

2019 Maryland Bat Surveys

Report: Chesapeake Forest Lands & Pocomoke River State Forest

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During late spring and summer 2019, we conducted stationary point acoustic surveys of bats throughout Maryland. We selected survey areas (cells) and designed our survey methods based on the North American Bat Monitoring Program (NABat) guidelines (<https://www.nabatmonitoring.org/>). This allows our findings to be useful for conservation and management decisions at the site level, and also to be contributed to national bat research and conservation efforts. We also conducted mist netting surveys at some sites to physically verify the presence of bat species.

After completing the surveys, we processed the recorded files with SonoBat 4.4.1 bat classification software, and then manually vetted the results to improve confidence in species detections. Some bat species have very similar echolocation calls and environmental conditions can reduce the quality of recordings, so not all species can consistently be identified with complete certainty. We were very stringent during the vetting process, but physical confirmation of some species may be desired. Our acoustic results indicate the likely presence of species or species groups during summer. Our mist netting results indicate certain presence of species, since they can be reliably identified based on morphology. However, some species have quiet calls, fly very high, or echolocate very infrequently and not all sites are ideal for mist netting, so some species may be present but not detected or captured.

Table 1. Number of nights each species or species group was acoustically detected at each survey point. Species are big brown bat or silver-haired bat (*Eptesicus fuscus* or *Lasiorycteris noctivigans*; EPFULANO), eastern red bat or evening bat (*Lasiurus borealis* or *Nycticeius humeralis*; LABONYHU), hoary bat (*L. cinereus*; LACI), eastern small-footed bat (*Myotis leibii*; MYLE), little brown bat or Indiana bat (*M. lucifugus* or *M. sodalis*; MYLUSO), northern long-eared bat (*M. septentrionalis*; MYSE), tri-colored bat (*Perimyotis subflavus*; PESU), and Mexican free-tailed bat (*Tadarida brasiliensis*; TABR). *Myotis* indicates any identified or unidentified *Myotis* species. A * indicates species affected by white nose syndrome (WNS), but does not indicate that we found individuals with signs of WNS.

Cell	Site	EPFULANO	LABONYHU	LACI	MYLE*	MYLUSO*	MYSE*	Myotis*	PESU*	TABR
22784	1	4	3	0	0	0	0	0	0	0
22784	3	3	3	1	0	0	0	0	0	0
22784	4	3	2	0	0	0	0	0	0	0
55552	1	3	3	0	0	0	0	1	0	0
55552	2	4	3	1	0	0	2	4	0	0
55552	3	4	3	0	0	0	0	0	0	0
55552	4	4	2	0	0	0	0	0	0	0
10496	2	3	3	0	0	0	0	0	1	0
10496	3	4	3	0	0	0	0	0	2	0
1280	1	4	4	3	0	0	0	0	0	0
9472	2	4	4	1	0	0	0	0	2	0
17664	4	4	4	1	0	2	0	2	0	0
2304	1	4	4	0	0	0	0	0	1	0
2304	2	3	3	0	0	0	0	2	1	0
2304	3	3	2	1	0	1	0	1	0	0
2304	4	4	4	0	0	1	0	1	0	0

Table 2. Coordinates for each survey site, start and end dates, number of nights each site was surveyed, and whether we mist netted or not.

Location	Cell	Site	Lat	Long	Start	Stop	Nights	Mist Netted
Chesapeake Forest	22784	1	38.25916	-75.56528	2019-05-13	2019-05-17	4	0
Pocomoke SF	22784	3	38.20999	-75.51936	2019-05-13	2019-05-17	4	0
Chesapeake Forest	22784	4	38.22046	-75.57302	2019-05-13	2019-05-17	4	0
Chesapeake Forest	55552	1	38.18736	-75.53777	2019-05-13	2019-05-17	4	0
Pocomoke SF	55552	2	38.18641	-75.49226	2019-05-13	2019-05-17	4	0
Pocomoke SF	55552	3	38.14581	-75.49603	2019-05-13	2019-05-17	4	0
Pocomoke SF	55552	4	38.15648	-75.55081	2019-05-13	2019-05-17	4	0
Pocomoke SF	10496	2	38.12088	-75.42982	2019-05-13	2019-05-17	4	0
Pocomoke SF	10496	3	38.12423	-75.46712	2019-05-13	2019-05-17	4	1
Chesapeake Forest	1280	1	38.43001	-75.90356	2019-05-20	2019-05-24	4	0
Chesapeake Forest	9472	2	38.72597	-75.96578	2019-05-20	2019-05-24	4	0
Chesapeake Forest	17664	4	38.32788	-76.12528	2019-05-20	2019-05-24	4	1
Chesapeake Forest	2304	1	38.41643	-75.38344	2019-05-20	2019-05-24	4	0
Chesapeake Forest	2304	2	38.42334	-75.3121	2019-05-20	2019-05-24	4	0
Chesapeake Forest	2304	3	38.3785	-75.3249	2019-05-20	2019-05-24	4	0
Chesapeake Forest	2304	4	38.36512	-75.40382	2019-05-20	2019-05-24	4	0

Table 3. Mist netting results for related sites. Reproductive stage (Repro) is encoded as NR for not reproductive, TD for testes descended, P for pregnant, and L for lactating. Right forearm length (RFA) was measured in millimeters and mass was measured in grams. Anything we could not determine is encoded as UNKN. The final entry was a bat that escaped the net before we could examine it.

Cell	Point	Date	Capture		Time	Species	Age	Sex	Repro	RFA	Mass
			Start	End							
10496	3	2019-05-14	19:49	23:40	20:25	LABO	Adult	Male	NR	40	12
10496	3				20:30	LABO	Adult	Male	NR	41	11
10496	3				21:00	LABO	Adult	Male	NR	42	12.5
10496	3				21:00	LABO	Adult	Male	NR	44	13.5
10496	3				21:05	LABO	Adult	Female	P	38.5	15
10496	3				21:25	LABO	Adult	Male	NR	39.5	11.5
10496	3				20:42	LABO	Adult	Female	NR	40.5	11.75
10496	3				23:12	LABO	Adult	Female	NR	41	11.75
17664	4	2019-05-22	20:15	0:57	20:45	LABO	Adult	Female	P	43	15.5
17664	4				21:25	EPFU	Adult	Female	P	46	20.75
17664	4				23:18	EPFU	Adult	Female	P	47.5	21.75
17664	4				00:18	UNKN					

Maps depict NABat cells (black bordered squares), survey sites (red points), and mist netting sites (red points with yellow border). Labels are formatted as [Cell Number]P[Site Number].













