

# Total vegetation cover soil protection

## Region:NRM Wimmera VIC

Date: August 2005

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

Land use forest cover:

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

Total vegetation Cover:

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

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

Erosion protection: Wind erosion 50% total vegetation cover

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

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

Comparison with previous years:

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

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

Time series monthly from January 2001 to current:

Erosion protection

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

Rainfall

- Millimetres rainfall each month (black line).

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

Water erosion protection for higher rainfall and steeper slopes:

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

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

### Acknowledgment of data:

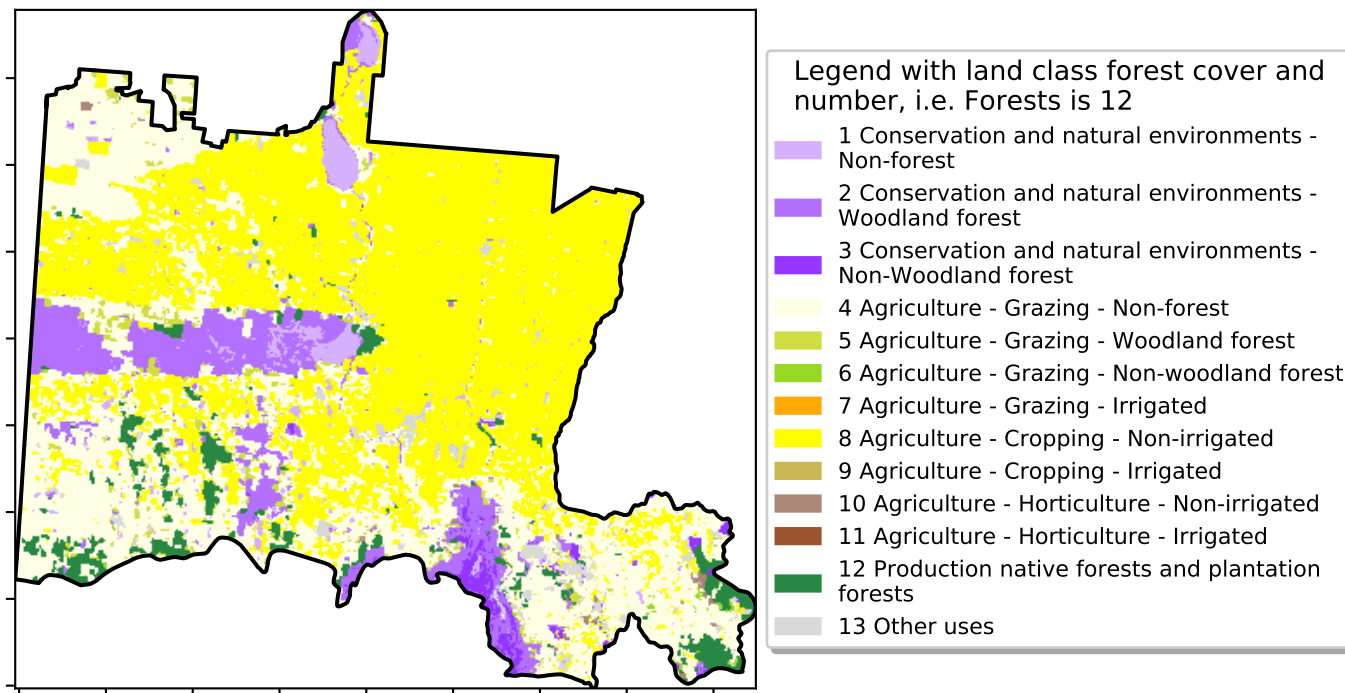
1. <http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification>
2. <http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018>
3. <https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover>
4. MODIS Fractional cover algorithm: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



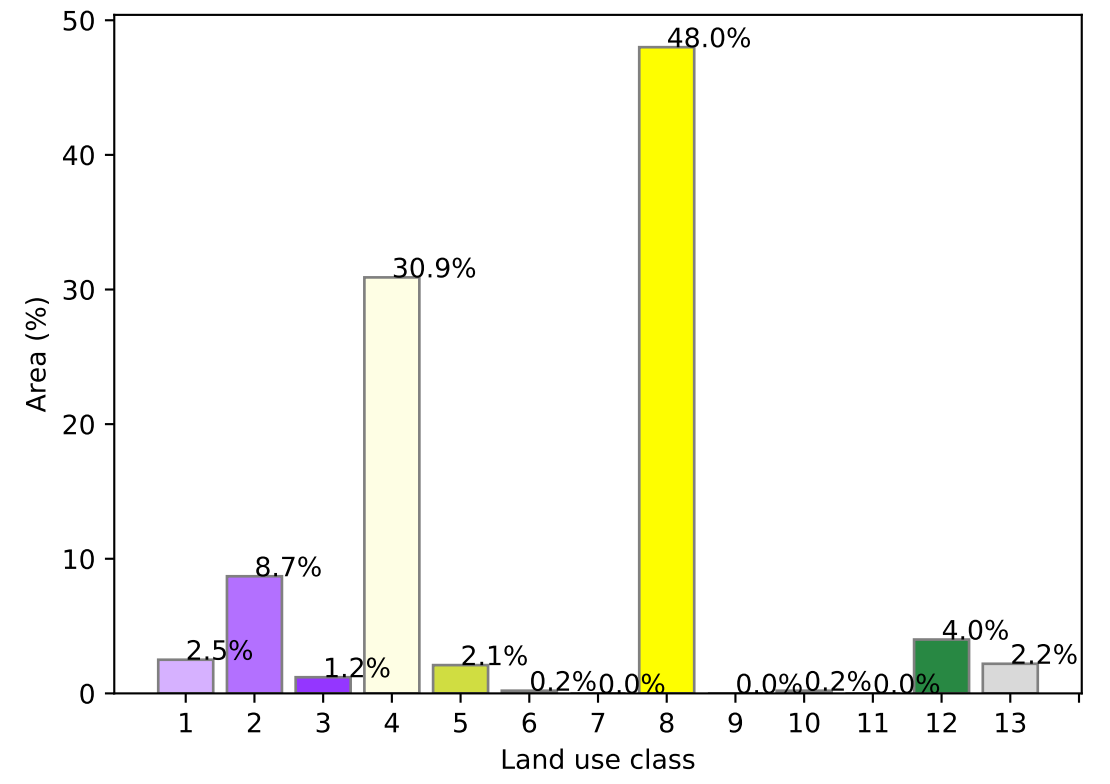


# Vegetation Cover Aug 2005

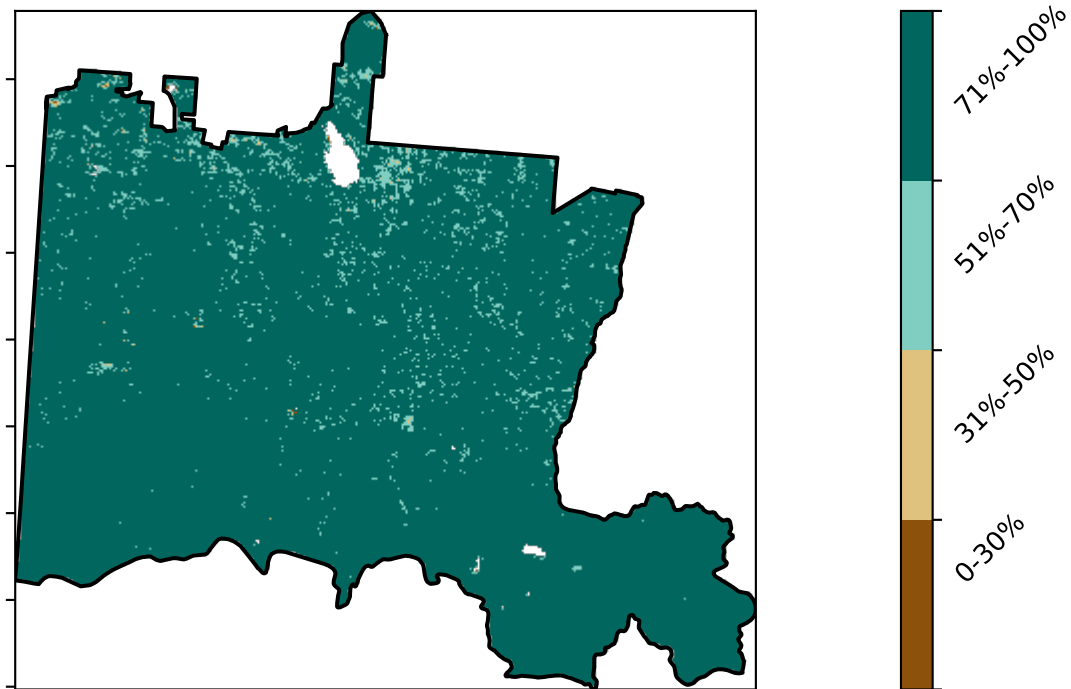
Land use and forest cover



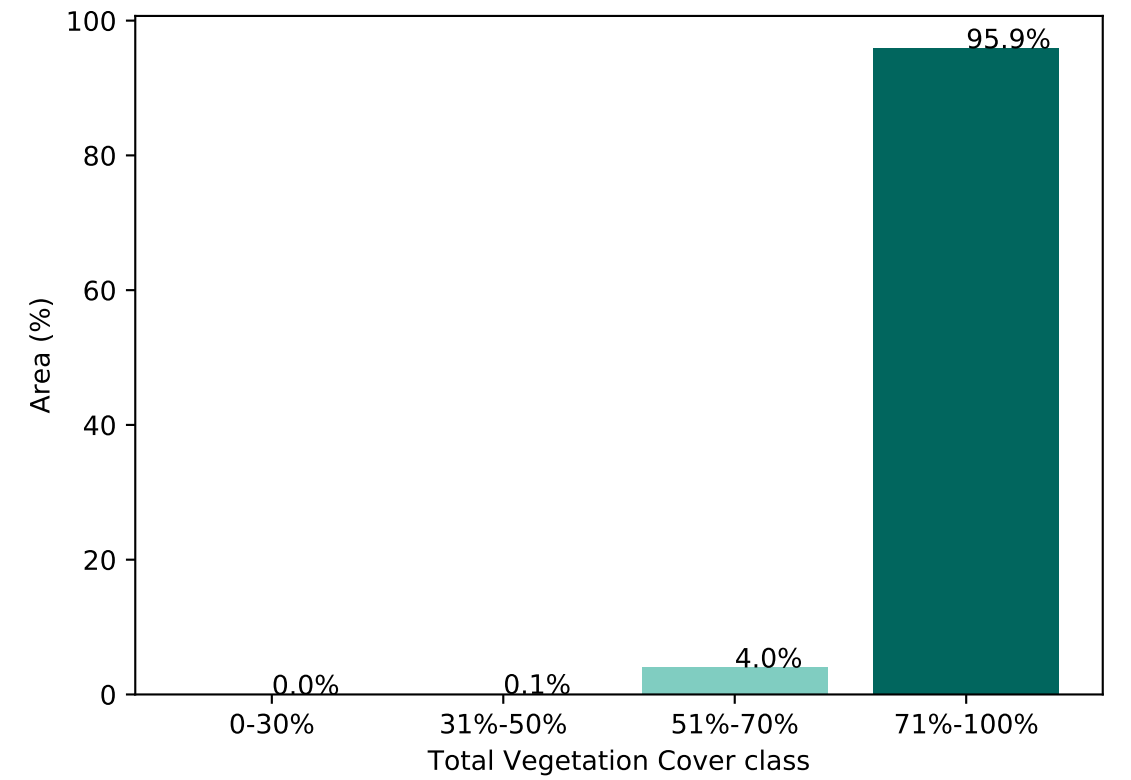
Proportion of each land class in area



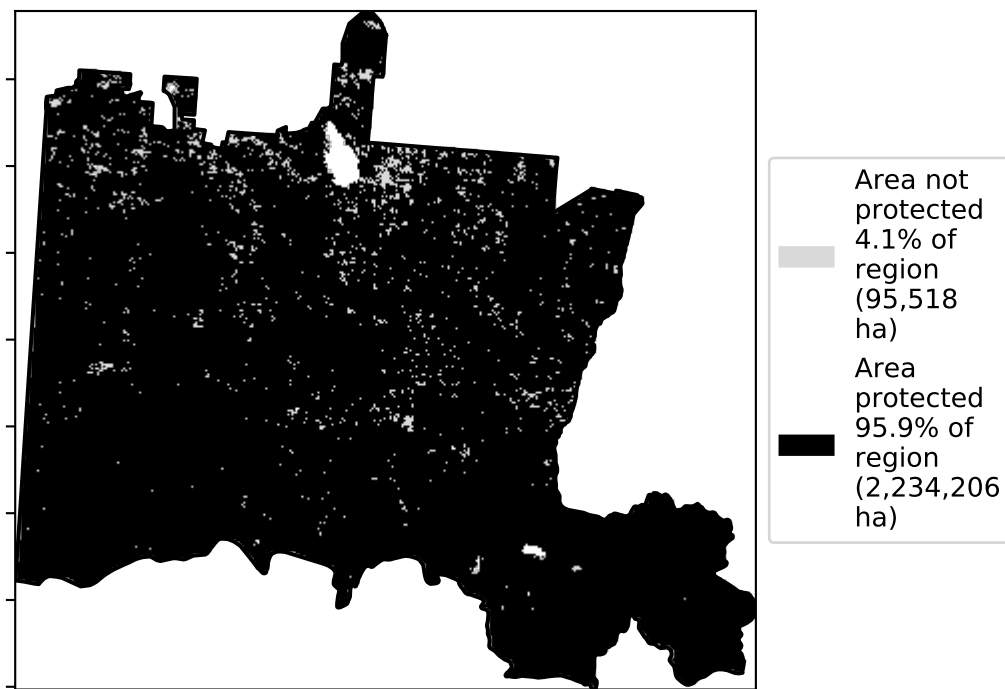
Total Vegetation Cover [%]



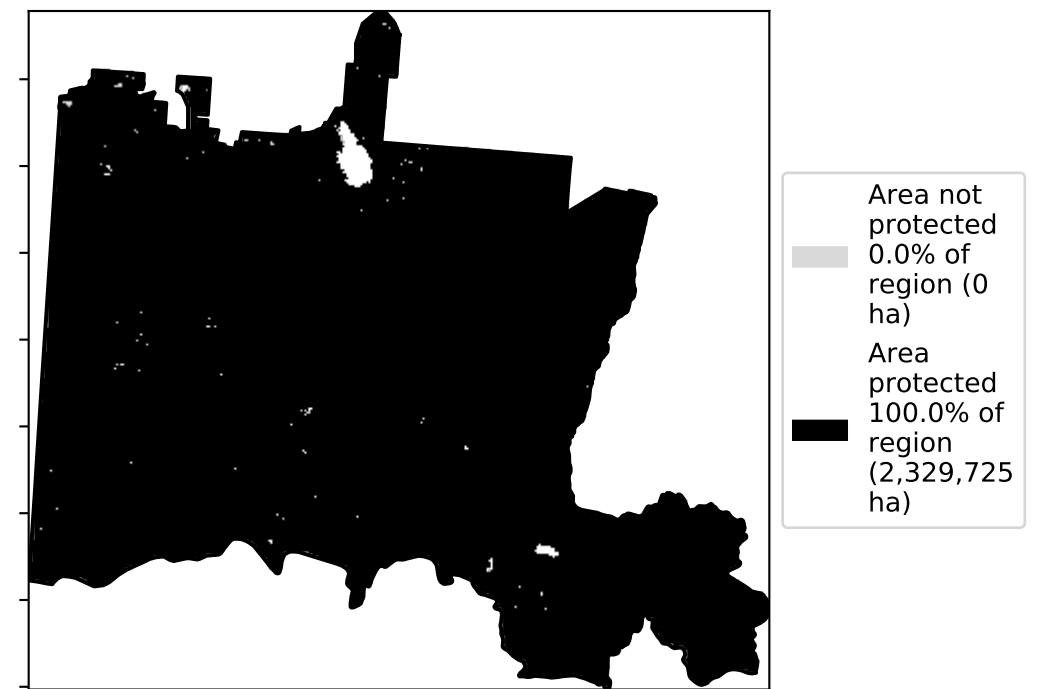
Proportion of vegetation cover class in area



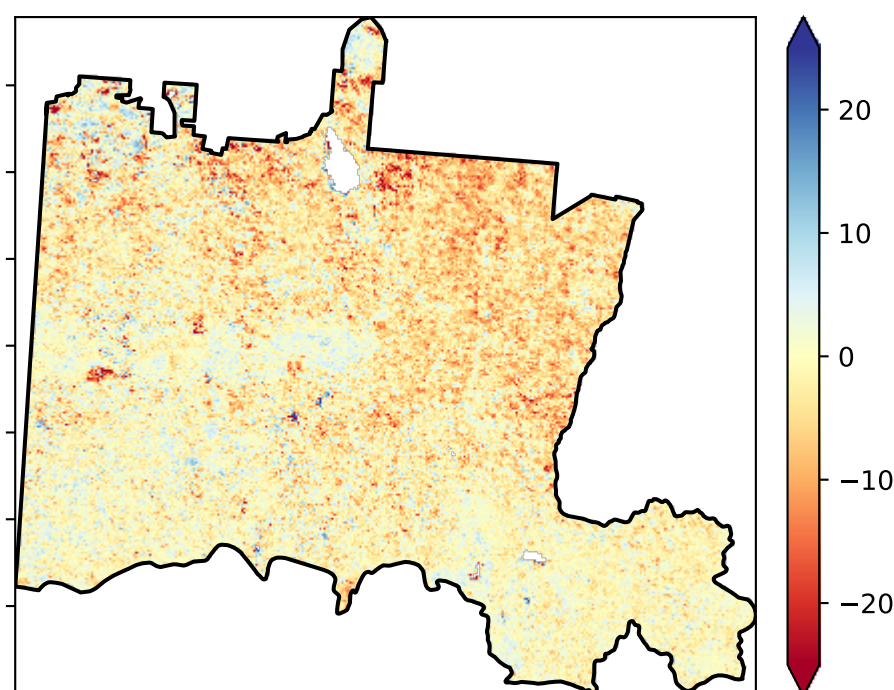
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



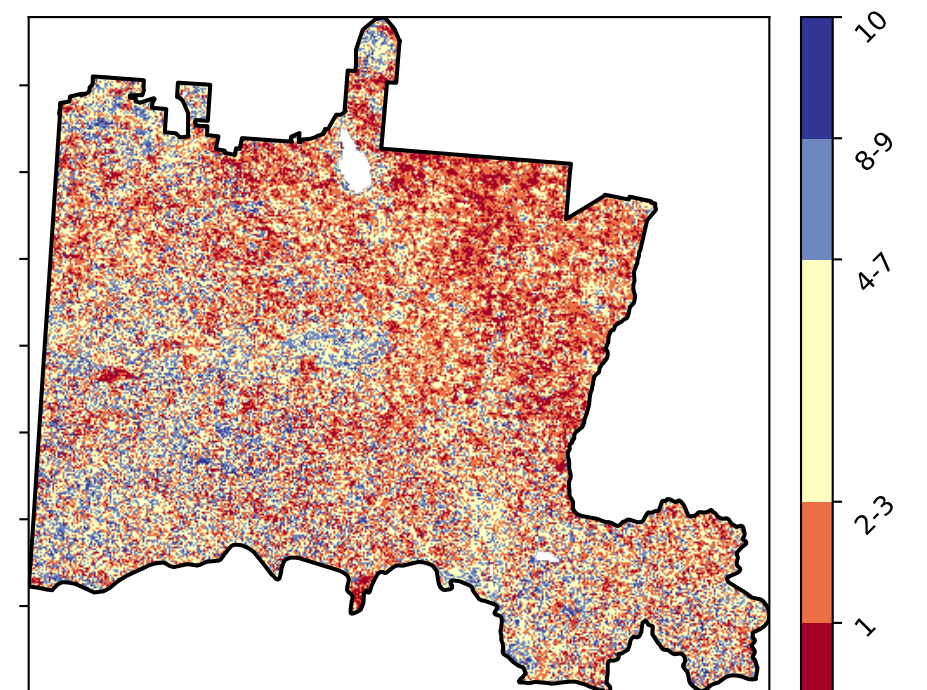
Total Vegetation Cover Anomaly [%]



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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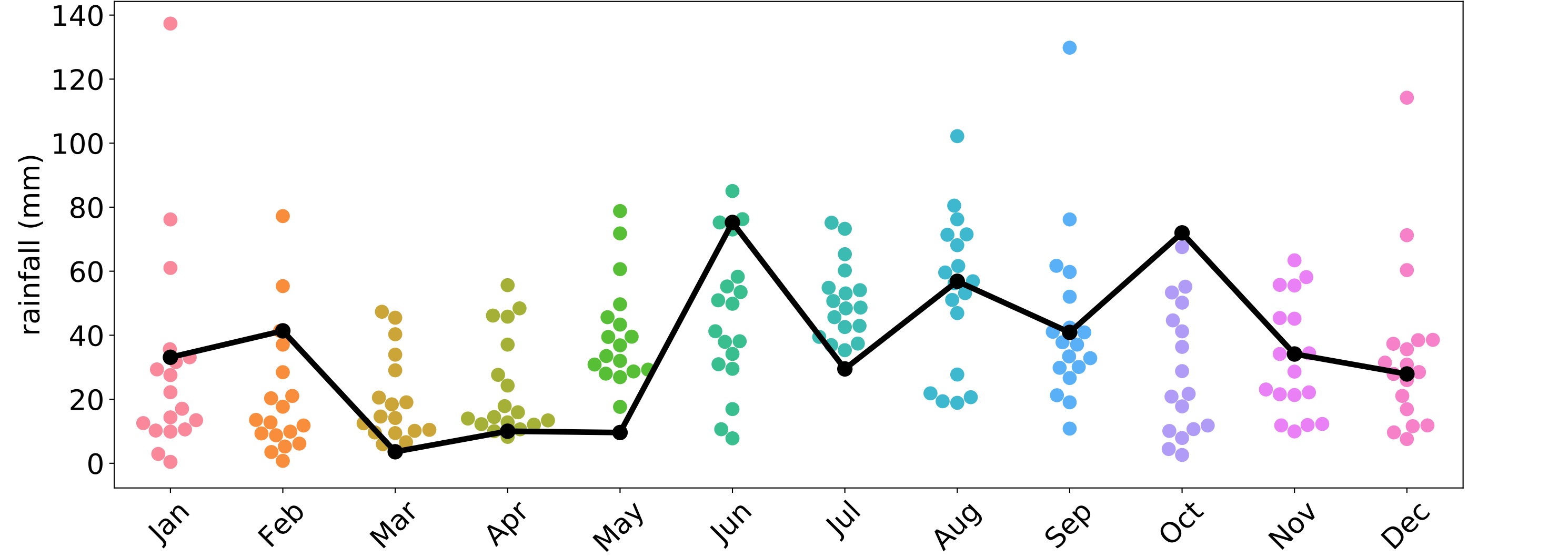
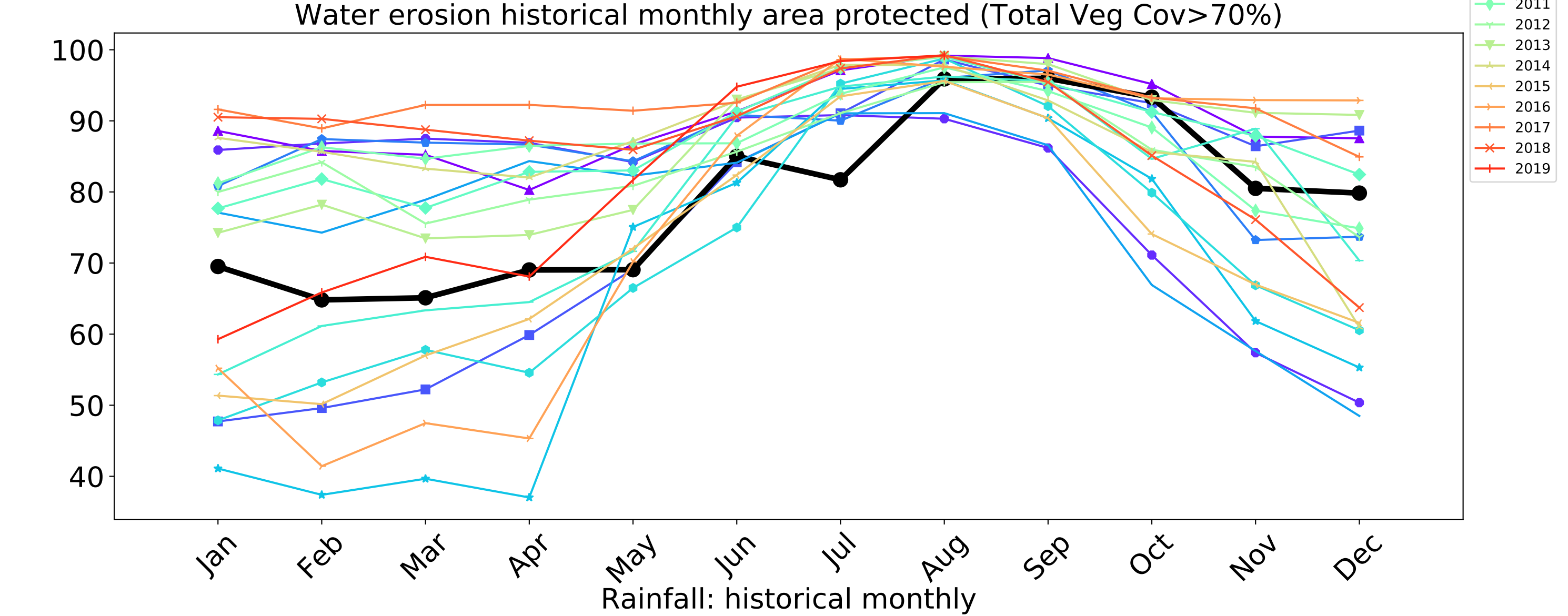
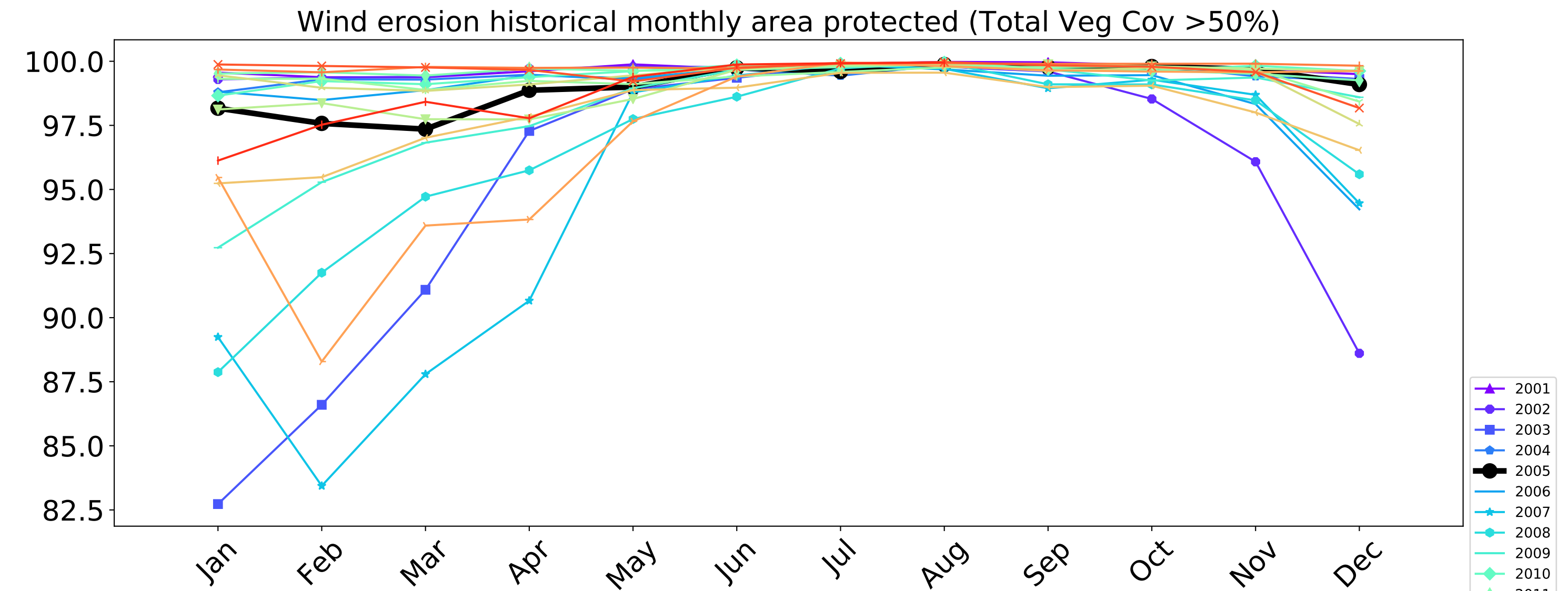
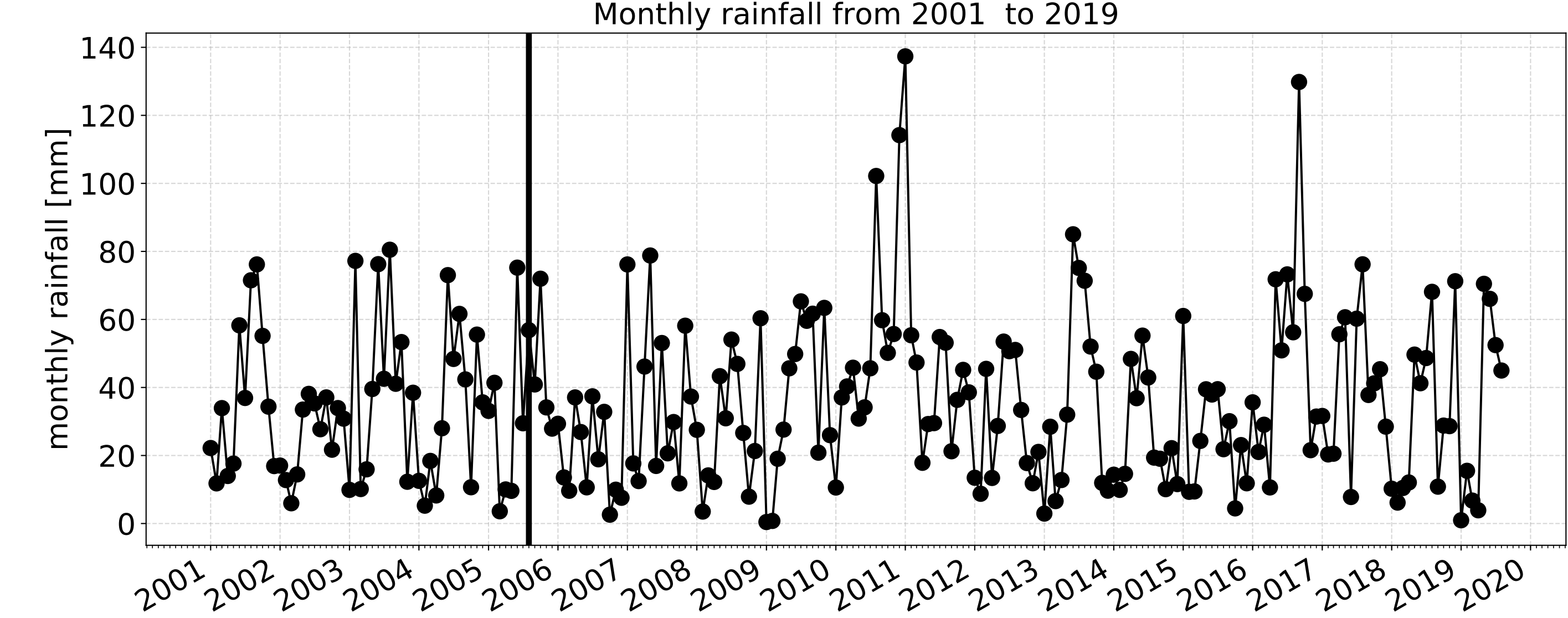
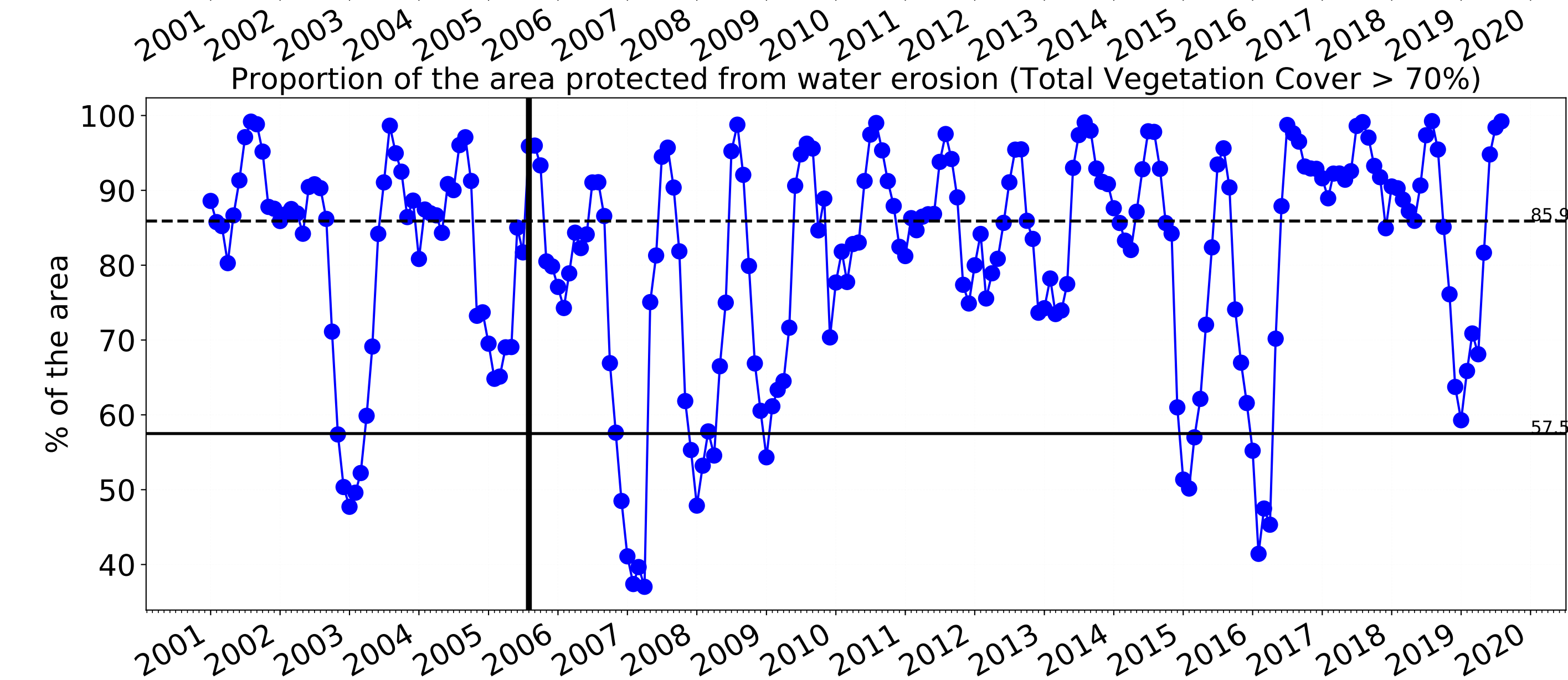
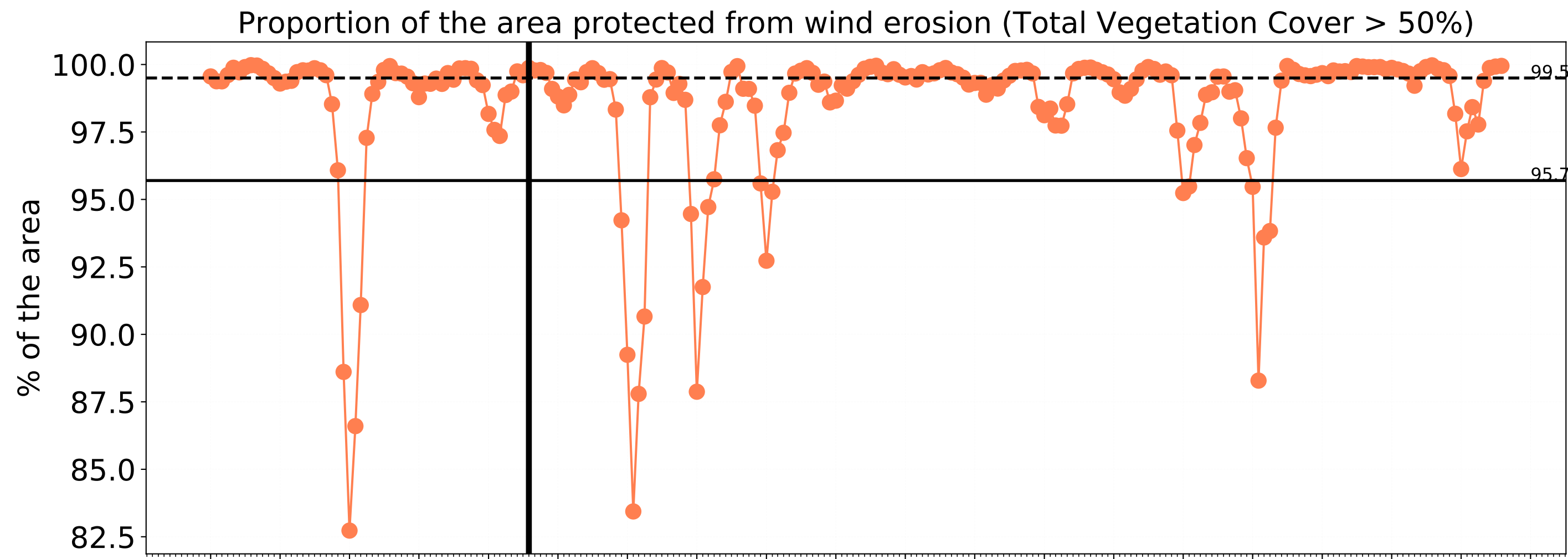


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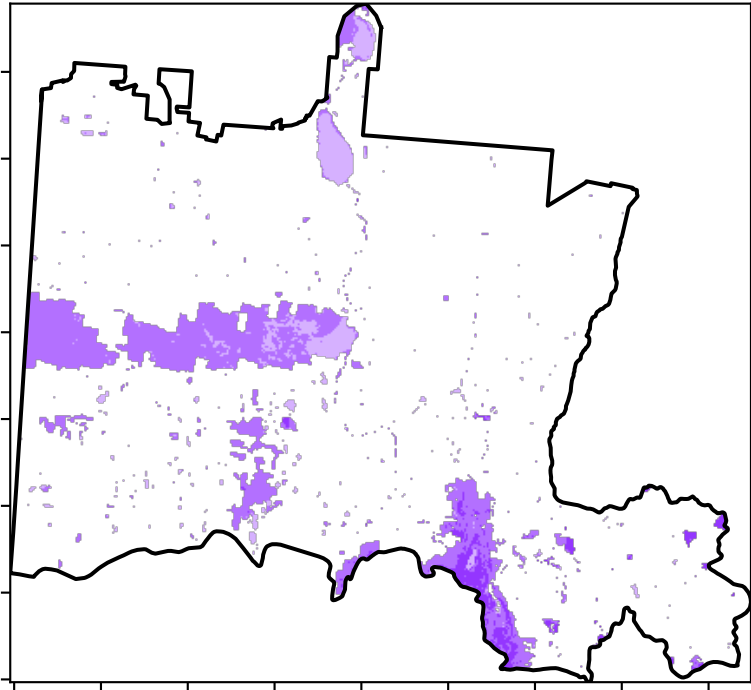




Conservation and natural environments

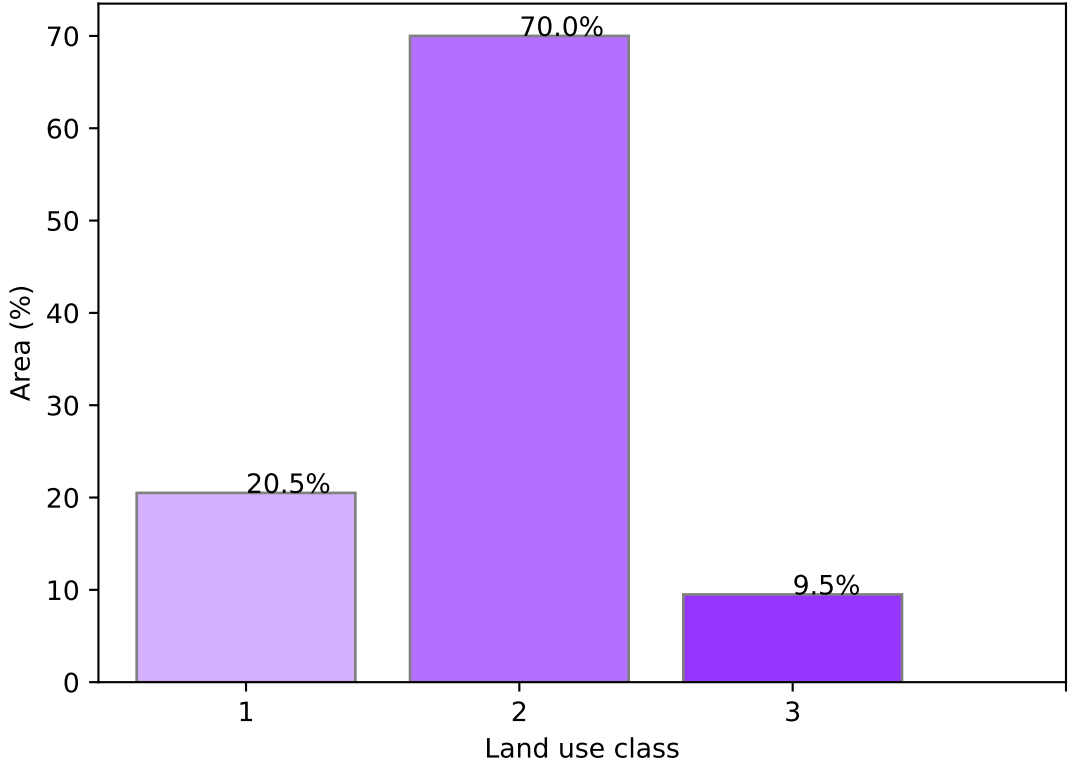
Land use and forest cover

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

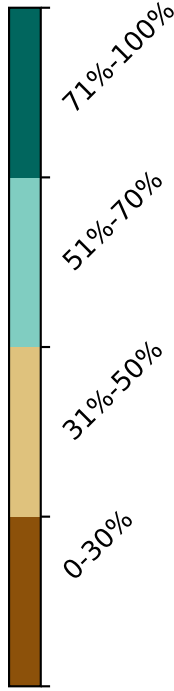
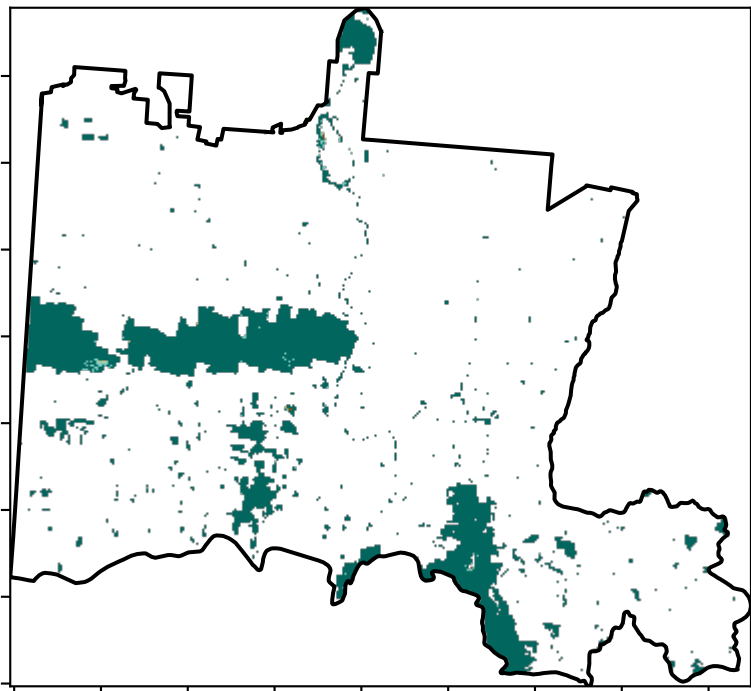


- 1 Conservation and natural environments - Non-forest
- 2 Conservation and natural environments - Woodland forest
- 3 Conservation and natural environments - Non-woodland forest

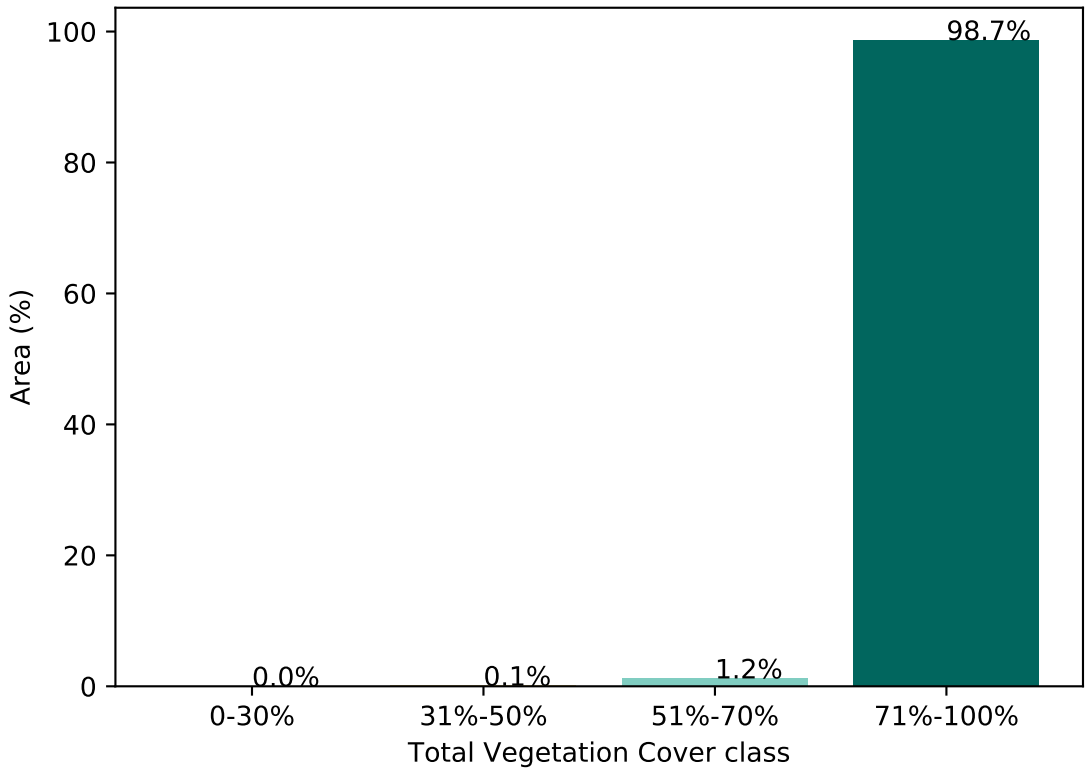
Proportion of each land class in area



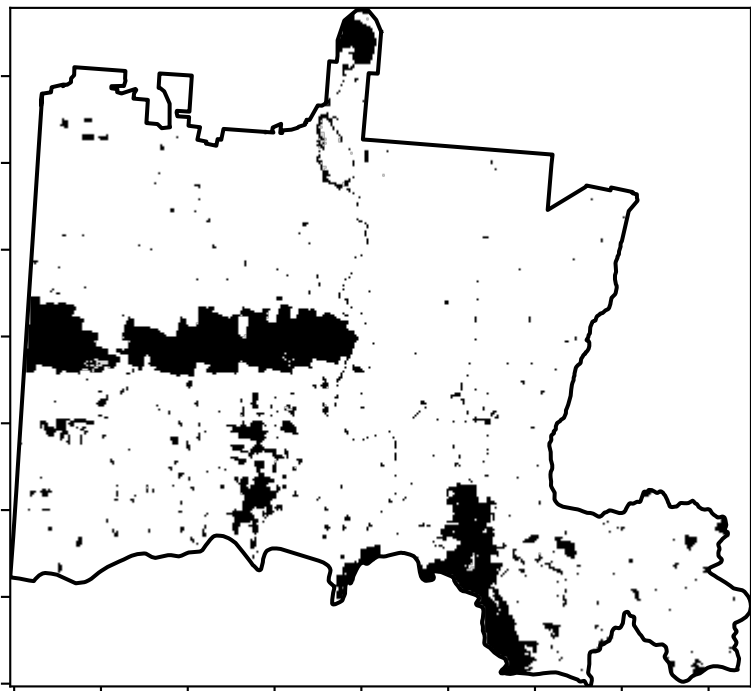
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

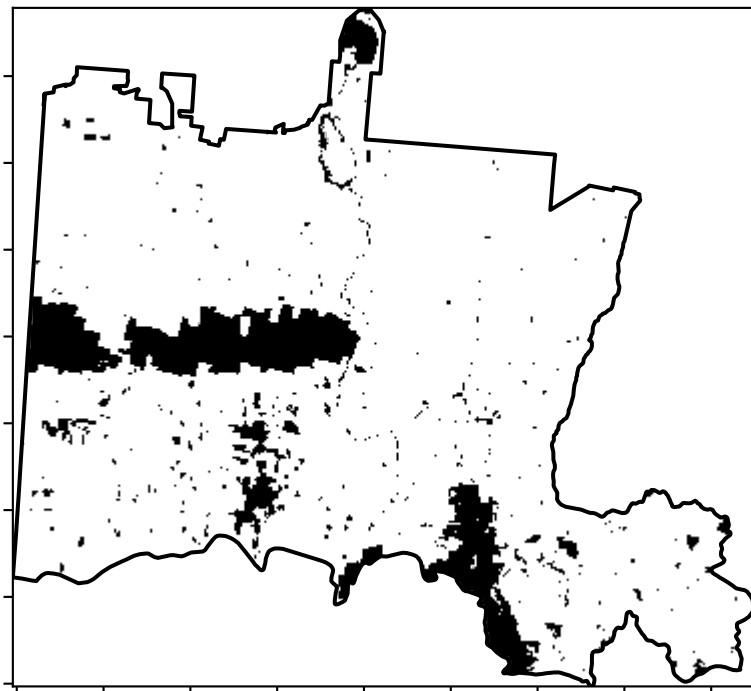


% Area protected from water erosion (>70%)



- Area not protected  
1.3% of region  
(3,616 ha)
- Area protected  
98.7% of region  
(274,558 ha)

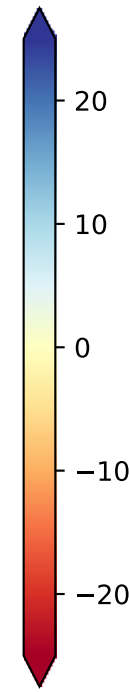
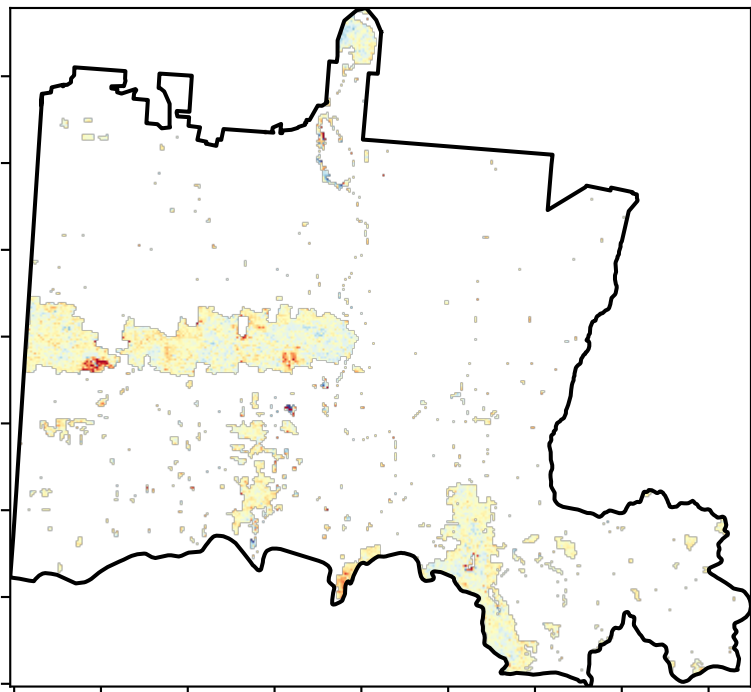
% Area protected from wind erosion (>50%)



- Area not protected  
0.0% of region  
(0 ha)
- Area protected  
100.0% of region  
(278,175 ha)

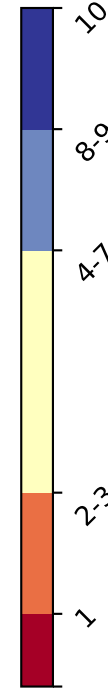
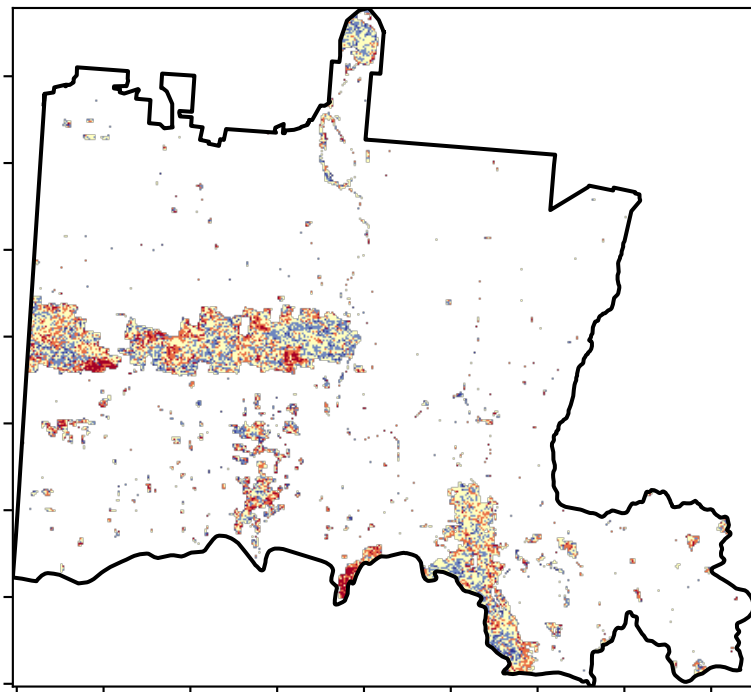
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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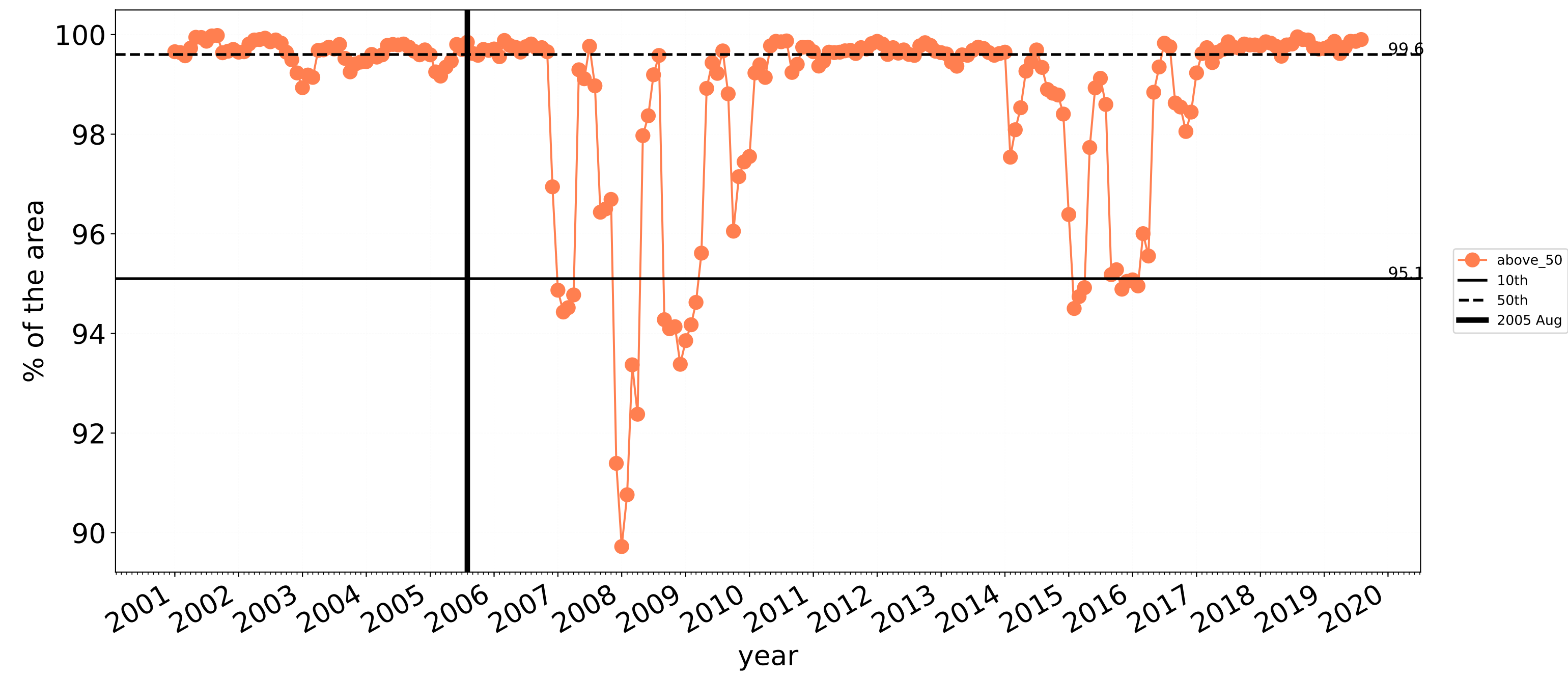


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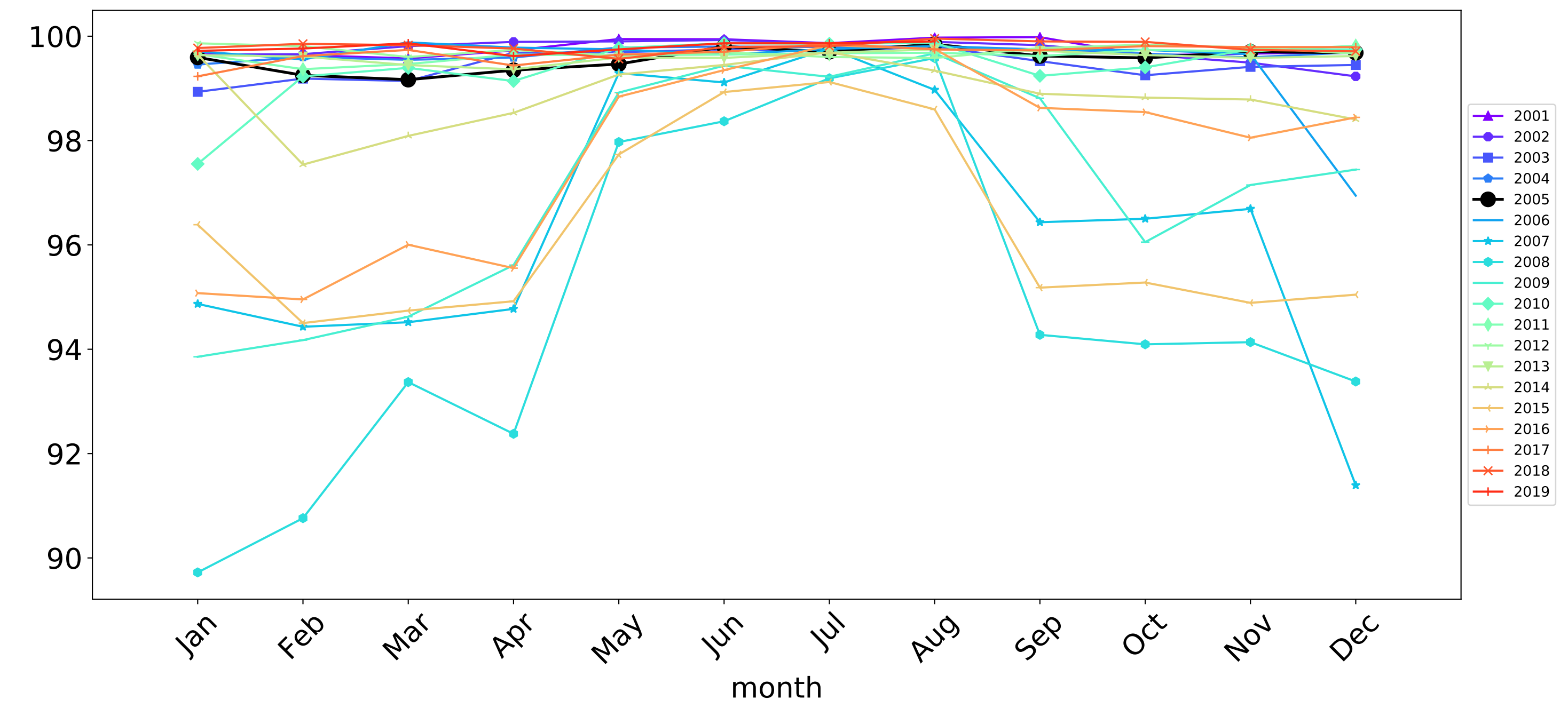


# Conservation and natural environments timeseries

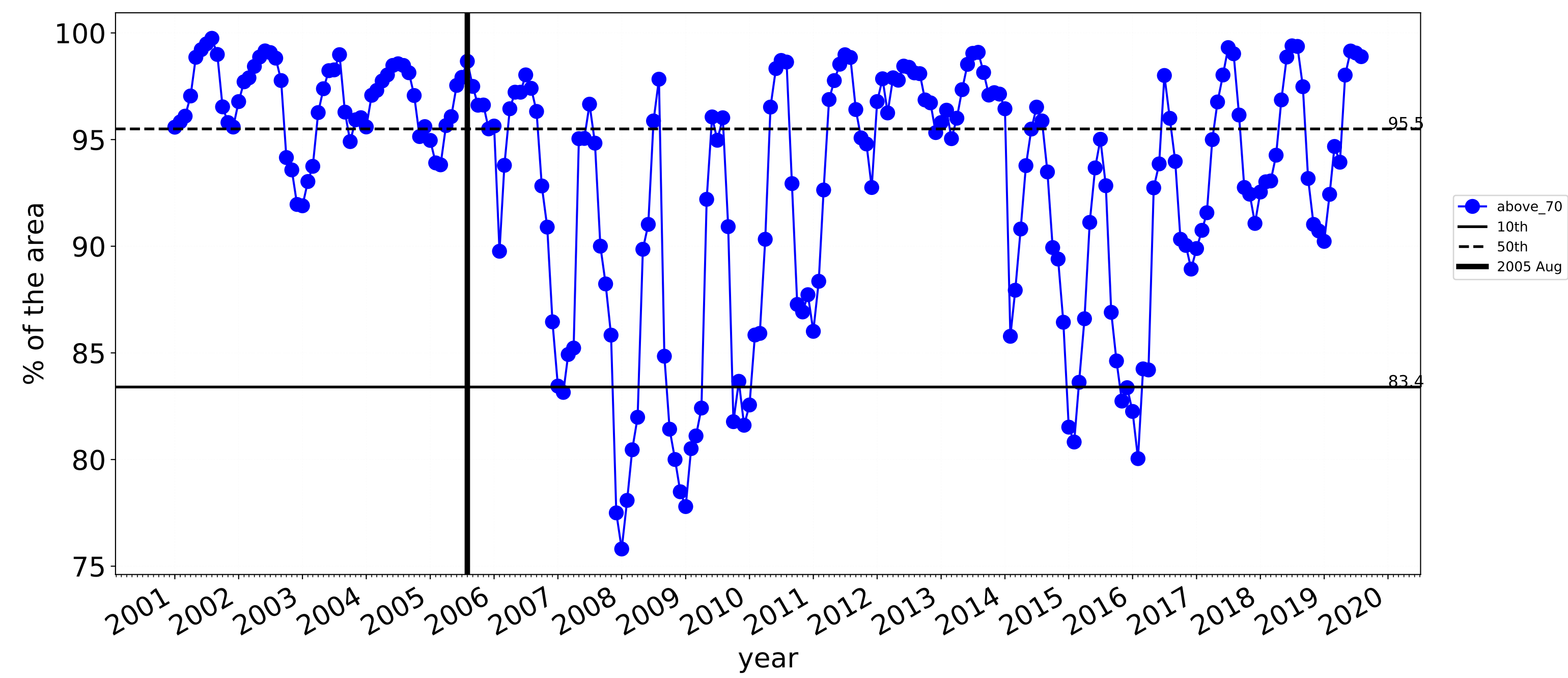
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



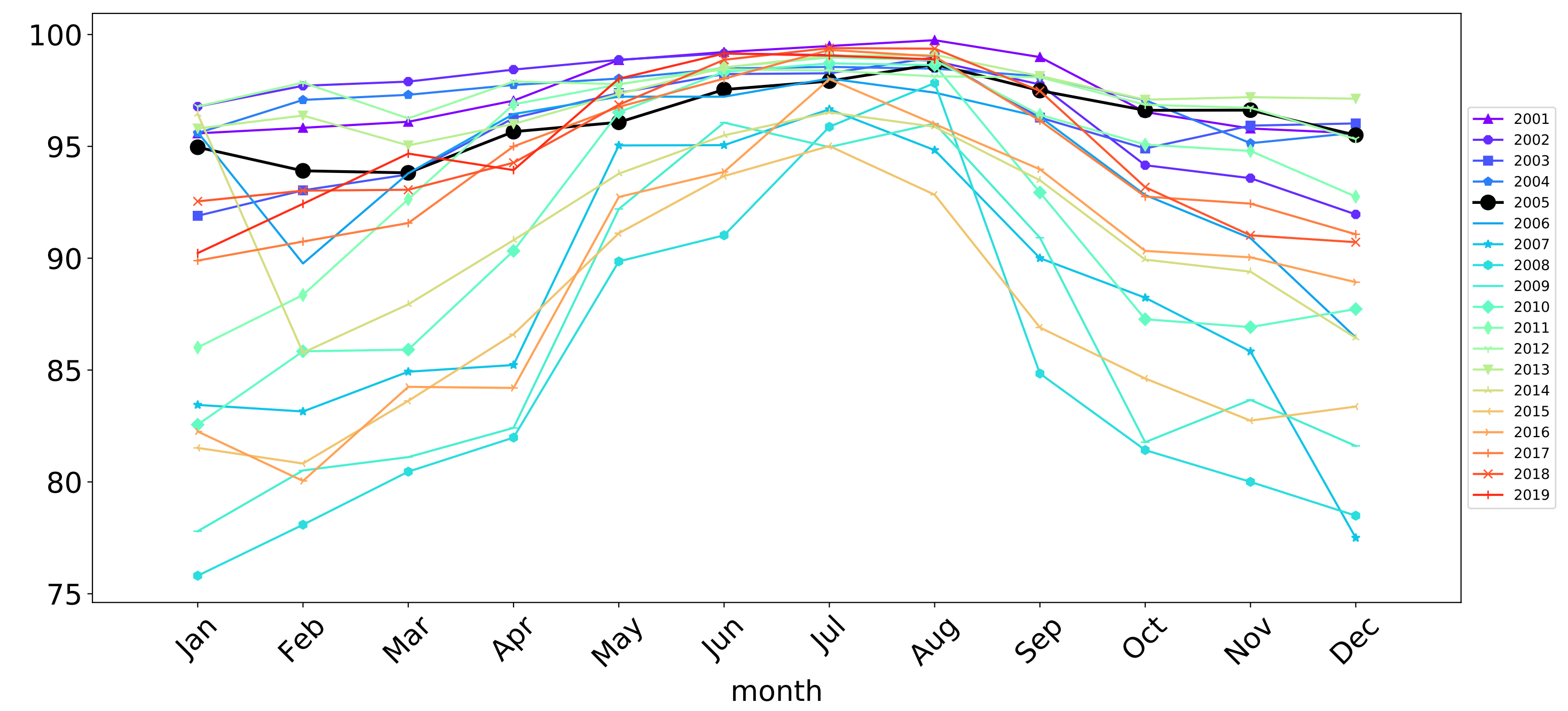
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



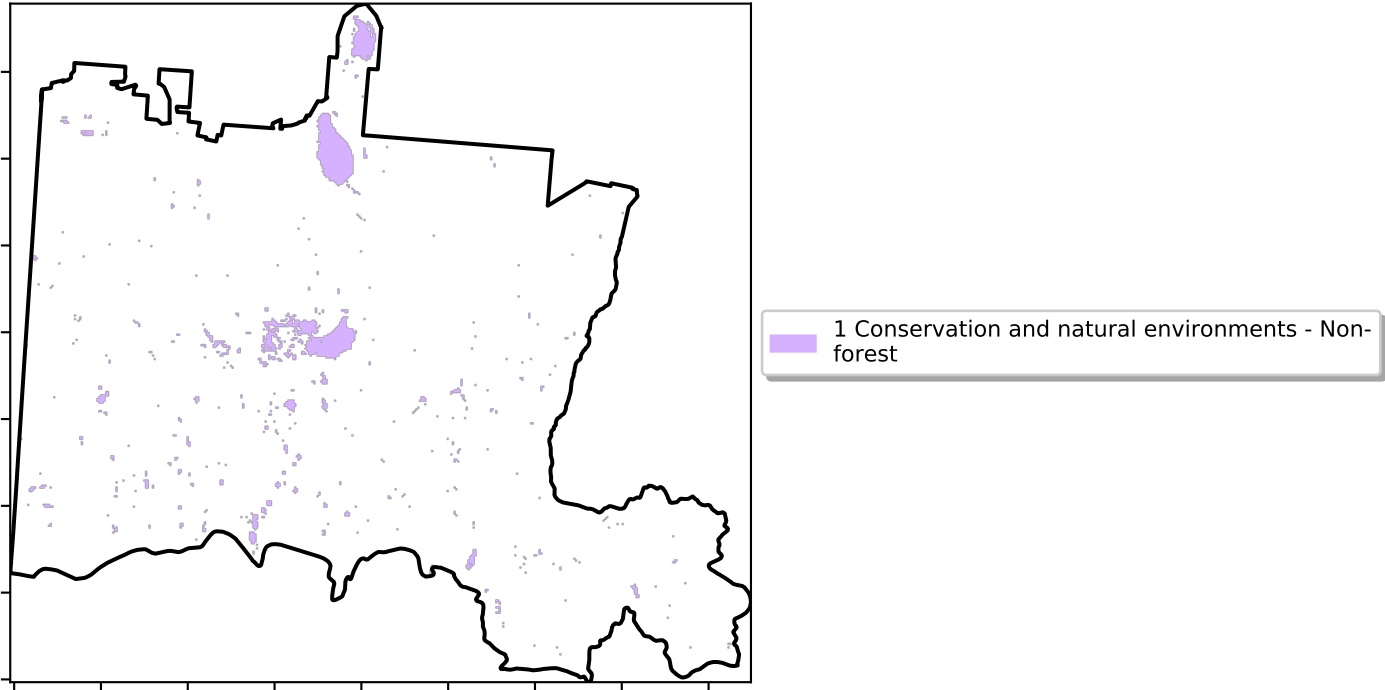
Water erosion historical monthly area protected (Total Veg Cov>70%)



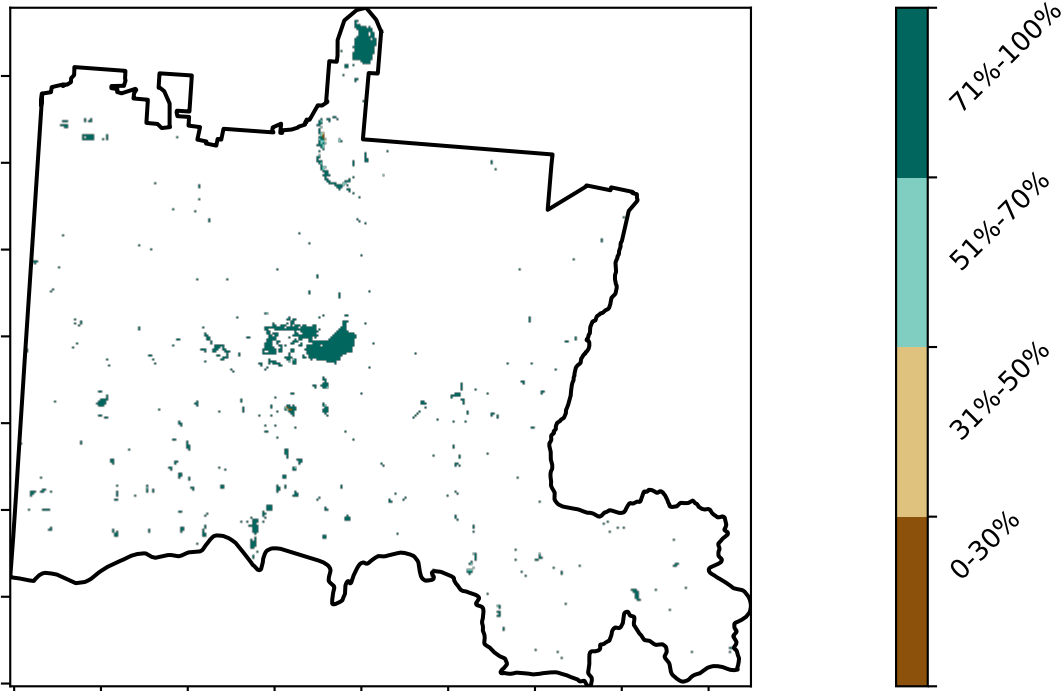
Conservation and natural environments non forest

Land use and forest cover

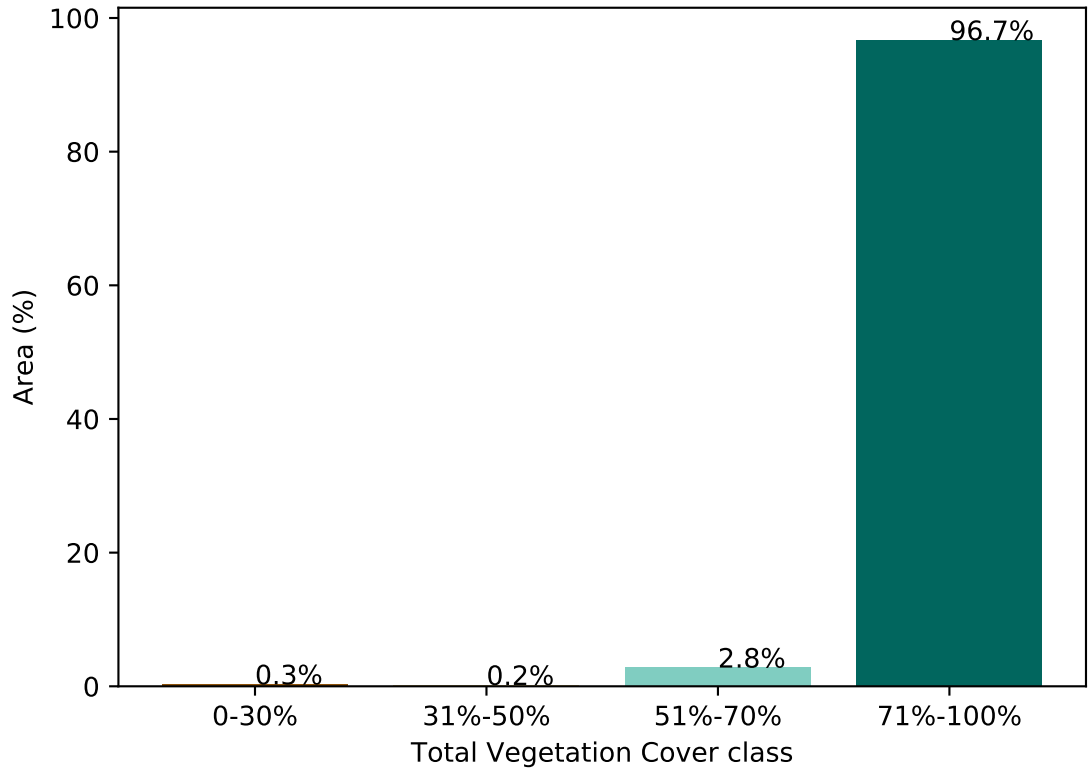
Catchment Scale  
Land Use and Forests  
of Australia (2018)  
Derived from  
Catchment Scale Land  
Use of Australia  
(2018) and Forests  
of Australia (2018)



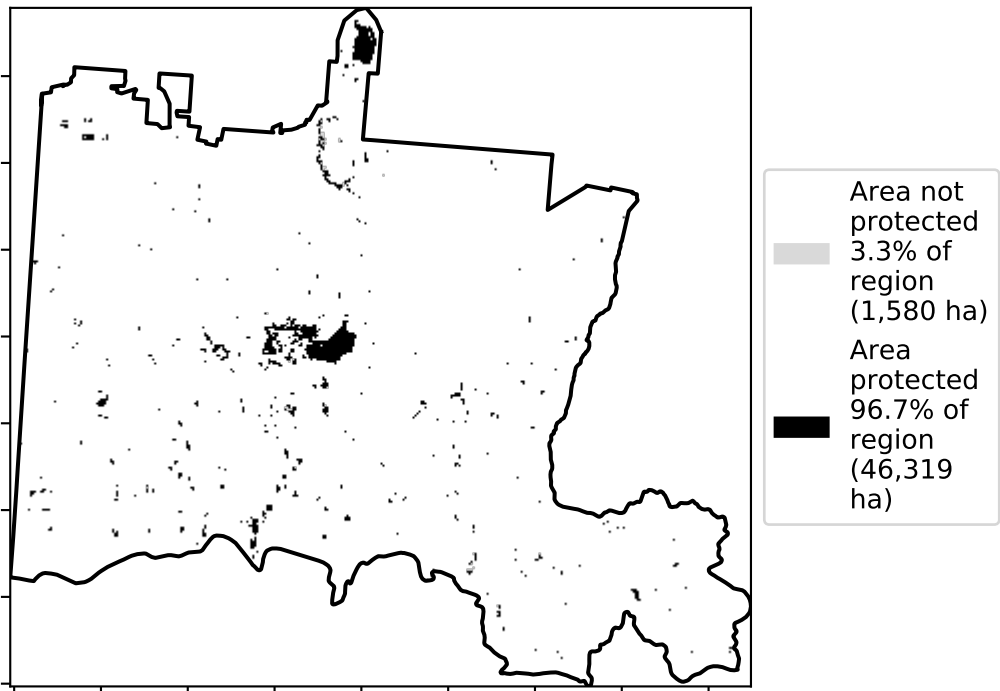
Total Vegetation Cover [%]



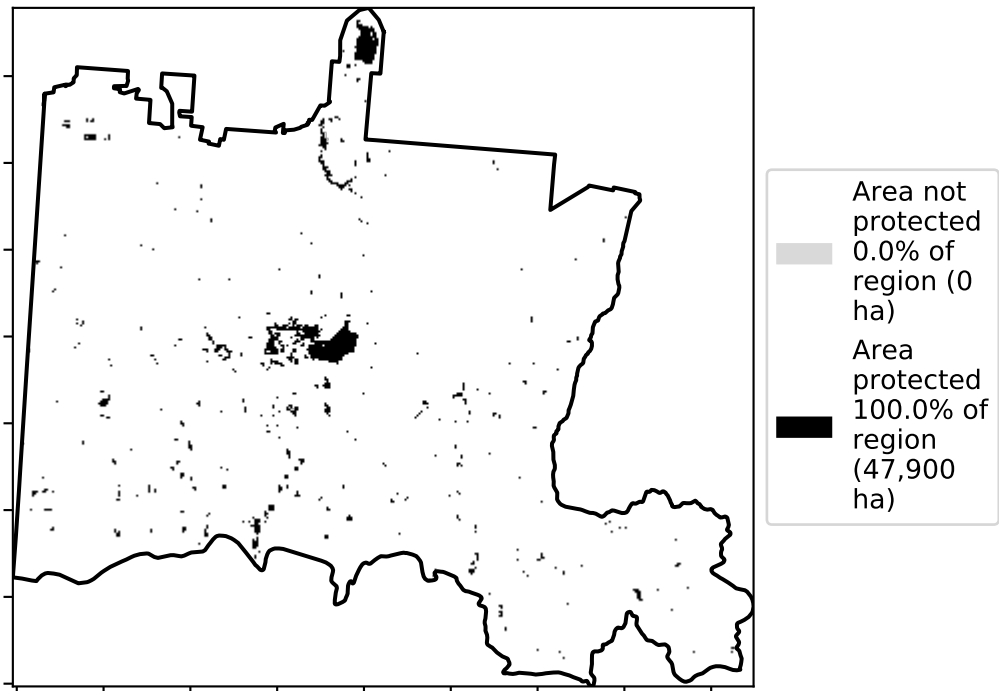
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

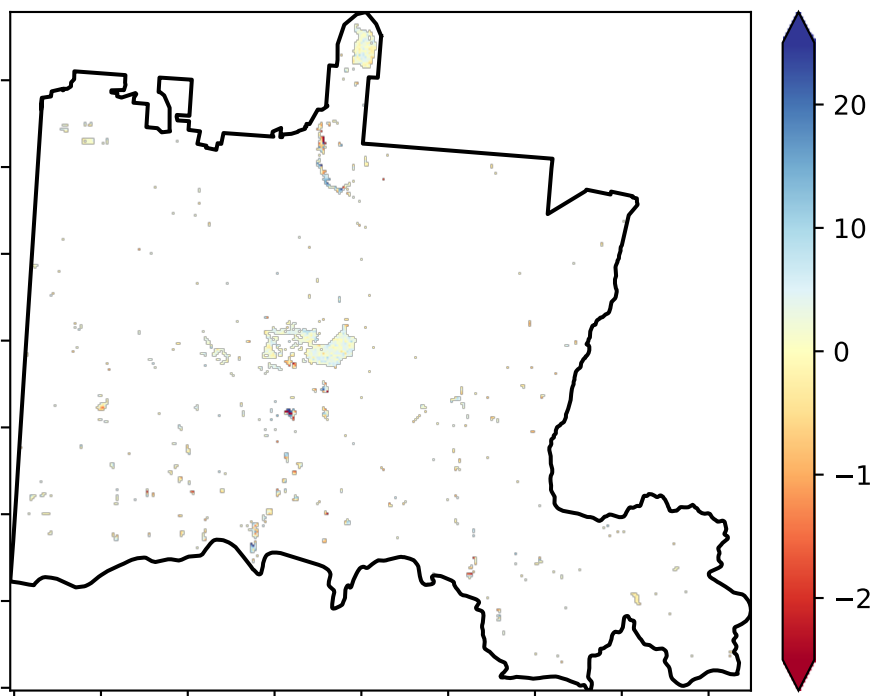


% Area protected from wind erosion (>50%)



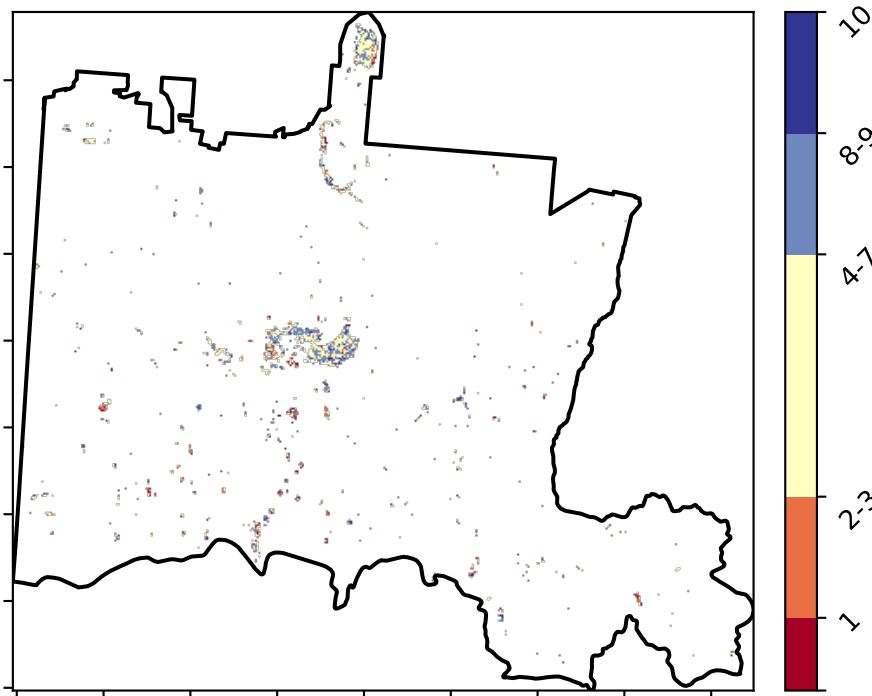
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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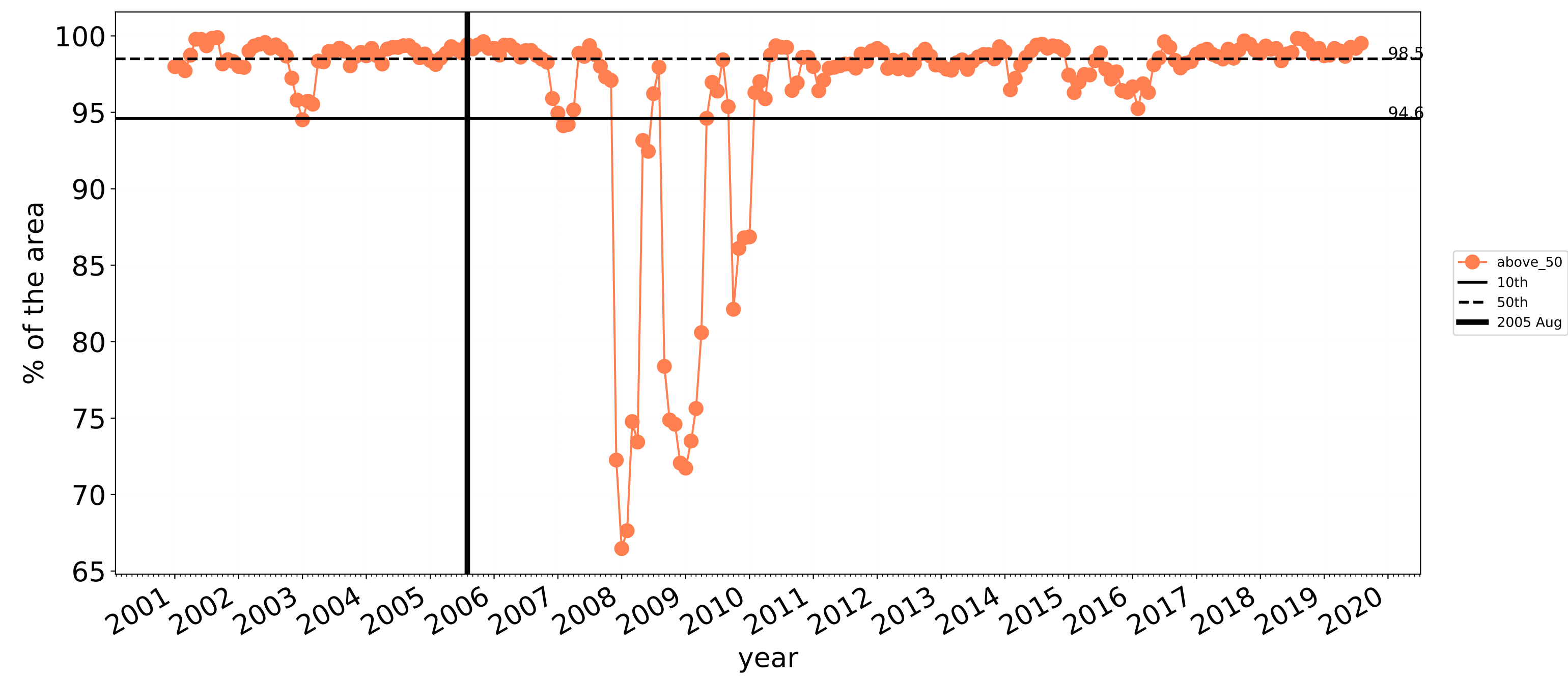


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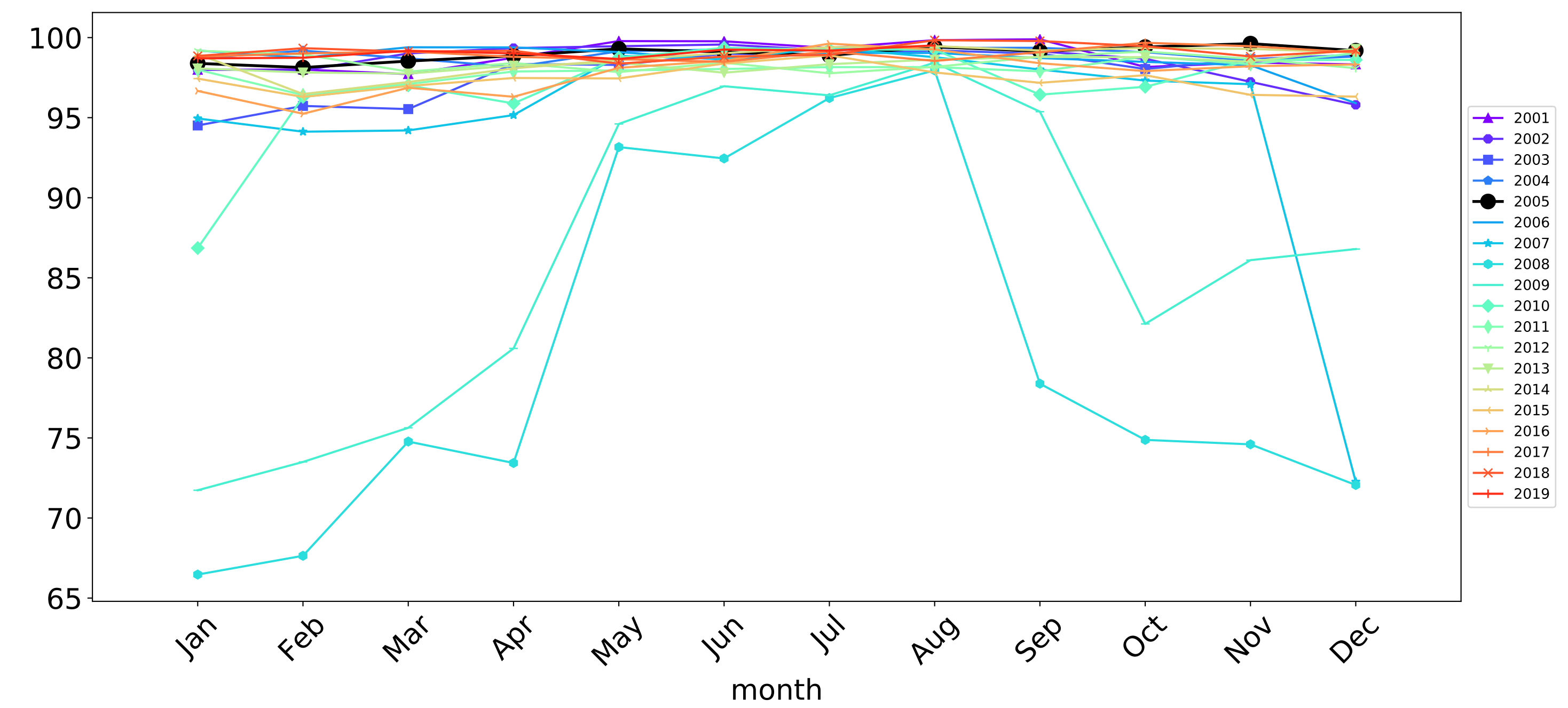


# Conservation and natural environments non forest timeseries

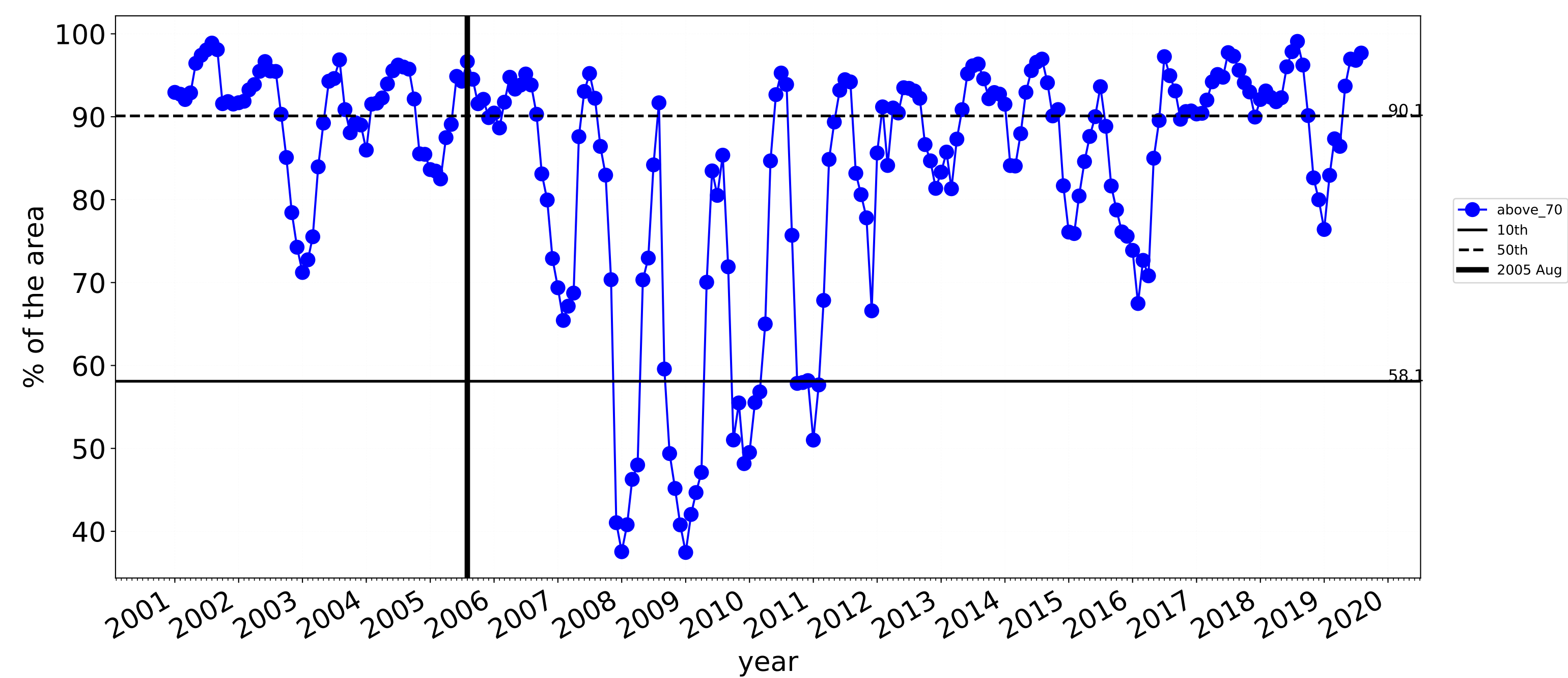
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



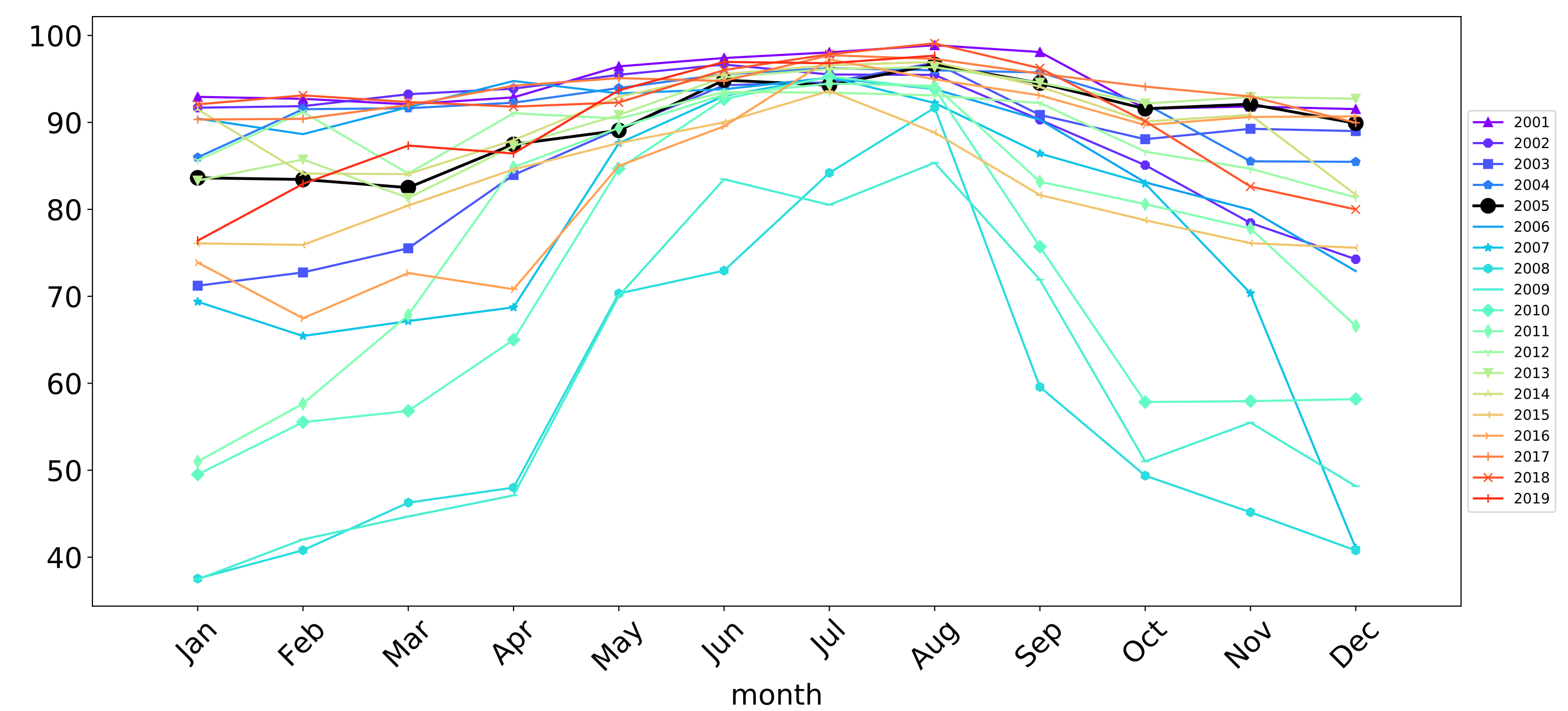
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



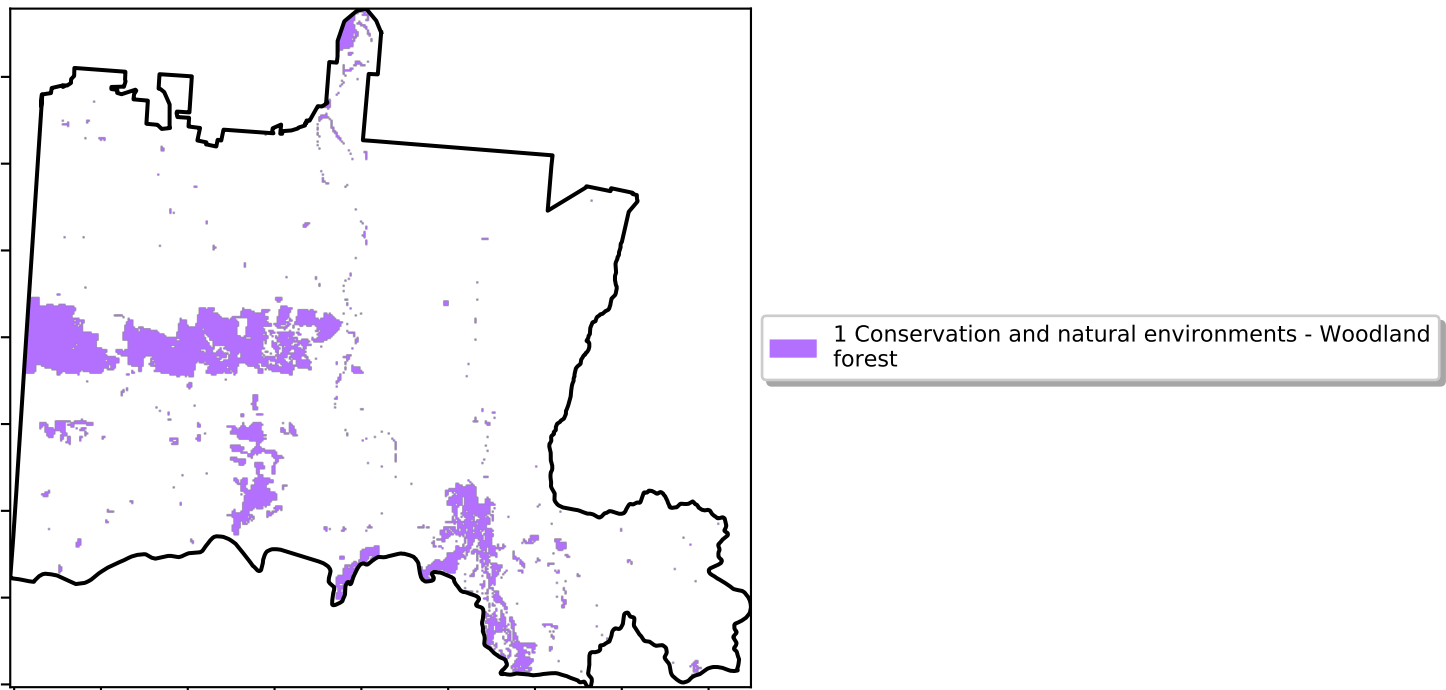
Water erosion historical monthly area protected (Total Veg Cov>70%)



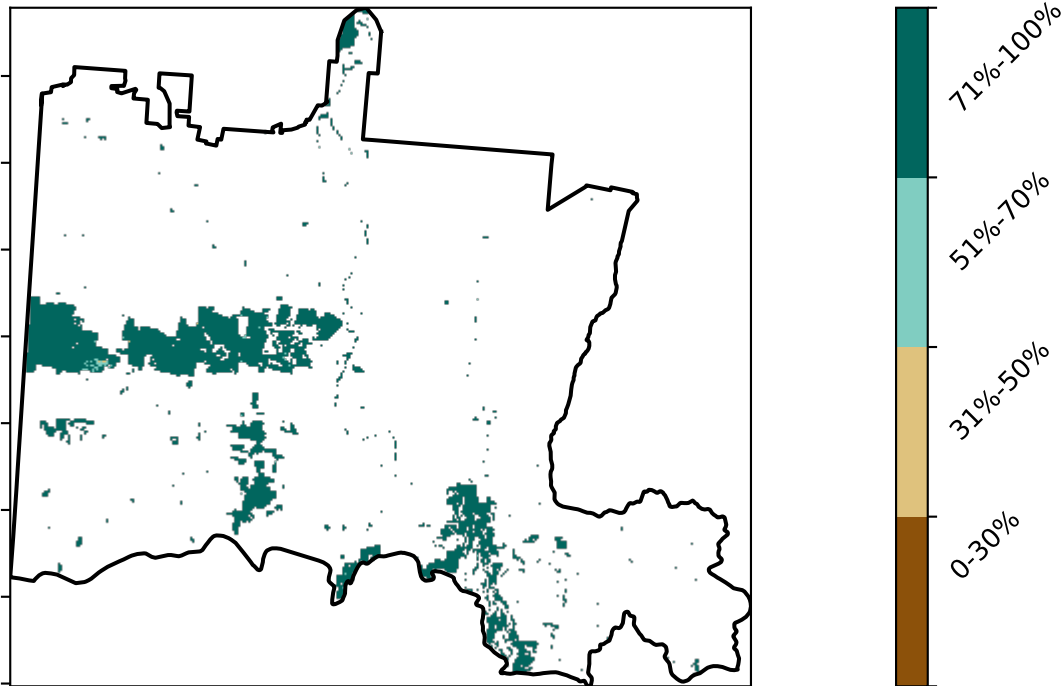
Conservation and natural environments Woodland forest

Land use and forest cover

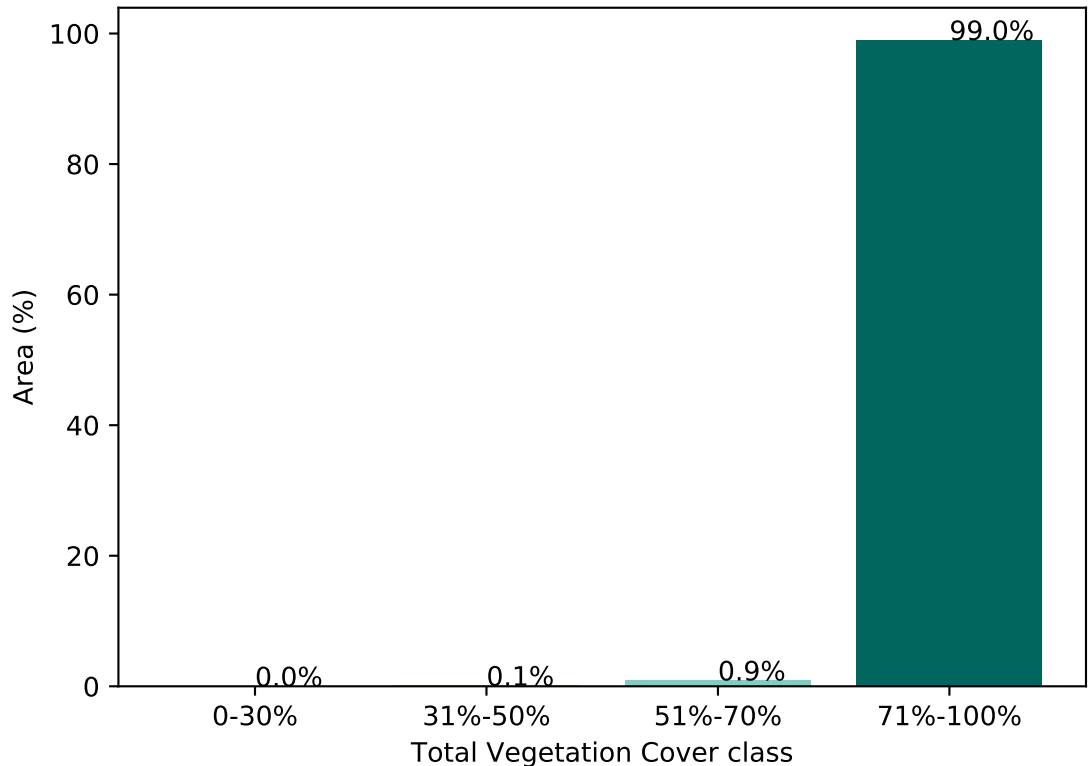
Catchment Scale Land Use and Forests of Australia (2018)  
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



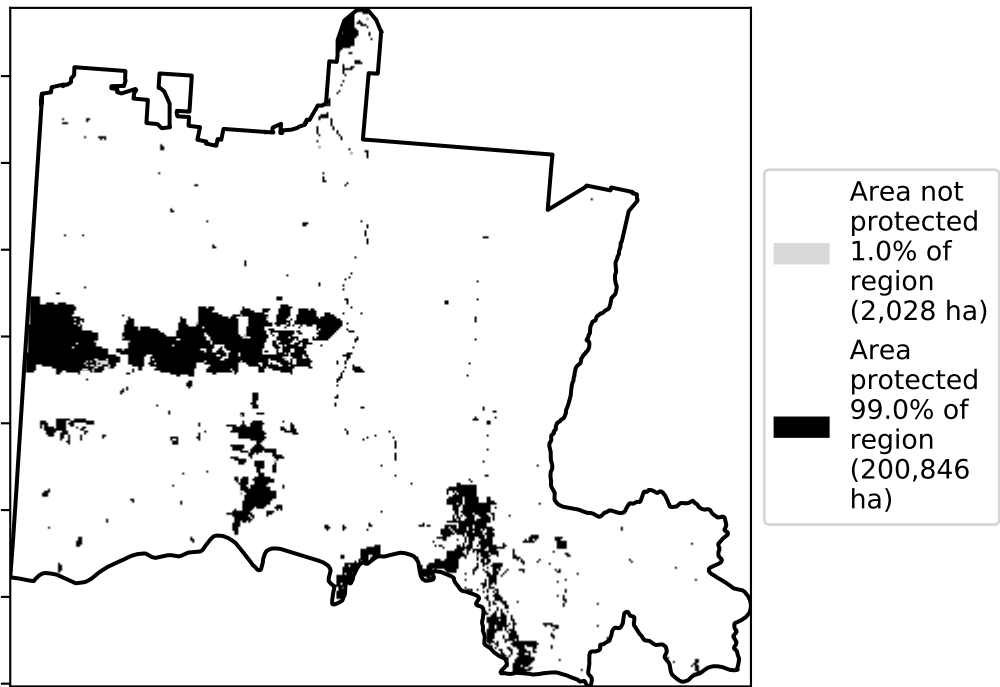
Total Vegetation Cover [%]



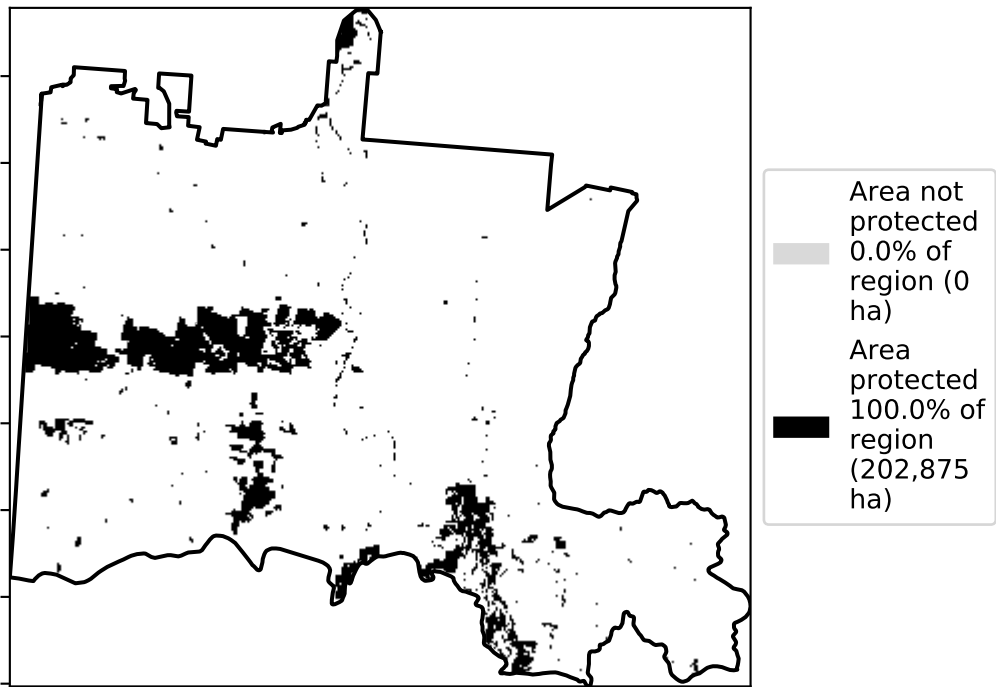
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

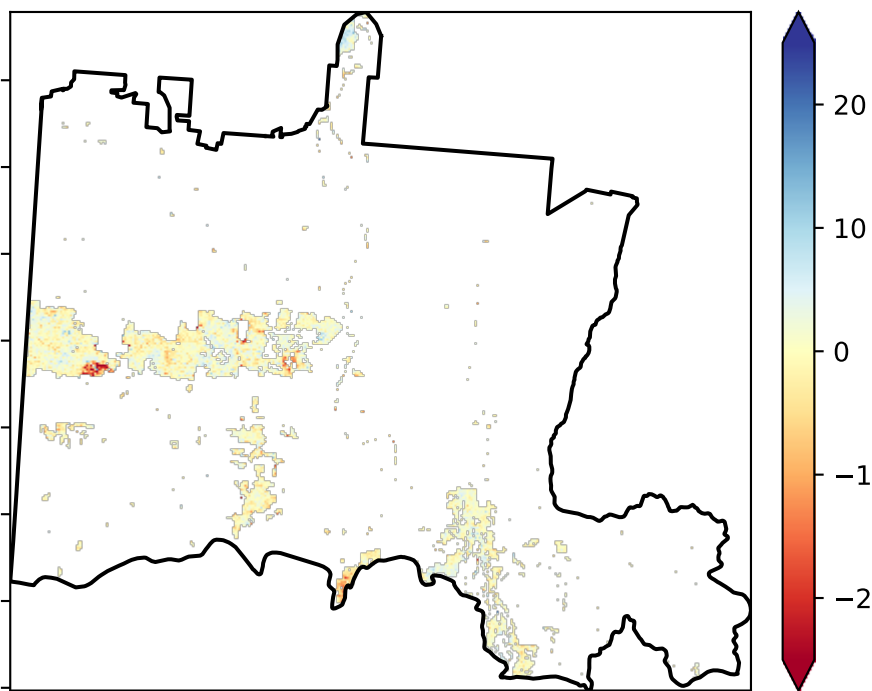


% Area protected from wind erosion (>50%)



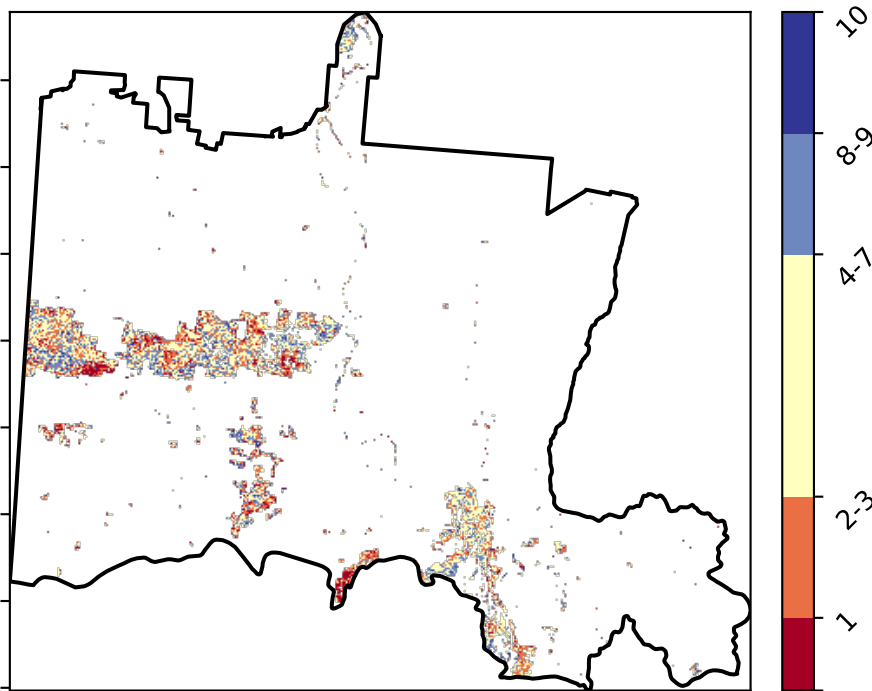
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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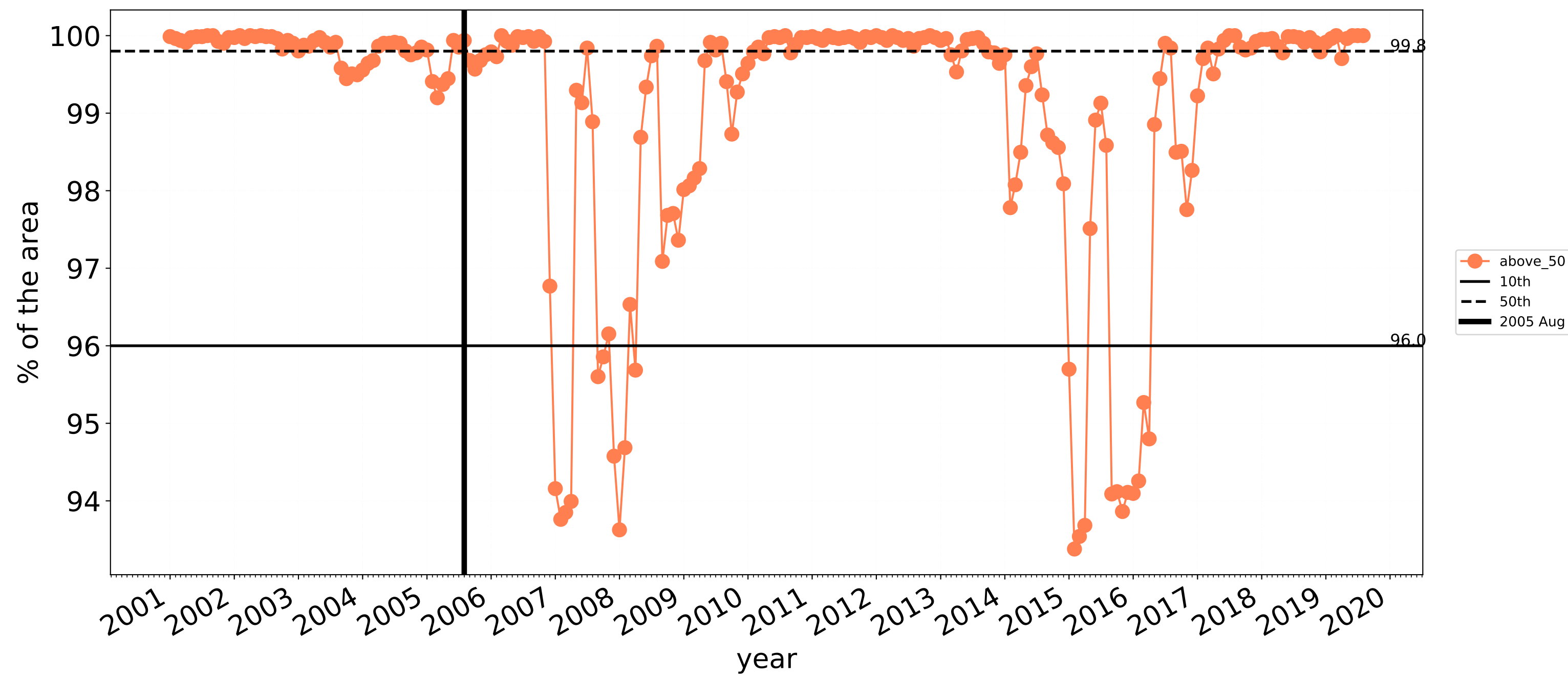


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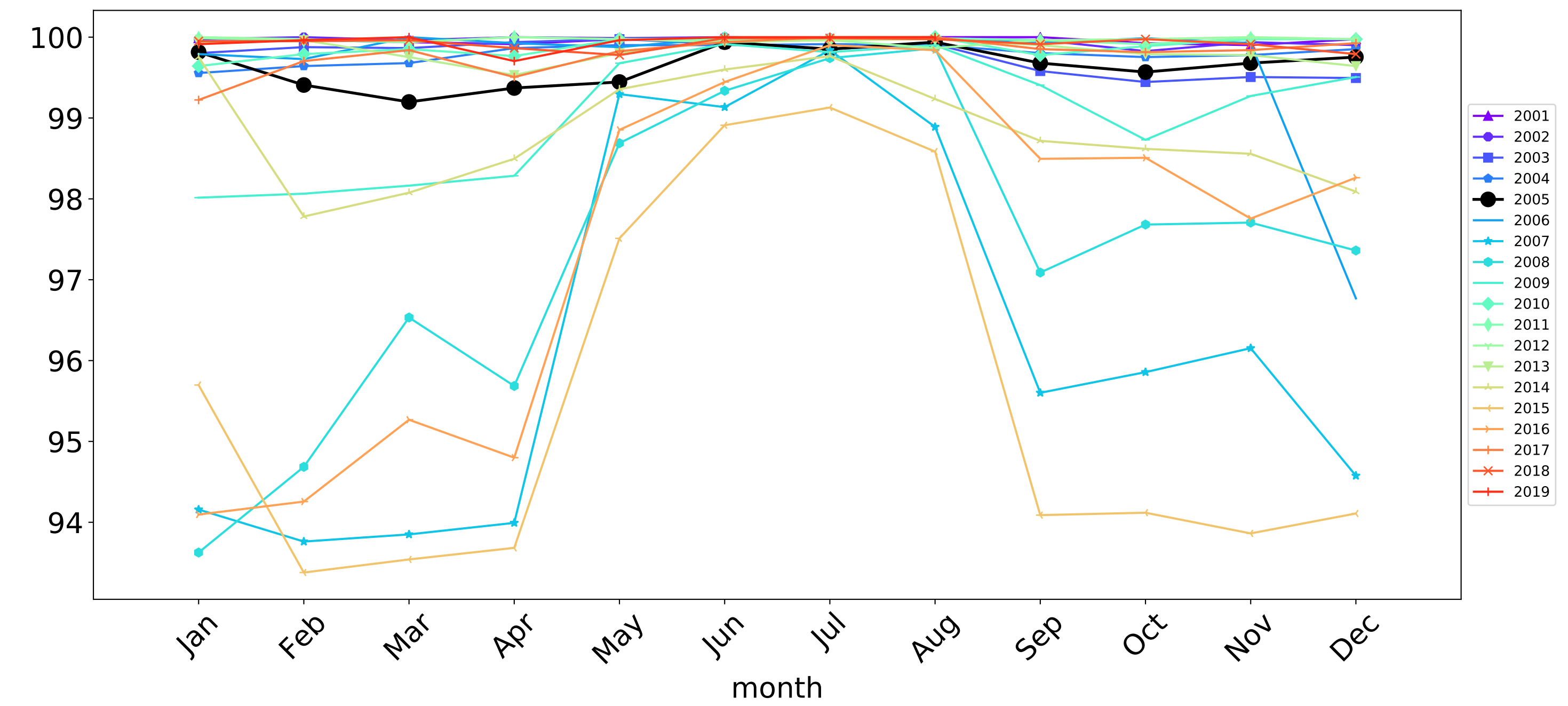


# Conservation and natural environments Woodland forest timeseries

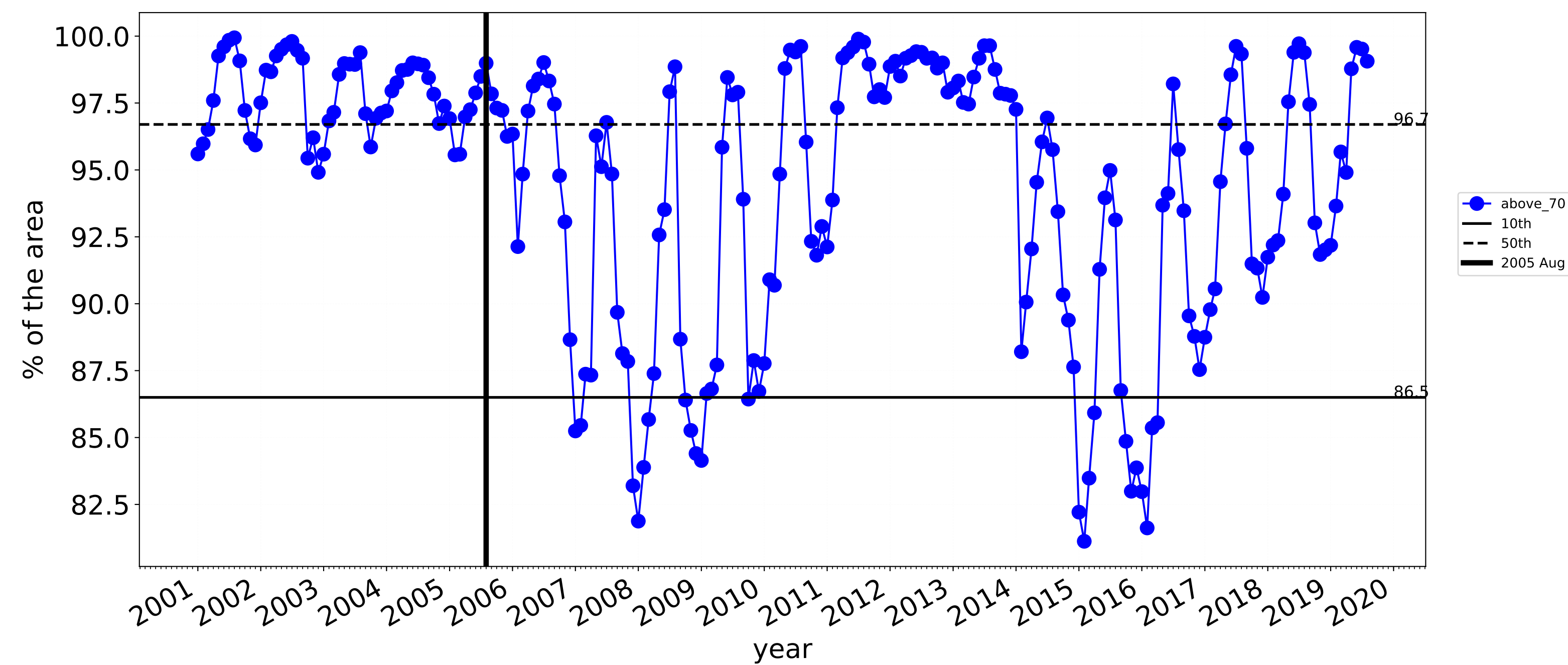
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



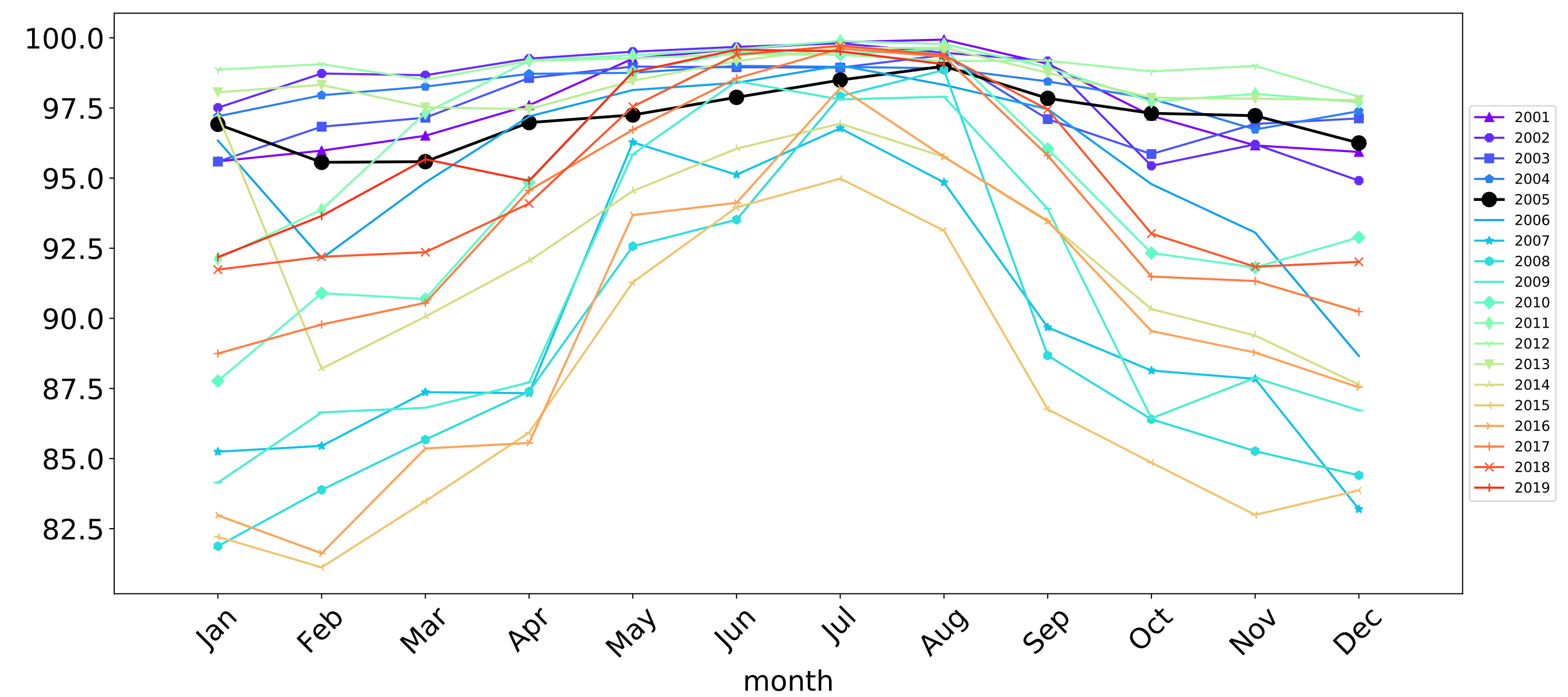
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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



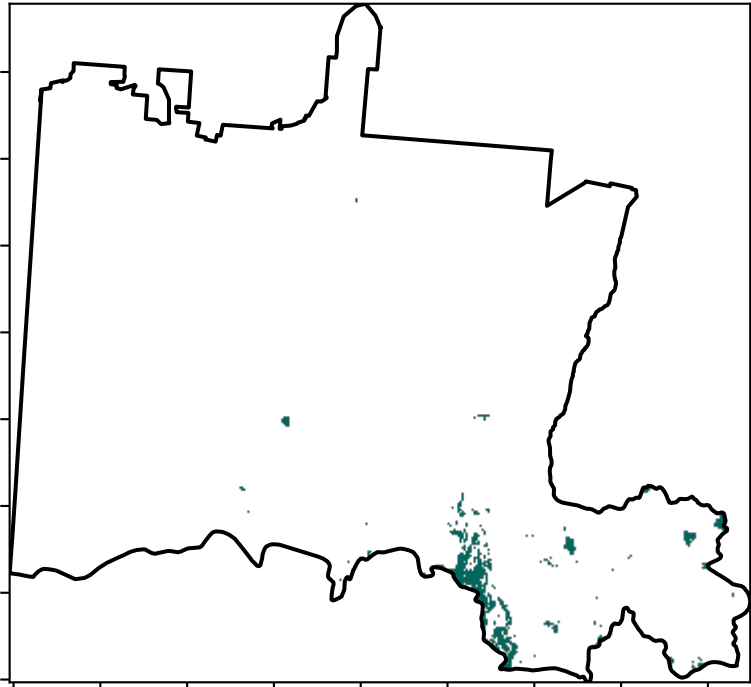
Conservation and natural environments Forest (non woodland)

Land use and forest cover

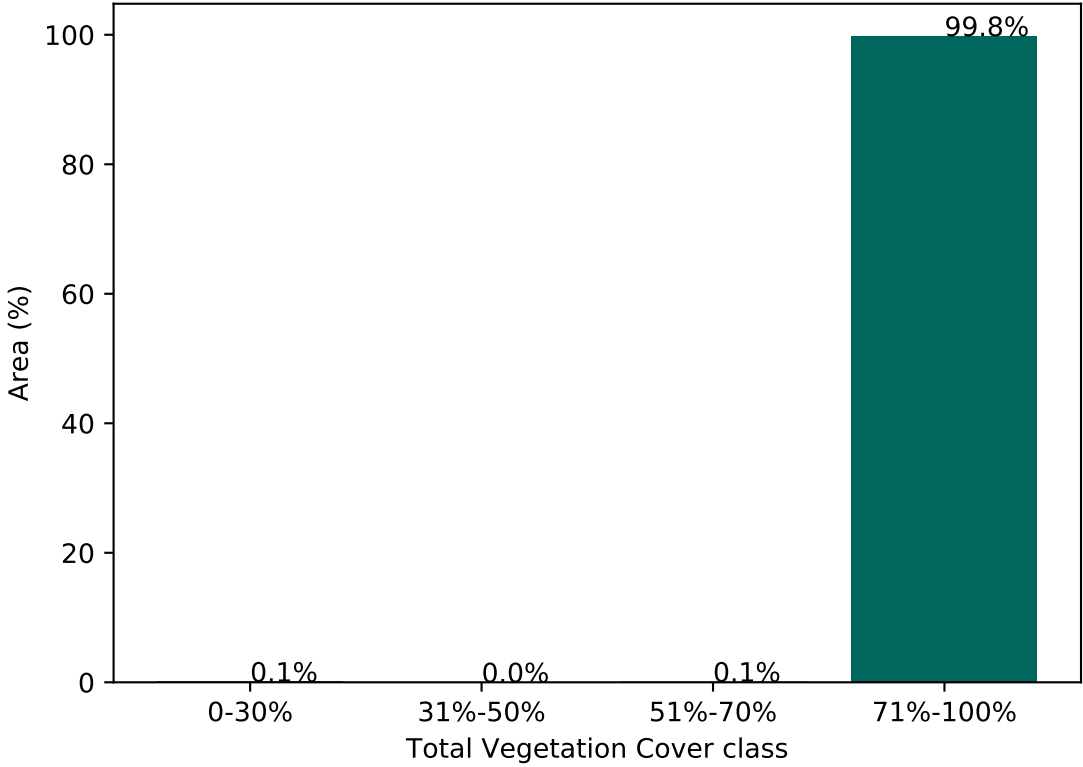
Catchment Scale Land Use and Forests of Australia (2018)  
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



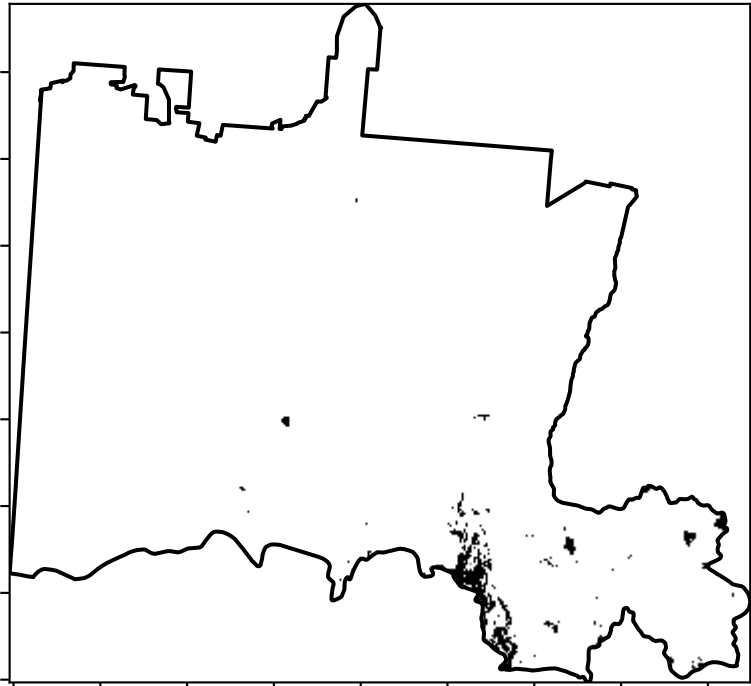
Total Vegetation Cover [%]



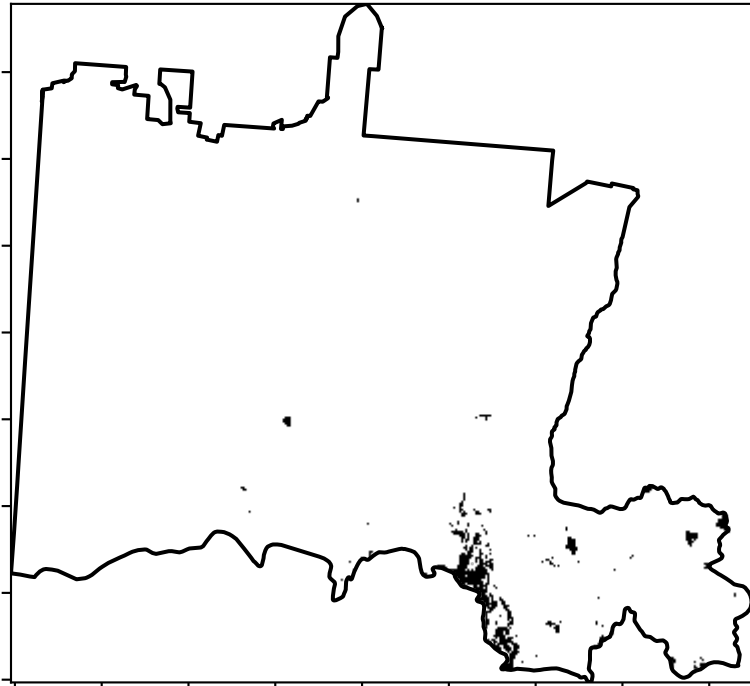
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

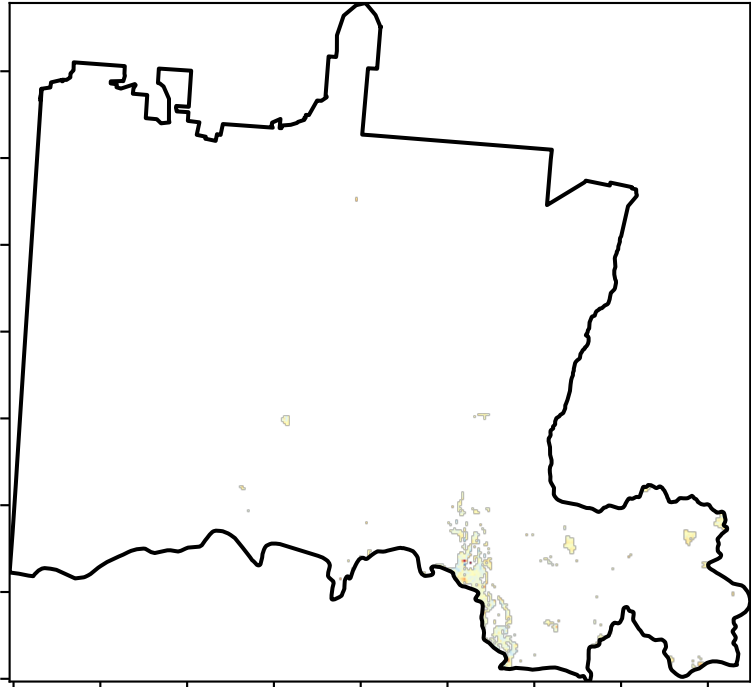


% Area protected from wind erosion (>50%)



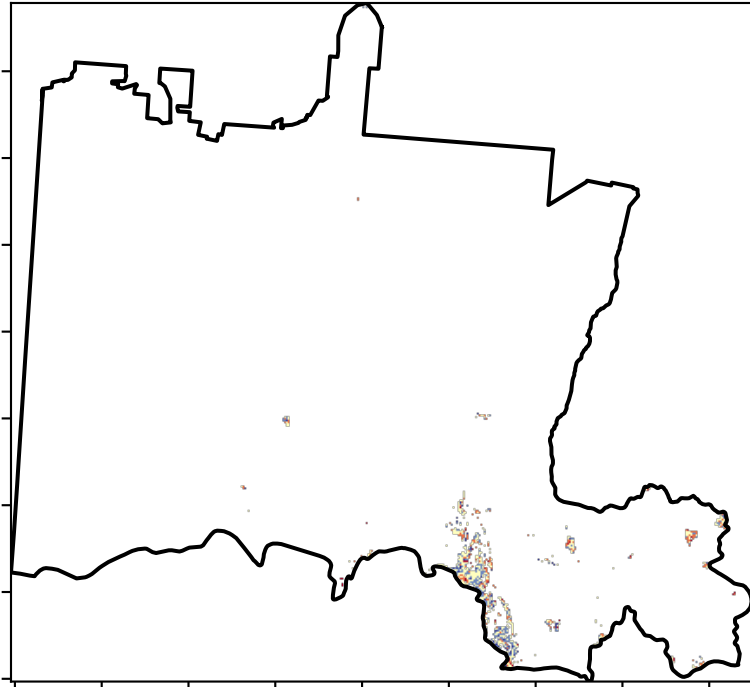
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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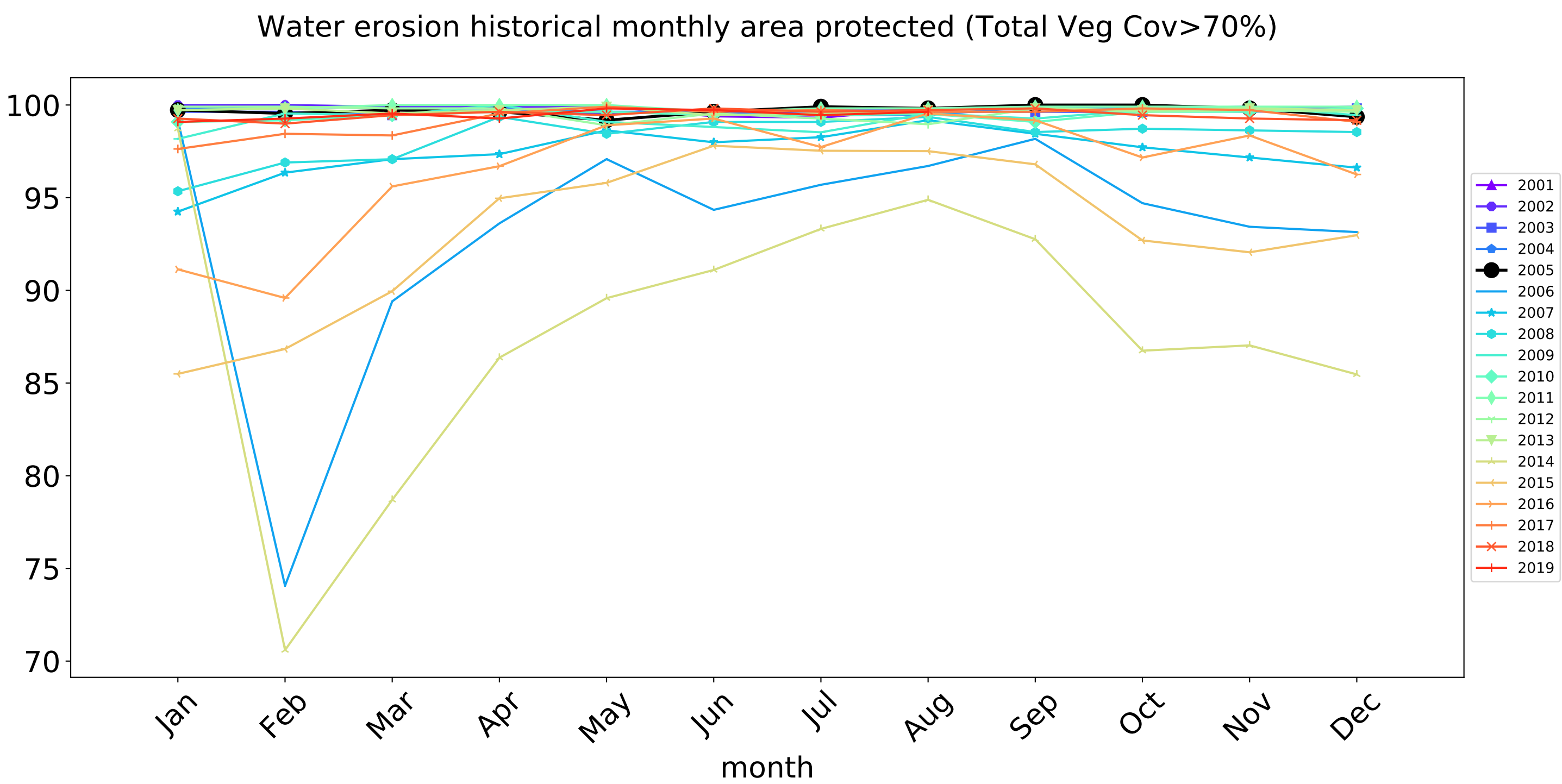
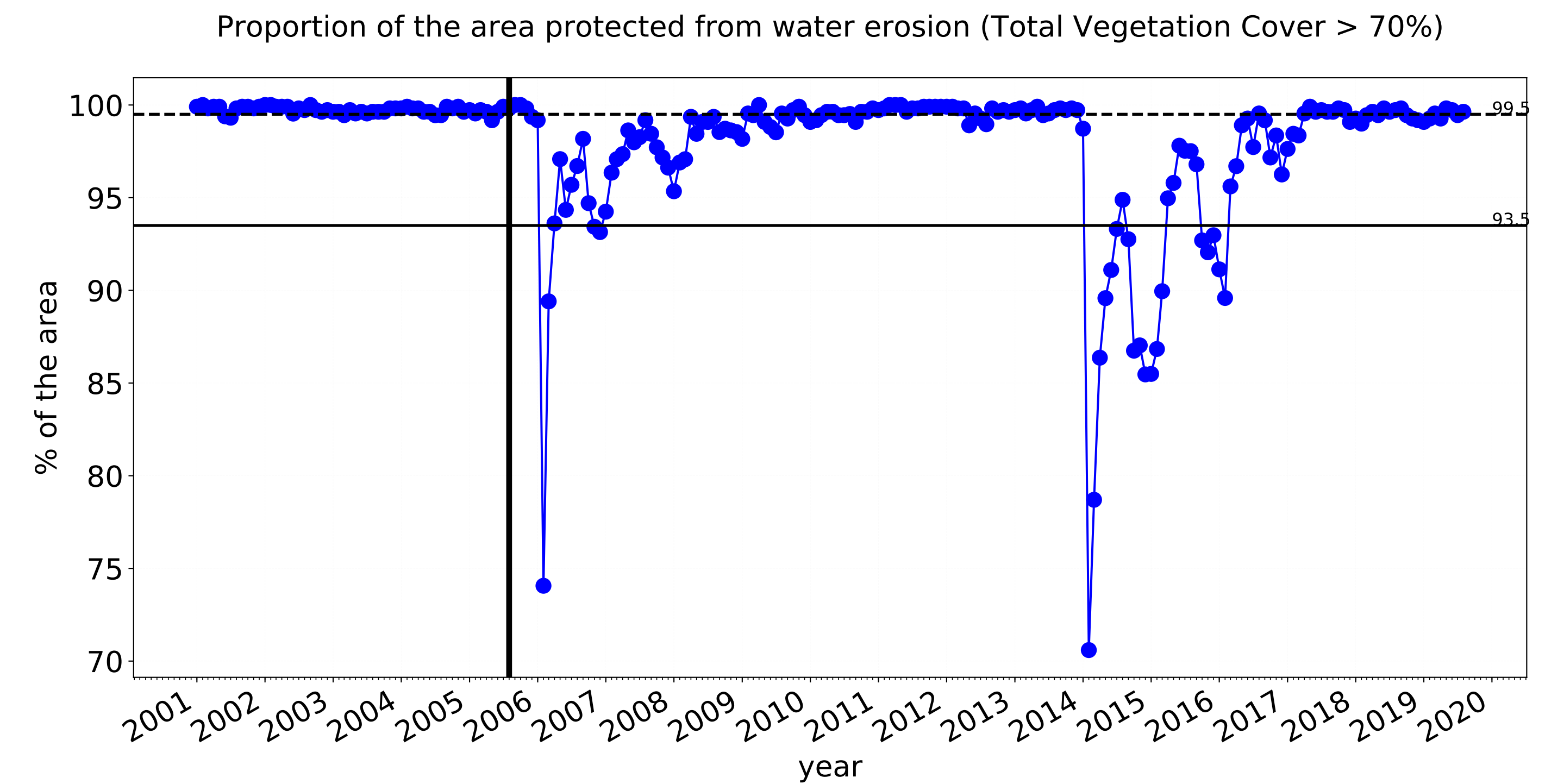
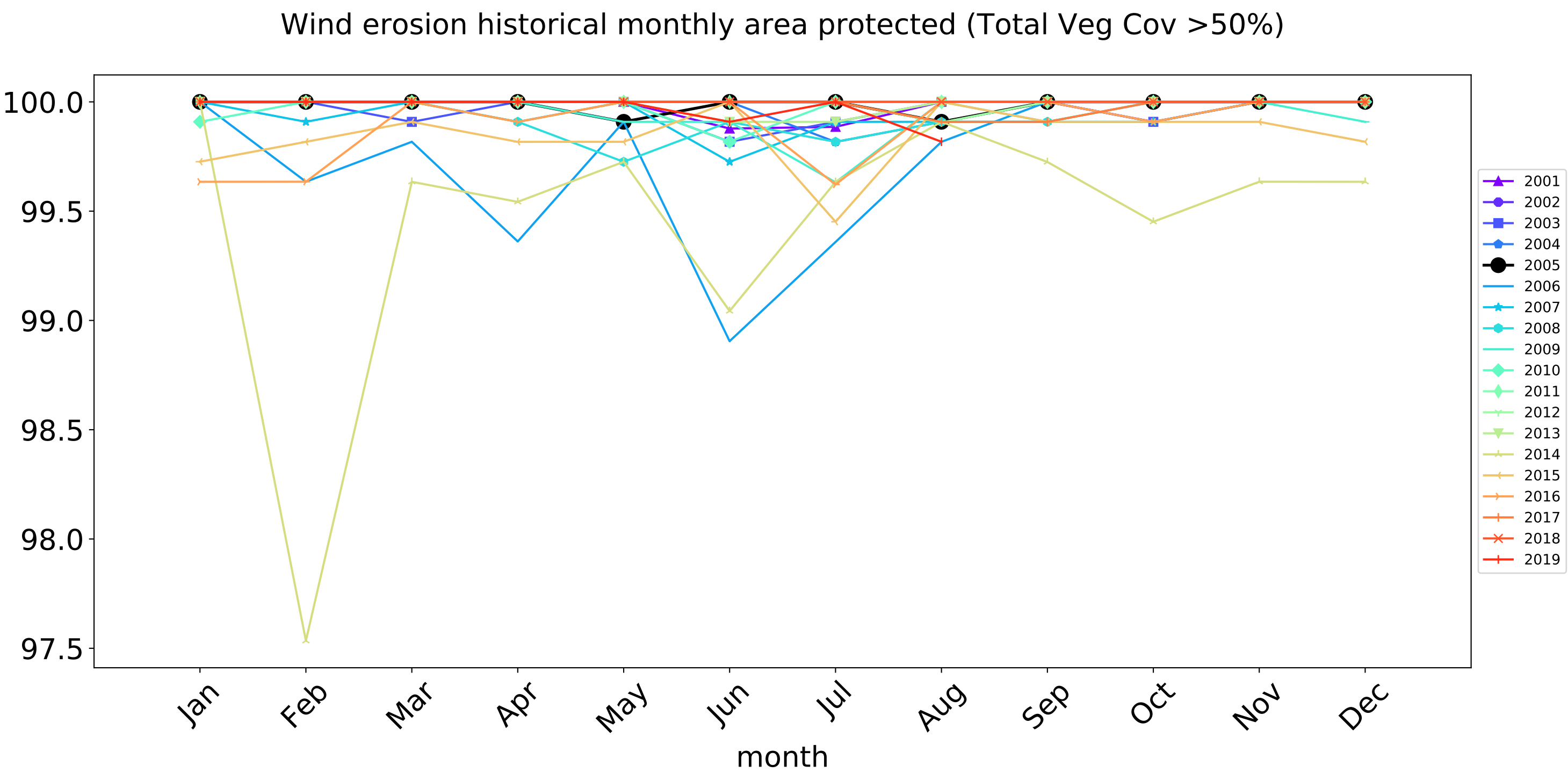
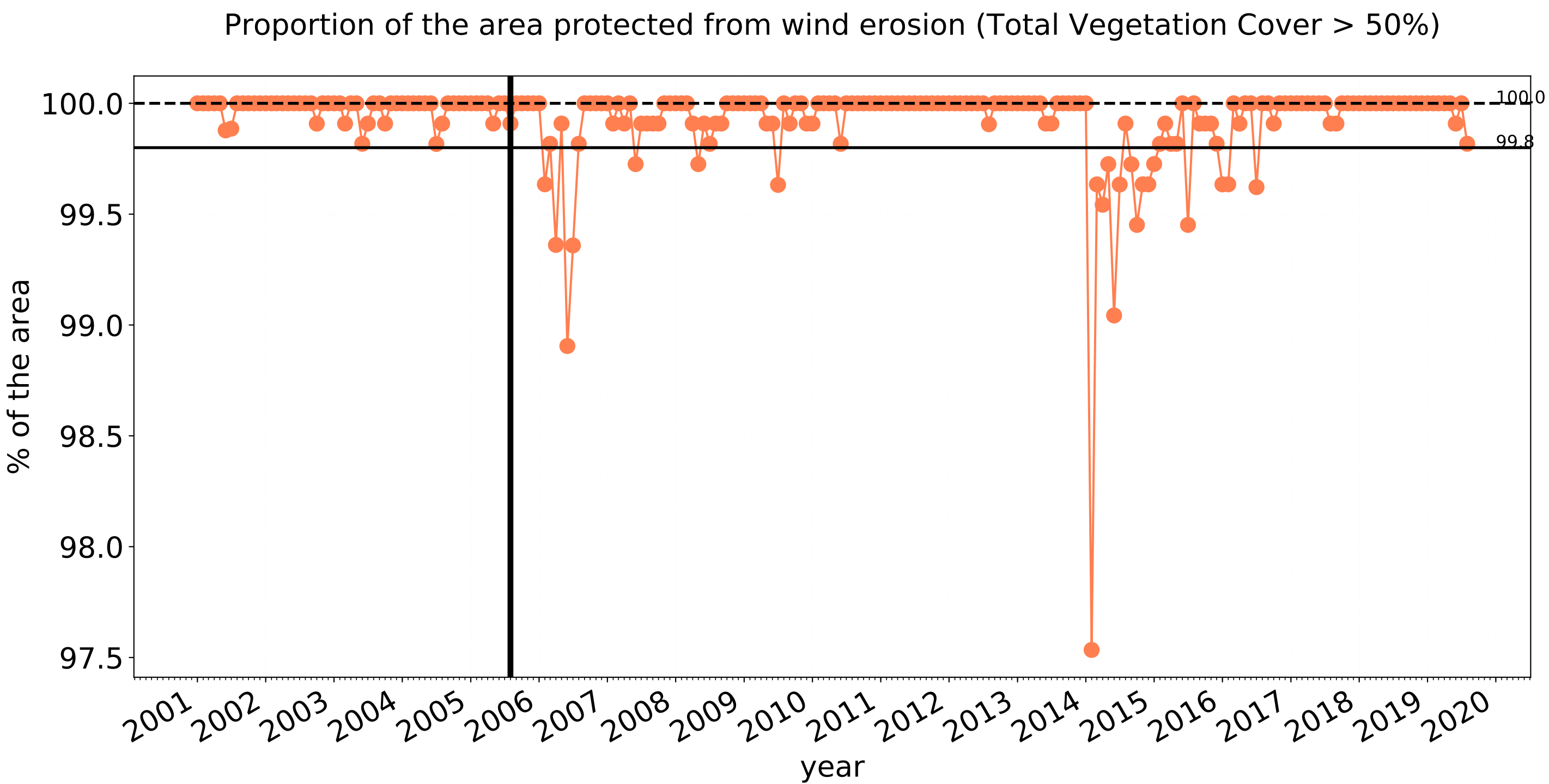
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Conservation and natural environments Forest (non woodland) timeseries

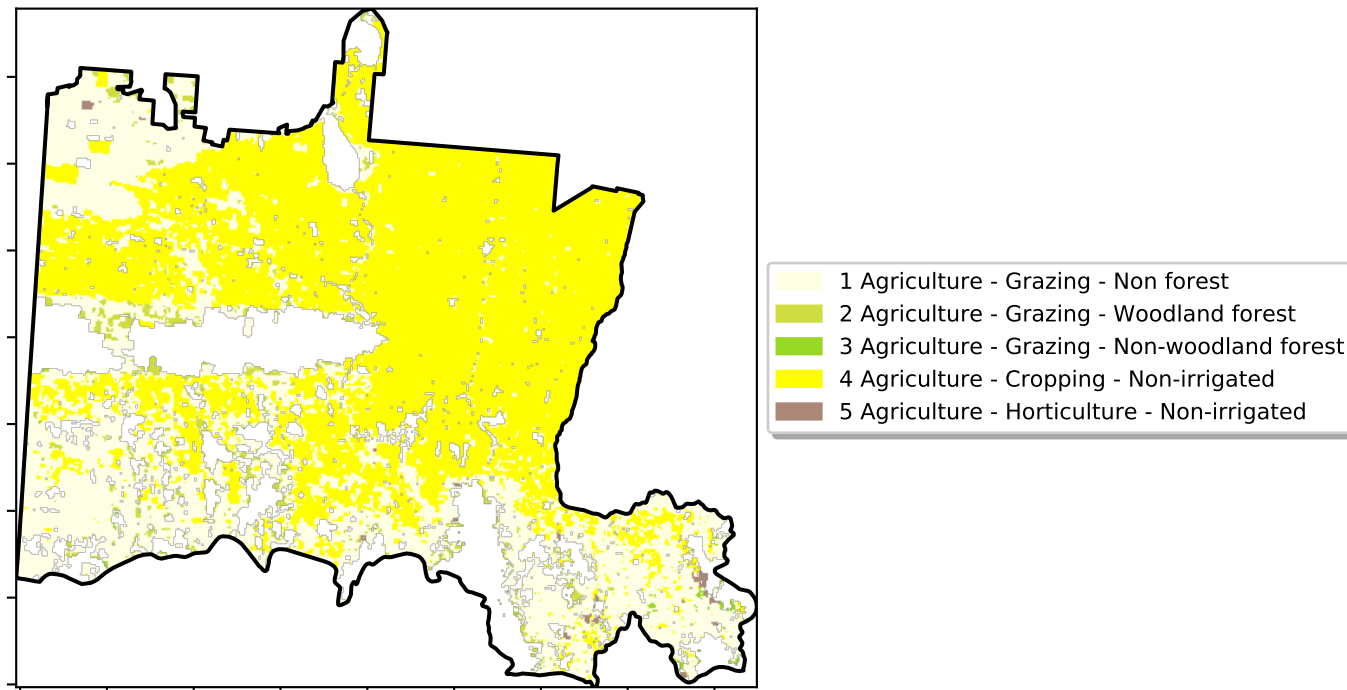




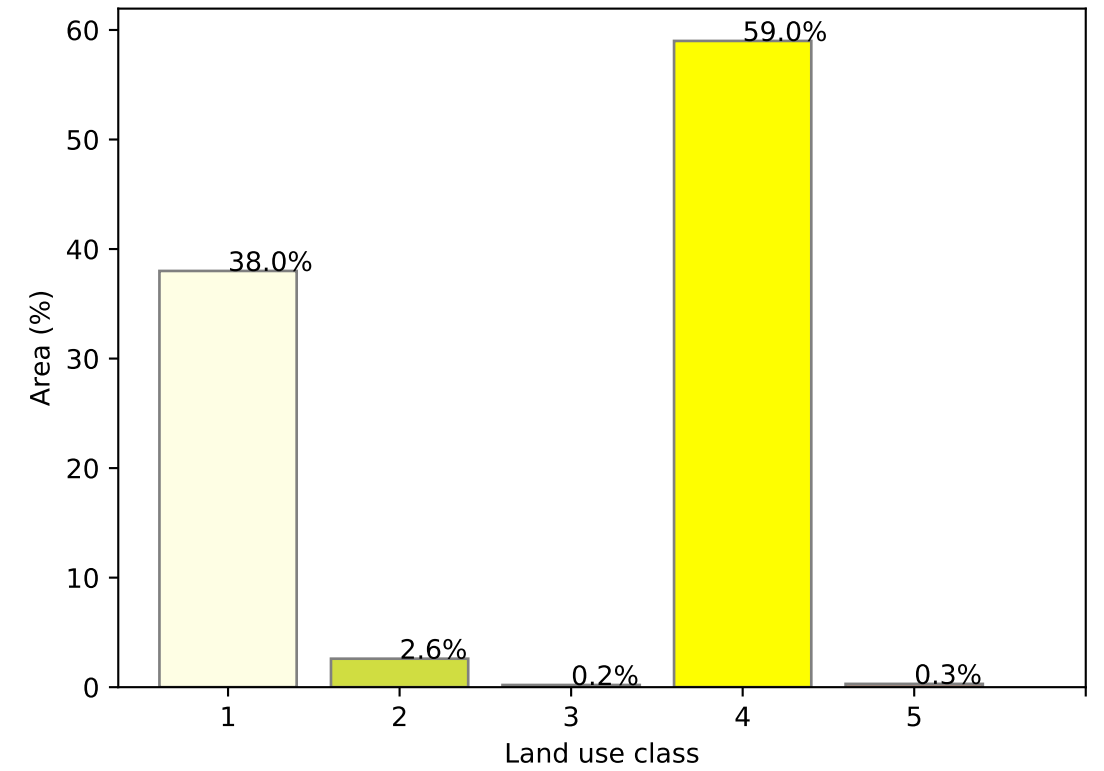
# Agriculture

Land use and forest cover

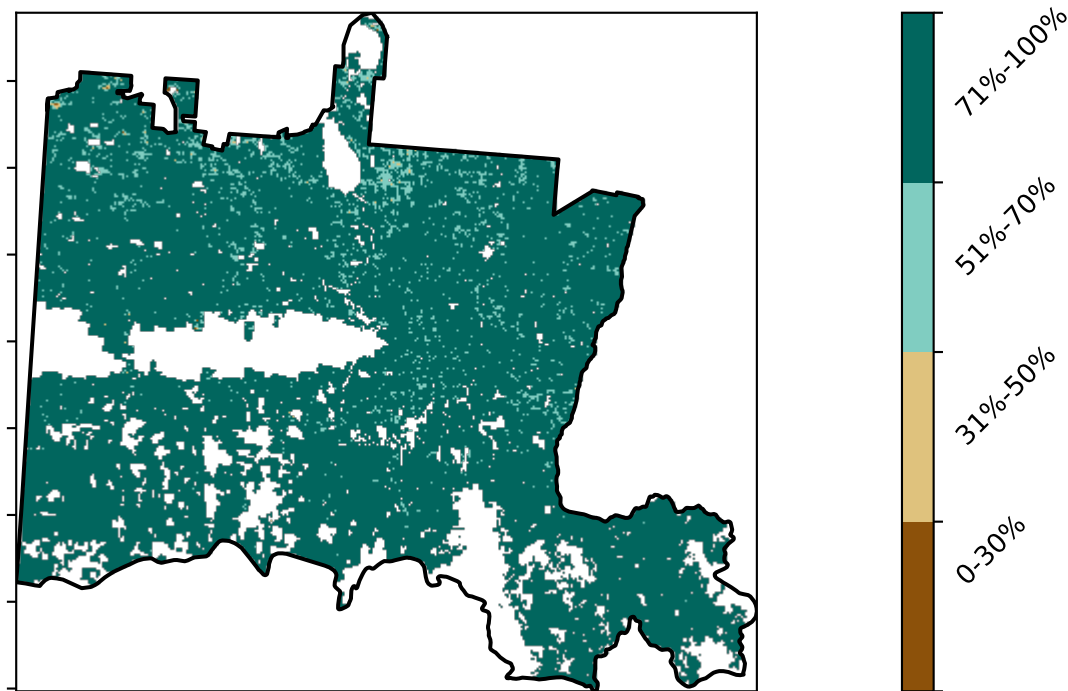
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Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



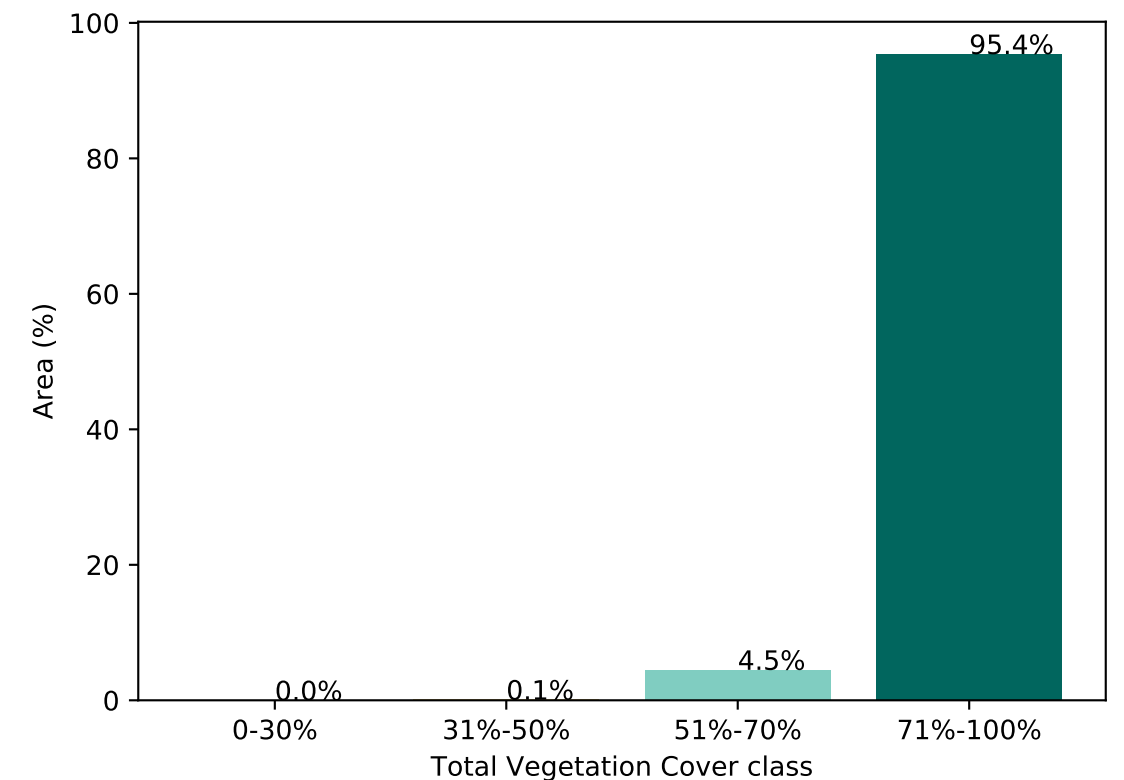
Proportion of each land class in area



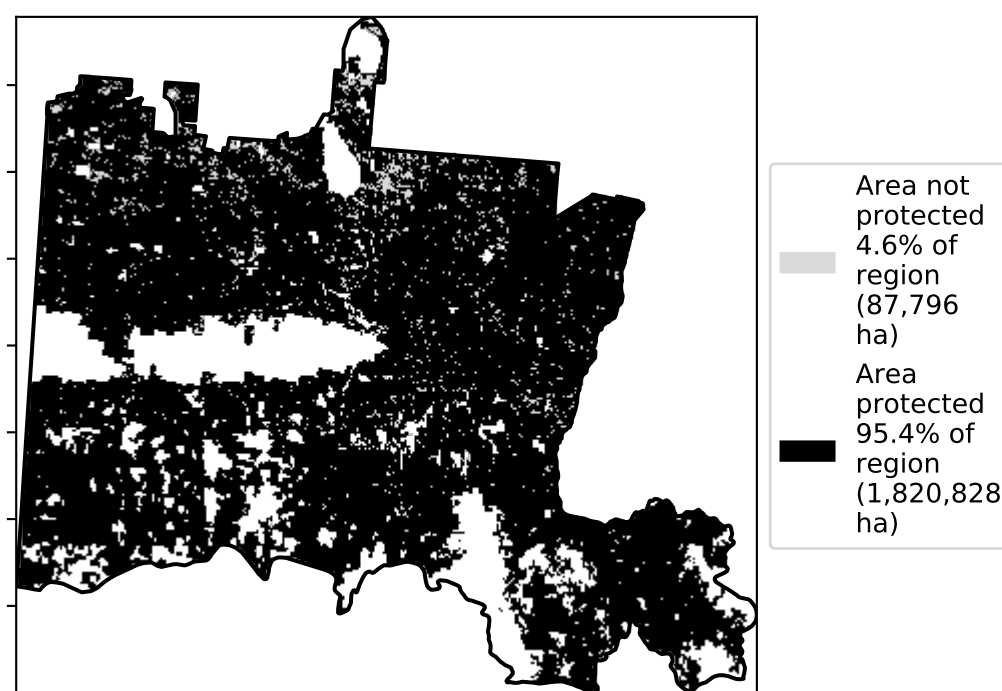
Total Vegetation Cover [%]



Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

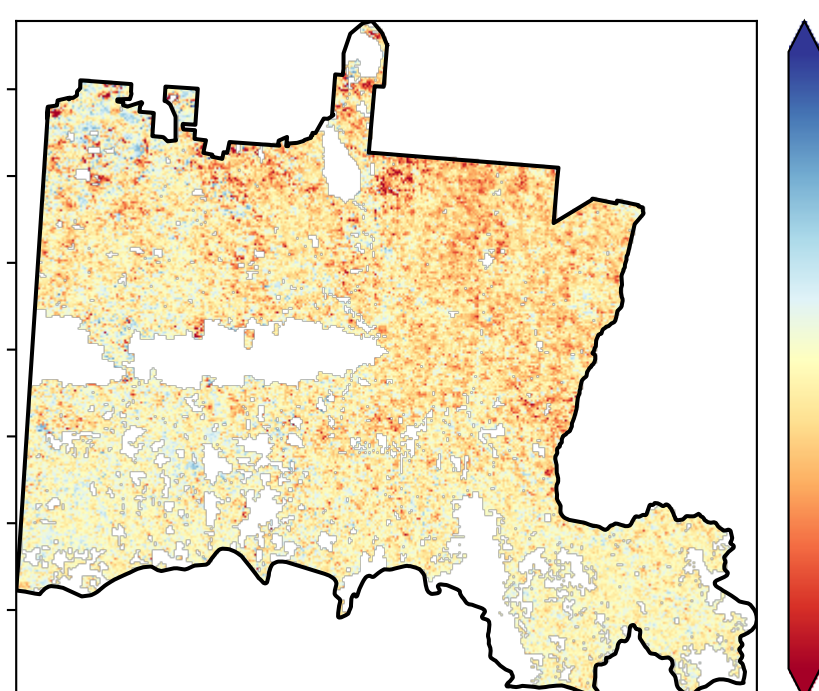


% Area protected from wind erosion (>50%)



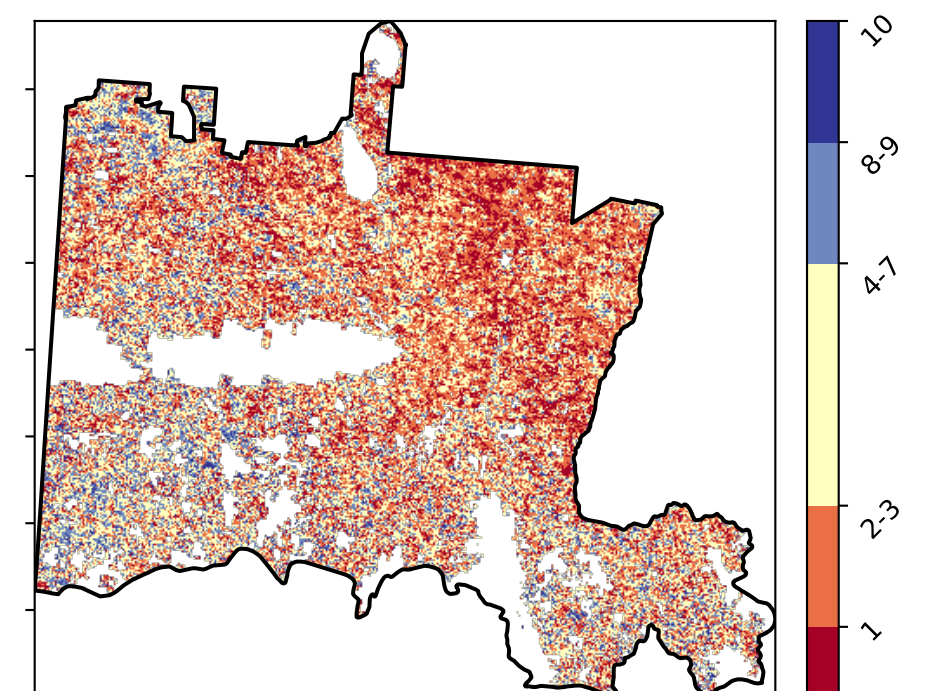
Total Vegetation Cover Anomaly [%]

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 [%]



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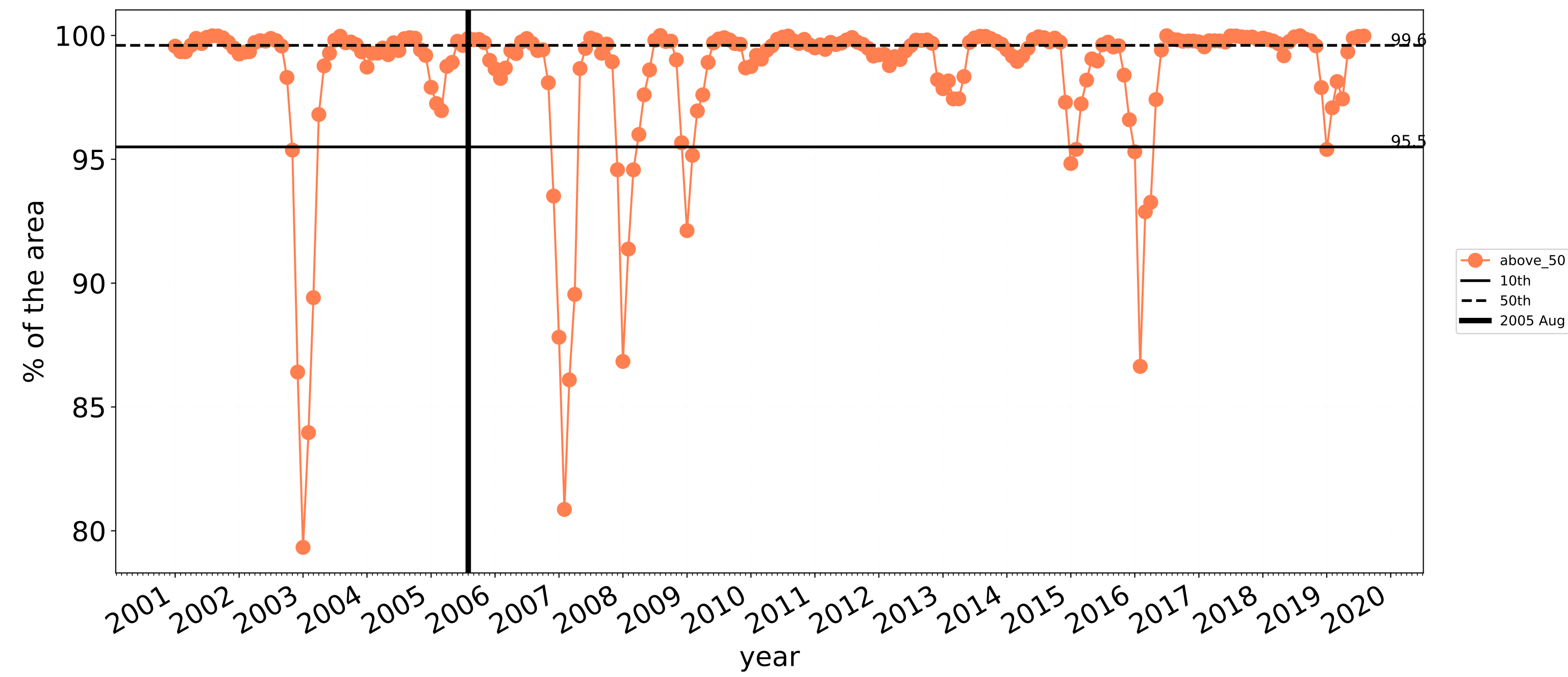


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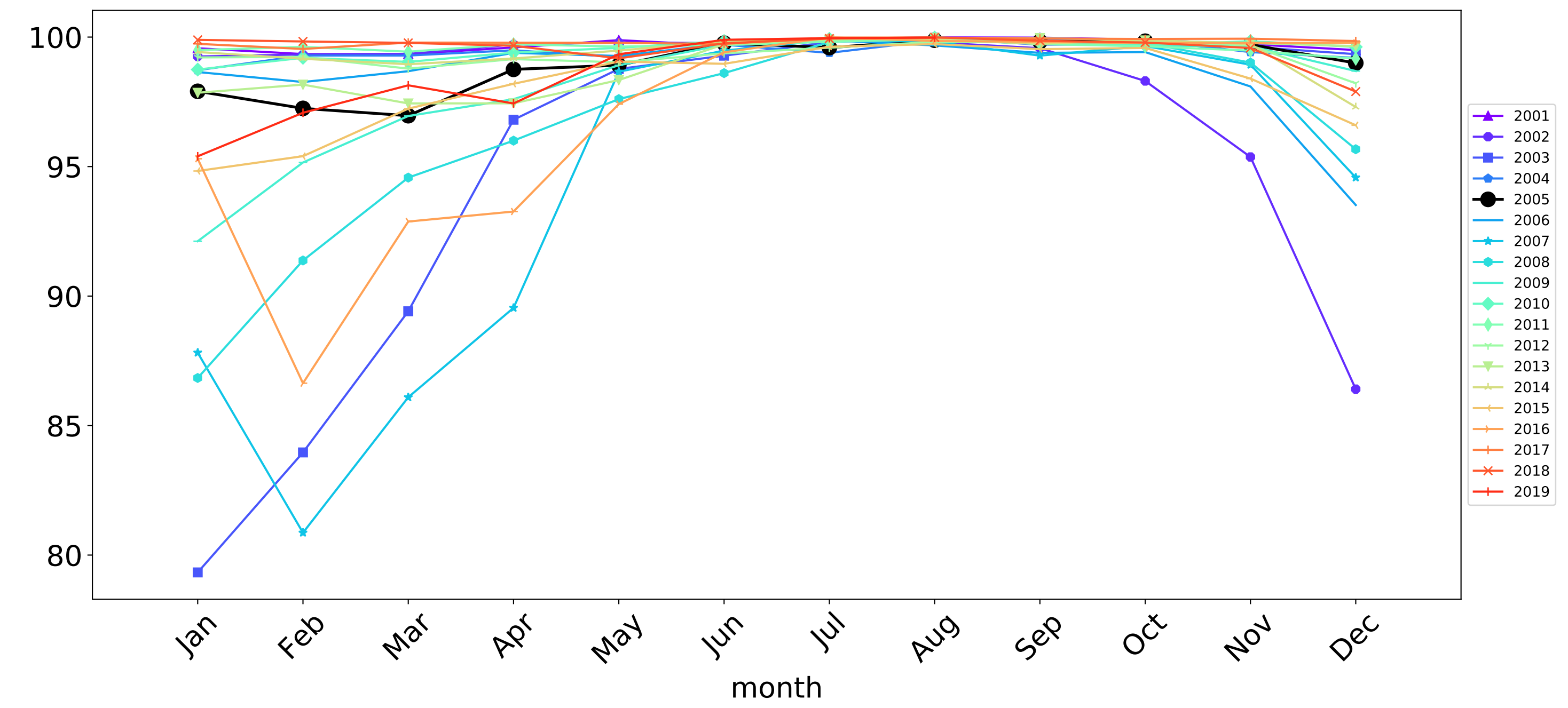


# Agriculture timeseries

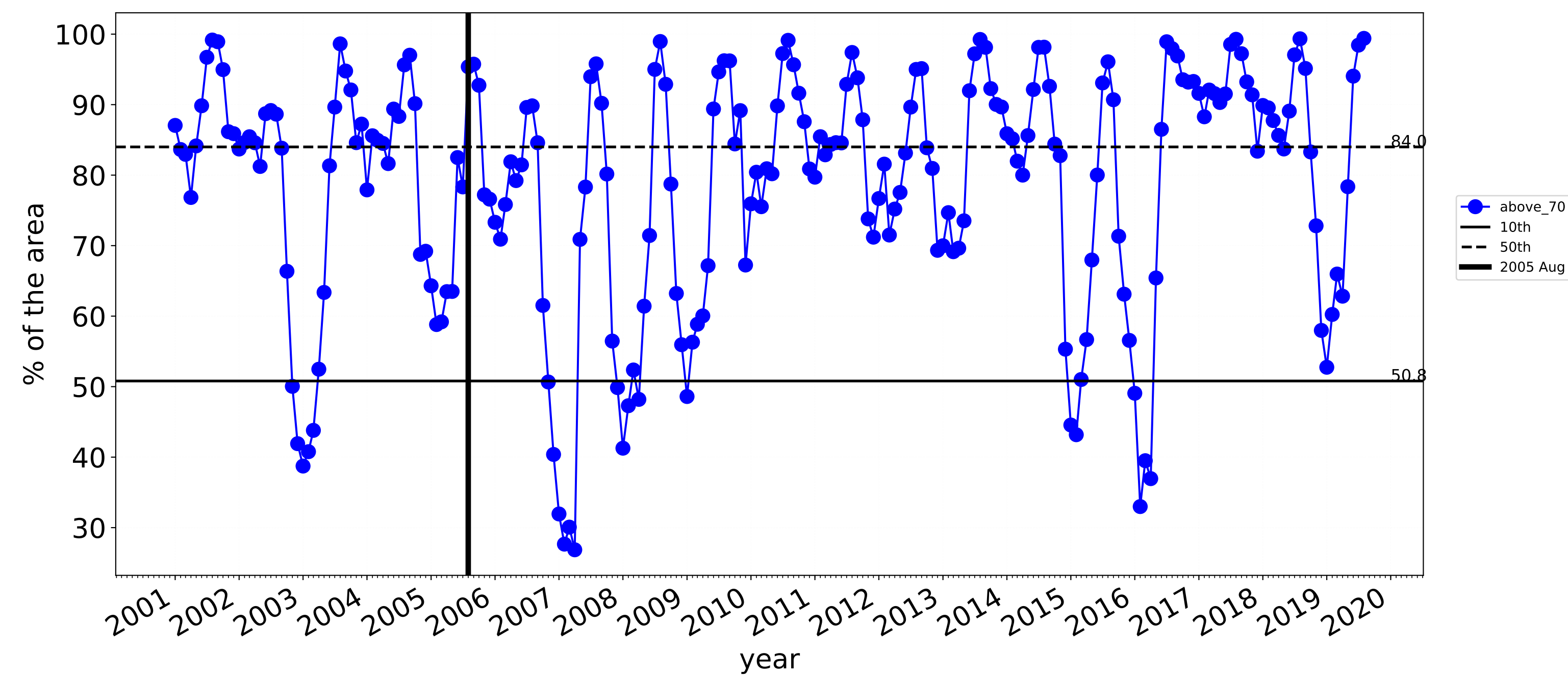
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



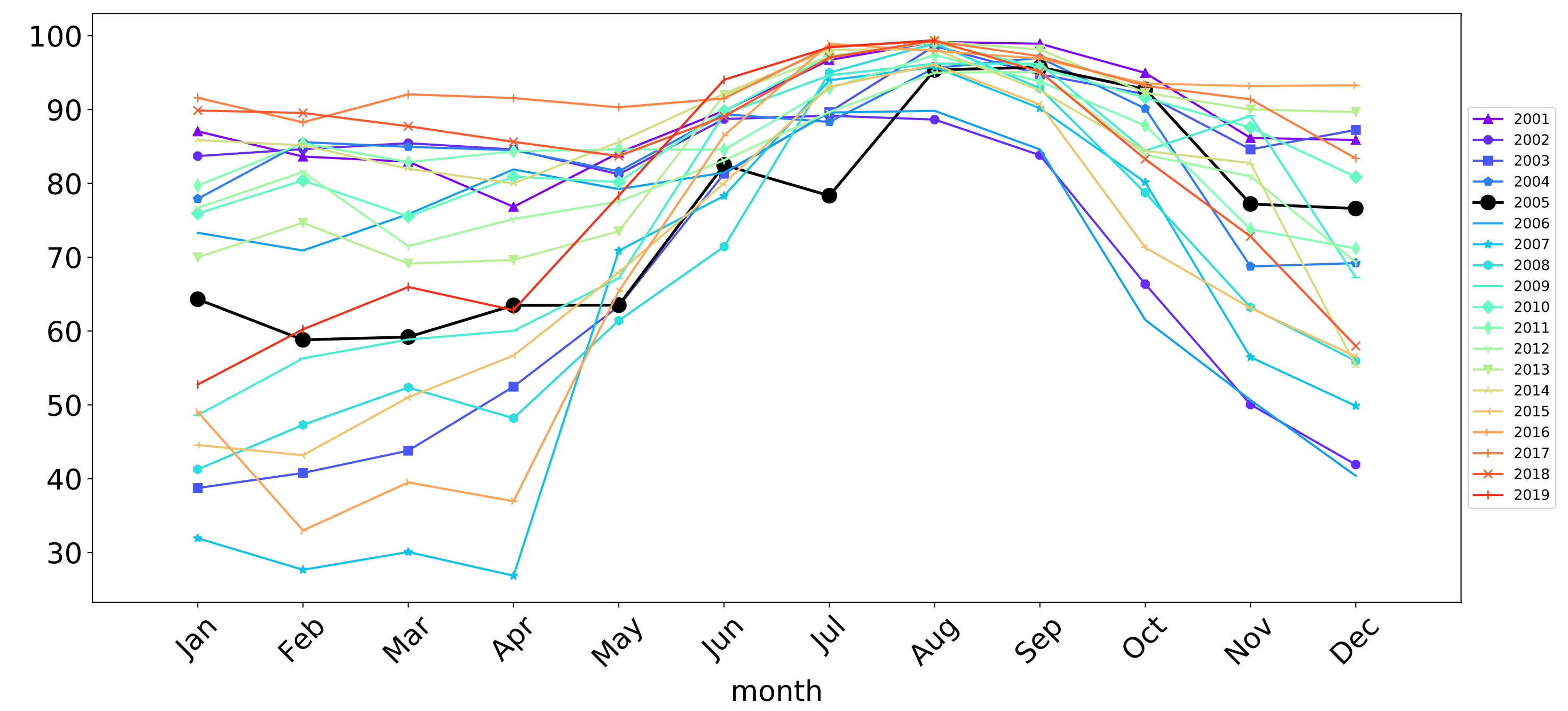
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



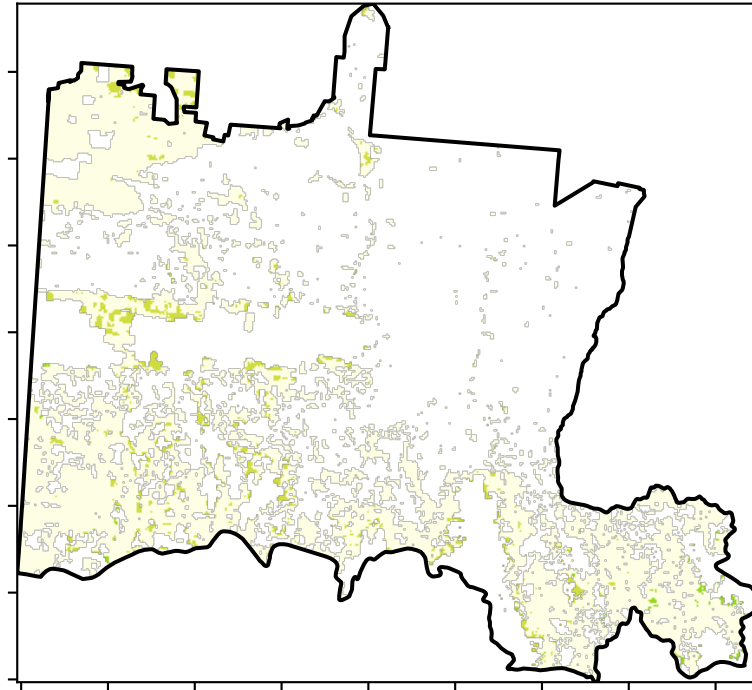
Water erosion historical monthly area protected (Total Veg Cov>70%)



# Grazing

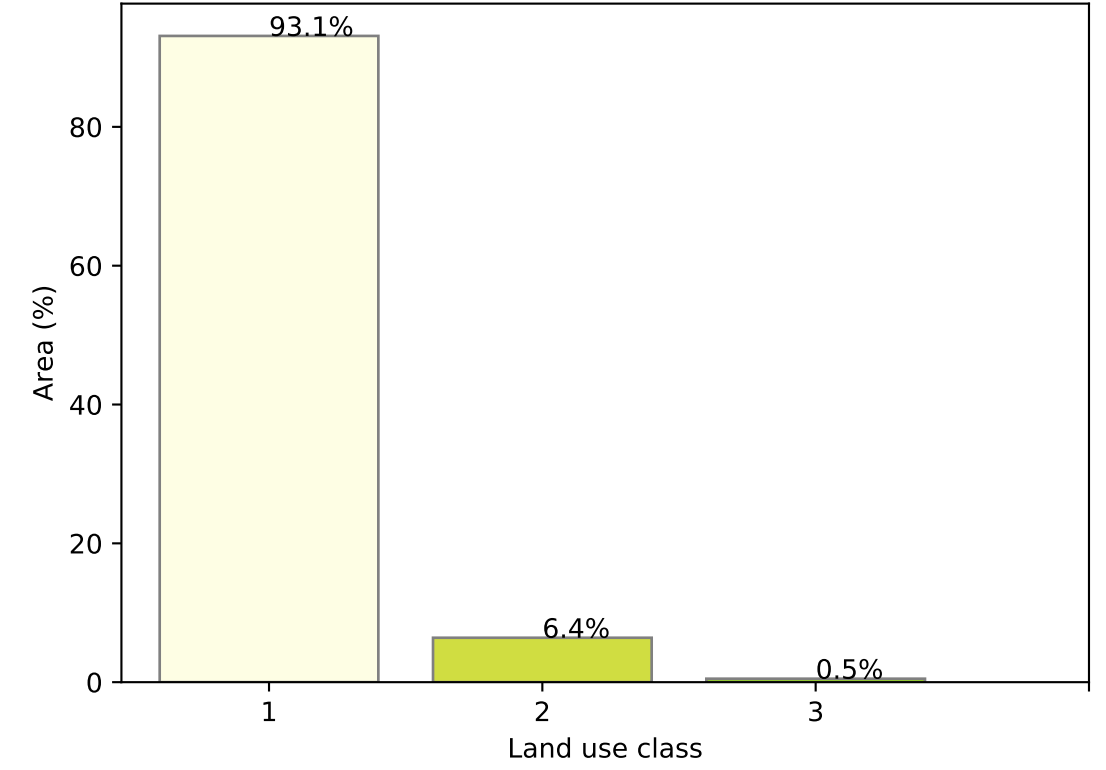
Land use and forest cover

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

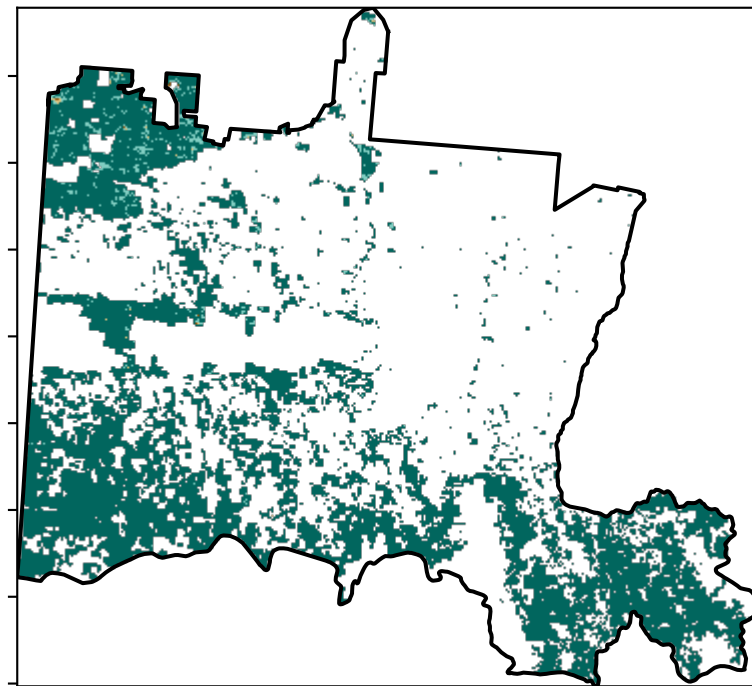


1 Agriculture - Grazing - Non forest  
2 Agriculture - Grazing - Woodland forest  
3 Agriculture - Grazing - Non-woodland forest

Proportion of each land class in area

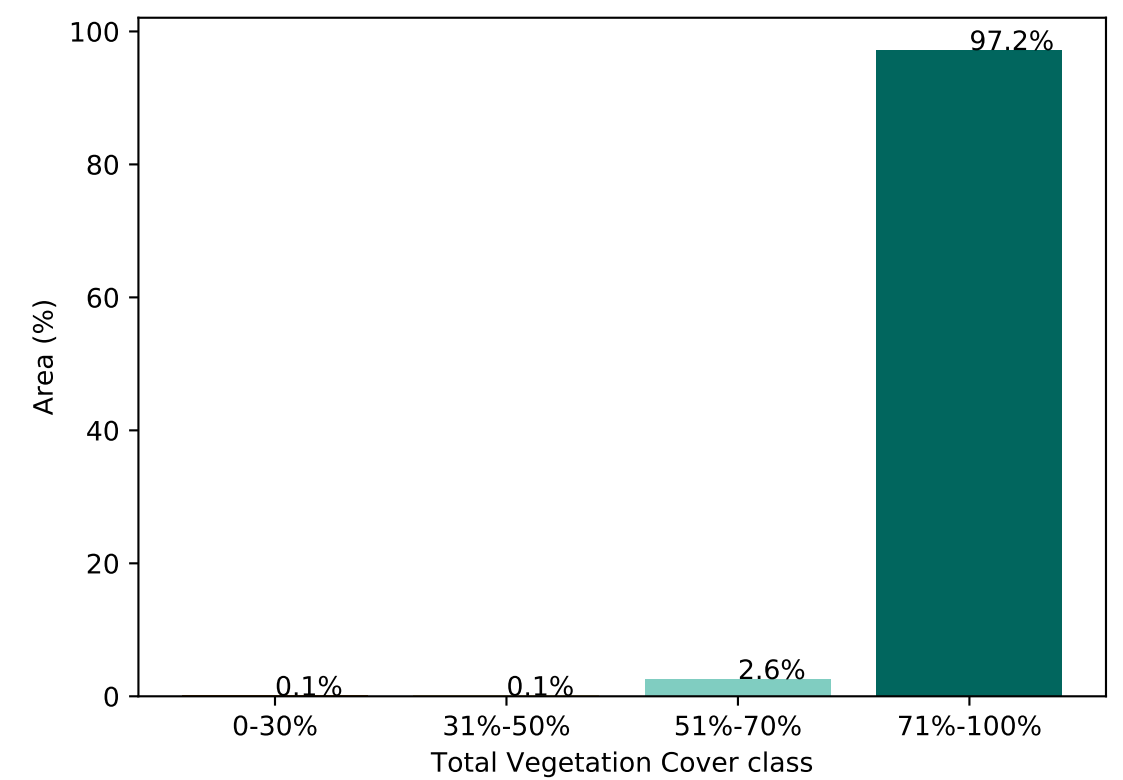


Total Vegetation Cover [%]

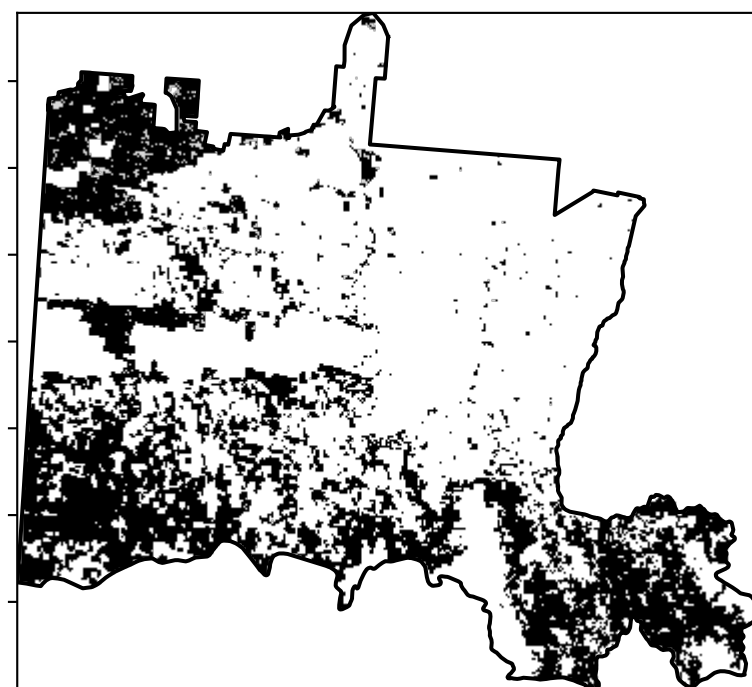


71%-100%  
51%-70%  
31%-50%  
0-30%

Proportion of vegetation cover class in area

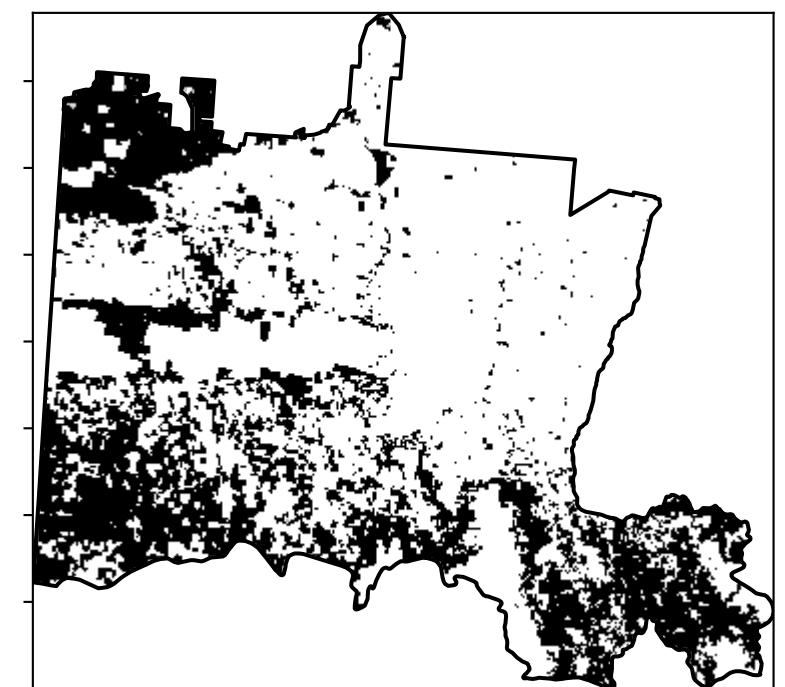


% Area protected from water erosion (>70%)



Area not protected  
2.8% of region  
(21,773 ha)  
Area protected  
97.2% of region  
(755,851 ha)

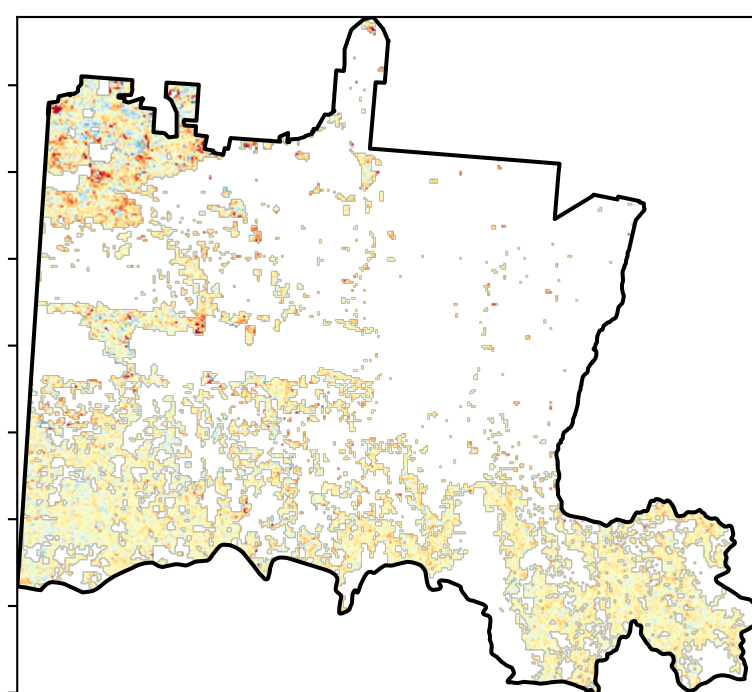
% Area protected from wind erosion (>50%)



Area not protected  
0.0% of region  
(0 ha)  
Area protected  
100.0% of region  
(777,625 ha)

Total Vegetation Cover Anomaly [%]

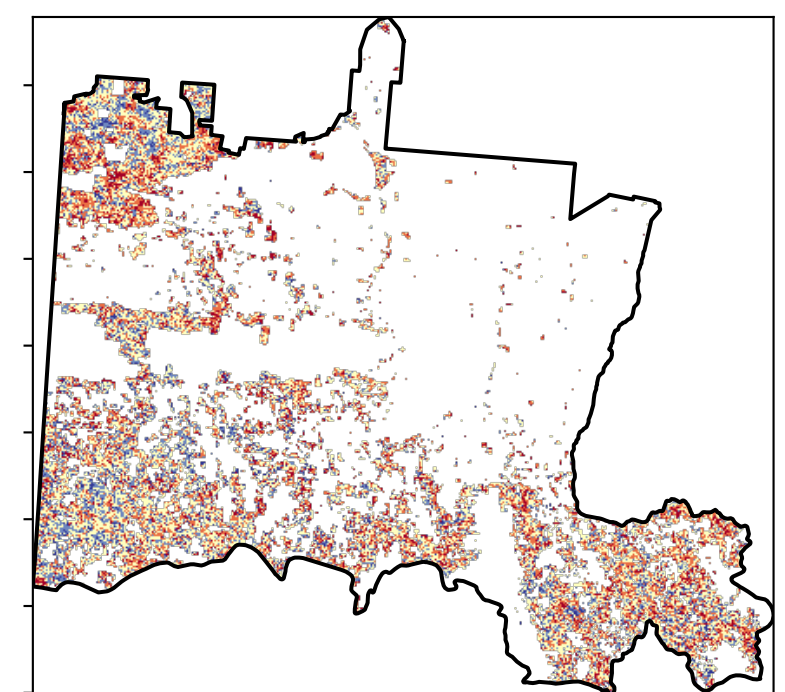
Anomaly show how many percentage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



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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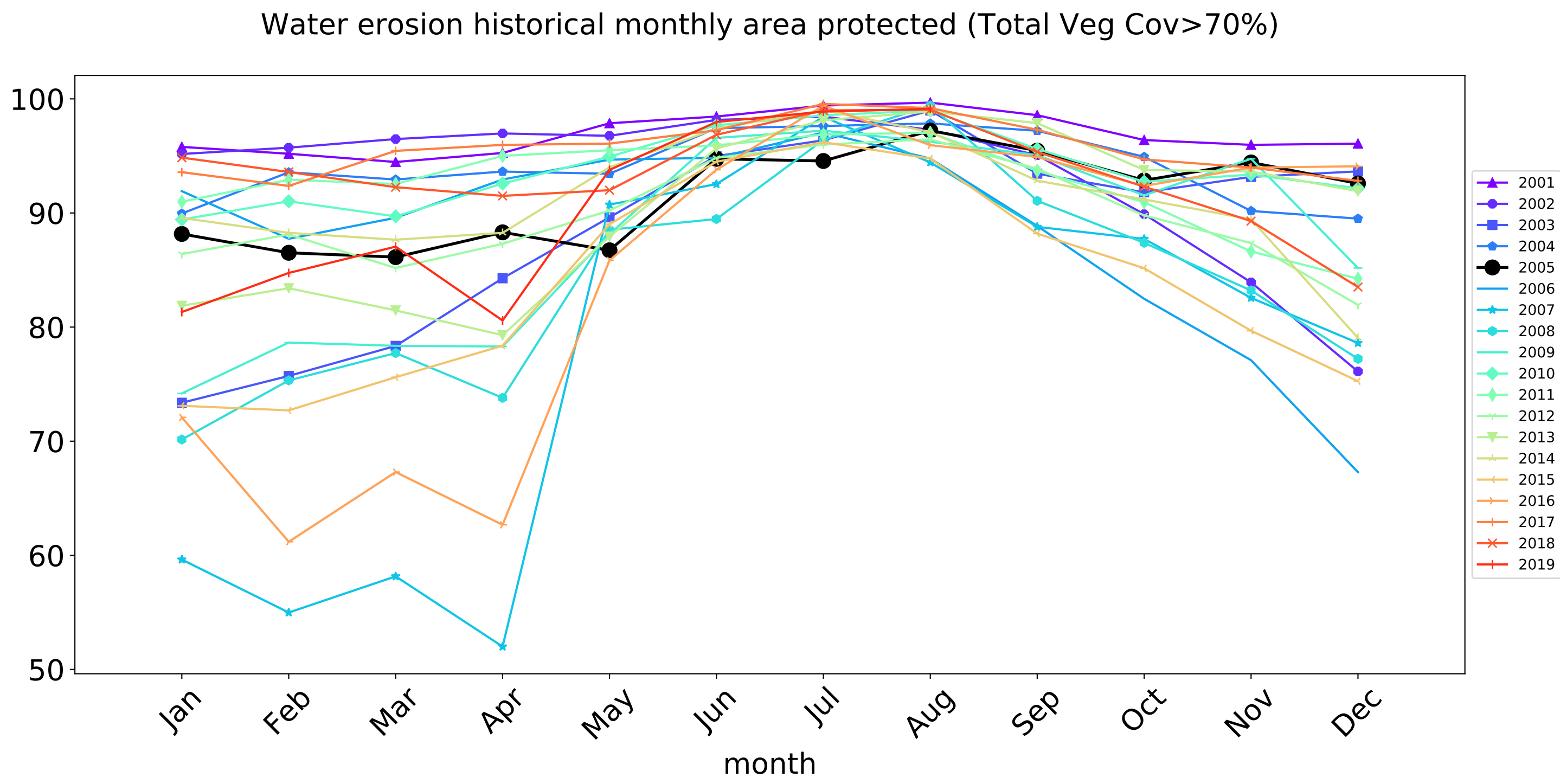
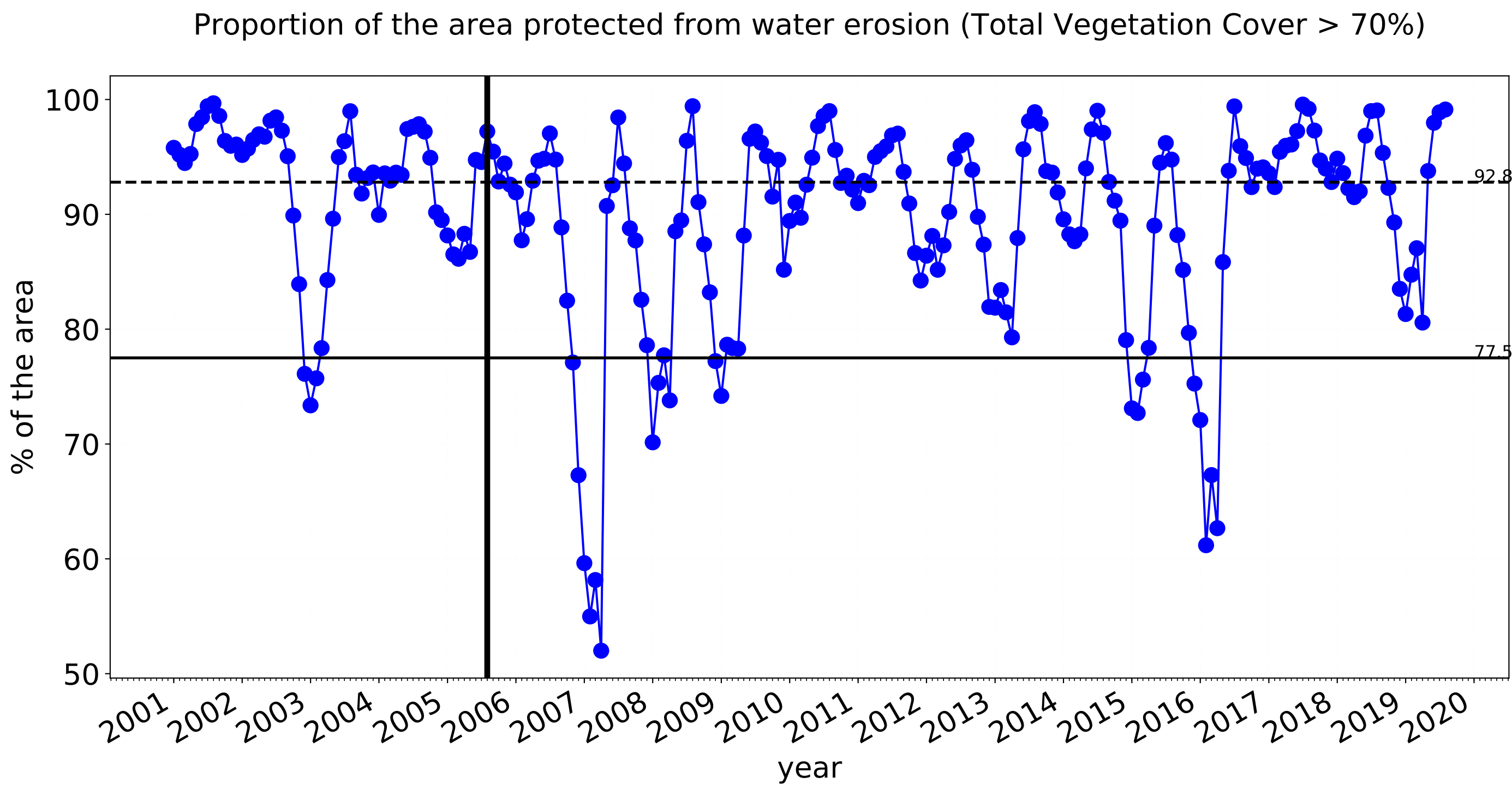
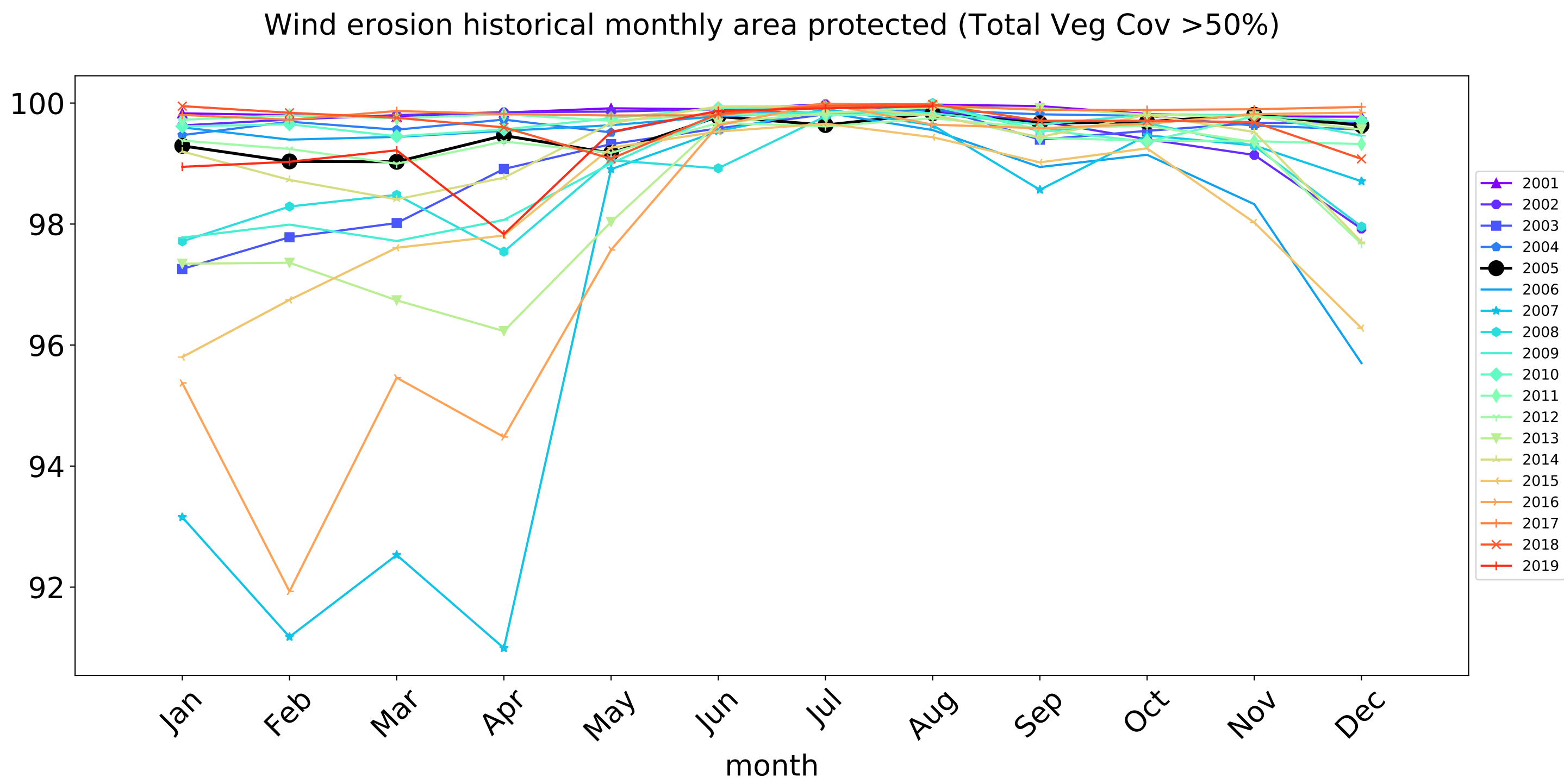
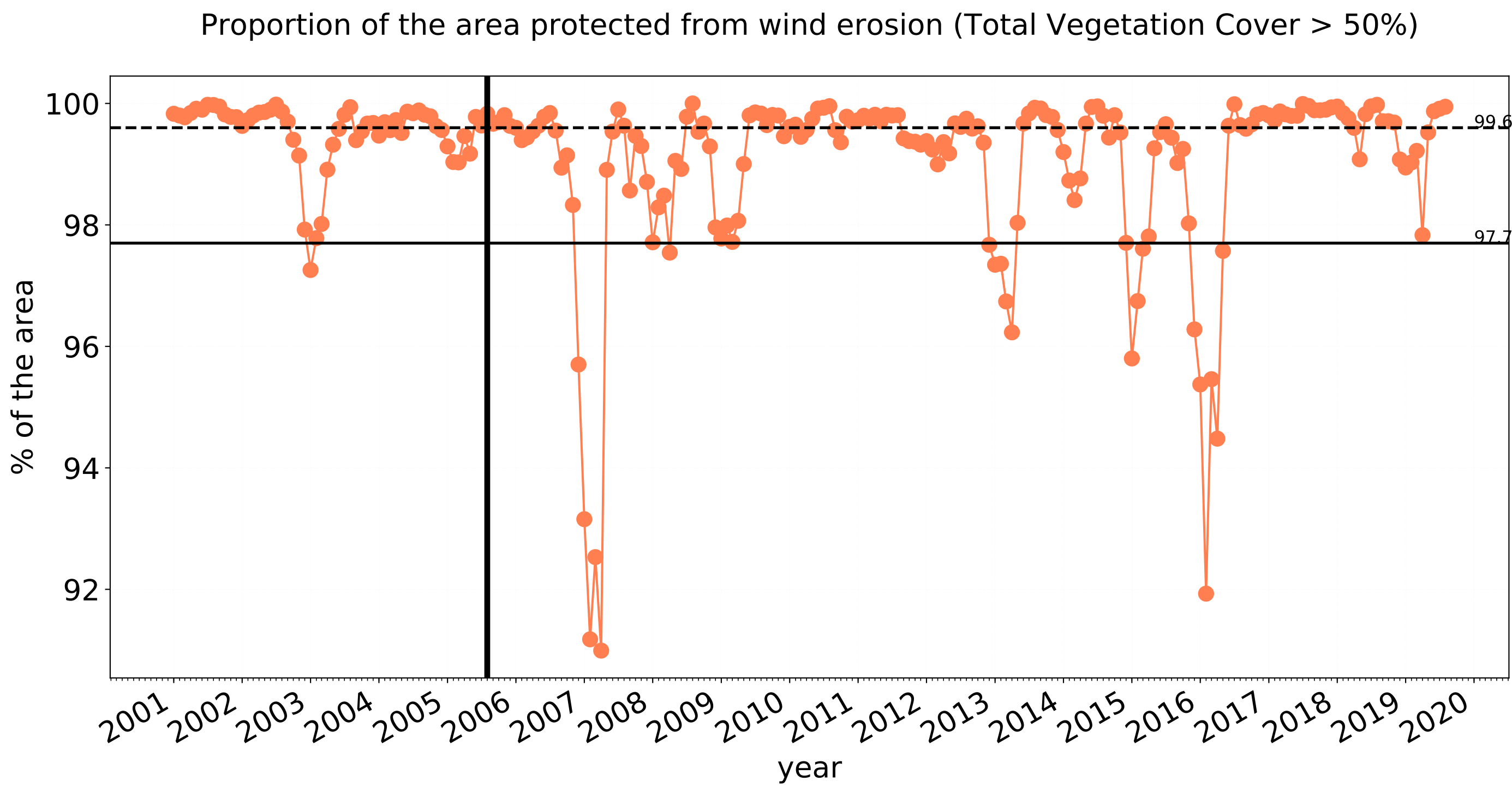
National Landcare Programme



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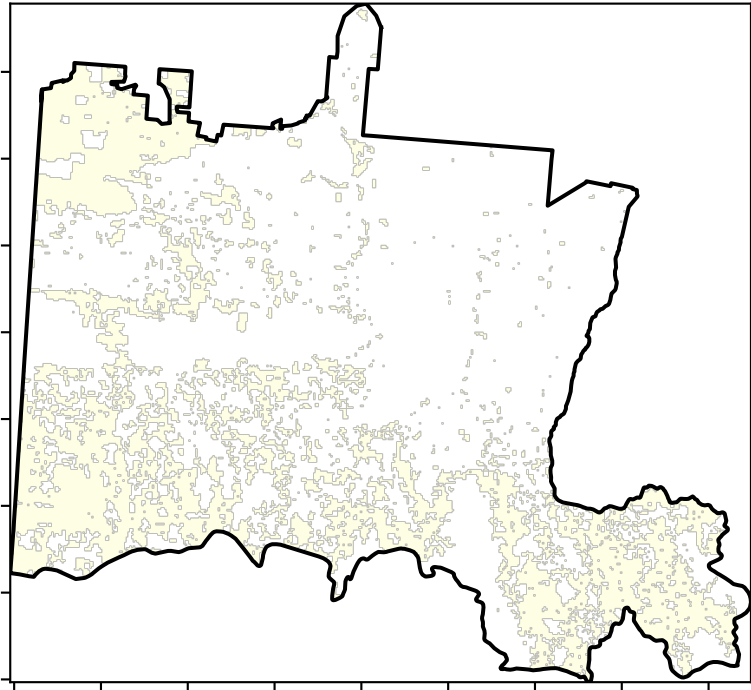
Grazing timeseries



Grazing non forest

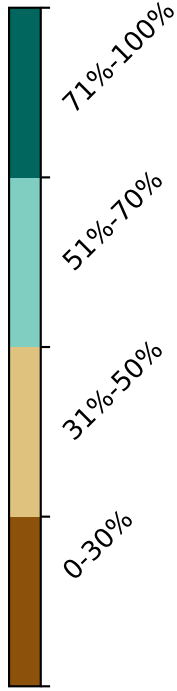
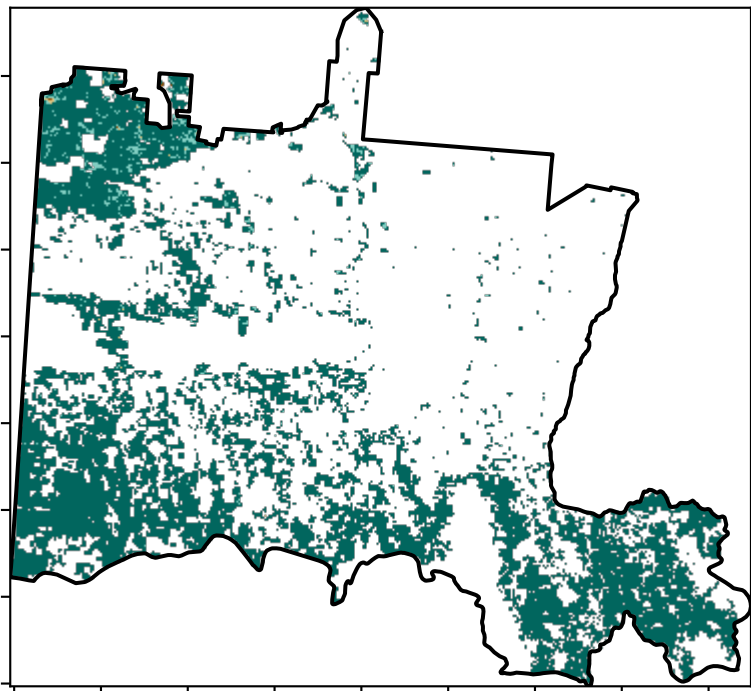
Land use and forest cover

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

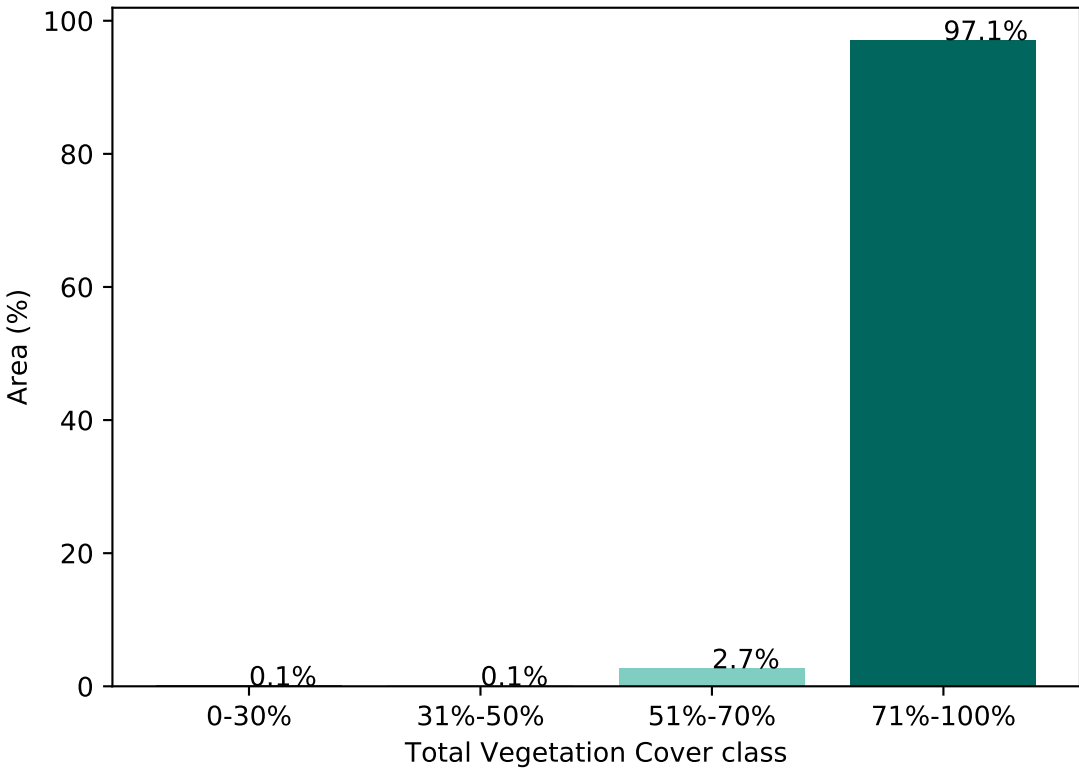


1 Agriculture - Grazing - Non forest

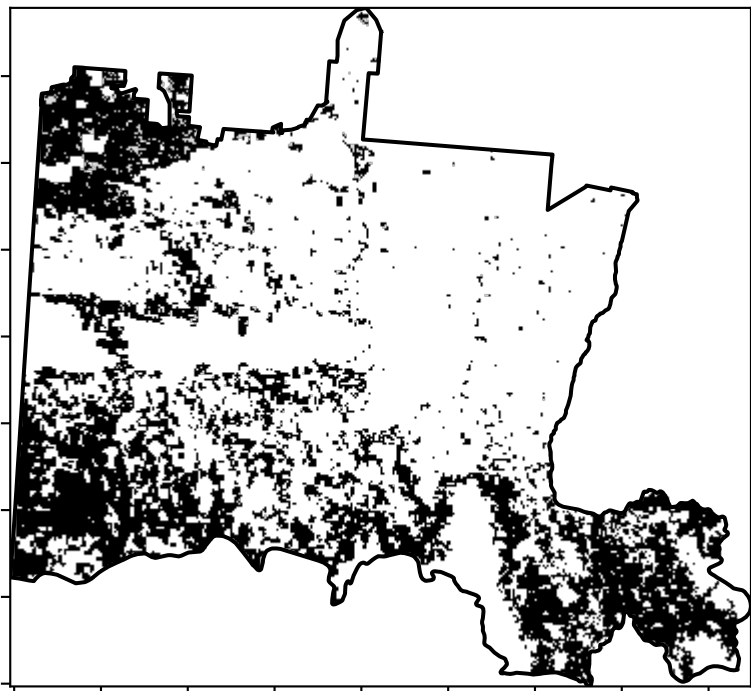
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

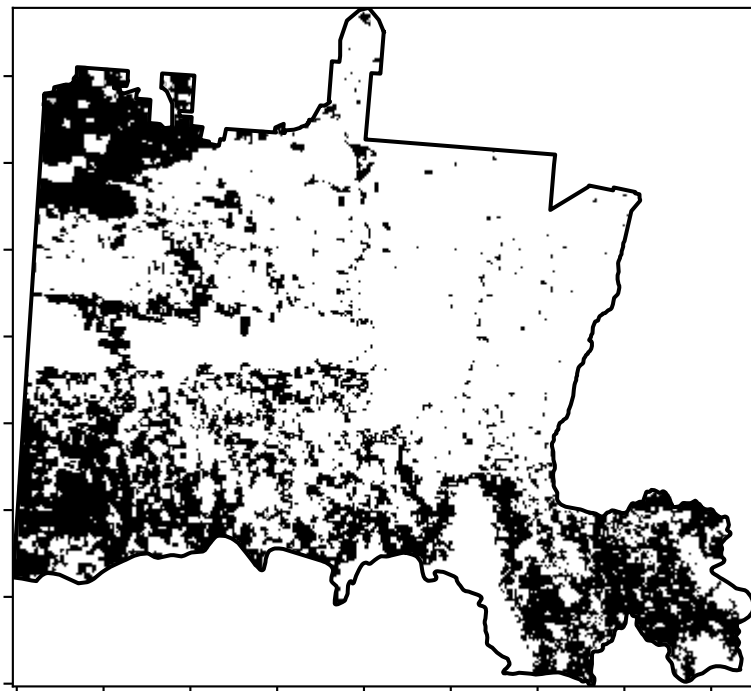


% Area protected from water erosion (>70%)



Area not protected  
2.9% of region  
(21,001 ha)  
Area protected  
97.1% of region  
(703,198 ha)

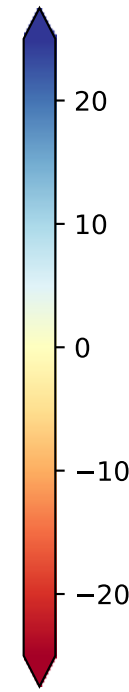
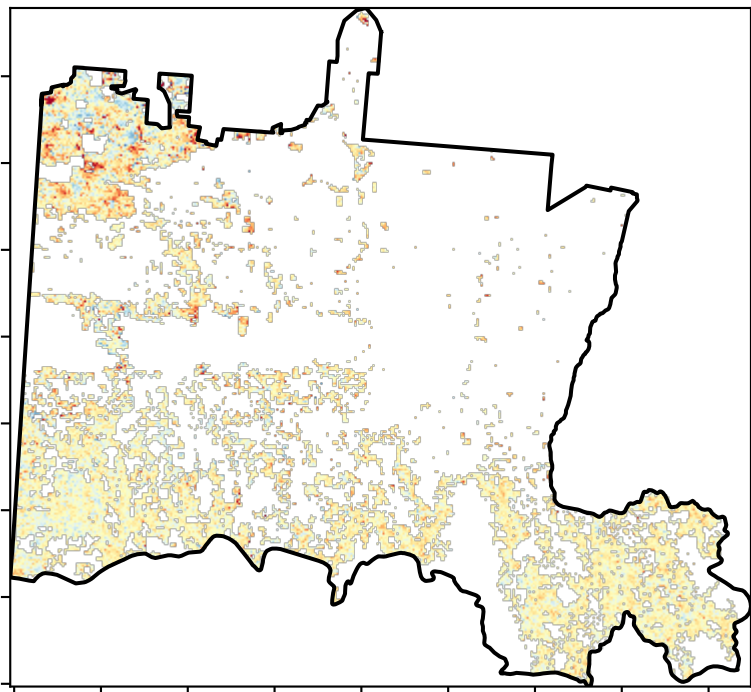
% Area protected from wind erosion (>50%)



Area not protected  
0.0% of region  
(0 ha)  
Area protected  
100.0% of region  
(724,200 ha)

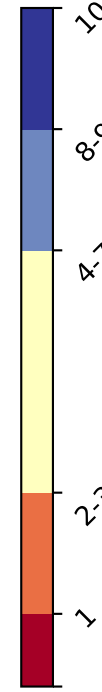
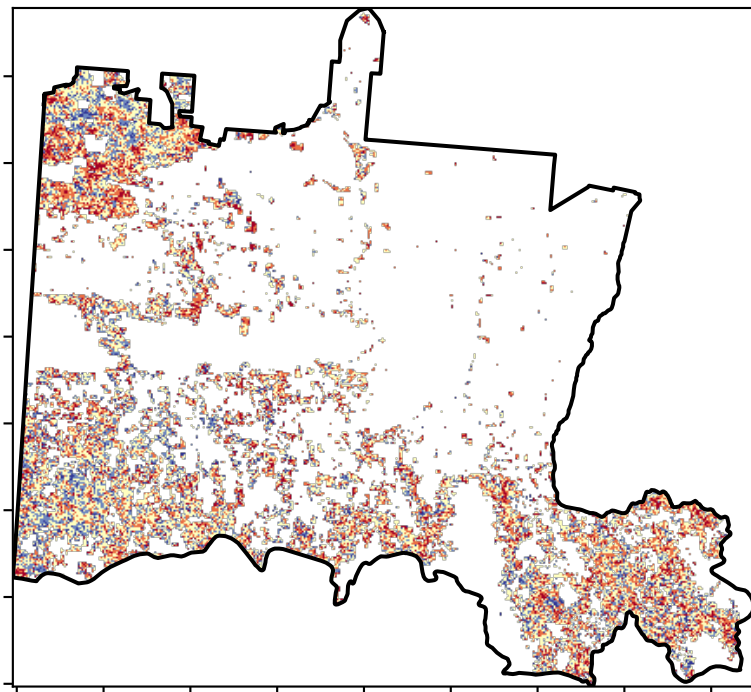
Total Vegetation Cover Anomaly [%]

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 [%]



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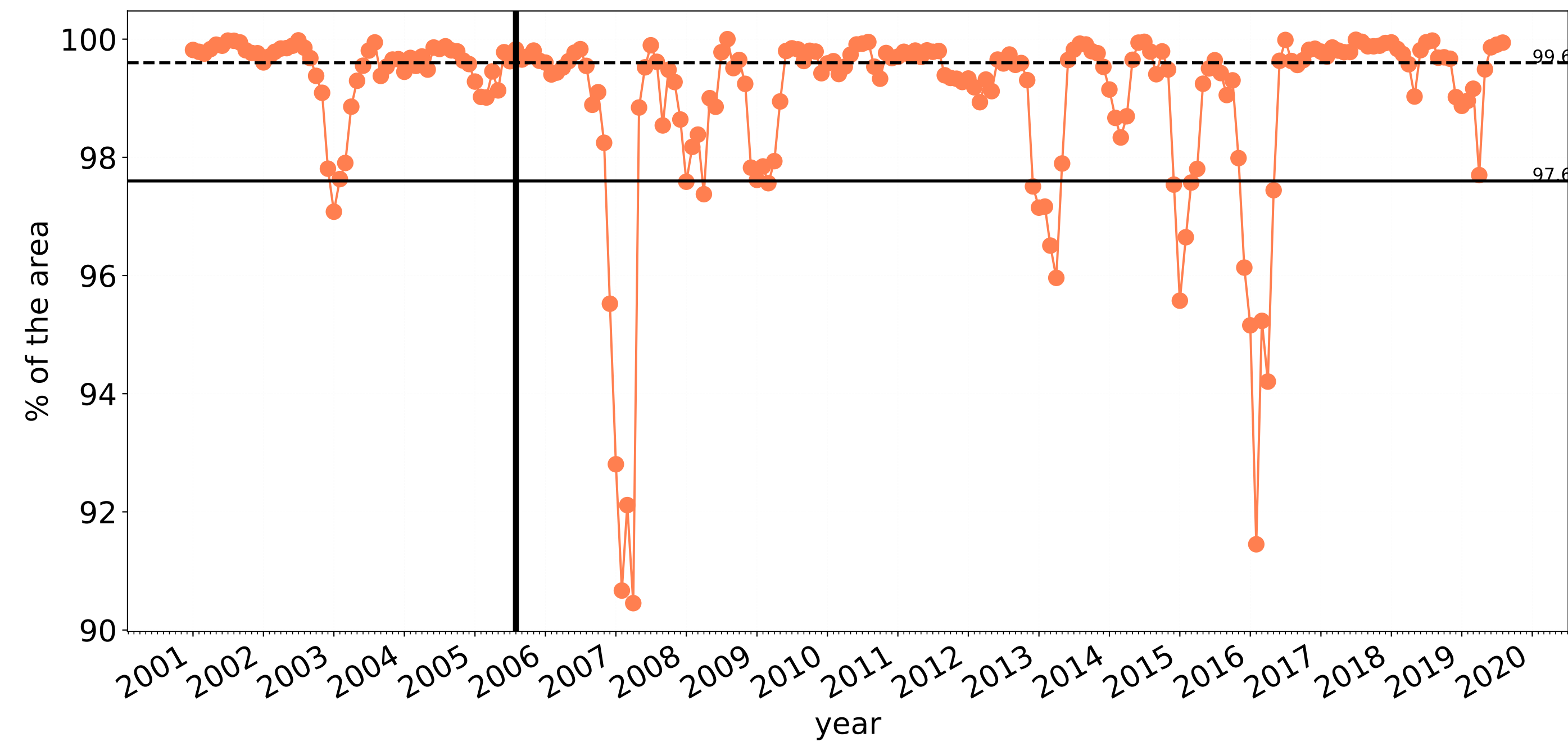


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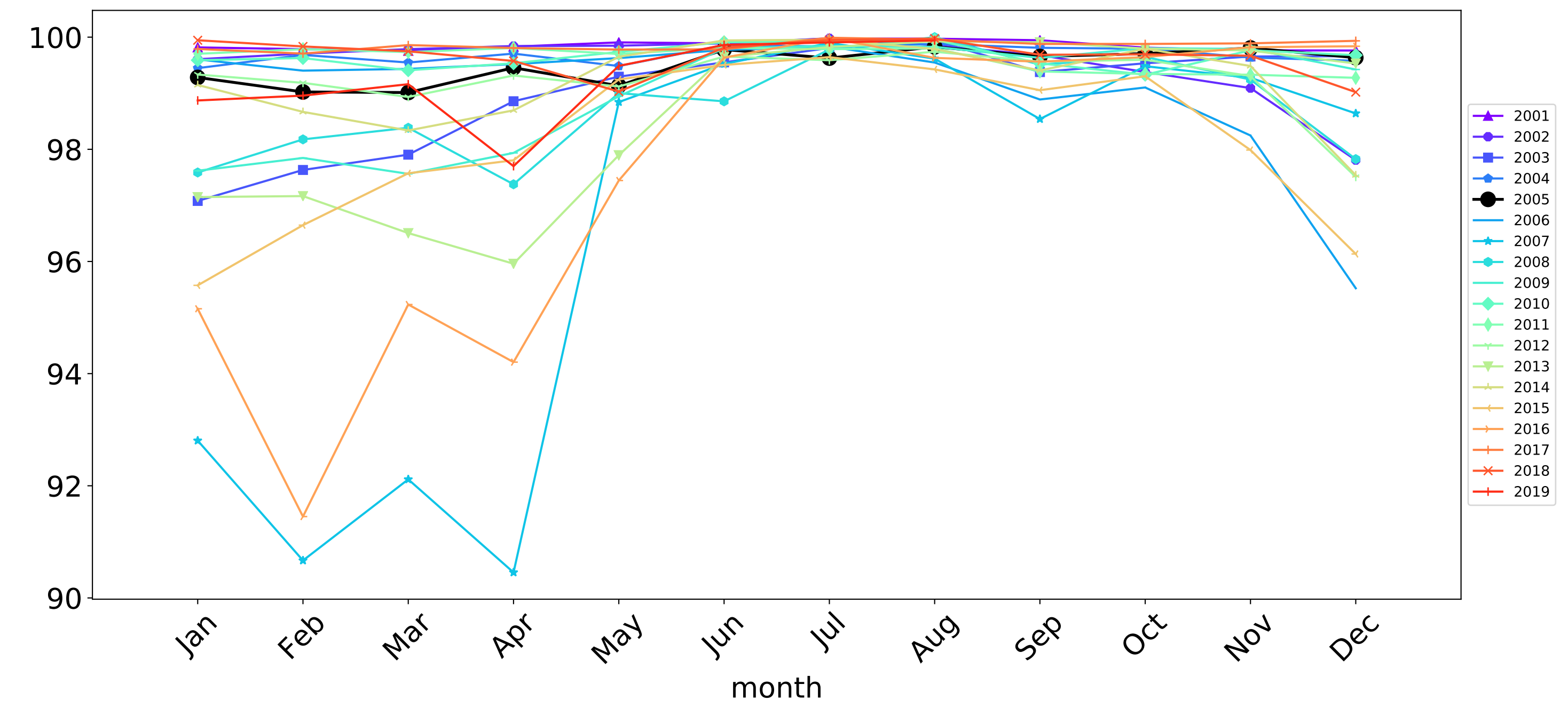


# Grazing non forest timeseries

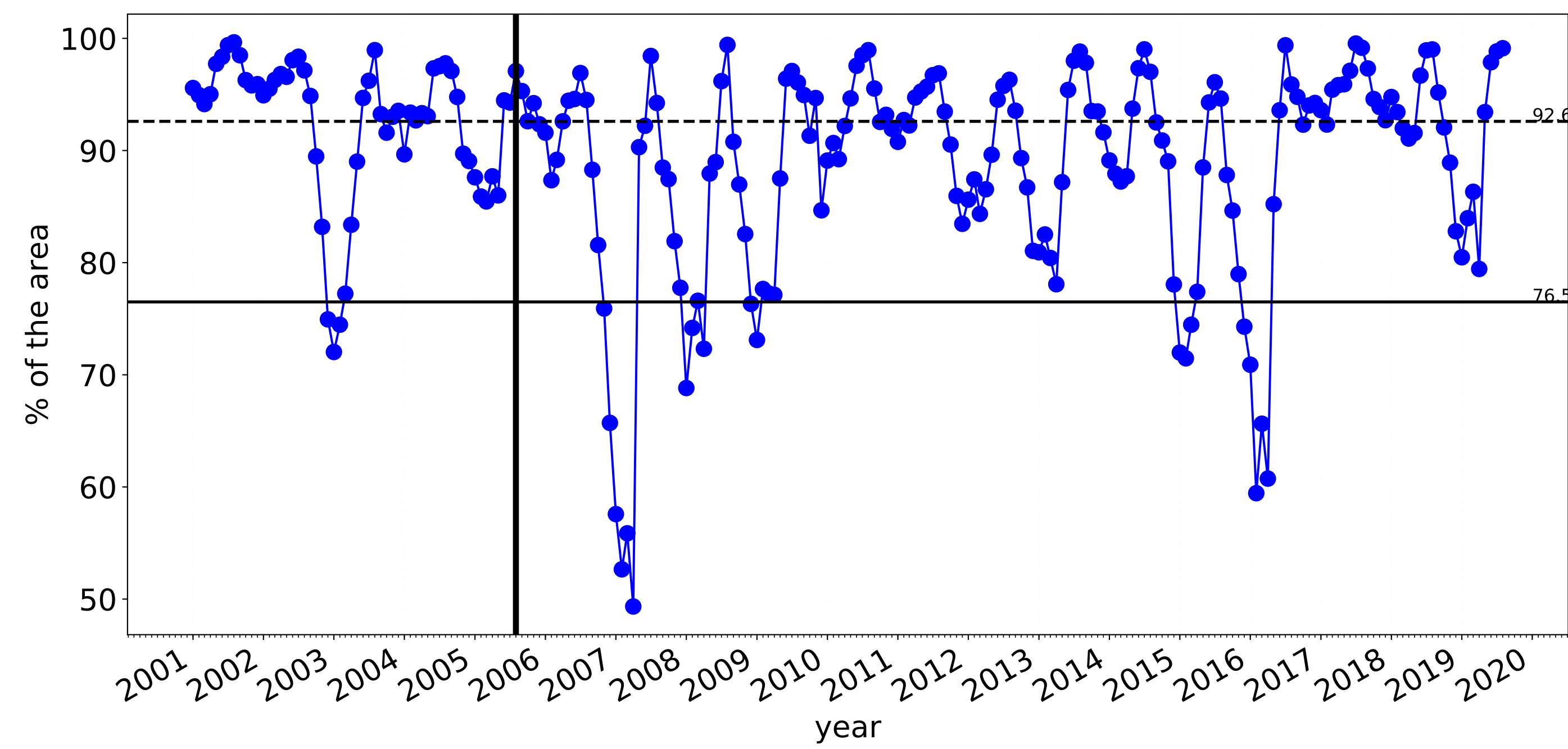
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



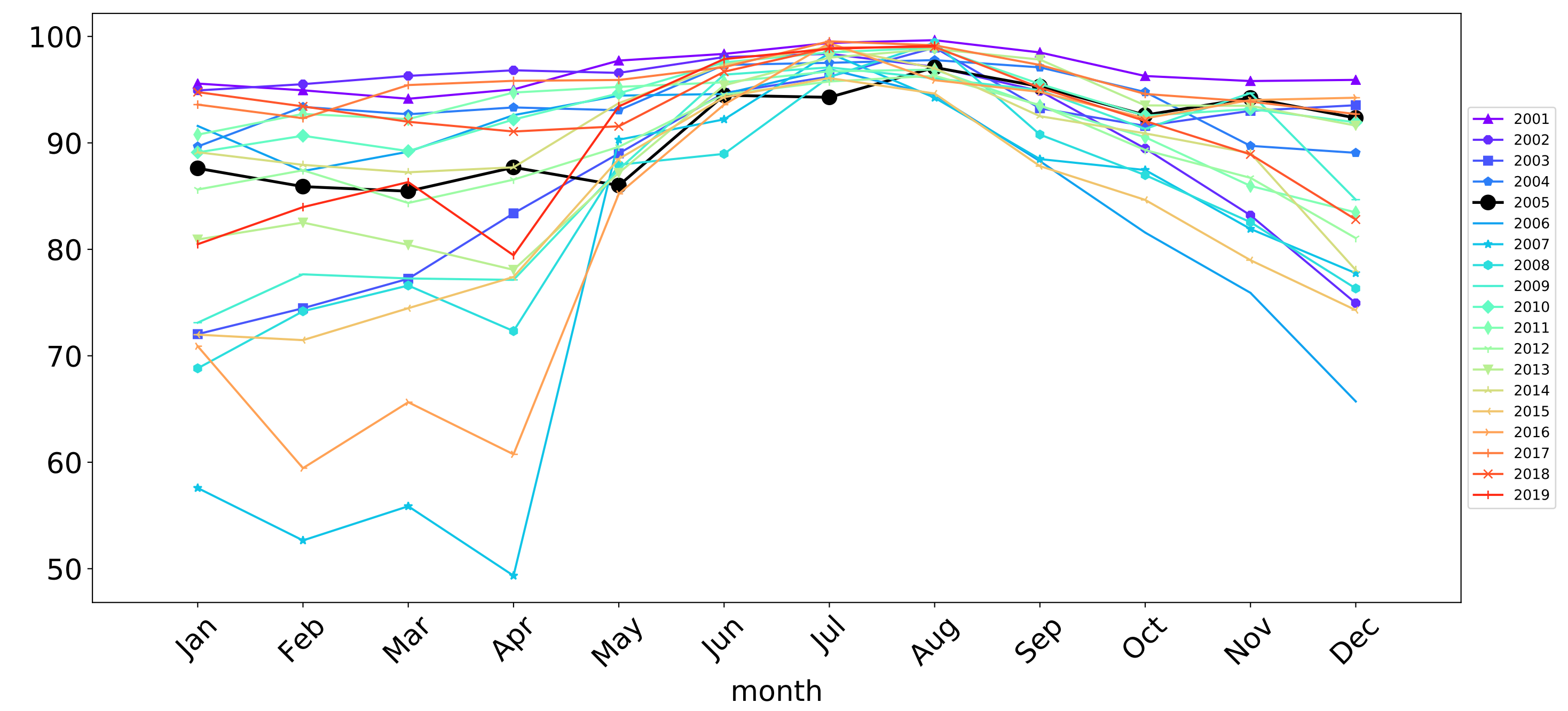
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



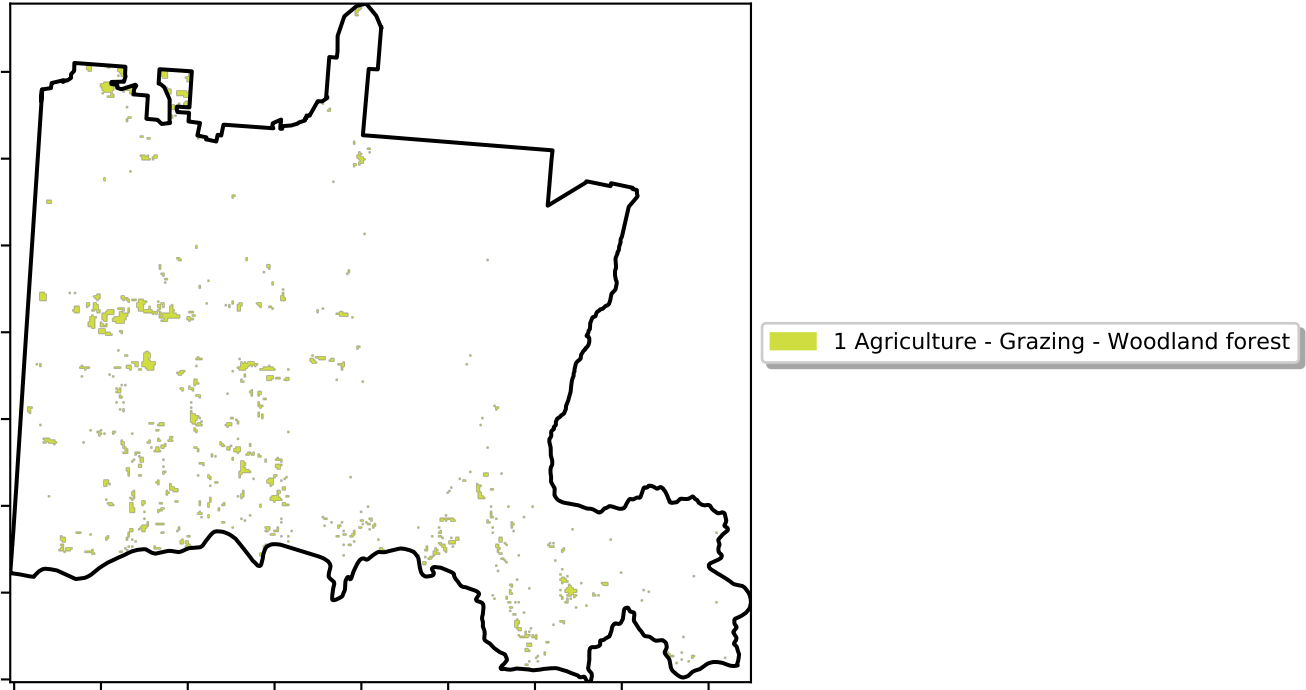
Water erosion historical monthly area protected (Total Veg Cov>70%)



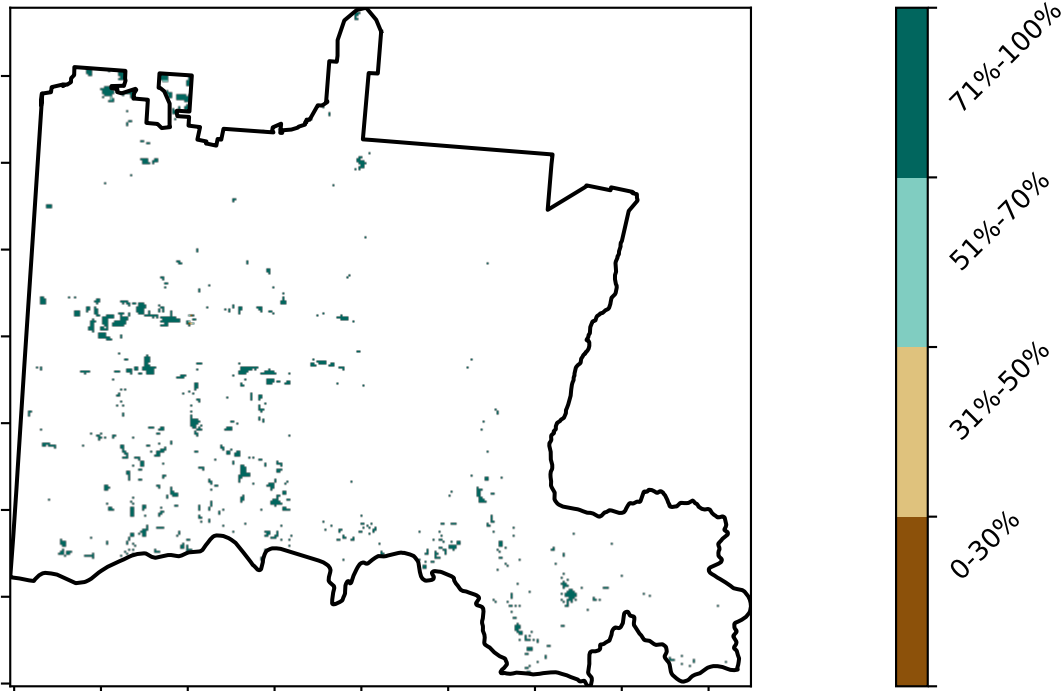
Grazing Woodland forest

Land use and forest cover

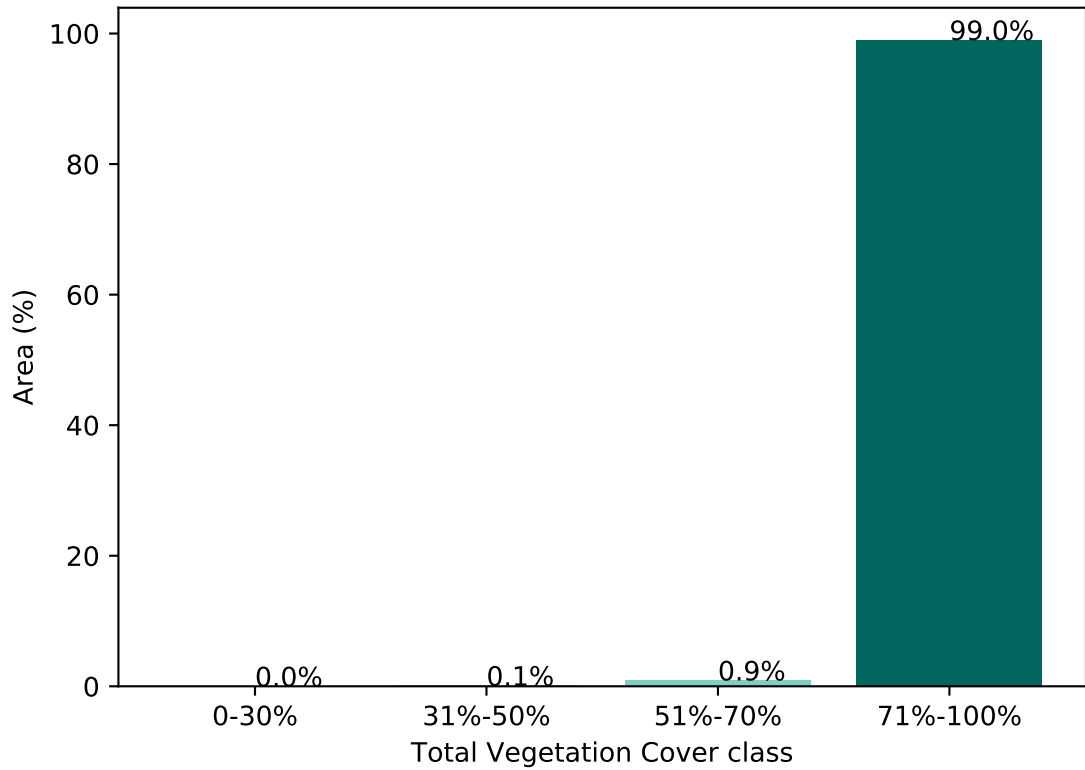
Catchment Scale Land Use and Forests of Australia (2018)  
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



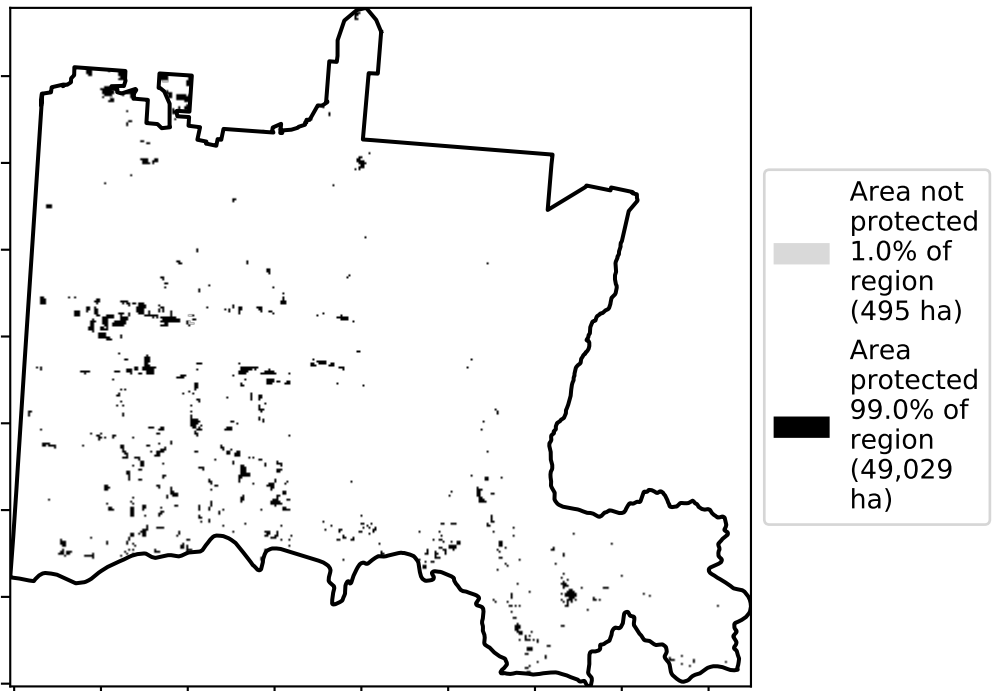
Total Vegetation Cover [%]



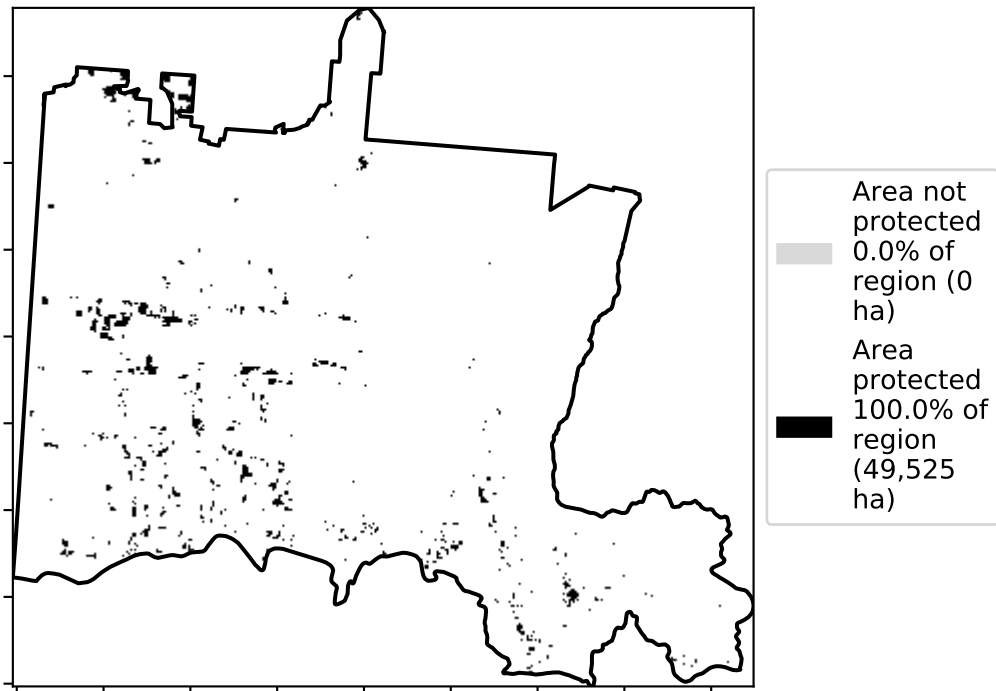
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

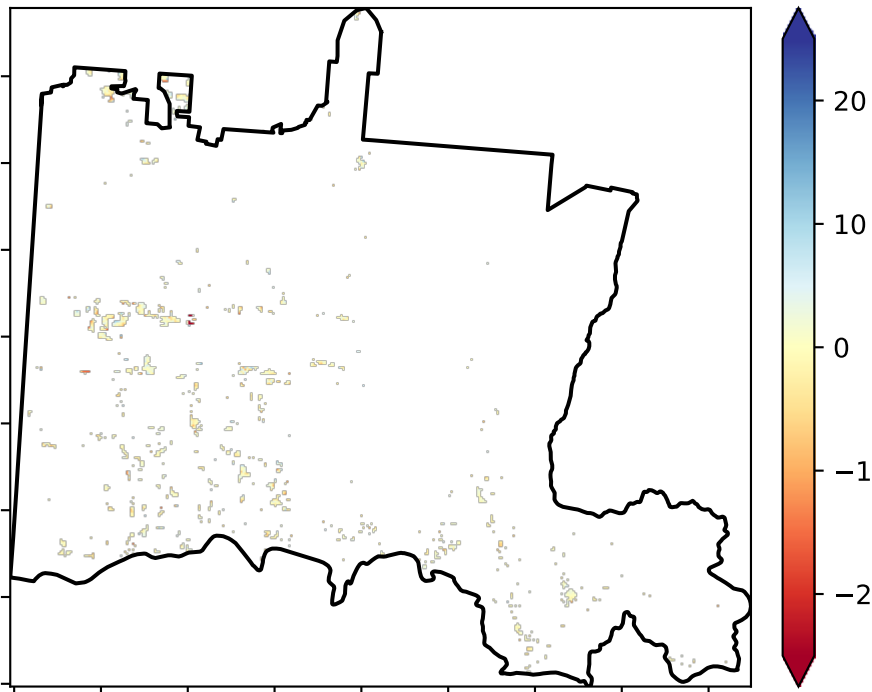


% Area protected from wind erosion (>50%)



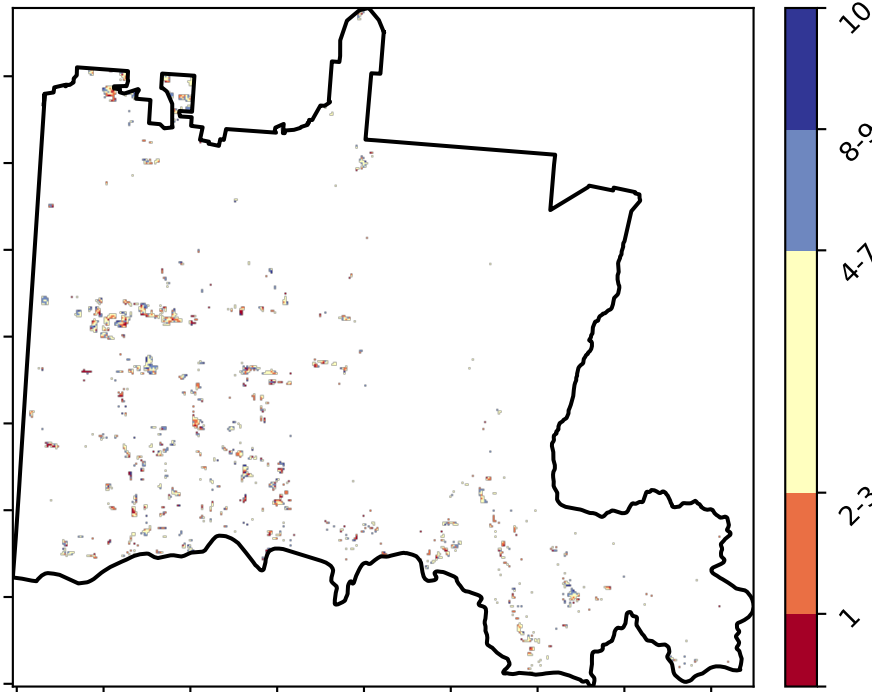
Total Vegetation Cover Anomaly [%]

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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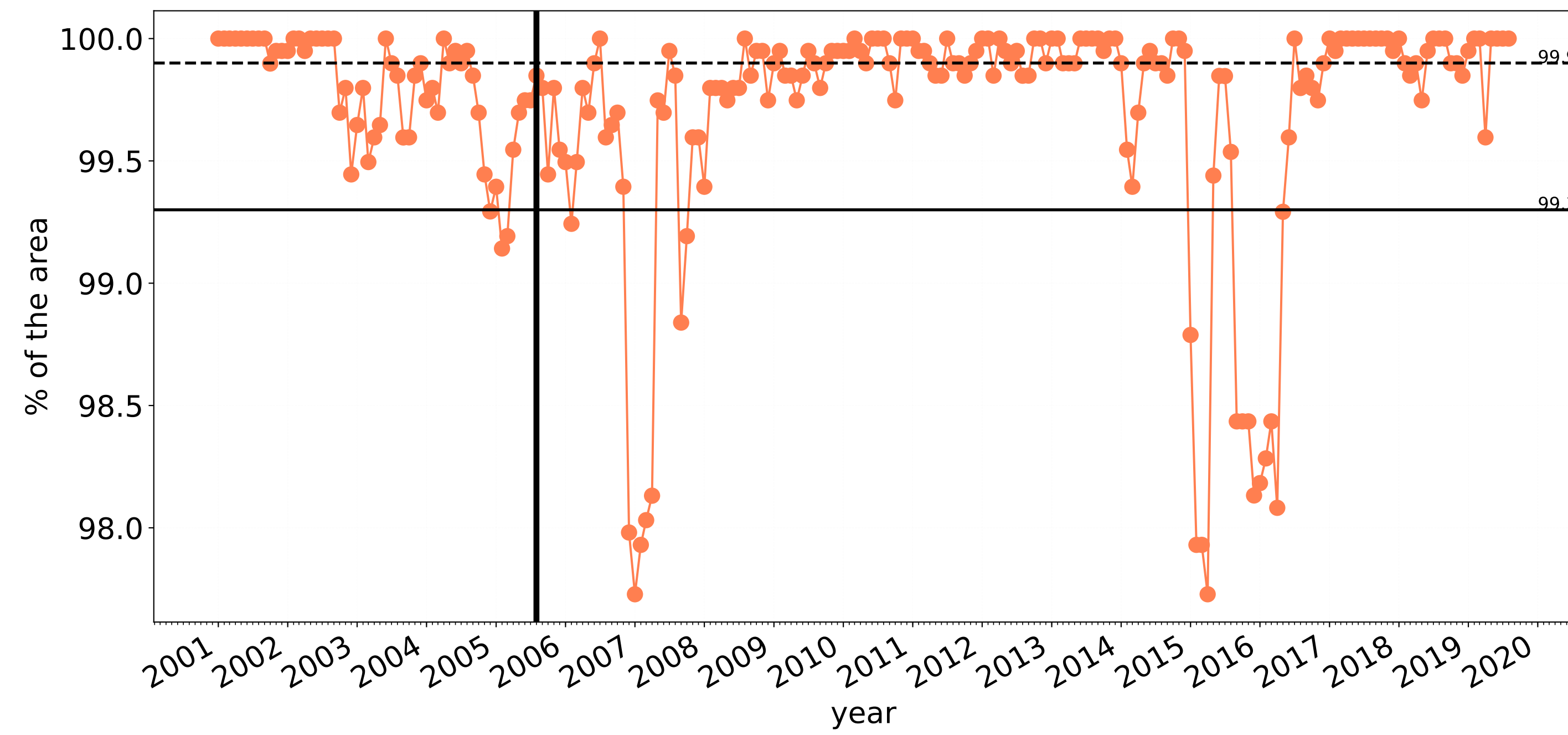


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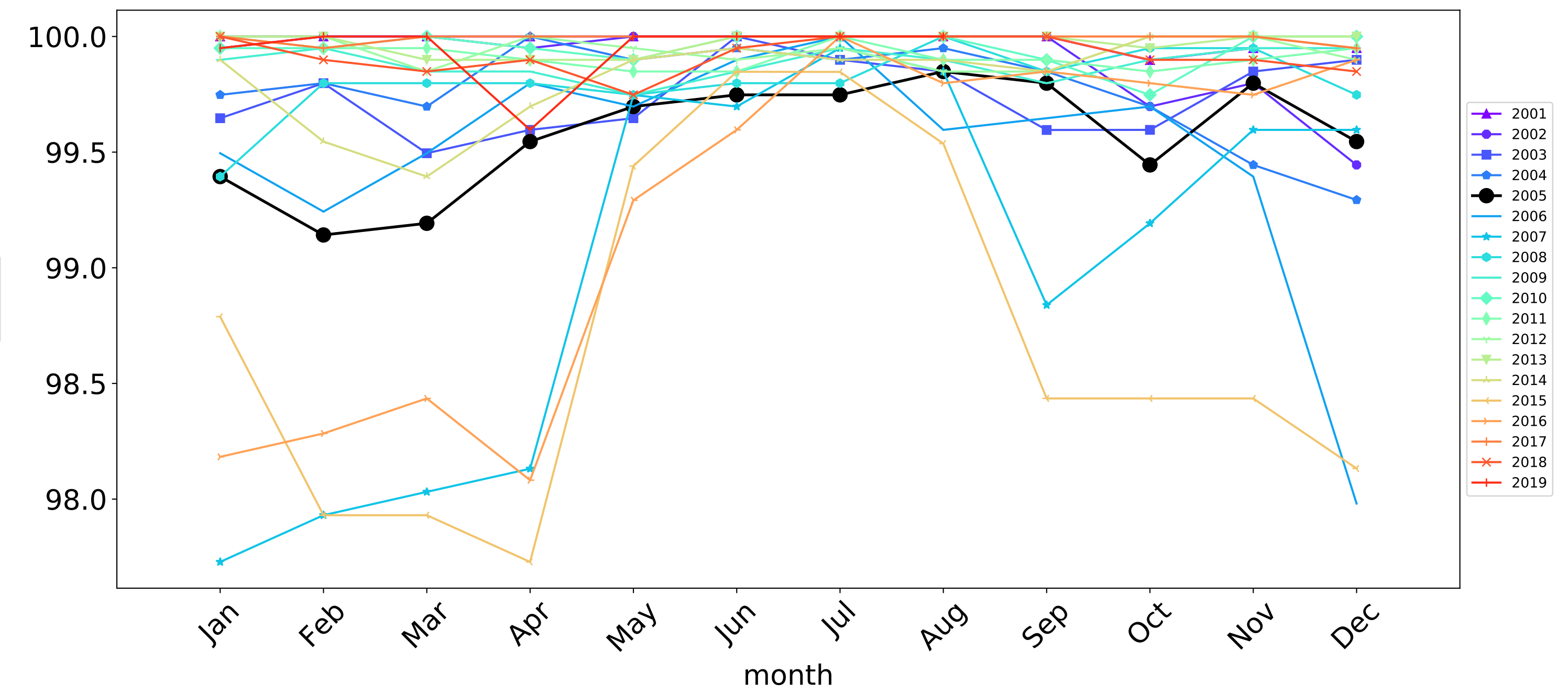


# Grazing Woodland forest timeseries

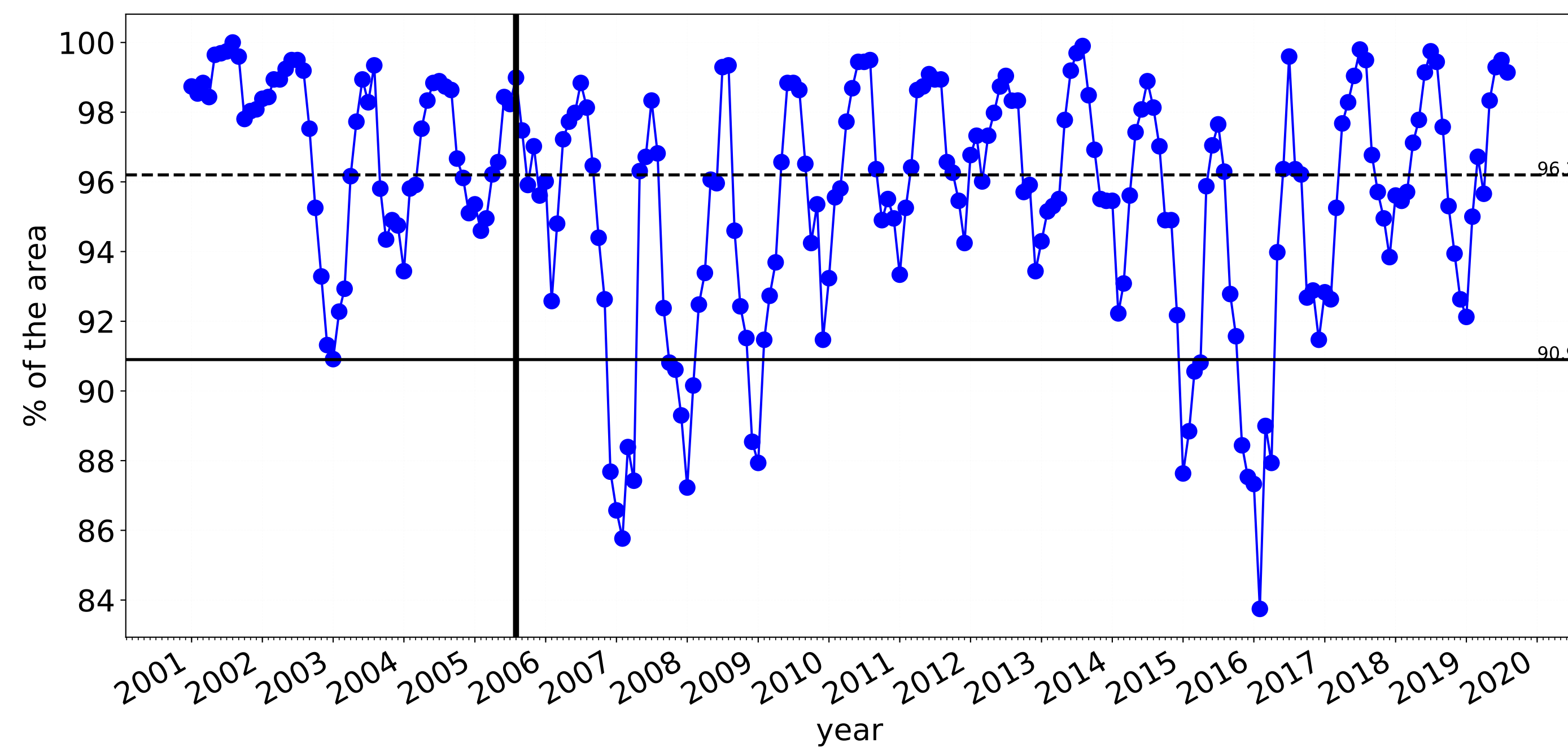
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



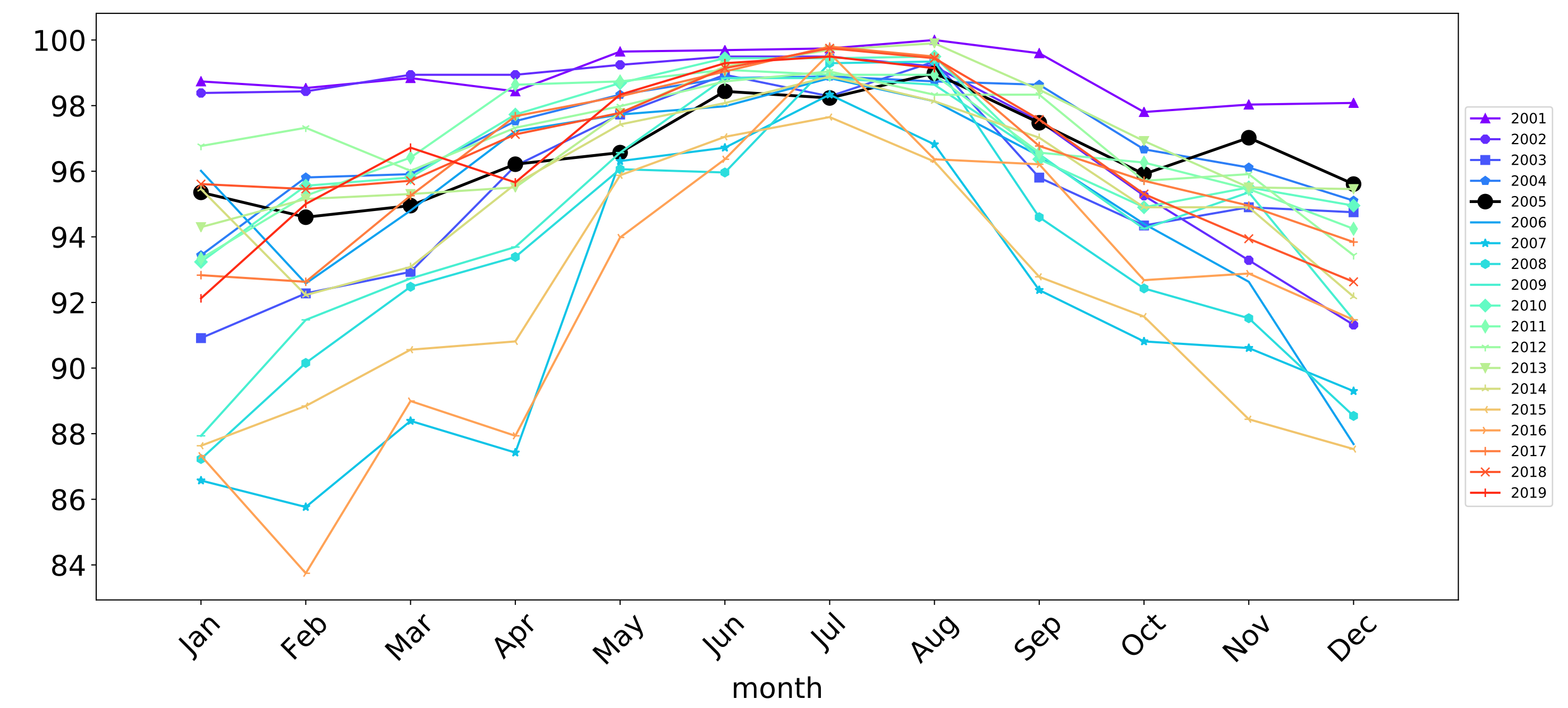
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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

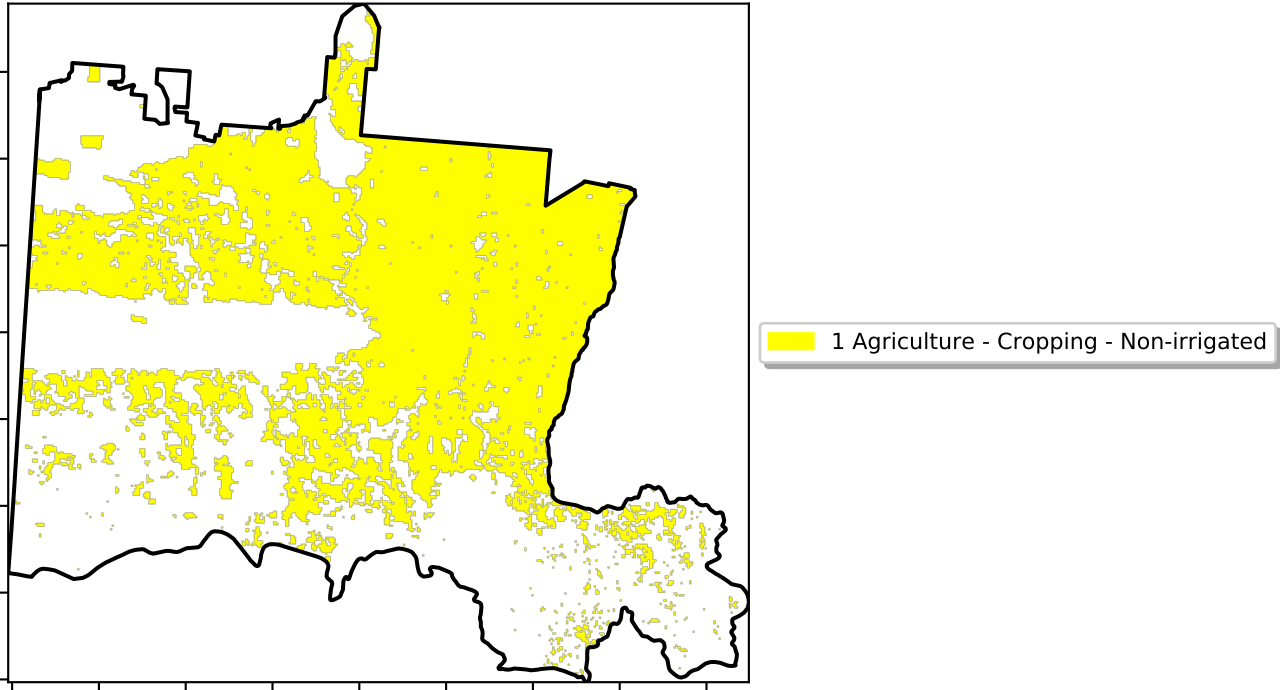




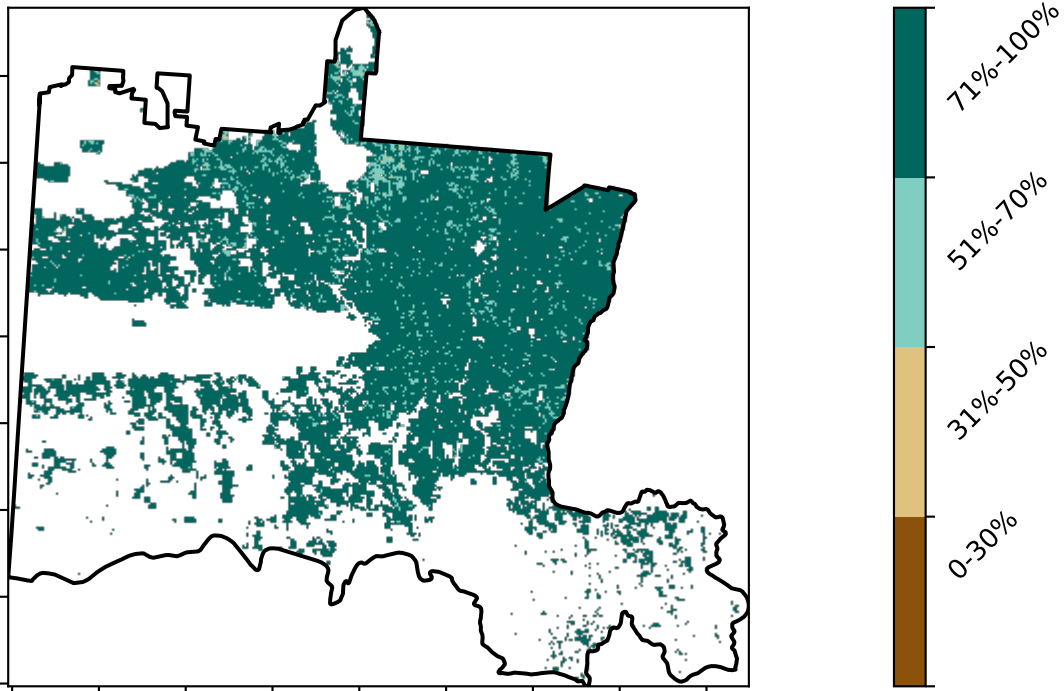
Cropping

Land use and forest cover

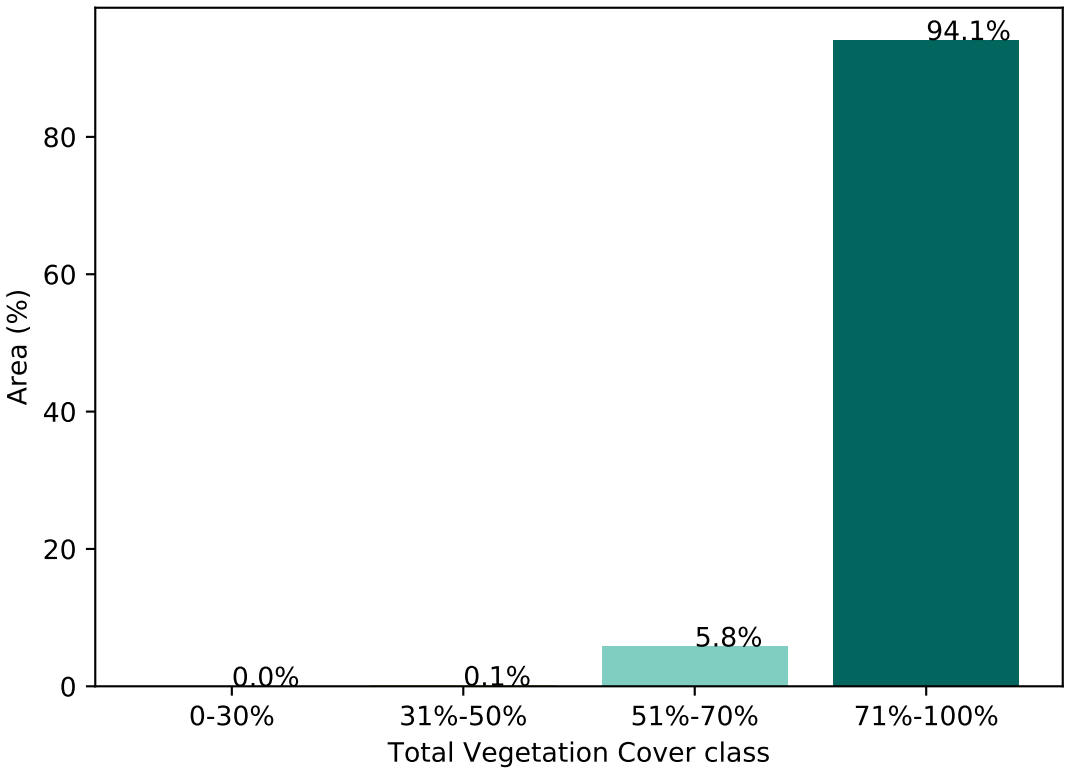
Catchment Scale  
Land Use and Forests  
of Australia (2018)  
Derived from  
Catchment Scale Land  
Use of Australia  
(2018) and Forests  
of Australia (2018)



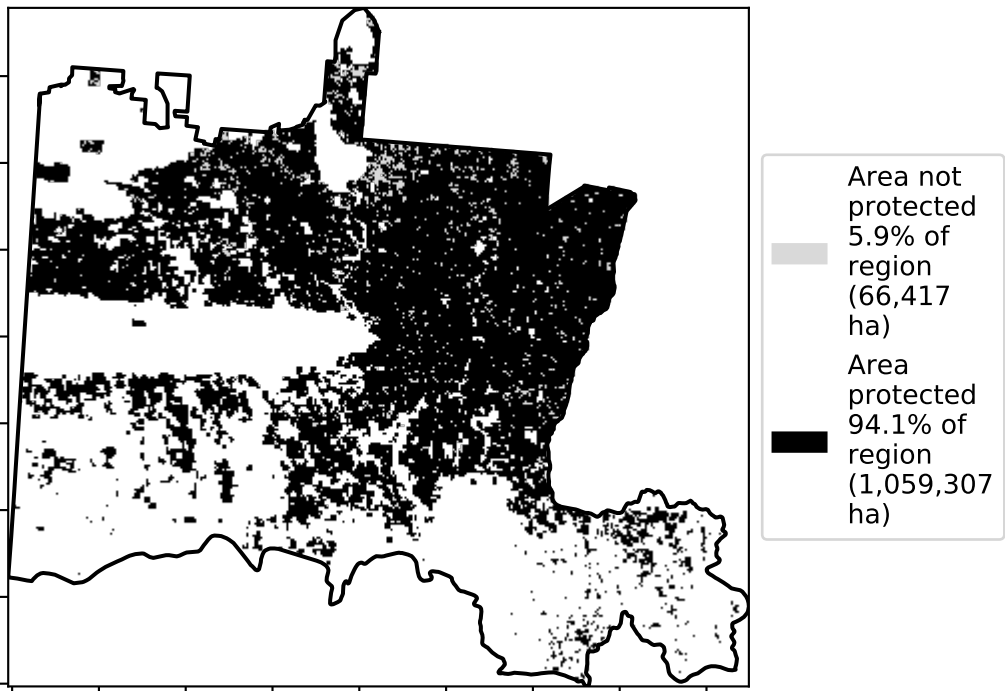
Total Vegetation Cover [%]



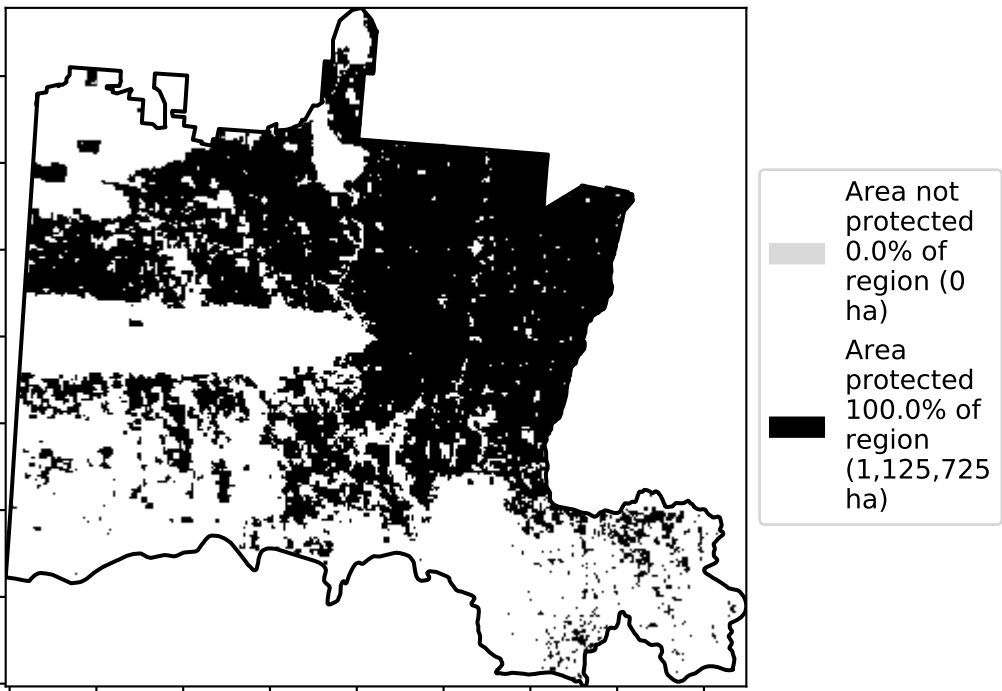
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

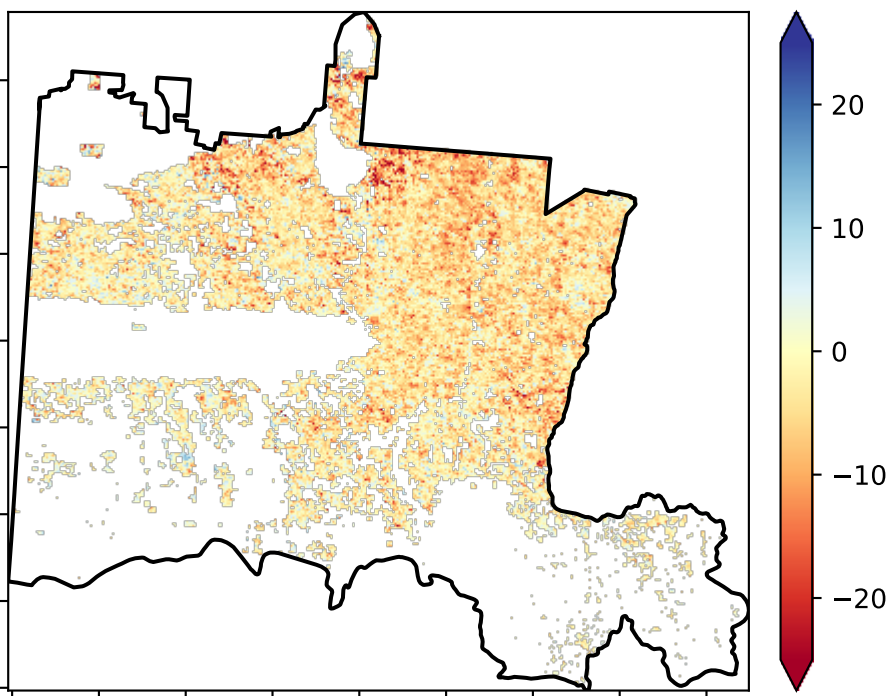


% Area protected from wind erosion (>50%)



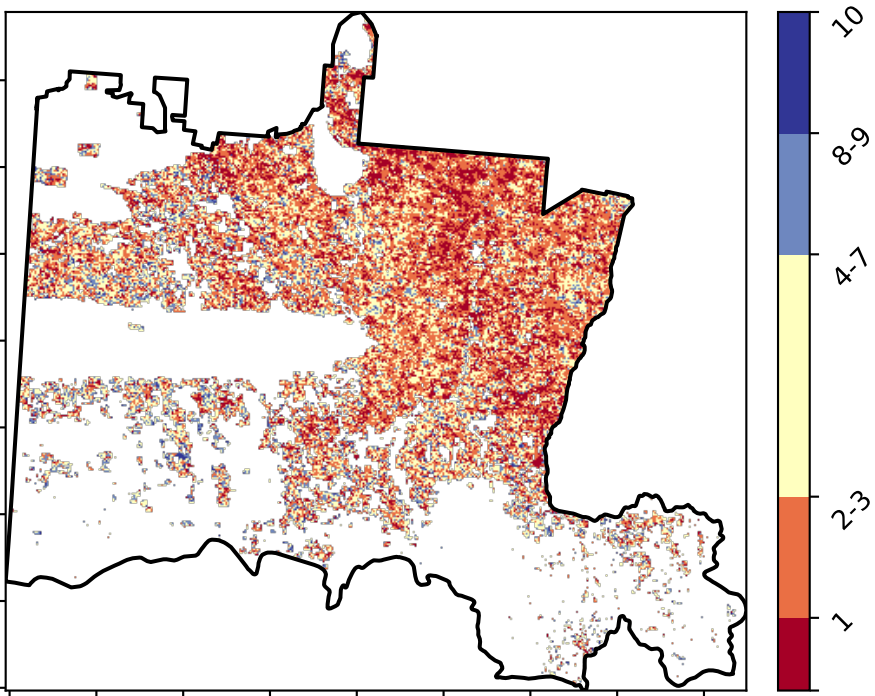
Total Vegetation Cover Anomaly [%]

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.



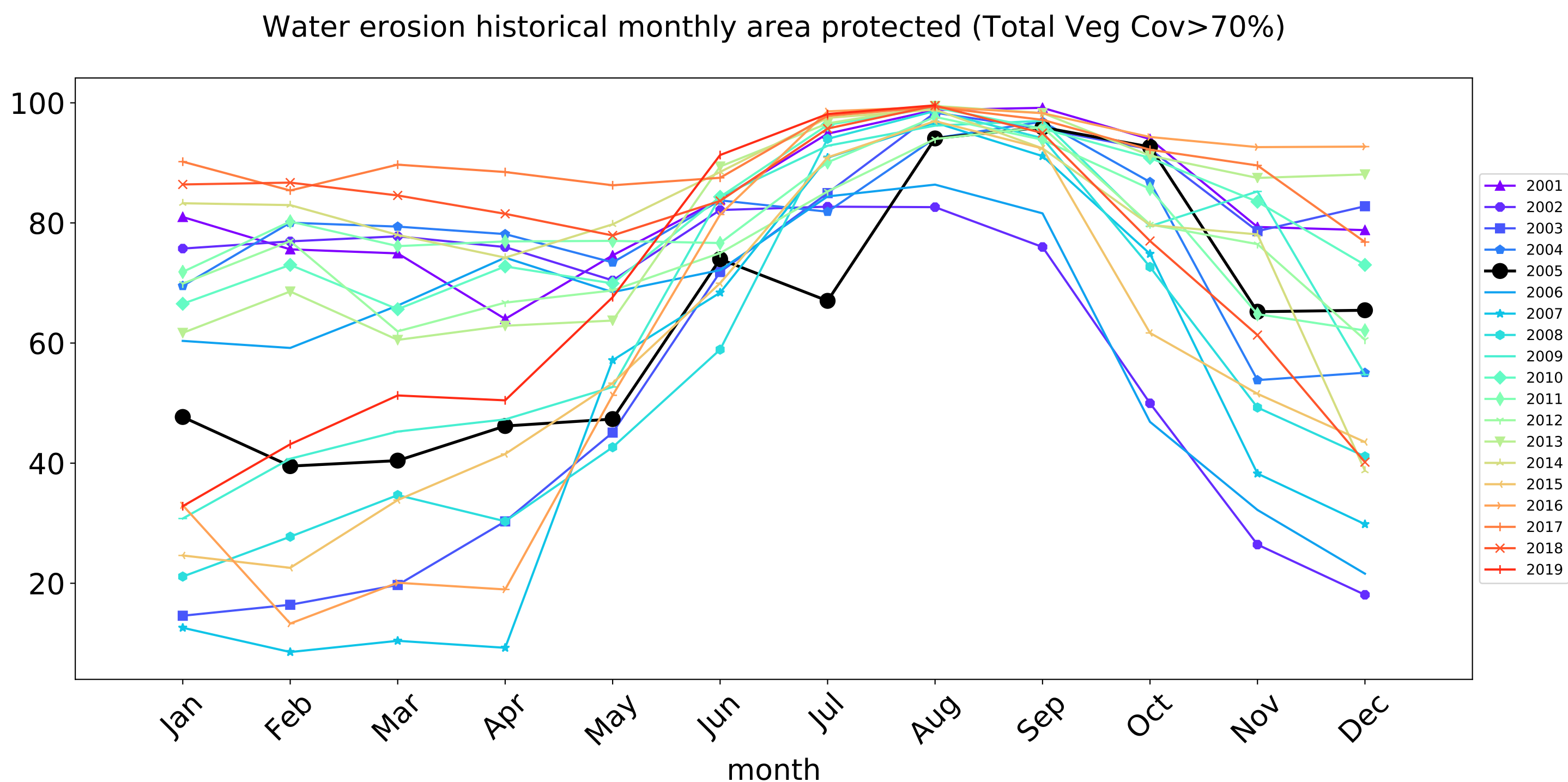
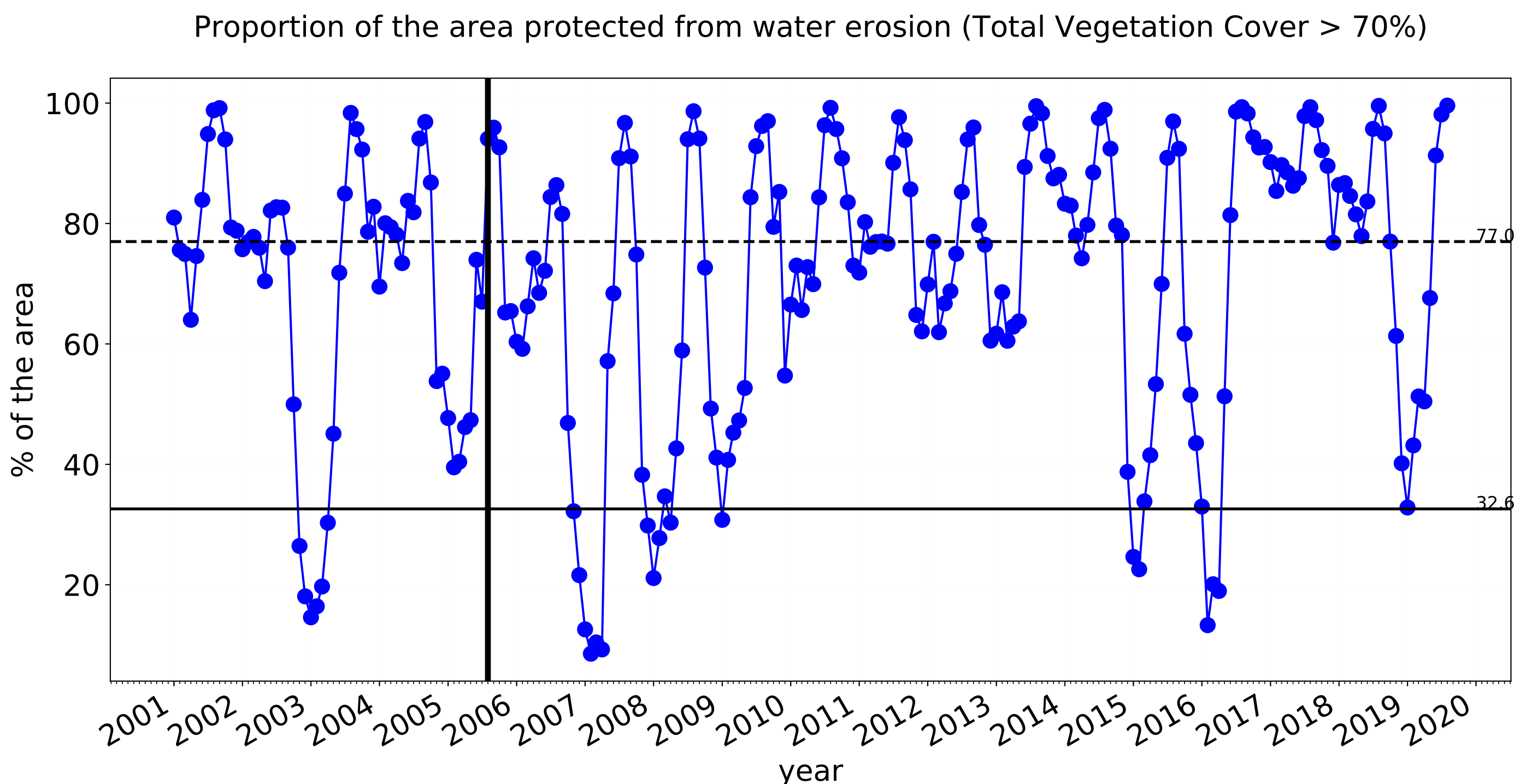
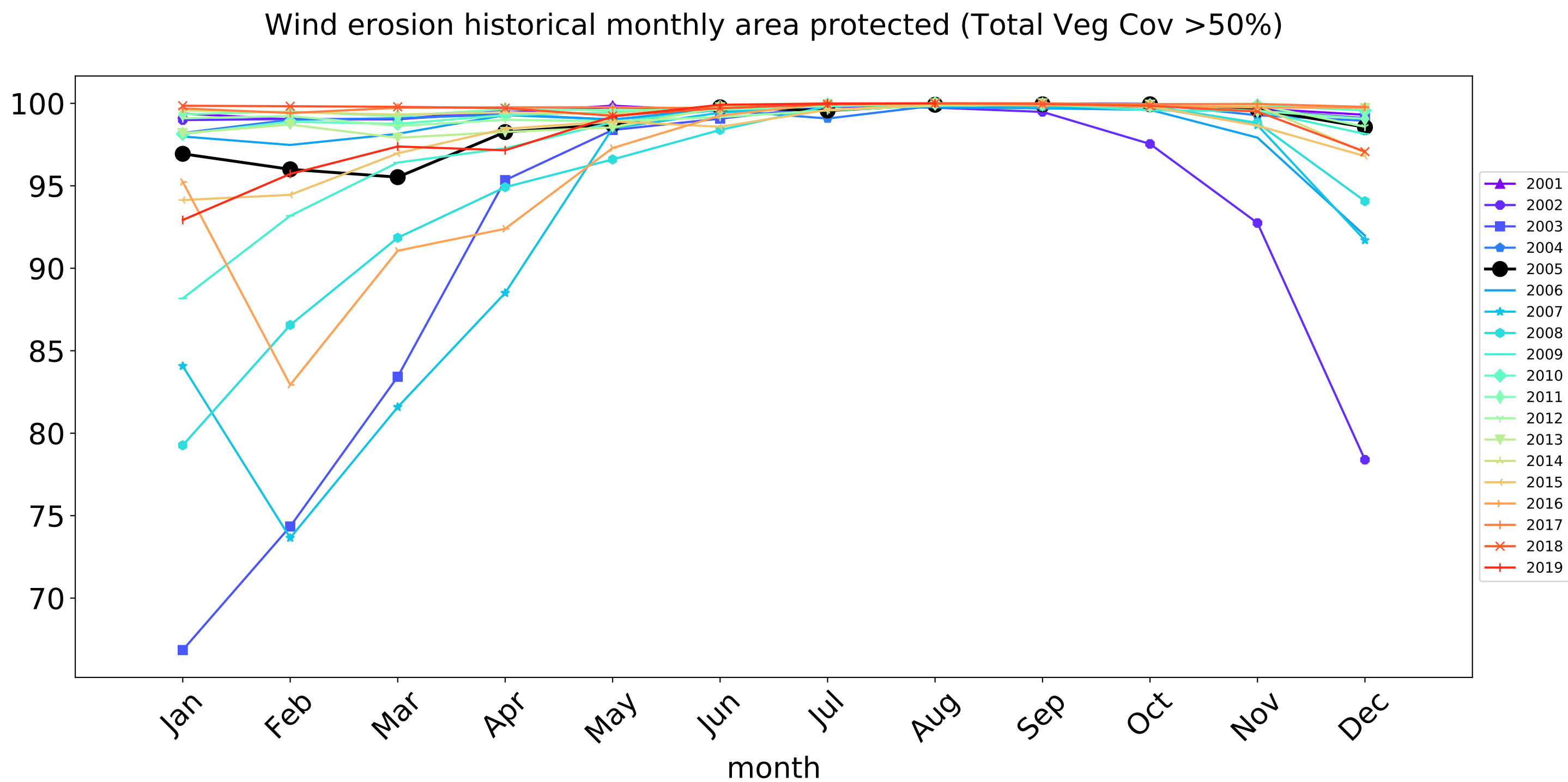
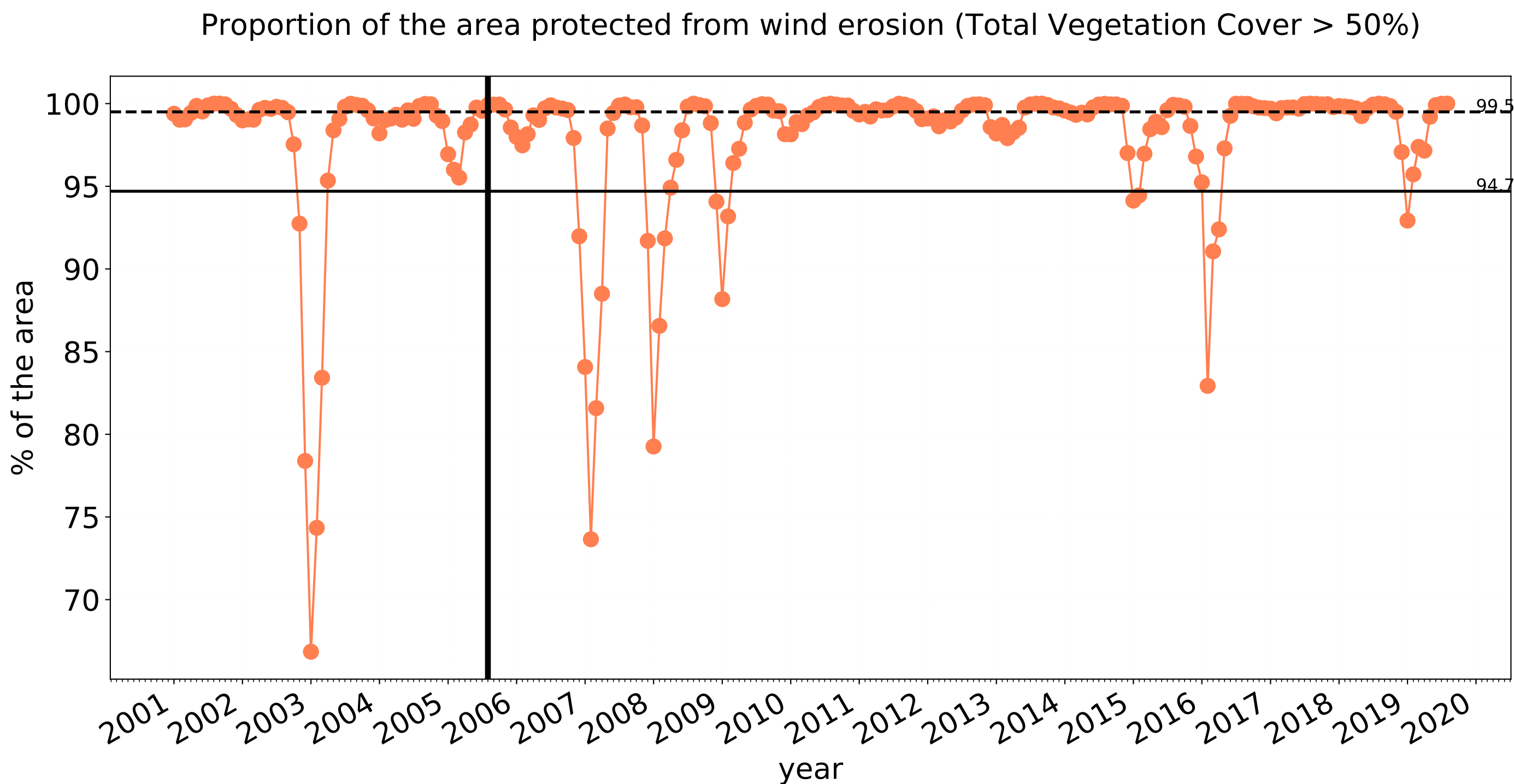
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]





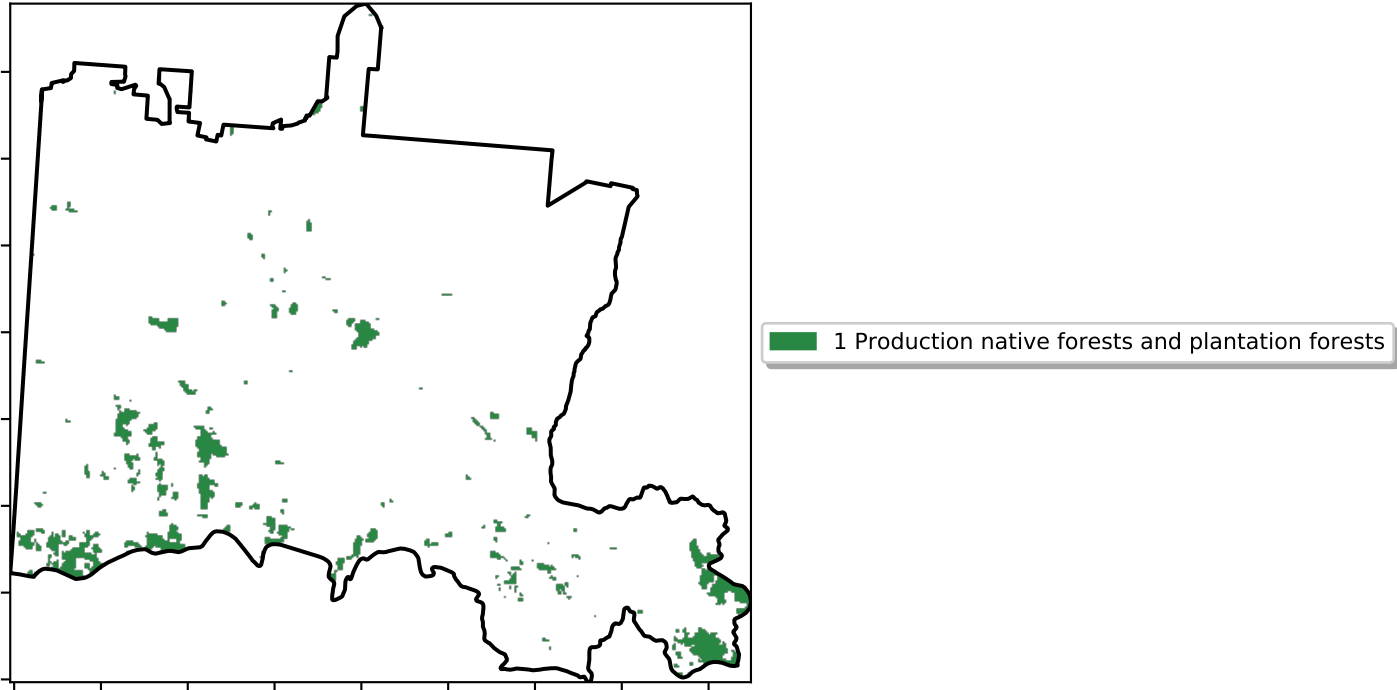
Cropping timeseries



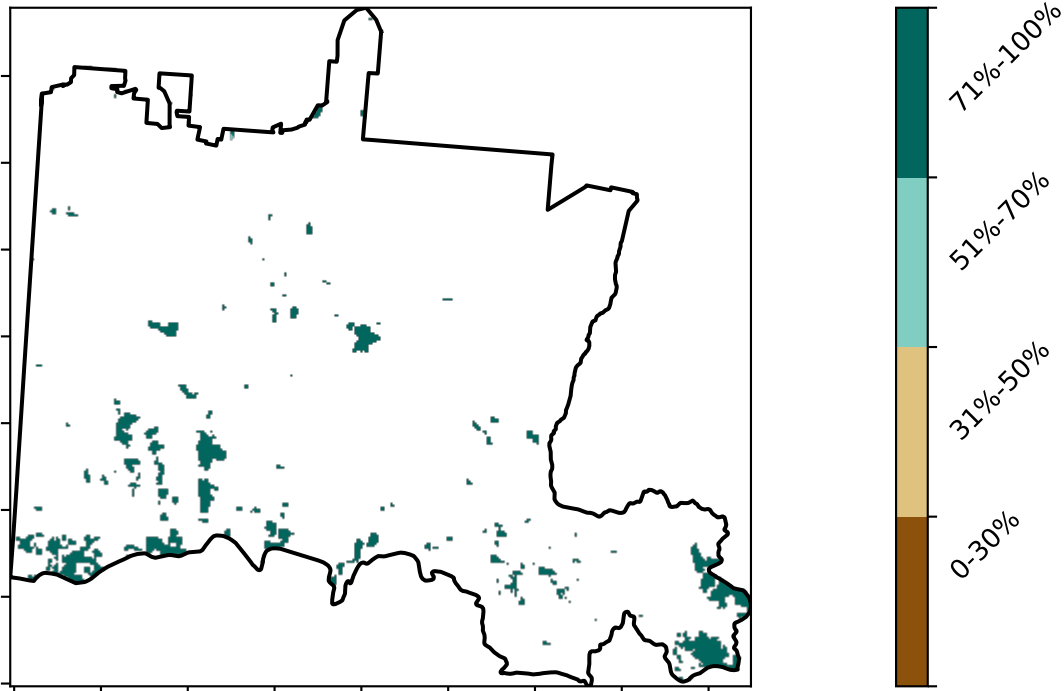
Production native forests and plantation forests

Land use and forest cover

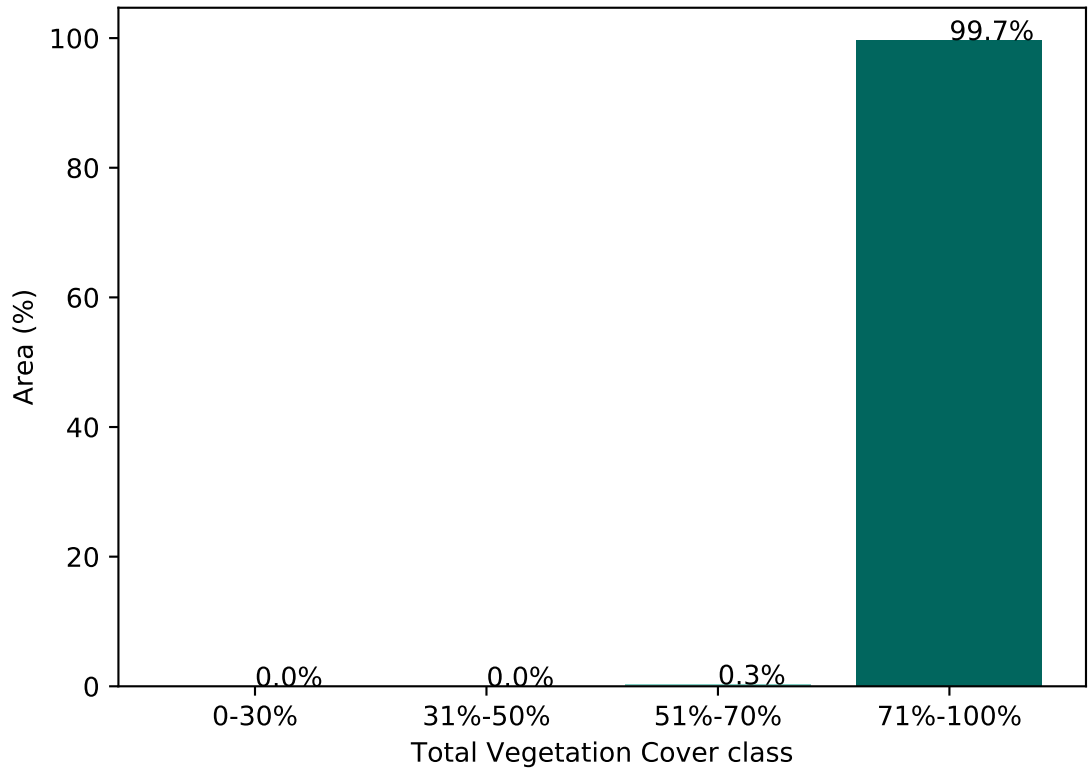
Catchment Scale Land Use and Forests of Australia (2018)  
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



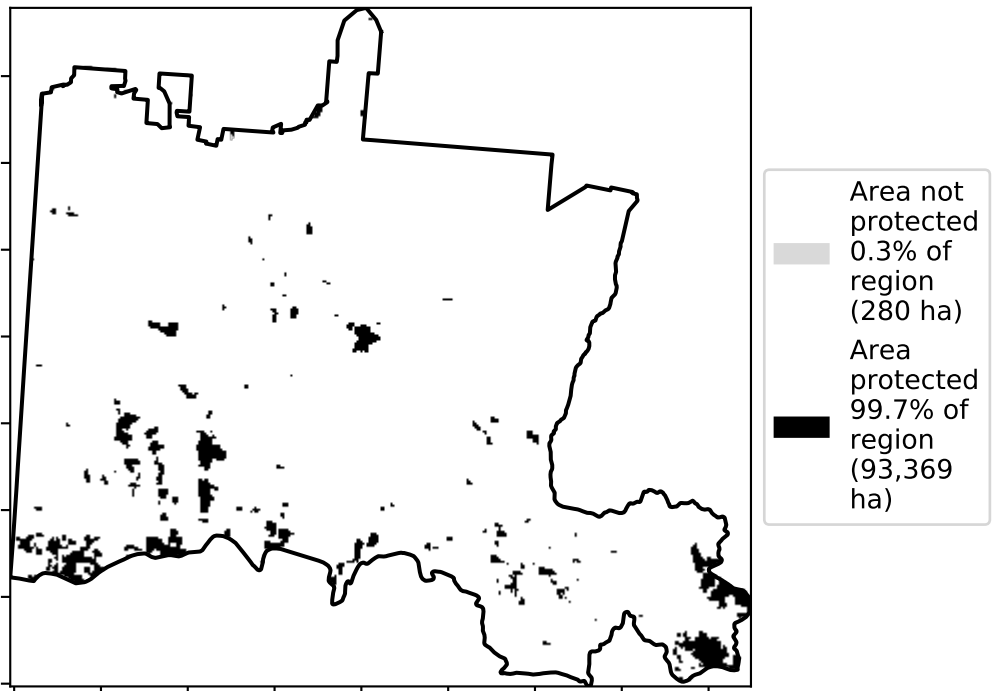
Total Vegetation Cover [%]



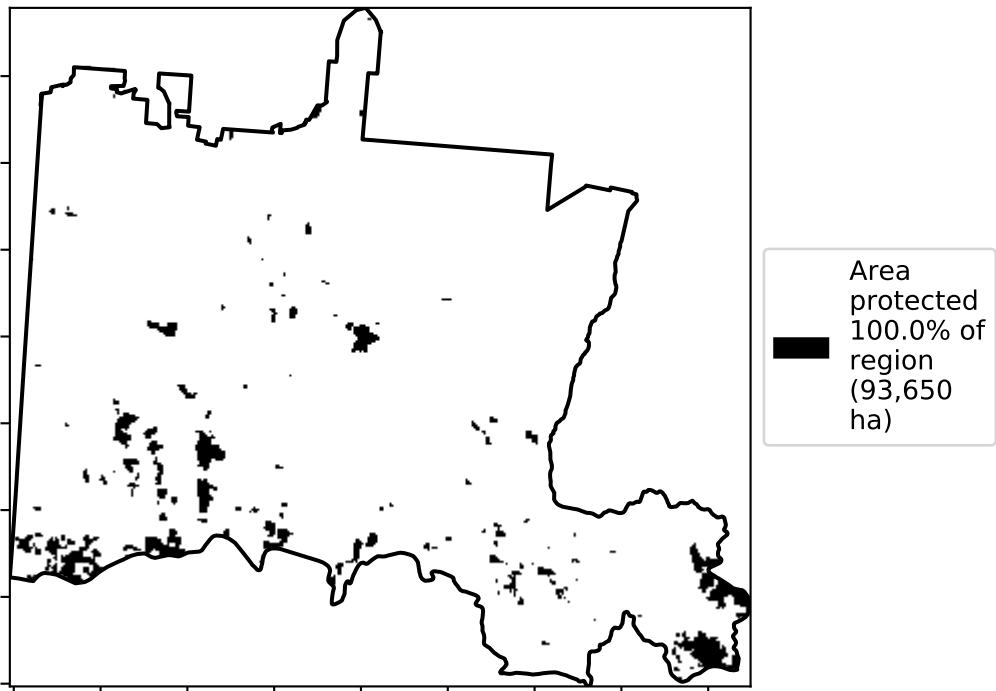
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

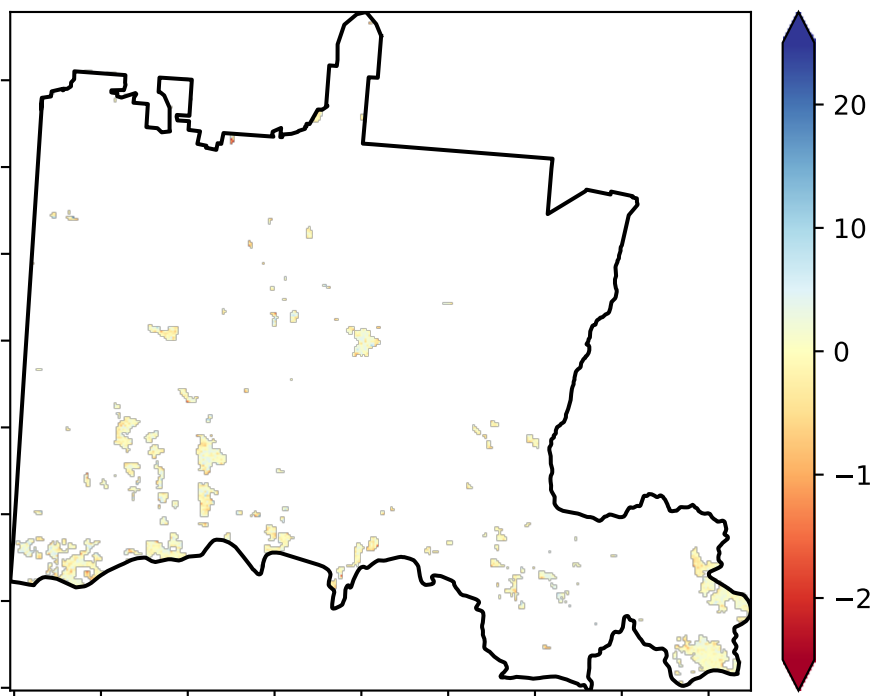


% Area protected from wind erosion (>50%)



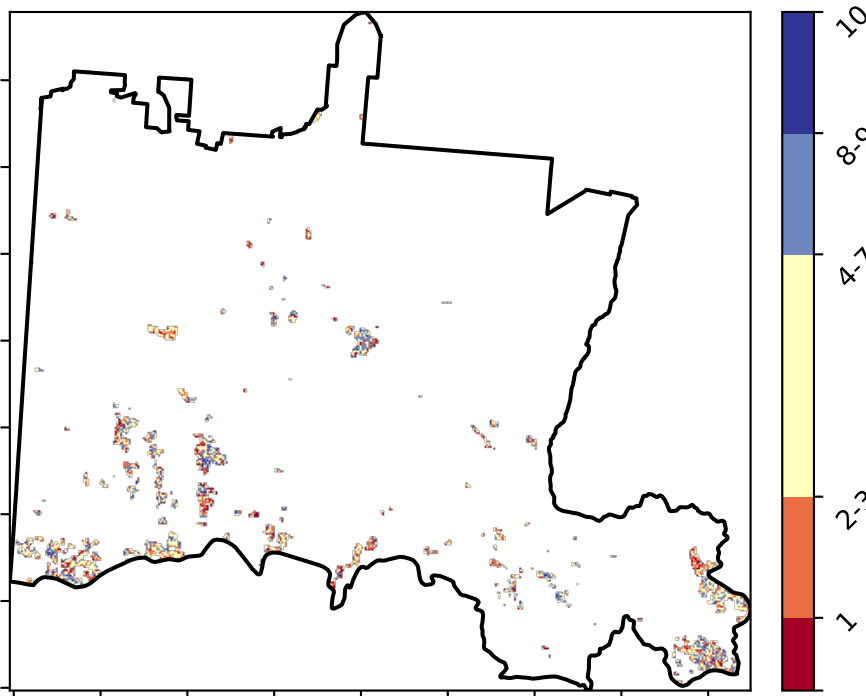
Total Vegetation Cover Anomaly [%]

Anomaly show how many 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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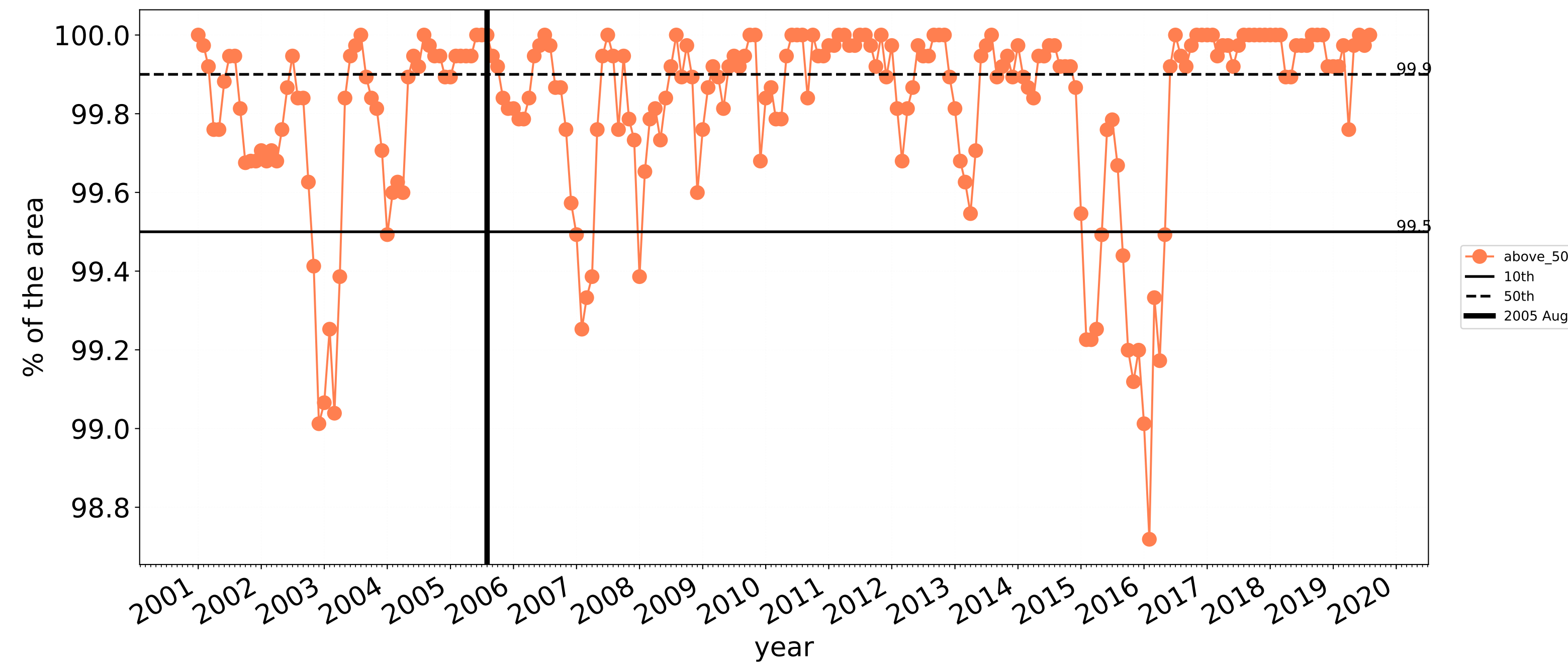


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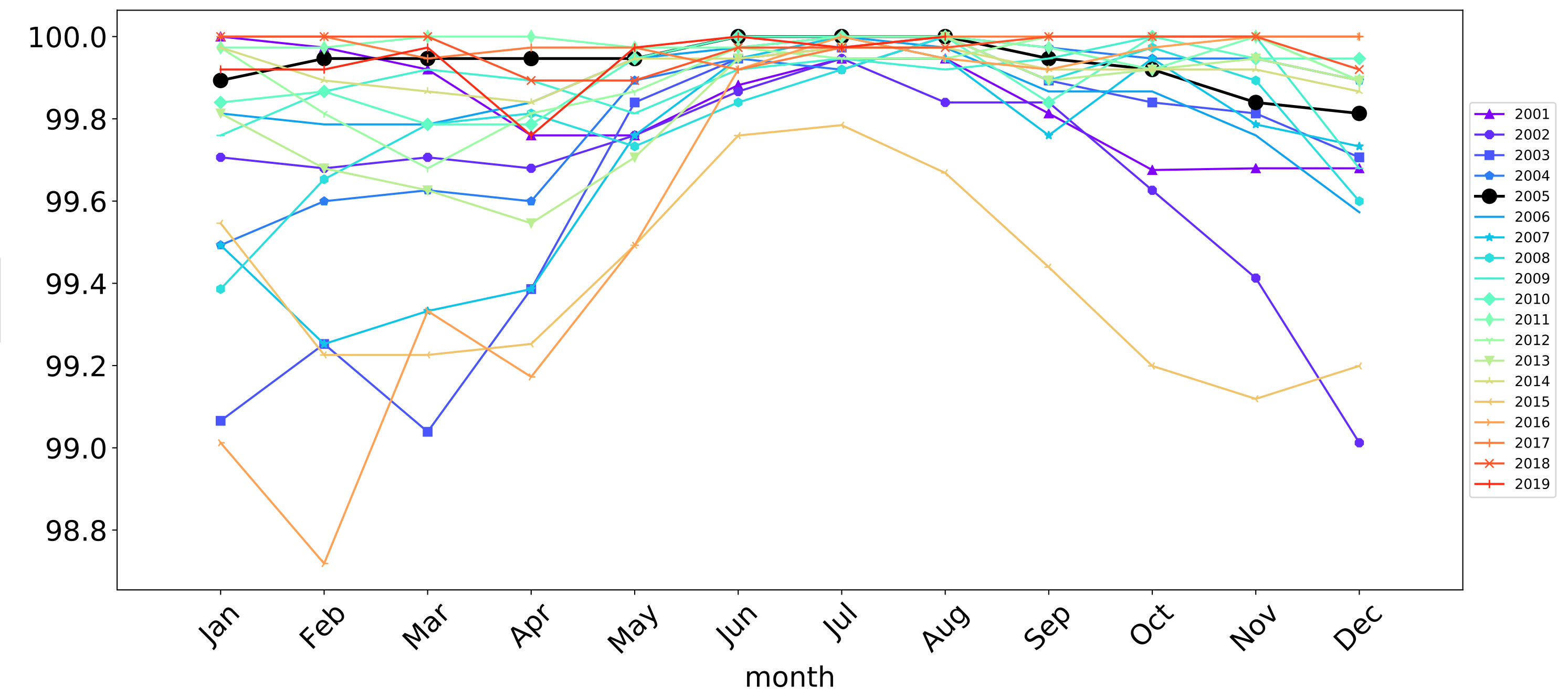


# Production native forests and plantation forests timeseries

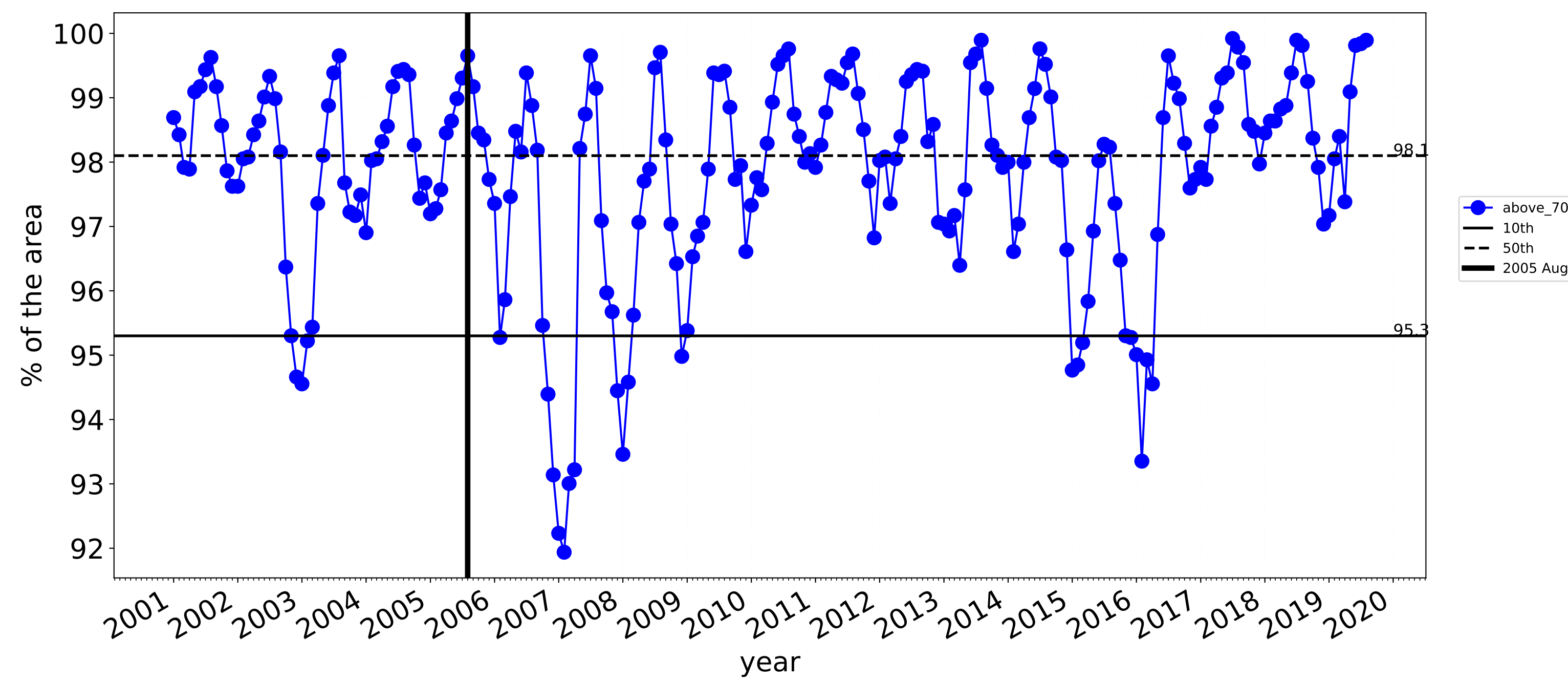
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



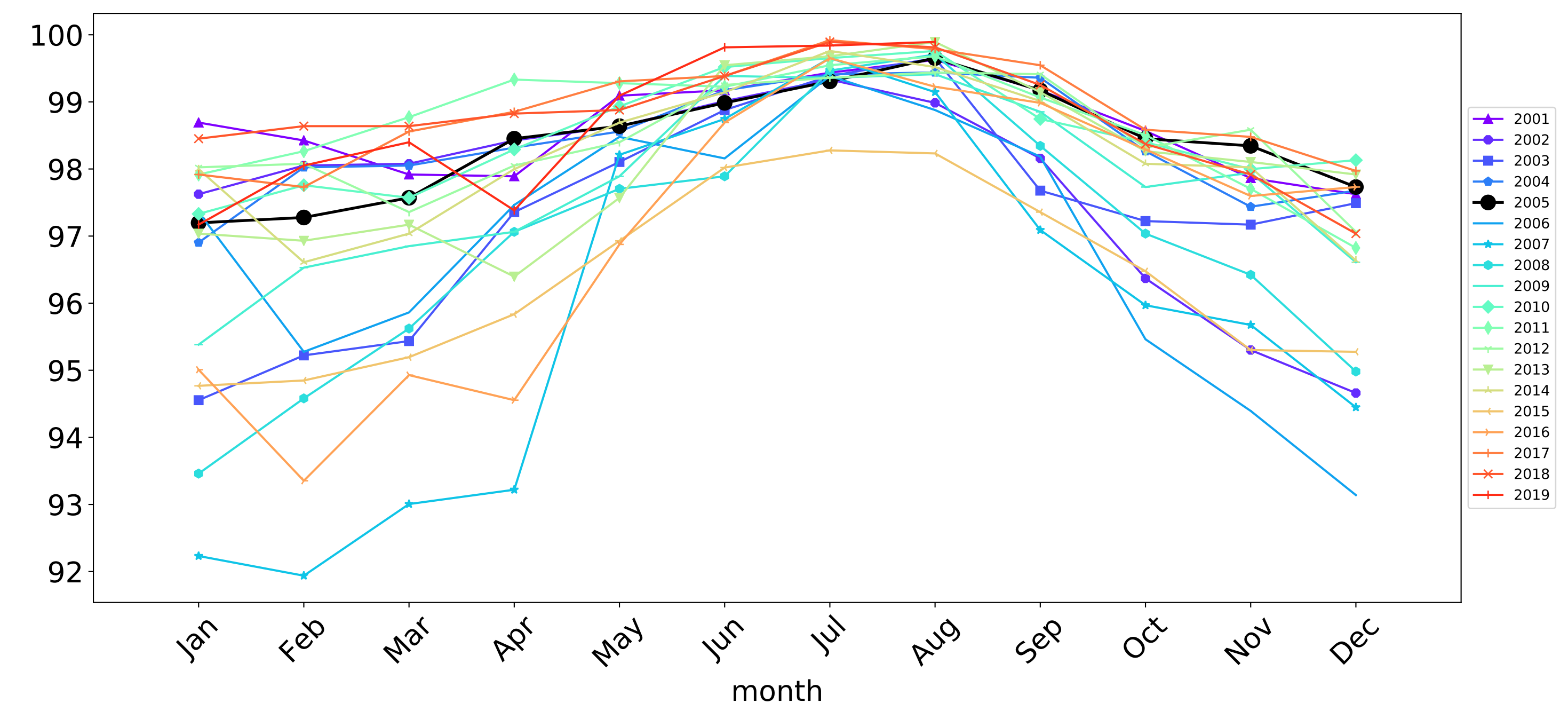
Wind erosion historical monthly area protected (Total Veg Cov > 50%)



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



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



Wimmera (2,329,725 ha and no data 15,787 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	2,329,725	100.0% 2,329,175	99.9% 2,326,751	95.9% 2,234,245	69.6% 1,621,609	21.9% 510,883	4.5% 103,776
Conservation and natural environments	278,175	99.9% 277,975	99.8% 277,750	98.7% 274,475	93.5% 259,975	37.8% 105,050	7.8% 21,650
Conservation and natural environments non forest	47,900	99.6% 47,725	99.4% 47,625	96.7% 46,300	84.6% 40,525	25.5% 12,200	7.4% 3,550
Conservation and natural environments Woodland forest	202,875	100.0% 202,875	99.9% 202,750	99.0% 200,825	94.9% 192,500	35.2% 71,425	5.0% 10,175
Conservation and natural environments Forest (non woodland)	27,400	99.9% 27,375	99.9% 27,375	99.8% 27,350	98.4% 26,950	78.2% 21,425	28.9% 7,925
Agriculture	1,908,625	100.0% 1,908,300	99.9% 1,906,350	95.4% 1,820,225	64.7% 1,234,600	17.6% 335,550	3.3% 62,550
Grazing	777,625	100.0% 777,375	99.8% 776,300	97.2% 756,000	85.3% 663,250	34.3% 266,950	6.9% 53,300
Grazing non forest	724,200	100.0% 724,000	99.8% 722,950	97.1% 703,075	84.7% 613,375	33.5% 242,925	6.7% 48,850
Grazing Woodland forest	49,525	99.9% 49,475	99.8% 49,450	99.0% 49,025	92.8% 45,975	42.5% 21,050	7.0% 3,475
Cropping	1,125,725	100.0% 1,125,650	99.9% 1,124,775	94.1% 1,058,975	50.3% 566,500	5.9% 66,625	0.8% 8,825
Production native forests and plantation forests	93,650	100.0% 93,650	100.0% 93,650	99.7% 93,325	96.9% 90,775	60.0% 56,175	19.0% 17,775

