LGA Whitsunday_(R) (QLD) - Vegetation cover soil protection report Aug 2019

This report provides information about vegetation covering the soil surface for a region during a single month with comparison to previous years. Vegetation cover indicates where soil is likely to be protected from wind and or water (hillslope) erosion. Results are shown for the whole region (polygon) and also separated by land use and tree cover. Different land uses are likely to have different cover patterns and targets. Reporting is most reliable with less than 20% tree cover.

Whitsunday_(R)
- Context
    - o Map: Land use and forest cover
    - o Chart: Land use and forest cover area
- Total vegetation cover for this month
    - o Map: vegetation cover classified into 4 classes
    - o Chart: vegetation cover area classified into 4 classes
- Areas protected from erosion for the month
    - o Map: wind erosion protection (>50% cover)
    - o Map: water erosion protection (>70% cover)
- 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
    - o Wind erosion protection time series: percentage of the area of the region with
      greater than 50% cover for each month in the archive (orange lines)
    - o Water erosion protection time series: percentage of the area of the region with
      greater than 70% cover for each month of the archive (blue lines).
    - o Rainfall: millimetres rainfall each month (black lines)
- Time series stacked by year
    - o Wind erosion protection time series: percentage of the area of the region with
      greater than 50% cover for each month in the archive (orange lines)
      in case of 5th percentile is less than 80i
    - o Water erosion protection time series: percentage of the area of the region with
      greater than 70% cover for each month of the archive (blue lines).
      in case of 5th percentile is less than 80
- 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

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 pixels. Pixels with greater than or equal to 50% vegetation cover are generally considered to be protected from or have reduced soil loss by wind erosion, and pixels with greater than or equal to 70% vegetation cover are generally considered to also be protected from or have reduced soil loss from water (hillslope) erosion. Report used baseline from 2001 to 2019 for each month to generate anomalies and deciles. And it used threshold of 1% to create land use forest cover reports. Higher cover thresholds may be required for erosion protection in some regions. This report will be less applicable in areas with sparse forest (20-50% tree cover) or dense forest (> 50% tree cover). Therefore land use classes are divided by tree cover: 1) No forest is when there is less than 20% tree cover 2) Sparse forest, is when there is less than 20 to 50 % tree cover 3) Dense forest is greater than 50% tree cover
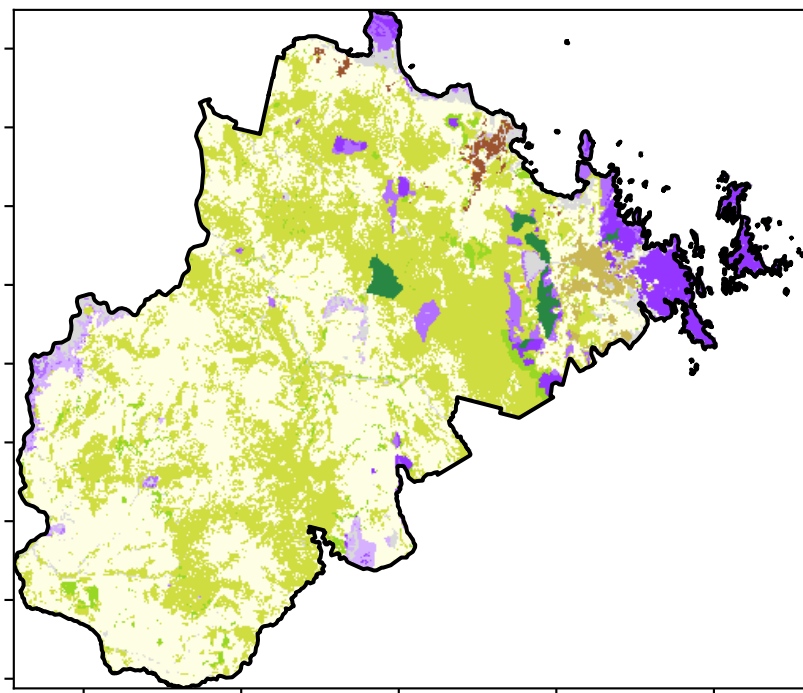
Vegetation Cover Aug 2019

## 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
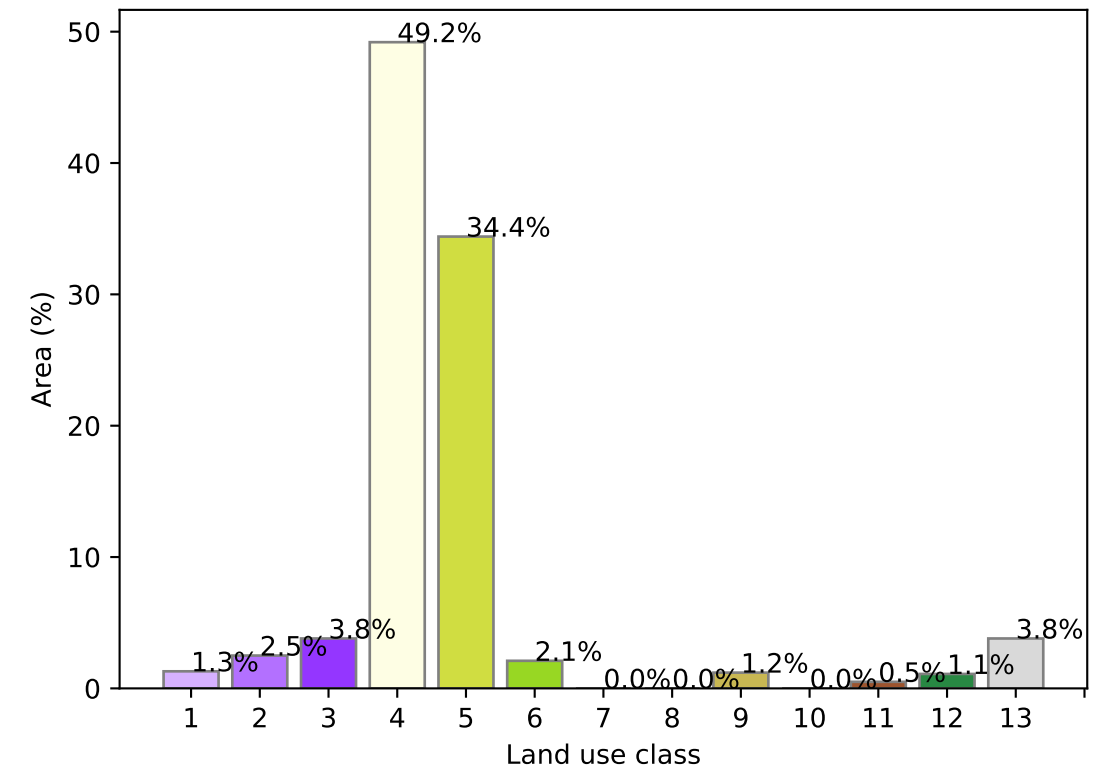
Total Vegetation Cover [%]
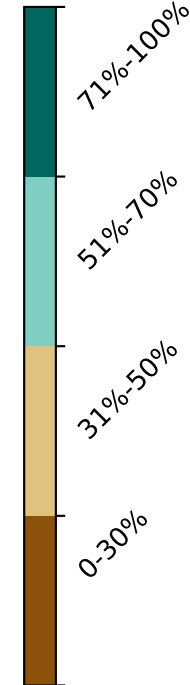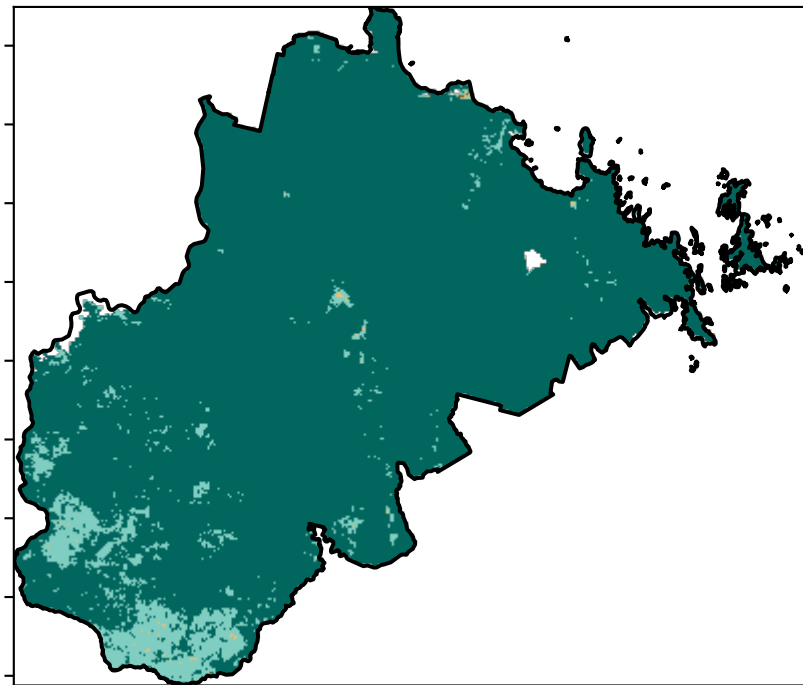
Proportion of vegetation cover class in area
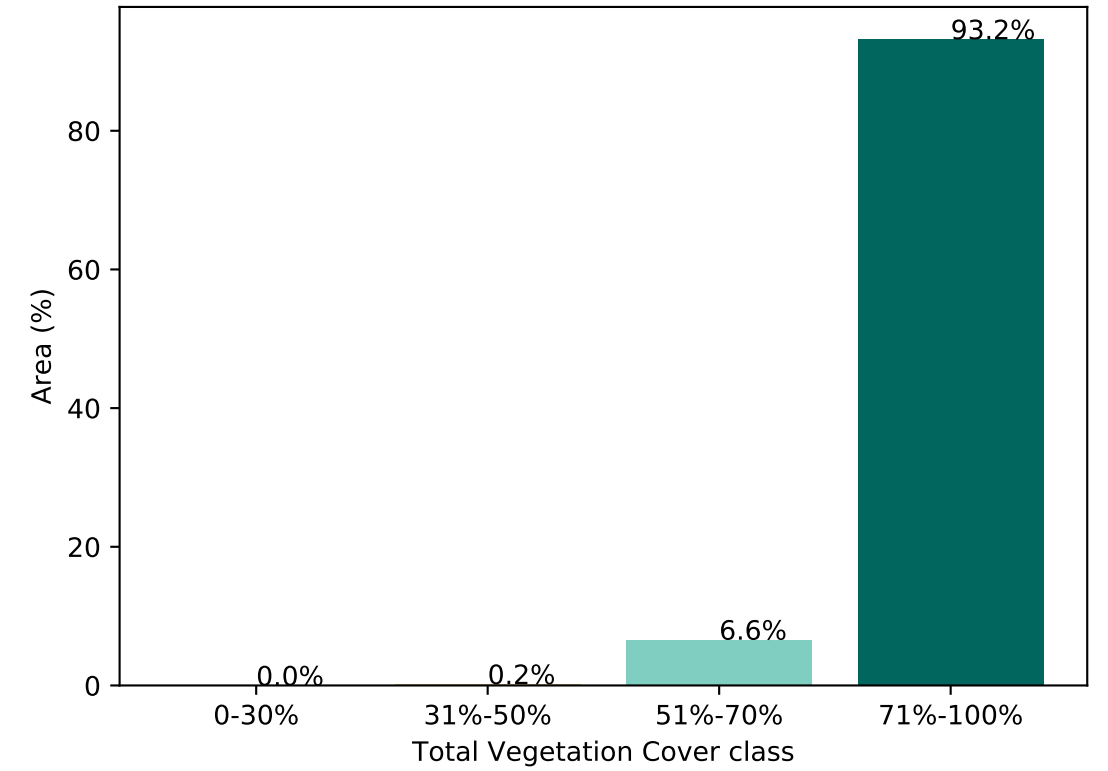
% Area protected from water erosion (>70%)
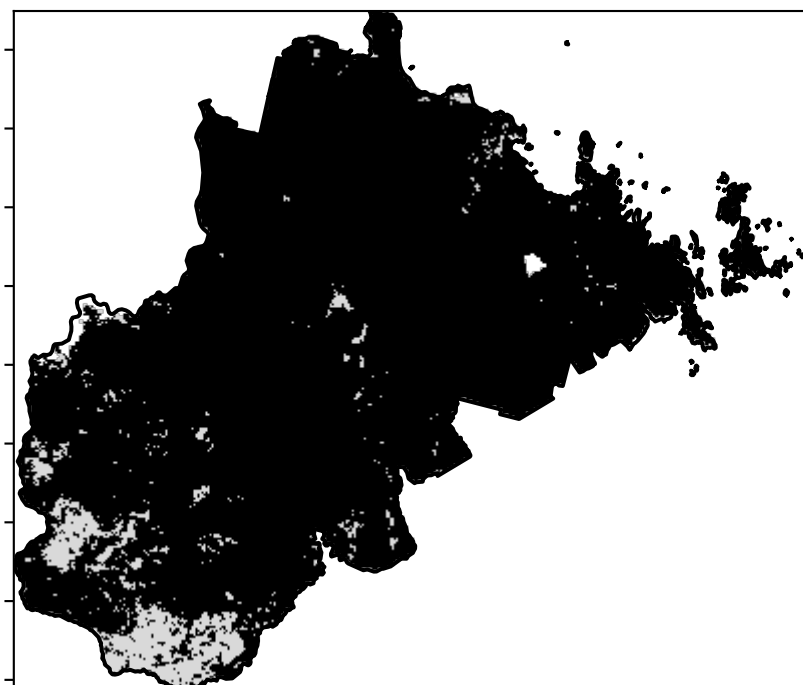
Area not protected 6.8% of region (160,323 ha)

Area protected 93.2% of region (2,197,376 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)
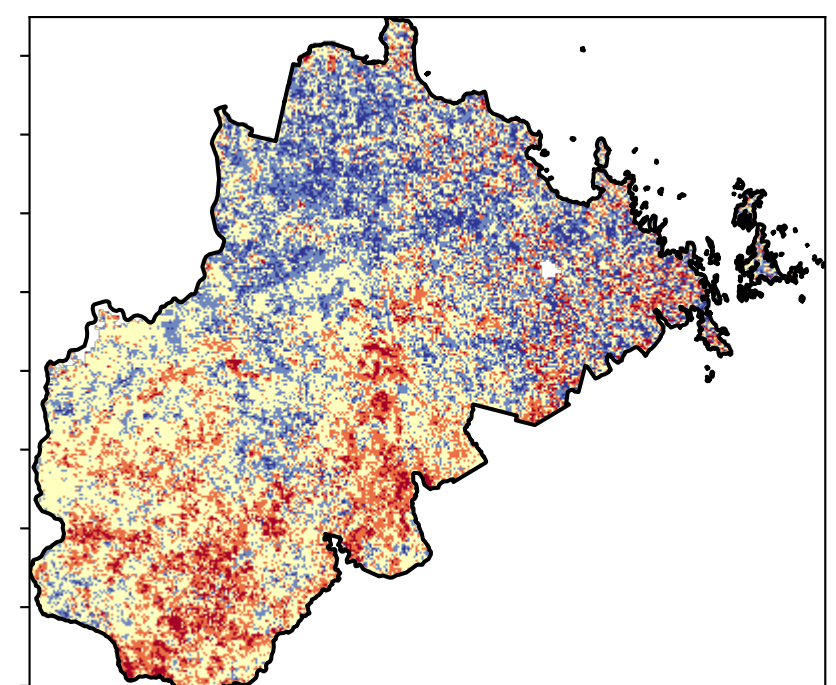
Area protected 100.0% of region (2,357,700 ha)

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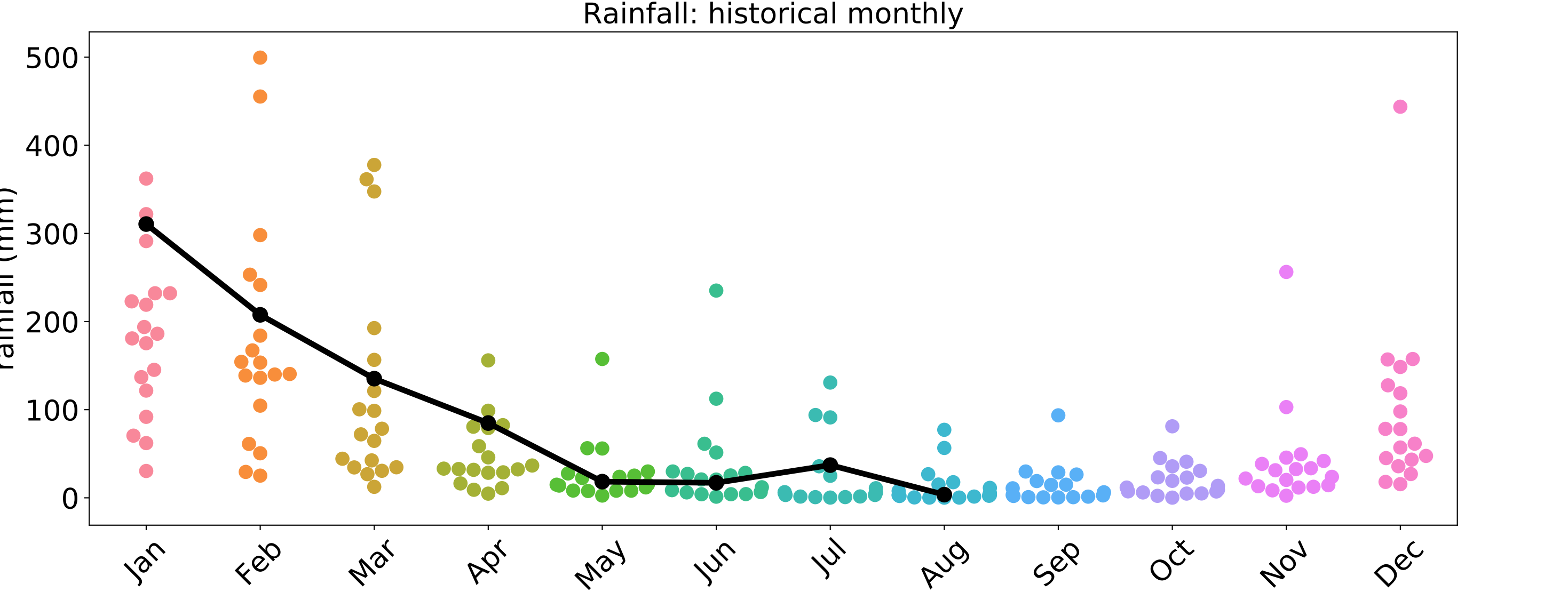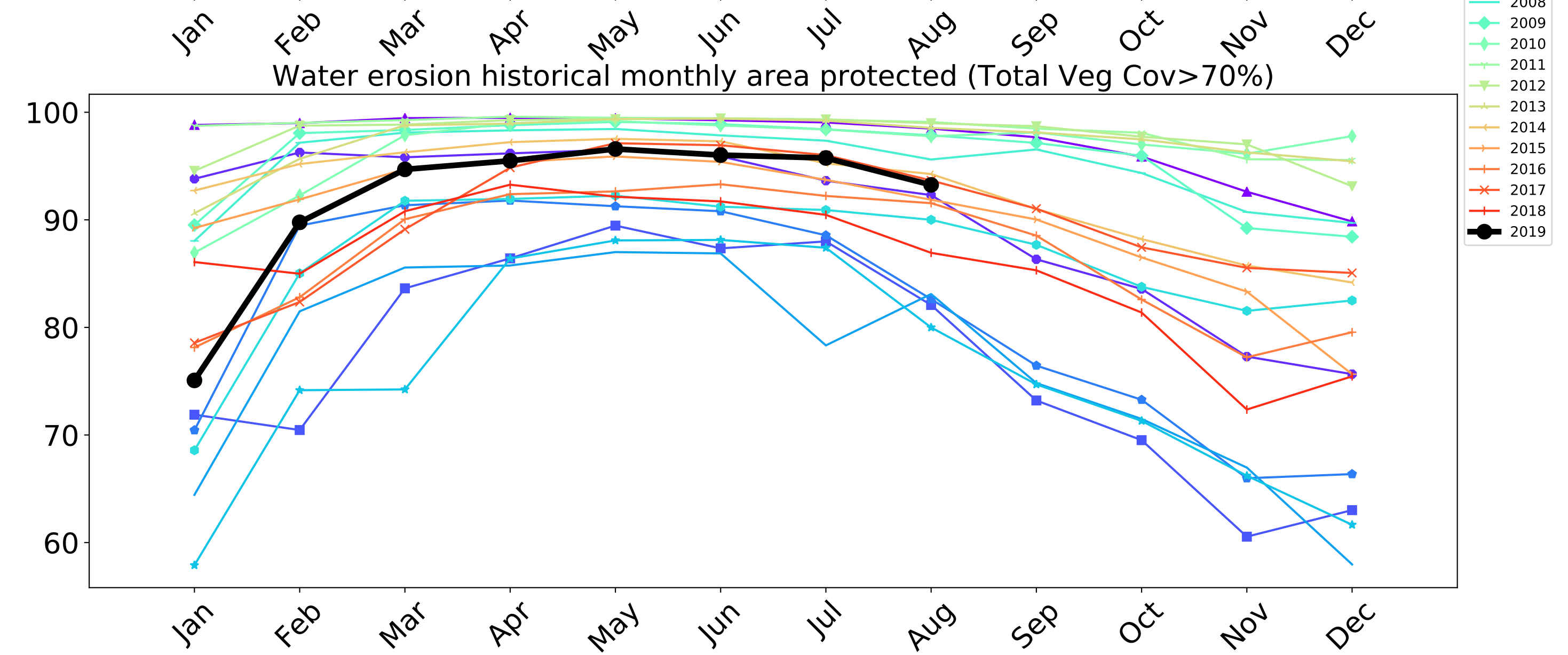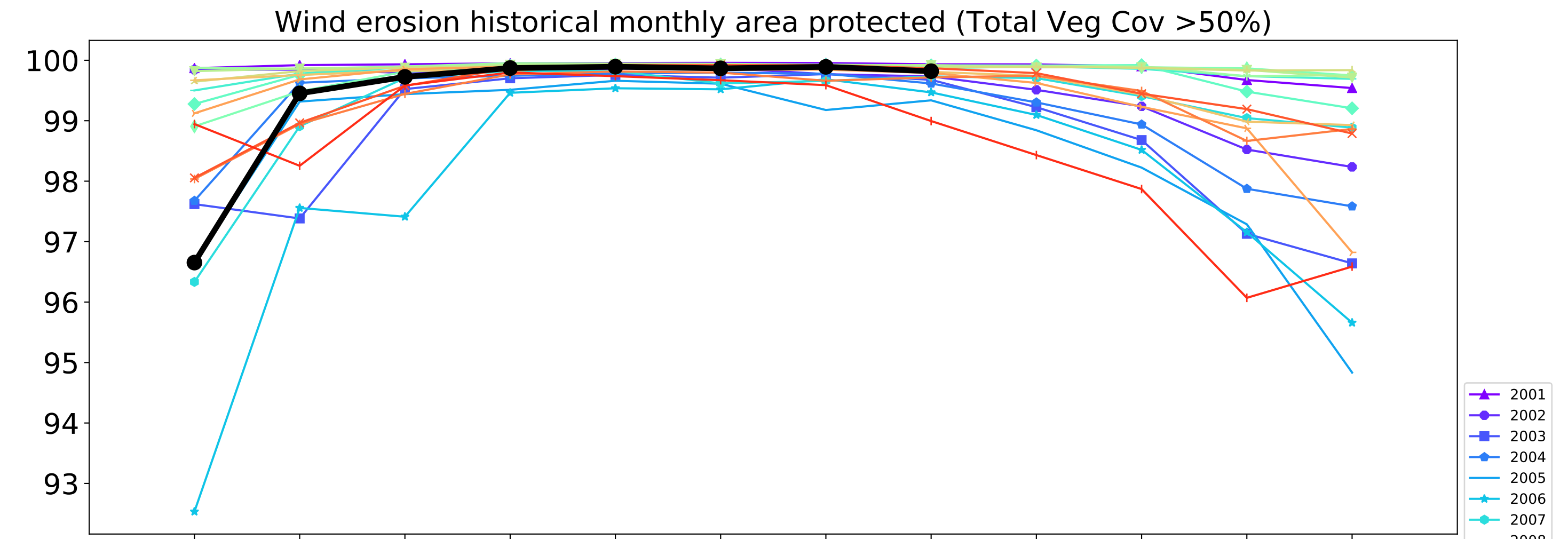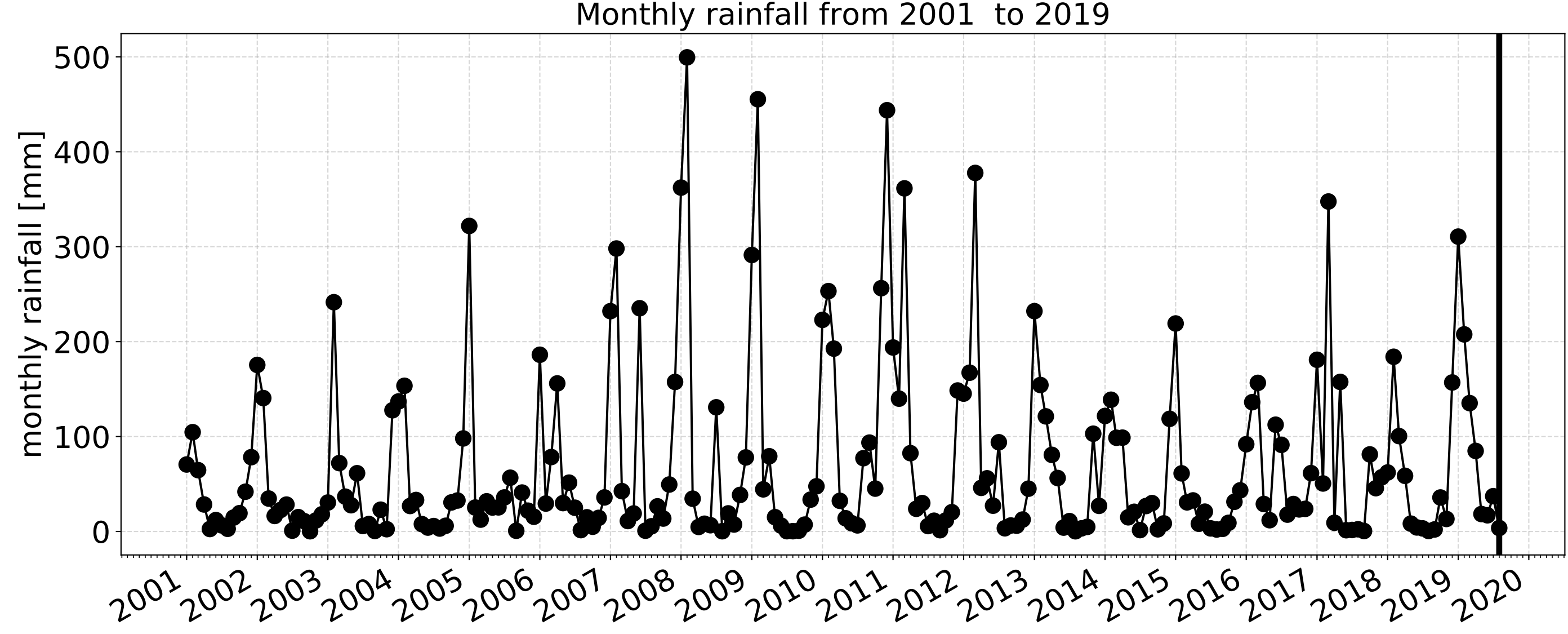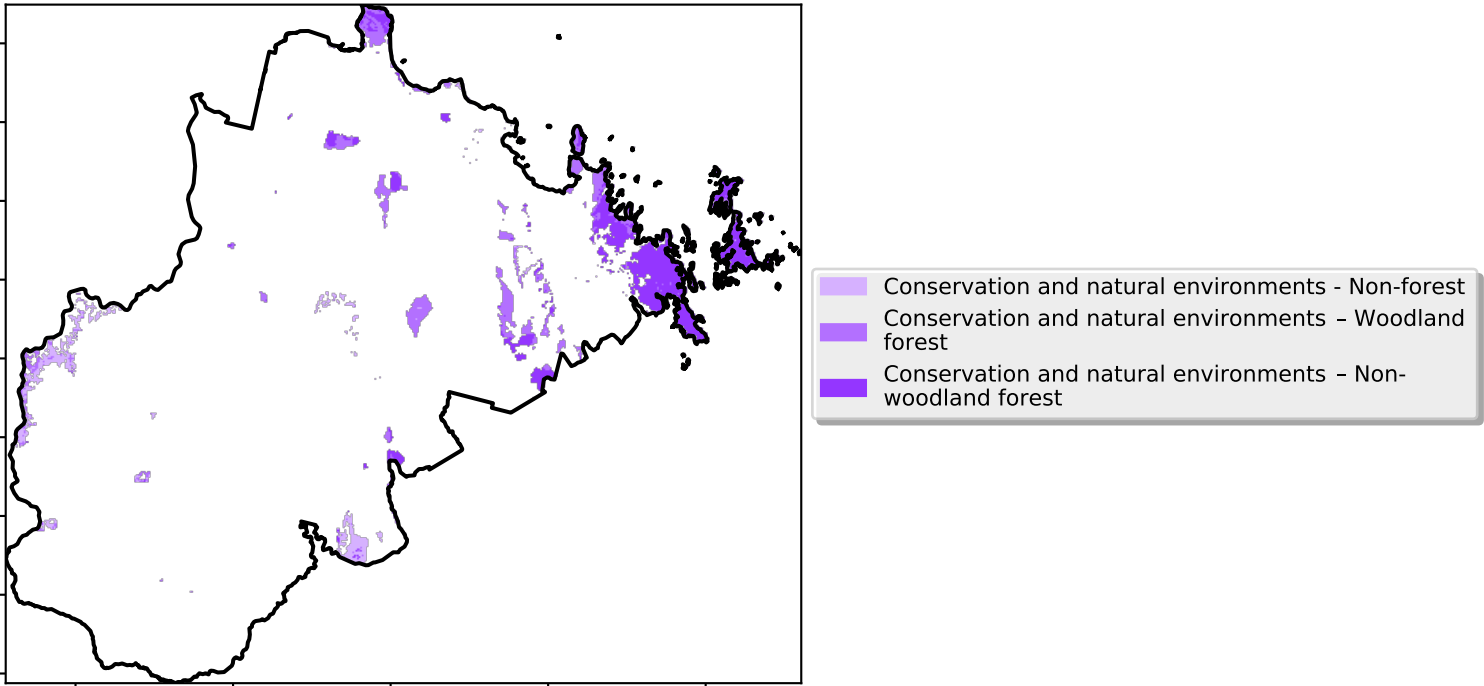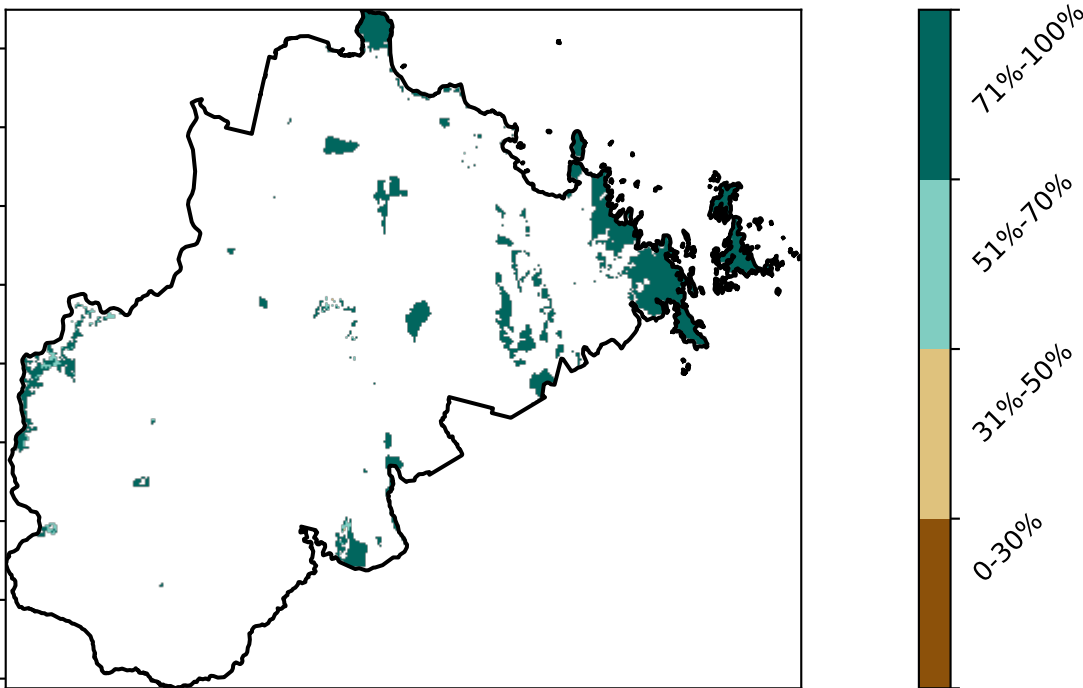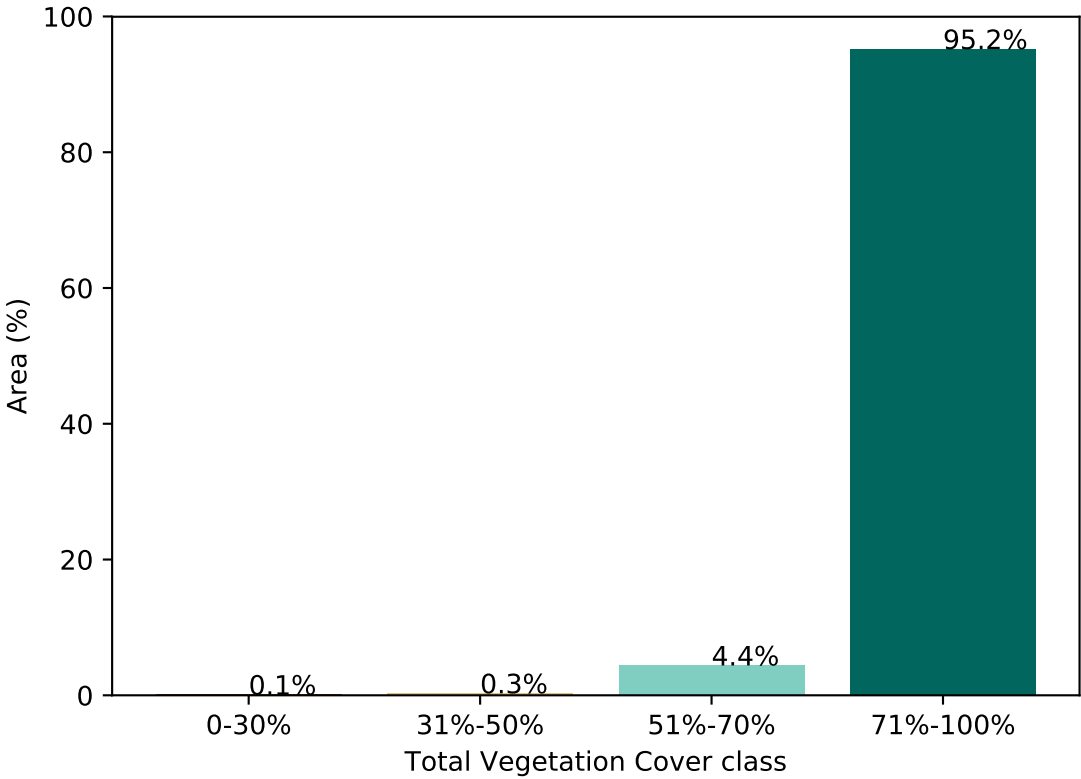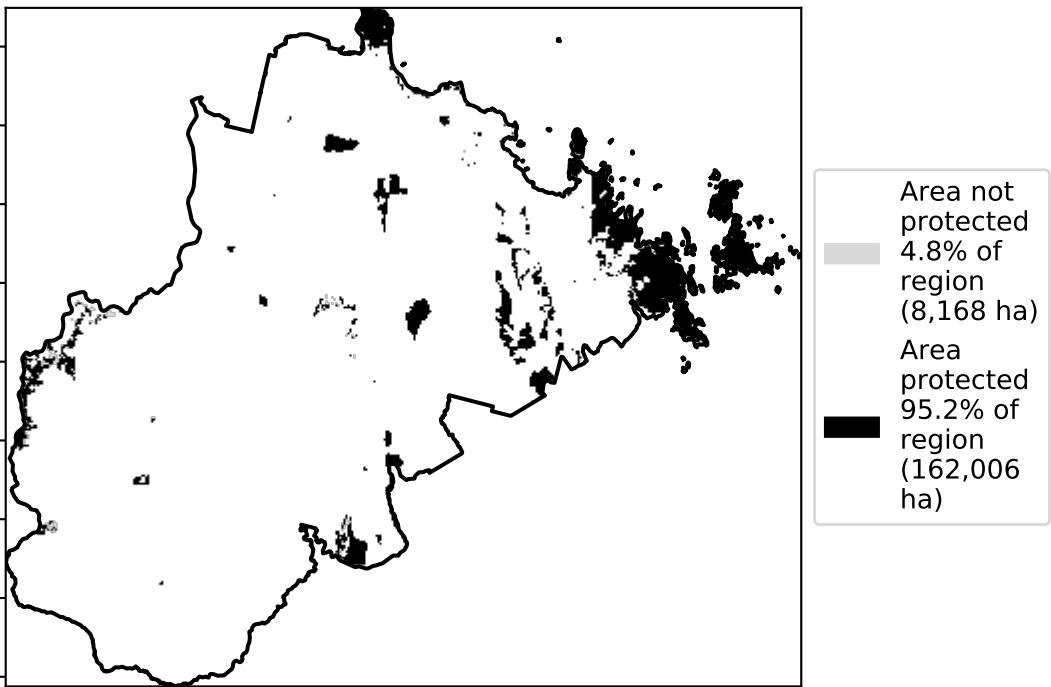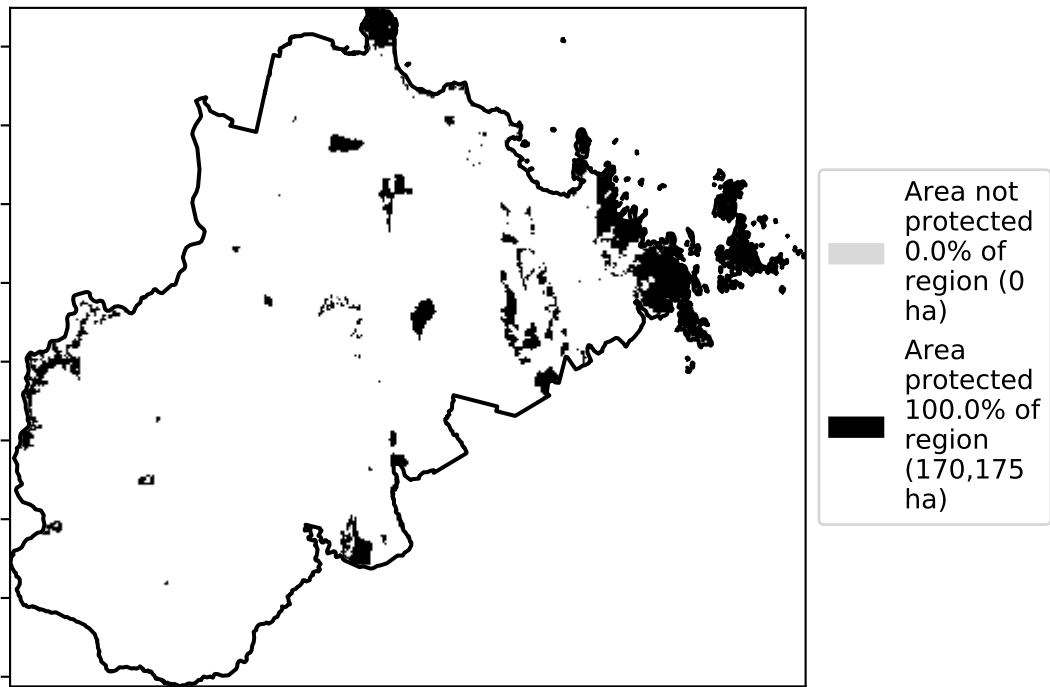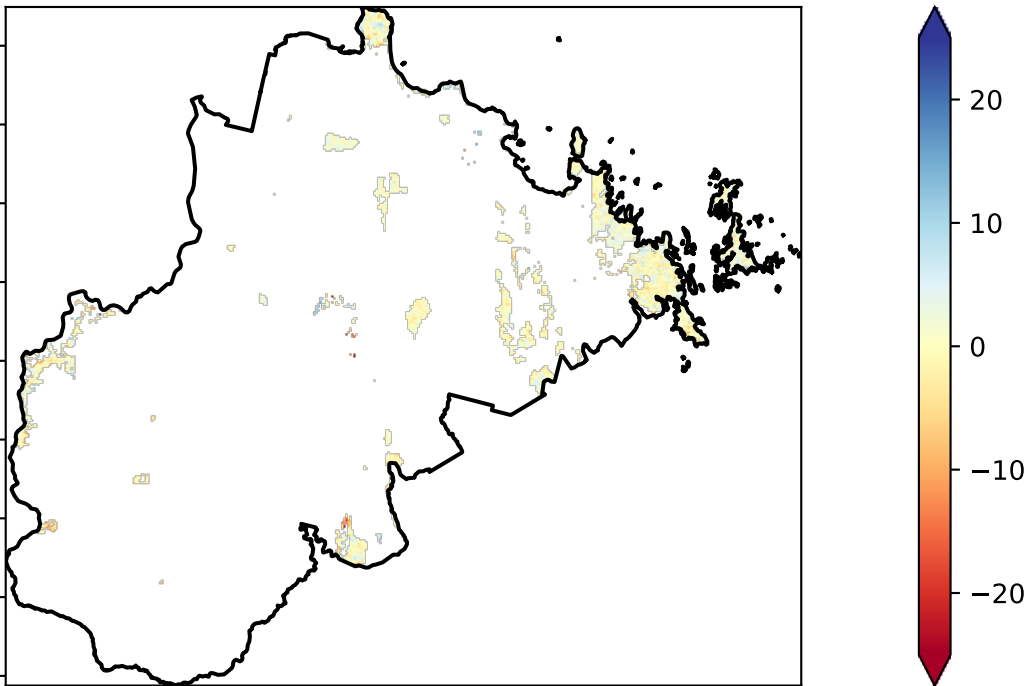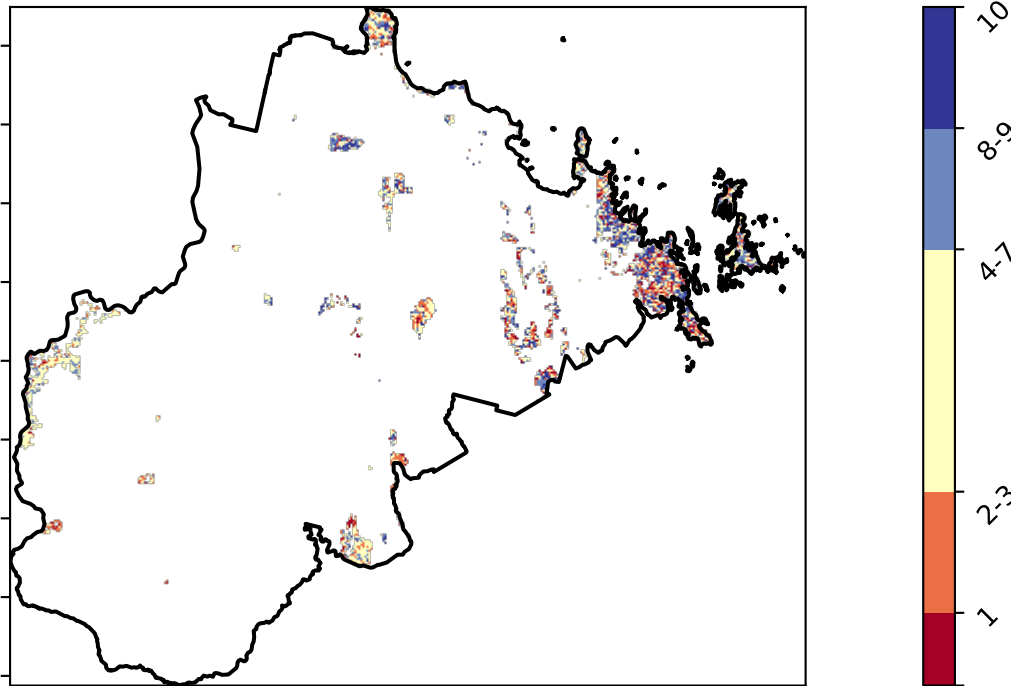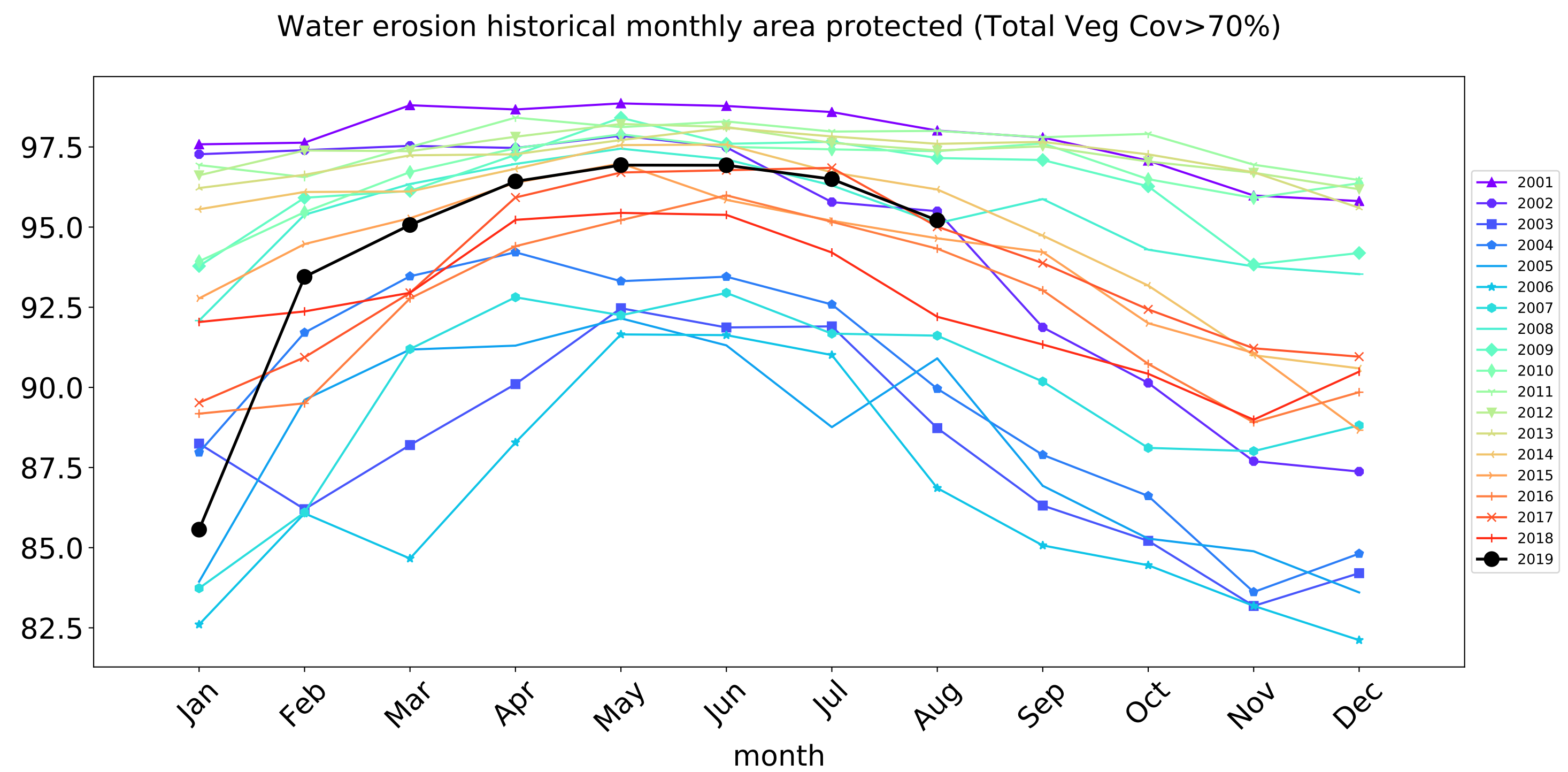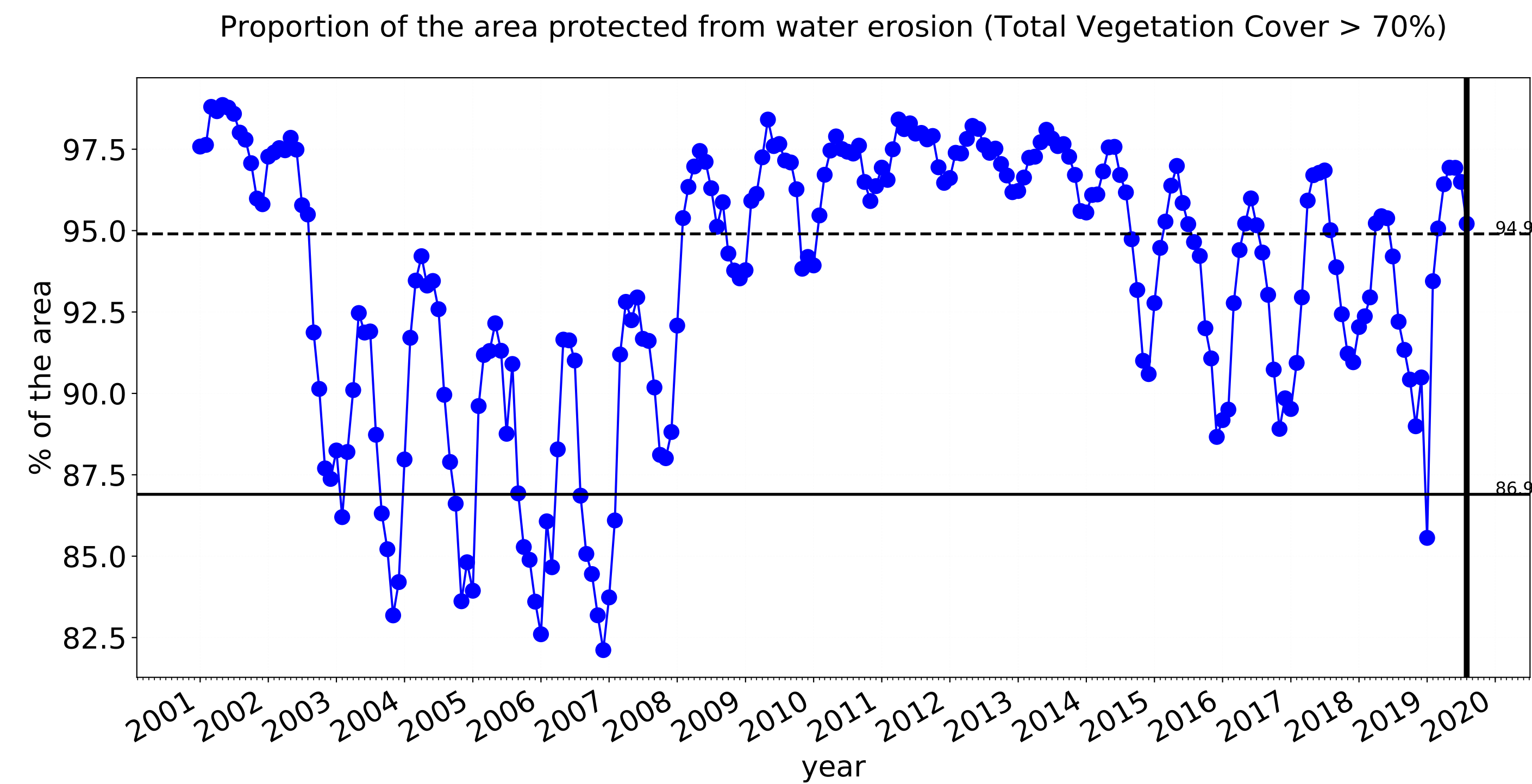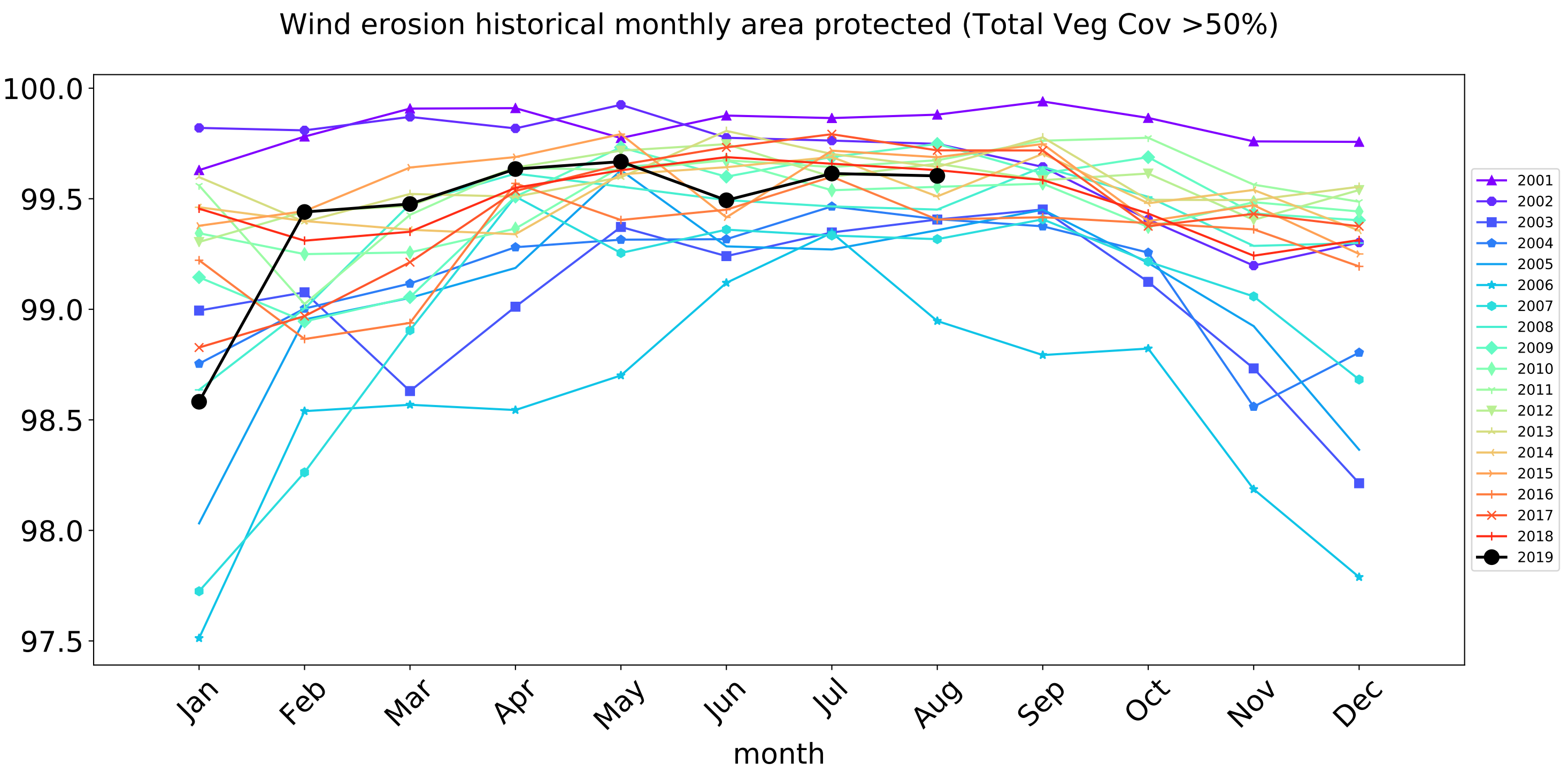
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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
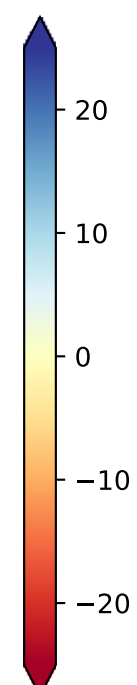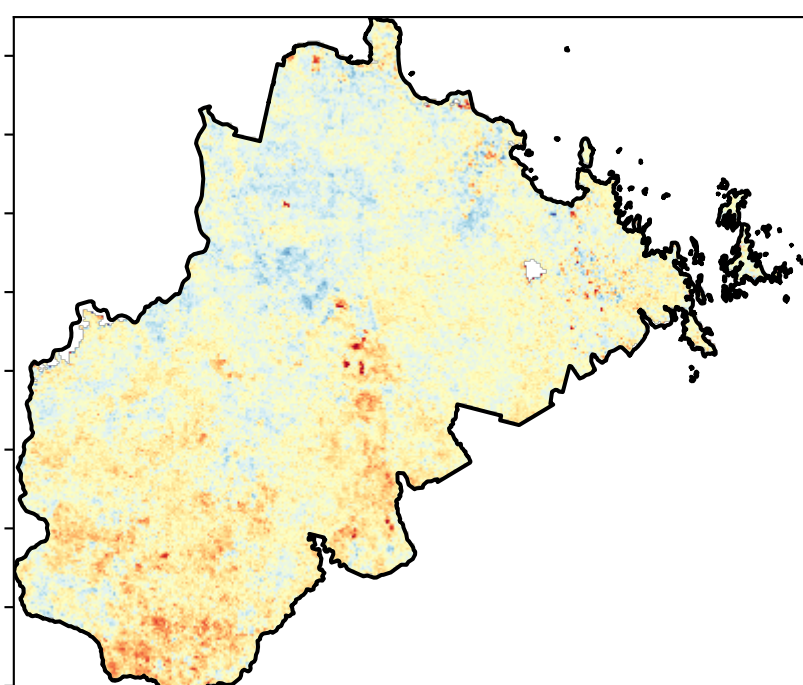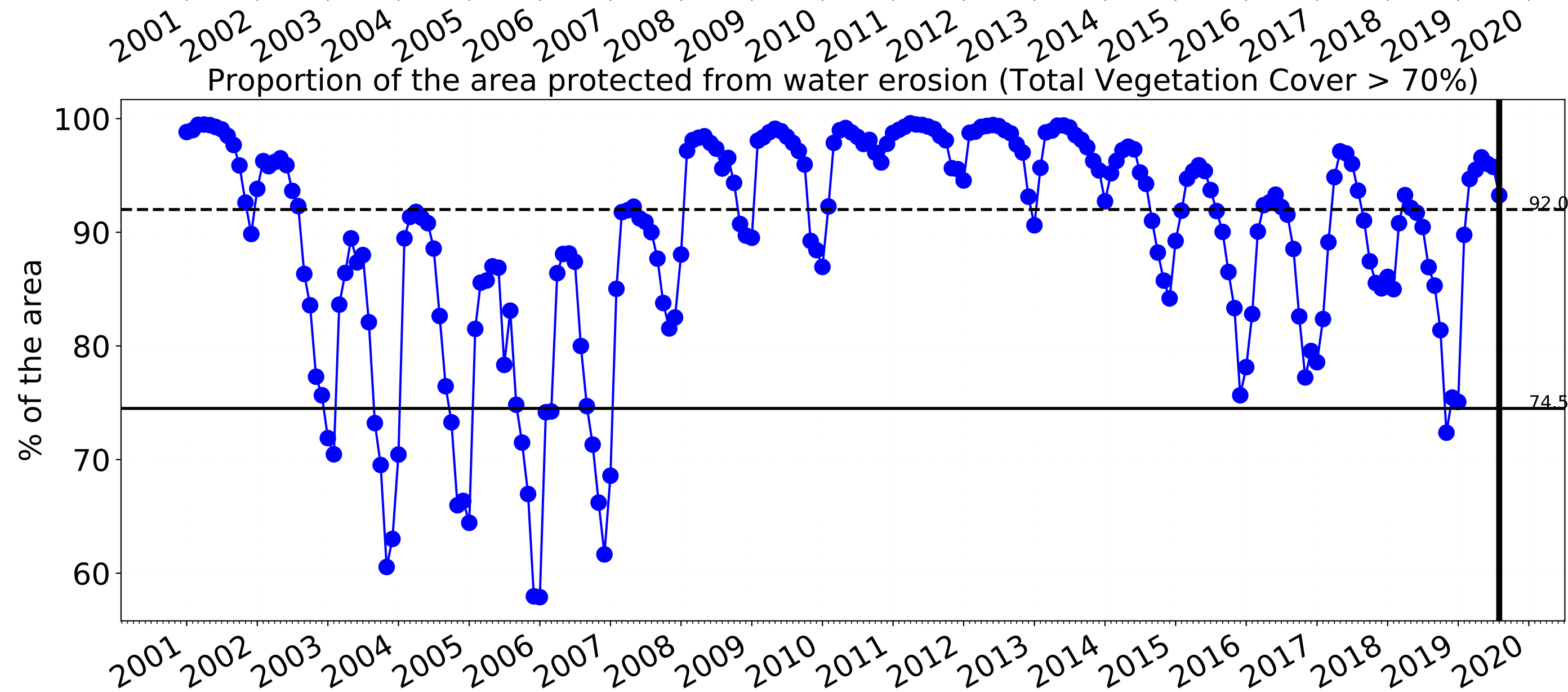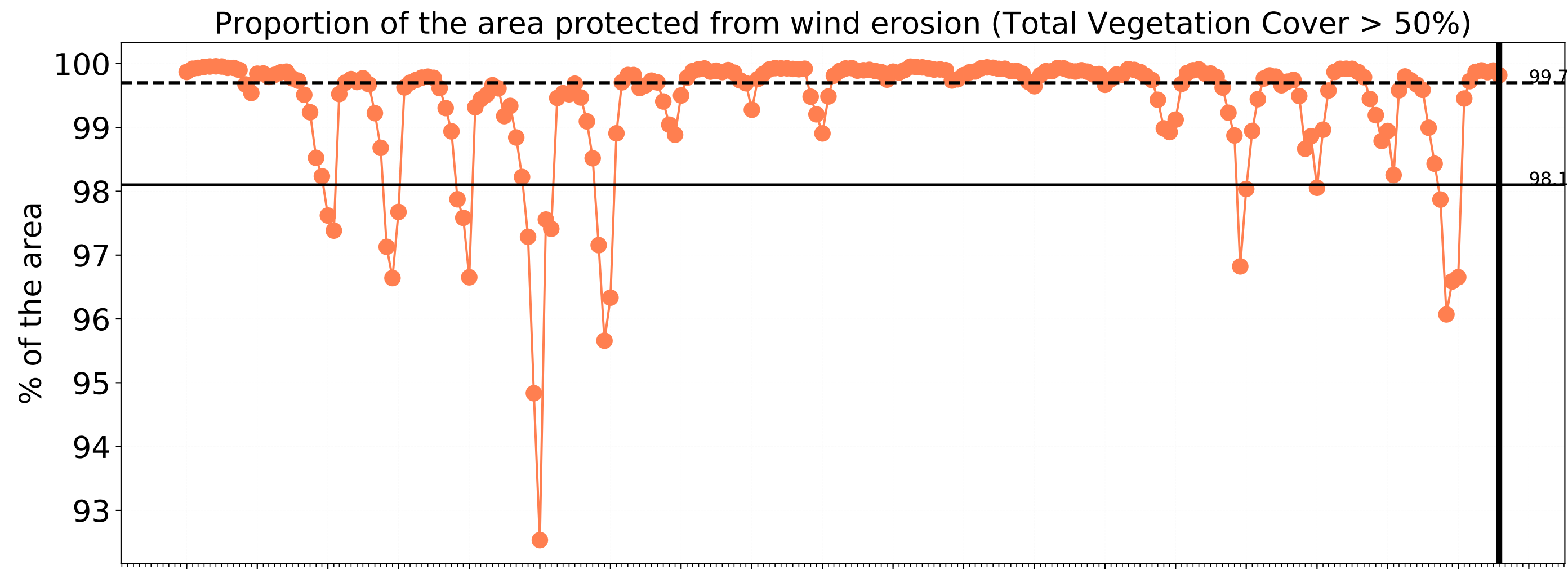
Conservation and natural environments

Land use and forest cover

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

0.1%   0.3%   4.4%   95.2%

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

Area (%)

% Area protected from water erosion (>70%)

Area not protected 4.8% of region (8,168 ha)

Area protected 95.2% of region (162,006 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (170,175 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.
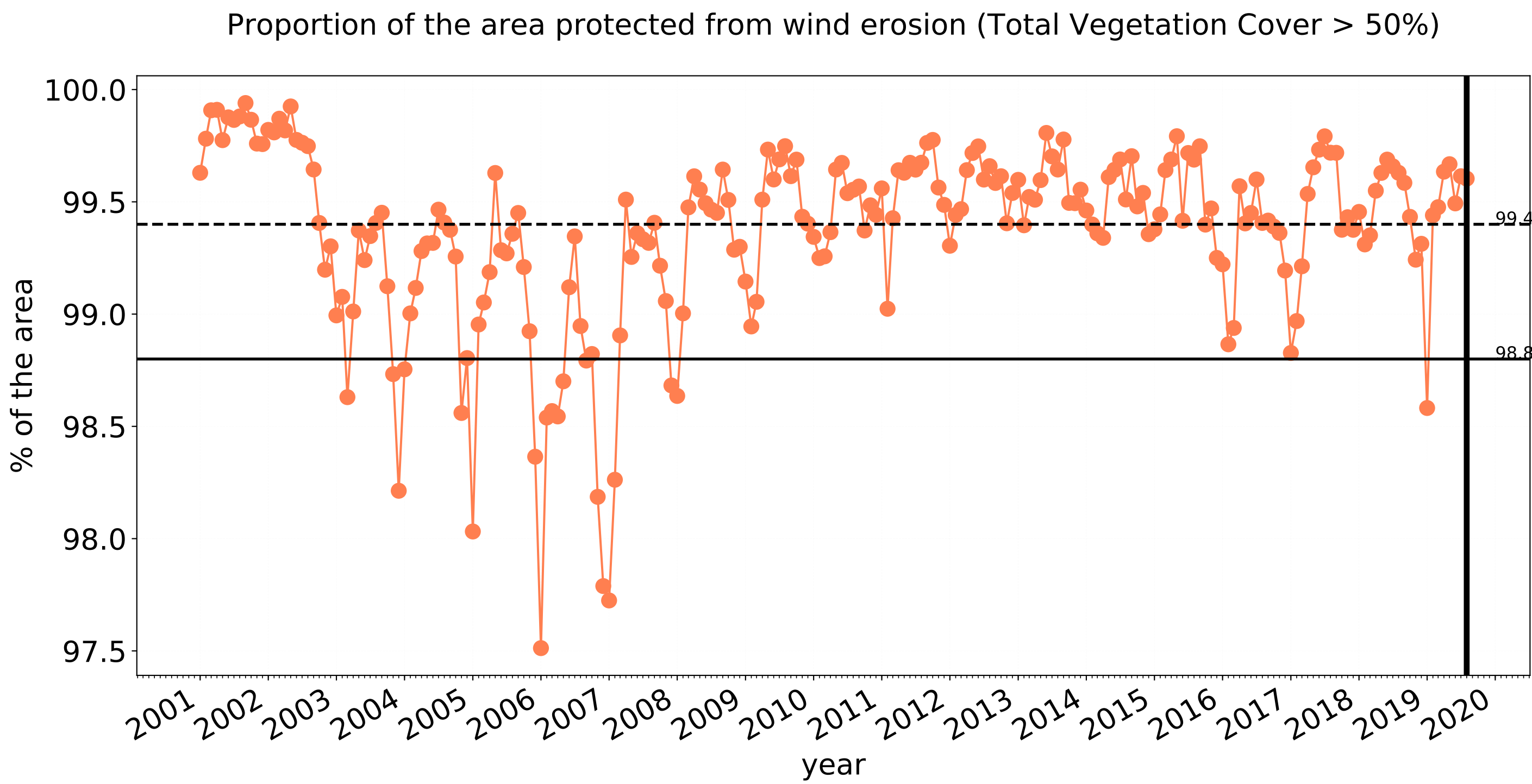
Total Vegetation Cover Decile [%]

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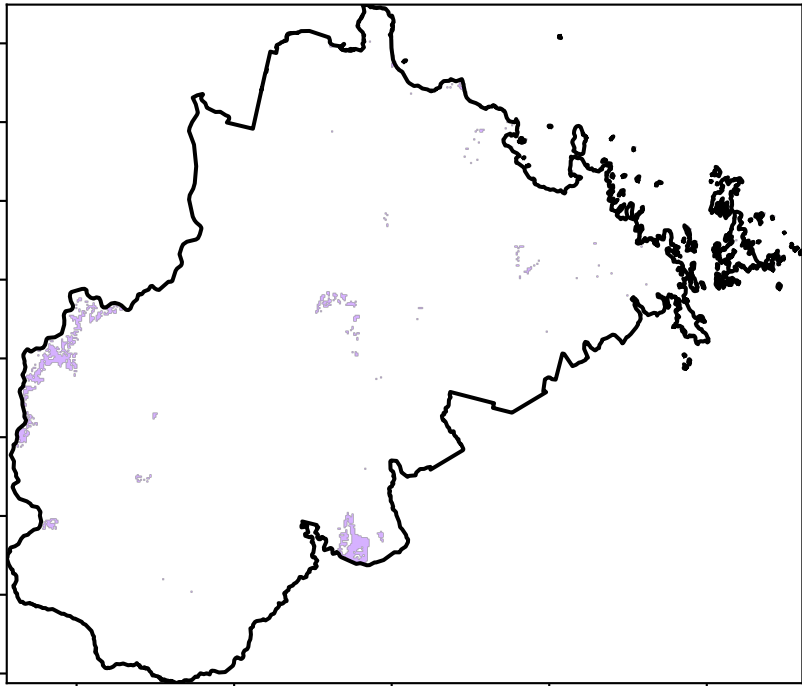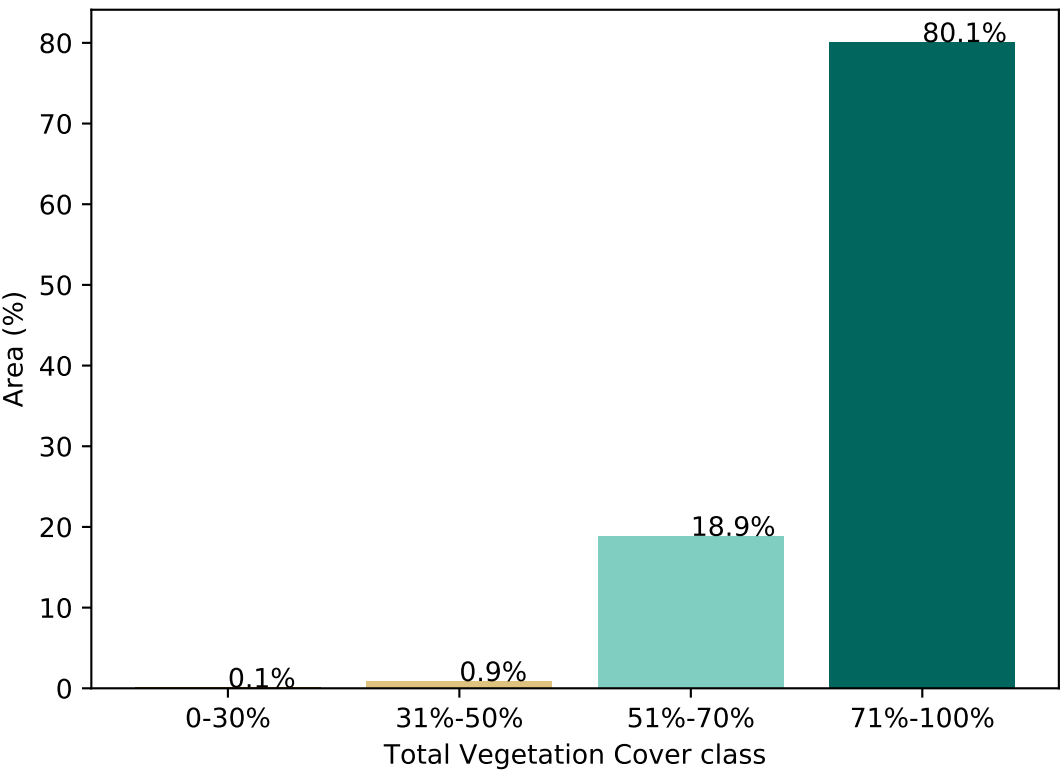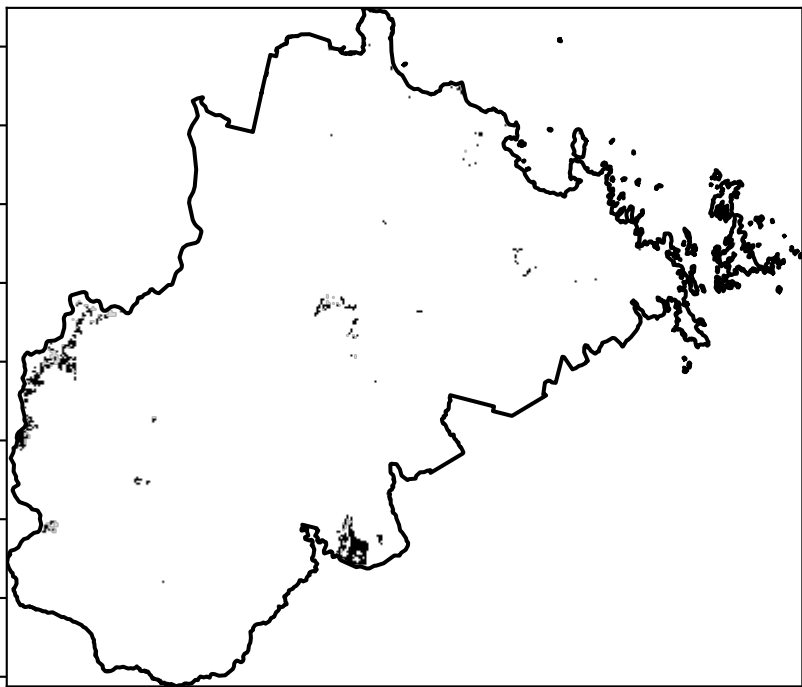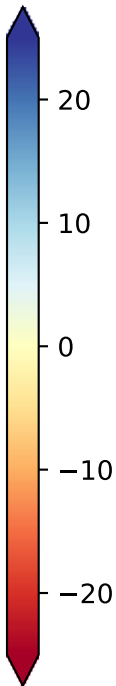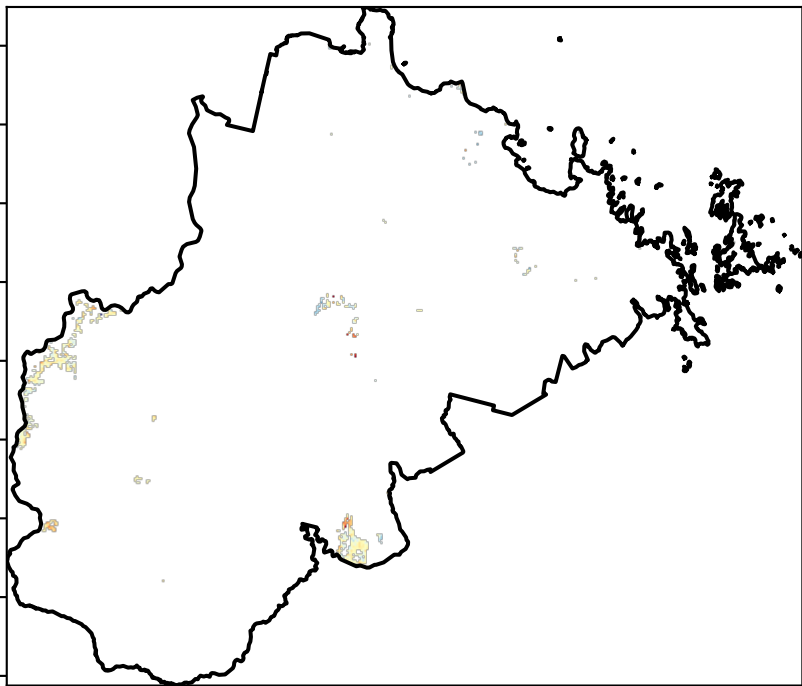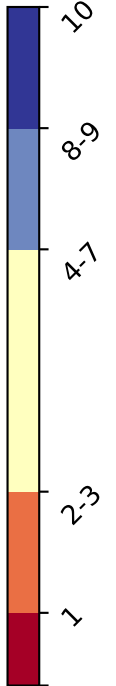
10
8-9
4-7
2-3
1

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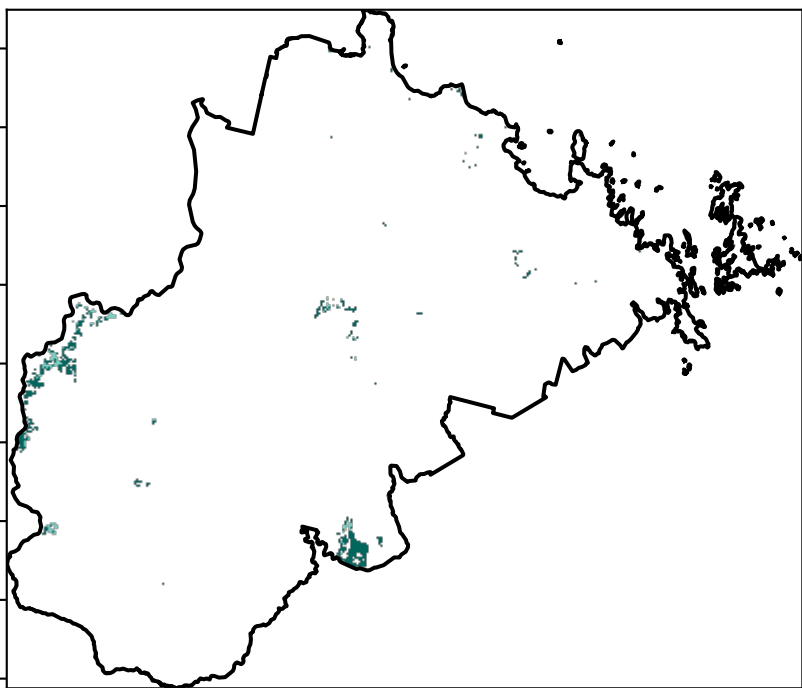
71%-100%
51%-70%
31%-50%
0-30%

Proportion of vegetation cover class in area

Area (%) vs Total Vegetation Cover class:
0-30%: 0.1%
31%-50%: 0.9%
51%-70%: 18.9%
71%-100%: 80.1%

% Area protected from water erosion (>70%)

Area not protected 19.9% of region (5,586 ha)

Area protected 80.1% of region (22,488 ha)

% Area protected from wind erosion (>50%)
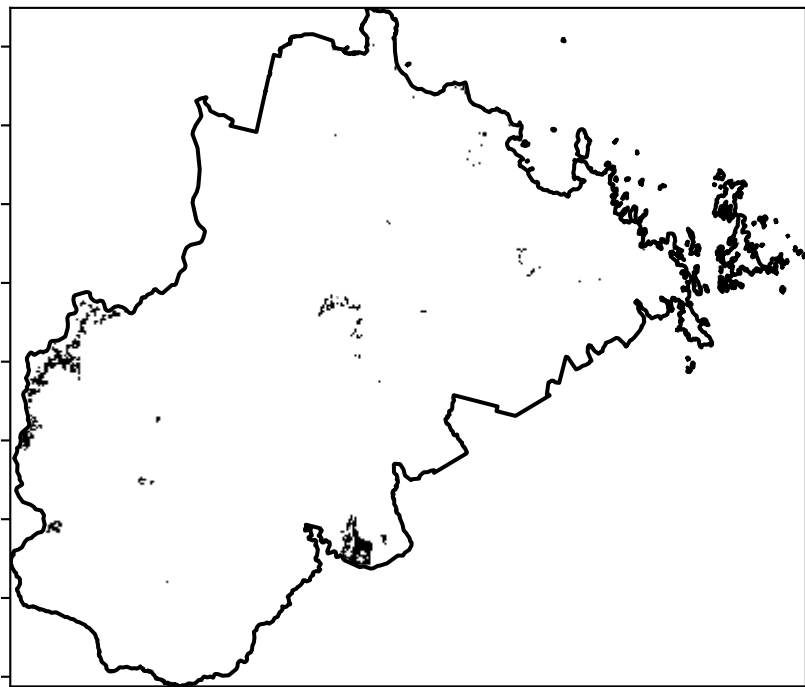
Area not protected 1.0% of region (280 ha)

Area protected 99.0% of region (27,794 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
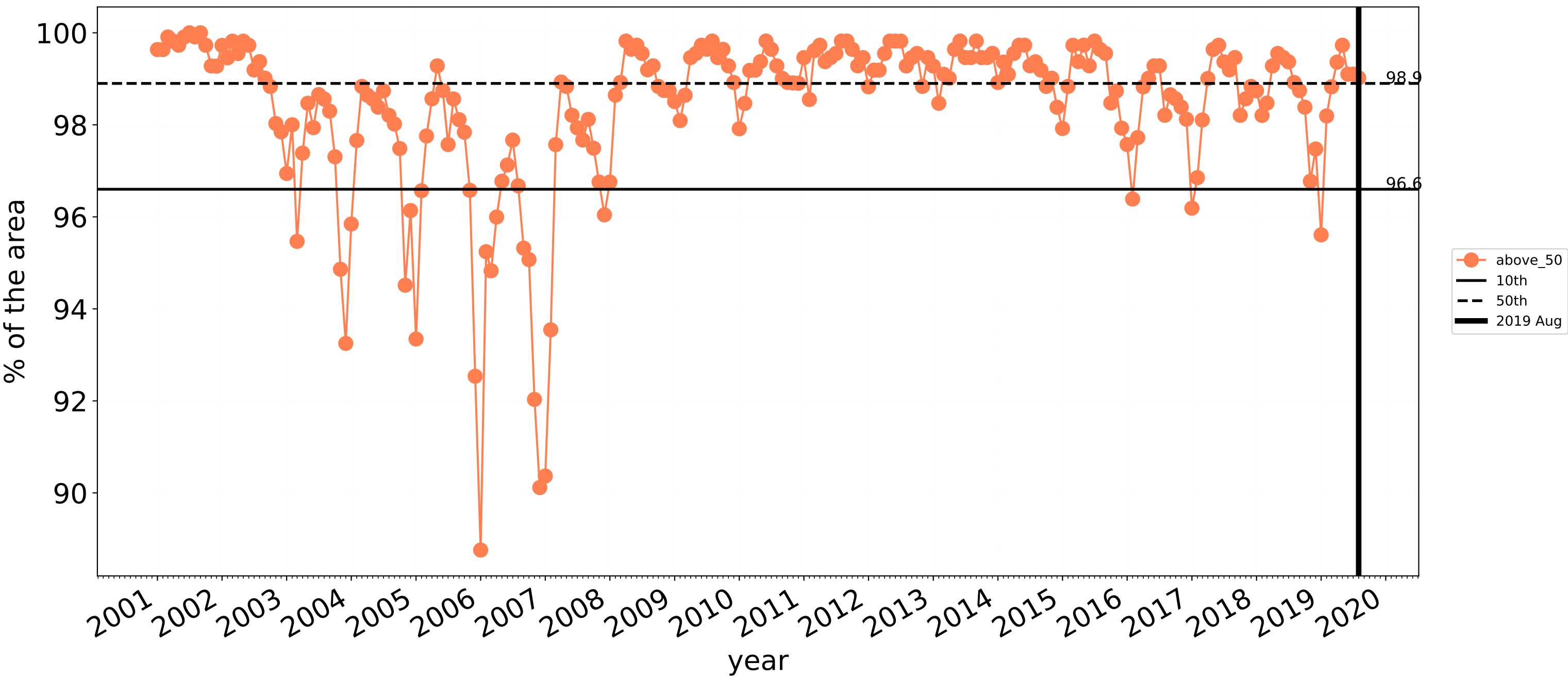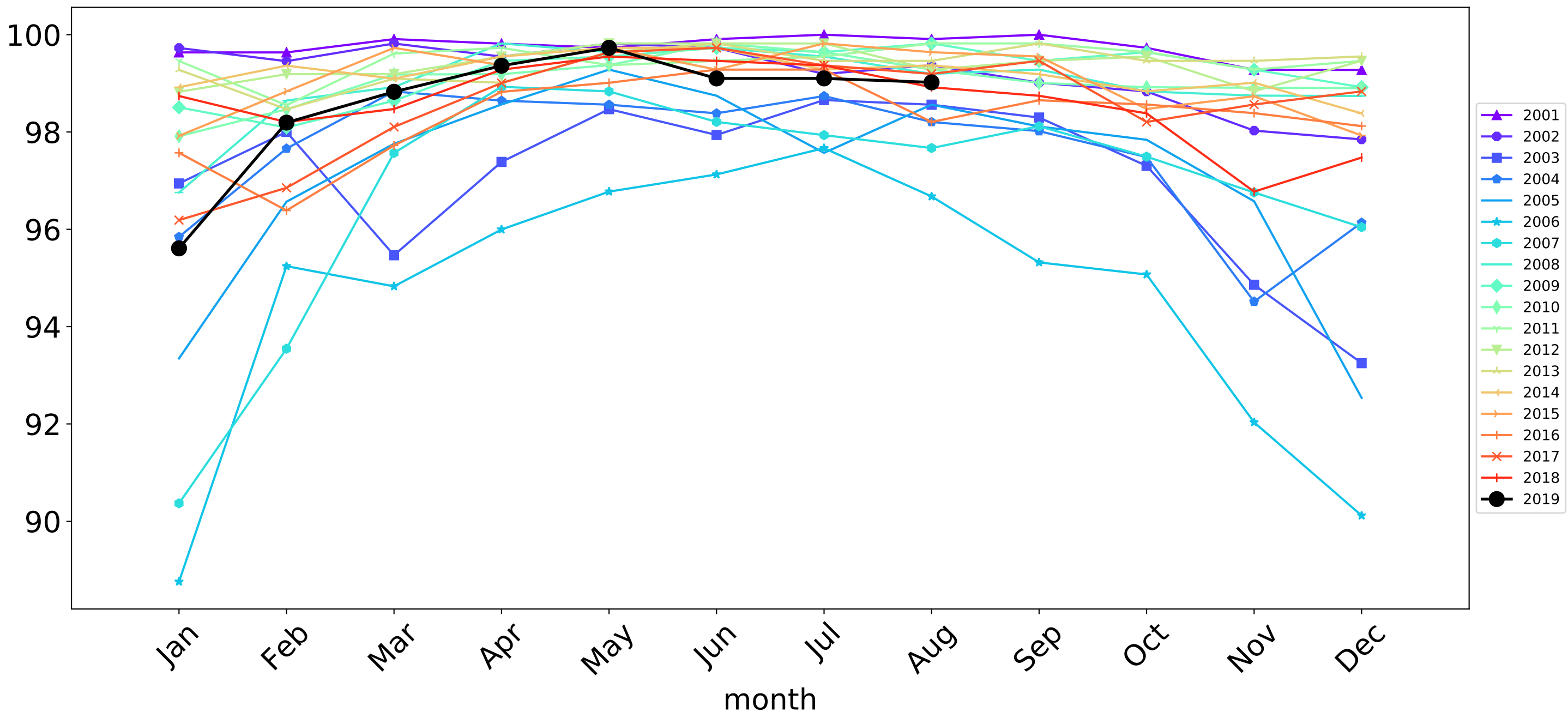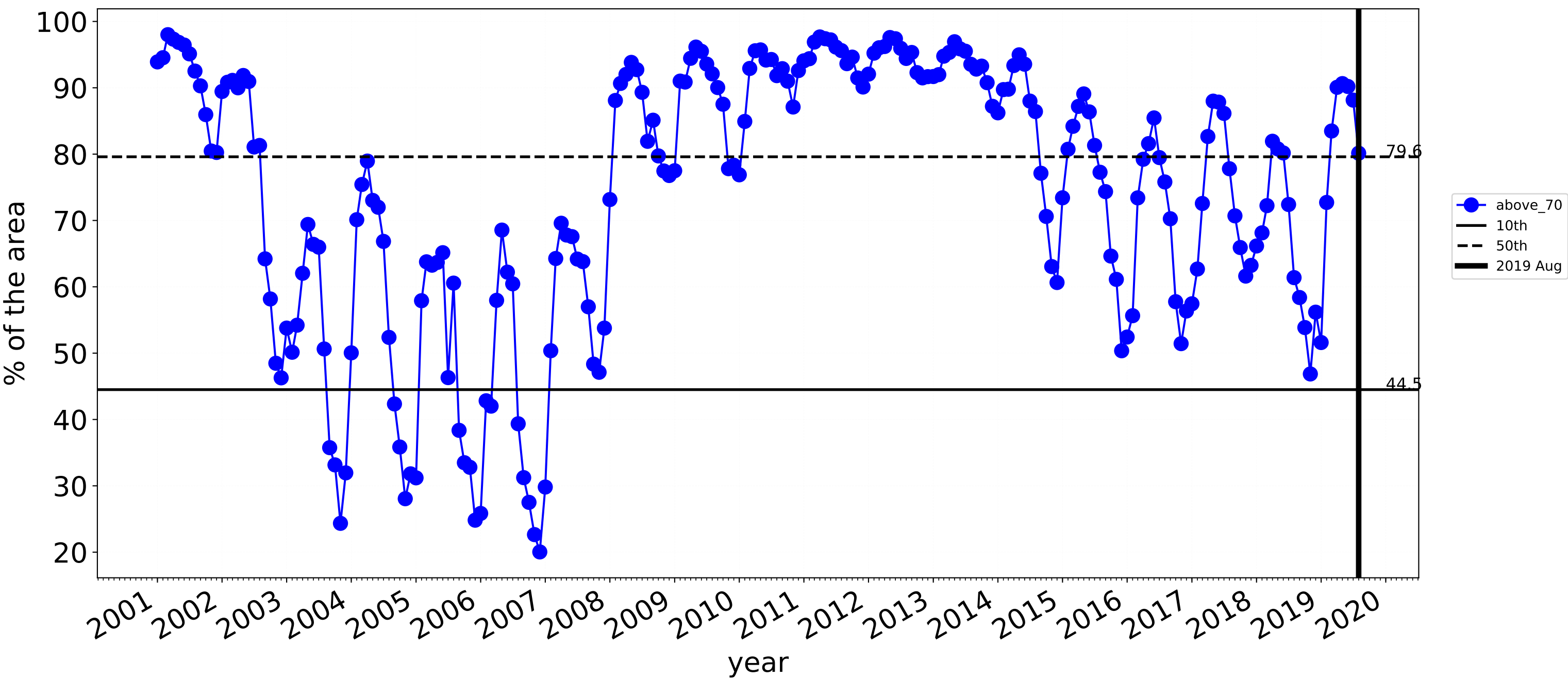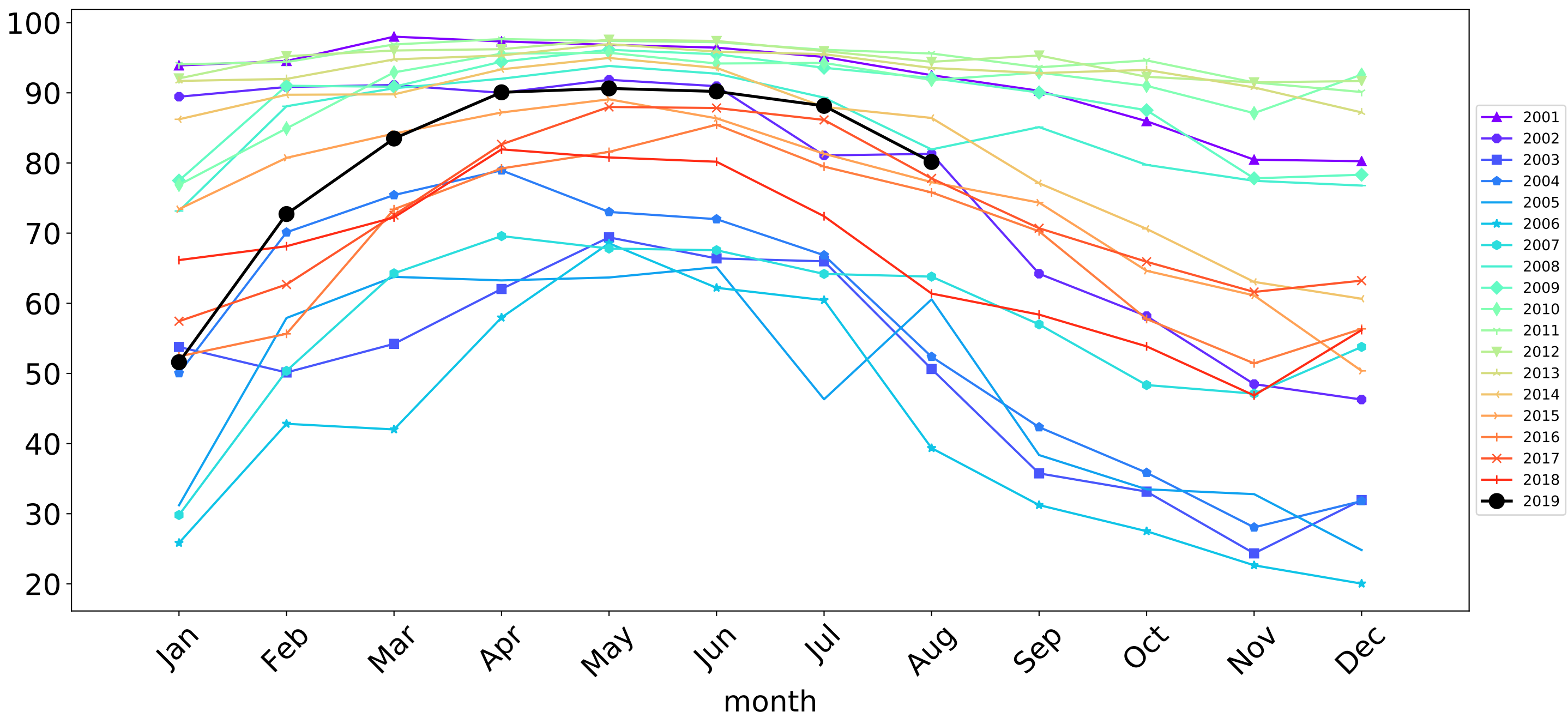1

Conservation and natural environments 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%)

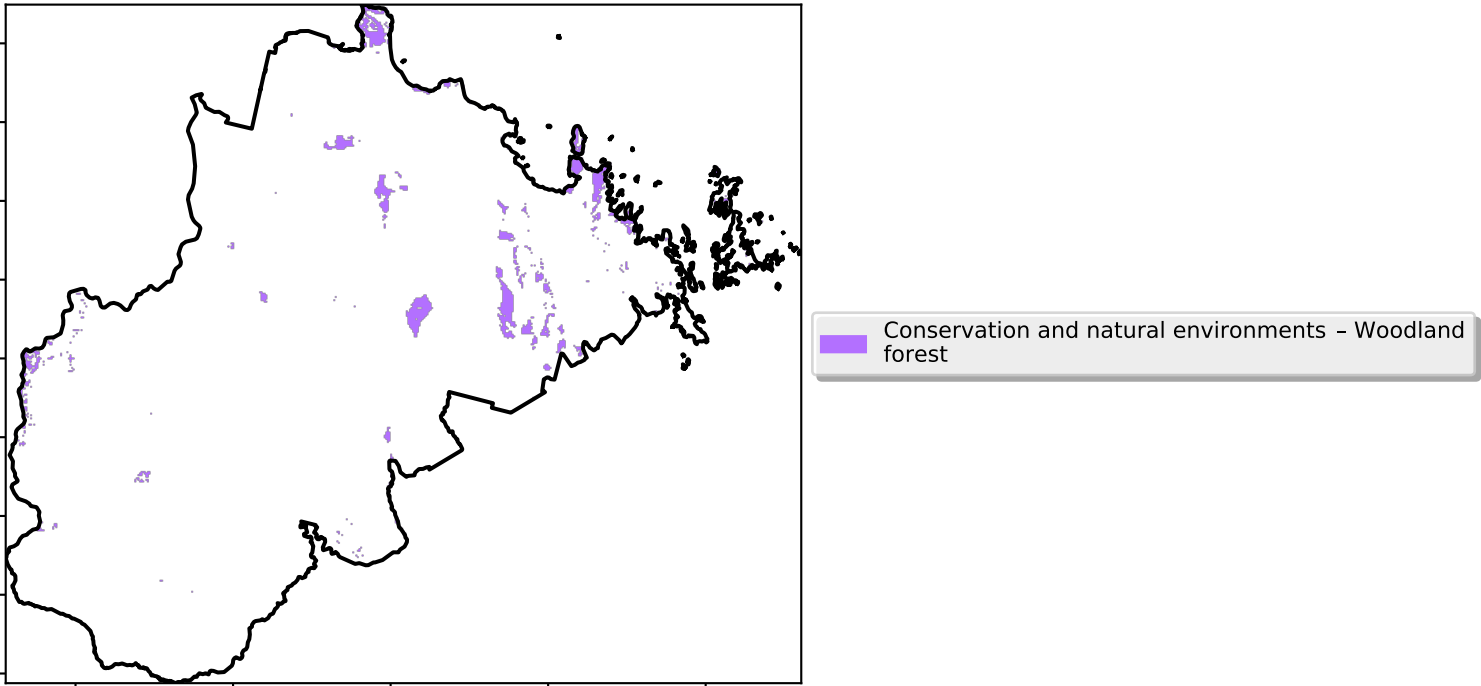Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

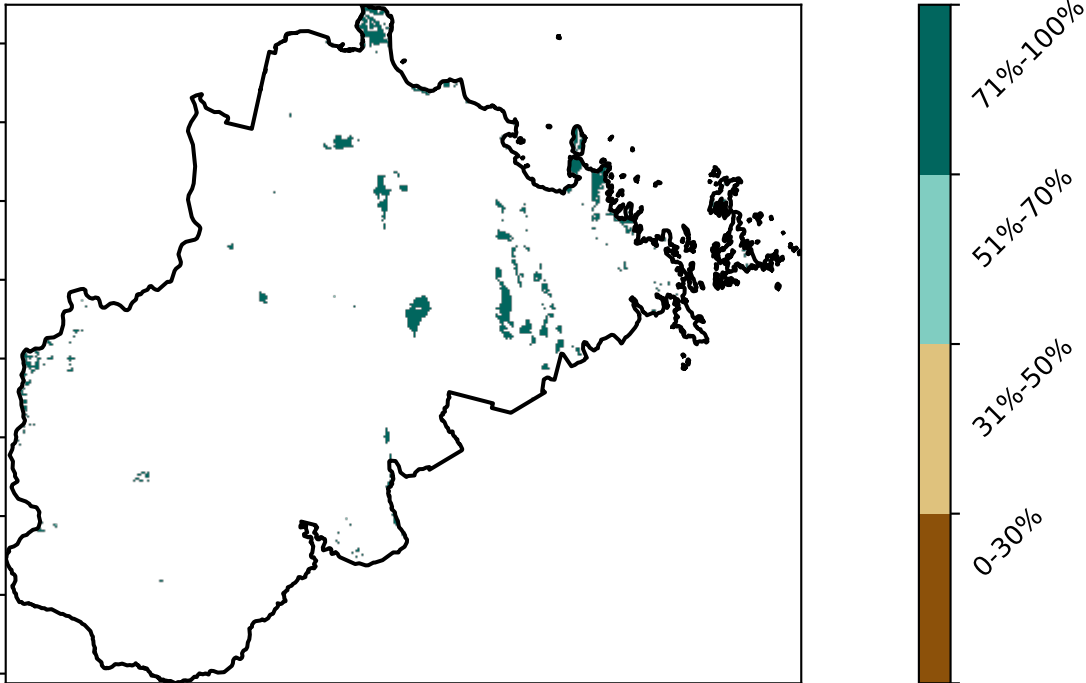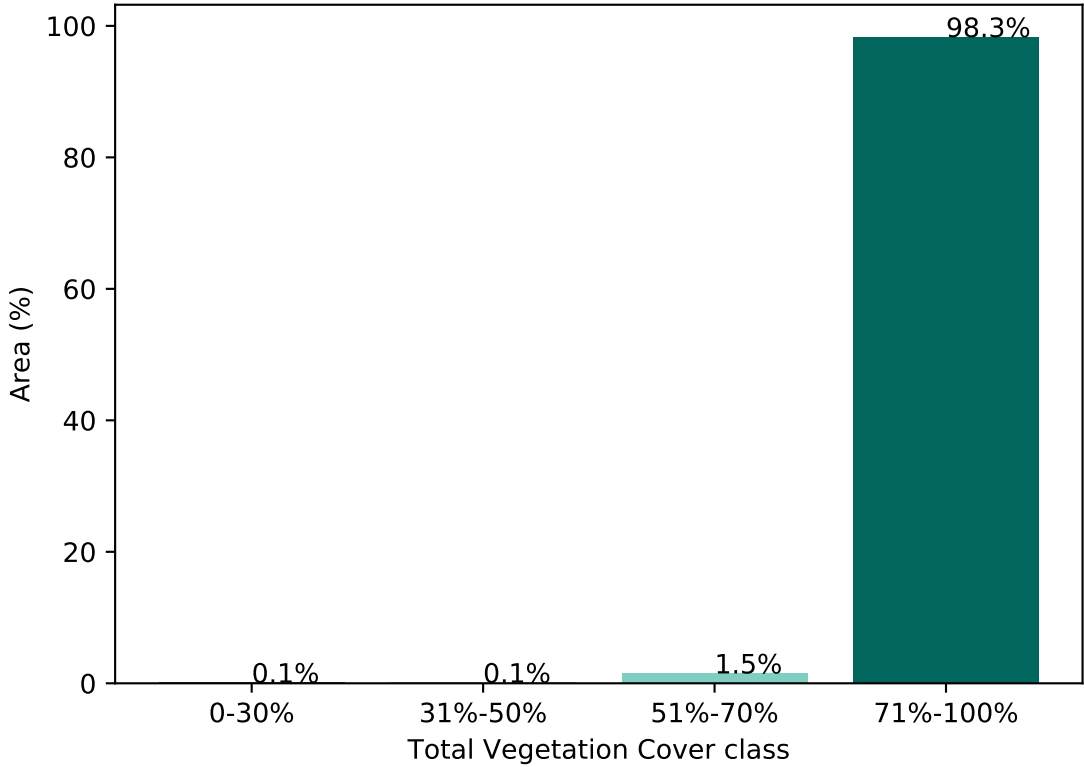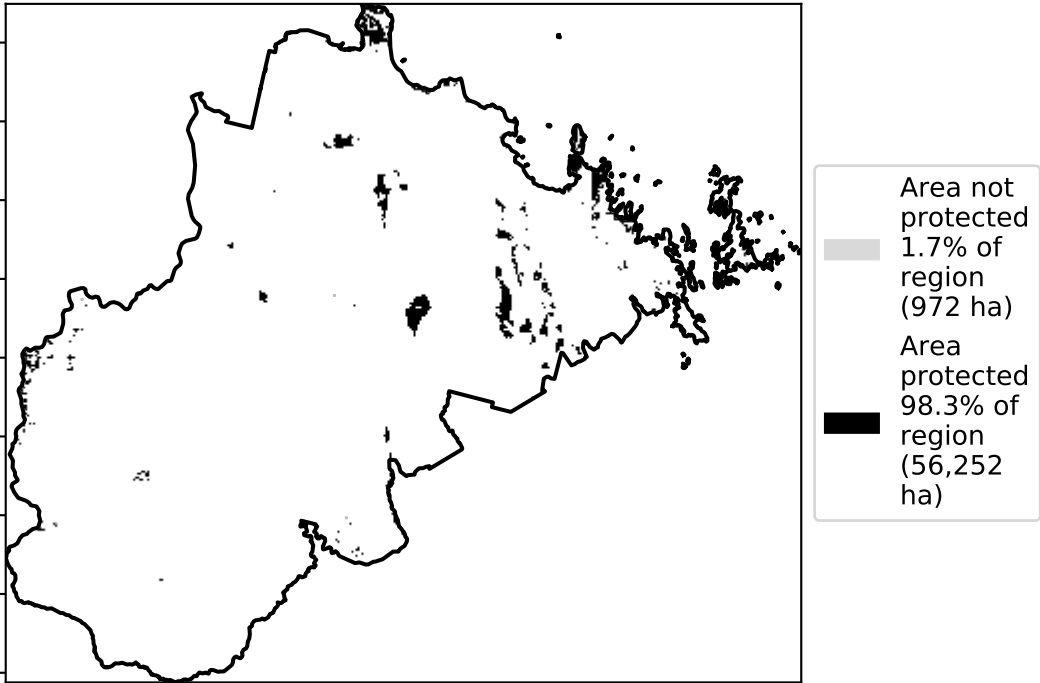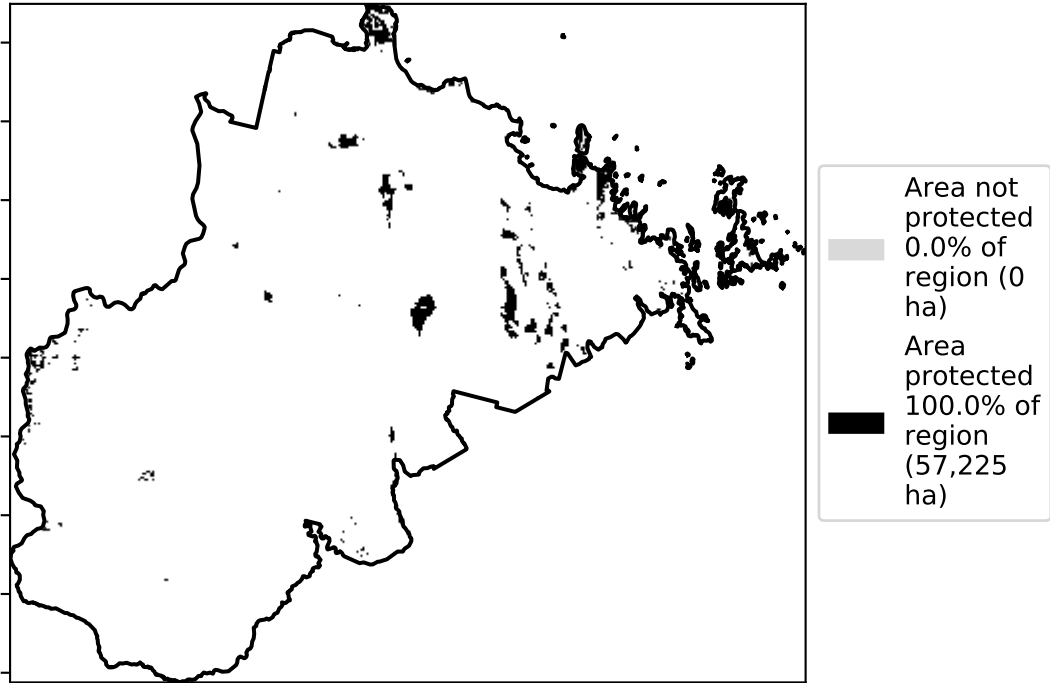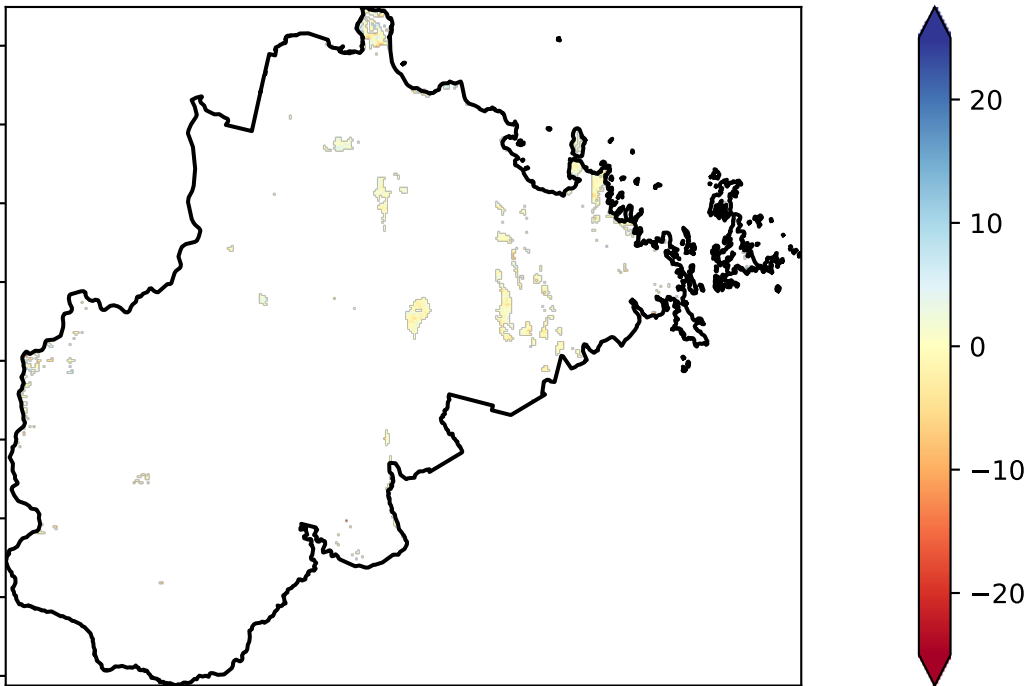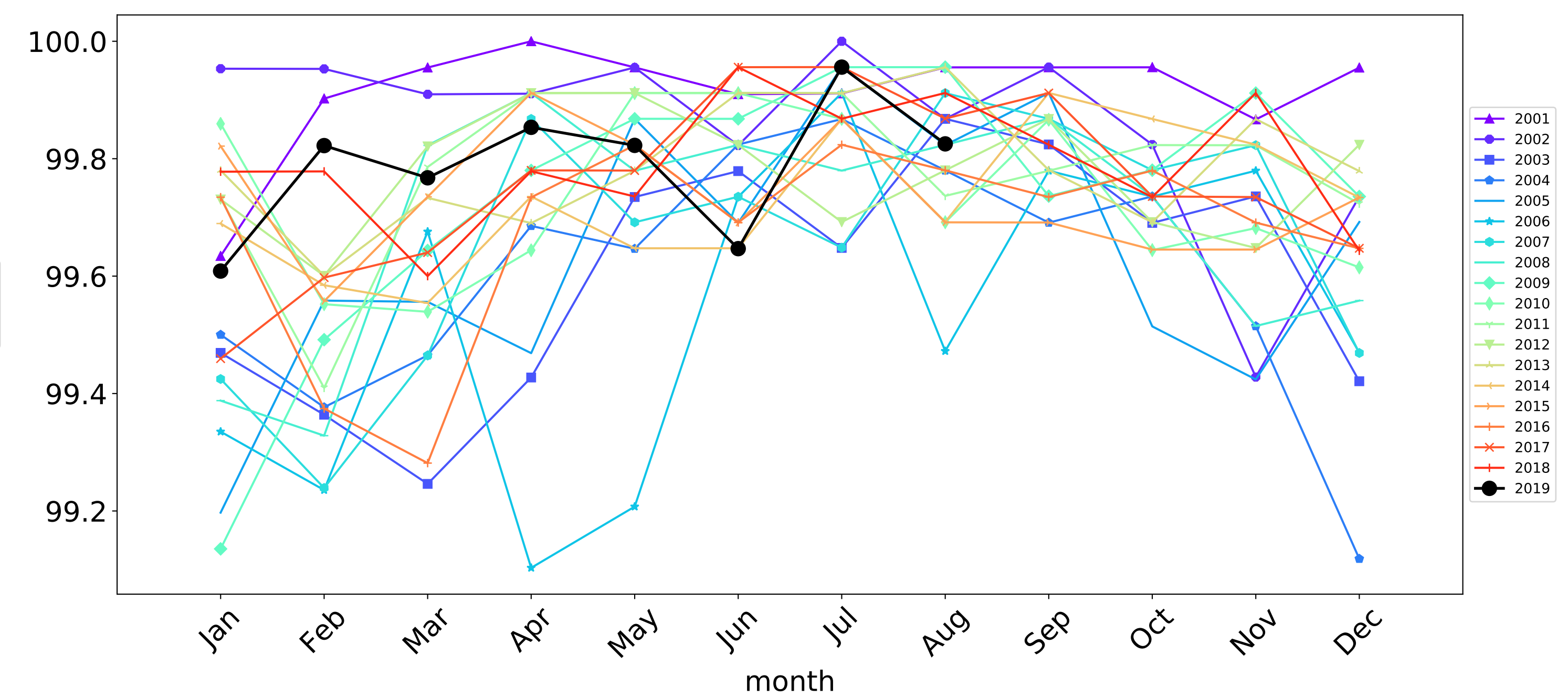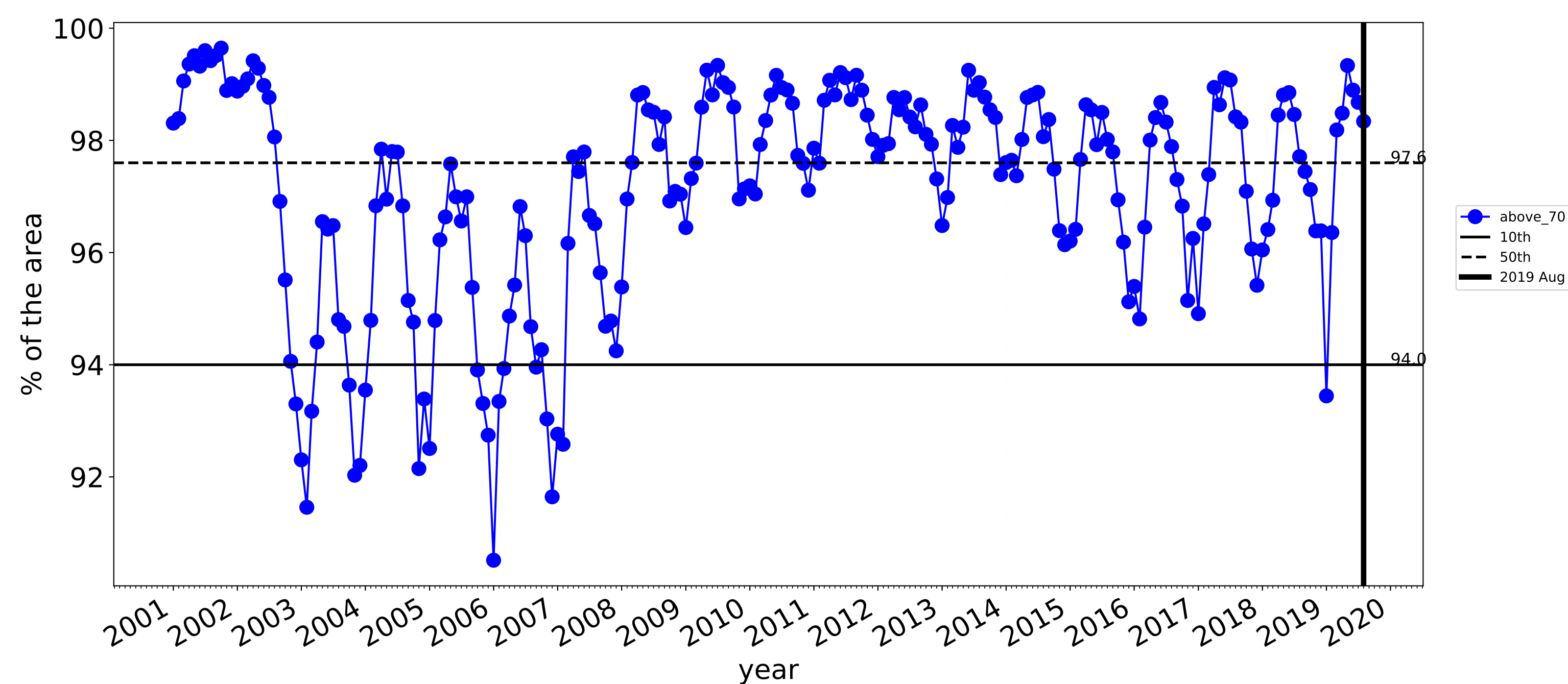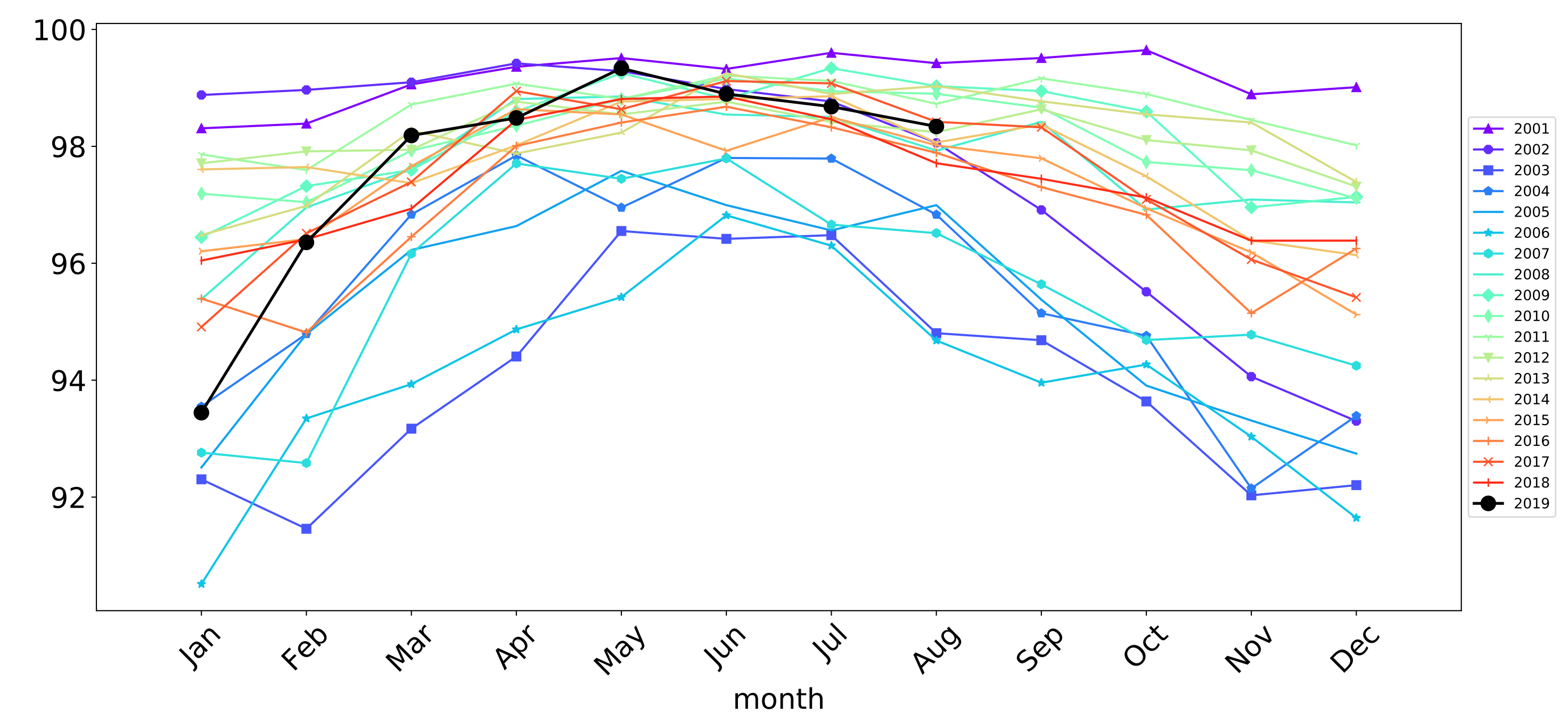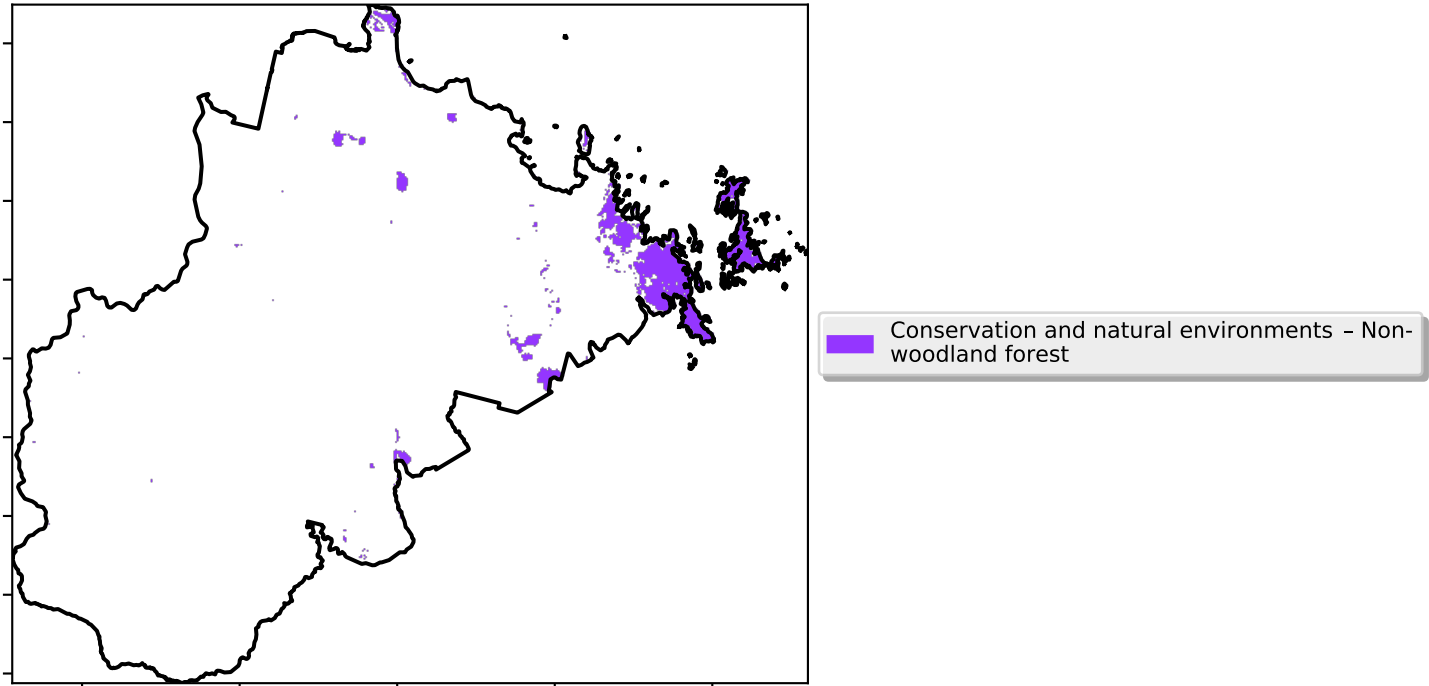Water erosion historical monthly area protected (Total Veg Cov>70%)

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

98.3%
0.1%   0.1%   1.5%

Area (%)

Total Vegetation Cover class

% Area protected from water erosion (>70%)

Area not protected 1.7% of region (972 ha)

Area protected 98.3% of region (56,252 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (57,225 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%)

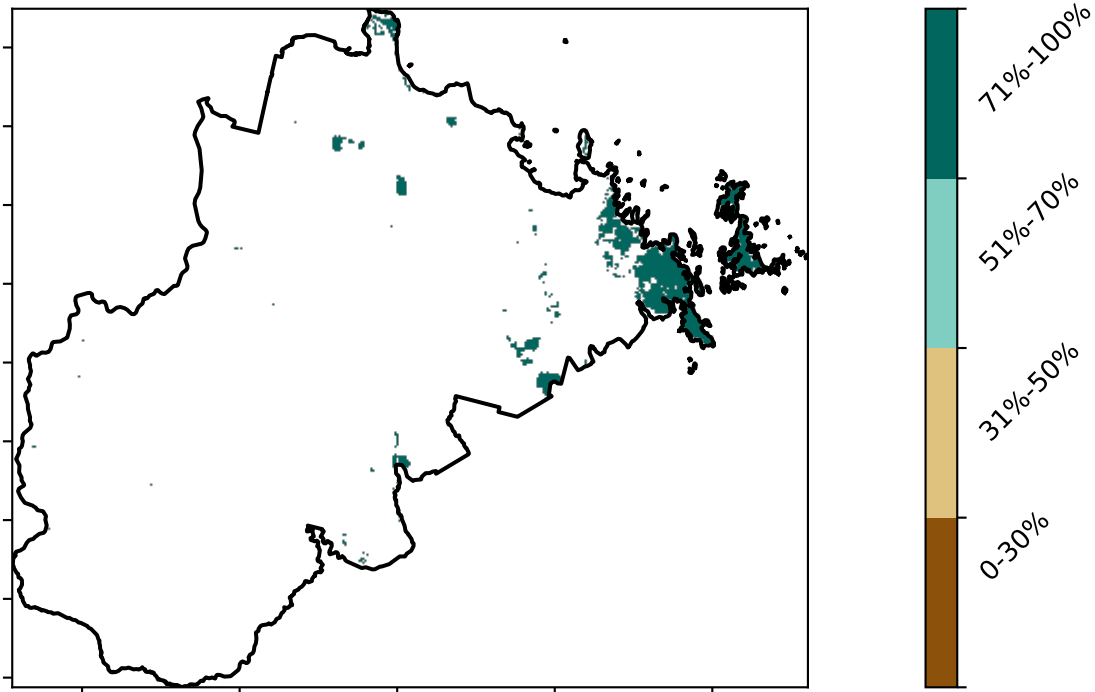Water erosion historical monthly area protected (Total Veg Cov>70%)

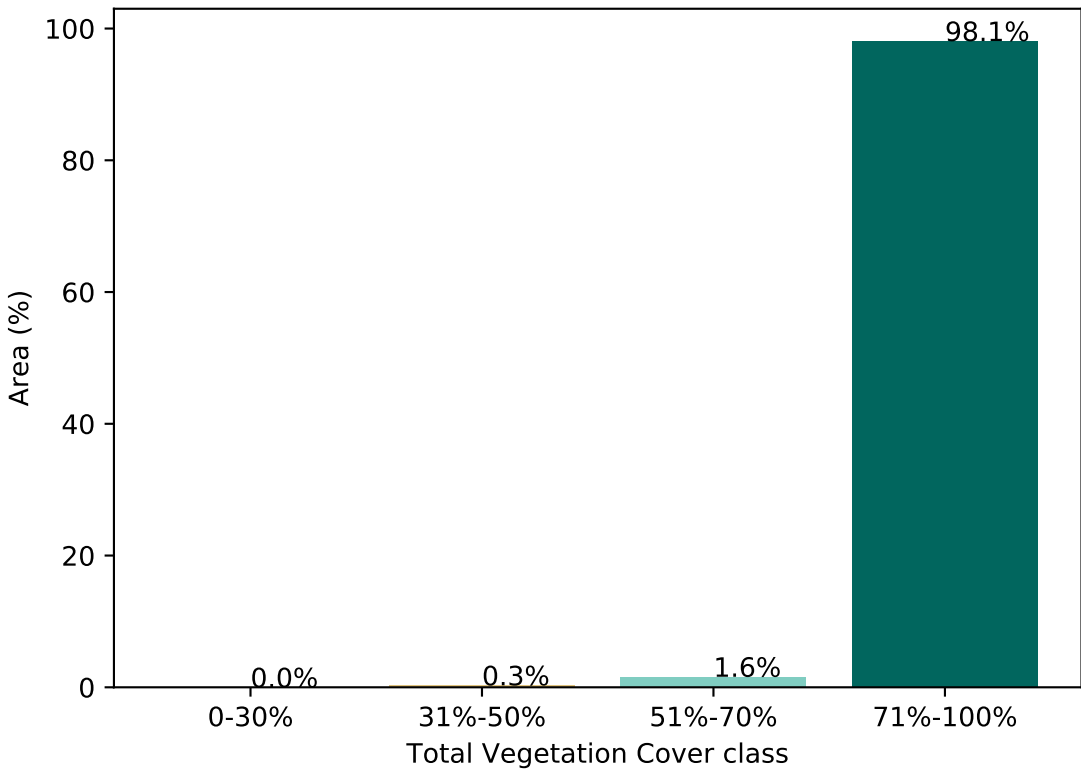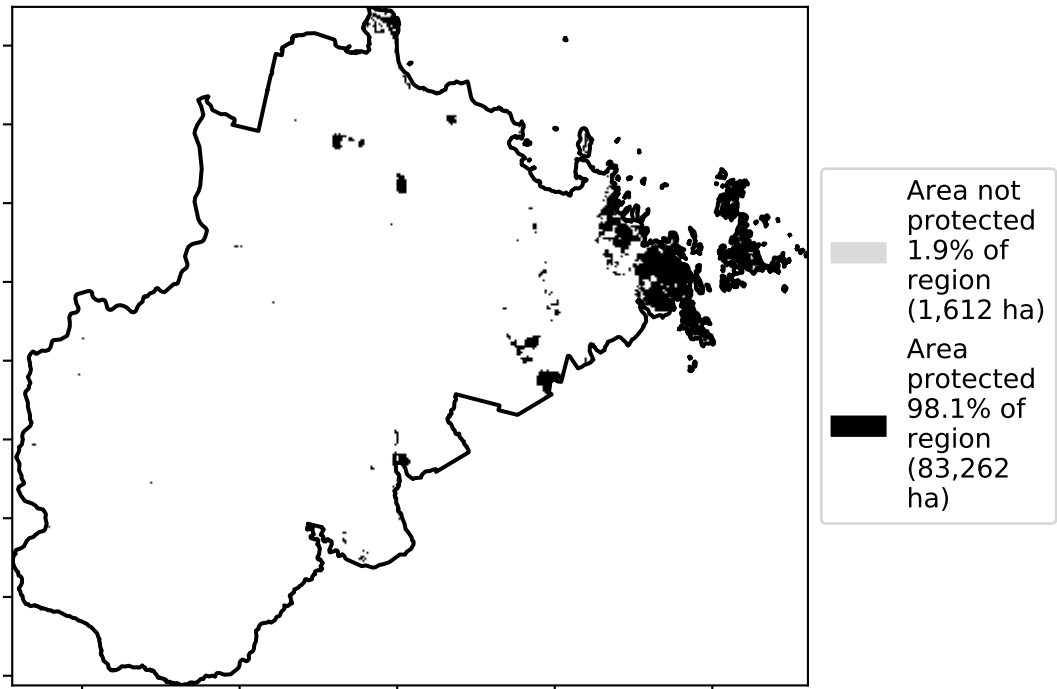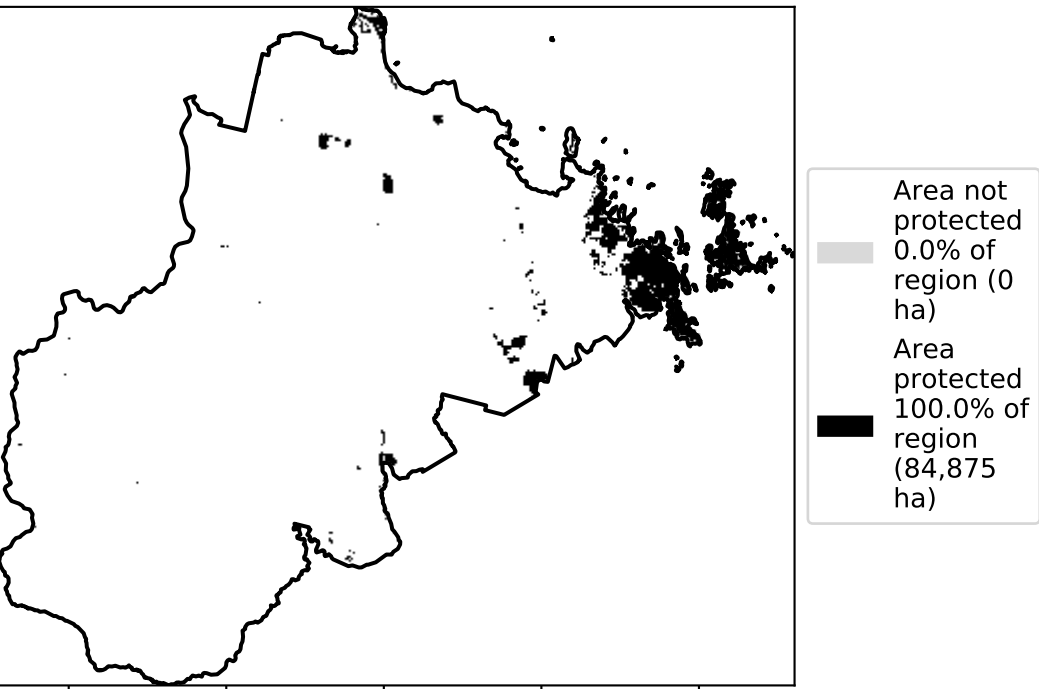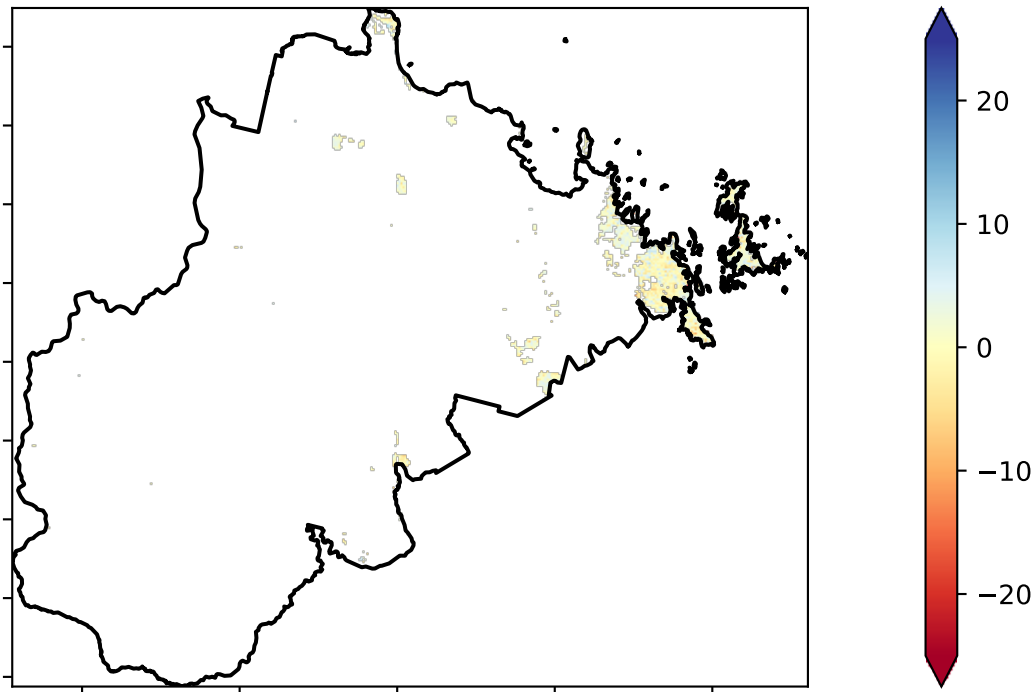# Conservation and natural environments Forest (non woodland)

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-woodland forest

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

98.1%

0.0%   0.3%   1.6%

Total Vegetation Cover class

Area (%)

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

% Area protected from water erosion (>70%)

Area not protected 1.9% of region (1,612 ha)

Area protected 98.1% of region (83,262 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (84,875 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

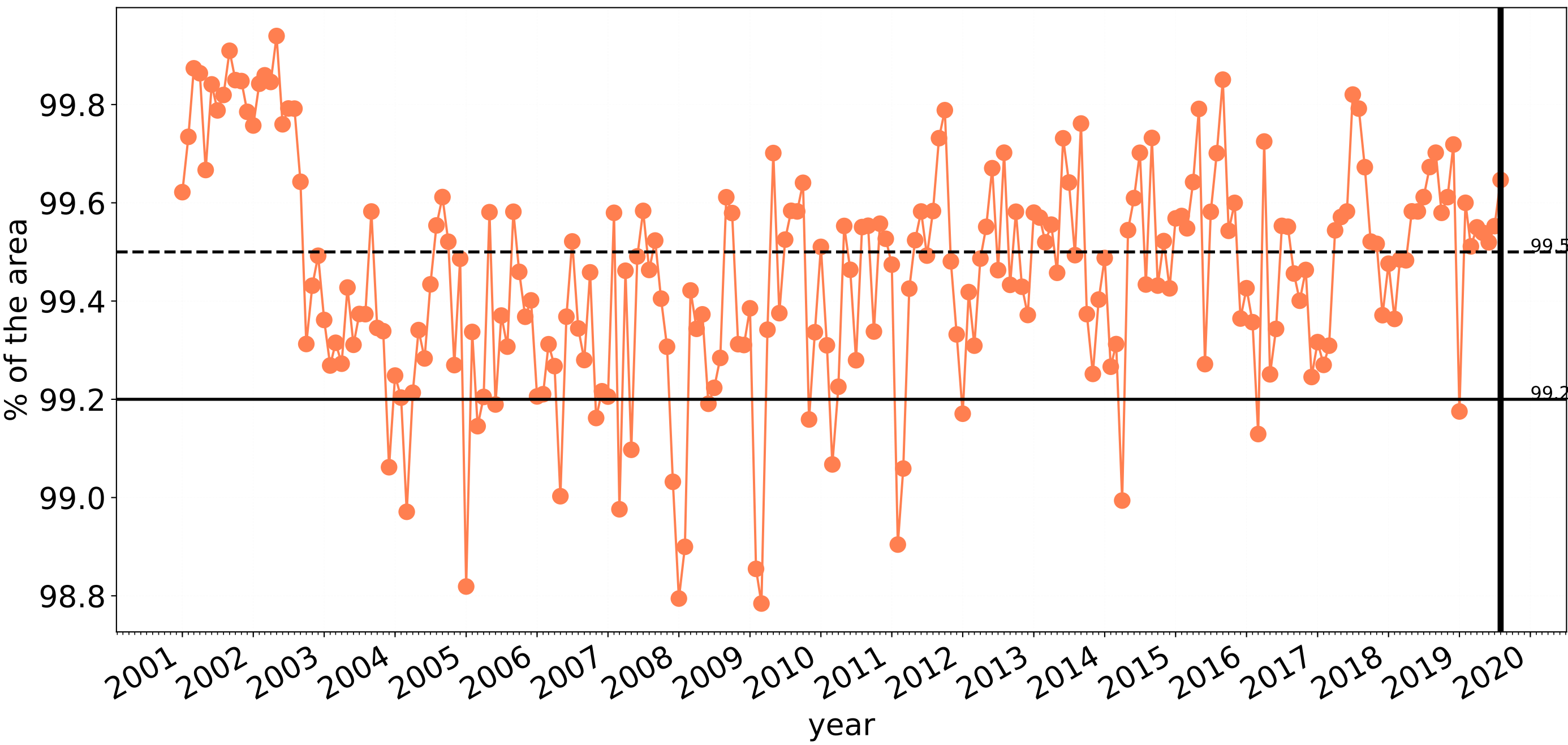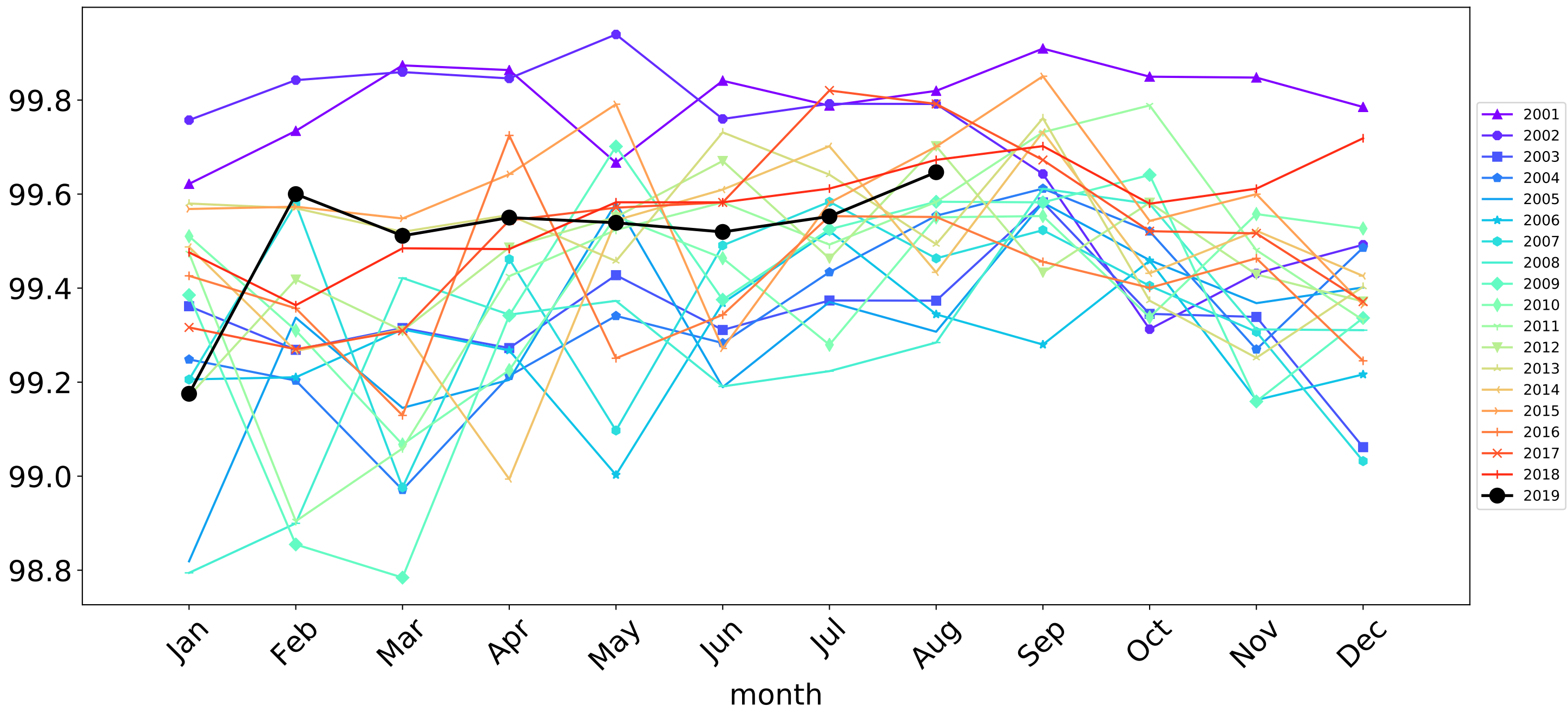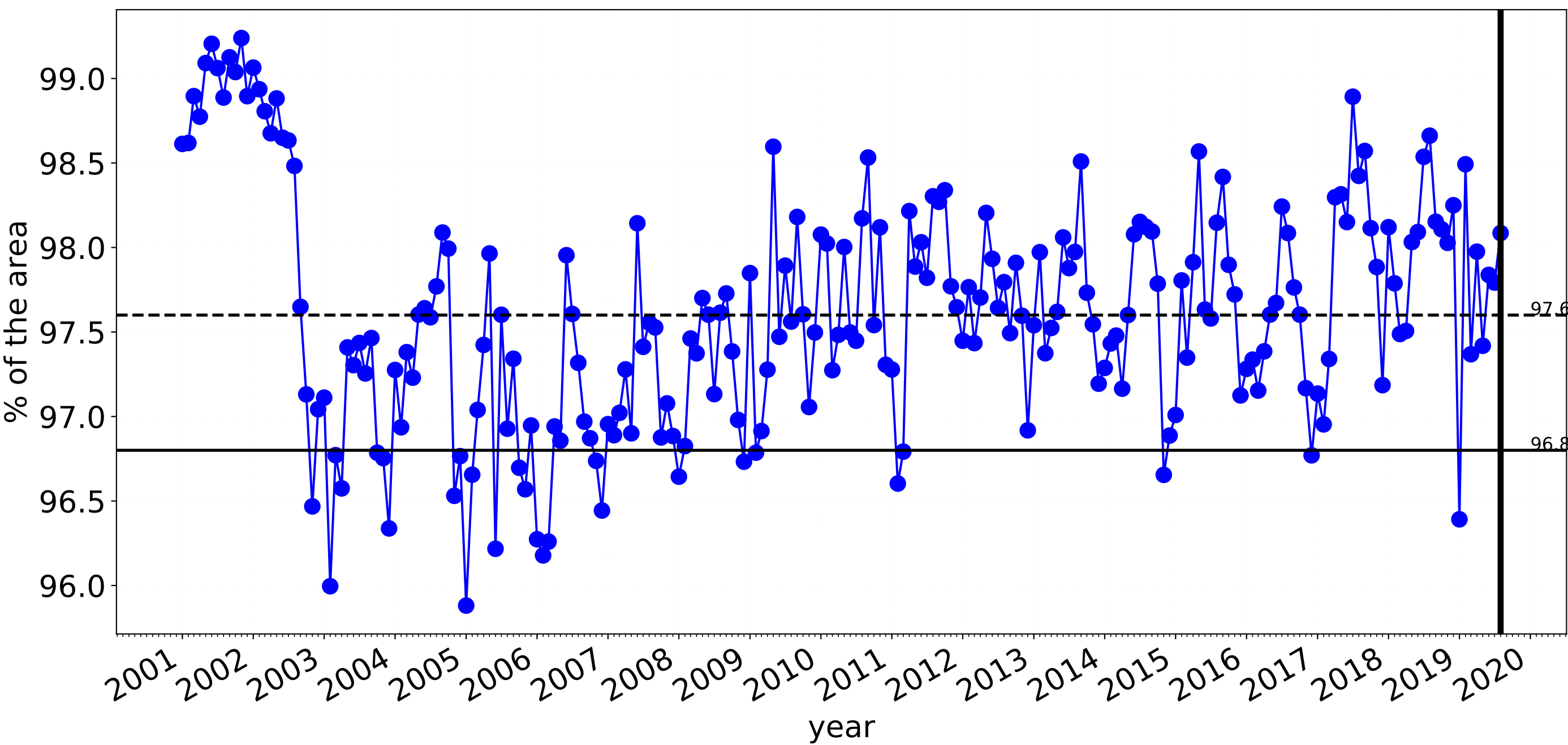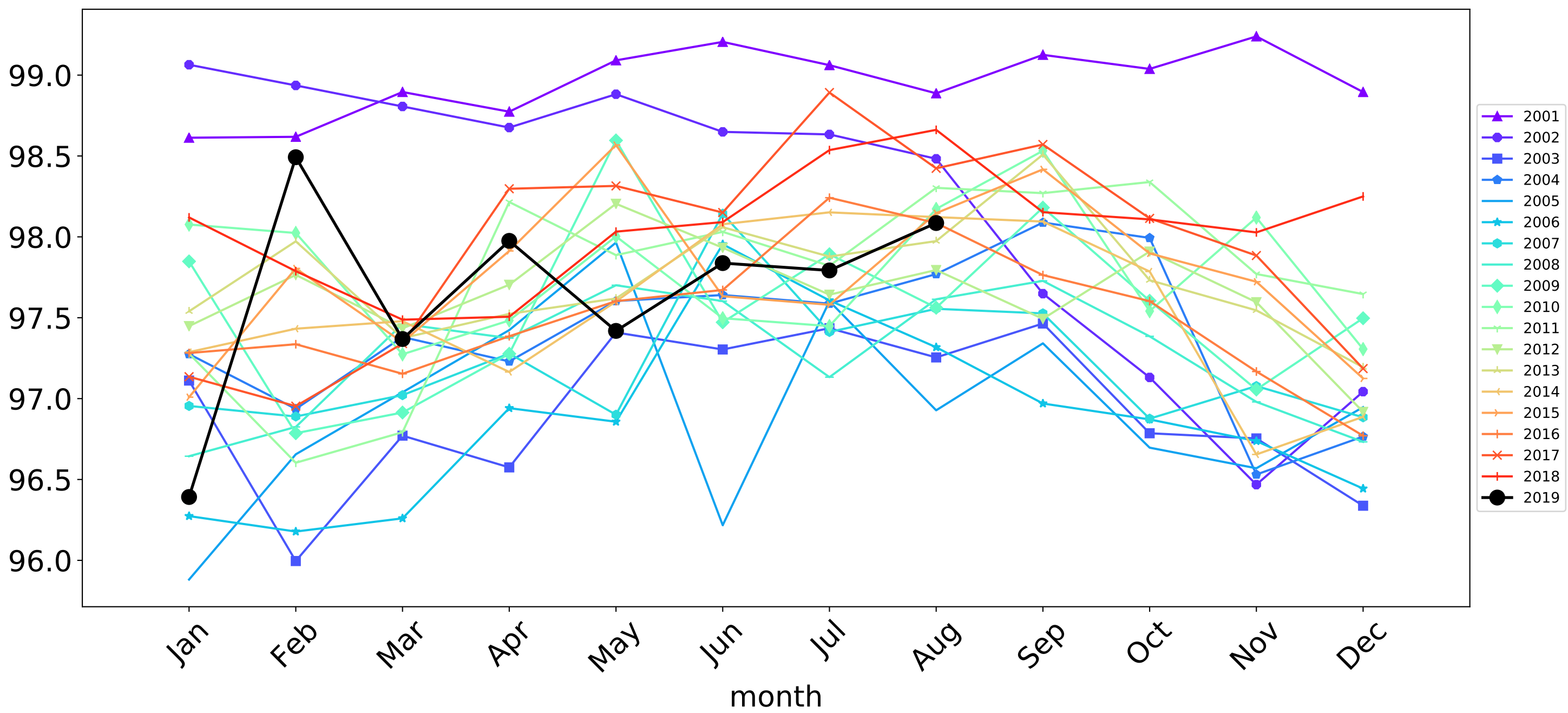**Conservation and natural environments Forest (non woodland) timeseries**

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%)
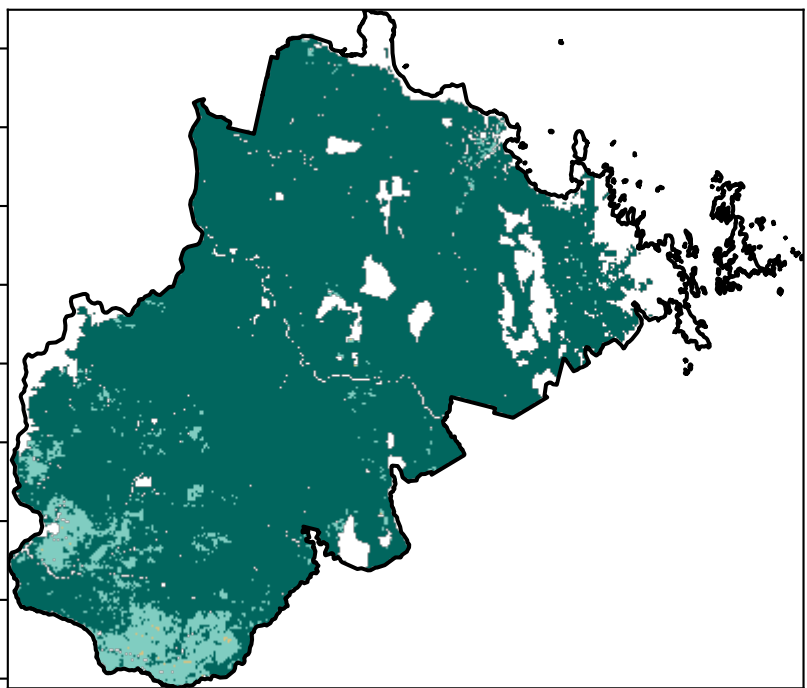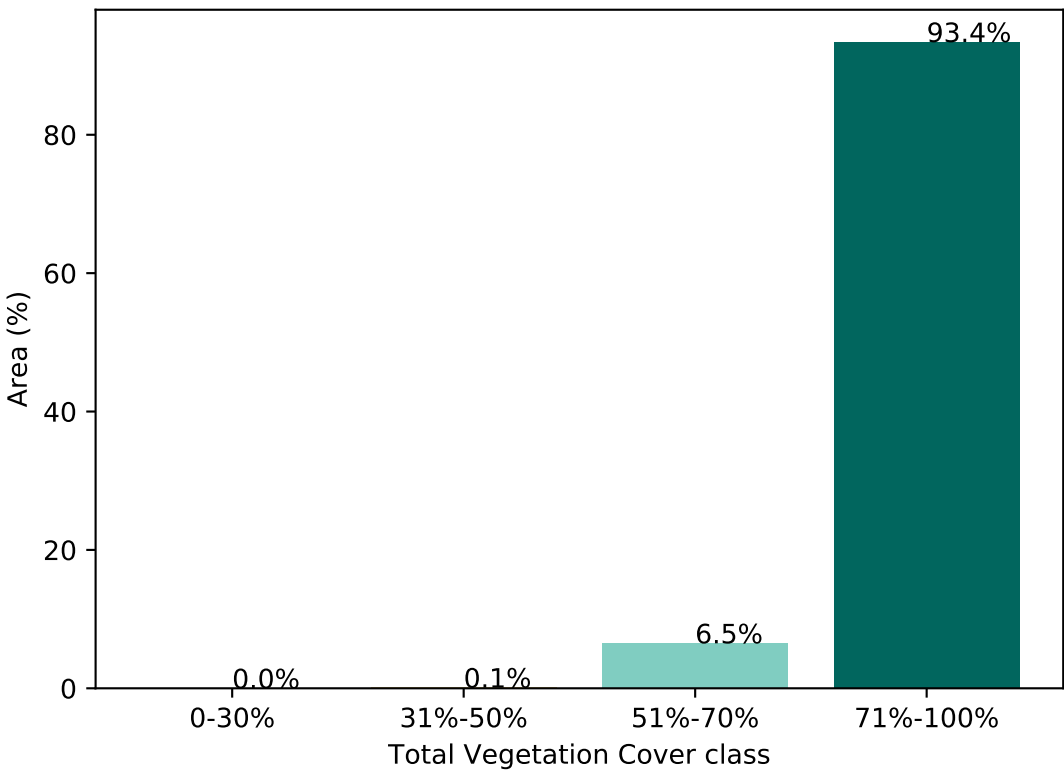
Agriculture

Land use and forest cover

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 - Grazing - Woodland forest
Agriculture - Grazing - Non-oodland forest
Agriculture - Grazing - Irrigated
Agriculture - Cropping - Non-irrigated
Agriculture - Cropping - Irrigated
Agriculture - Horticulture - Non-irrigated
Agriculture - Horticulture - Irrigated

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

93.4%

0.0%   0.1%   6.5%

Area (%)

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

% Area protected from water erosion (>70%)

Area not protected 6.6% of region (137,605 ha)

Area protected 93.4% of region (1,947,319 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (2,084,925 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
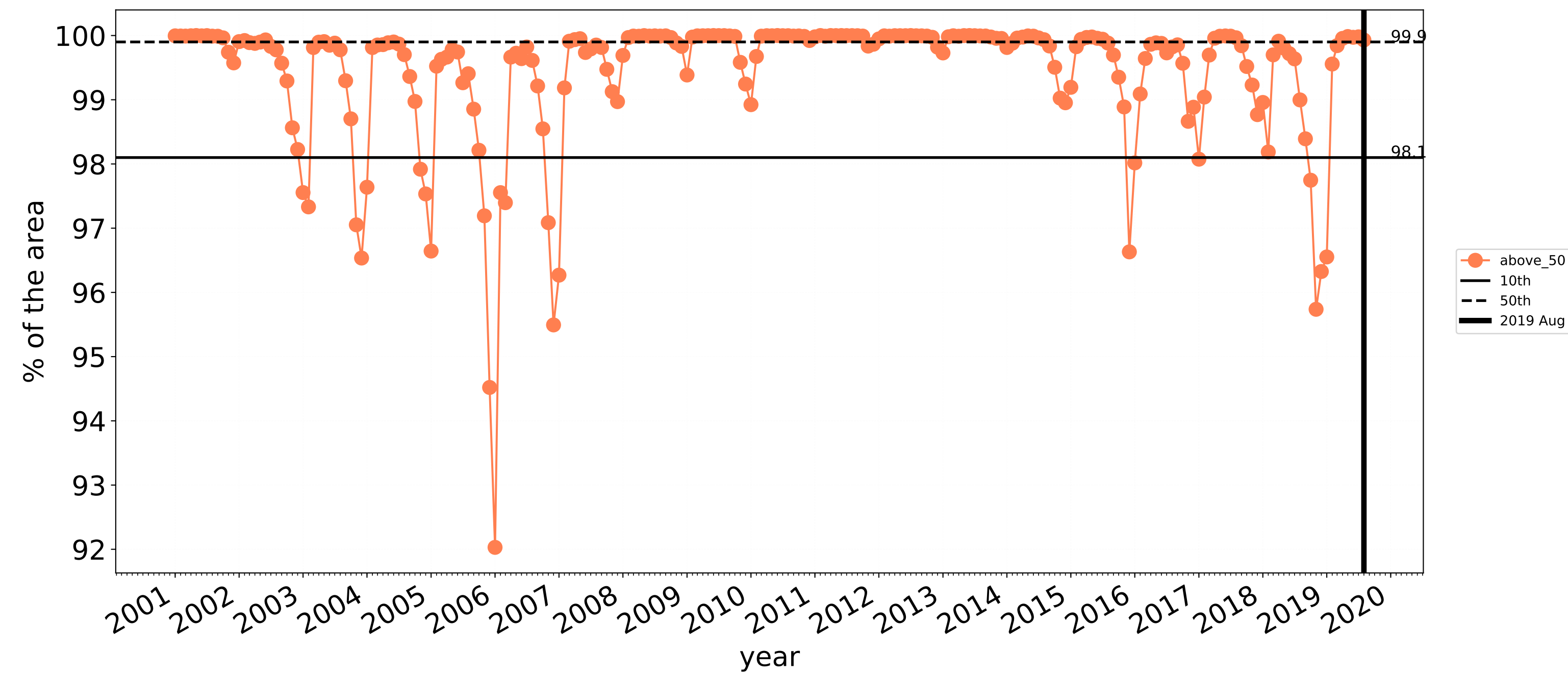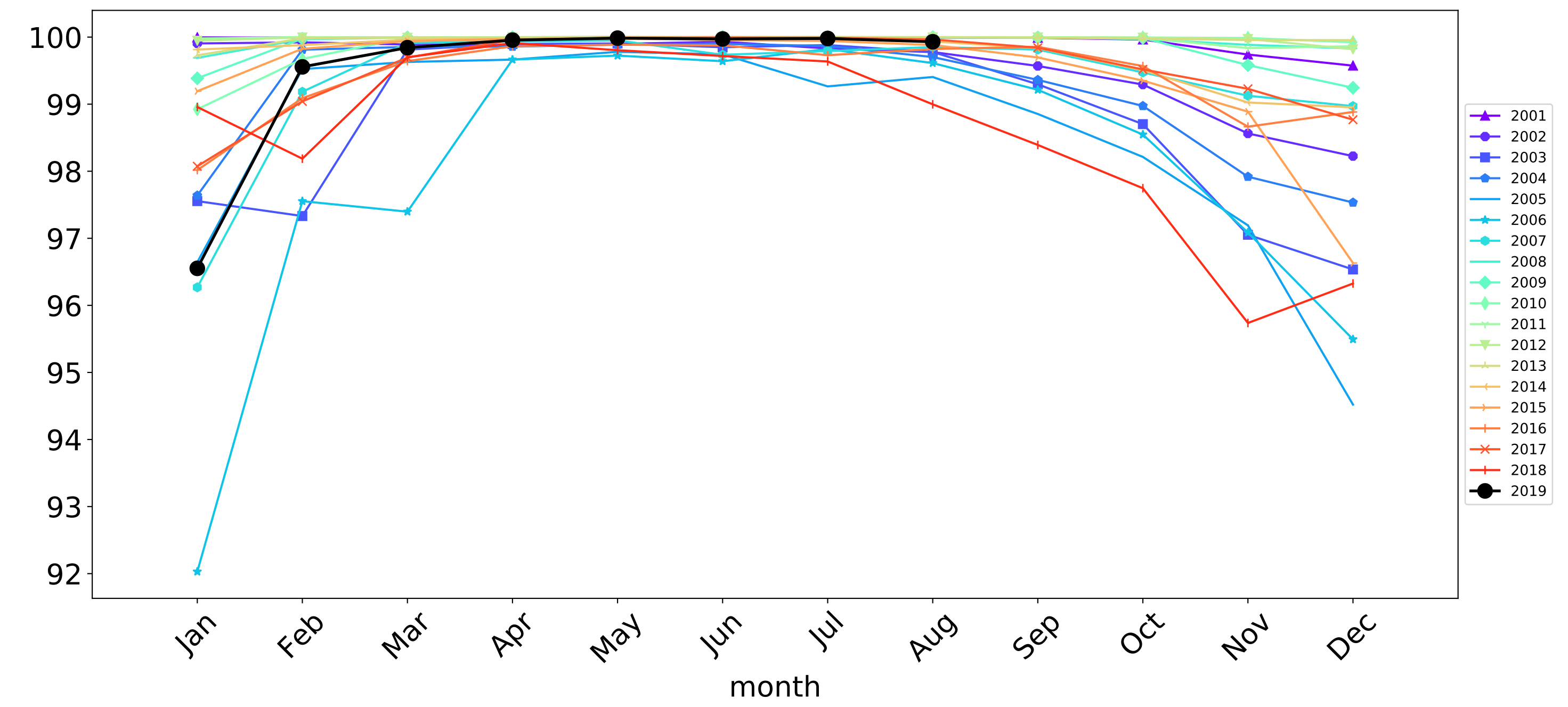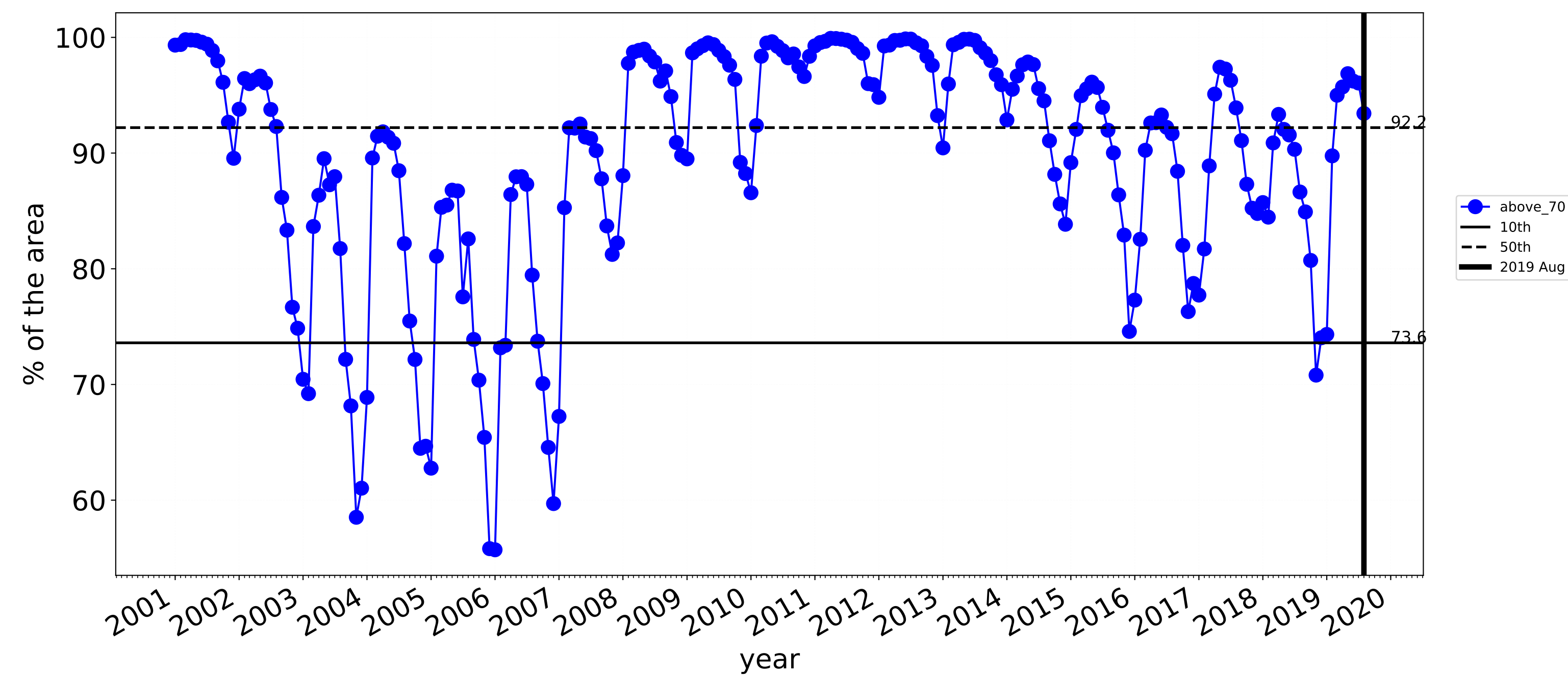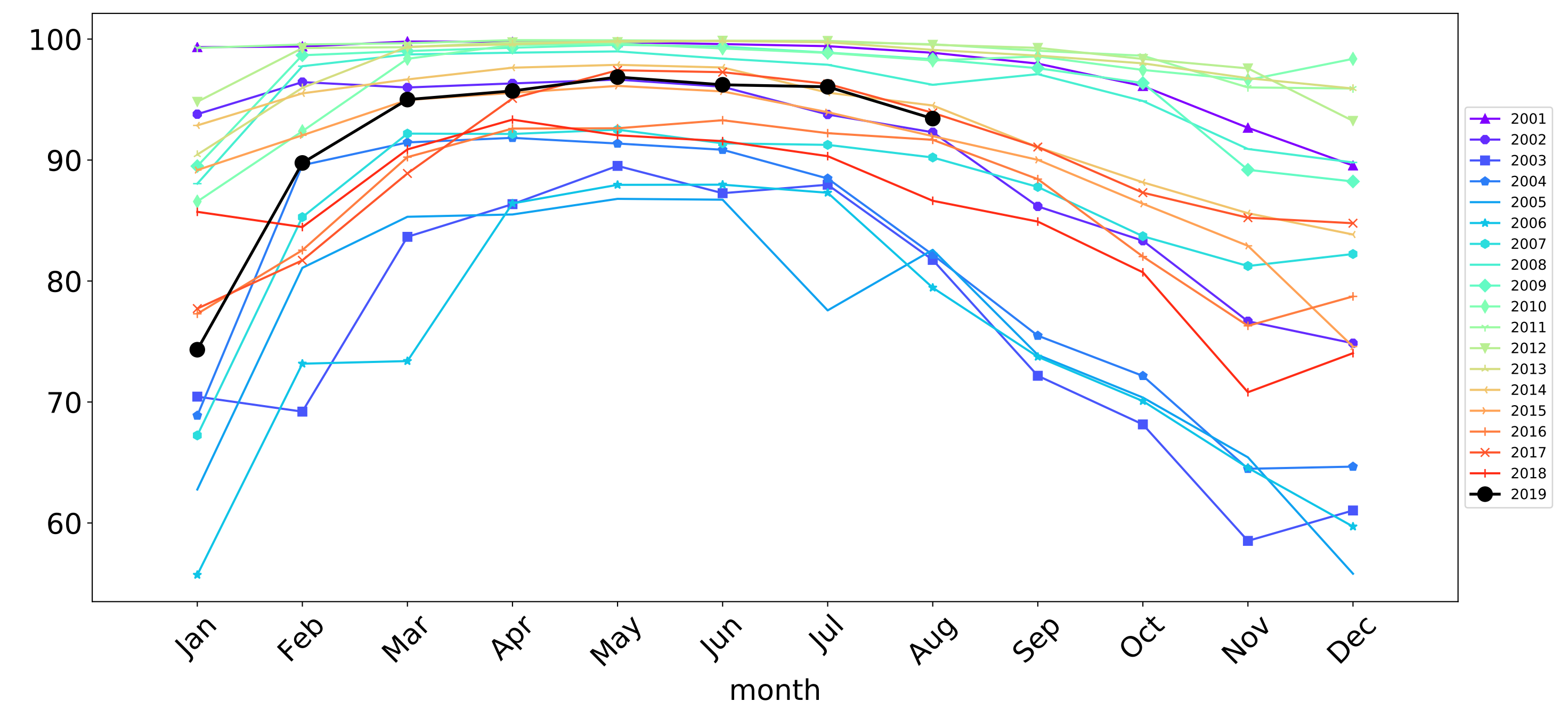1

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%)

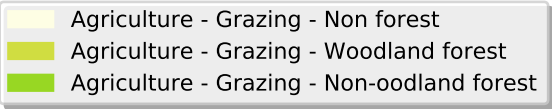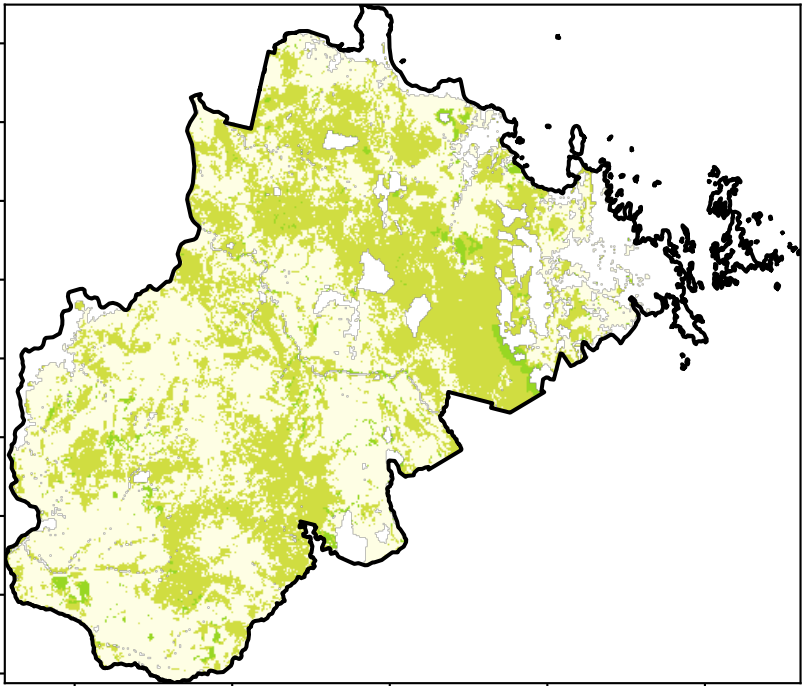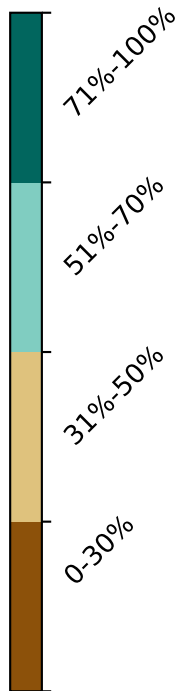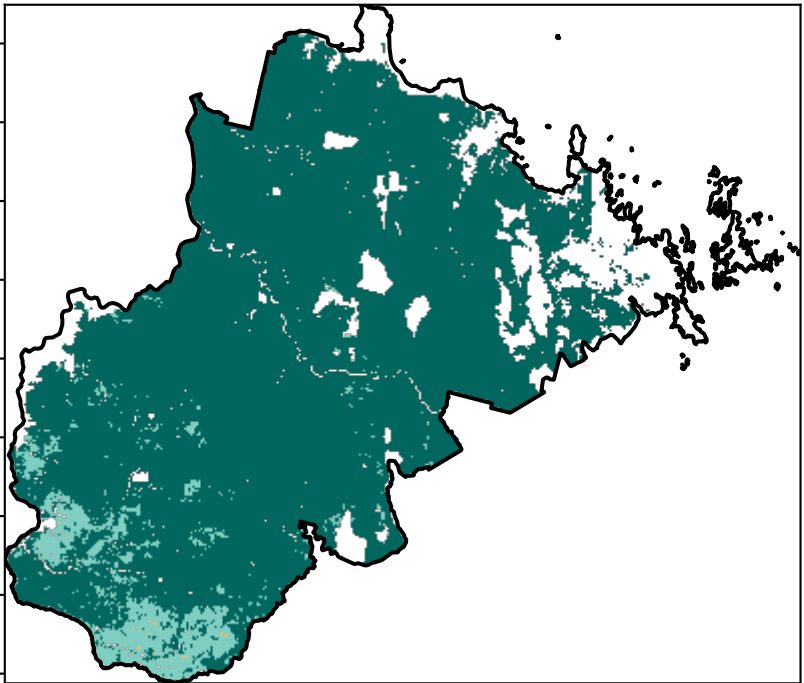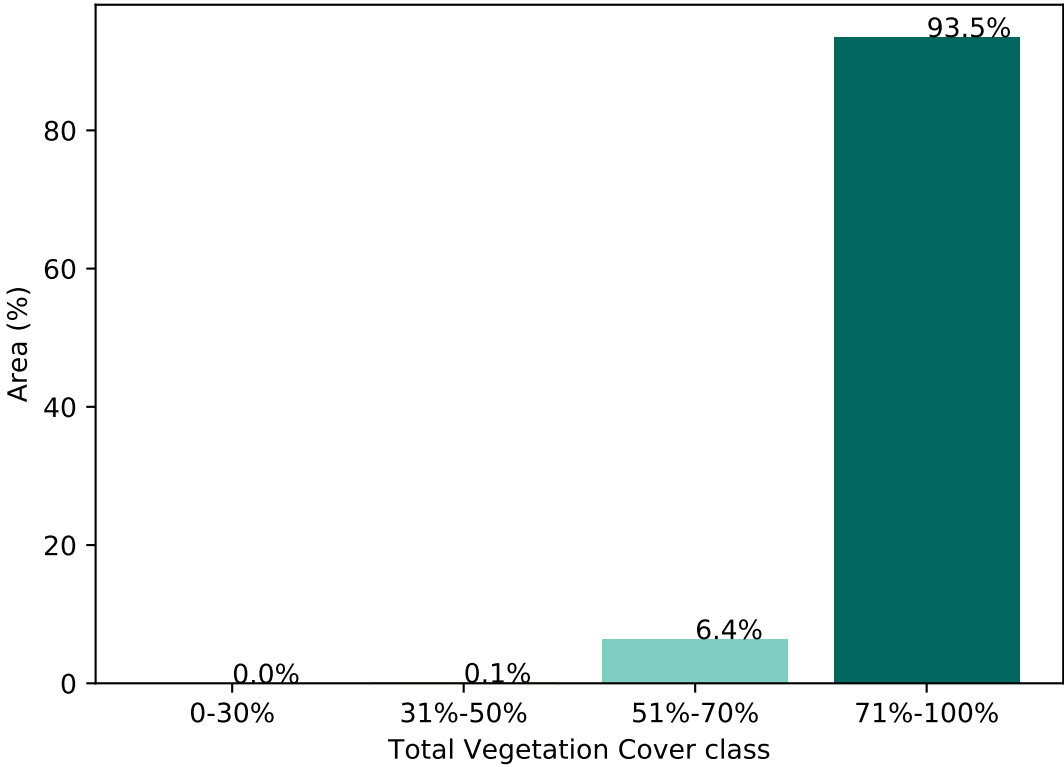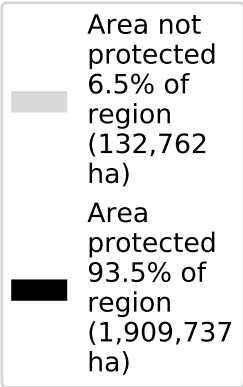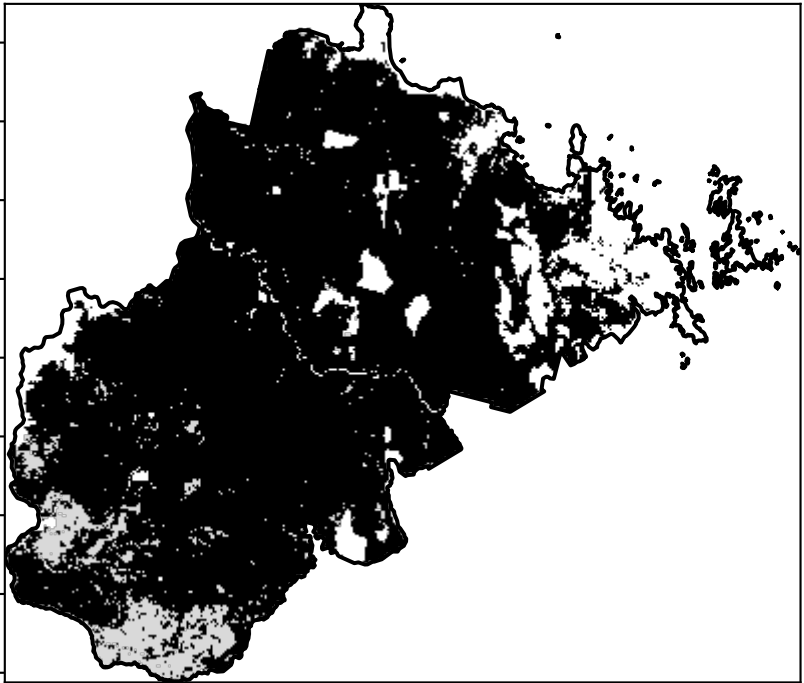Water erosion historical monthly area protected (Total Veg Cov>70%)

Grazing

Land use and forest cover

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.
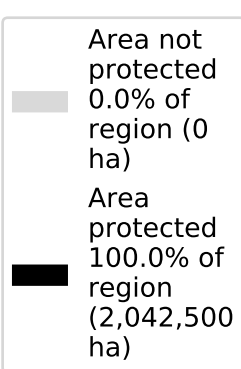
- Agriculture - Grazing - Non forest
- Agriculture - Grazing - Woodland forest
- Agriculture - Grazing - Non-oodland forest

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

0.0%   0.1%   6.4%   93.5%

Area (%)

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

% Area protected from water erosion (>70%)

Area not protected 6.5% of region (132,762 ha)

Area protected 93.5% of region (1,909,737 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)
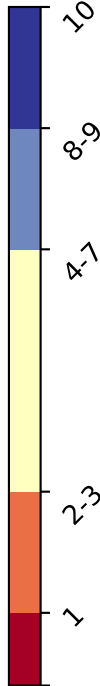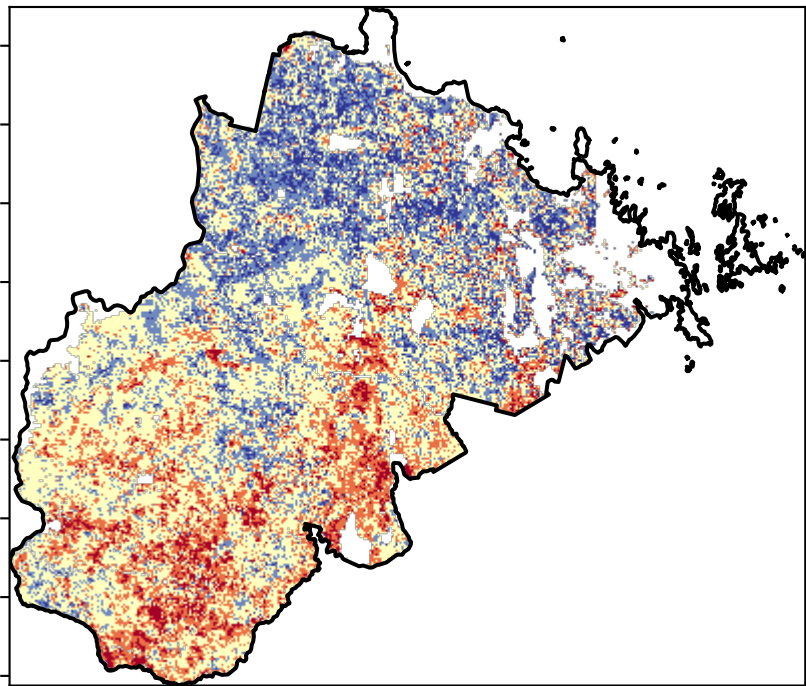
Area protected 100.0% of region (2,042,500 ha)

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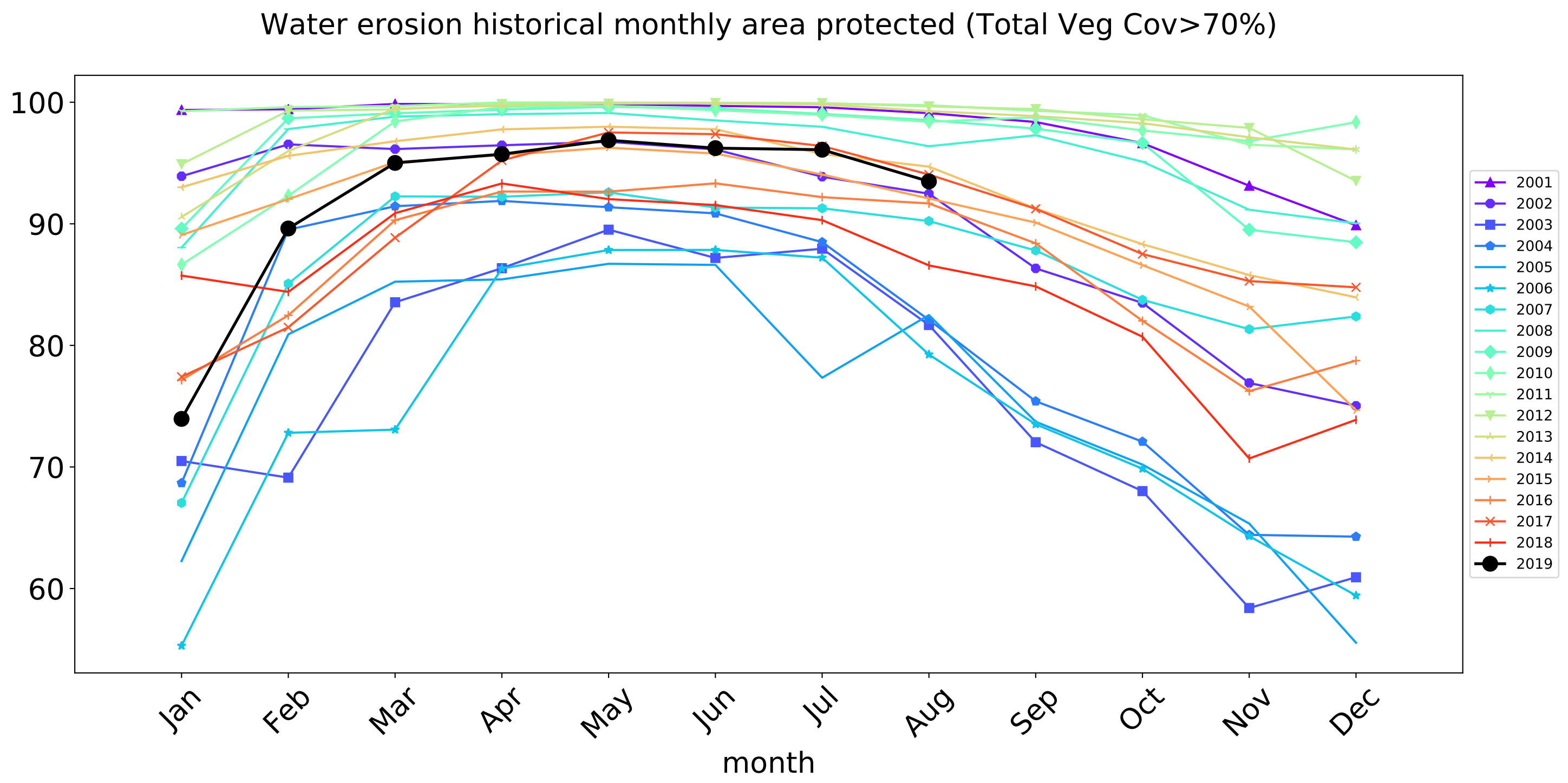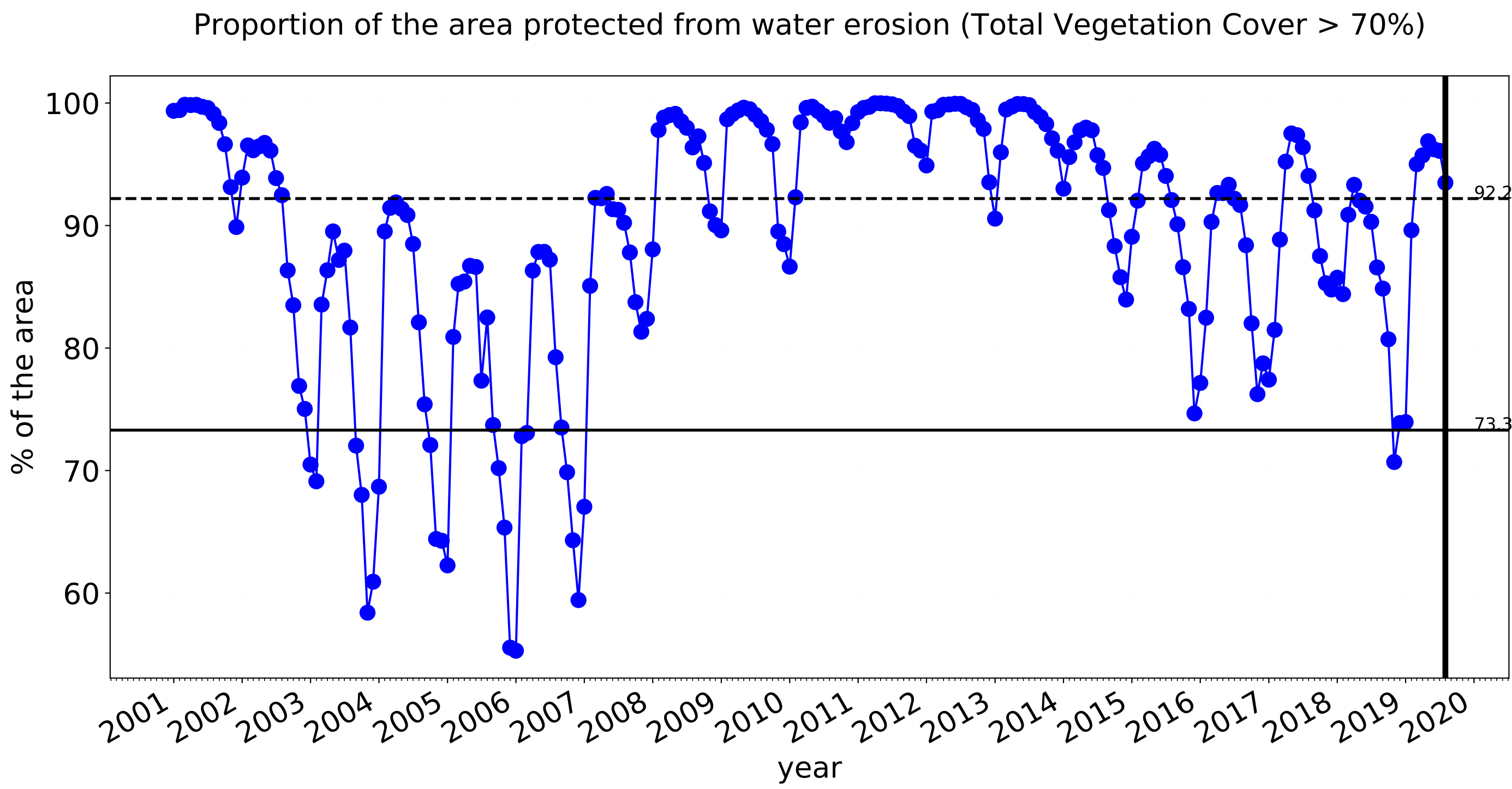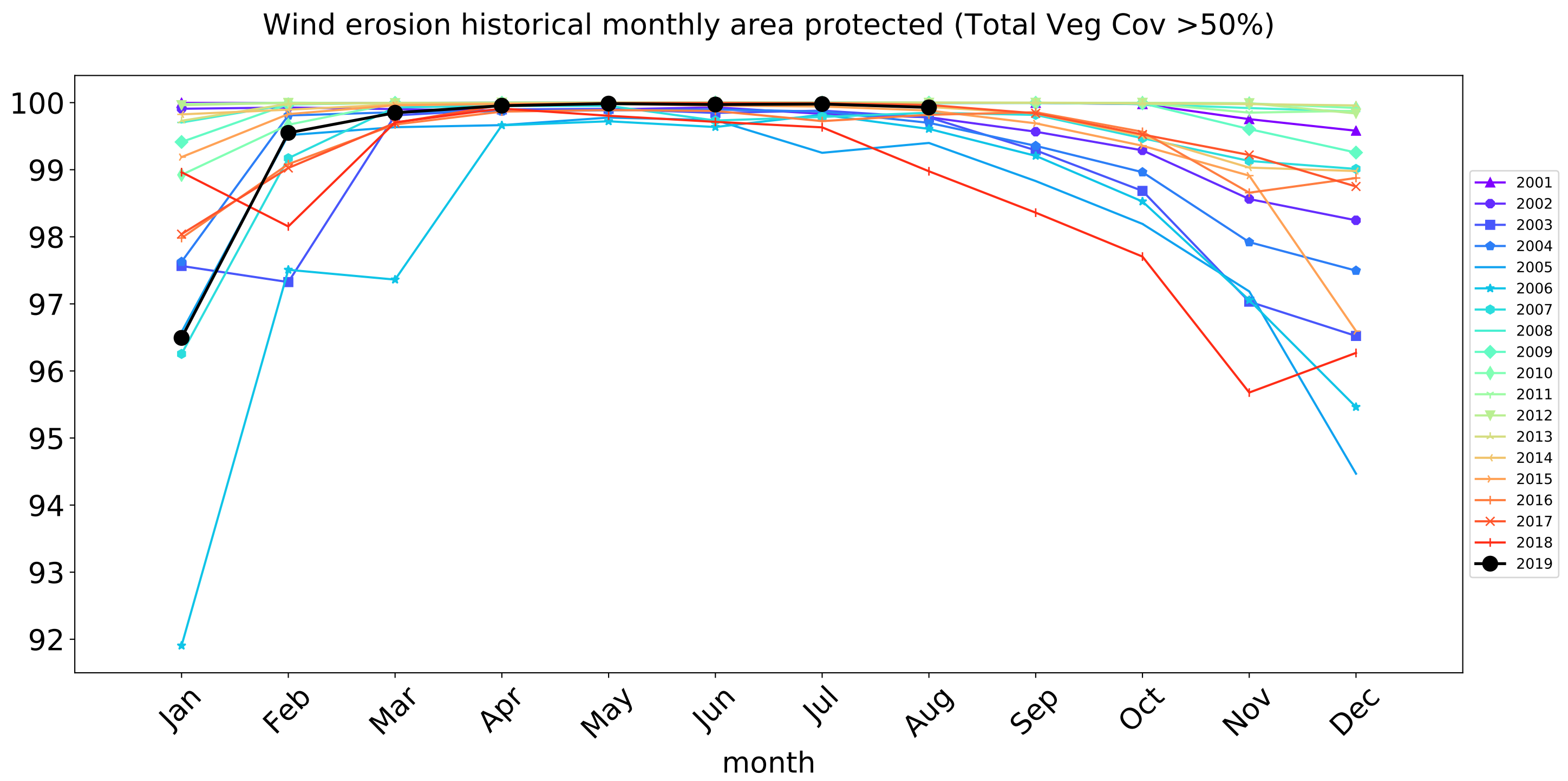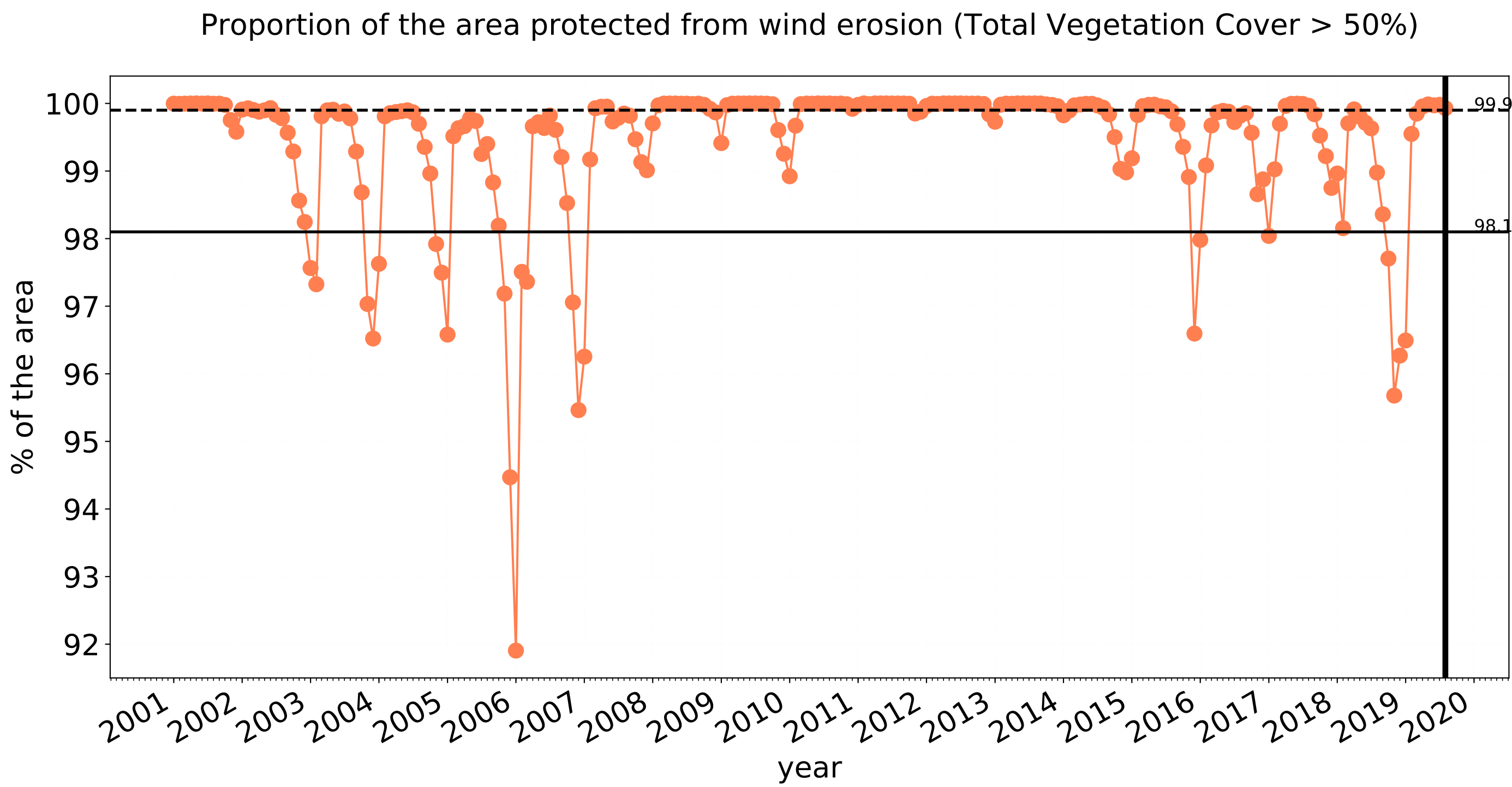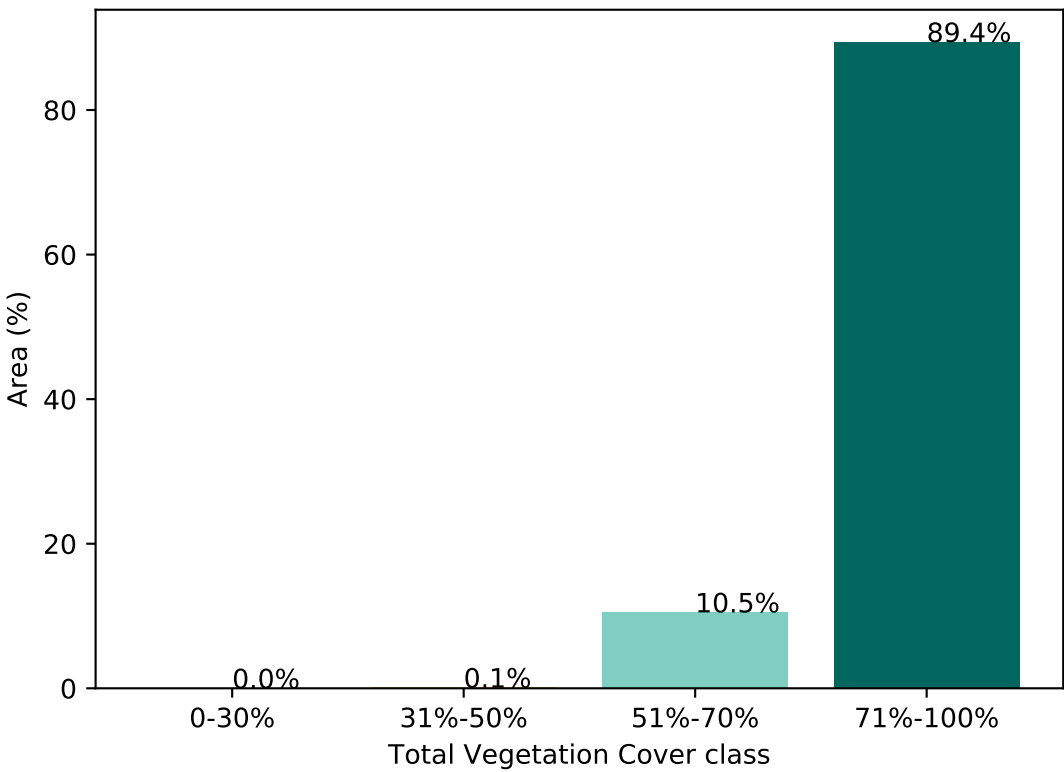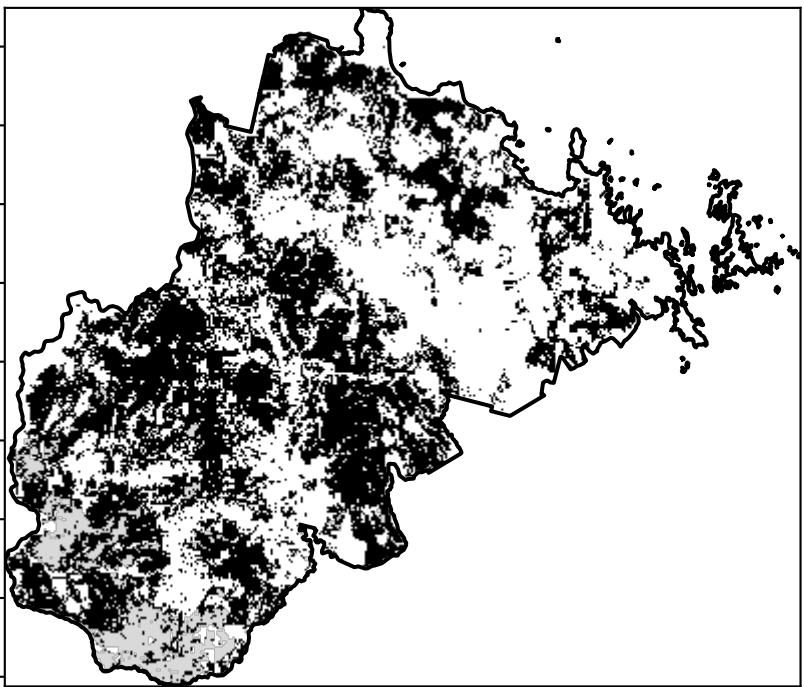
- 10
- 8-9
- 4-7
- 2-3
- 1

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

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

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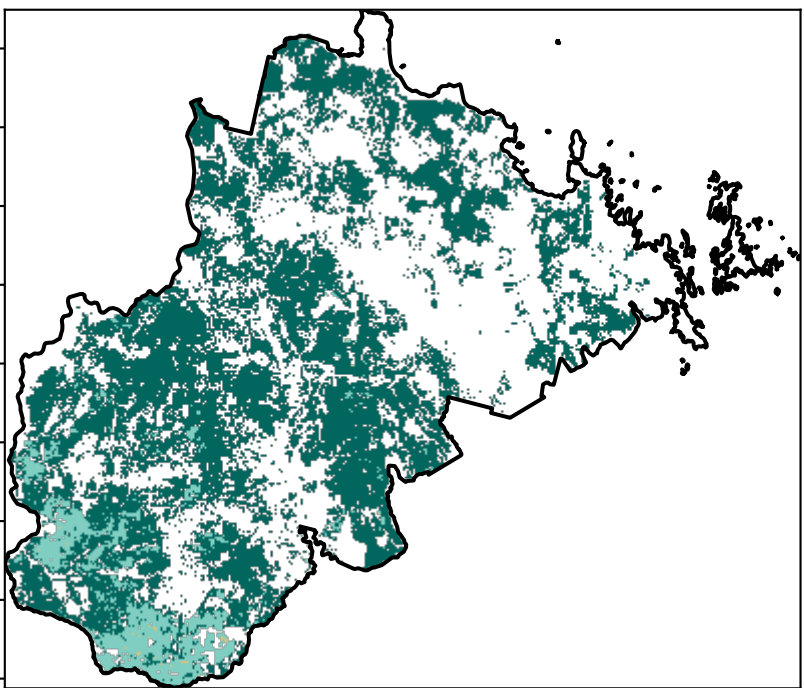
71%-100%
51%-70%
31%-50%
0-30%

Proportion of vegetation cover class in area

% Area protected from water erosion (>70%)

Area not protected 10.6% of region (124,216 ha)

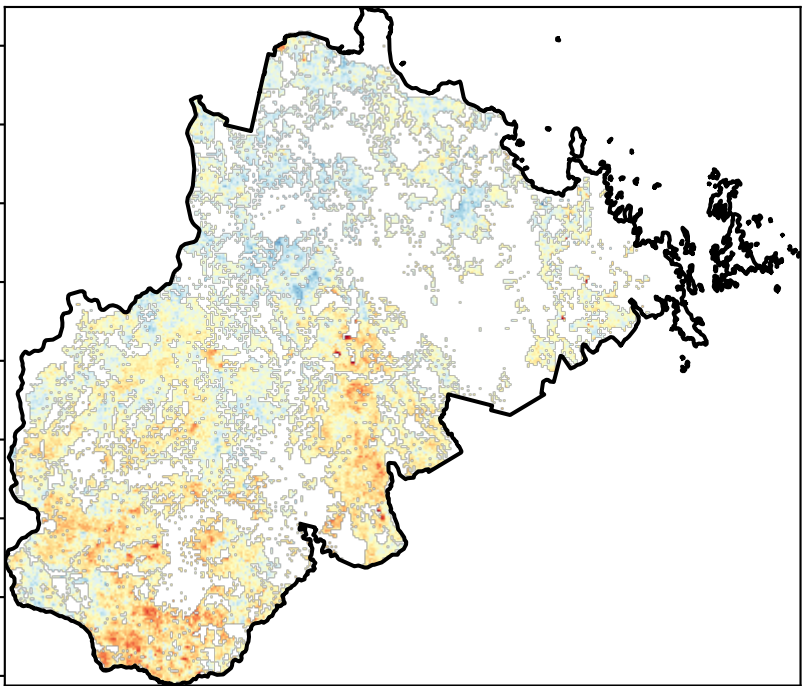Area protected 89.4% of region (1,047,633 ha)

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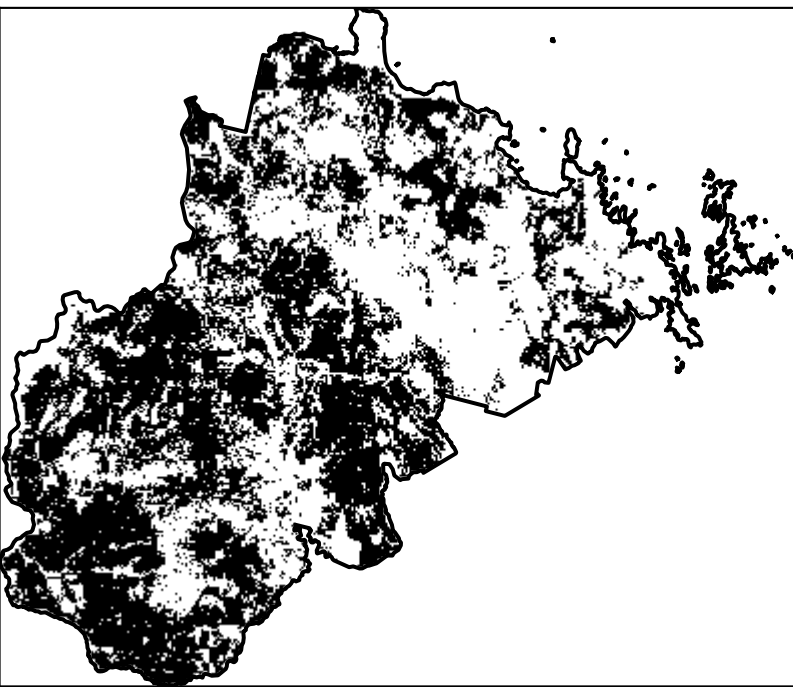
Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (1,171,850 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.
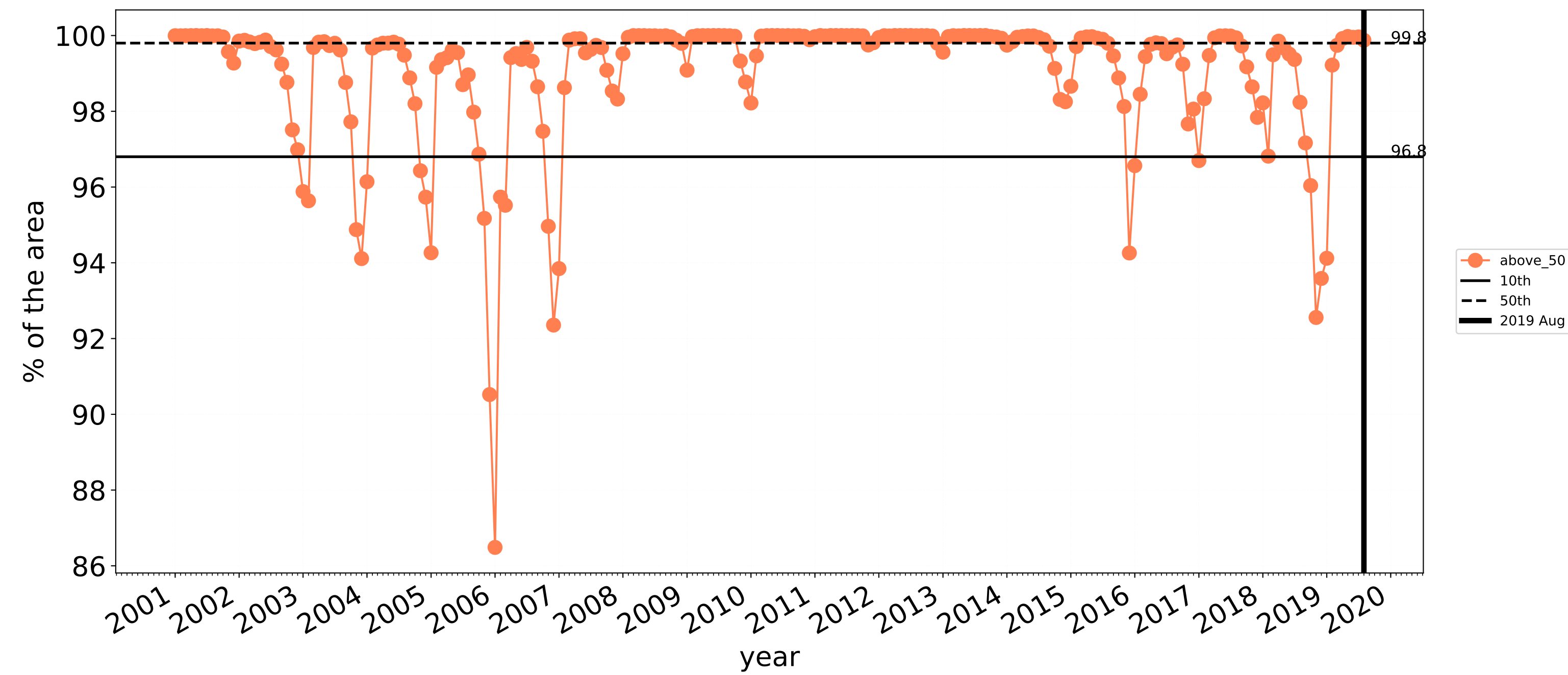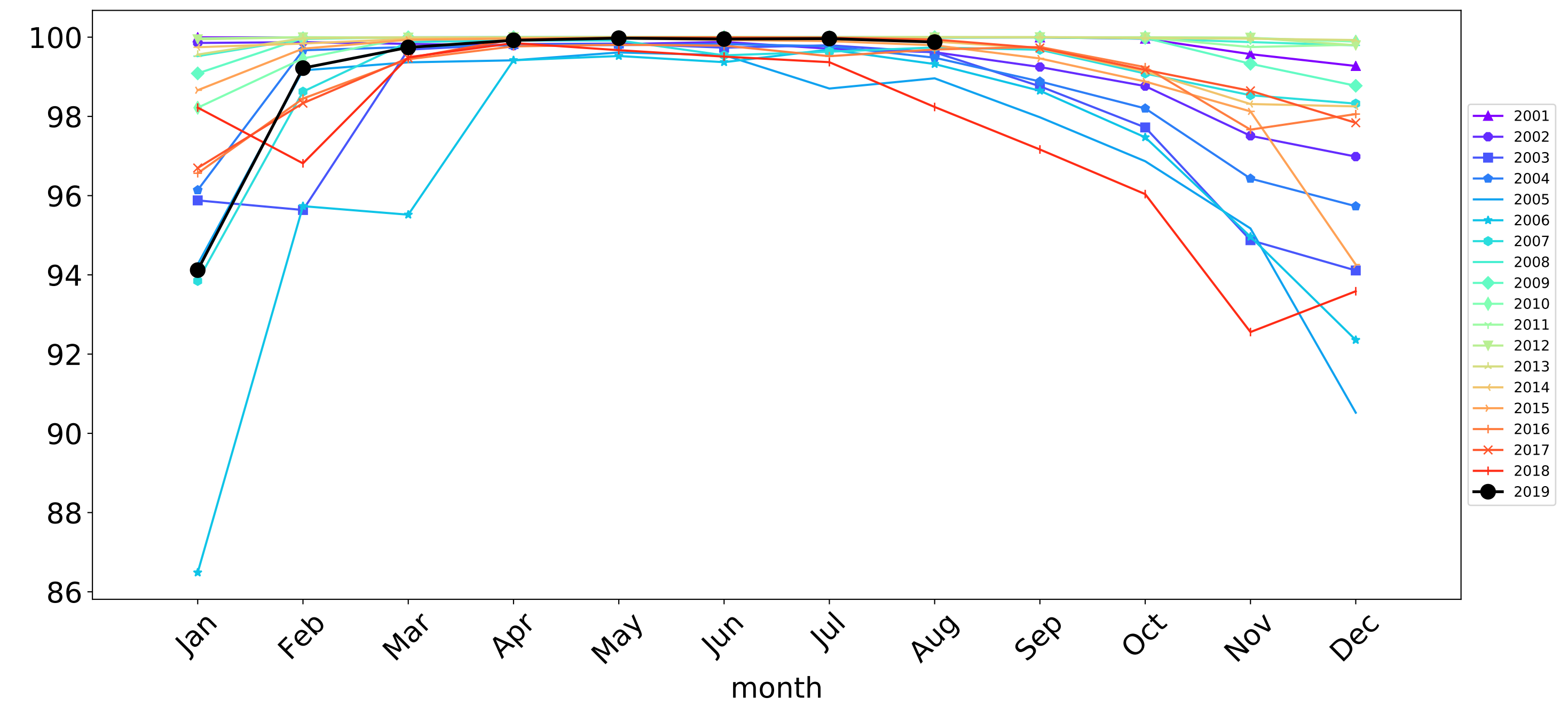
10
8-9
4-7
2-3
1
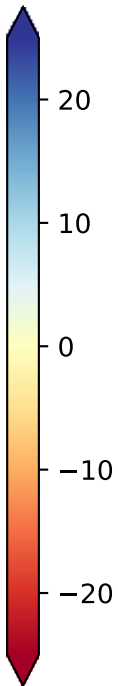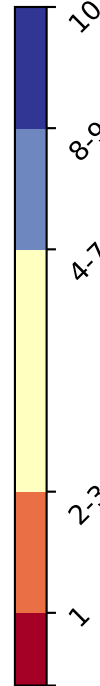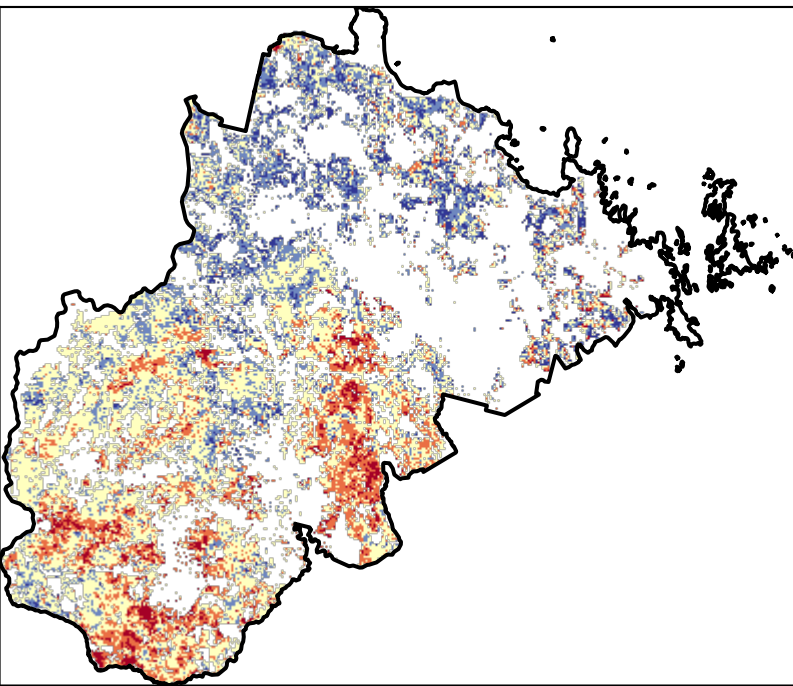
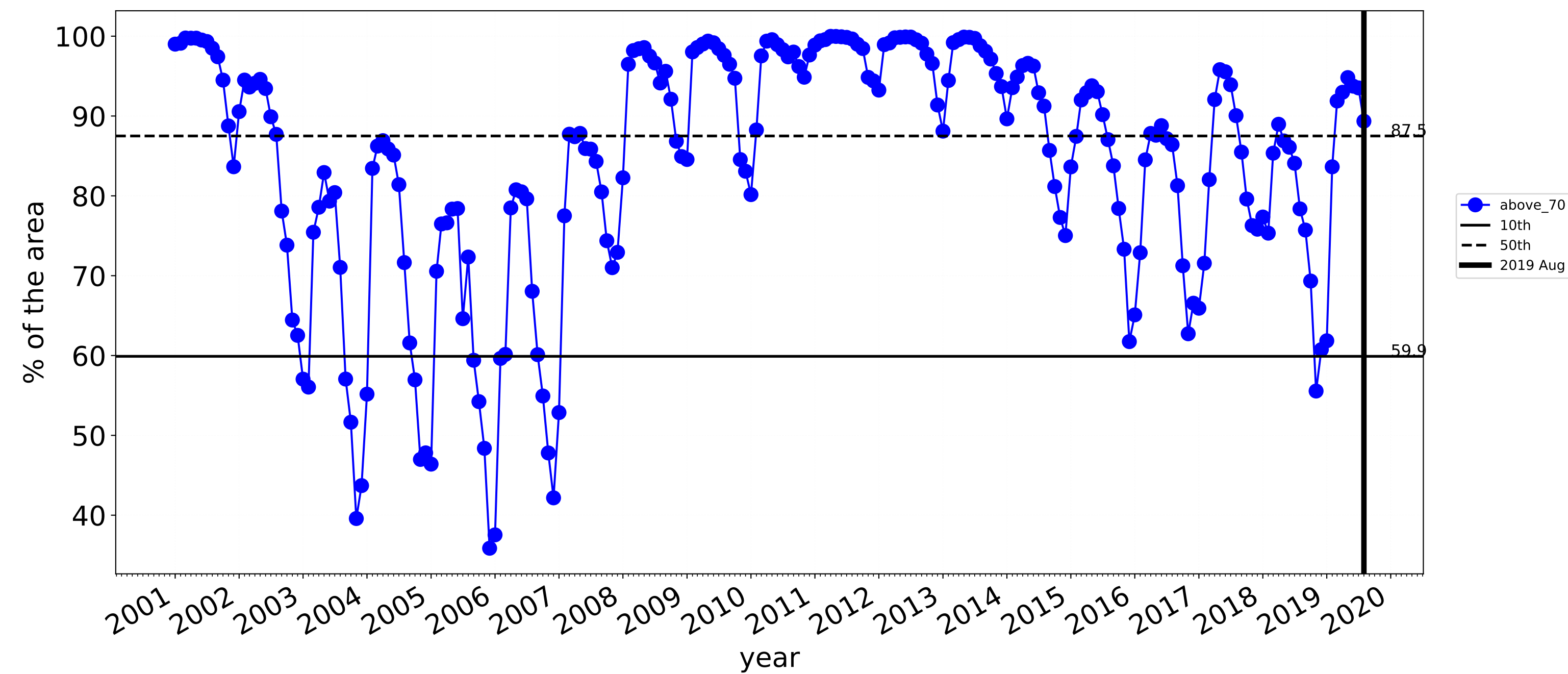# Grazing non forest timeseries

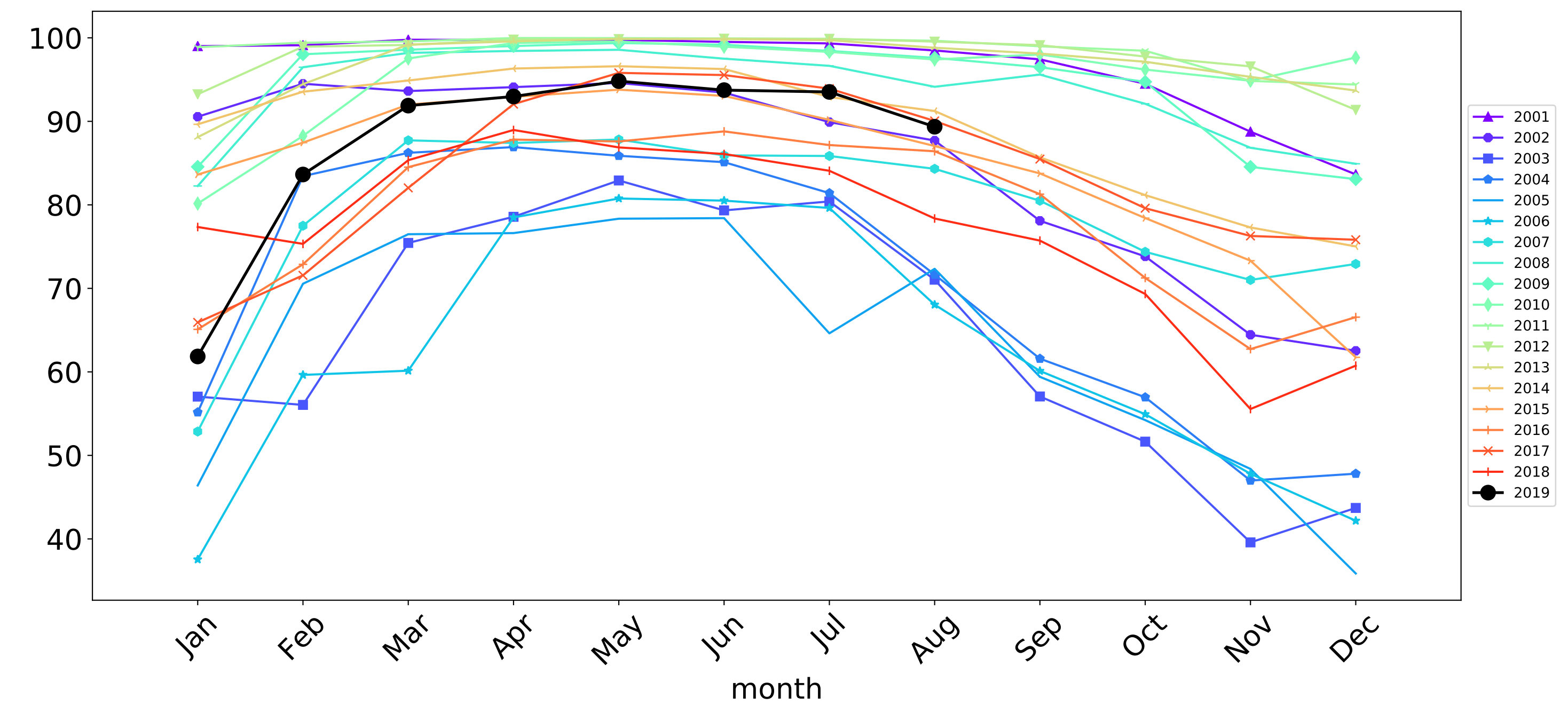Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

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

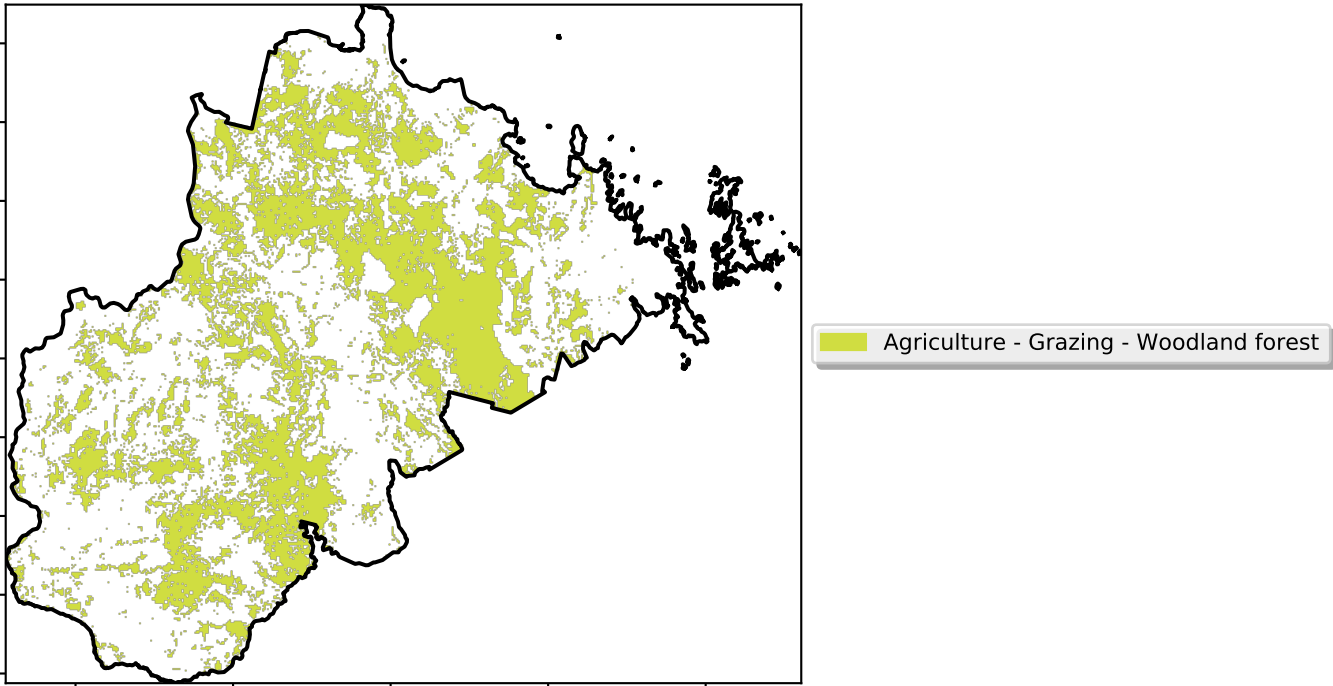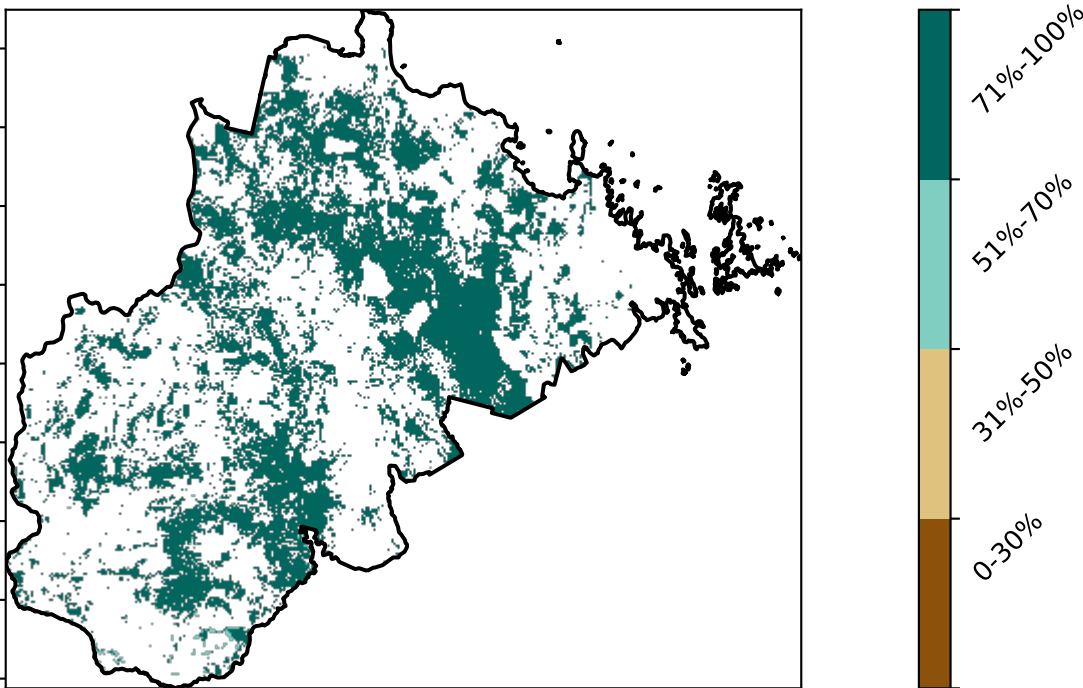Water erosion historical monthly area protected (Total Veg Cov>70%)

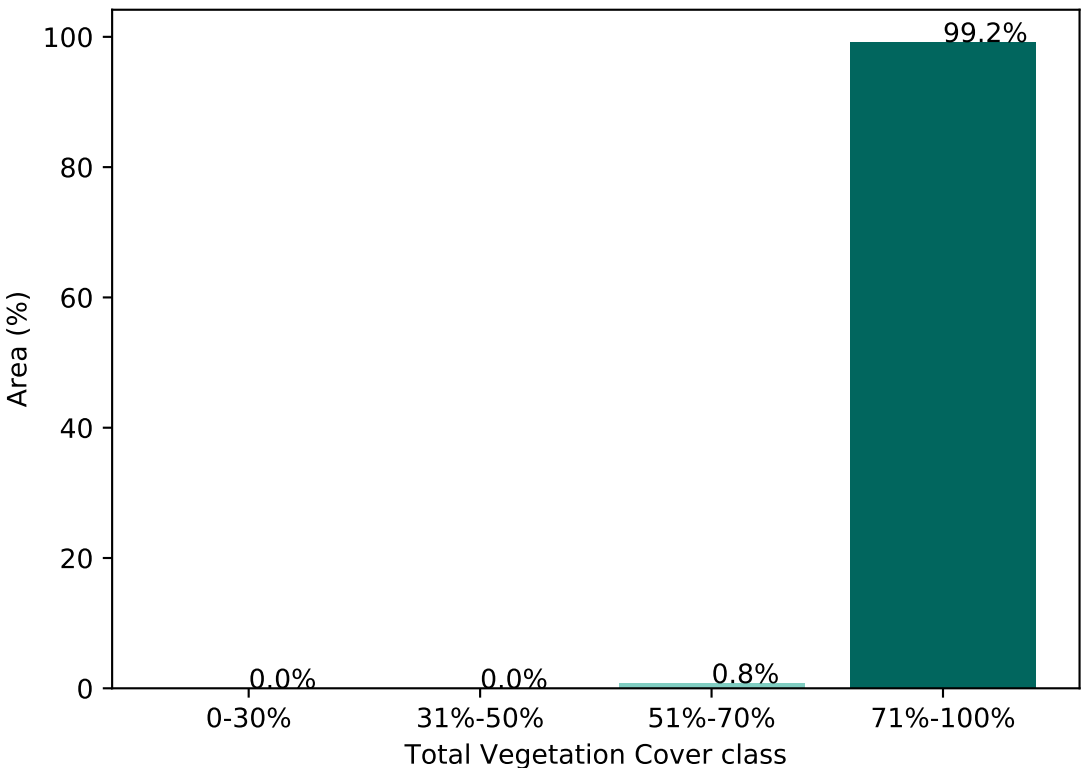# Grazing Woodland forest

Land use and forest cover

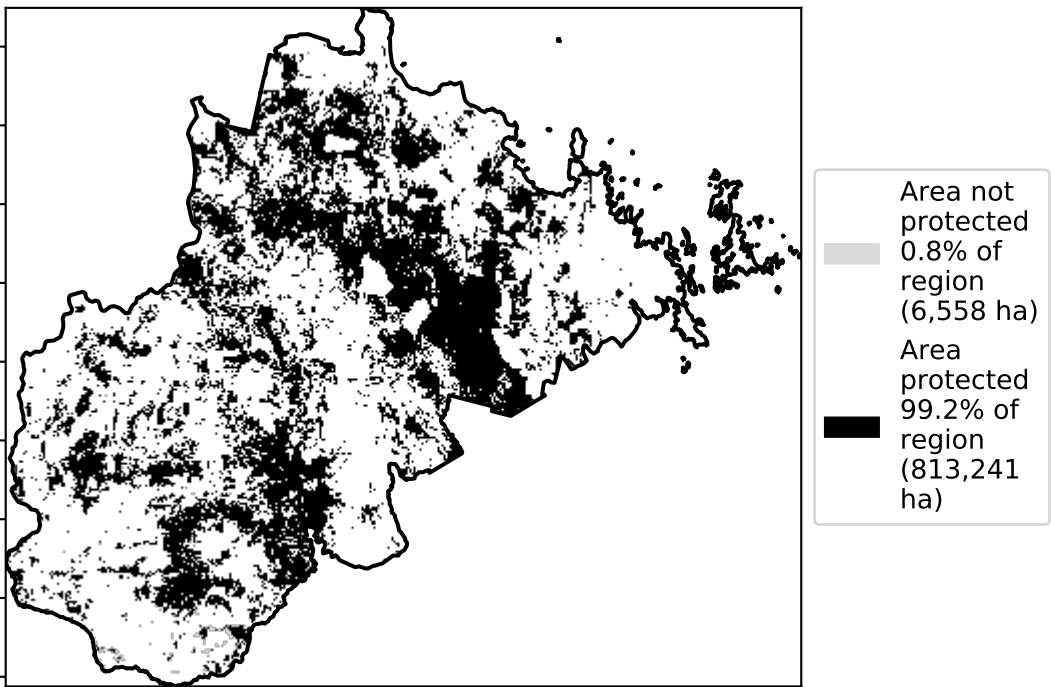Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.
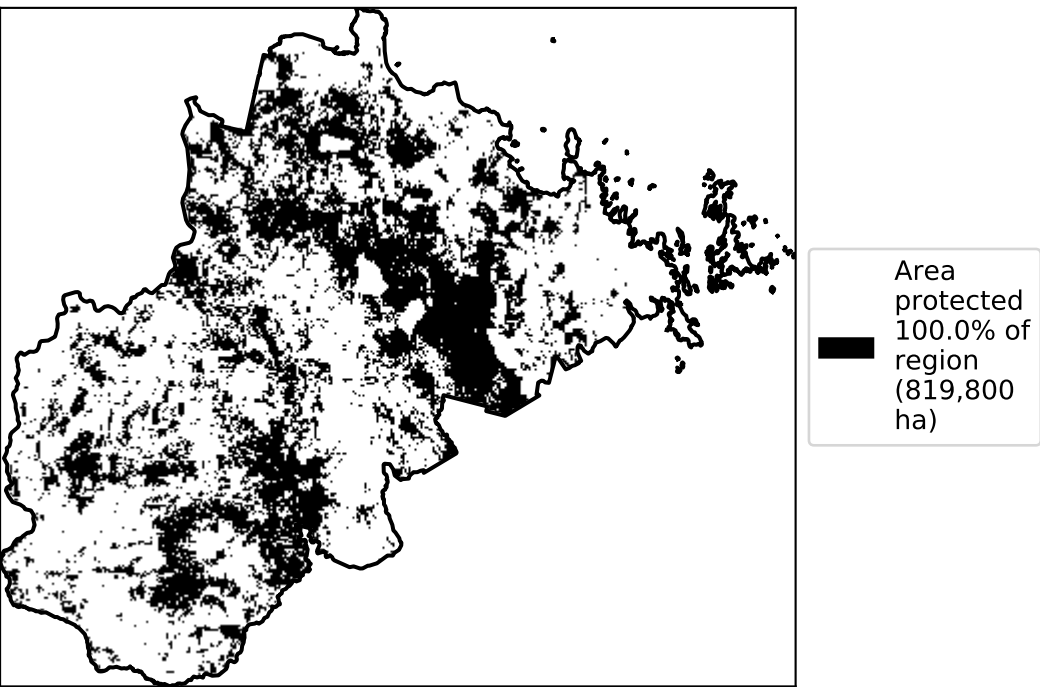

Agriculture - Grazing - Woodland forest

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 0.8% of region (6,558 ha)

Area protected 99.2% of region (813,241 ha)

% Area protected from wind erosion (>50%)
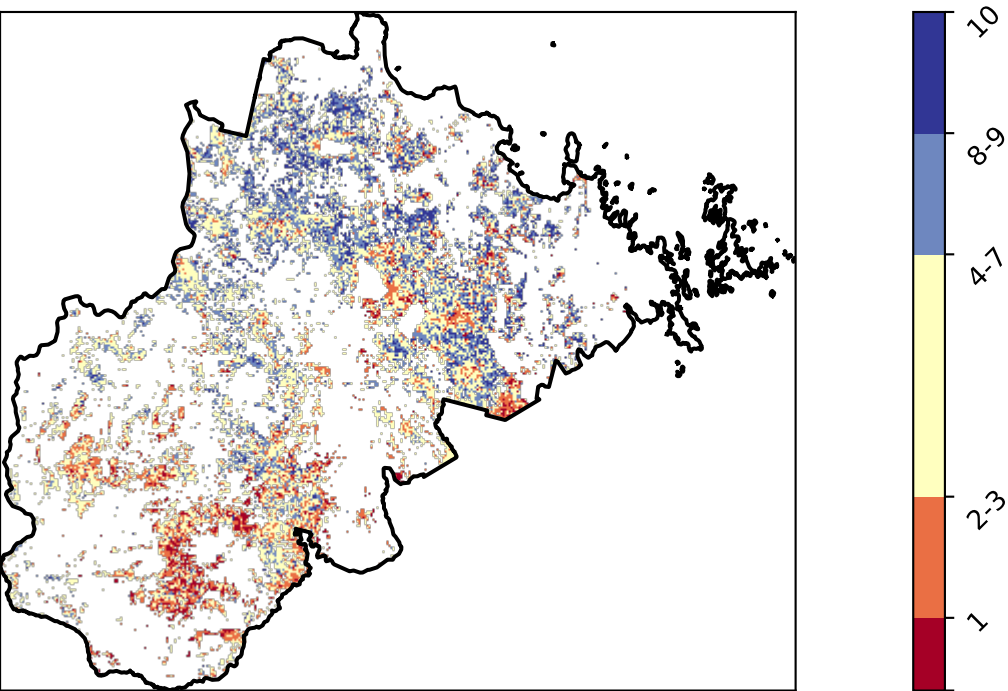

Area protected 100.0% of region (819,800 ha)

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.
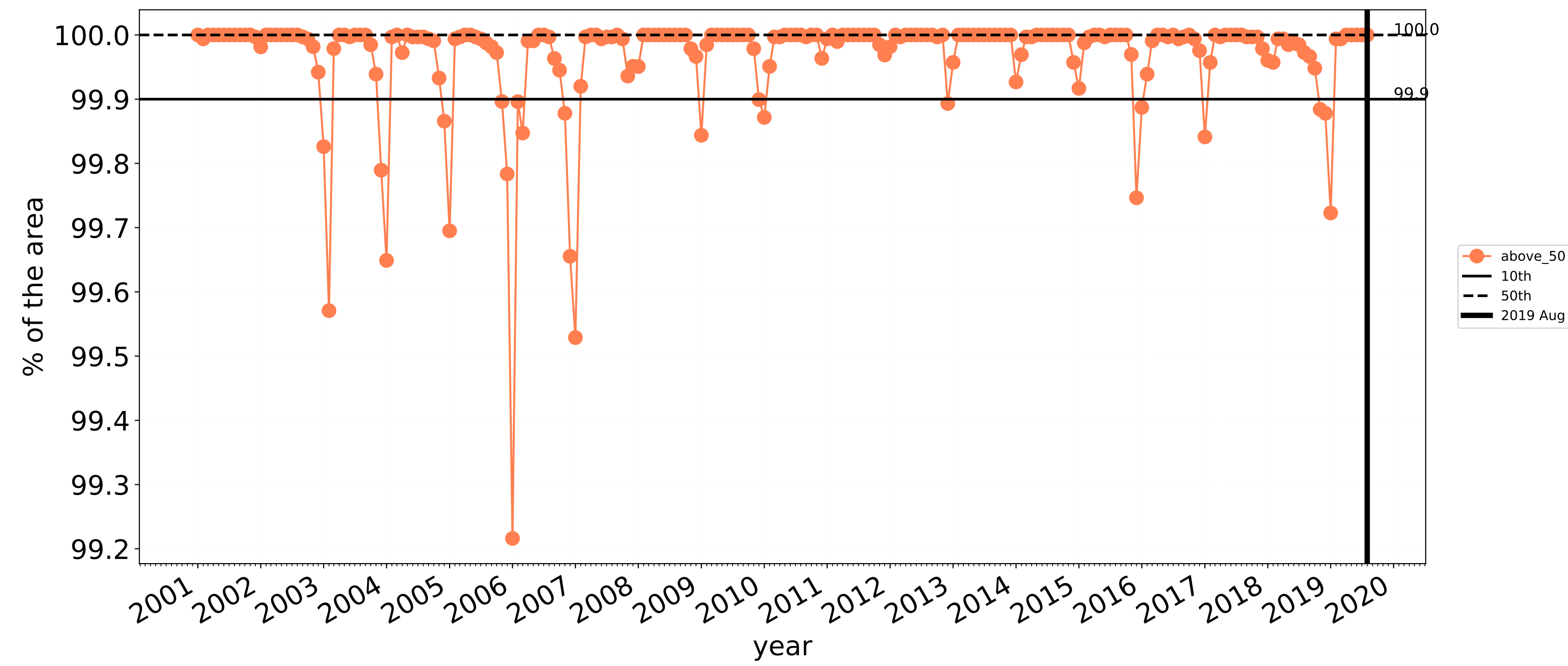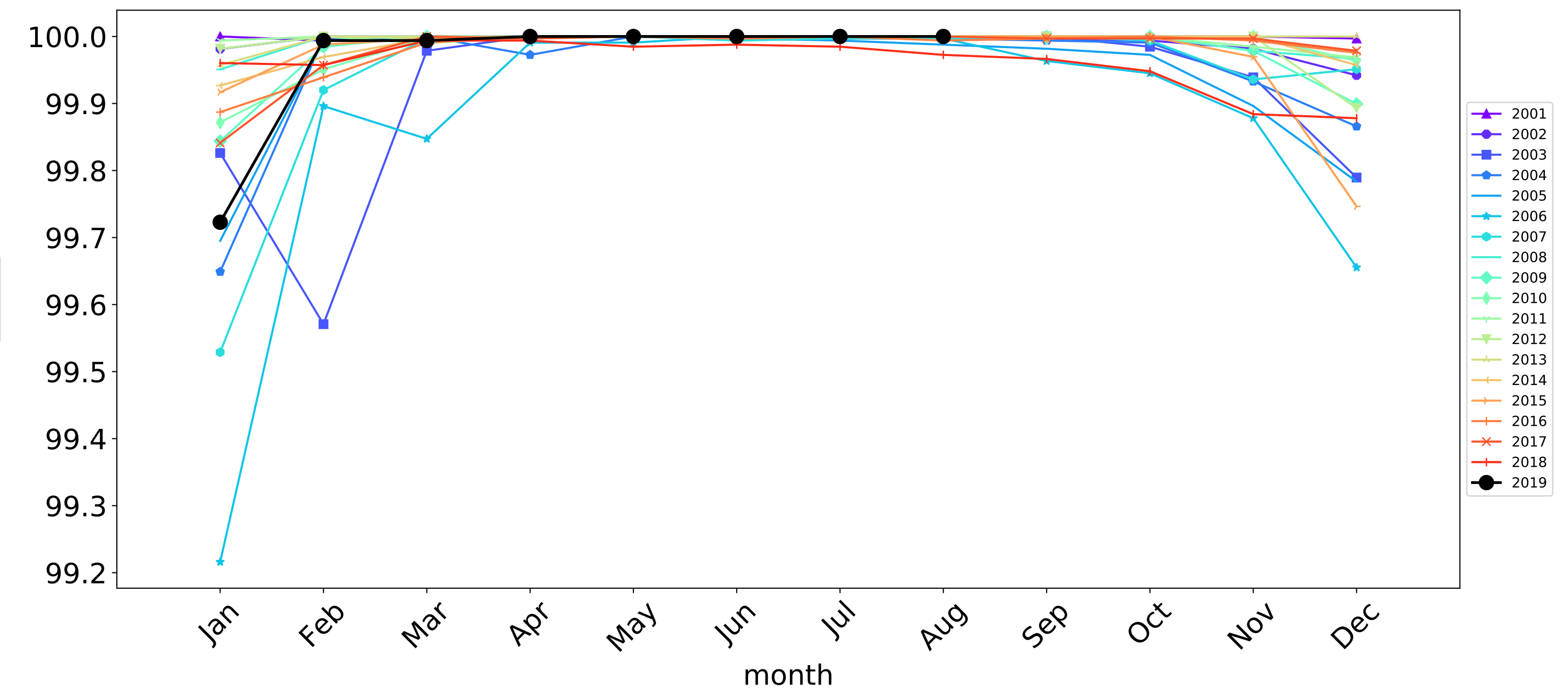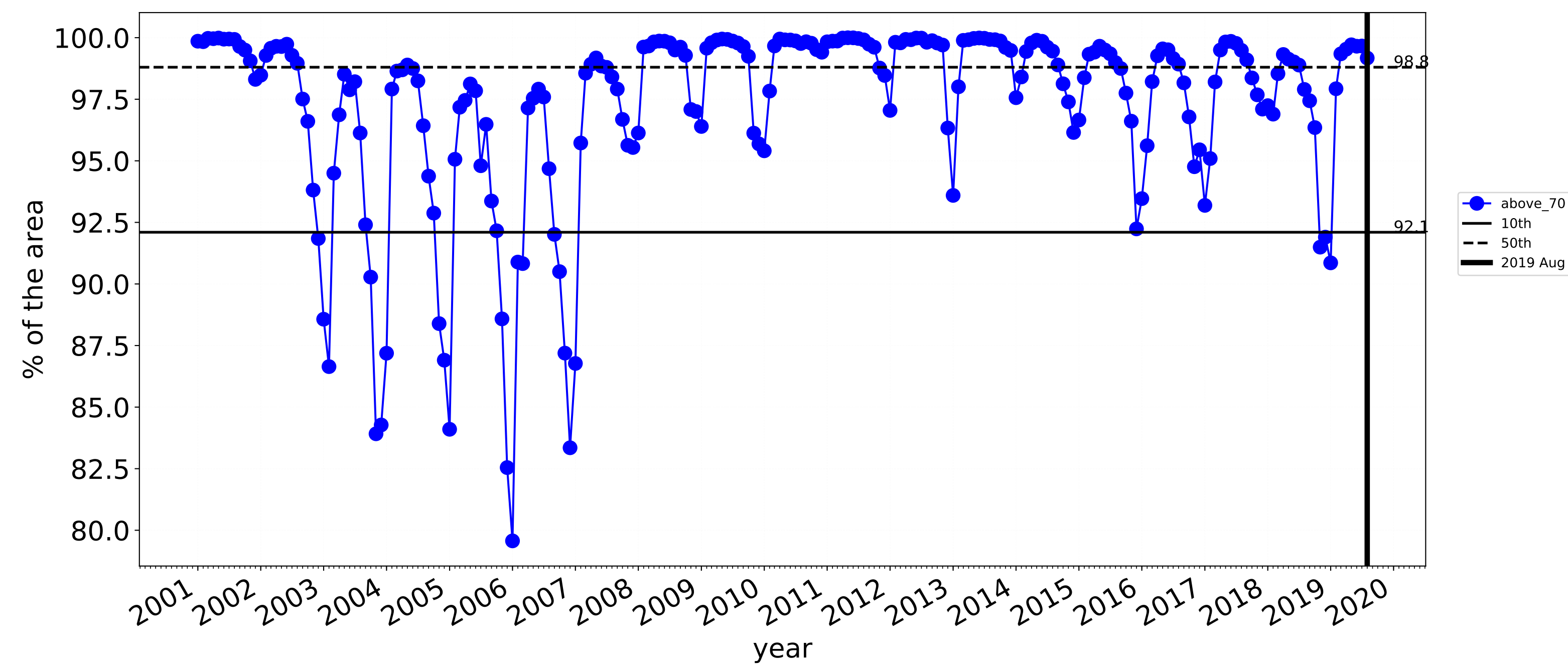
Grazing Woodland forest timeseries

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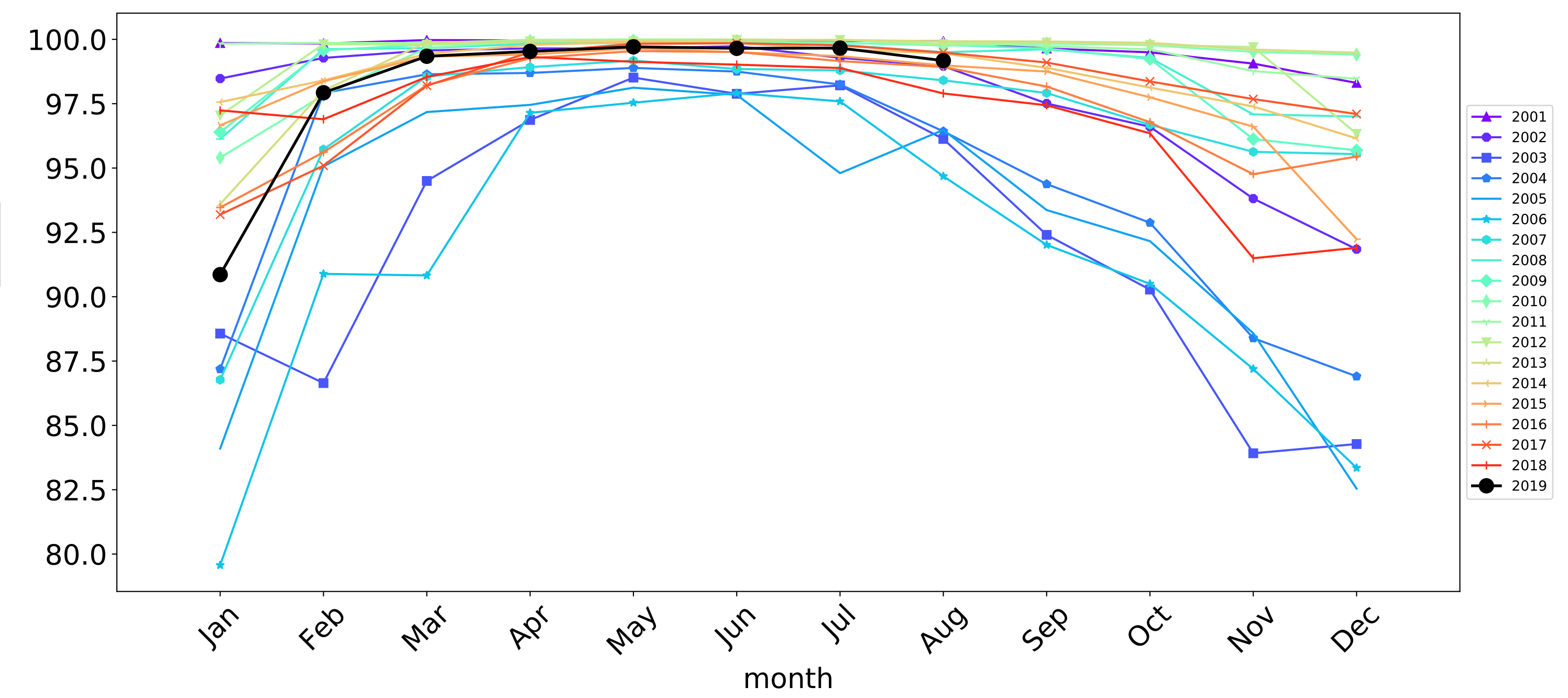

Wind erosion historical monthly area protected (Total Veg Cov >50%)

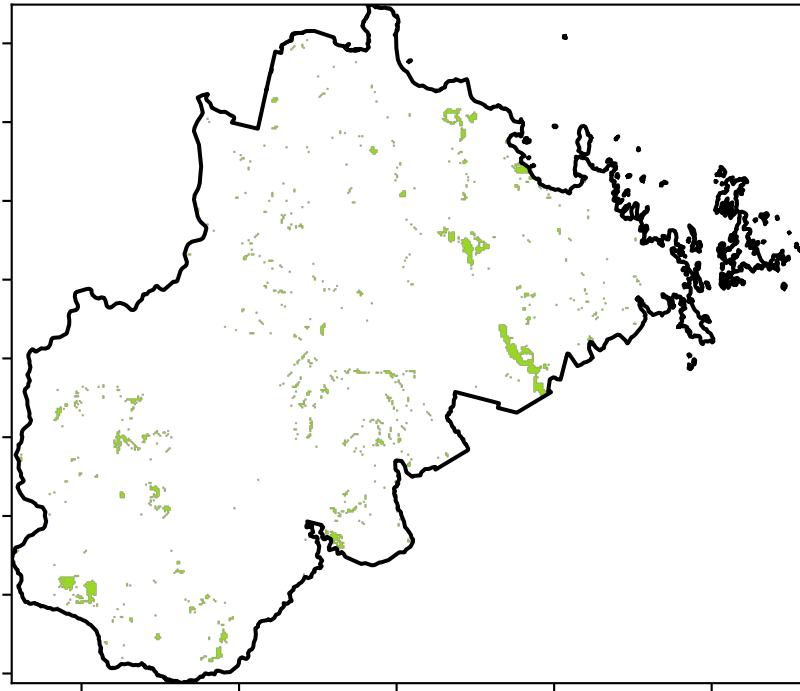Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

Water erosion historical monthly area protected (Total Veg Cov>70%)
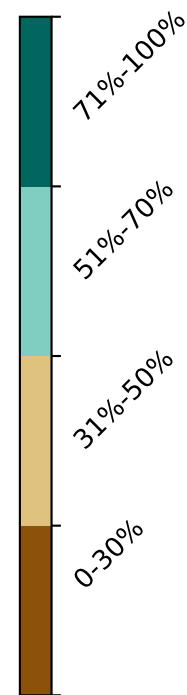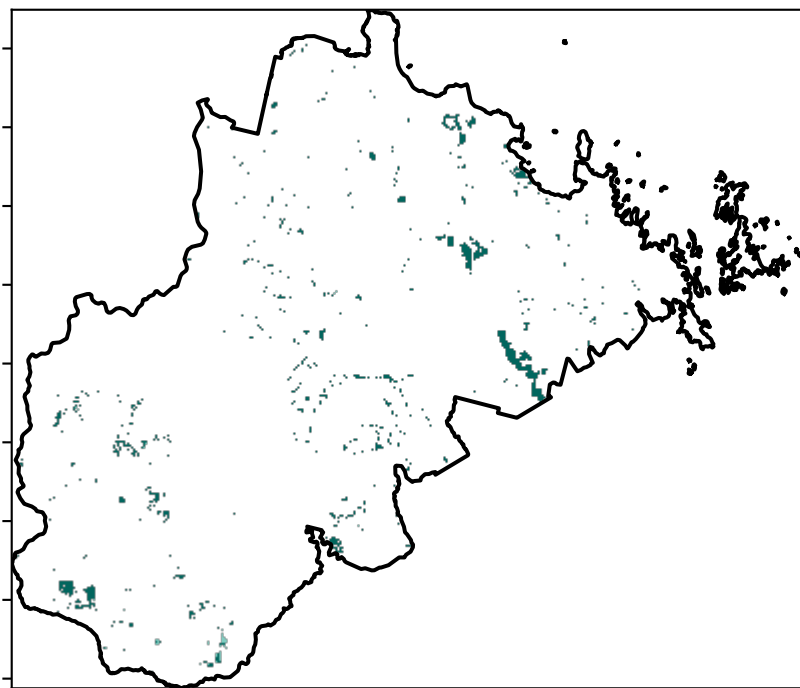
Grazing – Forest (non woodland)

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.
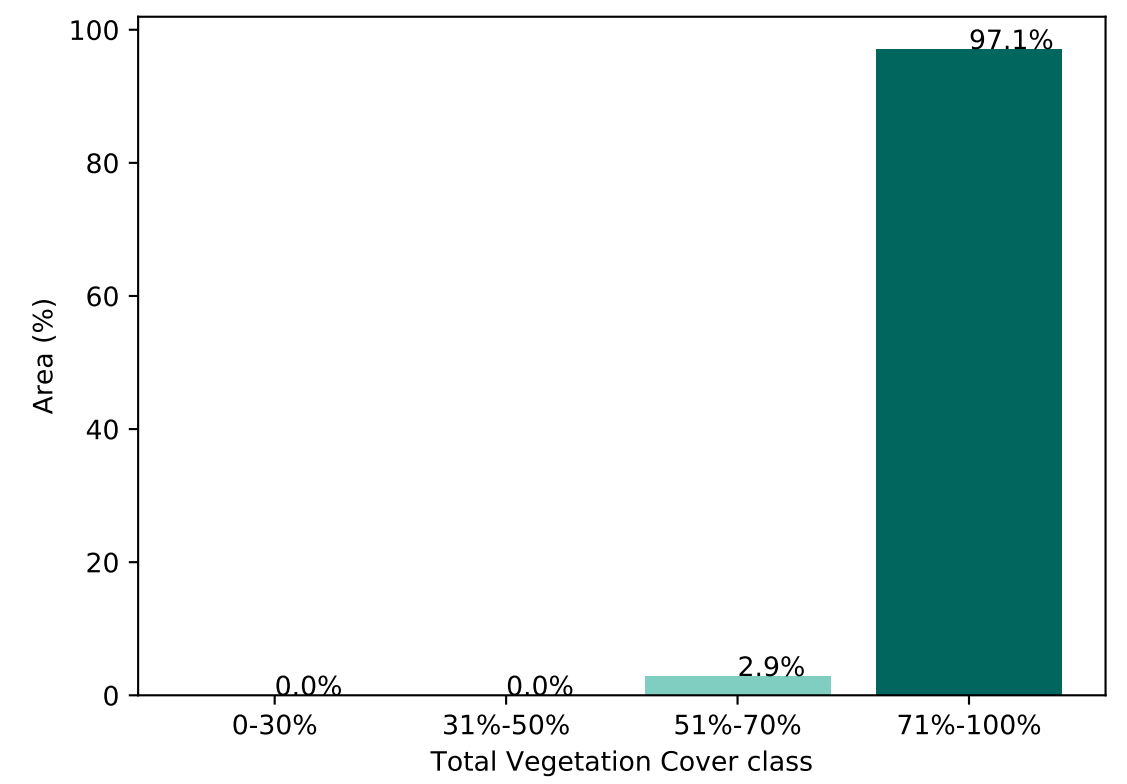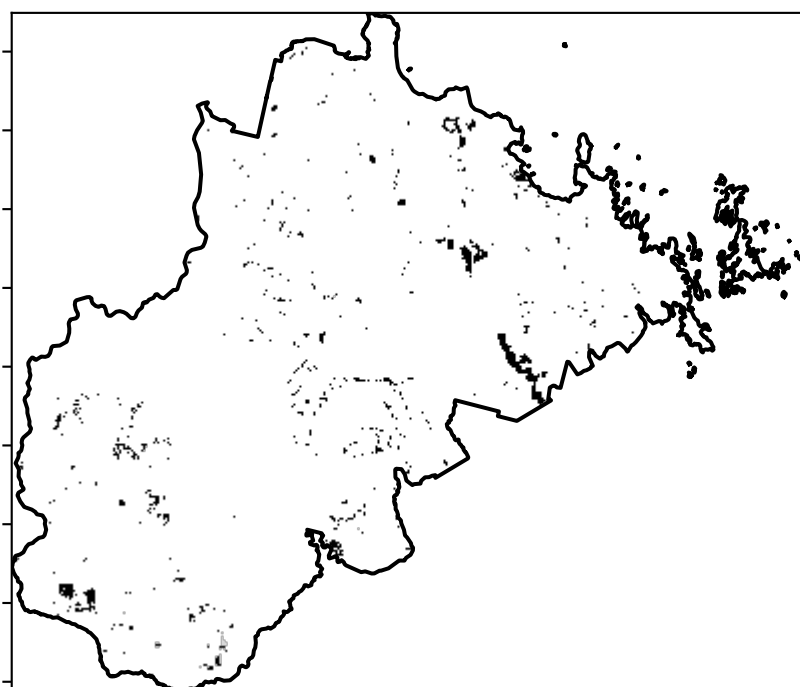
Agriculture - Grazing - Non-oodland forest

Total Vegetation Cover [%]

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

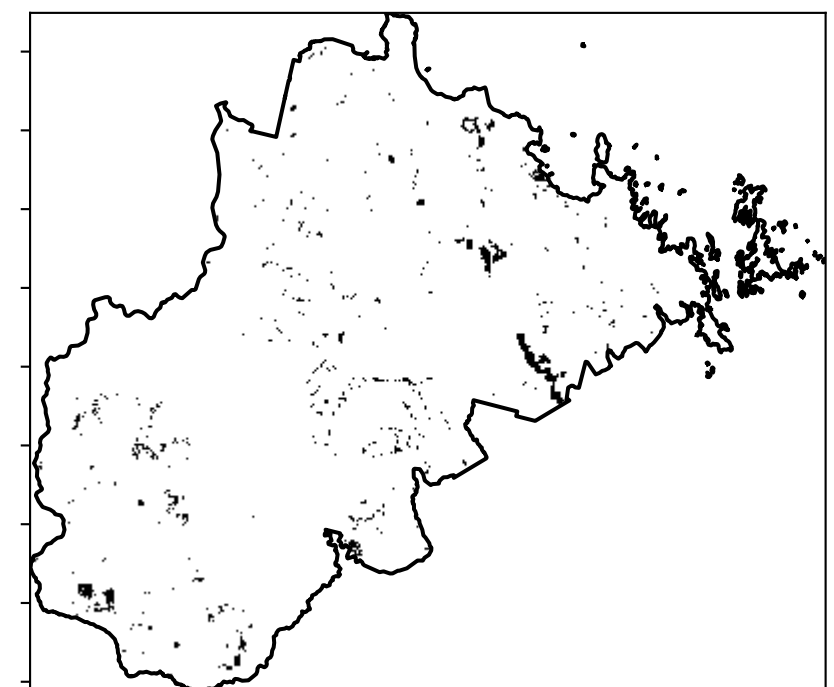## Proportion of vegetation cover class in area

% Area protected from water erosion (>70%)

Area not protected 2.9% of region (1,474 ha)
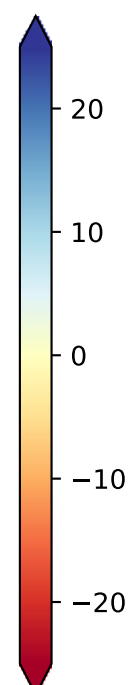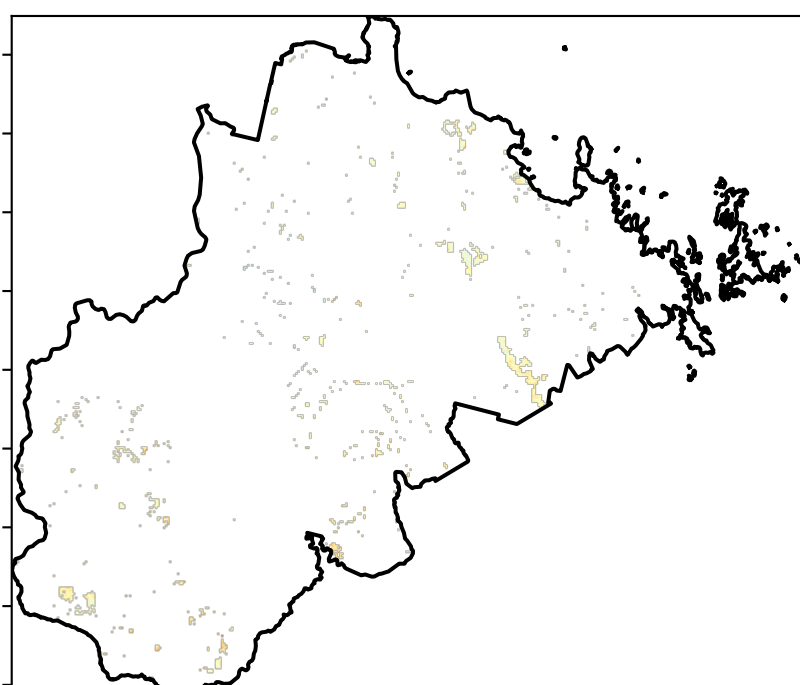
Area protected 97.1% of region (49,375 ha)

% Area protected from wind erosion (>50%)
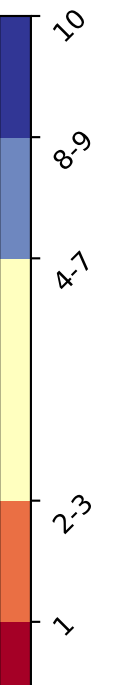
Area protected 100.0% of region (50,850 ha)

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.

Grazing – 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%)

Irrigation

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 - Irrigated
Agriculture - Cropping - Irrigated
Agriculture - Horticulture - Irrigated

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

90.4%

9.6%

0.0%   0.0%
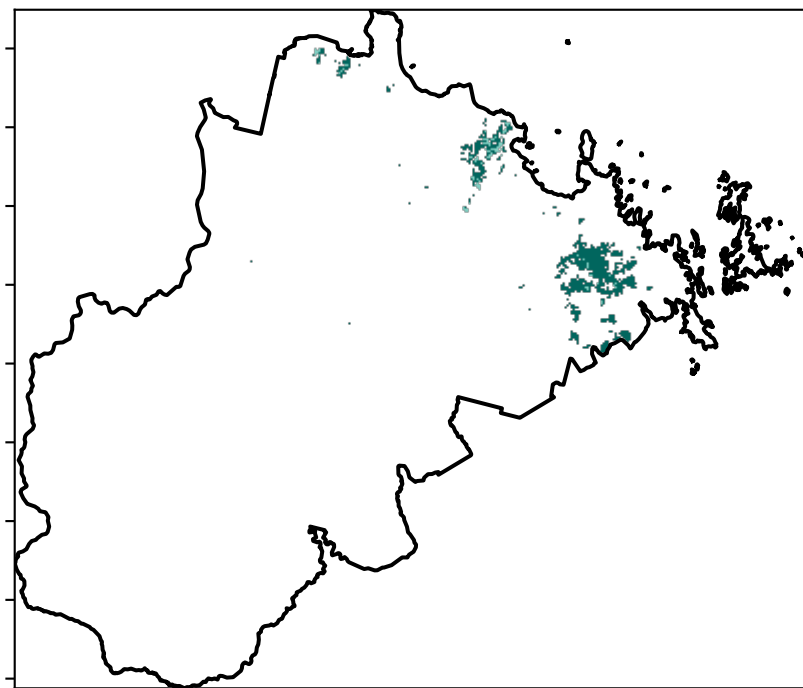
Area (%)

Total Vegetation Cover class
0-30%   31%-50%   51%-70%   71%-100%
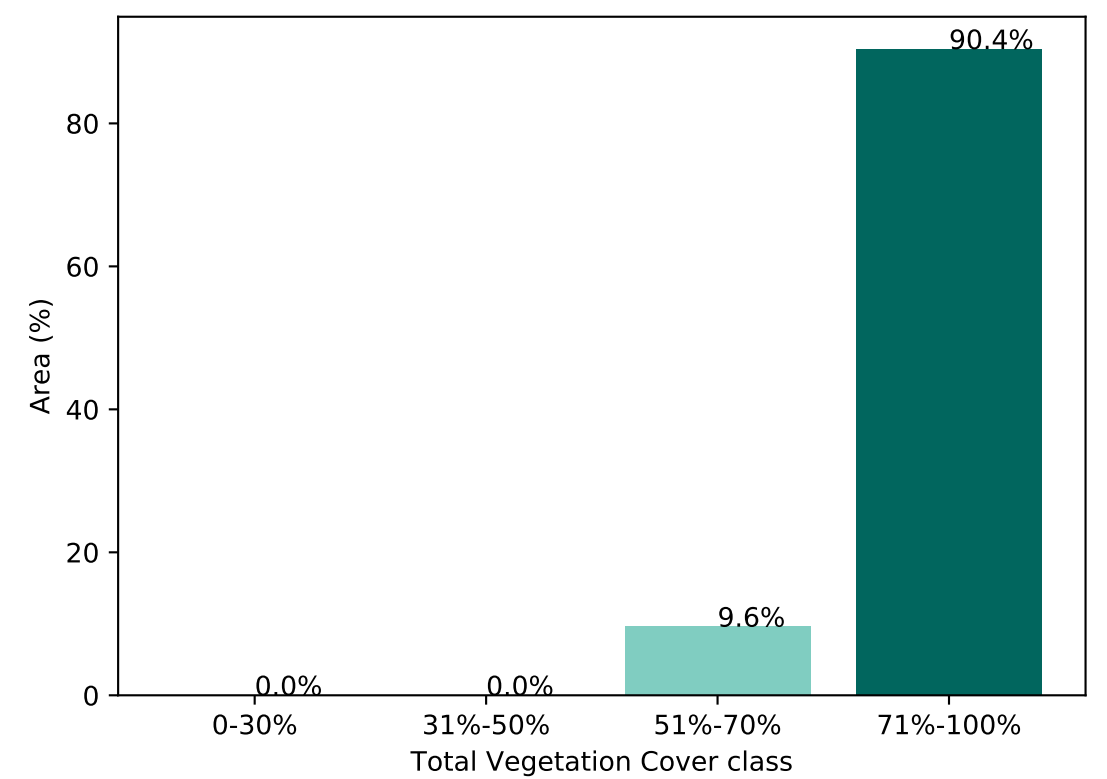
% Area protected from water erosion (>70%)
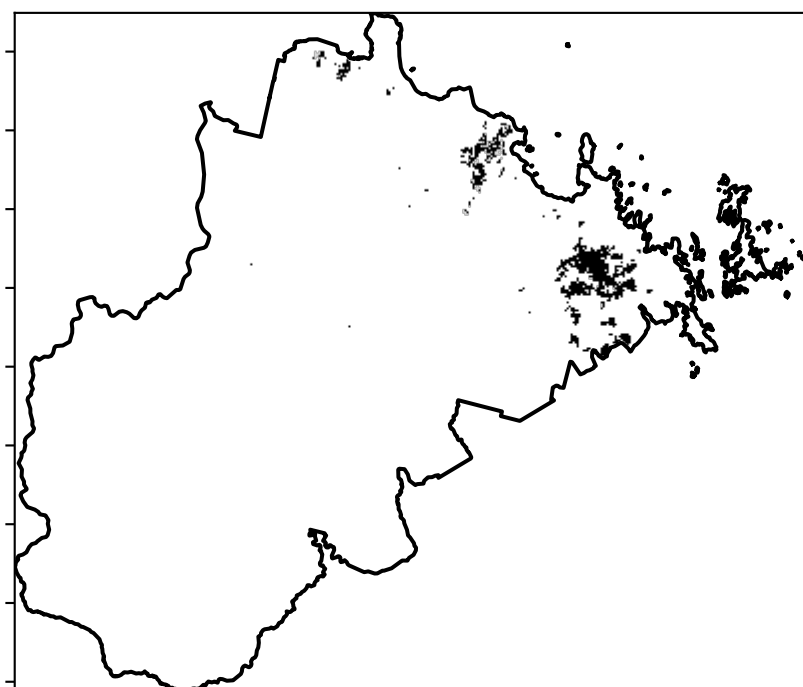
Area not protected 9.6% of region (4,044 ha)

Area protected 90.4% of region (38,081 ha)

% Area protected from wind erosion (>50%)
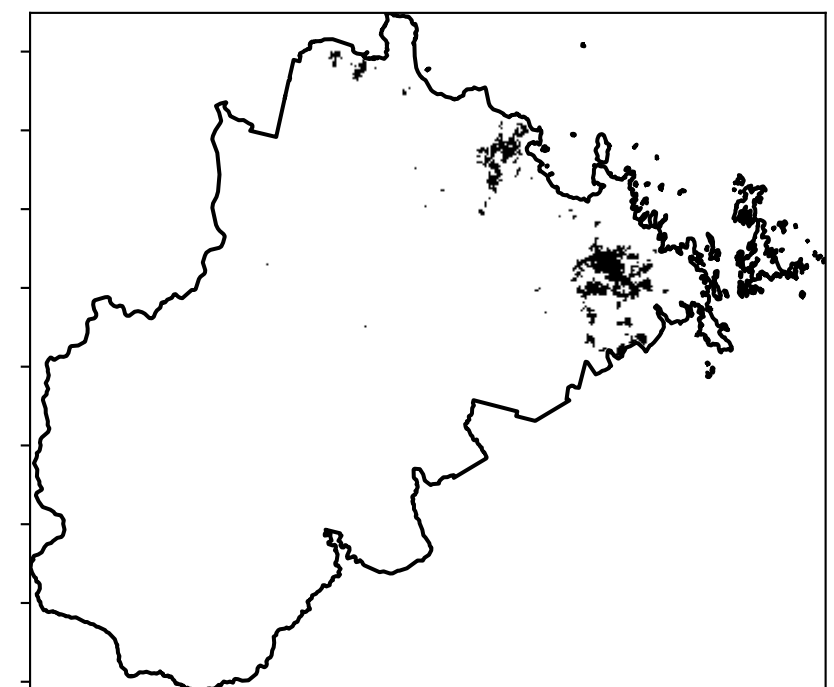
Area protected 100.0% of region (42,125 ha)

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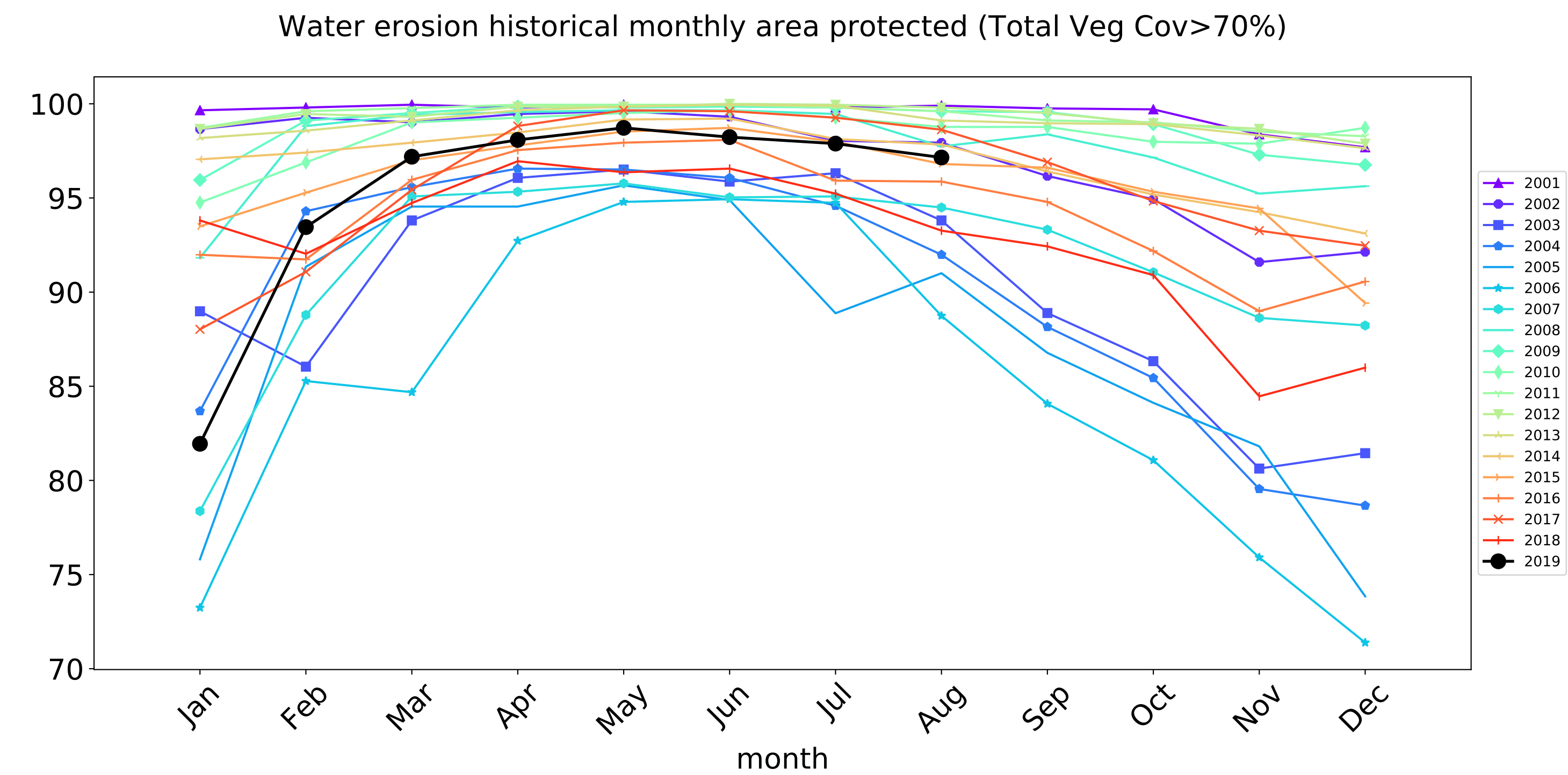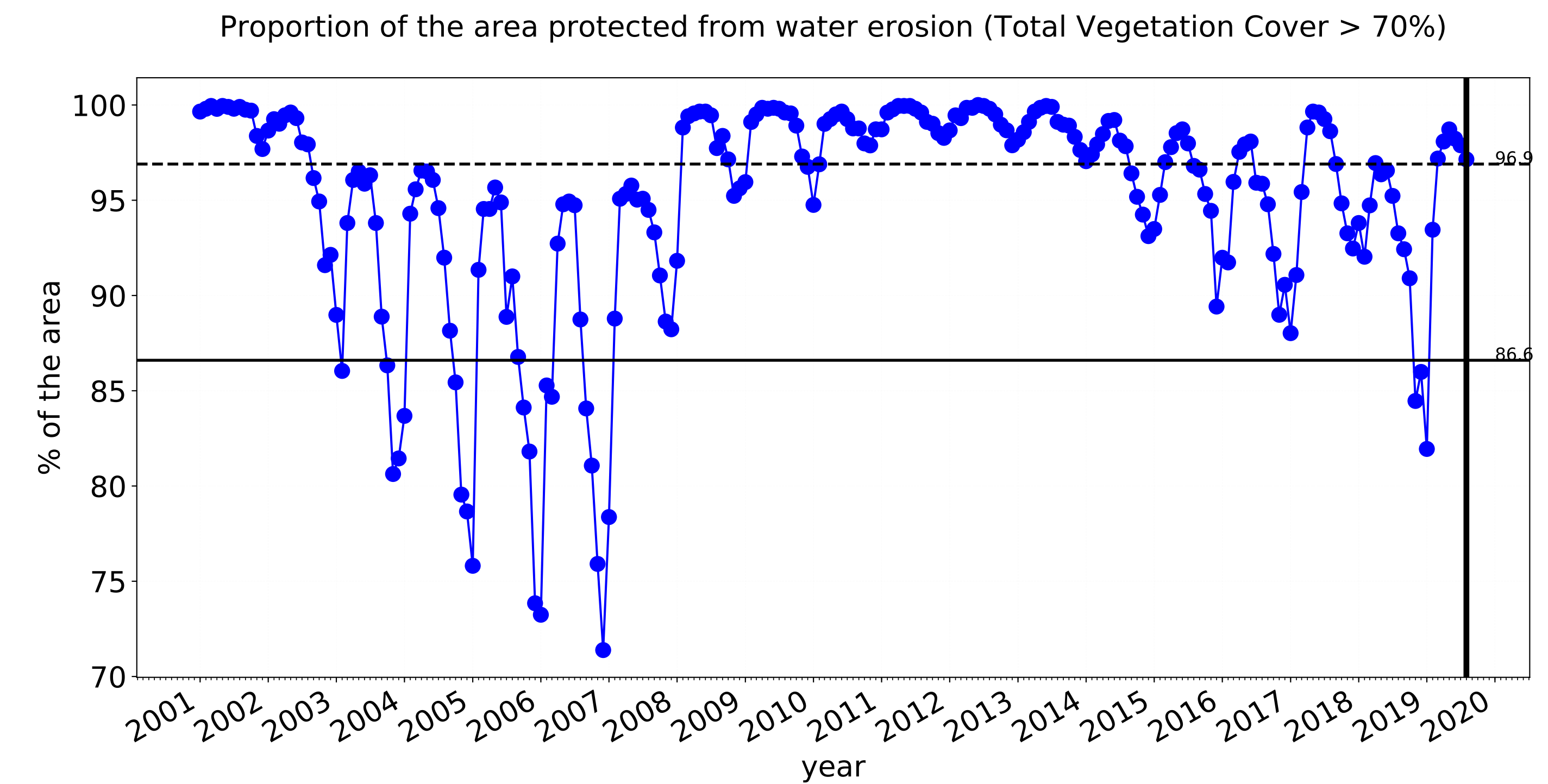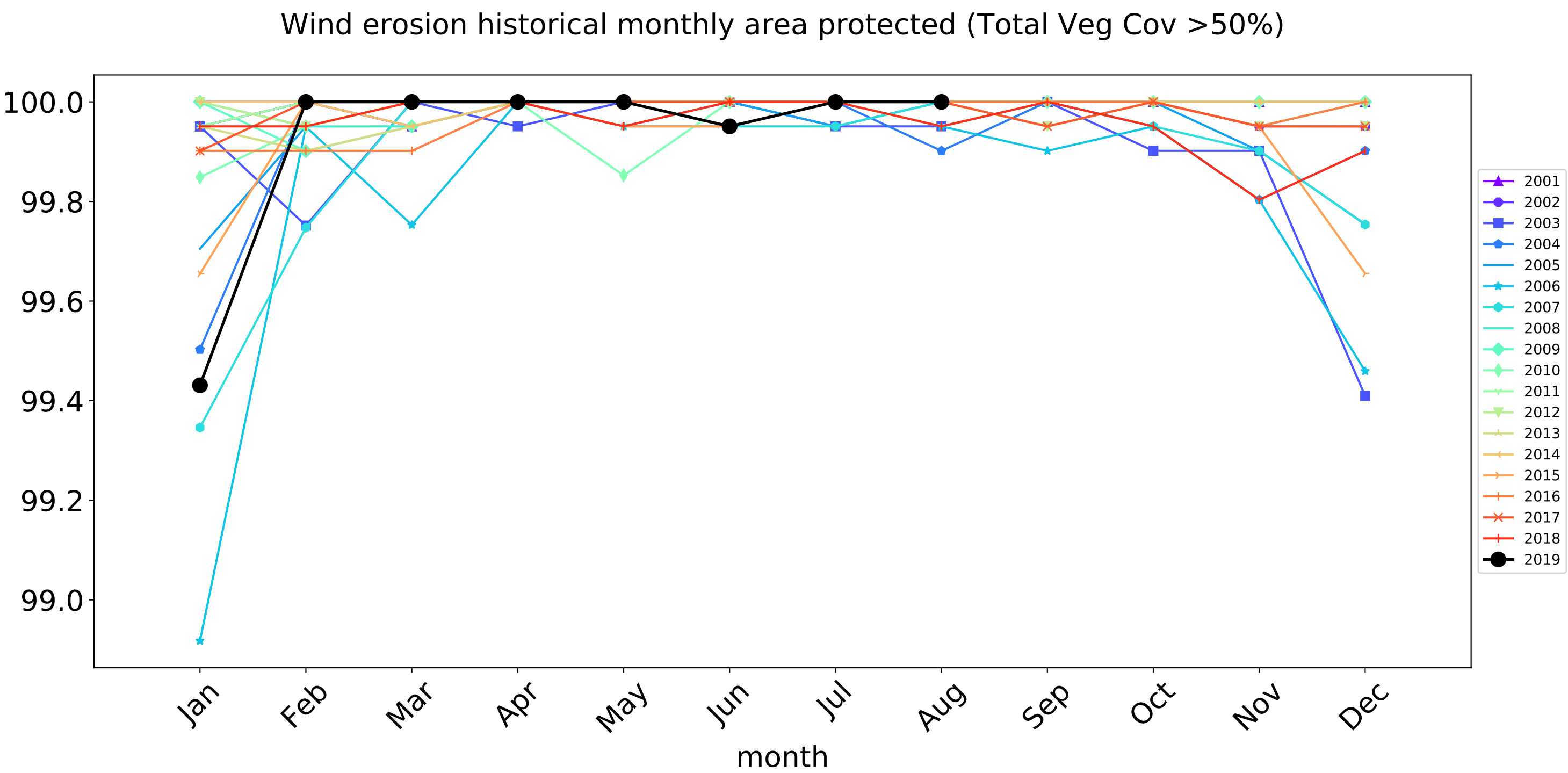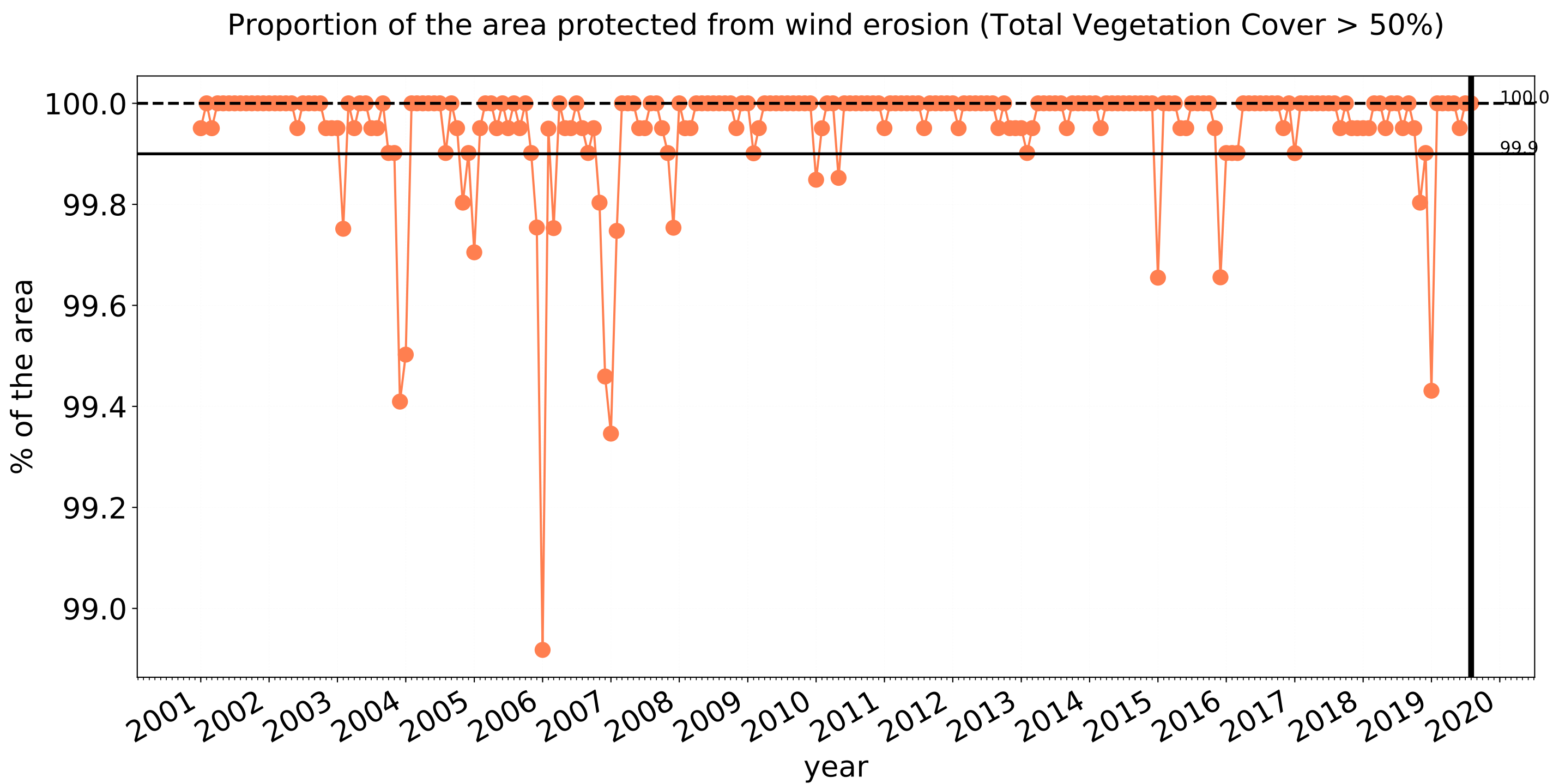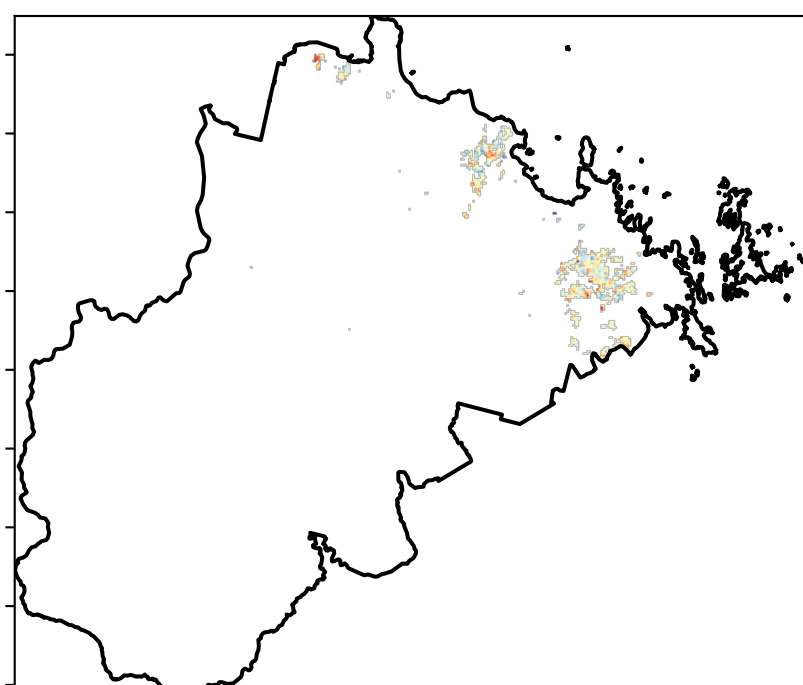
10
8-9
4-7
2-3
1

Irrigation timeseries

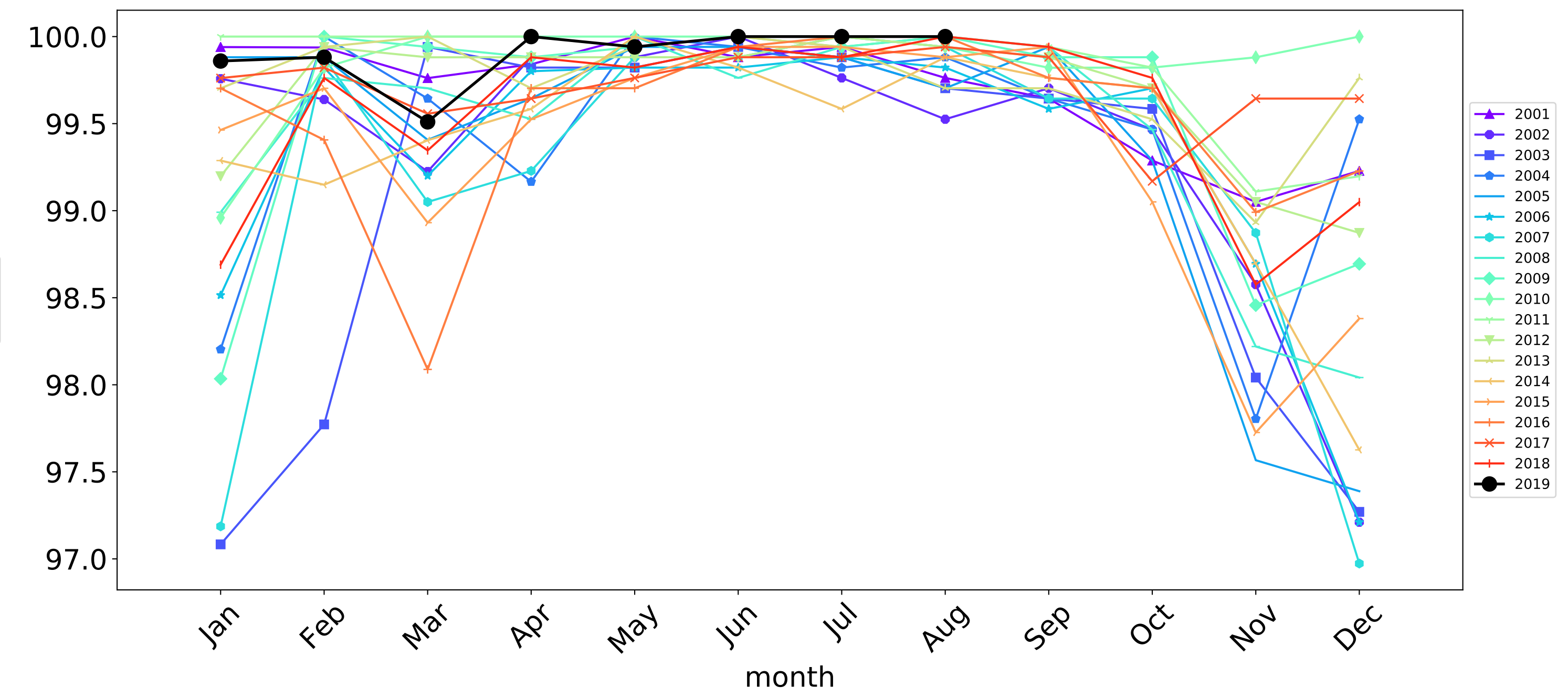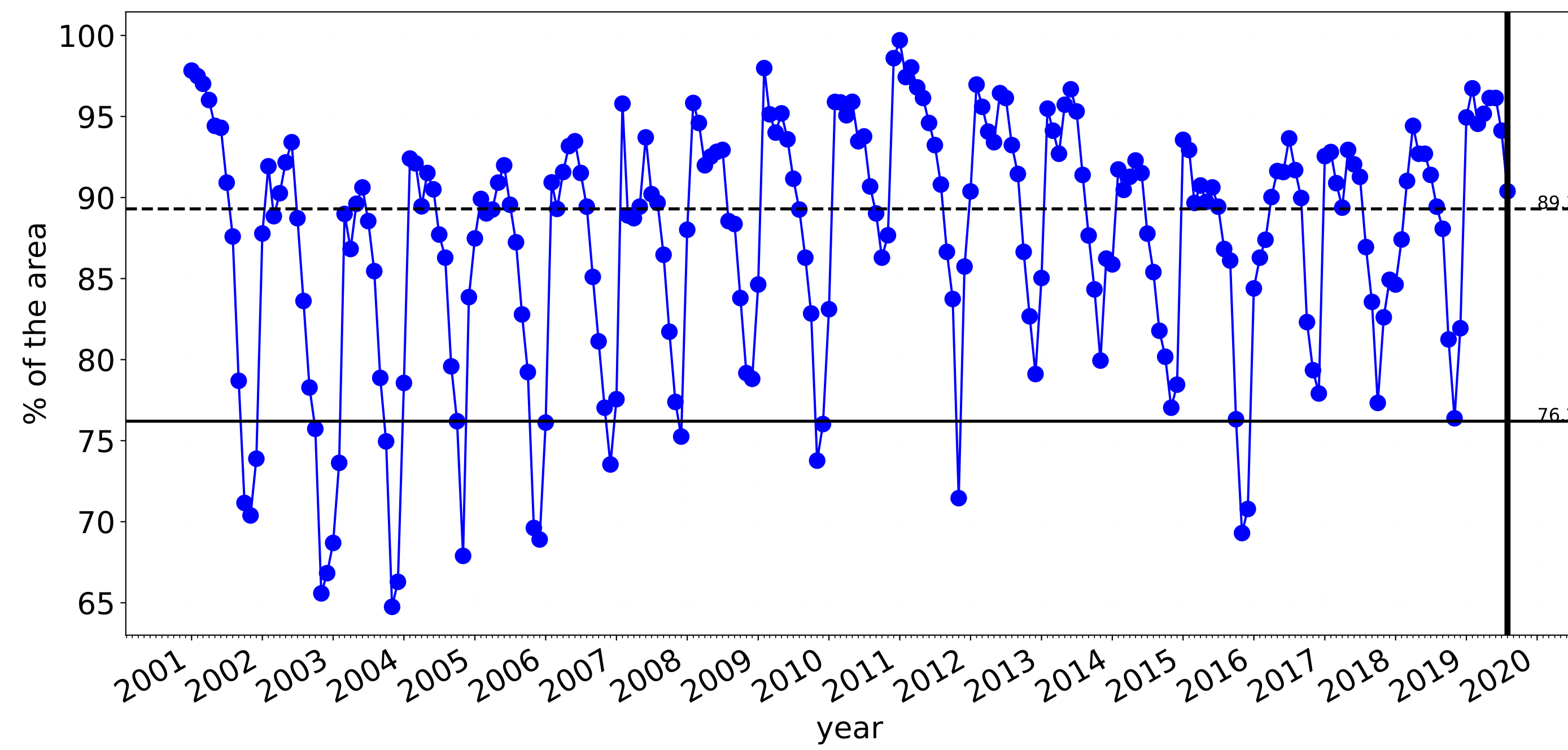### Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)
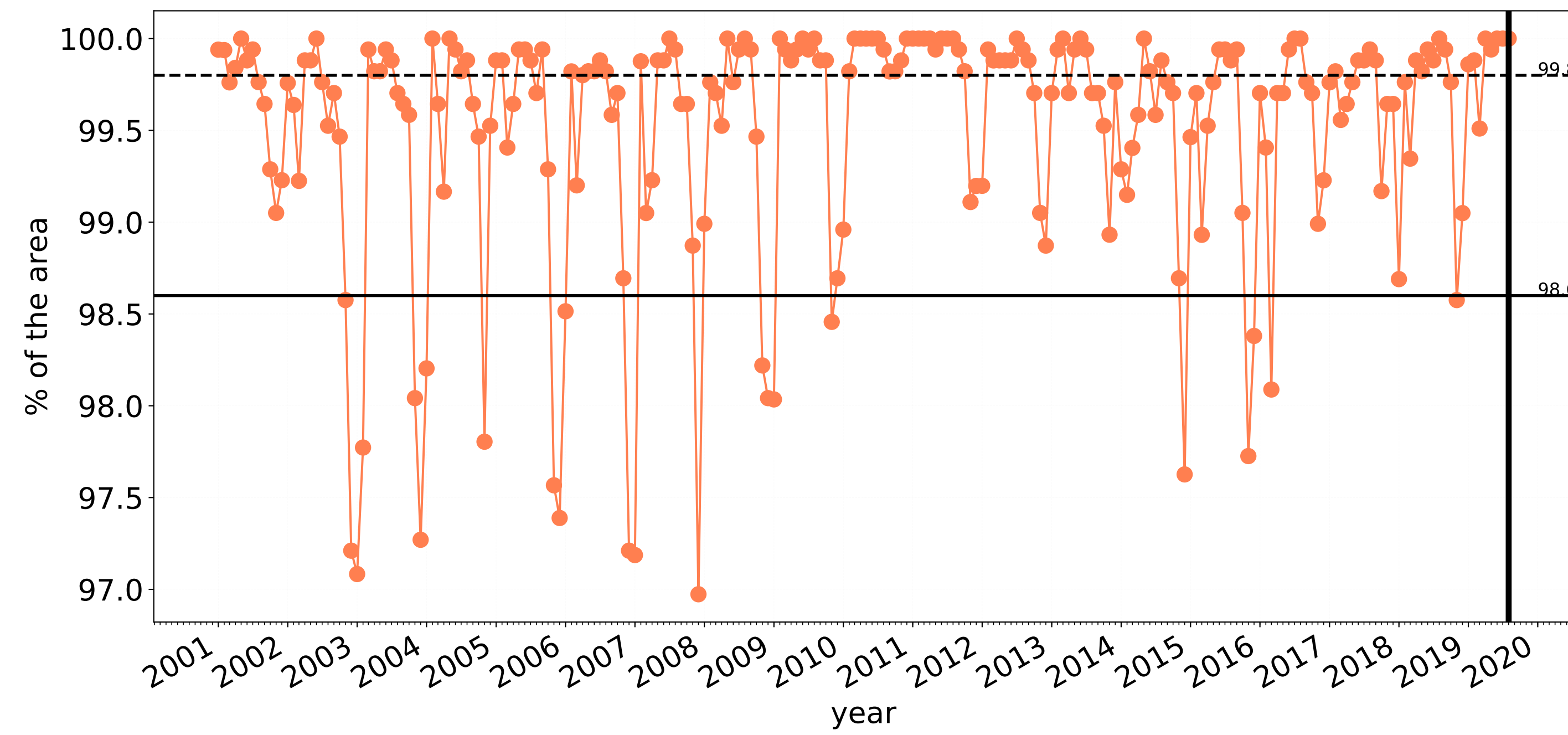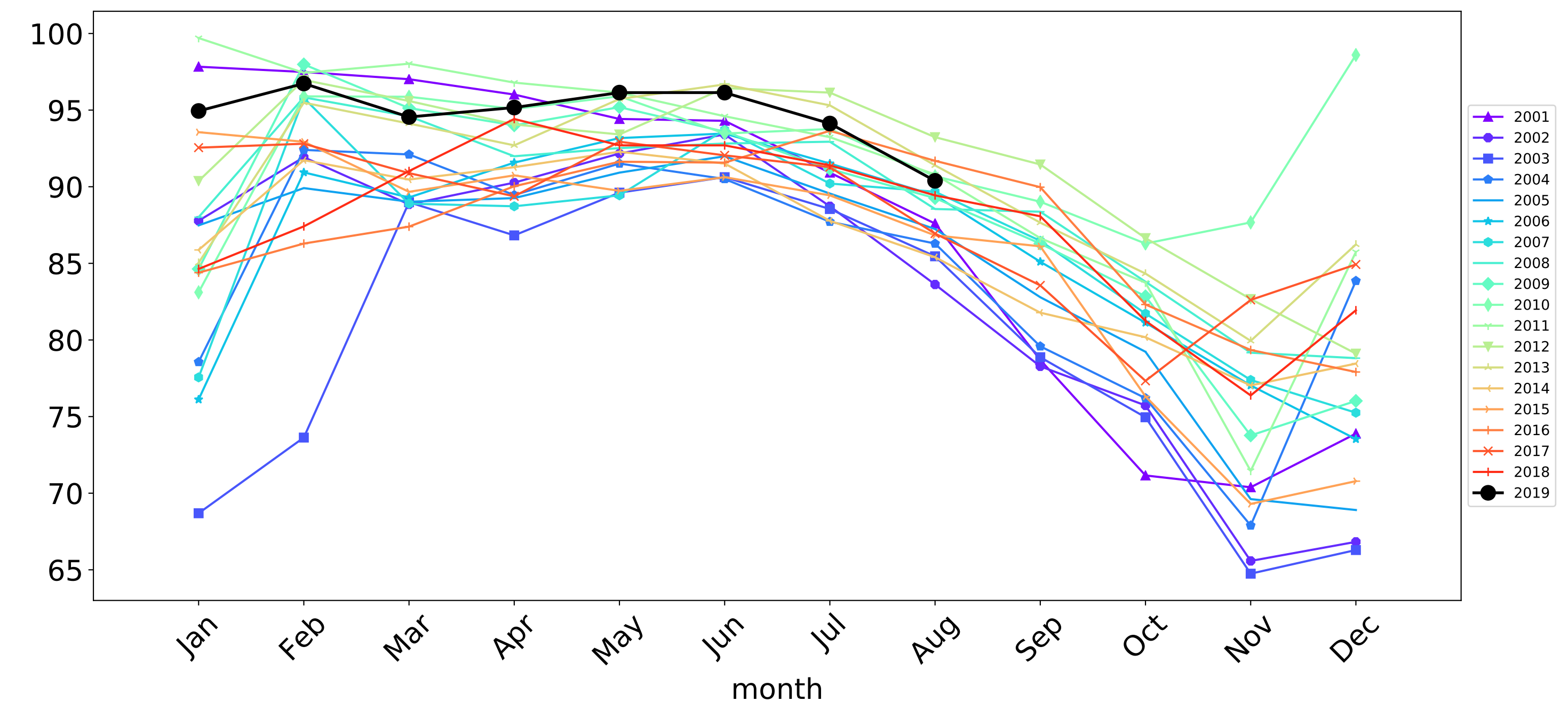

Wind erosion historical monthly area protected (Total Veg Cov >50%)

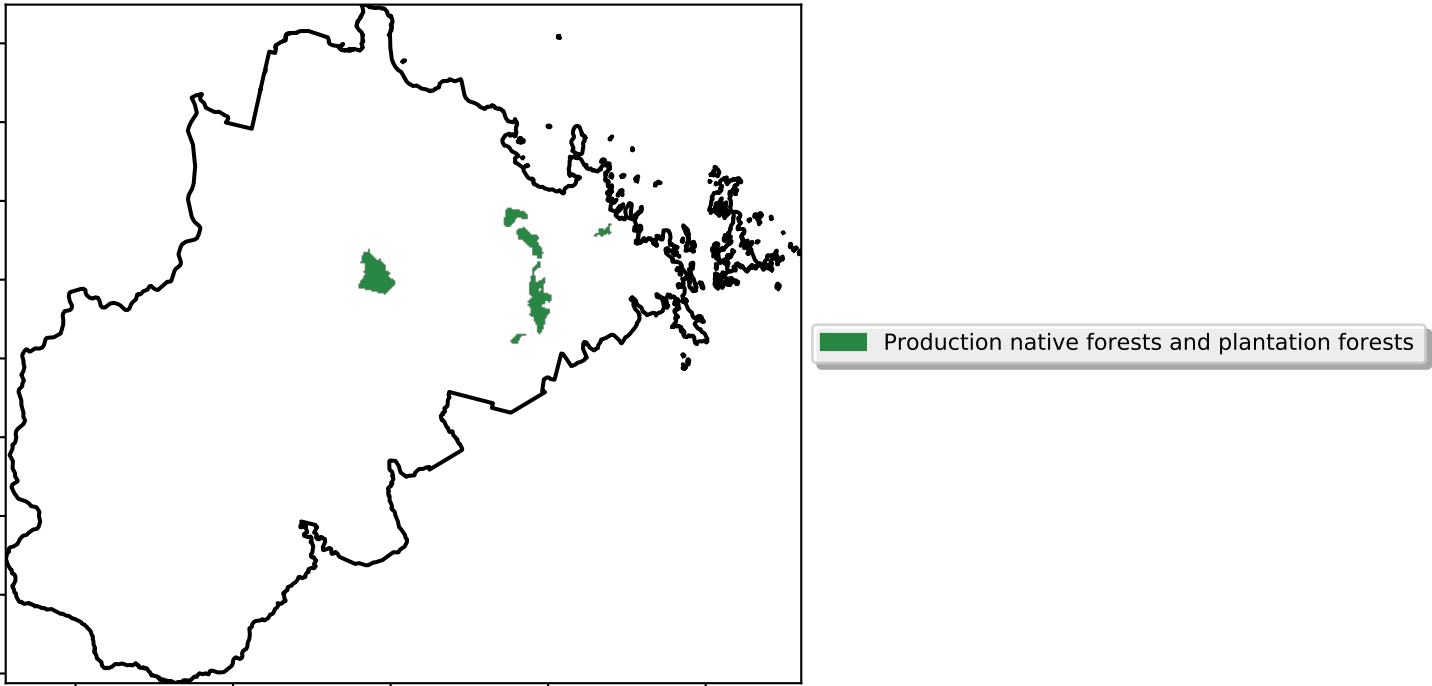### Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

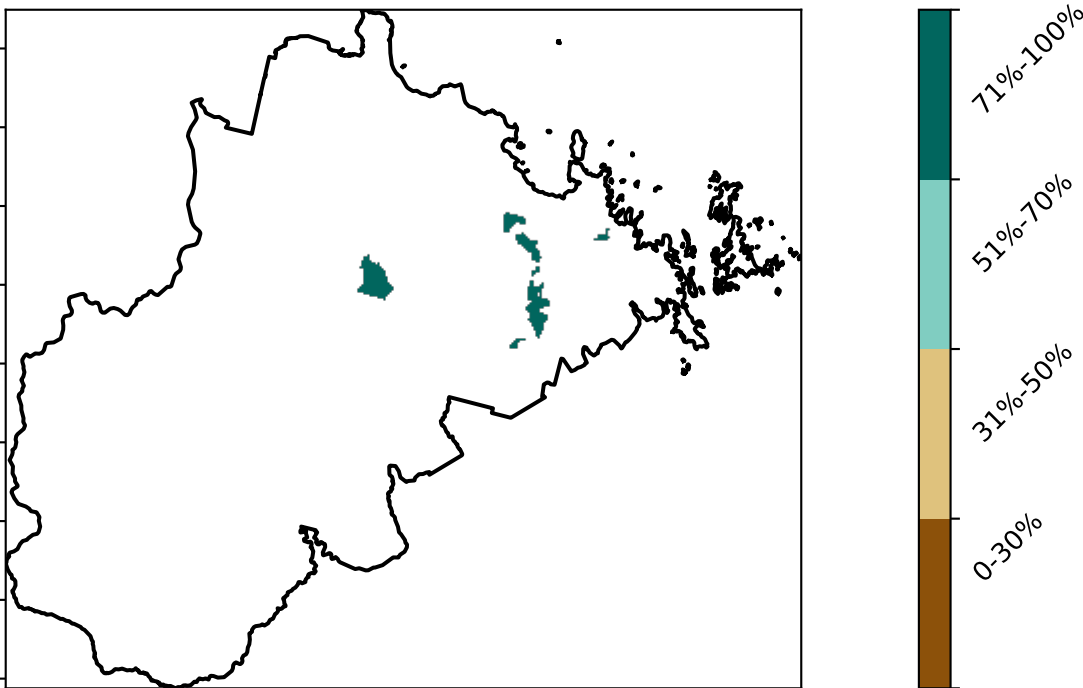### Water erosion historical monthly area protected (Total Veg Cov>70%)

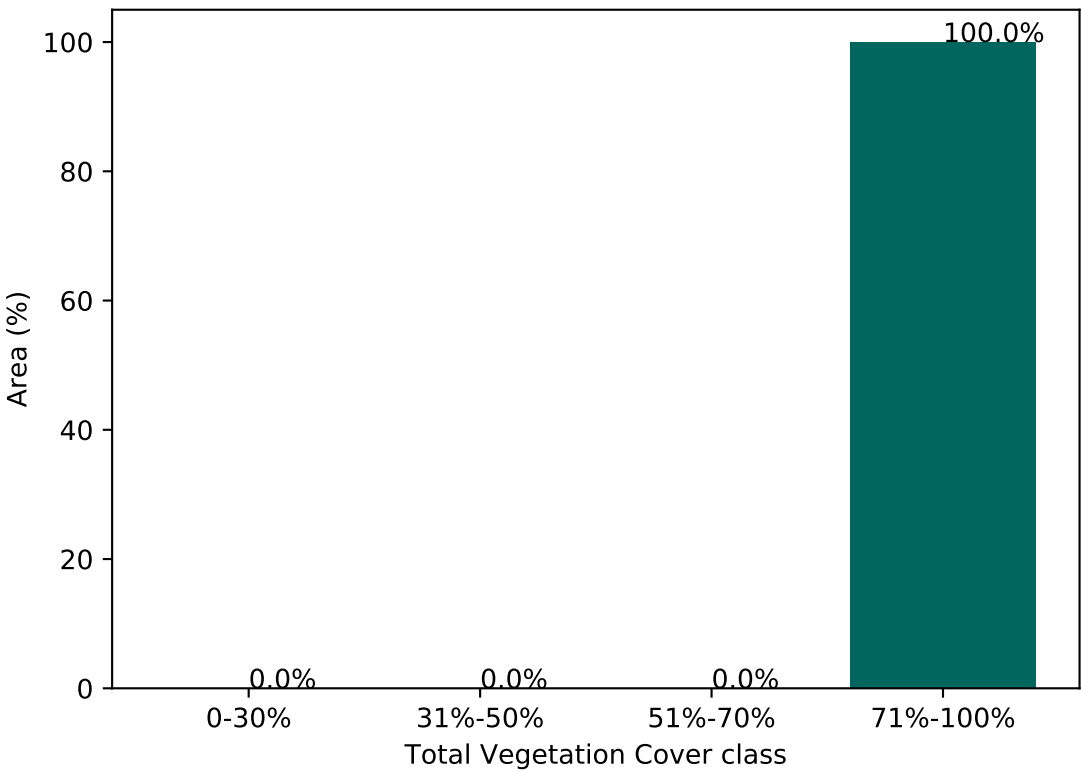# Production native forests and plantation forests

Land use and forest cover

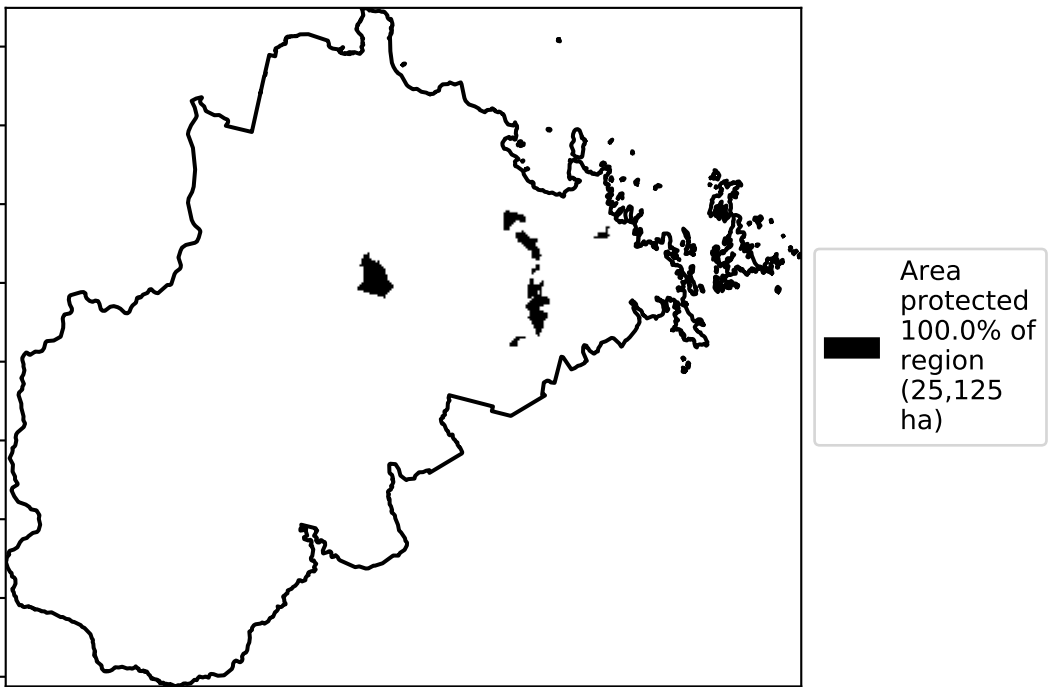Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.
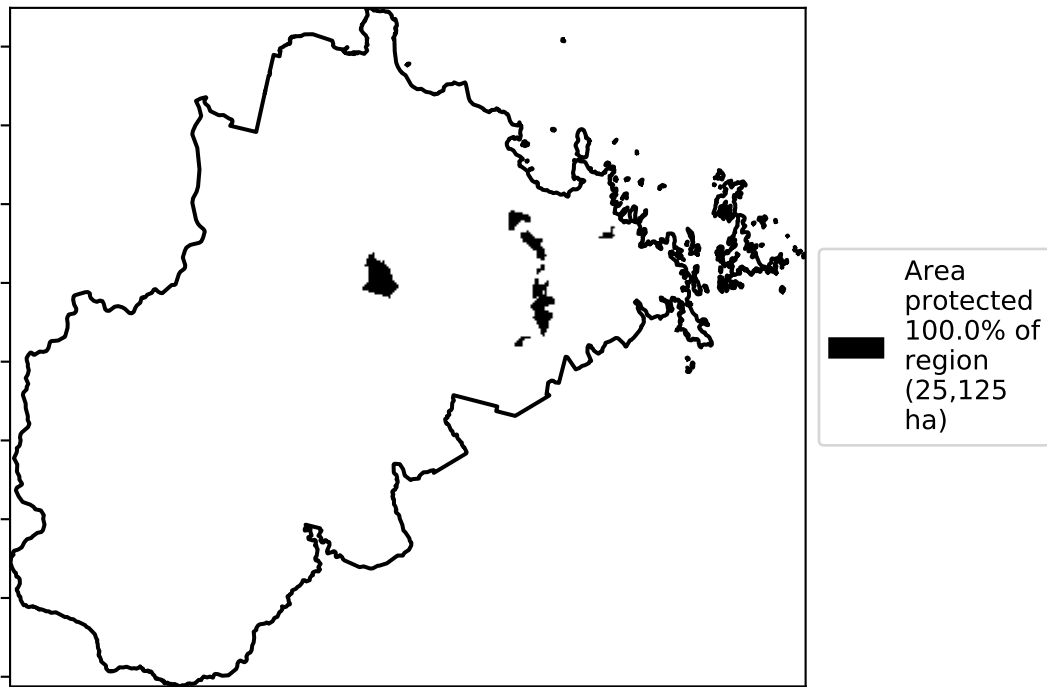
■ Production native forests and plantation forests

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

Area (%) vs Total Vegetation Cover class

0.0% (0-30%) 0.0% (31%-50%) 0.0% (51%-70%) 100.0% (71%-100%)

% Area protected from water erosion (>70%)

Area protected 100.0% of region (25,125 ha)

% Area protected from wind erosion (>50%)

Area protected 100.0% of region (25,125 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
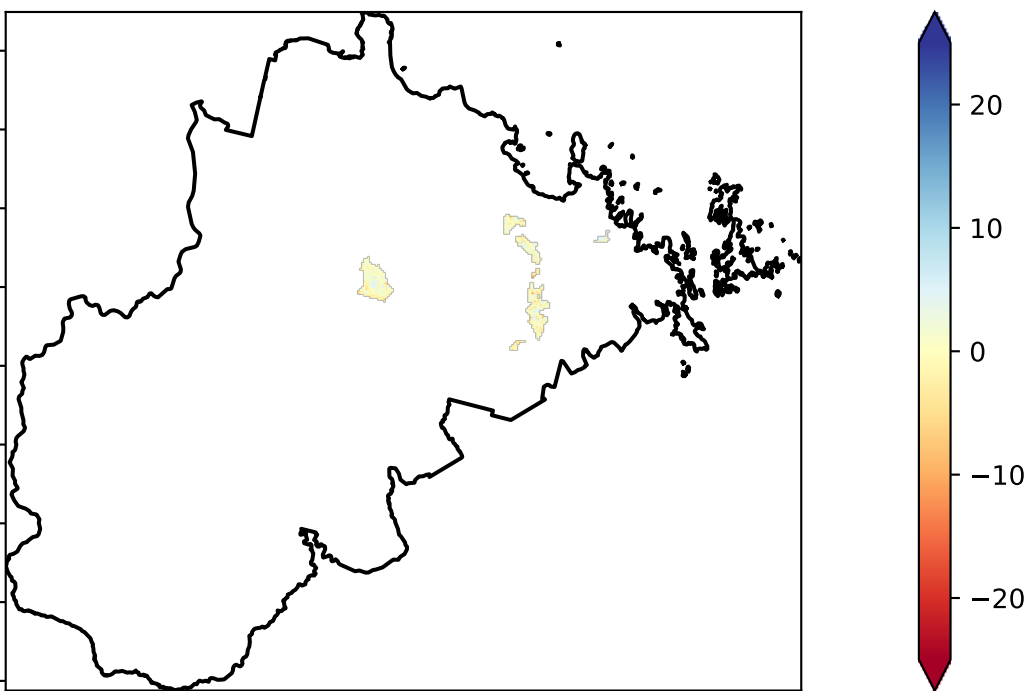
Production native forests and plantation forests timeseries
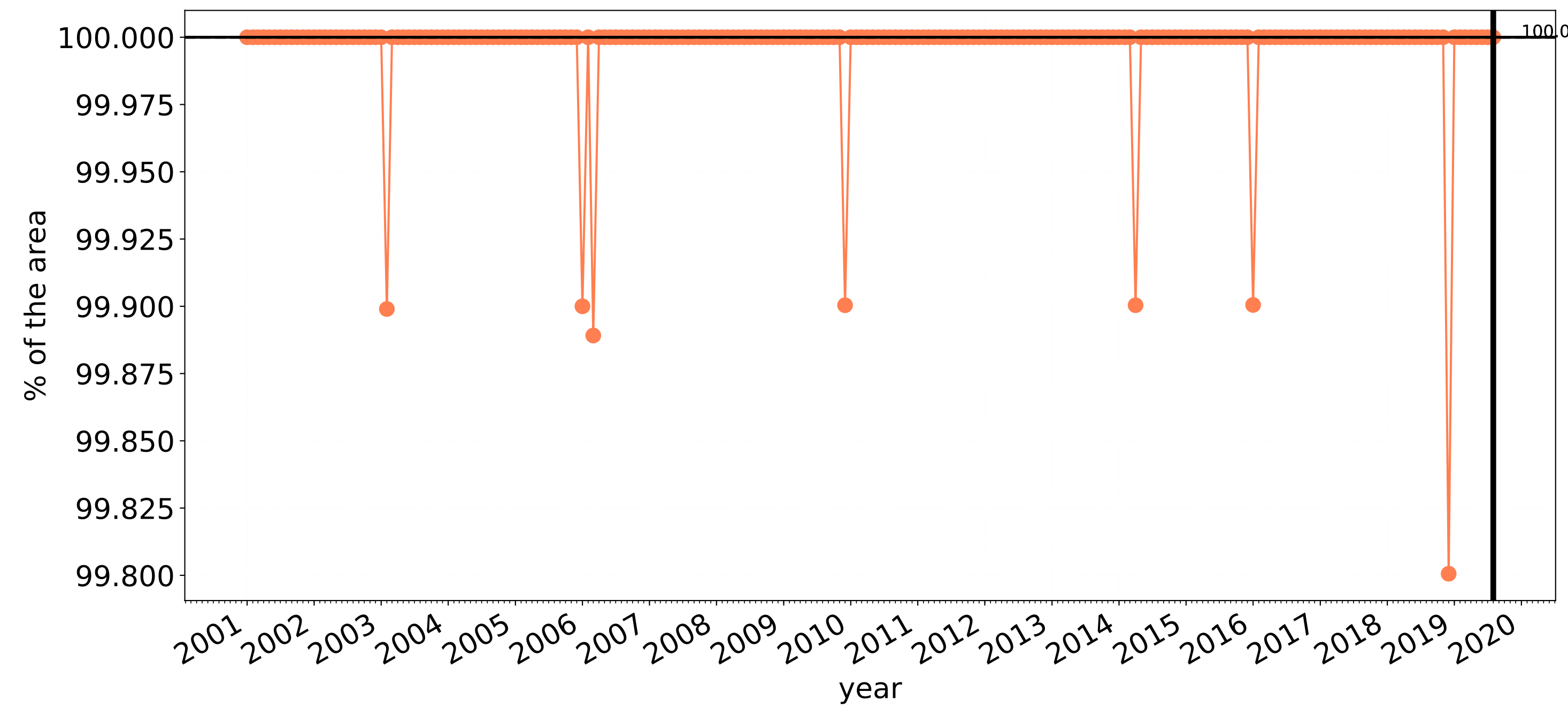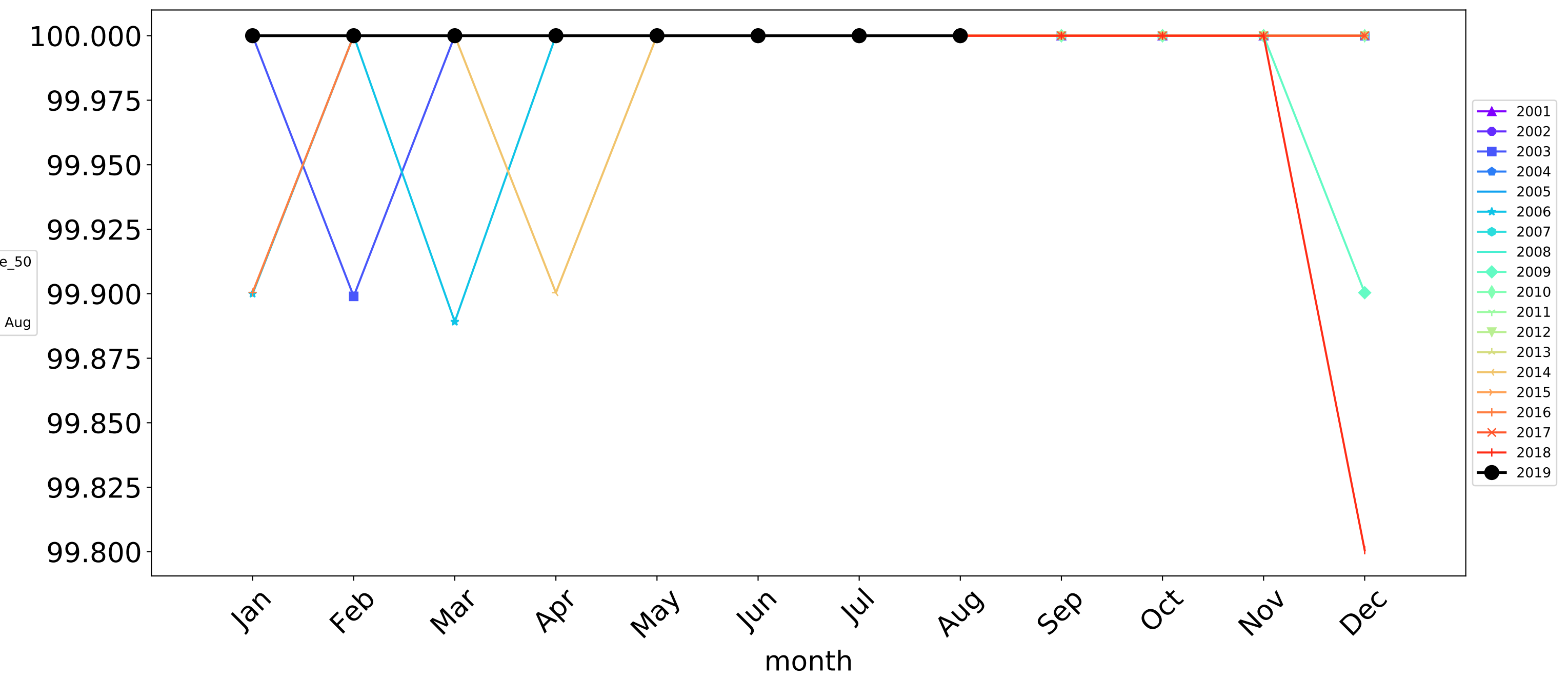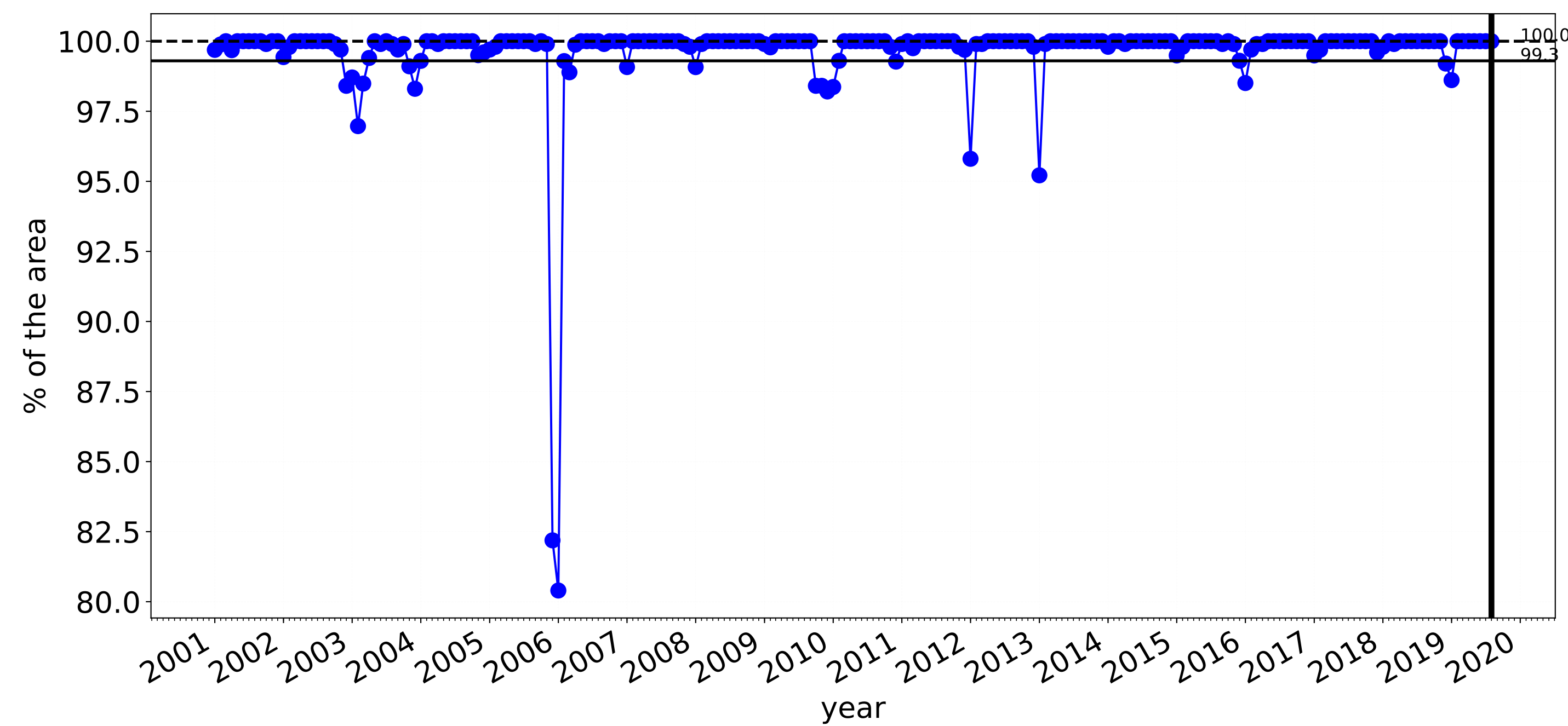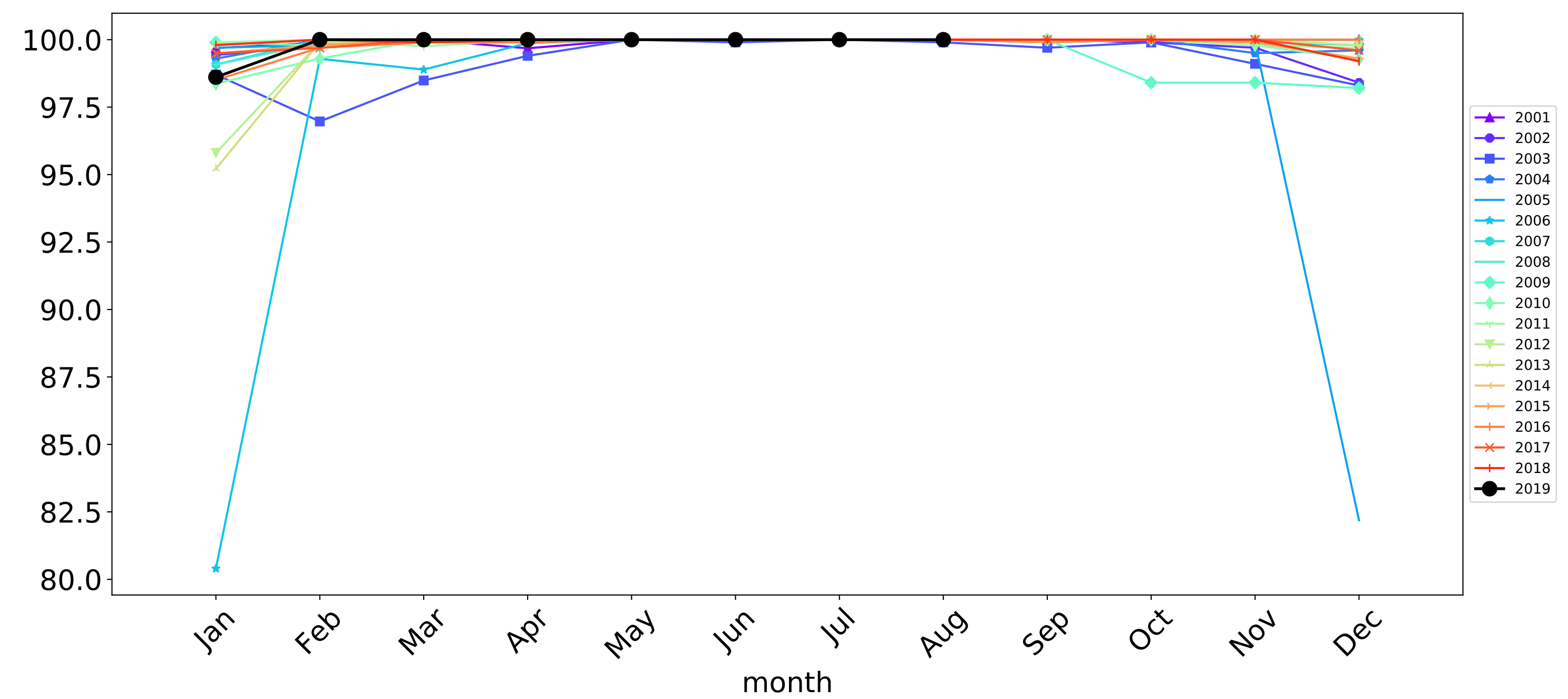
Whitsunday_(R) (2,357,700 ha and no data 24,176 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	2,357,700	100.0% 2,357,400	99.8% 2,353,425	93.2% 2,198,550	76.2% 1,796,625	37.1% 873,775	9.7% 227,675
Conservation and natural environments	179,185	99.9% 179,079	99.6% 178,474	95.2% 170,603	83.6% 149,834	61.0% 109,348	30.9% 55,358
Conservation and natural environments non forest	30,650	99.9% 30,622	99.0% 30,349	80.1% 24,563	35.5% 10,889	4.5% 1,391	1.4% 436
Conservation and natural environments Woodland forest	58,942	100.0% 58,916	99.8% 58,839	98.3% 57,963	90.7% 53,431	66.5% 39,191	26.6% 15,707
Conservation and natural environments Forest (non woodland)	89,592	99.9% 89,539	99.6% 89,275	98.1% 87,877	94.8% 84,921	76.0% 68,111	43.5% 38,977
Agriculture	2,072,418	100.0% 2,072,418	99.9% 2,070,976	93.4% 1,936,215	76.1% 1,577,281	35.3% 731,585	7.8% 160,804
Grazing	2,020,548	100.0% 2,020,548	99.9% 2,019,114	93.5% 1,889,003	76.3% 1,542,047	35.6% 719,557	7.8% 158,230
Grazing non forest	1,159,988	100.0% 1,159,988	99.9% 1,158,553	89.4% 1,036,501	65.5% 760,201	25.0% 290,009	5.0% 57,685
Grazing Woodland forest	811,048	100.0% 811,048	100.0% 811,048	99.2% 804,346	91.5% 742,068	50.5% 409,506	11.5% 92,996
Grazing – Forest (non woodland)	49,511	100.0% 49,511	100.0% 49,511	97.1% 48,099	80.1% 39,677	40.3% 19,936	15.1% 7,473
Irrigation	40,080	100.0% 40,080	100.0% 40,080	90.4% 36,227	65.8% 26,379	20.4% 8,158	4.3% 1,736
Production native forests and plantation forests	25,934	100.0% 25,934	100.0% 25,934	100.0% 25,934	100.0% 25,934	82.0% 21,263	37.8% 9,806