

## [LGA Murchison\_(S) (WA)] - total vegetation cover soil protection report [Sep 2019]

This report provides information about vegetation covering the soil surface for a region during a single month with comparison to previous years. The total vegetation cover indicates where soil is likely to be protected from wind ( $\geq 50\%$  total vegetation cover) and water/hillslope ( $\geq 70\%$  total vegetation cover) erosion. Results are shown for the whole region (polygon) and also separated by land use and forest cover class. This is because different land use / forest cover classes are likely to have different cover patterns and targets.

[Murchison\_(S)]

The six maps and two graphs provide a report for the month with:

- Land use and forest cover information for the area:
  - o Map: Land use and forest cover
  - o Chart: Land use and forest cover area
- Total vegetation cover for this month:
  - o Map: total vegetation cover classified into 4 classes
  - o Chart: total vegetation cover percentage area classified into 4 classes
- Areas protected from erosion for the month:
  - o Map: water erosion protection ( $>70\%$  cover) percentage area and hectares
  - o Map: wind erosion protection ( $>50\%$  cover) percentage area and hectares
- Comparison with previous years:
  - o Map: anomaly – compare this month to the average cover from the same month in previous years
  - o Map: deciles – rank this month against the same month in previous years
- Time series from January 2001 to current:
  - o Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month since January 2001 (orange line): Horizontal lines are 10th (cover target) and 50th percentiles. Vertical line is month of report.
  - o Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month since January 2001 (blue line): Horizontal lines are 10th (cover target) and 50th percentiles. Vertical line is month of report.
  - o Rainfall: millimetres rainfall each month (black line). Vertical line is month of report.
- Time series for each month stacked by year
  - o Same data as time series from January 2001 to current month, grouped by month. Black line is current year of data.
- Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion.

The thresholds reported are:

- o the percentage area with pixels greater than 80% total cover
- o the percentage area with pixels greater than 90% total cover
- o the percentage area with pixels greater than 95% total cover

The following pages repeat the above sequence for each land use and forest cover class. For example

- All agricultural lands, that is grazing, cropping plus Horticulture (depending on what land use is present)
- Grazing lands by forest classes if present
- Cropping lands
- Irrigation lands
- Protected areas by forest classes if present

The following pages repeat the above sequence for each land use and forest cover class if 1% or more of area makes up a land use and forest cover class. Four land uses are reported: Conservation and natural environments, Agriculture, production native forests and plantation forests, and other. Agriculture is further divided into grazing, crops and horticulture are then divided into non-irrigated and irrigated. Land use is further divided by forest class if present: non-forest, woodland forest and non-woodland forest.

Explanatory notes:

This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool. The report is based on an analysis of 500 metre pixel data on monthly time steps. Report uses baseline from January 2001 to September 2019 for each month to generate anomalies and deciles. Post September 2019 all similar months are used to calculate anomalies and deciles.

### Acknowledgment of data:

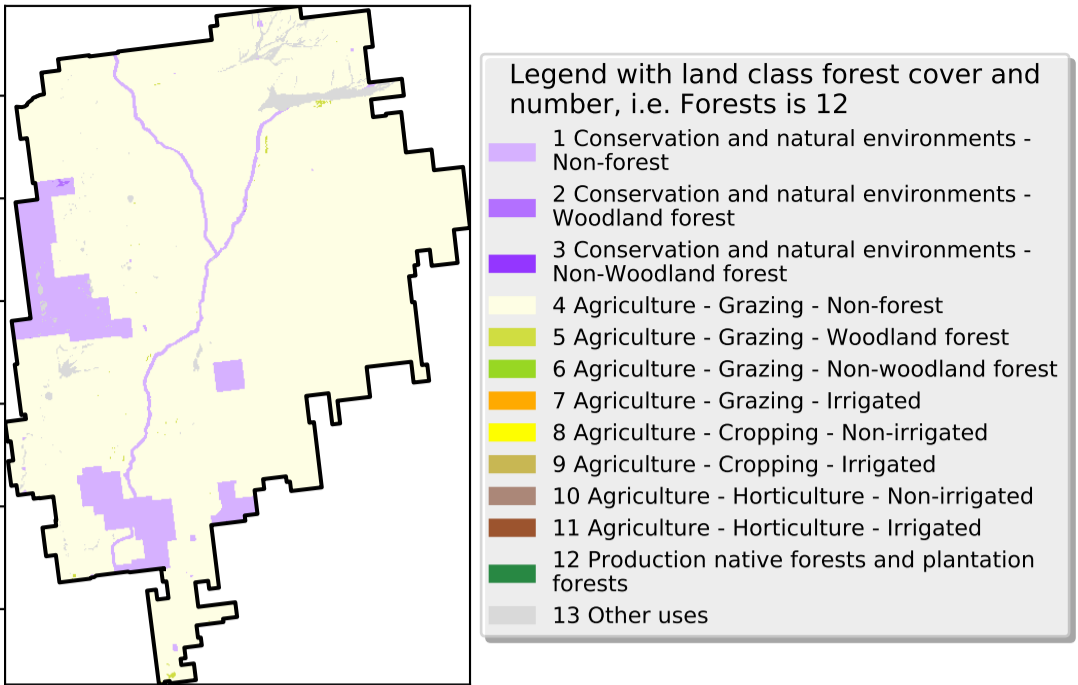
1. <http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification>
2. <http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018>
3. <https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover>
4. MODIS Fractional cover algorithm:  
<https://doi.org/10.4225/08/5848a3f19a7b3>



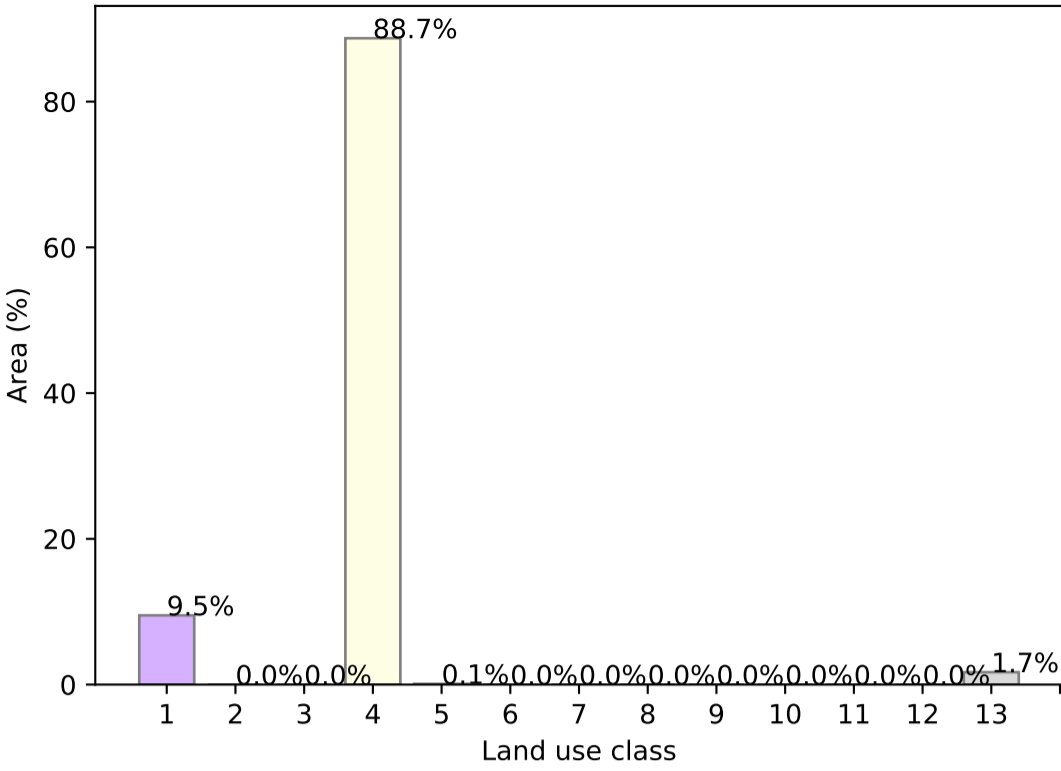
# Vegetation Cover Sep 2019

Land use and forest cover

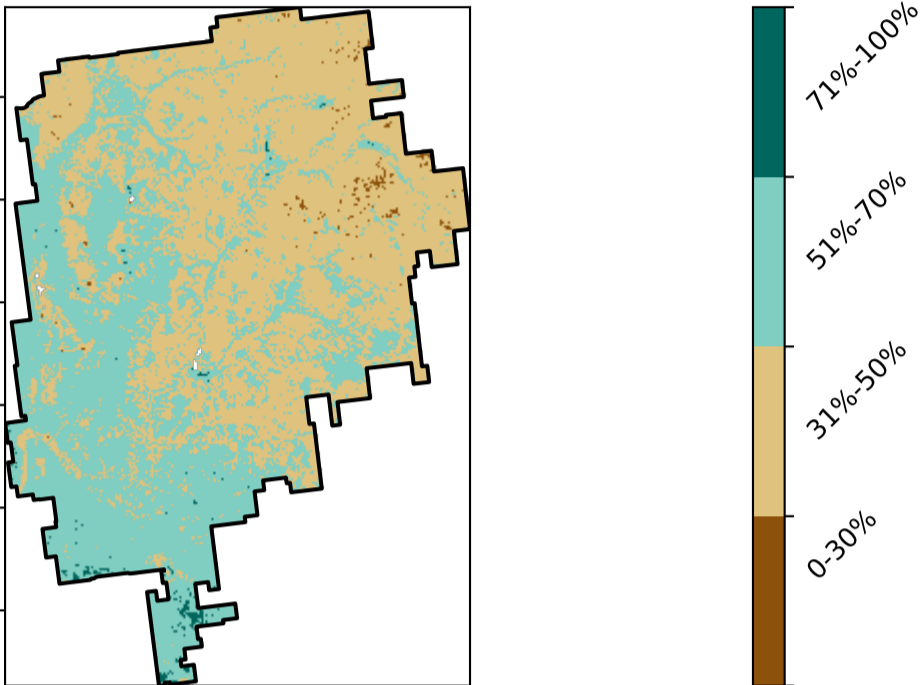
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



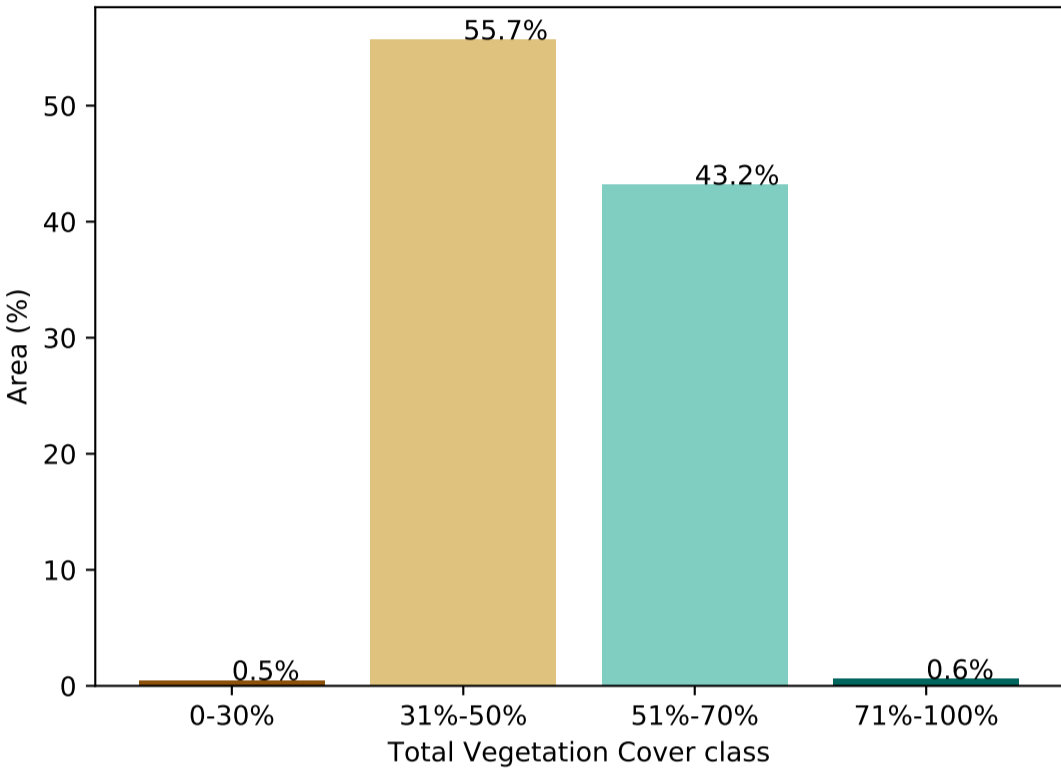
Proportion of each land class in area



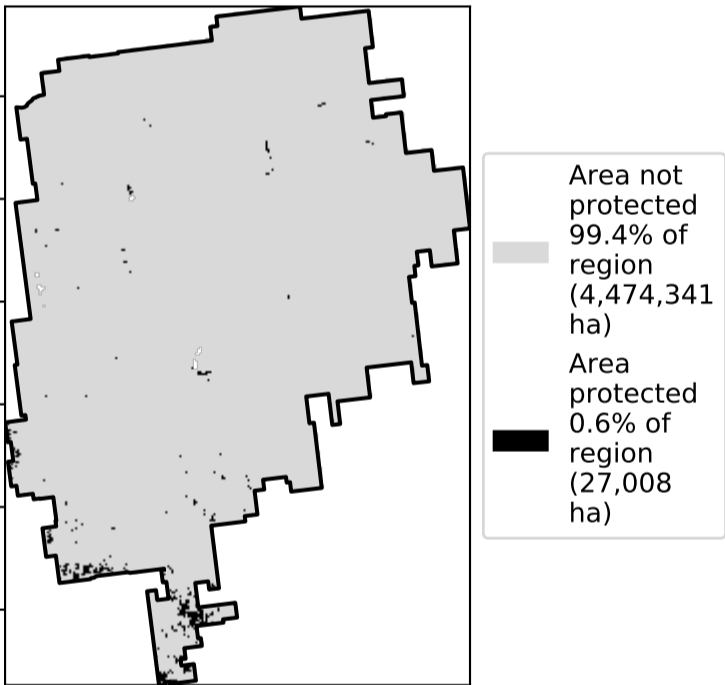
Total Vegetation Cover [%]



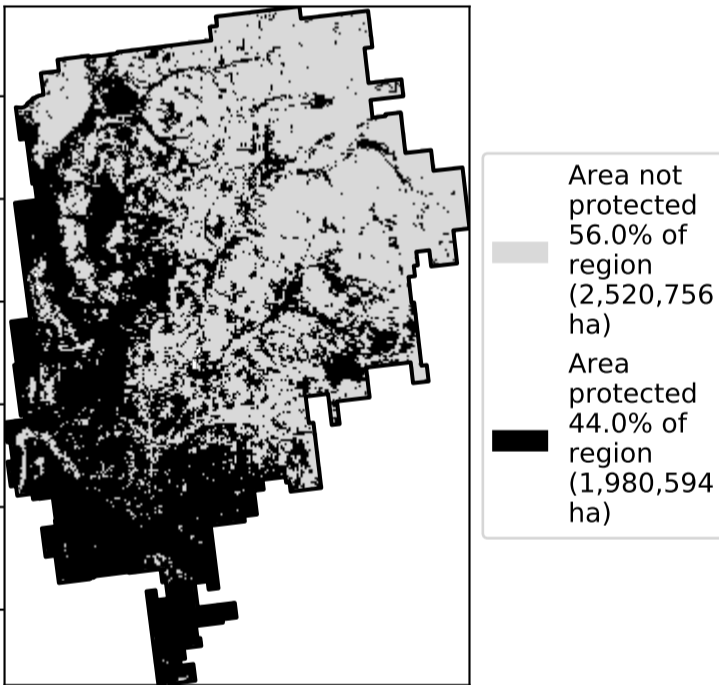
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

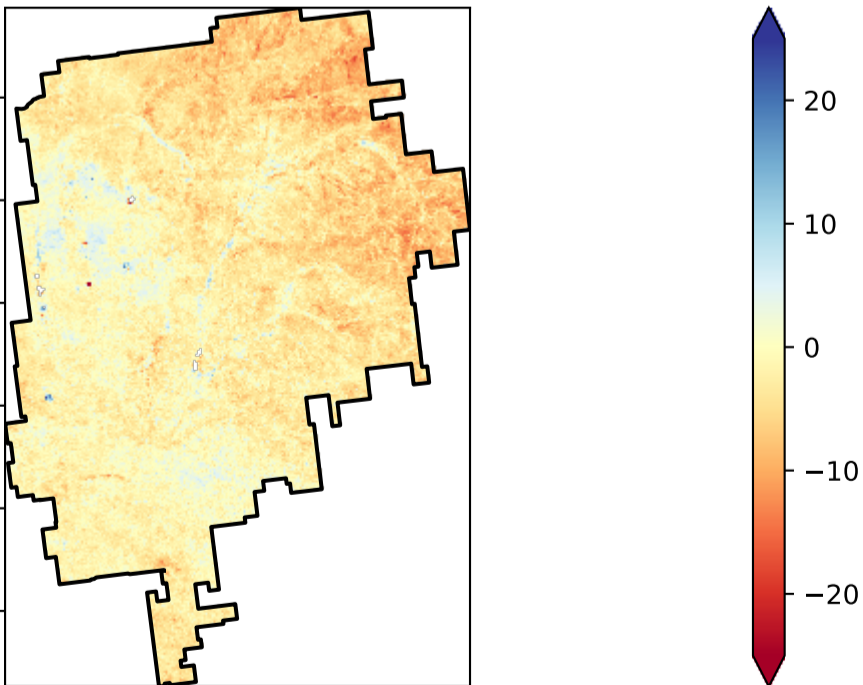


% Area protected from wind erosion (>50%)



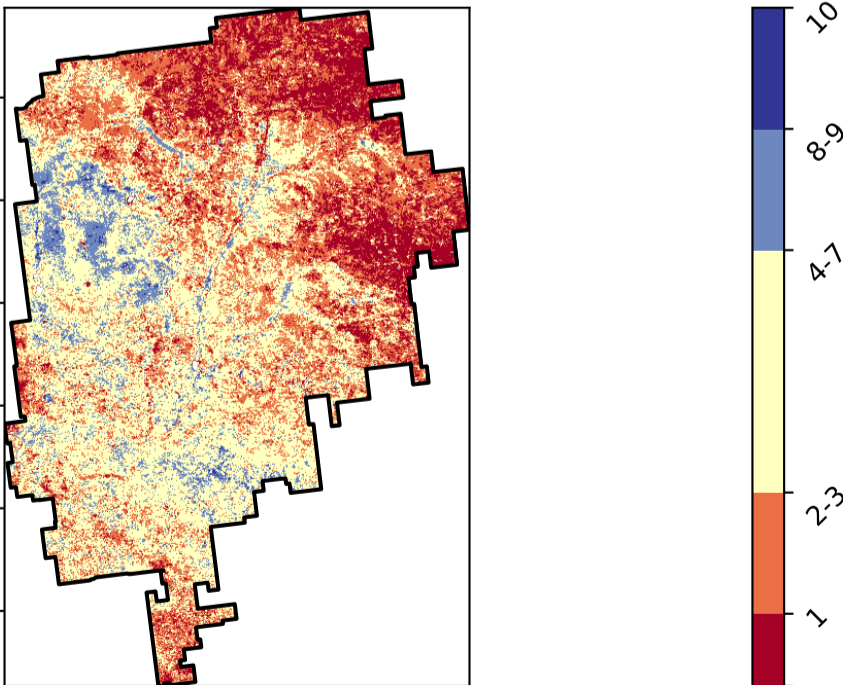
Total Vegetation Cover Anomaly [%]

Anomaly show how many percentage 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.



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.

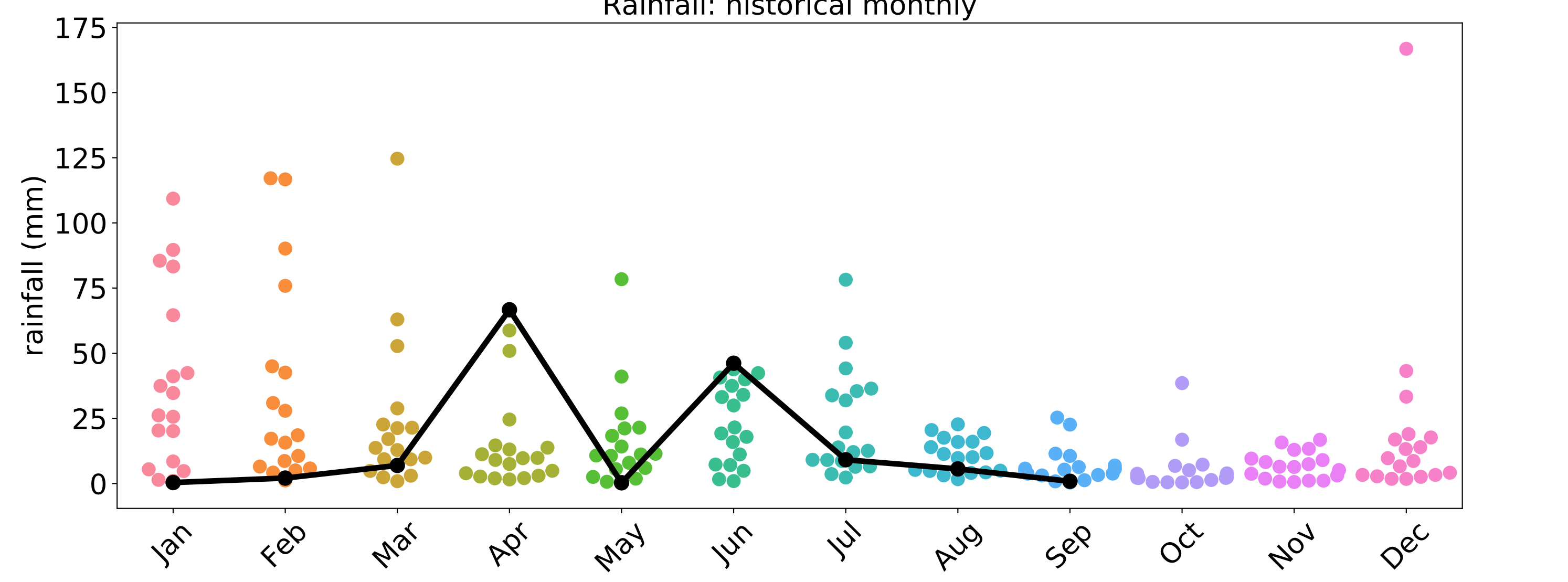
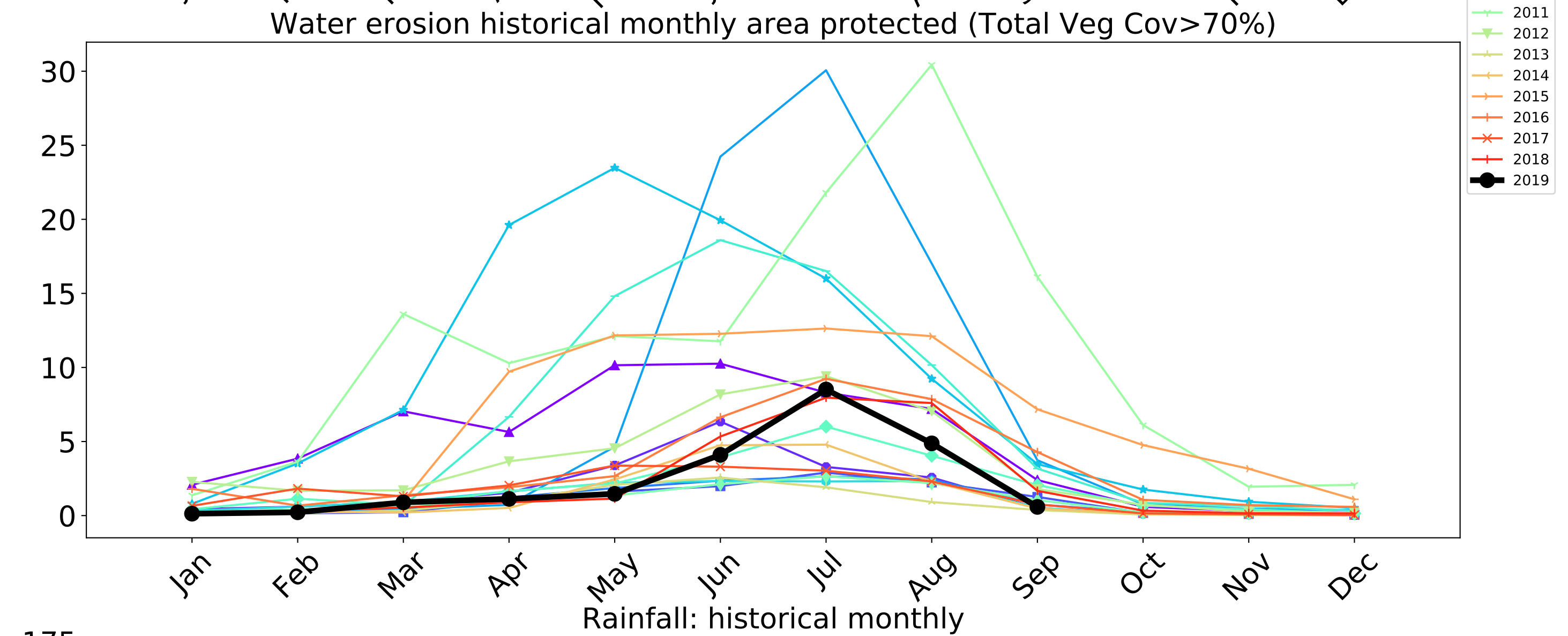
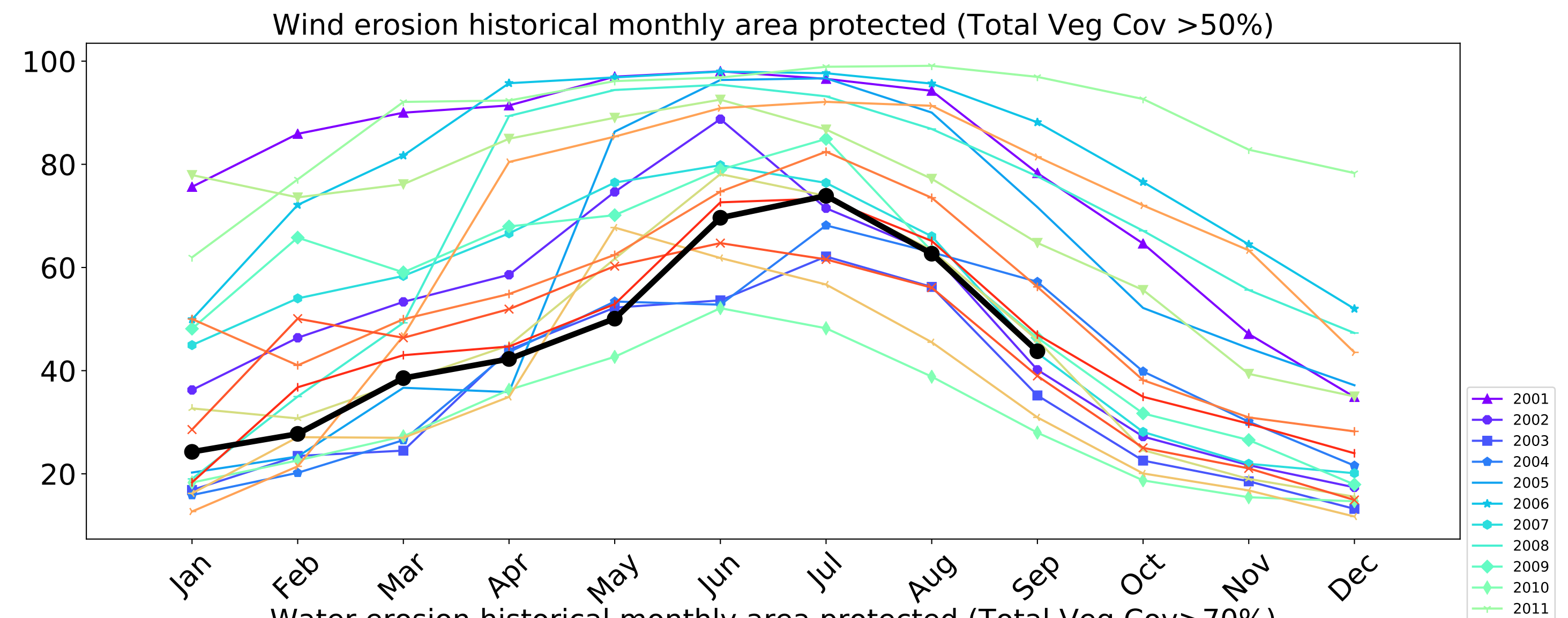
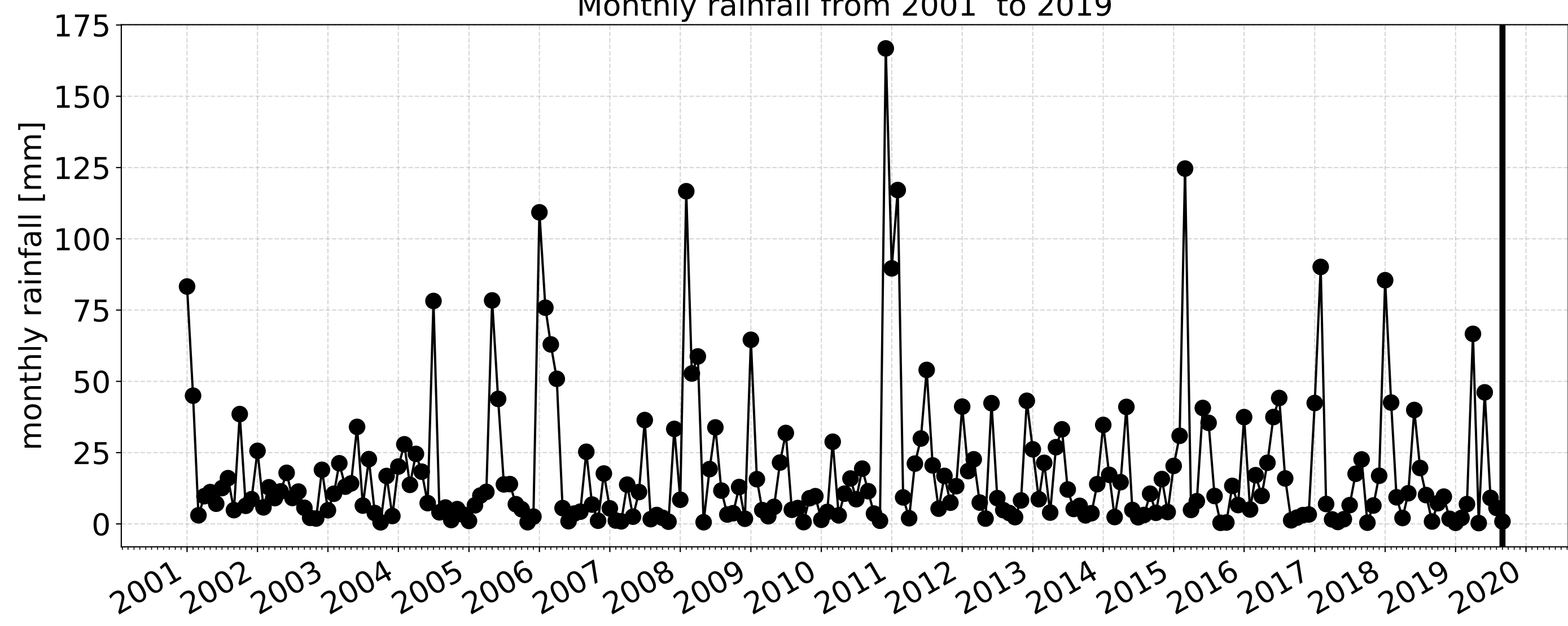
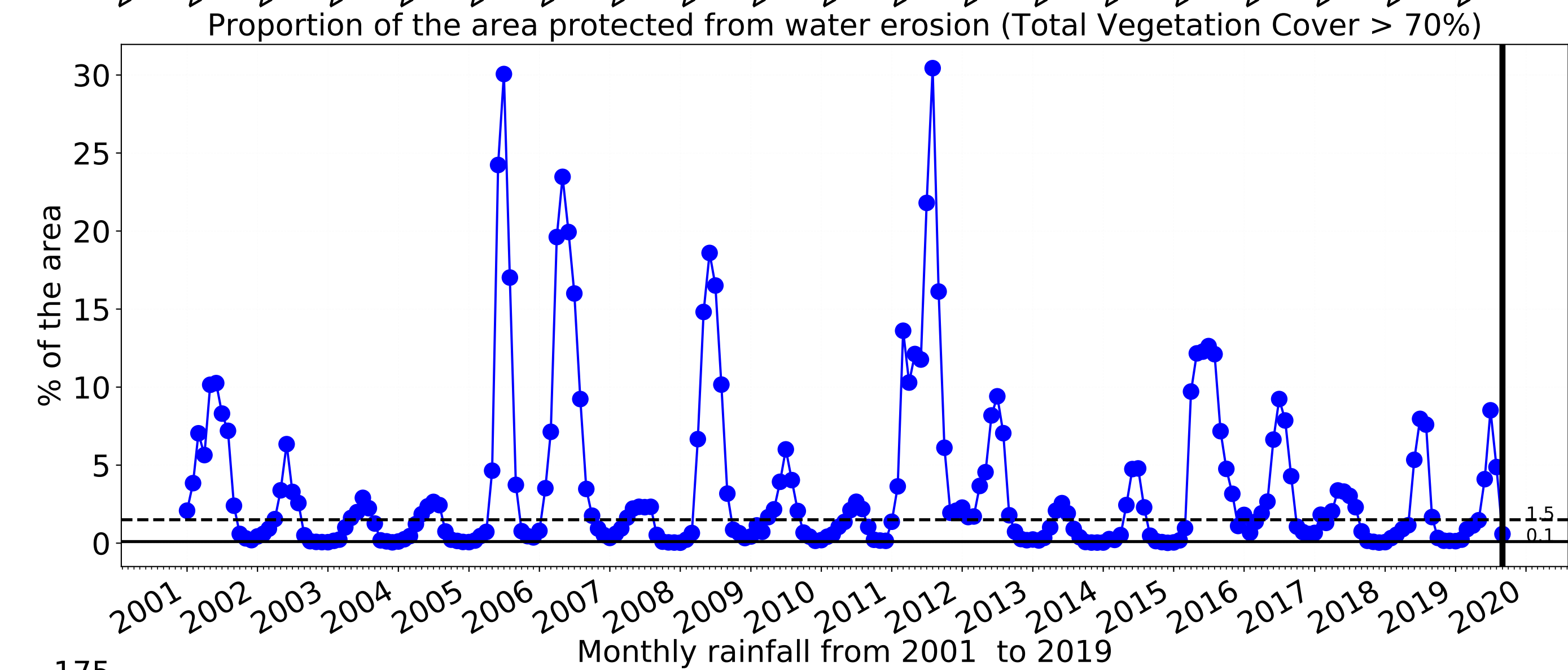
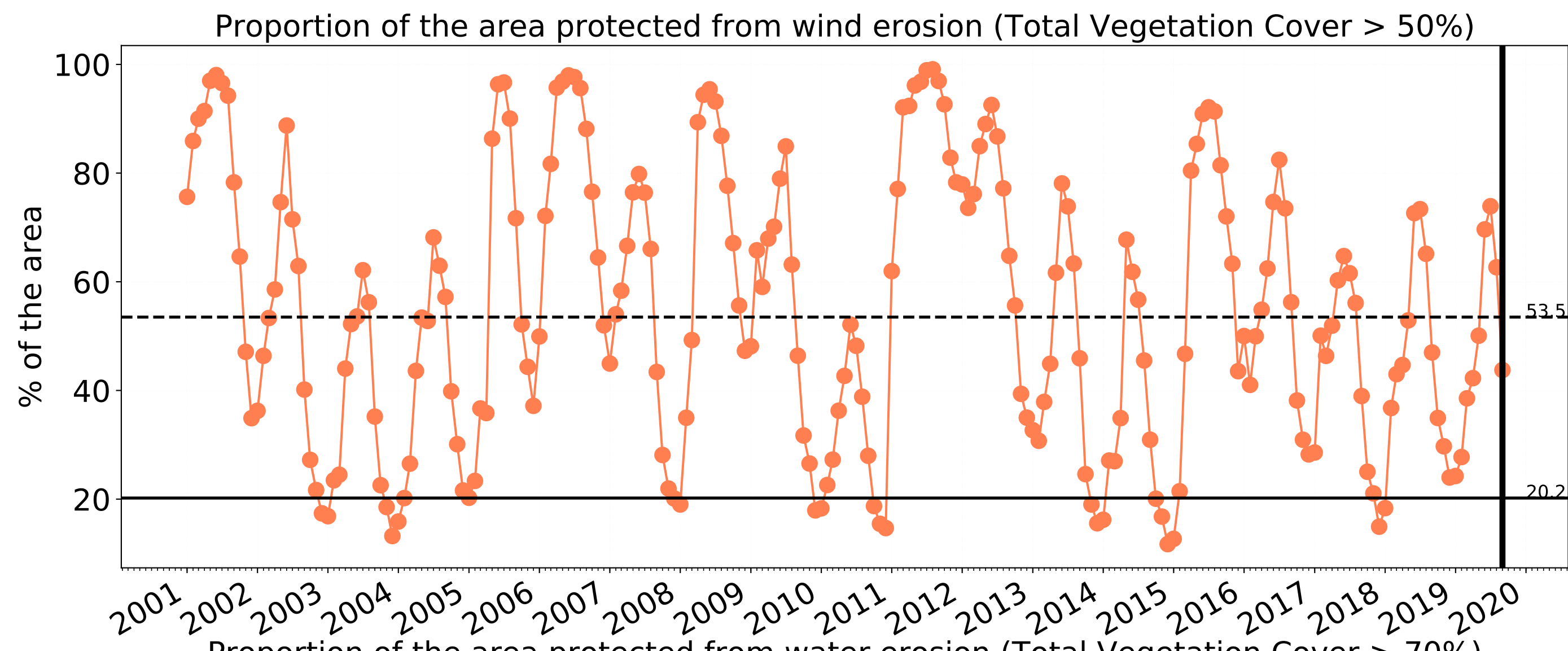
Total Vegetation Cover Decile [%]



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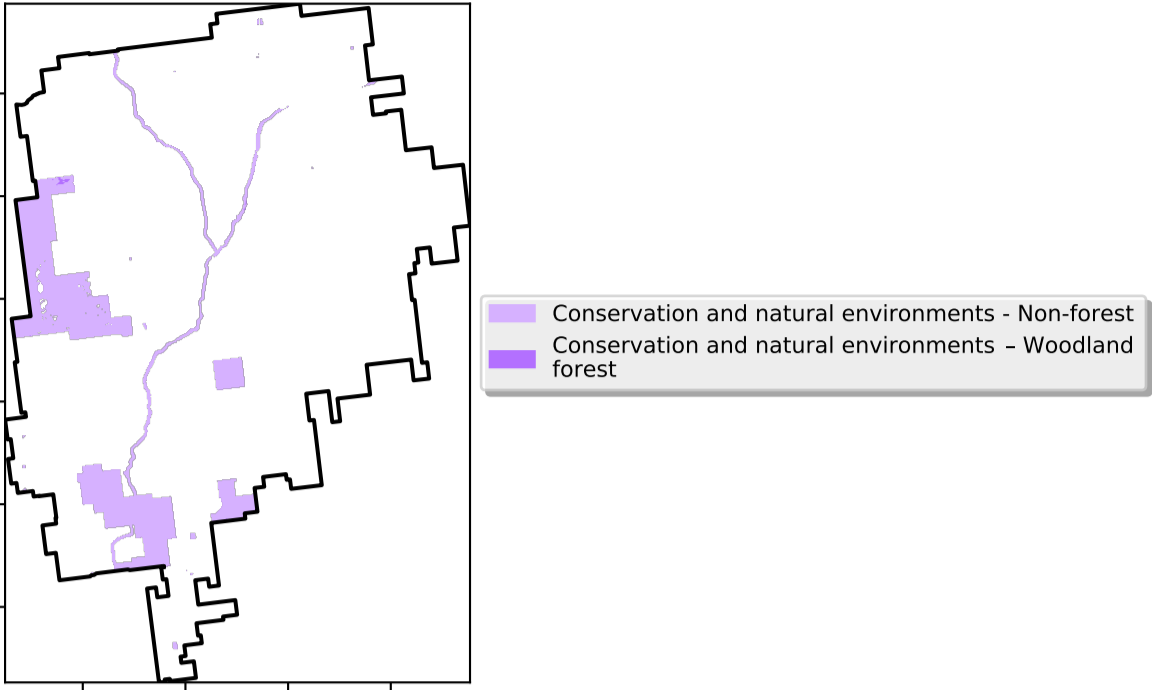
Planning, Industry & Environment



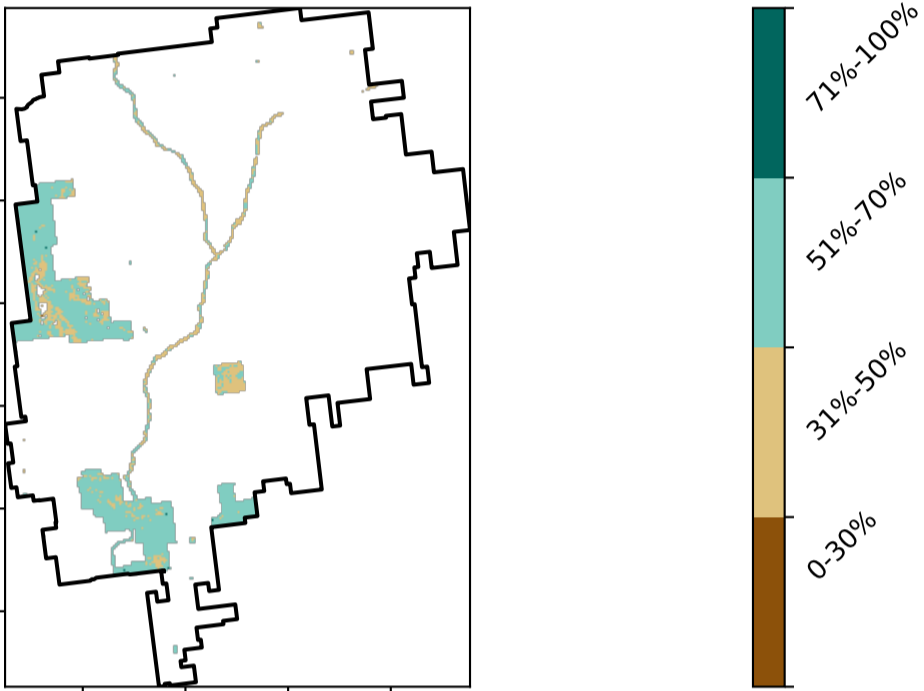
# Conservation and natural environments

Land use and forest cover

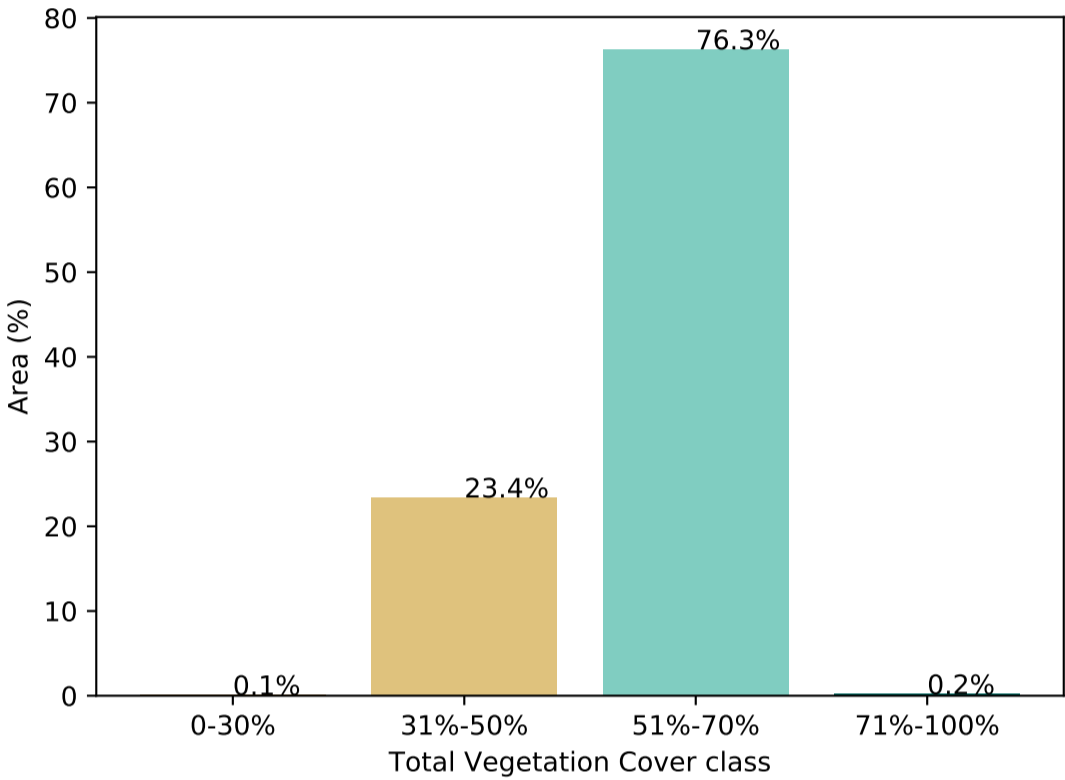
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



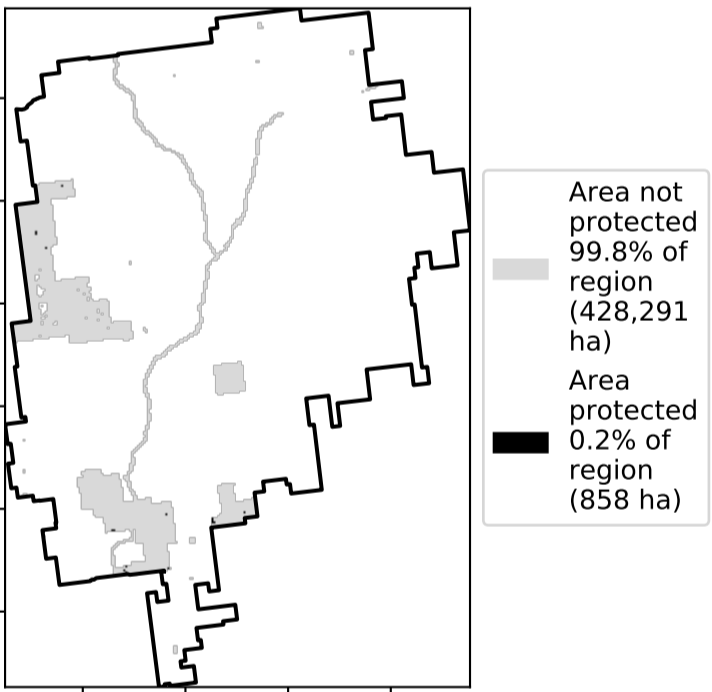
Total Vegetation Cover [%]



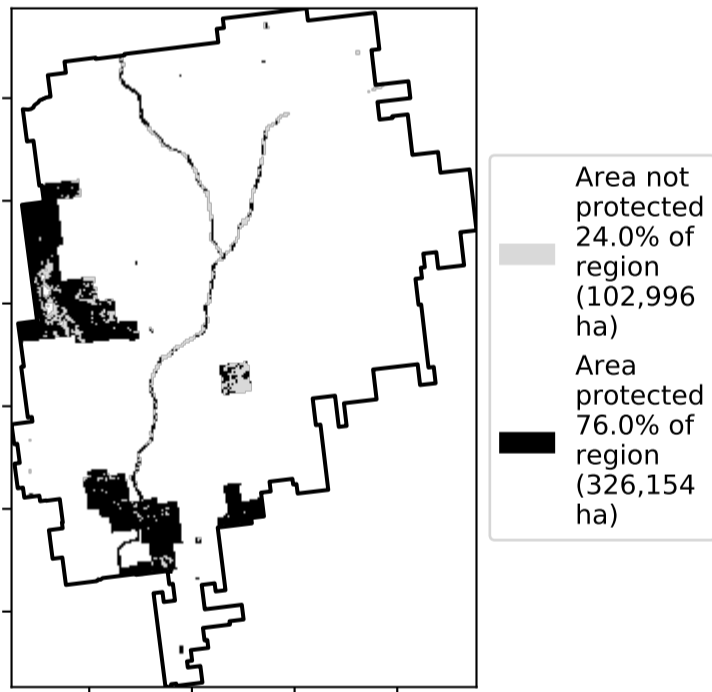
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

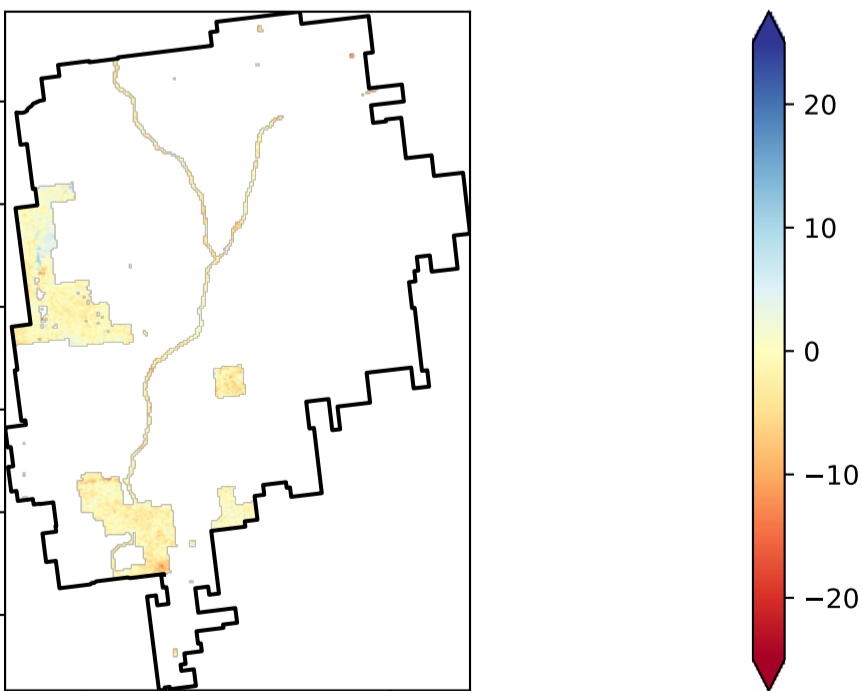


% Area protected from wind erosion (>50%)



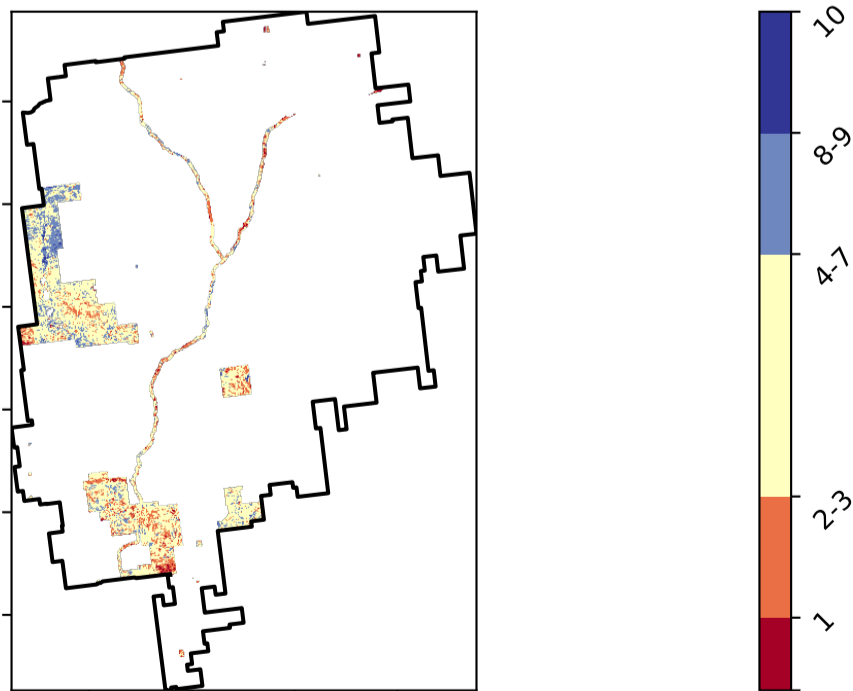
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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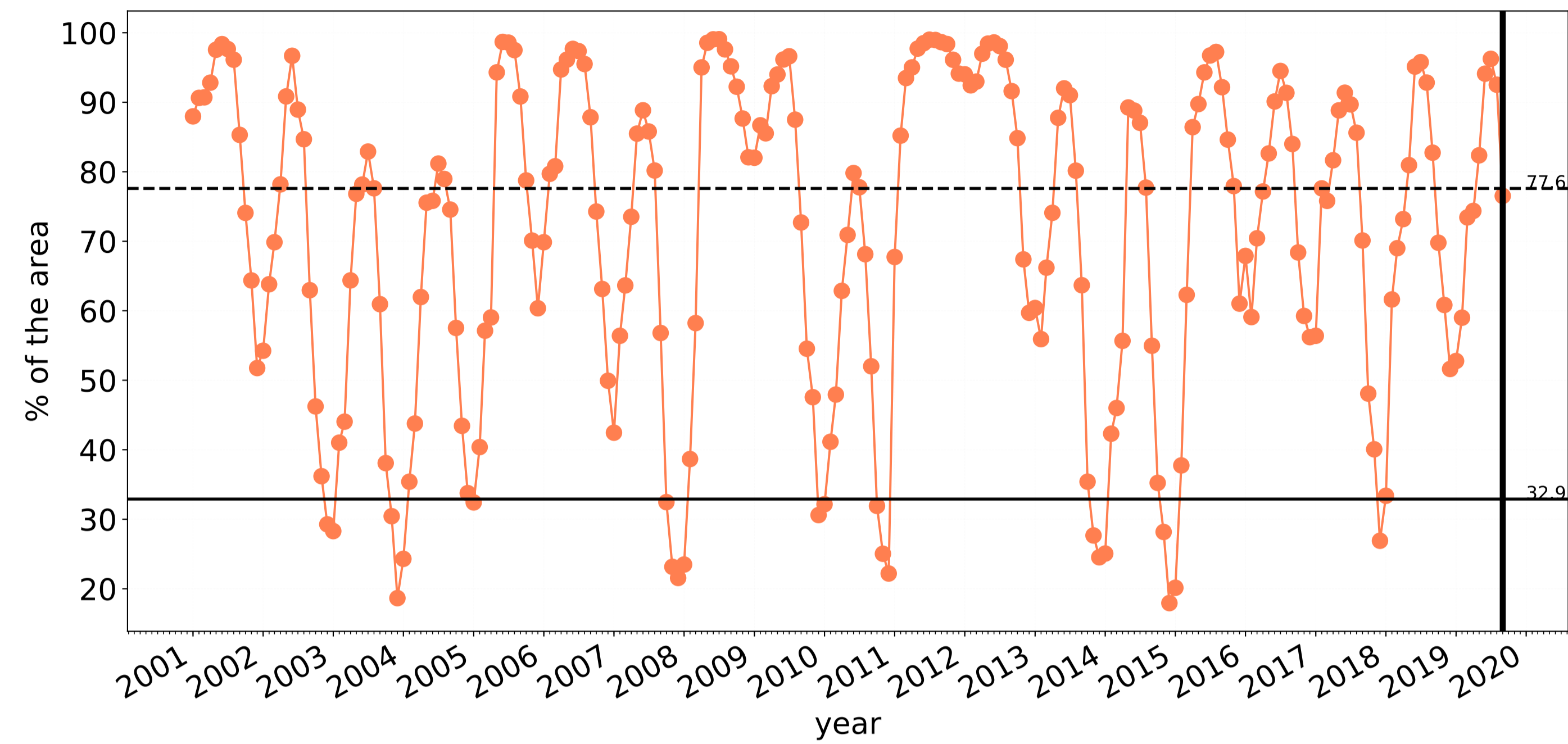
National  
Landcare  
Programme



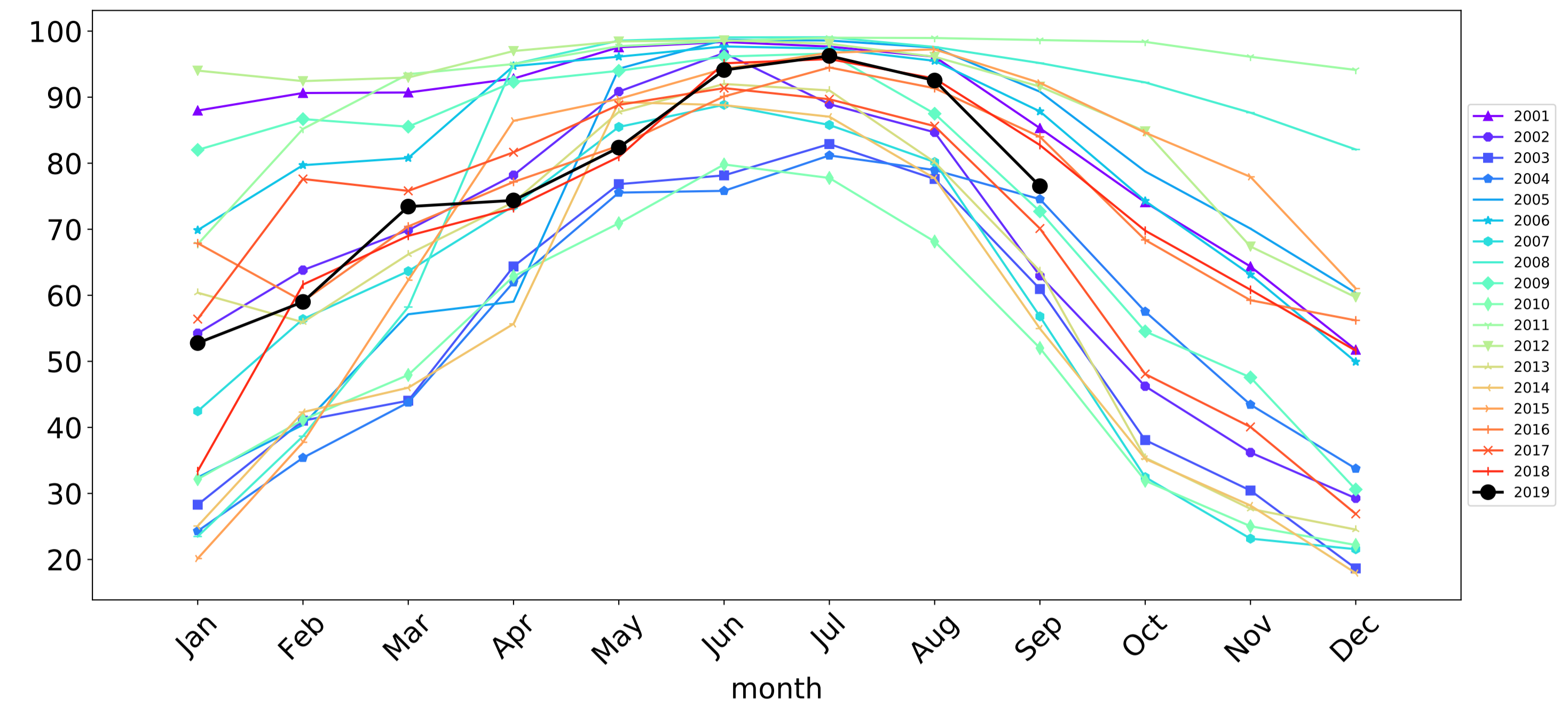
Planning,  
Industry &  
Environment

# Conservation and natural environments timeseries

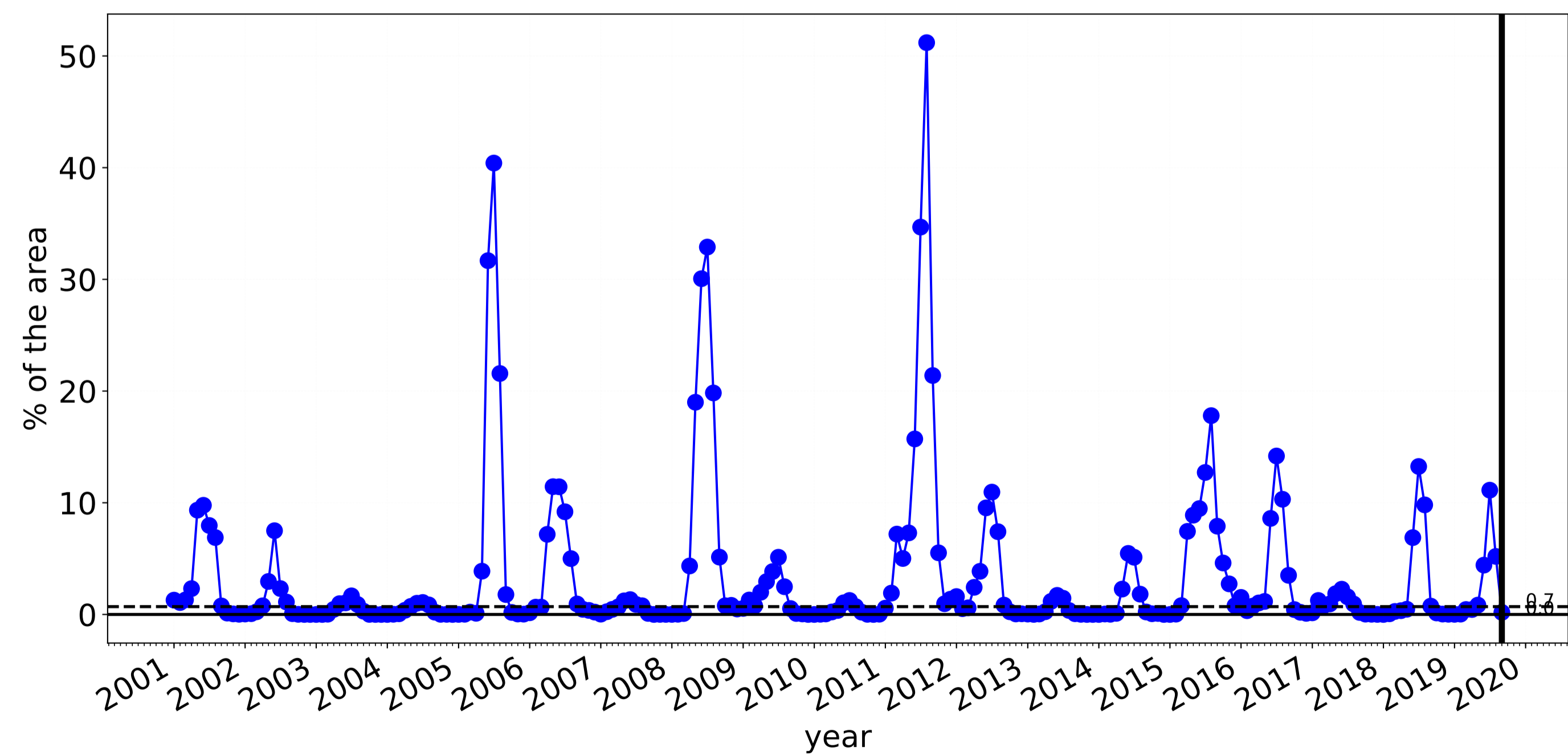
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



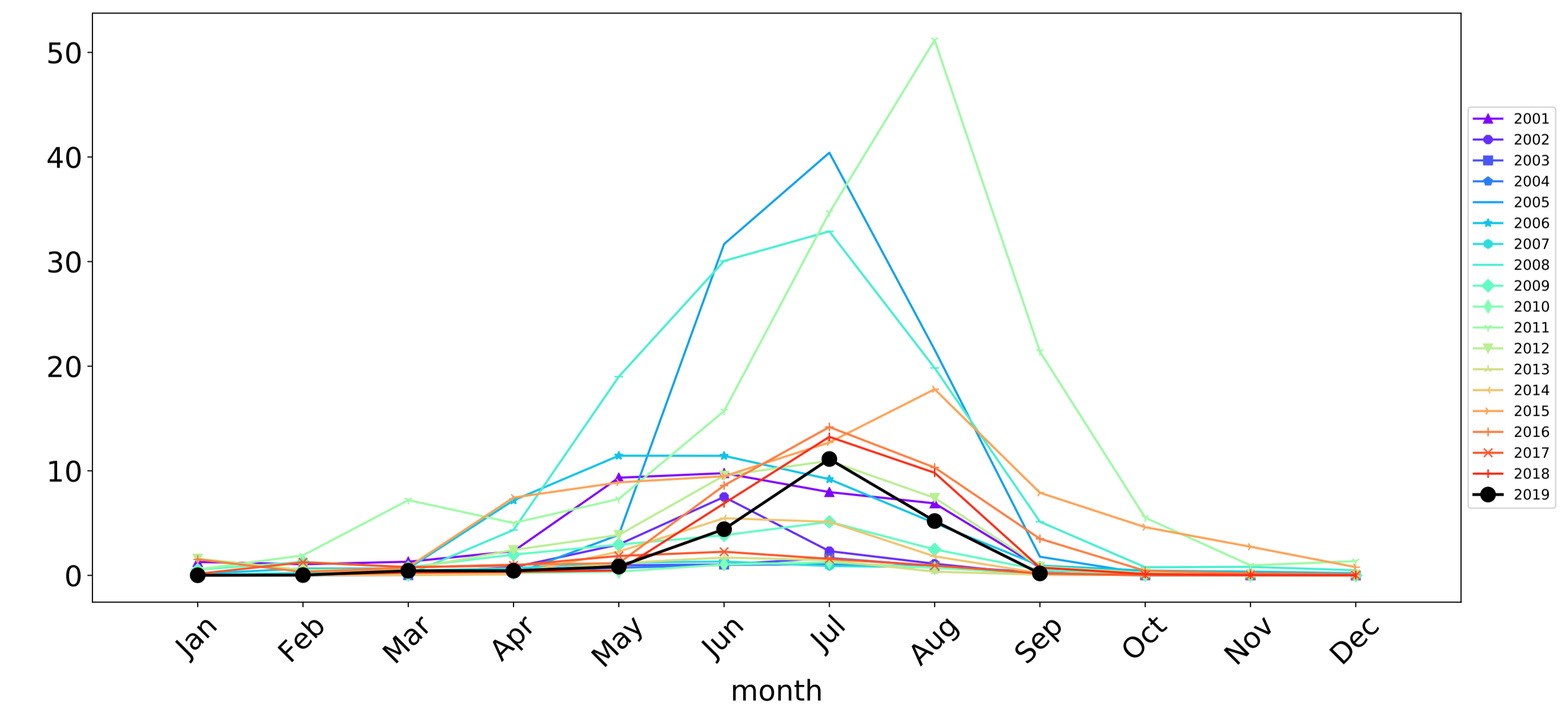
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



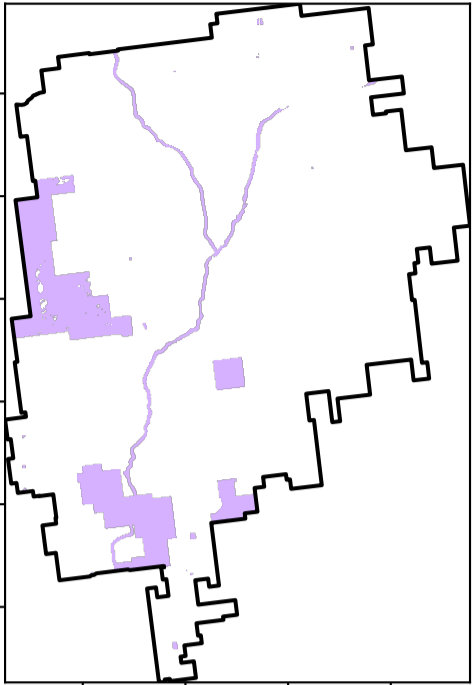
Water erosion historical monthly area protected (Total Veg Cov>70%)



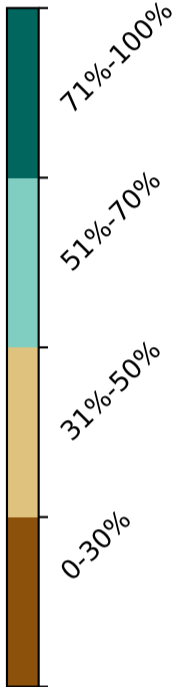
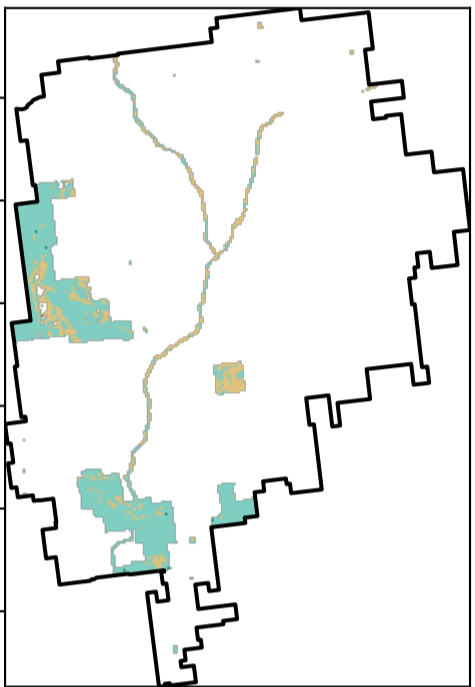
Conservation and natural environments non forest

Land use and forest cover

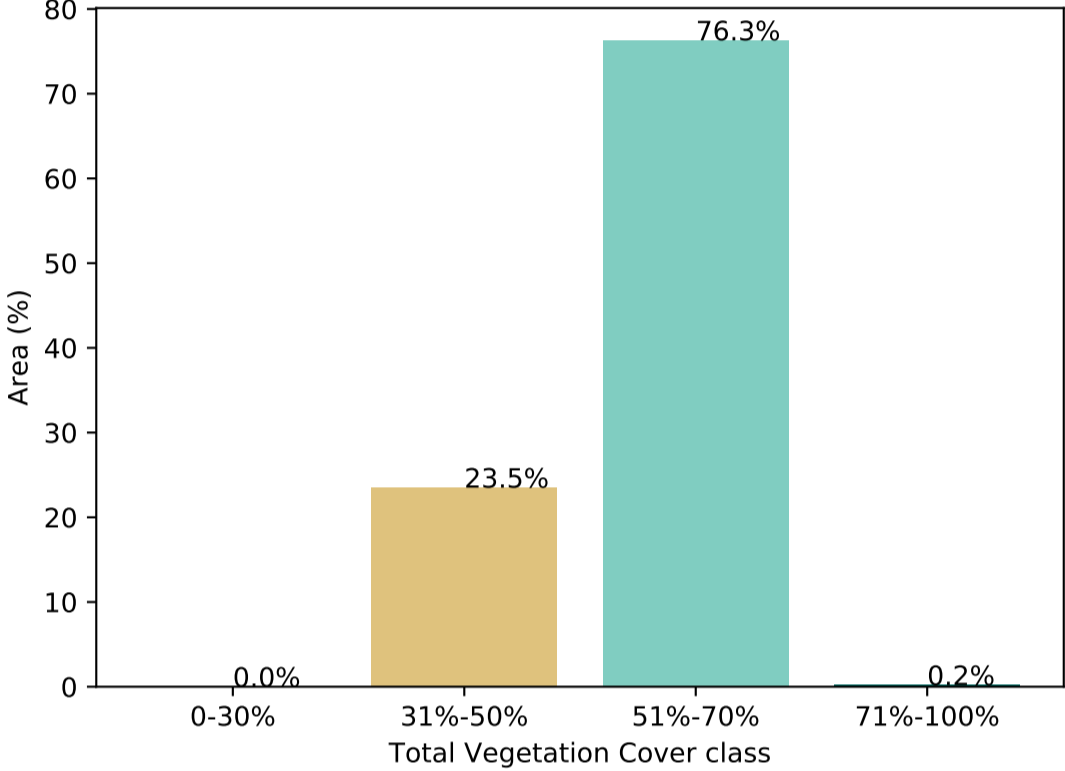
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



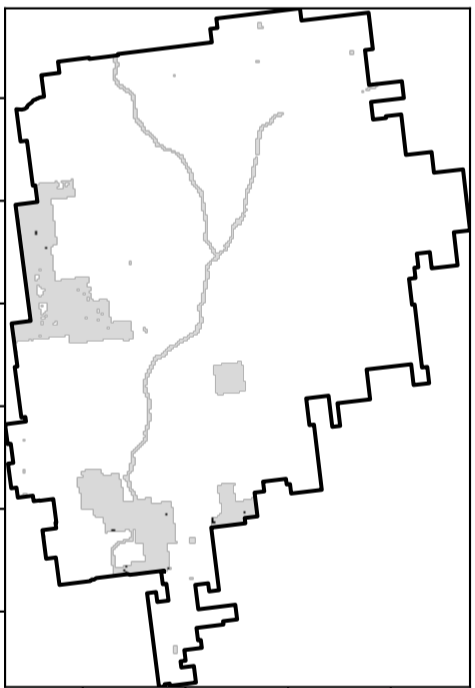
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

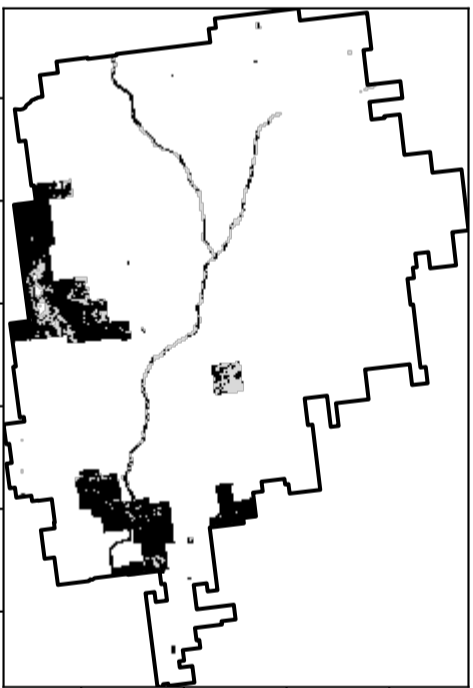


% Area protected from water erosion (>70%)



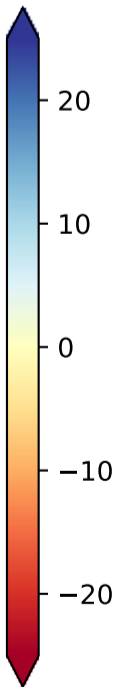
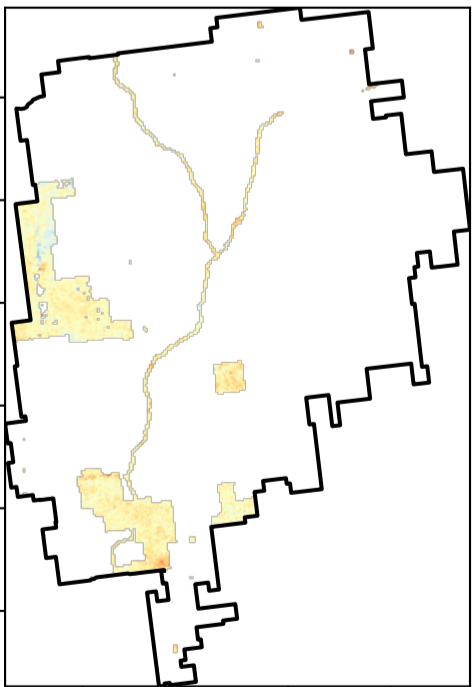
Area not protected  
99.8% of region  
(426,994 ha)  
Area protected  
0.2% of region  
(855 ha)

% Area protected from wind erosion (>50%)



Area not protected  
24.0% of region  
(102,684 ha)  
Area protected  
76.0% of region  
(325,166 ha)

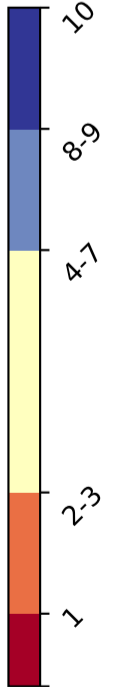
Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]



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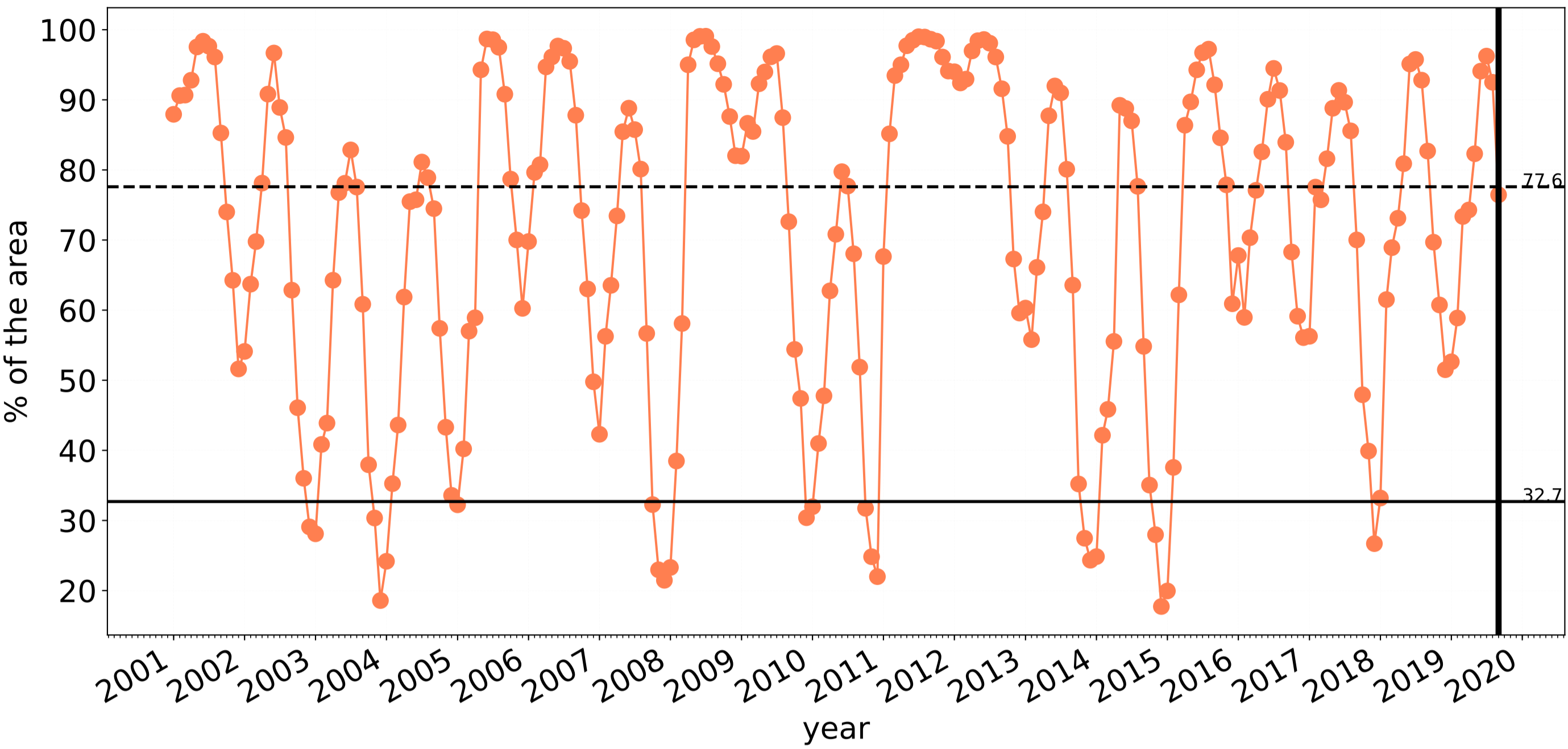
National  
Landcare  
Programme



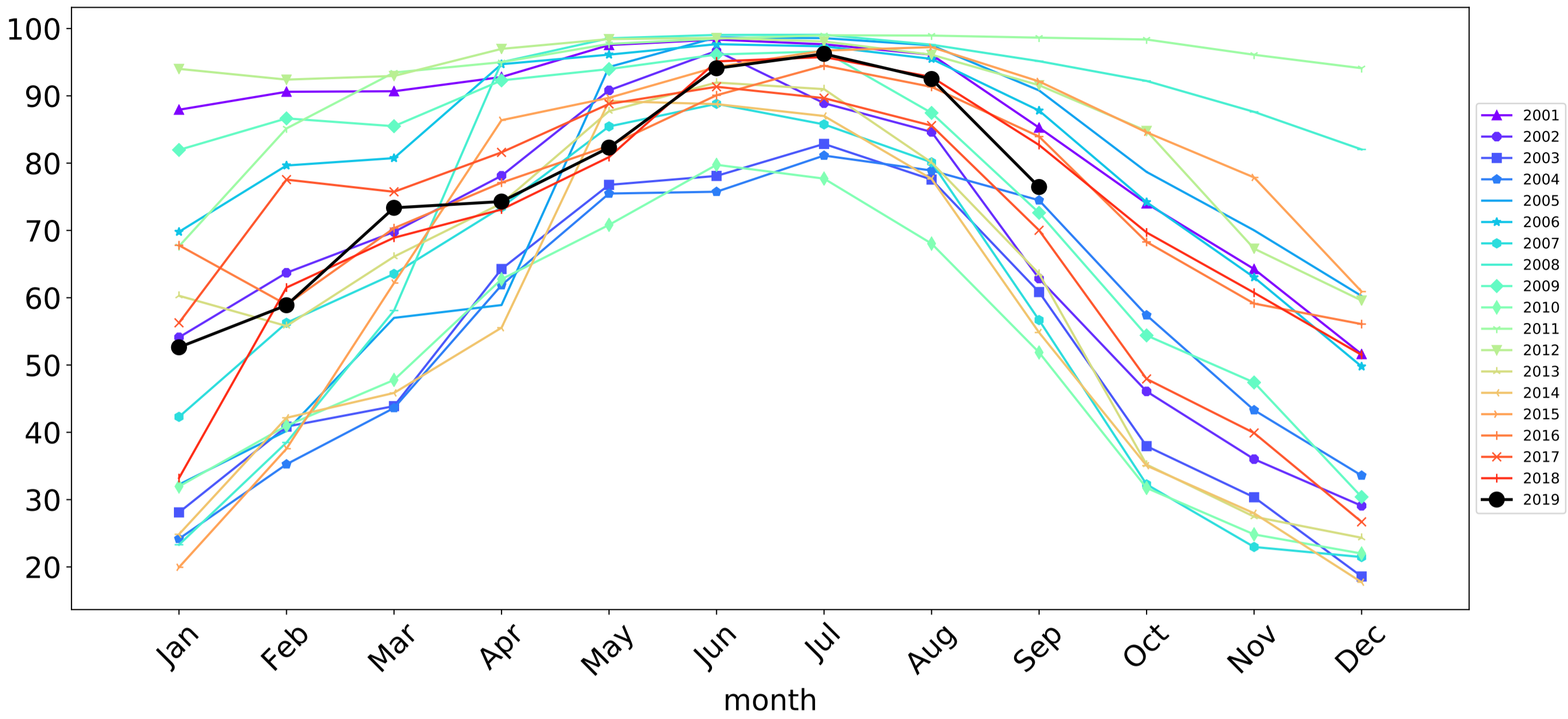
Planning,  
Industry &  
Environment

Conservation and natural environments non forest timeseries

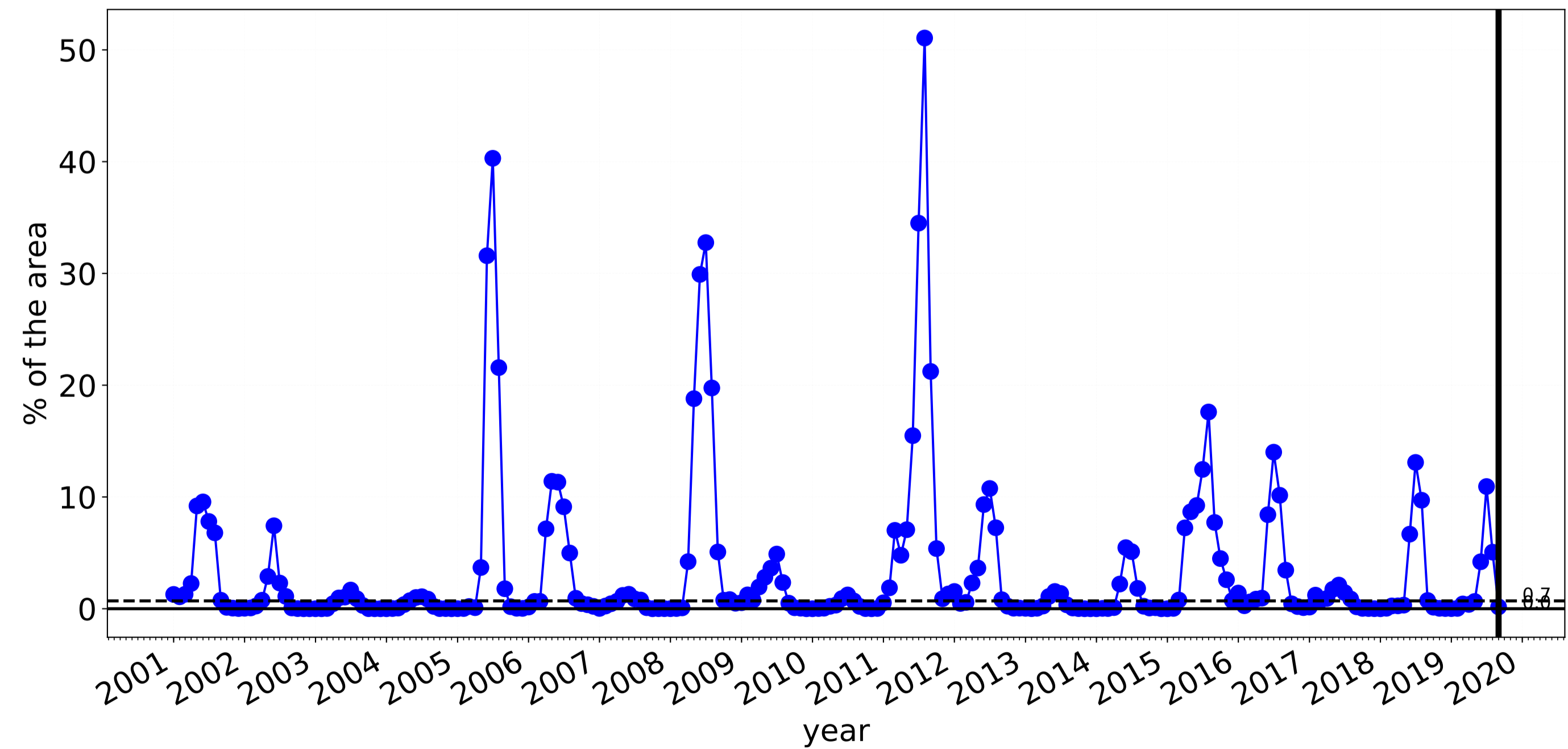
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



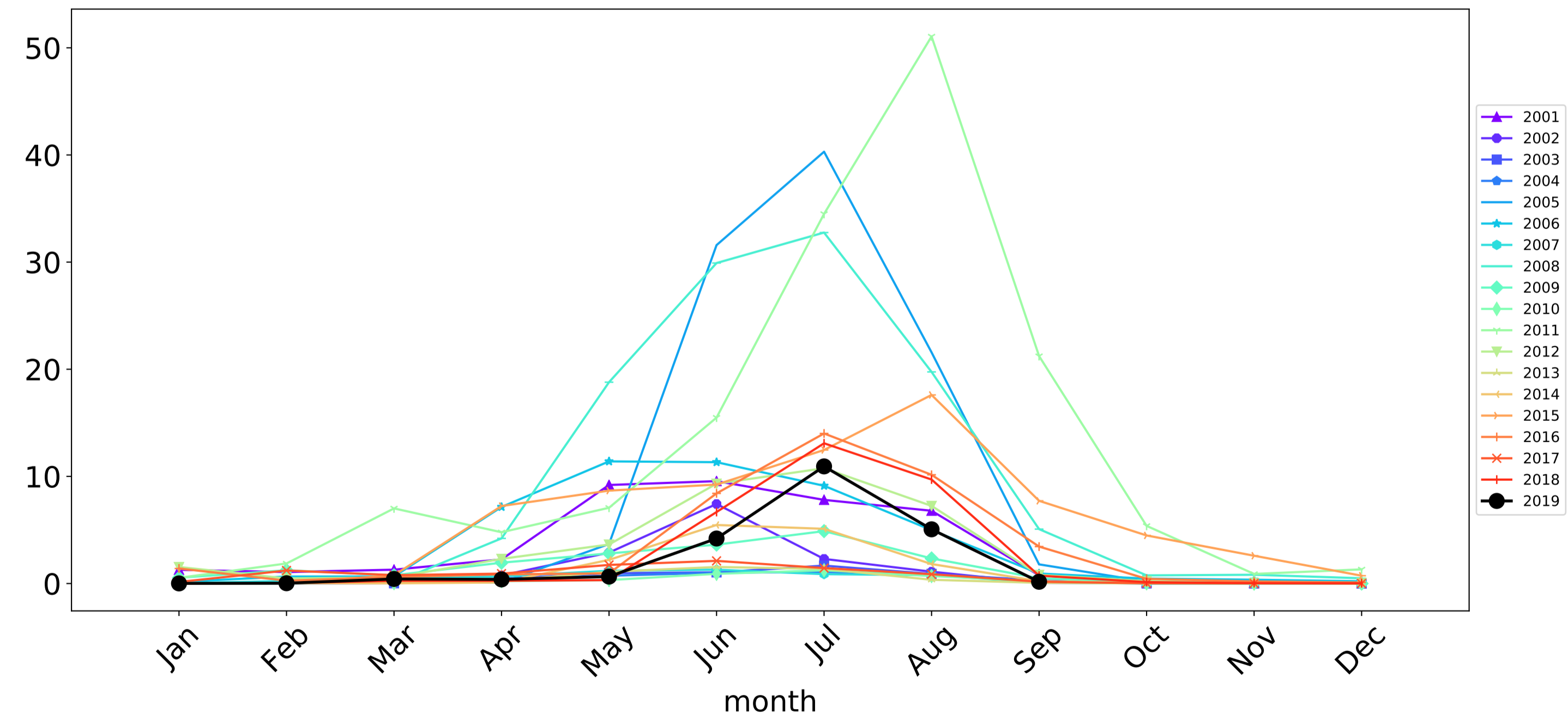
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



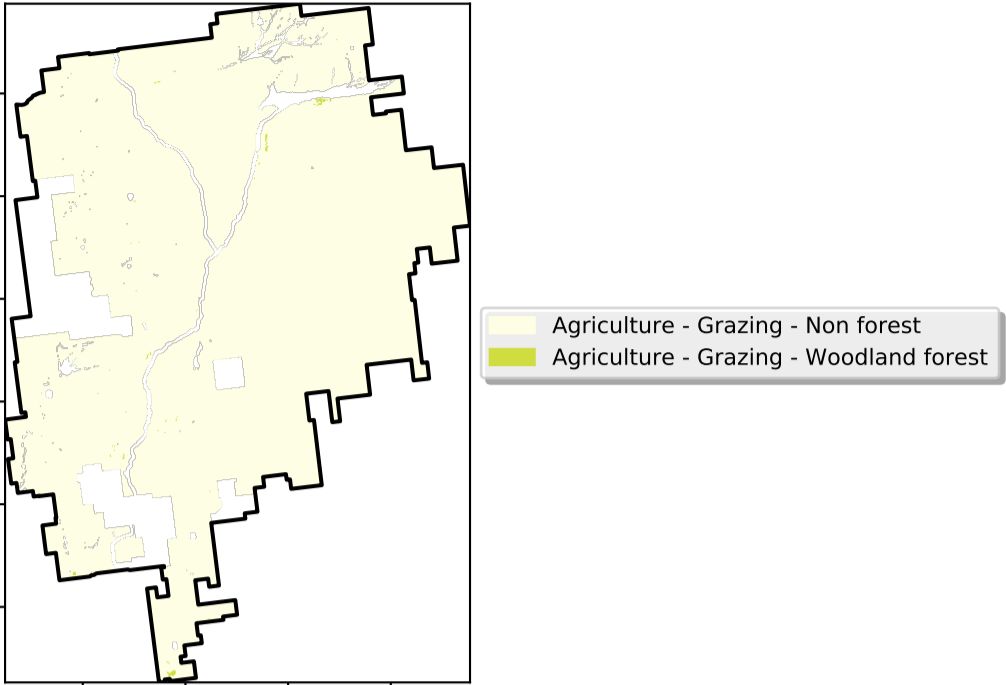
Water erosion historical monthly area protected (Total Veg Cov>70%)



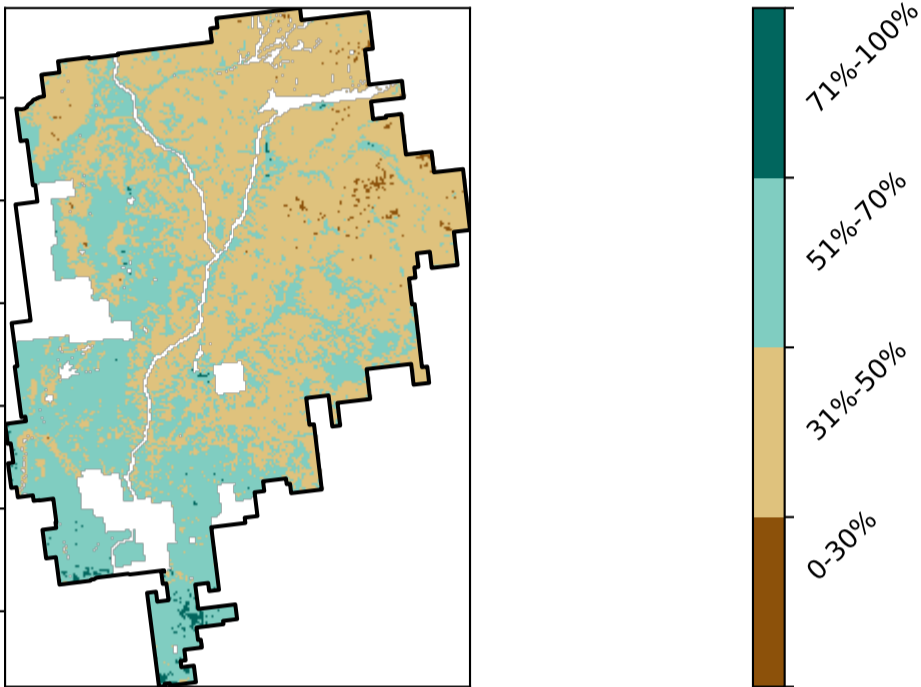
Agriculture

Land use and forest cover

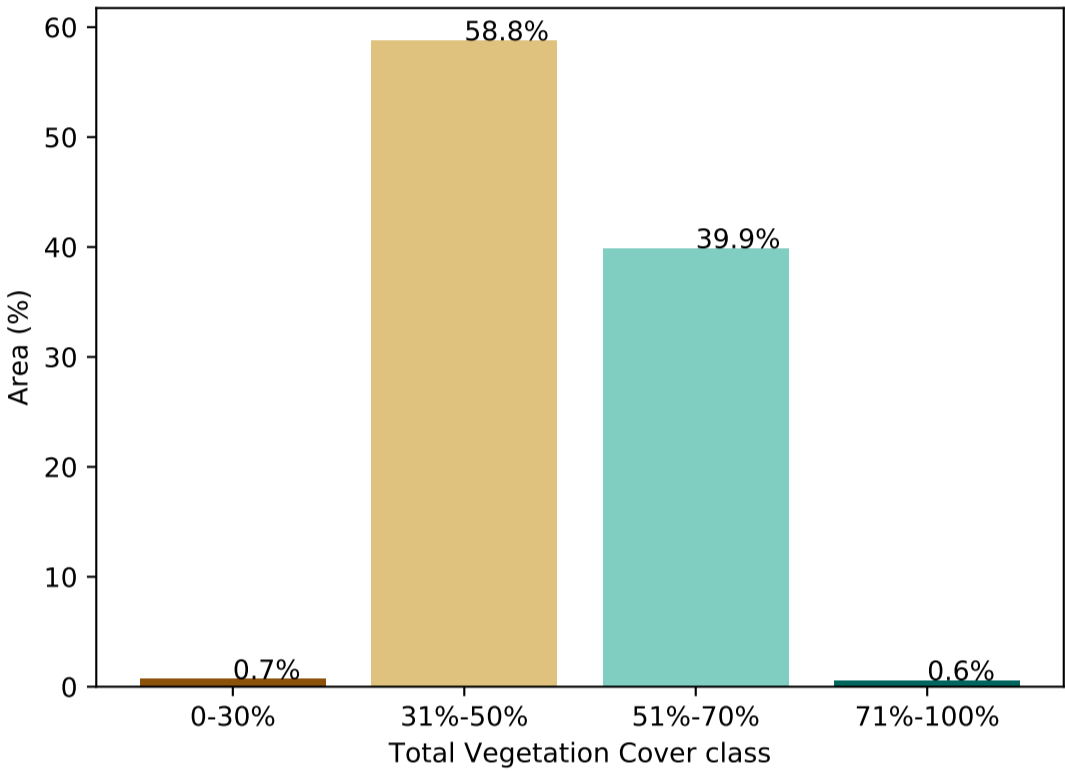
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



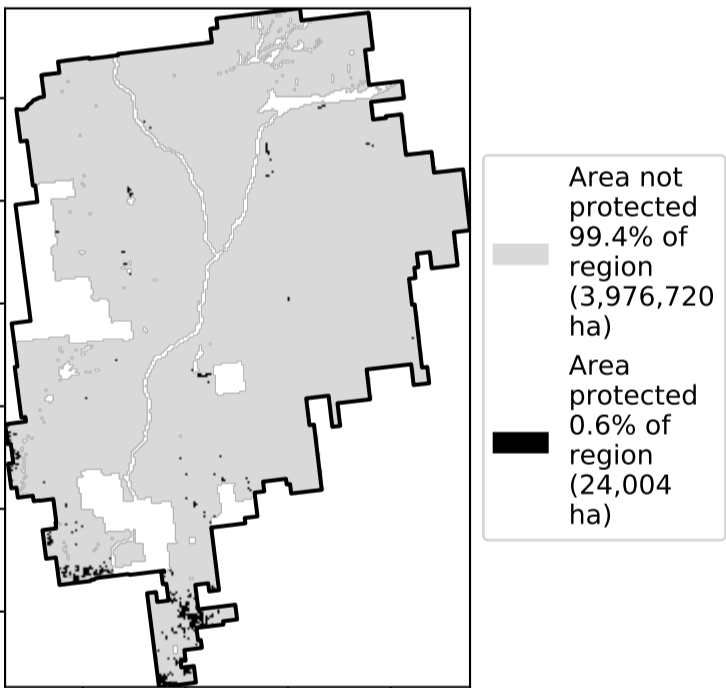
Total Vegetation Cover [%]



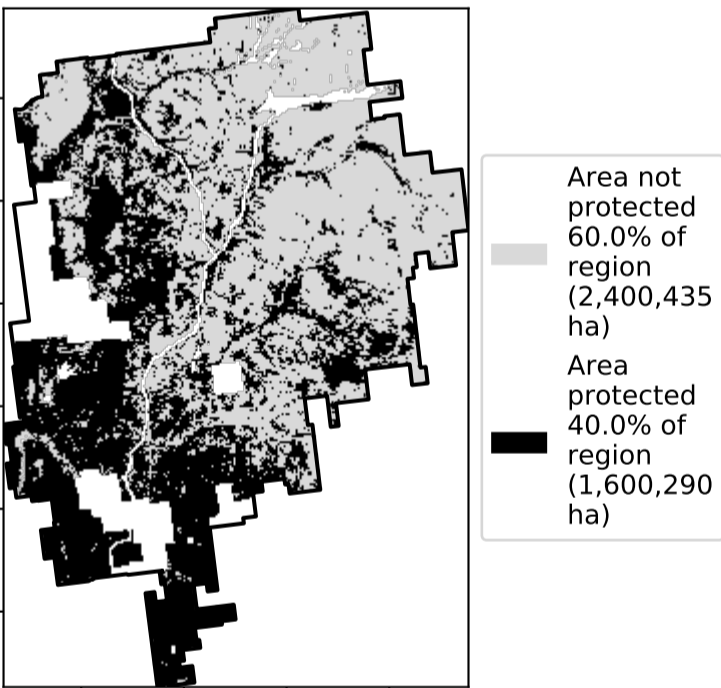
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

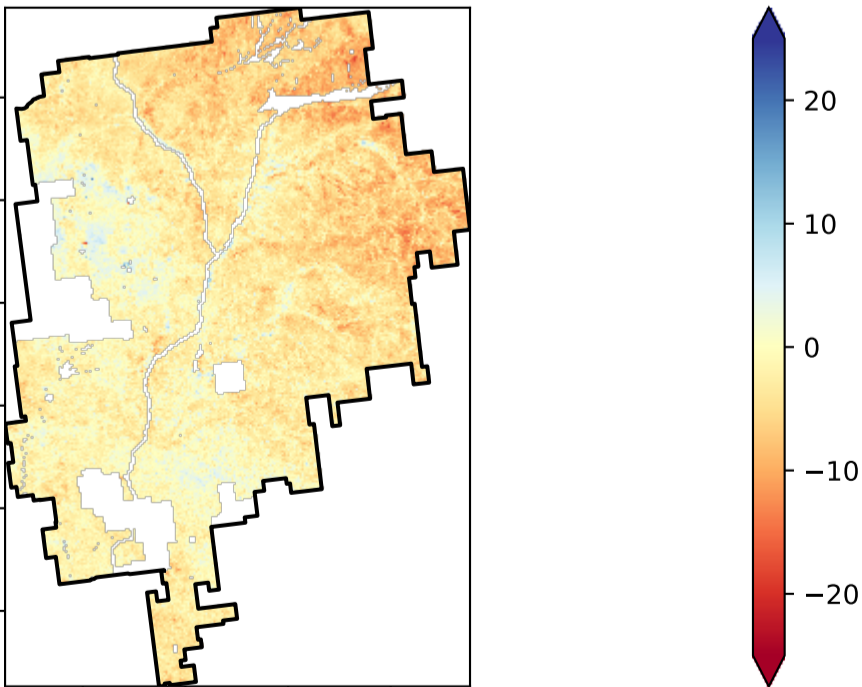


% Area protected from wind erosion (>50%)



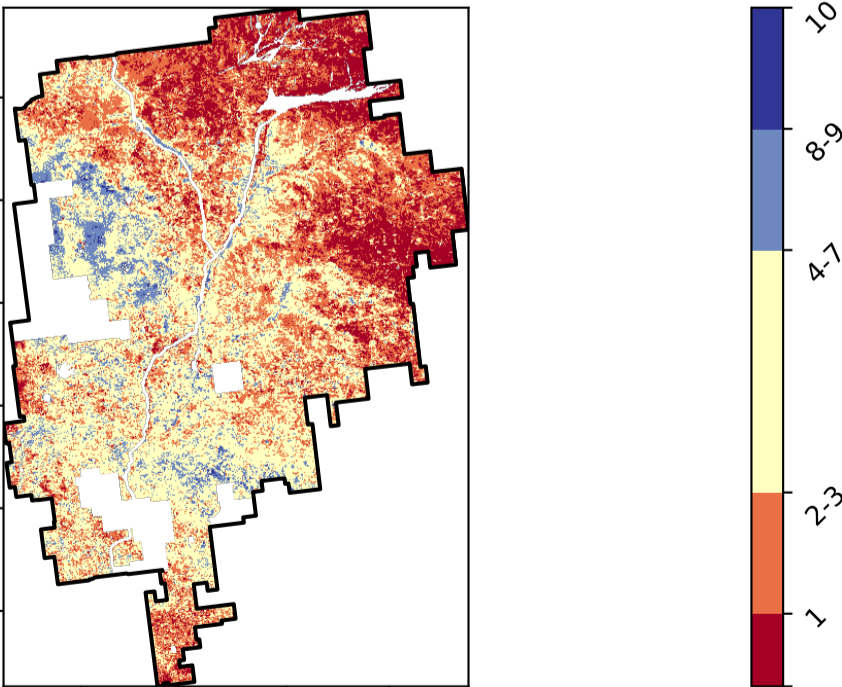
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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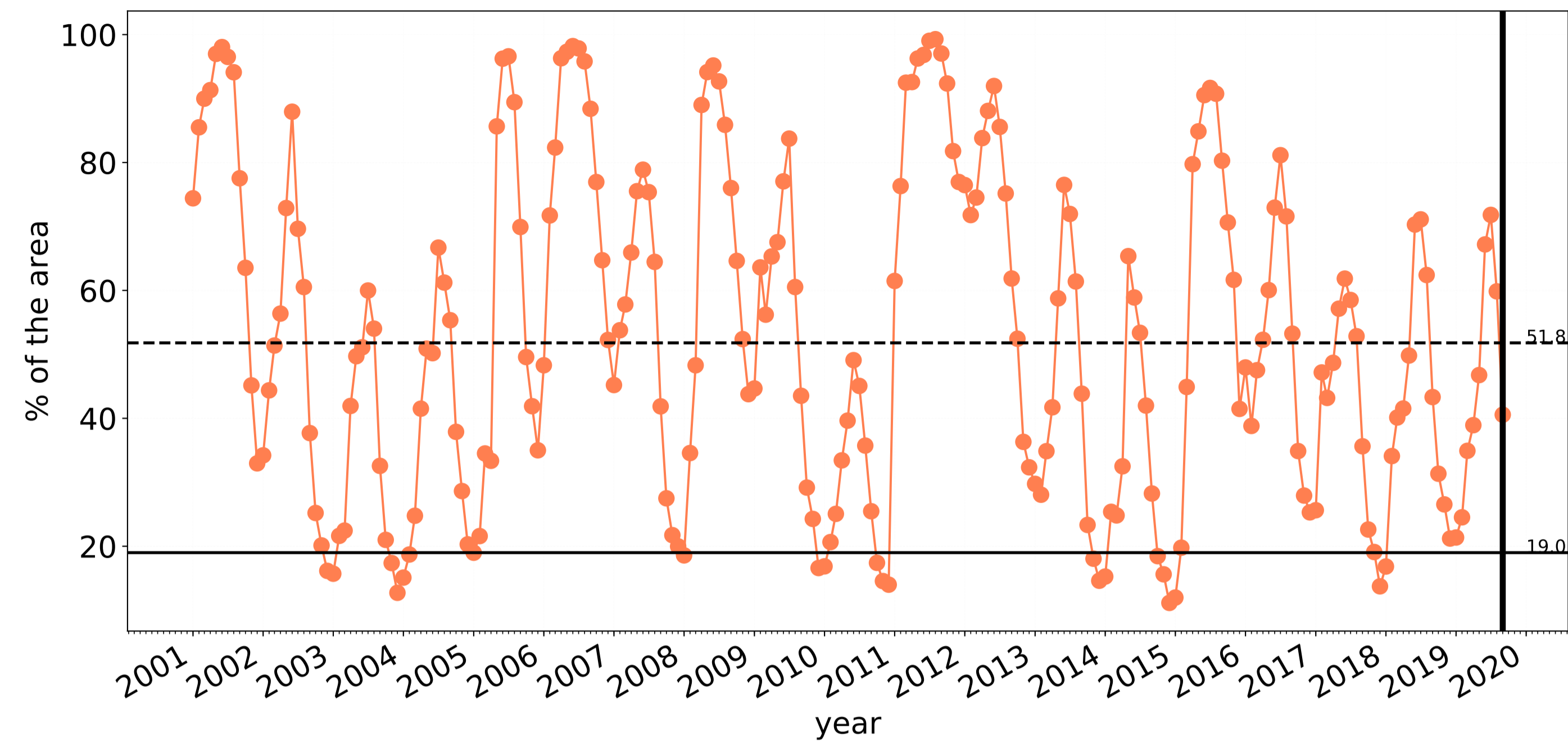
National Landcare Programme



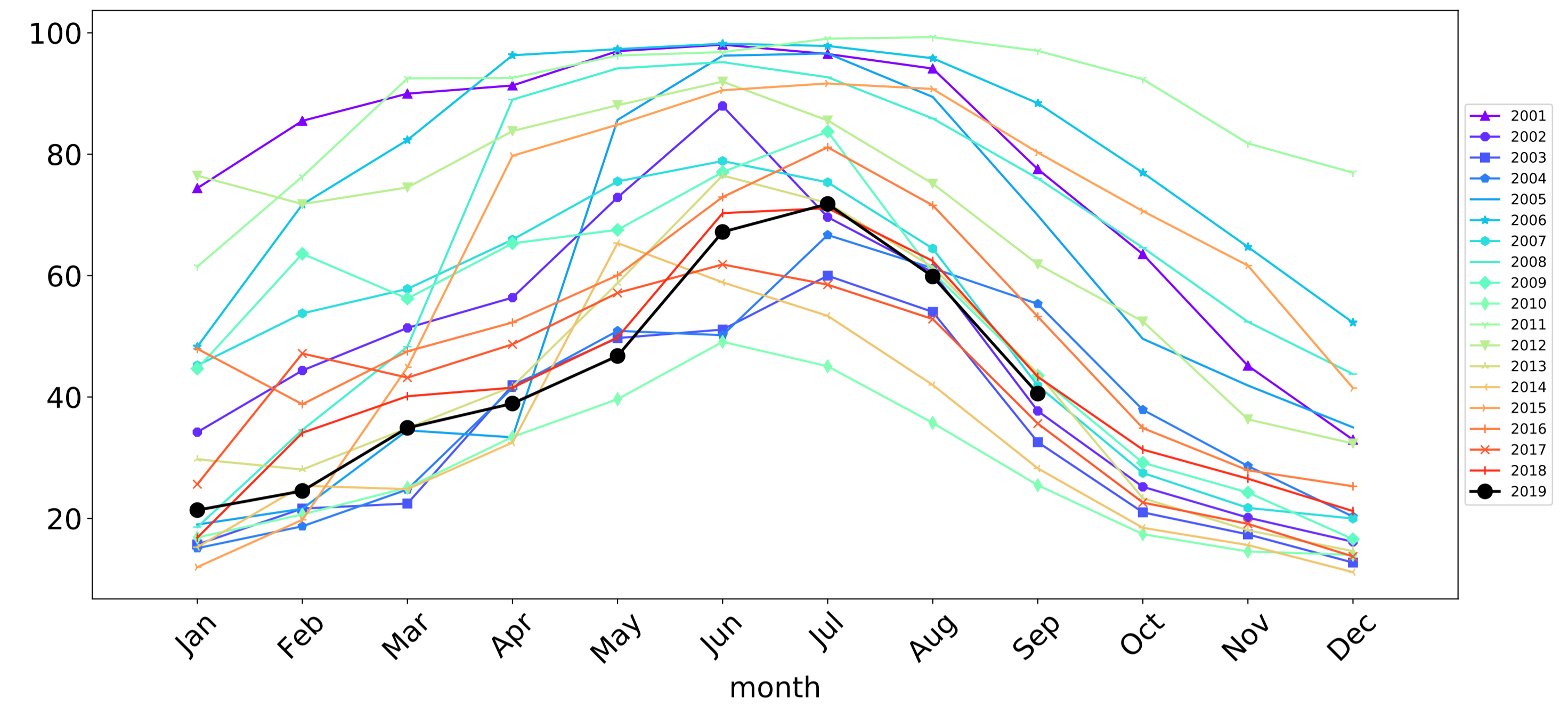
Planning, Industry & Environment

# Agriculture timeseries

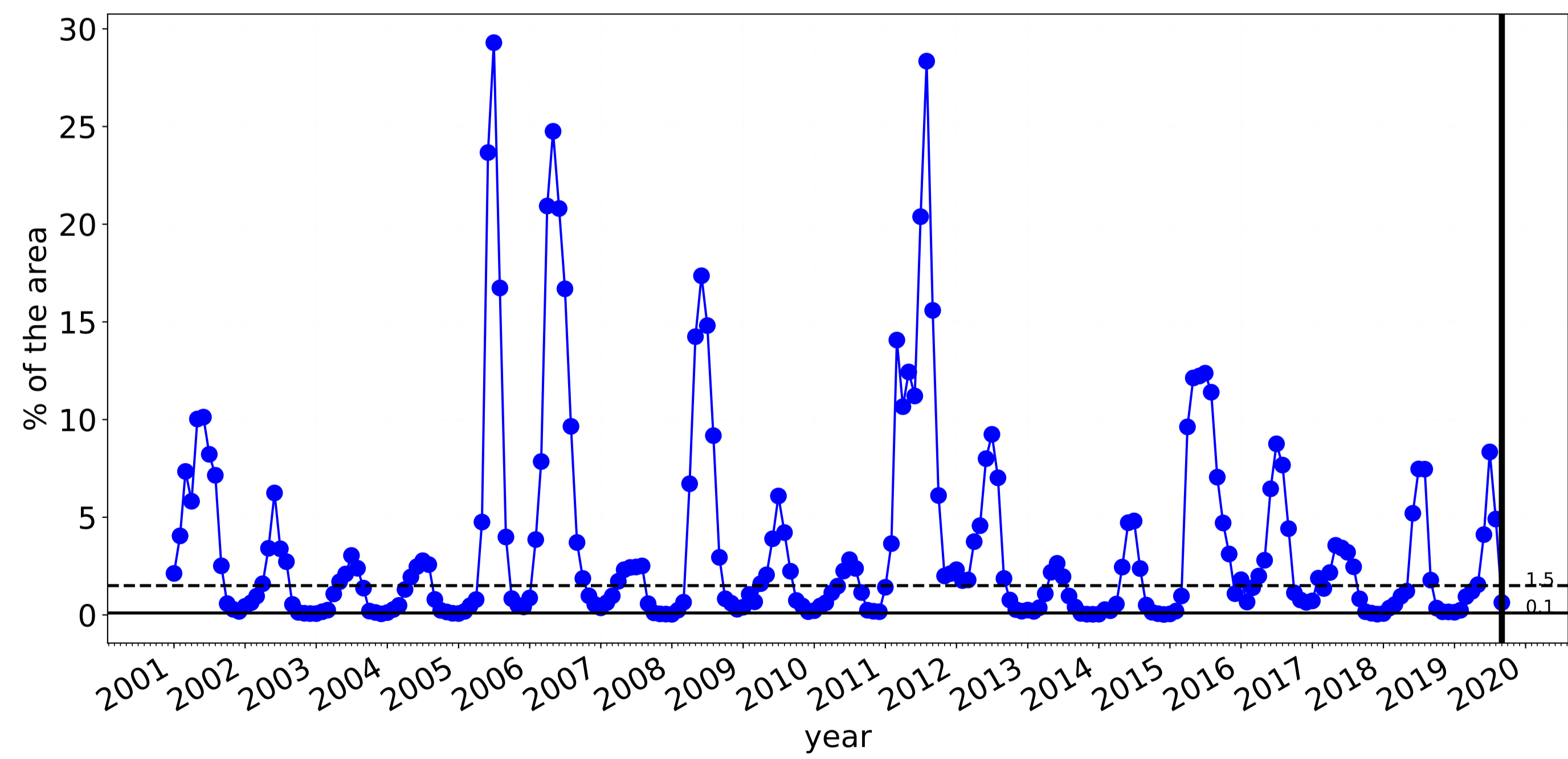
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



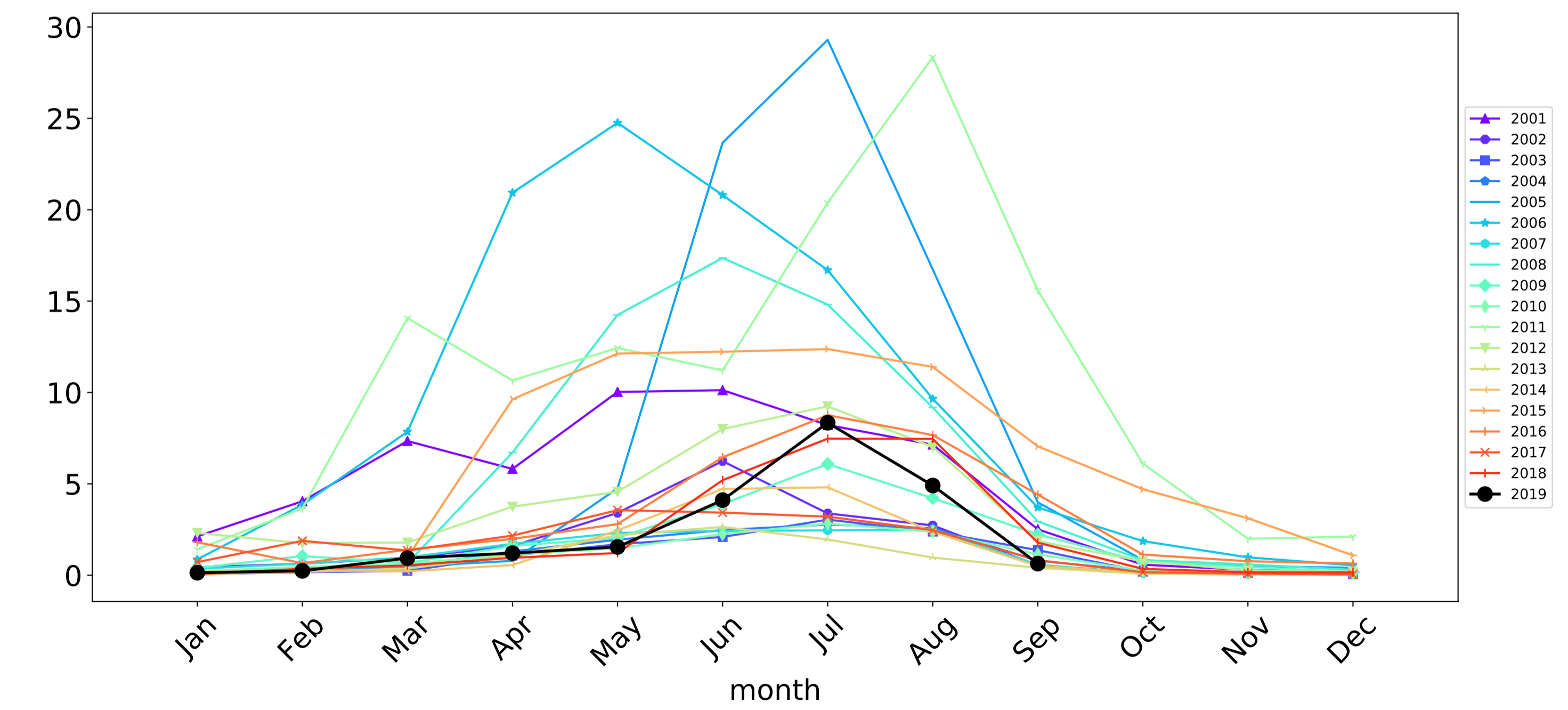
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



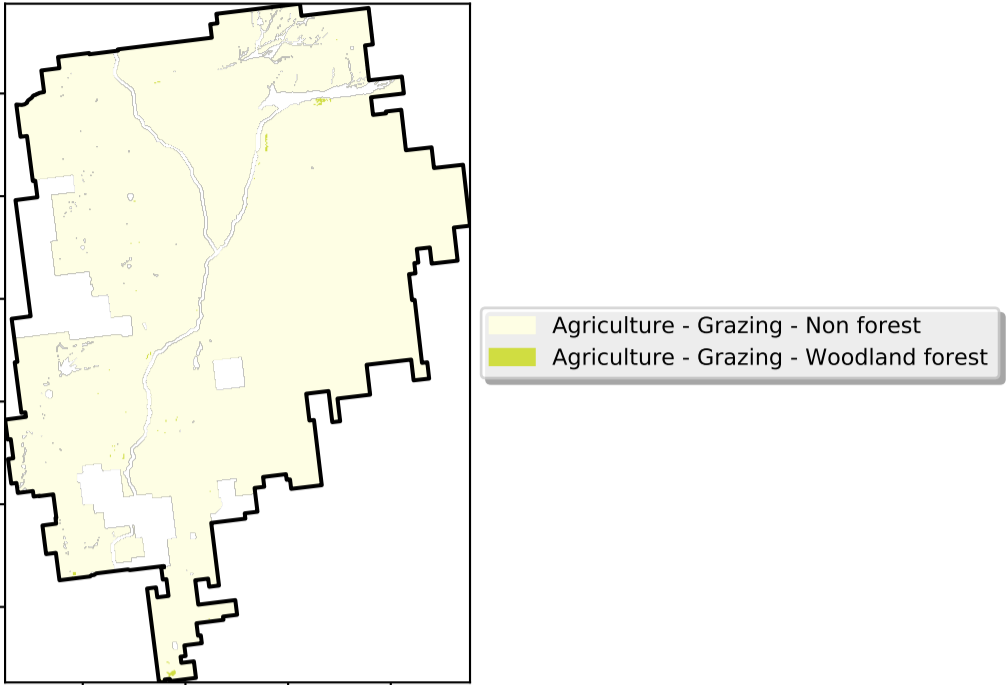
Water erosion historical monthly area protected (Total Veg Cov>70%)



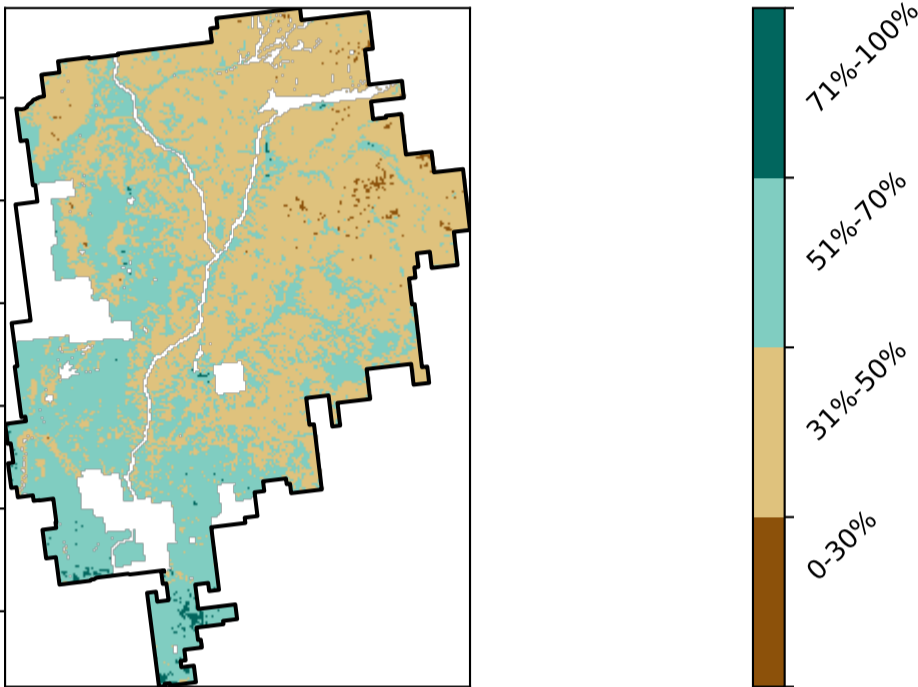
# Grazing

Land use and forest cover

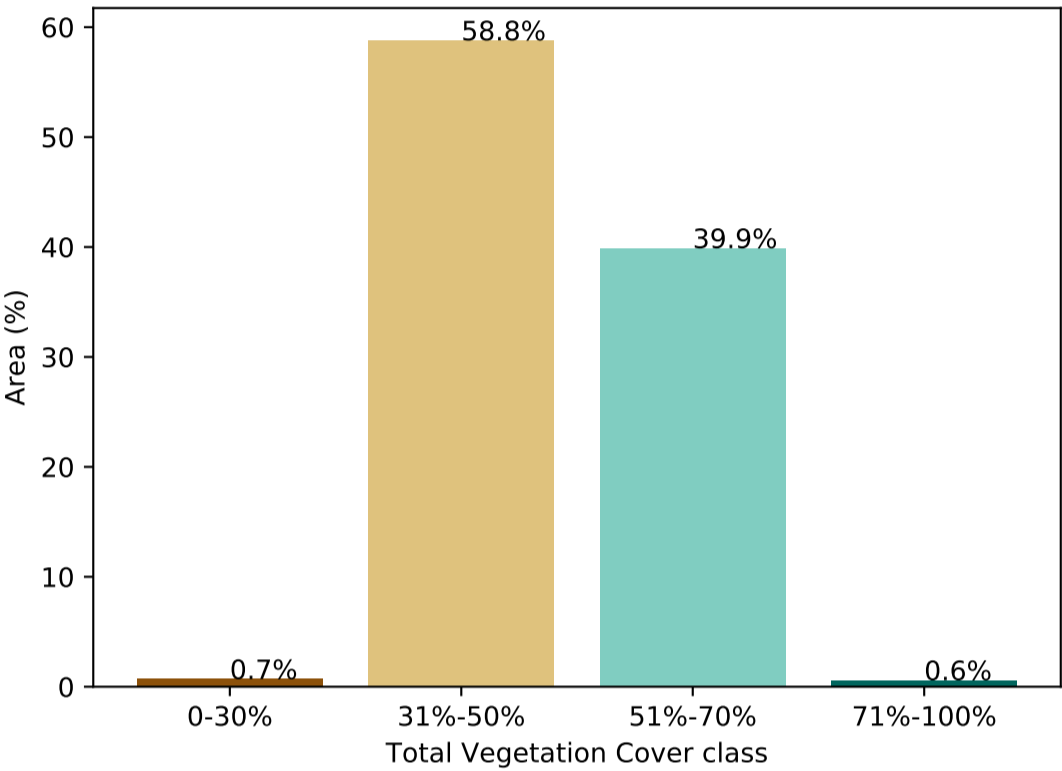
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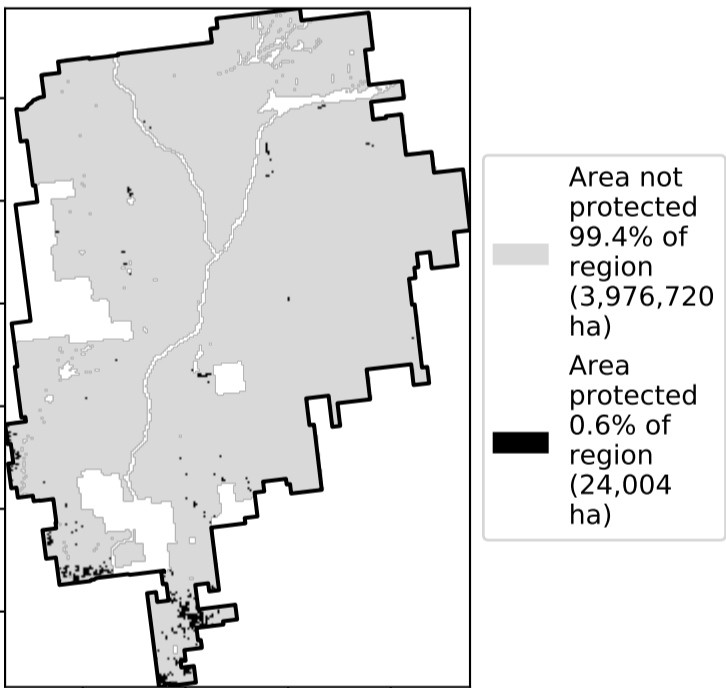
Total Vegetation Cover [%]



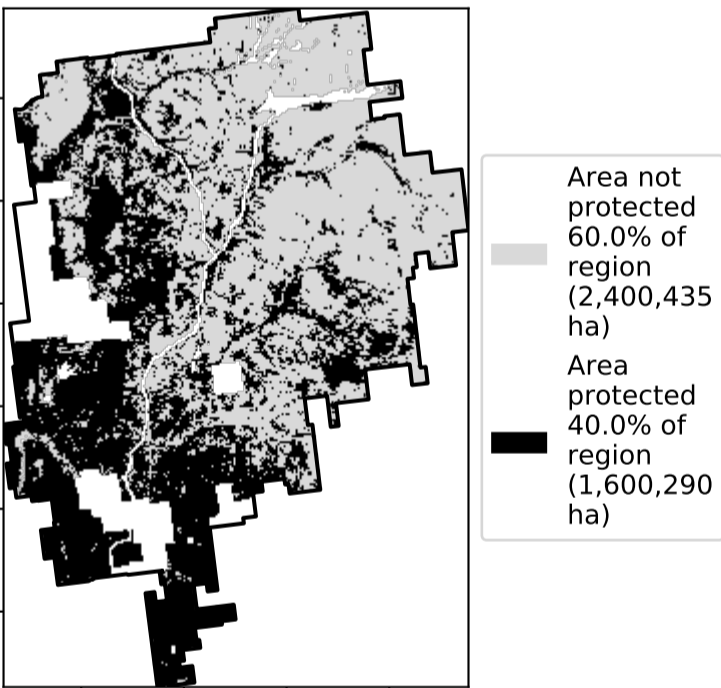
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

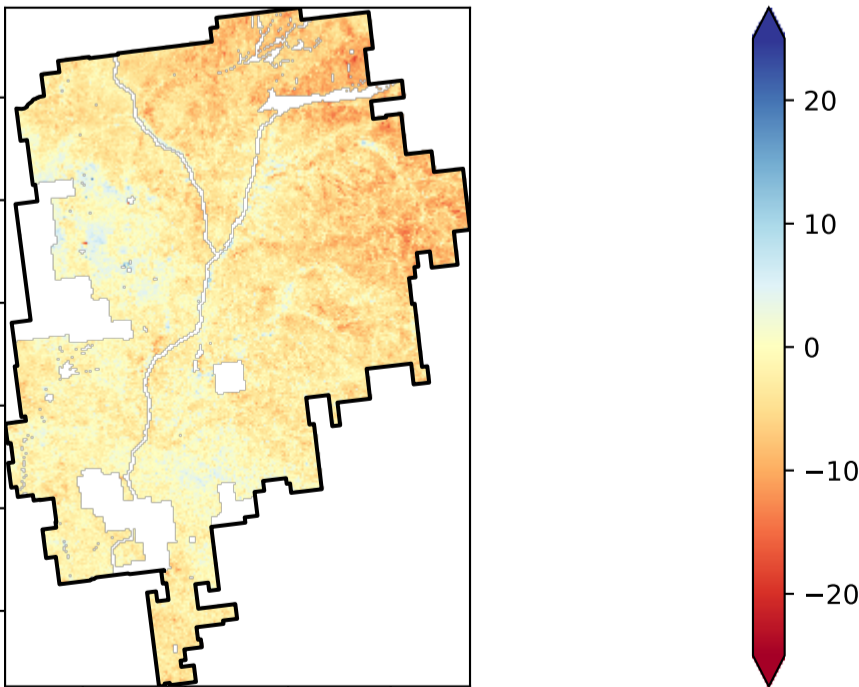


% Area protected from wind erosion (>50%)



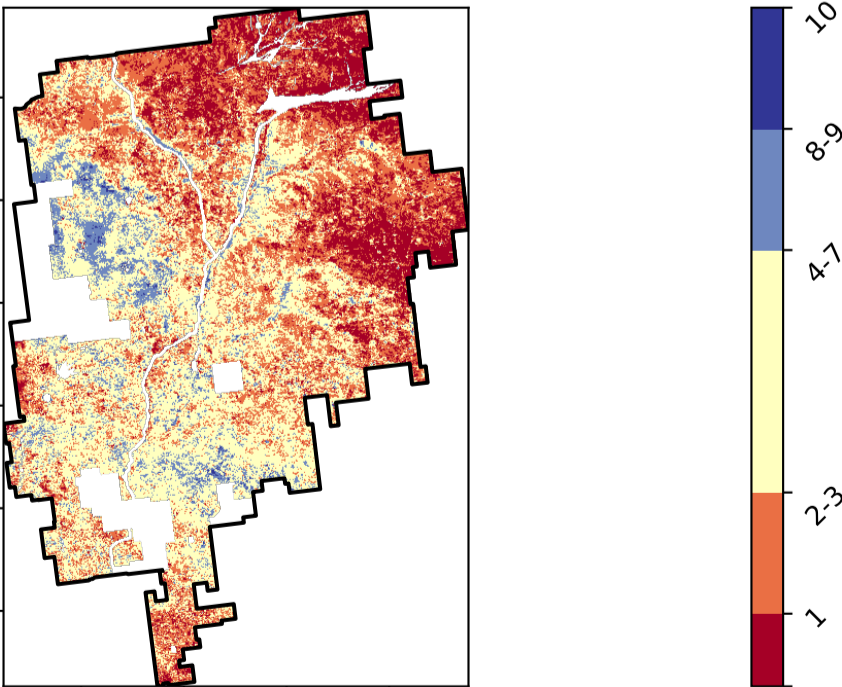
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Total Vegetation Cover Decile [%]



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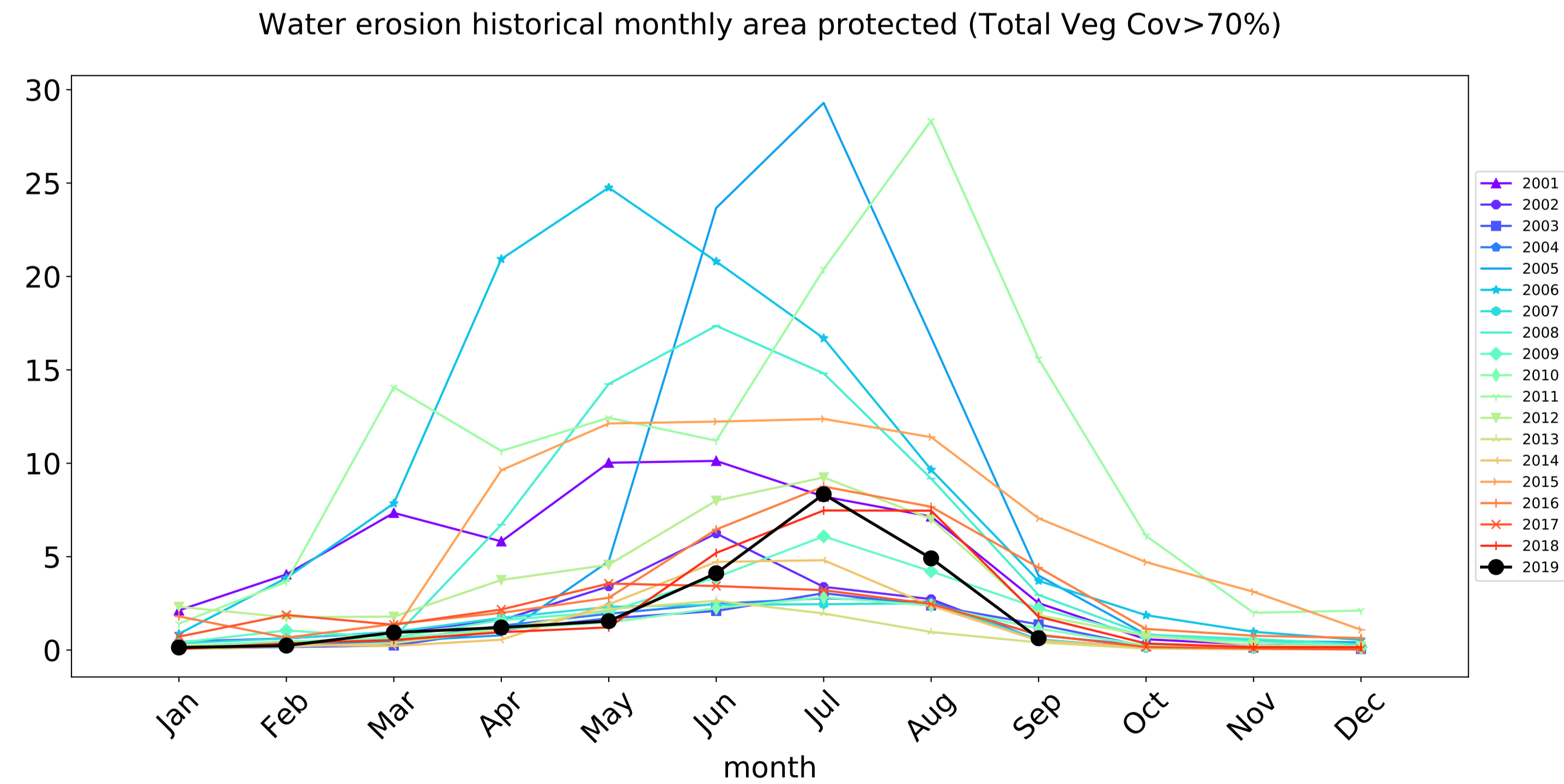
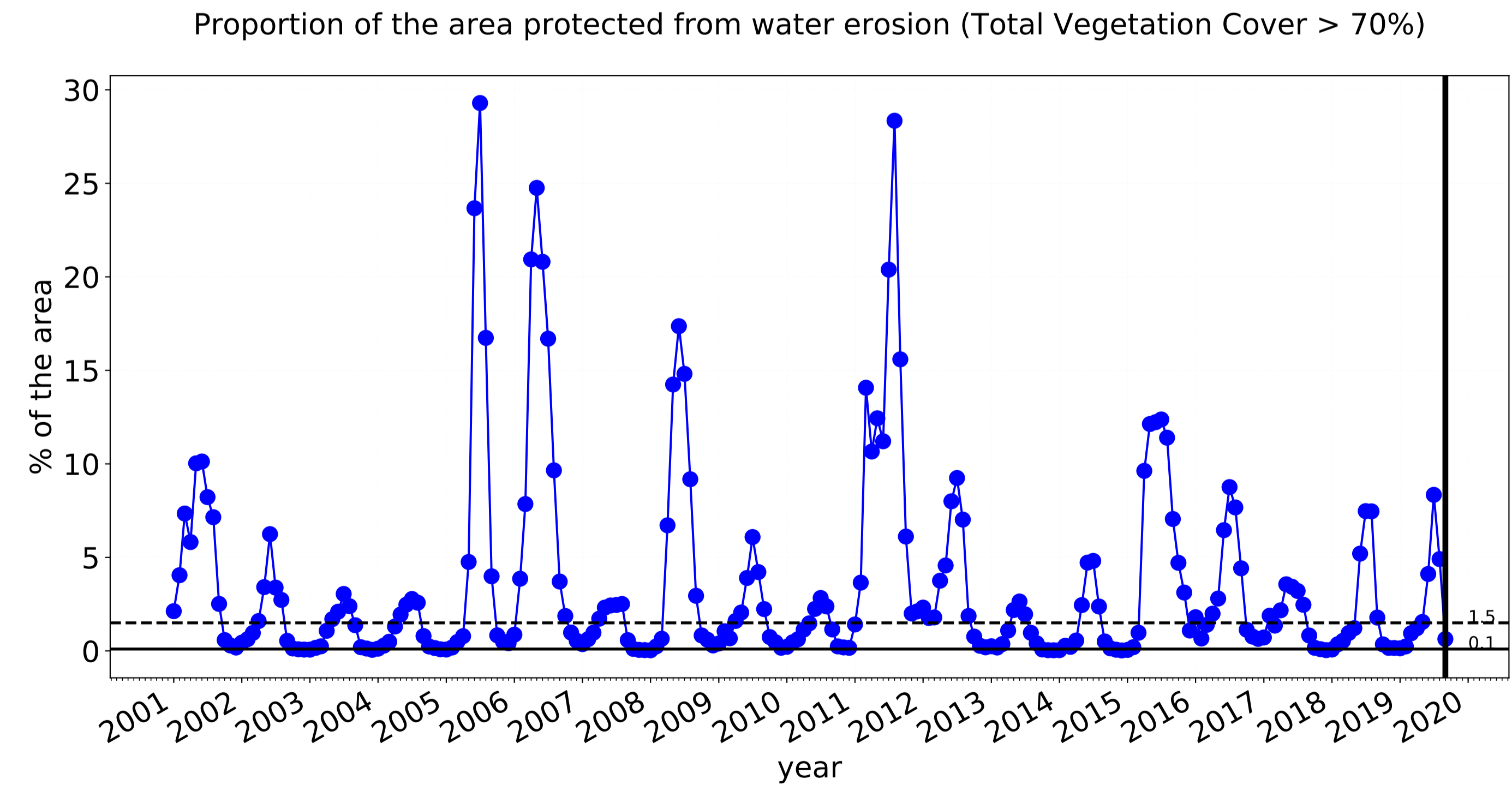
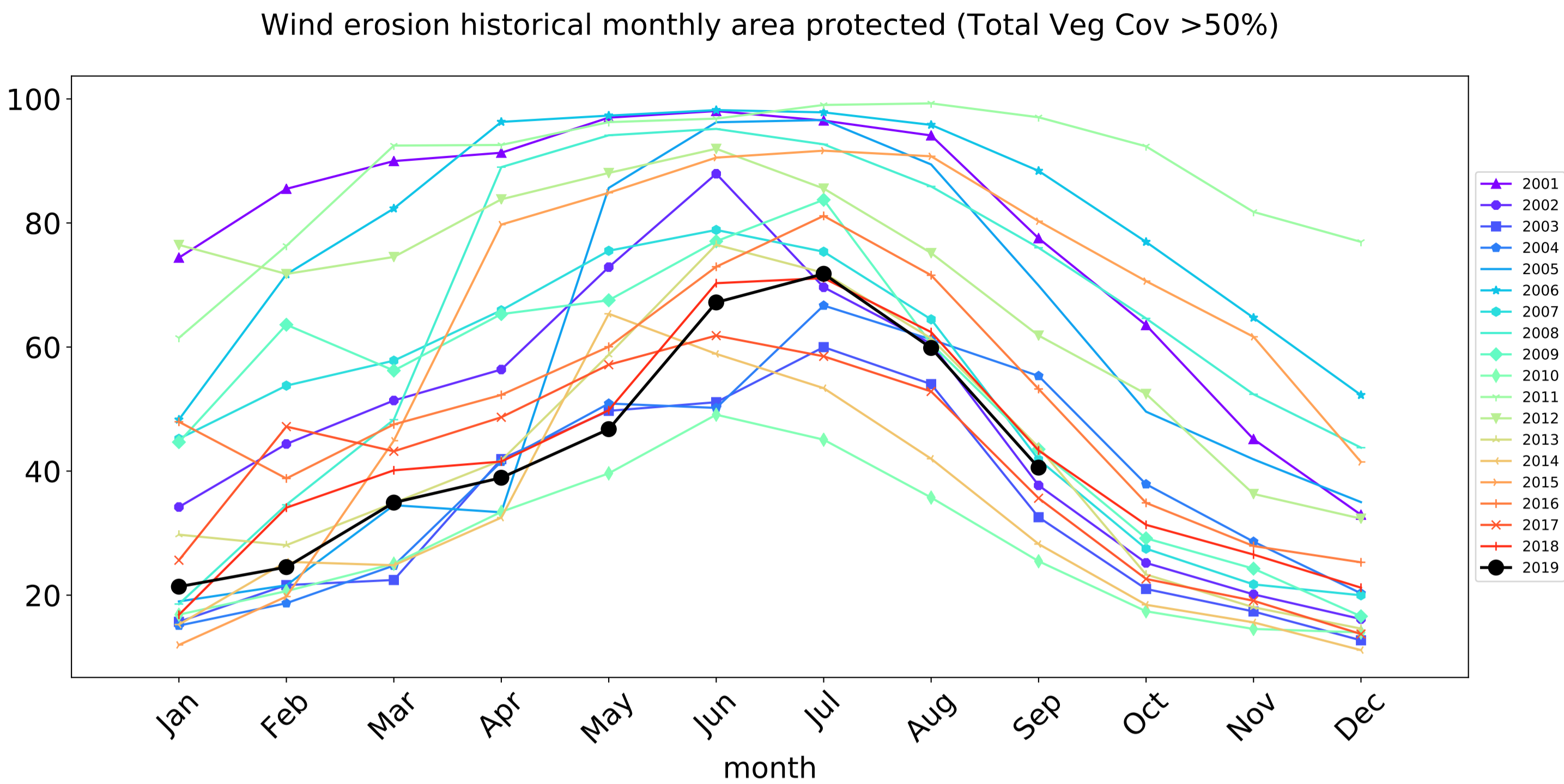
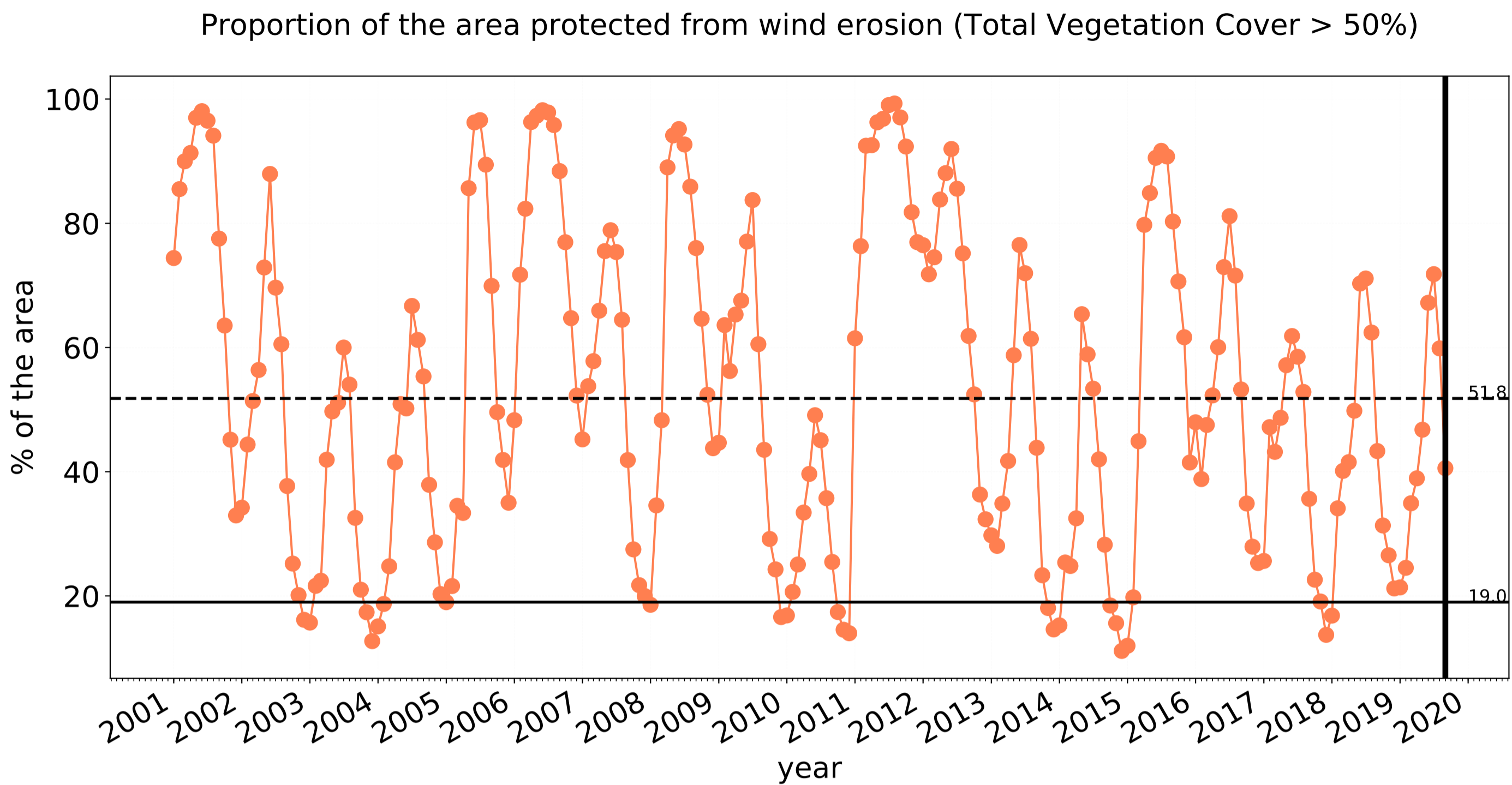


National  
Landcare  
Programme



Planning,  
Industry &  
Environment

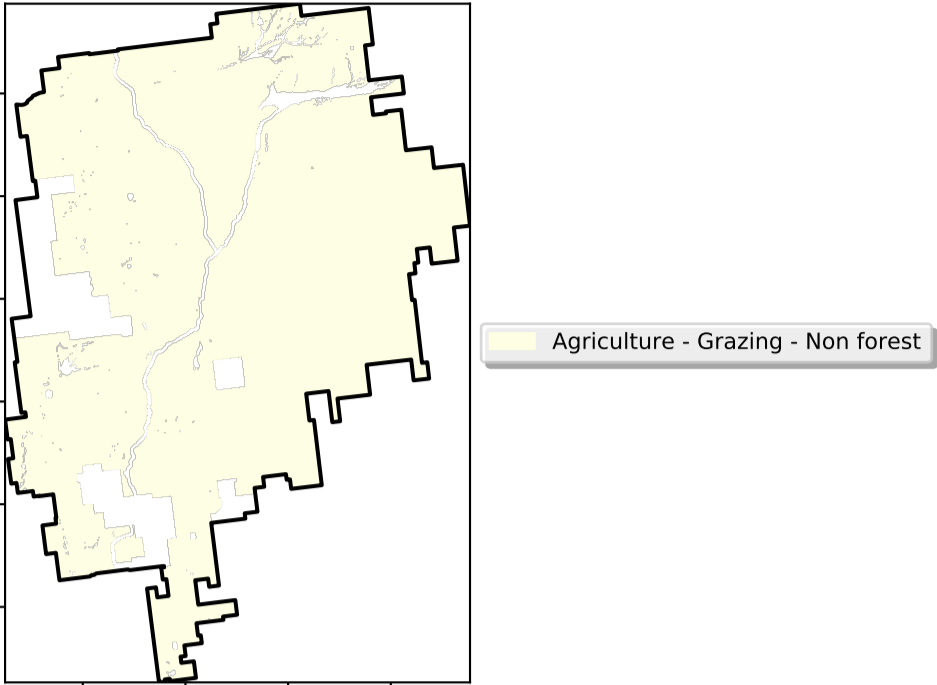
Grazing timeseries



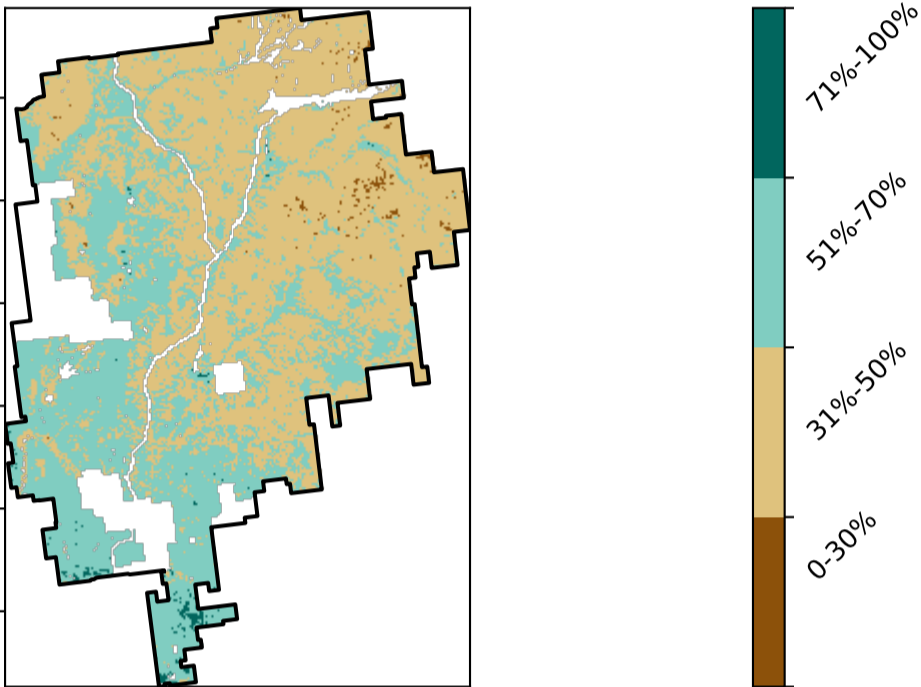
Grazing non forest

Land use and forest cover

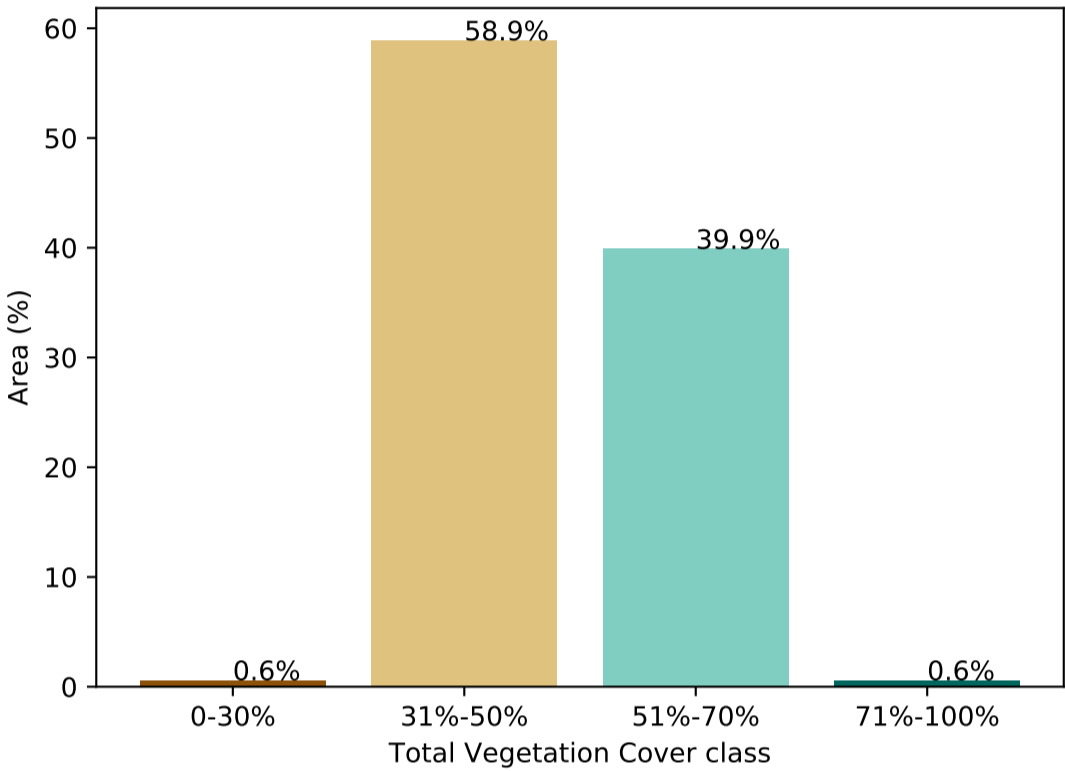
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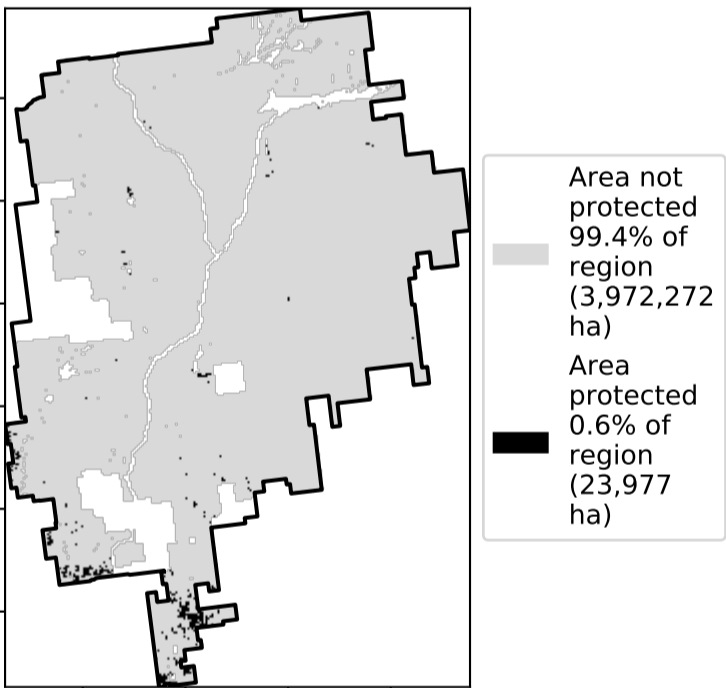
Total Vegetation Cover [%]



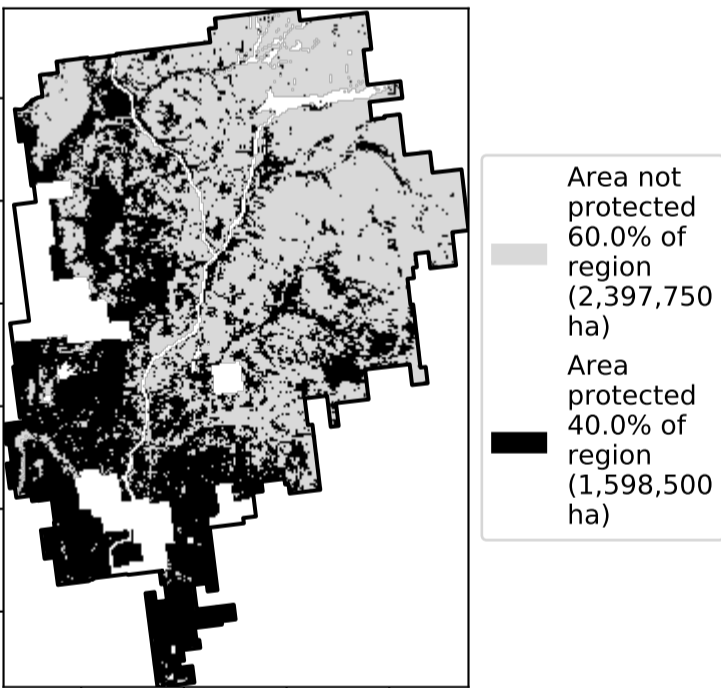
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

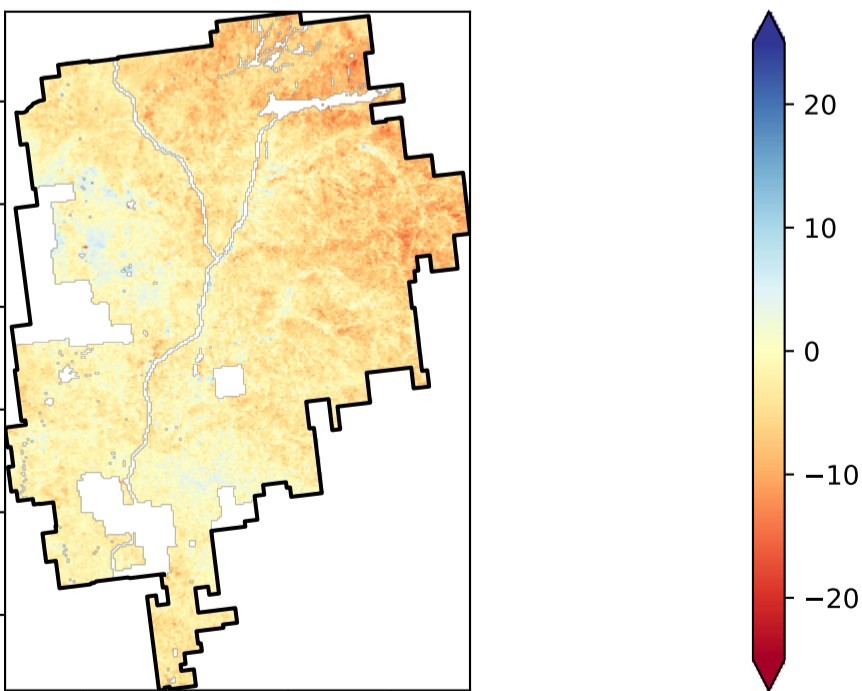


% Area protected from wind erosion (>50%)



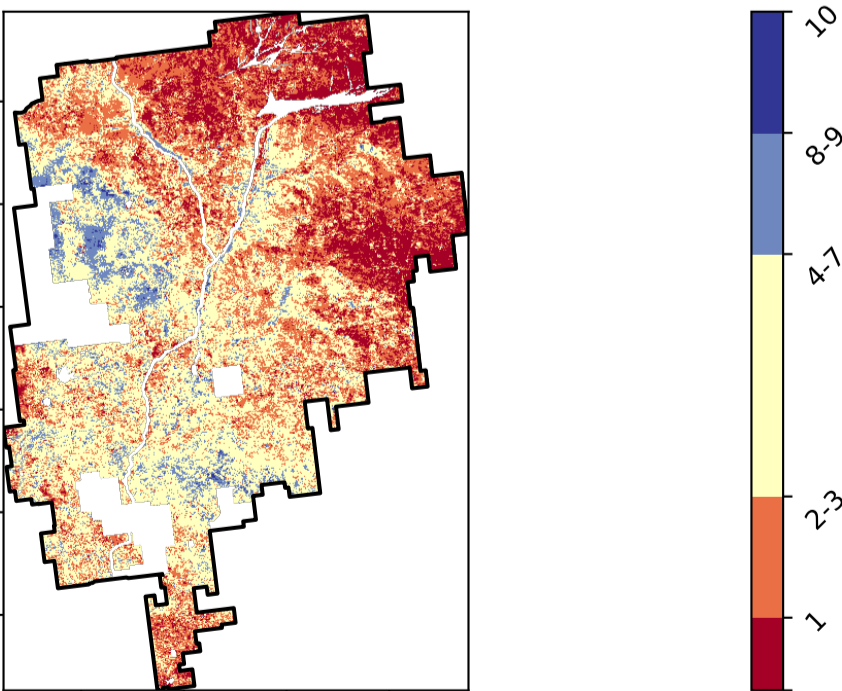
Total Vegetation Cover Anomaly [%]

Anomaly show how many percentage 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.



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.

Total Vegetation Cover Decile [%]



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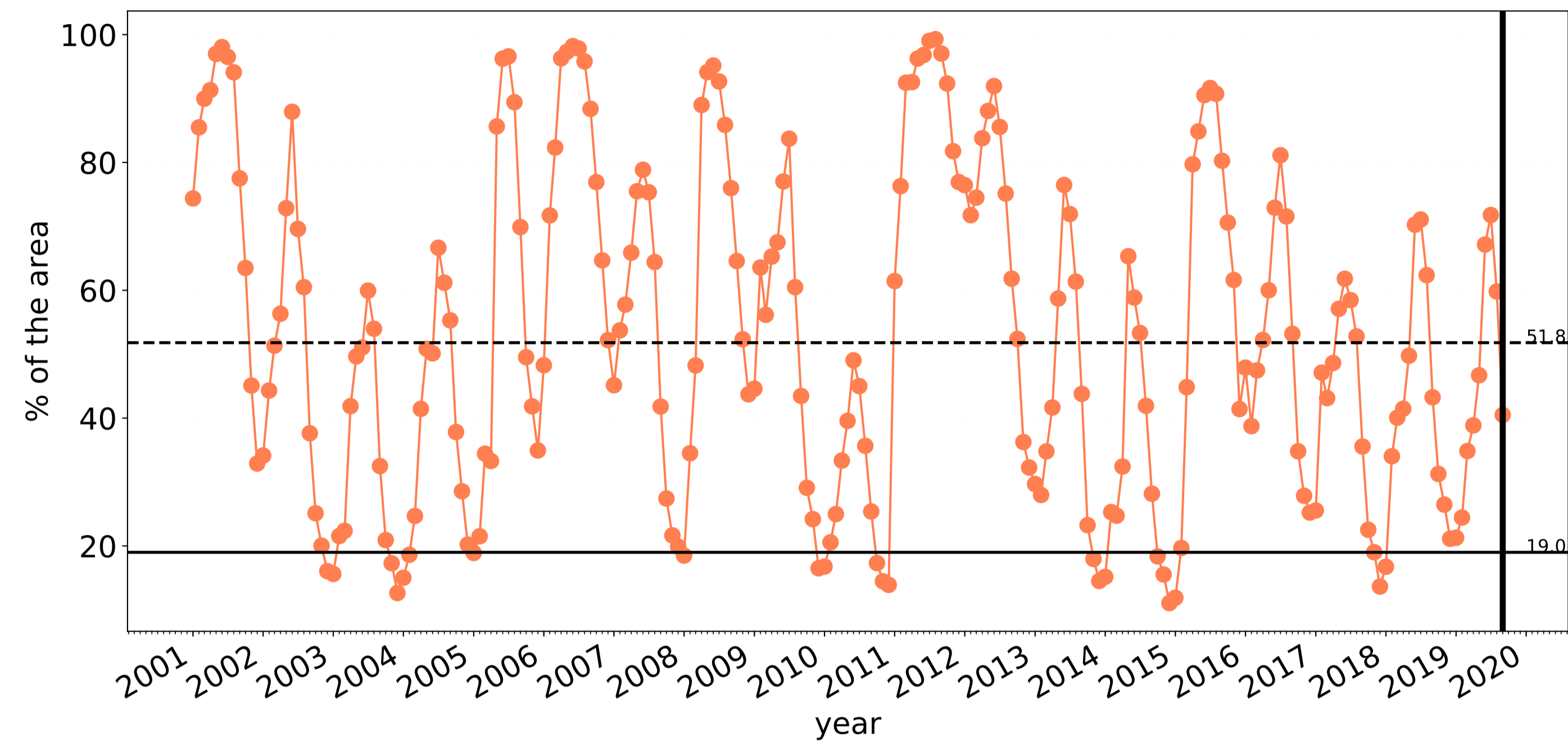
National Landcare Programme



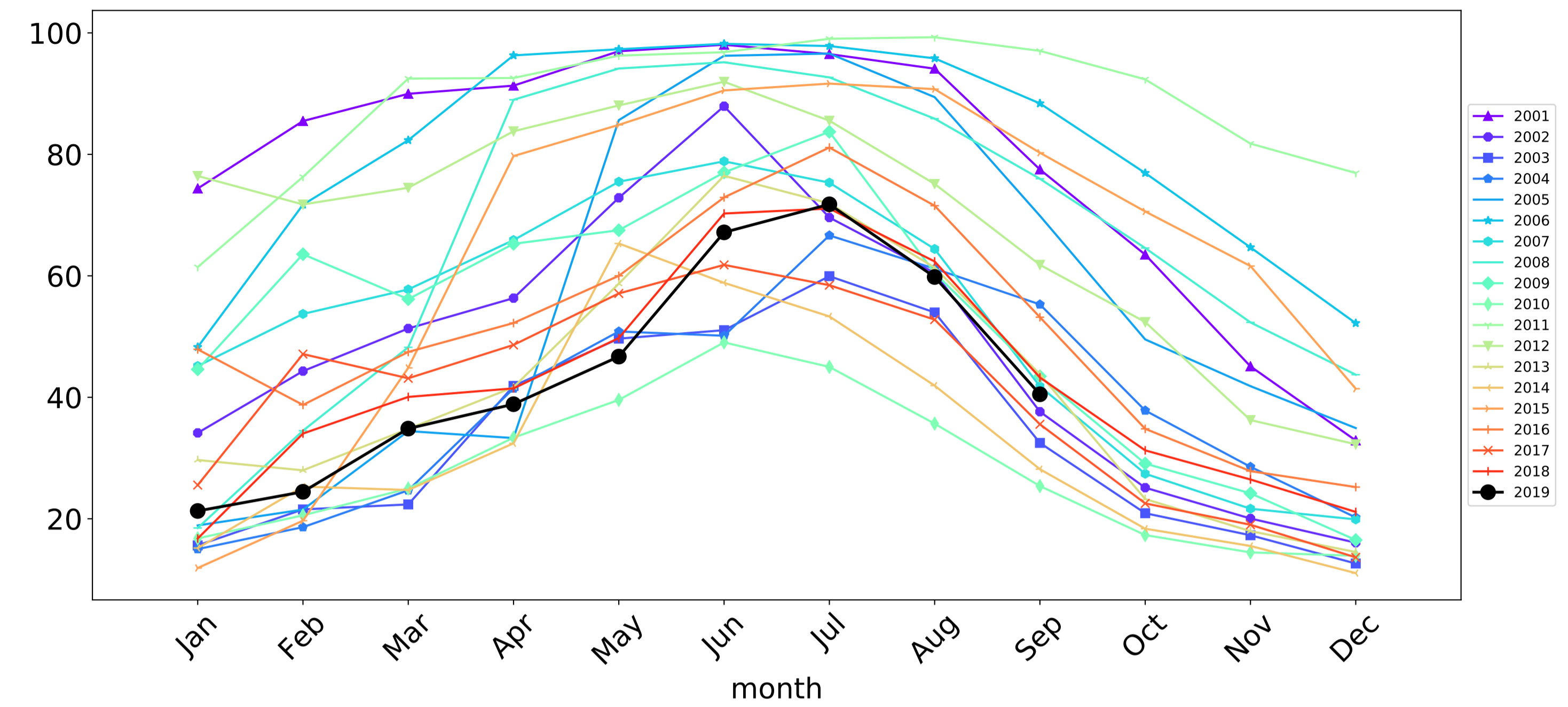
Planning, Industry & Environment

# Grazing non forest timeseries

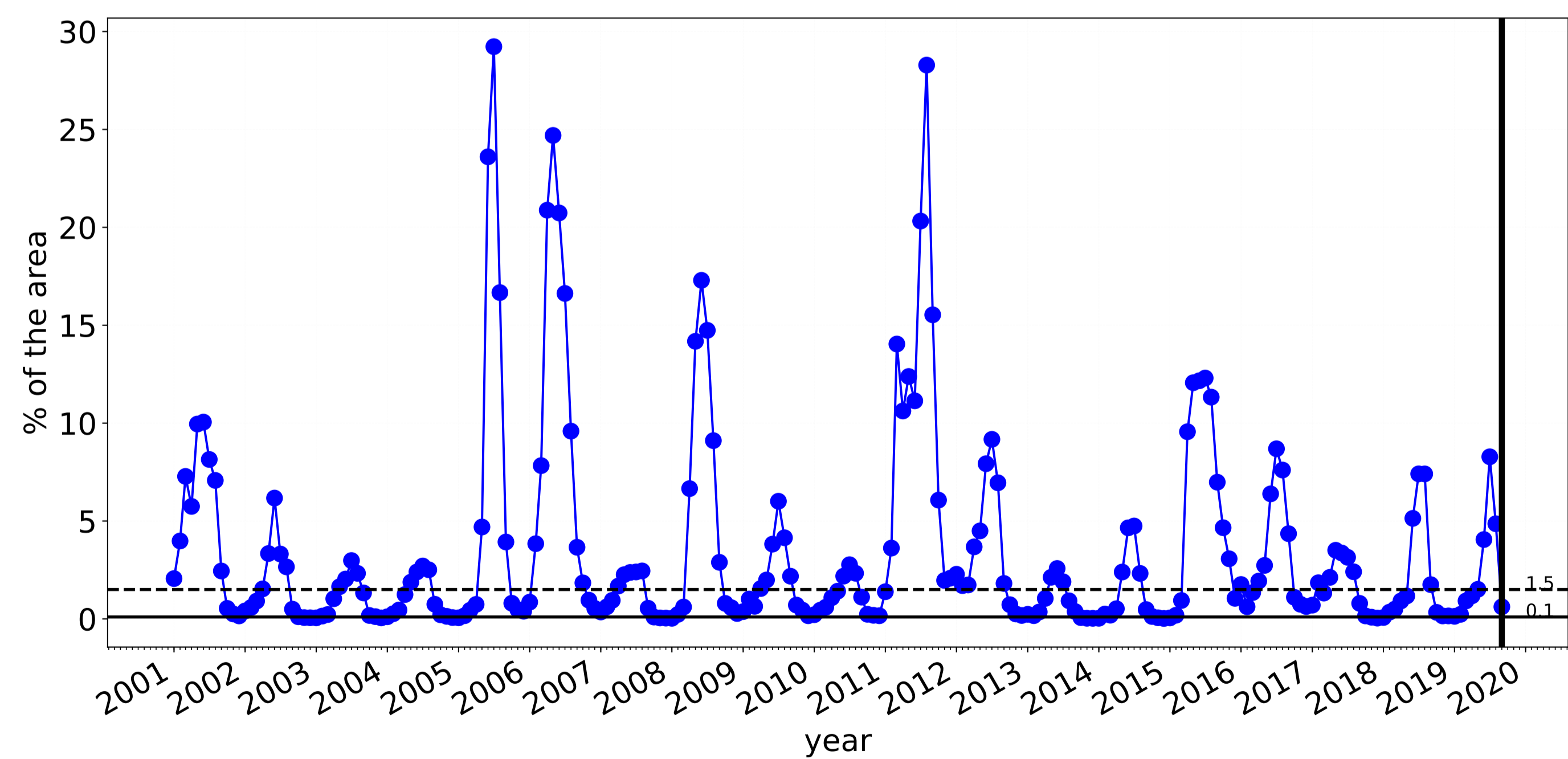
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



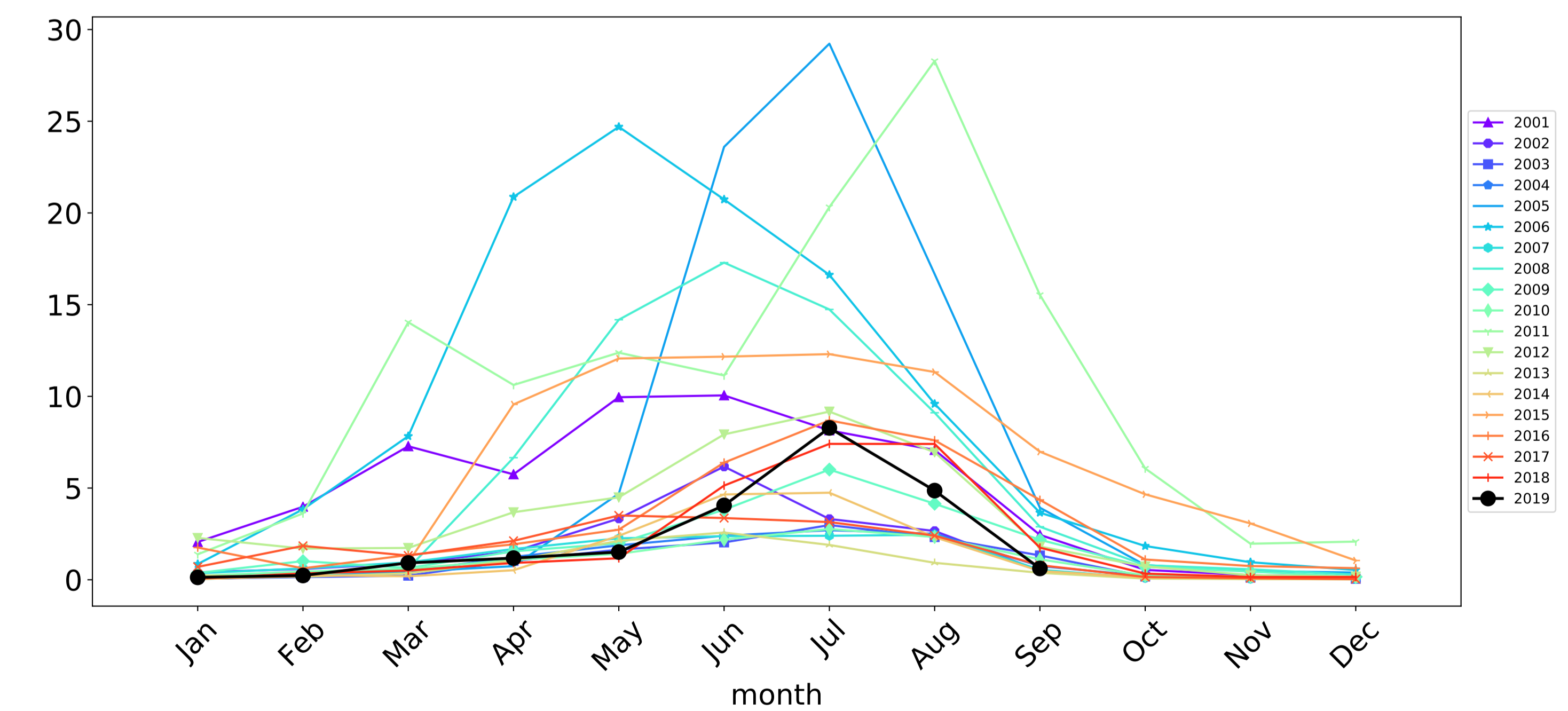
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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



Murchison\_(S) (4,501,350 ha and no data 3,321 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	4,501,350	99.4% 4,476,125	43.8% 1,969,700	0.6% 26,375	0.0% 50	0.0% 0	0.0% 0
Conservation and natural environments	427,628	99.9% 427,404	76.5% 327,235	0.2% 797	0.0% 0	0.0% 0	0.0% 0
Conservation and natural environments non forest	427,628	99.9% 427,403	76.5% 326,930	0.2% 699	0.0% 0	0.0% 0	0.0% 0
Agriculture	3,997,198	99.4% 3,972,995	40.6% 1,621,469	0.6% 25,327	0.0% 49	0.0% 0	0.0% 0
Grazing	3,997,198	99.4% 3,972,995	40.6% 1,621,469	0.6% 25,327	0.0% 49	0.0% 0	0.0% 0
Grazing non forest	3,992,697	99.4% 3,968,493	40.5% 1,616,986	0.6% 24,678	0.0% 24	0.0% 0	0.0% 0



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