



## **The use of car exhaust fumes for the euthanasia of trapped birds**

There have been recent instances where the inhalation of car exhaust fumes has been recommended as a technique for killing myna birds caught in a cage trap.

Although it is recognised that euthanasia of birds in the field is difficult and that many of the recommended methods are not always practical, using fumes from idling car exhausts is not a humane alternative.

This method is considered **not acceptable** due to the following reasons:

### ***Inadequate concentrations of carbon monoxide (CO)***

Cars are now fitted with catalytic converters which are very effective at removing CO from exhaust fumes.

Extract from:

Vossberg B and Skolnick, J (1999). The Role of Catalytic Converters in Automobile Carbon Monoxide Poisoning: A Case. *Chest*, **115**; 580-581.

*“The introduction of catalytic converters beginning with 1975 new-car models dropped CO emission rates to 6.00 g/min. By 1989, the average new-car CO emission at idling was 0.22 g/min. The catalytic conversion process removes CO, hydrocarbons, and nitrogen oxide; the resultant emission is a more desirable mixture of nitrogen, CO<sub>2</sub>, and water. Contemporary three-way catalytic converters eliminate 99% of CO emissions.”*

Although the levels of CO in exhaust fumes are higher when the engine is started from cold, this level declines when the engine starts to warm up, leaving only a short period where the concentration of CO *may* be high enough to induce unconsciousness and death.

Extract from:

deRoux, S. J. (2006). Suicidal Asphyxiation by Inhalation of Automobile Emission without Carbon Monoxide Poisoning. *Journal of Forensic Science*, **51**, 5, 1158-1159.

*“...at the cold start of an engine, an excessive amount of fuel is necessary to initiate the combustion process. The catalytic converter is dormant for a short time after start-up in order to ensure initiation of the combustion process. The ‘warm up time’ is an expression of the time it takes the engine and catalytic converter to achieve a certain operating temperature. The high loads and engine speeds of a recently running vehicle allow a short warm-up time, while idling from a cold start yields a longer warm-up time, resulting in a longer delay to catalytic converter initiation. The*

*CO level is therefore higher during a cold start than when the engine has been running for a period of time or is started warm. Therefore, exhaust CO steadily declines from cold start to warm-up.”*

### ***Inadequate cooling of the gas***

There is only a short period where the exhaust fumes are cool; therefore exposure of birds to fumes after the engine has warmed up causes them to inhale hot fumes, which will cause significant distress and pain. Even if the fumes were cooled down (i.e. by passing the hose through a container of cold water), as some older methods suggest, the level of carbon monoxide would still be inadequate for euthanasia by the time the engine has warmed up.

### ***Production of other gases which can be highly irritating to the respiratory tract***

Exhaust fumes may contain other gases such as nitric oxides, hydrocarbons etc. which can cause distress and pain when inhaled.

### ***Therefore.....***

Currently the only acceptable way to use carbon monoxide for euthanasia is with commercially compressed carbon monoxide gas in a cylinder which is then introduced into a sealed chamber. There is a potential hazard to the operator with this method as carbon monoxide is also highly toxic to humans. Since it is a colourless, odourless gas, adequate safety precautions should be taken to prevent accidental exposure

### ***So what are the options when you have a trap containing live birds that need to be euthanased?***

The aim of euthanasia is to eliminate or minimise any aversive stimuli the birds will experience prior to becoming unconscious.

Trap operators must be willing to accept that humane killing of trapped birds is an important responsibility. If they feel unable to euthanase the birds in a humane manner or cannot arrange for humane euthanasia to be performed by someone else (e.g. local council, RSPCA, veterinarian), they should not commence a trapping program.

The preferred options for birds of this size are:

1. cervical dislocation or
2. inhalation of carbon dioxide or
3. injection of barbiturate

Another method that may be conditionally acceptable, although not preferred, is stunning followed by exsanguination. Killing a bird by using ‘blunt trauma to the head’ is not a pleasant method to perform, but, it may be the only option in some circumstances. Below is an extract from:

Sharp T. and Saunders G. 2004. *Methods of Euthanasia*. NSW Department of Primary Industries, Orange.

***Stunning by a blow to the head***

Stunning the animal by a blow to the head may be acceptable in small or young animals with a soft skull (e.g. neonatal pigs <3 weeks old, rats, mice, kittens, newborn pups, birds, reptiles, amphibians, fish).

A single, sharp blow should be delivered to the central skull bones. This can be achieved with a hard and heavy, blunt instrument (e.g. metal pipe, wooden club etc.).

Alternatively, small animals can be held by the hind quarters and swung in an arc so that the back of the head is struck on the edge of a hard object.

Stunning usually only renders an animal unconscious; therefore it must be immediately followed by a second method that ensures death (e.g. exsanguination, cervical dislocation, pithing)

When properly performed with sufficient force, immediate depression of the central nervous system and destruction of brain tissue occurs. Loss of consciousness is rapid. It must be properly applied to be effective and humane therefore, training and skill of operator is essential. If not performed correctly, various degrees of consciousness with accompanying pain can occur.

***References and further reading***

Agriculture and Resource Management Council of Australia and New Zealand (2006). AUSVETPLAN (Australian Veterinary Emergency Plan). Operational Procedures Manual: Destruction of Animals. Version 3.0. Document available electronically from the Animal Health Australia website:

<http://www.animalhealthaustralia.com.au/fms/Animal%20Health%20Australia/AUSVETPLAN/Dest3final.pdf>

American Veterinary Medical Association (2001). 2000 Report of the AVMA Panel on Euthanasia. *Journal of the American Veterinary Medical Association* **218**, 669-696.

Australian and New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART) (2001). Euthanasia of animals used for scientific purposes. ANZCCART, Glen Osmond, South Australia.

Sharp T. and Saunders G. 2004. *Trapping of pest birds*. NSW Department of Primary Industries, Orange.

[http://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/57233/bir-002.pdf](http://www.dpi.nsw.gov.au/_data/assets/pdf_file/57233/bir-002.pdf)

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