

APPENDICES

Appendix 1: All areas surveyed for vegetation and Maui Parrotbill (MAPA) in Manawainui.

MAPA Present	Number of MAPA	Sex	X	Y	Home range ID
N	0		798558	2291307	HC
N	0		798558	2291623	HD
N	0		798558	2291939	HE
N	0		798874	2290674	HG
N	0		798874	2290991	HI
N	0		798874	2291307	HJ
N	0		798874	2291623	HK
Y	1	U	798874	2291939	HL
N	0		799191	2290674	HM
Y	2	M,F	799191	2290991	HN
Y	2	M,U	799191	2291307	HO
N	0		799191	2291623	HP
Y	2	M,F	799191	2291939	HQ
Y	2	M,F	799507	2290991	HR
Y	1	M	799507	2291307	HS
N	0		799507	2291623	HT
Y	2	M,F	799507	2291939	HU
Y	1	M	799823	2291307	HW
Y	1	M	799823	2291623	HX
Y	2	M,F	800139	2291623	HZ
N	0		800455	2291307	HH

The size of each survey area was set at 10 hectares. Sexes of individuals are as follows: M=male, F=female, U=unknown sex. X and Y coordinates represent the center of each home range.

Appendix 2: All 0.04-ha vegetation plots used in the habitat analyses and corresponding UTM coordinates

Plot	Home Range	X Coordinate	Y Coordinate
HC1	HC	798580.98	2291302.02
HC2	HC	798602.15	2291340.14
HC3	HC	798553.56	2291237.08
HC4	HC	798603.43	2291258.64
HC5	HC	798554.74	2291356.25
HD1	HD	798517.91	2291646.85
HD2	HD	798556.94	2291653.78
HD3	HD	798585.38	2291667.3
HD4	HD	798511.61	2291601.9
HD5	HD	798581.54	2291573.78
HE1	HE	798531.44	2292009.48
HE2	HE	798525.62	2291879.61
HE3	HE	798593.59	2291926.5
HE4	HE	798550.45	2291949.67
HE5	HE	798623.91	2291996.31
HG1	HG	798913.18	2290608.94
HG2	HG	798914.37	2290745.46
HG3	HG	798823.14	2290599.62
HG4	HG	798939.43	2290642.97
HG5	HG	798865.12	2290607.18
HH1	HH	800520.46	2291326.15
HH2	HH	800406.84	2291299.03
HH3	HH	800421	2291259.22
HH4	HH	800396.6	2291339.15
HH5	HH	800500.73	2291233.6
HI1	HI	798920.64	2291003.66
HI2	HI	798860.45	2290956.12
HI3	HI	798883.74	2290994.17
HI4	HI	798822.2	2290940.51
HI5	HI	798902.32	2290918.73
HJ1	HJ	798910.91	2291290.08
HJ2	HJ	798845.45	2291282.42
HJ3	HJ	798910.33	2291379.04
HJ4	HJ	798838.56	2291251.22

Plot	Home Range	X Coordinate	Y Coordinate
HJ5	HJ	798910.43	2291228.92
HK1	HK	798906.96	2291583.31
HK2	HK	798820.57	2291664.74
HK3	HK	798950.52	2291605.96
HK4	HK	798805.18	2291700.05
HK5	HK	798864.58	2291692.15
HL1	HL	798913.73	2291895.61
HL2	HL	798917.39	2292014.03
HL3	HL	798856.72	2291953.37
HL4	HL	798805.98	2291923.9
HL5	HL	798872.74	2291876.1
HM1	HM	799245.29	2290722.34
HM2	HM	799258.69	2290653.59
HM3	HM	799116.54	2290726.96
HM4	HM	799243	2290627.39
HM5	HM	799199.49	2290720.16
HN1	HN	799200.96	2291042.25
HN2	HN	799182.67	2290946.39
HN3	HN	799265.69	2290912.63
HN4	HN	799149.25	2291030.4
HN5	HN	799212.43	2291006.93
HO1	HO	799240.38	2291235.7
HO2	HO	799181.39	2291307
HO3	HO	799267.5	2291333.51
HO4	HO	799121.55	2291266.98
HO5	HO	799239.01	2291274.72
HP1	HP	799119.41	2291549.54
HP2	HP	799224.68	2291677.64
HP3	HP	799214.43	2291577.35
HP4	HP	799183.24	2291620.11
HP5	HP	799140.84	2291649.33
HQ1	HQ	799262.72	2291985.18
HQ2	HQ	799179.01	2292010.87
HQ3	HQ	799208.82	2291870.65
HQ4	HQ	799232.19	2291910.06
HQ5	HQ	799266.02	2291954.45
HR1	HR	799446.07	2290913.03

Plot	Home Range	X Coordinate	Y Coordinate
HR2	HR	799482.09	2290964.55
HR3	HR	799569.48	2290947.29
HR4	HR	799484.63	2290917.58
HR5	HR	799497.71	2291019.17
HS1	HS	799468.18	2291253.42
HS2	HS	799470.82	2291375.23
HS3	HS	799574.5	2291344.72
HS4	HS	799558.62	2291241.82
HS5	HS	799491.15	2291296.02
HT1	HT	799506.41	2291616.13
HT2	HT	799564.22	2291553.67
HT3	HT	799491.86	2291697.89
HT4	HT	799504.93	2291579.67
HT5	HT	799446.88	2291638.08
HU1	HU	799466.95	2291866.27
HU2	HU	799432.9	2291900.5
HU3	HU	799569.44	2291968.86
HU4	HU	799585.65	2291924.71
HU5	HU	799540.92	2291884.92
HW1	HW	799802.07	2291330.37
HW2	HW	799843.21	2291305.25
HW3	HW	799891.3	2291345.25
HW4	HW	799805.37	2291360.32
HW5	HW	799821.25	2291237.54
HX1	HX	799865.13	2291634.97
HX2	HX	799765.29	2291566.1
HX3	HX	799766.87	2291680.13
HX4	HX	799808.42	2291665.44
HX5	HX	799812.96	2291632.79
HZ1	HZ	800096.28	2291656.67
HZ2	HZ	800132.16	2291661.03
HZ3	HZ	800215.7	2291615.51
HZ4	HZ	800176.53	2291602.08
HZ5	HZ	800069.16	2291562.52

Appendix 3: Species list and taxa codes for herbaceous and woody plant taxa found in Manawainui.

Taxon Code	Taxon	Common Name
Acakoa	<i>Acacia koa</i>	koa
Ageade	<i>Ageratina adenophora</i>	pamakani
Alyoli	<i>Alyxia oliviformis</i>	maile
Astsp	<i>Astelia species</i>	pa'iniu
Broarg	<i>Broussaisia arguta</i>	kanawao
Carspp	<i>Carex species</i>	
Chetri	<i>Cheirodendron trigynum</i>	'ōlapa
Cibspp	<i>Cibotium species</i>	hapuu
Clearb	<i>Clermontia arborescence</i>	oha wai
Clegra	<i>Clermontia grandiflora</i>	oha wai
Copern	<i>Coprosma ernodeoides</i>	kukaenene
Copfol	<i>Coprosma foliasa</i>	pilo
Copmon	<i>Coprosma montana</i>	pilo
Copoch	<i>Coprosma ochracea</i>	pilo
Copspp	<i>Coprosma species</i>	pilo
Cyakun	<i>Cyanea kunthiana</i>	ha ha
Cyaspp	<i>Cyanea aculeataflora</i>	ha ha
Cyrsp	<i>Cyrtandra species</i>	moa
Dead	<i>Dead anything</i>	
Desnub	<i>Deschampsia nubigena</i>	
Dicsp	<i>Dicranopteris species</i>	uluhe
Dodvis	<i>Dodonea viscosa</i>	aalii
Elapho	<i>Elaphoglossum</i>	
Pepspp	<i>Peperomia species</i>	ala'ala wai nui
Hedter	<i>Hedyotis terminalis</i>	manono
Hollan	<i>Holcus lanatus</i>	
Hyprad	<i>Hypochaeris radicata</i>	hairy cats ear
Ileano	<i>Ilex anomala</i>	kawa'u
Korthalsella	<i>Korthalsella</i>	hulumoa
Labven	<i>Labordia venosa</i>	kamakahala
Leptam	<i>Leptocophylla tameiameiae</i>	pūkiawe
Lycspp	<i>Lycopodium species</i>	
Lysrem	<i>Lysimachia remyi</i>	kolokolo
Macspp	<i>Machaerina species</i>	uki
Melclu	<i>Melicope clusiifolia</i>	'alani
Melorb	<i>Melicope orbicularis</i>	'alani
Melspp	<i>Melicope species</i>	'alani
Metpol	<i>Metrosideros polymorpha</i>	'ōhi'a
Myrema	<i>Myrsine lessertiana (emarginata variety)</i>	kōlea
Myrles	<i>Myrsine lessertiana</i>	kōlea

Nergra	<i>Nertera granadensis</i>	makole
Orefur	<i>Oreobolus furcata</i>	
Physpp	<i>Phyllostegia species</i>	ulihī
Pitcon	<i>Pittosporum confertiflorum</i>	hoawa
Psymau	<i>Psychotria mauiensis</i>	kopiko
Rubhaw	<i>Rubus hawaiiensis</i>	‘ākala
Scaspp	<i>Scaevola species</i>	naupaka
Smimel	<i>Smilax melastomifolia</i>	hoi kuahiwi
Stekam	<i>Stenogyne kamehamehame</i>	mohihi
Stespp	<i>Stenogyne species</i>	mohihi
Tetoah	<i>Tetraplasandra oahuensis</i>	ohe
Uncunc	<i>Uncinia uncinata</i>	
Vaccal	<i>Vaccinium calycinum</i>	‘ōhelo
Vacden	<i>Vaccinium dentatum</i>	‘ōhelo
Vacret	<i>Vaccinium reticulatum</i>	‘ōhelo

Appendix 4: Summary table for habitat variables measured in 21 ten hectare areas in Manawainui.

Plant species or genus ¹	Floristics			Physiognomy		
	Mean	Used StDev	(n = 10) SE	Mean	Unused StDev	(n = 11) SE
Acakoa	29.5	54.7	17.3	290	493	149
Broarg	3383	2766	875	1309	2708	816
Chetri	1020	418	132	829	683	206
Melspp	3204	2141	677	1177	2005	604
Leptam	3179	2008	635	10321	7758	2339
Copspp	1713	667	211	783	942	284
Ileano	121	100.9	31.9	73.2	121.1	36.5
Myrspp	969	945	299	295	488	147
Metpol	9137	6223	1968	9953	6502	1961
Dead	363	144.6	45.7	366.8	231.8	69.9
Rubhaw	632	1108	350	107.7	199	60
Vaccal	6400	4380	1385	7463	5561	1677
Physiognomy						
Elevation in meters	1850.2	102.6	32.4	1854.8	133.1	40.1
Percent slope	21.26	6.44	2.04	22.09	9.03	2.72
Percent Canopy Cover	70.8	9.33	2.95	67.68	14.22	4.29
Percent Ground Cover	62.9	13.28	4.2	59.73	10.14	3.06
Canopy Height in meters	8.092	2.572	0.813	9.507	3.22	0.971
Medium trees (stems/ha)	388.7	238.8	75.5	590.9	204.6	61.7
Small trees (stems/ha)	2752	777	246	3645	1525	460
Large trees (stems/ha)	62	29.27	9.26	20.91	29.22	8.81
Shrubs (stems/ha)	5660	2586	818	6304	3175	957
Canopy density index	5.56	1.192	0.377	5.136	2.481	0.748
Understory density index	15.34	4.45	1.41	13.182	2.875	0.867
Subcanopy density index	6.62	0.373	1.18	5.52	1.12	0.333

¹ Density expressed as stems/ha. Only those woody plants species that occurred in > 5% of the sampling units, or that were likely to be used by Maui Parrotbill are shown.

Appendix 5: Count of all foraging behaviors for Maui Parrotbill by substrate and plant species, $n = 60$ observations. Includes observations not used in the microhabitat foraging analyses.

