



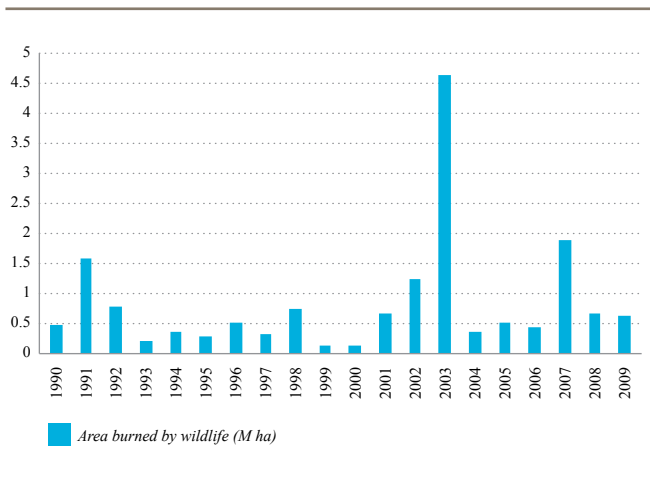
WILDFIRE IN FORESTS IN AUSTRALIA

Australian National
Greenhouse Accounts
National Inventory

Wildfires occur annually across Australia's 106 million hectares of forests which cover a wide range of climate zones and soil and vegetation types. Climatic variability contributes large year-to-year variations in biomass burning across Australia (Figure 1).

Figure 1:

Annual area of forests burned by wildfire 1990 to 2009



Wildfires have been part of the Australian environment for thousands of years. Wildfires constitute a major natural and socio-economic hazard, costing Australia in excess of

\$80 million annually. Around 552 people have perished as a result of wildfires in the past century, while more people are injured by wildfires than by all other natural disturbances combined. The most significant fires in terms of economic and social costs are not always those that burn the largest areas, such as the Victorian fires in 2009 where 450,000 hectares were burnt, 173 lives were lost and some 2039 homes and many other structures were destroyed.

Figure 2:

Victorian bushfires, February 2009



Figure 3:

Aftermath of 2009 Victorian Bushfires



Natural events such as wildfires and drought pose a significant risk to Australia, and emissions from the land sector can be very high in years in which these natural events occur. The emissions caused by fire are affected by the areas burnt, the combustion efficiency of the fires, topography and the localised weather conditions. The rates of recovery (removals) after fire vary with climate, ecosystem type, previous fire history and site conditions. As many Australian tree species are fire resistant, fire often burns primarily fine debris and leaves without killing trees, so the recovery in growth can be quite rapid (Figures 3 and 4).

In stable landscapes the carbon dioxide emitted by fire is re-absorbed to a greater or lesser extent by the new plant growth that follows fire (Figure 4).

Figure 4:

Regeneration two years following 2009 fires, Kinglake Victoria

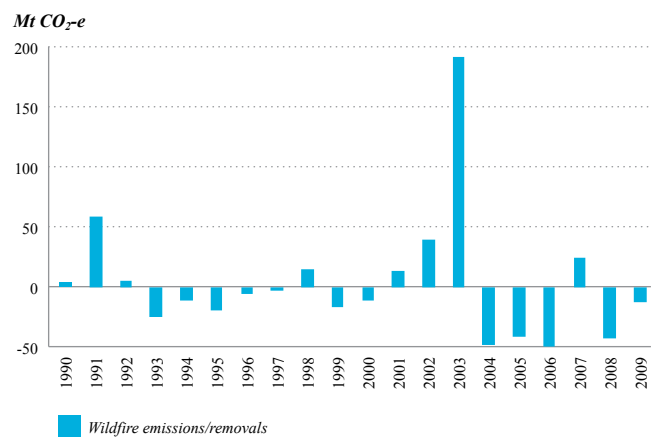


National-scale estimates of both wildfire emissions and fire-induced regrowth are included in Australia's National Greenhouse Accounts. There is significant annual variation (Figure 5), with some years being a significant net source of carbon to the atmosphere (e.g. 2003), and other years a net sink (e.g. 2006) ranging from approximately -50 Mt to 190 Mt CO₂-e compared to average annual net emissions of 550 Mt from all sources for the period 1990 – 2009.

Net emissions from wildfire are not only beyond the control of a party, but also highly variable and extremely unpredictable.

Figure 5:

Annual emissions/removals from wildfire 1990 to 2009



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