

Ten years post-wildfire recovery and health of Eucalypt forests and woodland in the Sydney Basin, Australia: Using remotely sensed vegetation indices

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INTRODUCTION

The response of vegetation after a wildfire is dependent on factors such as fire intensity and vegetation type. The majority of post-wildfire vegetation response studies conducted in Victoria, Australia, have been in communities dominated by obligate seeders. These studies have found that there is a considerable delay in species germination due to a delay in water uptake by the seed bank. These studies do not represent the response of vegetation in the Sydney Basin, which is dominated by obligate resprouter species.

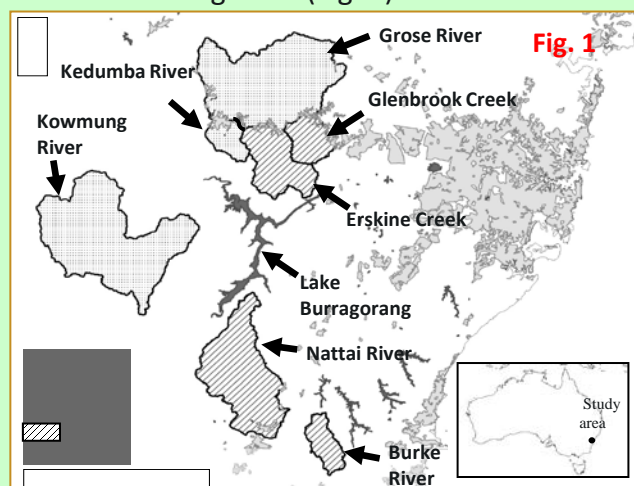
RESEARCH AIMS

To determine if vegetation in the Sydney Basin recovers within 8 years post-wildfire.

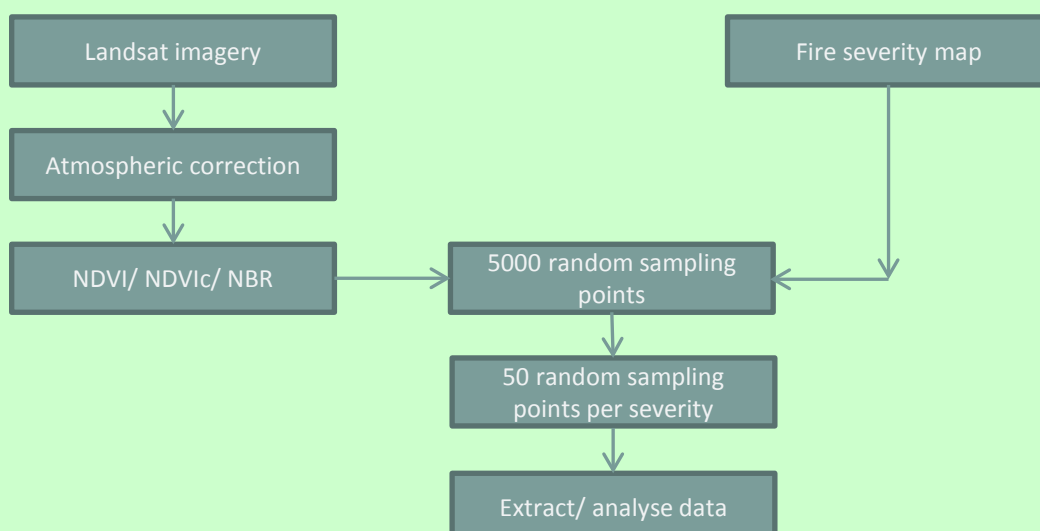
STUDY AREA

Four burnt sub-catchments: Burke River, Glenbrook Creek, Erskine Creek and Nattai River (Fig. 1).

Three unburnt sub-catchments: Grose River, Kedumba River and Kowmung River (Fig. 1).



METHODOLOGY



RESULTS

Figures 2-5 provide an example of the NDVI, NDVIc and NBR* for the Nattai subcatchment (1990/91- 2009/10), respectively.

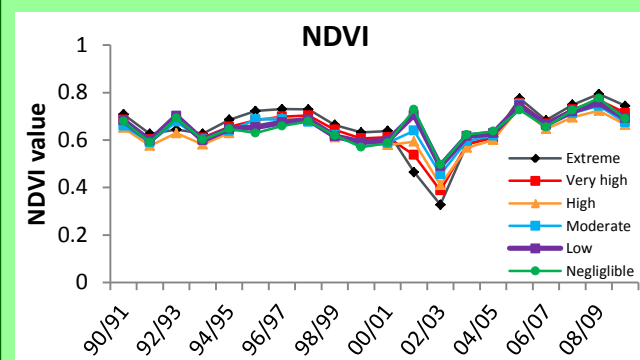


Fig 2. Nattai River subcatchment NDVI values

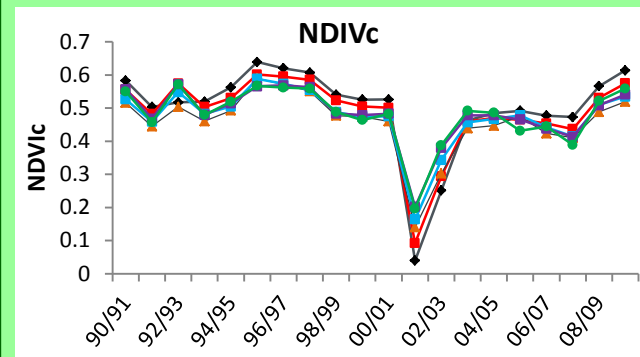


Fig 3. Nattai River subcatchment NDVIc values

•A obvious decline in the NDVI, NDVIc and NBR occurs at the time of wildfire (2001/2002 summer).

•The pattern of NDVI, NDVIc and NBR shows good vegetation recovery within two-three years post-wildfire.

•NDVI, NDVIc and NBR patterns are similar to the Southern Oscillation Index (SOI) (Fig. 5) and rainfall (Fig. 6) pattern during the study period.

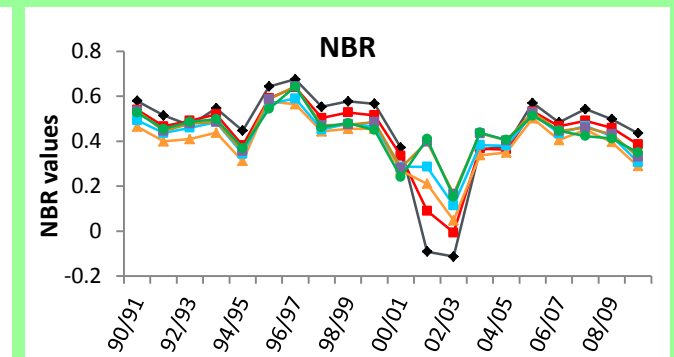


Fig 4. Nattai River subcatchment NBR values

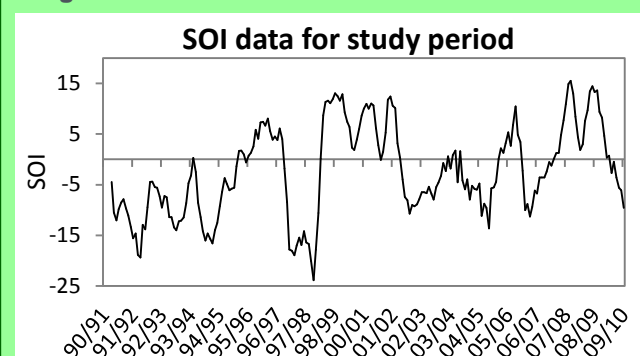


Fig 5. SOI data 1991-2009

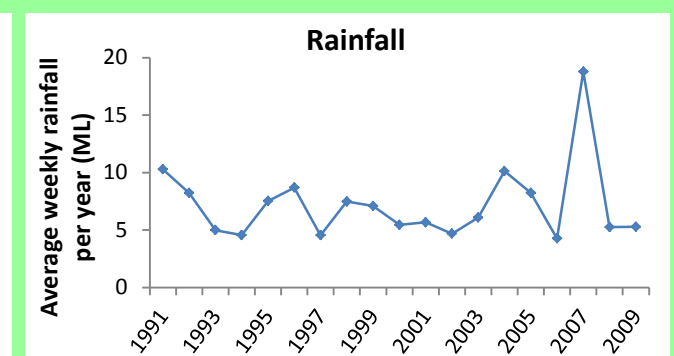


Fig 6. Average weekly rainfall per year 1991-2009

CONCLUSION

•Similar trends in vegetation cover occurs for all burn severities across the Nattai River subcatchment in the post-wildfire period.

•According to this study, wildfire has no considerable long-term affects on vegetation in the Sydney Basin, as the results suggest that vegetation recovers within three-five years post-wildfire.

•Further studies need to be conducted to assess the relationship between vegetation response and water yield recovery post-wildfire.

References:

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<http://www.bom.gov.au/climate/glossary/soi.shtml>. Accessed 02/03/2012.

Acknowledgments: The authors would like to thank Bushfire CRC and Sydney Catchment Authority for their support.