Several complimentary plant establishment methods are required to restore banksia woodland

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Six years of comprehensive monitoring of three restoration sites with 60 ha in total suggest it may be possible to restore banksia woodland, but also identified major challenges and limitations. We analysed plant cover and abundance trends and vegetation structure relative to reference sites. The majority of native species (100 out of 160) primarily germinated from respread topsoil. However, important species including all the trees were missing from that source, so required planting or direct seeding. Thus, the restoration of banksia woodland requires several complimentary methods. We believe that restored areas with respread topsoil, planting and seeding are on a trend to recovery, but will take decades to reach some targets, while areas with only planting and seeding may become a separate vegetation type. It is very challenging to evaluate differences in flora and vegetation between restored and reference sites, since the reference sites were very different from each other due to very high beta diversity in banksia woodland. Another key finding was that the relative dominance of different plant functional groups changes over time, with disturbance opportunists initially dominant then declining back into the soil seed bank. Evidence for resilience of this restored ecosystem was provided by abundant pollination and seed set for many species and the presence of second-generation seedlings of understory plants and trees. However, longer-term monitoring is required to confirm that restoration has been fully successful.

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