

Abstract

Long term fire exclusion has been attempted in Catchment IX (CIX) at Cathedral Peak. Baseline vegetation of CIX was sampled in 1952, with follow-up surveys in 1973, 1986 and 2010. These took place at key times in terms of changes in fire history within the catchment. Complete fire exclusion was achieved between 1973 and 1986, but eight accidental fires burnt part of CIX thereafter.

The woody component was resurveyed in 2010 after the latest of thirteen unintended fires had swept through CIX in 2007. This fire burnt about 90% of the catchment. The vegetation of the area not burnt was a distinct community and size structure indicating it had not been burnt by other accidental fires.

Partial exclusion of fire over 58 years resulted in vegetation transforming from grassland to a grassland-fynbos-scrub forest mosaic. *Erica evansii* and *Leucosidea sericea*, a reseeder and resprouter respectively, were the two dominant species in CIX. These displayed expected responses to a single fire, resulting in dominance shifting from *E. evansii* (92% mortality) to *L. sericea* (1.6% mortality). The decrease in *E. evansii* individuals resulted in a relative increase in community contribution of species not affected by fire. *Leucosidea sericea*'s post-fire dominance in burnt plots was not apparent in fire-protected areas.

A successional trend of colonisation of woody species, predominantly *E. evansii* and *L. sericea*, into grassland was observed. Despite occasional fires since 1986 vegetation did not revert to grassland. The emergent woody community was not homogenous. This was attributed to a combination of an irregular pattern of accidental burns and environmental variability within the catchment. The mosaic of distinct grassland, woodland, ecotonal and scrub forest communities are predicted to remain as such.