

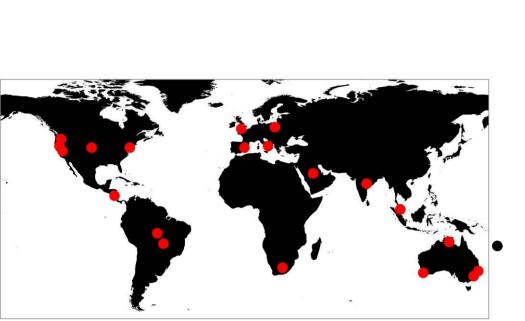
Die-off of large trees drives forest Collapse to non-forest state



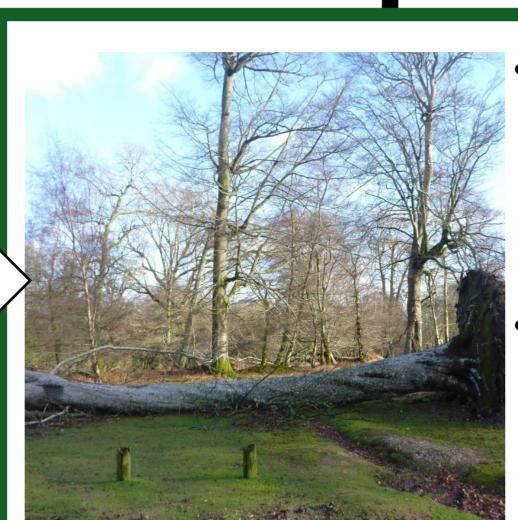
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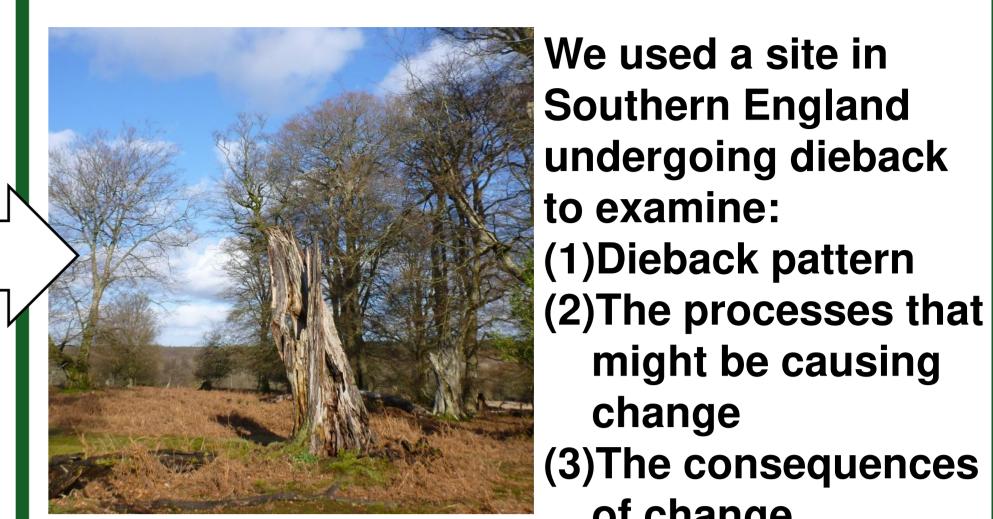
The problem



Locations where loss of large trees has been identified as a major ecological problem – adapted from Lindenmayer et Global concern about dieback of large trees, particularly from climate change Long-term impacts of dieback depend on ability of forest to recover from disturbances



- Dieback may cause rapid transitions to non-forest states, in forests with low resilience
- **Transitions can** have dramatic effects on biodiversity and ecosystem services



We used a site in Southern England undergoing dieback to examine: (1)Dieback pattern (2)The processes that might be causing change

of change

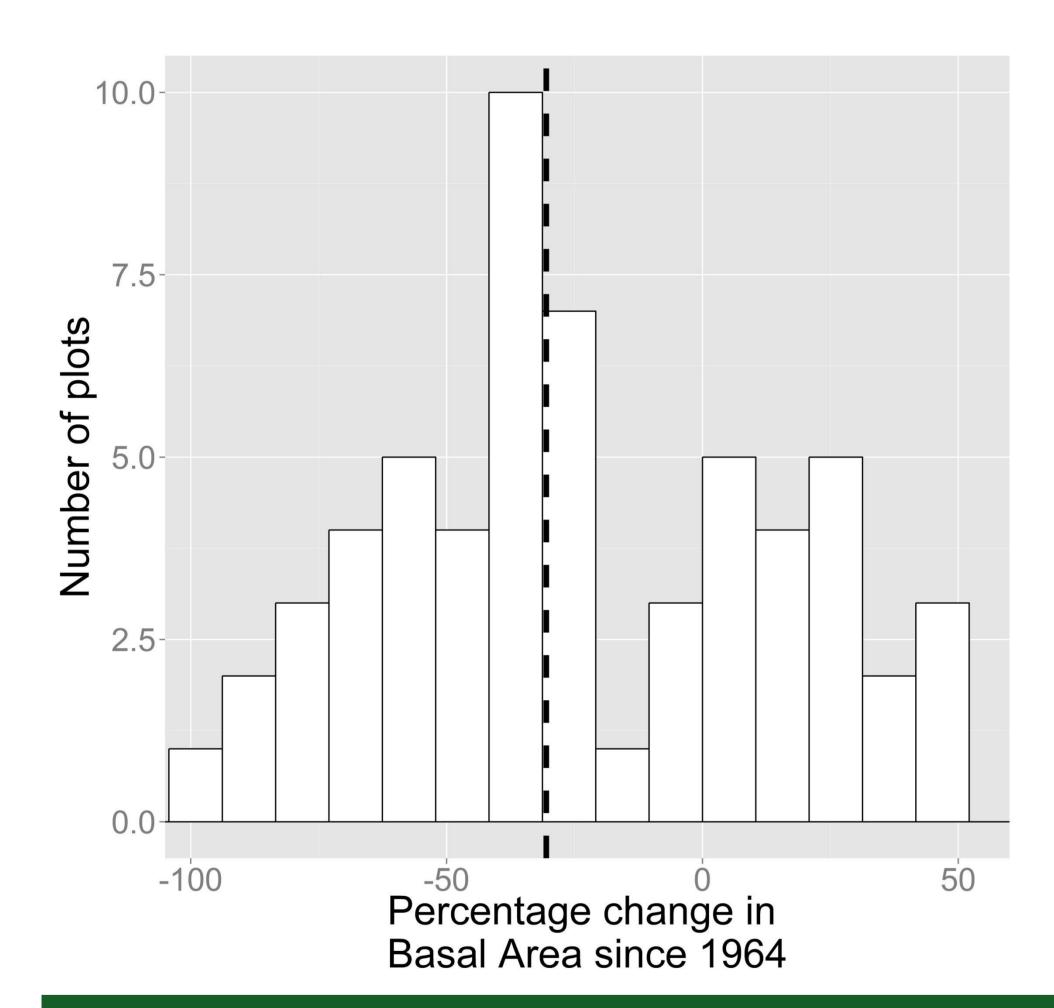
What we did to address knowledge gap

Collected data in a forest in southern UK that has undergone dieback in recent decades.

Data were collected on trees & ground flora in permanent transects from 1964-2014.

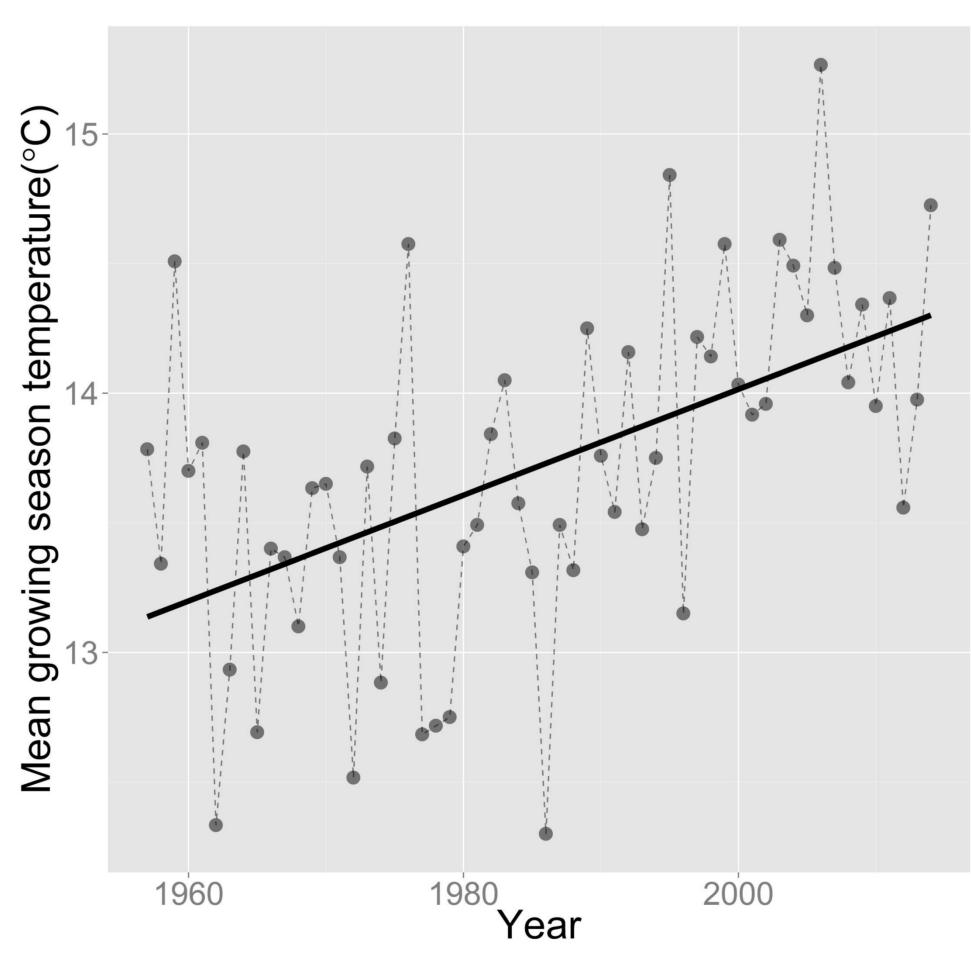
Analysed temporal trends and changes across a gradient of forest structure.

1. Pattern of dieback



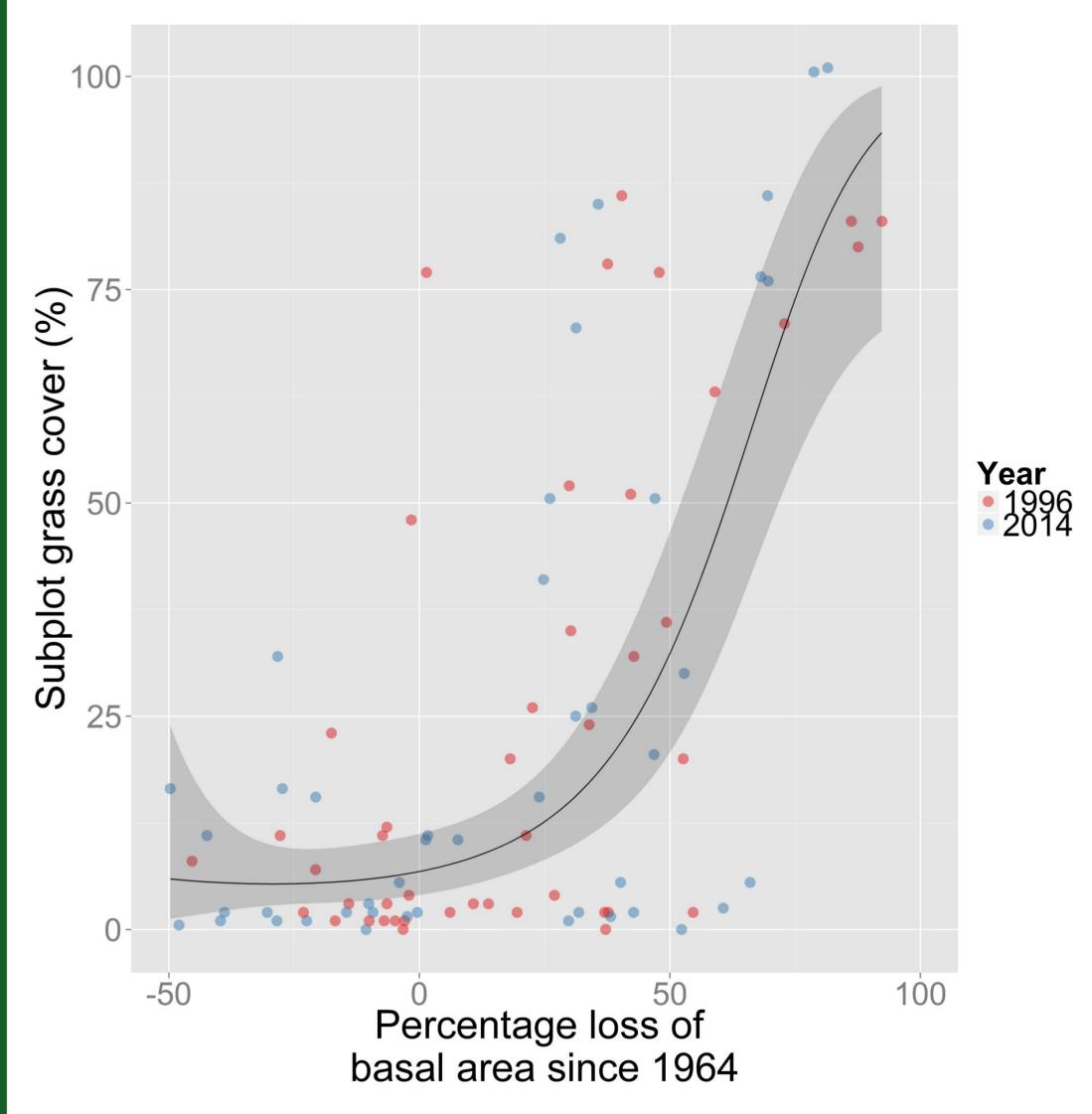
- Basal area of plots reduced by a median of 33% over 50 years
- Collapsed plots lost ~40% of large trees
- ~70% loss of small trees in all plots

2. Causes of change



- Temperature increases resulted in more hot, drought years which may have caused mortality of larger trees
- High density of ponies & deer limited tree recruitment

3. Consequences



Losses in basal area led to increases in grass cover representing a transition to non-forest state

Implications for management

- Large tree death, and lack of recruitment as a result of heavy grazing are resulting in dramatic changes in the forest
- Interaction of high density of livestock with other drivers, such as changing climate, can reduce forest resilience endangering persistence of forest ecosystems
- Climate change can reduce forest resilience, so local disturbances must be minimised in order to reduce the possibility of transitions to non-forest states

Want to know more?



For more information on this study and my other work use the QR code to visit my blog or email me at

martinp@bournemouth.acuk

P.S. I am looking for post-doc work, so if you have any jobs going, please tell me!





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