BATWORKSHOP @ TAYLOR RANCH

by Katie Gillies

5/2-5/5

ANABAT

Limitations – Myotis genus hard to differentiate on Anabat due to similar frequency ranges

Sonogram Library – local (regional/state) reference collection. Rita & Katie have 7 species in their library (of 14 species in Idaho).

ANABAT HARDWARE

Battery – replace 9V after 4 nights x 3 hrs

Division Ratio – keep at "16" (8 for spotted bat) for recording and downloading. Keep volume relatively low to bat disturbance.

Sensitivity – keep ~7 (lower with more people or other noise) high is best (esp. if no extra noise)

CAL = Calibration button (press after each call so software will know start of new bat)

Press calibration button every 15 seconds if constant bat activity - to separate files.

Cassette tapes - use a different tape for each bat species marked; also a tape marked by day recorded.

9 pin cord to "recorder timer" on Anabat and "MIC" & "rem" into tape recorder.

Press "play/record" on tape recorder then "ON" on Anabat to get recording. (tape doesn't play until Anabat switched on.

12V power option for remote use.

~~Remote~~ Delay timer (body separate) can be used w/ Anabat for remote use. + 12V battery. Can protect equipment from elements inside a tub. Angle Anabat 45° up. Auto calibrates & auto starts/stops tape. Rel. abundance & species data. Call quality is lower than hand held.

(Zero Crossing Analysis Interface Module)

≤$268 ZCAIM transfers from tape recorder to computer so can analyze the files on software. Comes in MINI or LG SIZE.

$400-$500 ZCAIM-CF - For Anabat dont use the recorder on switchor CAL. ZCAIM-CF replaces old ZCAIM & tape recorder. ON/off doesnt run it the timer "ON" is what turns on Anabat.

Pat Ormsby-Willamette NF - bat grid of Oregon - sample DNA (wing punch), vocalization, age/sex. They use Sonobat in Oregon

Survey Methods

- 1) Transect (keep Anabat on) 2) Point Count (~10 min/site) (or turn on when hear)
  3) Cave emergence (2 hrs = 1/2 hr before dusk to 1 1/2 hr after)

Use the Anabat for recording data on surveys.

Alberta Forestry Ministry has a bat survey protocol & Arizona? is almost done with a protocol.

Pros: 1 person job for transects
can orient Anabat for best quality calls
can standardize

Cons: One site/night; don't do on rainy night or lights affect bat behavior.

Doppler shift: if bat comes toward you call will appear higher freq. and if flying away from you will be lower freq (Jim M: 4% error)

- Remote detection — good for low manpower or hard to reach sites.

- Stationary Computer detection - good for hand ID so know species when turn loose & record. Computer not needed with ZCAIM-CF.

Dont sample in rain - low activity (drizzle is OK). Moon brightness may have some effect - but not neccessarily - still seem active, but maybe see nets. Wind & low temp = less active flying (Calif Myotis will fly @ freezing).

Survey all seasons: Spring-Summer-Fall
Mid march - local bats are out.
(Hoary & Silver Haired are migratory) to AZ, NM

Survey Sites more than once.

SHOUTING BATS VS WHISPERING BATS

Shouting bats have small ears & can close off ears

Whispering bats harder to detect on Anabat - turn up sensitivity to ↑ detection, use green light to see large ears. (Townsend's BigEar, Pallid) They listen to insects (on leaf) and echolocate to navigate.

<Spotted Bats have very low call so moths (their main food) don't hear them>

ANABAT USE for best Calls:

- Scan area for bats w/detector
- Keep Anabat pointed at bat
- 45° ± perpendicular to mine entrance
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Using ZCAIM CF - Jim Morris

- Download data files to computer.
- Jim uses ANALYZE (Anabat) to look at files - can quickly see many files and it tells you if file is not any good. - programs out junk
- Use ANALYSE to select files to evaluate
- Compare your own files with reference collection of at least 10 calls. Jim uses UNMexico bat reference collection (Museum of Southwest) - see web site.
- Can get a probability analysis (sometimes need to do a log transformation on parameter data. ~~pro~~ to normalize data prior to analysis).
- There are correlations among bat call parameters, so weight some as most important. End freq as most impt. parameter; duration least impt.
- Katie 10-15% of recorded calls are identifyable

KATIE on Software

Web Sites

www.hoarybat.com
Chris Corbi

http://talpa.unm.edu/batcall
UNM Library (Bat Calls)

http://pweb.netcom.com/~t-rex/anabat.html
Anabat Software repairs library

ANABAT 6 Software

* Download data & clean up & label (tape recorder mic to ZCAIM to Computer)

To Record
New Data Keep Defaults
- save on calibration on
for recording off to
Config menu – only set it up once
Calib. set at 40,000
ZCAIM Perameters – set up port
Time by frequency scale in file

"Z" for "Clean up" data filter —
1 level of H is usually enough.
"[" "]" bracket keys to go to next file
CtrExit to get out of Analook Program

ANALOOK

Save = "Enter"
Q toggles "data on"
Qu on data table is quality of call
≥ 1.0 is really good, >2=OK
- Frequency is most impt parameter
- Fmean & FC are impt to distinguish among myotis

CtrF1 Change in Slope ~~do in~~ split screen to see both formats
"V" toggles split screen on and off
CtrB to bold dots

"Guide To Western Bats"
— new book Carries has ~~that~~
shows sonograms

AHT to create Tiff file of call
- automatically goes in Anabat file

ANAMUSIC Creates wav files
- All files in directory → sound files

DATAGET - can import data directly from Anabat data files into spreadsheet.

Joel suggests use ANALYZE (Simon Jolly) to clean up files 1st then to ANABAT 6

SATURDAY

PACK UP CAMP EQUIPMENT

SUNDAY

Anabat hardware intro
- parts
- 2 Z CAIMS

SURVEY TECHNIQUES for BATS

Sonograms & Call Frequencies

Mist Net in pm
- Field recording
- Flyby recording if no

MONDAY

Pack up gear & hike to Cabin Cr

Mist net techniques

Emergence Surveys (counts)

Nighttime simultaneously
- Emergence survey of Cave Cr.
- Frog pond mist netting

TUESDAY

Download Data
- - Data Files
  - Sonograms
  - ZCAIM CF vs TapeRecorder

ANALYSIS

Computer programs -
Sonogram Anabok etc Library
Statistical Probabilities for Species ID

Error terms - doppler, tape recorder error, directionality ...
(in rest of presentation

Nighttime mistnet & record

Jim's Analysis Ideas

Multiple ways for ID - ① compare sample to Idaho sonogram library (but limited sample size) ② extract parameters from a sonogram library & compare to sample (Analyze for Windows)

Multiple parameter analysis - need to avoid parameter correlations and weight some parameters (end frequency, curvature of call (end slope & initial slope)).

Katie - I dont know anyone who uses statistical evaluation - everyone compares to a sonogram library.

Centralized data base of calls does not exist, so each state makes their own sonogram library.

TAYLOR RANCH MONITORING PRIORITIES -

1) TOTAL COUNTS Katie's Ideas for Cave bats
- Snowshoe Mine - maternity (6 holes) colony of Yuma Myotis
- Cave Cr cave - Spotted Bats + liklihood of detecting whispering bats (Townsends Big Ear, Pallid) Lg Eared, Wi Sm. Footed, California Pallid ? Pipistrillis? (dry cliffs)
- Dunce Cr Cave -

2) Relative Abundance - Survey along Big Cr at a designated site Hoary, Silver haired (they are forest bats & are migratory bats)
Site selection - place w/ calm water (for drinking & less tape recorder noise)
Count # of flybys & use % species.
- Monumental Flat where 3 streams flow together
- Rush Creek mouth

3) Mistnetting? - to get age/sex/reproductive condition/know species
- Cabin Cr x Cave Cr little moose pond

For Intern Bat Survey
Take the Anabat everywhere
1/2 hr before dark to 1½ hr after dark