
**REVIEW OF THE AUSTRALIA–NEW ZEALAND
FIREFIGHTING DEPLOYMENT TO THE UNITED STATES
IN AUGUST–SEPTEMBER 2000**

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I hope that my efforts do justice to the faith placed in me to prepare this evaluation report. I also hope that the lessons identified in this report can be effectively applied so that all the countries, states and agencies can be more effective in managing forest fires and fire emergencies in future.

Special thanks is extended to artist Monte Dolack from Missoula, Montana for granting permission to use his artwork “Northern Rockies Fires of 2000” on the cover of this report. The Monte Dolack Gallery (www.dolack.com) was commissioned by the Northern Rockies Coordination Group to produce this poster dedicated to all those involved in fighting the fires of 2000.

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PREFACE

During August and September 2000, a total of 97 trained and experienced fire commanders and fire support specialists from Australian and New Zealand (ANZ) fire and land management agencies were deployed to the United States of America. They went to help combat the serious wildland fires that had taken up all the fire team leaders available in the USA. ANZ fire officers performed competently in the key roles they were assigned within the USA Incident Command System. The compatibility between the Australian Interagency Incident Control System (AIIMS) and the USA National Interagency Incident Management System (NIIMS) ensured that ANZ officers were able to adapt quickly to the USA system. The experience provided a unique opportunity for ANZ organisations to review and improve their fire control and fire management procedures.

This report is written from the perspective of the Australasian Fire Control Officers Group (FCOG), which represents the agencies responsible for fire control and management on forested lands in Australia and New Zealand. FCOG reports to its parent organisation, the Standing Committee on Forestry (SCF) of the Ministerial Council on Forestry, Fisheries and Aquaculture (MCFFA).

Some of the recommendations require coordination at federal and state levels. Therefore the report will also be referred to federal and state Ministers and organisations responsible for land and emergency management. These include the Australasian Fire Authorities Council (AFAC), Emergency Management Australia (EMA), and the Australian Ministerial Emergency Management Coordination Committee (EMCC).

The deployment to the USA of the ANZ fire leaders was the first time they had worked together in such an emergency. Their success will provide the basis for fire emergency support between their organisations.

EXECUTIVE SUMMARY

This report identifies the lessons learned by the Australian and New Zealand (ANZ) fire commanders and support specialists deployed to the USA during the wildland fire crisis of August and September 2000. These lessons, which will benefit fire management in all those countries, are distilled into recommendations for agencies either in ANZ or the USA. They will assist firefighting agencies in those countries to explore new skills in complex emergency management, and to manage future international firefighting missions.

One of the major lessons is the value of the experience itself. Future opportunities for such exposures need to be provided. Australia, New Zealand, the USA and Canada should create agreements that will result in exchange programs between them.

There are several other important lessons for ANZ agencies. One is the USA practice of deploying pre-formed Incident Management Teams to fires throughout the country, resulting in effective, cohesive management of large and complex emergencies. Another is the USA's national fire qualification system, enabling fire staff to be accredited for positions in those teams. ANZ agencies need a similar system so that qualified personnel can be deployed to fires in or out of their parent agencies' jurisdiction. But there is an important alarm signal which, if unheeded, could cripple any Incident Management Team. In the USA as well as Australia and New Zealand, the number of qualified staff who can combat large fires has long been on the decline. The workforce is ageing, and the number of people who wish to take part in planned burns and firefighting is dropping. Many ANZ agencies cannot muster sufficient trained staff to fight large fires. In Australia, a survey of the workforce levels within all land/fire management agencies is urgently needed. Strategies for ensuring that fire management workforce levels are maintained to effectively manage both wildfire emergencies and prescribed fire programs.

Above all, perhaps, are two matters of vital importance. The first is the recognition by USA authorities of the urgent need to introduce fire at the right intensities, frequencies and seasons to help restore the forest ecosystems and protect human communities. In Australia, where most burning programs have declined due to economic, environmental and social pressures, the problem is the same: a significant increase in areas of forests that have accumulated heavy fuels and that are at risk of intense and damaging wildfire.

The second matter is that, for whatever reason, the general public are not heeding forest fire managers' concerns. There is a need for more effective public education and awareness programs on fire prevention measures and on the role and use of planned fires in natural ecosystems.

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KEY RECOMMENDATIONS

Key recommendations for Australia and New Zealand authorities are summarised below:

1. Develop international agreements and exchange protocols between ANZ, USA, and Canada. These should authorise reciprocal assistance for fire management programs and large-scale fire emergencies.
2. Develop similar agreements between Australia and New Zealand and between ANZ departments and agencies.
3. Consider the establishment within Australia of a fire coordination centre, similar to NIFC and CIFFC, which will coordinate support and deployments in wildfire emergencies nationally and overseas.
4. Establish an ANZ taskforce under FCOG to review forest fire staff numbers and experience levels within fire and land management agencies, and to recommend steps to ensure that these organisations can manage large fire operations and conduct fire management programs.
5. Develop a national fire qualification and accreditation system that provides for formal recognition of skills and experiences of ANZ fire staff. Australia and New Zealand should consider adopting the principles and processes of the USA Fire Qualification System.
6. ANZ agencies should consider establishing pre-formed ICS unit teams (eg. Planning and Logistic teams) for deployment to large incidents. These teams should include understudy and trainee positions to allow inexperienced personnel to gain confidence in key roles.
7. Review ICS roles and procedures within the Australasian Interagency Incident Management System (AIIMS) so that the best practices of the US and Canadian systems can be adopted where appropriate. Special consideration should be given to the functions and reporting relationships for staff within Area Command, Safety, Information, and Finance Sections.
8. The FCOG standards for physical fitness should be adopted by ANZ agencies as a minimum standard for Incident Management Teams and fireline staff.

9. ANZ governments and land management agencies should continue to place high priority on maintaining effective fuel management and fire prevention programs. ANZ should review the suitability and effectiveness of the USA FIREWISE community programs, and USA Structural/Community Protection plans.
10. ANZ agencies should investigate the suitability of USA decision support tools (eg. Wildland Fire Situation Analysis (WFSA), ICS forms and software, 'Delegation of Authority' processes, 'Expanded Dispatch' systems, and resource recording and tracking systems).

Key recommendations for USA agencies and authorities are as follows:

1. Form a taskforce of representatives from USA, FCOG and Canadian agencies to develop international cooperative agreements for the provision of fire commanders and fire specialists in large-scale fire emergencies, and for staff exchange in non-emergency fire management programs.
2. Explore opportunities for USA mid-level staff to gain knowledge and experience in fire suppression and prescribed burning in Australia and New Zealand.
3. Review the USA Wildland Fire Situation Analysis process to see if it can be made more responsive to changing situations, and can better reflect the priorities for fast, safe and cost-effective strategies and tactics.
4. Review the responsibilities of the Planning Section within the Incident Management Team to ensure that it retains its primary role in situation awareness and strategic analysis of suppression alternatives and outcomes.
5. Make better use of Division/Sector situation reports and fuel-age maps in the planning process and development of the Incident Action Plan.
6. Consider the use of more mobile 4-wheel-drive vehicles (engines) to carry personnel, water or fire equipment on steep terrain and narrow firelines.
7. Continue to push for improved Building Codes and rural subdivision plans that take full account of forest fire prevention measures.

1. INTRODUCTION

In the northern hemisphere summer of 2000, the western United States of America experienced one of its worst wildfire seasons on record. The fire situation was exacerbated by a long period of drought, severe fire weather conditions, and dry lightning storms that started hundreds of new fires throughout the northern Rockies, into southern Idaho, Montana, Utah, Nevada, and into the Sierra-Nevadas.

By 2 August 2000, 15,000 firefighting personnel drawn from 46 USA states and Canada were committed, as well as 700 engines (tankers) and 150 aircraft. The USA firefighting resources from federal and state agencies had been engaged since May 2000, and all available forest fire control staff were deployed by early August. Conditions were expected to get worse for the rest of August and September, and many USA fire experts suggested that the situation in the northern Rockies had the potential to rival the disastrous wildfires of 1910.

Eventually, towards the end of the fire season in late October 2000, nearly 86,000 fires had burned about three million hectares of public and private lands, levelled hundreds of homes and structures, and caused 16 fatalities, including 12 firefighters. The 2000 fire season suppression effort required more firefighters in more places at the same time than at any other time in USA history. The national fire preparedness was at the highest level (Level 5) for the second-longest period of time (40 days from 27 July to 5 September) it has ever been. Peak fire activity occurred from 18–22 August 2000 when 69 fires, each 1000 acres (400 ha) or greater in size, were burning. The highest number of new fire starts in one day was 725 (18 August) and the largest acreage burned in one day was about 169,000 acres (about 69,000 ha) on 21 August.

It is of interest to note that during the 'Ash Wednesday' fires in Victoria and South Australia on 16 February 1983, a total of 180 fires burned through 420,000 hectares of forests and pastures in less than 24 hours. This comparison is a clear demonstration of the fact that Australian Eucalypt forest fuels burn faster and over a greater area than North American forest fires under similar severe summer conditions.

In early August 2000, the ranks of USA firefighters were severely depleted and additional firefighters were being sought from the USA military (eventually 3000 military personnel were engaged), and from Canada and Mexico. However, it was recognised that the greatest need was for Incident Management Teams. On 3 August 2000, Mr Gary Morgan as the Chairman of the Australasian Fire Control Officers Group (FCOG) was contacted by Rick Gale (USA Department of Interior, National Parks Service) on behalf of the National Multi-Agency Coordinating Group. Mr Gale requested support from Australia and New Zealand.

The Deputy Chairman of FCOG (Murray Dudfield, NZ Rural Fire Service) and Tony Edgar (Natural Resources and Environment, Victoria) travelled to America to assess the need and the type of effective support that Australia and New Zealand land management agencies could provide to the USA in their time of need. The advance party arrived at the National Inter-Agency Fire Centre (NIFC), Boise on Monday, 7 August 2000, and began their discussions with the members of the USA National MAC Group on the USA requirements and the terms of engagement of the support project.

Following the deliberations of the advance party and liaison between FCOG agencies, the USA National MAC Group, the USA Embassy in Canberra, the Australian Department of Foreign Affairs and Trade, and Emergency Management Australia (EMA), a formal request was made to Australia and New Zealand. A task force of 79 experienced staff with incident management and fire line command skills was deployed from Australia and New Zealand on 11 August 2000. This task force completed its assignment on USA fires on 15 September 2000. A second task force of 17 aviation and equipment/cache management specialists was deployed for 21 days from 15 August to 5 September 2000.

See Appendix 1 for the list of all Australian and New Zealand participants in the US fires of 2000.

Throughout their stay, the members of the Australia/New Zealand task force were assigned a variety of roles in the incident management teams as well as positions within Area Command. This provided a great opportunity for the Australia/New Zealand members to directly evaluate the effectiveness of the USA fire organisation and to suggest improvements that can be made to Australia/New Zealand fire control systems. At the same time the Australia/New Zealand involvement in USA fires has provided an opportunity to give USA authorities valuable feedback for improving their current fire control arrangements and procedures.

The initial request to FCOG on 9 August 2000 was for Australia and New Zealand to provide Level 3 (USA Type 1) Incident Management Teams plus qualified Divisional and Group Supervisors (ANZ Divisional/Sector Commanders). This USA request was modified on 10 August 2000 to include qualified Strike Team and Task Force Leaders.

The Australia/New Zealand members participated in numerous team transition and 'close out' (debriefing) meetings conducted between the land management agencies, Incident Management and Area Command teams. The review process culminated in the final debriefings for outgoing Australia/New Zealand staff on 5 September (17 aircraft specialists), 8 September (11 early departures), and 15 September (the remaining 68 Australia/New Zealand Incident Managers). All agencies in Australia and New Zealand that contributed to the USA fire suppression effort have debriefed their staff. Some agencies have prepared a report on their experiences and observations. This report is based on the observations and recommendations made at these debriefing sessions and discussions with individuals involved with the deployment.

The purpose of this report is primarily to advise the Standing Committee on Forestry (SCF) of:

- the fire policies and strategies as well as organisational and operational factors that led to the situation in the USA, where the wealthiest and most powerful country in the world required assistance from external agencies to quell the fires in the western USA during the 2000 season;
- the current trends in Australia and New Zealand, and how they are similar to or different from the North American environment; and

- recommended actions that will improve forest fire management and emergency management in Australia and New Zealand.

This report has value for wider distribution beyond SCF. If SCF agrees, the report should be distributed to appropriate authorities in order to:

- provide Australasian fire and emergency authorities with recommendations on fire suppression, fire management systems, practices, equipment developments and training initiatives;
- provide USA authorities with an outsider's perspective of their fire control arrangements and feedback for improving their current fire control arrangements and procedures;
- foster closer liaison and support arrangements between fire management agencies within the Australian states and New Zealand;
- foster closer liaison and better working arrangements between Australia/New Zealand and USA and Canada; and
- provide a framework for the development of international agreements between Australia, New Zealand, Canada and United States to facilitate exchange of information and experience in all aspects of fire management.

2. INTERNATIONAL FIRE COORDINATION

2.1 Australasian Fire Coordination Organisations

The management of fire in conservation and production forests in Australia is chiefly the responsibility of state government land management agencies. These include forestry, national parks and wildlife conservation organisations. Forests and plantations on private lands are managed for fire protection by companies and/or bushfire organisations, including volunteer brigades coordinated by local government and state fire agencies.

In New Zealand, forested areas in conservation reserves, including forest parks, national parks and wildlife reserves, are managed by the Department of Conservation. Fires on forest and other lands are managed by rural fire district committees or Local Territorial Authorities. The NZ National Rural Fire Authority coordinates rural fire prevention and fire suppression emergencies throughout the country.

Fire Control Officers Group (FCOG)

FCOG is an umbrella organisation consisting of Fire Control Officers of the forest fire management agencies in all Australian states and New Zealand, with additional representation from industry, research and education. FCOG is a sub-committee of the Standing Committee on Forestry (SCF). The SCF in turn advises the federal Government, through the Ministerial Council of Forestry, Fisheries and Aquaculture (MCFFA), on public land management matters.

FCOG provides high-level technical and policy advice to SCF. Its prime role, however, is to allow the partner fire agencies to exchange information, and to facilitate the development of practices, standards, research and training programs to ensure successful management of fire on the wide range of forested lands.

FCOG has been instrumental in developing and maintaining international relationships with fire management agencies in the USA and Canada. It has done this through regular exchanges of senior fire management personnel by way of formal study tours every three to four years since 1971. The objectives of the study tours are to

familiarise senior forest fire managers with the fire and socio-economic environment of the host country, to examine the latest developments, issues and trends in fire management, techniques, equipment and research projects, and to adopt those ideas and systems that are deemed appropriate.

Australasian Fire Authorities Council (AFAC)

Most Australian and New Zealand fire agencies are also represented on AFAC. AFAC's charter is to promote national fire policies and practices; effectively represent its agencies in Australasian and international forums; coordinate education and training policies, strategies and programs; facilitate research and development in areas of common interest; and facilitate the sharing of knowledge and information on strategic issues and developments.

The FCOG's deliberations are confined to forest fire management issues and programs that are directly linked to Government policies. AFAC has a broader focus that includes urban and structural fire issues as well as rural and land management matters.

2.2 USA Fire Coordination Organisations

National Wildfire Coordinating Group (NWCG)

Wildland fire management agencies in the USA are members of the NWCG. These include the USA Forest Service, National Park Service, Bureau of Land Management, Fish and Wildlife Service, Bureau of Indian Affairs, the National Association of State Foresters, and the Federal Emergency Management Agency's Fire Administration. The NWCG is an umbrella organisation that was set up in 1976 by agreement between the Secretaries of the Interior and Agriculture to help facilitate the development of practices, standards and training to ensure a consistent and cost-effective execution of each partner agency's fire management programs.

NWCG teams work on developing products that include Incident Operations Standards, Fire Training System Courses, ICS and prescribed fire-training curriculum and qualifications, smoke management guidelines, fire equipment and National Fire Cache System standards, and health and fitness assessment standards.

The products of the National Working Teams and Advisory Groups are approved by consensus of NWCG. The agreed policies, standards and procedures are implemented by each agency.

Recent study tours by Australian and New Zealand forest fire administrators to the USA in 1997, and by USA/Canada to Australia and New Zealand in 1999, identified significant benefits in close working arrangements between FCOG and NWCG. These would allow each country to share in the developments and standards produced by each organisation. As a consequence, the executive officers from FCOG were invited to attend a national meeting of NWCG in March 2000. This led to the acceptance of FCOG as an Associate Member of NWCG. The association formed between FCOG and NWCG laid the foundation for the request by USA authorities for the ANZ taskforce to operate within the USA fire management organisation during the recent fire emergency.

National Inter-Agency Fire Centre (NIFC)

The NIFC located in Boise, Idaho, is the nation's support centre for wildland firefighting. Seven federal agencies (Bureau of Land Management, USA Forest Service, Bureau of Indian Affairs, Fish and Wildlife Service, National Park Service, National Weather Service and Office of Aircraft Services) are represented at NIFC and work together to coordinate and support wildland fire emergencies. NIFC contains the national fire cache, which supplies specialist fire equipment and stores to fire complexes and regional fire caches throughout the USA. Other facilities at NIFC include the National Inter-Agency Coordination Center (NICC), the National Weather Forecast Centre, and National Training facilities.

When the national fire situation becomes serious, the National Multi-Agency Coordinating Group (National MAC) is activated. This group consists of directors of each of the federal wildland firefighting agencies located at NIFC, plus representatives from State Forestry, the USA military and the General Services Administration. The MAC group sets priorities for allocation of critical resources, including firefighting personnel and Incident Management Teams, equipment, aircraft and supplies.

2.3 International Agreement

At the time of the initial request by the USA authorities for assistance from ANZ in early August 2000, there was no formal agreement between the USA and Australia/New Zealand to facilitate this request.

At that time, the only agreement between Australia/New Zealand and USA or Canada was the Activity Implementation Agreement under the USDA Forest Service, Canada Forest Service, and CSIRO Memorandum of Understanding for Scientific and Technological Cooperation in Agricultural Research and Development. This MOU focussed on the exchange of forest fire information. It provides the basis for the Fire Study Tours that are arranged by the FCOG and the USA and Canadian forest fire agencies.

The development of a new International Agreement between USA and Australia/New Zealand for support on USA fires in fire season 2000 became one of the most urgent tasks of the advance ANZ party (led by Murray Dudfield, NZ NRFA) and the principal officers of the USDA Forest Service and USDI Bureau of Land Management.

This International Agreement was formed under the authority of the USA Public Law 101-11, Temporary Emergency Wildfire Suppression Act and 42 USC 1856p, which enabled the USA to enter into agreement with any foreign country for wildfire suppression support. (See Appendix 2 and Appendix 3 for copies of the International Agreement and Public Law 101-11.)

The FCOG and its parent organisation, the SCF, are chiefly advisory and coordinating bodies. They have no legal authority to enter into international agreements that require the discharge of responsibilities that involve financial transactions, personal insurance and public liability cover or other legal arrangements.

As the FCOG is not a legal entity in its own right, the Secretary of the Department of Natural Resources and Environment (NRE) in Victoria agreed to represent the Australian/New Zealand agencies of FCOG in the Agreement.

The International Agreement covered key issues: request for assistance procedures; personnel; competency requirement; safety orientation; liaison; medical cover and workers compensation; indemnity; equipment and supplies; aircraft; and reimbursement, billing and payment. The most complex issues involved the need to provide for adequate medical, injury, death and indemnity cover for ANZ officers from and against all actions, claims, costs and expenses that may result from their participation in USA fire operations.

The International Agreement was signed on 10 August 2000, by the Secretary of NRE (representing 10 member agencies of FCOG and six associated agencies) and senior representatives of USDA Forest Service and USDI BLM. That the International Agreement was achieved in less than five days demonstrated the strong trust and good faith that has been developed over the years between the senior fire officers from the countries and agencies concerned.

The urgency with which the International Agreement needed to be developed meant that there are some outstanding issues that will need to be addressed in the review and development of a new International Agreement. These include:

- The requirement by the USA Government agencies to reimburse the lending agency (Australia/New Zealand) for the costs of payment of compensation and death benefits disbursed to affected officers and their dependants who may be injured or killed during the fire support operations. These payments may extend beyond the current financial year when the USA budget has yet to be appropriated.
- The need to provide cover to Australian/New Zealand officers who may be required to extend their support to fires that enter Canada or Mexico from USA.
- The identification of the Australian and New Zealand entities that will represent these two governments in the International Agreement.

The unanimous conclusion of the ANZ group was that operational participation in USA fire control programs provided an excellent opportunity for professional development and skill enhancement in complex emergencies that are rare in Australia and New Zealand. It was agreed that opportunities for deployments in future should be taken by ANZ forest fire agencies. However, requests to assist in large-scale emergencies are likely to be infrequent, so a more regular exchange of fire management personnel should be pursued through a structured cooperative agreement between ANZ agencies and USA and Canadian agencies.

Any new international agreement should therefore allow both for mutual assistance in fighting forest fires in a national fire emergency, and for regular exchange of mid-level fire operational staff and technical specialists for deployment in local emergencies. Such an exchange will strengthen the capabilities and knowledge of each participating agency and country in fire management activities, techniques and innovation, and ensure more effective assistance to one another in a large emergency.

There is an existing agreement between the USA and Canada that facilitates mutual assistance in fighting forest fires. This agreement consists of two parts:

- (1) Exchange of diplomatic Notes between the Government of Canada and the Government of the USA. This formally authorises participating agencies from each country to request and receive firefighting assistance from the other.
- (2) Operation Guidelines. These outline the reciprocal arrangements for pre-suppression and firefighting operations. These guidelines are reviewed and authorised each year.

This two-part agreement has stood the test of time. It should be considered as a model for adoption by all four countries.

USA and Canadian forest fire agencies exchange mid-level fire staff and technical specialists through a Personnel Exchange Protocol. This exists between USA agency members of the National Interagency Fire Centre (NIFC) and the Canadian Interagency Forest Fire Centre (CIFFC).

The NIFC/CIFFC personnel exchange protocol (shown in Appendix 4) provides a basis for a similar protocol for consideration by Australia and New Zealand agencies with their counterparts in the USA and Canada.

Recommendations for Australia, New Zealand, USA and Canada

- R1 Develop new International Agreements between the appropriate national bodies, representing each of the four nations, which will authorise reciprocal assistance arrangements for fire suppression and other fire management activities.*
- R2 Include within the Agreement the provision for regular two-way exchange of senior fire and aviation management officials, as well as IMT personnel, operational staff and specialists. The agreement should allow for reciprocal exchange so that the USA and Canadian personnel may experience wildfire suppression and prescribed burning operations in Australia or New Zealand.*
- R3 Include within the Agreement a formal reference to the continuation of the Fire Management Study Tours among Australia, New Zealand, USA and Canada.*
- R4 Set up a taskforce of representatives from all four countries to develop international cooperative agreements and arrangements. These should include exchange protocols and guidelines for running them.*

Recommendations for Australia and New Zealand

- R5 Develop and maintain formal agreements, similar to the international agreement established for the recent USA deployment, between states and/or agencies within Australia.*
- R6 Develop and maintain formal agreements between Australian states and New Zealand to encourage regular exchange of fire managers, fire specialists and fire crews.*
- R7 Consider the establishment by FCOG of Australian equivalents of the USA's NIFC and/or NWCG and Canada's CFFC. These should coordinate the handling of wildfire emergencies at a national level, including the deployment of personnel interstate and internationally.*

3. FOREST FIRE MANAGEMENT IN THE USA AND ANZ

3.1 Condition of USA Forests

The interior west of the USA, which includes the 11 western states of continental USA, contains some 60 million hectares of forest ecosystems. Plant and animal species survived and regenerated there in the presence of widespread fire, from lightning and burning by native Americans, that occurred over most of the landscape at intervals of between one and 35 years. These regular low-intensity fires served to reduce the growth of brush and fire-sensitive trees and understorey species while leaving larger, older trees intact. The frequent fires also burned the surface fuels, recycled nutrients, and reduced competition, thereby maintaining healthy, resilient conditions that militated against severe outbreaks of insects and other pathogens.

Before the end of the 19th century, curtailment of burning by native Americans, selective logging and livestock grazing began to alter the composition and structure of fire-adapted ecosystems. Over the past 100 years or so, the fire suppression on federal and state forest lands has effectively excluded fire from many of the fire-adapted forests.

In the upper Colombia River Basin alone – a small portion of the interior West – scientific assessments indicate that prior to European settlement, more than 2.5 million hectares per year burned. Today, fewer than 200,000 hectares burn per year in the same area.

Without recurring underburns, fire-sensitive species such as Lodgepole Pines, Douglas Fir, White Pine, have invaded the formerly open, park-like, fire-tolerant forests, resulting in excessive vegetative growth and accumulated dead fuels. These ecosystems now have multi-layered canopies that allow flames to spread rapidly from the surface fuels, through the ladder fuels and into the crowns of the large, older-age forest above. These intense fires kill all the trees, including those that had previously survived the low-intensity surface fires.

The severe competition that has built up within these forests in the absence of regular fire has greatly diminished ecosystem vigour and resilience, resulting in widespread infestations of insects and pathogens. The dead and dying trees add large quantities of fuels that cause wildfires to rapidly exceed all control efforts. Fires usually spread to large size and result in long-lasting damage to the soils and watershed values, as well as animal habitats, including lakes and streams. As the wildfires have become larger, the costs of suppression and rehabilitation have also increased significantly. These costs have been further increased because of the need to protect the continual residential developments within previously uninhabited forest areas.

In most instances, homes and communities are not well prepared or designed to survive wildland fires. As a result, fire authorities are required to spend disproportionate effort and expense to protect buildings surrounded by overgrown forests and fuel accumulations.

USA authorities have warned that in the absence of an effective strategy, larger areas will be burned and suppression costs will continue to escalate in future years.

3.2 Proposed Changes in Fire Management in USA Forests

In the past 10 years or so, the USA Government, faced with the increasing losses and costs from wildfires, has advocated a more pro-active approach to the management of forest fuels.

In 1995, the Federal Wildland Fire Policy was adopted by the USA federal land management agencies. The policy recognised the critical and natural role of fire in wildland ecosystems. Appropriate land management practices, including the use of fire, had to be applied to restore and sustain ecosystem health. This will reduce the risk of intense wildfire to public and firefighter safety.

The application of this policy has been very difficult for numerous reasons. Restrictions on the treatment of overgrown forest and the application of prescribed fire have resulted from the need to adhere to a suite of federal and state laws and regulations, including the Clean Air Act, Endangered Species Act, National Environmental Policy Act, Organic Act, and Clean Water Act.

Other constraints include opposition by some conservation lobby groups, limitations in funding, and a general lack of public understanding and support for the forest treatment programs. It is clear that unless the public understands the key issues and long-term benefits of the forest treatment programs, opposition to the obvious short-term side-effects such as smoke and visual impacts will continue to prevent the effective application of the USA Fire Policy.

During the peak of the 2000 fire season, President Clinton directed that a report be prepared by the Secretaries of the Interior and Agriculture that recommended how best to respond to this year's severe fires. This report, *Managing Impacts of Wildfires on Communities and the Environment*, was accepted by President Clinton on 8 September 2000. A second report commissioned by the USA Forest Service, *Protecting People and Sustaining Resources in Fire-Adapted Ecosystems – A Cohesive Strategy*, was approved by the USA Congress in September 2000. This report provides a strategic plan designed to reduce the forest fire risk and restore forest ecosystem health in the interior western states. The plan includes proposals for restoration and fuel management treatments to high-risk areas, and involves mechanical thinning of overgrown forests followed by regular prescribed burning.

The USA Congress approved an increased budget appropriation of \$US1.5 billion this year for a range of forest restoration and fuel management programs, as well as fire preparedness, fire suppression, fire research and public fire education programs.

3.3 Prescribed Fire in Australia/New Zealand

The USA fires have demonstrated that costly fire suppression strategies do not, in the longer term, prevent extensive forest fires, with the consequent loss of life and damage to property and natural resources.

Most Australian forest and land management agencies have long recognised the essential role of fire in the conservation of species and biodiversity, the protection of forests and other natural resources, and the protection of the public and community assets. Prescribed burning programs to achieve these aims have been applied in forests to varying extents throughout Australia.

Over the past 10 to 20 years, however, the prescribed burning programs within most forests have been severely restricted due to a combination of factors that include:

- opposition from environmental groups and members of the public;
- constraints due to smoke management/requirements;
- reduction in resources needed; and
- constraints due to the need to adhere to wildlife protection and endangered species regulations.

As a result of constraints on burning, most state forest management agencies report that there are large tracts of long-unburned forest carrying heavy fuel loads. These forests will inevitably burn, with long-lasting damage to soil and values, forests, and nearby communities. Unless the opposition to burning can be overcome, and more resources made available to achieve prescribed burning programs, these states will face the increasing risk of uncontrollable wildfires. These fires will cause severe damage resulting in losses of forest biodiversity, timber resources, national parks and watershed values, and will kill people.

Recommendation for ANZ

- R8 ANZ government and land management agencies should continue to place high priority on effective fuel management and fire prevention, rather than increasingly relying on fire suppression strategies.*
- R9 ANZ should develop effective public education and awareness programs that will provide for greater understanding and support for the use of fire in the management and protection of forest ecosystems.*

4. RESOURCE LEVELS AND SKILLS

4.1 Shortages in USA Fire Control Resources and Expertise

By late July 2000, the fire situation in the interior West was so severe that the US authorities only had enough resources to attack a proportion of existing fires and new fire starts. There were hundreds of fires that could not be attacked because of a serious shortage of incident command team leaders, fireline supervisors and aircraft management specialists. By this stage it was necessary for USA officials to call on support from Canada, and Australian and New Zealand fire team leaders.

According to senior USA forest and fire management officers, the current shortage of fire commanders and team leaders in the USA has been the result of changes in the workforce within federal and state land management agencies. These changes began in the early 1980s and have been documented in several reports, including the so-called Jacobs Report (1999)¹, and the Rains Report (2000)².

The downsizing of professional staff numbers coincided with significant reductions in timber sales and the transfer of production forests to conservation reserves and wilderness areas. Previously, large numbers of Forest Service staff supervising timber-harvesting operations were also heavily involved in fire control.

In the past 25 years, there has been little or no recruitment of permanent staff to land management agencies with fire control responsibilities. For example, as at September 2000, there were only 50 permanent employees in the USA Forest Service who are younger than 25. These young staff are mostly employed on administrative and clerical duties.

The process of attrition without replacement has meant that the fewer remaining staff have found it impossible to achieve their targets for land management while maintaining fire management and fire control responsibilities.

¹ USDA Forest Service (1999) An Agency Strategy for Fire Management. A Report from the National Management Review Team. Led by Robert T Rains

² USDA Forest Service (2000) Policy Implications of Large Fire Management: A Strategic Assessment of Factors Influencing Costs. Led by Michael T Rains

The current practice of employing short-term contract staff to replace permanent staff has resulted in a serious shortage of competent fire command staff. These fire staff require 10 to 15 years of training and field experience before they are adequately skilled and confident to undertake senior fire control leadership roles.

The 'old age' bias that currently exists in the USA Forest Service (as with the other federal and state agencies) means that approximately one third of the existing senior fire command leadership staff are likely to retire in the next five years. This will result in a serious shortfall in the fire control leadership ranks that will not be easily filled even if new staff were to be recruited immediately.

A recruitment program to hire and train up to 1500 new permanent staff each year has been mooted by the USA federal agencies to begin in 2001 for the next three to four years. However, these recruits can only be expected to fill basic and intermediate level positions over the next five years or so. Therefore, there will be a need to increase training and job experience opportunities so that current mid-level staff can take on leadership roles in fire suppression and prescribed burning operations within the next three years or so.

There is also a need to strengthen the fire control capabilities of the state and private forestry organisations through federal fire-assistance grants to help train staff to achieve national competency standards.

4.2 Fire Control Resources and Expertise in Australasia

Over the past 10 years or more, most Australasian state forest and park management agencies have undergone structural changes that have reduced the number of available experienced fire managers. Downsizing in particular has seen the attrition of permanent staff, either without adequate replacement or with short-term contract personnel with little or no fire control expertise.

In Australia, as has happened in USA, increasing shortages in critical fire personnel available for extended suppression and large fire-support roles appear to be due to several causes. These include local work priorities, career preferences, lifestyle, economics and family. Over the years, the fire management cadre has become smaller and less experienced. It has also become older; many of the experienced leaders will retire over the next five years.

A serious problem is developing. Some state agencies in Australia have indicated that current numbers of trained and competent fire command staff are already below those necessary to deal with multiple fires during heavy fire seasons. There appear to be insufficient critical resources to maintain essential prescribed burning and other fire management. The extent of the shortfall in fire command personnel throughout each of the states and agencies has not been determined. A survey needs to be undertaken of levels and trends in staff availability and experience, so that this can be compared with estimates of the resources needed to deal with large fire emergencies and to achieve essential prescribed burning targets. The analysis should include standardised success measures, expected outcomes, and consequences of inadequate workforce levels.

It is the responsibility of the relevant Governments and land management agencies to provide adequate resources to manage public lands, including efficient fire management. Agencies with fire management responsibilities should explore means of increasing employee participation including incentives, education and awareness, and management directed participation. Recruitment, training and incentive programs should be funded and maintained by the responsible Governments to the levels identified in the resource analysis to ensure that there is an effective and experienced forest fire-fighting workforce available during the fire season.

Recommendation for ANZ

R10 SCF to establish a taskforce under the FCOG to:

- (a) survey changes in fire staff availability and experience levels in Australia and New Zealand;*
- (b) estimate resources required in each agency jurisdiction to undertake effective fire management over the next decade;*
- (c) recommend recruitment and incentive strategies, and training programs required to overcome any shortfalls.*

R11 SCF to advise on and monitor the extent to which recruitment and training programs are funded and supported by the relevant state and federal Governments.

R12 Relevant state and federal land management agencies should confirm that effective fire management is amongst the agencies top priority. Adequate funding should be made available to ensure that there is an effective and experienced forest fire fighting workforce and effective fire prevention and fire suppression programs.

5. ANZ TASKFORCE DEPLOYMENT TO USA

5.1 Mobilisation of ANZ Personnel

The Australian and New Zealand fire agencies were initially notified of the details of the USA request for high-level Incident Management Team leaders on Monday, 7 August 2000 following a teleconference between USA and FCOG agencies representatives. This notification was confirmed with a letter of request from NIFC. Within four days of the request, 79 qualified fire commanders from 12 land management agencies departed from Australia and New Zealand for Boise, Idaho on 11 August 2000.

The criteria for selection of the ANZ officers included demonstrated competence in Level 3 (Type 1 for USA) Incident Control System positions such as Incident Controller, Operations Manager, Divisional and Sector Commanders, Logistics Manager, Planning Manager and ICS Unit Leader positions. Other essential criteria included passing medical examinations and a fitness test equivalent to the USA standard pack test.

Within the four-day period from 8 to 11 August 2000, it was necessary for each ANZ agency to obtain approvals to participate in the USA support project; to select personnel to meet the positions requested; to arrange medical and physical fitness tests, and passports; and to prepare outgoing personnel and their families for the task ahead. Air travel, accommodation, and immigration clearance arrangements were mostly handled by the Victorian Department of Natural Resources and Environment (NRE).

It is remarkable that despite this extraordinarily brief period of preparation there were no significant problems in the personnel selection, preparation and travel arrangements. Great credit for this goes to NRE's Fire Management Branch staff and key FCOG members who provided the primary contact and point of coordination for their state or country. NRE's role in the coordination of the data collation, air travel arrangements, communications, information transmission and primary contact was pivotal to the success of the international operation. A single point of contact should continue to be a part of any future mobilisation.

The Australian/New Zealand Taskforce 1 arrived in Los Angeles on 11 August 2000 in two separate parties after approximately 24 hours of flight from various Australian states and New Zealand. Later that day the contingent was flown to Boise, Idaho, on two separate charter flights. The second party did not arrive at Boise until well after midnight following more than 30 hours of travel.

The ANZ contingent was provided with a comprehensive briefing the following day at the National Interagency Fire Centre (NIFC) at Boise. Although this was well received by the ANZ officers, many found it hard to concentrate due to lack of sleep and jet lag.

The briefing provided by the USA instructors at Boise covered the topics of safety considerations and procedures, fire behaviour, fuel/forest types, fire weather, current fire situation, and equipment. The orientation briefings were well presented and well received. However, there was a need for more information on the land tenure, Management Agency responsibilities, reporting arrangements, inter-agency agreements, and on the relevant fire administration and coordination (eg. Geographic and Area Command, MAC groups), arrangements, 'Expanded Dispatch', the resources ordering process, and delegation of authority.

On Sunday, 13 August 2000, the ANZ staff were assigned to three fire complexes in NW Idaho, NW Montana and SW Montana. Due to the potential airport closure at Missoula because of smoke haze, ANZ staff were transported by bus to Missoula. An experienced USA fire manager accompanied the bus tour and provided valuable commentary on fires, cultural and general management issues. This was well received by the ANZ participants.

The second taskforce of 15 Aviation and Equipment Specialists from Australia arrived at Boise on 15 August 2000 and were given an orientation and safety briefing on 16 August 2000. These specialists were deployed to Missoula Montana on 17 August to take up duties in aerial reconnaissance and aerial suppression out of Missoula and various field bases in Montana.

Recommendations for USA and ANZ

R13 Develop a pre-travel information package which includes information on:

- the living and working environment;*
- the clothing and equipment required; and*
- safety, fire behaviour, fuels, etc.*

R14 Host agencies to include information to incoming staff at a briefing that covers land management responsibilities and relationships/agreements, fire administration and coordination, resources ordering and despatch procedures, and local policies and political considerations.

R15 Develop 'best practice' guidelines for long-distance travel arrangements that take into consideration the need to recover from travel and jet lag.

R16 Continue the use of a 'single point of contact' in each country in any future mobilisation.

5.2 Assignment of Australian/New Zealand Officer to Roles

Initially the Taskforce 1 staff were deployed on fires in three Geographic Command areas including Northern Idaho, NW Montana and SW Montana, generally within a radius of 150 km of Missoula. The combination of Australian and New Zealand resources (teams of about 25 each were made up of NZ and Tasmania; WA, NSW and Victoria) allowed teams to develop strong identities and close working relationships. Senior officers representing these combined teams were assigned the role of liaison officers for each of these three Geographic Commands. Senior ANZ officers at both Boise and Missoula handled coordination of the ANZ deployment. Initially the roles for these Liaison Team Leader positions were not well defined or understood by everybody concerned. These liaison officers were often required to deal with strategic and non-strategic administrative issues (eg. R & R arrangements, passport retrieval, etc.).

The roles, responsibilities and functions of the Liaison/Team Leader positions need to be determined before departure with a joint agreement by all participating organisations. Such an agreement will help defuse any potential misunderstandings or cross-organisational issues.

The way in which personnel were assigned to roles that matched their skills and experience was not clear. In some cases, there appeared to be a lack of recognition or acceptance of the ANZ skills and expertise by some USA Incident Management Teams (IMT) when assigning them to roles. As a result, some of the Australian/New Zealand members were initially placed in relatively minor roles and were not used to their full potential. The lack of a national certification system in Australia, such as the USA Red Card system, made it difficult for USA IMT Commanders to match Australia/New Zealand personnel to appropriate roles within the IMT with any degree of confidence.

There was an understandable reluctance on the part of the Incident Controllers to assign people with unknown qualities to critical roles. However, in most cases, after a short period of 'getting to know' each other, many ANZ officers were assigned to key IMT roles that suited their skills.

The onset of mild weather conditions at the beginning of the second 14-day period in late August 2000 changed the focus from fire containment to mop-up, rehabilitation and demobilisation of incidents. In some cases this caused a reduction in the responsibilities given to the ANZ personnel during a time when the ANZ teams might have expected to step up their level of responsibility. To make better use of their capabilities, additional re-assignments were found which, while sometimes making less than optimal use of the ANZ officers' individual capabilities, did create the opportunity to make effective use of crews and contractors who needed supervision.

There was general recognition by USA authorities that the ANZ officers performed professionally and creditably in the many IMT positions and field supervision roles to which they were assigned.

The use of the 'shadowing' process to allow ANZ officers to familiarise themselves with the USA system worked well. It was considered that this mentoring approach was needed for two or three days only.

ANZ staff found that they were most effective when they were assigned to work together to fill the positions of 'short' Type 2 teams that included most of the key IMT functions, but were supported by USA personnel in the tactical and administration functions. An experienced USA liaison officer was considered necessary to assist the international team with advice on procedural, legal, administrative and bureaucratic issues. It was apparent that ANZ personnel were most effective when assigned as IMT team leaders where these teams were kept intact for the full duration of the shift. This arrangement also permitted ANZ members to gain more out of the experience during the 14-day shift.

Recommendation for ANZ and USA

To facilitate the effective mobilisation and assignment of personnel from aiding countries to IMT positions recognised by the requesting country:

- R17 Participating countries should formalise the recognition of compatible qualifications and competencies to allow proper allocation of staff to IMT roles.*
- R18 In the absence of national Fire Qualification Systems, Australia and New Zealand organisations should establish and maintain databases that record both fire training and experience of their fire staff. This will facilitate intrastate, interstate and overseas deployment to large forest fire emergencies. This database is essential for identifying and tracking fire-training pathways.*
- R19 The receiving country/agency should provide advance information that clearly identifies the positions to be filled and the minimum qualifications and experience needed to fill them, so that staff deployed can be matched to the requirement.*
- R20 The receiving country should brief its IMTs before international teams arrive so that the latter can be assigned and managed more efficiently.*
- R21 Participating countries should agree on the roles, responsibilities and implementation of liaison positions.*
- R22 Develop an agreement between participating countries on the 'shadowing' process that allows officers from the aiding country to become familiar with the local IMT organisational structure, functions and working arrangements.*

6. INCIDENT MANAGEMENT SYSTEMS

There are many similarities in the structure and functions of the Incident Management systems employed in the USA and in Australia and New Zealand. The USA experience has reinforced the view that the application of the Incident Control System (ICS) under the Australian Interagency Incident Management System (AIIMS) and the New Zealand Coordinated Incident Management (CIM) is most effective in dealing with large-scale incidents, and that the Australasian forms of ICS compare favourably with the USA equivalents. The main differences arise from the enlarged logistics and finance functions in the USA Incident Management Team, because of the large scale and complex nature of the operations, and from the large number of resources that need to be ordered, dispatched and maintained for use on fire complexes at remote sites.

The following is a summary of observations by ANZ team leaders on the main roles within the USA Incident Management system as applied in the northern Rockies fires. Most of the points identified for consideration or recommendation will help improve the management of large-scale forest fires and other emergencies.

6.1 USA Fire Qualification System

The USA system for qualification of fire staff positions is based on the 'Wildland and Prescribed Fire Qualification System' (PMS 310-1) that was developed under the sponsorship of the NWCG. This system establishes minimum skills, knowledge, experience and physical fitness standards for fire positions that all the participating USA agencies have agreed to meet. Those personnel meeting the standards are qualified for national mobilisation for fires outside of their geographic area.

This fire qualification system is performance-based. Individual performance is evaluated by a certified assessor using standards outlined in the Position Task Book (PTB).

The PTB contains all the critical tasks required to perform the job for each position. PTBs are in a format which allows documentation of a trainee's ability to perform each task. Tasks pertaining to tactical decision-making and safety require assessment on a wildfire or prescribed fire. Other tasks may be evaluated by other means, such as simulation.

Training courses are provided for most ICS positions and are a primary means by which personnel can prepare for position performance evaluation. Job aids exist to facilitate development where there is no developed training course and to provide a ready reference for the performance on the job.

Individuals are issued with a proof of certification by their home agency based on task evaluations and the quality of the individual's experience. The certification, referred to as Red Cards, applies to each level (Type) of the positions recognised in the USA system. To become eligible for a National Type 1 team, individuals must be certified as Type 1 in the position that they perform.

Recommendation for ANZ

R23 Consider for adoption the principles and processes of the USA Wildland and Prescribed Fire Qualification System for application by fire and land management agencies throughout Australia and New Zealand.

6.2 Pre-formed Incident Management Teams

In the USA, National Incident Management Teams manage fires which are likely to develop or have developed to proportions that are beyond the capacity of local resources. These inter-agency teams are formed from the staff resources of land/fire management agencies in a defined geographic region. Team members must meet the appropriate nationally accredited competency criteria for their position in the team.

The National Incident Management Teams (IMTs) are designated by type according to their level of demonstrated competence and qualification in dealing with incidents of varying complexity. Only Type 1 and Type 2 teams are assigned throughout the USA. For example, National Type 1 IMTs are assigned to USA Type 1 and 2 incidents. These require large numbers of resources and are affected by complicating factors such as fire size, threat to life and property, political sensitivity, organisational complexity, jurisdictional boundaries, complexity of fuel types, topography and resource values to be protected. Type 3 teams are staffed by local personnel to deal with small to medium-scale incidents in the local area.

The agency administrators and MAC representatives must determine the complexity of the incident and assign the appropriate type of IMT as needed. National IMTs, regardless of type, are configured either as 'short' or 'long'. Short teams usually consist of 10 positions: IC, Deputy IC, Safety Officer, Information Officer, two Operations Chiefs, Air Operations Branch Director, Planning Chief, Logistics Chief, and Finance/Admin Section Chief.

'Long' IMTs contain at least 27 positions which include the 'short' team membership plus additional positions. These include four Divisional Supervisors, Air Support Supervisor, Air Tactical Supervisor, Situation Leader, Resource Unit Leader, Fire Behaviour Analyst, Communications Unit Leader, Supply Unit Leader, Facilities Unit Leader, Ground Support Leader, Time Unit Leader, Comp./Claims Unit Leader and Procurement Unit Leader.

There are 16 pre-formed IMT teams based throughout the USA that can be tasked to any emergency anywhere in the country. These teams generally spend three years working together and are then reorganised, taking on new personnel if required.

The USA practice of maintaining pre-formed IMTs that have regularly trained and worked together on numerous incidents has produced very efficient, cohesive teams that are able to adapt effectively to complex emergencies. These teams are readily accepted by the local land management Districts and Regions, who take comfort in the high competence level of the IMTs. Local 'ownership' is maintained by attaching local staff to operations management and liaison roles in which knowledge of local conditions, information sources and contacts is necessary for effective incident management.

USA IMT teams regularly include trainees who are given the opportunity to develop their skills in predetermined roles. They are guided by an experienced mentor, who retains the ultimate responsibility for decisions about the trainees' positions. The trainees are given regular performance appraisals as part of their development program. A training manager is attached to large incidents to supervise the understudy training program. This model of succession planning would be appropriate for the development of IMT leaders in Australia and New Zealand.

The USA has been experiencing serious difficulties in maintaining the membership of these teams. This has been caused by the downsizing of agencies, by specialisation into positions which exclude fire management, by transfers and retirements, and by lack of recruitment and poor workforce age distribution. The latter has resulted in a gap between entry level and senior management positions.

The reduction in staff participation in fire suppression activities that has occurred in USA has also been experienced in Australia and New Zealand. This, plus the fact that ANZ staff numbers are small by comparison with the USA, means that there is a limited capacity for full-size IMT teams to be developed and maintained in readiness for larger fires in and out of the country.

For Australia and New Zealand it may be a more practical alternative to assemble and maintain pre-formed ICS Unit teams for both Planning and Logistics, in which team members fill all key positions. Individuals on these smaller teams could be drawn from personnel working within the same geographic area so that there is greater opportunity for the team to train and practise together.

USA Incident Management Teams make good use of non-operational personnel in many of the support roles. These include specialists in GIS and mapping, and finance and administrative functions. These personnel are trained and accredited to undertake the support roles within the IMTs.

In the USA, retired fire management and support personnel filled some of the gaps in senior level support roles. The critical shortage of fire leaders during the 2000 fire season crises also forced the USA Government to pass legislation that enabled Government agencies to re-employ retirees and other former staff for fire support assignments without adversely affecting their pensions.

The USA experience has demonstrated the benefits of properly resourced Incident Management Teams. All positions, including all the unit positions within Planning and Logistics, are filled with trained, well-prepared staff. This ensures that team members are not over-committed, and that work targets are achieved.

The USA approach to meetings, briefings and information sharing within the IMT is highly disciplined and well structured, with strict attendance criteria and adherence to timeframes. Briefings are regular and thorough, following a standard format. At the end of an assignment, IMTs are routinely debriefed and each IMT's performance and outcomes are formally evaluated. The adoption by ANZ agencies of a process for reviewing the IMT performance would encourage continuous improvement in both countries.

Recommendations for ANZ

- R24 Consider developing within each Australian state and New Zealand pre-formed Incident Management Teams or Unit Teams (eg. Planning, Logistics Sections) for deployment to large, complex incidents. Where possible the membership of these teams should come from the same geographic area to facilitate their training and development.*
- R25 Include understudy and training positions within IMT teams so that inexperienced personnel can gain confidence under the guidance of experienced IMT leaders.*
- R26 Consider the adoption of the USA on-the-job performance appraisal system, which is conducted by IMT leaders on their subordinate staff towards the end of each assignment.*
- R27 Consider the adoption of a formal process for reviewing IMT performances to encourage continuous improvement.*

6.3 Multi-Agency Coordination Group (MAC) and Area Command

Overall the ANZ members were impressed with the organisational structures for command and coordination of the firefighting efforts against the large number of fires in the northern Rockies. In order to deal with the large number of serious fires, command structures were set up and coordinated within Multi-Agency Coordinating Groups (eg. Northern Rockies MAC) comprised of agency representatives. The MAC groups provide for statewide or regional coordination among federal, state, local government, tribal, and private volunteer groups for fire protection, public safety, community assistance, recovery and rehabilitation efforts.

When three or more Type 1 or Type 2 Incident Management Teams have been assigned to a geographic area, an Area Command team is automatically established. The Area Command takes over the delegated authority from the local agencies when relinquished by the Incident Management Teams. The Area Command assumes all liaison and reporting functions to and from the local agencies. For example, the Area Command in south-west Montana had delegation of authority to deal with multiple fires on behalf of the SW Montana MAC Group representing six Ranger Districts, three National Forests, the Montana Department of National Resources and Conservation and the Salish and Kootenai Tribal lands.

The 'delegation of authority' provided by the MAC to the Area Command Team identifies the management constraints and the suppression and rehabilitation works priorities within which the Incident Commander and his/her team must develop and implement the Incident action plans.

The 'delegation of authority' process enabled Area Commanders to act on the behalf of the land management administration to deal with multiple wildfires. This process is seen by USA authorities as an effective means of gaining the best use of available federal, state, tribal and local government resources to protect property and natural values on all tenures.

Typically an Area Command Team consists of the Area Commander and Assistant Commanders in Planning, Logistics and Aviation, and a Business Adviser.

The Area Command teams set-up in the northern Rockies provided for unified and informed decision making that resulted in the effective coordination of fire suppression priorities and strategies for the large number of incidents within each fire complex.

ANZ officers consider that the coordination role of the Area Command, as applied in the USA for multiple large fires, may be directly applied to fire emergencies in Australia.

Recommendation for ANZ

R28 Investigate whether any of the roles, responsibilities and operating procedures of the Multi-Agency Coordination (MAC) and the Area Command team can be effective as a means of improving the coordination and management of large-scale, complex wildfires involving several agencies.

R29 ANZ land management and fire authorities to determine the suitability of the 'Delegation of Authority' concept and procedures to ANZ situations.

6.4 Incident Command

At large fire emergencies involving multiple agencies, the Incident Commander and his/her IMT work for Area Command. The Incident Commander is given the delegation of authority by Area Command to take charge of specified fire incidents or fire complexes on the basis of acceptable control objectives and strategies for the incidents.

The roles and duties of Incident Commander in the USA teams are very similar to those undertaken by Incident Controllers in the Australian Incident Management System (AIMS). In both situations, the IC is required to be a leader with high-level management skills necessary to organising people and teams under emergency conditions.

USA Incident Commanders are required to practise these skills on a regular basis at national residential courses and at fire incidents.

6.5 Wildland Fire Situation Analysis

The WFSA is a systematic and documented decision process employed to determine the most appropriate suppression strategy for a particular situation. A WFSA is prepared when a fire (1) escapes initial attack, (2) warrants suppression actions but was not initially attacked due to resource shortages, (3) is beyond the capabilities of initial attack forces, or (4) when the fire and/or resource management objectives are not being met and a significant change in strategy is required.

A WFSA is jointly prepared by the land management agency (or agencies) and suppression organisation. The agency approves the WFSA and any revisions with the agreement of the suppression organisation.

A WFSA identifies several alternative suppression strategies/actions within the constraints of the selected management option. These may range from routine surveillance to a full commitment of resources until a fire is extinguished. The alternatives are analysed in terms of probability of success, environmental consequences, social and political considerations, and consequences of failure and cost. The assigned Incident Commander and the land manager/owner(s) must validate the WFSA to ensure that the selected alternative is still achievable. When the selected alternative or fire/resource management objectives are not met, the WFSA must be re-written to include a new suppression strategy.

Some ANZ officers question the usefulness of the WFSA process. The WFSA was rarely used to show the trade-off between the costs of the suppression tactics and such factors as safety, risk to private assets and natural resources, and long-term effects on watersheds and forest ecosystems. For the WFSA to be an effective tool in weighing risks against costs, it may be necessary to expand its analytical components.

Some ANZ staff observed that the WFSA was a cumbersome and inefficient process that often placed a severe constraint on the tactics available to the Incident Controller. In many cases, fire control strategies and tactics were dictated by the need to minimise their impact on landscape, soil, water catchment, habitat or other environmental values. These 'minimum impact suppression tactics' (MIST) often prolonged the suppression effort, increased the area burned, and increased the cost of the operations.

ANZ staff believe that the WFSA process as applied in the USA is unlikely to be effective in the fast-spreading fires and fast-changing circumstances that characterise most large forest fires in Australia. However, there may be elements of the WFSA that may be useful in ANZ fire situational analysis.

Recommendation for USA

- R30 Review the current WFSA process to determine if it can*
- be streamlined and more responsive to fast-changing fire situations;*
 - give appropriate (high) priority to the primary control objectives;*
 - give greater emphasis to safe and cost-effective strategies and tactics.*

Recommendations for ANZ

- R31 Review the USA WFSA process to determine its suitability for deciding on fire response strategies within ANZ fire situations.*

6.6 Safety Officer

In the USA there is a strong emphasis on safety, as there have been numerous fatalities and accidents over recent years. The Safety Officer within the IMT advises field supervisors on safety issues, coordinating information that came from messages and briefings at all levels of the fire operations. The Safety Officer is seen as an advisor to field and management staff rather than as an auditor. Properly applied, this function can improve safety at major incidents involving different agencies which may have different safety awareness and training levels and different standards on safe working practices.

Many ANZ officers expressed concern that the presence of the Safety Officer in the IMT may be counter-productive to risk management. They believe that there is a real danger that individuals throughout all levels of the incident control organisation will leave much of the responsibility for identifying, assessing and treating hazards to the Safety Officer. Furthermore, they are concerned that the Safety Officer may take on the role of a tactical decision-maker rather than an adviser on safety, and thereby cause confusion and conflict with Sector/Divisional Commanders. Safety must continue to be the primary responsibility of line management, and this responsibility must not be passed on to specialist advisors such as the Safety Officer.

To be effective, a Safety Officer would require considerable training and experience in most operational roles. Placing someone with that experience and knowledge outside, or parallel to, the chain of command further dilutes the incident management team expertise and capacity.

Recommendation for ANZ

R32 Examine options for maintaining a high level of safety awareness and safety practices among all agencies participating in large-scale incidents, including the role of the USA Safety Officer position within the IMT.

6.7 Information Officer

The serious fires in western USA generated enormous interest from the public and the media at local, state, national and international levels. In most situations observed by the ANZ staff, the high demands for information were met competently through the functions of the Information Section attached to the IMT and Area Command teams.

The ANZ officers were impressed with the pro-active approach taken by the Information Section staff to the supply of relevant information to the media and the wider community, as well as to the elements of fire organisation itself.

To achieve effective communication with the public, information centres are provided at local headquarters. Full use is made of agency staff and local community members with good technical abilities, including writing/editing and computer skills. Toll-free telephone information services, radio public service announcements and public affairs Webmaster Internet services are organised under a documented Information operations plan. Public meetings are held when necessary to address concerns or increase public awareness of suppression and rehabilitation/restoration efforts.

In general the efforts of the Information units ensured that stories and articles in the electronic and print media were insightful, accurate and well presented. The local media often carried well-balanced articles on the underlying causes and potential remedies to the forest health and fire management problems.

It was apparent that the pro-active approach to information sharing allowed heightened public awareness and informed debate on the forest and fire management issues. There was much evidence of public gratitude and support for the efforts of firefighters, including the Australasian contingent.

It was generally agreed by the ANZ officers that there are significant benefits in the USA approach to providing fire information to the fire organisation, stakeholders and the public. However, this service can be very time-consuming and costly, and if not properly managed could be done at the expense of the suppression effort.

Recommendations for ANZ

R33 Consider adopting the functions, procedures and facilities of the USA Information Officer Section, particularly in regard to communicating with the media, local communities, and the general public.

6.8 Operations Section

Many of the ANZ contingent were assigned to various roles within the Operations Section, including Operations Chief, Divisional Supervisors, Branch Director and Strike Team and Task Force Leaders.

There was widespread praise from USA Commanders on the quality of the performances of ANZ Operations personnel, their ability to identify and apply appropriate strategies and tactics, and their capacity to lead various types of field crews (including military forces) and resources (including aircraft).

The classification of USA crews as Type 1, 2 etc was found to be very useful in tasking crews for arduous, difficult or straightforward jobs. In most cases the USA crews were highly disciplined and motivated, and capable of carrying out physically demanding tasks over long hours day after day, without losing interest and performance.

Steep terrain, poor access for heavy plant and tankers, and the availability of a large labour force make handline construction by ground crews a preferred firefighting tactic in the north-west states of the USA. The ANZ teams saw excellent application of handline methods in steep terrain. In contrast, some Australian agencies have become increasingly reliant on machinery and tankers, and over time many of the fundamental skills in dry firefighting with handtools have been diminished or lost.

In Australasia, there is merit in bringing back the skills of firefighting with hand tools, particularly for rapid initial attack, backed up with more use of relay pumps and hose lines.

ANZ fireline staff were impressed with the effective use of relay pumping for the delivery of large volumes of water over long distance and on steep slopes. This technique was applied with great skill by Canadian and USA firefighters using small portable pumps and varied diameter hoses.

In some areas, use was made of modified logging machinery (eg. 'skidgines'), dozers, and excavators in constructing firelines. Edge control and mop-up is often done by 'dry' firefighting because tankers and light pumper units cannot gain access to the dozed firelines and tracks. Flexible backpack pumps were widely used by ground crews. These are considered more practical than the rigid polythene models still in use throughout Australia and New Zealand. However, the Australasian pack spray has a more effective and directional pump and nozzle assembly that is more efficient at attacking small spot fires, or spraying burning bark on trees.

While there are strong similarities between USA and ANZ firefighting tactics, many ANZ officers considered there were situations where the containment of fire edges could have been done more cost-effectively by safely burning out sections between the fire and constructed firelines.

Some USA commanders tended to be most conservative in using this "burn-out" tactic, apparently through fears of escape and the risk of increasing the fire area. This difference in approach may be partly due to differences in appreciation and understanding of fire behaviour through differences in experience in the use of fire as a management tool. The very conservative strategies that some USA commanders adopted on the pretext of firefighter safety appears to lead some operations personnel into making decisions on firefighting tactics that are less efficient by ANZ standards. ANZ officers are convinced that the continued involvement with fire as a land management tool gives them the knowledge, skill and confidence in tackling wildfires in an efficient and effective manner. Just as ANZ officers have learned much from exposure to USA firefighting strategies and tactics, USA commanders would benefit from exposure to ANZ tactics in ground-fire suppression, including the use of backburning from firelines.

In most incidents, USA firefighting operations in the Northern Rockies were confined to daylight hours, mainly because of safety concerns associated with working in the dark on steep slopes. This was one of the factors limiting the potential for effective burn-out operations. Often it was too dry and fiery to do this until very late at night, by which time everyone on the daylight shift had run out of hours. ANZ officers felt that in some circumstances better use could be made of the early morning and late evening, when effective fire suppression could be achieved due to the cooler conditions. At some fires, it took far too long to get large numbers of people onto the line in the morning; in one case people were not effectively deployed until 11:30 am.

The quality and effectiveness of contracted equipment/engines/fire tankers observed on the USA fires was very variable. While most were excellent, some equipment provided by contractors was poor and not cost-effective.

ANZ field supervisors were critical of the unsuitability of many of the smaller engines (lighter firefighting units) to manoeuvre on the slopes and narrow tracks. Many of the USA 4WD vehicles were unable to deliver firefighters and/or water to steep fireline locations, whereas ANZs smaller 4WD vehicles (eg. Toyota Landcruiser, Hilux) would have been expected to do so. The limitation of the USA vehicles meant that crews often needed to walk long distances, and fires were able to develop to greater size and intensity. It also meant that bulldozers and other fireline construction machinery did not have sufficient water support in the event of a breakout of fires or inboard ignitions.

Divisional Supervisors and Strike Team Leaders use 4x4 wheel motorbikes (Quads) to gain rapid access along firelines and narrow tracks. Whilst these machines are useful for fireline supervisors, there may be safety implications for people using these machines without prior experience or training.

Recommendations for USA

- R34 Examine better uses of cooler overnight conditions and subsequent lower fire risk to contain wildfires more quickly and economically.*
- R35 Explore opportunities for USA operations staff to participate in and learn from fire suppression and prescribed fire operations in Australia and New Zealand.*
- R36 Provide more opportunities for Operations/Command staff to be closely involved in planning and implementing prescribed fires. These will increase their fire behaviour knowledge and their skill and confidence in applying fire in both suppression and land management (regeneration/ecological/fuel reduction) operations.*
- R37 Consider use of more compact high-performance 4WD vehicles (engines) to carry personnel, water or light equipment on steep and narrow tracks and firelines.*
- R38 Consider development of more mobile, high clearance, 4WD medium and heavy fire tankers (engines) as used in Australia and New Zealand for delivery of water and personnel to firelines within difficult/steep terrain.*

Recommendations for ANZ

- R39 Where appropriate, consider giving greater emphasis to maintaining skills in firefighting with hand tools and relay pumping, particularly for rapid initial attack and for areas inaccessible to tankers and machinery.*
- R40 Consider adopting equipment and procedures for relay water pumping similar to those in the USA and Canada.*
- R41 Consider the use of Quads (4x4 motor bikes) for suitably accredited fireline supervisors working on steep terrain and narrow access tracks.*

6.9 Aerial operations

Apart from the larger aircraft sizes and the larger numbers of aircraft involved, the USA aircraft operations were similar to ANZ operations. Extensive use was made of large rotary wing aircraft for water bombing, crew support and transport. Large and medium size (agricultural) fixed wing aircraft were used extensively for retardant drops along flanks. USA water bombers were used in mop-up operations, particularly where access for ground crews and machinery was difficult.

The deployment and control of aircraft near the fire ground was well managed under the direction of the Air Operations Director assisted by Air Support Officers.

The air operations work guides that are included in the daily Incident Action Plan (IAP) were detailed and allowed every pilot to know what was required of them and their aircraft. The Inter-agency Helicopter Operations Guide (IHOG) spells out how all air operations should be conducted. The IHOG spells out the specific roles and functions of all personnel involved in the aerial operations.

All aircraft operations observed by ANZ officers were undertaken with a strict adherence to safety. All staff involved in the use of aircraft are thoroughly trained and briefed on safety procedures and precautions.

The USA aircraft management system uses specialist 'HeliTack' personnel to supervise every ground operation that uses aircraft. These teams are well trained and equipped with all the required flying gear, helmet, flight suit, gloves and portable radios. Although this led to a uniform system of aircraft management, it did hinder the effective use of these firefighting tools when HeliTack personnel were not immediately available for critical ground tasks, such as crew loading and dispatch, helipad setup, etc.

Perhaps a better system to employ in Australia and New Zealand is to adopt parts of the Canadian system, which relies on providing training to all frontline crews in basic aircraft loading and helipad set-up. These crews then display an aircraft certification sticker on their fire helmets, which is recognisable to the Incident Command Team, the pilot and other aircraft personnel. Higher aircraft management duties, such as aircraft control/coordination on the fireground, could be left up to IMT personnel that have had appropriate training/experience.

A fundamental weakness in the use of aircraft was the inability to deploy ground support in some of the difficult terrain or more hazardous situations. Persistent dropping of retardant held fire edges effectively in the short term at enormous cost, but many unattended smouldering edges remained to escape at the first opportunity.

Recommendations for USA Aircraft Operations

R42 Consider providing training to frontline crews in aircraft loading and helipad construction to increase the opportunities for use of helicopters on fires where helitack specialists are not immediately available.

6.10 Radio Communication

Radios are provided to personnel on the fireline and in the IMT. In general there was widespread and effective use of both tactical (simplex) and command (repeater) channels at fires. These were set out in Communications Plans.

The use of standard disposable batteries was considered a useful option, together with rechargeable battery packs. Chest pouches for carrying radios were found to be practical.

USA radio systems can be cloned to a common frequencies set. This capacity, plus the use of portable repeaters to cover radio communication gaps in difficult terrain, provides effective delivery of strategic and tactical information, and improves the safety of fire crews.

In addition, all aircraft operating near the fire ground monitored and used an air-to-ground repeater frequency that could be accessed by all radios. This enables everybody to be kept informed of aircraft movements.

Automatic weather stations could also be accessed from the fireline, using hand-held radios. This provided up-to-date weather readings and was a significant safety feature.

Recommendations for ANZ

R43 Examine the use and benefit of 'cloned' radio systems, portable radios, and portable repeaters as used on USA fires.

R44 Emphasise the need for comprehensive Communication Plans at all large, multi-agency incidents.

R45 Where appropriate, establish the facility for remote interrogation of Automatic Weather Stations by fireline supervisors.

6.11 Fitness Standards

USA fire personnel must meet established physical fitness standards for wildfire suppression and prescribed fire assignments. These fitness standards are set for each position in the IMT and for the different types of fire crews.

Four categories of physical fitness have been established:

Arduous – applies to field positions and fire crews (eg. Divisional Supervisors, Taskforce and Strike Team Leaders) whose duties may include extraordinary strenuous activities under adverse environmental conditions.

Moderate – applies to those field ICS positions (eg. Operations Chief, Safety Officer, Situation Unit Leader) which may involve physical tasks that include considerable walking over irregular ground, standing long periods of time, and moderately strenuous activities in emergencies over long periods of time.

Light – applies to office type work with occasional field activities and light physical exertion over long periods of time.

None – applies to duties that are normally performed in a controlled environment, such as incident base or camp.

USA agencies may decide for themselves how to evaluate the physical fitness level of their personnel, although it should be a measurable process.

Task-based assessment systems are considered most suitable for evaluating physical fitness levels. For example the Moderate category requires participants to walk two miles (3.2km) with a 25-pound (11.3 kg) backpack load within 30 minutes.

The general opinion of most ANZ staff was that the Moderate fitness category that has been adopted by FCOG and applied and accepted for the USA deployment is appropriate to meet the physical demands encountered in Australia and New Zealand in most field supervision and IMT headquarter roles.

Recommendation for ANZ

R46 The FCOG physical fitness and medical standard, which equates to the USA 'Moderate' fitness category, should be adopted as the minimum for fireline staff within ANZ.

6.12 Protective Clothing

Most ANZ officers worked in the cotton-based protective clothing provided by their home agency. These include both the one-piece firefighting overalls and the two-piece jacket and pants outfits. All protective clothing, including boots and helmets, exceeded the minimum standards detailed in the latest ISO standards for wildland fire protective clothing.

Some of the ANZ fireline supervisors also worked in the Aramid (Nomex) shirts, pants and jackets issued by the USA fire agencies.

The requirement for USA fireline staff to wear belts and webbing for radio, water bottle and fire shelters, and backpacks for equipment, lunch and clothing, meant that airflow needed to reduce body heat was severely restricted as soon as the field staff were required to walk in steep terrain and conduct physical tasks. Under hot conditions, the lighter Aramid (Nomex) shirt provided by the USA was found to be more comfortable than the heavier cotton jacket or overalls. Some ANZ officers consider that there is a place for the use of long-sleeve shirts and pants in situations where there is a low risk of fire attack, and where weather conditions are too hot and humid for heavy overalls.

In comparison with cotton shirts, the Nomex shirts are able to handle ember attack better and have a longer operational life. However, the poor evaporative cooling and the significantly higher cost of the Nomex shirt has discouraged ANZ wildland fire agencies from adopting this material for firefighters. It is considered that the Proban™ treated cotton material will be more suitable for ANZ agencies.

Recommendation for ANZ

R47 Consider developing and testing a Proban™-treated cotton shirt for two-piece protective clothing outfits that provides better comfort and appropriate fire protection during hot and arduous conditions.

6.13 Personal Protective Shelters

ANZ officers were issued with personal protective shelters for protection in the event of fire entrapment. Although the personal protective shelter was first developed in Australia, ANZ fire agencies have not accepted it as suitable equipment for firefighters. The fire shelter has never been effective against direct flame contact and the time taken to construct an area of sufficient size to avoid flame contact would take at least one man-hour in litter fuels and much longer in heavy scrub fuels. Only recently the USDA Forest Service issued warnings that the fire shelter is flammable in direct contact with flames.

It is a regular practice in the USA to designate fire safety zones. These usually are large areas (100 by 100 m) intended for protection of firefighters in normal firefighter clothing or with personal protective shelter. Large areas of bare or burnt-out ground may also be designated as safety zones. Construction of safety zones is not considered practical or environmentally desirable in the Australia forests. Designated areas for safety zones may lead of firefighters away from safe areas of burnt-out ground.

Recommendations for ANZ

R48 FCOG and AFAC to confirm their position on the use of personal protective shelters as follows:

While personal protective shelters can provide a degree of protection in certain circumstances they should not be adopted in Australia. Rather, firefighters should always adopt safe work practices and suppress the fire from within burnt ground or plan their suppression so they can retreat safely to burnt ground if conditions change.

R49 FCOG and AFAC to confirm that specially constructed fire safety zones are not considered necessary in Australian forests. The term Safety Zone should not be referred to in training to avoid entrapment when it is intended that the firefighters should retreat to the nearest safe area.

6.14 Planning Section

The USA Planning Section's primary function within the IMT is to prepare the Incident Action Plan (IAP) and associated forms. In most IMTs the Planning Section does not become heavily involved in the development and analysis of alternative strategies. In the USA, the Command and Operations Sections have the dominant role in setting the strategies, while Planning is required to sort out the activation details. Many ANZ officers preferred the ANZ approach, where the Planning Officer plays a greater role in analysing strategic options and developing strategies.

Planning functions within the USA IMTs in which ANZ officers were involved were generally well organised and well resourced by highly capable staff. The planning documentation was comprehensive and well laid out. The ready access to computers and supporting software (eg. forms provided on CDs) ensured that information could be presented in a consistent and comprehensive manner. Some of the forms and documents used in the USA were more appropriate and “user-friendly” than the current AIIMS forms. These need to be reviewed by the Australasian Fire Authorities Council (AFAC) committee responsible for the AIIMS development.

Maps provided were generally of inconsistent quality, depending upon their source agency. Information on the fire history, fuel age of surrounding areas and current roading was often lacking. The quality of maps improved several days after the fires started.

USA agencies use infra-red (IR) mapping systems to locate fire perimeter and active fire fronts burning within remote locations. The IR imaging is done by aircraft at night when conditions are likely to be best for IR photography. IR map products are provided on the following day although sometimes there may be a delay as the IR aircraft schedules are controlled from Boise, Idaho. The ANZ aircraft specialists considered that the USA system of IR mapping can be made more responsive to the needs of the IMT in the event of fast-spreading fires or large numbers of multiple lightning-caused fires. Greater use should be made of day-time IR imagery, as is done by the Department of Natural Resource and Environment in Victoria (NRE).

The inclusion of a comprehensive description and analysis of fire behaviour and weather in the USA Incident Action Plans ensured that these factors were adequately considered in all operational and safety matters. However, the locations of low or heavy fuel quantities and fuel ages were often not sufficiently well known for sound decisions to be made on suppression tactics. Fuel age maps and aerial photos were often not readily available or were out of date.

The development of the comprehensive IAP can take many hours to complete, and requires a long lead-time of up to six hours or so to be printed and delivered. This meant that the IAP could not be amended in changing circumstances and was often out of date by the next shift. In the case of fast-moving fires this lack of flexibility was a potentially serious problem for applying strategies and tactics during the next shift.

The ANZ officers were also critical of the lack of regular, up-to-date Situation Reports from the fireline staff (Divisional Supervisors) that are needed to help set, validate or modify the IAP strategies. It was considered that the use of the ANZs ICS Division/Sector Report form on a regular predetermined basis would improve the USA IMTs' information base and decision making on fire suppression strategies, tactics and resource allocation priorities.

The USA resources management system consists of a database that was effective in tracking resources at fairly large incidents. The tracking system includes check-in, daily tasking, tracking and demobilisation. It has a flow-on relationship with financial management and operations. Resources are issued a unique number for the duration of the incident. Planning and Finance are notified of the resource, and its deployment is displayed as a 'T' card at the Incident Control Point.

In some cases, tracking difficulties were experienced during multiple fires when large numbers of resources were frequently moved to different fires and divisions. There was a need to develop and apply better tools for tracking and recording the location of these resources at complex incidents.

Recommendations for USA

- R50 Review the responsibilities of the Planning Section in Incident Management to ensure that it has a primary role in situational awareness and strategic analysis of suppression alternatives and outcomes.*
- R51 Provide for regular, well-structured Division/Sector Situation Reports on a predetermined frequency, which should drive the planning process.*
- R52 Provide for a formal debrief of Divisional Supervisors/Task Force Leaders by the Situation Unit of Planning at the end of each shift to ensure the relevant information is included in the IAP for next shift.*
- R53 Consider making better use of fuel age maps and current aerial photos to enable improved decision making on firefighting strategies and tactics.*
- R54 Consider ways of minimising problems of tracking resources when fires/fire complexes are amalgamated.*
- R55 Streamline the production of maps to link with IA plans and real-time situations.*
- R56 Consider adopting day-time IR imagery, as is done by the Victoria NRE, to shorten the response time for provision of real-time imagery to the IMT.*

Recommendations for ANZ

- R57 Consider the demobilisation procedures and plans used on USA fires as a model for application on ANZ fire complexes.*
- R58 Consider provision of a trained weather observer and/or meteorologist and fire behaviour analyst for complex fires to assist Planning and Operations Sections.*
- R59 Request AFAC to review USA ICS planning forms and software products for possible adoption in Australia/New Zealand, and consider development of prepared compact discs for Planning (including forms, documents, etc.), which will help ensure a consistent and streamlined approach to the development and maintenance of action plans, forms and associated documents.*
- R60 Develop software that allows integration of planning, resource, finance and logistics.*
- R61 Make better use of field GPS to map fire perimeters to ensure maps are accurate and up-to-date, particularly for the early stages of large fire development.*

6.15 Structural Protection and Evacuation

The development of Structural/Community Protection Plans for communities likely to be threatened by wildfires was considered a very good concept of potential value to ANZ fire authorities. These plans required significant input from experienced structural fire commanders.

The planning and operations for structural protection placed a huge demand on the IMTs so that suppression action on the rest of these fires was given low priority. Often these fires continued to grow to large sizes and became very costly to contain and rehabilitate.

A great deal of effort and cost was spent on protecting private homes and other structures where there had been little or no effort by the residents to reduce hazards and take other precautions. Most homes were constructed of timber with wood shake roofs, and many were located within heavy vegetation and poorly tended timber stands. Many of these structures were destroyed by the wildfires despite the best efforts of firefighters.

In the northern Rockies, there is an apparent lack of suitable building codes and subdivision planning for fire-prone areas that are needed to lower the risk of wildfire damage and the destruction of homes and other community assets.

Since 1970 more than 10,000 homes and 20,000 other structures and facilities have been lost to severe wildfires in the USA. Wildfires have cost the USA government agencies some US\$20 billion to suppress and the insurance industry another US\$6 billion in restitution.

Most Australian fire authorities foster cultural attitudes that encourages homeowners to take responsibility for their own protection and that of their home from fires affecting wildland/urban interface areas. This culture reduces reliance upon fire and emergency services for public safety.

Several Australian fire authorities have developed fire prevention and public awareness programs, called Community Fire Guard, which are designed to engage the community in developing greater self-reliance in highly fire prone areas.

These authorities promote a practice of “stay or leave early” when a wildfire approaches. This concept acknowledges the reality that homeowners who have prepared their homes and property for fire and ember invasion will survive even extremely fierce wildfires. The strategy behind “stay or leave early” is that more civilians have been killed trying to escape bushfires at the last moment, than those who stayed. This practice works well in many parts of Australia because there are virtually no wood shake roofs, and buildings are designed to prevent entry of burning embers. Research has shown that homes with these features and which have a defensible space can often be saved. Once a fire front has passed, homeowners can suppress any residual flames.

The Australian Fire Authorities Council has developed a position paper on Community Safety and Evacuation during which details the strategies that should be adopted by all fire and emergency services throughout Australia and New Zealand. (See Appendix V.) Also included in Appendix V is an example of the Advice to Householders leaflet which is hand delivered to people in the likely impact zone. This Advice provides information on what measures should be taken by householders who choose to stay. It is important that this be provided early enough for homeowners to make thoughtful choices well in advance of the fire arrival.

The USA practice of evacuating entire communities in the face of fire threat may be placing an unrealistic expectation on fire and emergency authorities, to be able to protect homes and structures from fire damage. Some of the Australasian approaches to community protection within the wildland/urban interface could have significant benefits to USA.

In recent years the USA wildfire agencies and the National Fire Protection Association (NFPA) are attempting to address the problem through a whole community approach to fire prevention. This includes the promotion of the FIREWISE Communities program that is designed to not only help preserve houses from wildfires but to provide information on the need to use fire to protect wildlife, other natural values, and private assets. The NFPA and its partners in this program have estimated that savings of about US\$20 million annually are being achieved in fire suppression.

There may be benefits to Australasian agencies to learn about the procedures and benefits in the USA FIREWISE Communities Program.

Recommendations for USA

- R62 Continue to push for improved Building Codes and rural sub-division plans that will require residents, builders, local authorities, etc. to include consideration of effective fire prevention and mitigation measures in existing structures and future residential developments.*
- R63 Examine how Australasian community education programs on fire prevention and fire survival measures may be applicable to USA fire-prevention programs.*

Recommendations for ANZ

- R64 Ensure structural fire expertise input is provided with rural fire expertise within the Planning Unit at urban–rural interface fires.*
- R65 Review and consider for adoption the USA approach on the development and implementation of Structural/Community Protection Plans as part of the Incident Action Plans.*
- R66 FCOG recommend to the Australasian Fire Authorities Council (AFAC) that they send a representative to a FIREWISE Workshop in the USA in 2001 to evaluate and report back to AFAC on the benefits of the FIREWISE Communities program to Australia and New Zealand.*

6.16 Logistics Section

The requirement to meet the complex and escalating needs for resources, facilities and services for the large number of fire complexes throughout the USA's western states presented an enormous challenge to the land management agencies and fire authorities, as well as the numerous IMTs and their Logistics Sections. A great deal of the work done by the Logistics Section was aimed at establishing and maintaining large, self-contained residential base camps in remote locations.

With the exception of Victoria, the Australian states and New Zealand do not use large camps at fires. Firefighting personnel are normally accommodated at the closest town.

The positions within the USA version of the Logistics Section are similar to that adopted under the AIIMS System. Under the USA system, the use of the Equipment Manager to coordinate the administration and use of contractor machinery was seen as an improvement on ANZ procedures. The Equipment Manager works very closely with the Operations Section staff to ensure the optimum placement and use of the contract machinery on the fireline.

Another improvement on ANZ practices is the application of the Medical Unit, which is very pro-active in preventing medical problems and applying hygiene measures that limit the risk of disease and ailments within the fire camps. Staff within the Medical Unit included qualified Emergency Medical Technicians (EMT) and human resource specialists.

Most USA fire camps observed were extremely well organised and laid out to allow for effective separation of functional areas, and minimal disturbance to the administrative, catering and accommodation sections.

There is a widespread use of security staff to control the movement in and out of the large fire camps. Officers were impressed with the good behaviour and orderliness of the camps, where large numbers of individuals with a wide range of cultural and socio-economic backgrounds are forced to live and work together for lengthy periods. The security staff and the 'no alcohol' policy for camp residents ensured that there is minimal conflict within the camp.

The supply of large orders of equipment and materials to the widespread fire complexes is made possible through the mobilisation of these supplies stored at a number of fire caches spread around the country (eg. at Boise and Missoula). Due to the number of resources available, it is unlikely that there is a need to maintain large caches in Australia and New Zealand apart from those currently managed by the state agencies.

A centralised dispatch and records system (Expanded Dispatch), within each Area Command covering numerous fire complexes, helped ensure the provision of supplies in an effective, efficient and consistent manner for each of the IMT fire complexes.

The Expanded Dispatch Section includes the lead positions of Coordinator, Supervisory Dispatch, Support Dispatcher and Dispatch Recorder. The positions lead work teams with individuals that are accredited to fulfil designated supply/recording functions.

The resource management system used by USA teams is based on a relational database. This system includes check-in, daily tasking, tracking and mobilisation of all resources. The data is available for use in financial management, planning and operations. When a resource is ordered, it is issued with a unique number for the duration of the incident. Everyone and every resource are accounted for by way of a daily time card or shift ticket that is signed off by the relevant supervisor.

Recommendations for ANZ

R67 Consider the provision of pro-active hygiene and medical services for field bases.

R68 Consider the development of centralised Expanded Dispatch systems and work teams to facilitate the ordering and delivery of large numbers of goods and services in the event of complex, multi-agency fire emergencies.

R69 Consider adopting a system of identification of individual resource items to facilitate the tracking of these resource units.

6.17 Food Catering

Effective use is made of contract food services for USA wildland fire incidents involving large numbers of fire control personnel. These services are purchased from National Contract Food Service Contractors according to specifications that satisfy the high-energy consumption needs of firefighters from a wide range of cultural groups. This contractual arrangement offers a reliable service of high quality food that is not reliant on input by agency personnel.

Recommendation for ANZ

R70 Consider the use of contracted food services for catering for fire personnel at large incidents.

6.18 Finance and Administration Section

The functions of Finance Administration are contained within a separate section within the USA IMT. This is unlike the Australasian ICS, in which the Finance Administration function is managed as part of the Logistics Section.

Given the very large number of financial transactions and documentation associated with the large fires in the USA, it is appropriate that the finance section be separated from Logistics. This separation appears to work well because of the strong linkages that are maintained with the Supply and Ordering Units within Logistics.

The Finance Section staff are specially trained and qualified to undertake the often complex tasks associated with the positions that include Finance Section Chief, Time Unit, Cost Unit, Claims Unit, Procurement Unit and Equipment Time Recorders.

Complex finances, such as contracts, are administered through well-structured processes, forms and computerised documentation.

Recommendations for ANZ

R71 Review and consider for adoption the USA approach to the management of finance and administration at large, complex fires, including its role as a separate section within ICS.

R72 Review the USA computer-based documentation and finance administration procedures for possible adoption by the ANZ ICS System.

7. REFERENCE AND SUPPORTING MATERIALS

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8 APPENDICES

8.1 APPENDIX I – LIST OF ANZ PARTICIPANTS

AUSTRALIA

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Mr	Mike	Evans
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Mr	Mike	Wilkinson

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Mr	Richard	Bourke
Mr	James	Dalton
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Mr	Peter	Ellis
Mr	Geoff	Evans
Mr	Peter	Ford
Mr	Kevin	Giblin
Mr	Grange	Jephcott
Mr	David	Lanyon
Mr	Shaun	Lawlor
Mr	Tony	Lovick
Mr	John	McDonald
Mr	Rob	McNally
Mr	Peter	Novotny
Mr	Geoff	Pike
Mr	Andrew	Pook
Mr	Ben	Rankin
Mr	Ross	Runnalls
Mr	Max	Stuart
Mr	Owen	Swanton
Mr	David	Tainsh
Mr	Peter	West
Mr	Mark	Woodman

Forestry Tasmania

Mr	Dick	Chuter
Mr	Steve	Davis
Mr	Alan	Goodwin
Mr	Barry	Hunt
Mr	Alen	Slijepcevic
Mr	Lindsay	Wilson

NSW Rural Fire Service

Mr	Stuart	Midgley
Mr	Rob	Rogers

Parks and Wildlife Service Tasmania

Mr	Tony	Blanks
Mr	Peter	Cusick
Mr	Paul	Helleman
Mr	Rob	Jones
Mr	Kent	McConnell

Parks Victoria

Mr	Ian	Christie
Mr	Scott	Armstrong
Mr	Bob	Brinkman
Mr	Damian	Kerr
Mr	Tony	Long
Mr	Dennis	Matthews
Mr	Glen	Mawson
Mr	Roger	Strickland
Mr	Lex	Wade
Mr	Ion	Worrell

State Forests of NSW

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Mr	Dean	Anderson
Mr	Craige	Brown
Mr	Gavin	Jeffries
Mr	Paul	McBain
Mr	Richard	Rienstra
Mr	Karel	Zebjrlík

Tasmania Fire Service

Mr	Chris	Arnol
Mr	Ken	Burns
Mr	Gerald	Crawford
Mr	Tony	Davidson
Mr	Gavin	Freeman

NEW ZEALAND**New Zealand Fire Service**

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Mr	John	Rasmussen
Mr	John	Barnes
Mr	Larry	Cocker
Mr	Rob	Hands
Mr	Ed	Te Tau

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Mr	Andrew	Matthews
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Mr	Jan	Radic
Mr	Bryan	Rees
Mr	Colin	Smith
Mr	Barry	Marsden (Equipment)

Country Fire Authority, Victoria

Mr	Stephen	Walls
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Parks Victoria

Mr	Michael	Fitzgerald
Mr	Rob	Jarvis
Mr	Paul	McDiarmid
Mr	Jim	Whelan

**8.2 APPENDIX II – INTERNATIONAL AGREEMENT BETWEEN USA AND ANZ
– AUGUST 2000**

FS Agreement No. 0011130200-0148
BLM Agreement No. 1422RAA00-0001

**INTERNATIONAL AGREEMENT
Between the**

**US DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT,
US DEPARTMENT OF AGRICULTURE, FOREST SERVICE FOR THE NATIONAL MUTLI-
AGENCY COORDINATION GROUP FOR AND ON BEHALF OF THE GOVERNMENT OF
THE UNITED STATES OF AMERICA**

And the

**THE SECRETARY OF THE DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENT FOR ITSELF AND AS AGENT OF THE CROWN IN THE RIGHT OF EACH
AUSTRALIAN STATE AND TERRITORY AND THE CROWN IN THE RIGHT OF NEW
ZEALAND**

This International Agreement (IA) is made and entered into between the US Department of Interior (USDI), Bureau of Land Management hereinafter referred to as BLM and the US Department of Agriculture (USDA), Forest Service, hereinafter referred to as Forest Service under the authority of Public Law 101-11, Temporary Emergency Wildfire Suppression Act, approved April 7, 1989, and 42 USC 1856p.

And the

The Secretary of the Department of Natural Resources and Environment (NRE) on behalf of the Fire Control Officers Group (FCOG) and associated agencies as detailed in Schedules 1 & 2.

I. PURPOSE:

The purpose of the agreement is to facilitate mutual assistance in wildland firefighting between Australia, New Zealand and the United States of America.

II. AUTHORITY

The Public Law 1-101, Temporary Emergency Wildfire Suppression Act and 42 USC 1856p provide authority to enter into an agreement with any foreign country for wildfire suppression support.

III. GENERAL PROCEDURES

Requests for assistance will be channeled by the most expeditious means to the appropriate authorized official in accordance with the following:

1. Requests for assistance from the USA will be made from the relevant Australian and New Zealand agencies via NRE to the National Interagency Coordination Center (NICC) at the National Interagency Fire Center (NIFC) in Boise, Idaho. The authorized officials are the B.L.M. Director or the US Forest Service Director at NIFC.

2. Requests for assistance from participating Australian and New Zealand agencies will be made from NIFC to the Chief fire Officer of NRE.
3. NRE and NIFC will be responsible for providing the US and Australian and New Zealand officials with the names of the authorized Australian and New Zealand officials within fourteen days of request for assistance.

IV. PERSONNEL

1. Reimbursement for personnel will be on the following basis:
 - (a) All salaries, overtime and hazard pay submitted for payment by the sending agency will be reimbursed by the receiving agency, in accordance with salary schedules and/or union contracts in existence with the lending agency or at rates agreed in advance of engagement.
 - (b) The costs of travel, and daily personnel care costs shall in all cases be reimbursed by the receiving agency. Where daily rates are not in effect receipts are required for all expenses.
 - (c) All medical and associated compensation costs incurred in the course of the deployment to the requesting agency.
2. The parties to this Agreement may request overhead personnel with specialized expertise for fire assignments.
3. Personnel assigned as part of a resource order will receive an adequate orientation and health and safety session prior to deployment and should be debriefed prior to demobilization.
4. Each agency assigning personnel to a resource order will certify that the personnel assigned will meet the requirements of the position ordered.
5. The lending agency will attempt to provide all the safety equipment required to meet their regulations. Should additional equipment be required by the receiving agency, the receiving agency will supply at their expense.
6. When appropriate the lending agency and receiving agency will provide for adequate liaison. The liaison from the receiving agency will be responsible for the health, safety, welfare, and commissary needs of all personnel engaged.

7. The requesting agency will insure that immediate medical services are afforded to any member of the incoming forces regardless of the nature of the requirement or the type of medical aid required. Costs for medical services will be covered by the requesting agency until the employee is returned to the fireline or sending agency, other than costs for ongoing rehabilitation which shall continue to be met by the requesting agency.
8. Death or long-term compensation claims will go through sending agencies workers compensation program and billed for reimbursement to the receiving agency.
9. All personnel should carry with them two examples of identification and any conviction may prohibit mobilization to the receiving country.
10. If an individual is deemed inadmissible due to minor criminal/felony offences, the individual will be required to undergo an interview process with Immigration. All costs associated with the process will be born by the individual or the receiving agency.

V. EQUIPMENT AND SUPPLIES

1. Expendable equipment and supplies shall be considered purchased on delivery, and full replacement costs will be reimbursed by the receiving agency. Items should be considered expendable if they are not reusable or cannot be recycled.
2. Non-expendable and accountable equipment and supplies will be credited to the receiving agency upon return to the lending agency. The costs of refurbishing is reimbursable by the receiving agency unless the sending agency agrees that the receiving agency will perform the work.
3. In the event that any equipment or supplies are damaged beyond repair or not returned, they will either be replaced by the receiving agency with new equipment or supplies of the same quantity and to the lending agency's standards, or full replacement cost will be reimbursed by the receiving agency.
4. Some specialized equipment may be accompanied by trained technicians and/or operators to ensure safe and efficient set up and operation of equipment.
5. It is recommended that all equipment be registered with the respective lending agencies customs authority prior to mobilization
6. All transportation costs will be reimbursed by the receiving agency.

VI. AIRCRAFT (This section applies to contract and government owned aircraft.)

1. Reimbursement will be made on the following basis:
 - (a) All direct flight costs will be reimbursed by the receiving agency.
 - (b) Minimum contract guarantees will be reimbursed by the receiving agency when the resource order is for aircraft services. Contract guarantees will not be assessed if the aircraft is used solely to transport personnel between countries.
 - (c) Unless otherwise agreed upon between parties to this Agreement, maintenance and/or damage to the aircraft is the responsibility of the contractor and/or owner, and is not reimbursable. Damage to an aircraft caused as a direct result of agency personnel actions are the receiving agency's responsibility and are reimbursable.
2. All contract aircraft mobilized to the USA will be reimbursed by the USA.
3. All aircraft will meet the receiving agency's specifications for standards and pilot qualifications and will be inspected prior to being put into service.

VII INDEMNITY

1. The Government of the United States of America hereby indemnifies and undertakes to keep indemnified the Secretary to the Department of Natural Resources and Environment of the State of Victoria Australia and the State of Victoria and their officers, employees, servants and agents from and or against all actions, claims, demands, costs and expenses of whatever nature (including the costs of defending or settling any action, claim or demand) and howsoever arising either directly or indirectly from or in consequence of any act or omission of any Department of Natural Resources and Environment and or State of Victoria officer, employee, servant or agent as defined in Schedule 1 and Schedule 2 attending the United States to assist any entity or person within the United States either directly or indirectly in response to a request made by the United States National Interagency Multi Agency Coordination Group or any similar request made for and on behalf of the United States. Such indemnity will be extended to all agencies listed in schedules 1 & 2 of this agreement and to their associated governments officers, employees, servants and agents.
2. The receiving agency agrees to reimburse to a sending agency all extra worker's compensation insurance costs incurred by the sending agency as a result of worker's compensation claim being made in respect of any injury occurring during the term of this agreement.

VIII RECALL

The recall of resources from the receiving agency shall be communicated through NICC and the NRE Emergency Coordination Centre and the lending agency will attempt to give 24 hours notice.

IX BILLING AND PAYMENT

1. The billing and payment should be submitted directly to the receiving agency for processing.
2. Invoices for goods and services, provided by Australia, New Zealand to the United States, will be paid for in U.S. dollars and invoices for goods and services, provided by the United States to Australia/New Zealand, will be paid for in US dollars.
3. All interest charges will be forgiven for over-due accounts on Government to Government invoices provided payment is made prior to the following 30 June.
4. Billing will include the following:
 - a. cover letter with reference to specific resource number(s).
 - b. an original itemized invoice
 - c. backup documentation (summarized listing of salary, supplies, travel and equipment with dates, hours, and crew / equipment / aircraft type).
5. United States billing will be to the following address:

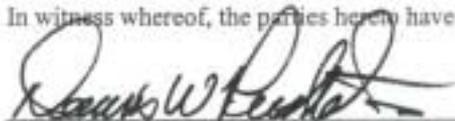
National Interagency Fire Center
3833 South Development Ave.,
Boise, ID 83705-5354
6. New Zealand and Australia billing will be NRE.

BLM Agency Location Code - 14-11-0008
Budget Object Code -
Performing Agency Location Code - (Insert ALC)

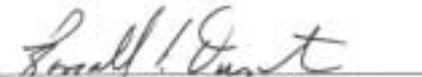
Send bill to: USDI, Bureau of Land Management
Attn: Rich Harter
3833 So. Development Ave.
Boise, Idaho 83705

1. A detailed list of charges incurred will be made available upon request. Any excess funds not used for the agreed costs shall be refunded to the Forest Service and/or BLM or NRE (as the case may be upon expiration of this International Agreement).
2. Modifications within the scope of this International Agreement shall be made by mutual consent of all parties, by the issuance of a written modification, signed and dated by all parties, prior to any changes being performed. The Forest Service, BLM and NRE are not obligated to fund any changes not properly approved in advance.
3. Any one of the parties, in writing, may terminate their portion of this instrument in whole, or in part, at any time. Full credit shall be allowed for each party's expenses and all non-cancelable obligations properly incurred up to the effective date of termination.
4. This International Agreement is executed as of the date of the last signature and, unless terminated sooner, is effective through five years from that date at which time it will be reviewed.

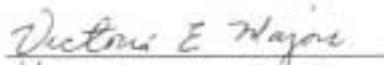
In witness whereof, the parties hereto have executed this IA as of the last written date below


Dennis Pendleton
Assistant Director, Fire and Aviation
USDA, Forest Service

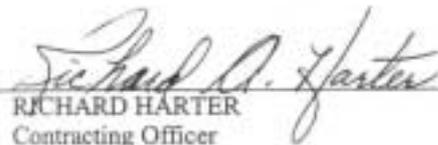
8/9/00
DATE


RONALD L. DUNTON
Fire Program Manager, Office Fire and
Aviation
USDI, BLM

8/4/00
DATE


VICTORIA E. NAJOS
ADMINISTRATIVE OFFICER
USDA, FOREST SERVICE

8/9/00


RICHARD HARTER
Contracting Officer
USDI, BLM

8/10/00

0011130200-0148

1422RAA00-001

FS Agreement No.
BLM Agreement No.

DATE

DATE

RICHARD HARTER
Contracting Officer
USDI, BLM

DATE

DATE





GARY MORGAN
Chief Fire Officer
Department of Conservation & Natural
Resources

CHLOE MUNRO
Secretary
Department of Conservation & Natural
Resources

10/8/2000

10/08/00

DATE

DATE

SCHEDULE 1

Fire Control Officers Group

Nation	State or Territory	Agency	Member
Australia	Victoria	Department of Natural Resources & Environment	Gary Morgan
Australia	New South Wales	State forests of New South Wales	Paul De Mar
Australia	Australian Capital Territory	ACT Forest	Tony Bartlet
Australia	Western Australia	Department of Conservation and Land Management	Rick Sneeuwjagt
Australia	Tasmania	Forestry Tasmania	Dick Chuter
Australia	Tasmania	Parks and Wildlife Service Tasmania	Tony Blanks
Australia	Queensland	Department of Primary Industry	Mike Thomas
Australia	Northern Territory	Bush Fire Council of the Northern Territory	Tim McGuffog
New Zealand		New Zealand Fire Service Commission	Murray Dudfield
New Zealand		Department of Conservation, NZ	Kerry Hilliard

SCHEDULE 2
Associated Agencies

Nation	State or Territory	Agency
Australia	Victoria	Parks Victoria
Australia	Victoria	Country Fire Authority
Australia	Queensland	National parks and Wildlife Service, Department of Environment and Heritage
Australia	New South Wales	NSW Rural Fire Service
Australia	Tasmania	Tasmania Fire Service
Australia	South Australia	SA Department of Environment and Heritage

8.3 APPENDIX III – USA PUBLIC LAW 101

Appendix III

PUBLIC LAW 101-11-APR. 7, 1989

103 STAT. 15

Public Law 101-11
101st Congress

An Act

To make permanent the authority provided under the Temporary Emergency
Wildfire Suppression Act.

Apr. 7, 1989
[H.R. 829]

*Be it enacted by the Senate and House of Representatives of the United
States of America in Congress assembled,*

Wildfire
Suppression
Assistance Act
42 USC 1856m
note

SECTION 1. SHORT TITLE.

This Act may be cited as the "Wildfire Suppression Assistance
Act".

42 USC 1856p.

SEC. 2. PERMANENT AUTHORITY.

The Temporary Emergency Wildfire Suppression Act (Public
Law 100-428) is amended by repealing section 5.

Approved April 7, 1989.

LEGISLATIVE HISTORY—H.R. 829:

HOUSE REPORTS: No. 101-5. Pt. 1 (Comm. on Agriculture).
CONGRESSIONAL RECORD, Vol. 135 (1989)
Mar. 14, considered and passed House.
Mar. 17, considered and passed Senate.

○

29-139 0 - 89 (11)

Public Law 100-428
100th Congress
An Act

To authorize the Secretary of Agriculture and other agency heads to enter into agreements with foreign fire organizations for assistance in wildfire protection.

Sept. 9, 1988
(5-2641)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Temporary Emergency Wildfire Suppression Act".

Temporary
Emergency
Wildfire
Suppression Act.
42 USC 1856a
note.
42 USC 1856a
note.

SEC. 2. DEFINITIONS.

As used in this Act-

- (1) the term "fire organization" means any governmental, public, or private entity having wildfire protection resources; (2) the term "wildfire protection resources" means personnel, supplies, equipment, and other resources required for wildfire presuppression and suppression activities; and
- (3) the term "wildfire" means any forest or range fire.

SEC. 3. IMPLEMENTATION.

42 USC 1856a
note.

(a)(1) The Secretary of Agriculture or the Secretary of the Interior in consultation with the Secretary of State, may enter into a reciprocal agreement with any foreign fire organization for mutual aid in furnishing wildfire protection resources for lands and other properties for which such Secretary or organization normally provides wildfire protection.

(2) Any agreement entered into under this subsection-

- (A) shall include waiver by each party to the agreement of all claims against every other party to the agreement for compensation for any loss, damage, personal injury, or death occurring in consequence of the performance of such agreement;
- (B) shall include a provision to allow the termination of such agreement by any party thereto after reasonable notice; and
- (C) may provide for the reimbursement of any party thereto for all or any part of the costs incurred by such party in furnishing wildfire protection resources for, or on behalf of, any other party thereto.

Claims.

(b) In the absence of any agreement authorized under subsection (a), the Secretary of Agriculture or the Secretary of the Interior may-

- (1) furnish emergency wildfire protection resources to any foreign nation when the furnishing of such resources is determined by such Secretary to be in the best interest of the United States, and
- (2) accept emergency wildfire protection resources from any foreign fire organization when the acceptance of such resources is determined by such Secretary to be in the best interest of the United States.

(c) Notwithstanding the preceding provisions of this section reimbursement may be provided for the costs incurred by the Government of Canada or a Canadian organization in furnishing wildfire

Canada

- protection resources to the Government of the United States under-
 - (1) the memorandum entitled "Memorandum of Understanding Between the United States Department of Agriculture and Environment Canada on Cooperation in the Field of Forestry-Related Programs" dated June 25, 1982; and
 - (2) the arrangement entitled "Arrangement in the Form of an Exchange of Notes Between the Government of Canada and the Government of the United States of America" dated May 4, 1982.
- (d) Any service performed by any employee of the United States under an agreement or otherwise under this Act shall constitute service rendered in the line of duty in such employment. The performance of such service by any other individual shall not make such individual an employee of the United States.

SEC- 4. FUNDS

42 USC 1856a
note.

Funds available to the Secretary of Agriculture or the Secretary of the Interior, for wildfire protection resources in connection with activities under the jurisdiction of such Secretary may be used to carry out activities authorized under agreements or otherwise under this Act, or for reimbursements authorized under section 3(c): *Provided*, That no such funds may be expended for wildfire protection resources or personnel provided by a foreign fire organization unless the Secretary determines that no wildfire protection resources or personnel within the United States are reasonably available to provide wildfire protection.

SEC- 5. TERMINATION DATE.

42 USC 1856a
note.

The authority to enter into agreements under section 3(a), to furnish or accept emergency wildfire protection resources under section 3(b), or to incur obligations for reimbursement under section 3(c), shall terminate on December 31, 1988.

Approved September 9, 1988.

LEGISLATIVE HISTORY-S 2641.

CONGRESSIONAL RECORD, Vol. 184 (1988)

Sept. 8, considered and passed, Senate and House

WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 24 (1988):

Sept. 9, Presidential statement.

○

8.4 APPENDIX IV – EXCHANGE PROTOCOL BETWEEN USA AND CANADA



Exchange Protocol



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PERSONNEL EXCHANGE PROTOCOL

FOREWORD

At the 1997 meeting of the Directors of CIFFC and NIFC it was agreed that one of the endeavors we would strive to achieve would be to exchange personnel at the mid-management and technical levels.

There have been many exchanges at the upper management level through joint participation in the North American Forestry Commission - Fire Management Study Group, the National Wildfire Coordinating Group, the CIFFC Annual Meeting and the Canadian Committee on Forest Fire Management, as well as exchanges on the operational level through the Canada/United States Reciprocal Forest Fire Fighting Arrangement. However, it was felt that there was a need to exchange personnel in a non-emergency basis to transfer technology and to benefit from new initiatives in program development.

It was further agreed that exchanges would be on a reciprocal basis so that individuals would have an opportunity to not only display and explain their programs, but also to observe and gather information from reciprocating individual programs.

A decision was made to canvass individuals from member agencies to solicit their interest and to identify individuals on both sides of the border who are interested in participating in such an exchange program.

It was agreed that interested individuals through their agencies, would first of all receive approval for such exchanges and be prepared to cover costs.

Following a decision to proceed with exchanges it was further agreed that an exchange protocol would be created to establish the guidelines for the initiation, the carrying out and the reporting of exchanges over time as they occur. The intent of the exchange protocol will be to expand it much the same as is done with the Operational Guidelines of the Canada/United States Reciprocal Forest Fire Fighting Arrangement.

AUTHORITY:

The authority to exchange personnel as found in the Canada/United States Reciprocal Forest Fire Fighting Arrangement which was concluded by an exchange of Diplomatic Notes on May 7, 1982 (Appendix I) and further defined in Public Law 101-11 (HR 829) (Appendix II).

All conditions, except cost recovery apply. All costs involved in the exchange are the responsibility of the sending agency including wages, medical, room and board, travel, etc.

QUALIFICATIONS:

Their qualifications will be commensurate with the reciprocal position for anyone to participate under this program. The individual should have technical and/or administrative knowledge of the area of interest. He/she must also be prepared and capable of hosting a reciprocal individual and be prepared to provide an outline of activities prior to any exchange.

The receiving agency should also endeavor to provide an opportunity for the visiting individual to liaise with other local interests such as universities, research centres or private corporations.

REQUESTS:

Request for exchange by Canadians will be made to the director of the Canadian Intergency Forest Fire Centre (CIFFC) and request for exchange by Americans will be made to the directors of the National Intergency Fire Center (NIFC).

- The director of CIFFC will be responsible for submitting the request for personnel exchange to NIFC on the behalf of the requesting individual, vice versa for the directors at NIFC.
- All exchange locations will be mutually agreed to prior to exchanges.
- The requesting exchange individual will contact the host agency to work out the specific details.
- When final arrangements are made, an itinerary will be sent to the National Centres for filing.

PROCEDURES:

Individuals should first receive authority to participate in the exchange program.

Any individual requesting a personnel exchange with another agency is required to submit the attached form.

DOCUMENTATION / REPORT:

Following completion of the exchange a short report will be sent to the Fire Centres (not more than two pages) indicating the extent of the exchange, highlighting benefit and some of the accomplishments.

Comments and/or suggestions for additions to the personnel exchange protocol would be greatly appreciated.

AUTHORIZATION AND AMENDMENTS:

This Personnel Exchange Protocol may be amended at any time with the concurrence of the directors of CIFFC and NIFC.

PARTICIPATING AGENCIES: (original signed by all participating agencies, 1999)

Dennis Pendleton
Director,
US Forest Service - NIFC

C. Allan Jeffrey
Director,
CIFFC

Les Rosenkrance
Director,
Bureau of Land Management - NIFC

Rick Gale
Director,
National Park Service - NIFC

Roger Erb
Director,
Fish and Wildlife Service - NIFC

Steve Haglund
Director,
Bureau of Indian Affairs - NIFC

PERSONNEL EXCHANGE REQUEST

PERSONAL INFORMATION:

Surname:

First Name:

Occupations:

Address:
No. Street City Province/State Postal Code

Telephone:
Area Code Home Area Code Business Extension

Persimile: Duration:

E-mail:

Goals & Objectives:

Special Request:

8.5 APPENDIX V – AFAC POSITION PAPER ON COMMUNITY SAFETY AND EVACUATION DURING BUSFHIRES



**AUSTRALASIAN FIRE
AUTHORITIES COUNCIL**

**POSITION PAPER ON
COMMUNITY SAFETY AND
EVACUATION DURING
BUSHFIRES**

Aim

This position paper has been developed by the Australasian Fire Authorities Council (AFAC) to provide guidance on bushfire safety and evacuation decision making by fire agencies and for the use by other associated emergency services and support agencies.

Preamble

Bushfires regularly threaten communities throughout Australia with the risk of death or injury to residents, and destruction or damage of their property, environmental values, and other community assets. The responsibility for reducing the loss of life and property lies jointly with State agencies, local government, the communities and individuals.

Bushfire losses can be reduced by preventing fire, limiting its spread, making preparations to protect life and property, and responding effectively during and after fire. Fire authorities are not able to guarantee the presence of a fire fighting vehicle and crew to protect every residence at risk during major or multiple bushfires, although they will endeavour to provide sufficient firefighting resources to support people defending themselves.

Houses protect people and people protect houses. Research conducted following major bushfires in Australia has concluded that the most buildings lost in bushfire situations are the result of initially small fires started by sparks and embers. A building will generally survive the initial passage of a fire front providing adequate preparations have been made. People who are well prepared and take shelter in their homes have an excellent chance of surviving a bushfire. Also, houses will survive if people remain to extinguish small fires started in and around them.

Fire authorities no longer advocate large-scale evacuation of people from areas threatened by bushfires. In modern times it has been the practice in Australia and in other places for people to be evacuated from sources of danger such as bushfires. Simply not being there and exposed to a hazard eliminates the risk. With some natural hazards such as floods and cyclones there can be sufficient warning time to enable people to safely leave the area. However bushfires often occur without warning and move rapidly. Research into Australian bushfire fatalities shows that last minute evacuations from bushfires contributed to the majority of deaths. Late evacuation is inherently dangerous and can cause greater risks than remaining in the fire area.

Communities at risk from bushfires should be allowed and encouraged to take responsibility for their own safety. Where adequate fire protection measures have been implemented, able-bodied people should be encouraged to stay. Where there is an adequate warning time people such as: the very young, the old, the infirm, those who feel they would not cope with the trauma of fire, and those who have not taken sufficient measures to protect their homes should leave. Evacuation does not necessarily need to involve long distance disruptive and logistically difficult movement. Where safe havens exist close by, they should be used in preference to moving well away from the affected area. The decision to stay or leave during a bushfire must be made following careful consideration of all the factors bearing upon the situation and the information available at the time.

Adequate Fire Protection Measures

Defendable space

The single most important fire protection measure influencing the safety of people and their property is the creation of a 'defendable space' around houses and other buildings. Defendable space is an area surrounding a building that is free of, (or significantly reduced) continuous combustible vegetation or other fuels. Having a defendable space essentially provides a fire break that limits the ability of a moving fire to spread directly to a building. It provides a relatively safe area from which an advancing fire can be controlled and within which firefighters and residents can control spark and ember caused fires on and around a building.

Householder planning

Residents in or near areas that may be threatened by bushfires should be encouraged to make plans in relation to how they will manage their safety when a bushfire occurs. Some of their considerations should be:

- Mental and physical preparation
- Arrangements for the early departure of vulnerable people
- Alternative water supplies
- Basic firefighting equipment
- Suitable clothing
- Means of receiving information – battery powered radio

Evacuation Considerations

Self evacuation

Self evacuation is the self-initiated movement of people from the at risk area to a place of safe refuge, either in advance of a bushfire or in anticipation such as on a day of forecast extreme fire danger. The risks associated with relocating increase dramatically as a fire front gets nearer.

It is highly recommended that all people who are not physically or mentally prepared to undertake firefighting activities should move to a safe area well ahead of a fire's arrival. This group of people usually includes the very young, older people who may no longer be physically agile and sick or immobile people. People who believe they are not capable of enduring the trauma associated with a bushfire situation or people who just do not, for whatever reason, want to be there, should relocate to a safe place well before a fire is expected. Those people who have not adequately prepared should also leave and relocate early.

Required Evacuation

Required or directed evacuation of people by an emergency service may be needed because of the imminent threat to those people.

People who have not undertaken adequate preparations and who choose not to leave may put their life or other lives at risk by remaining. Where a person's life is immediately at risk by them remaining in a particular location they may be advised to evacuate. Should that advice be ignored, evacuation may be enforced. This is subject to individual State legislation which varies around Australia (see below – Authority to Evacuate).

Access and Egress

Whilst every encouragement should be given for people to leave early or return home to defend their property, safety in transit must be a high priority. The risks involved in moving through a bushfire zone can be very high. Many deaths have been caused by people being trapped on unsafe roads. Safe access is a major issue for both people leaving and for those returning home before the fire arrives, as well as after it has moved through. Police generally have responsibility for road closures and road safety. Guidelines need to be developed jointly by police and fire authorities to provide safe access and egress to both residents, emergency services and the media. Such guidelines should consider

- Roads being closed when they become unsafe (either through smoke, falling trees and powerlines, etc) and will remain closed until they return to a safe condition.
- Police should close roads when requested by the fire authority to facilitate safe fire fighting operations.
- Whilst roads are closed, access should only be allowed for emergency service vehicles. Residents/media seeking access may only be allowed access where an appropriate escort can be provided eg: fire or police vehicle. This action will depend upon the priorities of the emergency services at the time.
- The attendance of residents at their homes is a legitimate fire protection strategy, therefore roads should be reopened for residents as soon as practicable and safe to do so.

Authority to Evacuate

AFAC believes that a framework is needed throughout Australia that allows and encourages members of the community to take responsibility for their own safety and that of their property. AFAC also believes the decision to evacuate people should be made by the lead fire combat authority. Where legislation exists that enables forced evacuation a protocol should be developed between the relevant authorities to allow people having a pecuniary interest in property involved to only be forcibly removed during a bushfire when they are in imminent danger of death or serious injury. The time involved in dealing with resisting residents can seriously hamper the process of warning and evacuating other members of the community.

Any framework should allow fire agencies, as the lead combat authority to implement strategies for community safety from bushfires, that includes avoiding ad hoc evacuation of people. It should allow residents to choose options that suit them (such as sheltering in their own homes, moving to a neighbour's house or relocating to a nearby refuge).

Information and Warnings

During the course of a bushfire it is essential that all people in threatened communities have ready access to accurate information to assist them in their decision making.

The fire authority should be responsible for providing advice for residents who are likely to be threatened by a bushfire. Fire authorities have access to the necessary information and the expertise to determine the level of bushfire threat.

It is essential that the Fire or Incident Controller provides timely advice and consults closely with Police or Emergency Coordinator and with other support agencies.

Planning for Fire Emergencies

AFAC advocates that emergency management agencies and local government, in consultation with the community, should actively seek the development and implementation of local fire emergency plans and strategies for all those areas with a high bushfire threat. Such local fire emergency plans should include the following considerations:

- Identification of areas of low and high fire hazard;
- Identification of vulnerable people;
- Identification of safe refuges, and low risk and high risk access roads;
- Community awareness and preparedness programs (eg. Community Fireguard);
- Arrangements for effective public warning systems and communications and;
- Arrangements for training exercises to test plans.

The local fire emergency plans should include strategies that encourage homeowners, landholders and managers to prepare their properties before the start of the bushfire season.

Local Emergency Response Plans

The local fire emergency response plans should promote the natural desire of most people to protect their own property and to make their own decisions during emergencies. The focus of these local arrangements should be to:

- Provide adequate information that allows residents to understand the risks and consequences of staying or evacuating from their homes in the event of bushfires;
- Help those who wish to leave;
- Encourage people to make an early decision to leave or to stay to avoid last minute, panic-stricken attempts to flee from bushfire;
- Develop and implement strategies to manage people fleeing at the last minute;
- Provide suitable support and welfare services during all phases of relocation
- Develop and foster an effective and reliable information flow between the emergency authorities and people in the community;
- Develop and implement strategies that support the safe return of able-bodied residents to their homes as soon as possible after the main fire has passed.



ADVICE TO HOUSEHOLDERS WHEN BUSHFIRE THREATENS

If you have properly **prepared** your home for a bushfire, it should be safe to stay. But if you haven't and your property is likely to be threatened by fire and has **poor access** and is **closely surrounded by highly flammable vegetation**, you should leave straight away if it is safe to do so. Leaving your evacuation to the last minute is extremely dangerous. It may be much safer to take shelter in a neighbour's home.

If you choose to stay:

As the fire approaches...

1. Listen to the radio for news of the fire's progress (transistor or car radios in case the power goes off)
2. Close doors and windows, remove curtains, and close shutters if you have them.
3. Tape windows to avoid breaking glass.
4. Fill buckets, baths and other containers with water. Have a ladder handy.
5. Block your downpipes, (a sock full of soil is ideal) and fill your gutters with water.
6. Move outdoor furniture, doormats and hanging baskets away from the house.
7. Just before the fire arrives wet down timber decks and the garden around the house.
8. Put out spot fires as they occur a wet mop is handy for this.

When the fire arrives...

It's going to be hot, windy, dark, smoky and noisy - but not for long.

1. Take the hose and tap fittings inside and fit the hose to a tap in the laundry.
2. Check around the inside of your house constantly, including the roof space, but be prepared to go to the side of the house furthest from the fire.

Once the fire has passed...

1. Go outside and put out any part of your house that is alight.
2. Check under the house and inside the roof as well.
3. Keep checking for several hours.

Further Information

For further information contact the Tasmania Fire Service on:

Freecall 1800 065 654