

Region 4 Inventory and Monitoring Network

Mobile Acoustical Bat Monitoring Annual Summary Report

CY 2012-2013

FELSENTHAL NATIONAL WILDLIFE REFUGE



The Region 4 Inventory and Monitoring Network coordinated acoustical bat monitoring on 43 National Wildlife Refuges and 2 Ecological Services field offices in Regions 2, 3, and 4 during 2012 and 2013. Surveys will establish baseline inventories of bat species at each station and contribute to a landscape-level understanding of bat population trends and habitat associations. Bat call data were collected using Anabat SD2 detectors along up to 30 mile mobile transects during June and July each year following the procedures outlined in the Mobile Bat Acoustical Survey Protocol (USFWS 2012).

This report summarizes bat calls collected along transects at your station in 2012 and 2013. Calls were classified using Bat Call ID ([BCID] version 2.5a) software and restricted to calls with 5 or more pulses. This annual summary report package contains summary information on transect surveys, species detections, maps of species locations, and a digital folder containing shapefiles and BCID output files. Summary tables include all classified species observations including those that did not have an associated spatial reference.

All submitted call data and survey metadata have been archived and are available on the Mobile Acoustical Bat Monitoring SharePoint site (<https://fishnet.fws.doi.net/regions/4/nwrs/IM/bats>). Bat call files, GPS data, and survey metadata sheets were reviewed for quality assurance prior to generation of this report. Some submitted data were necessarily excluded due to identified errors in collection processes. All acoustical bat data will be summarized in a comprehensive annual report following station-level reports.

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Route Name: FslNWR

Survey date	# bat calls	Route completed?	GPS data?	Survey notes
6/13/2012	66	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Data check notes: Data check revealed no errors.
6/27/2012	95	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	QA/QC notes: Only 64 of 95 observations had gps coordinate locations. Appears that there was a 6-7 minute gap in gps data collection at the beginning of the transect.
6/4/2013	12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	QA/QC notes: GPS power supply was interrupted resulting in no GPS data.
6/12/2013	24	<input type="checkbox"/>	<input type="checkbox"/>	Collector notes: Flooding on the Ouachita River prevented us from beginning the survey at the established start point. Therefore, we excluded approximately 4 miles of the normal route. QA/QC notes: 4 mile change in starting point noted and will be accounted for during analysis.
6/17/2013	74	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	QA/QC notes: 4 mile change in starting point noted and will be accounted for during analysis.
6/27/2013	69	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Collector notes: No rain during survey but lightning strikes were common. QA/QC notes: GPS power supply was interrupted resulting in no GPS data.
7/2/2013	72	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	QA/QC notes: Data check revealed no errors.
7/8/2013	80	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	QA/QC notes: No GPS data available, issue with power supply and mic not working properly.

Species Summary

Below are the results of bat species classification and maps of each bat detection each year generated from automated acoustic bat ID software in BCID version 2.5a. Automated acoustical bat classification has inherent limitations based in part on call quality, species filter constraints, and statistical model agreement parameters. Using a conservative approach to generate robust species classifications, calls with fewer than 5 pulses were not classified; therefore the estimates presented here may under-represent the actual number of bats detected on a survey night. Classified calls were geo-referenced and spatially projected for each survey period to identify relative bat use along transects. Accuracy of call classification varies among species but is expected to be >80% correct. Measures of confidence in species identification for each survey night are available as a maximum-likelihood estimator p-value for each observed species in the BCID output files included with this summary report package. BCID version 2.5a does not classify the following species (Seminole bat - LASE, Northern yellow bat - LAIN, Brazilian free-tailed bat - TABR, Townsend big-eared bat - COTN). If these species occur within your monitoring area, the calls generally will be classified to a species with the closest model agreement or classified to "unknown". Species summary tables include all classified calls including those without a spatial reference. Bat detections without concurrent GPS locations are not represented on subsequent maps.

FELSENTHAL NATIONAL WILDLIFE REFUGE

Length of transect (miles): **28.8 (24.8 miles for 6/12/13 and 6/17/13 periods)**

Annual Summary

	<u>Total observed</u>	<u># Survey nights</u>	<u># Bats/night</u>	<u># Bats/mile</u>
Big brown bat				
2012	17	2	8.5	0.3
2013	66	6	11	0.40
Eastern red bat				
2012	25	2	12.5	0.43
2013	46	6	7.67	0.28
Evening bat				
2012	47	2	23.5	0.82
2013	76	6	12.67	0.46
Hoary bat				
2012	1	2	0.5	0.02
2013	11	6	1.83	0.07
Tricolored bat				
2012	65	2	32.5	1.13
2013	122	6	20.33	0.74
Unknown				
2012	6	2	3	0.1
2013	10	6	1.67	0.06

FELSENTHAL NATIONAL WILDLIFE REFUGE

Length of transect (miles): 28.8 (24.8 miles for 6/12/13 and 6/17/13 periods)

Nightly Summary

	<u>Survey date</u>	<u>Total observed</u>	<u>Bats/mile</u>
Big brown bat			
	6/13/2012	11	0.38
	6/27/2012	6	0.21
	6/12/2013	3	0.12
	6/17/2013	6	0.24
	6/27/2013	23	0.8
	7/2/2013	22	0.76
	7/8/2013	12	0.42
Eastern red bat			
	6/13/2012	12	0.42
	6/27/2012	13	0.45
	6/4/2013	1	0.03
	6/12/2013	5	0.20
	6/17/2013	14	0.56
	6/27/2013	5	0.17
	7/2/2013	13	0.45
	7/8/2013	8	0.28
Evening bat			
	6/13/2012	26	0.9
	6/27/2012	21	0.73
	6/4/2013	4	0.14
	6/12/2013	8	0.32
	6/17/2013	26	1.05
	6/27/2013	9	0.31
	7/2/2013	16	0.56
	7/8/2013	13	0.45
Hoary bat			
	6/27/2012	1	0.03

6/12/2013	3	0.12
6/17/2013	1	0.04
6/27/2013	4	0.14
7/2/2013	3	0.1

Tricolored bat

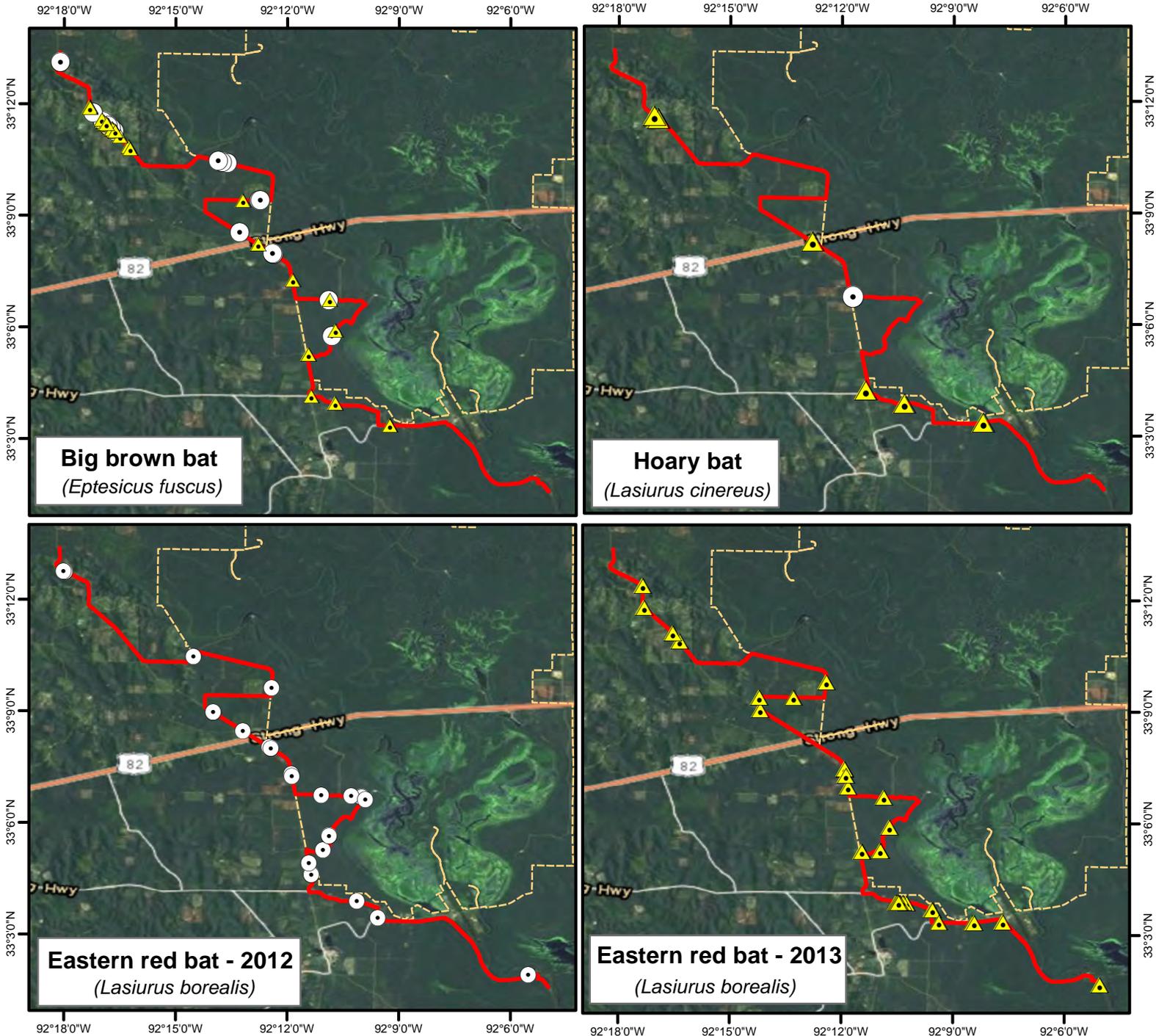
6/13/2012	14	0.49
6/27/2012	51	1.77
6/4/2013	6	0.21
6/12/2013	4	0.16
6/17/2013	25	1.0
6/27/2013	27	0.94
7/2/2013	17	0.59
7/8/2013	43	1.49

Unknown

6/13/2012	3	0.1
6/27/2012	3	0.1
6/4/2013	1	0.03
6/12/2013	1	0.04
6/17/2013	2	0.08
6/27/2013	1	0.03
7/2/2013	1	0.03
7/8/2013	4	0.14



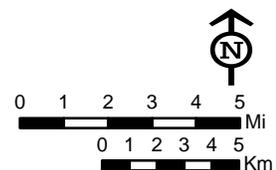
Felsenthal National Wildlife Refuge Bat call locations



Species locations

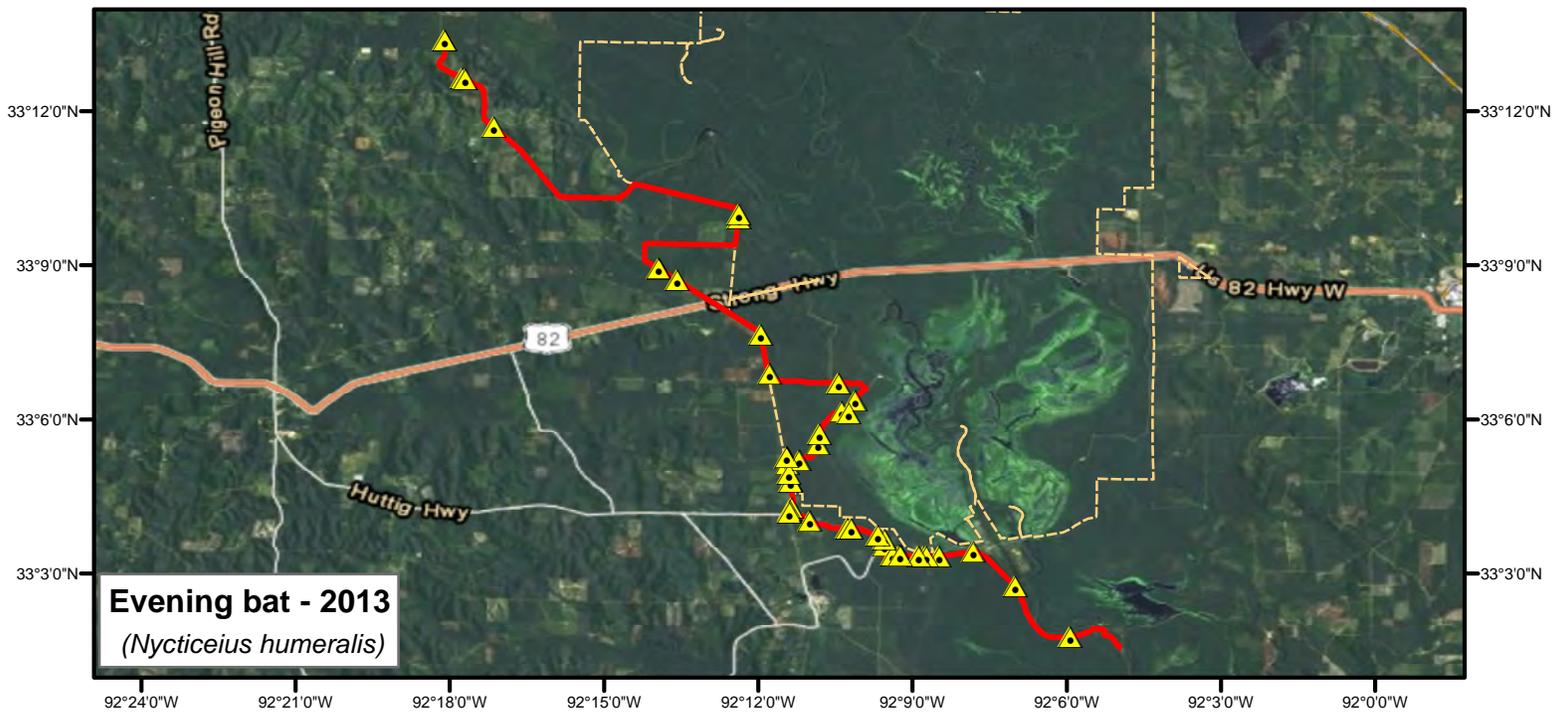
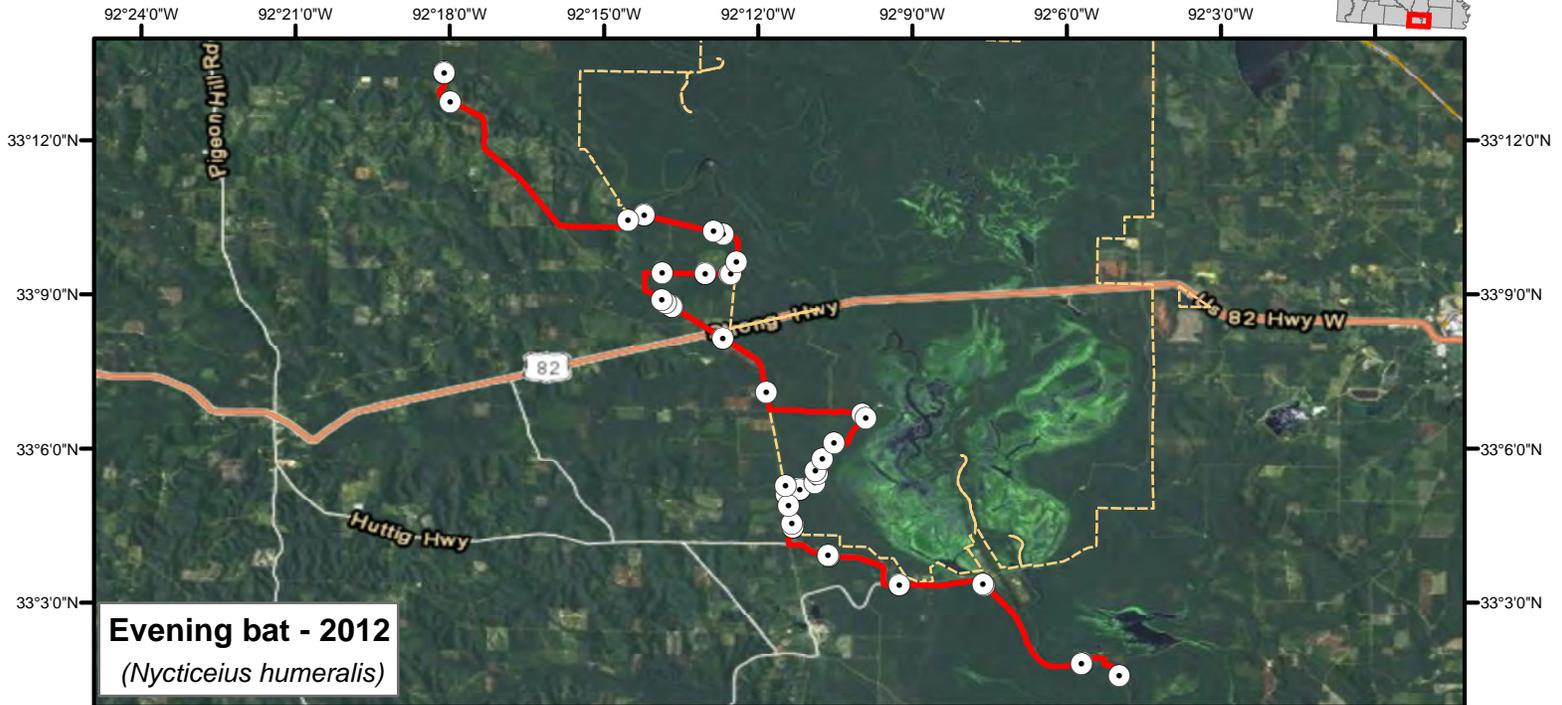
-  2012
-  2013
-  Transect route
-  Refuge boundary

Produced for: Felsenthal National Wildlife Refuge;
 Produced by: R4 Inventory & Monitoring Network
 Produced: 17 Oct 2013
 Projection: WGS 1984



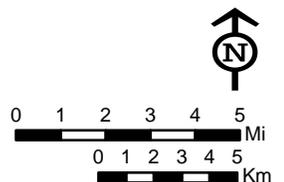


Felsenthal National Wildlife Refuge Bat call locations



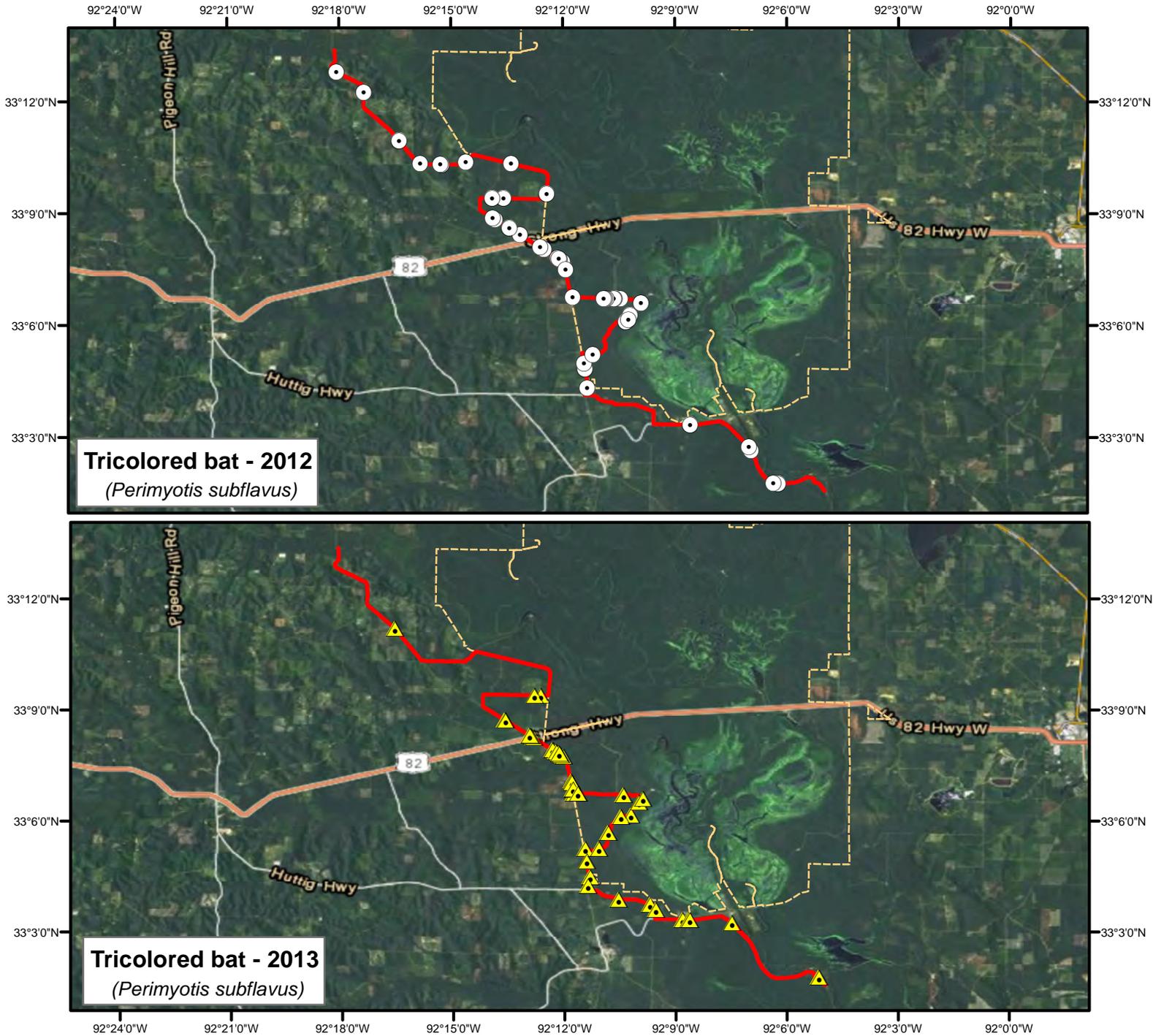
Species locations

- 2012
- 2013
- Transect route
- Refuge boundary





Felsenthal National Wildlife Refuge Bat call locations



Tricolored bat - 2012
(Perimyotis subflavus)

Tricolored bat - 2013
(Perimyotis subflavus)

Species locations

- 2012
- ▲ 2013
- Transect route
- - - Refuge boundary

