

Guide for Acoustic Identification of Florida bats

Family:

Vespertilionidae

Database species code

Corraf or Cora

See glossary for explanation of codes

Scientific name

Corynorhinus rafinesquii (Lesson, 1827)

Taxonomy follows Simmons and Cirranello (2021)

Call shape

To view call graphics click on the camera icon on the right. You can then move through all images by using the left or right arrow keys. A left mouse click returns to the fact sheet.



Broad band FM reversed "J" with pulses appearing nearly vertical. As a large eared vespertilionid this species vocalizations are fairly quiet, i.e., low intensity. See notes. Call images are from hand released bats therefore call pulses would not likely be typical of free flying search phase calls. Generally, vespertilionids emit "clutter" calls on hand release that are broader in bandwidth, higher in frequency and shorter TBC than free flying search phase calls. Two zero-crossing displays of the calls (AnalogW 4.5.w).

Vocal signature parameters

Call parameters are not robust/reliable at this time for definitive free flying identification. This large eared bat emits low intensity calls and may not be adequately recorded in the field as free flying bats. Parameters provided here have been extracted from files provided by Corben (top) and Finn (below) from hand released bats. These are primarily "clutter" calls and may not accurately reflect diagnostic free flying search phase calls.

From Corben data

Parameters	N	Min	Max	Mean	St.Dev	10%	25%	75%	90%
Dur	214	0.45	9.97	3.32	2.33	1.24	1.93	3.79	7.64
Fmin	214	20.2	54.4	28.4	4.8	22.6	24.6	32.2	34.4
Fmax	214	34.63	80.81	58.77	10.11	43.72	51.04	65.57	69.57
BW	214	5.26	53.85	30.33	10.36	14.33	24.56	36.45	42.29
Fmean	214	28.00	59.70	41.91	5.19	35.90	38.17	44.94	47.77
Fk	214	23.53	79.21	42.29	8.58	34.38	38.28	43.48	54.95
FcH1	214	12.78	36.37	20.18	4.24	16.40	17.55	21.17	26.79
Fc	214	25.56	72.73	40.36	8.48	32.79	35.09	42.33	53.58
FcH3	214	38.34	109.10	60.54	12.71	49.19	52.64	63.50	80.37
Sc	214	-6850.2	3154.1	34.9	1088.3	-66.0	37.2	288.9	517.5
Pmc	214	0.00	149.50	49.69	32.83	5.60	19.90	76.78	88.76

From Finn data

Parameters	N	Min	Max	Mean	St.Dev	10%	25%	75%	90%
Dur	22	0.28	5.34	1.56	1.40	0.57	0.63	1.95	3.80
TBC	16	71.03	7229.5	942.1	1838.6	82.51	101.8	876.4	2090.7
Fmin	22	20.2	28.78	23.55	2.55	21.40	21.70	25.66	27.4
Fmax	22	22.5	52.63	31.08	10.02	23.32	23.53	36.26	47.8
BW	22	0.43	31.15	7.53	9.10	1.06	1.58	9.59	21.3
Fmean	22	20.2	38.83	25.07	4.22	21.73	22.32	27.58	28.8
Fk	22	21.48	49.54	29.22	9.00	23.17	23.43	33.15	45.9
FcH1	22	10.1	16.84	12.46	1.9175	10.9	11.06	14.09	15.2
Fc	22	20.2	33.68	24.92	3.83	21.71	22.12	28.19	30.5
FcH3	22	30.3	50.52	37.37	5.7524	32.6	33.17	42.28	45.7
Sc	22	-1367	2645	345	788	25	32	342	1381
Pmc	22	0	93.60	23.87	31.66	1.82	5.80	19.08	84.05

Parameters reported by Szewczak (2018).

Corraf	Fc	Fmax	Fmin	FmaxE	dur	uppr slp	lwr slp	slp @ Fc	total slp
Mean	22.8	39.8	22.5	33.2	2.6	6.2	7.4	6.7	6.7
Max	25.0	42.0	25.0	37.0	5.1	8.6	8.9	8.9	8.1
Min	20.0	37.0	20.0	30.0	0.1	3.7	5.9	4.4	5.2

Source of acoustic data

Laura Finn

Chris Corben

Known counties of distribution

- Alachua
- Baker
- Bay
- Bradford
- Brevard
- Broward
- Calhoun
- Charlotte
- Citrus
- Clay
- Collier
- Columbia
- De Soto
- Dixie
- Duval
- Escambia
- Flagler
- Franklin
- Gadsden
- Gilchrist
- Glades
- Gulf
- Hamilton
- Hardee
- Hendry
- Hernando
- Highlands
- Hillsborough
- Holmes
- Indian River
- Jackson
- Jefferson
- Lafayette
- Lake
- Lee
- Leon
- Levy
- Liberty
- Madison
- Manatee
- Marion
- Martin
- Miami-Dade
- Monroe
- Nassau
- Okaloosa
- Okeechobee
- Orange
- Osceola
- Palm Beach
- Pasco
- Pinellas
- Polk
- Putnam
- Santa Rosa
- Sarasota
- Seminole
- St. Johns
- St. Lucie
- Sumter
- Suwannee
- Taylor
- Union
- Volusia
- Wakulla
- Walton
- Washington

Conservation status

Least concern; Ver.3.1 ; Population trend - increasing; evaluated 2008. (I.U.C.N. 2017.)

Notes

Britzke (2001) excluded calls of this species when evaluating the efficacy of acoustic detectors in a study of the ecology of bats in the eastern U.S due to the difficulty of detecting low intensity calls. In addition to low intensity calls that may be difficult to detect harmonics are often present. Call-shape simple linear FM sweep. Sometimes calls include an upsweep or flat tone at onset before sweeping downward (Szewczak, 2018).

The large frequency range reflects this species' characteristic of sometimes applying more amplitude in the second harmonic than in the first. Lo F (and Fc) of the first harmonic typically ranges from ~19–27 kHz Szewczak (2018).

Citations

Britzke, E. R. 2003. Use of ultrasonic detectors for acoustic identification and study of bat ecology in the eastern United States Tennessee Technological University, Cookeville, TN.

Marks, C. S., and G. E. Marks. 2006. Bats of Florida. Pp. 176. University of Florida Press, Gainesville.

The IUCN 2017. Red List of Threatened Species. Version 2017-1. www.iucnredlist.org. Downloaded on August 6, 2017.

Simmons, N. B., and A. L. Cirranello. 2020. Bat Species of the World: A taxonomic and geographic database. <http://batnames.org>

Szewczak, J. M. 2018. Echolocation Call Characteristics of Eastern U.S. Bats. Echolocation call characteristics of Eastern U.S. Bats. Unpublished report.

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