

Supplementary Material

Table S1. Key references detailing forest succession following large-scale disturbances in New Zealand. These references were used as the basis for the forest models presented in the main text (Figs. 5 and 6).

Reference	Disturbance year	Disturbance type	Original forest type	Location	Data type
Adams and Norton (1991)	Varied	Wind-throw	Conifer–broadleaf	South Westland	Stand demographics
Allen (1988)	c. 1700 AD	Fire	Mixed beech	Catlins Ecological Region	Stand demographics
Aston (1915)	1886 AD	Volcanic eruption	Conifer–broadleaf	Mt Tarawera	Direct observations
Atkinson (2004)	Not stated	Fire	Coastal–broadleaf	Northern offshore islands	Direct observations
Blaschke et al. (1992)	c. 1400 + AD	Landslide	Conifer–broadleaf	Taranaki Region	Chronosequence
Bray (1989)	Not stated	Varied	Mixed beech	Northern South Island	Direct observations
Bray et al. (1994)	c. 1975 + AD	Flooding	Conifer–broadleaf	Ronga River	Chronosequence
Bray et al. (1999)	c. 1943 + AD	Fire	Mixed beech	Golden Bay	Chronosequence
Burke (1974)	1886 AD	Volcanic eruption	Conifer–broadleaf	Mt Tarawera	Direct observations
Cameron (1960)	c. 1840 AD	Fire	Conifer–broadleaf	Whirinaki Forest	Direct observations
Carswell et al. (2012)	c. 1760 + AD	Not stated	Coastal broadleaf, mixed beech	Marlborough Sounds; Banks Peninsula	Chronosequence
Clarkson and Clarkson (1983)	1886 AD	Volcanic eruption	Conifer–broadleaf	Mt Tarawera	Historical comparisons
Cowan and McGlone (1991)	c. 1316; 1459; 1602; 1745 AD	Earthquake- induced landslide	Mixed beech	Hope River	Palaeoecological
Croker (1953)	c. 1870–1890 + AD	Fire	Conifer–broadleaf	Hutt Hills	Chronosequence
Dodson et al. (1988)	c. 6000 BP	Fire	Mixed kauri	Cape Reinga	Palaeoecological
Duncan (1993)	c. 1500 + AD	Flooding	Conifer–broadleaf	South Westland	Stand demographics
Efford et al. (2014)	1655 AD	Volcanic eruption	Conifer–broadleaf	Mt Taranaki	Stand demographics
Esler and Astridge (1974)	Varied	Varied	Conifer–broadleaf, mixed kauri	Waitakere Ranges	Chronosequence
Horrocks and Ogden (1998)	c. 1718 BP	Volcanic eruption	Conifer–broadleaf	Mt Hauhungatahi	Palaeoecological
Hosking and Hutcheson (1988)	Varied	Stand collapse	Pure beech	Kaweka Range	Stand demographics
Jane (1986)	Varied	Wind-throw	Pure beech	Canterbury	Direct observations
Lees and Neall (1993)	c. 1655 AD	Volcanic eruption	Conifer–broadleaf	Taranaki	Palaeoecological
Lusk and Ogden (1992)	c. 1200–1980 AD	Not stated	Conifer–broadleaf	Tongariro National Park	Stand demographics
Macmillan (1970)	1961 AD	Fire	Mixed beech	Reefton	Direct observations
Mark et al. (1964)	c. 1886 + AD	Landslide	Mixed beech	Fiordland	Chronosequence
Mark et al. (1989)	c. 1886 + AD	Landslide	Mixed beech	Fiordland	Chronosequence, comparison Mark et al. (1964)
McGlone and Moar (1998)	c. 2929 ± 82 BP	Fire	Mixed conifer	Mackenzie basin	Palaeoecological
McGlone et al. (1988)	c. 1500, c. 1650 AD	Volcanic eruption	Conifer–broadleaf	Mt Taranaki	Palaeoecological
McKelvey (1955)	c. 1855 + AD	Fire	Coastal broadleaf	Te Whaiti	Chronosequence
McQueen (1951)	1947 AD	Fire	Mixed beech	Tararua Ranges	Direct observations
Newnham (1992)	Varied	Fire	Mixed kauri, conifer–broadleaf	Northland	Palaeoecological
Newnham and Lowe (1991)	c. 9000 BP	Volcanic eruption	Pohutukawa, conifer–broadleaf	Auckland	Palaeoecological
Nicholls (1959)	1886 AD	Volcanic eruption	Conifer–broadleaf	Mt Tarawera	Direct observations
Ogden et al. (2005)	c. 1550 AD, c. 1740 AD	Fire, wind-throw	Conifer–broadleaf	Mt Hauhungatahi	Stand demographics
Payton et al. (1984)	c. 1844 + AD	Fire	Conifer–broadleaf	Te Urewera	Chronosequence
Richardson et al. (2014)	Not stated	Fire	Conifer–broadleaf	Te Urewera	Direct observations
Six Dijkstra et al. (1985)	Not stated	Wind-throw	Conifer–broadleaf	South Westland	Chronosequence

Table S1. Continued.

Reference	Disturbance year	Disturbance type	Original forest type	Location	Data type
Smale and Kimberley (1993)	c. 1766 + AD	Wind-throw?	Conifer–broadleaf	Mt Pureora	Chronosequence
Smale et al. (1997a)	c. 1925 – c. 1990	Landslide	Conifer–broadleaf	East Cape	Chronosequence
Smale et al. (1997b)	Varied	Not stated	Conifer–broadleaf	Mamaku plateau	Stand demographics
Smith and Lee (1984)	c. 1830, c. 1530, c. 580 AD	Flooding	Mixed beech	South Westland	Chronosequence
Stewart (1986)	Varied	Landslide and wind-throw	Mixed beech	Fiordland	Stand demographics
Stewart and Rose (1989)	c. 1600–1800 AD	Landslide and wind-throw	Conifer–broadleaf	Westland	Stand demographics
Stewart and Veblen (1982)	Not stated	Landslide	Conifer–broadleaf	Central Westland	Stand demographics
Stewart et al. (1991)	1880–1980 AD	Wind-throw	Pure beech	Maruia Valley	Stand demographics
Stewart et al. (1998)	c. 500 BP, c. 350–200 BP	Not stated	Conifer–broadleaf	South Westland	Stand demographics
Timmins (1983)	1886 AD	Volcanic eruption	Conifer–broadleaf	Mt Tarawera	Historical comparisons
Turner (1928)	1886 AD	Volcanic eruption	Conifer–broadleaf	Mt Tarawera	Direct observations
Turner et al. (2012)	c. 392–6500 BP	Earthquake-induced disturbances	Conifer–broadleaf	Haast	Chronosequence
Vittoz et al. (2001)	1968	Earthquake-induced disturbances	Mixed beech	Matiri Valley	Stand demographics
Wardle (1974)	Varied	Flooding	Conifer–broadleaf	South Westland	Chronosequence
Wardle (1977)	Varied	Varied	Conifer–broadleaf	Westland	Stand demographics, direct observations
Wardle (1980)	c. 14 000 BP	Glacial retreat	Conifer–broadleaf, mixed beech	Westland	Chronosequence
Wassilieff (1986)	1882 AD	Fire	Conifer–broadleaf	Hawkes Bay	Historical comparisons
Wells et al. (2001)	c. 1460 AD, c. 1630 AD, c. 1717 AD, 1826 AD	Earthquake-induced disturbances	Conifer–broadleaf	Westland	Stand demographics
Wilmshurst and McGlone (1996)	c. 1850 BP	Volcanic eruption	Conifer–broadleaf, mixed beech	Taupo	Palaeoecological
Wilmshurst et al. (1997)	Varied	Varied	Conifer–broadleaf	Hawkes Bay	Palaeoecological
Wiser et al. (1997)	1980 AD	Fire	Pure beech	Canterbury	Direct observations

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