Total vegetation cover soil protection Region:LGA Logan_(C) QLD

Date: February 2021

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 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:

- 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:

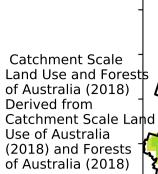
https://doi.org/10.4225/08/5848a3f19a7b3

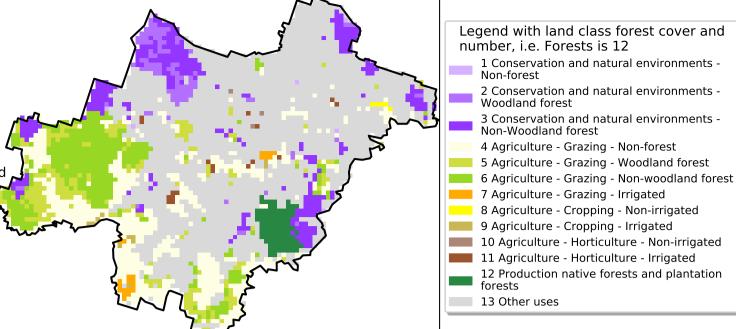


Vegetation Cover Feb 2021

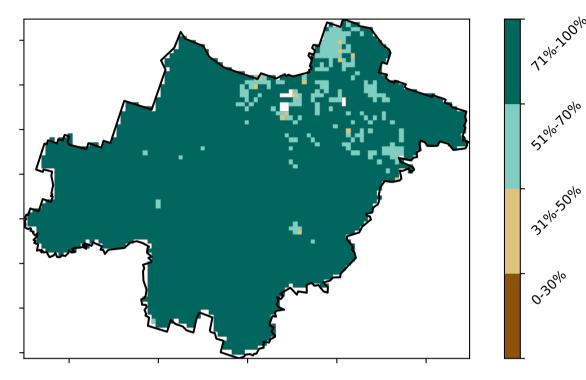
Land use and forest cover

Proportion of each land class in area

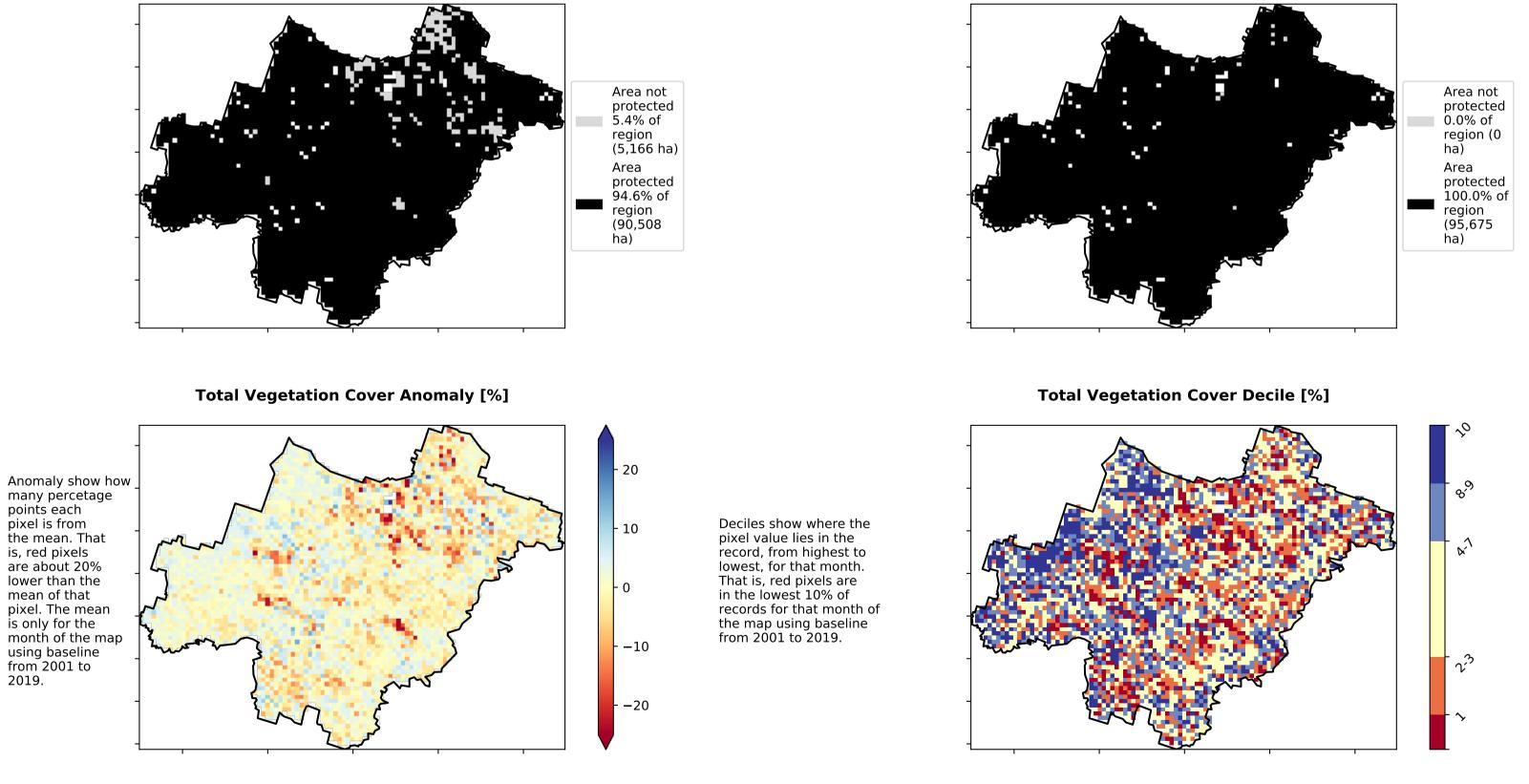


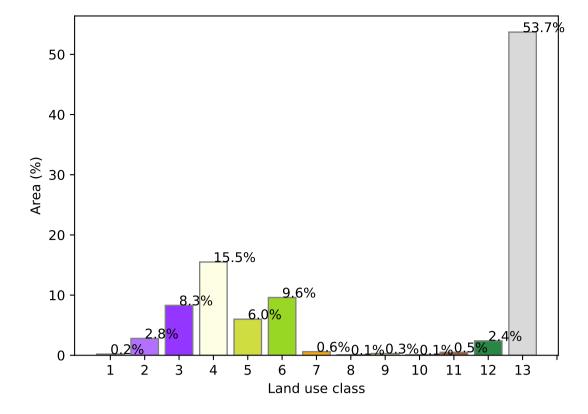


Total Vegetation Cover [%]

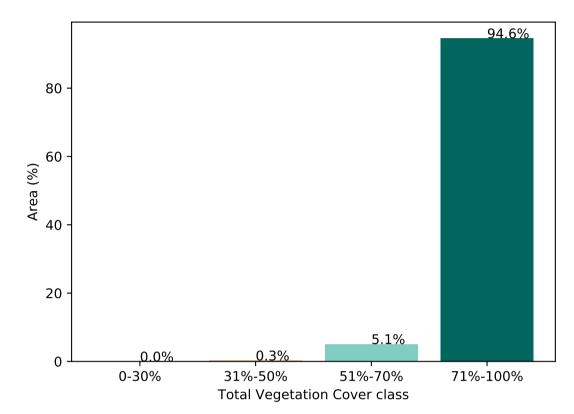


% Area protected from water erosion (>70%)

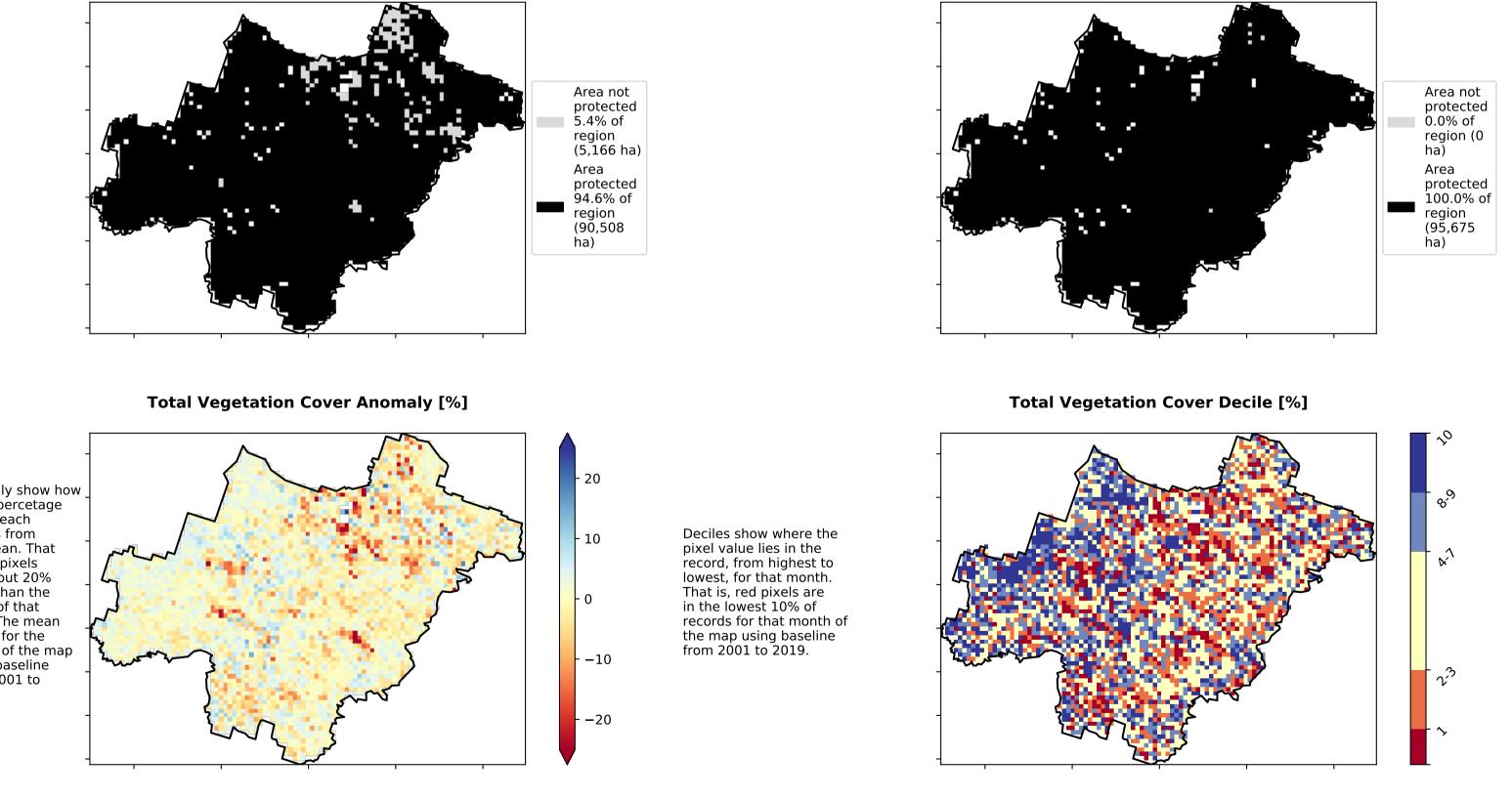




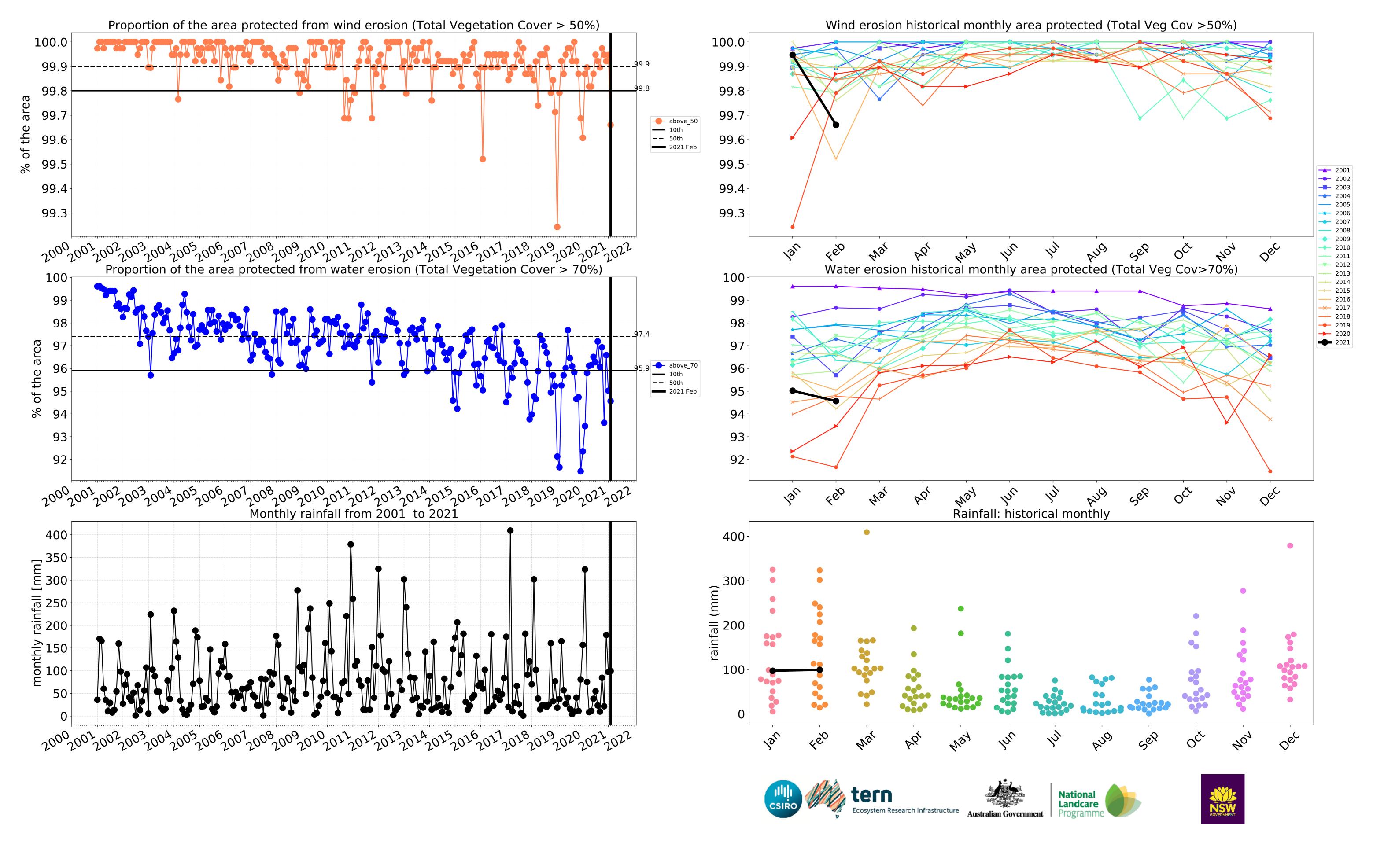
Proportion of vegetation cover class in area

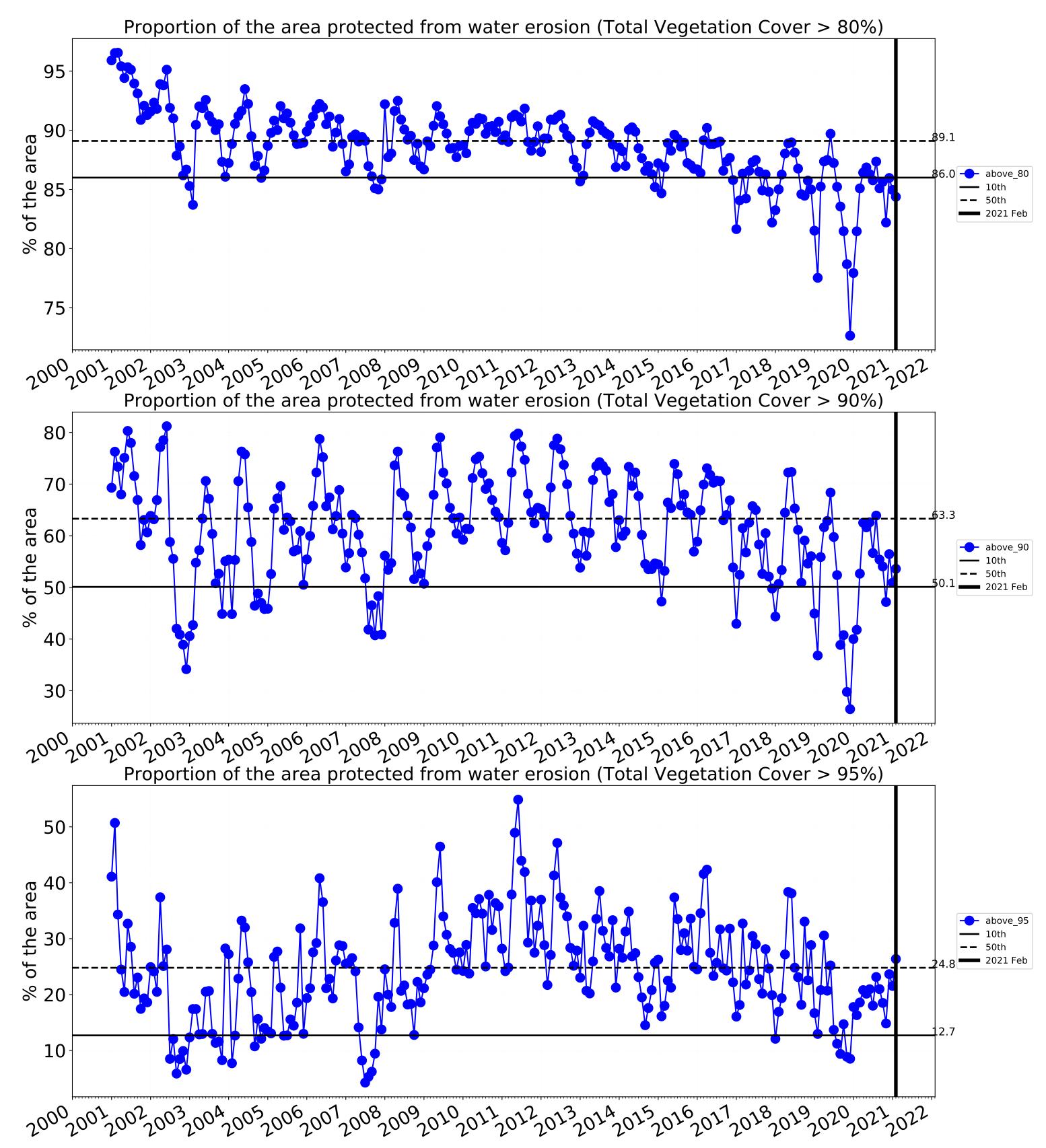


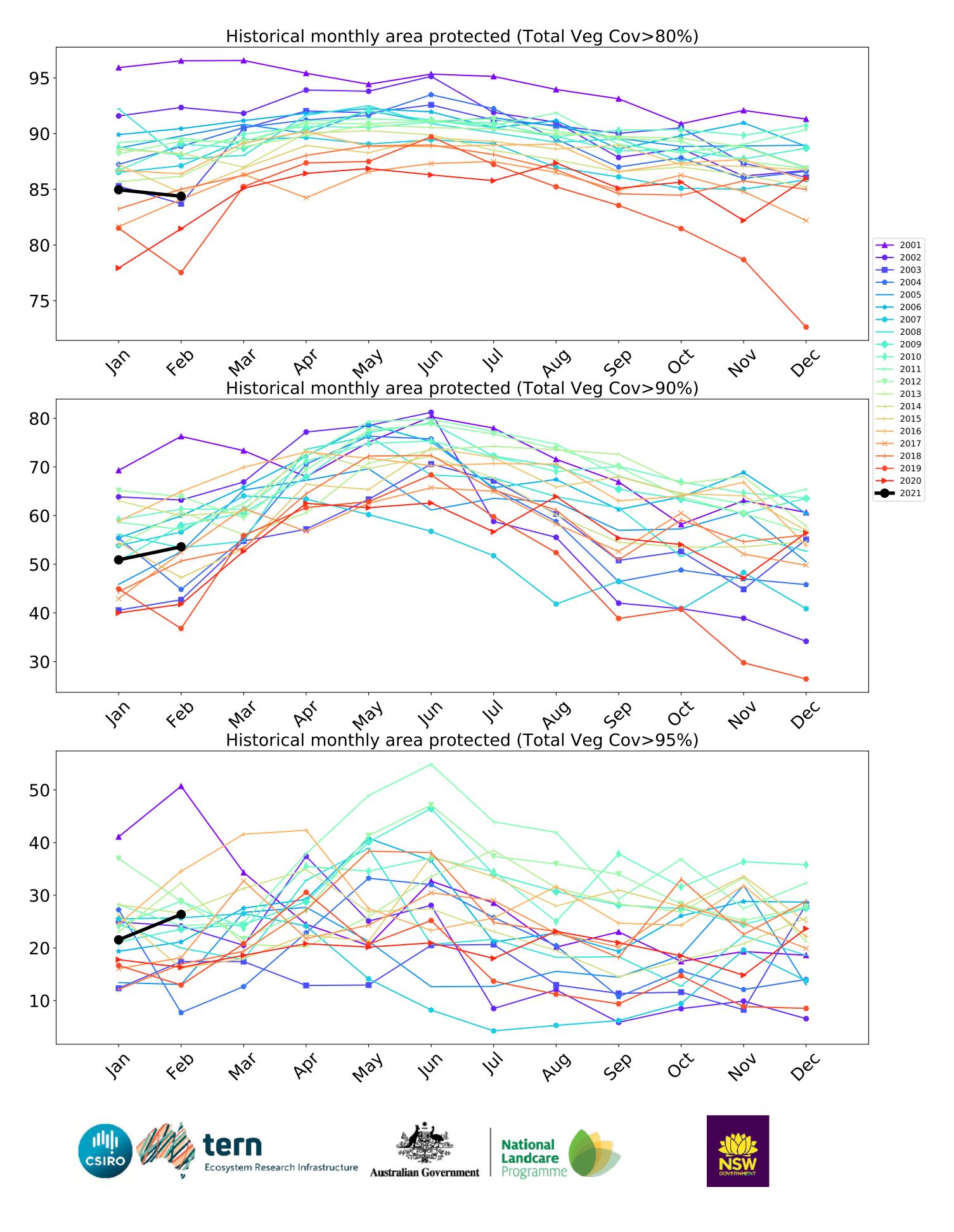
% Area protected from wind erosion (>50%)



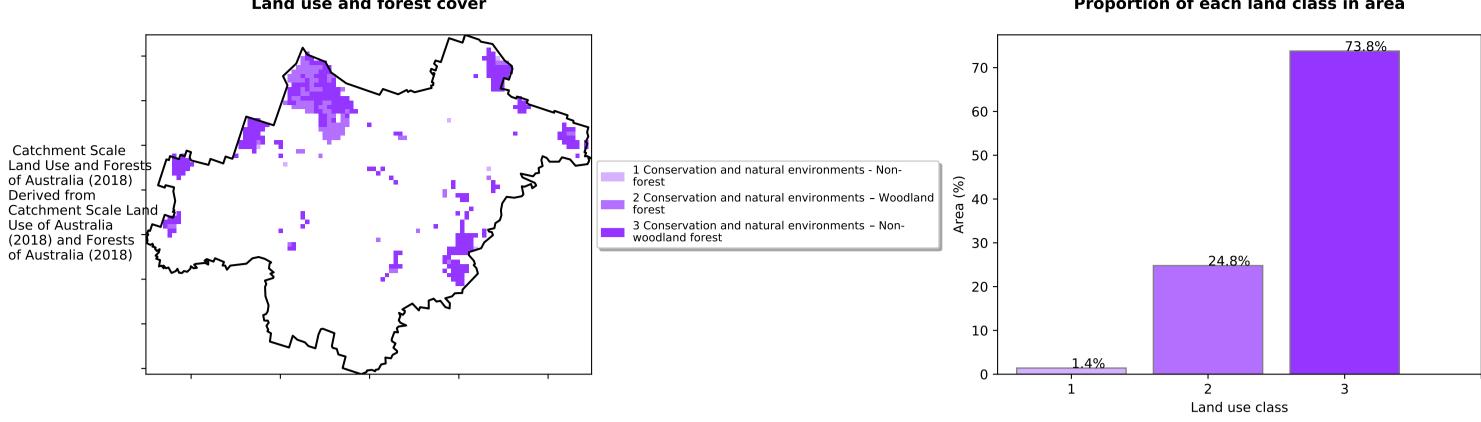








Conservation and natural environments



12% 200%

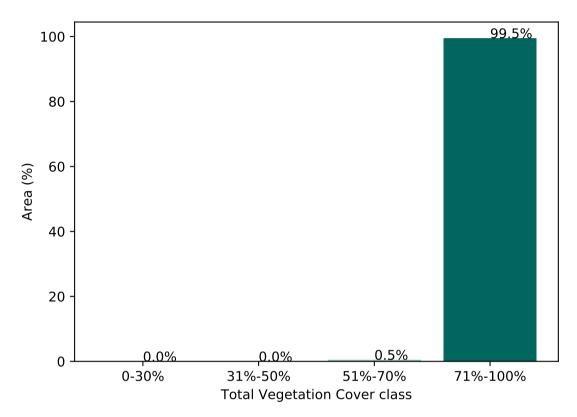
52°10'70°10

32%50%

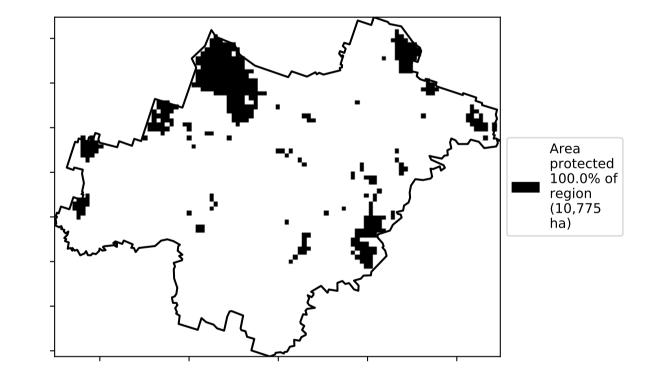
0.30%

Proportion of each land class in area

Proportion of vegetation cover class in area



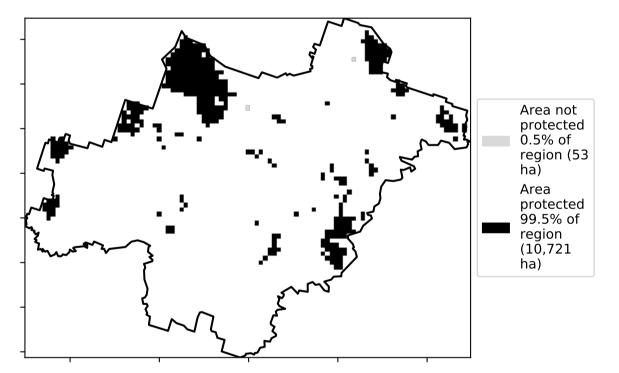
% Area protected from wind erosion (>50%)



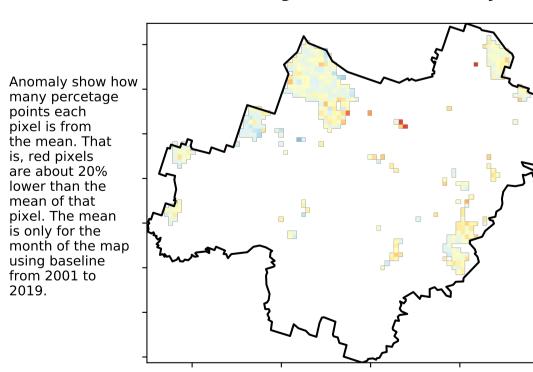
Land use and forest cover

% Area protected from water erosion (>70%)

Total Vegetation Cover [%]



Total Vegetation Cover Anomaly [%]

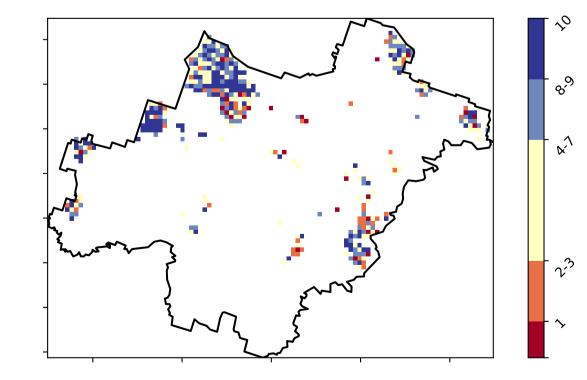


- 10 0 -10

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Total Vegetation Cover Decile [%]

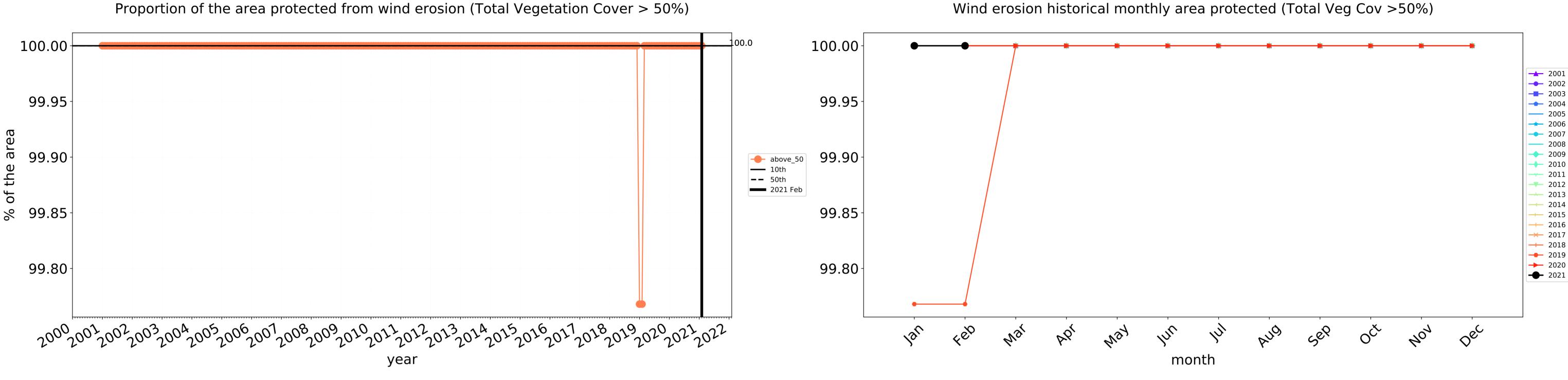


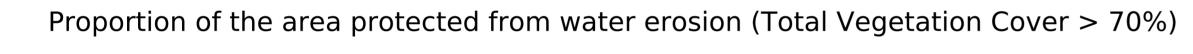


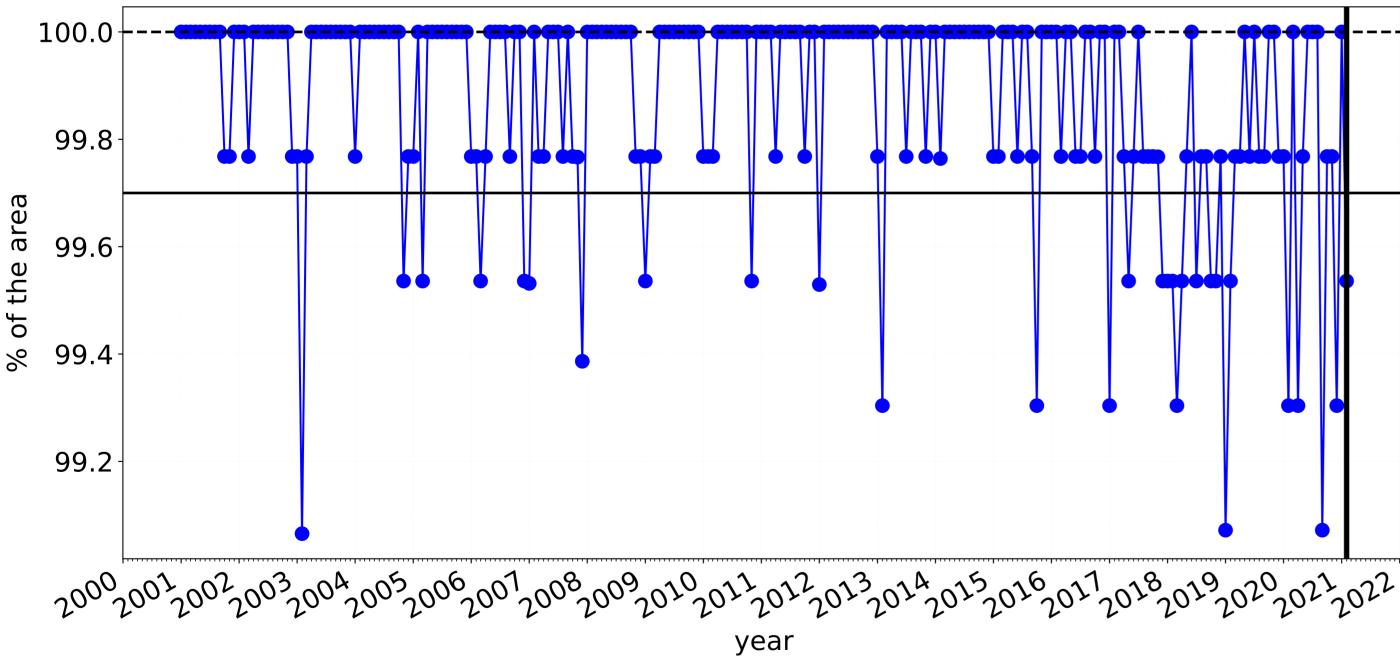
Deciles show where the pixel value lies in the

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.

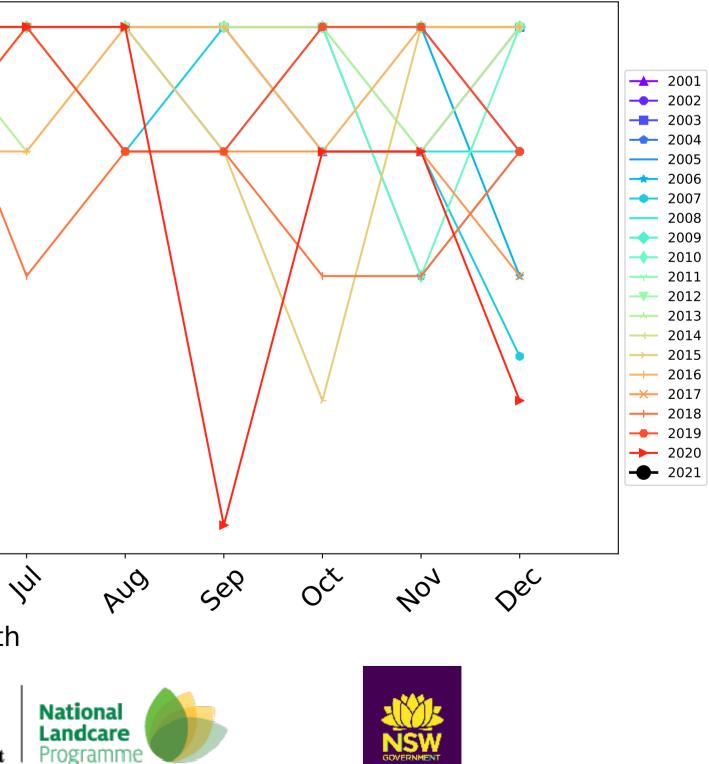


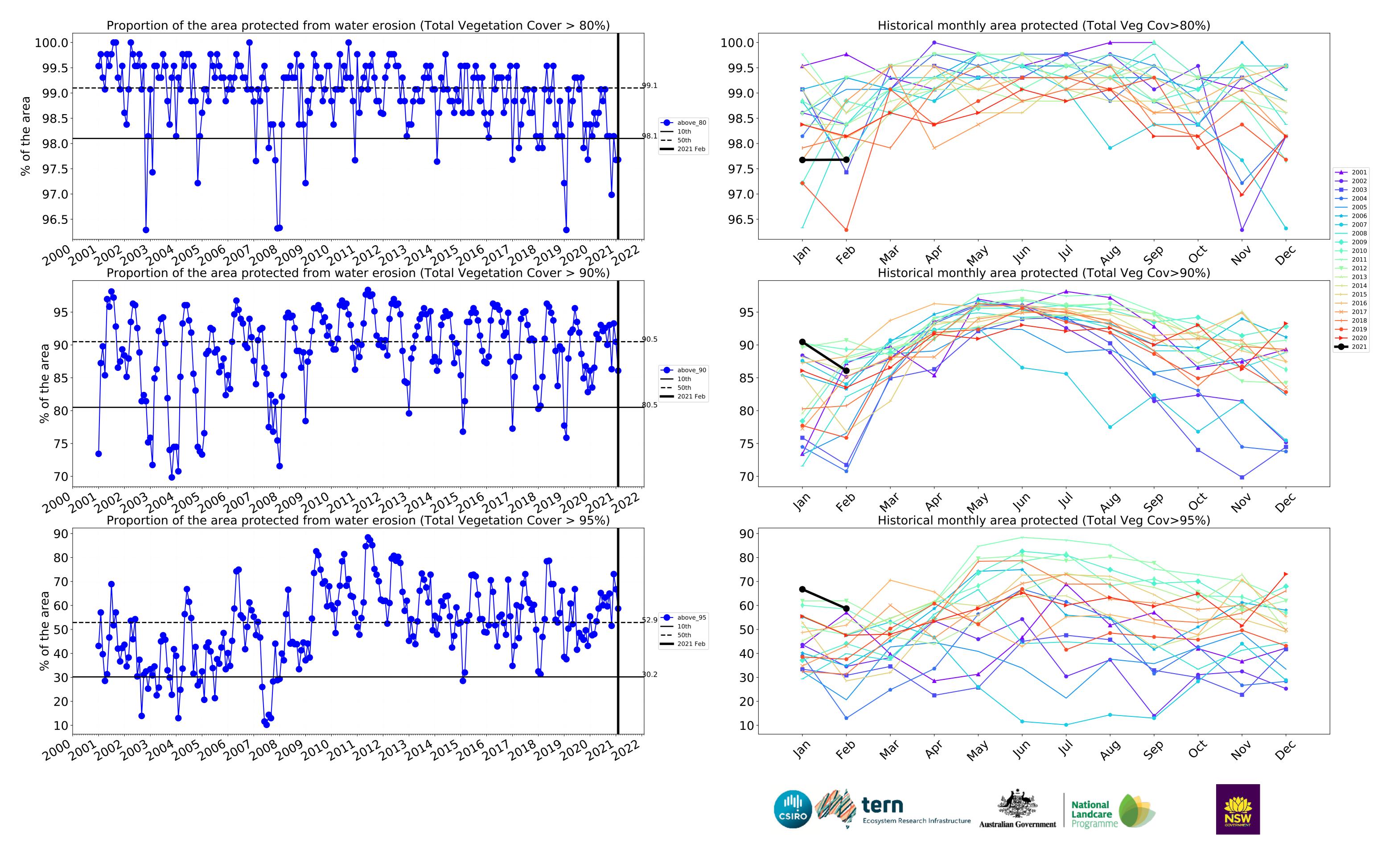




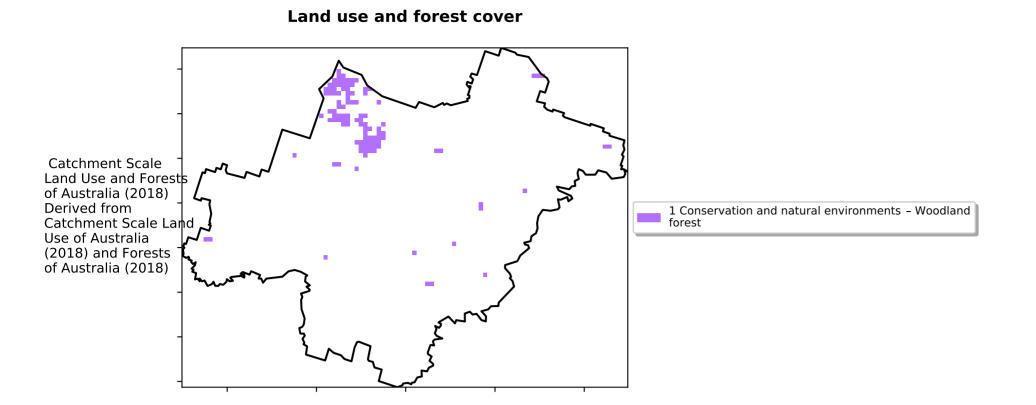
100.0-____100.0 99.8 ---- above_70 **—** 10th **--** 50th 99.6 ------ 2021 Feb 99.4 99.2 feb Jan In May War PQ month tern Ecosystem Research Infrastructure Australian Government

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

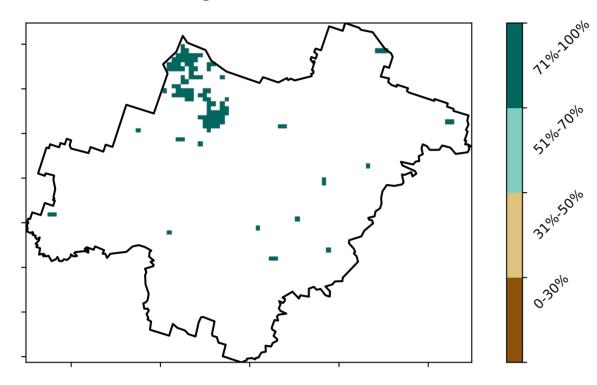




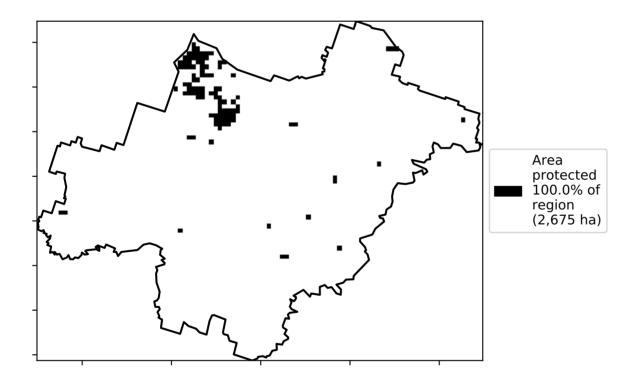
Conservation and natural environments Woodland forest



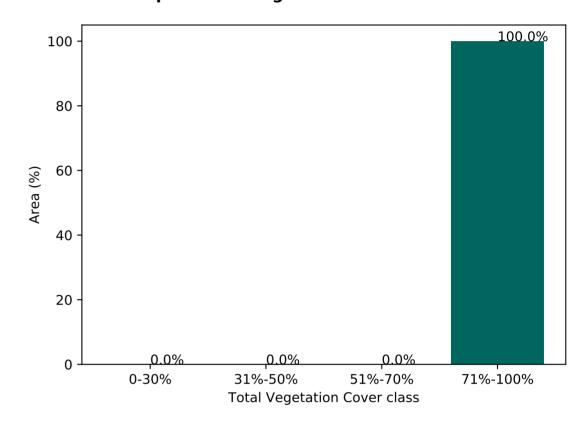
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



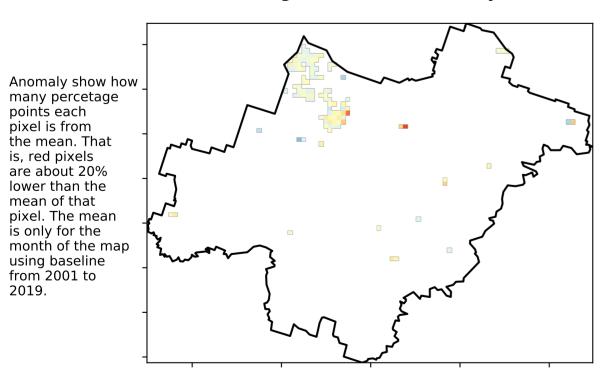
Proportion of vegetation cover class in area



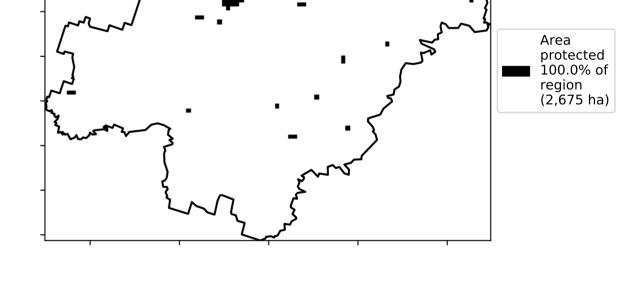
% Area protected from wind erosion (>50%)



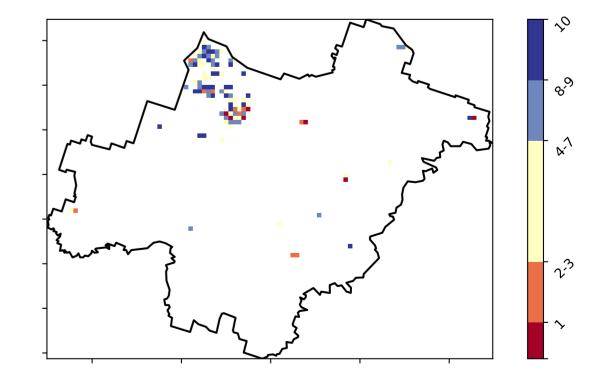
Total Vegetation Cover Anomaly [%]



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 [%]





- 20

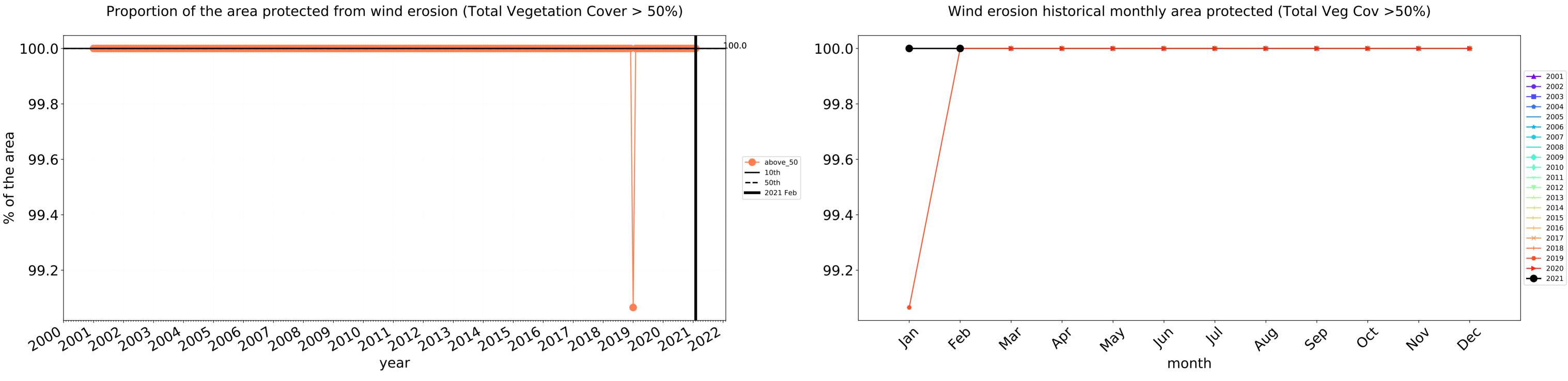
- 10

0

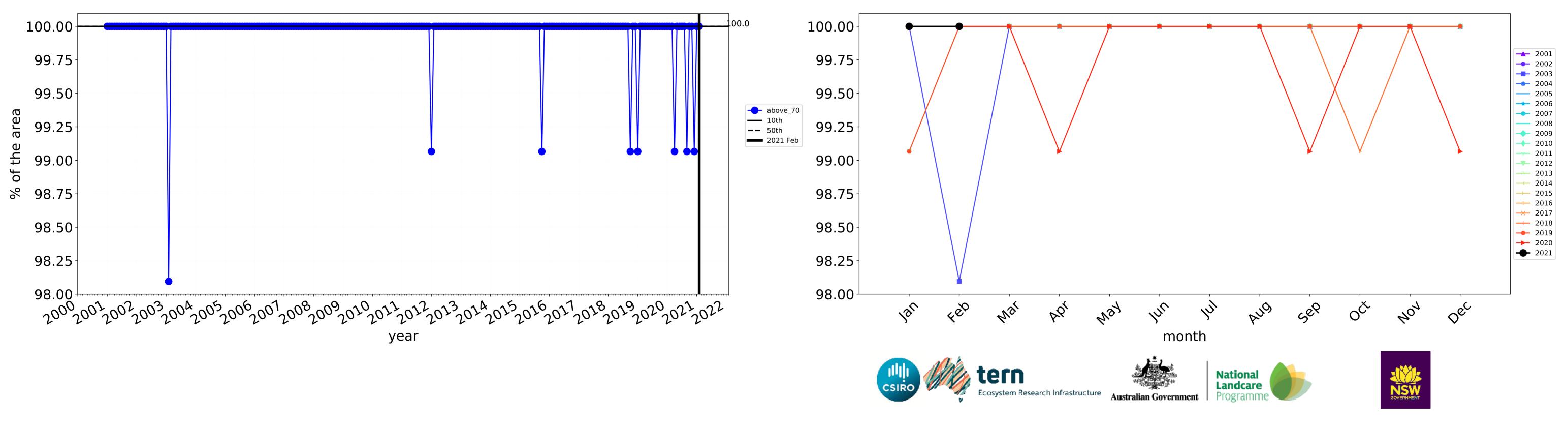
-10

-20

Conservation and natural environments Woodland forest timeseries

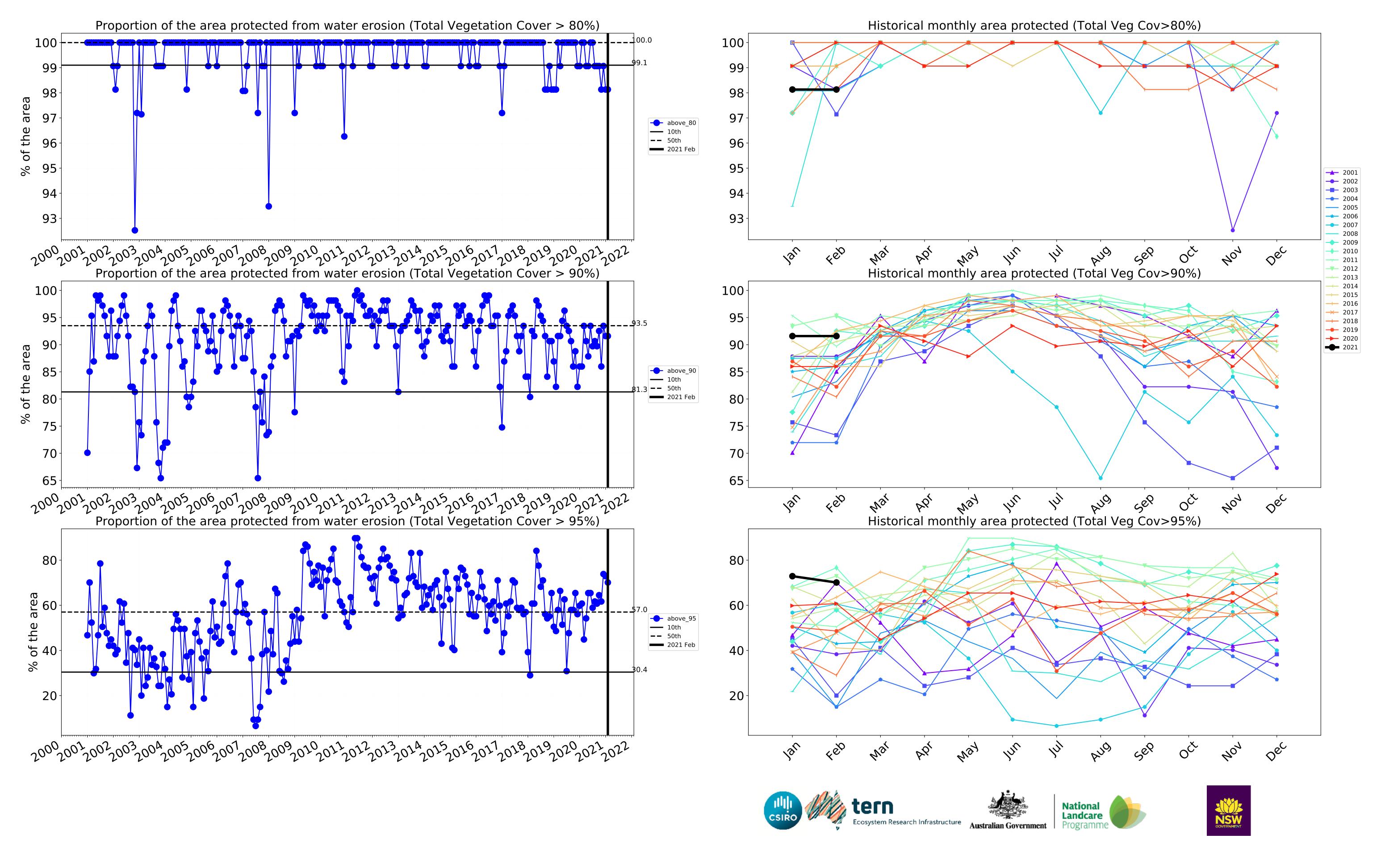


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

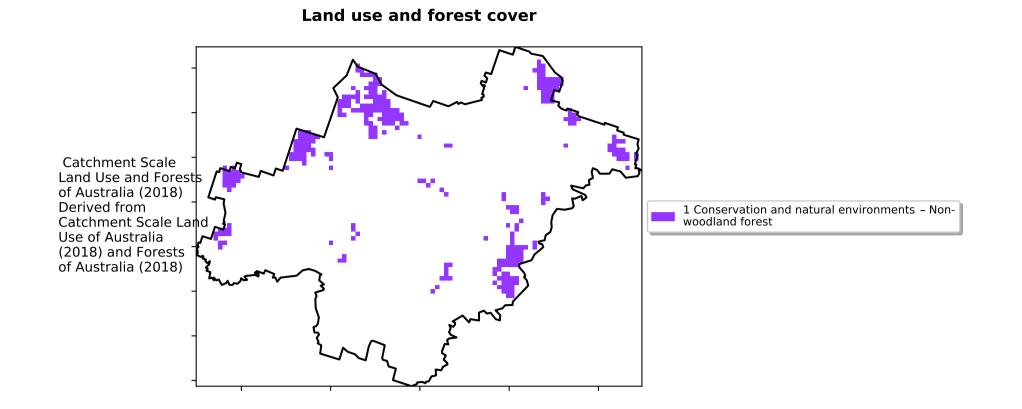




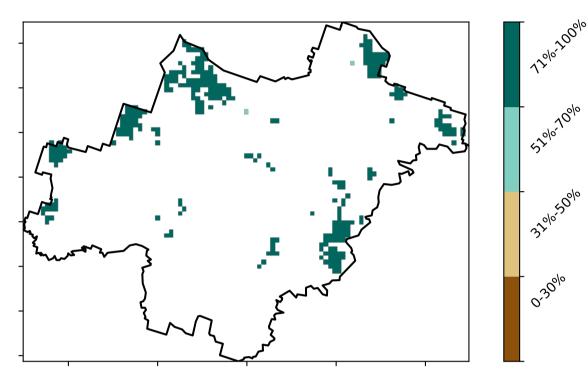
Water erosion historical monthly area protected (Total Veg Cov>70%)



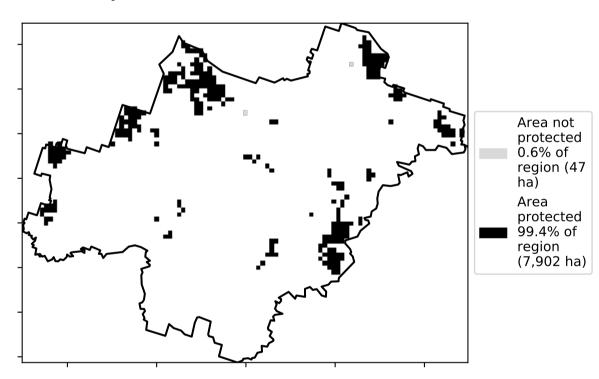
Conservation and natural environments Forest (non woodland)



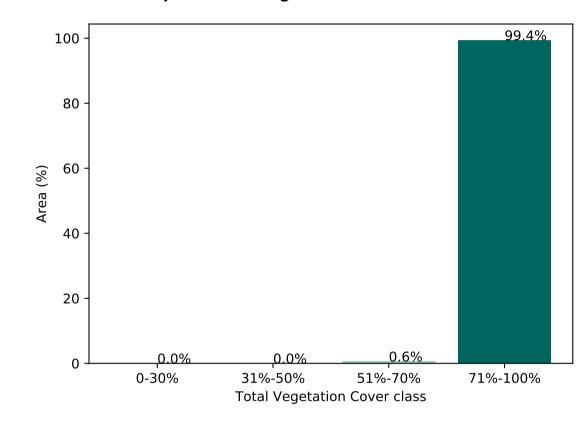
Total Vegetation Cover [%]



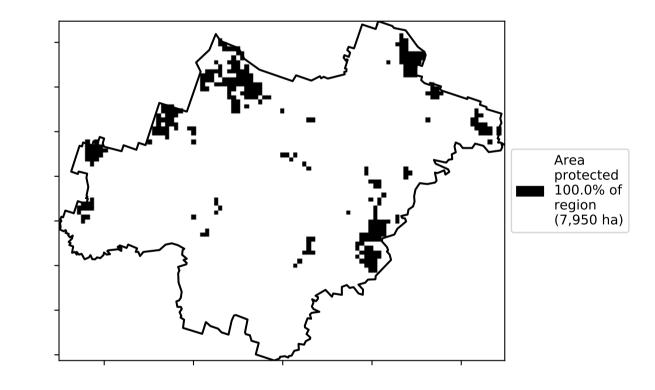
% Area protected from water erosion (>70%)



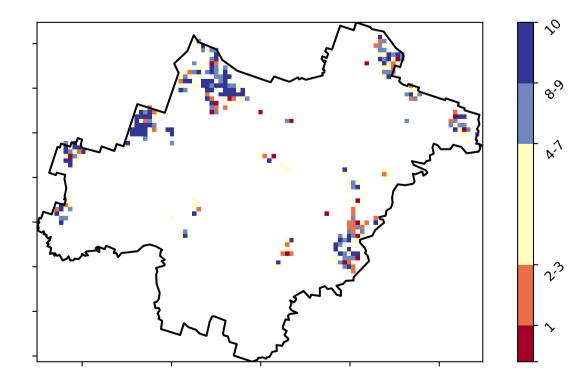
Proportion of vegetation cover class in area



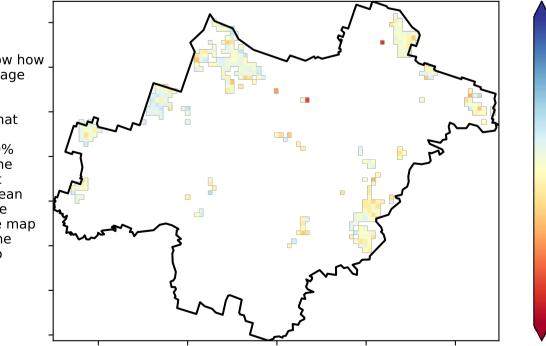
% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



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.



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.

- 20

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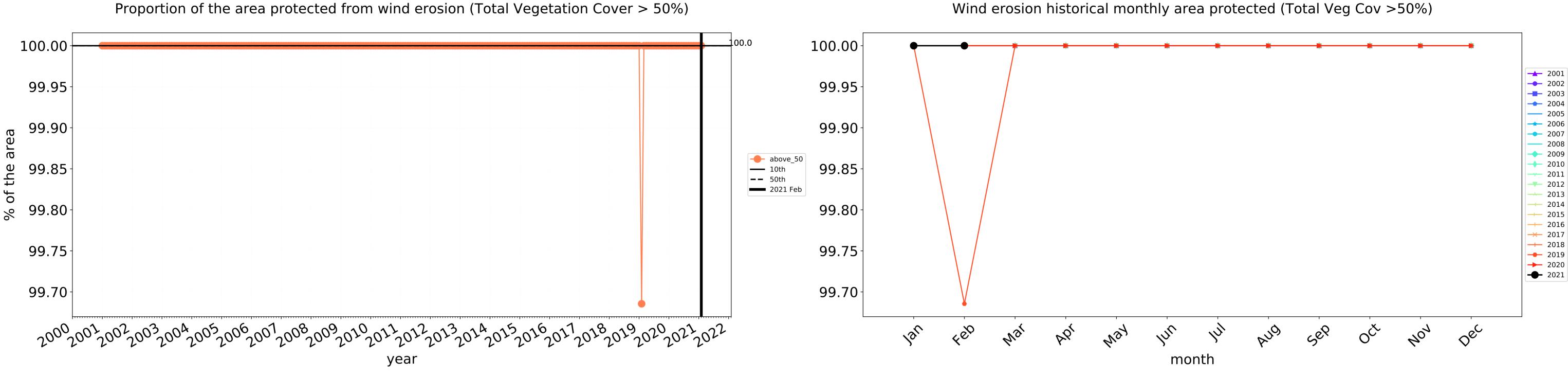
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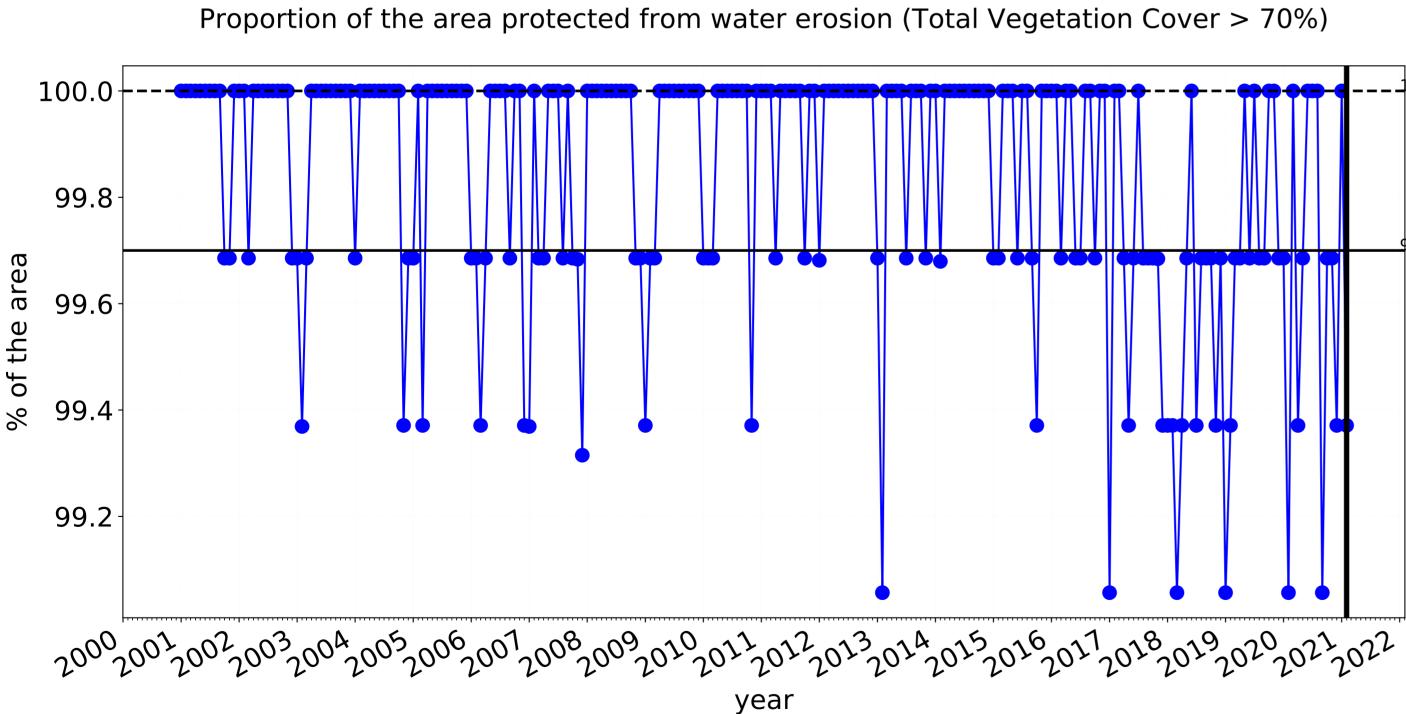
-10

-20

500%

Conservation and natural environments Forest (non woodland) timeseries

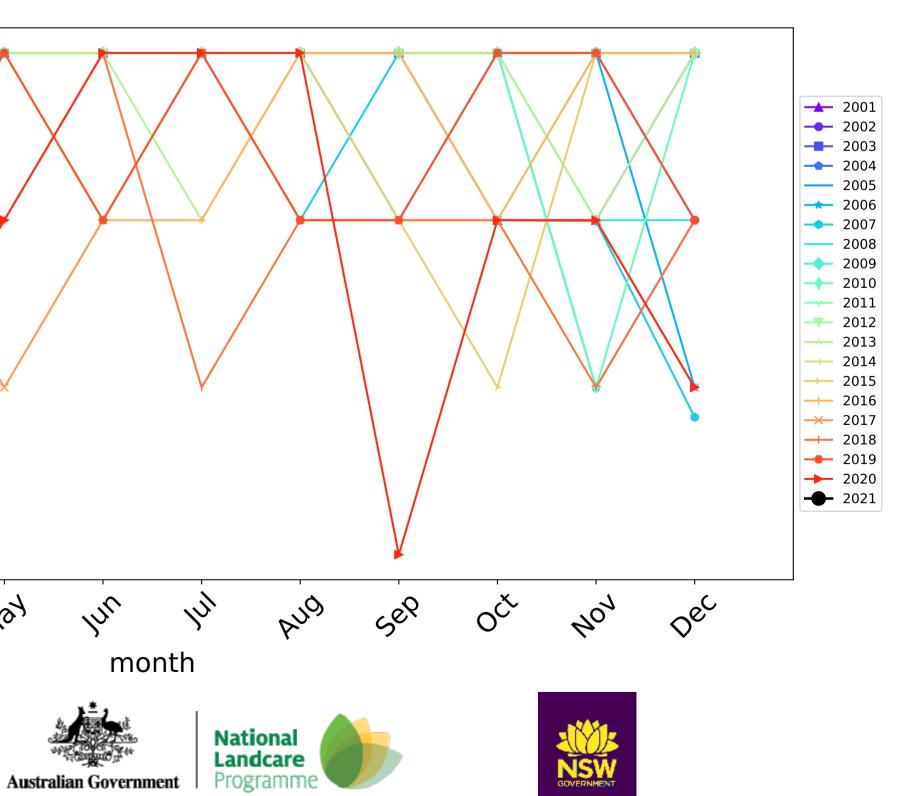


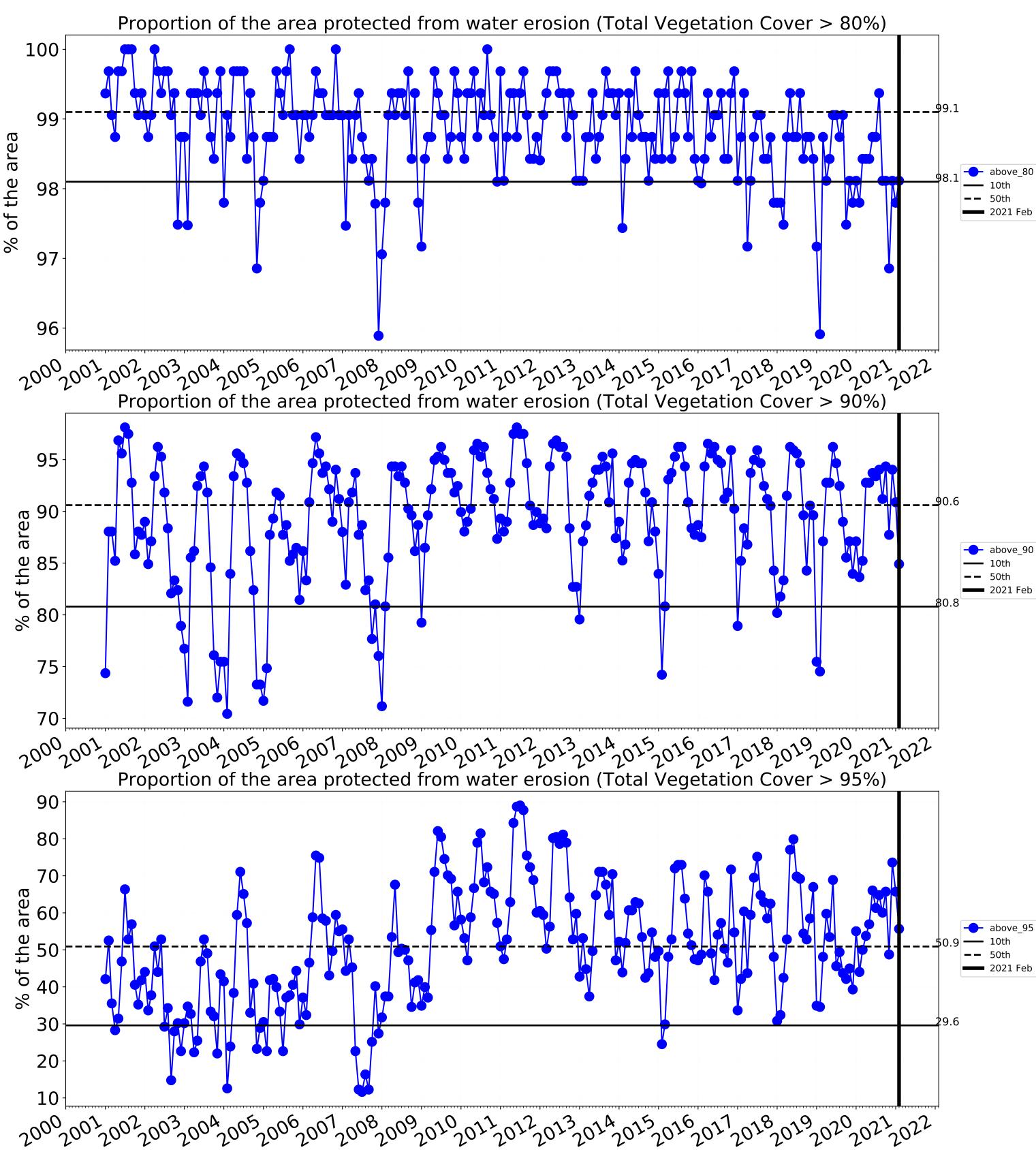


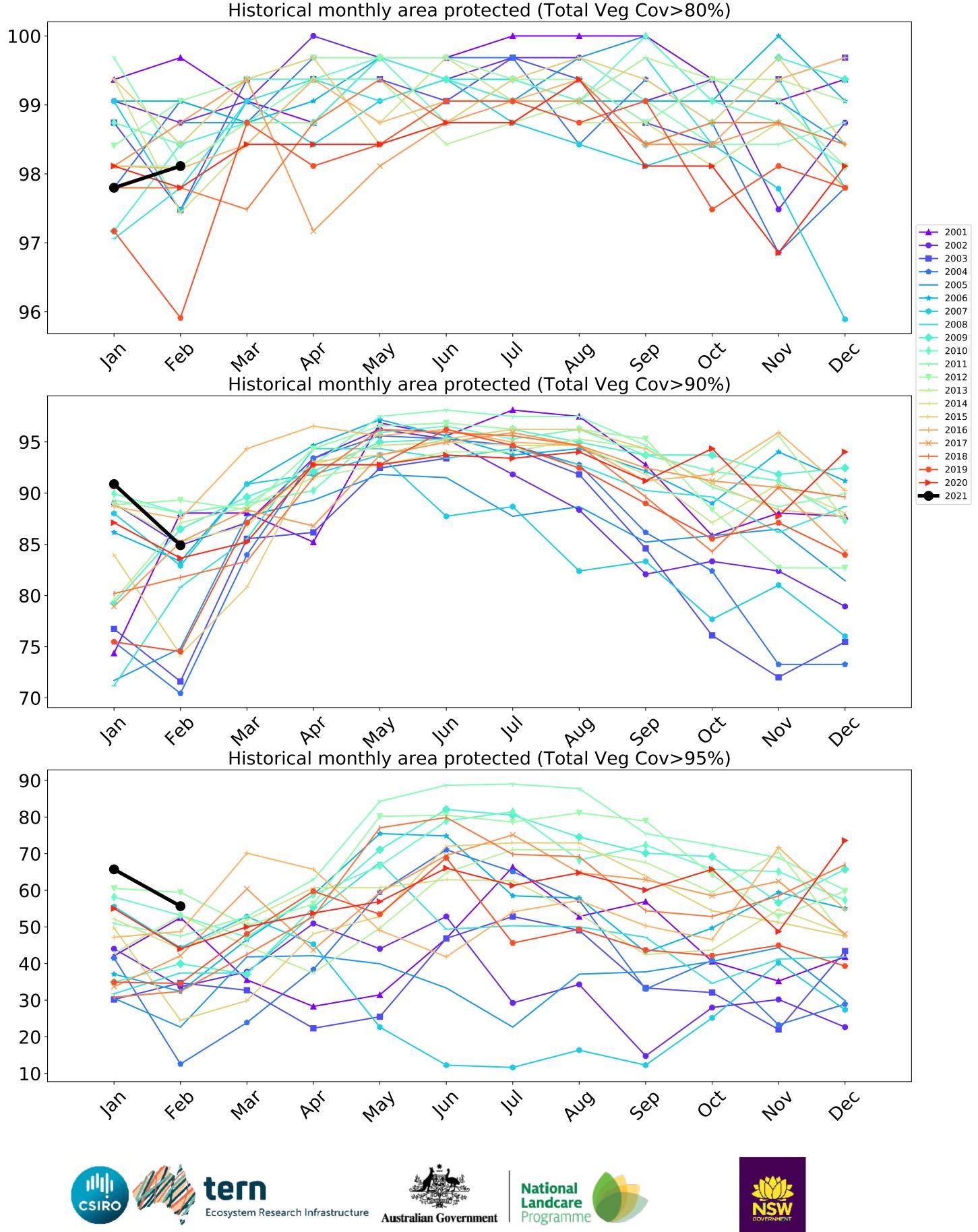
100.0 _____100.0 99.8 --- above_70 **—** 10th **--** 50th 99.6 ------ 2021 Feb 99.4 99.2 feb Par In May War PQ month tern

Ecosystem Research Infrastructure

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







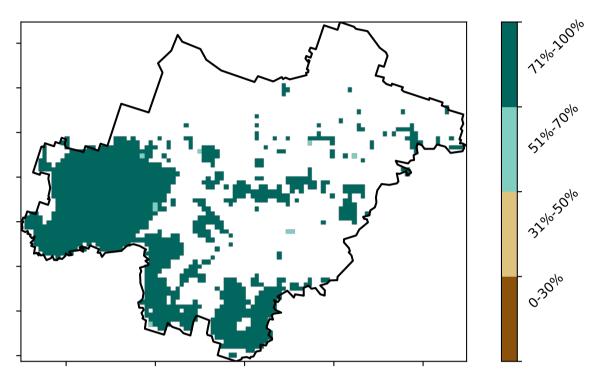


Agriculture

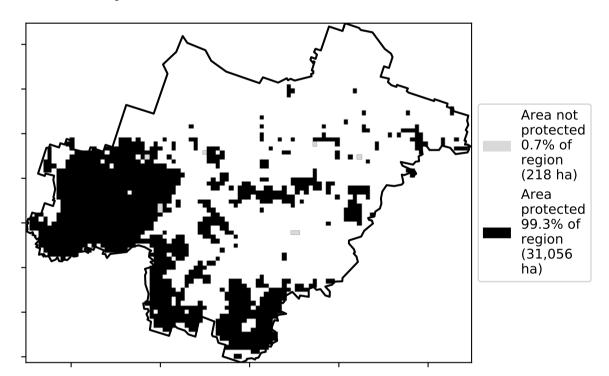
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest 4 Agriculture - Grazing - Irrigated 5 Agriculture - Cropping - Non-irrigated Use of Australia (2018) and Forests 6 Agriculture - Cropping - Irrigated 7 Agriculture - Horticulture - Non-irrigated of Australia (2018) 8 Agriculture - Horticulture - Irrigated

Total Vegetation Cover [%]

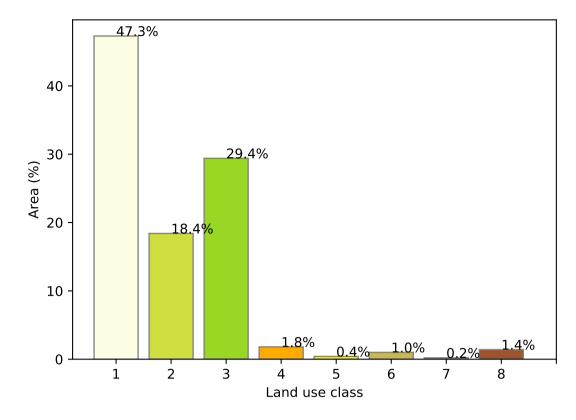
Land use and forest cover



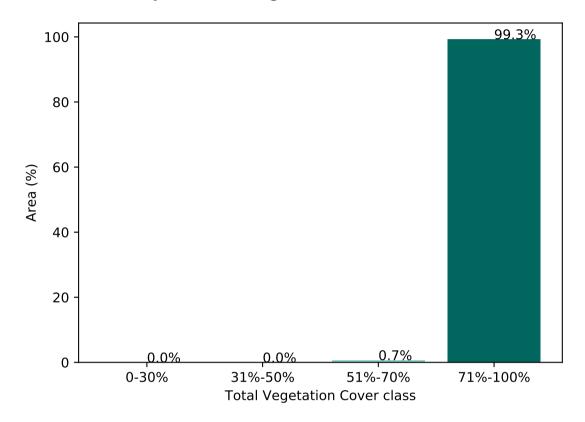
% Area protected from water erosion (>70%)



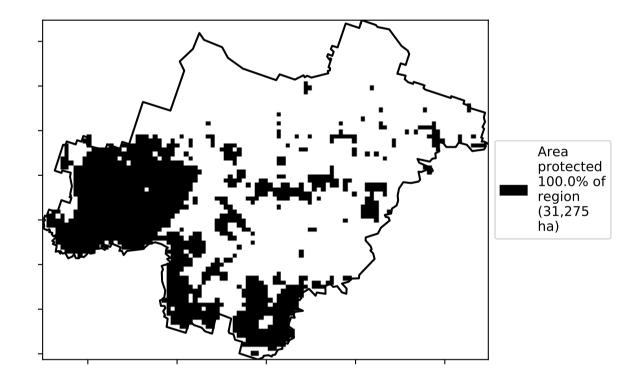
Proportion of each land class in area



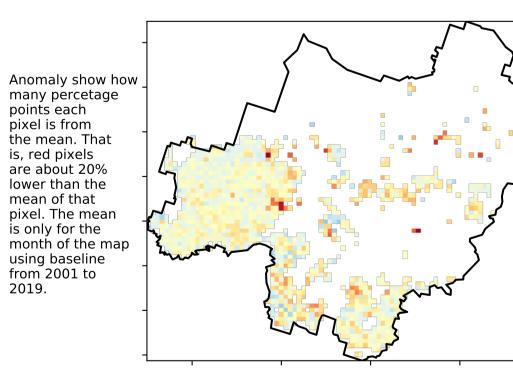
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

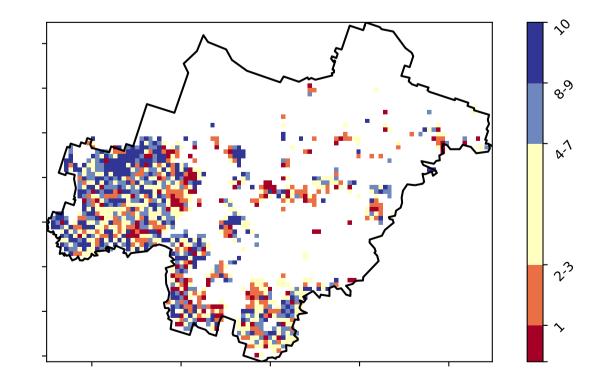


- 10 0 -10-20

- 20

32%50%

Total Vegetation Cover Decile [%]

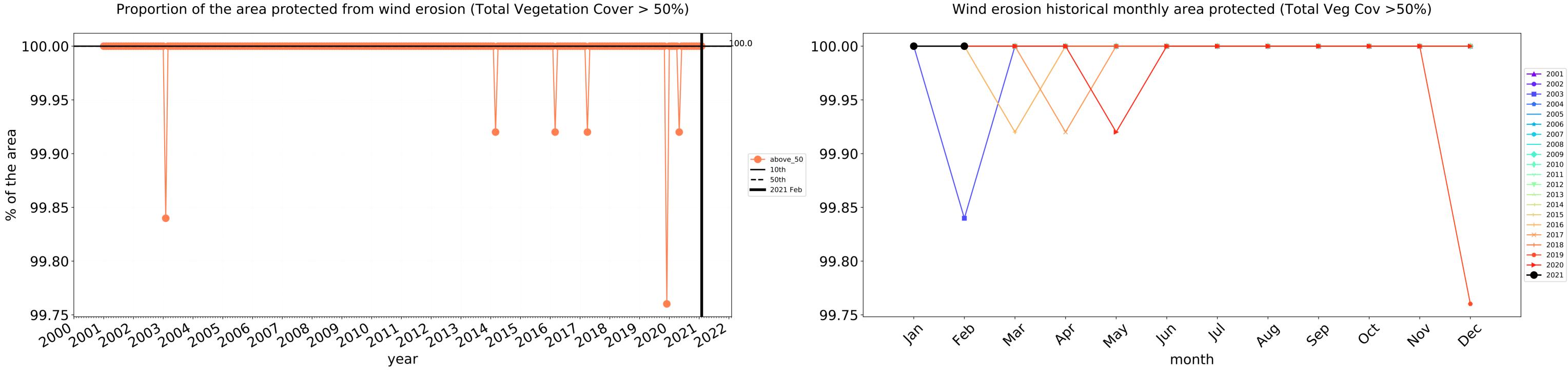




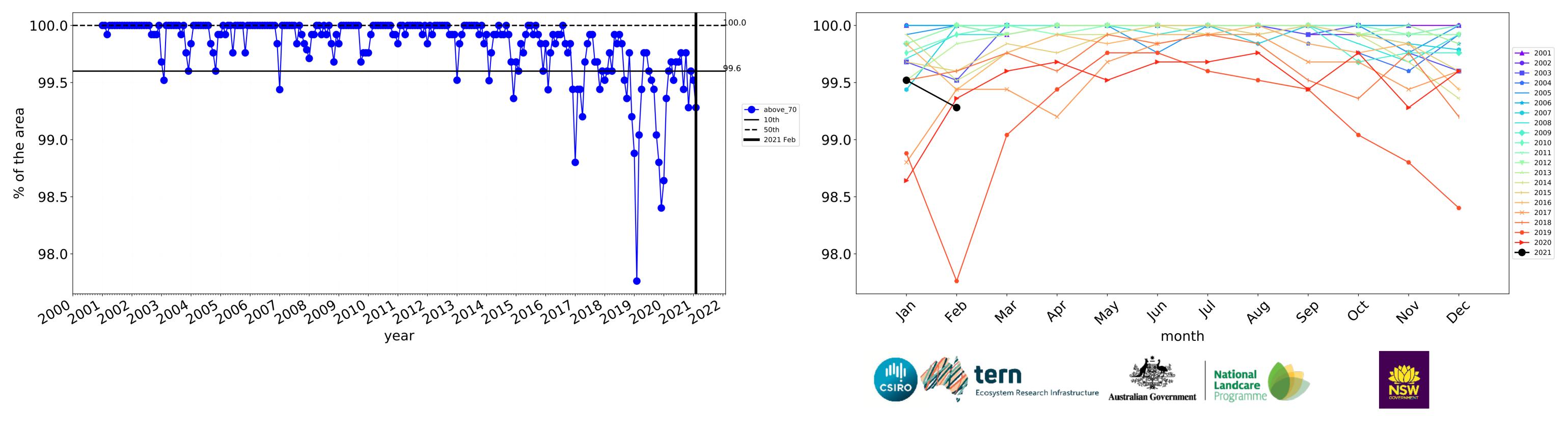
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline

the map using baseline from 2001 to 2019.

12

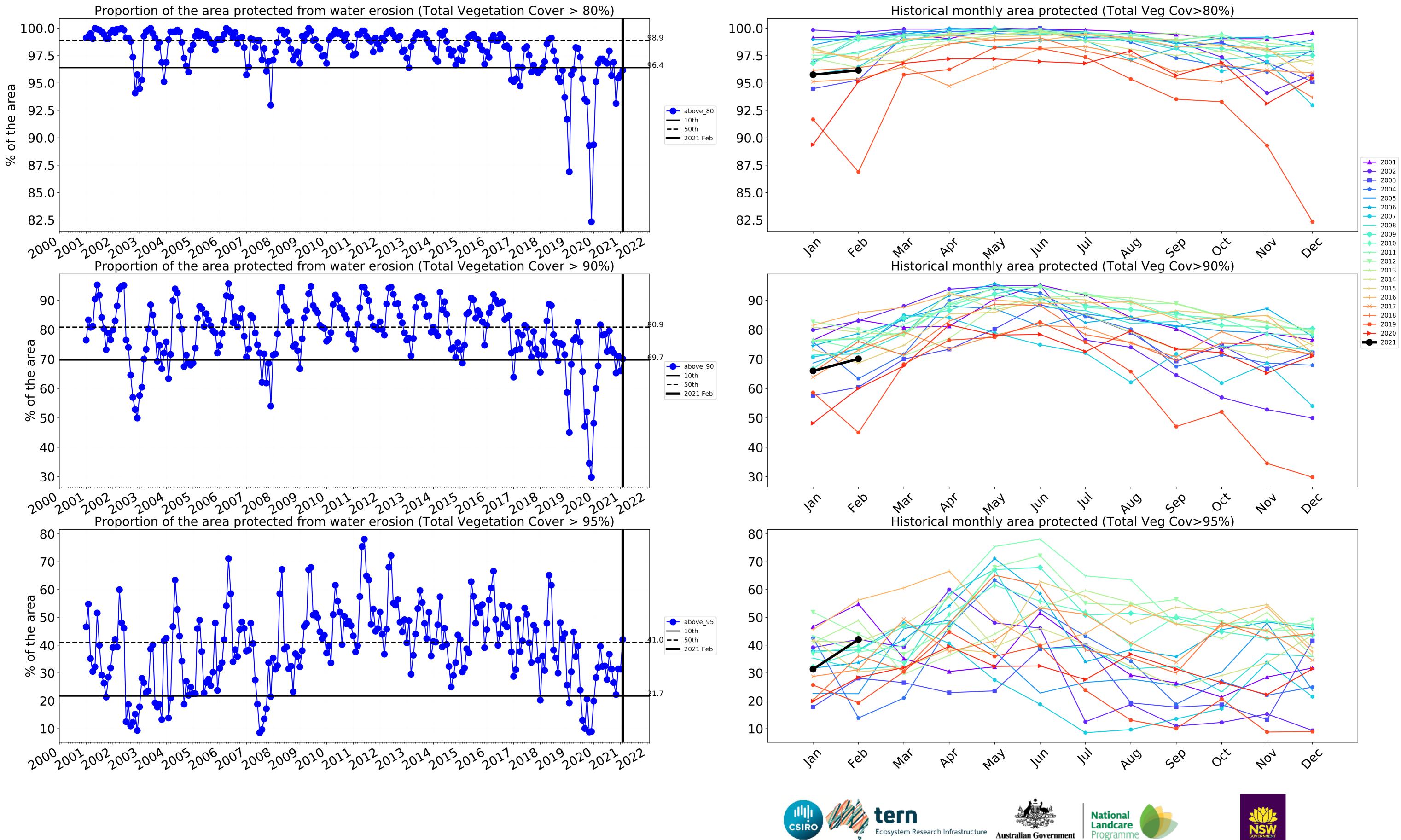


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



Agriculture timeseries

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

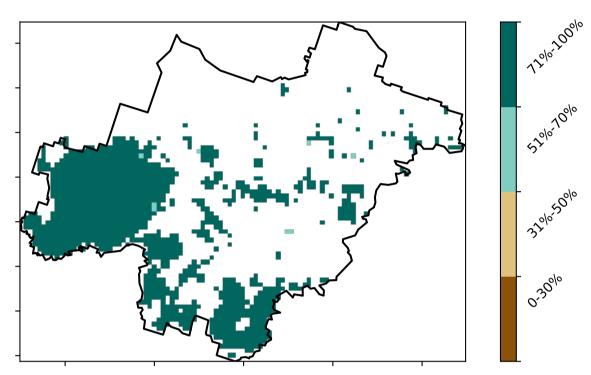


Grazing

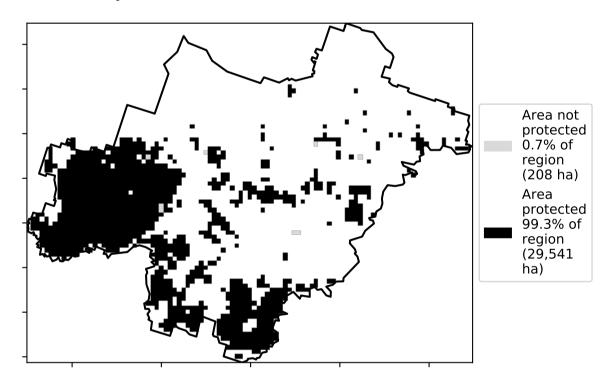
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest

Land use and forest cover

Total Vegetation Cover [%]



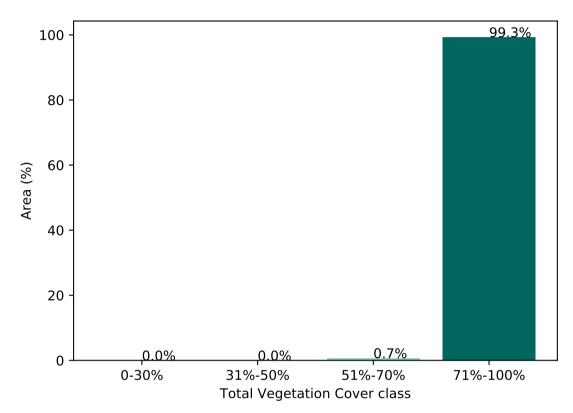
% Area protected from water erosion (>70%)



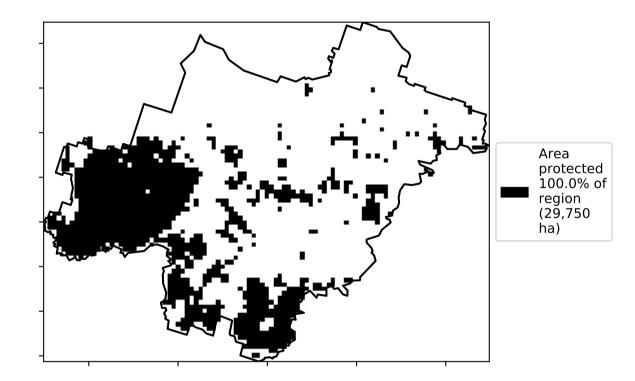
49.7% 50 40 30.9% Area (%) 05 19.4% 20 10 0 3 2 1 Land use class

Proportion of each land class in area

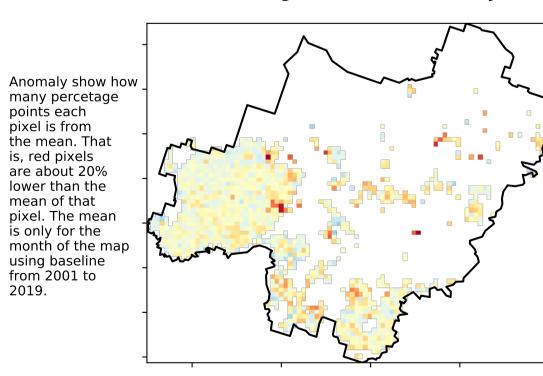
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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 - 10 the map using baseline from 2001 to 2019. -10

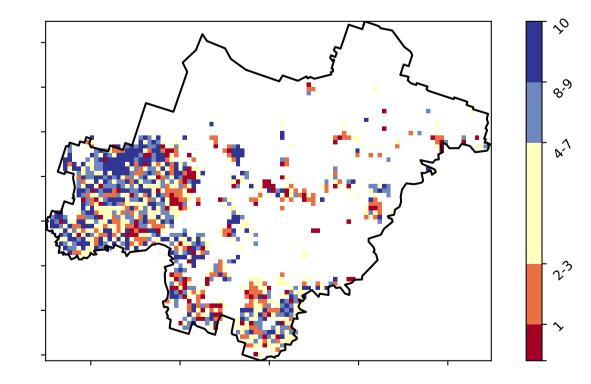
- 20

0

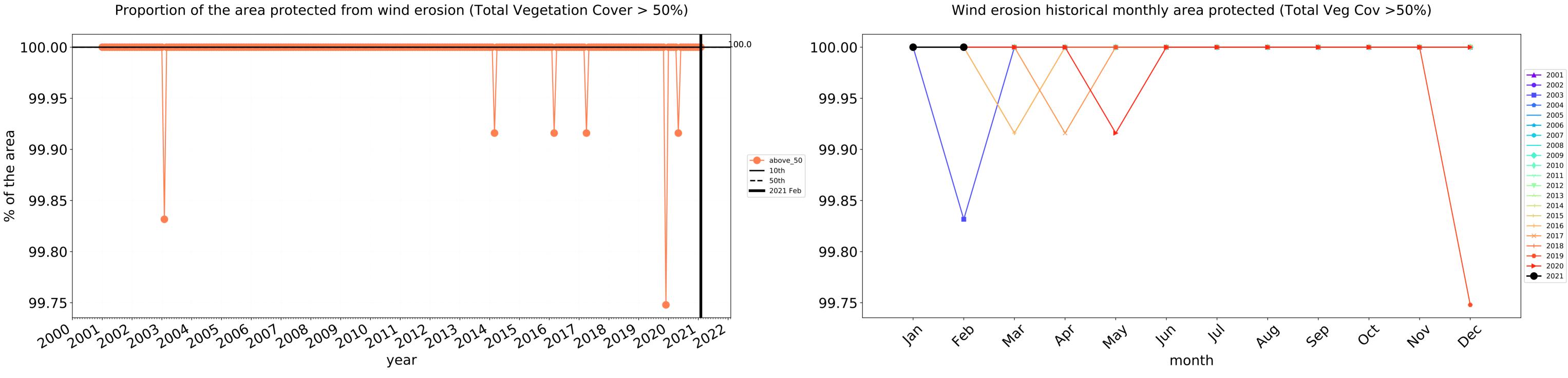
-20

0.30%

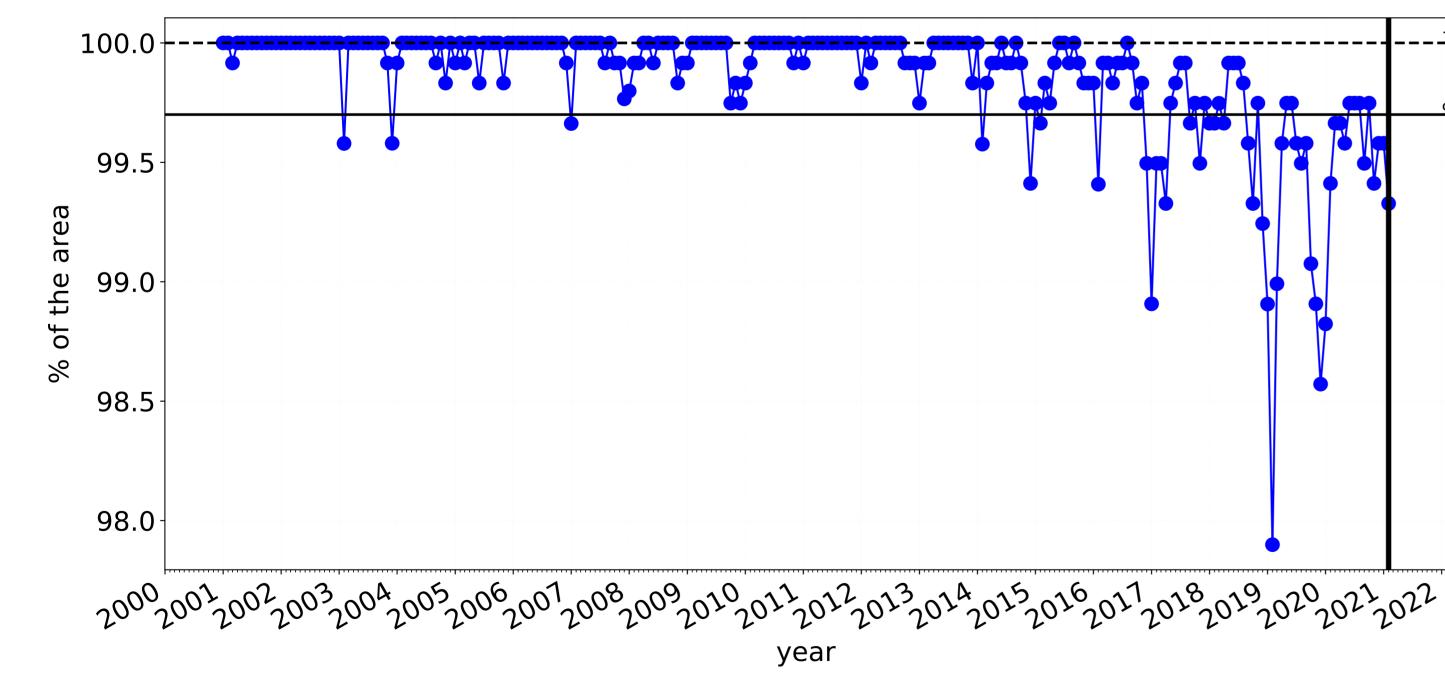
Total Vegetation Cover Decile [%]







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

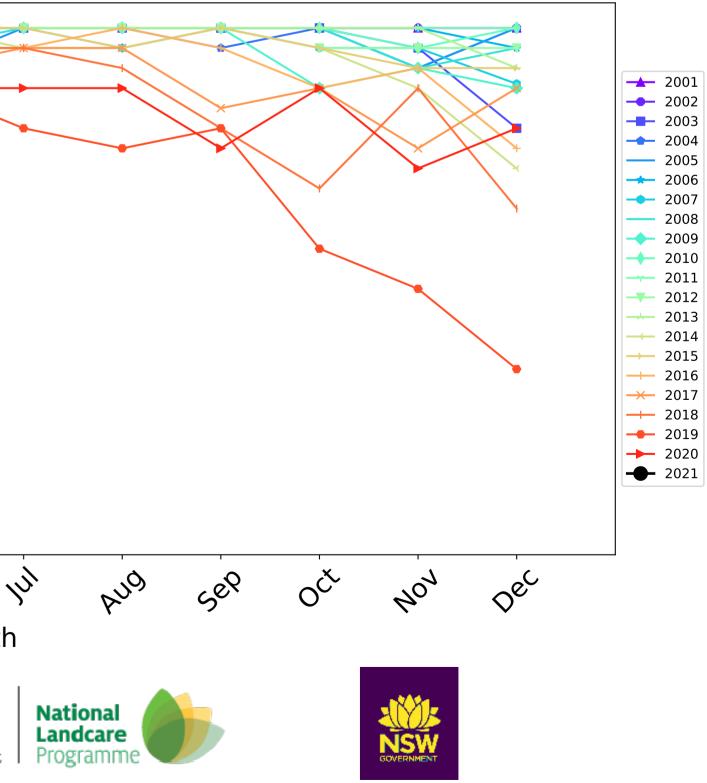


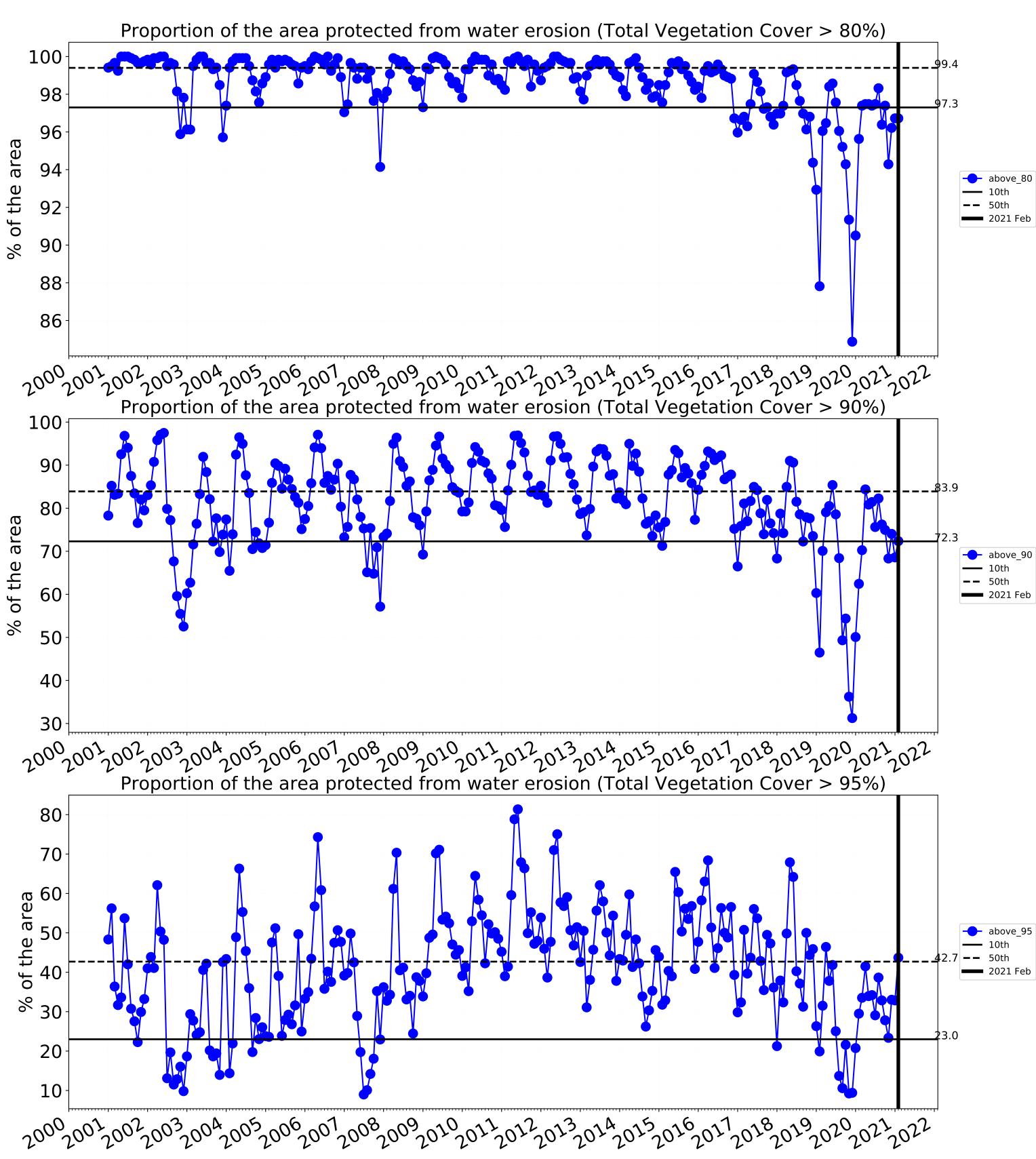
Grazing timeseries

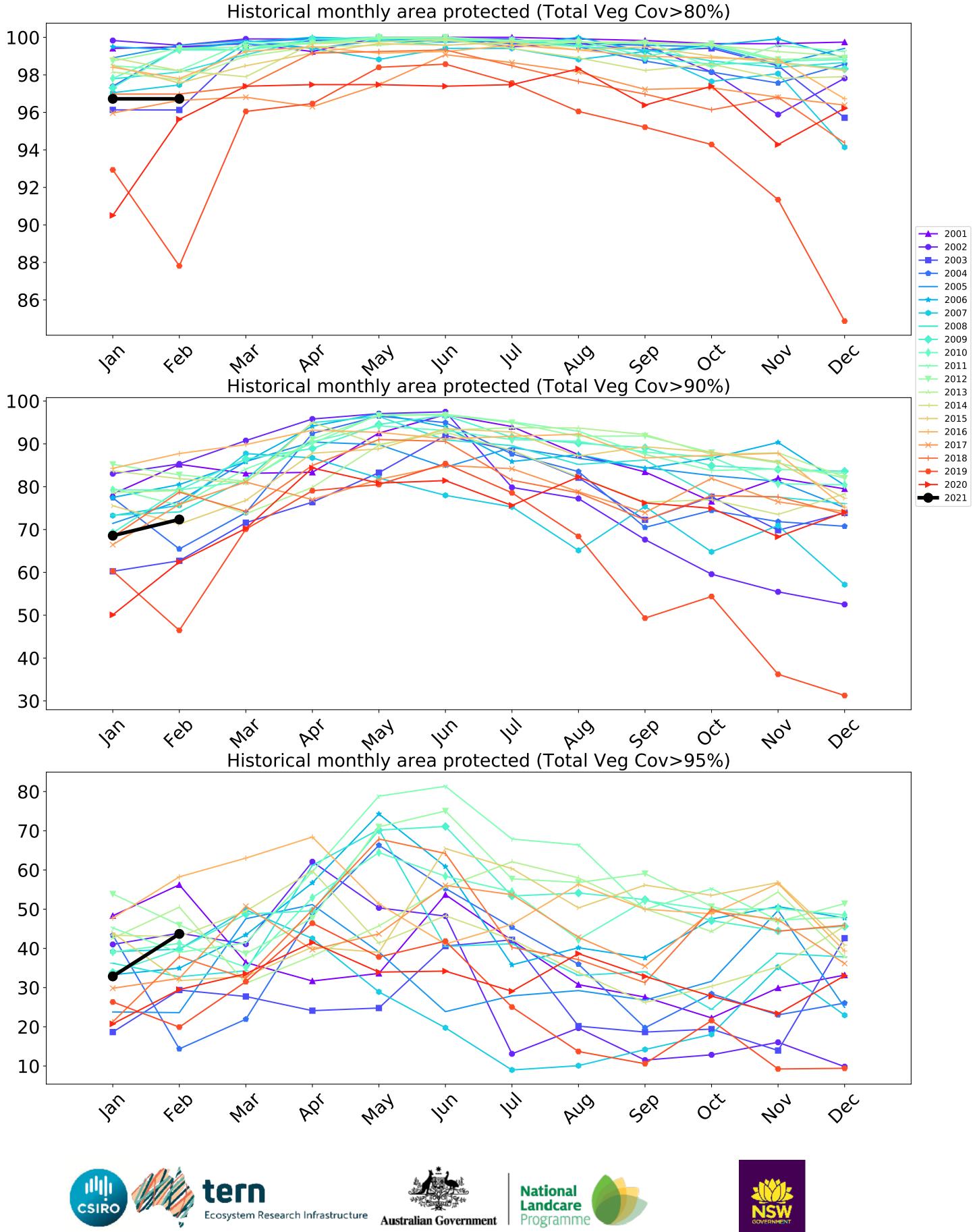
100.0-100.0 99.5 --- above_70 **—** 10th **--** 50th **—** 2021 Feb 99.0 98.5 98.0 feb Jan In way Mar POL



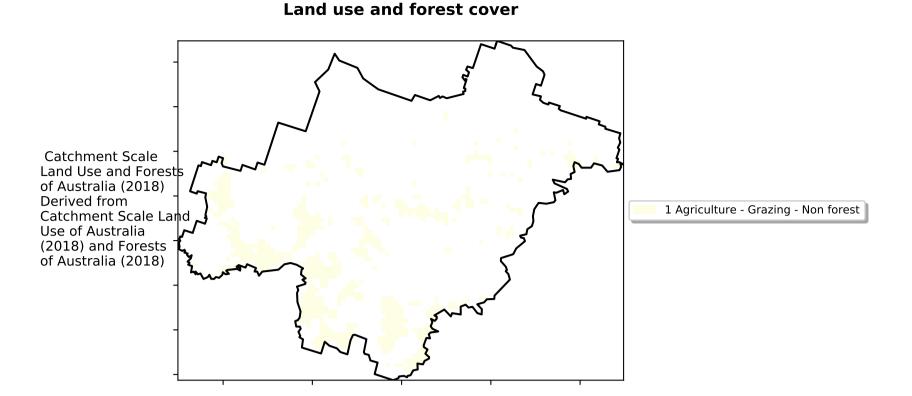
Water erosion historical monthly area protected (Total Veg Cov>70%)



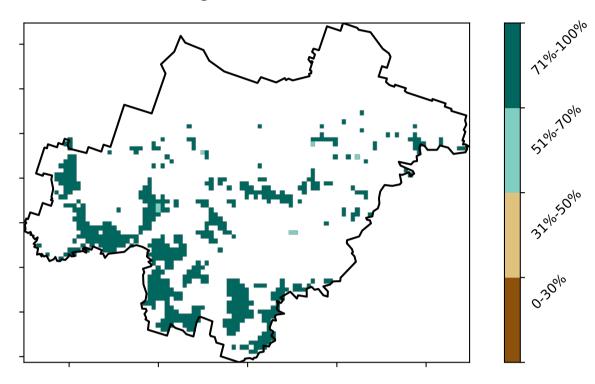




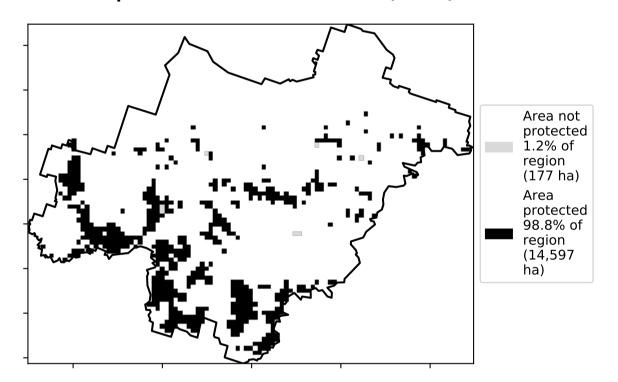
Grazing non forest



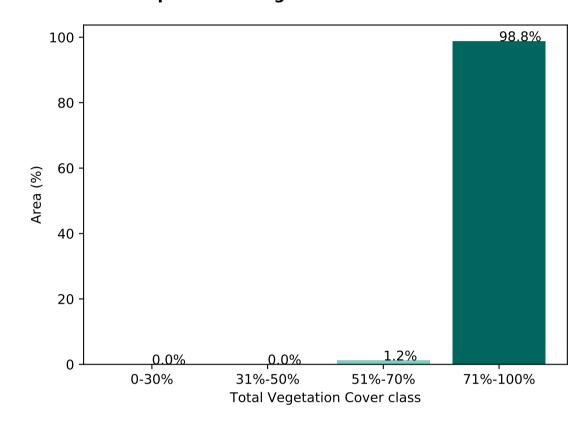
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



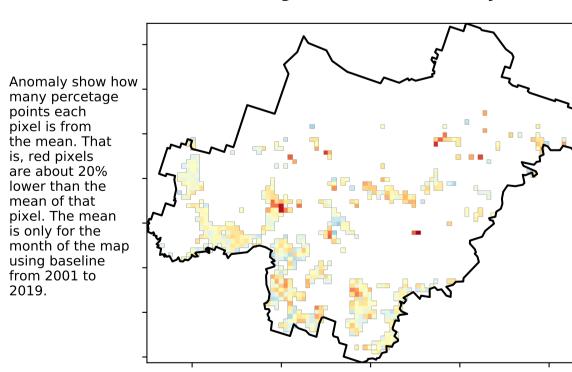
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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.

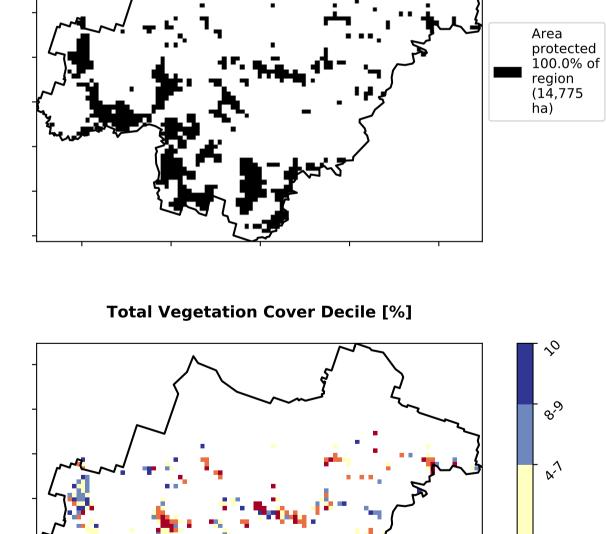
- 20

- 10

0

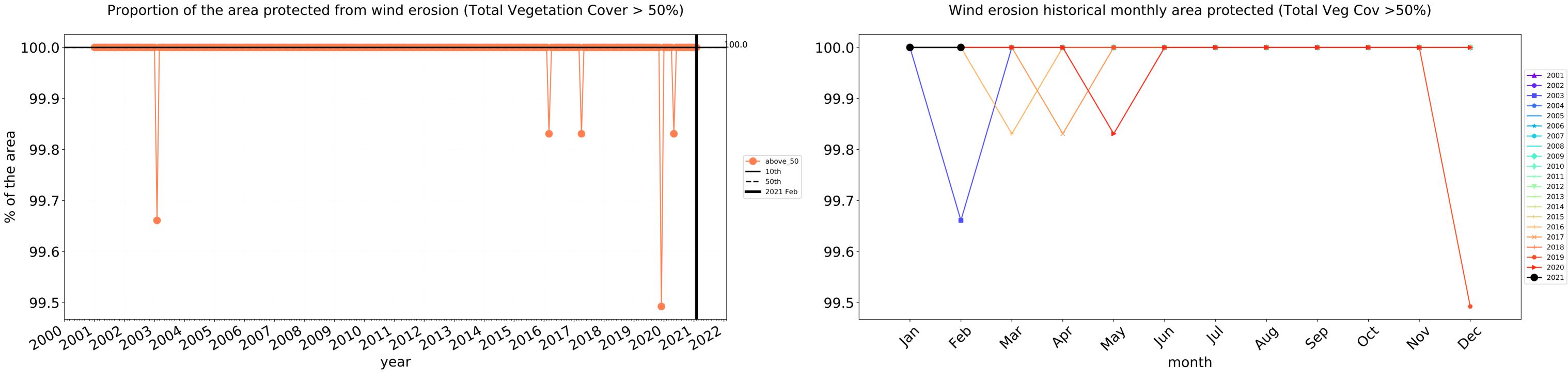
-10

-20

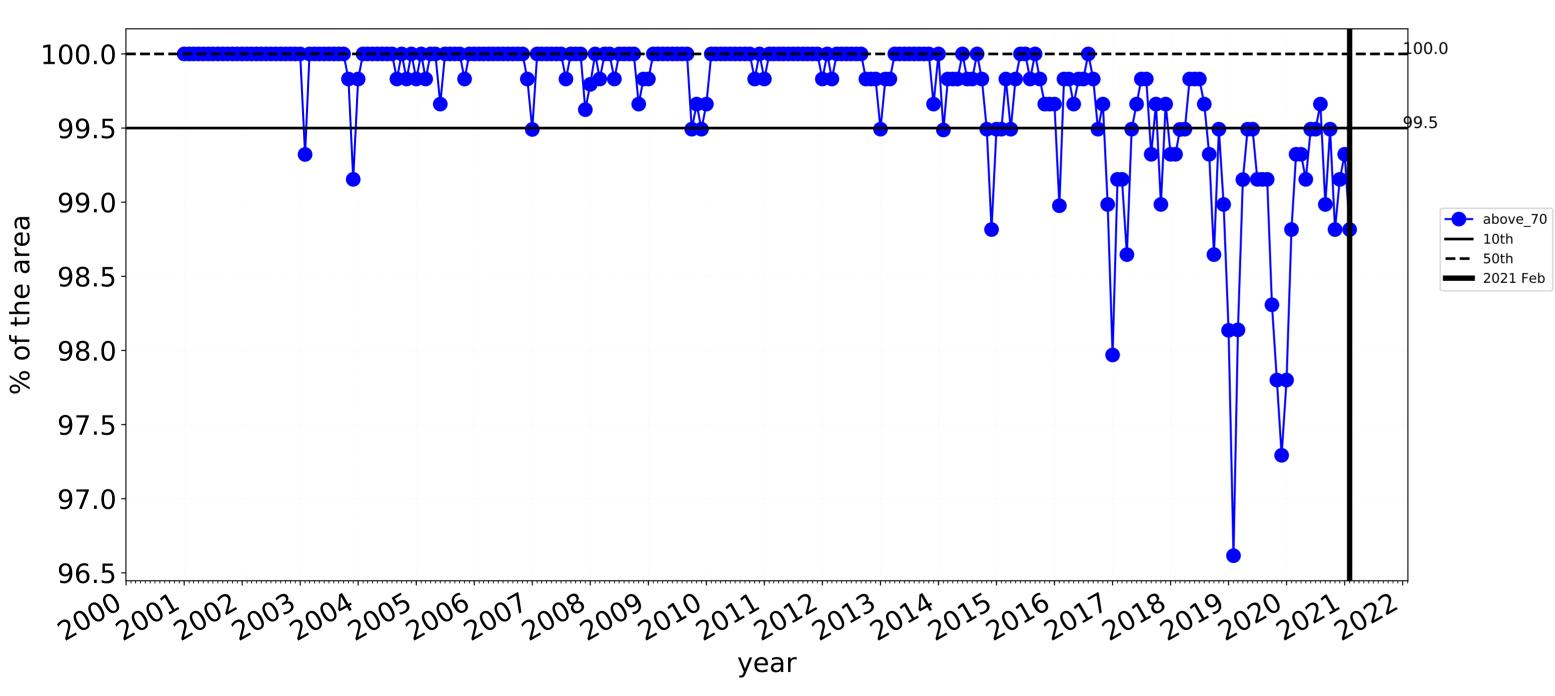


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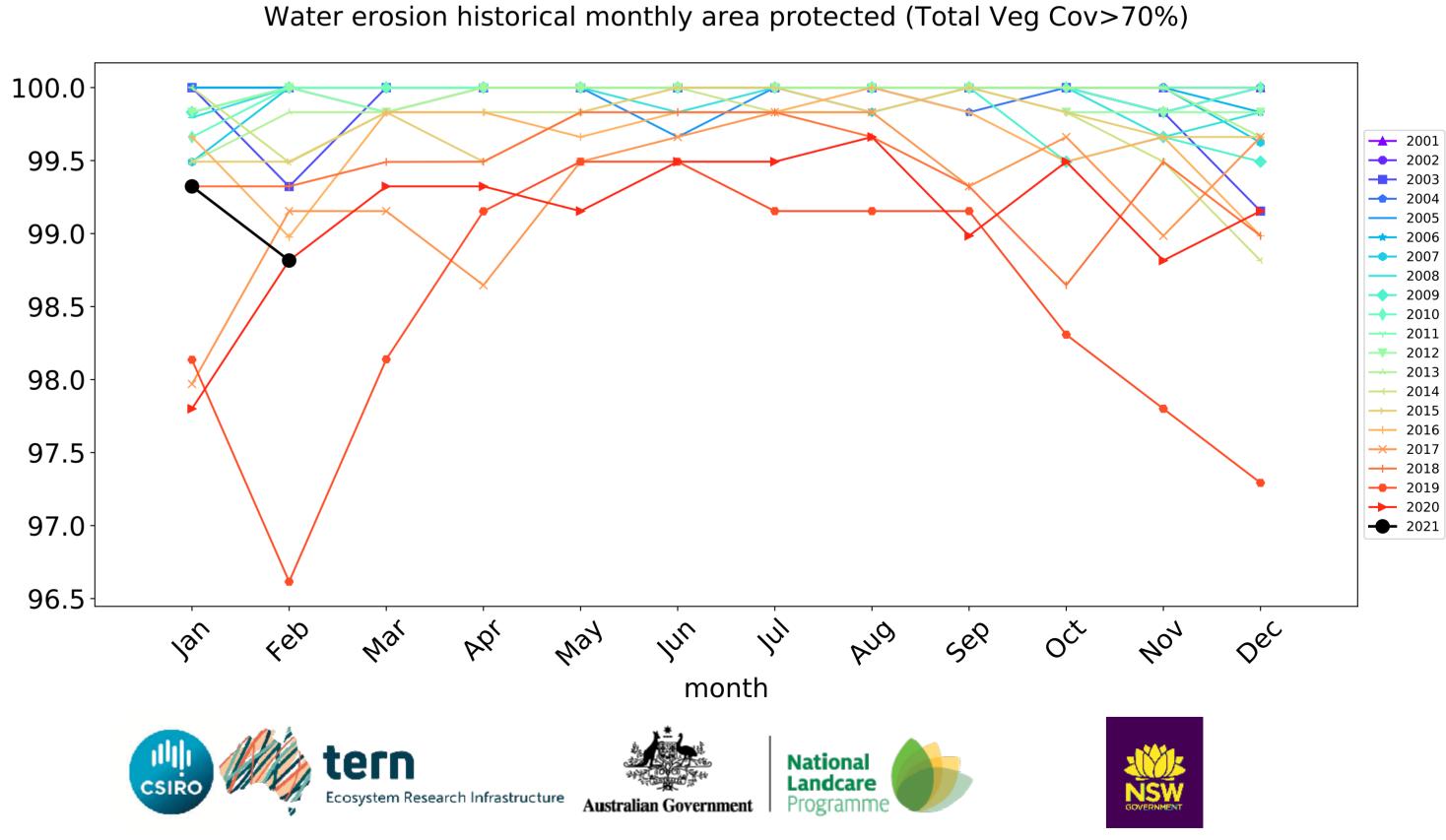


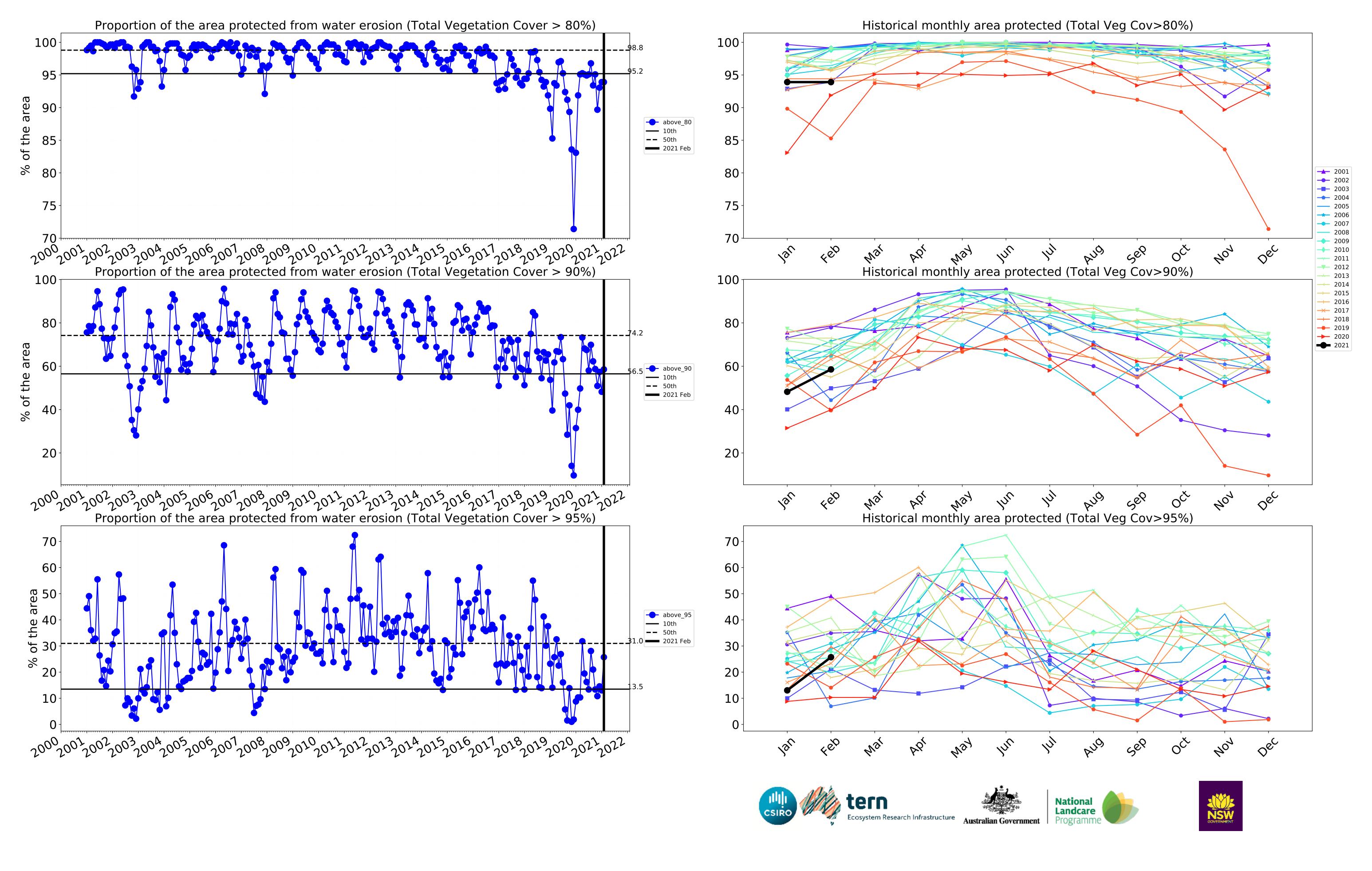


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



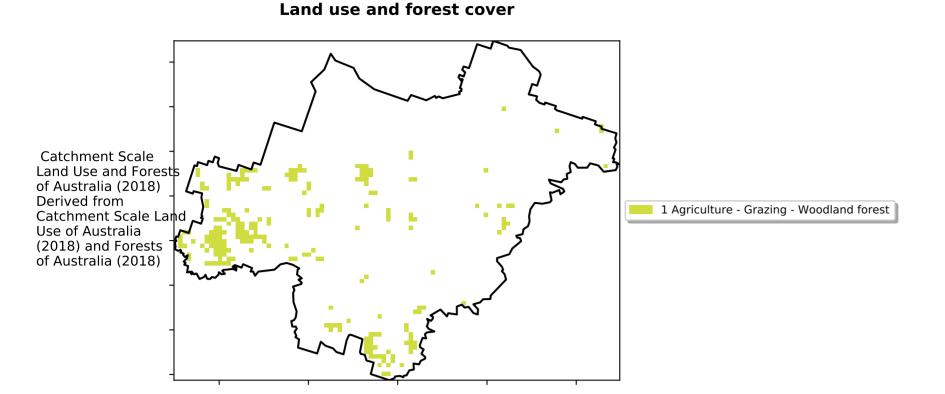
Grazing non forest timeseries



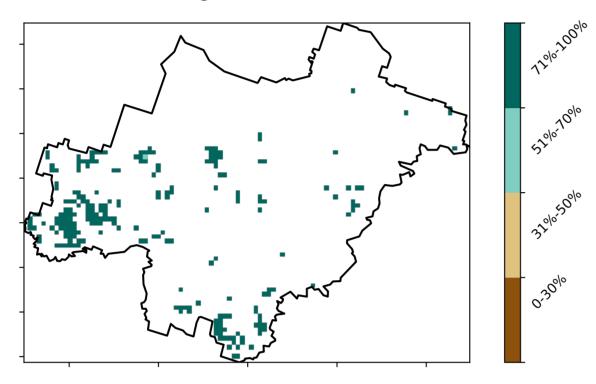


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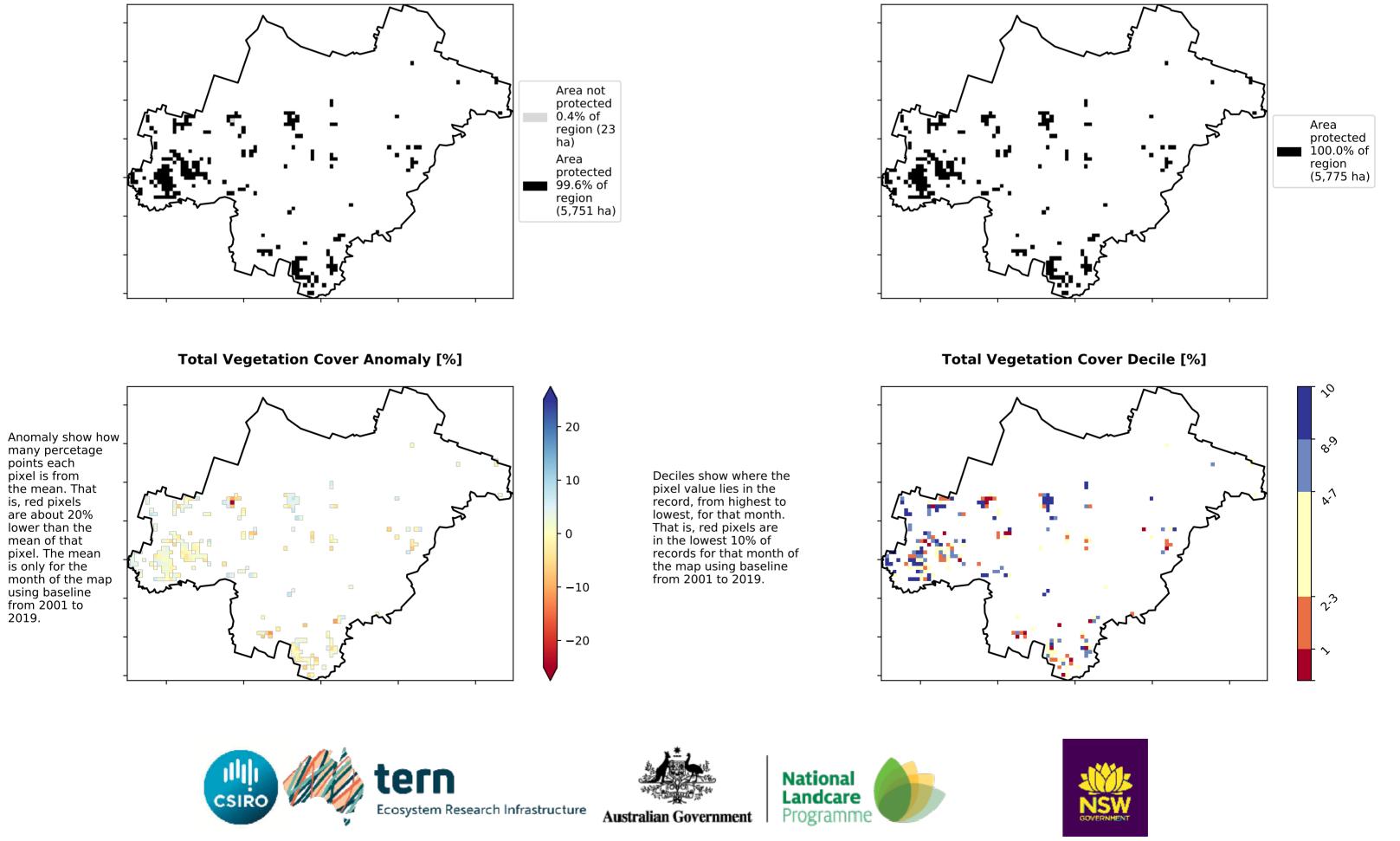
Grazing Woodland forest



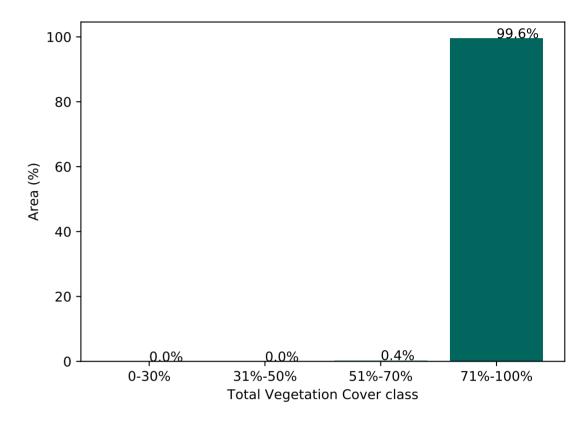
Total Vegetation Cover [%]



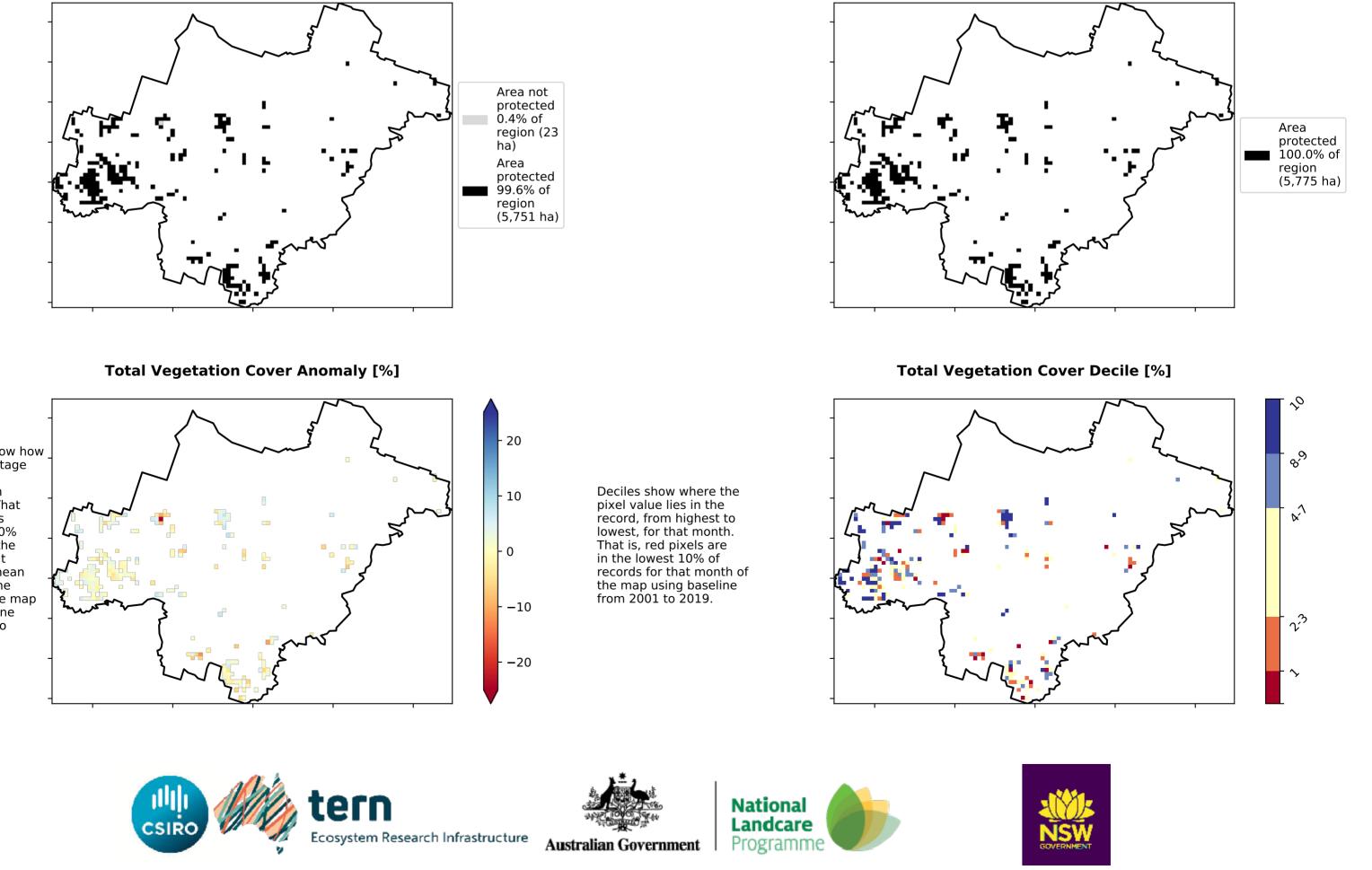
% Area protected from water erosion (>70%)



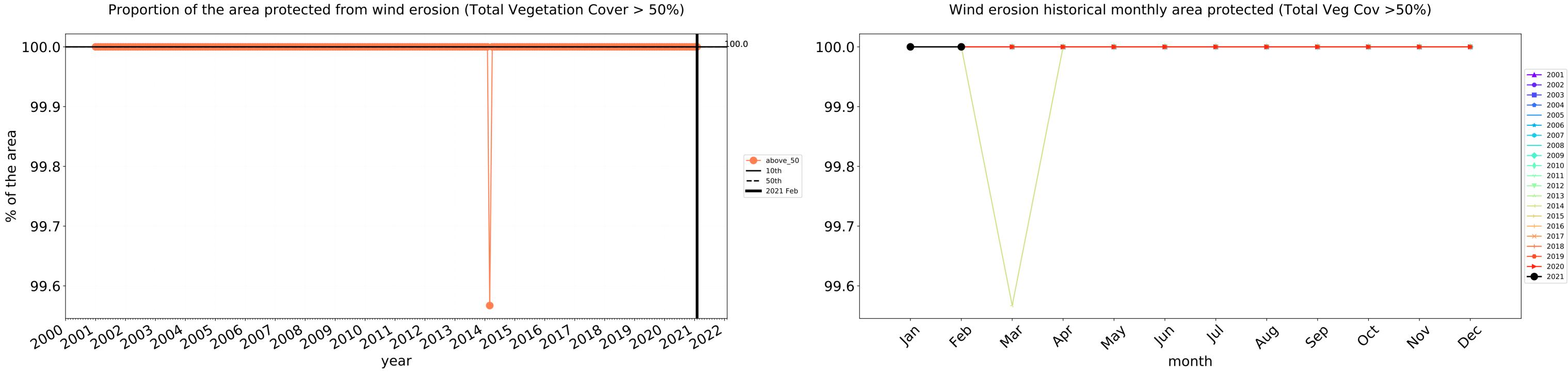
Proportion of vegetation cover class in area



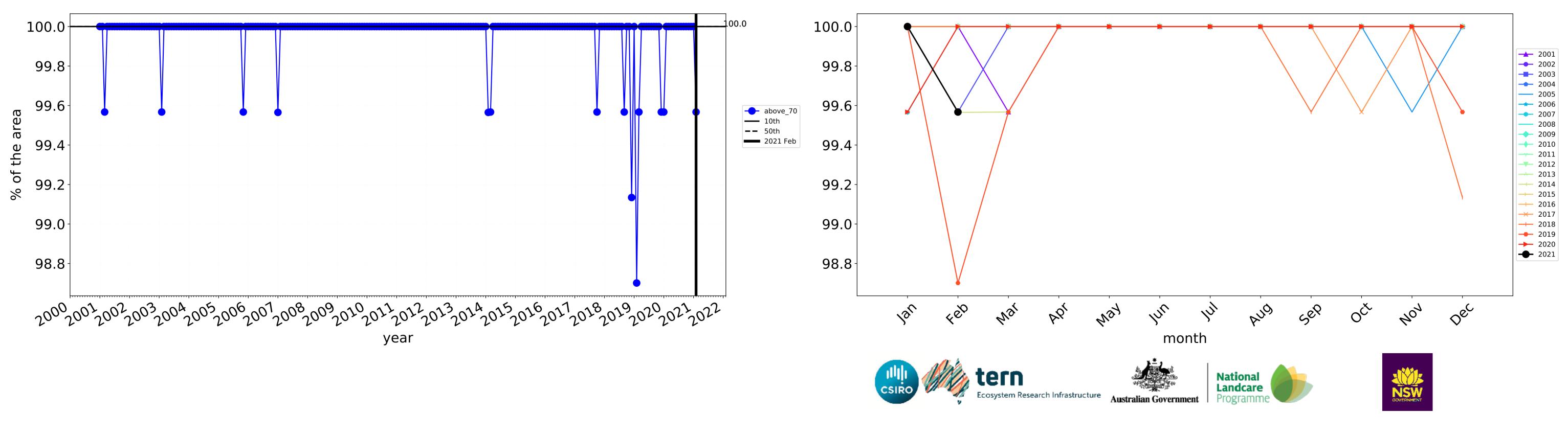
% Area protected from wind erosion (>50%)



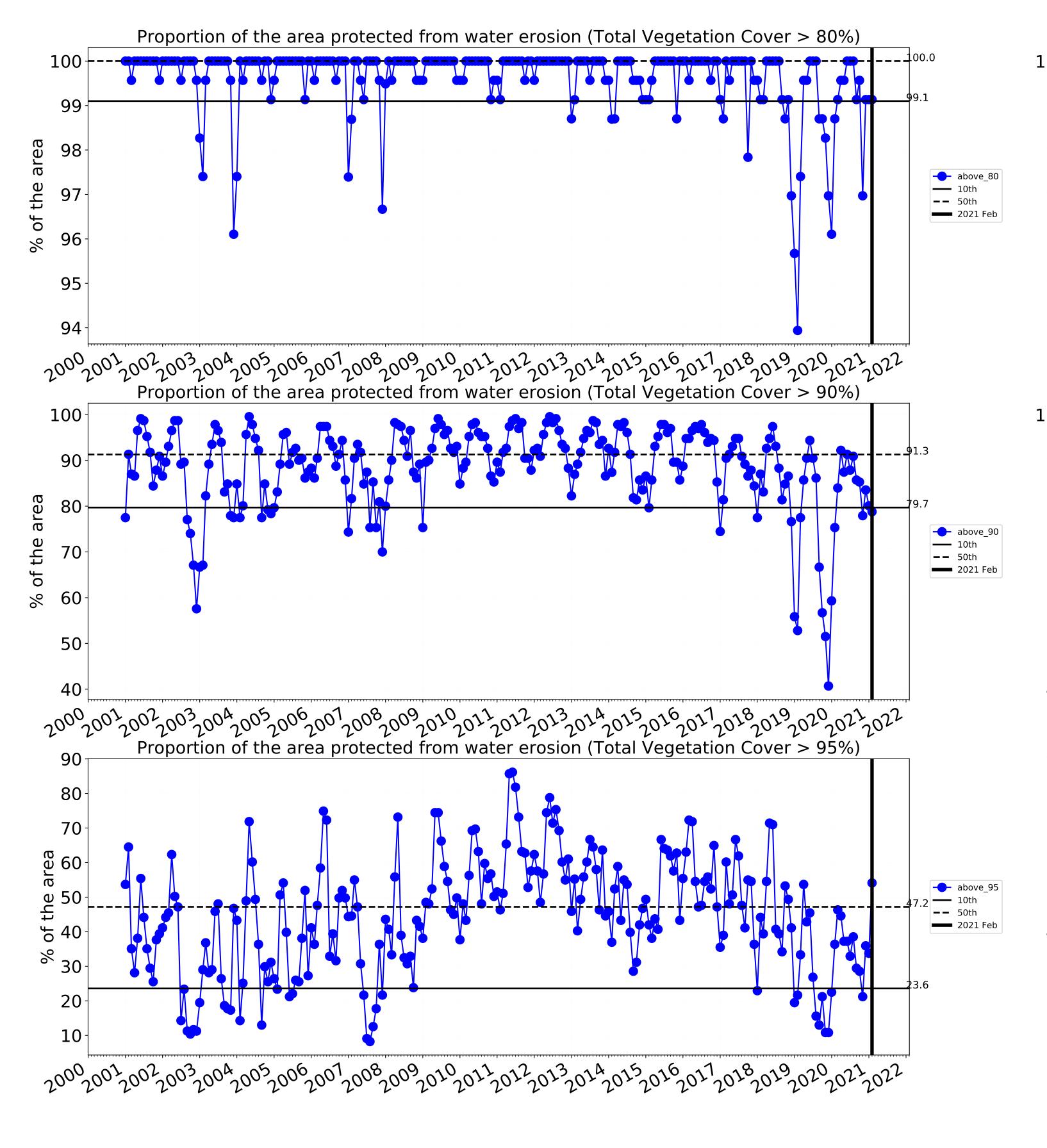
Grazing Woodland forest timeseries

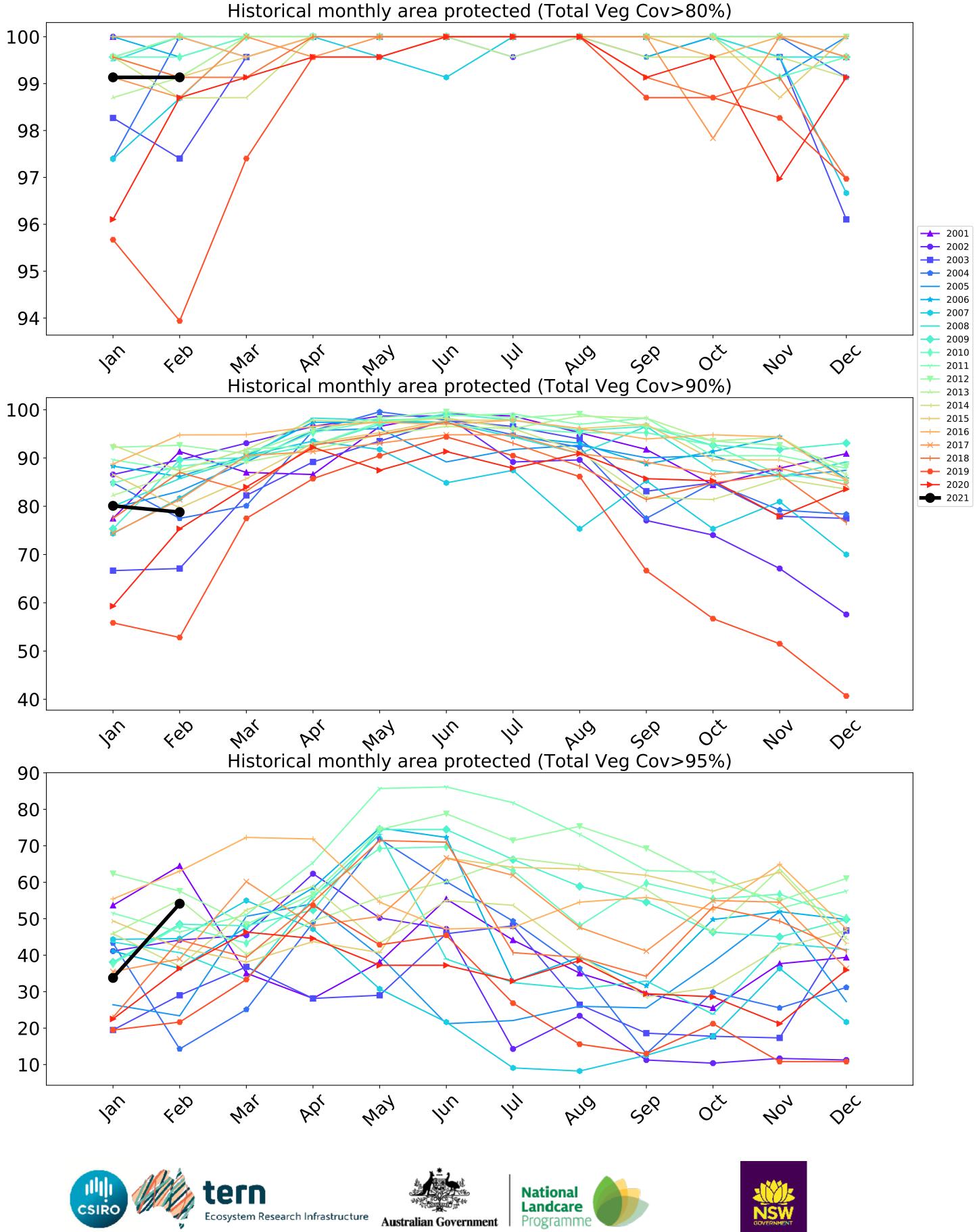


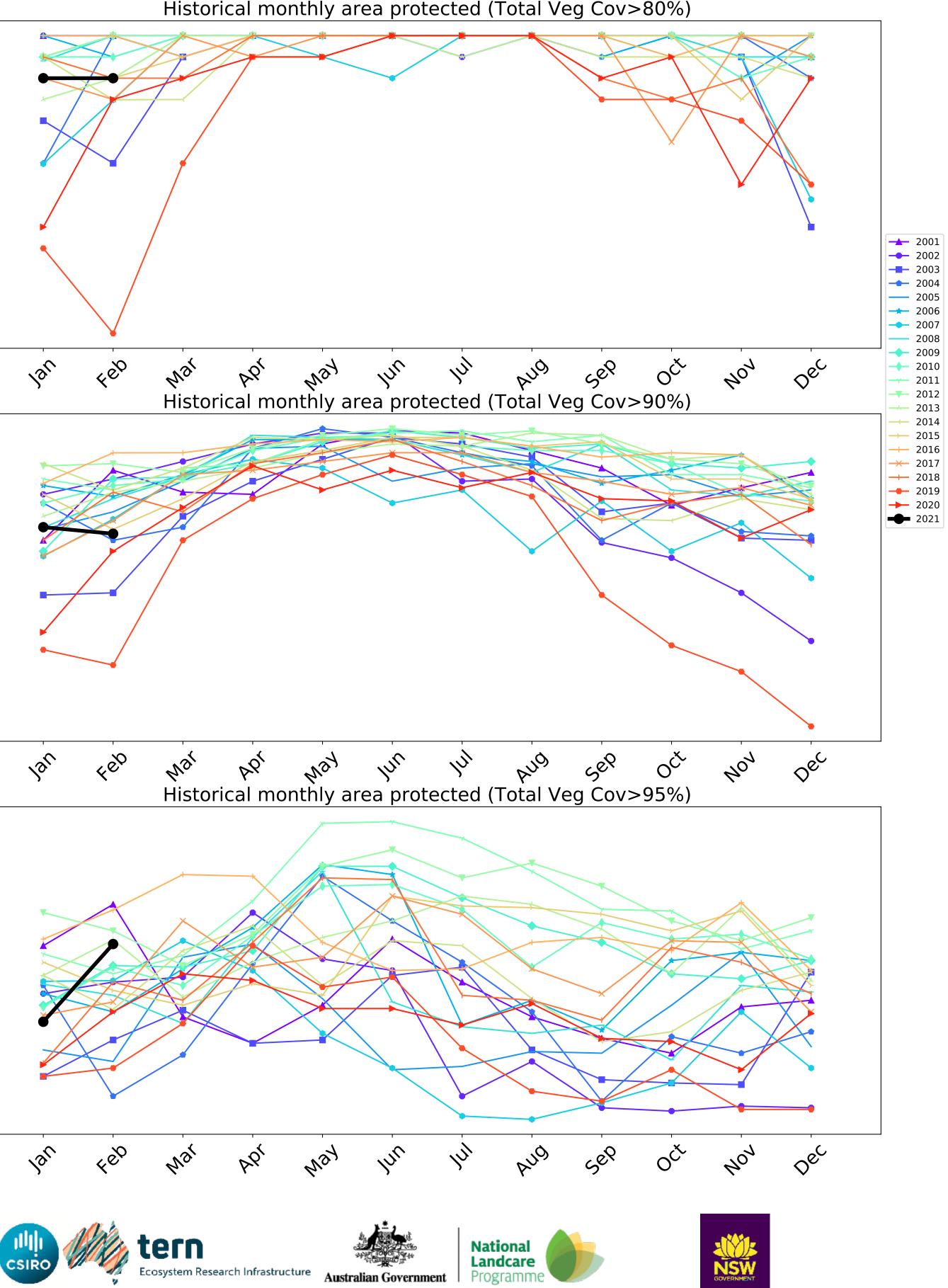
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



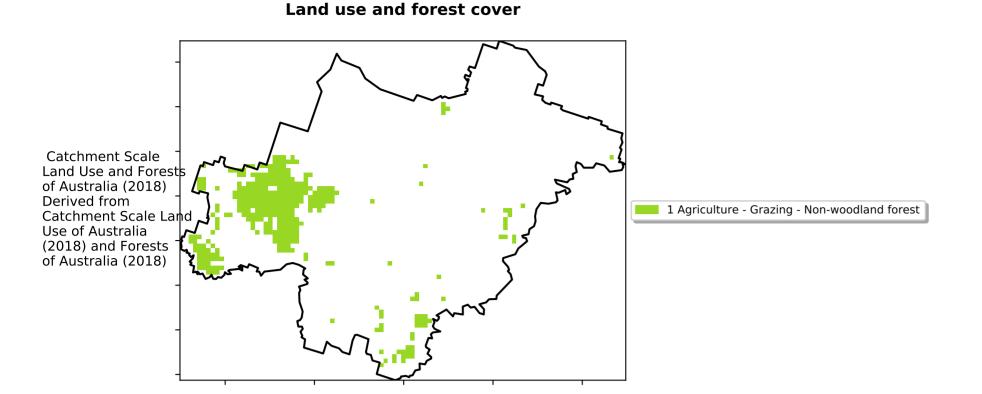
Water erosion historical monthly area protected (Total Veg Cov>70%)



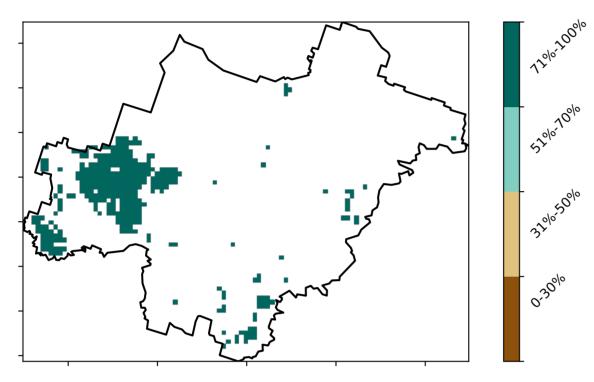




Grazing - Forest (non woodland)



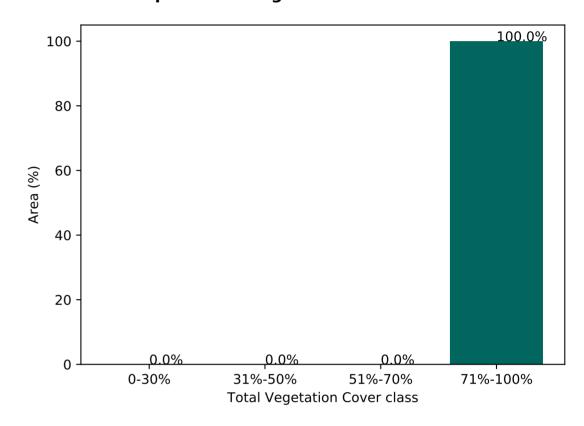
Total Vegetation Cover [%]



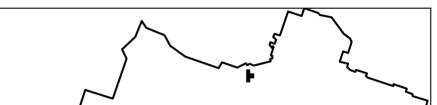
% Area protected from water erosion (>70%)

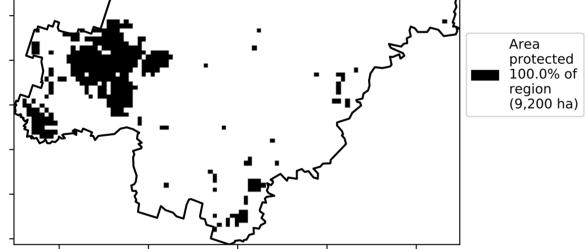


Proportion of vegetation cover class in area

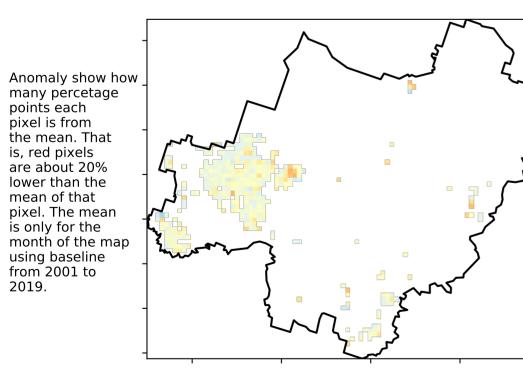


% Area protected from wind erosion (>50%)





Total Vegetation Cover Anomaly [%]



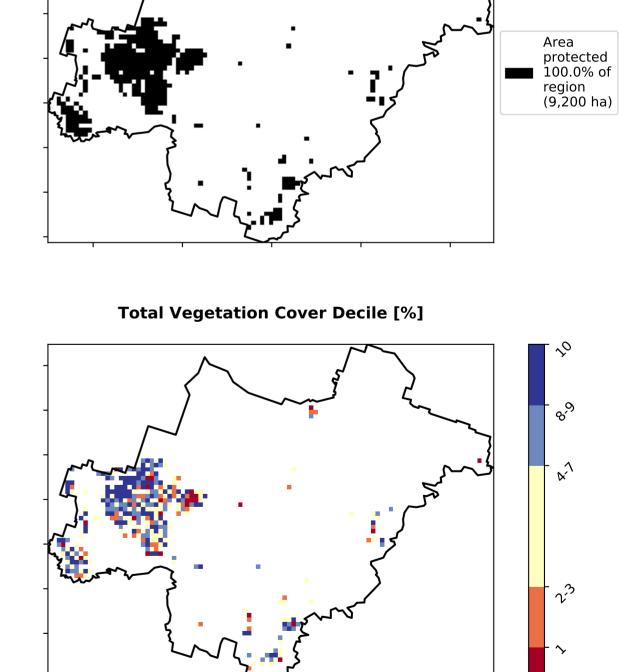
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. -10

- 20

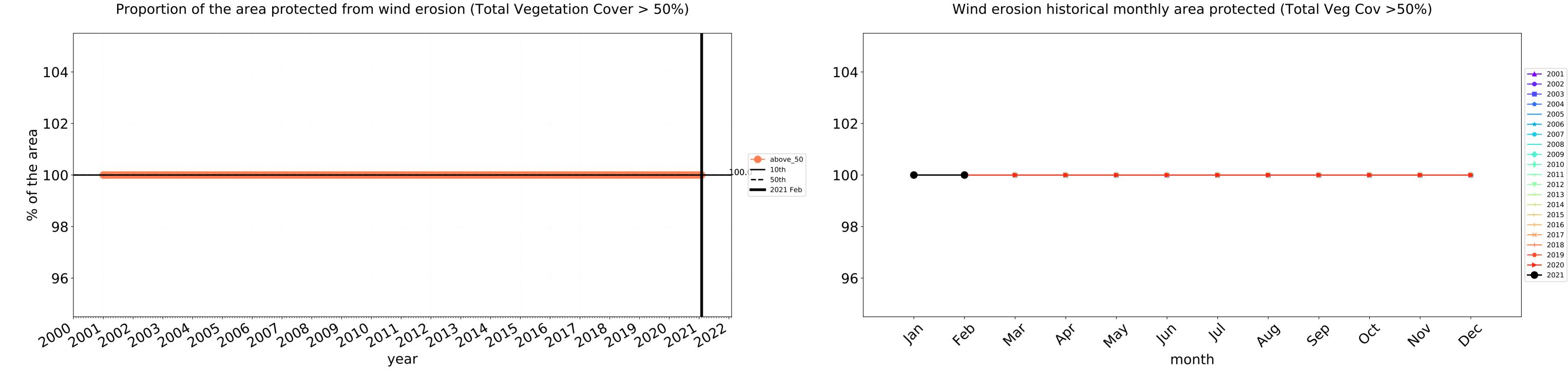
- 10

0

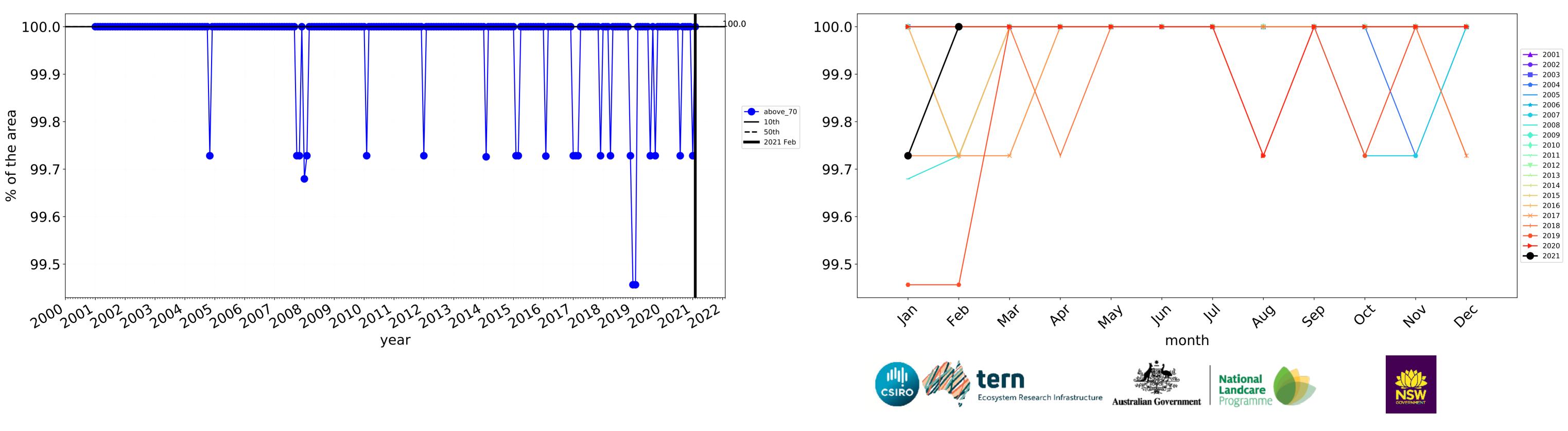
-20



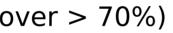




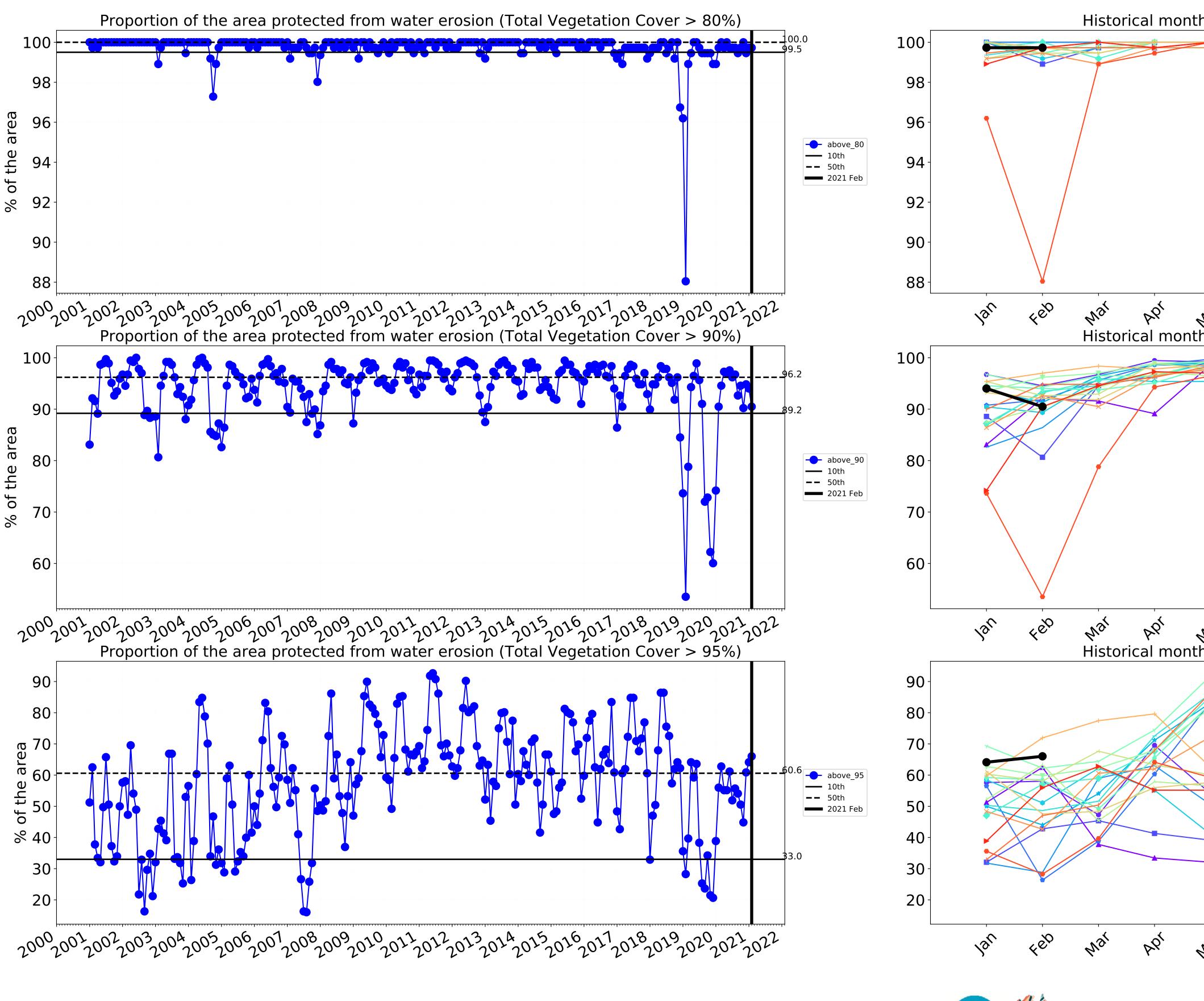
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

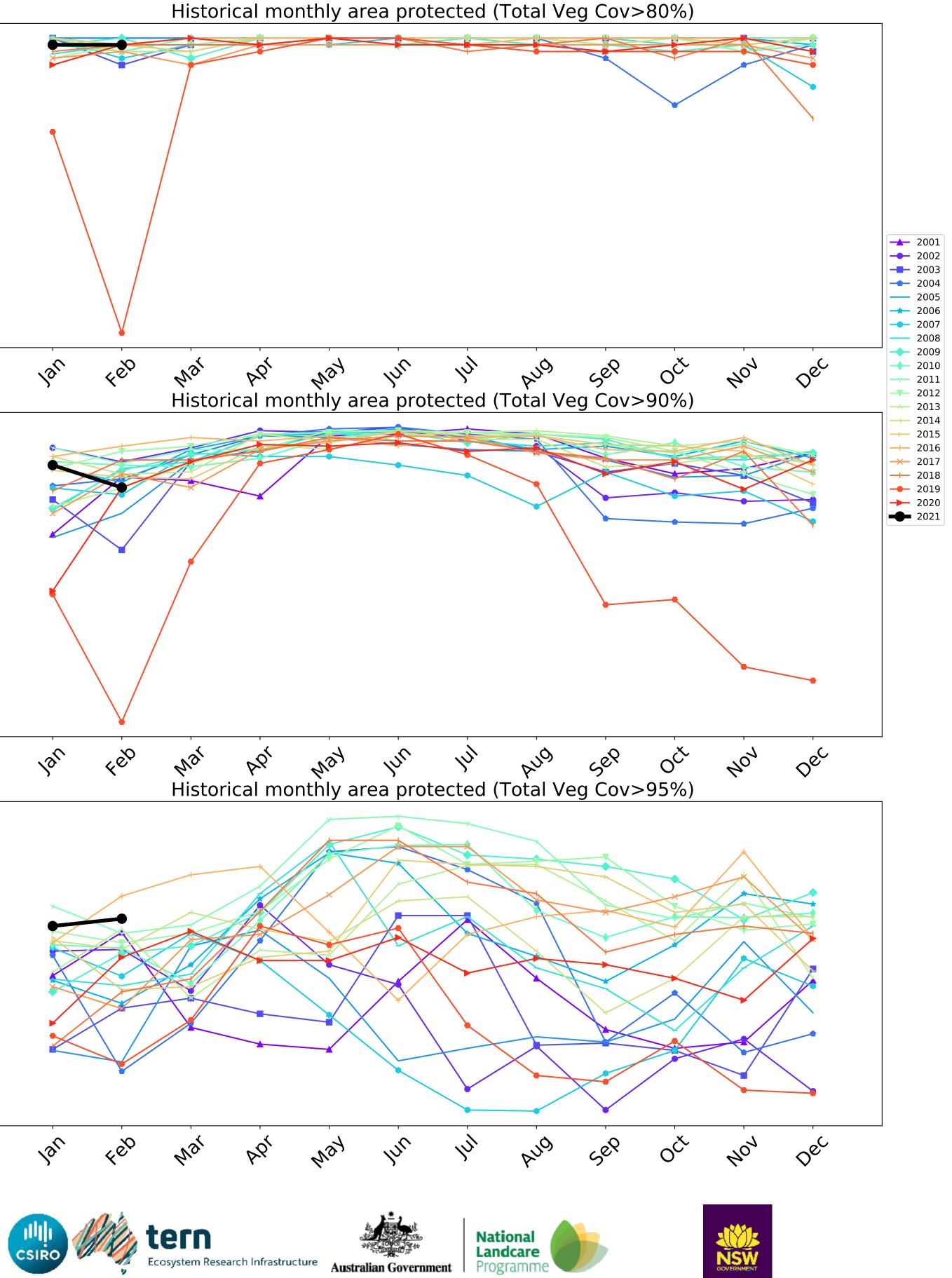


Grazing - Forest (non woodland) timeseries



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



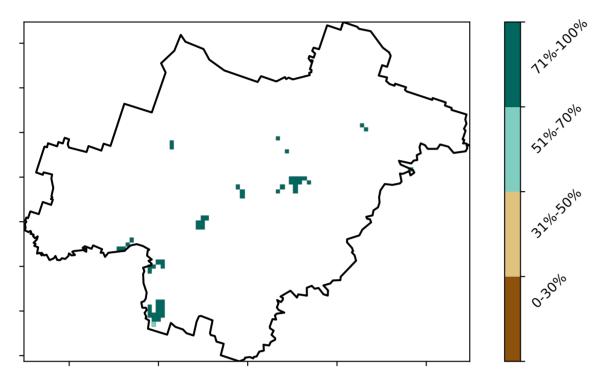


Irrigation

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

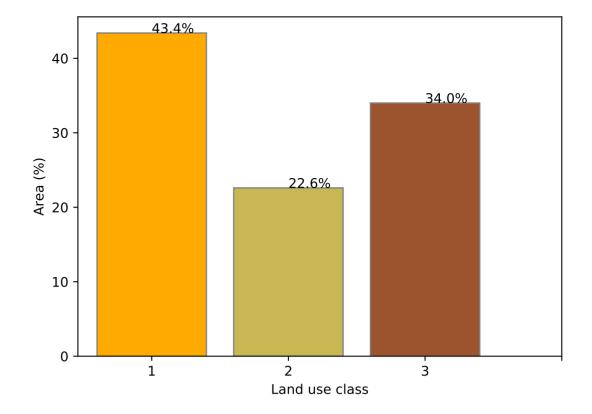
Land use and forest cover

Total Vegetation Cover [%]



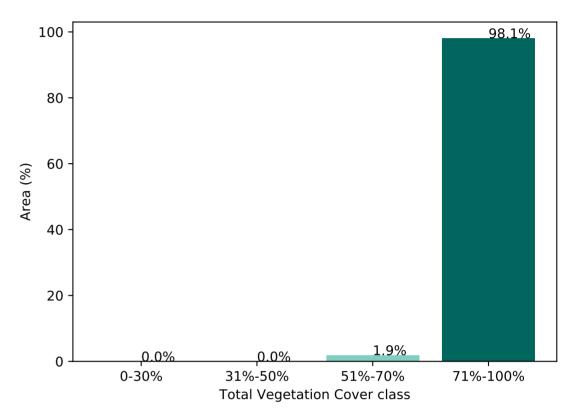
% Area protected from water erosion (>70%)





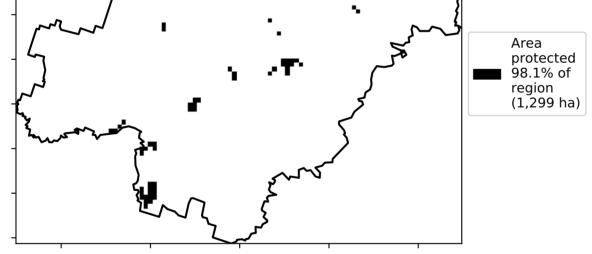
Proportion of each land class in area

Proportion of vegetation cover class in area

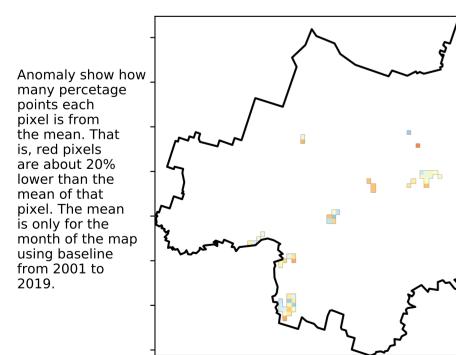


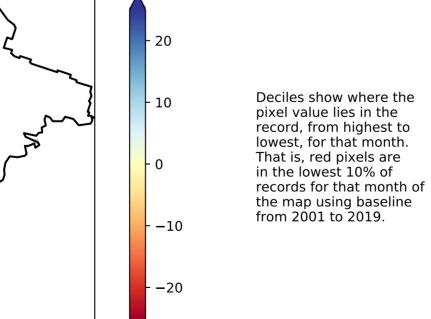
% Area protected from wind erosion (>50%)

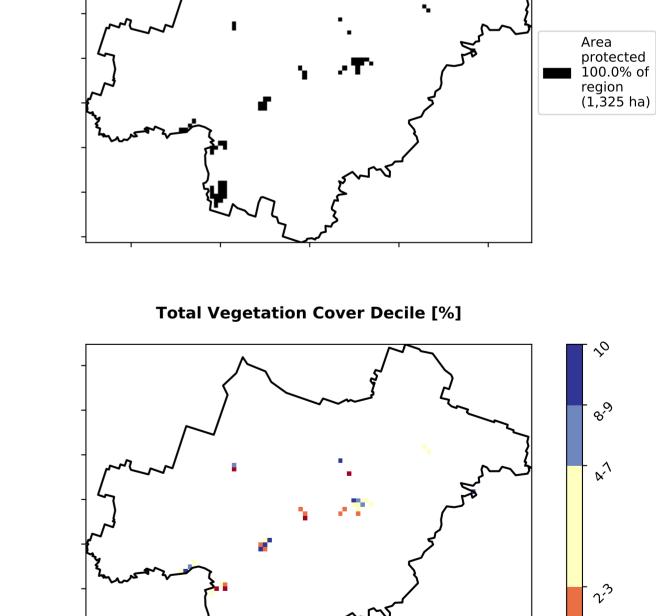




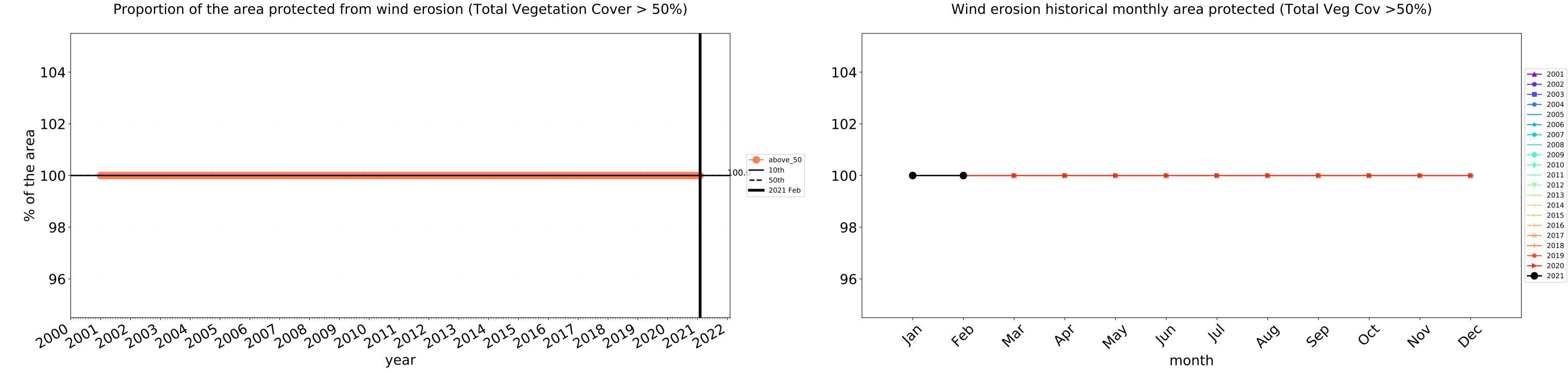
Total Vegetation Cover Anomaly [%]

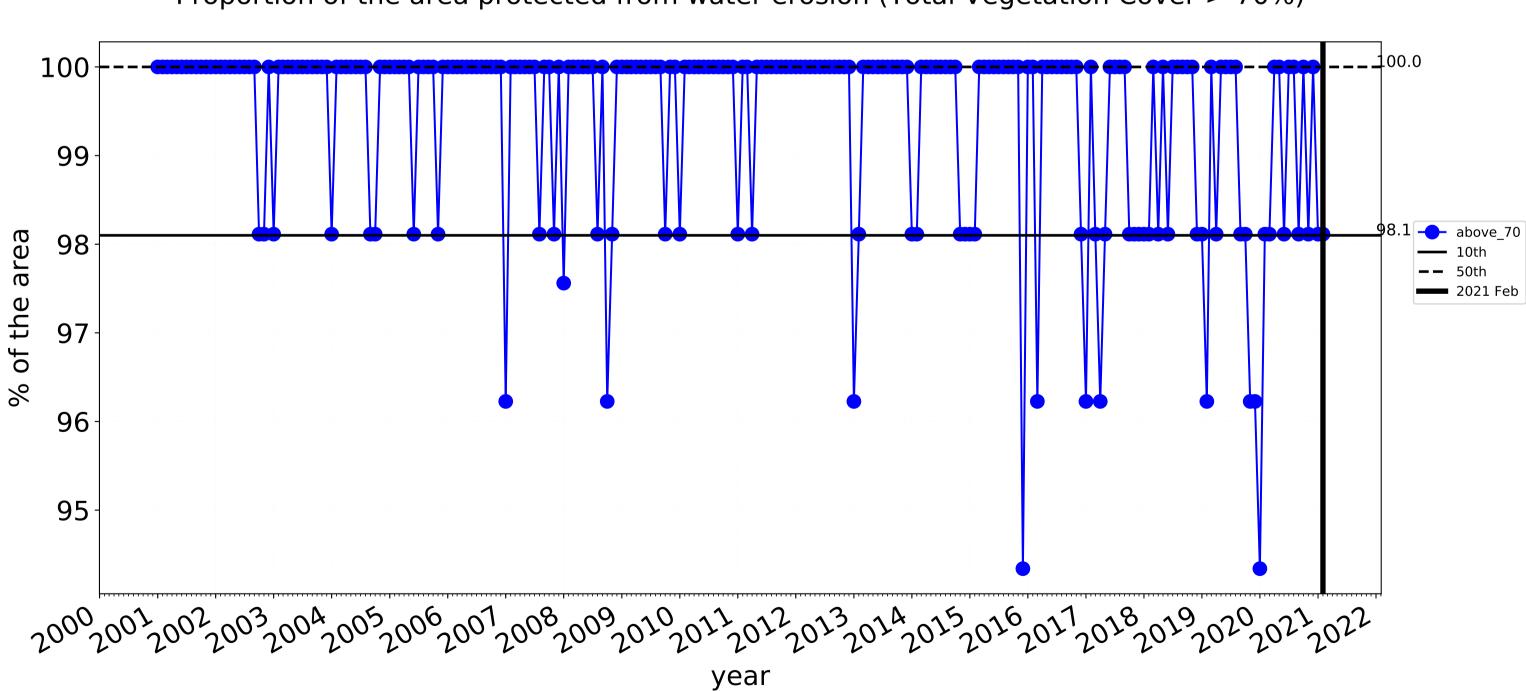








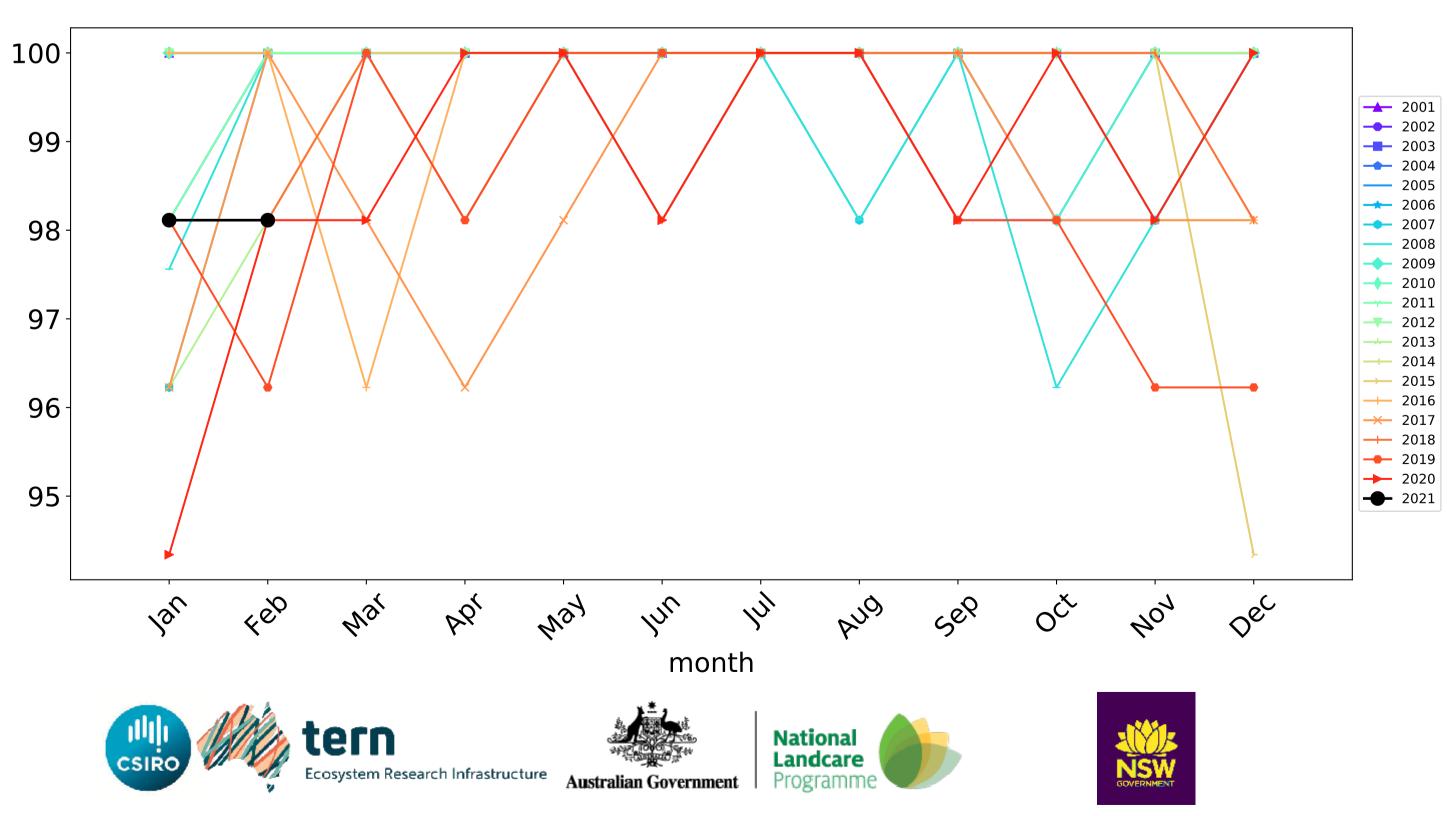


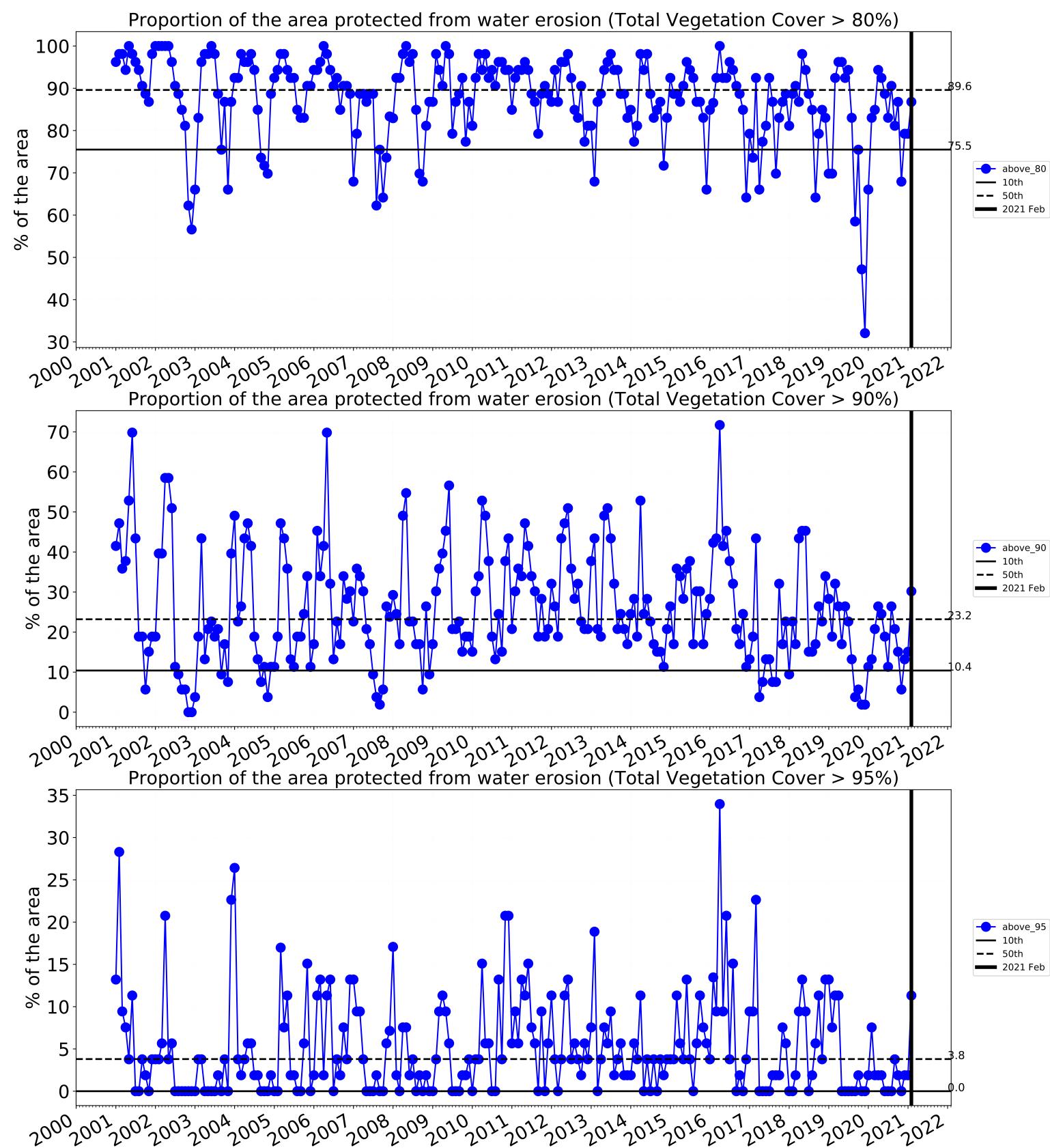


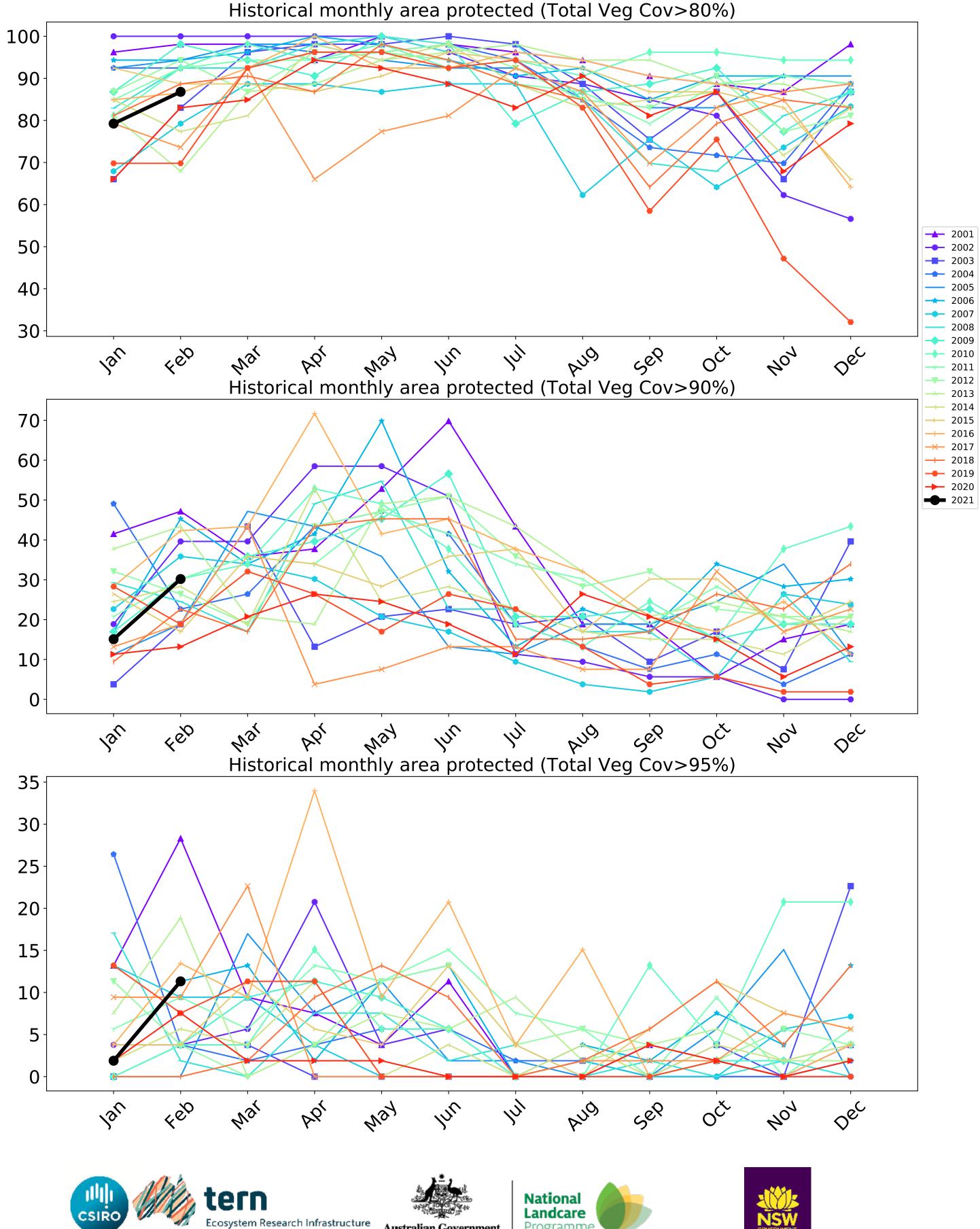
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

Irrigation timeseries

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



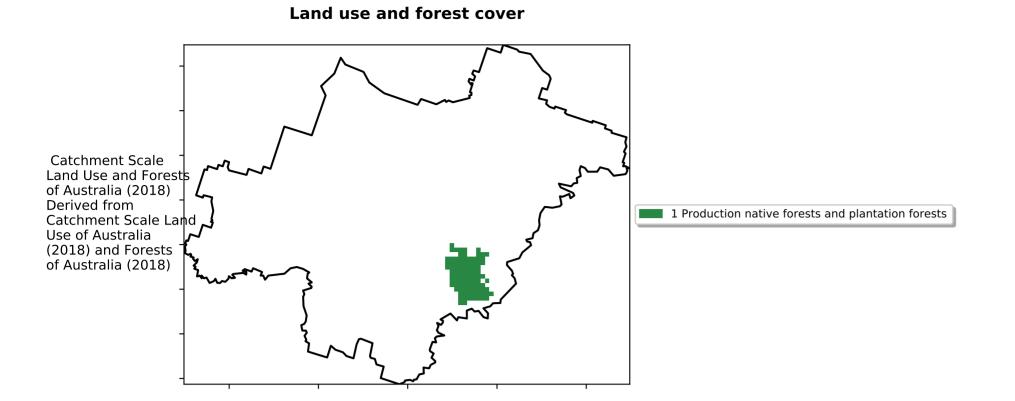




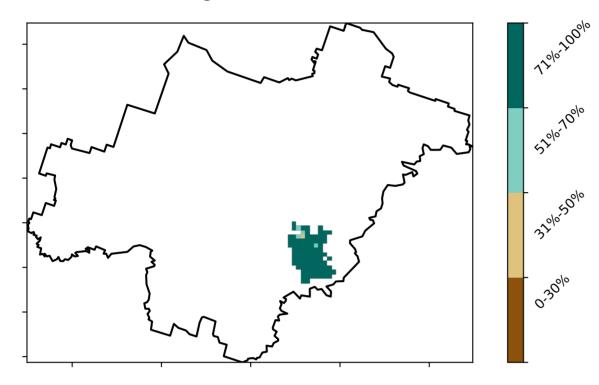
Programm



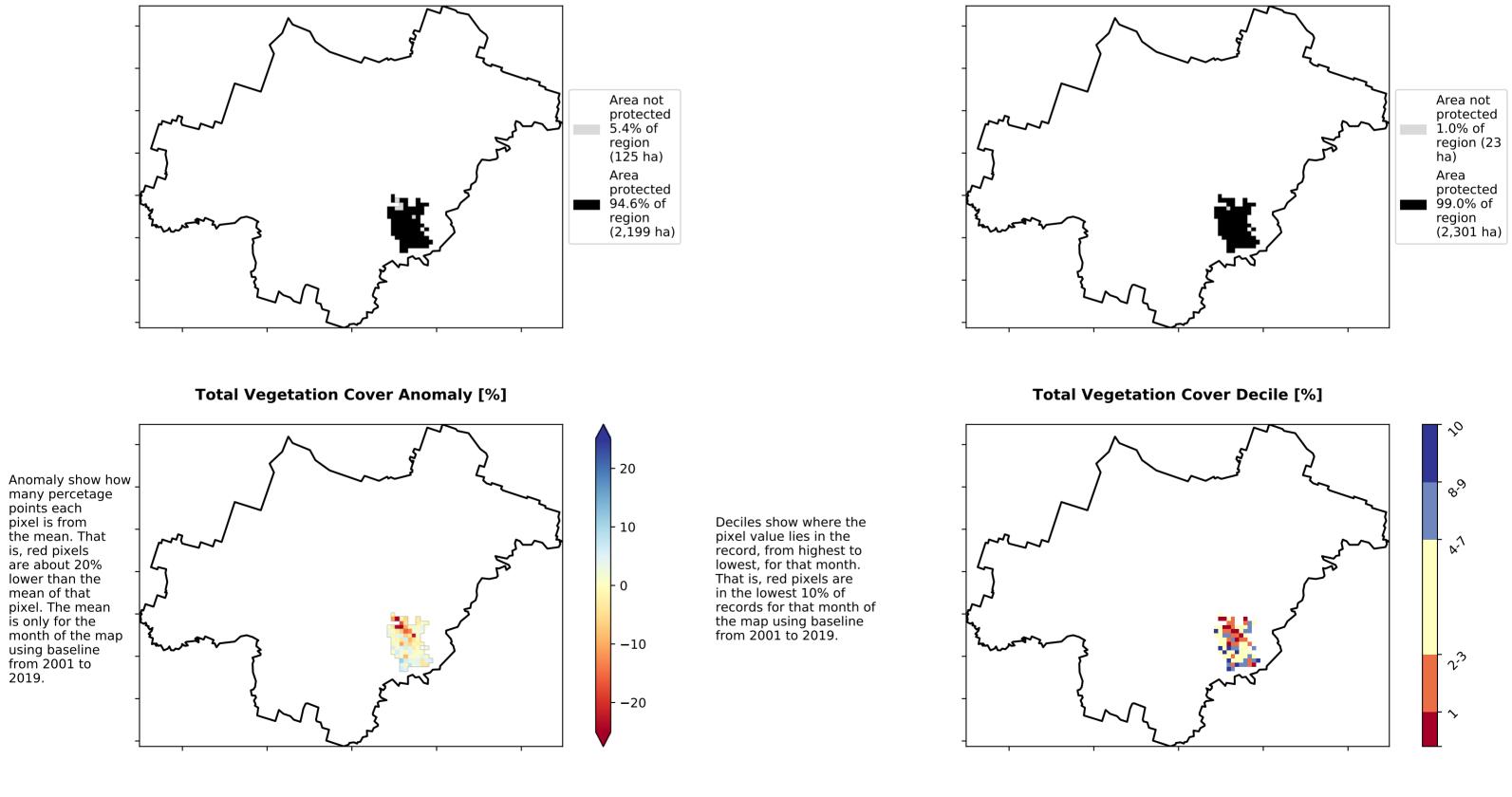
Production native forests and plantation forests



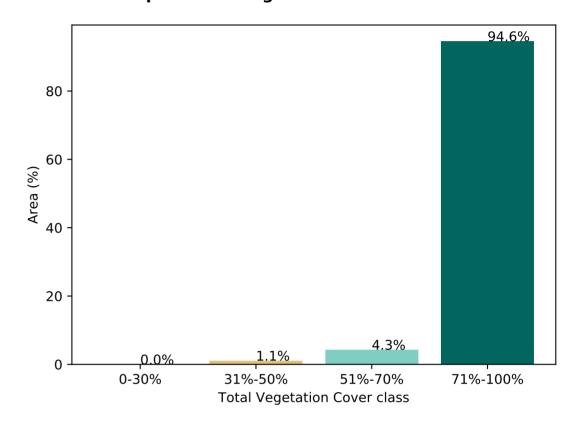
Total Vegetation Cover [%]



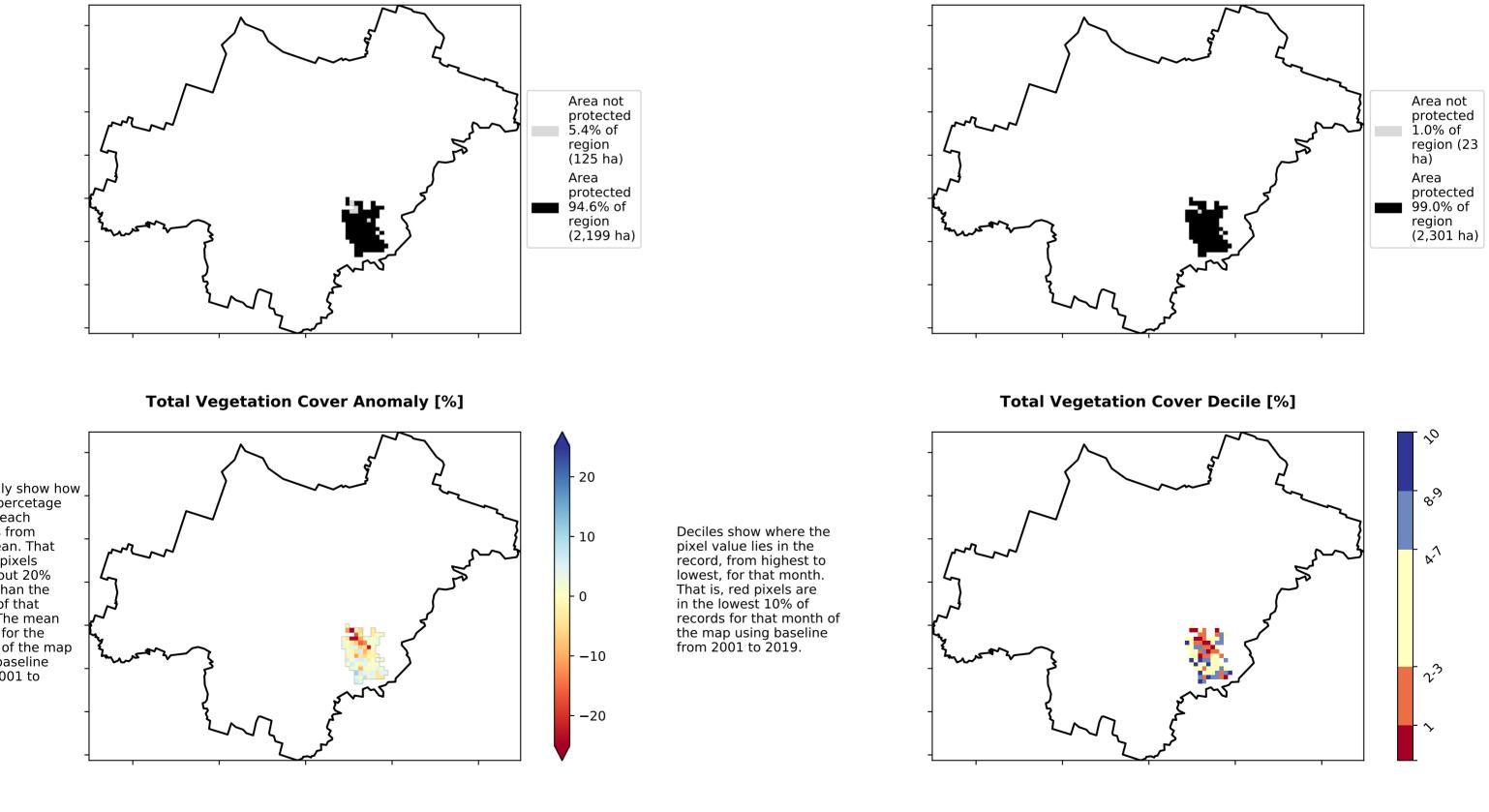
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

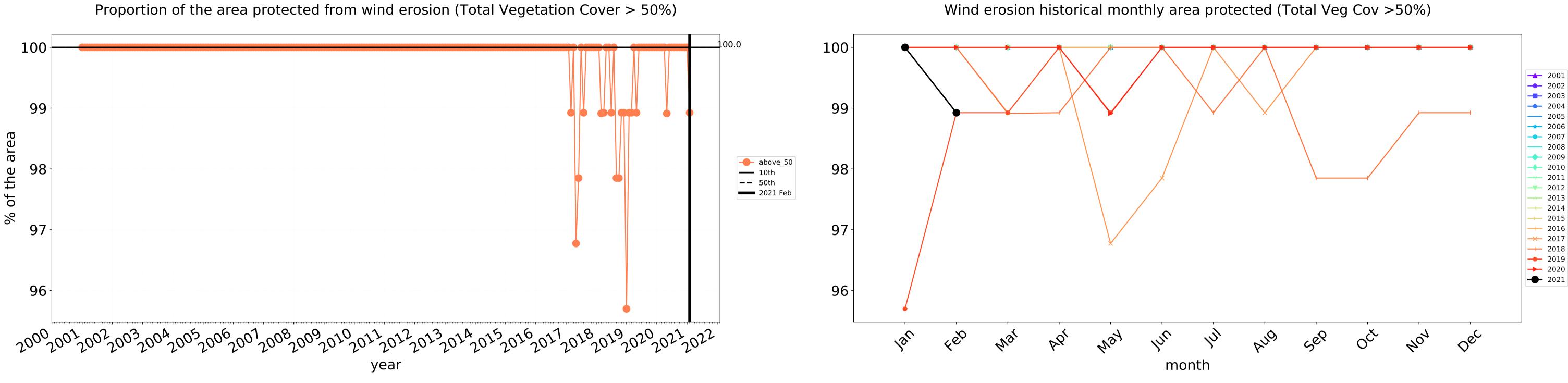


% Area protected from wind erosion (>50%)

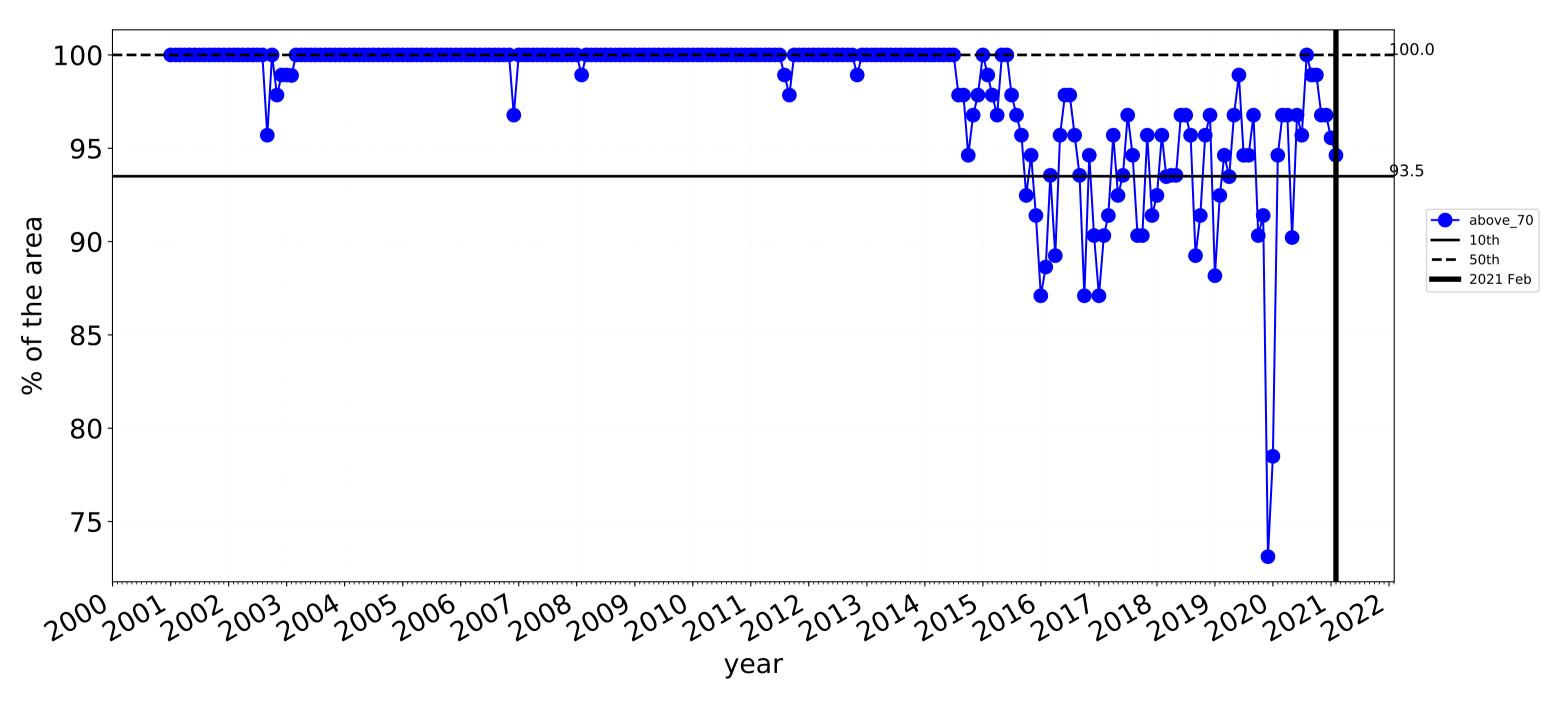


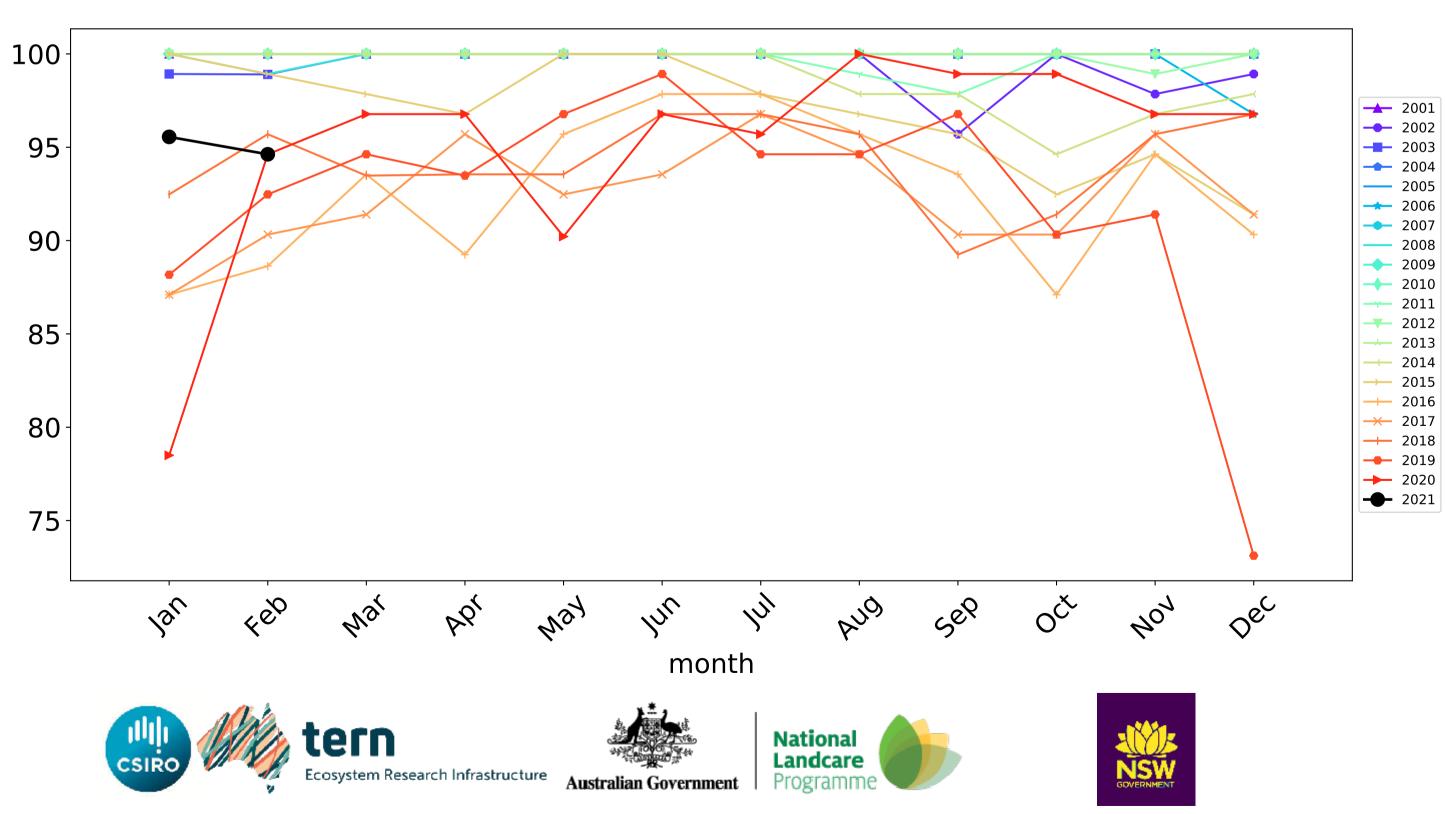


Production native forests and plantation forests timeseries

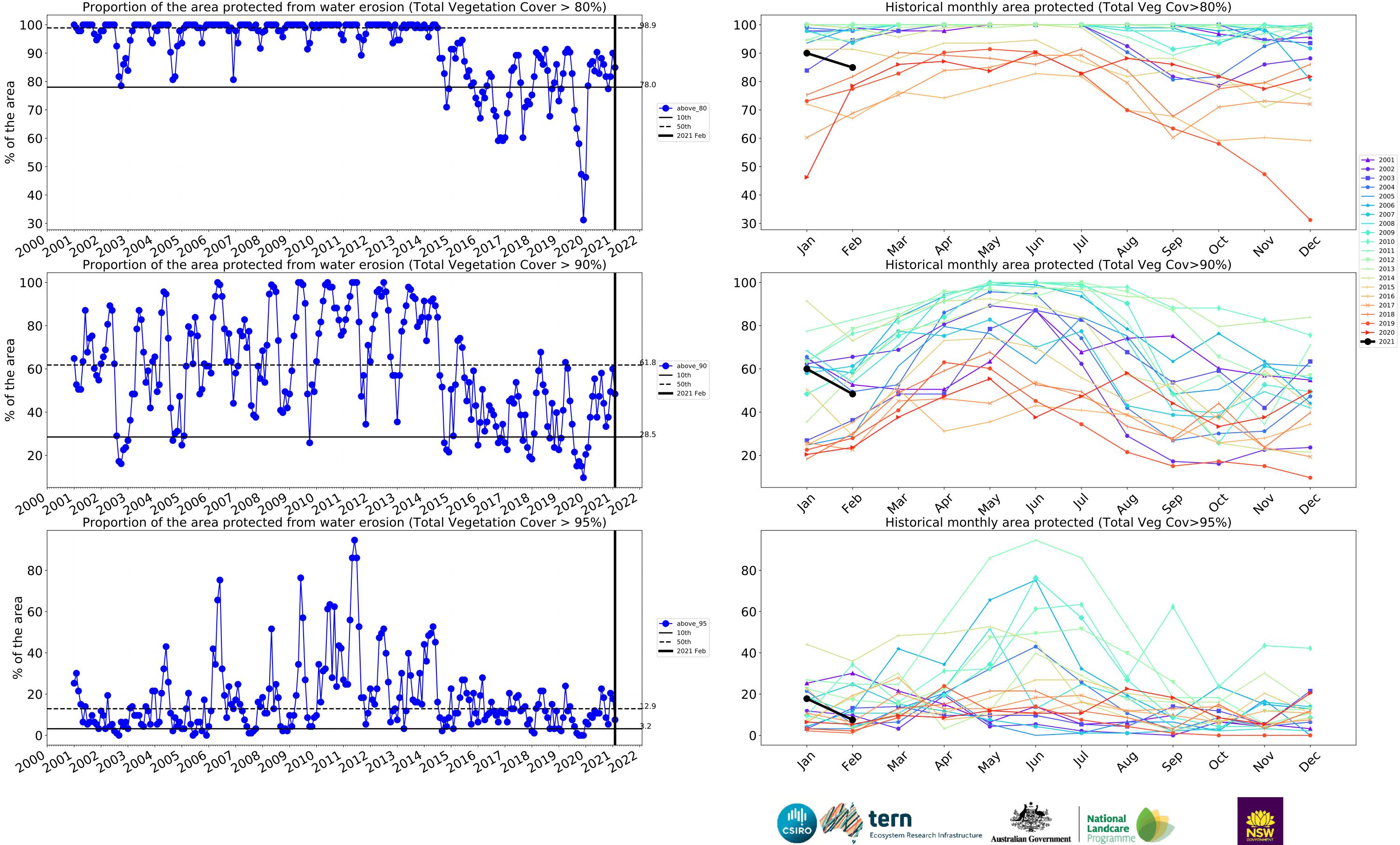


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)





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



Logan_(C) (95,675 ha and no data 109 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	95,675	100.0% 95,675	99.7% 95,350	94.6% 90,475	84.4% 80,725	53.6% 51,275	26.4% 25,225
Conservation and natural environments	10,775	100.0% 10,775	100.0% 10,775	99.5% 10,725	97.7% 10,525	86.1% 9,275	58.7% 6,325
Conservation and natural environments Woodland forest	2,675	100.0% 2,675	100.0% 2,675	100.0% 2,675	98.1% 2,625	91.6% 2,450	70.1% 1,875
Conservation and natural environments Forest (non woodland)	7,950	100.0% 7,950	100.0% 7,950	99.4% 7,900	98.1% 7,800	84.9% 6,750	55.7% 4,425
Agriculture	31,275	100.0% 31,275	100.0% 31,275	99.3% 31,050	96.2% 30,075	70.1% 21,925	42.0% 13,150
Grazing	29,750	100.0% 29,750	100.0% 29,750	99.3% 29,550	96.7% 28,775	72.4% 21,525	43.7% 13,000
Grazing non forest	14,775	100.0% 14,775	100.0% 14,775	98.8% 14,600	93.9% 13,875	58.5% 8,650	25.7% 3,800
Grazing Woodland forest	5,775	100.0% 5,775	100.0% 5,775	99.6% 5,750	99.1% 5,725	78.8% 4,550	54.1% 3,125
Grazing - Forest (non woodland)	9,200	100.0% 9,200	100.0% 9,200	100.0% 9,200	99.7% 9,175	90.5% 8,325	66.0% 6,075
Irrigation	1,325	100.0% 1,325	100.0% 1,325	98.1% 1,300	86.8% 1,150	30.2% 400	11.3% 150
Production native forests and plantation forests	2,325	100.0% 2,325	98.9% 2,300	94.6% 2,200	84.9% 1,975	48.4% 1,125	7.5% 175

