

Results of the Chattahoochee River Route for Georgia's 2013 Anabat Acoustic Survey Project

Chattahoochee River National Recreation Area

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Since 2010, the Georgia Department of Natural Resources (GA DNR) has been participating in a nationwide survey effort to collect long-term acoustic data on bats. Bats use echolocation to communicate, navigate, and find food. A device called an Anabat unit can be used to record these echolocation calls which can then be analyzed in order to identify bat species, numbers, and locations. During the surveys Anabat recorders are attached to vehicles and driven along predetermined routes by volunteers around the state. Once calls are collected, the Anabats are returned to biologists at the Department of Natural Resources who are able to download the calls into image files and visually determine which species of bats have been recorded.

On May 20, 2013, Katrina Morris, Allyson Reed and Sean Perchalski conducted the Anabat acoustic survey along a section of the Chattahoochee River National Recreation Area. The survey, beginning at 20:52 and ending at 22:15, sampled approximately 11 miles along the Chattahoochee River between Forsyth, Gwinnett, and Fulton counties (Figure 2). This route is the first and currently the only one in the state that is completed by boat. Because of problems with fog and slow speeds of travel during the initial route, the Anabat was set to continue recording on the return route as well.

Anabat call files were analyzed individually and parameters such as call frequency, slope, and pattern were used to determine which species of bat had made the call. Species determination is in no way an exact science. All bat species are capable of a variety of call structures and more variation exists within a species than between different species. It is not always possible to select with confidence and often species are therefore listed as unknown in order to avoid inaccurate results. In the case of the Chattahoochee River route, many bat calls were of low frequency and of a pattern that is consistent with both big brown (*Eptesicus fuscus*) and silver-haired (*Lasionycteris noctivivans*) bats. A category was created to specify these calls as being one or the other.

Computer programs exist that automatically analyze acoustic bat call files. Two of these programs, EchoClass and BCID, were used to get initial results. However, these programs are not accurate and often misidentify species. Although improvements are continuously being made to these programs, evaluating calls individually using the parameters described above is currently

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the best method. Reports like this one are therefore extremely important when assessing bat populations using Anabat devices because they offer the most accurate results.

Out of the 16 species of bats that are found in Georgia, at least five were sampled on the Chattahoochee River route. Results are presented below (Table 1 and Figure 1) and call locations are presented on the map (Figure 2). It is possible that other species could have been found in the area of the route. For instance, it is quite likely that Brazilian free-tailed bats (*Tadarida brasiliensis*) utilize this area of Georgia but may have been missed. It is important to note that this survey was performed during the migration season when some species may have been located in other parts of their range. Additional surveys should be performed later in summer to assess which species are present and at what times of the year.

GA DNR staff plan to continue survey efforts in the Chattahoochee River National Recreation Area. Ideally, surveys will be completed once in June and once in July. This is dependent on conditions on the river and availability of park and DNR staff.

	INITIAL ROUTE	RETURN ROUTE	TOTAL
Big brown (<i>Eptesicus fuscus</i>)	2	2	4
Big brown or Silver-haired (<i>Eptesicus fuscus</i> or <i>Lasionycteris noctivigans</i>)	10	3	13
Silver-haired (<i>Lasionycteris noctivigans</i>)	45	19	64
Red (<i>Lasiurus borealis</i>)	22	2	24
Hoary (<i>Lasiurus cinereus</i>)	5	2	7
Tricolored (<i>Pipistrellus subflavus</i>)	9	1	10
Unknown Species	28	5	33
TOTAL	121	34	155

Table 1. Total bats of each species recorded during initial route and return route.

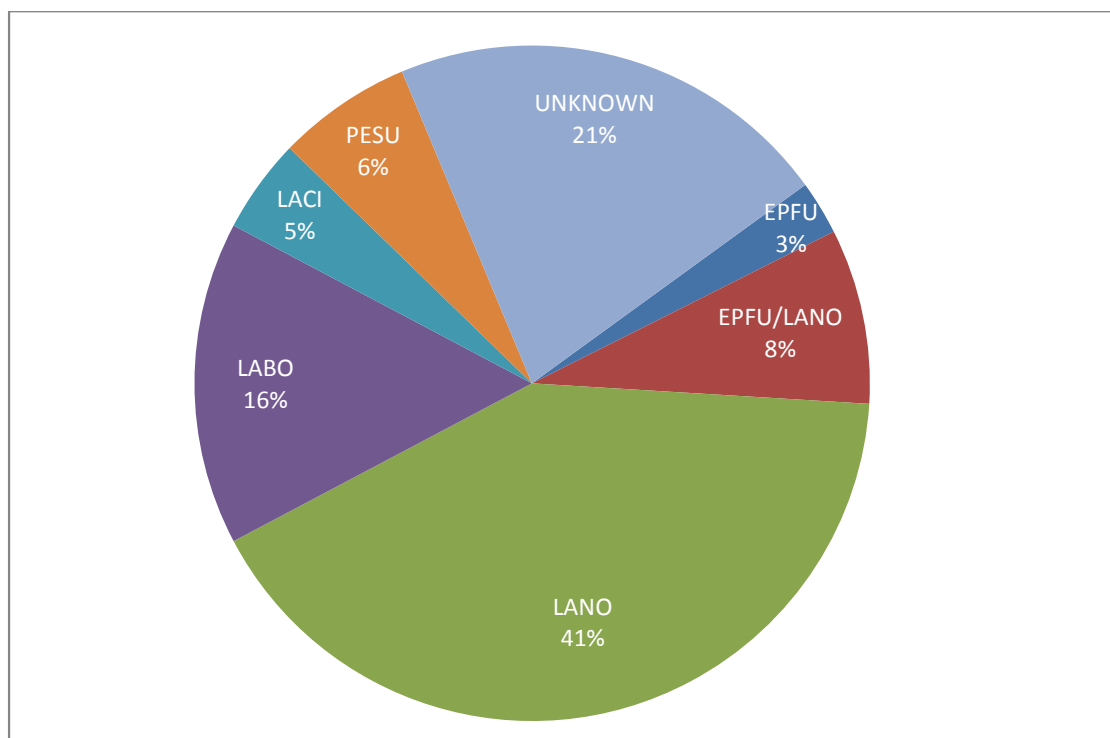


Figure 1. Total percentages of species recorded on Chattahoochee River route.

Chattahoochee River Anabat Route 2013

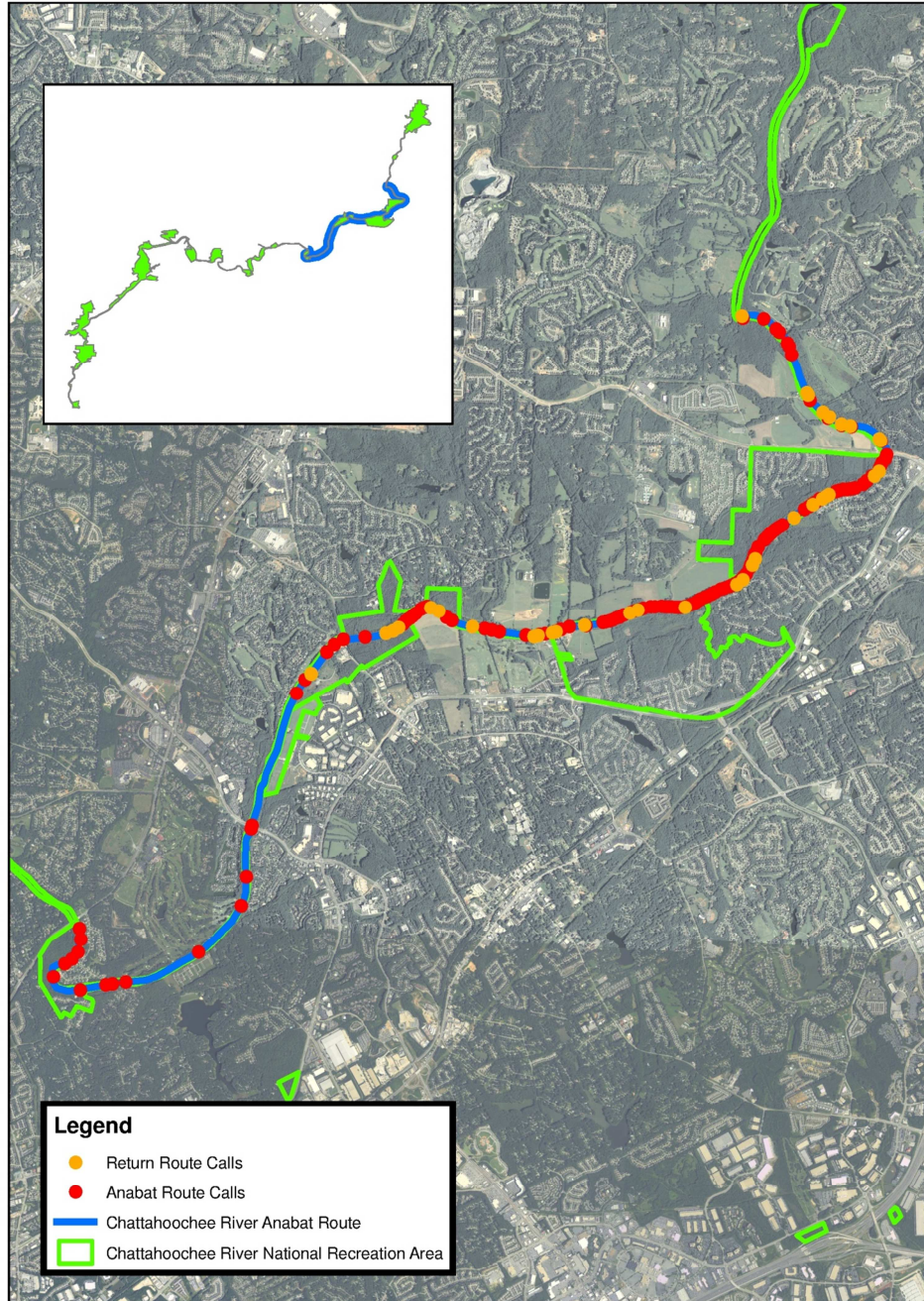


Figure 2. Chattahoochee River Anabat Route map.