

Appendix C13 Southland Region Fire Returns 1991/92 to 2006/07

Number of Fires (Figure S1):

- Southland had an annual average of 105 fires, or about 4% of the total number of fires nationally.
- The total annual number of fires varied from 9 fires in 1996/97 (0.4% of that year's national total) to 270 fires in 2006/07 (about 7% of that year's national).
- The trend in the number of fires annually over time generally increased; (regression: $R^2 = 0.68$; F-value = 32.2; P-value = <0.001). Southland's total annual number of fires also significantly correlated with the increasing national trend (correlation coefficient = 0.748; P-value = 0.001).

Area Burned (Figure S2):

- The average annual area burned for Southland from 1991/92 to 2006/07 was 326 ha and averaged around 6% of the national total area burned.
- The total annual area burned varied from just 3 ha in 1995/96 (0.1% of that year's national) to 1,395 ha in 2005/06 (35% of that year's national).
- The total area burned for Southland showed a clear significant increasing trend over time (regression: $R^2 = 0.3067$; F-value = 6.19; P-value = 0.02).

Number of Fires by Cause (Figures S3 and S4):

- The average annual number of fires by cause for Southland was more varied than other regions.
- Around 22% of the average number of fires was attributed to land clearing (actual average 23 fires); 22% to structures (annual average 23 fires); and around 16% to vehicle causes (annual average of 16 fires).
- The average annual number of fires from unspecified causes made up 34%: 19% miscellaneous (annual average of 20 fires), and 15% unknown (annual average 15 fires).
- The cause of the majority of fires varied considerably from 1991/92 to 1997/98, and from 1998 onwards unknown, miscellaneous, vehicles, land clearing and structures began to feature in high numbers regularly. High numbers of fires attributed to structures occurred in 1998/99, 2004/05, 2005/06 and 2006/07, this differs from many other regions where hardly any fires were attributed to this class annually.

Area Burned by Fuel Type (Figures S5 and S5):

- Around 58% of the total area burned from 1991/92 to 2006/07 was scrub; average annual total scrub area burned was 185 ha (around 7% of the national on average).
- Around 41% of the total area burned was grass; average annual total grass area burned was 133 ha or about 6% of the national.

- The remaining 3% of the total area burned was forest; average annual total forest area burned was 9 ha or 5% of the national average total forest area burned.
- The trend for total annual area burned by fuel type showed little consistency, individual years were usually dominated by a single fuel type being burned; 1992/93, 1993/94, 1994/95, 1998/99, 1999/2000, 2000/01, 2001/02, 2003/04 and 2005/06 were all dominated by scrub; 1996/97, 1997/98, 2004/05, 2006/07 were dominated by grass.

Area Burned by Cause (Figures S7 and S8):

- The Southland results emphasize the need to consider both number of fires and area burned by cause.
- While land clearing accounted for on average 22% of the number of fires, it accounted for 82% of the total area burned (annual average 266 ha).
- Structure fires made up 22% of the average annual number of fires but does not feature at all in the average annual total area burned; vehicles made up 16% of the average number of fires by only 6% of the average total area burned.
- This disparity between the average annual number of fires and the average annual total area burned was (as with other regions) due to single causes dominating some years, and three years of large areas burned from 2004/05 to 2006/07 were due to land clearing occurred.

Area Burned by Cause and Fuel Type (Figures S9, S10, S11, S12, S13, and S14):

- 96% of the annual total grass area burned was attributed to land clearing (annual average was 127 ha). However, this almost complete domination by land clearing was due to hardly any grass area recorded burned from 1991/92 to 2003/04, and the over 1,300 ha reported in 2004/05 and 600 ha in 2005/06.
- The average annual total scrub area burned was again dominated by land clearing at 73% (average annually of 134 ha); 11% was attributed to vehicles (20 ha). Unknown causes made up 8% (annual average 14ha); and miscellaneous accounted for 5% (annual average of 9 ha).
- Again no clear trend was present for any causes in the total annual scrub area burned.
- Southland's average annual total forest area burned was split with 57% (annual average just 5 ha) from land clearing, 40% from (annual average 3 ha) chainsaws, and the remainder from other causes. The annual total forest area burned was very low, at most around 65 ha (in 2003/04), and most of the forest area burned was attributed to land clearing (1991/92, 1998/99, 1999/2000, 2000/01, 2005/06 and 2006/07), chainsaws accounted for over 50 ha in 2003/04 (most of that year's forest area burned).

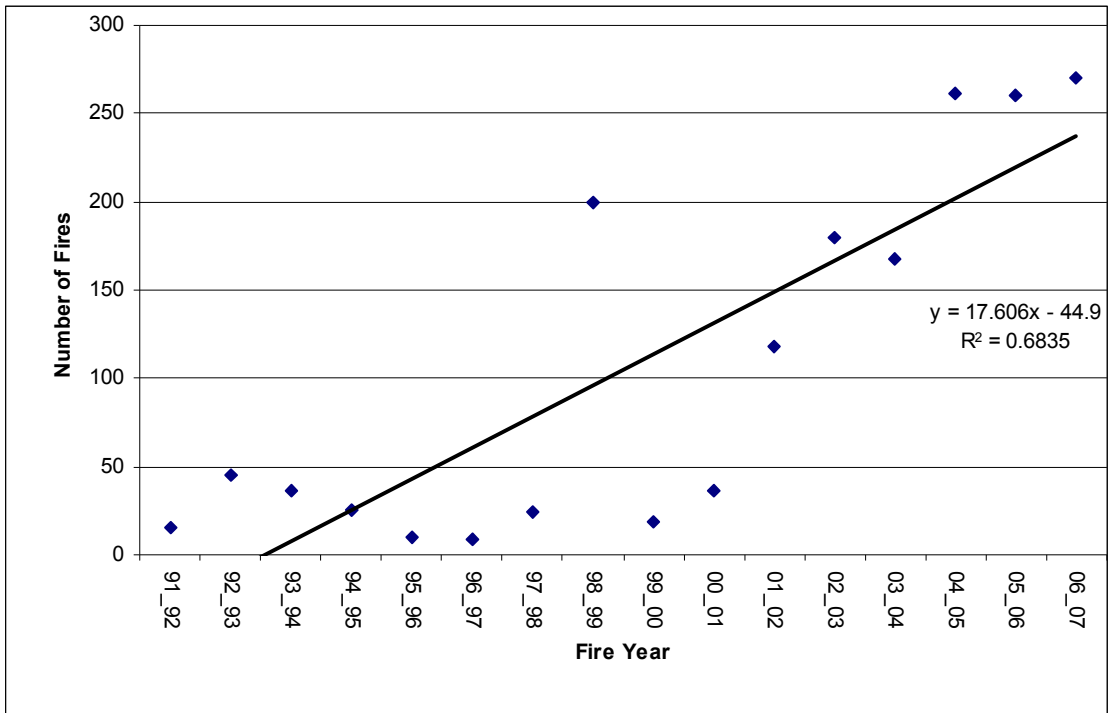


Figure S1. Southland total annual number of fires from 1991/92 to 2006/07.

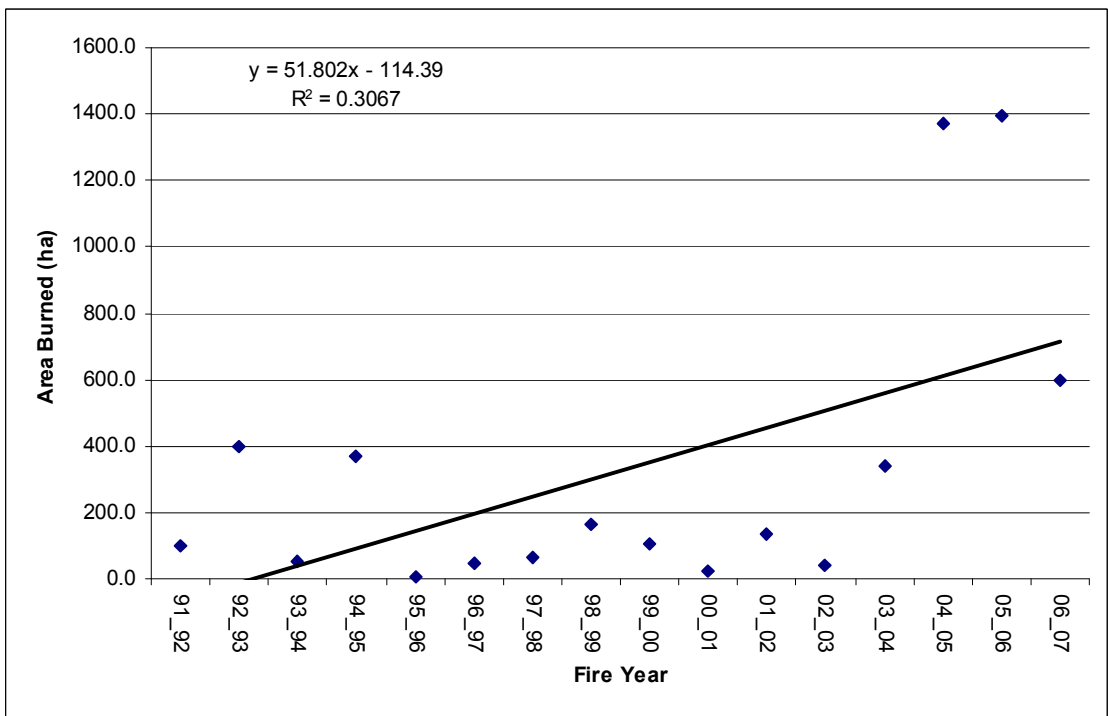


Figure S2. Southland total annual area burned from 1991/92 to 2006/07.

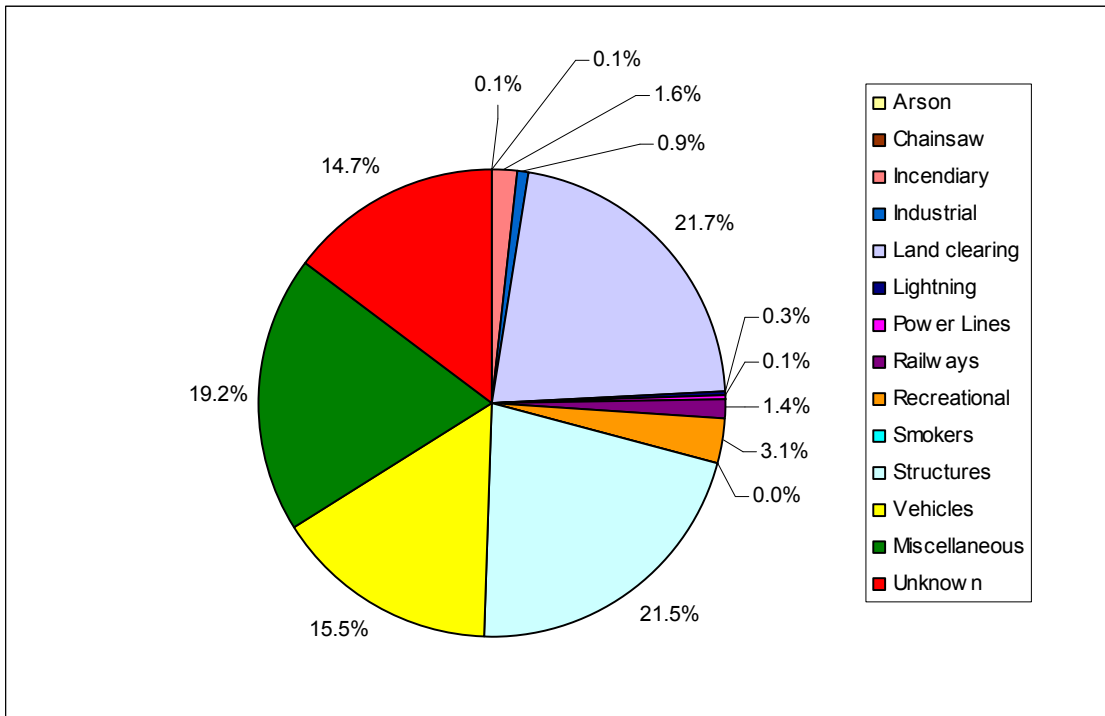


Figure S3. Southland average total number of fires by cause from 1991/92 to 2006/07.

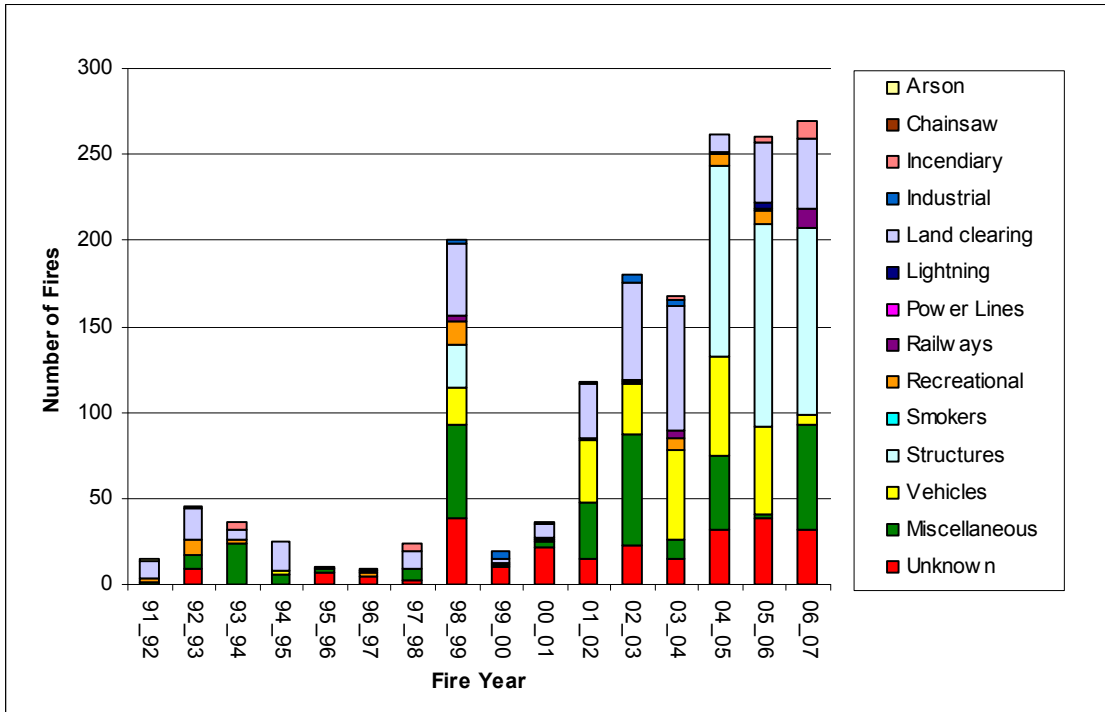


Figure S4. Southland total annual number of fires by cause from 1991/92 to 2006/07.

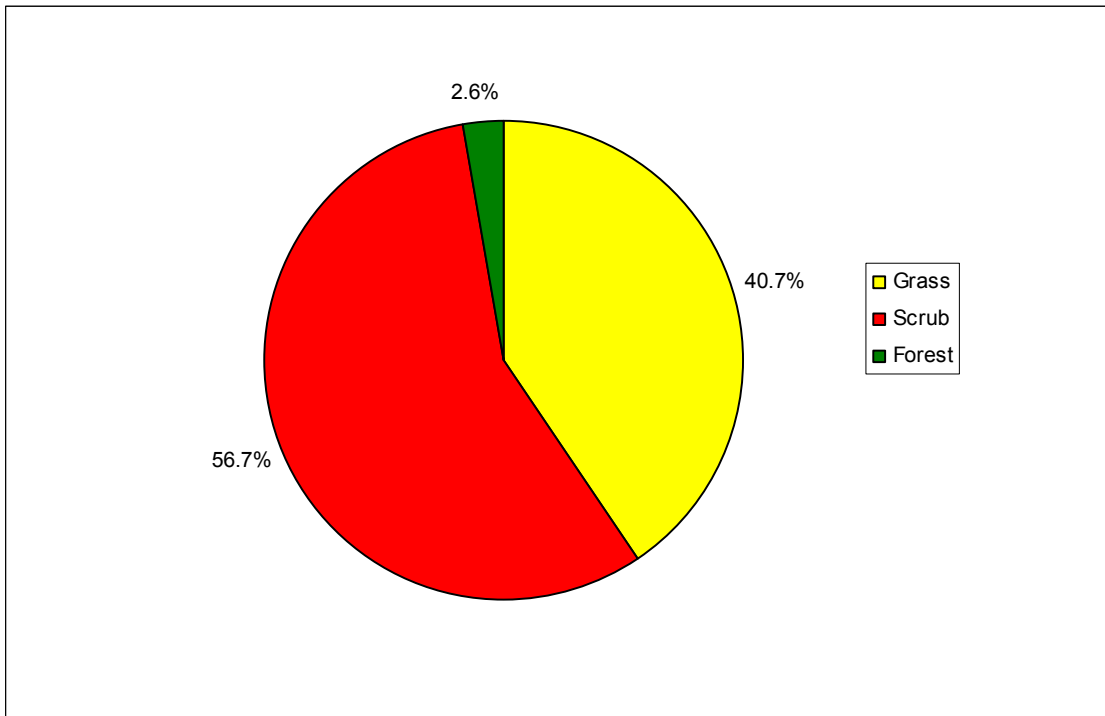


Figure S5. Southland total area burned by fuel type from 1991/92 to 2006/07.

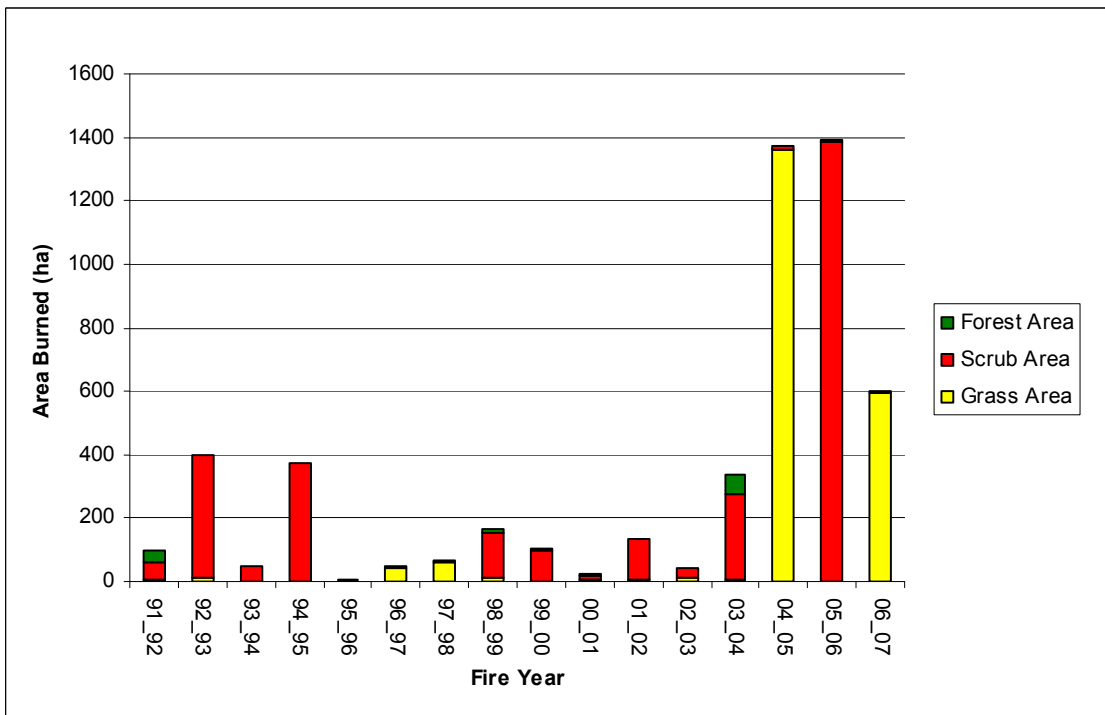


Figure S6. Southland total annual area burned by fuel type from 1991/92 to 2006/07.

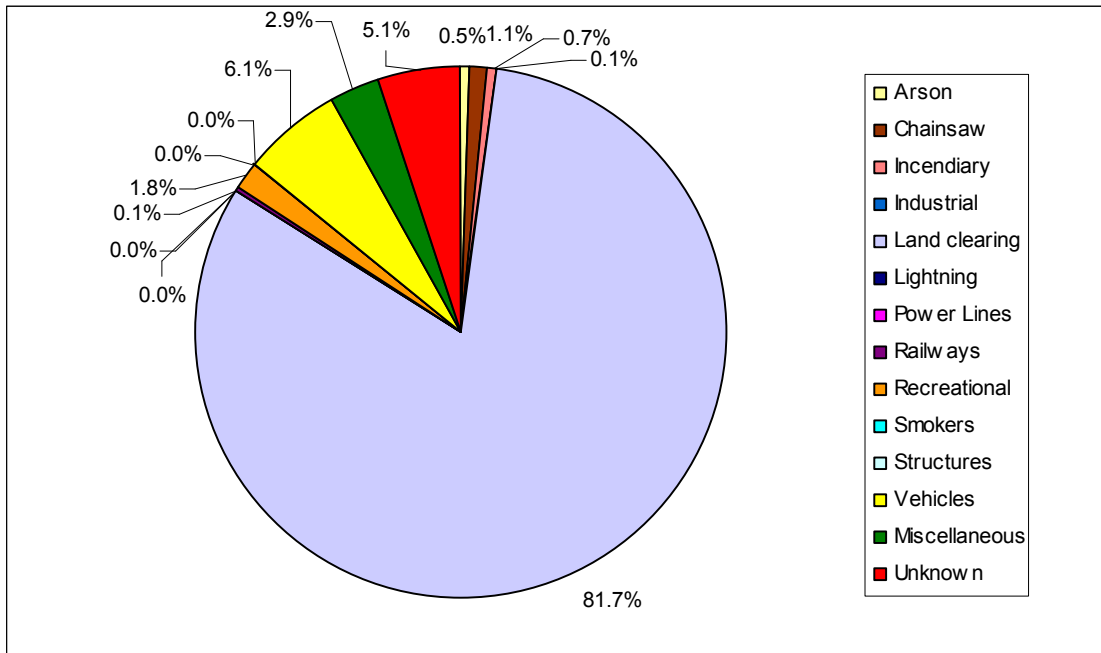


Figure S7. Southland average total area burned by cause from 1991/92 to 2006/07.

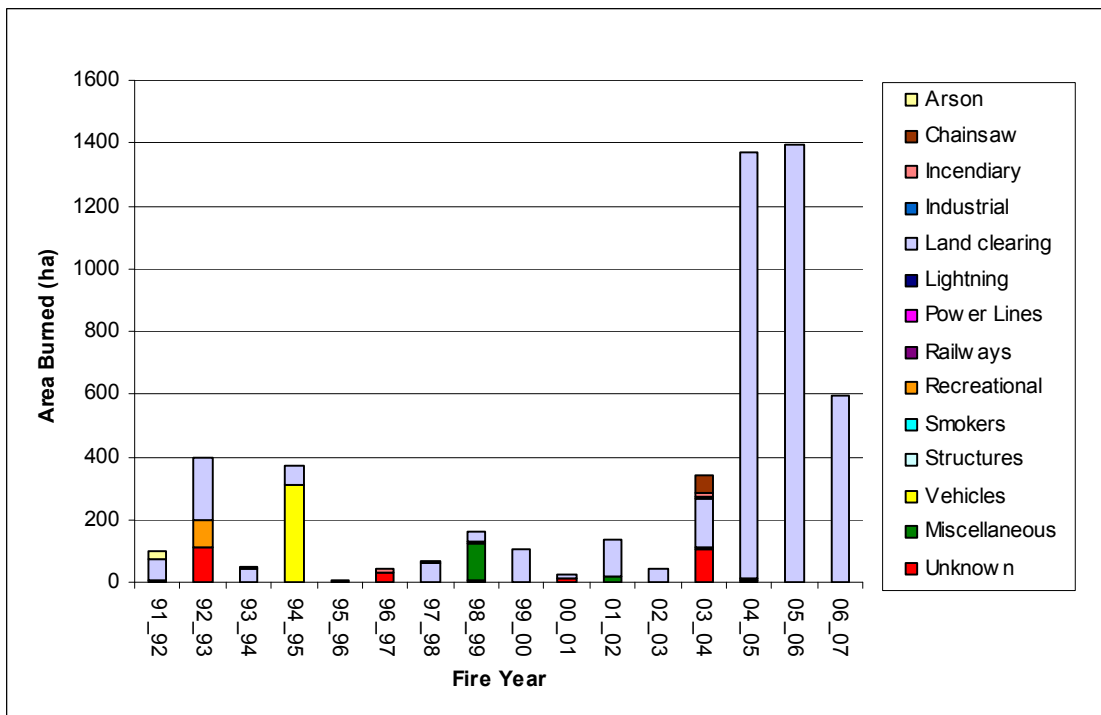


Figure S8. Southland total annual area burned by cause from 1991/92 to 2006/07.

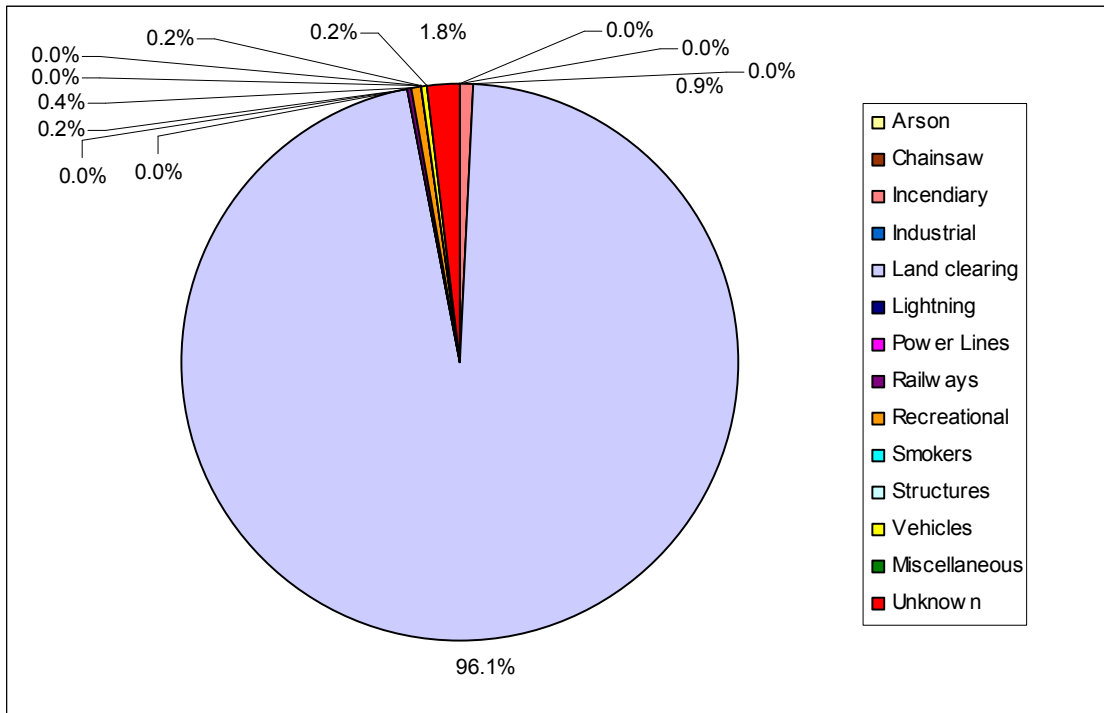


Figure S9. Southland average total grass area burned by cause from 1991/92 to 2006/07.

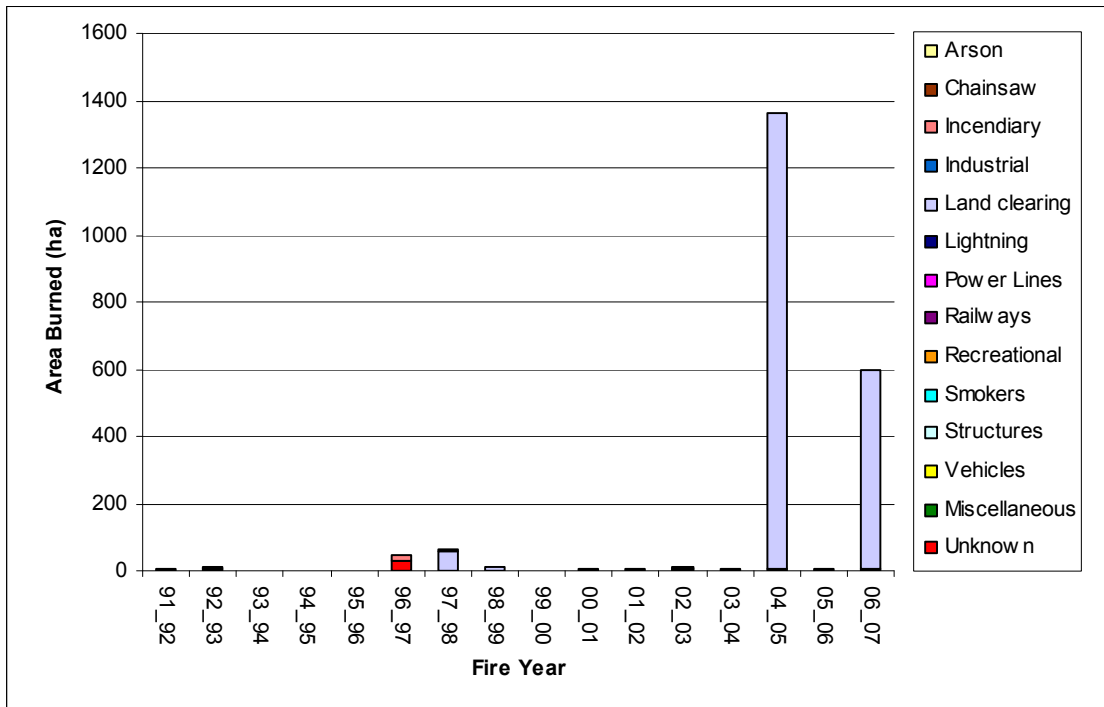


Figure S10. Southland total annual grass area burned by cause from 1991/92 to 2006/07.

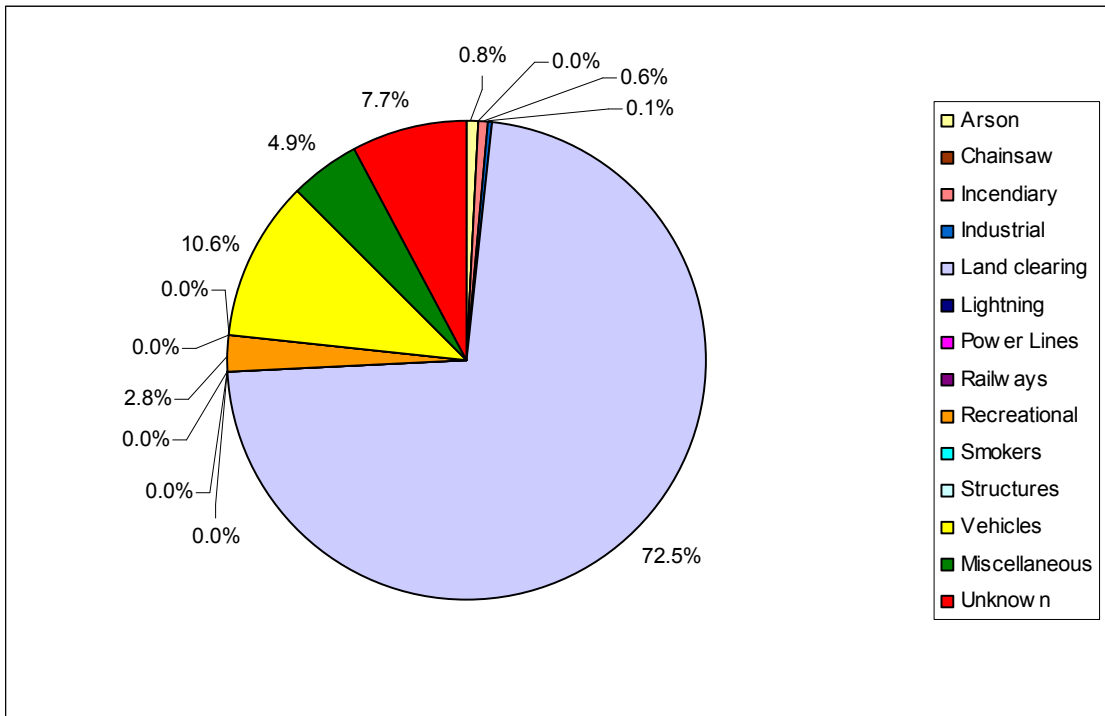


Figure S11. Southland average total scrub area burned by cause from 1991/92 to 2006/07.

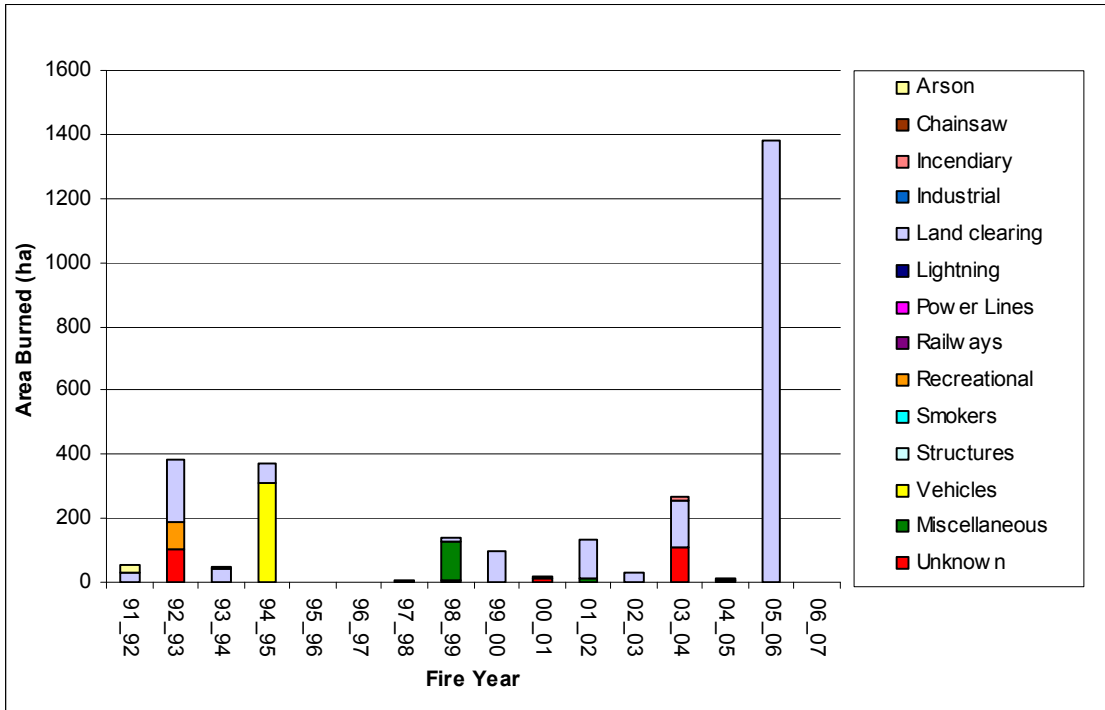


Figure S12. Southland total annual scrub area burned by cause from 1991/92 to 2006/07.

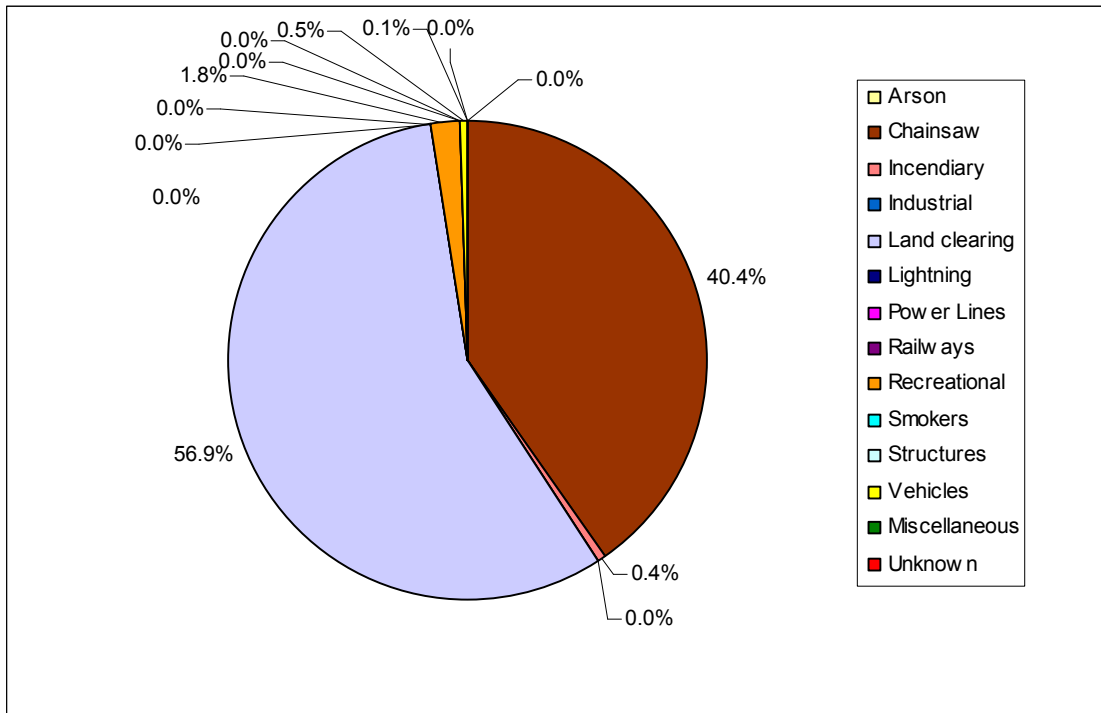


Figure S13. Southland average annual total forest area burned by cause from 1991/92 to 2006/07.

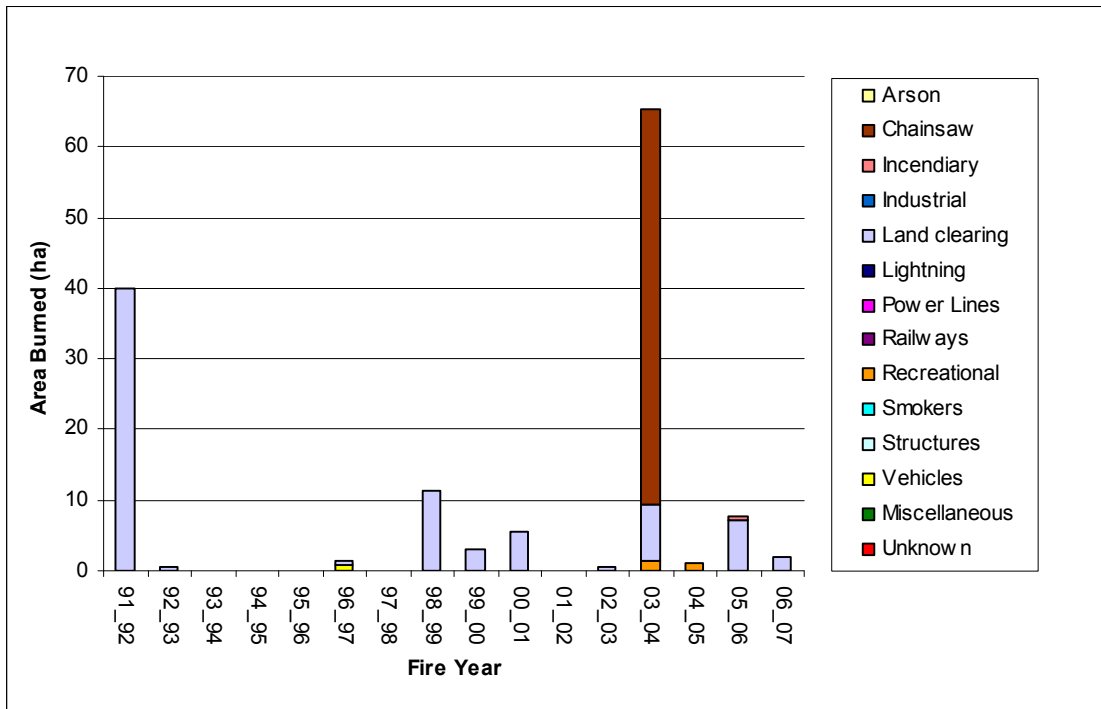


Figure S14. Southland total annual forest area burned by cause from 1991/92 to 2006/07.