

# Total vegetation cover soil protection

## Region:LGA Banana\_(S) QLD

Date: January 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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Ecosystem Research Infrastructure

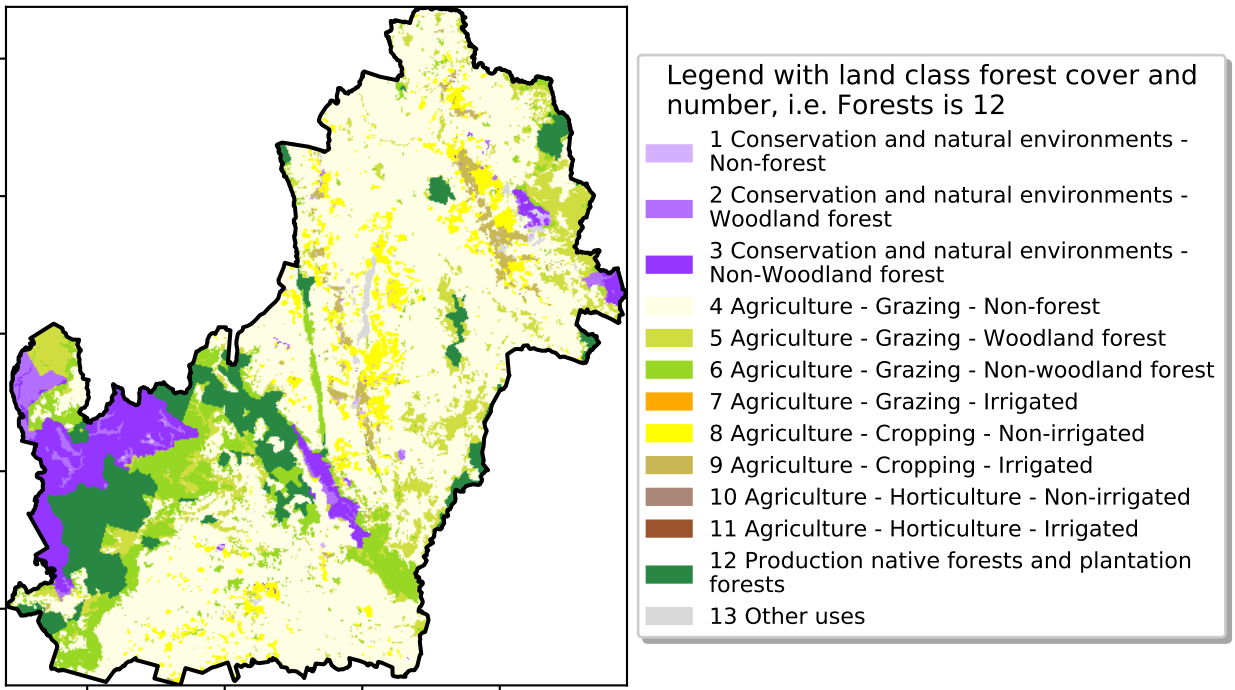


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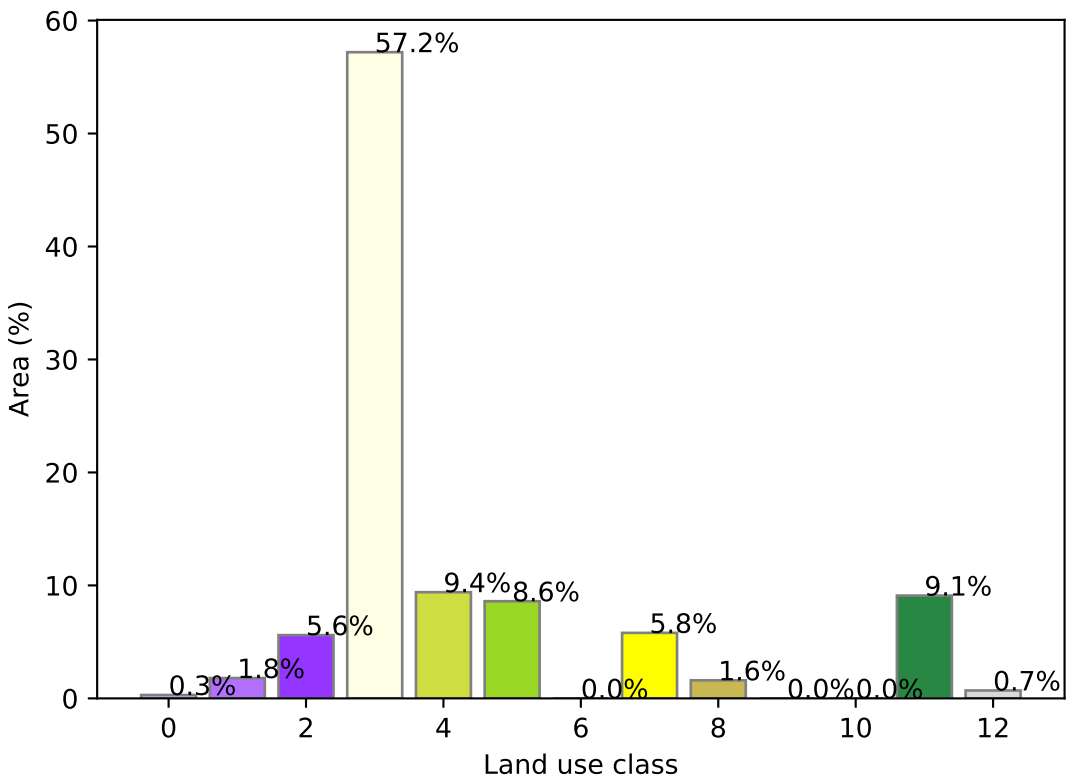


# Vegetation Cover Jan 2023

Land use and forest cover



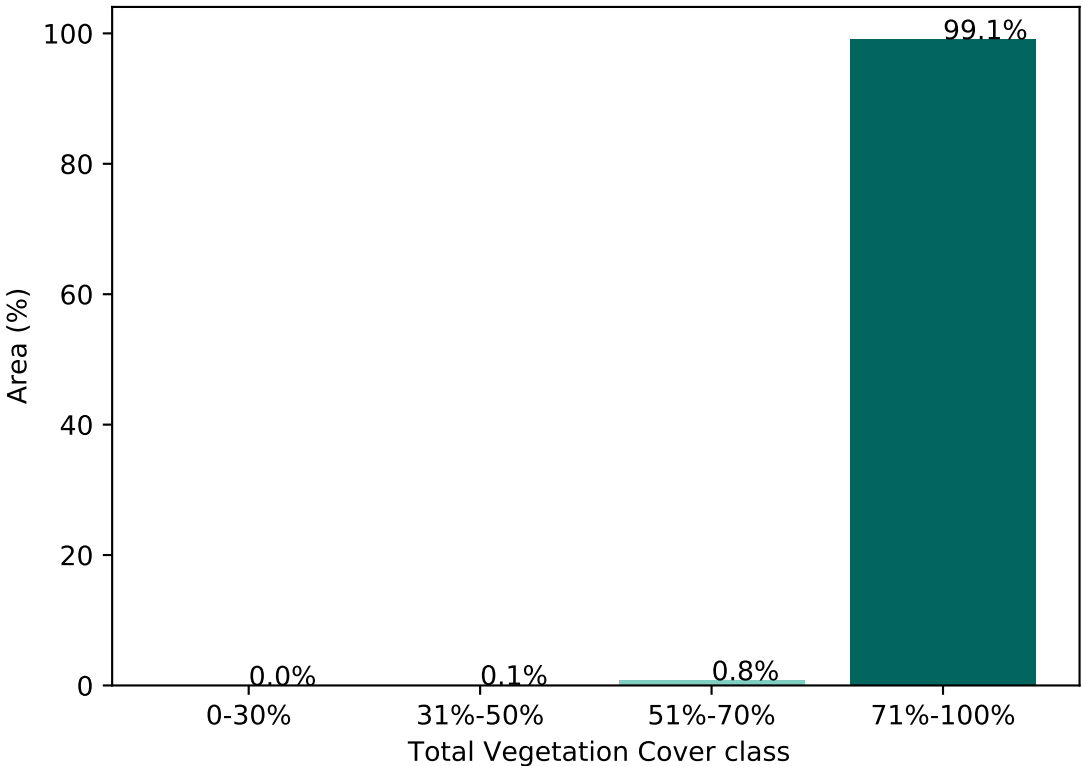
Proportion of each land class in area



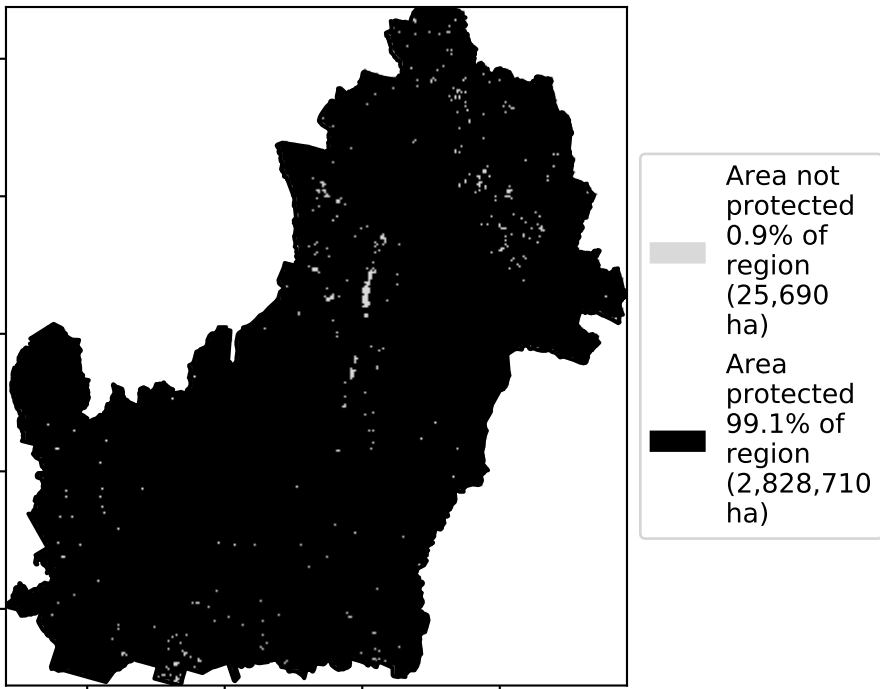
Total Vegetation Cover [%]



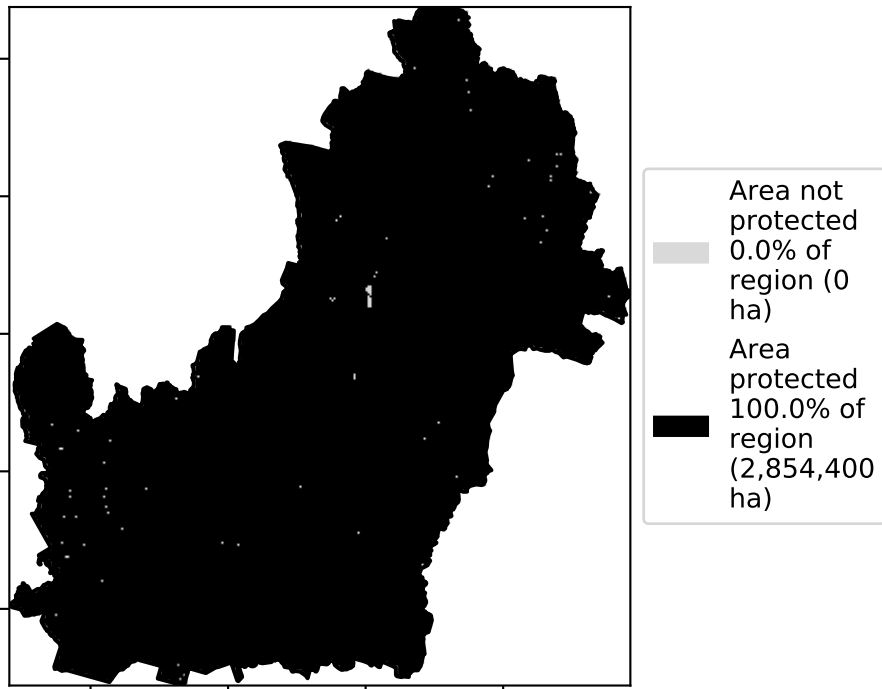
Proportion of vegetation cover class in area



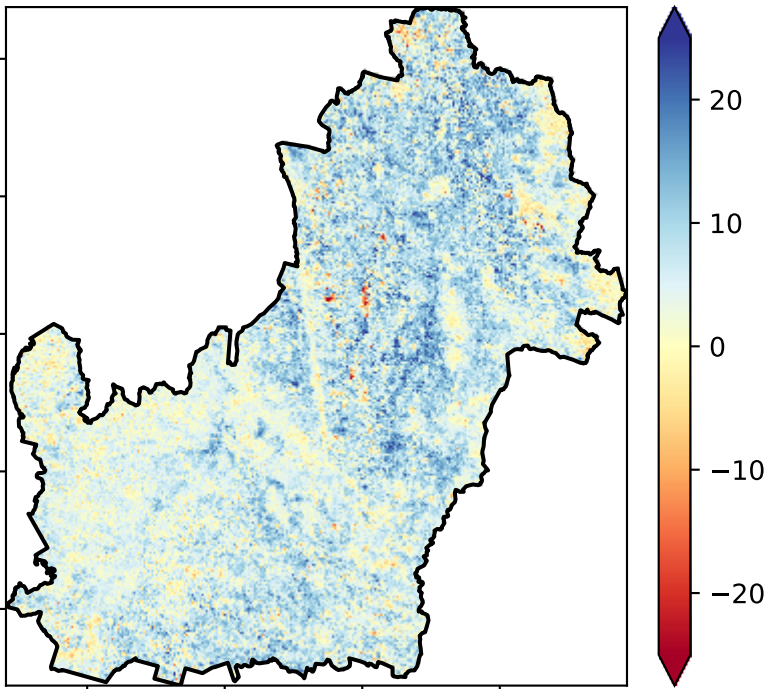
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



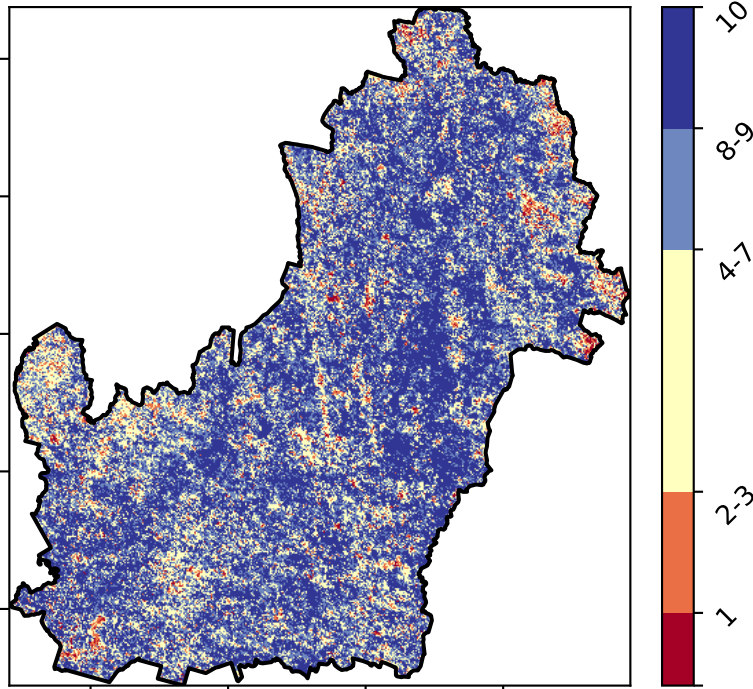
Total Vegetation Cover Anomaly [%]



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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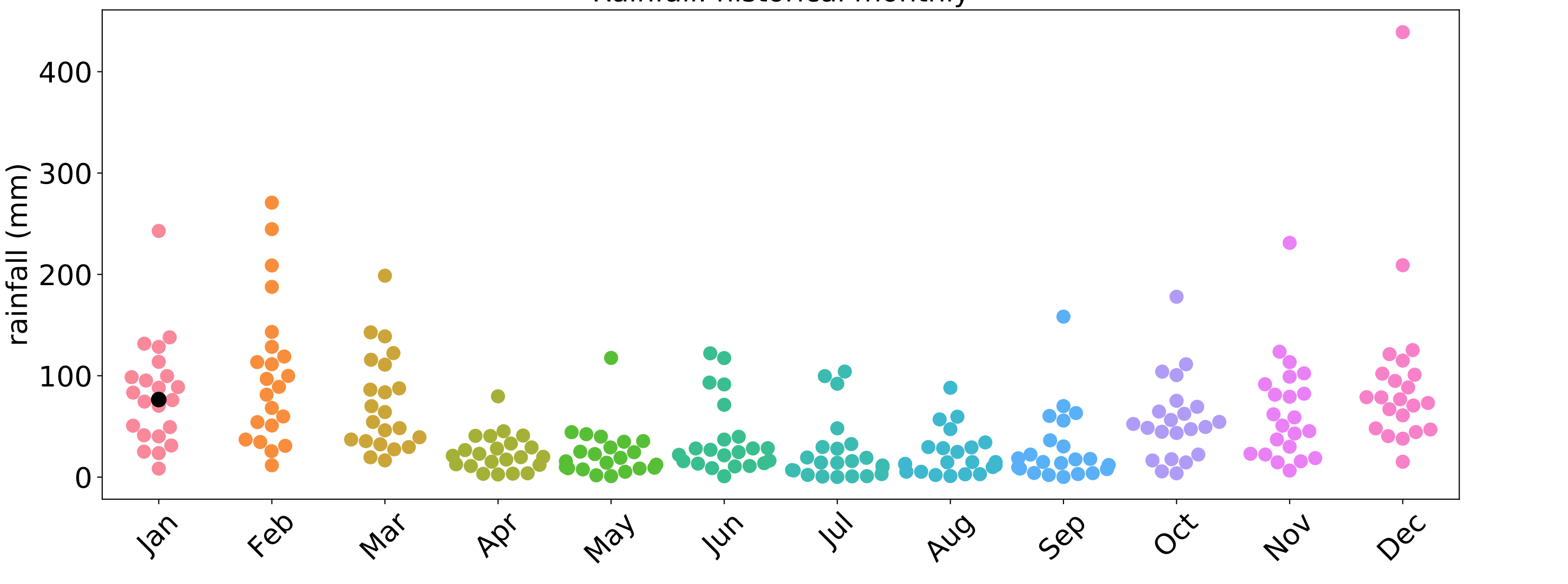
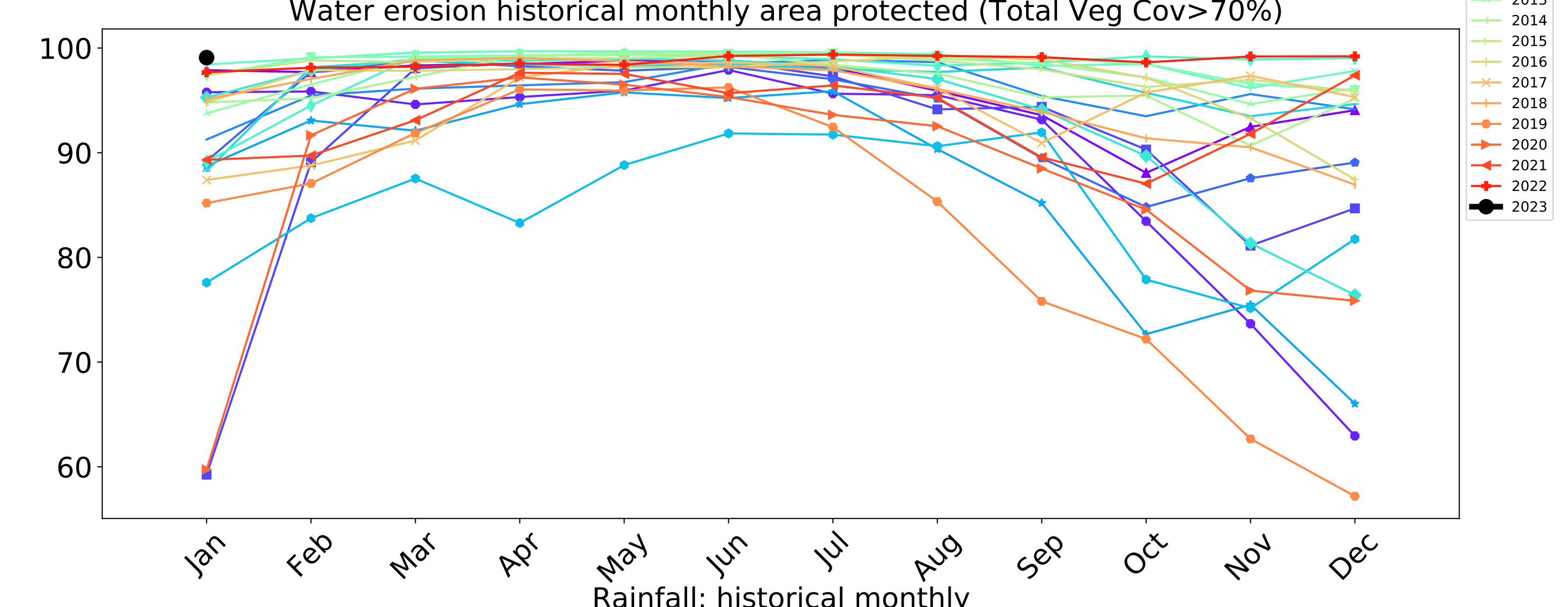
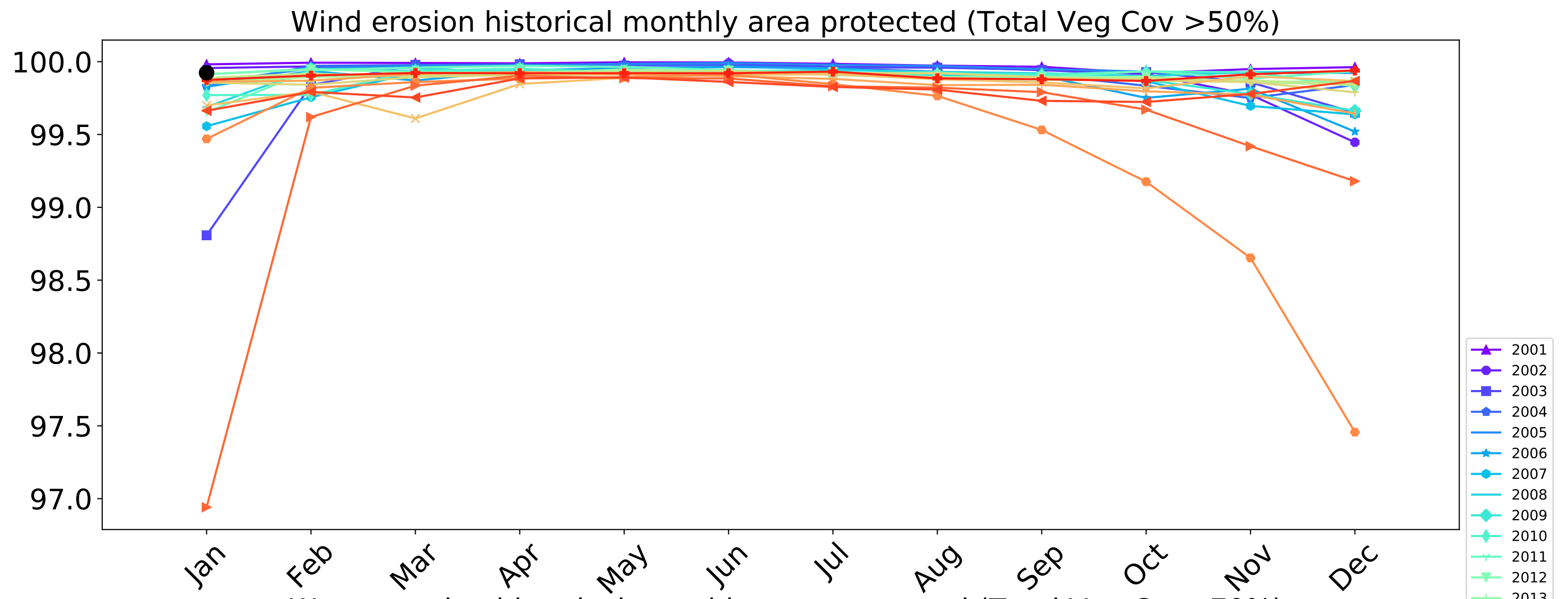
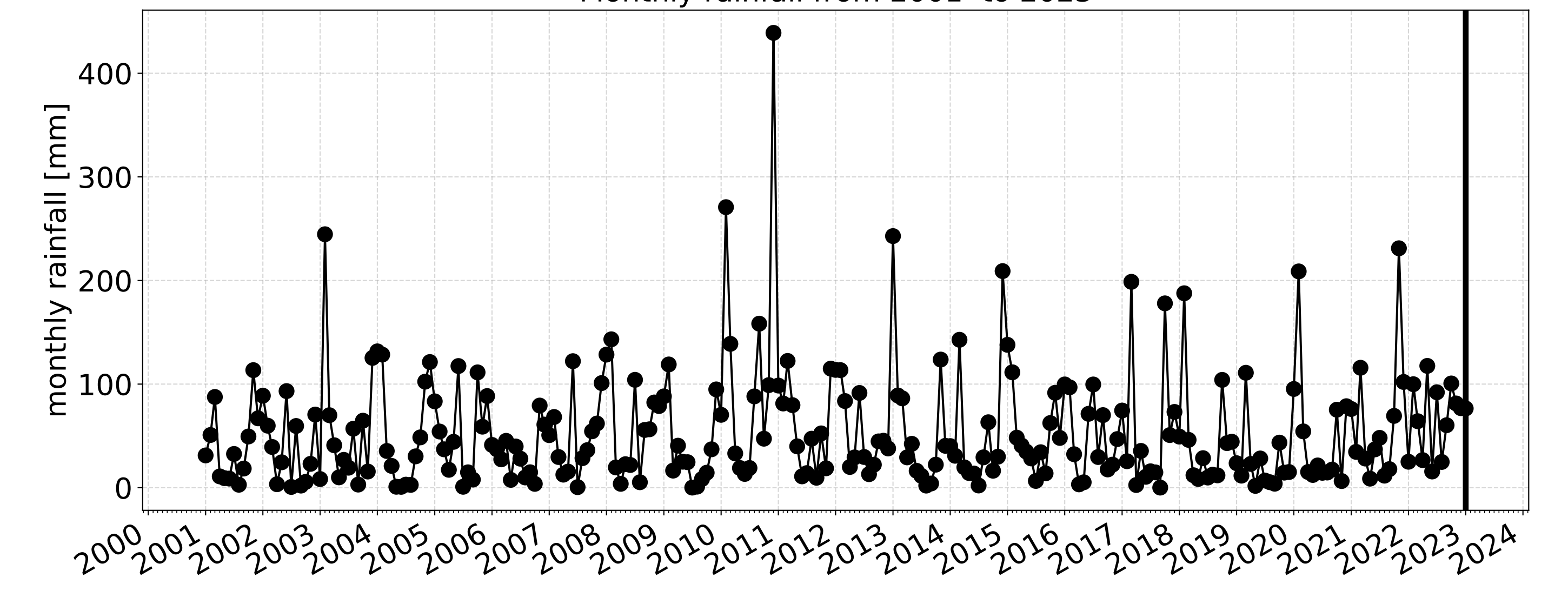
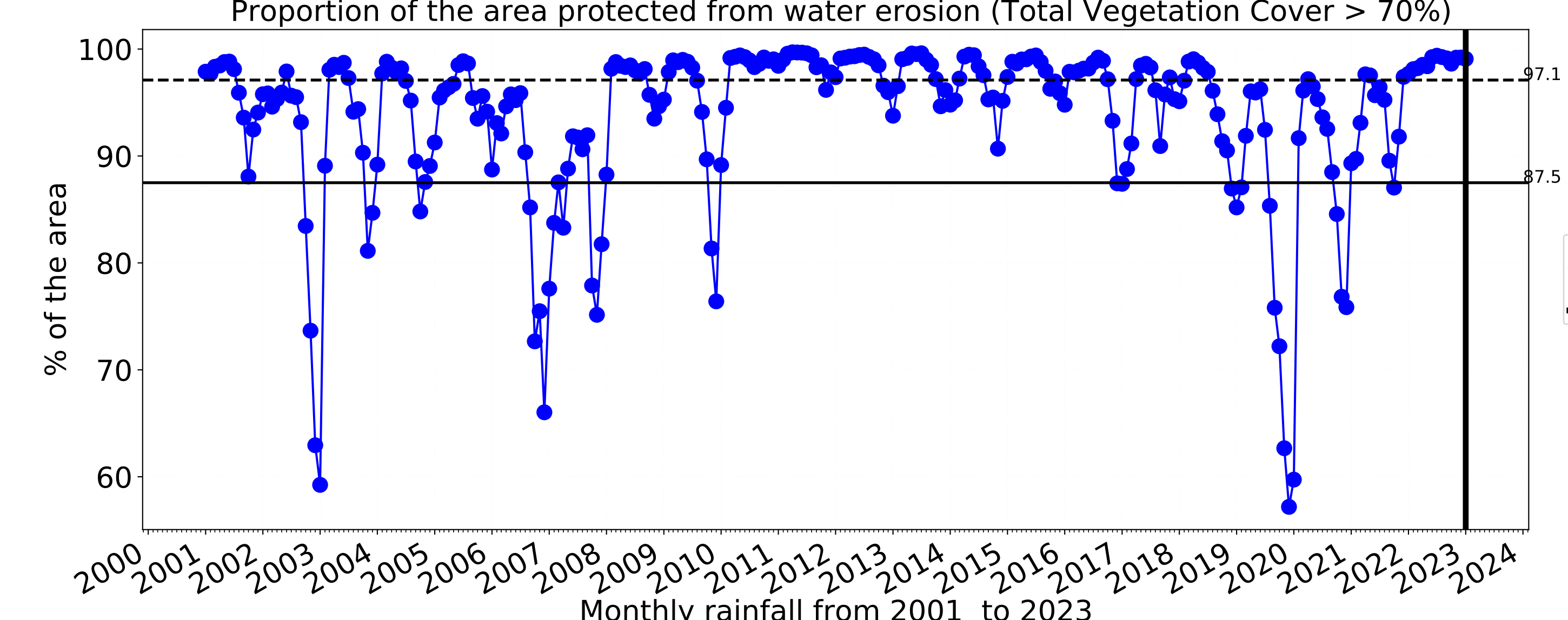
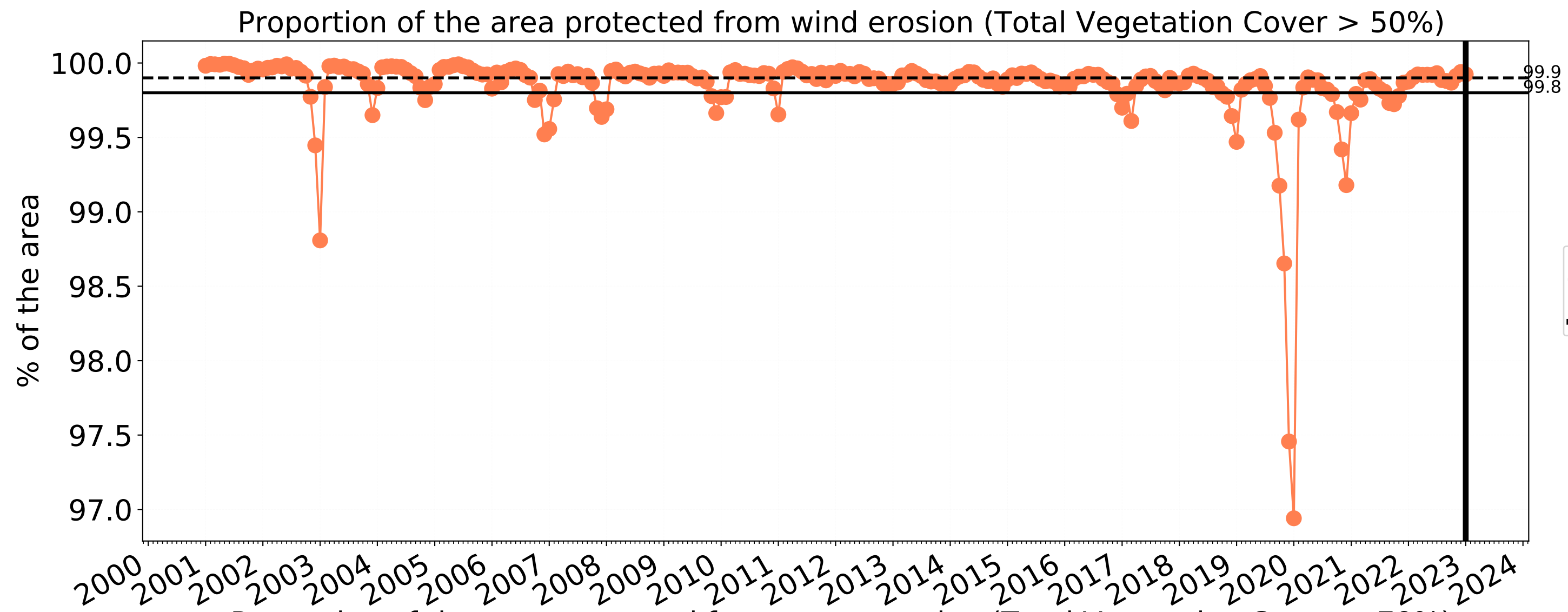


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Conservation and natural environments

Land use and forest cover

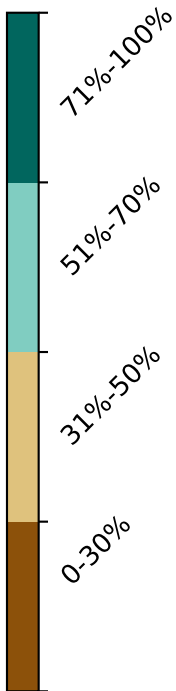
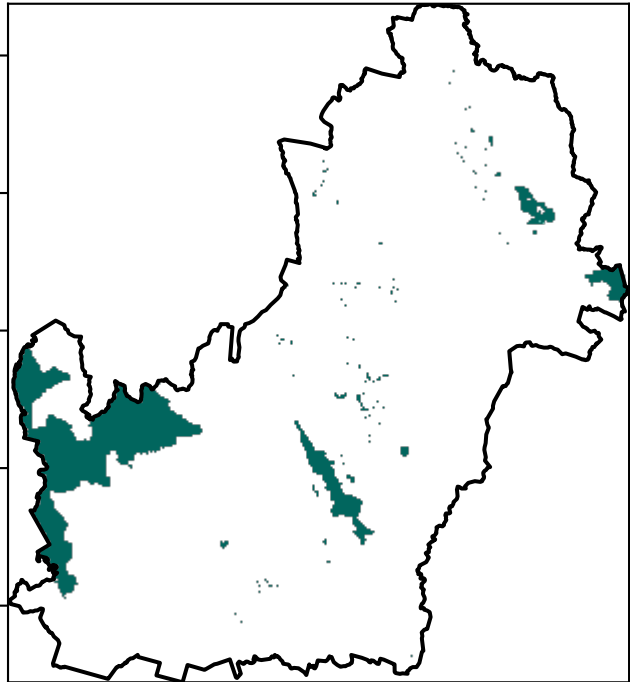
Catchment Scale Land Use and Forests of Australia (2018)  
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



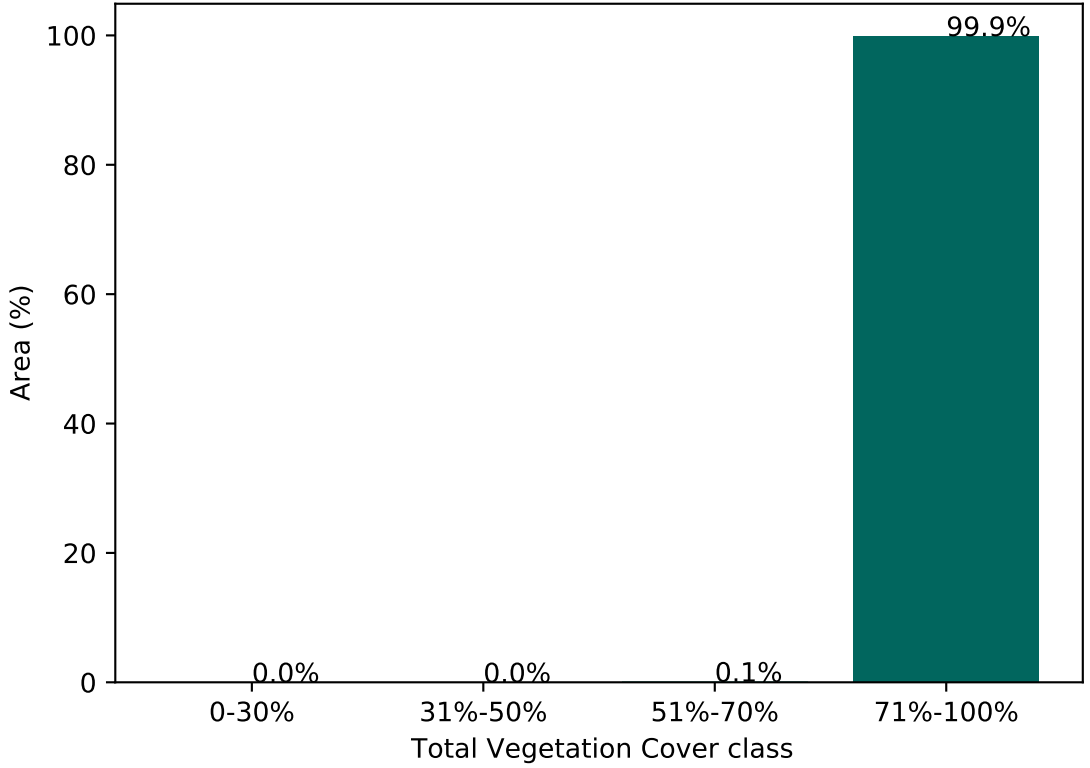
Proportion of each land class in area



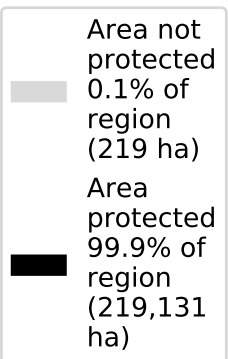
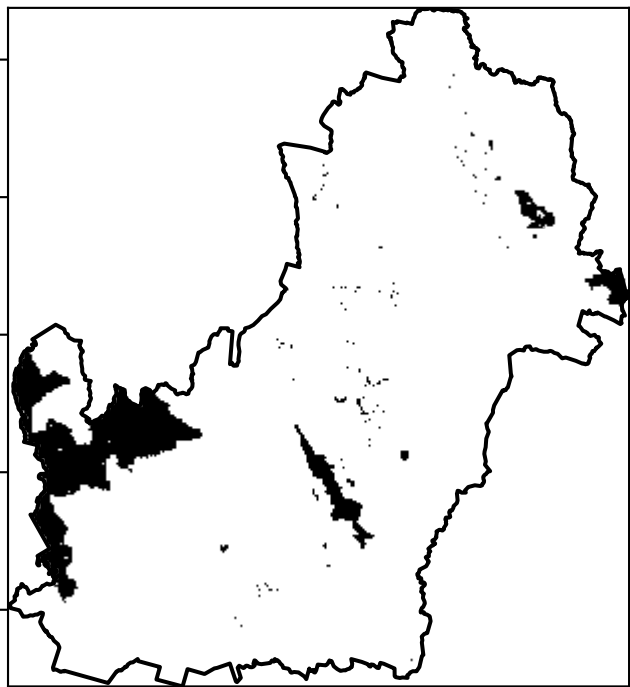
Total Vegetation Cover [%]



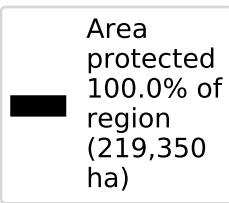
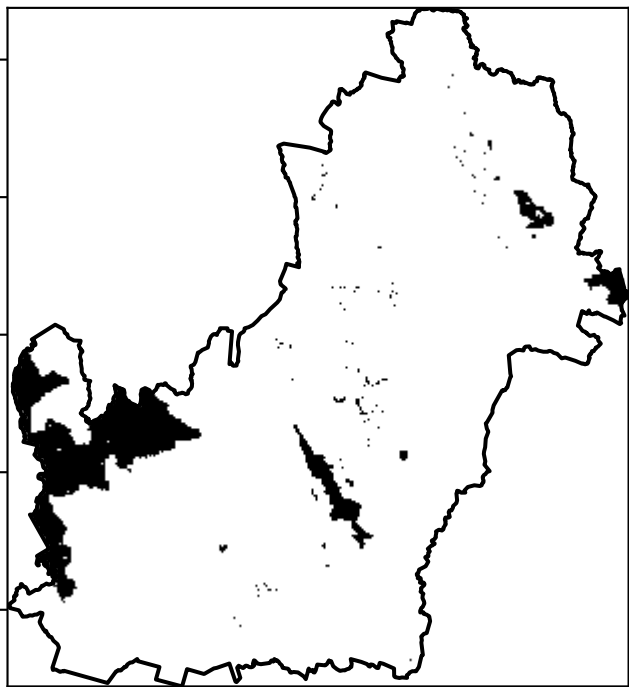
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

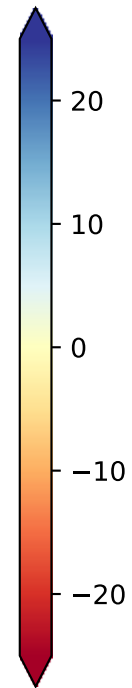
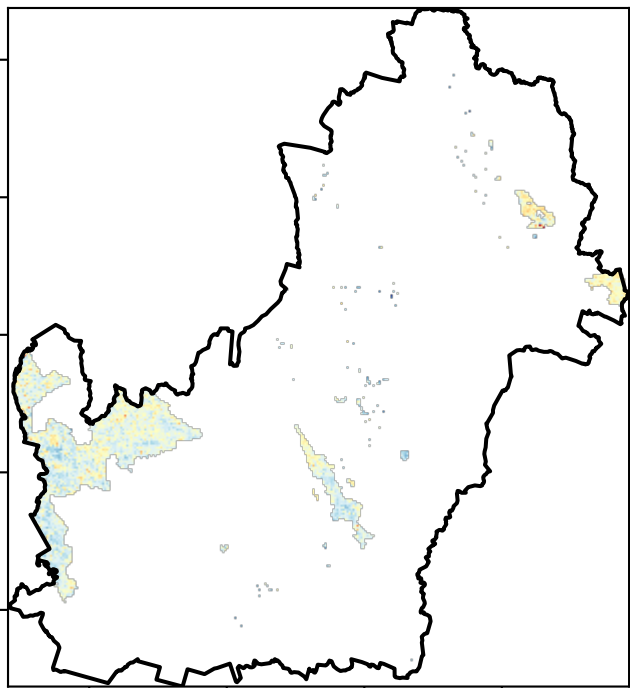


% Area protected from wind erosion (>50%)



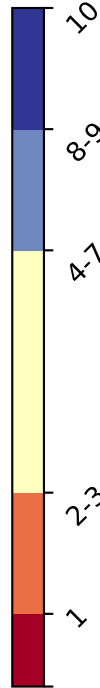
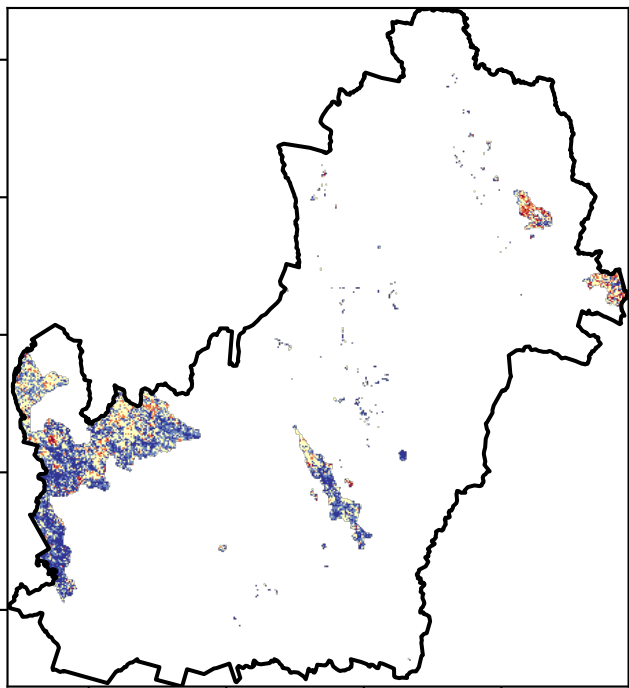
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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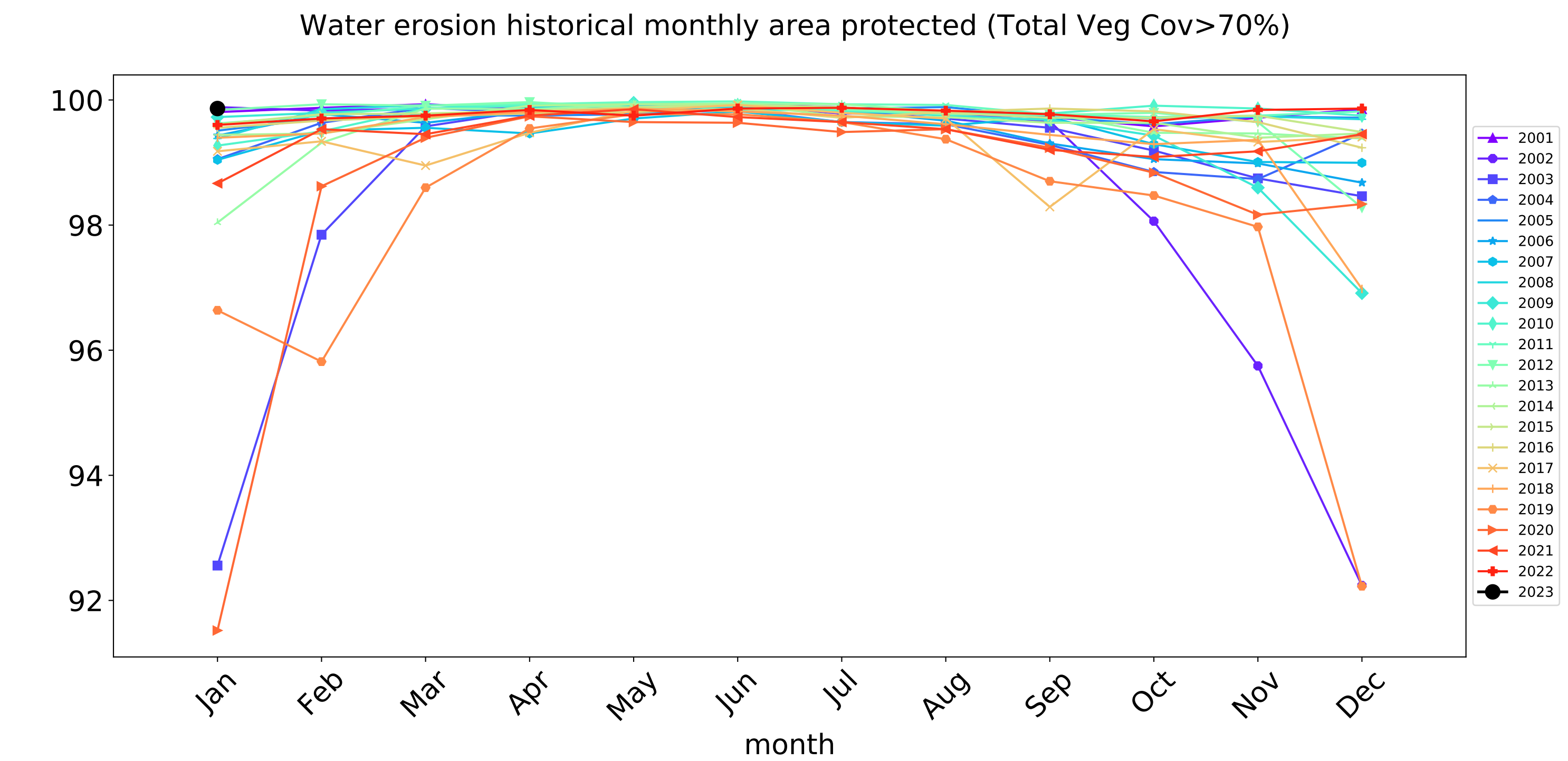
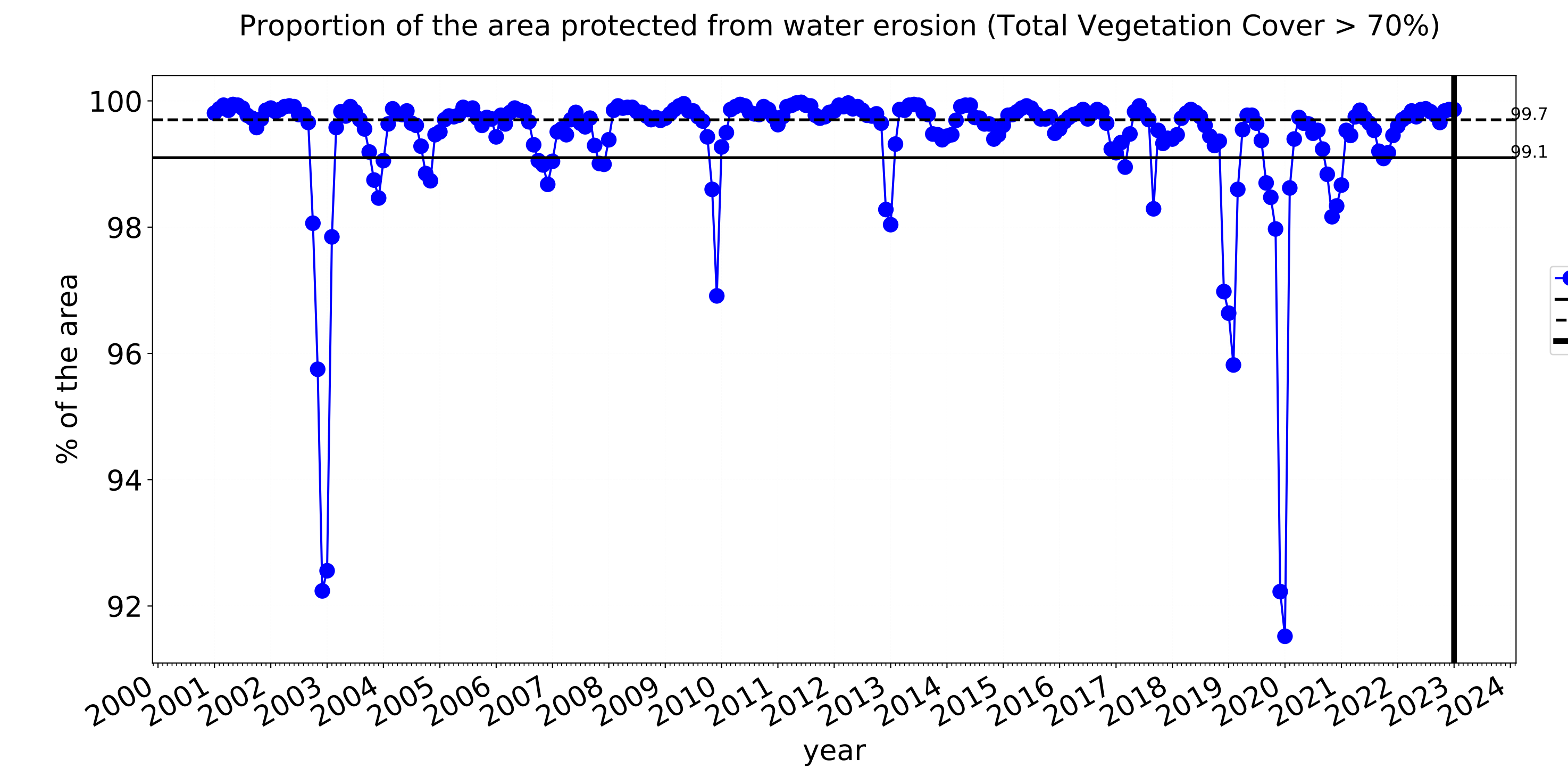
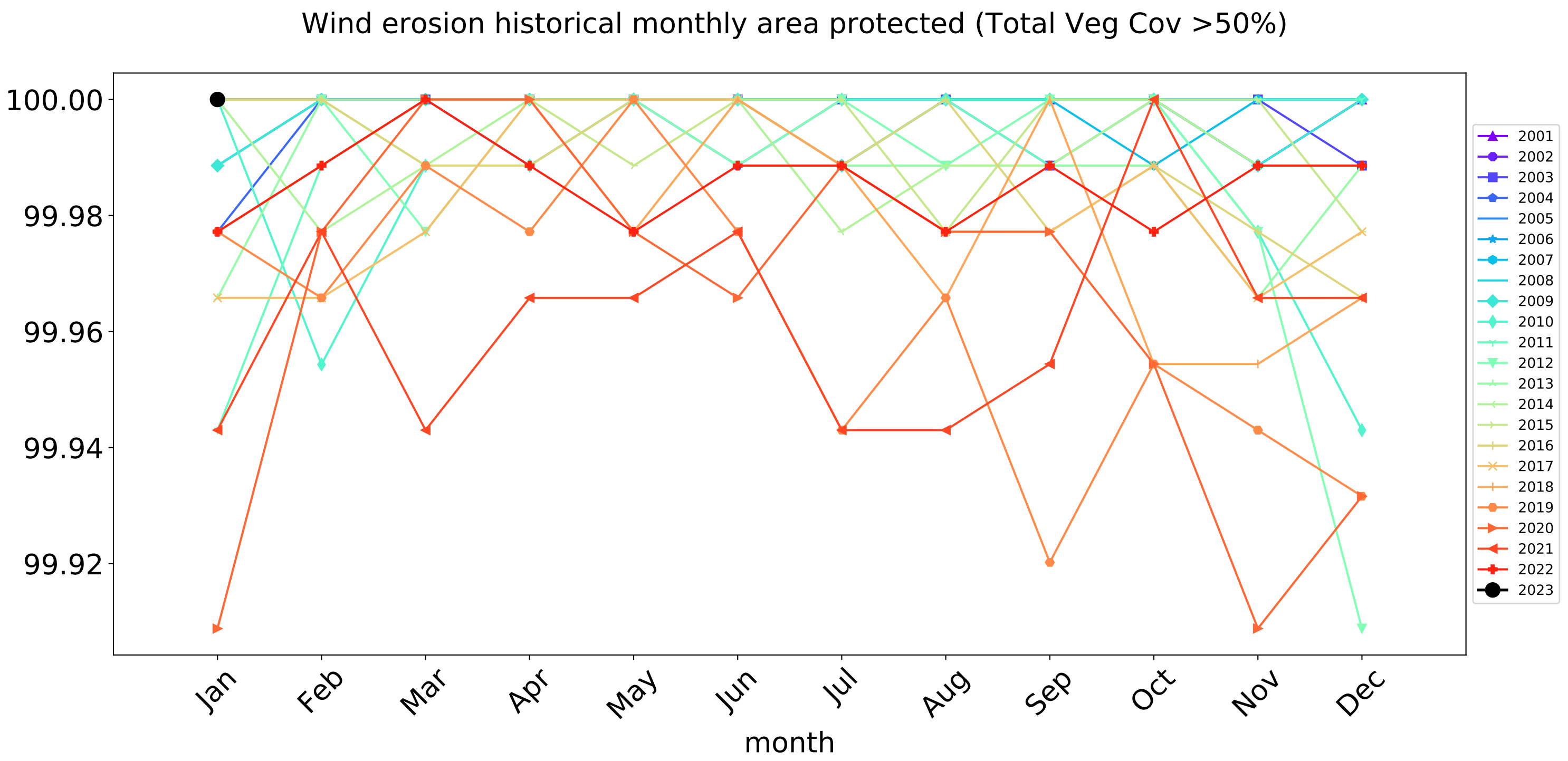
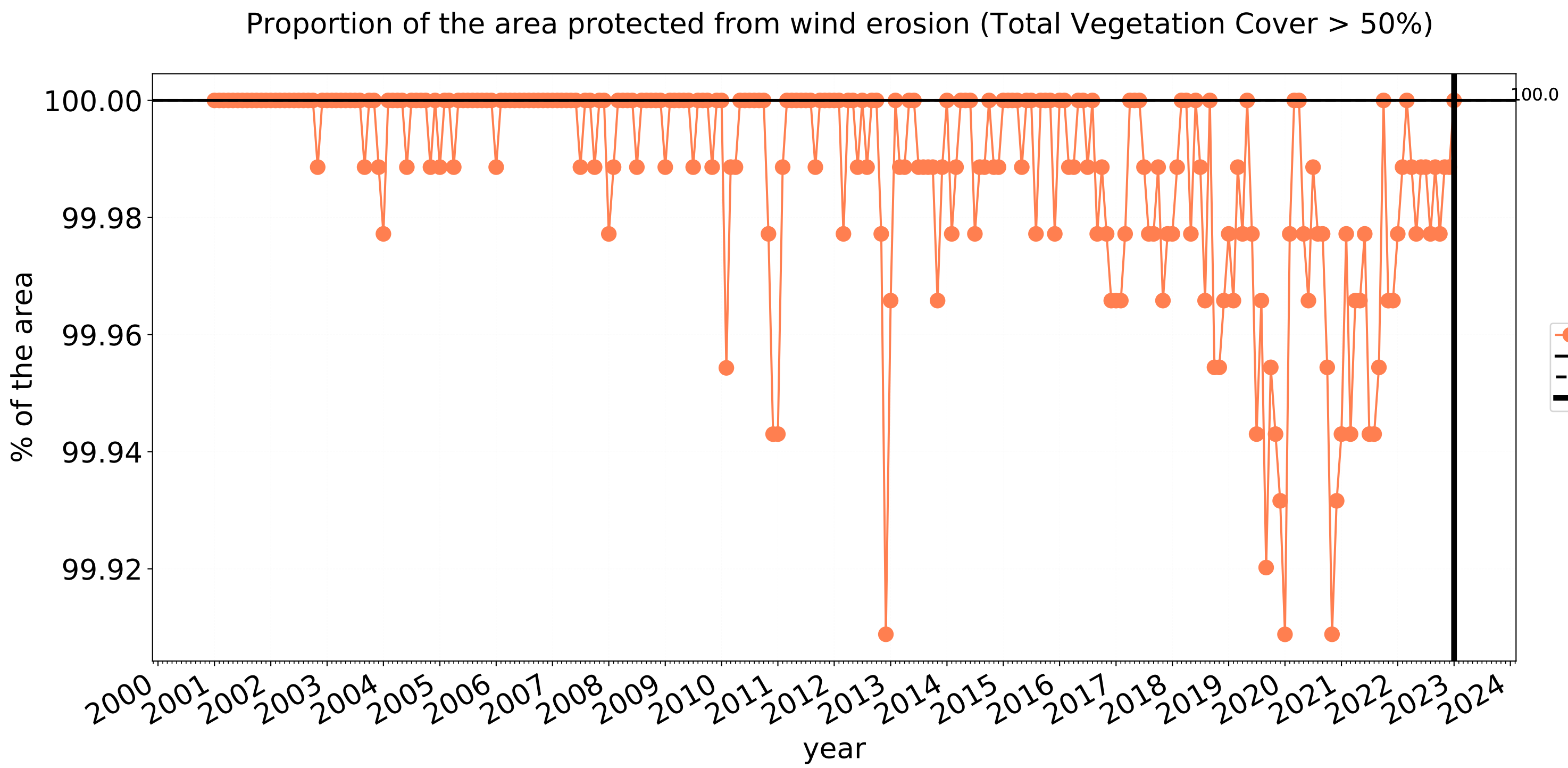
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National Landcare Programme





Conservation and natural environments timeseries



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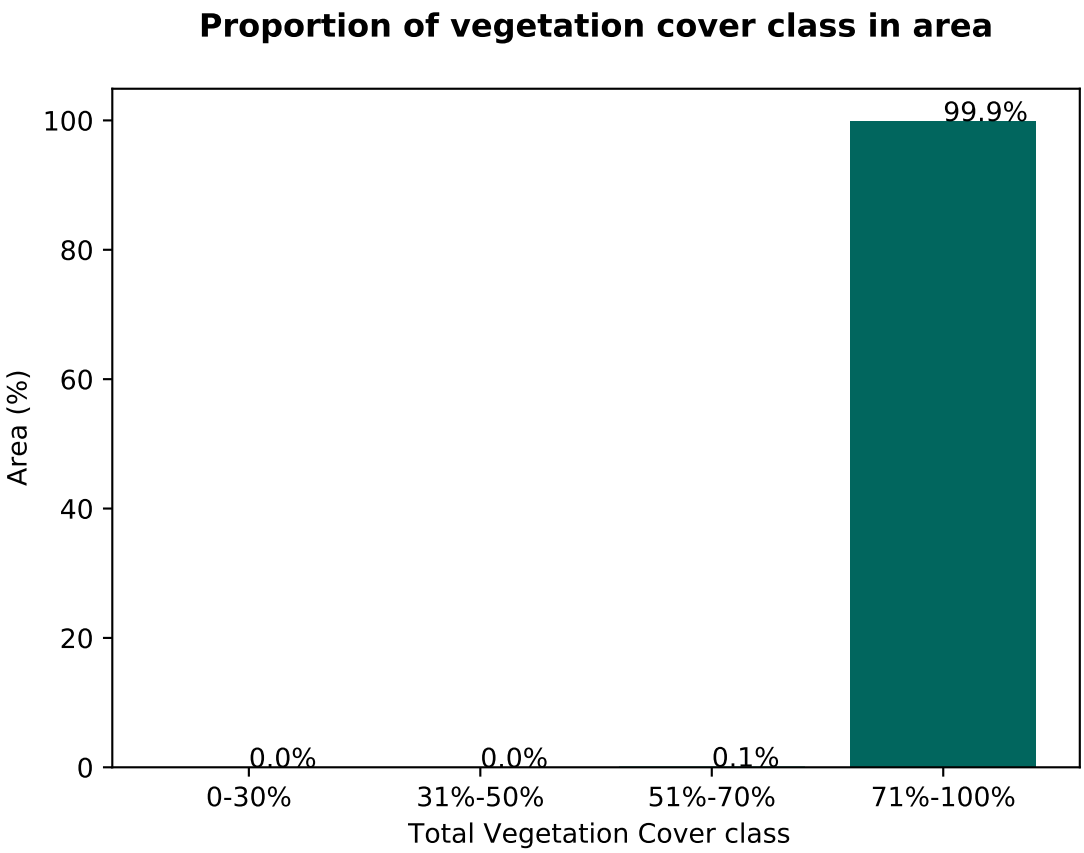
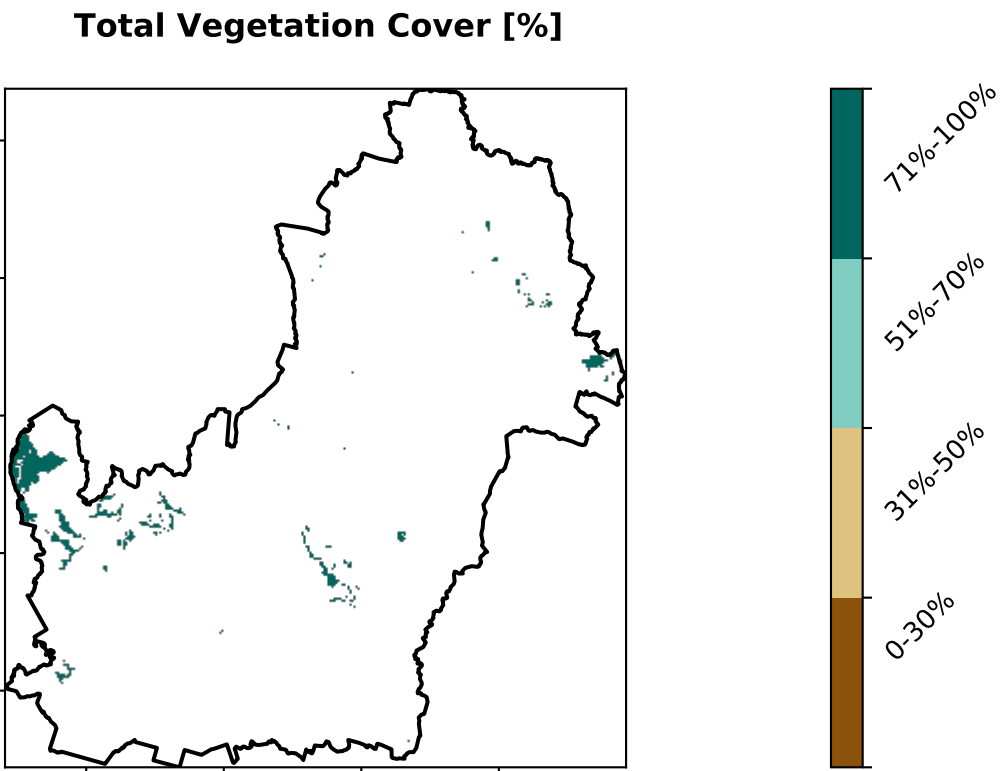


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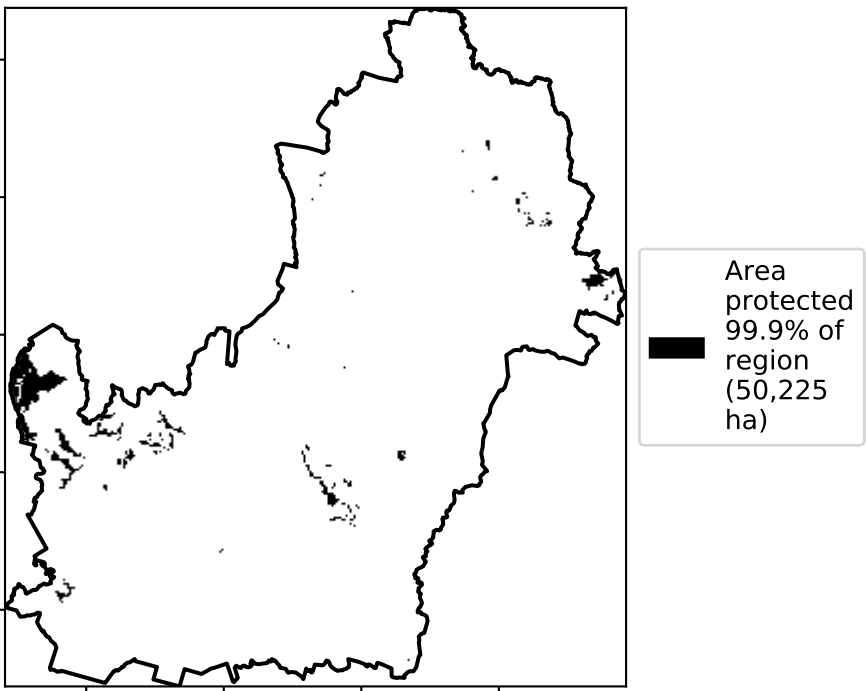


Conservation and natural environments Woodland forest

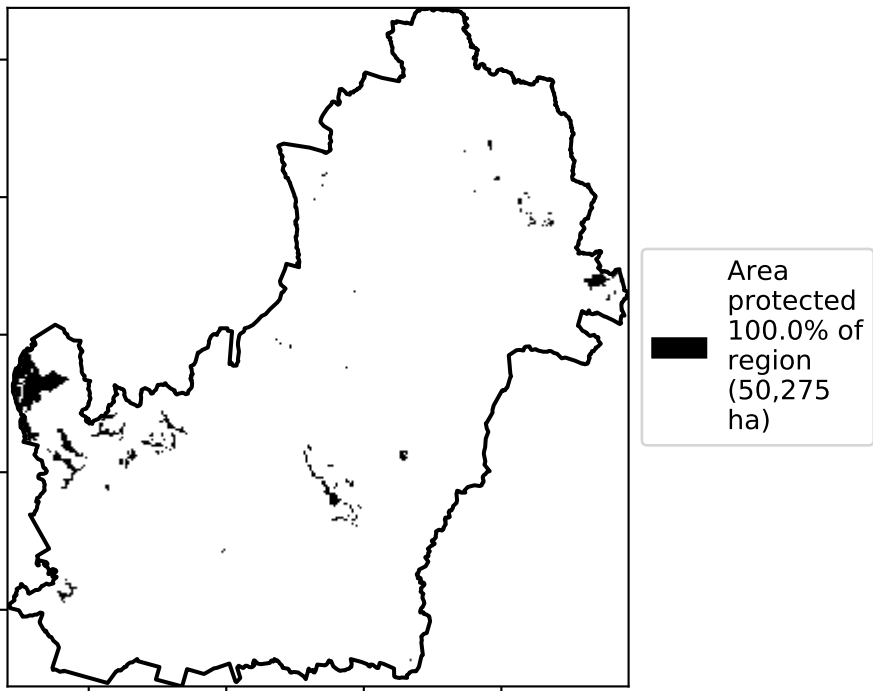
Catchment Scale  
Land Use and Forests  
of Australia (2018)  
Derived from  
Catchment Scale Land  
Use of Australia  
(2018) and Forests  
of Australia (2018)



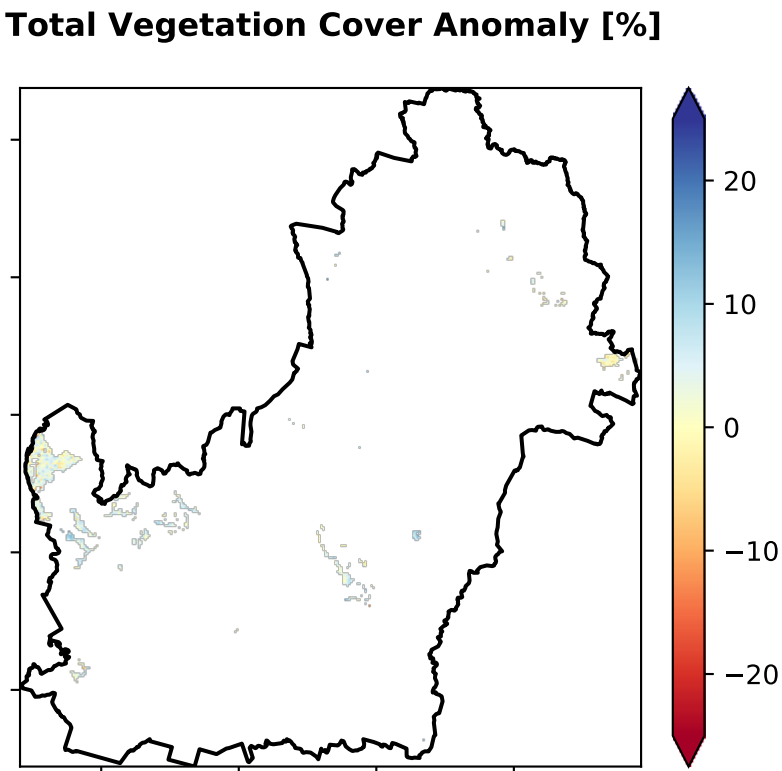
% Area protected from water erosion (>70%)



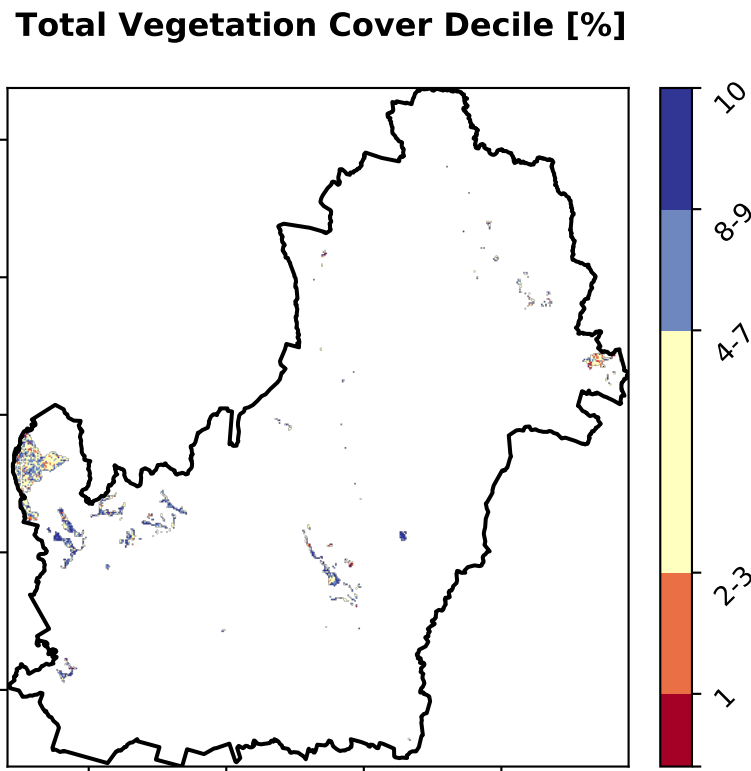
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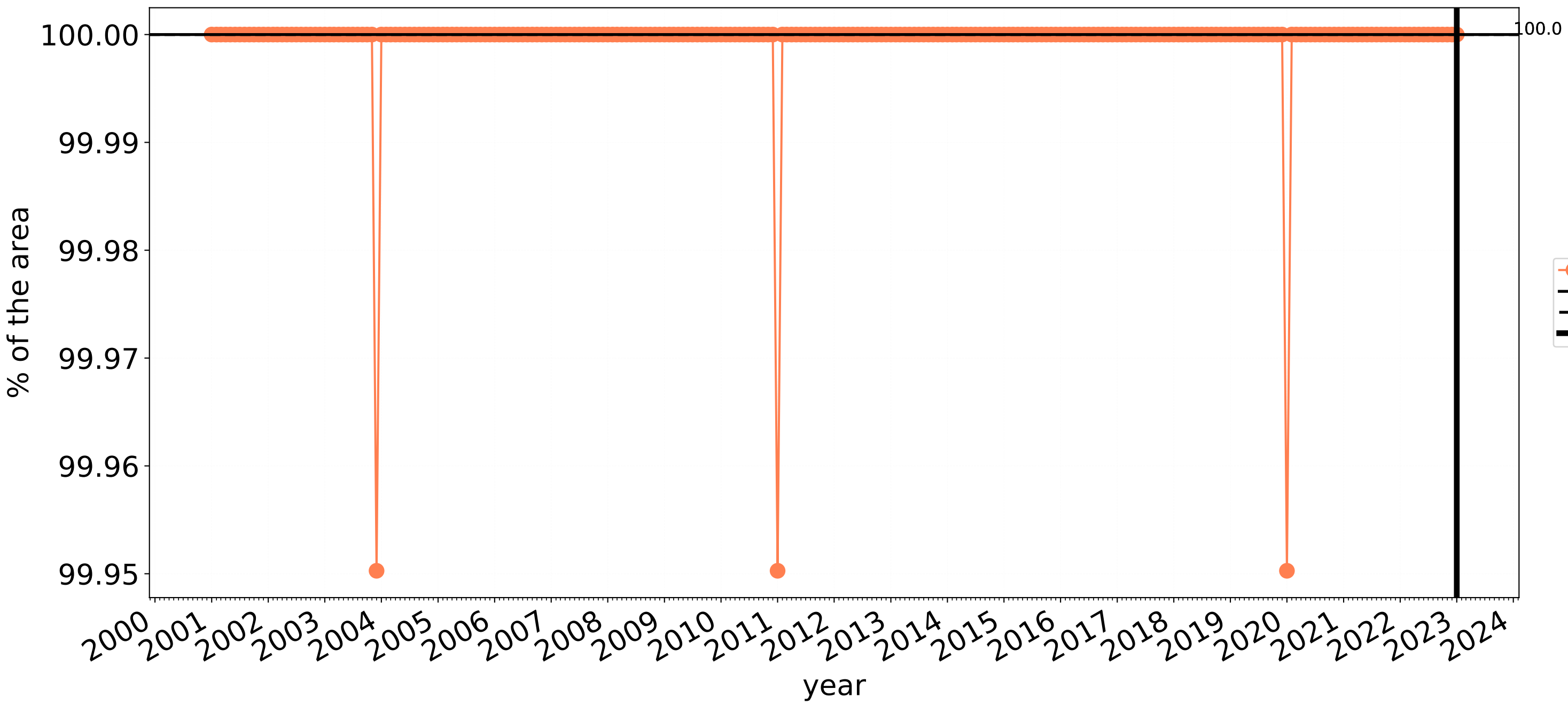
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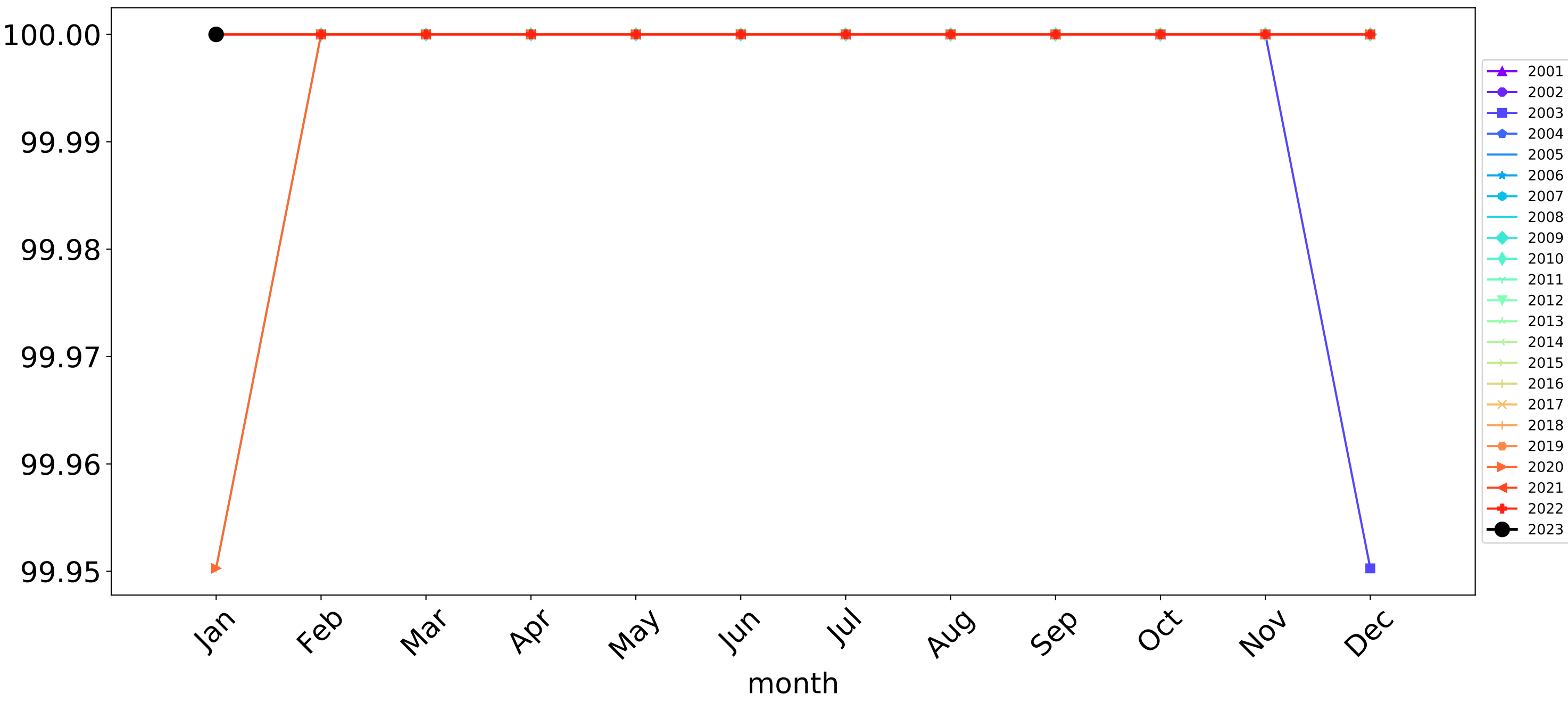




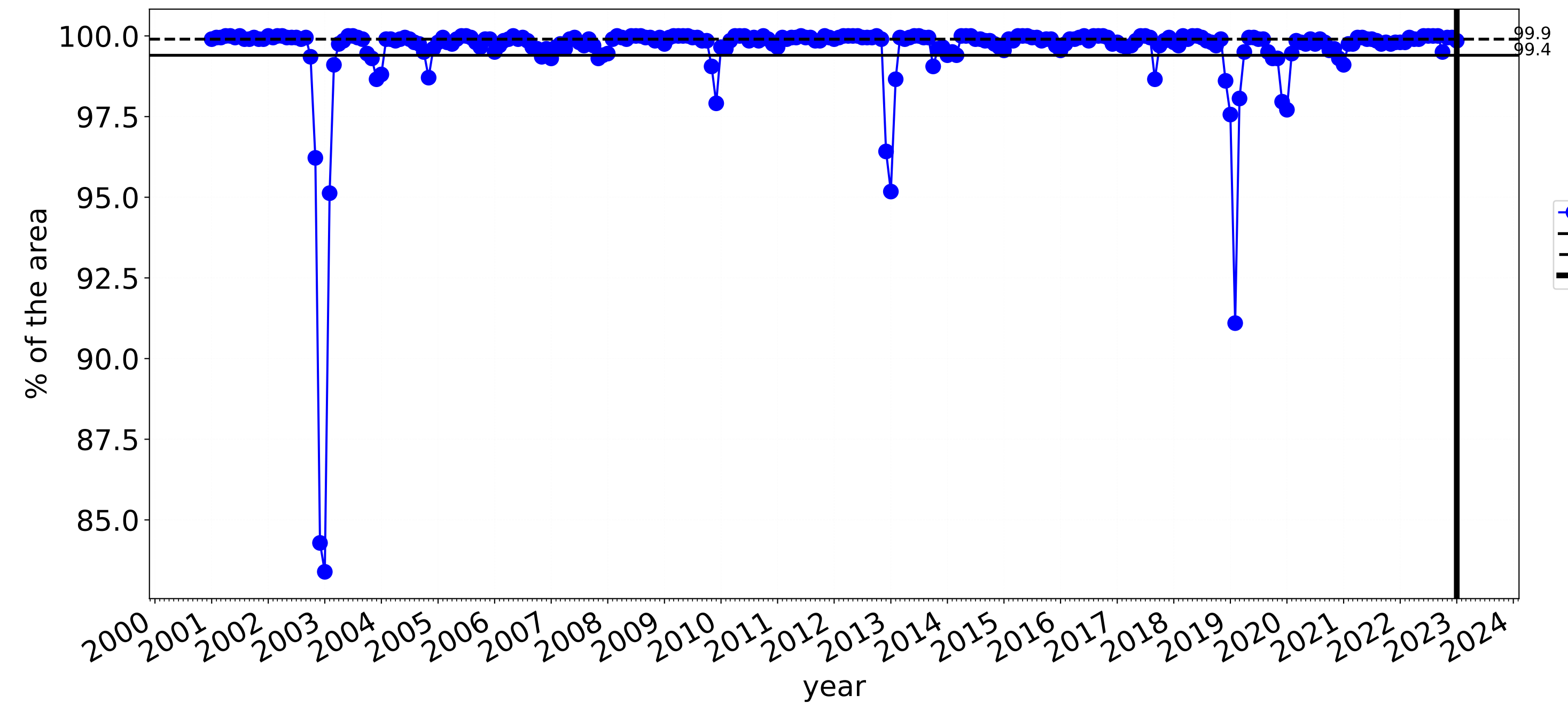
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



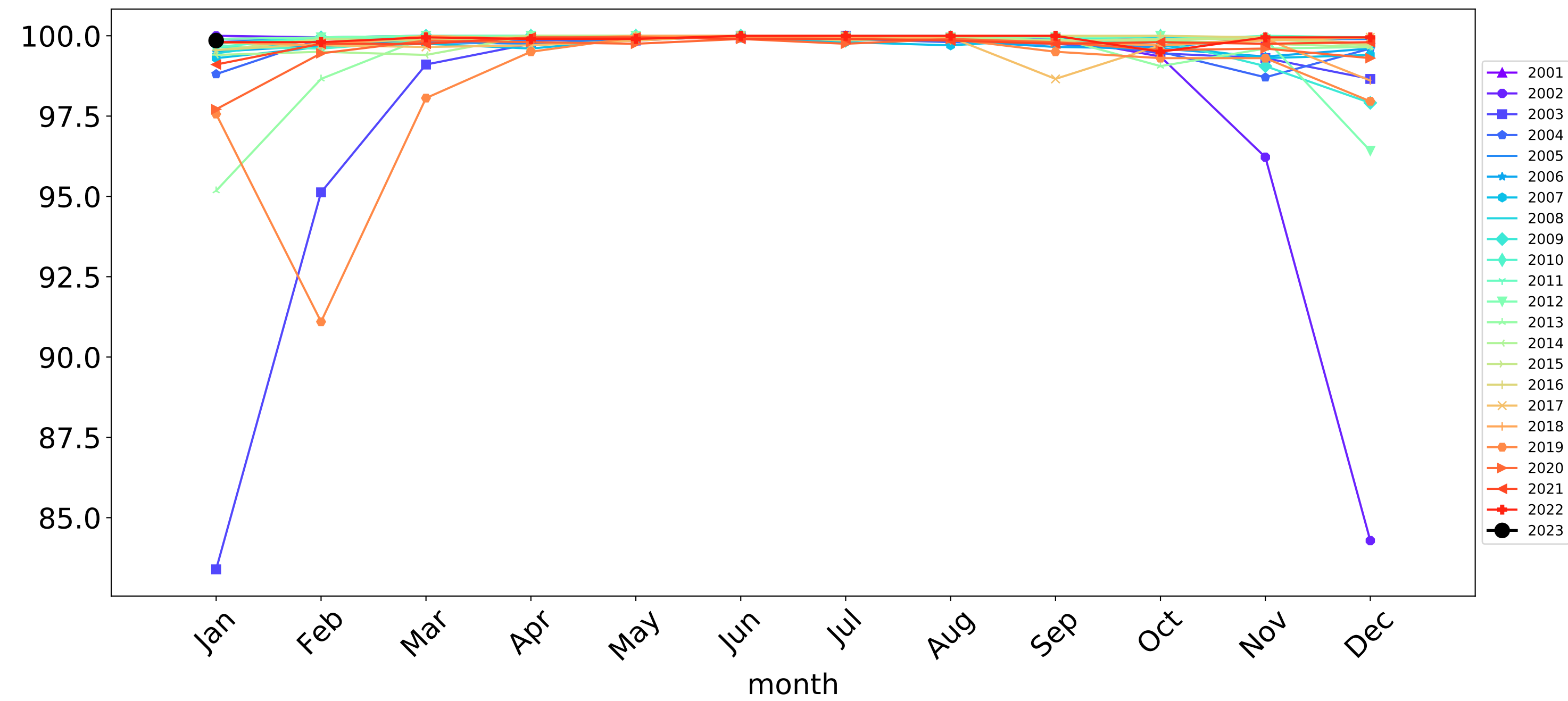
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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

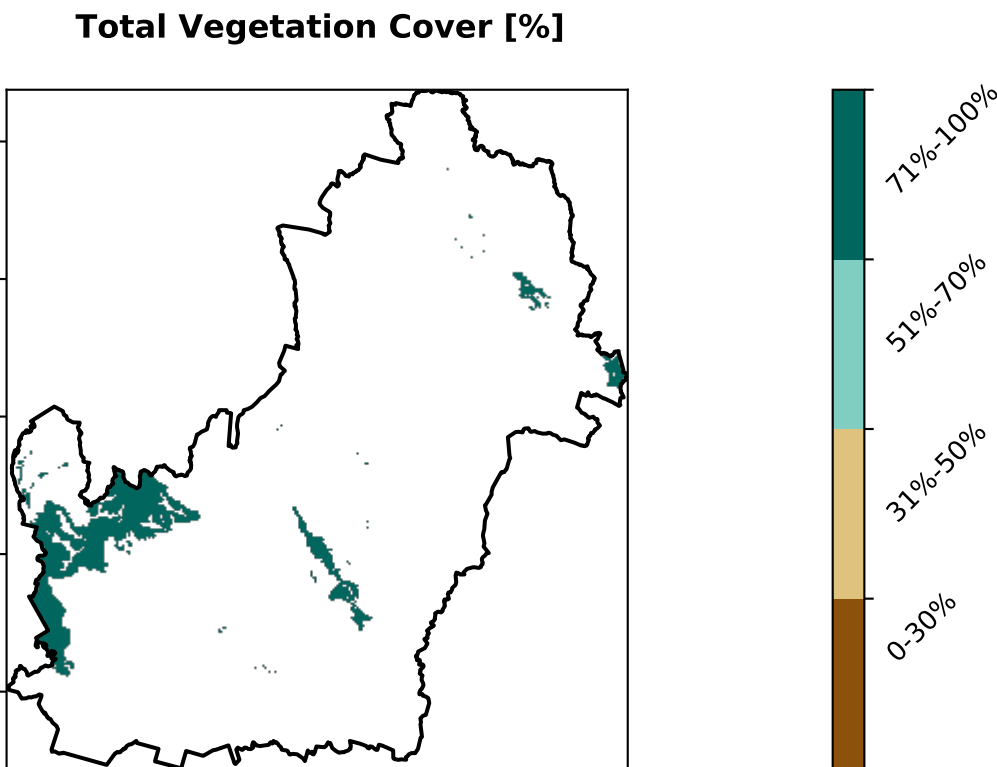


Water erosion historical monthly area protected (Total Veg Cov>70%)

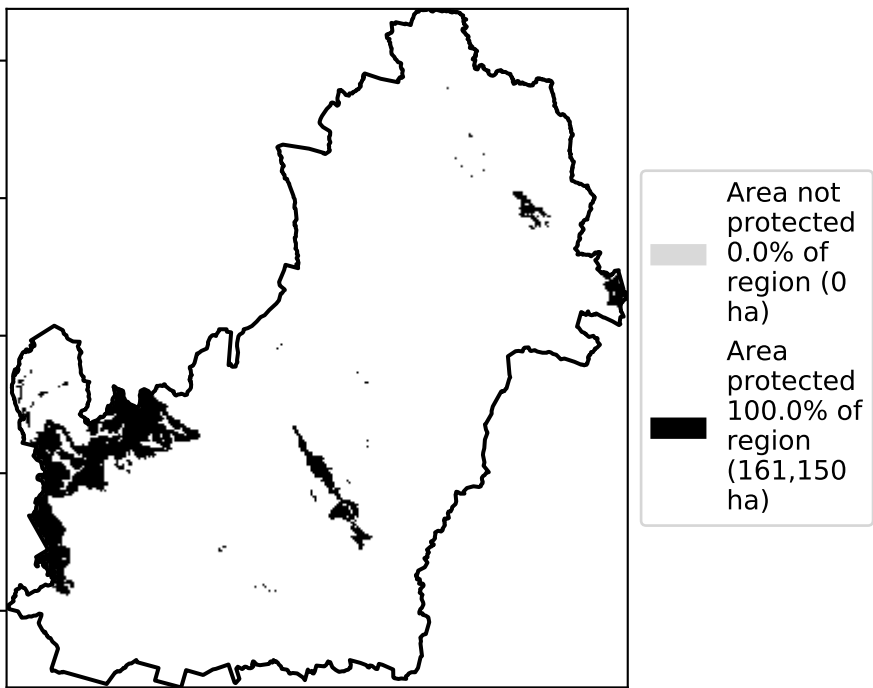


Conservation and natural environments Forest (non woodland)

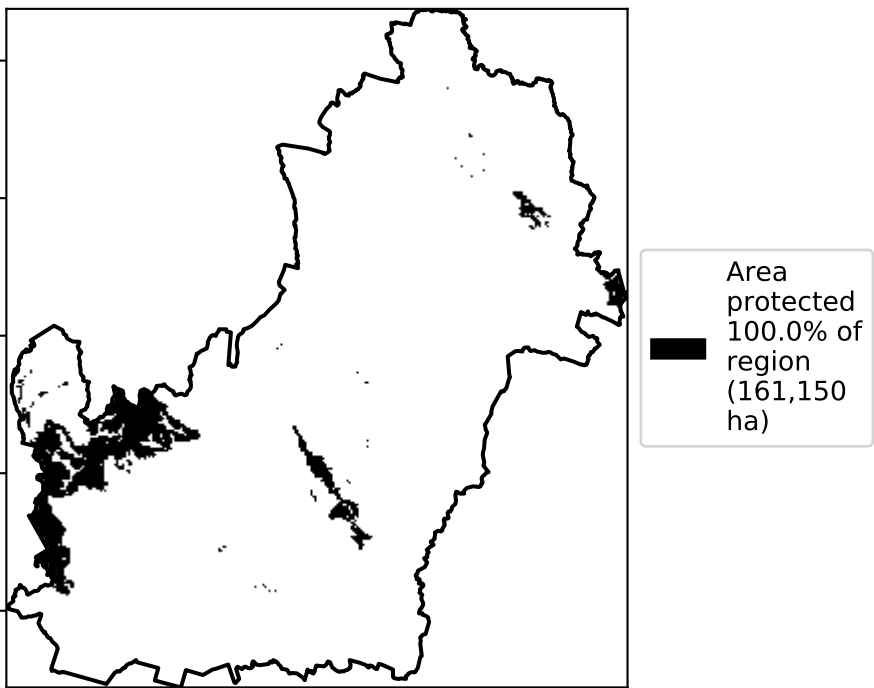
Catchment Scale Land Use and Forests of Australia (2018)  
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



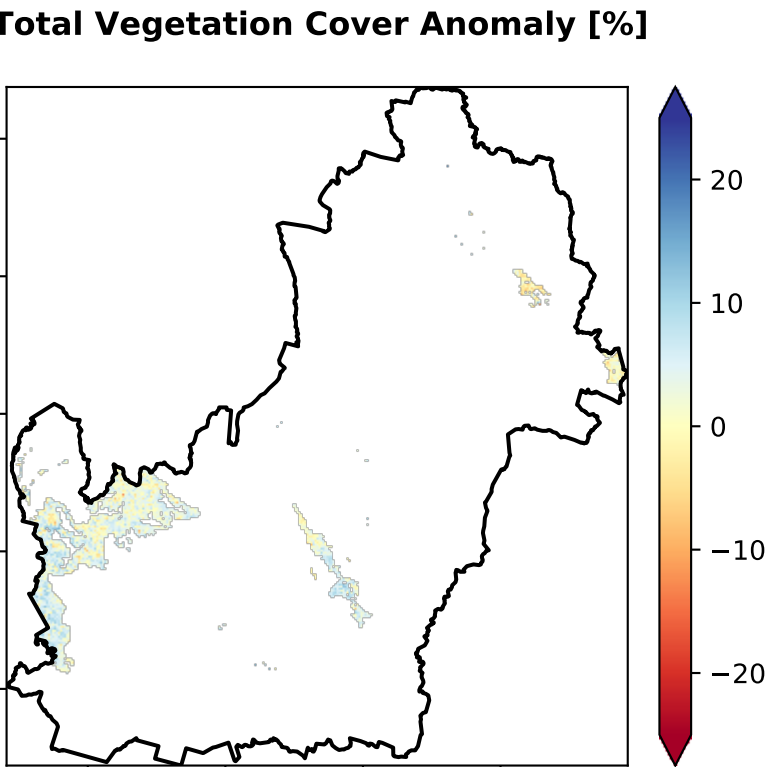
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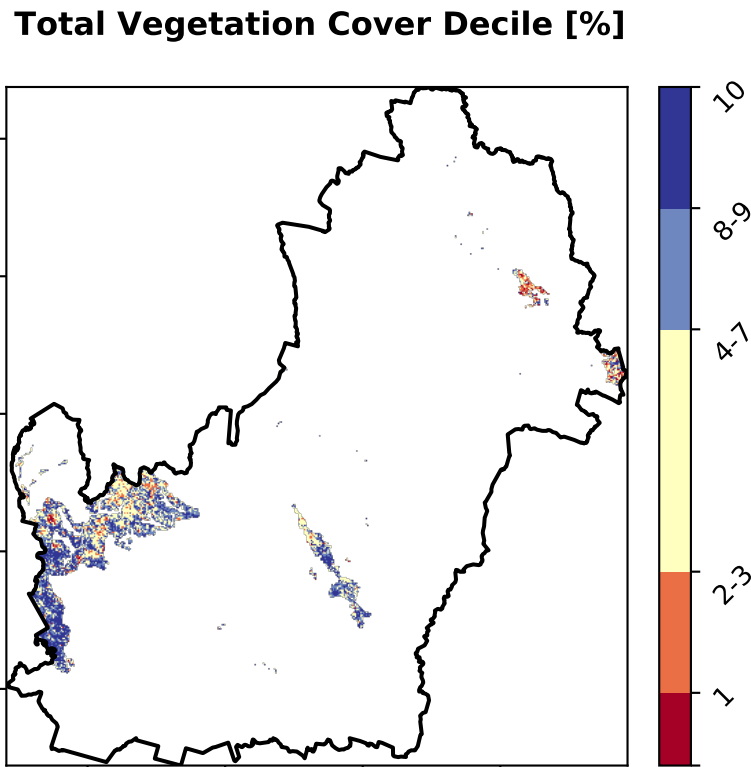
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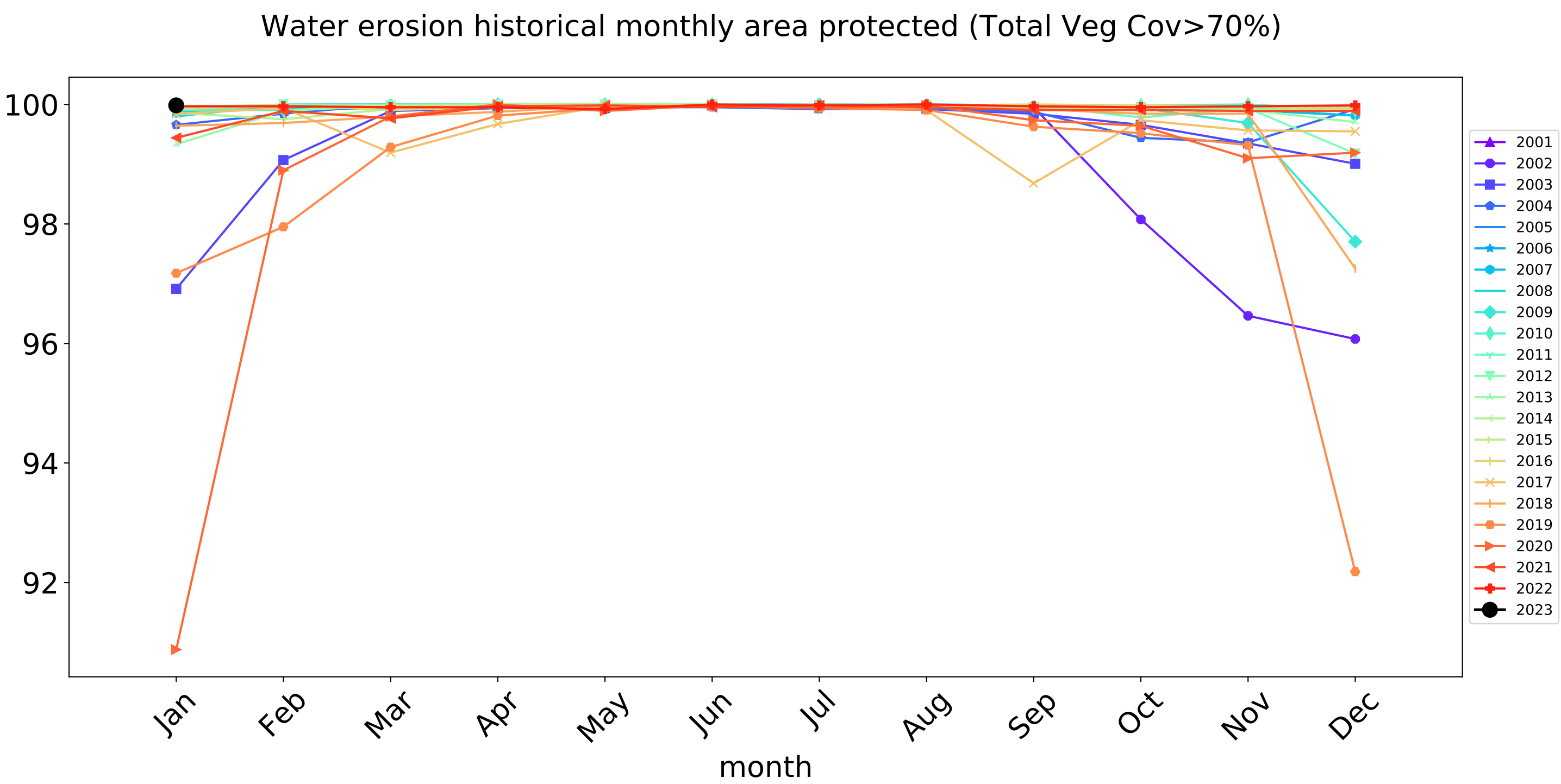
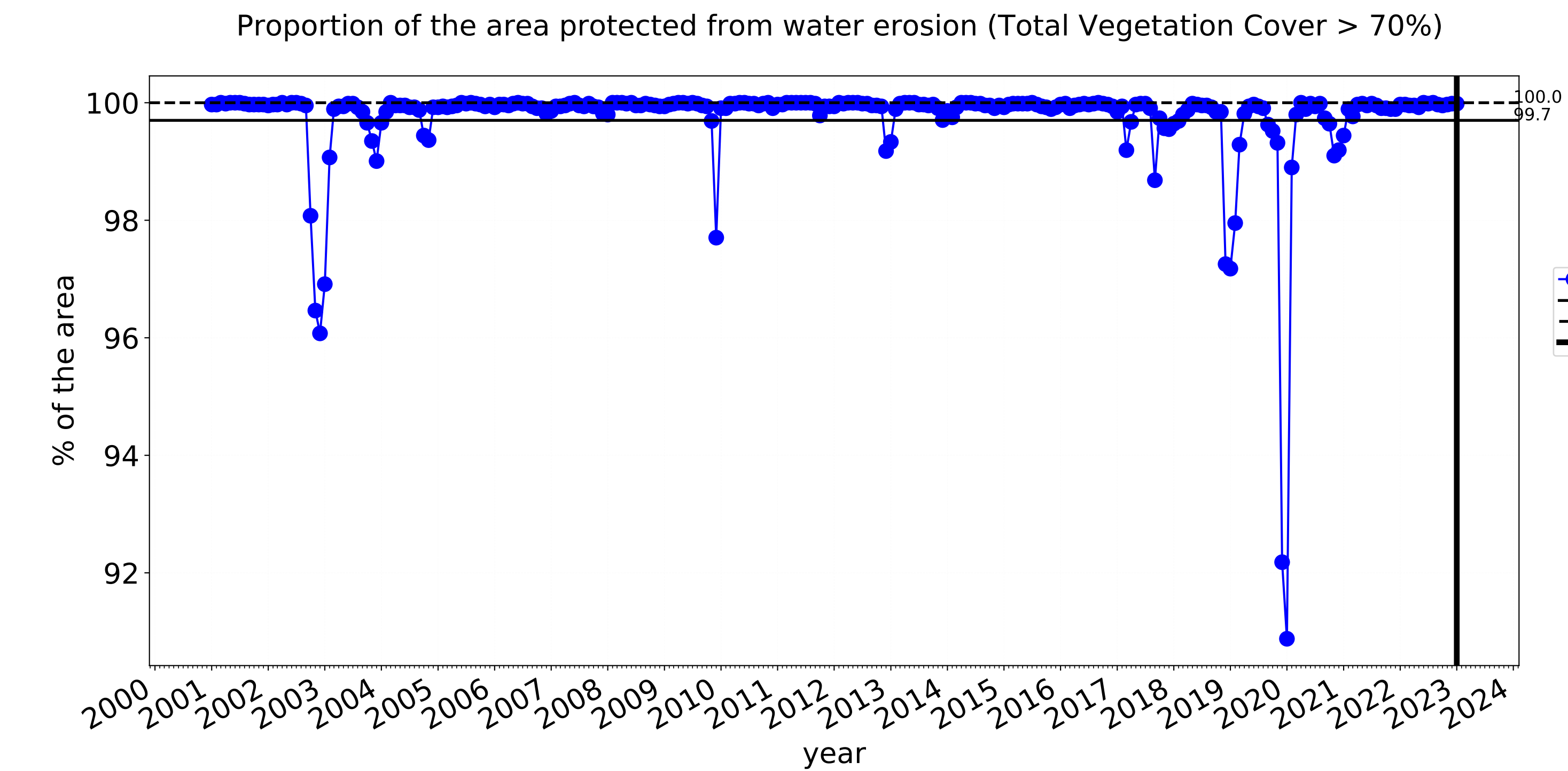
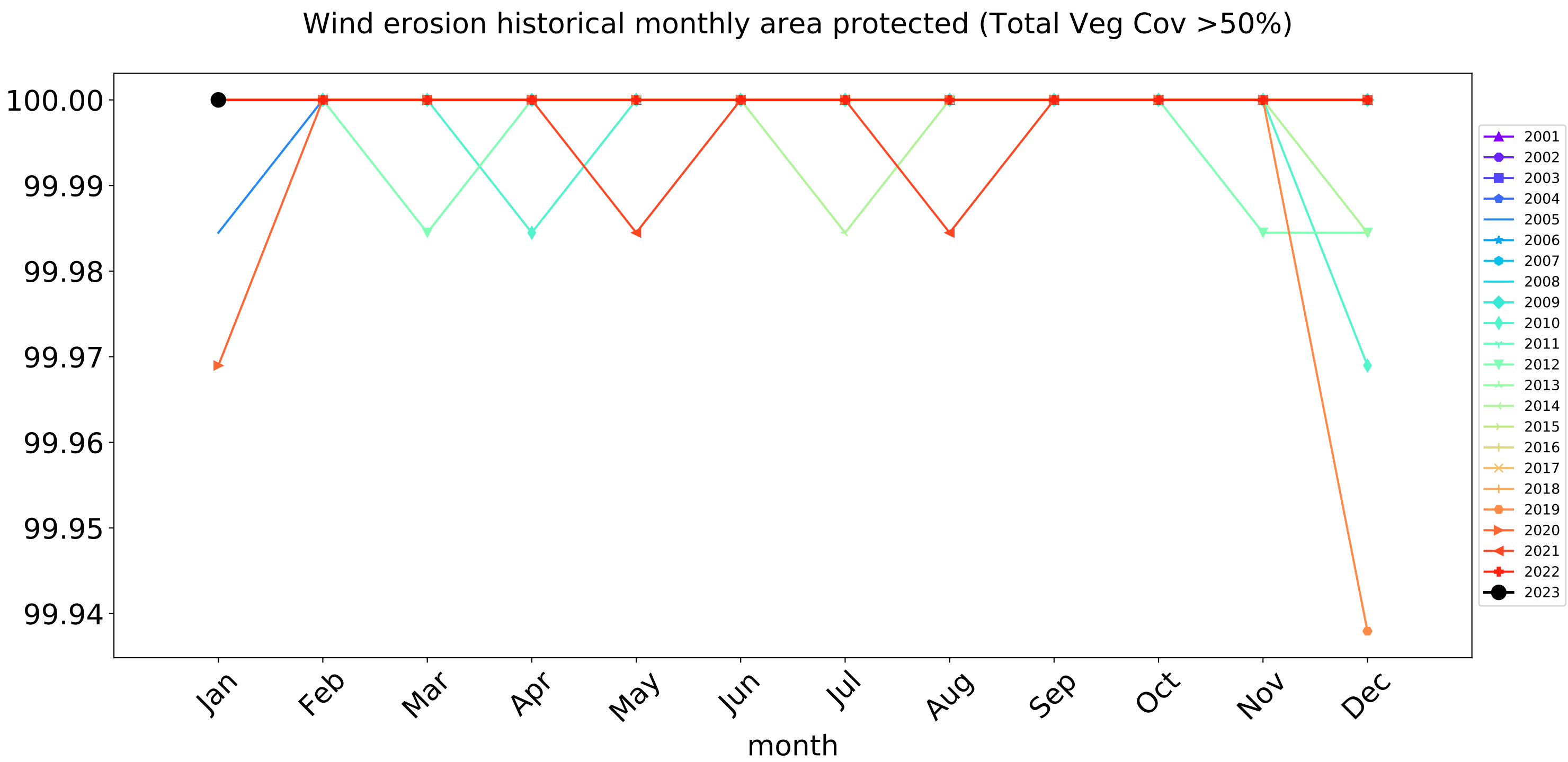
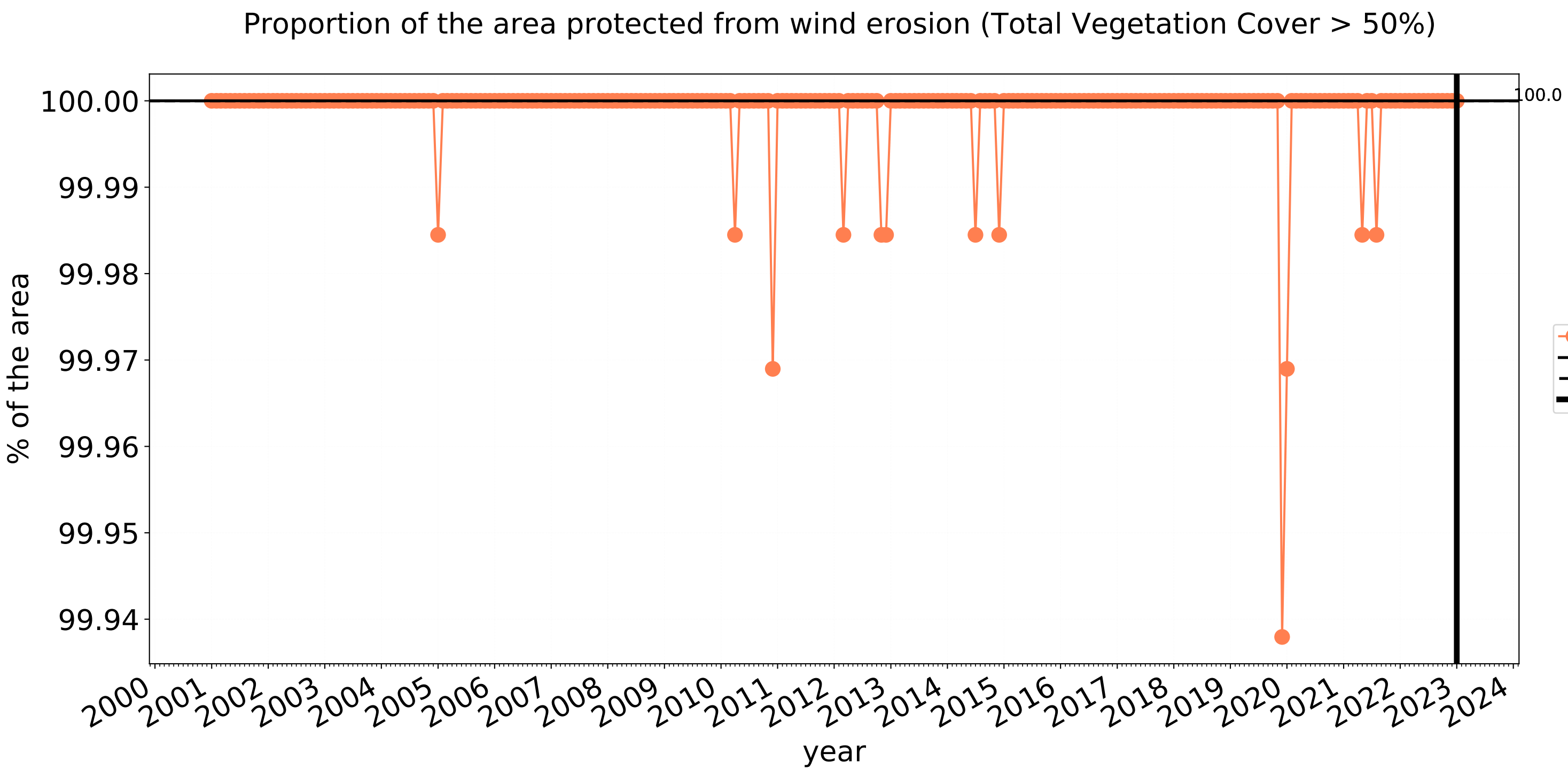


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Conservation and natural environments Forest (non woodland) timeseries



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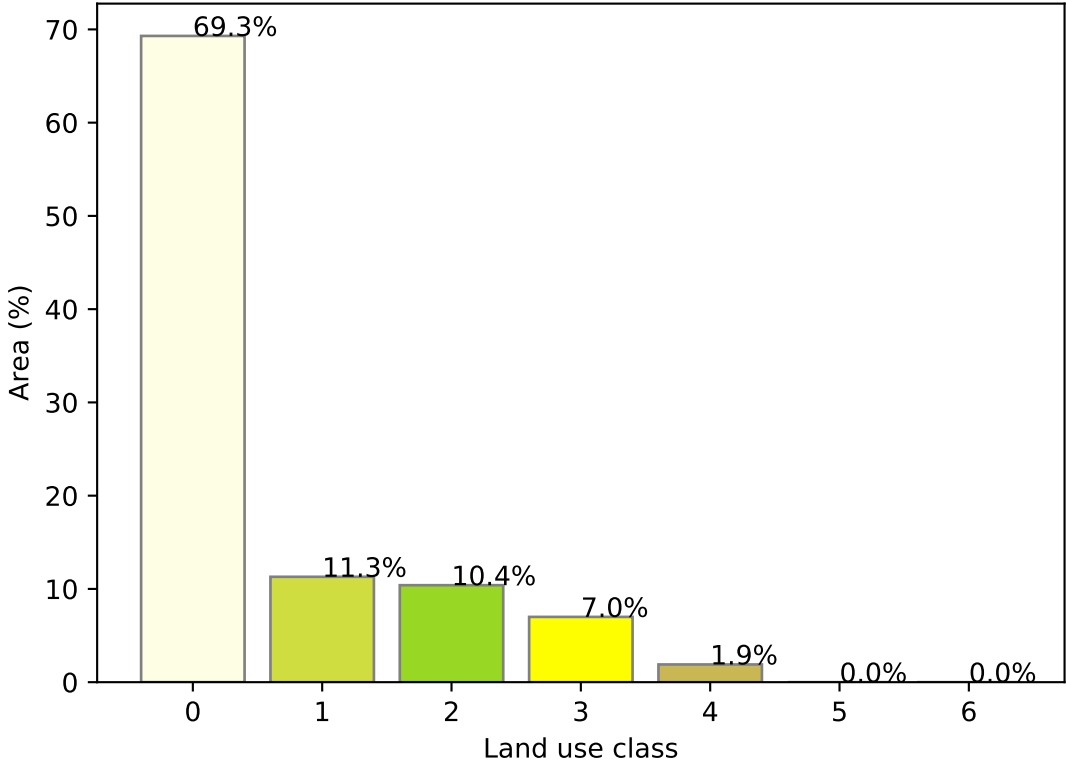
Agriculture

Land use and forest cover

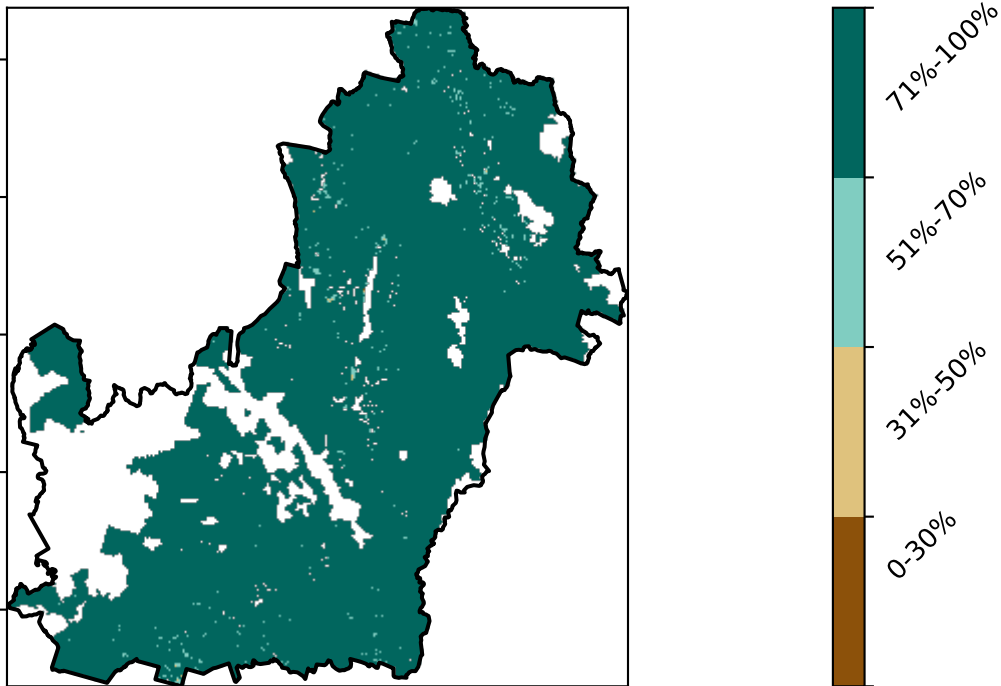
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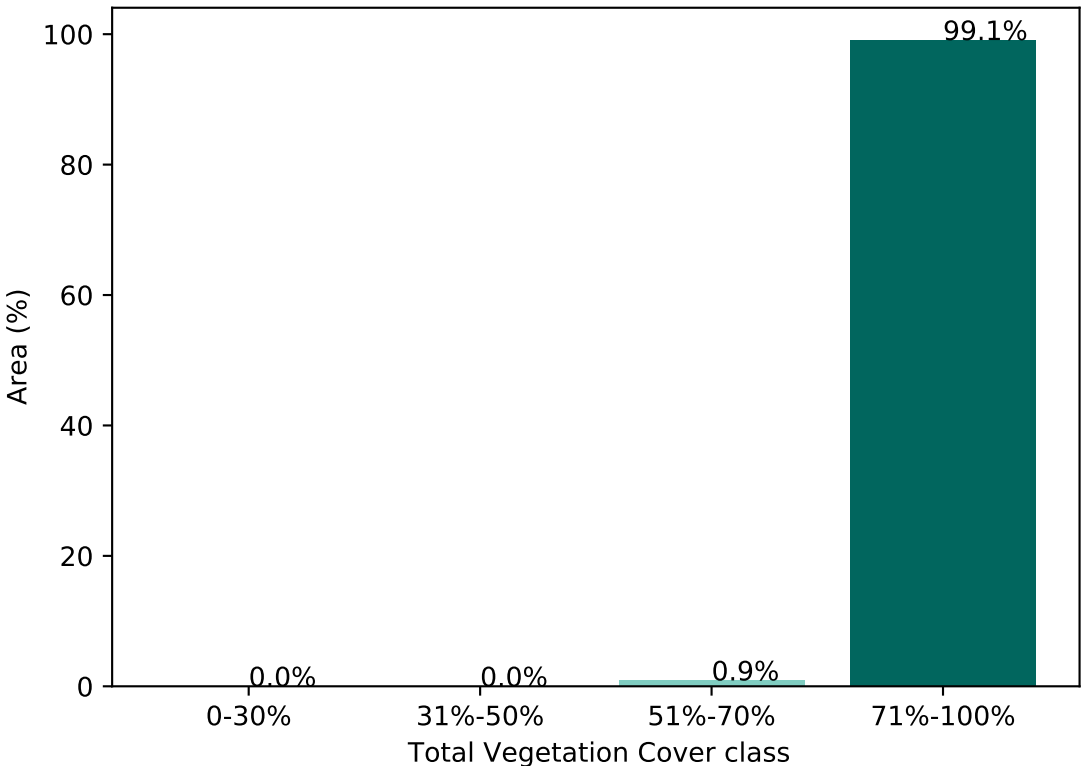
Proportion of each land class in area



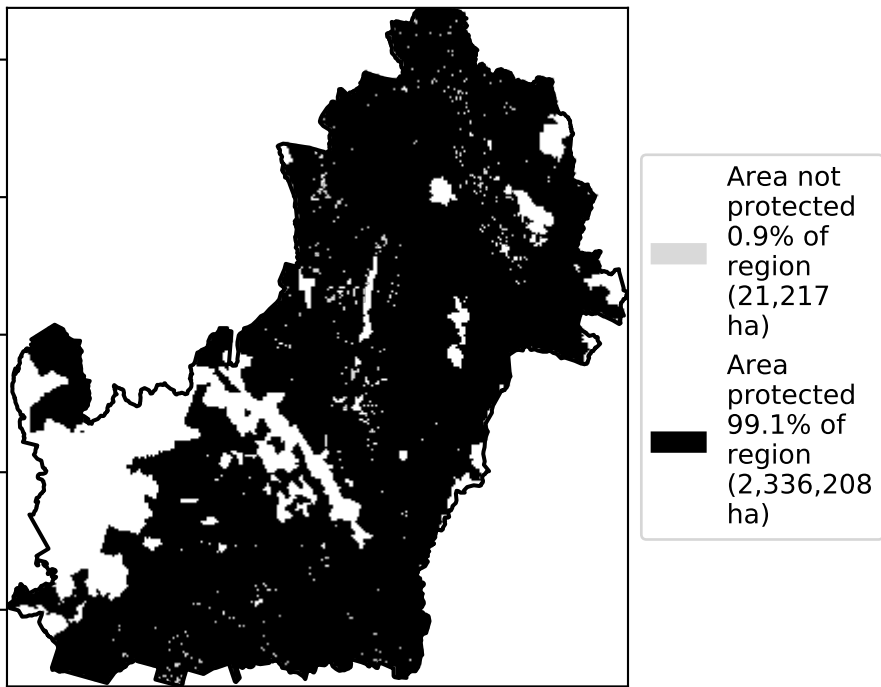
Total Vegetation Cover [%]



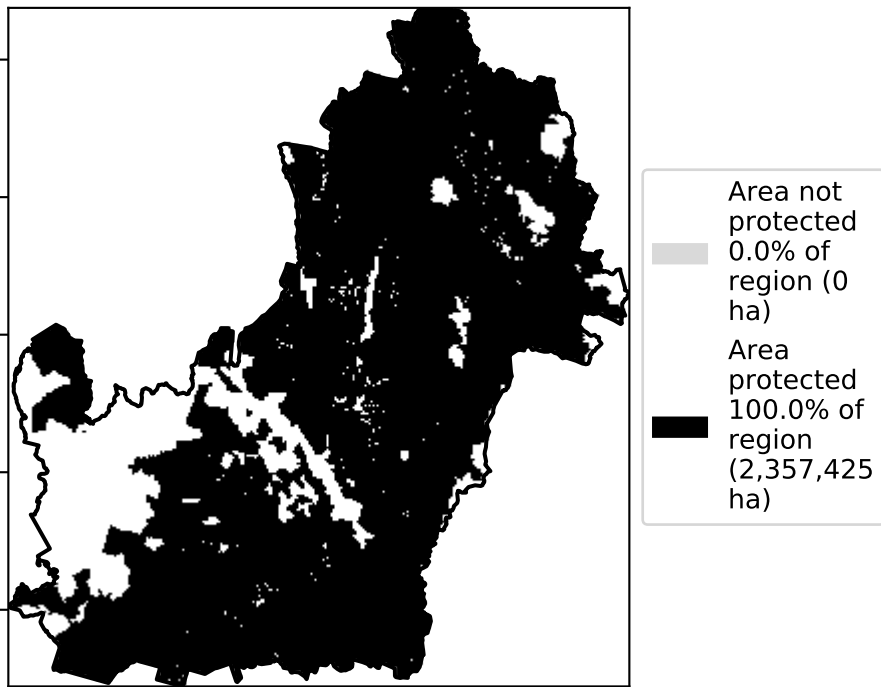
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

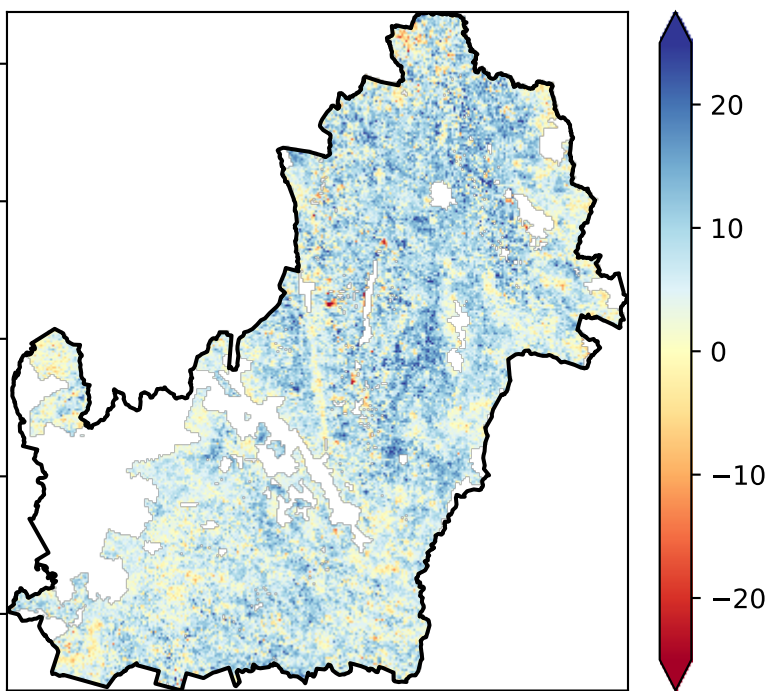


% Area protected from wind erosion (>50%)



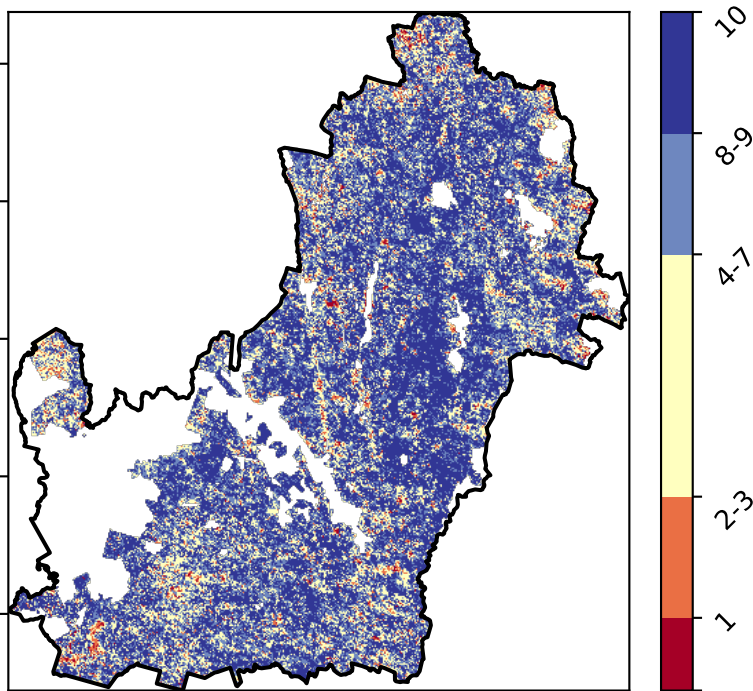
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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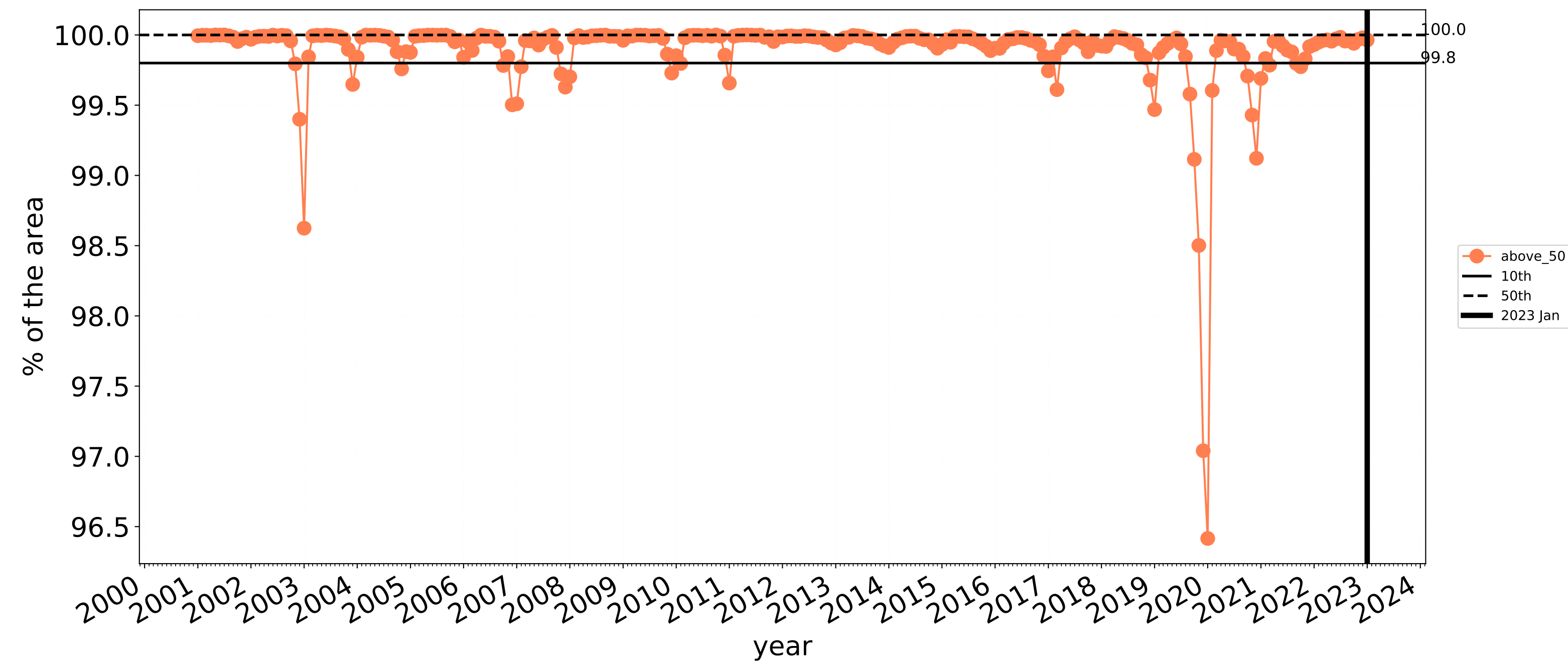
National Landcare Programme



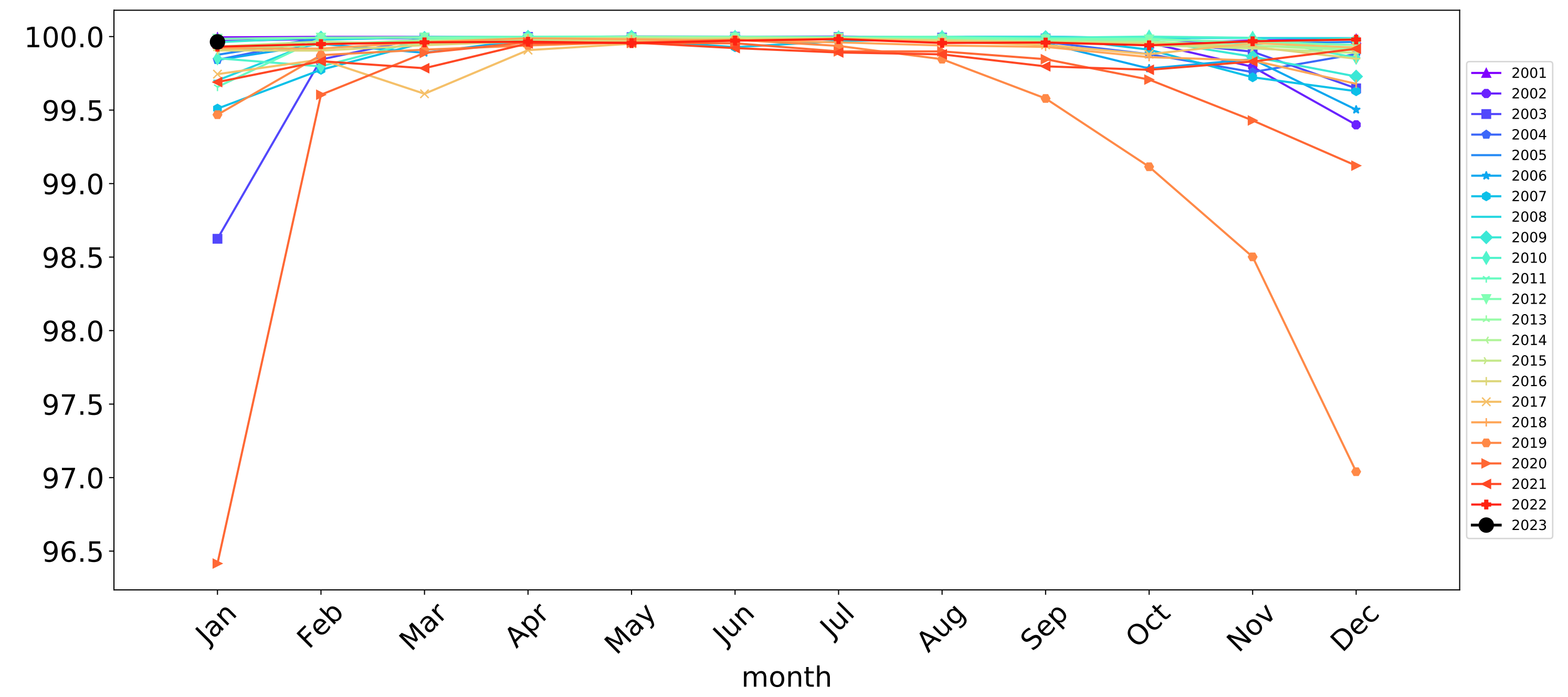


# Agriculture timeseries

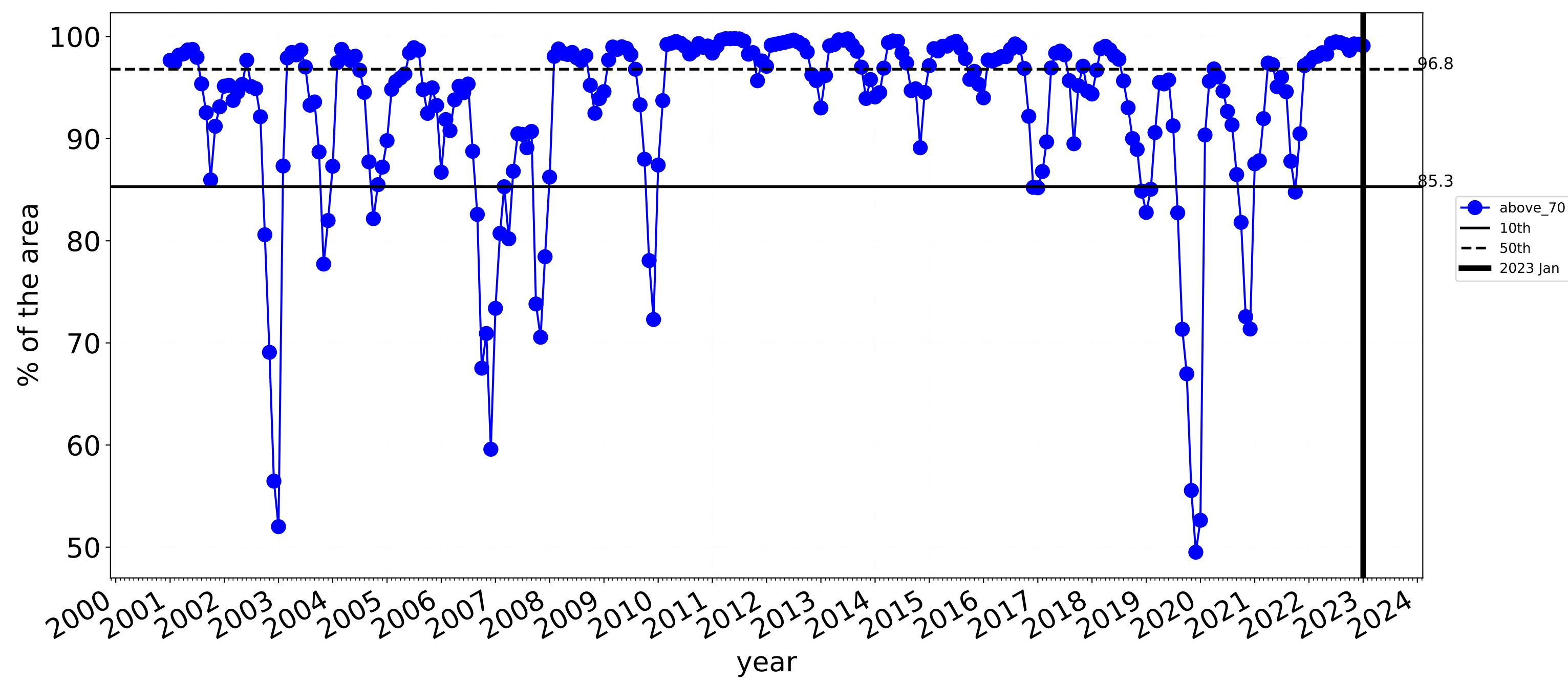
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



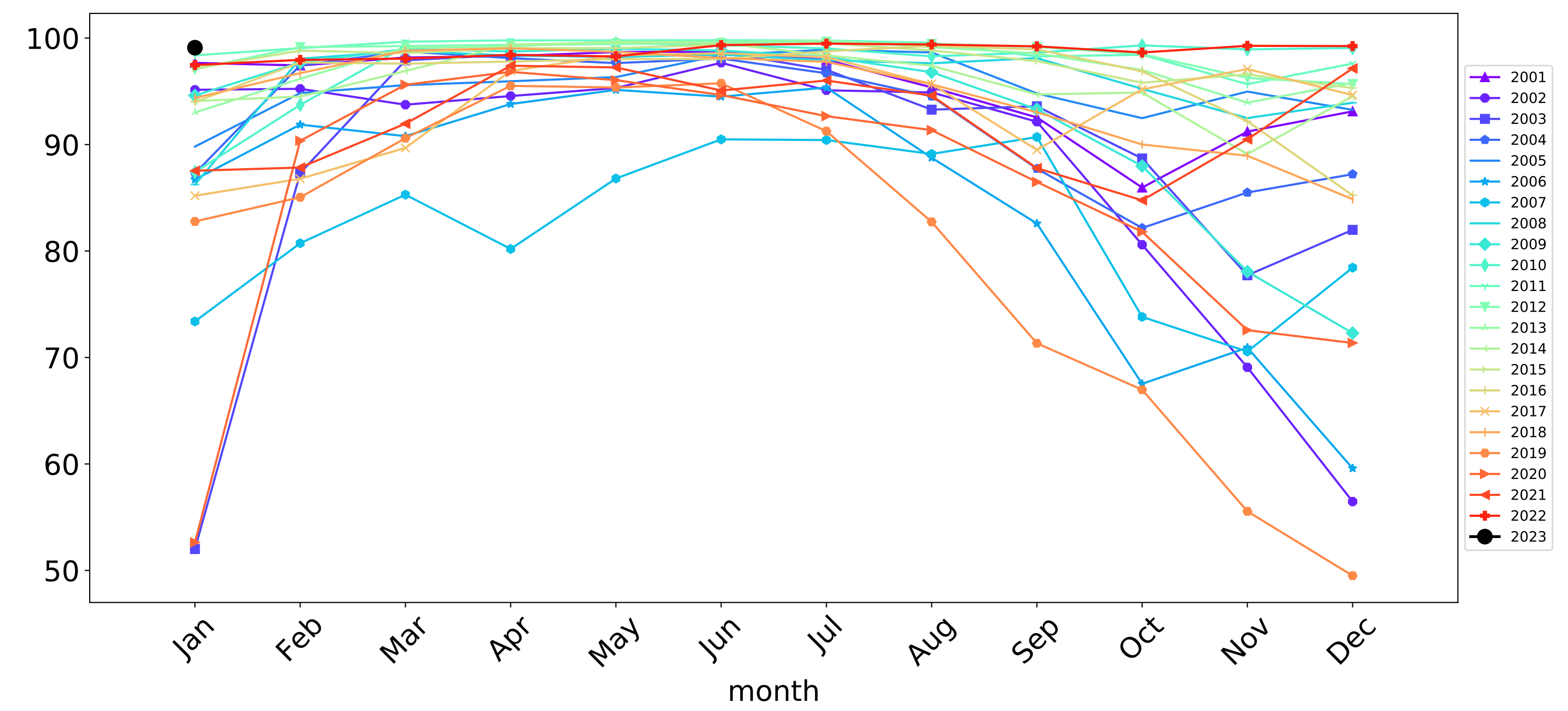
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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



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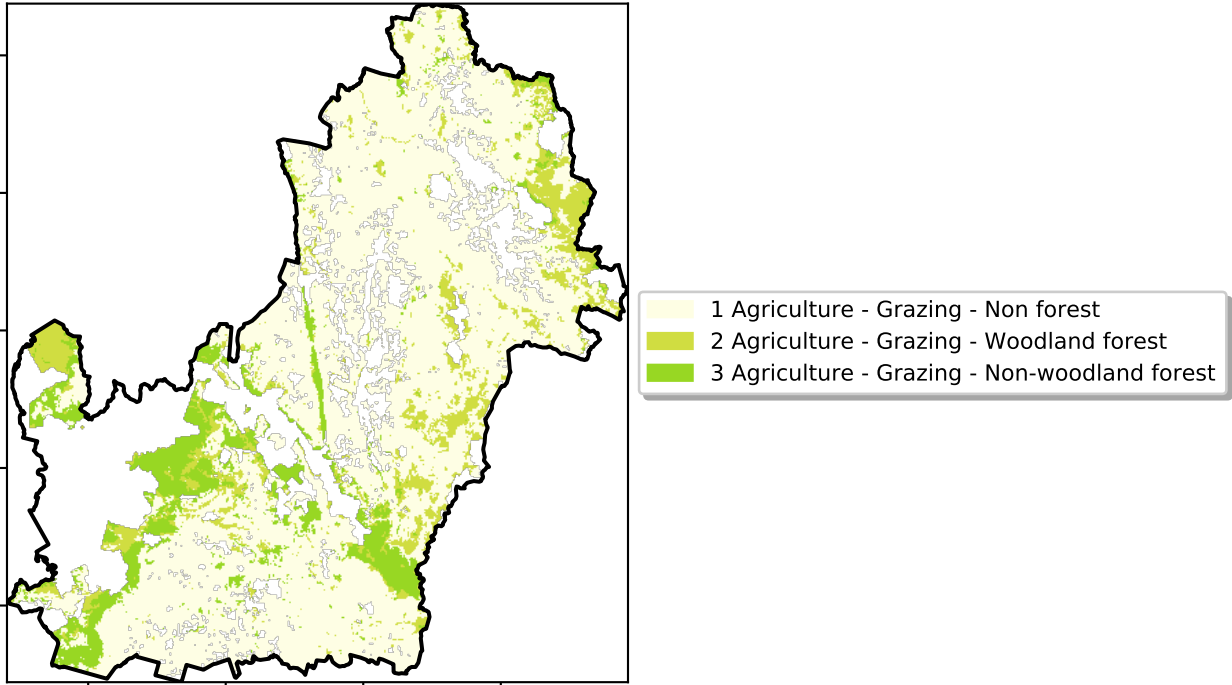
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Grazing

Land use and forest cover

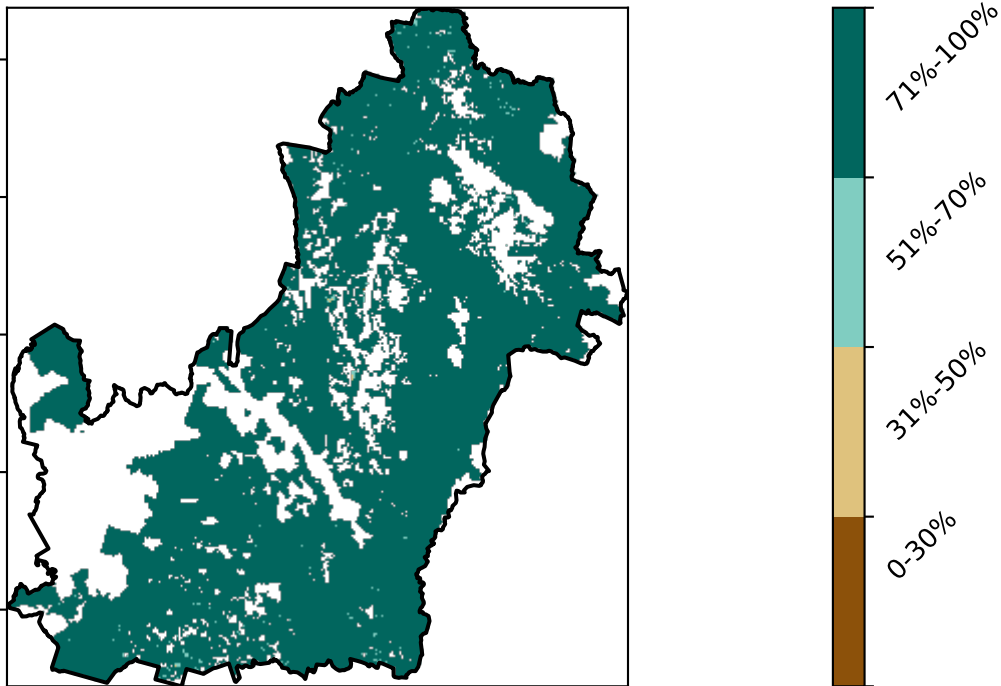
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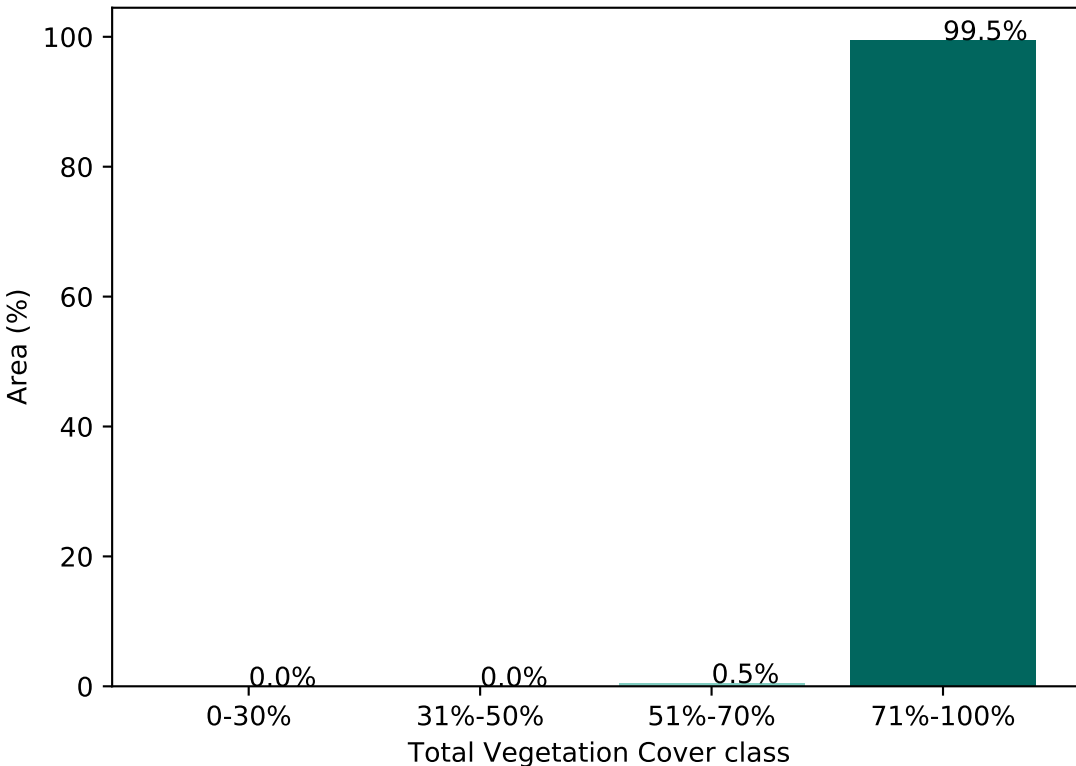
Proportion of each land class in area



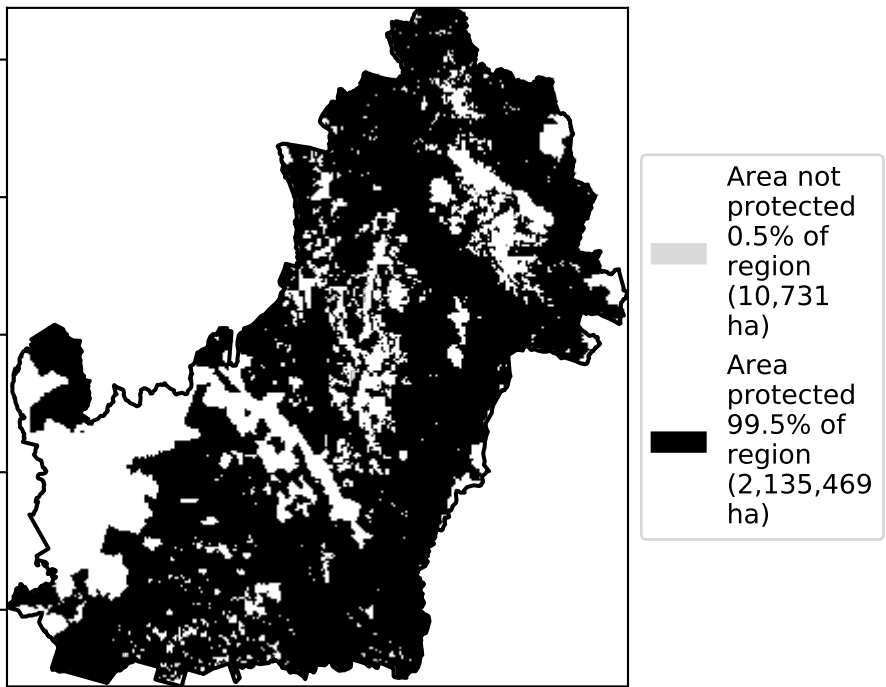
Total Vegetation Cover [%]



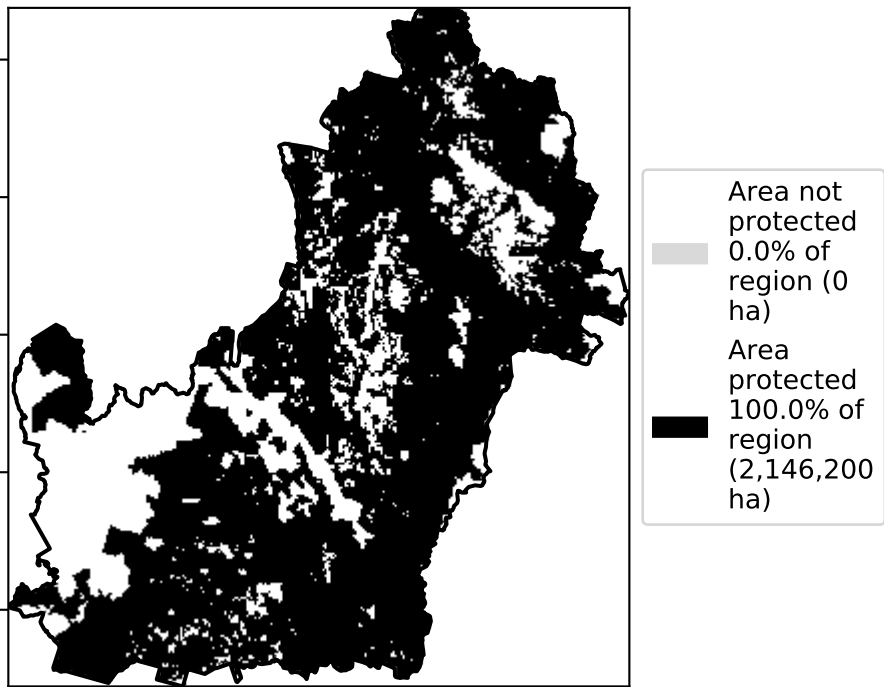
Proportion of vegetation cover class in area



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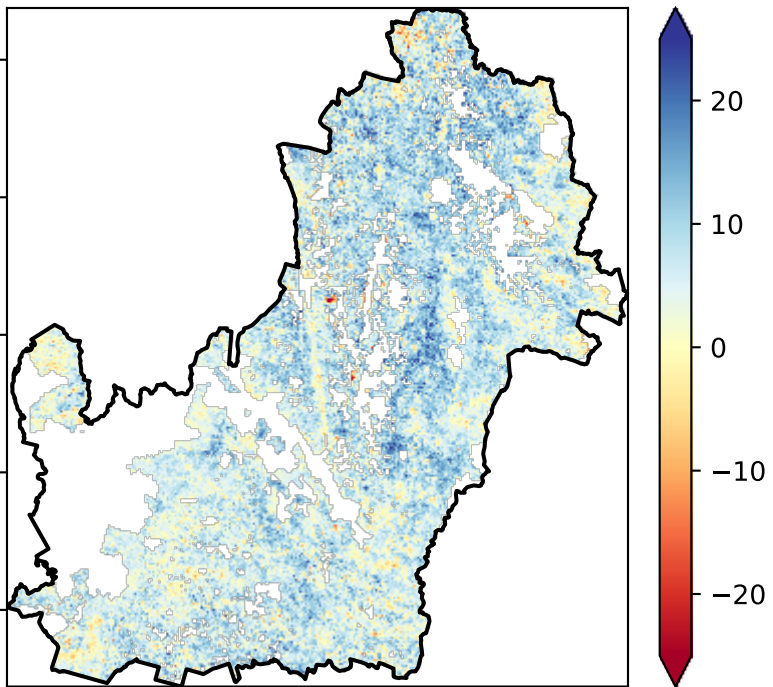


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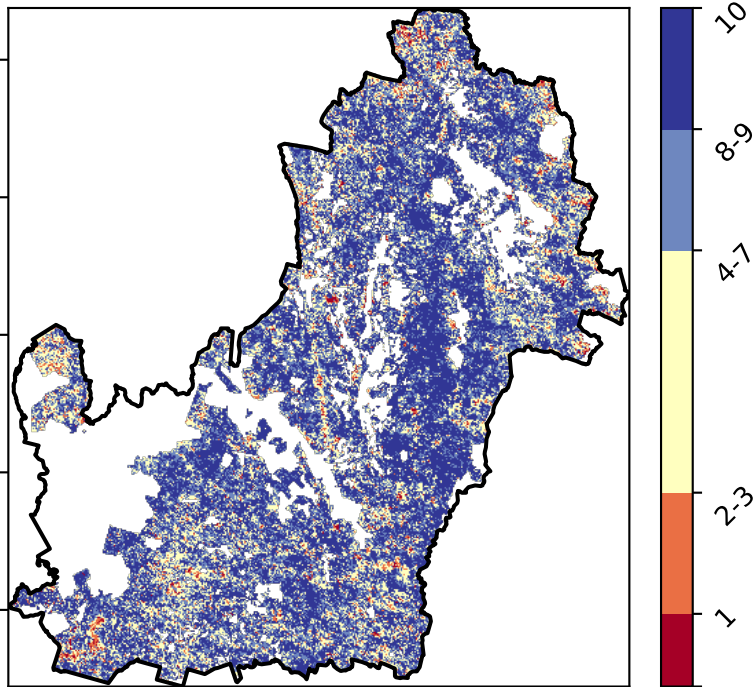
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Total Vegetation Cover Decile [%]



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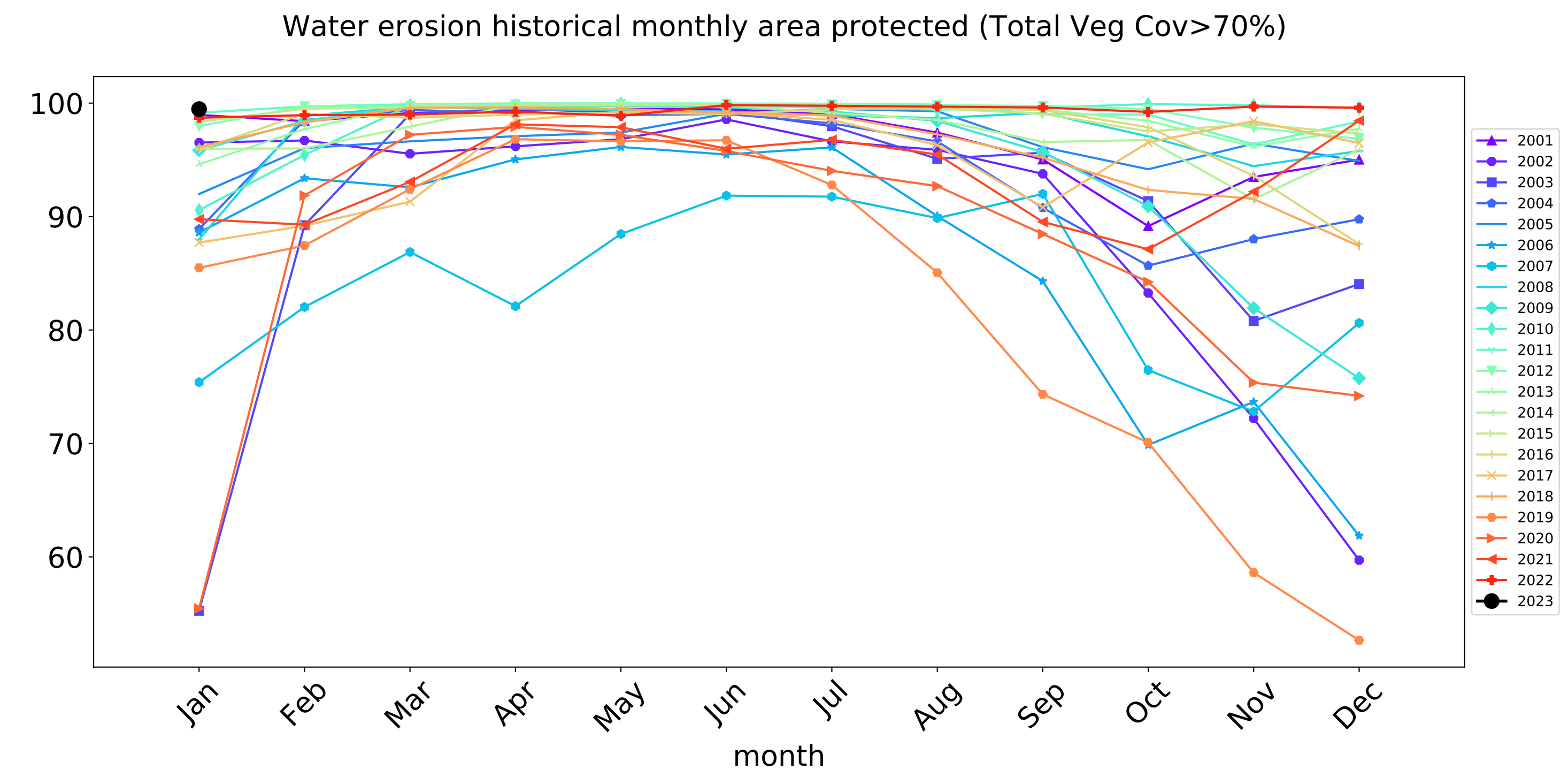
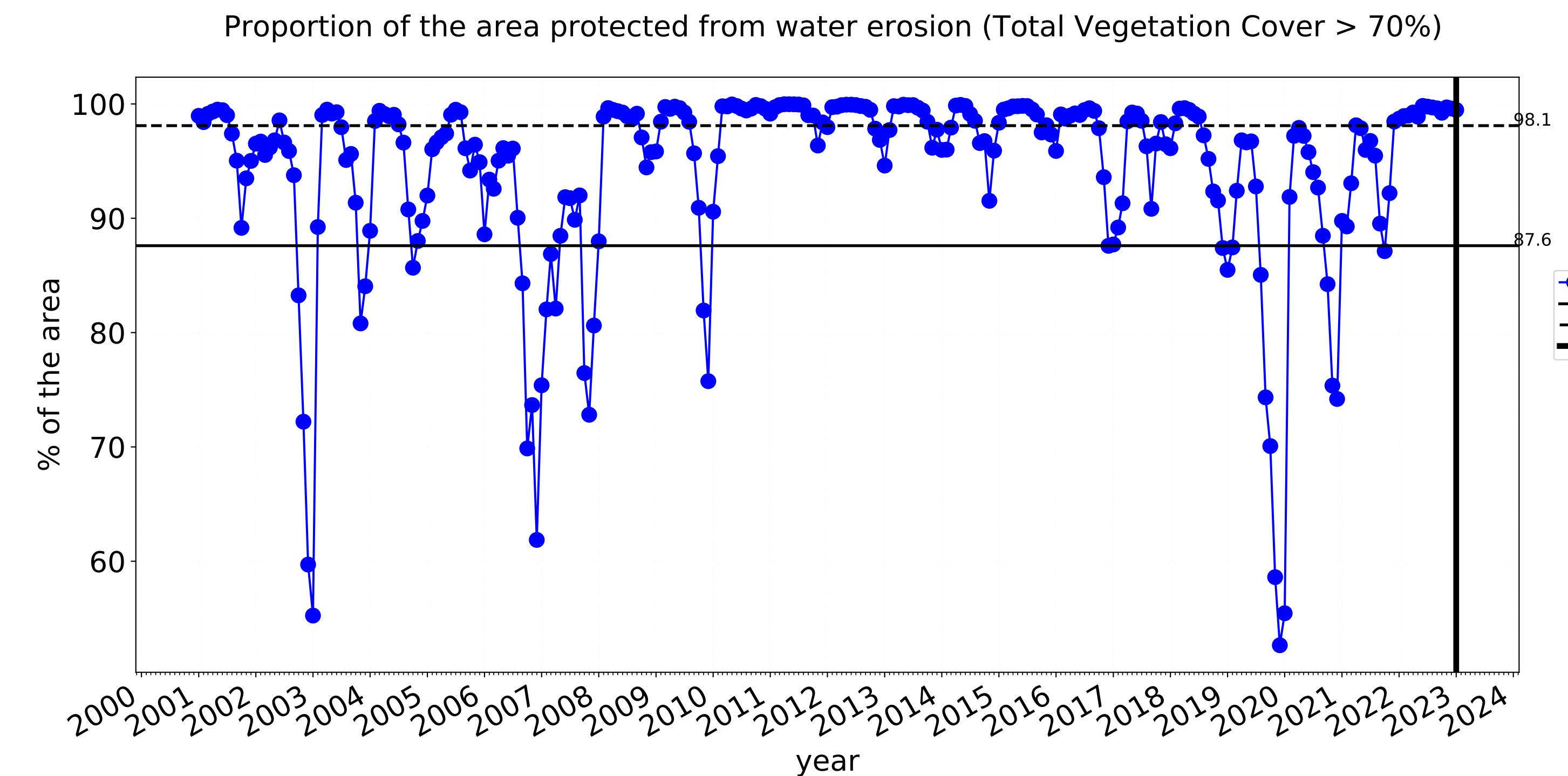
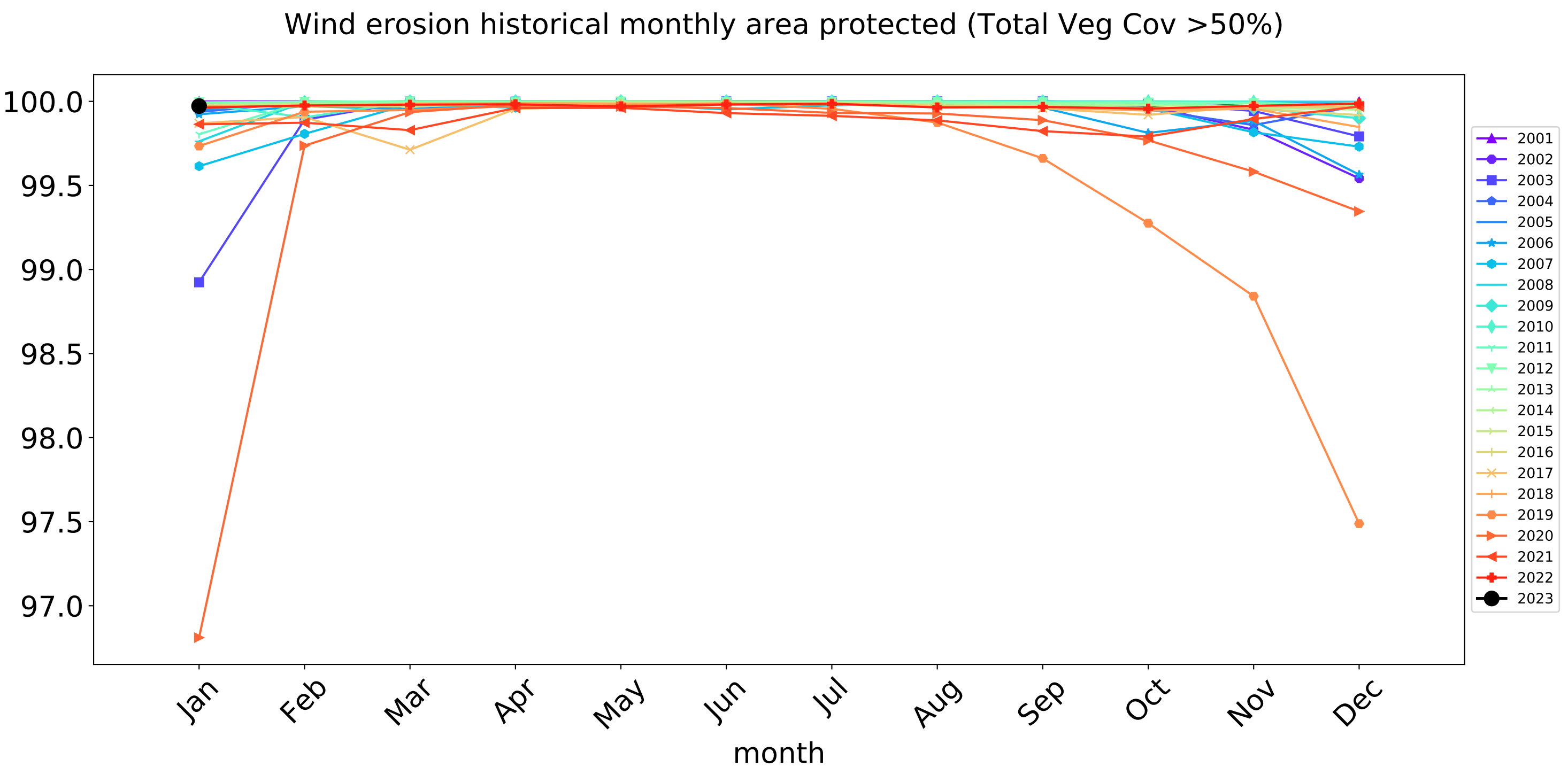
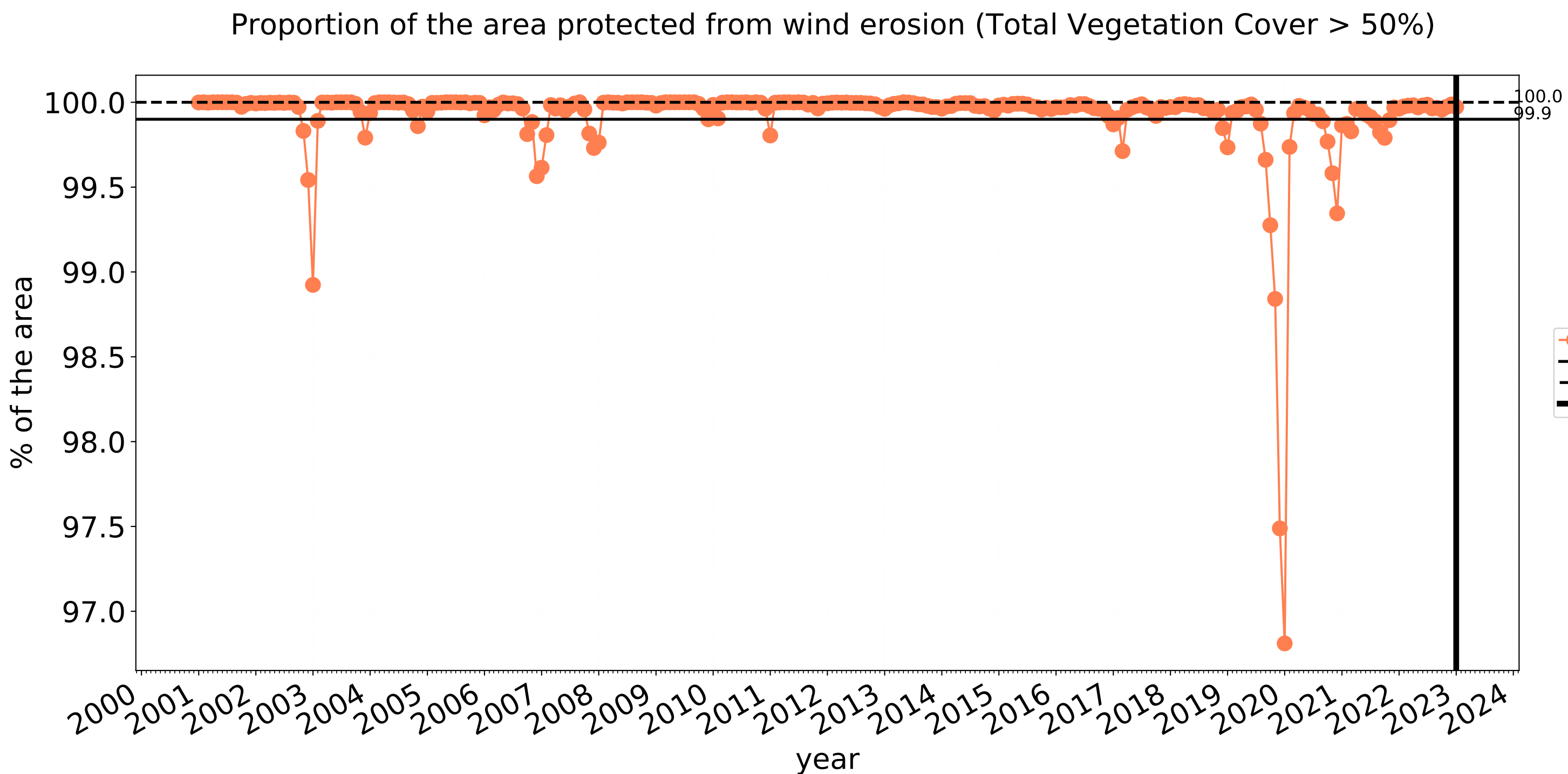


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Grazing timeseries



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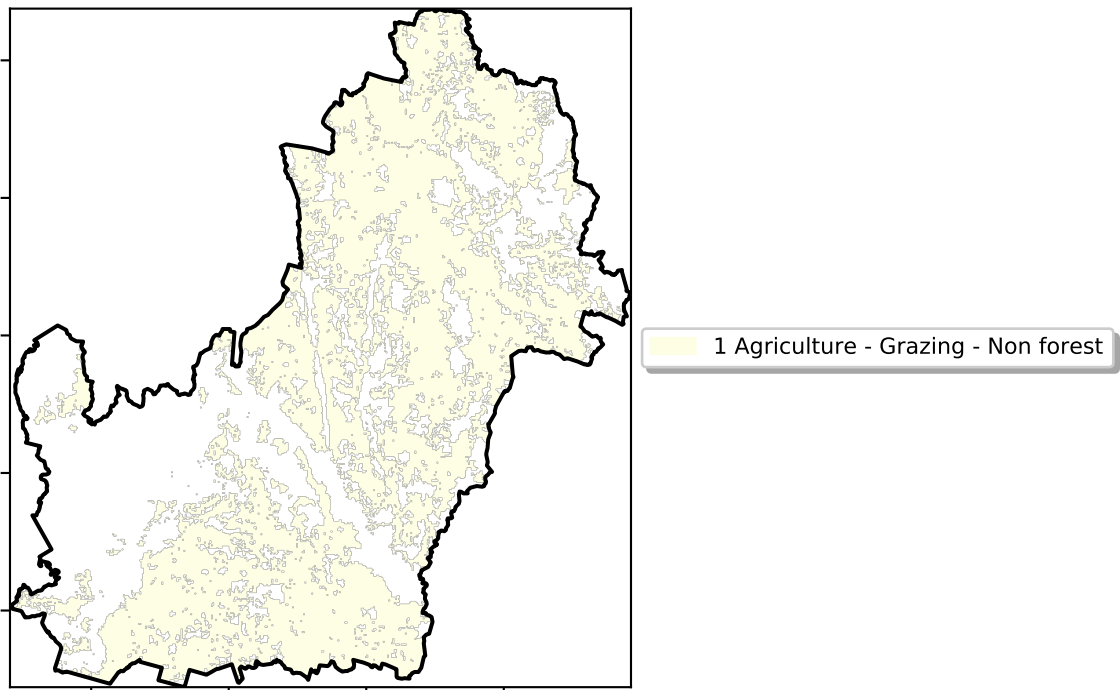


National Landcare Programme

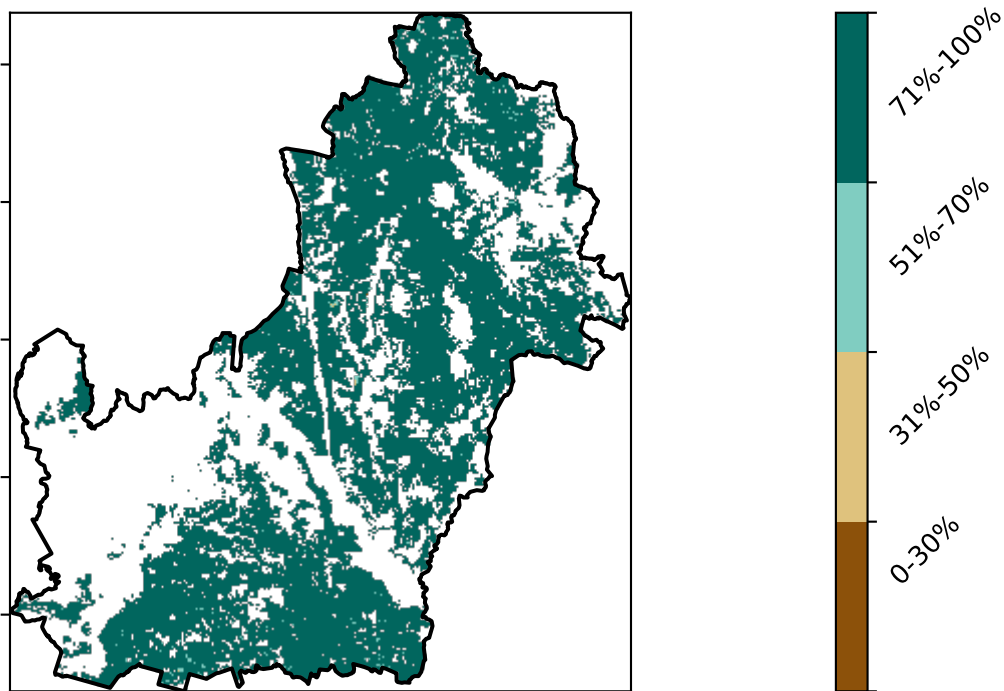


Grazing non forest

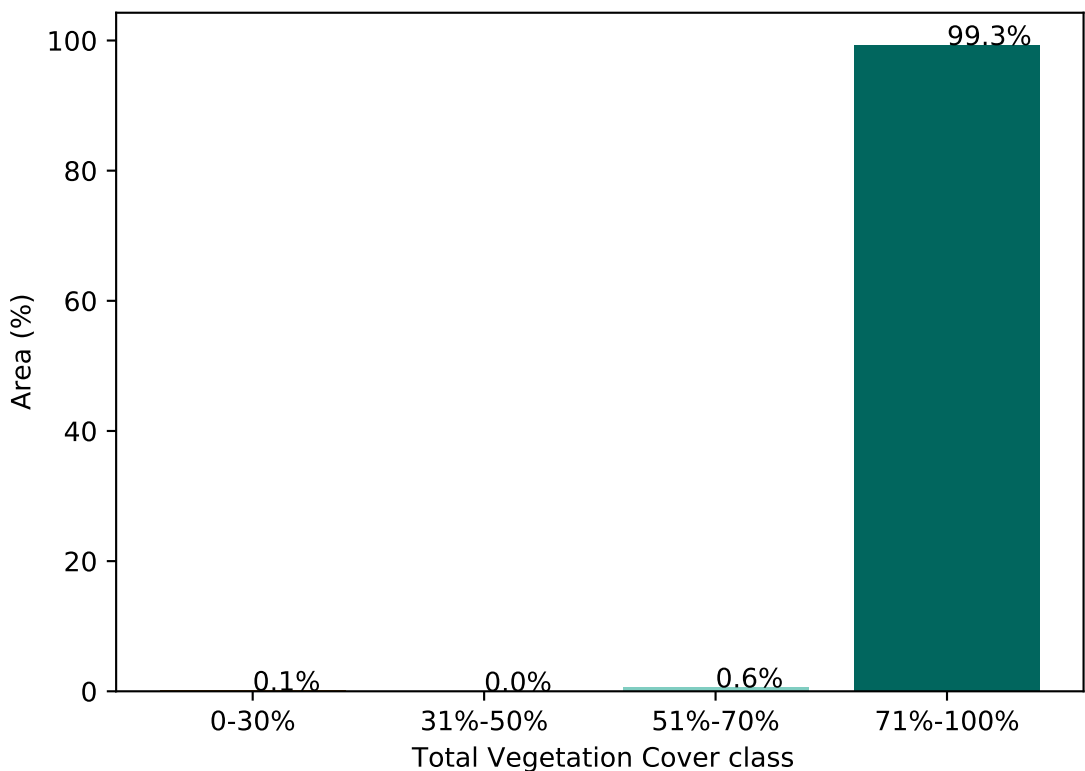
Land use and forest cover



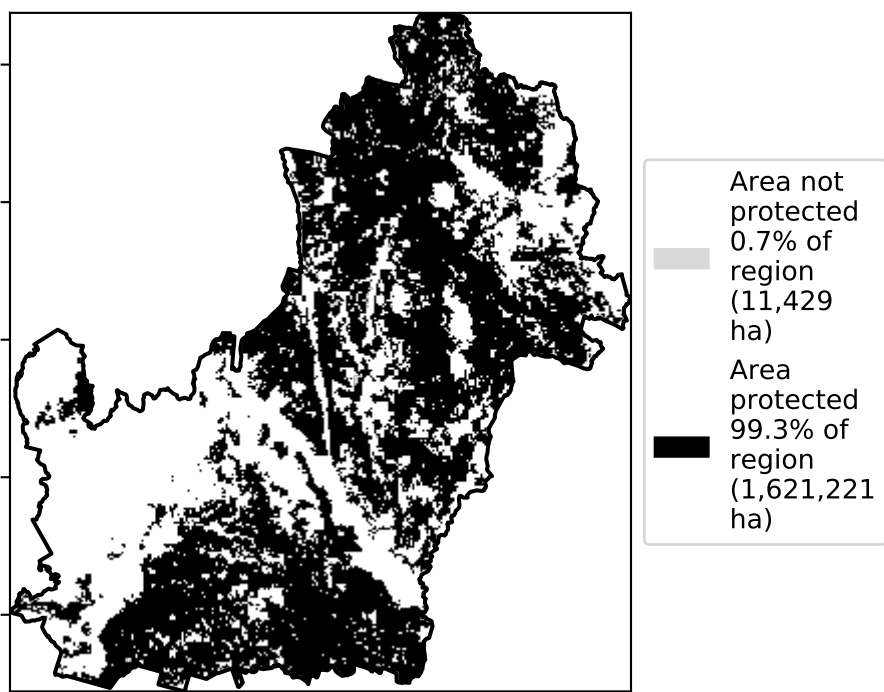
Total Vegetation Cover [%]



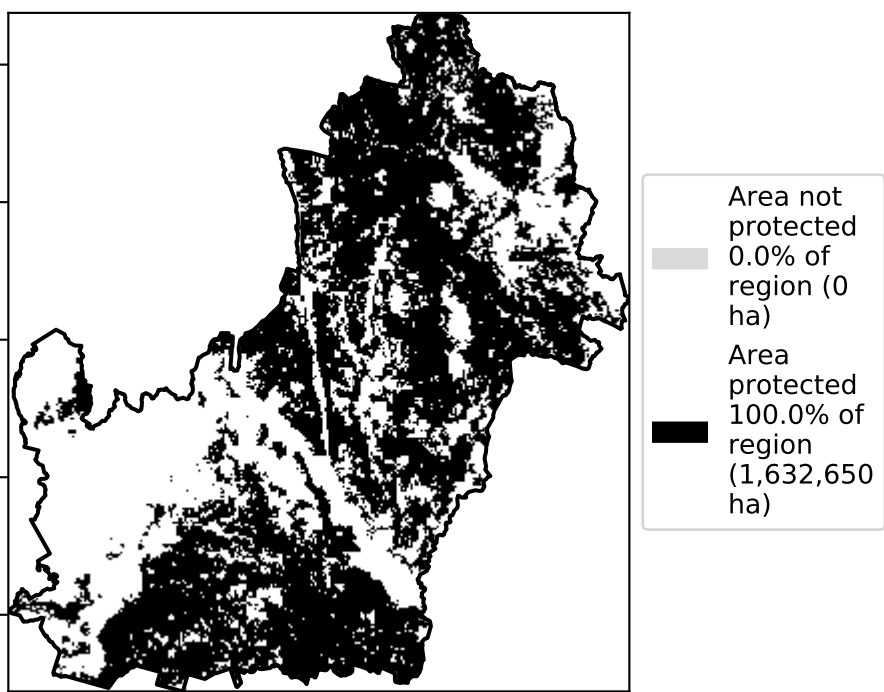
Proportion of vegetation cover class in area



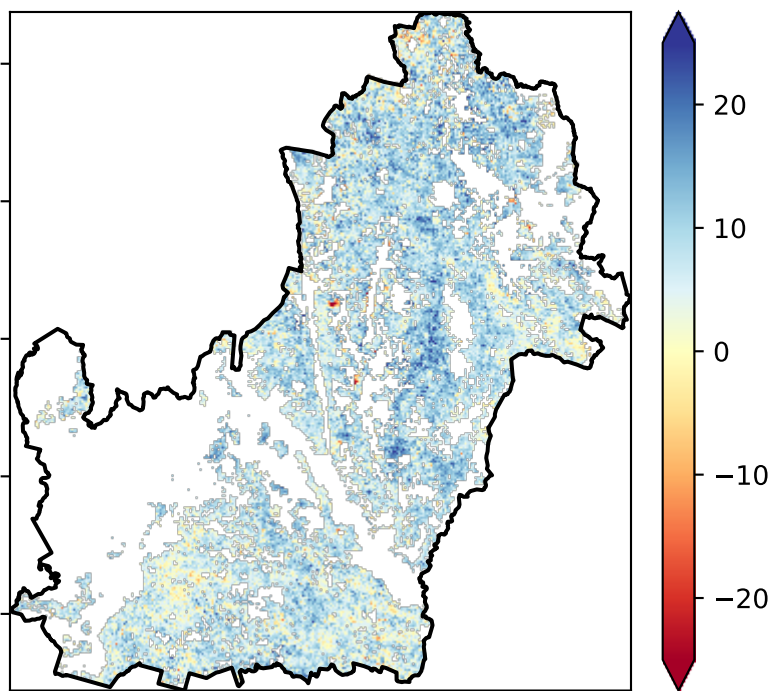
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



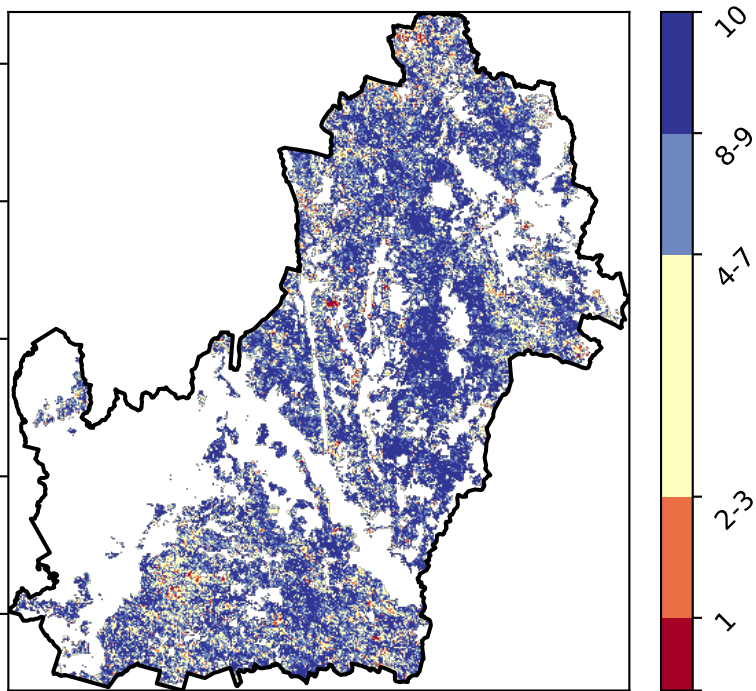
Total Vegetation Cover Anomaly [%]



Anomaly show how many 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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Australian Government

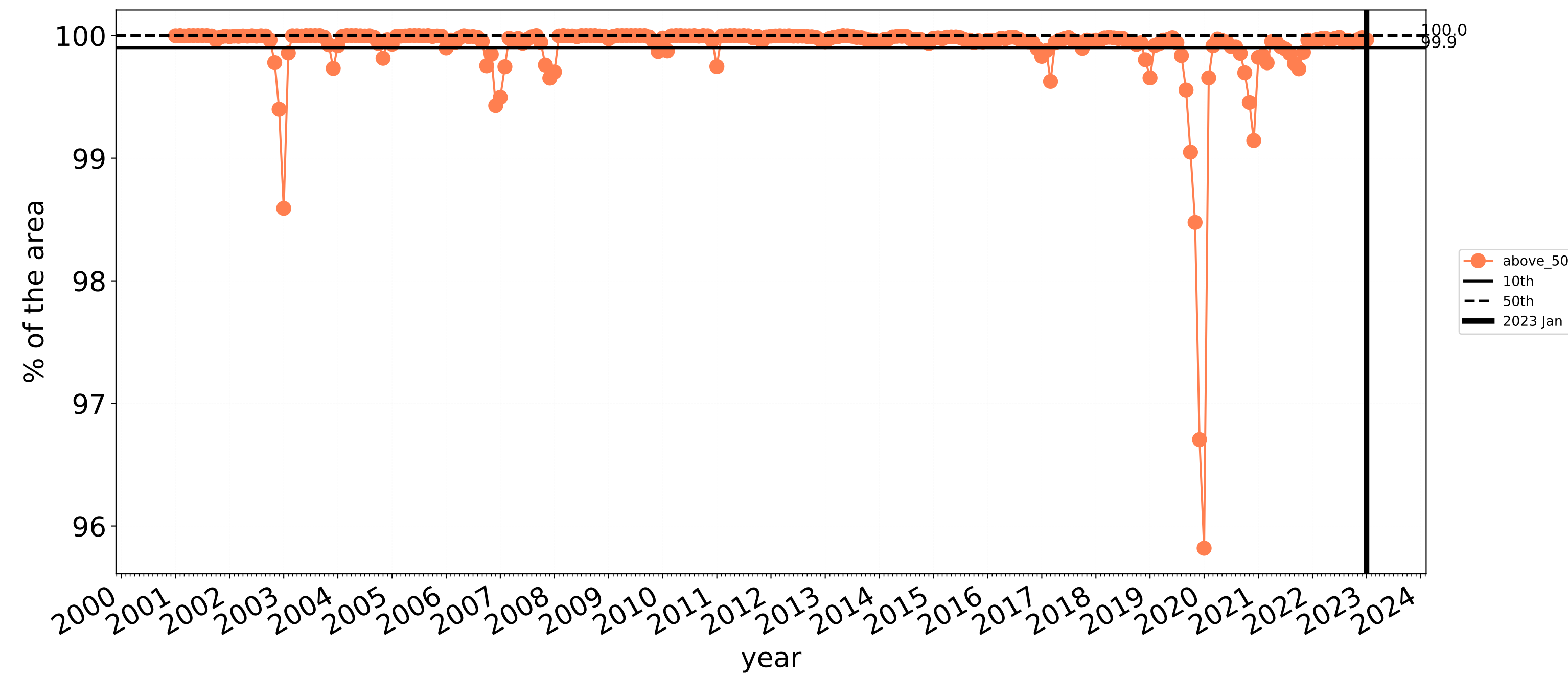
National  
Landcare  
Programme



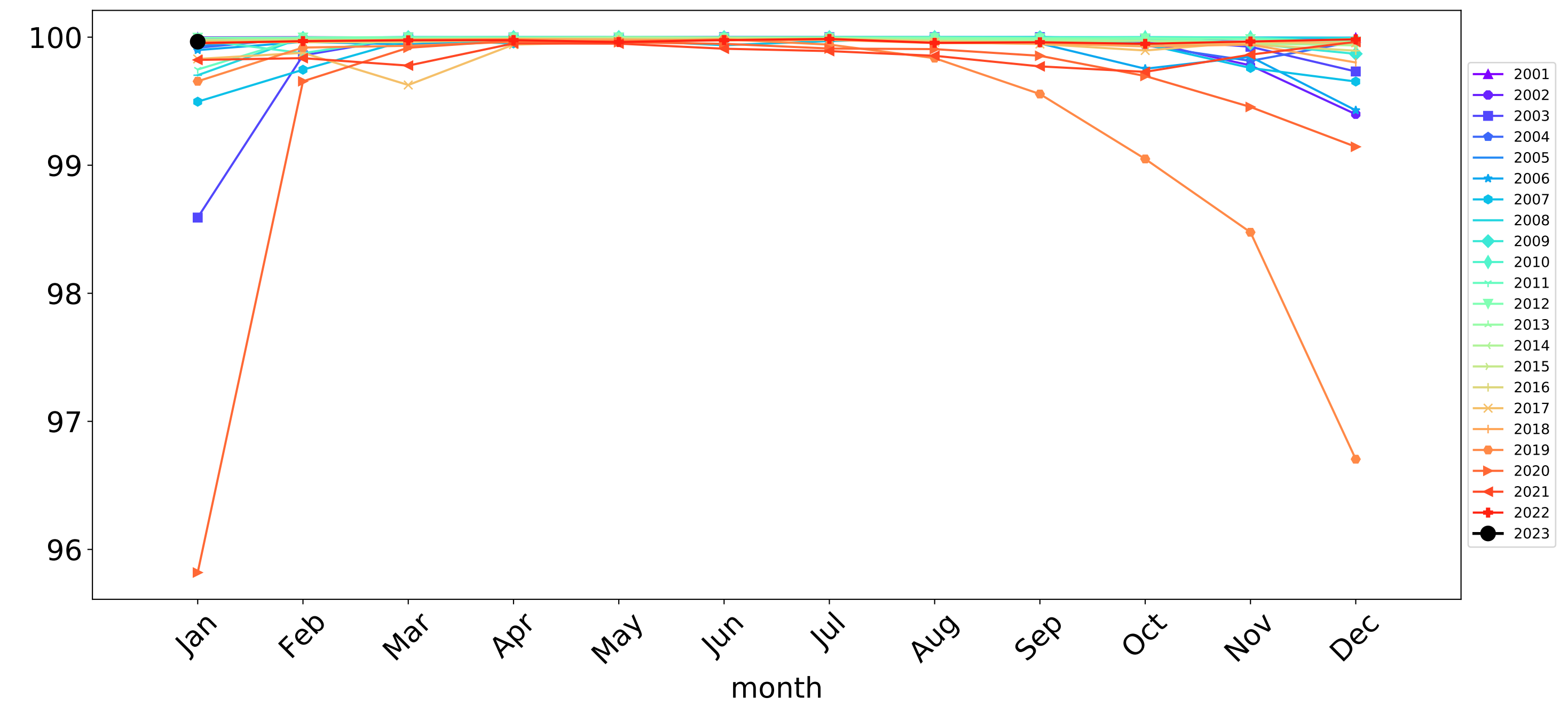


# Grazing non forest timeseries

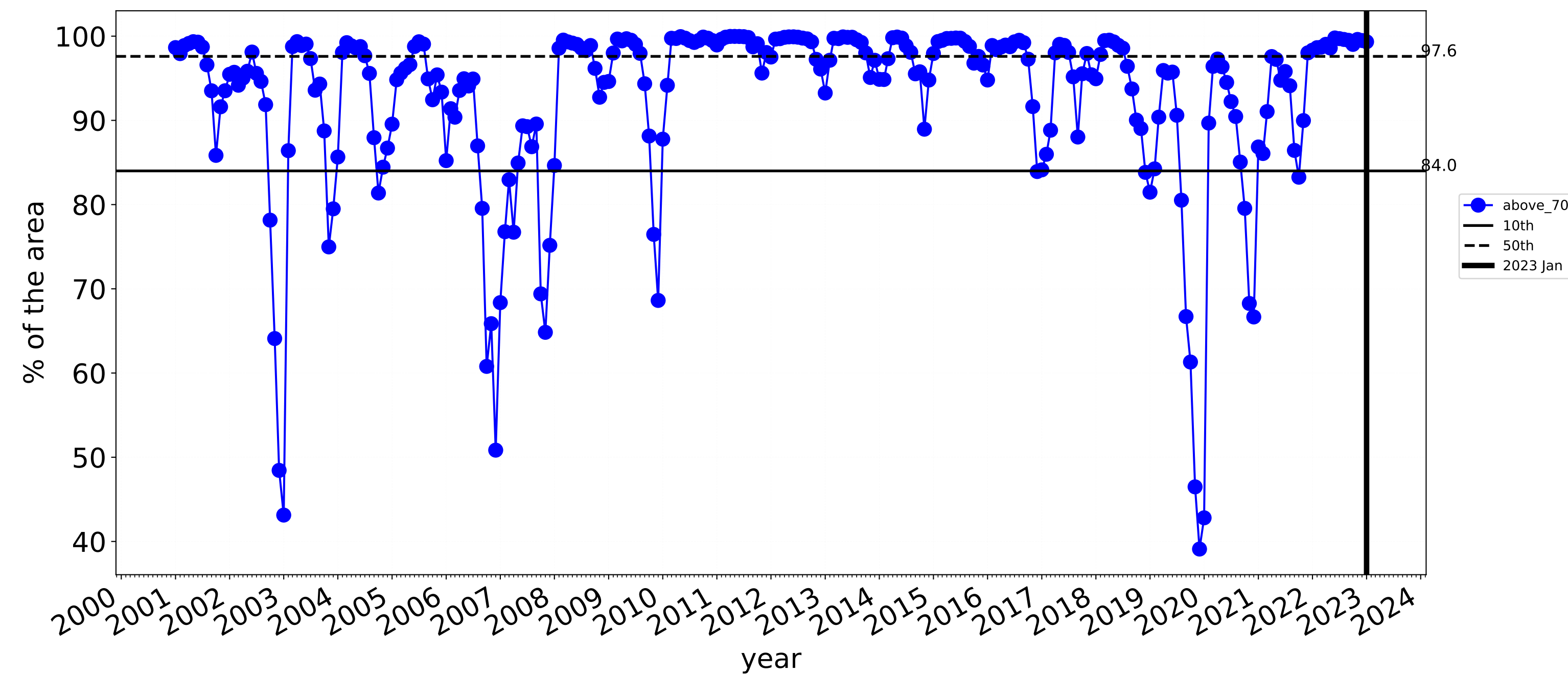
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



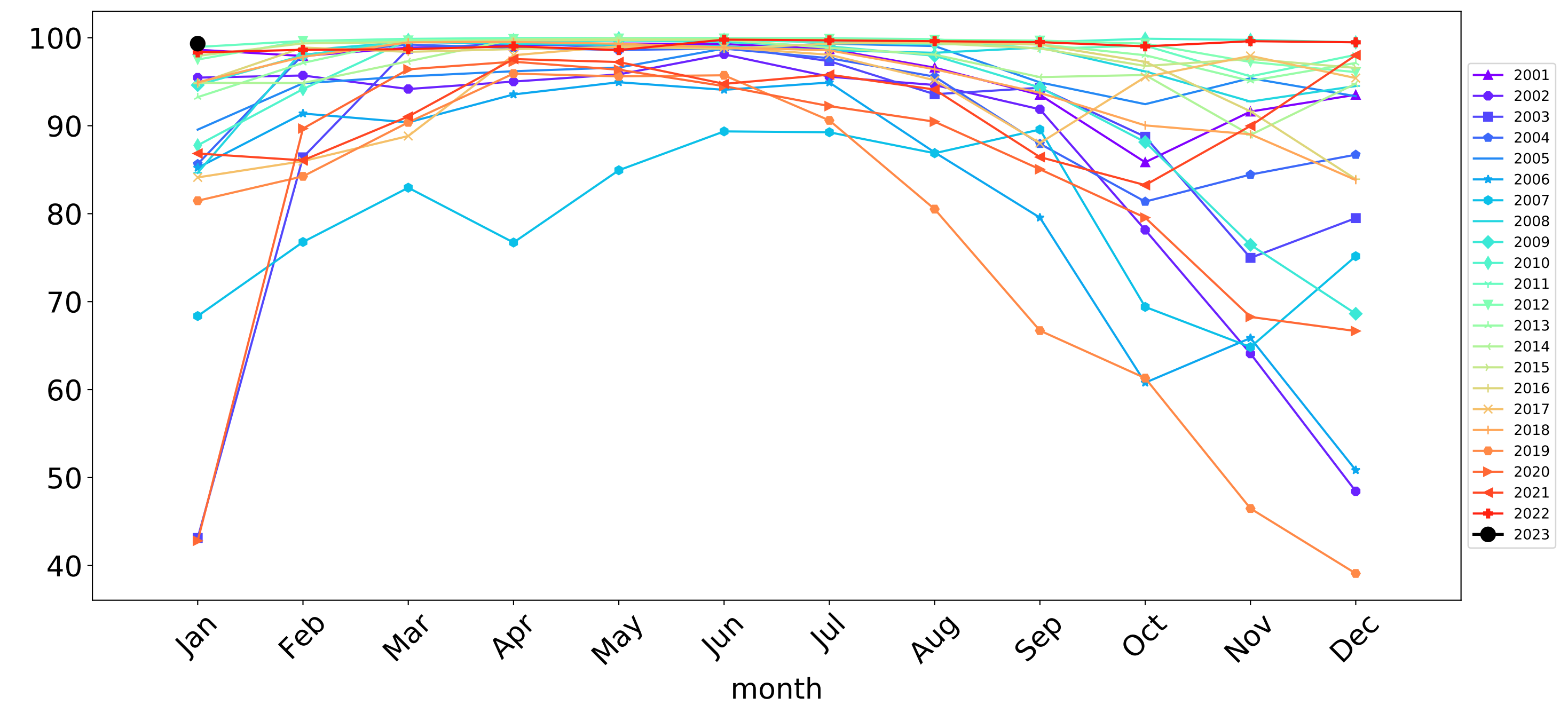
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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

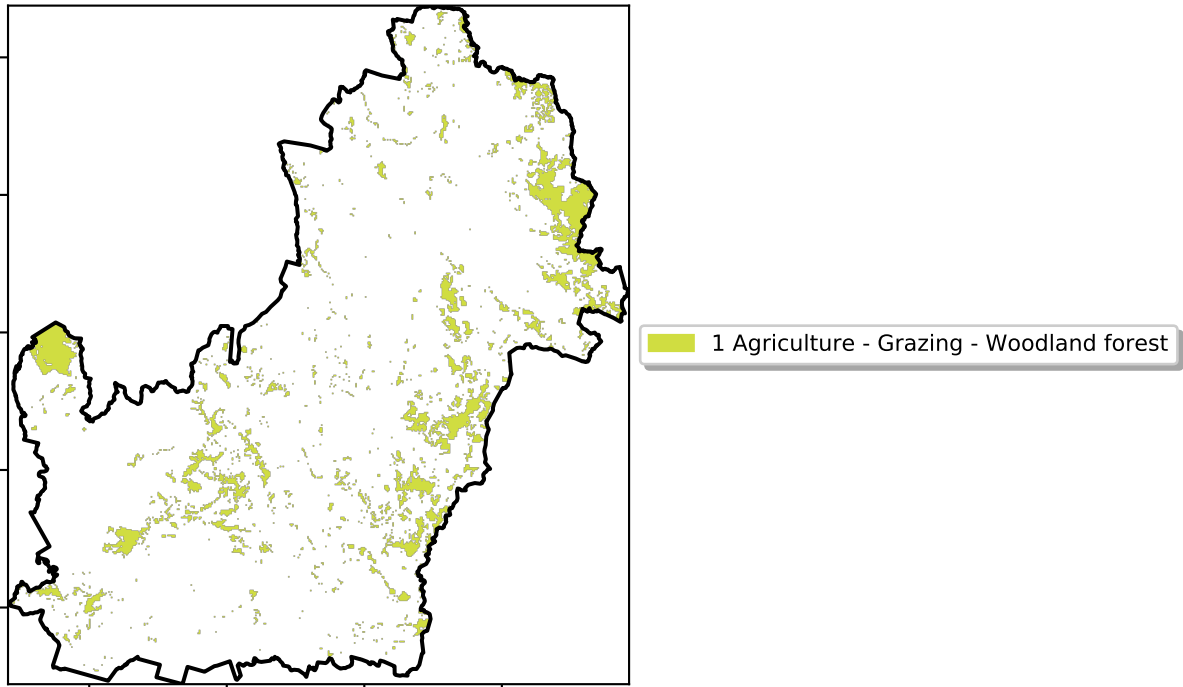


Water erosion historical monthly area protected (Total Veg Cov>70%)

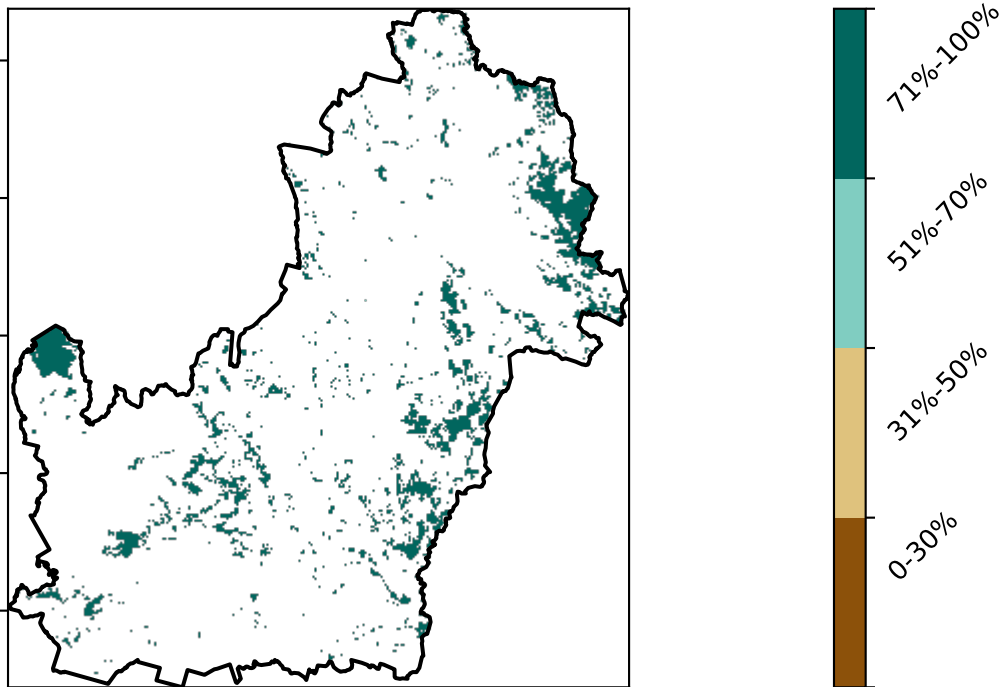


Grazing Woodland forest

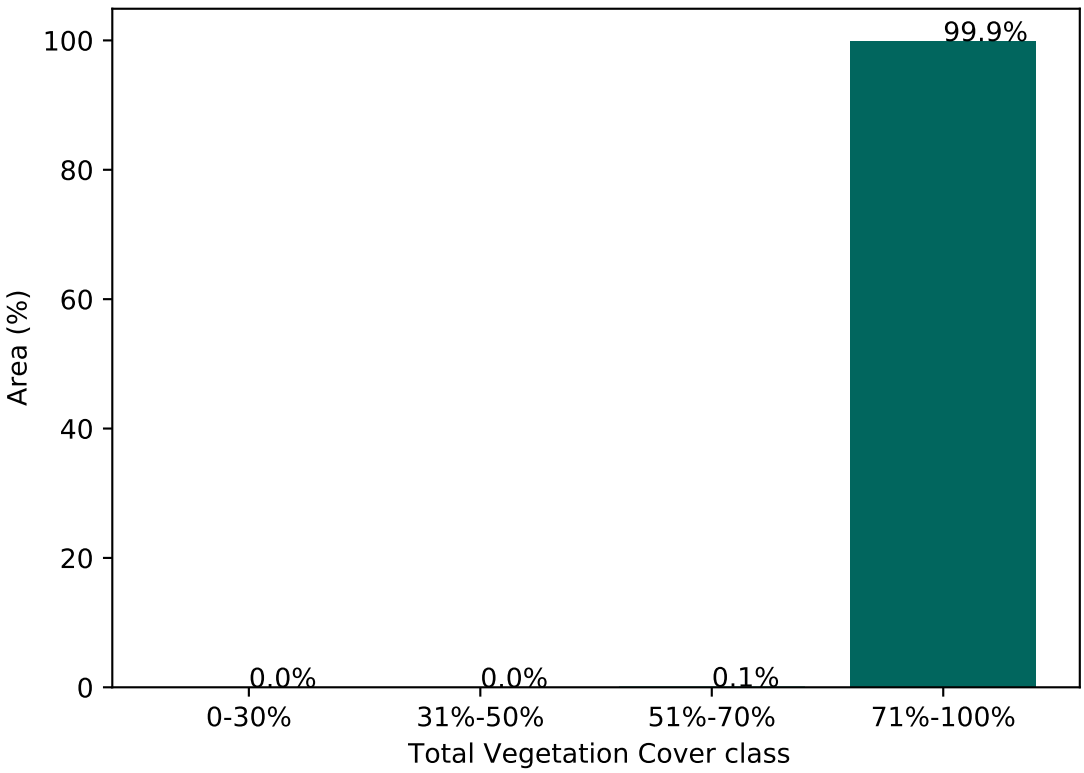
Land use and forest cover



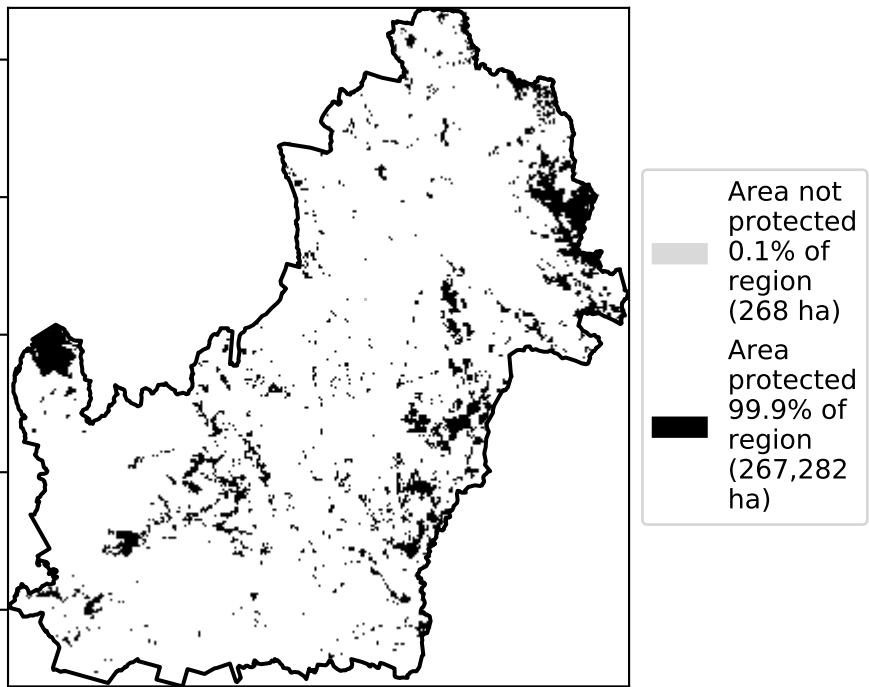
Total Vegetation Cover [%]



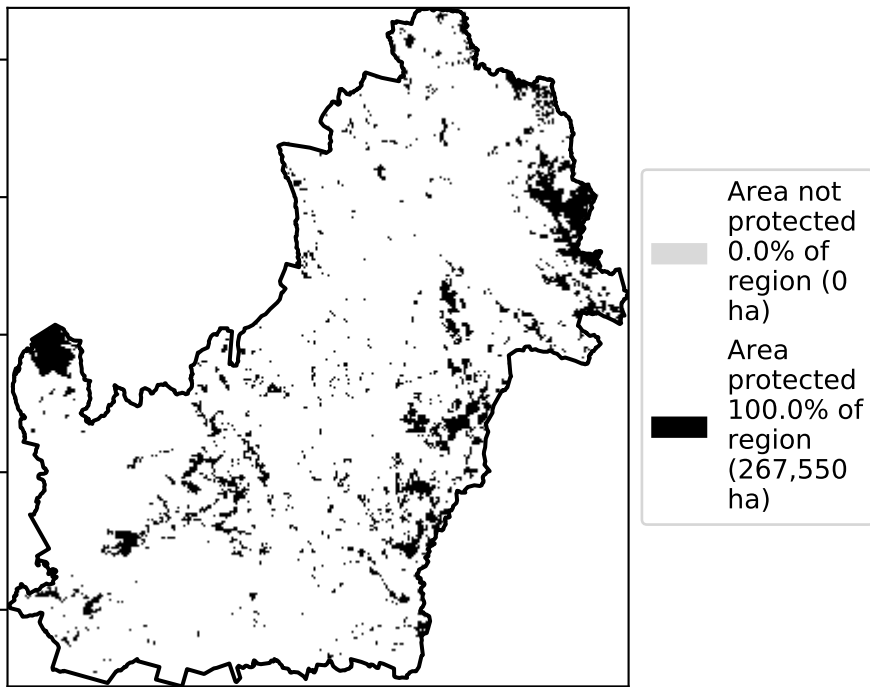
Proportion of vegetation cover class in area



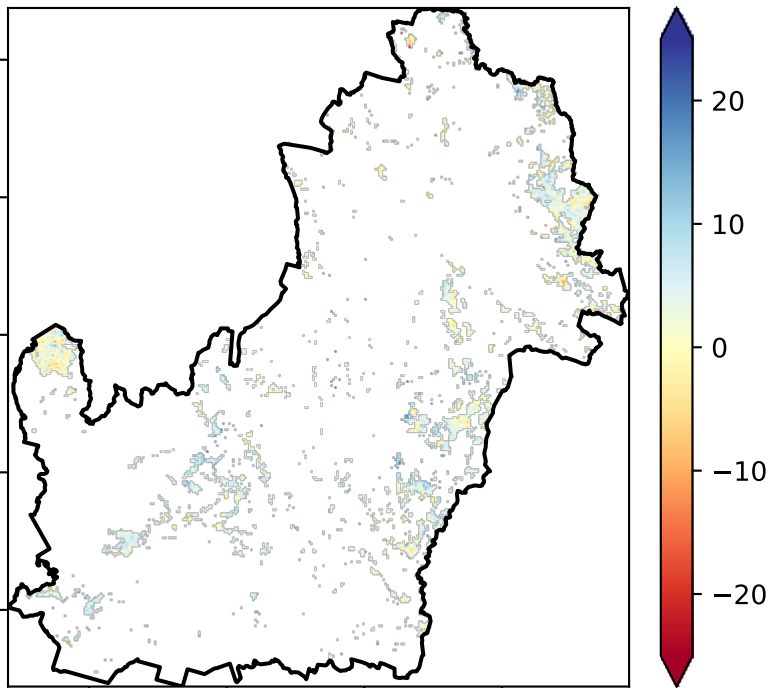
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



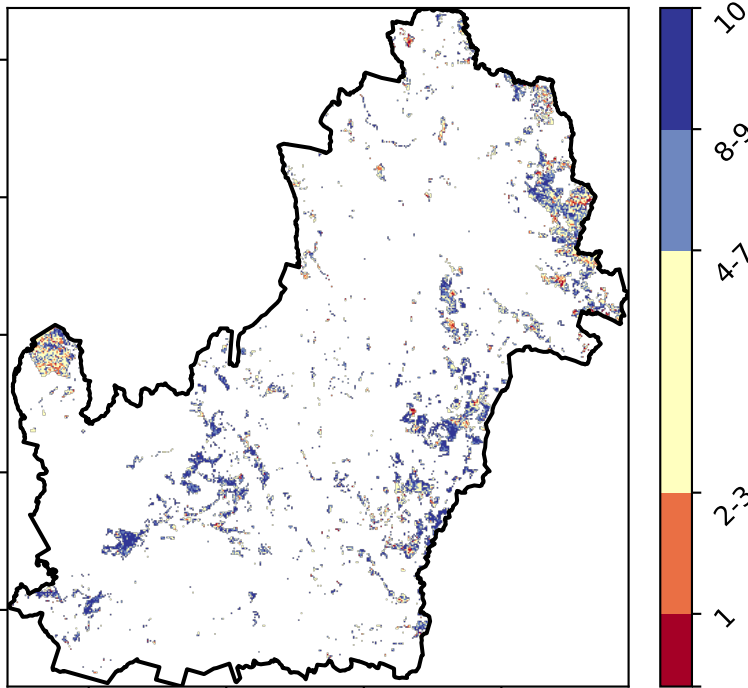
Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]



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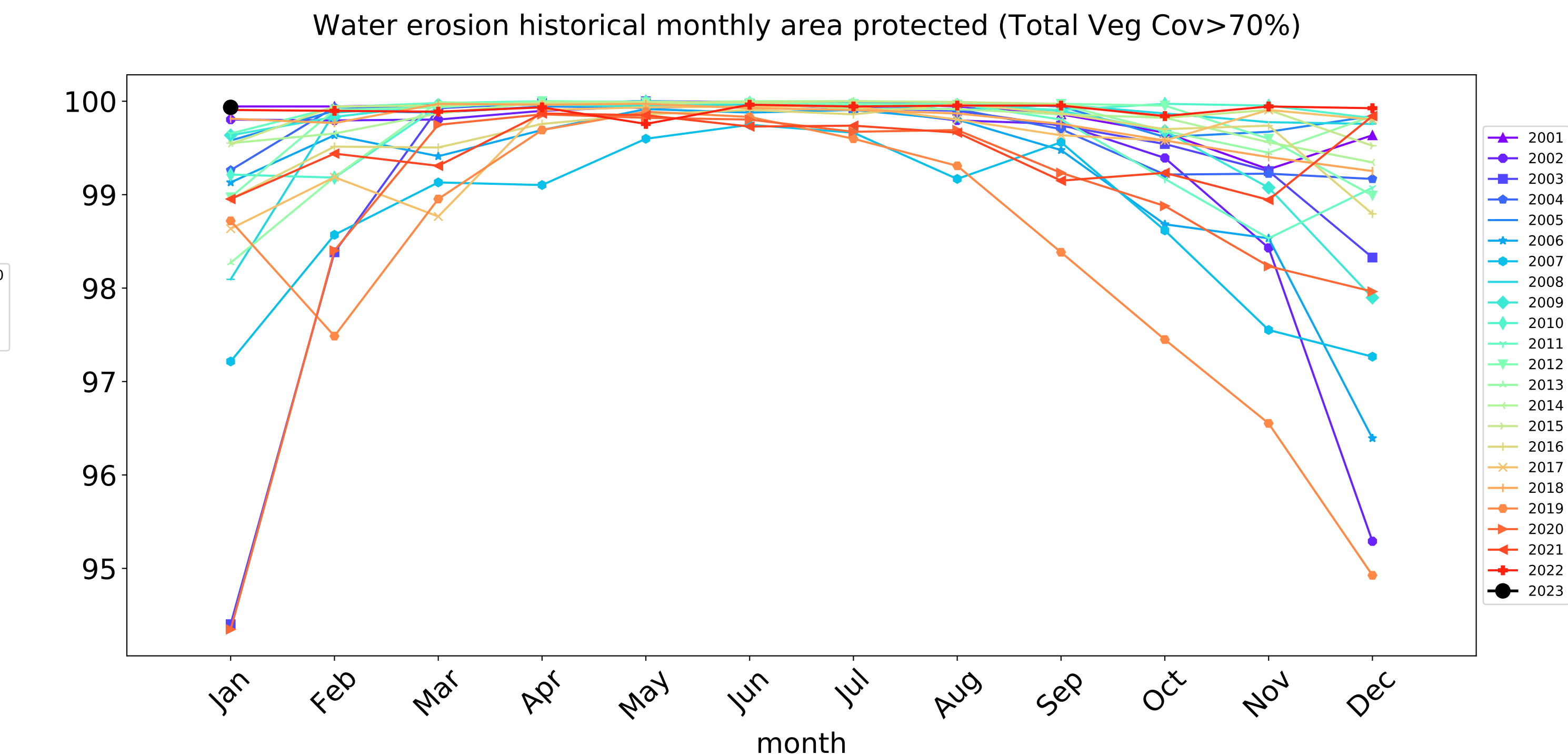
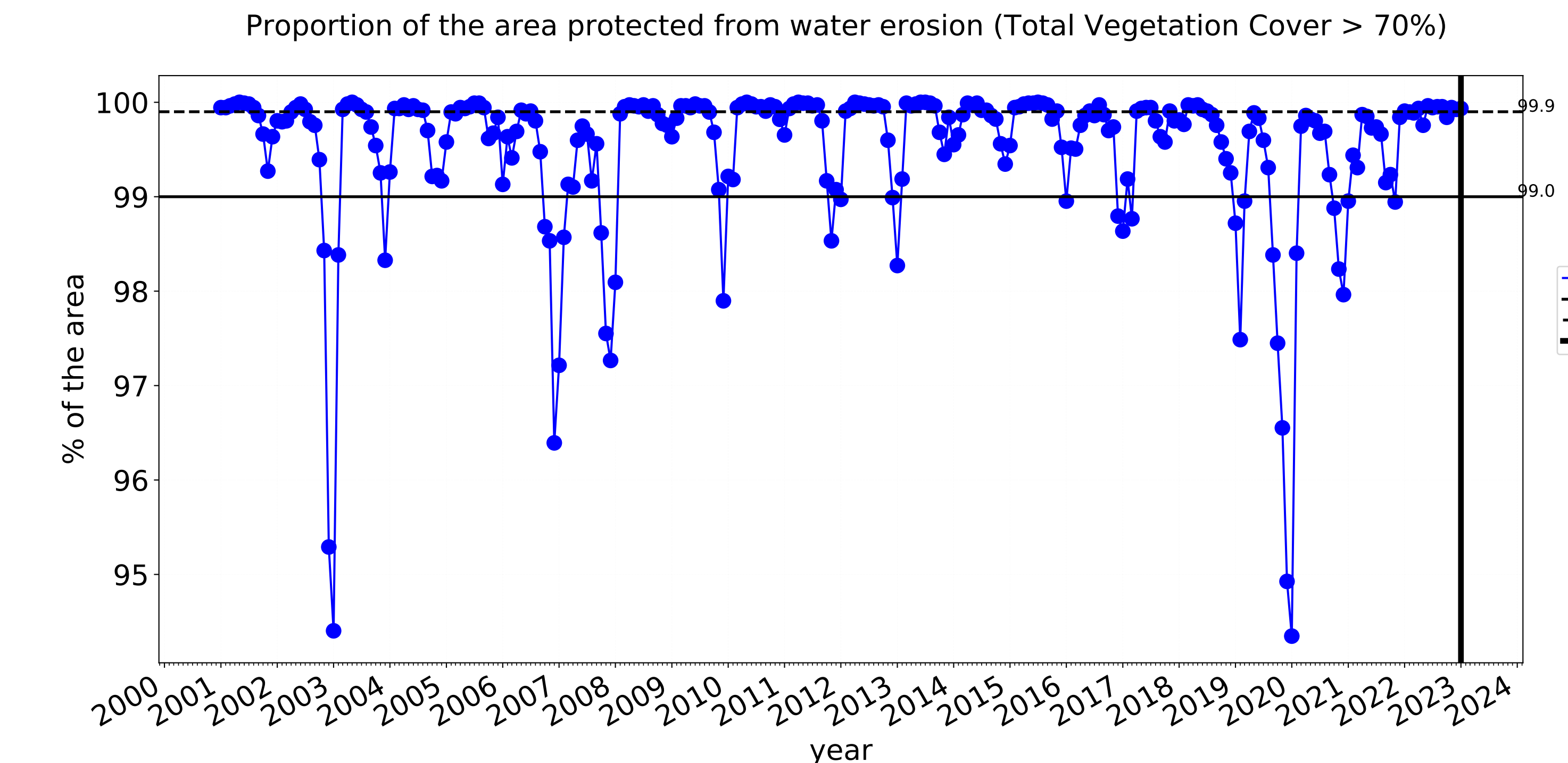
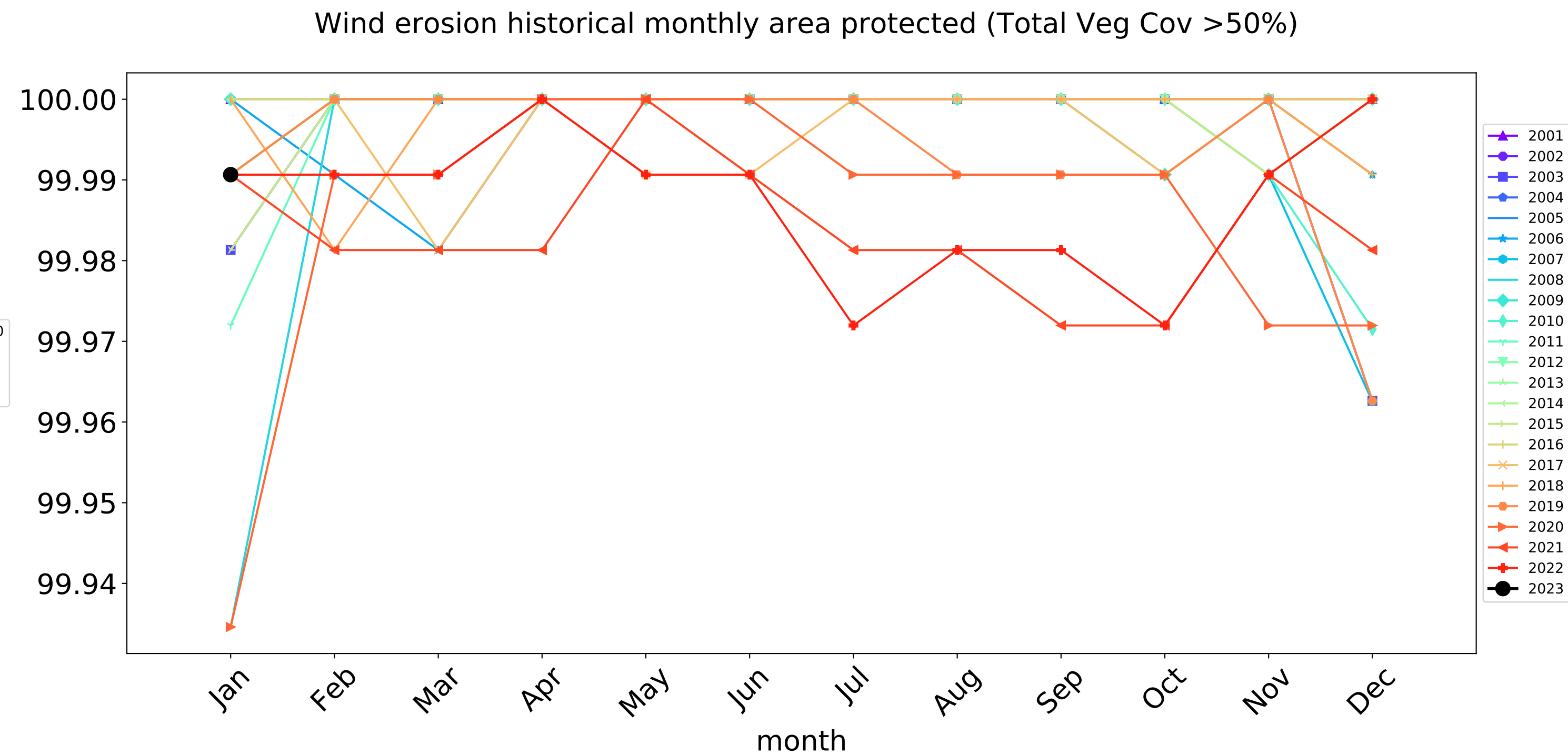
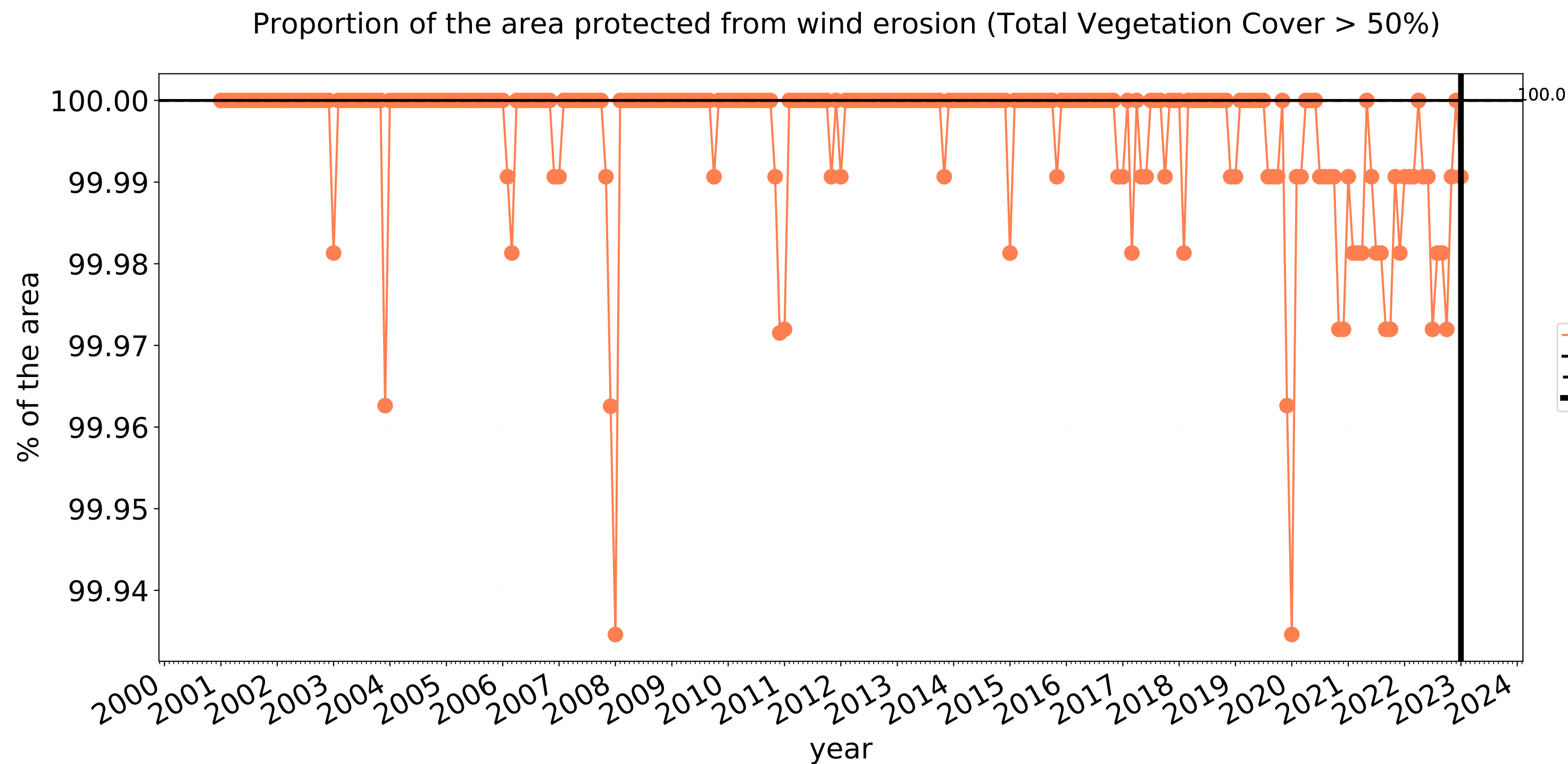
Australian Government

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Landcare  
Programme





Grazing Woodland forest timeseries



# Grazing - Forest (non woodland)

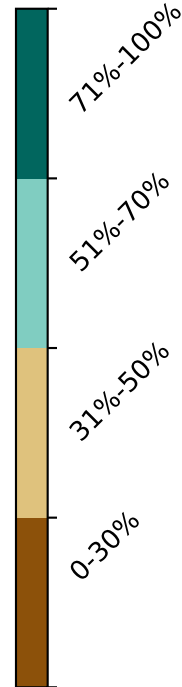
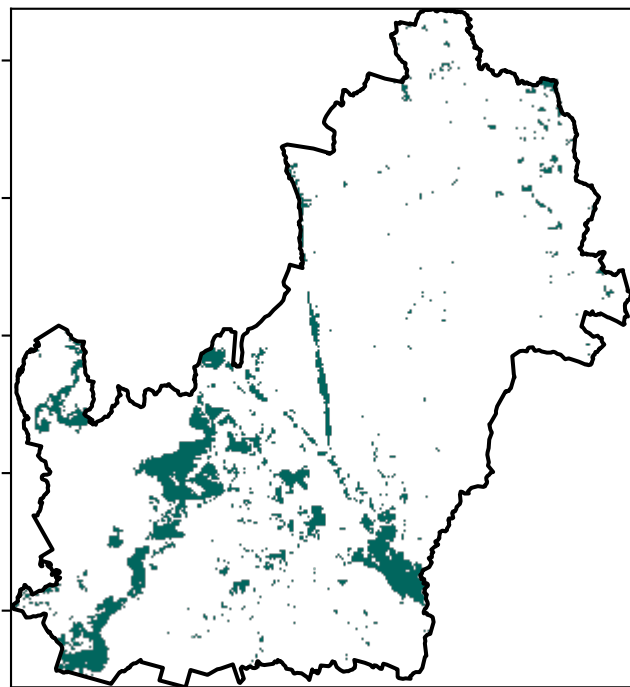
Land use and forest cover



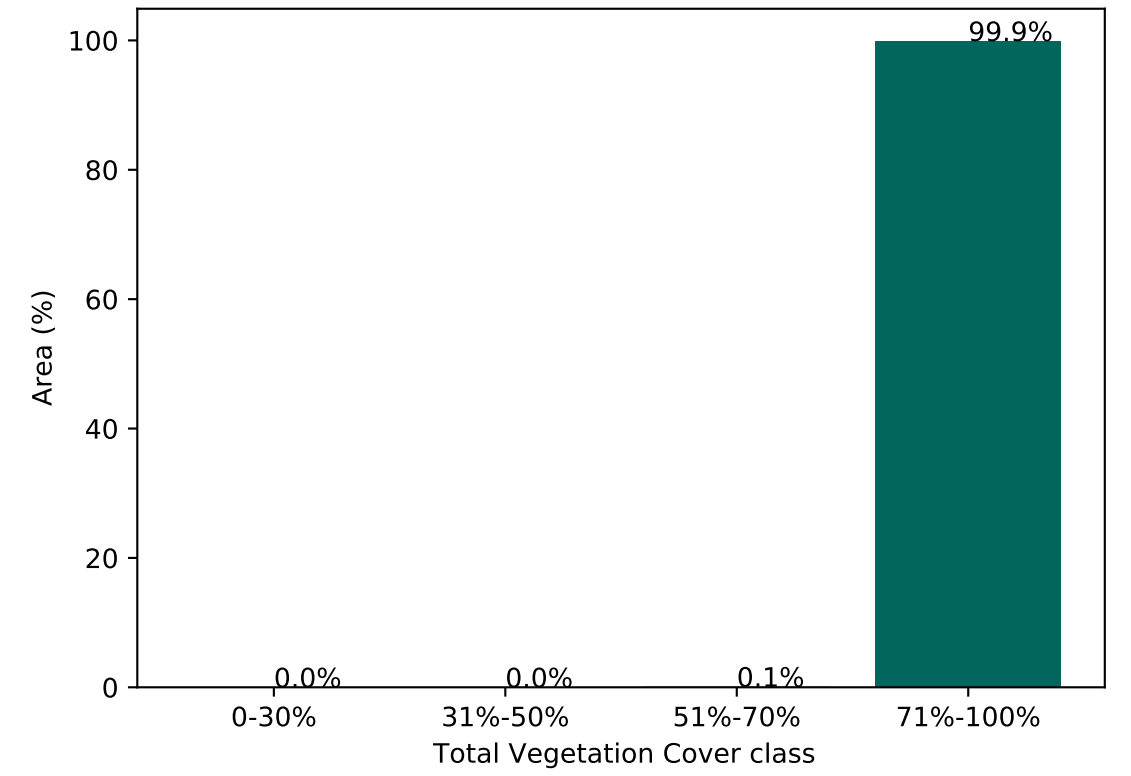
Catchment Scale  
Land Use and Forests  
of Australia (2018)  
Derived from  
Catchment Scale Land  
Use of Australia  
(2018) and Forests  
of Australia (2018)

1 Agriculture - Grazing - Non-woodland forest

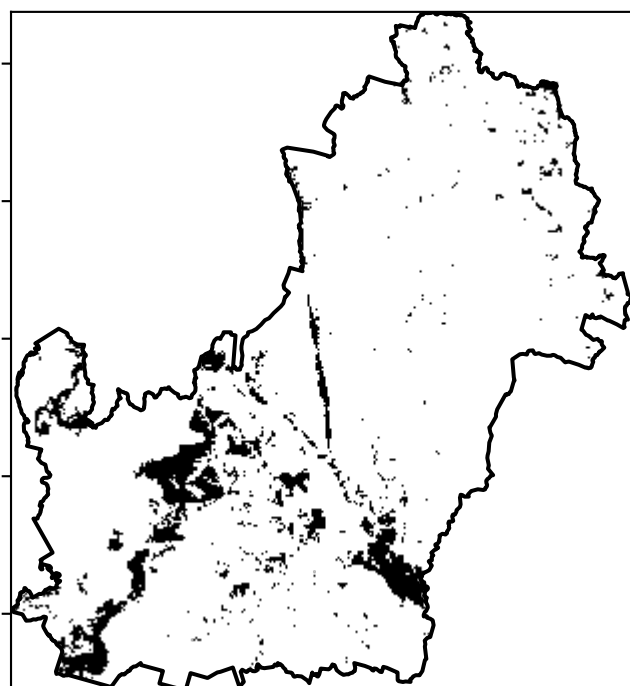
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

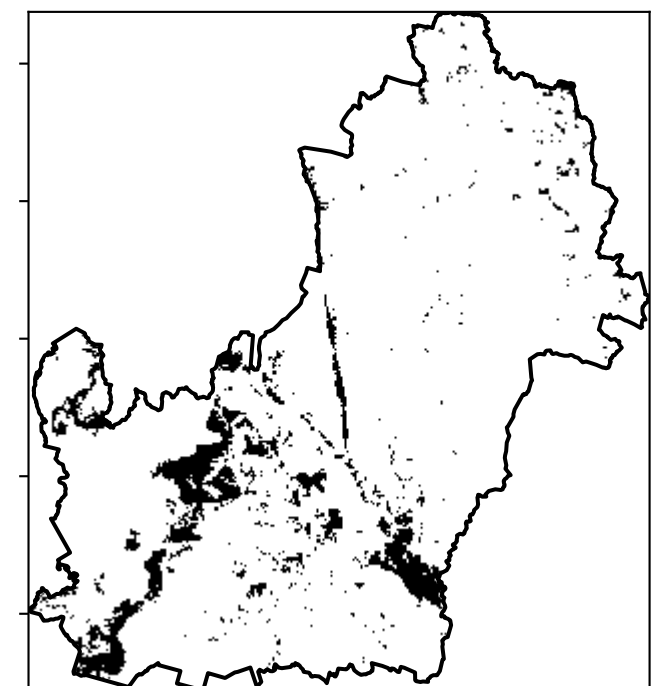


% Area protected from water erosion (>70%)



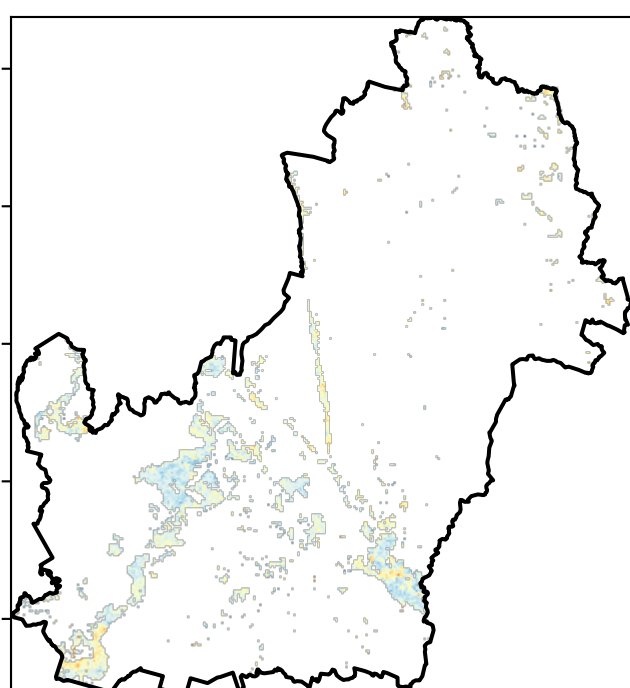
Area not protected  
0.1% of region  
(246 ha)  
Area protected  
99.9% of region  
(245,754 ha)

% Area protected from wind erosion (>50%)

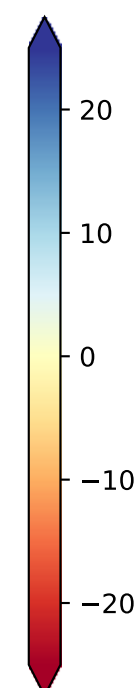


Area protected  
100.0% of region  
(246,000 ha)

Total Vegetation Cover Anomaly [%]

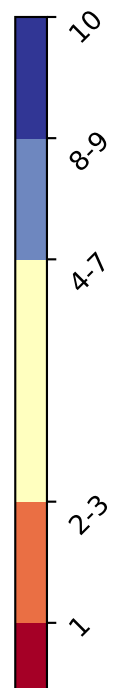
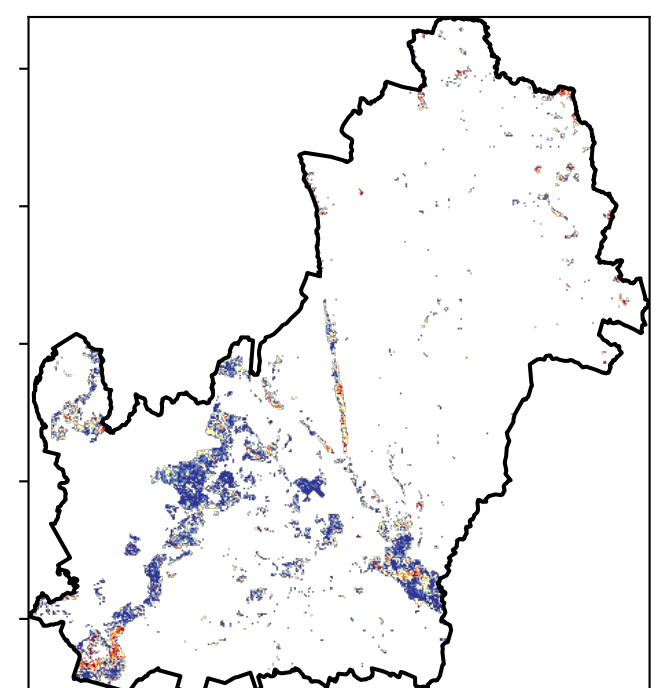


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Total Vegetation Cover Decile [%]



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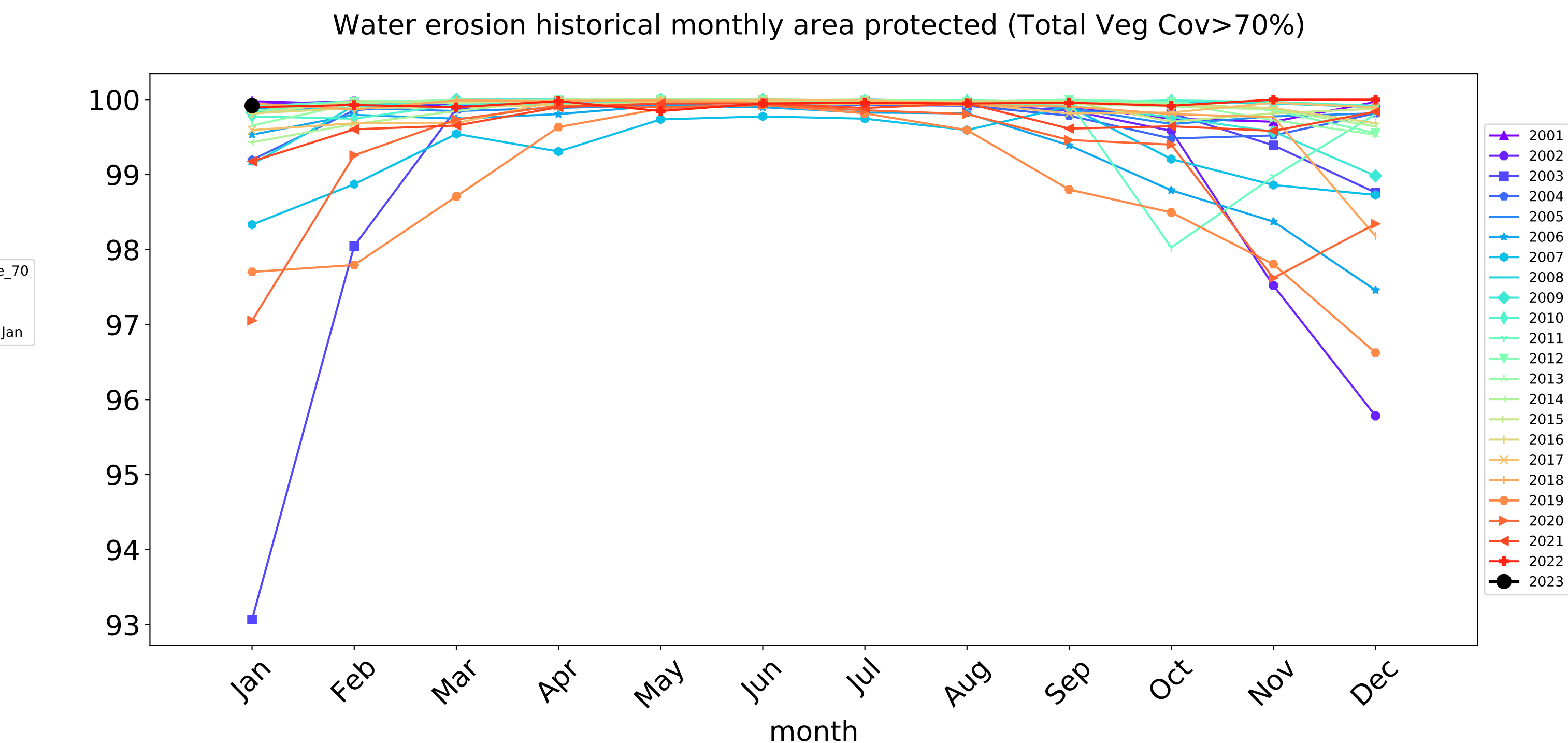
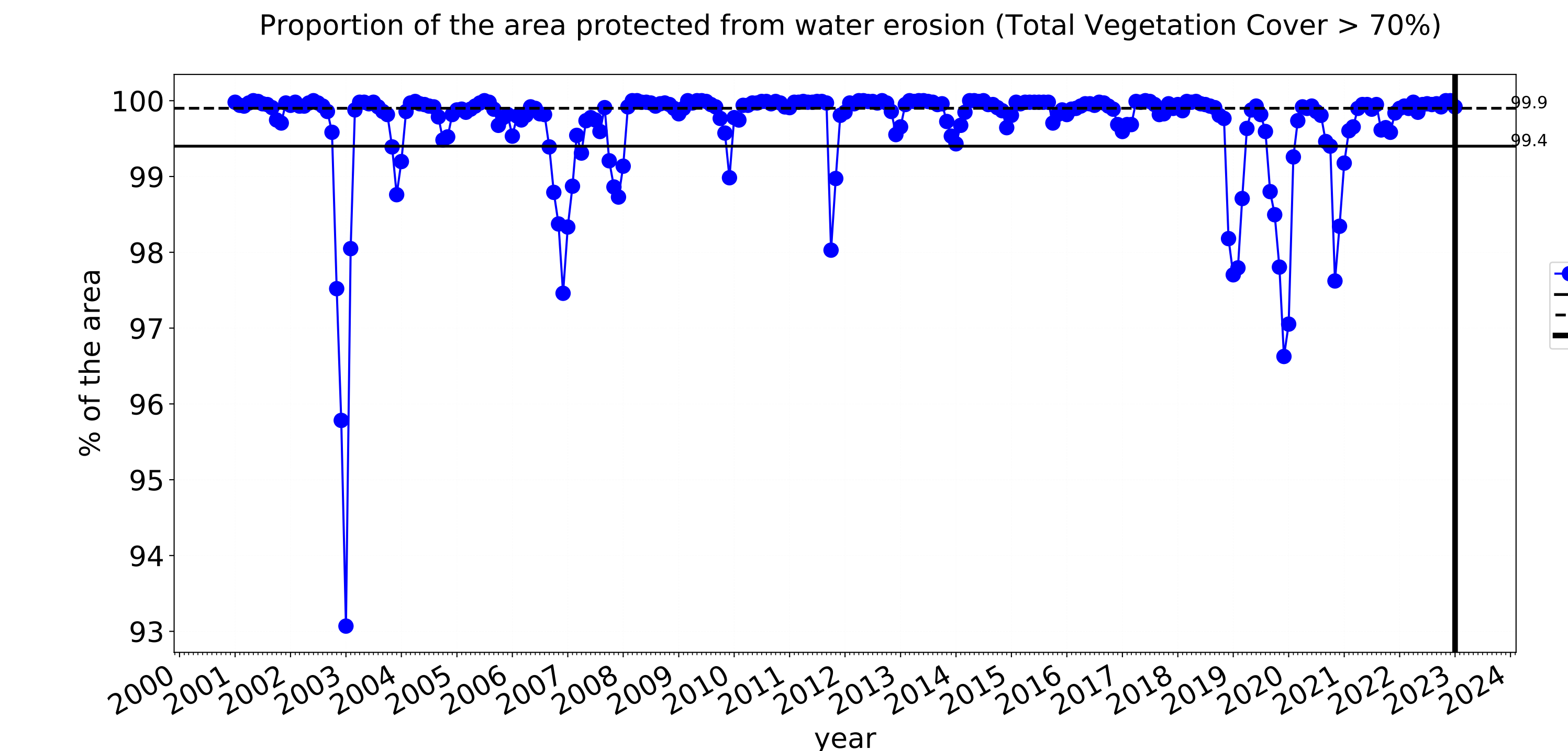
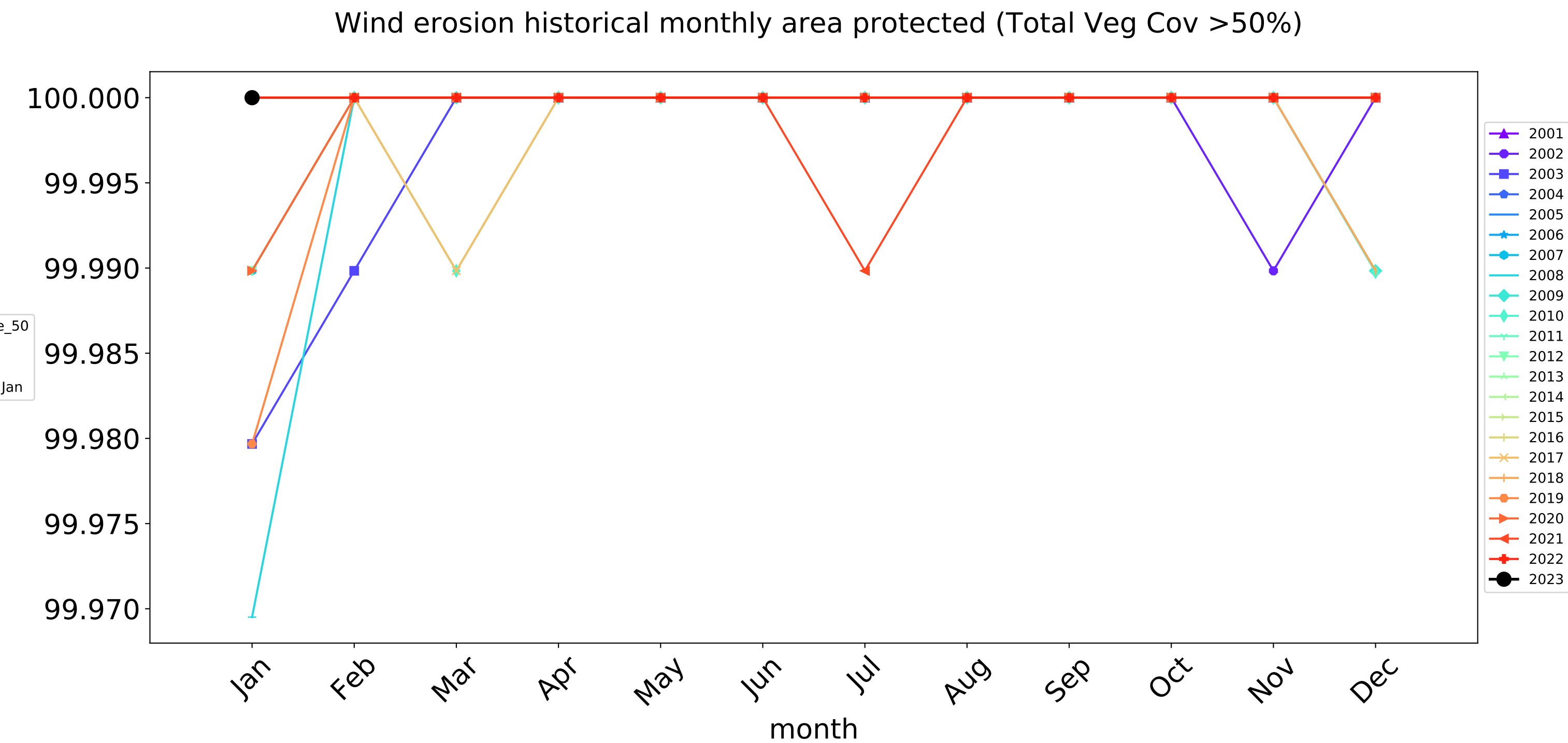
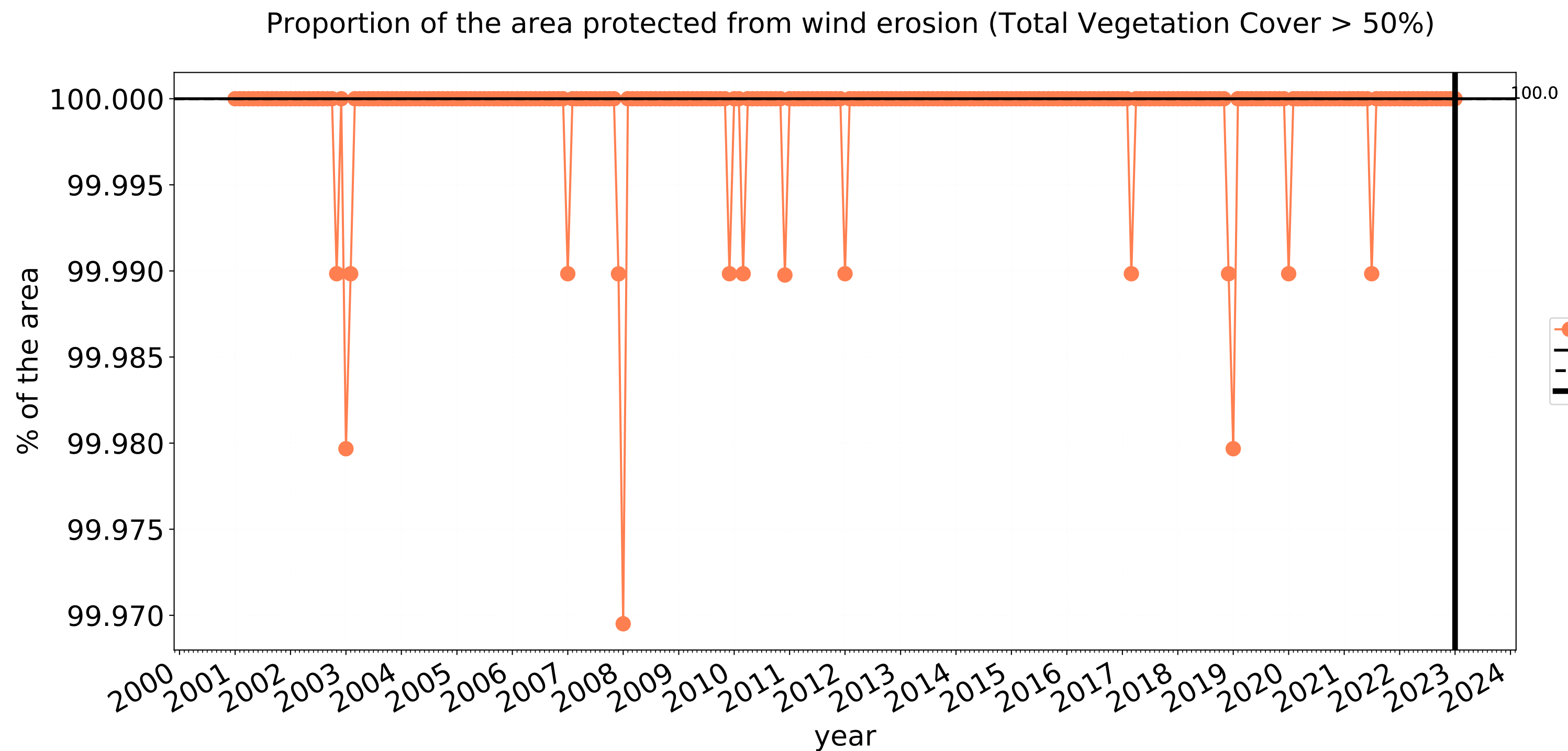
Australian Government

National  
Landcare  
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Grazing - Forest (non woodland) timeseries



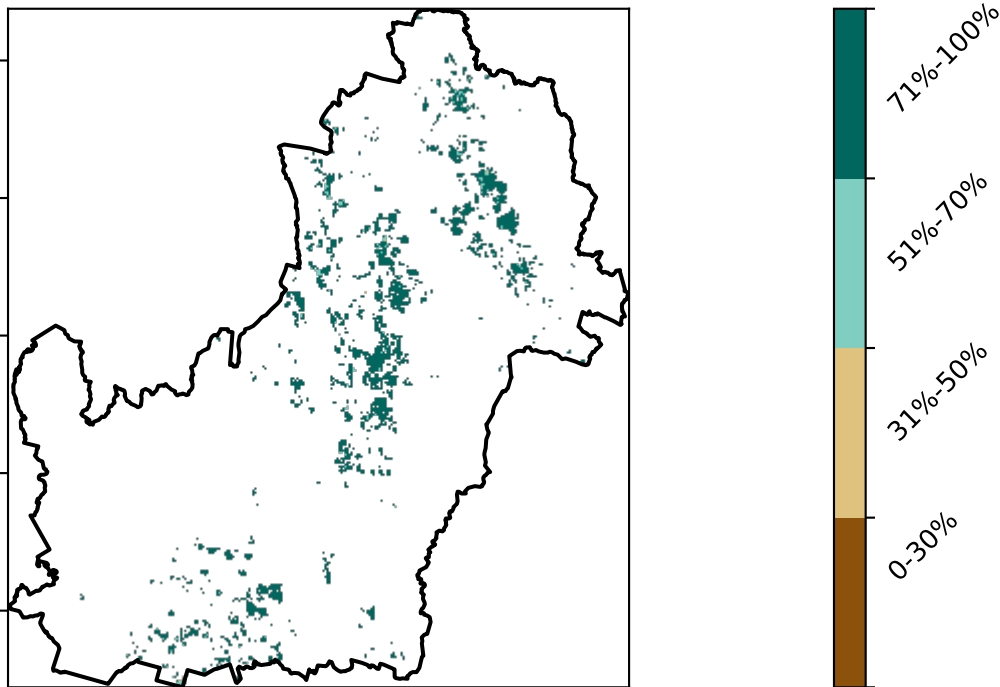
Cropping

Land use and forest cover

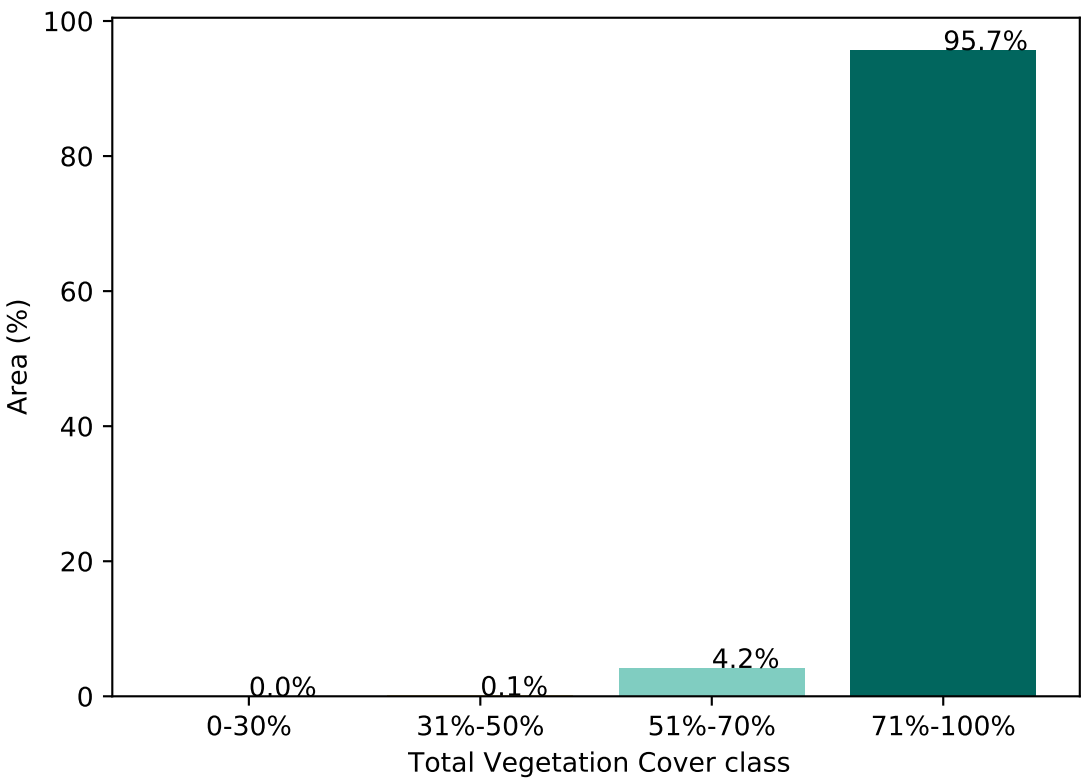
Catchment Scale  
Land Use and Forests  
of Australia (2018)  
Derived from  
Catchment Scale Land  
Use of Australia  
(2018) and Forests  
of Australia (2018)



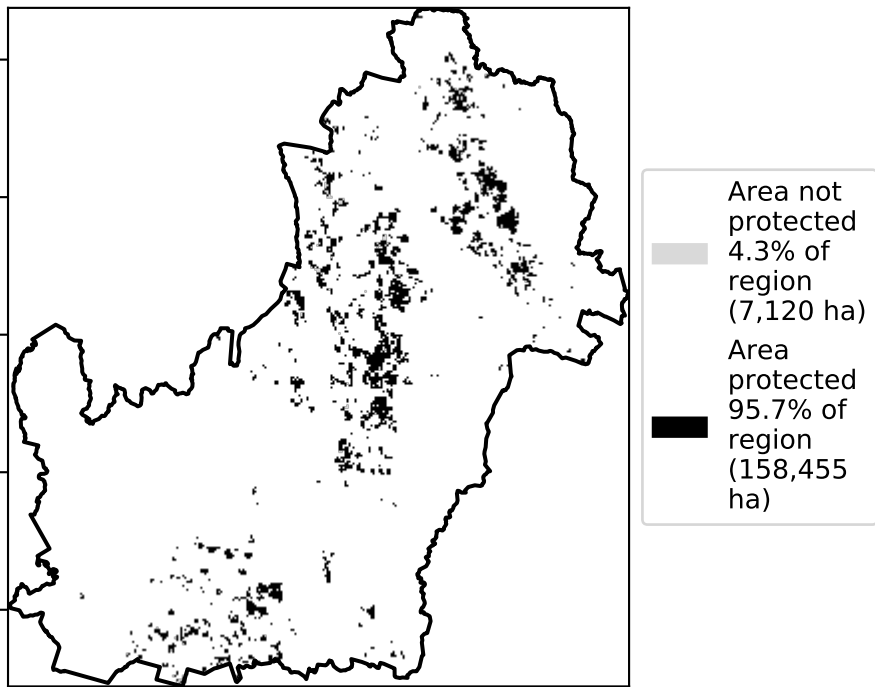
Total Vegetation Cover [%]



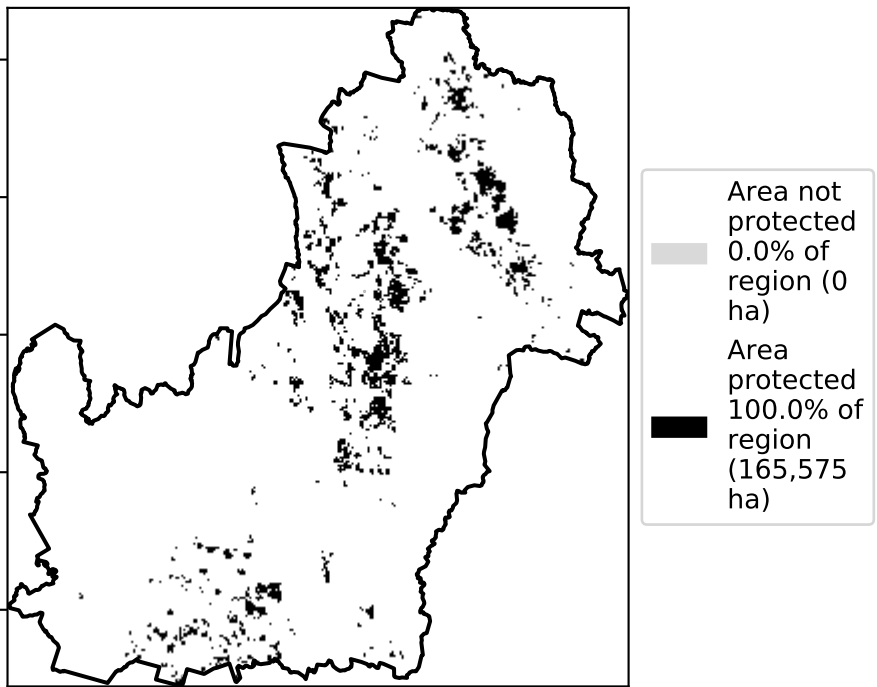
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

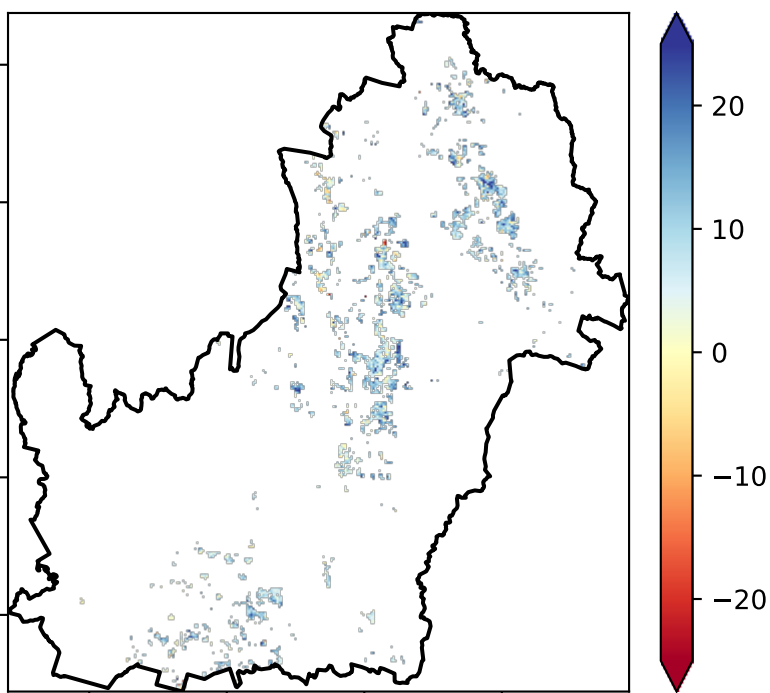


% Area protected from wind erosion (>50%)



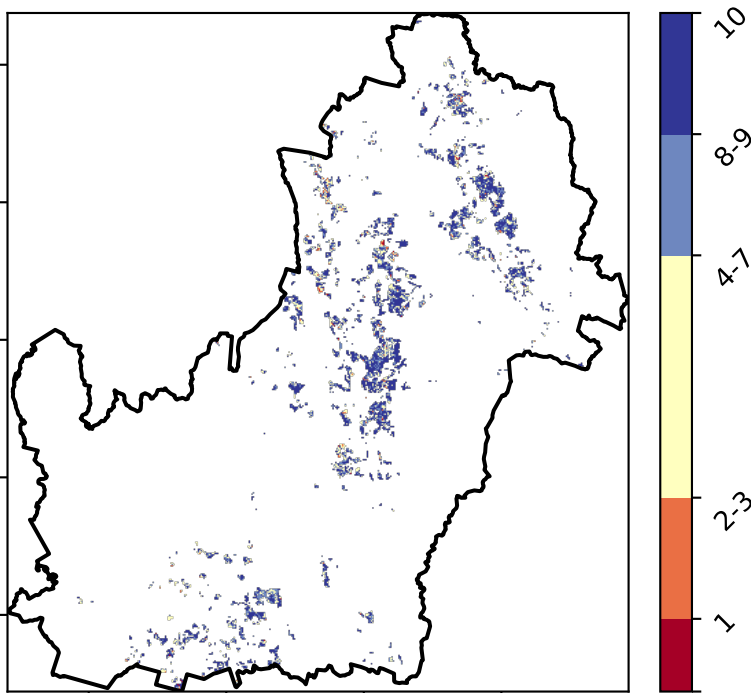
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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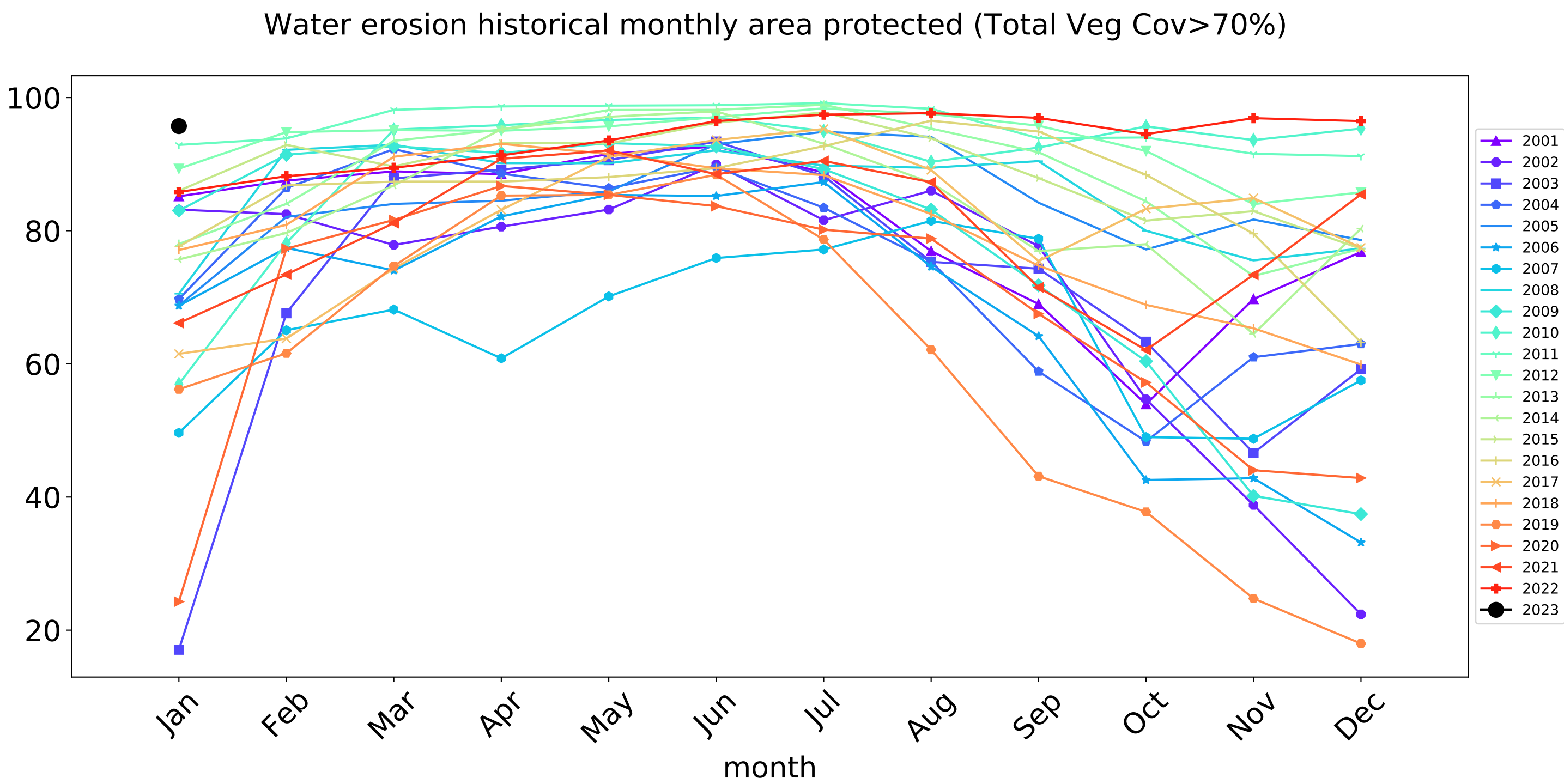
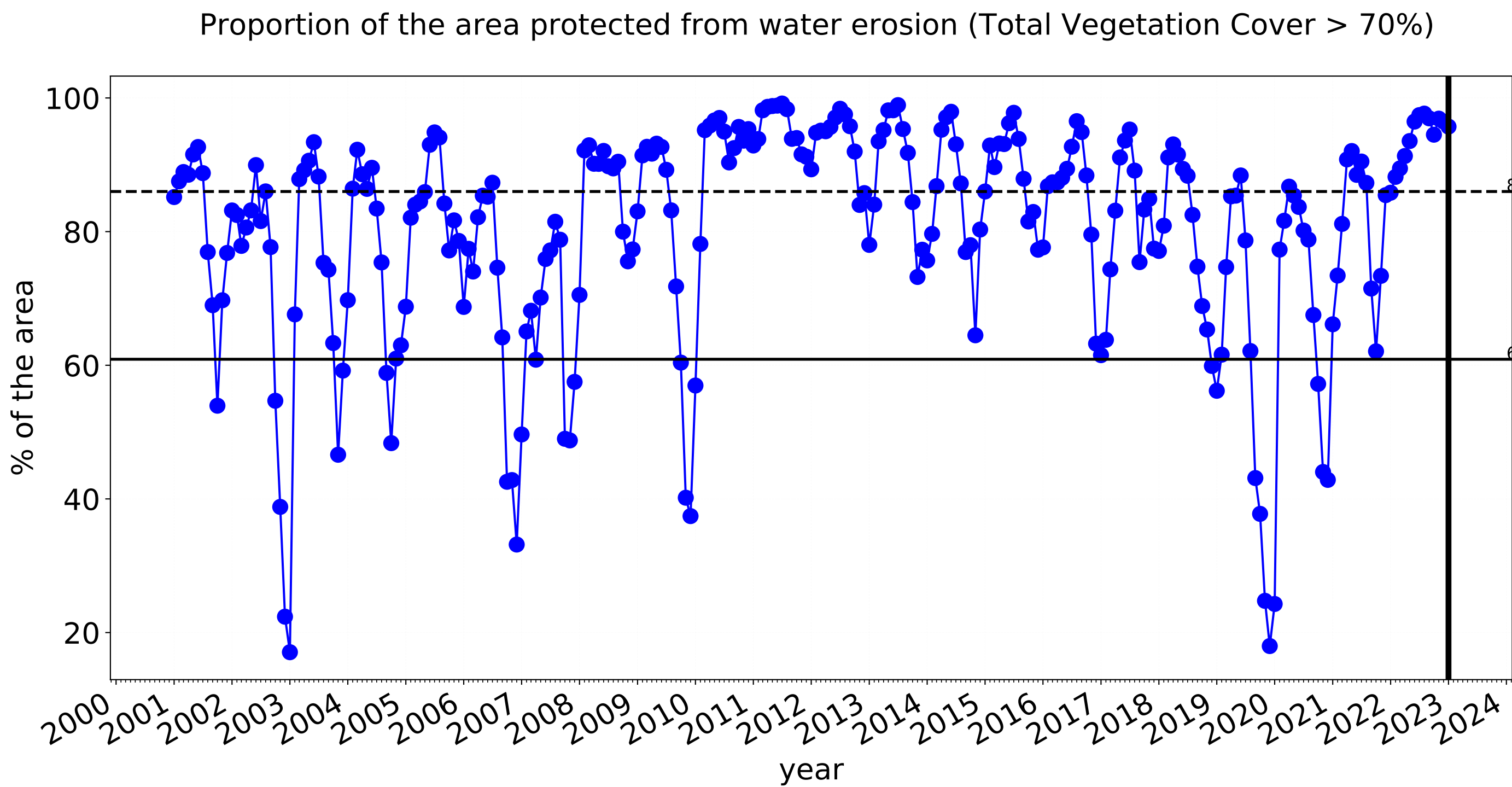
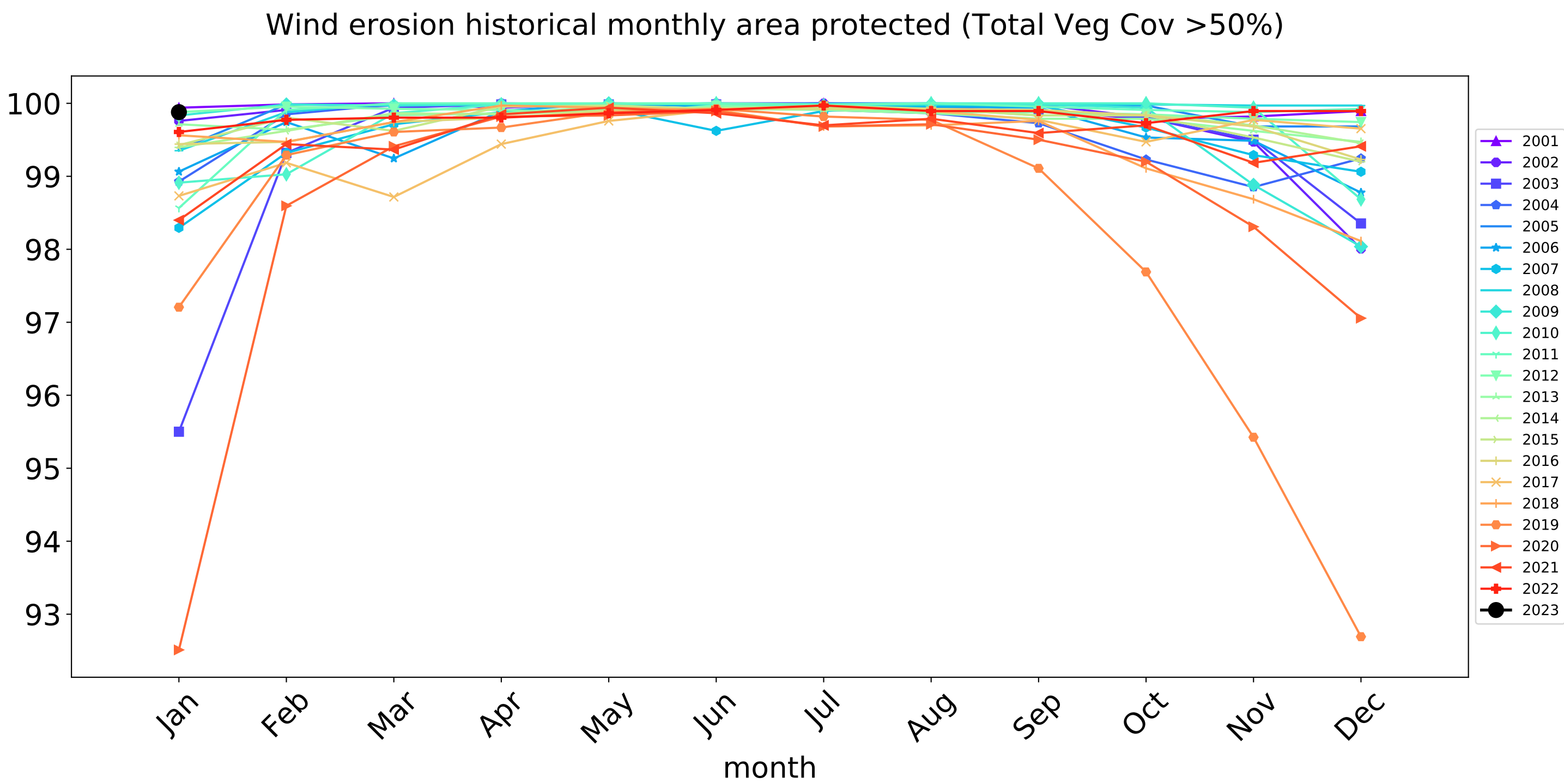
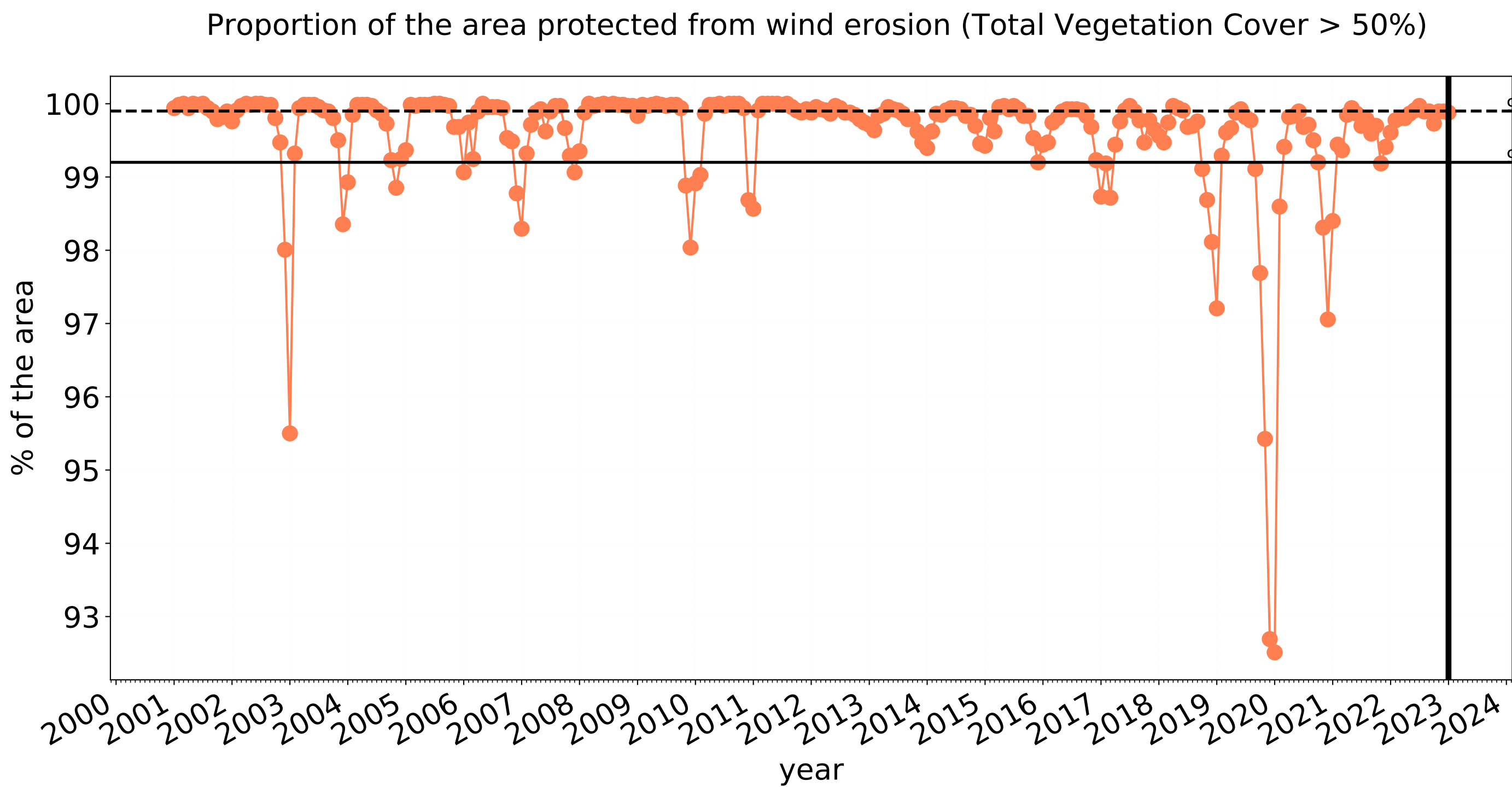
Australian Government

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Landcare  
Programme





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)



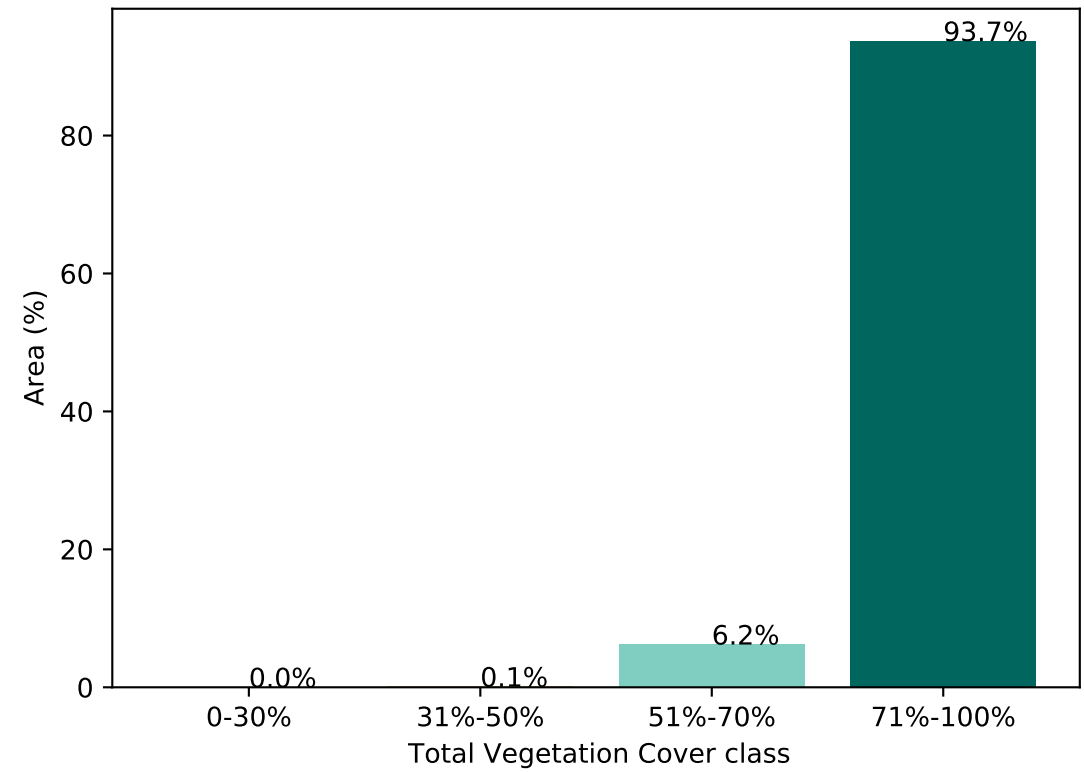
Proportion of each land class in area



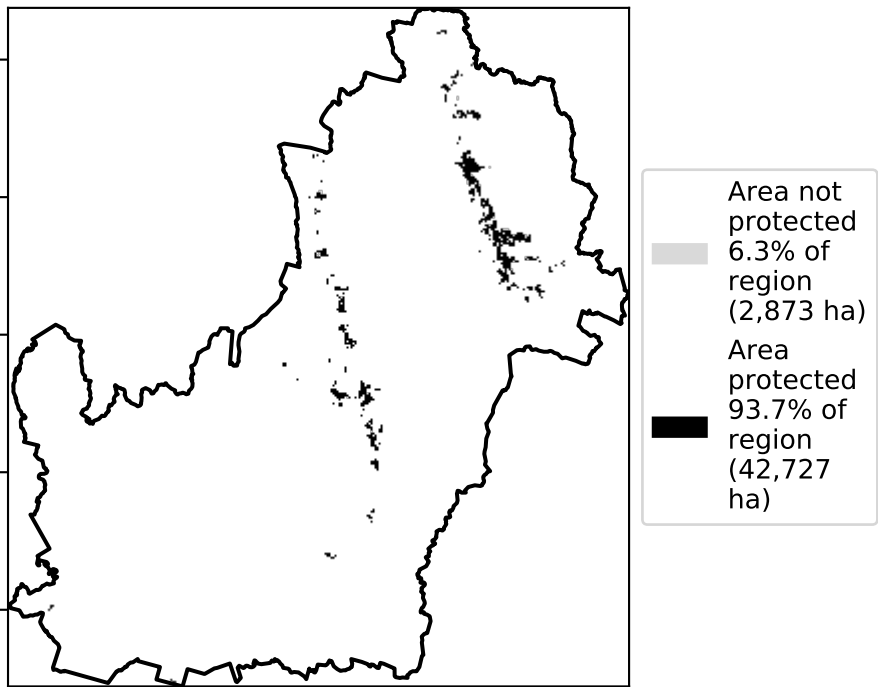
Total Vegetation Cover [%]



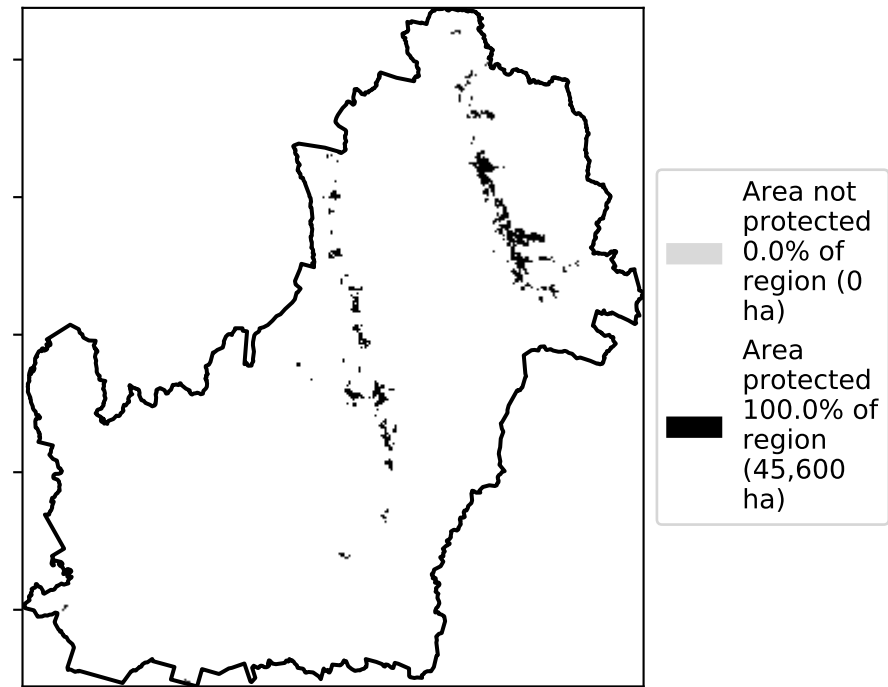
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

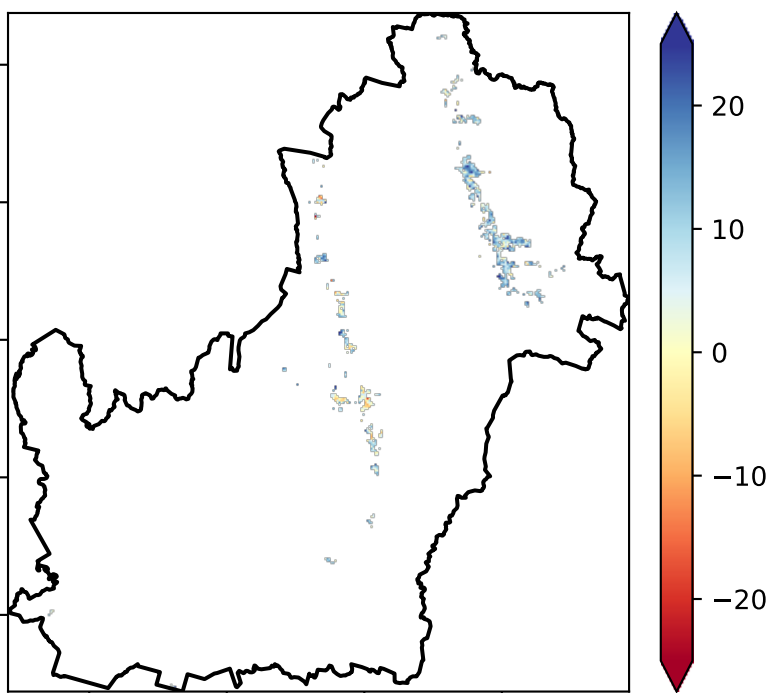


% Area protected from wind erosion (>50%)



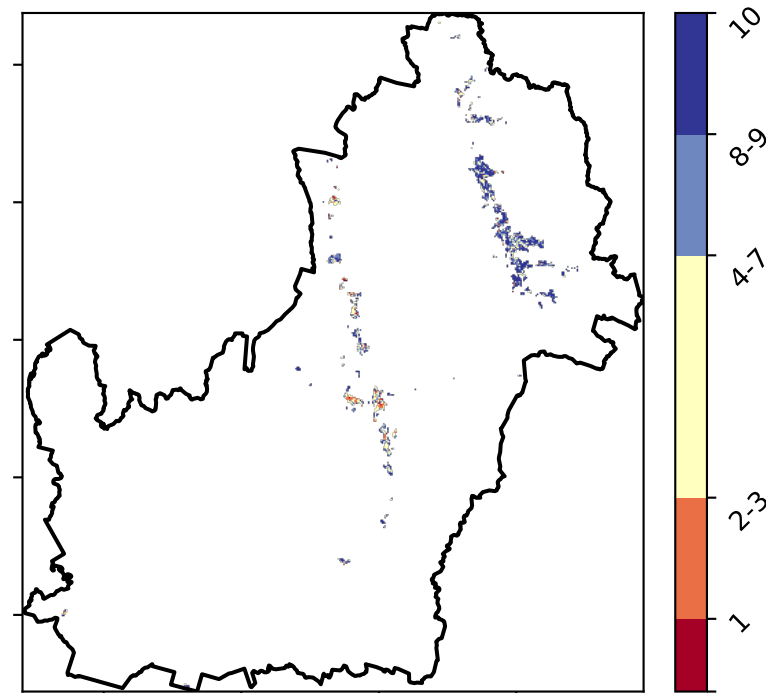
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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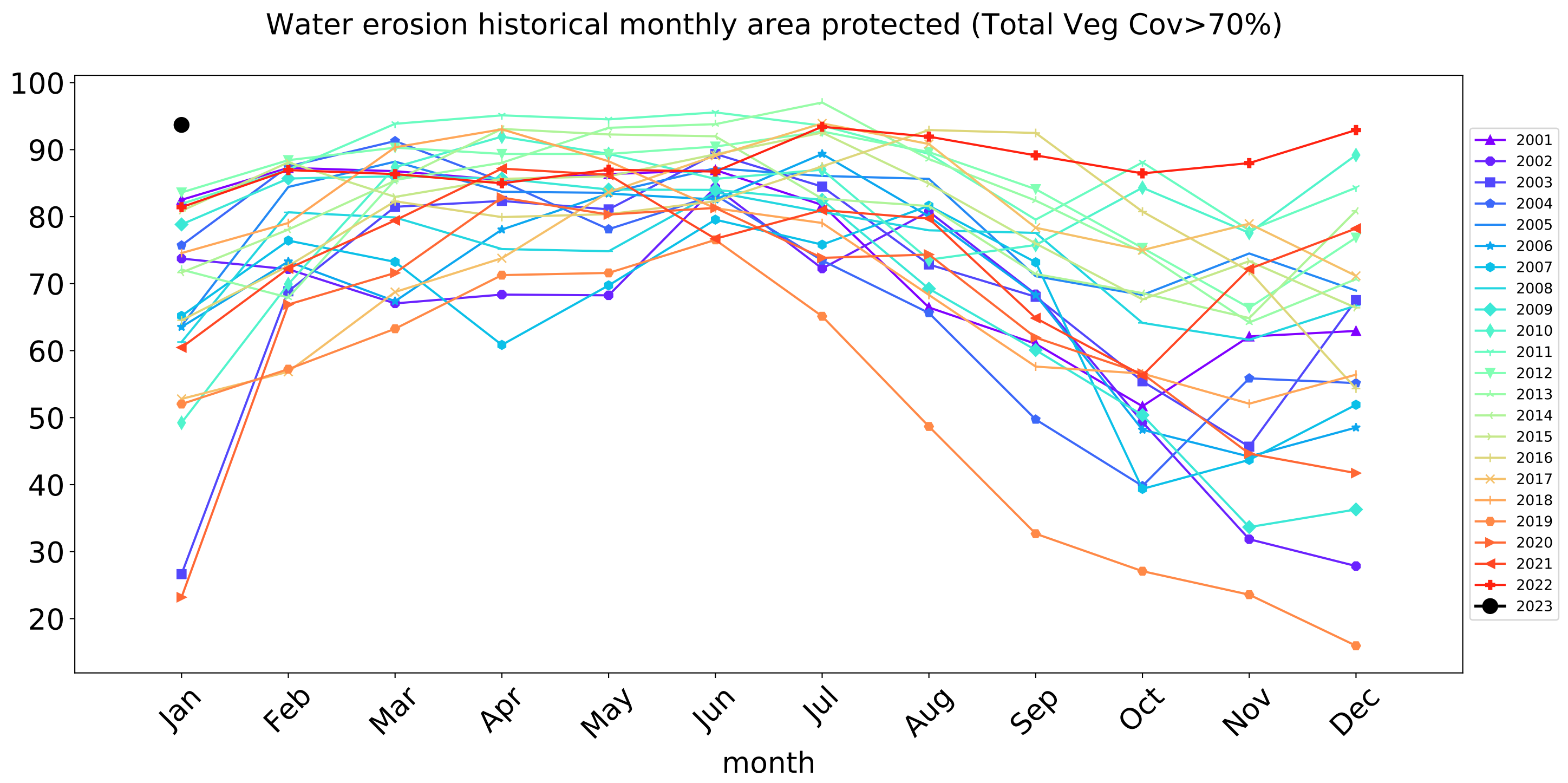
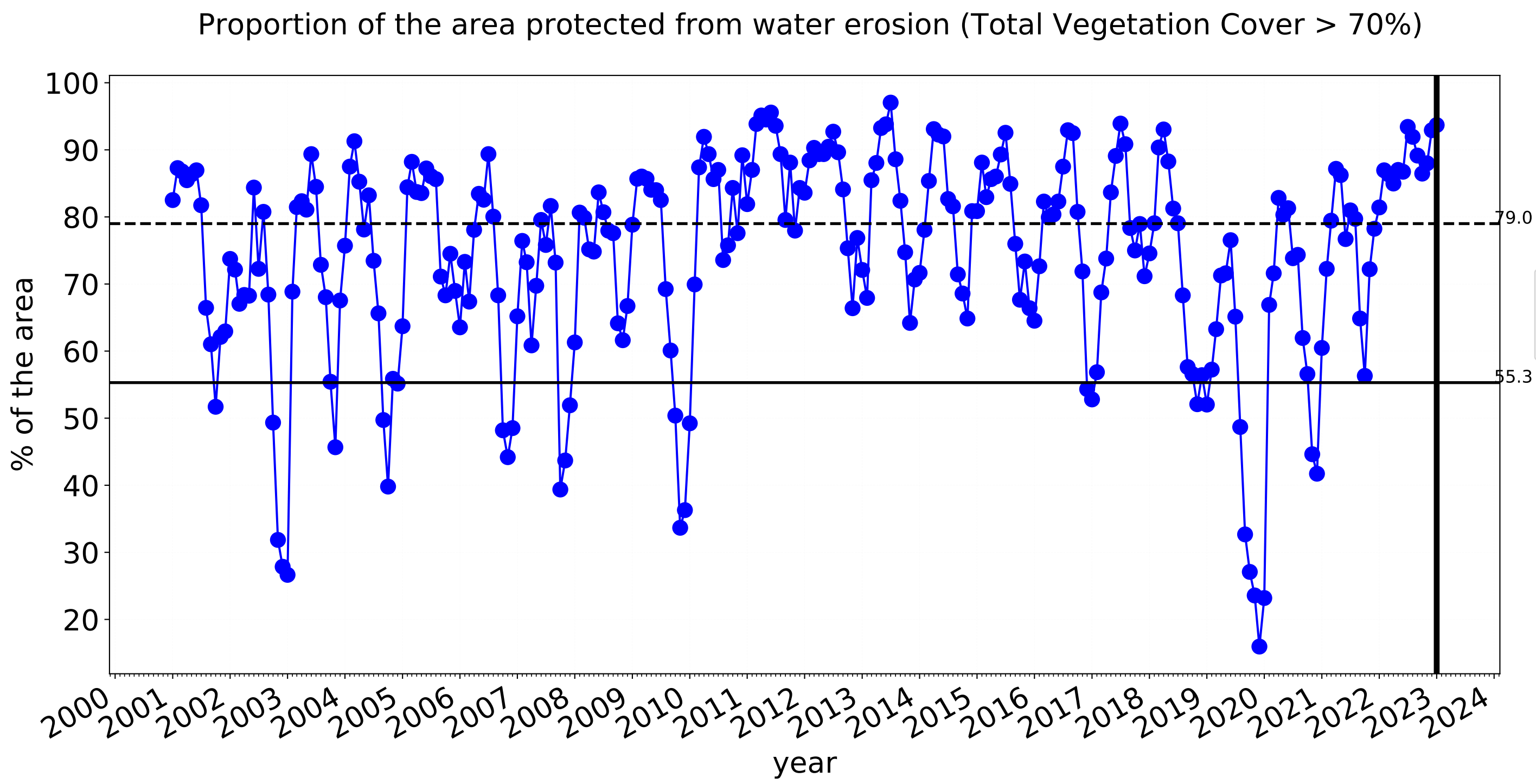
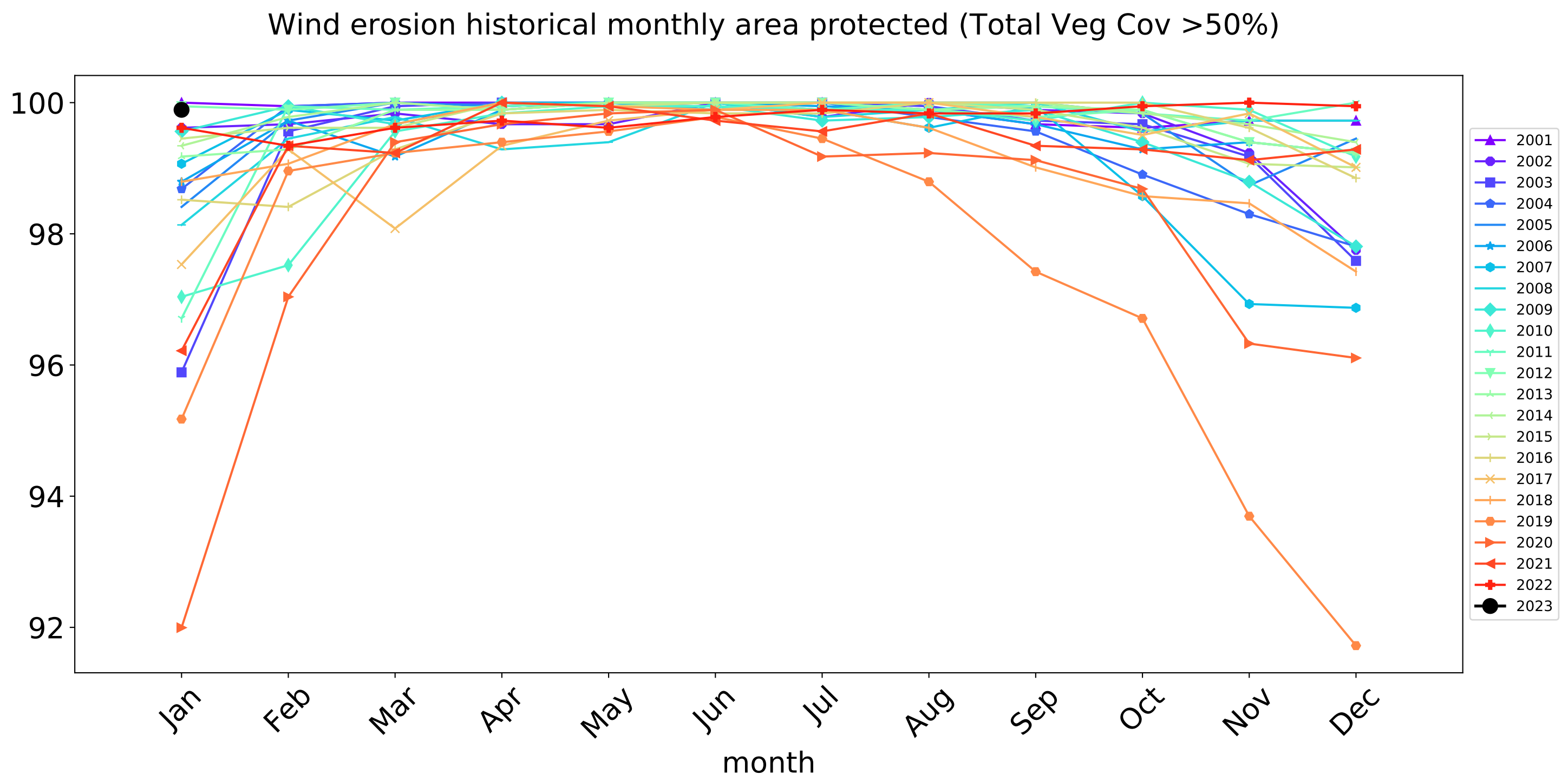
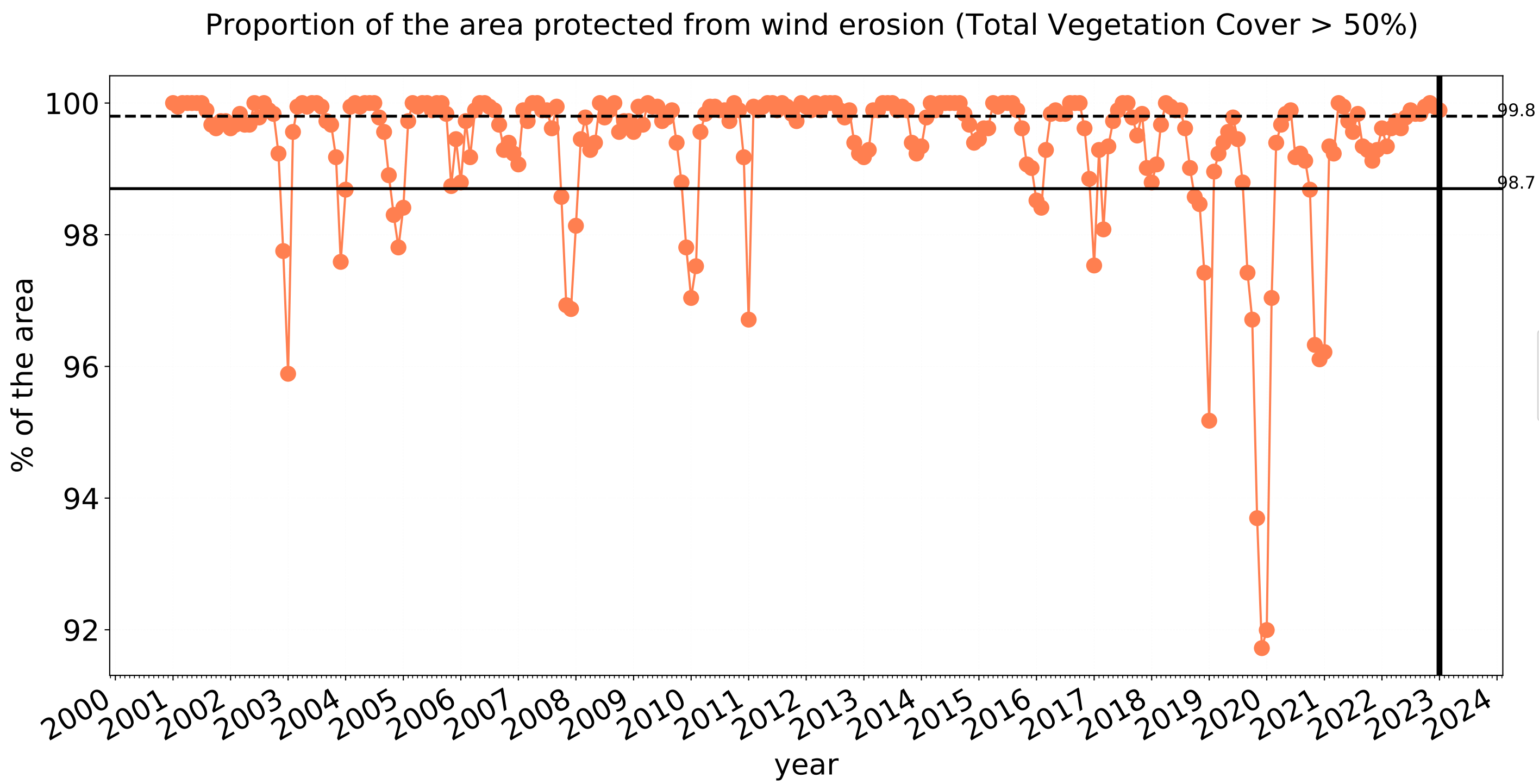
Australian Government

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Landcare  
Programme





Irrigation timeseries



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Ecosystem Research Infrastructure



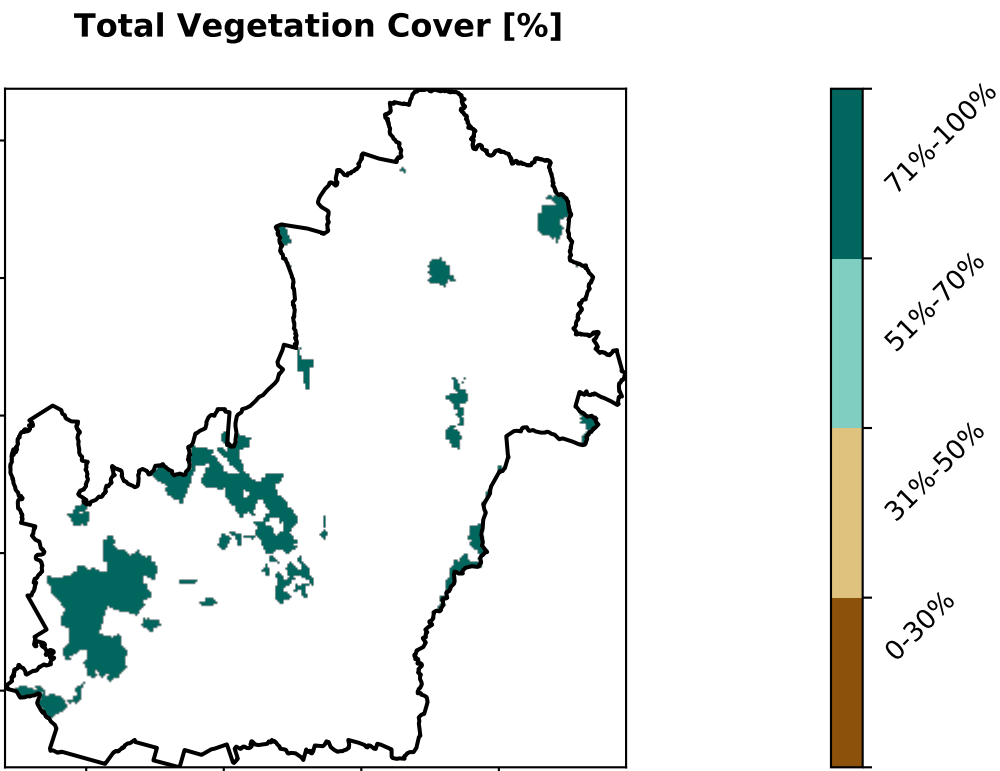
Australian Government

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Landcare  
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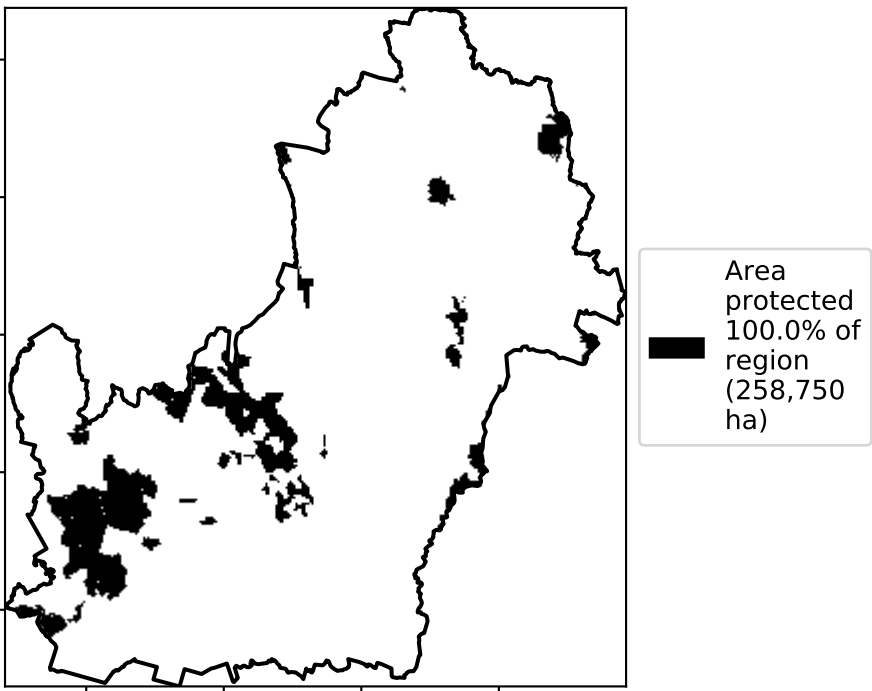


Production native forests and plantation forests

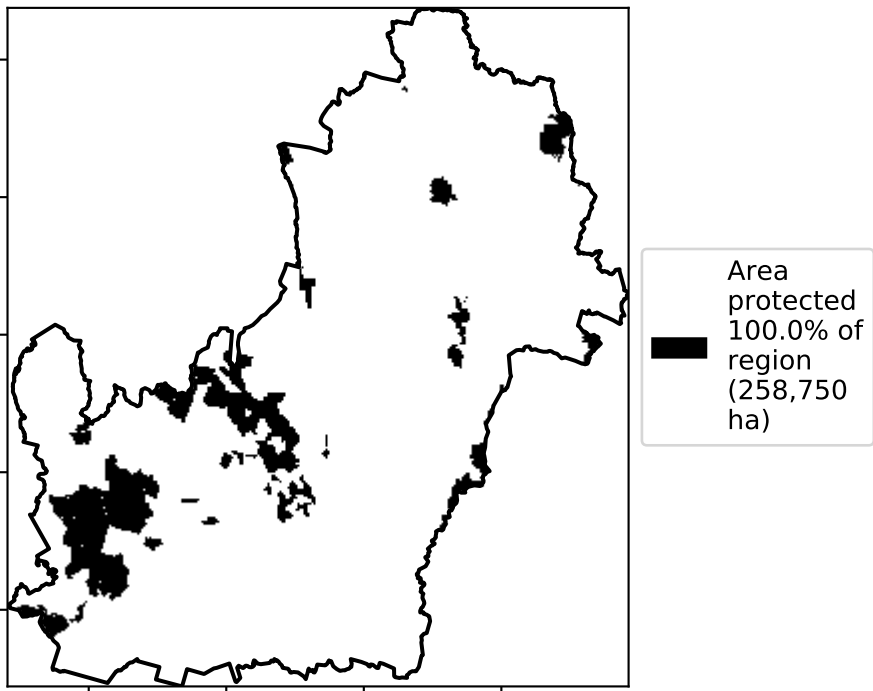
Catchment Scale  
Land Use and Forests  
of Australia (2018)  
Derived from  
Catchment Scale Land  
Use of Australia  
(2018) and Forests  
of Australia (2018)



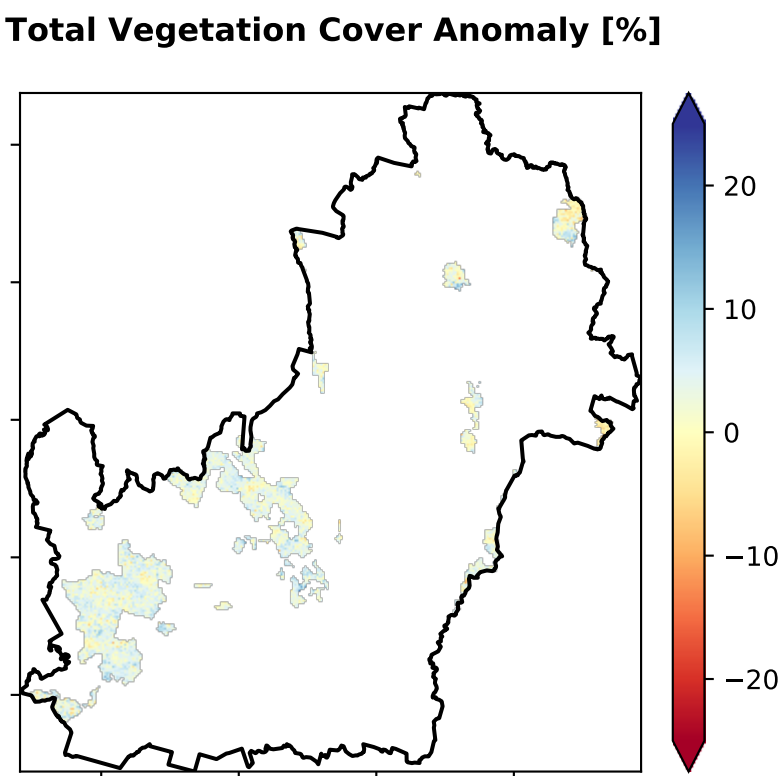
% Area protected from water erosion (>70%)



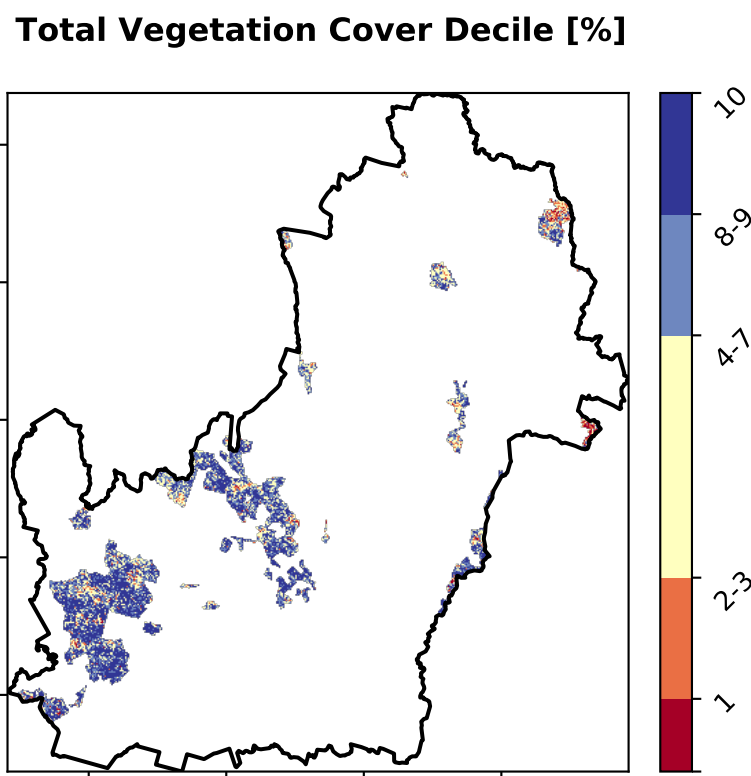
% Area protected from wind erosion (>50%)



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Ecosystem Research Infrastructure



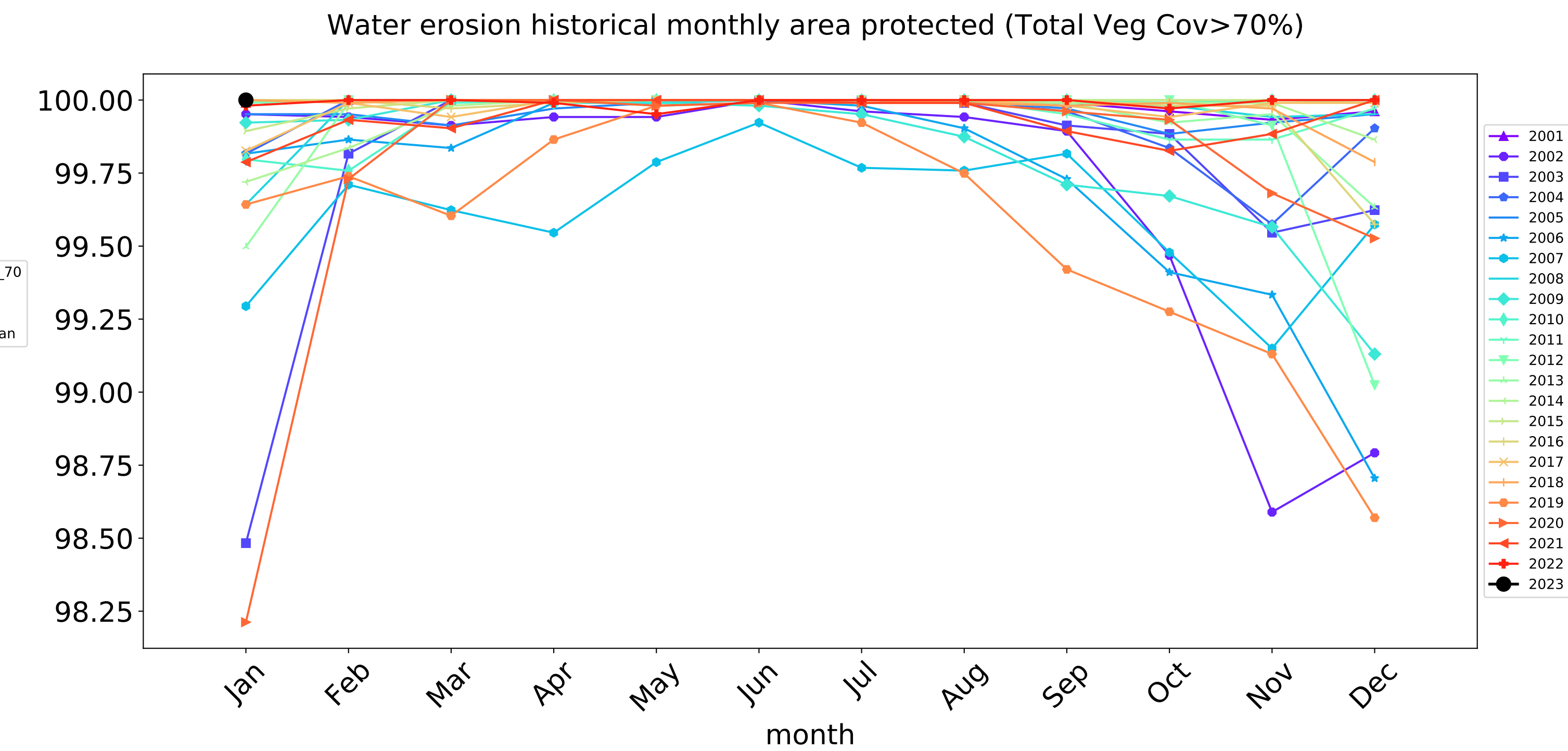
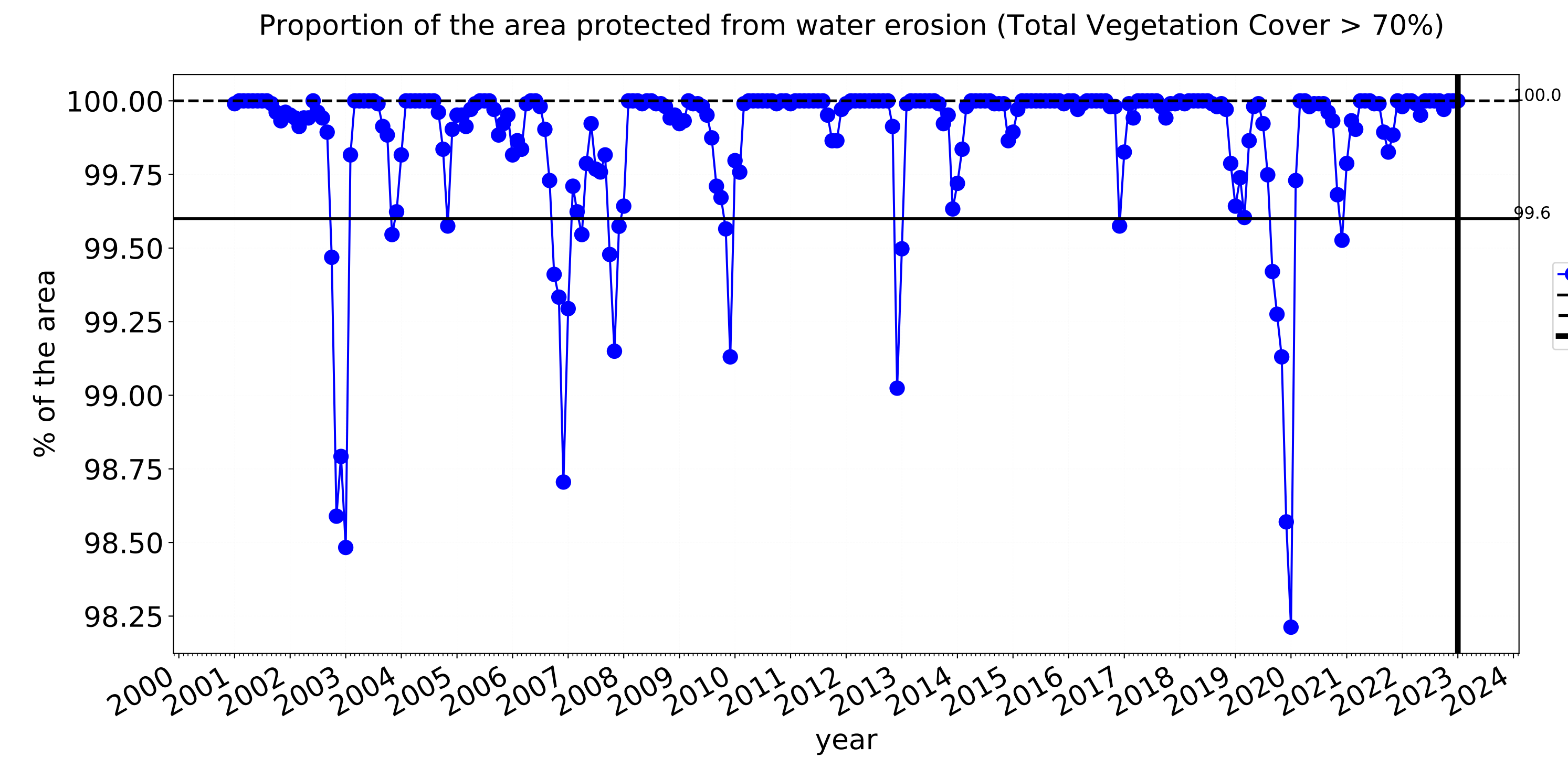
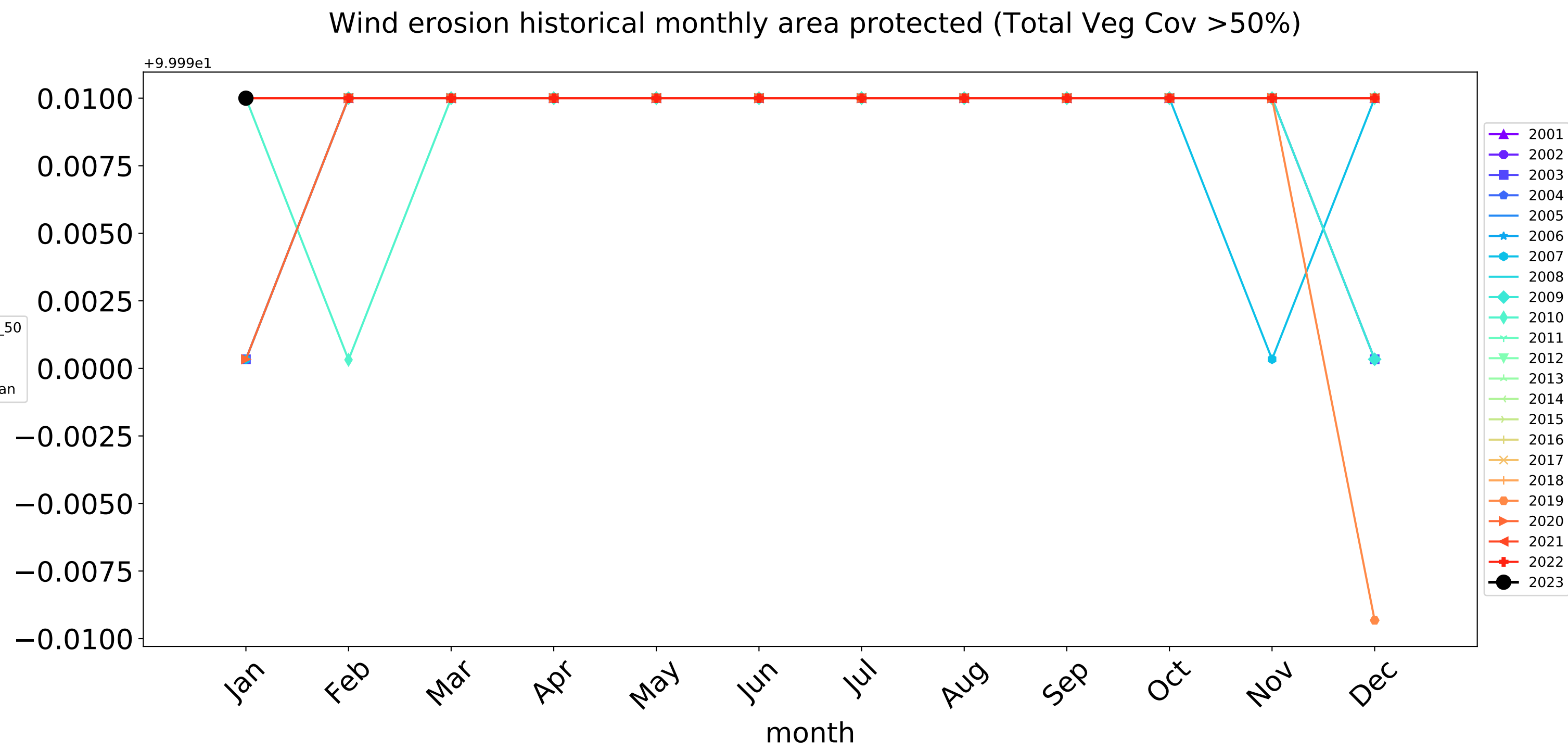
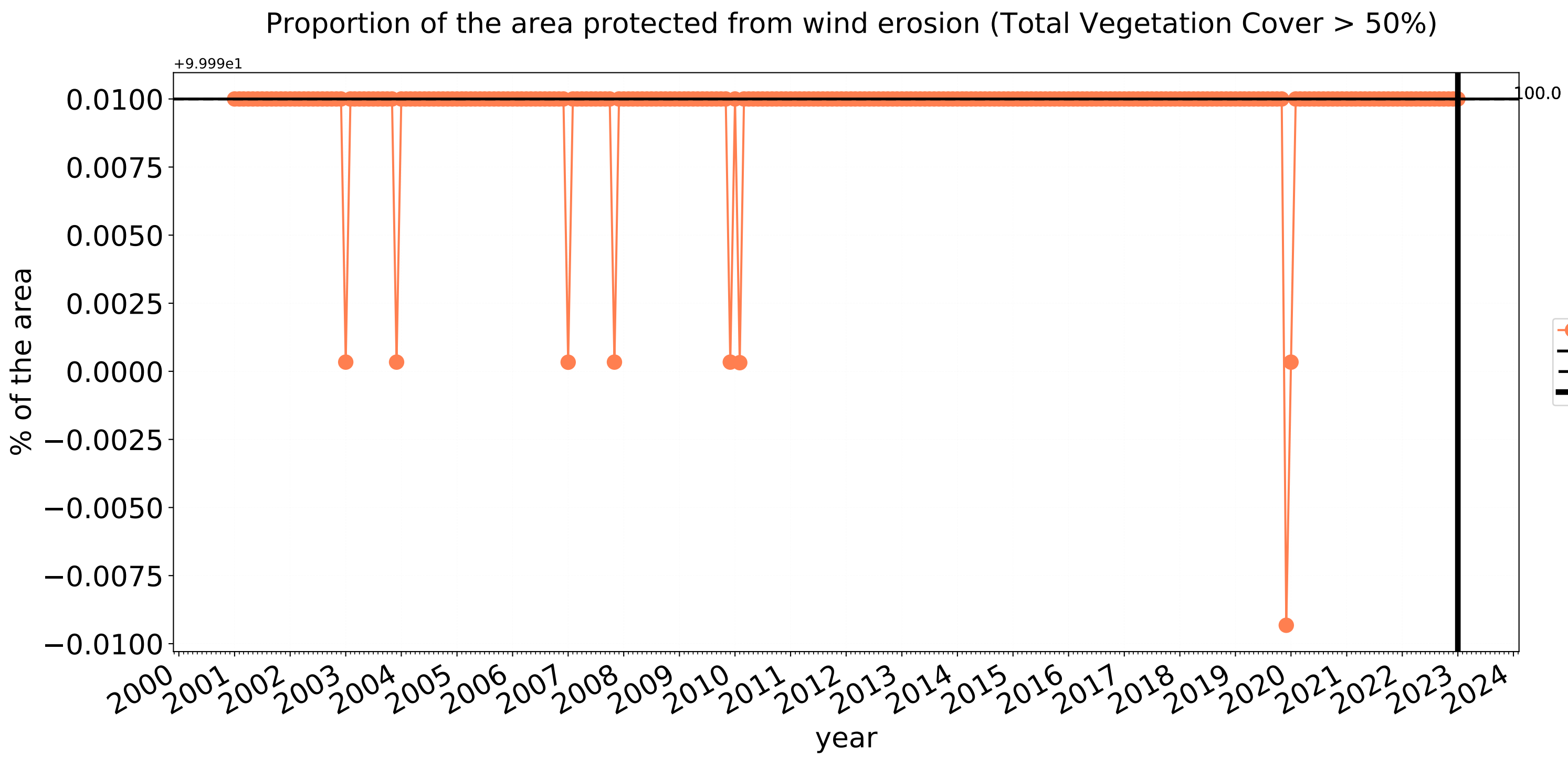
Australian Government

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Landcare  
Programme





Production native forests and plantation forests timeseries



**Banana\_(S) (2,854,400 ha and no data 623 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	2,854,400	100.0% 2,854,025	99.9% 2,852,225	99.1% 2,828,175	91.9% 2,621,850	48.1% 1,373,300	17.1% 487,525
Conservation and natural environments	219,350	100.0% 219,350	100.0% 219,350	99.9% 219,050	99.0% 217,100	80.8% 177,200	38.5% 84,475
Conservation and natural environments Woodland forest	50,275	100.0% 50,275	100.0% 50,275	99.9% 50,200	98.4% 49,450	68.1% 34,250	28.6% 14,400
Conservation and natural environments Forest (non woodland)	161,150	100.0% 161,150	100.0% 161,150	100.0% 161,125	99.8% 160,900	86.8% 139,850	42.5% 68,475
Agriculture	2,357,425	100.0% 2,357,375	100.0% 2,356,575	99.1% 2,336,175	90.6% 2,136,425	40.5% 954,625	11.3% 267,350
Grazing	2,146,200	100.0% 2,146,150	100.0% 2,145,600	99.5% 2,134,925	92.5% 1,984,675	42.6% 914,175	12.0% 257,450
Grazing non forest	1,632,650	100.0% 1,632,600	100.0% 1,632,075	99.3% 1,621,750	90.5% 1,477,150	33.6% 548,425	7.9% 128,450
Grazing Woodland forest	267,550	100.0% 267,550	100.0% 267,525	99.9% 267,375	98.9% 264,475	69.2% 185,175	23.5% 62,825
Grazing - Forest (non woodland)	246,000	100.0% 246,000	100.0% 246,000	99.9% 245,800	98.8% 243,050	73.4% 180,575	26.9% 66,175
Cropping	165,575	100.0% 165,575	99.9% 165,375	95.7% 158,475	73.9% 122,300	20.2% 33,500	4.8% 7,900
Irrigation	45,600	100.0% 45,600	99.9% 45,550	93.7% 42,725	64.5% 29,425	15.2% 6,950	4.4% 2,000
Production native forests and plantation forests	258,750	100.0% 258,750	100.0% 258,750	100.0% 258,750	99.9% 258,425	92.3% 238,825	52.1% 134,825



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