

Supplementary Table of Beetle RTUs

Supplementary Table 1. Fossils beetles retrieved from the first seventeen samples from Wilson's Lead Road and their associated environments. The 18th sample is not included as it contained no identifiable beetle remains. Environmental information was collated from ¹Linsey 1959; ²Winterbourn 1970; ³Emberson & Matthews 1973; ⁴Lindroth 1976; ⁵McColl 1982; ⁶Newton 1984; ⁷Barratt & Patrick 1987; ⁸Thompson 1989; ⁹Booth et al. 1990; ¹⁰Kuschel 1990; ¹¹Chandler & Peck 1992; ¹²Lyal 1993; ¹³May 1993; ¹⁴Newton & Thayer 1995; ¹⁵Klimaszewski et al. 1996; ¹⁶Hansen 1997; ¹⁷Klimaszewski & Crosby 1997; ¹⁸Klimaszewski & Watt 1997; ¹⁹Slipinski & Lawrence 1997; ²⁰Hansen 2000; ²¹Leschen 2000; ²²Lawrence et al. 2000 onwards; ²³Chandler 2001; ²⁴Larochelle & Larivière 2001; ²⁵Löbl & Leschen 2003; ²⁶Marra 2003; ²⁷Archangelsky 2004; ²⁸Marra & Leschen 2004, ²⁹NZAC specimen label data and ³⁰LUNZ specimen label data

Sample	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15	H16	H17
Depth (m)	1.85-	1.80-	1.75-	1.70-	1.65-	1.60-	1.55-	1.50-	1.45-	1.40-	1.35-	1.30-	1.25-	1.20-	1.15-	1.10-	1.05-
Depth (m)	1.80	1.75	1.70	1.65	1.60	1.55	1.50	1.45	1.40	1.35	1.30	1.25	1.20	1.15	1.10	1.05	1.00
Taxon																	
CARABIDAE																	
<i>Bembidion</i> indet. sp.											*						
<i>Bembidion maorinum maorinum</i> Bates											*		*				
<i>Bembidion tekapoense</i> Broun											*		*				
<i>Bembidion wanakense</i> Lindroth				*													
<i>Oopterus</i> indet. sp.						*	*		*	*	*	*	*				
<i>Oopterus pallidipes</i> Broun		*	*					*	*	*							
<i>Diero chile flavipes</i>	*																
<i>Notagonium feredayi</i> Bates	*	*	*	*	*				*	*							
<i>Notogonium</i> indet. sp.										*	*	*	*	*	*		
<i>Scopodes</i> "sp. group A"	*			*	*	*		*	*	*							
<i>Scopodes</i> indet. sp.												*					
HYDROPHILIDAE																	
<i>Enochrus tritus</i> Broun			*														
<i>Paracymus pygmaeus</i> Macleay				*				*									
<i>Adolopus helmsi</i> Sharp	*	*	*	*	*				*	*	*	*	*				
Environment																	
<i>Bembidion</i> indet. sp.															Riparian ^{4, 18, 24}		
<i>Bembidion maorinum maorinum</i> Bates															Riparian, open		
<i>Bembidion tekapoense</i> Broun															ground ^{9, 18, 24}		
<i>Bembidion wanakense</i> Lindroth				*											Riparian, open		
<i>Oopterus</i> indet. sp.						*	*		*	*	*	*	*		ground ^{4, 18, 24}		
<i>Oopterus pallidipes</i> Broun		*	*					*	*	*					Forest, open		
<i>Diero chile flavipes</i>	*														vegetation ^{18, 24, 29}		
<i>Notagonium feredayi</i> Bates	*	*	*	*	*				*	*					³⁰		
<i>Notogonium</i> indet. sp.															Fell fields, forest		
<i>Scopodes</i> "sp. group A"	*			*	*			*	*	*					^{18, 24, 29}		
<i>Scopodes</i> indet. sp.															Forest ^{18, 24, 29}		
HYDROPHILIDAE															Open vegetation,		
<i>Enochrus tritus</i> Broun			*												swamps ^{18, 24, 29}		
<i>Paracymus pygmaeus</i> Macleay				*				*							Hygrophilous ^{18, 24}		
<i>Adolopus helmsi</i> Sharp	*	*	*	*	*				*	*	*				Eurytopic ^{18, 24, 29}		
															Eurytopic ^{18, 24, 29}		
															Pond or swamp ^{10, 18, 27}		
															Slow or still		
															water ^{2, 18, 20, 27, 28}		
															Moist forest ^{16, 18}		

<i>Adolopus</i> indet. sp.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	28,29
<i>Cyloma</i> "sp group B"	*	*	*	*	*	*	*	*	*	*	*	*	*						Moist forest ^{10, 16, 18,28,29}
<i>Cyloma</i> indet. sp.	*																		Moist forest ^{16, 18, 29}
<i>Sphaeridiinae</i> indet. sp.																			Moist terrestrial ^{16,18, 27,29}
<i>Tormus nitidulus</i> Broun	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Moist forest ^{16, 18, 29}
LEIODIDAE																			
<i>Isocolon modestum</i> Broun	*	*	*	*				*											Forest, swamp ^{10, 29}
Leiodidae unnamed sp.																			Forest, open grassland ^{10,11,21}
SCYDMAENIDAE																			
<i>Adrasia nelsoni</i> Franz					*	*								*					Montane grassland, shrubland ^{6,10,18, 29}
Scydmaenidae "sp group A"	*				*		*	*	*	*	*	*	*	*	*	*	*		Forest, grassland, shrubland ^{6,10,18,29}
Scydmaenidae indet. spp.														*					Forest, grassland, shrubland ^{6,10,18,29}
STAPHYLINIDAE																			
<i>Comeolabium mandibulare</i> Steel		*					*	*	*	*	*	*	*	*	*	*	*		Forest ^{14,15,18}
<i>Ischnoderus curtipennis</i> Broun	*																		Forest ^{10,14,28}
<i>Stenomalium cognatum</i> Broun	*																		Forest ^{14,29}
<i>Stenomalium</i> indet. sp.	*				*	*			*	*									Forest, beaches ^{14, 29}
<i>Dalma pubescens</i> Sharp							*							*	*				Forest ^{18,29}
<i>Eupines</i> "sp group A"	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*		Forest ^{10,15,18,23,29}
<i>Eupines</i> "sp group B"	*																		Forest ^{15,18,23,29}
<i>Eupines</i> indet. spp.					*		*	*						*					Forest ^{10,15,18,23,29}
<i>Eupines monstrosa</i> Reitter									*										Forest ^{25,23,29}
<i>Eupines ruficornis</i> Broun	*					*	*			*	*								Forest ^{15,23,29}
Pselaphinae indet. spp.									*	*	*	*	*	*	*	*			Forest ^{18,23}
<i>Pselaphus</i> indet. sp.									*	*	*	*	*	*	*	*			Forest, grassland ^{10,18,23,29}
<i>Sagola</i> indet. sp.					*		*							*					Euytopic ^{10,18,23,29}

<i>Hybosius</i> "sp group A"					*											Eurytopic ^{1,9,28,29}
CHRYSOMELIDAE																
<i>Adoxia</i> indet. sp.	*	*		*												Swamp, forest, shrubs ^{9, 10, 18, 29}
<i>Chrysomelidae</i> indet. sp. 1	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Low vegetation ^{9,} ¹⁸
<i>Chrysomelidae</i> indet. sp. 2	*		*			*										Low vegetation ^{9,} ¹⁸
<i>Caccomolpus cinctiger</i> Broun			*													Eurytopic ^{9,18,29}
CURCULIONIDAE																
<i>Areocryptus</i> indet. sp.															*	Specific to <i>Rhopalostylis</i> <i>sapida</i> = coastal forest ^{13,29}
<i>Cryptorychini</i> indet. spp.	*	*		*	*	*	*	*	*	*	*	*	*	*	*	Forest ^{12,13,26}
<i>Areoscapus</i> indet. sp.										*						Unknown (probably forest) ²⁹
<i>Areoscapus estriatus</i> Broun	*															Forest ²⁹
<i>Areoscapus subcostatus</i> Broun					*	*										Forest ²⁹
<i>Bryocatus amplus</i> Broun									*							Moss, sea-level to 1400m ^{13,29}
<i>Oreocalus latipennis</i> Broun			*													Specific to <i>Hebe</i> = open vegetation or forest margin ^{13,18}
<i>Phemus</i> indet. sp.	*			*	*	*	*	*	*	*	*	*	*			Forest ²⁹
<i>Gromilus</i> indet. sp.			*	*	*	*	*	*	*	*	*	*	*			Forest, grassland ^{10,13,18,29}
<i>Irenimus</i> indet. sp.	*	*	*	*	*	*				*	*	*				Forest edge, grassland ^{13,18,26,} ²⁸