

行政院及所屬各機關出國報告  
(出國類別：考察)

赴 澳 洲 考 察 森 林  
火 災 業 務 報 告 書

出國機關：內政部消防署  
出國地區：澳大利亞  
出國期間：九十一年六月三十日至七月五日  
出國人：陳文龍、冷家宇

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考察森林火災業務報告書

主辦機關:

內政部消防署

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出國類別: 考察

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關鍵詞: 消防,森林火災

內容摘要: 今年五月份，梨山地區發生森林大火，雖在行政院農業委員會成立中央災害應變中心，動員林務、消防、警察、國軍…等各相關機關、人員全力搶救之下，未造成嚴重災害，但仍突顯我國在森林火災之預防、搶救上，仍有相當大之改善空間。澳洲幅員遼闊，大部分為未開發的原始地區，加上氣候乾燥，森林火災發生件數頻繁，對於森林火災防治與搶救工作，經驗豐富，且有相當成效，乃由本會派員前往考察森林火災災害防救業務執行情形，提供主管機關行政院農業委員會作為森林火災災害防救業務推動之參考，期能提昇我國森林火災災害防救業務執行成效。

本文電子檔已上傳至出國報告資訊網

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## 赴澳洲考察森林火災業務報告書

### 壹、前言

今年五月份，梨山地區發生森林大火，雖在行政院農業委員會成立中央災害應變中心，動員林務、消防、警察、國軍...等各相關機關、人員全力搶救之下，未造成嚴重災害，但仍突顯我國在森林火災之預防、搶救上，仍有相當大之改善空間。澳洲幅員遼闊，大部分為未開發的原始地區，加上氣候乾燥，森林火災發生件數頻繁，對於森林火災防治與搶救工作，經驗豐富，且有相當成效，乃由本會派員前往考察森林火災災害防救業務執行情形，提供主管機關行政院農業委員會作為森林火災災害防救業務推動之參考，期能提昇我國森林火災災害防救業務執行成效。

### 貳、行程規劃

六月三十日：台北至澳洲雪梨

七月一日：參訪位於雪梨之新南威爾斯州鄉村消防局  
(RFS, Rural Fire Service)

七月二日：實地勘查雪梨森林火災燃燒地區

七月三日：雪梨至坎培拉

七月四日：參訪位於坎培拉之澳洲緊急事故管理署(EMA,  
Emergency Management Australia)

七月五日：坎培拉至台北



拜會新南斯威爾州鄉村消防局



拜會澳洲緊急事故管理署

### 參、澳洲森林火災權責劃分

澳洲森林火災之預防、搶救為地方政府（州）權責，聯邦政府並無管理森林火災單位，各省主管森林火災單位名稱各異，此行考察之新南威爾斯州之森林火災主管機關為「鄉村消防局」（Rural Fire Service），惟只負責森林火災之預防以及搶救工作，有關水土保持以及森林火災發生後之林相恢復等復原工作則仍為林務單位或國家森林管理單位權責。

### 肆、新南威爾斯州森林火災

「鄉村消防局」（RFS）

介紹

澳洲新南威爾斯州「鄉村消防局」係於一九九七年依據「森林火災管理法」而設立。但早於一百年前新南威爾斯州就有森林火災



消防隊的成立，專責森林火災之預防、搶救及復原重建，並廣為澳洲民眾所熟悉。



新南威爾斯州政府辦

理消防業務單位除管理森林火災的「鄉村消防局」

(RFS) 外，還有管理都市消防業務的「都市消防局」

(Fire Brigade)。「都市消防局」僅負責都市地區的建

築物火災，然而新南威爾斯州「鄉村消防局」除了執行

森林火災之滅火任

務之外，同時還包括

郊區的建築物火

災，以及道路事故、

人命搜救與風災、水

災的搶救工作。



由於新南威爾斯州絕大多數地區為森林地區，因此「鄉村消防局」負責新南威爾斯州超過百分之九十以上的火災；至於不到百分之十的火災則為建築物火災，由「鄉村消防局」與「都市消防局」共同合作執行搶救工

作。各消防隊由一位選舉產生的隊長來管理，並且由幾位副隊長，內部設有秘書、出納等行政單位，實際參與救火的成員均

為志願工作人員。由於澳洲地廣人稀，都市面積僅佔約百分之一，因



此，「鄉村消防局」轄區約佔新南威爾斯州面積的百分之九十九，如此大的面積，分為一百四十二個鄉村防火區，每個防火區內約有十五至二十個消防隊，全州計有二千四百支消防隊，除了四百八十二個正式聘用的有給職人員，於「鄉村消防局」總部及分區辦公室工作外，均為義務性質的無給職義工，計達七〇、〇〇〇人，平時施予教育訓練，配置必要裝備器材，並編排勤務於隊輪值服勤，於森林火災發生後，立即以呼叫器通知相關人員加入火災搶救工作。

新南威爾斯州「鄉村消防局」掌理轄區一百四十三個分區之消防救災工作，以及火災發生時，各相關機關



間之協調整合工作，局長直接對緊急事故處理部部長負責。



新南斯威爾州森林火災救災指揮中心

該局並且對於「森林火災協調委員會」及「森林火災諮詢會議」提供協助支援，「鄉村消防局」在經歷過許許多多變革後，目前重點發展工作項目為救災

戰術研發、救災安全、充實救災裝備，並強化社區救災計畫，賦予社區更大的防救災責任。

澳洲新南威爾斯州「鄉村消防局」局長下設直屬局長之幕僚人員，負責「媒體公關」、「業務發展」及「網站管理」等事項。另設「救災行動組」、「後勤支援組」、「策略發展組」、「地區管理組」、「機關合作組」等五組，其任務如下：

一、救災行動組，主要工作項目為：

- (一) 研發救災技術並辦理救災專業講習訓練。
- (二) 對地方提供支援協助。

- (三) 發展建置救災通訊系統。
- (四) 與其他救災相關機關之聯繫與協助事項。
- (五) 空中救災事項。
- (六) 二十四小時服務支援中心的管理。
- (七) 氣象資訊的蒐集與對於森林火災預防及搶救之分析及處理。

## 二、後勤支援組，主要工作項目為：

- (一) 確保救災能量，包括救災裝備器材之充實。
- (二) 提供救災人員專業訓練。
- (三) 加強社區教育，提昇社區民眾對防火的警覺與認知。
- (四) 救災器材之設計，提昇救災效率。
- (五) 救災人員安全防護裝備之研發，確保救災人員安全。
- (六) 火災原因調查分析。

## 三、策略發展組

- (一) 整合發展與執行層面，並使之相互協調。
- (二) 提供政策制定之建議以及標準。

(三) 檢討各項法案、政策、規定，與標準作業程序是否妥適，並提出修正建議。

(四) 訂定各項發展專案計畫。

(五) 蒐集各項有關森林火災資訊，提供各界參考運用。

(六) 建置有關森林火災預防、搶救之公共建設。

#### 四、地區管理組

(一) 對於關於地區及分區所採取的措施提出建議。

(二) 維持與社區民眾的良好關係及互動。

(三) 在火災發生時，透過大眾傳播媒體，提供民眾正確的火災資訊。

#### 五、機關合作部門

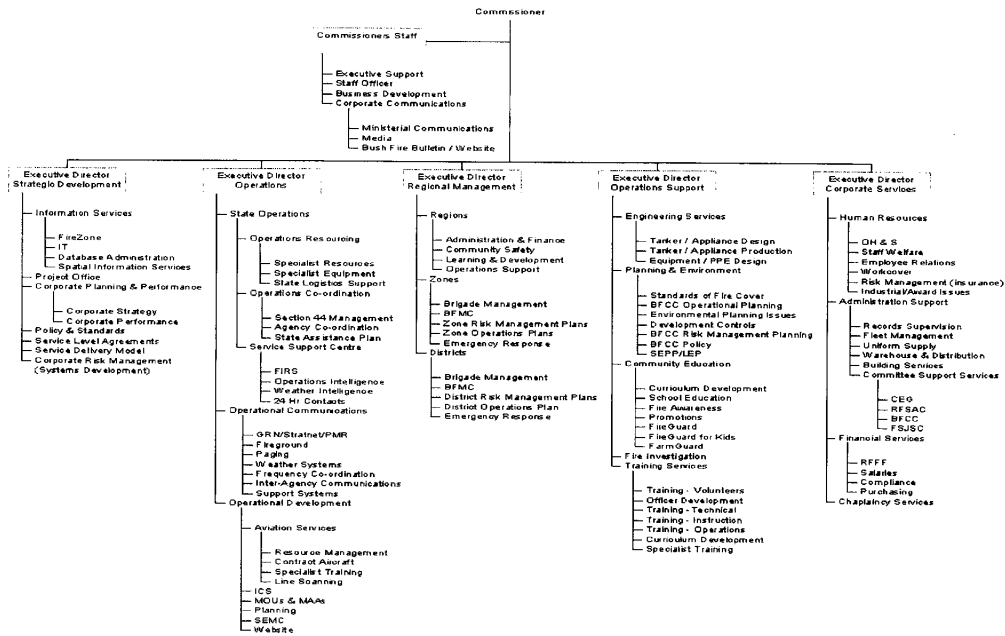
(一) 擬定預算計畫書。

(二) 火災搶救經費支出管理。

(三) 協助地方政府購買消防分隊所需裝備器材。

(四) 評估經費運用效用。

(五) 辦理督考所有工作之發展與執行等研考業務。



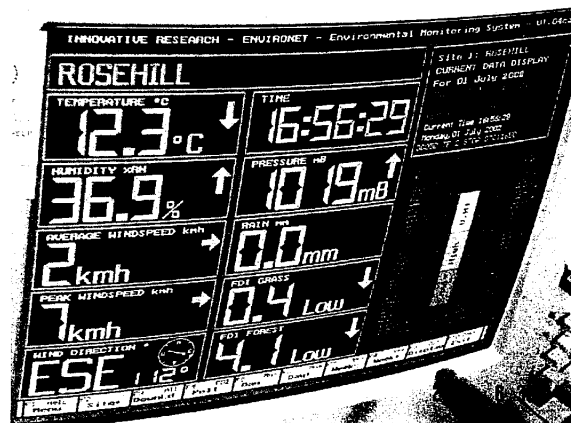
澳洲新南斯威爾州鄉村消防局組織架構圖

## 伍、澳洲森林火災預警制度

### 一、每日火災危險等級預測

開發電腦軟

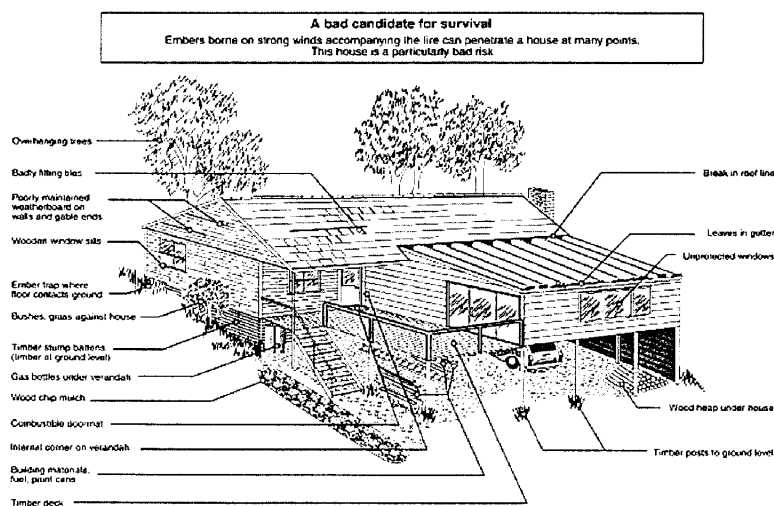
體，依據澳洲當地  
林相狀況，以及當  
日溫度、溼度、風  
向、風速等天氣狀



況，計算火災危險指數，另有類似萬年曆之簡易量尺，亦可自行設定天氣條件計算危險等級指數，除每一個消防單位均有專用電腦螢幕顯示，清楚得知當日火災危險指數，並透過大眾傳播媒體告知民眾小心用火，避免引起火災，同時也對週遭提高警覺，遇有火災發生，立即撥「000」緊急報案電話通報消防單位搶救。

## 二、發布火災禁制令

為防止民眾因使用火原不慎引起火災，造成不可彌補的悲劇，澳洲新南威爾斯州每日觀測、分析溫度、溼度及風向等條件，於可能發生森林火災期



澳洲政府教導民眾防範林火應注意事項

間，透過  
報紙、電  
視及網  
路發布  
火災禁  
制令，視  
實際情  
形禁止

人民於戶外烤肉、引火或任何使用火源之行為，並呼籲民眾清除落葉或雜草等容易使火災蔓延之雜物，降低森林火災發生之機率，或即使森林火災發生，也可使其不至迅速延燒，易於撲滅，藉以降低生命及財產的損失。

### 三、民眾報案

澳洲森林火災大都起於有人居住地區，每年新南威爾斯州約接獲 12,000 通森林火災報案電話，其所發現的火災佔總火災件數的 90%，由於廣為宣導，民眾均能於發現火災後立即通報。

### 四、瞭望塔觀測

每一個防火區皆於重要地點設置瞭望塔，共計約 6 至 8 個不等，塔頂設置觀測以及通訊器材，所有人員皆接受觀測訓練，包括距離、角度、方位以及通報方法。發現森林火災時，可分別由鄰近瞭望塔所觀測之角度，計算出確切位置，立即採取行動。每年十月至三月間為澳洲森林火災最多的季節，每當火災危險指數高於 50，屬「極危險」程度時，當日即由義消人員編排勤務於塔頂瞭望。

## 五、飛機監測

### （一）民航機發現通報

澳洲幅員遼闊，除東部以及西部沿海地區城市外，大都為荒蕪原始，無人居住地區，以每日固定航線之民航客機協助森林火災之觀測，可於高空觀察人員難以到達之地區，立即發現火災之發生，通報鄉村消防局，立即派遣人員、直昇機迅速撲滅。

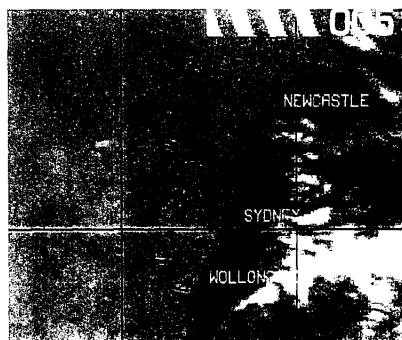
### （二）閃電偵測

澳洲電力公司業建置閃電偵測系統，可偵測閃電發生之位置，並通報鄉村消防局即派遣飛機前往勘察是否引發火災，可於因閃電引發火災時，立即採取撲滅行動。



### (三) 紅外線掃描圖像：

以飛機配置紅外線攝影裝備，於 8,000 公尺高空來回掃描，每次掃描寬度約為 20 公



里，可偵測火災發生位置，為相關掃描、攝影影像仍需待飛機降落後，再將錄影帶送至救災指揮中心進行分析研判。另也使用衛星觀測起火地點，便於搶救人員立即確定起火位置，進行搶救工作。惟目前尚未以即時方式傳送影像至地面。

(以立即影像傳送至地面方式僅在去年耶誕節森林大火時，由警察單位運用微波裝備使用過一次)



### 六、消防隊巡邏

於火災危險指數顯示為極危險時，由當地鄉村消防局人員編排巡邏勤務，以車巡方式於可能發生森林火災地區加強巡邏，以求及早發

現火災，立即撲滅。



## 七、森林火災資訊系統

### (一) 資源管理系統 (Resource Management System)

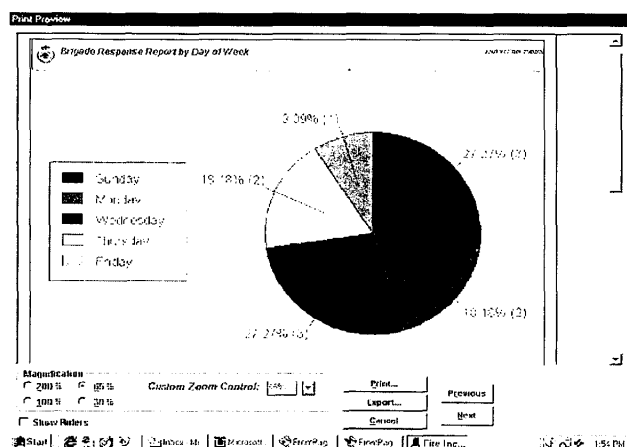
#### 資源管理系統

蒐集、管理轄內救災人力、機具、裝備、器材等救災資源，並且建立通訊聯繫資料，包括聯絡人姓名、地址、單位資

料，為了保護系統所掌握聯繫人資料之隱密，只有經過授權的人方可查得其他機關聯繫資料。

### (二) 火災及事故分析系統 (Fire & Incident Reporting System)

火災及事故分析系統對災害事故提供詳盡的報告分



析，並整理歸納成有意義的統計資料。由鄉村消防局指派專人將火災事故數據輸入系統，由電腦系統自動轉換、計算成有用

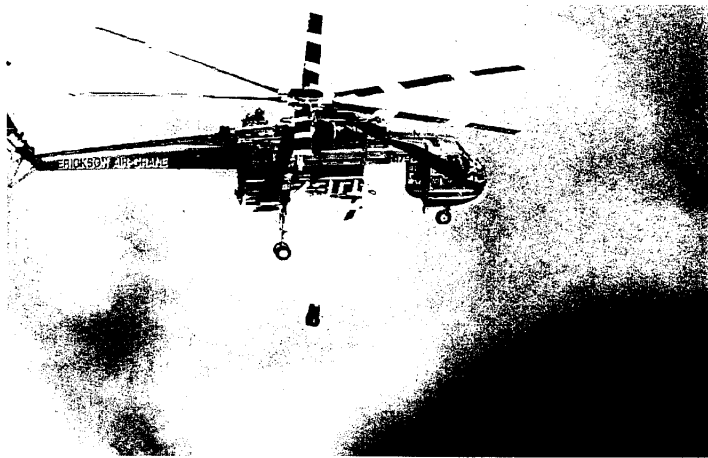


道路或河流停止為止。

## （二）直昇機

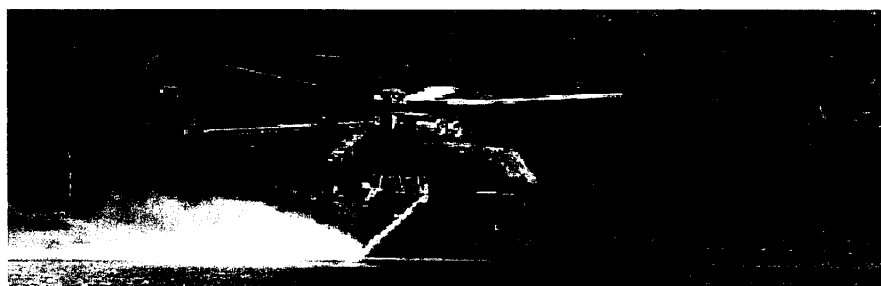
直昇機可用於偏遠地區，直昇機全為租用，政府並未擁有直昇機，每年與廠商簽訂合約，於十月至隔年二月火災危險季節中，可視當年溫度、溼度、風向等天氣狀況及樹木生長情形，最多於十二週內，於指定的基地隨時待命（必要時可再延長），準備出勤，若未出動，則只需負擔待命費用，以節省經費。

所租用的直昇機，包括固定翼型及螺旋槳型，均必須配備有救災裝備，並且必須可載運八名人員，在指派救災任務的兩個小時內必須出動（在極可能發生森林火災的危險



天候狀況下，必要時可縮短至三十分鐘）。除了租用民用飛機以外，其他政府機關所擁有直昇機，如警察機關、

國家公園管理機關等單位，在必要時亦可協調支援救災。



### （三）ICS 制度（Incident Control System）

澳洲森林火災搶救使用 ICS 制度，各州並於平時簽訂協議，在跨越數州之大火發生時，可互相提供支援與協助。澳洲對於火災指揮搶救業訂定詳細標準作業程序，並針對不同的情況，訂定不同的作業程序。

救災指揮官並不需要記得所有的標準作業程序，只要記得本身權責範圍內或常用到的部分予以靈活運用即可。對於救災人員來說，也可藉此瞭解相互的任務，減少因誤解所造成發生意外以及降低搶救效率的風險。

依據澳洲災害搶救標準作業程序規定，指揮官所管理的數量應不超出所有救災人數的百分之二十五，而指揮災害搶救應變的核心小組，則不超過全體救災人員的百分之五。舉例如下：

小規模災害：所有的救災行動概由地方指揮官來統籌指揮，並且通常不需訂定救災計畫。

中型災害：救災指揮官通常由地方消防隊長擔任，通常訂定簡單的救災計畫，並且有必要使用地圖以及 T-Card。

大型災害：套用制式的 ICS 程序及步驟，包括制定計畫及後勤支援，通常由地區高階人員擔任指揮官，所有救災行動，皆有詳細的書面資料。

超大型災害：有完整的救災及後勤支援補給計畫，通常由緊急應變計畫所指定之高階人員來擔任指揮官。

RPS GLENBROOK 1  
150720

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PAR 106  
FIREGROUND ON 4  
C400, 247, 188  
CAPT JOHN DANN OSA

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DC JACK PROBST OSA  
FF STEVE SMITH  
FF SARAH JONES CSO  
FF JASON LITTLE  
FF ANNETTE EASMER

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24 1400 DEC 01  
Glenbrook Oval 150 161 L15

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CABIN + 2 OPERATORS  
CABIN SAWS + 1 OPERATOR

澳洲所實施 ICS 制度是一種經由授權來確保所有必要的資訊以及功能都能夠適當的發揮應有的功效。其核心應變處理小組僅包括指揮官以及少數備授權的人員，來推動指揮救災、後勤支援等救災行動的執行。其成員並不包括部門主管、技術人

員或其他人員。

因為標準作業程序，一個小規模的災害大約只要二十人就可以處理，中型災害約要四十人，大型災害約要一百人，超大型災害則至少必須約五百人來處理。

在災害應變部分，最先抵達災害現場救災隊伍的帶隊者為現場指揮官，直到後續有更高階的指揮官到場後，將指揮權轉移。災害現場指揮官通常是由災害權責機關指派或是由災害緊急應變計畫所指定。

在緊急應變計畫方面，最初的災害現場指揮官應假設已控制災害狀況，計畫及評估所需的救災能量，並確保救災人員的安全，分配工作，並將災害情形作必要之通報，聯繫相關人員、單位、媒體……等等所有的災害處理工作項目。

除非地區森林火災緊急應變計畫或標準作業程序或現場指揮官明確的說明其他方法以外，災害指揮應包括：

1. 在災害搶救中，應由災害現場所轄之消防隊或依據災害緊急應變計畫來指派指揮官。
2. 災害應變指揮官應隨身攜帶救災程序手冊，包括正式

的報告用語、指揮權轉移的建議以及火災情形、天氣狀況、救災資源、救災策略、水源、食物及燃料的安排等等。

(四) 即使像澳洲如此地廣人稀的國家，在森林火災搶救方面，亦少請求國軍支援，除了非常嚴重的火災外，不輕易動用。即使請求國軍支援，也僅在於後勤支援補給方面，而非實際執行滅火行動。

#### 柒、澳洲災害緊急應變體系

澳洲緊急事故管理署 (EMA, Emergency Management Australia) 為聯邦管理緊急事故機關，在州 (State) 以及 council 均有緊急應變專責機關，但名稱不一。

澳洲 EMA 直屬於檢察部 (Attorney General Department)，遇有災害事故，向檢察總長報告，再由檢察總長向總理 (Prime minister) 報告。重大災害發生，EMA 也派員至災害現場協助，但只負責協助了解情況，並向中央提出支援請求。

EMA 共有工作人員 54 人，在 24 小時輪值的指揮中心內，共有 7 人，每一時段保持 2-3 人執勤，重大災害發生時，也由其他組室共同加入輪值協助處理。

## 捌、結語

澳洲地廣人稀，故其森林火災主要運用民力參與預防、搶救工作，並於平日加強防範森林火災之教育宣導工作，使得防範森林火災的觀念深植於每一位國民的觀念中，並且融入每一位國民的日常生活，因而獲得良好的森林火災防救成效。台灣地區每年秋冬進入乾旱時期，森林火災發生機率高，應投注更多心力，加強全民防災教育宣導，充實救災人力裝備器材，廣泛運用民間力量，方能對森林火災採取有效隻防救措施，降低森林火災對於生態、經濟所造成之影響，進而維護人民生命財產安全。



## 附錄一、澳洲新南斯威爾州 2001 年森林火災概況

### Information and Statistics

#### Phase 1 - 2001 Bushfires

The initial impact of 7 “Bushfire Emergencies” occurred during the period 29 October, 2001 to 9 November, 2001

- Cessnock
- Gosford
- Gloucester
- Kempsey
- Wyong
- Greater Taree
- Singleton

Duration 12 days

#### Phase 2 - 2001 Bushfires

The second spate of 5 “Bushfire Emergencies” commenced at 1500hours on 3 December, 2001 with the declaration of the Blue Mountains Rural Fire District.

The fires were generally as a result of a severe dry thunderstorm with many lightning strikes on the Great Dividing Range and to the west.

The same storm reached the coastal areas north of Sydney with heavy rain and hail accompanied by very strong winds causing significant storm damage.

Major fires in:

- Blue Mountains/Lithgow
- Hawkesbury
- Narromine
- Wollondilly/Wingecarribee
- Cabonne

Duration: 21 Days up to 24 December 2001.

### **Phase 3 - 2001 Bushfires**

On 24 December, 2001, due to the increased fire activity, the proximity to Sydney, the threat to residential property and the apparently deliberately lit fires there was significant media and public interest.

Additionally on 25 December, 2001 there were a number of interstate offers of assistance.

There were 26 "Bushfire Emergency: declarations incorporating 48 local government areas  
Some districts had several declarations due to new fire outbreaks.

The significant "emergency" was declared over by the Commissioner at a press conference on 16 Jan, 2002 although 11 section 44s were still to be declared out.

- Blue Mountains/ Lithgow/Rylstone
- Cessnock/Wyong
- Hawkesbury
- Kempsey
- Mudgee
- Oberon/Mulwarree
- Richmond Valley/Maclean
- Shoalhaven/Tallaganda
- Gosford
- Penrith/Fairfield/ Blacktown/Liverpool
- Singleton/Muswellbrook
- Sutherland
- Wollondilly/Campbelltown/Wingecarribee
- Wollongong/Kiama/ Shellharbour
- Baulkham Hills/Hornsby/Ku-ring-gai/Ryde/Lane Cove
- Grafton/Pristine Waters/ Maclean/Copmanhurst
- Eurobodalla
- Warringah/Pittwater
- Narrabri
- Kempsey
- Cabonne
- Coffs Harbour
- Richmond Valley
- Greater Taree
- Kempsey
- Walcha

Duration 23 Days

**Damage Estimates (24 December, 2001 - 16 January, 2002)**

- Area Burnt: 733,342 Ha = 7333 square kms, 4196 km perimeter.
- Estimated insurance damage bill of approximately \$75,000,000 comprising approximately 3000 claims.
- Estimated cost of operations for NSW agencies is approximately \$106,000,000.
- Estimated 20,000 properties saved.
- No loss of life or serious injury to public or emergency personnel.

Type	Destroyed	Damaged
Residential Houses	109	40
Industrial Premises (Factories)	15	4
Commercial Premises (Shops)	14	1
Girl Guides Hall	1	0
Scout Hall	1	0
Christian Centre Buildings and Church	1	0
Piggery	1	0
Sheds, Garages, Carports, etc.	433	0
Vehicles, Boats, Caravans, etc.	222	0
Stock (cattle, sheep, goats and chickens )	7,043	0
Bee Hives	243	0

**Firefighting resources (24 December, 2001 - 16 January, 2002)**

State	Agency	Appliances
New South Wales	NSW Rural Fire Service	1,050
	National Parks and Wildlife Service	150
	NSWFB	210
	State Forests	110
Queensland	Qld Fire and Rescue Service	25
	Qld Ambulance Service	

South Australia	Country Fire Service Metropolitan Fire Service National Parks and Wildlife State Emergency Service	30
Victoria	Country Fire Authority Dept of Natural Resources & Env.	80 40
<b>TOTAL</b>		<b>1,695</b>

#### **Air Resources (24 December, 2001 - 16 January, 2002)**

- Used for reconnaissance, plotting, line scanning, FLIR, live video, transport, medical evacuation, winching remote area firefighting teams, air attack supervision, water, foam or retardant bombing and aerial incendiaryism.
- Helicopters: 68 Light, 14 Medium and 3 Heavy (Erickson Air Cranes)
- Fixed Wing: 16 Tactical Bombers, 8 Spotters, 109 TOTAL
- Numerous commercial transport aircraft were also utilised

#### **Personnel (24 December, 2001 - 16 January, 2002)**

State	Agency	Salaried	Volunteer
New South Wales	NSW Rural Fire Service National Parks and Wildlife Service NSW Fire Brigade NSW FB (Community Fire Units) State Forests	400 1,310 3,300  400	36,000   1,600
Northern Territory	NT Fire and Rescue Service	20	10
Queensland	Qld Fire and Rescue Service Qld Ambulance Service	200	300
Victoria	Country Fire Authority Dept of Natural Resources and Env.	300 800	2,200
South Australia	Country Fire Service Metropolitan Fire Service National Parks and Wildlife State Emergency Service	300	700
Tasmania	Tasmania Fire Service Forestry Tasmania Parks and Wildlife Service	40	160
Western Australia	Dept of Conservation and Land Mgt Fire and Emergency Services Auth. State Emergency Service	100	

New Zealand	NZ Rural Fire Authority NZ Fire Service Dept of Conservation Local Government	10	
<b>TOTALS</b>		<b>7,180</b>	<b>40,970</b>

## Weather

Weather maxima (across all firegrounds) included:

- Several spikes in poor fire weather conditions
- Temperatures up to 45oC
- Winds in excess of 90km/h
- Relative humidity as low as 6%
- Fire Danger Ratings of up to 100.

## 附錄二、澳洲新南斯威爾州居家防範森林火災檢查表

### Bush Fire Checklist



#### **PREPARE YOUR PROPERTY NOW!**

**Is your property prepared against bush fires and grass fires?**

- ☐ Clear ground fuels around the house (long, dry grass, dead leaves and branches, thick undergrowth).
- ☐ Reduce Fire Fuels - Take a trip to the tip.
- ☐ Plant a combination of fire resistant plants on your property.
- ☐ Clear gutters.
- ☐ Ember-proof house and sheds.
- ☐ Join the Static Water Supply (SWS) program.
- ☐ Ensure roofing is firmly fixed.
- ☐ Prepare firebreaks (a well watered lawn can act as a firebreak). Keep pasture growth down.
- ☐ Install screens or shutters and enclose underfloor areas if possible.
- ☐ Screen vents into the roof space with fine wire mesh.

- ☐ Remove flammable items from around the house (eg. door mats, woodpile, and obvious flammable materials such as paper, boxes, crates, hanging baskets, wooden garden furniture etc).
- ☐ Vent LPG gas tanks away from the house.
- ☐ Compile emergency phone list and leave near phone.

**Prepare your house for a bush fire by organising sufficient Water Supplies and Fire Fighting Equipment.**

**Things to consider include:**

- ☐ Check water, taps and hoses. Ensure that hoses with metal fittings are long enough to reach all sides of house when attached to taps.
- ☐ Heavy duty hoses with wide-spray nozzles, if possible.
- ☐ Reserve water supplies from tank, dam, or swimming pool, if possible, since mains water will be in high demand. Try to store water during winter months.
- ☐ Gate valve fitted to water tank (a 38mm Storz coupling will assist the Rural Fire Brigade).
- ☐ Have gate valve to fit portable pump as well.
- ☐ Regularly check petrol or diesel portable pump, if you have one, to ensure it starts easily.
- ☐ Install a sprinkler system in your garden and on roofing, if affordable.
- ☐ Gather buckets (preferably metal), mops, spray backpack units, ladders, rakes and shovels in one place for ready access during a fire.
- ☐ Battery operated radio and torches in case of electricity failure.

**EVACUATION**

**Plan for your personal protection before a fire. Decide who's the boss and who**

**goes, who stays.**

Plan for the safety of all family members: special plans should be made for young children, elderly persons, disabled persons and those unable to handle the trauma of bush fire.

**If you plan to evacuate (re-locate)**

If you intend to evacuate (re-locate) any members of the family, plan well ahead of time where to stay, how to make the decision to leave, and how to travel (remember, leave well before the fire front arrives).

**If you intend to stay**

For those who remain, ensure each person has suitable clothing, including sturdy leather footwear, long pants and a long sleeved shirt or jumper (pure wool or cotton offers the best protection from sparks and embers), a broad brimmed hat, goggles for eye protection, handkerchiefs to tie over nose and mouth, wet towels to drape over neck, and bottles for drinking water.

**WHAT TO DO WHEN FIRE APPROACHES**

- ☐ Listen to the radio for news of the fire's progress, rather than calling emergency services for information.
- ☐ Organise and pre-pack.
- ☐ Dress in protective clothing, drink water frequently.
- ☐ Wet-down roof, house and garden, especially on the side of the approaching fire. Turn on sprinkler system, if you have one.
- ☐ Stop downpipes and fill gutters with water.
- ☐ Fill baths, sinks and buckets with water for extinguishing small fires and for drinking water.
- ☐ Bring in hoses so they don't get burnt.



- ☐ As the fire approaches, go inside and remain inside until the fire has passed.
- ☐ Place wet towels and blankets against gaps under doors and windows.
- ☐ Close heavy curtains, and shutters, if you have them.
- ☐ After the fire has passed and for several hours after the fire front has passed, patrol your property and put out spot fires started by flying embers.
- ☐ Check roof cavity frequently for spot fires.

**For more information contact your local Fire Control Centre, your local Fire Brigade, or phone the NSW RFS Information Line (1 800 654 443).**

## 附錄三、澳洲新南斯威爾州防範森林火災宣導資料

### THE BUSH FIRE DANGER SEASON

1st OCTOBER TO 31st MARCH

(This may be varied by the Commissioner, NSW Rural Fire Service.)

#### During the Bush Fire Danger Season

During the Bush Fire Danger Season, fires in the open air are restricted. This means that barbecues and camp fires may only be used under certain conditions.

#### What are the Rules?

##### Barbecues and camp fires

- Only light fires in a permanently constructed fireplace surrounded by ground that is clear of all combustible matter for a distance of at least 2 metres,
- OR
- at a site surrounded by ground that is clear of all combustible matter for a distance of at least 3 metres.
- make sure the fire is completely out before leaving the area.

##### Smoking

- Don't drop or throw down any lit cigarette, match or anything burning on any land, bridge, wharf, pontoon or similar.
- Don't light or carry a lit cigarette or match within 15m of stacked or standing crops.

##### Burning off in the open

- you require a permit from your local fire authority to burn off.
- notify your neighbours at least 24 hours before you light the fire.
- make sure an adult is present while the fire is alight.
- observe all conditions of the permit.

It is necessary to have sufficient water on hand in case of an emergency.

### TOTAL FIRE BAN

When is a Total Fire Ban declared?

On days of extreme fire danger caused by a combination of certain weather conditions and dry vegetation the Commissioner, NSW Rural Fire Service may declare a total fire ban.

### **How will you know when a Total Fire Ban is on?**

If a Total Fire Ban is declared, a media release will be issued listing the weather forecast districts involved. For media releases

Total Fire Bans will also be announced through newspapers, radio and TV. If you are in doubt, ask your local Council, NSW Rural Fire Service, the Police, NSW Fire Brigade or dial 02 9898 1356 (Sydney Metropolitan only).

### **How long does a Total Fire Ban last?**

Usually for 24 hours - from 12 midnight.

### **What are the Rules?**

During Total Fire Ban:

Campfires, solid fuel barbecues, ovens & kettles are prohibited (ie those using wood, heat beads, charcoal or briquettes).

Gas or electric barbecues may be used provided:

- it is on residential property,
- within 20m of the house or dwelling,
- or in an area with council approval,
- it is under the direct control of an adult,
- the ground within 3m of the barbecue is cleared of all materials which could burn,
- you have a continuous supply of water available.

### **At Home**

Electric or gas-fired barbecues, within 20m of your permanent home, (or holiday dwelling) in a cleared safe place may be used.

### **Away From Home**

Electric or gas-fired barbecues may only be used with the approval of the local fire authority or the land management authority.

Remember, if you fail to comply with the fire regulations, you can be punished by up to:  
12 months in jail and/or a \$5,500 fine.

## PREPARE YOUR PROPERTY

Is your property prepared against bush fires and grass fires?

- ☐ Are ground fuels cleared around the house (long, dry grass, dead leaves and branches, thick undergrowth)?
- ☐ Are your gutters cleared?
- ☐ Is the roofing firmly fixed (cleaned of dry leaf debris)?
- ☐ Are firebreaks prepared (a well watered lawn can act as a firebreak)?
- ☐ Have screens or shutters been installed and underfloor areas enclosed, if possible?
- ☐ Are vents into the roof space screened with fine wire mesh?
- ☐ Have flammable items been removed from around the house (eg. woodpile, and obvious flammable materials such as paper, boxes, crates, hanging baskets, wooden garden furniture etc)?
- ☐ Are LPG gas tanks vented away from the house?
- ☐ Has the emergency 000 telephone number been placed near the phone?

Prepare your house for a bush fire by organising sufficient Water Supplies and Fire Fighting Equipment. Prepare your house.

Things to consider include:

- ☐ Hoses long enough to reach all sides of house, attached to taps.
- ☐ Heavy duty hoses with wide-spray nozzles, if possible.
- ☐ Reserve water supplies from tank, dam, or swimming pool, if possible, since mains water will be in high demand. Try to store water during winter months.
- ☐ Gate valve fitted to water tank (a 38mm Storz coupling will assist the Rural Fire Brigade).
- ☐ Have gate valve to fit portable pump as well.
- ☐ Regularly check petrol or diesel portable pump, if you have one, to ensure it starts easily.
- ☐ Install a sprinkler system in your garden and on roofing, if affordable.
- ☐ Gather buckets (preferably metal), mops, spray backpack units, ladders, rakes and shovels in one place for ready access during a fire.

- ☞ Battery operated radio and torches in case of electricity failure.

## **EVACUATION**

Plan for your personal protection before a fire.

Plan for the safety of all family members: special plans should be made for young children, elderly persons, disabled persons and those unable to handle the trauma of bush fire.

### **If you plan to evacuate (re-locate)**

If you intend to evacuate (re-locate) any members of the family, plan well ahead of time where to stay, how to make the decision to leave, and how to travel (remember, leave well before the fire front arrives).

### **If you intend to stay**

For those who remain, ensure each person has suitable clothing, including sturdy leather footwear, long pants and a long sleeved shirt or jumper (pure wool or cotton offers the best protection from sparks and embers), a broad brimmed hat, goggles for eye protection, handkerchiefs to tie over nose and mouth, wet towels to drape over neck, and bottles for drinking water.

## **WHAT TO DO WHEN FIRE APPROACHES**

- ☞ Listen to the radio for news of the fire's progress, rather than calling emergency services for information.
- ☞ Dress in protective clothing, drink water frequently.
- ☞ Wet-down roof, house and garden, especially on the side of the approaching fire. Turn on sprinkler system, if you have one.
- ☞ Stop downpipes and fill gutters with water.
- ☞ As the fire approaches, go inside and remain inside until the fire has passed.
- ☞ Fill baths, sinks and buckets with water for extinguishing small fires and for drinking water.
- ☞ Place wet towels and blankets against gaps under doors and windows.
- ☞ Close heavy curtains, and shutters, if you have them.
- ☞ After the fire has passed and for several hours after the fire front has passed, patrol your property and put out spot fires started by flying embers.

- Check roof cavity frequently for spot fires.

In addition to traditional bush fire preparedness for your home there are also other protective measures you can employ for added safety when bush fires threaten.

Remember that these are enhancements to good housekeeping strategies and not a substitute.

## **SPRINKLER SYSTEMS**

Sprinkler systems may be an expensive addition to your home but will add considerable protection to a well-prepared property.

Whilst computerised sprinkler systems are available, the majority rely on manual operation. Effective sprinkler systems must meet the following criteria.

- Metal butterfly type sprinklers that overlap and cover the total roof area and 10m from the walls of the house. Ground or fence mounted impact drive sprinklers may be needed to cover the 10m around the house.
- Sprinklers should be placed approximately 10m apart.
- Use metal pipes and sprinkler heads. Plastic pipe should be 40cm below the ground if used as it may melt in a fire.
- Place sprinkler heads along gutters, walls and ridge capping and under eaves, decks and flooring. Ridge cap sprinklers only may not be effective in the high winds associated with bad fire days.
- To ensure sufficient water pressure, roof mounted sprinklers need a 38mm output centrifugal pump, close coupled to a 2.6 kilowatt petrol or diesel motor which will run up to 10 sprinklers. For more sprinklers use a 3.7 kilowatt motor with the same pump.
- Protect pump from possible ignition from flying embers with a screen.
- Each sprinkler puts out approximately 15 litres of water per minute. A reserve water supply of 22000 - 25000 litres is needed to run a system for an average house for three hours. As mains water supply could be lost during a fire it is best to have an independent supply. This should protect the home from the beginning of ember attack until after the fire has passed.

## **SUPPLEMENTARY WATER SUPPLY**

A supplementary water supply is needed not only for sprinkler systems but also for hoses when connected to petrol or diesel pumps.

During a fire, water pressure is likely to be lost and an independent water supply will be necessary to extinguish spot fires. Water tanks, dams or swimming pools are ideal for this purpose.

For optimum use of the independent water supply you will need a petrol or diesel pump. Start the pump regularly to ensure it is working when you need it. (Where pumps are used, a 38mm storz coupling will assist rural firefighters).

## **GUTTERS AND DOWNPIPES**

If a bush fire is approaching your home, before the main fire front arrives there will be flying embers and debris thrown ahead of the fire (ember attack). Blocking downpipes and filling gutters with water will help to extinguish embers that land on the roof.

Blocking downpipes can be achieved using simple home made devices, however, there are also commercially available plugs and valves. Your local Fire Control Officer and hardware store may be able to assist with these products.

Care should be taken not to over fill gutters as this may lead to water damage to the house.

## **DOCUMENT AND PERSONAL RECORDS SAFETY**

As part of your home fire plan, consideration should be given to the fireproof storage of important documents and personal effects. A decision should be made as to which documents need protecting.

Whilst this can be achieved in a number of ways, fireproof safes are commercially available and can provide protection for your documents from all types of structural fires.

## **EXTINGUISHERS AND FIRE BLANKETS**

Fire extinguishers and fire blankets are useful for the incidence of all fire types. Care should be taken to ensure the extinguisher purchased can be used on different fire types. Advice on the most appropriate extinguisher for your needs can be obtained from the retailer or your local Fire Control Centre.

During bush fires, extinguishers are ideal for internal spot fires that have ignited furnishings.

Fire blankets can also be employed for extinguishing internal fires. They are also useful for clothing fires. Ensure all such equipment is readily available and all members of the household are familiar with their use. All fire protection equipment should be regularly checked.

For more information contact your local Fire Control Centre.