

12 March 2015

Submission to the Review of Performance Targets for Bushfire Fuel Management on Public Land

A: Introduction

The Victorian National Parks Association is a member-based, non-government, organisation dedicated to the protection of Victoria's biodiversity on public and private land, and in the ocean. Since 1952 we have been active in a great many government and other investigations into various aspects of land management.

We have recently been involved in many aspects of fire planning and management in Victoria. For example:

- We were granted 'Leave to Appear' status during the Victorian Bushfires Royal Commission hearings on fuel reduction
- We have been a long-time member of DEPI/DELWP's Bushfire Management Stakeholder Roundtable
- In 2011 we organised a symposium on Fire and Biodiversity in Victoria, in association with the Royal Society of Victoria.

B: Summary

The VNPA supports a planned burn program in Victoria, for both fuel reduction and ecological purposes.

However we believe a hectare-based target has not produced, and cannot produce, the best outcomes for:

- public safety
- protection of infrastructure and built assets
- catchment protection or
- management of Victoria's natural heritage.

We strongly support a risk reduction approach to planning and assessing fuel management across Victoria.

We also believe the planning of management burns should be focussed at a local level, and take into account all other available tools for the reduction of risk to life, property and the environment.

C: A brief history of the 5% burn target

The 5% annual burn target has been recommended by two fire inquiries in Victoria: a 2008 Parliamentary inquiry, and the 2010 Bushfires Royal Commission. However, perhaps because of the often contradictory advice those inquiries received, and the lack of clear evidence that the target would work in a Victorian context, both inquiries recommended monitoring and reporting on a hectare-based target's effectiveness and impacts. Both inquiries effectively asked for this current review.

1/ The Victorian Parliamentary Environment and Natural Resources C'ttee (ENRC) 2008 inquiry

A 5% state-wide annual burn target (c.390,000 ha) of public land was first formally recommended in the ENRC inquiry into *The Impact of Public Land Management Practices on Bushfires in Victoria*. However that recommendation (Rec 2.2) was largely based on flawed evidence supplied to the inquiry:

- The evidence misquoted a reference for burning in some forests in the USA, which actually recommended an annual strategically applied burn target of 1-2% of the landscape if strategically applied, or 2-5% if burns are random. (In any case, applying any target from a totally different forest type on the other side of the world has questionable value.)
- It quoted a Tasmanian paper that recommended burning Button Grass plains at the rate of 3% per annum for fuel reduction, but these plains actually occupied less than a quarter of the landscape concerned. In other words, the Tasmanian paper only recommended roughly 1% of that landscape area to be burned, and in a quite specific habitat type.
- It referred to the burning of Western Australia's Jarrah, Karri and Tingle forests, where the target was a nominal 8% annually, but that target has never been applied to 'all public land' in WA. And those low elevation WA forests are not comparable to most of Victoria's forest types, such as the steep-sloped ash forests, the Mallee, or central Victoria's Box-Ironbark woodlands..

Recommendation 2.3 of the ENRC inquiry recognised the uncertainty of its target recommendation, saying:

"A comprehensive review of the effectiveness of the increased prescribed burning target in meeting ecological and bushfire suppression needs should be conducted every three years."

2/ The Victorian Bushfires Royal Commission (VBRC) 2010 final recommendations

The VBRC held an extensive session on the fuel reduction question, bringing in experienced fire managers from Victoria, WA and also from the USA. The VBRC heard the advice of its appointed Expert Panel on fuel reduction over a period of two days.

While expert advice to the VBRC varied considerably, it did not in most cases recommend a single state-wide burn target.

The United States Forest Service's National Director of Fire and Aviation, Jerry Williams, advised the Commission that a single hectare target could encourage managers to opt for the easier, larger burns in remote areas:

"We have a lot of examples in the US where targets have become an opportunity to pick off the low-hanging fruit, so to speak. I believe ... targeting the foothills, eucalypt and high-risk fire regimes at larger sizes, strategically placed across the landscape and treated at adequate intervals across both public and private lands ... were important places to start."

VBRC transcript: T15198:16 Williams

Australian fire behaviour specialists and fire ecologists on the VBRC's Expert Panel were more-or-less unanimous in recommending a hectare-based target for the 'foothill forests' only, and that it should be performed as an experiment:

(Reference numbers refer to the VBRC's transcript.)

52. Mr Tolhurst, for example, said (15246/7-15):

"My understanding of what we were talking about is, if you like, almost a trial sort of use of prescribed burning and we were talking about particularly of progressing this in the foothill forest areas where there would be less contention in terms of the impact of the fire and we knew it was an area of high priority in terms of protection of life and property. So our discussion there was revolving around the first implementation, if you like, of a trial."

Dr Bradstock added (15247/11-20):

"I think what we said was if you went for something around 5 per cent in foothill forests that it was our consensus that at least that would be okay in terms of vegetation responses, though we noted that there is very little information about animals. So that was part of the deal. We reckoned that the vegetation could cope with that; plenty of evidence to suggest that it could. We don't know much about animals. We need to monitor it if you are going to do it. But that's not a reason not to do it."

Dr Clarke agreed (15247/27-15248/4):

"Absolutely. I endorse Dr Bradstock's comment, particularly in relation to fauna and our ignorance of the impact on fauna. But the evidence to date suggests that that doesn't look like a dangerous level in that habitat. I guess the other thing we were emphasizing in 20(b) was we think this is a habitat that's important for human life and values and assets, and one in which a trial could take place without major risk to ecological values, but that we would want to monitor that."

Asked to clarify his position, he added (15248/21-25):

"..I think the panel was of the opinion in this particular habitat type of foothill forest the risk was worth taking, provided there is a commitment to learning as we do it, and that couldn't be said for other habitats about which we know less."

And Mr Cheney (though asking for 8 per cent rather than Bradstock and Clarke's 5 per cent), also agreed that the target applies to the foothill forests. (15250/10-16):

"I would also like to say that the panel agreed that this should be a program, not a trial. The word "trial" has come up, which is tending to say we should confine this to a relatively small area. No, the panel said that we should apply this as a program across the dry foothill forests of Victoria as an area basis, not in one specific area."

And Mr Adams added (15250/31-15251/5):

"But I also think we were quite clear that, as a program, we say that it would take at least 10 years to implement it and that it should be monitored, but it is a program of the five to 10 per cent in the foothill forests, yes, but in the sense of a "trial" we end up on a semantic point."

It is clear that the panel, when clarification was sought by Counsel for the State, was largely in agreement that the proposed target of at least 5 per cent was intended to apply to the foothill forests, and that there was a degree of uncertainty even there which could only be clarified through long-term monitoring.

Dr Clarke submitted a 'clarification of expert opinion' to the Commission shortly after the expert panel hearings. In that statement he makes it very clear that in his opinion:

"The available scientific evidence suggests that annual prescribed burning of 5% may be justifiable in dry eucalypt forest, if the primary goal is appreciable (perhaps 50%) reduction of risk to life and economic assets... on days of severe fire weather. There is also some evidence to suggest that in this particular habitat the ecological consequences of this level of prescribed burning are unlikely to result in irreversible or undesirable change. Since this habitat type is also the one encompassing or abutting the majority of economic assets at most risk from unplanned fire in this state, it would appear to be the habitat type in which the greatest reductions in risk to life and property might be obtained.

"However scientific evidence of the appropriate level of prescribed burning (percentage of the landscape or habitat type) needed to achieve desirable reductions in risk, while avoiding ecological harm, is not available for most other habitat types in the state. Consequently, in my opinion it is inappropriate to apply a target of 5-10% across the public estate of Victoria. Similar risk and ecological analyses to those conducted in foothill forests need to be conducted in other habitats with the goal of setting appropriately tailored targets for these habitats. In the absence of such evidence and analyses upon which to base targets for these other habitat types, there is a need in the interim, for careful and transparent setting of local/regional objectives to justify all prescribed burning activity in those habitats."

The above statement demonstrated that the Commission had reason to be wary of recommending a target applicable to all public land or treatable public land.

Importantly, while the VBRC's final *Recommendation 56* did ask for an annual state-wide fuel reduction target of 5% of public land, the following VBRC recommendations (57 & 58) asked for the capacity to monitor and review the effectiveness and impacts of the target. Clearly, the Commission was allowing a future review of the target should evidence suggest it was not the most effective fuel management goal:

RECOMMENDATION 57

The Department of Sustainability and Environment report annually on prescribed burning outcomes in a manner that meets public accountability objectives, including publishing details of targets, area burnt, funds expended on the program, and impacts on biodiversity.

RECOMMENDATION 58

The Department of Sustainability and Environment significantly upgrade its program of long-term data collection to monitor and model the effects of its prescribed burning programs and of bushfires on biodiversity in Victoria.

3/ The Victorian Bushfires Royal Commission Implementation Monitor

The VBRC, in one of its final recommendations, called for the appointment of an independent monitor of the implementation of all of its recommendations:

RECOMMENDATION 66

The State appoint an independent monitor or the Victorian Auditor-General to assess progress with implementing the Commission's recommendations and report to the Parliament and the people of Victoria by 31 July 2012.

The subsequently appointed VBRC Implementation Monitor (BRCIM), Neil Comrie, looked very carefully at the implementation of the 5% target. His tenure was extended beyond 2012 to produce supplementary annual reports in 2013 and 2014. In his last (2014) annual report he reinforced his earlier criticism of the 5% target:

"The BRCIM's 2012 Final Report advocated that the State reconsider the planned burning rolling target of five per cent and replace it with a risk based approach focused on the protection of life and property. In 2013, the BRCIM went further stating concerns that the 390,000 ha target may not be achievable, affordable or sustainable. The BRCIM's view in relation to this target is unchanged. Area based hectare targets alone will not necessarily reduce the bushfire risk to life and property in Victoria and may have adverse environmental outcomes."

Bushfires Royal Commission Implementation Monitor Annual Report, July 2014, p. 47

D: Strategic difficulties caused by the 5% annual fuel reduction target

1/ The target is very difficult to achieve. According to published Victorian fuel reduction records going back to the 1930s, an annual total of fuel reduction burns has only reached 390,000 ha once, in 1980-81. And in that year (according to conversations with foresters working at that time) those burns were primarily along the ridgetops, yet the whole area was counted as the fuel reduction burn.

(See Attachment 1: Victoria's fire history)

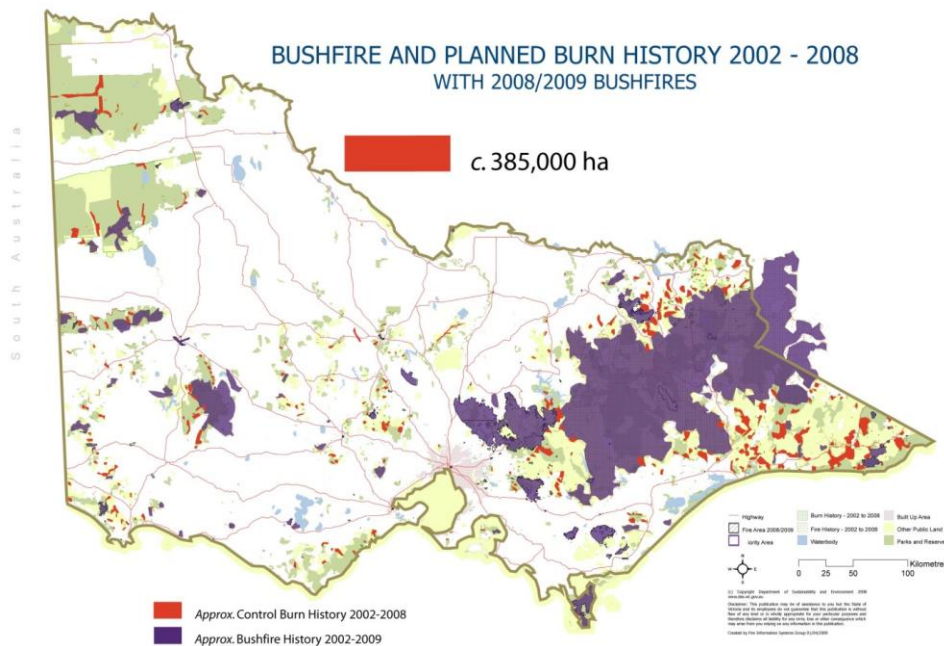
2/ Attempts to reach the 5% target have led fire planners and managers to favour larger burns in remote areas. While remote area burns can usefully reduce risk to life and property in many instances, risk reduction is generally most effective when fuel is reduced close to settlements. The 5% target discourages these local burns, which are difficult, expensive, and contribute little to the state-wide total area. In the most extreme example, large burns have occurred in the Mallee, where risk to life and property is considered to be relatively small. There is abundant evidence to support the relative benefits of local strategic burns. Eg in Bradstock et al “...prescribed fires will be most effective when sited at the urban interface where resultant reduced unplanned fire intensity will be a benefit.”

See Attachment 2: Bradstock, R. A. & Price, O. F. (2010). The effect of fuel age on the spread of fire in sclerophyll forest in the Sydney region of Australia. *International Journal of Wildland Fire*.

3/ The VBRC recommendation for a 5% target only applied to public land, yet bushfires make no distinction in regards to land tenure. Fuel reduction programs, and fire management programs, should be planned and conducted strategically across public and private land.

4/ Only planned management burns counted as part of the fuel reduction target, taking no account of fuel reduction caused by bushfires. The annual planned burn target of 390,000ha would have to be achieved regardless of how much of Victoria’s public land burned in bushfires each season. Even though, in recent years, this has been re-interpreted to allow the counting of bushfires if they occur in an already identified planned burn area, the lack of consideration of the fuel reduction impacts of most bushfires makes a mockery of strategic planning for fuel reduction and/or ecological purposes.

In the map below, which shows the area burnt in Victorian bushfires from 2002-2009, and planned burn history from 2008-2009, the red rectangle at the top indicates the actual area, to the scale of the map, of the annual 5% burn target.



(Since 2009, the area of Victoria that has experienced recent fire, due to planned burns or wildfire, has significantly increased.)

5/ The considerable emphasis placed on the burn target, and the controversy surrounding it, have pushed several other important aspects of fire management to the background. In his last report, the VBRC Implementation Monitor Neil Comrie made it clear that:

“...it is important to understand that all 67 VBRC recommendations are inextricably interdependent.”

Bushfires Royal Commission Implementation Monitor Annual Report, July 2014, p. 7

Strategic risk reduction should involve looking at all available tools, and assessing which combination of those tools is best suited to each local situation. For example, far too little emphasis is placed on the need for well-designed private fire shelters (despite an urgent preliminary recommendation from the VBRC), and there is considerable room to increase the capacity for rapid aerial attack in many regions of Victoria. Good fire safety planning would take note of Mr Comrie’s advice that all available fire management tools are inextricably linked.

E: Impacts on Victoria’s natural heritage

Victoria’s code of fire practice lists two primary objectives for bushfire management on public land in Victoria:

- *To minimise the impact of major bushfires on human life, communities, essential and community infrastructure, industries, the economy and the environment. Human life will be afforded priority over all other considerations.*
- *To maintain or improve the resilience of natural ecosystems and their ability to deliver services such as biodiversity, water, carbon storage and forest products.*

While the VBRC made it clear that the protection of human life should be given the highest priority, it also made it clear that both public safety and environmental objectives should be achieved. It called for more research and knowledge so that:

“... more informed and scientifically-based decision making can accompany the development of prescribed-burning regimes that meet conservation objectives as well as accommodating bushfire safety considerations.”

2009 Victorian Bushfires Royal Commission Final Report: Summary. July 2010. P. 15

We have received many reports from across Victoria of ‘fuel reduction burns’ that have little impact on fuel levels, or little public safety purpose, but can cause considerable impact on Victoria’s natural heritage.

This is supported by the department's own 2014 report on the environmental impacts of the burn program that:

"...mapping showed that the overall percentage of land [ie public land across Victoria] below the minimum tolerable fire interval remained at around 50 percent."

Reducing Victoria's Bushfire Risk on Public Land: Fuel Management Report 2013–14
Department of Environment and Primary Industries P.

In DEPI's own assessment of that situation, *"The outcome/activity [biodiversity protection] has not been achieved but is a manageable risk."* (p. 6 of the above report).

Many scientists and fire ecologists would argue against that optimistic assessment that the risk is manageable under the current 5% target scenario. It remains an unprecedented risk to biodiversity across the state.

In a recent report to DELWP on the department-funded Mallee Hawkeye project by La Trobe and Deakin Universities, the impacts of planned burning on biodiversity in the Mallee appear to be considerable. It calls into question the traditionally accepted principle that a broad range of fire age classes of vegetation will account for most species in any ecosystem. Basically, in the Mallee, evidence now shows that many species primarily rely on large areas of long-unburnt bush. The report adds:

"...burning 3-5% per annum in the tree mallee vegetation would lead to a significant decline in some threatened mallee birds."

Mallee Hawkeye project Final Report 2011-2014 *La Trobe University 2014 P. v.*

Victoria's public land supports around 100,000 thousand native species, in something like 300 different vegetation types (or EVCs), each of which has a different response to fires of differing seasons, frequency and severity.

The impacts on biodiversity of applying the 5% annual target across Victoria are too complex for this submission to cover in detail. However there has been broad and consistent concern from the scientific community over the application of the 5% burn target across the state, particularly when a decision to burn has not been governed by any pressing need to protect life and property.

F: Conclusion

The Victorian National Parks Association acknowledges the difficulty of the task facing our fire managers. And it is a task that will become increasingly difficult under the predicted impacts of climate change.

However the hectare-based state-wide fuel reduction target is a blunt policy instrument, which requires significant sharpening. While the need for transparency and accountability is recognised in fire management, a blanket target for public land alone does not achieve

this. There is substantial evidence that in fact the policy is doing significant ecological damage, without clear benefits for public safety. A more targeted approach could include consideration of:

- Regional targets based on previous fire history and fire tolerances for key habitat types
- A clearer understanding of the effectiveness of fuel reduction burns in different forest/landscape types
- Private land as well as public land
- Considering all available tools together when planning, including appropriate regional rapid response capacity.

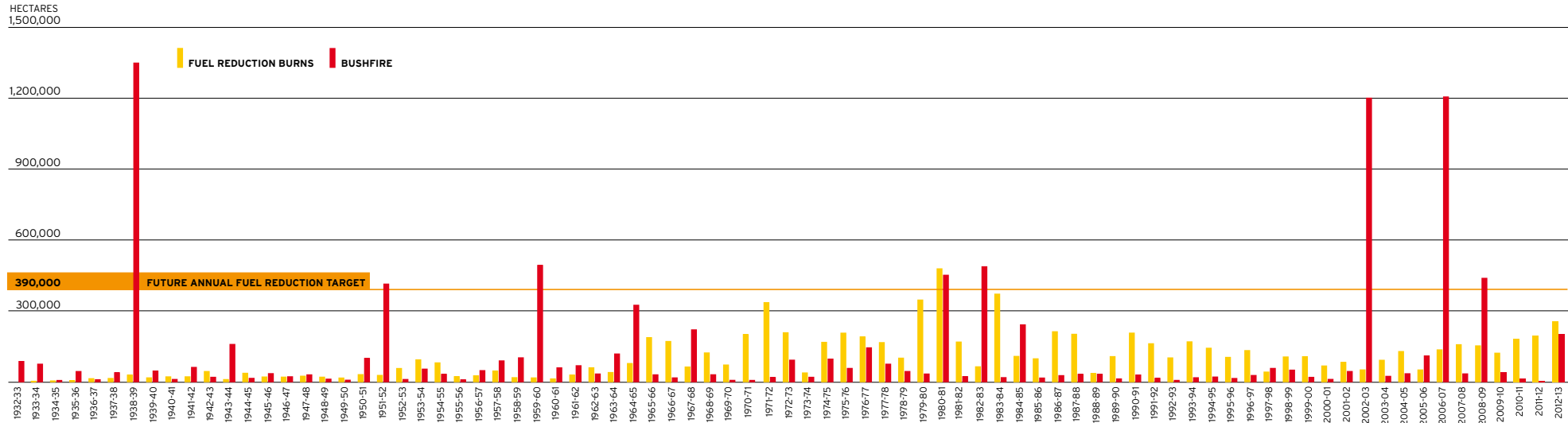
That is why we strongly recommend that the Inspector General of Emergency Management supports the movement away from a hectare-based state-wide fuel reduction target. We believe the adoption of a revised bushfire risk reduction approach, in line with the regional risk-based landscape planning currently being developed by DELWP, will allow:

- useful application of the considerable growth in expertise in fire management in Victoria over recent years
- more effective targeting of budget allocations for fire management
- better protection to the Victorian public
- better protection for property, infrastructure and commercial enterprises
- better protection for our natural areas.

We would greatly appreciate any opportunity to meet with the Inspector General of Emergency Management to discuss this issue further.

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FUEL REDUCTION & BUSHFIRE IN VICTORIA



This graph is derived from the figures below, for fuel reduction burns and bushfires on public land, published in the annual reports of the Forests Commission of Victoria, and its successors. For years before 1974, figures in acres have been converted to hectares. In the few instances where those figures are not included in the reports, they have been provided by the Department of Sustainability and Environment.

	Area treated (acres)	Area treated (hectares)	Bushfire (acres)	Bushfire (ha)
1933-34	2,500	1,000	183,723	74,489
1934-35	6,200	2,480	11,309	4,452
1935-36	10,000	4,000	105,951	42,380
1936-37	30,000	12,000	18,861	7,544
1937-38	32,350	12,940	92,584	37,034
1938-39	68,000	27,200	3,370,870	1,348,348
1939-40	38,886	15,554	111,023	44,409
1940-41	49,517	19,807	22,027	8,811
1941-42	50,000	20,000	149,551	59,820
1942-43	106,000	42,400	44,892	17,957
1943-44	20,639	8,256	392,746	157,098
1944-45	87,403	34,961	33,700	13,480
1945-46	47,930	19,172	83,439	33,376
1946-47	46,500	18,600	50,363	20,145
1947-48	56,382	22,553	70,709	28,284
1948-49	46,082	18,433	25,058	10,023

	Area treated (acres)	Area treated (hectares)	Bushfire (acres)	Bushfire (ha)
1949-50	37,000	14,800	14,126	5,650
1950-51	73,000	29,200	244,921	97,968
1951-52	64,746	25,898	1,031,379	412,552
1952-53	138,000	55,200	21,499	8,600
1953-54	229,580	91,832	131,218	52,487
1954-55	197,580	79,032	76,218	30,487
1955-56	51,382	20,553	17,755	7,102
1956-57	60,253	24,101	115,340	46,136
1957-58	111,300	44,520	218,457	87,383
1958-59	40,841	16,336	251,009	100,404
1959-60	38,298	15,319	1,229,283	491,713
1960-61	27,451	10,980	144,939	57,976
1961-62	68,584	27,434	167,372	66,949
1962-63	145,629	58,252	79,881	31,952
1963-64	95,375	38,150	291,440	116,576
1964-65	190,633	76,253	807,576	323,030

	Area treated (acres)	Area treated (hectares)	Bushfire (acres)	Bushfire (ha)
1965-66	464,579	185,832	71,046	28,418
1966-67	423,894	169,558	38,519	15,408
1967-68	153,722	61,489	547,048	218,819
1968-69	302,594	121,038	121,038	28,643
1969-70	174,645	69,858	12,576	5,030
1970-71	496,851	198,740	11,844	4,378
1971-72	834,930	333,972	42,720	17,088
1972-73	516,384	206,554	226,115	90,446
1973-74	90,901	36,360	45,006	18,002
1974-75		165,919		94,990
1975-76		204,821		55,500
1976-77		188,865		142,712
1977-78		164,763		73,517
1978-79		98,951		42,445
1979-80		345,043		31,826
1980-81		477,158		449,978

	Area treated (acres)	Area treated (hectares)	Bushfire (acres)	Bushfire (ha)
1981-82		167,136		20,648
1982-83		62,345		486,030
1983-84		370,000		16,477
1984-85		106,370		240,037
1985-86		96,200		14,778
1986-87		210,792		24,958
1987-88		200,000		30,435
1988-89		34,171		30,744
1989-90		105,500		18,002
1990-91		205,000		27,552
1991-92		160,000		13,512
1992-93		100,000		4,815
1993-94		168,000		16,000
1994-95		141,000		19,000
1995-96		102,300		12,885
1996-97		131,000		25,612

	Area treated (acres)	Area treated (hectares)	Bushfire (acres)	Bushfire (ha)
1997-98		40,000		55,500
1998-99		104,000		48,240
1999-2000		105,000		17,712
2000-01		65,800		9,000
2001-02		81,140		42,493
2002-03		49,200		120,000
2003-04		90,000		21,978
2004-05		127,000		33,000
2005-06		49,000		108,400
2006-07		134,000		1,205,000
2007-08		156,000		32,364
2008-09		150,999		437,000
2009-10		120,000		37,200
2010-11		188,997		14,031
2011-12		197,149		4,893
2012-13		255,227		201,630