LGA Esperance_(S) (WA) - 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.

Esperance_(S)
- Context
    - Map: Land use and forest cover
    - Chart: Land use and forest cover area
- Total vegetation cover for this month
    - Map: vegetation cover classified into 4 classes
    - Chart: vegetation cover area classified into 4 classes
- Areas protected from erosion for the month
    - Map: wind erosion protection (>50% cover)
    - Map: water erosion protection (>70% cover)
- Comparison with previous years
    - Map: anomaly – compare this month to the average cover from the same month in previous years
    - Map: deciles – rank this month against the same month in previous years
- Time series
    - 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)
    - 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).
    - Rainfall: millimetres rainfall each month (black lines)
- Time series stacked by year
    - 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
    - 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:
    - the percentage area with pixels greater than 80% total clover
    - the percentage area with pixels greater than 90% total clover
    - 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
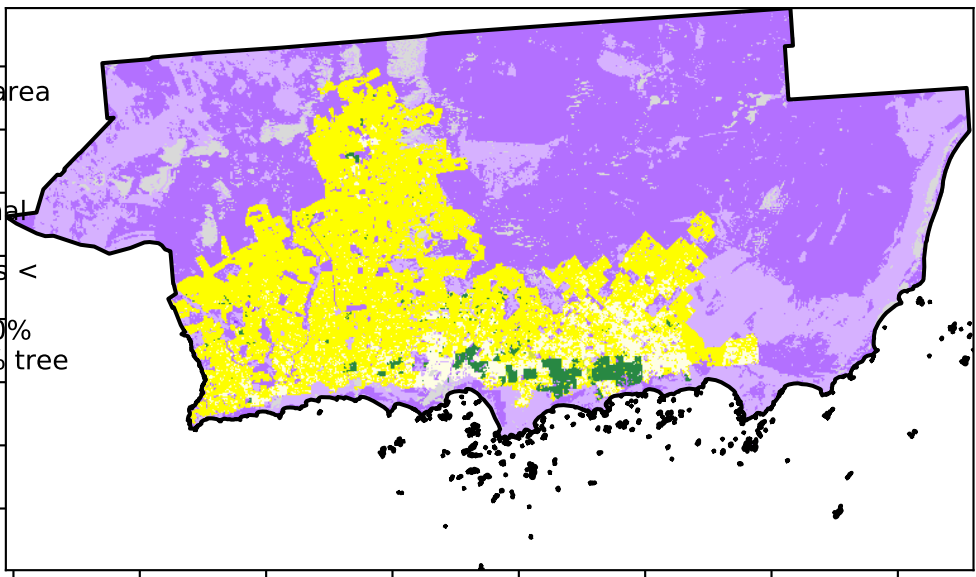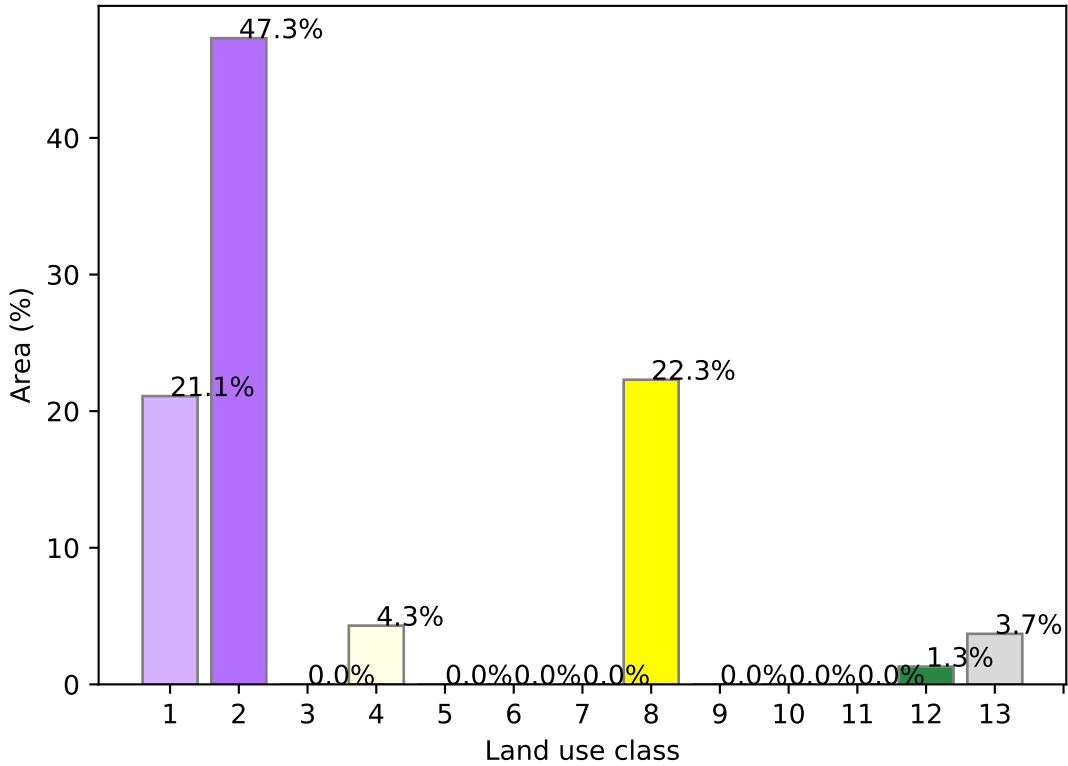
Vegetation Cover Aug 2019

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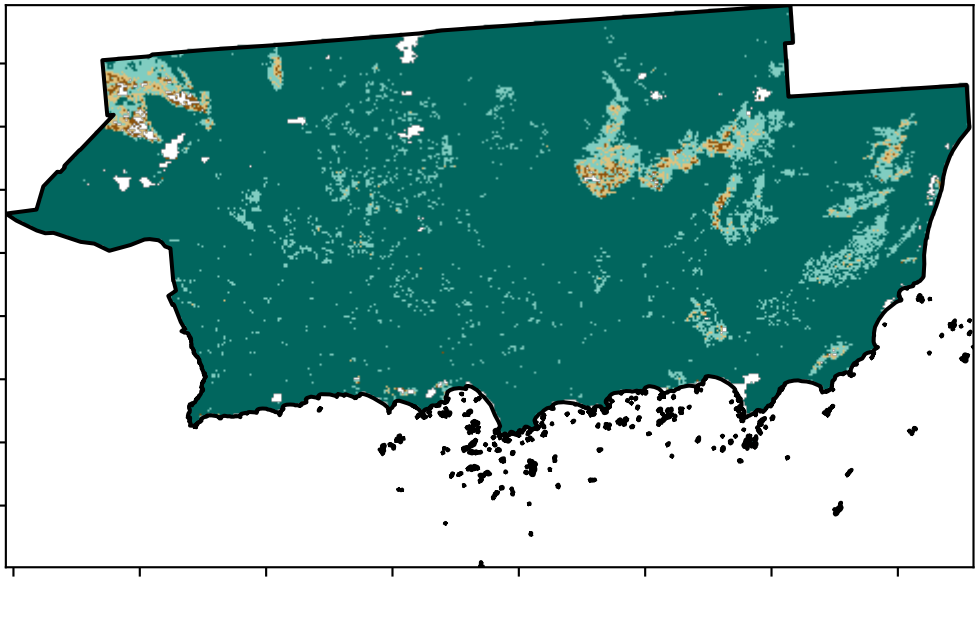
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.
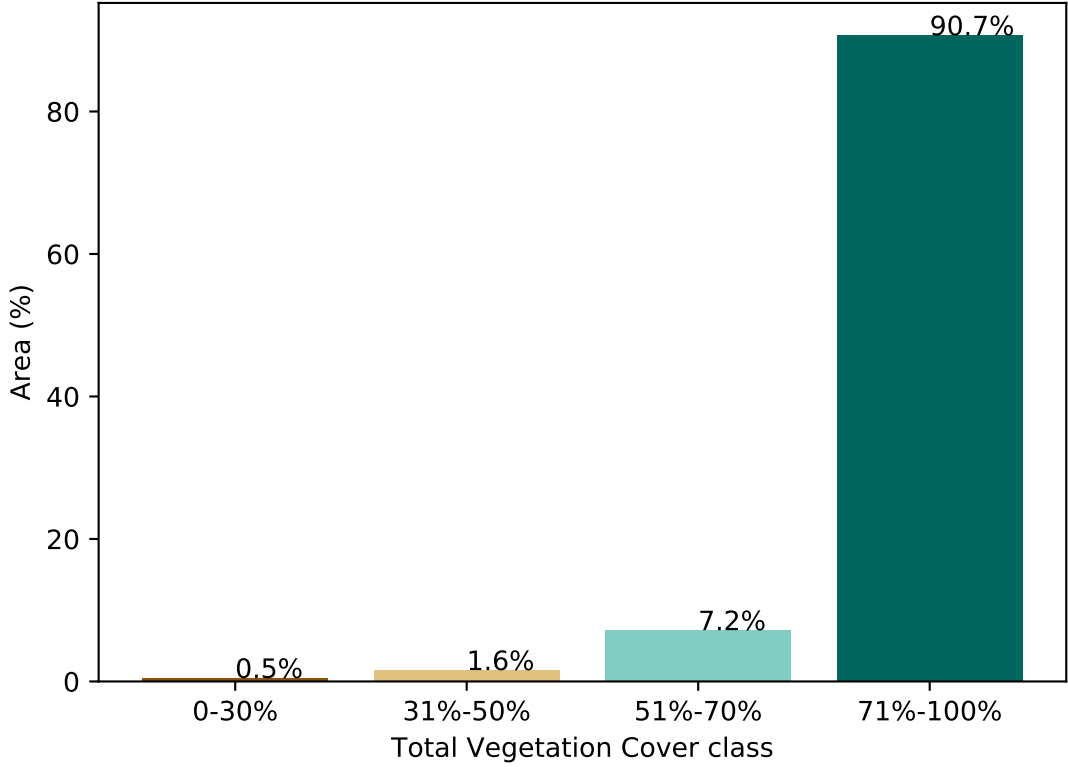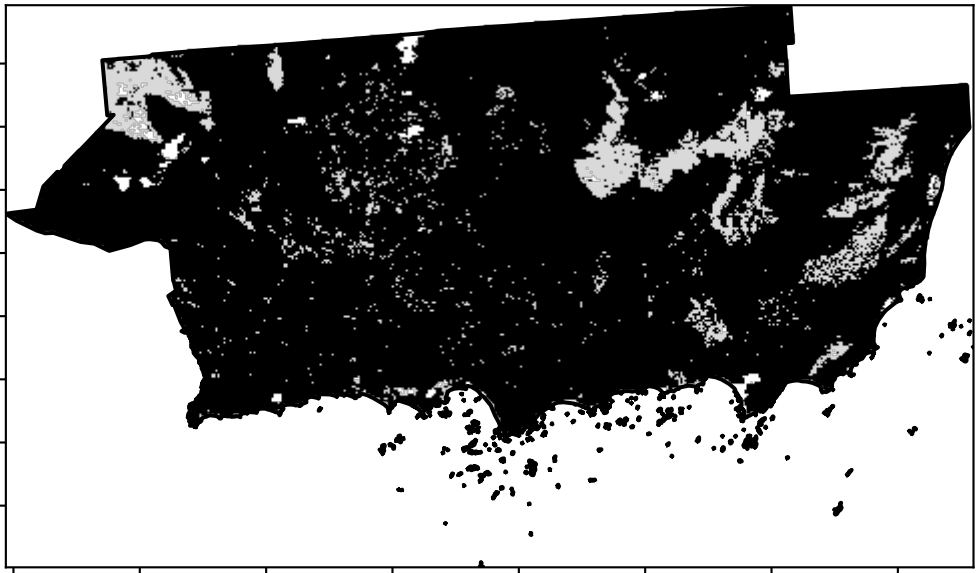

Legend with land class forest cover and number, i.e. Forests is 12

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 9.3% of region (409,925 ha)

Area protected 90.7% of region (3,997,874 ha)

% Area protected from wind erosion (>50%)

Area not protected 2.0% of region (88,156 ha)
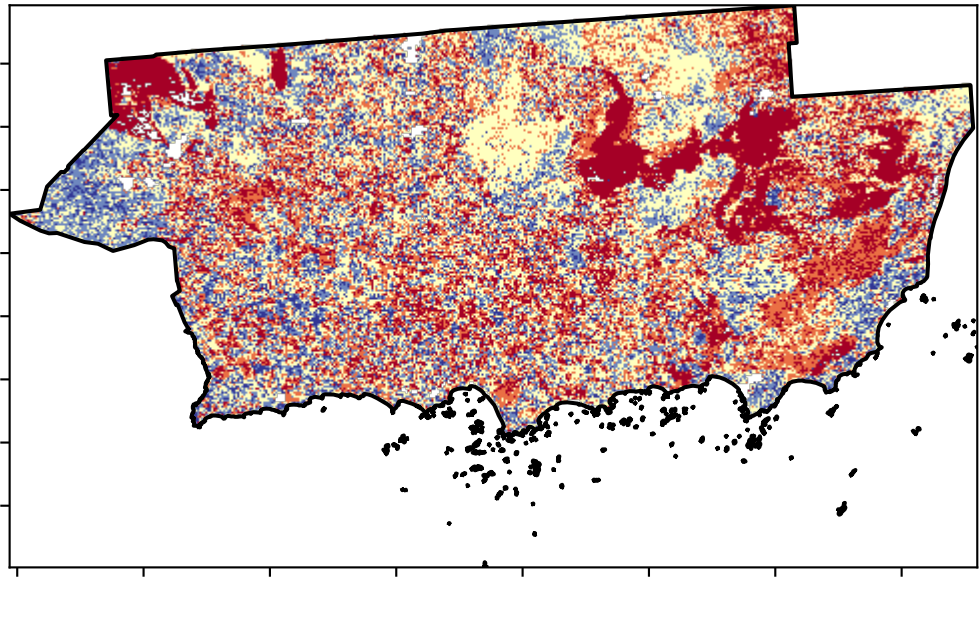
Area protected 98.0% of region (4,319,644 ha)

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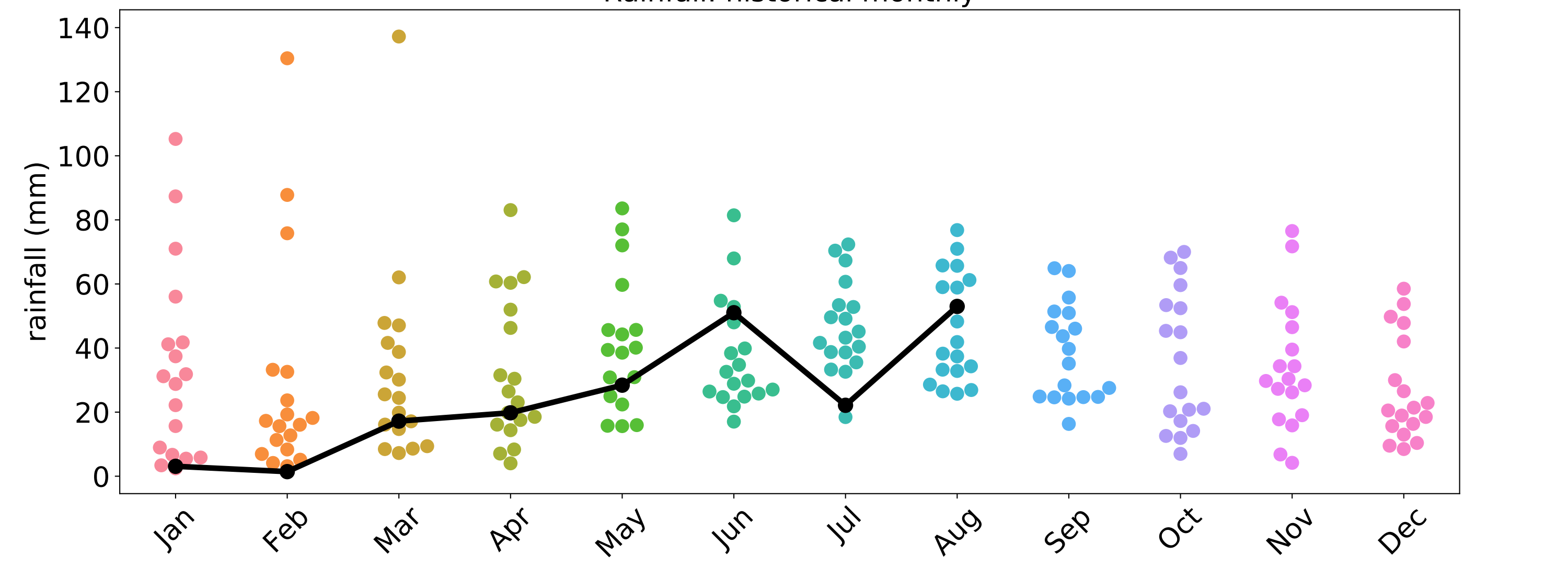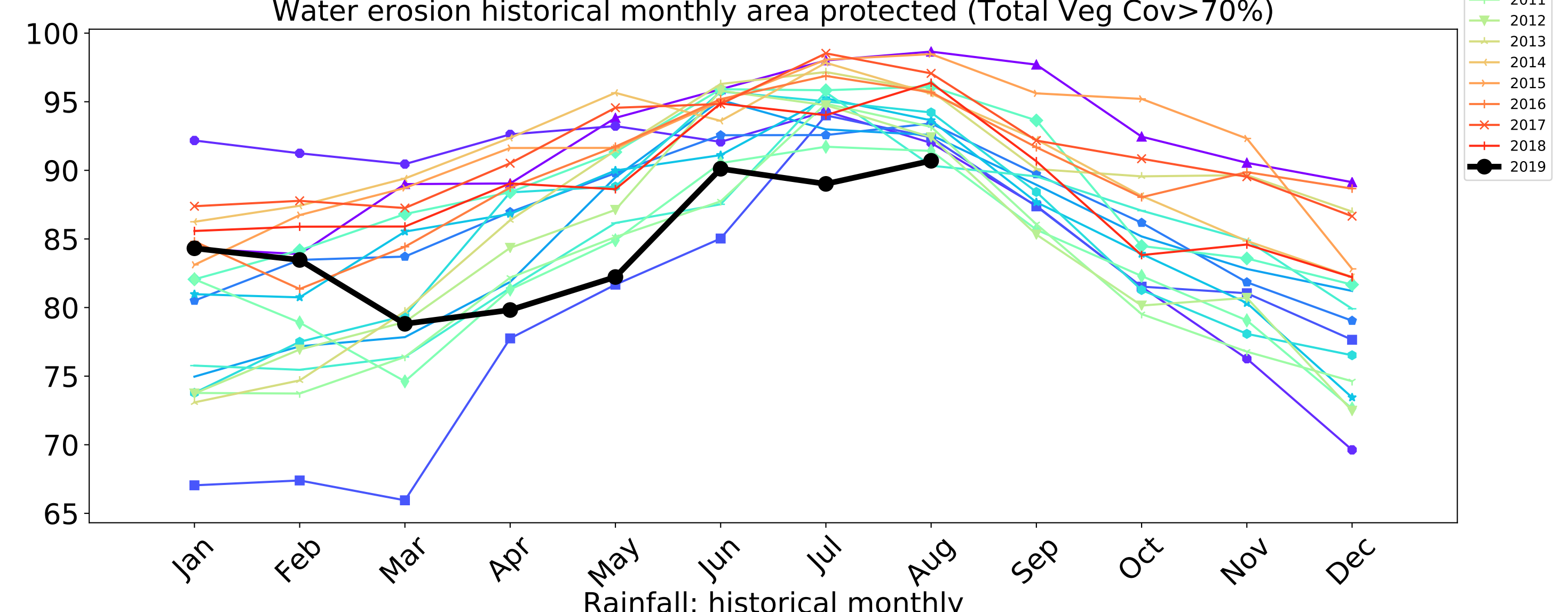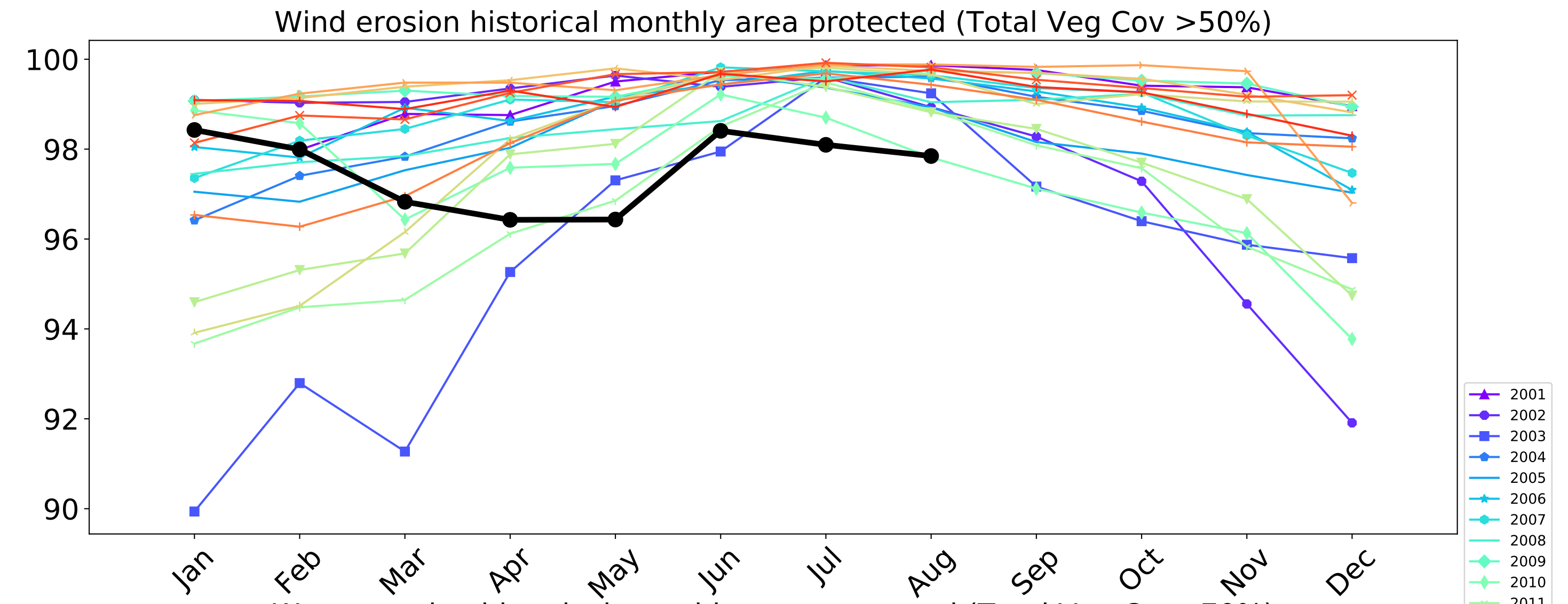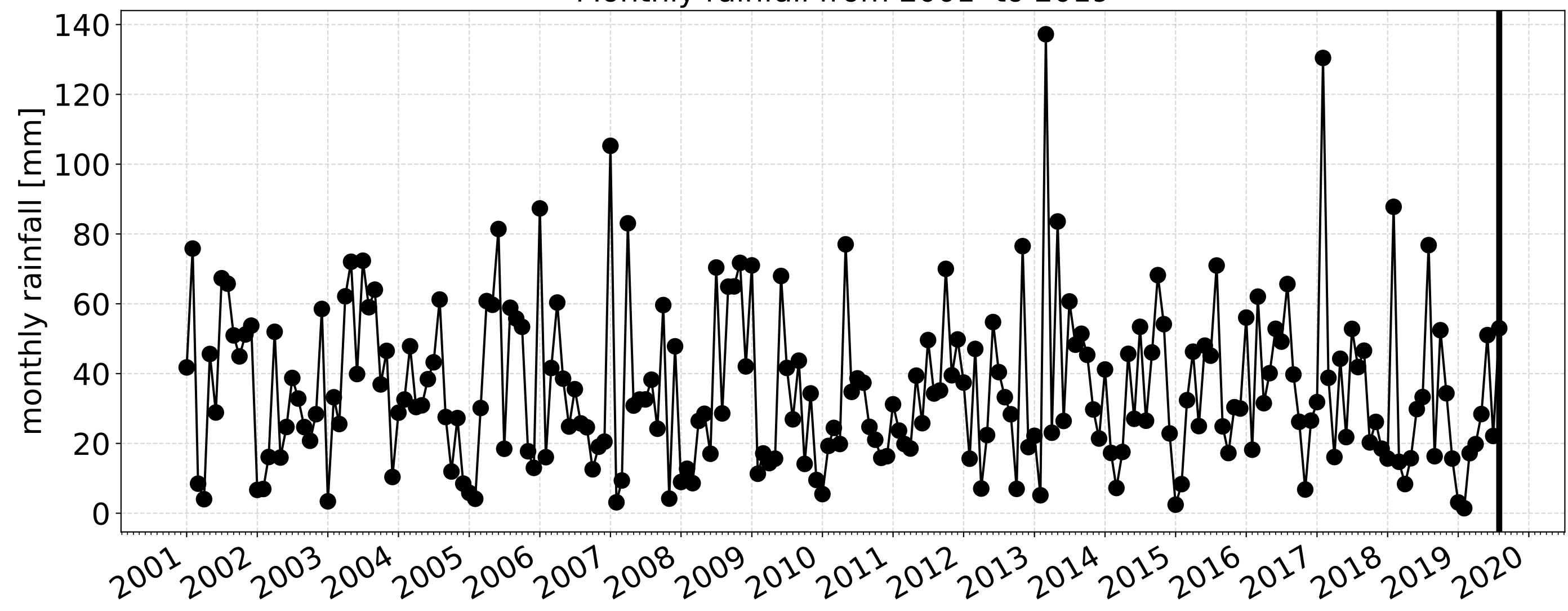
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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%)
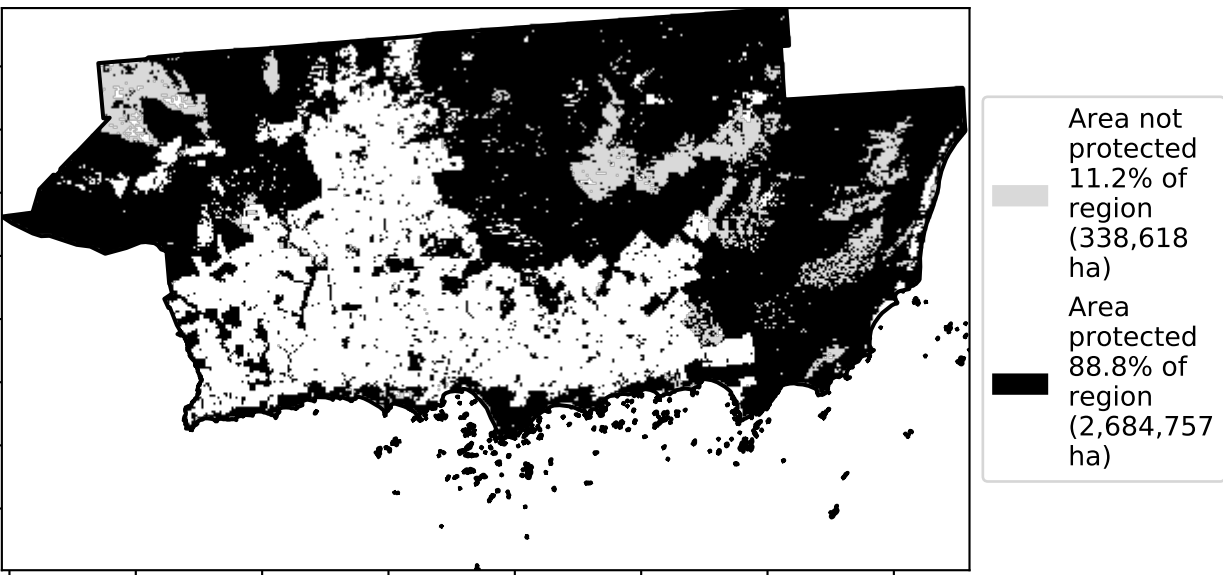
Monthly rainfall from 2001 to 2019

Rainfall: historical monthly

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

0.9%   2.2%   8.1%   88.8%

Area (%)

Total Vegetation Cover class

% Area protected from water erosion (>70%)

Area not protected 11.2% of region (338,618 ha)

Area protected 88.8% of region (2,684,757 ha)

% Area protected from wind erosion (>50%)

Area not protected 3.0% of region (90,701 ha)

Area protected 97.0% of region (2,932,673 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.

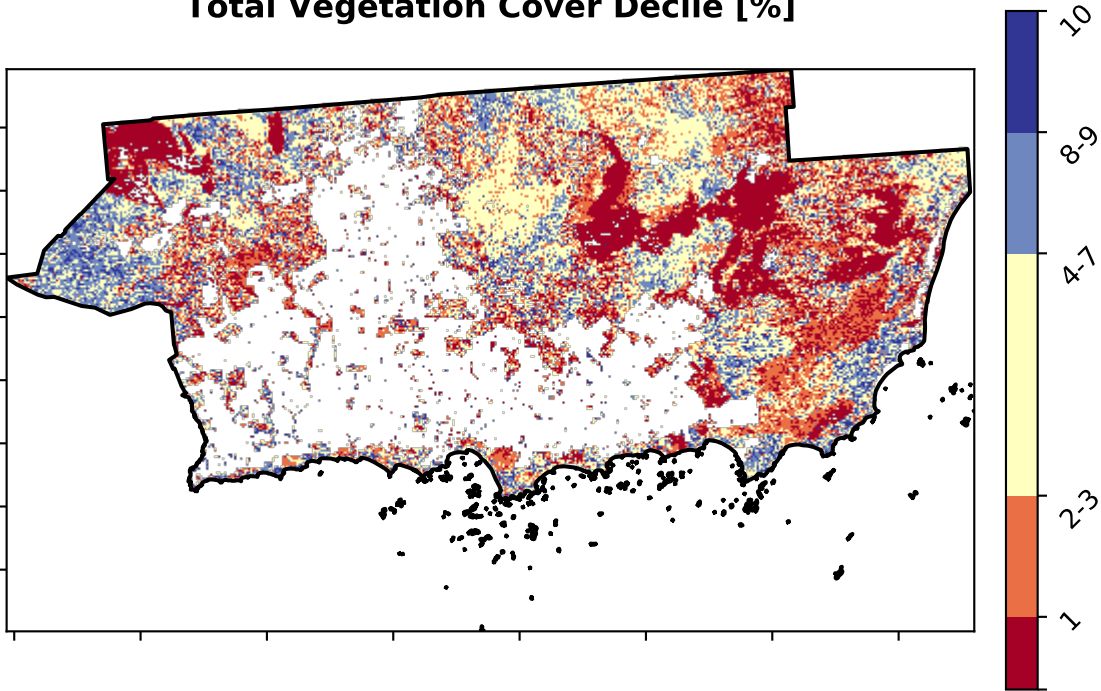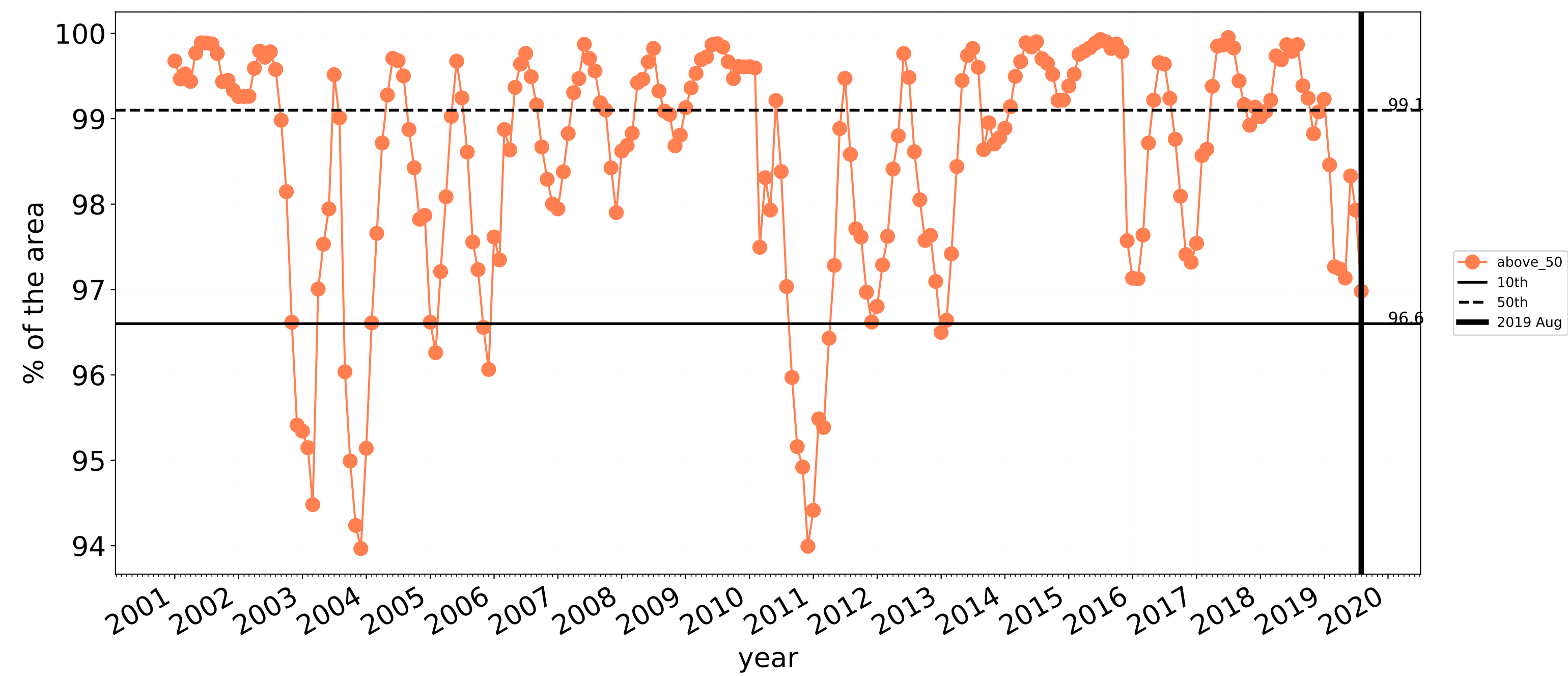### Total Vegetation Cover Decile [%]

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.
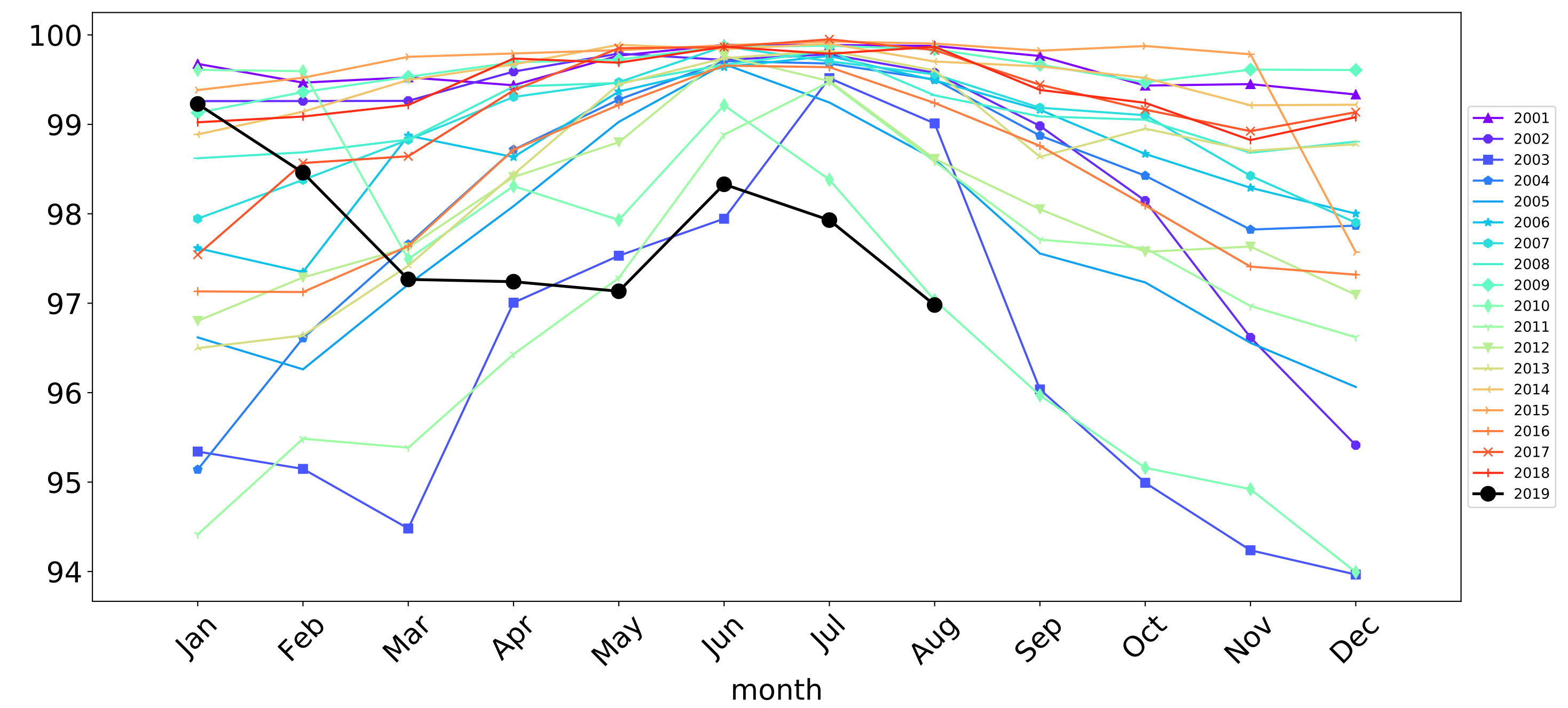

10

8-9

4-7

2-3

1

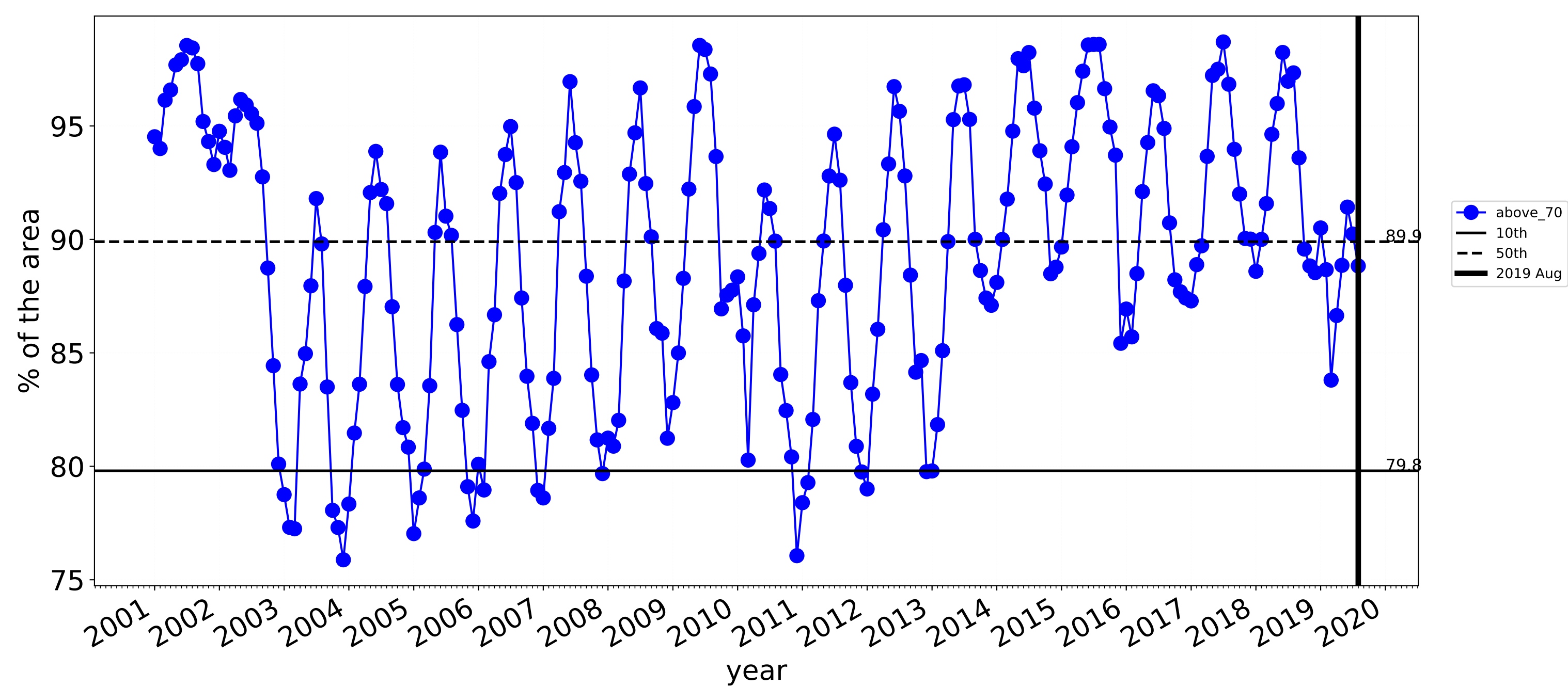# Conservation and natural environments timeseries

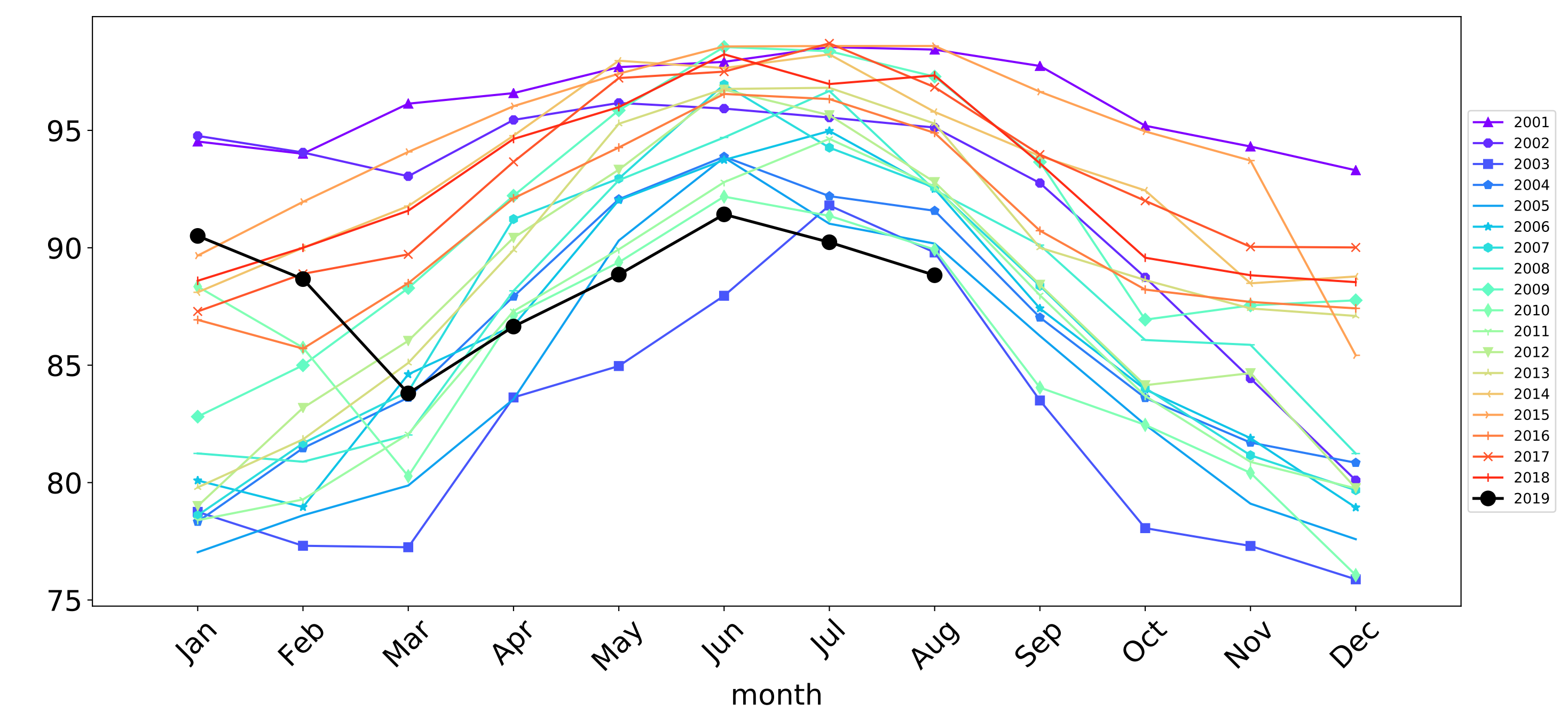## Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

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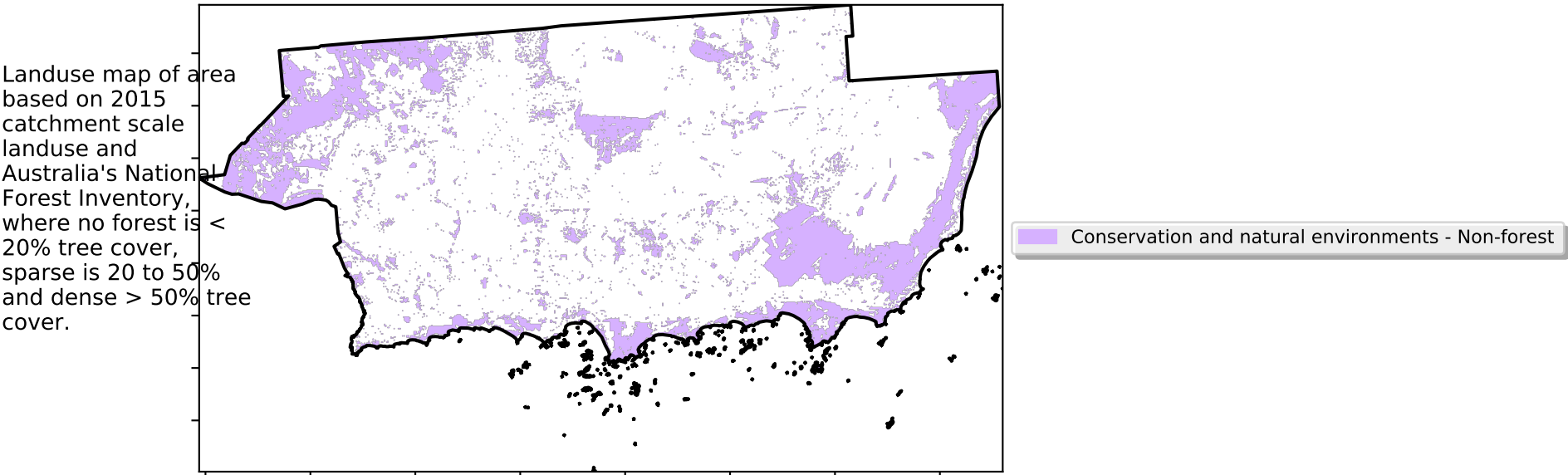
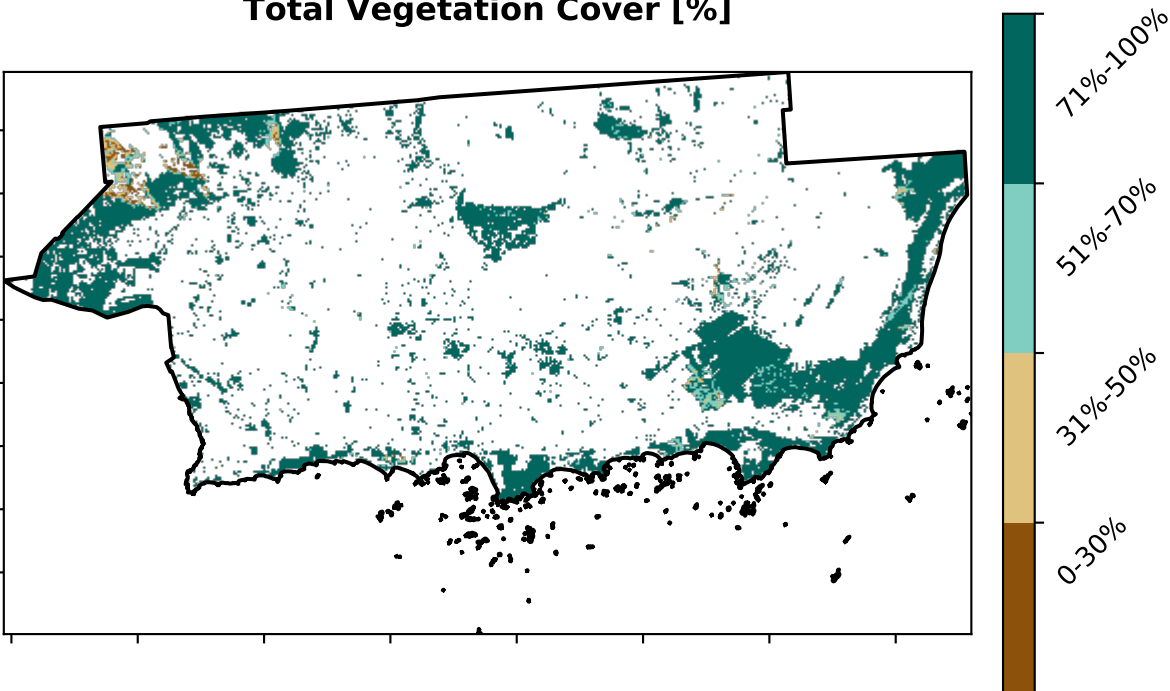## Water erosion historical monthly area protected (Total Veg Cov>70%)

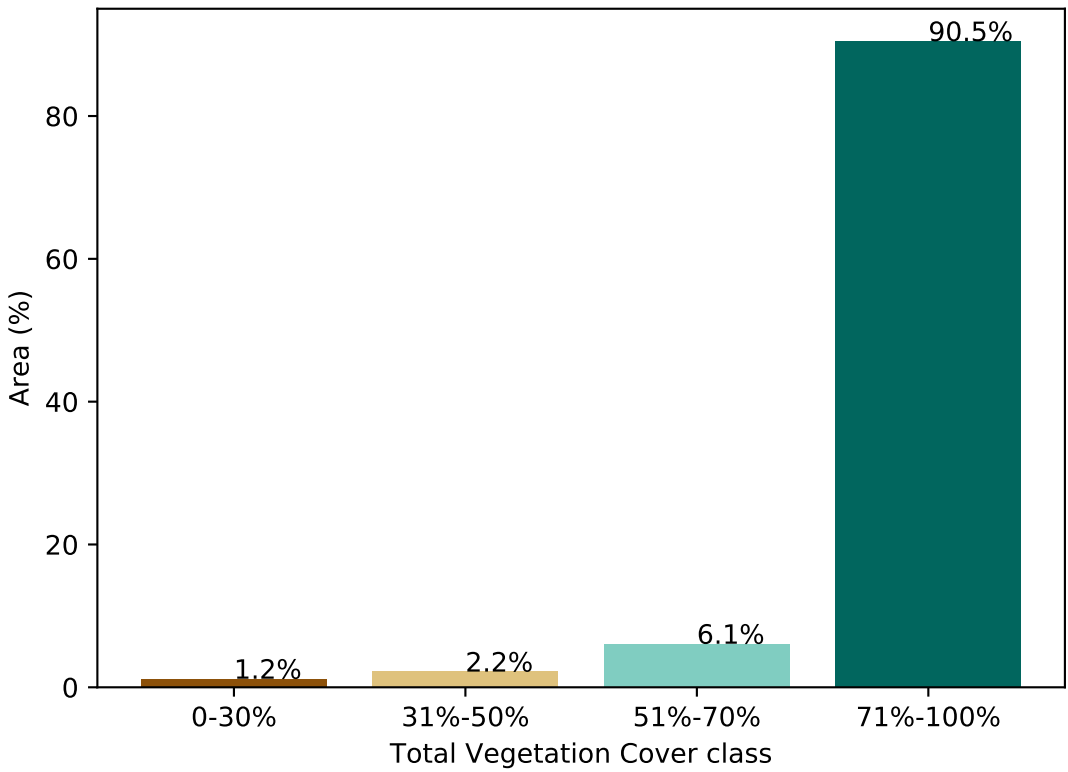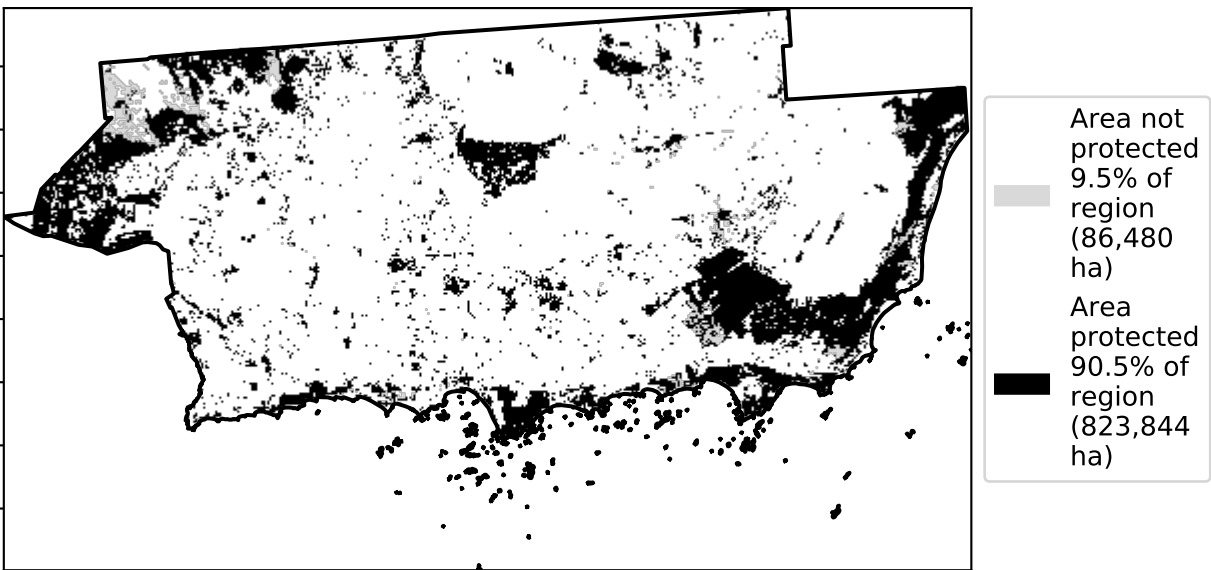# Conservation and natural environments non forest

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 (%)

1.2%   2.2%   6.1%   90.5%

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

Total Vegetation Cover class

% Area protected from water erosion (>70%)

Area not protected 9.5% of region (86,480 ha)

Area protected 90.5% of region (823,844 ha)

% Area protected from wind erosion (>50%)

Area not protected 3.0% of region (27,309 ha)

Area protected 97.0% of region (883,015 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.

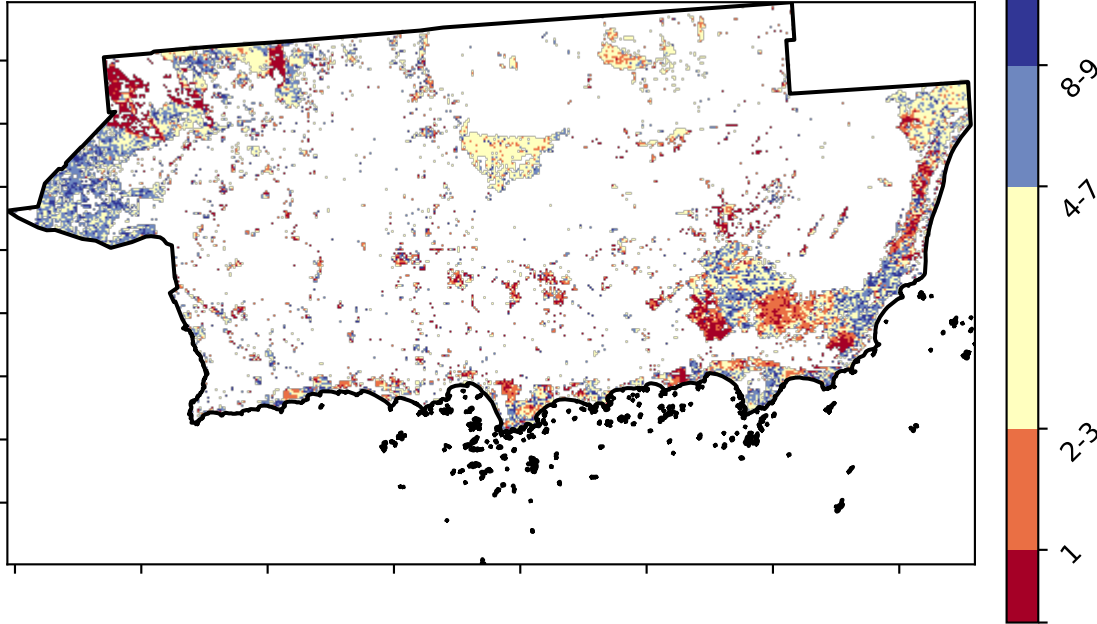## Total Vegetation Cover Decile [%]

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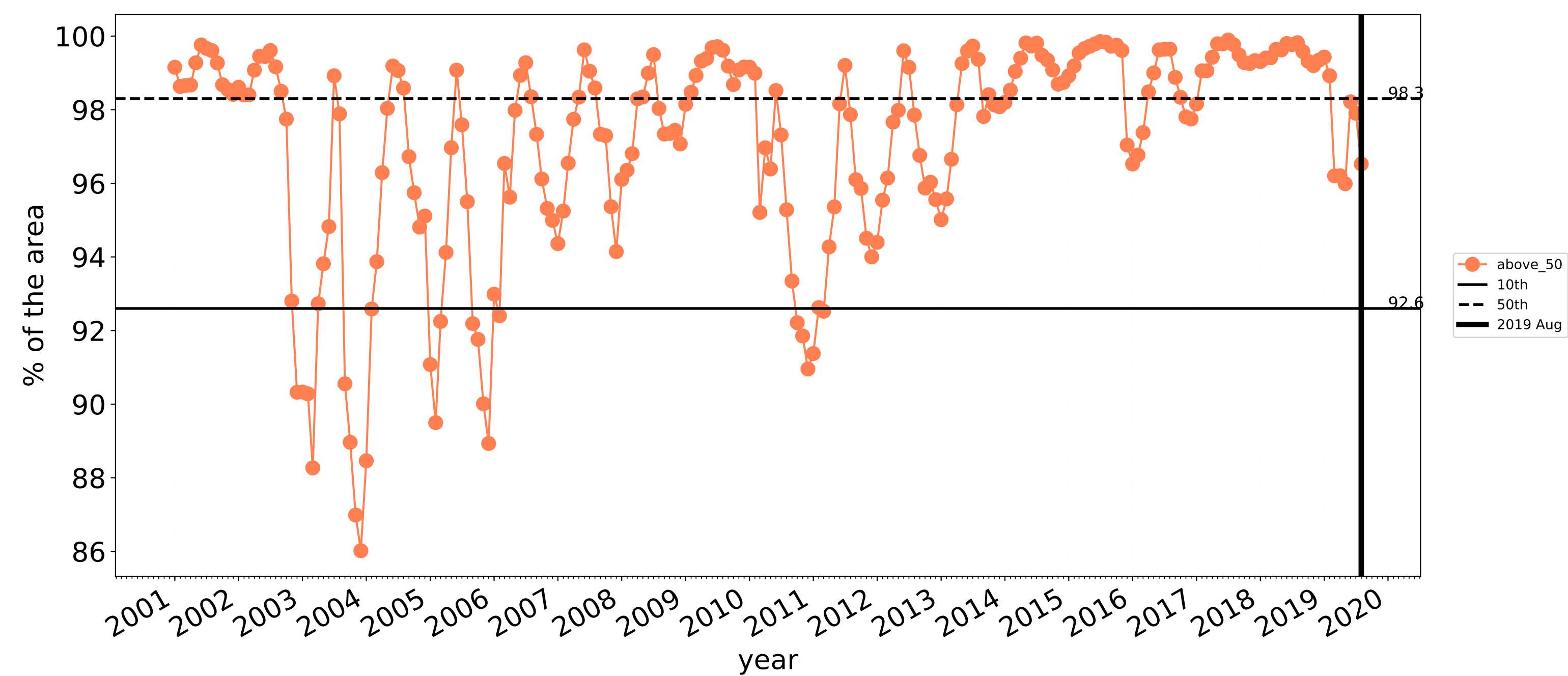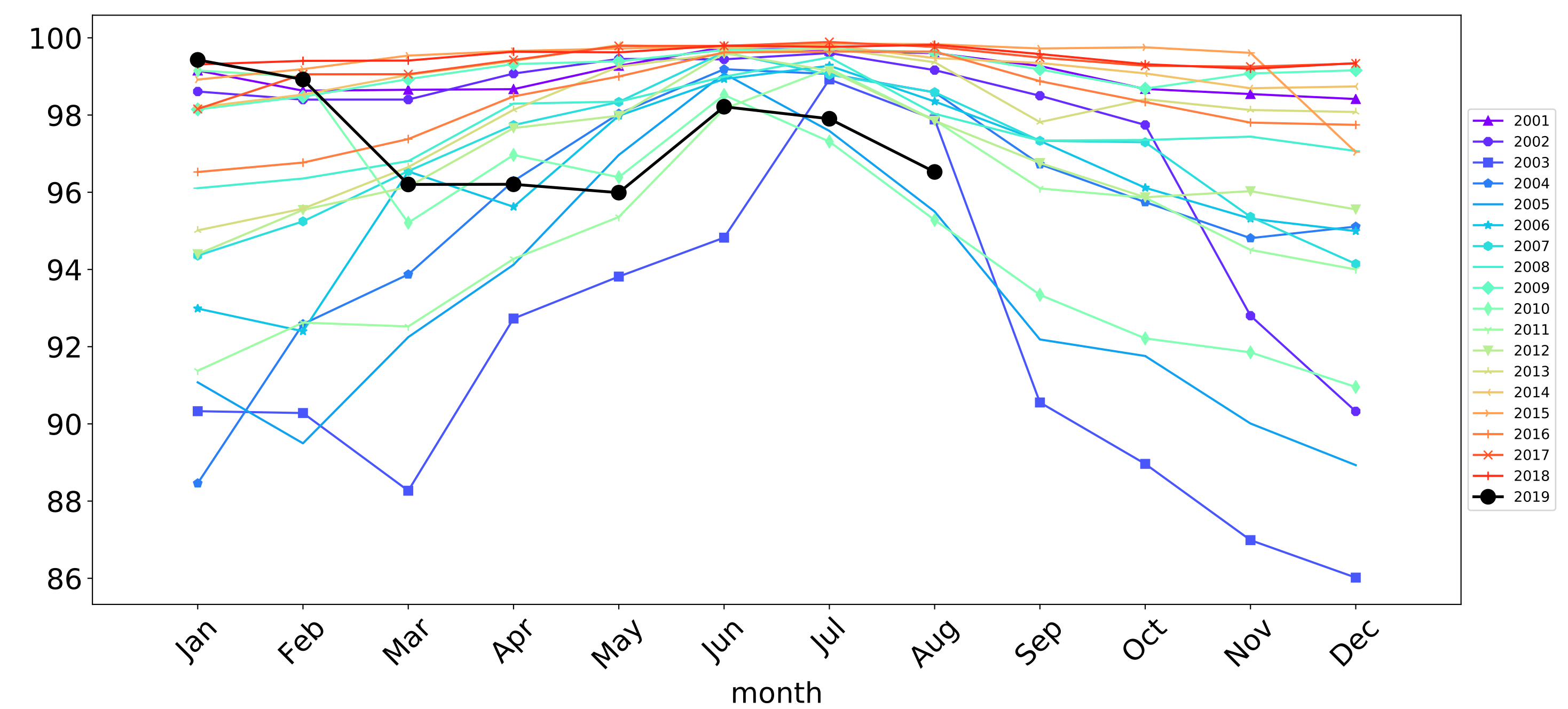
10
8-9
4-7
2-3
1

Conservation and natural environments non forest timeseries
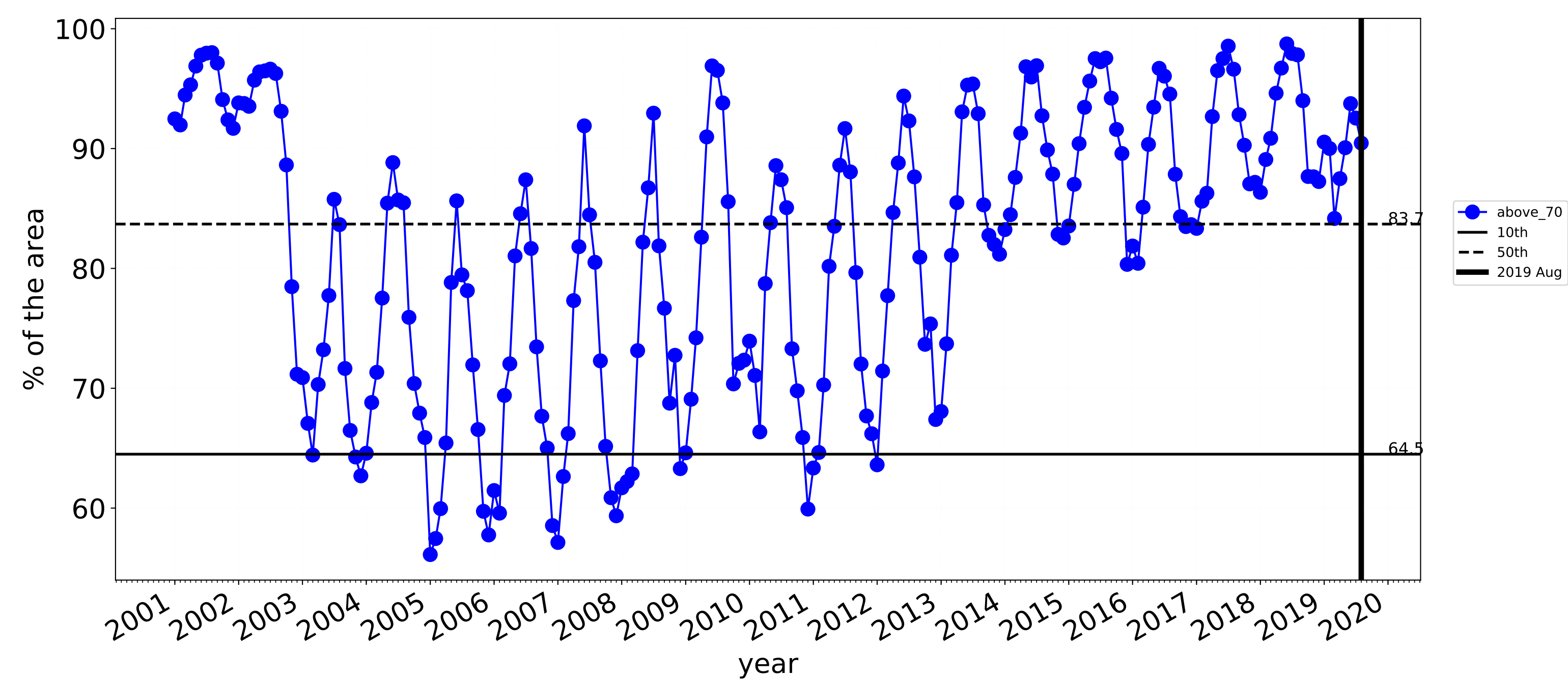

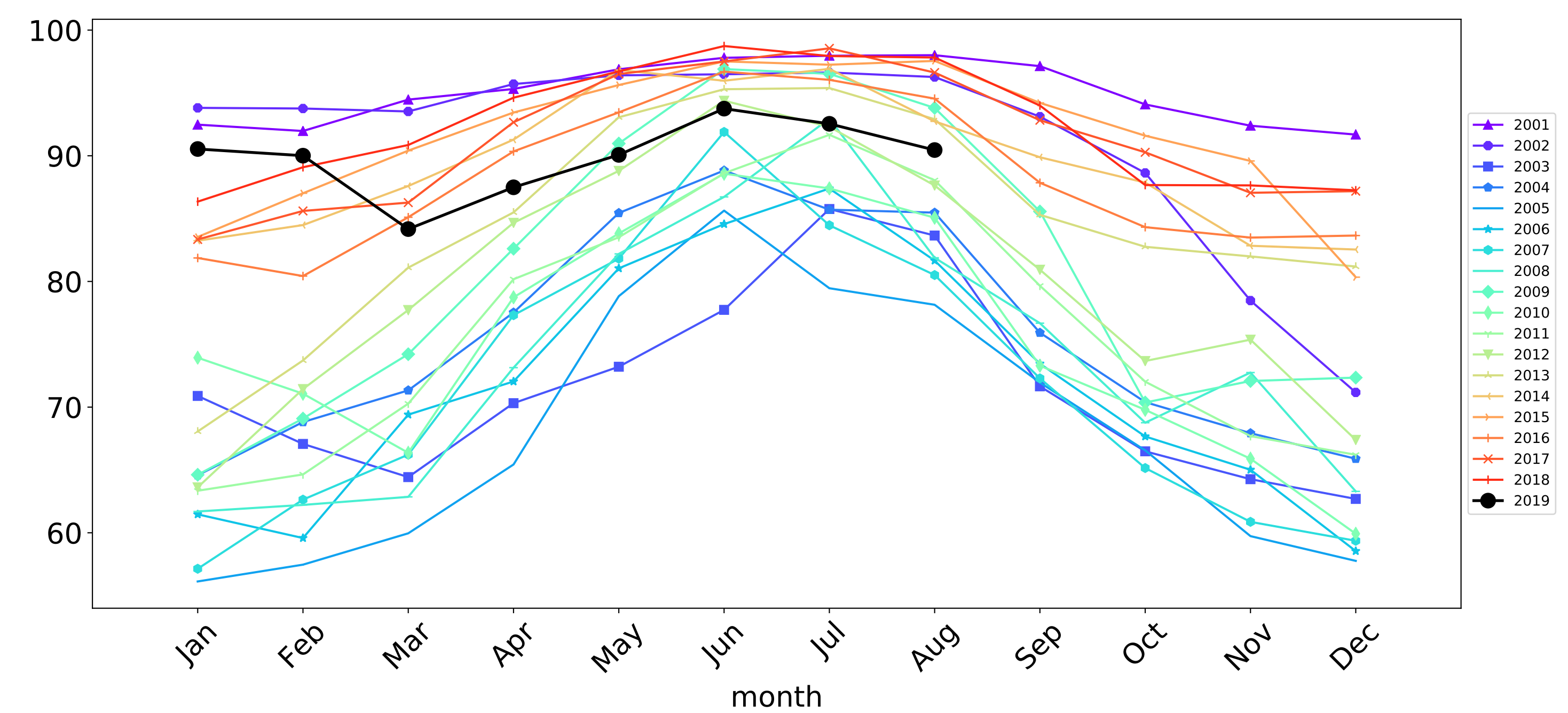Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

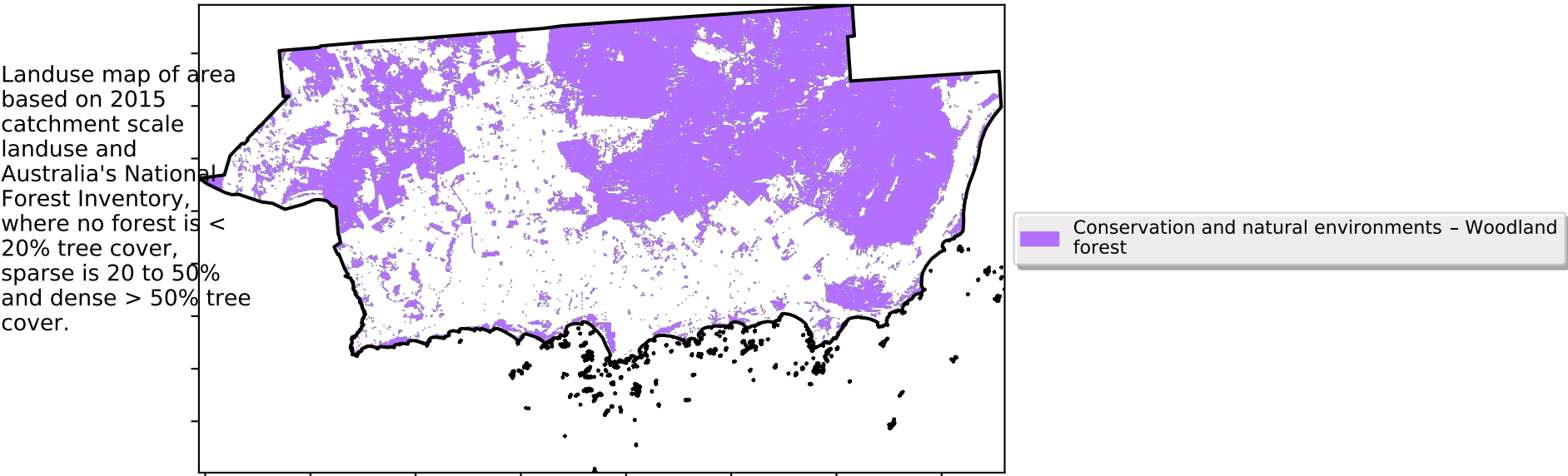Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

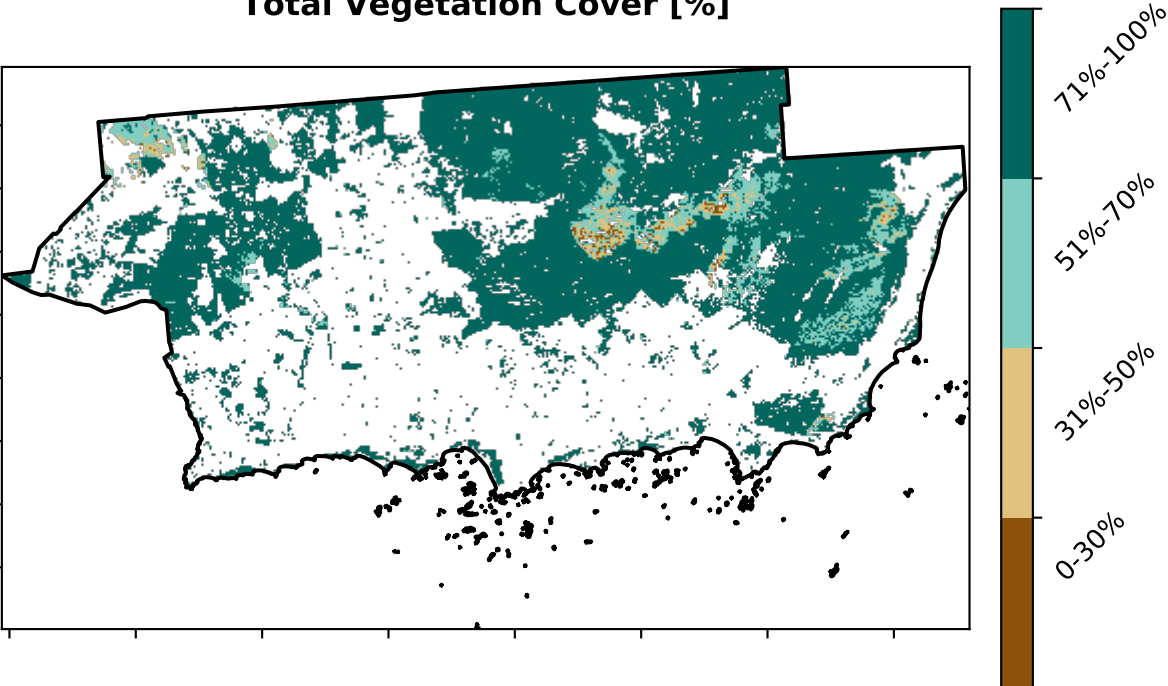Water erosion historical monthly area protected (Total Veg Cov>70%)

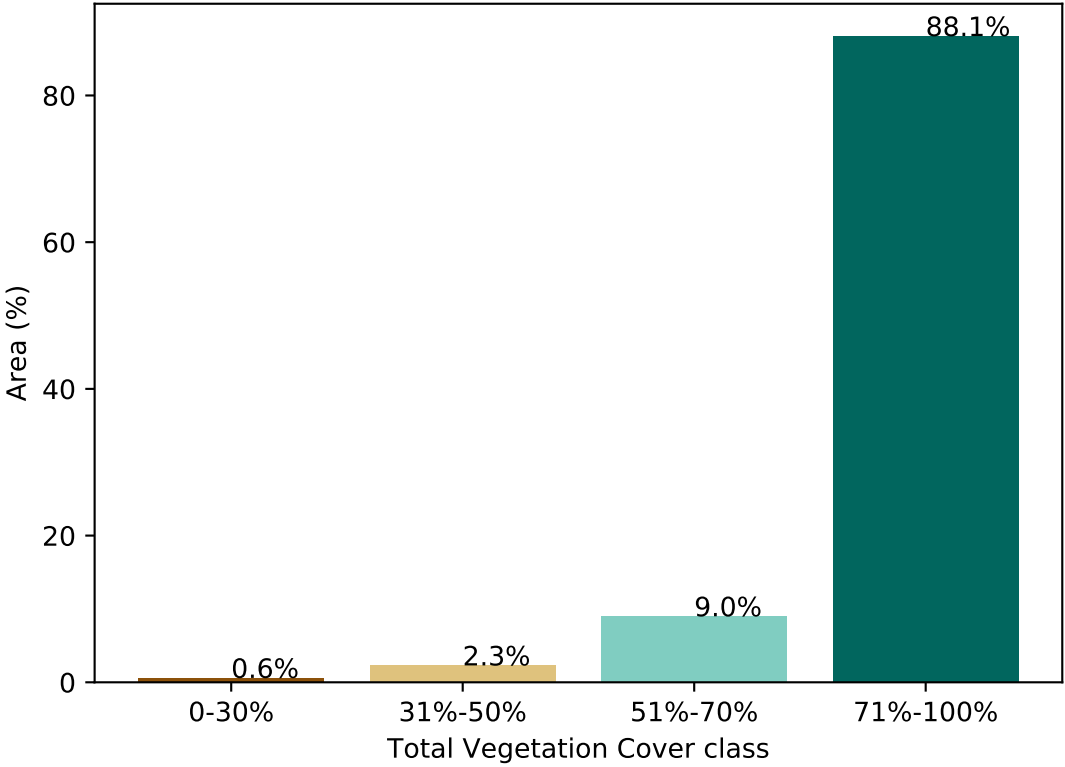# Conservation and natural environments Woodland forest
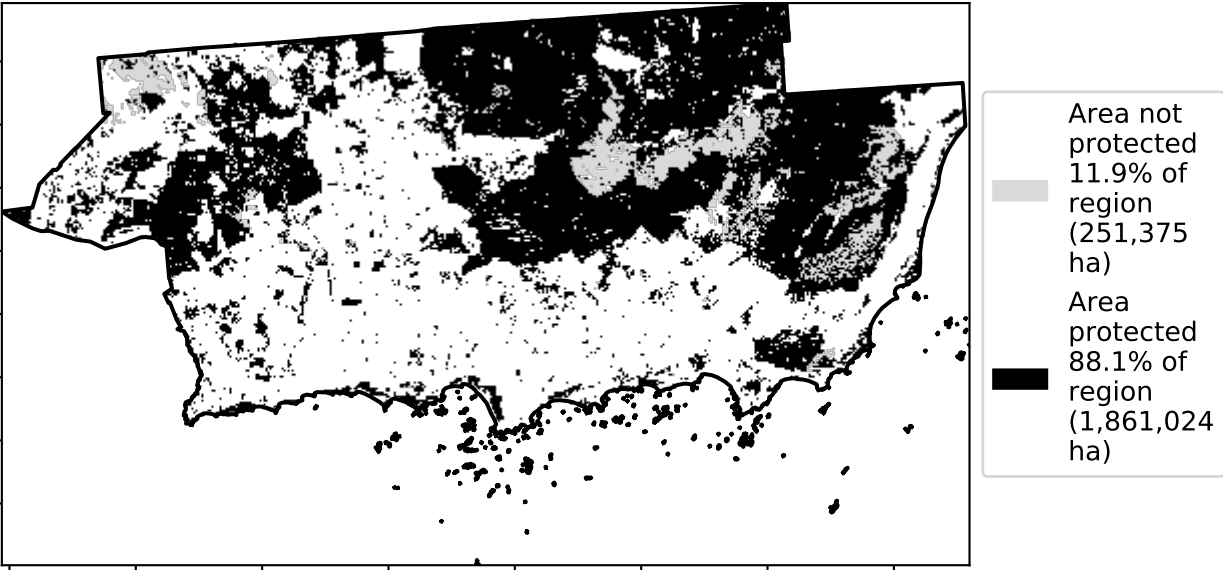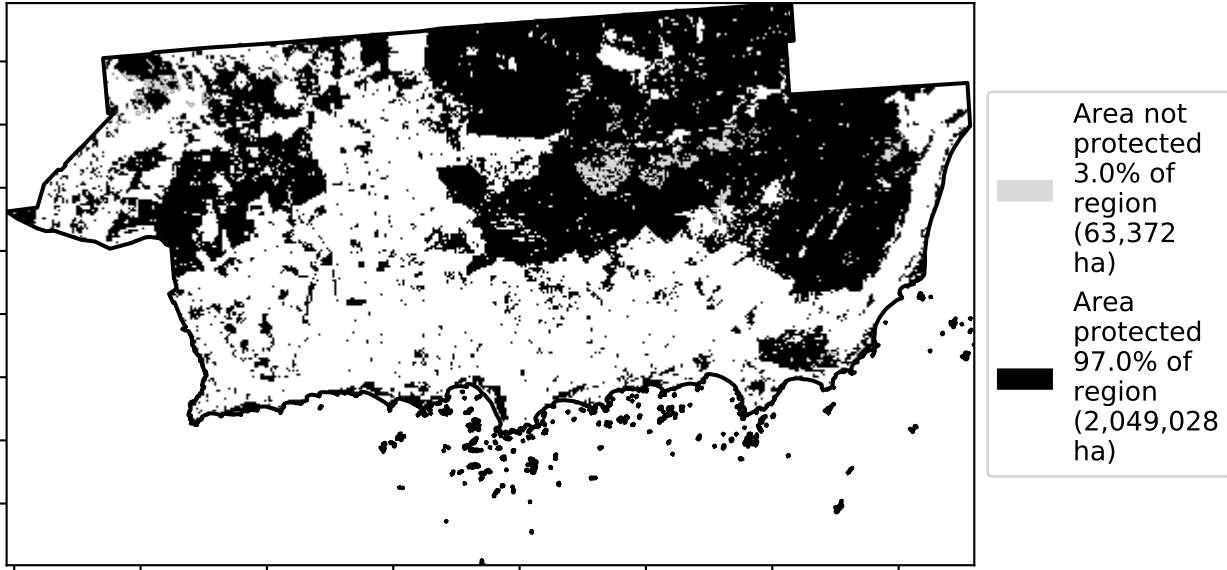
Land use and forest cover

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

0.6%   2.3%   9.0%   88.1%

Area (%)

Total Vegetation Cover class

% Area protected from water erosion (>70%)

Area not protected 11.9% of region (251,375 ha)

Area protected 88.1% of region (1,861,024 ha)

% Area protected from wind erosion (>50%)

Area not protected 3.0% of region (63,372 ha)

Area protected 97.0% of region (2,049,028 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.

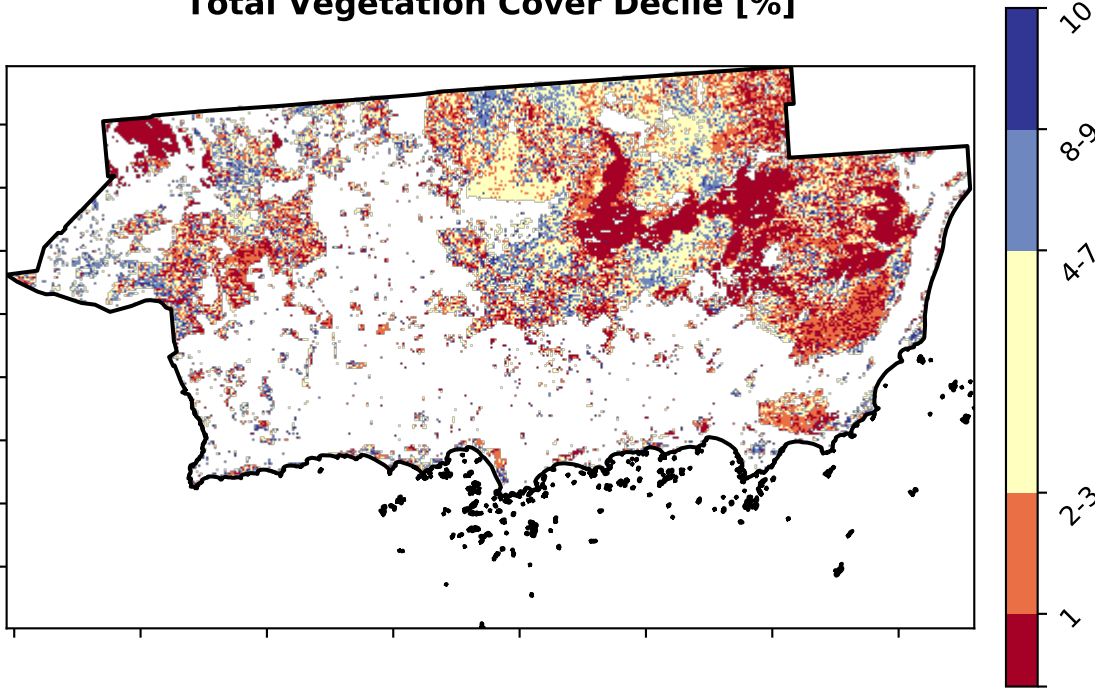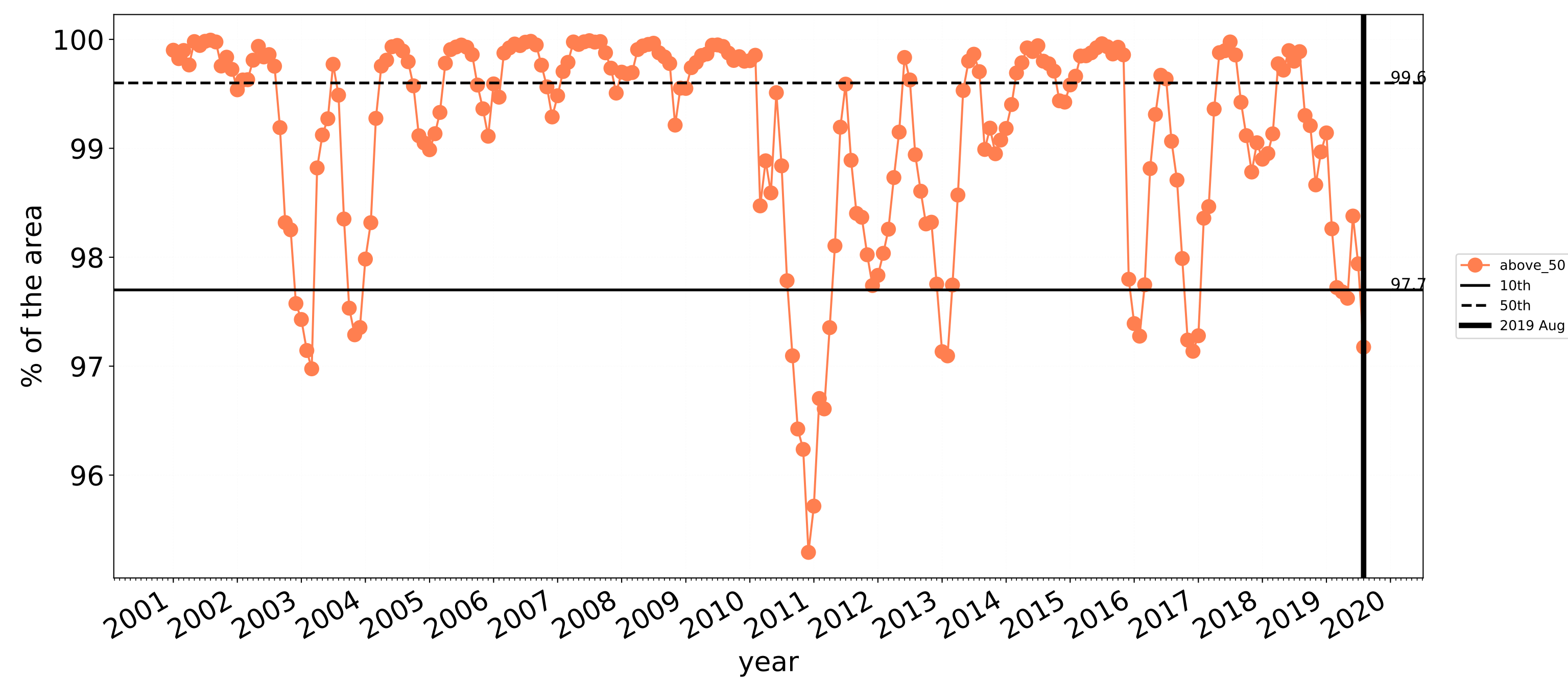## Total Vegetation Cover Decile [%]

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.
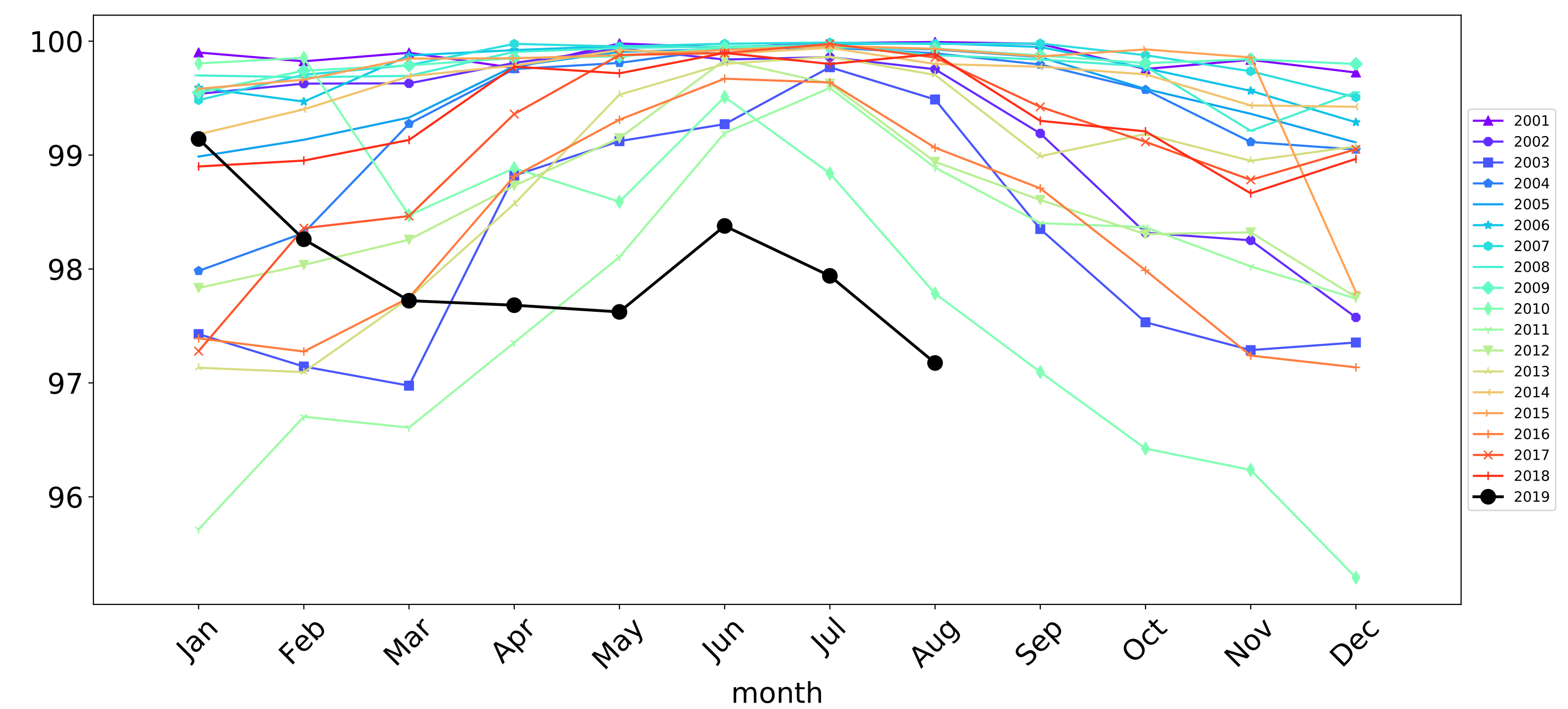

10
8-9
4-7
2-3
1

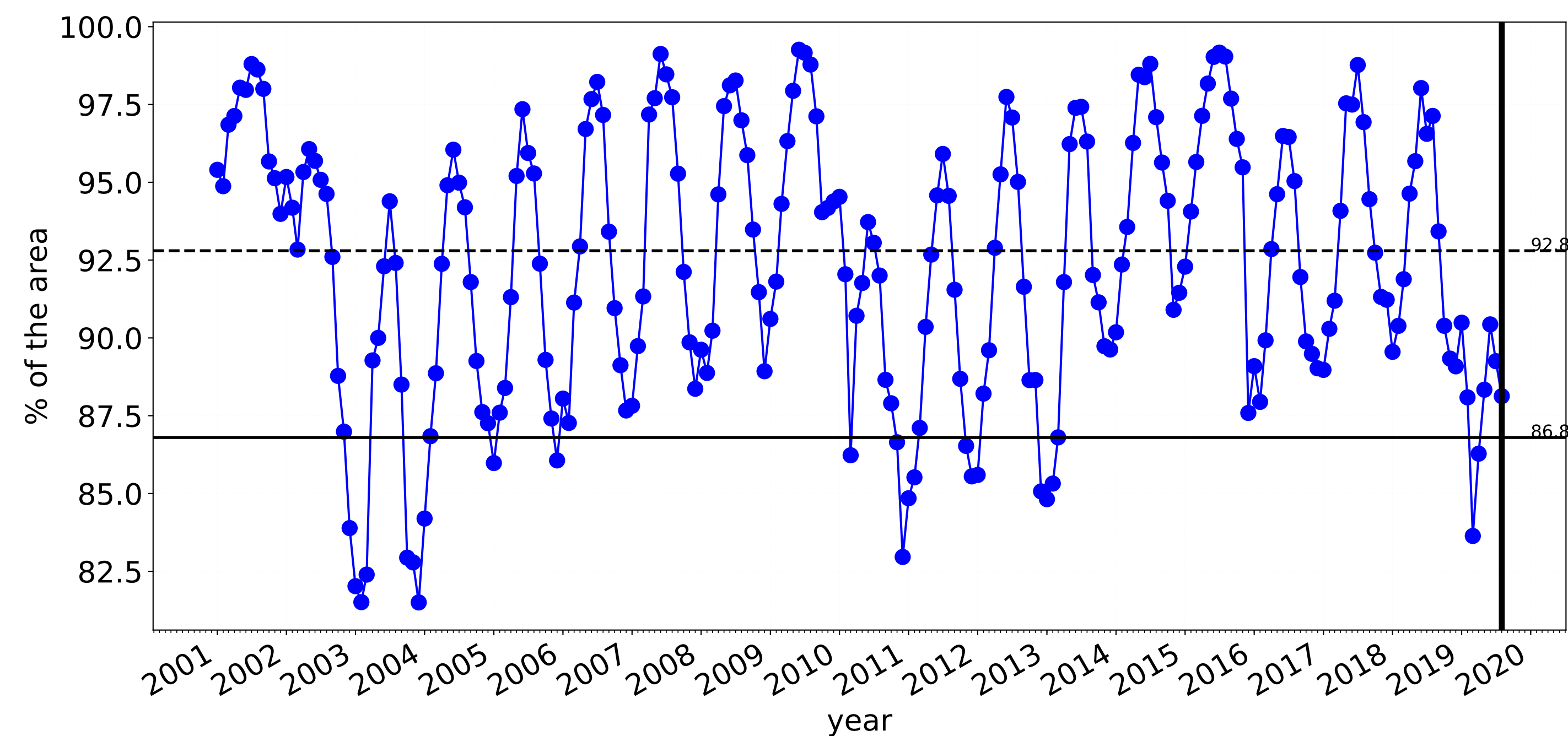# Conservation and natural environments Woodland forest timeseries

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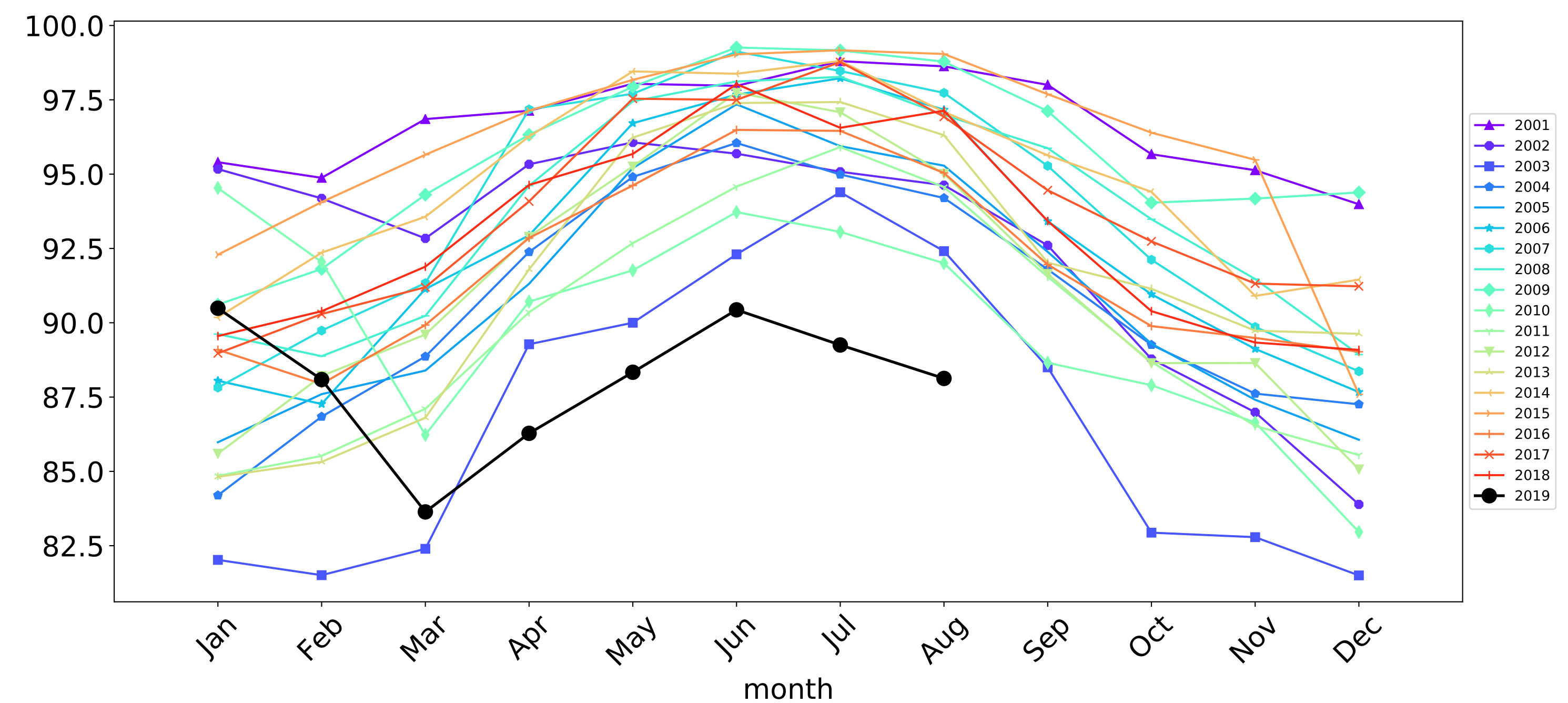

Wind erosion historical monthly area protected (Total Veg Cov >50%)

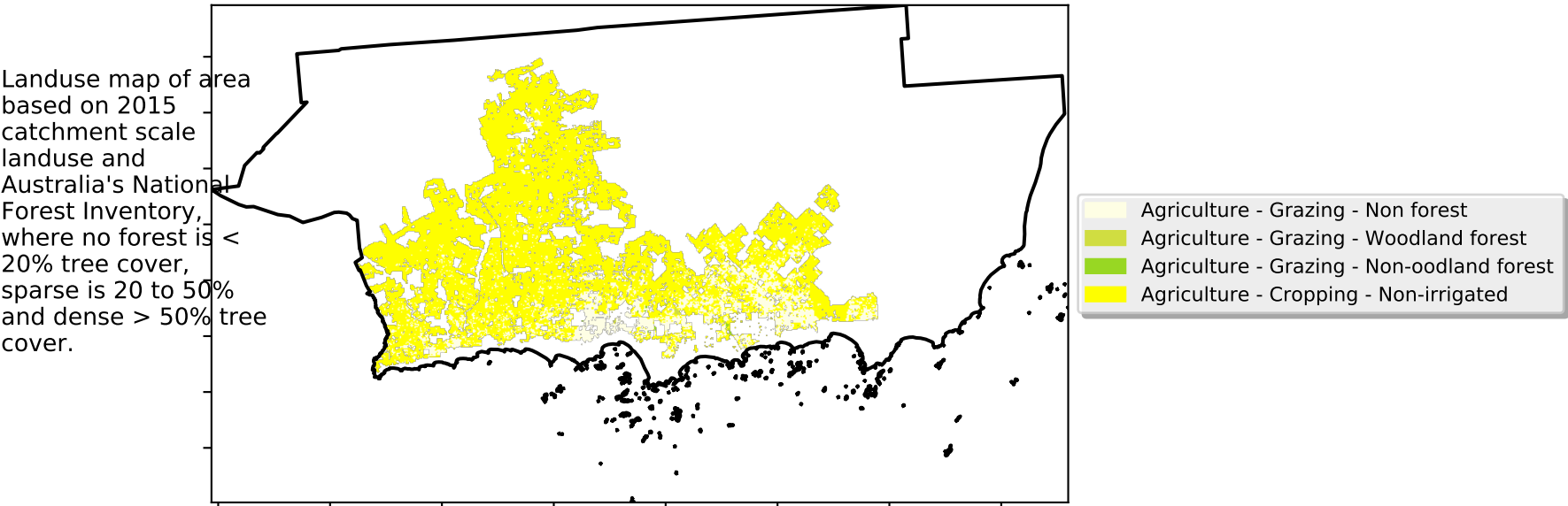### Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

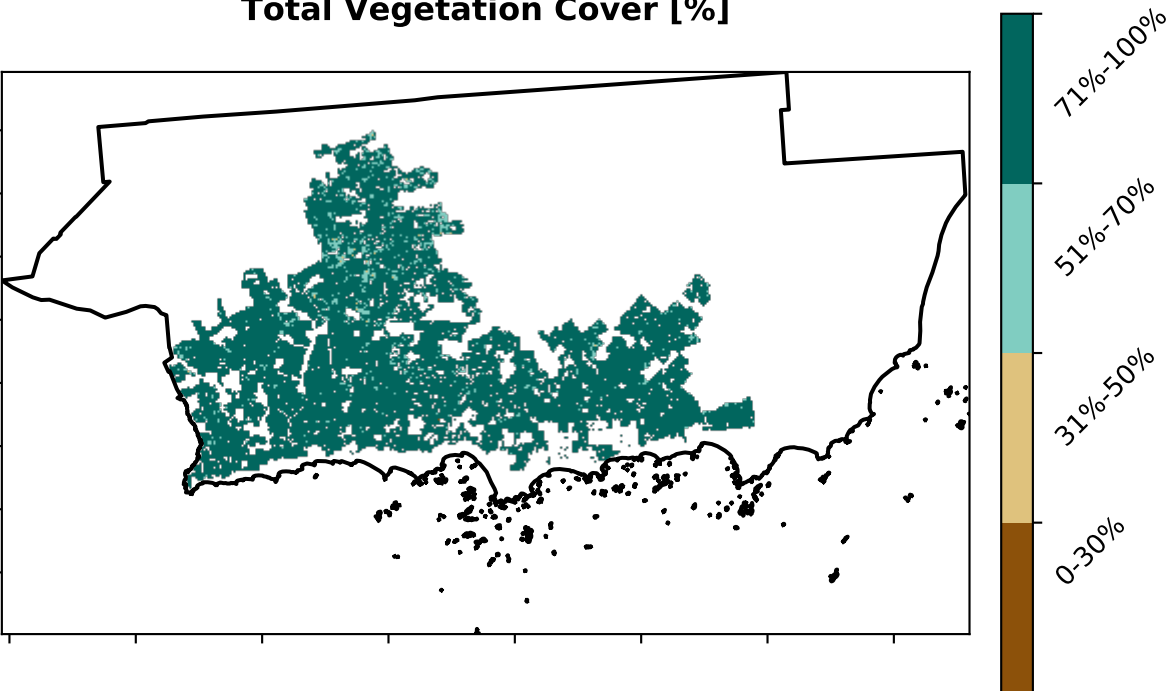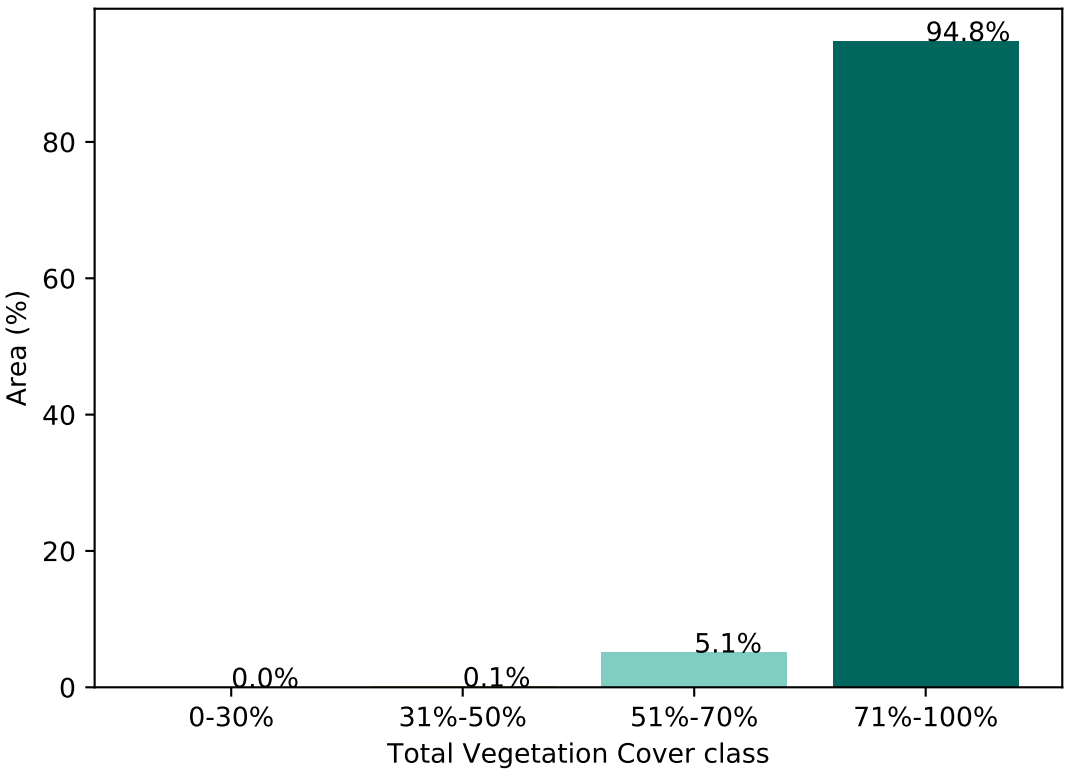### Water erosion historical monthly area protected (Total Veg Cov>70%)

Agriculture
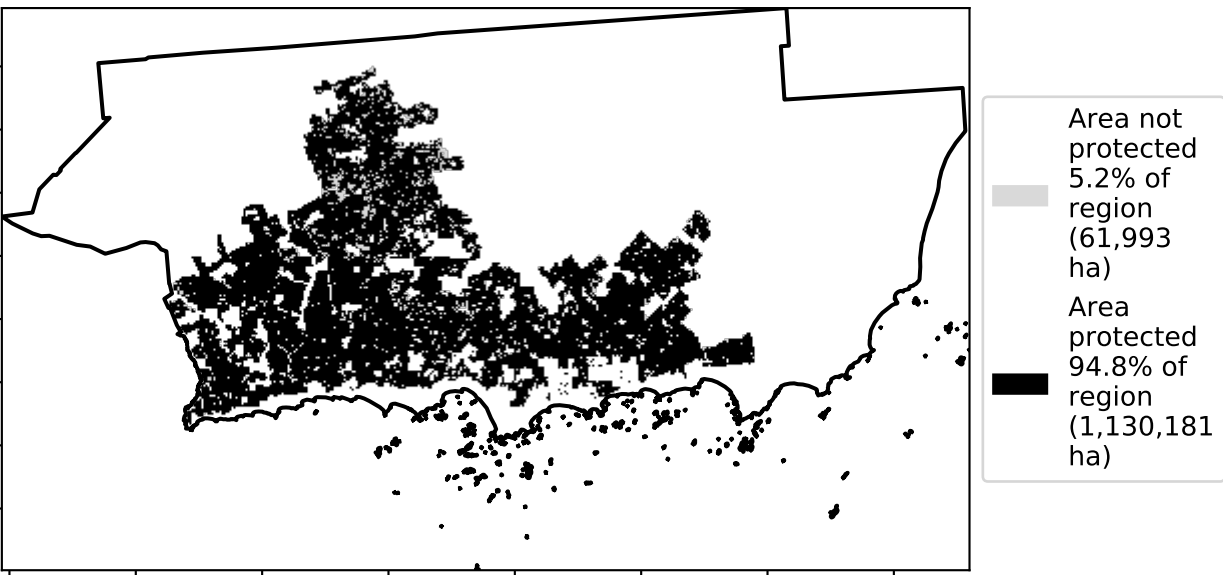
Land use and forest cover

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

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

94.8%

5.1%

0.0%   0.1%

Area (%)

Total Vegetation Cover class

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

% Area protected from water erosion (>70%)

Area not protected 5.2% of region (61,993 ha)

Area protected 94.8% of region (1,130,181 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (1,192,175 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.
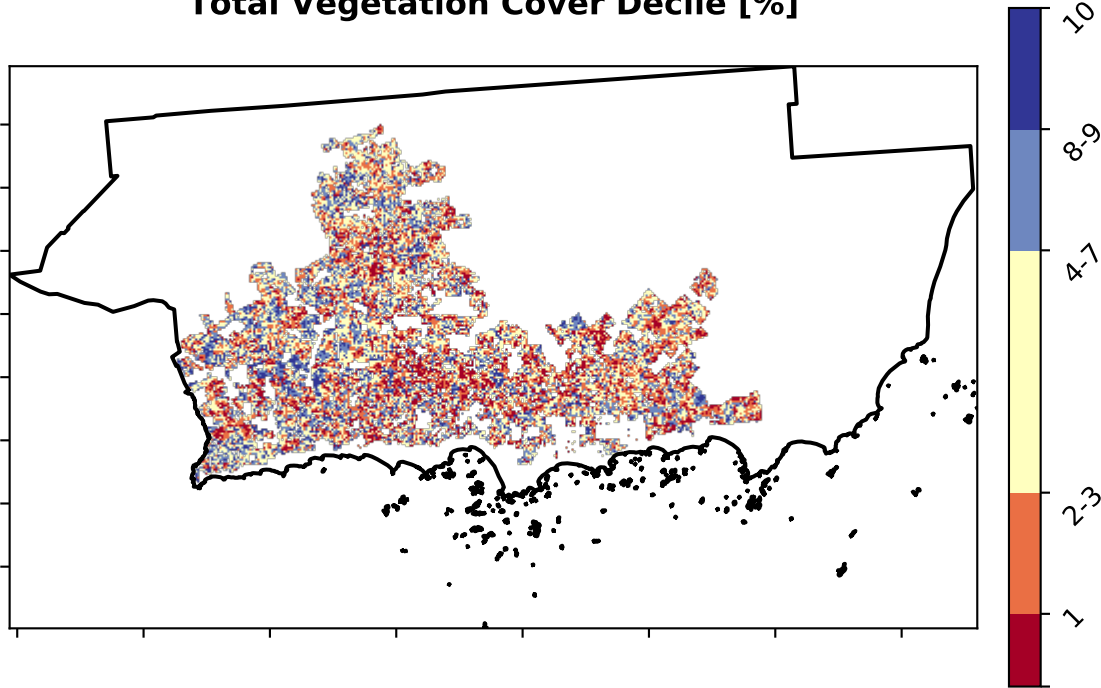
Total Vegetation Cover Decile [%]

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
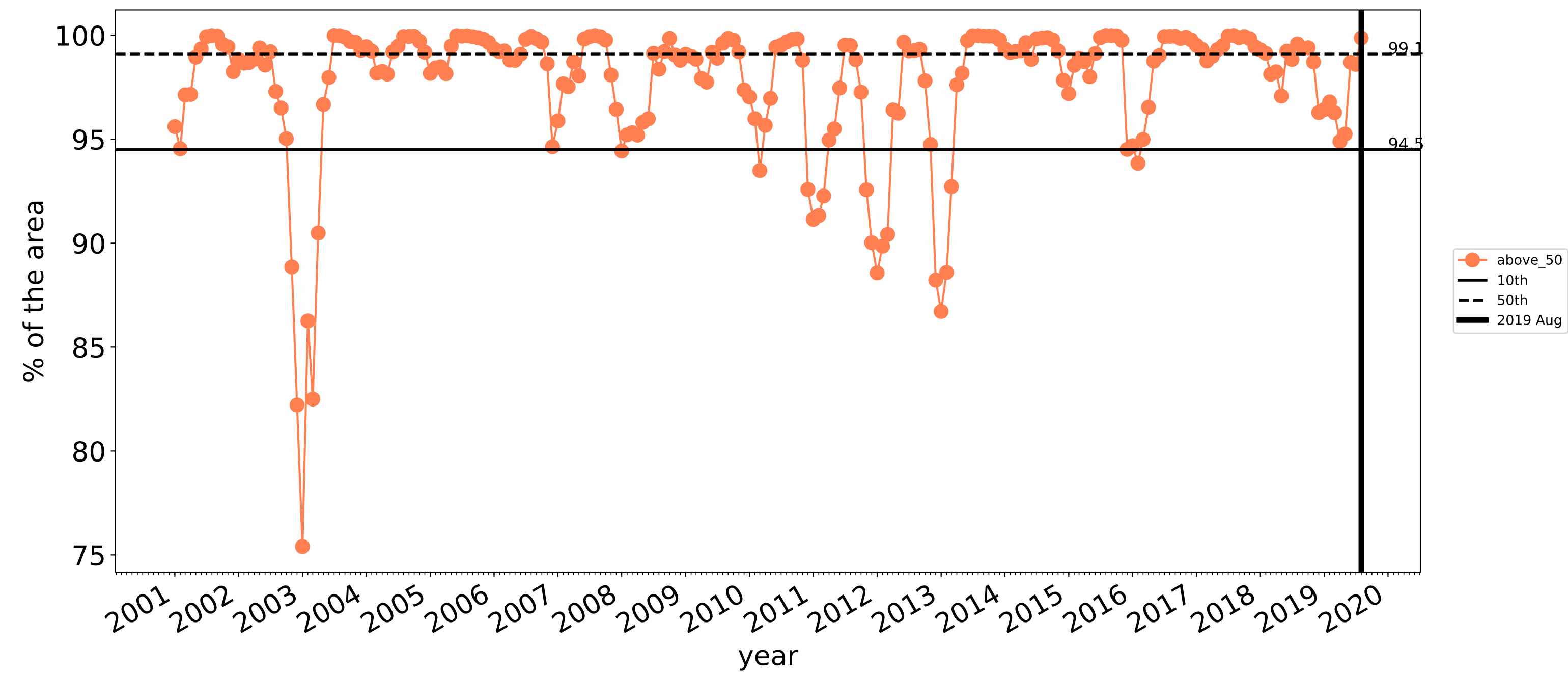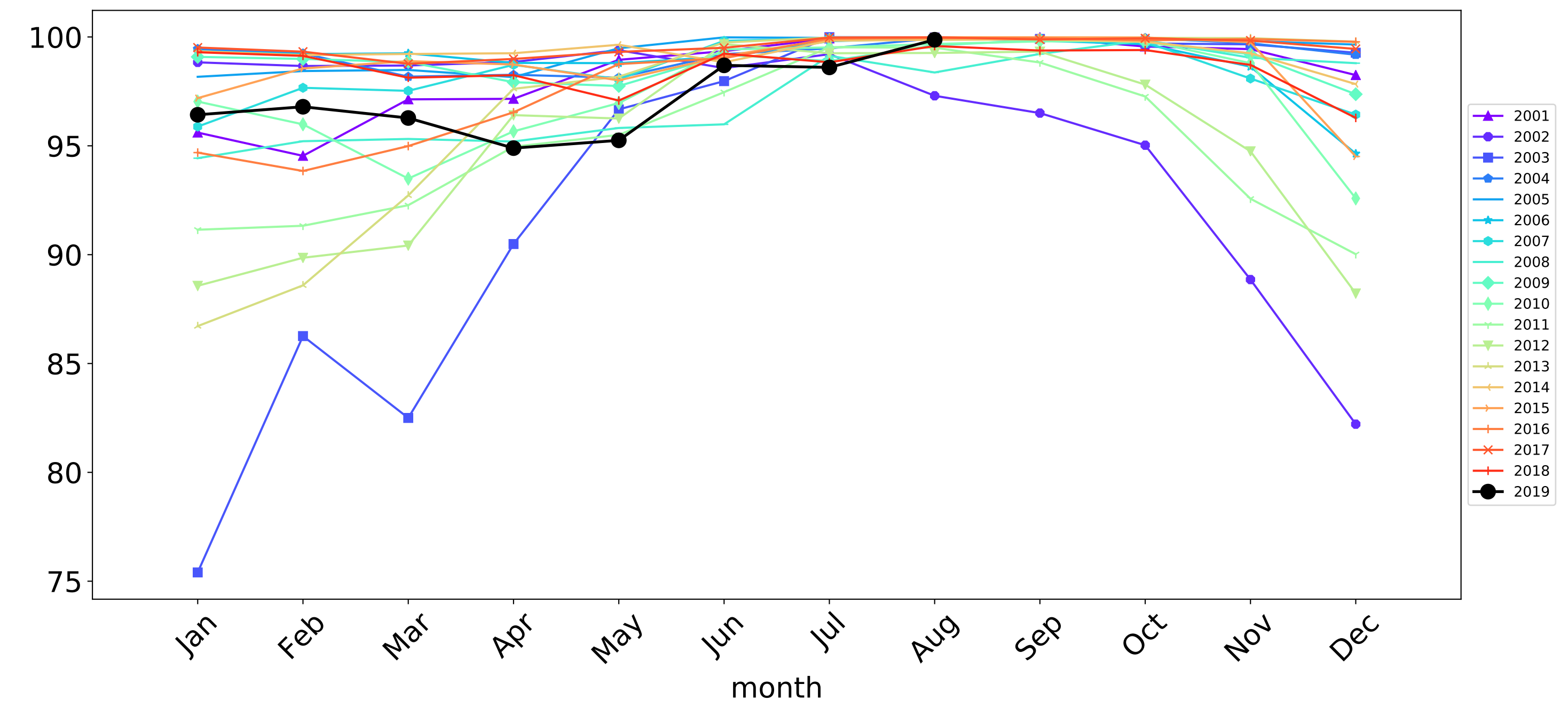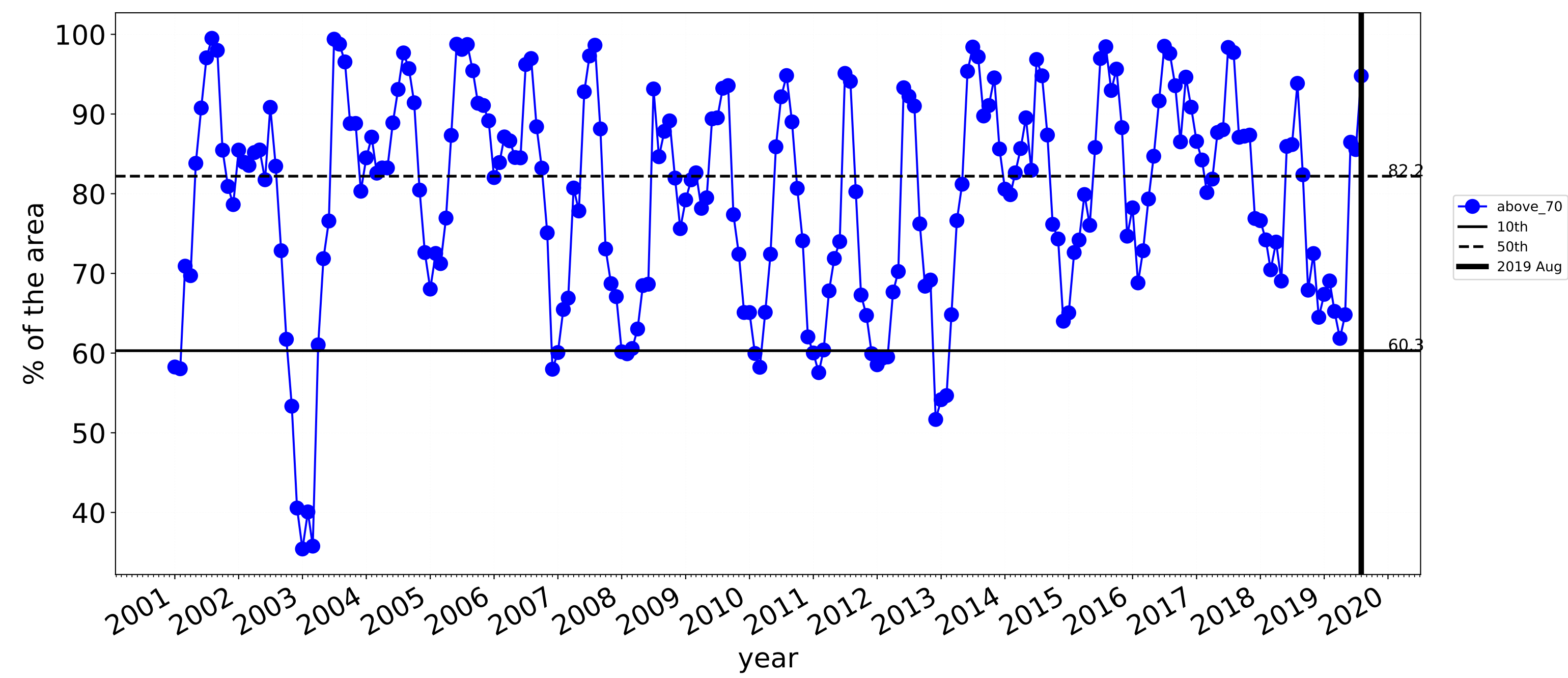1
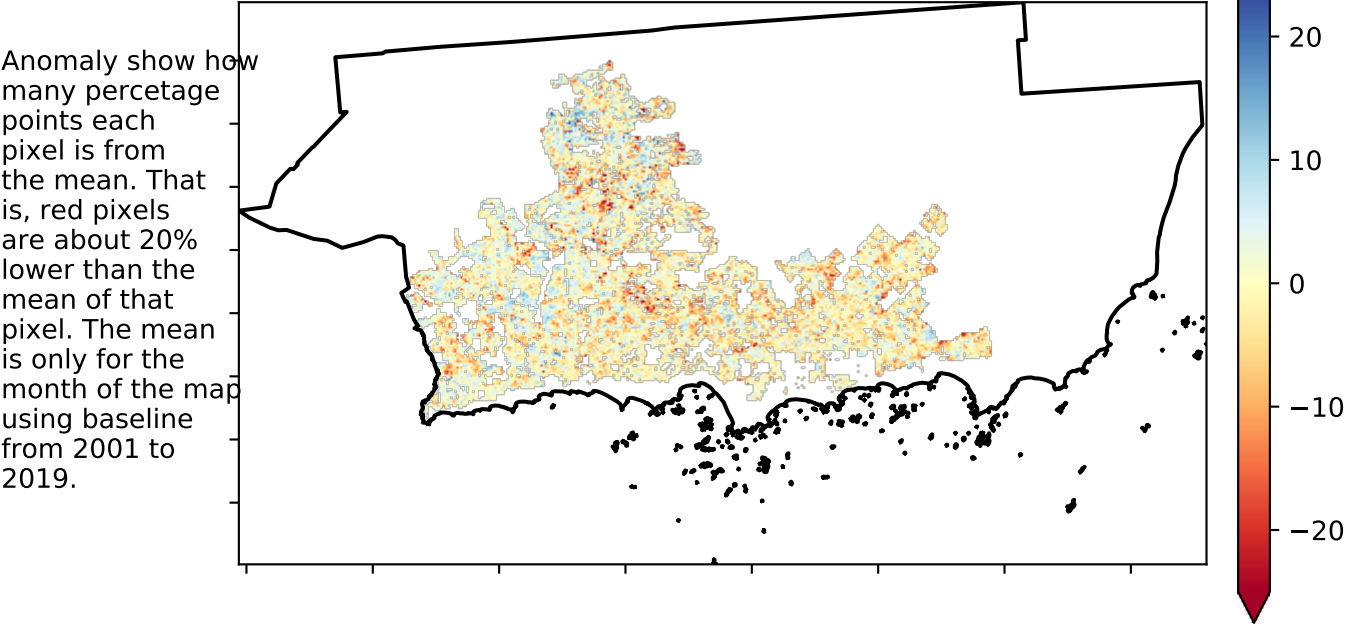
Agriculture timeseries

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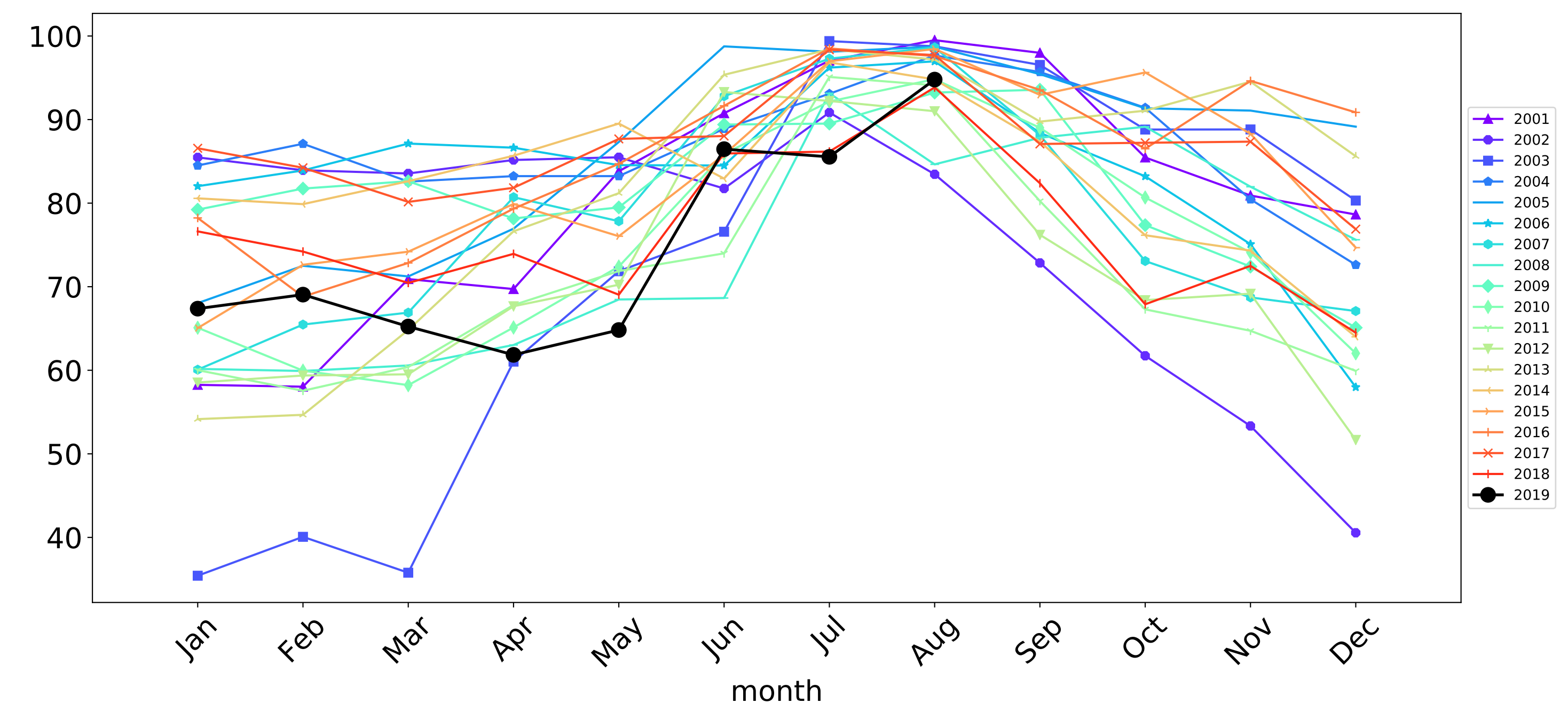

Wind erosion historical monthly area protected (Total Veg Cov >50%)

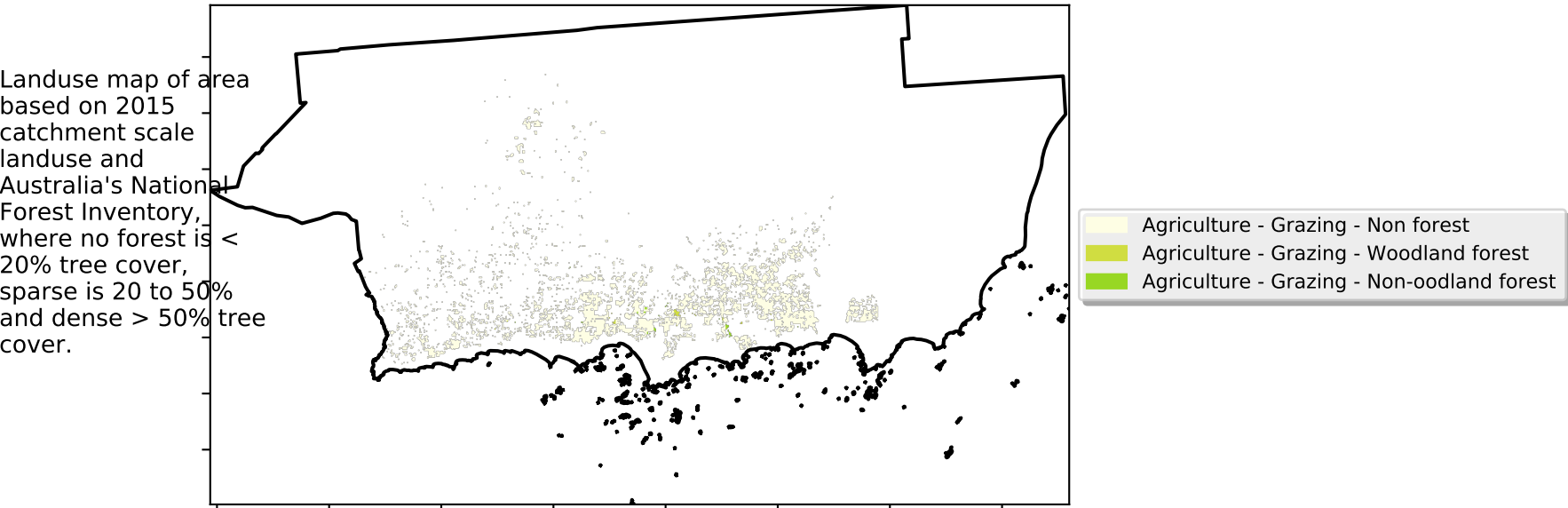### Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

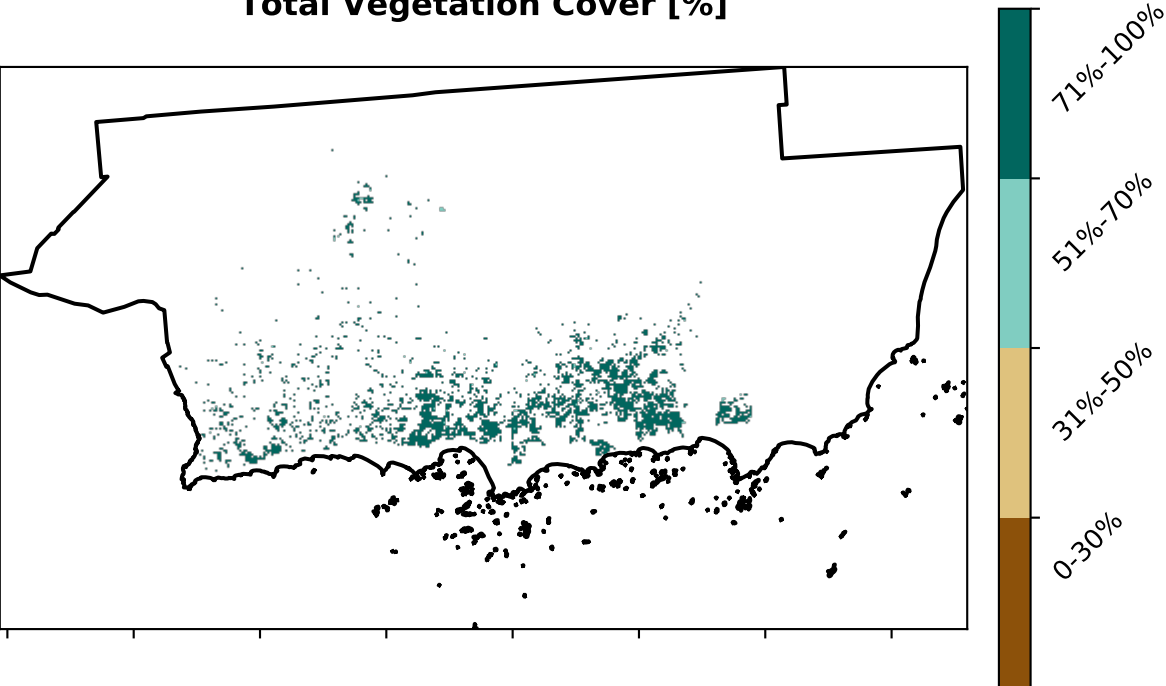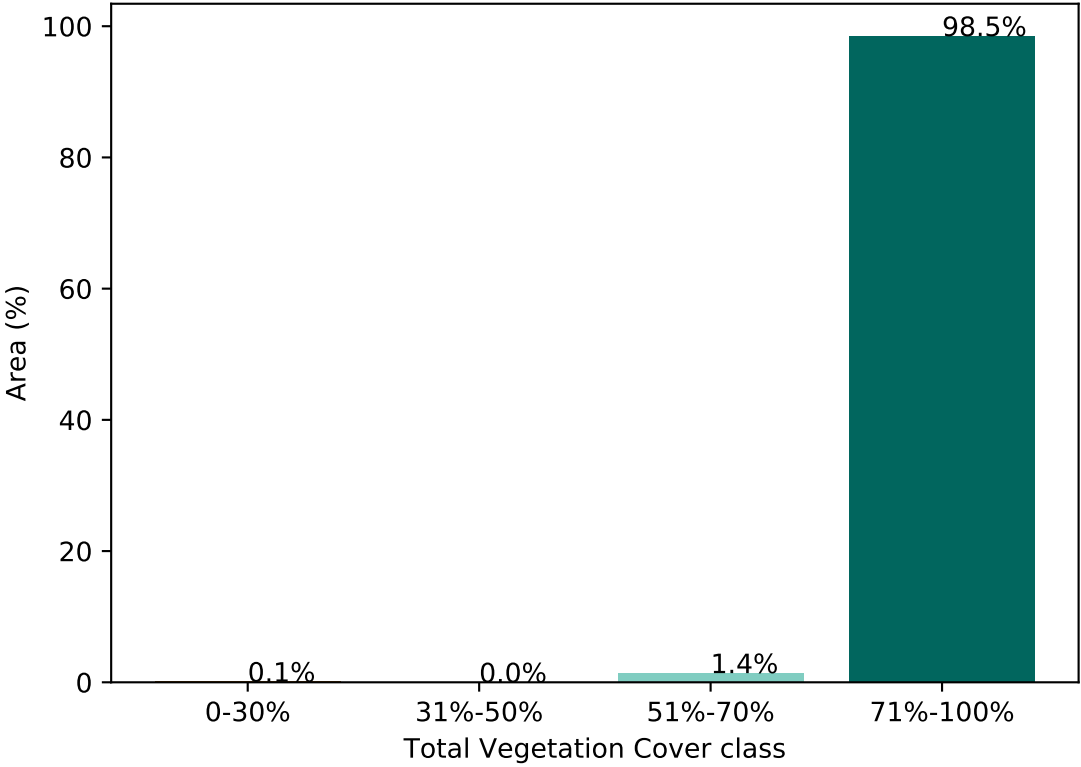### Water erosion historical monthly area protected (Total Veg Cov>70%)
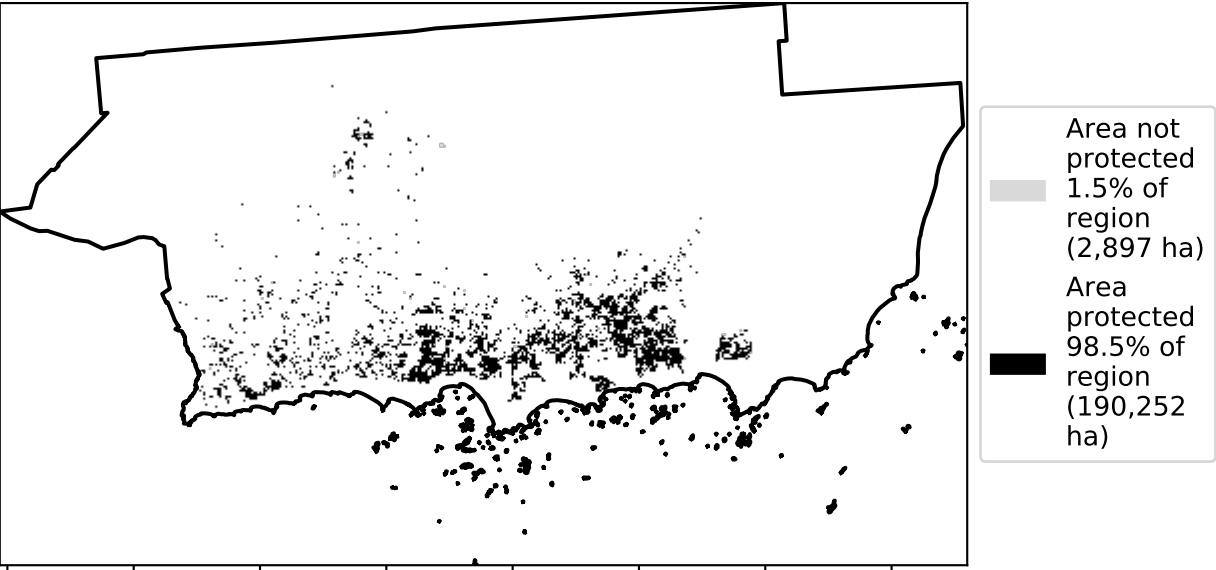
Grazing

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

0.1%   0.0%   1.4%   98.5%

Area (%)

Total Vegetation Cover class

% Area protected from water erosion (>70%)

Area not protected
1.5% of region
(2,897 ha)

Area protected
98.5% of region
(190,252 ha)

% Area protected from wind erosion (>50%)

Area protected
100.0% of region
(193,150 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.

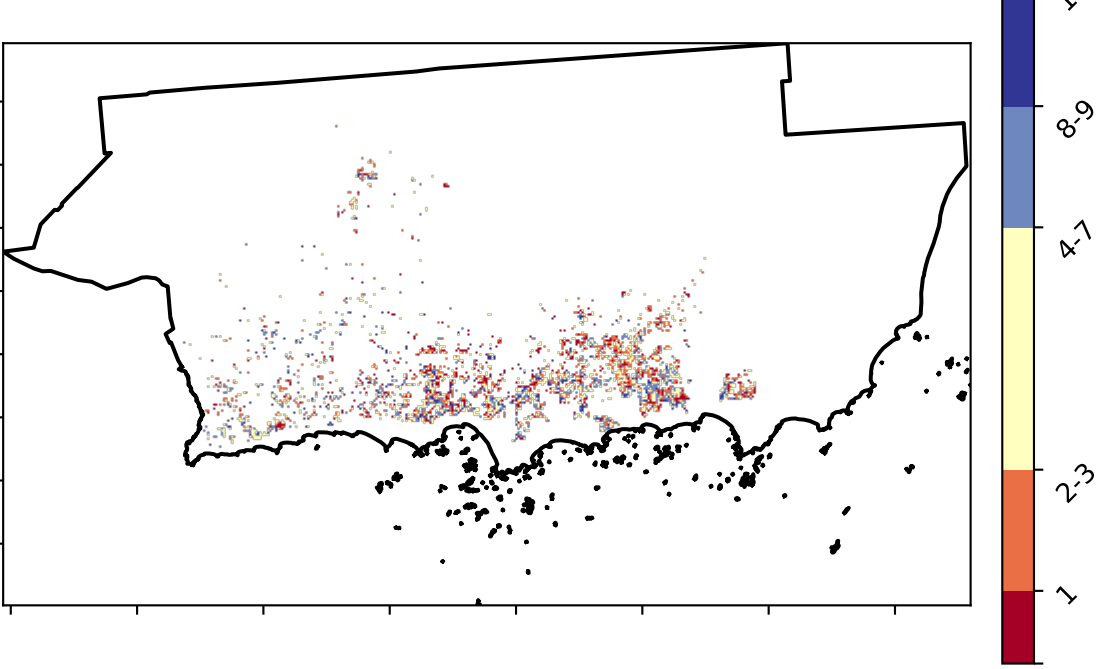## Total Vegetation Cover Decile [%]

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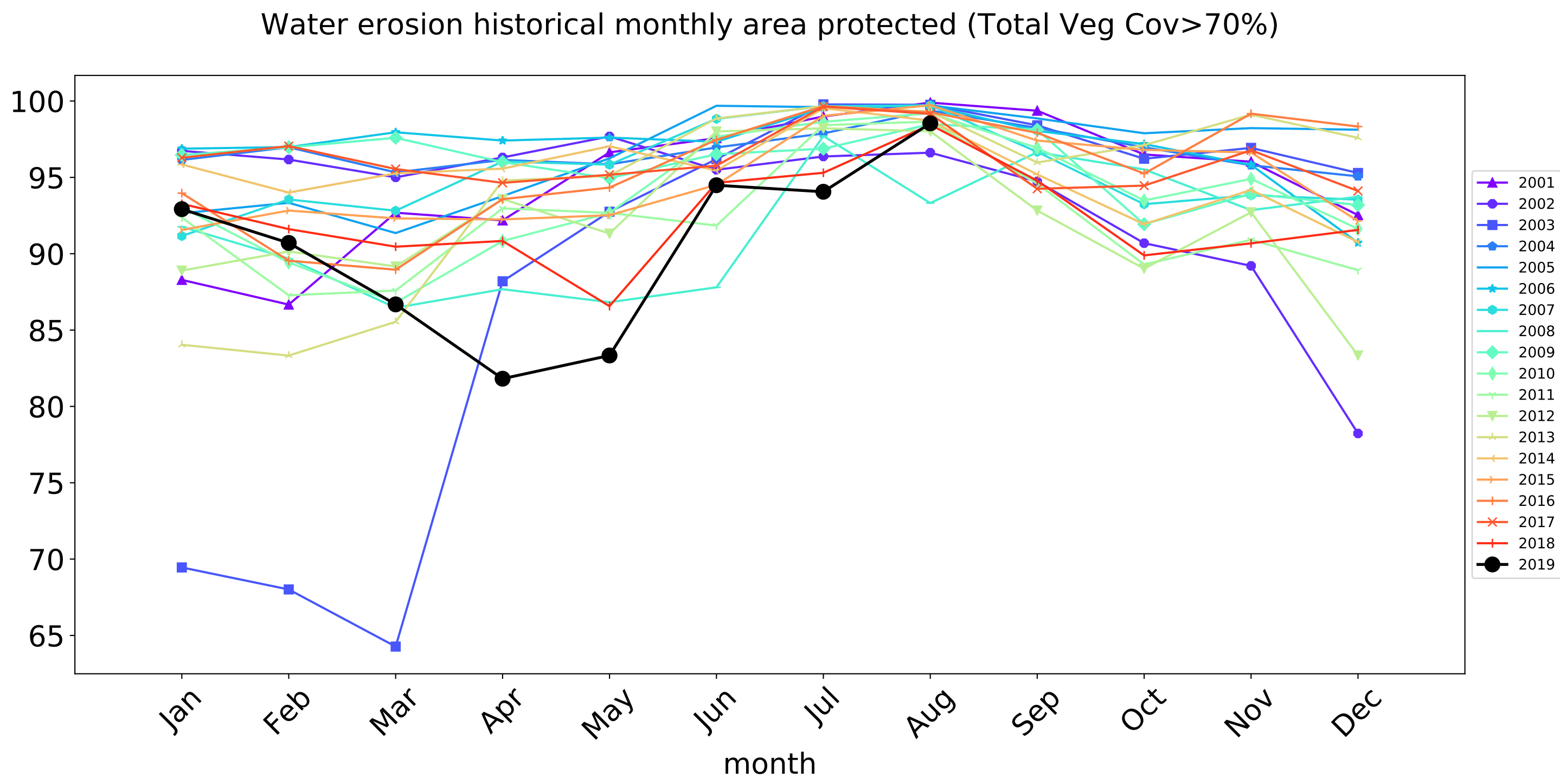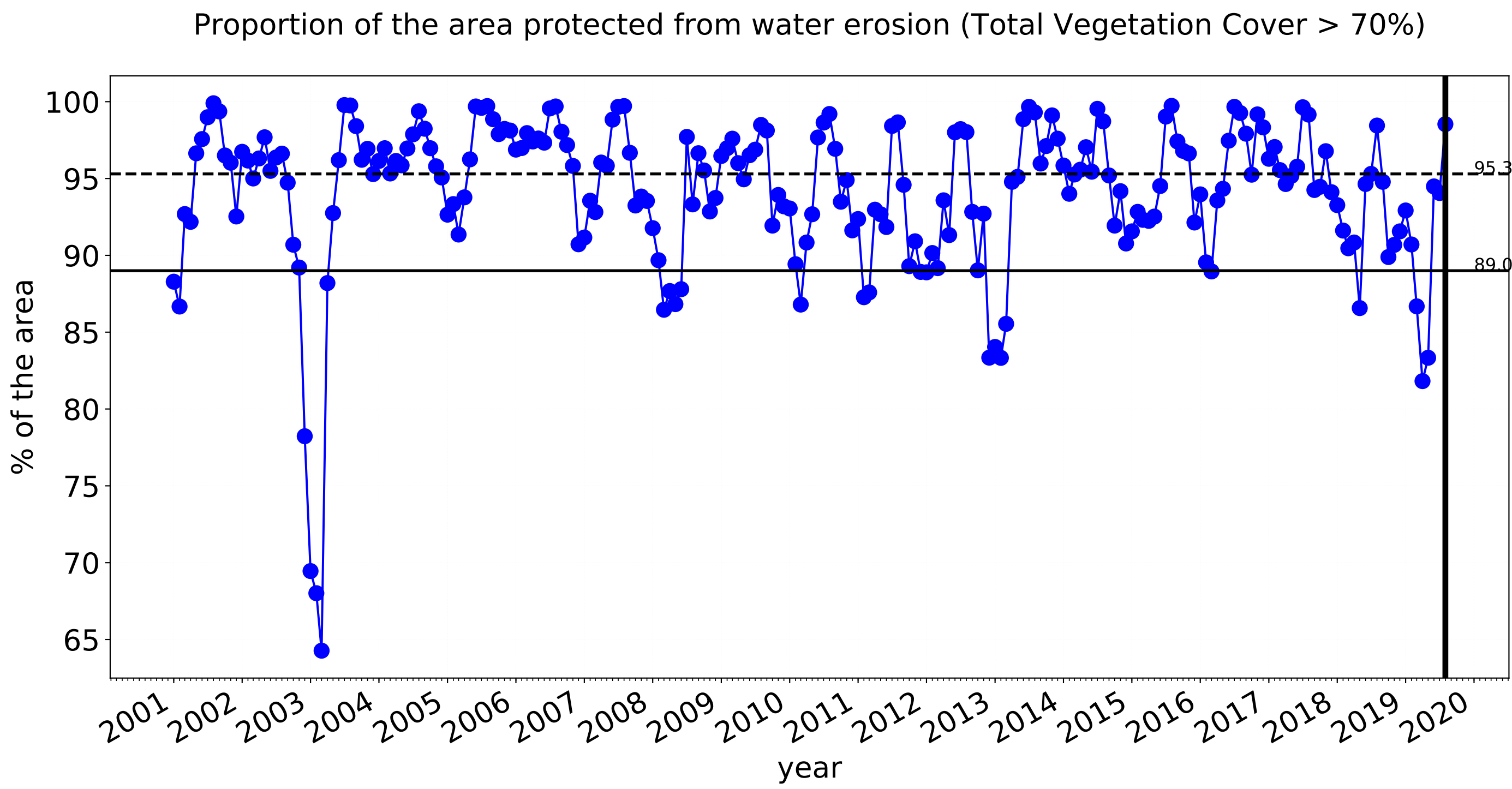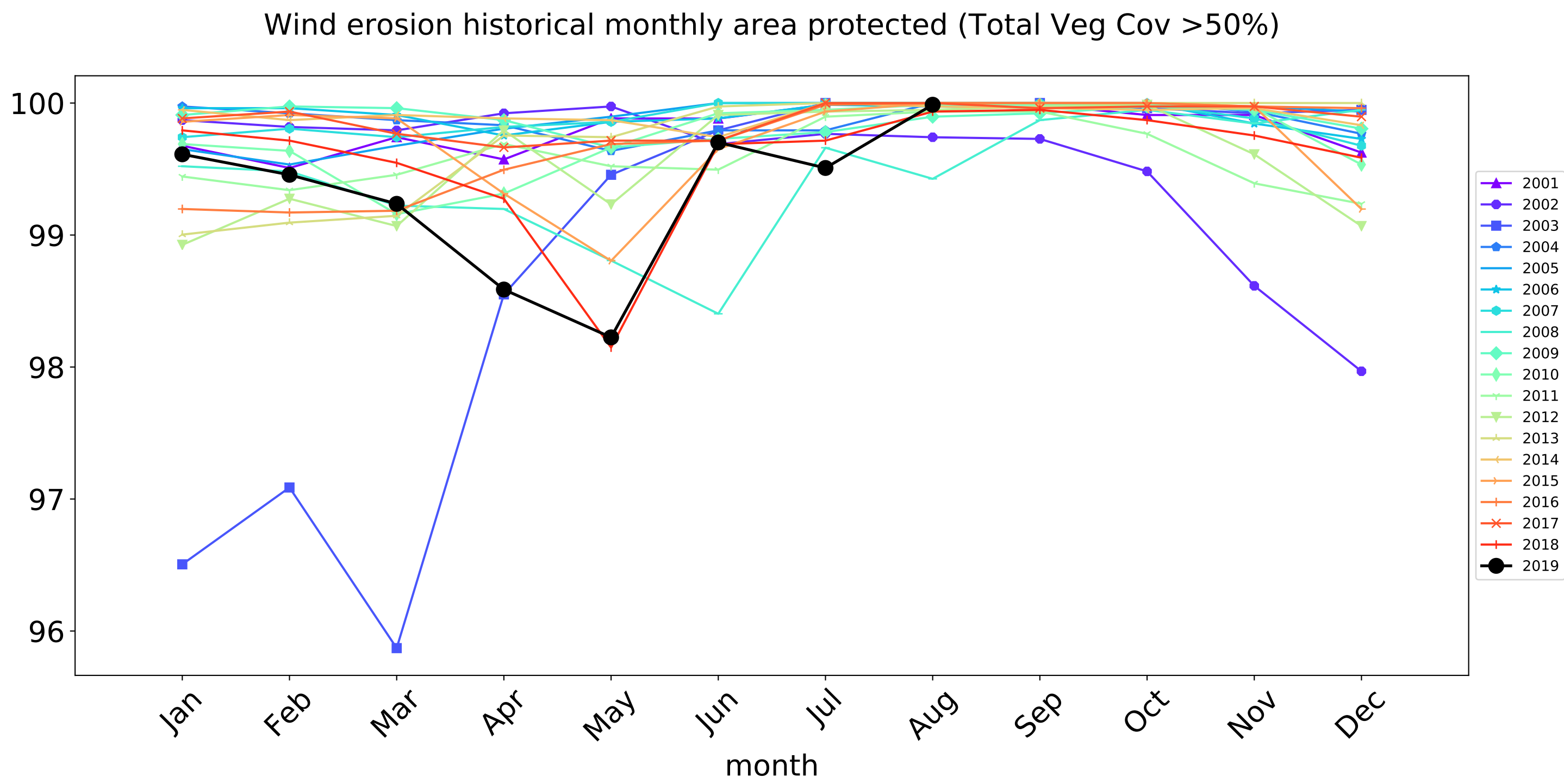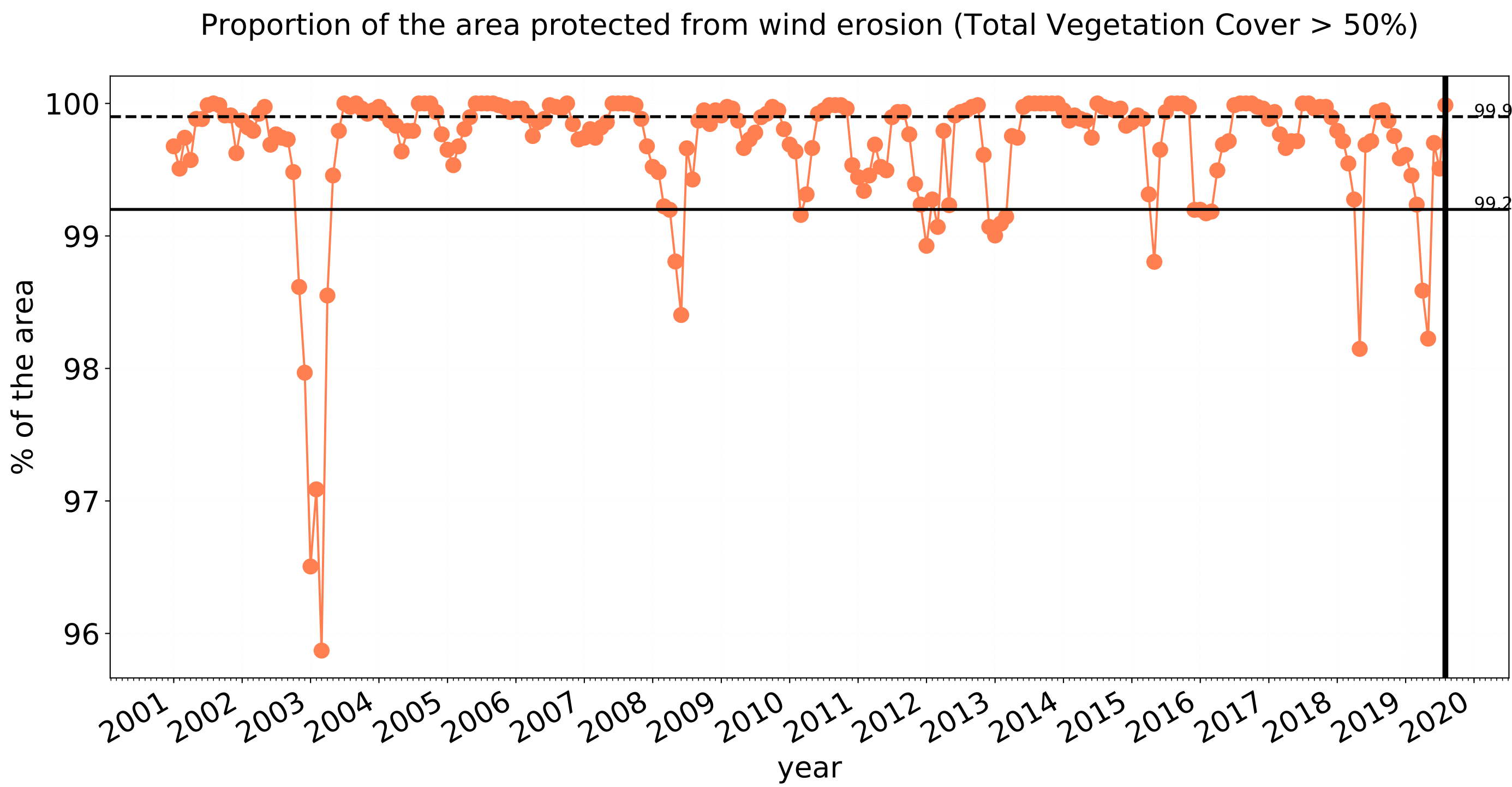
10
8-9
4-7
2-3
1

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%)

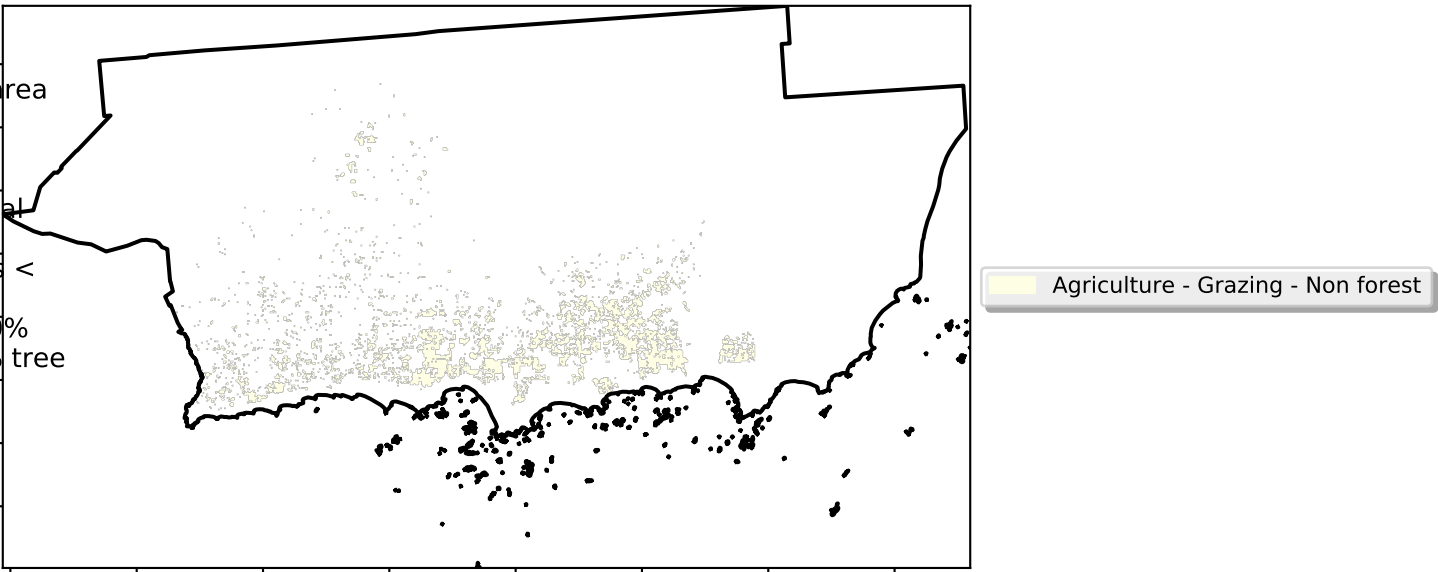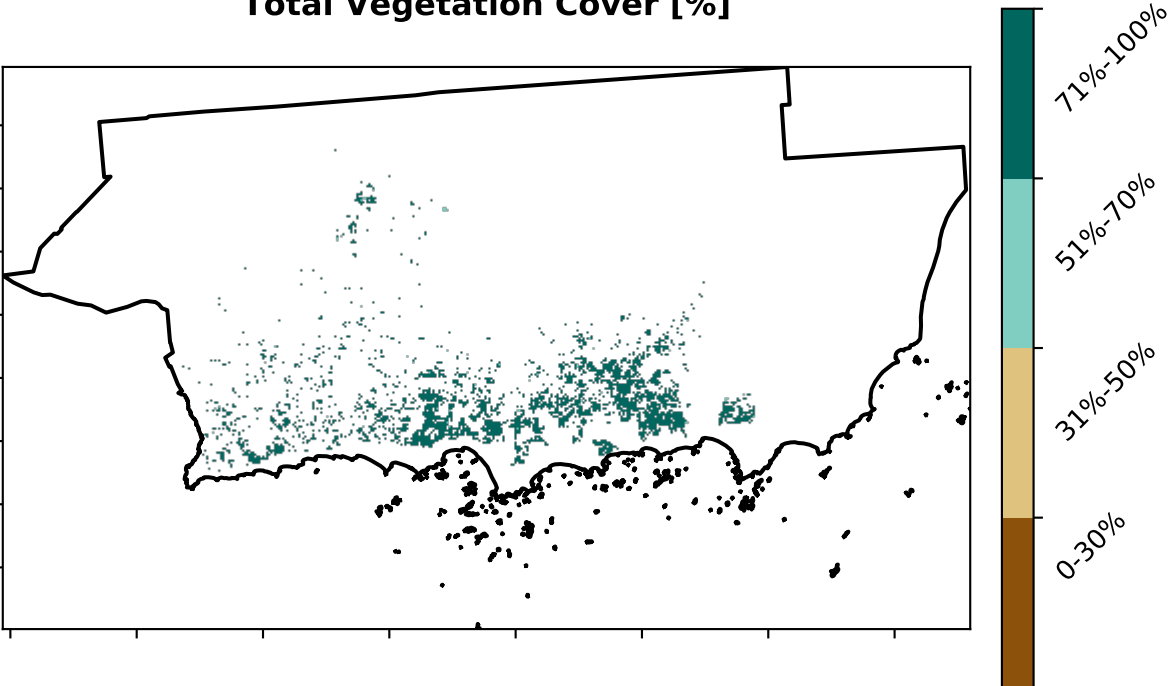Water erosion historical monthly area protected (Total Veg Cov>70%)

Grazing non forest

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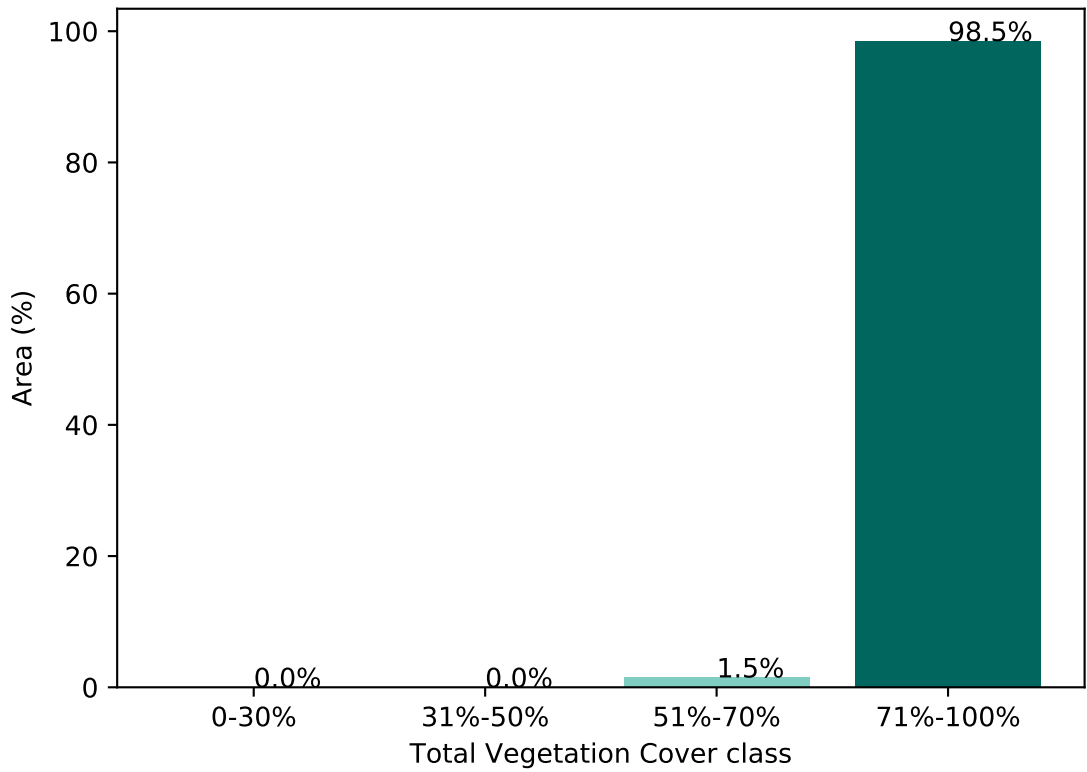
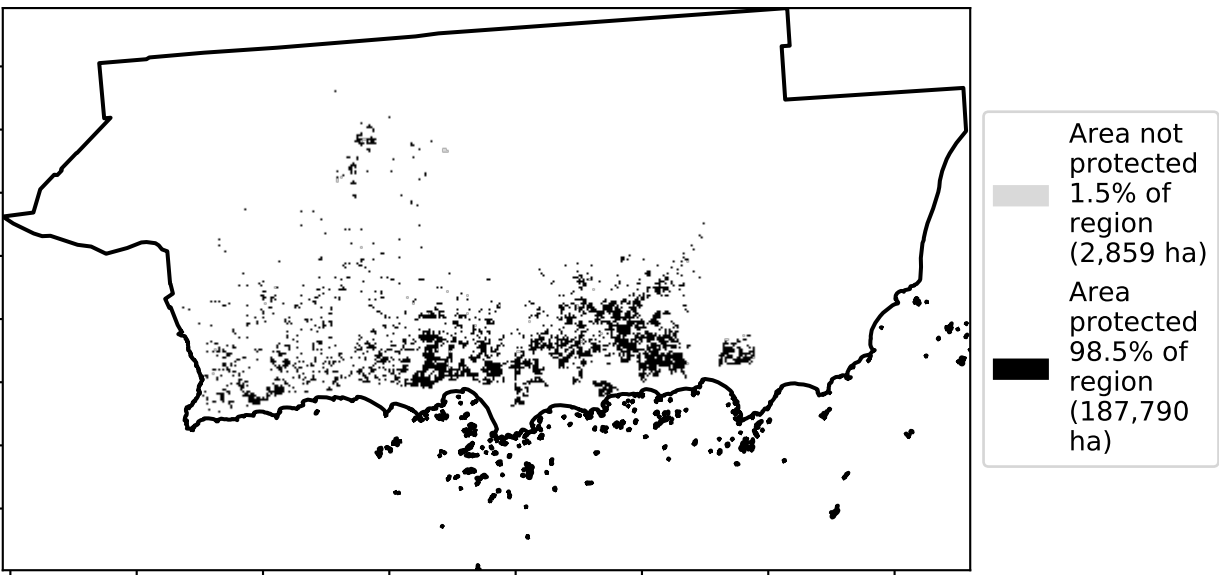Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.
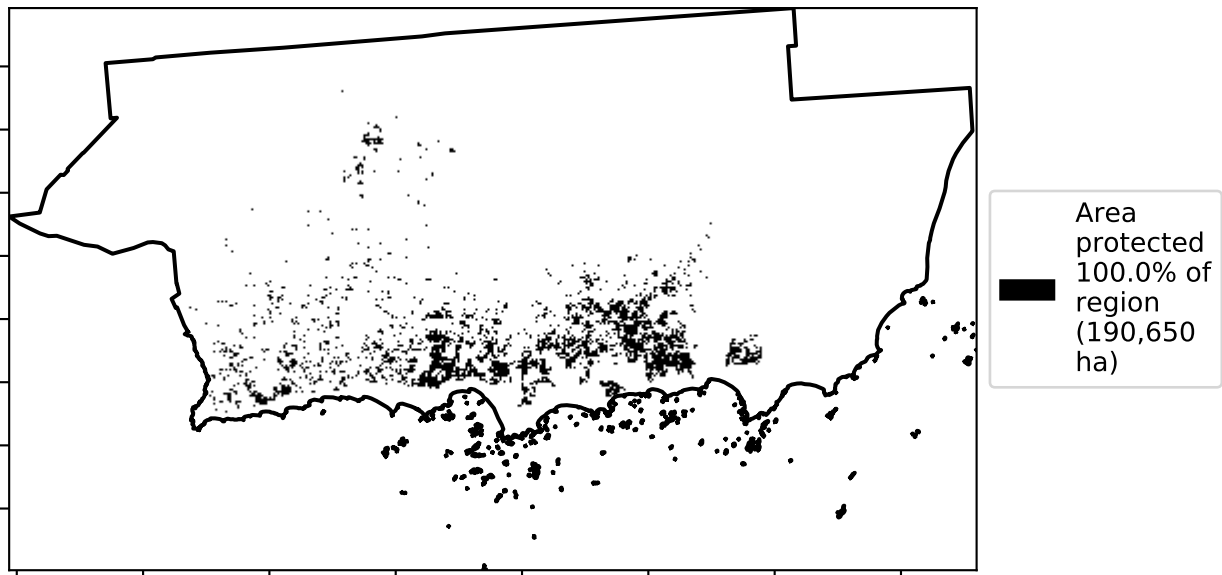
Agriculture - Grazing - Non forest

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 1.5% of region (2,859 ha)

Area protected 98.5% of region (187,790 ha)

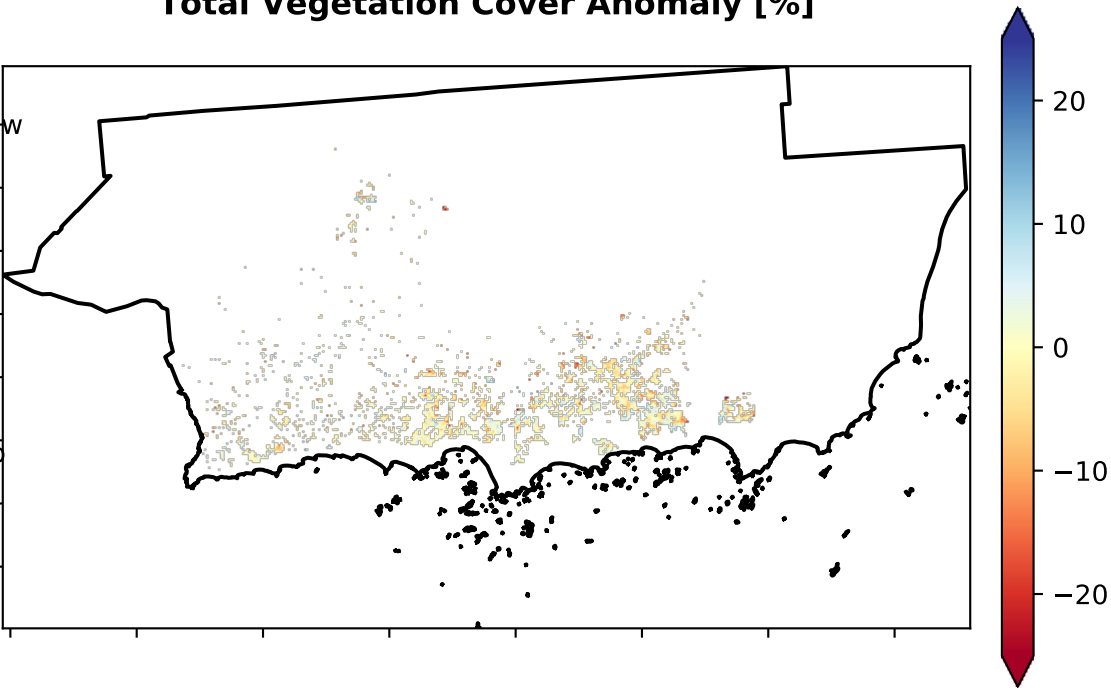## % Area protected from wind erosion (>50%)
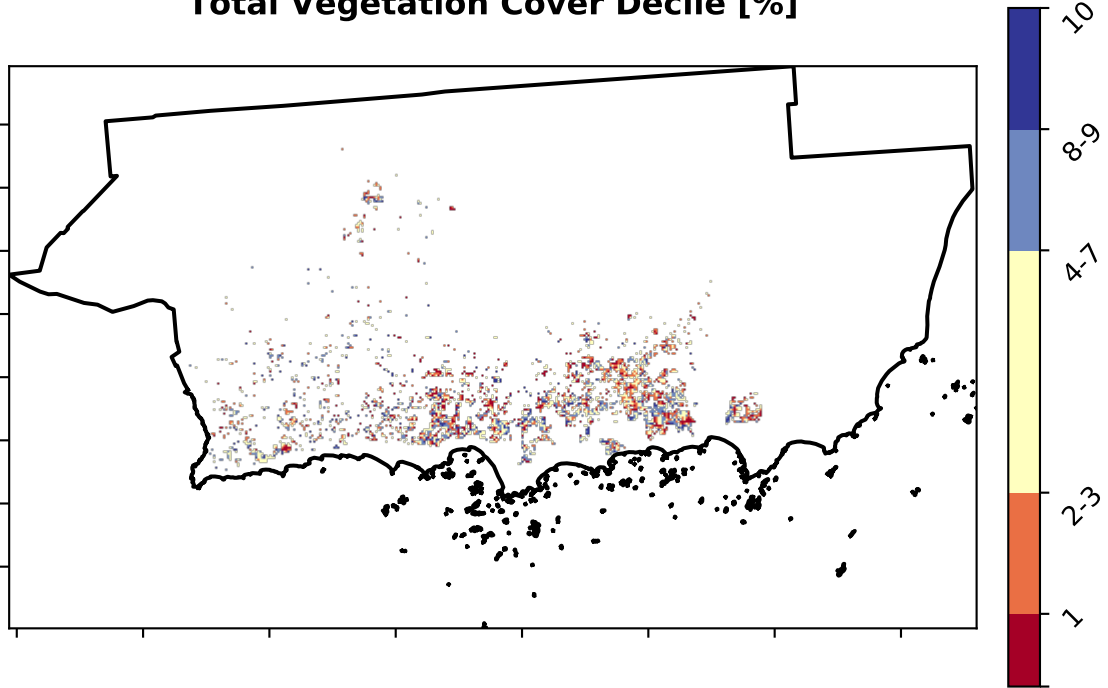
Area protected 100.0% of region (190,650 ha)

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
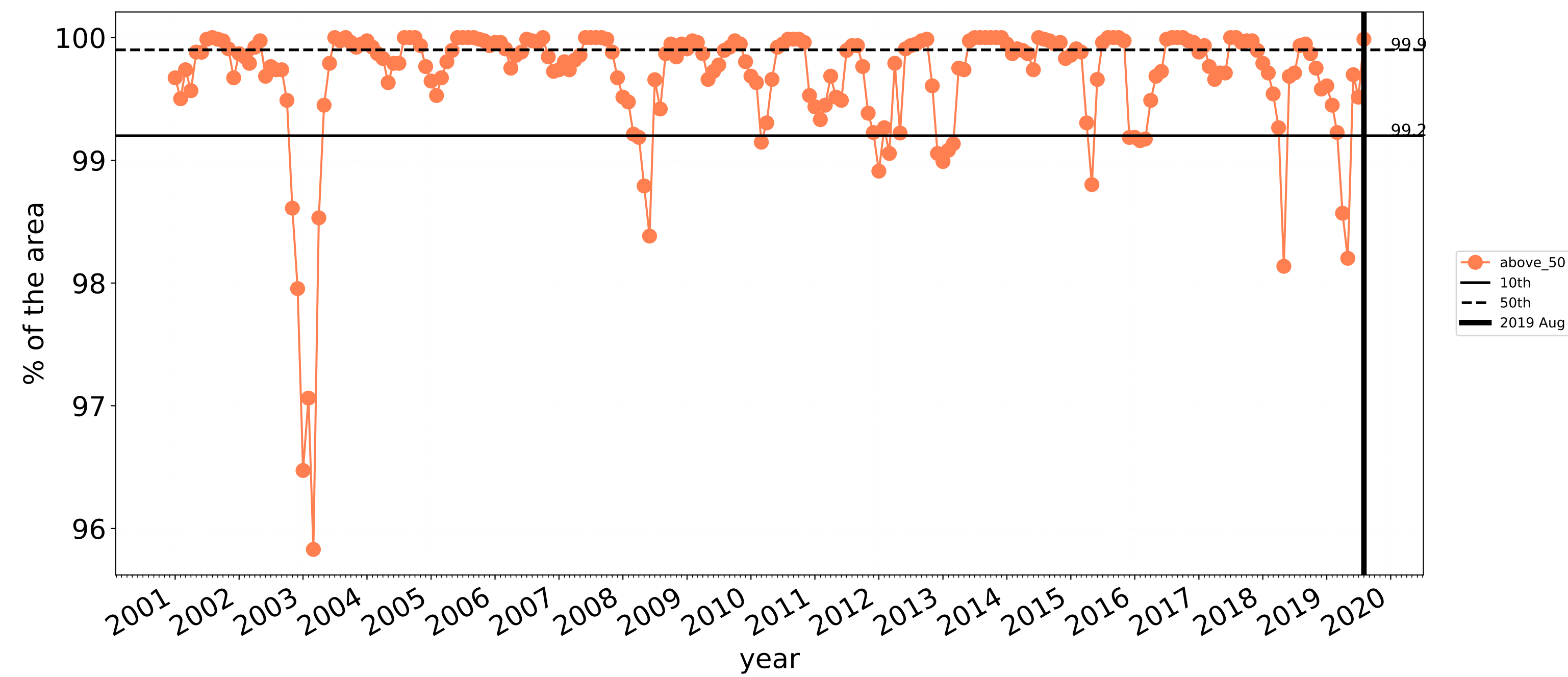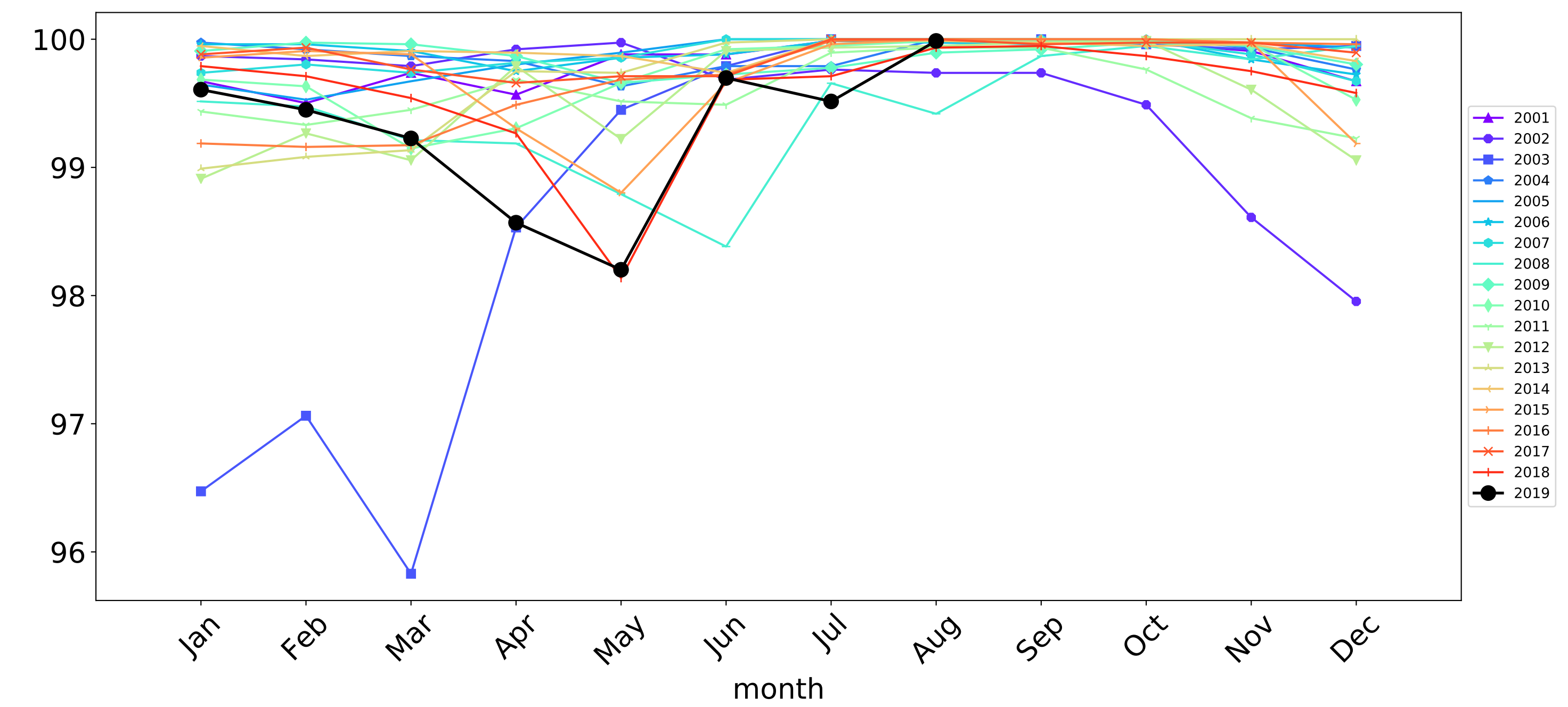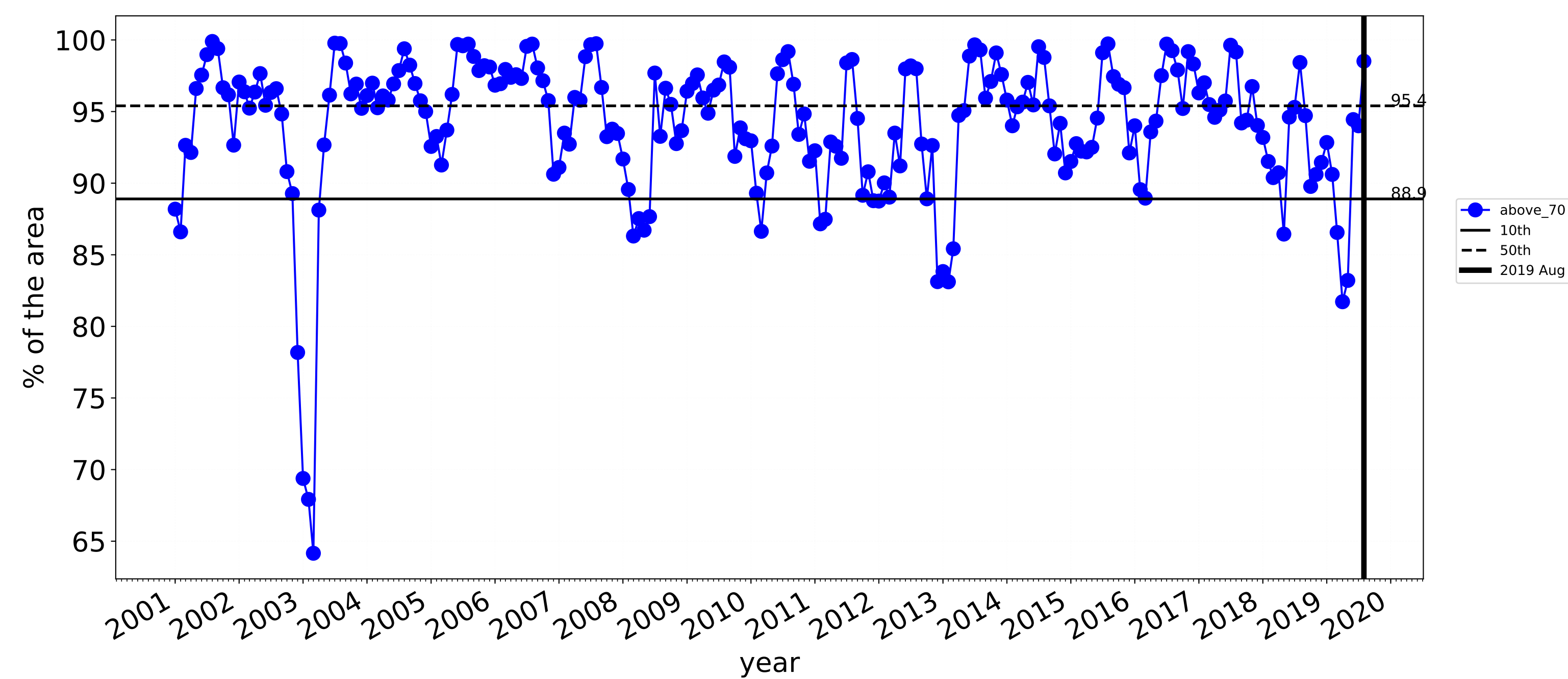1

Grazing non forest timeseries

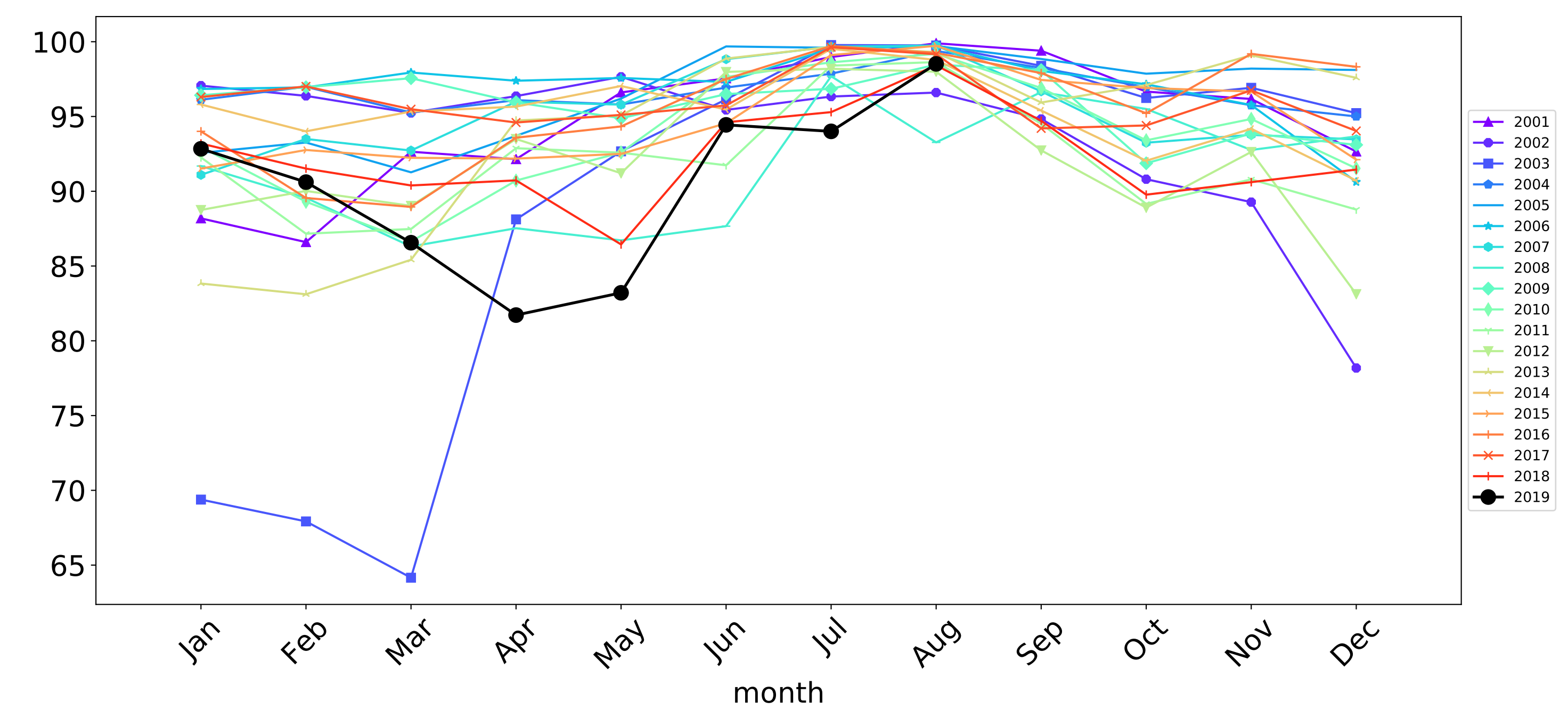### Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

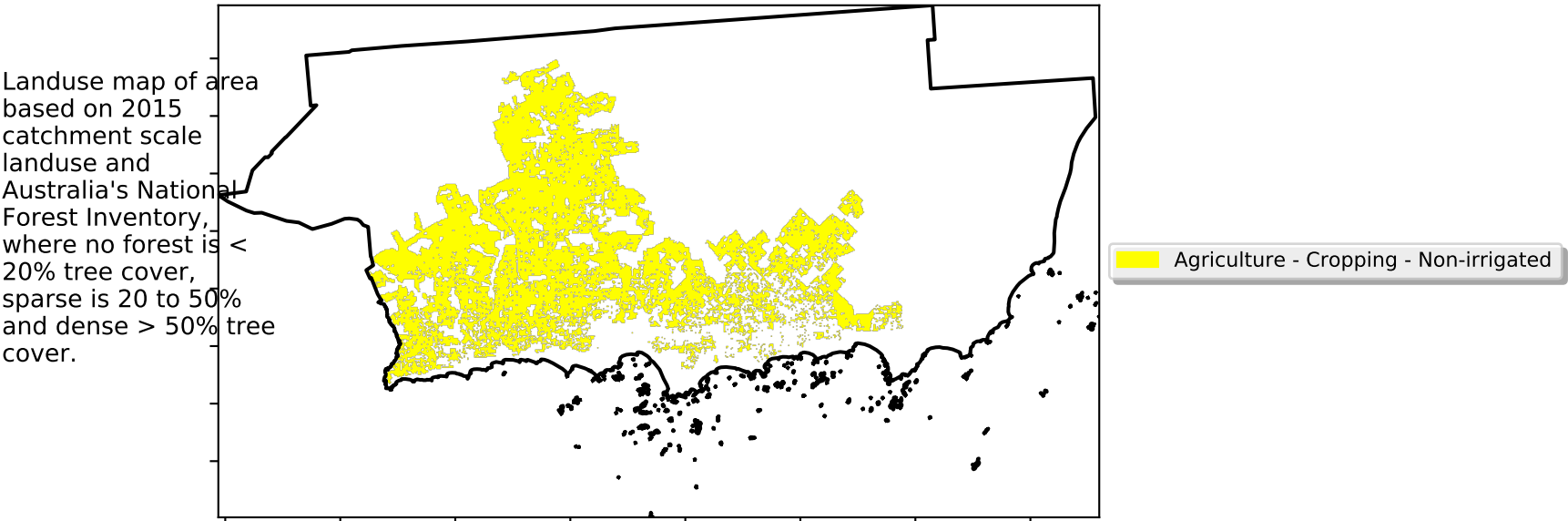### Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

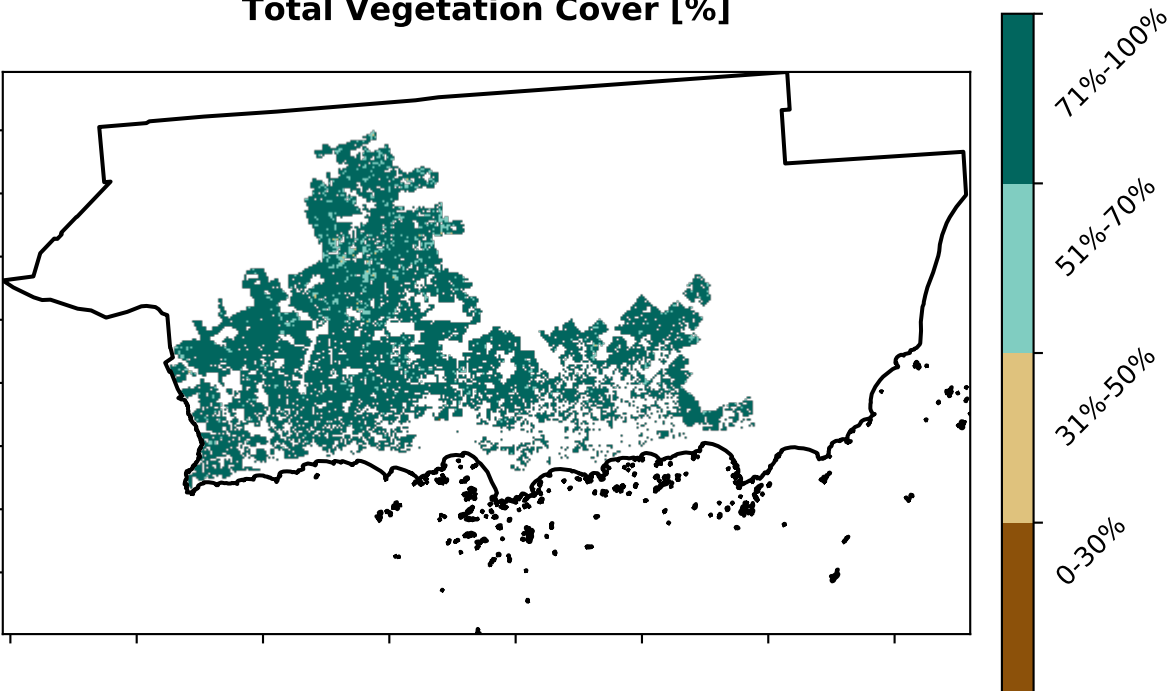### Water erosion historical monthly area protected (Total Veg Cov>70%)

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

94.1%

0.0%   0.1%   5.8%

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

Area (%)

% Area protected from water erosion (>70%)

Area not protected 5.9% of region (58,942 ha)

Area protected 94.1% of region (940,082 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (999,025 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
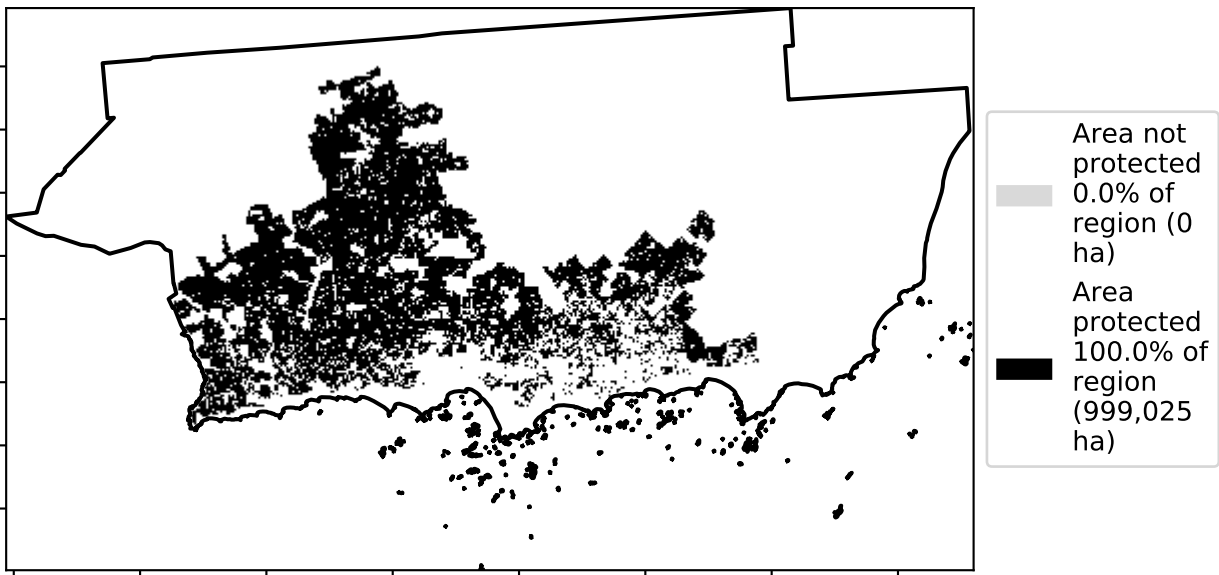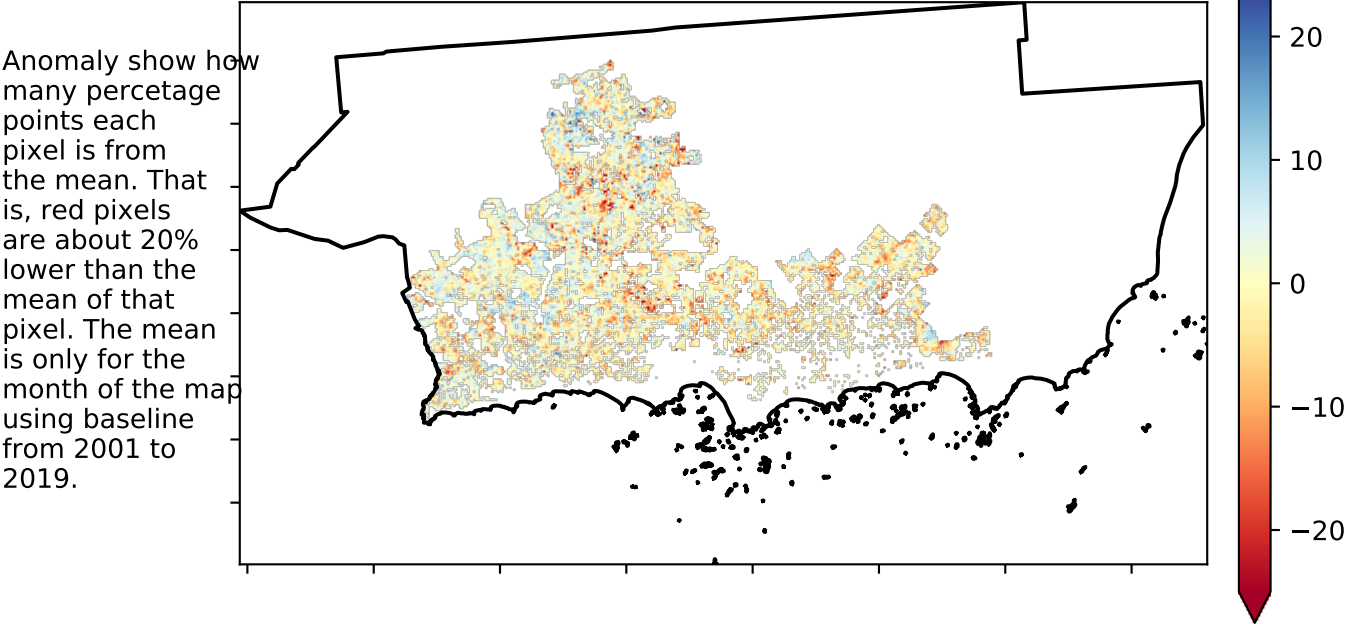
CSIRO   TERN   Australian Government   National Landcare Programme   NSW GOVERNMENT   Planning, Industry & Environment

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%)

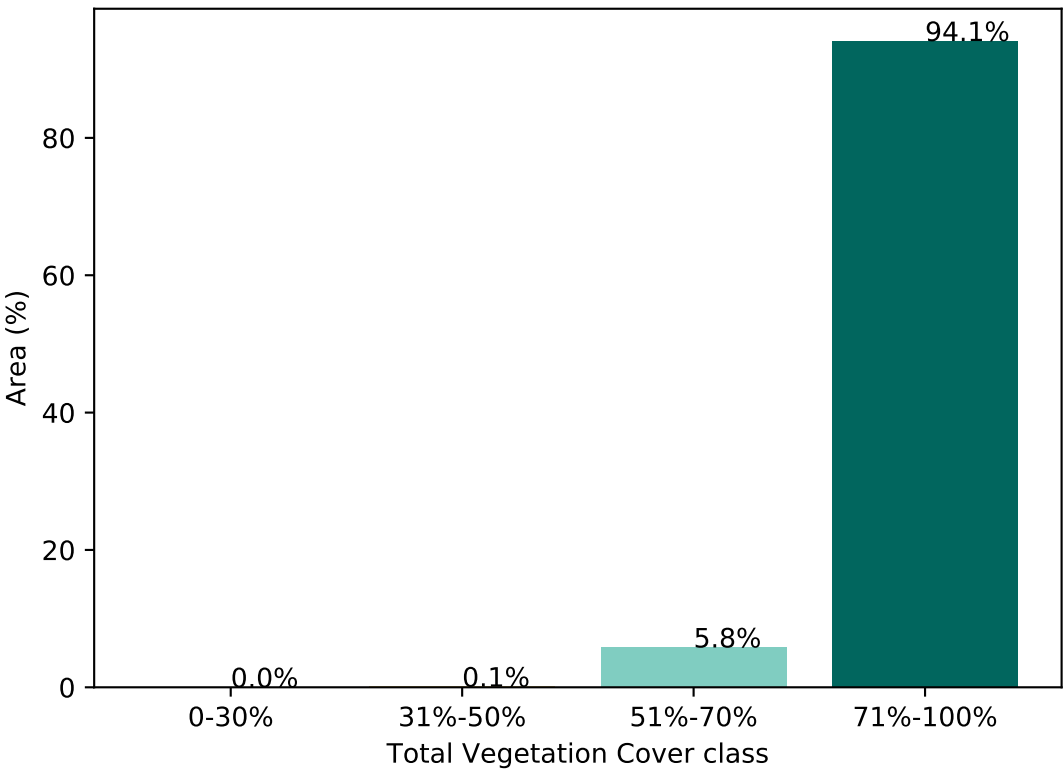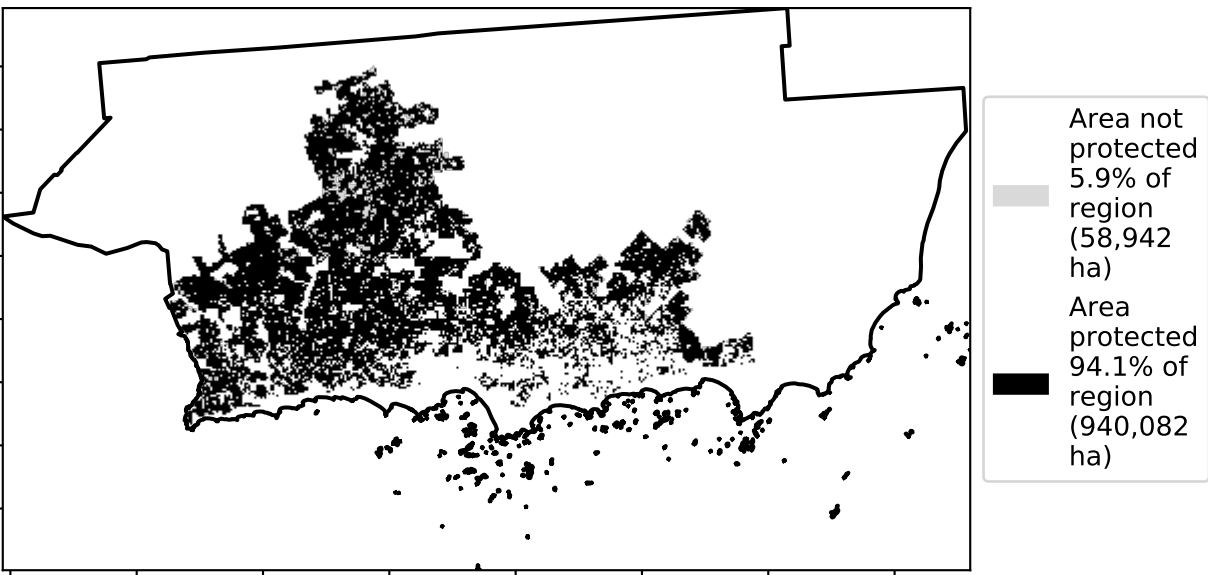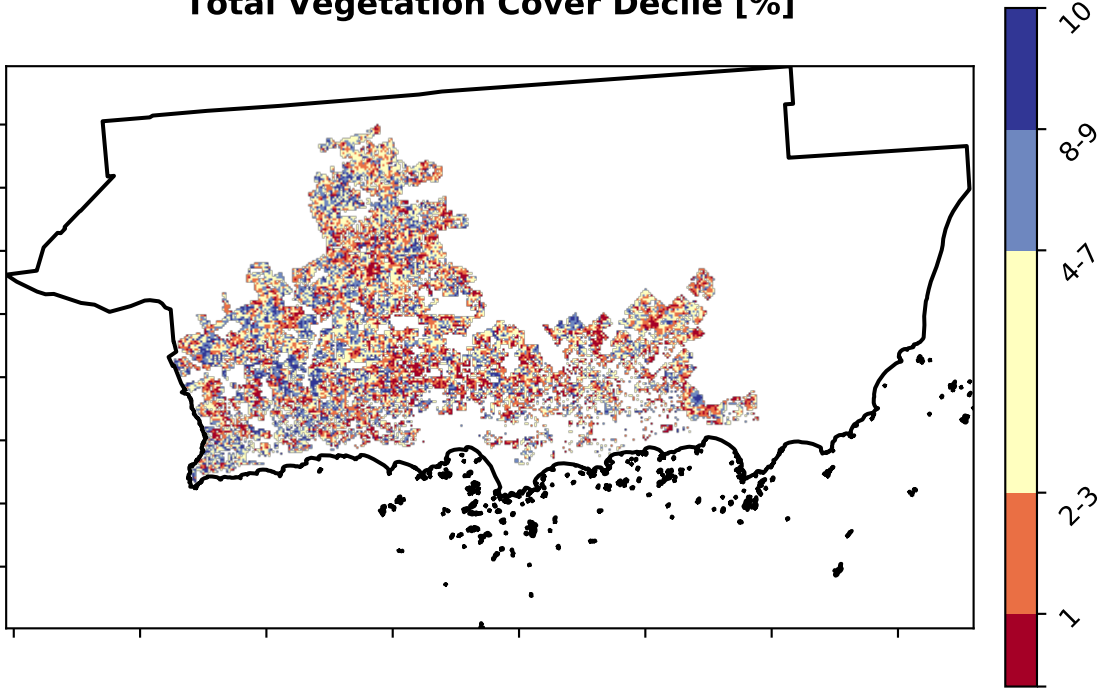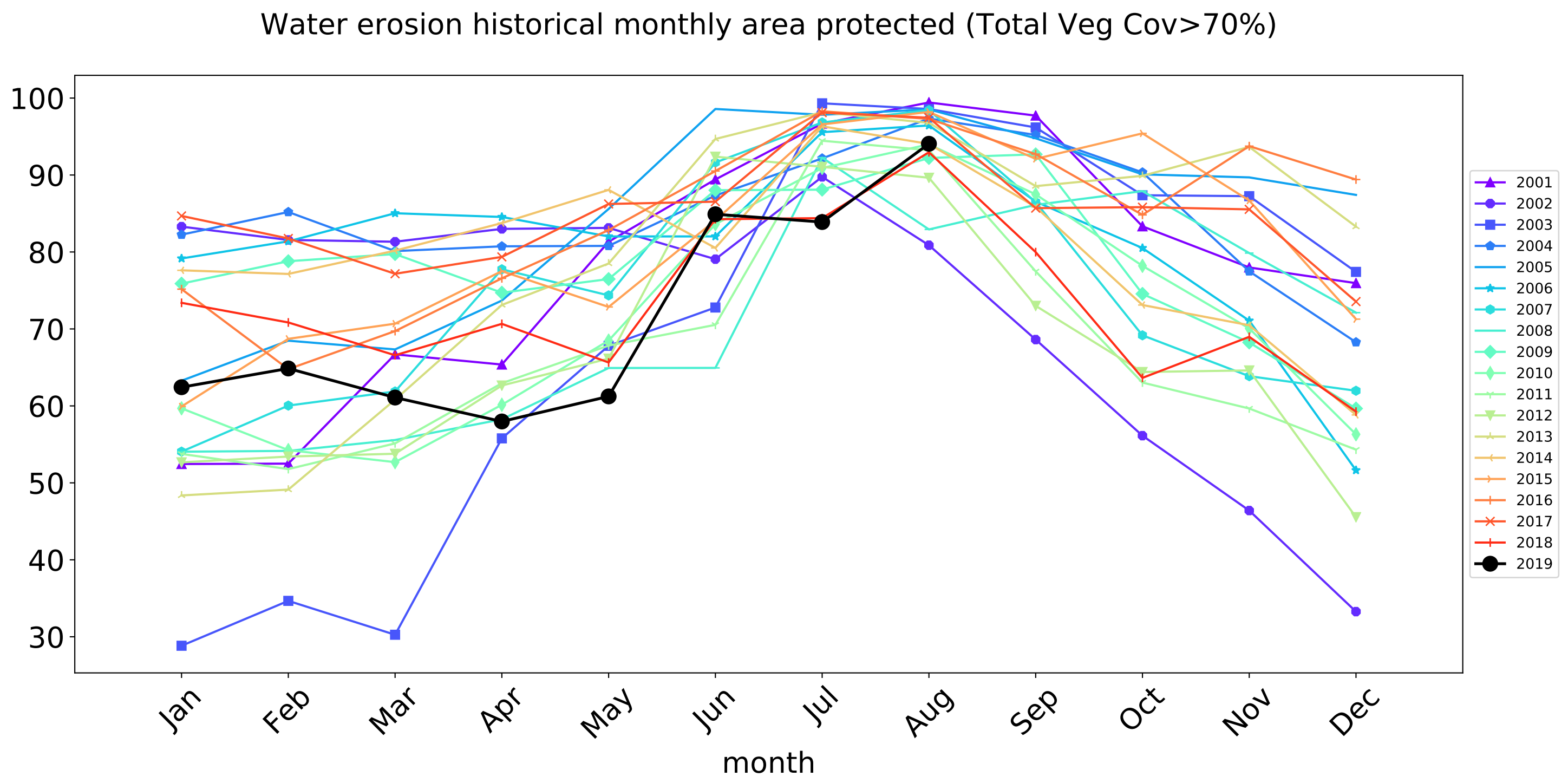Water erosion historical monthly area protected (Total Veg Cov>70%)

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 protected from water erosion (>70%)

Area not protected 2.6% of region (1,457 ha)

Area protected 97.4% of region (54,592 ha)

% Area protected from wind erosion (>50%)

Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (56,050 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.
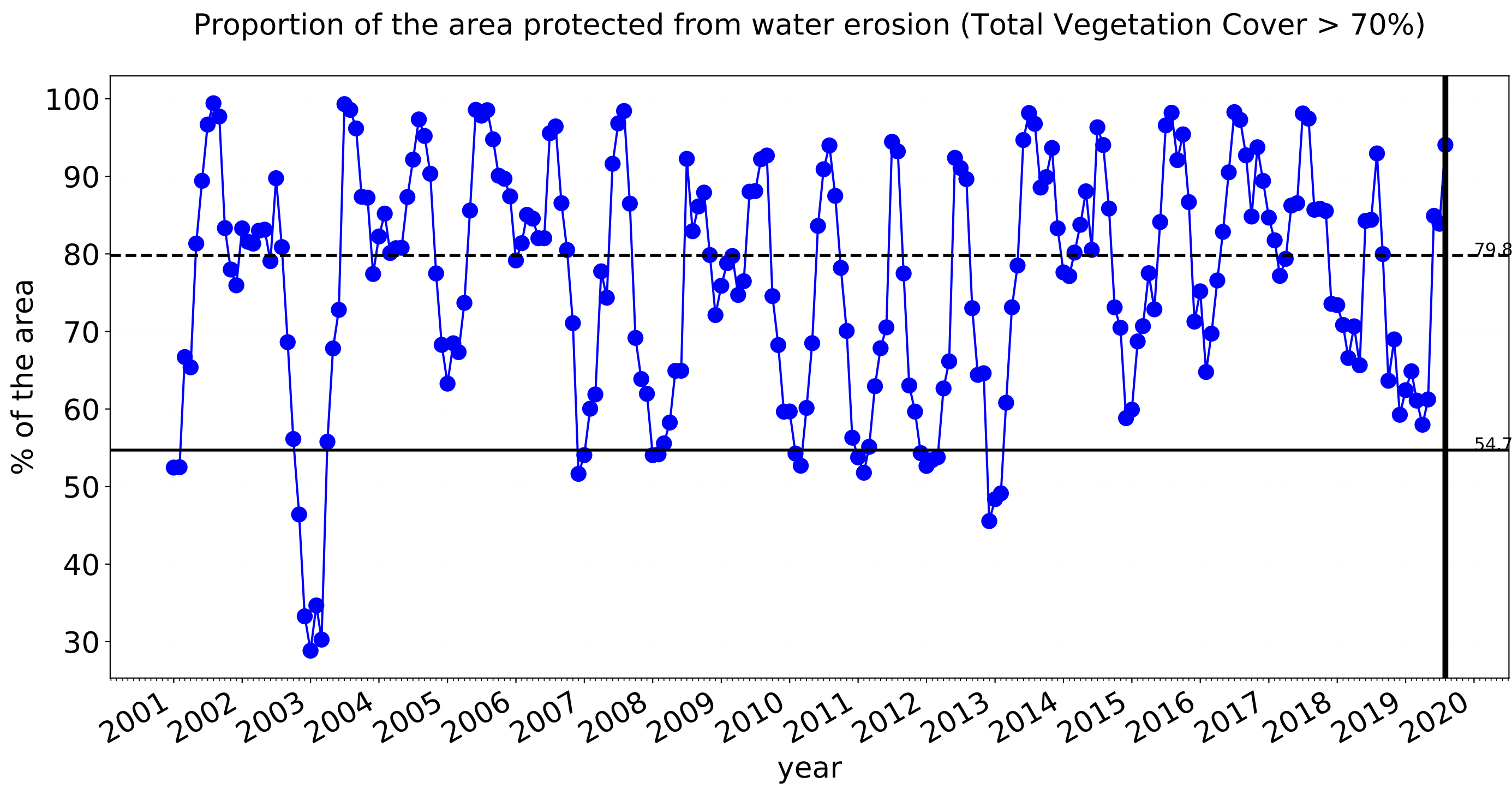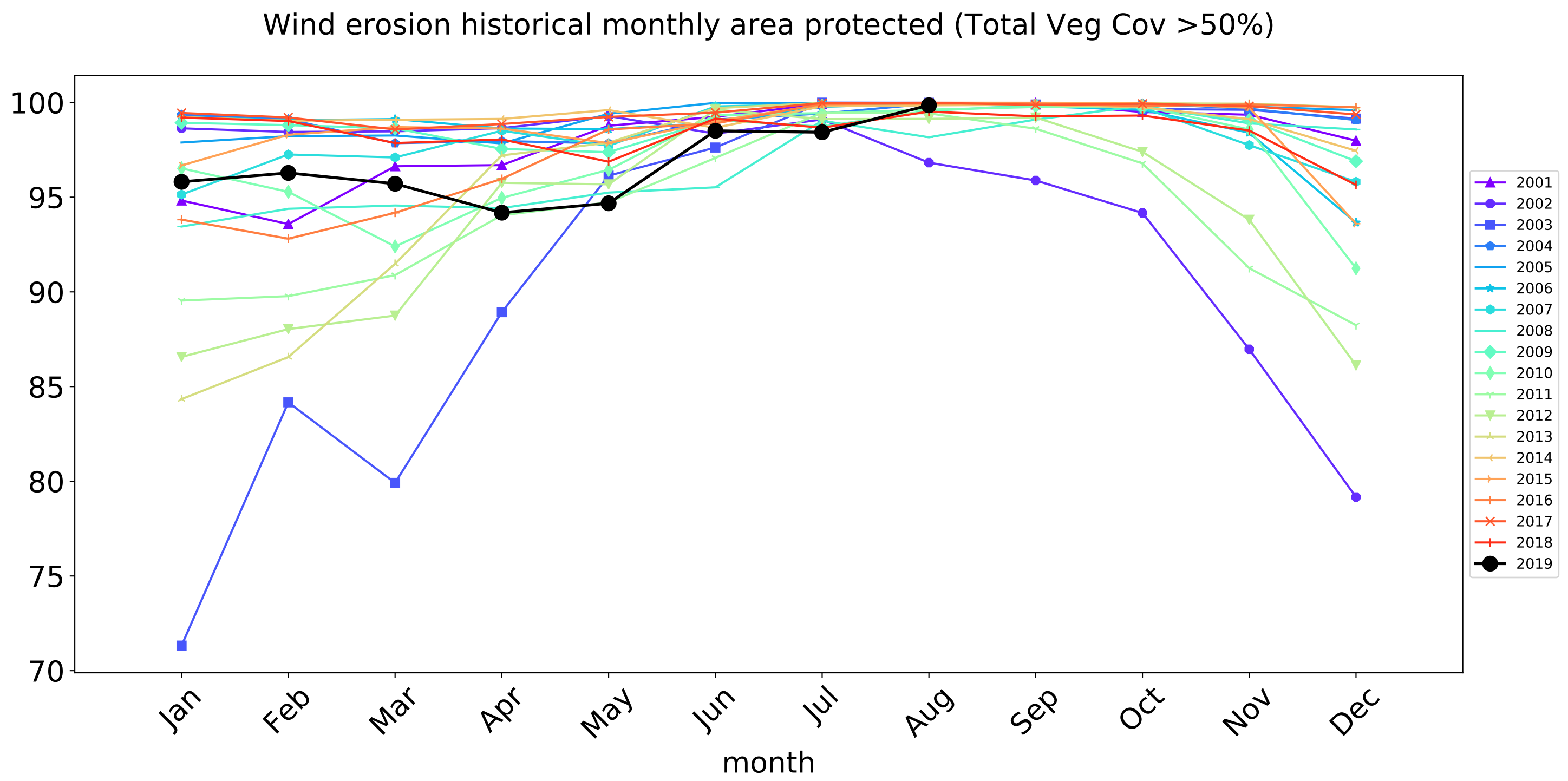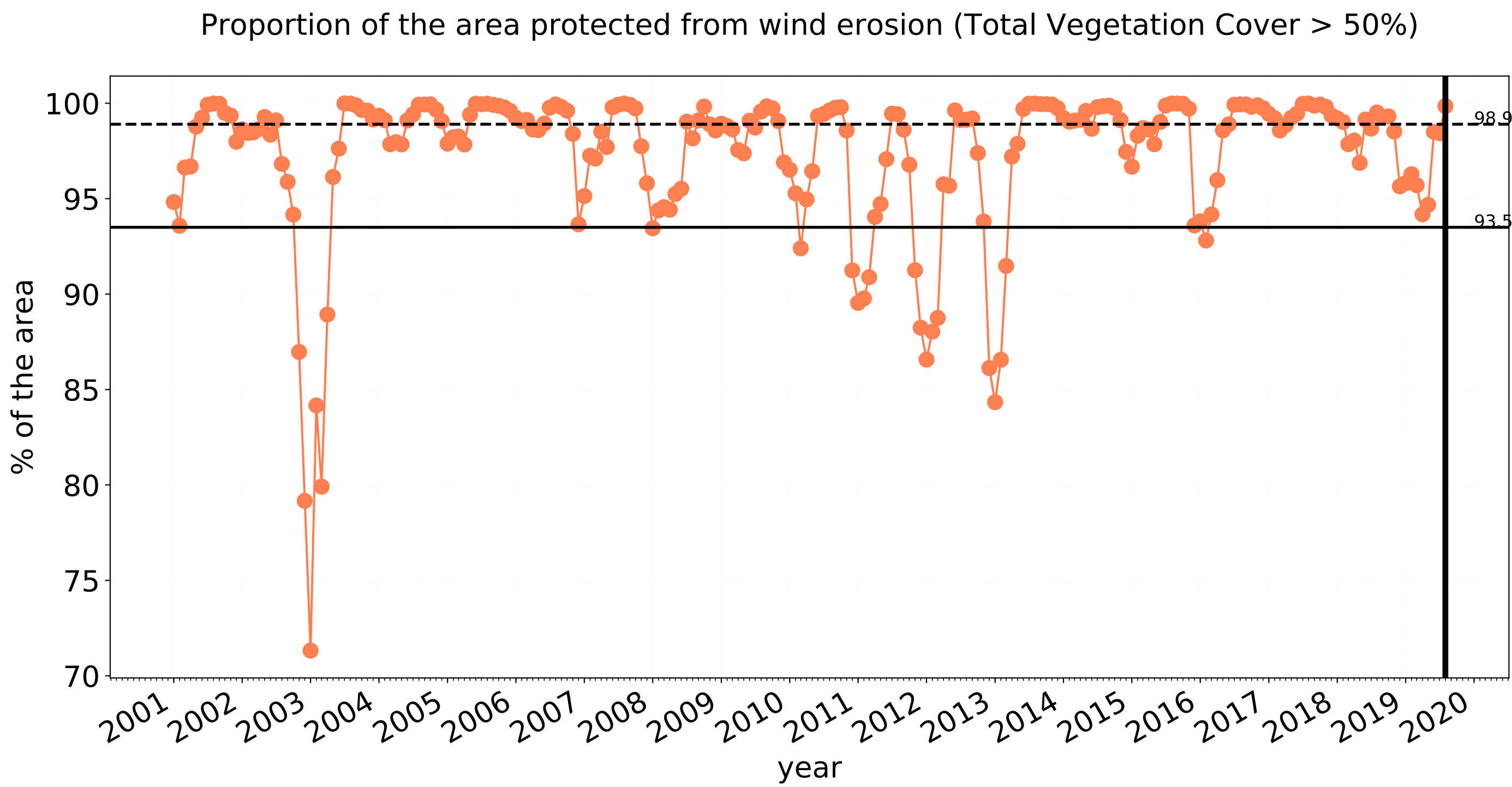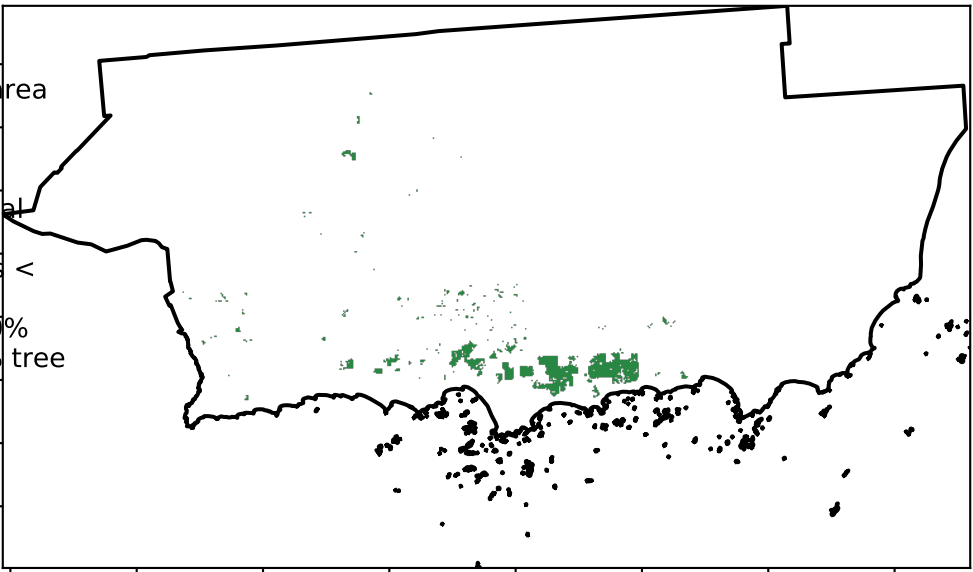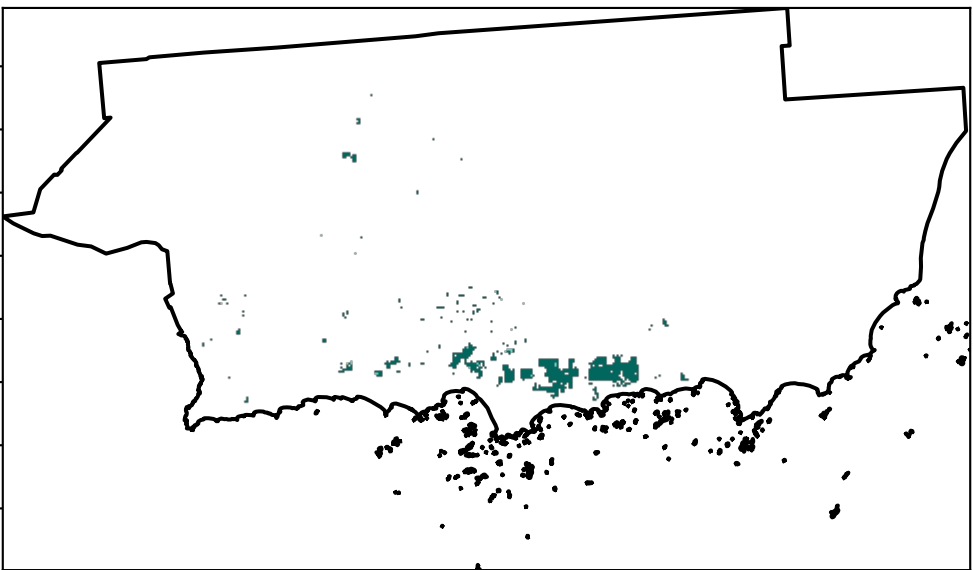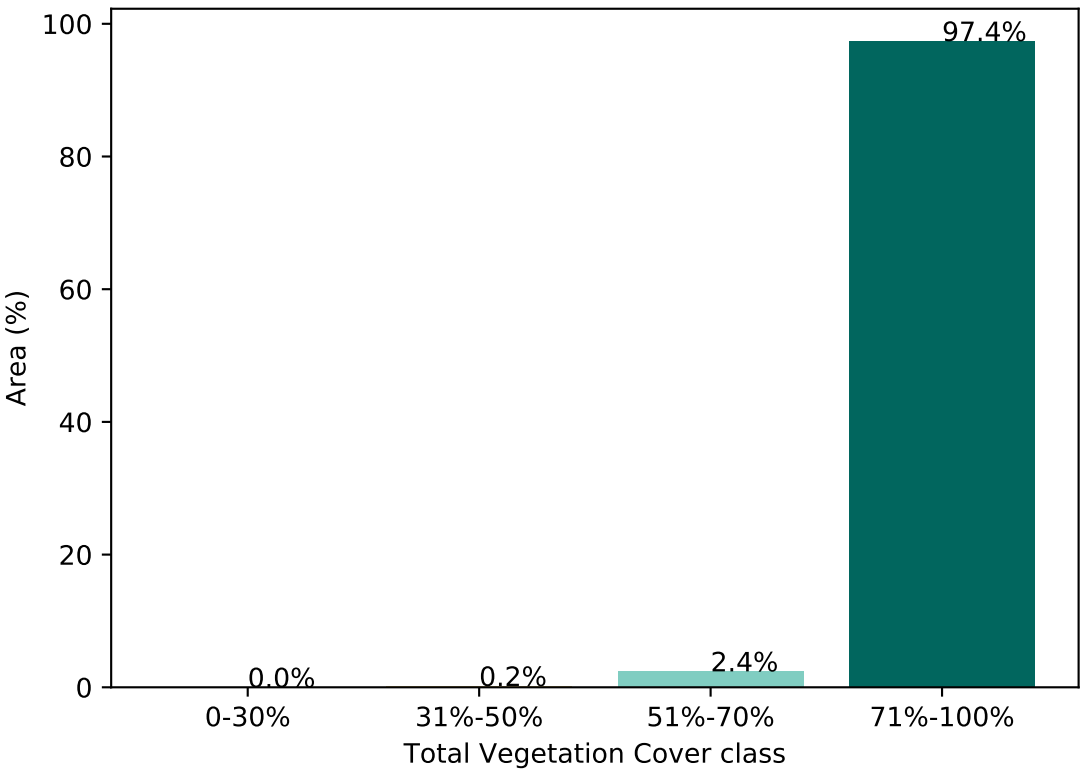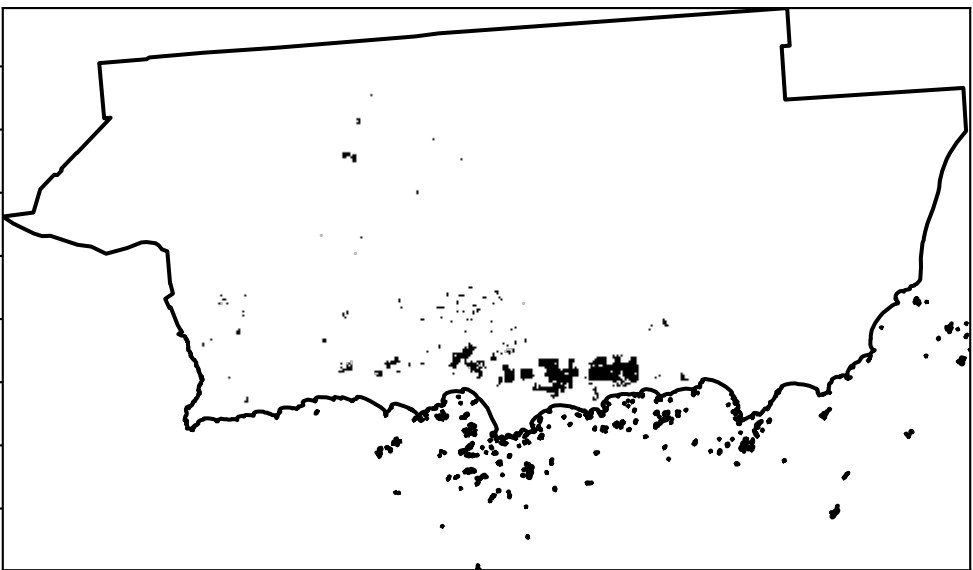

10
8-9
4-7
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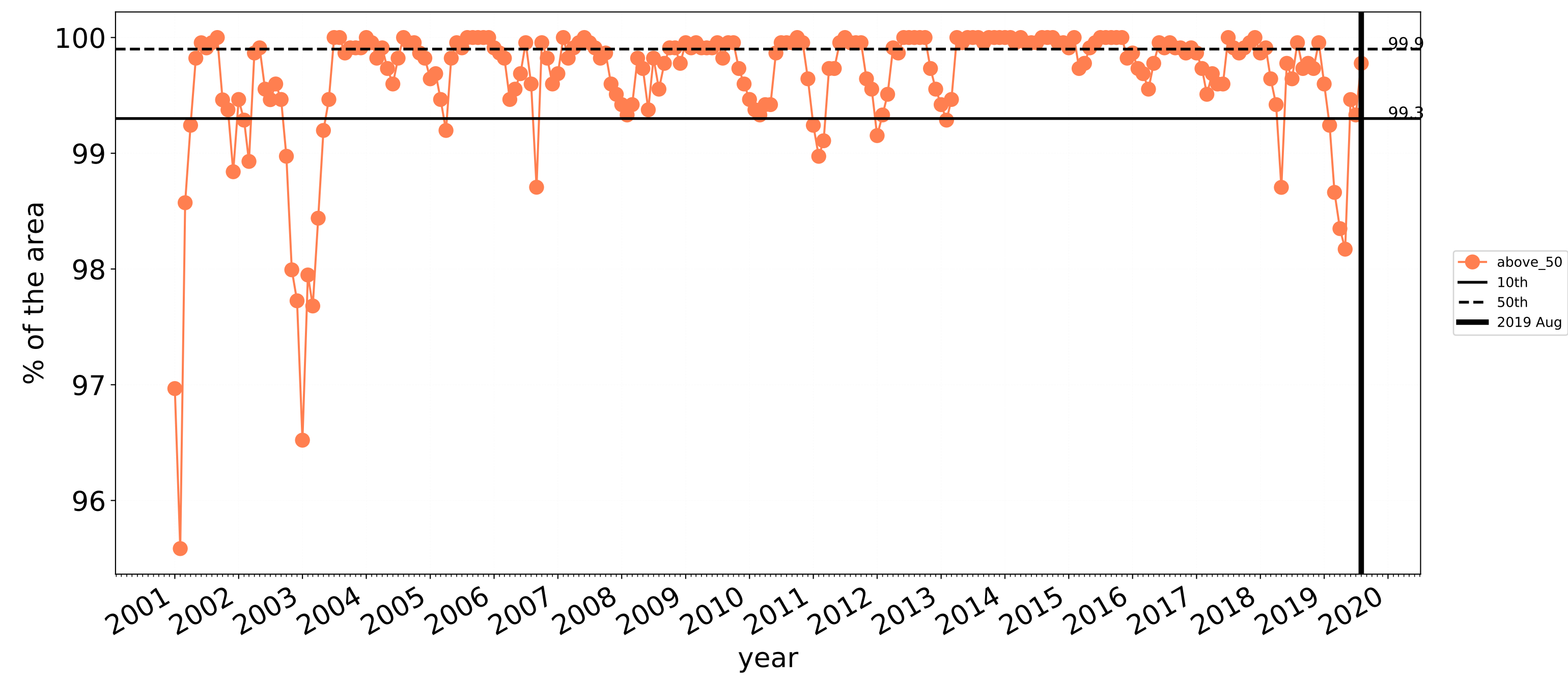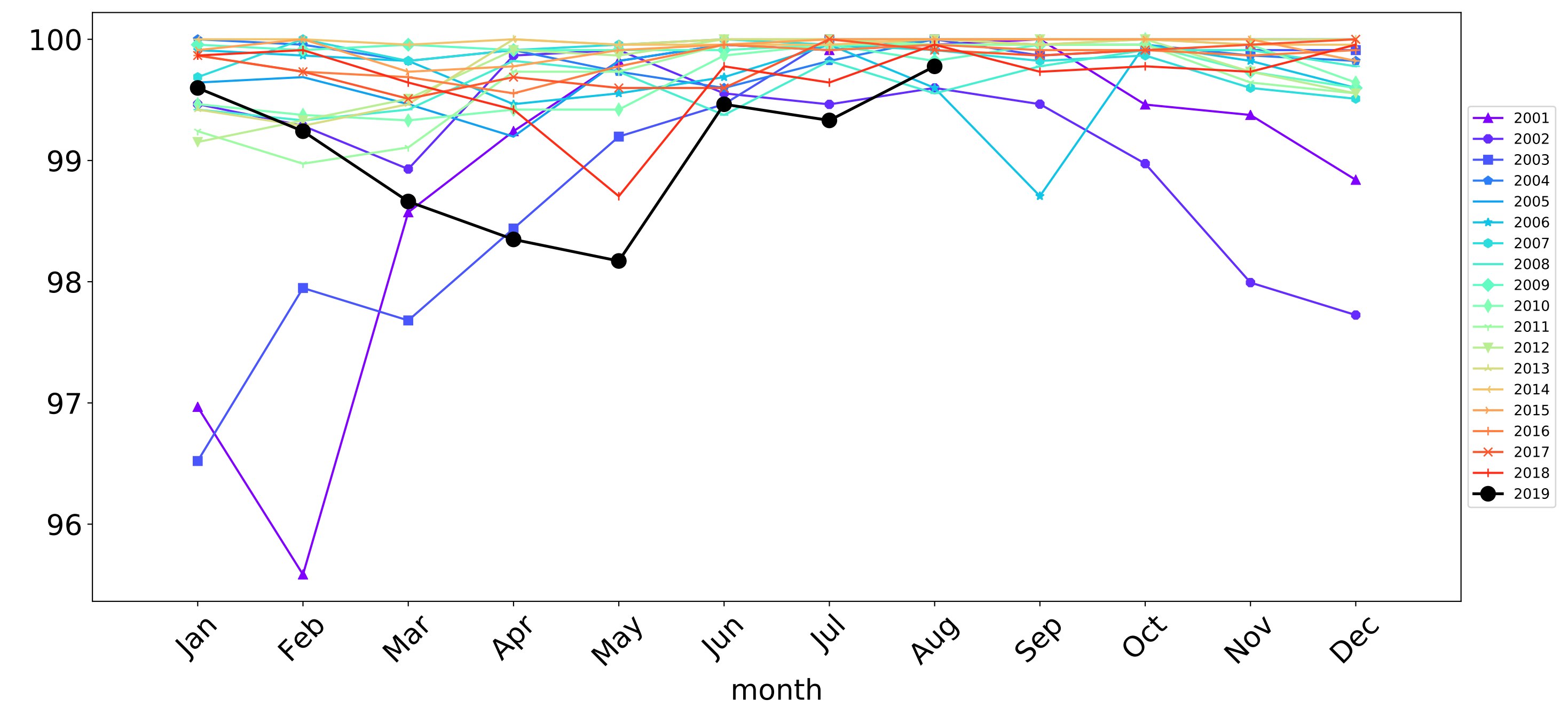1

Production native forests and plantation forests timeseries
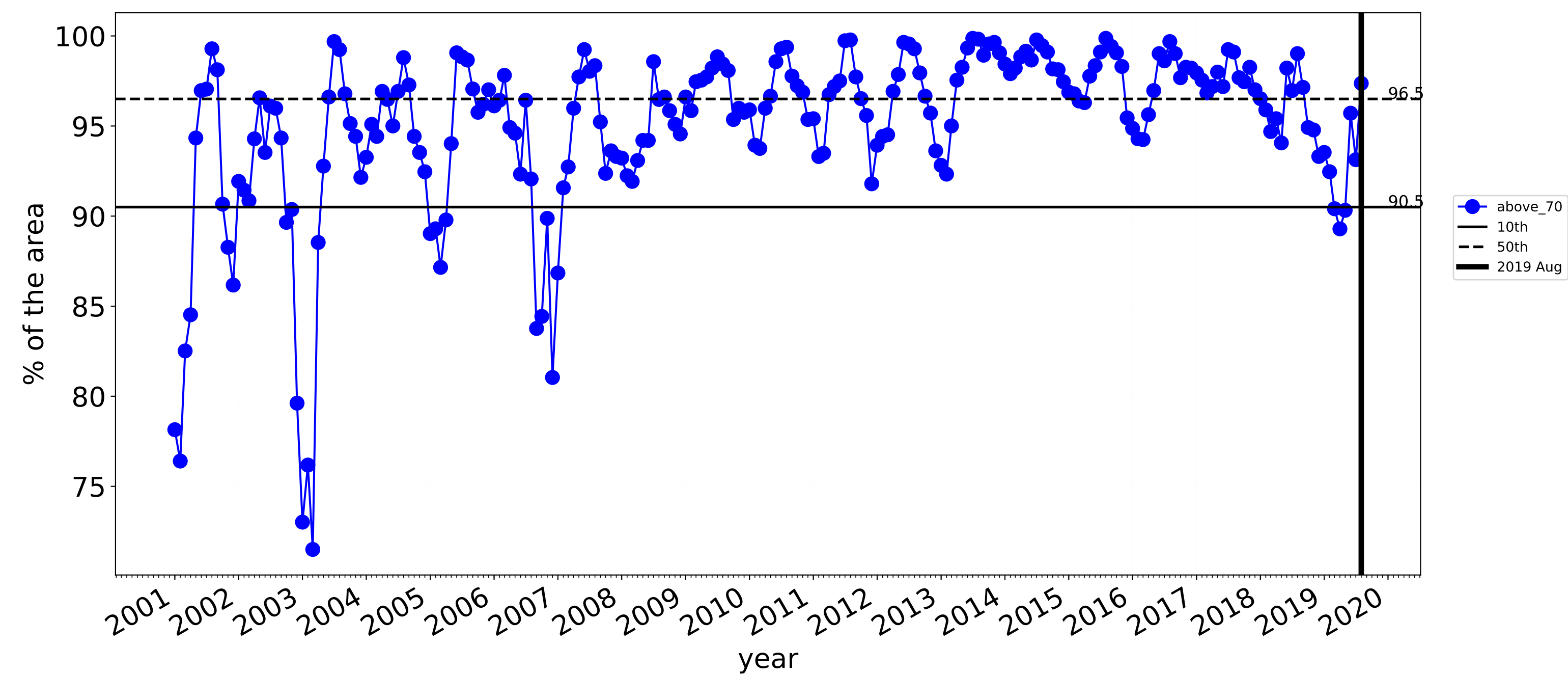

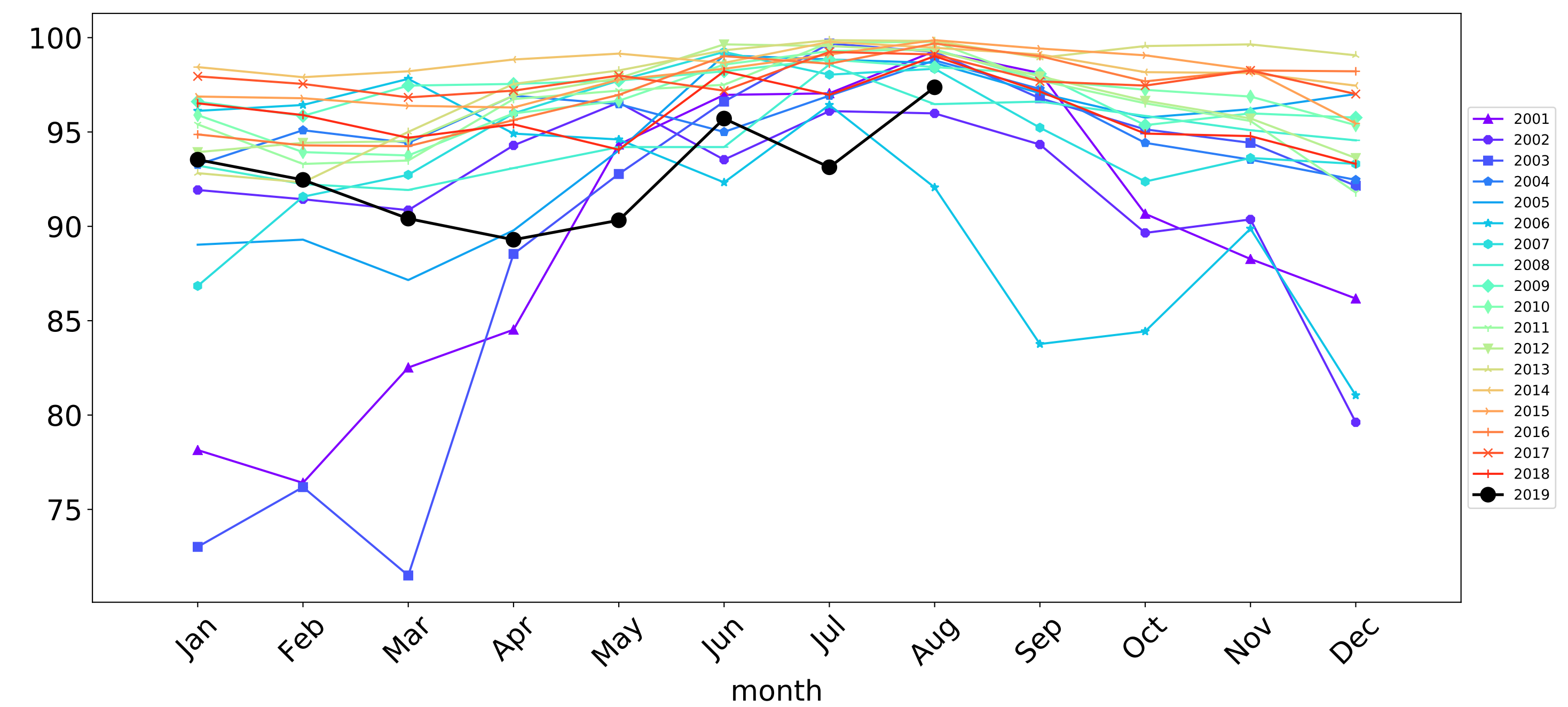Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

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

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

Esperance_(S) (4,407,800 ha and no data 70,100 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	4,407,800	99.4% 4,382,950	97.8% 4,312,875	90.7% 3,997,700	68.5% 3,021,375	10.3% 455,850	3.2% 143,250
Conservation and natural environments	3,014,935	99.2% 2,990,952	97.0% 2,923,890	88.8% 2,678,202	67.7% 2,039,640	6.2% 186,029	1.6% 47,915
Conservation and natural environments non forest	930,045	98.7% 917,836	96.5% 897,735	90.5% 841,288	68.0% 632,511	11.6% 108,117	3.4% 31,441
Conservation and natural environments Woodland forest	2,084,889	99.4% 2,072,946	97.2% 2,025,991	88.1% 1,837,355	67.5% 1,407,033	3.8% 79,550	0.8% 17,050
Agriculture	1,172,474	100.0% 1,172,450	99.9% 1,170,974	94.8% 1,111,327	68.4% 801,827	13.8% 161,953	2.4% 28,569
Grazing	189,535	100.0% 189,535	100.0% 189,510	98.5% 186,763	82.8% 156,907	24.9% 47,273	5.5% 10,499
Grazing non forest	189,535	100.0% 189,535	100.0% 189,510	98.5% 186,726	82.7% 156,827	24.9% 47,147	5.6% 10,538
Cropping	982,939	100.0% 982,914	99.8% 981,463	94.1% 924,545	65.6% 644,847	11.7% 114,624	1.8% 18,054
Production native forests and plantation forests	57,301	100.0% 57,275	99.8% 57,173	97.4% 55,793	86.3% 49,455	46.8% 26,836	12.4% 7,079