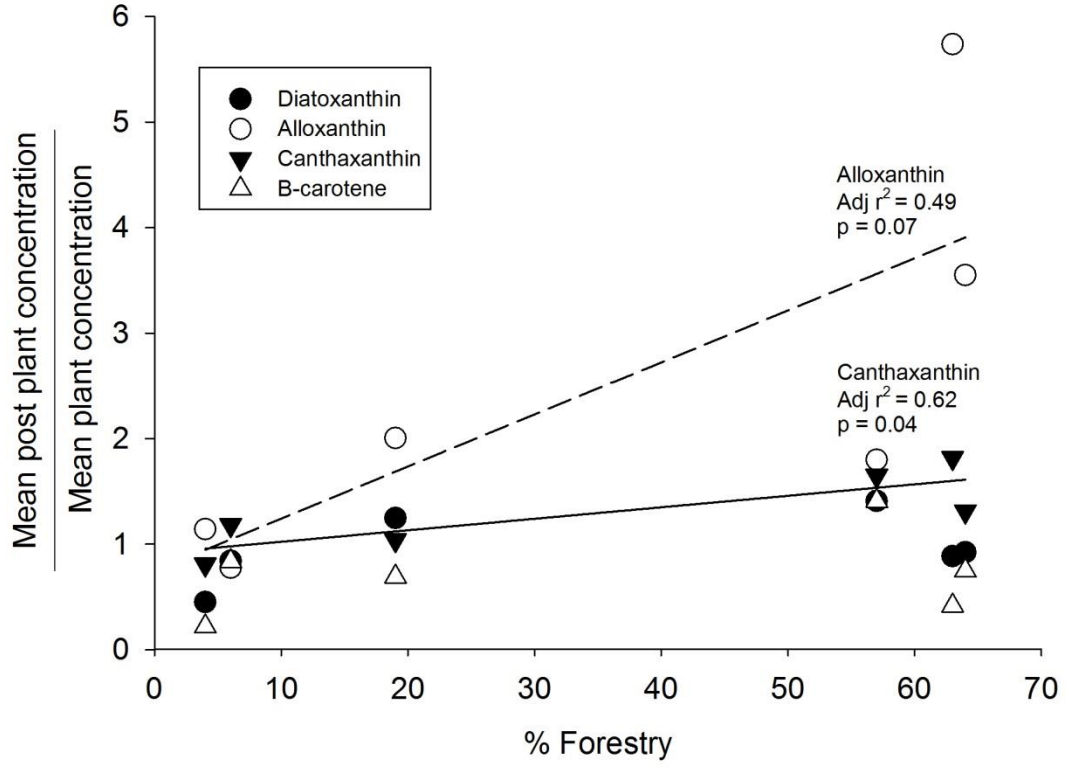
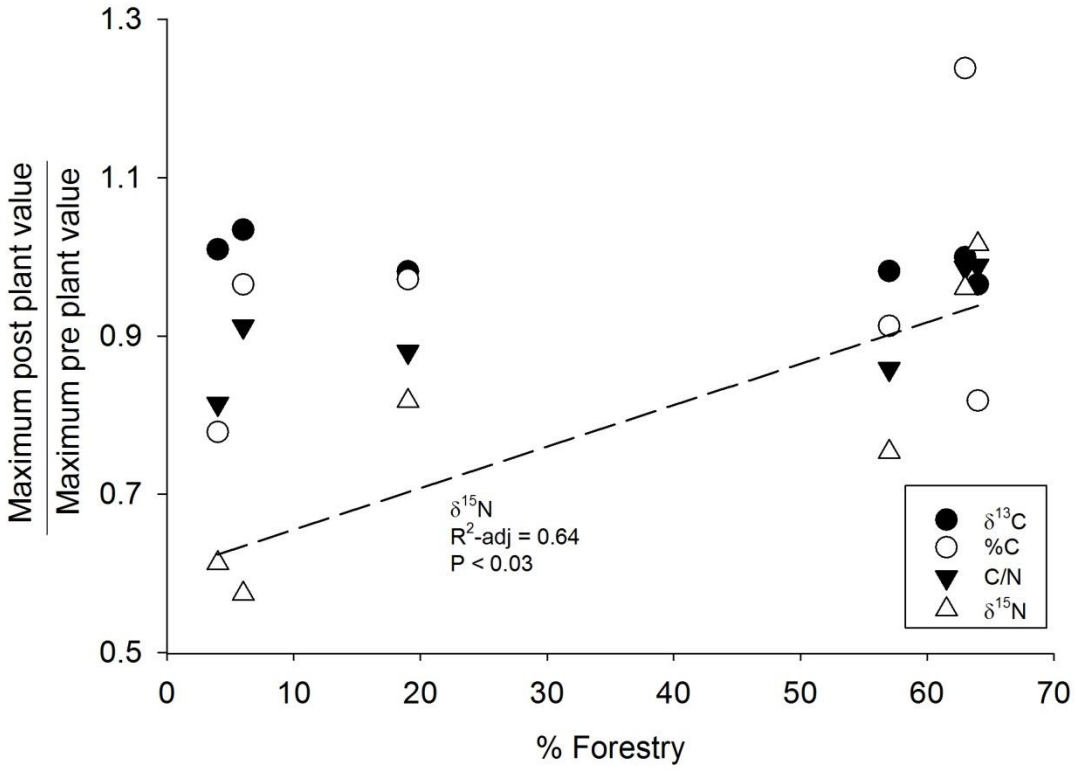
Supporting information

Additional summary diagrams



S. Figure 1: Ratio of mean post-plant pigment concentration (since first plant) over maximum pre-plant (since 1900) pigment concentration against catchment percentage planted forestry. Linear regressions are presented for alloxanthin (cryptophytes) and canthaxanthin (cyanobacteria) pigments.



S. Figure 2: Ratio of maximum post-plant geochemical variables (since first plant) over maximum pre-plant (since 1900) geochemical variables against catchment percentage planted forestry. A positive linear regression is presented for $\delta^{15}N$.

S. Table 1: Summary of breakpoint analysis using two segment piecewise linear regression for Crockacleaven, Lettercraffroe and Anarry for all variables. The segmented linear regression was trained using the age of first planting (Lettercraffroe = 1960; Crockacleaven = 1967; Anarry = 1963). The computed breakpoint (BP) is indicated, complete with 95% upper (95% BP U) and lower (95% BP L) confidence intervals and adjusted R^2 value (R^2-adj). To determine the effectiveness of breakpoint analysis conventional single linear regression and segmented linear regression were compared using ANOVA (F ratio and P value indicated).

		Diatoxanthin	Alloxanthin	Canthaxanthin	β-Carotene	UVR Index	%C	$\delta^{13}C$	$\delta^{15}N$	C/N
Crockacleaven	BP	1976	1973	1977	n/b	n/p	1901	1932	1853	1980
	95% BP U	1936	1976	1987	n/b	n/p	1914	1939	1886	1985
	95% BP L	2016	1969	1967	n/b	n/p	1887	1924	1821	1974
	R^2-adj	0.01	0.93	0.63	n/b	n/p	0.77	0.95	0.21	0.85
	F (ANOVA)	1.06	133.14	20.12	n/b	n/p	54.79	146.36	5.37	48.14
	P (ANOVA)	n/s	<0.001	<0.001	n/b	n/p	<0.001	<0.001	<0.01	<0.001
Lettercraffroe	BP	n/b	1964	1942	n/b	n/p	1923	1962	1961	1965
	95% BP U	n/b	1966	1960	n/b	n/p	1940	1967	1967	1971
	95% BP L	n/b	1962	1924	n/b	n/p	1906	1957	1954	1958
	R^2-adj	n/b	0.97	0.43	n/b	n/p	0.81	0.86	0.82	0.75
	F (ANOVA)	n/b	447.92	14.86	n/b	n/p	31.39	118.36	61.84	58.8
	P (ANOVA)	n/b	<0.001	<0.001	n/b	n/p	<0.001	<0.001	<0.001	<0.001
Anarry	BP	2001	1961	2001	n/b	1964	1851	1972	1946	1863
	95% BP U	2005	1977	2007	n/b	1980	1868	1993	1950	1870
	95% BP L	1996	1945	1994	n/b	1947	1834	1950	1938	1855
	R^2-adj	0.67	0.76	0.87	n/b	0.31	0.09	0.32	0.81	0.96
	F (ANOVA)	9.39	14.5	4.41	n/b	12.79	3.11	5.1	58.51	37.19
	P (ANOVA)	<0.001	<0.001	<0.05	n/b	<0.001	<0.1	<0.001	<0.001	<0.001

n/b = no breakpoint could be computed; n/p = variable not present in data set; n/s breakpoint not significant when compared with linear model

S. Table 2: Summary of breakpoint analysis using two segment piecewise linear regression for Carrownabanny, Fadd and Afurnagh for all variables. The segmented linear regression was trained using the age of first planting (Carrownabanny = 1960; Afurnagh = 1996; Fadd = 1998). The computed breakpoint (BP) is indicated, complete with 95% upper (95% BP U) and lower (95% BP L) confidence intervals and adjusted R^2 value (R^2-adj). To determine the effectiveness of breakpoint analysis conventional single linear regression and segmented linear regression were compared using ANOVA (F ratio and P value indicated).

		Diatoxanthin	Alloxanthin	Canthaxanthin	β-Carotene	UVR Index	%C	$\delta^{13}C$	$\delta^{15}N$	C/N
Carrownabanny	BP	1837	1983	1828	1976	1990	1921	1988	1922	1816
	95% BP U	1883	1999	1787	1996	2003	1999	1998	1934	1875
	95% BP L	1791	1967	1869	1955	1976	1843	1978	1910	1758
	R^2-adj	0.14	0.46	0.54	0.19	0.14	0.52	0.69	0.82	0.82
	F (ANOVA)	4.3	7.9	3.17	4.94	4.13	1.38	6.06	57.65	1.62
	P (ANOVA)	<0.01	<0.001	n/s	<0.01	<0.01	n/s	<0.001	<0.0001	n/s
Fadd	BP	1881	1966	1893	n/b	1992	1903	1902	1903	1929
	95% BP U	1928	2012	1917	n/b	2011	1920	1913	1936	1972
	95% BP L	1835	1920	1869	n/b	1974	1885	1892	1869	1886
	R^2-adj	0.21	0.21	0.46	n/b	-0.002	0.58	0.86	0.85	0.27
	F (ANOVA)	4.28	1.89	14.62	n/b	1.36	26.3	81.14	7.26	3.29
	P (ANOVA)	<0.01	n/s	<0.001	n/b	n/s	<0.001	<0.001	<0.001	<0.01
Afurnagh	BP	1996	2002	1998	1993	n/b	1952	1934	1950	1941
	95% BP U	2000	2007	2007	1999	n/b	1966	1953	1959	1971
	95% BP L	1991	1997	1989	1987	n/b	1937	1915	1940	1910
	R^2-adj	0.44	0.27	0.09	0.42	n/b	0.82	0.87	0.88	0.87
	F (ANOVA)	14.28	4.08	2.92	13.57	n/b	14.77	8.13	38.74	3.17
	P (ANOVA)	<0.001	<0.01	<0.05	<0.001	n/b	<0.001	<0.001	<0.001	<0.1

n/b = no breakpoint could be computed; n/p = variable not present in data set; n/s breakpoint not significant when compared with linear model