

## **Appendix C8 Greater Wellington Region Fire Returns 1991/92 to 2006/07**

### **Number of Fires (G1):**

- Greater Wellington had from 1991/92 to 2006/07 around 173 fires annually (6% of the national number of fires).
- The number of fires varied from just 30 fires in 1991/92 (3% of that year's national total) to 458 fires in 2005/06 (10.6% of that year's national total).
- The total number of fires showed a significant increase over time (regression:  $R^2 = 0.35$ ; F-value = 7.69; P-value 0.015). This also followed the national trend of increasing number of fires over time (correlation coefficient = 0.697; P-value = 0.003).

### **Area Burned (Figure G2):**

- The average annual total area burned for Greater Wellington was about 138 ha (or 2% of the national total area burned).
- The total annual area burned over time varied from just 12 ha in 1991/92 (1% of that year's annual total) to 591 ha in 1997/98 (9% of that year's annual total).
- The total annual area burned from 1991/92 to 2006/07 showed a non-statistically significant negative trend with time (regression:  $R^2 = 0.0198$ ; F-value = 0.28; P-value = 0.603).

### **Number of Fires by Cause (Figures G3 and G4):**

- Miscellaneous causes made up about 30% of the average annual number of fires for Greater Wellington (or on average about 52 fires annually); and about 22% were due to unknown causes (annual average around 38 fires); combined 'unspecified' average annual number of fires was 52%.
- Around 14% of the annual average number of fires was attributed to land clearing (annual average of about 25 fires); incendiary accounted for around 10% (annual average of 18 fires); and another 10% was due to vehicle fires (annual average of 18 fires).
- Most cause classes featured annually in the total number of fires. The number of fires caused by miscellaneous and unknown causes fluctuate annually.

### **Area Burned by Fuel type (Figures G5 and G6):**

- Grass made up 20% of the total area burned from 1991/92 to 2006/07. Average annual grass area burned was 27 ha.
- Around 65% of the total area burned was scrub. Average annual scrub area burned was around 90 ha.
- Forest area burned made up the remaining 15% of the total area burned; with the average annual forest area burned of 21 ha.
- The Greater Wellington total annual area burned by fuel type was mostly dominated by scrub; much of the total forest area burned occurred in 1997/98 when over 200ha of forest was reported burned

**Area Burned by Cause (Figures G7 and G8):**

- While miscellaneous causes accounted for 30% of the average annual number of fires, they accounted for just 15% of the average annual total area burned (annual average 21 ha).
- Nearly 40% of the average annual total area burned was due to unknown causes (annual average 54 ha). This was in part due to relatively large areas of scrub and forest burned in 1997/98 from unknown causes.
- 15% of the total average annual area burned was attributed to land clearing (or average annually of 21 ha); incendiary causes accounted for nearly 16% of the total area burned (or annual average of 22 ha).

**Area burned by Cause and Fuel type (Figures G9, G10, G11, G12, G13 and G14):**

- The average annual total grass area burned was greatly influenced by miscellaneous causes in three fire years (1997/98, 1998/99, and 2002/03). A total of 37% of the average annual total grass area burned was assigned to miscellaneous causes (annual average just 10 ha).
- Around 10% (or on average 6 ha) of the average annual total grass area burned was attributed to unknown causes; 11 % (about 3 ha) attributed to incendiary; and another 11% attributed to land clearing (about 3 ha annually) causes.
- In comparison to other regions the actual total annual grass area burned was quite small (annually less than 100 ha for all fire years studied).
- Around 41% of the annual average total scrub area burned was attributed to unknown causes (actual average area burned about 37 ha); 10% to miscellaneous (average around 9 ha annually); combined 'unspecified' was just under 50% of the annual average total scrub area burned.
- Unlike other regions, incendiary causes played a more important role in total (and average) scrub area burned, with about 21% of the average annual total scrub area burned (about 19 ha annually) and occurs as a persistent cause in 1992/93, 1993/94, 1995/96, 1997/98, 1998/99, 1999/2000, 2000/01, 2005/06 and 2006/07.
- Land clearing accounted for about 12% of the average annual scrub area burned (about 11 ha annually); and was of high relative importance in 1992/93, 1993/94, 1995/96.
- The average annual forest area burned was greatly influenced by the relatively high area (over 150 ha) burned in 1997/98. Over half (54%) of the annual average total forest area burned was attributed to unknown causes (annual average about 11 ha). All other fire years reported less than 40 ha of forest area burned. However, over 200 ha was reported burned in 1997/98 mostly from unknown and land clearing causes.
- About 36% of the average annual total forest area burned was attributed to land clearing; most of this occurred in 1993/94, 1997/98, 2005/06 and 2006/07 fire years.

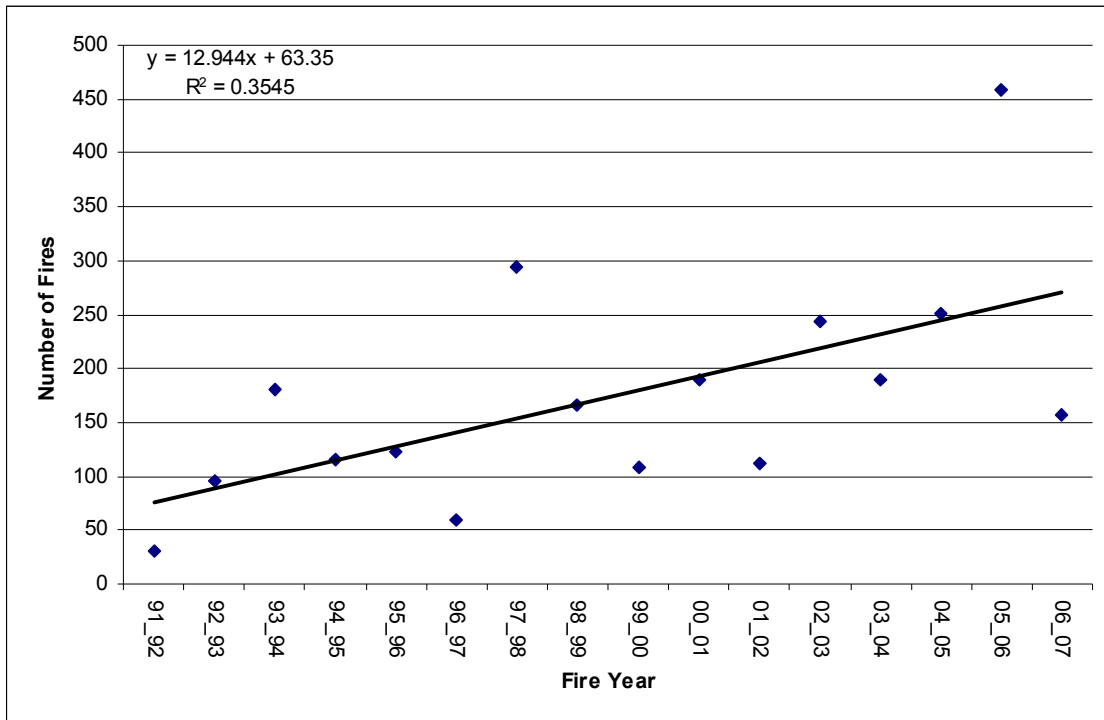


Figure G1. Greater Wellington total annual number of fires from 1991/92 to 2006/07.

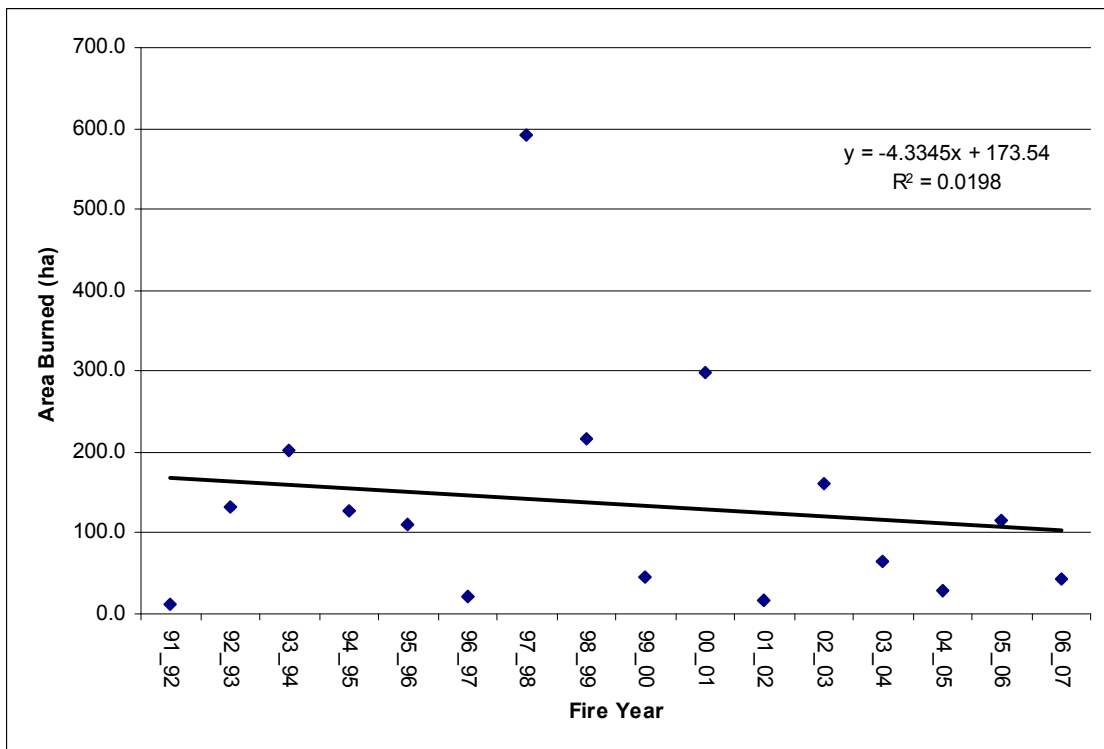


Figure G2. Greater Wellington total annual area burned from 1991/92 to 2006/07.

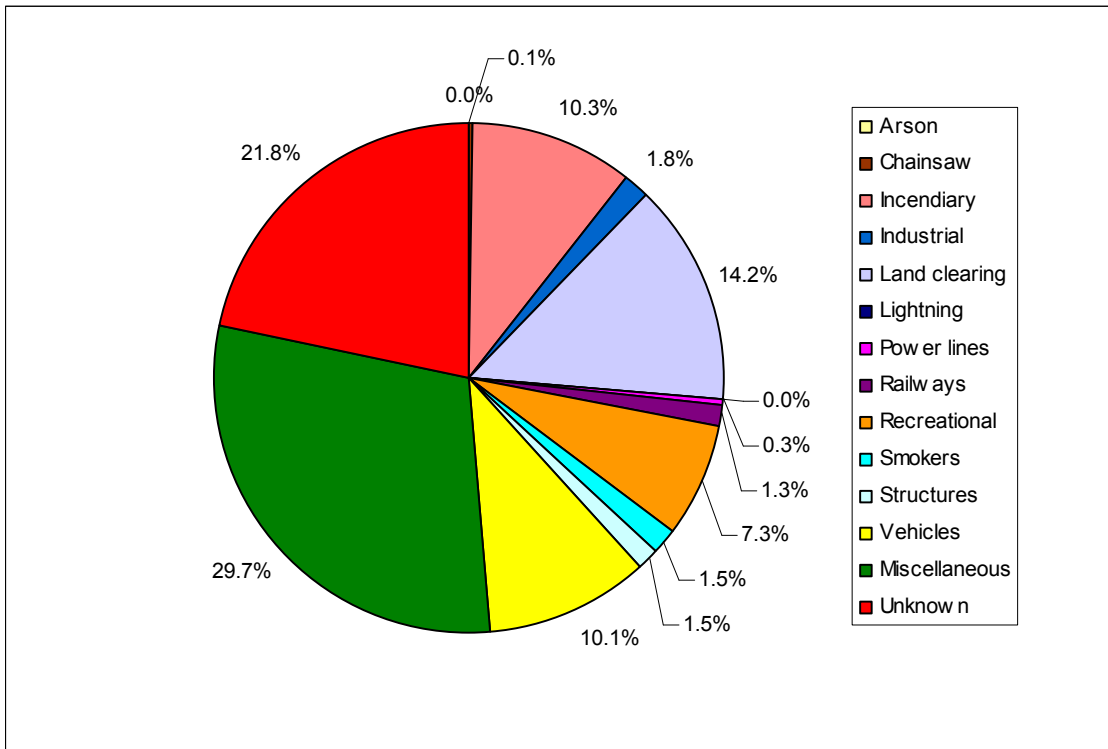


Figure G3. Greater Wellington total number of fires by cause from 1991/92 to 2006/07.

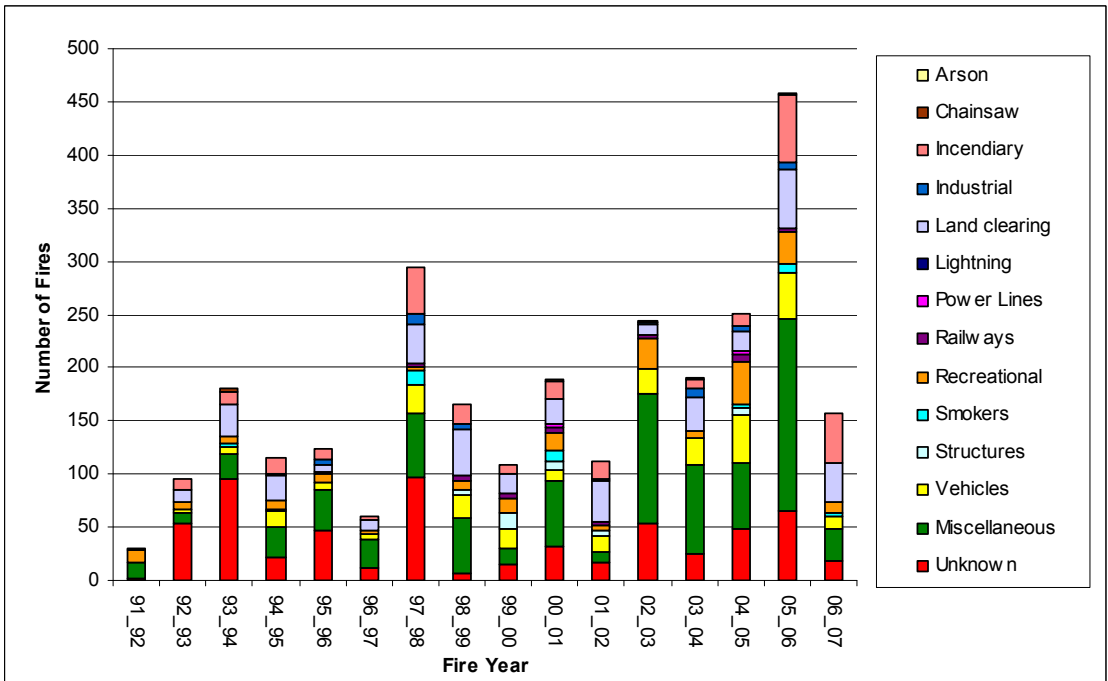


Figure G4. Greater Wellington total number of fires by cause from 1991/92 to 2006/07.

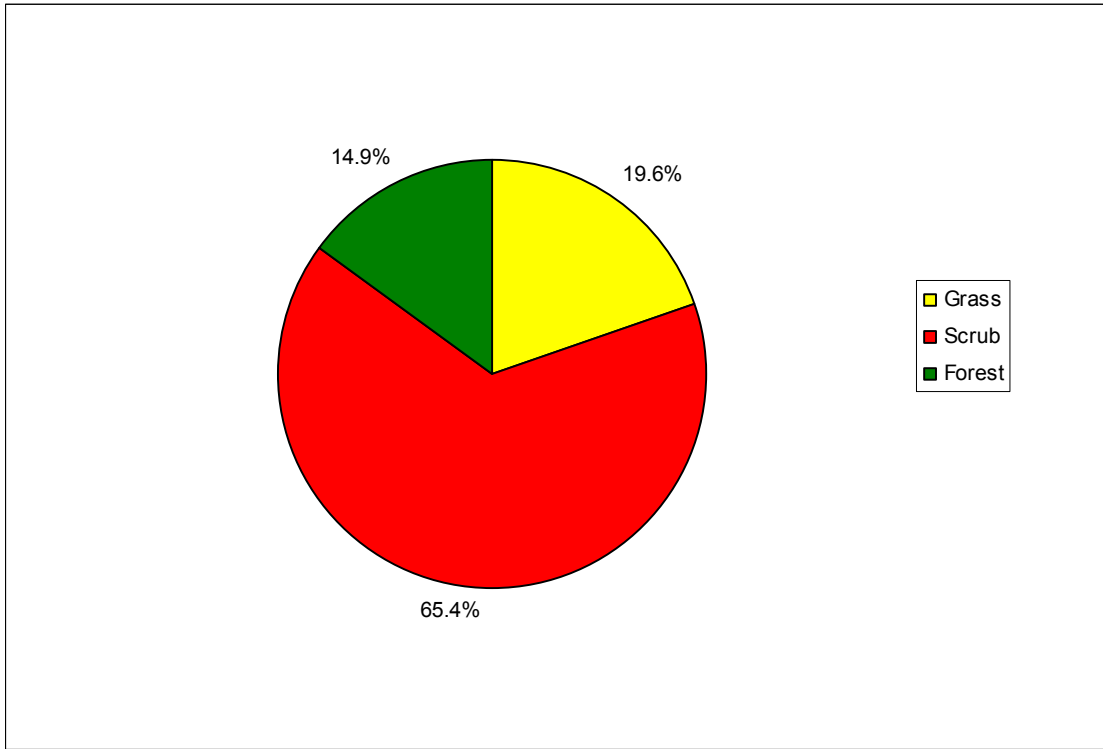


Figure G5. Greater Wellington total area burned by fuel type from 1991/92 to 2006/07.

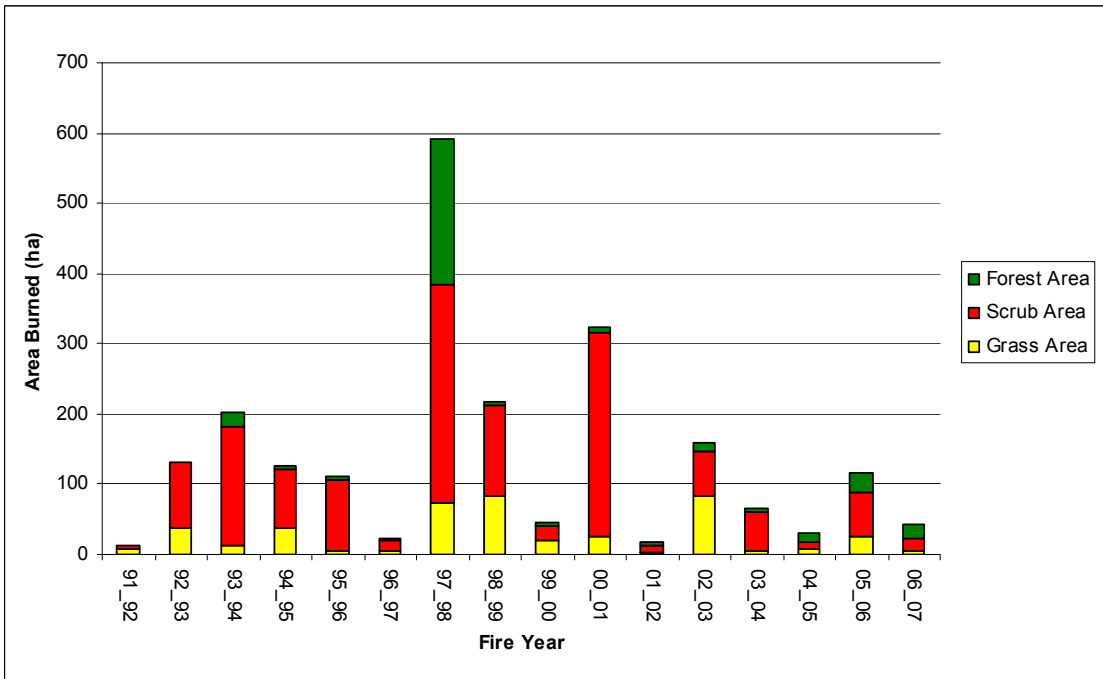


Figure G6. Greater Wellington total area burned by fuel type from 1991/92 to 2006/07.

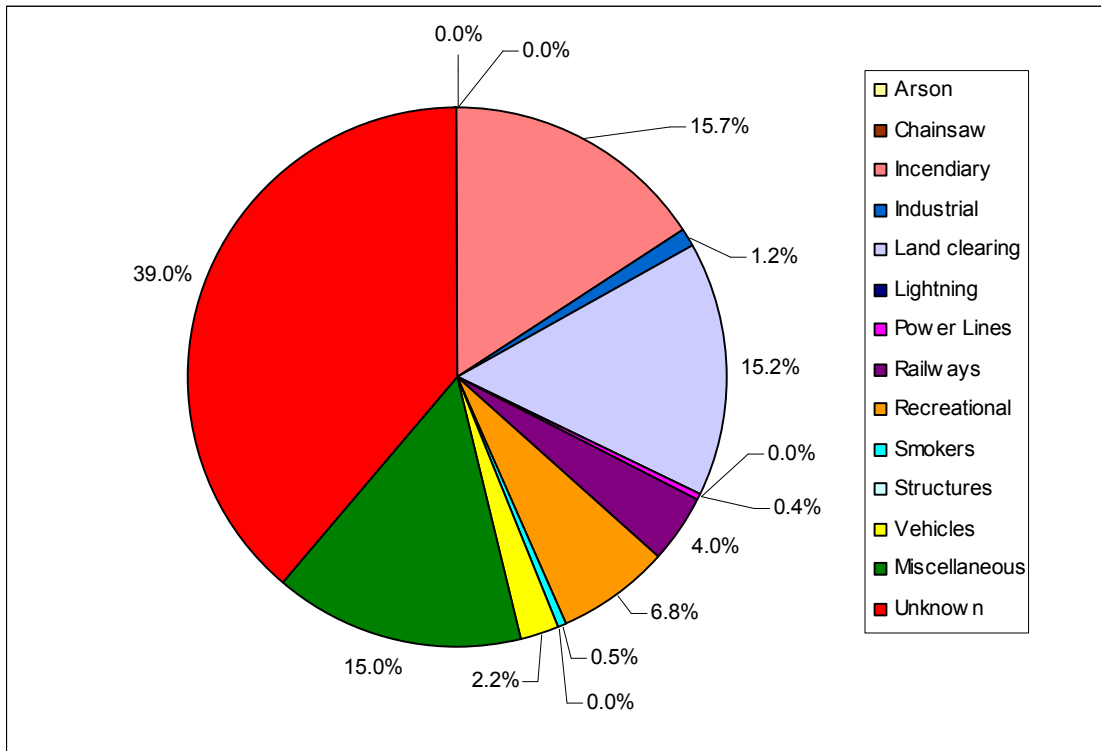


Figure G7. Greater Wellington total area burned by cause from 1991/92 to 2006/07.

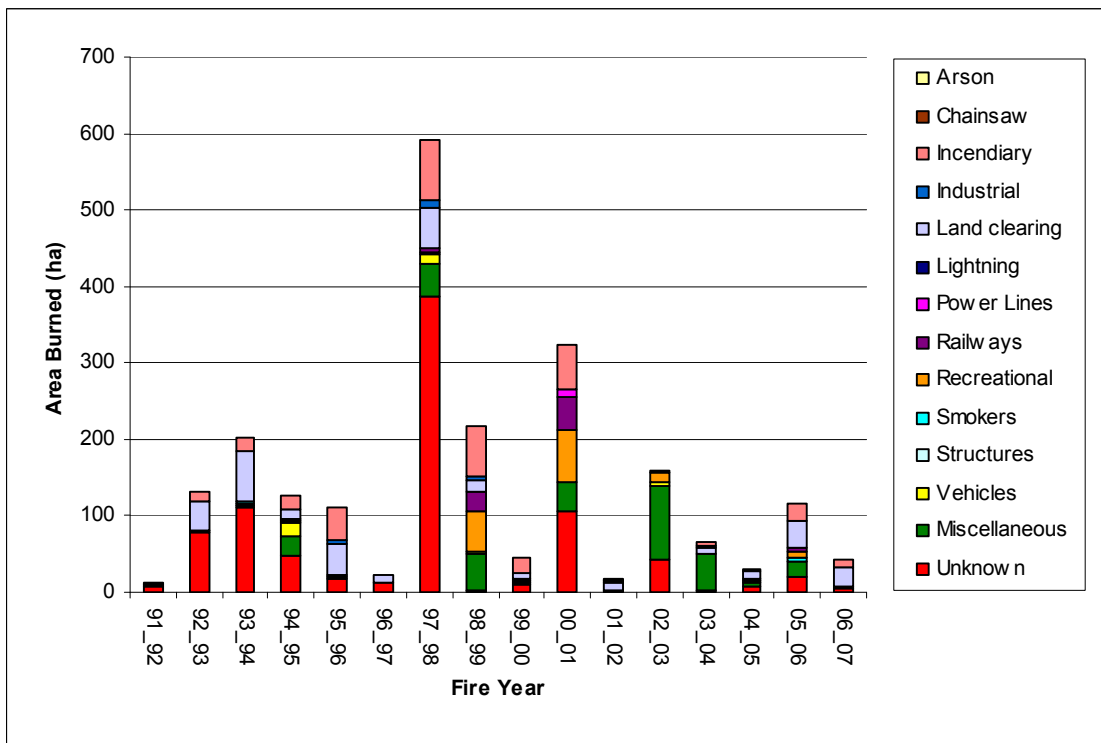


Figure G8. Greater Wellington total area burned by cause from 1991/92 to 2006/07.

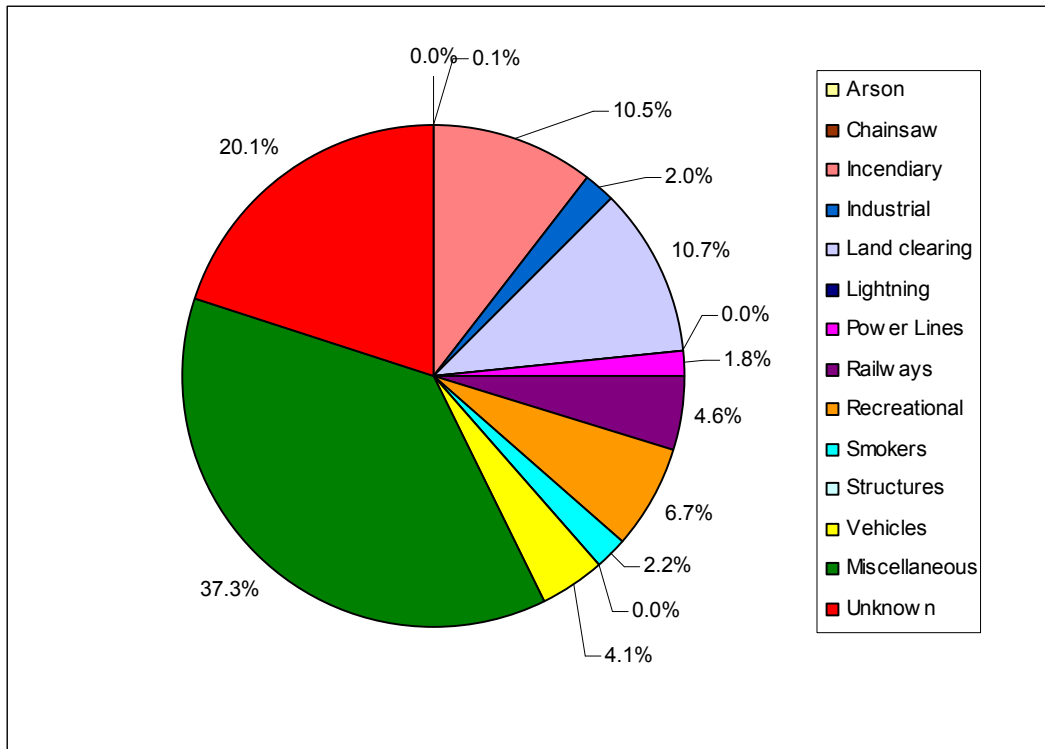


Figure G9. Greater Wellington average total annual grass area burned from 1991/92 to 2006/07.

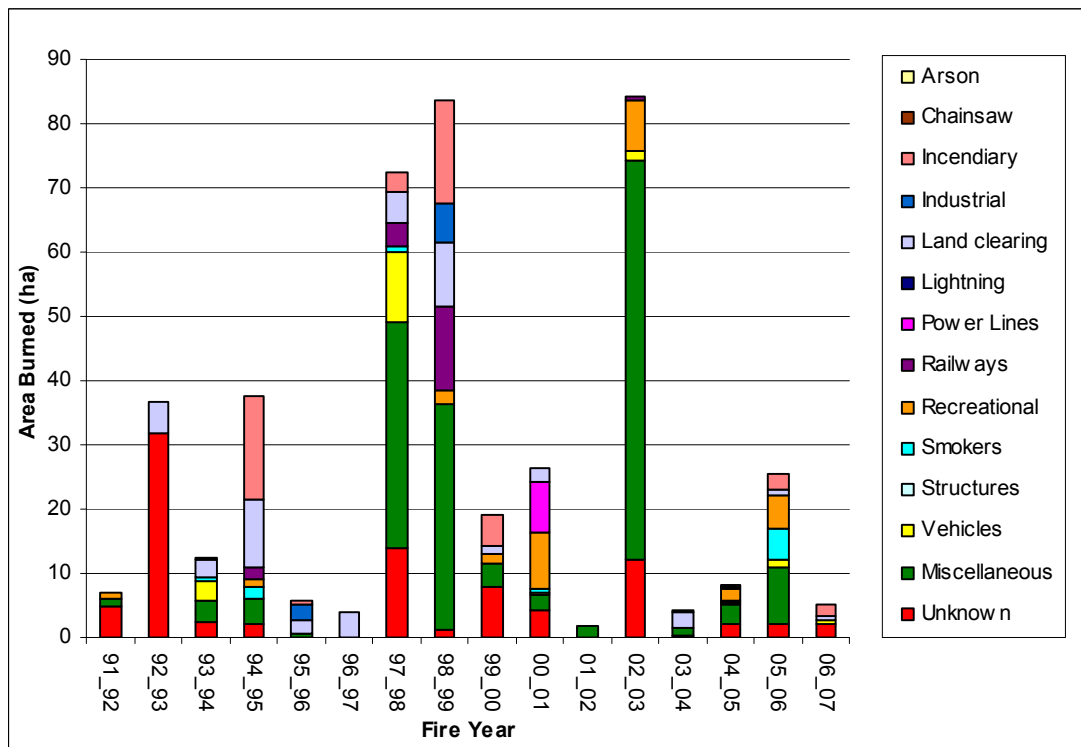


Figure G10. Greater Wellington total grass area burned by cause from 1991/92 to 2006/07.

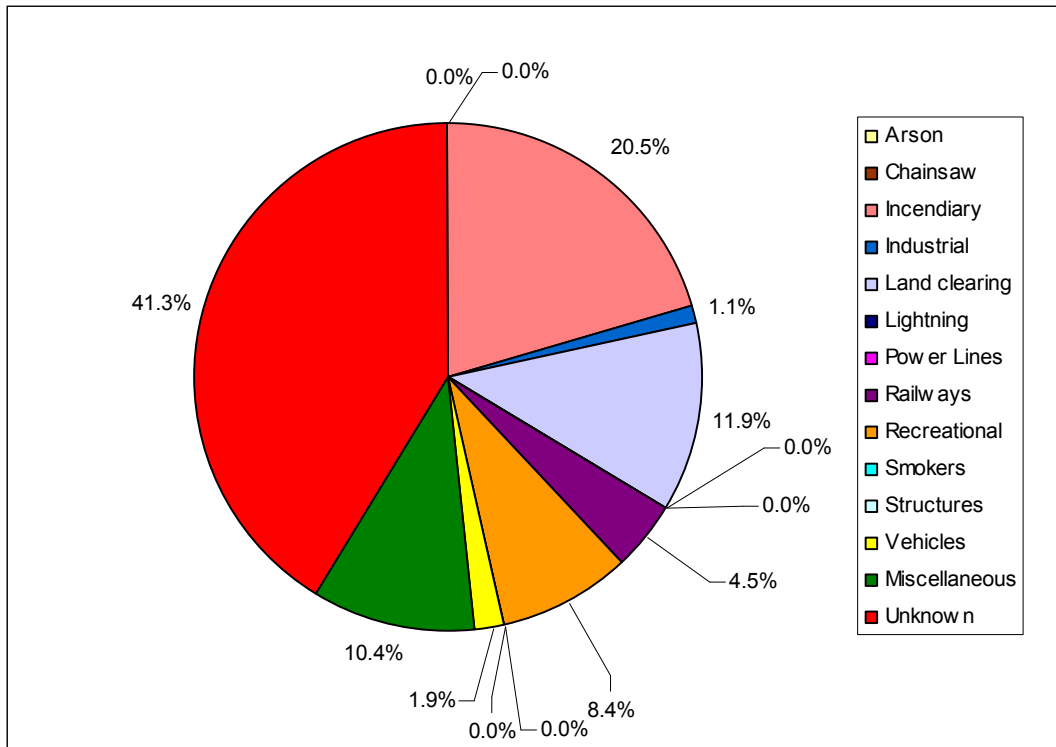


Figure G11. Greater Wellington average total scrub area burned by cause from 1991/92 to 2006/07.

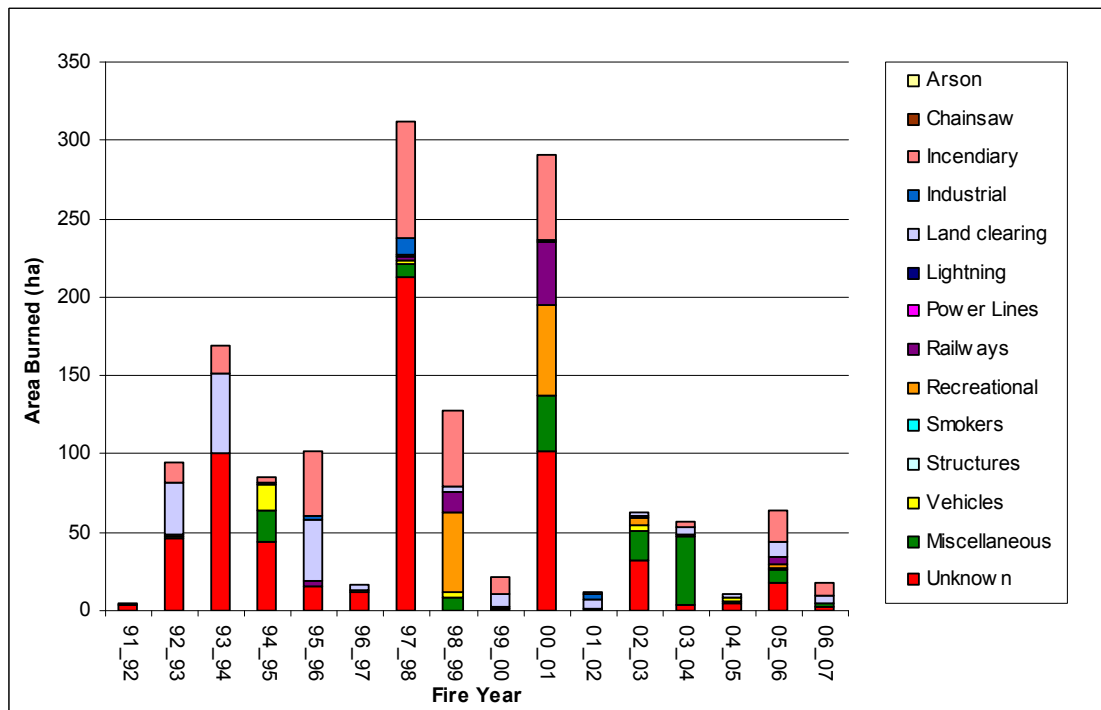


Figure G12. Greater Wellington total scrub area burned by cause from 1991/92 to 2006/07.

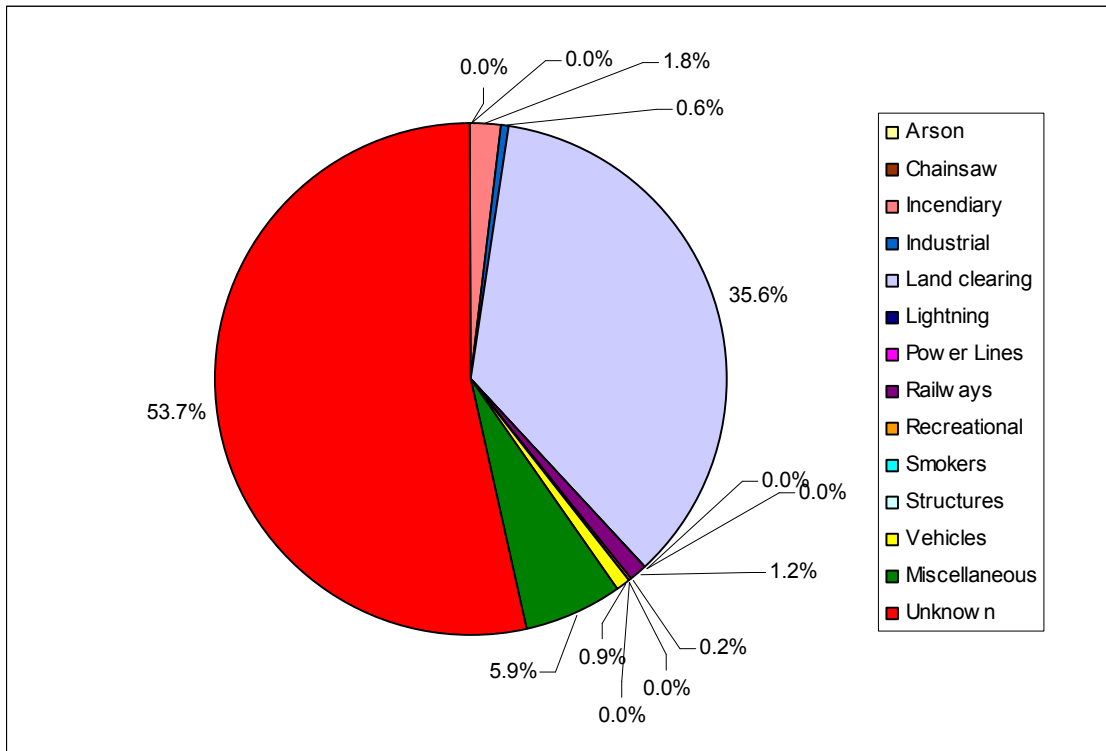


Figure G13. Greater Wellington average total forest area burned by cause 1991/92 to 2006/07.

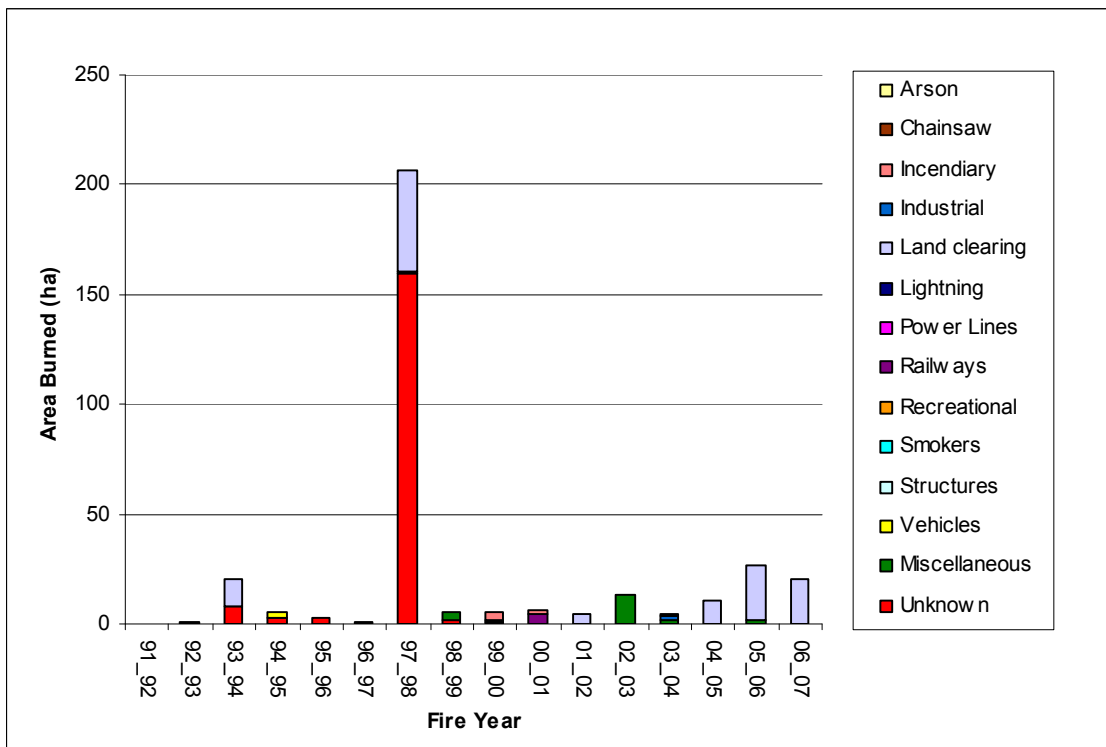


Figure G14. Greater Wellington total forest area burned by cause from 1991/92 to 2006/07.