Wildfire stimulates boneseed germination 8.5 years after adult plants cleared

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Summary Boneseed, *Chrysanthemoides monilifera* ssp. *monilifera* (L.), is a widespread environmental weed in many parts of both New Zealand and Australia. There are few studies on the regeneration ecology of this species, but several from Australia indicate that seed germination is promoted by fire. Estimates of boneseed seed viability under Australian conditions range from <3 years to >10 years, depending on depth of seed burial. However, robust data on the regeneration ecology of boneseed are lacking, particularly under natural conditions, and particularly from New Zealand. In February 2011, we were presented with an opportunity to add to this body of knowledge when a wildfire swept through the hills near Christchurch, New Zealand. The path of the fire included part of an area that had been manually cleared of boneseed 8.5 years previously. In September 2011, 7 months after the fire, we counted boneseed seedlings in 78 1m^2 plots in burnt and un-burnt areas of the cleared site. We found a total of 172 boneseed seedlings in the burnt plots (mean 4.4 ± 1.3 per plot), but only one boneseed seedling in the un-burnt plots (mean 0.3 ± 0.3 per plot), confirming that boneseed germination is stimulated by fire. These results also confirm that boneseed remains viable in the soil for at least 8.5 years in New Zealand. Weed managers should note that boneseed can re-invade from the seed-bank following wildfire, more than 8 years after adult plants have been eradicated. Additionally, it may be feasible under some circumstances for managers to use controlled fire to promote boneseed germination, thereby accelerating exhaustion of the seed-bank.