

Bark Counter: seeking objectivity in bark nuisance assessment

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Abstract

At the Adelaide (04) Urban Animal Management conference, in a paper on general concepts of noise assessment and noise management, the subjects of barking noise and barking noise standards were examined. The conclusion of that paper was that barking noise nuisance is different to other kinds of noise nuisance and the current noise standards are not particularly useful for the management of barking noise complaints. It was suggested that Local Authorities could be greatly assisted if they had a specifically engineered barking noise standard to work from in assessing the validity of barking noise complaints. This paper (for the Canberra 05 UAM conference) introduces a newly proven bark counter device that could provide the means necessary for objectively measuring this kind of noise and thereby allowing the development of just such a standard.

NOTE: Neither the authors, the UAM RG, the AVA, nor the conference organisers have any financial interest in this device whatsoever.

Introduction

Ways of measuring noise for the purposes of creating noise management standards were explained at the Adelaide (04) UAM conference (Murray & Scriggins 04). In this paper, Murray and Scriggins explained that noise control standards are conventionally based on one or more of the following sound characteristics:

- (i) Loudness (sound pressure level) measured in decibels (dB)
- (ii) Frequency (pitch)
- (iii) Pitch weighted loudness (dBA, B or C scales)
- (iv) Duration (exposure time interval) measured in minutes or hours
- (v) Equivalent Continuous Sound Pressure levels eg LAeqT

It was explained that loudness and pitch (and therefore also pitch weighted loudness) had to be ruled out as useful ways of measuring *barking* noise however, because these acoustic qualities (although nicely measurable), are extremely variable for barking and not reliably linked to the nuisance it causes. It was also explained that duration (and therefore Equivalent Continuous Sound Pressure levels) also struggle for application in *barking* noise assessment because the sound of a bark is a series of short sharp sound "spikes" rather than a continuous sound

It was concluded that *barking* sound does *not* lend itself to being measured in terms of any of the usual criteria (listed above). Such sound loudness/pitch or load/duration measures may work well for aircraft noise or factory noise or disco noise for example, but they don't deliver for barking.

New ground

Provided it is accepted that current methodology for assessing noise is indeed unhelpful for measuring barking nuisance, then it can be concluded that an entirely new start needs to be made for the management of this particular kind of noise in the urban environment. Central to this process is the need to identify an appropriate way of measuring "amounts" of barking noise so that a relevant barking noise standard can be developed.

It has been reasonably argued that the current management practices for resolving barking nuisance complaints are unsatisfactory for the following reasons:-

- They are argued on the basis of assumptions rather than objective measurements

- They are subject to the emotive assessment of stressed people and are often quantified only by the person making the complaint eg. diaries
- They cause community angst because everyone (including the regulating authority) tends to end up feeling like a loser
- They fail to deliver either equity or transparency of the regulatory process that is involved.

At the Caloundra ((03) UAM conference, Anthony Beard¹ from Animal Behaviour Systems Australia (a local distributor of Multivet² products in Australia), commented to the authors that he has seen an interesting potential for one of Multivet's R&D projects. Anthony's idea of using "barks per hour (BPH)" as a measure of barking nuisance sounded attractive and "do-able". By the time of the Adelaide (04) UAM conference a year later, the idea of assessing barking nuisance by counting barks had been more thoroughly researched. It was introduced to the UAM community at the Adelaide conference in the paper cited above. A prototype bark counter collar had at that time not been reliably proven.

The bark counter prototype has now been field-tested and it does appear to measure barking effectively. Trials to date suggest that it has real usefulness as a bark management tool. As an example, one test case is detailed in this paper. While this example was a veterinary practice's animal behaviour case rather than a council inter-neighbour dispute, the potential for use by councils is still obvious.

What is the Bark Counter collar?

The device is collar mounted and when fixed to the dog, rests against the dog's throat and records the sound spike of each bark. As each bark is detected by the unit, a signal is transmitted by counting circuit to a micro-processor so that a cumulative BPH measure can be stored into the device's EEPROM (electronic erasable programmable read only memory).

The recording cycle of the bark counter continues for a period of ten consecutive days. If the data is not downloaded and "reset" by the completion of the tenth day, the counting process starts again by overwriting the previous recording period. Stored data can be downloaded to a current model PC at any stage of the ten-day cycle.

Downloading is simply achieved via an interface device using a standard USB connection to the PC. The data is automatically correlated and displayed on the PC monitor as a Microsoft Excel spreadsheet that shows BPH from hour 1 to hour 255. Each day is plotted as a separate bar chart and each "work book" (series of charts) can be named, saved and stored in the usual manner.

Though well advanced along its developmental track, this unit is still a prototype - it is still an experimental application. The recording clock presently has an error that shortens each day to twenty one hours which detracts a little from chart interpretation. Apart from this relatively minor and easily fixed "forward time creep" glitch, the two units we tested appeared to be consistently reliable and very easy to use.

CASE REPORT

The case detailed here is a real time example of how the bark counter collar can be used. It involved a well adjusted, bright, cheerful and sensibly managed two year old German Shepherd (called Gemma) that had been the subject of a neighbour's bark nuisance complaint.

The owners of the dog were reluctant to accept the validity of the complaint. They honestly believed the dog did not bark excessively. They were keen to prove this in some way and sought assistance at WSV³.

Stage 1. Fix the counter collar on the dog and record five days for assessment. The results are shown in the “day chart”, Example 1. It proved that Gemma was in fact barking excessively in the absence of her owners. She would start barking when they left for work in the morning and stop when they got home in the afternoon.

Stage 2. A standard clinical animal behaviour consultation determined that the dog’s barking was not anxiety related and shaped more as breed typical youthful exuberance that was going unchecked when the dog was at home alone.

Gemma was calm and well behaved in general. She had been well socialised, she had an enriched environment, and she was fully responsive to the commands and controls of her owners. The barking problem was occurring in the absence of the owners when there was nobody home to say; “hey, stop it, come away. Gemma, cut out that rot please!”

As a consequence of this behavioural assessment, Gemma was fitted with both an Aboistop citronella spray collar and the bark counter collar for a *second* five-day trial period. The results of that trial are shown in Example 2. The C-collar was not a successful intervention.

Stage 3. While there is no suggestion that the citronella collar had failed in any way to function as it should, Gemma was apparently not bothered by this aversive stimulus delivery system. A third five-day trial was then commenced, this time using the combination of the bark counter collar again, plus an Innotek (CKB 50) electronic collar^{4,5}. As a matter of course, the application (mechanics and function) of the electronic bark suppressor were carefully explained to Gemma’s owners prior to its being used. The aversive (electronic) stimulus “loading” was also pre-tested on the skin of the owners themselves and judged to be acceptable by them.

The results of this trial are shown in Example 3. After this (final) five day trial period, even before the bark counts had been downloaded and displayed, both owners were satisfied that while Gemma took notice of the barking check received from the electronic collar, she had not been unduly distressed by it.

ASSESSMENT

Clinical trials: The 2 prototype counter collars trialled at WSV³ in five or six different cases worked effectively every time. This one case report (above) is no certain proof that the bark counter collar concept is going to be “all things to all men” when it comes to monitoring and managing neighbourhood barking problems. And while there is no suggestion that this is a universal bark management cure-all, there is little doubt that the level of nuisance *can* now be objectively measured and that efficacy of intervention measures *can* be monitored in this way. The two test units used in veterinary clinical were simple to use, they were reliable and they did (for trial case purposes at WSV³) allow the sort of objective assessment that has previously been missing in the business of managing barking noise.

Council experience: In the case of trials conducted by Caloundra City Council there was some opposition to the concept from a number of stakeholder groups. These included Animal Management Officers, owners of dogs that had been the subject of barking complaints and even from people making the complaints.

- a) AMO complaints: In the case of AMOs employed by Caloundra City, the voice of objection was at its peak early in the piece when it was first suggested that the counter collar might assist them in establishing real data on barking dog nuisance.

The concerns of the AMOs were varied and ranged from statements like “this will mean more work for us” to “what is to stop the product being tampered with”!

- b) Dog owners: In respect of dog owners, there was a real hesitancy from this user group in embracing the technology. The common theme being a mistrust of local government with the potential for exploitation of the collars by those making complaint to Council about the dog next door. The major statement rolled out by dog owners was “what’s to stop my neighbour making my dog bark whilst the collar is attached?”
- c) Complainants: Non dog owners rolled out a similar message: “What’s to stop the dog owner taking the collar off and what’s to stop the owner during the trial making an extra effort to stop the dog from barking?”

Such concerns could have been expected. They are legitimate and they do need to be addressed. For this reason, Caloundra City Council, Western Suburbs Veterinary Clinic and Animal Behaviour Systems Australia have made representation to the technical arm of Multivet International to enhance the product by reducing risk of tampering, by minimising chances for unit breakages and by possibly even making the unit smaller. To allay public concerns, strict protocols for product use were developed by Caloundra City Council and made available on request to users. In addition, Caloundra City Council engaged the use of only one (the same) AMO for the life of the trial to enhance its creditability to the community.

CONCLUSIONS

Four conclusions came from these trials:

1. Barks per hour (BPH) as a measure of barking noise does seem to have merit
2. Provided enough Urban Animal Managers agree with this observation, the process of creating a more finished bark counter collar product can commence
3. If local government *does in general* pick up on this application, the counter collar’s proper application will require the development of an underpinning noise standard that is based on BPH.
4. Such a standard will require a set of regulatory process protocols to ensure the technical validity of the evidence generated eg tamperproofing, calibration, consistency etc.

The authors’ feeling is that this device represents a breakthrough in UAM. If others agree and these counter collars *are* a success, then achieving their full potential will depend on there being a good Australian BPH based barking noise standard. For such a standard to be most practical in UAM (and therefore of the most benefit to local authorities across Australia), it should be developed by UAM. For it to be most beneficial across Australia, it needs coordinated interstate cooperation. Provided all the principal state animal control and regulation agencies can pull together on this, it is a bright prospect.

NOTE: Neither the authors, Western Suburbs Veterinary Clinic, Caloundra City Council, the UAM RG, the AVA, nor the conference organisers have any financial interest in this device whatsoever.

REFERENCES

- Murray, RW & Scriggins, S (2004). Barking Management – Appropriate Noise Standards and Definitive Assessment. In the Proceedings of the Adelaide (04) UAM Conference of the Urban Animal Management Reference Group of the Australian Veterinary Association (pp23-28). Published by the Australian Veterinary Association Ltd ABN 008 522 852

