

Supplementary Information

Three decades later in the northern Kruger National Park: multiple acoustic and capture surveys may underestimate the true local richness of bats based on historical collections

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Table S1: Summary of the echolocation call characteristics of released bats during this study as well as unpublished release calls by PJT and DMP. With 'n' representing the number of individual calls recorded from each species; 'Fmin' the lowest frequency of a call (kHz); 'Duration' length of a call (ms); 'Fmax' highest frequency of a call (kHz); 'Fk' at the point of change in slope of a call (kHz); 'Fc' is the flattest portion of a call (kHz); 'S.D' standard deviation of the mean.

Release call parameters							
Family	Species		Fmin	Duration	Fmax	Fk	Fc
Emballonuridae	<i>Taphozous mauritanus</i> (n= 24)	Mean	25.7	3.0	33.2	30.1	27.9
		S.D.	2.2	0.5	8.0	3.7	2.5
		Min	23.7	2.1	26.9	24.6	24.3
		Max	34.7	3.8	40.2	42.5	35.9
Hipposideridae	<i>Hipposideros caffer</i> (n= 14)	Mean	124.6	4.6	142.8	141.1	139.2
		S.D.	15.9	1.3	3.1	3.4	3.6
		Min	99.1	3.2	134.7	132.1	130.6
		Max	140.4	7.5	145.1	143.9	142.7
	<i>Hipposideros vittatus</i> (n= 7)	Mean	58.3	8.8	64.4	63.6	63.3
		S.D.	1.5	2.2	1.6	1.4	1.4
		Min	56.4	5.9	61.5	61.1	60.9
		Max	60.4	11.7	66.3	65.2	64.9
Miniopteridae	<i>Miniopterus natalensis</i> (n= 23)	Mean	50.5	3.2	65.8	53.8	51.9
		S.D.	2.6	0.7	8.3	3.6	2.9
		Min	46.6	2.4	51.5	48.5	47.8
		Max	54.2	4.6	85.9	60.3	57.0
Molossidae	<i>Chaerephon ansorgei</i> (n= 15)	Mean	18.8	6.7	22.4	19.8	19.4
		S.D.	1.0	2.3	1.8	1.1	1.0
		Min	17.6	3.8	19.5	18.5	18.2
		Max	20.4	10.9	26.3	21.6	21.0
	<i>Chaerephon pumilus</i> (n= 14)	Mean	22.0	7.6	26.2	23.7	22.9
		S.D.	1.4	2.0	4.8	3.2	2.2
		Min	20.1	3.2	21.9	21.3	20.9
		Max	25.4	10.9	36.9	33.8	29.4

Release call parameters							
Family	Species		Fmin	Duration	Fmax	Fk	Fc
Molossidae	<i>Mop condylurus</i> (n= 26)	Mean	25.4	4.6	38.4	32.3	29.5
		S.D.	1.4	1.2	4.9	4.2	3.2
		Min	22.5	2.9	28.6	25.5	25.4
		Max	27.2	8.6	45.4	42.1	37.9
	<i>Mops midas</i> (n= 7)	Mean	13.7	9.6	15.8	14.4	14.2
		S.D.	1.8	2.2	2.5	2.0	1.9
		Min	11.7	6.0	12.8	12.1	12.1
		Max	17.3	13.2	18.9	17.9	17.6
	<i>Otomops martiensseni</i> (n= 3)	Mean	10.5	10.6	10.9	10.6	10.6
		S.D.	1.1	2.0	1.2	1.1	1.1
		Min	9.7	8.4	10.0	9.8	9.8
		Max	11.8	12.4	12.3	11.8	11.8
	<i>Tadarida aegyptiaca</i> (n= 16)	Mean	21.3	7.9	26.6	23.5	22.6
		S.D.	2.2	3.0	3.9	1.9	1.3
		Min	16.3	3.5	22.3	21.3	21.0
		Max	25.2	11.2	35.2	27.0	25.3
Rhinolophidae	<i>Rhinolophus capensis</i> (n= 4)	Mean	76.2	25.9	84.5	83.7	83.9
		S.D.	2.1	15.8	1.0	1.0	0.7
		Min	73.2	9.6	83.2	82.2	82.8
		Max	77.9	42.1	85.5	84.3	84.4
	<i>Rhinolophus clivosus</i> (n= 47)	Mean	75.0	18.7	92.6	108.1	90.4
		S.D.	3.2	7.0	0.6	119.7	0.6
		Min	67.6	7.7	91.4	89.4	89.1
		Max	81.9	32.0	93.5	91.1	91.4
	<i>Rhinolophus darlingi</i> (n= 4)	Mean	70.4	27.3	82.0	80.7	80.8
		S.D.	4.3	1.0	3.7	3.6	3.5
		Min	67.6	26.5	80.1	78.8	79.0
		Max	76.8	28.7	87.5	86.1	86.1

Release call parameters							
Family	Species		Fmin	Duration	Fmax	Fk	Fc
Rhinolophidae	<i>Rhinolophus fumigatus</i> (n= 83)	Mean	50.2	25.4	55.8	54.7	54.7
		S.D.	2.6	8.6	0.9	0.7	0.6
		Min	43.4	6.3	53.2	52.5	52.7
		Max	54.2	41.5	57.7	56.2	55.9
	<i>Rhinolophus rhodesiae</i> (n= 2)	Mean	93.3	15.5	101.0	99.1	99.6
		S.D.	2.5	1.6	0.1	0.1	0.2
		Min	91.5	14.4	100.9	99.0	99.4
		Max	95.0	16.6	101.0	99.2	99.7
	<i>Rhinolophus simulator</i> (n= 41)	Mean	68.4	15.7	80.7	79.3	79.2
		S.D.	3.4	4.6	60.4	3.5	3.5
		Min	56.7	5.4	3.6	59.7	59.5
		Max	76.6	24.2	83.1	82.2	82.0
	<i>Rhinolophus smithersi</i> (n= 23)	Mean	45.5	21.0	47.8	47.2	47.1
		S.D.	1.1	9.1	0.5	0.6	0.5
		Min	43.2	9.4	46.2	45.6	45.7
		Max	47.4	49.7	48.8	48.3	48.1
Vespertilionidae	<i>Eptesicus hottentotus</i> (n= 13)	Mean	30.4	3.3	55.9	36.9	33.5
		S.D.	1.8	0.7	9.0	2.2	2.5
		Min	26.9	2.2	40.1	32.3	31.5
		Max	33.8	4.5	70.2	41.1	40.1
	<i>Laephotis botswanae</i> (n= 4)	Mean	32.9	2.1	66.3	35.7	33.3
		S.D.	1.1	0.1	1.6	1.1	0.7
		Min	31.7	2.0	64.5	34.5	32.5
		Max	34.2	2.2	68.4	37.2	34.2
	<i>Myotis tricolor</i> (n= 3)	Mean	40.3	2.5	60.8	44.9	42.7
		S.D.	7.5	0.4	24.1	7.0	4.9
		Min	31.7	2.2	38.7	36.8	37.1
		Max	45.0	3.8	86.5	49.4	46.3

Release call parameters							
Family	Species		Fmin	Duration	Fmax	Fk	Fc
Vespertilionidae	<i>Myotis welwitschii</i> (n= 4)	Mean	30.3	2.8	69.1	60.7	49.2
		S.D.	3.7	0.7	3.8	11.5	7.0
		Min	25.3	2.2	66.2	44.4	39.6
		Max	34.2	3.8	74.7	71.5	56.0
	<i>Neoromicia capensis</i> (n= 12)	Mean	39.4	4.1	53.1	40.2	38.7
		S.D.	4.9	1.1	8.0	2.0	1.5
		Min	36.2	2.3	40.1	36.7	36.2
		Max	54.2	5.7	65.1	43.5	41.2
	<i>Neoromicia nana</i> (n= 21)	Mean	63.9	3.1	89.0	72.8	67.7
		S.D.	2.0	0.8	16.9	7.5	3.4
		Min	60.3	2.2	70.0	66.1	63.5
		Max	67.2	4.8	118.5	93.3	78.5
	<i>Neoromicia zuluensis</i> (n= 27)	Mean	46.0	3.7	58.2	48.1	46.7
		S.D.	1.2	0.7	7.9	1.4	1.3
		Min	43.9	2.6	32.7	45.3	44.4
		Max	48.7	4.9	69.7	51.3	49.3
	<i>Nycticeinops schlieffeni</i> (n= 1)	Mean	40.1	3.9	42.8	42.2	42.1
	<i>Pipistrellus hesperidus</i> (n= 42)	Mean	44.6	3.3	63.0	48.5	45.3
		S.D.	1.6	1.0	11.1	2.8	1.6
		Min	39.6	2.0	48.7	44.3	42.1
		Max	47.8	5.9	86.6	54.9	49.2
	<i>Pipistrellus rusticus</i> (n= 9)	Mean	50.8	2.4	70.3	48.2	51.9
		S.D.	2.9	0.4	7.0	16.0	2.4
		Min	46.8	2.1	62.7	5.9	48.5
		Max	55.2	3.1	82.0	57.9	55.5

Release call parameters							
Family	Species		Fmin	Duration	Fmax	Fk	Fc
Vespertilionidae	<i>Scotophilus dinganii</i> (n= 26)	Mean	32.3	3.7	53.6	35.0	33.0
		S.D.	1.1	0.9	8.1	2.3	1.2
		Min	30.1	2.2	40.2	31.6	30.4
		Max	34.7	5.8	64.8	42.1	35.9
Nycteridae	<i>Nycteris thebaica</i> (n= 1)	Mean	62.4	1.7	83.4	63.1	42.1