Attachment 1

Sarah Ensor

From: Rogan Colbourne
Sent: Monday, 14 April 2025 3:43 pm
To: Sandy Yong
Subject: Kiwi Call Scheme information Canterbury

Hi Sandy, here is the historic kiwi call scheme records for Canterbury 1986- 2001. Not so many records from Lewis Pass area, only Nina, Doubtless River, Doubtless Hut. Very low call rates.
Perhaps s.9(2)(a) may have information from there more recent survey. I don't think great spotted kiwi were ever recorded by early explorers in the greater Lewis Pass area.

Cheers Rogan

CARD	OBSERV	DATE	LOCALITY	SERIES	SHEET	EAST	NORTH	CALLS	LISTEN	CALL
107	K HOLDER	02/09/86	CANTERBURY ARTHURS PASS VILLAGE MAIN	001	59	5056	6288	2	15	8.00
108	K HOLDER	01/09/86	CANTERBURY ARTHURS PASS GOAT PASS HUT	001	59	5112	6333	5	30	10.00
125	CFJ O'DONNELL	02/12/86	CANTERBURY ARTHURS PASS UPPER POULTER	001	59	5308	6388	3	30	6.00
126	JWA CARROLL	02/12/86	CANTERBURY ARTHURS PASS THOMPSON VALLEY	001	59	5335	6427	5	115	2.61
127	J W A CARROLL	03/12/86	CANTERBURY ARTHURS PASS THOMPSON VALLEY	001	59	5335	6427	7	140	3.00
128	C F J O'DONNELL	03/12/86	CANTERBURY ARTHURS PASS POULTER VALLEY	001	059	5254	6393	0	15	0.00
129	J W A CARROLL	04/11/86	CANTERBURY ARTHURS PASS POULTER VALLEY	001	059	5325	6341	0	20	0.00
130	C F J O'DONNELL	24/11/86	CANTERBURY ARTHURS PASS POULTER VALLEY	001	059	5325	6341	0	30	0.00
131	C F J O'DONNELL	25/11/86	CANTERBURY ARTHURS PASS POULTER VALLEY	001	059	5325	6341	0	20	0.00
132	P E PEARSON	26/11/86	CANTERBURY ARTHURS PASS POULTER VALLEY	001	059	5325	6341	0	15	0.00
133	N T PHILLIPS	27/11/86	CANTERBURY ARTHURS PASS POULTER VALLEY	001	059	5325	6341	0	15	0.00
134	C F J O'DONNELL	12/12/86	CANTERBURY ARTHURS PASS TOWNSHIP.	001	059	5058	6273	0	30	0.00
135	B R FRASER	11/01/87	CANTERBURY ARTHURS PASS BEALEY TRACK	001	059	5059	6275	1	15	4.00
136	J W A CARROLL	13/01/87	CANTERBURY ARTHURS PASS HAWDON VALLEY	001	059	5212	6322	1	30	2.00
358	J CARROLL	17/11/87	CANTERBURY, ARTHURS PASS, COX RIVER	001	059	5420	6335	1	120	0.50
359	J CARROLL	18/11/87	CANTERBURY, ARTHURS PASS, COX RIVER	001	S59	5420	6335	0	180	0.00
573	MA HARDING	16/02/88	CANTERBURY ARTHUR'S PASS, ROUGH CREEK	001	059	5057	6276	0	25	0.00
574	MA HARDING	26/03/88	CANTERBURY ARTHUR'S PASS, SUDDEN VALLEY	001	029	5194	6248	1	160	0.38
575	MA HARDING	27/03/88	CANTERBURY ARTHUR'S PASS, HAWDON VALLEY	001	029	5218	6345	1	110	0.55
576	MA HARDING	01/05/88	CANTERBURY ARTHUR'S PASS, MINGHA RIVER	001	059	5116	6310	3	165	1.09
577	MA HARDING	30/04/88	CANTERBURY ARTHUR'S PASS , DECEPTION RIVER	001	059	5110	6338	12	160	4.50
605	M A HARDING	15/12/87	CANTERBURY ARTHURS PASS VILLAGE FLAT 1	001	059	5057	6276	1	40	1.50

606	M A HARDING	10/01/88	CANTERBURY ARTHURS PASS VILLAGE ROUGH CK	001	059	5057	6276	1	24	2.50
607	M A HARDING	12/01/88	CANTERBURY ARTHURS PASS ROUGH CK	001	059	5057	6276	1	45	1.33
608	MA HARDING	22/01/88	CANTERBURY ARTHURS PASS THOMSON STREAM	001	059	5342	6460	1	60	1.00
609	MA HARDING	23/01/88	CANTERBURY ARTHURS PASS TOWNSEND HUT	001	059	5248	6485	2	50	2.40
610	MA HARDING	25/01/88	CANTERBURY ARTHURS PASS ROUGH CREEK	001	059	5057	6276	2	60	2.00
611	MA HARDING	26/01/88	CANTERBURY ARTHURS PASS ROUGH CREEK	001	059	5057	6276	1	42	1.43
612	M HARDING + E NEPIA	02/02/88	CANTERBURY ARTHURS PASS ROUGH CREEK	001	059	5057	6276	0	50	0.00
613	MA HARDING	07/02/88	CANTERBURY ARTHURS PASS ROUGH CREEK	001	059	5057	6276	1	40	1.50
614	JA BROWN	04/06/88	CANTERBURY ARTHURS PASS OTIRA DECEPTION	001	059	5124	6355	4	210	1.14
665	JWA CARROLL	18/07/88	CANTERBURY ARTHURS PASS TEMPLE BASIN 4WD	001	059	5056	6323	4	240	1.00
666	M HARDING	18/07/88	CANTERBURY ARTHURS PASS MARGARETS TARN	001	059	5047	6316	5	240	1.25
667	JWA CARROLL	19/07/88	CANTERBURY ARTHURS PASS MT CASSIDY	001	059	5055	6307	2	240	0.50
668	JWA CARROLL	20/07/88	CANTERBURY ARTHURS PASS AVALANCHE PEAK	001	059	5047	6298	7	240	1.75
669	JWA CARROLL	02/08/88	CANTERBURY ARTHURS PASS MT AICKEN TRACK	001	059	5063	6293	10	240	2.50
670	BT TAYLOR	02/08/88	CANTERBURY ARTHURS PASS AVALANCHE PK	001	059	5051	6284	9	240	2.25
671	JWA CARROLL	25/07/88	CANTERBURY ARTHURS PASS MT BEALEY	001	059	5055	6275	1	240	0.25
672	M HARDING	02/08/88	CANTERBURY ARTHURS PASS GRAHAM STREAM	001	059	5065	6272	0	240	0.00
673	M HARDING	21/07/88	CANTERBURY ARTHURS PASS HALPINS CK	001	059	5073	6247	0	240	0.00
674	JWA CARROLL	21/07/88	CANTERBURY ARTHURS PASS HALPIN CK	001	059	5077	6238	3	300	0.60
731	MA HARDING	21/11/88	CANTERBURY ARTHURS PASS POULTER RIVER	001	059	5322	6356	0	75	0.00
732	MA HARDING	22/11/88	CANTERBURY ARTHURS PASS COX RIVER	001	059	5365	6494	6	150	2.40
733	MA HARDING	23/11/88	CANTERBURY LAKE SUMNER SOUTH BRANCH	001	059	5437	6497	1	80	0.75
734	MA HARDING	29/11/88	CANTERBURY ARTHURS PASS VILLAGE ROUGH	001	059	5057	6276	1	63	0.95
735	MA HARDING	09/01/89	CANTERBURY WILBERFORCE RIVER BELOW	001	058	4860	6265	0	70	0.00
736	MA HARDING	11/01/89	CANTERBURY ARTHURS PASS DUNNS CK HUT	001	058	4937	6414	0	34	0.00
737	MA HARDING	26/01/89	CANTERBURY ARTHURS PASS OLD ANTICROW	001	059	5004	6216	0	70	0.00
738	MA HARDING	09/02/89	CANTERBURY ARTHURS PASS POULTER BIV	001	059	5243	6436	4	120	2.00
739	MA HARDING	10/02/89	CANTERBURY ARTHURS PASS KOROPUKU VALLEY	001	059	5213	6444	1	60	1.00
740	MA HARDING	07/03/89	CANTERBURY ARTHURS PASS BULL CK	001	060	5464	6454	0	60	0.00
780	MA HARDING	04/04/89	CANTERBURY ARTHURS PASS MINGHA VALLEY	001	59	5116	6307	7	130	3.23
781	MA HARDING	05/04/89	CANTERBURY ARTHURS PASS MINGHA VALLEY	001	59	5116	6307	2	75	1.60
782	MA HARDING	20/04/89	CANTERBURY ARTHURS PASS CASEY STREAM	001	59	5282	6351	1	160	0.38
842	R STOCKER	14/04/90	CANTERBURY L SUMNER-TUTAEKURI SF	001	53	5458	6682	0	180	0.00
878	CR PICKARD	16/04/90	CANTERBURY LEWIS PASS ADA RIVER CANNIBAL	001	46	5842	7035	0	30	0.00
964	JA BROWN	15/08/90	CANTERBURY ARTHURS PASS EDWARDS HUT	001	59	5132	6285	1	30	2.00
965	JA BROWN	17/08/90	CANTERBURY ARTHURS PASS EDWARDS HUT	001	59	5132	6285	1	30	2.00
984	S FRIMMEL	11/11/90	CANTERBURY ARTHURS PASS WAIMAKARIRI	001	58	4953	6261	0	45	0.00
1092	NT PHILLIPS	09/03/88	CANTERBURY ARTHURS PASS NORTH LIMIT OF	001	59	5053	6292	1	30	2.00
1401	MA HARDING	02/01/92	CANTERBURY LAKE SUMNER HOPE R BELOW KIWI	001	53	5671	6664	0	75	0.00
1402	MA HARDING	03/01/92	CANTERBURY LAKE SUMNER MCMILLAN STREAM	001	53	5538	6583	0	60	0.00

1406	RV STOCKER	14/04/90	CANTERBURY LAKE SUMNER SF MT AJAX TOPS BY	001	53	5496	6718	0	120	0.00
1407	RV STOCKER	13/04/90	CANTERBURY LAKE SUMNER TUTAEKURI R FLATS	001	53	5461	6681	0	120	0.00
1408	RV STOCKER	09/03/91	CANTERBURY LEWIS PASS GRAND DUCHESS	001	46	5713	6904	0	180	0.00
1409	RV STOCKER	11/01/92	CANTERBURY ARTHURS PASS OTIRA GOAT HILL	001	59	5077	6407	5	150	2.00
1454	MA HARDING	13/03/92	CANTERBURY ARTHURS PASS HAWDON RIVER/	260	K33	24066	58098	3	60	3.00
1573	SM PHILIPSON	23/06/92	CANTERBURY ARTHURS PASS TARAMAKAU RIVER	260	K33	24061	58271	1	150	0.40
1574	SM PHILLIPSON	24/06/92	CANTERBURY ARTHURS PASS TARAMAKAU	260	K33	24063	58268	2	90	1.33
1575	SM PHILLIPSON	25/06/92	CANTERBURY ARTHURS PASS TARAMAKAU	260	K33	24083	58268	1	75	0.80
1576	J MCLENNAN	25/06/92	CANTERBURY ARTHURS PASS TARAMAKAU RIVER	260	K33	24076	58269	2	60	2.00
1867	LYALL/MCLENNAN/ERICKSEN	03/08/92	CANTERBURY ARTHURS PASS UPPER DECEPTION	260	K33	23972	58127	0	65	0.00
1868	LYALL/MCLENNAN/ERICKSEN	04/08/92	CANTERBURY ARTHURS PASS UPPER DECEPTION	260	K33	23970	58127	0	95	0.00
1869	MCLENNAN/LYALL/ERICKSEN	05/08/92	CANTERBURY ARTHURS PASS UPPER DECEPTION	260	K33	23970	58127	0	97	0.00
2163	WM KING	11/11/92	CANTERBURY LAKE SUMNER HURUNUI R/	001	52	5426	6565	1	60	1.00
2164	CB WOOLMORE	12/11/92	CANTERBURY LAKE SUMNER HURUNUI R/	001	52	5426	6570	2	60	2.00
2165	WM KING	11/11/92	CANTERBURY LAKE SUMNER HURUNUI CAMERON	001	52	5431	6551	3	60	3.00
2166	CB WOOLMORE	10/11/92	CANTERBURY LAKE SUMNER HURUNUI R	001	52	5441	6569	5	90	3.33
2167	WM KING	10/11/92	CANTERBURY LAKE SUMNER HURUNUI R NO3	001	52	5439	6559	1	120	0.50
2168	WM KING	09/11/92	CANTERBURY LAKE SUMNER HURUNUI R	001	52	5416	6575	7	105	4.00
2169	CB WOOLMORE	09/11/92	CANTERBURY LAKE SUMNER HURUNUI CAMERON	001	52	5414	6569	2	120	1.00
2170	AD GRANT/ G SPIERS	09/11/92	CANTERBURY LAKE SUMNER HURUNUI R/WHIO	001	52	5398	6568	3	120	1.50
2171	AD GRANT/ G SPIERS	09/11/92	CANTERBURY LAKE SUMNER HURUNUI R/ CAMP	001	52	5414	6568	4	90	2.67
2172	AD GRANT/MJ RUTLEDGE	11/11/92	CANTERBURY LAKE SUMNER HURUNUI R	001	52	5441	6589	6	60	6.00
2173	MJ RUTLEDGE	10/11/92	CANTERBURY LAKE SUMNER HURUNUI R NO3	001	52	5444	6584	3	120	1.50
2174	AD GRANT/ MJ RUTLEDGE	11/11/92	CANTERBURY LAKE SUMNER HURUNUI/	001	52	5439	6539	2	60	2.00
2175	AD GRANT/G SPIERS	10/11/92	CANTERBURY LAKE SUMNER HURUNUI	001	53	5466	6605	5	273	1.10
2176	AD GRANT/ G SPIERS	10/11/92	CANTERBURY LAKE SUMNER HURUNUI	001	53	5459	6589	3	60	3.00
2177	AD GRANT/ G SPIERS	10/11/92	CANTERBURY LAKE SUMNER HURUNUI R	001	53	5468	6597	1	60	1.00
2316	J LYALL	07/12/92	CANTERBURY MT SOMERS HOOKEY KNOB *	001	81	5913	5436	0	184	0.00
2317	J LYALL	08/12/92	CANTERBURY MT SOMERS HOOKEY KNOB	001	81	5913	5436	0	147	0.00
2345	SM PHILLIPSON	14/12/93	CANTERBURY ARTHURS PASS DECEPTION RIVER	260	K33	23970	58128	0	120	0.00
2346	SC BARNETT	17/04/93	CANTERBURY ARTHURS PASS CROW RIVER HUT	260	K33	23890	58060	1	140	0.43
2347	SM PHILLIPSON	15/12/93	CANTERBURY ARTHURS PASS MINGHA RIVER BIV	260	K33	23981	58085	2	60	2.00
2348	HA / LD ROBERTSON	07/02/94	CANTERBURY ARTHURS PASS HALLELUJAH FLAT	260	L33	24137	58062	1	60	1.00
2349	HA / LD ROBERTSON	09/02/94	CANTERBURY ARTHURS PASS CASEY HUT 50M	260	L33	24172	58118	1	60	1.00
2350	HA /LD ROBERTSON	10/02/94	CANTERBURY ARTHURS PASS POULTER R/PETE	260	L33	24188	58007	0	60	0.00
2351	CM MISKELLY	10/12/93	CANTERBURY ARTHURS PASS EDWARDS R	001	59	5131	6285	6	60	6.00
2352	AD GRANT / MJ THOMSON	14/03/94	CANTERBURY PUKETERAKI RA PANHANDLE STM	260	L33	24485	58036	0	135	0.00
2353	AD GRANT / MJ THOMPSON	15/03/94	CANTERBURY PUKETERAKI RA ASHLEY R	260	L34	24427	57979	2	175	0.69
2354	AD GRANT / NJ THOMPSON	14/03/94	CANTERBURY PUKETERAKI RA ASHLEY R	260	L33	24456	58045	0	90	0.00
2355	JC KEARVELL	15/02/94	CANTERBURY NORTH ESK R HEADWATERS	260	L33	24339	58239	0	60	0.00

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2356	G SPEIRS	14/02/94	CANTERBURY NORTH ESK R	260	L33	24369	58225	0	120	0.00
2357	JC KEARVELL	15/02/94	CANTERBURY NORTH ESK R HEADWATERS	260	L33	24336	58233	0	120	0.00
2358	AD GRANT/SC ROSS	14/02/93	CANTERBURY NORTH ESK R CROSSLEY STM	260	L33	24371	58237	0	120	0.00
2359	AD GRANT	15/02/94	CANTERBURY NORTH ESK R HEADWATERS	260	L33	24349	58234	0	120	0.00
2360	GS SPEIRS	15/02/94	CANTERBURY NORTH ESK R SPUR ABOVE BIVI	260	L33	24330	58224	0	90	0.00
2383	AD GRANT/N BOOCOCK/J	22/11/93	CANTERBURY HURANUI R STH BRANCH STONY	260	L33	24363	58264	0	90	0.00
2384	AD GRANT/N BOOCOCK/J	22/11/93	CANTERBURY HURANUI R STH BRANCH STONY	260	L33	24366	58274	0	60	0.00
2385	AD GRANT/N BOOCOCK/H	22/11/93	CANTERBURY HURANUI R STH BRANCH STONY	260	L33	24364	58255	0	90	0.00
2386	JC KEAVELL	23/11/93	CANTERBURY HURUNUI R STH BRANCH HUT 2	260	L33	24289	58276	7	120	3.50
2387	JC KEAVELL	23/11/93	CANTERBURY HURUNUI R STH BRANCH HUT 1 KM	260	L33	24281	58271	3	90	2.00
2388	JC KEAVELL	23/11/93	CANTERBURY HURUNUI R STH BRANCH HUT	260	L33	24273	58269	0	75	0.00
2389	NJ BOOCOCK	23/11/93	CANTERBURY HURUNUI R STH BRANCH	260	L33	24265	58259	1	70	0.86
2390	NJ BOOCOCK	23/11/93	CANTERBURY HURUNUI R STH BRANCH	260	L33	24261	58259	0	90	0.00
2391	NJ BOOCOCK	23/11/93	CANTERBURY HURUNUI R STH BRANCH	260	L33	24269	58265	2	10	12.00
2392	NJ BOOCOCK	23/11/93	CANTERBURY HURUNUI R STH BRANCH	260	L33	24268	58261	0	60	0.00
2393	AD GRANT	23/11/93	CANTERBURY HURUNUI R STH BRANCH HUT	260	L33	24296	58268	1	90	0.67
2394	AD GRANT	23/11/93	CANTERBURY HURUNUI R STH BRANCH HUTAHA	260	L33	24288	58268	0	90	0.00
2395	NJ BOOCOCK	24/11/93	CANTERBURY HURUNUI R STH BRANCH	260	L33	24346	58291	4	120	2.00
2396	NJ BOOCOCK	24/11/93	CANTERBURY HURUNUI R STH BRANCH	260	L33	24351	58292	4	60	4.00
2397	AD GRANT	24/11/93	CANTERBURY STH BRANCH HURUNUI STONY CK	260	L33	24348	58286	0	120	0.00
2398	NJ BOOCOCK	24/11/93	CANTERBURY STH BRANCH HURUNUI R	260	L33	24354	58290	8	60	8.00
2399	JC KEARVELL	24/11/93	CANTERBURY STH BRANCH HURUNUI R STONY	260	L33	24384	58283	2	120	1.00
2400	AD GRANT	24/11/93	CANTERBURY STB BRANCH HURUNUI R STONEY	260	L33	24354	58280	0	84	0.00
2401	JC KEARVELL	24/11/93	CANTERBURY STH BRANCH HURUNUI R STONEY	260	L33	24373	58287	0	90	0.00
2402	JC KEARVELL	25/11/93	CANTERBURY NTH ESK R BUSH CAMP HUT	260	L33	24400	58213	1	120	0.50
2403	AD GRANT	26/11/93	CANTERBURY NTH ESK R BUSH CAMP HUT AREA	260	L33	24398	58209	0	90	0.00
2404	NJ BOOCOCK	25/11/93	CANTERBURY NTH ESK R BUSH CAMP HUT	260	L33	24412	58219	0	60	0.00
2405	AD GRANT	25/11/93	CANTERBURY STH BRANCH HURUNUI R STH	260	L33	24274	58265	2	60	2.00
2406	NJ BOOCOCK	25/11/93	CANTERBURY NTH ESK R BUSH CAMP HUT	260	L33	24408	58223	2	60	2.00
2407	S CROSS	15/02/94	CANTERBURY NTH ESK R HEADWATERS	260	L33	24321	58236	0	120	0.00
2408	WM KING	14/02/94	CANTERBURY NTH ESK R KENNEDY STM MOUTH	260	L33	24374	58220	0	120	0.00
2409	WM KING	15/02/94	CANTERBURY NTH ESK R TRUE RIGHT	260	L33	24346	58215	0	60	0.00
2410	WM KING	15/02/94	CANTERBURY NTH ESK R TRUE RIGHT DOWN STM	260	L33	24343	58223	0	60	0.00
2416	MA HARDING	27/02/93	CANTERBURY LAKE SUMNER FOREST HURUNUI	1	52	5355	6546	2	70	1.71
2417	MA HARDING	18/12/92	CANTERBURY ARTHURS PASS THOMPSON VALLEY	260	L33	24172	58264	4	110	2.18
2418	MA HARDING	19/12/92	CANTERBURY ARTHURS PASS MINCHIN STM	260	L33	24126	58229	1	90	0.67
2419	MA HARDING	19/12/92	CANTERBURY ARTHURS PASS POULTER VALLEY	260	L33	24105	58166	0	60	0.00
2420	MA HARDING	15/12/92	CANTERBURY ARTHURS PASS CASEY STM	260	L33	24132	58127	0	65	0.00
2421	MA HARDING	10/03/93	CANTERBURY ARTHURS PASS LAKE	260	K33	24033	58237	2	120	1.00
2422	AH HARDING	01/05/92	CANTERBURY ARTHURS PASS UPPER	260	K33	23845	58074	0	68	0.00

2423	MA HARDING	07/06/92	CANTERBURY ARTHURS PASS MINGHA VALLEY	260	K33	23982	58086	1	240	2.75
2424	MA HARDING	25/11/92	CANTERBURY ARTHURS PASS EAST EDWARDS R	260	K33	24009	58041	0	70	0.00
2425	HA & LD ROBERTSON	08/02/94	CANTERBURY ARTHURS PASS TRUST/POULER	260	L33	24155	58164	7	60	7.00
2456	AD GRANT	15/02/94	CANTERBURY ARTHURS PASS NORTH ESK R	260	L33	24345	58230	0	120	0.00
2670	D BARKER	06/12/92	WESTLAND ARTHURS PASS HARPERS PASS	001	S52	5338	6543	8	120	4.00
2671	D BARKER	09/02/93	WESTLAND ARTHURS PASS TARAMAKAU R LOCKE	001	S52	5301	6535	0	60	0.00
2672	D BARKER	05/12/92	WESTLAND ARTHURS PASS TARAMAKAU R LOCKE	001	S52	5308	6527	0	120	0.00
2685	D BARKER	06/02/93	WESTLAND ARTHURS PASS TARAMAKAU R	001	S52	5322	6535	0	120	0.00
2823	TJF	16/02/93	WESTLAND ARTHURS PASS NP KELLY RA CARROU	001	S59	5044	6465	3	60	3.00
2824	JR FRASER	09/01/93	WESTLAND ARTHURS PASS LAKE KAURAPATAKA	001	S59	5183	6472	7	120	3.50
2825	M HILHORST	09/01/93	WESTLAND ARTHURS PASS LAKE KAURAPATAKA	001	S59	5715	6471	2	150	0.80
2826	M HILHORST	11/01/93	WESTLAND ARTHURS PASS OTEHAKE R WEST	001	S59	5185	6388	0	65	0.00
2827	JR FRASER	11/01/93	WESTLAND ARTHURS PASS OTEHAKE R UPPER	001	S59	5188	6386	5	60	5.00
2828	JR FRASER	12/01/93	WESTLAND ARTHURS PASS MID OTAHAKE R	001	S59	5184	6446	0	120	0.00
2829	M HILHORST	12/01/93	WESTLAND ARTHURS PASS OTEHAKE R N OF	001	S59	5182	6449	0	90	0.00
2996	LYALL/HALL	19/11/92	WESTLAND ARTHURS PASS DECEPTION R *	260	K33	23981	58200	0	28	0.00
2997	LYALL.HALL	19/11/92	WESTLAND ARTHURS PASS DECEPTION R*	260	K33	23980	58202	2	38	3.16
2998	LYALL/HALL	19/11/92	WESTLAND ARTHURS PASS DECEPTION R	260	K33	23982	58202	1	70	0.86
7426	W M KING	11/01/94	CANTERBURY LEWIS PASS BOYLE R BOYLE FLATS	260	M32	24650	58595	0	120	0.00
7427	W M KING	18/11/92	CANTERBURY MARUIA R RT BRANCH ADA PASS	260	M31	24664	58785	0	90	0.00
7428	G STEVEN L SHAND	10/01/94	CANTERBURY LEWIS PASS NINA R	260	M32	24541	58602	0	140	0.00
7429	G W PHELPS D R M COUNE	12/01/94	CANTERBURY LEWIS PASS NINA R DEVILSKIN BIV	260	M32	24524	58577	0	120	0.00
7430	K M DENNISON J THOMSON	10/01/94	CANTERBURY LEWIS PASS NINA R	260	M32	24535	58601	0	120	0.00
7431	F WATSON	10/01/94	CANTERBURY LEWIS PASS NINA R	260	M32	24533	58599	0	150	0.00
7432	L H SHAND	12/01/94	CANTERBURY LEWIS PASS NINA R NINA BIV/NINA	260	M32	24528	58595	0	125	0.00
7433	C CAHN F WATSON	12/01/94	CANTERBURY LEWIS PASS NINA R NINA BIV	260	M32	24521	58596	0	120	0.00
7434	K DENNISON G STEVEN	12/01/94	CANTERBURY LEWIS PASS NINA R OPPO	260	M32	24524	58598	0	120	0.00
7435	G K STEVEN	11/01/94	CANTERBURY LEWIS PASS NINA R NINA BIV	260	M32	24503	58597	0	125	0.00
7436	G W PHELPS D R M COUNE	11/01/94	CANTERBURY LEWIS PASS NINA R	260	L32	24495	58583	0	120	0.00
7437	G W PHELPS D R M COUNE	10/01/94	CANTERBURY LEWIS PASS NINA R DUCHESS	260	M31	24546	58608	0	120	0.00
7438	M A HARDING J THOMPSON	12/01/94	CANTERBURY LEWIS PASS NINA R NINA HUT	260	M31	24532	58610	0	120	0.00
7439	M A HARDING	10/01/94	CANTERBURY LEWIS PASS NINA R NINA HUT	260	M31	24542	58605	0	130	0.00
7440	F WATSON C KAHN	13/01/94	CANTERBURY LEWIS PASS NINA R LUCRETIA STR	260	M31	24564	58603	0	140	0.00
7441	D R M COUNE G W PHELPS	13/01/94	CANTERBURY LEWIS PASS NINA R	260	M31	24563	58603	0	90	0.00
7442	M A HARDING	13/01/94	CANTERBURY LEWIS PASS NINA R LOWER NINA	1	46	5795	6854	0	135	0.00
7443	K M DENNISON	11/01/94	CANTERBURY LEWIS PASS NINA R NINA BIV	1	46	5695	6855	0	120	0.00
7444	F WATSON C KAHN	11/01/94	CANTERBURY LEWIS PASS NINA R NINA BIV	1	46	5684	6844	0	160	0.00
7445	L H SHAND J THOMSON	13/01/94	CANTERBURY LEWIS PASS NINA R LUCRETIA STR	260	M31	24585	58611	0	120	0.00
7446	G STEVEN K DENNISON	13/01/94	CANTERBURY LEWIS PASS NINA R LUCRETIA STR	260	M31	24564	58612	0	120	0.00
7447	M SPURR F VAN	23/01/94	CANTERBURY LEWIS PASS DOUBTLESS R	260	L32	24466	58536	1	120	0.50

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7448	M DICKEY P K RUSSELL	23/01/94	CANTERBURY LEWIS PASS DOUBTLESS R	260	L32	24466	58537	0	120	0.00
7449	J THOMSON M DYSART	23/01/94	CANTERBURY LEWIS PASS DOUBTLESS R	260	L32	24466	58535	0	80	0.00
7450	M SPURR B WILMSHURST	24/01/94	CANTERBURY LEWIS PASS DOUBTLESS R	260	L32	24471	58552	0	135	0.00
7451	S J S CONDLIFFE J I	24/01/94	CANTERBURY LEWIS PASS DOUBTLESS R	260	L32	24464	58567	0	120	0.00
7452	L H SHAND	24/01/94	CANTERBURY LEWIS PASS DOUBTLESS R	260	L32	24463	58544	0	135	0.00
7453	F VAN WYNGAARDEN M	22/01/94	CANTERBURY LEWIS PASS DOUBTLESS R	260	L32	24463	58534	2	150	0.80
7454	P K RUSSELL M T TREMEWAN	22/01/94	CANTERBURY LEWIS PASS DOUBTLESS R	260	L32	24461	58535	0	120	0.00
7455	S J S CONDLIFFE J TOMPSON	22/01/94	CANTERBURY LEWIS PASS DOUBTFUL R	260	L32	24464	58531	0	120	0.00
7456	B W WILMSHURST M SPURR	22/01/94	CANTERBURY LEWIS PASS DOUBTFUL R	260	L32	24460	58531	0	120	0.00
7457	M C DYSART J D MCMILLAN	24/01/94	CANTERBURY LEWIS PASS DOUBTFUL R	260	L32	24441	58534	2	150	0.80
7458	L H SHAND	22/01/94	CANTERBURY LEWIS PASS DOUBTFUL R	260	L32	24454	58532	0	120	0.00
7459	M TREMEWAN P K RUSSELL	24/01/94	CANTERBURY LEWIS PASS DOUBTFUL R	260	L32	24448	58541	0	130	0.00
7460	F VAN WYNGAARDEN M	24/01/94	CANTERBURY AMURI PASS PHANTOM FLAT	260	L32	24443	58545	0	150	0.00
7461	M A HARDING	11/01/94	CANTERBURY LEWIS PASS NINA VALLEY	260	L32	24488	58595	0	150	0.00
7462	L H SHAND	11/01/94	CANTERBURY LEWIS PASS NINA R NINA BIV		L32	24482	58594	0	135	0.00
7463	L H SHAND	25/01/94	CANTERBURY LEWIS PASS DOUBTFUL R HOULT	260	L32	24493	58517	0	135	0.00
7464	M DYSART D MCMILLAN	25/01/94	CANTERBURY LEWIS PASS DOUBTFUL R	260	L32	24494	58523	0	150	0.00
7465	F VAN WYNGAARDEN M	25/01/94	CANTERBURY LEWIS PASS DOUBTFUL R	260	L32	24484	58523	0	120	0.00
7466	P K RUSSELL	25/01/94	CANTERBURY LEWIS PASS DOUBTFUL R	260	L32	24475	58525	0	120	0.00
7467	M T TREMEWAN	25/01/94	CANTERBURY LEWIS PASS DOUBTFUL R KEDRON	260	L32	24474	58529	0	115	0.00
7468	S J S CONDLIFFE J I	25/01/94	CANTERBURY LEWIS PASS DOUBTFUL R LAKE	260	L32	24463	58510	0	135	0.00
7469	M SPURR B WILMSHURST	25/01/94	CANTERBURY LEWIS PASS DOUBTFUL R	260	L32	24481	58534	0	100	0.00
7470	B WILMSHURST L SHAND	23/01/94	CANTERBURY LEWIS PASS DOUBTLESS R	260	L32	24467	58535	0	90	0.00
7471	S L CROSS	30/03/93	CANTERBURY LAKE SUMNER DOUBTFUL R LAKE	001	S53	5667	6773	1	83	0.72
7472	G SPEIRS	08/12/92	CANTERBURY LAKE SUMNER HOPE R FOIBLE STR	001	S53	5612	6731	0	75	0.00
7473	A J LINDORES D B BASS	24/01/96	CANTERBURY ARTHURS PASS MINCHIN PASS BIV	260	L33	24125	58232	5	120	2.50
7474	K A MACKAY	24/01/96	CANTERBURY ARTHURS PASS LAKE MINCHIN	260	K33	24147	58205	4	120	2.00
7475	A J LINDORES	25/01/96	CANTERBURY ARTHURS PASS POULTER R	260	L33	24102	58166	6	120	3.00
7476	A J LINDORES	26/01/96	CANTERBURY ARTHURS PASS TRUST/POULTER	260	L33	24155	58164	3	120	1.50
7477	A J LINDORES	27/01/96	CANTERBURY ARTHURS PASS THOMPSON SLIP	260	L33	24179	58196	10	120	5.00
7478	A J LINDORES	28/01/96	CANTERBURY ARTHURS PASS ANDREWS ST	260	L33	24136	58063	2	120	1.00
7550	P A VAN KLINK	07/06/99	WESTLAND ARTHURS PASS NP OTIRA VLY	260	K33	23976	58206	1	30	2.00
7576	S J T LEWIS	27/04/99	WESTLAND ARTHURS PASS TARAMAKAU RIVER	260	K33	24098	58251	1	105	0.57
7578	S J T LEWIS	04/12/98	CANTERBURY ARTHURS PASS WAIMAK RIVER ANTI	260	K34	23878	58002	0	120	0.00
7579	S J T LEWIS	24/02/98	WESTLAND ARTHURS PASS NP KOROPUKU HUT	260	K33	24065	58209	4	120	2.00
7604	A D GRANT	23/09/96	CANTERBURY LAKE SUMNER HOPE R	260	L32	24418	58455	0	120	0.00
7605	A D GRANT	24/09/97	CANTERBURY LAKE SUMNER HOPE R/HOT	260	L32	24405	58458	0	120	0.00
7606	J C KEARVELL	23/09/96	CANTERBURY HOPE RIVER VALLEY	260	L32	24424	58457	0	120	0.00
7607	J C KEARVELL	24/09/96	CANTERBURY LAKE SUMNER HOPE R VALLEY ST	260	L32	24392	58442	0	120	0.00
7608	J C KEARVELL	25/09/96	CANTERBURY HOPE RIVER VALLEY ST JACOBS	260	L32	24465	58465	0	120	0.00

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7609	J C KEARVELL	26/09/96	CANTERBURY HOPE RIVER VALLEY ST JACOBS	260	L32	24473	58439	0	120	0.00
7610	J C KEARVELL	26/09/96	CANTERBURY HOPE RIVER VALLEY ST JACOBS	260	L32	24474	58448	1	120	0.50
7612	A M SPENCER	25/09/96	CANTERBURY HOPE RIVER SOUTH OF ST JACOBS	260	L32	24479	58450	0	120	0.00
7613	A G VAN DIJK	26/09/96	CANTERBURY HOPE RIVER	260	L32	24458	58458	0	120	0.00
7614	S J T LEWIS	20/01/99	CANTERBURY LAKE SUMNER KEDRON R 1250M AT	260	L32	24467	58505	0	120	0.00
7615	A G VAN DIJK	25/09/97	CANTERBURY HOPE R FOIBLE STREAM	260	L32	24498	58473	0	120	0.00
7616	A G VAN DIJK	23/09/96	CANTERBURY HOPE RIVER	260	L32	24410	58450	2	150	0.80
7617	A G VAN DIJK	24/09/96	CANTERBURY HOPE RIVER HOT SPRING STREAM	260	L32	24400	58454	1	139	0.43
7618	A M SPENCER	26/09/96	CANTERBURY HOPE R 800M SOUTH OF ST	260	L32	24469	58448	1	120	0.50
7619	A M SPENCER	24/09/96	CANTERBURY HOPE RIVER	260	L32	24401	58445	0	120	0.00
7620	A D GRANT	26/09/96	CANTERBURY HOPE RIVER ST JACOBS	001	S53	5649	6699	1	130	0.46
7621	A D GRANT	25/09/96	CANTERBURY HOPE VALLEY PUSSY STREAM	001	S53	5642	6722	1	135	0.44
7659	S J T LEWIS	13/11/98	CANTERBURY LAKE SUMNER DEVILSKIN SADDLE	260	M32	24519	58574	0	150	0.00
7660	S J T LEWIS	15/11/98	CANTERBURY ARTHURS PASS WOOLSHED HILL	260	K33	24103	58058	3	150	1.20
7724	ALISON J LINDORES	17/03/97	CANTERBURY ARTHURS PASS NP OTIRA GORGE	260	K33	23922	58122	0	375	0.00
7725	ALISON J LINDORES	18/03/97	CANTERBURY ARTHURS PASS NP OTIRA GORGE	260	K33	23922	58122	0	555	0.00
7726	ALISON J LINDORES	22/03/97	CANTERBURY ARTHURS PASS NP OTIRA R ON	260	K33	23924	58113	0	555	0.00
7727	ALISON J LINDORES	23/03/97	CANTERBURY ARTHURS PASS NP OTIRA R ON	260	K33	23924	58113	0	585	0.00
7728	ALISON J LINDORES	28/03/97	CANTERBURY ARTHURS PASS NP CANDYS BEND	260	K33	23923	58129	3	375	0.48
7729	A J LINDORES	10/04/97	CANTERBURY ARTHURS PASS NP OTIRA GORGE	260	K33	23923	58129	2	360	0.33
7730	A J LINDORES	14/04/97	CANTERBURY ARTHURS PASS NP OTIRA GG	260	K33	23921	58126	0	180	0.00
7731	A J LINDORES	16/04/97	CANTERBURY ARTHURS PASS NP OTIRA GG	260	K33	23921	58126	0	180	0.00
7732	ALISON LINDORES	17/04/97	CANTERBURY ARTHURS PASS NP OTIRA GG	260	K33	23922	58122	0	180	0.00
7733	ALISON LINDORES	19/04/97	CANTERBURY ARTHURS PASS NP OTIRA R ON	260	K33	23924	58113	0	180	0.00
7734	ALISON J LINDORES	02/07/97	CANTERBURY ARTHURS PASS NP OTIRA GORGE	260	K33	23924	58113	0	180	0.00
7735	A J LINDORES	04/08/97	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	2	180	0.67
7736	A J LINDORES	15/07/97	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	1	180	0.33
7737	A J LINDORES	06/07/97	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	0	180	0.00
7738	A J LINDORES	05/07/97	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	3	180	1.00
7739	A J LINDORES	05/07/97	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	0	195	0.00
7740	A J LINDORES	03/07/97	CANTERBURY ARTHURS PASS NP OTIRA R PEGLEG	260	K33	23924	58113	0	180	0.00
7741	ALISON LINDORES	05/02/98	CANTERBURY ARTHURS PASS NP OTIRA R PYLON	260	K33	23921	58128	1	180	0.33
7742	ALISON LINDORES	04/02/98	CANTERBURY ARTHURS PASS NP OTIRA R PEGLEG	260	K33	23924	58113	0	180	0.00
7743	ALISON LINDORES	02/02/98	CANTERBURY ARTHURS PASS NP OTIRA R PEGLEG	260	K33	23924	58113	0	180	0.00
7744	ALISON LINDORES	26/01/98	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	4	180	1.33
7745	ALISON LINDORES	23/01/98	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	1	180	0.33
7746	ALISON LINDORES	21/01/98	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	0	180	0.00
7747	ALISON LINDORES	16/01/98	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	1	180	0.33
7748	ALISON LINDORES	25/09/97	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	3	180	1.00
7749	ALISON LINDORES	26/09/97	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	6	180	2.00

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7750	ALISON LINDORES AMEE	29/09/97	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	3	180	1.00
7751	ALISON LINDORES	30/09/97	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	1	120	0.50
7752	ALISON LINDORES	06/10/97	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58127	9	180	3.00
7753	ALISON LINDORES	07/10/97	CANTERBURY ARTHURS PASS NP OTIRA R PEG	260	K33	23924	58113	0	180	0.00
7754	ALISON LINDORES	09/10/97	CANTERBURY ARTHURS PASS NP OTIRA R PEG	260	K33	23924	58113	0	180	0.00
7755	ALISON LINDORES	03/06/98	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23921	58128	2	30	4.00
7756	ALISON LINDORES	29/05/98	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58129	1	180	0.33
7757	ALISON LINDORES	27/05/98	CANTERBURY ARTHURS PASS NP OTIRA R	260	K33	23923	58139	9	180	3.00
7758	ALISON LINDORES	26/05/98	CANTERBURY ARTHURS PASS NP OTIRA R SH73	260	K33	23921	58128	2	108	1.11
7759	ALISON LINDORES	19/05/98	CANTERBURY ARTHURS PASS NP OTIRA R SH72	260	K33	23921	58128	1	180	0.33
7760	ALISON LINDORES	04/05/98	CANTERBURY ARTHURS PASS NP OTIRA R PEGLEG	260	K33	23924	58113	0	180	0.00
7761	ALISON LINDORES	02/05/98	CANTERBURY ARTHURS PASS NP OTIRA R PEGLEG	260	K33	23924	58133	0	180	0.00
7762	ALISON LINDORES	30/04/98	CANTERBURY ARTHURS PASS NP OTIRA R PEGLEG	260	K33	23924	58113	0	180	0.00
7763	ALISON LINDORES	22/04/98	CANTERBURY ARTHURS PASS NP OTIRA R BOTTLE	260	K33	23923	58127	9	180	3.00
7764	ALISON LINDORES	21/04/98	CANTERBURY ARTHURS PASS NP OTIRA R BOTTLE	260	K33	23923	58127	2	180	0.67
7765	ALISON LINDORES	21/04/98	CANTERBURY ARTHURS PASS NP OTIRA R BOTTLE	260	K33	23923	58127	1	180	0.33
7766	ALISON LINDORES	20/04/98	CANTERBURY ARTHURS PASS NP OTIRA R BOTTLE	260	K33	23923	58127	1	1180	0.05
7767	ALISON LINDORES	20/04/98	CANTERBURY ARTHURS PASS NP OTIRA R BOTTLE	260	K33	23923	58127	0	180	0.00
7999	L O TAYLOR	03/03/94	CANTERBURY ARTHURS PASS NP EDWARDS HUT	260	K33	23997	58063	7	120	3.50
8057	K TOWNSEND	17/09/93	CANTERBURY LAKE SUMNER MAC'S KNOB TRACK	260	L32	24388	58345	0	140	0.00
8058	W R BOULTON	29/09/93	CANTERBURY LAKE SUMNER HURUNUI R NO2	260	L32	24382	58321	0	119	0.00
8059	C R RENDELL K T TAYLOR	27/09/93	CANTERBURY LAKE SUMNER MAC'S KNOB BUSH	260	L32	24373	58342	2	120	1.00
8060	G S C C	27/09/93	CANTERBURY LAKE SUMNER MAC'S KNOB FAN	260	L32	24399	58346	1	120	0.50
8061	MJ WELLS	28/09/93	CANTERBURY LAKE SUMNER THREE MILE STM	260	L32	24403	58385	0	120	0.00
8062	NASA	29/09/93	CANTERBURY LAKE SUMNER MAC'S KNOB FLATS	260	L32	24373	58348	0	120	0.00
8063	NASA	28/09/93	CANTERBURY LAKE SUMNER THREE MILE STM	260	L32	24408	58385	0	120	0.00
8064	W R JONES	28/09/93	CANTERBURY LAKE SUMNER THREE MILE STM	260	L32	24401	58384	0	105	0.00
8065	W R JONES	27/09/93	CANTERBURY LAKE SUMNER MAC'S KNOB	260	L32	24375	58371	0	115	0.00
8066	NASA	27/09/93	CANTERBURY LAKE SUMNER MAC'S KNOB RIDGE	260	L32	24361	58361	0	180	0.00
8067	M J WELLS	29/09/93	CANTERBURY LAKE SUMNER TERRIBLE KNOB	260	L32	24374	58327	1	120	0.50
8068	C R RENDELL CT TOWNSEND	28/09/93	CANTERBURY LAKE SUMNER TERRIBLE KNOB	260	L32	24364	58316	1	120	0.50
8069	C CULLUM	28/09/93	CANTERBURY LAKE SUMNER HURUNU HUT	260	L32	24361	58333	0	120	0.00
8070	G E SUTTON	28/09/93	CANTERBURY LAKE SUMNER HURUNUI R	260	L32	24348	58337	0	300	0.00
8071	G E SUTTON	29/09/93	CANTERBURY LAKE SUMNER HURUNUI RIVER	260	L32	24343	58337	0	120	0.00
8072	CT TOWNSEND C C CULLUM	29/09/93	CANTERBURY LAKE SUMNER HURUNUI RIVER	260	L32	24335	58341	1	120	0.50
8073	W R JONES	01/10/93	CANTERBURY LAKE SUMNER HURUNUI RIVER	260	L32	24222	58318	2	120	1.00
8074	C R RANDELL	29/09/93	CANTERBURY LAKE SUMNER HURUNUI RIVER	260	L32	24328	58341	1	120	0.50
8075	A B JACKSON	05/11/96	CANTERBURY HURUNUI RIVER SOUTH BRANCH	260	L33	24335	58282	1	120	0.50
8076	A D GRANT	06/11/96	CANTERBURY HURUNUI R SOUTH BRANCH BATH	260	L33	24329	58285	0	120	0.00
8077	A J JACKSON	04/11/96	CANTERBURY LAKE SUMNER HURUNUI R SOUTH	260	L33	24304	58273	1	120	0.50

8078	A J JACKSON	03/11/96	CANTERBURY LAKE SUMNER HURUNUI	260	L33	24295	58266	0	120	0.00
8079	A D GRANT	26/11/93	CANTERBURY LAKE SUMNER HURUNUI R STONEY	260	L33	24358	58278	0	43	0.00
8080	A D GRANT	23/11/94	CANTERBURY PUKETERAKI RA YOUNGMAN STR	260	L34	24416	57971	0	120	0.00
8088	SJT LEWIS	17/09/99	CANTERBURY LAKE SUMNER EVANGLINE STM	260	M32	24512	58359	0	90	0.00
8093	SJT LEWIS	28/11/99	CANTERBURY ARTHURS PASS POULTER R	260	L33	24106	58186	1	75	0.80
8094	SJT LEWIS	27/12/99	WESTLAND ARTHURS PASS TARAMAKAU PFEIFER	260	K33	24096	58218	14	120	7.00
8095	SJT LEWIS	10/01/00	CANTERBURY LAKE SUMNER NINA VALLEY	260	M32	24511	58597	0	135	0.00
8096	SJT LEWIS	25/01/00	CANTERBURY ARTHURS PASS BEALEY R	260	K33	23918	58092	6	60	6.00
8098	SJT LEWIS	05/12/00	WESTLAND ARTHURS PASS TAIPO HUNTS CK HUT	260	K33	23875	58174	5	75	4.00
8101	SJT LEWIS	31/01/01	CANTERBURY ARTHURS PASS BEALEY MARGARET	260	K33	23918	58092	1	90	0.67
8204	L STIRLING	12/06/99	CANTERBURY ARTHURS PASS DOBSON NATURE	260	K33	23922	58098	0	60	0.00
8205	S LESLIE/V STILES	12/06/99	CANTERBURY ARTHURS PASS CORAL TRACK	260	K33	23922	58078	0	60	0.00
8206	MANDY/LYNDSEY	12/06/99	CANTERBURY ARTHURS PASS BRIDAL VEIL	260	K33	23924	58086	0	60	0.00
8207	FRANCES/SYLVIA	12/06/99	CANTERBURY ARTHURS PASS MARGARETS TARN	260	K33	23918	58092	0	60	0.00
8208	A WITHELL/S WITHELL	12/06/99	CANTERBURY ARTHURS PASS SCOTTS TRACK	260	K33	23924	58071	0	60	0.00
8209	B PANKHURST/D SHEETS	12/06/99	CANTERBURY ARTHURS PASS AVALANCHE PEAK	260	K33	23924	58064	0	60	0.00
8210	S SHOUND/J BAKER	12/06/99	CANTERBURY ARTHURS PASS TURBINE SITE	260	K33	23925	58071	0	60	0.00
8211	A SHEPHERD	09/07/99	CANTERBURY ARTHURS PASS JACKS HUT	260	K33	23926	58086	1	180	0.33
8212	J STEWART/D TURNER	09/07/99	CANTERBURY ARTHURS PASS CORAL TRACK	260	K33	23922	58078	1	180	0.33
8213	GRAEME/JESSICA	09/07/99	CANTERBURY ARTHURS PASS MARGARETS TARN	260	K33	23918	58092	2	180	0.67
8214	A LINDOVES/M LOWE	09/07/99	CANTERBURY ARTHURS PASS MT BEALEY TRACK	260	K33	23928	58054	3	180	1.00
8215	M MACNAMEE/J BAKER	09/07/99	CANTERBURY ARTHURS PASS SCOTTS TRACK	260	K33	23924	58071	3	180	1.00
8216	N HAPPER/V NORRIS	09/07/99	CANTERBURY ARTHURS PASS DVLS PNCHBWL	260	K33	23925	58071	3	180	1.00
8217	F FAULKNER/F HARDING	09/07/99	CANTERBURY ARTHURS PASS TEMPLE BASIN	260	K33	23926	58098	0	180	0.00
8218	ANNETTE/CAROL	09/07/99	CANTERBURY ARTHURS PASS AVALANCHE PEAK	260	K33	23924	58064	0	180	0.00
8219	N SHEPHERD	09/07/99	CANTERBURY ARTHURS PASS DOBSON NATURE	260	K33	23922	58098	0	180	0.00
8220	A BURGESS/S WITHALL	11/06/99	CANTERBURY ARTHURS PASS OLD TURBINE SITE	260	K33	23924	58071	2	180	0.67
8221	L SHAND	11/06/99	CANTERBURY ARTHURS PASS	260	K33	23924	58064	0	180	0.00
8222	H EGAN	11/06/99	CANTERBURY ARTHURS PASS SCOTTS TRACK	260	K33	23924	58071	2	180	0.67
8223	B PANKHURST/D SHEETS	11/06/99	CANTERBURY ARTHURS PASS MT BEALEY	260	K33	23928	58054	2	170	0.71
8224	S DODD/A SHEPHERD	11/06/99	CANTERBURY ARTHURS PASS CORAL TRACK	260	K33	23922	58078	2	180	0.67
8225	MANDY/LYNDSEY	11/06/99	CANTERBURY ARTHURS PASS ABOVE JACKS HUT	260	K33	23926	58086	3	180	1.00
8226	S LESLIE/V STILES	11/06/99	CANTERBURY ARTHURS PASS BRIDAL VEIL PICNIC	260	K33	23924	58082	1	180	0.33
8227	H SULLIVAN/C MARTIN	11/06/99	CANTERBURY ARTHURS PASS	260	K33	23922	58098	1	180	0.33
8228	L STIRLING/L BELL	11/06/99	CANTERBURY ARTHURS PASS MARGARETS TARN	260	K33	23918	58092	1	180	0.33
8229	F FAULKNER/S MACLELLAN	11/06/99	CANTERBURY ARTHURS PASS TEMPLE BASIN	260	K33	23926	58098	2	180	0.67
8230	L SHAND/J STEWART	10/06/99	CANTERBURY ARTHURS PASS MT BEALEY TRACK	260	K33	23928	58054	3	180	1.00
8231	H EGAN/N HAPPER	10/06/99	CANTERBURY ARTHURS PASS DEVILS	260	K33	23925	58071	2	180	0.67
8232	A BURGESS/S WITHELL	10/06/99	CANTERBURY ARTHURS PASS 9 AV PEAK TRACK	260	K33	23924	58064	1	180	0.33
8233	B PANKHURST/D SHEETS	10/06/99	CANTERBURY ARTHURS PASS SCOTTS TRACK	260	K33	23924	58071	1	180	0.33

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8234	S DODD/R PUNA	10/06/99	CANTERBURY ARTHURS PASS BRIDAL VEIL PICNIC	260	K33	23924	58082	5	180	1.67
8235	S LESLIE/V STILES	10/06/99	CANTERBURY ARTHURS PASS ABOVE JACKS HUT	260	K33	23926	58086	2	180	0.67
8236	MANDY/LYNDSEY	10/06/99	CANTERBURY ARTHURS PASS CORAL TRACK	260	K33	23850	58988	5	180	1.67
8237	HELEN/CHRIS	10/06/99	CANTERBURY ARTHURS PASS MARGARETS TARN	260	K33	23918	58092	2	180	0.67
8238	L STIRLING/L FELL	10/06/99	CANTERBURY ARTHURS PASS TEMPLE BASIN	260	K33	23926	58098	0	180	0.00
8239	S MACLELLAN/FRANCIS	10/06/99	CANTERBURY ARTHURS PASS DOBSON NATURE	260	K33	23922	58098	1	180	0.33
8240	C MARTIN	12/06/99	CANTERBURY ARTHURS PASS TEMPLE BASIN	260	K33	23926	58098	1	60	1.00
8241	H EGAN/N HAPPER	12/06/99	CANTERBURY ARTHURS PASS MT BEALEY TRACK	260	K33	23928	58054	0	60	0.00
8517	S J T LEWIS	21/03/01	CANTERBURY ARTHURS PASS SUDDEN VALLEY	260	K33	24042	58059	2	90	1.33
8519	S J T LEWIS	12/07/00	CANTERBURY PUKETERAKI FOREST TARN HUT	260	L34	24405	57962	0	120	0.00
8523	S J T LEWIS	16/03/01	WESTLAND ARTHURS PASS NP TARAMAKAU	260	K33	24097	58251	12	90	8.00

Rogan Colbourne
Technical Advisor Fauna | *Mātanga Mātai Hauropi*
Terrestrial Science Unit | Biodiversity Group
Department of Conservation - *Te Papa Atawhai*

s.9(2)(a)

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Attachment 2

Hope River Great Spotted Kiwi survey and catching trip 16-19 June 2008

Objective:
To locate, capture and fit transmitters to as many Great Spotted Kiwi (GSK) as possible in the Hope River Valley, to establish a monitored population for ONE management.

Personnel:
Chris Rickard with Gem (dog), Malcolm Wylie (Waimakariri Area Office) and [redacted]

Methods:
During the day searches were carried out using a DOC certified kiwi dog.

At night, recorded GSK calls were played at approximately 10 minute intervals at each survey site. A minimum of two calls were played at each location and approximately 20 minutes were spent listening for a response. In most cases the dog was also used at night to help indentify any likely areas of scent and to indicate any birds that came in quietly without calling. While travelling between sites a whistle was occasionally used to imitate calls.

Results:
Approximately 27 hours were spent searching for kiwi over four days. We found no sign of kiwi at any time.

Approximately 24 hours were spent surveying at night. We spent about eight hours each night typically from about 7pm to 3 am. No kiwi calls were heard at any tiome and there was no other indication of kiwi in the area.

We spent 3 hours searching during the day on the 18th. Again no sign of kiwi was detected.

We targeted our search effort around areas that previous surveys had heard kiwi, some as recent as last year [redacted] pers comm).

Discussion:
It seems unlikely that there is a significant population of GSK remaining in the Hope River valley. This is a surprise given the results of a volunteer survey organised by [redacted] which has surveyed the area several times since 1995 and consistently heard kiwi.

The combination of results from our team which was focussing mainly on night work and the other team (led by James Fraser), which was focussing on daytime searches with dogs, provided good coverage of the area and allowed us to be relatively confident of our result.

This result raises a few questions regarding the status of GSK. It would seem from this survey most likely that GSK numbers have declined significantly in the Hope River Valley. Unfortunately there has not been any repeatable survey carried out by which we can quantify this perceived decline.

If there has bee a significant decline in GSK numbers in the Hope Valley it raises a number of questions including – what is the agent of decline? And is this occurring in other populations of low to moderate density?

I would suggest that at the very least it might be prudent to set up some baseline surveys in other populations of low to moderate kiwi density in order to monitor any population change.

If this survey indicates a real decline in GSK numbers then it is a concern and it should lend some urgency to attempts to learn more about the threats to and the population dynamics of GSK.

Report prepared by: Chris Rickard
s.9(2)(a)

Attachment 3

Hope - Kiwi great spotted kiwi (*Apteryx haastii*) survey, location and catching

16– 20 June 2008

James Fraser

Personnel

James Fraser (With a nose for conservation) with Percy and Breeze	16(N), 17(D), 18(D,N), 19(D,N) June
Chris Rickard	16 June (D)
Sandy Yong	16(N), 17(D), 18(D,N), 19(N) June
Tammy Price	16(N), 17(D), 18(D,N), 19(N) June
s.9(2)(a) [redacted]	19(D) June

Objectives

To locate, capture, measure, weigh, affix transmitters and bands to all great spotted kiwi caught in the Kiwi and Hope valleys above the Hope – Kiwi confluence.

Methods

The areas were searched during the day using two Department of Conservation fully certified threatened species dogs (Percy and Breeze).

The dogs were used to search areas within 30m of the handler, and sometimes up to 60m. At any one time only one dog was away from the handler.

Passive listening was conducted on the evening of 16th June for one hour. After this period male kiwi calls were played from a MP3 player via an amplifier and horn speaker. A single 20 second male call was played, we listened for five minutes, another call was played and a response was listened for over a five minute period; this pattern was repeated over a 20 minute period. After this time we moved 500 metres and repeated the 20 minute elicited call listening.

On the evenings of 18th and 19th June only elicited call listening was conducted with 500 metres between listening stations.

A Garmin Astro 220 (Global Positioning System) unit was used to record the search tracks taken and locations of call listening stations. These data were then downloaded and presented using TopoMap Pro.

All activities carried out in accordance with the Kiwi (*Apteryx* spp.) Best Practice Manual (2003).

Results
Kiwi were searched for during the day-time of 16-19 June with an approximate total of 30 km being covered in 18 hours.

Kiwi calls (passive and elicited) were listened for approximately 10 hours during the evenings of 16, 18 and 19 June.

During the searches and listening; no kiwi, kiwi sign (scats, probes, feathers), scent or calls were detected.

Discussion
The lack of kiwi and any sign is a fair reflection of the number of birds in the search and survey areas. Conditions for searching and listening during the trip were ideal. The dogs had recently come from a great spotted kiwi catching trip and were therefore familiar with the scent; they were focused and on task during the searches.

I am confident that had there been a low to moderate kiwi density in this area we would have encountered some sign of their presence during the search and survey.

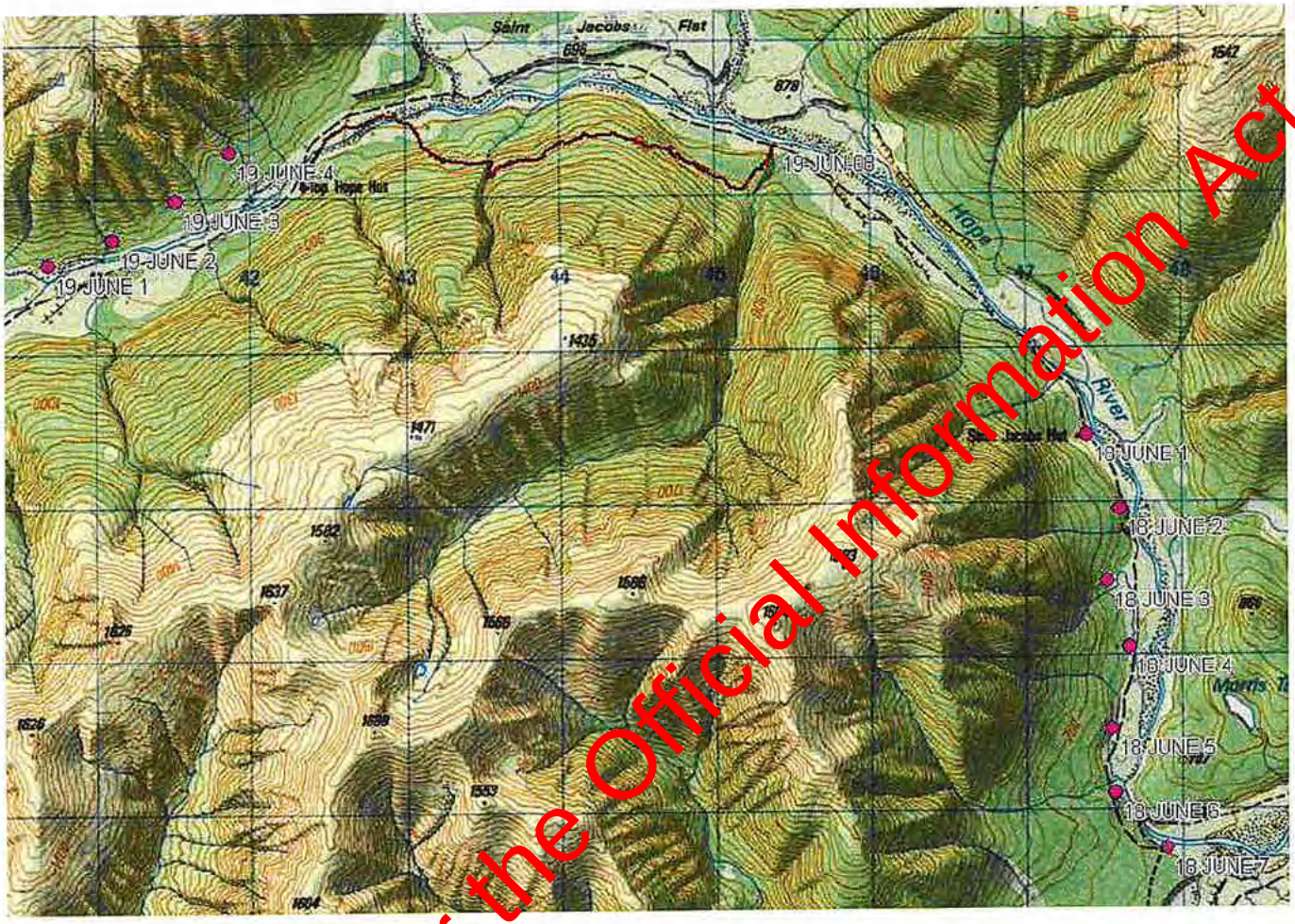
I have searched for great spotted kiwi in the southern Paparoa ranges, Arthur's Pass and the Hurunui north branch. The only noticeable difference in kiwi habitat between these sites and the Hope-Kiwi was the lack of undergrowth and potential day-time refuge sites. Whether the scarcity of ground cover is related to the high numbers of deer or climate is unknown. While this would not be the reason for an absence of birds, it may be indicative of some conditions that make the area less favourable to birds.

The Hope-Kiwi is 13 kilometres east of the most eastern site where I have searched for great spotted kiwi.

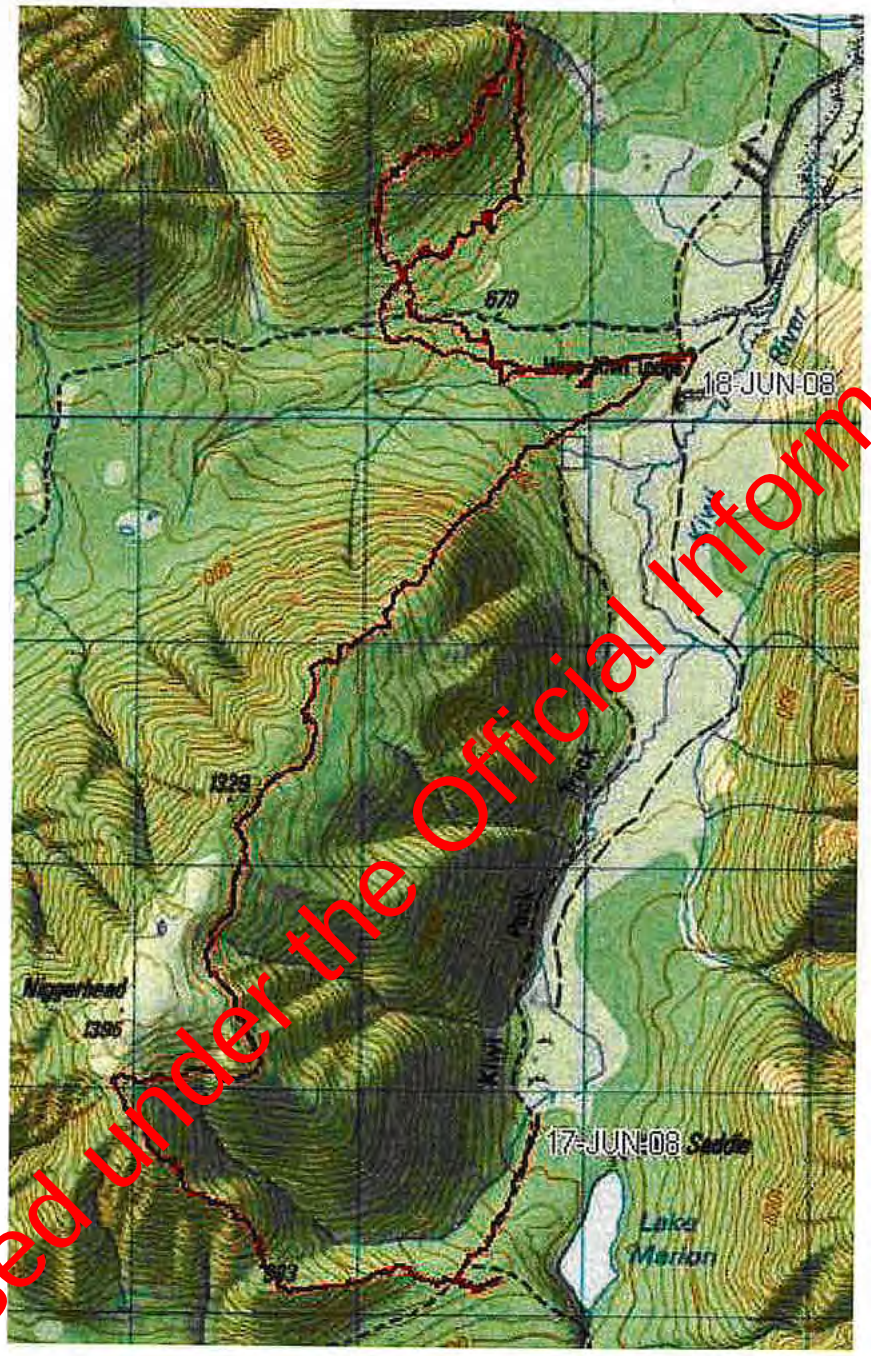
While kiwi have been heard in this area in recent times, they have not been recorded in dense numbers s.9(2)(a) pers comm).

It would be recommended to conduct the same elicited call listening methods that were used in the Hope - Kiwi at a site with known individuals (such as between Cameron Stream and Cameron Hut in the Hurunui North Branch) to confirm the proportion of birds that respond. This would further validate the findings of this trip.

Map 1. Search tracks taken and listening stations in the Hope Valley



Map 2. Search tracks taken in the Kiwi Valley



* Please note that the day-time search along the Parakeet stream track and the night-time listens in the same area are not shown on this map (S.Yong has these data).

Attachment 4

Summary of Research Results - Nina and Hawdon Acoustic Monitoring, 2017-2018
Prepared for Kiwis for Kiwi funding report

Laura Molles

s.9(2)(a) and I successfully repeated the 2012-2013 acoustic surveys in both the Nina and Hawdon Valleys in 2017-2018, using the same locations as used in the previous survey and running each recording location at as close to the same date as was possible given constraints of weather and occasional recorder failures. Because acoustic survey recorders included locations within territories of known resident kiwi in the Nina Valley, the repeat acoustic survey in conjunction with additional recording between the 2015 translocation and the acoustic survey resulted in approximately three years of post-translocation acoustic monitoring as was originally planned. However, most transmitters either failed or were removed well before the end of the three year period, so we do not have tracking information to help determine whether the coverage provided by the acoustic survey recorders overlapped with most birds' territories.

A total of approximately 68,750 hours of recordings were analysed using automated detection (Kaleidoscope, Wildlife Acoustics), and approximately of 10,528 kiwi calls were detected (Table 1). This includes 70 "duets," where a male and female call overlapped.

Survey	Hours of Recording	Total Calls Detected	Calls Per Hour
Nina Survey 2012/13	2902	14	0.005
Nina Survey 2017/18	3968	91	0.023
Hawdon Survey 2012/13	2594	538	0.207
Hawdon Survey 2017/18	3396	606	0.178
Nina Post-Translocation Recording	32428	1872	0.058
Hawdon Post-Translocation Recording	23459	7407	0.316

Table 1: Summary of hours recorded, calls detected and calls across all recordings for each valley/survey period.

The focus for the 2017-2018 research period was to repeat acoustic surveys in both the Hawdon and Nina Valleys using the same locations and seasonal timing as previous surveys carried out by the Department of Conservation in 2012-2013. Both of these surveys were completed, although there were a few recorder failures which resulted in missing data (the same had been the case in the 2012-2013 survey. During the deployment of the recorders, Peter Jahn also re-located a recorder from the Hawdon 2013 survey which had never been retrieved. Although the card was initially unreadable, a professional data recovery service was able to recover the audio files and these have been added to the dataset.

Compared with the 2013 survey, there were increases in the number of calls captured, and number/proportion of recorders that detected kiwi. In the Hawdon, there was not an increase in overall call rate compared to the previous survey, whereas there was a dramatic increase in call rate in the Nina Valley. In the Nina Valley, the number of recorders detecting kiwi increased from three to 15, and in the Hawdon the number of recorders detecting kiwi increased from 13 to 18 (Table 2).

In the Hawdon Valley, automated recorders confirmed that all surveyed territories from which territorial pairs were removed for translocation to the Nina Valley were re-occupied during the survey period. Both male and female calls were detected on each territory. On at least one of these territories, calls included those of a male that, based on call characteristics, may have been a

juvenile bird. We are seeking to record calls from known-juvenile Great Spotted Kiwi, either in captivity or a creche site, to confirm whether this is likely to have been a juvenile.

Survey	Number of recorders that ran successfully	Number of recorders that detected kiwi calls	Proportion of successful recorders that detected calls	Number of new detection sites compared to 2012/13
Nina Survey 2012	23	3	0.13	-
Nina Survey 2017/18	22	15	0.68	12
Hawdon Survey 2013	20	13	0.65	
Hawdon Survey 2017/18	19	18	0.95	4

Maps of each valley, showing the recorder locations and number of calls detected at each site for the two survey periods, are attached to the end of this report.

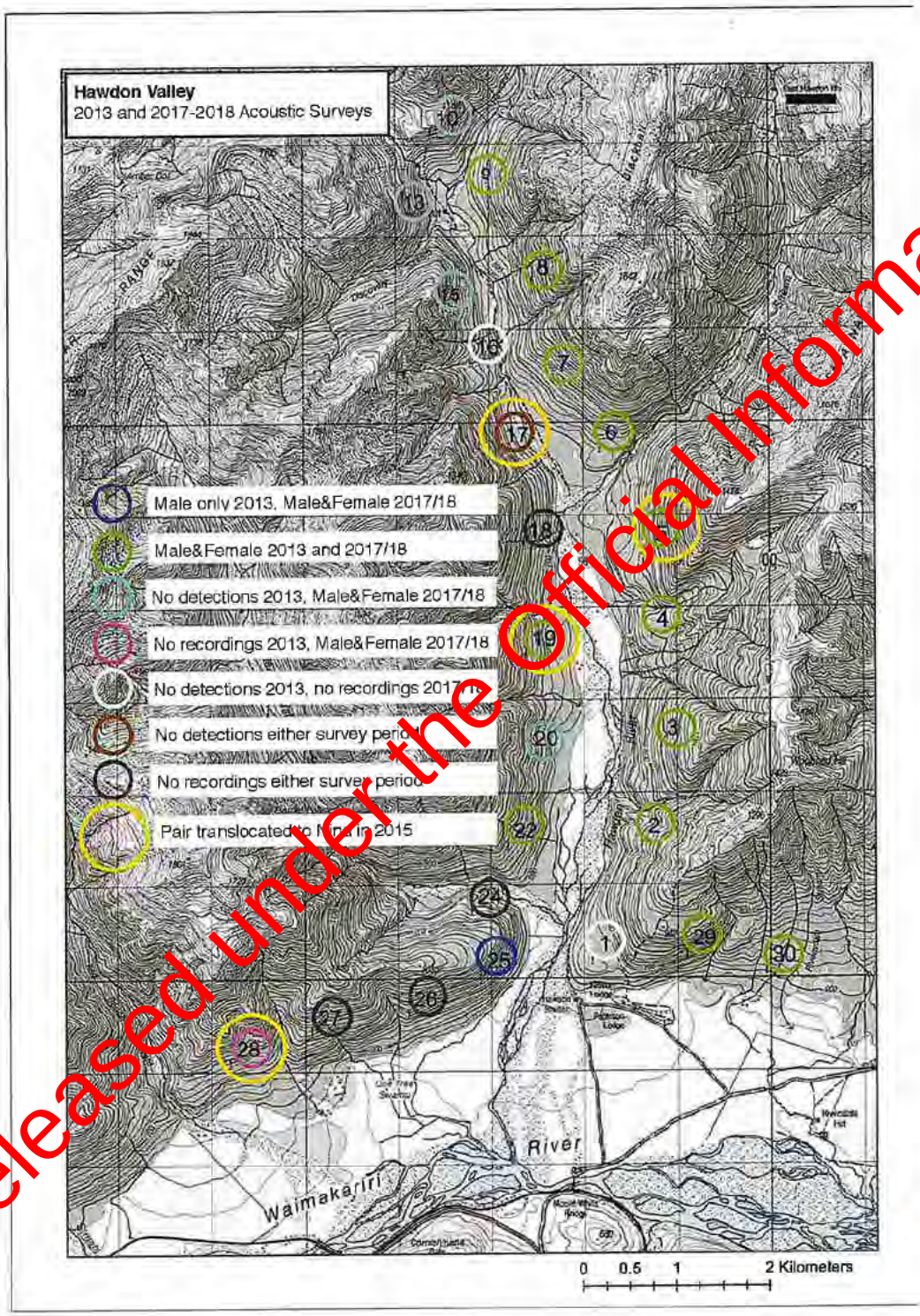
Table 2: Summary of detections from acoustic surveys of the Nina and Hawdon Valleys in 2013-2013 and 2017-2018

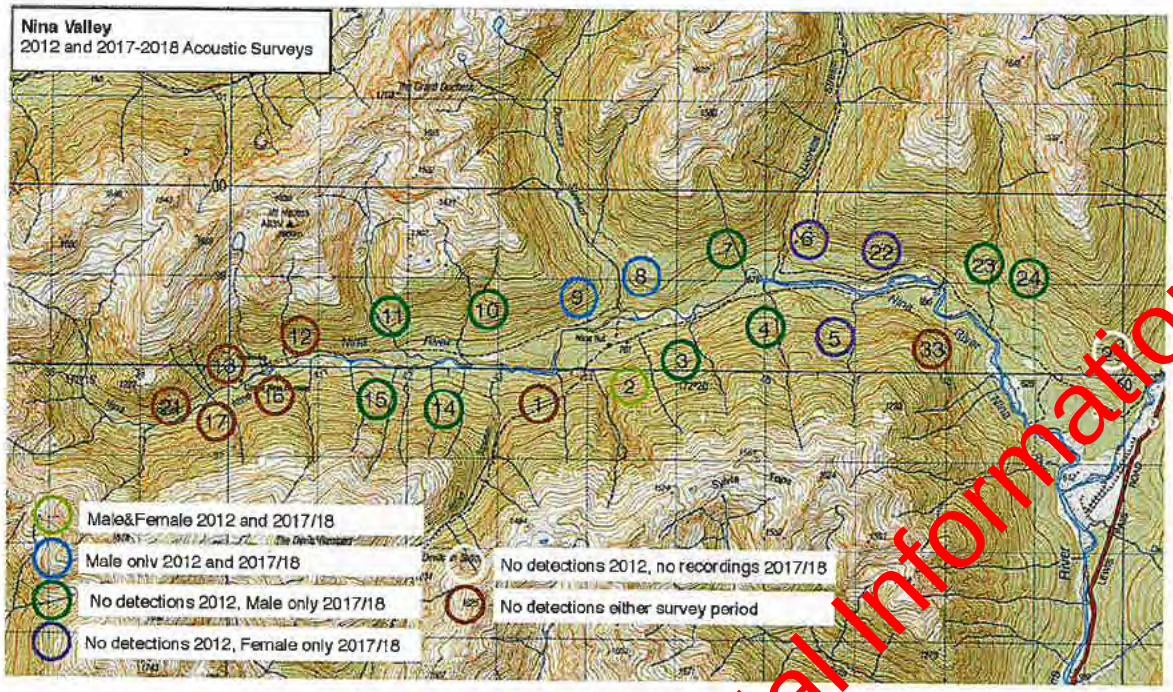
We did not complete our original objective of comparing calls to that of known individuals using detailed measurements (this could potentially allow us to determine identities of individual birds). As the funding provided was slightly less than requested, this component of the project was the most sensible part to postpone. However, with the recordings collected and calls located, we will be able to carry this out in the next 12-24 months. The automated recorders did capture many calls of sufficient quality for detailed analysis, but capture was "uneven" - some recorders happened to be placed in areas where resident kiwi often called, whereas others were apparently some distance from popular calling sites. s.9(2)(a) will also be using some of the acoustic data (largely data collected prior to 2017) to investigate whether acoustic detections correlate with radio-tracking data for individual Great Spotted Kiwi. This will contribute to Peter's PhD thesis, and we will provide those results once his thesis is completed.

Kiwis for Kiwi indicated interest in comparing the results of the commercial system I have used for analysis with other options for processing acoustic data. I provided Isabel Castro with around 600 GSK calls in May 2017. However, I have not yet heard whether her research team has successfully developed a detector for GSK calls. I do not have access to MATLAB so was not able to explore her detection software myself. Our raw recordings will be archived indefinitely on both local external hard drives and are also archived on a commercial cloud storage service, so will be available for future analysis by other research groups.

We have compared results of our automated detection with those detected manually for a few sets of recordings from the Department of Conservation and Friends of Flora. Overall, these results suggest that automated detection does fail to capture calls with a very low signal-to-noise ratio (this may be due to factors such as substantial background noise e.g. rain or wind, topography, and/or distance of the caller from the recorder). However, we did not find any instances where failure to detect a low volume call resulted in an overall non-detection for a site. In other words, automated detection was apparently sufficient to detect occupancy in the populations we recorded, but may be less useful for quantifying call rates or nightly detection rates. The automated system did allow for rapid analysis of a large volume of recordings. Typically the software was left to run unattended, and then detections were visually and aurally scanned and re-classified as needed. The time required to both run the software and complete the manual scanning depended on the number of detections, which was in turn affected by not only the calling rate of kiwi, but the presence of other sounds within the same frequency range that were detected by the recorders; weka, kea, kaka, ruru, and - at one site - tree frogs, were responsible for large numbers of false positives. As a general rule of thumb, however, it takes approximately 1 hour of unattended software processing time, followed by 1 hour of manual work, to process 1000 hours of raw audio.

The limitations of automated detection (in particular, failure to detect distant calls) also highlight the importance of recorder placement and duration of deployment in areas where GSK may be at low density or have low call rates for other reasons: recorders should be placed at sufficient density to provide acoustic coverage of the entire area of interest (including consideration of terrain effects), and several days of deployment may be required to capture calls of birds who have very large territories and/or call infrequently.





Attachment 5

Acoustic survey of roroa (great spotted kiwi) in Arthur's Pass - Hurunui 2018-2019

Robin and Sandy Toy October 2019

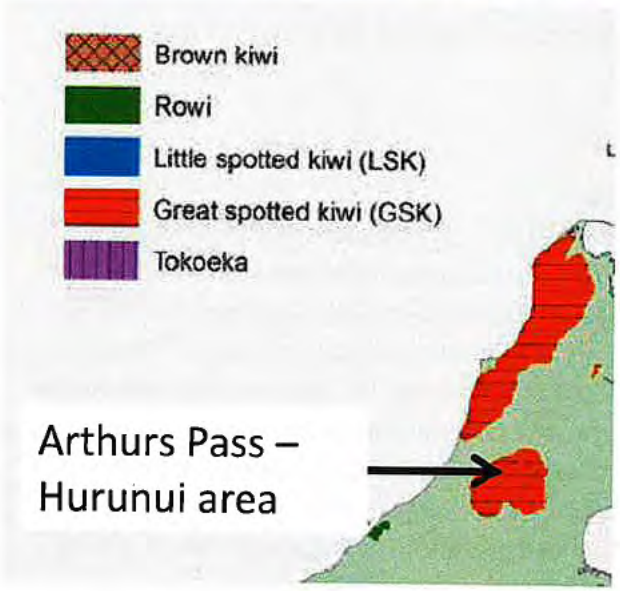
Summary

This report documents a survey of the distribution of roroa, great spotted kiwi (*Apteryx haastii*) in the Arthur's Pass - Hurunui area. Acoustic recorders were deployed to determine roroa presence and call rates. Recordings were made from September 2018 to June 2019. Additional recordings provided by DOC Rangiora, made from 2012 to 2019, were also analysed. A total of 2778 calls were identified in 10787 h of recordings made at 396 stations. A further 171 roroa records from human call counts, *ad hoc* reports from reliable observers, and DOC Tier 1 acoustic monitoring results within the period from 2011 to 2019 were identified. These were used to supplement the presence distribution, but were excluded from call rate calculations. A core area of 130000 ha in which call rates exceeded 0.3 calls h^{-1} was identified, surrounded by a 60000 ha fringe with lower call rates. Roroa were found in all river valleys within the core area and their range extended to the pasture edge, particularly on the NW boundary of their range. Comparison with records from before 2011, primarily the Kiwi Call Count scheme, has identified several areas from which roroa were no longer recorded, most notably the valleys of the Doubtful and Hope Rivers. Kiwi also appear to have disappeared from the Avoca, North Esk and Youngman's Stream. More recording would confirm this. Kiwi are more widespread in the Crooked, Haupiri, Coxand Poulter River valleys and over Binser Saddle, than previously recorded. This could be an artefact of more intensive recording in the latest survey.

Introduction

The Kiwi Recovery plan (Germano *et al.* 2018) sets goals to grow all kiwi species by at least 2% per year, restore their former distribution and maintain their genetic diversity. The plan shows the range (Figure 1) of roroa, great spotted kiwi (*Apteryx haastii*). The purpose of this survey is to determine the distribution of roroa in the Arthur's Pass - Hurunui part of their range and to determine call rates across the area as an indicator of relative abundance. Given the area to be surveyed and the terrain, the objective was to identify areas containing kiwi, acknowledging that occasional birds might occur outside this area. The project was selected by the Kiwi Recovery Group and was funded by DOCs Save Our Iconic Kiwi Fund for research to improve our understanding of how to manage/recover kiwi.

Figure 1 Distribution of roroa as shown in the Kiwi Recovery Plan (2018)



Methods

Acoustic Recordings

The range shown in Figure 1 was the starting point for the survey, but the area was expanded following discussion with roroa practitioners, to include areas where there had been recent unverified reports of roroa. Effort focussed on the fringes of the distribution and the survey plan was revised over time to take account of emerging results. No recordings were analysed from the Nina Valley where there is a translocated population of roroa.

Acoustic recorders , AR Models II-IV recorders (Department of Conservation, Wellington, New Zealand), set to record from sunset to sunrise on the 'low' (8 kHz) setting were used. Deployment used a protocol developed for a similar survey in NW Nelson and is based on the Kiwi Best Practice Manual method (Robertson & Colebourne, 2017). The recorders were fixed to small trees about 1.5 m above the ground. When possible several recorders were deployed in an area, with recorders about 1 km apart.

Approximate target stations were identified from maps prior to fieldwork. Exact positions on spurs, rises or ridges away from trickling water were selected in the field to maximize listening coverage. An accurate grid reference was recorded for each station. Some recorders were deployed when trampers or DOC staff were accessing parts of the target range for other reasons, but most were deployed during dedicated 'campaigns'. Additional sound files from recorders deployed within the area since 2012 were accessed from Sandy Yong, DOC Rangiora.

Recorders were deployed during periods of calm, dry weather to maximize the chance of clear spectrograms. Ideally the recorders were deployed for at least five nights of good recordings, but in many cases the logistics associated with reaching remote locations resulted in fewer nights.

The recorders save to an 8 or 16 GB SD card. Recordings were transferred to a hard drive on return from the field. Computer folders were labelled with a station specific identifier. The recordings will be sent to DOC when this report is finalised.

Analysis

Spectrograms starting half an hour after sunset and finishing half an hour before sunrise were analysed using Freebird software. All sound files were analysed by either Sandy or Robin Toy.The nightly listening period varied from 8 h 10 mins in mid-summer to 14 h in mid-winter. Analysis was manual - the spectrograms were slowly scanned and calls were played where the visual record was unclear. The time and strength of each kiwi call (loud, moderate, faint), and whether it was male, female or part of a duet was recorded. If a kiwi appeared to call twice as part of a duet or broken-duet (male-female-male or male- short gap-male) the second call by the same bird was not counted. Periods during which the spectrogram was obscured by wind or rain were excluded. Nights for which fewer than four hours good recording were available were generally not analysed. A subjective ranking of spectrogram clarity (i.e. amount of interference by rain, wind or water noise) was made for each recorder for each night analysed. The presence of other birds calling during the night, particularly morepork, kaka, kea, weka and long tailed cuckoo, were recorded.

Station metadata (grid reference, recording dates, recorder name, name of the deployer) were recorded on an Excel workbook. Details of each call were stored as a single list in the same

workbook. The workbook contains PivotTables and formulae to calculate hours analysed and call rates per hour (for each night and for each site).

The listening period was divided into deciles to examine the time of night at which roroa call.

To estimate confidence that roroa presence would be detected, the time to first call at each station was calculated, taking into account that at sites with low call rates, the first call might not be on the first night analysed. Cumulative frequency distributions of time to first call were plotted for three call rate categories: <0.1 calls h^{-1}, 0.1 - <0.3 calls h^{-1} and >0.3 calls h^{-1}. The 90th percentile of these distributions (i.e. the hours recording at 90% of sites before a kiwi was heard) were calculated and compared to the cumulative distribution of hours of recording at sites at which roroa were not detected.

Other records

Acoustic recorders have also been used by the Department of Conservation's Tier 1 monitoring programme. These recorders are placed for one night at locations on an 8 km grid, with a central recorder and four peripheral recorders 200 m away in north-east, south-east, south-west and north-westerly directions (J. Mortimer pers.comm. 2019). Records with roroa calls from sites surveyed in 2011-2018 have been checked by the authors. The different methodology used by the Tier 1 programme, results in lower probability of detection than in the current survey. The results of the Tier 1 programme have therefore not been used to calculate call rates. Due to the volume of data involved, Tier 1 recordings for which no kiwi calls were identified by the Tier 1 analysts, were not made available to us for review. Tier 1 monitoring sites are selected on a grid pattern rather than for probable acoustic coverage. This is the likely explanation for Tier 1 non-detect results in sites such as the Hawdon which are known to support roroa. The single night Tier 1 recording also contributes to lower confidence in these non-detect results.

Additional records of kiwi presence were reviewed. They included human call counts, and reports of calls or sightings from observers known by the authors to be familiar with roroa calls. Records based on probe marks, footprints and excreta were not used due to potential confusion with other species.

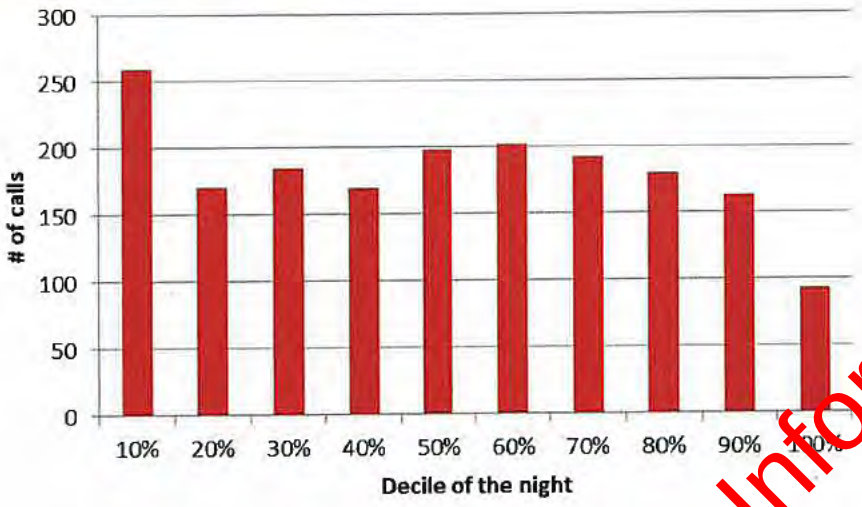
Results

Spectrograms from recorders placed at 396 stations were analysed. The average number of nights reviewed per station was 2.6 (range 0.5 - 7). Inspection of 10787 hours of recordings identified 1622 single male calls and 534 single female calls and 311 duets.

The locations, dates of deployment, nights analysed and a summary of the number of calls heard are tabulated in Appendix 1. Intensive acoustic recording was carried out in four areas outside the Recovery plan range: Wilberforce River, Mt Te Kinga/ Hohonu Range, near Lake Hochstetter and Mt Oxford/Wharfedale. All these areas have had recent reports of roroa. A single female call was detected from a total of 317 h of recordings from Mt Te Kinga, but no kiwi were heard in 314 h of recordings analysed from the Wilberforce, 625 h from Mt Oxford/Wharfedale and 335 h near Lake Hochstetter. There have been three reports of roroa from Mathias Hut. We did not manage to survey this area, but no kiwi calls were detected at four Tier 1 sites within 11 kms and, since it is 35 km from the closest confirmed roroa location and we have found no historic records from the area, it is unlikely that there is a viable population at this location.

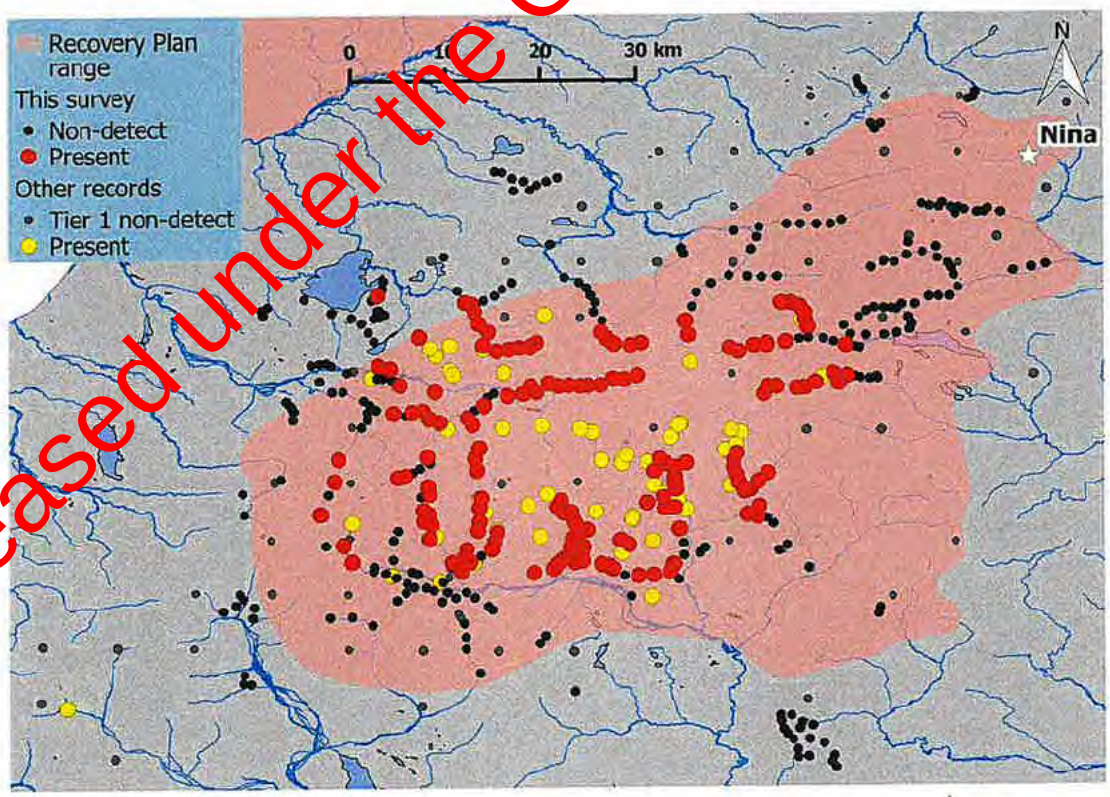
The number of calls was slightly higher in the first decile of the night, then similar all night until the last decile which had fewer calls (Figure 2).

Figure 2 Number of calls per decile of the night



People call counts from 41 stations and 121 other records made by observers the authors know to be familiar with roroa calls were also located. These records, along with the acoustic recorder results are used to map presence of roroa (Figure 3).

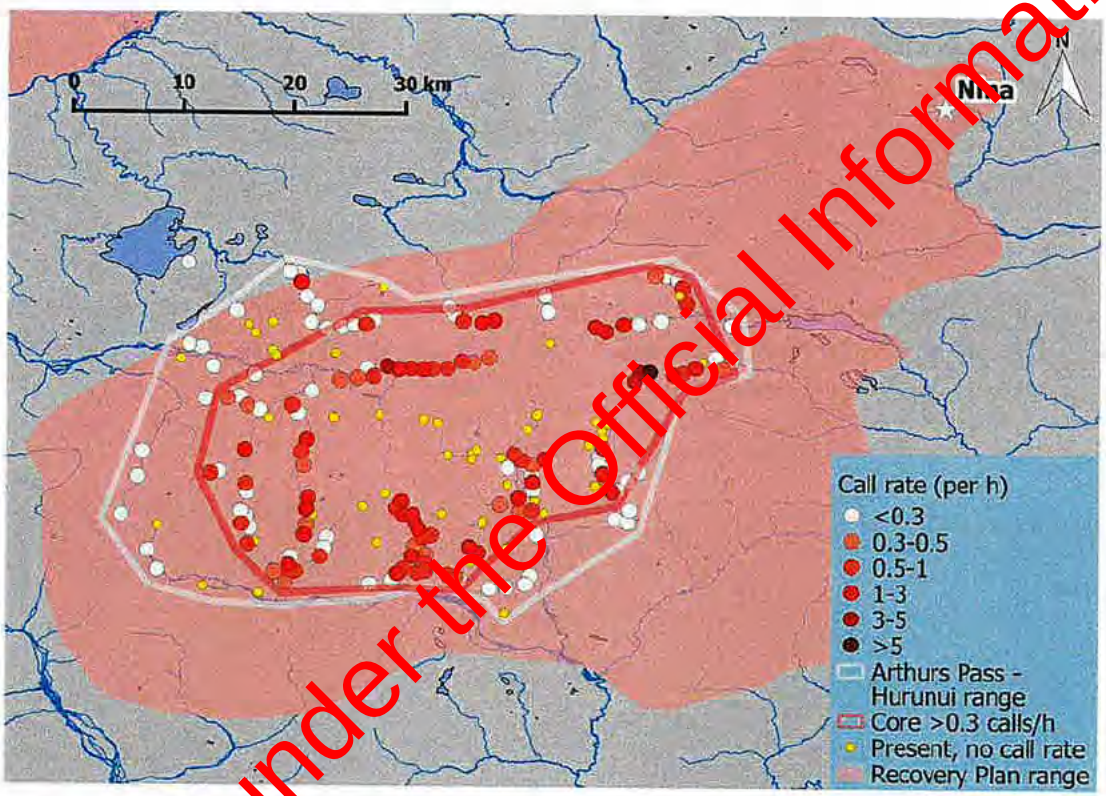
Figure 3 Detection of roroa in the Arthur's Pass / Hurunui region



Call rates calculated from the acoustic recorders are shown in Figure 4. People call counts provide a call rate, but the probability of detection by people and recorders is likely to differ and so the people call rate data have not been included in the call rate figure.

Figure 4 shows a core distribution where call rates exceed 0.3 calls h^{-1} and a fringe where call rates are less than 0.3 calls h^{-1}. The range of roroa in the Arthur's Pass – Hurunui area is about 190000 ha (excluding the outlier at Mt Te Kinga) of which about 130000 ha is a core with call rates exceeding 0.3 calls h^{-1}.

Figure 4 Call rates in Arthur's Pass – Hurunui acoustic recorder survey



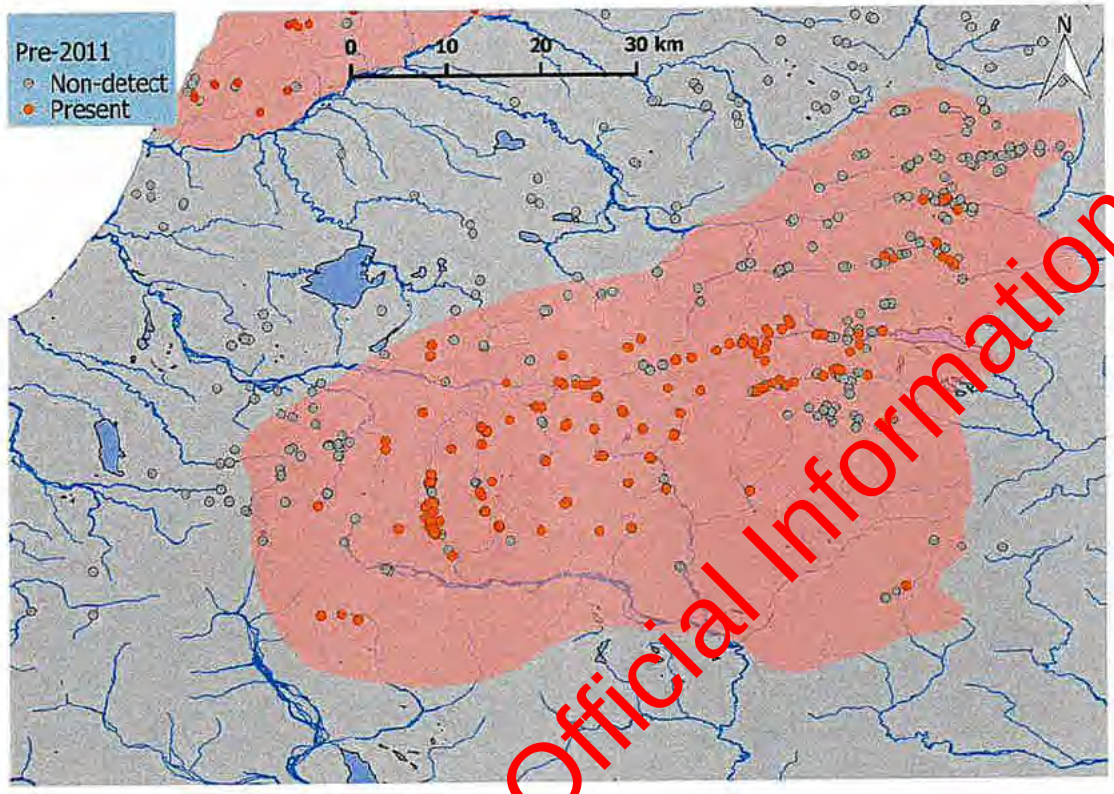
Discussion

Comparison with previous surveys

Kiwi Call Count data for the period 1986 to 2002 were accessed (R. Colebourne pers. comm.) comprising 543 records. These counts were made by human listeners over periods ranging from 15 minutes to 4 hours with most being 2 hours as recommended in the Kiwi Best Practice Manual (Robertson & Colebourne 2017). Eight extra records from 2002 to 2010 are also shown. The 1999-2004 Bird Distribution Atlas (Robertson *et al.* 2007) includes some roroa records outside the current distribution of roroa. Paper copies of the record sheets underlying these records were accessed (C. Robertson pers. comm.). Inspection of additional information on these sheets suggested there may have been errors of identification. These outliers have therefore been excluded.

The combined records from these earlier surveys are shown in Figure 5.

Figure 5 Pre-2011 records



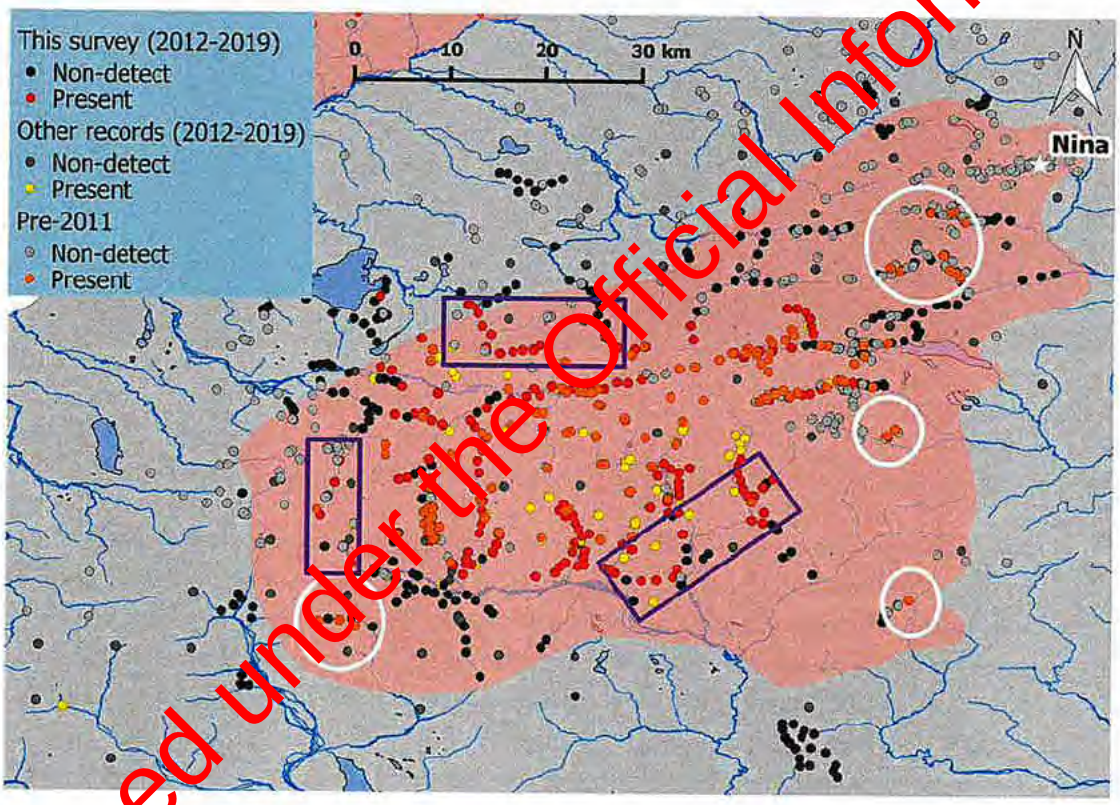
The main differences between the historic and current distributions (Figure 6) appear to be:

- Roroa are more widely distributed than previously mapped in the north west segment of the range, with records as far north as the mid Trent, at Elizabeth hut in the Haupiri, from the headwaters to the bush edge along the Crooked River and to the bush edge at Camp Creek and at Inchbonnie. A single female was detected on Mt Te Kinga. This apparent range extension is most likely a reflection of the greater search effort in terms of both recording stations and recording hours during this survey;
- There are more positive records in the south western part of the range, with kiwi being found in the upper to mid Taipo and upper Waimakariri, but the distribution appears fragmented and call rates are very low. No positive records have been found south of the Waimakariri;
- There are more positive records in the south eastern part of the range notably around Binser Saddle, the mid reaches of the Poulter River, the Cox River and Bull Creek. This is also likely to reflect the much greater search effort in the current survey, rather than range expansion.
- Roroa are no longer detectable in the north east segment of the distribution map, except for the translocated population in the Nina. There is no evidence of kiwi presence in the river valleys of the Doubtful, the Hope, the Parakeet or the McMillan nor in the Three-mile stream area to the north of Lake Sumner.

- Roroa appear to have disappeared from the outlying Puketeraki Range in the south east. Two recorders still in the field awaiting better weather for their retrieval may help confirm this.
- Roroa were not found in the Avoca, from where they were reported in 2007. Our survey had only three nights recording in this valley. There are also 2 Tier 1 negative results near this area. It is unlikely that a viable population remains.
- Roroa were reported from two locations at the eastern end of the North Esk near Bush Camp Hut in 2002, although ten counts further upstream did not report kiwi. We did not get access to resurvey this area, but a Tier 1 negative result suggests that kiwi are no longer present in this area.

Figure 6 Comparison of early and recent records

Spot colour are as in Figures 3&5, the purple rectangles shows area with recent positive records, but no/few old records, the white circles show areas with old records, but no recent positive records.



Confidence in non-detect results

Robertson & Colebourne (2017) recommend a minimum of 4 nights (c. 40–50 hours) of recordings to give a reasonably accurate hourly call rate or detection rate for a site, and at least 10 nights recording where it is critical to detect kiwi.

Our analyses show that at 90% of sites with call rates exceeding 0.3 calls h^{-1} the first call is heard within about 4 h (Figure 7). At 90% of sites with 0.1 – 0.3 calls h^{-1}, roroa were detected within 16 h and at 90% of sites with calls <0.1 calls h^{-1} within 21 h. All stations at which kiwi were not detected had listening periods exceeding 4 h, about 81% exceeded 16 h and about 73% exceeded 21 h (Figure 8). Since we put multiple listening stations in all surveyed areas we have high confidence that there isn't a resident kiwi population in areas in which we did not detect roroa. It is possible there may be a few kiwi present which may be transient.

Figure 7 Time to first call for sites with call rate

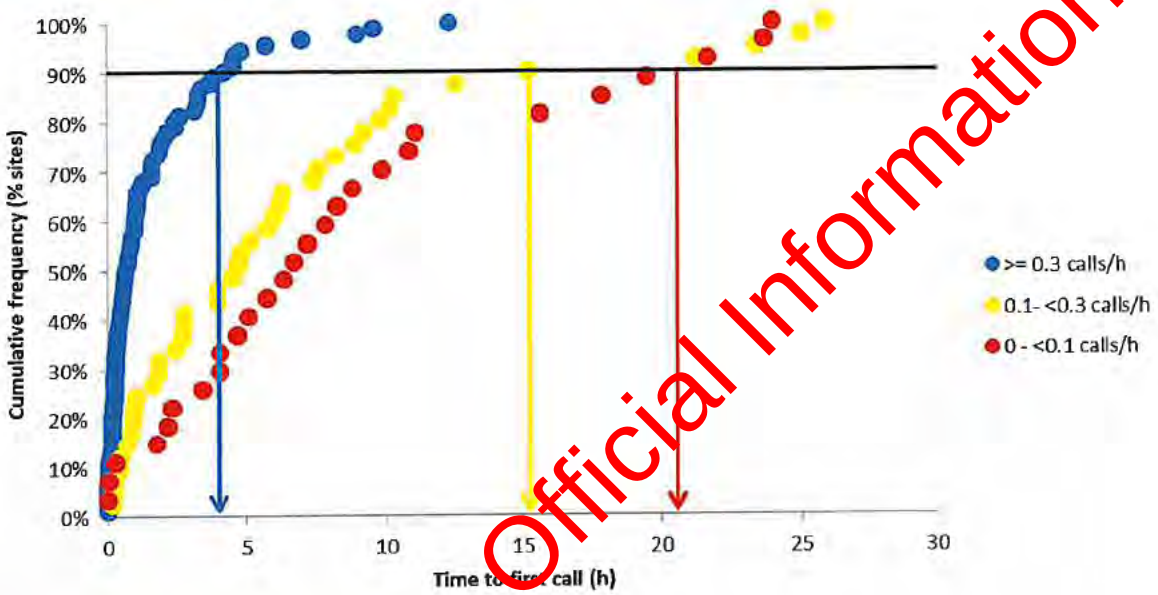
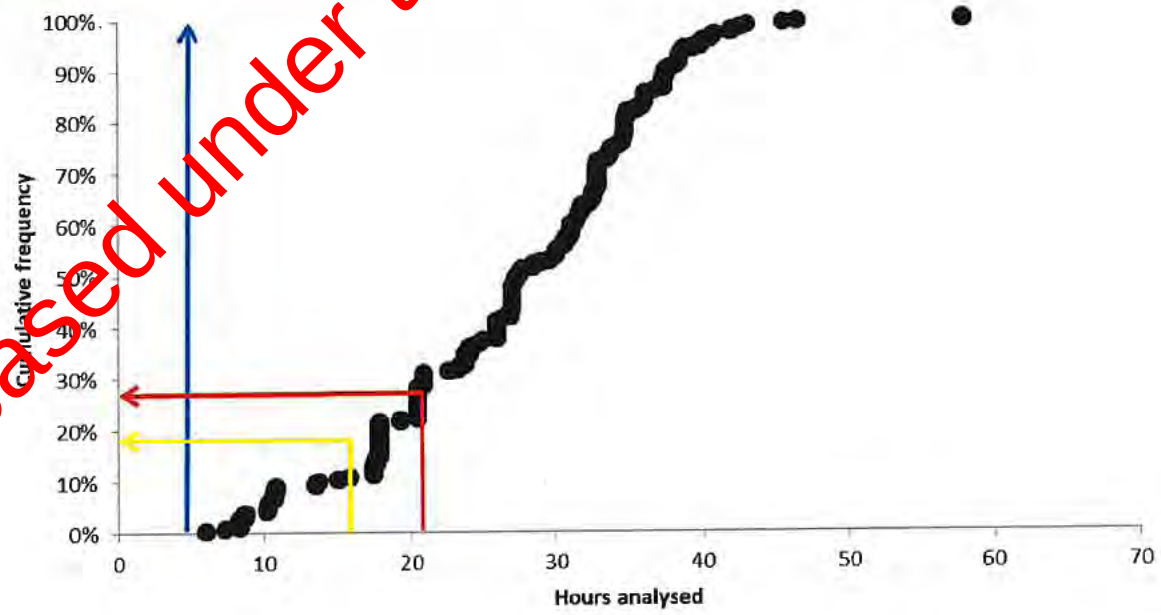


Figure 8 Hours analysed at non-detect sites



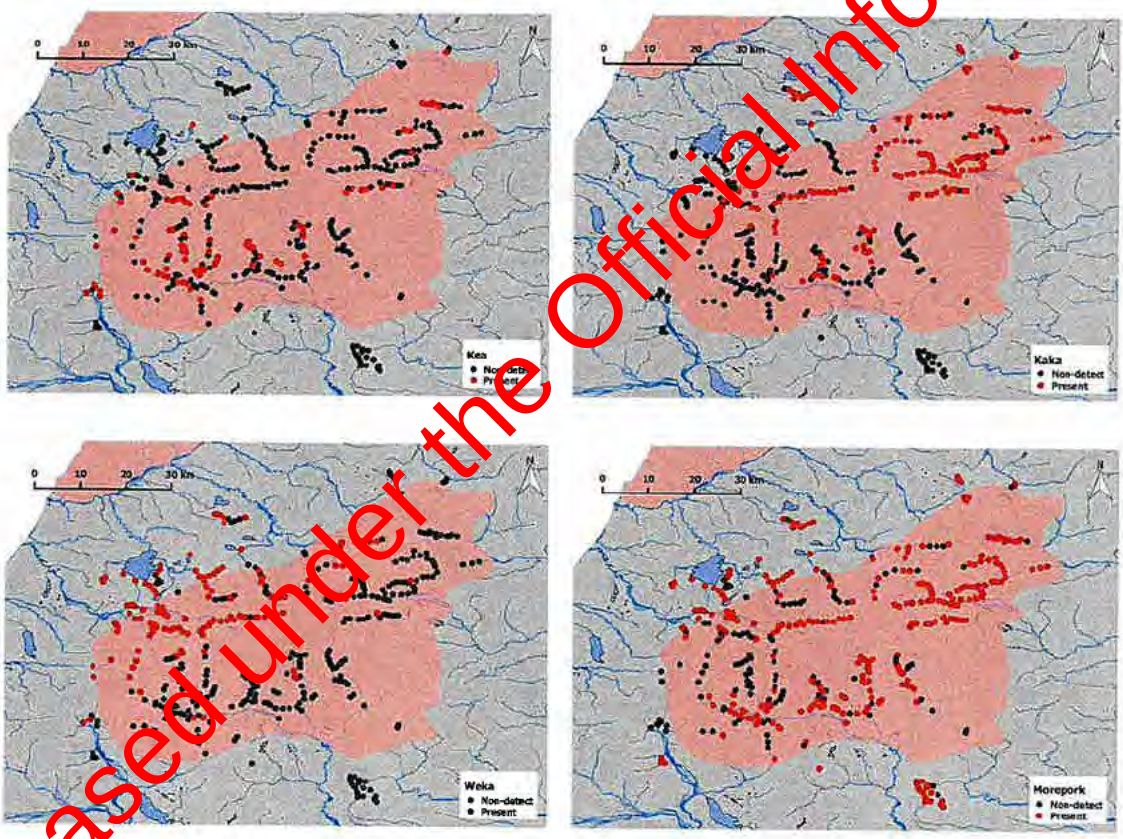
Core versus fringe

Kiwi call rate is used to estimate relative abundance (Robertson & Colebourne 2017). The relationship between call rate and the density of birds is unknown. This has been identified as an issue since at least 1986 (Powlesland 1986). Call rate is highly variable, however there is a clear core area, straddling the main divide with a higher call rate of 0.3 calls h^{-1} (Figure 4). The highest call rates were located in the South Branch Hurunui and Taramakau River valleys. Call rates are lower than in NW Nelson (Toy and Toy unpublished data) which may reflect the topography of the Alps, dominated by very steep sided valleys with extensive areas of bare rock/snow above the bushline (McLennan & McCann 2002).

Other nocturnal species

Acoustic recorders are not regularly used to determine the distribution of other nocturnal species but the results of this survey suggest that they may provide a useful tool. Figure 9 summarises the presence of other species in the survey area.

Figure 9 Distribution of other bird species that call at night: kea; kaka; weka; morepork



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Iconic Kiwi programme, DOC Rangiora office and DOC Greymouth office. Recordings have been shared by DOC Rangiora, DOC Greymouth offices and the DOC Tier 1 monitoring team. Recorders have been deployed by many groups including DOC staff and contractors from the Rangiora and Hokitika offices; by members of Arthur's Pass Wildlife Trust, Canterbury University Tramping Club, West Coast Alpine Club and Friends of Flora volunteers. Many landowners and DOC staff from all local offices have facilitated access to some sites. Thank you all.

The maps were produced using QGIS 2.18.17 Geographic Information System. Open Source Geospatial Foundation Project. http://qgis.osgeo.or and data sourced from the LINZ Data Service and licensed for re-use under CC BY 4.0.

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Appendix 1 Acoustic recorder locations and summary of number of number of calls

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
Andrews	2016-2017	ATT3.07	1503620	5242879	7/01/2017	10/01/2017	22:00	2.7	39	1.8
		ATT7.03	1502716	5243523	5/01/2017	19/01/2017	55:00	6.8	78	1.4
	2018-2019	Andrews AV6	1501991	5239434	22/04/2019	24/04/2019	37:19	3.0	1	
Arahura	2018-2019	Mudflats hut	1466780	5251820	14/01/2019	4/02/2019	42:30	5.0	0	
		Harman hut	1462968	5246726	13/01/2019	6/02/2019	49:35	5.8	0	
Arthurs Pass 2018	2018-2019	Bealey Spur 1	1484031	5234486	13/10/2018	13/10/2018	30:17	3.0	0	
		Bealey Spur 2	1485434	5235044	9/10/2018	14/10/2018	30:01	3.0	0	
		Bealey Spur 3	1487483	5235095	13/10/2018	14/10/2018	27:38	2.8	0	
		Crow 1	1478704	5241818	28/09/2018	30/09/2018	31:45	3.0	0	
		Crow 2	1478720	5240436	28/09/2018	3/10/2018	31:29	3.0	0	
		Crow 3	1479252	5244546	28/09/2018	2/10/2018	31:35	3.0	0	
		Deception 1	1484252	5255082	3/10/2018	5/10/2018	31:05	3.0	29	0.9
		Deception 2	1487469	5253363	3/10/2018	5/10/2018	31:05	3.0	11	0.4
		Deception 3	1487683	5256584	3/10/2018	5/10/2018	31:05	3.0	38	1.2
		Upper Waimakariri 1	1471575	5242350	25/09/2018	25/09/2018	10:46	1.0	0	
		Upper Waimakariri 2	1473431	5242492	25/09/2018	25/09/2018	10:46	1.0	0	
Arthurs Pass 2019	2018-2019	Nellies Creek 1	1482807	5264725	19/03/2019	21/03/2019	29:35	2.7	3	0.1
		Nellies Creek 2	1482820	5264596	21/03/2019	23/03/2019	29:53	2.7	1	
		The Avenue	1476655	5266448	19/03/2019	23/03/2019	29:40	2.7	0	
		Harper River	1486383	5231407	14/02/2019	18/02/2019	26:15	2.8	0	
		Hamilton Hut	1488206	5224262	5/02/2019	10/02/2019	26:52	3.0	0	
		Mid-Waimak 1	1480785	5238736	6/03/2019	11/03/2019	42:00	4.1	0	
		Mid-Waimak 3	1484081	5237285	8/03/2019	10/03/2019	31:00	3.0	0	
		Kelly's Creek 1	1483360	5260221	19/03/2019	24/03/2019	29:50	2.7	2	0.1
		Kelly's Creek 2	1483403	5260165	20/03/2019	23/03/2019	29:37	2.7	0	
		Mid-Waimak 2	1481370	5238430	6/03/2019	11/03/2019	28:54	2.8	0	

Group	Bioyear (year starting August 1)	Nearest 'feature'		Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		Harper River 2		1486592	5229428	14/02/2019	18/02/2019	27:00	2.9	0	
		Harper River 3		1486638	5227716	14/02/2019	18/02/2019	27:00	2.9	0	
Avoca	2018-2019	Avoca Hut		1472181	5232055	21/10/2018	21/10/2018	7:20	0.8	0	
		Easy Stream		1474548	5232177	21/10/2018	21/10/2018	8:20	0.9	0	
		Galilee Stream		1476773	5231031	21/10/2018	21/10/2018	8:20	0.9	0	
		Little Jordan Stream		1480155	5235727	21/10/2018	21/10/2018	8:20	0.9	0	
		mid-Jordan Stream		1479216	5234610	21/10/2018	21/10/2018	8:20	0.9	0	
BH/MtOxford/Wharfedale	2017-2018	Black Hills4		1519749	5218497	4/08/2018	5/08/2018	37:30	2.9	0	
		Black Hills8		1523124	5216989	4/08/2018	6/08/2018	36:45	2.8	0	
		Mt oxford5		1524216	5214402	23/07/2018	29/07/2018	39:47	3.0	0	
		Mt oxford8		1522741	5212502	23/07/2018	30/07/2018	37:30	2.8	0	
		Wharfedale3		1521113	5214894	3/08/2018	5/08/2018	37:30	2.9	0	
		Wharfedale6		1521602	5213503	10/07/2018	14/07/2018	40:49	3.0	0	
		Mt Oxford1		1525662	5210950	3/07/2018	10/07/2018	37:45	2.8	0	
		Mt Oxford3		1525451	5212602	3/07/2018	9/07/2018	24:45	1.8	0	
		Mt Oxford2		1525215	5211761	3/07/2018	12/07/2018	37:54	2.8	0	
		Wharfedale1		1521798	5216529	4/08/2018	6/08/2018	37:25	2.9	0	
		Black Hills2		1520080	5216408	3/08/2018	5/08/2018	37:21	2.9	0	
		Wharfedale7		1521672	5212380	10/07/2018	14/07/2018	39:54	2.9	0	
	2018-2019	Black Hills1		1520498	5215689	3/09/2018	7/09/2018	34:59	3.0	0	
		Black Hills7		1522011	5217425	3/09/2018	5/09/2018	31:24	2.7	0	
		Mt Oxford10		1522809	5215005	5/09/2018	10/09/2018	34:40	3.0	0	
		Black Hills6		1520867	5218360	2/09/2018	10/09/2018	42:57	3.7	0	
		Black Hills3		1519788	5217590	2/09/2018	5/09/2018	36:07	3.1	0	
Binser	2016-2017		2.41834E+13	1508357	5240126	10/01/2017	24/01/2017	58:12	7.0	7	0.1
	2018-2019	Binser HBS 44		1506257	5238538	13/04/2019	18/04/2019	36:22	3.0	9	0.2

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		Binser HBS24	1504692	5238428	13/04/2019	18/04/2019	36:22	3.0	3	0.1
		Binser HBS 60	1507976	5239007	13/04/2019	18/04/2019	36:22	3.0	2	0.1
		Binser Mt white stn	1503948	5235472	11/04/2019	16/04/2019	36:07	3.0	0	
		Binser HBS4	1503184	5238454	6/04/2019	11/04/2019	34:40	3.0	0	
Cass	2018-2019	Cass FOR2	1495032	5229707	8/04/2019	14/04/2019	35:45	3.0	0	
		Cass FOR8	1494494	5228601	8/04/2019	17/04/2019	35:59	3.0	0	
Cox	2018-2019	Cox 22	1518060	5253231	21/04/2019	25/04/2019	25:01	2.0	1	
		Cox A	1515650	5250626	23/04/2019	23/04/2019	12:27	1.0	10	0.8
		Cox 21	1517394	5252615	24/04/2019	24/04/2019	24:56	2.0	0	
		Cox 20	1517049	5252027	23/04/2019	24/04/2019	24:56	2.0	1	
		Cox B	1516700	5250861	24/04/2019	24/04/2019	12:29	1.0	1	0.1
		Cox 11	1515213	5250802	22/04/2019	22/04/2019	12:23	1.0	16	1.3
		Cox 10	1515991	5247303	22/04/2019	24/04/2019	37:19	3.0	8	0.2
		Cox 16	1514733	5256098	23/04/2019	24/04/2019	24:56	2.0	18	0.7
		Cox 15	1514412	5255099	23/04/2019	24/04/2019	24:56	2.0	5	0.2
		Cox 9	1517094	5246976	22/04/2019	24/04/2019	37:19	3.0	9	0.2
		Esk	1522521	5239675	22/04/2019	25/04/2019	13:28	1.1	0	
		Cox 24	1519344	5242131	22/04/2019	24/04/2019	37:19	3.0	0	
		Cox 23	1520179	5242909	22/04/2019	24/04/2019	37:19	3.0	0	
		Cox 8	1518058	5246788	22/04/2019	24/04/2019	37:19	3.0	0	
		Cox 7	1518721	5245975	22/04/2019	24/04/2019	37:19	3.0	0	
		Cox Rd extra	1517227	5248466	22/04/2019	24/04/2019	37:19	3.0	5	0.1
		Greynes FOR5	1485055	5240058	22/04/2019	24/04/2019	24:52	2.0	7	0.3
		Cox 12	1515039	5251787	23/04/2019	24/04/2019	24:56	2.0	11	0.4
		Cox 13	1514757	5252954	23/04/2019	24/04/2019	24:56	2.0	27	1.1
		Cox 14	1514399	5253991	23/04/2019	24/04/2019	24:56	2.0	6	0.2
Crooked	2018-2019	JACKO 1	1486843	5276187	29/01/2019	31/01/2019	26:15	3.0	30	1.1

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		JACKO 2	1487343	5274388	29/01/2019	31/01/2019	26:15	3.0	4	0.2
		JACKO 3	1488330	5273230	29/01/2019	31/01/2019	26:15	3.0	2	0.1
		JACKO 4	1487836	5271268	29/01/2019	30/01/2019	17:25	2.0	5	0.3
		JACKO 6	1489284	5270507	30/01/2019	31/01/2019	17:34	2.0	3	0.2
		JACKO 7	1490621	5270749	30/01/2019	31/01/2019	17:34	2.0	1	0.1
		JACKO 8	1491675	5270999	30/01/2019	31/01/2019	17:34	2.0	2	0.1
		JACKO 9	1492797	5271043	30/01/2019	31/01/2019	17:34	2.0	14	0.8
		JACKO10	1493488	5271746	30/01/2019	30/01/2019	8:44	1.0	1	0.1
		JACKO 11	1492808	5271178	31/01/2019	31/01/2019	8:50	1.0	2	0.2
		Crooked 102	1486584	5277214	12/04/2019	17/04/2019	36:05	3.0	5	0.1
		Crooked 106	1490761	5280351	9/04/2019	17/04/2019	39:20	3.3	0	
		Crooked 103	1487785	5277719	12/04/2019	17/04/2019	36:05	3.0	0	
		Crooked 104	1488930	5278439	12/04/2019	17/04/2019	36:05	3.0	0	
		Crooked 105	1489743	5279419	12/04/2019	17/04/2019	36:05	3.0	0	
		Crooked 101	1485771	5277443	12/04/2019	18/04/2019	34:39	2.9	3	0.1
Doubtful	2018-2019	DF1	1542456	5290753	20/09/2018	22/09/2018	32:50	3.0	0	
		DF2	1541109	5291273	21/09/2018	23/09/2018	32:42	3.0	0	
		DF2A	1540697	5290808	28/09/2018	28/09/2018	10:38	1.0	0	
		DF3	1539996	5290748	21/09/2018	26/09/2018	32:31	3.0	0	
		DF3A	1538656	5291110	21/09/2018	26/09/2018	32:31	3.0	0	
		DF4	1537683	5290537	20/09/2018	22/09/2018	32:50	3.0	0	
		DF4A	1537827	5291277	28/09/2018	28/09/2018	10:38	1.0	0	
		DF5	1537172	5291408	21/09/2018	26/09/2018	32:31	3.0	0	
		DF6	1536251	5292053	20/09/2018	22/09/2018	32:50	3.0	0	
		DF7	1535925	5291486	21/09/2018	23/09/2018	32:42	3.0	0	
		DF8	1534968	5291606	20/09/2018	22/09/2018	32:50	3.0	0	
		DF9	1534061	5291917	20/09/2018	22/09/2018	32:50	3.0	0	

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
Edwards	2016-2017	ETT1.07	1502716	5243523	5/01/2017	14/01/2017	44:44	4.4	19	0.5
	2018-2019	EdwardMFLD3	1486348	5240984	9/03/2019	9/03/2019	10:20	1.0	14	1.4
		EdwardMFLD5	1488047	5241088	9/03/2019	9/03/2019	10:20	1.0	0	
		EdwardMFLD10	1489755	5244472	9/03/2019	9/03/2019	10:20	1.0	1	0.1
		EdwardMFLD13	1489505	5243161	9/03/2019	9/03/2019	10:20	1.0	2	0.2
		EdwardMFLin12	1489175	5242080	9/03/2019	9/03/2019	10:20	1.0	6	0.6
		ETT5.01	1486933	5240227	21/03/2019	21/03/2019	29:15	2.8	23	0.8
		ETT4.01	1486349	5240334	8/03/2019	17/03/2019	29:15	2.8	28	1.0
Flock hill	2015-2016	FH	1498252	5221721	6/01/2016	6/01/2016	40:02	5.0	0	
Front country west	2018-2019	Ahaura	1494756	5283947	6/09/2018	8/09/2018	34:43	3.0	0	
		CAMP Ck	1481018	5272465	6/09/2018	8/09/2018	34:43	3.0	7	0.2
		CROOKED RIVER 1	1481247	5279132	4/09/2018	6/09/2018	34:59	3.0	0	
		Harley Ck	1474434	5267223	13/11/2018	15/11/2018	25:56	3.0	0	
		Lady Lake Reserve	1483476	5284001	7/09/2018	9/09/2018	34:35	3.0	0	
		Lower Taipo 10	1472990	5264474	13/11/2018	15/11/2018	25:56	3.0	0	
		Lower Taipo 12	1470514	5265965	13/11/2018	15/11/2018	25:56	3.0	0	
		Lower Taipo 9	1471837	5264410	13/11/2018	15/11/2018	25:56	3.0	0	
		Murray 1 Jacksons	1477957	5267823	13/11/2018	15/11/2018	25:56	3.0	3	0.1
		Murray 2 Jacksons	1476763	5268214	13/11/2018	15/11/2018	25:56	3.0	4	0.2
		Te Kinga 1	1473805	5275075	13/11/2018	15/11/2018	25:56	3.0	0	
		Te Kinga 2	1474856	5274318	13/11/2018	15/11/2018	25:56	3.0	0	
		Te Kinga 3	1475611	5273038	13/11/2018	15/11/2018	25:56	3.0	0	
		Te Kinga 4	1476255	5271755	13/11/2018	15/11/2018	25:56	3.0	0	
		Te Kinga 5	1476967	5279283	14/11/2018	14/11/2018	8:39	1.0	0	
		Te Kinga 6	1476480	5278358	14/11/2018	14/11/2018	8:39	1.0	1	0.1
		Te Kinga 7	1477081	5280392	14/11/2018	14/11/2018	8:39	1.0	0	
Greyneys	2018-2019	Greyneys FOF4	1485032	5240098	8/04/2019	8/04/2019	11:46	1.0	4	0.3

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
Griffin	2018-2019	Griffin 1	1467150	5263000	7/10/2018	15/10/2018	30:01	3.0	0	
		Griffin 2	1467619	5262340	7/10/2018	15/10/2018	30:01	3.0	0	
		Griffin 3	1467899	5261610	7/10/2018	9/10/2018	30:34	3.0	0	
		Griffin 4	1467869	5260359	7/10/2018	9/10/2018	30:34	3.0	0	
HaupiriTopTrent	2018-2019	Haupiri 1	1504530	5271824	25/12/2018	26/12/2018	15:49	2.0	47	3.0
		Haupiri 10	1498685	5279657	24/12/2018	26/12/2018	23:43	3.0	0	
		Haupiri 11	1497907	5280467	24/12/2018	26/12/2018	23:43	3.0	0	
		Haupiri 12	1496321	5281179	24/12/2018	26/12/2018	23:43	3.0	0	
		Haupiri 13	1500329	5273351	24/12/2018	27/12/2018	15:49	2.0	0	
		Haupiri 2	1503307	5271974	25/12/2018	26/12/2018	15:49	2.0	31	2.0
		Haupiri 3	1503186	5271674	25/12/2018	26/12/2018	15:49	2.0	8	0.5
		Haupiri 4	1500763	5272472	25/12/2018	26/12/2018	15:49	2.0	2	0.1
		Haupiri 5	1502806	5273337	24/12/2018	27/12/2018	31:38	4.0	6	0.2
		Haupiri 6	1500408	5274963	24/12/2018	27/12/2018	31:38	4.0	0	
		Haupiri 7	1499466	5276235	24/12/2018	27/12/2018	31:38	4.0	0	
		Haupiri 8	1499637	5277582	24/12/2018	26/12/2018	23:43	3.0	0	
		Haupiri 9	1499117	5278592	24/12/2018	26/12/2018	23:43	3.0	0	
Hawdon	2012-2013	2 Mile	1486064	5238802	30/03/2013	6/04/2013	33:37	3.0	13	0.4
		HLD1	1498048	5240282	21/02/2013	22/02/2013	19:21	2.0	15	0.8
		HLD10	1496403	5249109	21/08/2013	23/08/2013	36:47	3.0	42	1.1
		HLD29	1493689	5238735	21/03/2013	23/03/2013	32:56	3.0	9	0.3
		HLD3	1498816	5242513	4/08/2013	4/08/2013	12:57	1.0	5	0.4
		HLD15	1496660	5247402	23/08/2013	28/08/2013	30:00	2.5	33	1.1
		HLD13	1496033	5248220	23/08/2013	2/09/2013	30:00	2.5	27	0.9
		HLD7	1497703	5246478	23/08/2013	26/08/2013	30:00	2.5	46	1.5
		HLD20	1497464	5242328	14/03/2019	20/03/2019	32:05	3.0	45	1.4
		HLD2	1498651	5241468	4/08/2013	9/08/2013	20:00	1.6	14	0.7

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		HLD8	1497485	5247497	23/08/2013	26/08/2019	30:00	2.5	35	1.2
	2016-2017	Mainline HTT20.06	1499193	5244941	13/01/2017	27/01/2017	42:14	5.0	40	0.9
		Onetree HTT	1495762	5239348	23/01/2017	1/02/2017	24:30	2.8	2	0.1
		Eastern HTT 25.08	1498051	5245630	13/01/2017	25/01/2017	25:11	3.0	50	2.0
		Unknown HTT 11.09	1497673	5243615	13/01/2017	25/01/2017	25:11	3.0	8	0.3
		Mainline HTT16.08	1498476	5244599	13/01/2017	25/01/2017	25:11	3.0	13	0.5
	2018-2019	AWH33	1501576	5239846	5/03/2019	12/03/2019	30:57	3.0	12	0.4
		HKC52	1500809	5240080	5/03/2019	10/03/2019	30:52	3.0	28	0.9
		HKC17	1498768	5240522	5/03/2019	18/03/2019	30:37	2.9	19	0.6
		HOT5	1496748	5240752	18/04/2019	23/04/2019	37:00	3.0	23	0.6
		HOT20	1496216	5240151	18/04/2019	23/04/2019	37:00	3.0	53	1.4
Hochstetter	2018-2019	Hochstetter 1	1489965	5296341	4/09/2018	9/09/2018	34:43	3.0	0	
		Hochstetter 2	1489521	5296241	7/09/2018	9/09/2018	34:35	3.0	0	
		Hochstetter 3	1490611	5295372	4/09/2018	9/09/2018	34:43	3.0	0	
		Hochstetter 4	1491780	5294986	4/09/2018	9/09/2018	34:43	3.0	0	
		Hochstetter 5	1493215	5294475	4/09/2018	9/09/2018	34:43	3.0	0	
		Hochstetter 6	1492451	5293750	4/09/2018	9/09/2018	34:43	3.0	0	
		Hochstetter 7	1490765	5293624	4/09/2018	9/09/2018	57:54	5.0	0	
		Hochstetter 8	1494262	5295006	4/09/2018	9/09/2018	34:43	3.0	0	
		Hochstetter 9	1495387	5295556	4/09/2018	9/09/2018	34:43	3.0	0	
Hohonu	2018-2019	HOHONU 8	1464448	5275323	29/01/2019	30/01/2019	17:25	2.0	0	
		HOHONU 9	1471592	5275777	29/01/2019	30/01/2019	17:25	2.0	0	
		HOHONU 8	1468740	5277718	29/01/2019	30/01/2019	17:25	2.0	0	
		HOHONU 7	1464284	5276056	29/01/2019	30/01/2019	17:25	2.0	0	
		HOHONU 6	1464875	5276505	29/01/2019	30/01/2019	17:25	2.0	0	
		Hohonu 1	1471650	5268144	7/02/2019	15/02/2019	45:26	5.0	0	
		Hohonu 2	1471177	5268533	7/02/2019	16/02/2019	27:18	3.0	0	

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		Hohonu 3	1470484	5268398	9/02/2019	16/02/2019	27:32	3.0	0	
		Hohonu 4	1469647	5268235	9/02/2019	16/02/2019	27:32	3.0	0	
Hope	2018-2019	HOPE 11	1532720	5286370	20/09/2018	30/09/2018	32:22	3.0	0	
		HOPE 2	1530159	5283736	20/09/2018	22/09/2018	32:50	3.0	0	
		HOPE 7	1535820	5284120	18/09/2018	23/09/2018	32:55	3.0	0	
		HOPE 9	1537290	5282670	18/09/2018	23/09/2018	32:53	3.0	0	
		Hope Kiwi 4	1538026	5279938	2/10/2018	3/10/2018	20:51	2.0	0	
		Hope Kiwi 567i	1547201	5283271	2/10/2018	3/10/2018	20:51	2.0	0	
		Hope Kiwi 567ii	1545746	5282837	2/10/2018	3/10/2018	20:51	2.0	0	
		Hope Kiwi 567iii	1543776	5282846	2/10/2018	3/10/2018	20:51	2.0	0	
		HOPE1	1529797	5282780	20/09/2018	22/09/2018	32:50	3.0	0	
		HOPE10	1537580	5281663	18/09/2018	23/09/2018	32:53	3.0	0	
		HOPE3	1533262	5283515	19/09/2018	21/09/2018	32:58	3.0	0	
		HOPE4	1532556	5284554	2/10/2018	2/10/2018	10:27	1.0	0	
		HOPE5	1534233	5284982	18/09/2018	23/09/2018	32:53	3.0	0	
		HOPE6	1535667	5285734	21/09/2018	28/09/2018	32:26	3.0	0	
		HOPE8	1536916	5283393	18/09/2018	23/09/2018	32:53	3.0	0	
Jack Camp	2018-2019	JACKCAMP1	1478484	5266065	29/01/2019	29/01/2019	8:41	1.0	0	
		JACKCAMP3	1478169	5266180	30/01/2019	31/01/2019	17:34	2.0	0	
		JACKCAMP5	1477230	5266449	30/01/2019	31/01/2019	17:34	2.0	0	
		Jackcampmine	1479038	5265494	9/04/2019	18/04/2019	41:14	3.4	3	0.1
Kelly Range	2018-2019	Attached to warratah by tarns	1479664	5261083	5/10/2018	14/10/2018	34:06	3.4	0	
		Attached to warratah by track 1	1478420	5261442	7/10/2018	14/10/2018	30:20	3.0	3	0.1
		Attached to warratah by track 2	1480429	5261596	13/10/2018	15/10/2018	29:44	3.0	14	0.5
		Attached to warratah by track 3	1481524	5261809	8/10/2018	17/10/2018	29:53	3.0	7	0.2
		East side of track on flattish spur	1482252	5260713	3/10/2018	16/10/2018	30:08	3.0	10	0.3
Lake Christabel	2018-2019	Jackson Creek 0560-08	1539680	5308136	13/11/2018	15/11/2018	25:56	3.0	0	

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		Jackson Creek 0960-01	1539456	5307353	30/10/2018	11/11/2018	27:05	3.0	0	
		Jackson Creek1200-07	1538973	5307108	30/10/2018	11/11/2018	26:55	3.0	0	
		Lake Christabel 0500-05	1529625	5303578	27/10/2018	10/11/2018	27:15	3.0	0	
		Lake Christabel 0600-01	1528615	5303610	27/10/2018	10/11/2018	27:15	3.0	0	
		Lake Christabel 1100-08	1529044	5302750	27/10/2018	10/11/2018	27:15	3.0	0	
		Mt Alexander0660-03	1527754	5308472	30/10/2018	11/11/2018	27:00	3.0	0	
		Mt Alexander1000-03	1527200	5309192	11/11/2018	11/11/2018	26:52	3.0	0	
		Mt Alexander1180-08	1527063	5309907	2/11/2018	11/11/2018	26:50	3.0	0	
Lake Sumner	2018-2019	3 Mile 1	1531581	5276803	7/10/2018	8/10/2018	20:25	2.0	0	
		3 Mile 2	1532787	5275617	7/10/2018	8/10/2018	20:25	2.0	0	
		3 Mile 3	1533164	5274683	7/10/2018	8/10/2018	20:25	2.0	0	
		3 Mile 4	1533750	5273889	7/10/2018	8/10/2018	20:25	2.0	0	
		3 Mile 5	1534625	5273339	7/10/2018	8/10/2018	20:25	2.0	0	
		3 Mile 6	1534000	5276881	8/10/2018	8/10/2018	10:11	1.0	0	
		Kiwi Pack Track 1	1528360	5273019	7/10/2018	8/10/2018	20:25	2.0	0	
		Kiwi Pack Track 2	1530269	5273059	7/10/2018	8/10/2018	20:25	2.0	0	
		Mackenzie 1	1519177	5277696	7/10/2018	8/10/2018	20:25	2.0	10	0.5
		Mackenzie 2	1520160	5277706	7/10/2018	8/10/2018	20:25	2.0	5	0.2
		Mackenzie 3	1521121	5277236	7/10/2018	8/10/2018	20:25	2.0	1	
		Mackenzie 4	1521674	5276275	7/10/2018	8/10/2018	20:25	2.0	13	0.6
		Mackenzie 5	1521780	5275228	7/10/2018	8/10/2018	20:25	2.0	9	0.4
		Mackenzie 6	1522042	5274234	7/10/2018	8/10/2018	20:25	2.0	11	0.5
		McMillan 1	1526600	5273110	7/10/2018	8/10/2018	20:25	2.0	0	
		McMillan 2	1525909	5274439	7/10/2018	8/10/2018	20:25	2.0	0	
		McMillan 3	1527498	5275616	7/10/2018	8/10/2018	20:25	2.0	0	
		McMillan 4	1528348	5276505	7/10/2018	8/10/2018	20:25	2.0	0	
		McMillan 5	1530169	5276889	7/10/2018	8/10/2018	20:25	2.0	0	

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		McMillan 6	1532103	5277434	7/10/2018	7/10/2018	10:14	1.0	0	
		McMillan 7	1533454	5277462	7/10/2018	7/10/2018	10:14	1.0	0	
		McMillan 8	1529184	5277002	8/10/2018	8/10/2018	10:11	1.0	0	
		North Hurunui 1	1516381	5271539	7/10/2018	7/10/2018	10:14	1.0	14	1.4
		North Hurunui 1B	1517717	5271862	8/10/2018	8/10/2018	10:11	1.0	3	0.3
		North Hurunui 2	1519713	5272093	7/10/2018	8/10/2018	20:25	2.0	5	0.2
		North Hurunui 3	1521200	5272474	7/10/2018	8/10/2018	20:25	2.0	0	
		North Hurunui 4	1522137	5272678	7/10/2018	8/10/2018	20:25	2.0	0	
		North Hurunui 5	1523716	5272514	7/10/2018	8/10/2018	15:04	1.5	0	
		North Hurunui 6	1524818	5272116	7/10/2018	8/10/2018	20:25	2.0	0	
		North Hurunui extra 1	1524740	5271609	6/10/2018	8/10/2018	30:41	3.0	2	0.1
		North Hurunui extra 2	1523108	5271377	6/10/2018	8/10/2018	30:41	3.0	0	
		North Hurunui extra 3	1522678	5271255	6/10/2018	8/10/2018	30:41	3.0	0	
Mingha	2018-2019	Mingha 1	1486520	5242000	8/12/2018	8/12/2018	7:30	0.9	2	0.3
		Mingha 2	1487670	5244749	8/12/2018	8/12/2018	7:30	0.9	11	1.5
		Mingha 3	1487850	5246020	8/12/2018	8/12/2018	7:30	0.9	3	0.4
		Mingha 4	1487820	5247999	8/12/2018	8/12/2018	7:30	0.9	12	1.6
		Mingha 5	1487969	5249349	8/12/2018	8/12/2018	8:00	1.0	23	2.9
NB	2014-2015	NBLD1	1513802	5271199	14/10/2014	13/11/2014	40:00	4.4	59	1.5
		NBLD3	1517756	5271598	1/11/2014	10/11/2014	40:00	4.5	0	
	2012-2013	NBLD2	1514794	5270649	6/04/2013	8/04/2013	34:07	3.0	37	1.1
NB1	2018-2019	NB kiwi listening site 1	1513824	5271171	20/11/2018	28/11/2018	24:55	3.0	38	1.5
NB2	2018-2019	NB kiwi listening site 2	1514806	5270664	20/11/2018	28/11/2018	24:55	3.0	23	0.9
NB3	2018-2019	NB kiwi listening site 3	1517756	5271598	20/11/2018	28/11/2018	24:55	3.0	4	0.2
Otira	2018-2019	OTIRA 1	1482129	5255204	8/09/2018	8/09/2018	11:32	1.0	19	1.6
		OTIRA 2	1488056	5262660	6/09/2018	7/09/2018	23:11	2.0	2	0.1
		OTIRA 3	1488348	5263785	7/08/2018	6/09/2018	24:27	2.0	0	

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		OTIRA 4	1489041	5264424	6/09/2018	7/09/2018	23:11	2.0	0	
		OTIRA 5	1486339	5260840	6/09/2018	7/09/2018	23:11	2.0	17	0.7
		OTIRA 6	1486853	5259895	6/09/2018	7/09/2018	23:11	2.0	5	0.2
		OTIRA 7	1487054	5261956	6/09/2018	7/09/2018	23:11	2.0	0	
		DEATHCN1	1482281	5250970	30/01/2019	31/01/2019	17:34	2.0	10	0.6
		OTIRA 8	1481562	5249442	30/01/2019	31/01/2019	13:44	1.6	0	
		OTIRA 9	1482406	5249884	30/01/2019	31/01/2019	17:34	2.0	1	0.1
		OTIRA 10	1482405	5254279	30/01/2019	31/01/2019	17:34	2.0	0	
Parakeet	2018-2019	Parakeet 1	1537115	5278649	3/10/2018	3/10/2018	20:51	2.0	0	
		Parakeet 2	1535984	5276[illegible]	2/10/2018	3/10/2018	20:51	2.0	0	
		Parakeet 3	1535054	5278663	2/10/2018	3/10/2018	20:51	2.0	0	
Poulter	2016-2017	Brown TT16.10	1509388	5245148	10/01/2017	13/01/2017	30:44	3.8	9	0.3
		Casey TT21.10	1509455	5248889	12/01/2017	23/01/2017	51:00	6.1	19	0.4
		Forest peak TT11.01	1509438	5250829	13/01/2017	22/01/2017	25:05	3.0	3	0.1
		Ranger TT10.06	1509419	5254638	13/01/2017	25/01/2017	42:32	5.0	51	1.2
		MT20	1507430	5254461	30/08/2017	7/09/2017	36:00	3.1	20	0.6
		Ranger TT6.07	1508353	5253945	11/01/2017	25/01/2017	23:05	2.8	10	0.4
		BT 21	1508372	5251773	2/09/2017	2/09/2017	5:30	0.5	6	1.1
	2017-2018	Betwn BT 12 - 13	1508312	5252566	2/09/2017	4/09/2017	29:47	1.5	8	0.3
		MT8	1506689	5255216	2/09/2017	5/09/2017	24:00	2.0	15	0.6
		PSBF3.1	1506104	5253483	8/03/2018	13/03/2018	35:25	3.4	9	0.3
		Stag 34	1507785	5247700	8/03/2018	12/03/2018	30:00	2.9	0	
		Stag 2[illegible]	1507284	5248143	8/03/2018	19/03/2018	30:00	2.8	13	0.4
		O[illegible]	1507166	5249690	27/10/2017	31/10/2017	30:00	3.2	34	1.1
		O24	1508373	5248235	23/10/2017	1/11/2017	30:00	3.2	22	0.7
	2018-2019	Poutlter TL Turnbull	1511578	5242473	6/04/2019	6/04/2019	10:41	1.0	0	
		Poulter TL	1511069	5241730	6/04/2019	6/04/2019	10:41	1.0	0	

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		Poulter TR opp Turnbull	1509312	5243110	8/04/2019	11/04/2019	35:29	3.0	0	
		Poulter TR 101	1509379	5241374	7/04/2019	10/04/2019	28:29	2.4	0	
		Poulter 104	1508913	5237931	11/04/2019	17/04/2019	36:03	3.0	0	
Rolleston/AP/Anti-Crow/Broad Stm	2018-2019	Broad Stream 2	1489344	5233349	21/05/2019	22/05/2019	27:00	2.0	0	
		Broad Stream 1	1488913	5233871	21/05/2019	22/05/2019	27:00	2.0	0	
		Anti-Crow 1	1476744	5238744	21/05/2019	22/05/2019	27:00	2.0	0	
		Anti-Crow 2	1478017	5238433	21/05/2019	22/05/2019	27:00	2.0	0	
		Anti-Crow 3	1479048	5237882	21/05/2019	22/05/2019	27:00	2.0	0	
		Anti-Crow 4	1480224	5237085	21/05/2019	22/05/2019	27:00	2.0	0	
		Anti-Crow 5	1481279	5236458	21/05/2019	22/05/2019	27:00	2.0	0	
		Anti-Crow 6	1482576	5235832	21/05/2019	22/05/2019	27:00	2.0	0	
		Rolleston 4	1479041	5252215	20/05/2019	22/05/2019	40:27	3.0	21	0.5
		Rolleston 3	1479823	5252446	20/05/2019	22/05/2019	40:27	3.0	1	
		Rolleston 2	1480633	5252936	20/05/2019	23/05/2019	40:28	3.0	0	
		Rolleston 1	1481374	5253552	20/05/2019	23/05/2019	40:28	2.0	0	
		Punchbowl	1482755	5245508	20/05/2019	23/05/2019	40:28	3.0	8	0.2
		Jacks Hut	1482407	5246956	20/05/2019	23/05/2019	40:30	3.0	11	0.3
		Margaret Tarn	1481873	5247542	20/05/2019	23/05/2019	37:58	2.8	4	0.1
		Mt Bealey Track	1482583	5243472	20/05/2019	23/05/2019	37:59	2.8	30	0.8
		Scotts Track A	1481958	5245992	20/05/2019	23/05/2019	40:30	3.0	21	0.5
		Bealey Hotel	1486535	5235865	23/05/2019	23/05/2019	13:32	1.0	0	
SB	2014-2015	SLD2, opp stoney	1527100	5267134	25/01/2015	6/02/2015	37:30	4.3	0	
		SLD3 (d'stream opp stoney)	1527791	5266911	8/03/2015	13/03/2015	24:00	2.3	0	
		SLD5	1529627	5266857	1/04/2015	15/04/2015	40:00	3.5	0	
		TT26.10	1524837	5267578	5/11/2014	23/11/2014	31:00	3.6	2	0.1
		SLD4	1528795	5266825	1/04/2015	8/04/2015	24:00	2.1	0	

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		TT20.80	1526297	5267210	4/10/2014	15/10/2014	20:45	2.8	2	0.1
	2015-2016	SLDB63	1521829	5265566	1/01/2016	19/01/2016	39:00	4.8	33	0.8
		TT19.10	1525419	5266176	4/11/2015	10/11/2015	25:30	2.9	12	0.5
		SLDA36	1522941	5266266	13/12/2015	26/12/2015	24:00	3.0	40	1.7
		SLDTT22	1520979	5265403	27/12/2015	10/01/2016	24:00	3.0	39	1.6
	2016-2017	kiwi 3E blk	1517516	5264551	30/10/2016	5/11/2016	28:00	3.1	63	2.3
		kiwi1 H blk	1518818	5265688	30/10/2016	1/12/2016	23:00	2.6	77	3.3
SB1	2018-2019	SB kiwi listening site 1	1518826	5265679	20/11/2018	1/12/2018	24:46	3.0	141	5.7
SB2	2018-2019	SB kiwi listening site 2	1517934	5265632	20/11/2018	3/12/2018	24:26	3.0	97	4.0
SB3	2018-2019	SB kiwi listening site 3	1517525	5265559	20/11/2018	29/11/2018	24:53	3.0	31	1.2
Styx	2018-2019	Styx_Arahura_saddle	1462761	5249732	11/01/2019	30/01/2019	41:54	5.0	0	
Taipo	2018-2019	Behind Mid Taipo hut	1475725	5254763	27/09/2018	14/10/2018	31:03	3.0	3	0.1
		Creek Clearing Behind New Dillions Hut	1476642	5261889	26/09/2018	14/10/2018	31:05	3.0	0	
		Julia high point	1471703	5249662	27/09/2018	15/10/2018	30:57	3.0	0	
		Mary Creek trap #1	1470965	5246859	27/09/2018	30/09/2018	42:26	4.0	3	0.1
		Near trap #201	1475256	5263209	28/09/2018	13/10/2018	31:02	3.0	0	
		Roadside behind George's	1475955	5262533	27/09/2018	13/10/2018	31:05	3.0	0	
		Spur South of Scotts Creek	1475698	5260461	27/09/2018	14/10/2018	31:03	3.0	0	
		Terrace across river from Dillions	1475658	5261491	27/09/2018	13/10/2018	31:05	3.0	0	
		Trap #162	1475075	5259368	7/10/2018	14/10/2018	28:23	2.8	0	
		Trap #8	1472364	5251604	27/09/2018	14/10/2018	31:03	3.0	2	0.1
Taramakau	2018-2019	True right downstream of Otehake	1492963	5265542	18/02/2019	24/02/2019	28:44	3.0	8	0.3
		Locke Stream	1504175	5267156	8/02/2019	23/02/2019	32:36	3.5	12	0.4
		Michael Creek	1498193	5265578	8/02/2019	18/02/2019	27:36	3.0	31	1.1
		Yeo - Joseph Creek	1501672	5266669	8/02/2019	18/02/2019	27:36	3.0	23	0.8
		Upstream of Pfeifer Creek	1492190	5264411	18/02/2019	25/02/2019	28:47	3.0	11	0.4

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		Taverners Creek	1494856	5265945	8/02/2019	25/02/2019	28:12	3.0	96	3.4
		Yeo - Locke Stream	1502747	5266586	8/02/2019	24/02/2019	28:09	3.0	13	0.5
		True left downstream of Otehake	1493602	5264647	18/02/2019	25/02/2019	28:47	3.0	20	0.7
		Clear - Pfeifer Creek	1490572	5264086	18/02/2019	25/02/2019	28:47	3.0	12	0.4
		Downstream of Townsend Creek	1500335	5265724	8/02/2019	21/02/2019	31:36	3.4	31	1.0
		Kiwi Hut	1497004	5265678	8/02/2019	18/02/2019	27:36	3.0	28	1.0
		Upstream of Michael Creek	1498968	5265642	8/02/2019	18/02/2019	27:36	3.0	23	0.8
		Taverners Flat	1495900	5265596	8/02/2019	12/02/2019	26:50	3.0	63	2.3
Te Kinga DOC	2017-2018	ALDTK1	1475860	5277610	1/05/2018	5/05/2018	33:45	2.6	0	
		ALDTK2	1476540	5276120	1/05/2018	3/05/2018	19:15	1.5	0	
		ALDTK3	1477150	5276170	1/05/2018	5/05/2018	33:45	2.6	0	
		ALDTK4	1477985	5275620	1/05/2018	5/05/2018	33:30	2.6	0	
		ALDTK5	1478770	5275210	1/05/2018	5/05/2018	33:30	2.6	0	
		ALDTK6	1476180	5275060	1/05/2018	5/05/2018	33:45	2.6	0	
Waiheke-Tutaekuri-Trent	2018-2019	WAIHEKE 7	1514106	5288001	6/02/2019	7/02/2019	17:50	2.0	0	
		WAIHEKE 6	1516749	5288529	6/02/2019	7/02/2019	17:50	2.0	0	
		TUTAEKURI 6	1516509	5287099	6/02/2019	7/02/2019	17:50	2.0	0	
		TRENT 6	1513645	5281553	6/02/2019	7/02/2019	17:50	2.0	0	
		TRENT 5	1511772	5280431	6/02/2019	7/02/2019	17:50	2.0	0	
		TUTAEKURI 5	1515610	5281440	6/02/2019	7/02/2019	17:50	2.0	0	
		WAIHEKE 5	1519661	5288973	6/02/2019	7/02/2019	17:50	2.0	0	
		TUTAEKURI 1	1518749	5281450	6/02/2019	7/02/2019	17:50	2.0	0	
		WAIHEKE 2	1524354	5289031	6/02/2019	7/02/2019	17:50	2.0	0	
		WAIHEKE 4	1521152	5288999	6/02/2019	7/02/2019	17:50	2.0	0	
		TUTAEKURI 2	1517119	5281360	6/02/2019	7/02/2019	17:50	2.0	0	
		WAIHEKE 3	1522826	5288979	6/02/2019	7/02/2019	17:50	2.0	0	

Group	Bioyear (year starting August 1)	Nearest 'feature'	Easting	Northing	Range of nights listened		Total hours analysed	Number nights analysed	Total calls	Calls/ site/h
		TRENT 4	1510245	5279085	6/02/2019	7/02/2019	17:50	2.0	0	
		WAIHEKE 1	1525525	5289609	6/02/2019	7/02/2019	17:50	2.0	0	
		TRENT 1	1509464	5273008	6/02/2019	7/02/2019	17:50	2.0	2	0.1
		TUTAEKURI 5	1515940	5285339	6/02/2019	7/02/2019	17:50	2.0	0	
		TRENT 2	1509127	5275018	6/02/2019	7/02/2019	17:50	2.0	2	0.1
		TRENT 3	1509786	5277070	6/02/2019	7/02/2019	17:50	2.0	0	
Waikiti	2018-2019	WAIKITI 4	1508601	5285418	5/09/2018	7/09/2018	34:51	3.0	0	
		WAIKITI 5	1508826	5284654	5/09/2018	8/09/2018	46:23	4.0	0	
Waimakariri	2018-2019	Waimak Carrington Hut	1473450	5242437	23/09/2018	2/10/2018	42:39	4.0	2	
		Waimak Harper Ck	1474423	5240707	23/09/2018	2/10/2018	32:01	3.0	3	0.1
		Waimak Jordan Strm	1481026	5236502	23/09/2018	4/10/2018	31:49	3.0	0	
		Waimak opp Klondyke	1483205	5236078	23/09/2018	4/10/2018	31:49	3.0	0	
		Waimak TL Anti-Crow River	1477791	5239383	23/09/2018	27/09/2018	32:15	3.0	0	
Wilberforce TT	2017-2018	MOA High Point 767	1463424	5223750	8/08/2018	11/08/2018	38:16	3.0	0	
		MOASTREAM_0920_07	1463323	5222500	6/08/2018	10/08/2018	38:27	3.0	0	
		URQUHARTSHUT_0760_10	1461040	5232845	4/08/2018	10/08/2018	38:31	3.0	0	
		URQUHARTSHUT_0780_06	1463089	5234650	4/08/2018	6/08/2018	38:45	3.0	0	
		URQUHARTSHUT_0900_05	1462745	5235283	4/08/2018	8/08/2018	38:39	3.0	0	
		WEKABURNETBIV_0810_06	1464185	5231937	4/08/2018	22/08/2018	38:23	3.0	0	
		WEKABURNETBIV_0900_07	1464292	5233461	4/08/2018	10/08/2018	38:31	3.0	0	
		URQUHARTSHUT_0810_08	1462321	5233682	6/08/2018	10/08/2018	38:27	3.0	0	
		MOASTREAM_0720_10	1464172	5222364	6/08/2018	6/08/2018	6:00	0.5	0	
Youngmans Stream	2018-2019	Youngmans 3	1529990	5233128	27/03/2019	5/04/2019	34:18	3.0	0	
		Youngmans 4	1530178	5233949	27/03/2019	30/03/2019	33:47	3.0	0	
Total							10787	1035	2774	

Attachment 6

Plot ID		Measurement date	cover	altitude	kiwi
BH118	Doubtful	4/7/2017	Grassland	780m	no
BI119	Doubtful range	2/17/2017	indigenous forest	1200m	no
BH119	Hope river	12/15/2018	indigenous forest	780m	no
BG118	Lake Mann	1/14/2018	indigenous forest	975m	no
BG119	Hope Pass	12/16/2018	bareground	760m	no
BI118	Sylvia tops	1/15/2018	indigenous forest	980m	no
BI117	Nina	12/20/2020	indigenous forest	770m	no
BH117	Mt Boscawen	2/16/2019	Grassland	152[illegible]m	no
BI116	Deer valley	11/25/2019	indigenous forest	[illegible]m	no
BJ116	Trovatore	2/15/2019	grassland	1290m	no
BJ117	Libretto range	4/8/2017	grassland	1470m	no
BK118	Carlyle	11/25/2017	indigenous forest	600m	no