[LGA Kent_(S) (WA)] - total vegetation cover soil protection report [Sep 2019]

This report provides information about vegetation covering the soil surface for a region during a single month with comparison to previous years. The total vegetation cover indicates where soil is likely to be protected from wind (>=50% total vegetation cover) and water/hillslope (>=70% total vegetation cover) erosion. Results are shown for the whole region (polygon) and also separated by land use and forest cover class. This is because different land use / forest cover classes are likely to have different cover patterns and targets.
[Kent_(S)]
The six maps and two graphs provide a report for the month with:
• Land use and forest cover information for the area:
　　o Map: Land use and forest cover
　　o Chart: Land use and forest cover area
• Total vegetation cover for this month:
　　o Map: total vegetation cover classified into 4 classes
　　o Chart: total vegetation cover percentage area classified into 4 classes
• Areas protected from erosion for the month:
　　o Map: water erosion protection (>70% cover) percentage area and hectares
　　o Map: wind erosion protection (>50% cover) percentage area and hectares
• Comparison with previous years:
　　o Map: anomaly – compare this month to the average cover from the same month in previous years
　　o Map: deciles – rank this month against the same month in previous years
• Time series from January 2001 to current:
　　o Wind erosion protection time series: percentage of the area of the region with greater than 50% cover
　　　for each month since January 2001 (orange line): Horizontal lines are 10th (cover target) and 50th percentiles.
　　　Vertical line is month of report.
　　o Water erosion protection time series: percentage of the area of the region with greater than 70% cover
　　　for each month since January 2001 (blue line): Horizontal lines are 10th (cover target) and 50th percentiles.
　　　Vertical line is month of report.
　　o Rainfall: millimetres rainfall each month (black line). Vertical line is month of report.
• Time series for each month stacked by year
　　o Same data as time series from January 2001 to current month, grouped by month. Black line is current year of data.
• Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion.
　The thresholds reported are:
　　o the percentage area with pixels greater than 80% total clover
　　o the percentage area with pixels greater than 90% total clover
　　o the percentage area with pixels greater than 95% total clover
The following pages repeat the above sequence for each land use and forest cover class. For example
• All agricultural lands, that is grazing, cropping plus Horticulture (depending on what land use is present)
• Grazing lands by forest classes if present
• Cropping lands
• Irrigation lands
• Protected areas by forest classes if present
The following pages repeat the above sequence for each land use and forest cover class if 1% or more of area makes up a land use and forest cover class. Four land uses are reported: Conservation and natural environments, Agriculture, production native forests and plantation forests, and other. Agriculture is further divided into grazing, crops and horticulture are then divided into non-irrigated and irrigated. Land use is further divided by forest class if present: non-forest, woodland forest and non-woodland forest.
Explanatory notes:
This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool. The report is based on an analysis of 500 metre pixel data on monthly time steps. Report uses baseline from January 2001 to September 2019 for each month to generate anomalies and deciles. Post September 2019 all similar months are used to calculate anomalies and deciles.
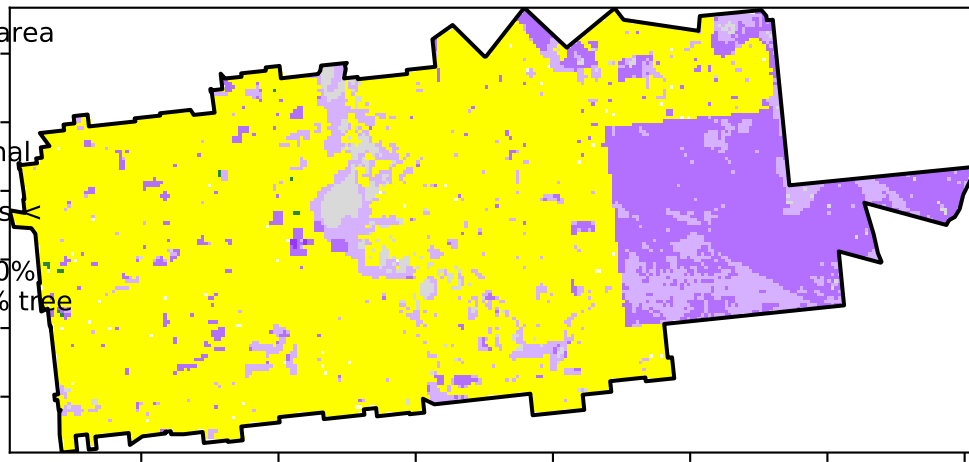
Acknowledgment of data:

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
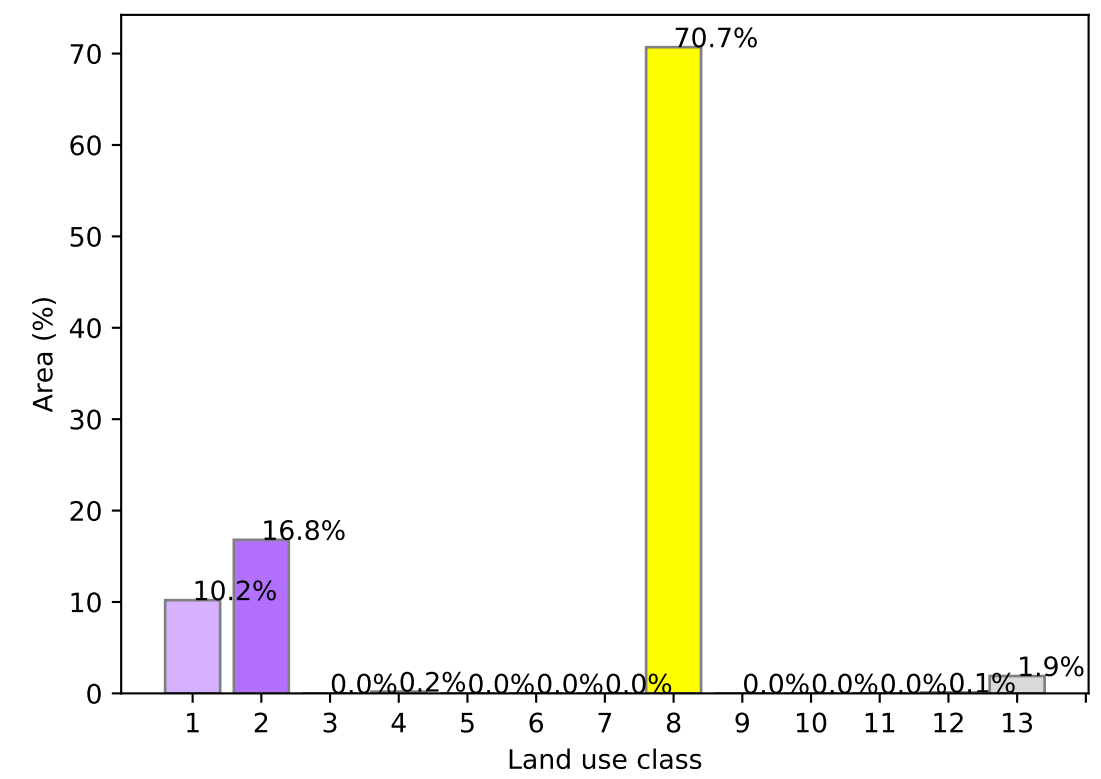
4. MODIS Fractional cover algorithm:

　　https://doi.org/10.4225/08/5848a3f19a7b3

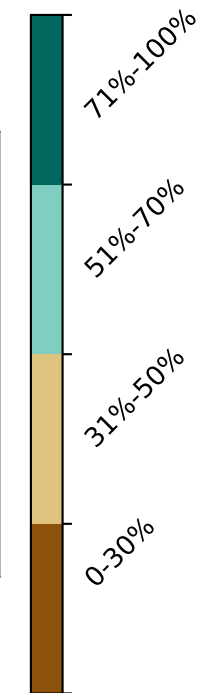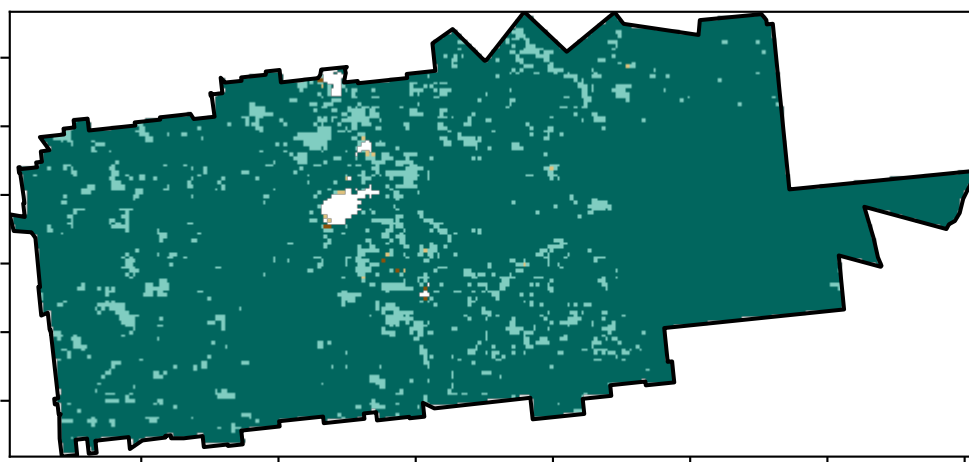# Vegetation Cover Sep 2019

Land use and forest cover

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.
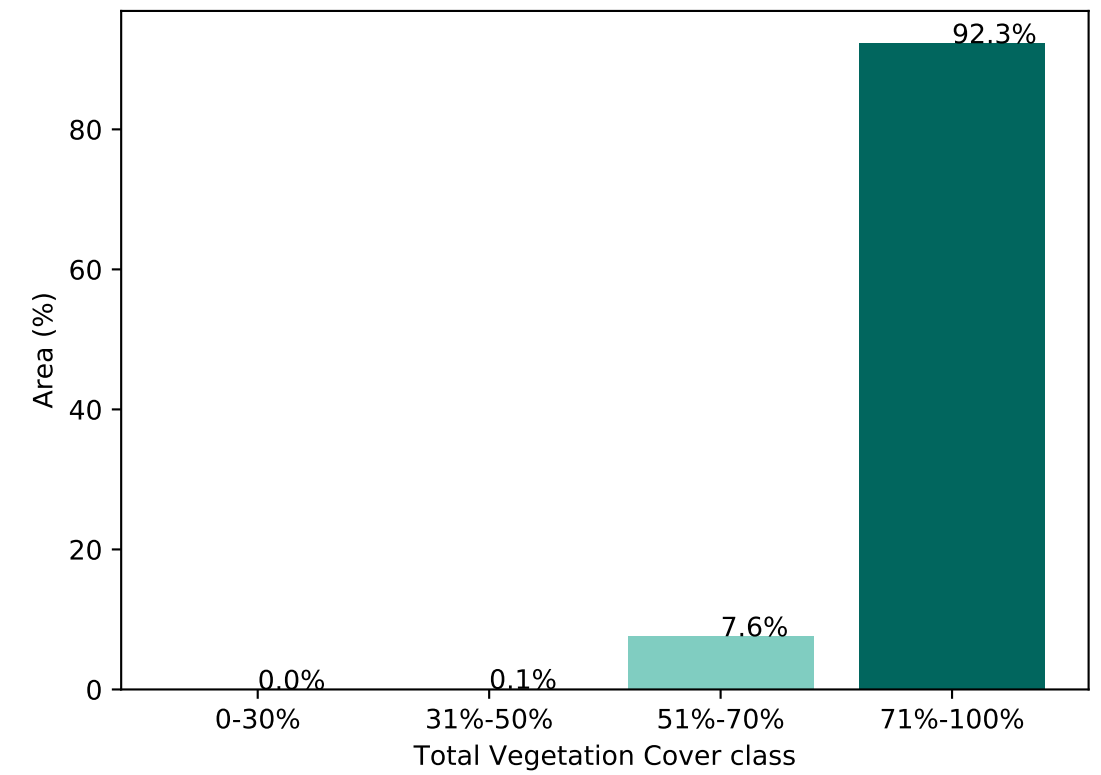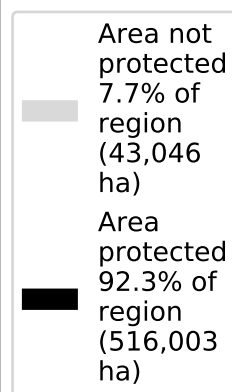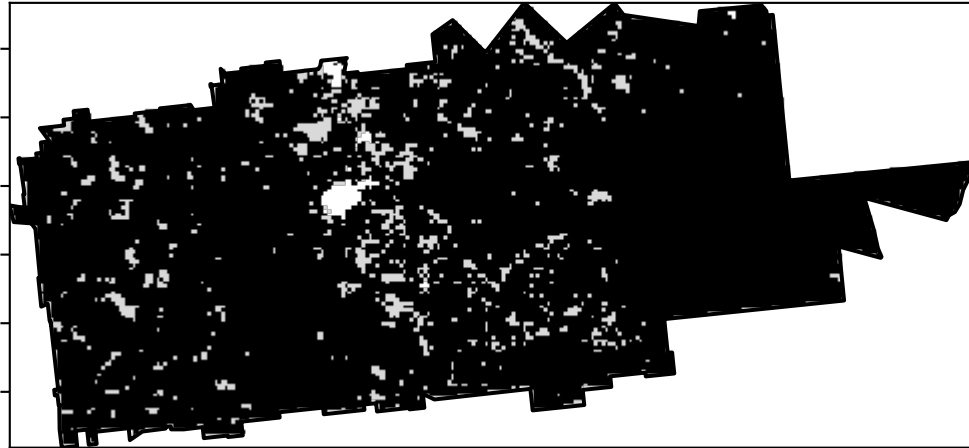

Legend with land class forest cover and number, i.e. Forests is 12

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%)
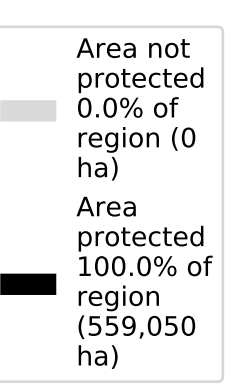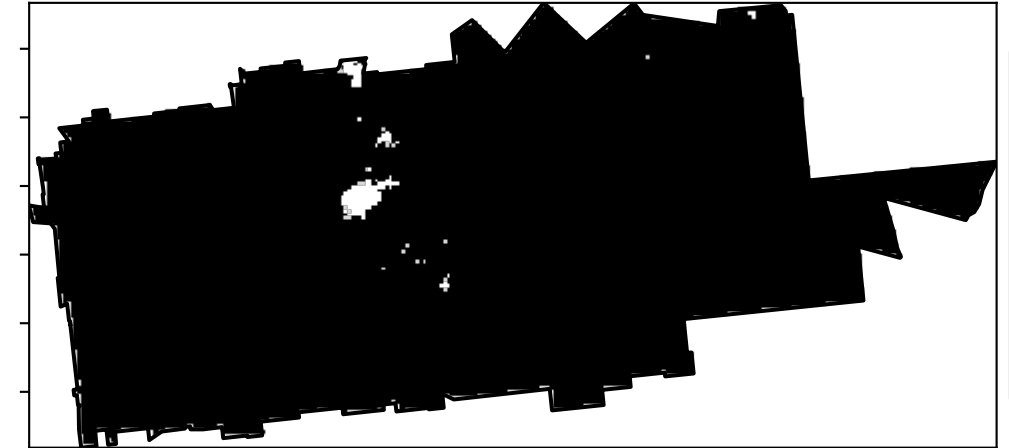
Area not protected 7.7% of region (43,046 ha)

Area protected 92.3% of region (516,003 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)
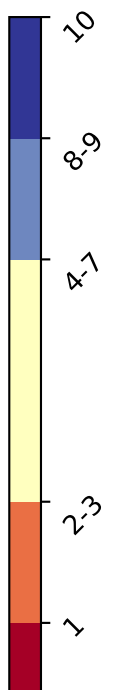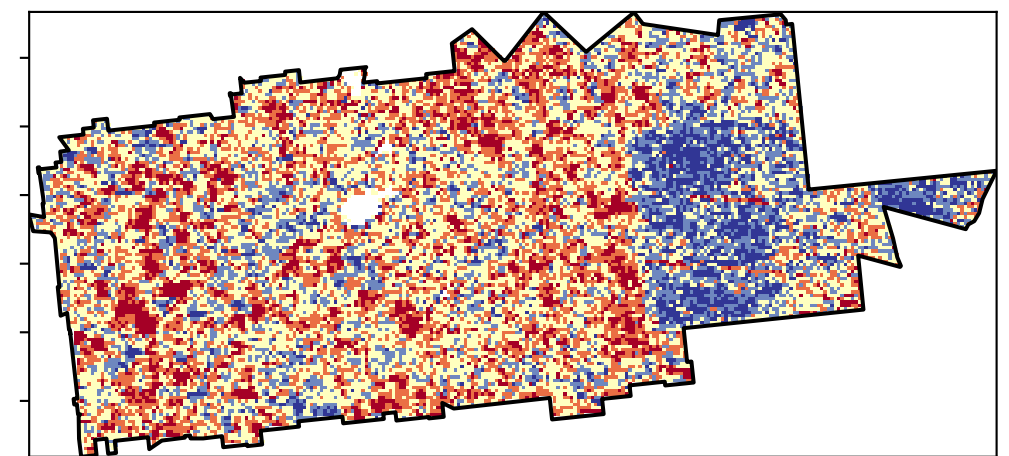
Area protected 100.0% of region (559,050 ha)

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.
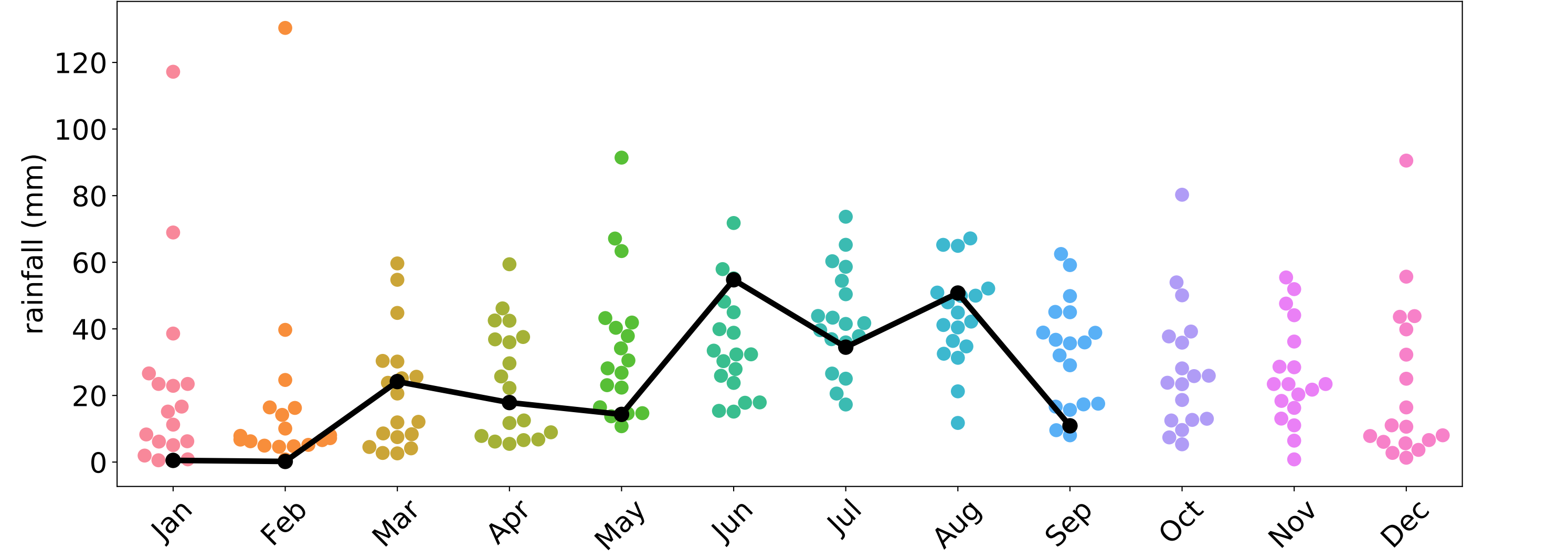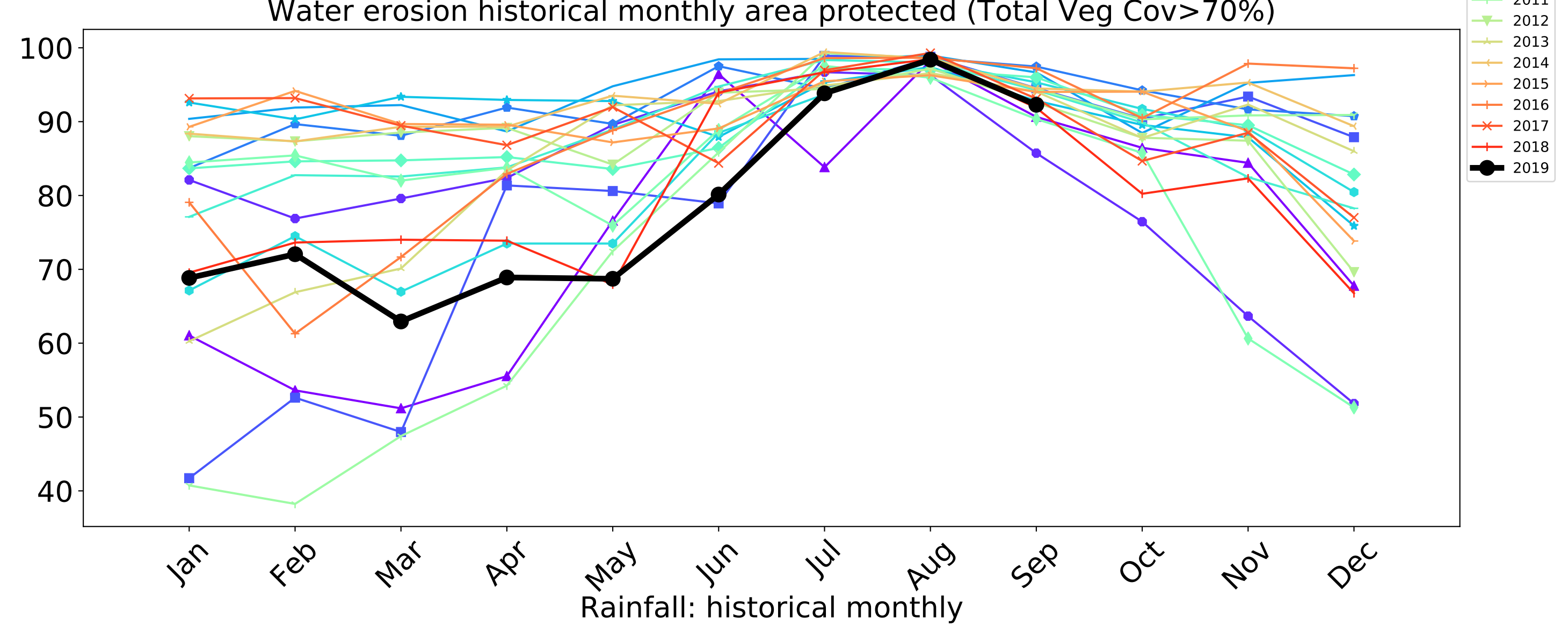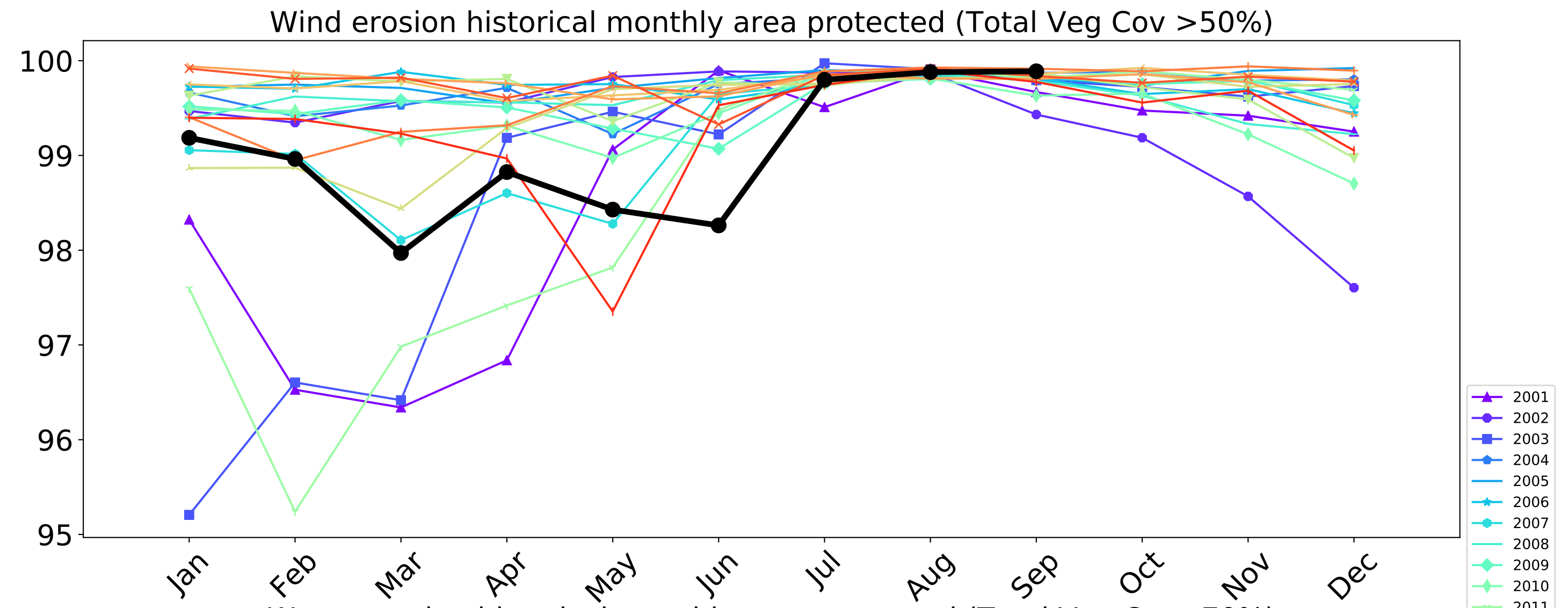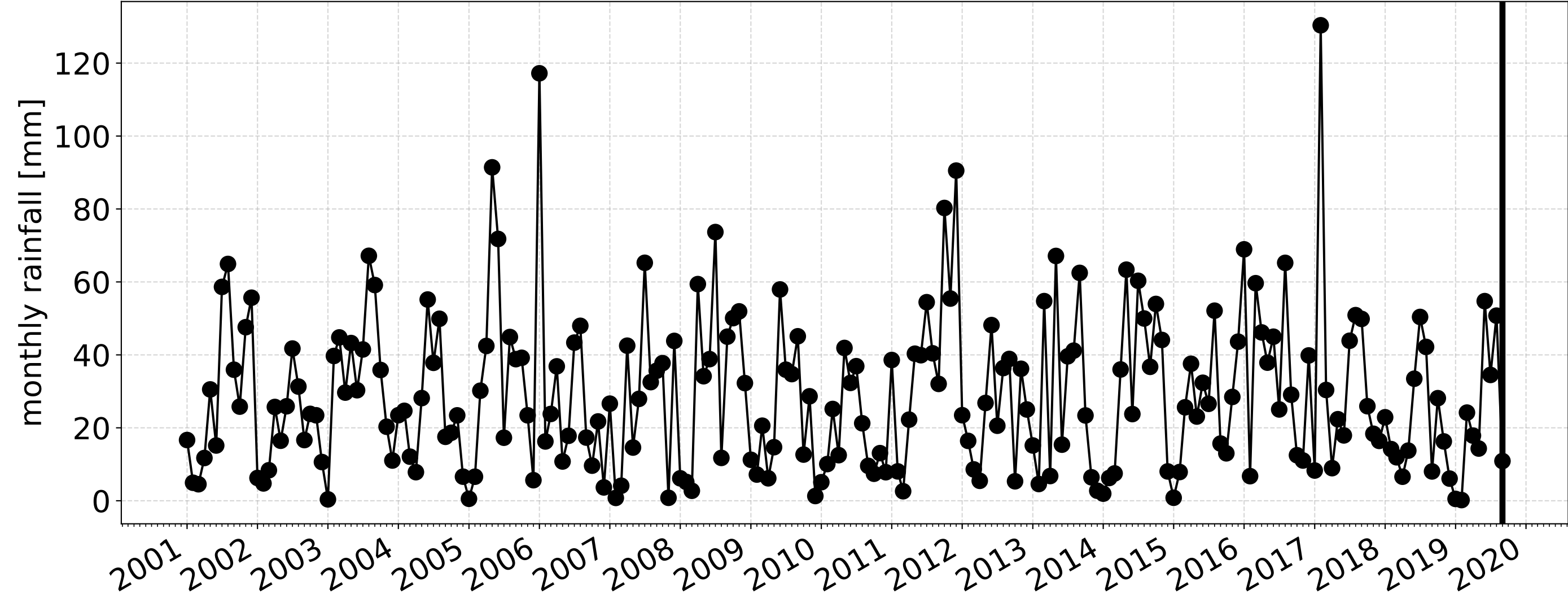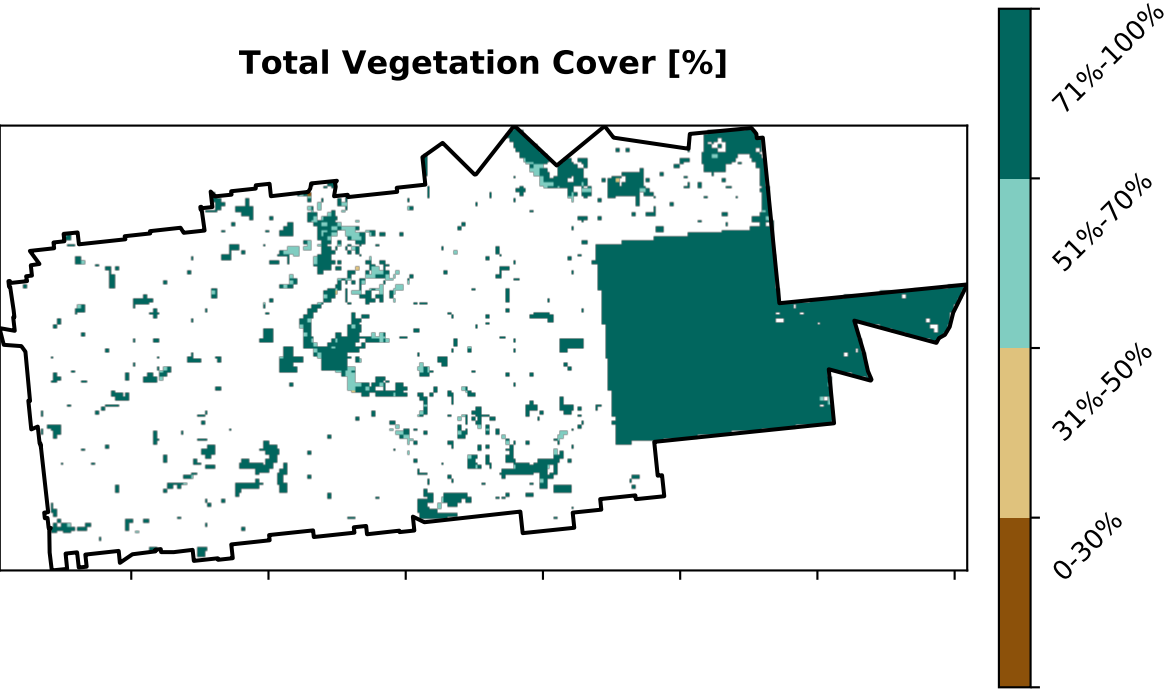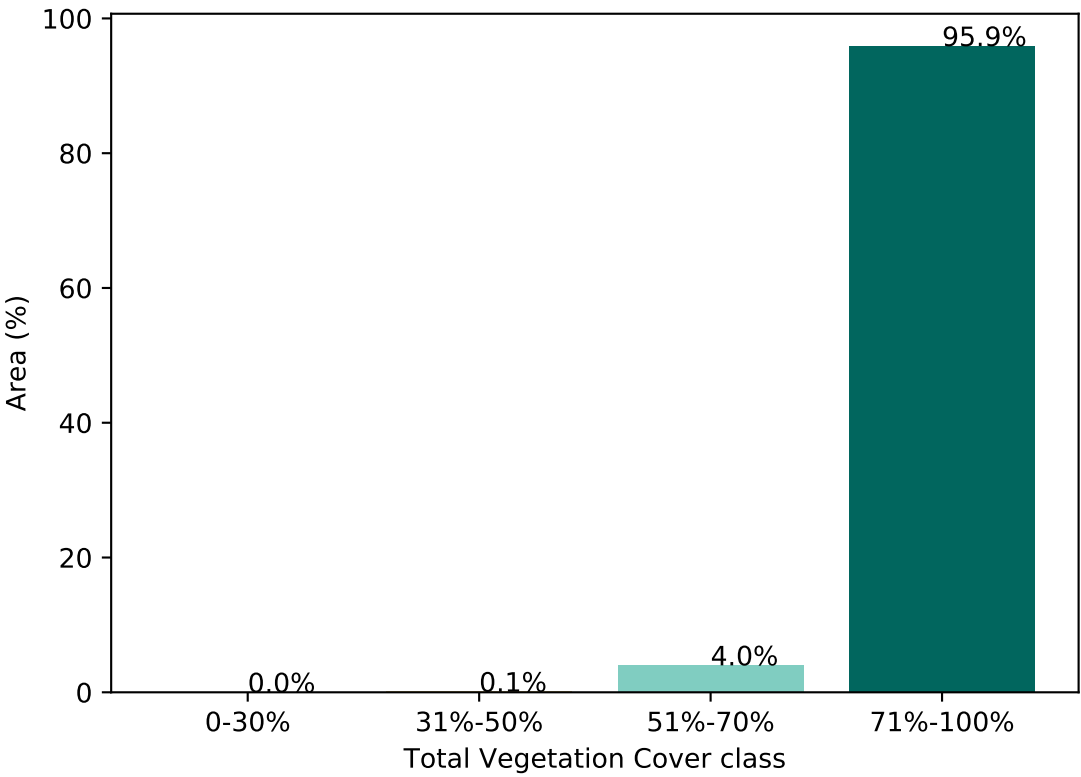

2

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

3
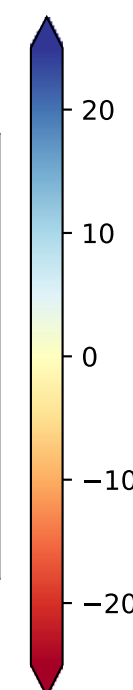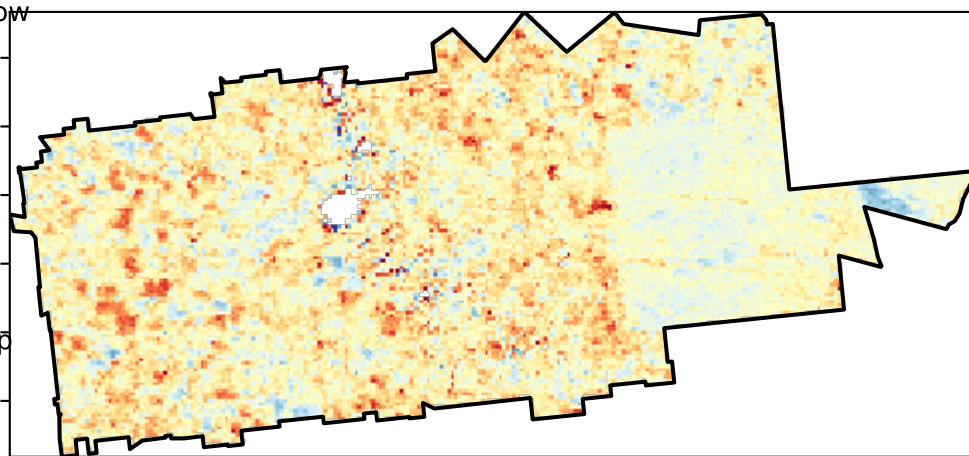
Conservation and natural environments

Land use and forest cover

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.
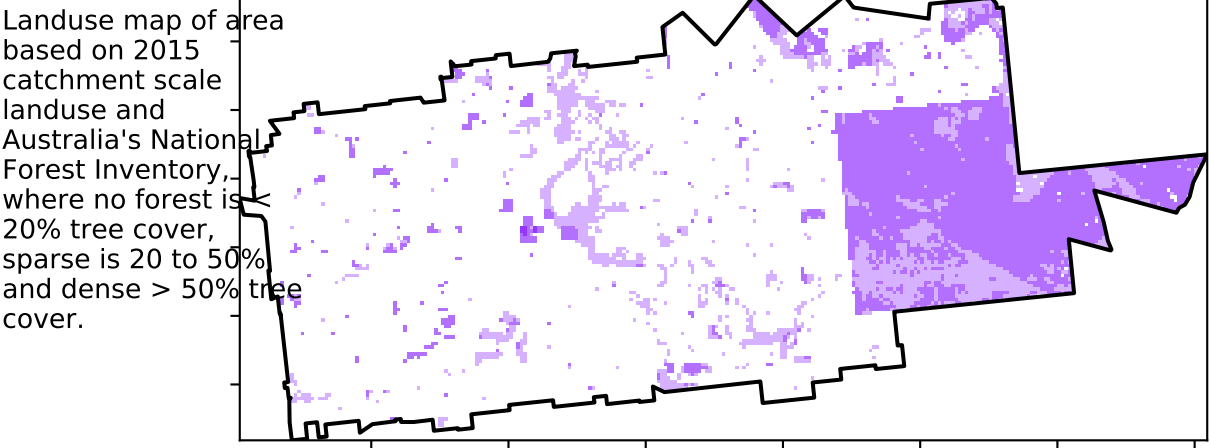
- Conservation and natural environments - Non-forest
- Conservation and natural environments – Woodland forest
- Conservation and natural environments – Non-woodland forest
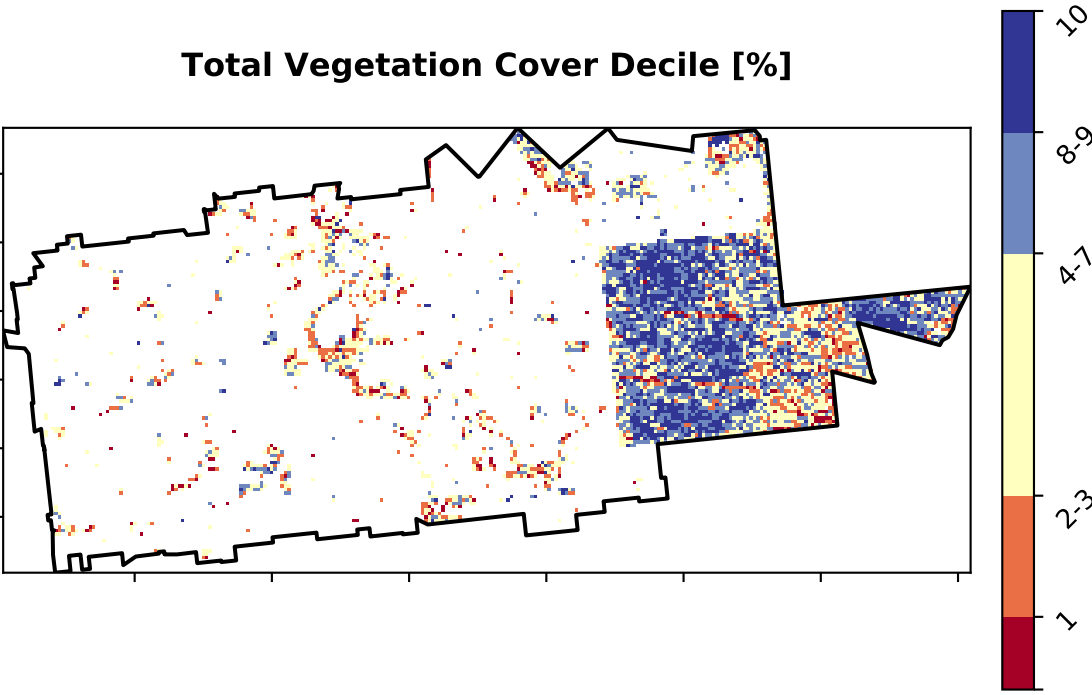
Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

95.9%
0.0%   0.1%   4.0%

% Area protected from water erosion (>70%)
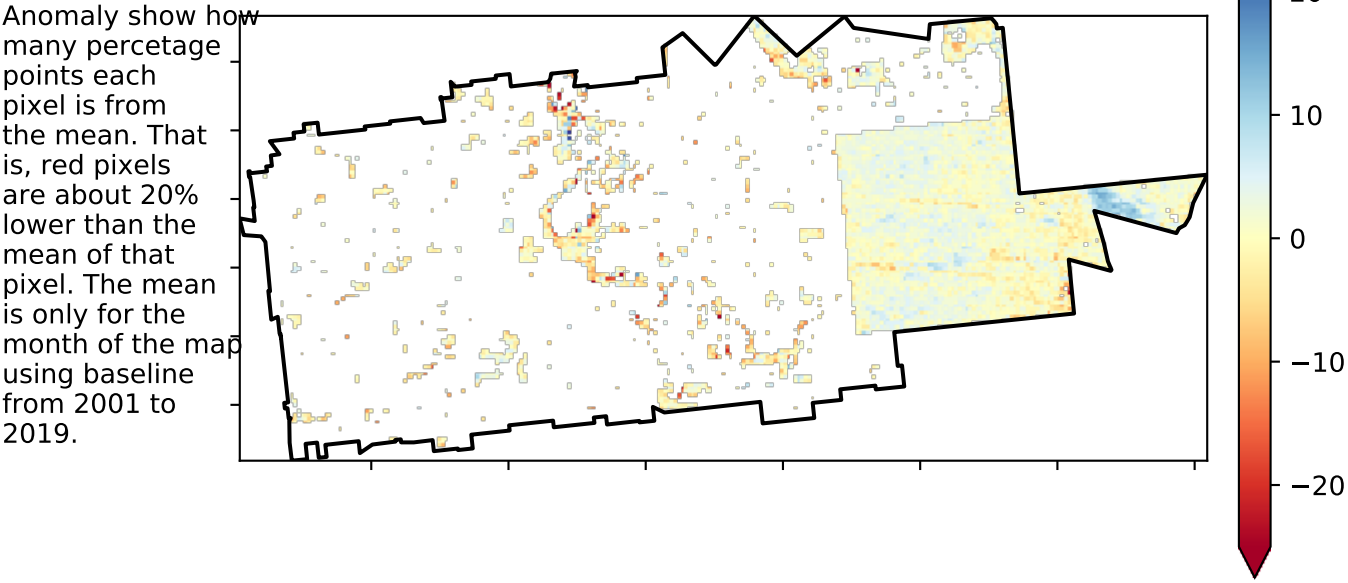
Area not protected 4.1% of region (6,225 ha)

Area protected 95.9% of region (145,624 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (151,850 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.
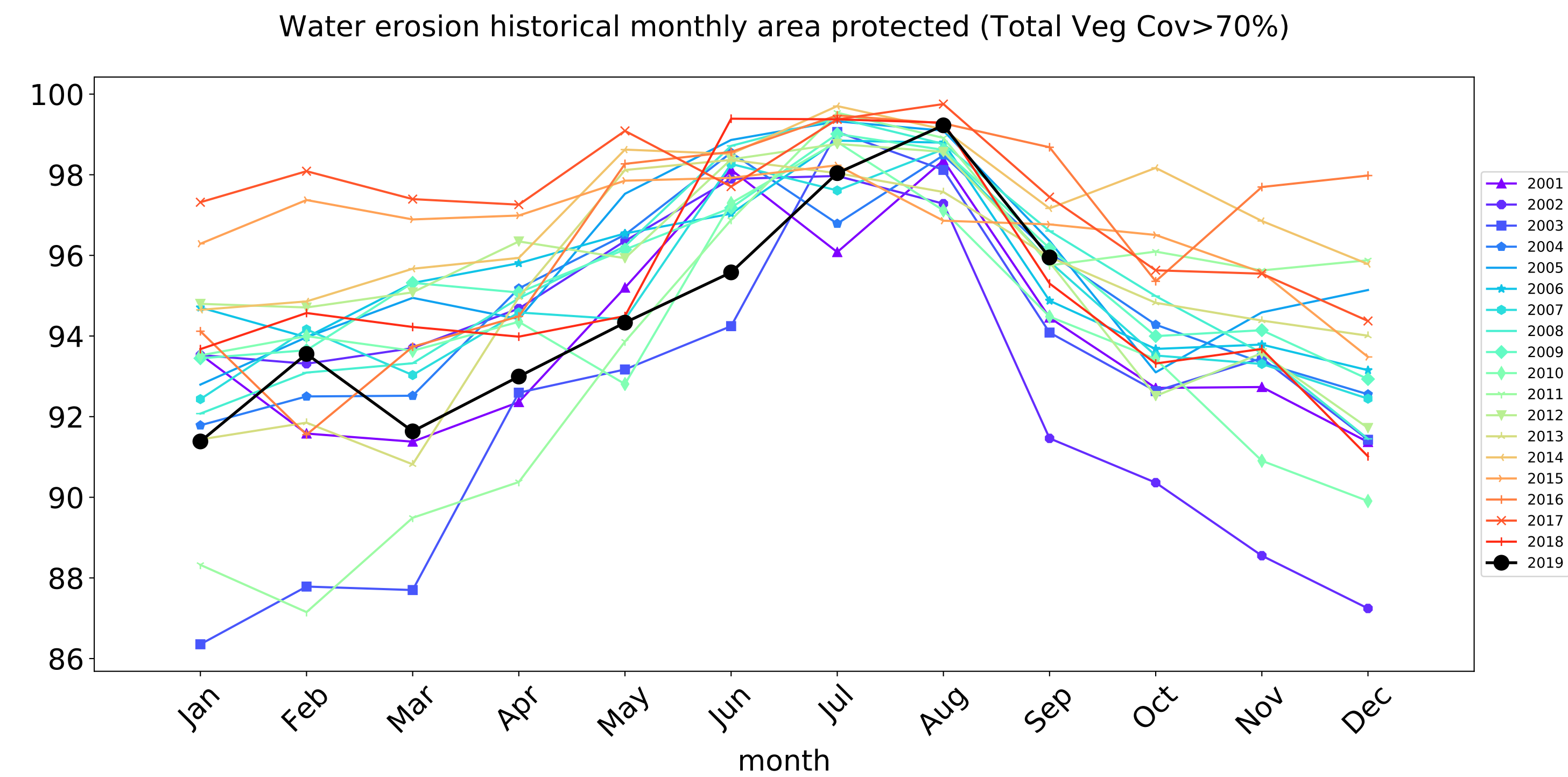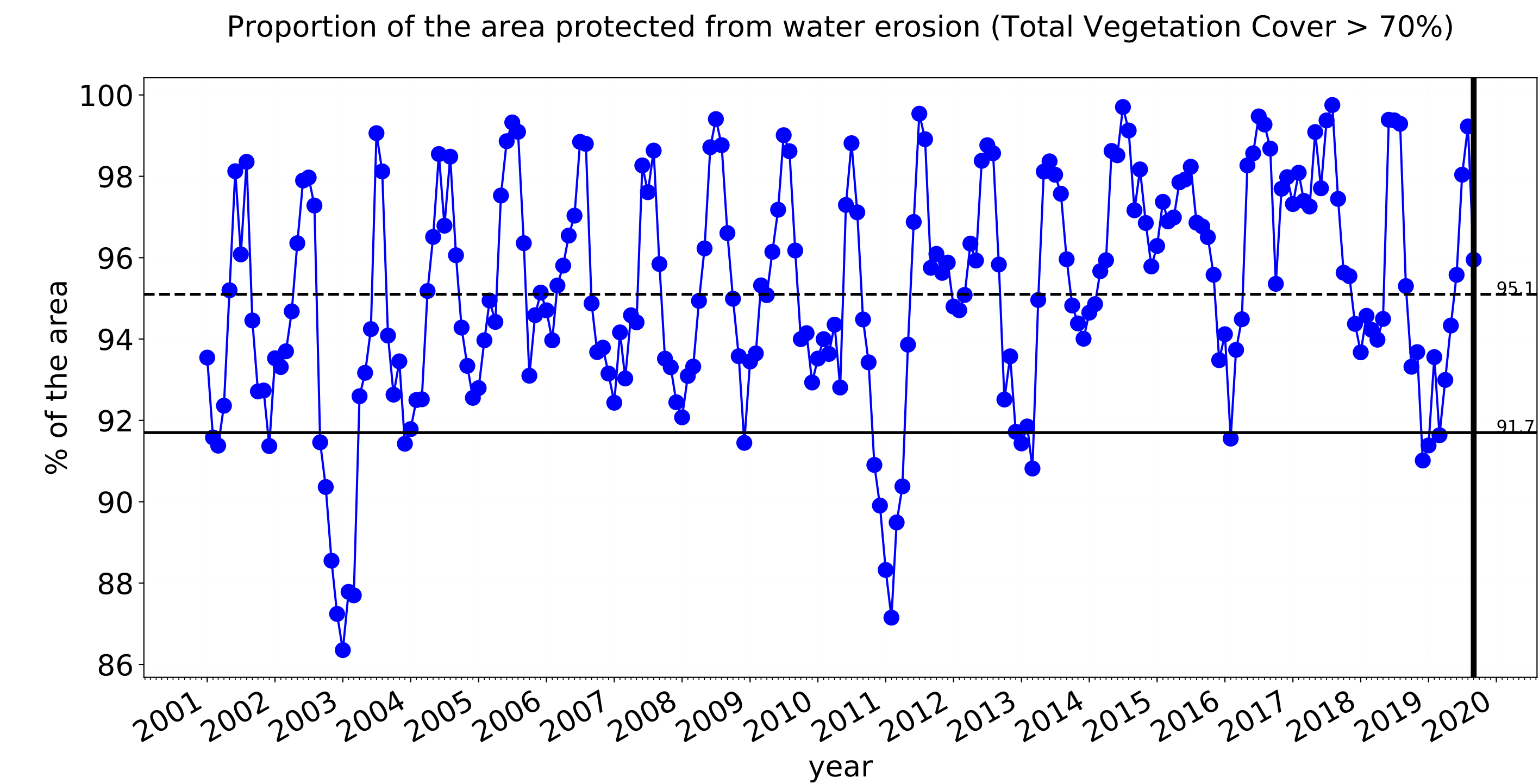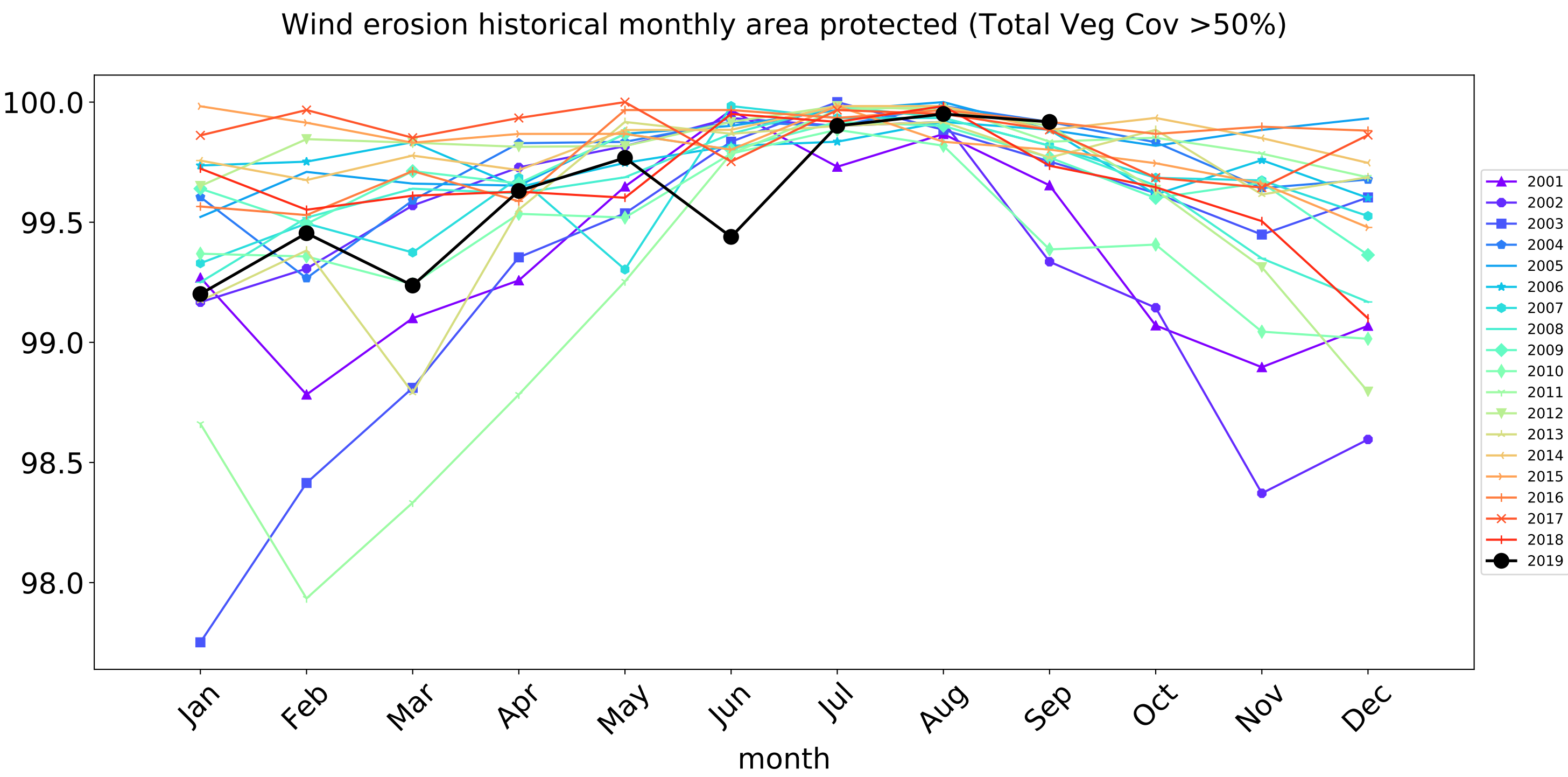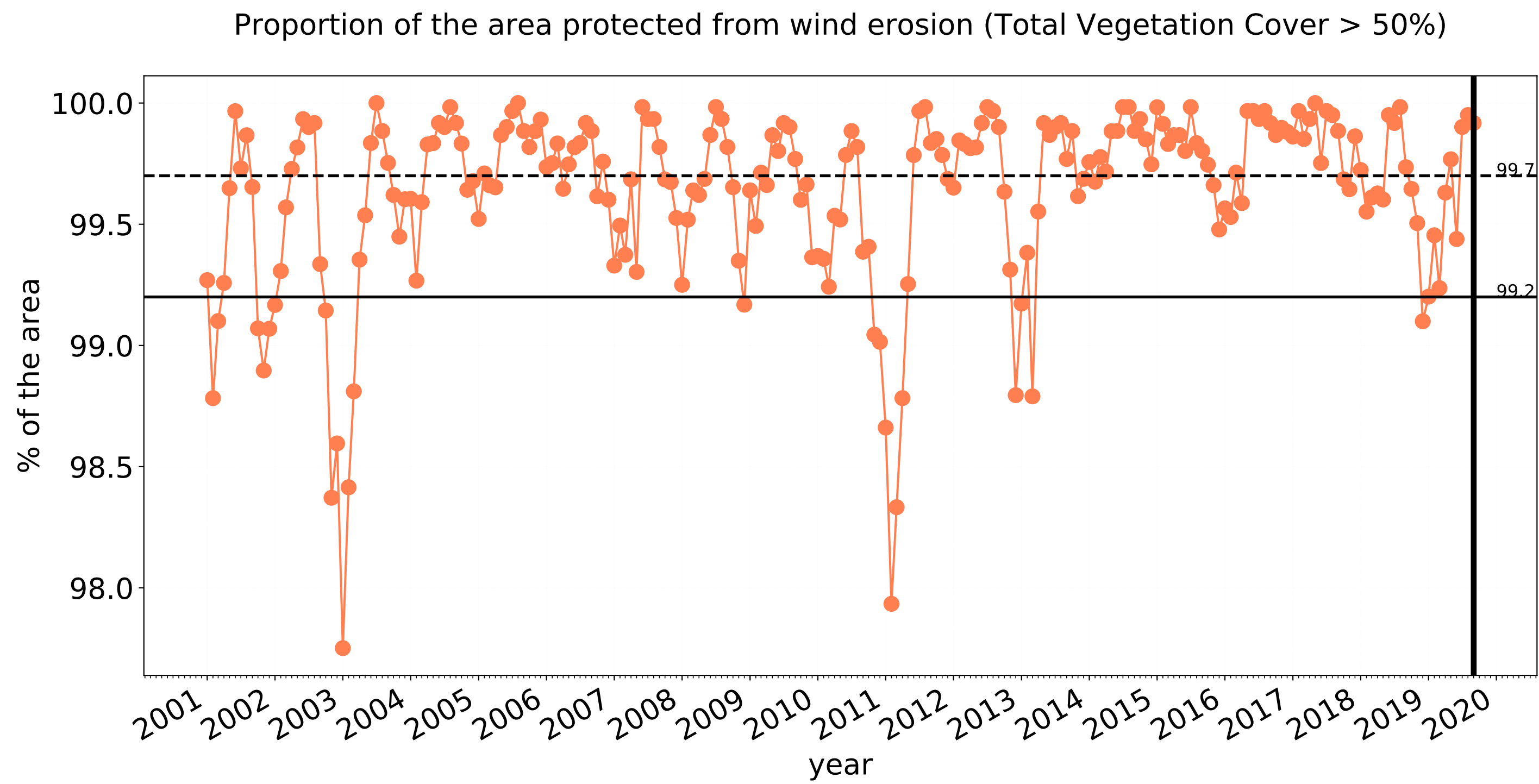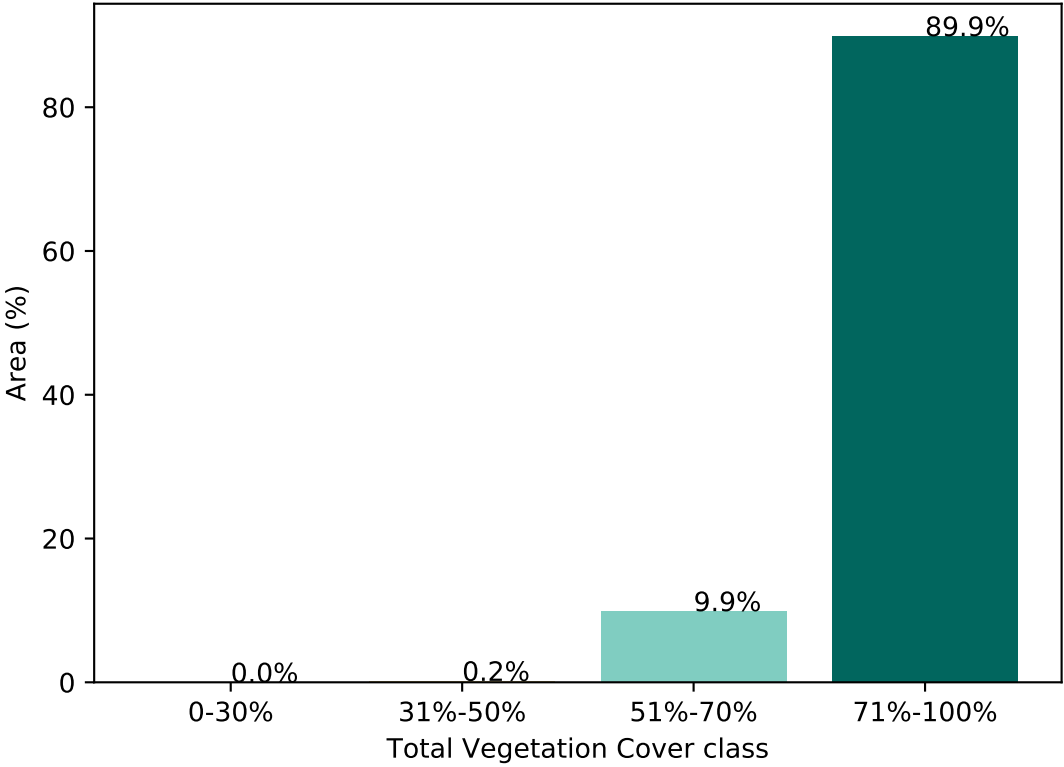

10
8-9
4-7
2-3
1

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

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.
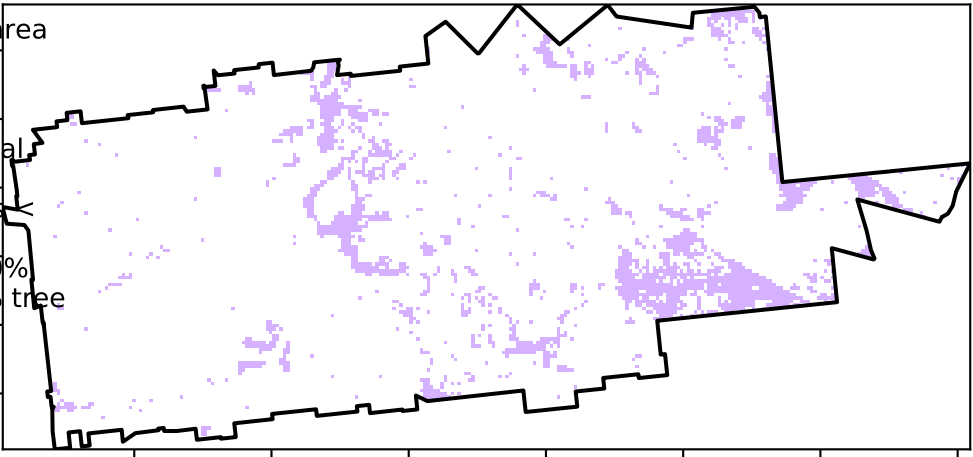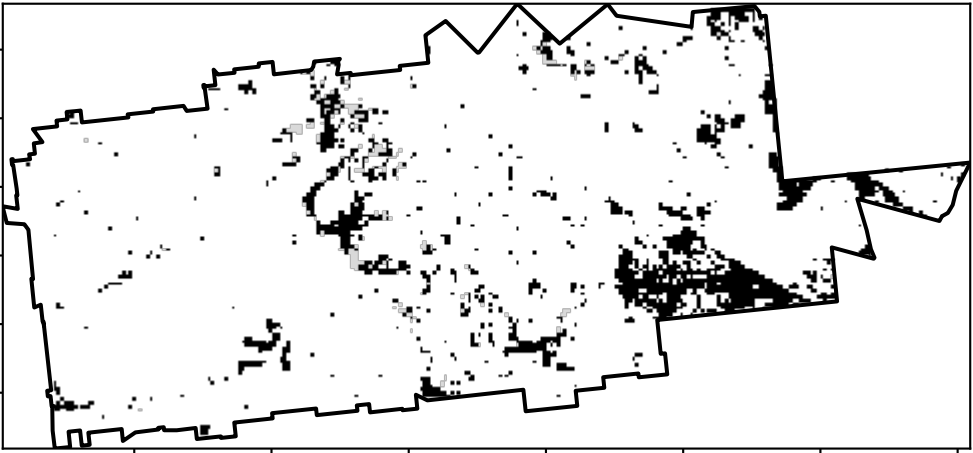
Conservation and natural environments - Non-forest

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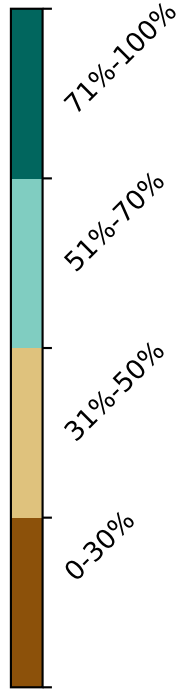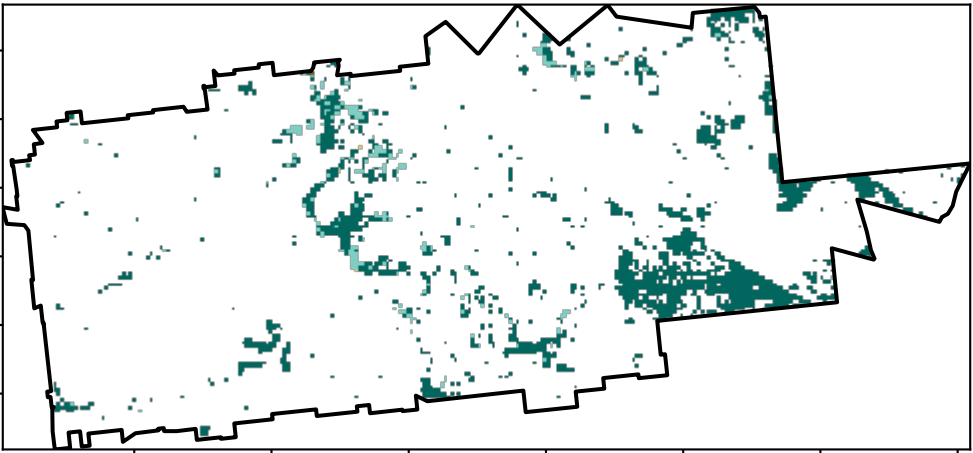
71%-100%
51%-70%
31%-50%
0-30%

Proportion of vegetation cover class in area

Area (%)

0.0%   0.2%   9.9%   89.9%

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

% Area protected from water erosion (>70%)

Area not protected 10.1% of region (5,764 ha)

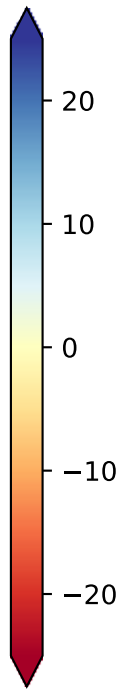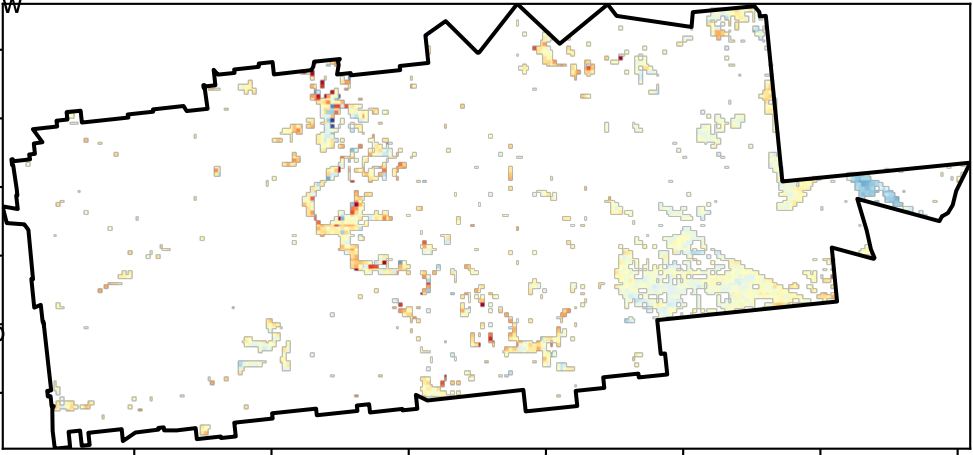Area protected 89.9% of region (51,310 ha)

% Area protected from wind erosion (>50%)
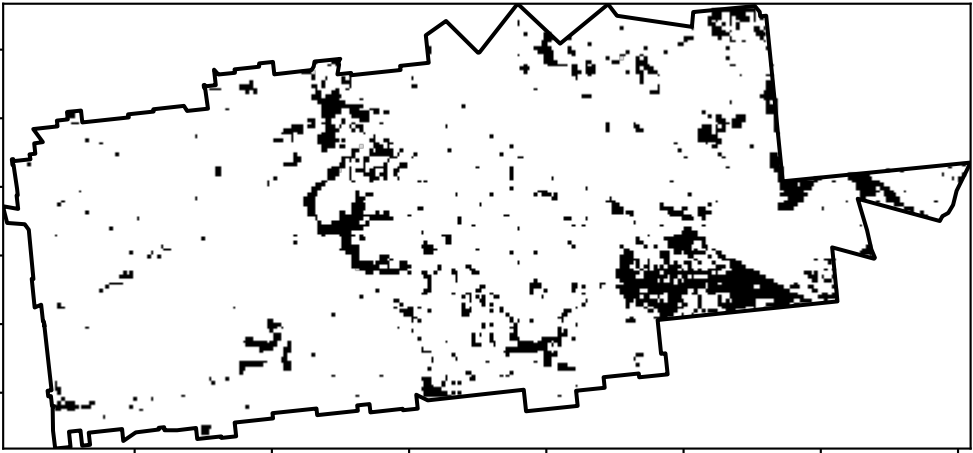
Area not protected 0.0% of region (0 ha)
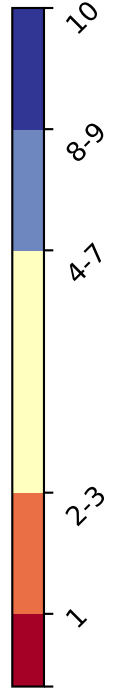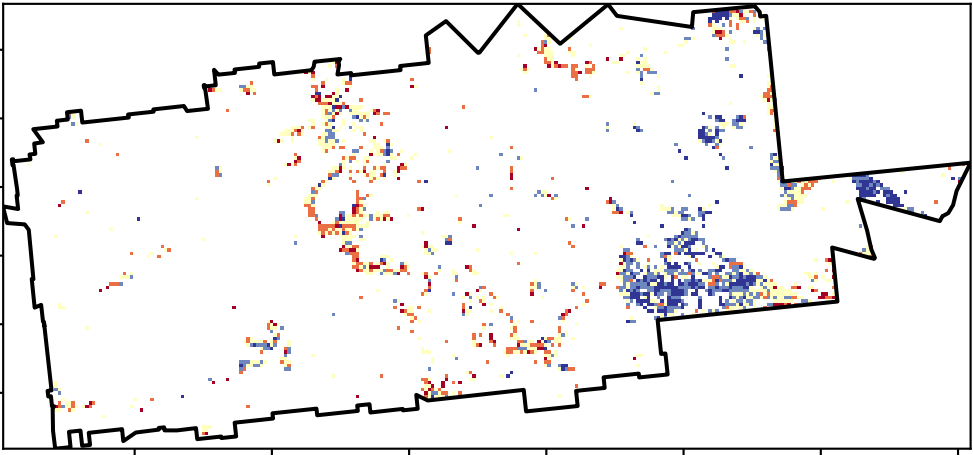
Area protected 100.0% of region (57,075 ha)

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.

20
10
0
-10
-20

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.
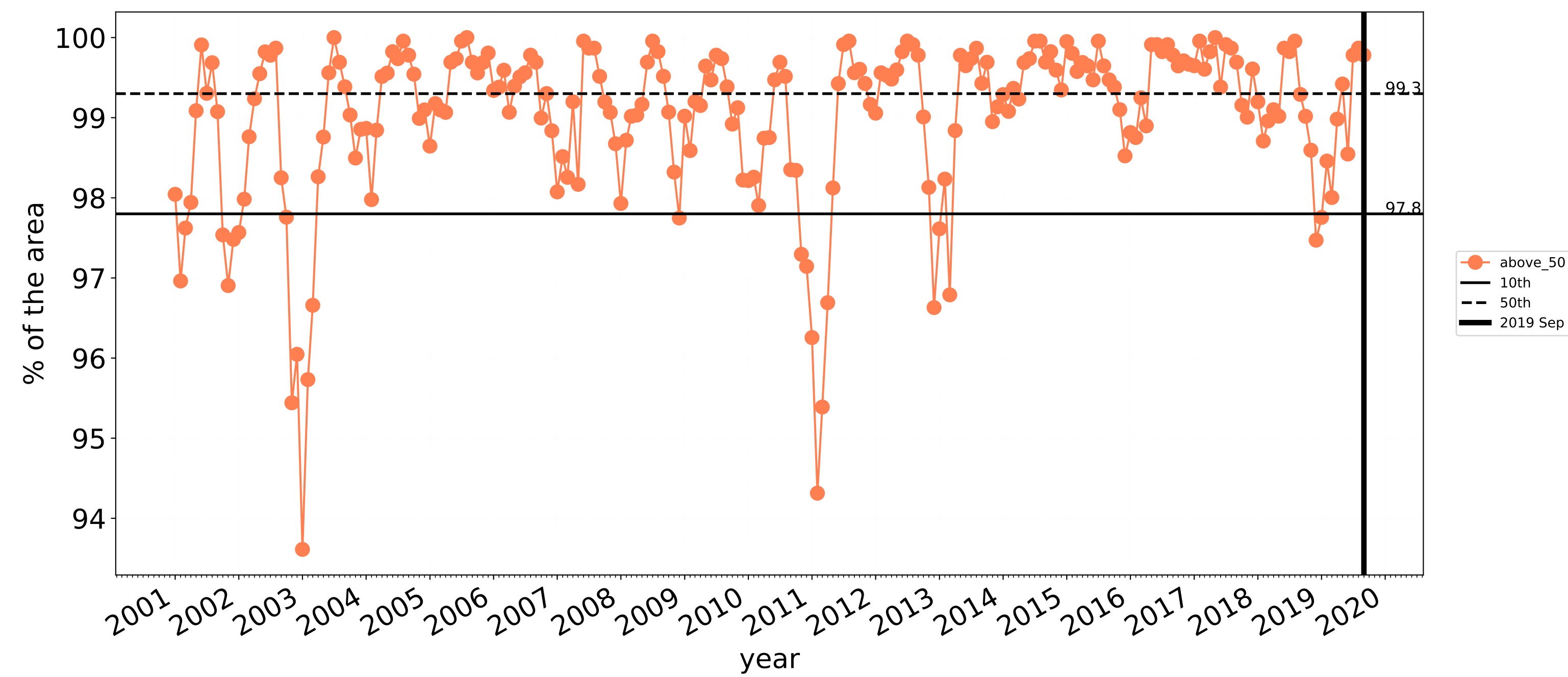
10
8-9
4-7
2-3
1

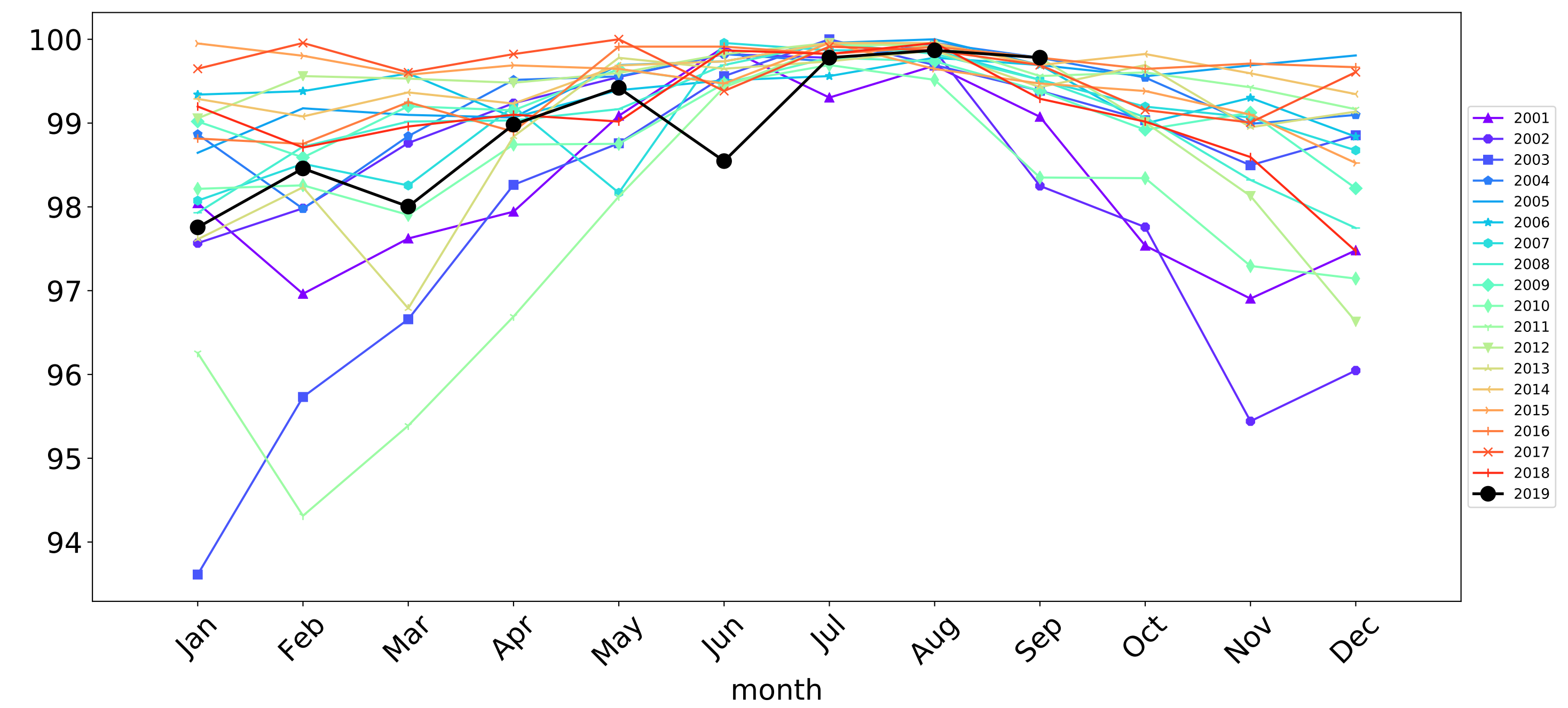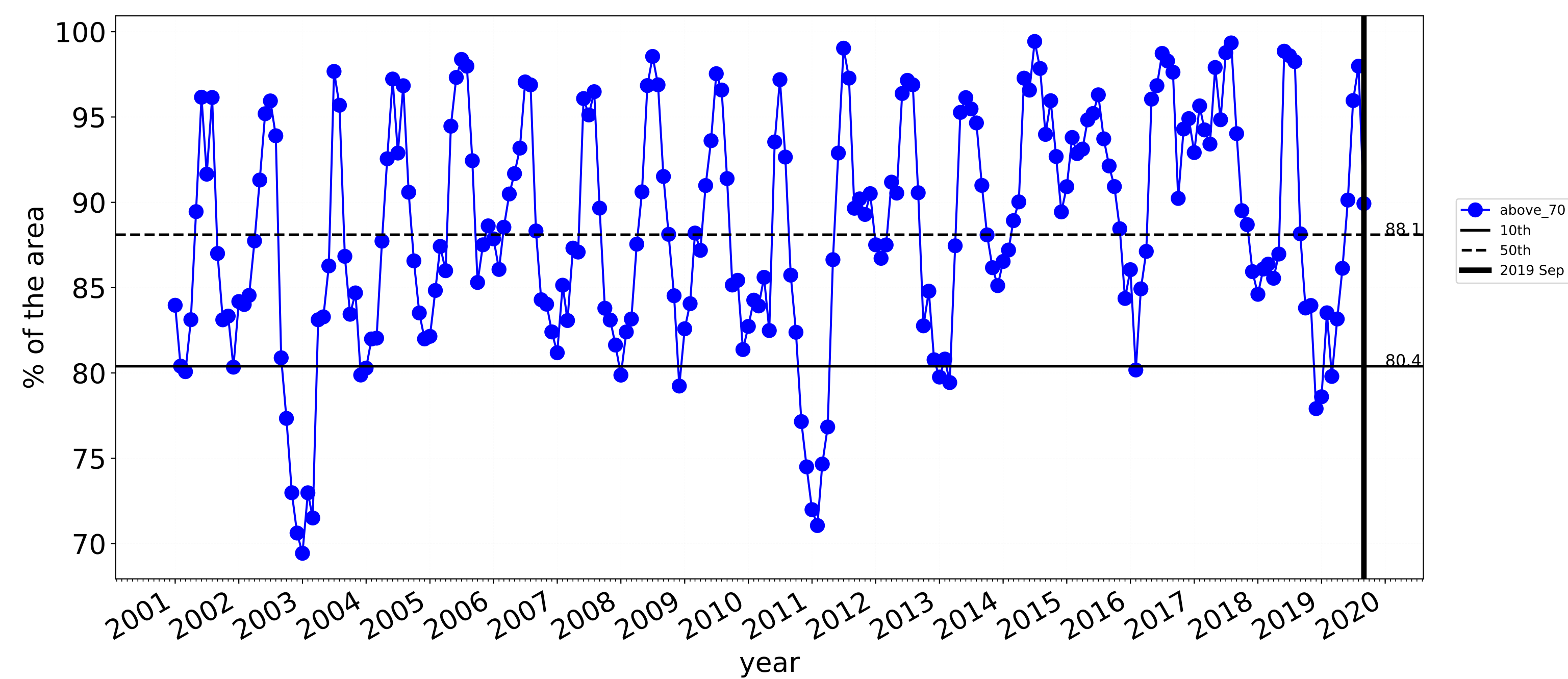**Conservation and natural environments non forest timeseries**

Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)
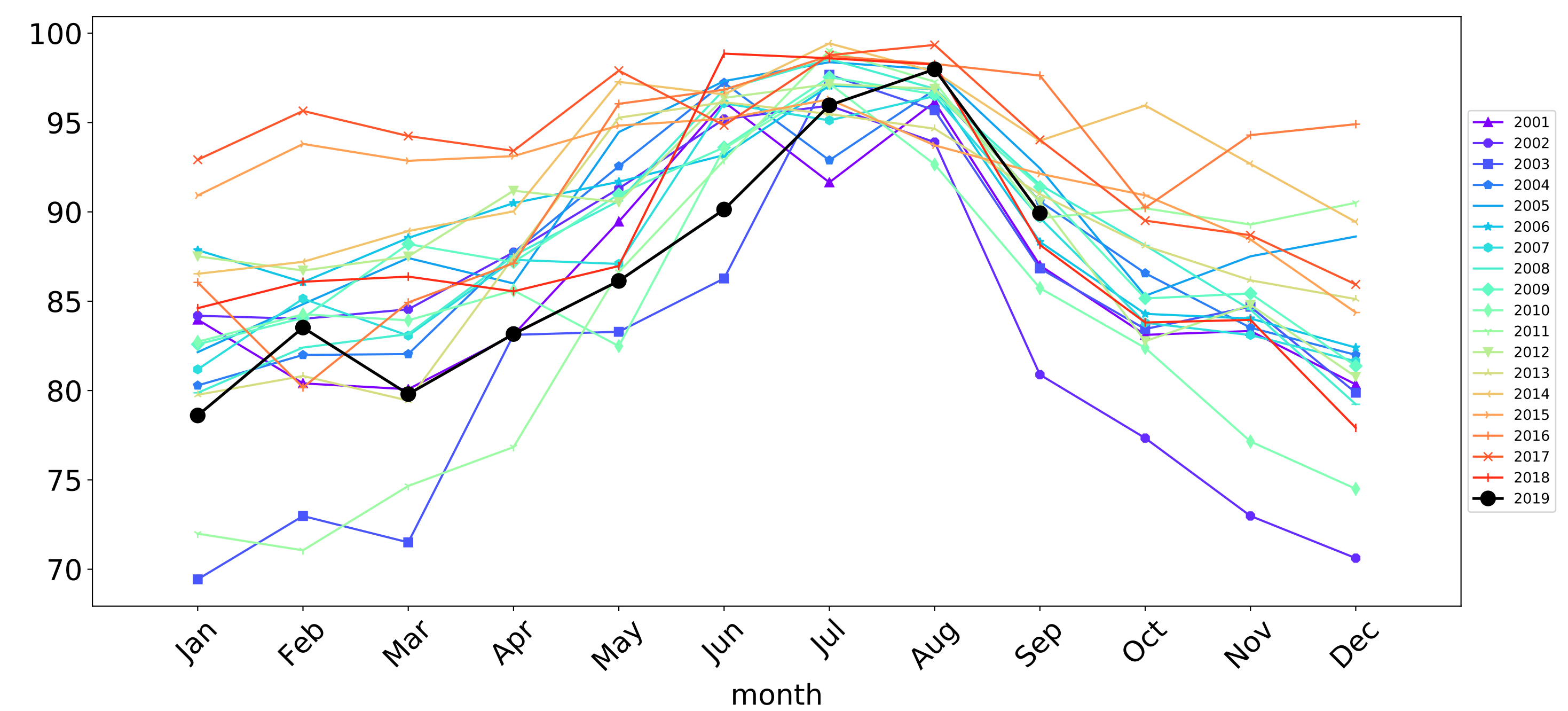
Wind erosion historical monthly area protected (Total Veg Cov >50%)

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)
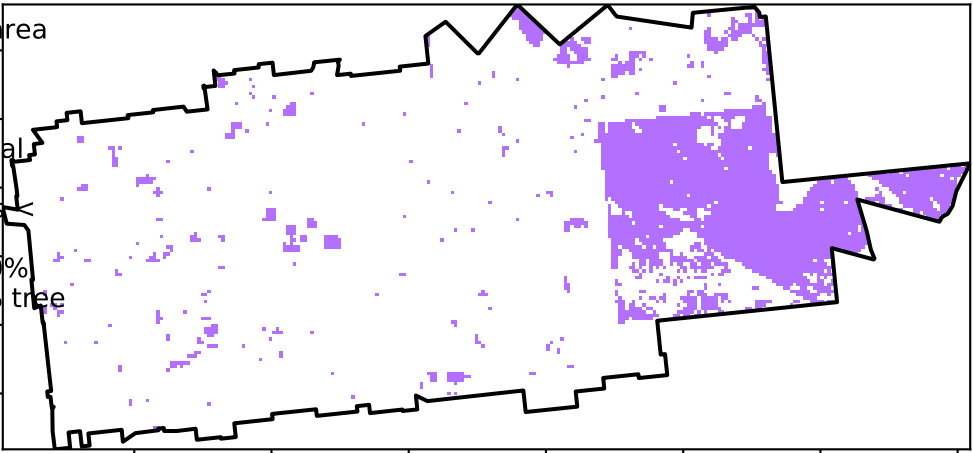
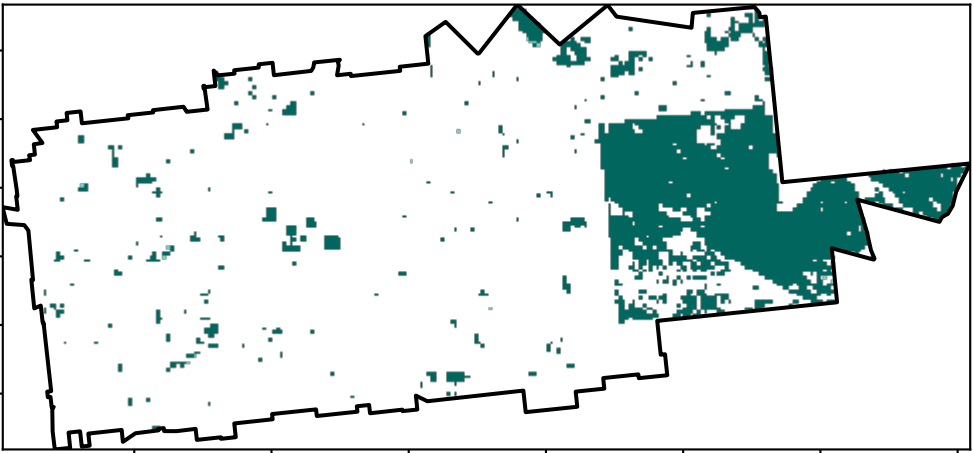Water erosion historical monthly area protected (Total Veg Cov>70%)

Conservation and natural environments Woodland forest
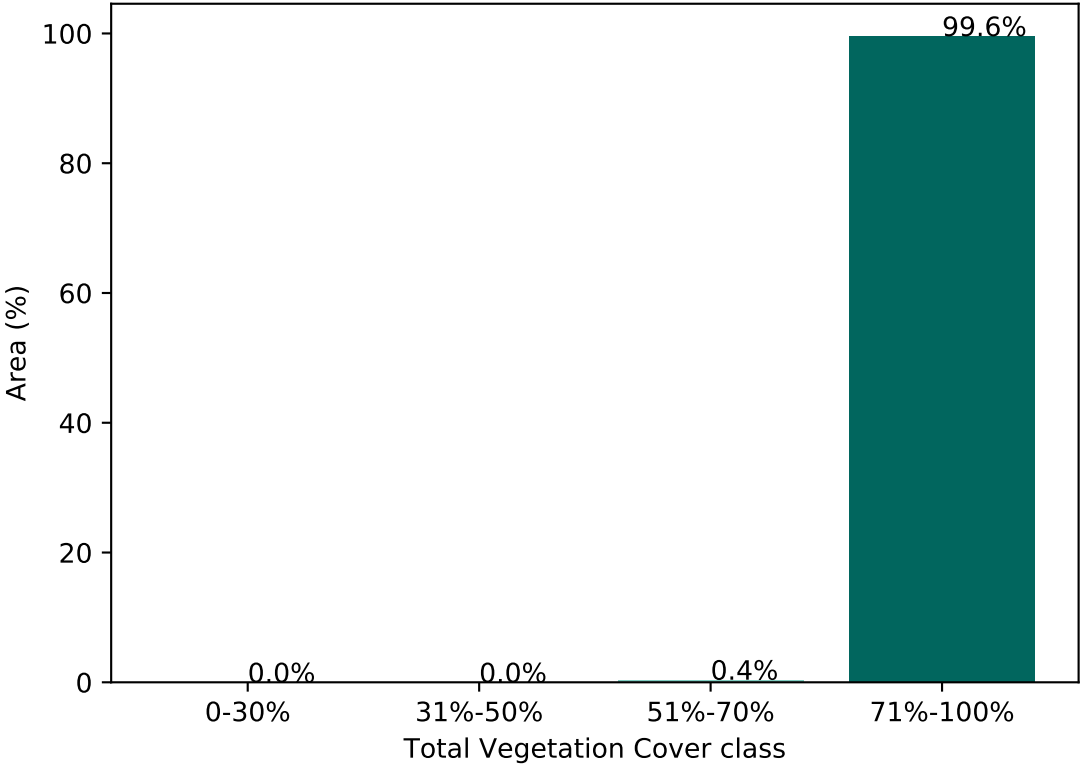
Land use and forest cover

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

Conservation and natural environments – Woodland forest

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

0.0%   0.0%   0.4%   99.6%

% Area protected from water erosion (>70%)

Area not protected 0.4% of region (378 ha)

Area protected 99.6% of region (94,221 ha)

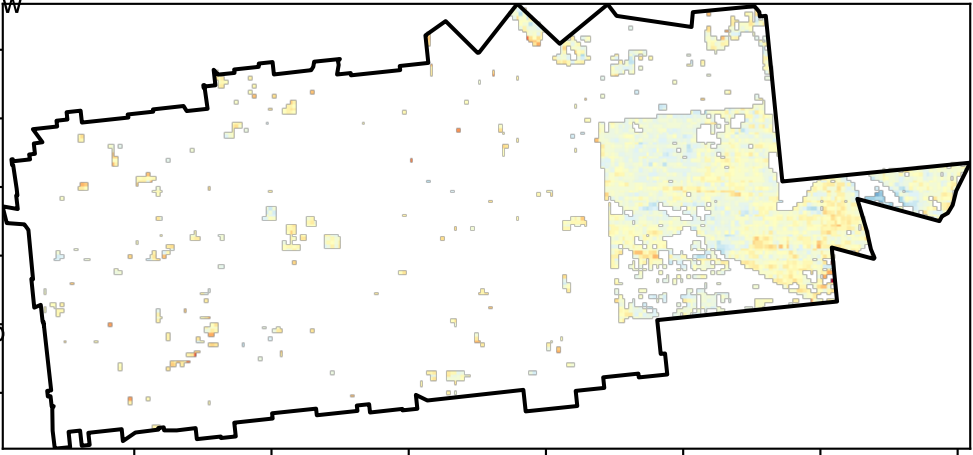## % Area protected from wind erosion (>50%)
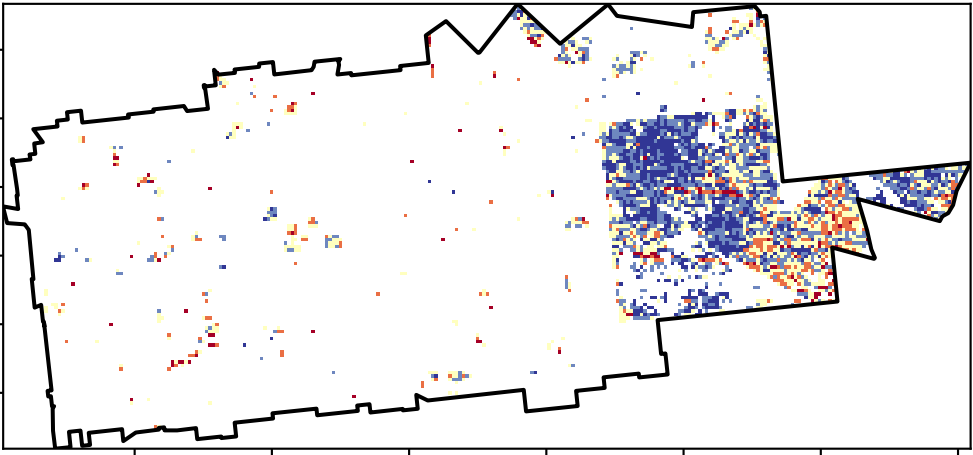

Area protected 100.0% of region (94,600 ha)

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.
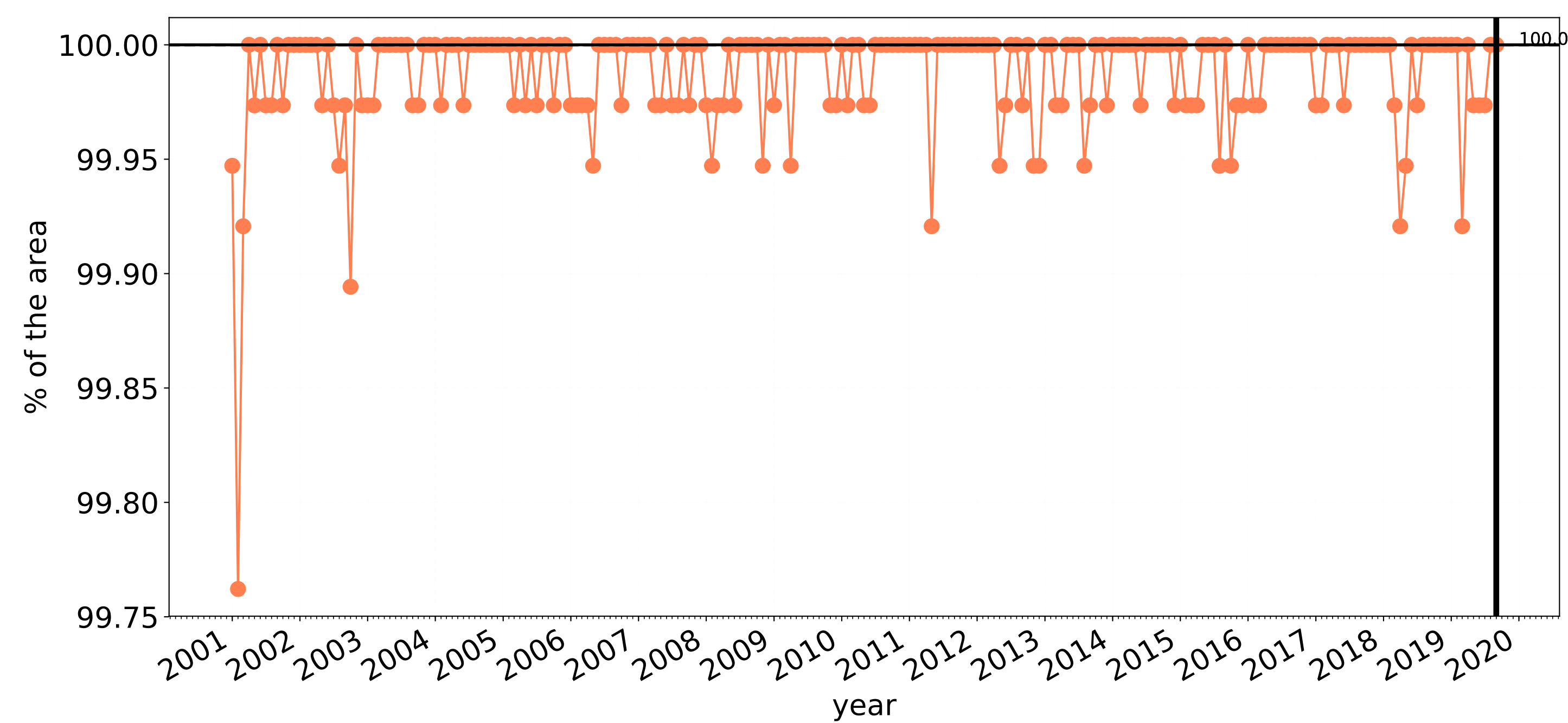

10
8-9
4-7
2-3
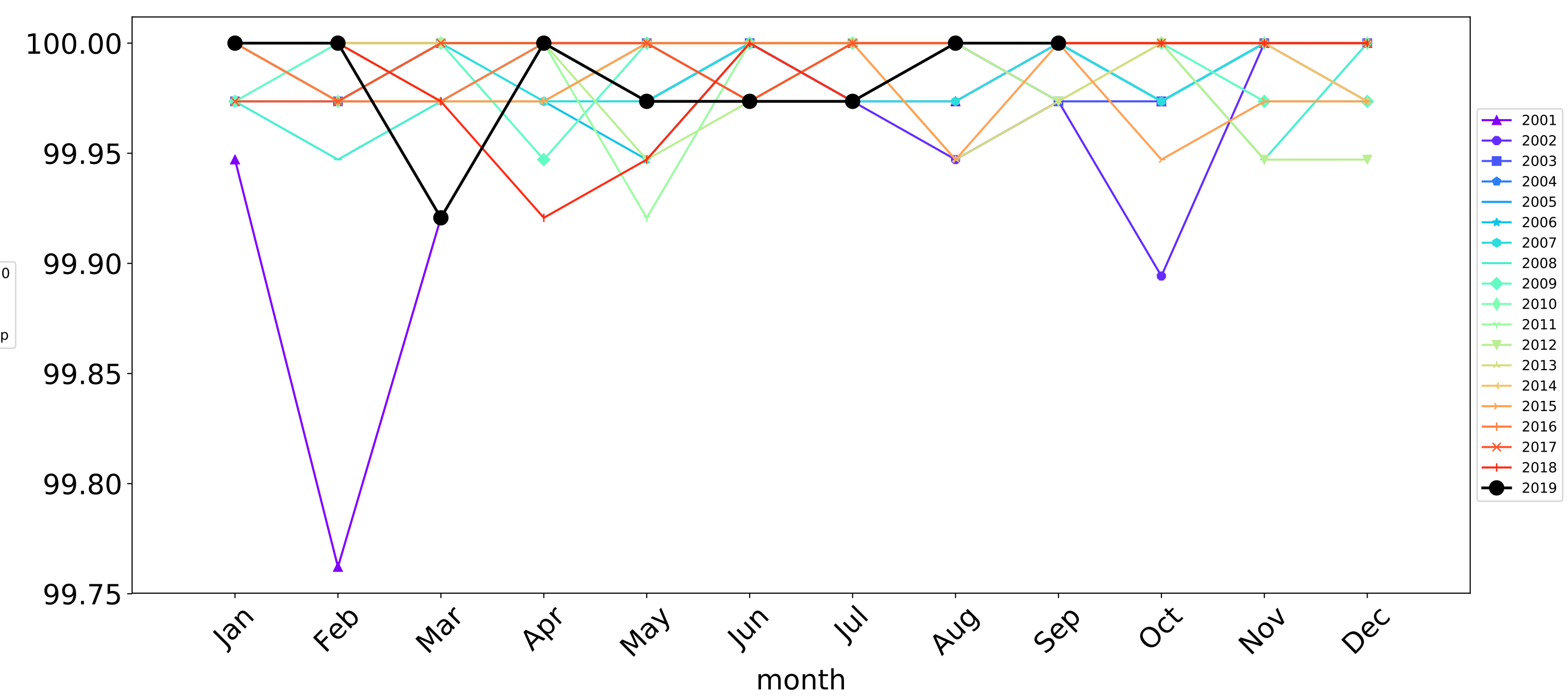1

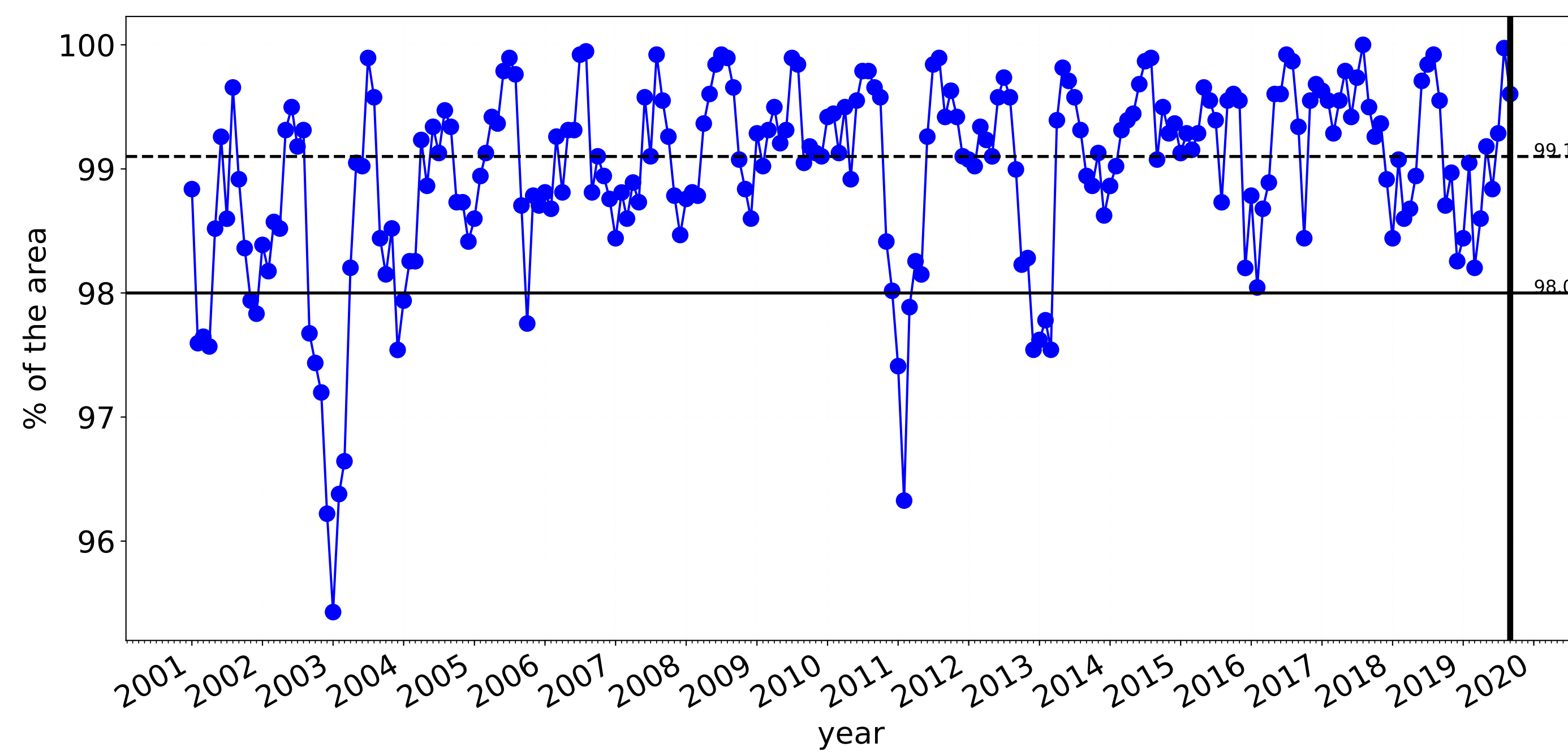# Conservation and natural environments Woodland forest timeseries

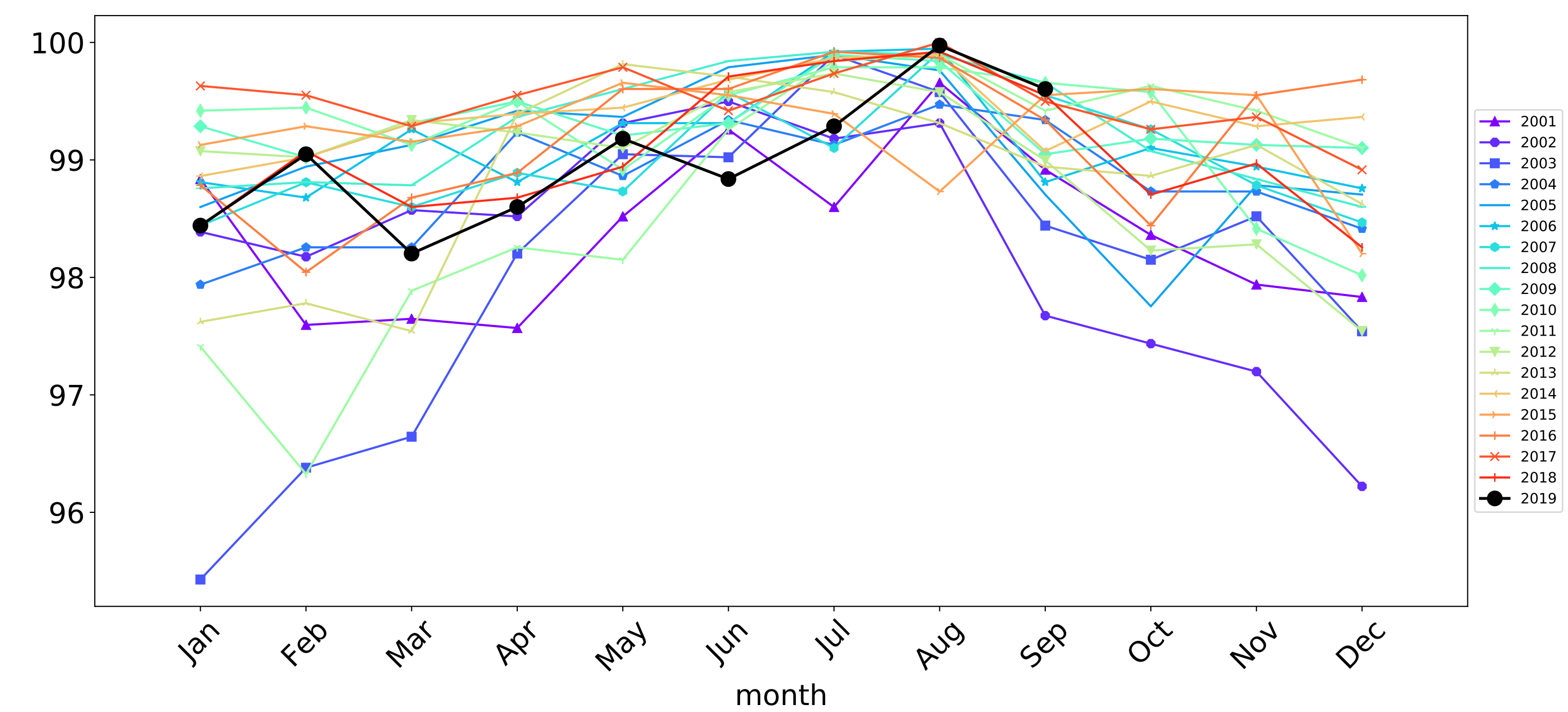### Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

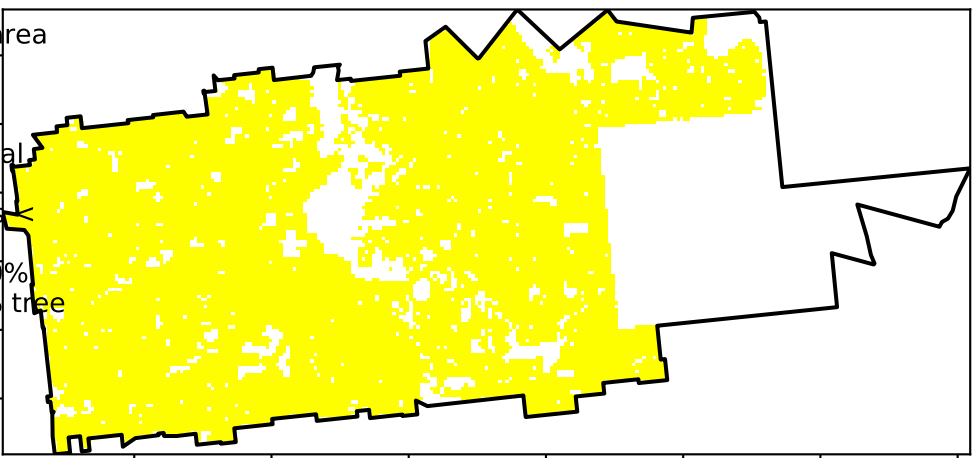### Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

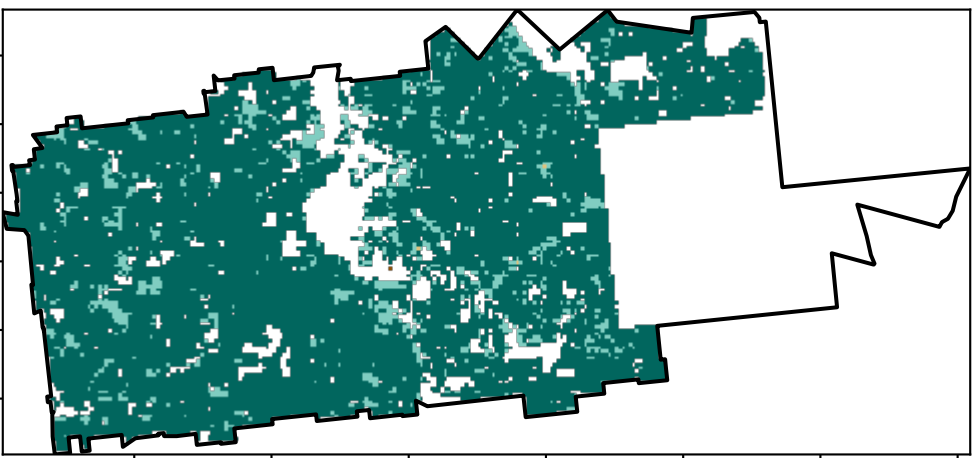### Water erosion historical monthly area protected (Total Veg Cov>70%)

Agriculture

Land use and forest cover

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.
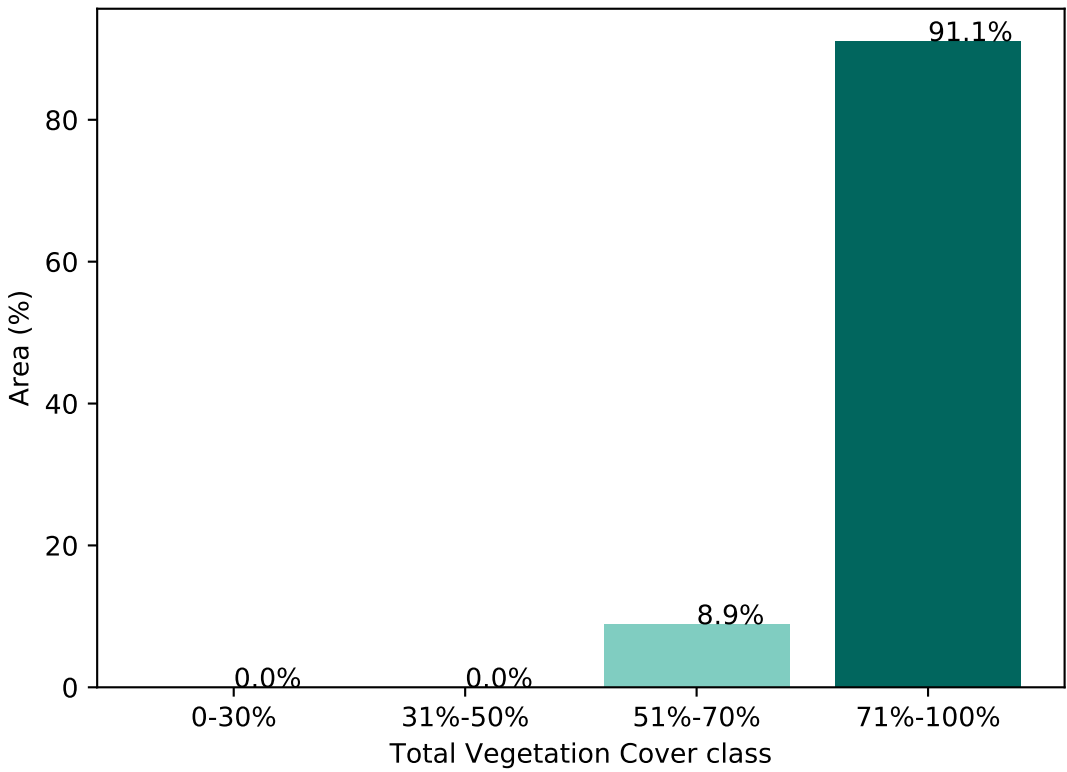

☐ Agriculture - Grazing - Non forest
☐ Agriculture - Cropping - Non-irrigated

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

0.0%   0.0%   8.9%   91.1%

% Area protected from water erosion (>70%)

Area not protected 8.9% of region (35,517 ha)

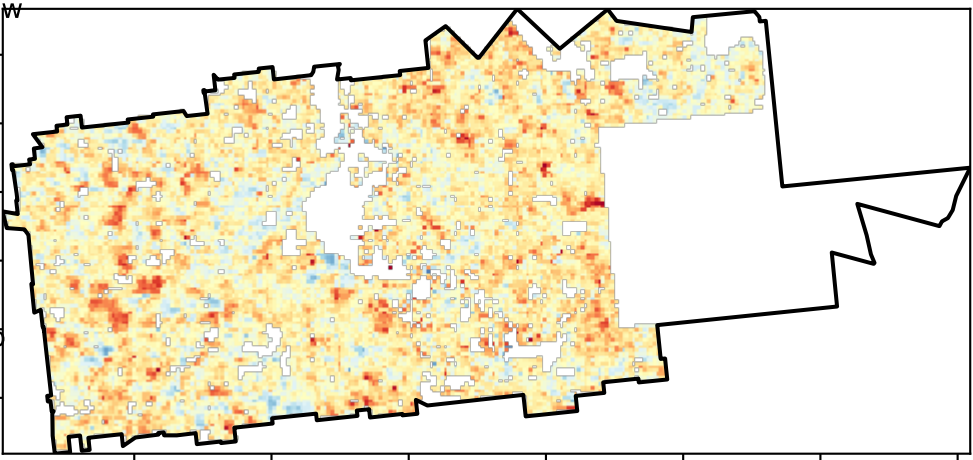Area protected 91.1% of region (363,557 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (399,075 ha)
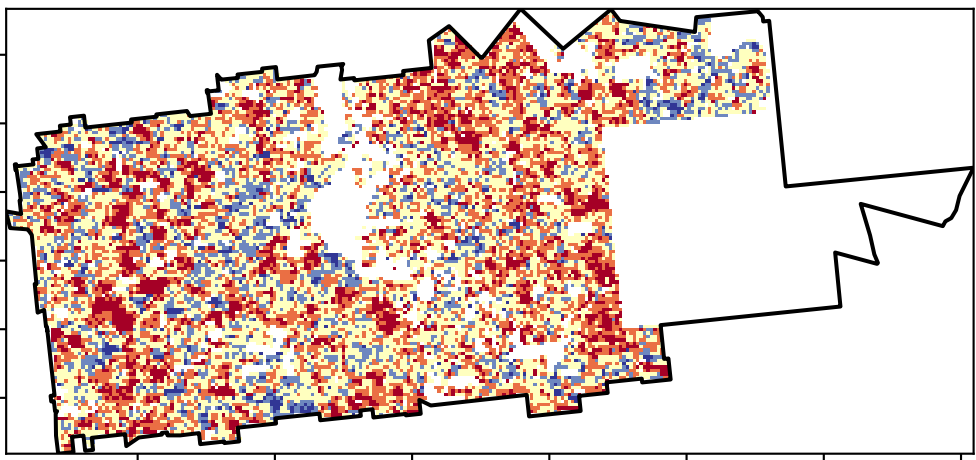
Total Vegetation Cover Anomaly [%]

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
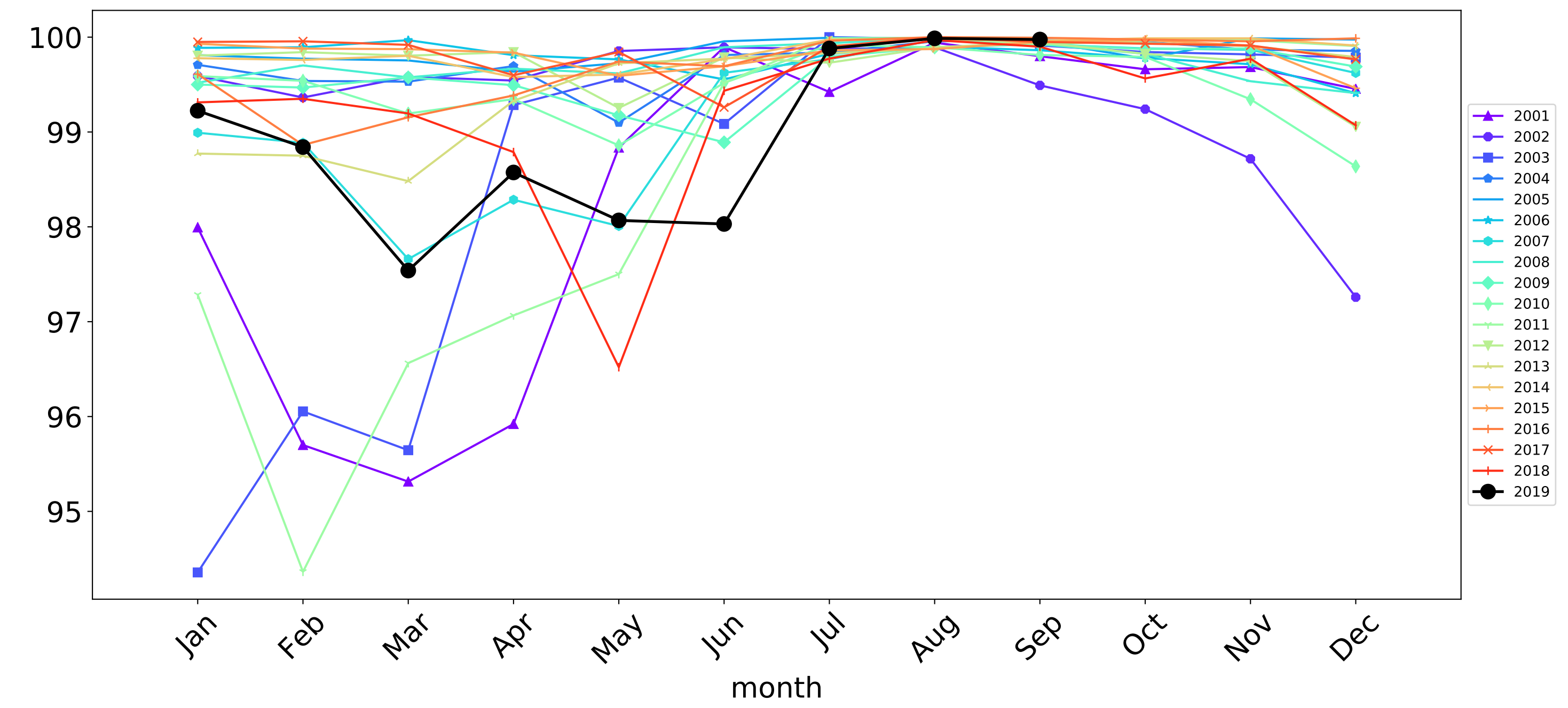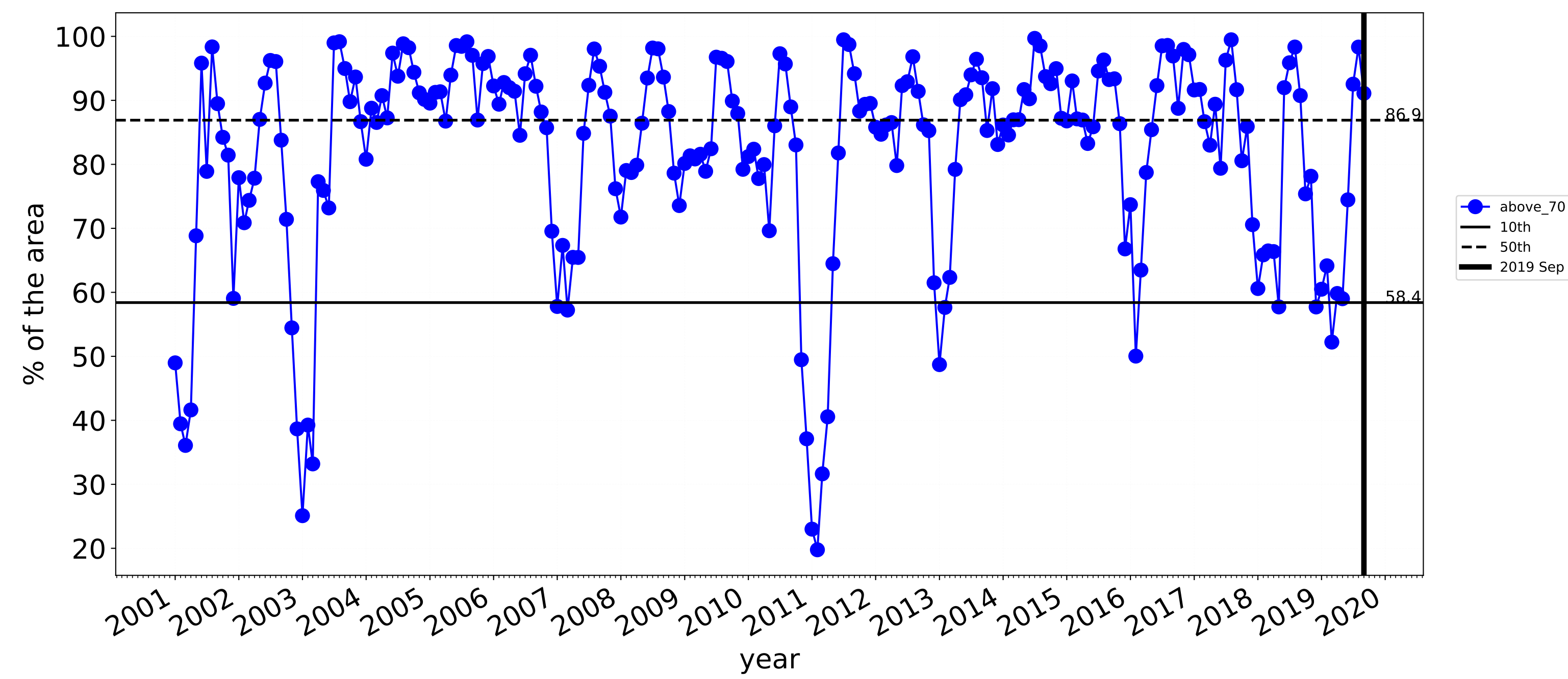1

Agriculture timeseries

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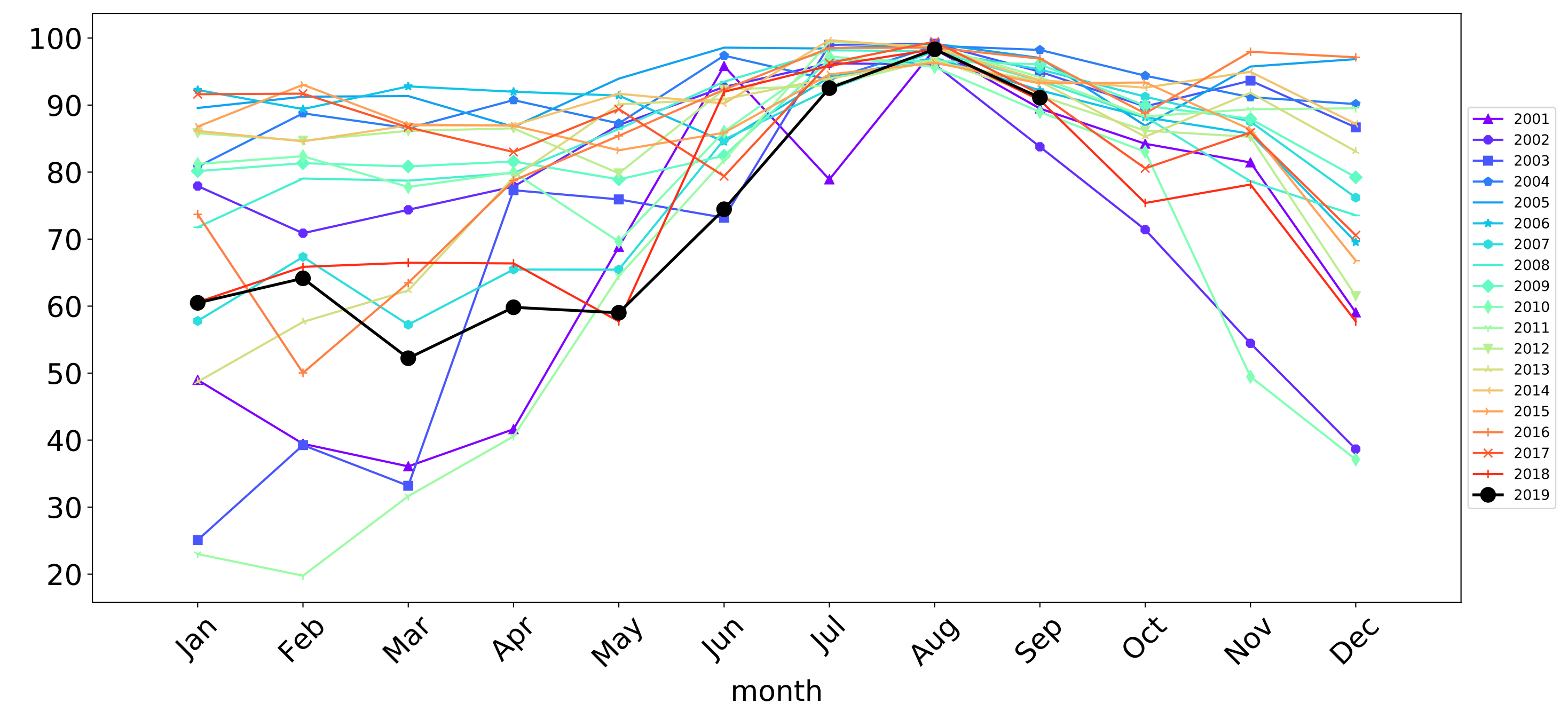

Wind erosion historical monthly area protected (Total Veg Cov >50%)

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

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

Cropping

Land use and forest cover

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

Agriculture - Cropping - Non-irrigated

Total Vegetation Cover [%]

71%-100%

51%-70%

31%-50%

0-30%

Proportion of vegetation cover class in area

Area (%)

91.1%

8.9%

0.0%   0.0%

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

Total Vegetation Cover class

% Area protected from water erosion (>70%)

Area not protected 8.9% of region (35,393 ha)

Area protected 91.1% of region (362,281 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (397,675 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

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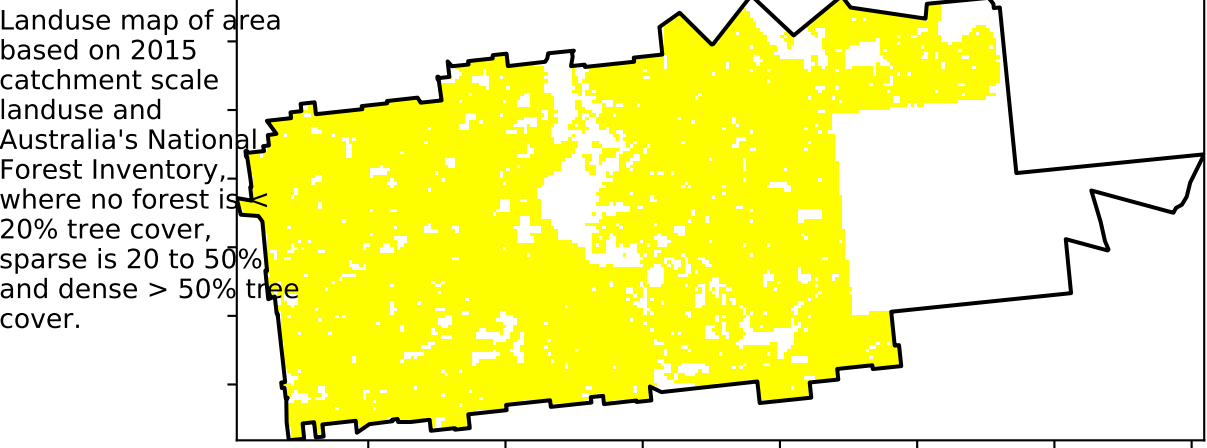
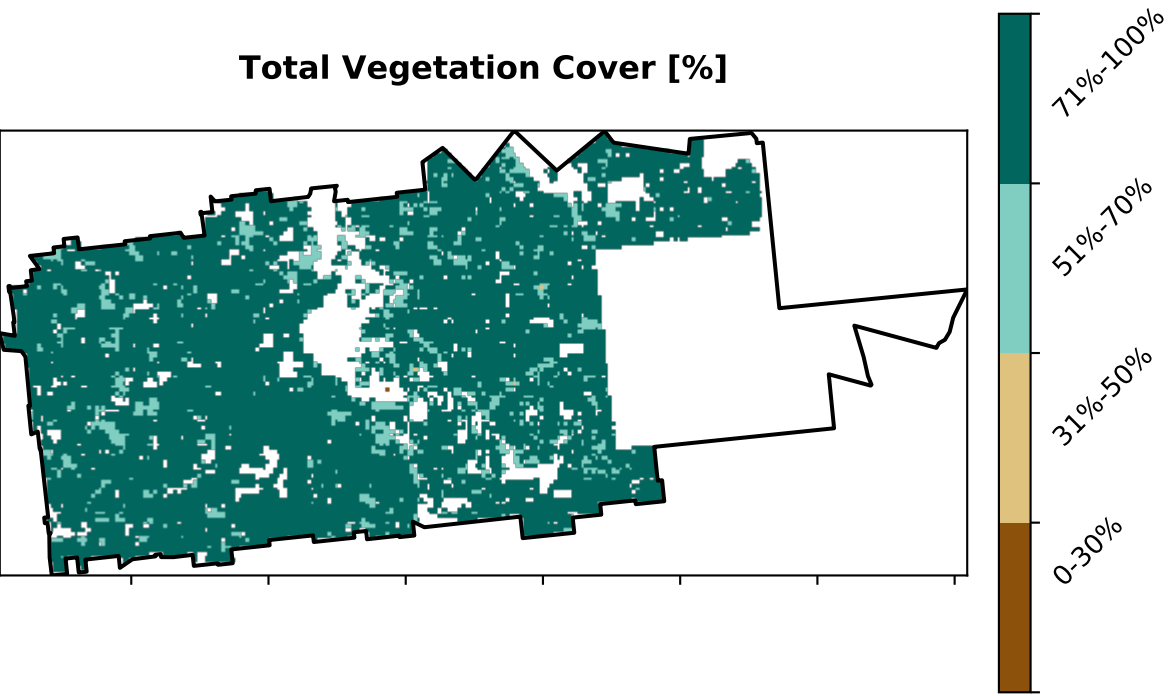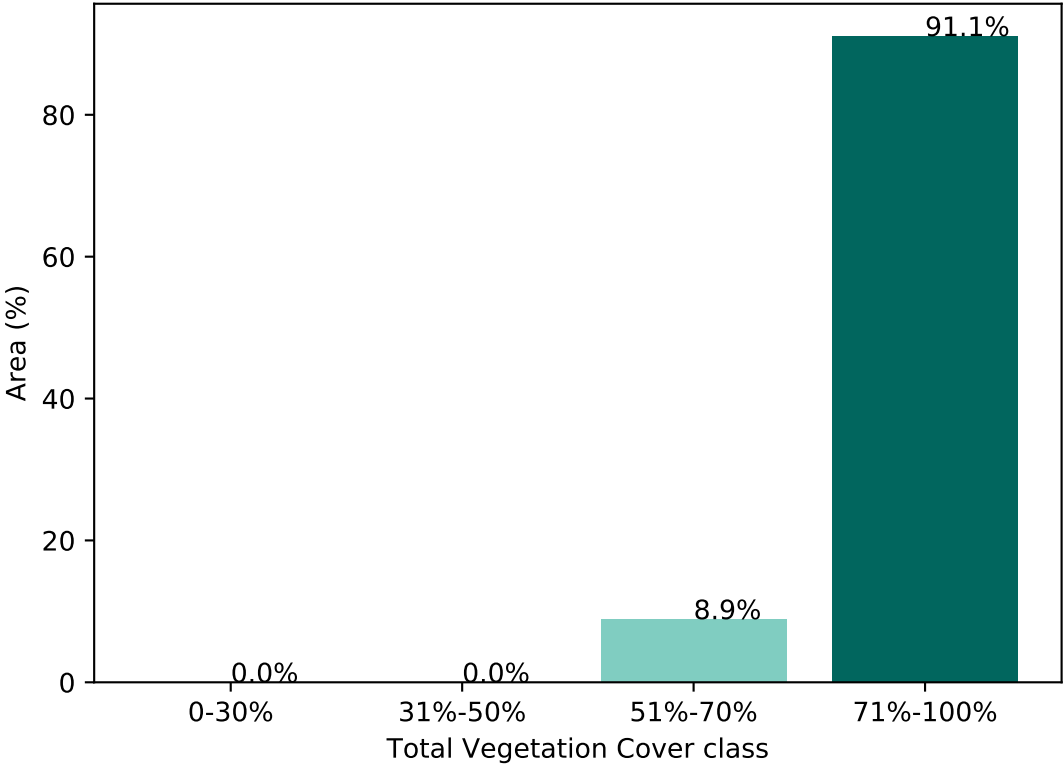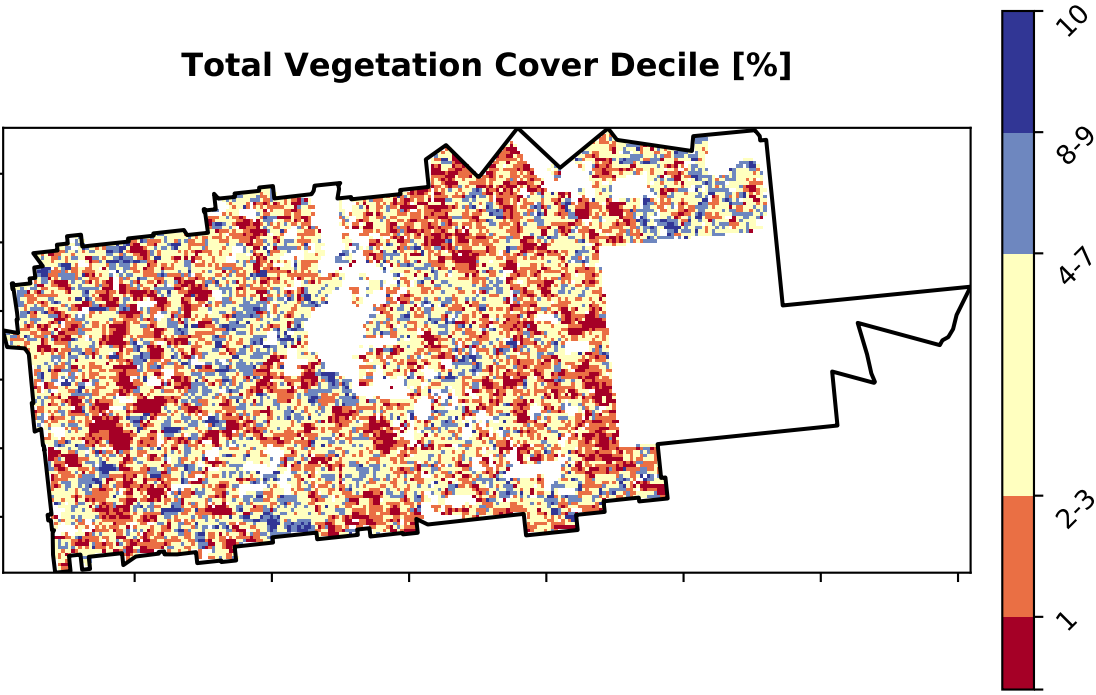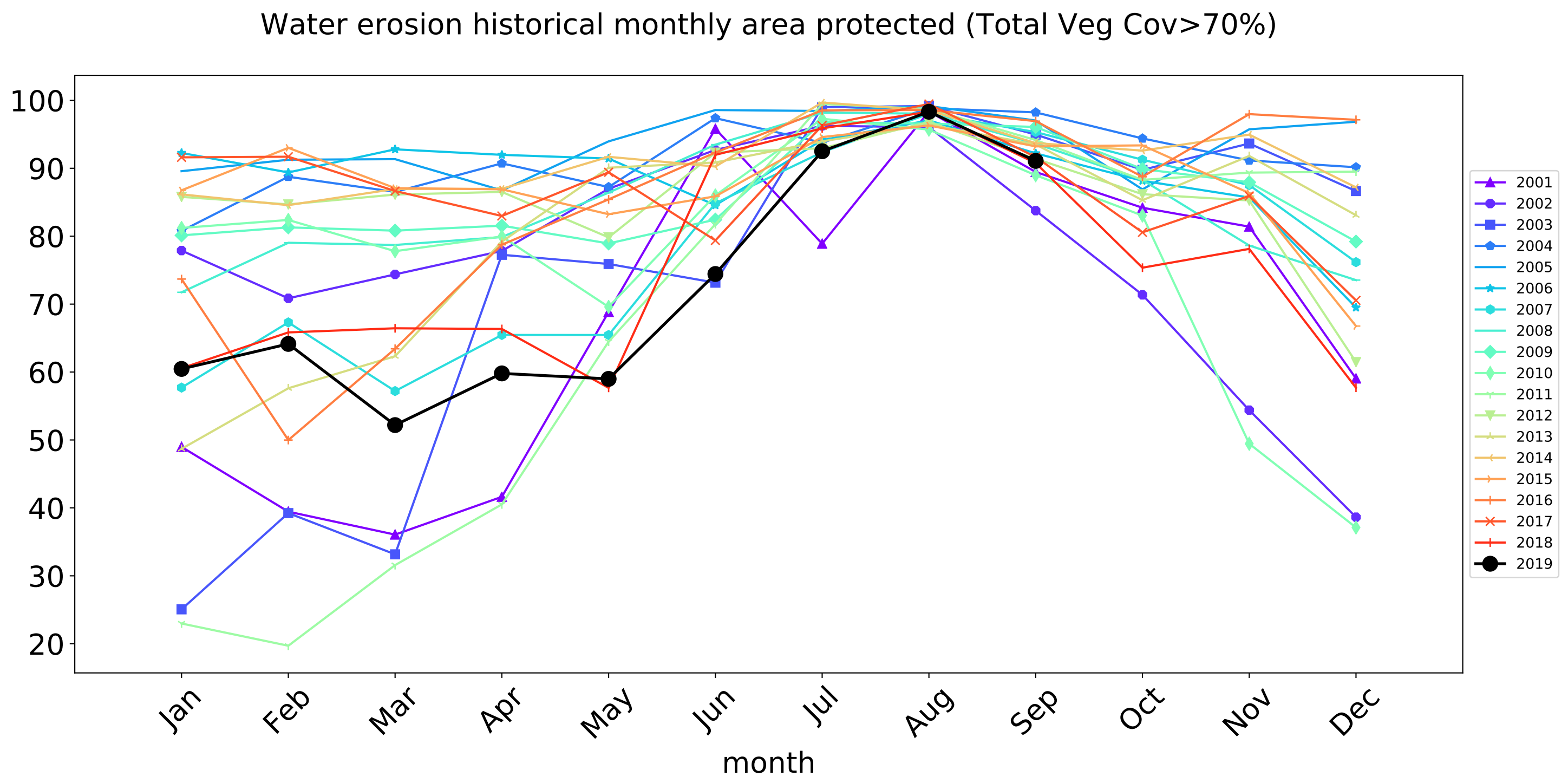Water erosion historical monthly area protected (Total Veg Cov>70%)

13
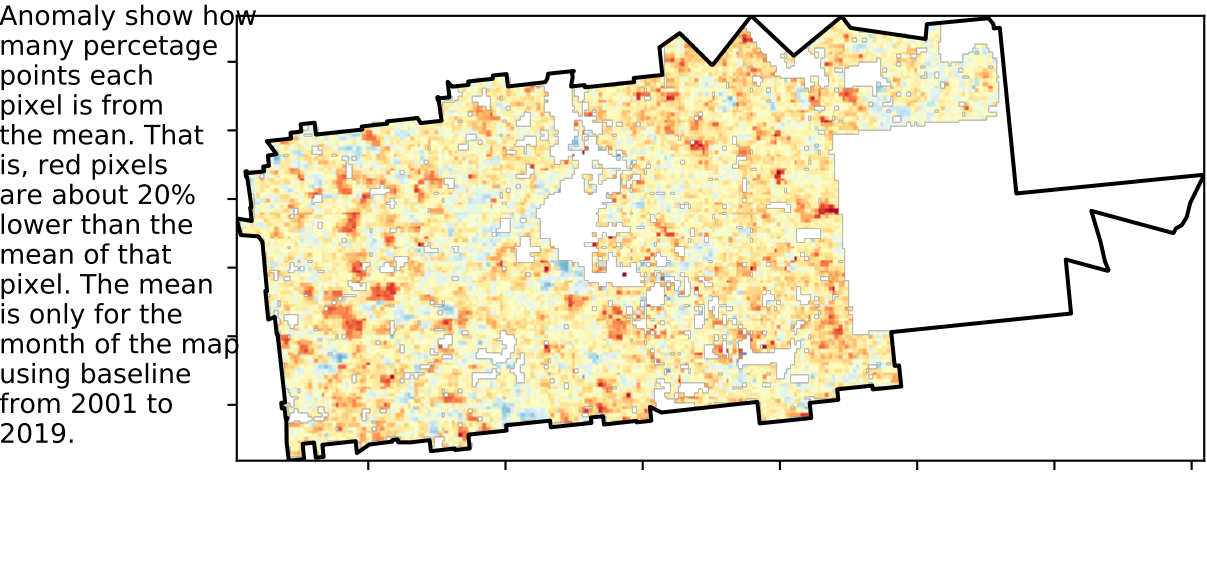
Kent_(S) (559,050 ha and no data 3,385 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	559,050	100.0% 558,850	99.9% 558,425	92.3% 515,900	54.2% 302,925	6.1% 34,100	0.9% 4,900
Conservation and natural environments	150,943	100.0% 150,918	99.9% 150,819	95.9% 144,830	82.3% 124,253	16.0% 24,080	1.5% 2,261
Conservation and natural environments non forest	57,023	100.0% 56,998	99.8% 56,898	89.9% 51,278	64.4% 36,716	15.5% 8,841	3.1% 1,773
Conservation and natural environments Woodland forest	93,920	100.0% 93,920	100.0% 93,920	99.6% 93,548	93.1% 87,467	16.3% 15,264	0.5% 496
Agriculture	396,366	100.0% 396,341	100.0% 396,267	91.1% 361,082	43.4% 171,875	1.8% 7,175	0.2% 893
Cropping	395,248	100.0% 395,223	100.0% 395,148	91.1% 360,014	43.4% 171,347	1.8% 7,156	0.2% 894