

DEPARTMENT OF PLANNING, INDUSTRY & ENVIRONMENT

# How much vegetation should we have in droughts to protect the land from erosion?

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COMMUNITY-BASED WIND EROSION MONITORING  
AUSTRALIA

Dust storm at Umuwa Photo: Gary McWilliams, Mining Tenement Officer, APY

# Outline

- Soil erosion reduces the land's productivity and air quality
- Ground cover can help reduce soil erosion
- But how much should we have?



Photo Credit: Tim Gilbert. Broken Hill 1-2-2010

# Soil Productivity

- Soil erosion reduces the land's productivity



Photo Credits: John Leys

# Air Quality

- Dust reduces air quality
- Red Dawn” dust storm September 2009
  - 2.54 Tg (Leys et al 2011).
  - \$299M for New South Wales economy (Tozer and Leys 2013)



Photo Credit: Colin Seton

# How much cover is enough? Theory

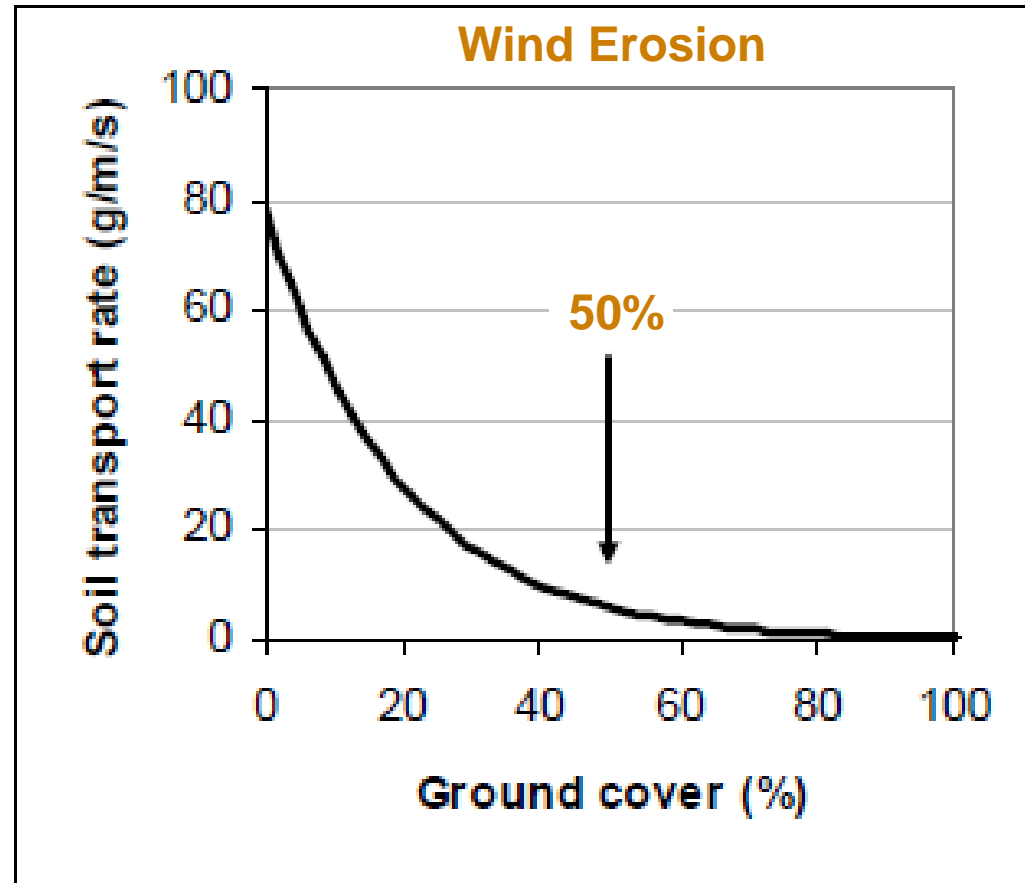
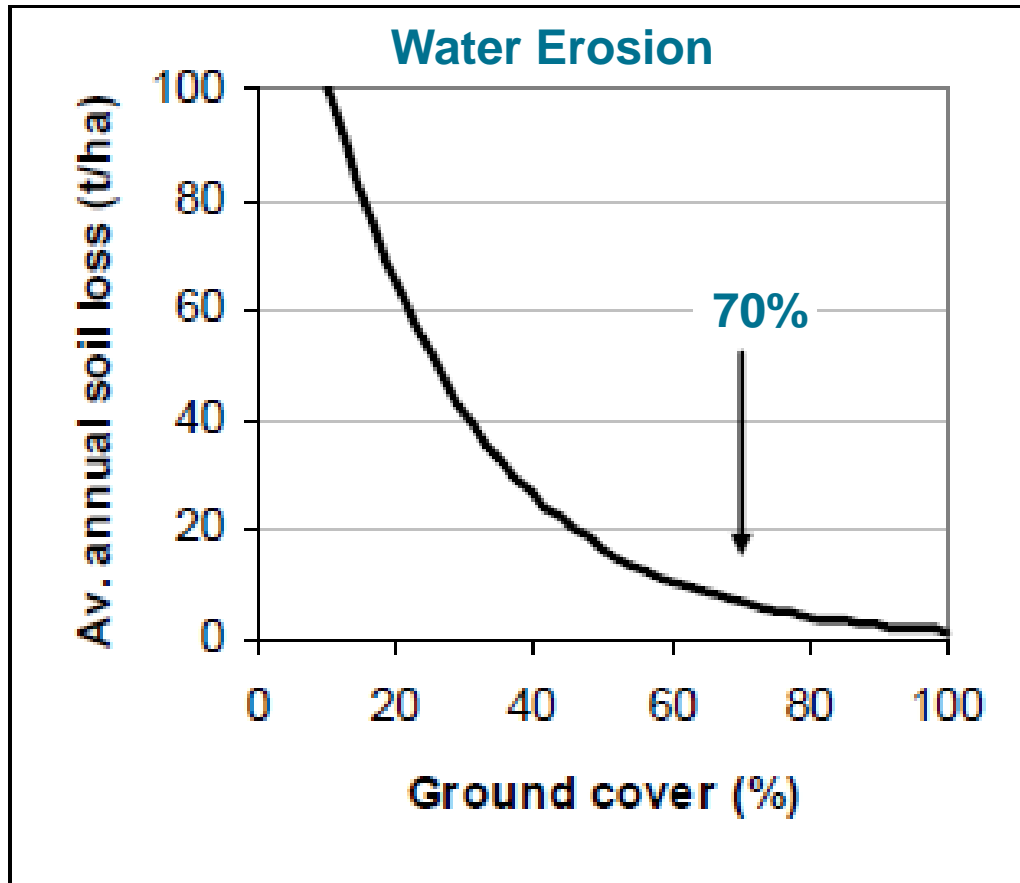


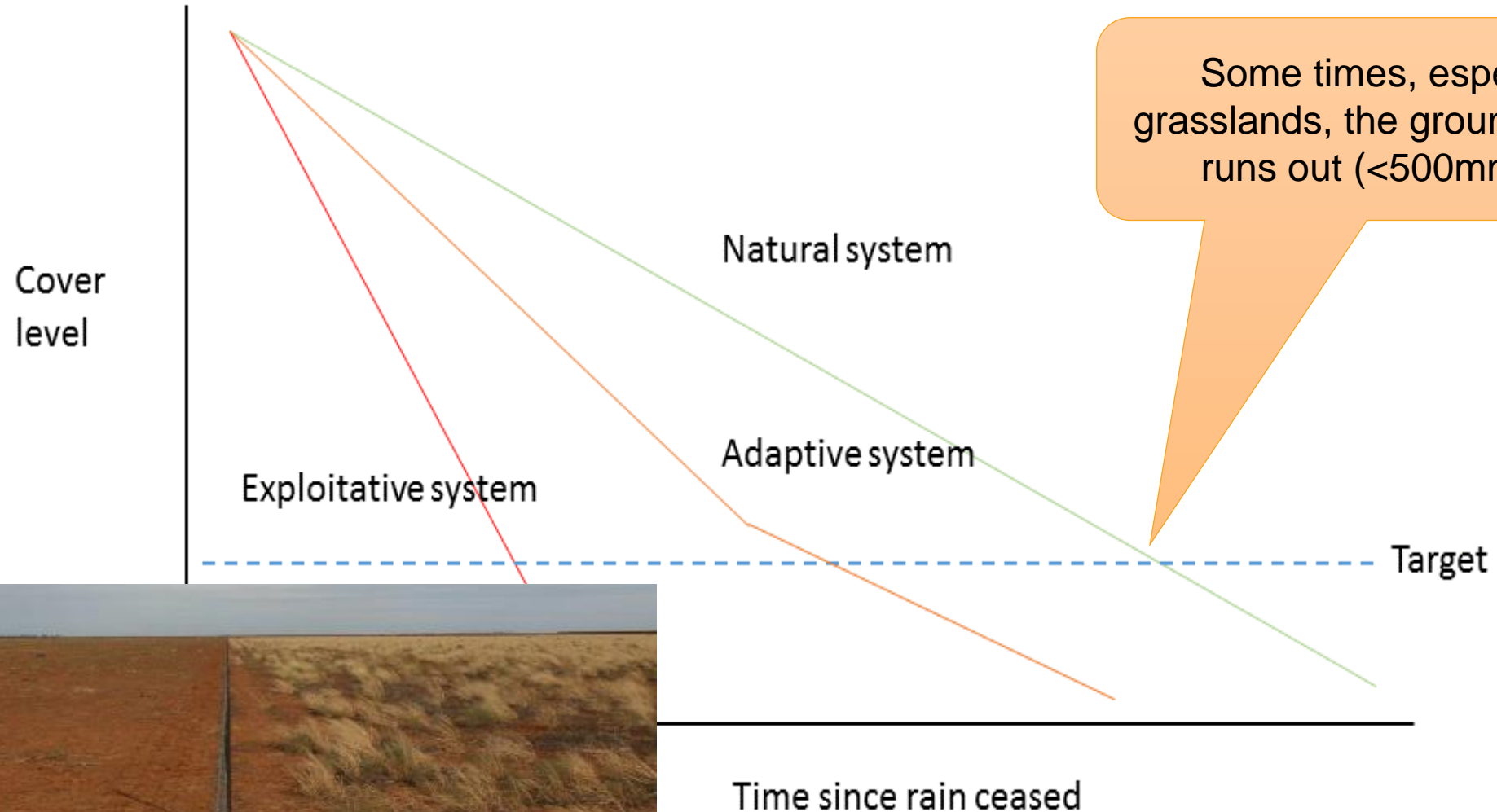
Figure 29. Effect of percentage ground cover on a) average annual soil loss by water (source: Lang 1995), and b) transport rate for a 75km/h wind (source: Leys 1998). Arrows indicate target cover levels

# How much cover is enough? Practical



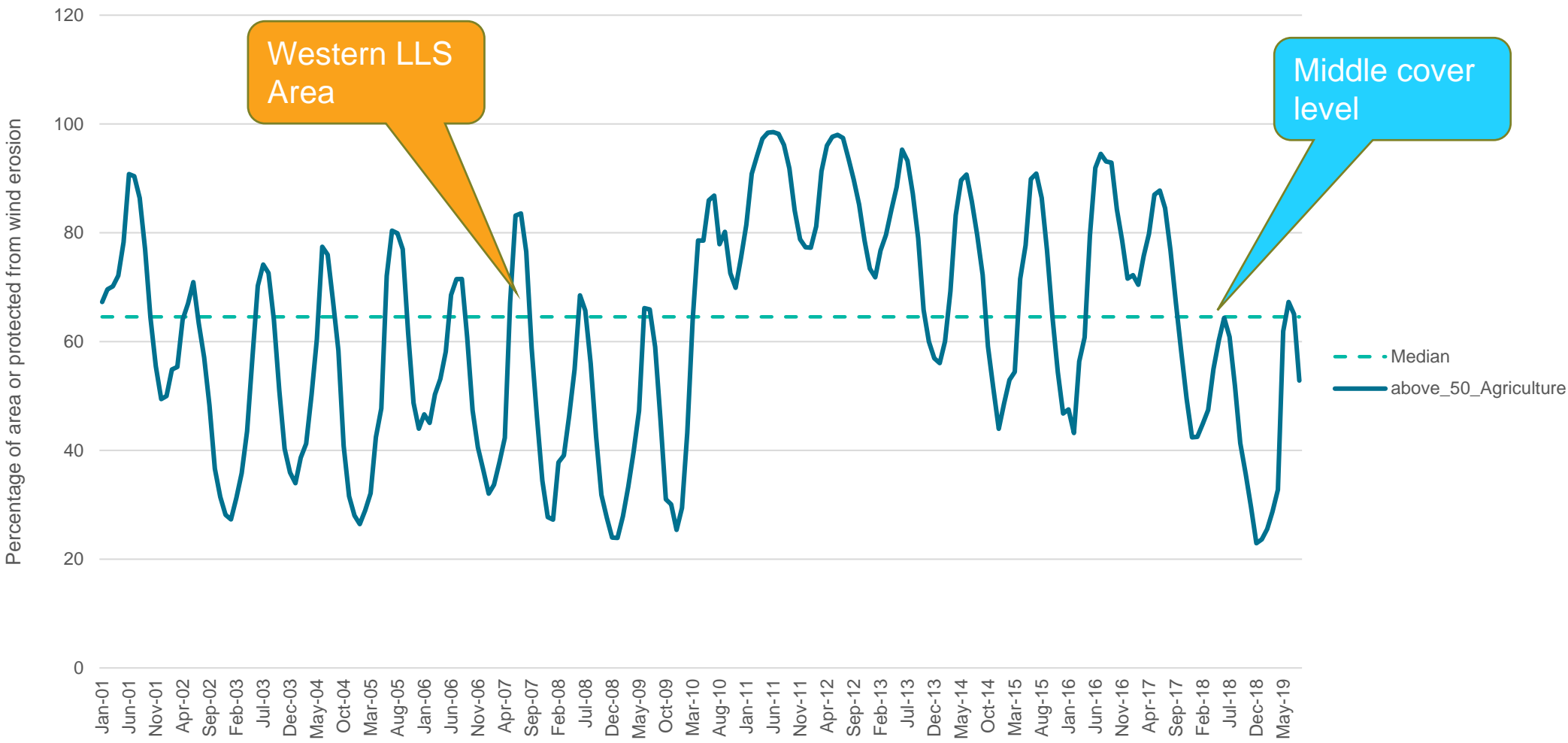
Photo Credits: John Leys

# Drought and groundcover





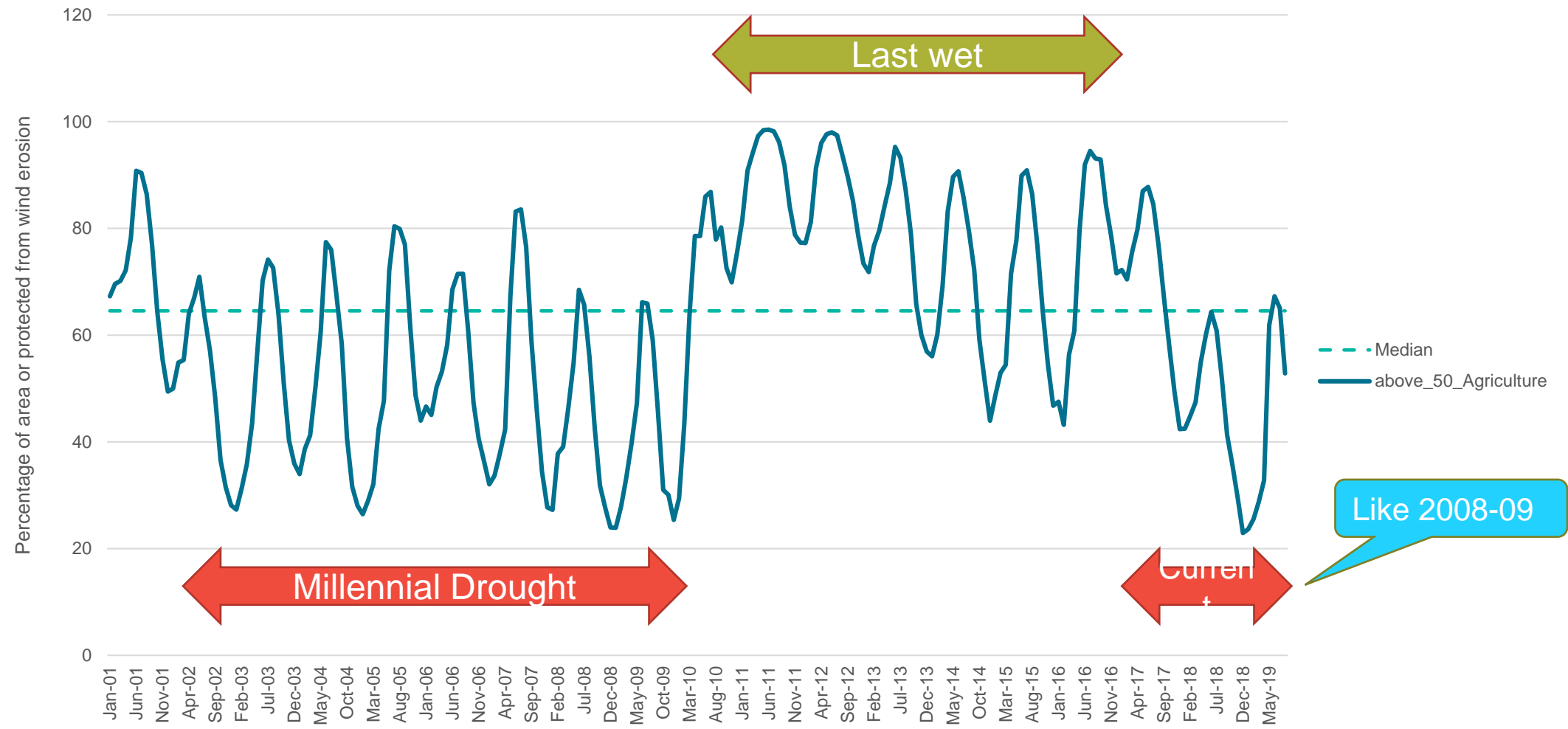
# How have we performed in last few droughts?



Source: <https://map.geo-rapp.org/#australia>



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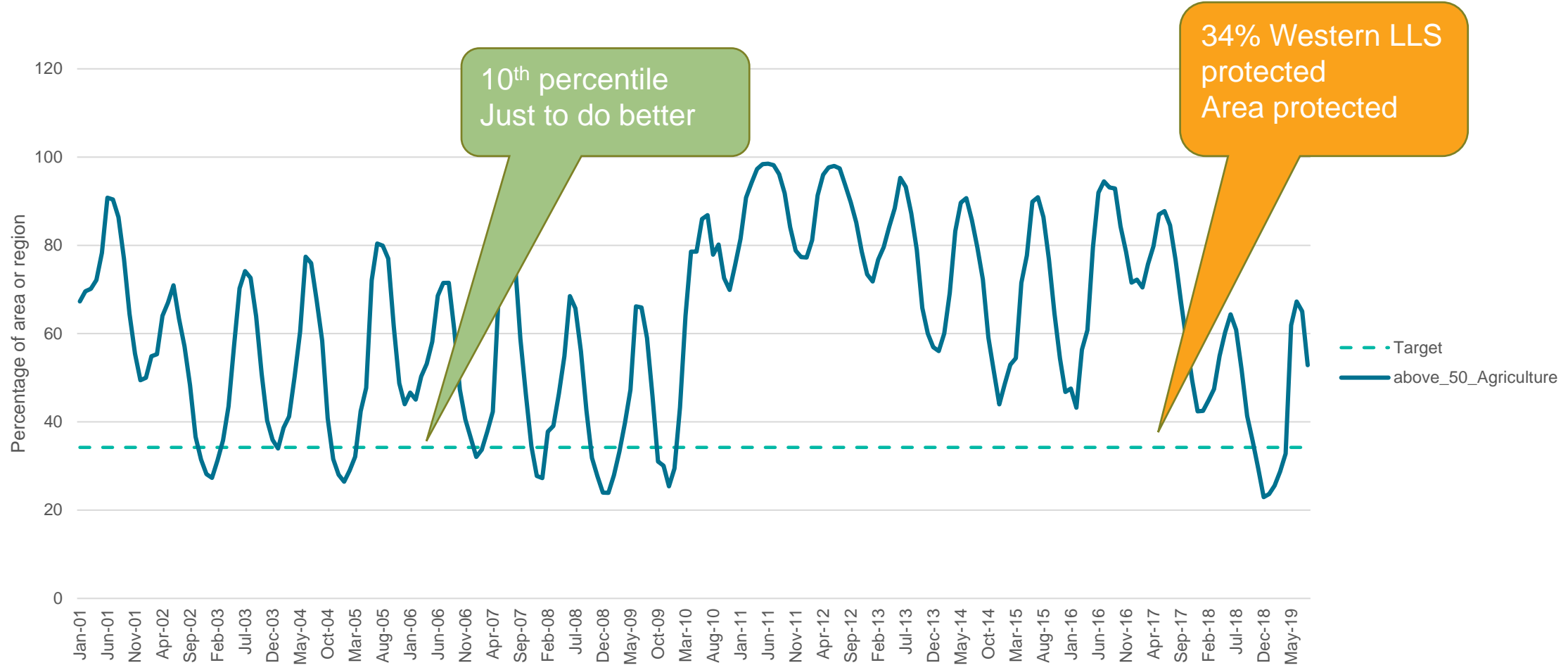
# How have we performed in last few droughts?

So no real difference to millennial and now  
BUT

Compared to previous we are doing better 😊

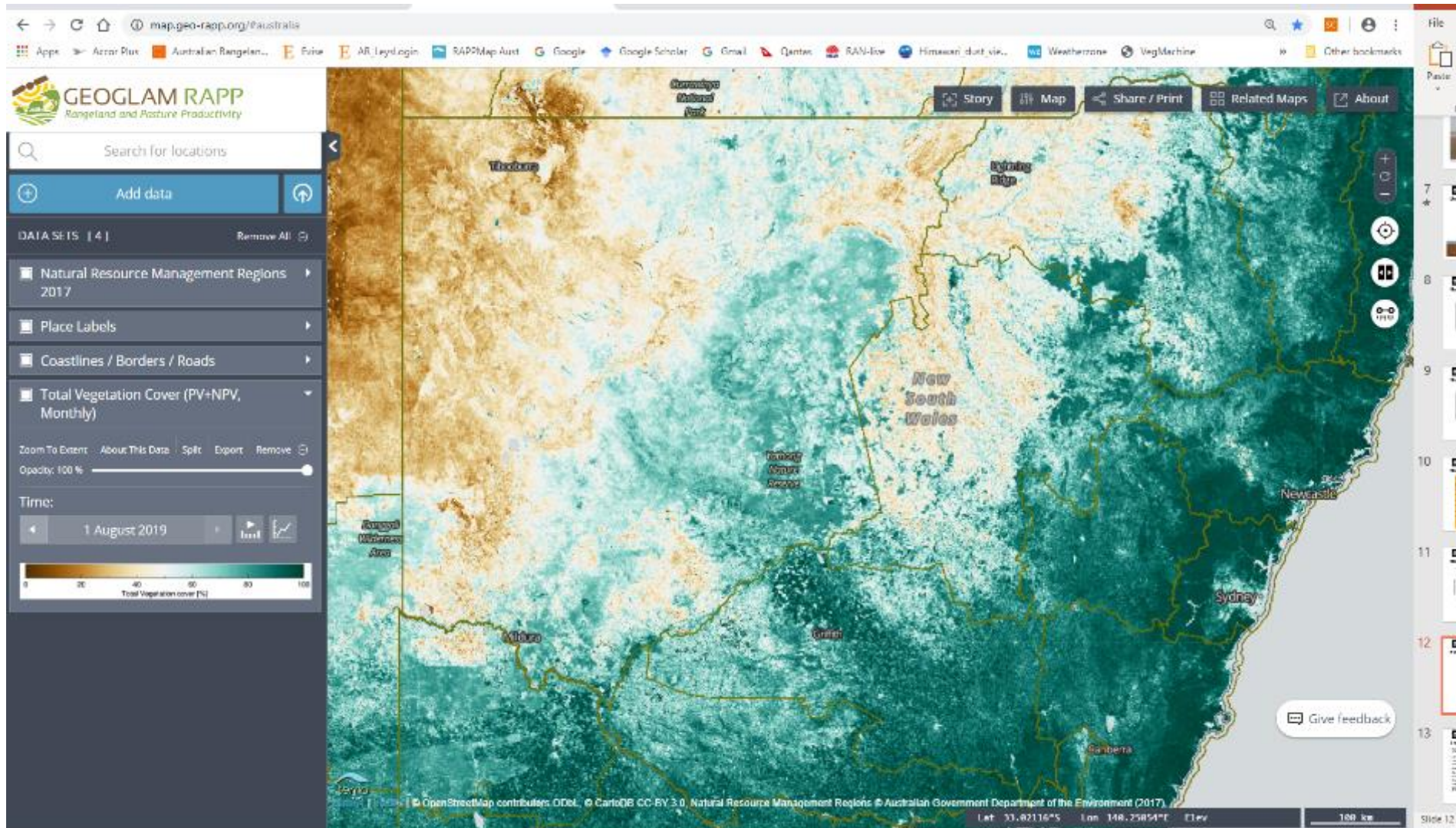
- Federation 1902-03
- First World War 1911–1915
- 2<sup>nd</sup> World War 1937-1947
- Eastern Australia 1965–68
- The 1982–83 drought – deep and fast

# How much cover to strive for

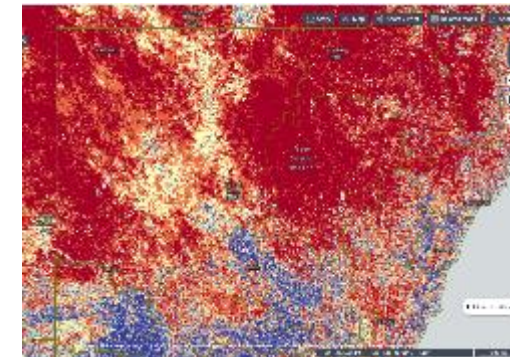




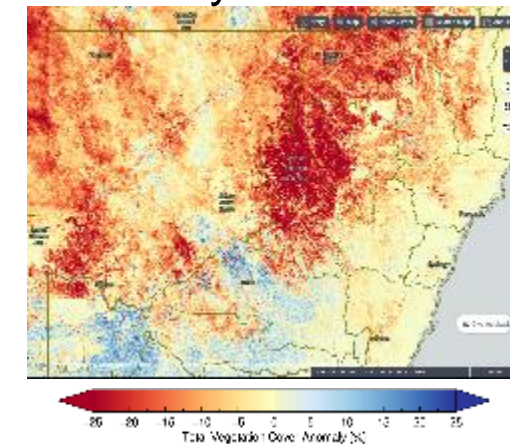
# Find your place – RaPPMap <https://map.geo-rapp.org/#australia>



Decile

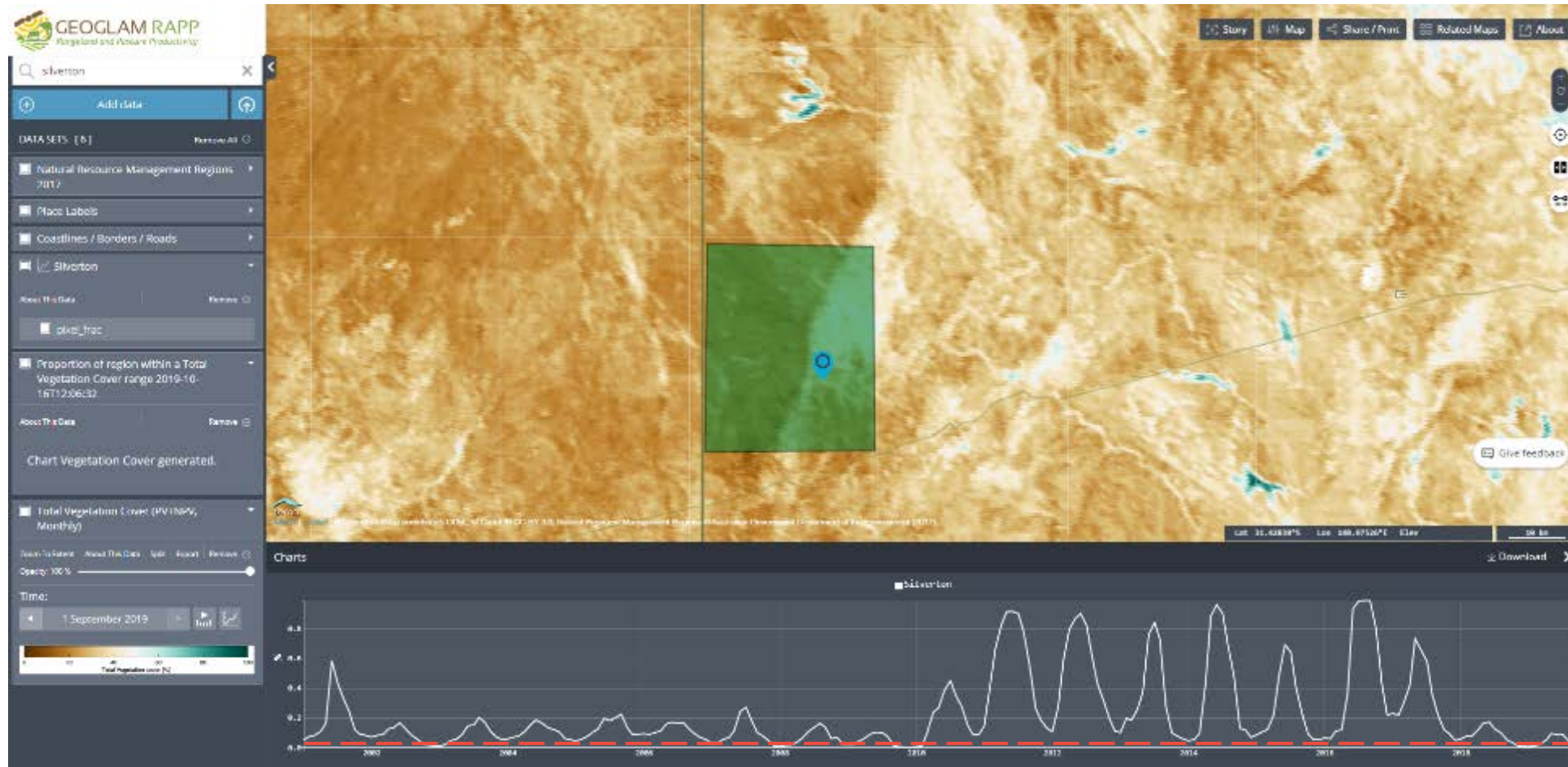


Anomaly





# Silverton– RaPPMap <https://map.geo-rapp.org/#australia>



	% area
Mean	22.7
Median	11.7
5th perc	1.1
<b>Target</b>	<b>2.9</b>
15th perc	4.9
20th perc	5.5

# Conclusions

- Ground cover the key to soil erosion control
- How much depends where you are
- Aim to do better than before above 10<sup>th</sup> percentile
- Use RaPP Map to find out your number



Photo Credit: Tim Gilbert. Broken Hill 1-2-2010



**Contact me**

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