Total vegetation cover soil protection
Region:NRM Southern Gulf QLD   Date: November 2008

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.
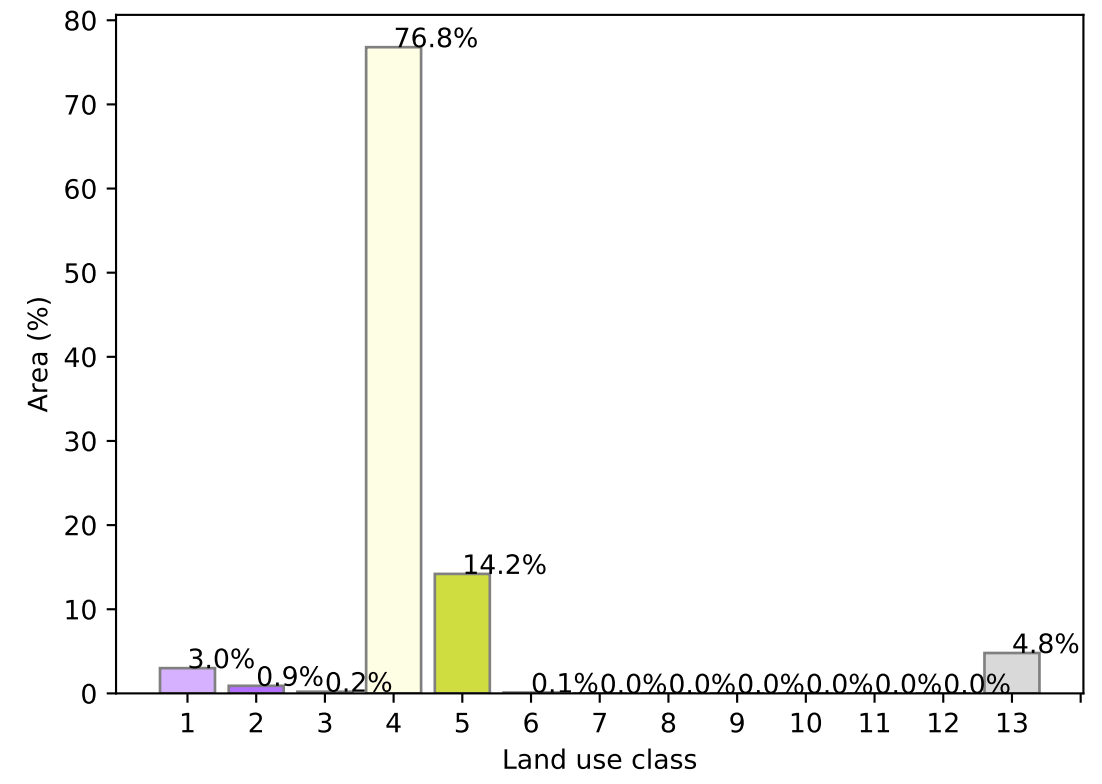
Acknowledgment of data:

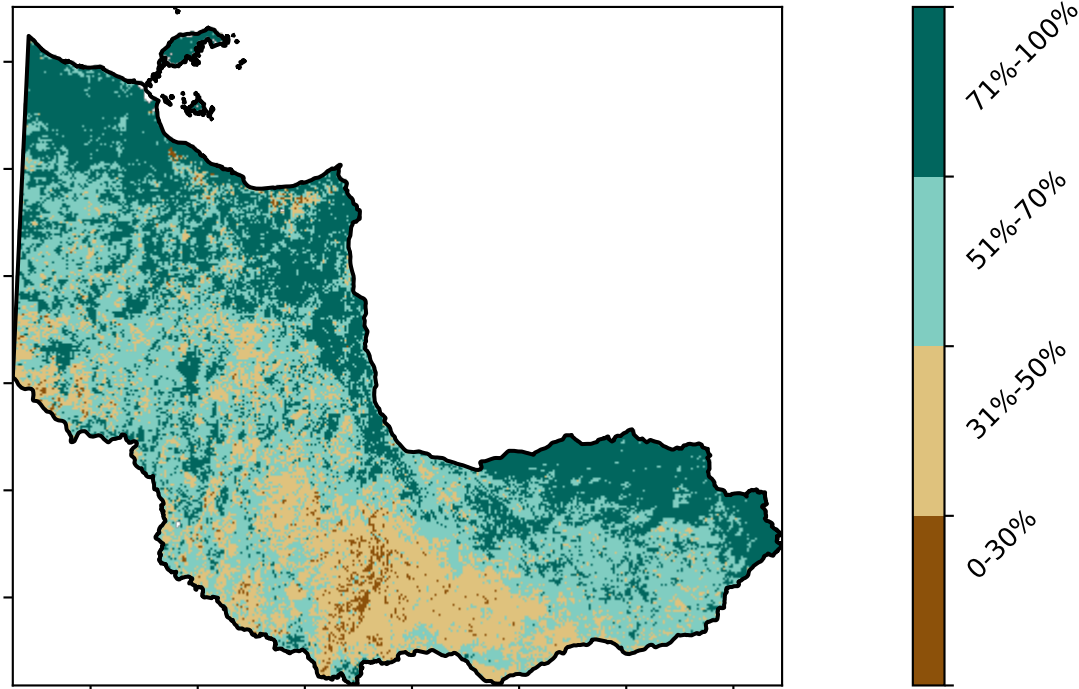# Vegetation Cover Nov 2008

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)
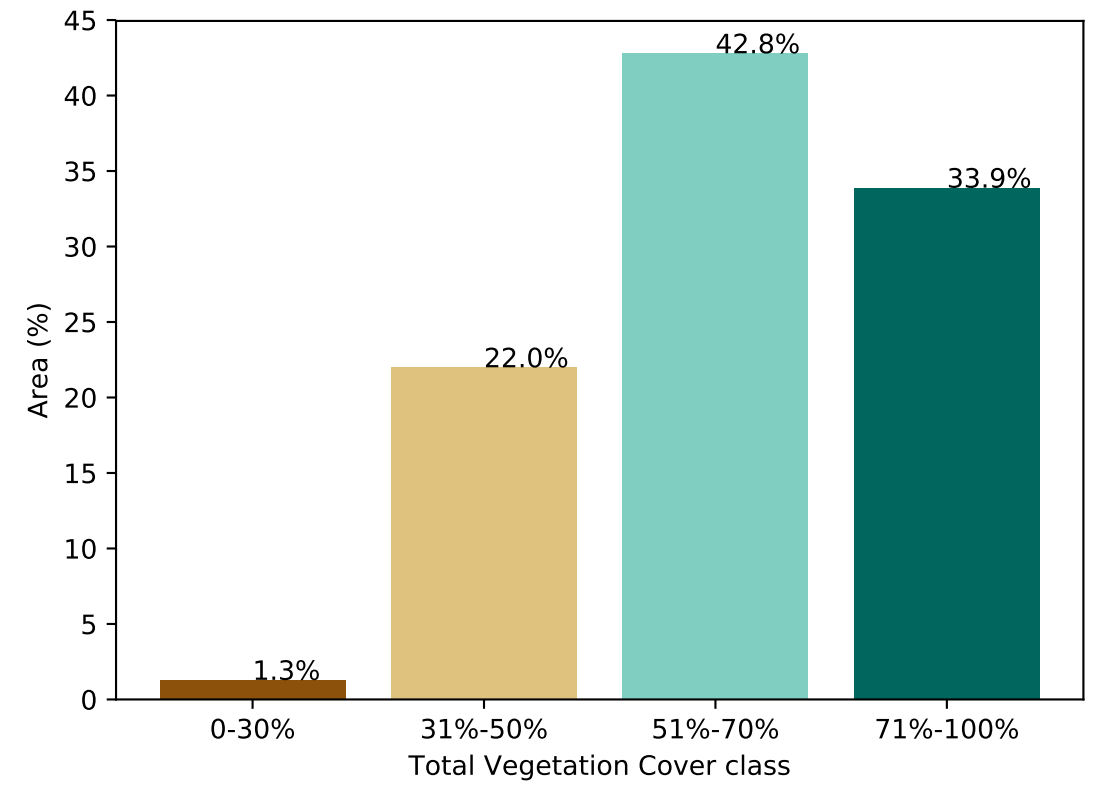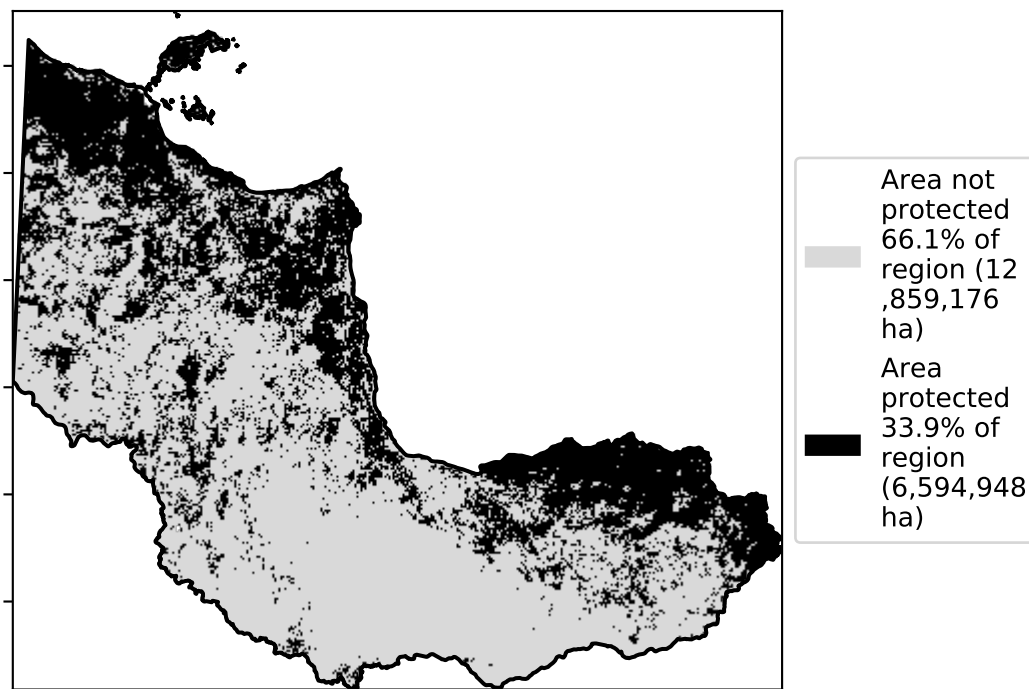

Legend with land class forest cover and number, i.e. Forests is 12
- 1 Conservation and natural environments - Non-forest
- 2 Conservation and natural environments - Woodland forest
- 3 Conservation and natural environments - Non-Woodland forest
- 4 Agriculture - Grazing - Non-forest
- 5 Agriculture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

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 66.1% of region (12,859,176 ha)

Area protected 33.9% of region (6,594,948 ha)

% Area protected from wind erosion (>50%)

Area not protected 23.0% of region (4,474,448 ha)

Area protected 77.0% of region (14,979,676 ha)

Total Vegetation Cover Anomaly [%]

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

Total Vegetation Cover Decile [%]

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

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

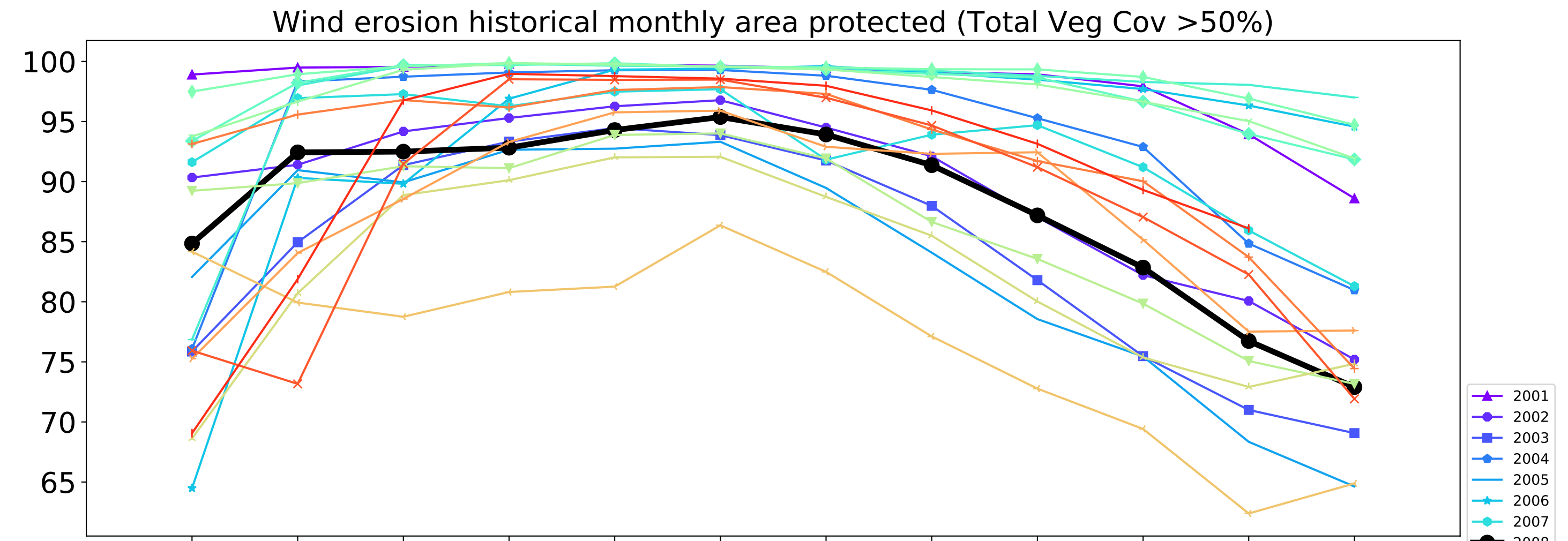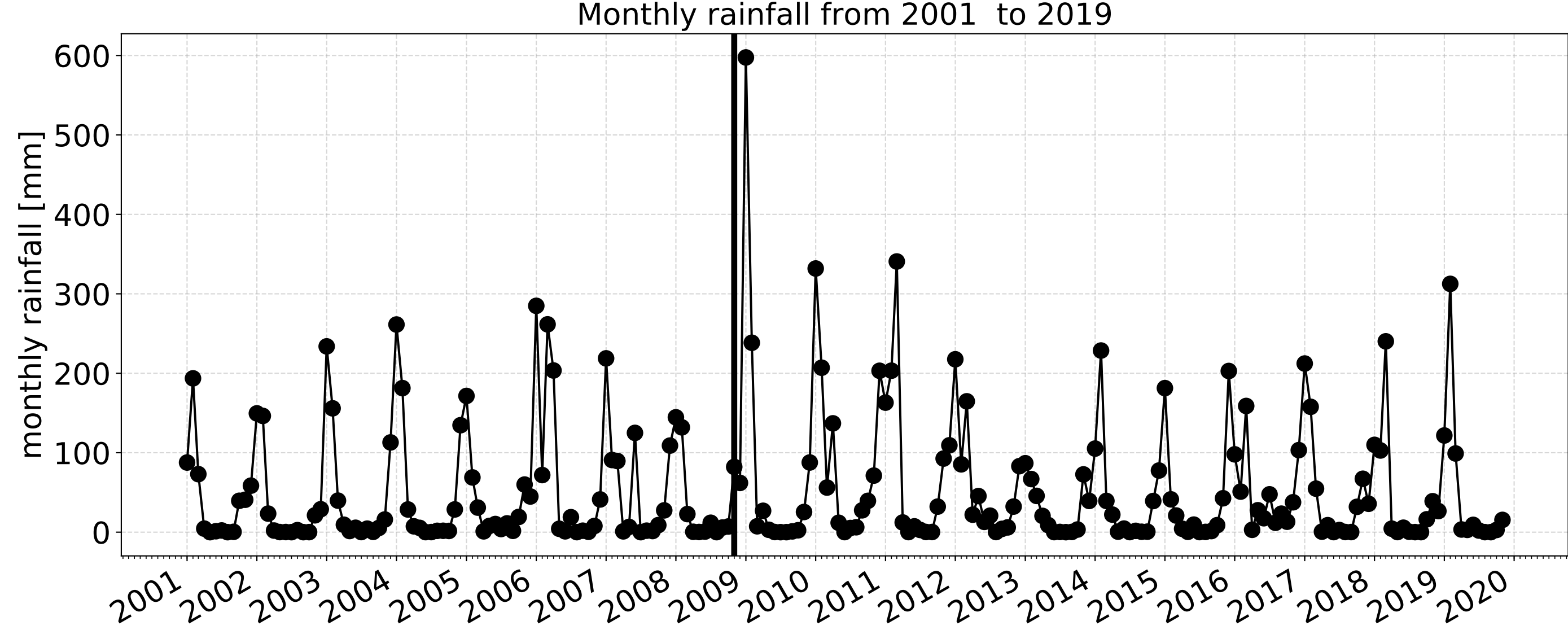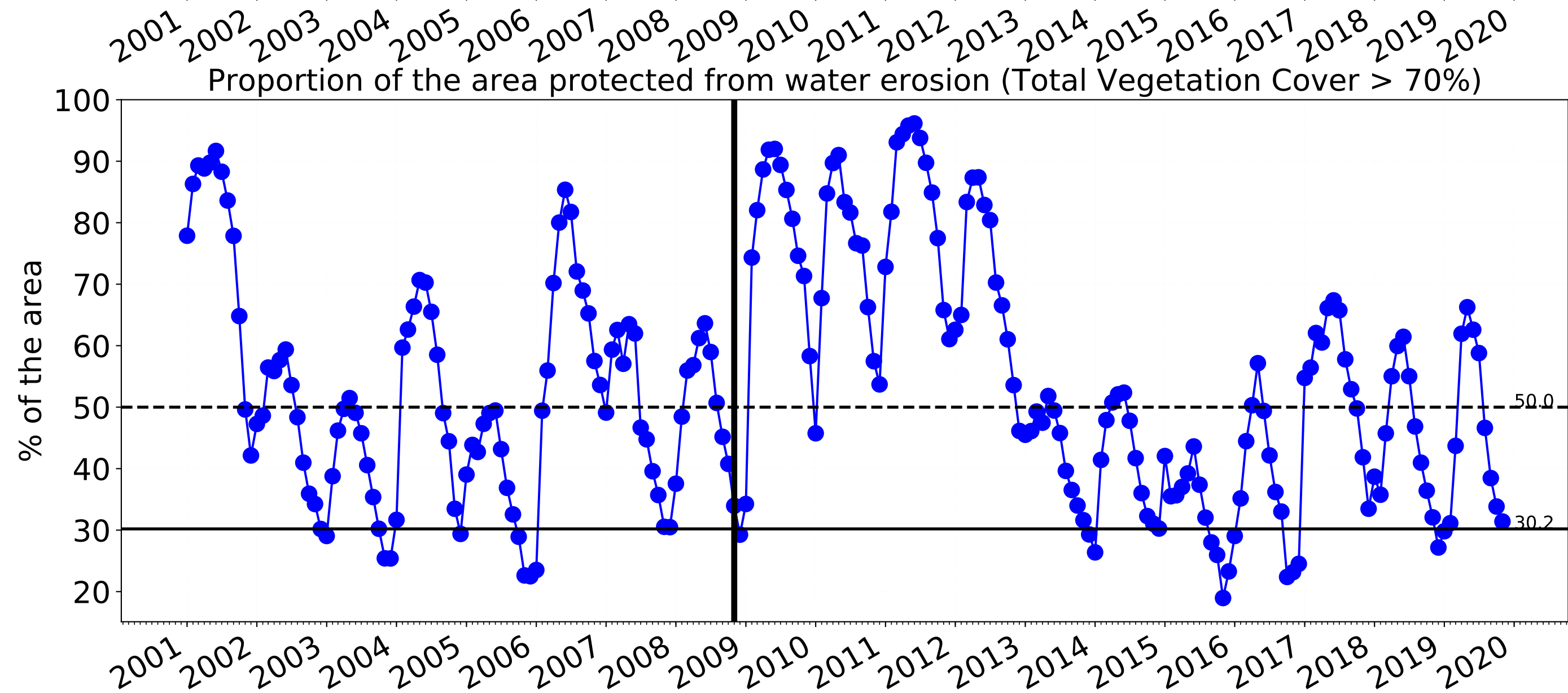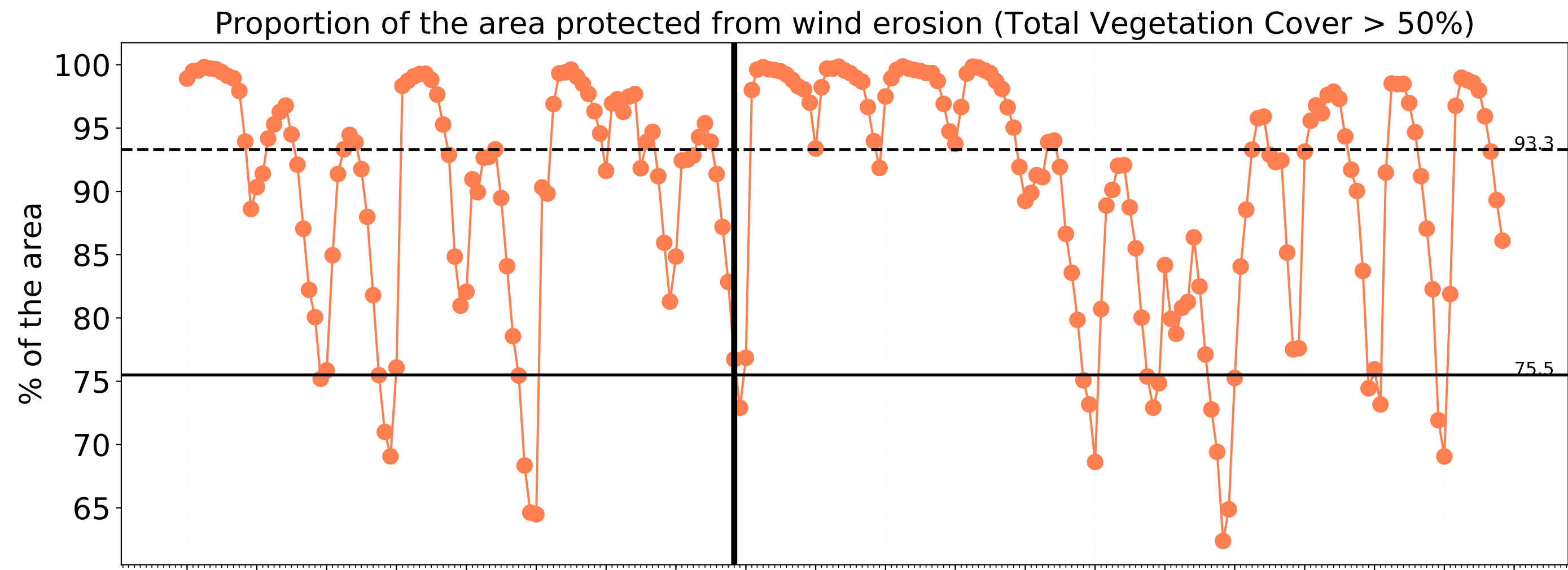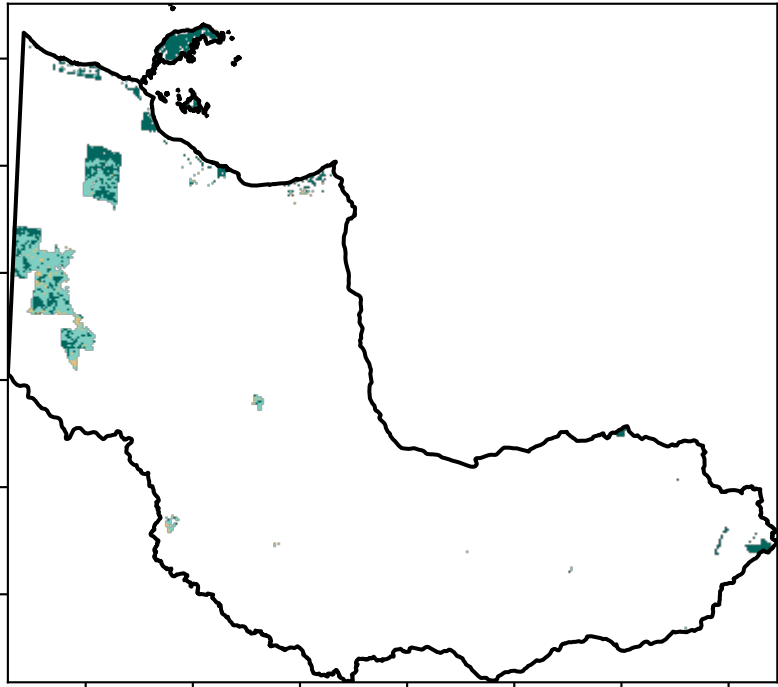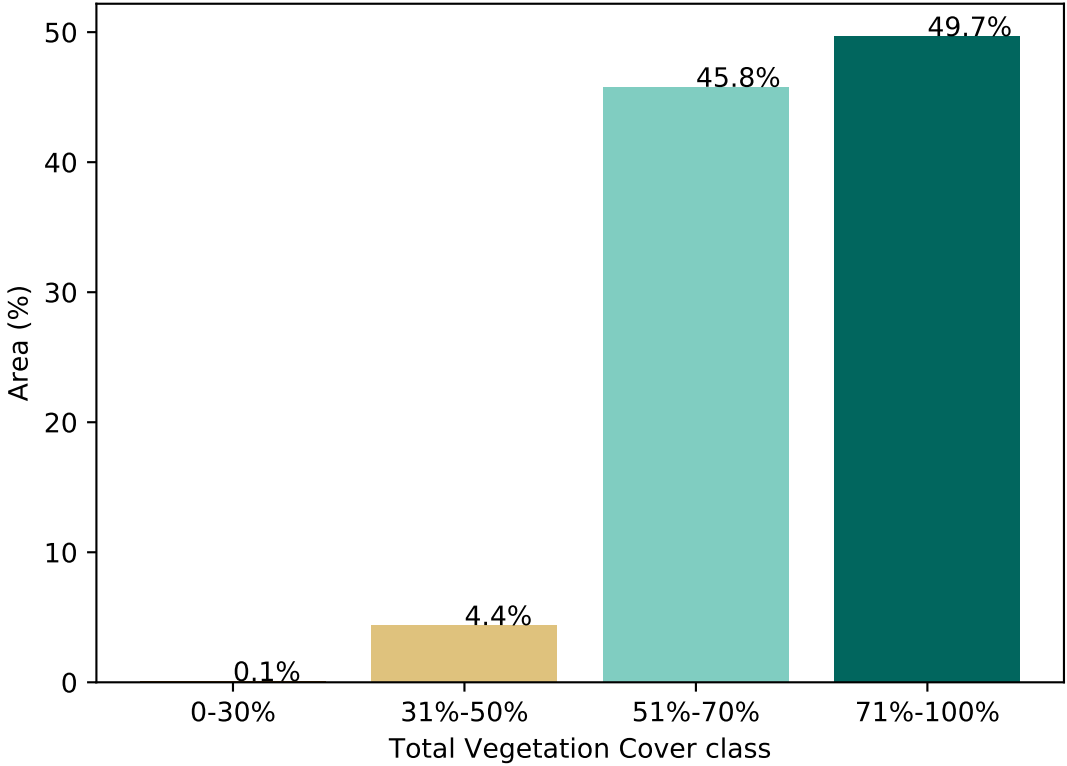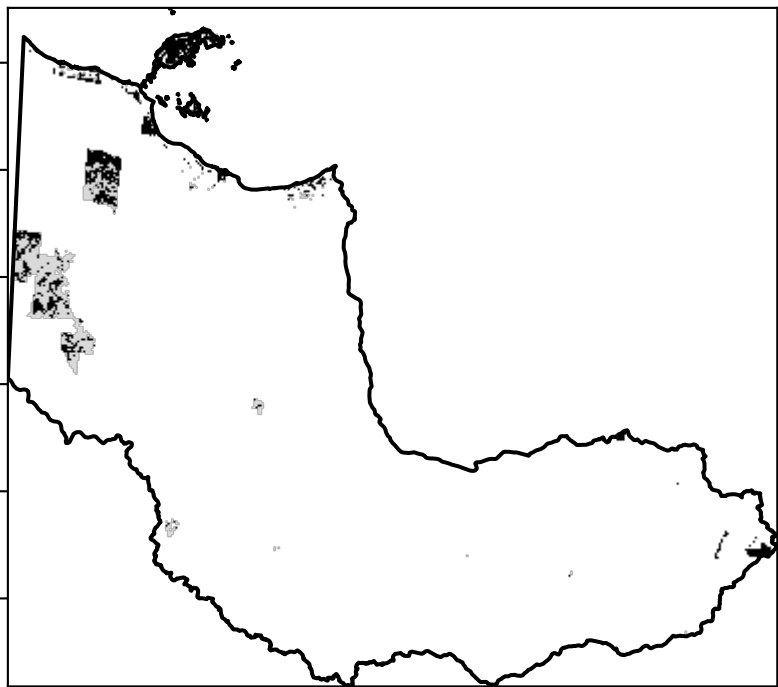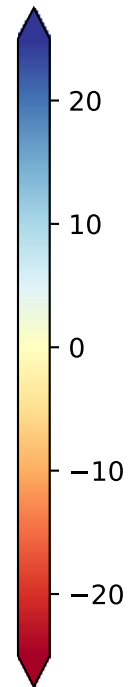## Wind erosion historical monthly area protected (Total Veg Cov >50%)

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

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

Monthly rainfall from 2001 to 2019

Rainfall: historical monthly
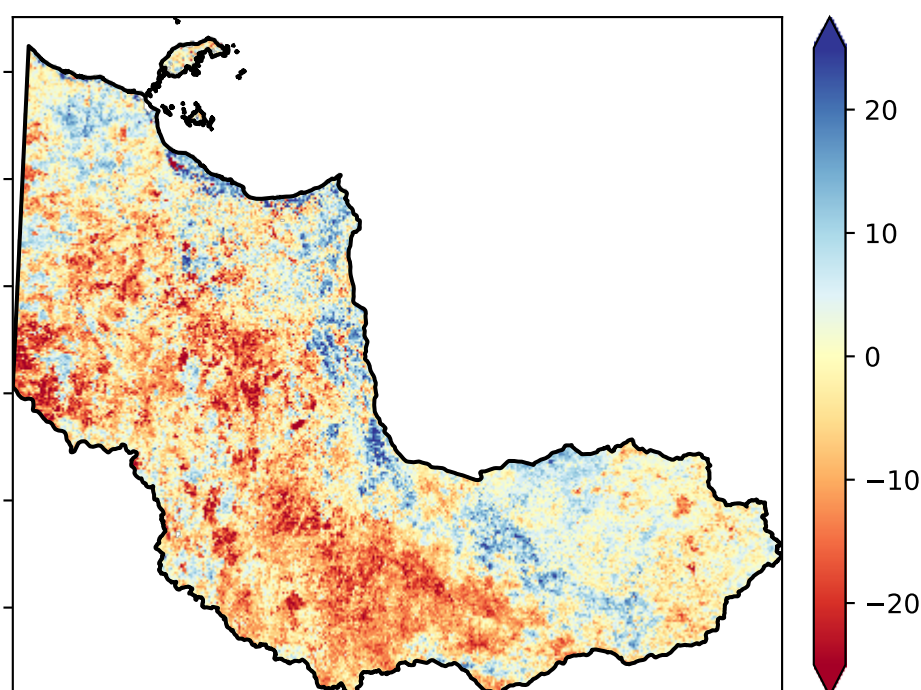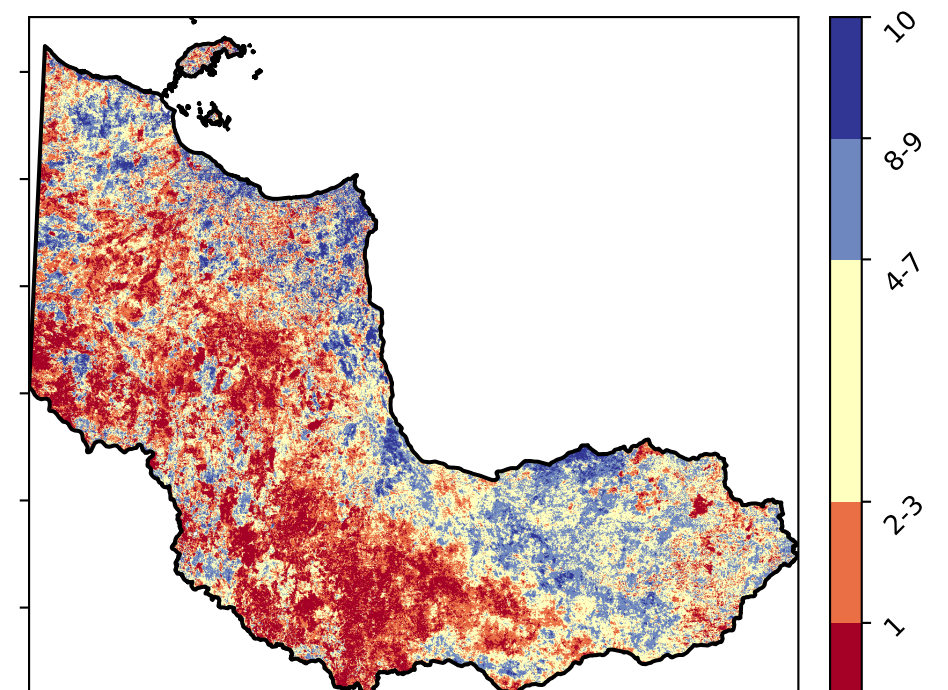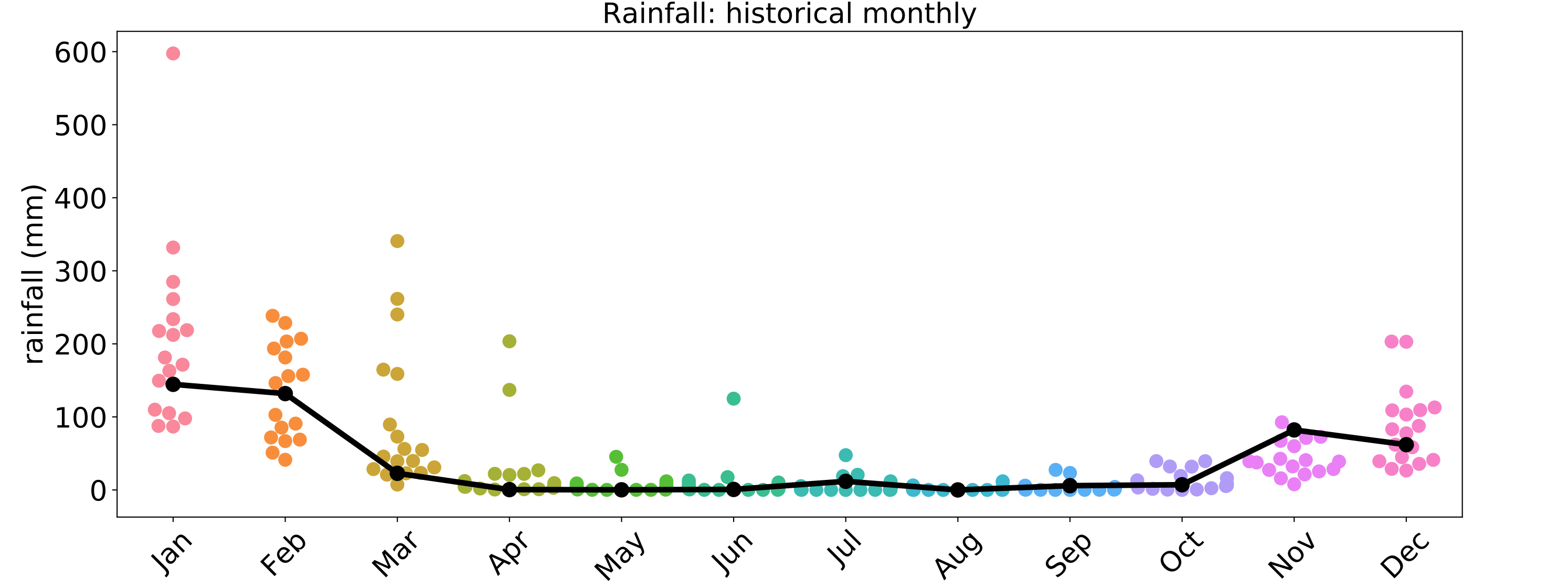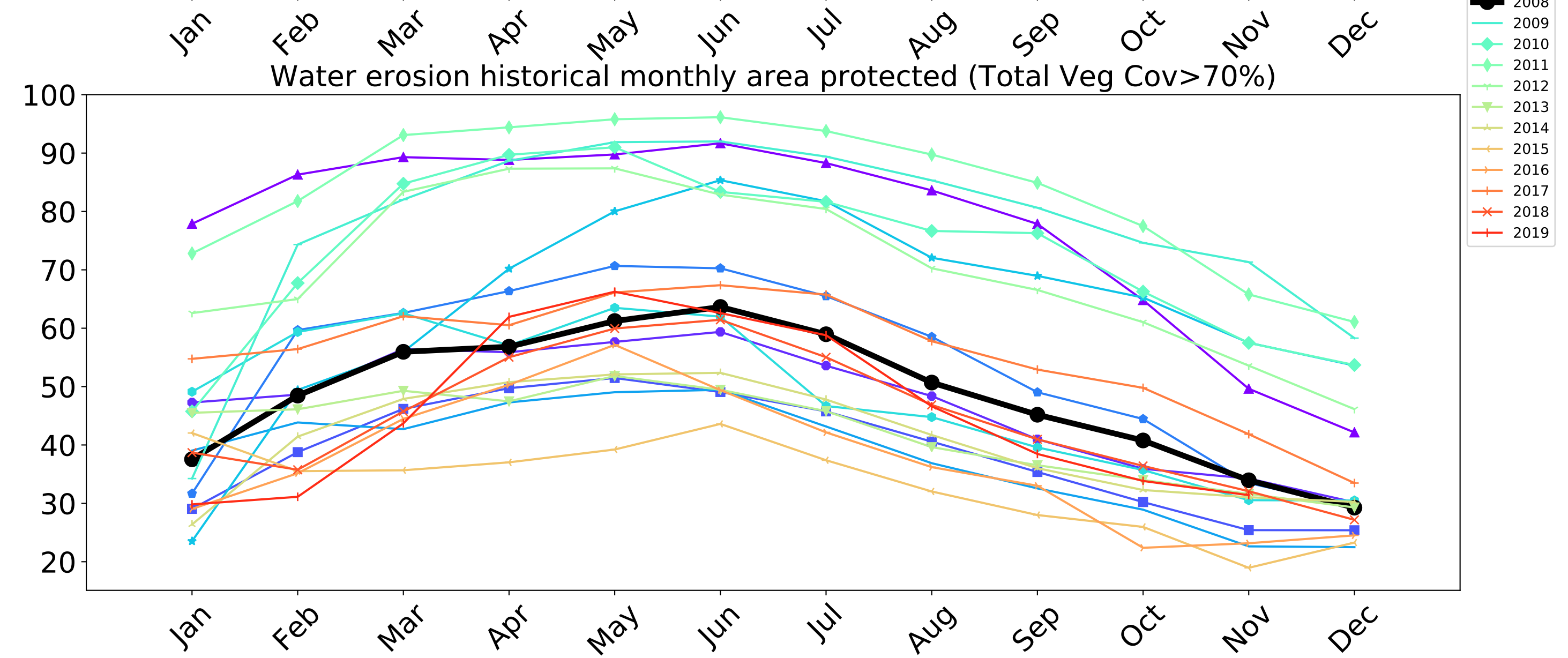
Conservation and natural environments

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

73.3%
22.4%
4.4%

Land use class

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

0.1%
4.4%
45.8%
49.7%

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

% Area protected from water erosion (>70%)

Area not protected 50.3% of region (391,799 ha)

Area protected 49.7% of region (387,125 ha)

% Area protected from wind erosion (>50%)
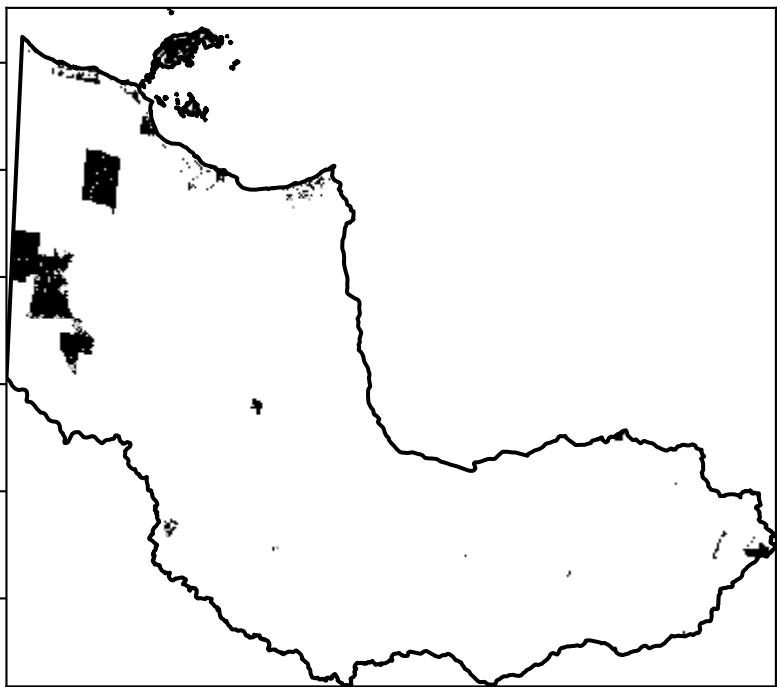
Area not protected 4.0% of region (31,157 ha)

Area protected 96.0% of region (747,768 ha)

Total Vegetation Cover Anomaly [%]

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

Total Vegetation Cover Decile [%]

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

10
8-9
4-7
2-3
1
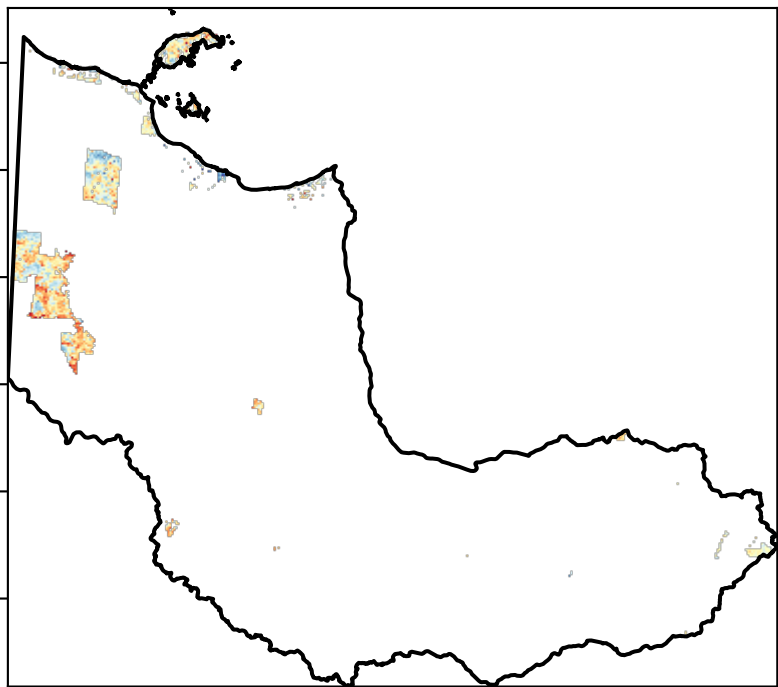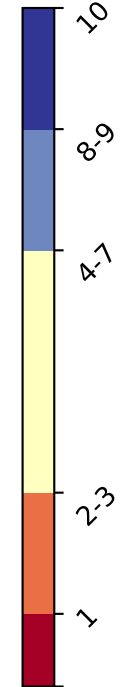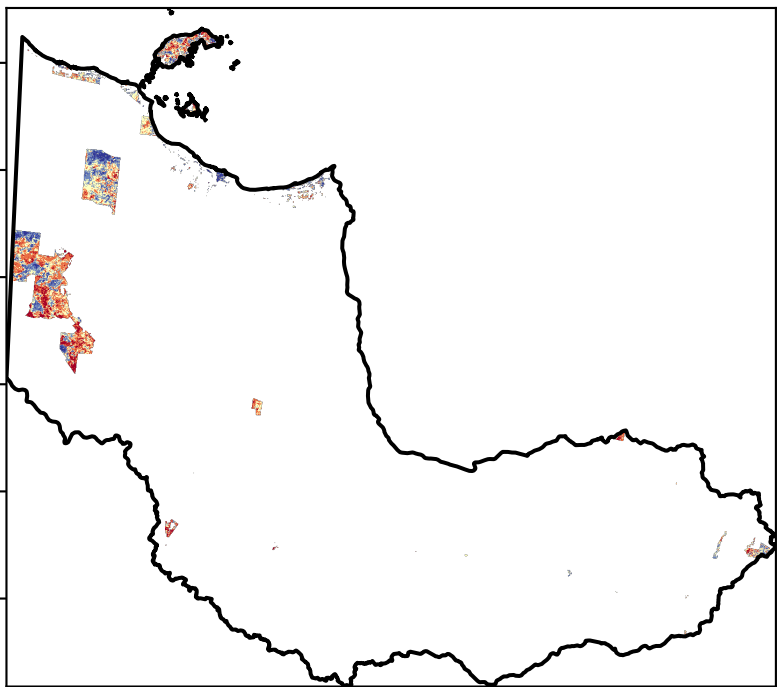
CSIRO   TERN   Australian Government | National Landcare Programme   NSW GOVERNMENT | Planning, Industry & Environment
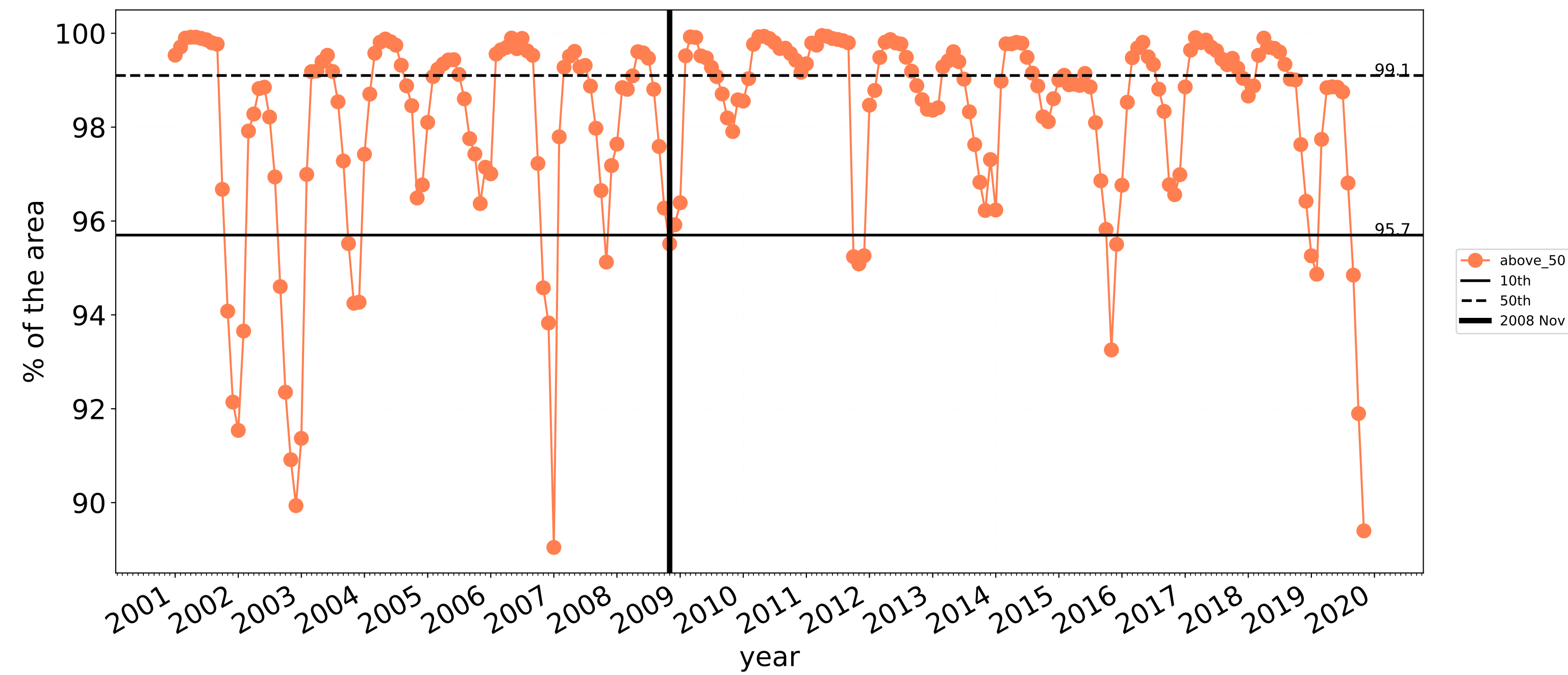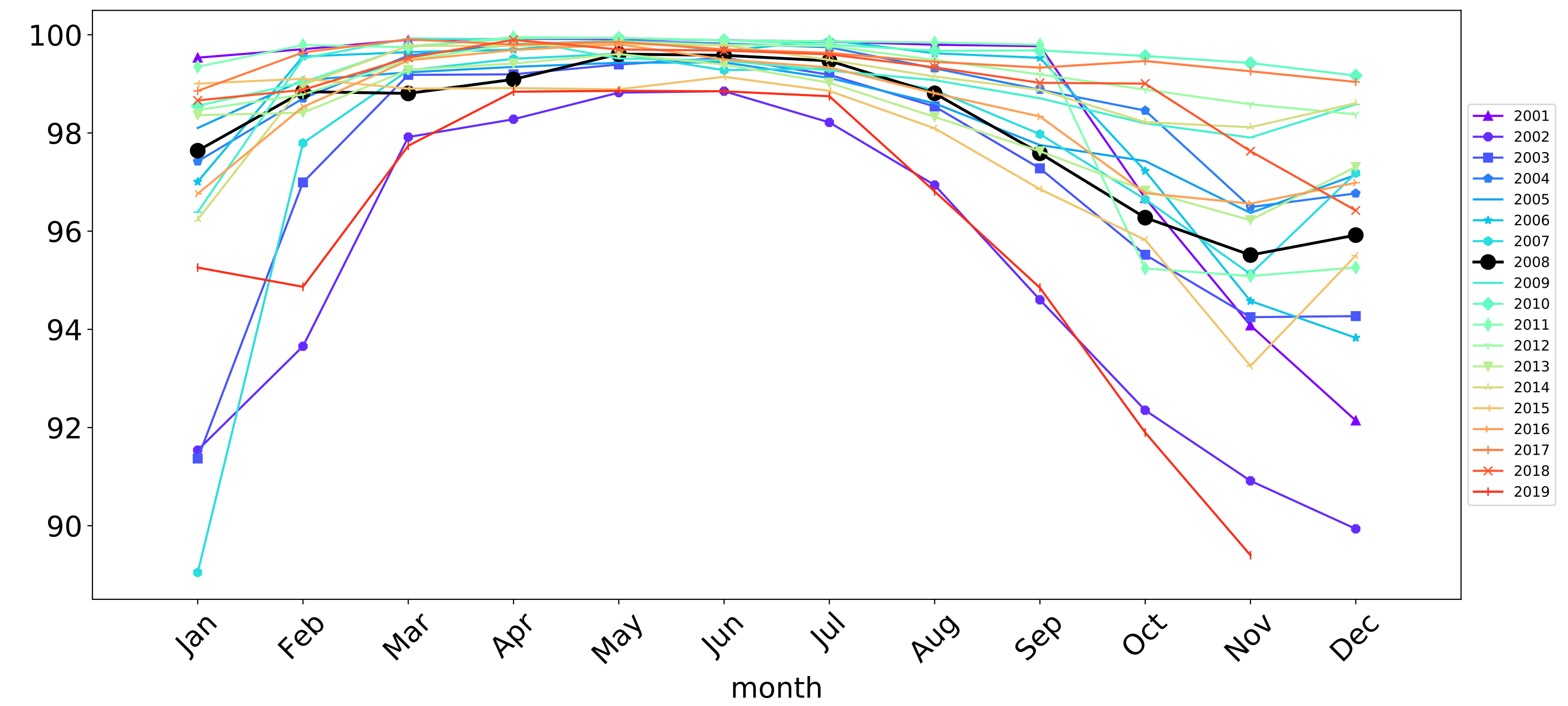
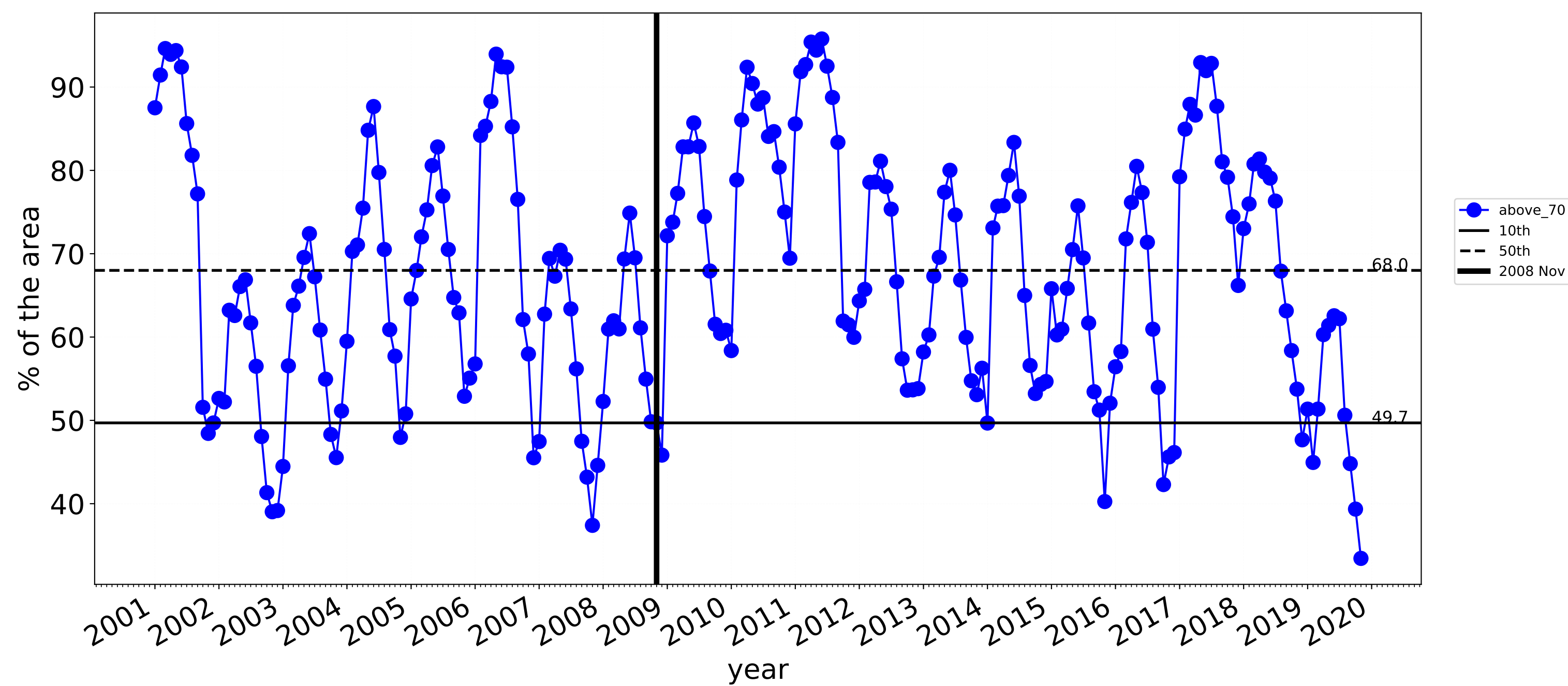# Conservation and natural environments timeseries

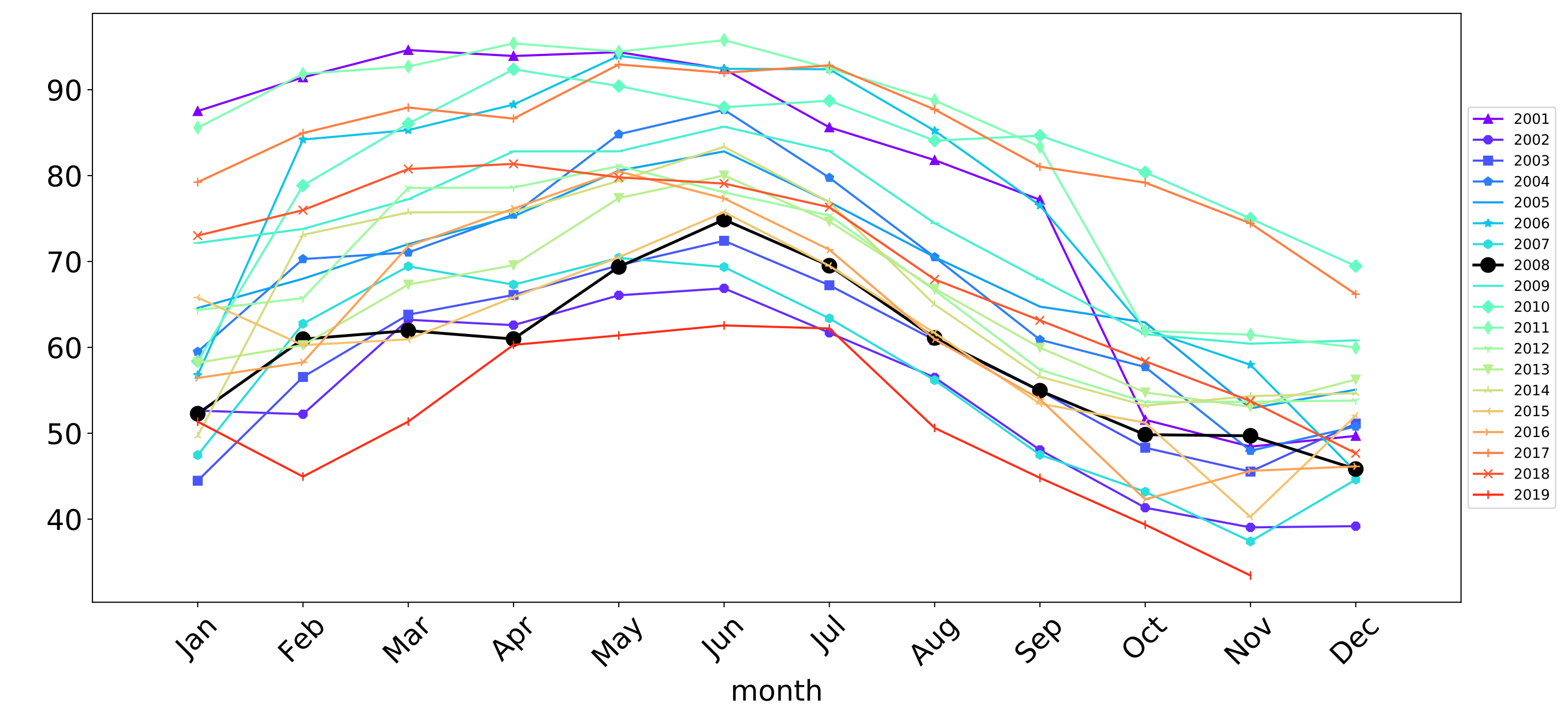Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

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

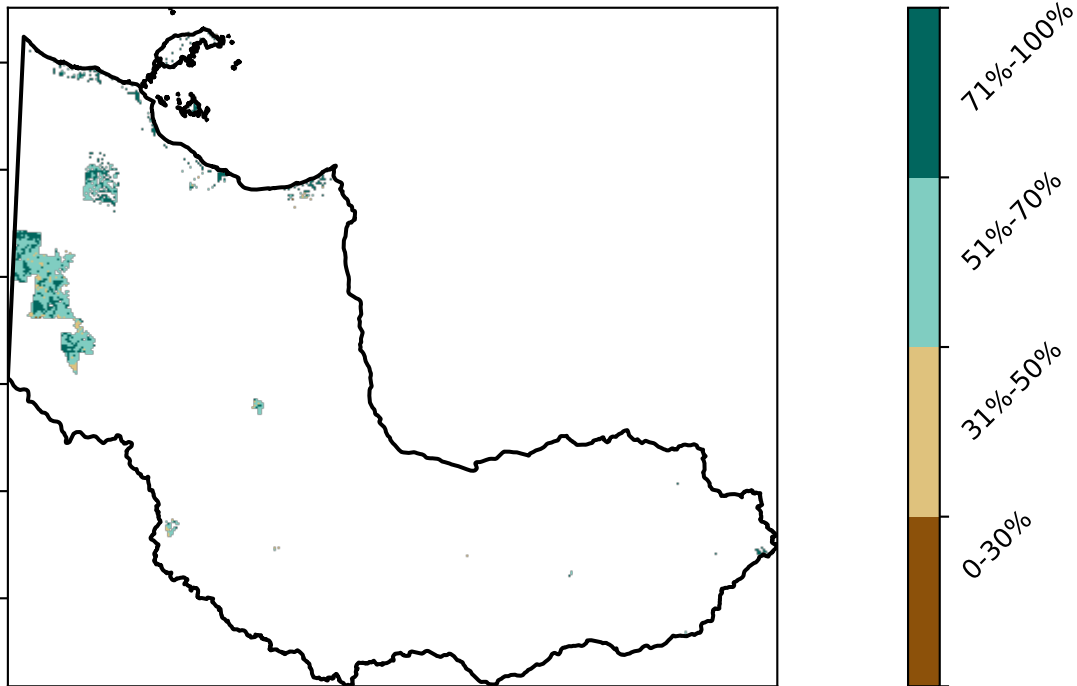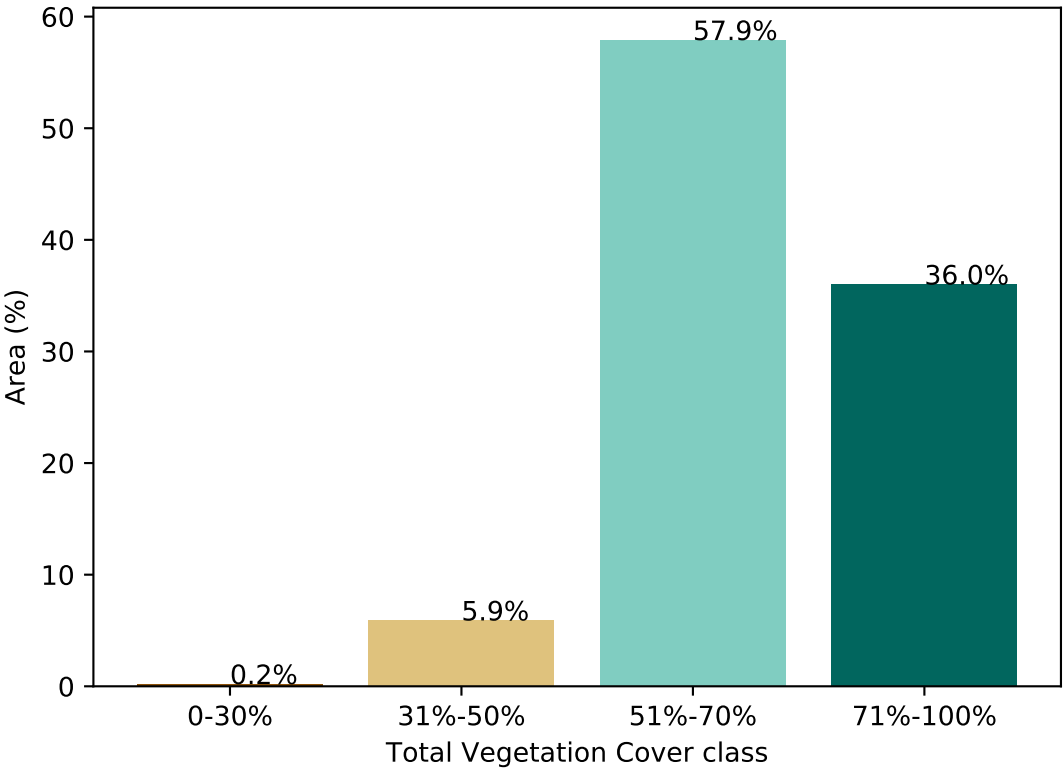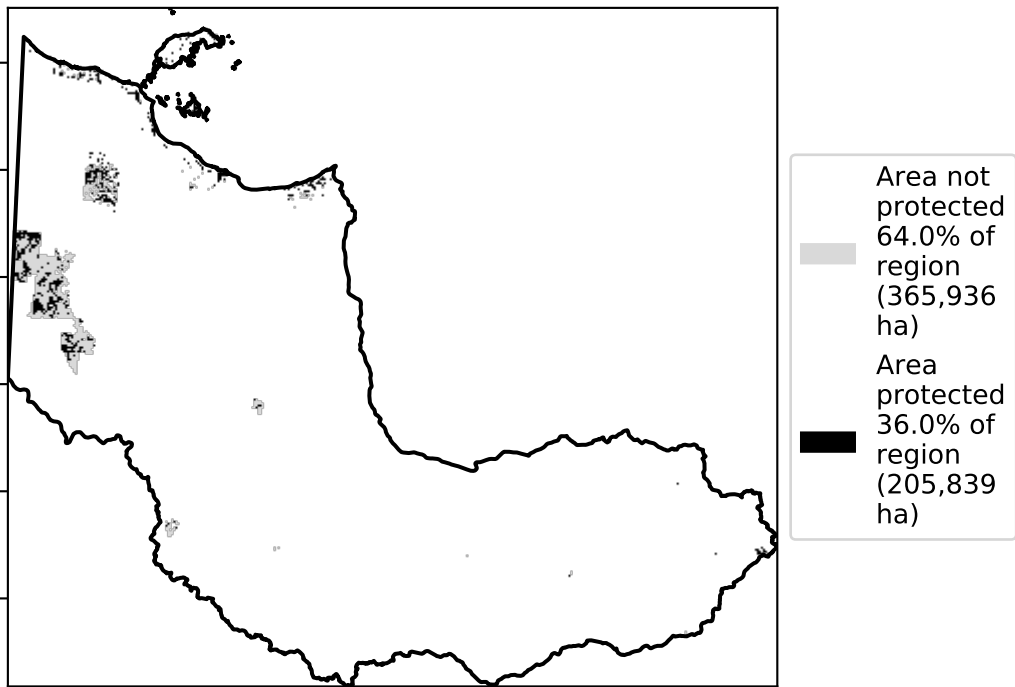Water erosion historical monthly area protected (Total Veg Cov>70%)

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)
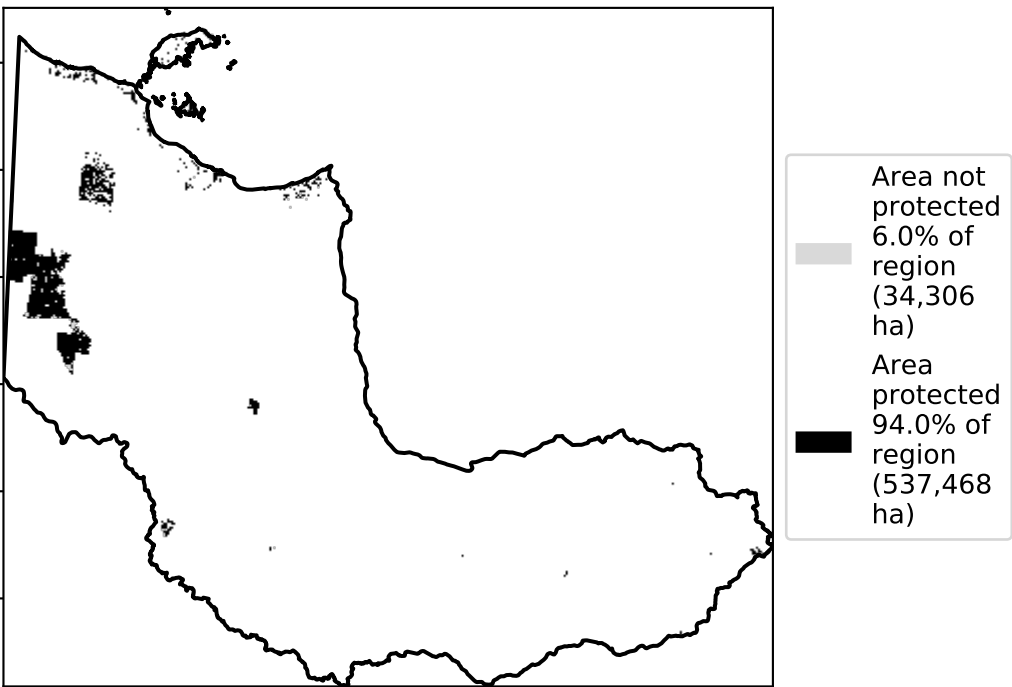
1 Conservation and natural environments - Non-forest

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

% Area protected from water erosion (>70%)

Area not protected 64.0% of region (365,936 ha)

Area protected 36.0% of region (205,839 ha)

% Area protected from wind erosion (>50%)

Area not protected 6.0% of region (34,306 ha)

Area protected 94.0% of region (537,468 ha)

Total Vegetation Cover Anomaly [%]

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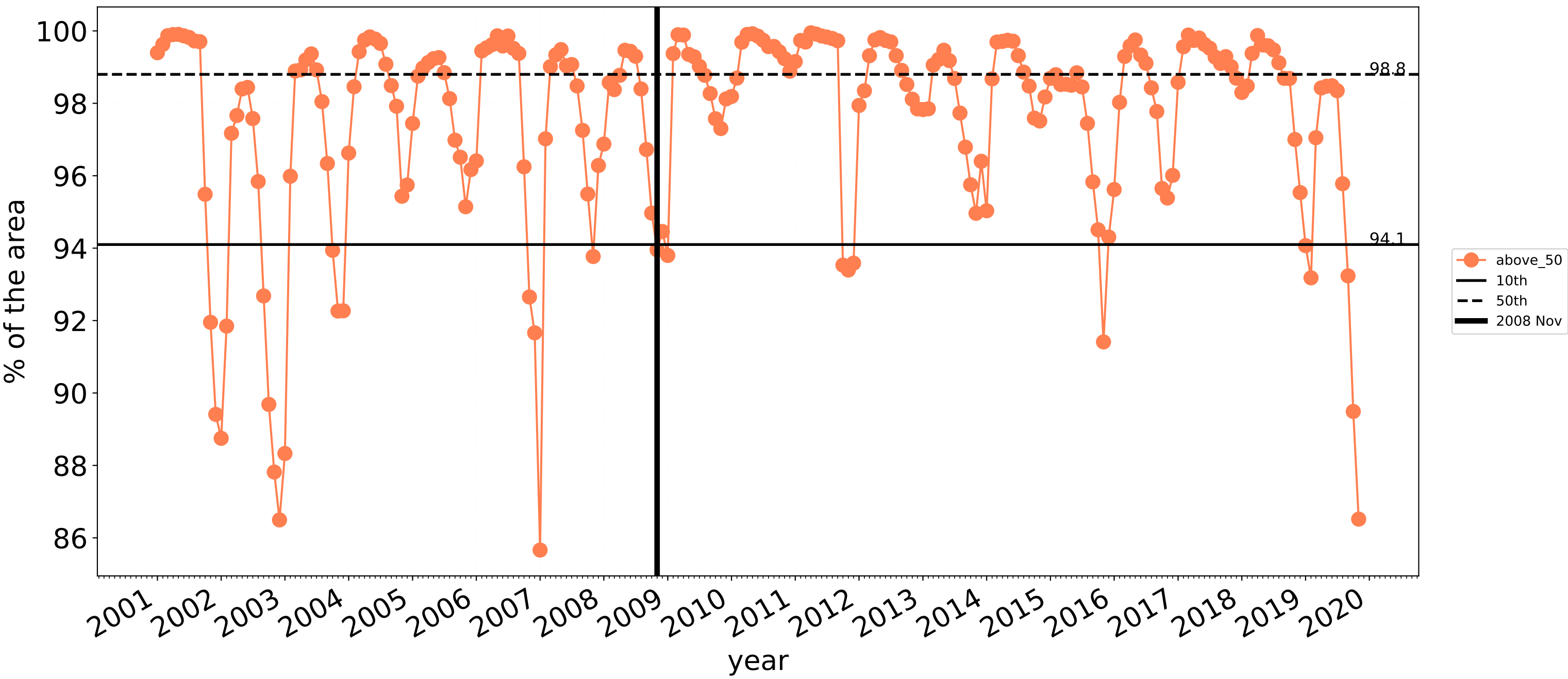
Total Vegetation Cover Decile [%]

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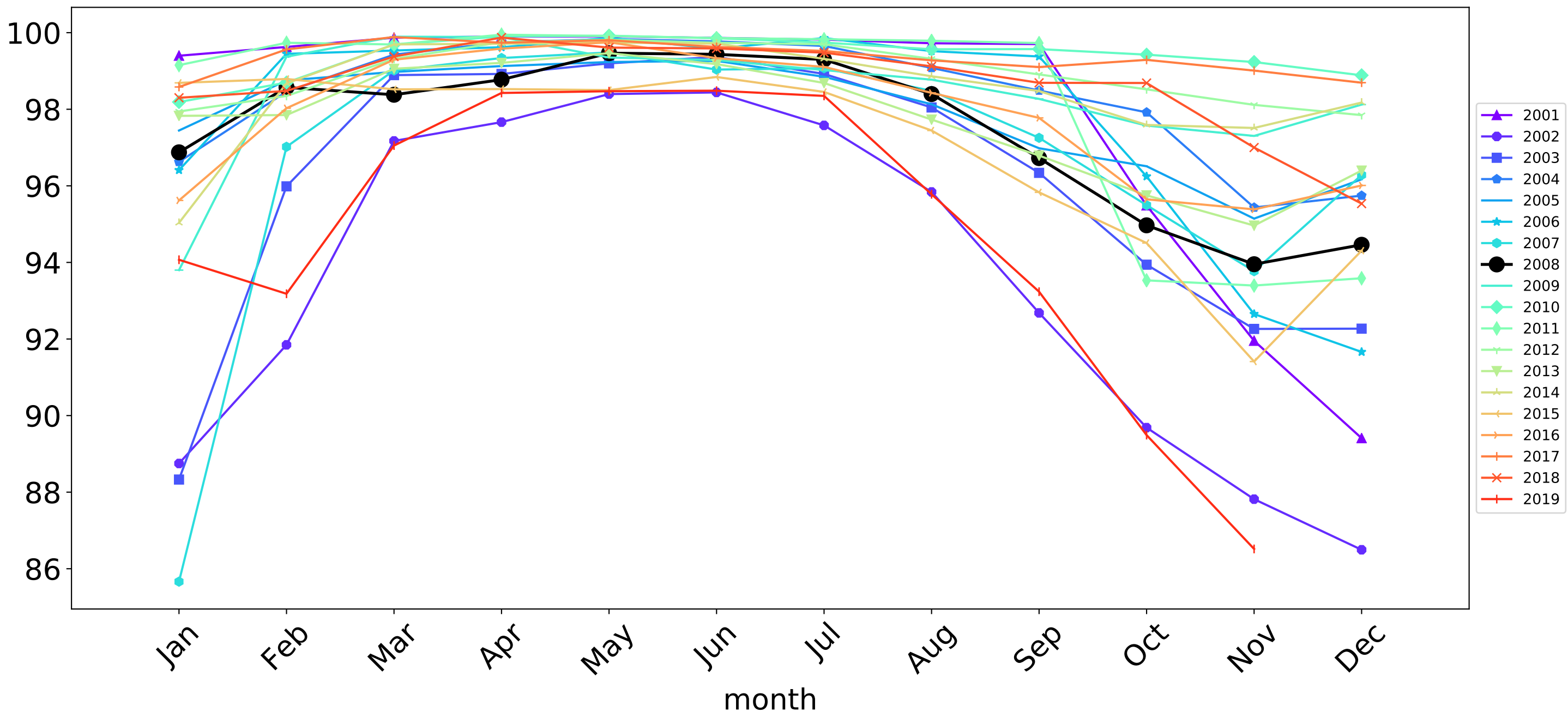
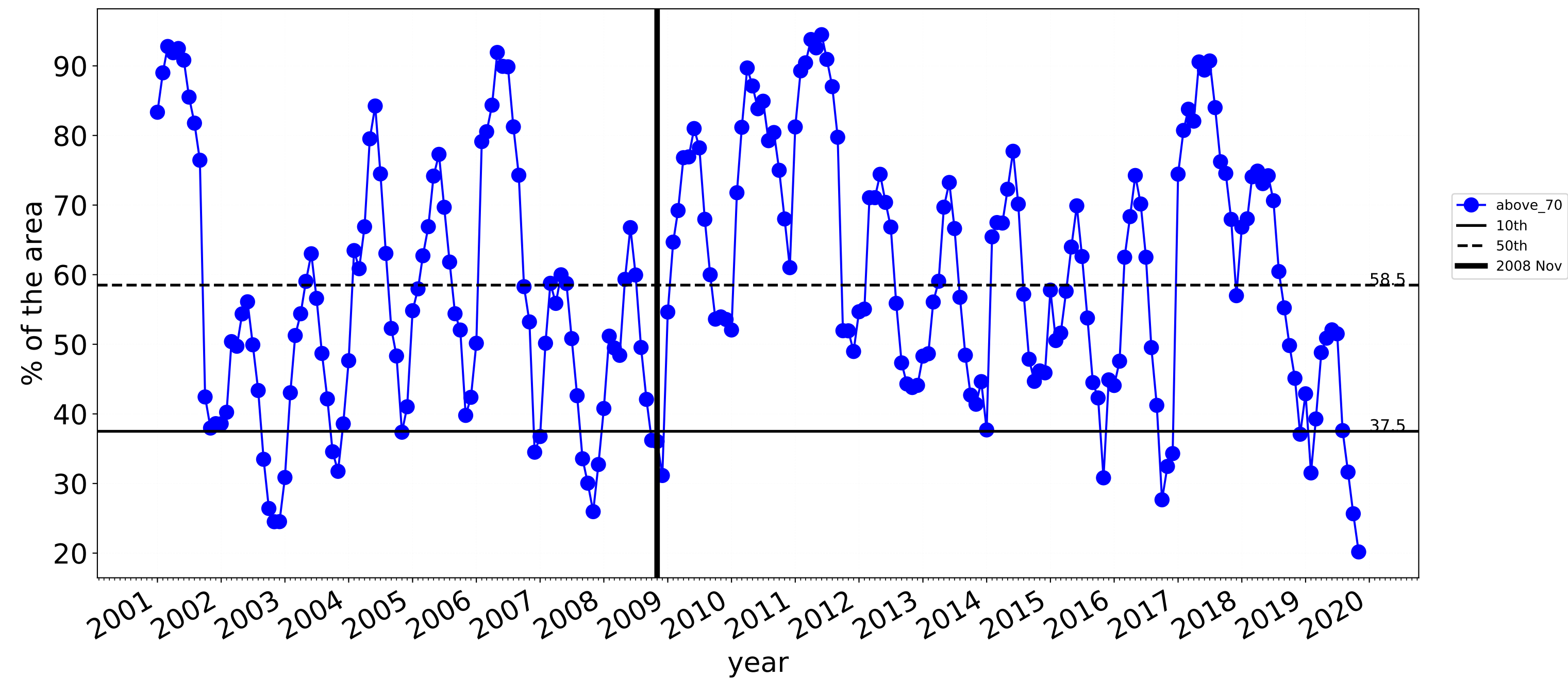# Conservation and natural environments non forest timeseries

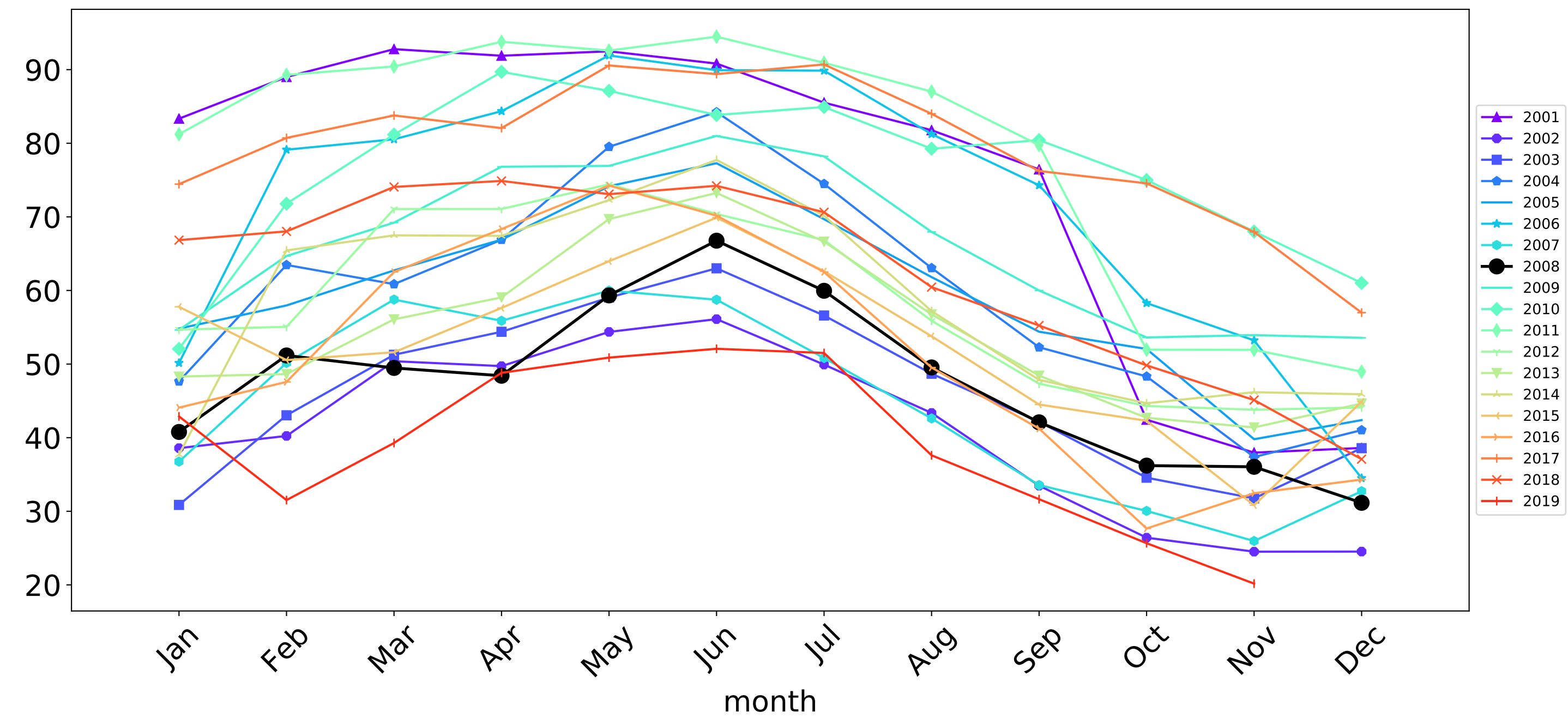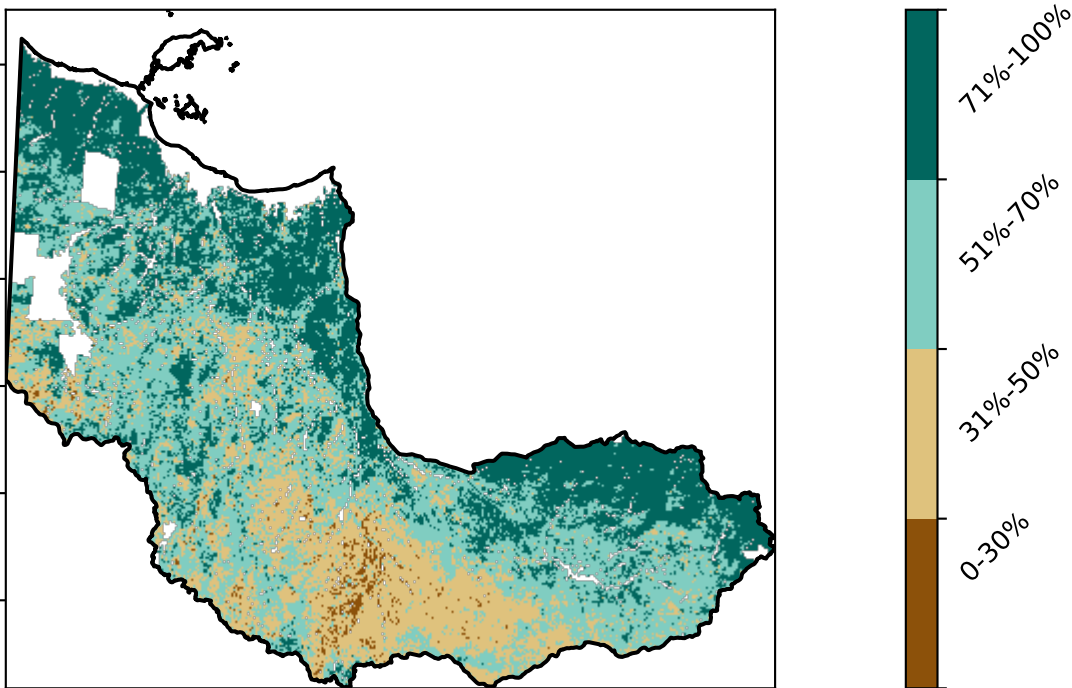Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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%)

Agriculture

Land use and forest cover

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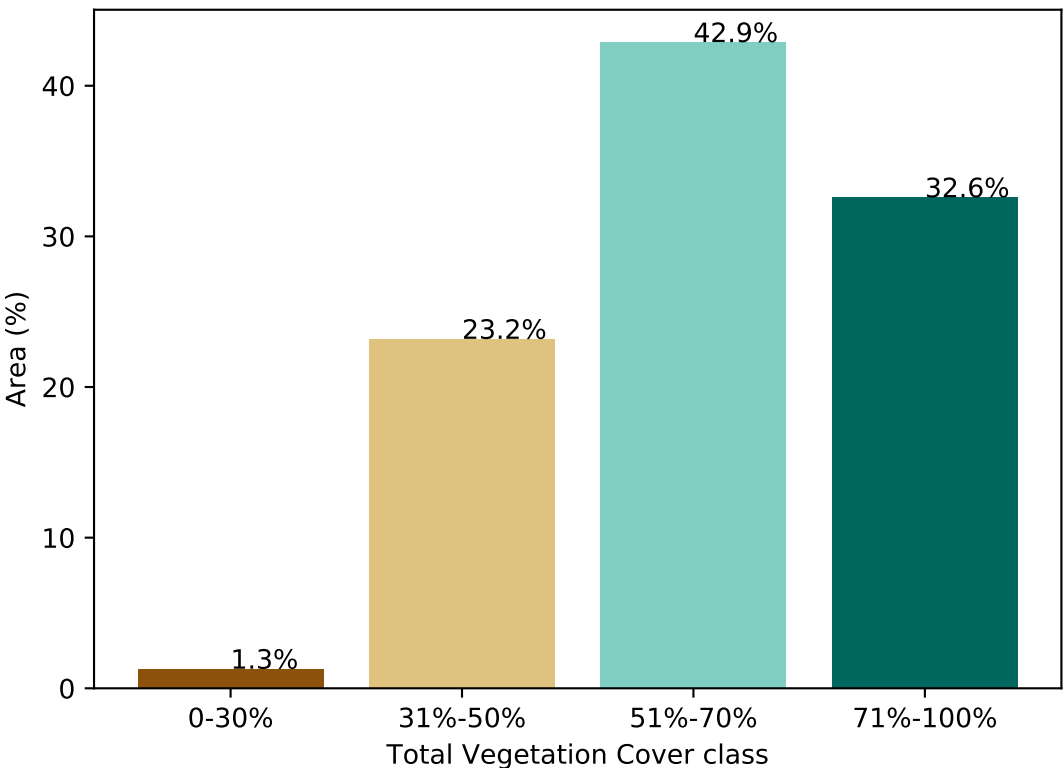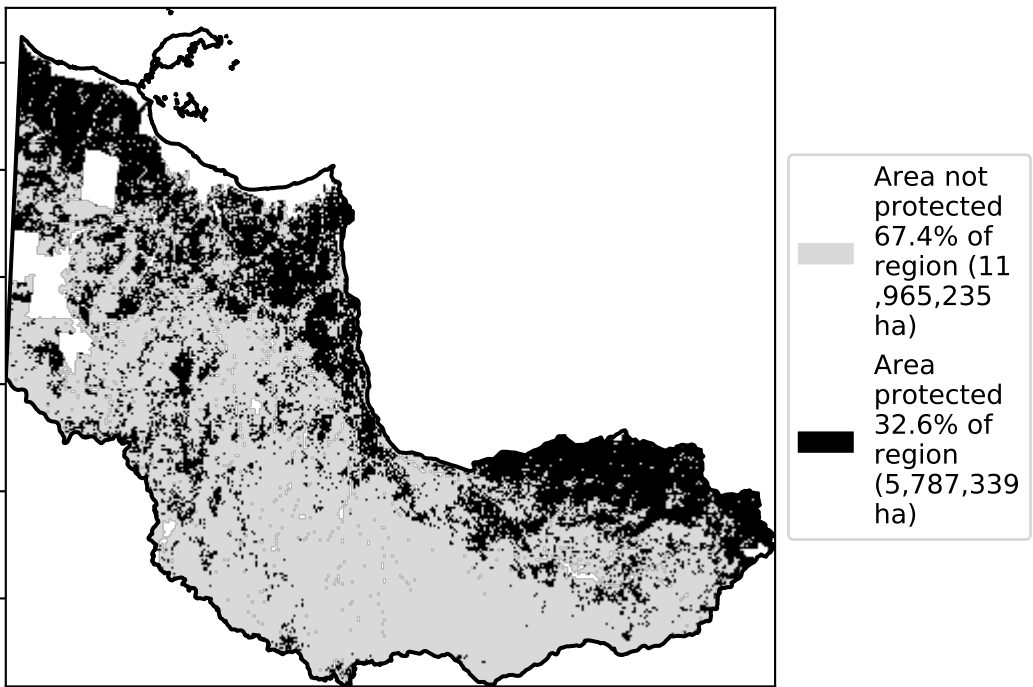(2018) and Forests
of Australia (2018)

Legend:
1 Agriculture - Grazing - Non forest
2 Agriculture - Grazing - Woodland forest
3 Agriculture - Grazing - Non-woodland forest
4 Agriculture - Grazing - Irrigated
5 Agriculture - Cropping - Non-irrigated
6 Agriculture - Cropping - Irrigated

Proportion of each land class in area

84.3% 15.5% 0.1% 0.0% 0.0% 0.0%

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

1.3% 23.2% 42.9% 32.6%

% Area protected from water erosion (>70%)

Area not
protected
67.4% of
region (11
,965,235
ha)

Area
protected
32.6% of
region
(5,787,339
ha)

% Area protected from wind erosion (>50%)

Area not
protected
24.0% of
region
(4,260,618
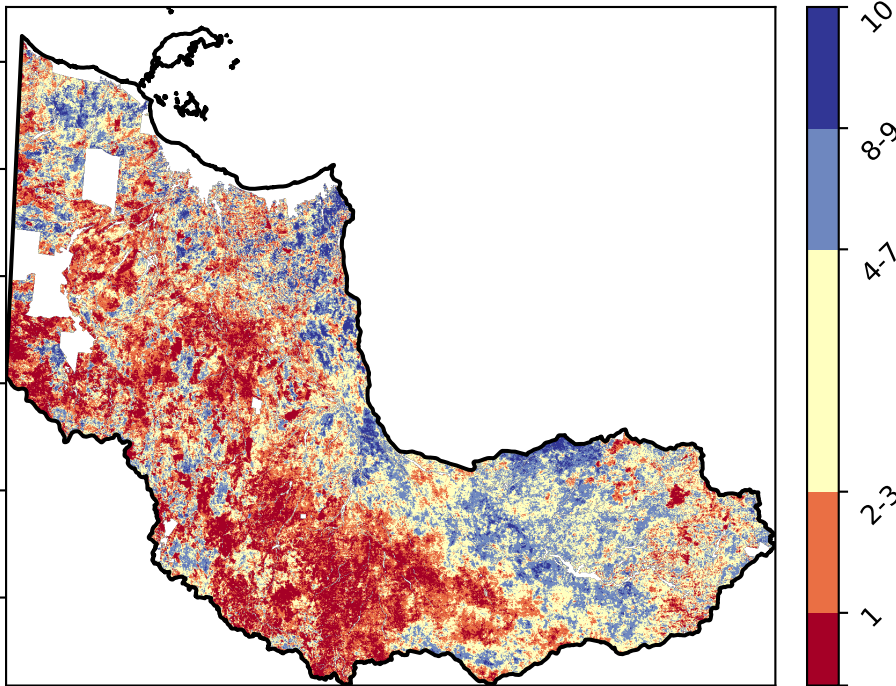ha)

Area
protected
76.0% of
region (13
,491,957
ha)

Total Vegetation Cover Anomaly [%]

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

Total Vegetation Cover Decile [%]

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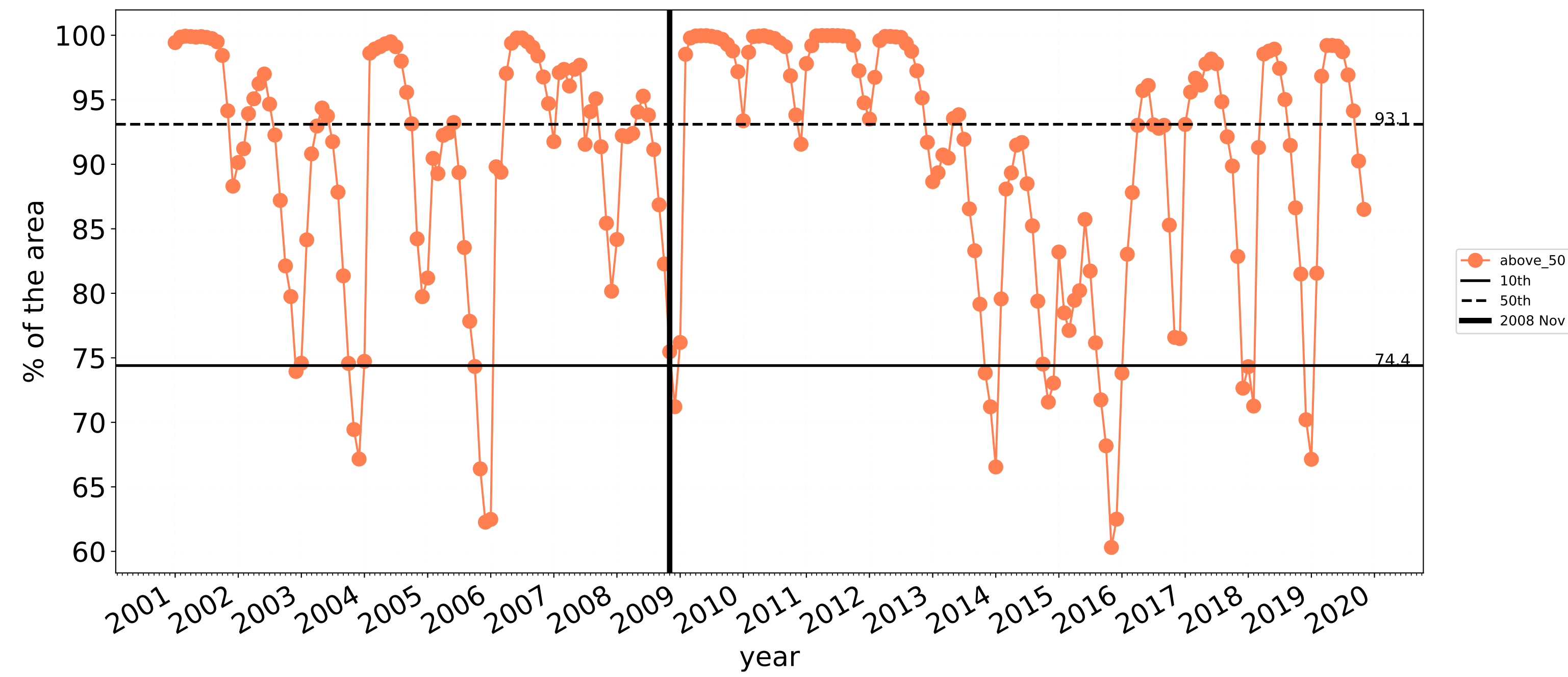the map using baseline
from 2001 to 2019.

10
8-9
4-7
2-3
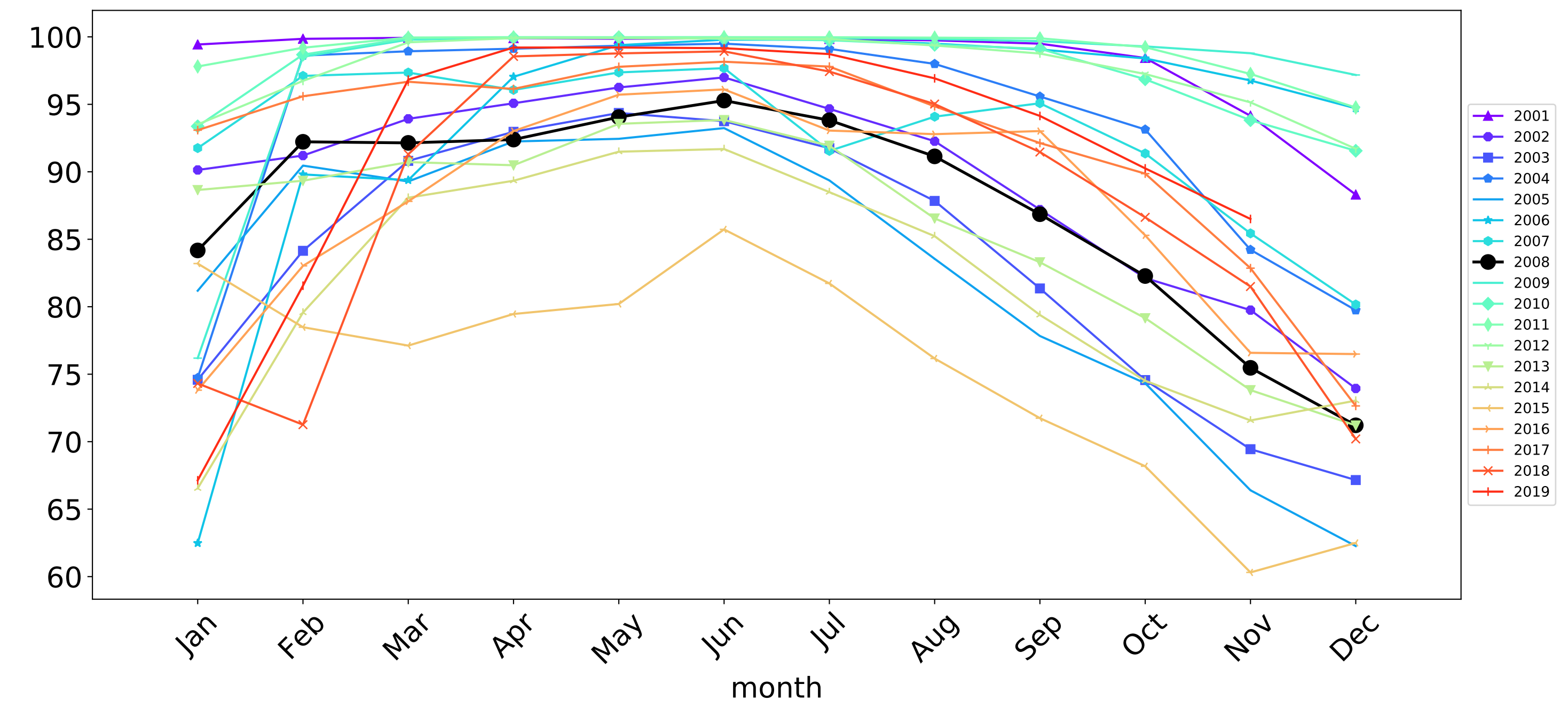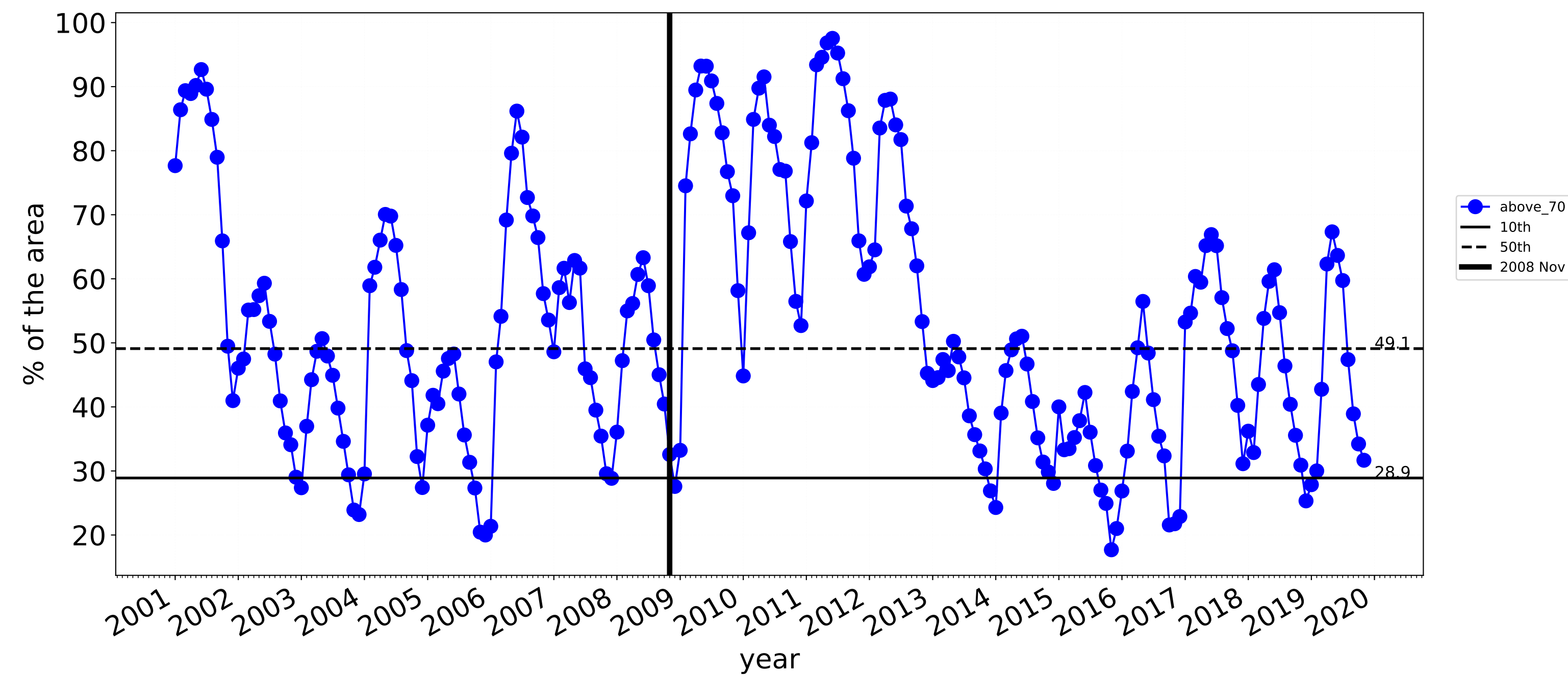1

Agriculture timeseries

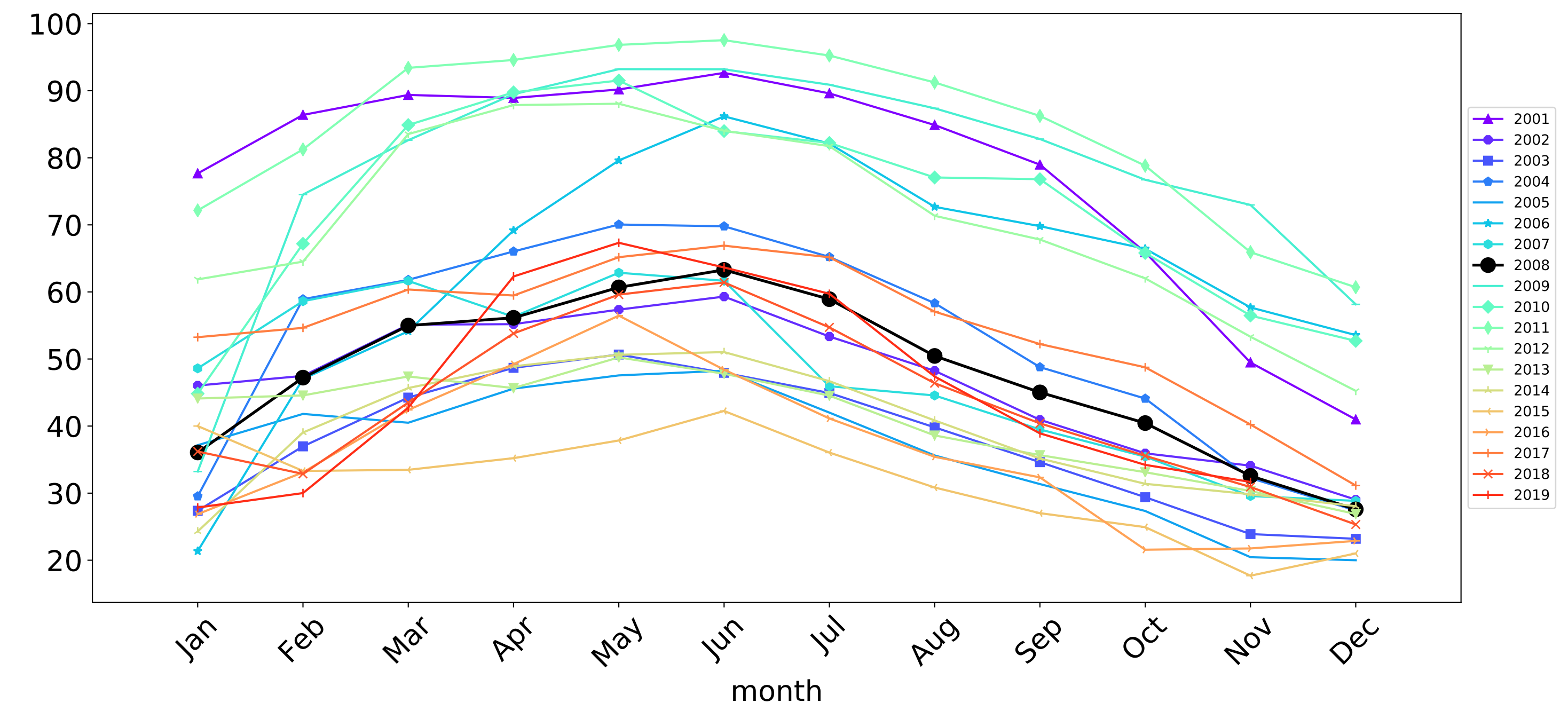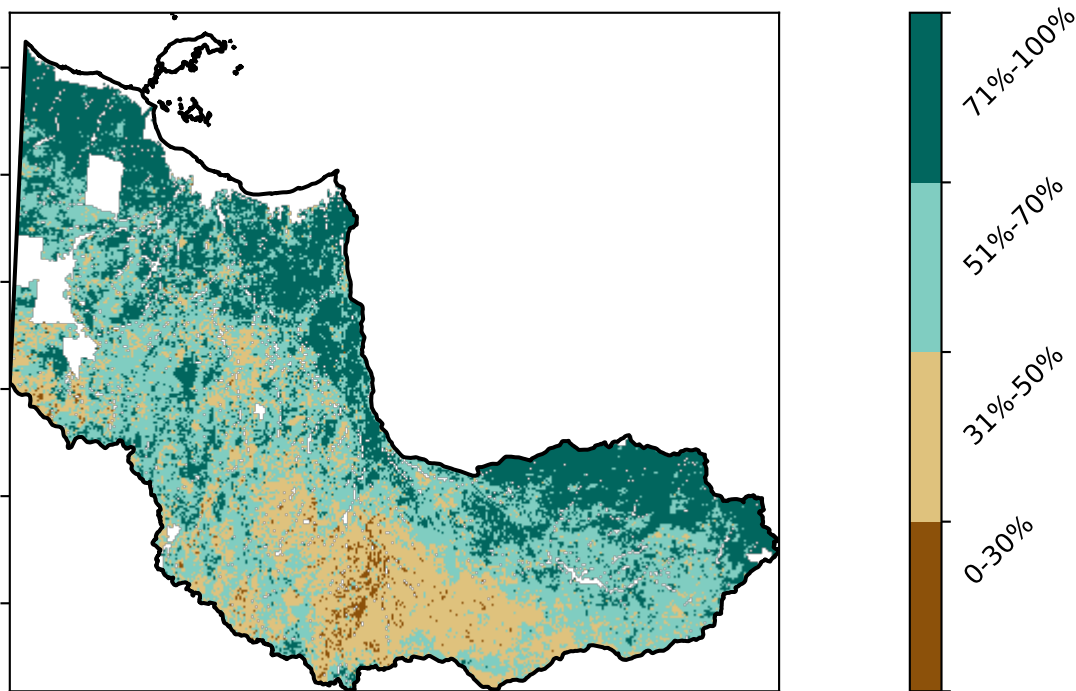### Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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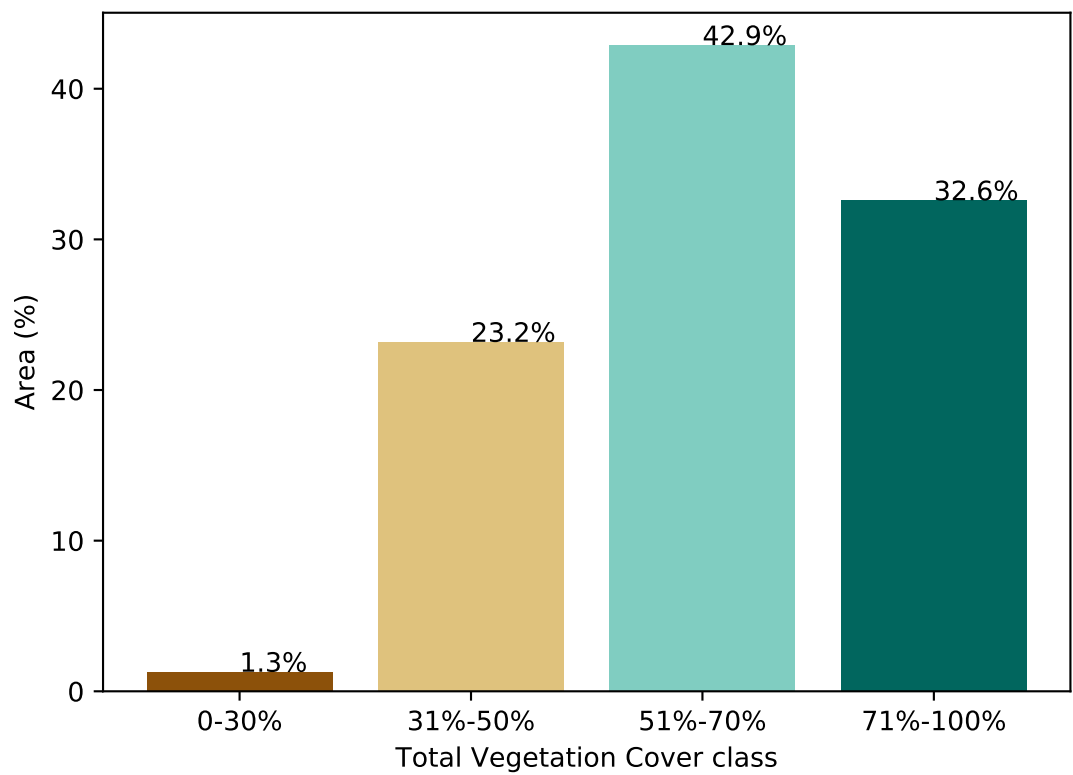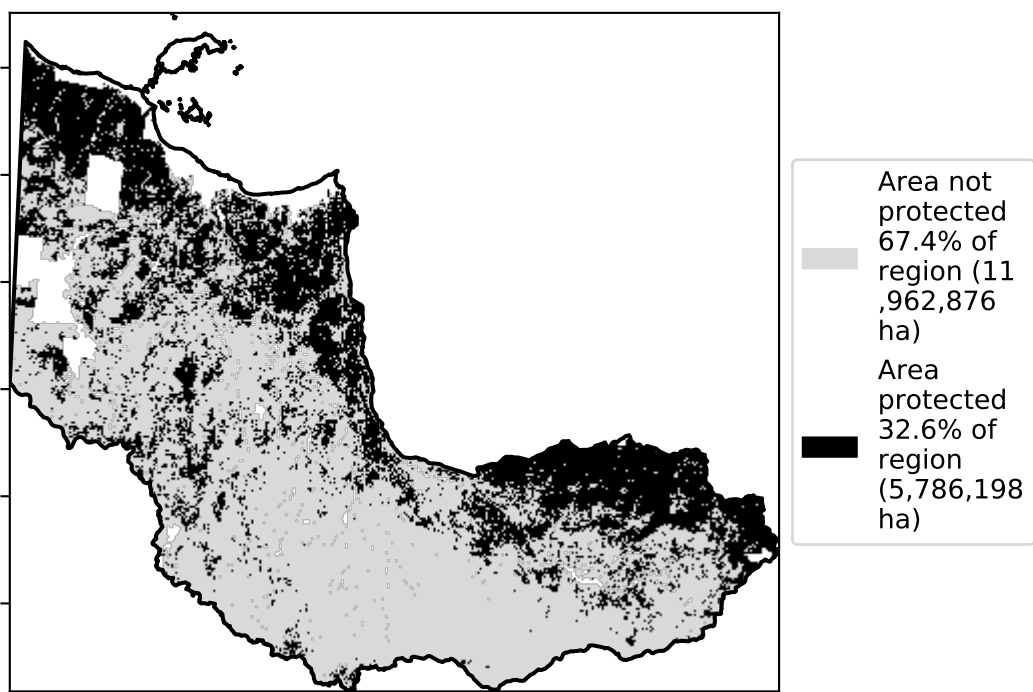
1 Agriculture - Grazing - Non forest
2 Agriculture - Grazing - Woodland forest
3 Agriculture - Grazing - Non-woodland forest

Proportion of each land class in area

84.3%
15.5%
0.1%

Area (%)

Land use class

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

1.3%
23.2%
42.9%
32.6%

Area (%)

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

% Area protected from water erosion (>70%)

Area not protected 67.4% of region (11,962,876 ha)

Area protected 32.6% of region (5,786,198 ha)

% Area protected from wind erosion (>50%)

Area not protected 24.0% of region (4,259,778 ha)
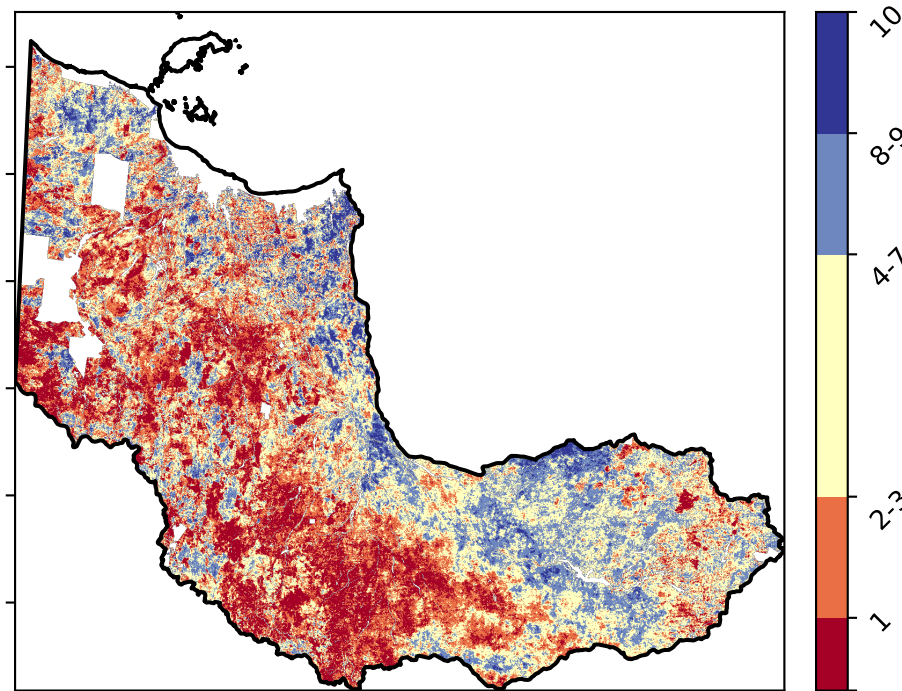
Area protected 76.0% of region (13,489,297 ha)

Total Vegetation Cover Anomaly [%]

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

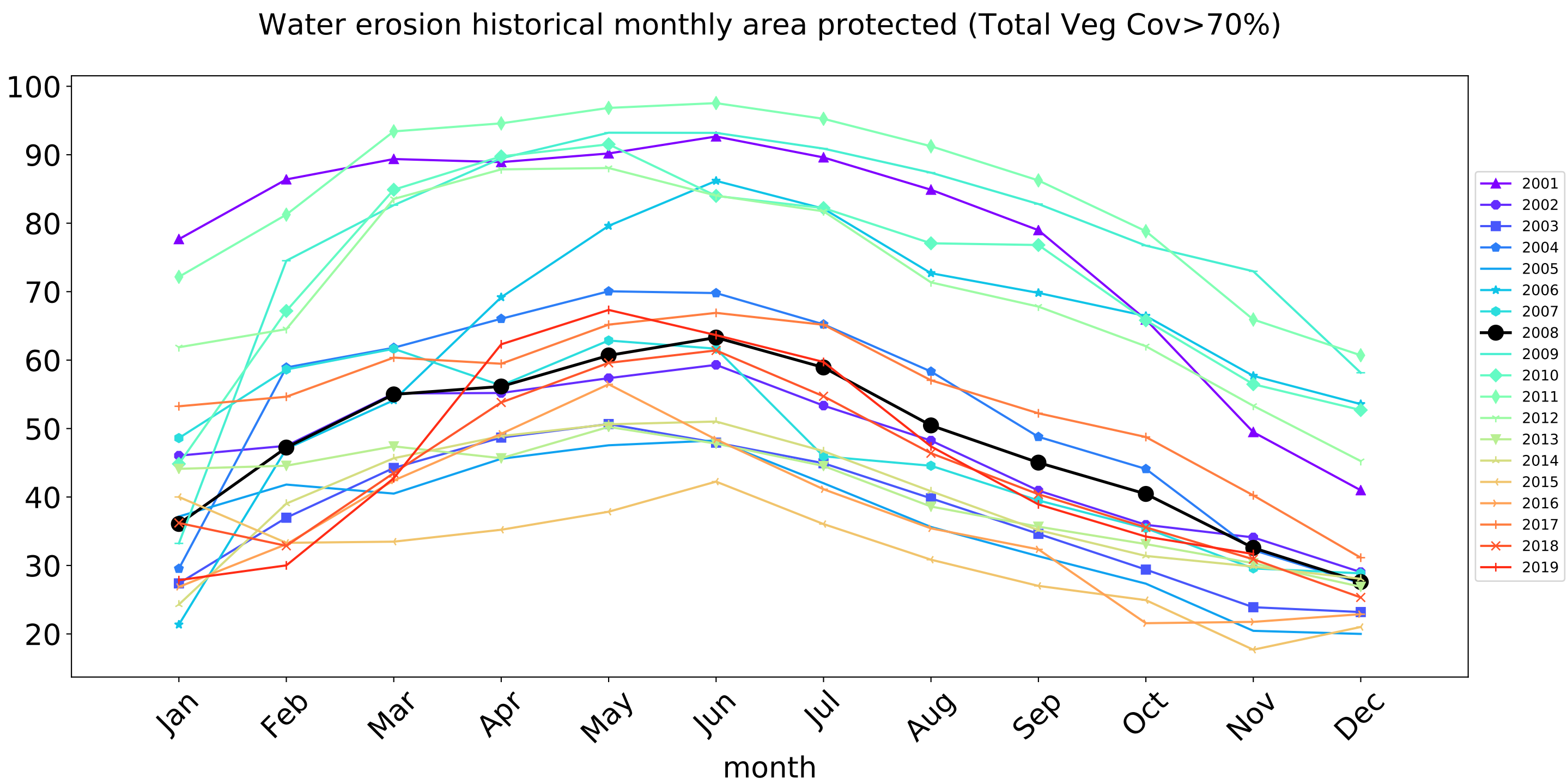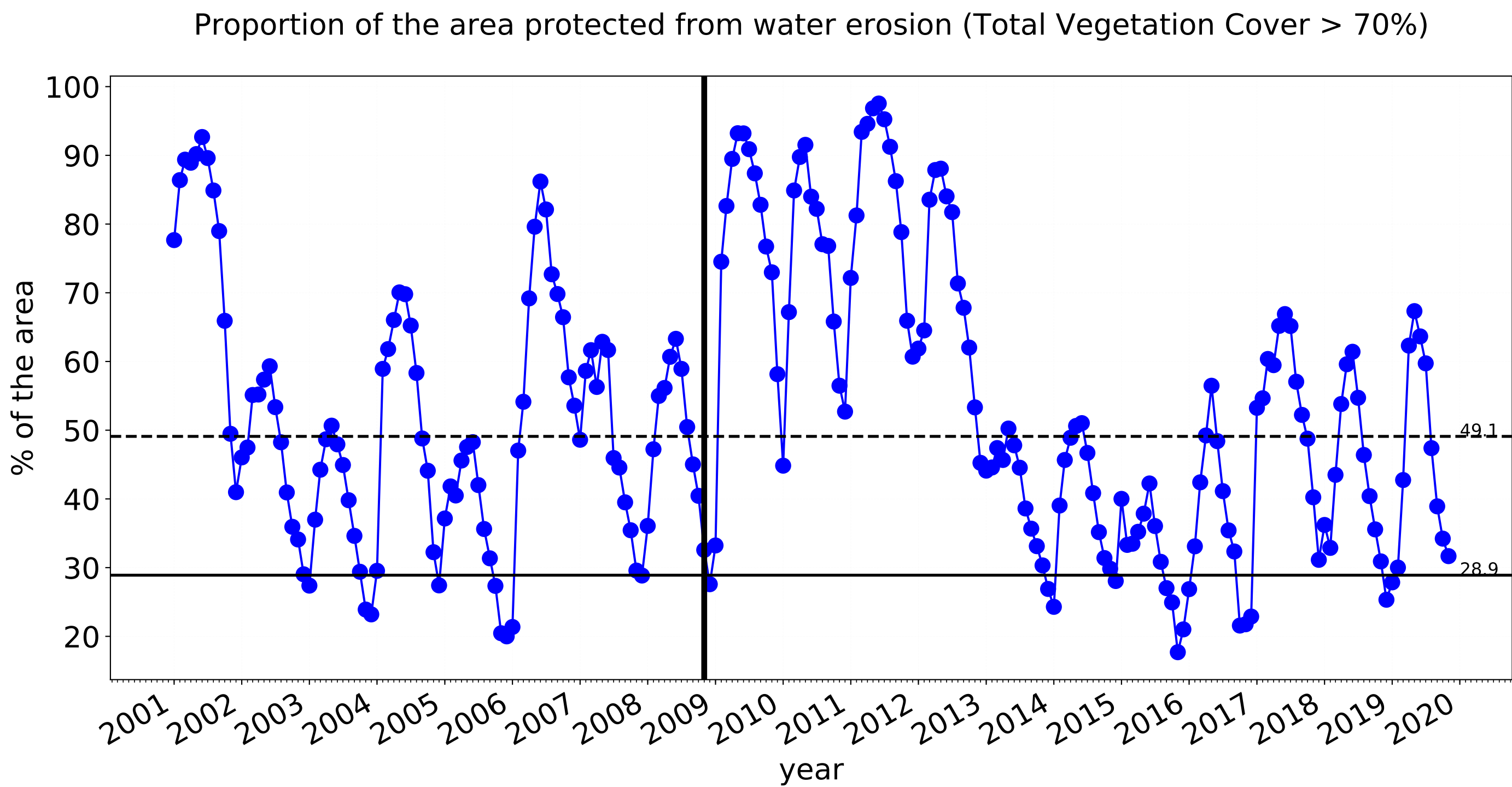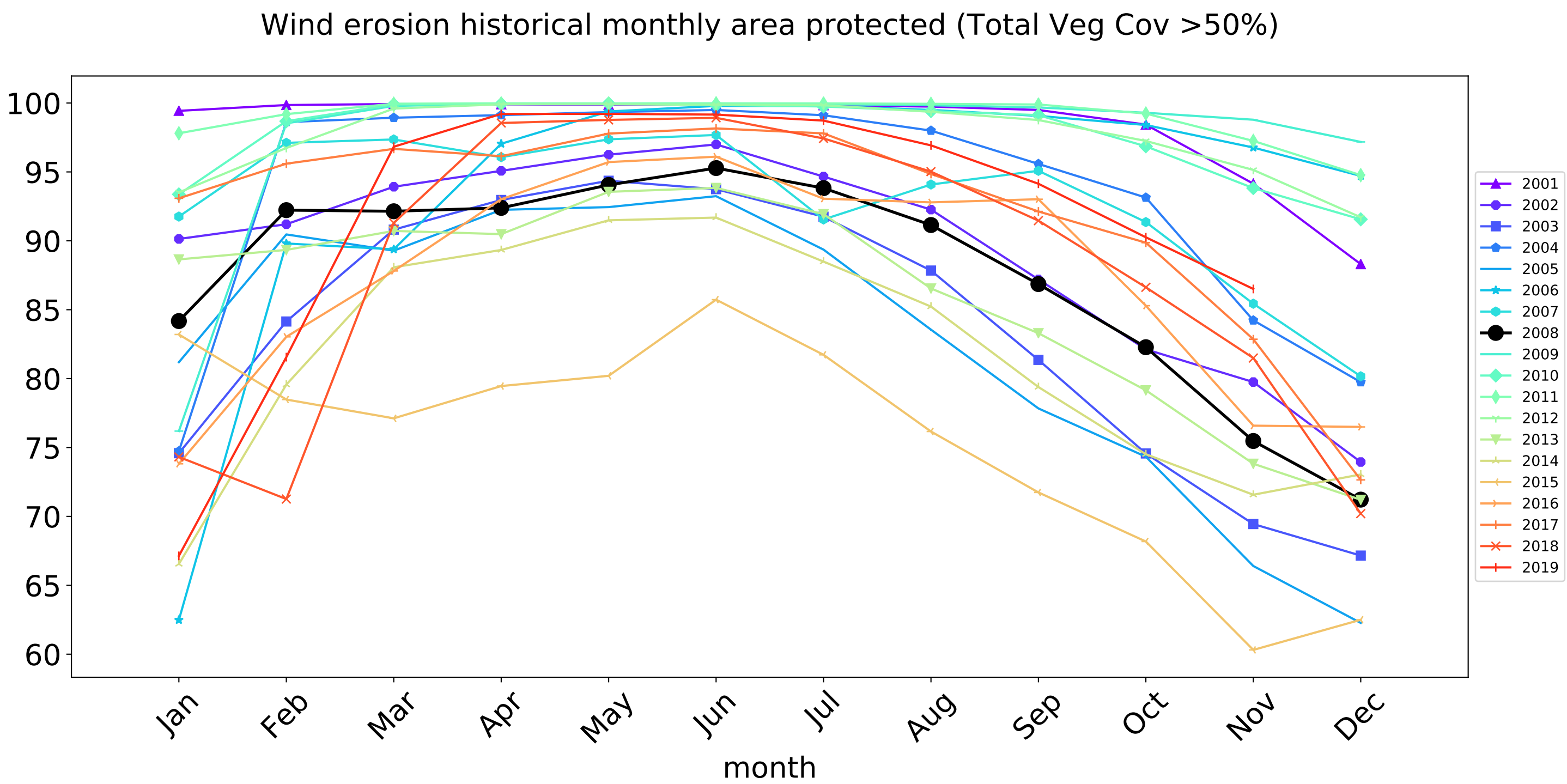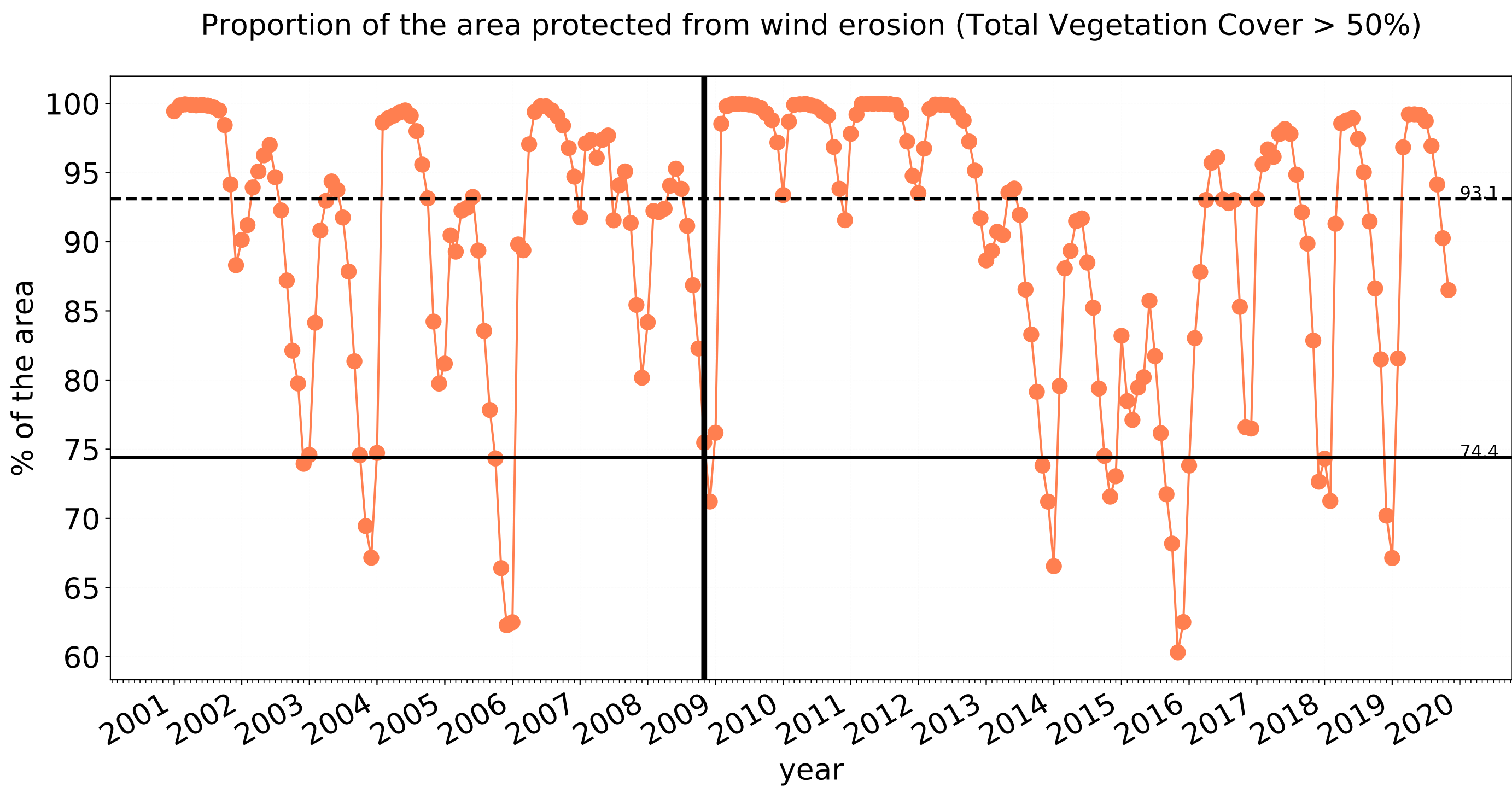## Total Vegetation Cover Decile [%]

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

10
8-9
4-7
2-3
1

Grazing timeseries

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

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

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

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

Grazing non forest

Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)
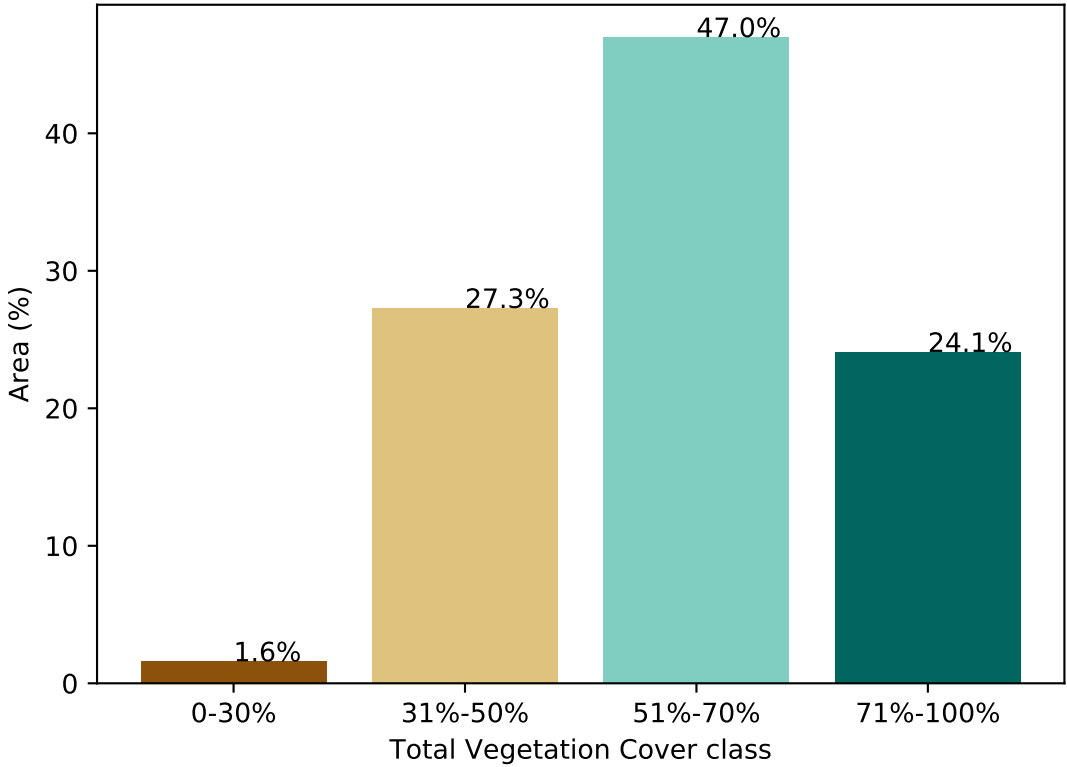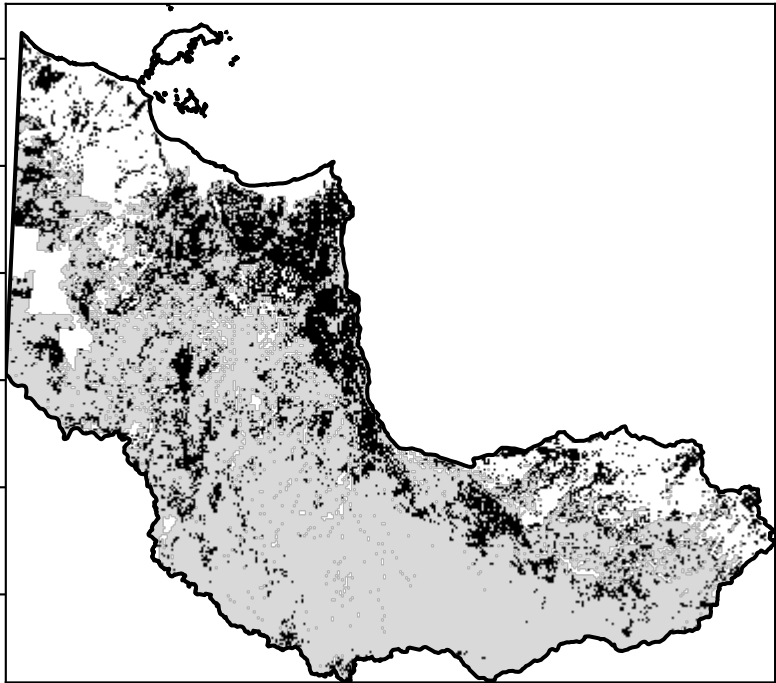
1 Agriculture - Grazing - Non forest

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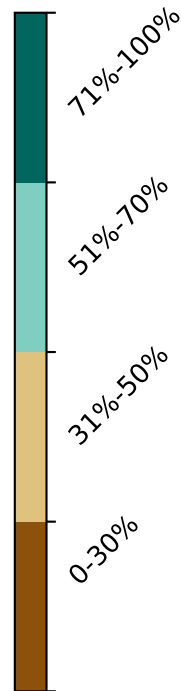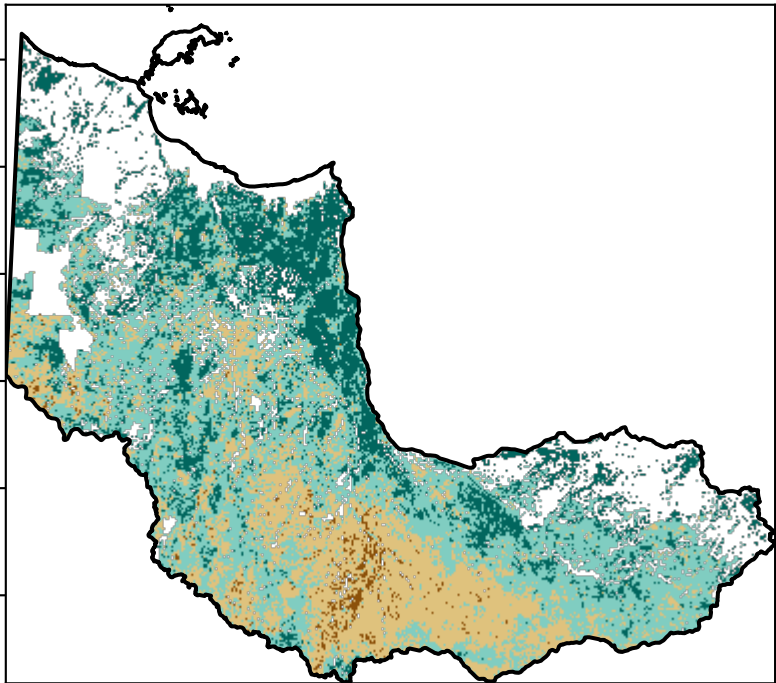
71%-100%
51%-70%
31%-50%
0-30%

Proportion of vegetation cover class in area

Area (%) vs Total Vegetation Cover class

0-30%: 1.6%
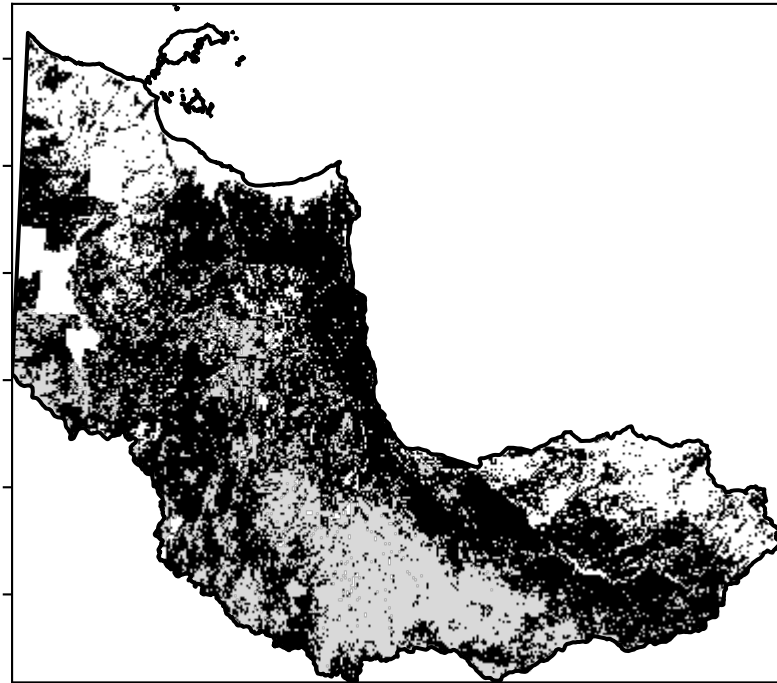31%-50%: 27.3%
51%-70%: 47.0%
71%-100%: 24.1%

% Area protected from water erosion (>70%)

Area not protected 75.9% of region (11,361,622 ha)
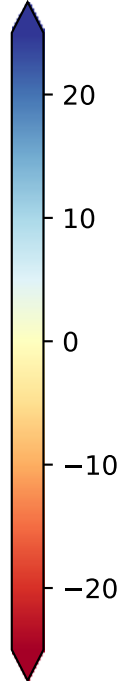
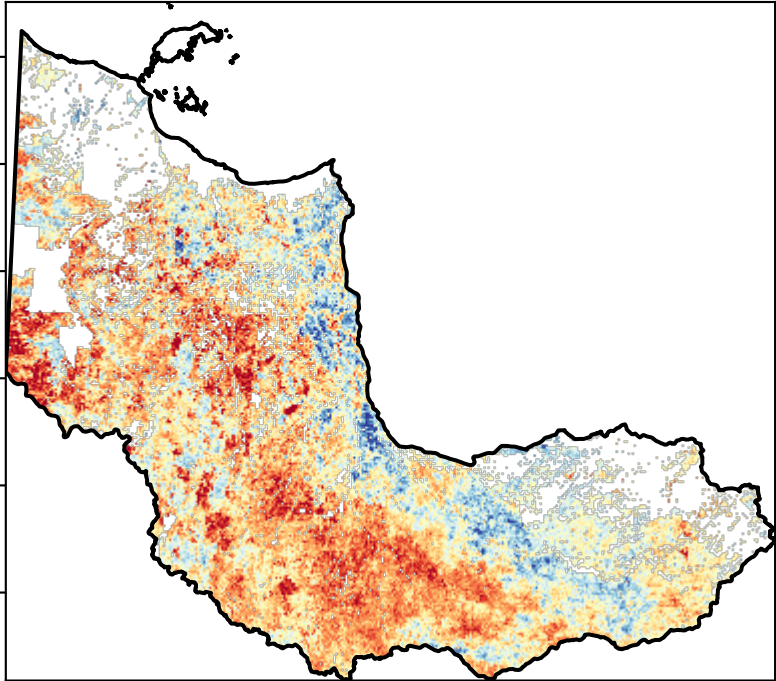Area protected 24.1% of region (3,607,577 ha)

% Area protected from wind erosion (>50%)

Area not protected 29.0% of region (4,341,068 ha)

Area protected 71.0% of region (10,628,132 ha)

Total Vegetation Cover Anomaly [%]

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

Total Vegetation Cover Decile [%]

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

10
8-9
4-7
2-3
1
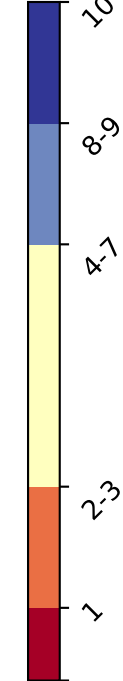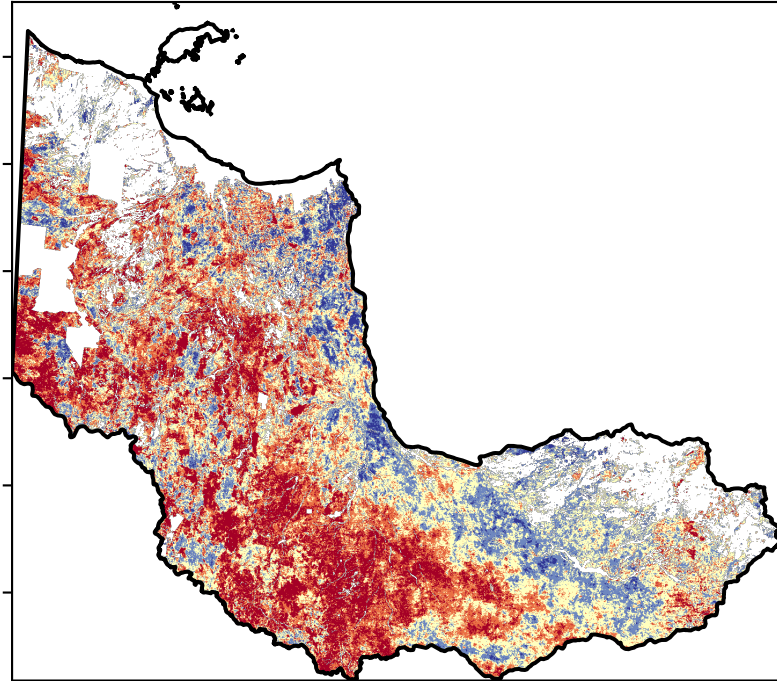
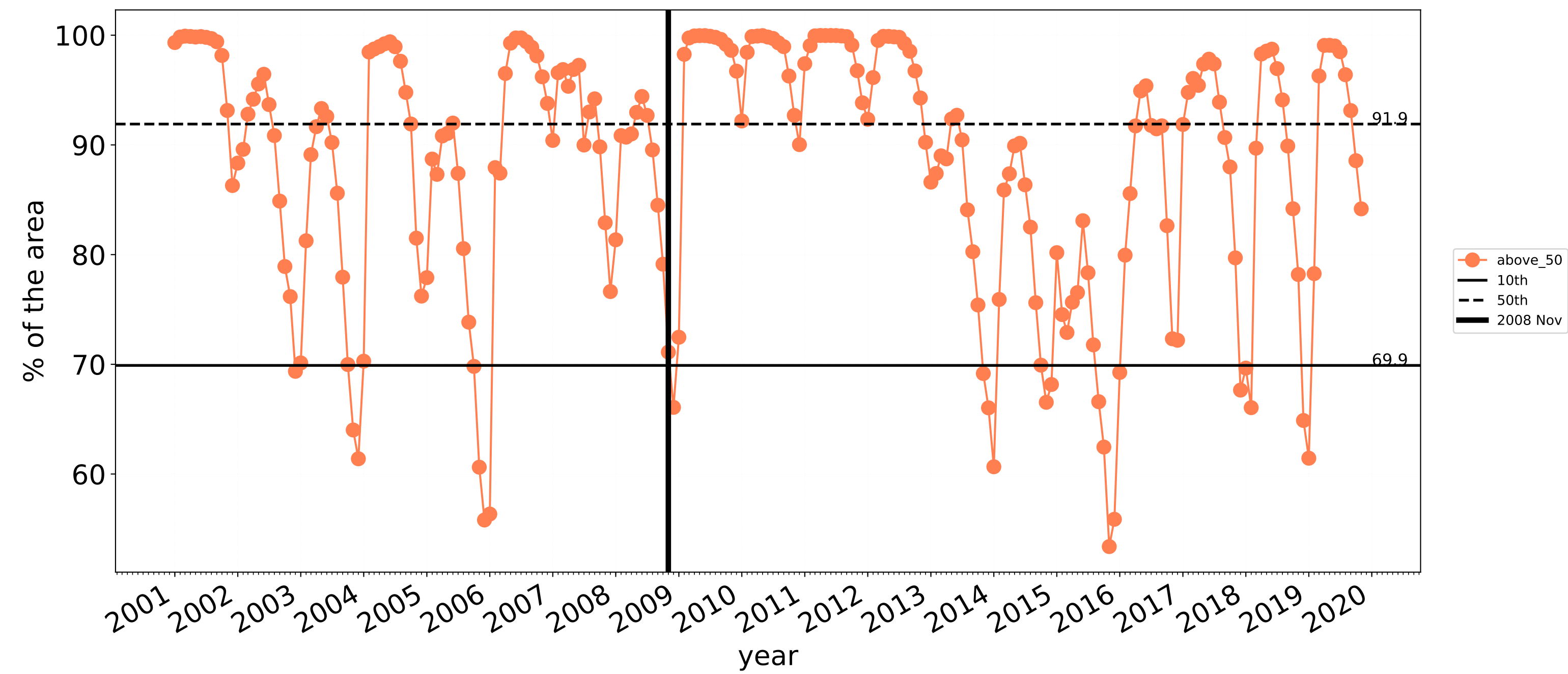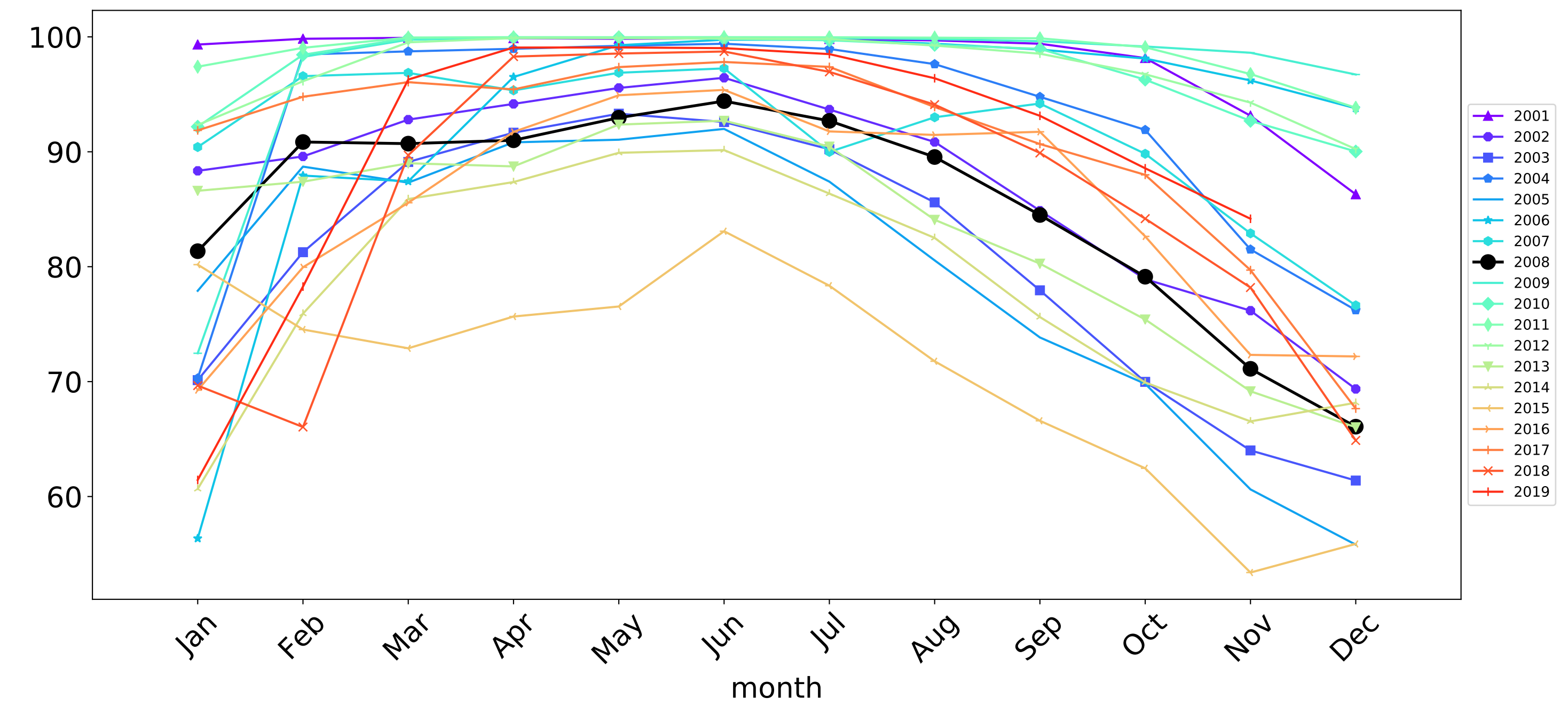CSIRO   TERN   Australian Government   National Landcare Programme   NSW GOVERNMENT   Planning, Industry & Environment
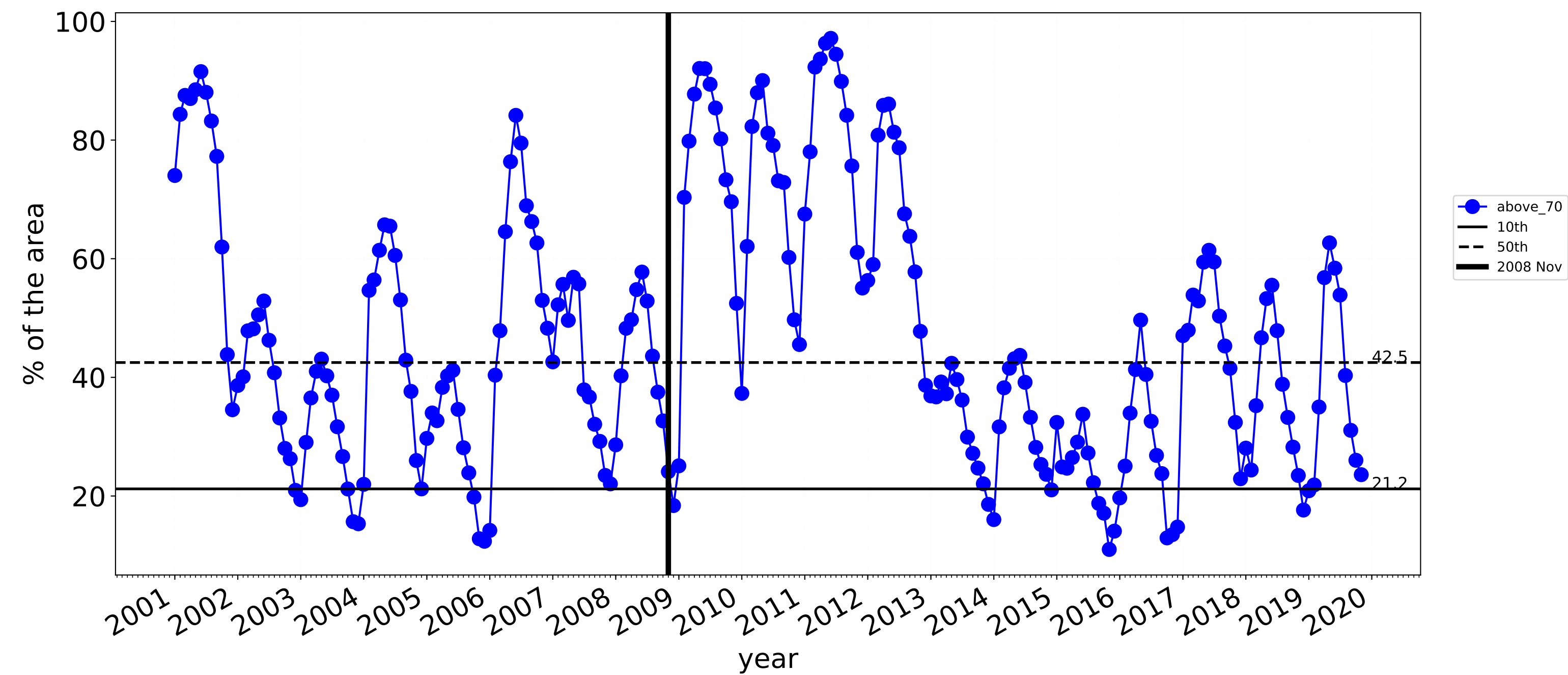
Grazing non forest timeseries

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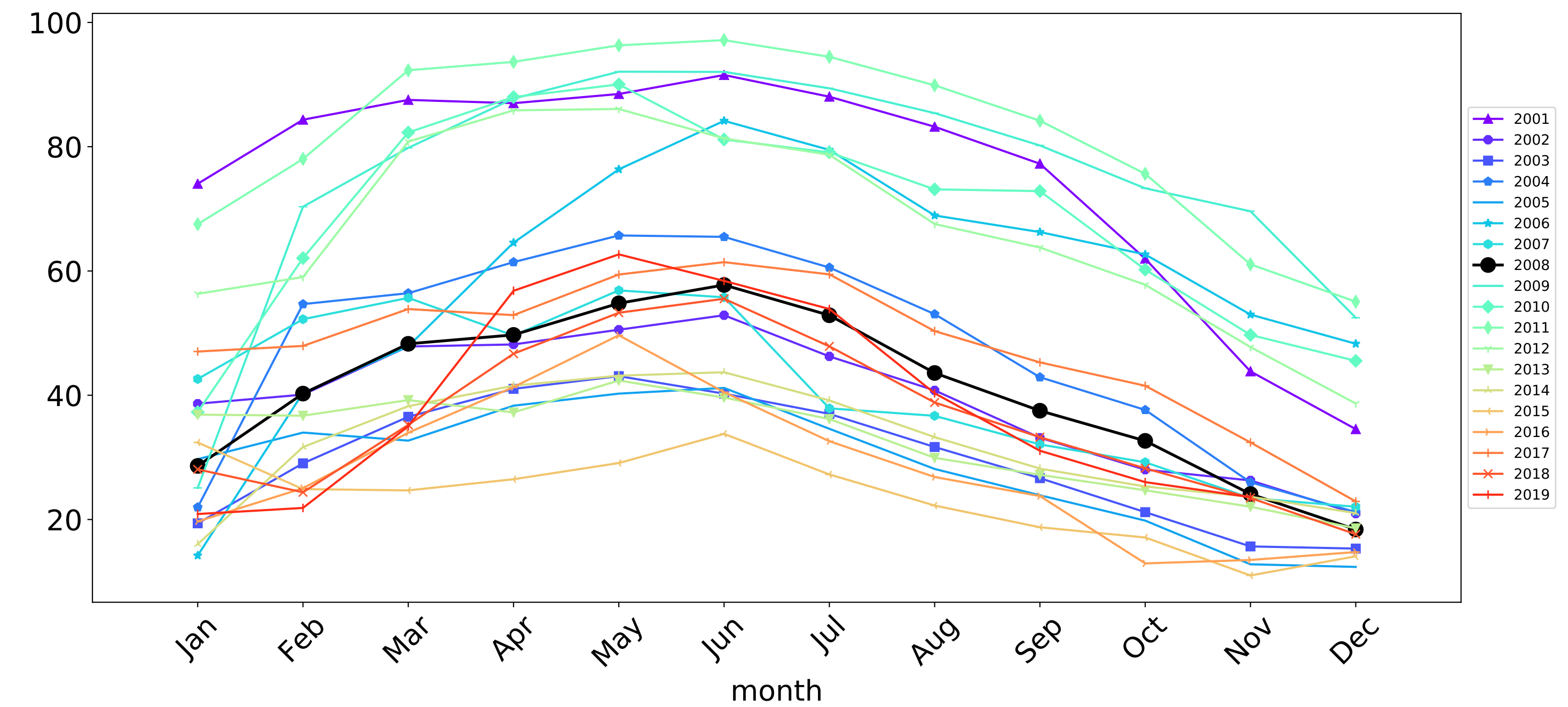

Wind erosion historical monthly area protected (Total Veg Cov >50%)

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

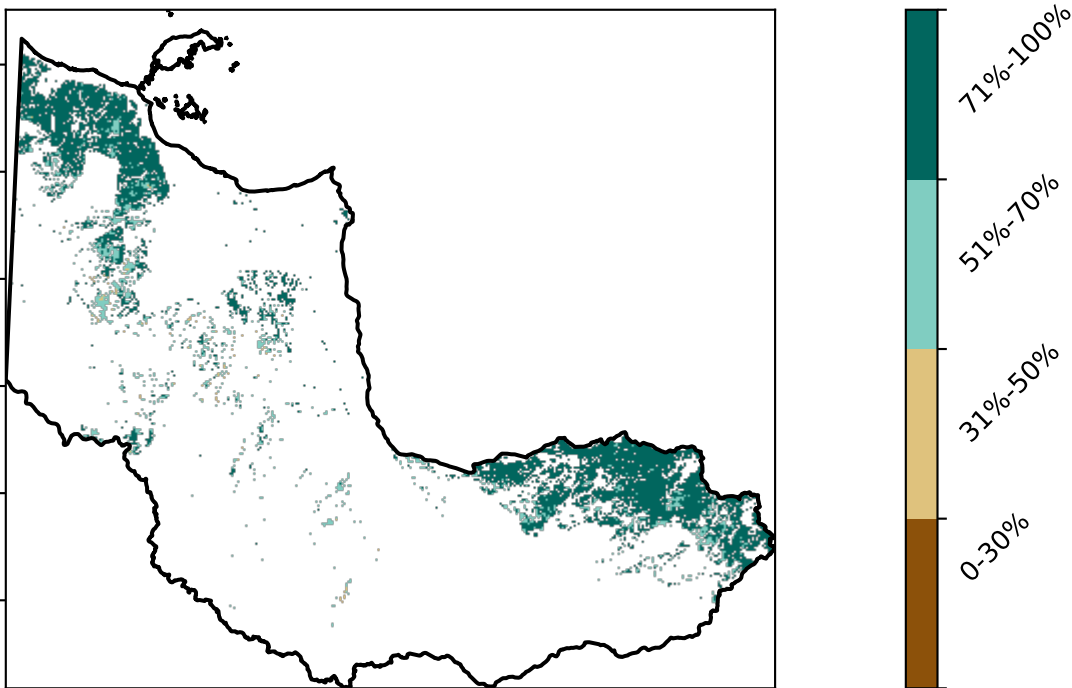## Water erosion historical monthly area protected (Total Veg Cov>70%)
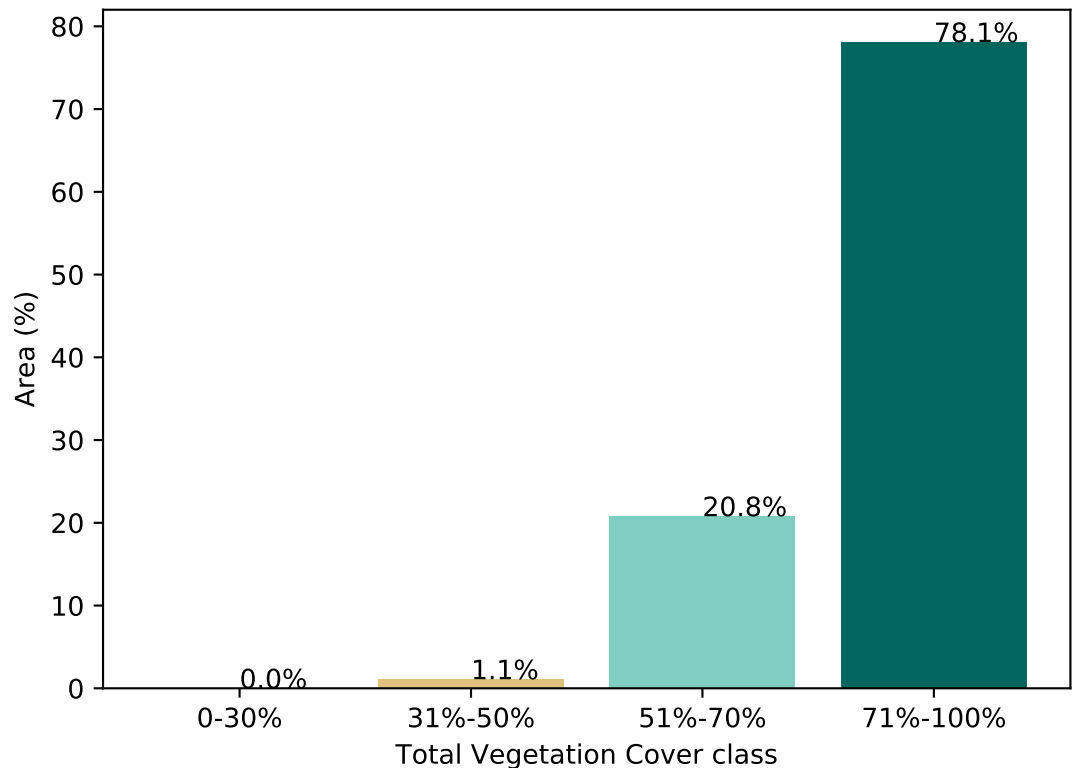
Grazing Woodland forest

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)
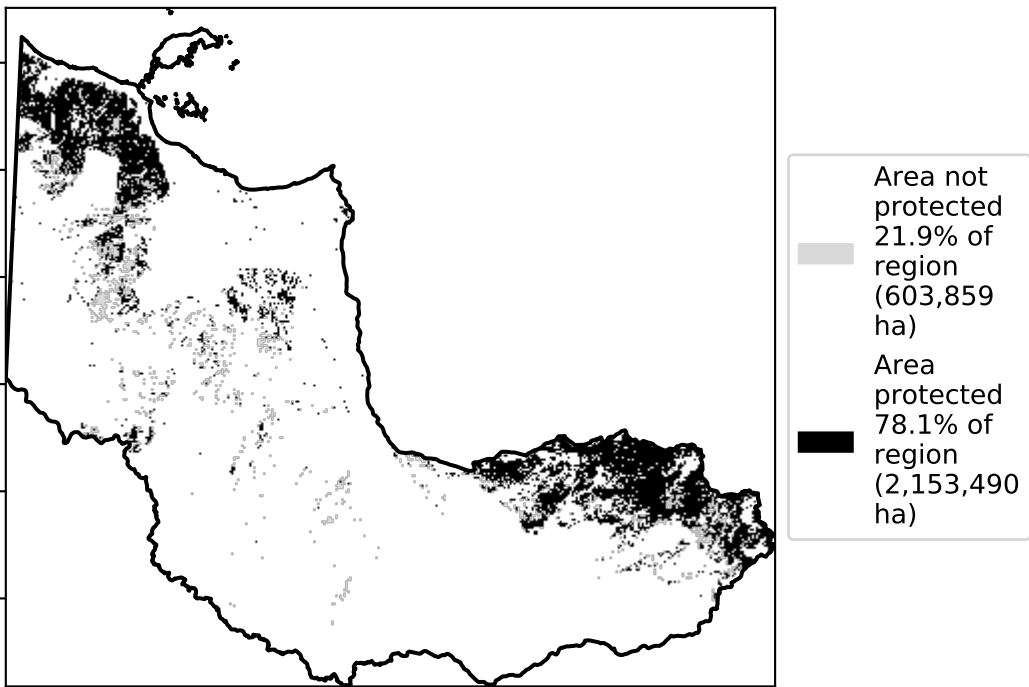

1 Agriculture - Grazing - Woodland forest
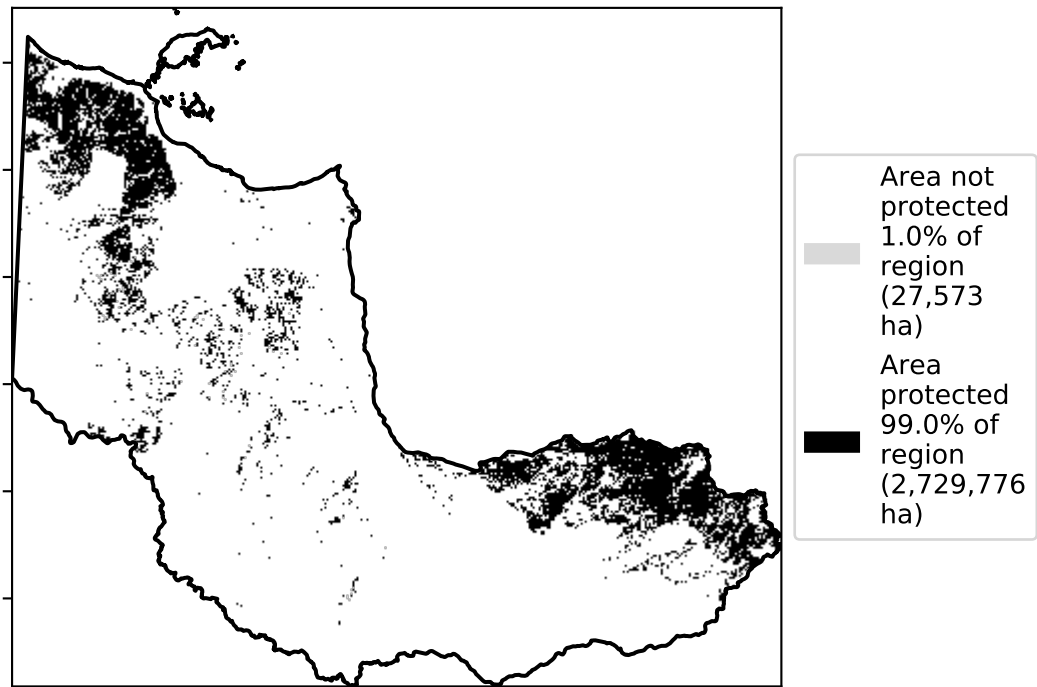
Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

% Area protected from water erosion (>70%)

Area not protected 21.9% of region (603,859 ha)

Area protected 78.1% of region (2,153,490 ha)

% Area protected from wind erosion (>50%)

Area not protected 1.0% of region (27,573 ha)
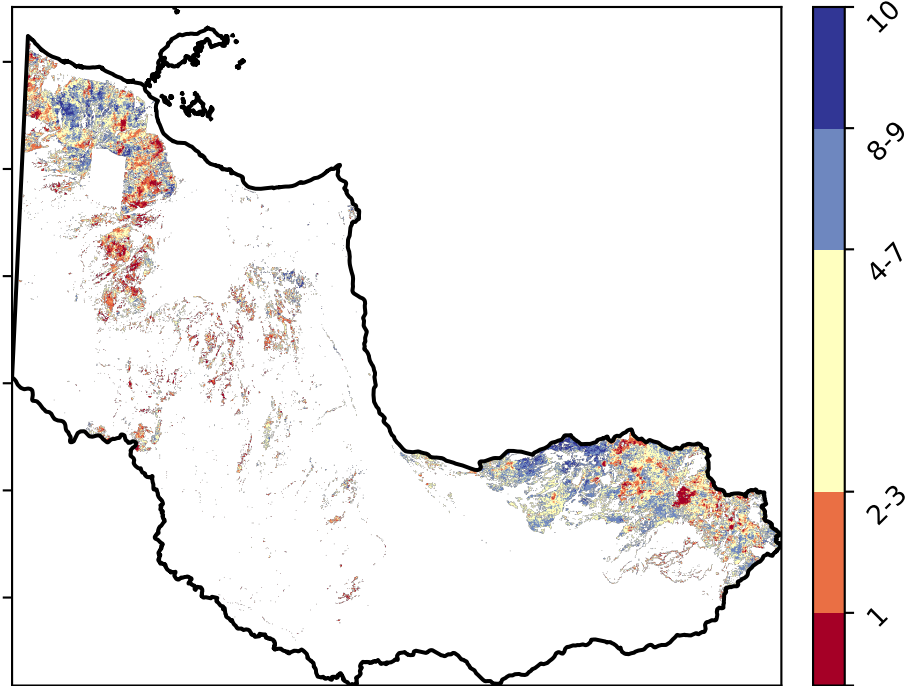
Area protected 99.0% of region (2,729,776 ha)

Total Vegetation Cover Anomaly [%]

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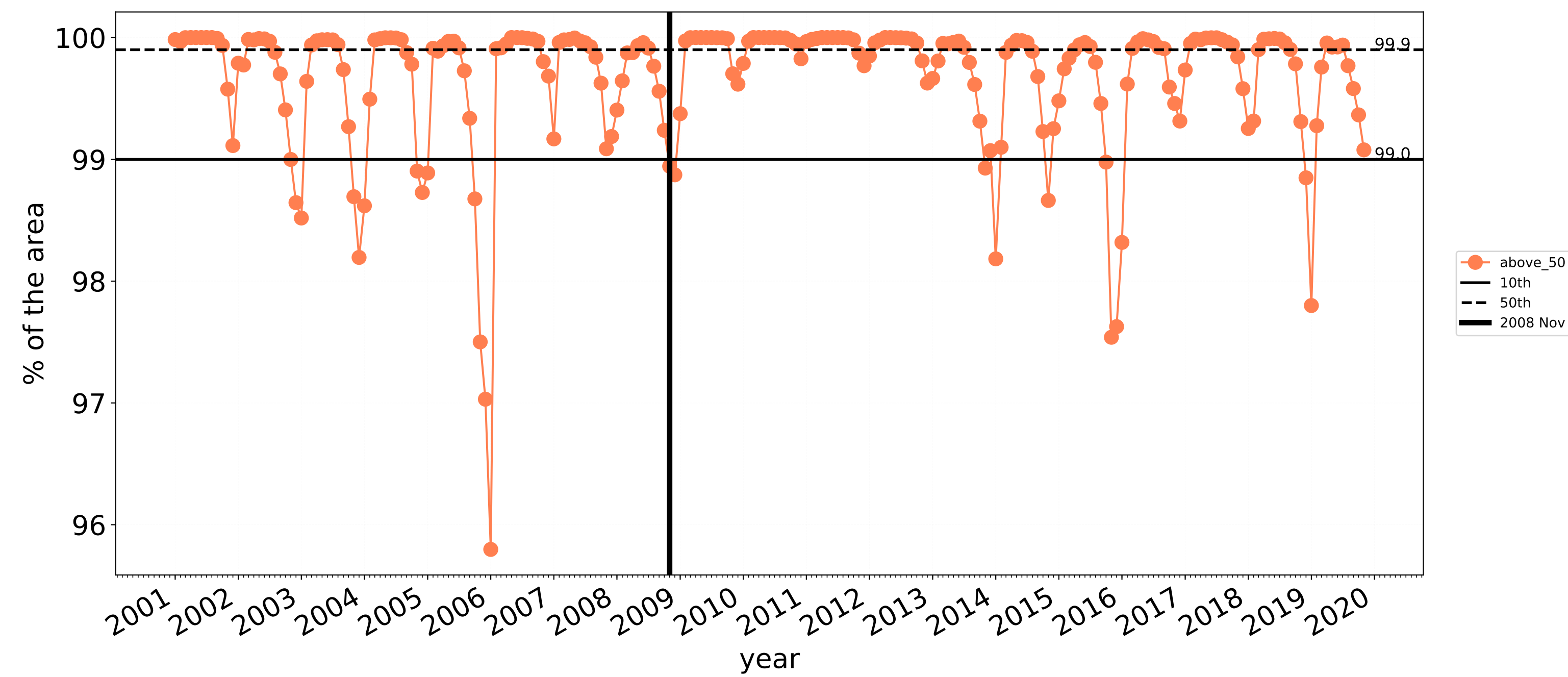

Total Vegetation Cover Decile [%]

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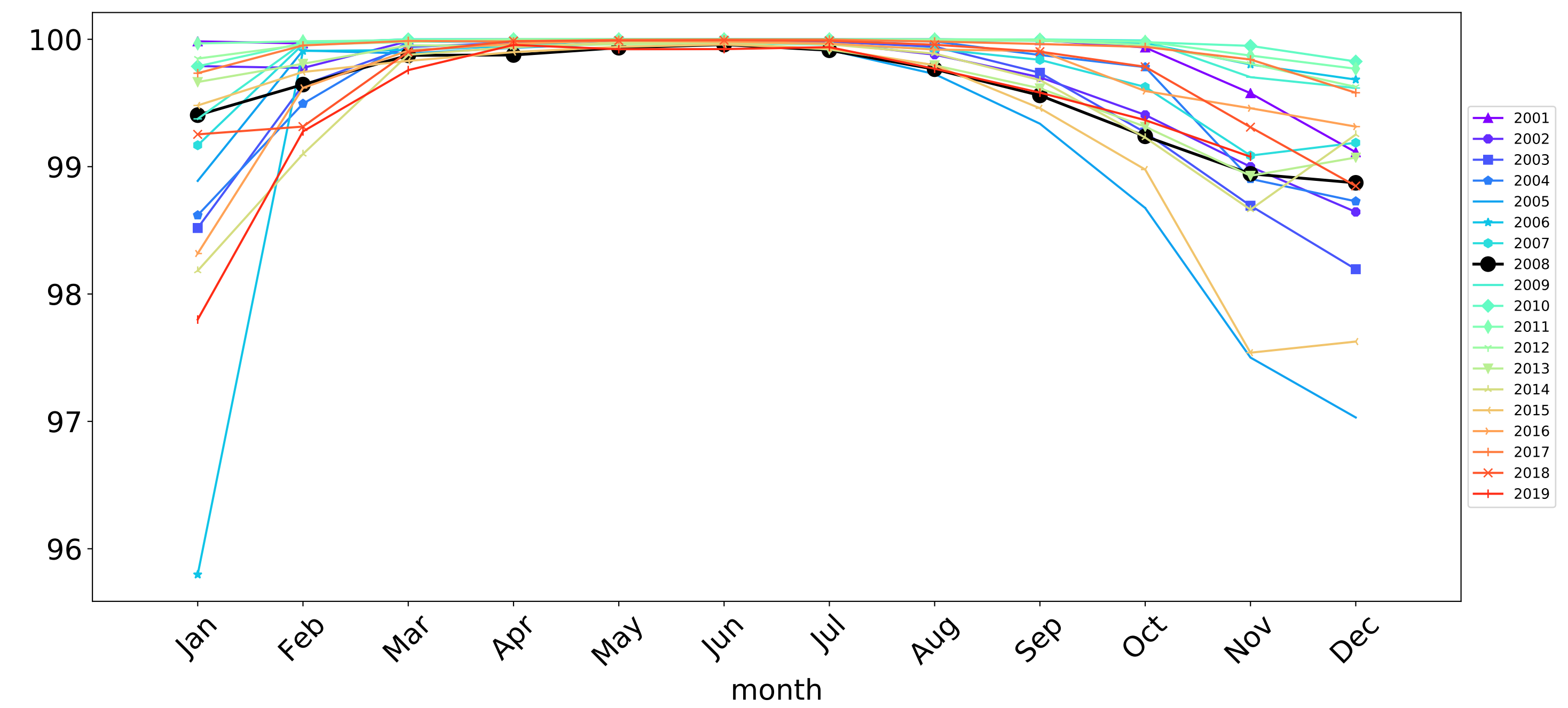

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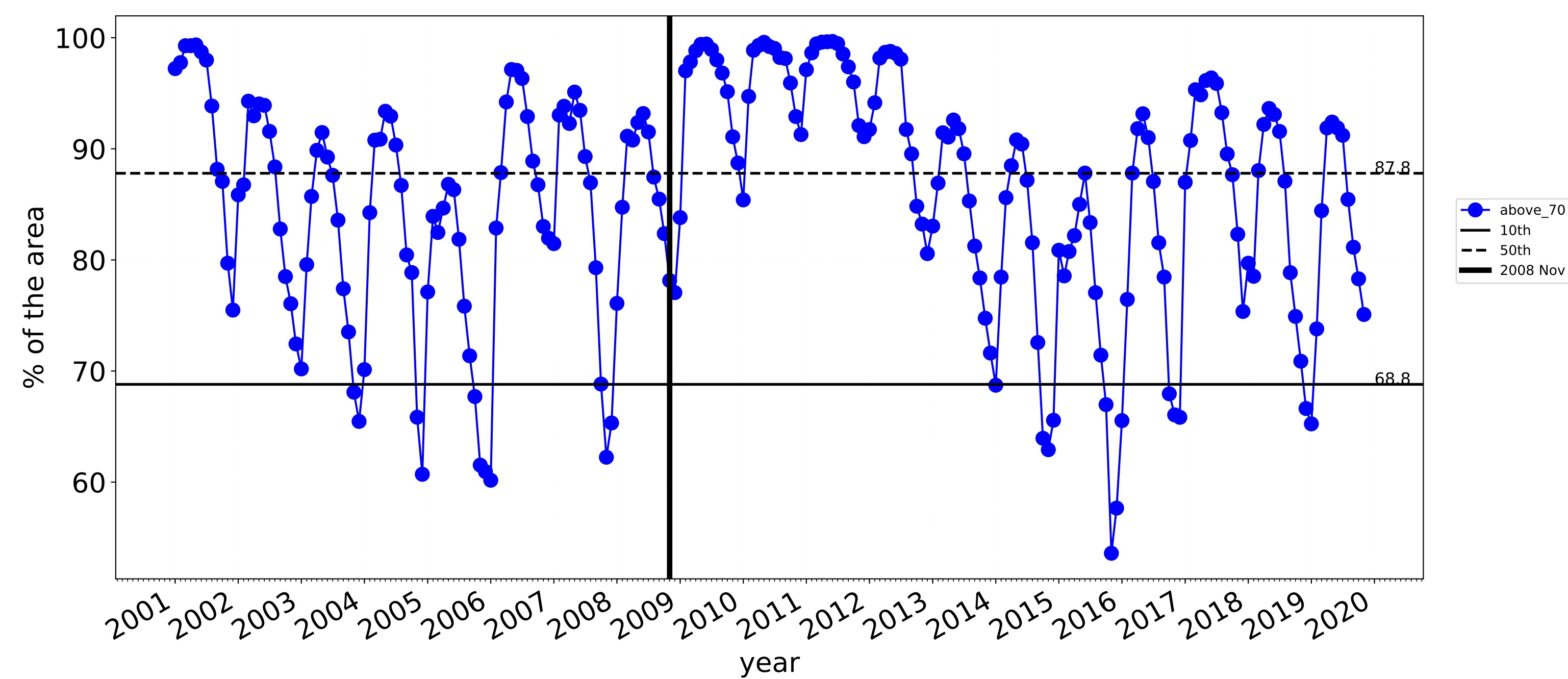# Grazing Woodland forest timeseries

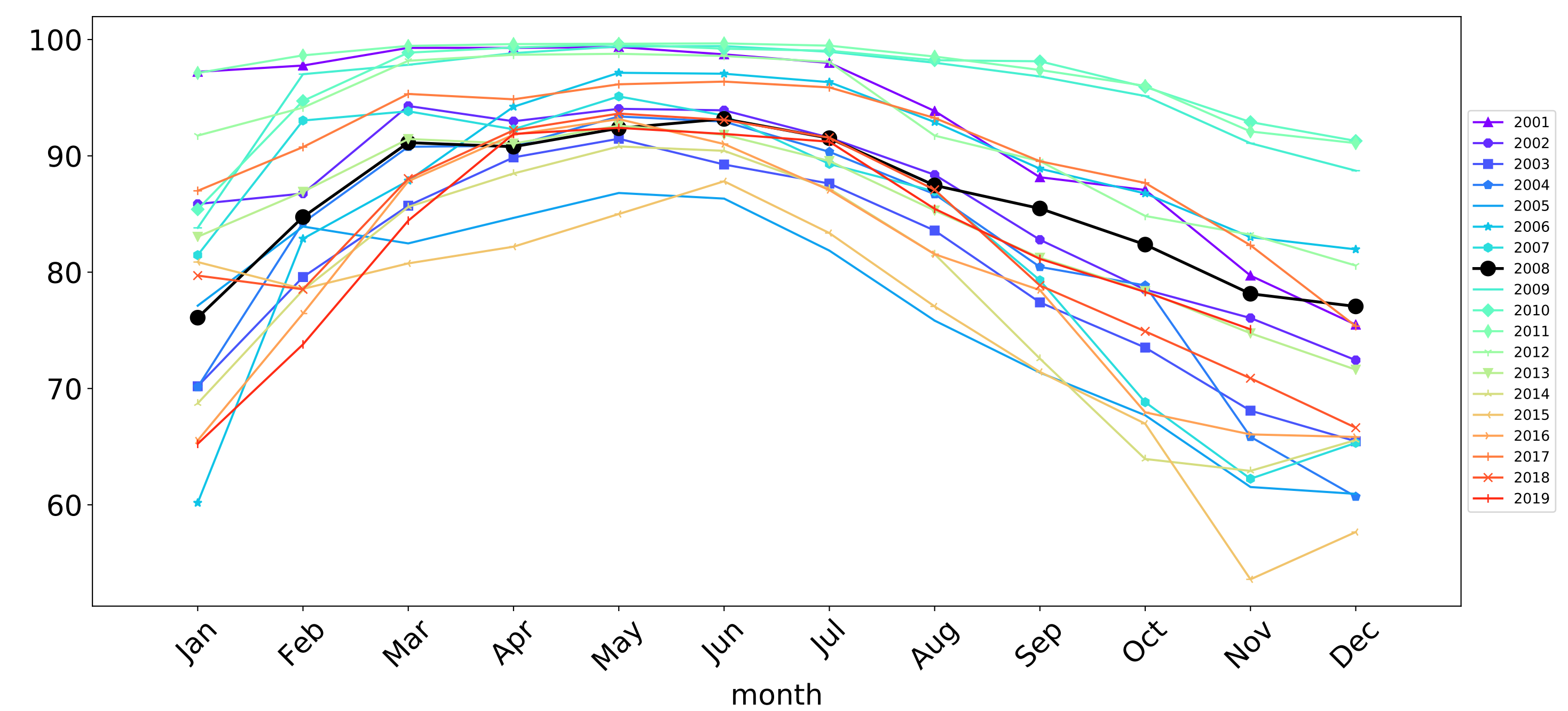Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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%)

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	19,454,125	98.7% 19,200,981	76.7% 14,928,570	33.9% 6,604,437	15.5% 3,007,192	3.5% 676,791	1.4% 264,170
Conservation and natural environments	778,925	99.9% 778,325	95.5% 743,975	49.7% 387,150	24.4% 189,825	7.4% 57,550	3.3% 25,925
Conservation and natural environments non forest	571,775	99.9% 571,175	94.0% 537,200	36.0% 206,075	11.5% 66,025	3.3% 18,625	1.6% 9,275
Agriculture	17,752,575	98.7% 17,518,800	75.5% 13,398,325	32.6% 5,782,000	14.4% 2,564,225	2.7% 478,675	0.8% 138,400
Grazing	17,749,075	98.7% 17,515,300	75.5% 13,395,775	32.6% 5,781,425	14.4% 2,564,100	2.7% 478,675	0.8% 138,400
Grazing non forest	14,969,200	98.4% 14,735,425	71.1% 10,645,125	24.1% 3,607,650	9.0% 1,345,825	2.2% 327,050	0.8% 125,975
Grazing Woodland forest	2,757,350	100.0% 2,757,350	98.9% 2,728,225	78.1% 2,154,700	43.6% 1,203,500	5.4% 150,225	0.5% 12,425