Supplementary material

Testing the efficacy of bat monitoring methods for identification and species surveys in KwaZulu-Natal Province, South Africa

Alexandra Howard[1,2], Ara Monadjem[1,3], Duncan Macfadyen[4] and Christian Chimimba[1,5]

[1]*Mammal Research Institute (MRI), Department of Zoology & Entomology, Universityof Pretoria, Private Bag X20, Hatfield, 0028 South Africa.*
[2]*Afromontane Research Unit, Department of Zoology & Entomology, University of the Free State, Private Bag X13, Phuthaditjhaba, 9866 South Africa.*

[3]*Department of Biological Sciences, University of Eswatini, Private Bag 4,Kwaluseni, Eswatini.*

[4]*Department of Research & Conservation, Oppenheimer Generations, P.O. Box61631, Marshalltown, Johannesburg, 2107 South Africa.*

[5]*DSI-NRF Centre of Excellence for Invasion Biology (CIB), Department of Zoology & Entomology, University of Pretoria, Private Bag X20, Hatfield, 0028 South Africa.*

Corresponding author: blondezoologist@gmail.com

Appendix A

Table A1: Anabat call parameters used for species filters and scans on AnalookW according to Taylor et al. (2013) and Monadjem et al. (2017).
Abbreviations: F_c = the characteristic frequency at the end of the call with the lowest absolute slope; S_c = the characteristic slope of the body of the call, measured in octaves per second (OPS); F_{min} = minimum frequency of the pulse detected; Dur = duration of the pulse (milliseconds); smoothness = the value of the difference between the frequency of any point and the average of the frequencies of the points either side of it, divided by the frequency of that point; F_{mean} = mean measured frequency of a pulse; F_k = frequency of the knee; the point of greatest change in slope; F_{max} = highest measured frequency of a pulse

Filter Parameters	F_c (kHz)		S_c (OPS)		F_{min} (kHz)		Dur (ms)		Smoothness		Max Change	
	Min	Max	Min	Max	Min	Max	Min	Max				
Anti-noise	20	220	0	2000	14	300	2	50	30		+2	
Species	F_c (kHz)		F_k (kHz)		F_{min} (kHz)		Dur (ms)		F_{max} (kHz)		F_{mean} (kHz)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Miniopterus fraterculus	58	65	60	65	56	60	2	5	–	–	–	–
Minopterus natalensis	51	55	55	60	51	55	2	5	–	–	–	–
Laephotis capensis	38	50	39	45	38	49.1	2	7	–	–	–	–
Afronycteris nana	67	73	67	76	66	76	2	5	–	–	–	–
Pipistrellus hesperidus	38	50	48	54	38	49.1	2	7	–	–	–	–
Rhinolophus swinnyi	100	115	100	115	–	–	–	–	95	115	95	115
Rhinolophus simulator/darling	78	86	78	86	–	–	–	–	78	93	69	96
Rhinolophus clivosus	88	96	88	96	–	–	–	–	79	96	72	95
Scotophilus dinganii	30	36	32	39	30	35	2	10	–	–	–	–
Tadarida aegyptiaca	19	29	2 (Dc)	25 (Dc)	16	28	2	25	–	–	–	–

Appendix B

Table B1: Total sampling hours of active methods per season per habitat. Anthropo. structures refer to the sampled anthropogenic farmhouses and buildings within the study sites described in the methods section

	Total mist net sampling hours (length × hours)					
	Anthropo. structure no. 1	Anthropo. structure no. 2	Anthropo. structure no. 3	Grassland	Forest	Plantation
Winter	0	0	0	81	75	72
Spring	54	0	0	123	110	94
Early summer	61	114	71	107	49	77
Late summer	35	82	68	56	65	83
Autumn	20	129	61	141	107	189

Table B2: Total sampling hours of passive methods per season per habitat

	Total anabat sampling hours					
	Anthropo. structure no. 1	Anthropo. structure no. 2	Anthropo. structure no. 3	Grassland	Forest	Plantation
Winter	0	0	0	36	36	48
Spring	36	0	0	24	24	36
Early Summer	48	36	24	36	36	36
Late Summer	24	24	24	36	48	36
Autumn	12	24	24	36	36	36