Total vegetation cover soil protection
Region:LGA Wyndham_(C) VIC   Date: June 2022

This report describes vegetation protecting the soil surface from erosion during a chosen month compared to previous years. This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool https://map.geo-rapp.org/#australia. The report is based on 500 metre pixel data on monthly time steps.
Land use forest cover:

Results can be shown for the whole region (polygon), and separated by land use and forest cover classes which are likely to show different cover patterns and targets. Land use is divided into four broad classes: Conservation and natural environments, Agriculture, production native forests and plantation forests (no report), and other (no report). Agriculture is divided into grazing, crops and horticulture which are sub-divided into non-irrigated and irrigated. If forest is present land use is further divided into: non-forest, woodland forest and non-woodland forest. The area of each land use and forest class are shown as a map and chart. The report content is repeated for each land use and forest cover class that covers at least 1% of the area of the chosen region.
Total vegetation Cover:

The total vegetation cover indicates where soil is likely to be protected from wind and or water hillslope erosion. Total vegetation cover for this month is shown on a map and chart classified into 4 classes.
    • 71-100% High cover - protected from wind and usually water erosion (high rainfall, steep slopes, and erodible soils may need greater than 80, 90, 95 and up to 100% cover)
    • 51-70% Moderate cover - protected from wind erosion
    • 31-50% Low cover - not protected
    • 0-30% Very Low cover - not protected
Erosion protection: Wind erosion 50% total vegetation cover

The vegetation cover threshold required to prevent soil erosion is usually 50% to reduce wind erosion, 70% or 80% to reduce water (hillslope) erosion depending on the steepness and rainfall. Areas protected from erosion for the month:
    • Map: water erosion protection (>70% cover) percentage area and hectares.
    • Map: wind erosion protection (>50% cover) percentage area and hectares.
Comparison with previous years:

    • Map: anomaly comparing this month to the average cover from the same month in previous years.
    • Map: deciles rank of month against the same month in previous years.
Anomalies and deciles until September 2019 are calculated comparing to the same months 2001 to 2019. Extra monthly data will be used to calculate anomalies and deciles post September 2019 as they become available.
Time series monthly from January 2001 to current:

Erosion protection
    • Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month (orange lines). Horizontal lines are 10th (cover target) and 50th percentiles.
    • Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month (blue line). Horizontal lines are 10th (cover target) and 50th percentiles.
Rainfall
    • Millimetres rainfall each month (black line).
Each time series is also stacked by year. The black line shows the current year of data.
Water erosion protection for higher rainfall and steeper slopes:

Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion. The thresholds reported are:
    • the percentage area with pixels greater than 80% total cover.
    • the percentage area with pixels greater than 90% total cover.
    • the percentage area with pixels greater than 95% total cover.
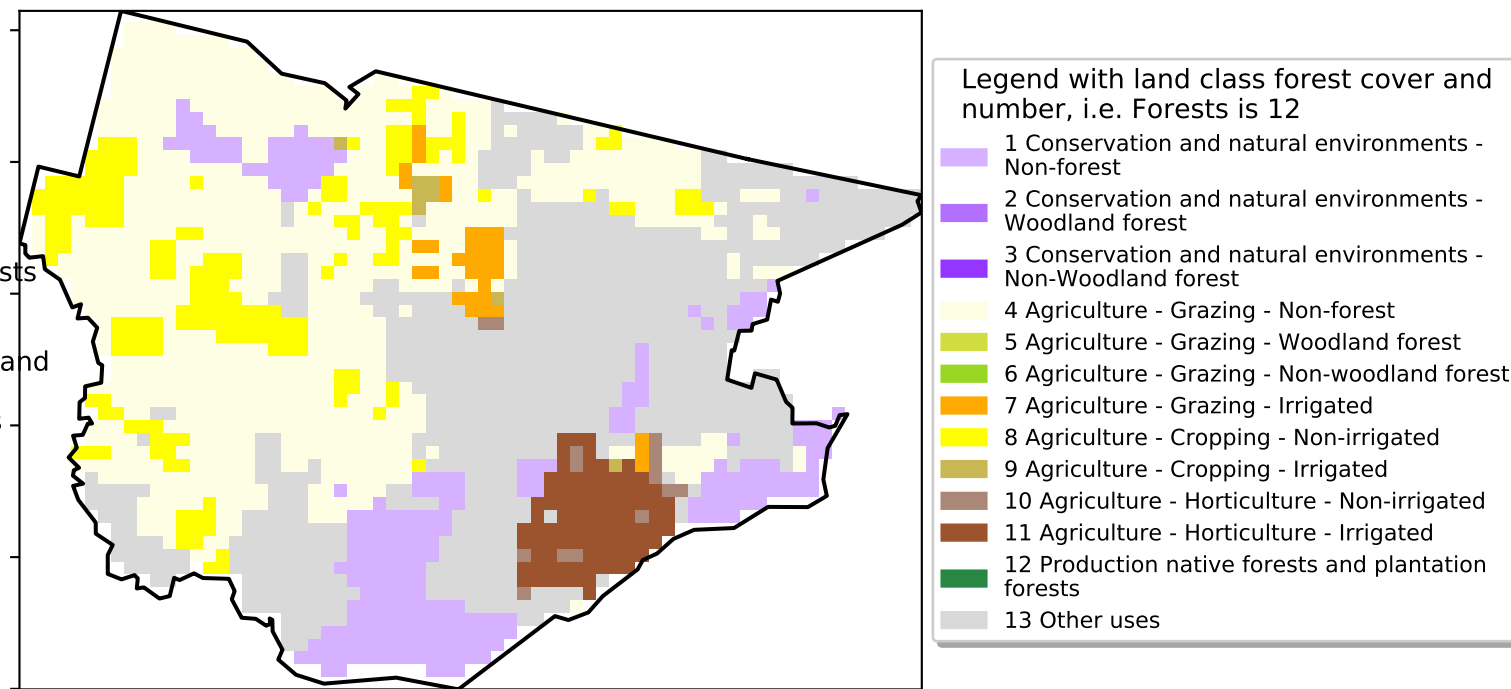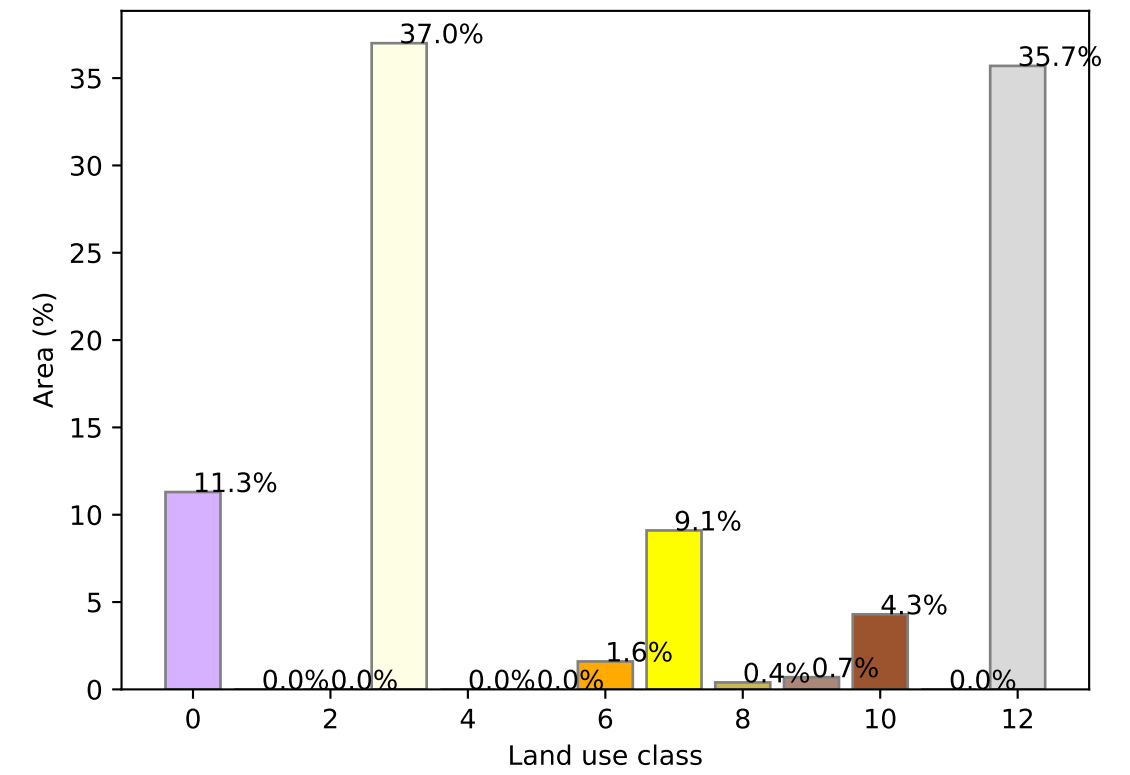
Vegetation Cover Jun 2022

Land use and forest cover
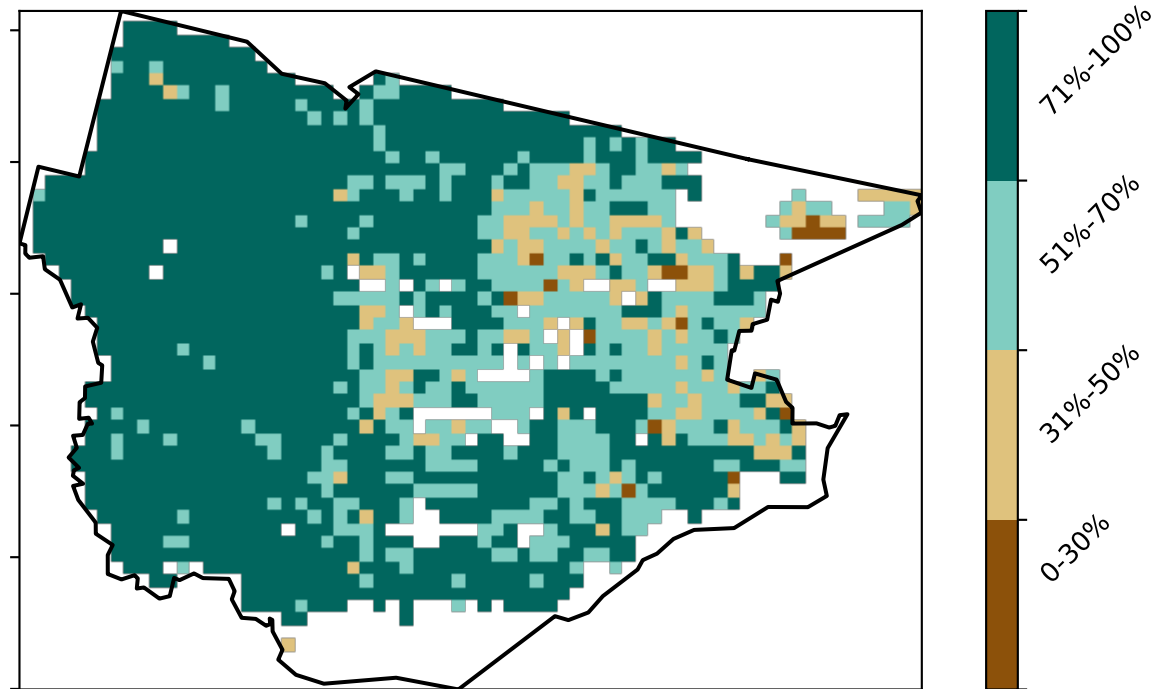
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)
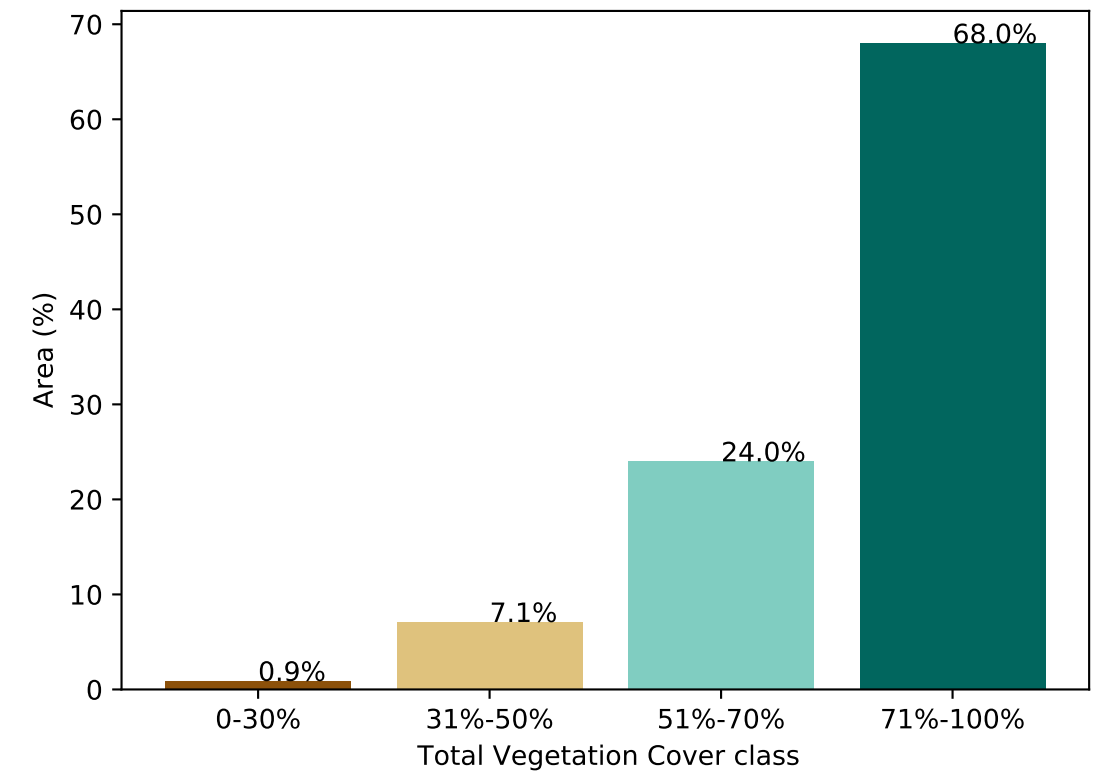
Legend with land class forest cover and number, i.e. Forests is 12
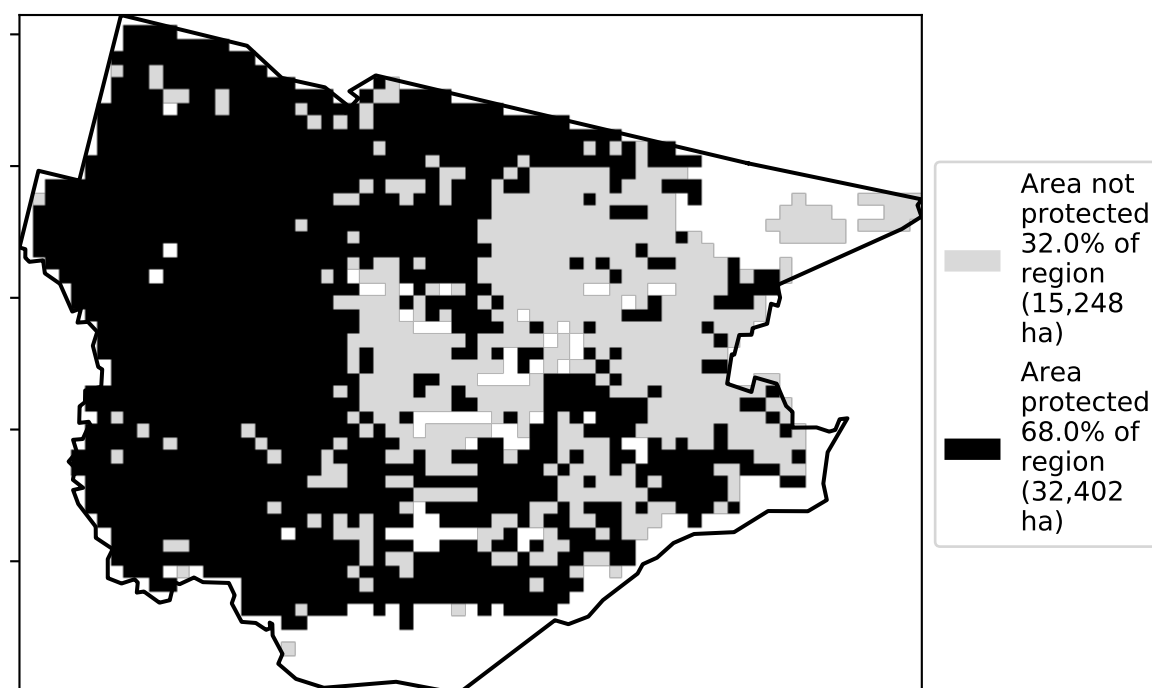
- 1 Conservation and natural environments - Non-forest
- 2 Conservation and natural environments - Woodland forest
- 3 Conservation and natural environments - Non-Woodland forest
- 4 Agriculture - Grazing - Non-forest
- 5 Agriculture - Grazing - Woodland forest
- 6 Agriculture - Grazing - Non-woodland forest
- 7 Agriculture - Grazing - Irrigated
- 8 Agriculture - Cropping - Non-irrigated
- 9 Agriculture - Cropping - Irrigated
- 10 Agriculture - Horticulture - Non-irrigated
- 11 Agriculture - Horticulture - Irrigated
- 12 Production native forests and plantation forests
- 13 Other uses

Proportion of each land class in area

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

% Area protected from water erosion (>70%)

Area not protected 32.0% of region (15,248 ha)

Area protected 68.0% of region (32,402 ha)

% Area protected from wind erosion (>50%)

Area not protected 8.0% of region (3,812 ha)

Area protected 92.0% of region (43,838 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.

Legend:
- 10
- 8-9
- 4-7
- 2-3
- 1

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

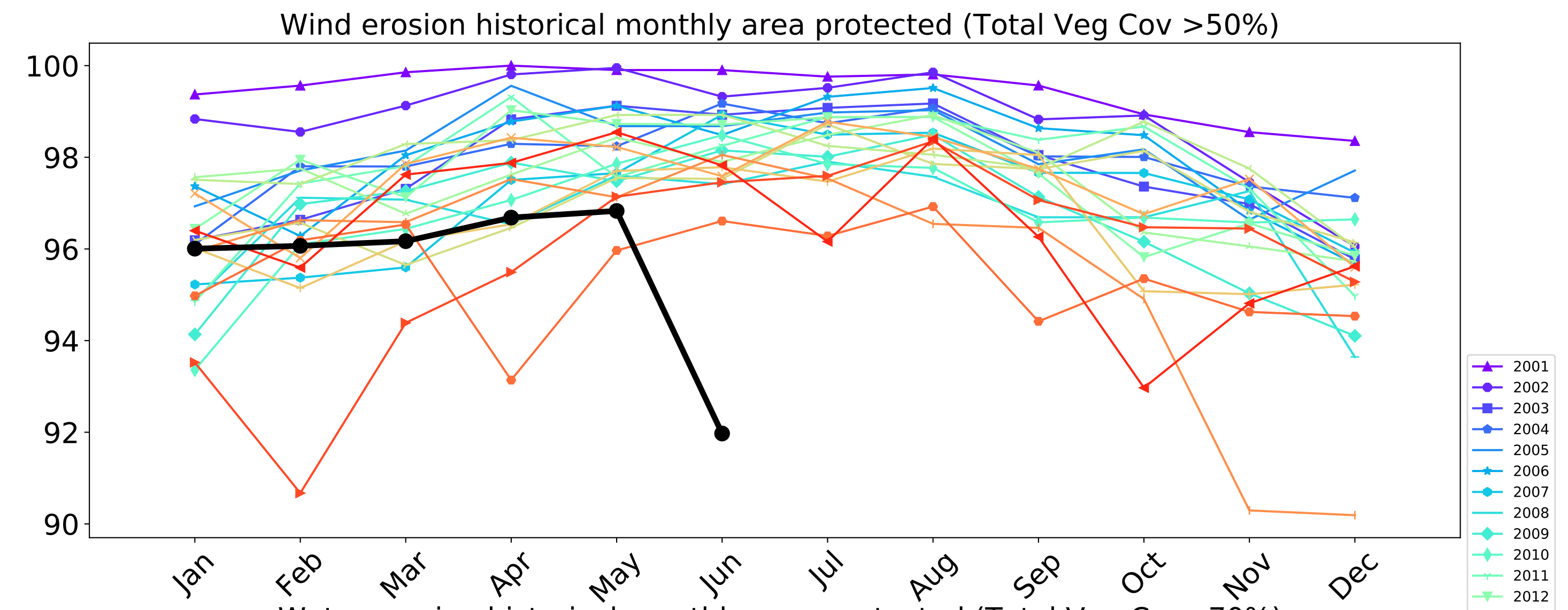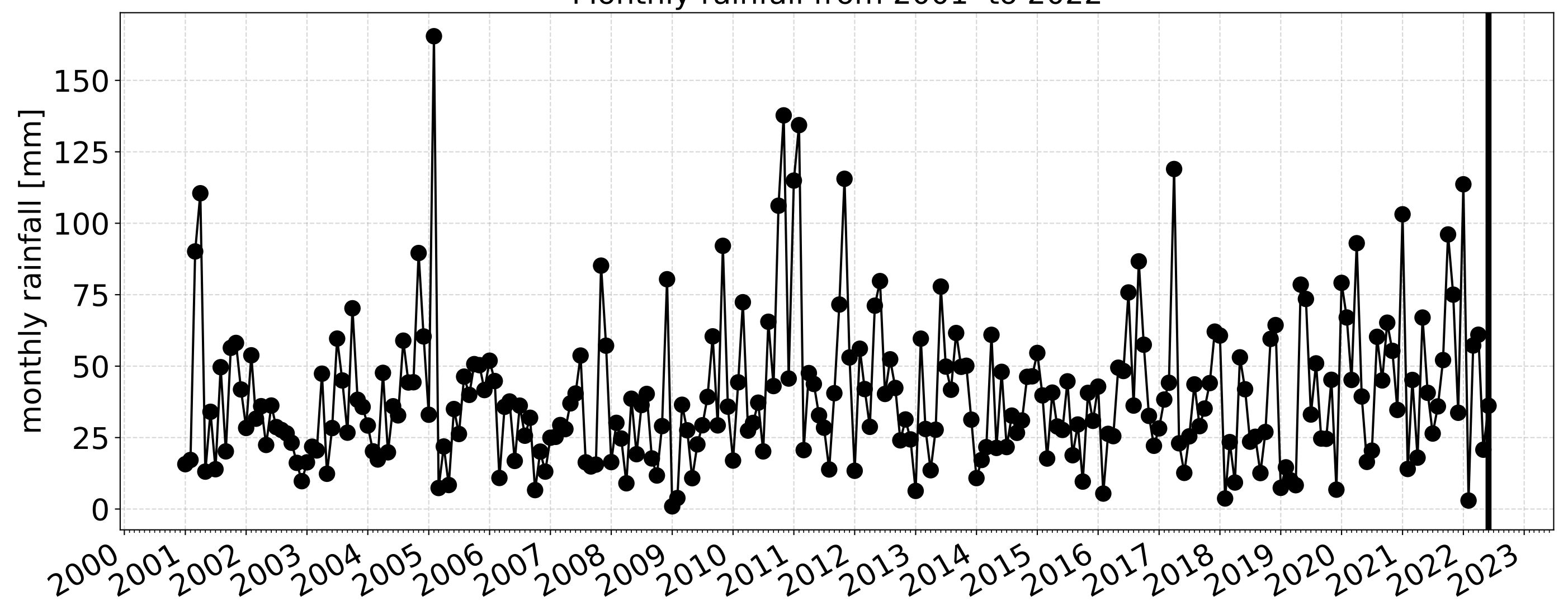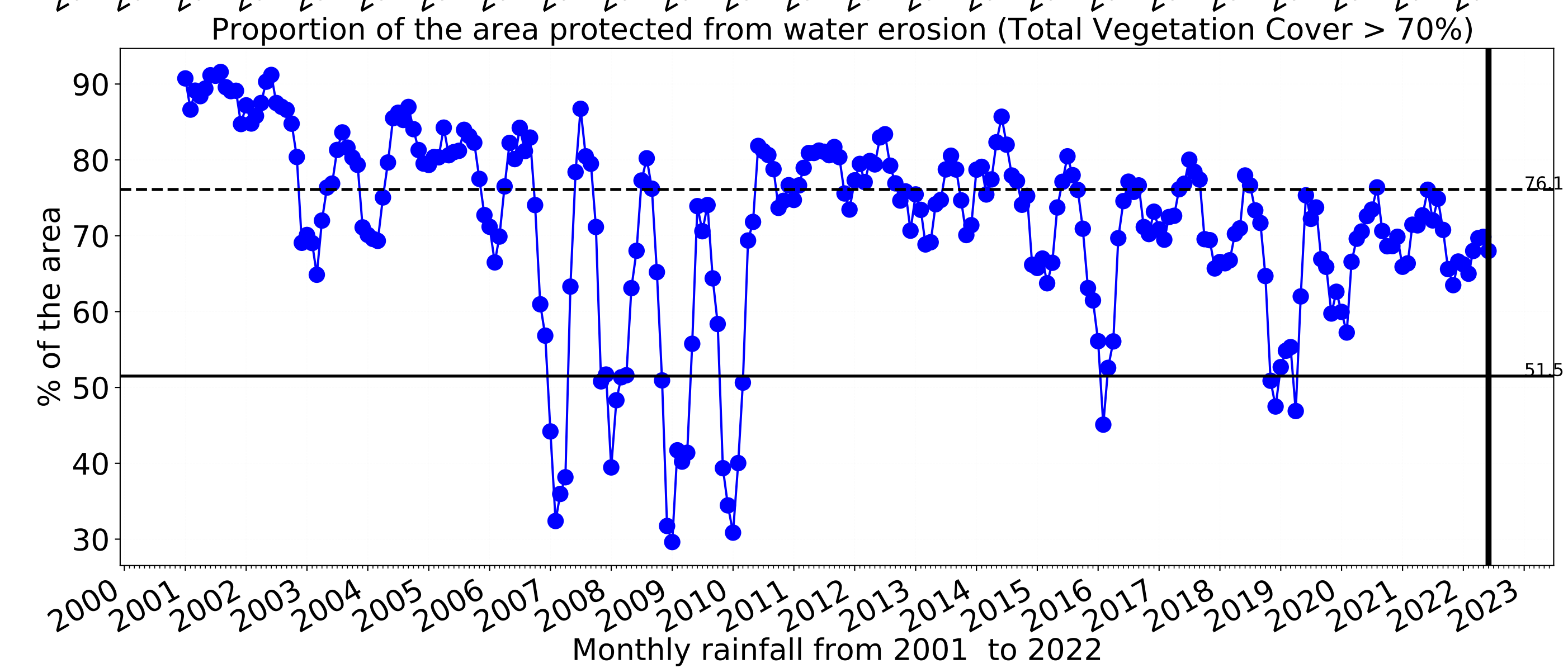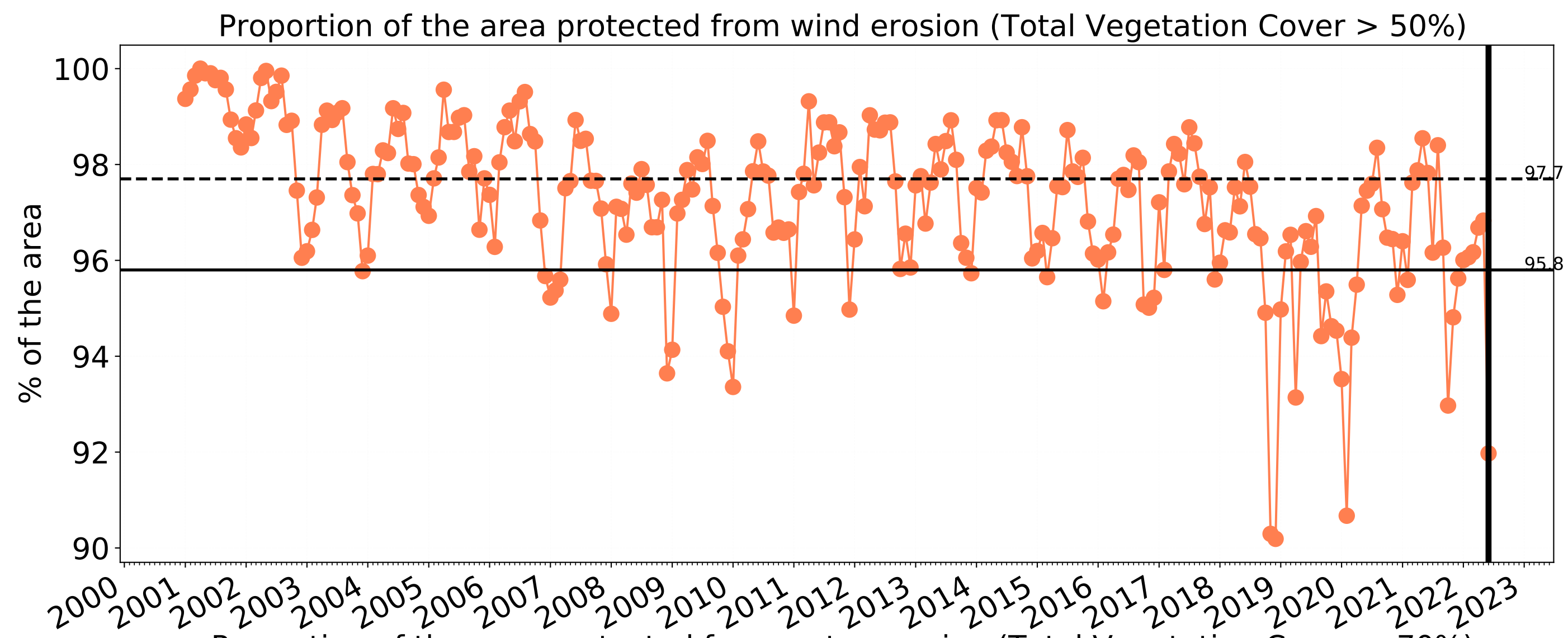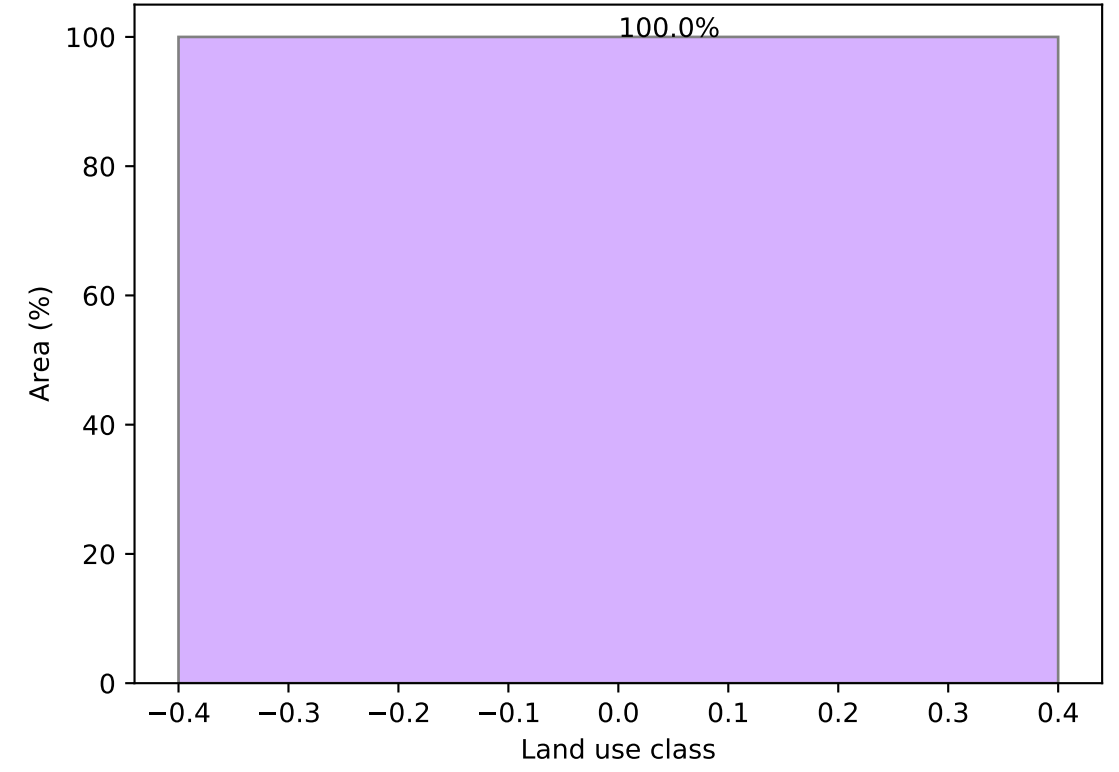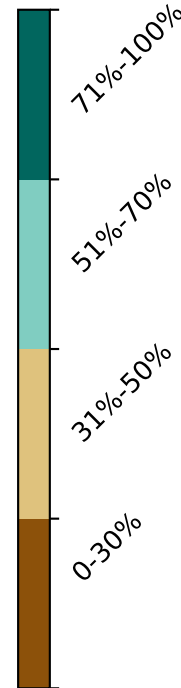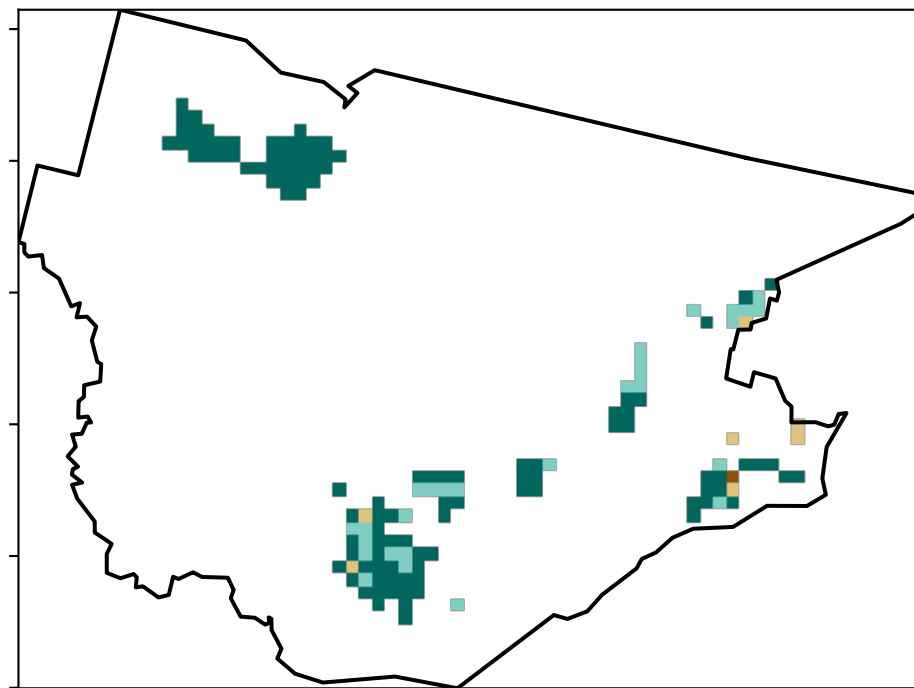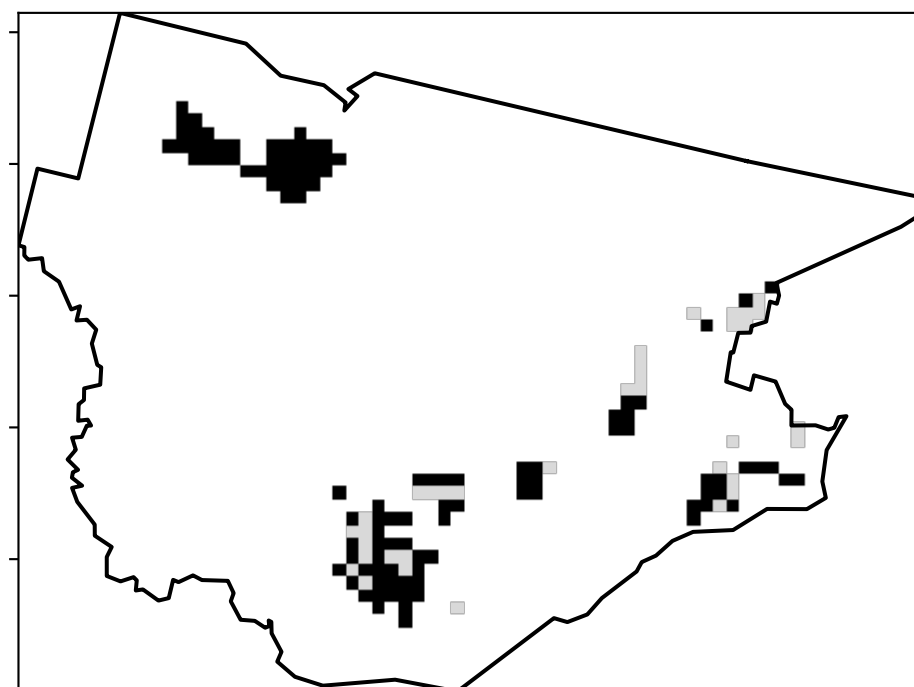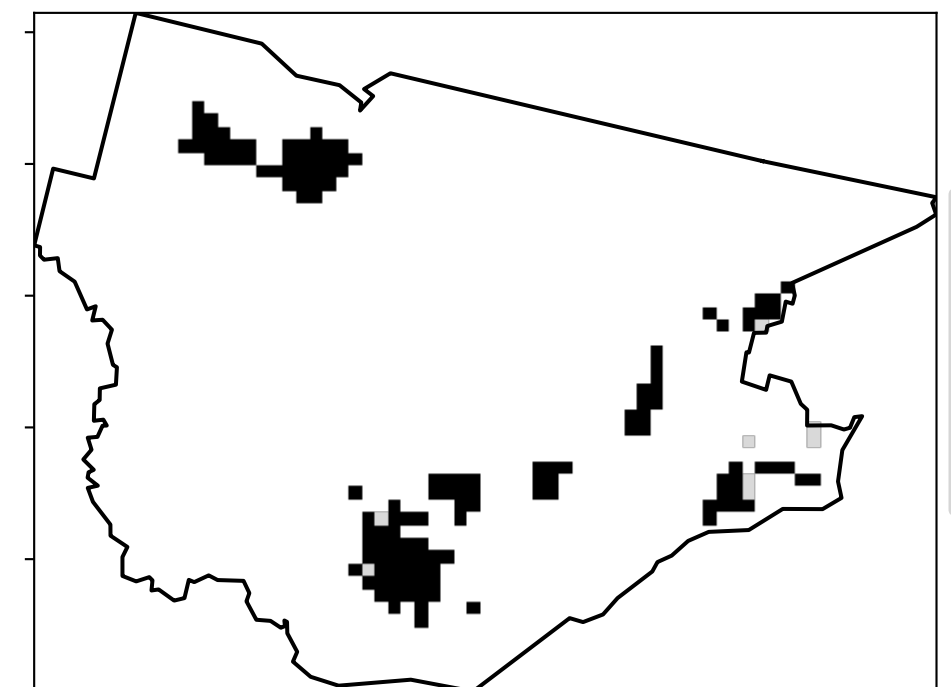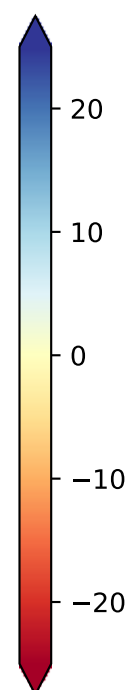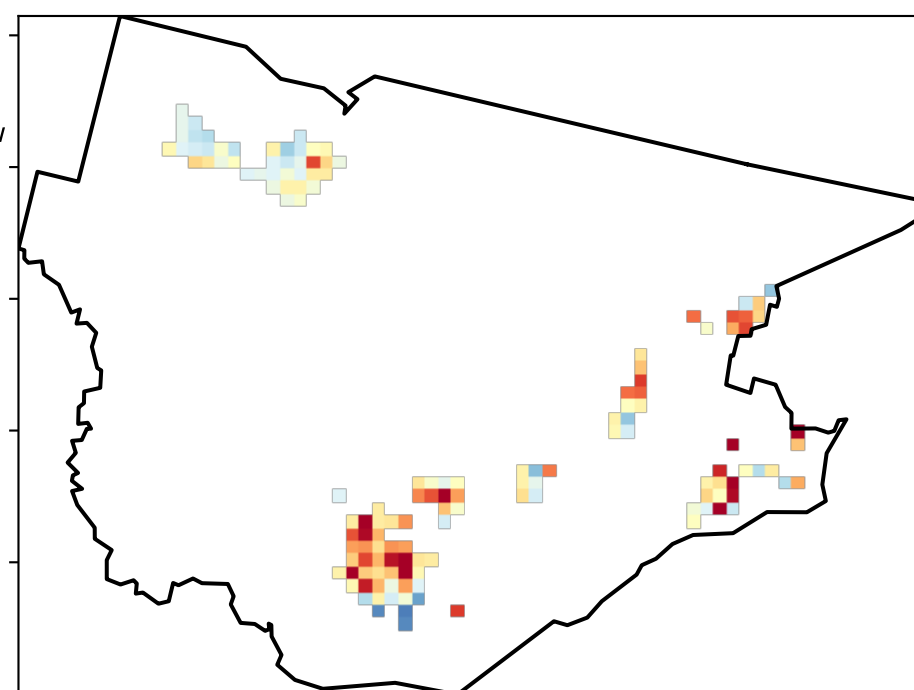## Wind erosion historical monthly area protected (Total Veg Cov >50%)

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 2022

Rainfall: historical monthly

3

Conservation and natural environments

Land use and forest cover

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

1 Conservation and natural environments - Non-forest

Proportion of each land class in area

100.0%

Area (%)

Land use class

Total Vegetation Cover [%]

71%-100%

51%-70%

31%-50%

0-30%

Proportion of vegetation cover class in area

Area (%)

75.0%

19.4%

0.7%   4.9%

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

Total Vegetation Cover class

% Area protected from water erosion (>70%)

Area not protected 25.0% of region (900 ha)

Area protected 75.0% of region (2,700 ha)

% Area protected from wind erosion (>50%)

Area not protected 6.0% of region (216 ha)

Area protected 94.0% of region (3,384 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.

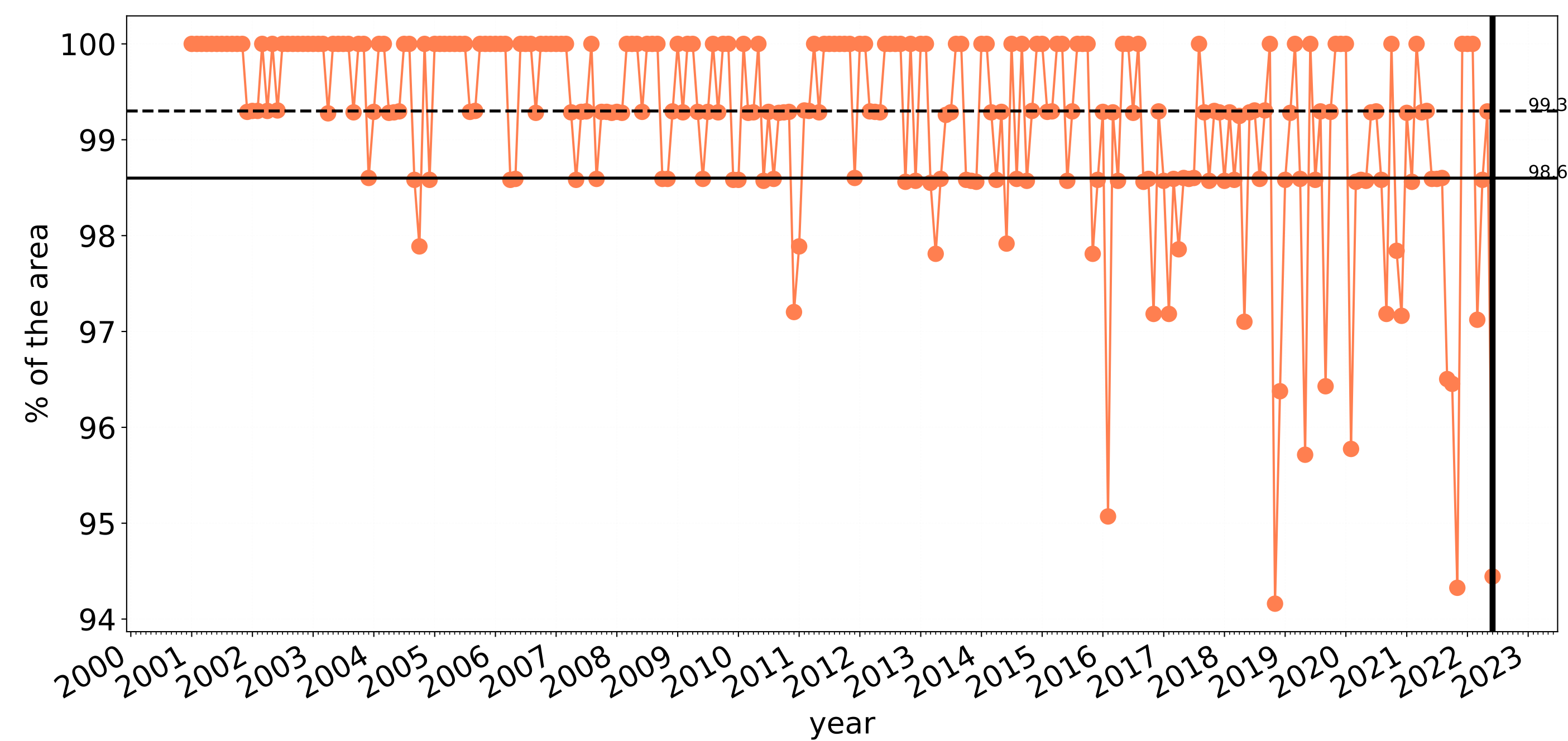## Total Vegetation Cover Decile [%]

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.

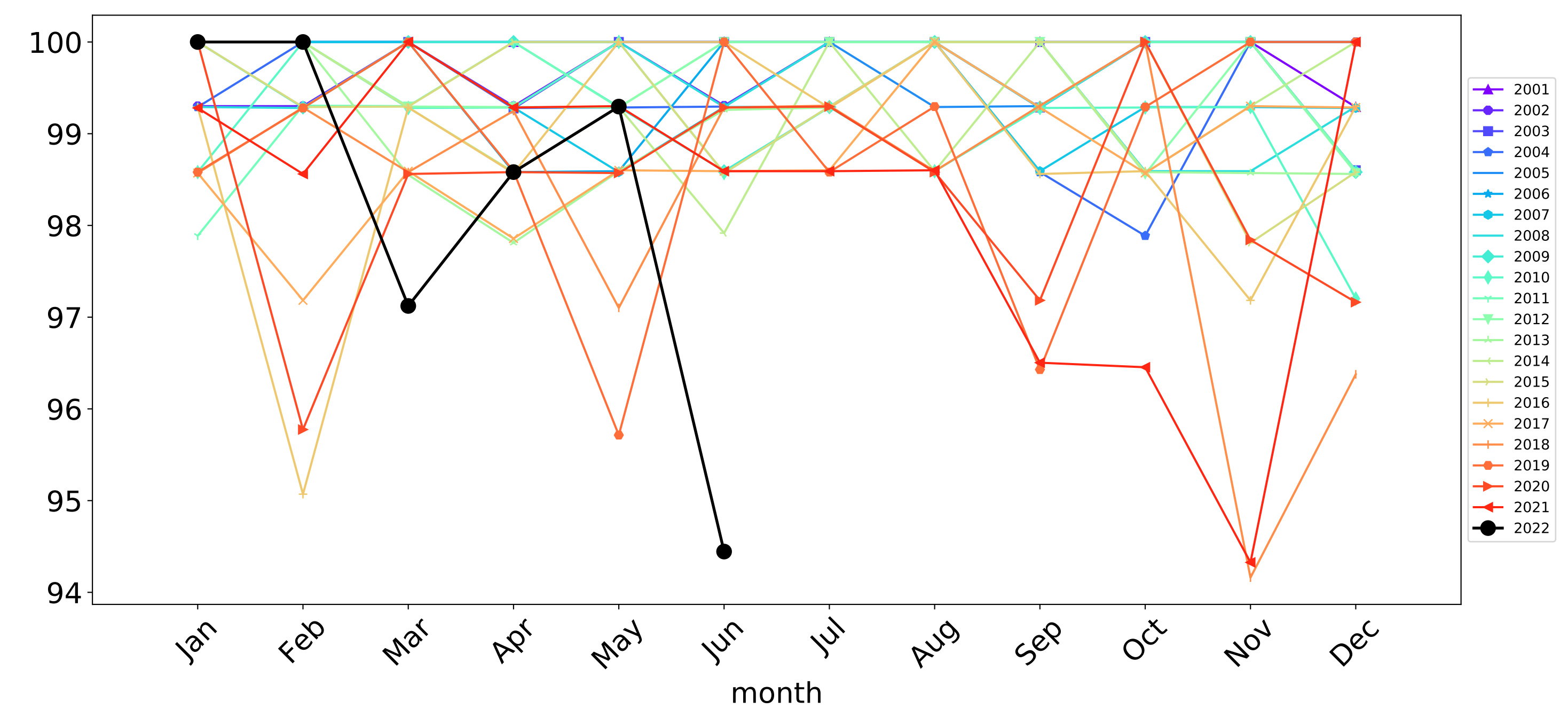10

8-9

4-7

2-3

1

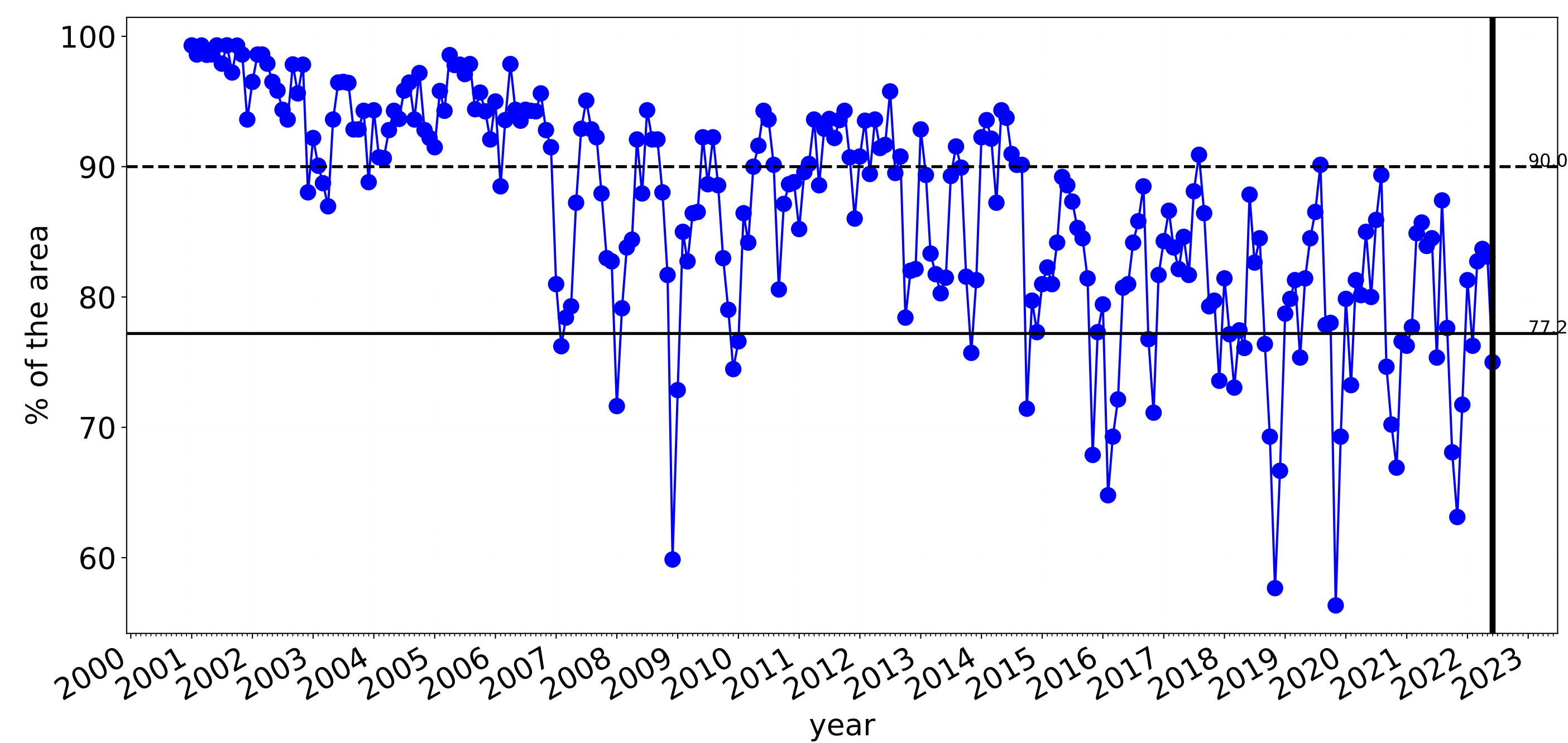# Conservation and natural environments timeseries

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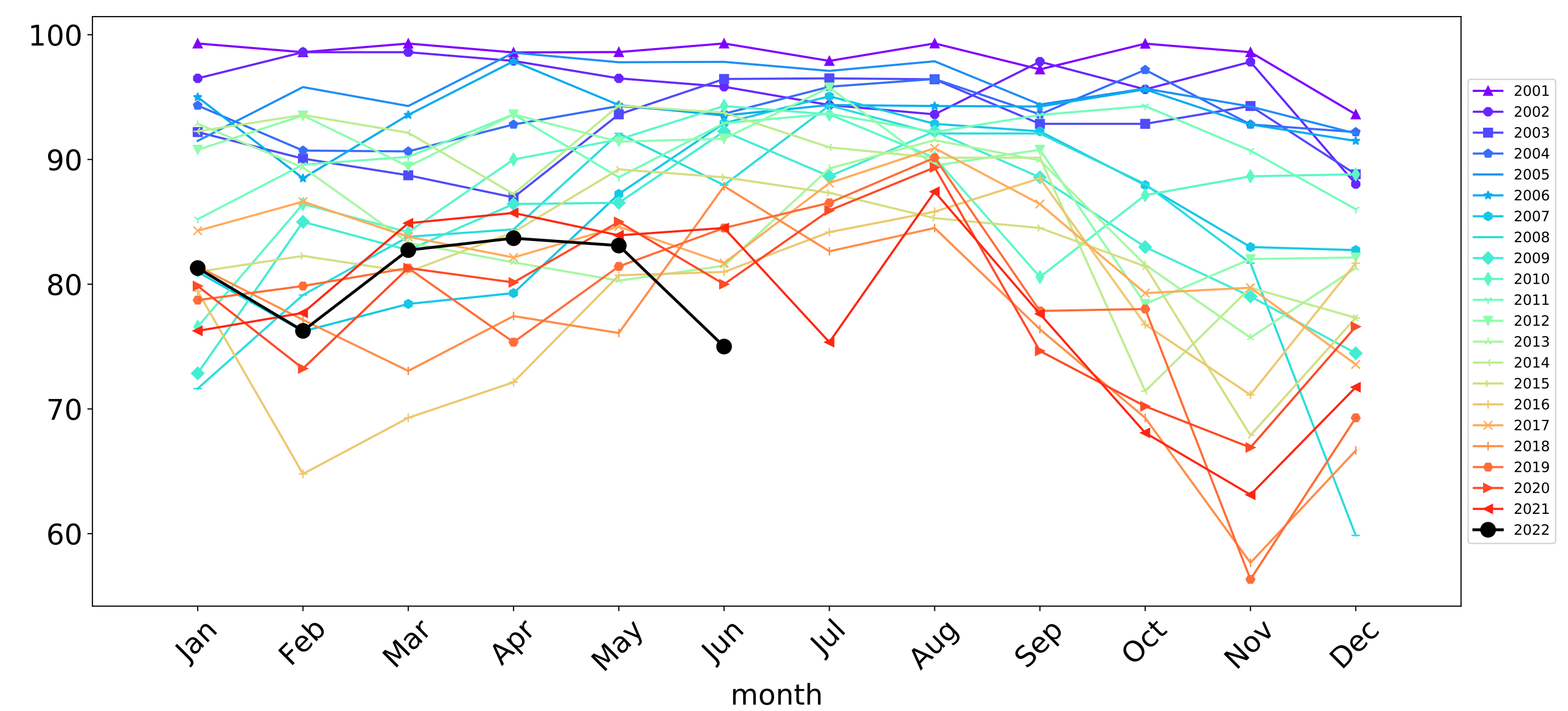

Wind erosion historical monthly area protected (Total Veg Cov >50%)

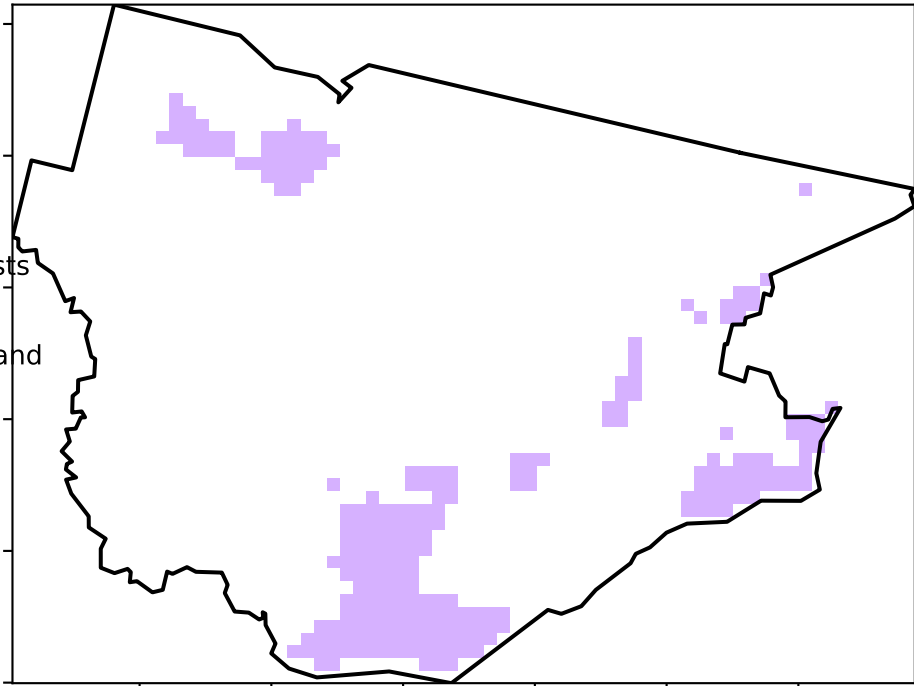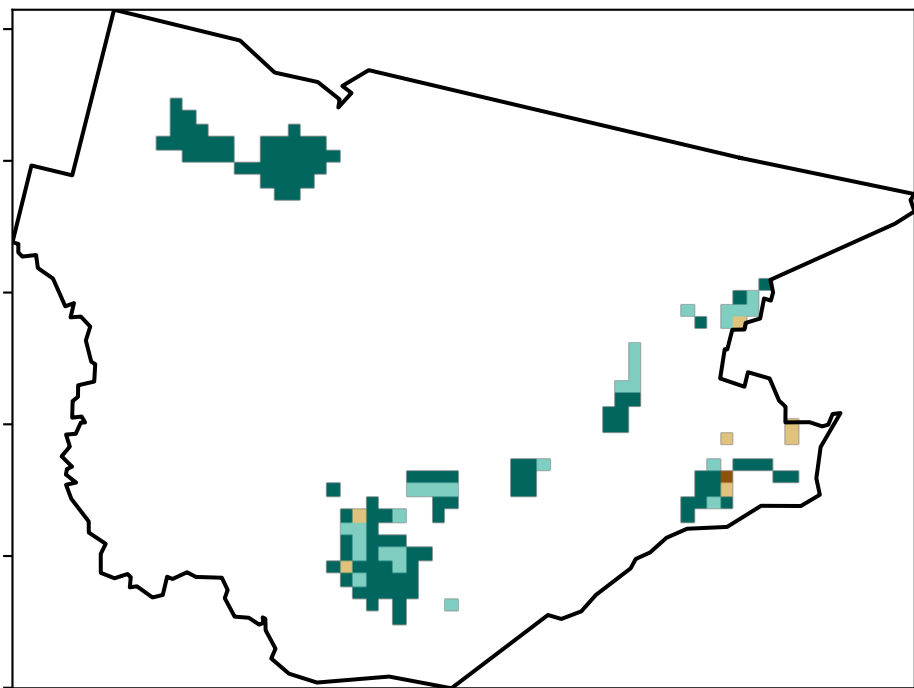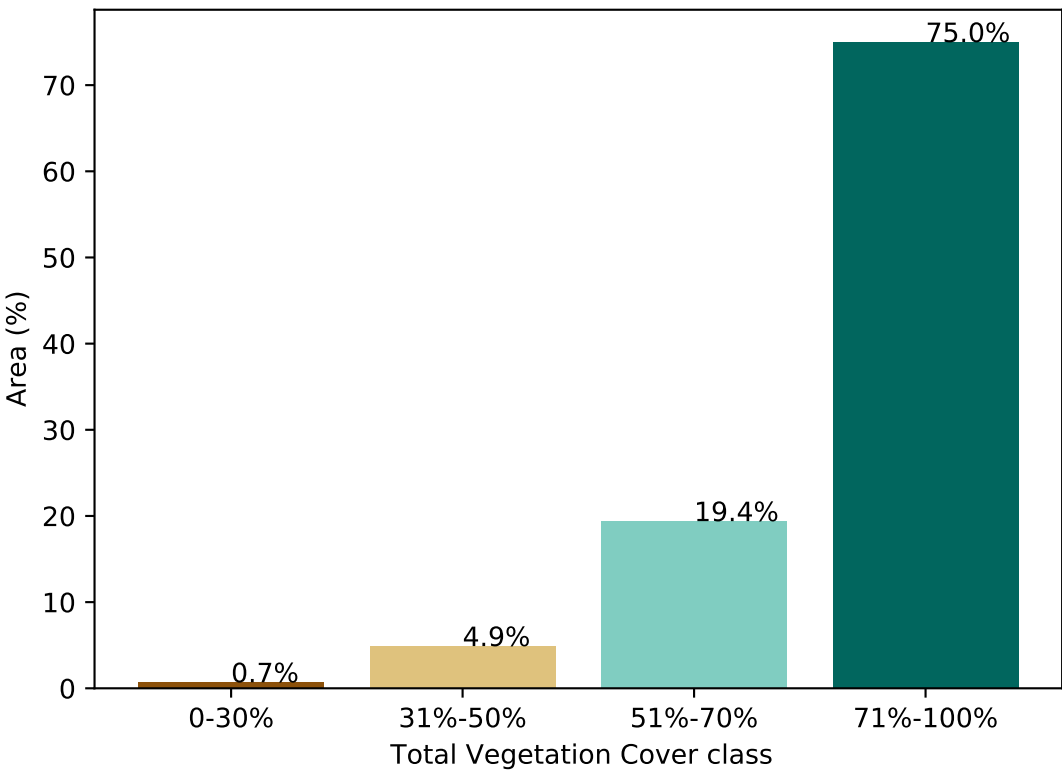Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

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

Conservation and natural environments non forest

Land use and forest cover

Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)
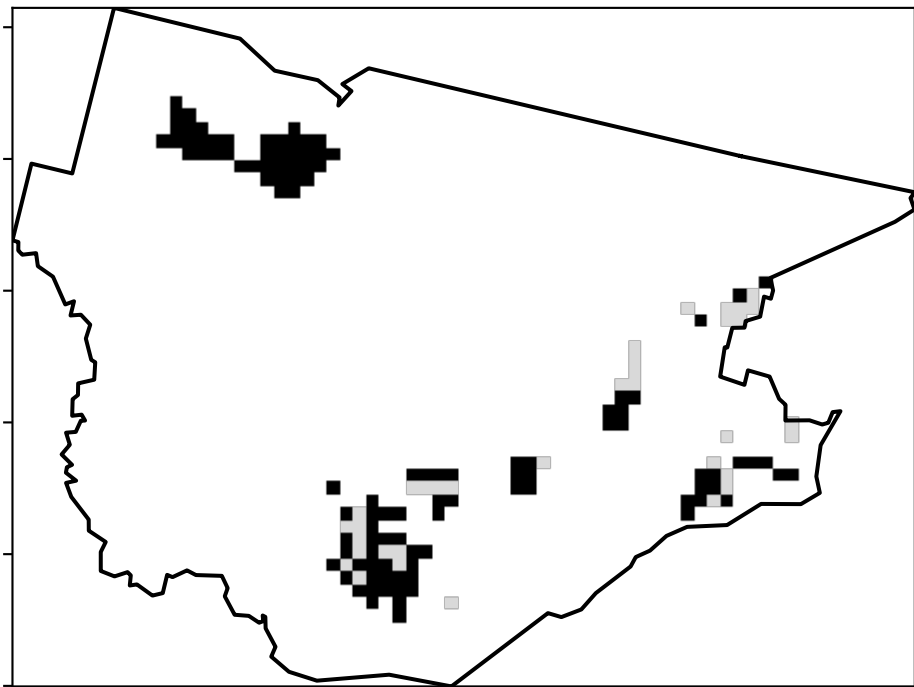
1 Conservation and natural environments - Non-forest

Total Vegetation Cover [%]

71%-100%

51%-70%

31%-50%

0-30%

Proportion of vegetation cover class in area

Area (%)

75.0%

19.4%

4.9%

0.7%

Total Vegetation Cover class

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

% Area protected from water erosion (>70%)

Area not
protected
25.0% of
region
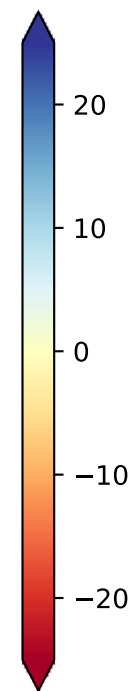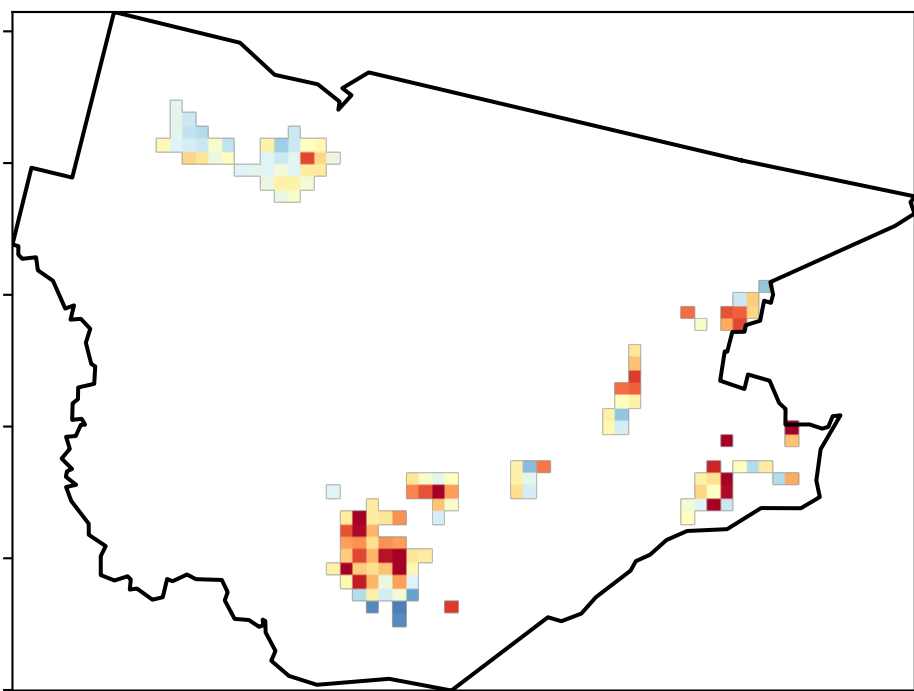(900 ha)

Area
protected
75.0% of
region
(2,700 ha)

% Area protected from wind erosion (>50%)

Area not
protected
6.0% of
region
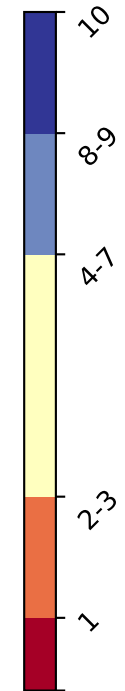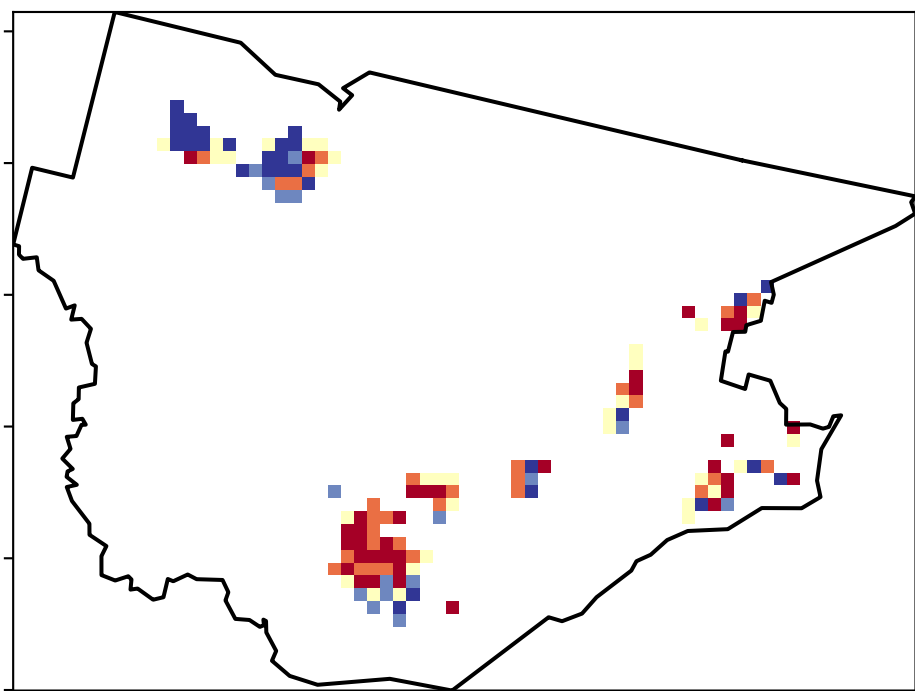(216 ha)

Area
protected
94.0% of
region
(3,384 ha)

Total Vegetation Cover Anomaly [%]

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2019.

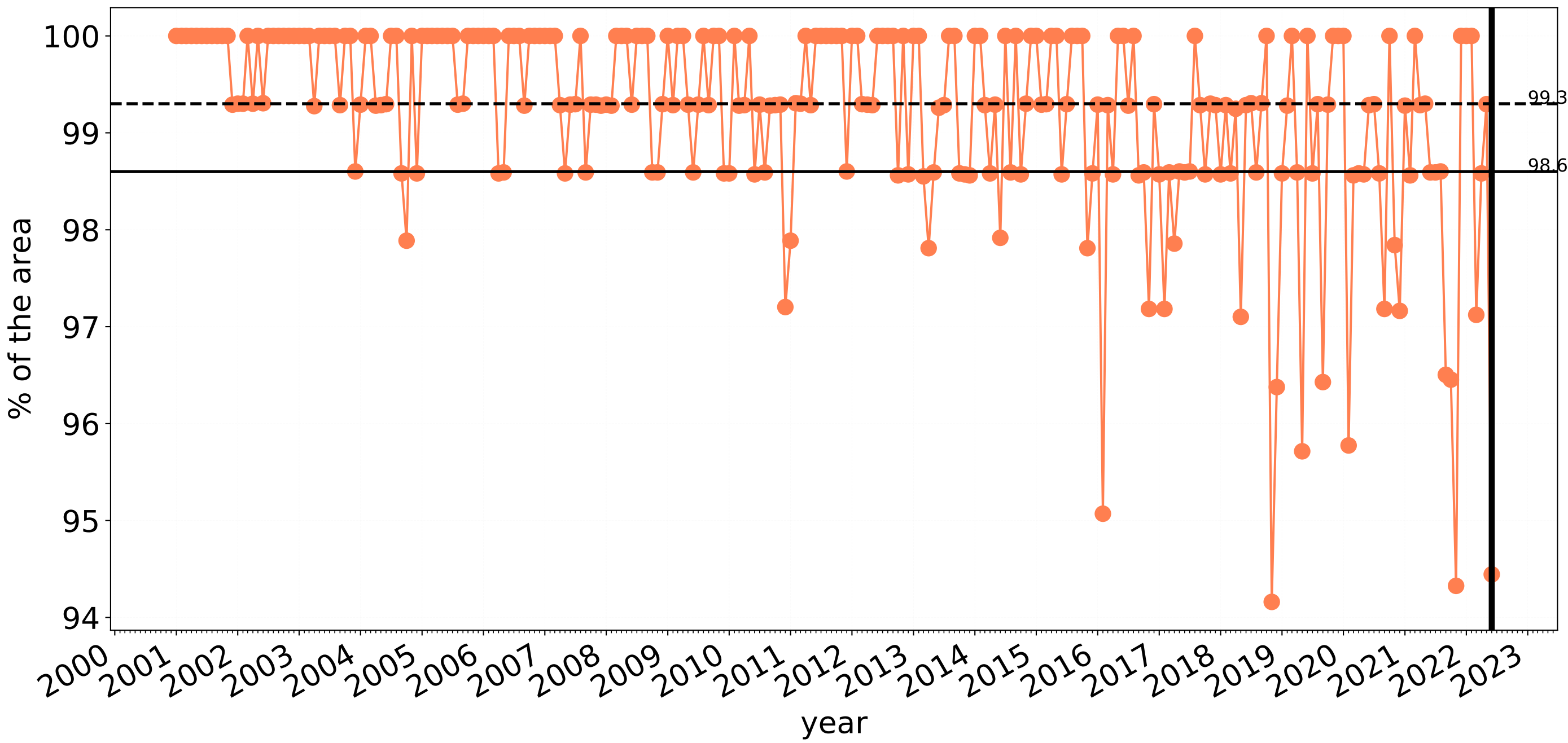### Total Vegetation Cover Decile [%]

10

8-9

4-7

2-3

1

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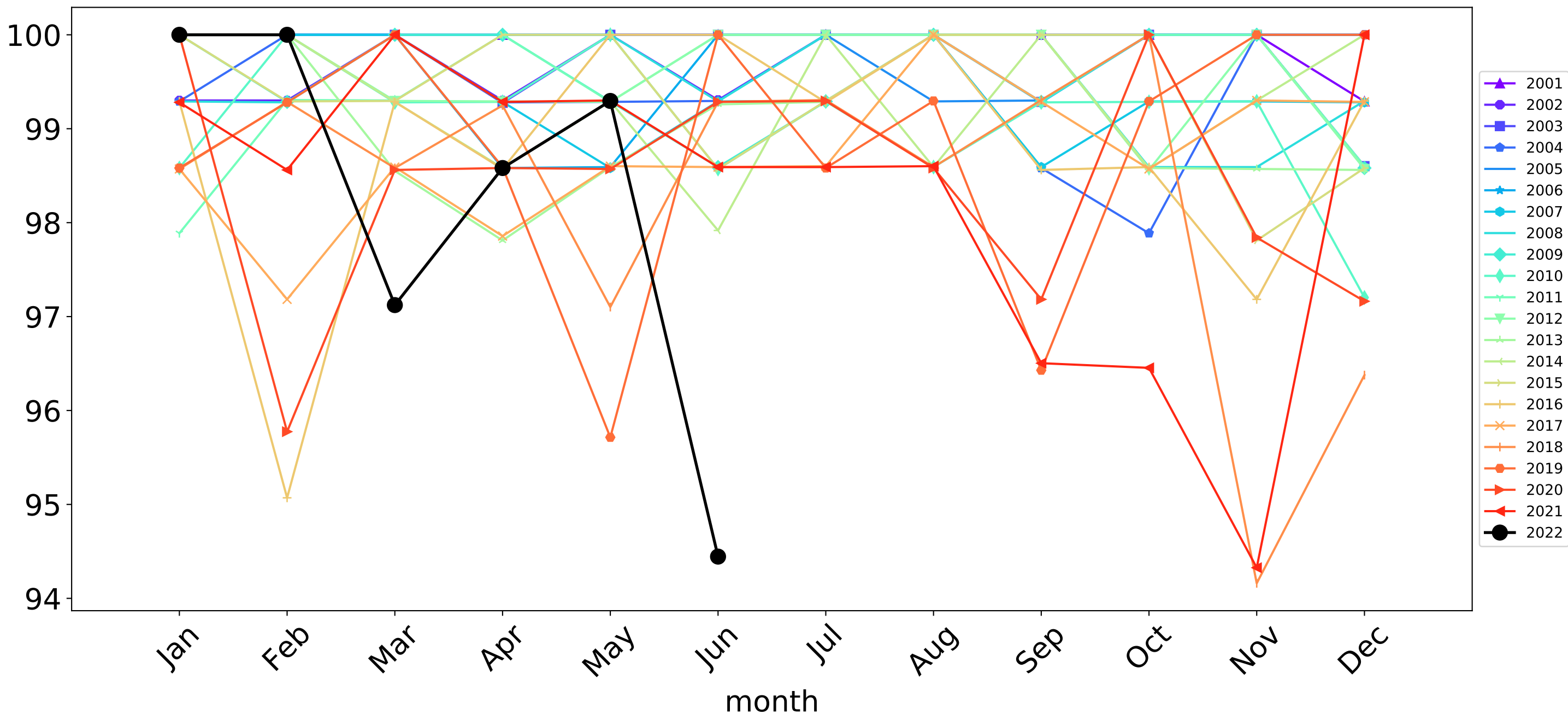the map using baseline
from 2001 to 2019.

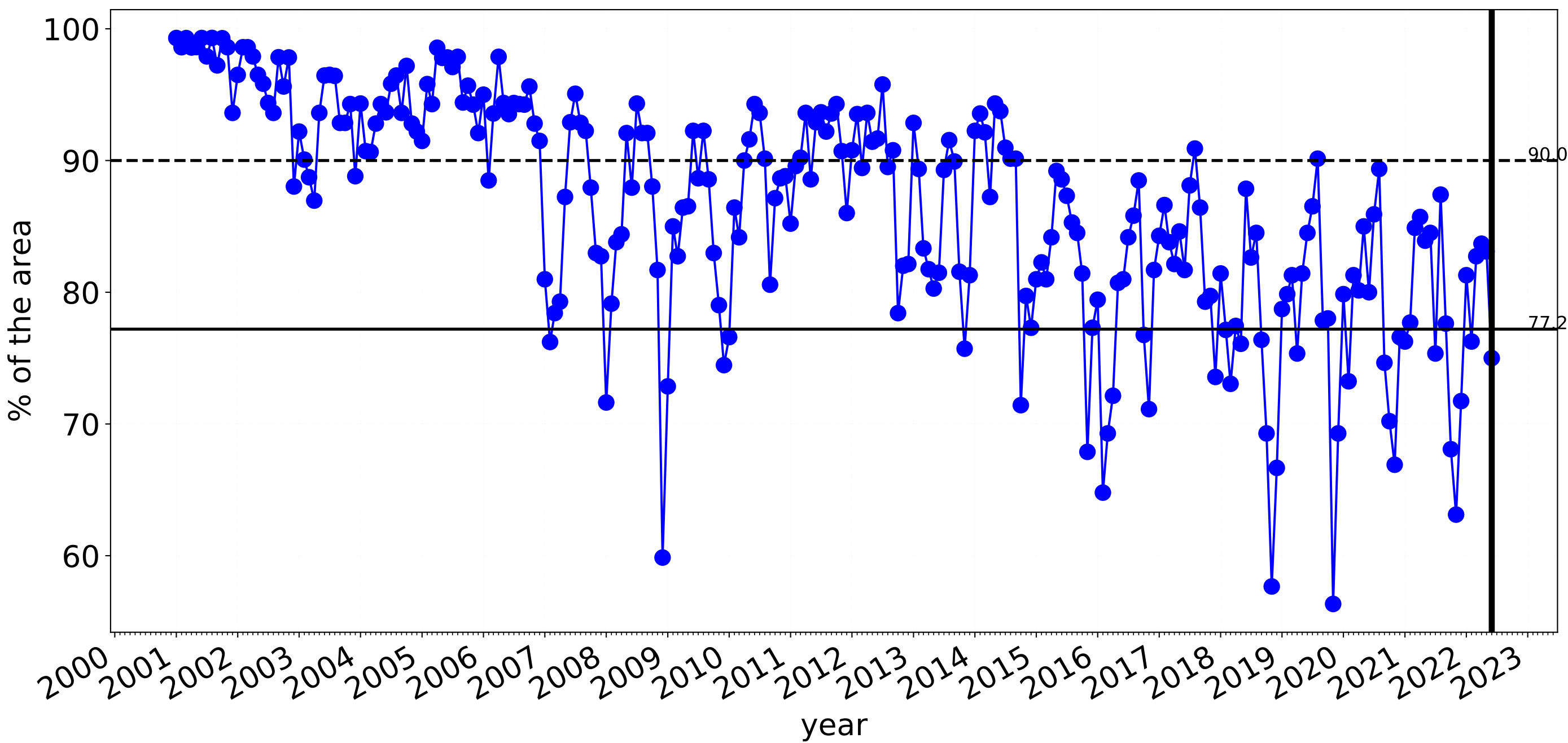# Conservation and natural environments non forest timeseries

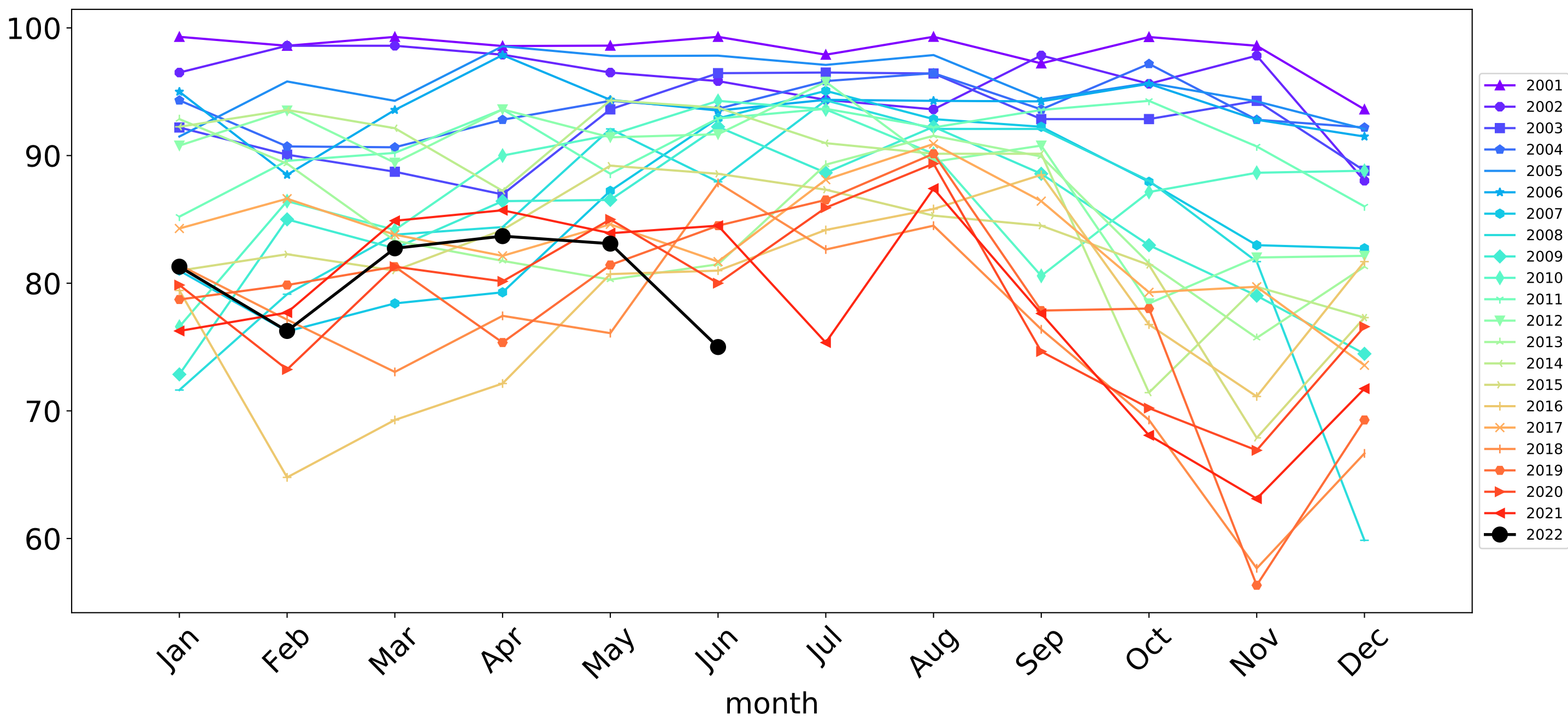Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

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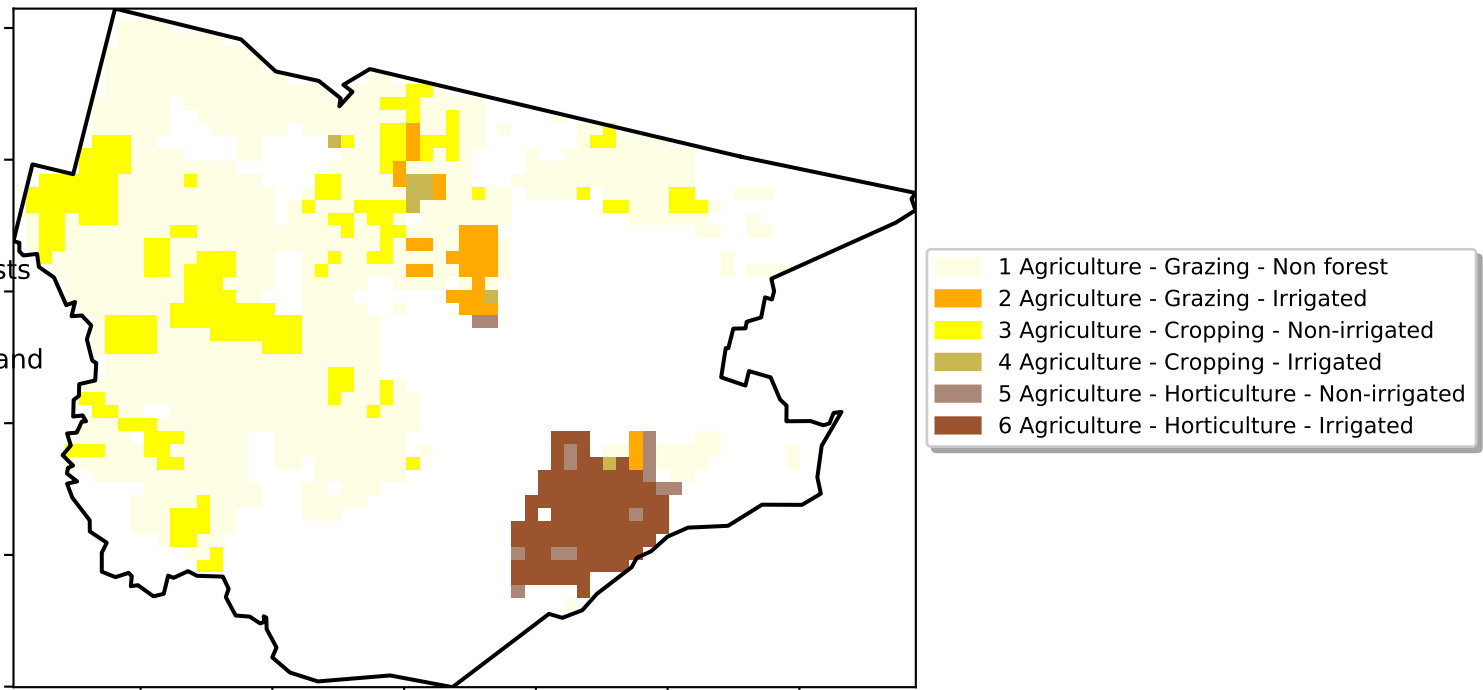

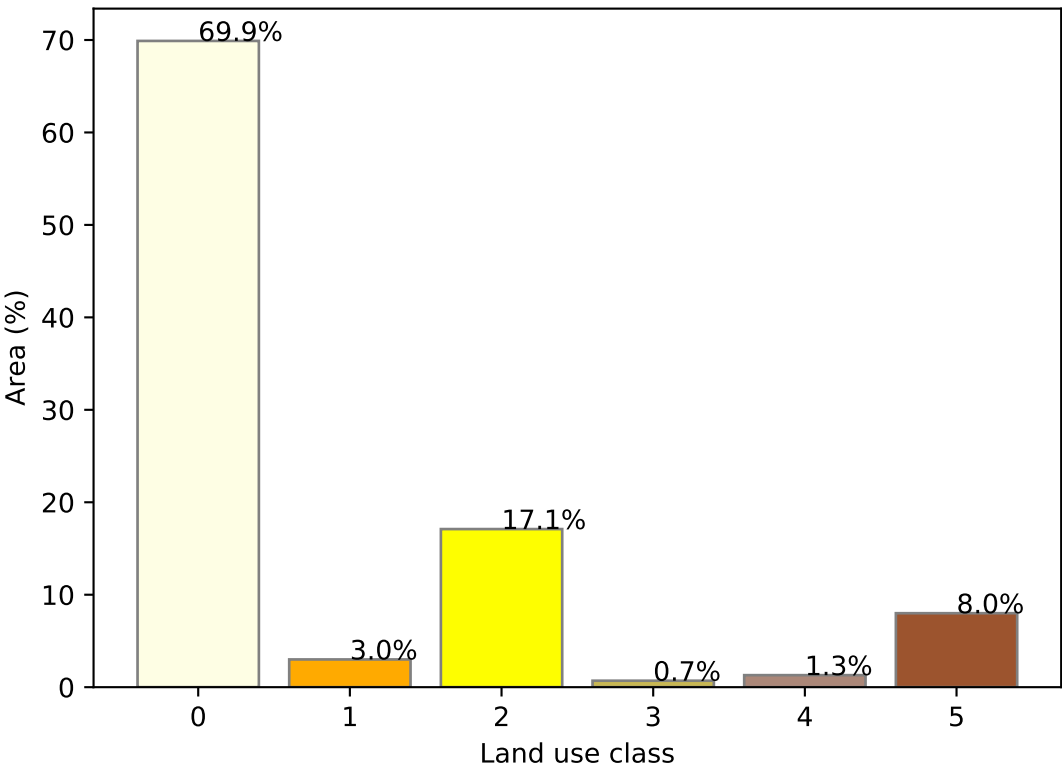Water erosion historical monthly area protected (Total Veg Cov>70%)
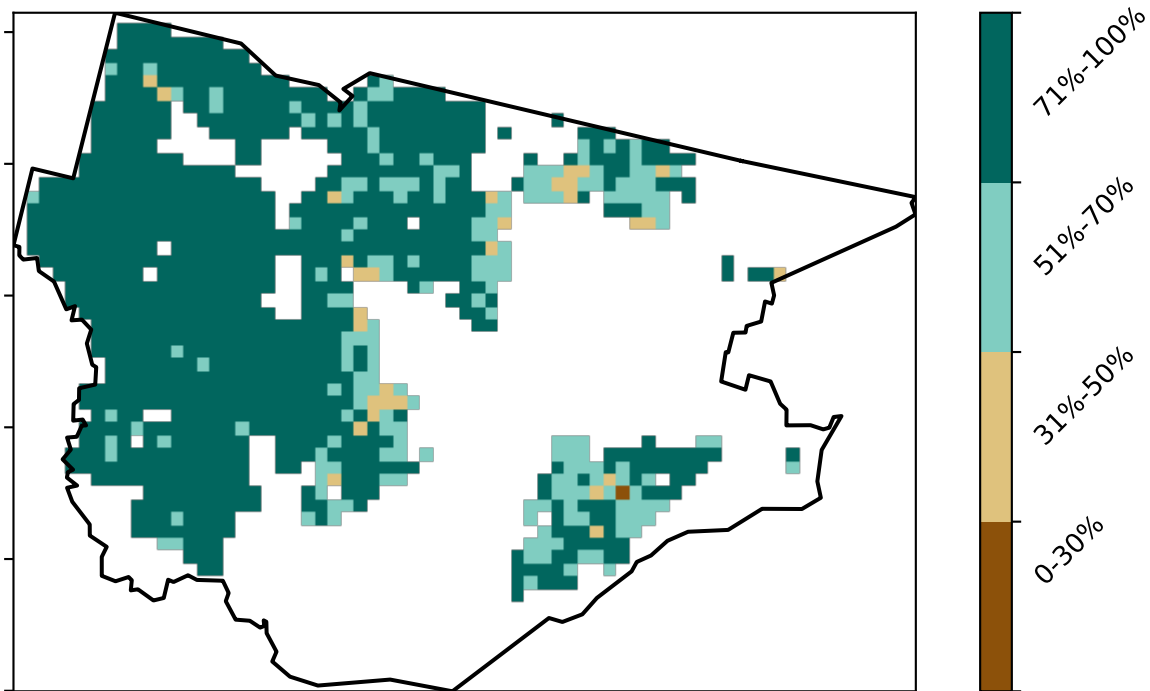
Agriculture

Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)
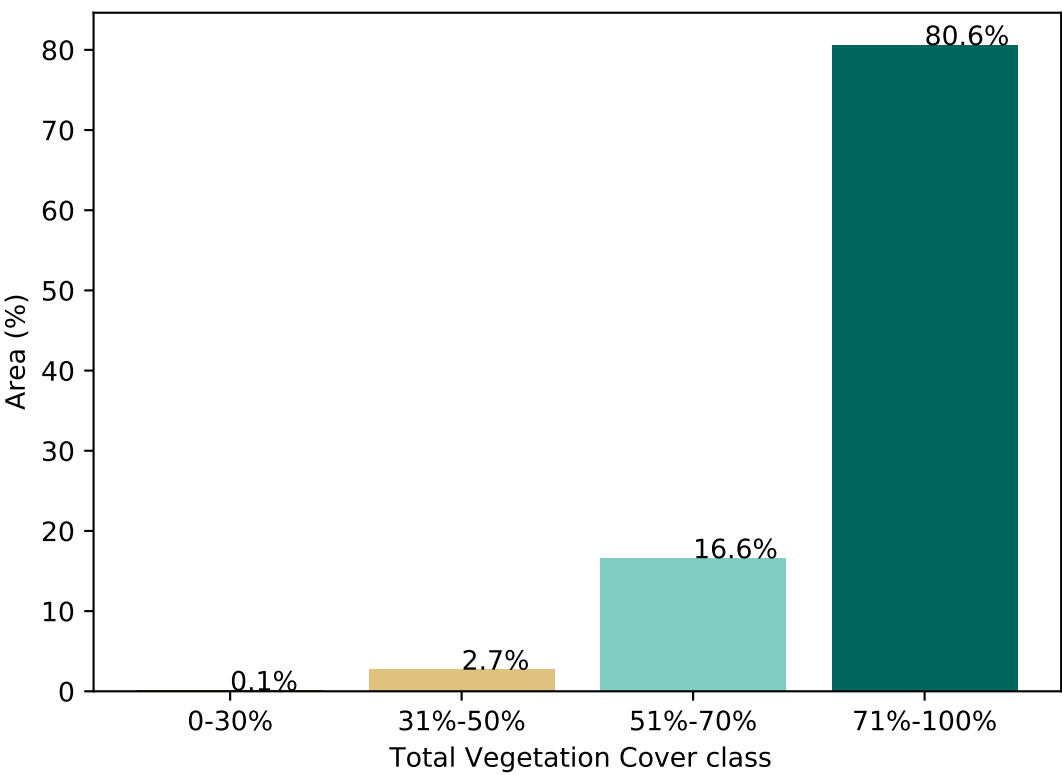
Legend:
1 Agriculture - Grazing - Non forest
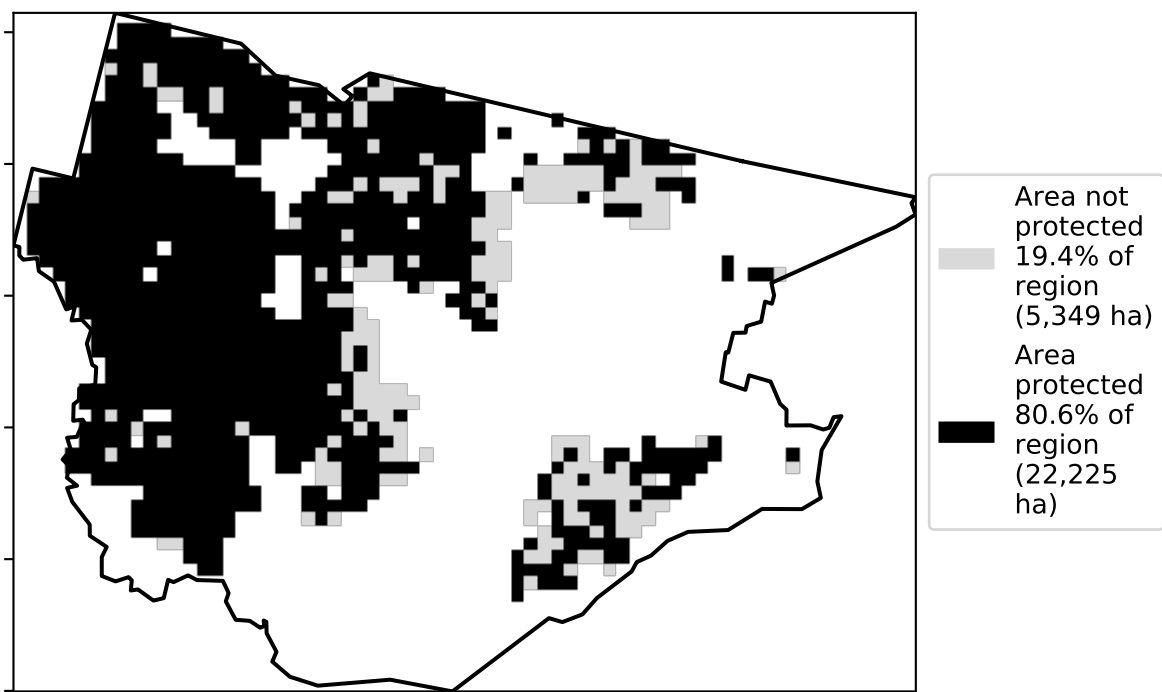2 Agriculture - Grazing - Irrigated
3 Agriculture - Cropping - Non-irrigated
4 Agriculture - Cropping - Irrigated
5 Agriculture - Horticulture - Non-irrigated
6 Agriculture - Horticulture - Irrigated

Proportion of each land class in area

Total Vegetation Cover [%]

Legend: 71%-100%, 51%-70%, 31%-50%, 0-30%

Proportion of vegetation cover class in area

% Area protected from water erosion (>70%)

Area not protected 19.4% of region (5,349 ha)

Area protected 80.6% of region (22,225 ha)

% Area protected from wind erosion (>50%)

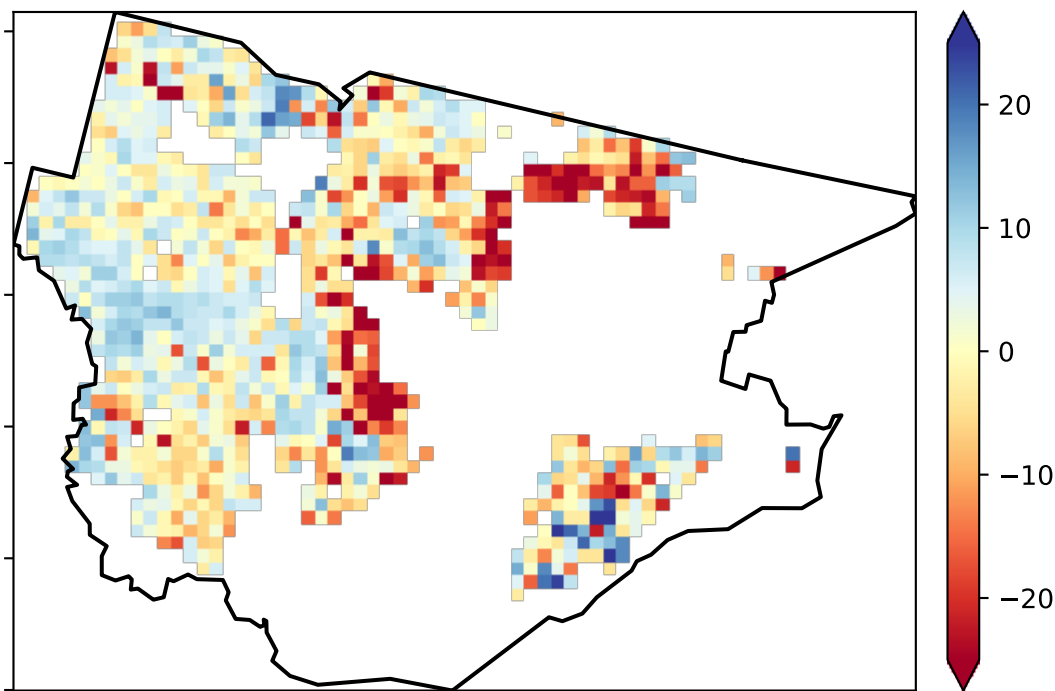Area not protected 3.0% of region (827 ha)

Area protected 97.0% of region (26,747 ha)

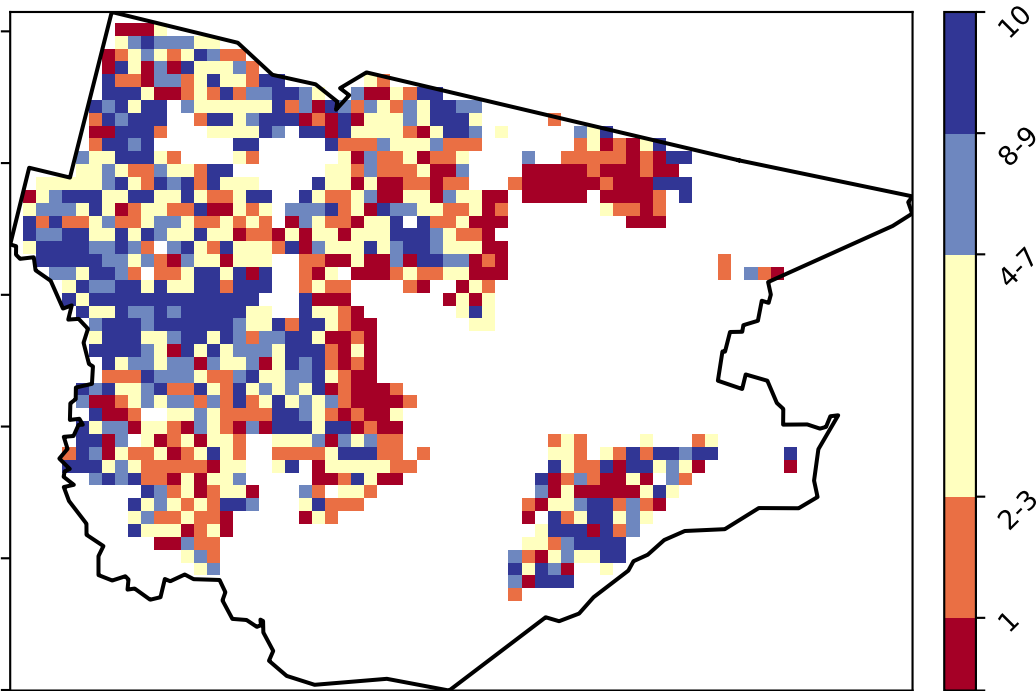## Total Vegetation Cover Anomaly [%]

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.
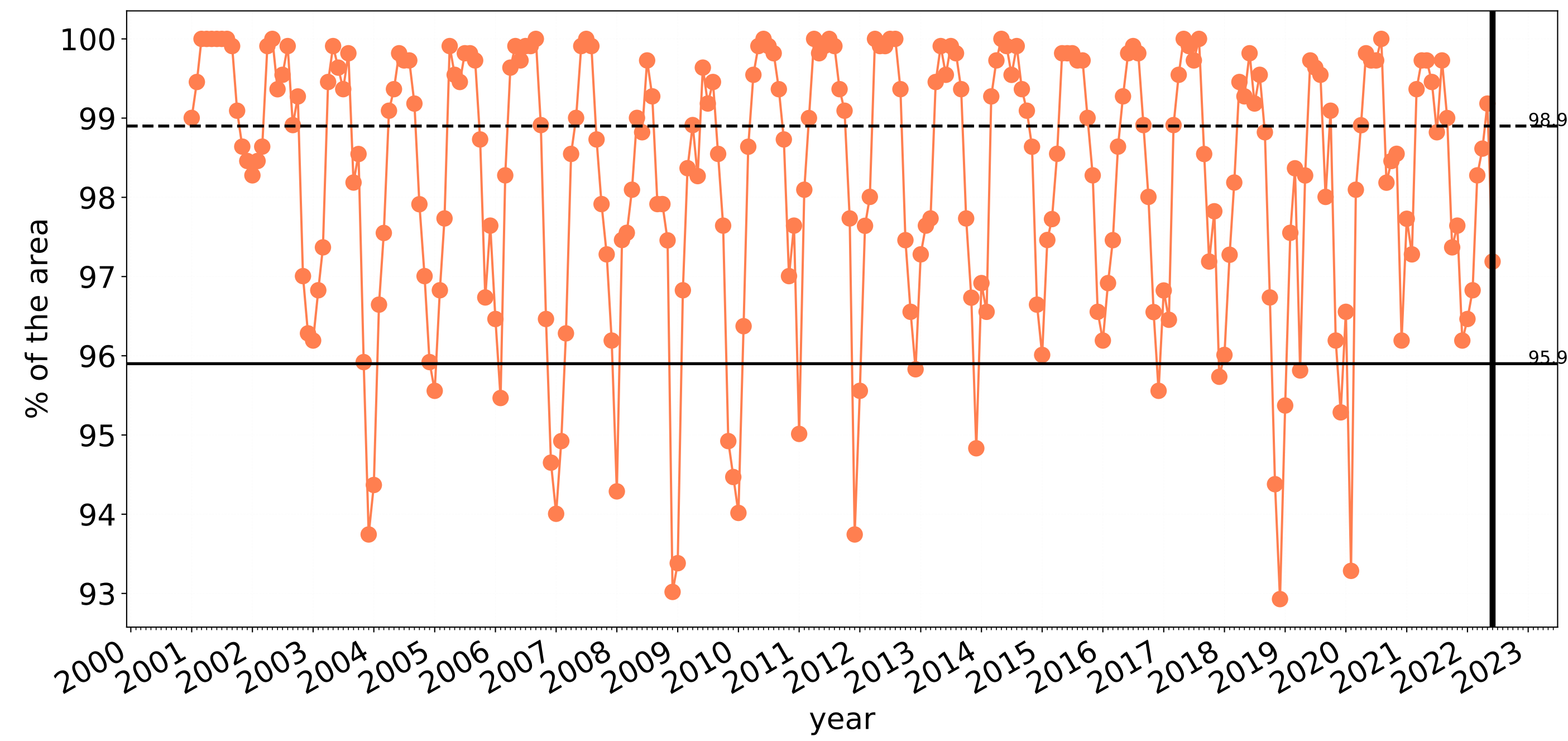
Total Vegetation Cover Decile [%]

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.
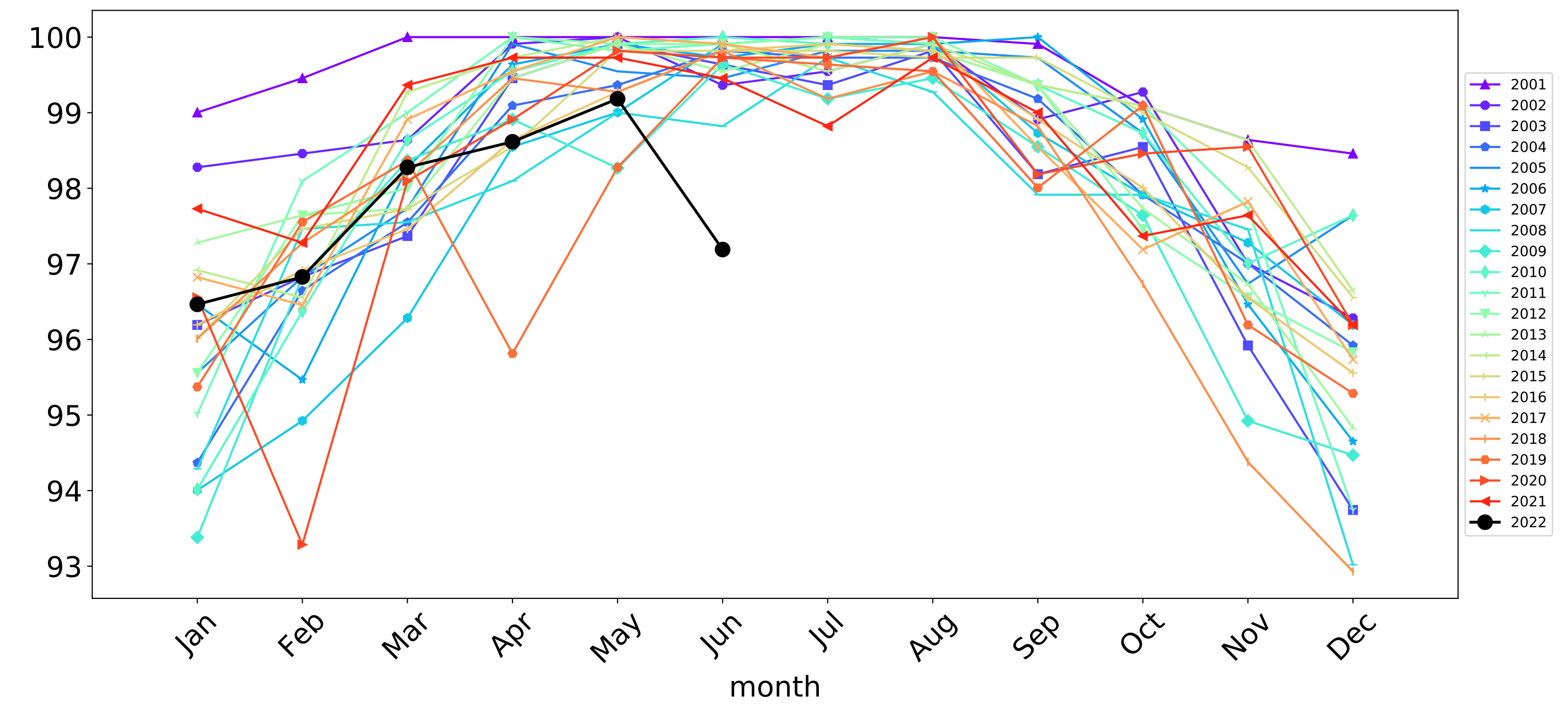
Legend: 10, 8-9, 4-7, 2-3, 1
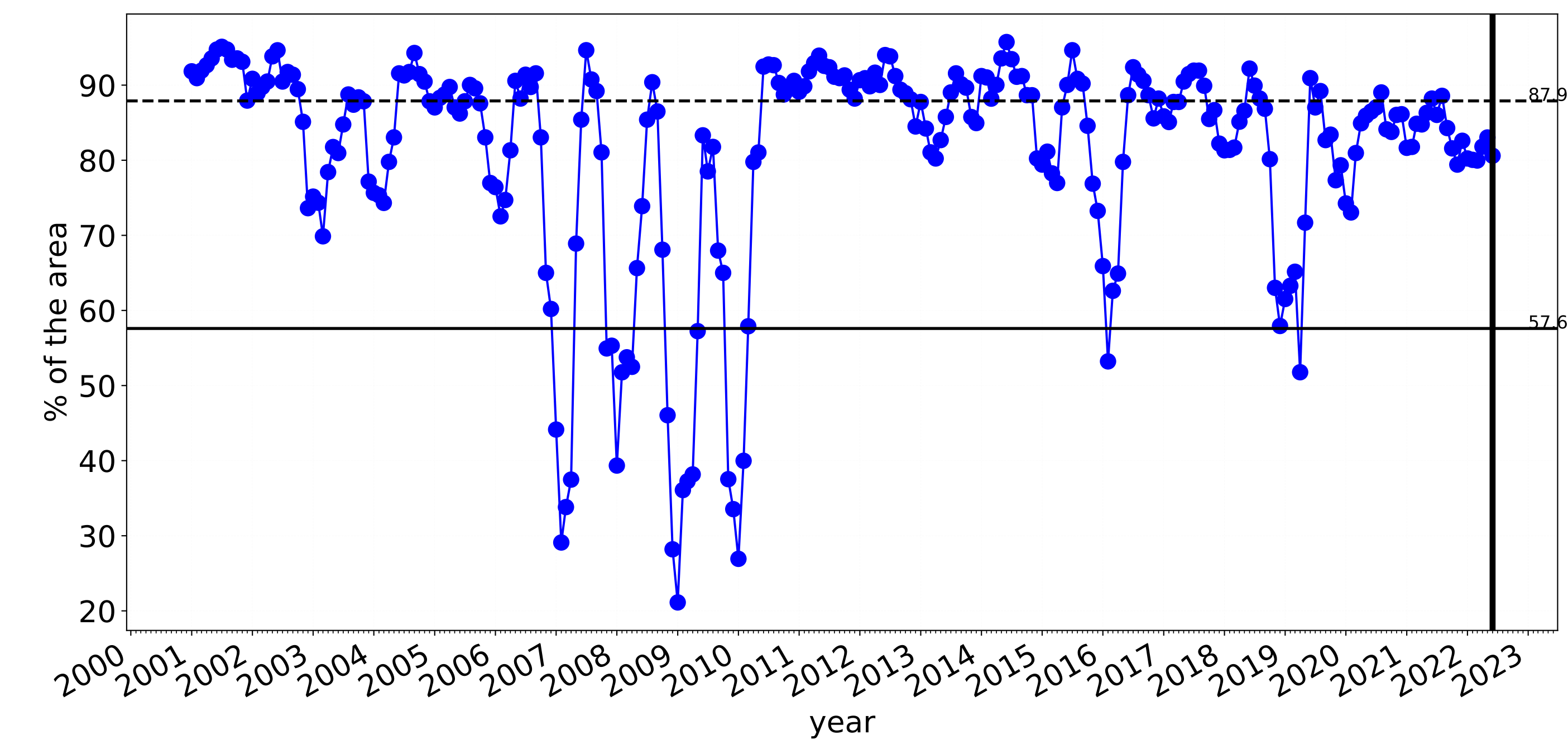
Agriculture timeseries

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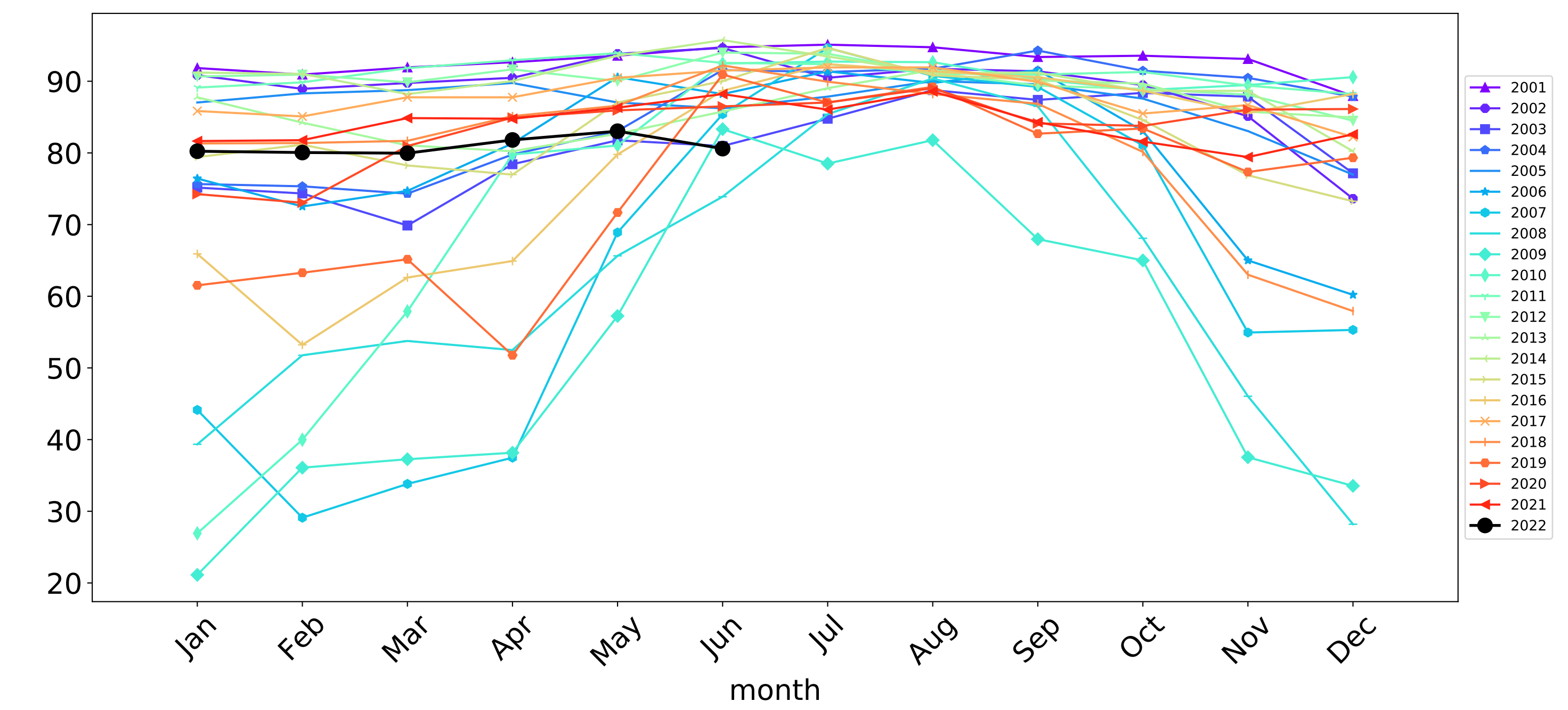

Wind erosion historical monthly area protected (Total Veg Cov >50%)

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

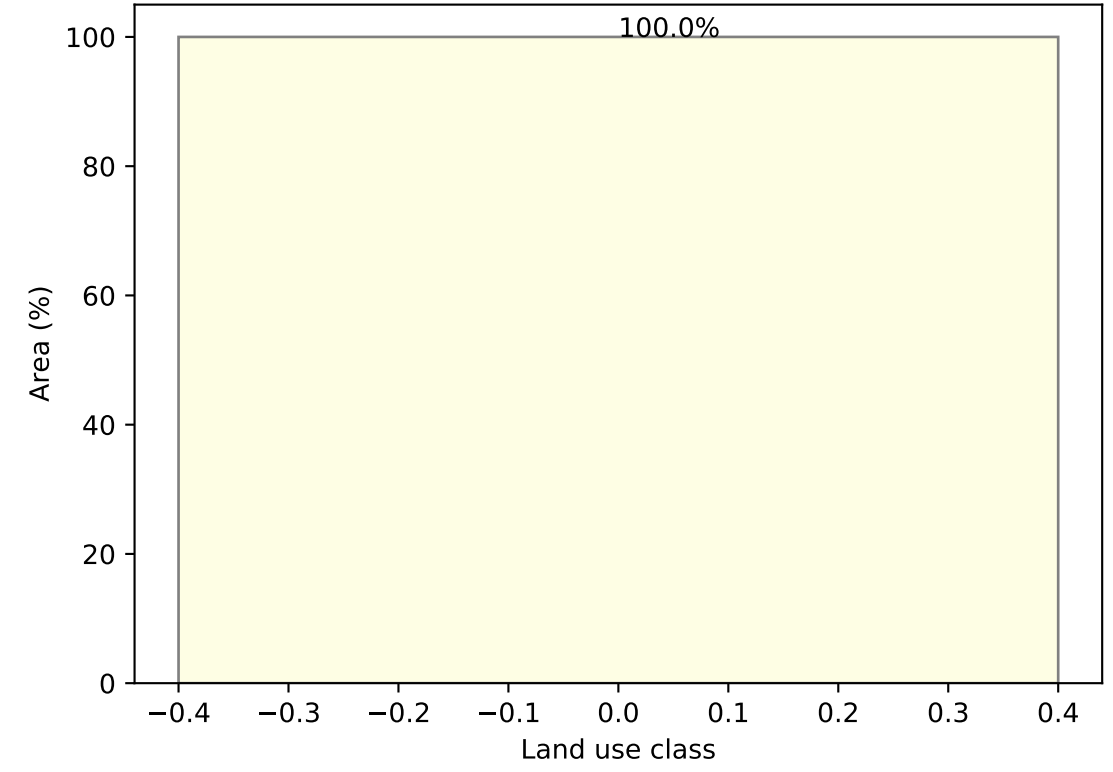### Water erosion historical monthly area protected (Total Veg Cov>70%)
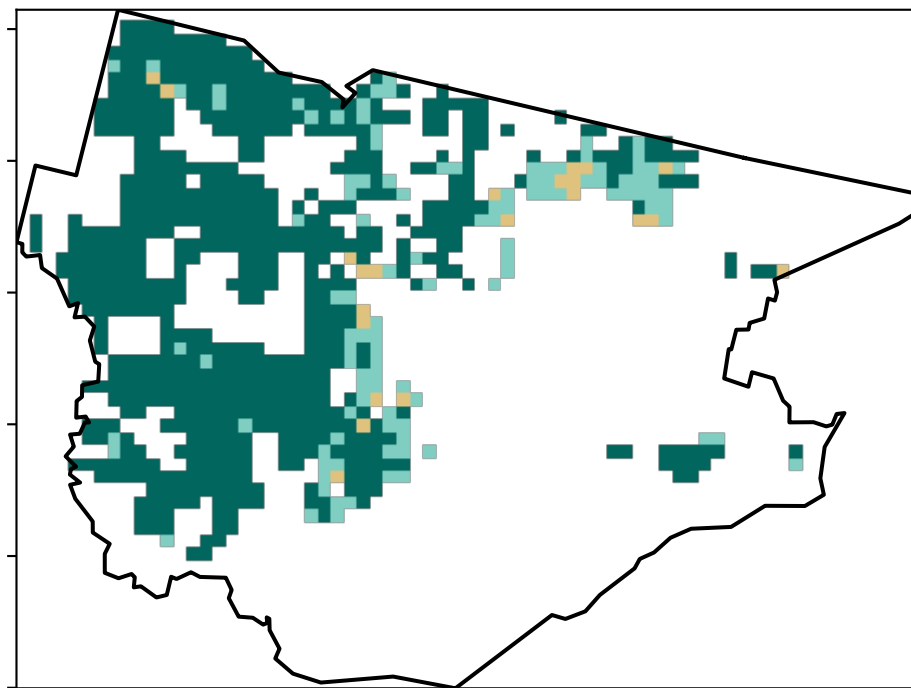
Grazing

Land use and forest cover

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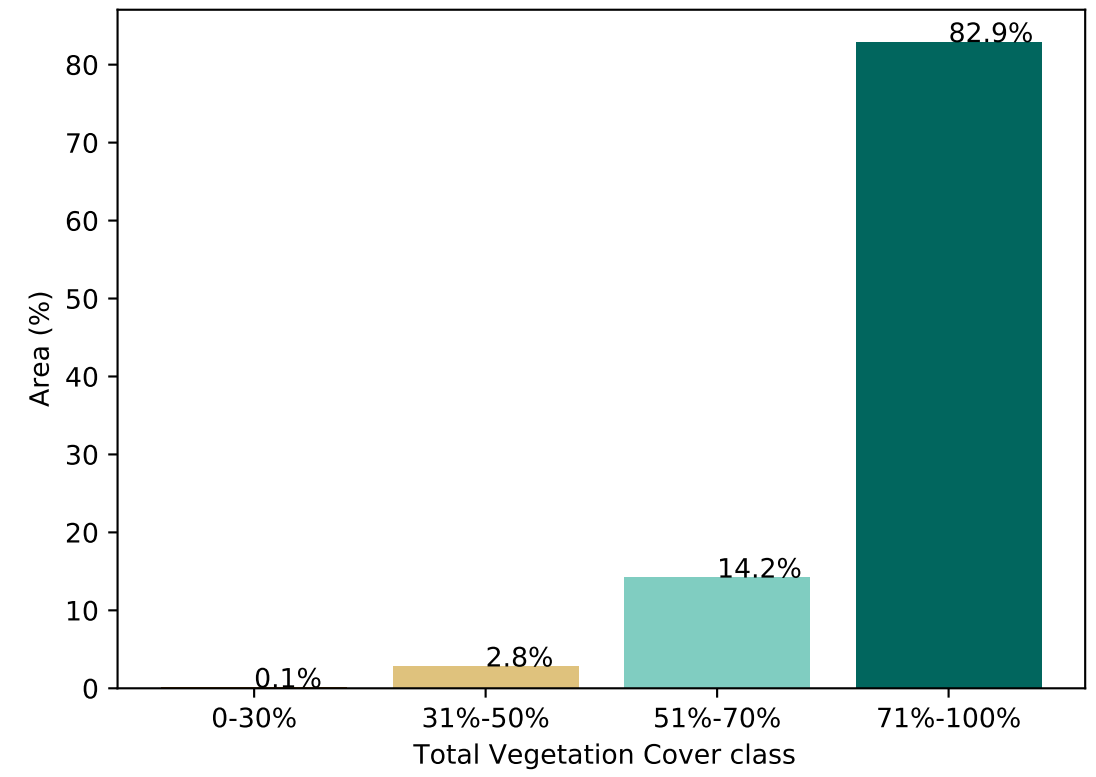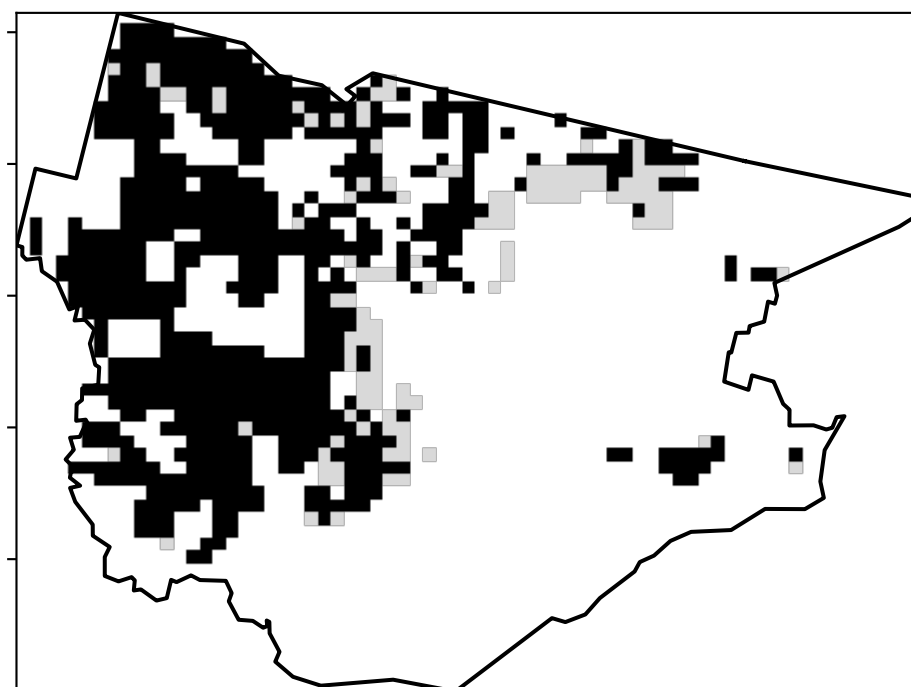(2018) and Forests
of Australia (2018)

1 Agriculture - Grazing - Non forest

Proportion of each land class in area

100.0%

Area (%)

Land use class

Total Vegetation Cover [%]

71%-100%

51%-70%

31%-50%

0-30%

Proportion of vegetation cover class in area

82.9%

Area (%)

0.1%   2.8%   14.2%

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

Total Vegetation Cover class

% Area protected from water erosion (>70%)

Area not
protected
17.1% of
region
(3,330 ha)

Area
protected
82.9% of
region
(16,144
ha)

% Area protected from wind erosion (>50%)

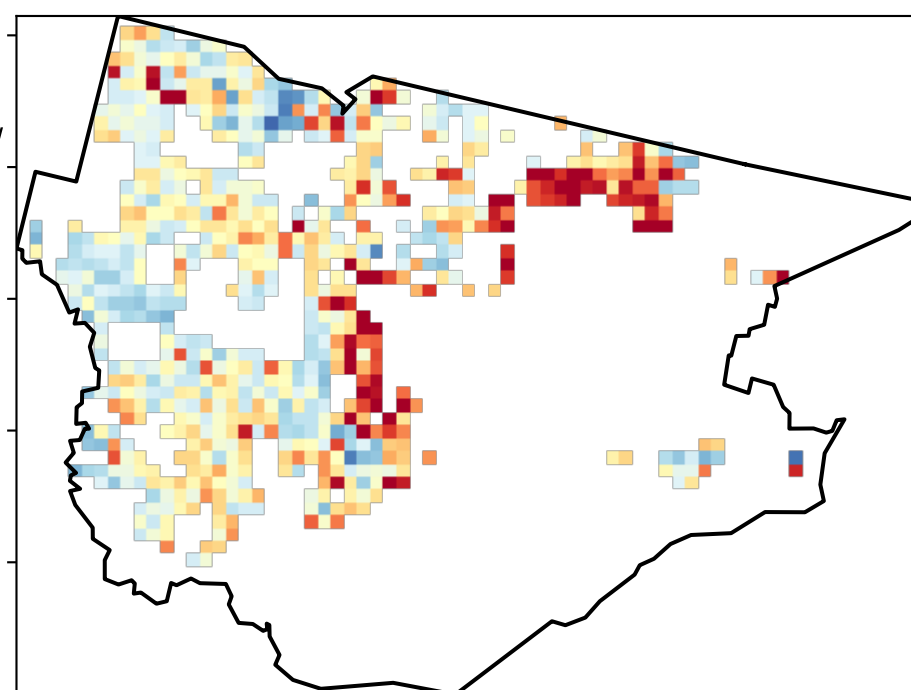Area not
protected
3.0% of
region
(584 ha)

Area
protected
97.0% of
region
(18,890
ha)

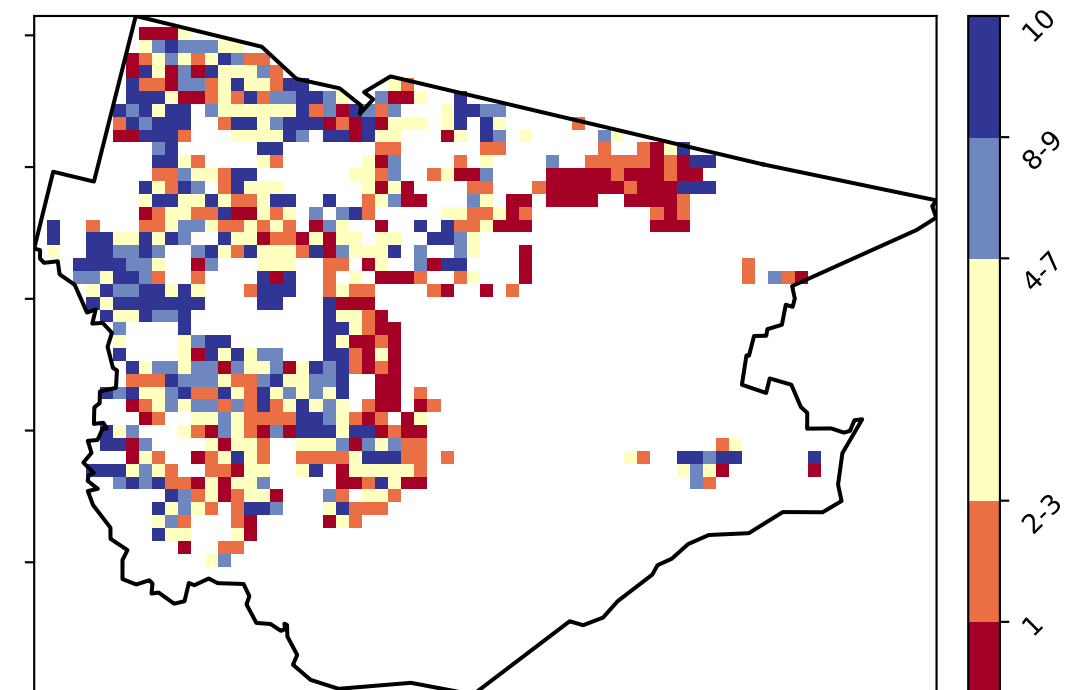## Total Vegetation Cover Anomaly [%]

Anomaly show how
many percetage
points each
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mean of that
pixel. The mean
is only for the
month of the map
using baseline
from 2001 to
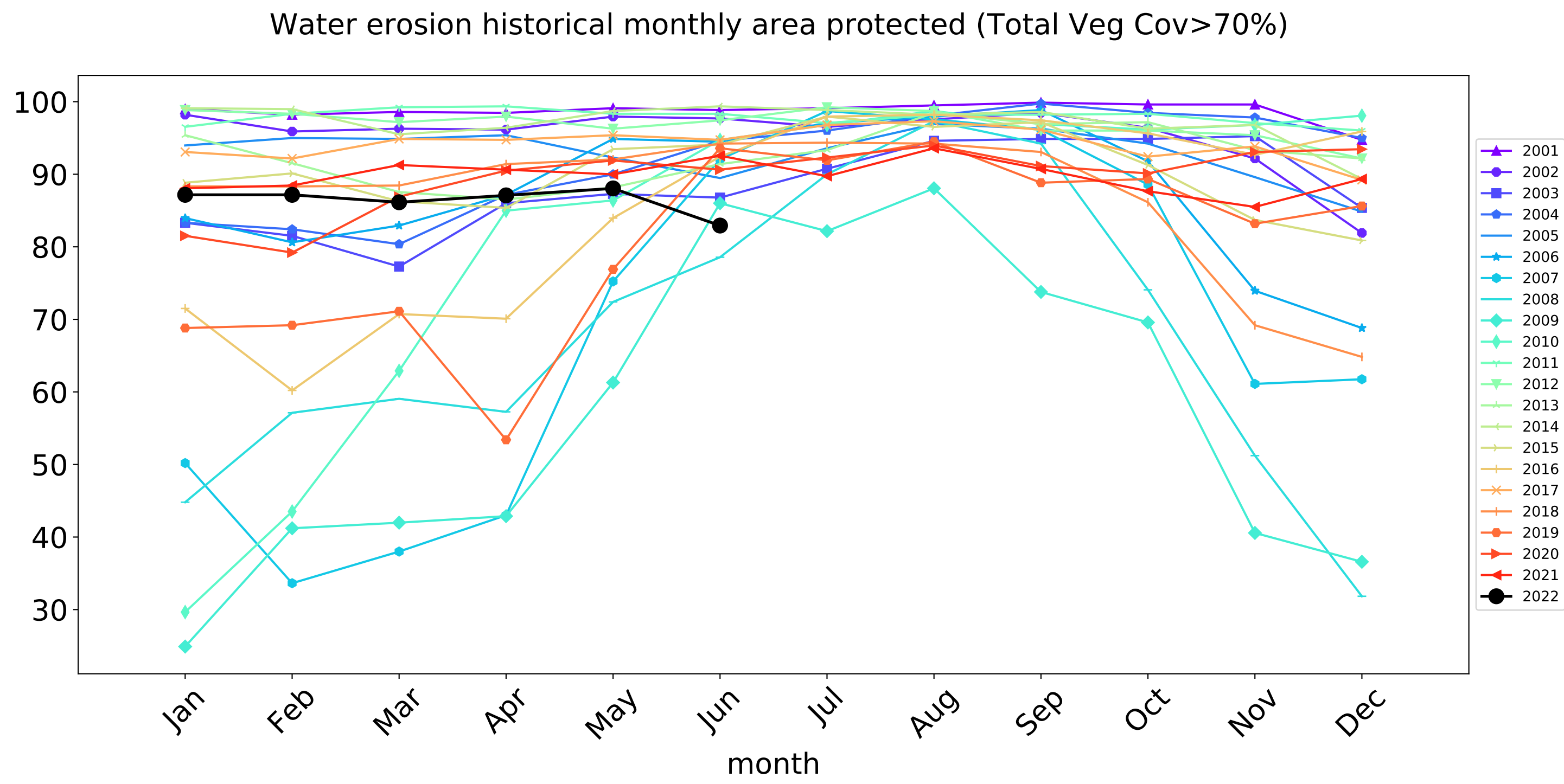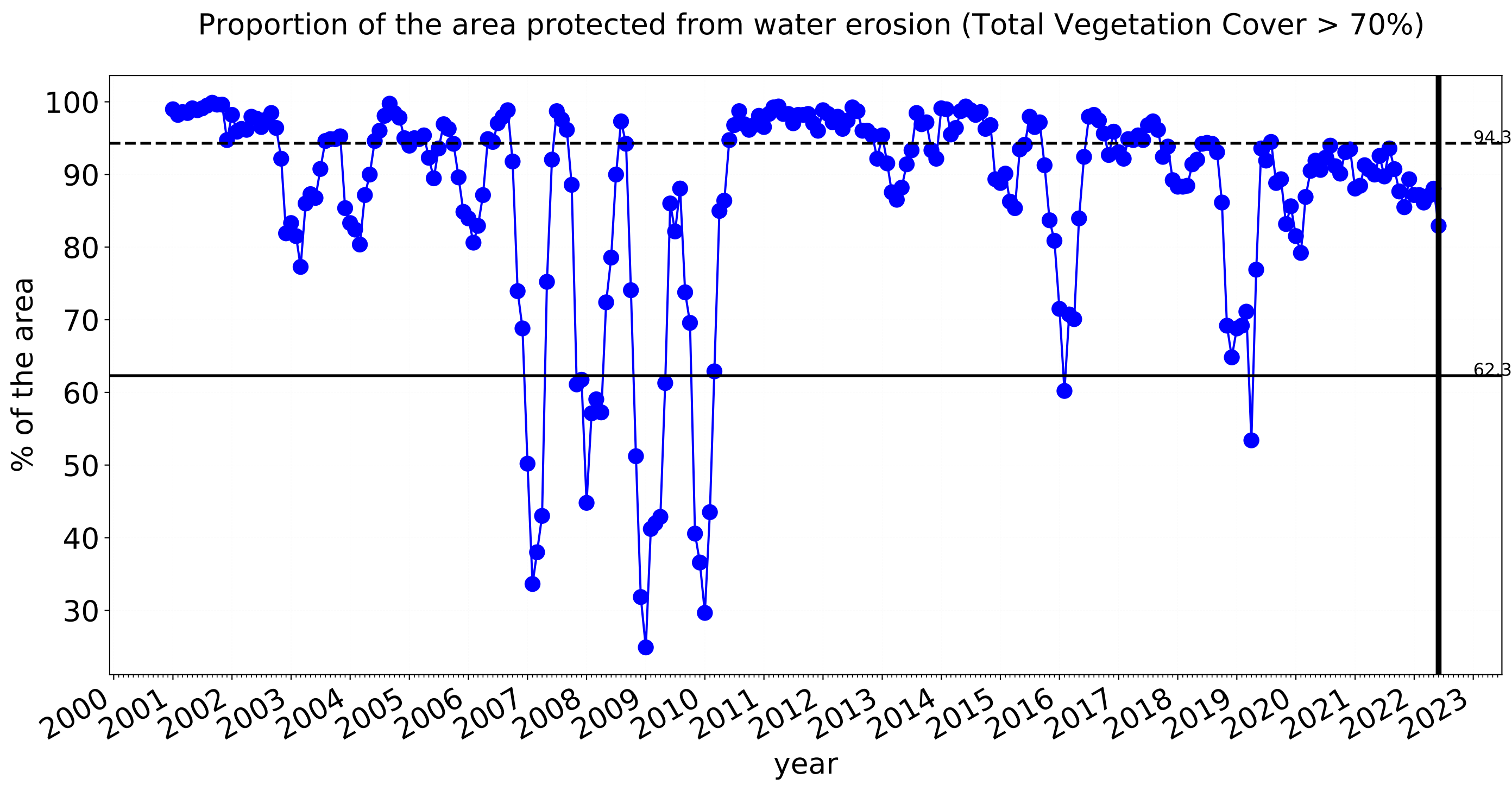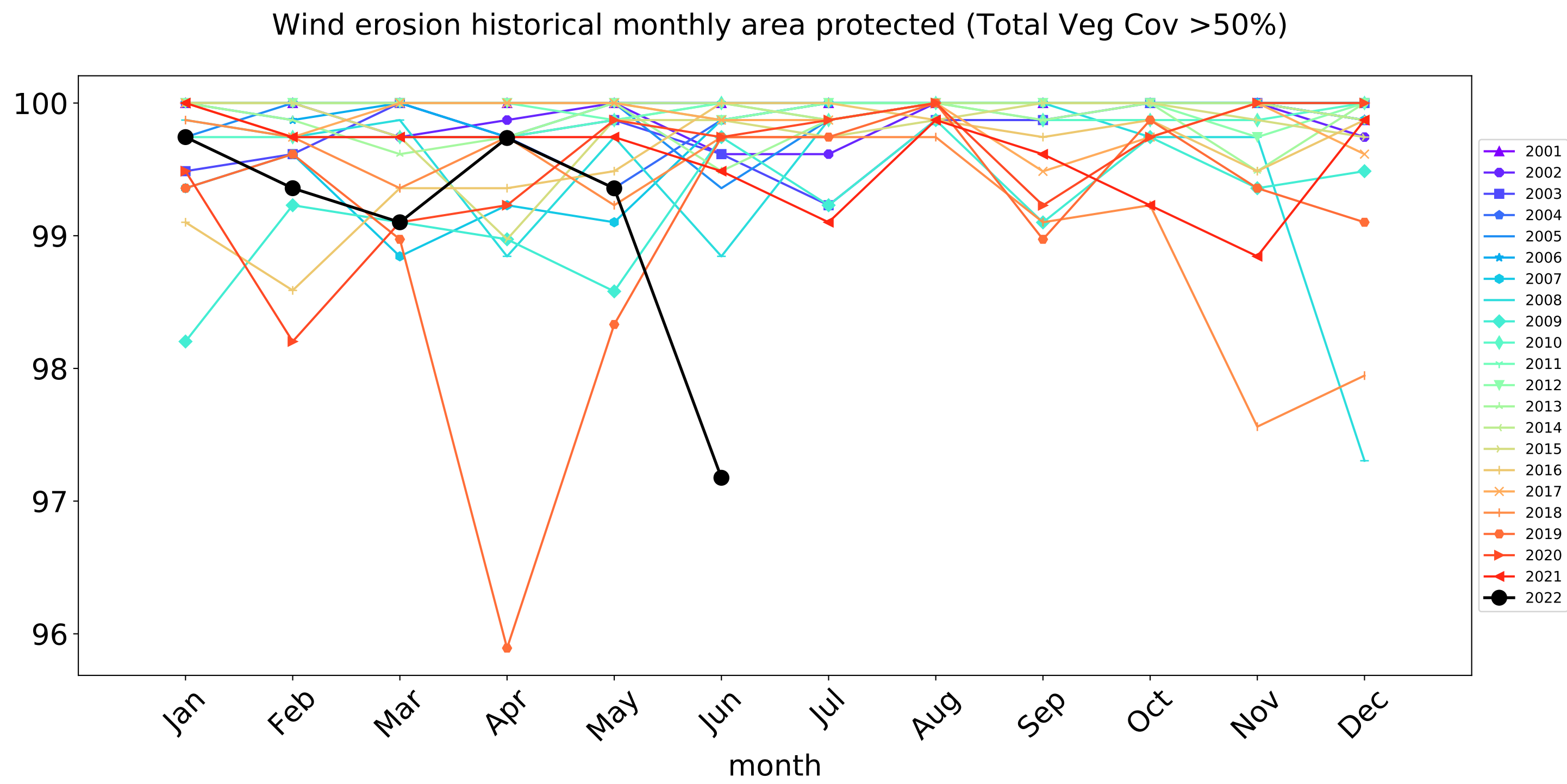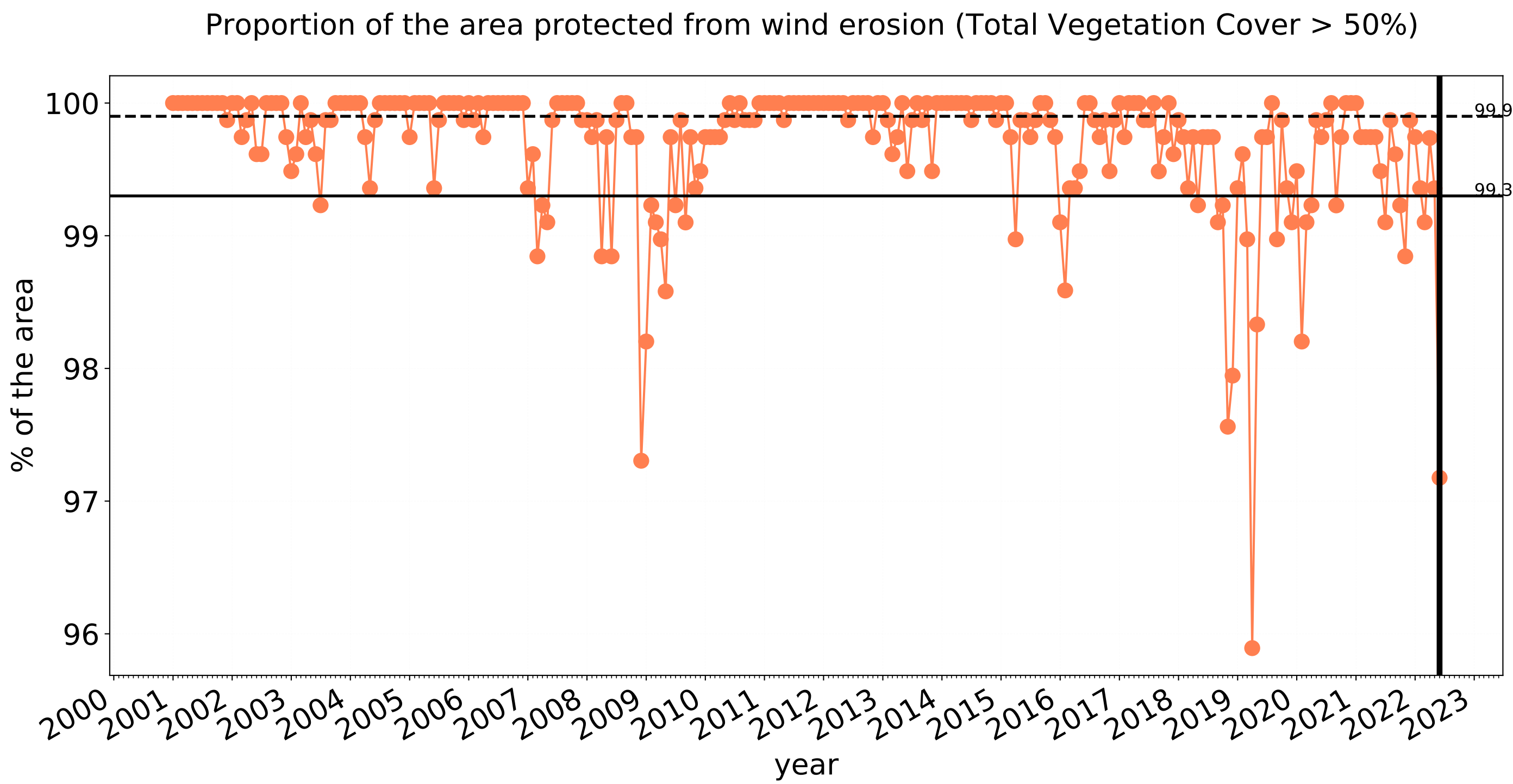2019.

Total Vegetation Cover Decile [%]

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

10
8-9
4-7
2-3
1

Grazing timeseries

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

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

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

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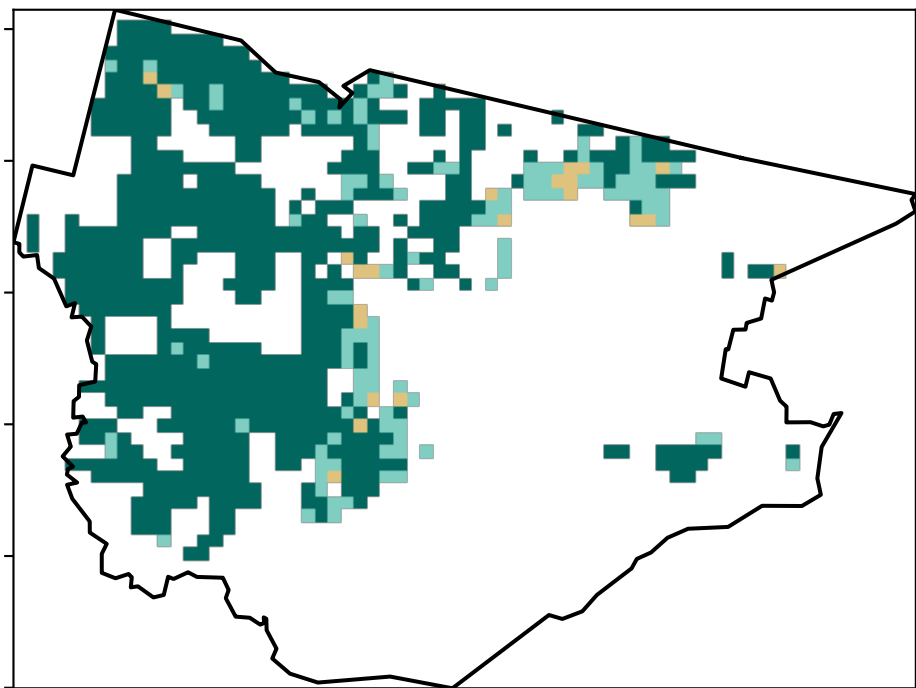
Grazing non forest

Land use and forest cover

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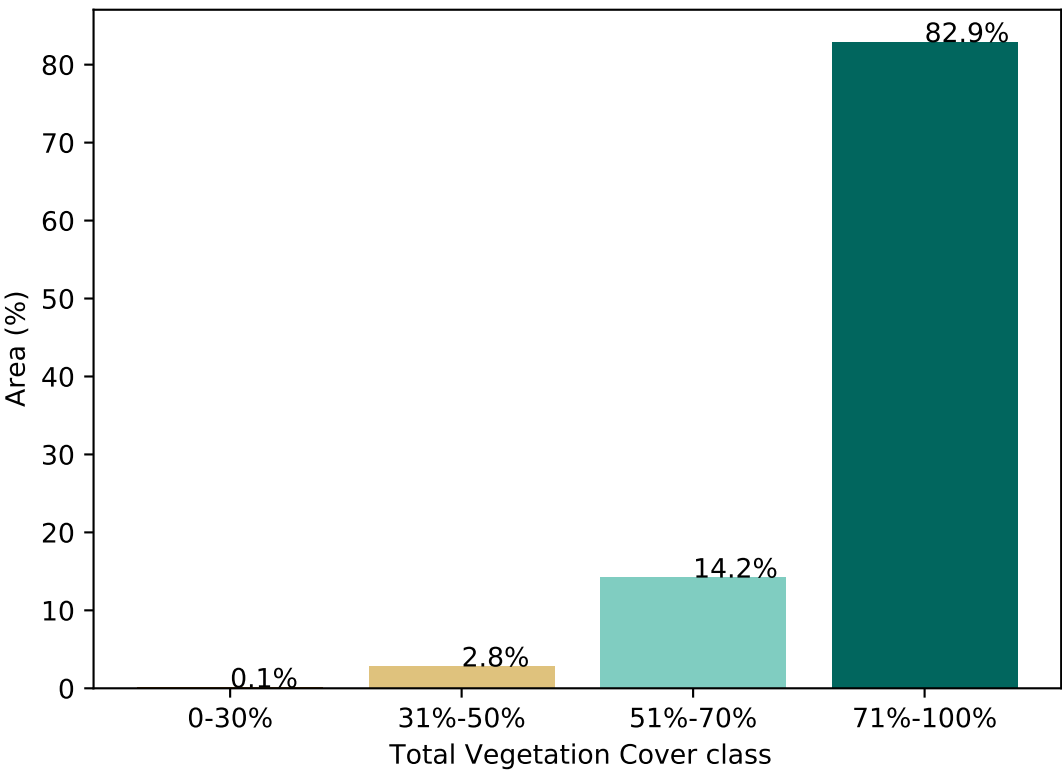
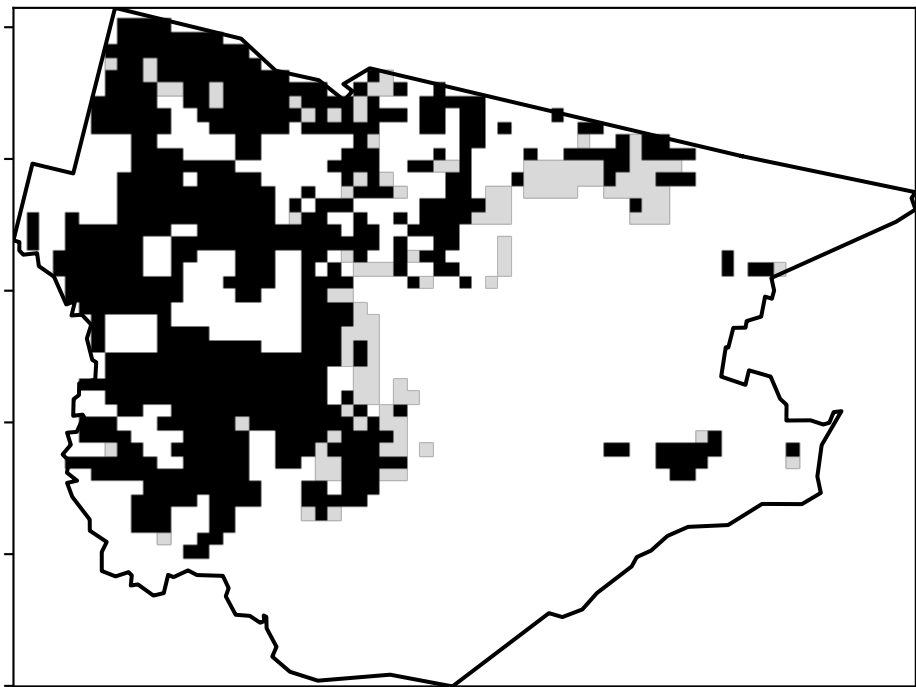1 Agriculture - Grazing - Non forest

Total Vegetation Cover [%]

71%-100%

51%-70%

31%-50%

0-30%

Proportion of vegetation cover class in area

82.9%

14.2%

2.8%

0.1%

Area (%)

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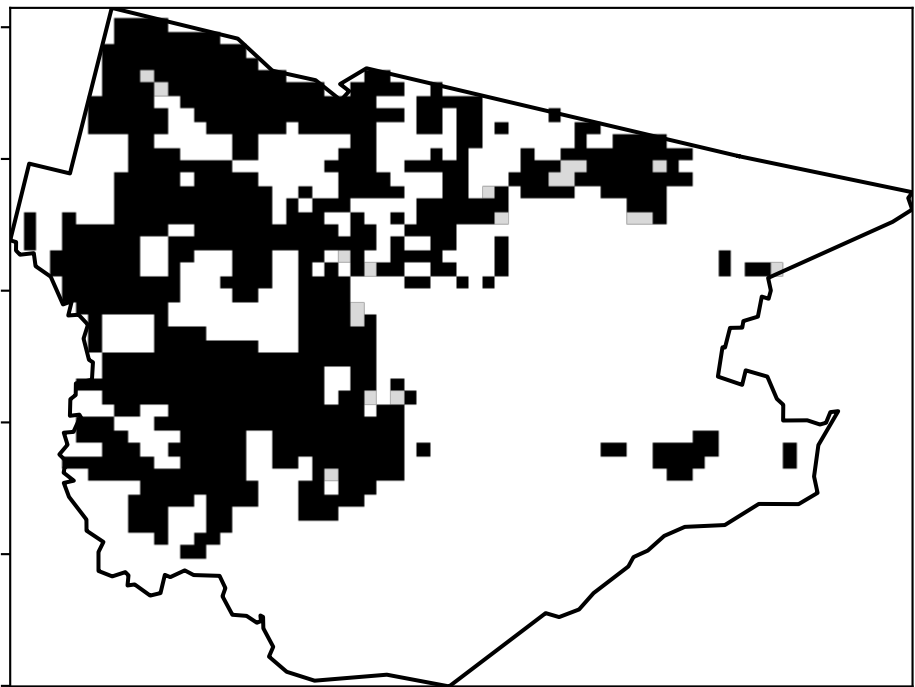
0-30%   31%-50%   51%-70%   71%-100%

% Area protected from water erosion (>70%)

Area not protected 17.1% of region (3,330 ha)

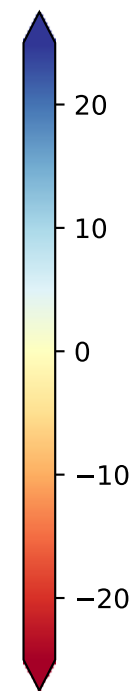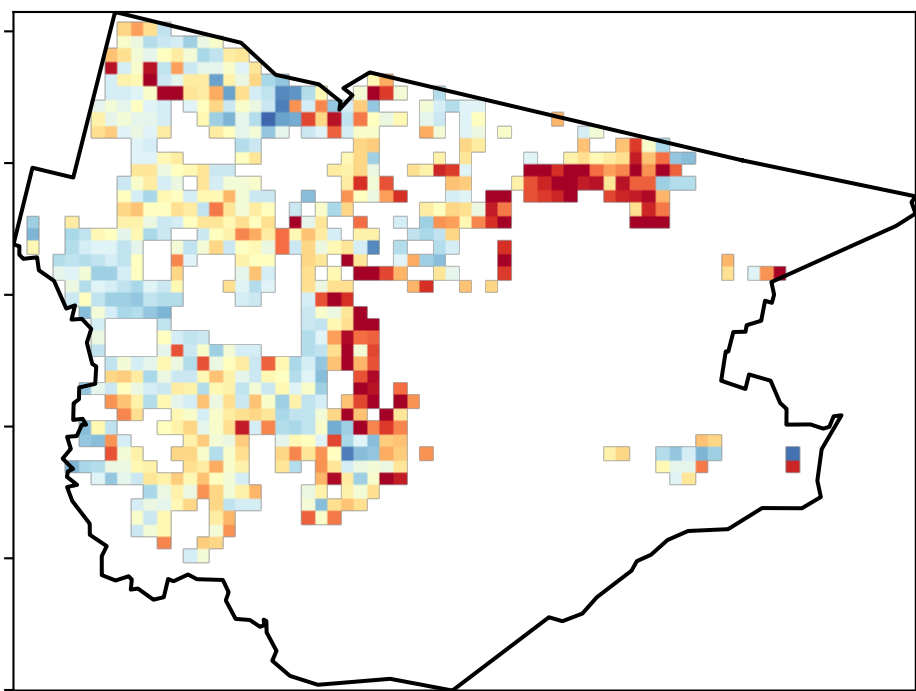Area protected 82.9% of region (16,144 ha)

% Area protected from wind erosion (>50%)

Area not protected 3.0% of region (584 ha)
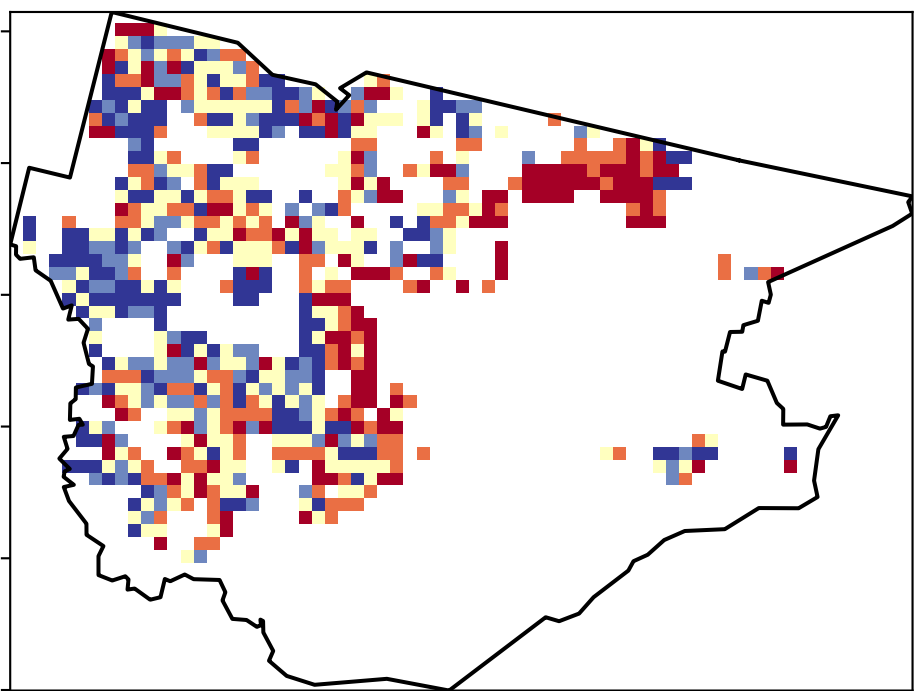
Area protected 97.0% of region (18,890 ha)

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

12
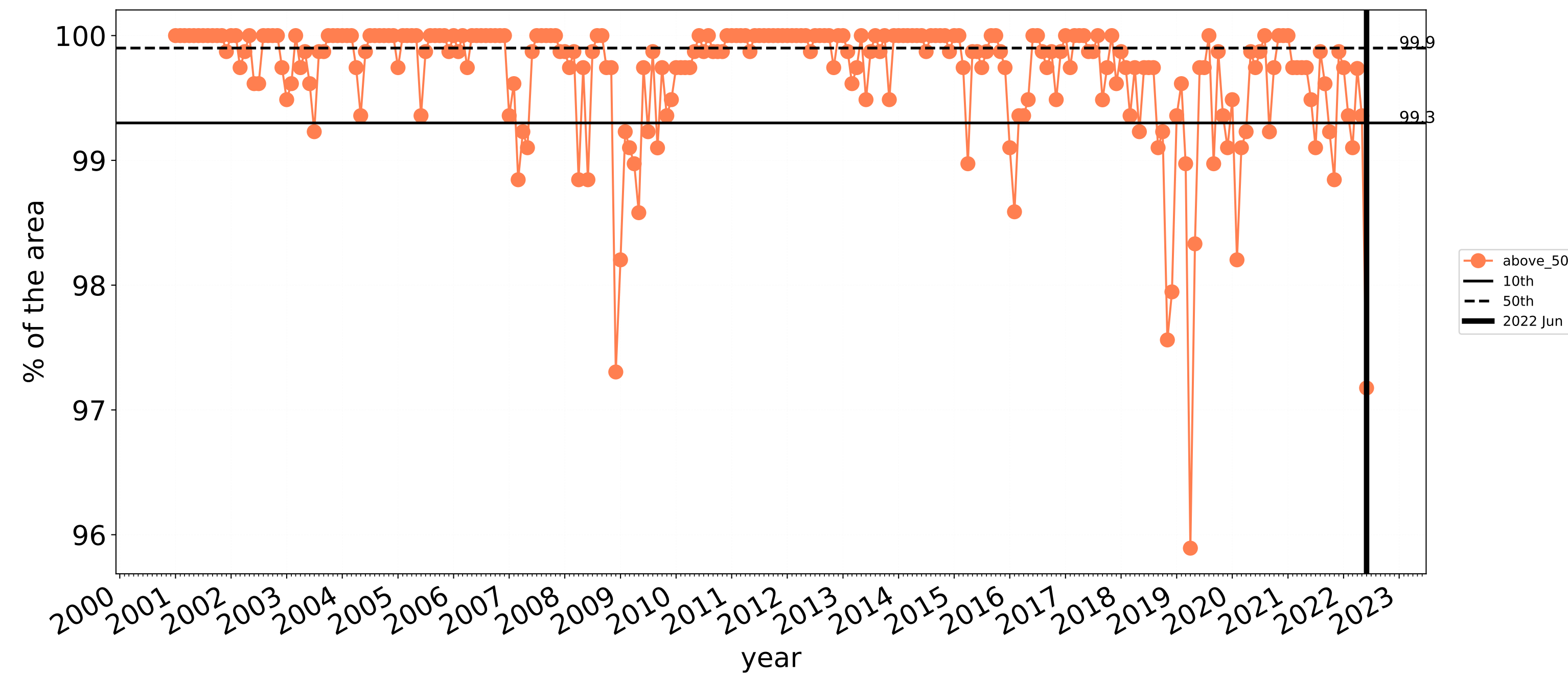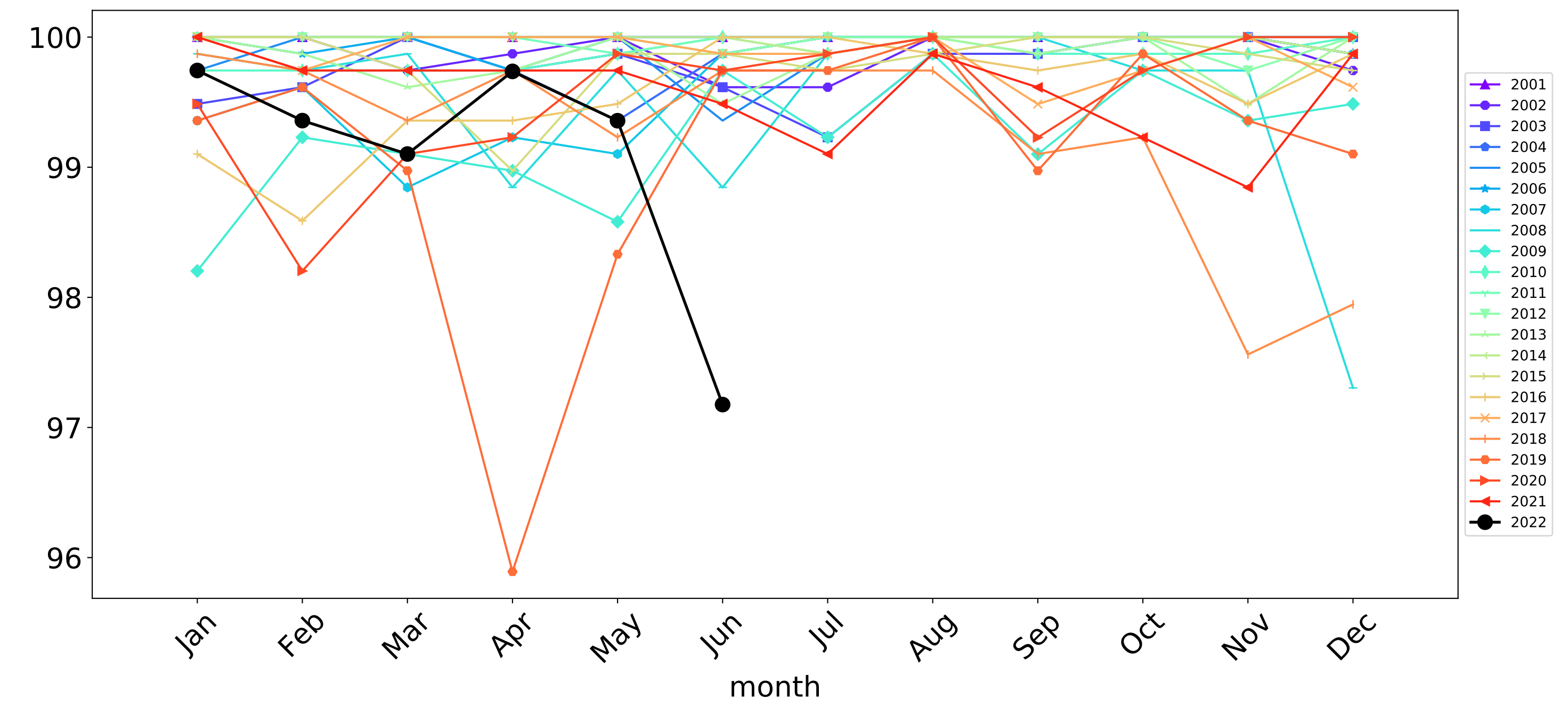
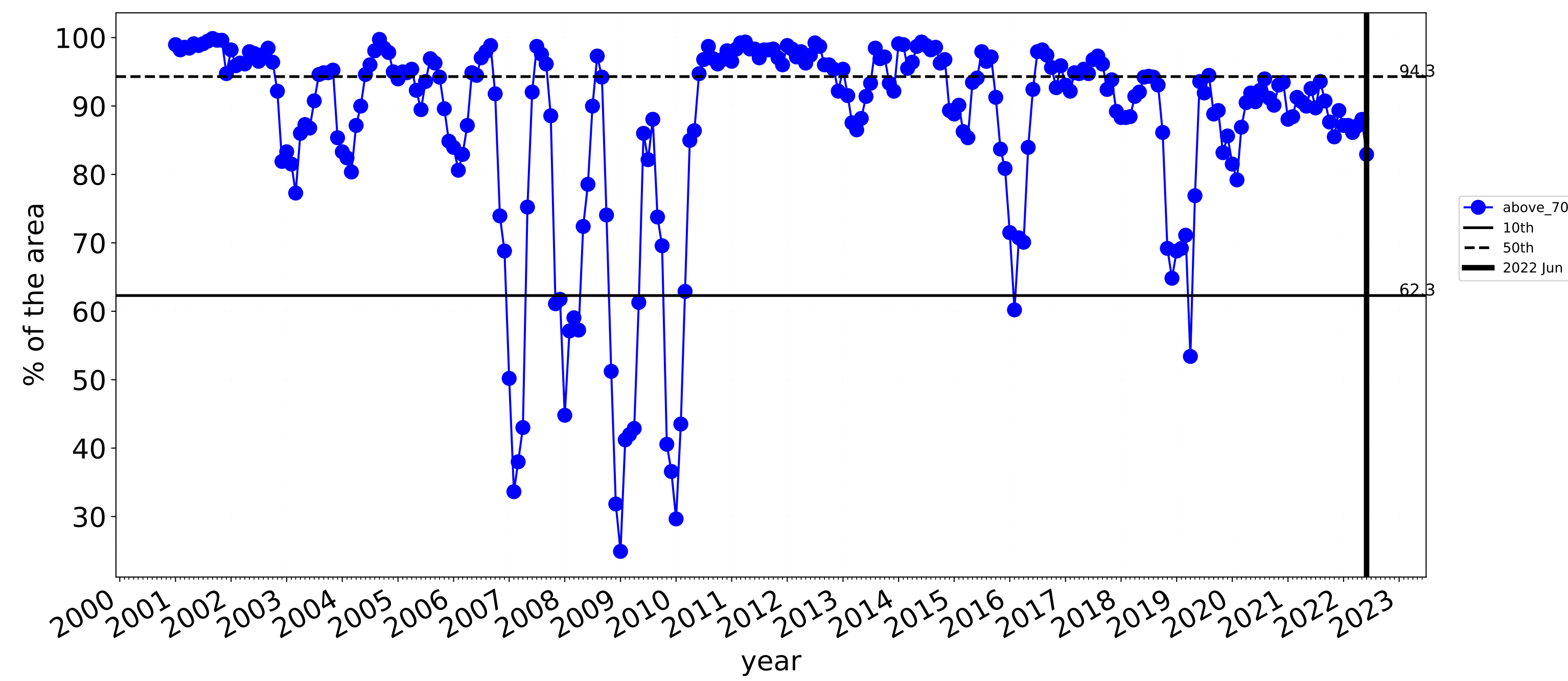# Grazing non forest timeseries

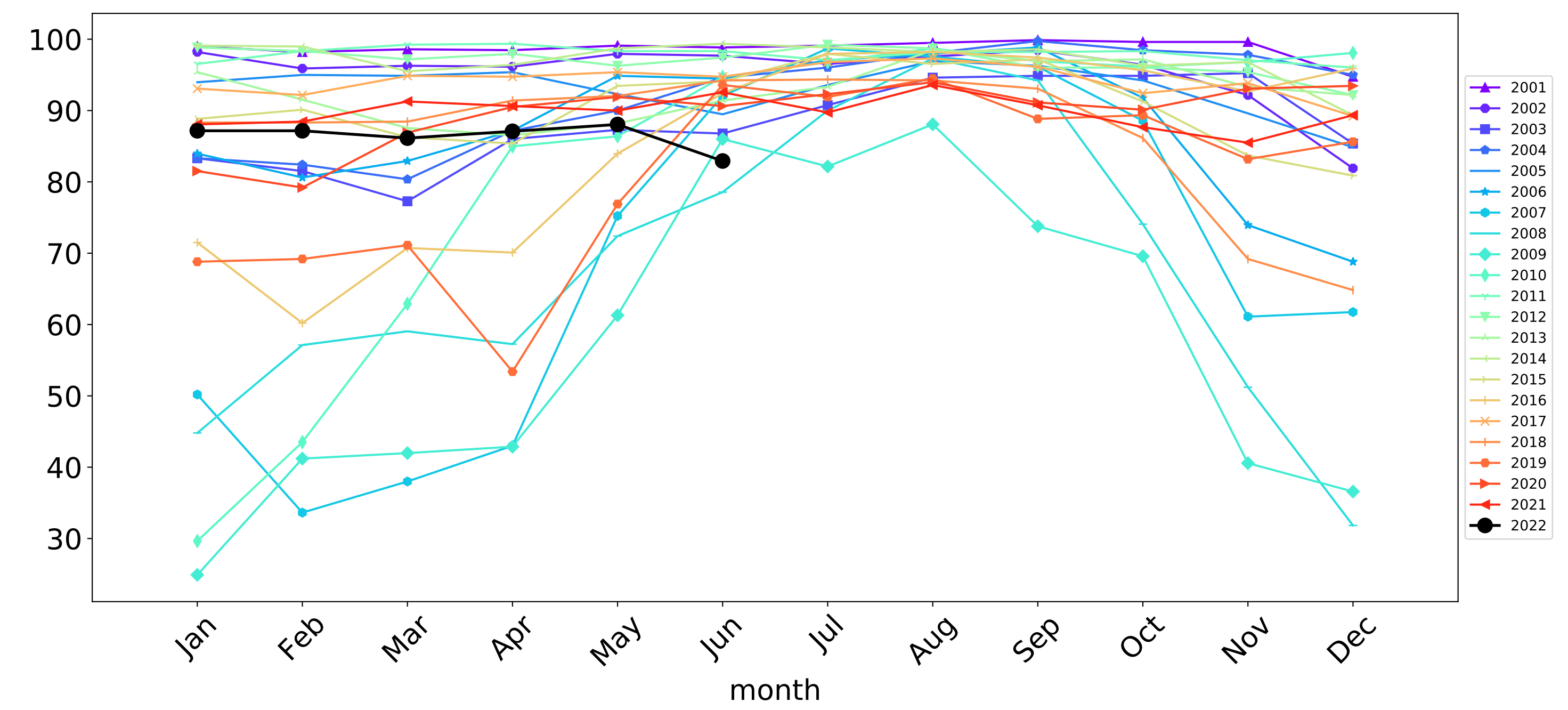Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

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

■ 1 Agriculture - Cropping - Non-irrigated

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

0.0% 2.1% 7.4% 90.5%

Area (%)

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

% Area protected from water erosion (>70%)

Area not protected
9.5% of region
(451 ha)

Area protected
90.5% of region
(4,298 ha)

% Area protected from wind erosion (>50%)

Area not protected
2.0% of region
(95 ha)

Area protected
98.0% of region
(4,655 ha)

Total Vegetation Cover Anomaly [%]

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

Total Vegetation Cover Decile [%]

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

10
8-9
4-7
2-3
1

Cropping timeseries

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

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

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

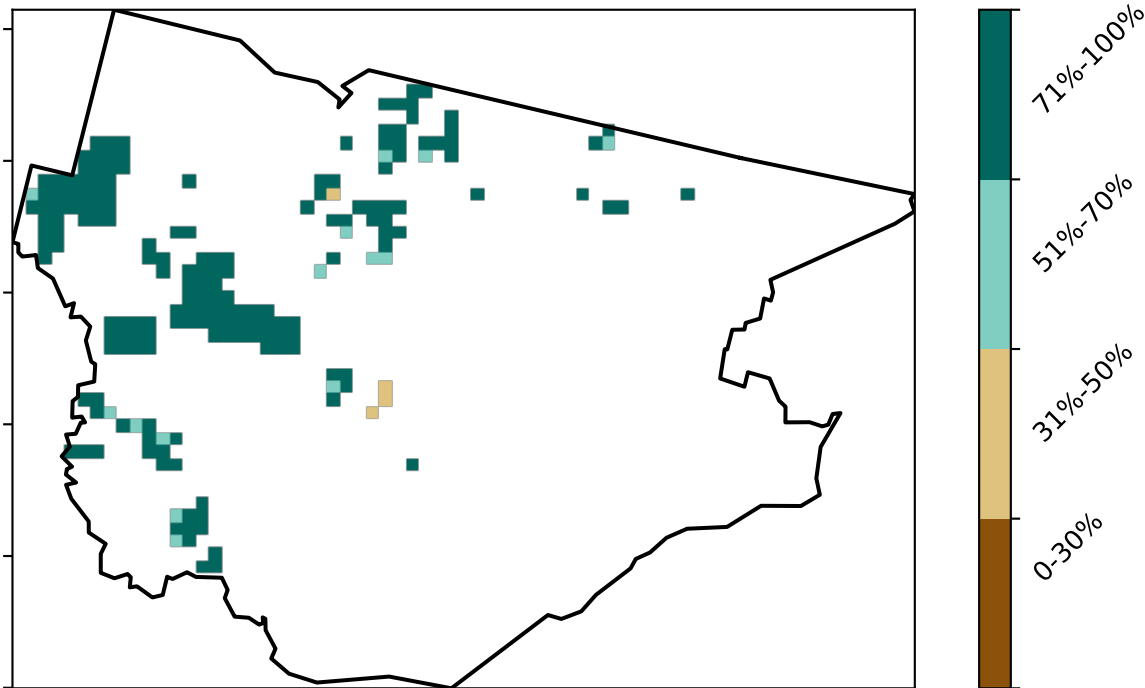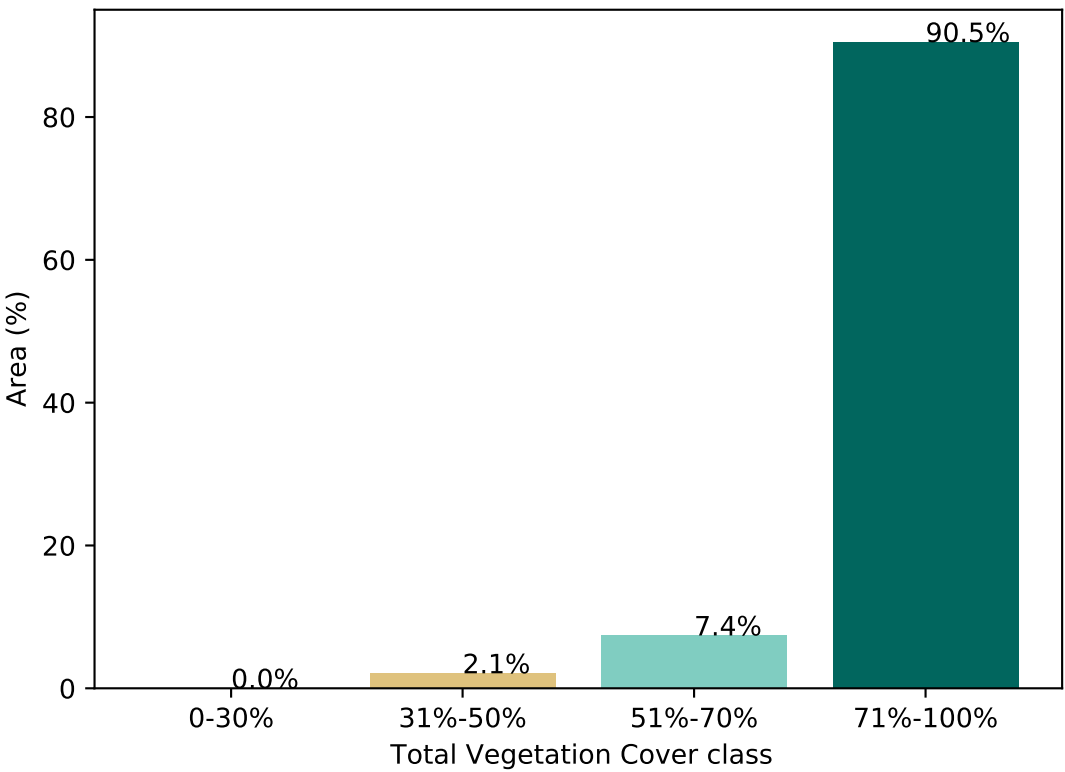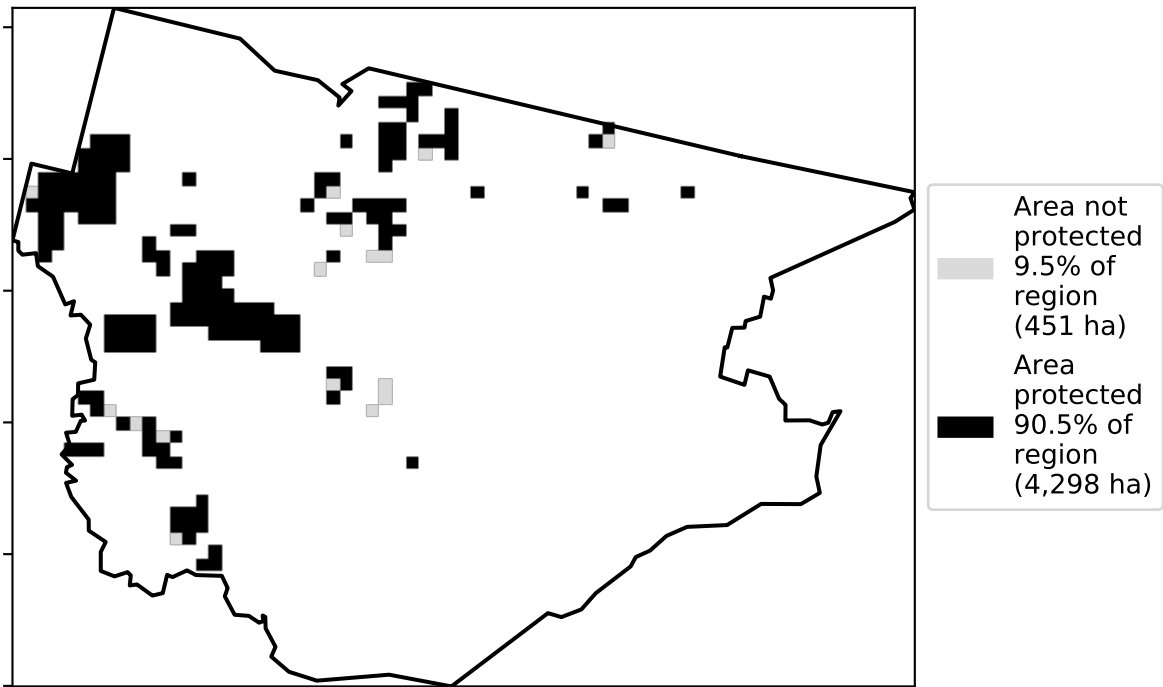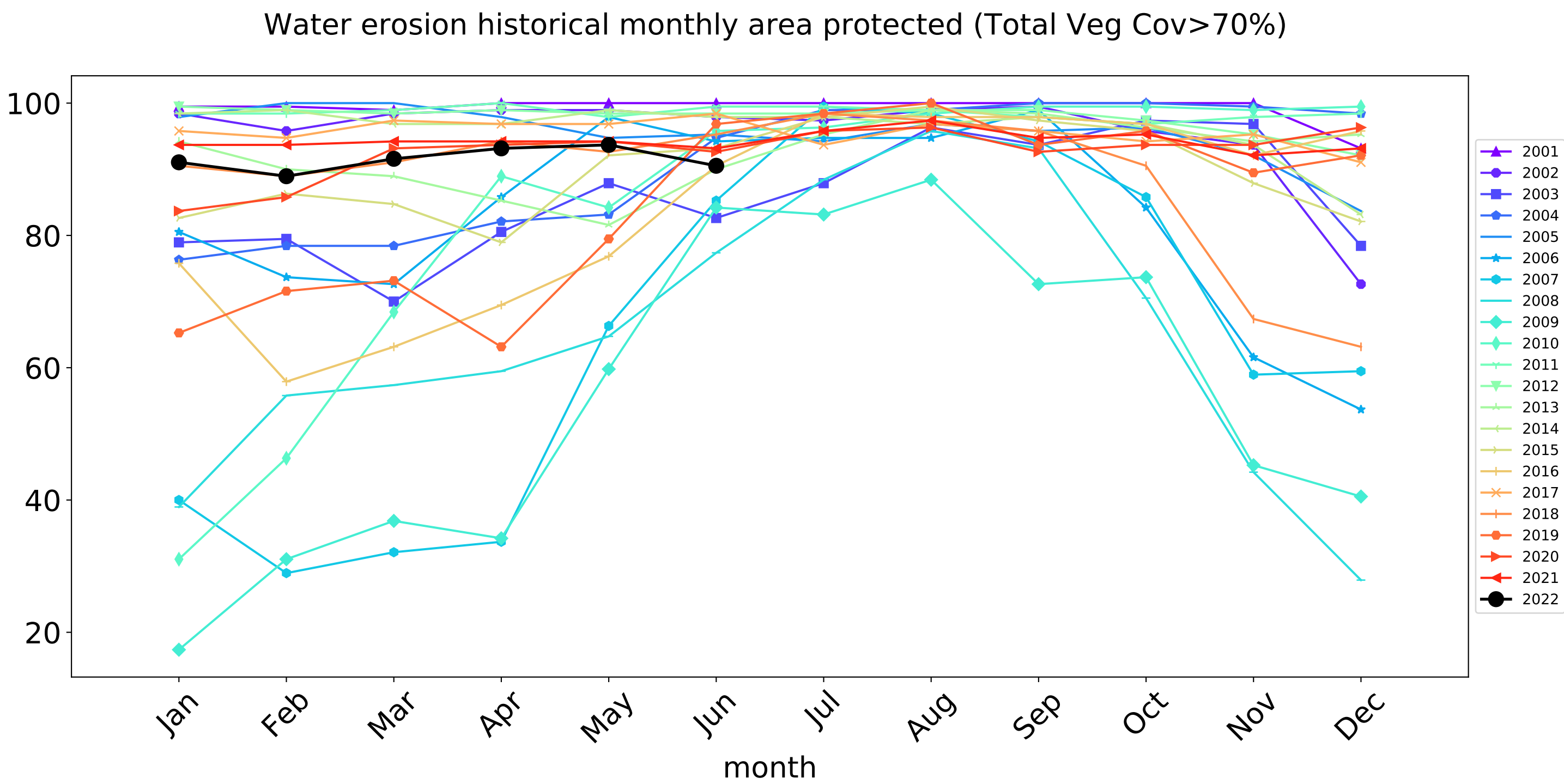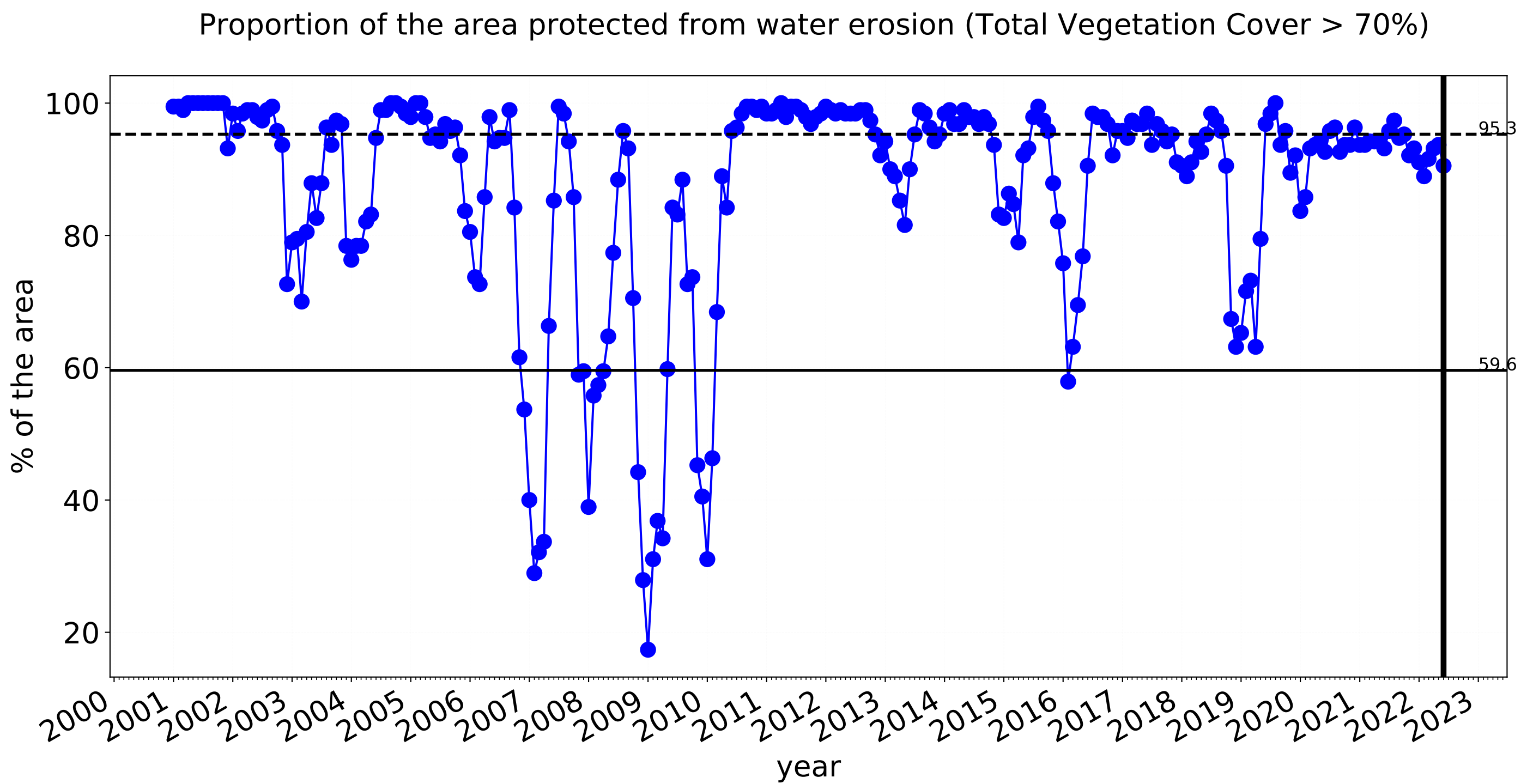### Water erosion historical monthly area protected (Total Veg Cov>70%)

Irrigation

Land use and forest cover

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

- 1 Agriculture - Grazing - Irrigated
- 2 Agriculture - Cropping - Irrigated
- 3 Agriculture - Horticulture - Irrigated

Proportion of each land class in area

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

% Area protected from water erosion (>70%)

Area not
protected
49.6% of
region
(1,475 ha)

Area
protected
50.4% of
region
(1,499 ha)

% Area protected from wind erosion (>50%)

Area not
protected
4.0% of
region
(119 ha)

Area
protected
96.0% of
region
(2,856 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
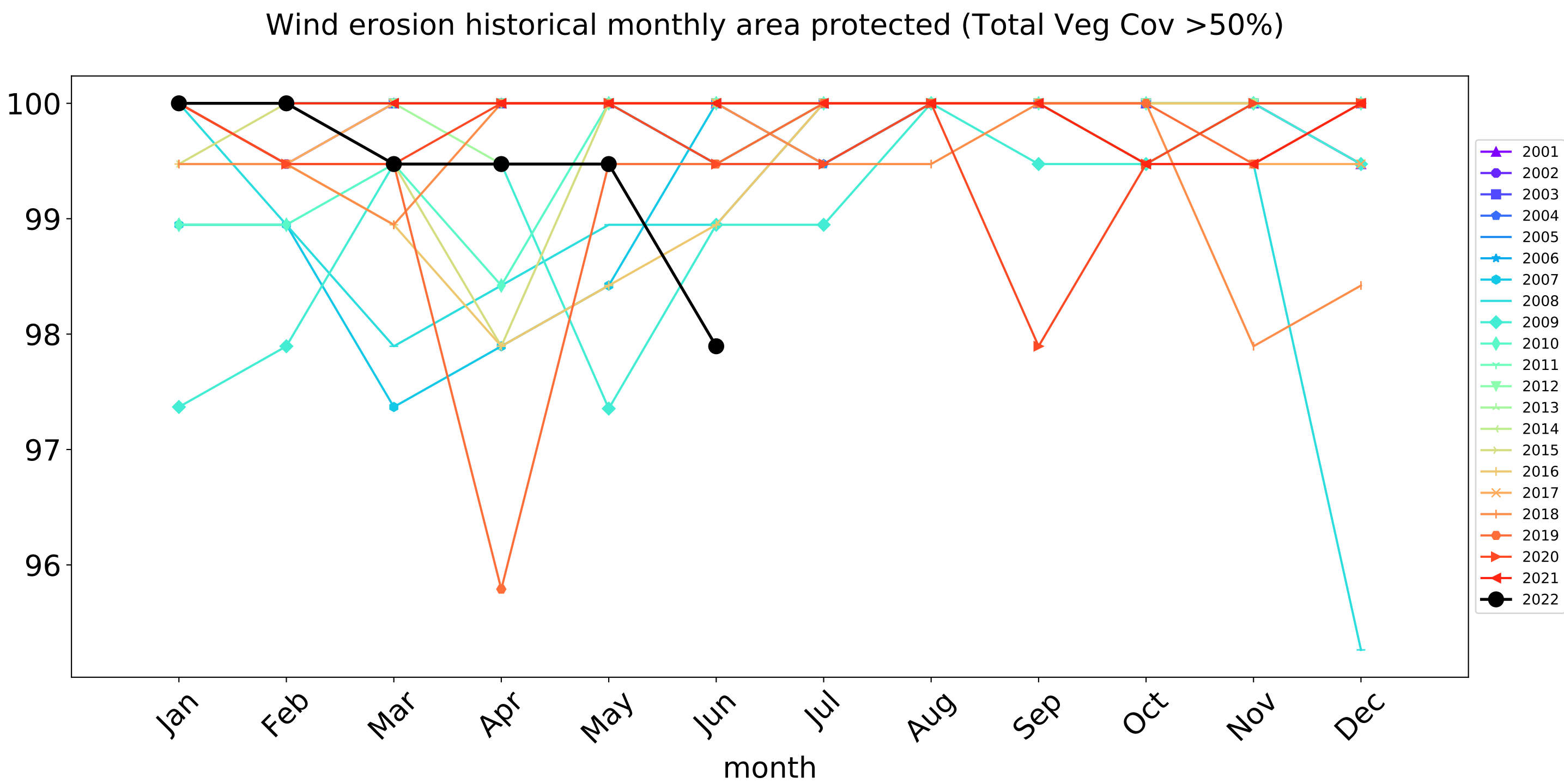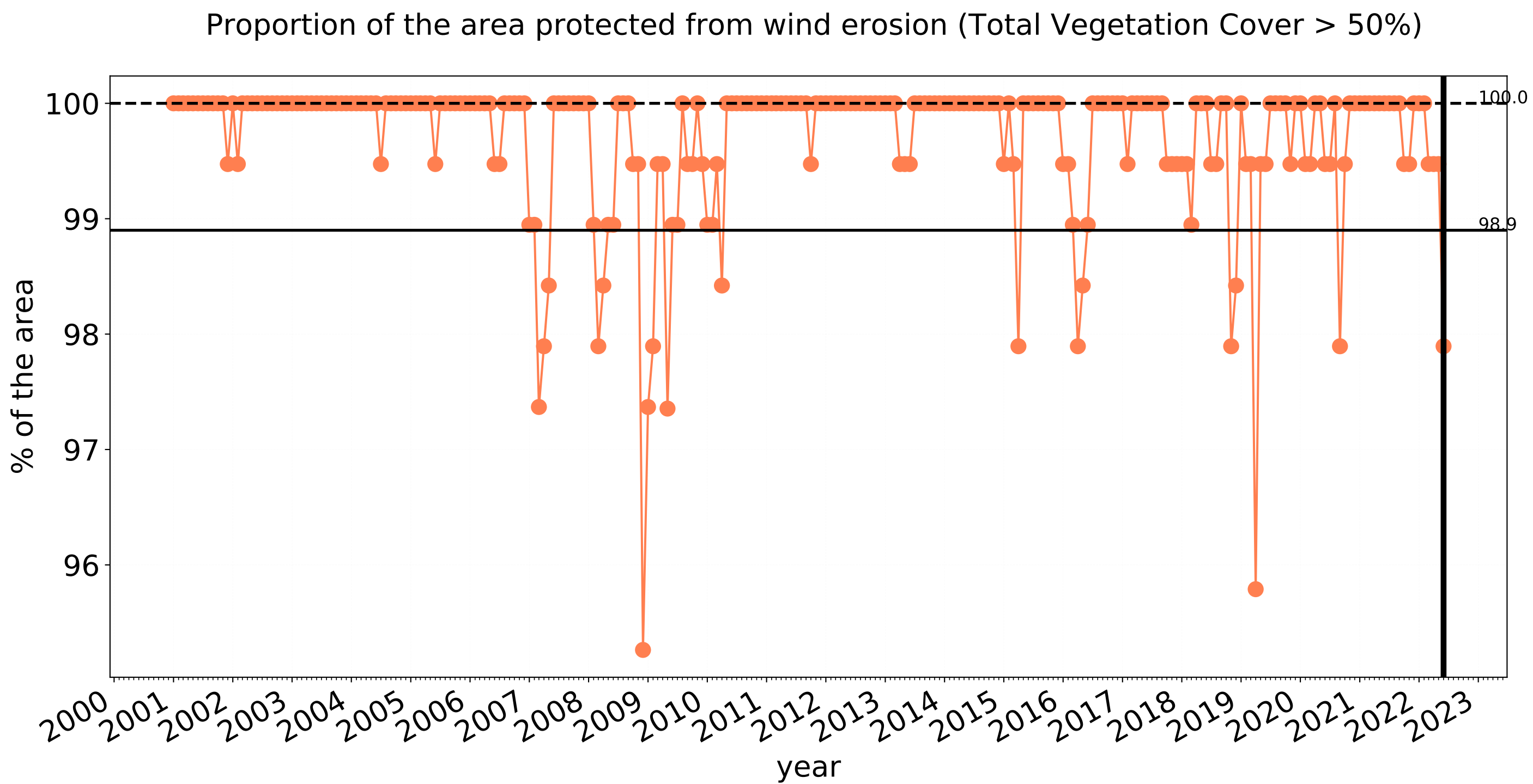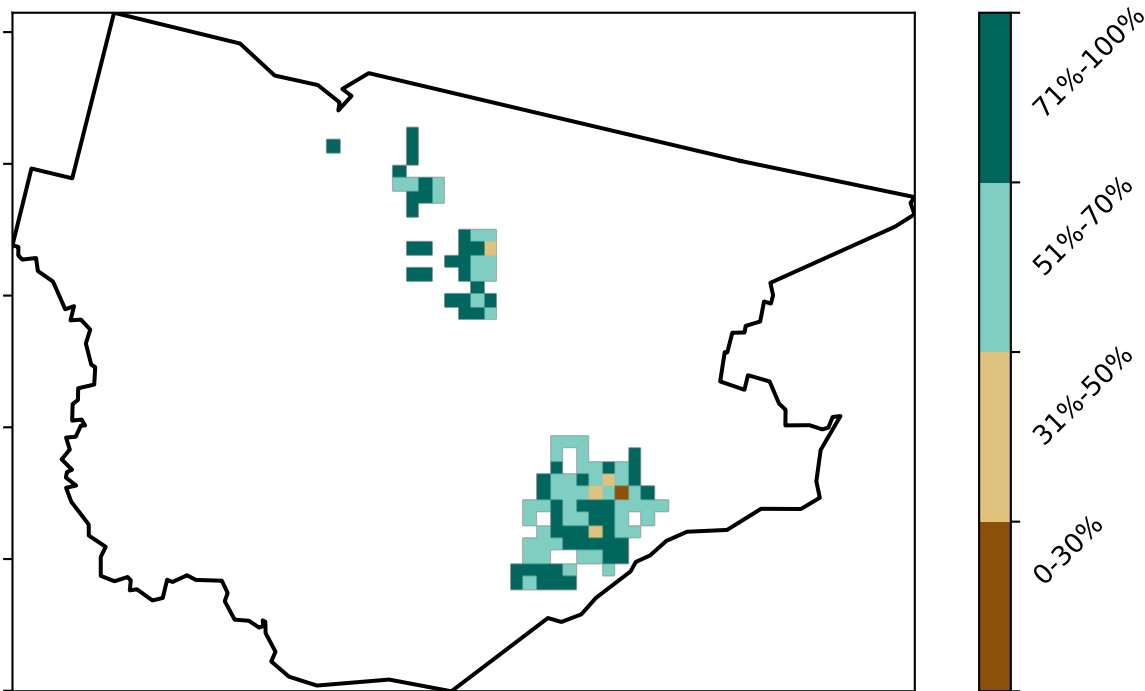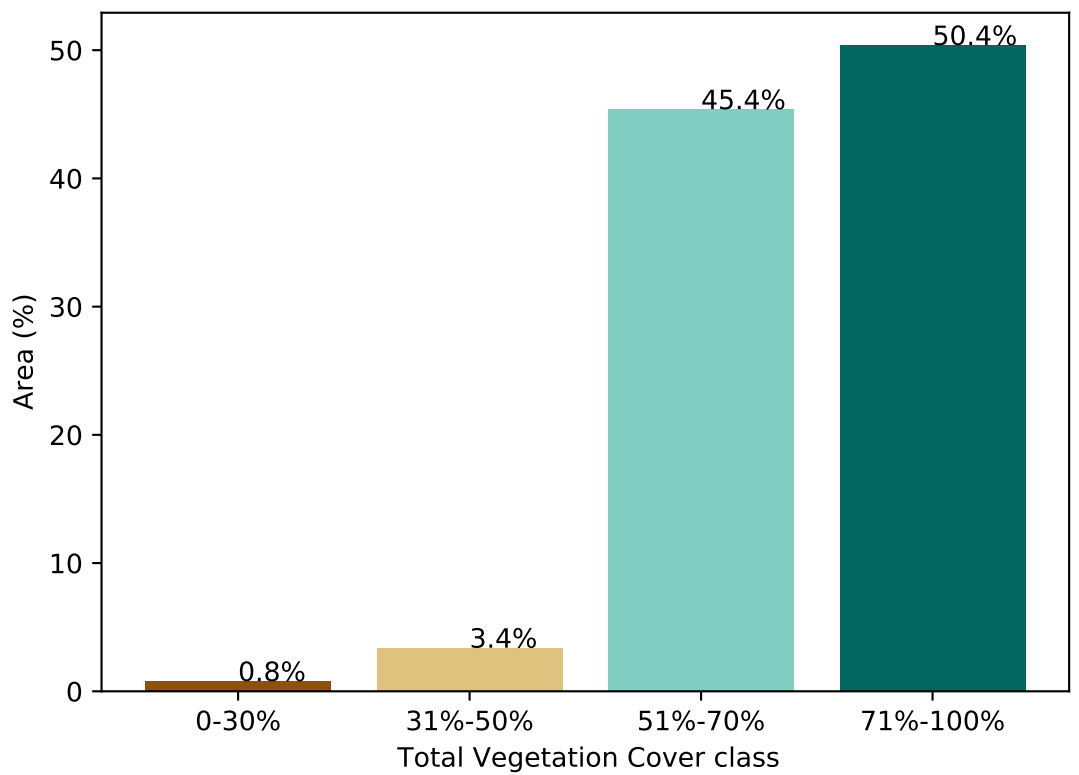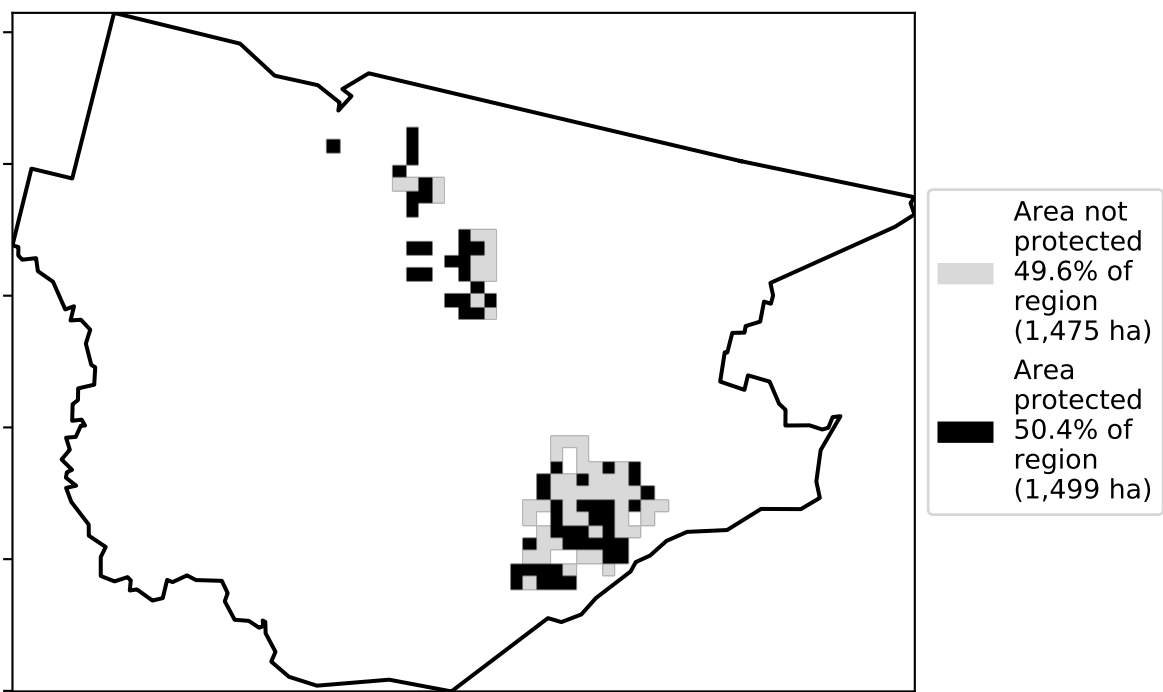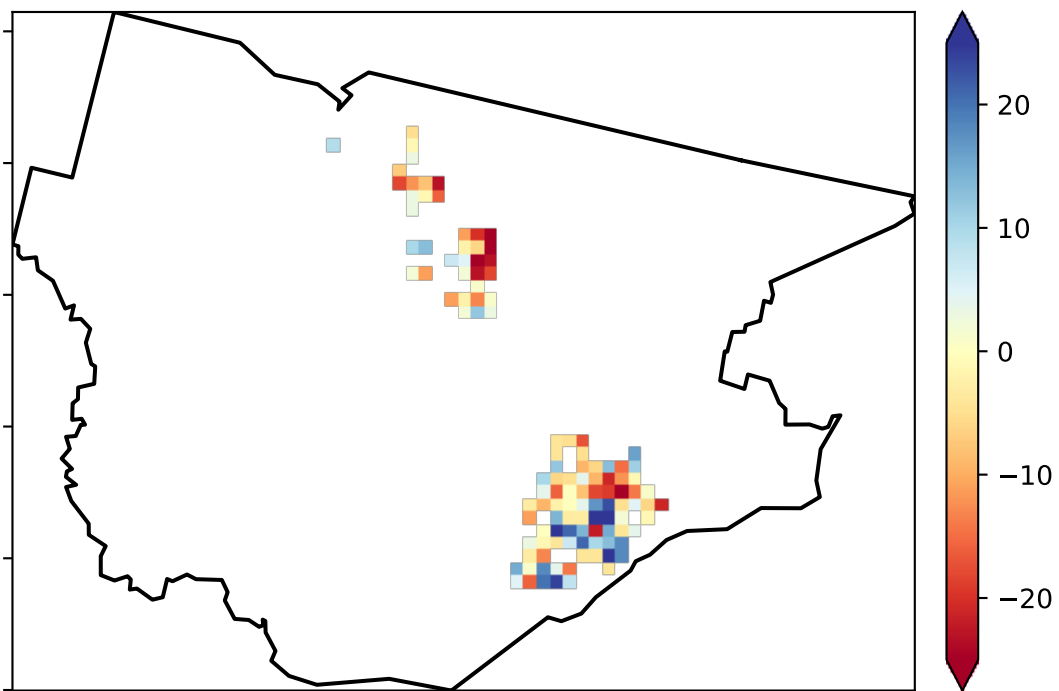using baseline
from 2001 to
2019.

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.

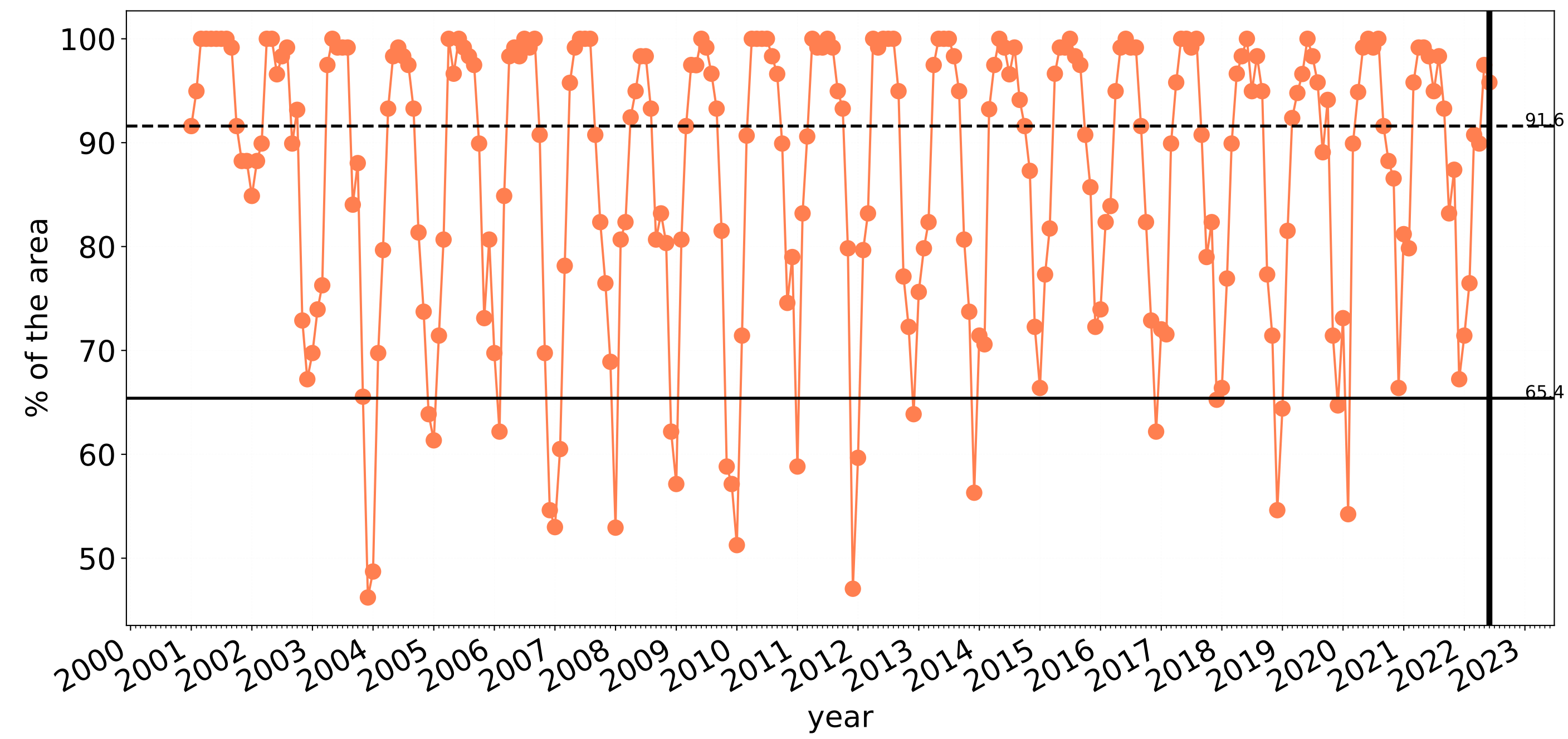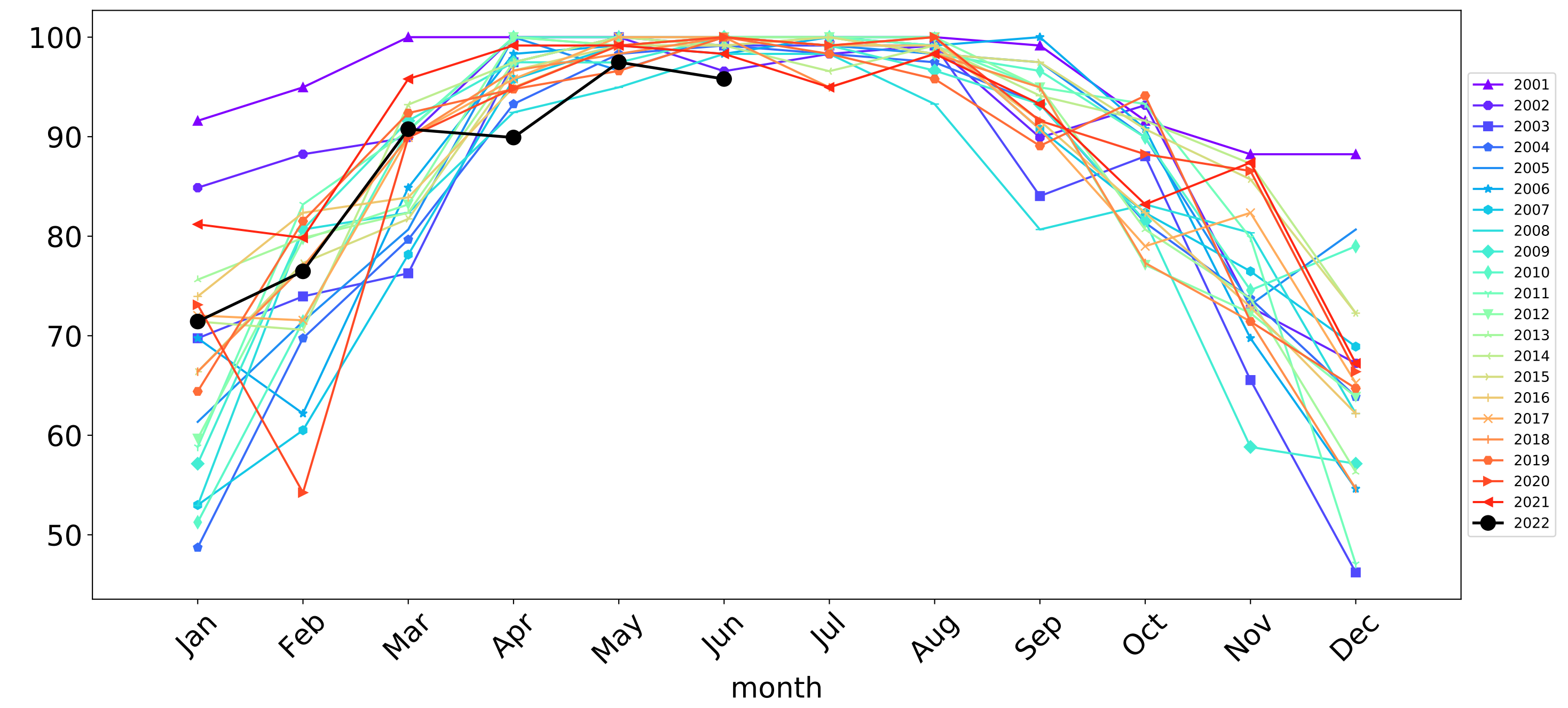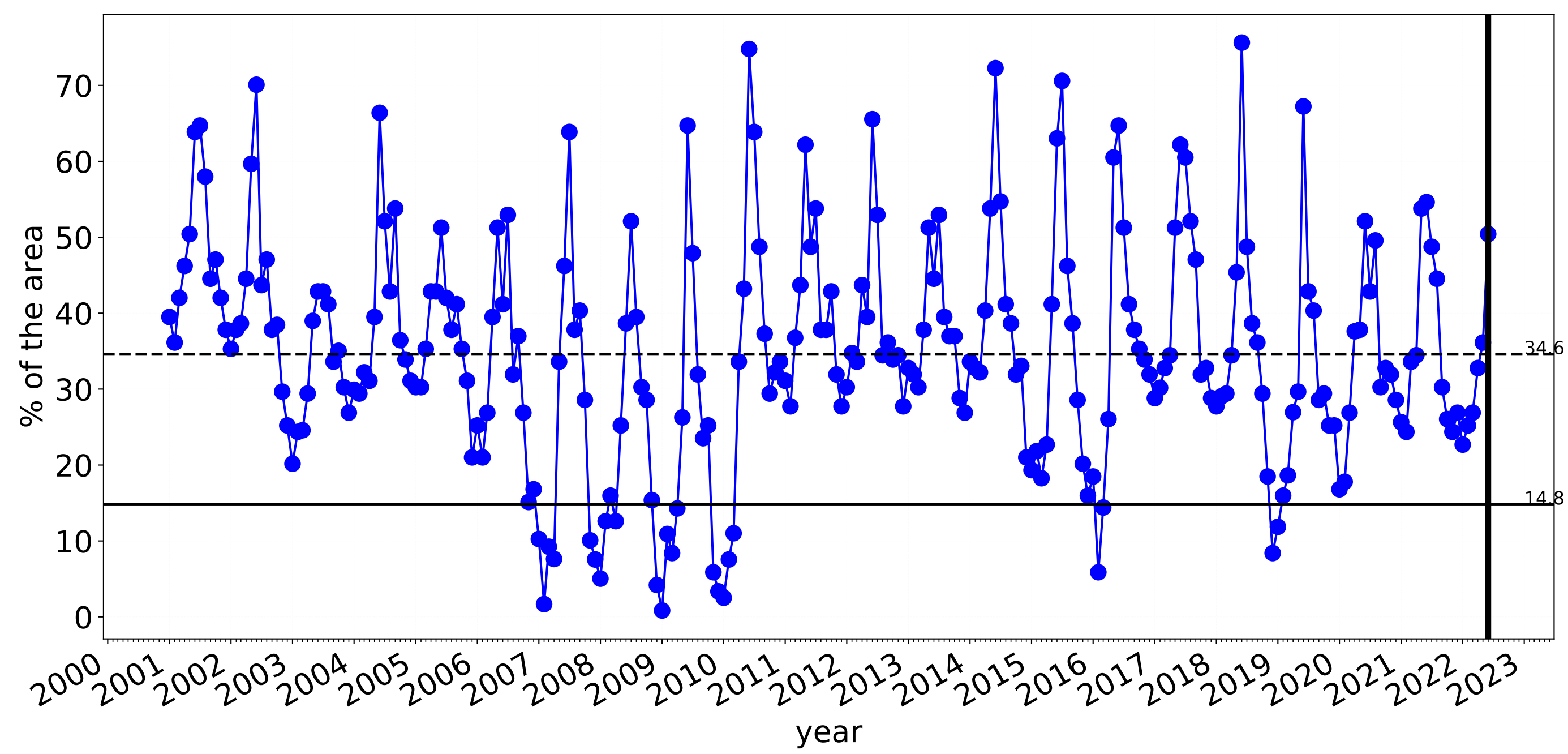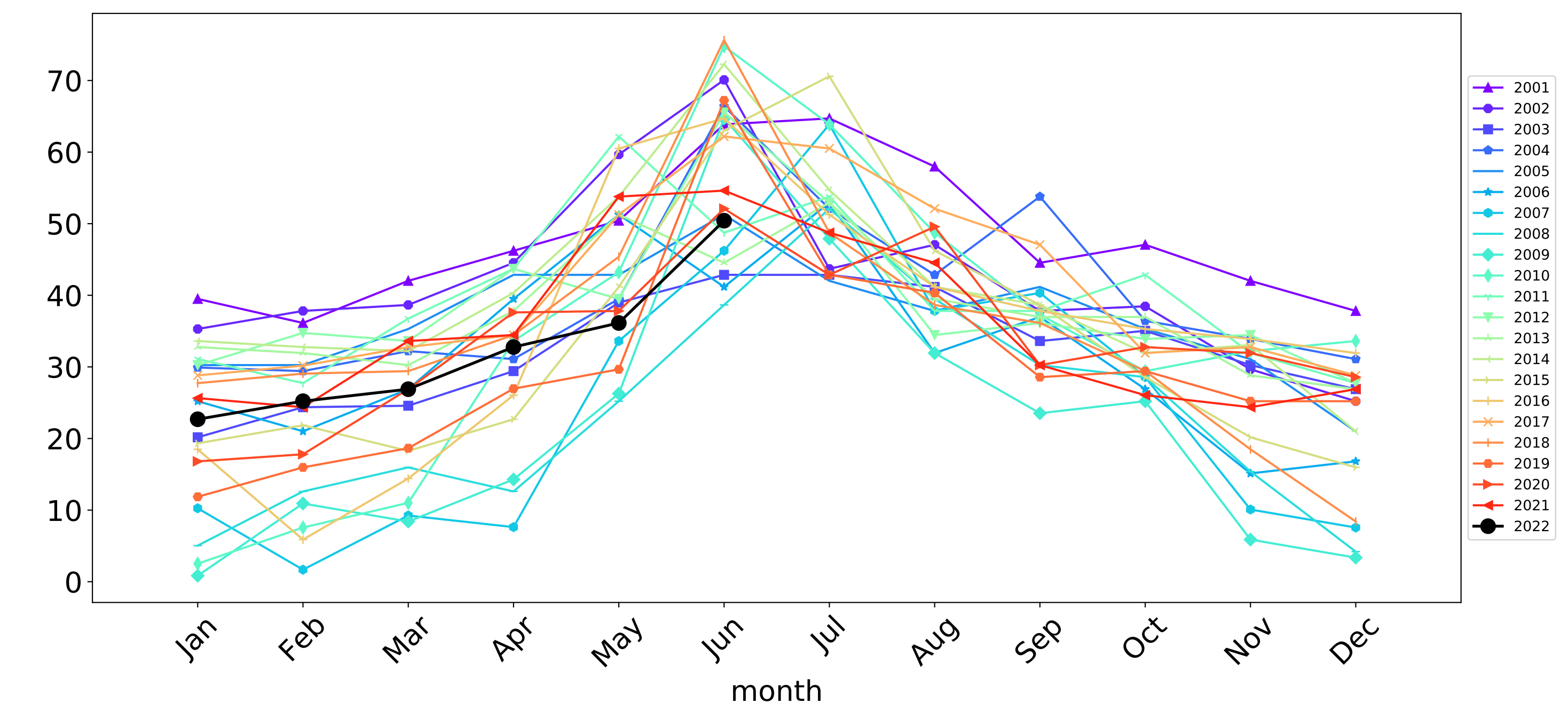Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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%)

Wyndham_(C) (47,650 ha and no data 6,599 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	47,650	99.1% 47,225	92.0% 43,825	68.0% 32,400	51.3% 24,425	27.7% 13,200	14.8% 7,075
Conservation and natural environments	3,600	99.3% 3,575	94.4% 3,400	75.0% 2,700	50.7% 1,825	26.4% 950	20.1% 725
Conservation and natural environments non forest	3,600	99.3% 3,575	94.4% 3,400	75.0% 2,700	50.7% 1,825	26.4% 950	20.1% 725
Agriculture	27,575	99.9% 27,550	97.2% 26,800	80.6% 22,225	65.1% 17,950	37.5% 10,350	20.3% 5,600
Grazing	19,475	100.0% 19,475	97.2% 18,925	82.9% 16,150	69.1% 13,450	39.5% 7,700	20.4% 3,975
Grazing non forest	19,475	100.0% 19,475	97.2% 18,925	82.9% 16,150	69.1% 13,450	39.5% 7,700	20.4% 3,975
Cropping	4,750	100.0% 4,750	97.9% 4,650	90.5% 4,300	71.6% 3,400	47.9% 2,275	30.5% 1,450
Irrigation	2,975	99.2% 2,950	95.8% 2,850	50.4% 1,500	31.9% 950	10.9% 325	5.0% 150