

# Total vegetation cover soil protection

## Region:NRM Wimmera VIC

Date: January 2006

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>



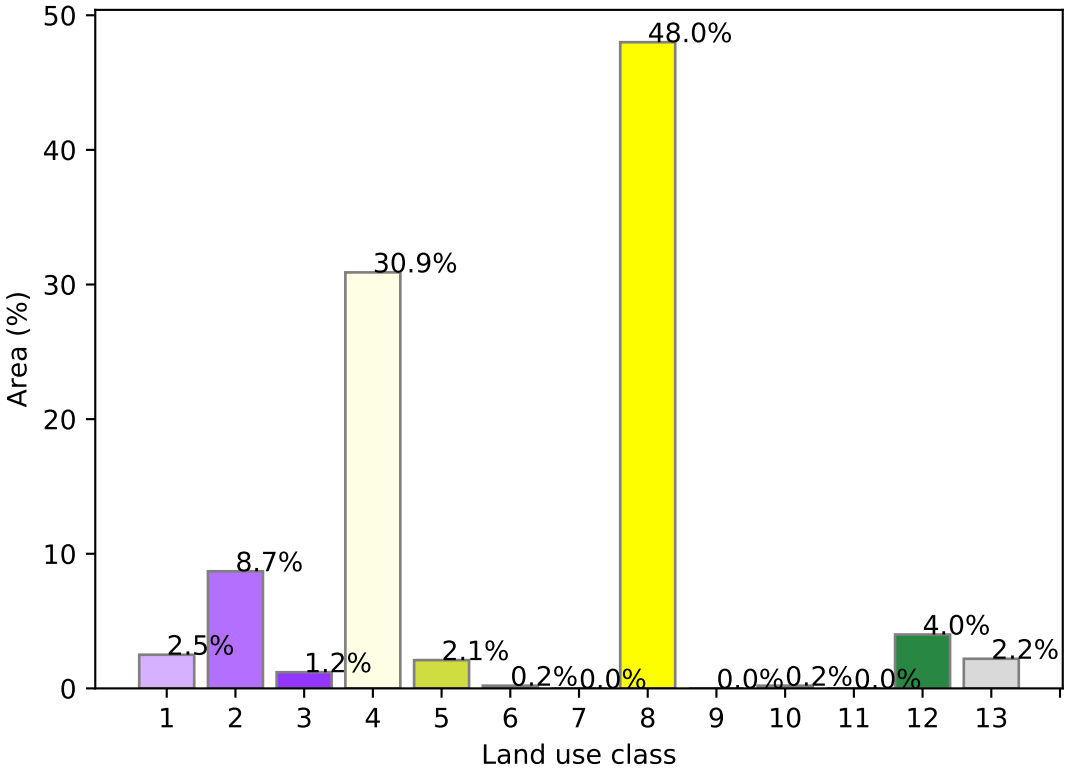


# Vegetation Cover Jan 2006

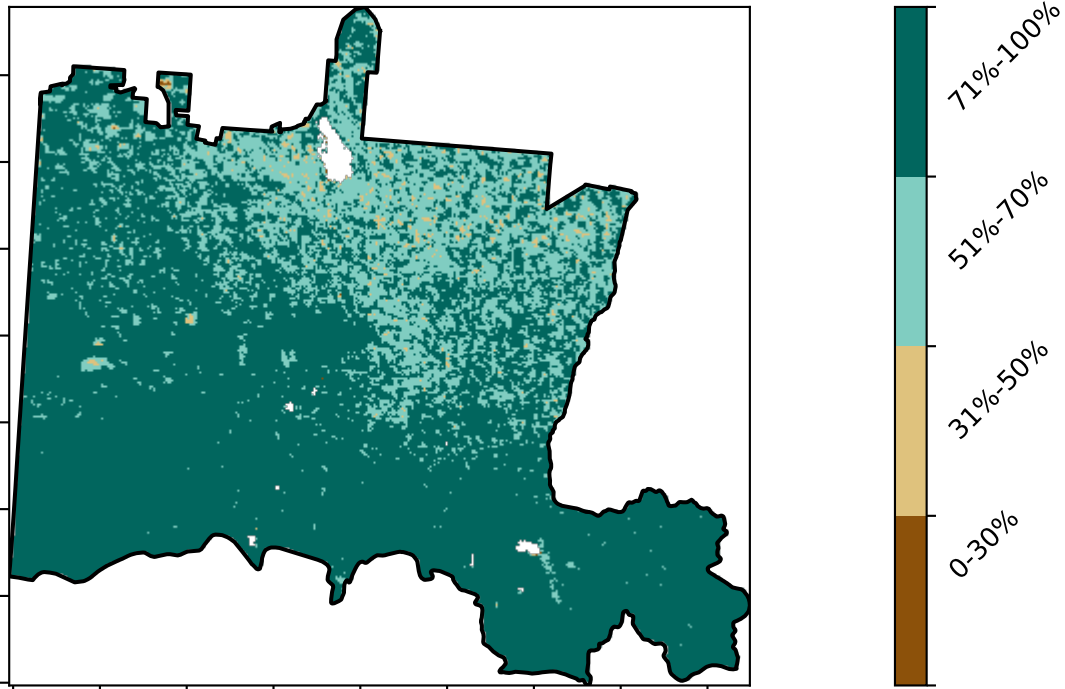
Land use and forest cover



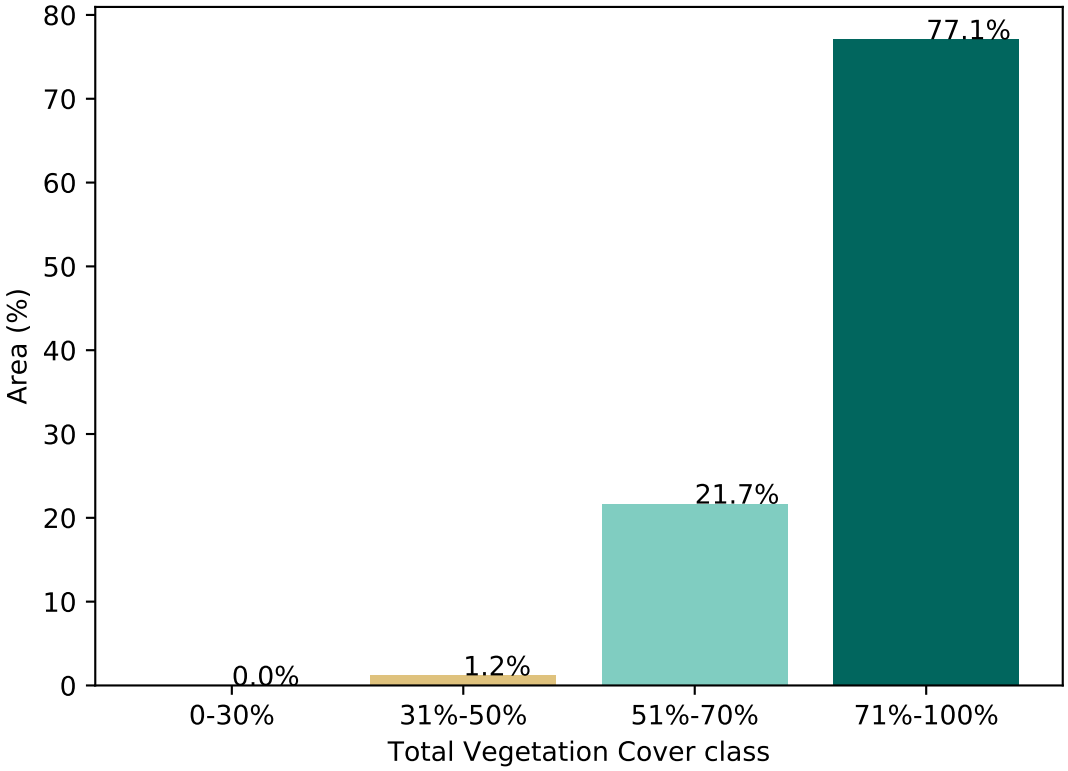
Proportion of each land class in area



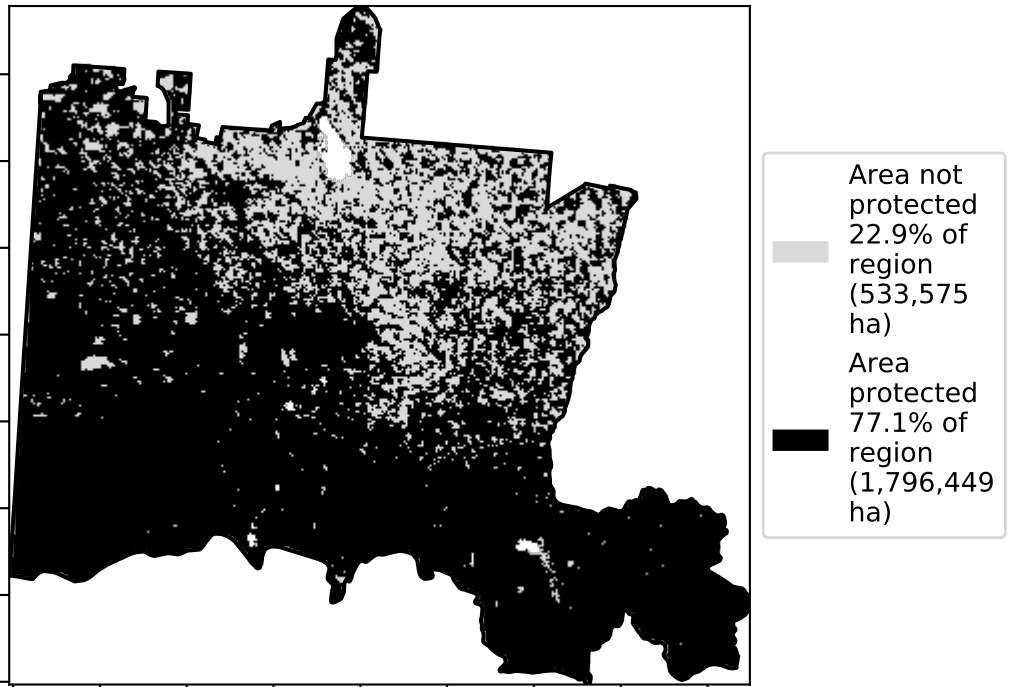
Total Vegetation Cover [%]



Proportion of vegetation cover class in area



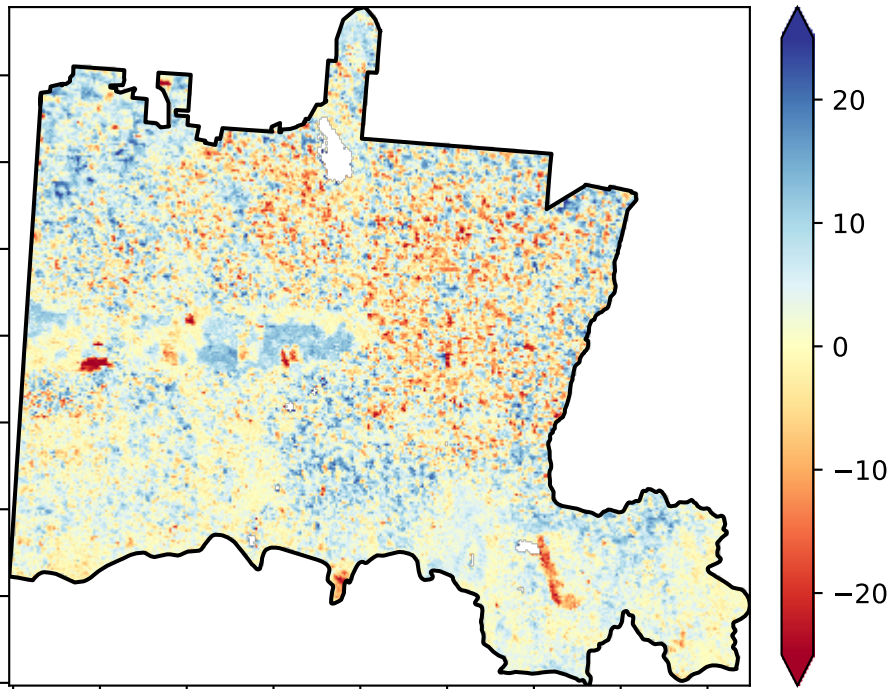
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

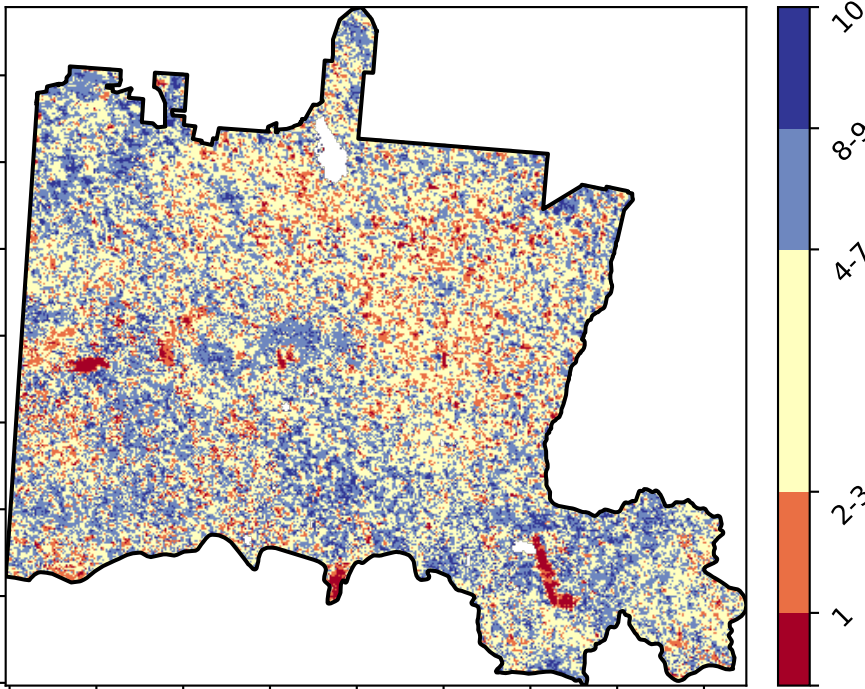


Total Vegetation Cover Anomaly [%]



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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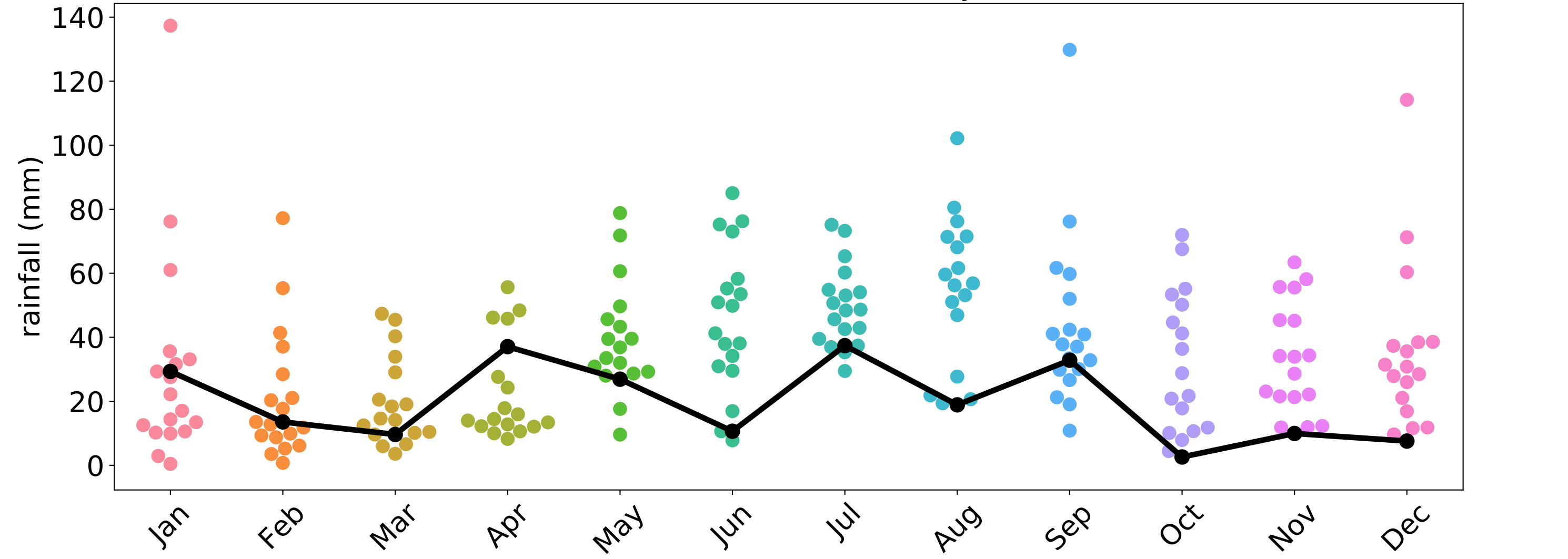
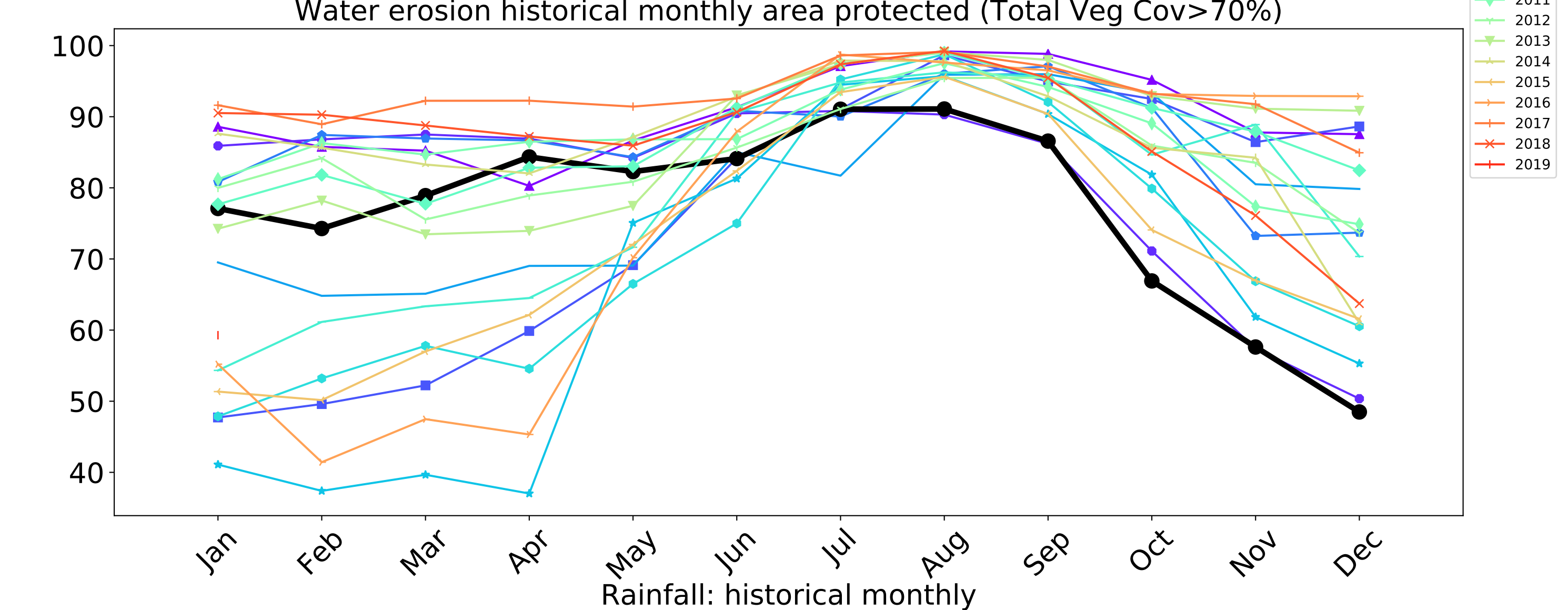
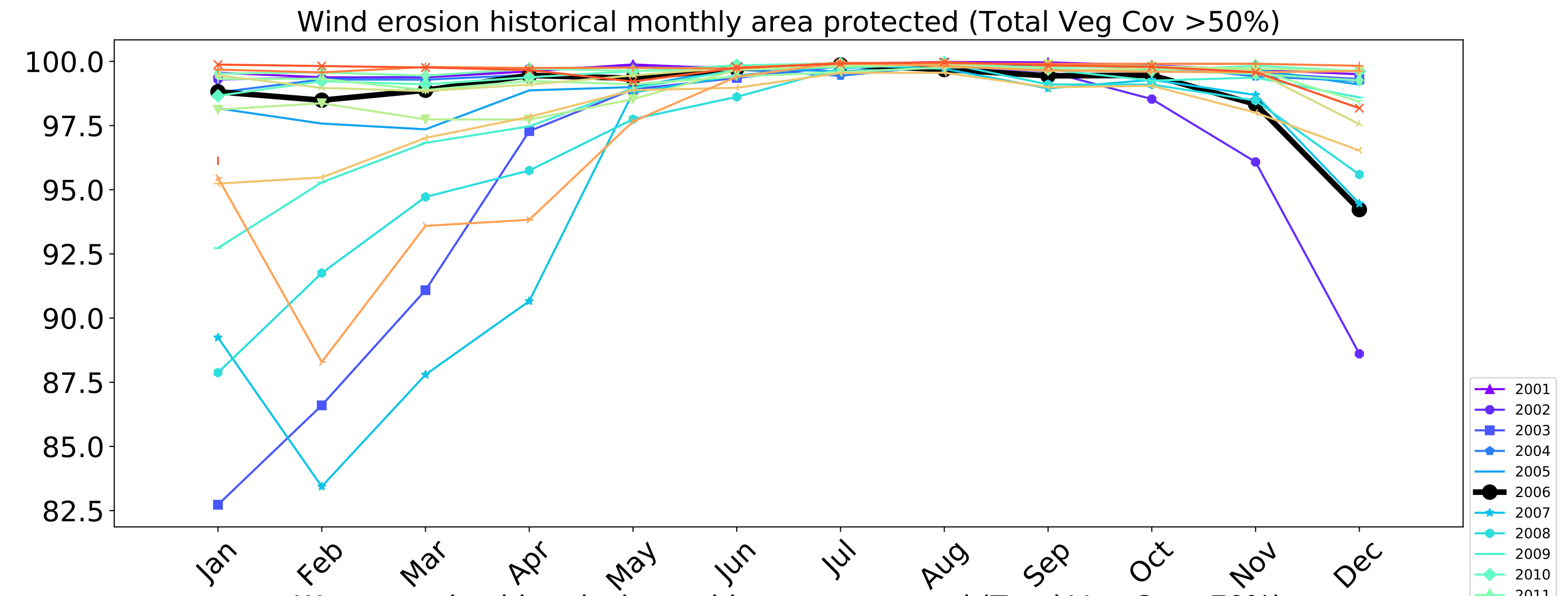
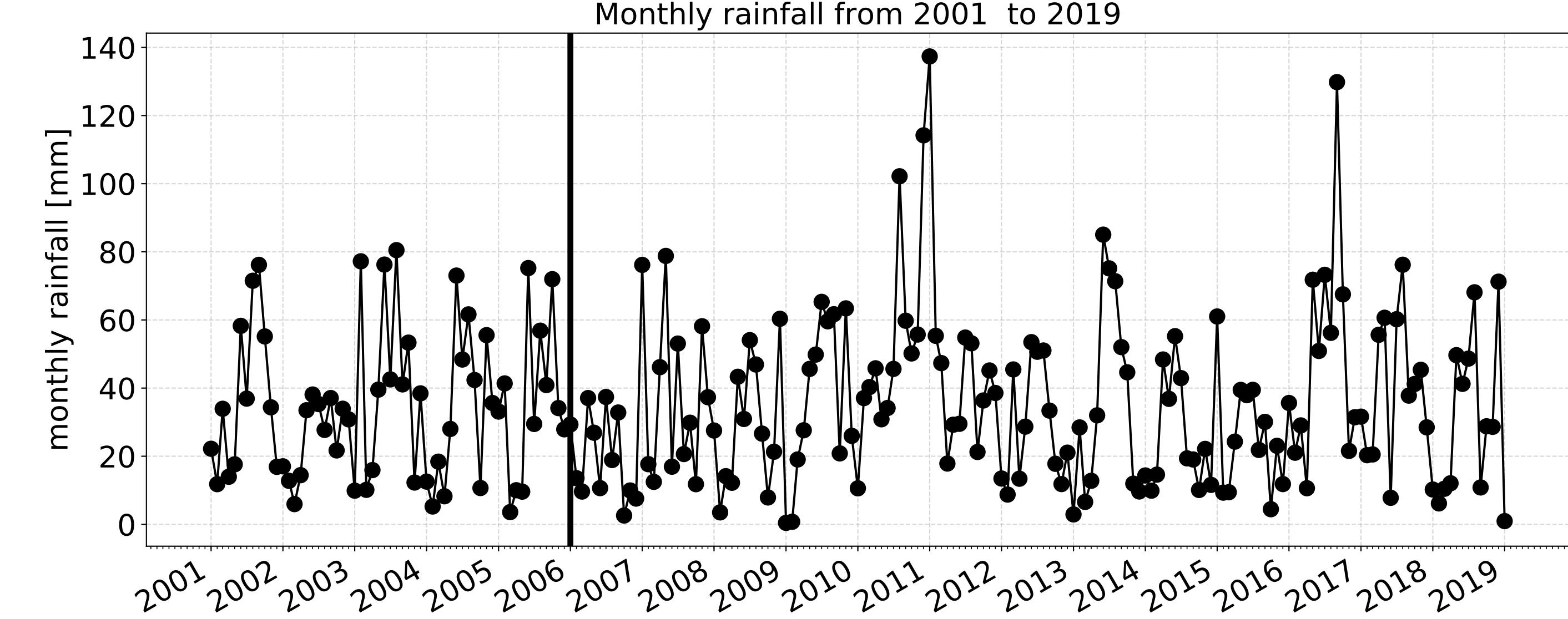
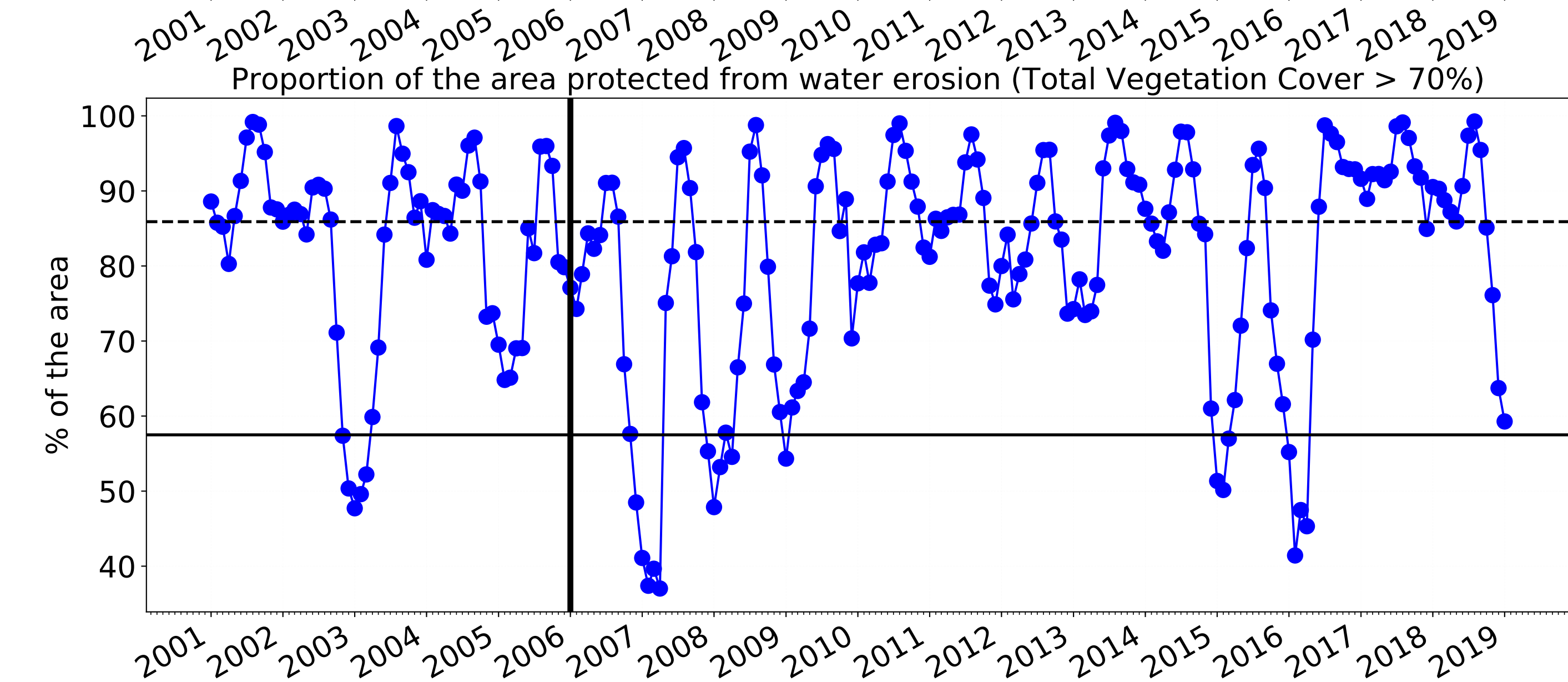
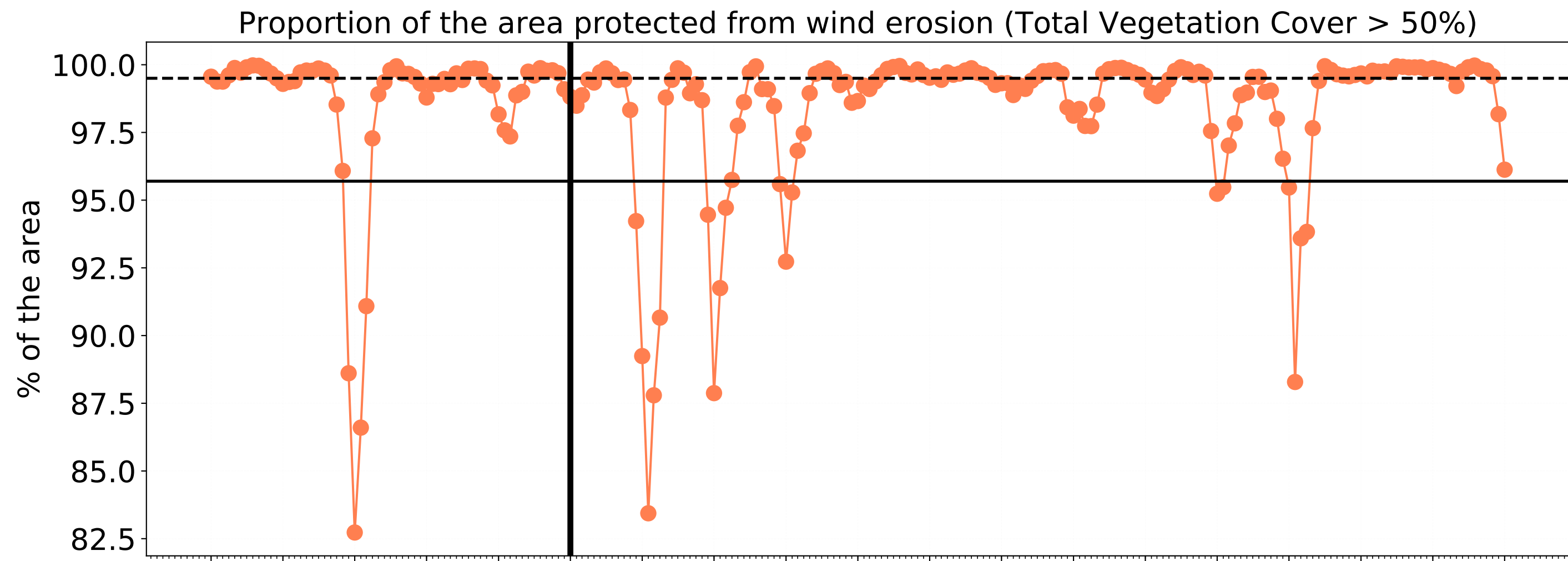


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Environment





Conservation and natural environments

Land use and forest cover

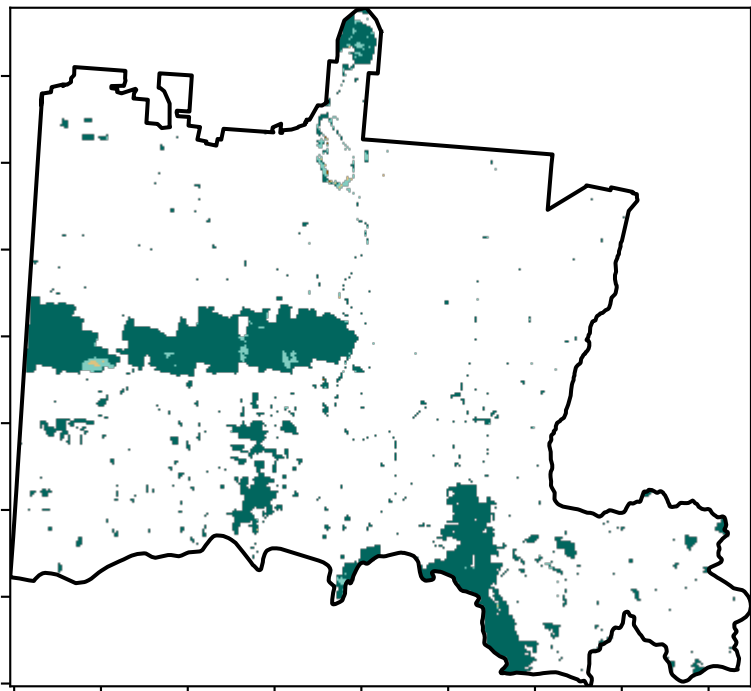
Catchment Scale Land Use and Forests of Australia (2018)  
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



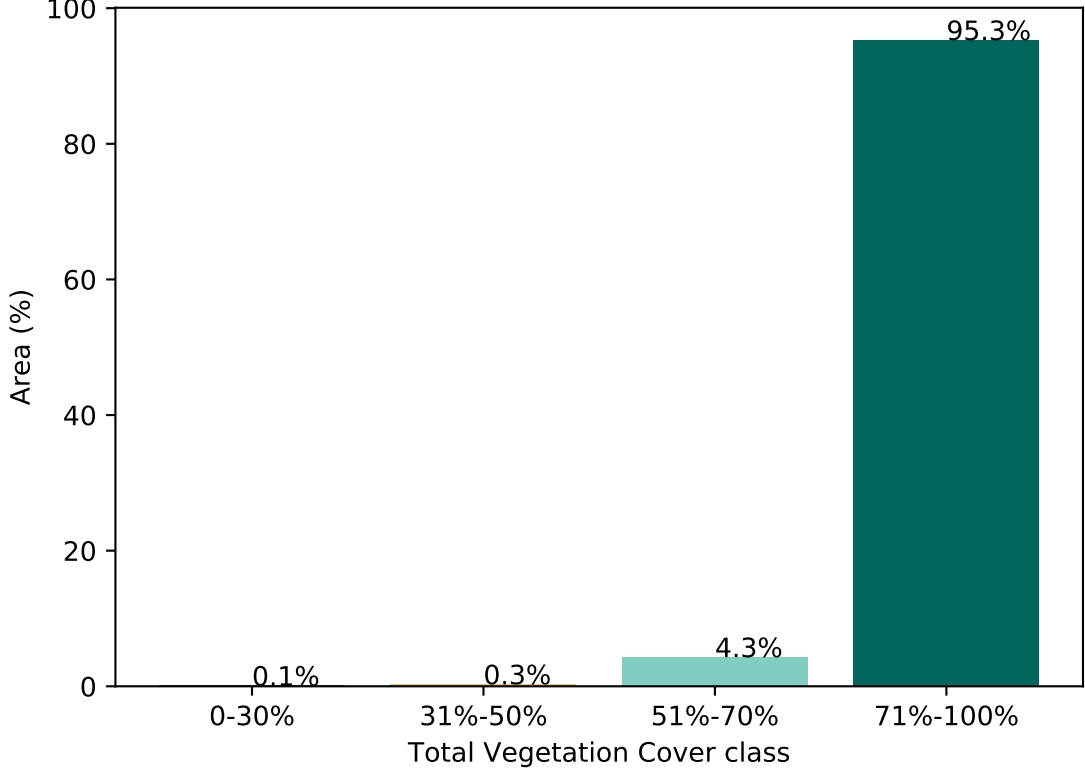
Proportion of each land class in area



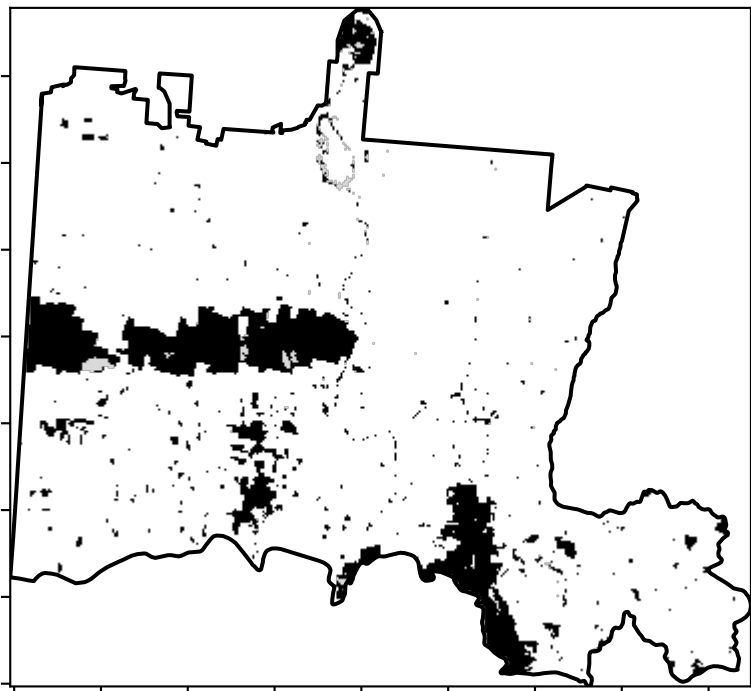
Total Vegetation Cover [%]



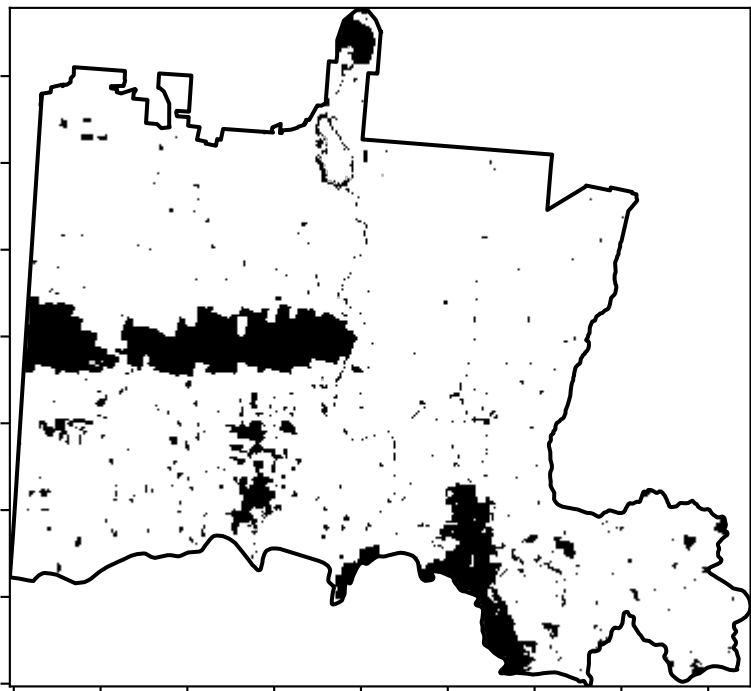
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

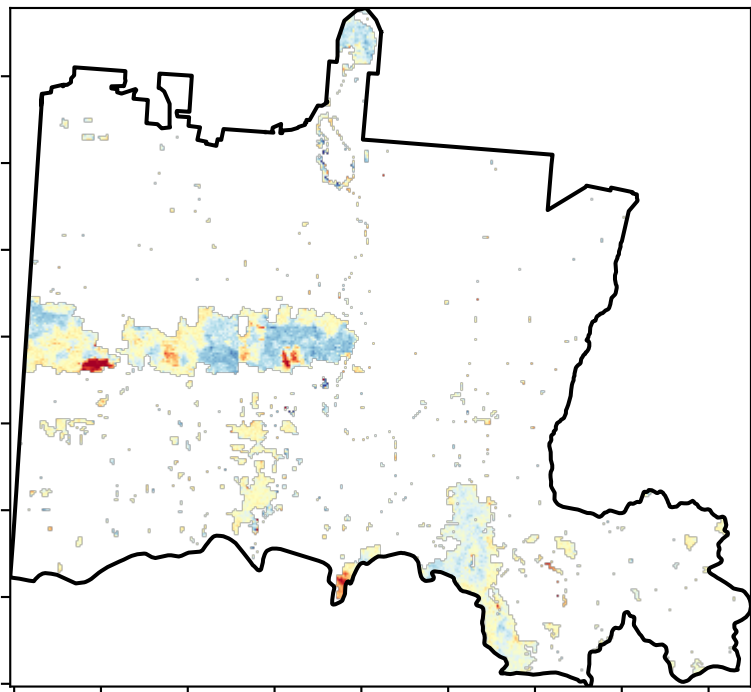


% Area protected from wind erosion (>50%)



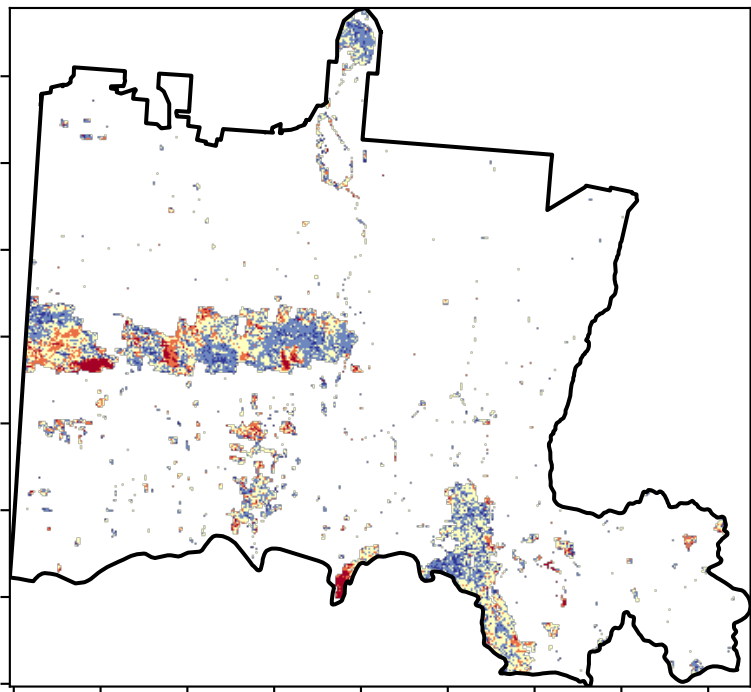
Total Vegetation Cover Anomaly [%]

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



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Total Vegetation Cover Decile [%]



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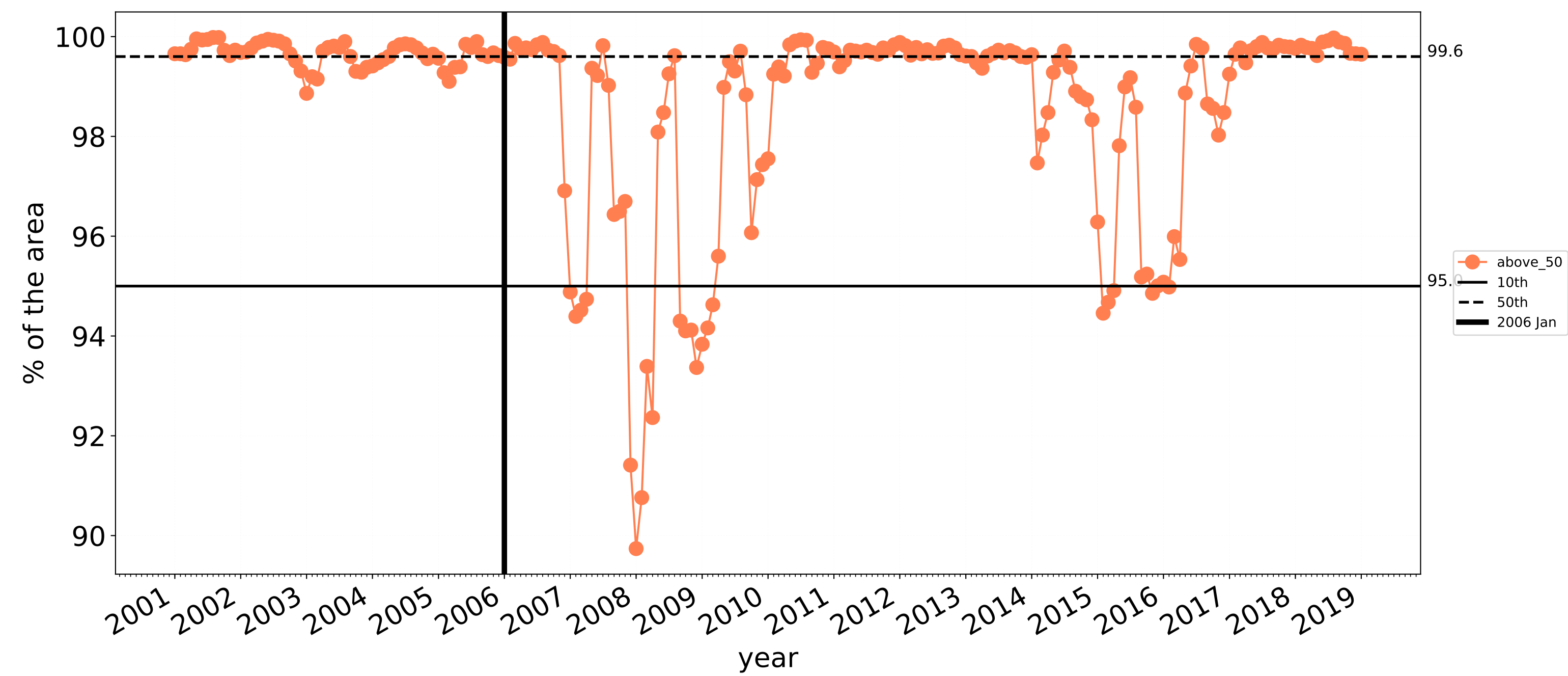


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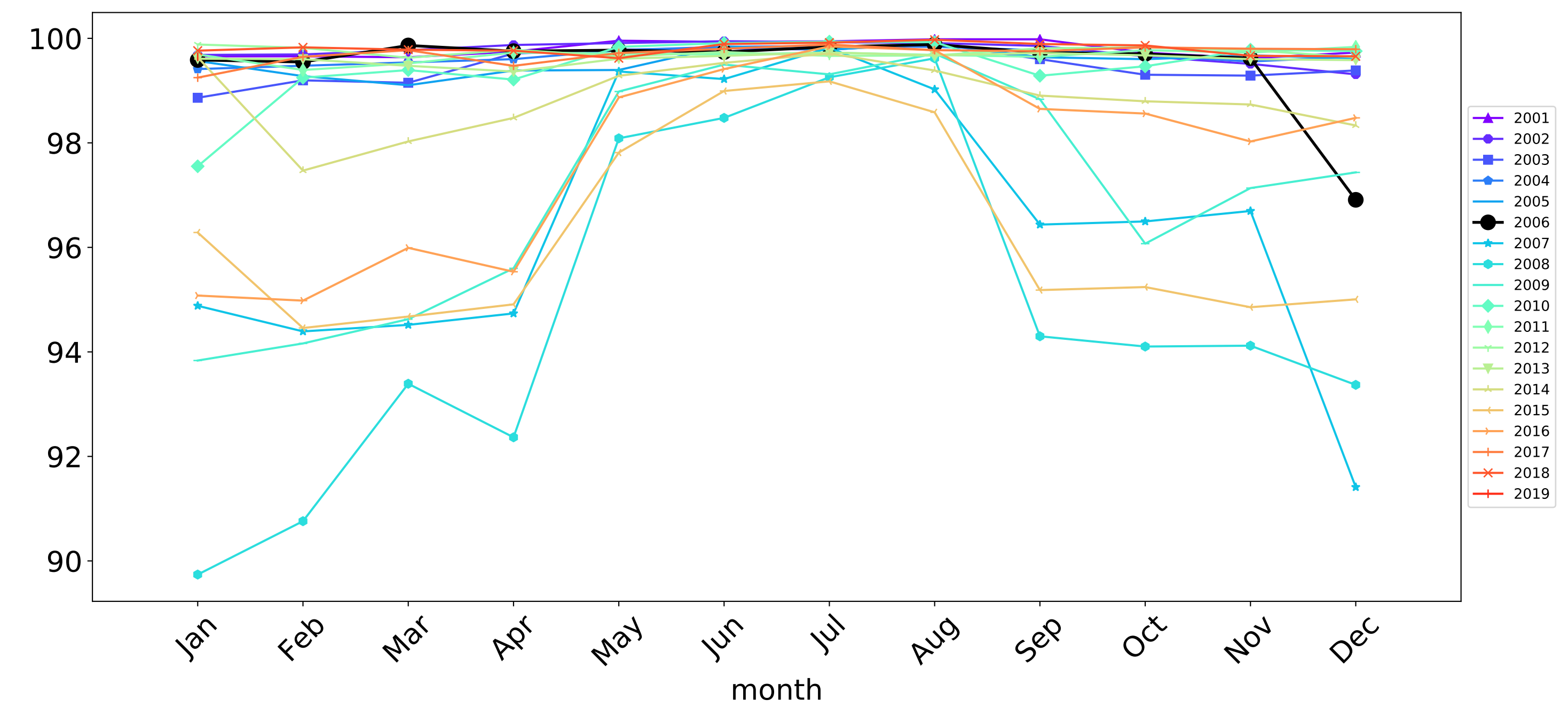


# Conservation and natural environments timeseries

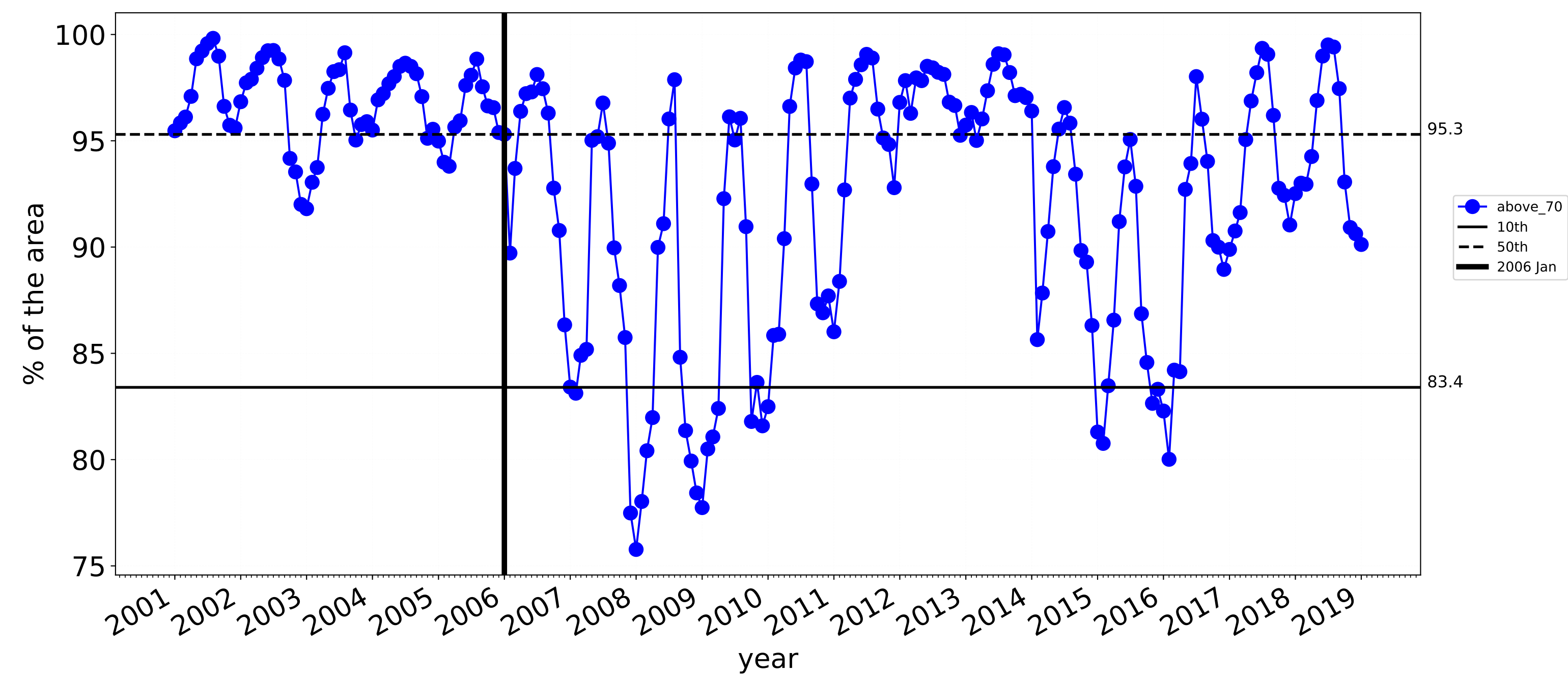
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



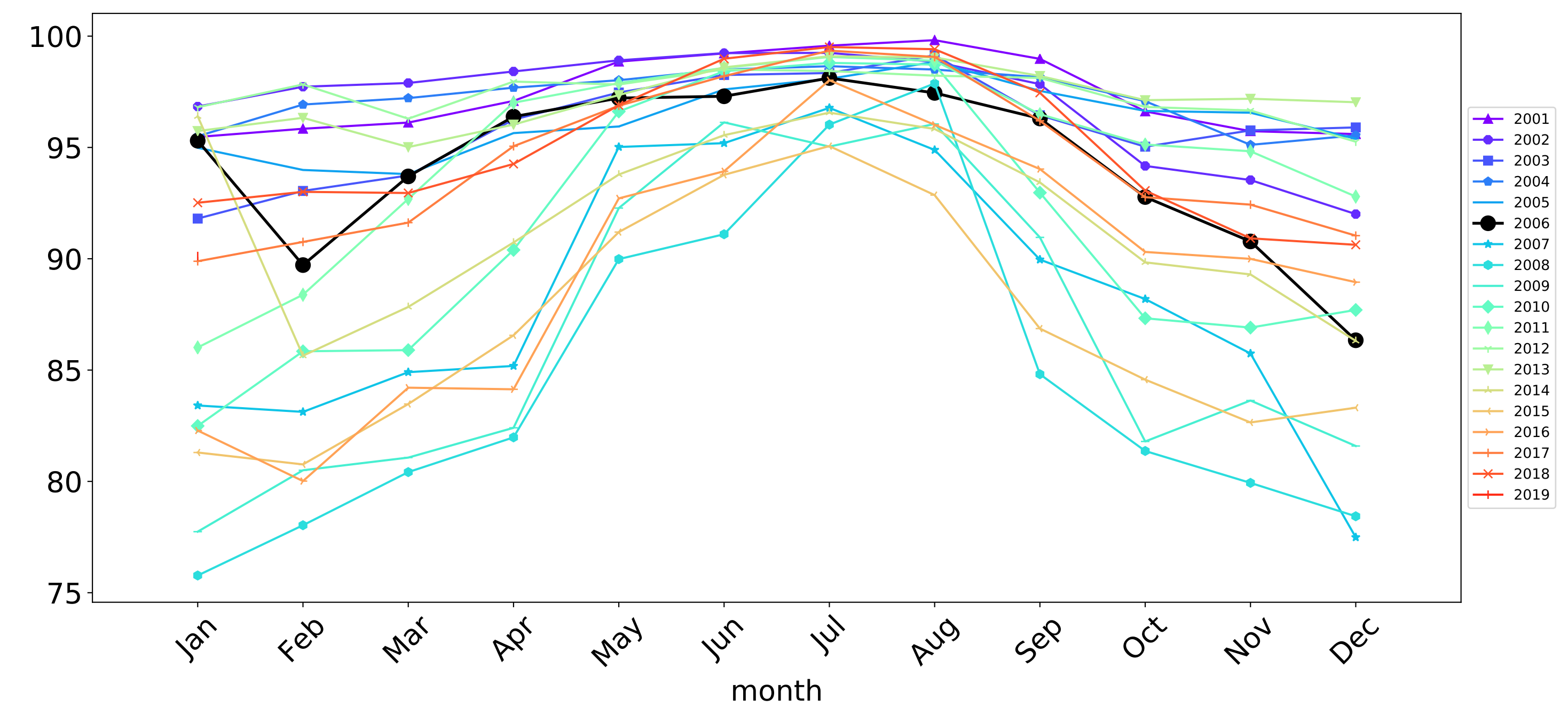
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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



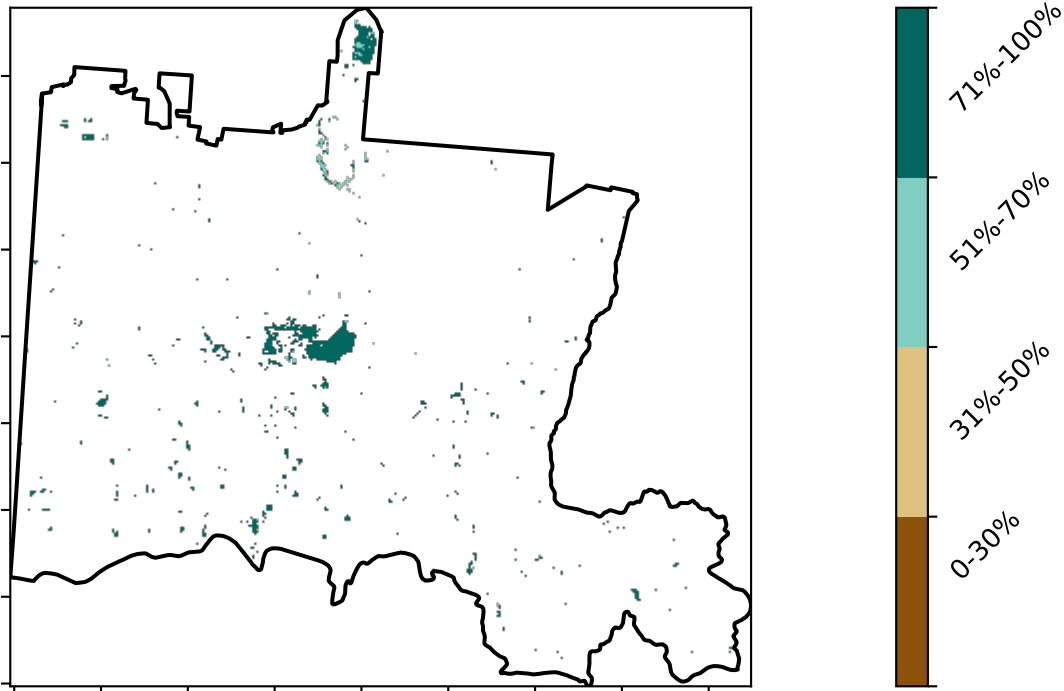
Conservation and natural environments non forest

Land use and forest cover

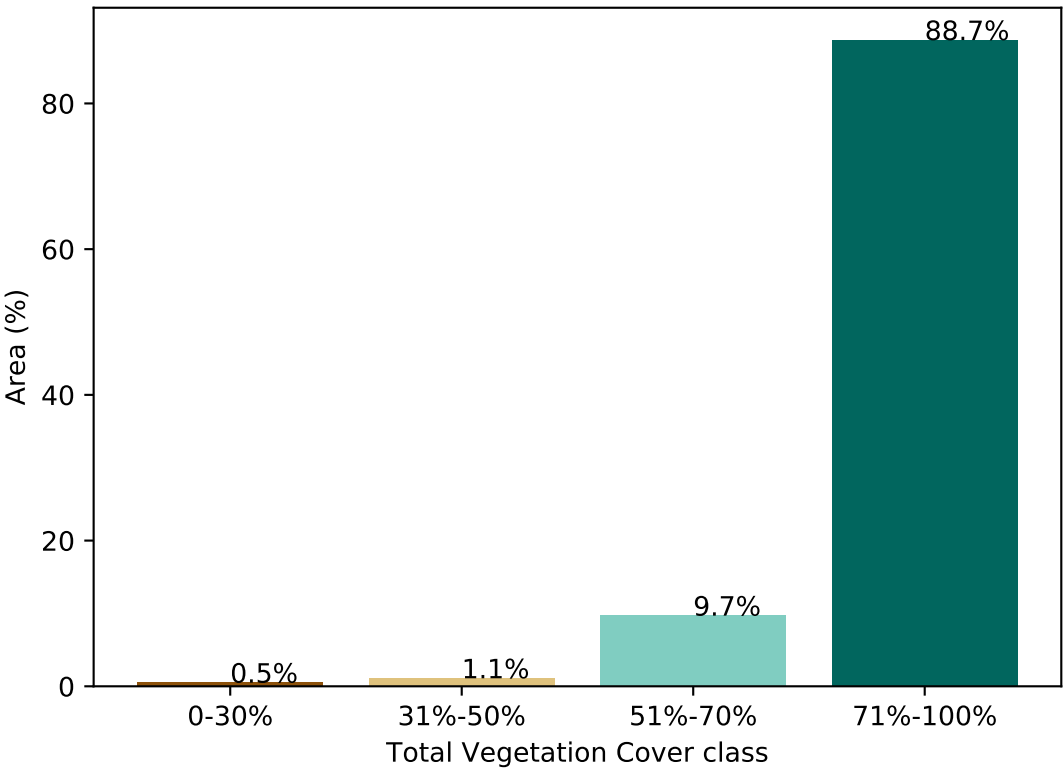
Catchment Scale  
Land Use and Forests  
of Australia (2018)  
Derived from  
Catchment Scale Land  
Use of Australia  
(2018) and Forests  
of Australia (2018)



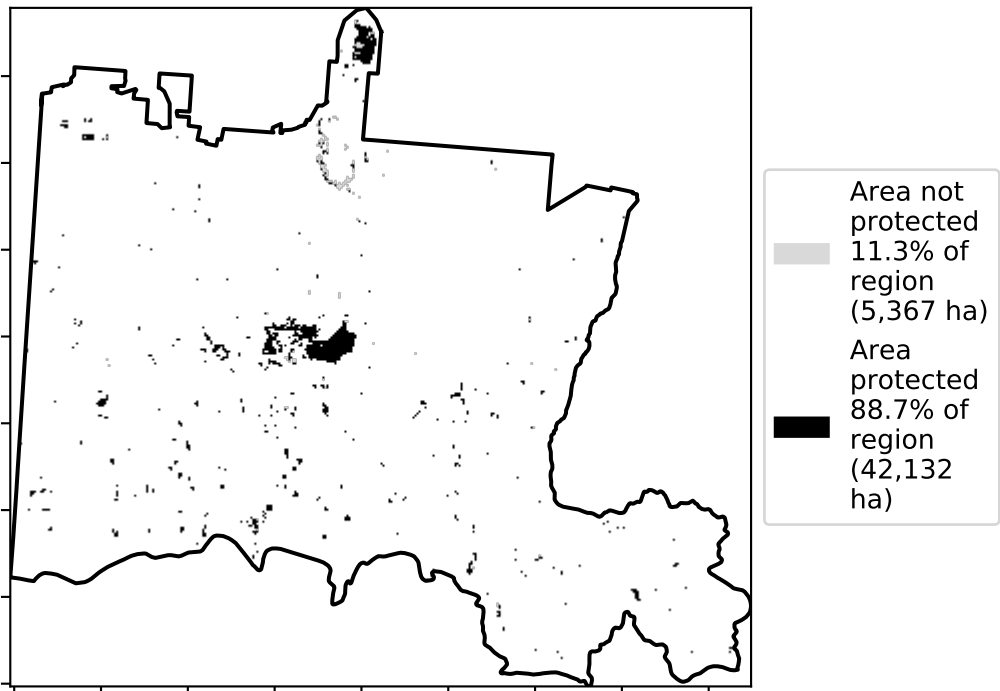
Total Vegetation Cover [%]



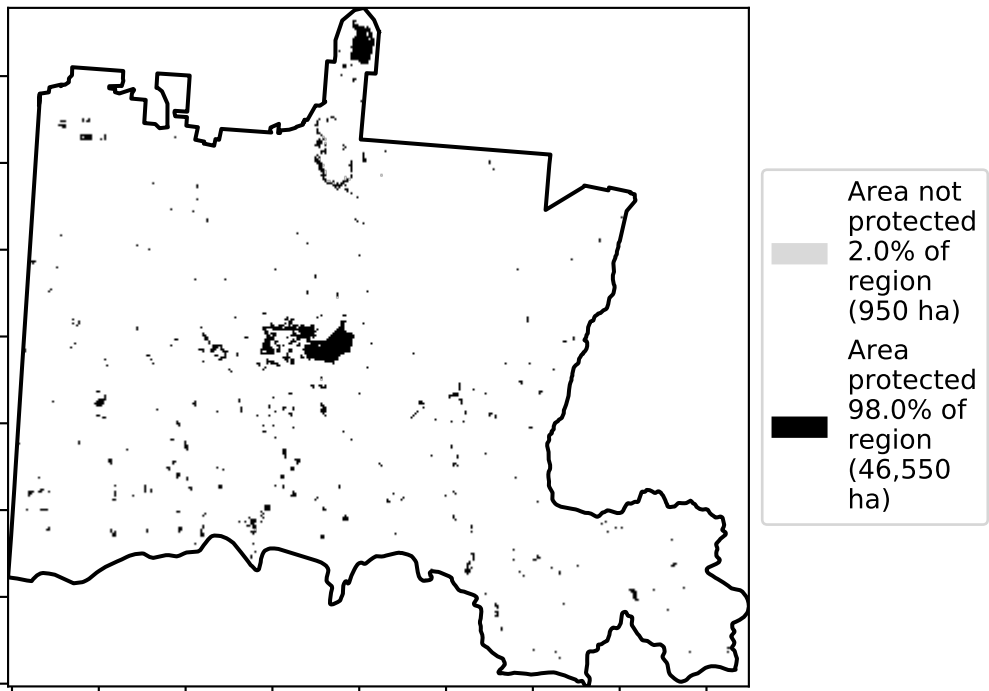
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

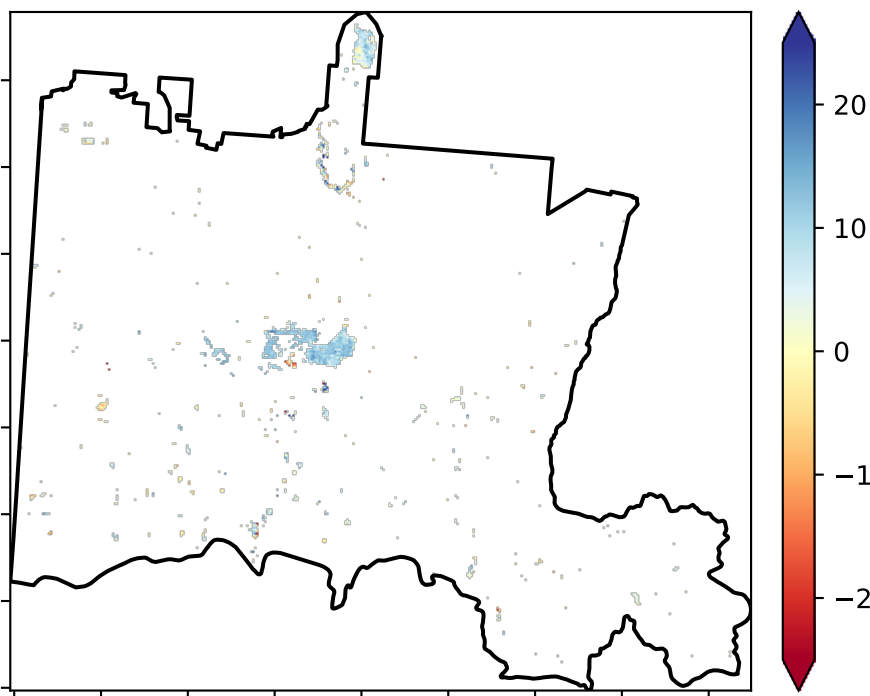


% Area protected from wind erosion (>50%)



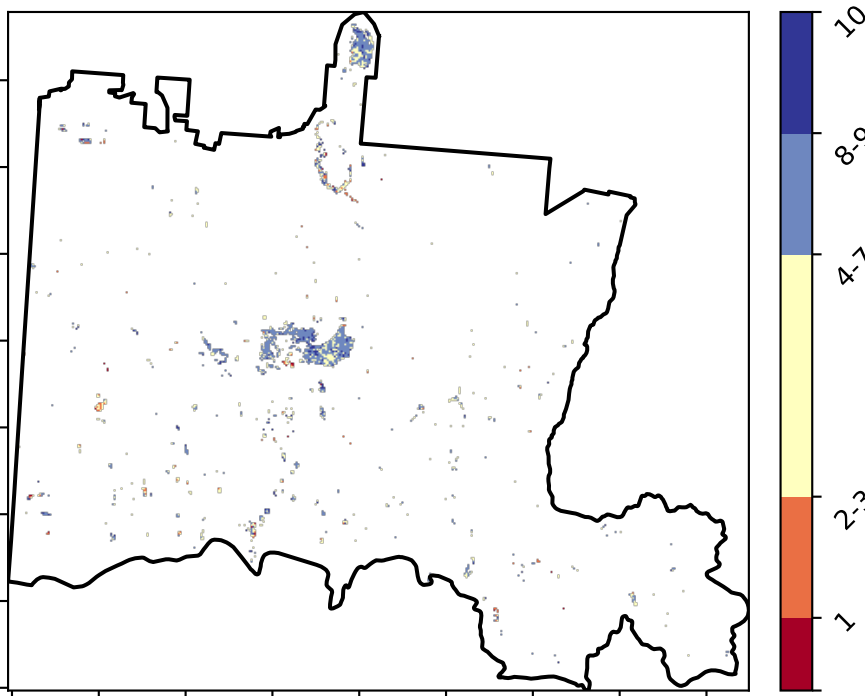
Total Vegetation Cover Anomaly [%]

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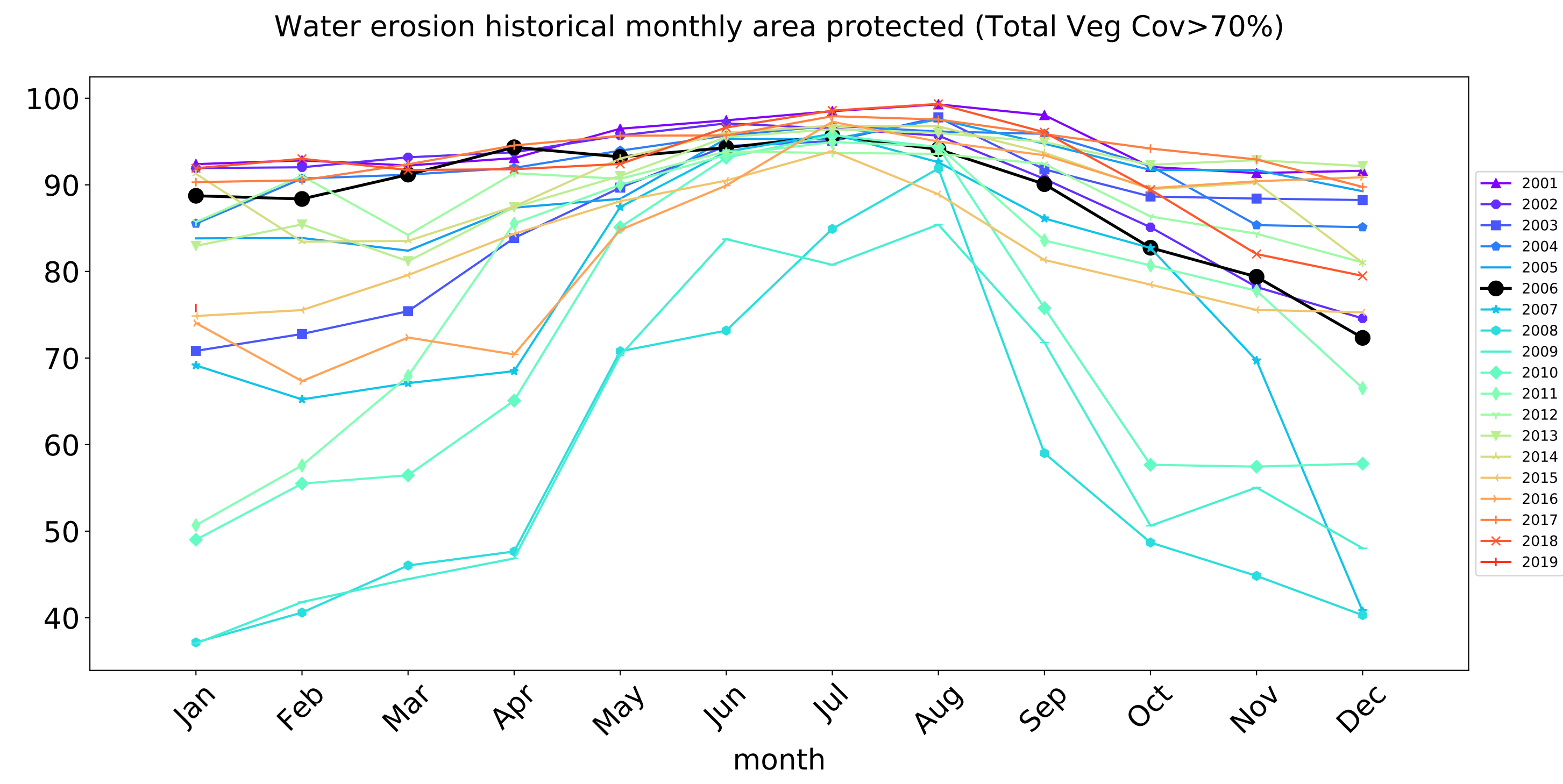
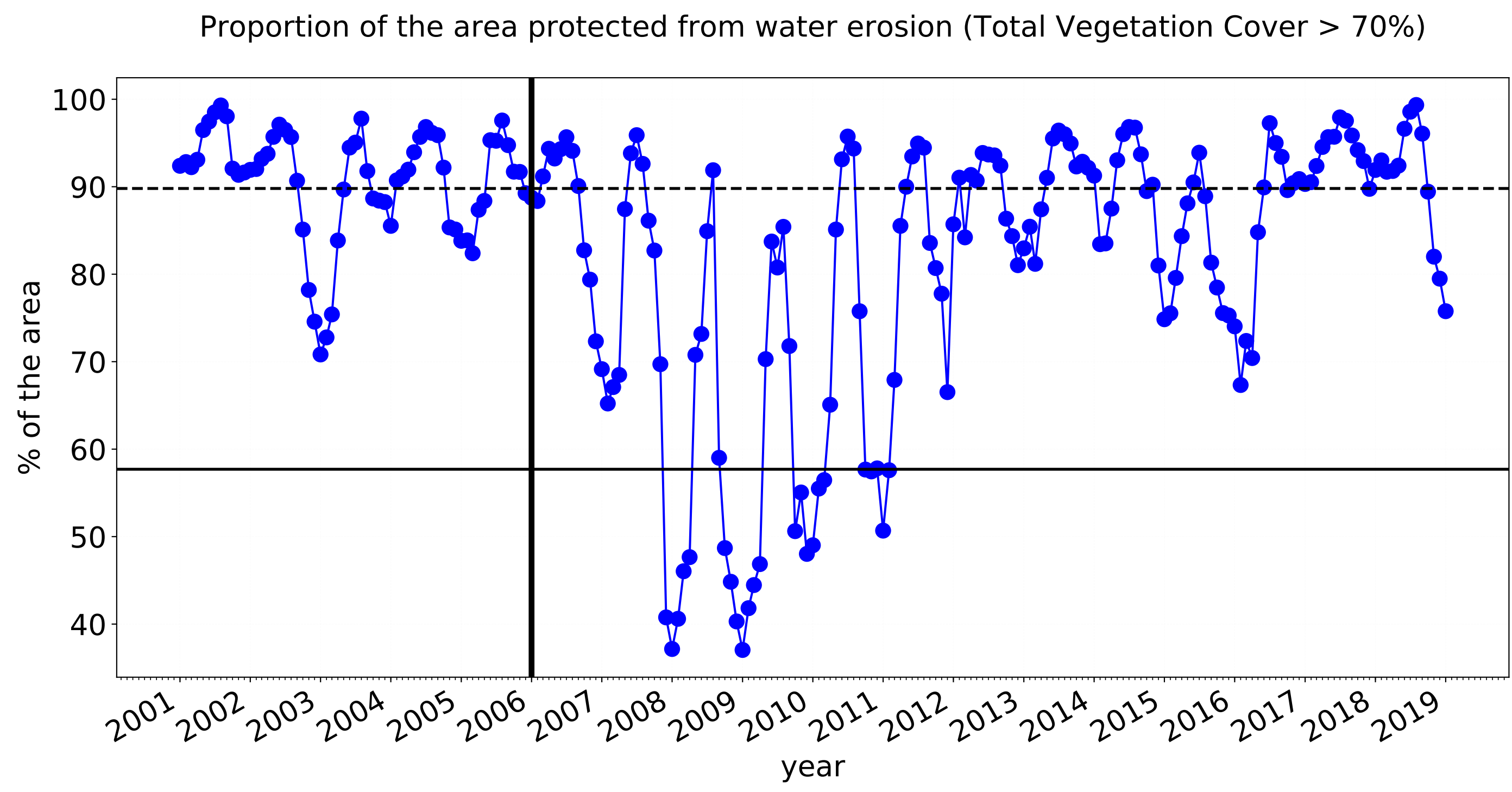
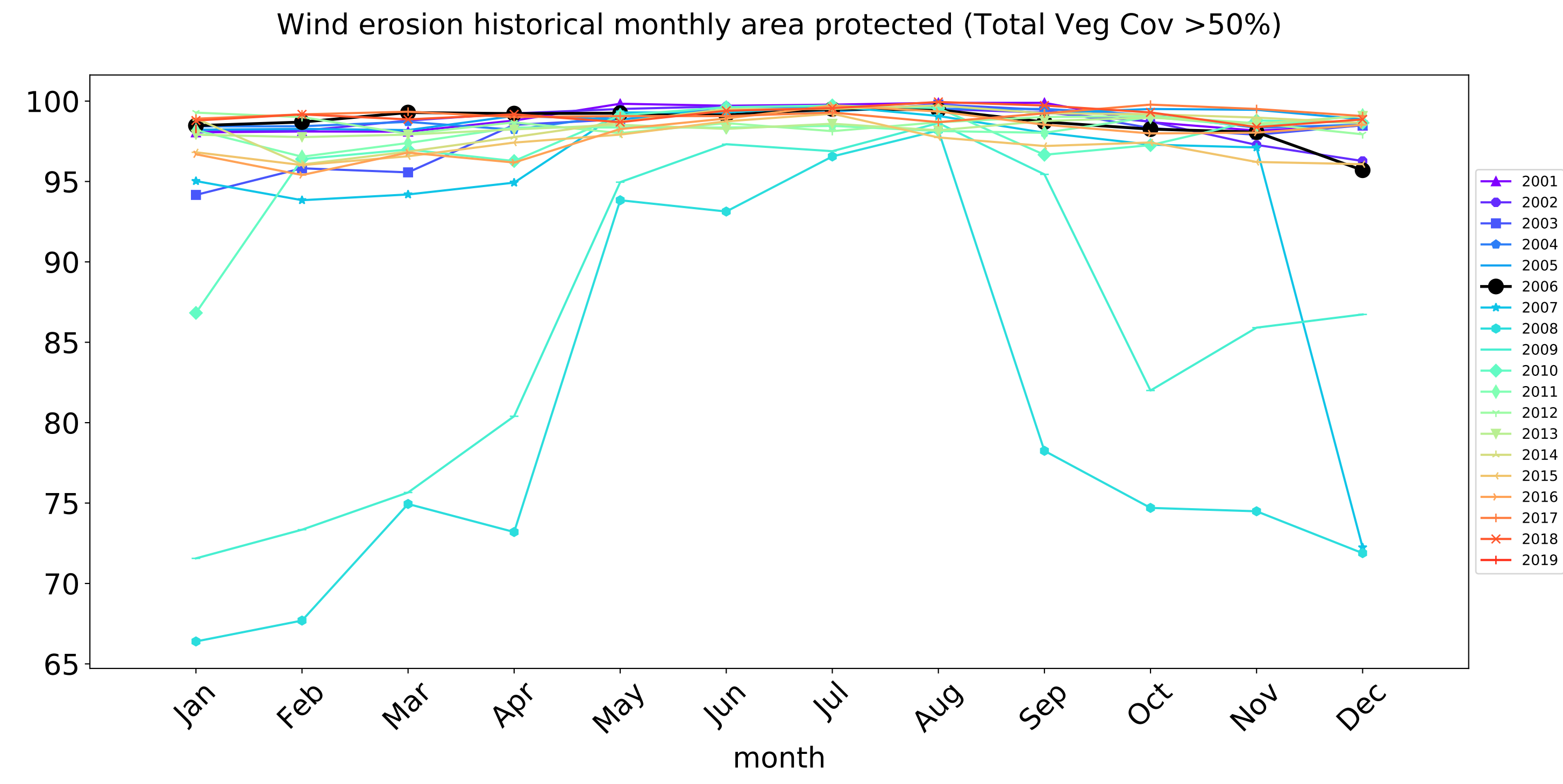
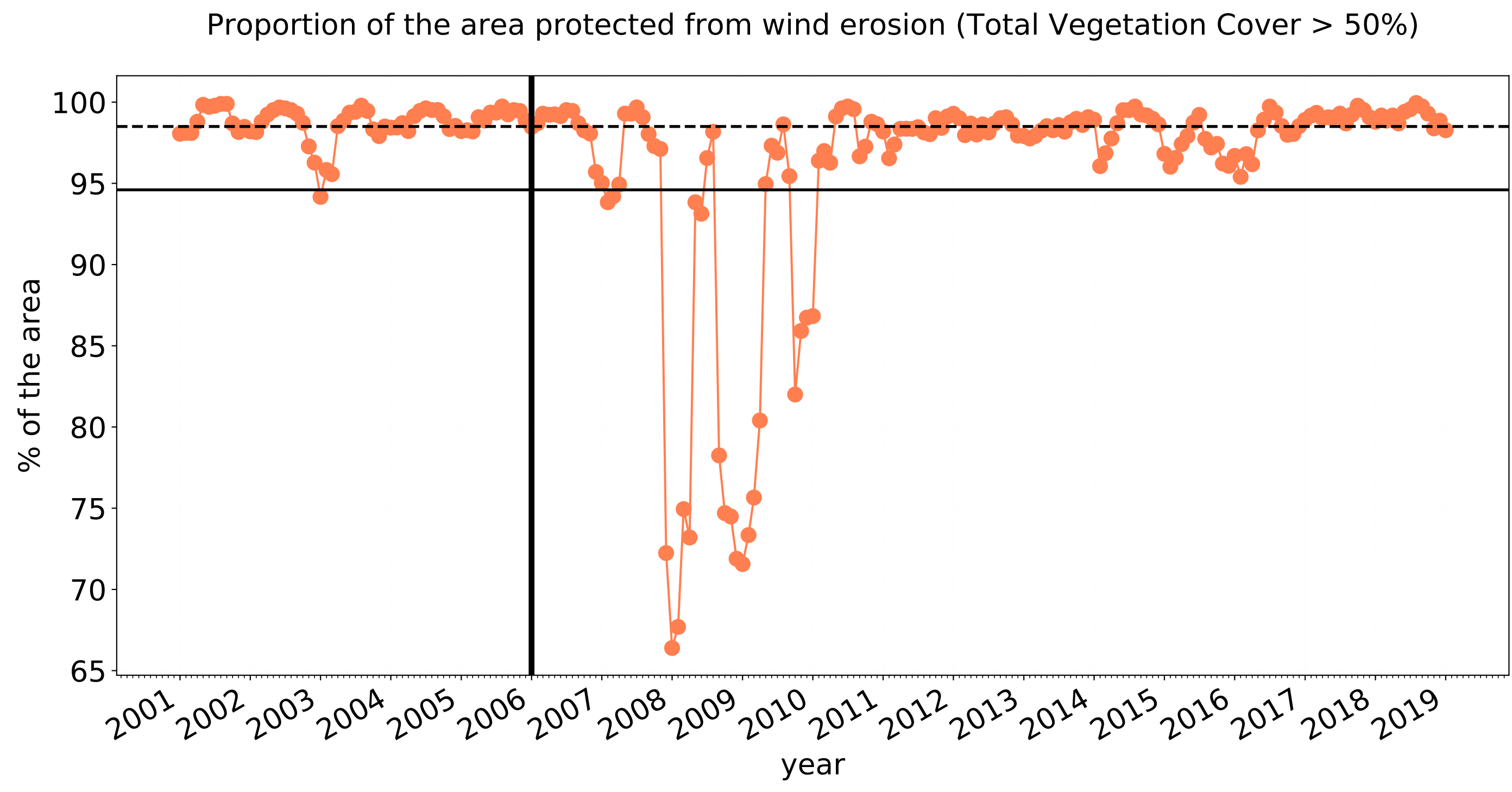
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Total Vegetation Cover Decile [%]





Conservation and natural environments non forest timeseries



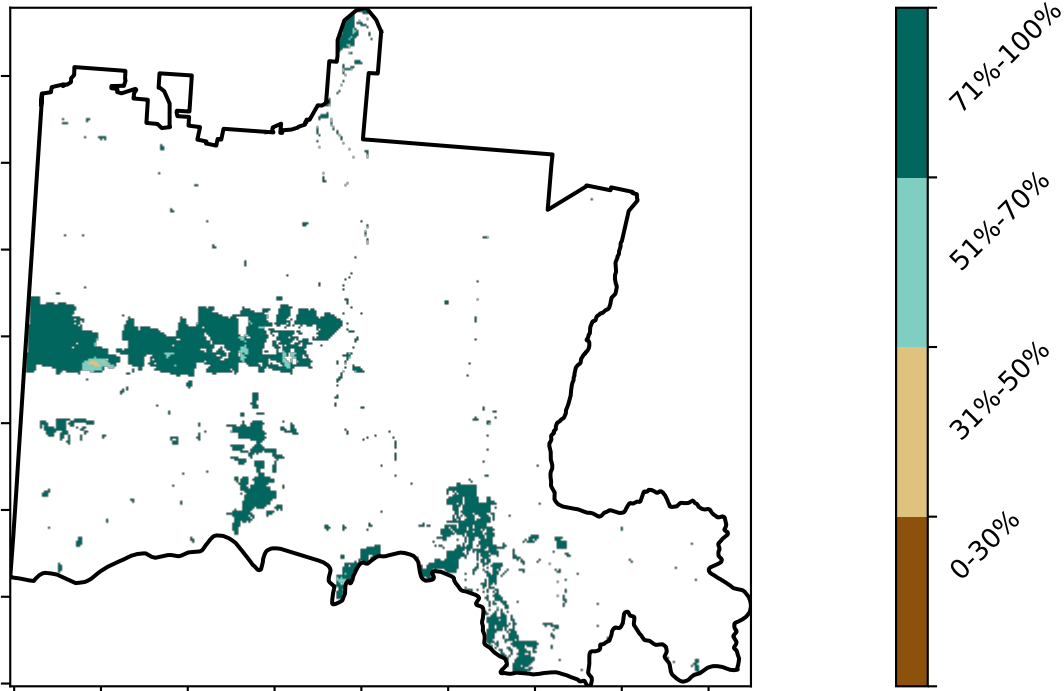
Conservation and natural environments Woodland forest

Land use and forest cover

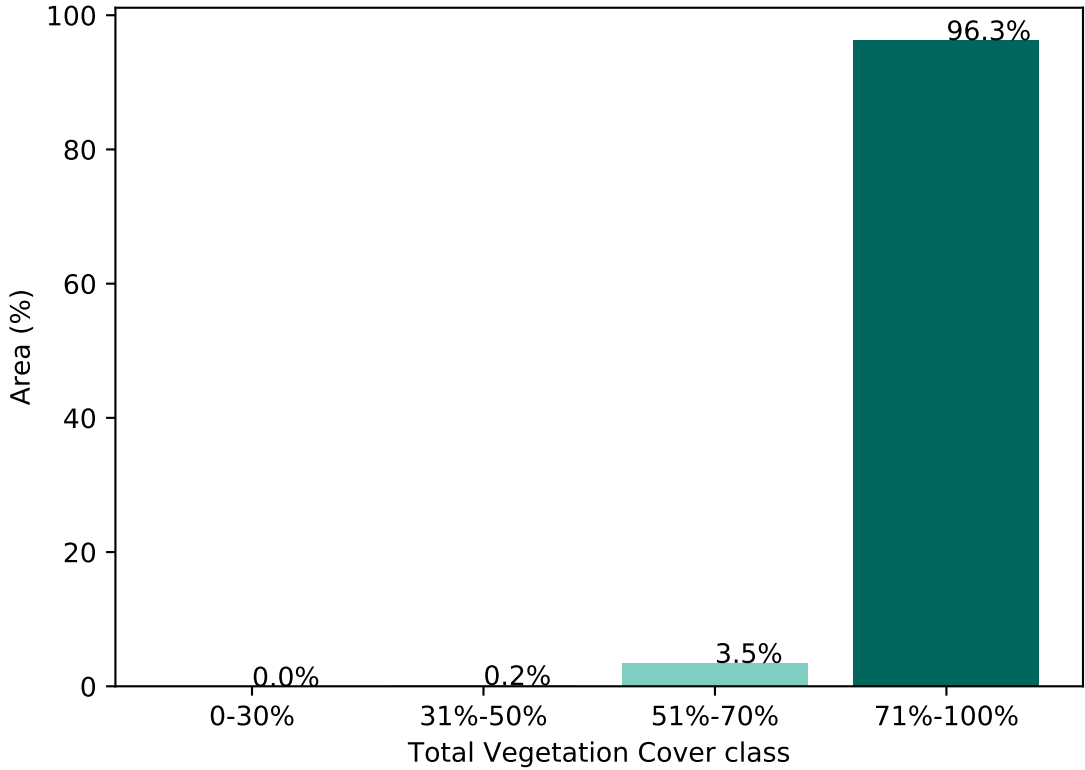
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Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



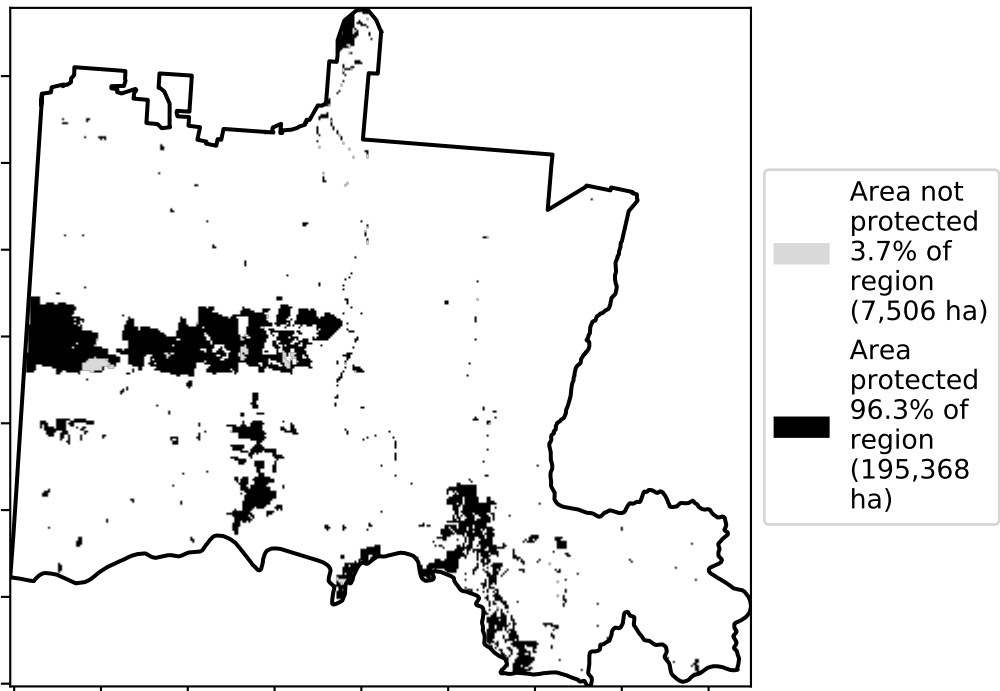
Total Vegetation Cover [%]



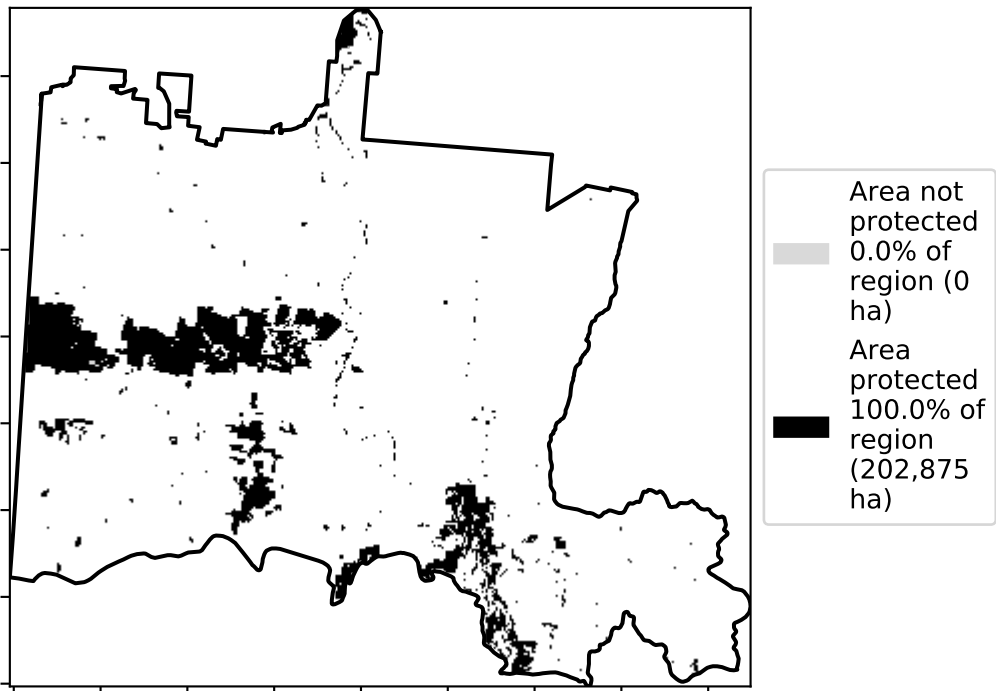
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

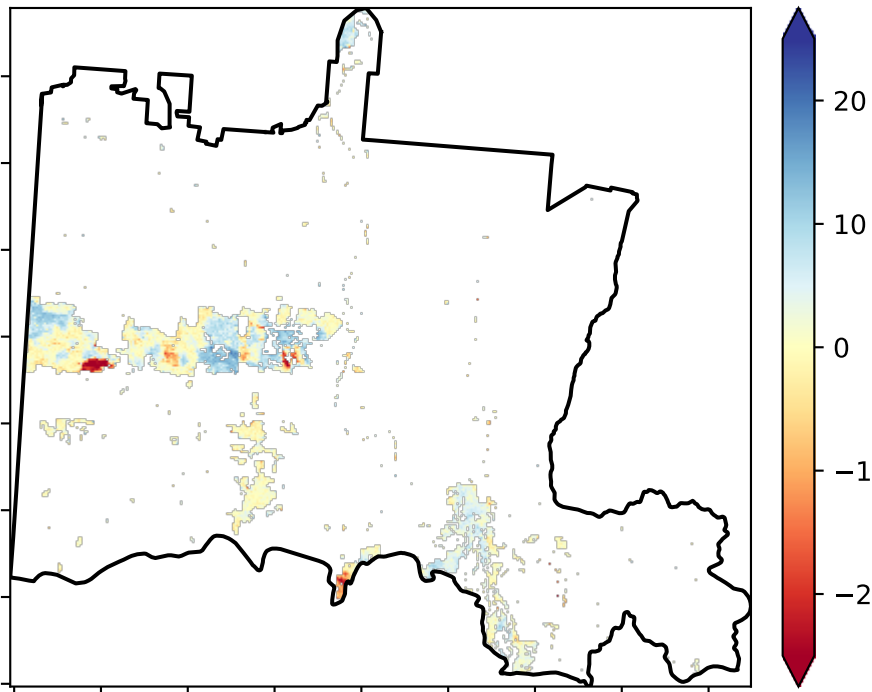


% Area protected from wind erosion (>50%)



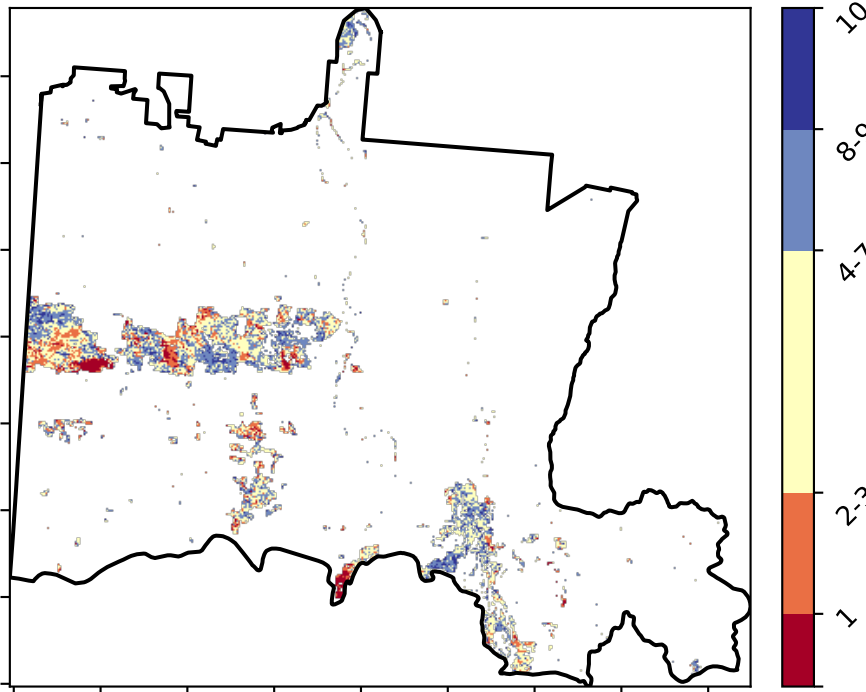
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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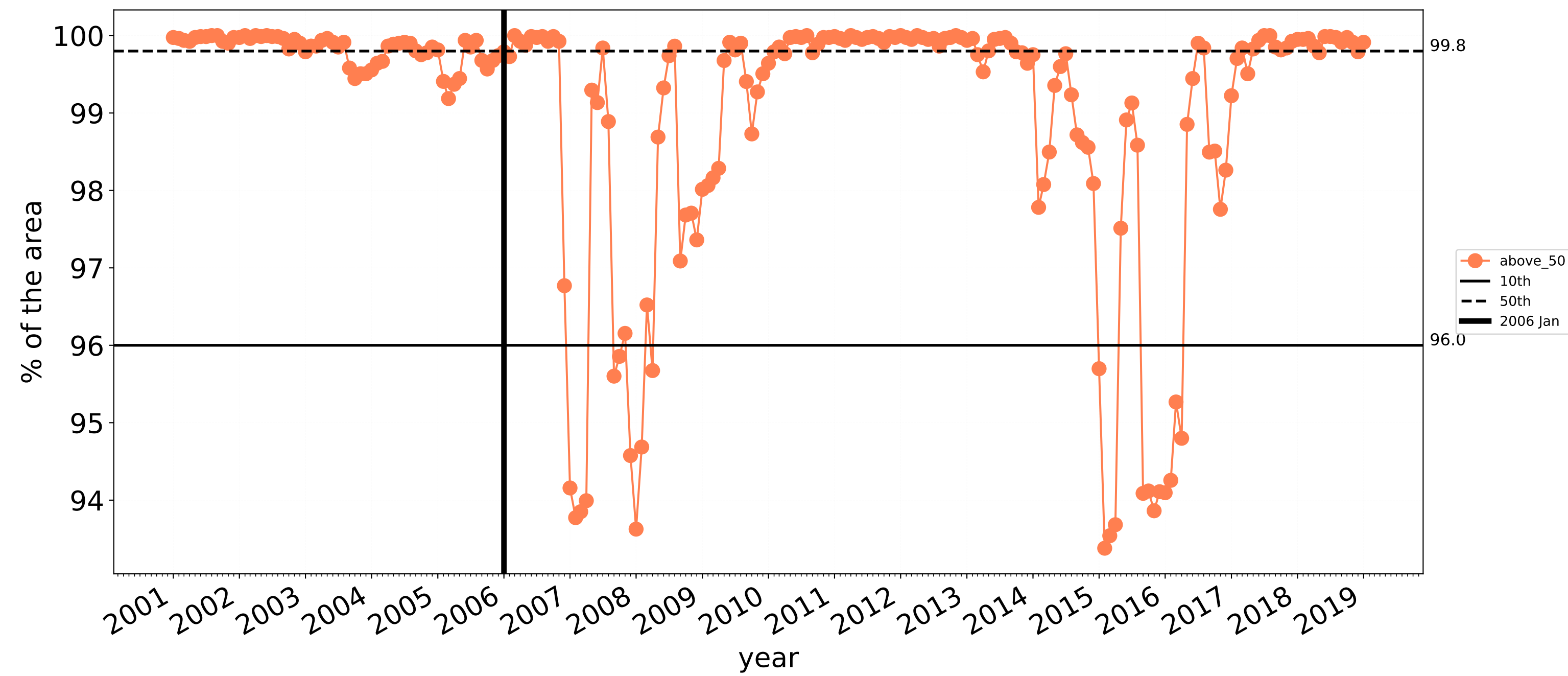


Planning, Industry & Environment

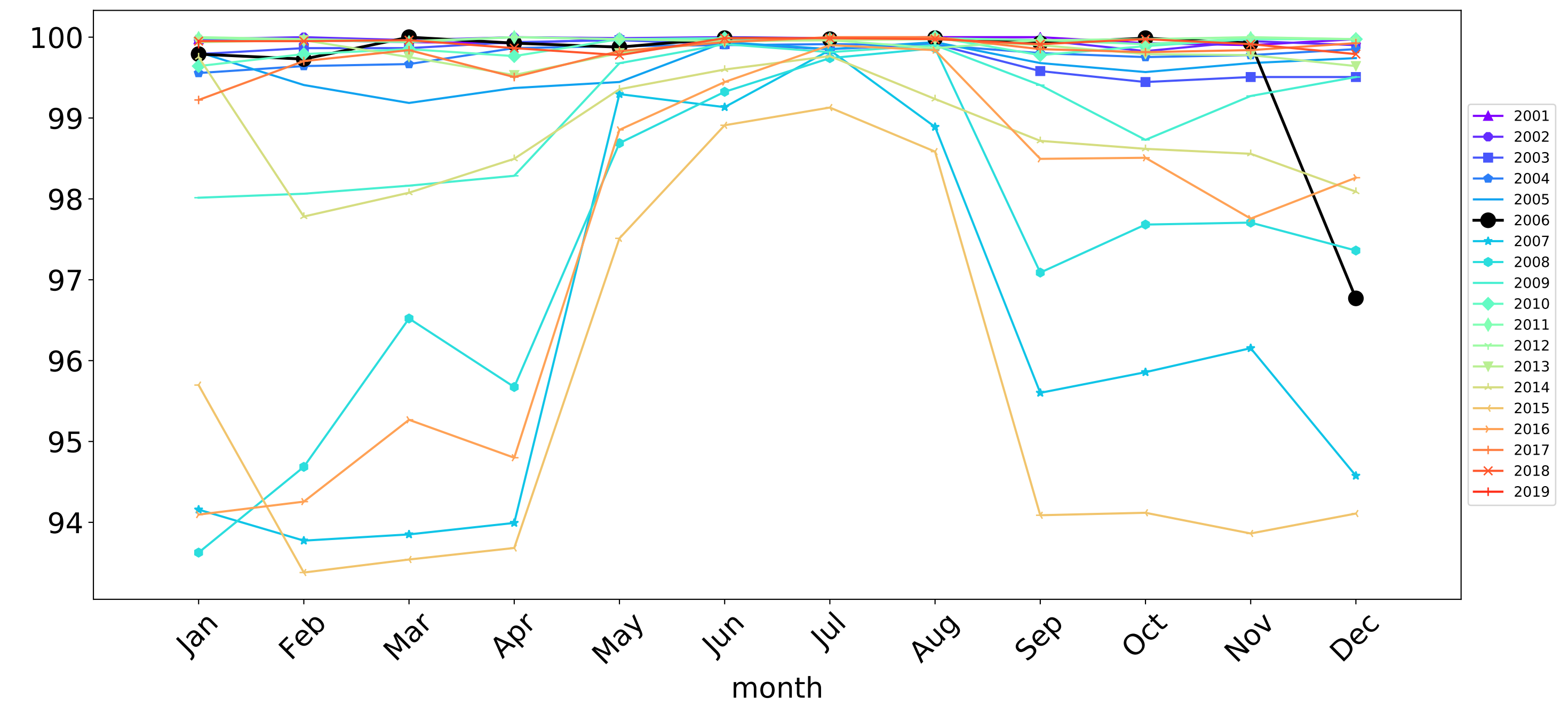


# Conservation and natural environments Woodland forest timeseries

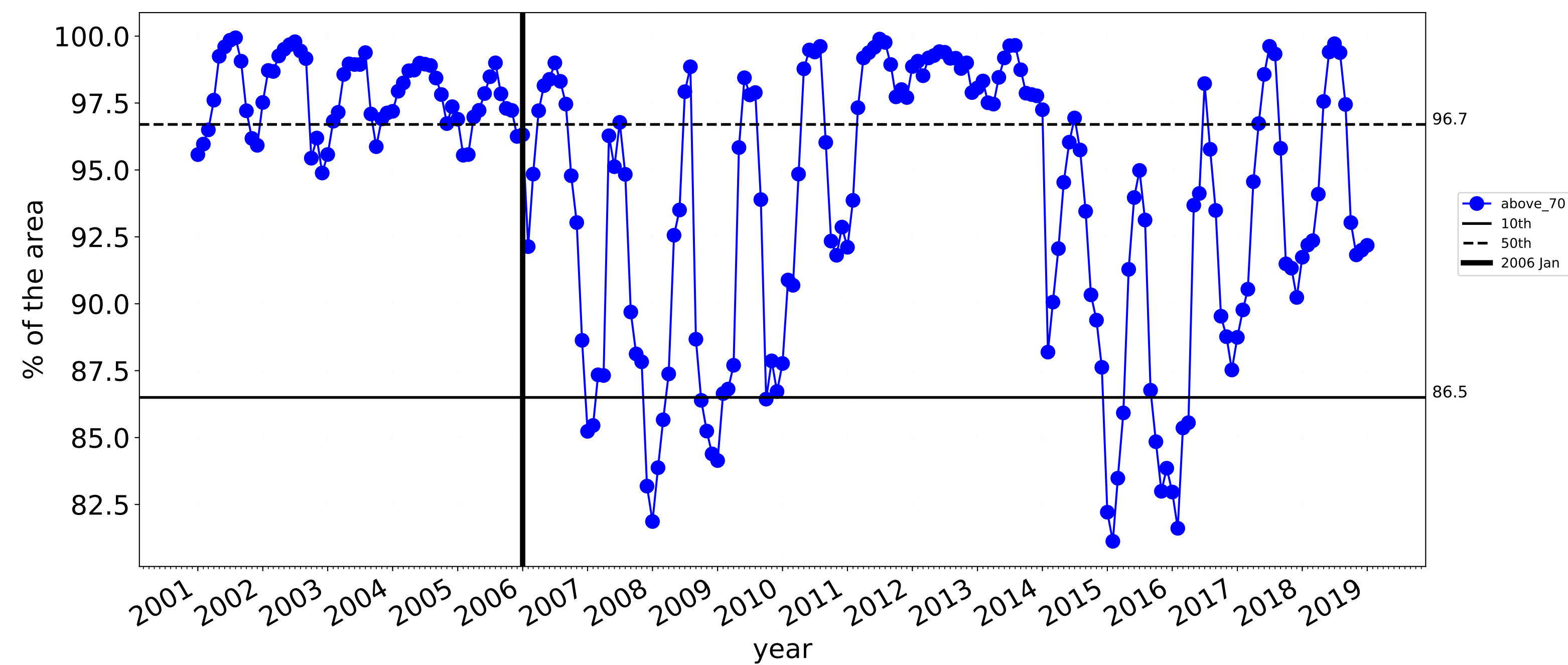
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



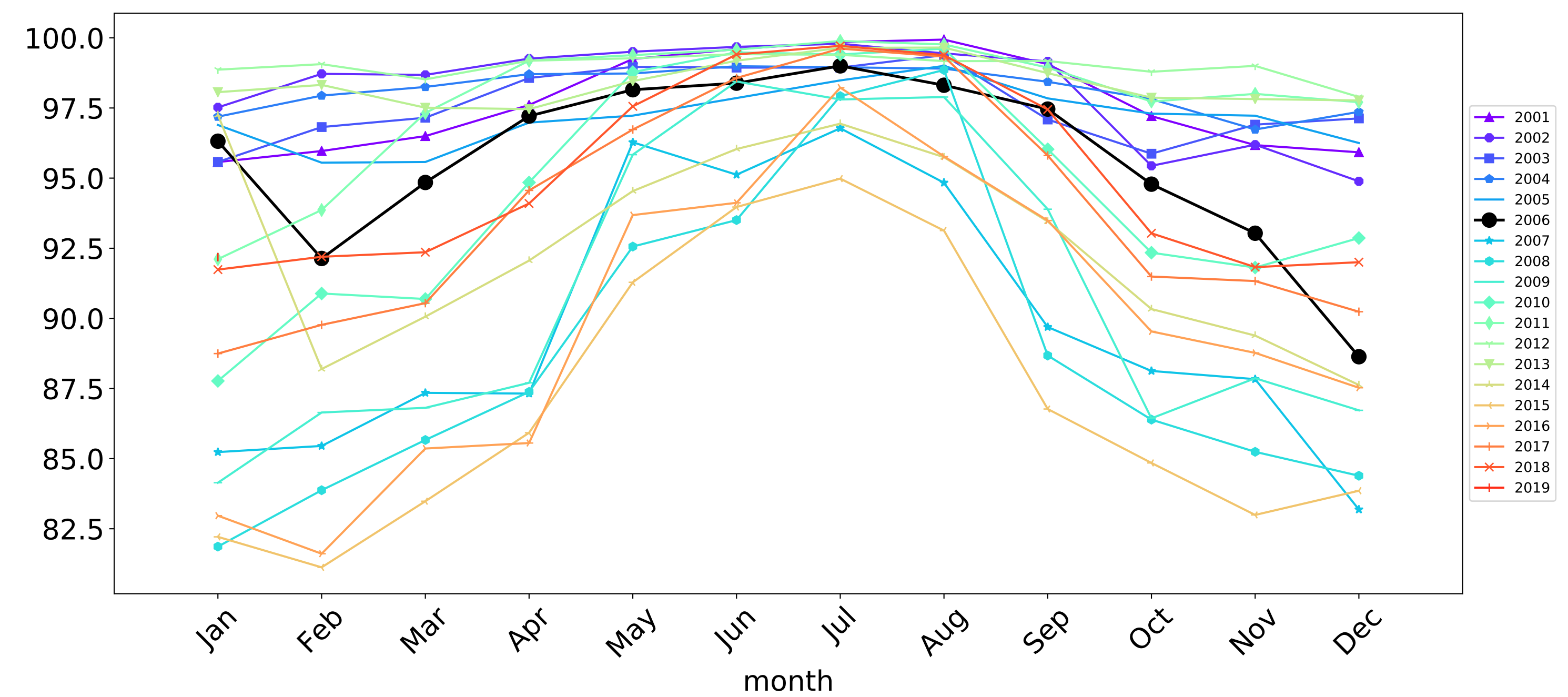
Wind erosion historical monthly area protected (Total Veg Cov > 50%)



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



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



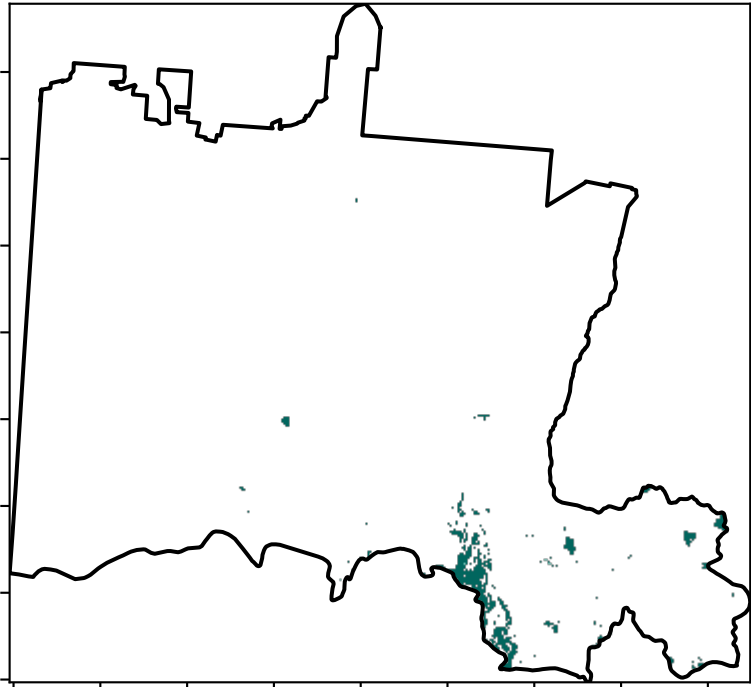
Conservation and natural environments Forest (non woodland)

Land use and forest cover

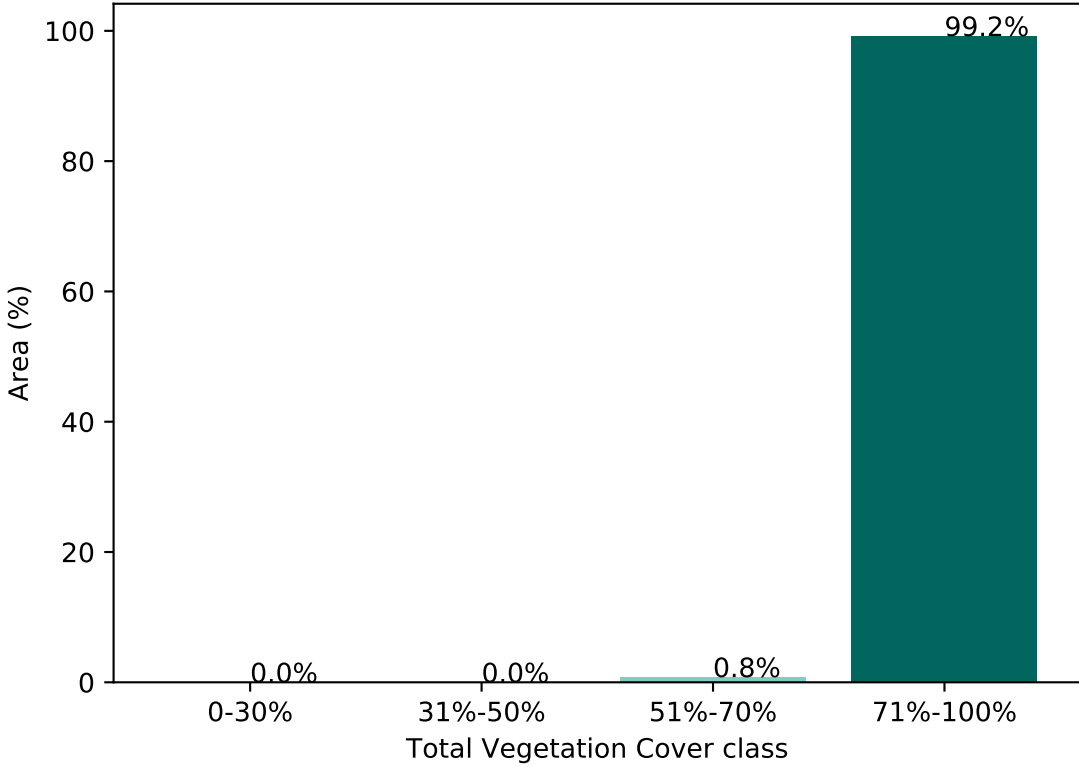
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



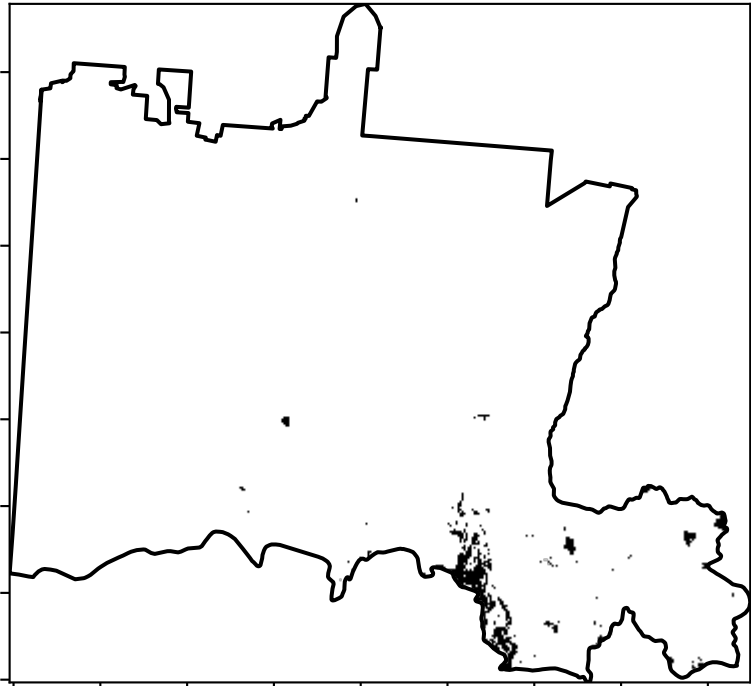
Total Vegetation Cover [%]



Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

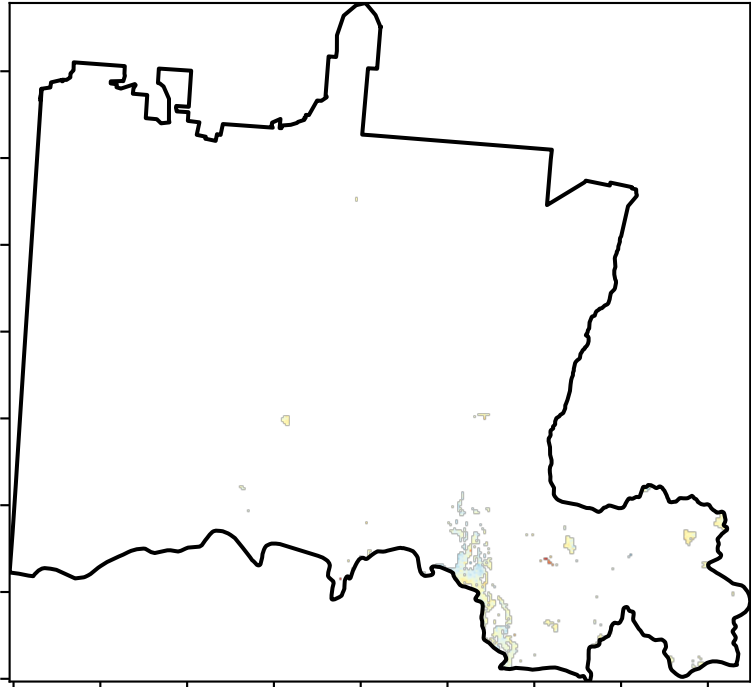


% Area protected from wind erosion (>50%)



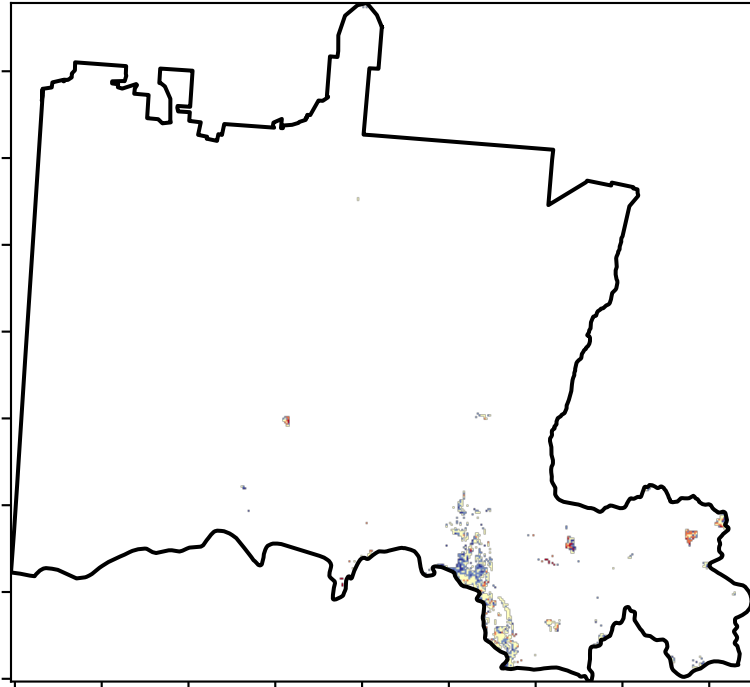
Total Vegetation Cover Anomaly [%]

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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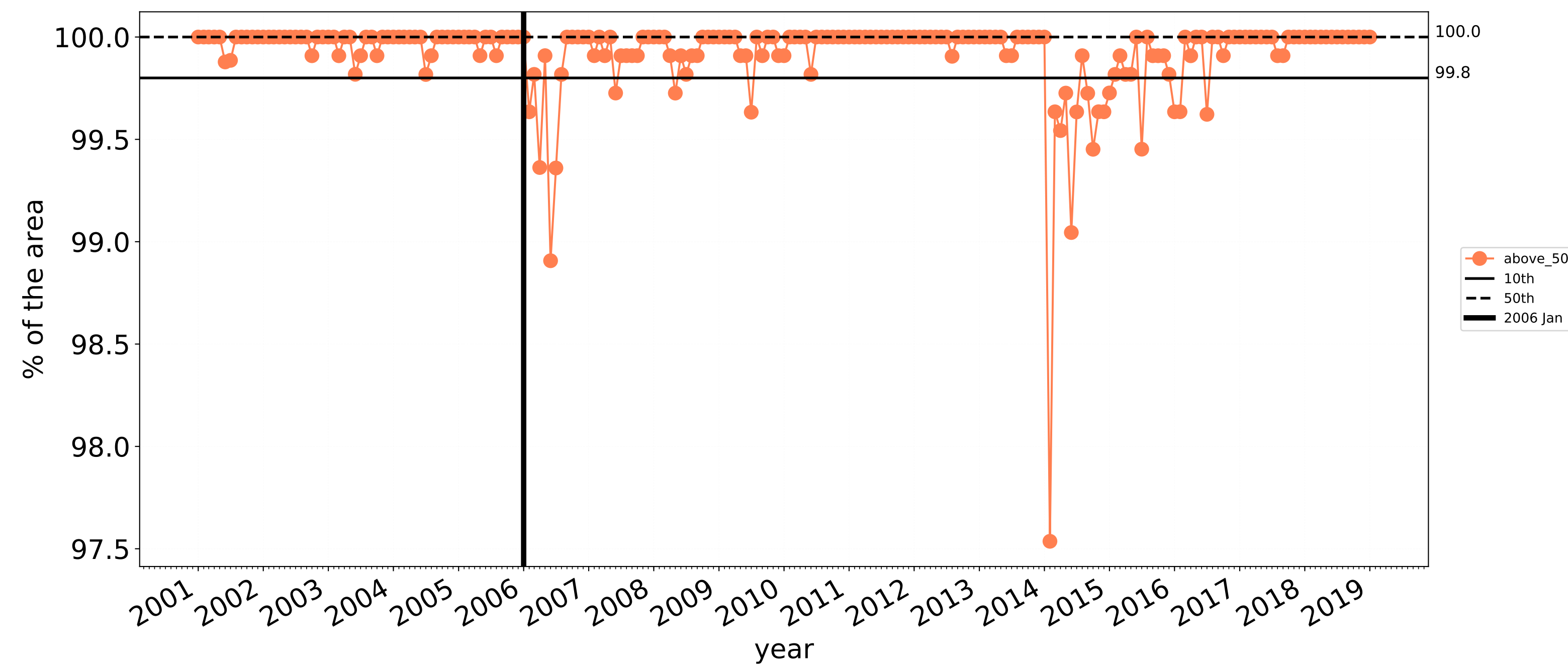


Planning, Industry & Environment

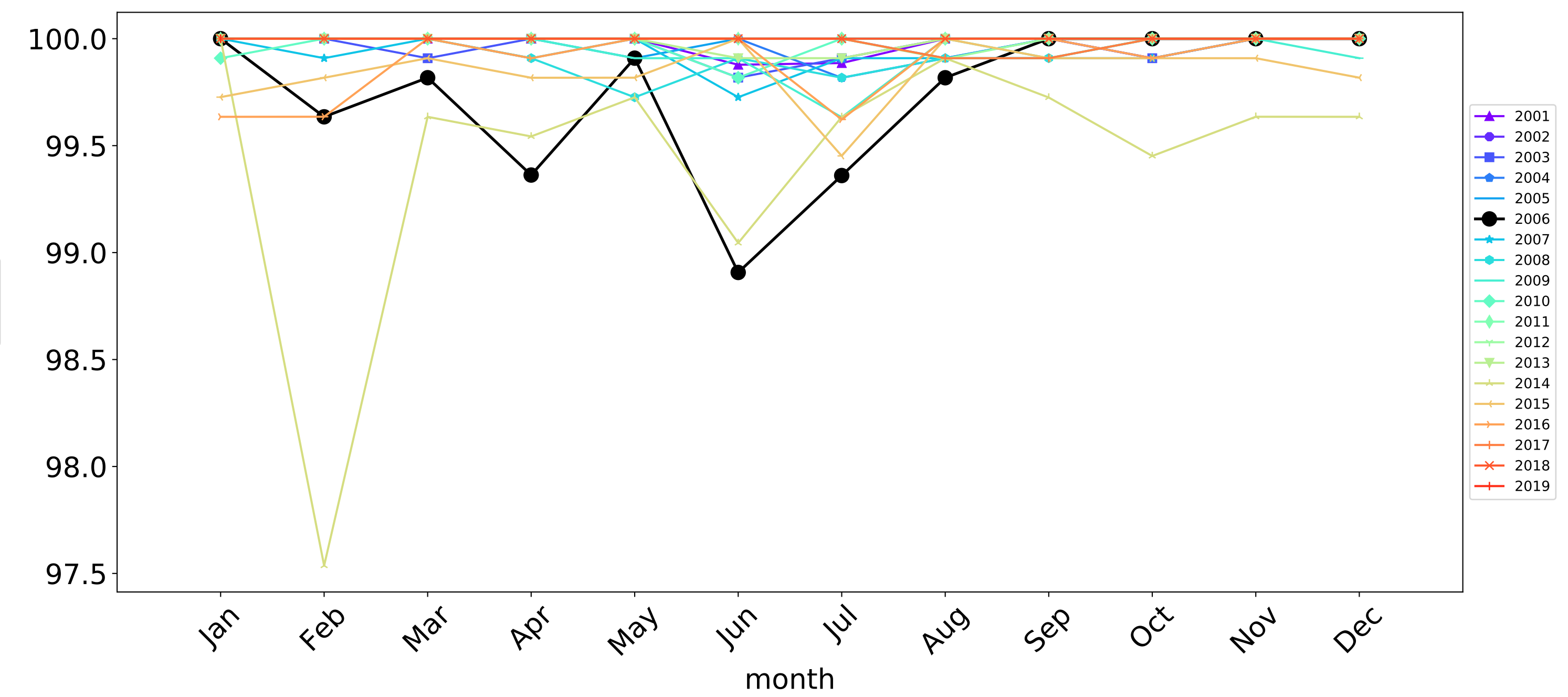


# Conservation and natural environments Forest (non woodland) timeseries

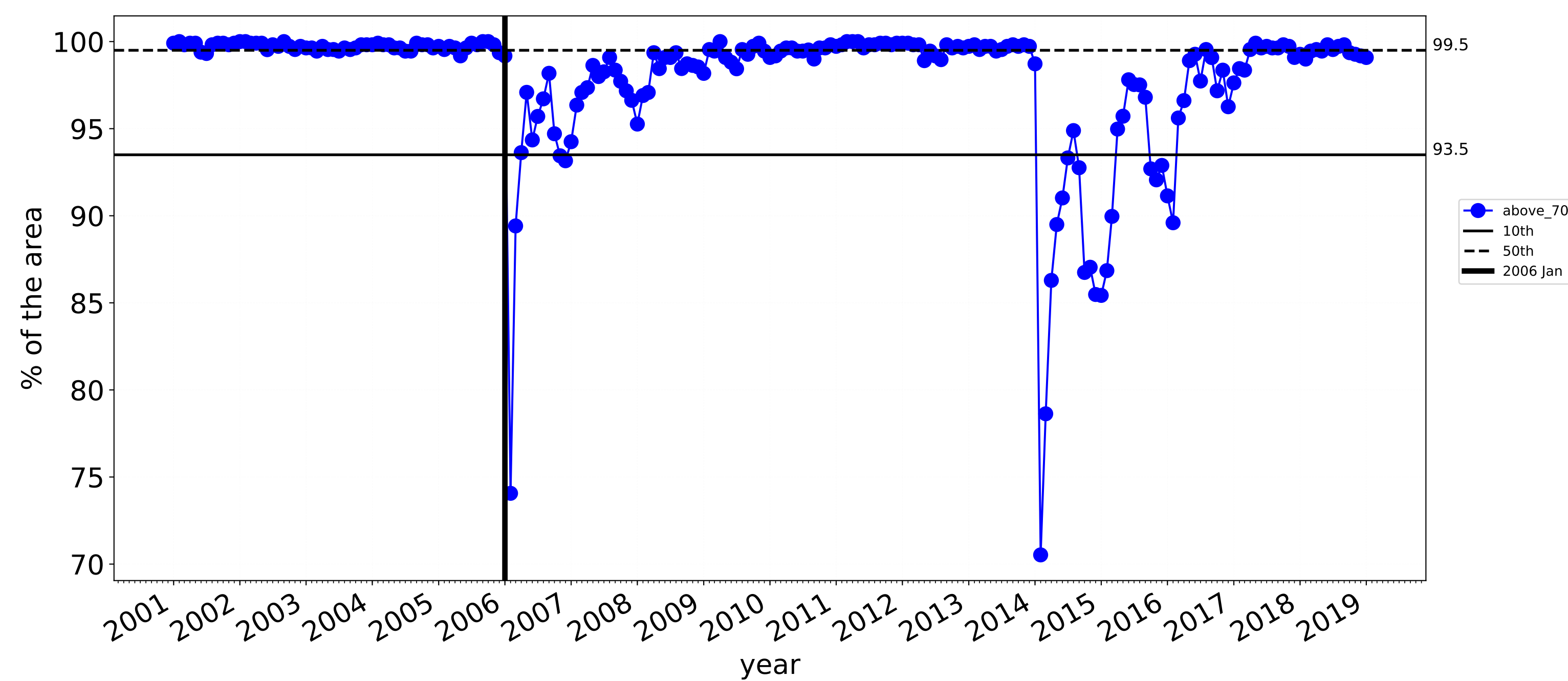
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



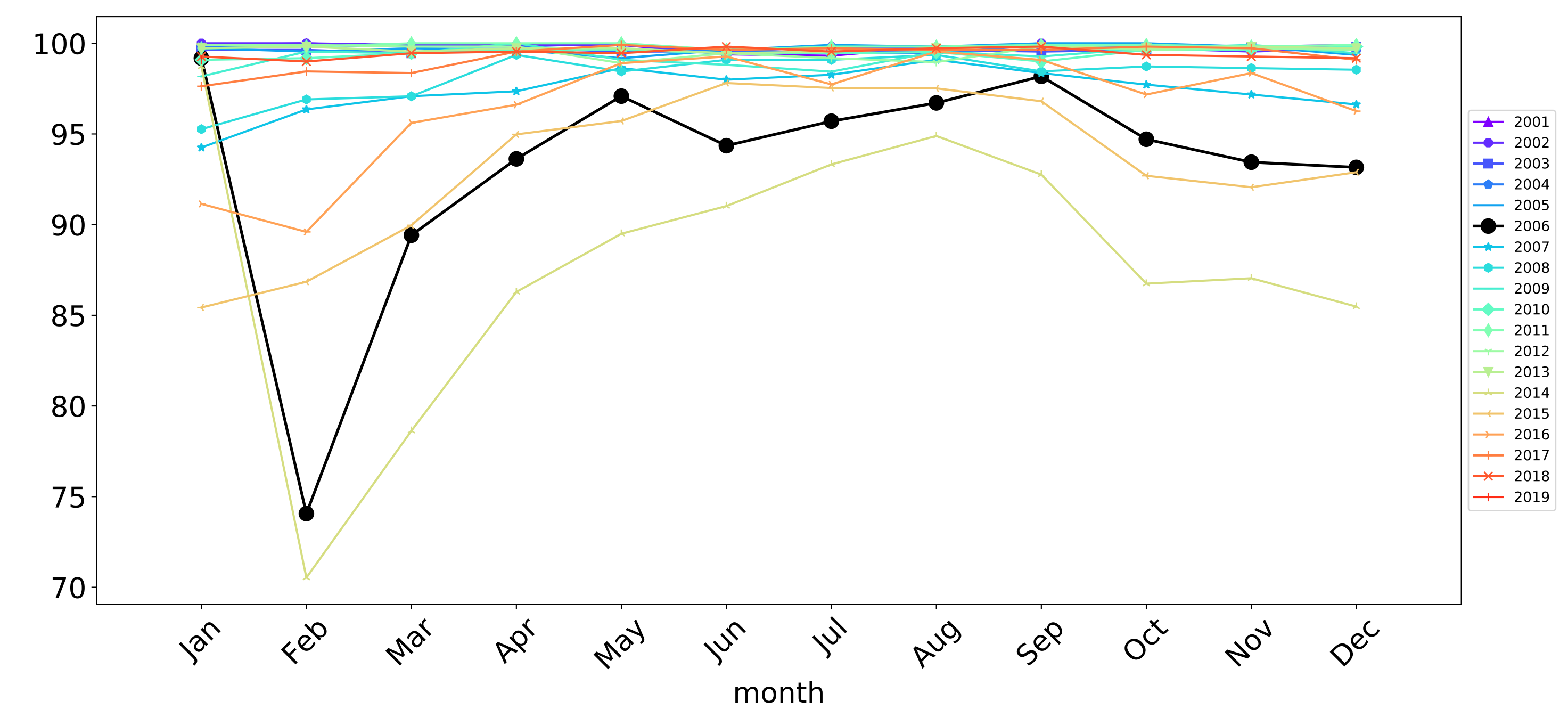
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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





# Agriculture

Land use and forest cover

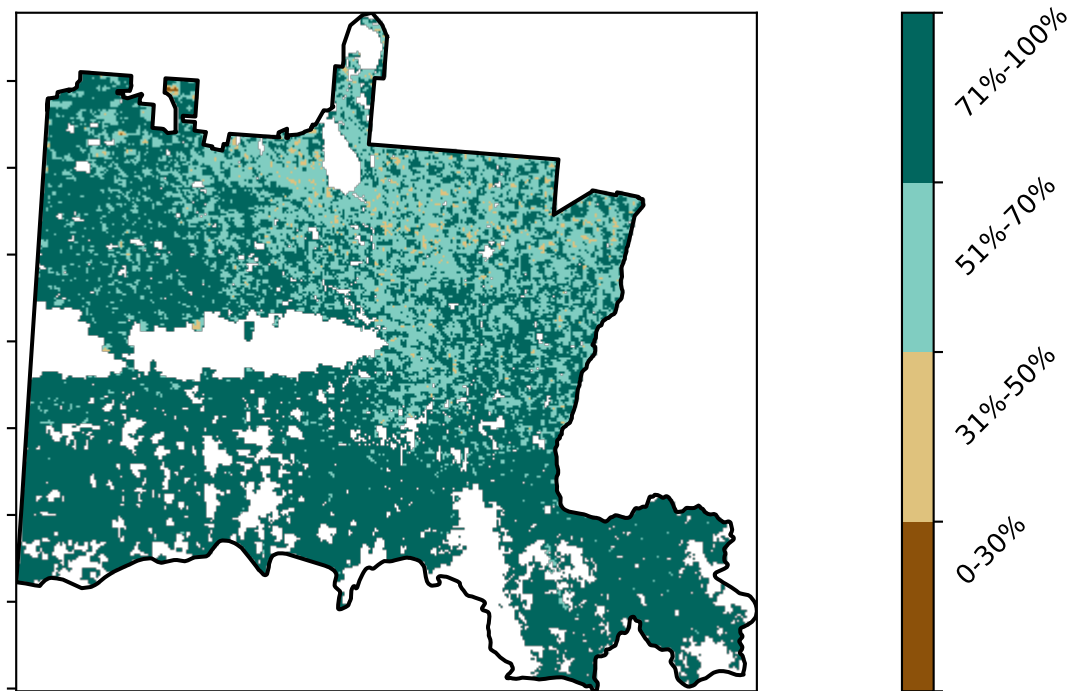
Catchment Scale Land Use and Forests of Australia (2018)  
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



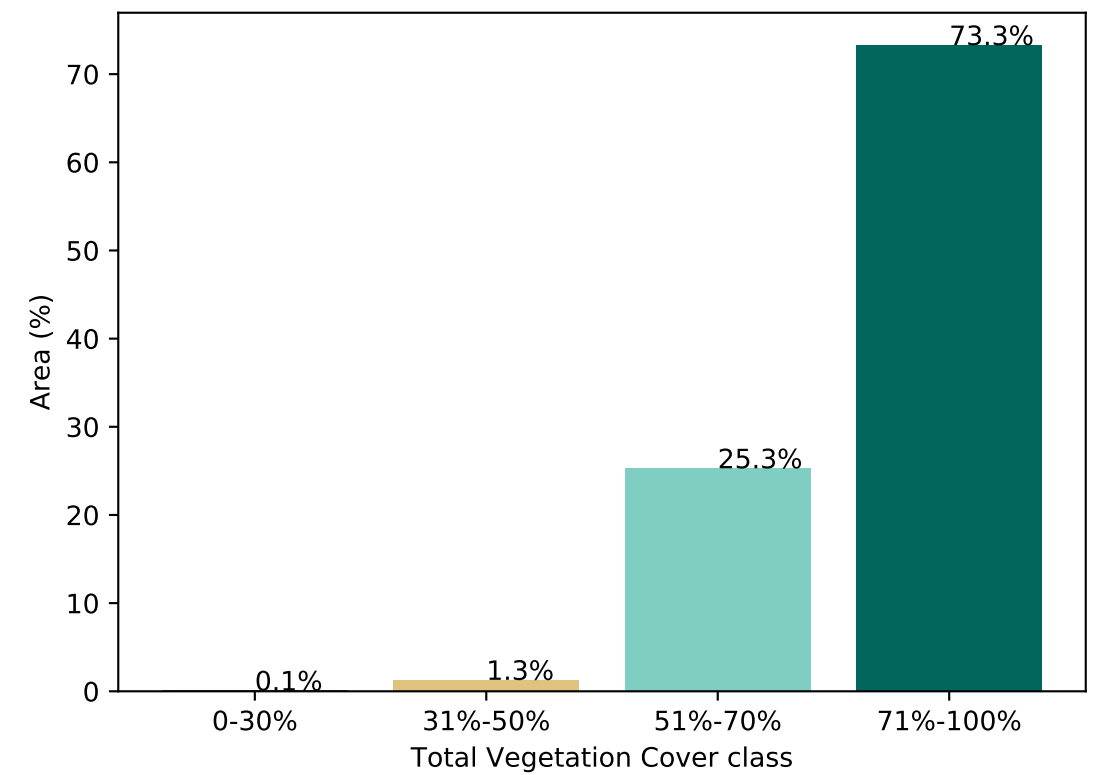
Proportion of each land class in area



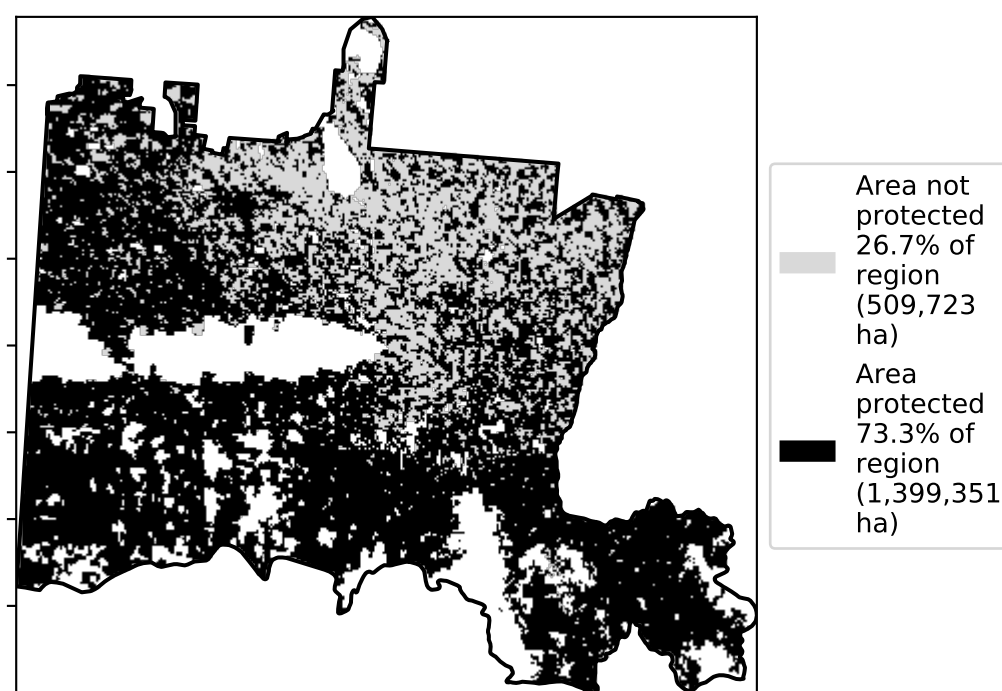
Total Vegetation Cover [%]



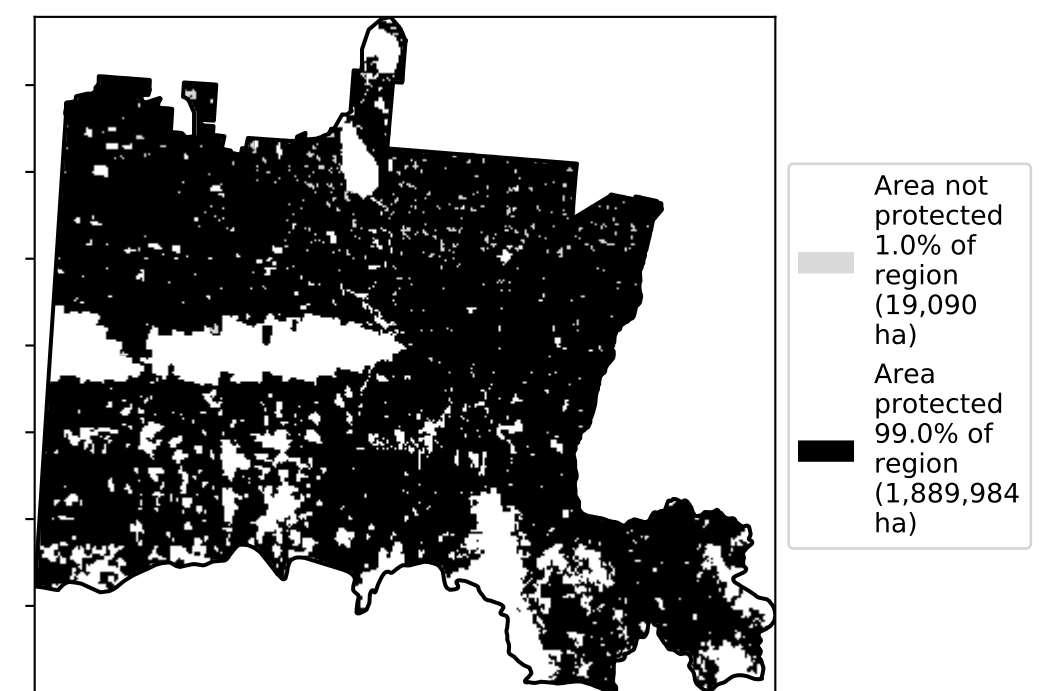
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

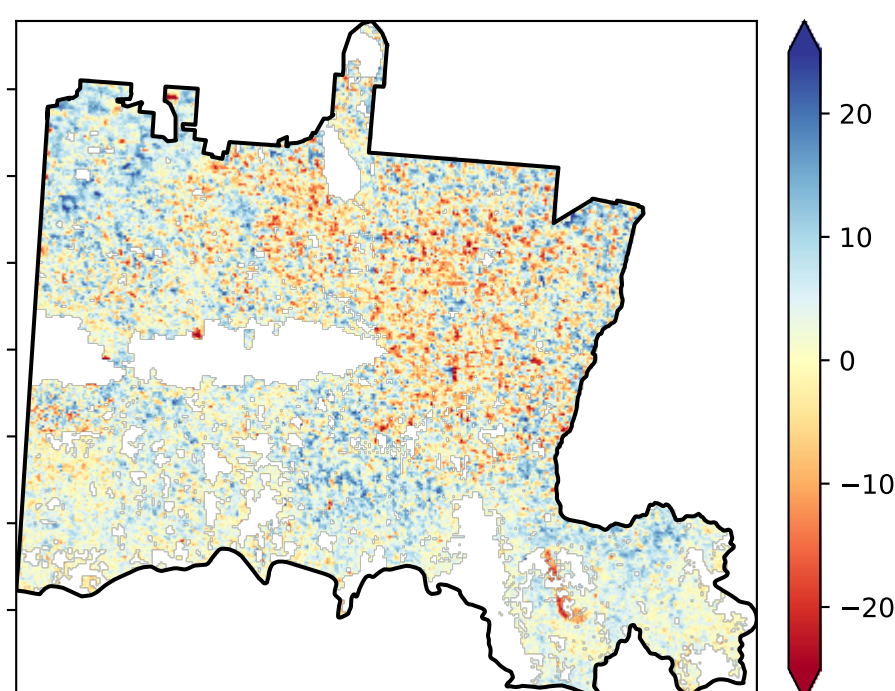


% Area protected from wind erosion (>50%)



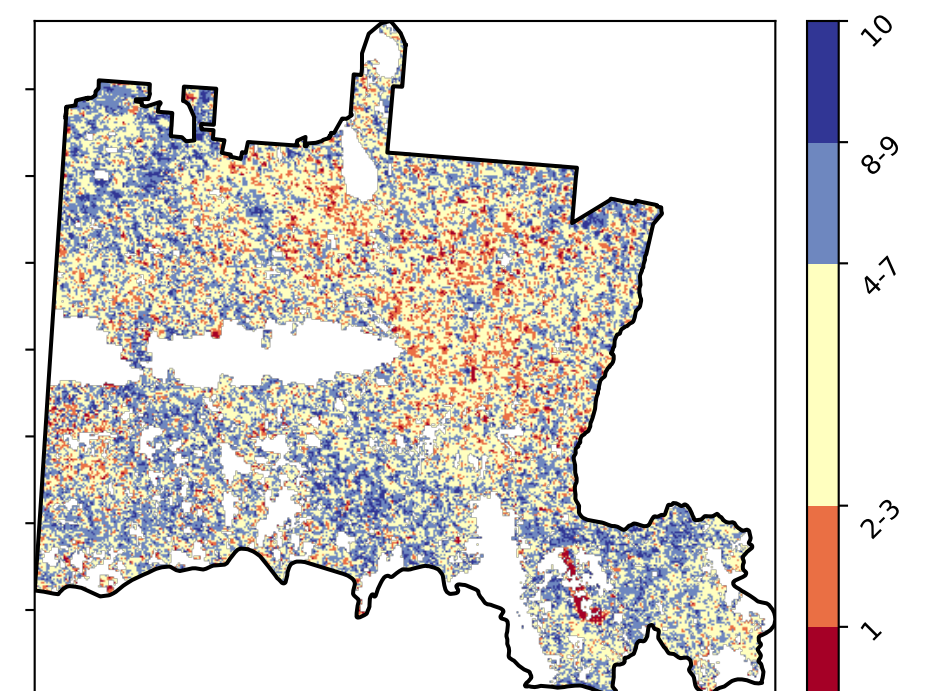
Total Vegetation Cover Anomaly [%]

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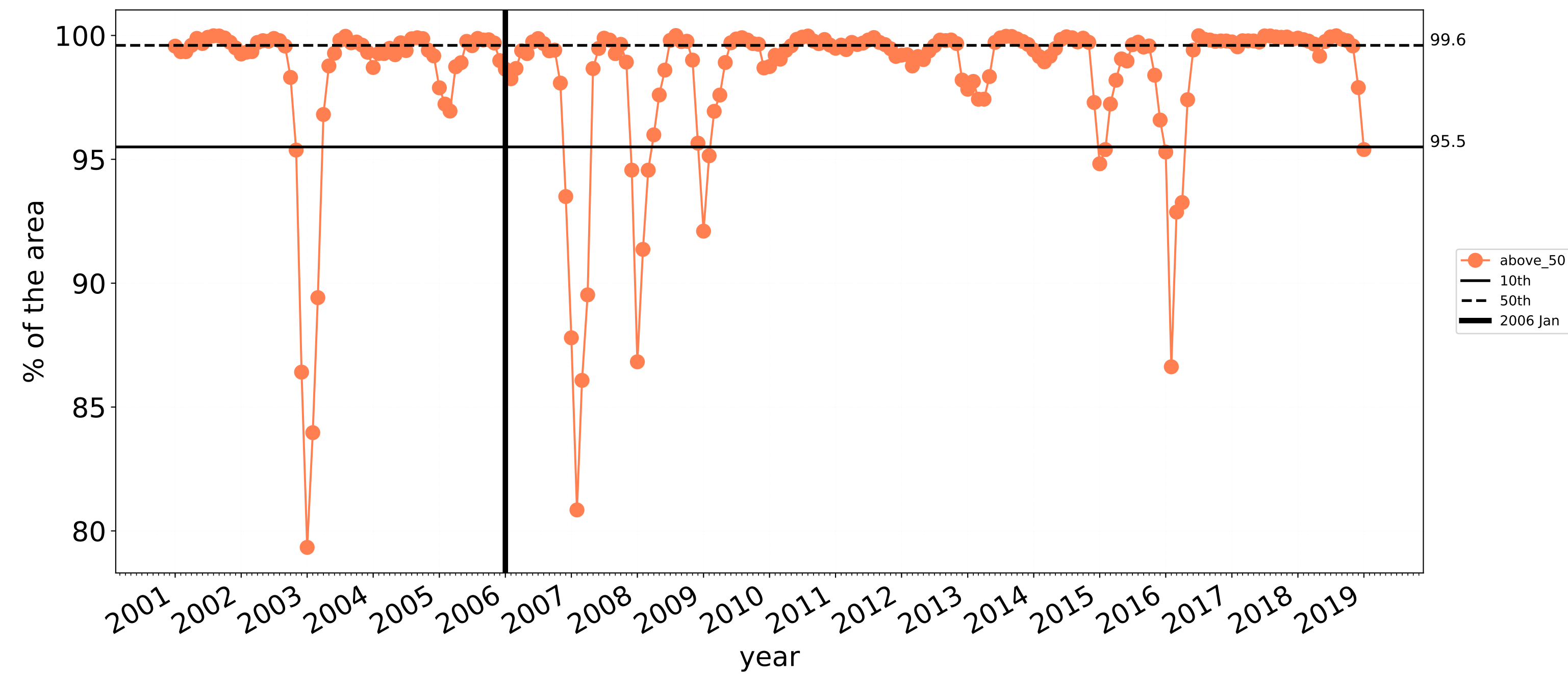
Total Vegetation Cover Decile [%]



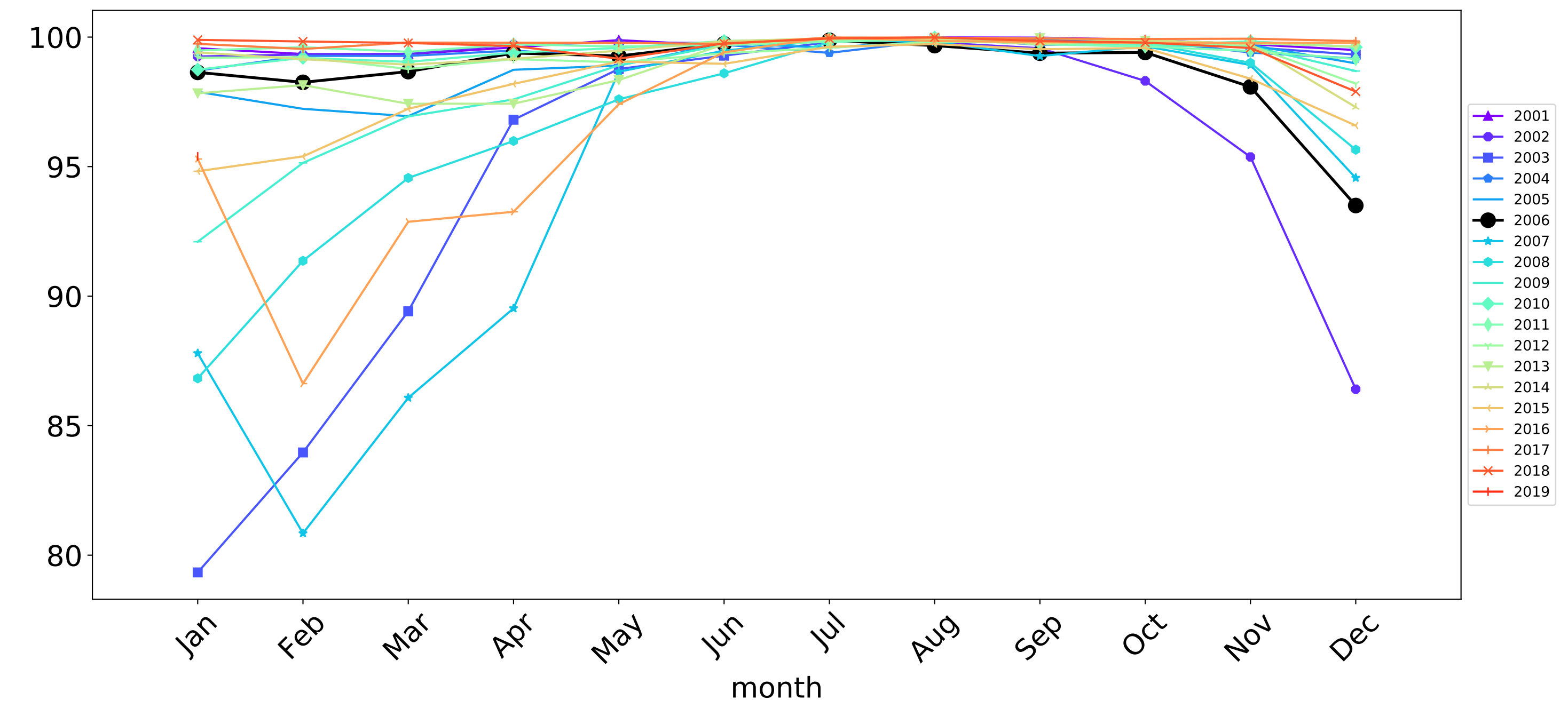


# Agriculture timeseries

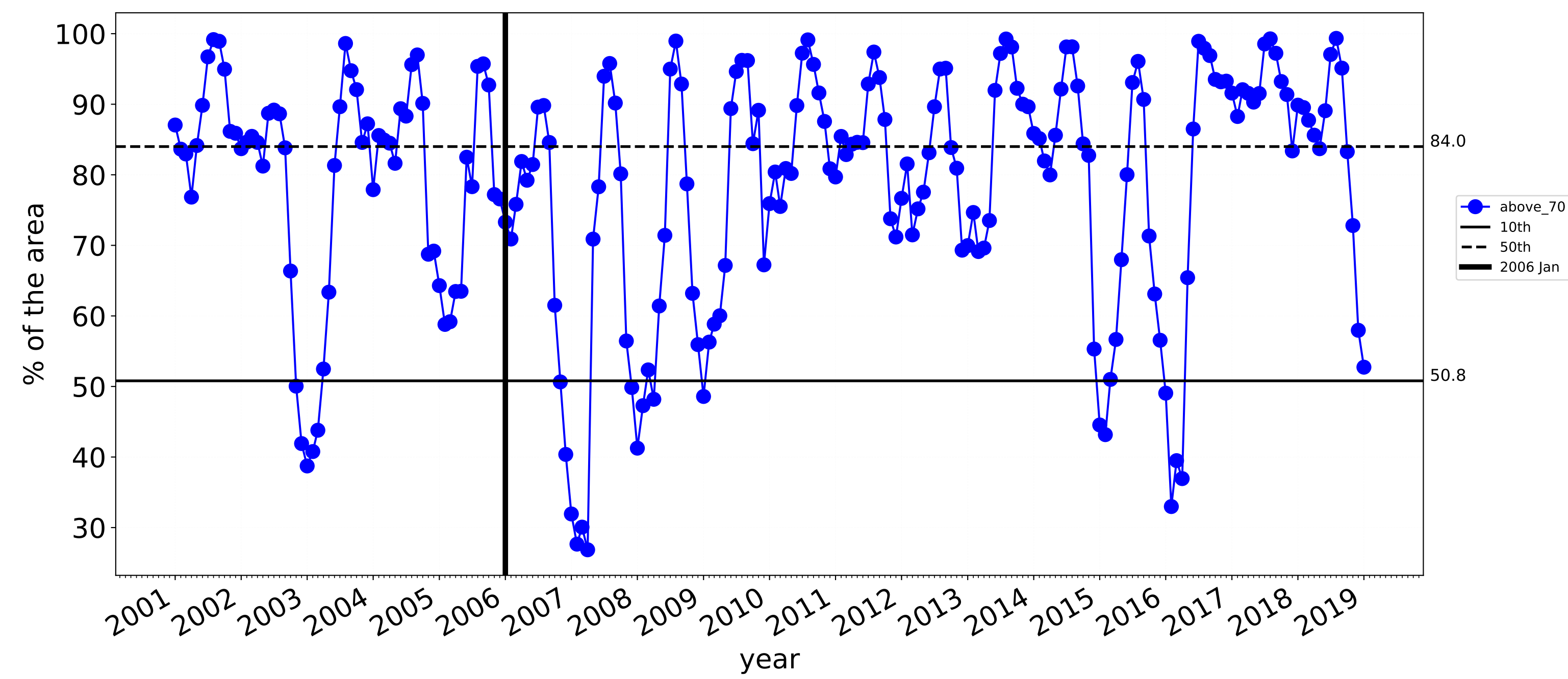
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



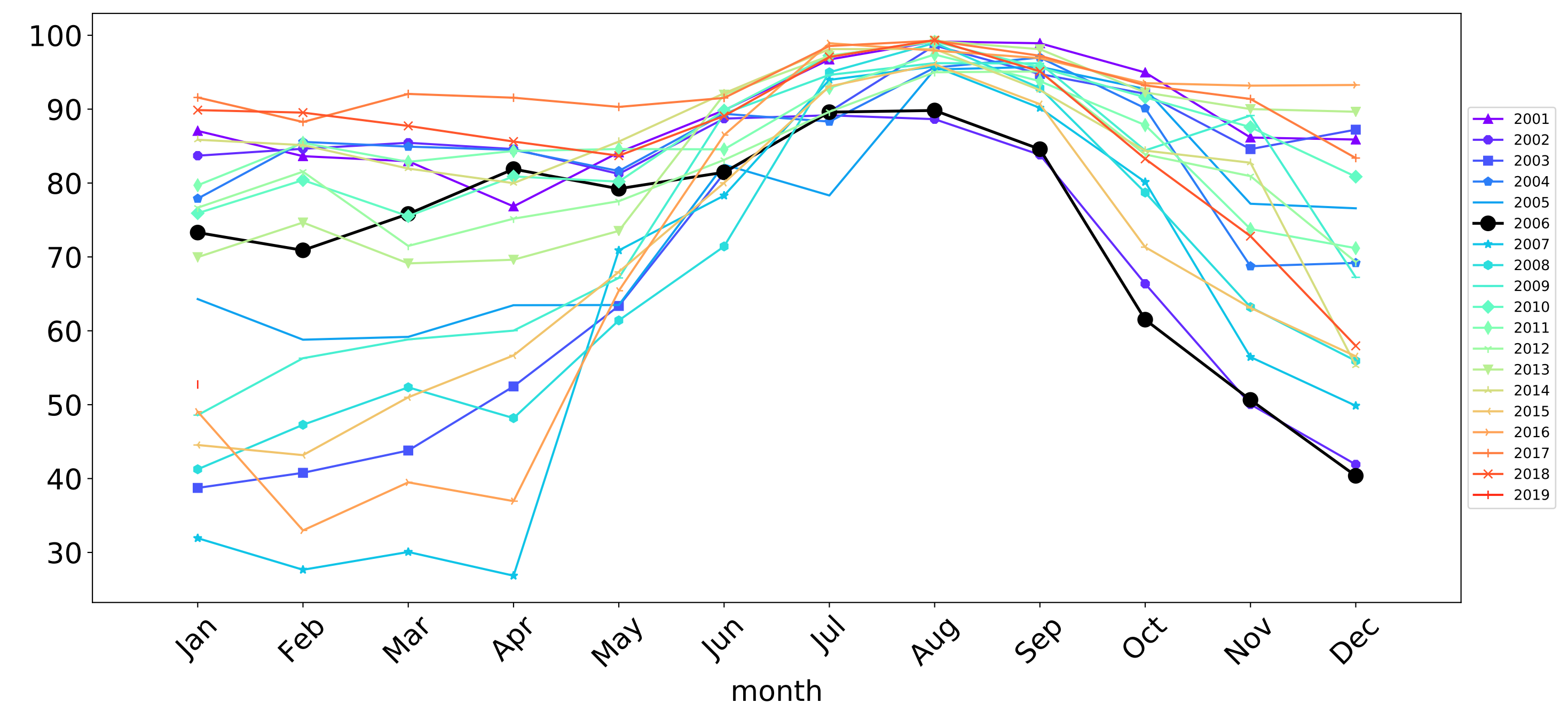
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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)

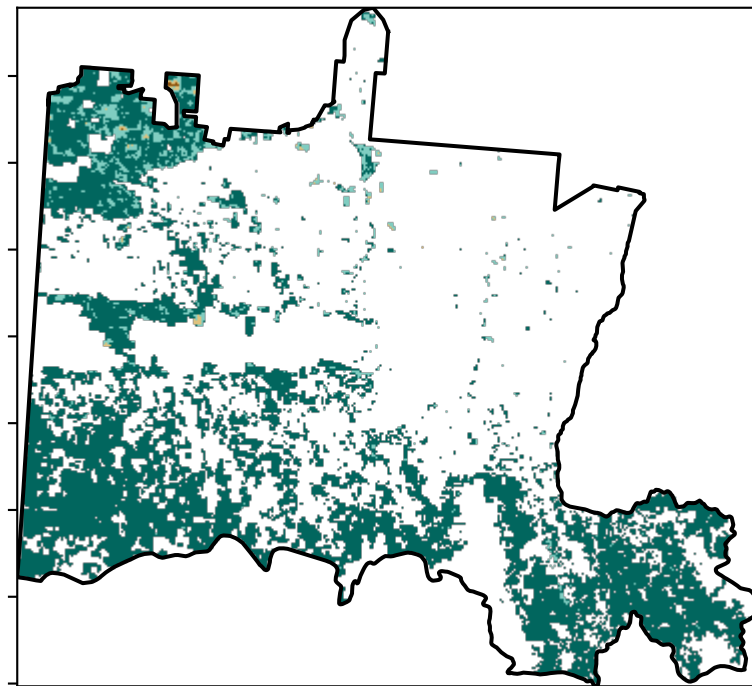


1 Agriculture - Grazing - Non forest  
2 Agriculture - Grazing - Woodland forest  
3 Agriculture - Grazing - Non-woodland forest

Proportion of each land class in area

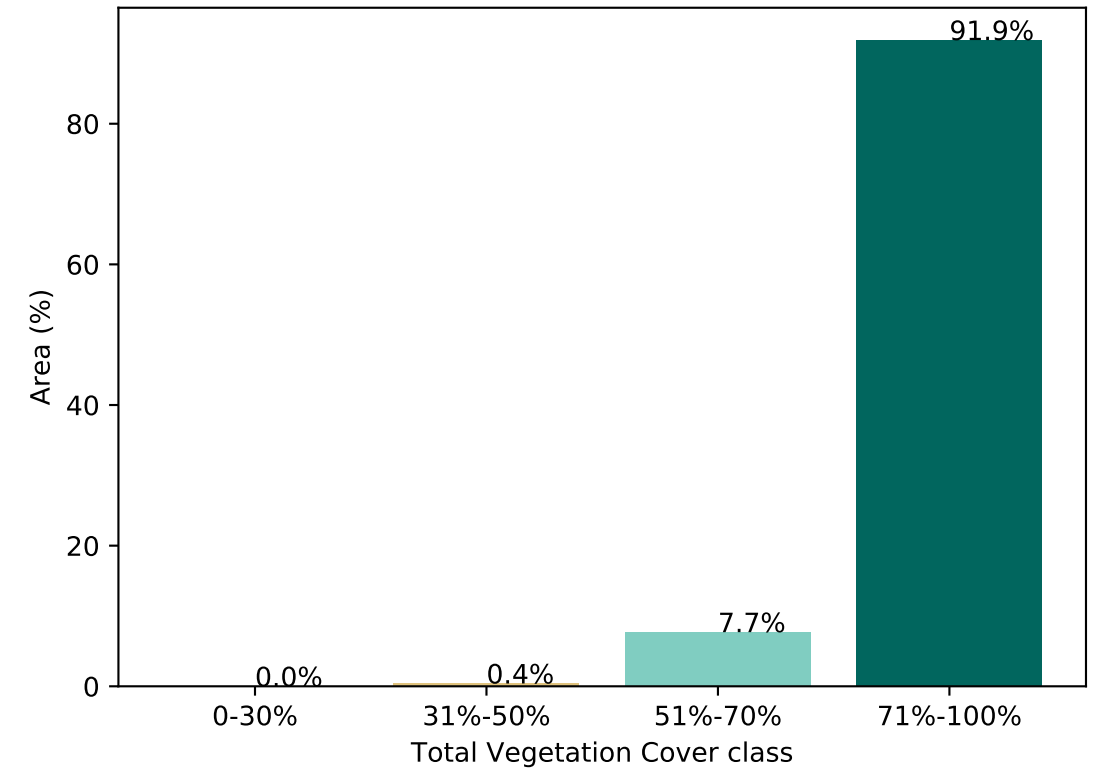


Total Vegetation Cover [%]

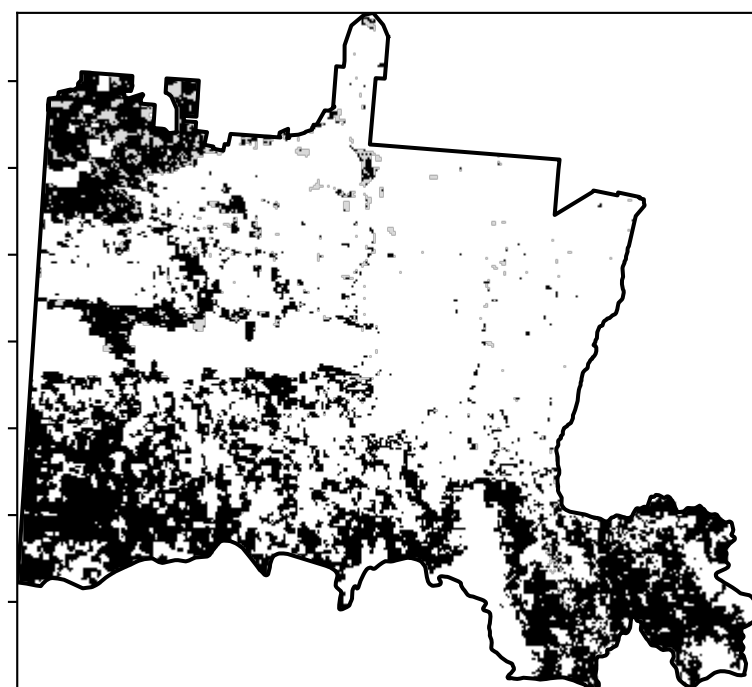


71%-100%  
51%-70%  
31%-50%  
0-30%

Proportion of vegetation cover class in area

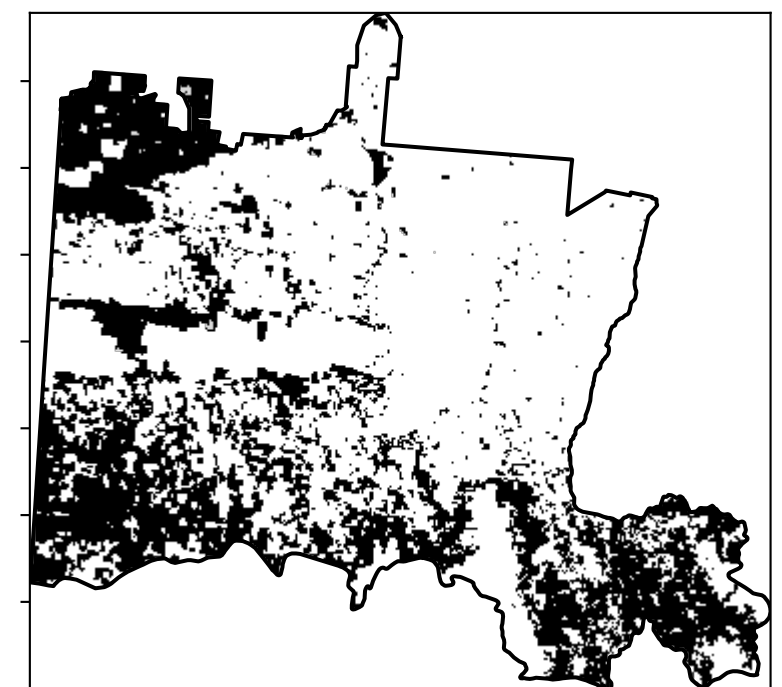


% Area protected from water erosion (>70%)



Area not protected  
8.1% of region  
(63,024 ha)  
Area protected  
91.9% of region  
(715,050 ha)

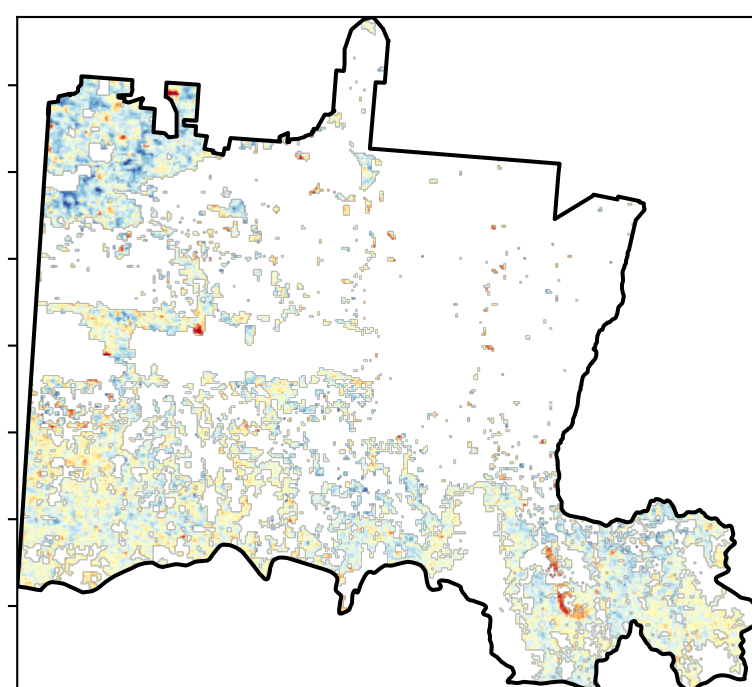
% Area protected from wind erosion (>50%)



Area not protected  
0.0% of region  
(0 ha)  
Area protected  
100.0% of region  
(778,075 ha)

Total Vegetation Cover Anomaly [%]

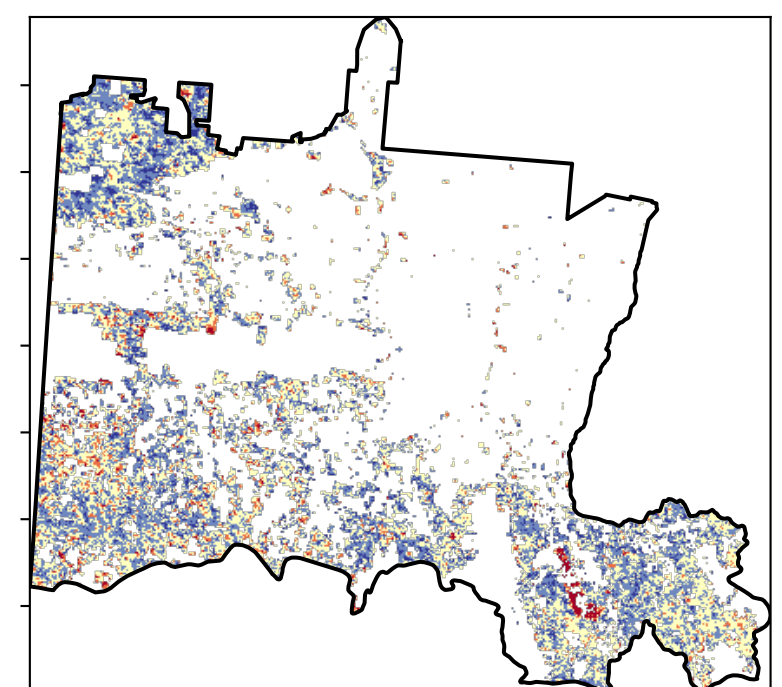
Anomaly show how many percentage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



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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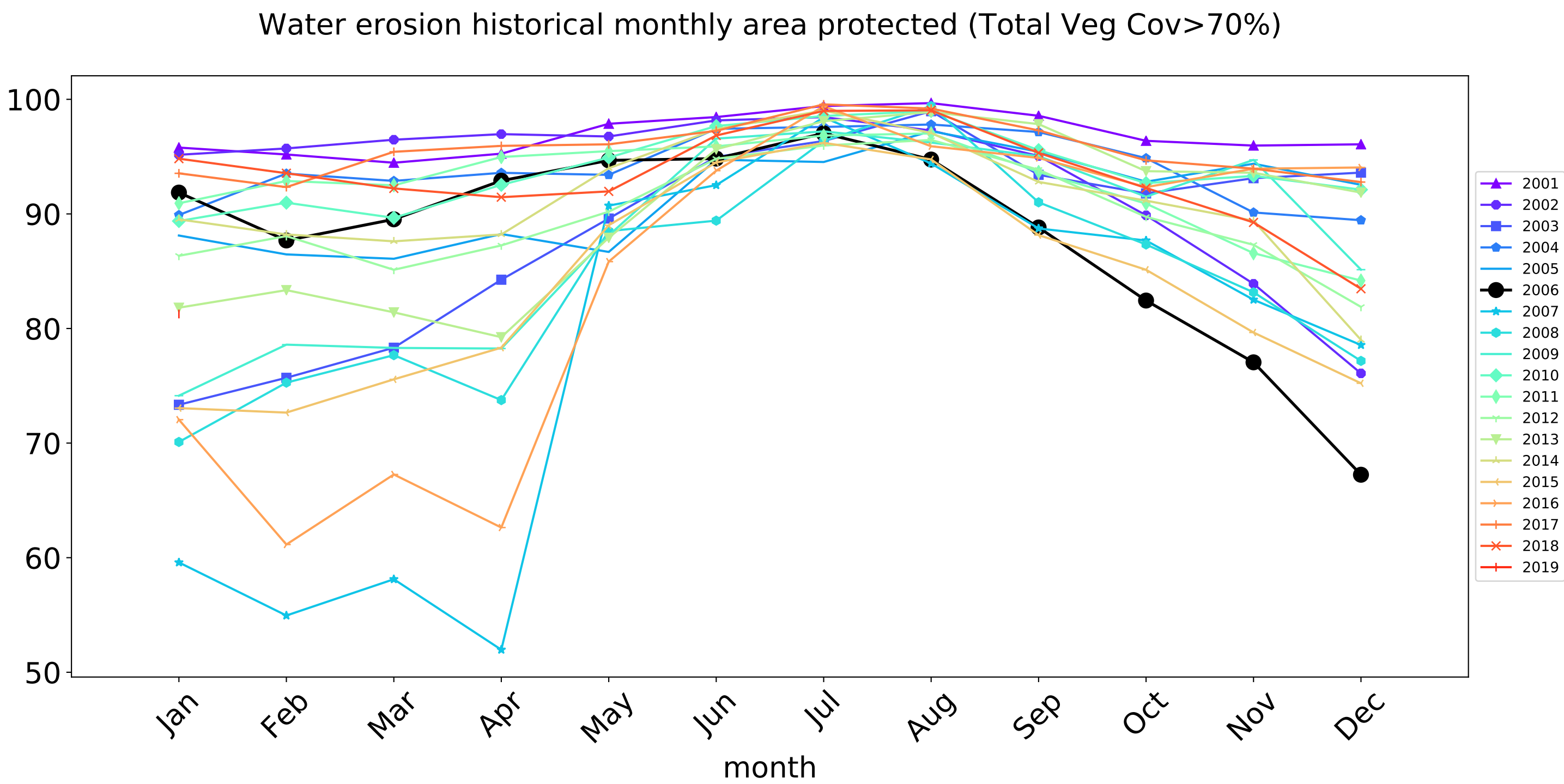
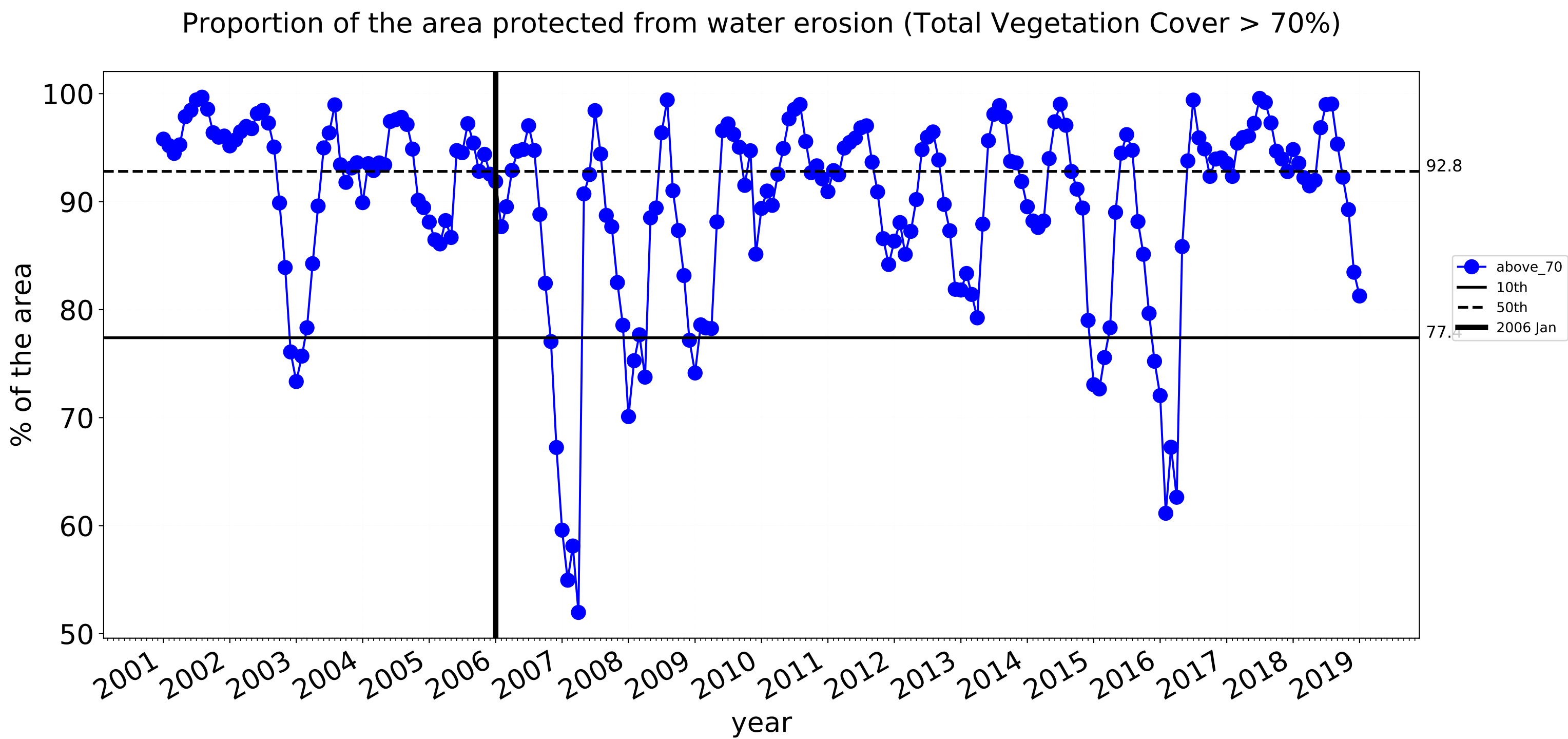
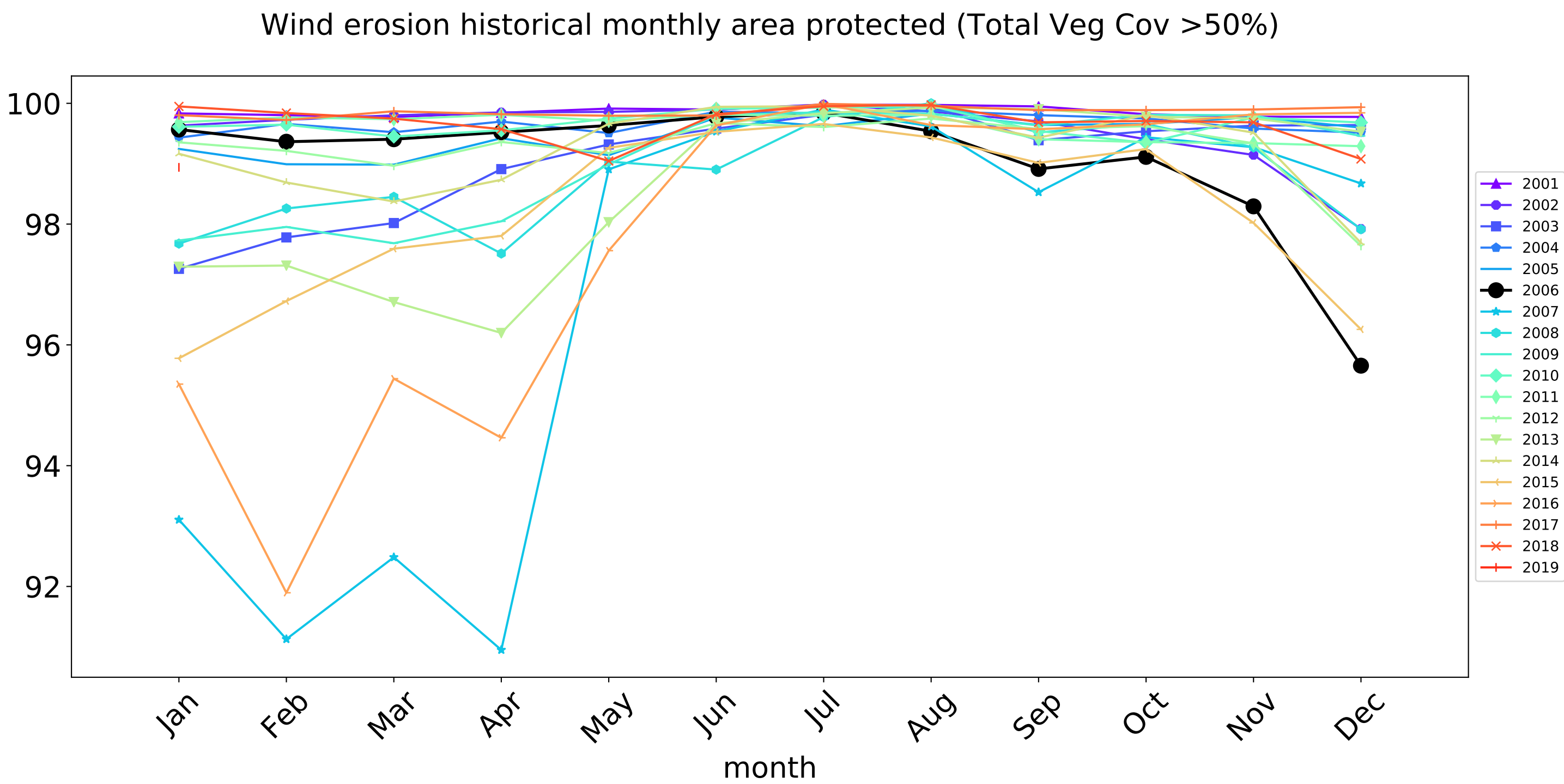
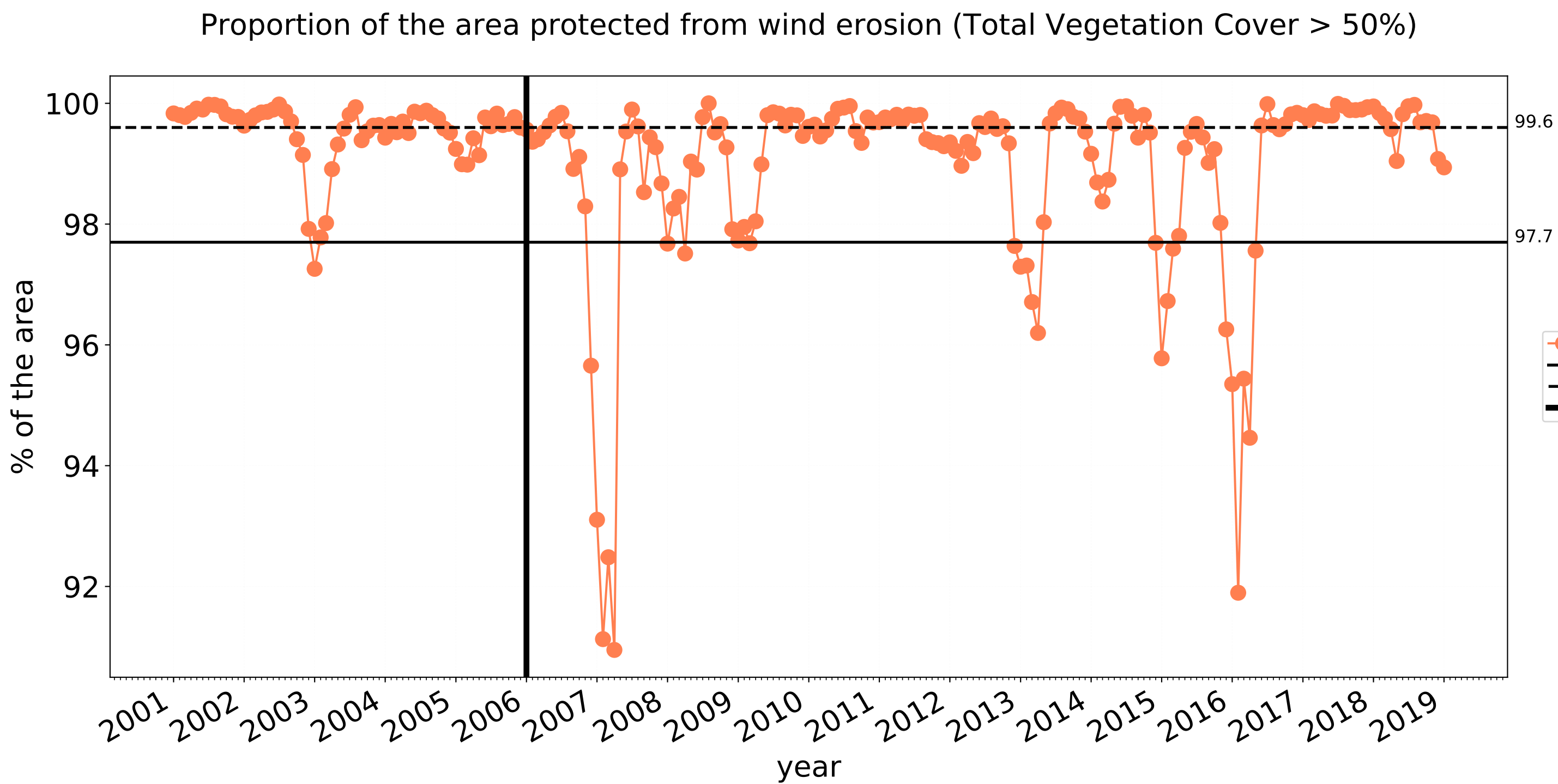
National  
Landcare  
Programme



Planning,  
Industry &  
Environment



Grazing timeseries



Grazing non forest

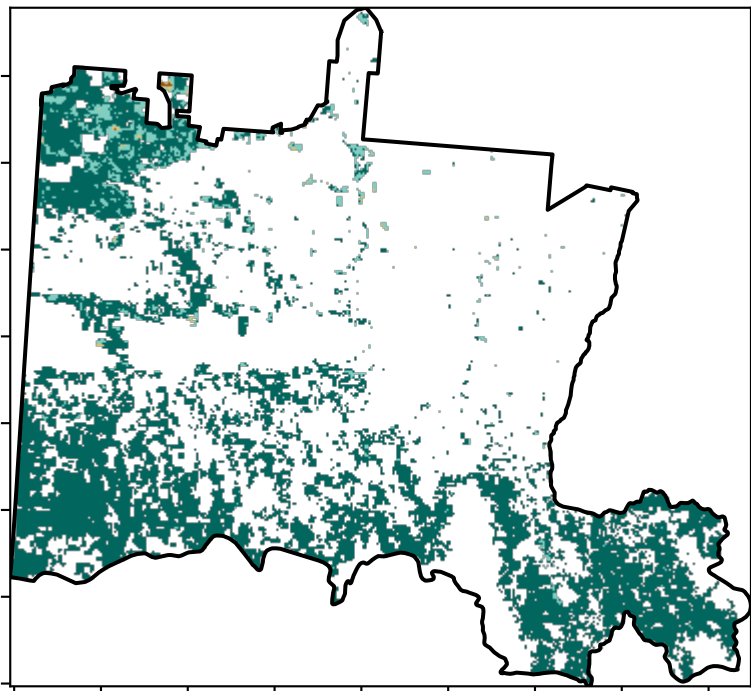
Land use and forest cover

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

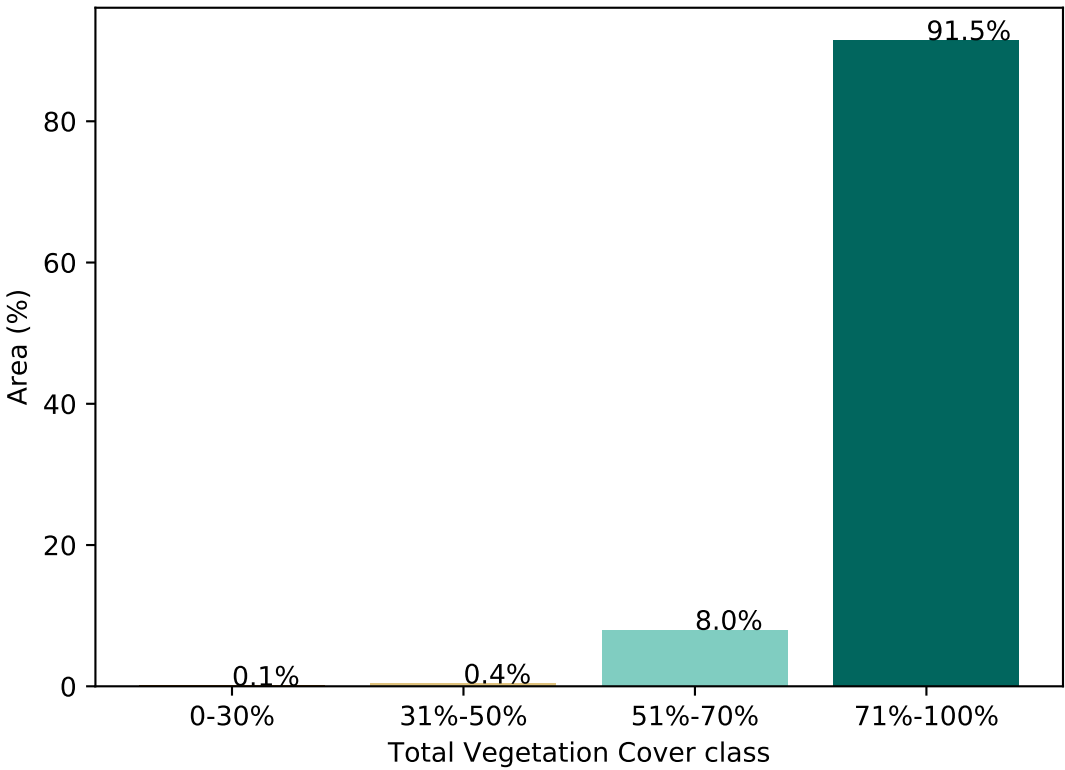


1 Agriculture - Grazing - Non forest

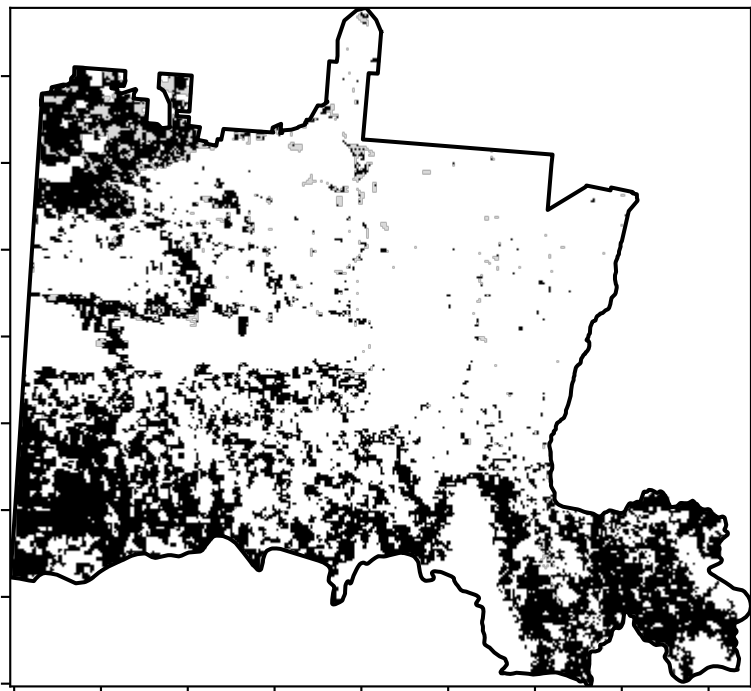
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

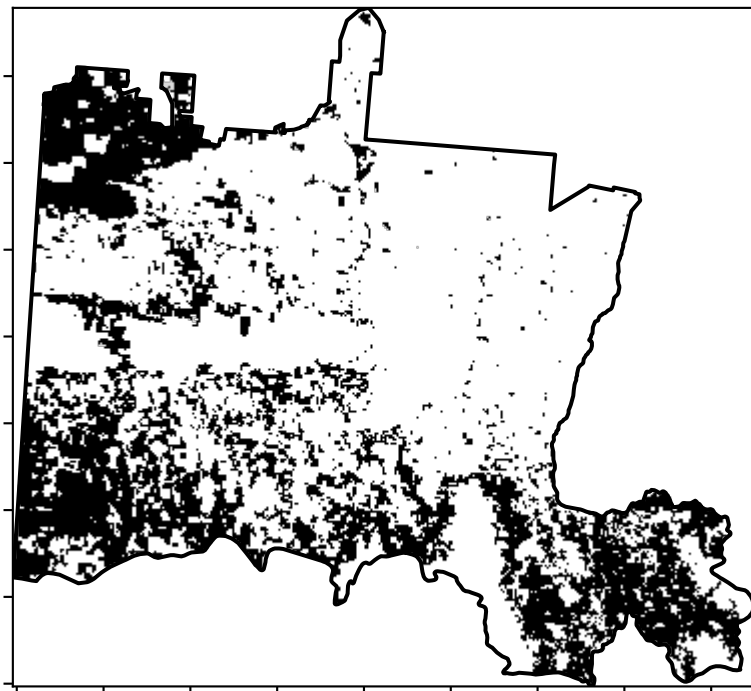


% Area protected from water erosion (>70%)



Area not protected  
8.5% of region  
(61,595 ha)  
Area protected  
91.5% of region  
(663,054 ha)

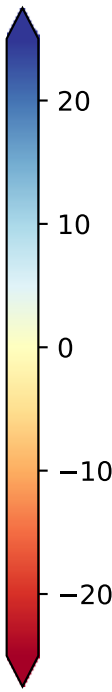
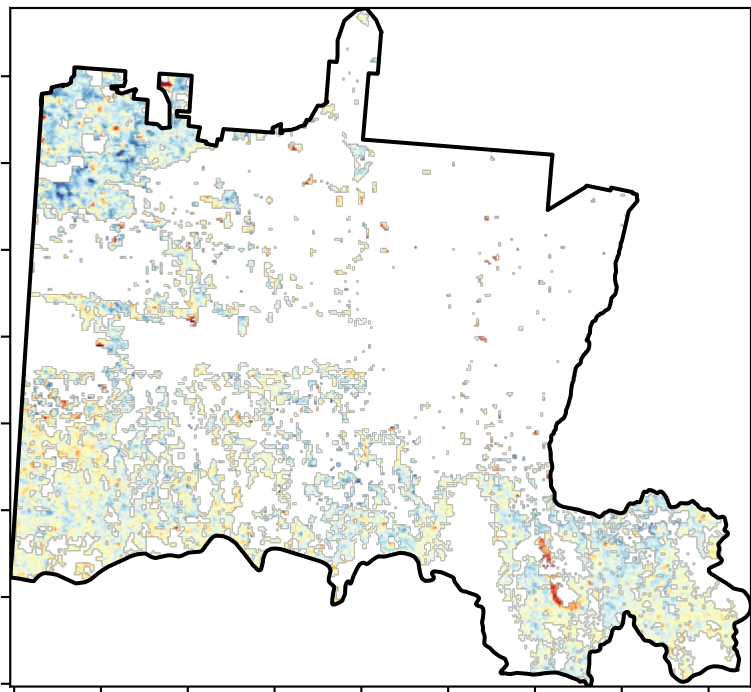
% Area protected from wind erosion (>50%)



Area not protected  
0.0% of region  
(0 ha)  
Area protected  
100.0% of region  
(724,650 ha)

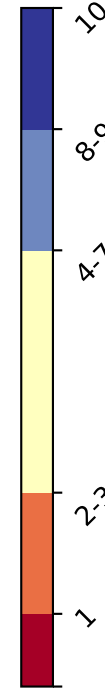
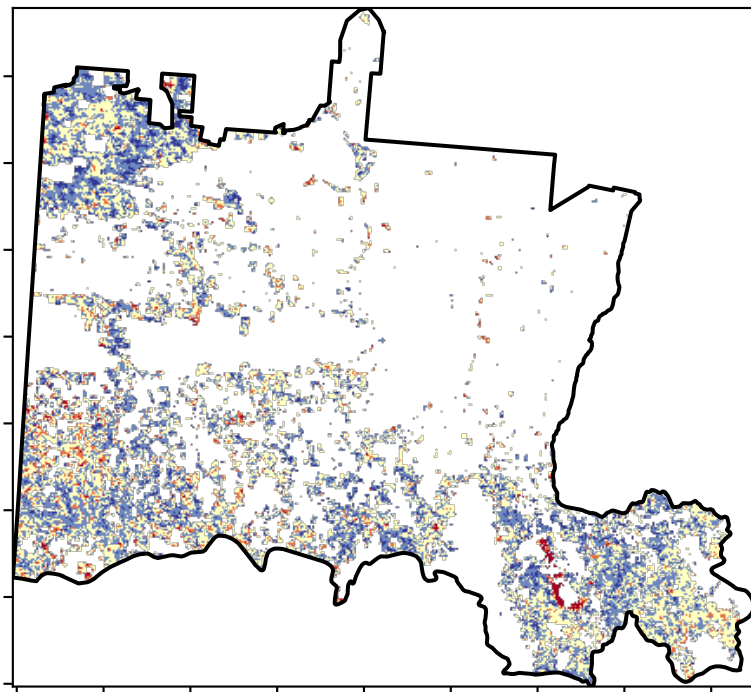
Total Vegetation Cover Anomaly [%]

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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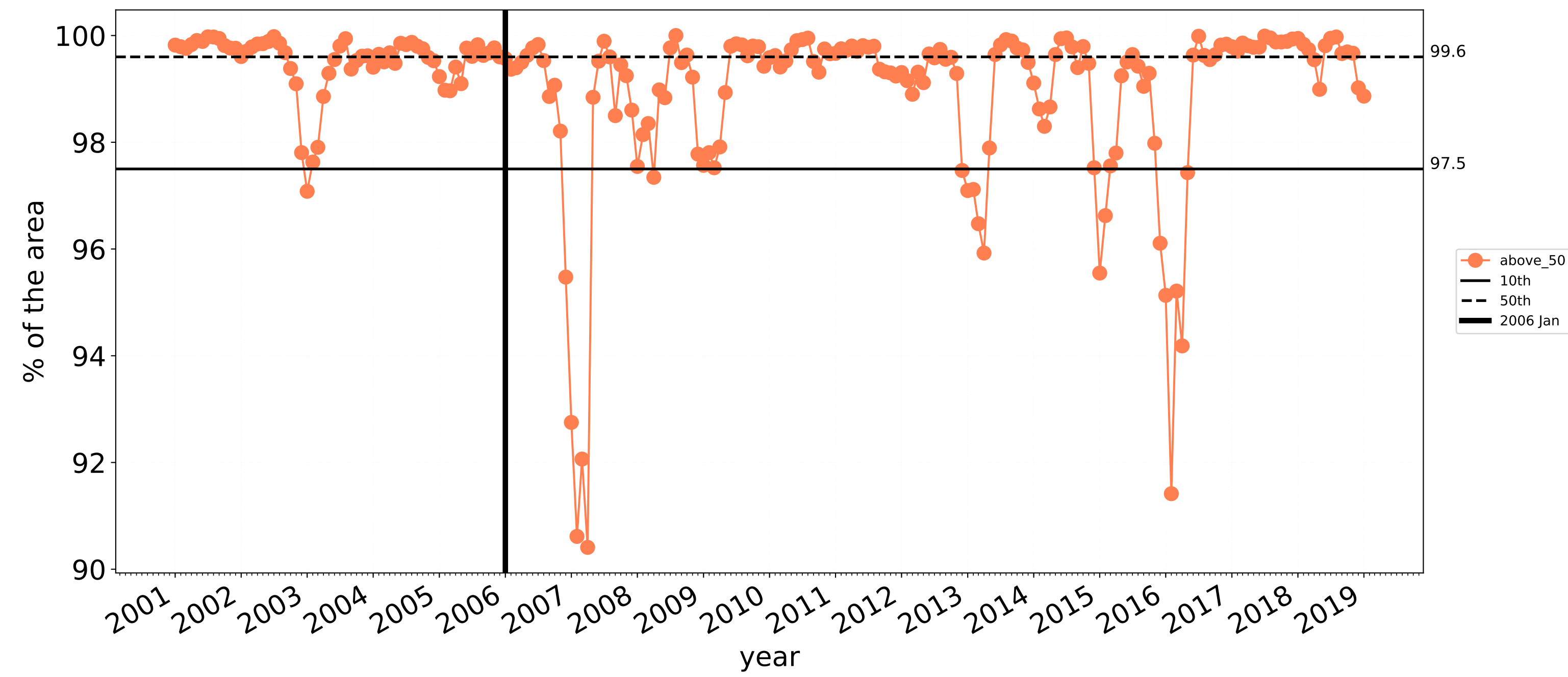


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Industry &  
Environment

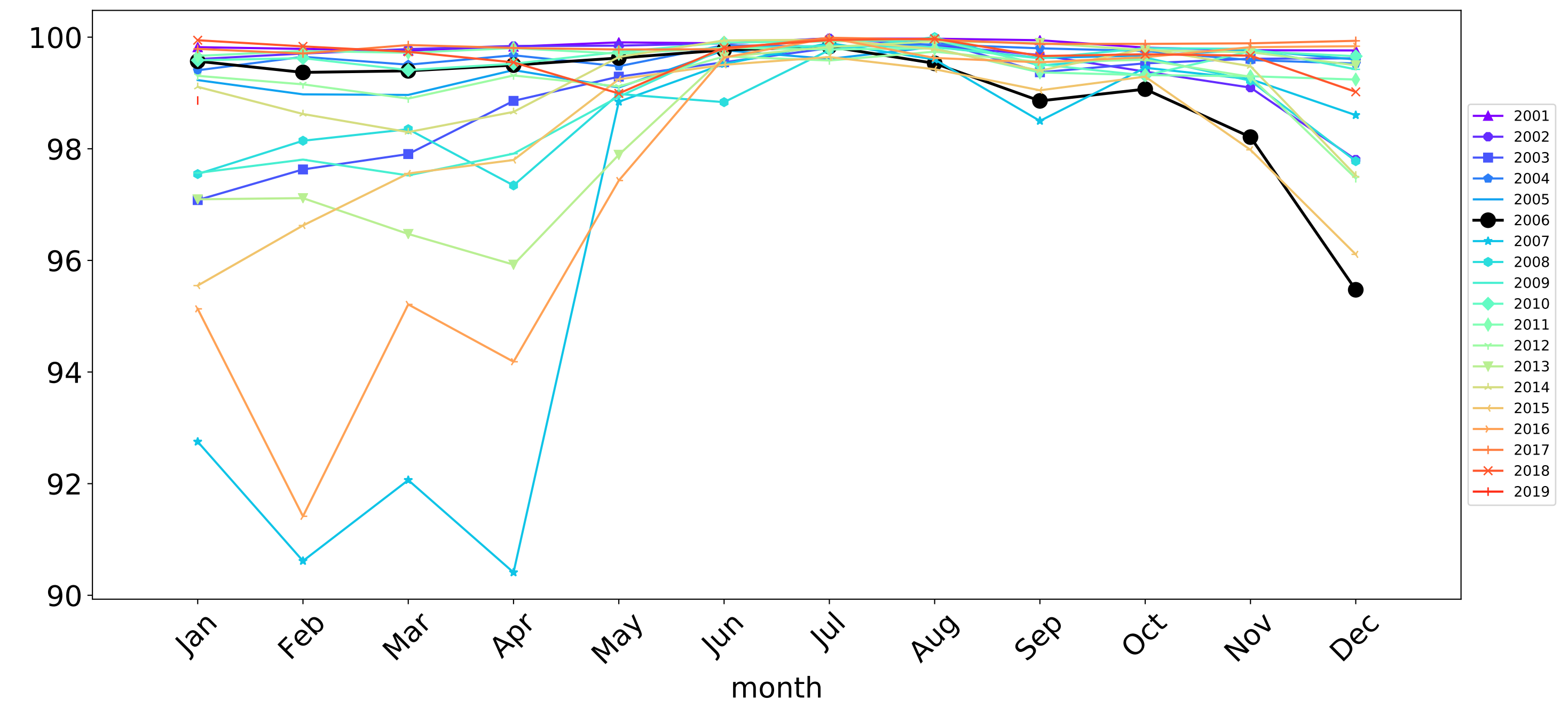


# Grazing non forest timeseries

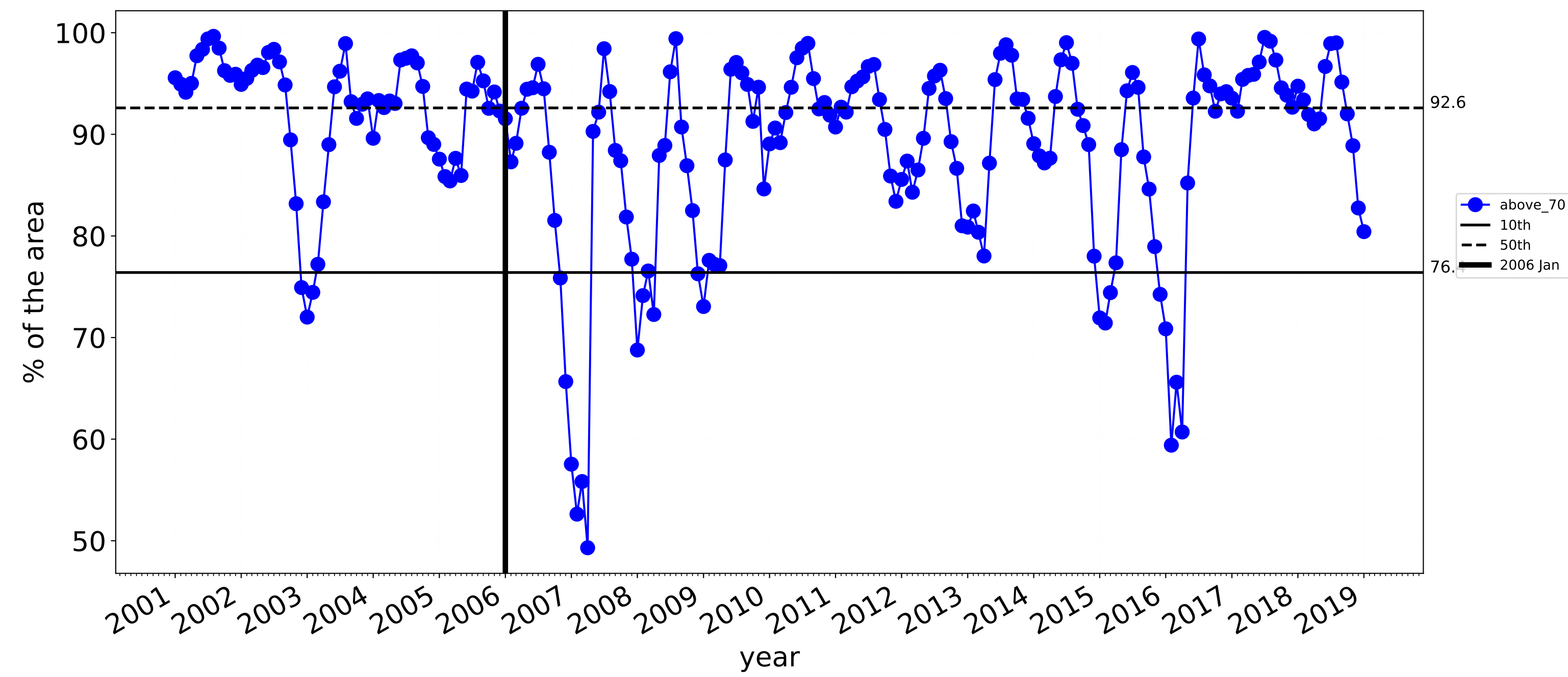
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



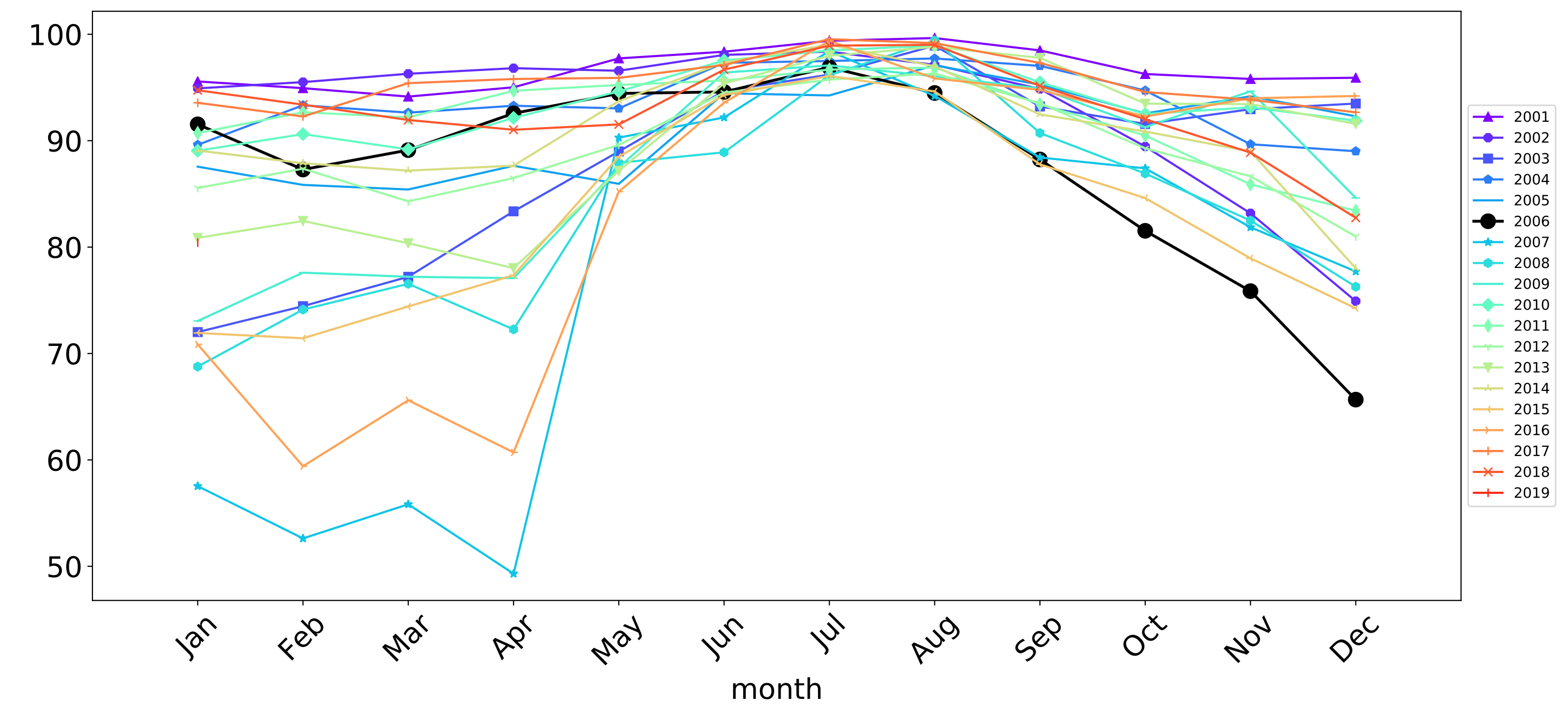
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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

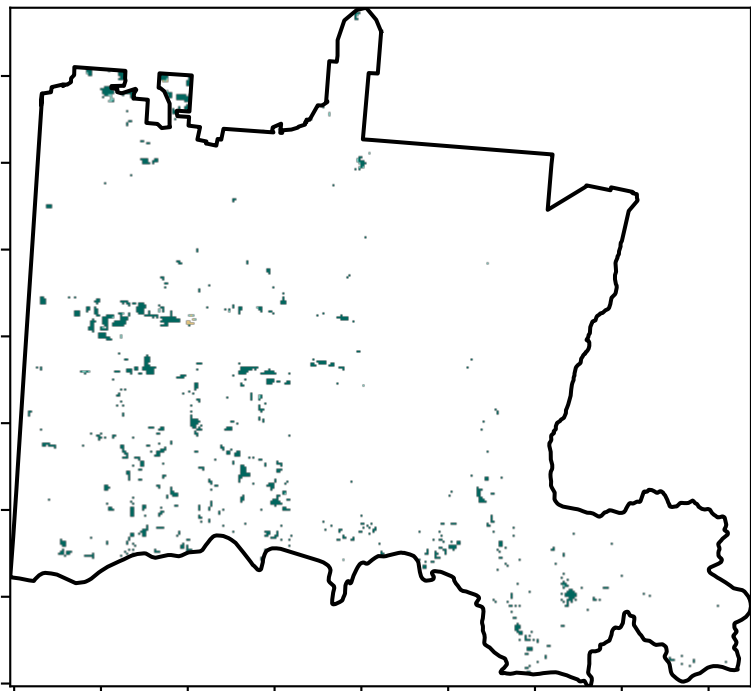
Land use and forest cover

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

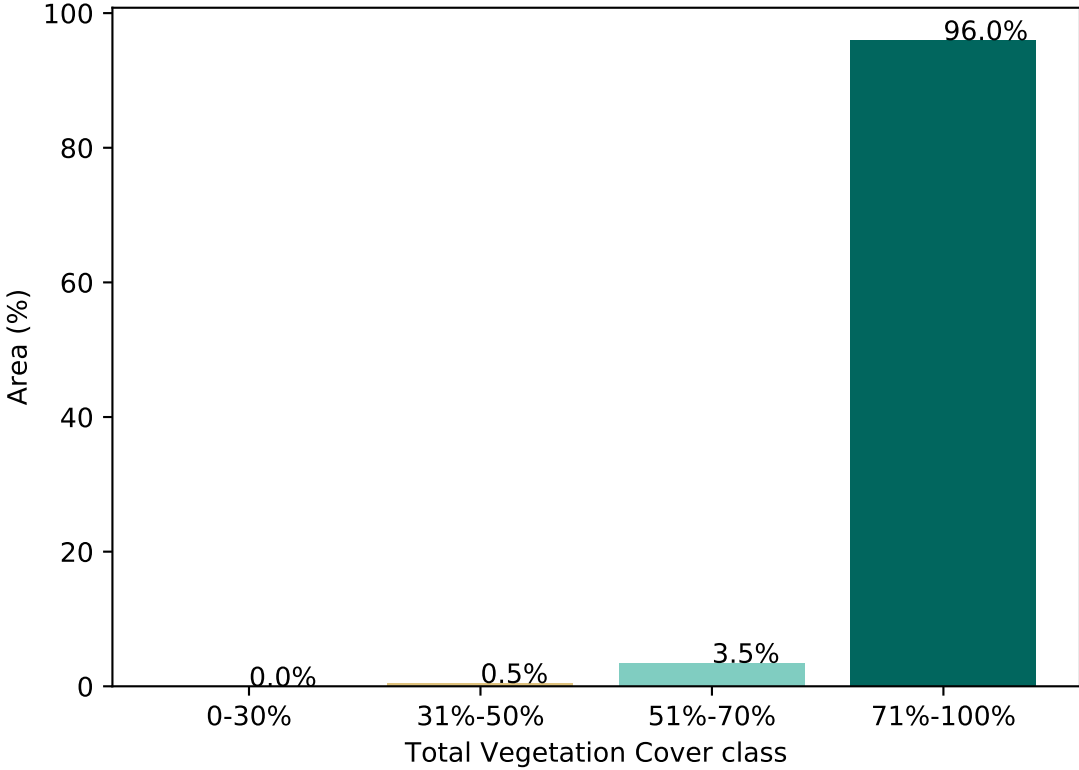


1 Agriculture - Grazing - Woodland forest

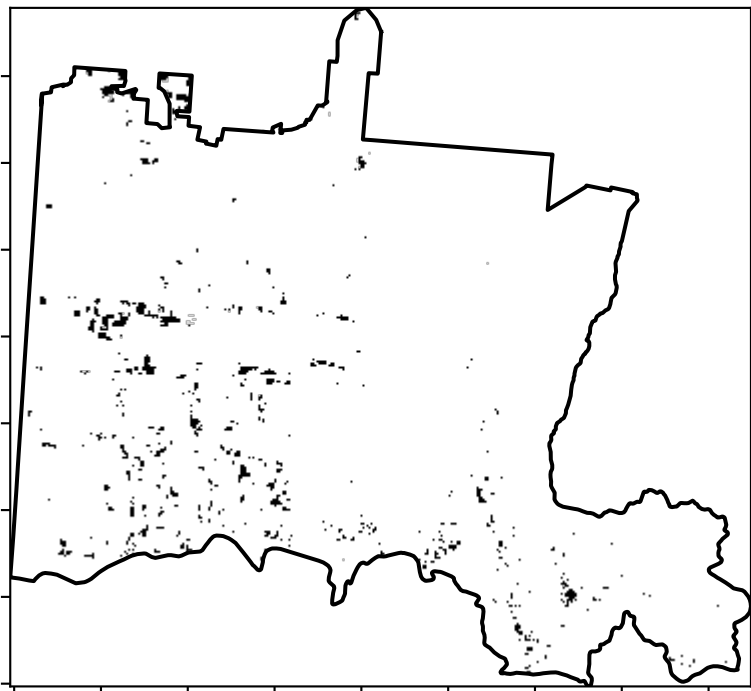
Total Vegetation Cover [%]



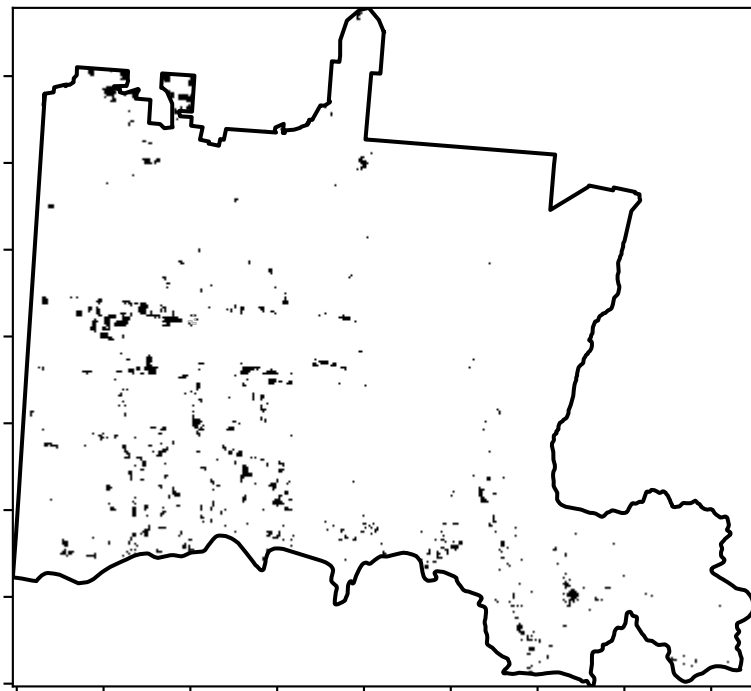
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

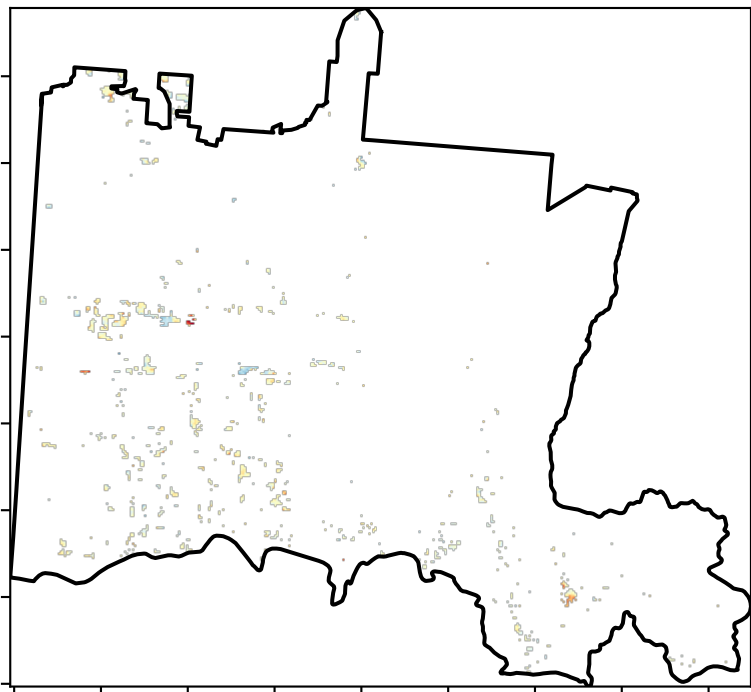


% Area protected from wind erosion (>50%)



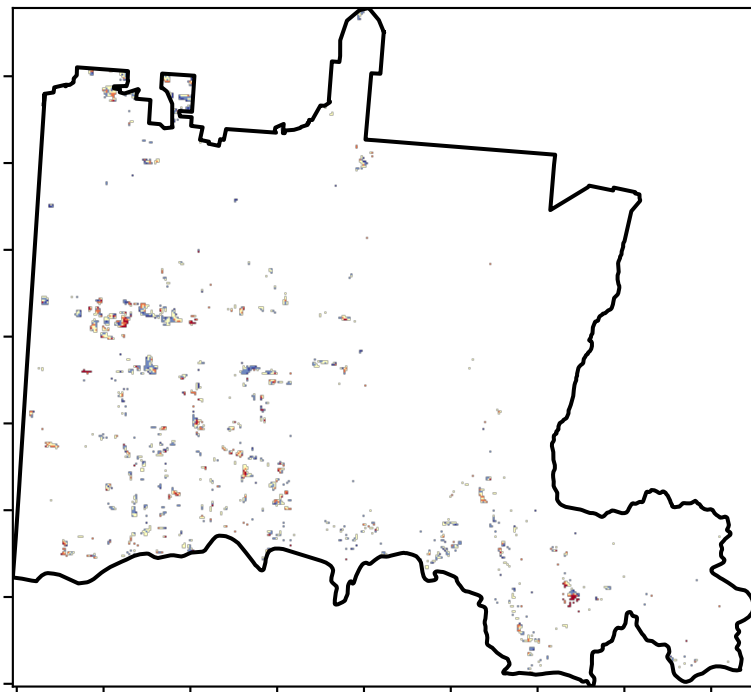
Total Vegetation Cover Anomaly [%]

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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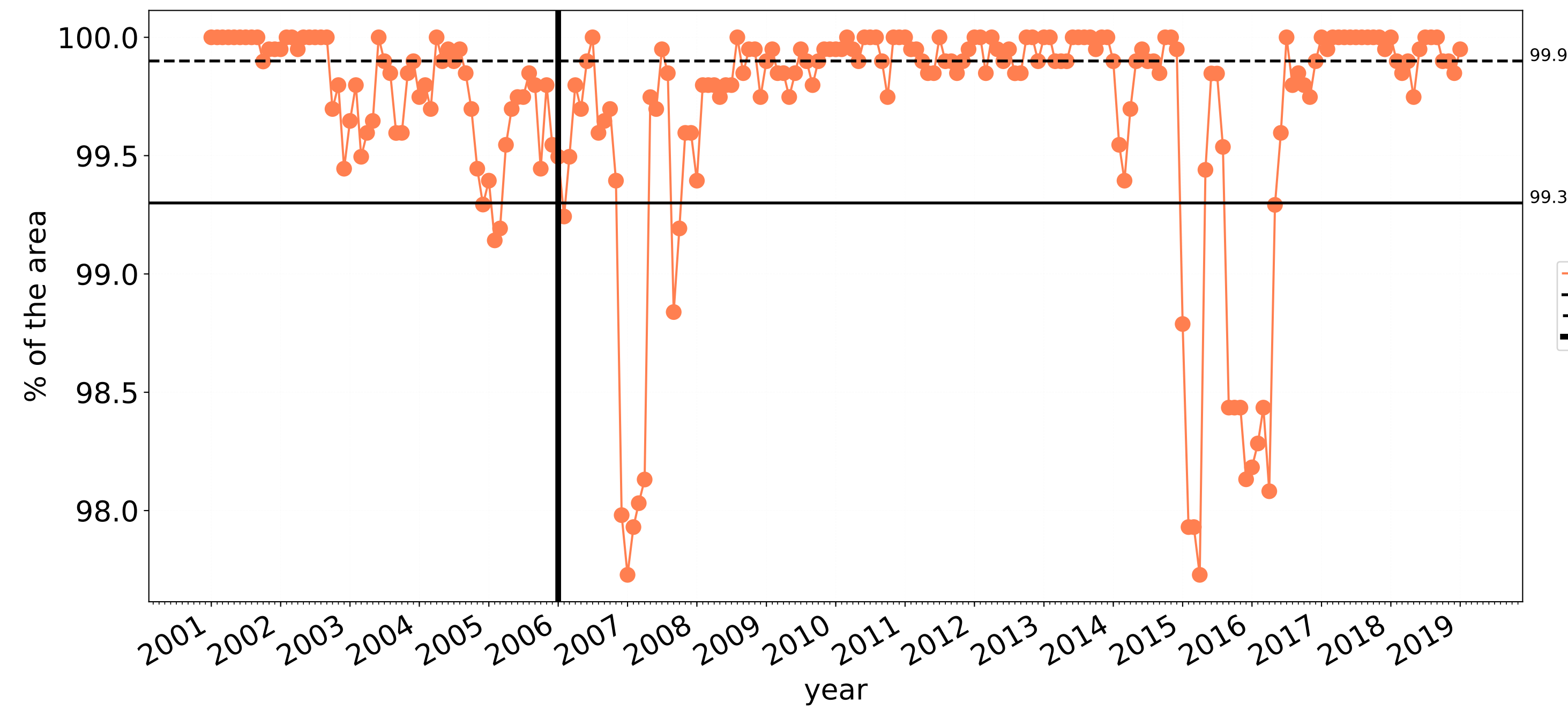


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Environment

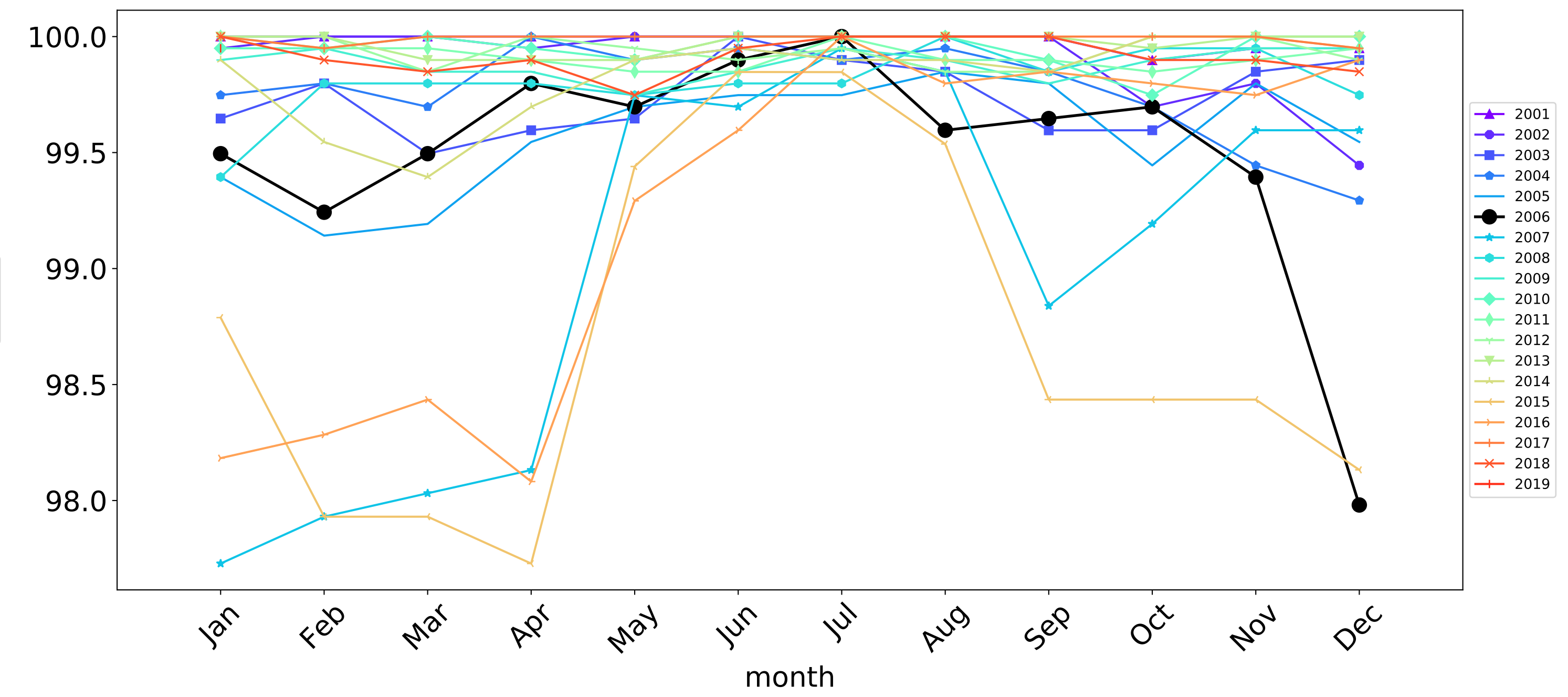


# Grazing Woodland forest timeseries

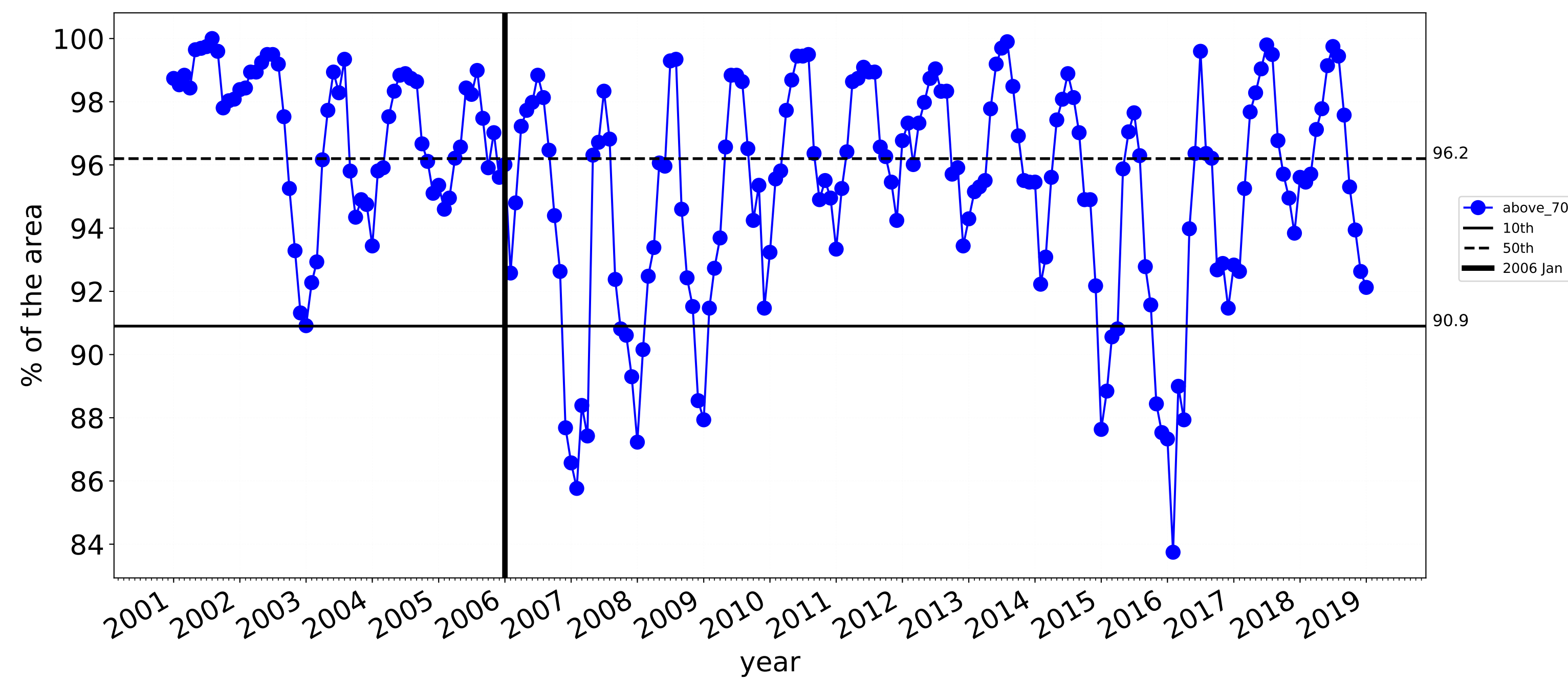
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



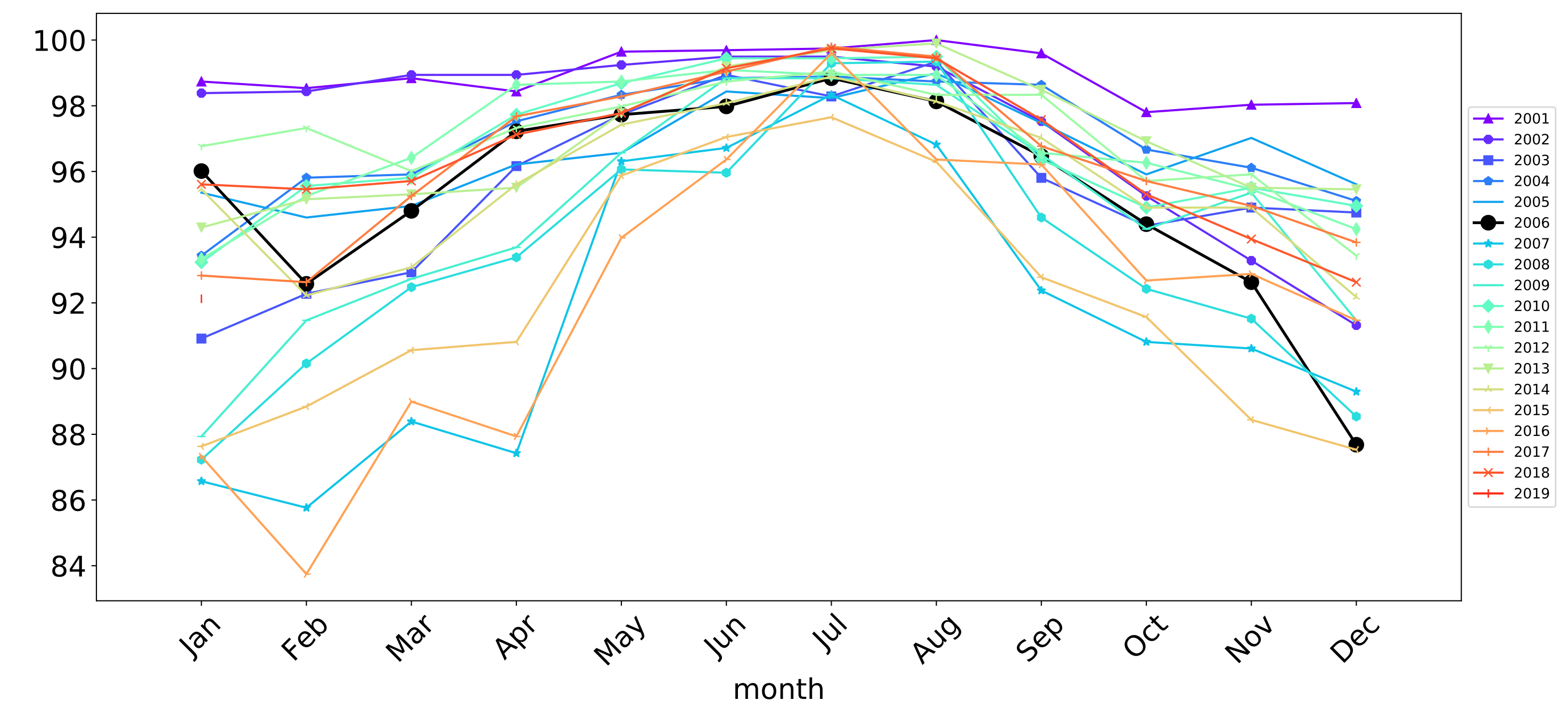
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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





Cropping

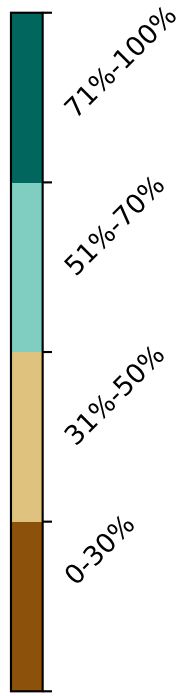
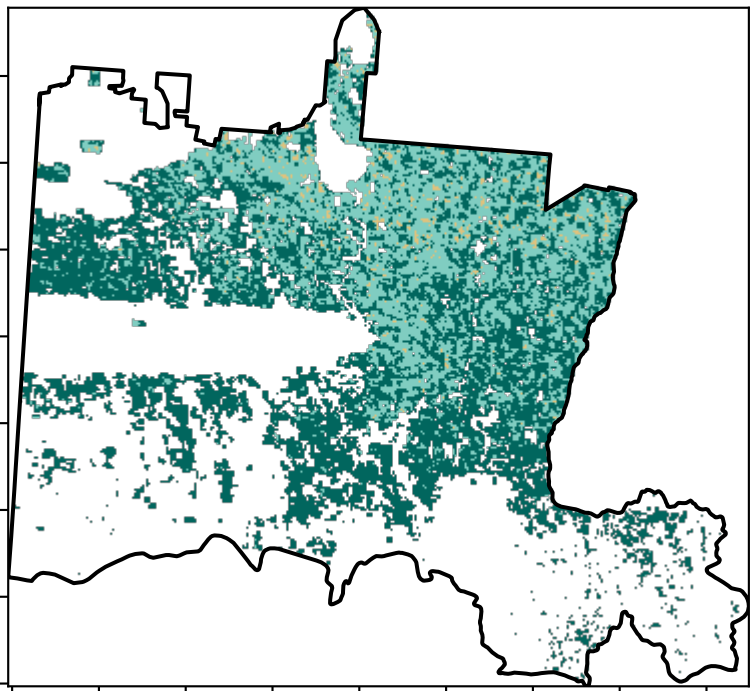
Land use and forest cover

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

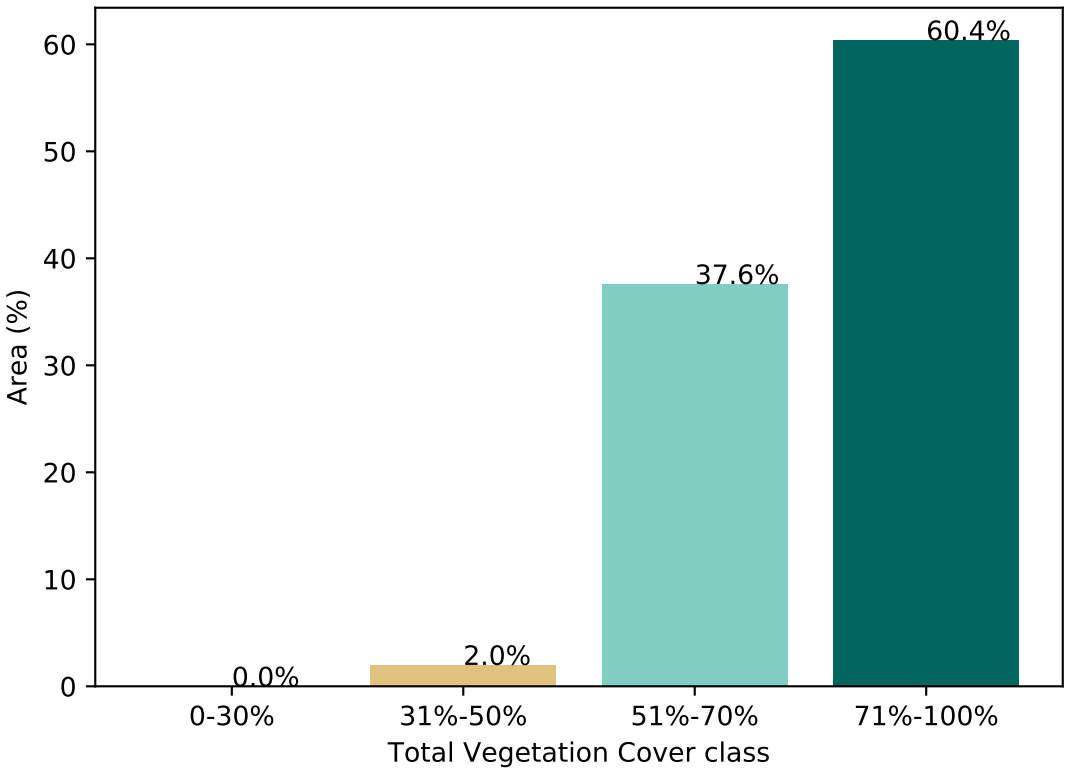


1 Agriculture - Cropping - Non-irrigated

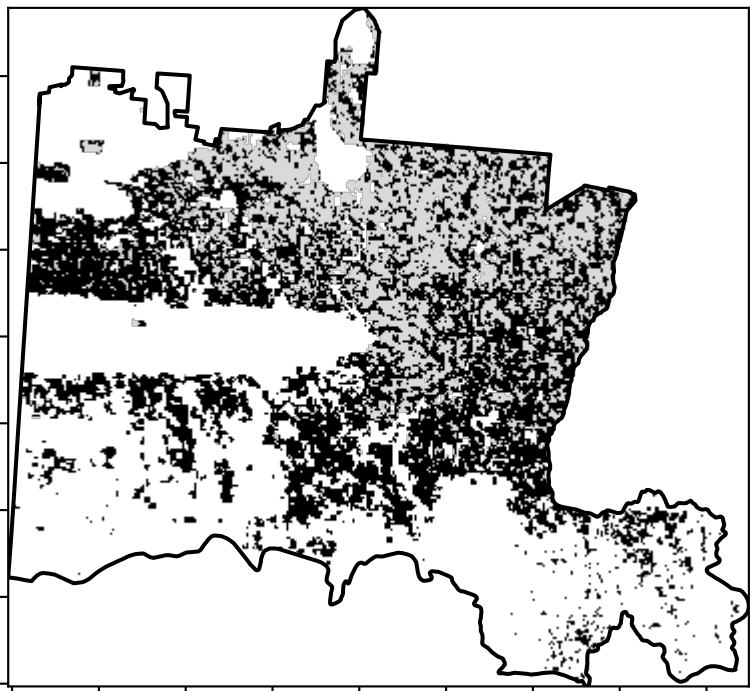
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

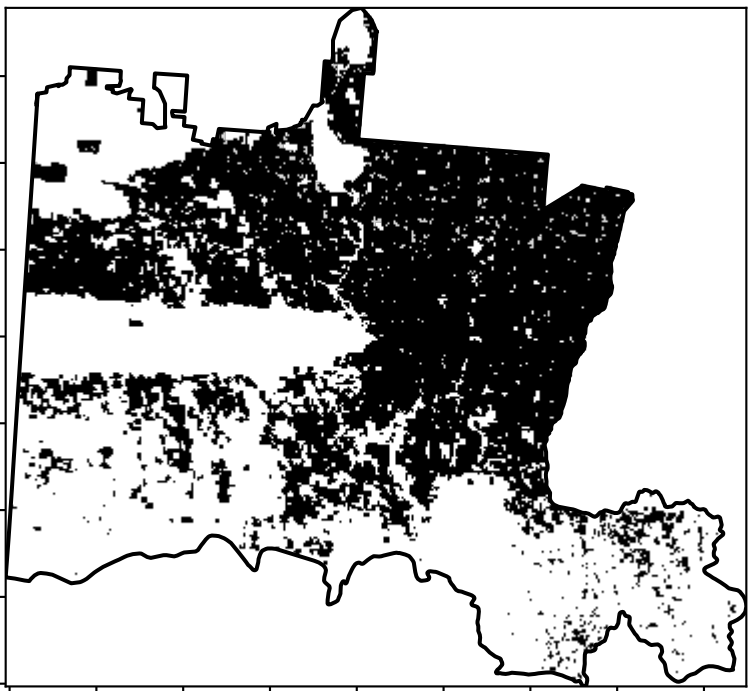


% Area protected from water erosion (>70%)



Area not protected  
39.6% of region  
(445,787 ha)  
Area protected  
60.4% of region  
(679,937 ha)

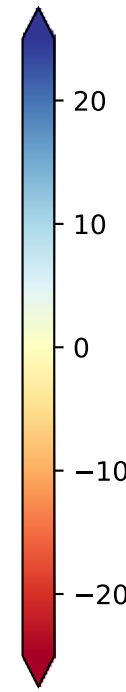
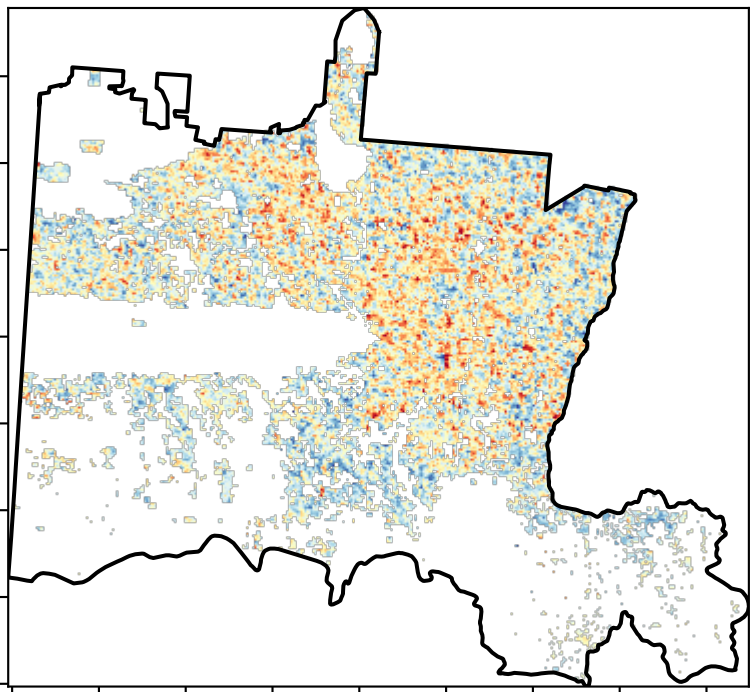
% Area protected from wind erosion (>50%)



Area not protected  
2.0% of region  
(22,514 ha)  
Area protected  
98.0% of region  
(1,103,210 ha)

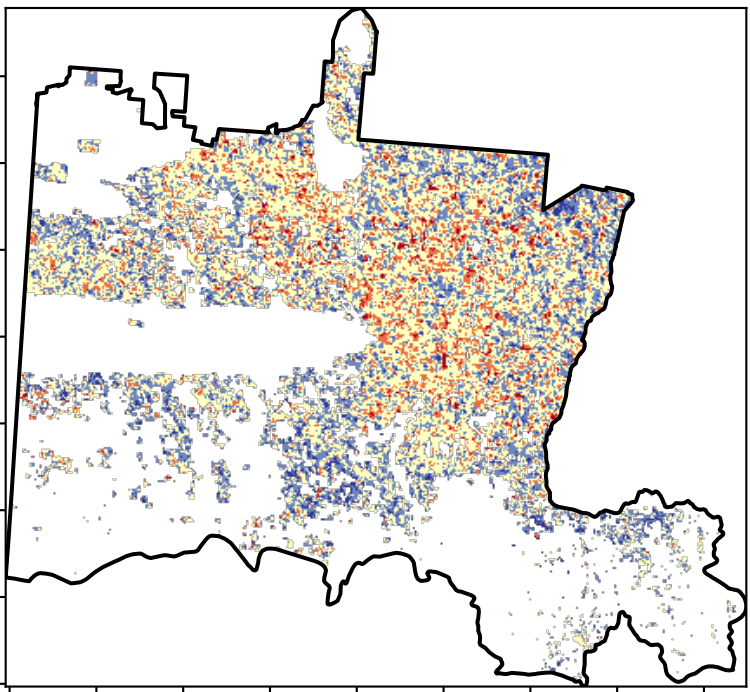
Total Vegetation Cover Anomaly [%]

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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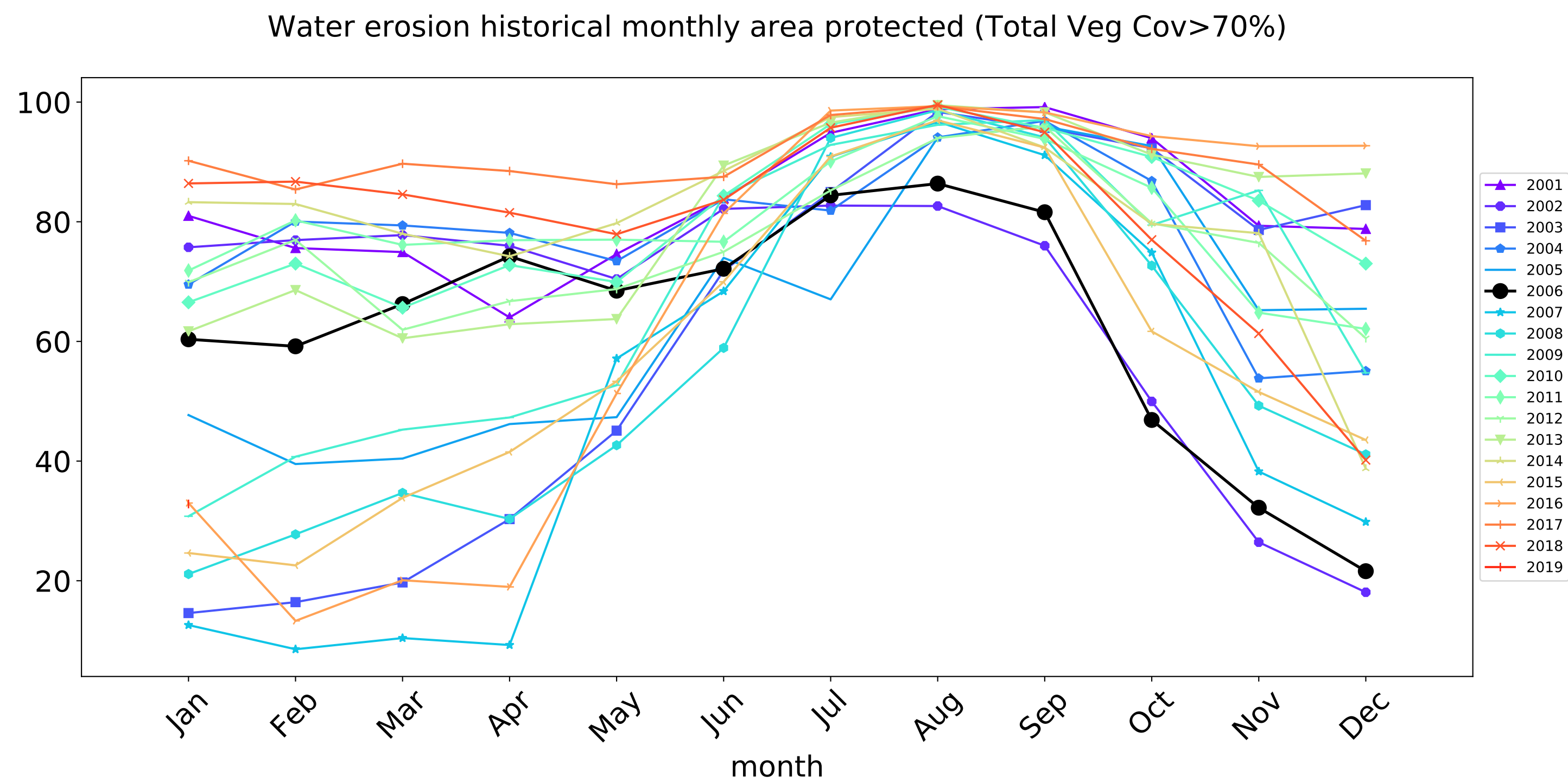
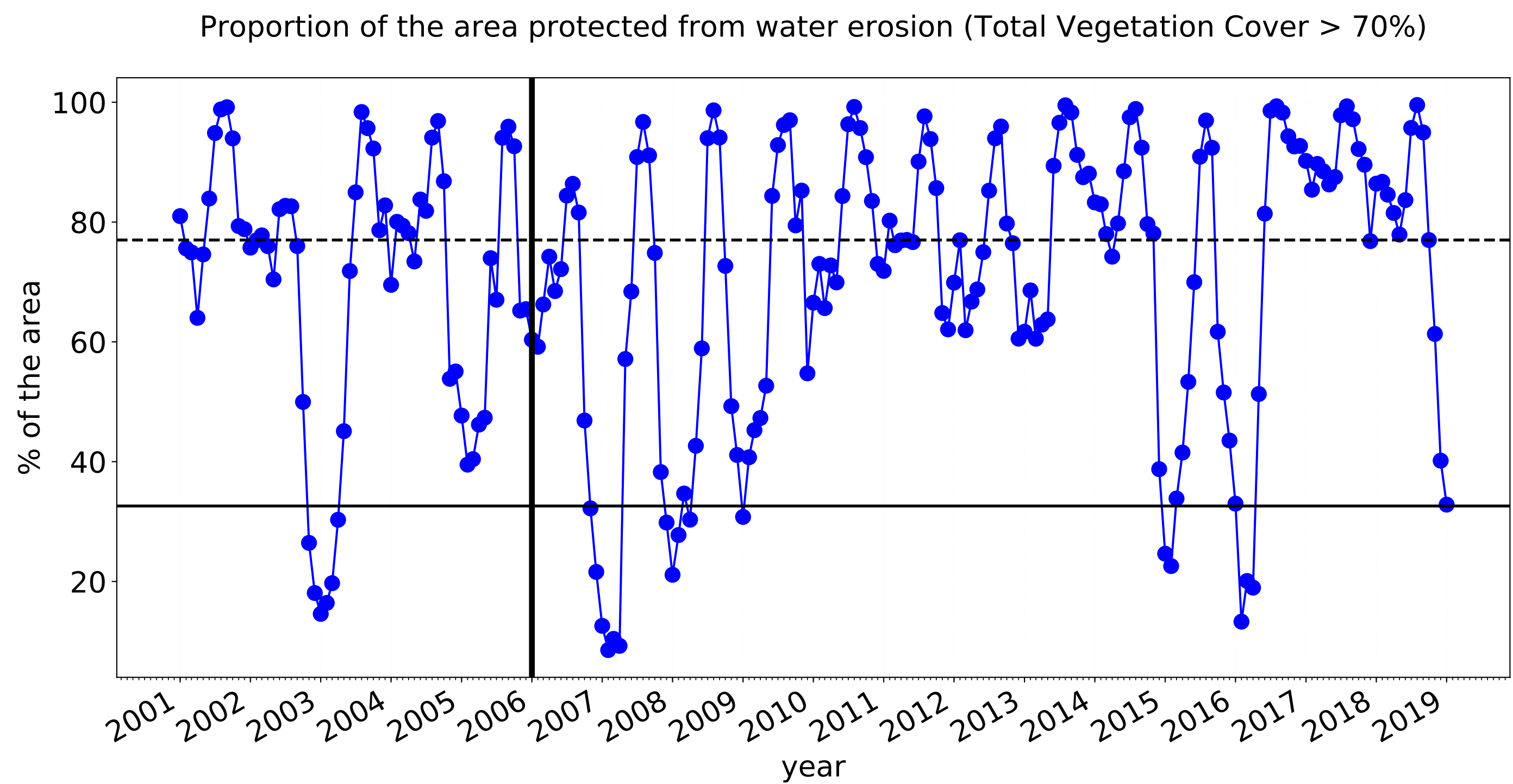
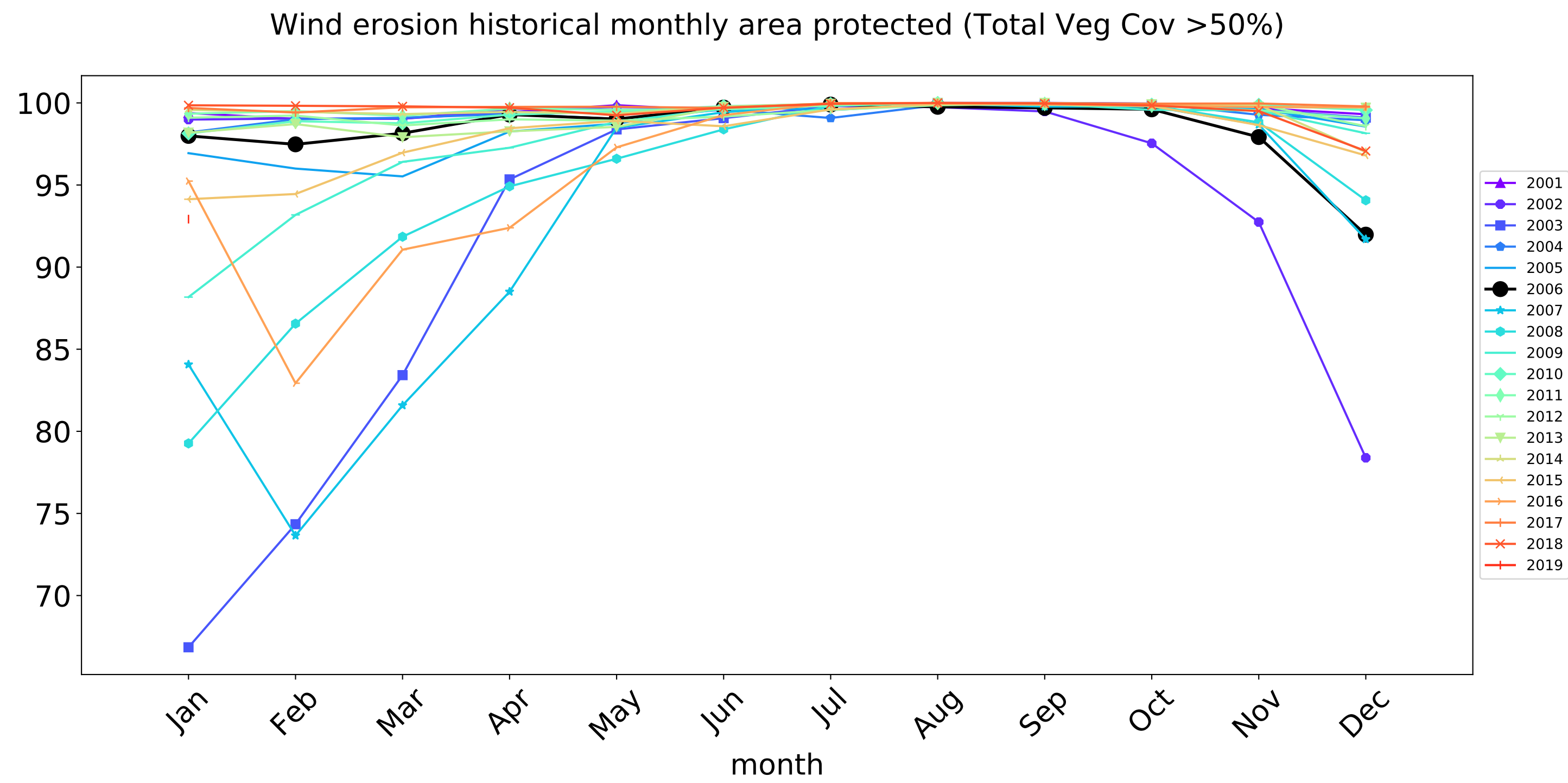
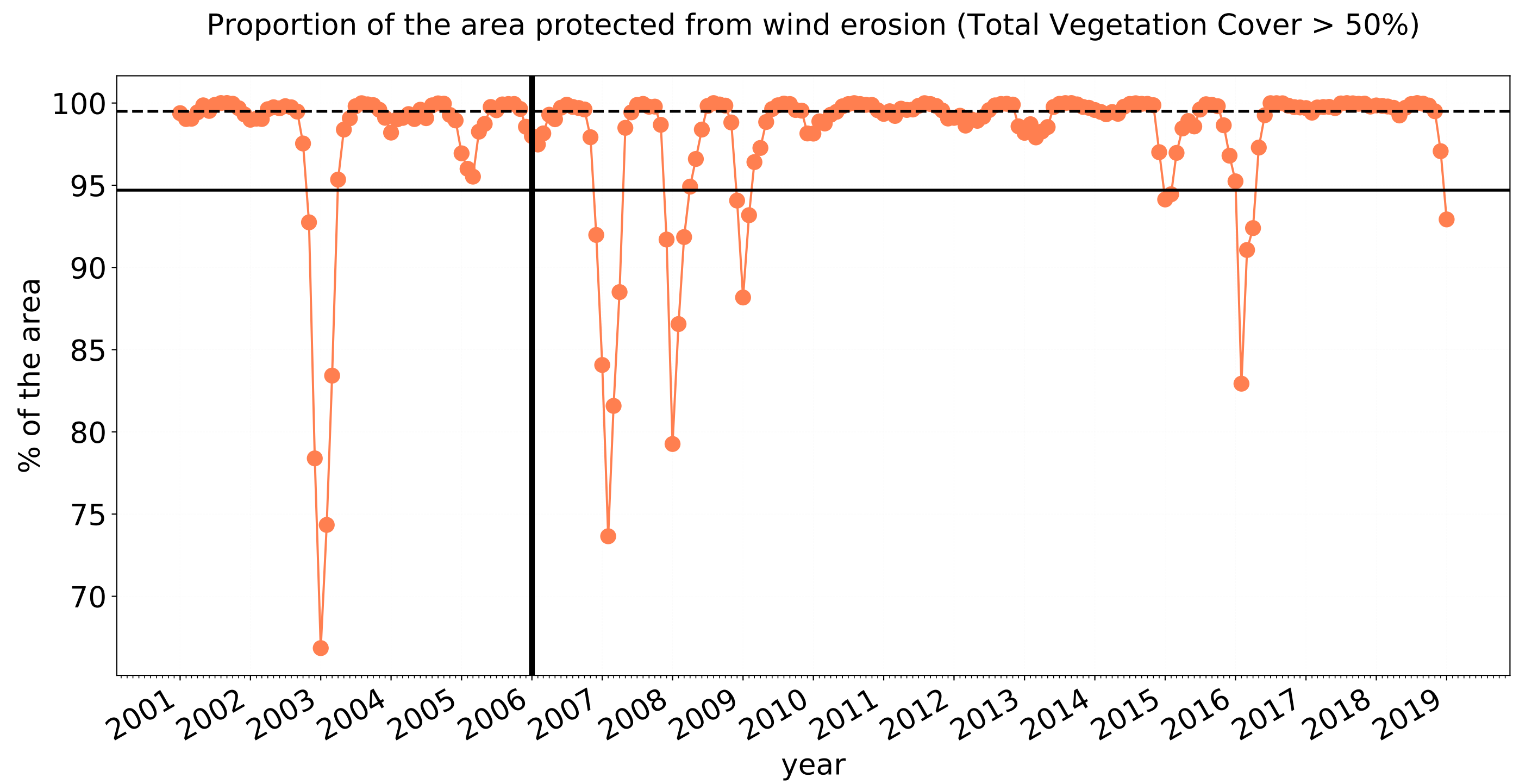
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Cropping timeseries



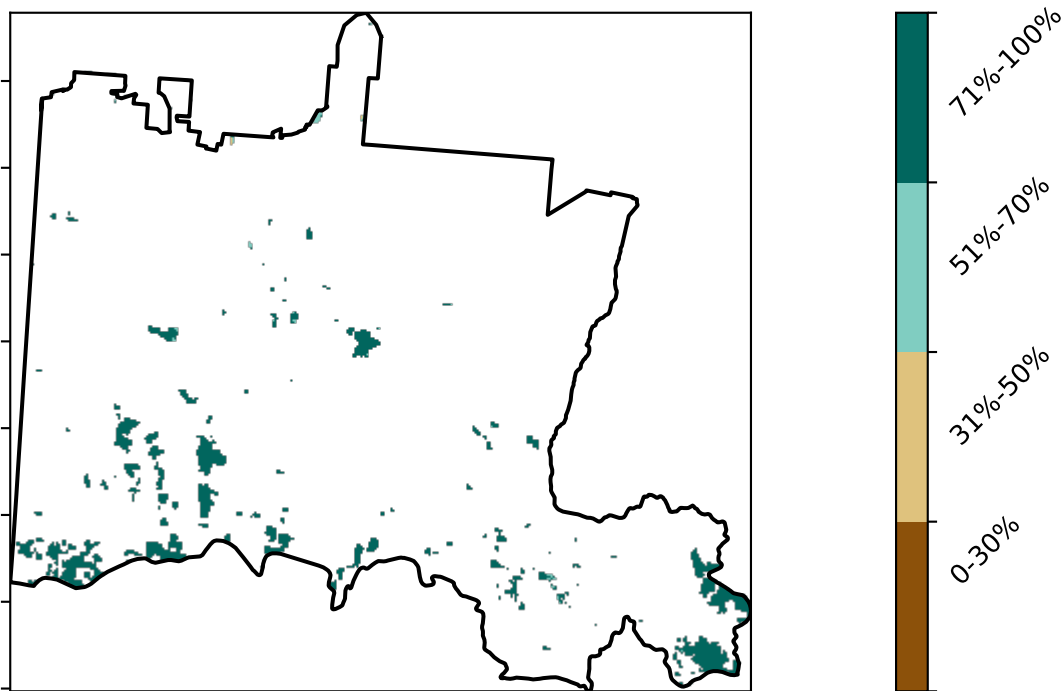
Production native forests and plantation forests

Land use and forest cover

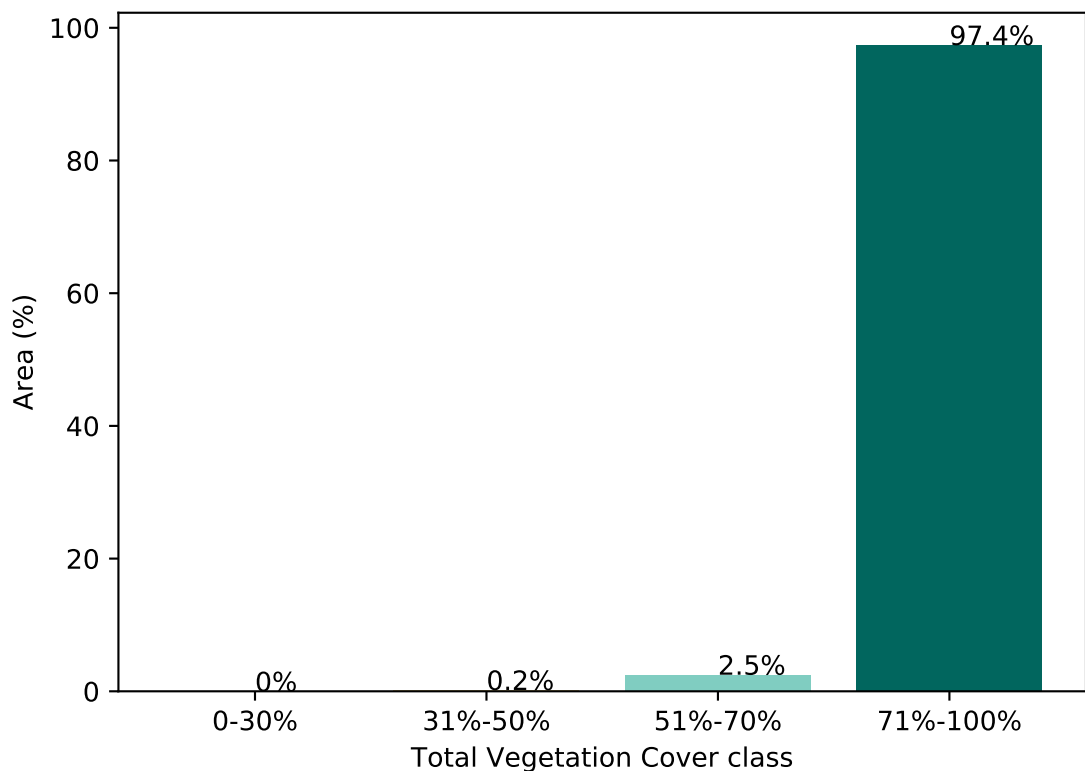
Catchment Scale Land Use and Forests of Australia (2018)  
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



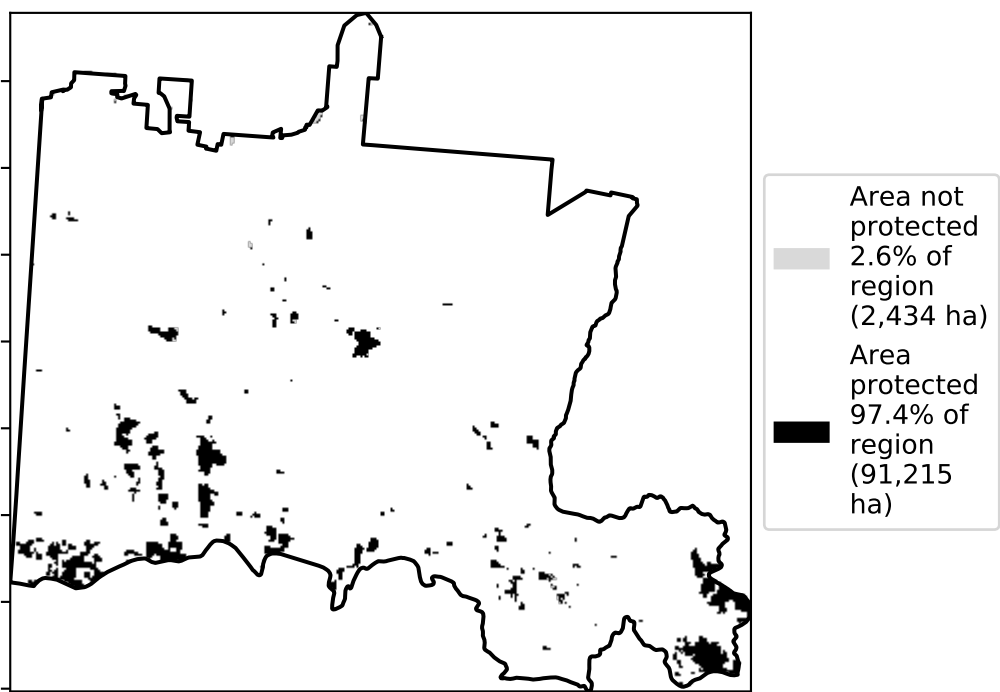
Total Vegetation Cover [%]



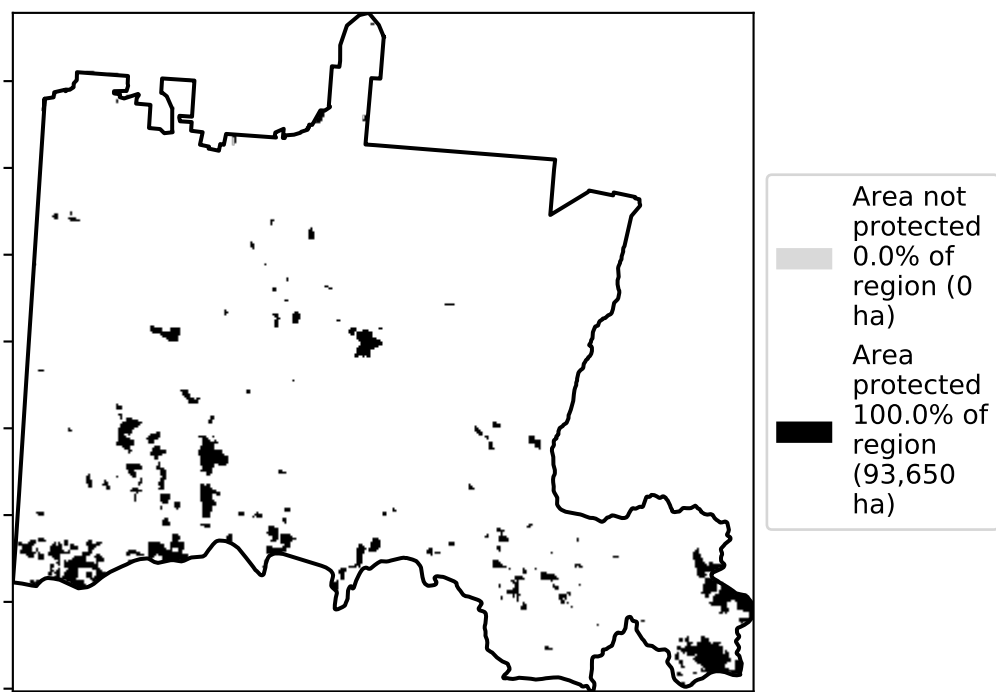
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

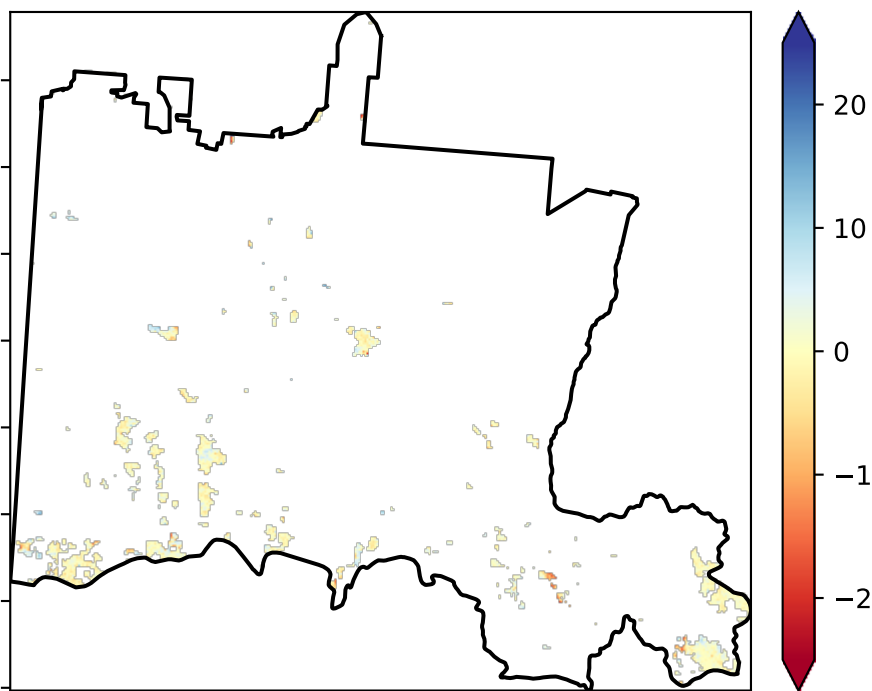


% Area protected from wind erosion (>50%)



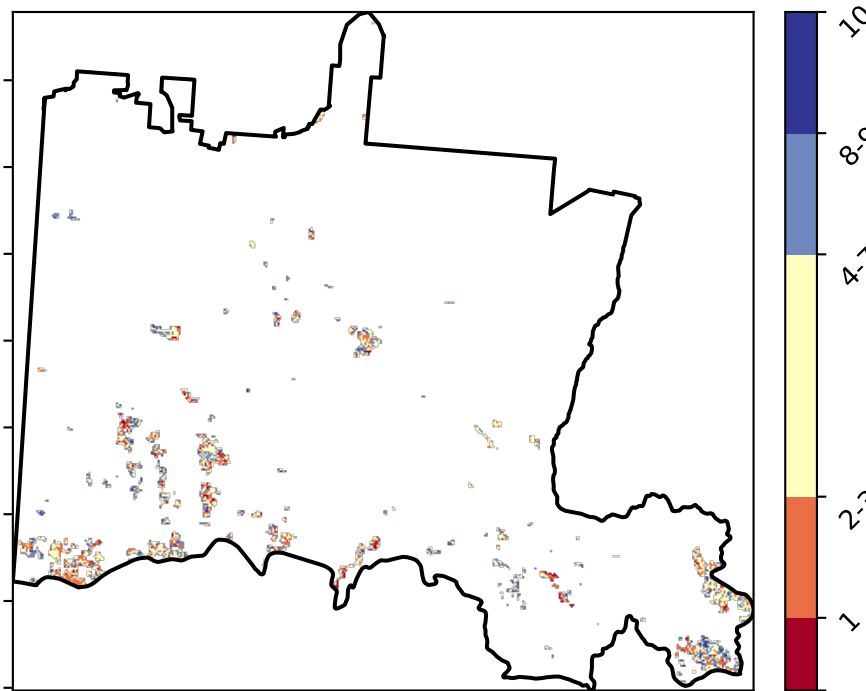
Total Vegetation Cover Anomaly [%]

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.

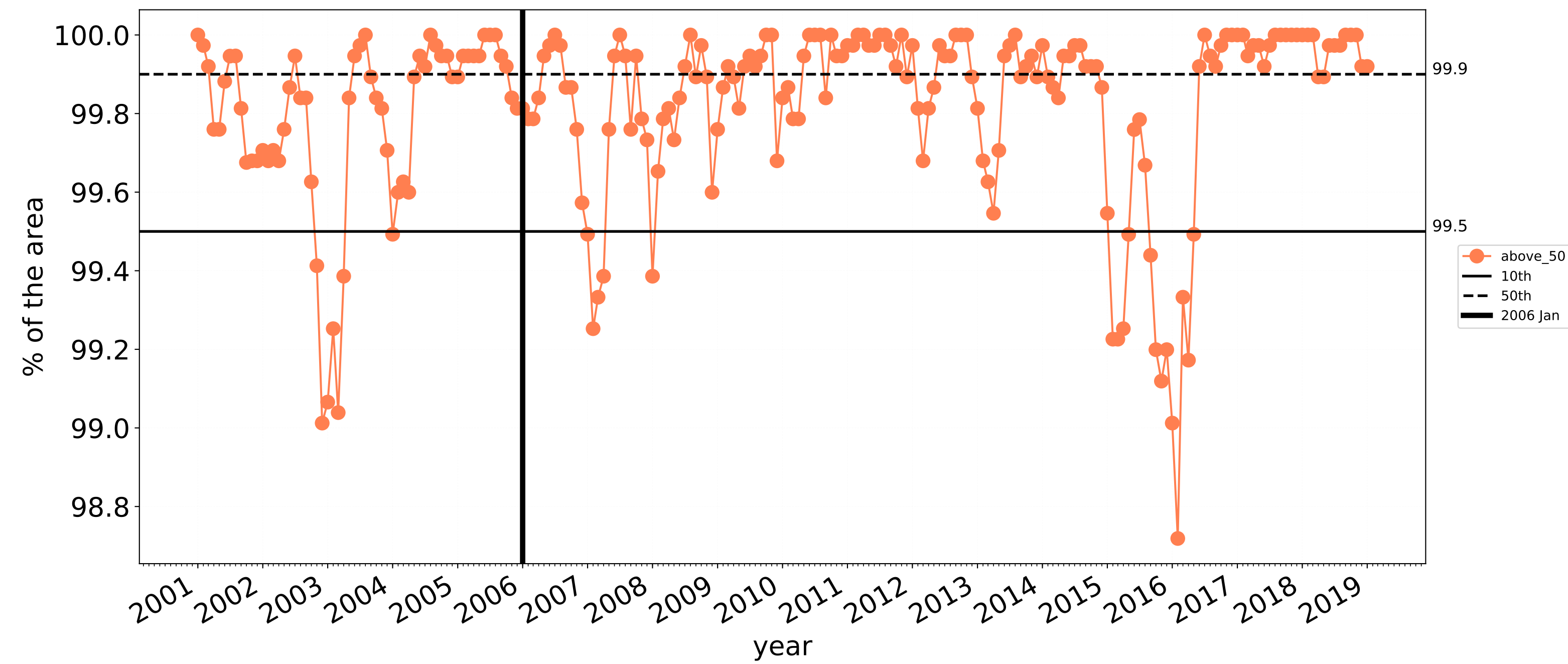
Total Vegetation Cover Decile [%]



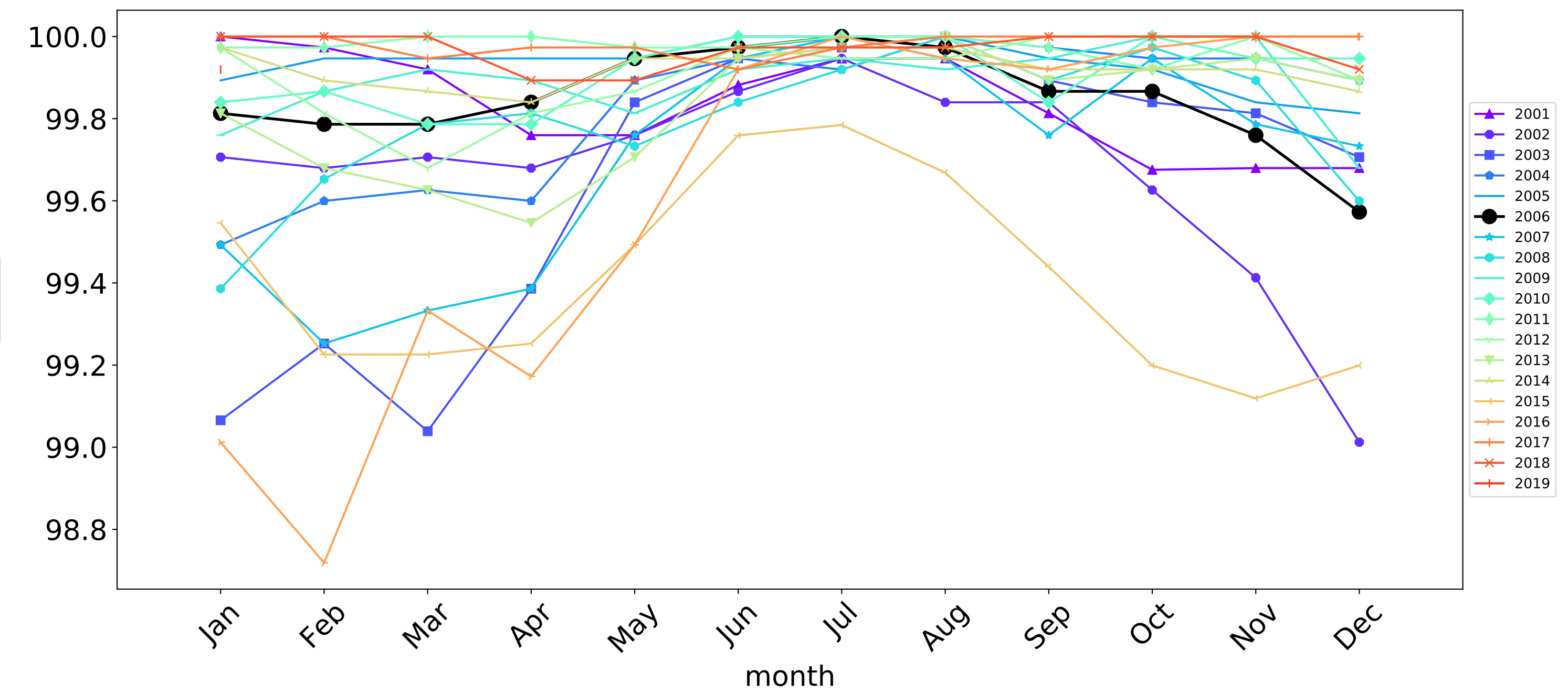


# Production native forests and plantation forests timeseries

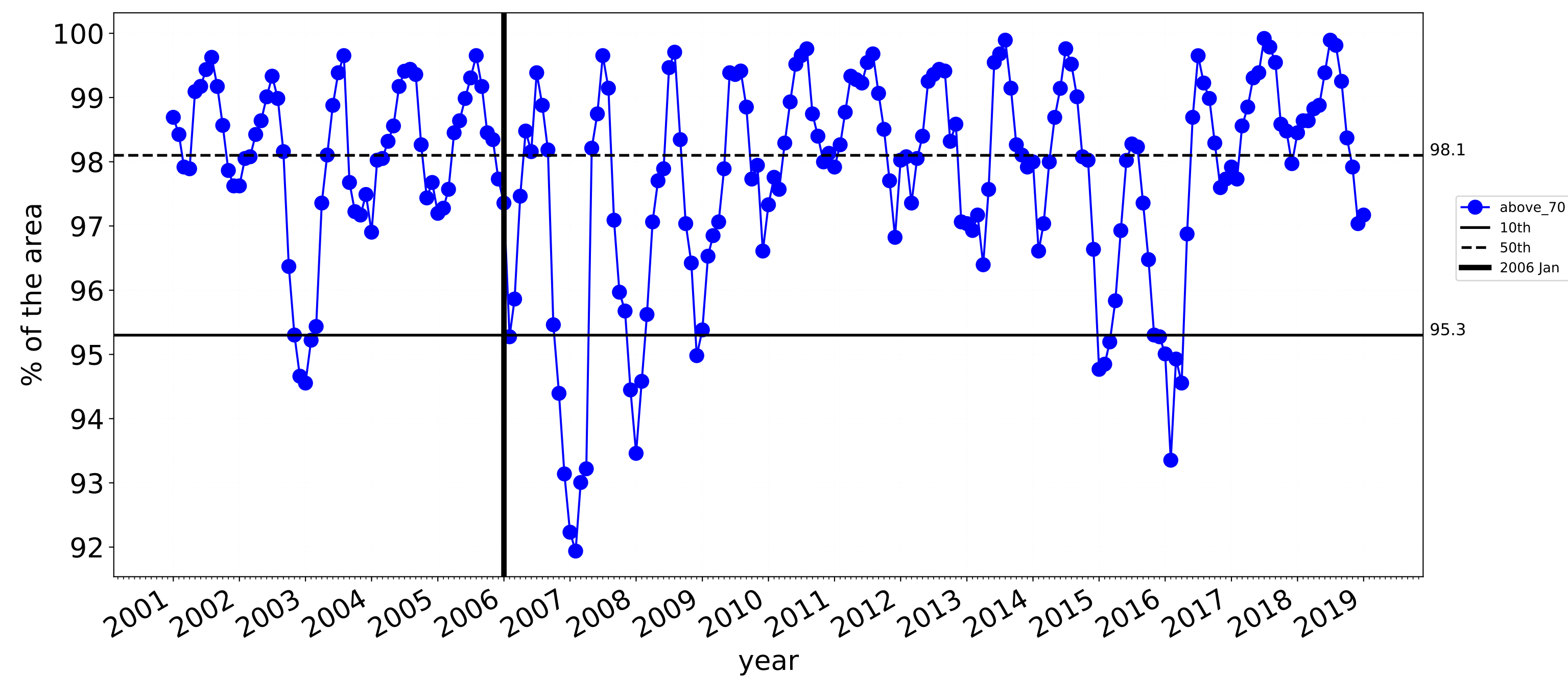
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



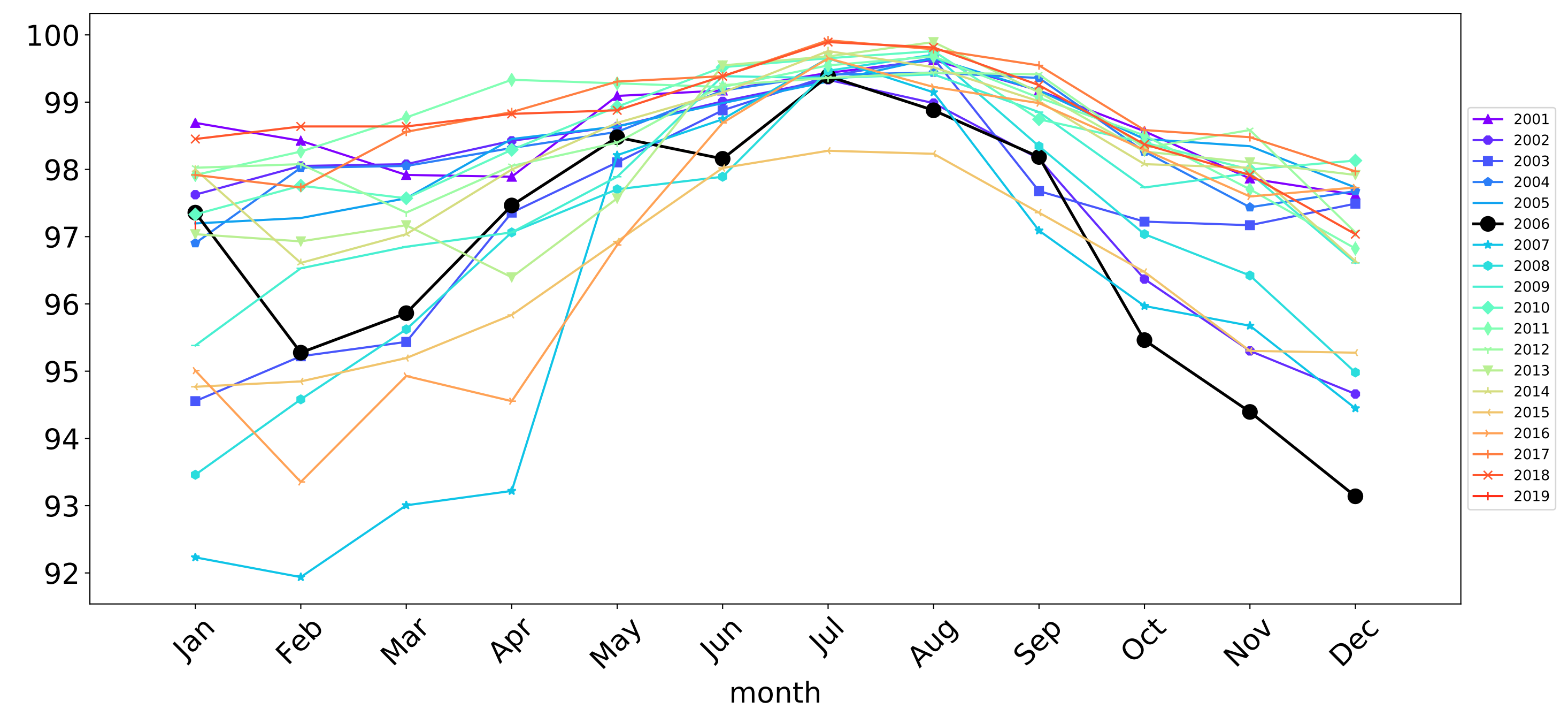
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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



Wimmera (2,330,025 ha and no data 15,487 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	2,330,025	100.0% 2,329,400	98.8% 2,302,401	77.1% 1,796,372	53.6% 1,249,871	17.2% 400,132	3.6% 84,346
Conservation and natural environments	277,825	99.9% 277,600	99.6% 276,675	95.3% 264,775	84.4% 234,450	22.8% 63,300	2.8% 7,850
Conservation and natural environments non forest	47,500	99.5% 47,275	98.5% 46,775	88.7% 42,150	69.6% 33,050	11.2% 5,300	3.9% 1,875
Conservation and natural environments Woodland forest	202,875	100.0% 202,875	99.8% 202,450	96.3% 195,400	86.1% 174,700	21.1% 42,800	1.5% 3,025
Conservation and natural environments Forest (non woodland)	27,450	100.0% 27,450	100.0% 27,450	99.2% 27,225	97.3% 26,700	55.4% 15,200	10.7% 2,950
Agriculture	1,909,075	100.0% 1,908,800	98.6% 1,883,075	73.3% 1,399,275	47.3% 902,425	15.1% 289,025	3.4% 65,300
Grazing	778,075	100.0% 777,825	99.6% 774,700	91.9% 714,750	72.4% 563,450	26.7% 207,925	5.7% 44,050
Grazing non forest	724,650	100.0% 724,400	99.6% 721,525	91.5% 663,300	72.0% 521,700	27.1% 196,725	5.9% 43,000
Grazing Woodland forest	49,525	100.0% 49,525	99.5% 49,275	96.0% 47,550	76.6% 37,950	18.8% 9,325	1.4% 675
Cropping	1,125,725	100.0% 1,125,700	98.0% 1,103,100	60.4% 679,475	29.8% 335,150	7.1% 79,950	1.9% 21,000
Production native forests and plantation forests	93,650	100.0% 93,650	99.8% 93,475	97.4% 91,175	89.3% 83,600	41.5% 38,900	9.9% 9,300



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