

## **Inquiry - Recent trends in and preparedness for extreme weather events**

**Witness: Mr Gary Morgan, Bushfire CRC** (Submission number 71)

Supplementary Question – Wednesday, February 20<sup>th</sup>

### **Background**

1. At the end of my evidence, Senator Milne followed-up an earlier question regarding my comment that bushfire seasons, in both the northern and southern hemispheres, were lengthening, and that fires seemed to be becoming larger and burning more intensely. This, I had said, was impacting on the ability of traditional fire allies (Australia and New Zealand / the U.S. and Canada) to support each other.
2. At the end of my evidence Senator Milne asked, in a 'question on notice', if I could identify current or looming gaps as a result of this situation ("*...Would you mind just providing to the committee where you think the gaps are emerging in that capacity of countries to help each other?...*").

### **Response**

3. Since the 1950s there have been growing links between 'landscape fire' practitioners in southern Australia, New Zealand and North America (the U.S. and Canada). Within the wildland fire community, south-eastern Australia and southern California are considered to be two of the three most fire-prone regions on Earth (the third being the southern Mediterranean).
4. Initially these links included ad hoc study tours and specialist officer exchange 'tours of duty'. Since 1994 there has also been a rapeller exchange program with Canada.
5. For many years also, the Chief Fire Officers for Public Land across Australia and New Zealand have been linked under an international framework, through a body currently known as the 'Forest Fire Management Group' (FFMG). This Group, via the Primary Industries Standing Council, has access to COAG.
6. In 1998, the then chair of the U.S. equivalent to the FFMG, the 'National Wildfire Coordinating Group' (NWCG), and myself (as the then chair of the FFMG) commenced negotiations that would lead to the possibility of operational support being provided across the Pacific. Subsequently, in 2000, with widespread fires then occurring in the U.S., some 98 Australian and New Zealand specialist personnel travelled to Idaho and Montana, undertaking roles in both forest fire control and the management of related aviation.

7. In 2001/02, the NWCG and FFMG decided that each Group should be represented on the others' governing body. Subsequently, legal agreements were negotiated to make the mutual support arrangements more seamless in the future, and in early 2003 some 36 specialist U.S. personnel assisted in the suppression of what was then the largest wildfire in southern Australia in 60 years. Later that year Australian and New Zealand personnel again travelled to the U.S., and they did in 2006.
8. In the 2006/07 fire season, around 110 U.S. personnel assisted with major wildfires in south-eastern Australia. There have, since then, been more recent exchanges, including to the U.S. later in 2006, in 2008, and in 2009 to British Columbia in Canada, and from North America in 2009 and 2010 – of particular note perhaps being the U.S. social scientists that assisted the Bushfire CRC's research in the immediate wake of the Victorian *Black Saturday* tragedy.
9. Concurrently, across the Pacific Ocean there has been an increased sharing of contract aircraft (such as larger fixed-wing and rotary machines, and remote sensing equipped specialist aircraft).
10. During this period, New Zealand/Australian mutual support arrangements have also been growing, although being in the same hemisphere there can be fire season related impediments to the arrangement at times.
11. One of the main reasons why these international deployments have been so successful is the close alignment of the 'Australian Inter-Service Incident Management System' (AIIMS) with other 'Incident Control Systems' (ICS) based systems, such as the 'North-American National Incident Management System' (NIMS) and the New Zealand 'Crisis Information Management System' (CIMS).
12. Support arrangements are generally of a specialist, remote forest nature and include categories such as:
  - Incident management personnel;
  - Aircraft specialists;
  - Equipment specialists;
  - Crew leaders;
  - Fire weather specialists;
  - Fire researchers; and
  - Rapellers.
13. These exchanges not only benefit the immediate host agency needs: they provide tremendous professional development opportunities for the personnel involved, with exposure to different agency approaches, cultures and wildfire challenges. As an early example, Victorian visitors to the U.S. in the 1960s, based on their experiences, developed a 'large fire (management) organisation' that was used in southern Australia for some years prior to evolving to become the now nationally used AIIMS system for managing emergency incidents).

14. Importantly, the limitations to these exchanges should also be recognised. The U.S. use of 'smoke jumpers' (parachuting to remote wildfires from fixed-wing aircraft) for example, would be inappropriate in most Australian situations due to the characteristics of the tree canopies in our forests and woodlands.
15. In detailing the evolution of these arrangements it needs to be appreciated that no agency in the world has sufficient resources to meet every contingency. Across western nations in recent decades however, there has been a trend to reduce the numbers of personnel engaged in forest and wildland management and a similar trend to neglect somewhat, succession planning. These trends have, in turn, seen an increasing focus on 'bushfire response', in contrast to earlier approaches which saw a greater emphasis on year-round land management.
16. Taking together, these factors were already contributing to larger and more intense wildfires, an outcome that is being exacerbated by global warming. In North America and in Australia, experienced forest fire managers and related specialist personnel are increasingly in demand.
17. With the advent of overlapping northern and southern hemisphere fire seasons, and the fatigue issues associated with combating larger and more intense fires, the evolving and increasingly valuable mutual support arrangements are being placed in jeopardy both in terms of specialist personnel and in terms of specialist contract aircraft.
18. From the aircraft perspective, the overlapping fire seasons have already resulted in both increased costs of transporting aircraft between hemispheres, due to the narrower gap between fire seasons and, in Australia's case, with the later than desired arrival of aircraft from North America.

### **Two further matters**

19. Time prevented me, during my recent evidence, from mentioning two other matters that may be of interest to your Committee. They follow from Senator Milne's question concerning the importance of adequately resourcing fuel reduction burning.
20. From an ecological perspective, the short and long term impacts of high intensity bushfire on soil and water values are not, in my view, sufficiently appreciated. Unlike fuel reduction burning, these types of bushfires do not discriminate between riparian and non-riparian vegetation. Consequently, gullies that carry perennial or ephemeral streams can suffer from major disturbance by hot fires, leading to long-term impairment of water and soil values as a result of various forms of erosion. Stream beds are changed, often due to sediment stores that can be released at high flows over long periods. This key consequence of wildfire needs to be better understood in a situation where extreme weather events appear to be increasing in both frequency and intensity.

21. Similarly, in the Australian Alps (straddling NSW and Victoria) there have been three large, intense fires in the past decade burning around 2.5 million hectares. This region contains extensive areas of Alpine Ash forests (*Eucalyptus delegatensis*) and its lower elevation relative, Mountain Ash (*Eucalyptus regnans*) – both being examples of plants that are known as ‘obligate-seeders’. Some of these areas have not previously been burnt intensely since 1939.
  22. In the event of high-intensity fire, the mature individuals of the species are invariably killed. The next generation of trees arise from seeds that fall and germinate – after a period of dormancy – in the nutrient-rich ash that follows the fire. This is in contrast to other types of Eucalypt species which rely less on seed regeneration and more on post-fire resprouting from the trunk and branches.
  23. When sub-alpine eucalypt species regenerate from seed, it takes at least fifteen years before the trees are old enough to have their own seed. This means the population of saplings is somewhat vulnerable to disturbance during that period. As of now there are large areas that may well, within one human generation, be being converted to dramatically different ecosystems (shrublands or potentially even grasslands) as a result of these changed fire regimes.
  24. Beyond ecosystem change, the role of forests in sequestering carbon has received much attention over the past few years. Highly productive ecosystems such as Alpine Ash are gradually being recognised for the role that they play in storing carbon dioxide, and their permanent replacement with ecosystems capable of storing far less carbon is another important consideration.
  25. These and a number of related issues clearly need to become the subject of further, urgently needed research.
- 

5 March 2013