

Bushfires in Australia - A natural phenomenon

By Sandra Ledang

Australia is a dry continent with large arid or semi-arid areas. A consequence of this dryness can be seen in the quite often occurring bushfires and the adaptations of plant species in relation to it. Bushfires have a long history, and you can look back millions of years and see that bushfires are a natural part of the Australian environment. Researchers have found charcoal fragments in fossilised Eucalypts, dating as far as 80 million years back (Cheney, N. P. 1995). Lightning caused ignition and the burning practice of the Aborigines are sources which caused extensive fires and have shaped Australia's natural environment throughout thousands of years. After a big fire the forest regenerates and you will have a change in the plant and animal structure. My question of interest is why these bushfires are so important to the Australian ecosystem and the adaption that has occurred?

This question is important because as briefly mentioned above these bushfires are a natural part of the Australian environment and essential for many plant species existence.

◇ It is found out that the smoke from burning plant material stimulates the seed germination of a wide range of plant species in Australia. Some species also flower in the presence of smoke (Flematti, et al, 2004).

◇ The Eucalyptus tree has adapted to survive the bushfires, and it is proven that the Eucalyptus actually needs fire occasionally to get optimal conditions for the seeds to grow and germinate. One example of this is the Australian Mountain Ash (*Eucalyptus regnans*) it is depended on fire to survive. Huge fires will kill the Mountain Ash but the seeds will germinate (Forest Secrets - Museum Victoria Australia).

◇ The Eucalyptus has adapted to an above ground re-sprouting where new branches are regenerated from epicormic buds. These buds are set deep under the bark and more protected from fire (UniServe Science Sidney, 2004).

◇ Soil is a good insulator and buds underground are well protected as well from fire. Plants can survive fires by re-sprouting from underground stems and below ground roots (Tropical Savannas CRC & Bushfire CRC, 2005).

◇ Fires remove plant material on the ground surface and make new herbaceous growth possible (Tropical Savannas CRC & Bushfire CRC, 2005).

◇ Some trees has adapted to the bushfires by developing a thick bark structure used as protection (Tropical Savannas CRC & Bushfire CRC,2005).

◇ A study reveals that fire has a positive impact on ground parrots living in southeast Australia, by making the habitat more suitable for the species. This is just one example of the major influence a fire can have in an ecosystem (Gill, A. M. 1994).

◇ The rat kangaroo in Western Australia feeds on underground fruit bodies which are regenerated after fire. Therefore frequent fires are an essential part of the rat kangaroo's life (Cheney, N. P. 1995).

Fires in the past have helped form the native Australian forests we see today. Today it is a common perception that bushfires are dangerous and need to be prevented at all costs. I am not going to argue and say fire is not dangerous but I believe it is a natural part of Australia and should be allowed to occur. Of course control and prevention is important in case a fire becomes too close to human habited areas. Regulated fires around Australia play a big part in the health of the ecosystems and will also help to prevent the outbreak of an uncontrollable bushfire. People need to accept that bushfires are part of the natural environment in forests and ecosystems.

"We need to accept fire for what it is – an ecological process that determines the composition of our flora and fauna" –CSIRO Australia



Eucalyptus diversicolor (karri), Western Australia.

Karri trees will usually flower and set seed after a bush fire to take advantage of the extra nutrients released into the soil from ash. Photo by Sandra Ledang - 2009



Example of regeneration after bushfire, note charred vegetation in foreground, outside Perth, Western Australia. Photo by Sandra Ledang - 2009

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