

## Control method: Poisoning of feral cats with CURIOSITY® para-aminopropiophenone (PAPP) baits

### Assumptions:

- Best practice is followed in accordance with the standard operating procedure CAT004.
- With PAPP, insensibility only occurs just prior to death and the period from collapse to death can be highly variable. During the period from collapse to insensibility, when poisoned animals are incapacitated, they are potentially vulnerable to a range of welfare impacts such as predation, injury, exposure to extremes of temperature and distress resulting from not being able to perform normal behaviours. The longer this period of vulnerability the more severe the welfare impact prior to death.
- Note that Part A of the assessment examines the 'impact on the animal prior to the action that causes death'. Part B then looks at the 'actual mode of death' and the 'extent and duration of suffering caused'. With ingestion of toxic baits there is often little or no impact in Part A and this part is not usually assessed. However, whilst conducting this assessment the panel acknowledge that there will sometimes be significant impacts in some or all of the five domains prior to the death of the animal and recommend that the model be modified in the future to allow for a more detailed and transparent scoring of toxic baits across the five domains in Part A.

### PART A: assessment of overall welfare impact

DOMAIN 1 Water or food restriction, malnutrition					
No impact	Mild impact	Moderate impact	Severe impact	Extreme impact	
DOMAIN 2 Environmental challenge					
No impact	Mild impact	Moderate impact	Severe impact	Extreme impact	
DOMAIN 3 Disease, injury, functional impairment					
No impact	Mild impact	Moderate impact	Severe impact	Extreme impact	
DOMAIN 4 Behavioural or interactive restriction					
No impact	Mild impact	Moderate impact	Severe impact	Extreme impact	
DOMAIN 5 Anxiety, fear, pain, distress, thirst, hunger					
No impact	Mild impact	Moderate impact	Severe impact	Extreme impact	
Overall impact					
No impact					

DURATION OF IMPACT					
Immediate to seconds	Minutes	Hours	Days	Weeks	

<b>SCORE FOR PART A:</b>	<b>1</b>
Summary of evidence:	
Domain 1	No impact in this domain.
Domain 2	No impact in this domain.
Domain 3	No impact in this domain.
Domain 4	No impact in this domain.
Domain 5	No impact in this domain.

## PART B: assessment of mode of death

Time to insensibility (minus any lag time)				
Very rapid	Minutes	Hours	Days	Weeks
Level of suffering (after application of the method that causes death but before insensibility)				
No suffering	Mild suffering	Moderate suffering	Severe suffering	Extreme suffering

SCORE FOR PART B:	C-D
Summary of evidence:	
Duration –	<p>After a cat has ingested a bait containing PAPP there is a lag period before signs of toxicosis such as head nodding, lethargy, ataxia (uncoordinated movement and difficulty maintaining balance), salivation and sometimes vomiting are observed<sup>1,2</sup>. As the toxicoses progresses, cats collapse and cannot move voluntarily. They appear unresponsive, but still show signs of awareness until they become unconscious for a short period just before death<sup>2</sup>.</p> <p>The duration of the lag phase, duration and severity of symptoms and time to death can be highly variable. In a pen study of 31 feral cats that ingested 78mg PAPP baits, the average time from bait consumption until signs of poisoning was 3 hours 51 minutes (range 43 minutes to 15 hours). The average time from onset of symptoms to collapse was 72 mins (range zero to around 5½ hours) and the average time from collapse to death was 107 minutes (range 30 minutes to around 8 hours)<sup>1</sup>.</p>
Suffering –	<p>The lag period is likely to be associated with minimal suffering, however after the onset of clinical signs when cats cannot coordinate body movements it is likely that they will experience some distress, confusion and anxiety as they cannot perform normal behaviours (e.g. standing, moving, feeding, drinking, defensive and escape behaviours). Lethargy and weakness are also potential sources of distress.</p> <p>In addition—during the later phase of toxicosis when cats are unable to move but are still conscious—if they were not able to seek appropriate shelter prior to becoming incapacitated, they are at increased risk of predation (e.g. from crows, other predators), aggression (e.g. from dogs, foxes, other cats) and environmental exposure, which could lead to further distress and suffering.</p>

## Summary

CONTROL METHOD:	<b>Poisoning of feral cats with CURIOSITY® para-aminopropiophenone (PAPP) baits</b>
OVERALL HUMANENESS SCORE:	<b>1C-D</b>
<b>Comments</b> In human cases of methaemoglobinaemia, 'chocolate brown' blood and clinical cyanosis are seen at methaemoglobin concentrations of 15 to 20%, but there are usually no symptoms at this stage. When concentrations fall between 20 and 45%, dyspnoea, fatigue, lethargy, dizziness, headache and occasionally syncope (fainting) occur. At concentrations between 45 and 55% there is a reduction in the level of consciousness and with concentrations of 55 to 70%, oxygen-carrying capacity is reduced sufficiently to cause major hypoxic symptoms. Circulatory failure, cardiac arrhythmias, seizures and coma may then be seen. With greater than 70% methaemoglobin, there is a high incidence of mortality <sup>3</sup> .	

## Bibliography

1. O'Donoghue M, Johnston M, Algar D, Buckmaster T & Quinn J. (2016). Encapsulated para-aminopropiophenone (PAPP) for the humane management of feral cats (*Felis catus*) in Australia. Unpublished raw data
2. Eason, C. T., Murphy, E. C., Hix, S., & Macmorran, D. B. (2010). Development of a new humane toxin for predator control in New Zealand. *Integrative Zoology*, 5, 31-36
3. Hall, A.H., Kulig, K.W. & Rumack, B.H. (1986). Drug- and Chemical-Induced Methaemoglobinaemia. *Medical Toxicology*, 1, 253–260