Natural Hazard: Bushfires

Description

Bushfires or Wildfires are fires that burn uncontrollably spreading across vegetated regions or bushland. They burn very quickly and can be devastating if not detected and extinguished. Bushfires in Australia occur either as a grass fire or forest fire. Unlike the common practice back burning bushfires are not managed.

In order for a bushfire to be catastrophic the right conditions must be present. Most bushfires happen in times when temperatures are high. In addition conditions must be dry. Once a bushfire has started, it requires fuel and ventilation. Bushfires spread as they seek out more fuel. Wind helps push them onwards and provides fresh oxygen for combustion. The main measure of a bushfire is its rate of spread or its intensity. A bushfire can destroy homes and buildings, devastate crops, and threaten the lives of people and animals. In Order to protect people’s lives and property, fire-fighters are sent in when bushfires strike, they use many methods to put out fires.

Causes Leading to Bushfires

The main factors which determine whether a bushfire will occur include the presence of fuel; a term used to describe the vegetation that is consumed in the fire, oxygen and an ignition source. Bush fires in Australia occur frequently during the hotter months of the year due to Australia’s hot, dry climate. Hence in the drier seasons the dangers of bushfire are very high.

Specifically fire intensity and the speed at which a bushfire spreads will depend on five main factors, ambient temperature, wind speed, fuel load, fuel moisture and the angle of the slope.

Bushfire incidents can be caused in many different ways. The causes of ignition can be split into two groups, ‘natural’ and ‘human influence’. Lightning strikes are the most predominant natural source, they account for about half of all ignitions in Australia. Fires of human origin account for the remainder and can be classified as accidental or deliberate. Fires lit deliberately can be the result of an arsonist, although some fires are designed to achieve a beneficial outcome such as agricultural fires but when not administered carefully or there are sudden adverse weather conditions, it results in an uncontrollable spread of the fire.
Case study, Canberra Bushfires

In 2003, the Canberra community was devastated by bushfires. Lightning strikes ignited 160 separate fires; they burned for ten days in Kosciuszko National Park, these spread to Brindabella and Namadgi National Parks near Canberra and a state of emergency was declared in the city itself when, at 2.45pm on the 18th of January 2003, the fires reached the outskirts of Canberra and began invading the city.

**Latitude and Longitude of Canberra:** 35° 17' 0" S / 149° 13' 0" E

The altitude of Canberra is 571 metres above the Pacific Ocean and is 150 kilometres inland. Canberra is 281 kilometres from Sydney and 660 kilometres from Melbourne.

Landform and Climate of Canberra

Canberra has a relatively dry, continental climate. The landform of Canberra comprises mountains, slopes and plains. It is open, dry terrain. To the south and west of the city, the plains give way to hills that rise eventually to the Tidbinbilla Range and the Brindabella Mountains. The vegetation in and around the city is known as dry eucalypt forest, and there are many areas of bush within the precincts of the city.

The dry climate, high temperatures and limited summer rainfall of Canberra produces very high fire danger particularly in the eucalypt forests. On Saturday the 18th, temperatures were as high as 40°C, winds exceeding 60 kilometres and fuel source consisting of the dry eucalypt forest and pine plantations that surround Canberra formed a massive firestorm. In addition the landform of Canberra which consists of steep slopes contributed to the rate of fire spread. The speed of advance is four times greater on a steep slope than on flat ground.
Social, Environmental and Economic Impact and Changes

The Canberra bushfires were the second most expensive bushfires in Australian History. The main Suburbs that were affected were Duffy, Chapman, Rivett and Kambah; the residents were given little or no warning of the danger. A total of 470 homes were destroyed, and 2000 businesses, homes and vehicles were damaged. The insurable loss and subsequent repair bill was more than $450 million. The worst-hit suburb was Duffy where more than 200 residences were destroyed. The table below shows the damage and destruction to Canberra suburbs who were affected by the fires.

Building damage to selected Canberra suburbs caused by January 2003 fires

<table>
<thead>
<tr>
<th>Condition</th>
<th>Chapman</th>
<th>Duffy</th>
<th>Giralang</th>
<th>Holder</th>
<th>Kambah</th>
<th>Rivett</th>
<th>Torrens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destroyed</td>
<td>77</td>
<td>221</td>
<td>1</td>
<td>35</td>
<td>28</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Damaged</td>
<td>19</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

There was a lot of damage to infrastructure including road networks and electricity. Also there was damage to the Mount Stromlo Observatory and five historically significant telescopes were destroyed.

The intensity of the bushfires severely impacted health and the environment, 70% of the ACT’s pasture land, forests and nature parks were destroyed. The regeneration of the vegetation around Canberra has been delayed by continuing drought in the region. Parts of the Lower Molonglo Water Quality Control Centre were destroyed by fire and many people suffered from smoke inhalation and other fire-related illnesses.

During the bushfires four people lost their lives. The loss of life, damage to property and the destruction of forests caused not just economic and environmental loss but significant social devastation. The deaths of four people affected many, and those who lost their home, loved ones and livelihood were affected by depression. There was much criticism of the emergency services crews that were responsible for controlling the fire. The community questioned the lack of preparation and adequate warning; many thought that more could have been done. As a result following the disaster some emergency workers were also affected by depression.

Carol and Richard Dutkiewicz at the remains of their Duffy home. Photo: Andrew Taylor

One of the few surviving animals at Tidbinbilla Nature Reserve. Photo: Andrew Taylor
Immediate response and Prevention Strategies

In immediate response to the devastating Canberra bushfires, The ACT requested addition assistance for the volunteer NSW Rural Fire service and during the fire emergency, sub-plans were activated to coordinate and manage the recovery process. During the weeks after the fire the impact of the fires was studied in detail to determine how the damage had been done and how to better work against such natural disasters. The study showed that once an establishment had caught fire there was very little chance of it being put out, and in addition, it was not only the fire which caused damage but also the fierce winds recorded. With the aid of this information better policies and prevention strategies have been formulated which may help to reduce the destruction by future bush fires in Canberra and elsewhere.

The Government

The ACT, NSW and Federal governments initiated a number of community and official responses to the Canberra bushfire. A bushfire recovery taskforce was established to advise the ACT government and provide leadership for the recovery; it also acted as a bridge between government agencies and the community. The ACT also established the Mcleod Inquiry to examine and report on the operational response to bushfires. On 26th of March 2003 the House of Representatives established a Select Committee to inquire into the recent Australian bushfires, including the Canberra bushfire.

Groups/Individuals

Community groups assisted with the recovery effort, with charities and volunteer groups assisting government agencies and emergency services. The community response to the government agencies and the sub-plans was instrumental and enabled those agencies to achieve their objectives. Many individuals offered to assist, for example volunteers’ assisted at evacuation centres, with people delivering equipment and food. The public also demonstrated goodwill when they assisted with voluntary calls to reduce water use in response to potential sewerage contamination of water supplies.

Conclusion

In conclusion bushfires are very devastating events that can destroy homes and buildings, devastate crops, and threaten the lives of people and animals. Bushfire or Wildfires are fires burn uncontrollably spreading across vegetated regions of bushland. The Canberra bushfires in 2003 was a tragic disaster that cost the lives of four people, 470 homes were destroyed, and 2000 businesses, homes and vehicles were damaged. There were a number of social, economic and environmental changes and impacts. After the disaster, better policies and prevention strategies were formulated to help to reduce the destruction by future bush fires in Canberra and elsewhere. During the recovery there was significant community cooperation and support that demonstrated community spirit as agencies cooperatively worked together to aid the recovery and make a blueprint for dealing with future disasters.
Bibliography


