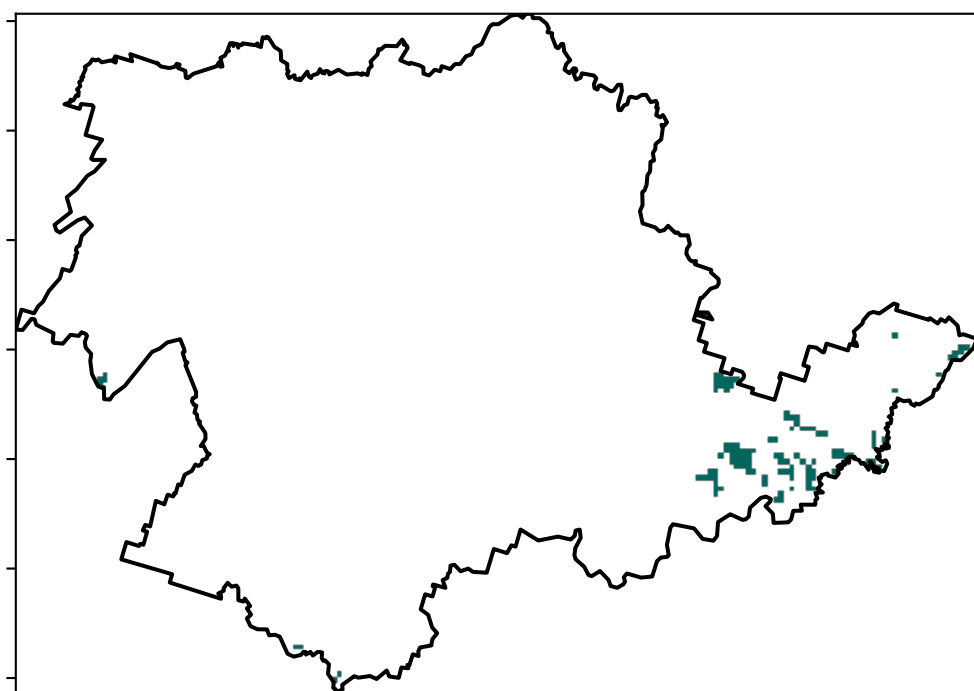
Land use and forest cover

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-woodland forest

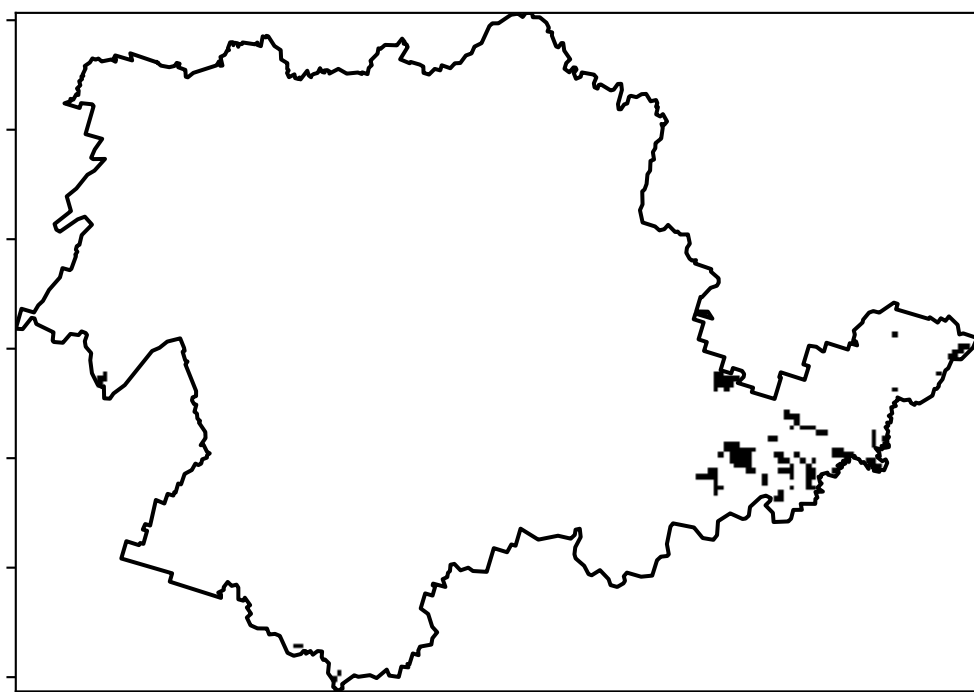
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

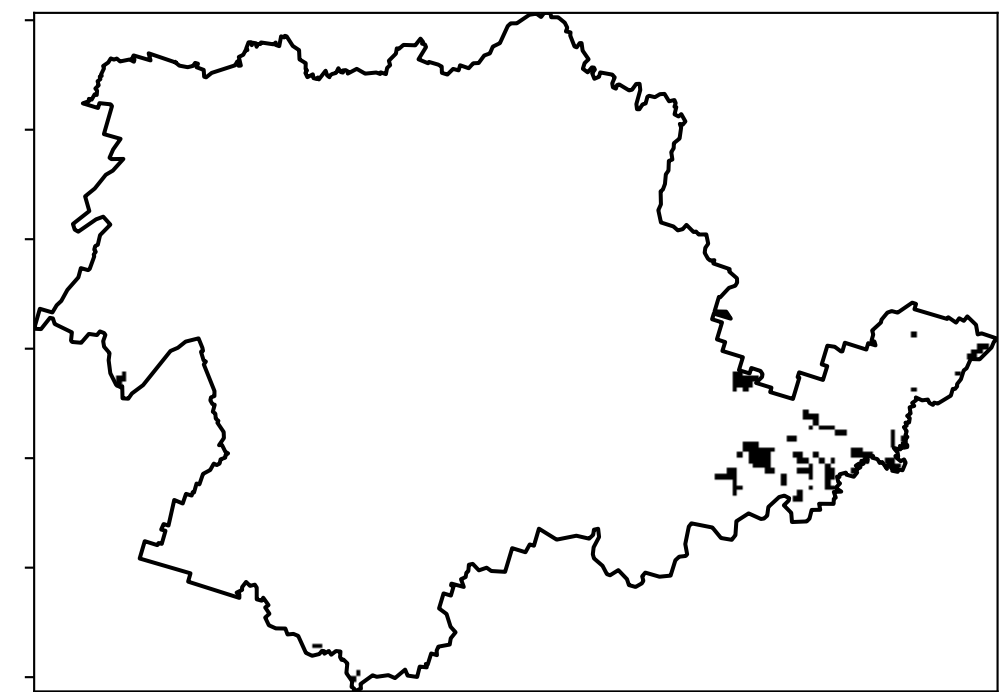


% Area protected from water erosion (>70%)



Area
protected
100.0% of
region
(3,000 ha)

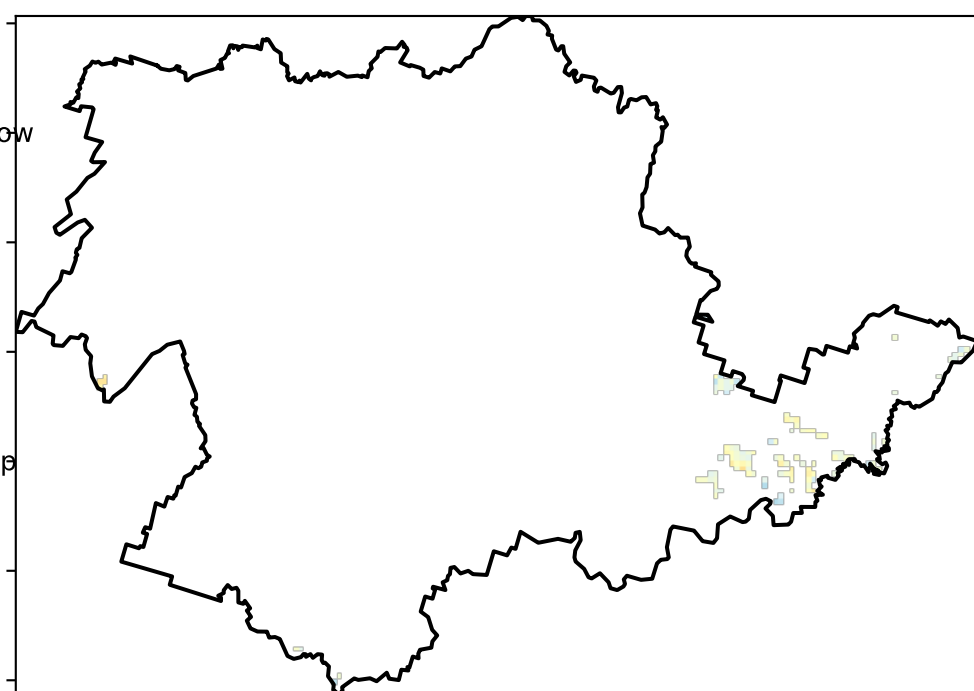
% Area protected from wind erosion (>50%)



Area
protected
100.0% of
region
(3,000 ha)

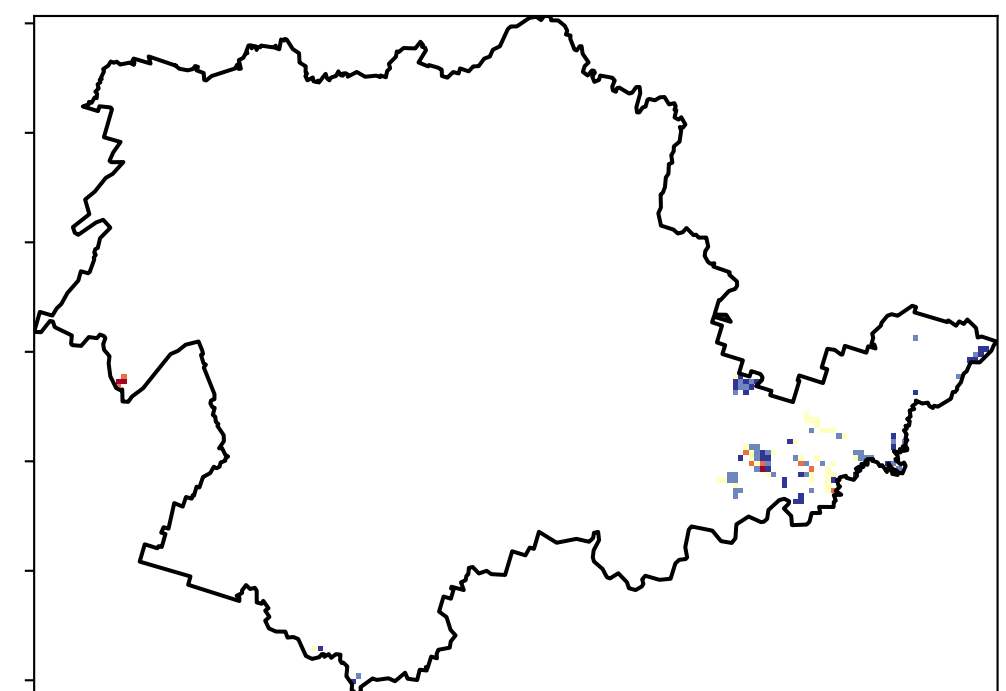
Total Vegetation Cover Anomaly [%]

Anomaly show how
many percentage
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.

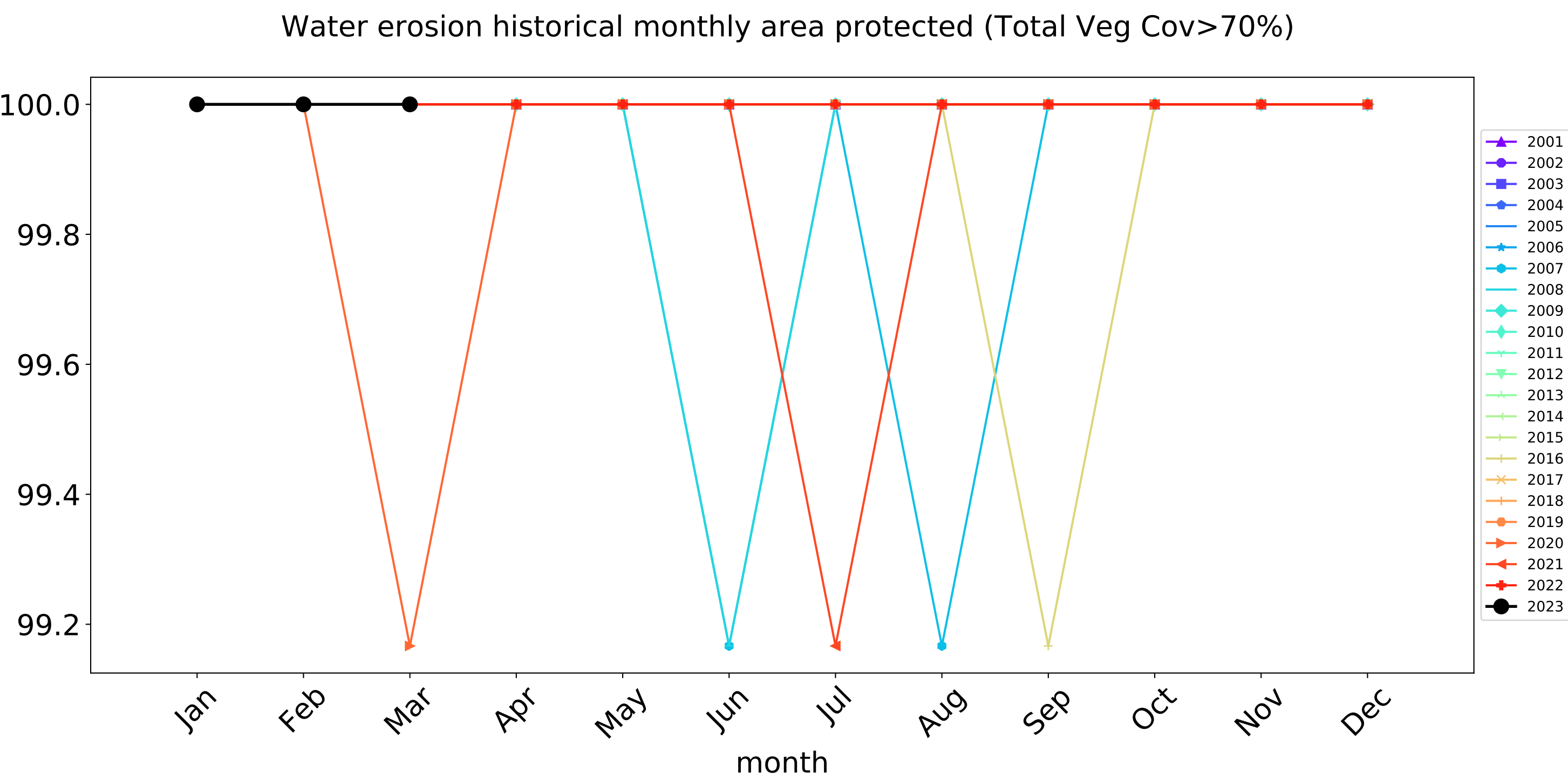
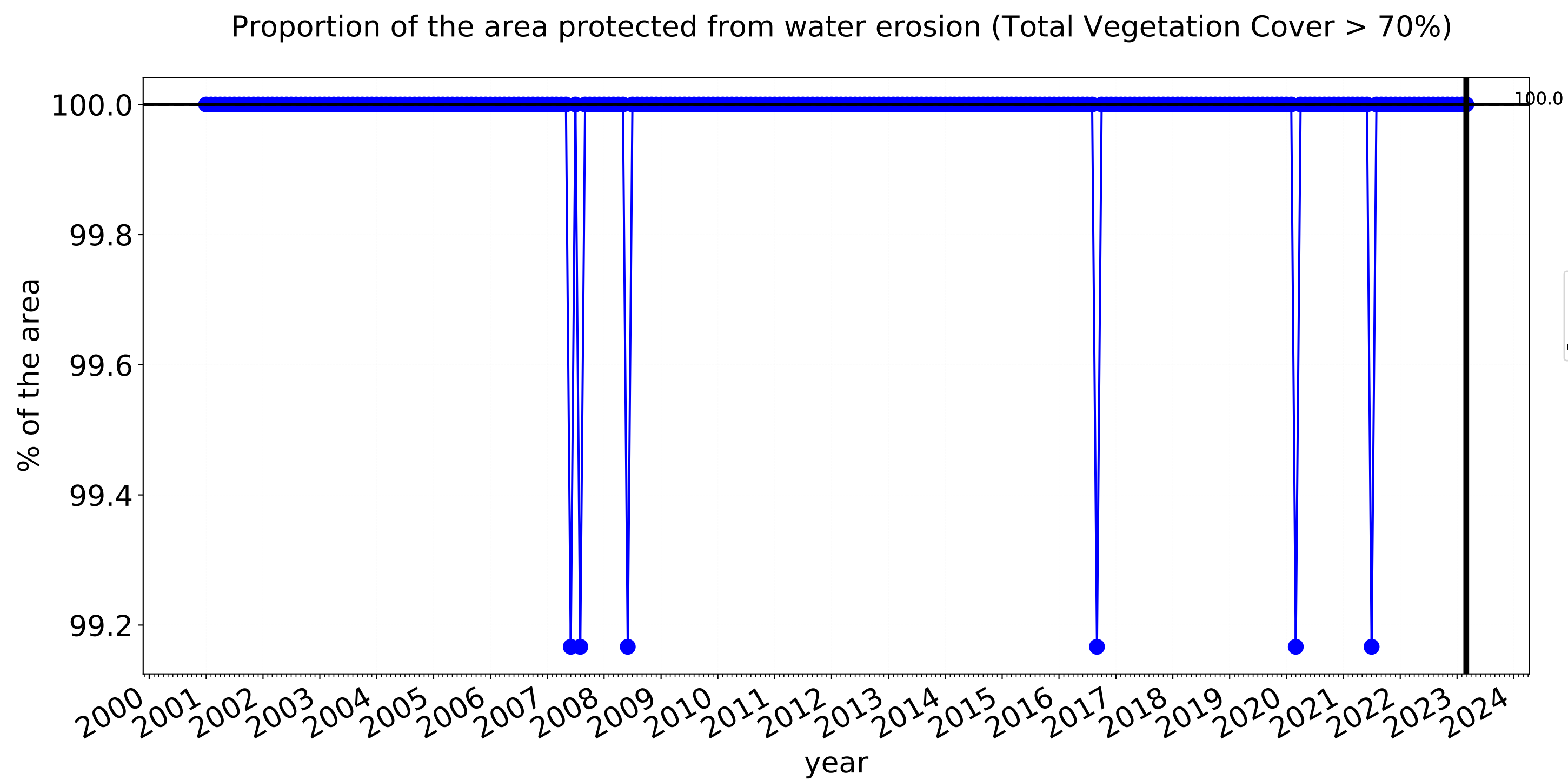
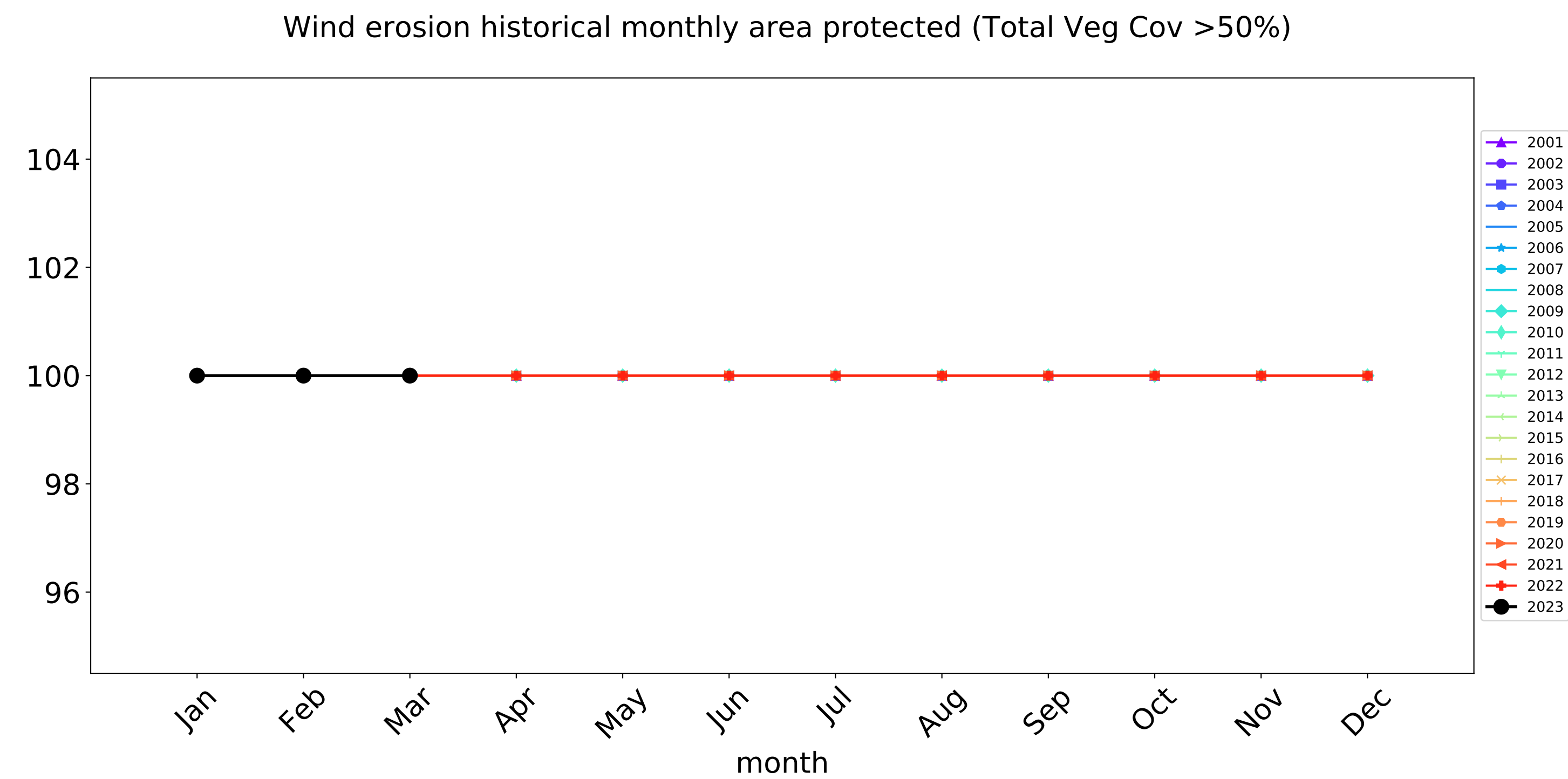
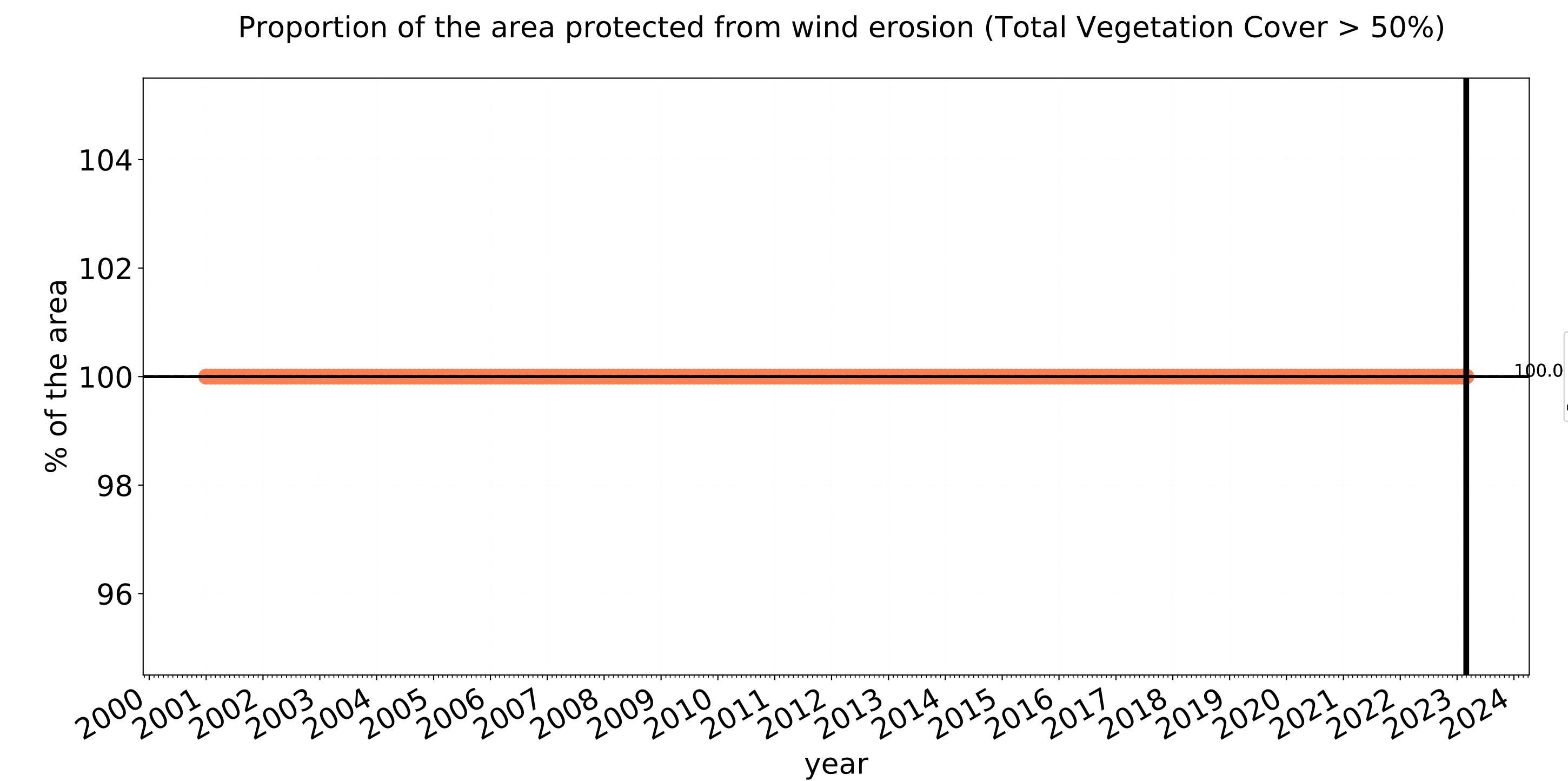


Deciles show where the
pixel value lies in the
record, from highest to
lowest, for that month.
That is, red pixels are
in the lowest 10% of
records for that month of
the map using baseline
from 2001 to 2019.

Total Vegetation Cover Decile [%]



Grazing - Forest (non woodland) timeseries



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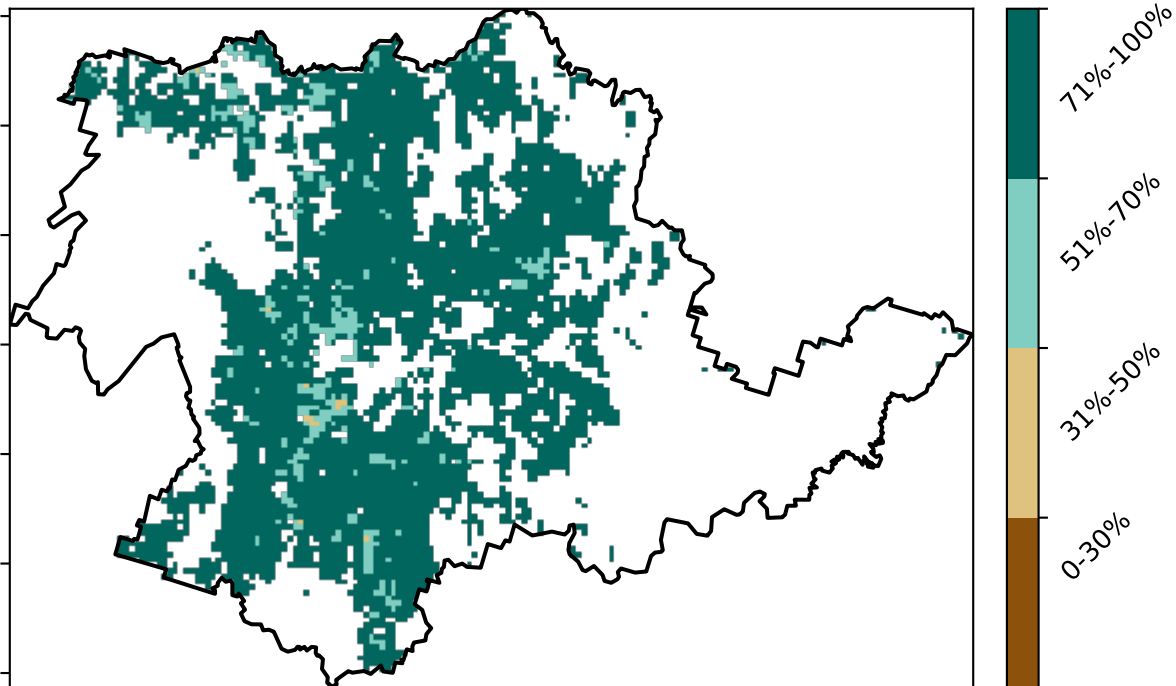
Cropping

Land use and forest cover

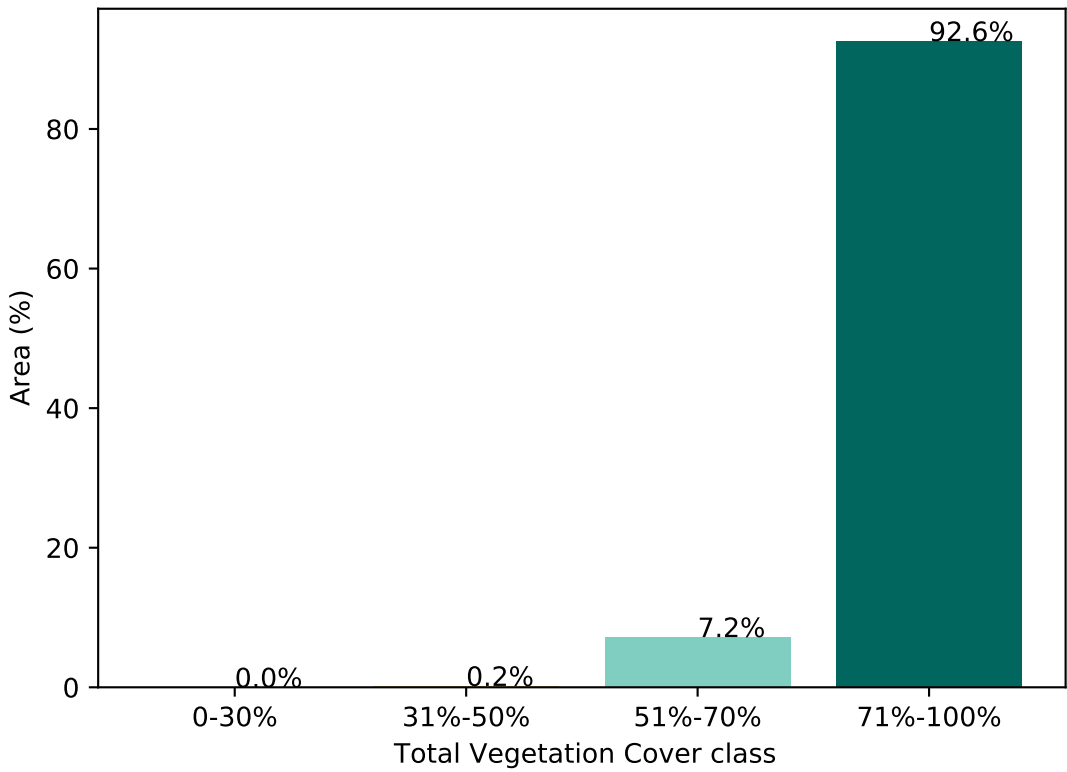
Catchment Scale
Land Use and Forests
of Australia (2018).
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



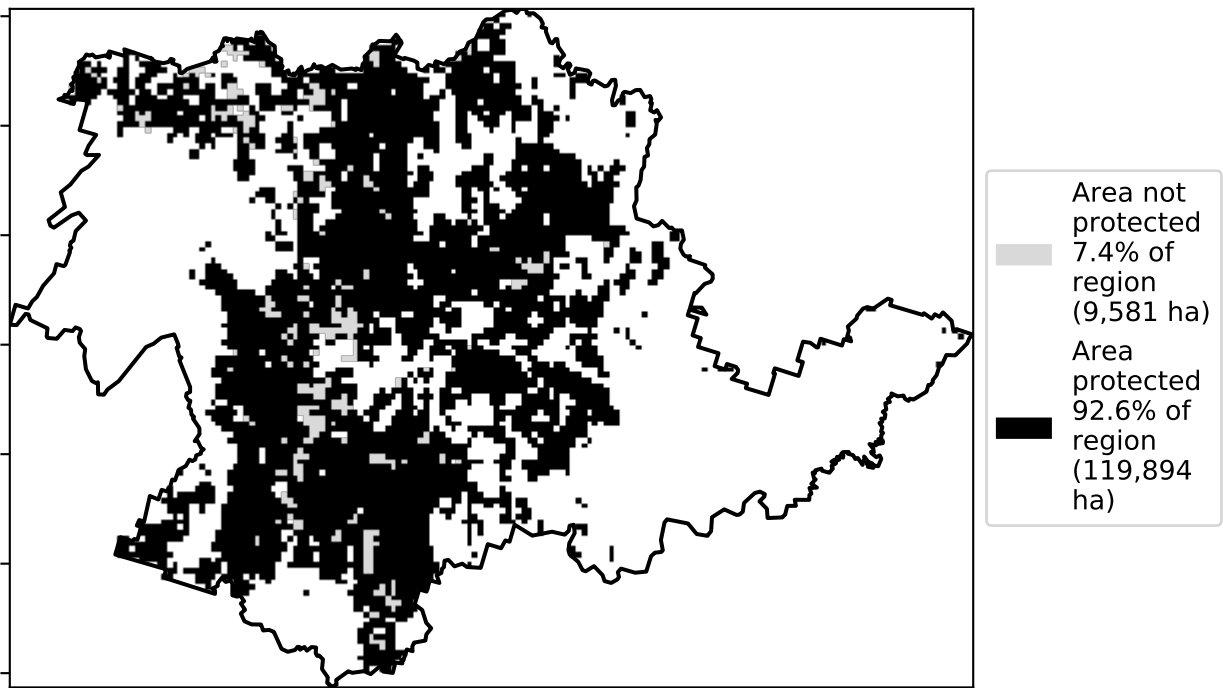
Total Vegetation Cover [%]



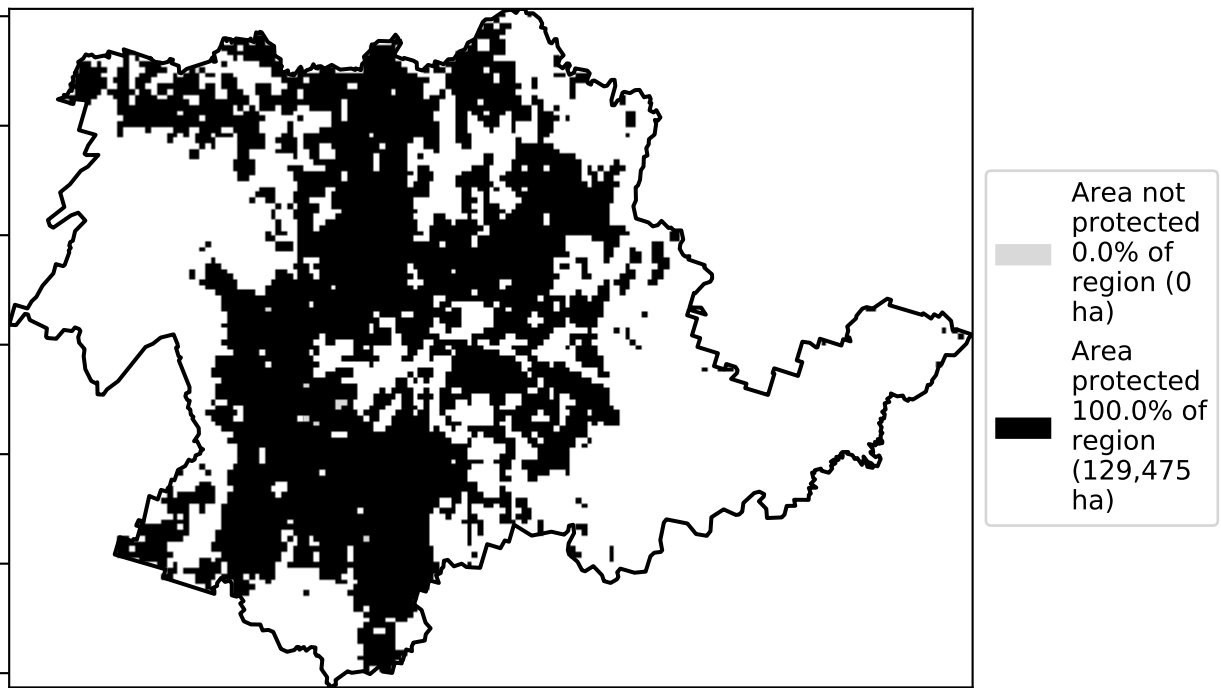
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

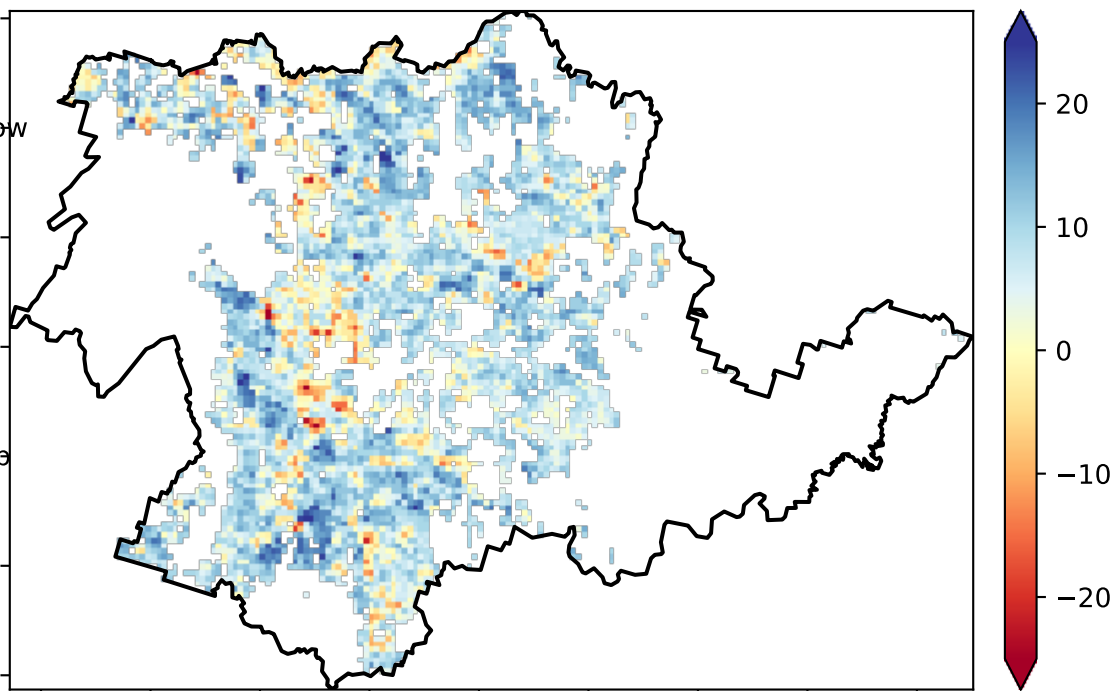


% Area protected from wind erosion (>50%)



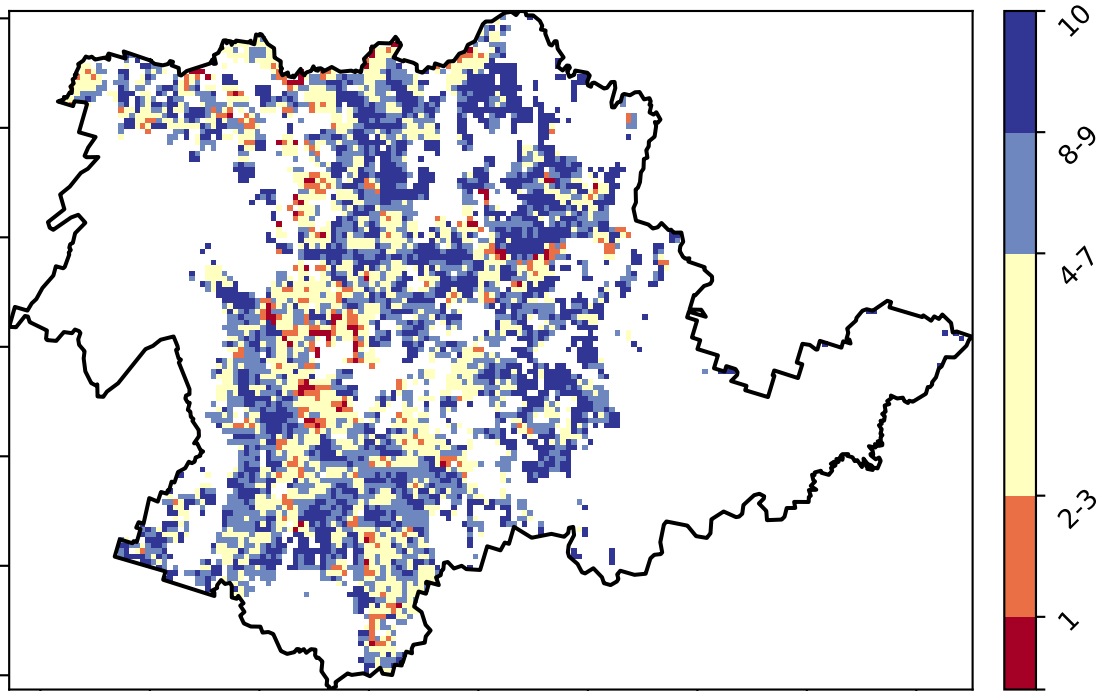
Total Vegetation Cover Anomaly [%]

Anomaly show how
many percentage
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.

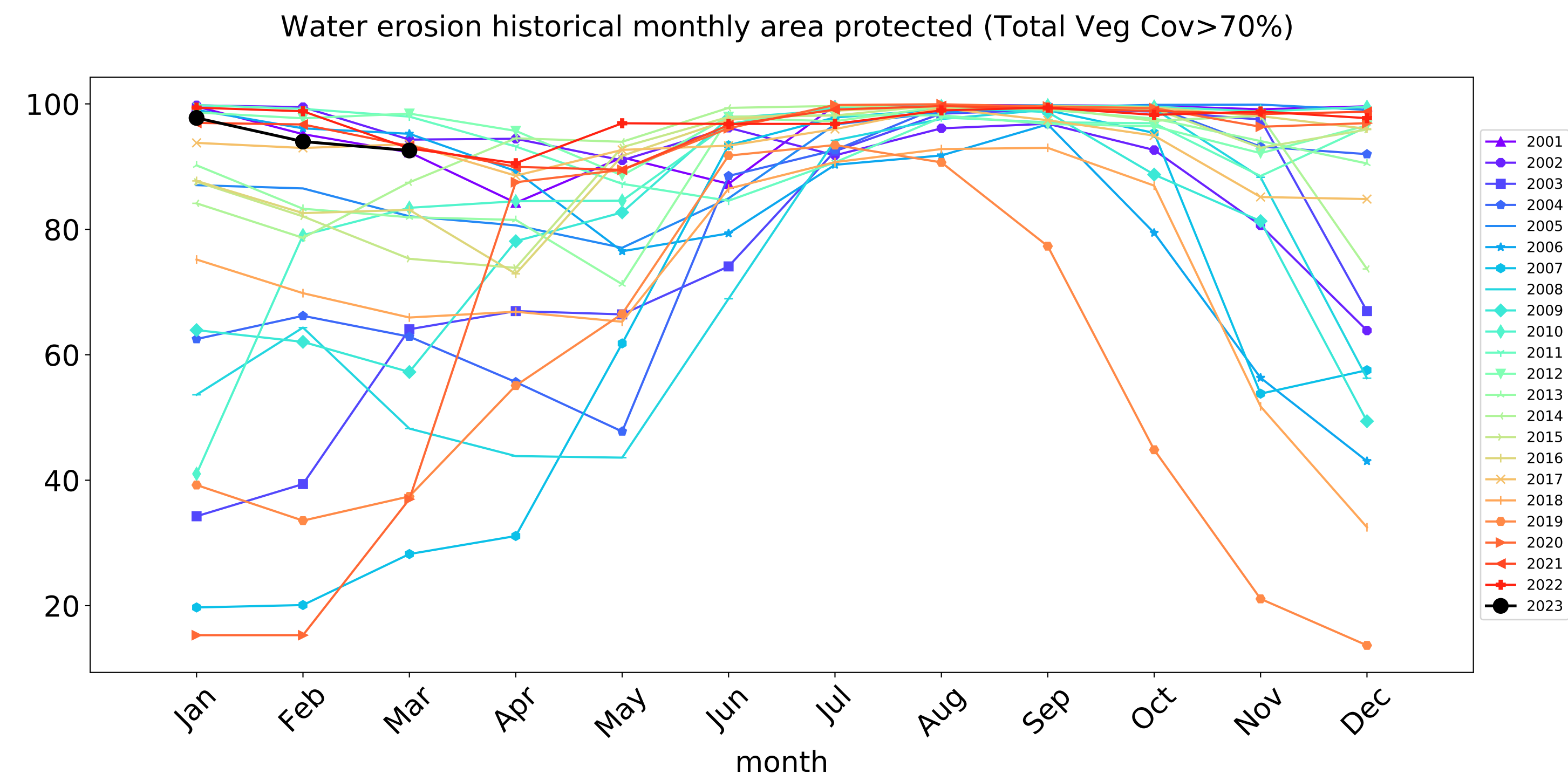
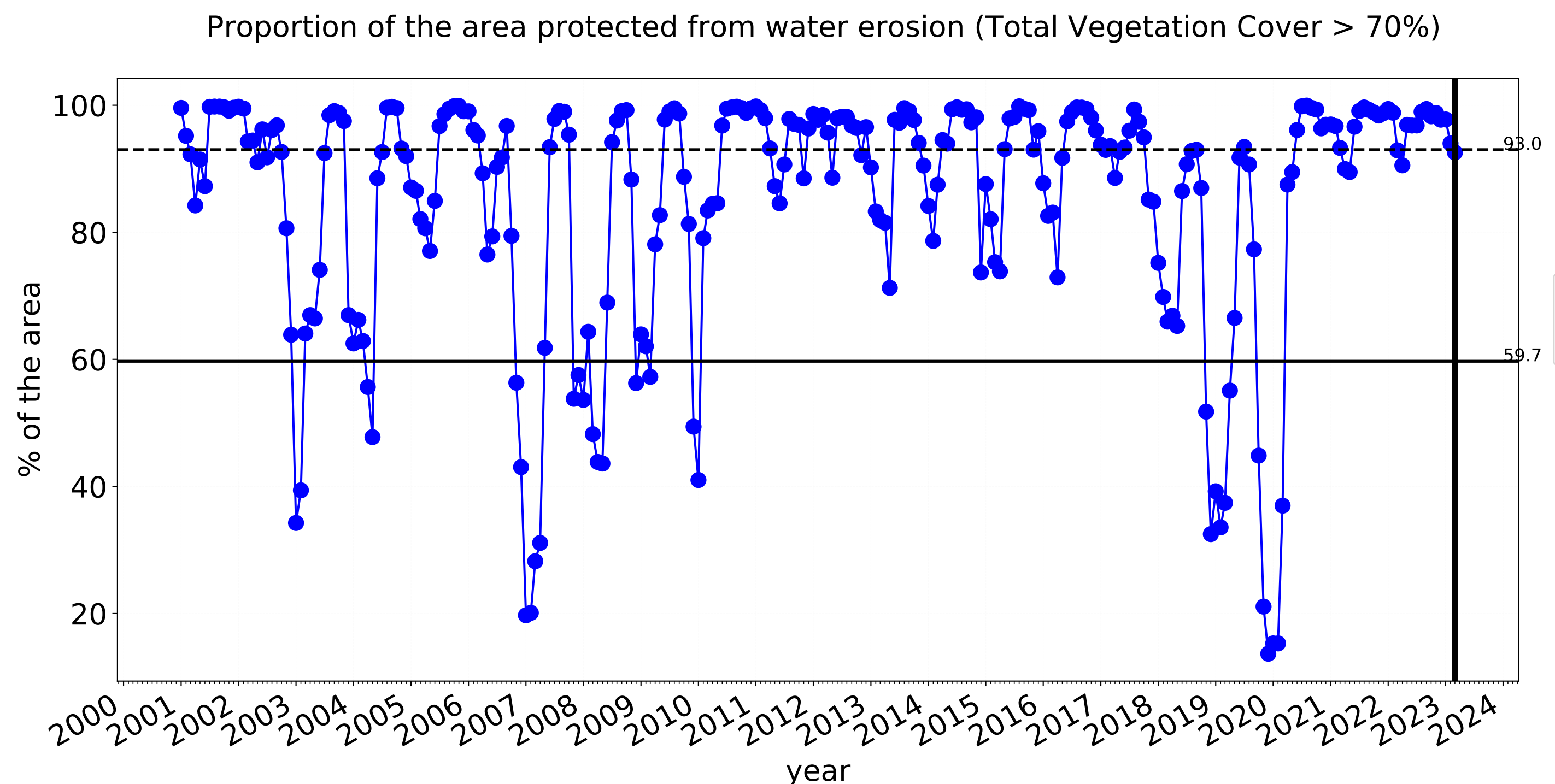
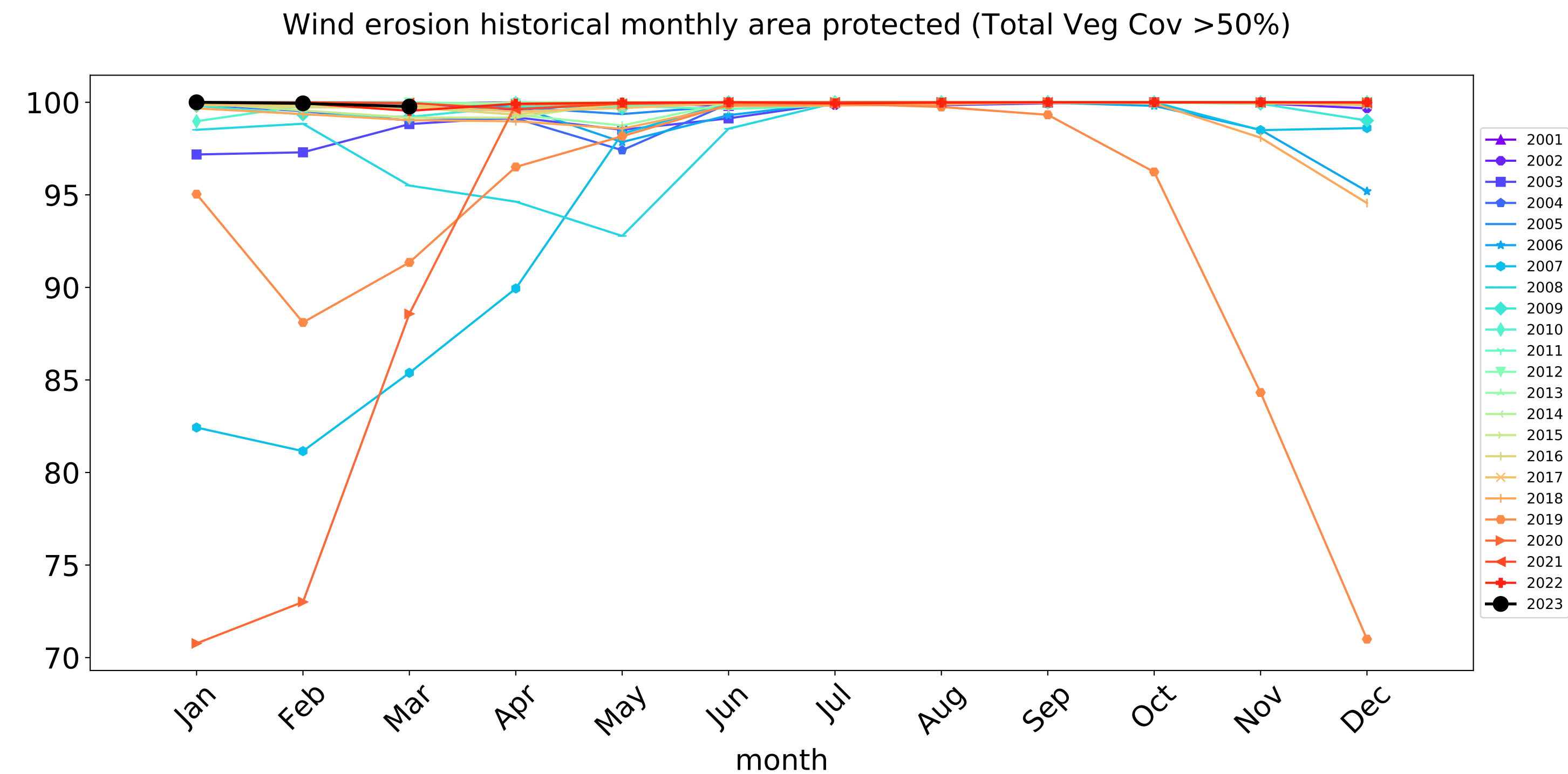
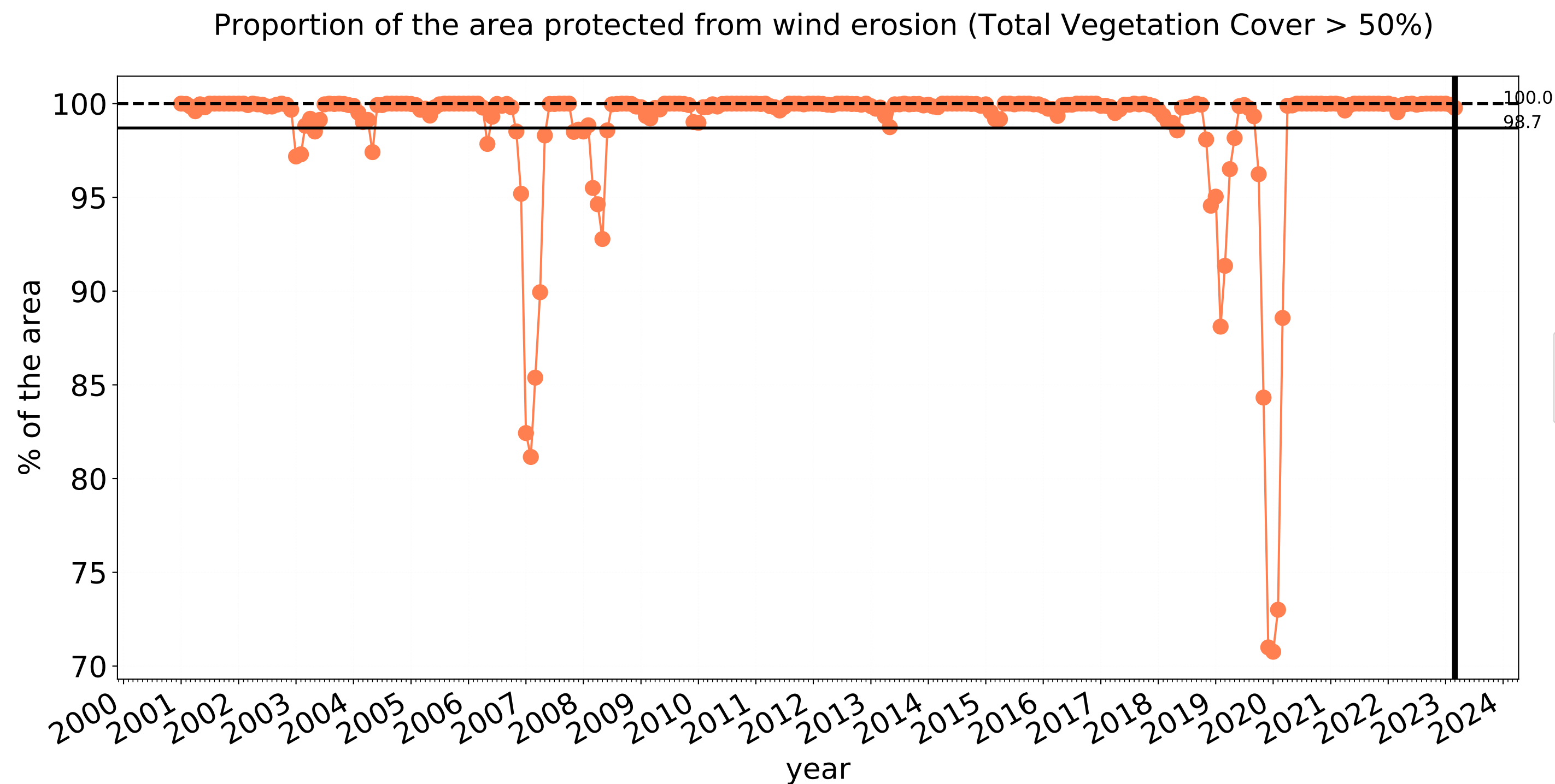


Deciles show where the
pixel value lies in the
record, from highest to
lowest, for that month.
That is, red pixels are
in the lowest 10% of
records for that month of
the map using baseline
from 2001 to 2019.

Total Vegetation Cover Decile [%]



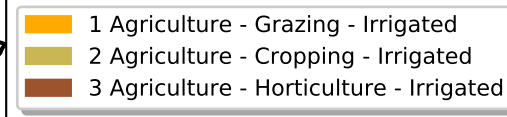
Cropping timeseries



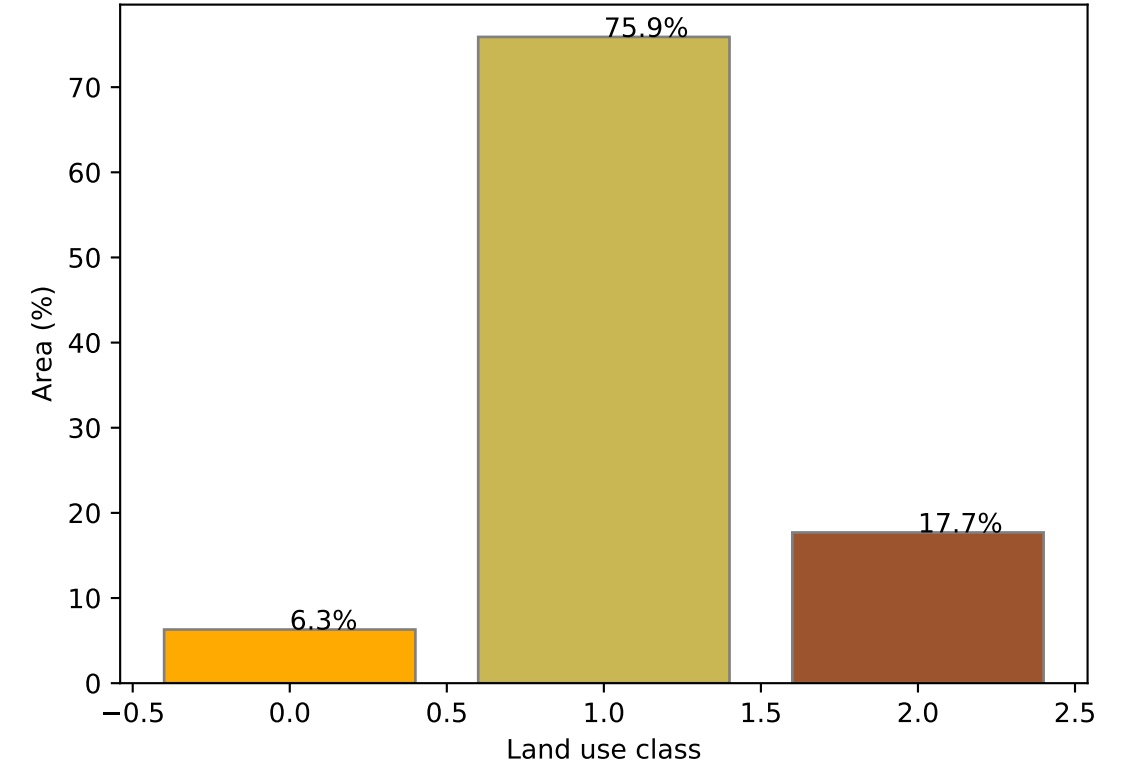
Irrigation

Land use and forest cover

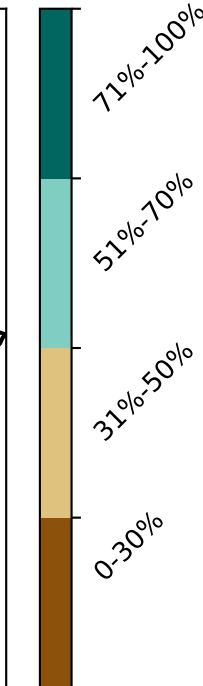
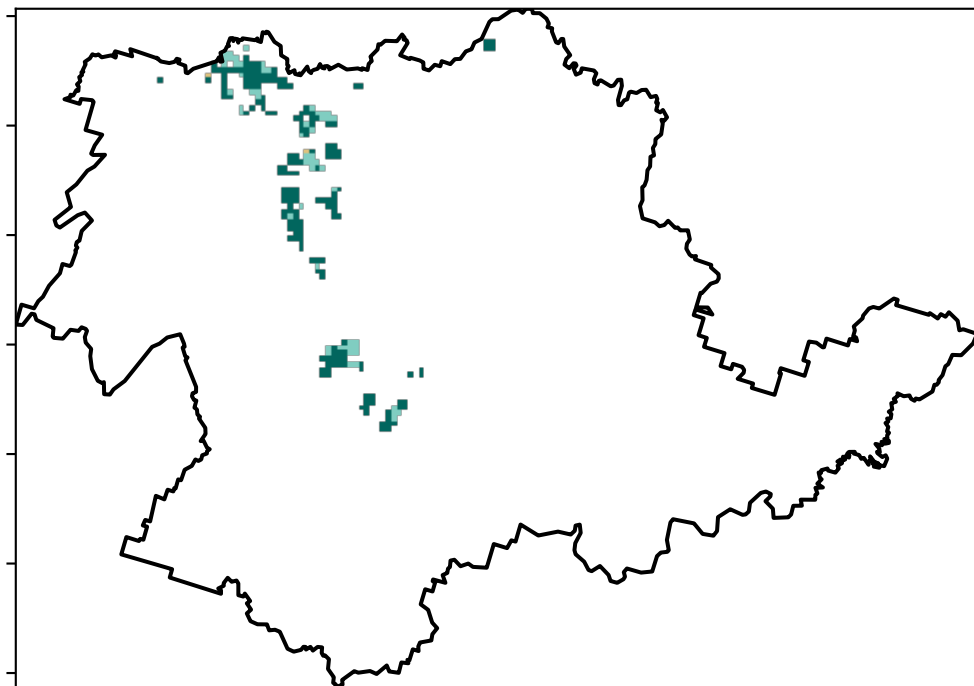
Catchment Scale Land Use and Forests of Australia (2018). Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



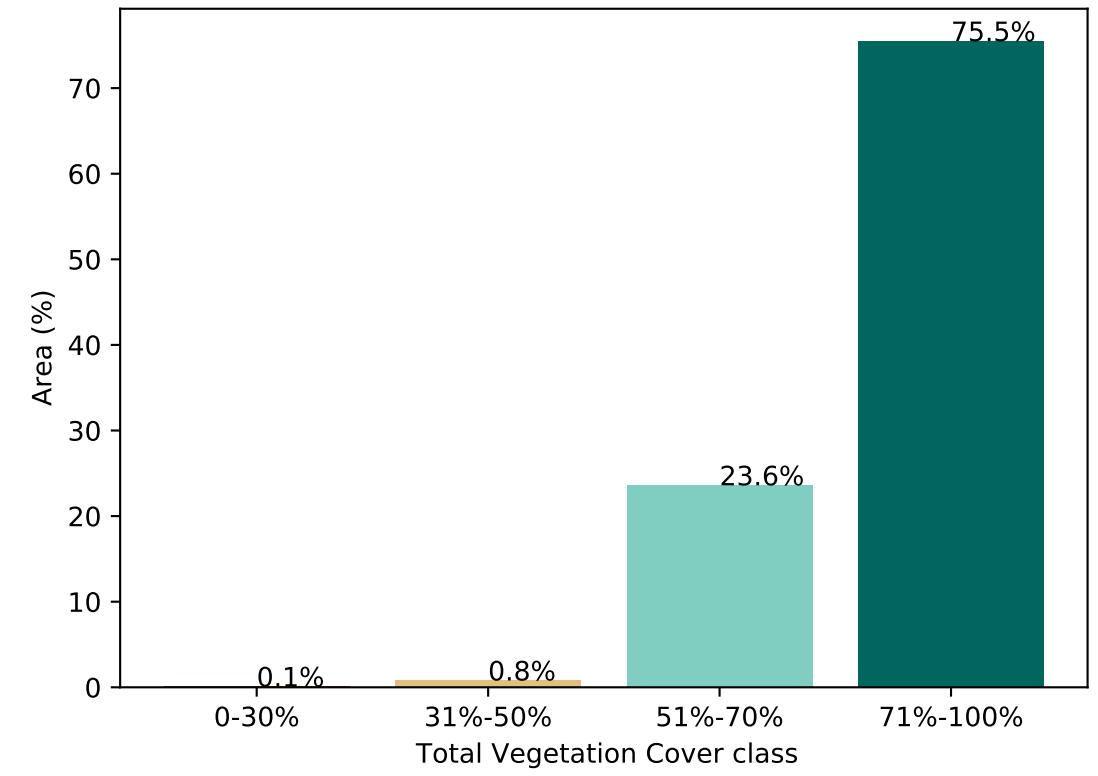
Proportion of each land class in area



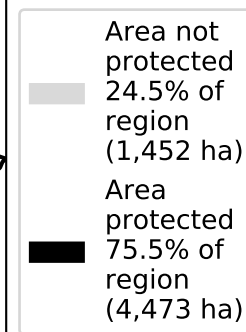
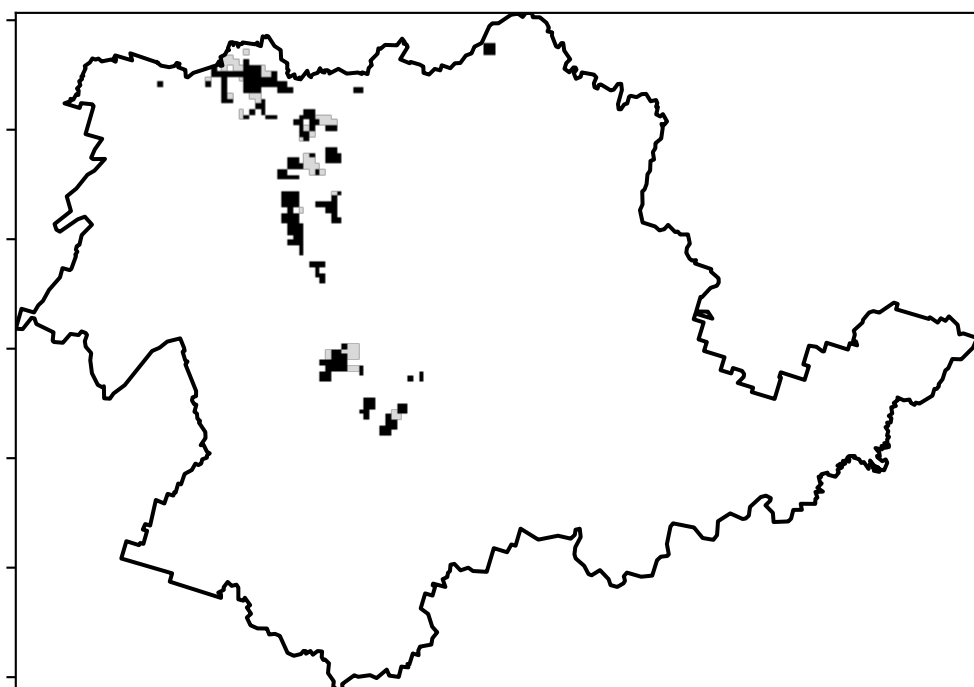
Total Vegetation Cover [%]



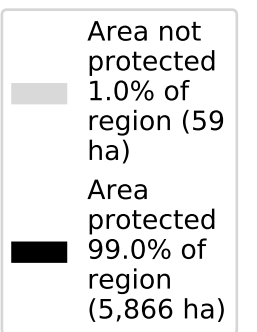
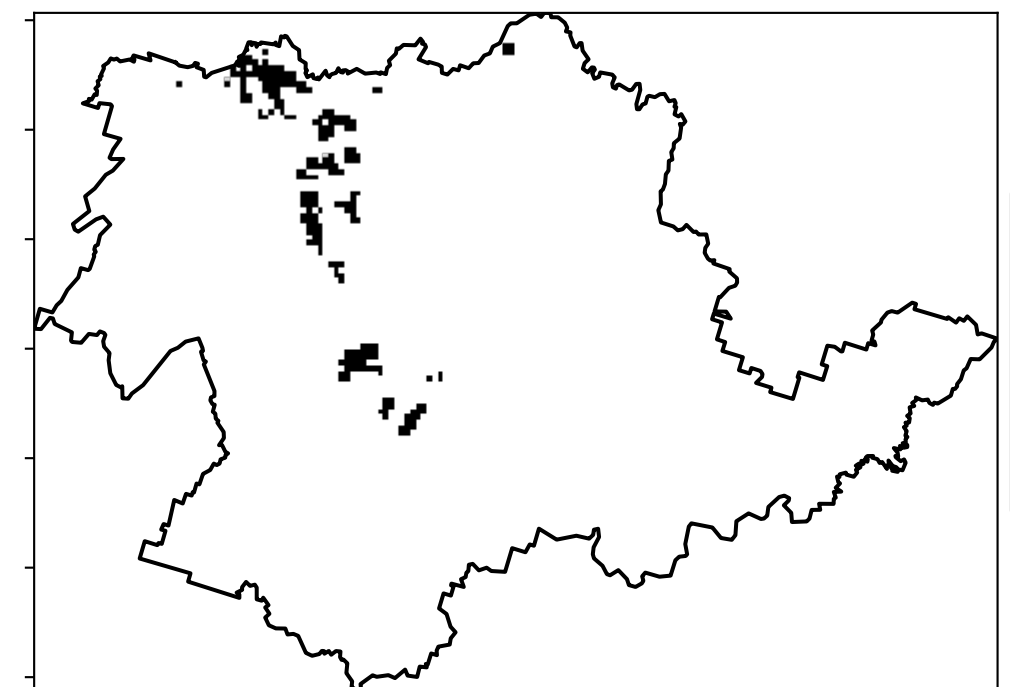
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

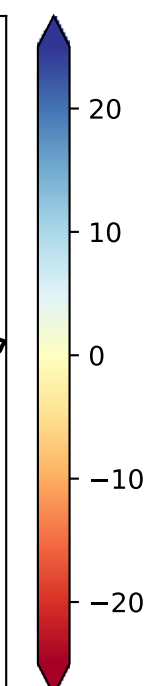
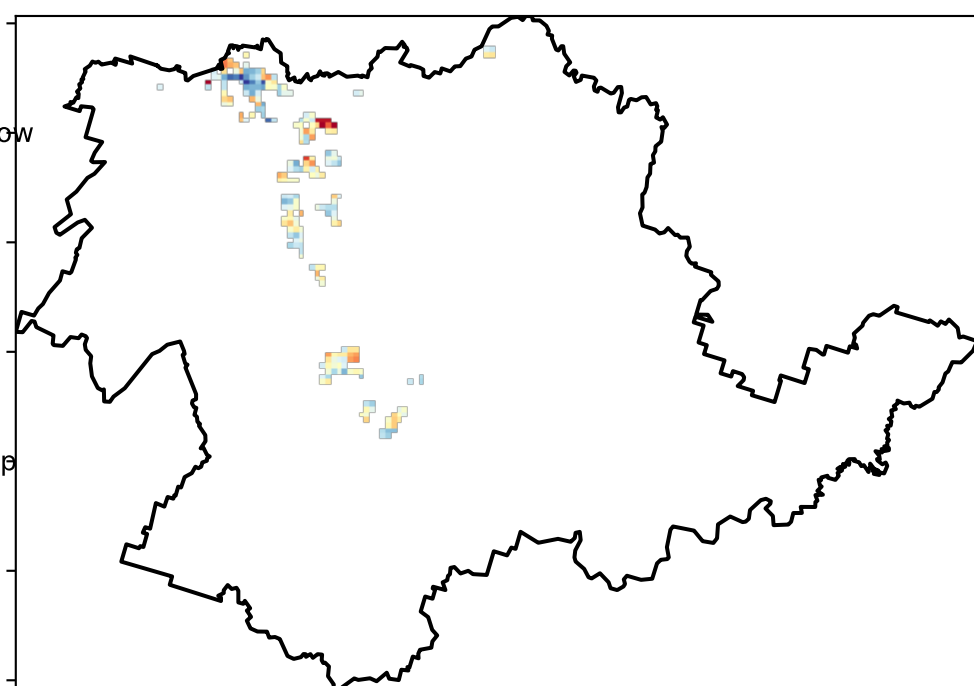


% Area protected from wind erosion (>50%)



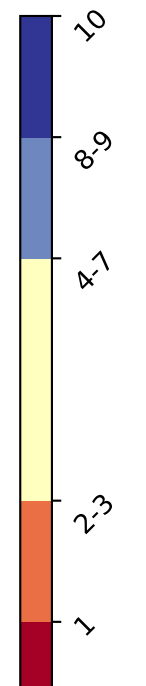
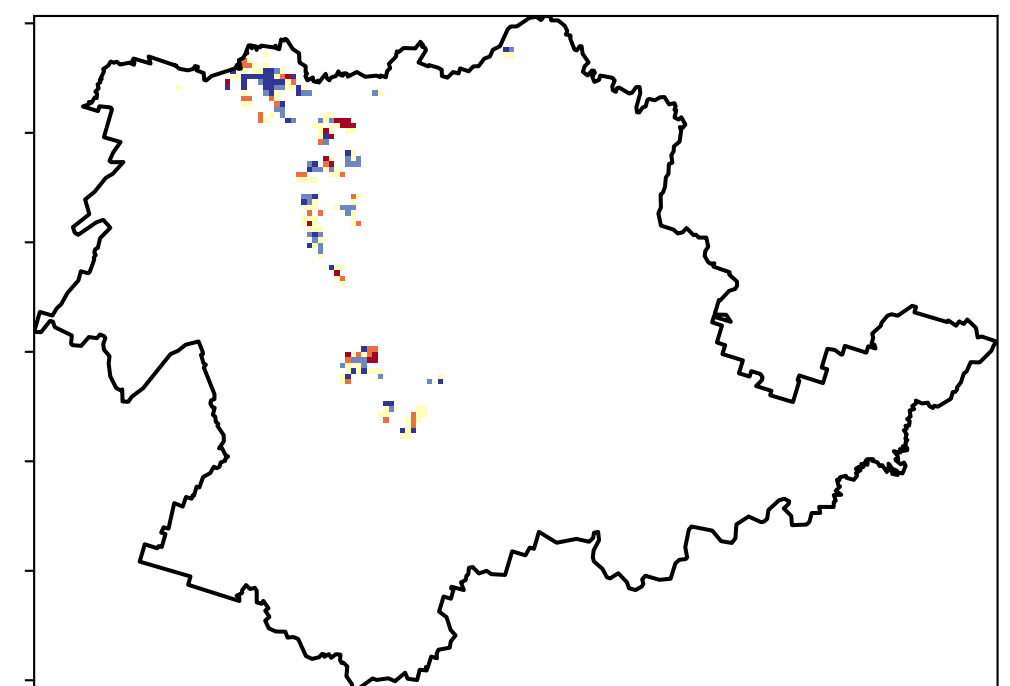
Total Vegetation Cover Anomaly [%]

Anomaly show how many percentage 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.

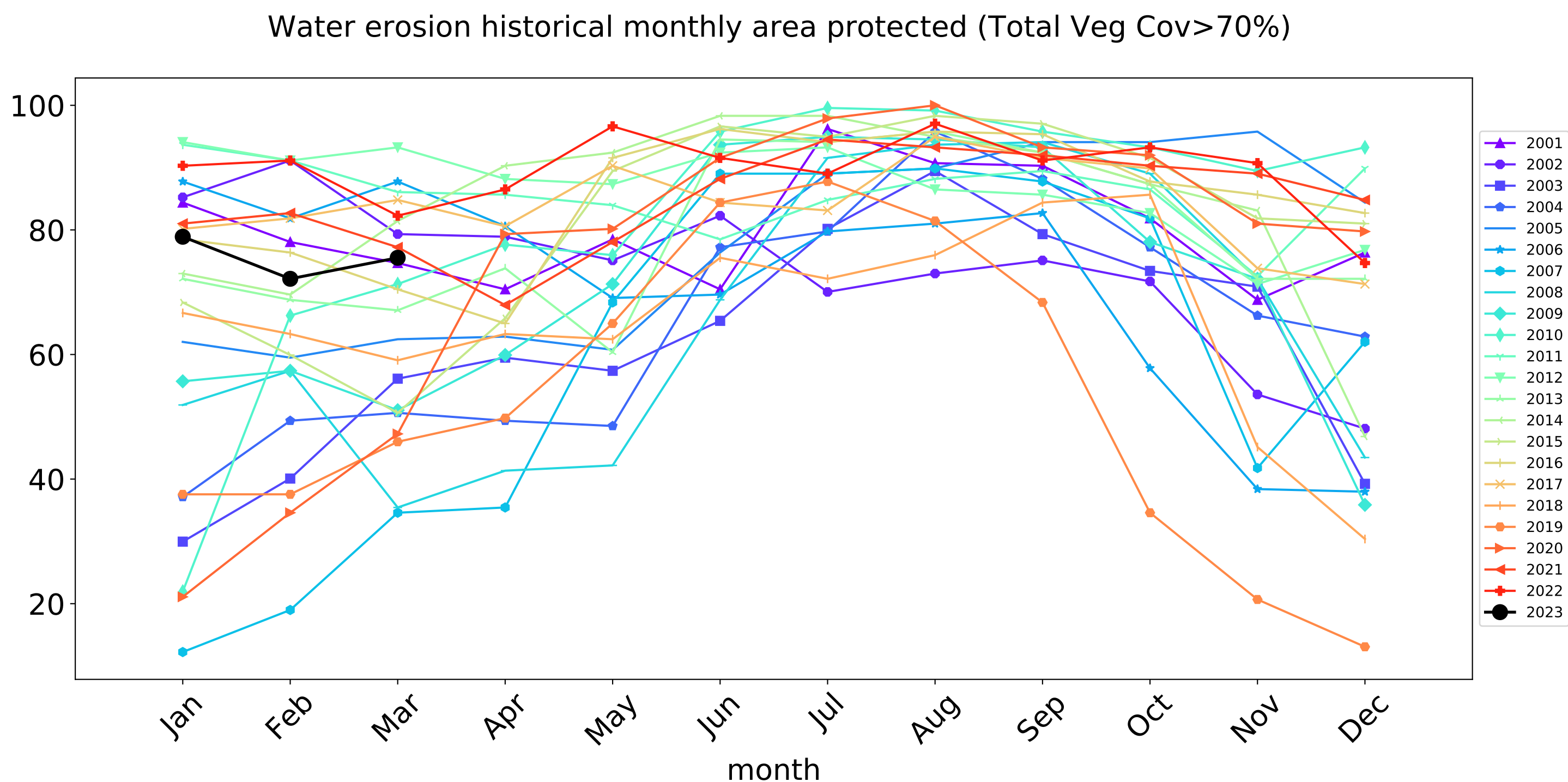
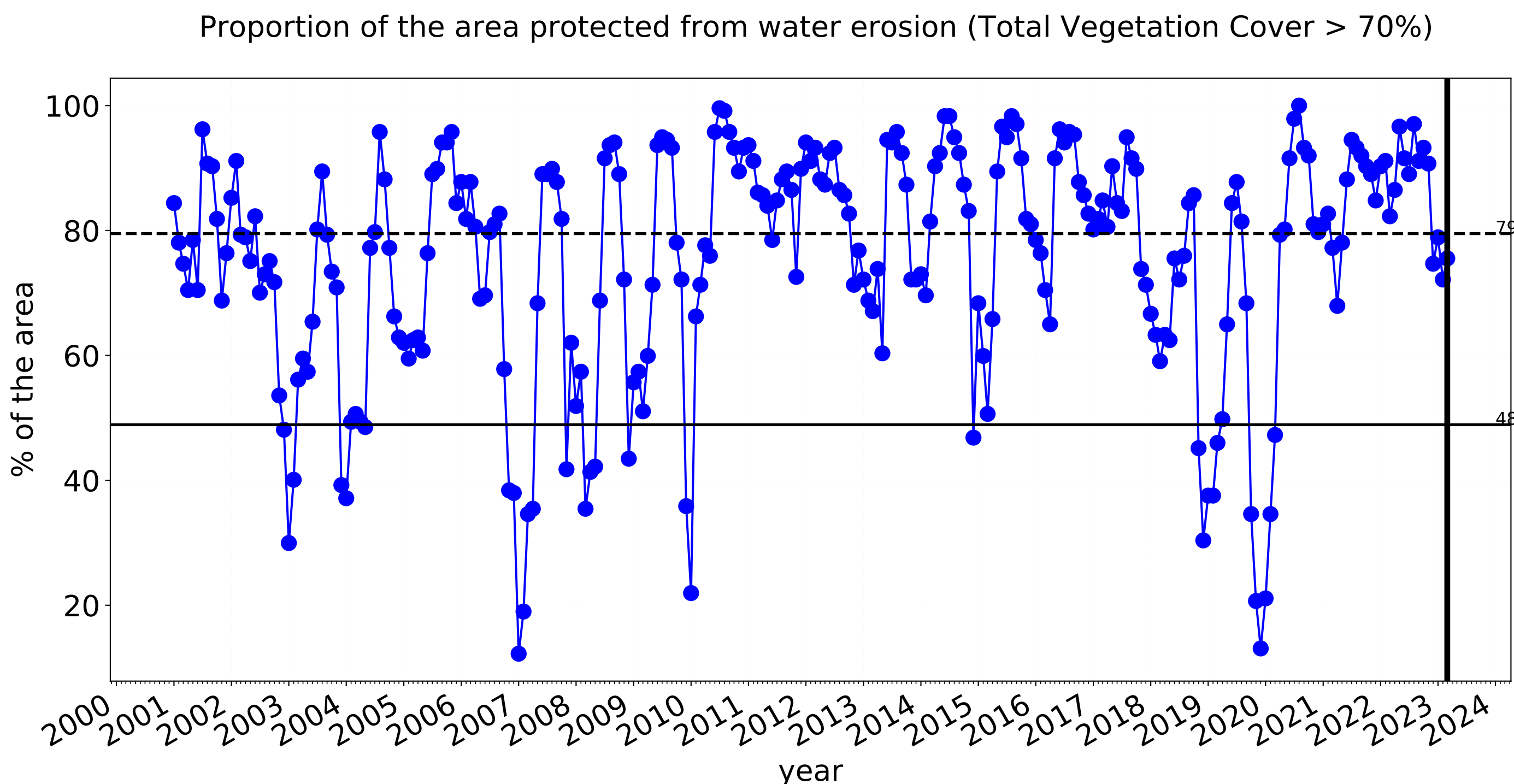
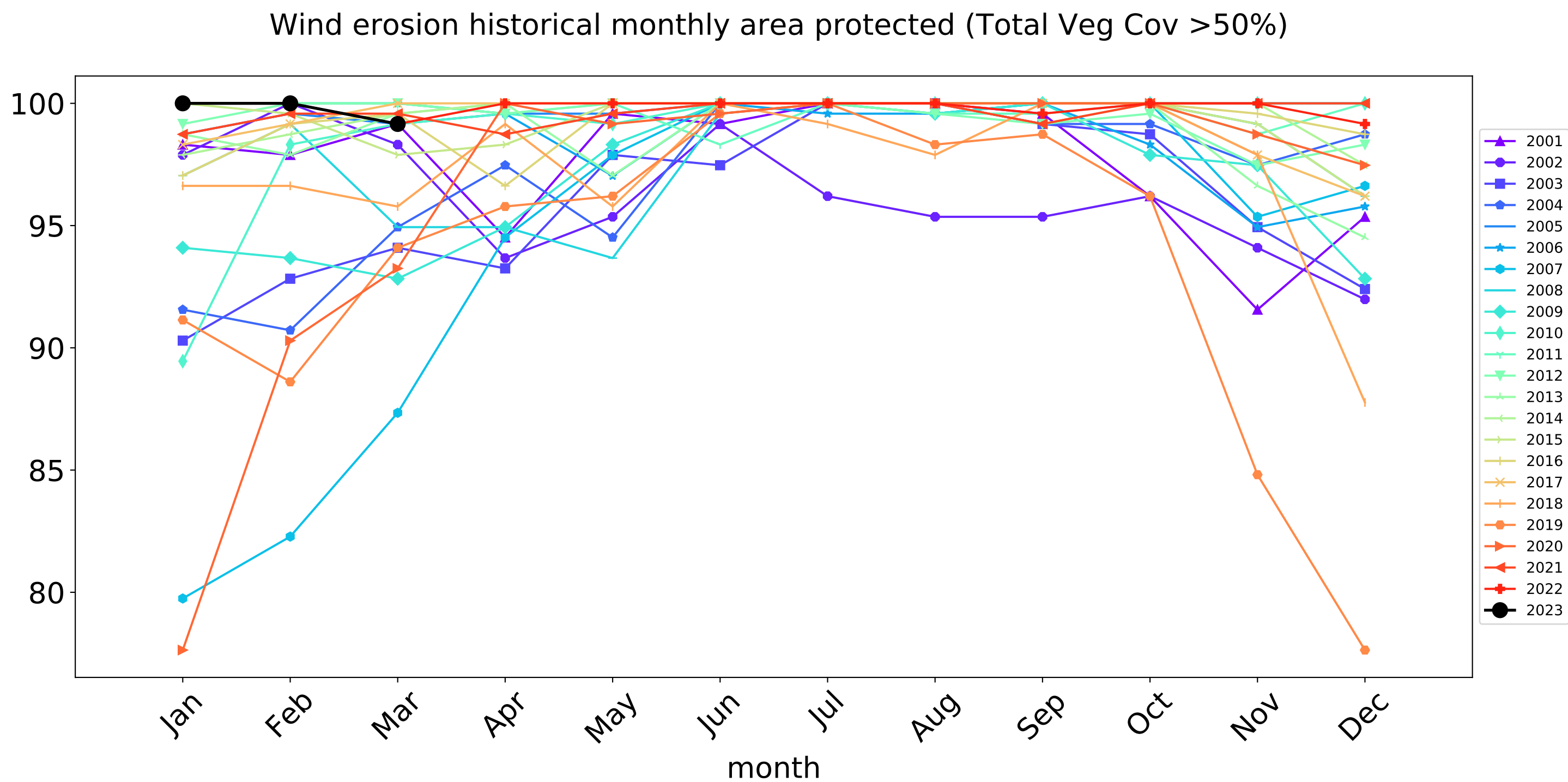
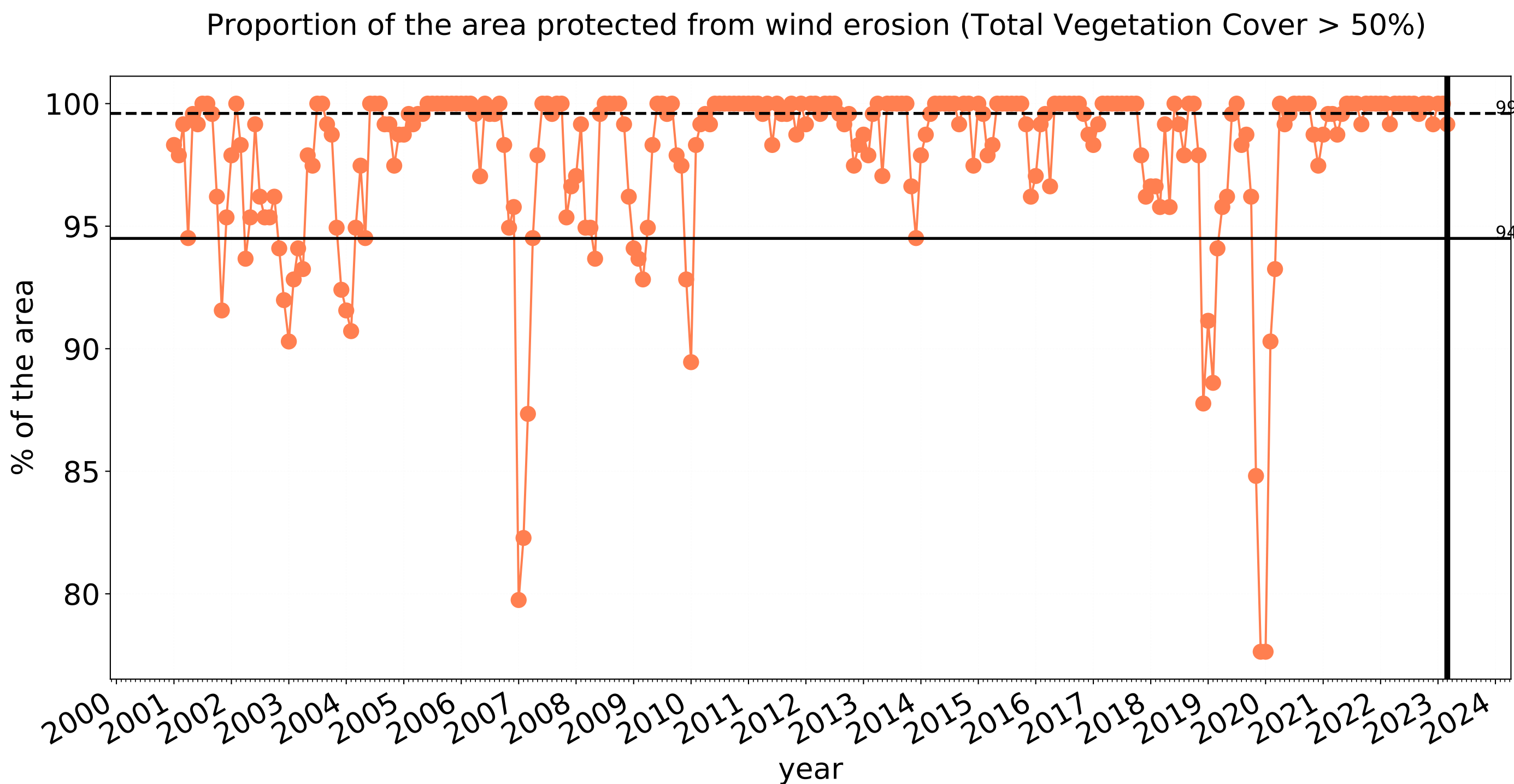


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]



Irrigation timeseries



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)



1 Production native forests and plantation forests

Total Vegetation Cover [%]



Proportion of vegetation cover class in area

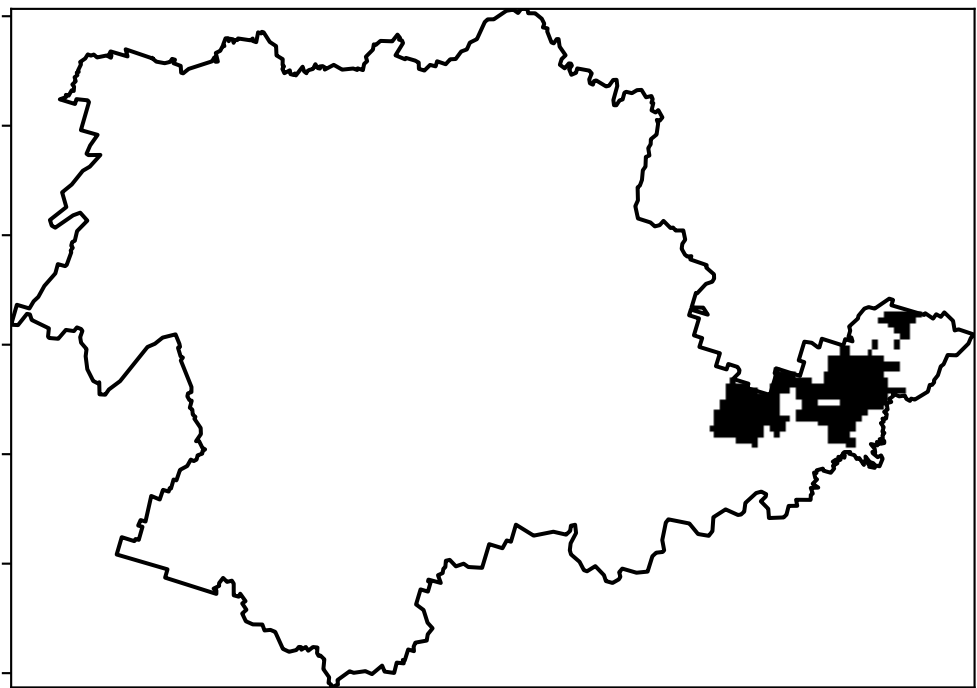


% Area protected from water erosion (>70%)



Area
protected
100.0% of
region
(8,775 ha)

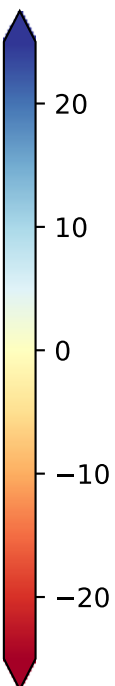
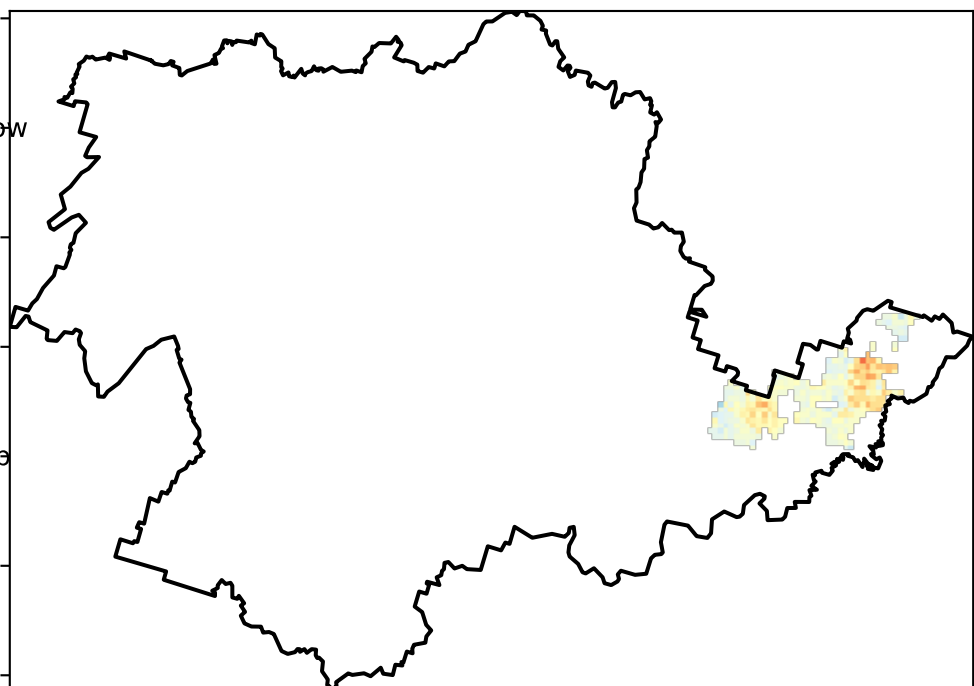
% Area protected from wind erosion (>50%)



Area
protected
100.0% of
region
(8,775 ha)

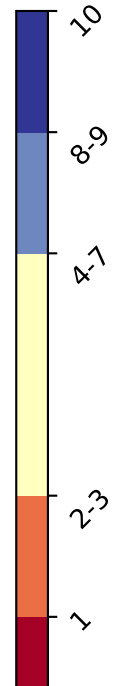
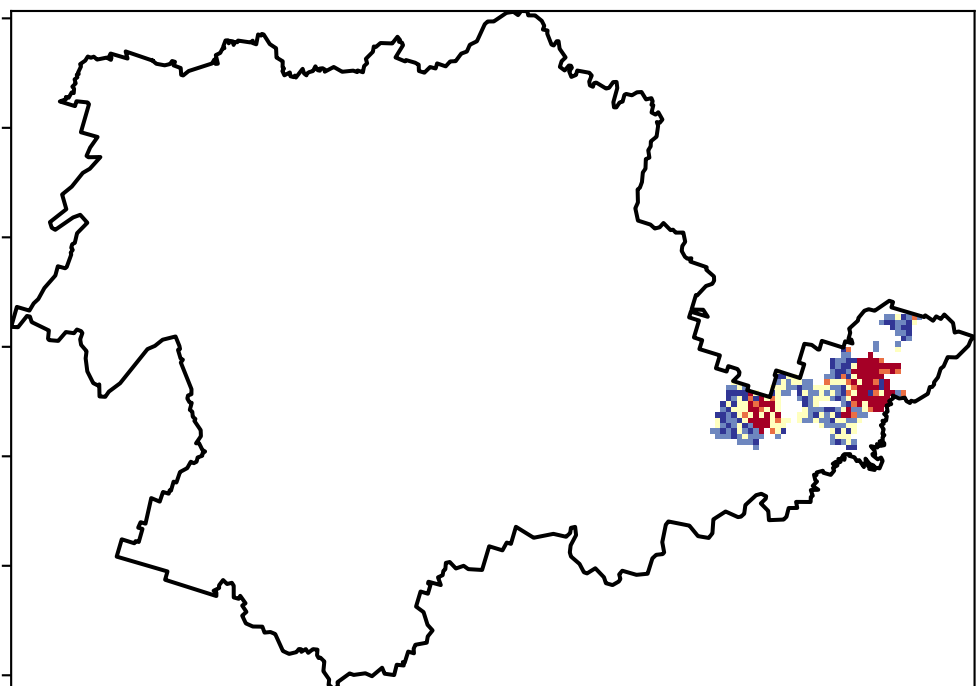
Total Vegetation Cover Anomaly [%]

Anomaly show how
many percentage
points each
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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
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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 [%]



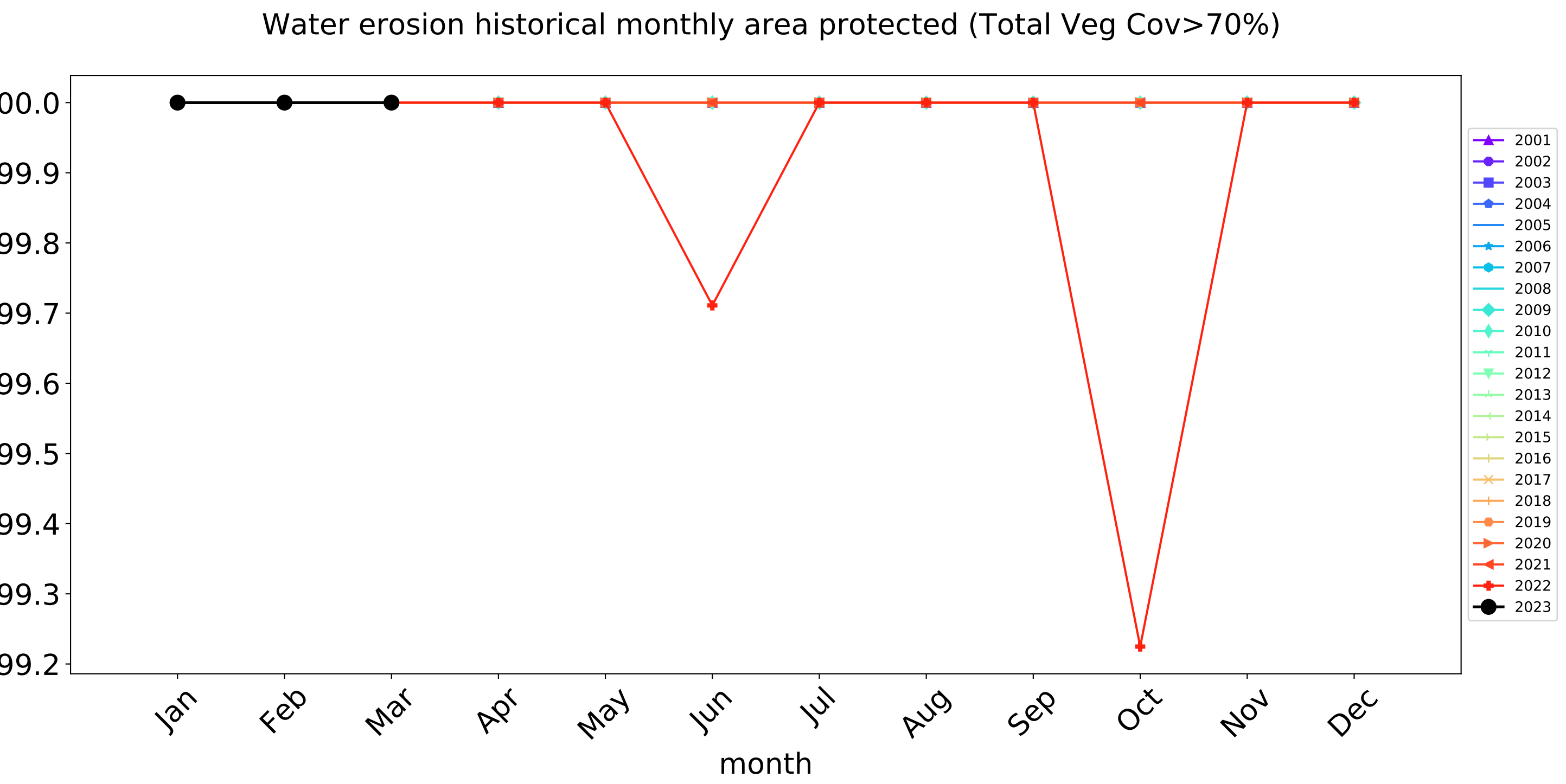
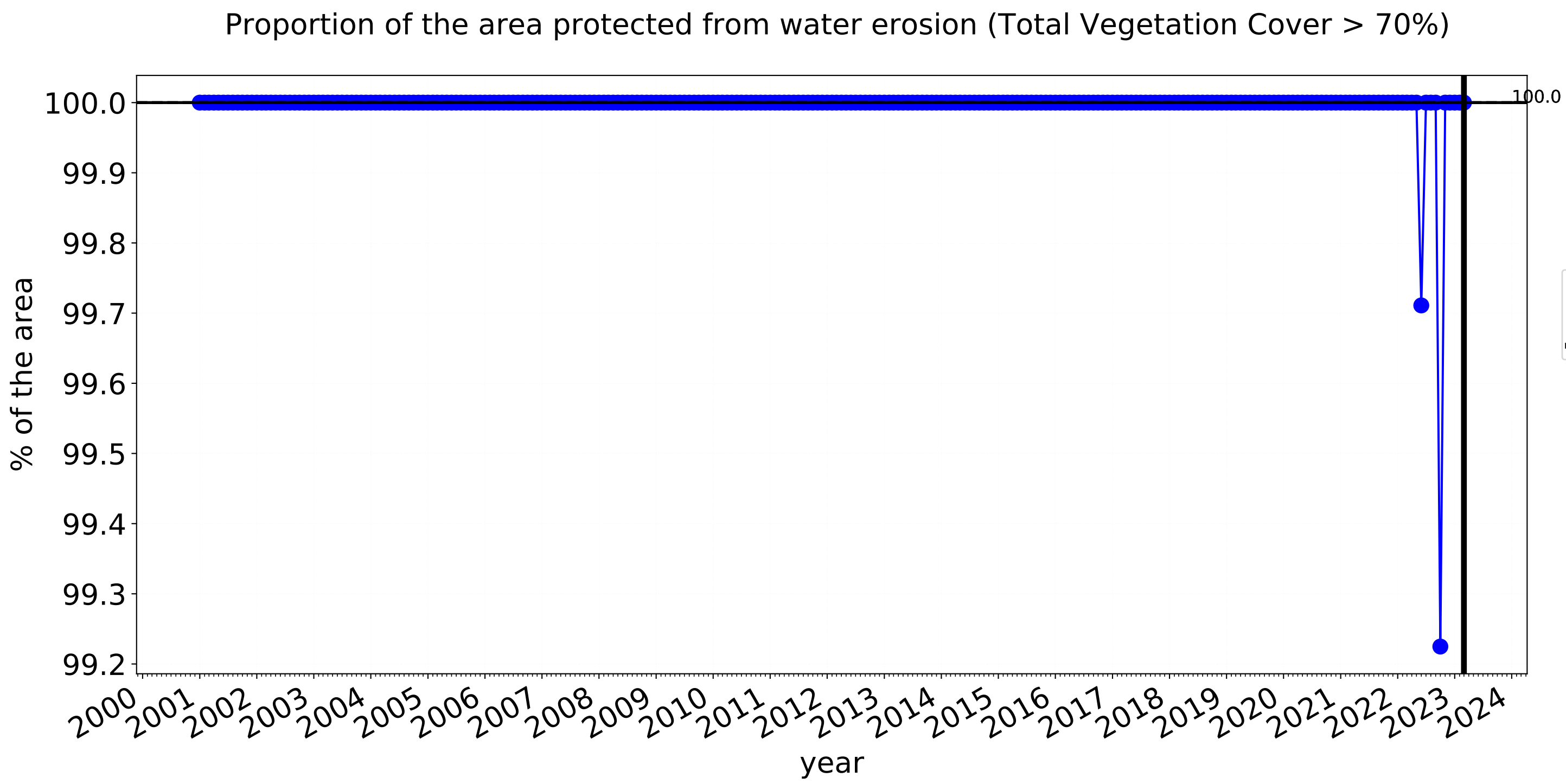
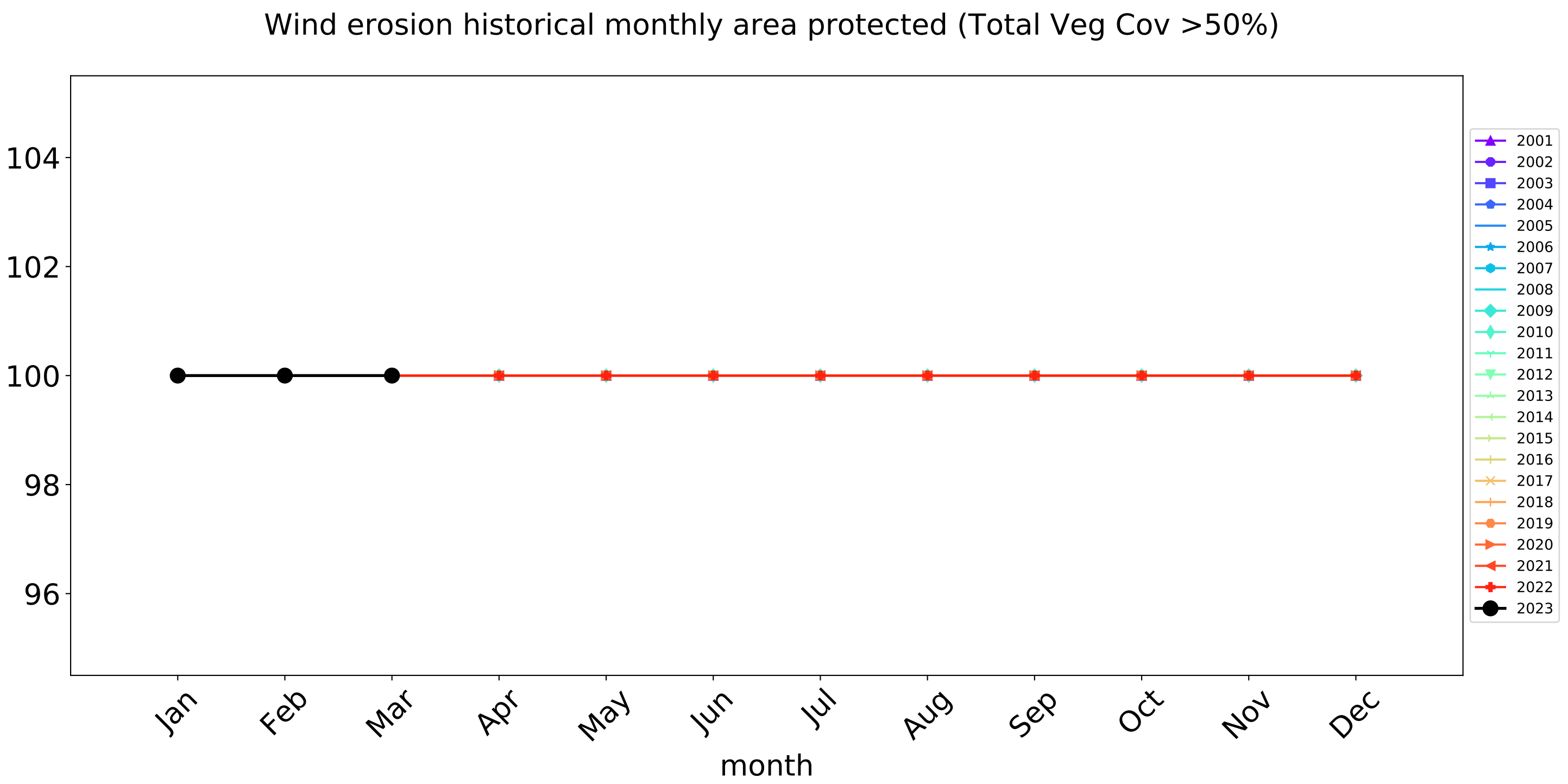
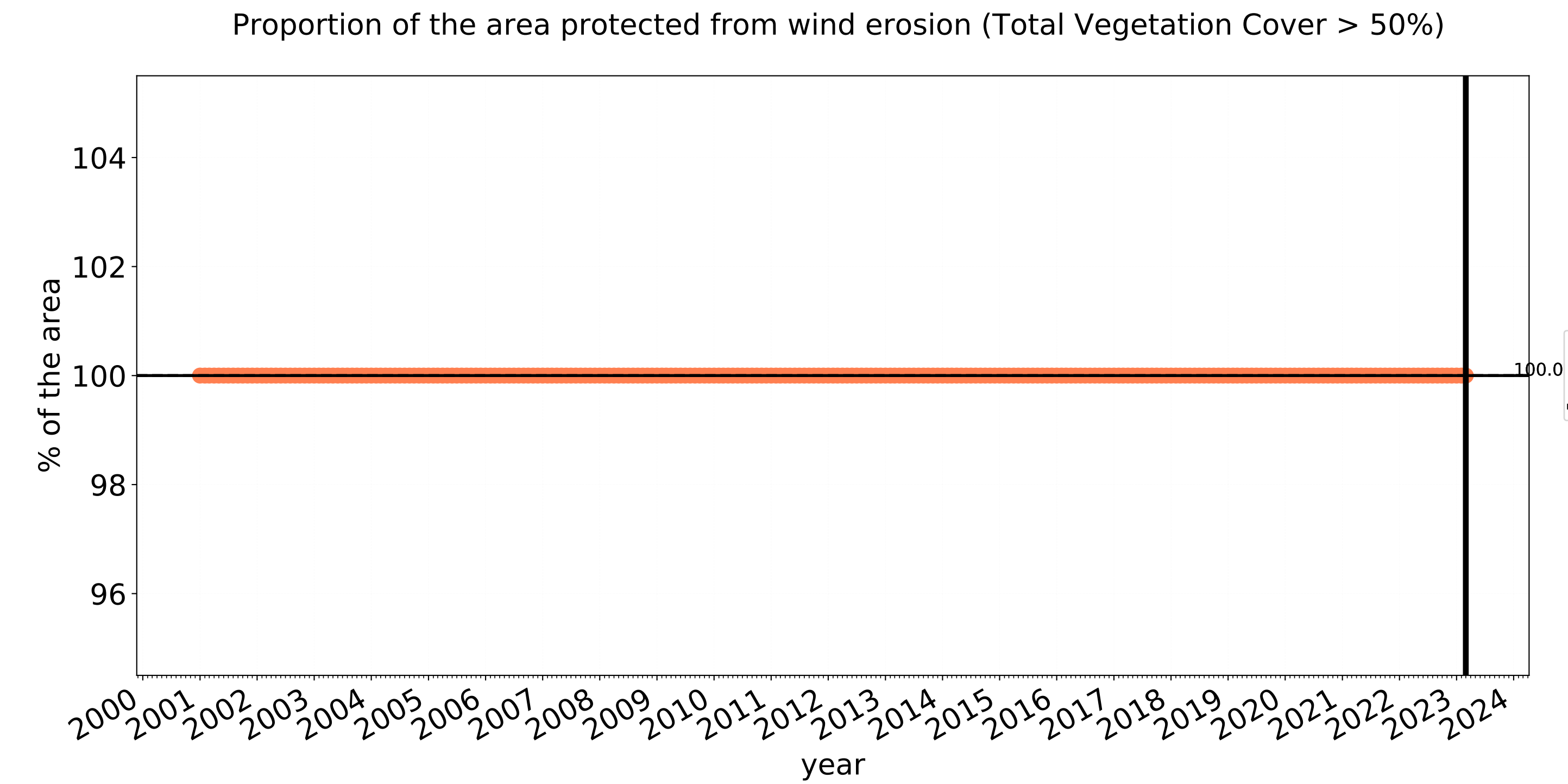
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Production native forests and plantation forests timeseries



Cowra_(A) (279,550 ha and no data 1,293 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	279,550	100.0% 279,550	99.9% 279,150	95.8% 267,725	84.6% 236,600	50.9% 142,225	24.4% 68,275
Conservation and natural environments	6,675	100.0% 6,675	100.0% 6,675	100.0% 6,675	100.0% 6,675	27.3% 1,825	1.5% 100
Conservation and natural environments Woodland forest	6,625	100.0% 6,625	100.0% 6,625	100.0% 6,625	100.0% 6,625	26.8% 1,775	1.5% 100
Agriculture	258,475	100.0% 258,475	99.9% 258,100	95.7% 247,275	84.0% 217,200	51.1% 132,025	24.9% 64,350
Grazing	122,975	100.0% 122,975	100.0% 122,950	99.9% 122,875	98.4% 121,050	73.3% 90,125	39.1% 48,125
Grazing non forest	85,750	100.0% 85,750	100.0% 85,750	99.9% 85,675	98.0% 84,025	82.9% 71,100	51.4% 44,075
Grazing Woodland forest	34,225	100.0% 34,225	99.9% 34,200	99.9% 34,200	99.4% 34,025	49.2% 16,825	9.8% 3,350
Grazing - Forest (non woodland)	3,000	100.0% 3,000	100.0% 3,000	100.0% 3,000	100.0% 3,000	73.3% 2,200	23.3% 700
Cropping	129,475	100.0% 129,475	99.8% 129,175	92.6% 119,850	72.4% 93,750	32.2% 41,675	12.5% 16,200
Irrigation	5,925	100.0% 5,925	99.2% 5,875	75.5% 4,475	40.1% 2,375	3.8% 225	0.4% 25
Production native forests and plantation forests	8,775	100.0% 8,775	100.0% 8,775	100.0% 8,775	99.7% 8,750	82.3% 7,225	40.2% 3,525