

Bat Conservation Trust



Bat Detector Fact Sheet 3: Sound Analysis Software

A selection of software packages for analysing bat echolocation calls recorded using a broadband bat detector (time expansion or frequency division).

- **Avisoft** at www.avisoft-saslab.com offers **free download** of a minimal program called SAS lab Light for very basic editing and generation of spectrograms. The full Avisoft has a whole range of functions although it takes time to learn how to use them all.
- **Bat Scan** available from www.batbox.com comes with a selection of sample files so that you can compare your own recordings. It costs £90 and is a simplified version of Spectrogram. In general it is faster and easier to use than BatSound but does not have all of the functions although the sonogram is nice and clear and there are memory saving devices. Follow up service and advice is always outstanding. You can get a **free demo version** that works for a limited time to try out before you buy.
- **BatSound** the original software developed especially for use with ultrasonic bat calls. It is available from Alana Ecology www.alanaecology.com and costs around £250. If you are a voluntary Bat Group there is the possibility of a discount for multiple licences. Speak to Alana Ecology for details. BatSound has a nice big window for sonograms and an easy to use toolbar with shortcut buttons that operate on a mouse click for common functions. It has lot of extra tools but also some annoying little quirks like re-setting your parameters as you are working. The help files are generally well structured and easy to use. You can download an **evaluation version for free** from the BatSound website at <http://www.batsound.com/psonan.html>
- **Bat Wave Analyzer** can be found by going to the Arboriculture Information Exchange site at <http://www.aie.org.uk/> and look in the A-Z index for Bats. It has been developed by Chris Skillern and is available as a free download at the moment (you will need 364k). There is also a help manual to go with the program. It allows all the usual recording and analysis and notes can be inserted onto the sound wave and saved with the file. Totally **free** so well worth snapping it up while you can.
- **Cool Edit** the old favourite, has been renamed as **Adobe Audition v 2.0**. The best thing is it calculates all the start/end/peak frequencies of a pulse for you and you can do great manipulations with the sound. You can also listen to heterodyne separate from the FD channel on Duet recordings which is a good training tool. If you have a copy of Cool Edit 96 or 2000 hang onto it! Audition is available as a **30 day try-out** and the full package is 350 US dollars. Web site <http://www.adobe.com/uk/products/audition/>

- The Bioacoustics Research Programme at **Cornell Laboratory of Ornithology** developed a well respected sound program called **Canary** some time ago. Unfortunately it runs only on Mackintosh. The user manual has some really useful background information about how spectrograms are created and analysed. If you are willing to delve into some physics it can help you to use other sound analysis programs more effectively. Relevant sections are Appendix 1: Digital Representation of Sound, App 2: A Biologists Introduction to Spectrum Analysis and App 3: Sound Amplitude Measurements. Download free pdf files at http://birds.cornell.edu/brp/PDFs/AppA_DigitalSound.pdf
- The new sound analysis software from **Cornell University**, called '**Raven**' is available from <http://www.birds.cornell.edu/brp/raven/Raven.html>. There are two options – Raven v 1.2.1 and Raven Lite. Full version is able to display any number of sound files simultaneously, with each file in its own window. You can download a **free demo version** that works for 10 minutes at a time. It has other features that allow you to easily measure, compare and edit parts of different sequences and sounds. The Raven Lite version has ability to view only a single spectrogram at one time. It also has a **free demo** that works for 5 minutes at a time. Both versions are available for Mac OSX or PC. Prices are US \$400 (\$100/year for students) for Full version and US \$25 for Raven Lite.
- **Ishmael** is another **free download** (after filling a short application). You can access it through the **MobySoft** bioacoustics software library (itself a useful resource for other new programs) at <http://cet.us.pmel.noaa.gov/cgi-bin/MobySoft>.
- **Sonobat v 2.5.5** is a program developed in the USA. It includes an auto-trigger recording function developed especially for the D240x set up to trigger automatically & allowing remote recording to a digital recorder. It allows you to look at reference calls in the same window next to a call that you are trying to identify. Reference calls are automatically adjusted to match time and frequency scale of the one you are looking at. Analysis functions are plentiful including definition of low/high frequencies, bandwidth, duration, heel, slope, characteristic frequencies, harmonics and automatic calculation of the inter-pulse interval. The program costs US\$320. There is a **free downloadable demo** of v2.4 for Mac and PC. www.sonobat.com.
- **Spectrogram v 14** processes both ultrasonic and audible sound. You have to select the ultrasound controls and it has a lot of functions that are not relevant for bat analysis. It can take a while to set up the parameters to your personal requirements although once done it is easy enough to use. The help file is huge but otherwise it is similar to BatScan. Most operations use function keys. It costs only \$45 per licence. **Get a free 10 day trial** at <http://www.visualizationsoftware.com/gram.html>. Richard Horne who developed it is very helpful and any queries receive a quick response.
- **Syrinx** is another program designed by Dr John Burt for bird calls. It shows a spectrographic rolling display and allows analysis and editing. It can be obtained for **free** after filling in a short application form at <http://syrinxpc.com>.
- **Wavesurfer** – another completely **free** program available from <http://www.speech.kth.se/wavesurfer>. This was developed for speech analysis and you need to establish your own spectrogram parameters and save them so you need to know a little about the terminology (FFTs etc.). It was highly recommended by a bat worker who found it to be very good for analysing bat sounds.

Web addresses frequently change. If the link no longer works enter the programme name in a search engine such as Yahoo or Google.