

Supplementary Material

K'gari (Fraser Island) World Heritage Area: evaluating change in plant species richness and composition over two decades

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Table S1. Vegetation communities and history of fire events in K'gari World Heritage Area showing the year when planned burn and bushfire occurred at each of the surveyed sites. General information on main modes of recovery after fire are presented in the regional ecosystem description column in parenthesis.

Regional Ecosystem (RE)	Regional Ecosystem Description	Site Number	Planned Burn Year	Bushfire Year
12.2.5	<i>Corymbia intermedia</i> +/- <i>Lophostemon confertus</i> +/- <i>Banksia</i> spp. +/- <i>Callitris columellaris</i> open forest on beach ridges usually in southern half of bioregion (<i>the eucalypts resprout from lignotuber and epicormic shoots; Banksia aemula has canopy stored seed that is released after fire and it resprouts from lignotuber and epicormic shoots; B. integrifolia doesn't have canopy stored seed but has some capacity for resprouting. Callitris columellaris is an obligate seed regenerator</i>).	38	-	1994, 2020
12.2.6	<i>Eucalyptus racemosa</i> subsp. <i>racemosa</i> open forest on dunes and sand plains. Usually deeply leached soils (<i>recovery through seedling, epicormic shoots and lignotubers</i>)	11	2008	-
		22	2009, 2013	2000, 2017
		24	1989	-
		33	1998	2005, 2020
		36	-	1994, 2006, 2020
		42	-	2005, 2020
		43	-	2005, 2020
		47	-	2020
12.2.7	<i>Melaleuca quinquenervia</i> or rarely <i>M. dealbata</i> open forest on sand plains soils (<i>recovery through seedling, epicormic shoots and lignotubers</i>)	23	1994, 2017	-
12.2.8		18	-	2009, 2019

	<i>Eucalyptus pilularis</i> open forest on parabolic high dunes soils (recovery through seedling, epicormic shoots and lignotubers, but <i>E.pilularis</i> does not regenerate using lignotubers)	30	2002	2011
		32	2007	2020
12.2.9	<i>Banksia aemula</i> low open woodland on dunes and sand plains. Usually deeply leached soils (recovery through seedling, epicormic shoots and lignotubers)	15	-	2009, 2016
12.2.11	<i>Corymbia tessellaris</i> +/- <i>Eucalyptus tereticornis</i> , <i>C. intermedia</i> and <i>Livistona decora</i> woodland on beach ridges in northern half of bioregion (recovery through seedling, epicormic shoots and lignotubers. <i>Livistona decora</i> resprouts from protected apical bud)	13	2015	2001, 2009, 2019
		37	-	1994, 2020
		48	2000, 2016, 2017	2013, 2020
12.2.14	Fore dune complex comprising <i>Corymbia tessellaris</i> , <i>C. intermedia</i> with <i>Acacia leiocalyx</i> , <i>A. disparrima</i> low open forest (recovery through seedling, epicormic shoots and lignotubers, the Acacias from soil seed bank)	3	1996	-
12.2.14a	<i>Casuarina equisetifolia</i> subsp. <i>incana</i> woodland to low open forest on exposed frontal areas (killed by fire and post-fire recovery through seedling is rarely seen)	34	2007, 2015	2020
12.2.15	<i>Gahnia sieberiana</i> , <i>Empodisma minus</i> , <i>Gleichenia</i> spp. closed sedgeland in coastal swamps (recovery through resprouts)	21	2017	2004, 2020
		35	1999	2020
		56	2000, 2016, 2017	2013, 2020

Table S2. Analysis of variance for species richness measured in 1997, 1999 and 2021 in K'gari among all and within each of the regional ecosystems (RE) that had at least three monitoring sites. Significant characteristics are shown with an asterisk (*ns* $p > 0.05$, * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$).

Regional ecosystem	F value	R ² (%)	P	Significance
All REs (12.2.11, 12.2.15, 12.2.6, 12.2.8)	5.4252	35.50	0.0005	***
12.2.11. <i>Corymbia tessellaris</i> +/- <i>Eucalyptus tereticornis</i> , <i>C. intermedia</i> and <i>Livistona decora</i> woodland on beach ridges in northern half of bioregion	0.1252	4.00	0.885	ns
12.2.15 <i>Gahnia sieberiana</i> , <i>Empodisma minus</i> , <i>Gleichenia</i> spp. closed sedgeland in coastal swamps	0.4737	13.64	0.644	ns
12.2.6 <i>Eucalyptus racemosa</i> subsp. <i>racemosa</i> open forest on dunes and sand plains. Usually deeply leached soils	2.6517	20.16	0.094	ns
12.2.8 <i>Eucalyptus pilularis</i> open forest on parabolic high dunes	0.1830	5.745	0.837	ns