Total vegetation cover soil protection
Region:LGA Narrogin_(S) WA   Date: March 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.

Acknowledgment of data:
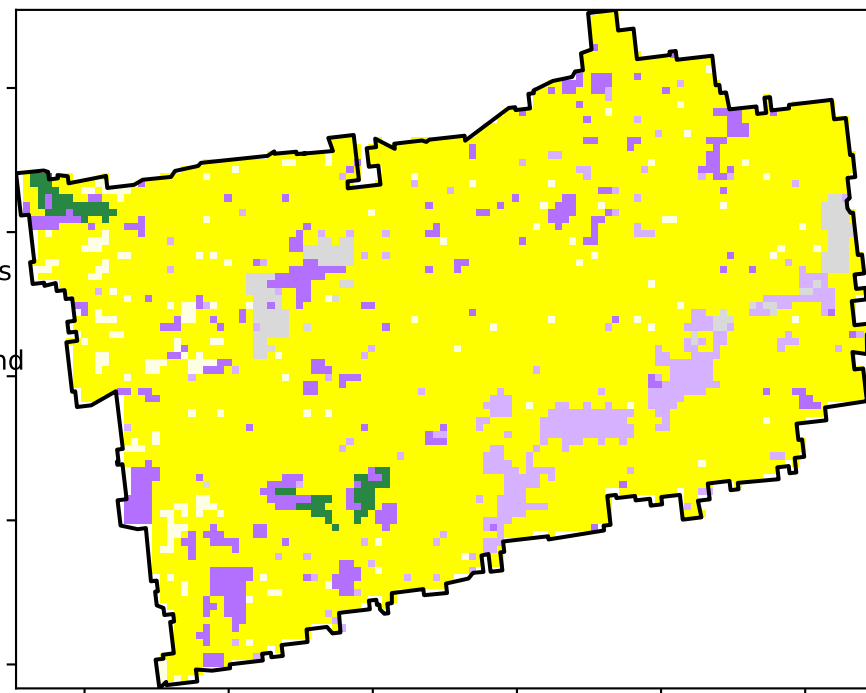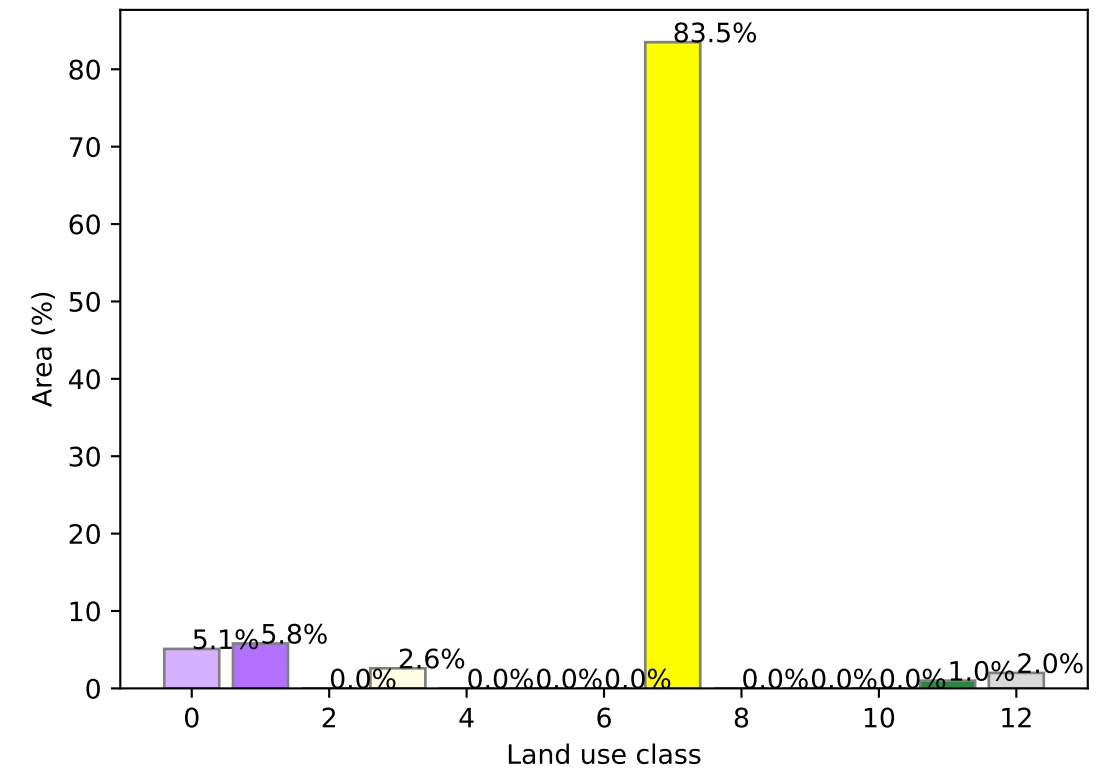
Vegetation Cover Mar 2022

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
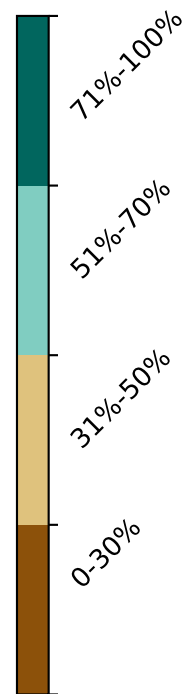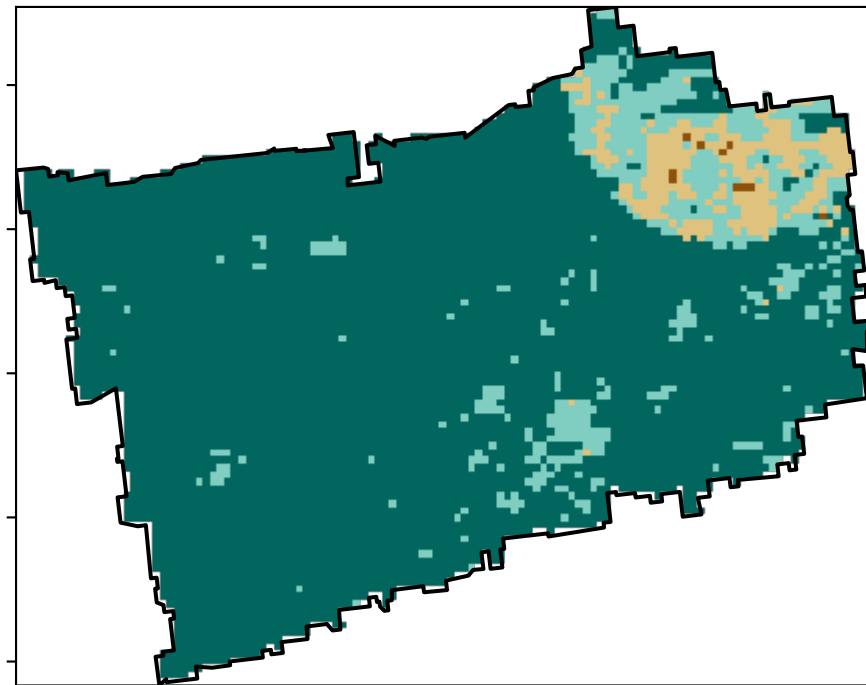
Total Vegetation Cover [%]

Proportion of vegetation cover class in area
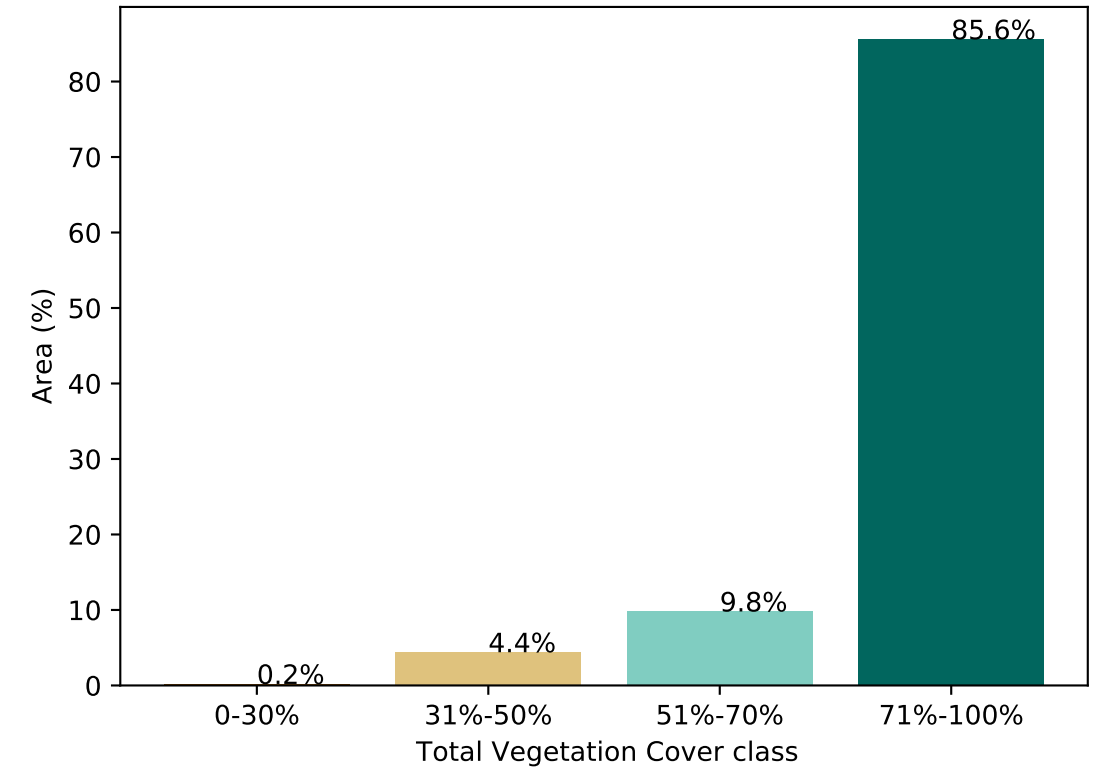
% Area protected from water erosion (>70%)

Area not protected 14.4% of region (23,475 ha)

Area protected 85.6% of region (139,549 ha)

% Area protected from wind erosion (>50%)

Area not protected 5.0% of region (8,151 ha)

Area protected 95.0% of region (154,873 ha)
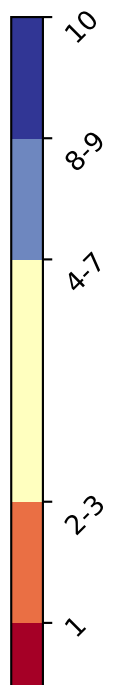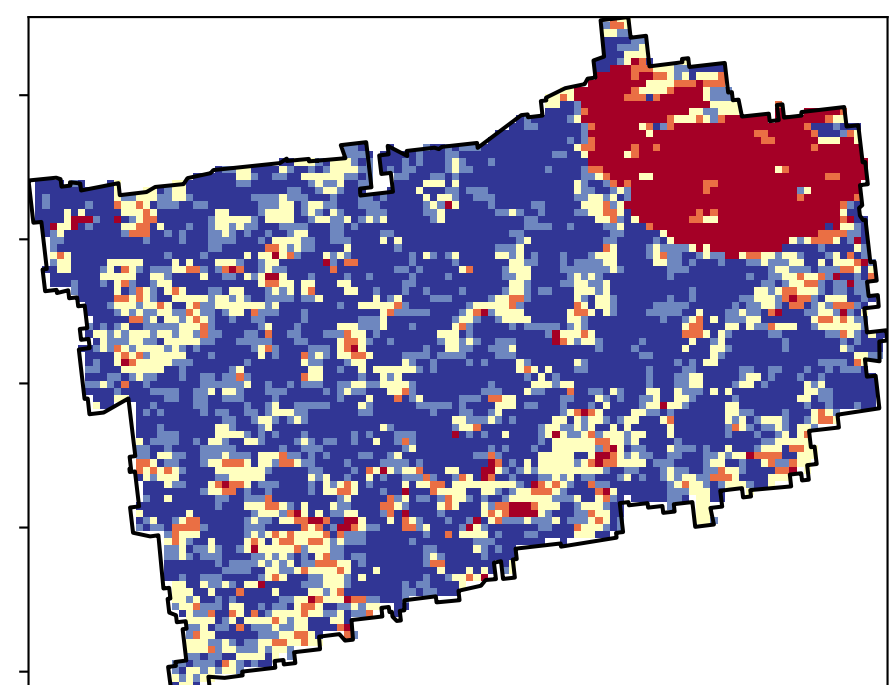
Total Vegetation Cover Anomaly [%]
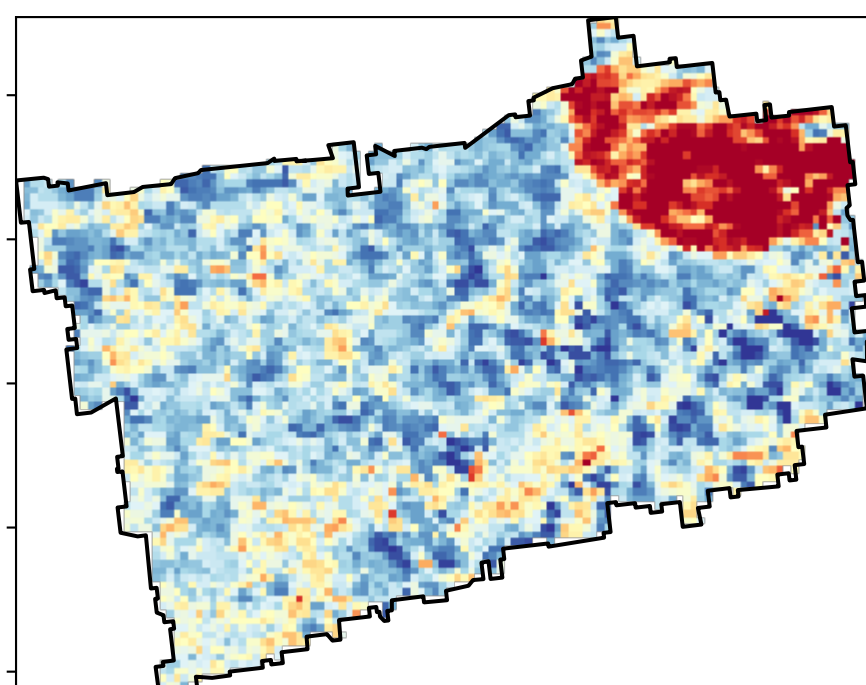
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

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.

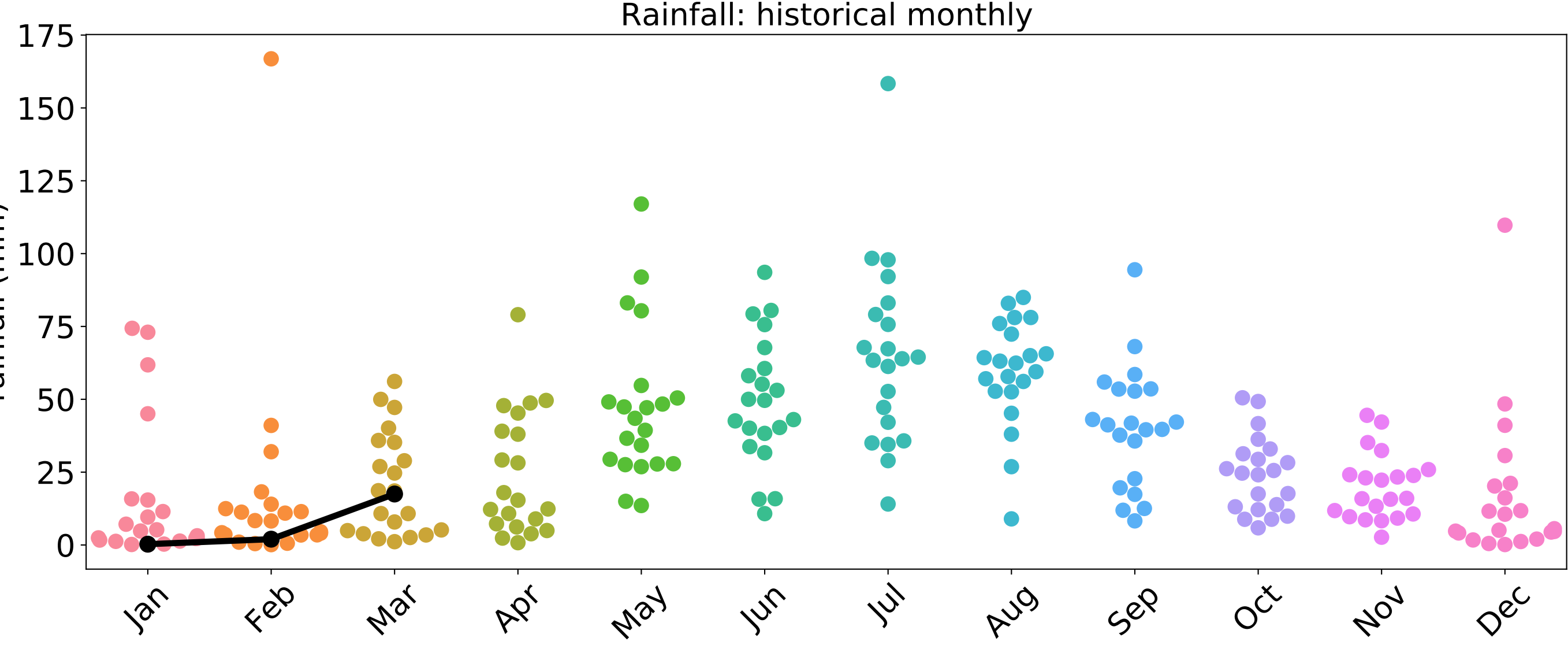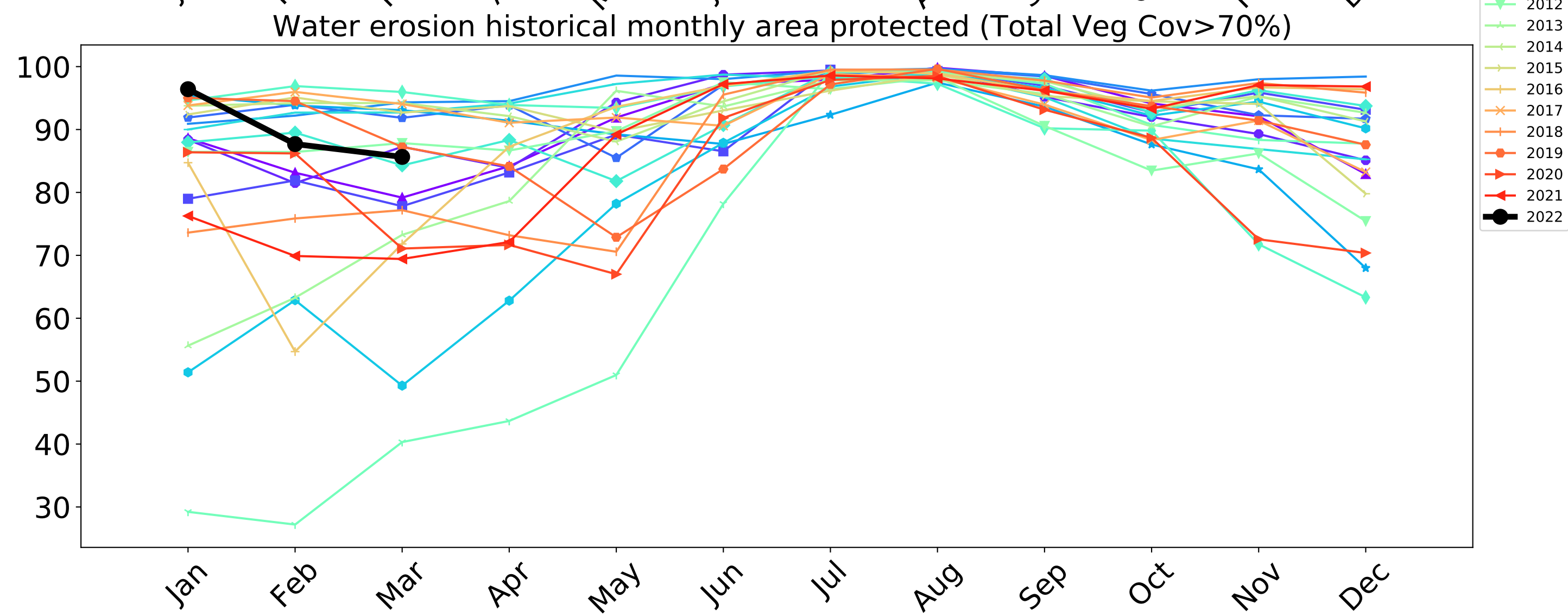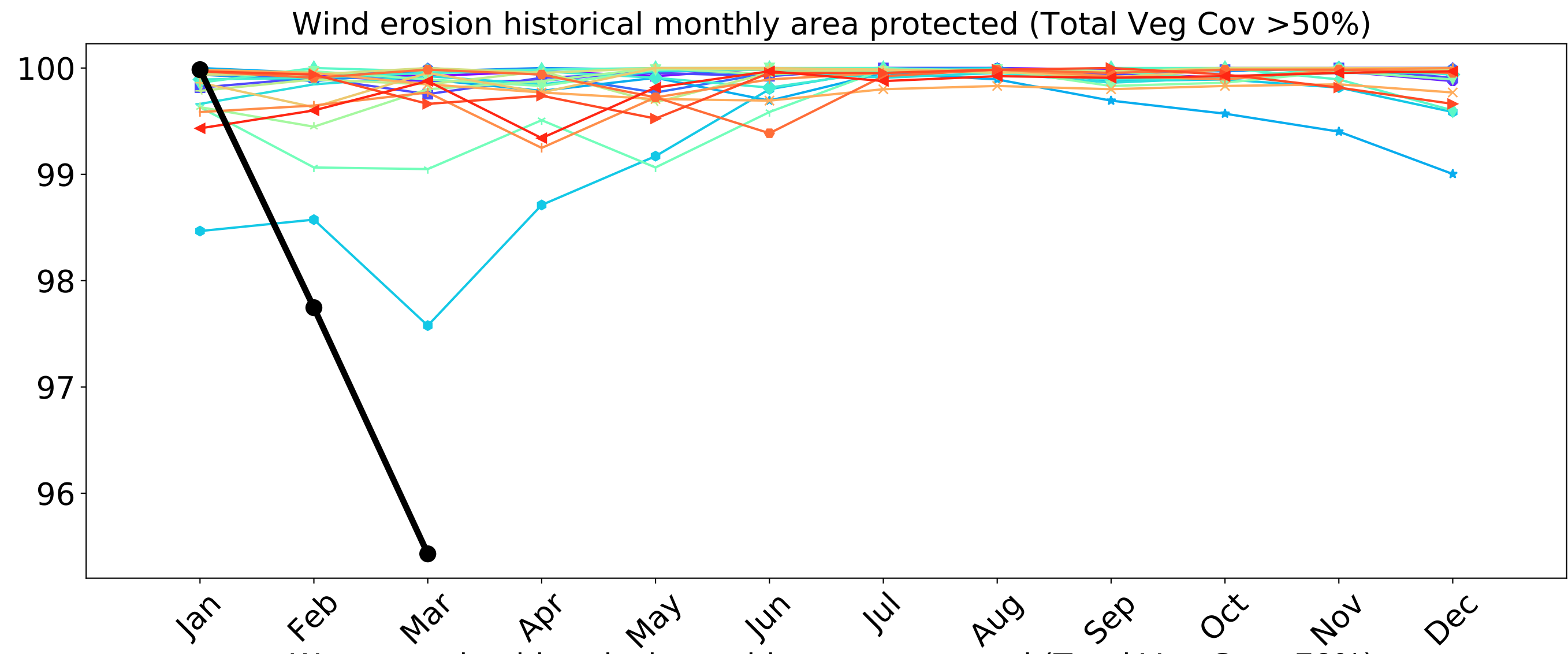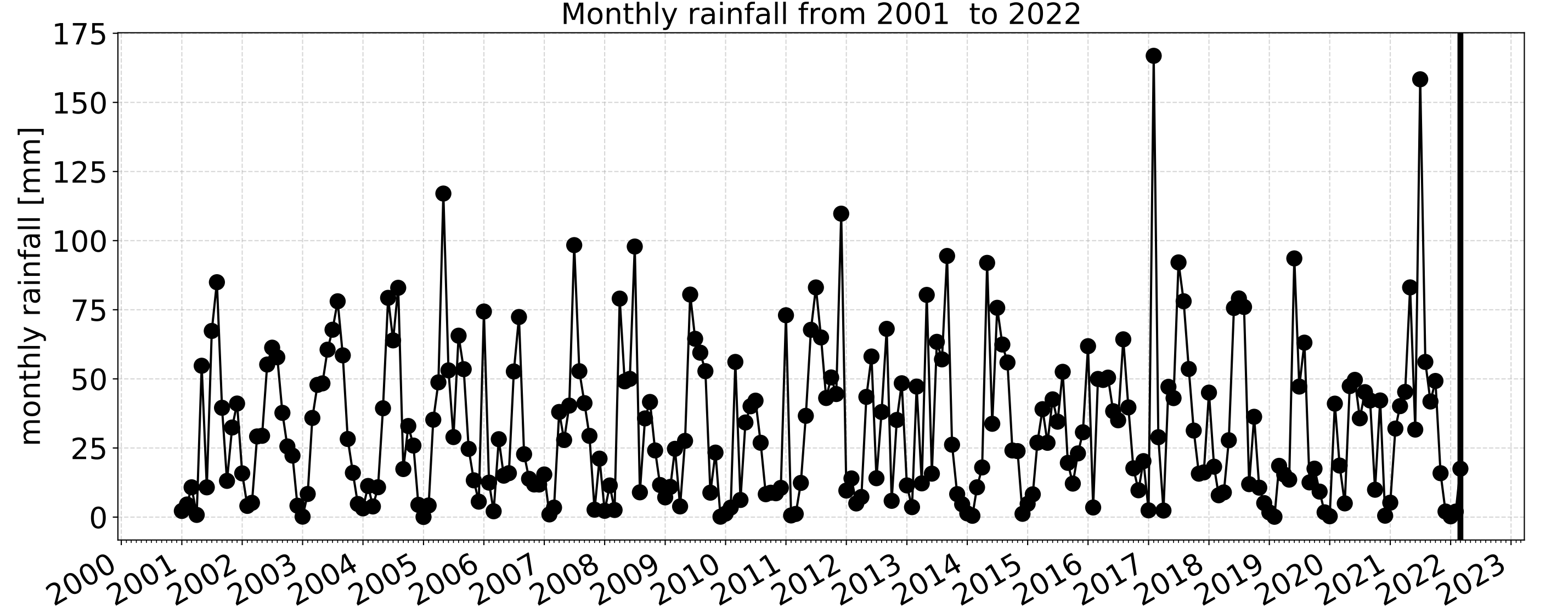Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

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

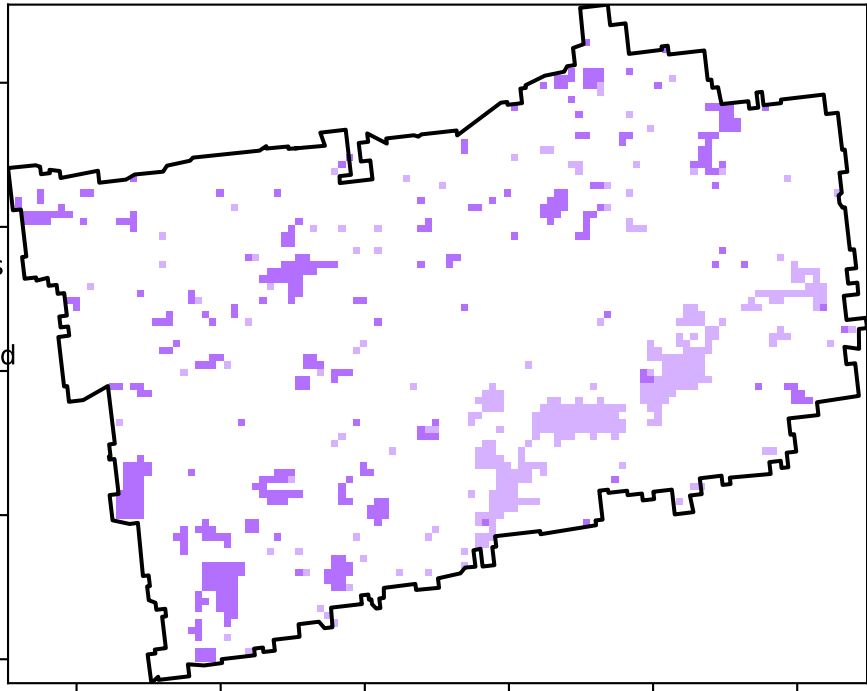Water erosion historical monthly area protected (Total Veg Cov>70%)

Monthly rainfall from 2001 to 2022

Rainfall: historical monthly
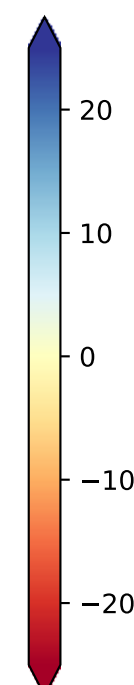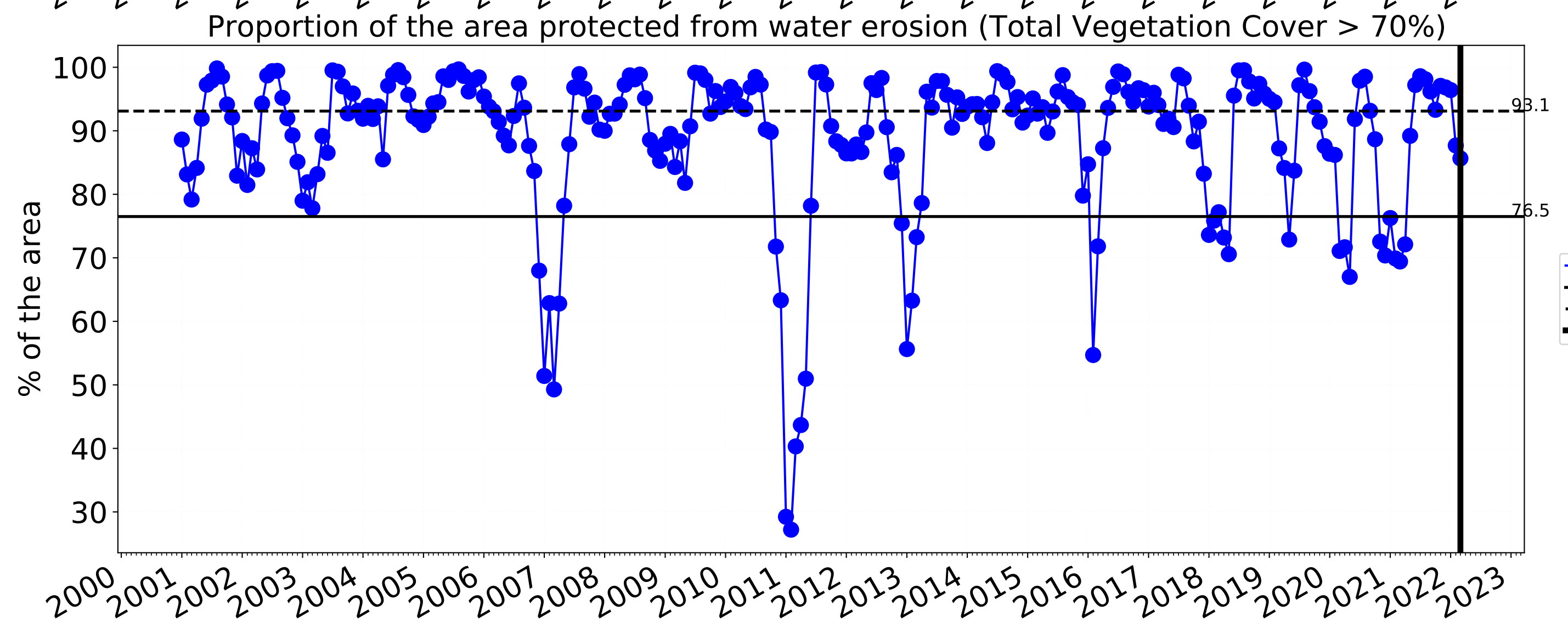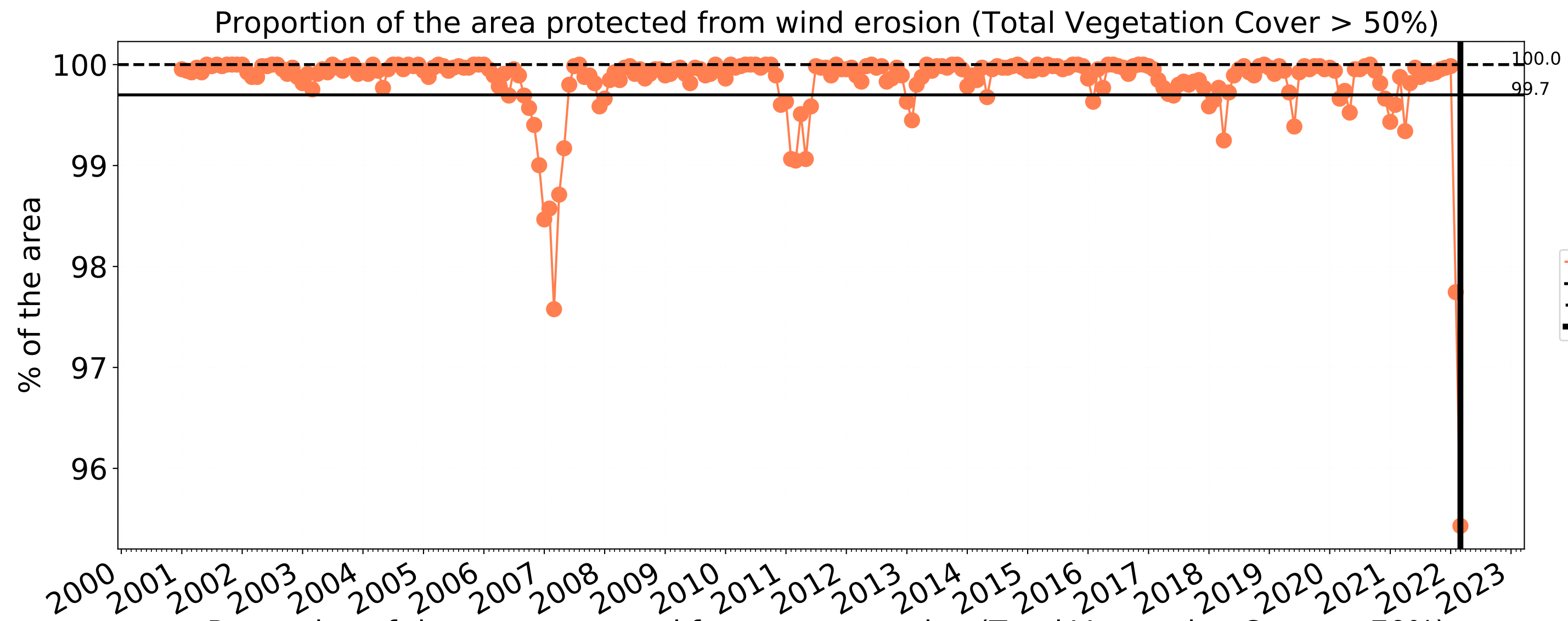
Conservation and natural environments

Land use and forest cover

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

1 Conservation and natural environments - Non-forest

2 Conservation and natural environments - Woodland forest

Proportion of each land class in area
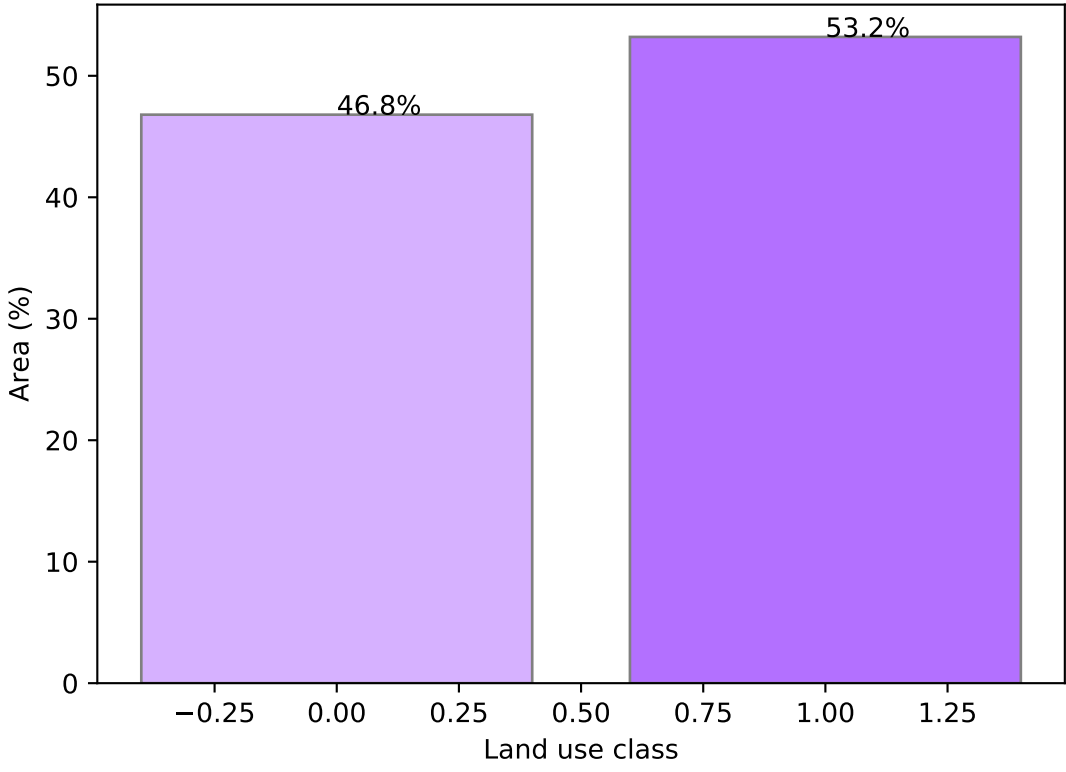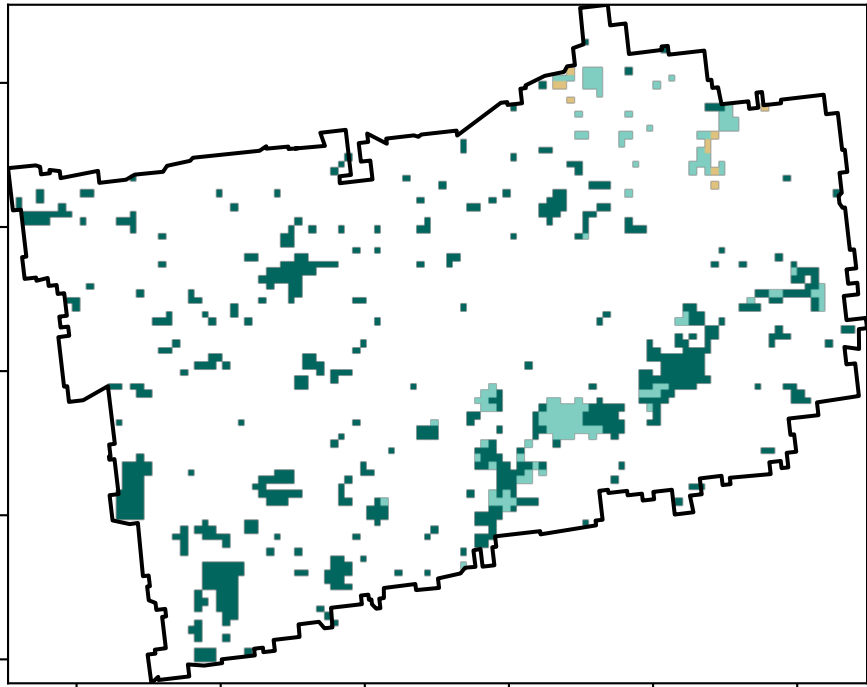
46.8% 53.2%

Area (%)
Land use class

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

81.0%

17.6%

0.0% 1.4%

Area (%)
Total Vegetation Cover class

0-30% 31%-50% 51%-70% 71%-100%
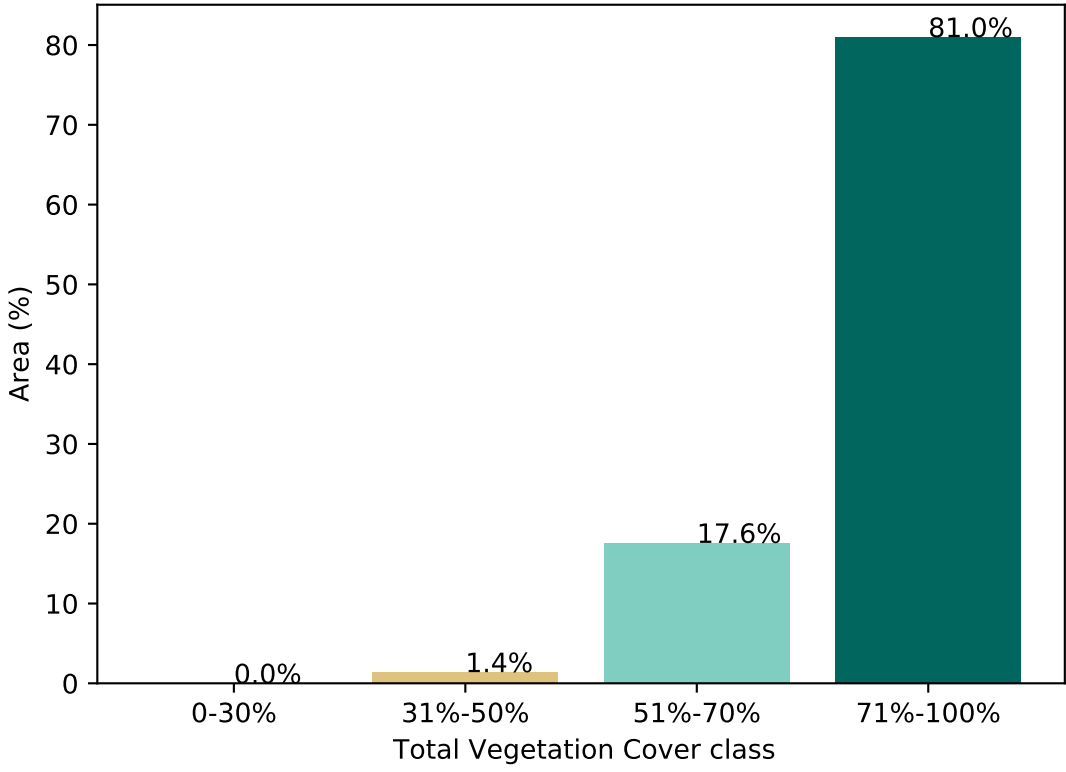
% Area protected from water erosion (>70%)
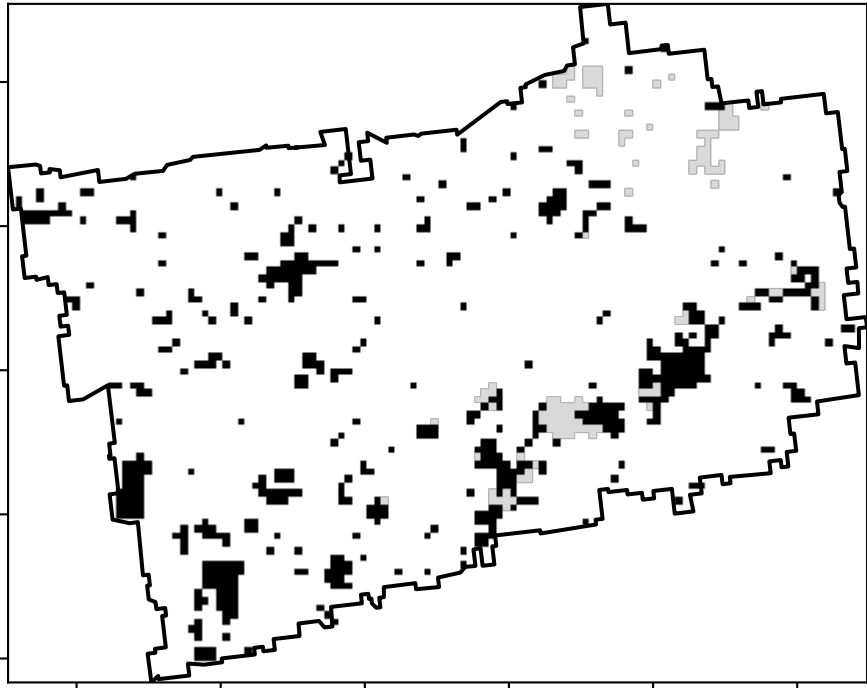
Area not
protected
19.0% of
region
(3,372 ha)

Area protected
81.0% of
region
(14,377
ha)

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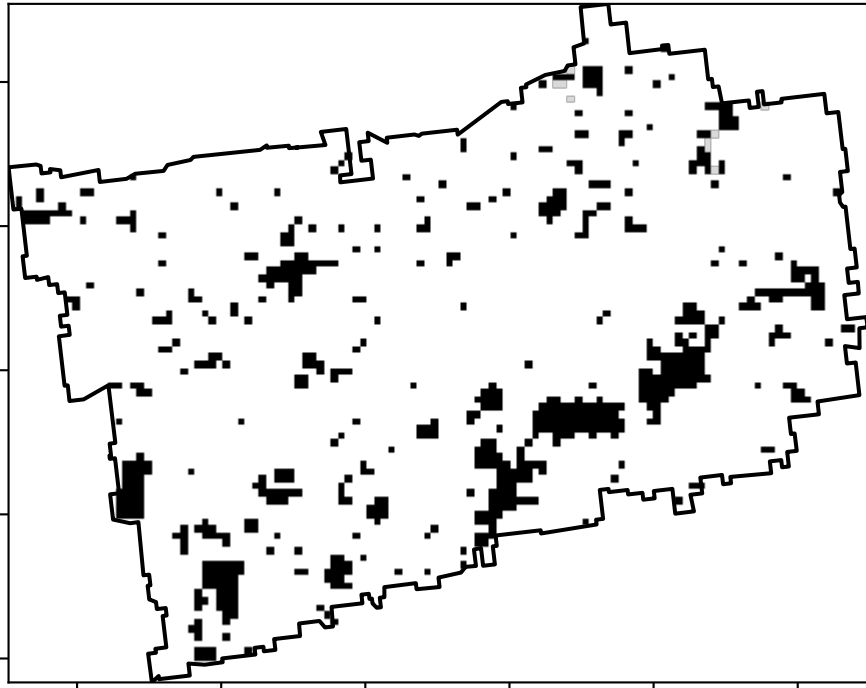
Area not
protected
1.0% of
region
(177 ha)

Area
protected
99.0% of
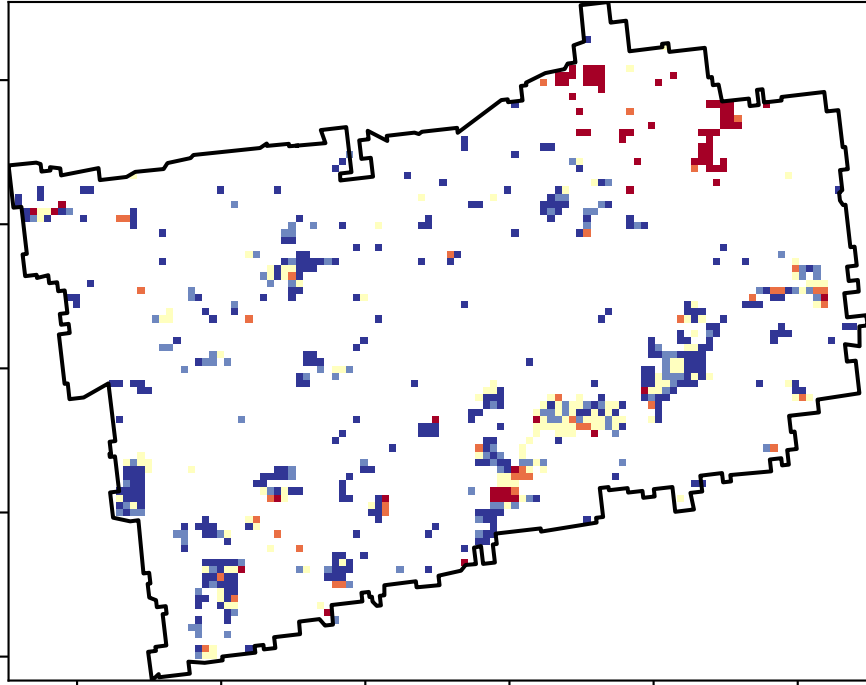region
(17,572
ha)

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
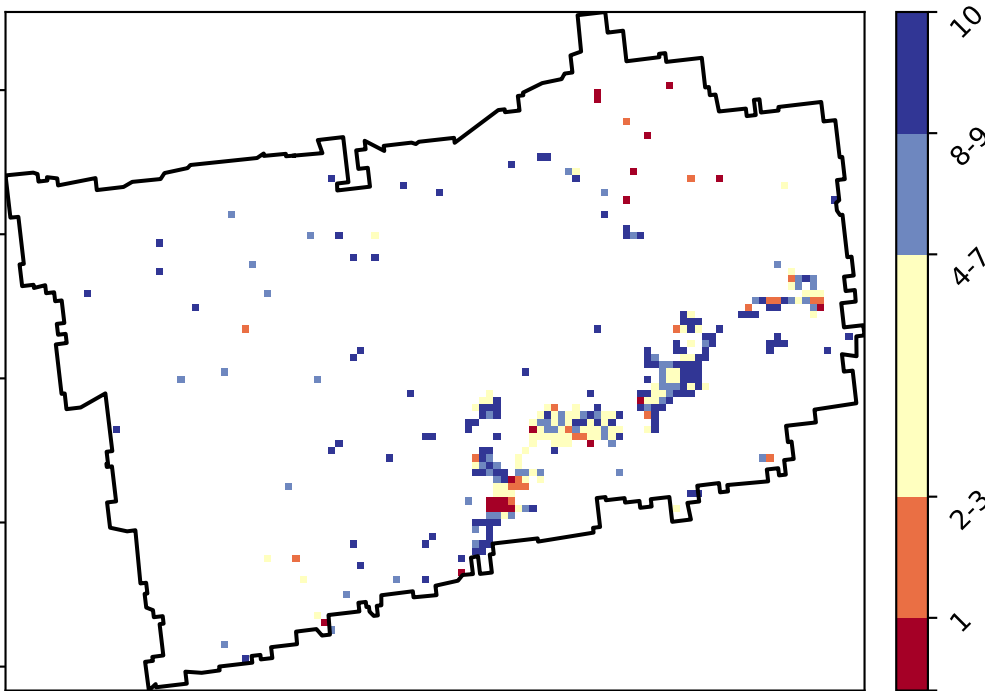
Land use and forest cover

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

74.7%

25.3%

0.0%   0.0%

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

Total Vegetation Cover class

% Area protected from water erosion (>70%)

Area not
protected
25.3% of
region
(2,099 ha)

Area
protected
74.7% of
region
(6,200 ha)

% Area protected from wind erosion (>50%)

Area protected
100.0% of
region
(8,300 ha)

Total Vegetation Cover Anomaly [%]

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mean of that
pixel. The mean
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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
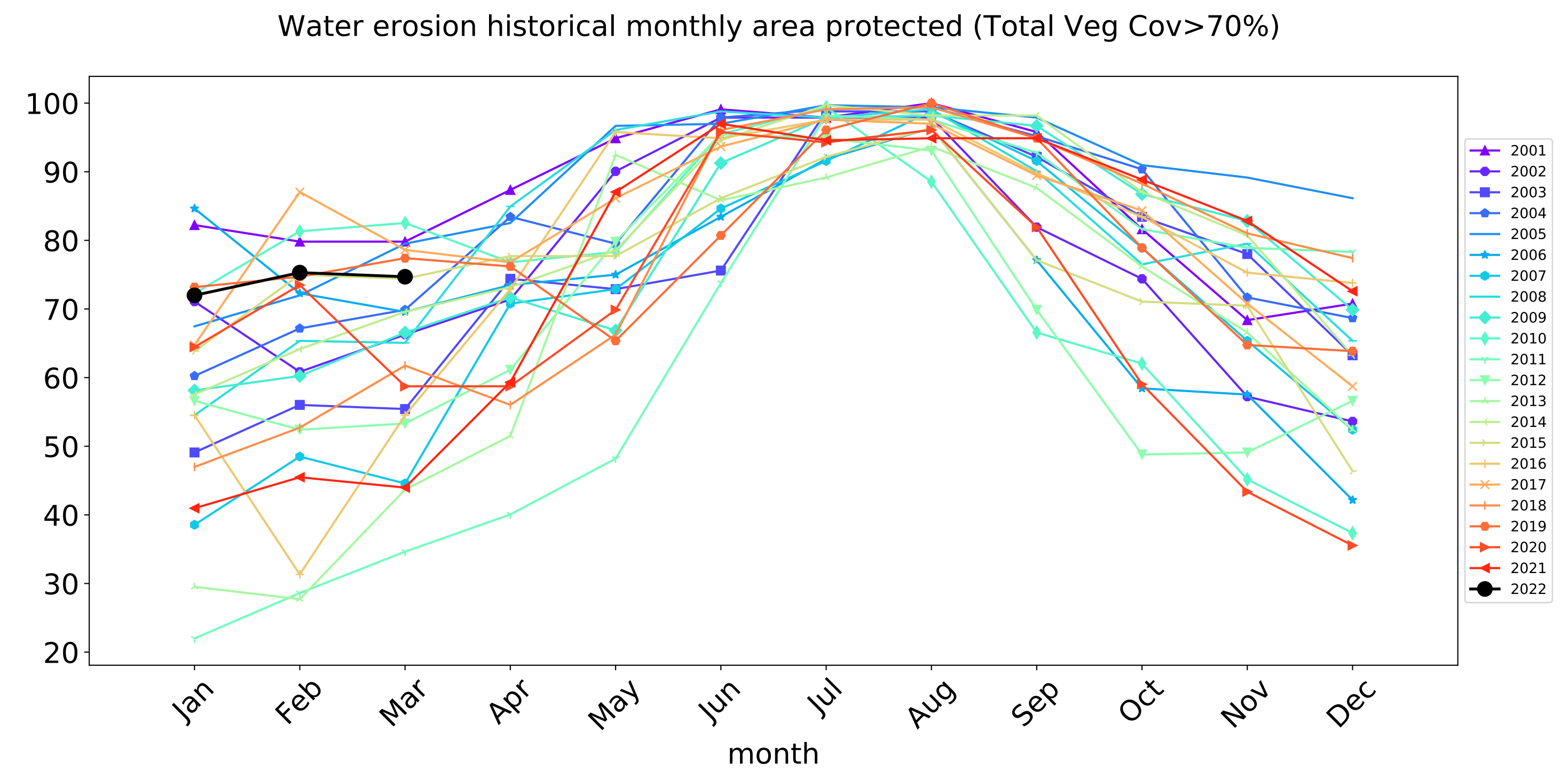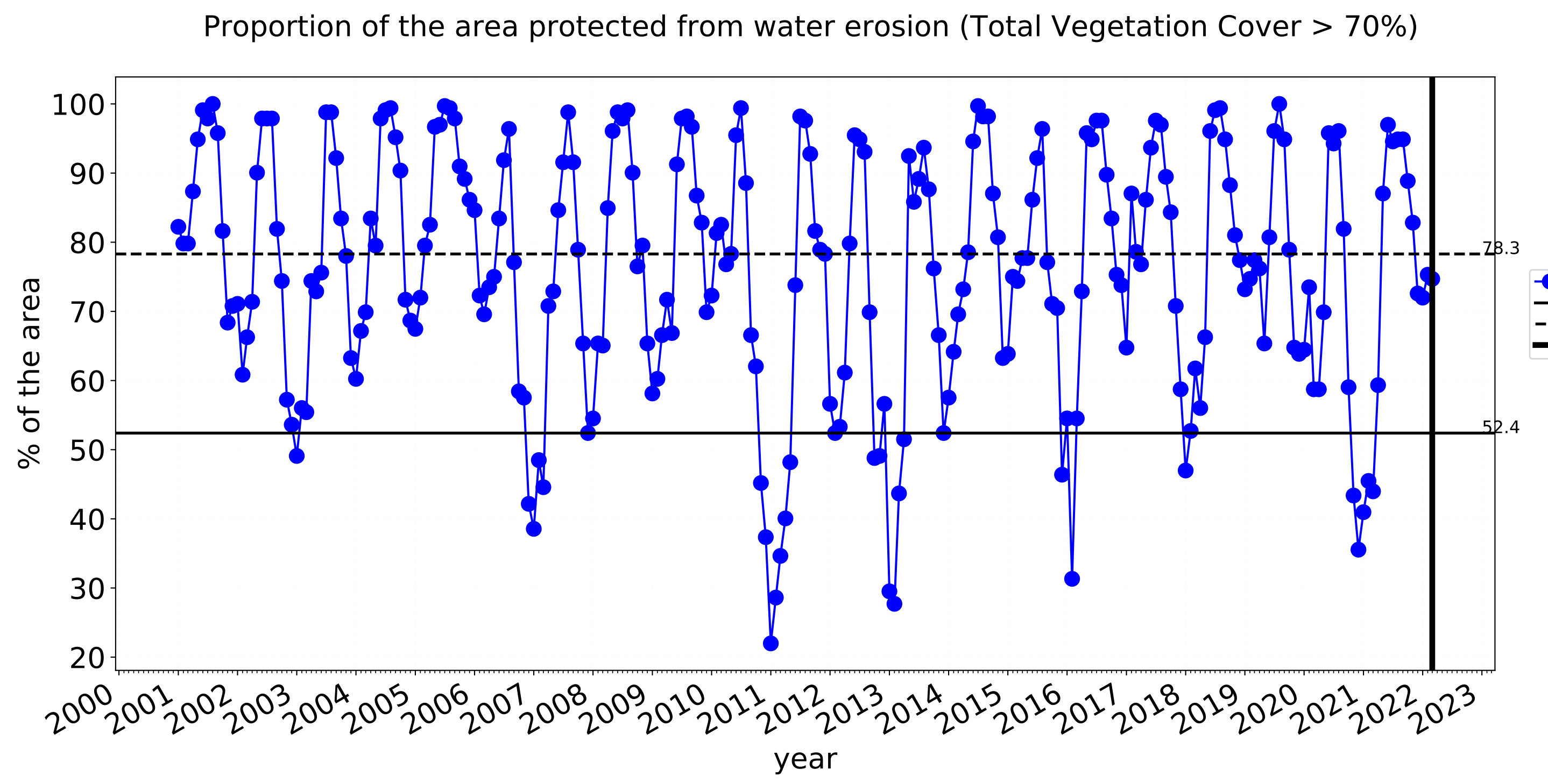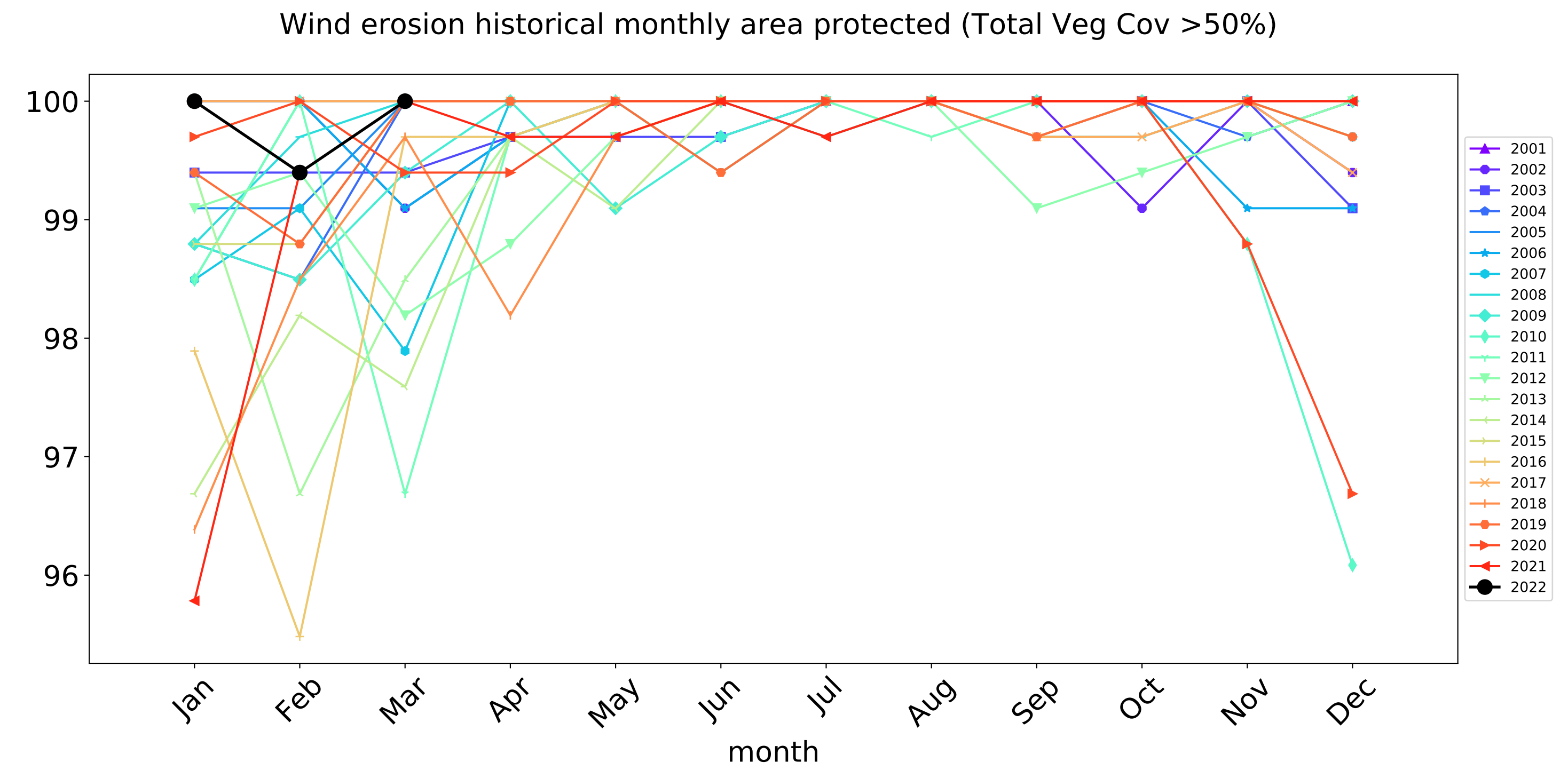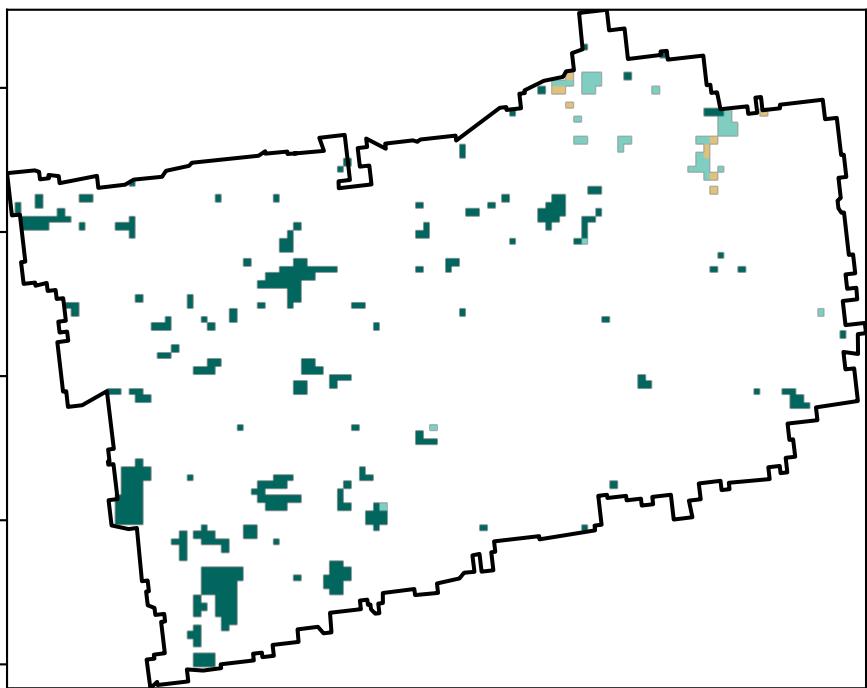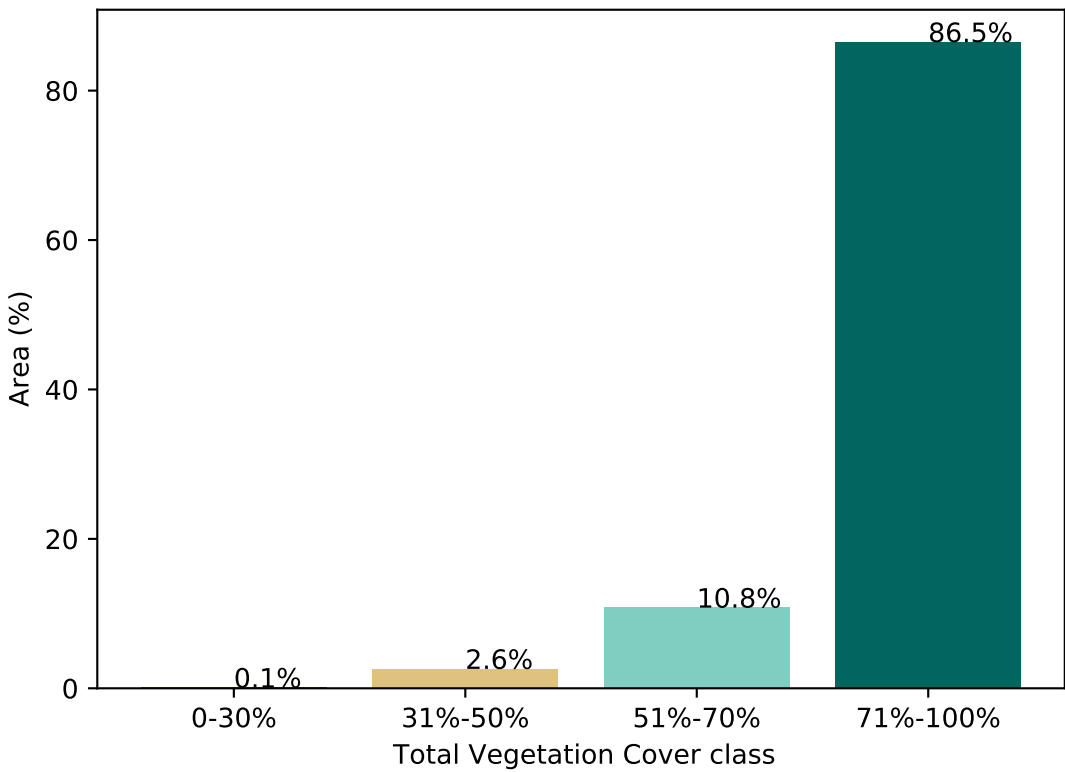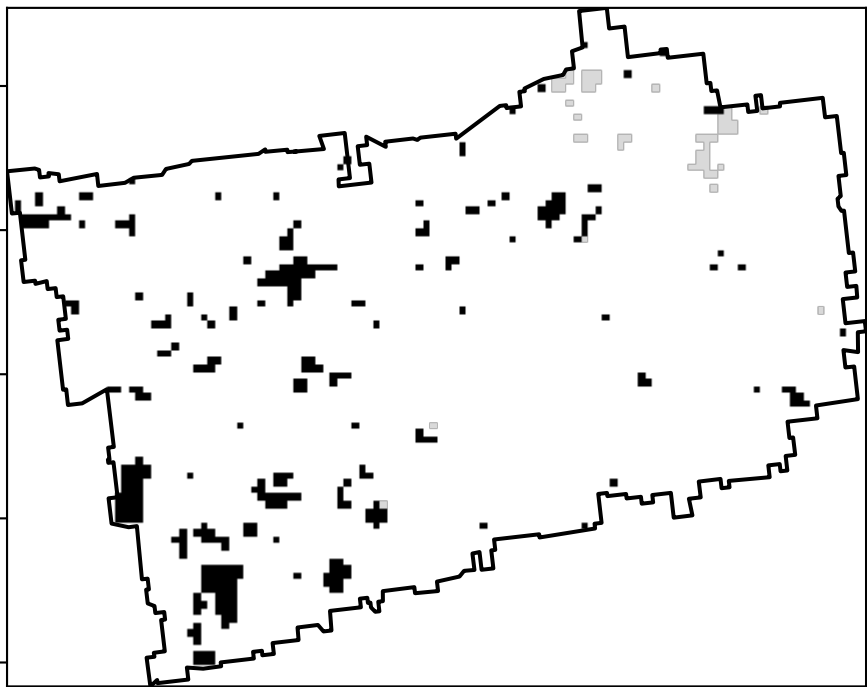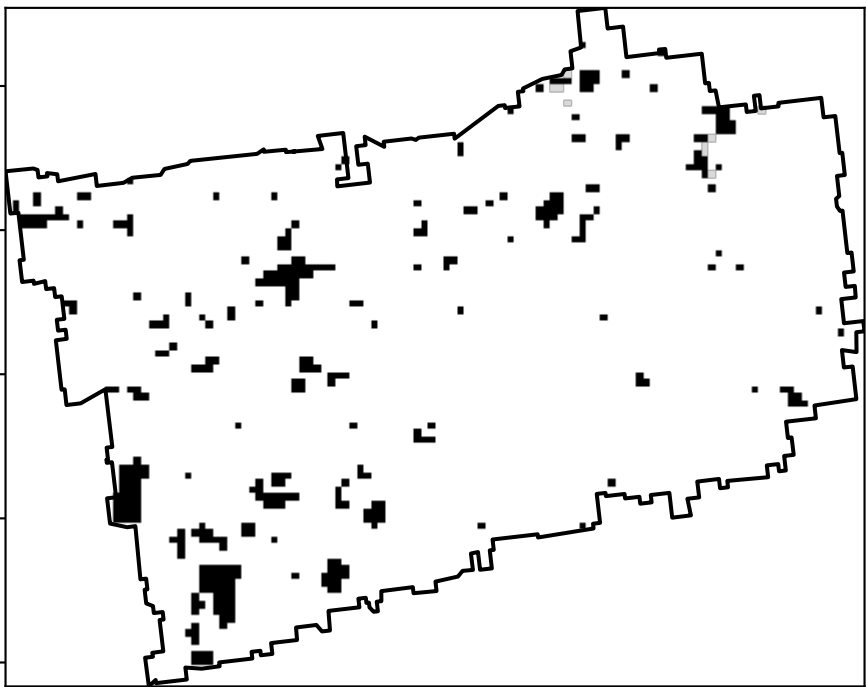records for that month of
the map using baseline
from 2001 to 2019.

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

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 - Woodland forest

Total Vegetation Cover [%]

71%-100%

51%-70%

31%-50%

0-30%

Proportion of vegetation cover class in area

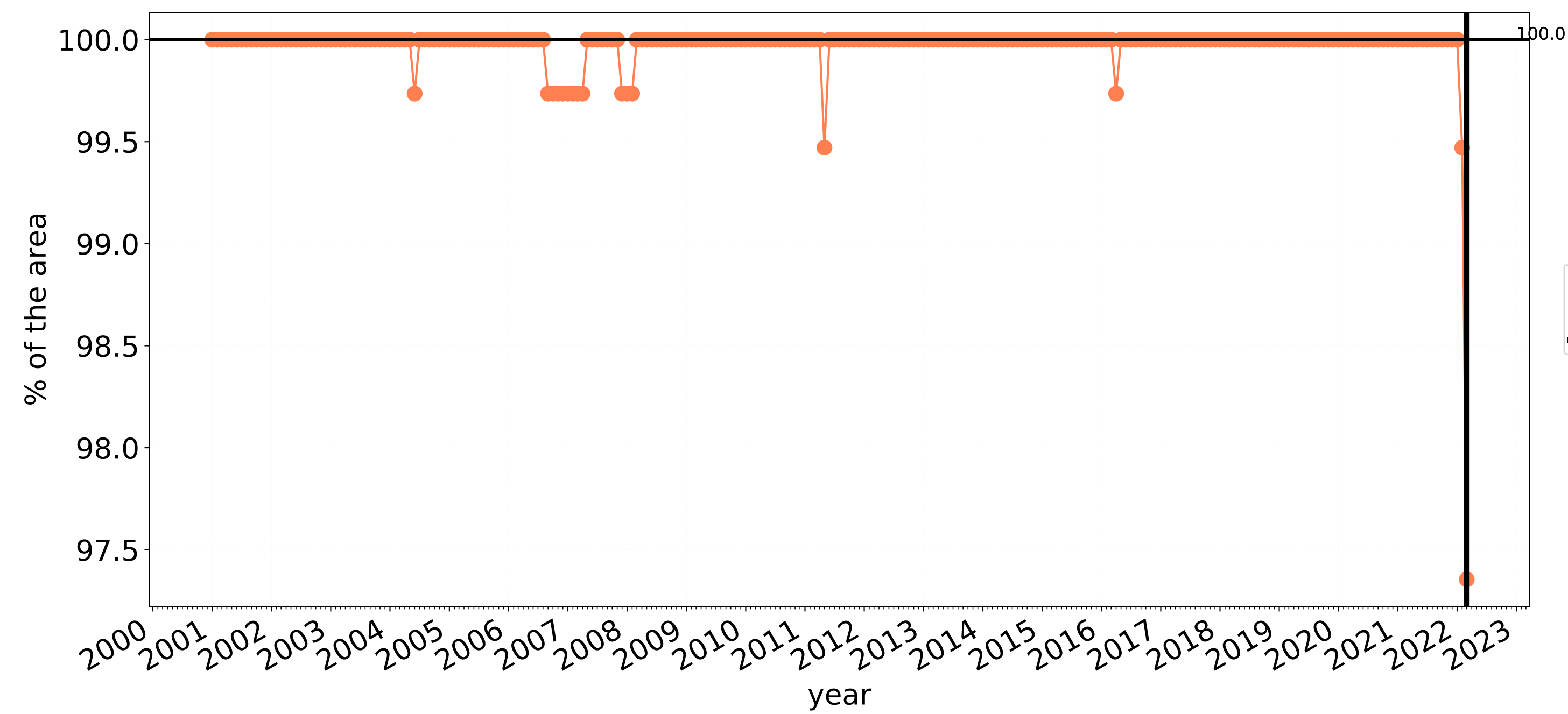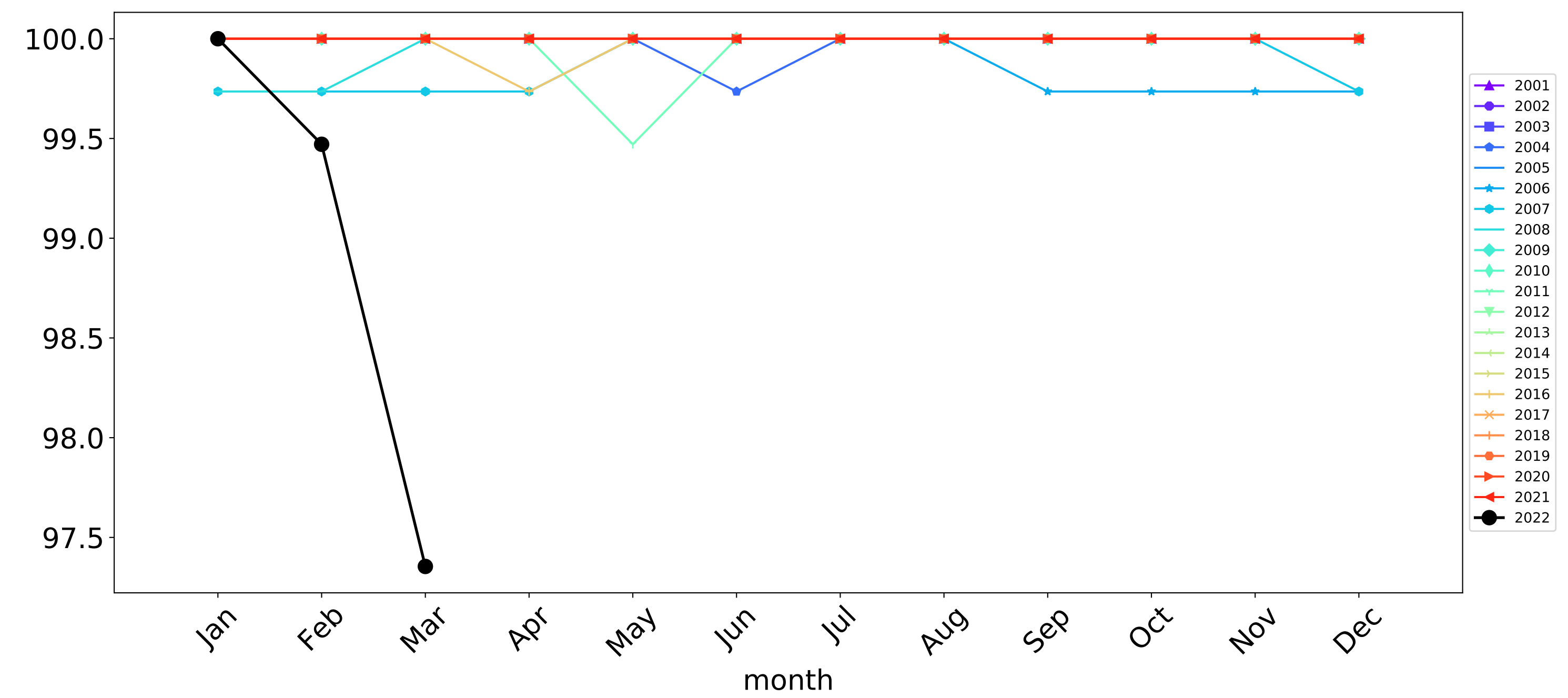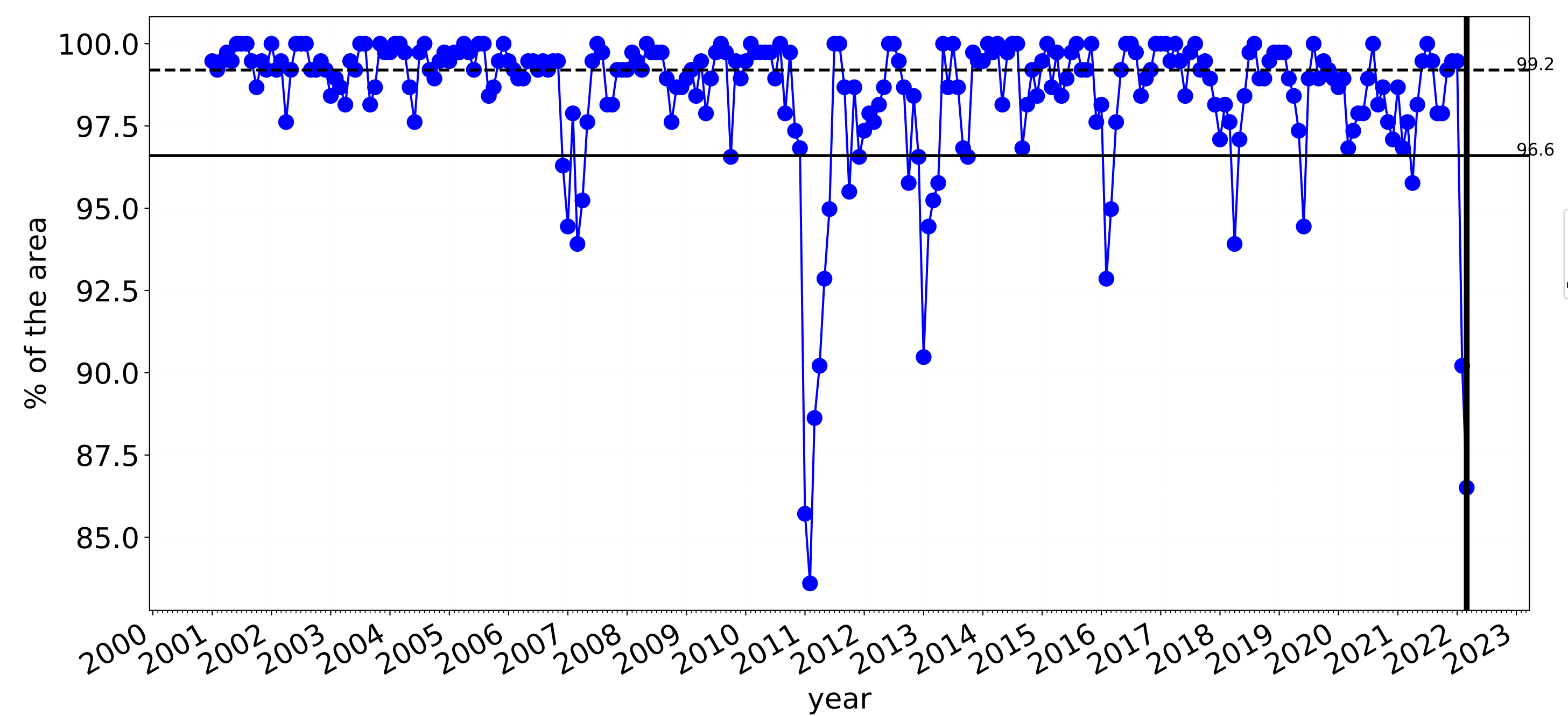### % Area protected from water erosion (>70%)

Area not
protected
13.5% of
region
(1,275 ha)

Area
protected
86.5% of
region
(8,174 ha)

% Area protected from wind erosion (>50%)

Area not
protected
3.0% of
region
(283 ha)

Area
protected
97.0% of
region
(9,166 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
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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

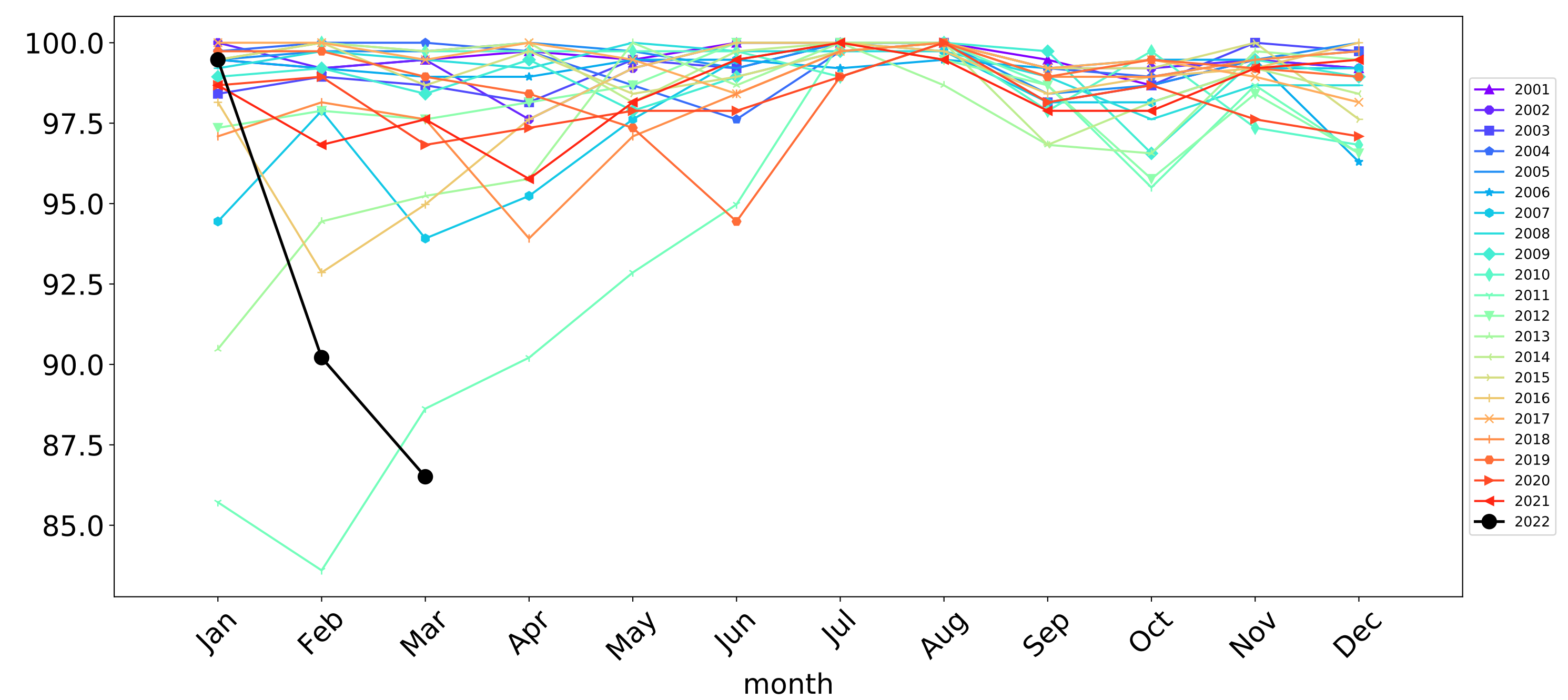Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

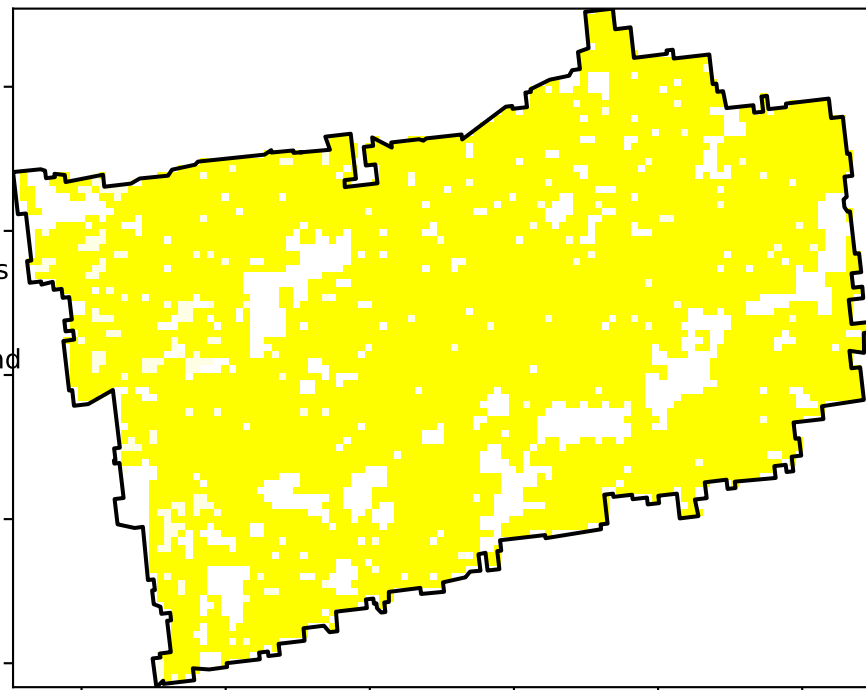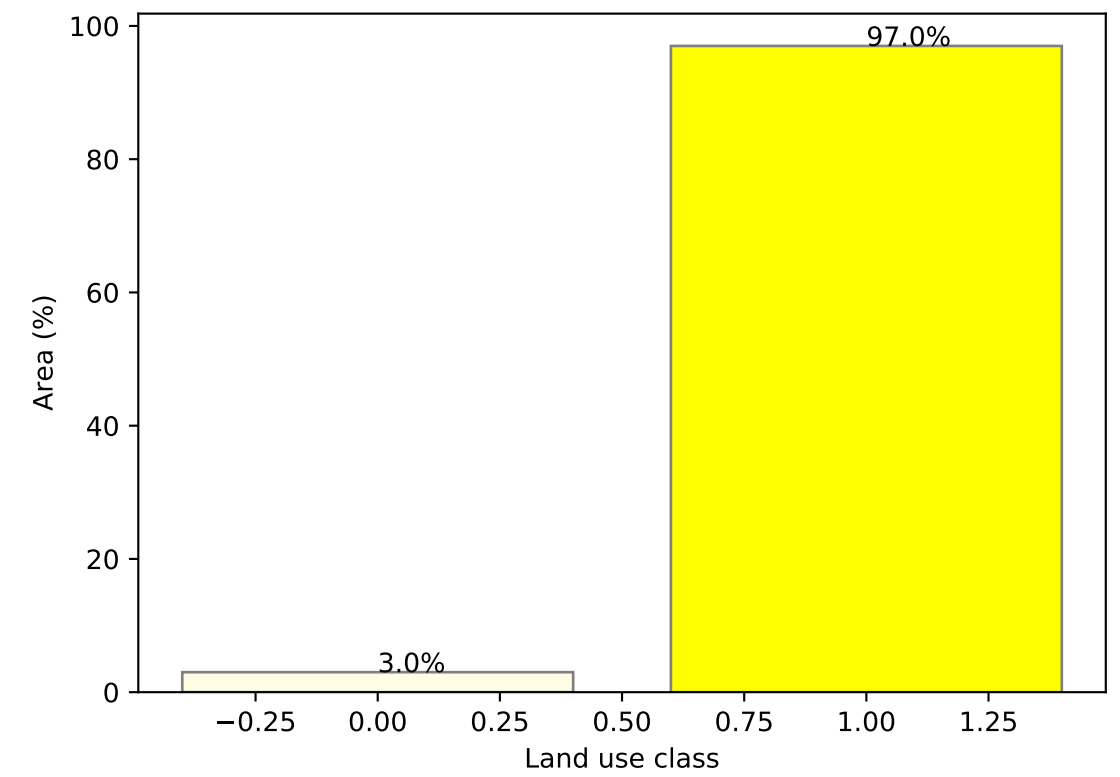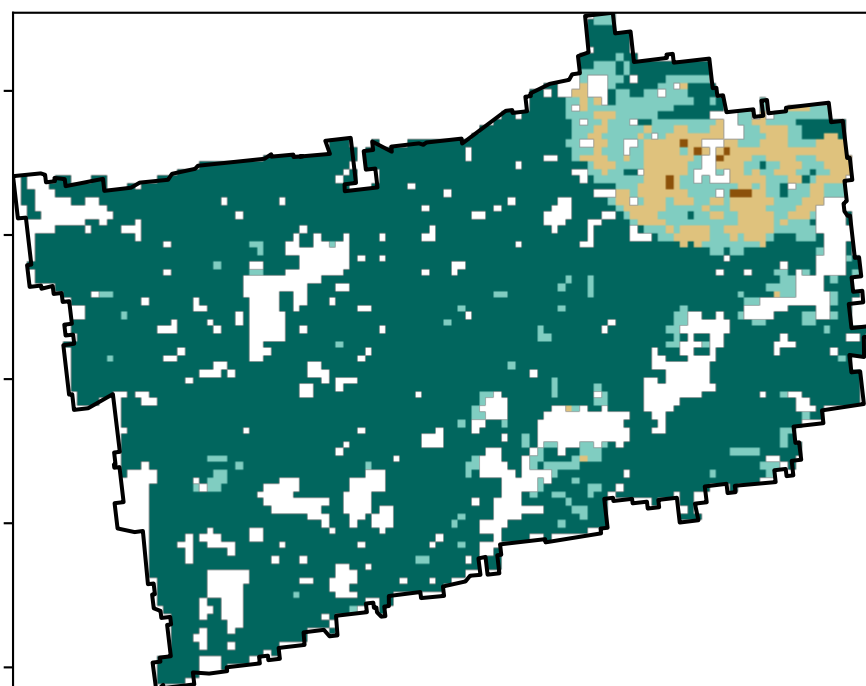Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

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

Agriculture

Land use and forest cover

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 - Cropping - Non-irrigated
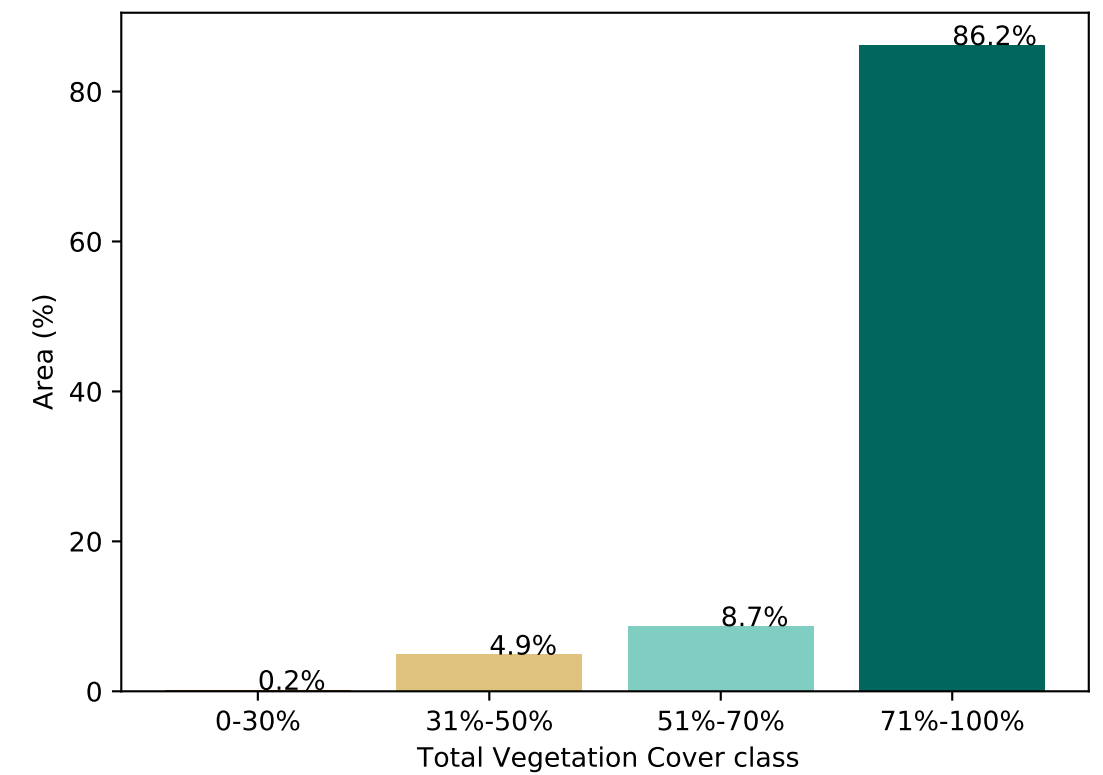
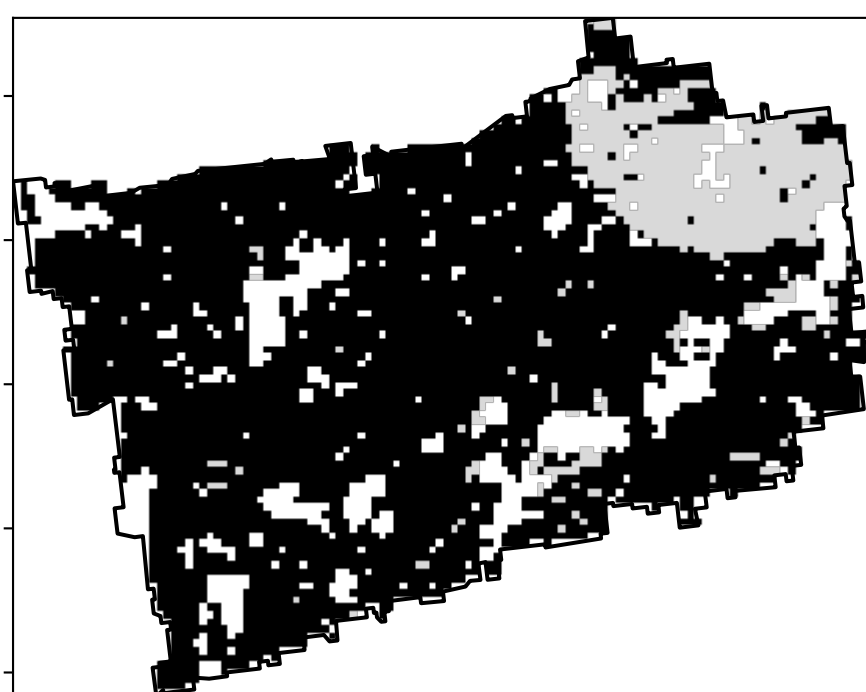## Proportion of each land class in area

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 13.8% of region (19,371 ha)

Area protected 86.2% of region (121,003 ha)

% Area protected from wind erosion (>50%)

Area not protected 5.0% of region (7,018 ha)

Area protected 95.0% of region (133,356 ha)
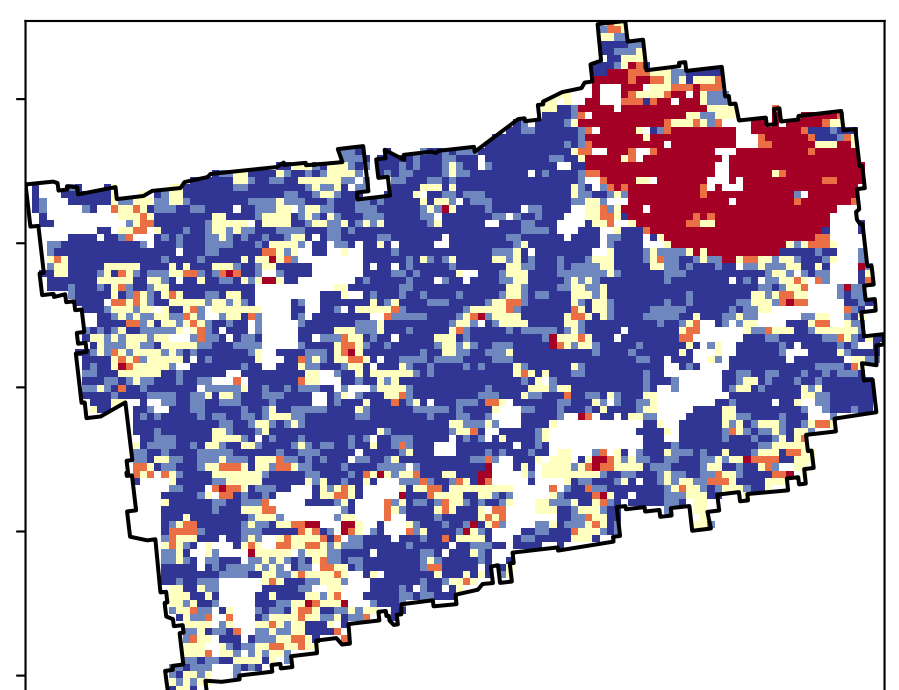
Total Vegetation Cover Anomaly [%]

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.
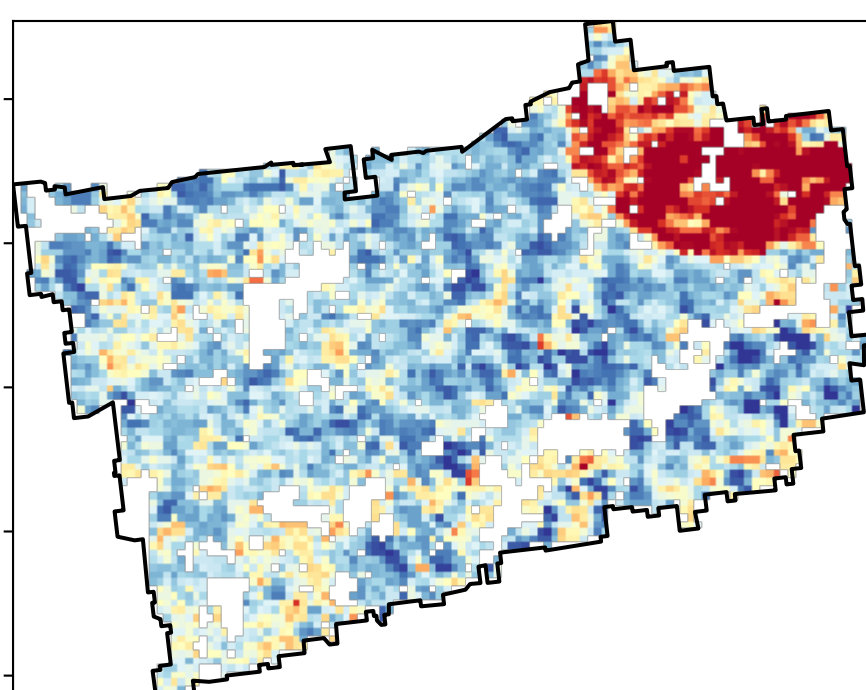
Total Vegetation Cover Decile [%]

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.
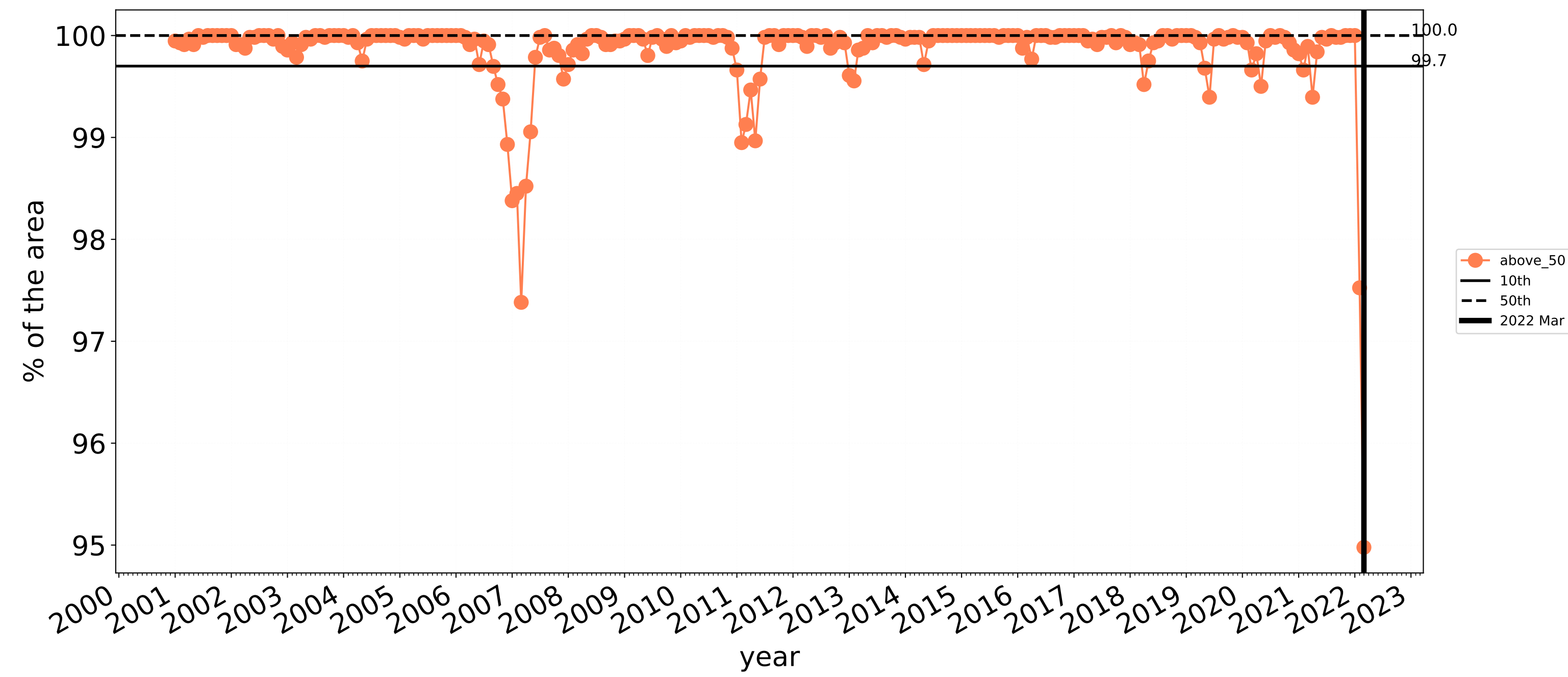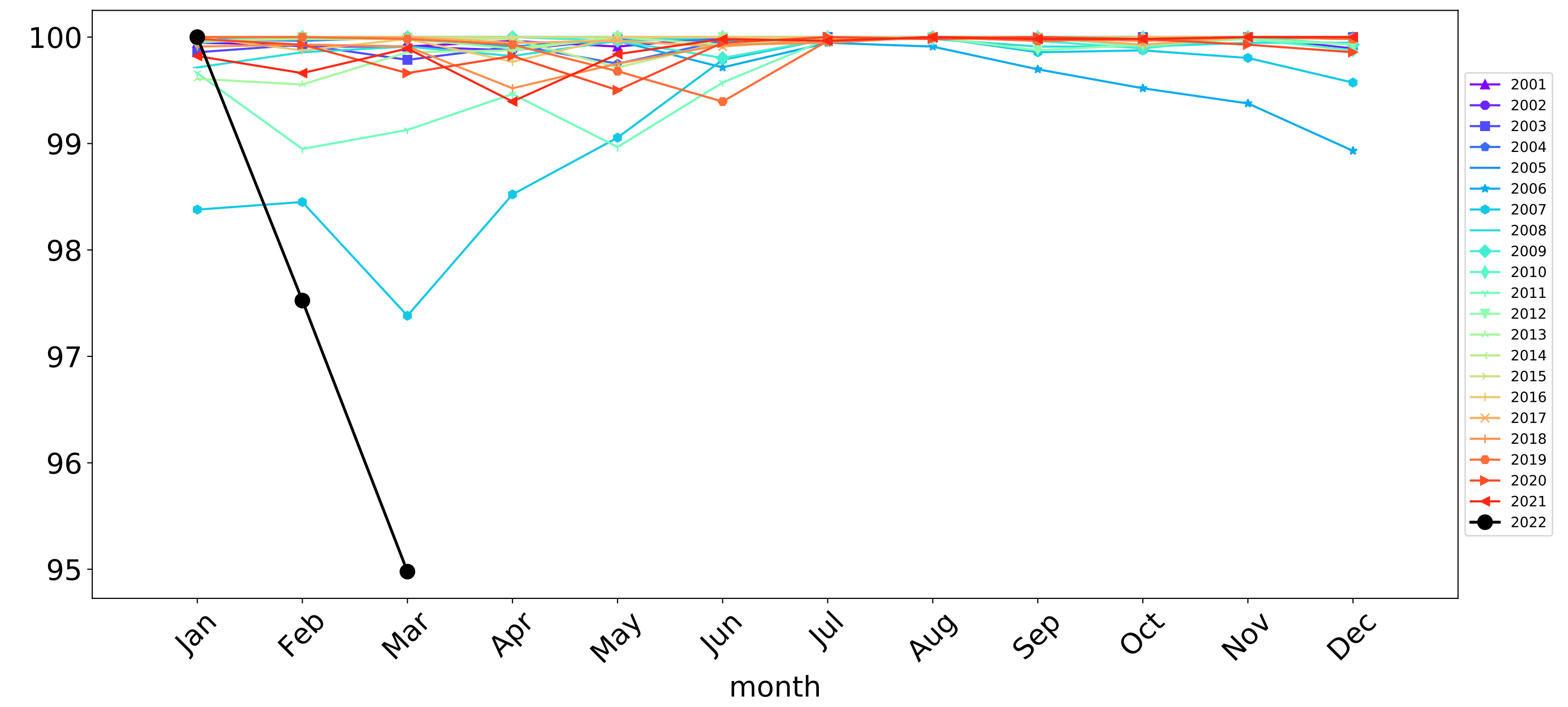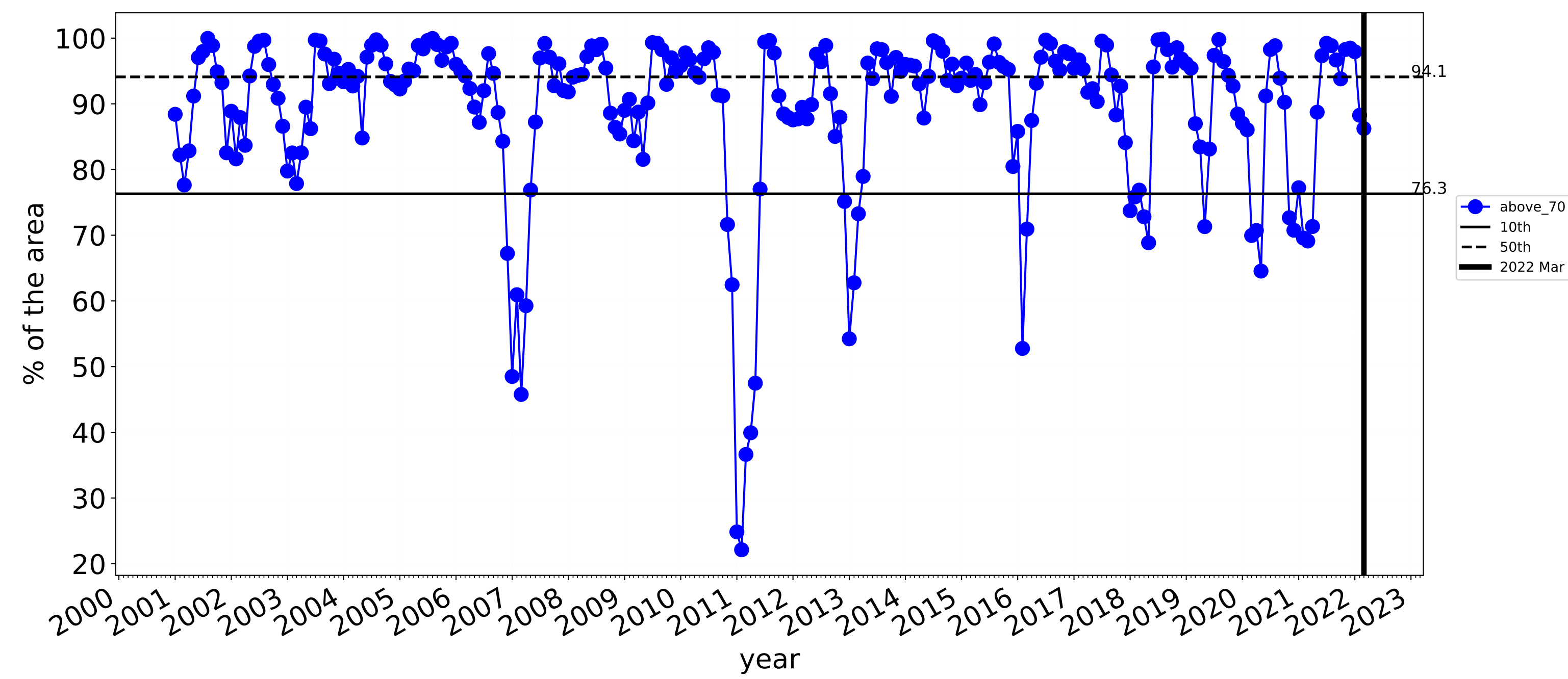
Agriculture timeseries

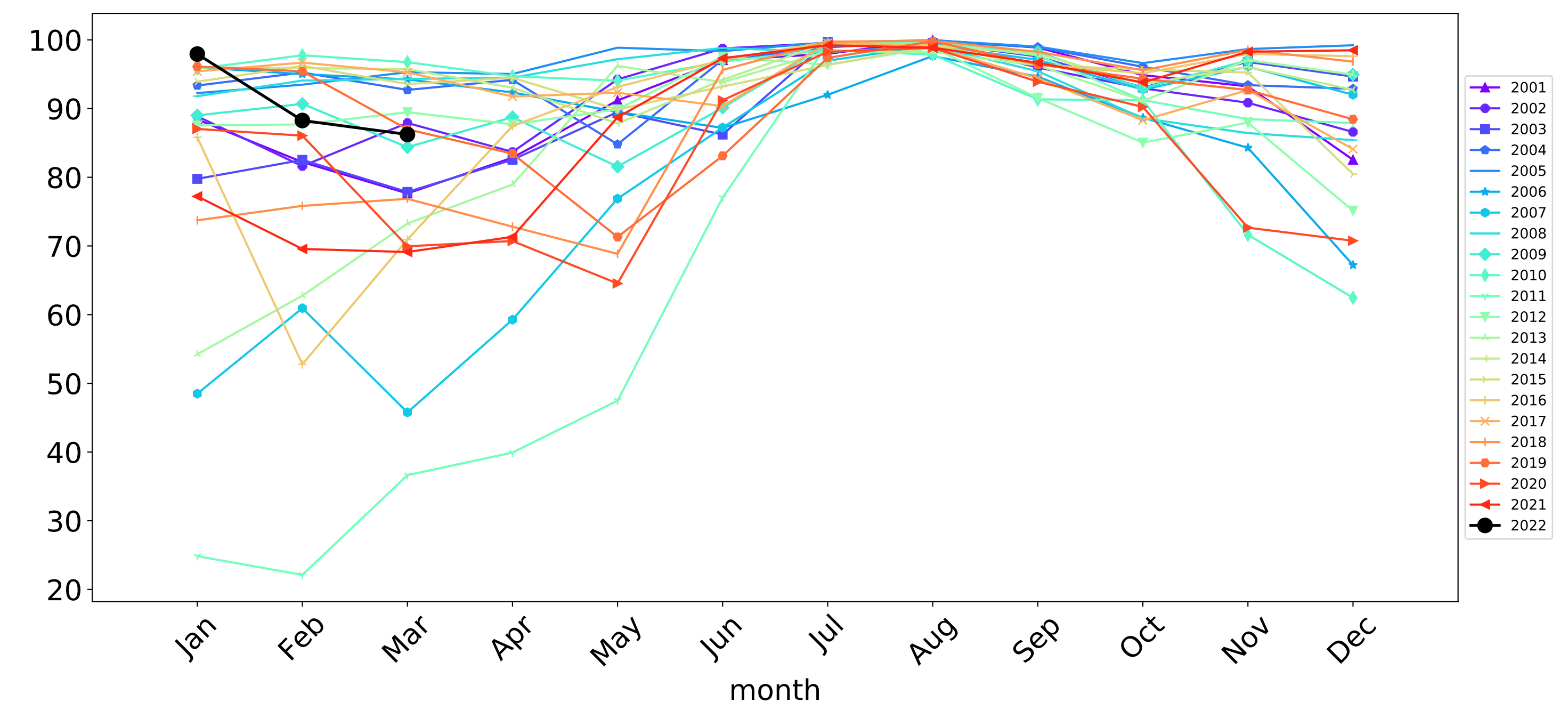Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

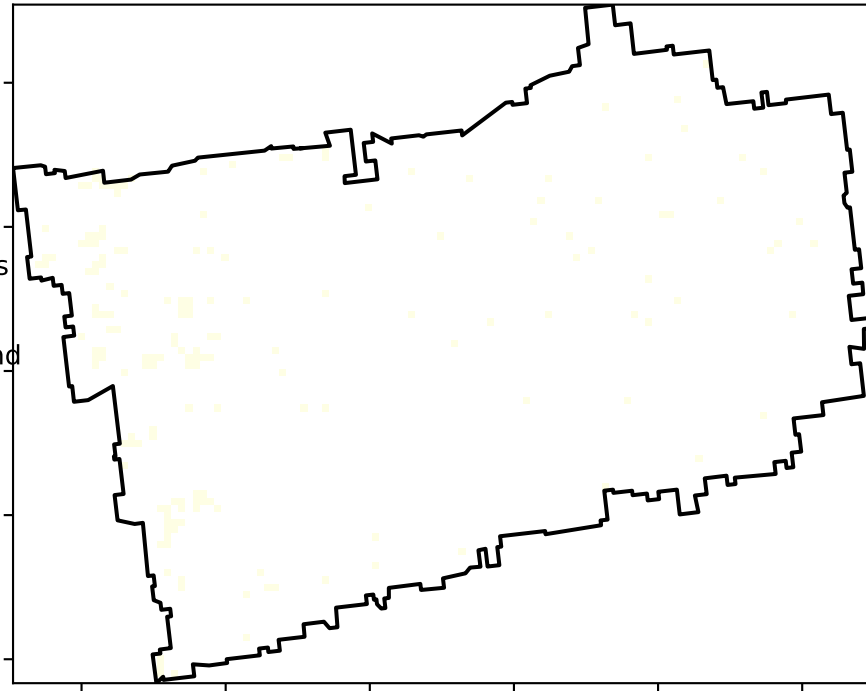Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

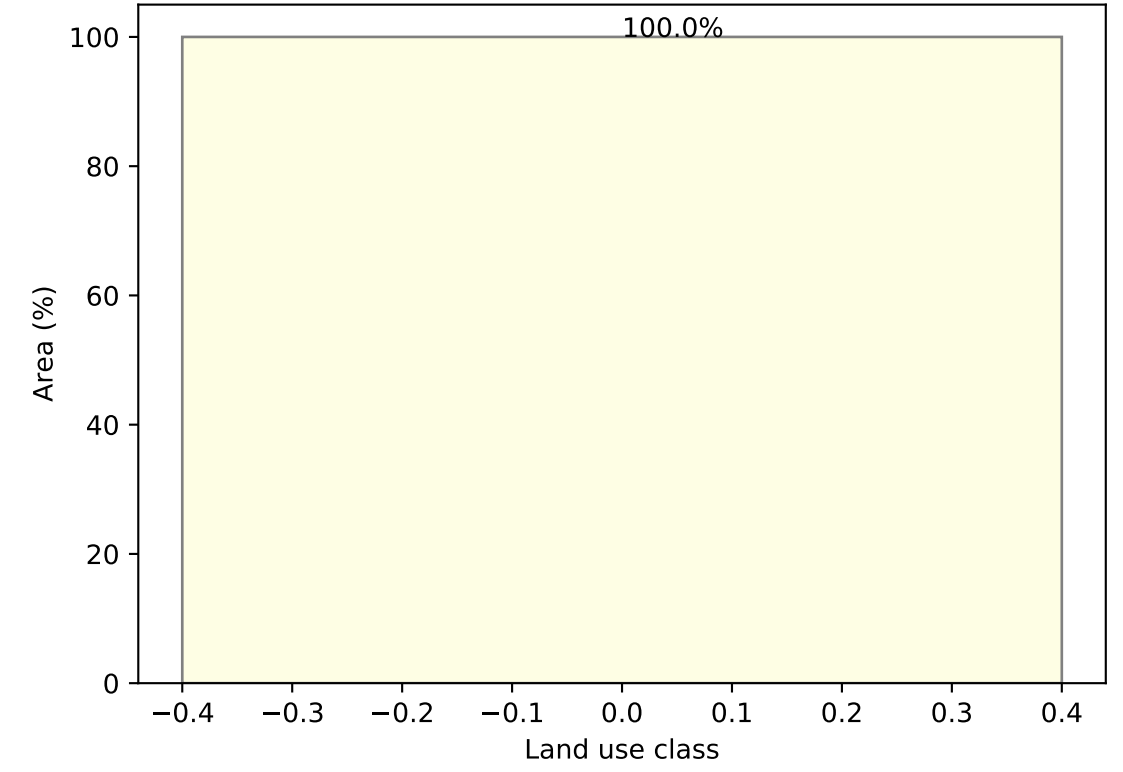Water erosion historical monthly area protected (Total Veg Cov>70%)

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)
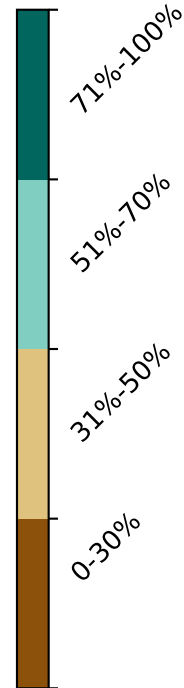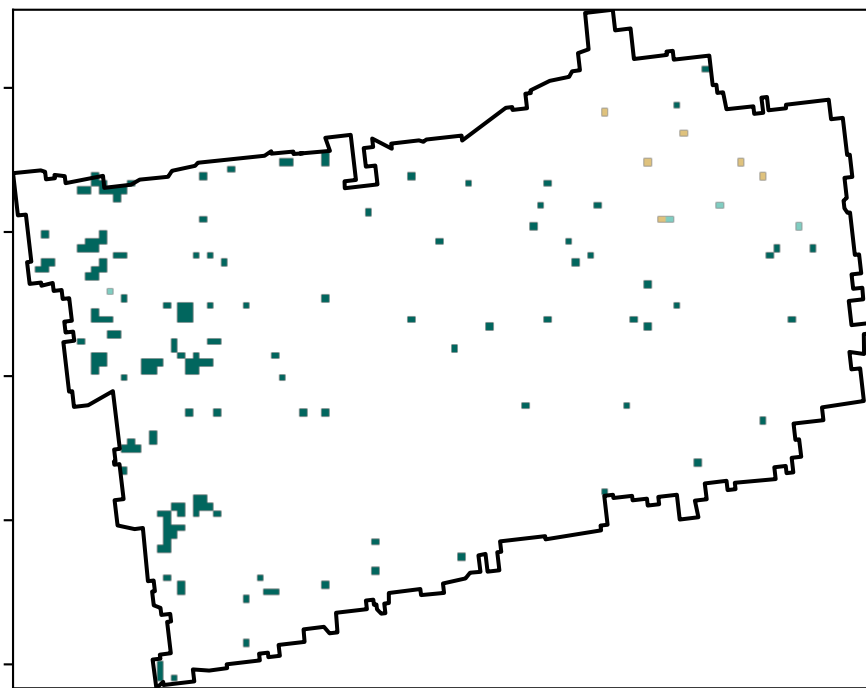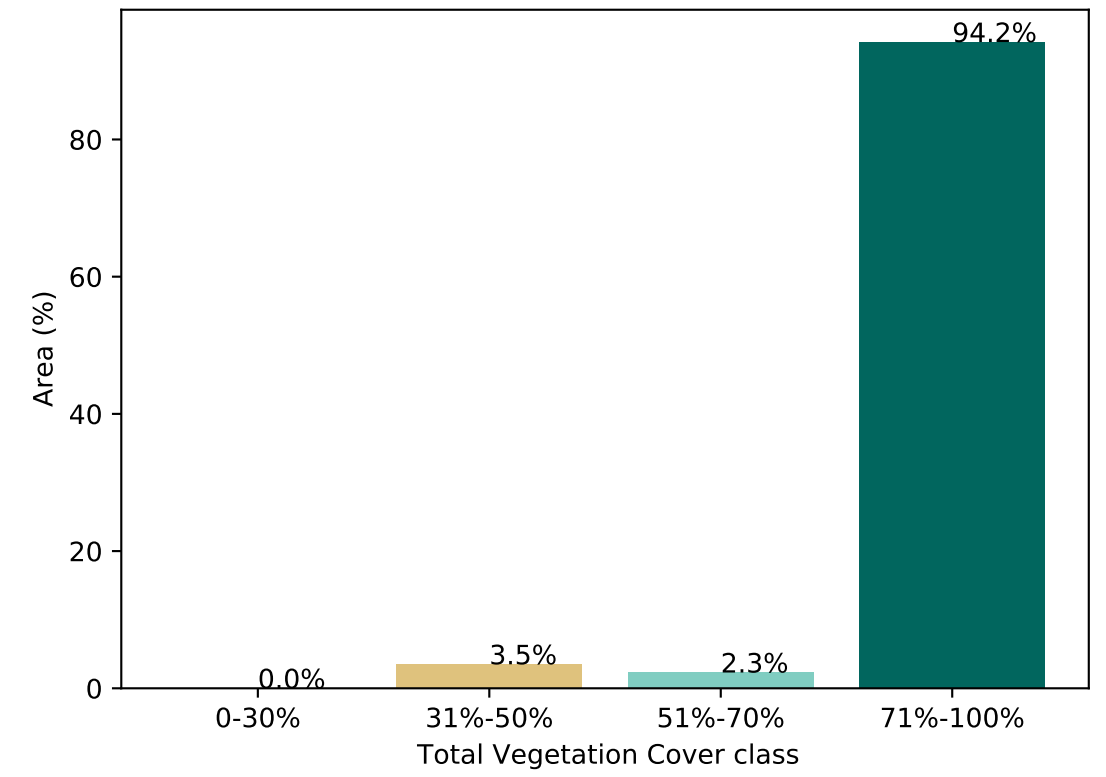
1 Agriculture - Grazing - Non forest
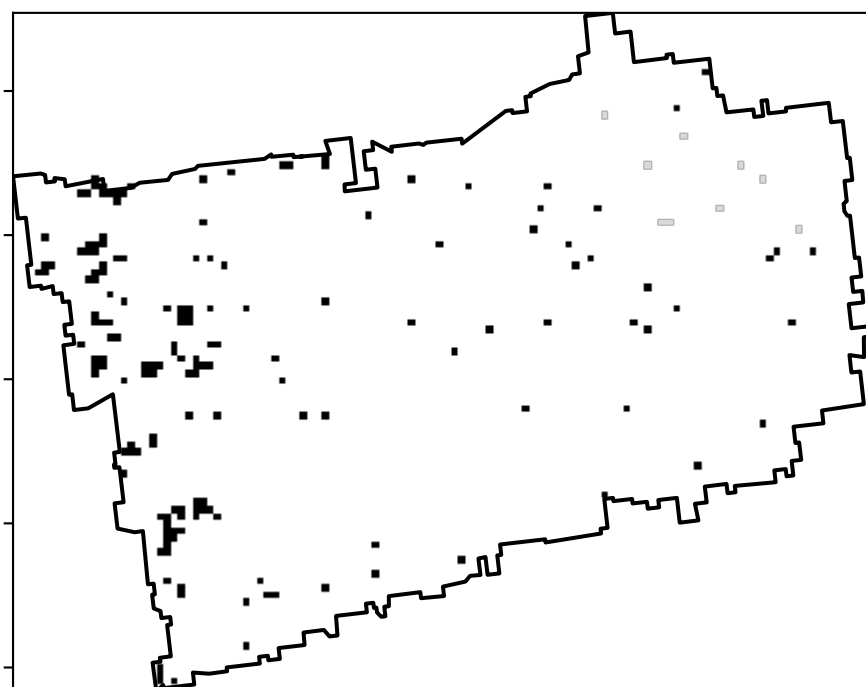
Proportion of each land class in area

Total Vegetation Cover [%]

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

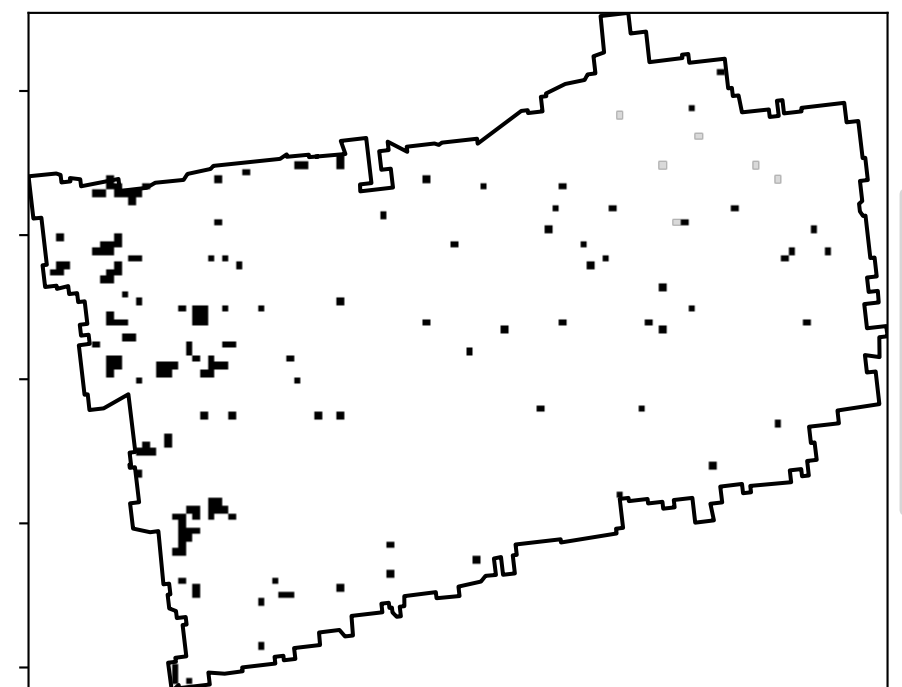## Proportion of vegetation cover class in area

% Area protected from water erosion (>70%)

Area not protected 5.8% of region (247 ha)

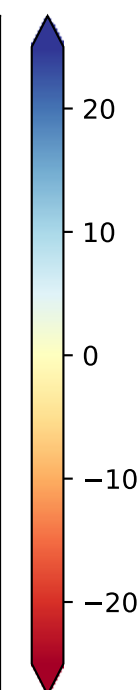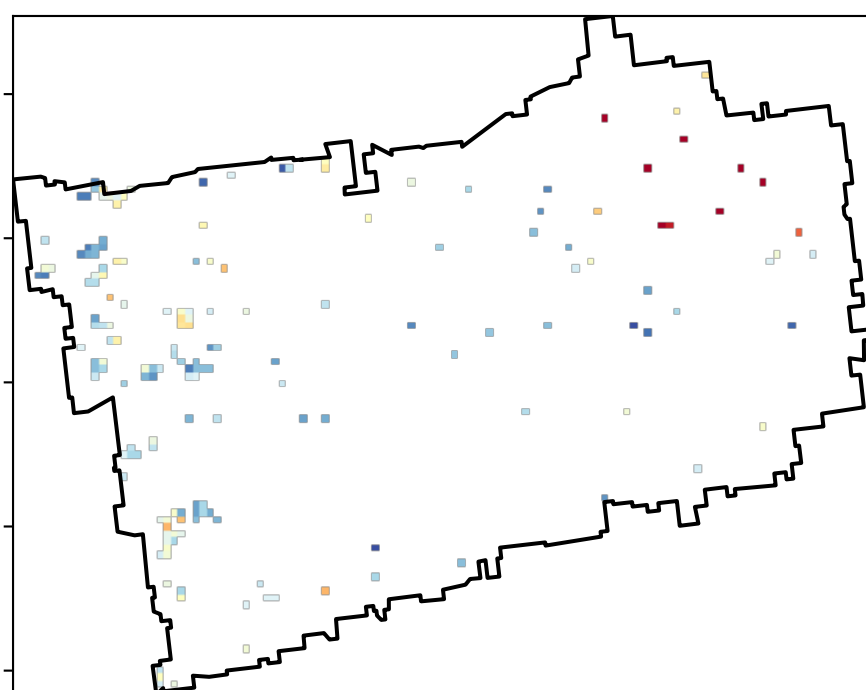Area protected 94.2% of region (4,027 ha)

% Area protected from wind erosion (>50%)

Area not protected 4.0% of region (171 ha)
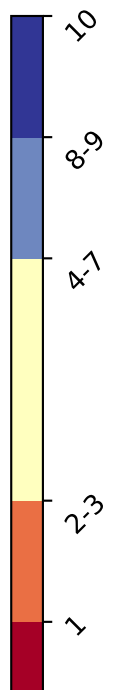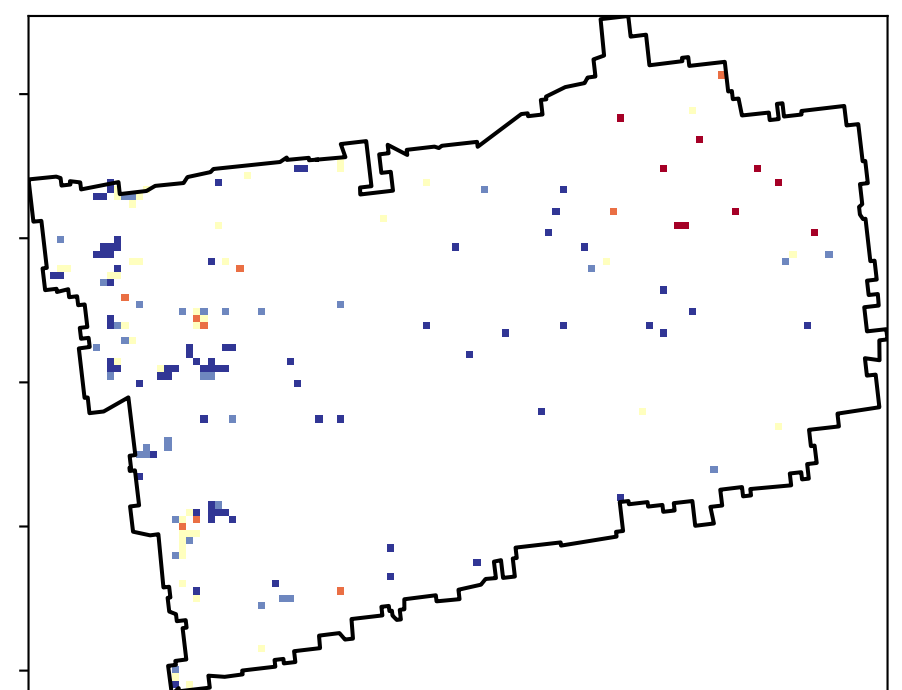
Area protected 96.0% of region (4,104 ha)

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.

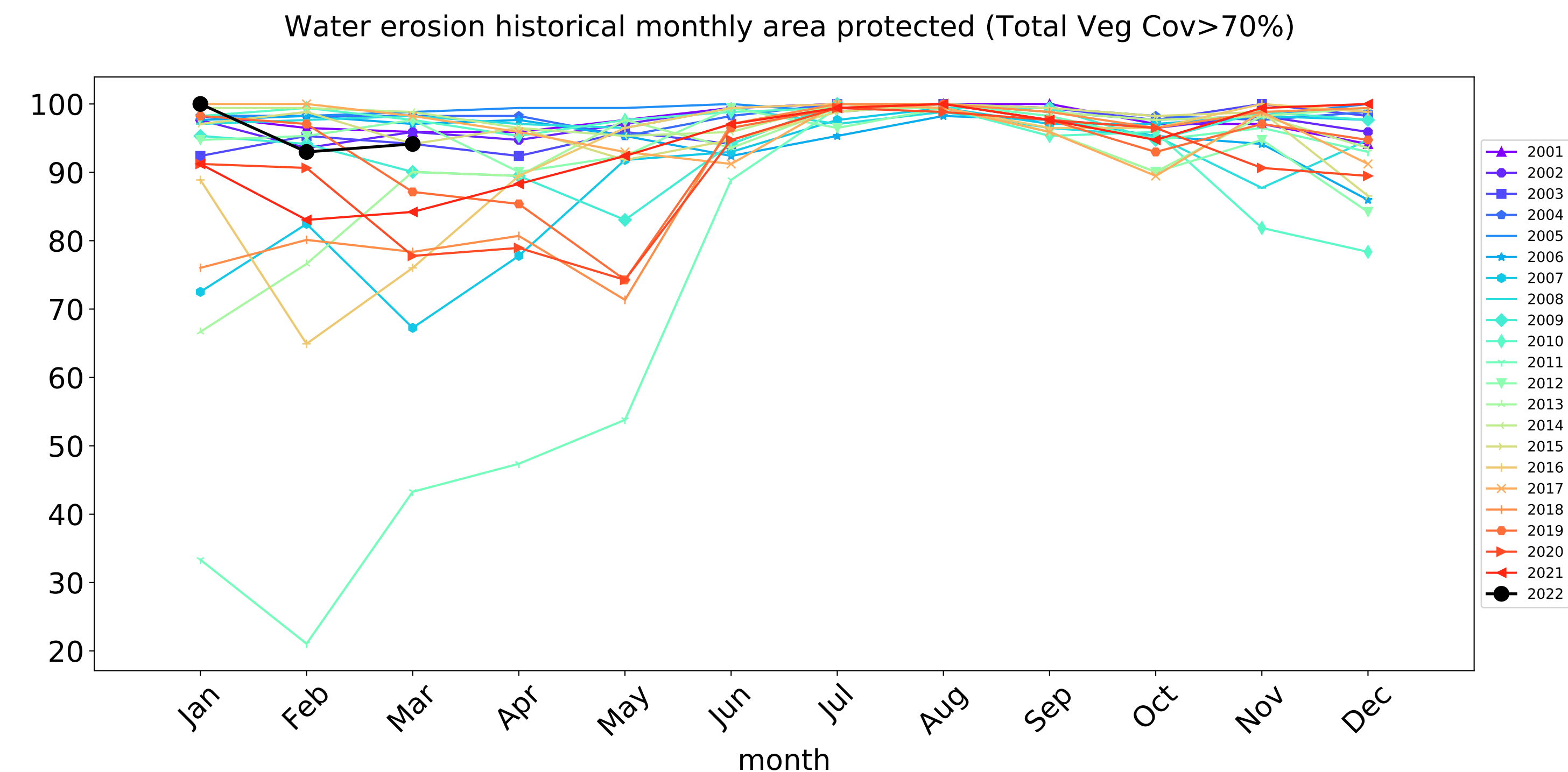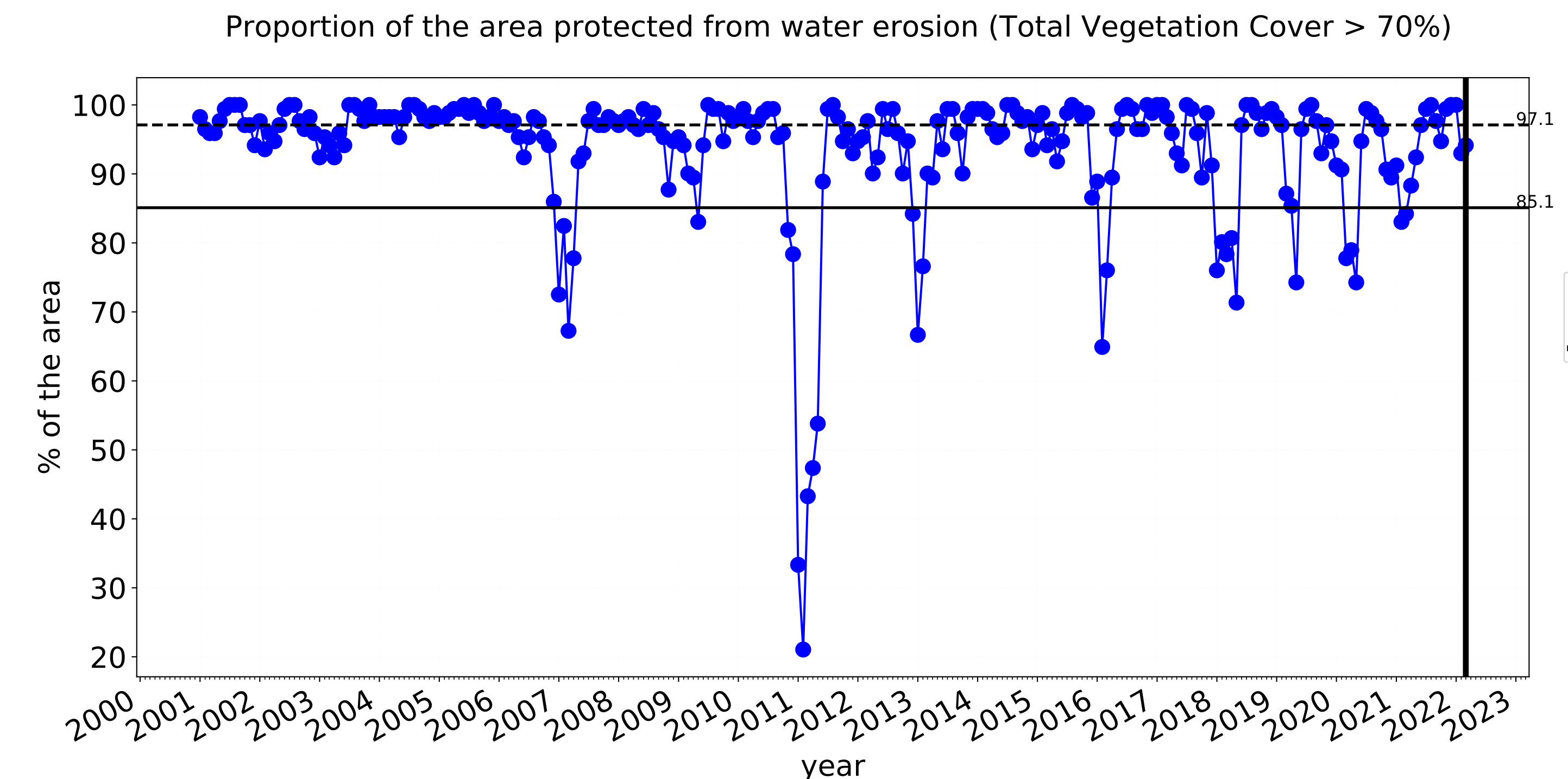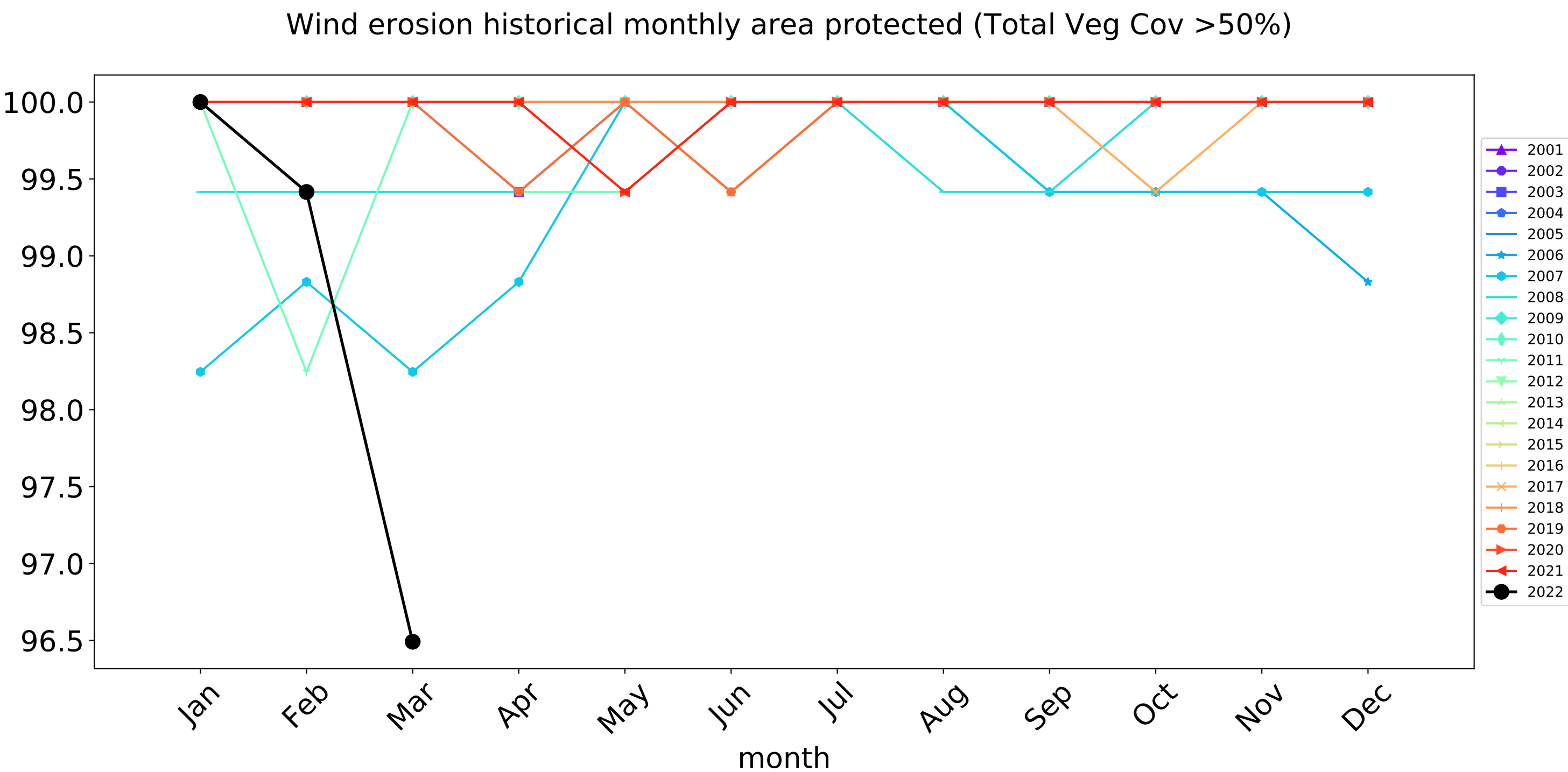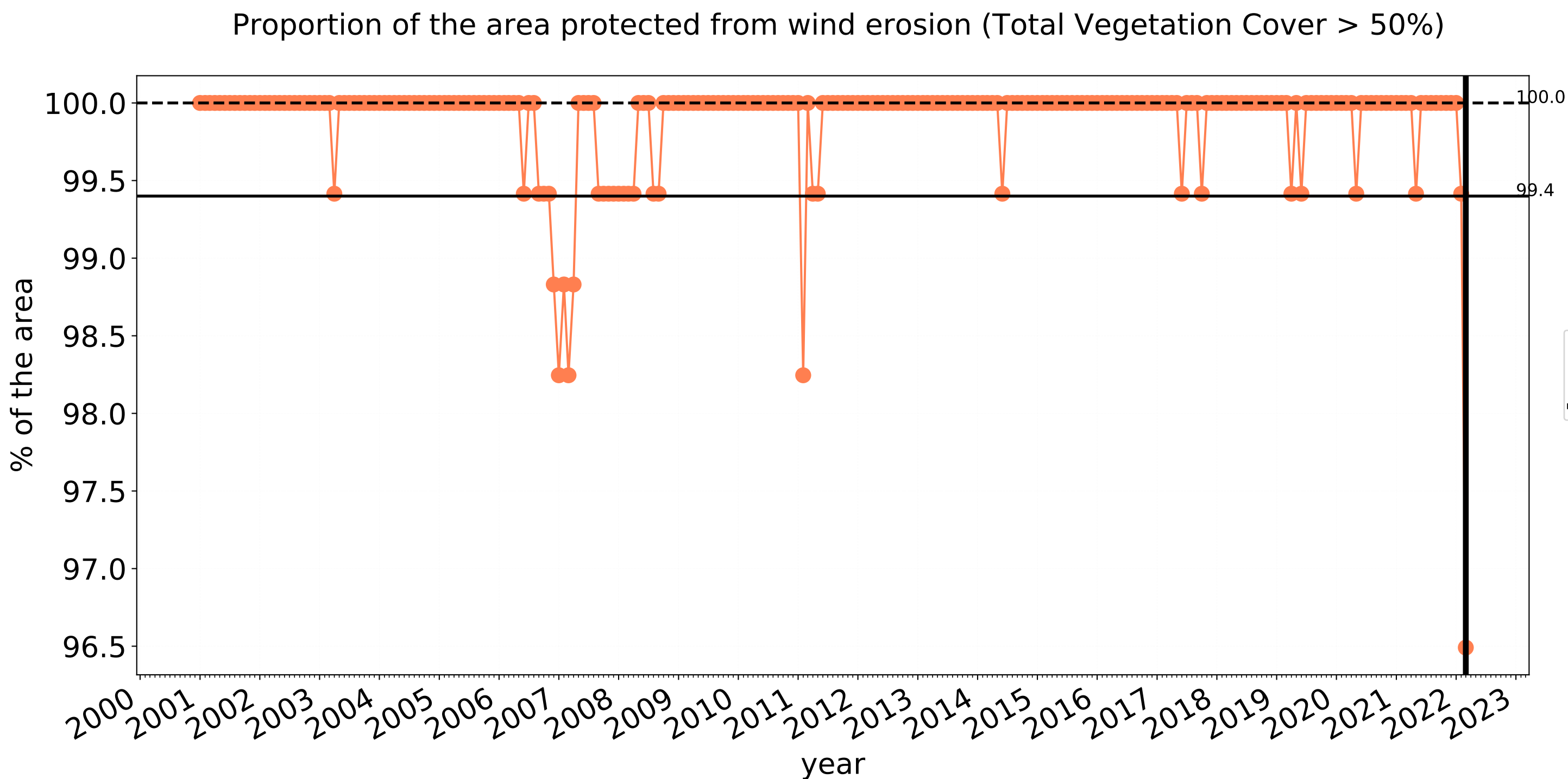## Total Vegetation Cover Decile [%]

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 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

94.2%

0.0%   3.5%   2.3%

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

Total Vegetation Cover class

Area (%)

% Area protected from water erosion (>70%)

Area not protected
5.8% of region
(247 ha)

Area protected
94.2% of region
(4,027 ha)

% Area protected from wind erosion (>50%)

Area not protected
4.0% of region
(171 ha)

Area protected
96.0% of region
(4,104 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.
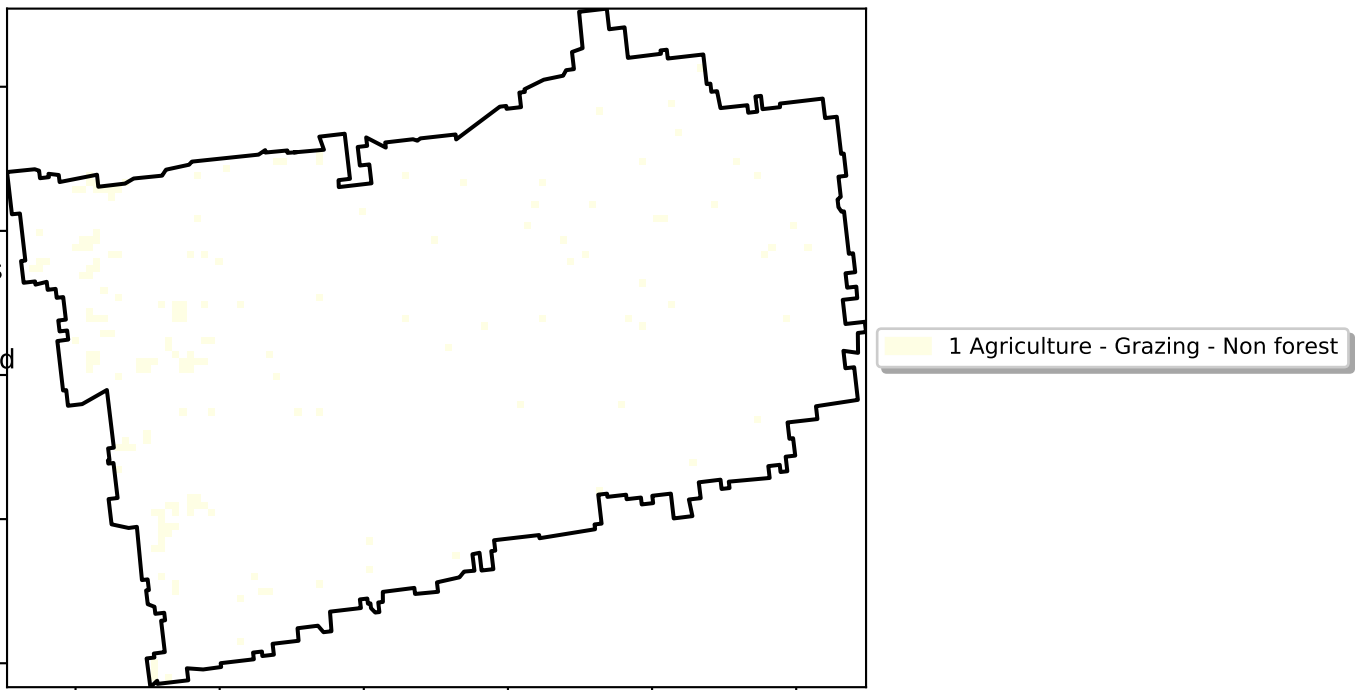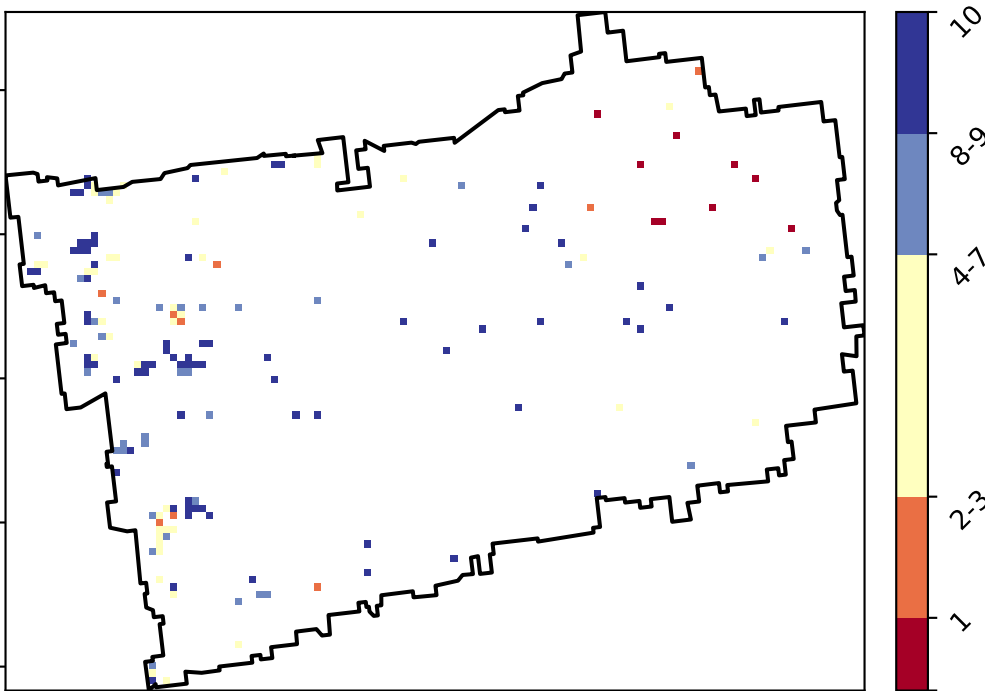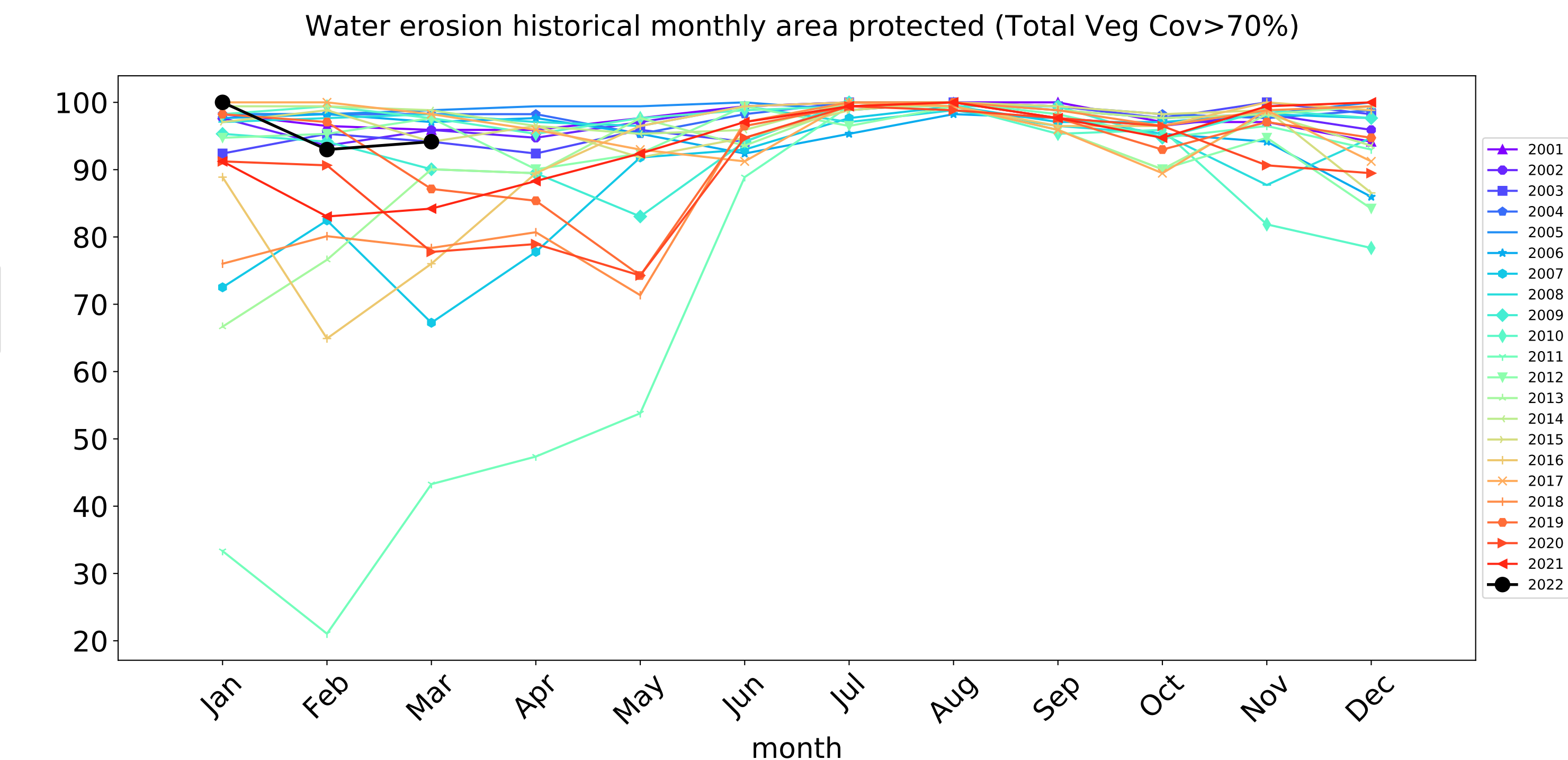
10

8-9

4-7

2-3

1

CSIRO   tern Ecosystem Research Infrastructure   Australian Government   National Landcare Programme   NSW GOVERNMENT

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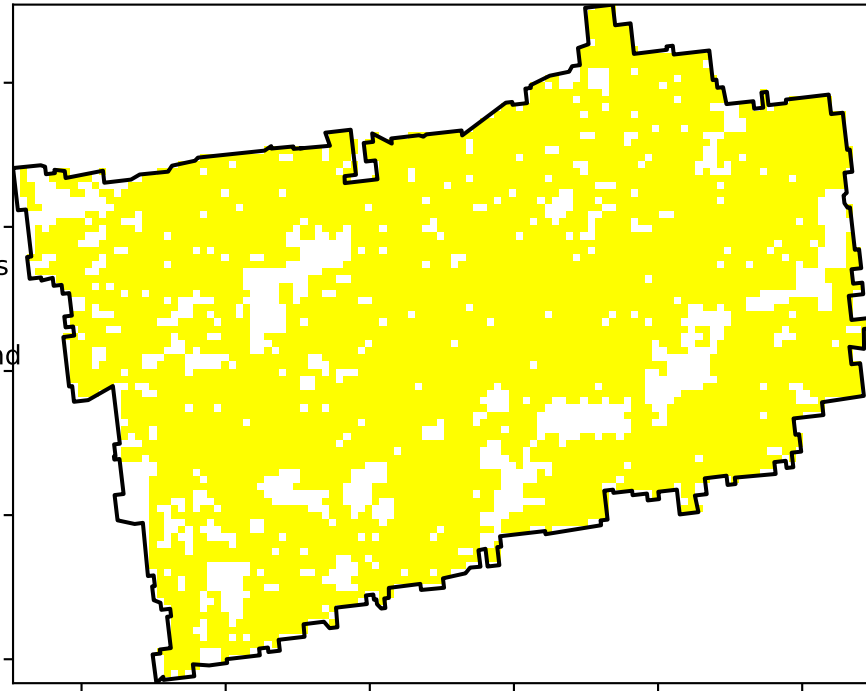
Water erosion historical monthly area protected (Total Veg Cov>70%)
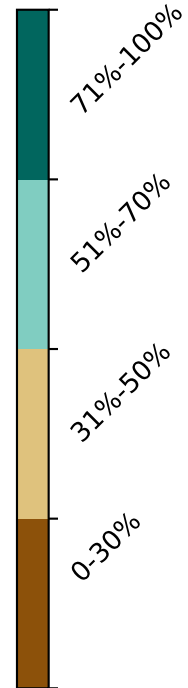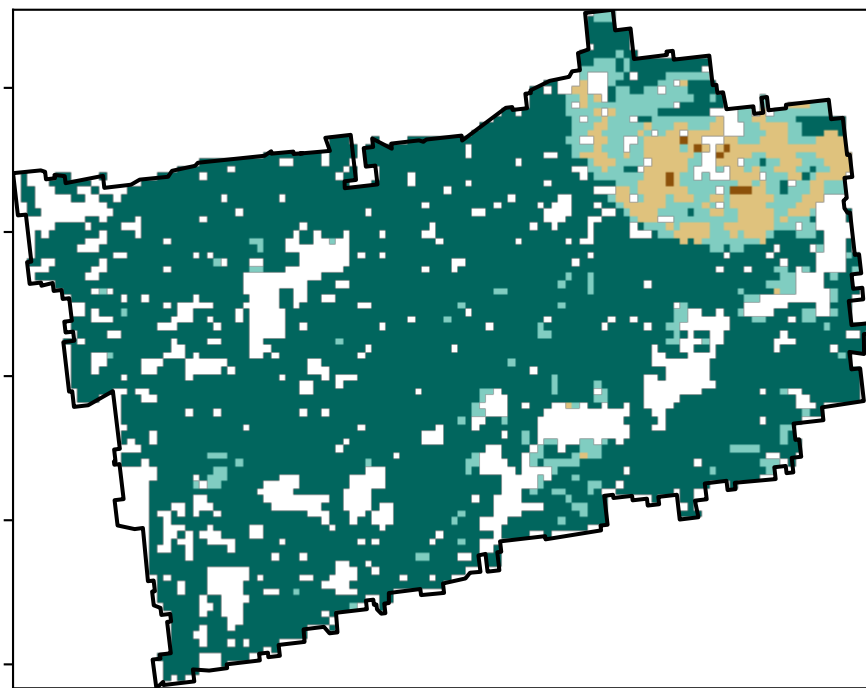
Cropping

Land use and forest cover

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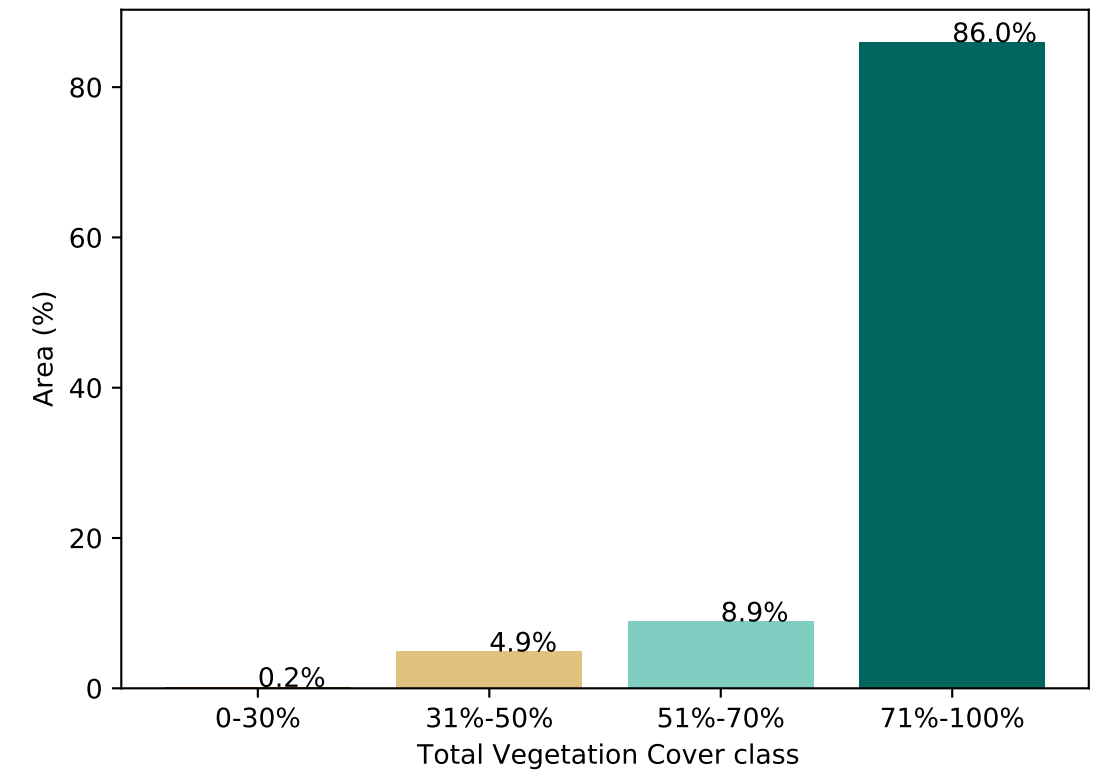Use of Australia
(2018) and Forests
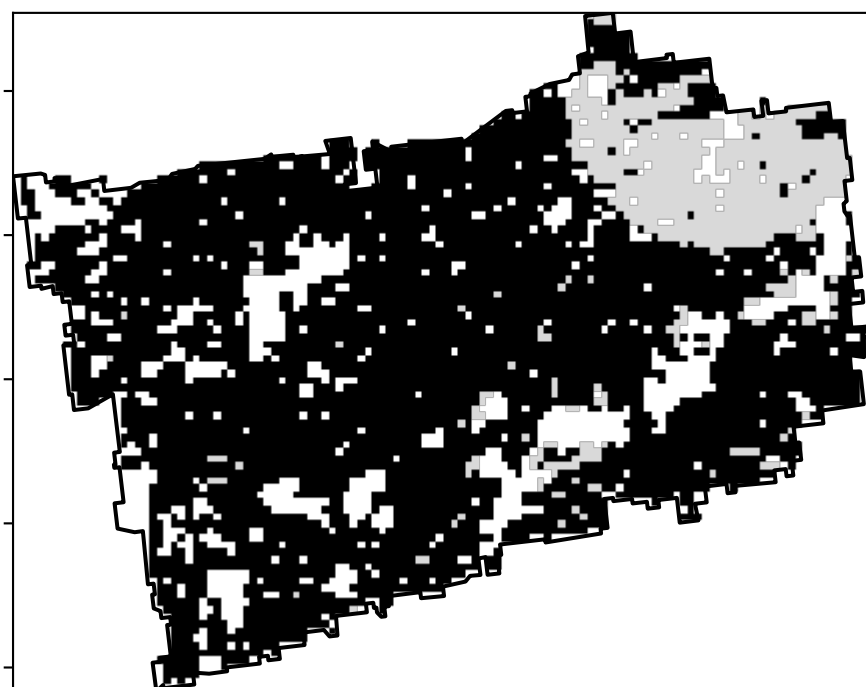of Australia (2018)

1 Agriculture - Cropping - Non-irrigated

Total Vegetation Cover [%]

71%-100%

51%-70%

31%-50%

0-30%

Proportion of vegetation cover class in area

86.0%

0.2%   4.9%   8.9%

Area (%)

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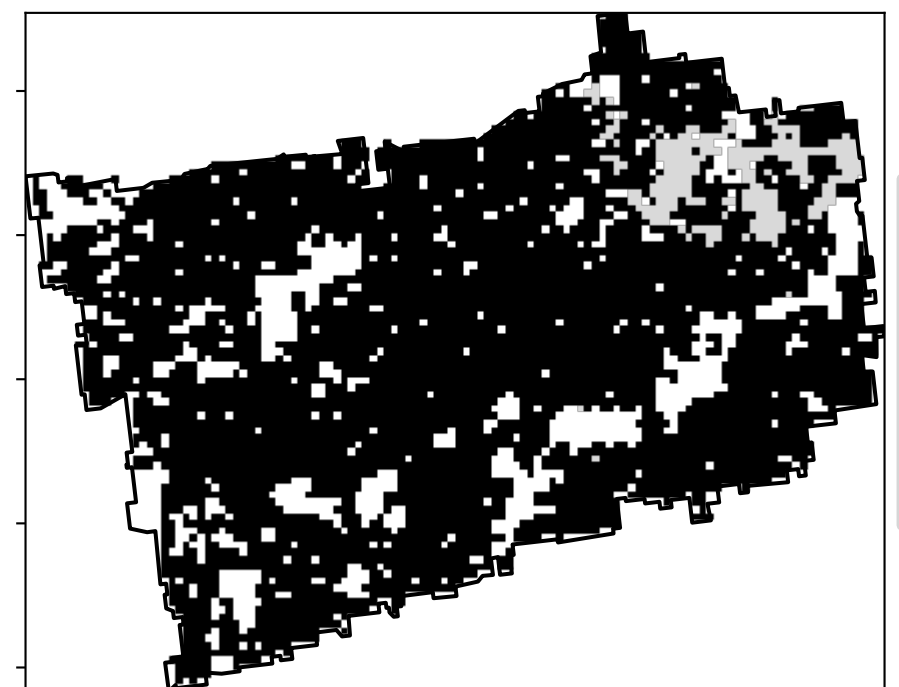
0-30%   31%-50%   51%-70%   71%-100%

% Area protected from water erosion (>70%)

Area not
protected
14.0% of
region
(19,054
ha)

Area
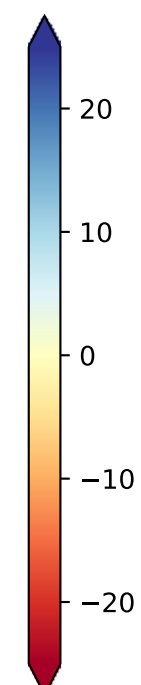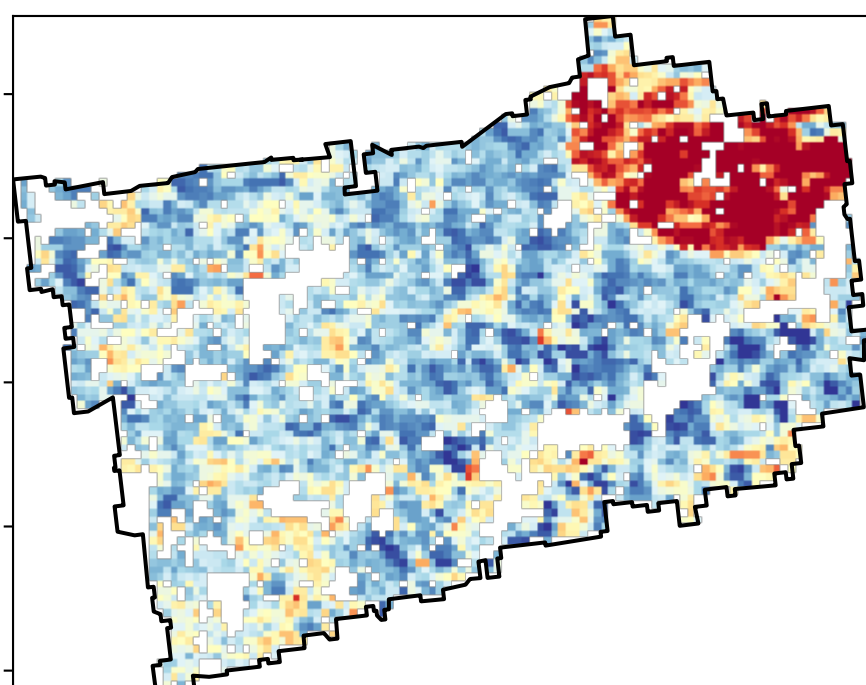protected
86.0% of
region
(117,046
ha)

% Area protected from wind erosion (>50%)

Area not
protected
5.0% of
region
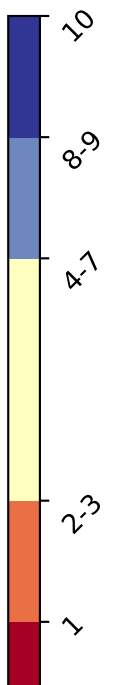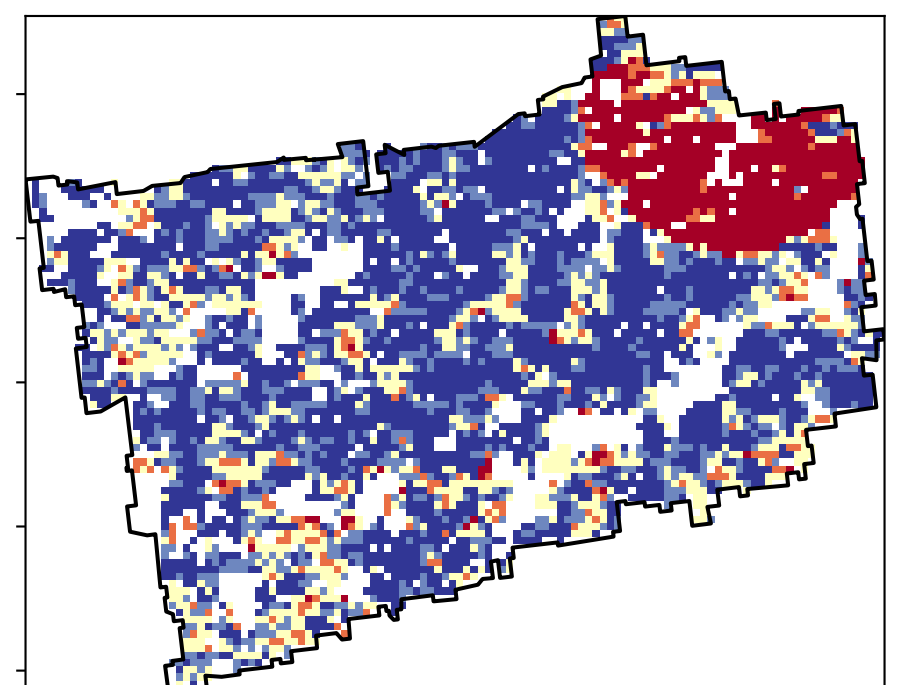(6,805 ha)

Area
protected
95.0% of
region
(129,295
ha)

Total Vegetation Cover Anomaly [%]

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

20

10

0

-10

-20

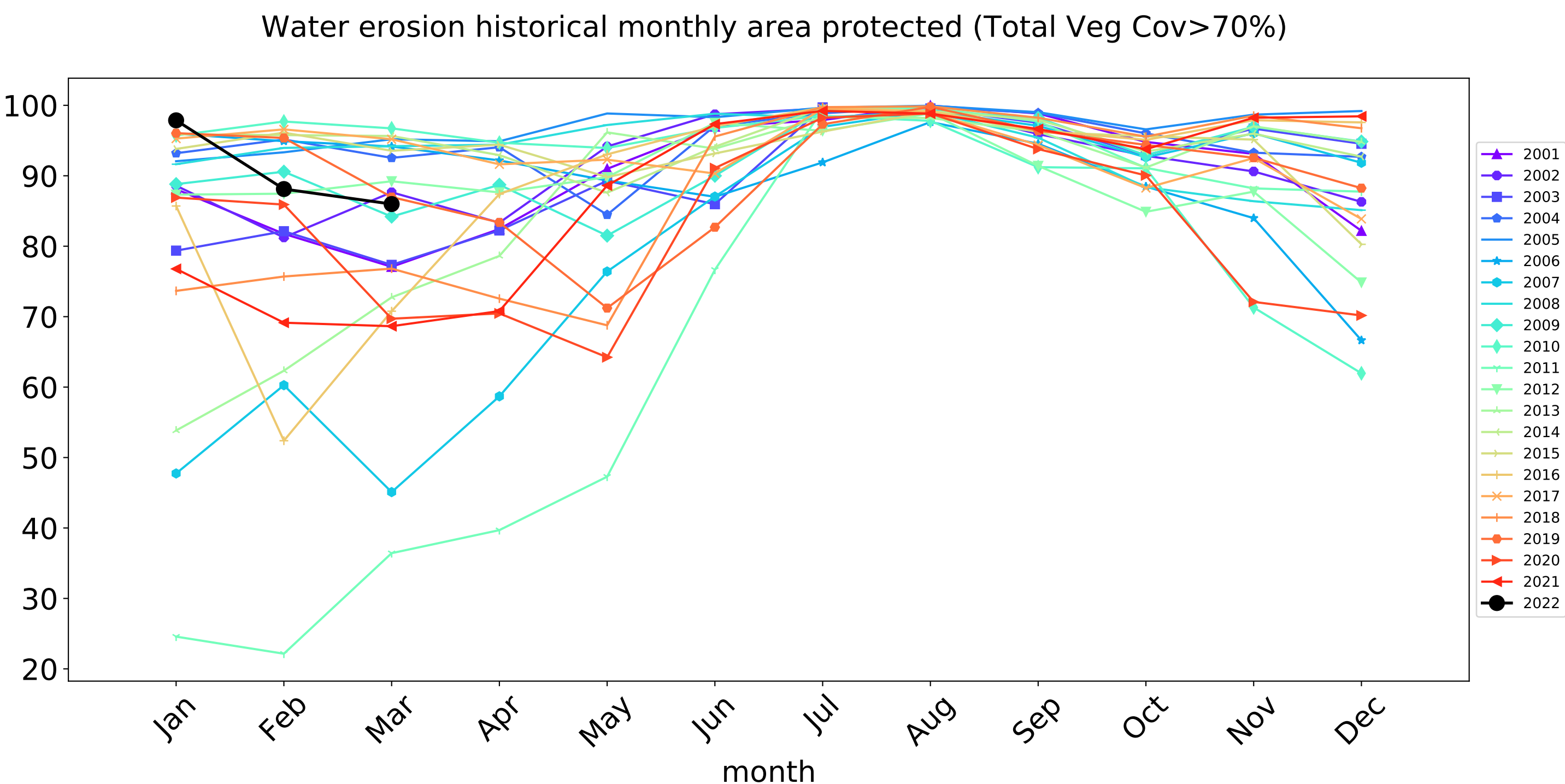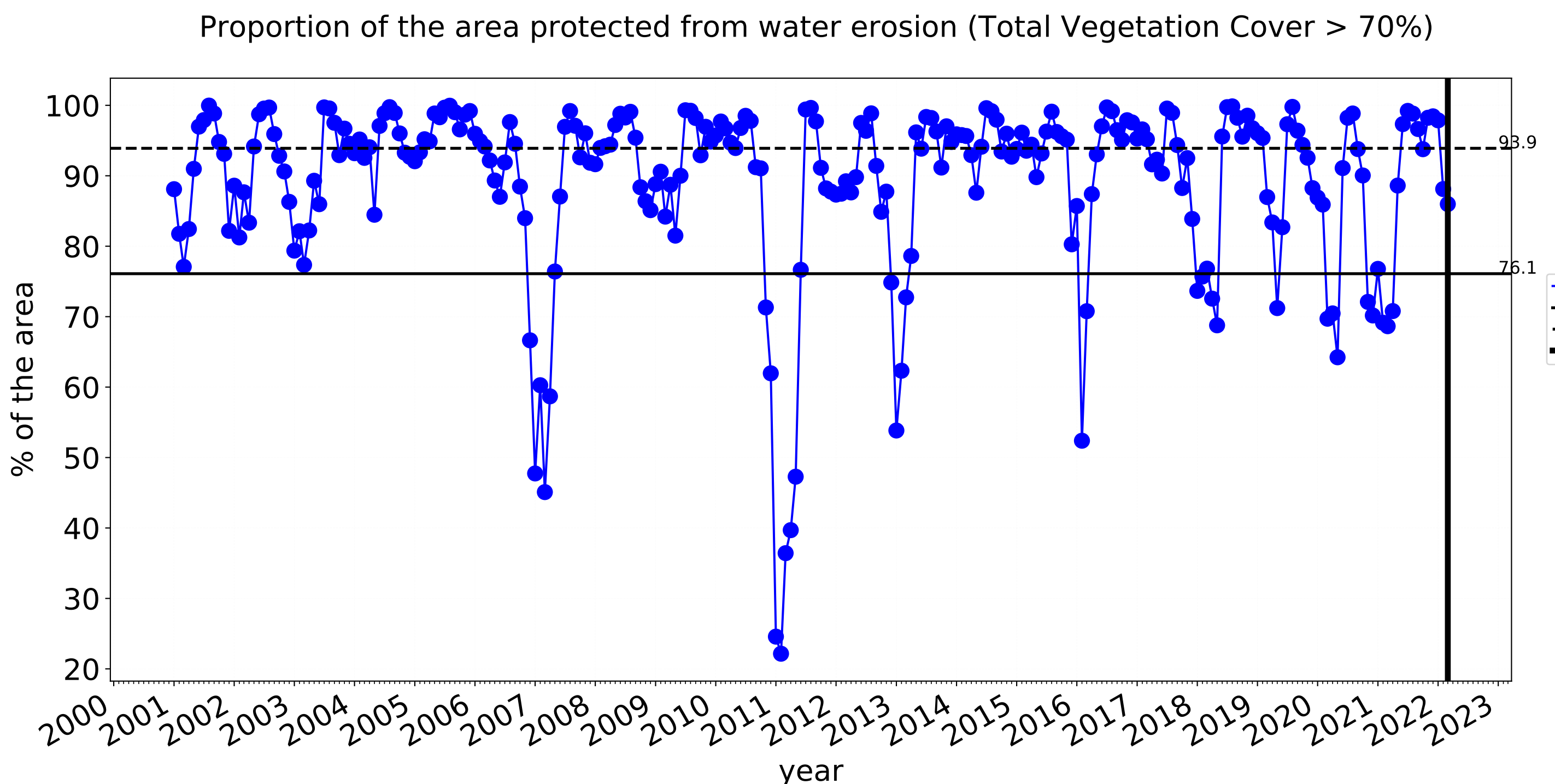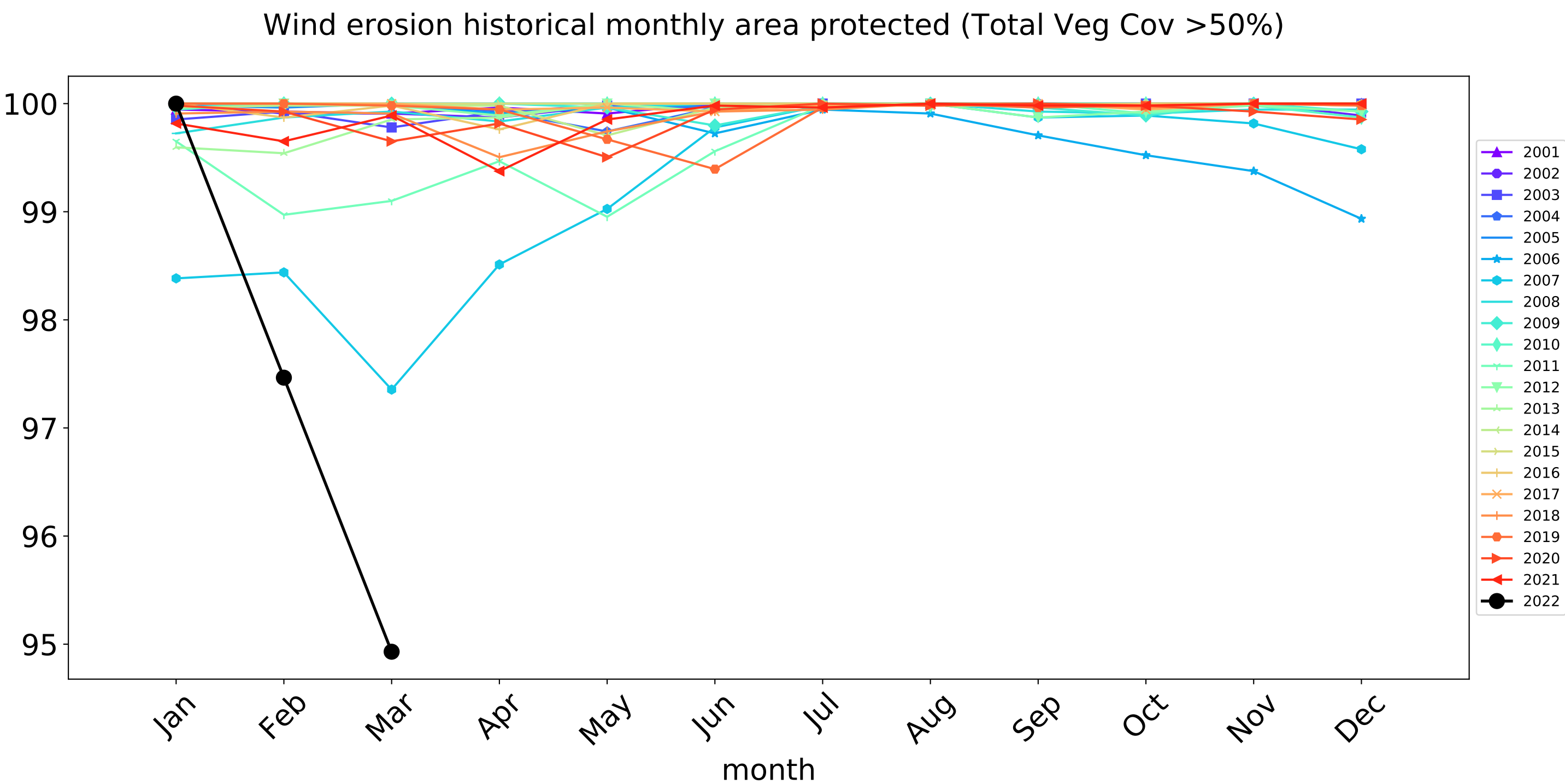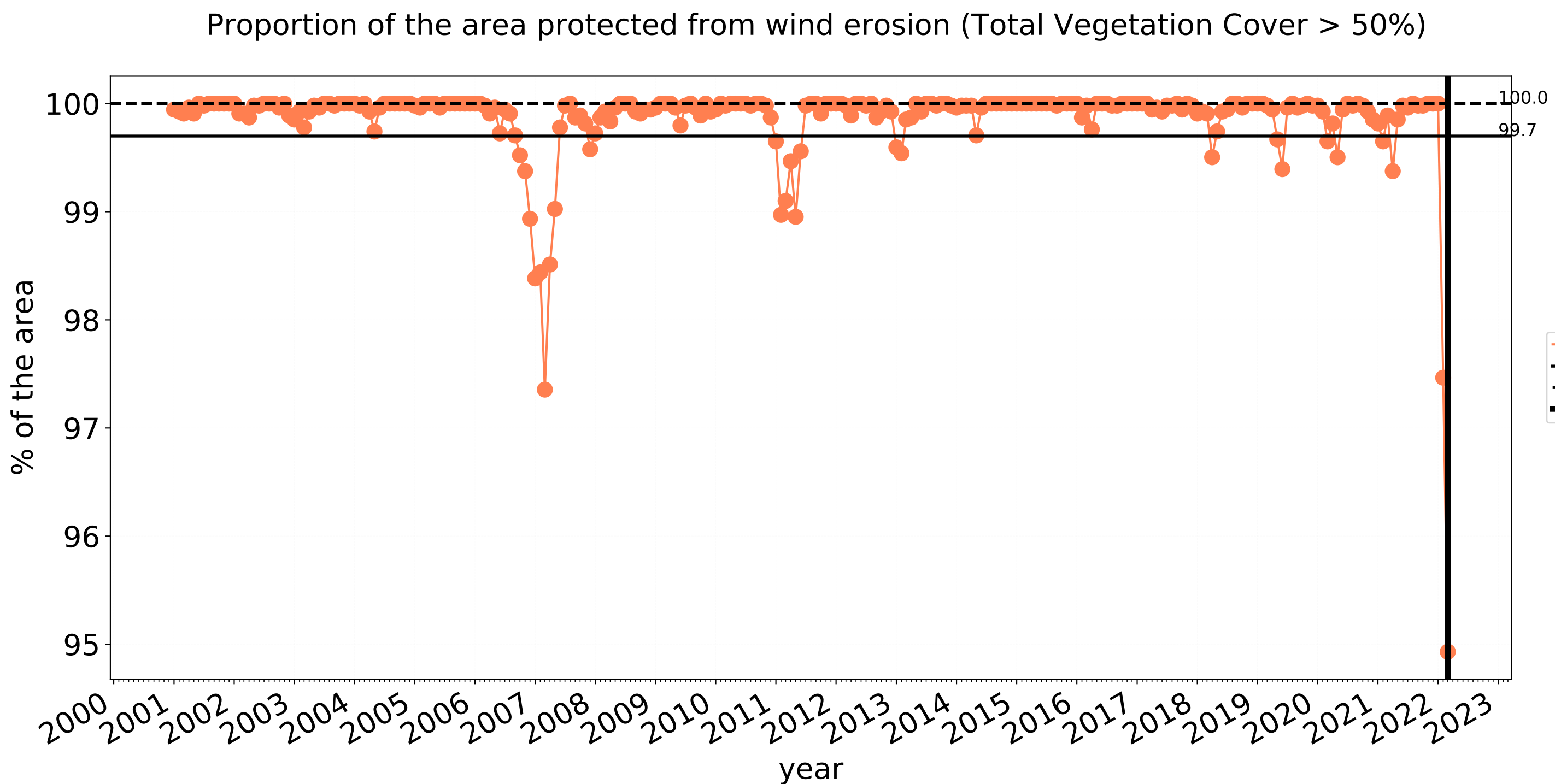## Total Vegetation Cover Decile [%]

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

10

8-9

4-7

2-3

1

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Ecosystem Research Infrastructure

Australian Government

National
Landcare
Programme

NSW
GOVERNMENT

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%)

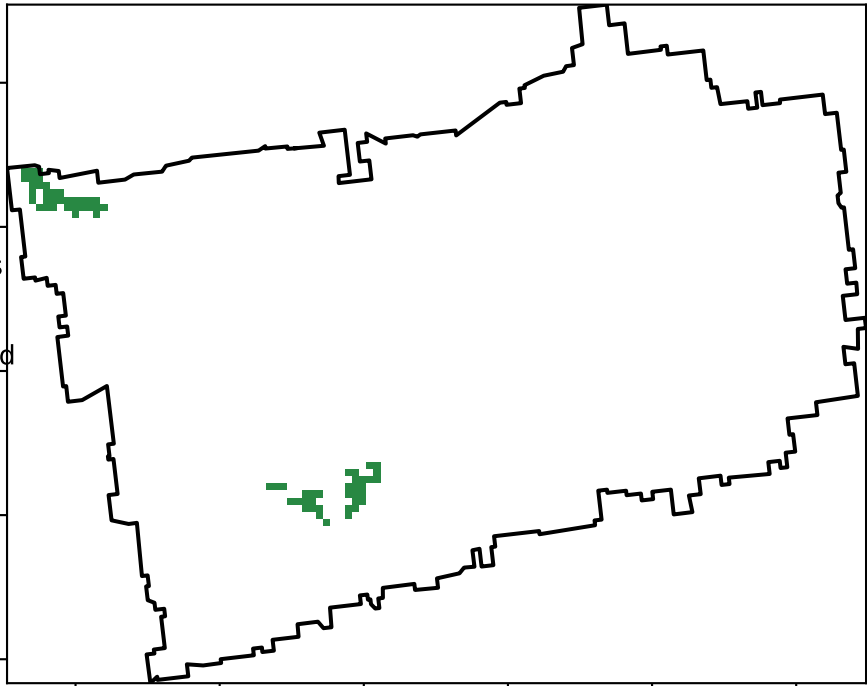## Water erosion historical monthly area protected (Total Veg Cov>70%)

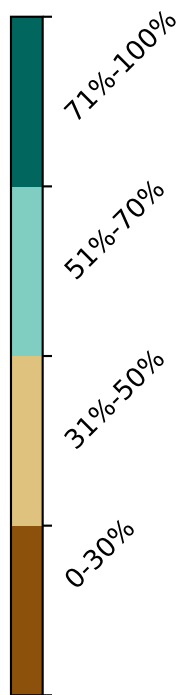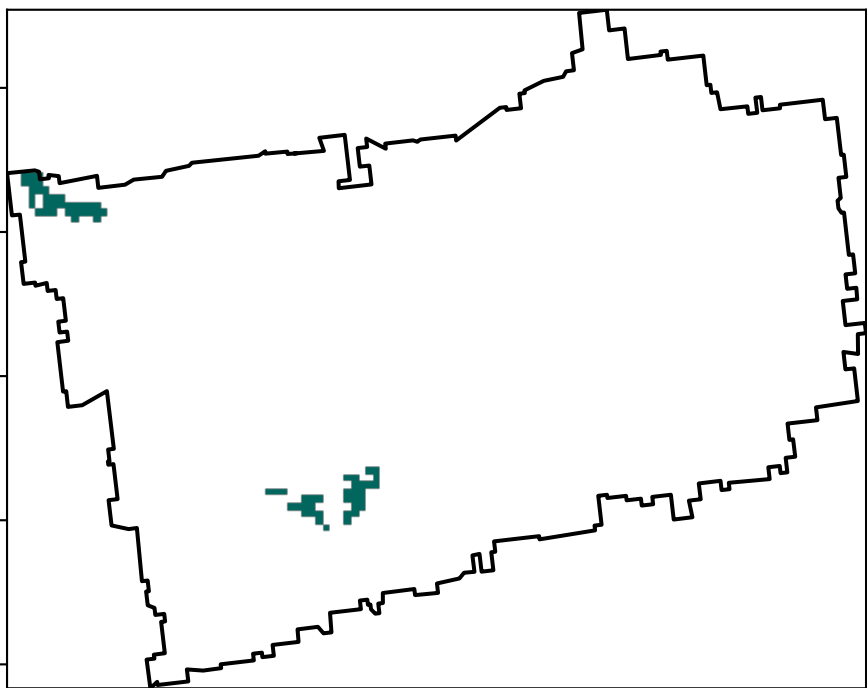# Production native forests and plantation forests

Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)
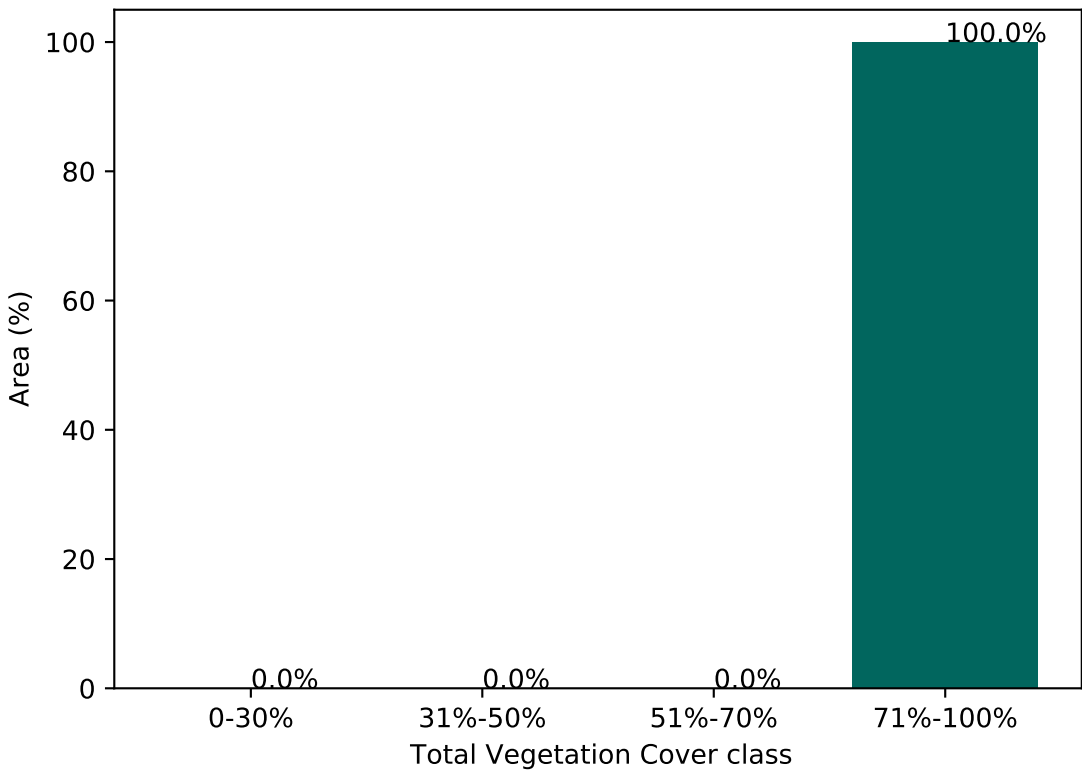
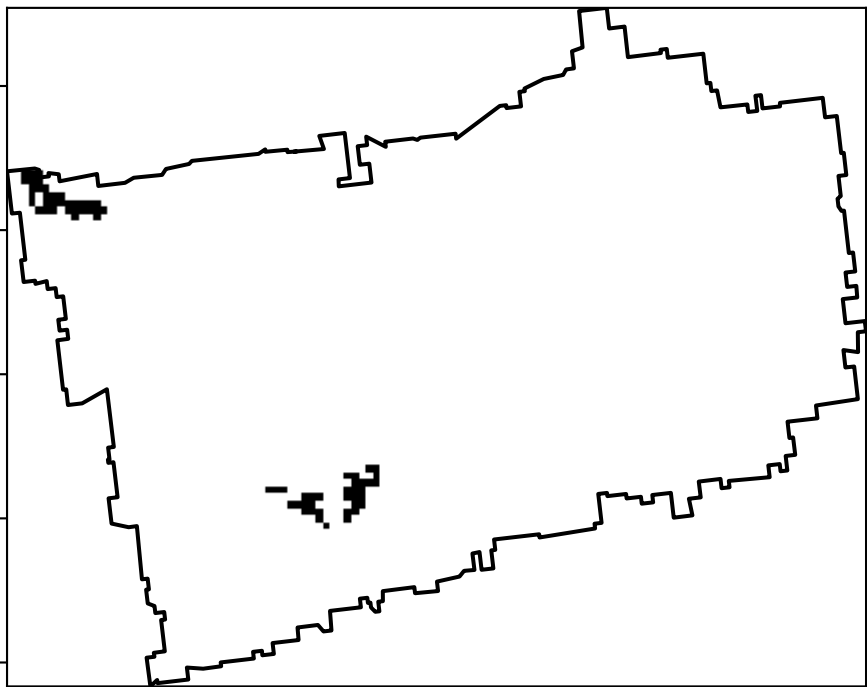■ 1 Production native forests and plantation forests

Total Vegetation Cover [%]

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

Proportion of vegetation cover class in area

100.0%

0.0%   0.0%   0.0%
0-30%   31%-50%   51%-70%   71%-100%
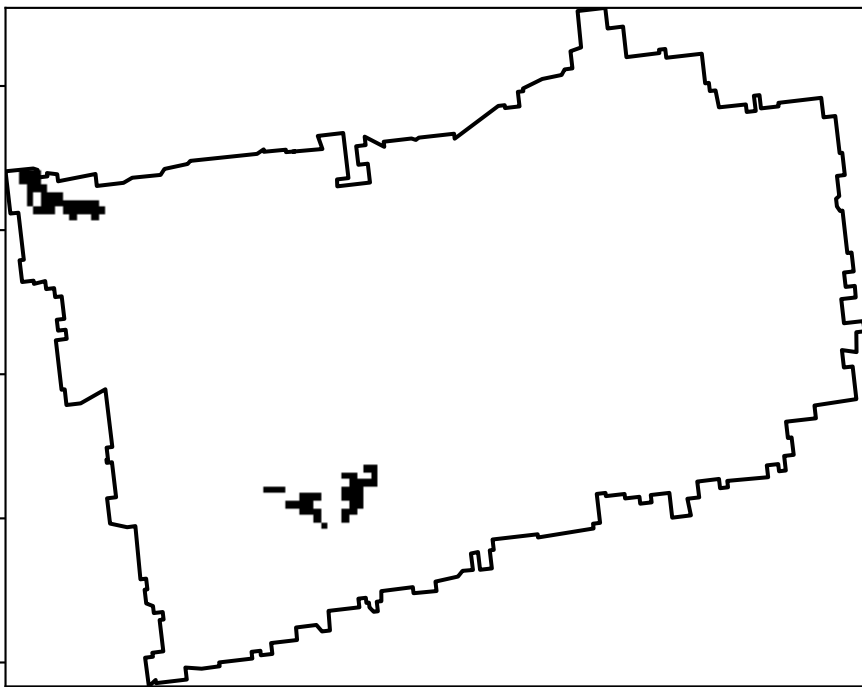Total Vegetation Cover class

Area (%)

% Area protected from water erosion (>70%)

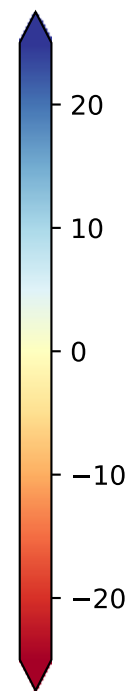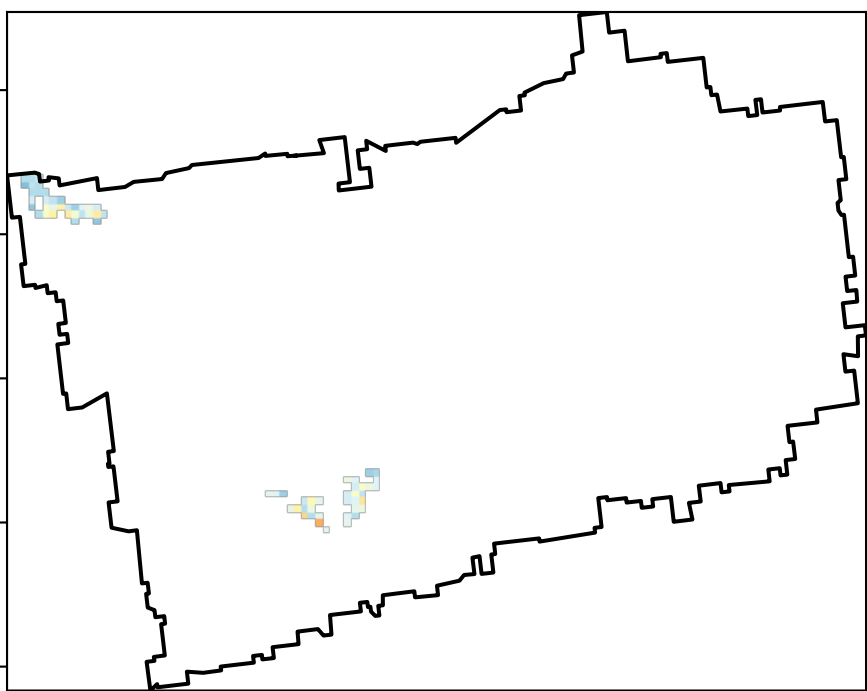Area protected 100.0% of region (1,700 ha)

% Area protected from wind erosion (>50%)
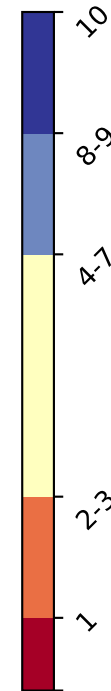
Area protected 100.0% of region (1,700 ha)

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.

20
10
0
-10
-20

Total Vegetation Cover Decile [%]

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

10
8-9
4-7
2-3
1

18

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%)
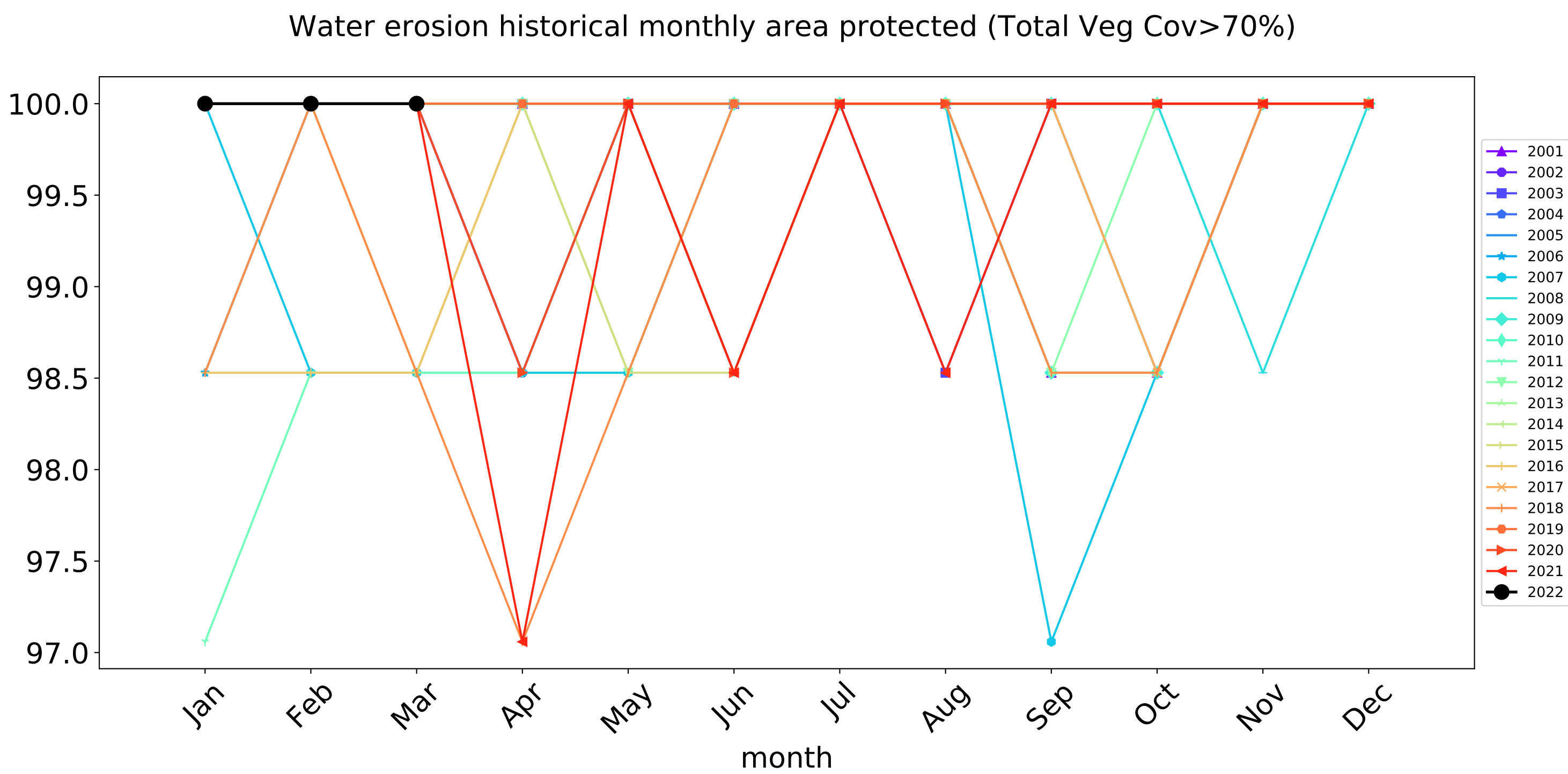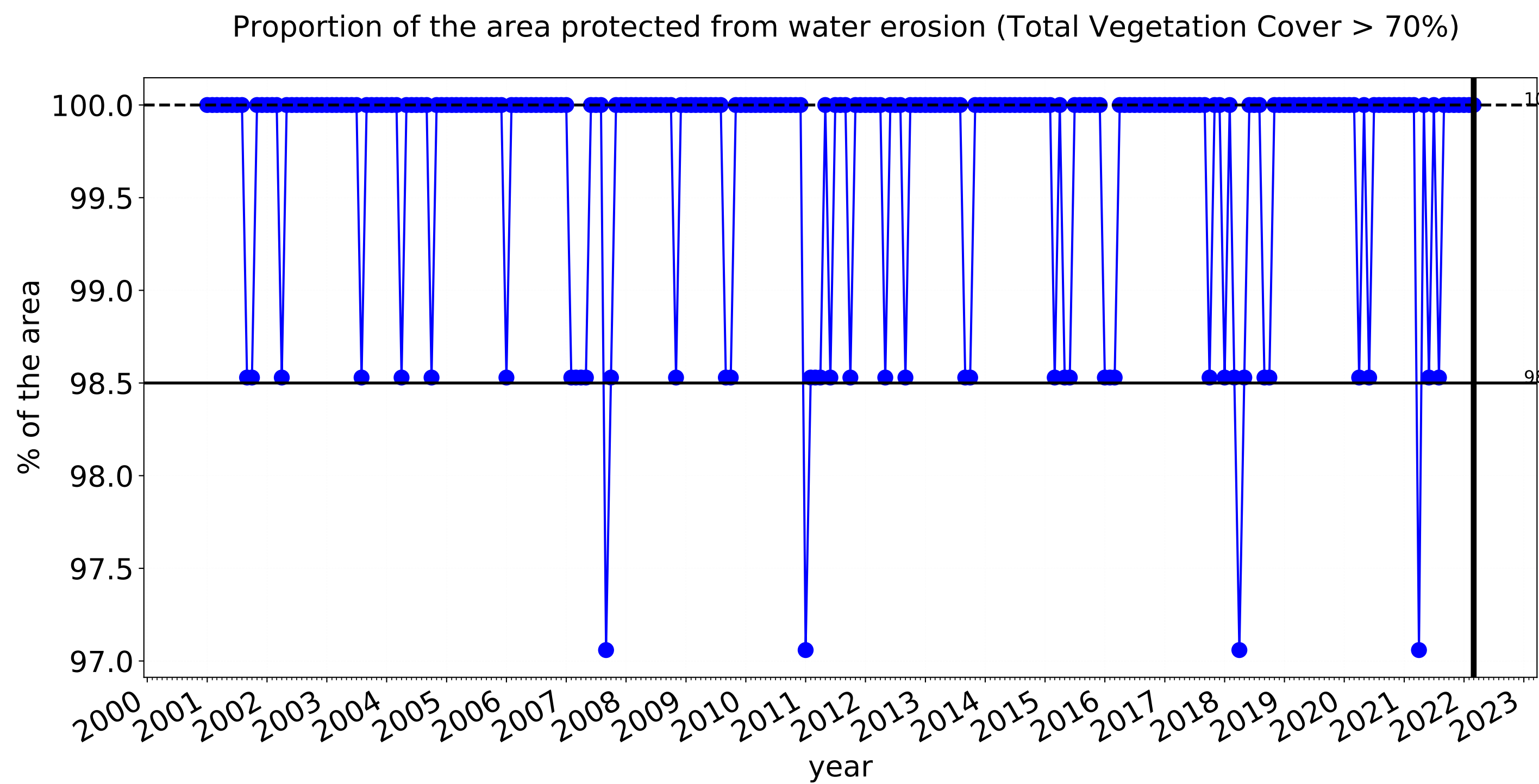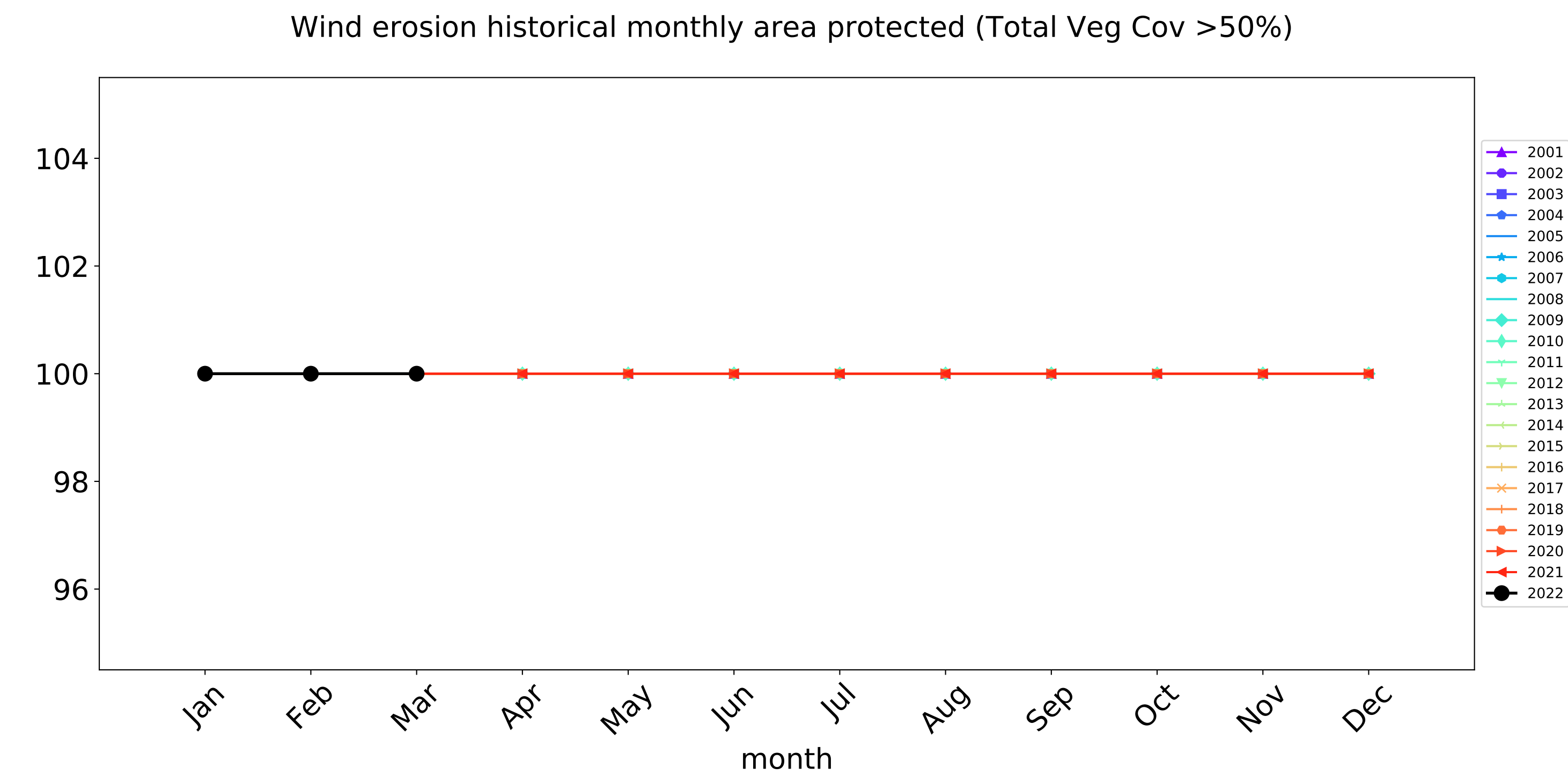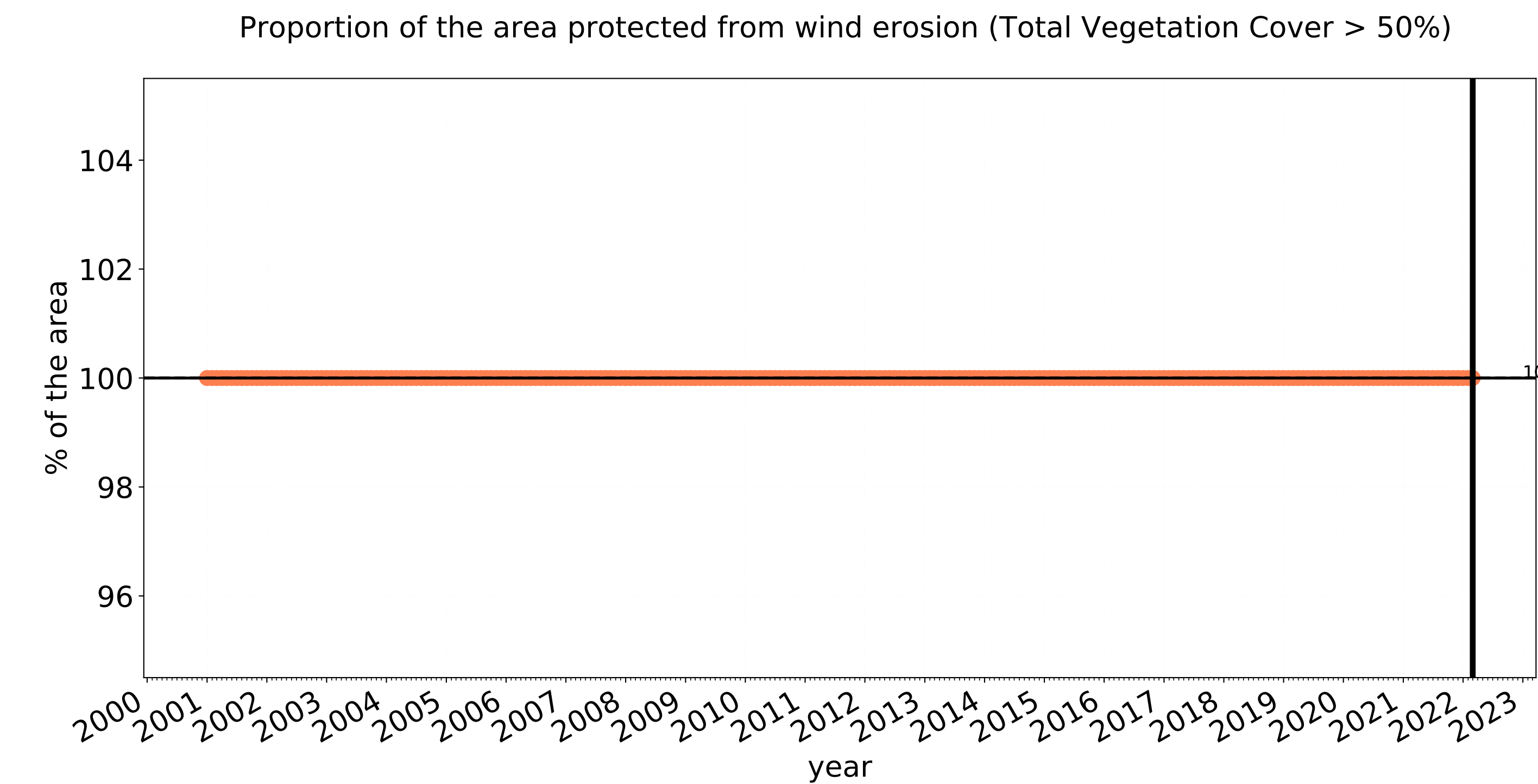
Narrogin_(S) (163,025 ha and no data 86 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	163,025	99.8% 162,775	95.4% 155,575	85.6% 139,625	69.8% 113,800	36.6% 59,650	19.4% 31,600
Conservation and natural environments	17,750	100.0% 17,750	98.6% 17,500	81.0% 14,375	62.8% 11,150	33.0% 5,850	12.0% 2,125
Conservation and natural environments non forest	8,300	100.0% 8,300	100.0% 8,300	74.7% 6,200	41.3% 3,425	12.7% 1,050	6.6% 550
Conservation and natural environments Woodland forest	9,450	100.0% 9,450	97.4% 9,200	86.5% 8,175	81.7% 7,725	50.8% 4,800	16.7% 1,575
Agriculture	140,375	99.8% 140,150	95.0% 133,325	86.2% 121,050	70.6% 99,100	36.8% 51,650	20.2% 28,400
Grazing	4,275	100.0% 4,275	96.5% 4,125	94.2% 4,025	80.7% 3,450	41.5% 1,775	25.1% 1,075
Grazing non forest	4,275	100.0% 4,275	96.5% 4,125	94.2% 4,025	80.7% 3,450	41.5% 1,775	25.1% 1,075
Cropping	136,100	99.8% 135,875	94.9% 129,200	86.0% 117,025	70.3% 95,650	36.6% 49,875	20.1% 27,325
Production native forests and plantation forests	1,700	100.0% 1,700	100.0% 1,700	100.0% 1,700	98.5% 1,675	77.9% 1,325	45.6% 775