Guide for Acoustic Identification of Florida bats

Family:

Phyllostomidae

Database species code

Artjam - Arja

Scientific name

Artibeus jamaicensis Leach, 1821

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.

Typical call of the family are broadband FM pulses of short duration. Multiple harmonics are usually evident. An example of a series of such pulses displayed from a WAV files and a ZC file. The H2 and H3 are usually recorded. If very close to the bat an H4 may be recorded as well.

Vocal signature parameters

Parameters from multiple individuals recorded in Puerto Rico and Nicaragua

Parameters	N	Min	Max	Mean	St.Dev	10%	25%	75%	90%
Dur	179	0.31	4.21	1.37	0.95	0.43	0.60	1.91	2.69
Fmin	179	36.70	69.57	51.23	5.73	44.69	47.62	54.79	58.39
Fmax	179	59.70	97.56	74.61	7.19	66.67	68.97	80.41	84.21
BW	179	5.48	46.67	23.38	8.58	12.49	17.15	29.84	36.69
Fmean	179	50.25	79.62	62.28	5.06	56.02	59.04	65.49	68.45
Fk	179	41.24	84.21	66.64	8.49	55.48	60.15	72.07	77.82
FcH1	179	21.86	48.78	31.82	4.46	25.64	28.57	34.79	37.04
Fc	179	43.72	97.56	63.64	8.91	51.28	57.14	69.57	74.07
FcH3	179	65.58	146.34	95.46	13.37	76.92	85.71	104.36	111.11
Sc	179	-5668.9	3800.7	94.2	1420.2	-1325.9	118.7	404.9	848.2
Pmc	179	0.00	63.60	19.00	16.83	0.90	3.65	30.05	43.32

A summary of published parameters extracted from five publications. The average of all as well as calculated bandwidth and mean Fc.

Source	Dur	TBC	Fmin	Fmax	BW	Fmean
Brinkovet al., 2008	0.9	62.5	66.0	90.4	24.4	78.2
Gerrity et al., 2012	1.1		66.8	100.5	33.7	83.7
Medina 2011			68.6	109.6	41.0	89.1
Jennings et al., 2004	2.2	75.5	48.4	83.6	35.3	66.0
Moreno et al., 2020	2.2		57.9	120.1	62.2	89.0
Average	***1.6***	***69.0***	***61.5***	***100.8***	***39.3***	***81.2***

Source of acoustic data

Data for the first table was extracted from recordings by Corben and O'Farrell in Puerto Rico and Corben in Nicaragua

The second table includes the published sources.

Known counties of distribution

- Monroe

Limited to Key West, Frank (1997)

Conservation status

Globally Least concern - populations stable (I.U.C.N. 2021). Not evaluated for Florida

Notes

While it is not yet possible to distinguish between free flying species of Phyllostomidae in the Neotropics as the multiple harmonics and broadband FM calls are extremely similar and overlap within genera throughout their range.

Given that this is the only known species in the family occurring in Florida it may be possible to recognize these multiple harmonic calls where this species may occur.

Citations

Brinkløv, S., E. K. V. Kalko, and A. Surlykke. 2008. Intense echolocation calls from two 'whispering' bats, Artibeus jamaicensis and Macrophyllum macrophyllum (Phyllostomidae). Journal of Experimental Biology. 212: 11-20.

Frank, P. A. 1997. First record of *Artibeus jamaicensis* Leach (1821) from the United States. Florida Scientist. 60: 37-39.

Gerrity, D. J., K. Demarest, T. Pruitt, S. Sarkhosh, and A. M. James. 2012. A Study of Echolocation Calls of the Bats of Dominica. Texas A&M University , Dominica Study Abroad 2012.

Jennings, N. V., S. Parsons, K. E. Barlow, and M. R. Gannon. 2004. Echolocation calls and wing morphology of bats from the West Indies. Acta Chiropterologica. 6: 75-90.

Medina, H. 2011. Charcteristics of echolocation calls of bats in Dominica. Texas A&M University Dominica Study Abroad Class 1-13.

Moreno, C. R., T. Pollock, L. Sánchez, and E. C. Mora. 2020. Acoustical and morphological comparisons between albino and normally-pigmented Jamaican fruit bats (Artibeus jamaicensis). Caribbean Journal of Science. 50.

The IUCN 2021. Red List of Threatened Species. Version 2017-1.www.iucnredlist.org;. Downloaded on January, 2021.