

Guidelines for the use of Native Animals in Teaching and Research

The Code considers the study, capture, handling and restraint and transport of native fauna of high importance and devotes an entire chapter to these ethical considerations. (see Chapter 5 of the Code). The UAEC endorses the principles described in the Code and recognises the need for a heightened awareness when assessing applications by researchers to work with native fauna particularly procedures involved in the taking or sacrificing of animals. Committee members are particularly aware of their responsibilities in ensuring that the work is ethically justified and that every effort will be made to minimise stress.

Permits

Much of Queensland's native wildlife is protected under the Nature Conservation Act 1992. .. This legislation provides for a licensing system to help protect native wildlife from over exploitation and to ensure wild populations of animals are protected. All native birds, reptiles, mammals and amphibians are protected in Queensland, along with a limited range of invertebrates, freshwater fish and the grey nurse shark. The type of approvals needed depends upon a number of things, including:

- the nature and purpose of the proposed activity;
- the tenure of the area in which the activity will be conducted; and
- the species of wildlife concerned.

Information sheets can be obtained from the State Government at:

http://www.epa.qld.gov.au/eoaccess/plants_and_animals/information_sheets/

Observation Studies.

It is the policy of the UAEC that all research and teaching using wildlife, including observational studies, shall be subject to the application process. This allows the AEC to fully consider the environmental impact of each study.

Capture and restraint

Researchers must be aware at all times of the stressful nature of these procedures. Animals that are trapped or restrained must be released as soon as possible after capture. Special consideration must be given to animals which are trapped at remote sites to ensure that these animals are not subject to adverse weather conditions or predators. Researchers must also consider and minimise the expected by-catch of non-target species and allow for any welfare implications with this group. Where animals risk injury or require extensive handling, the use of chemical restraint may be advised.

The following recommendations should be used as a guide only:

Species	Agent	Description	Reference
Frogs	MS222	Immersion in solution containing 0.1% Sol (1gm/L buffered to 7-7.4 pH)	Amphibian Medicine and Captive Husbandry Wright, Whitaker, 2001
	Isoflurane	4- 5% with vaporizer and induction tank	
	Benzocaine	200-300 mg/L of solution adult frog	
	Clove oil	10-50mg/L 300-350mg/L	
	Ketamine	50-150mg/kg (IM, IP or dorsal lymph sac)	Lafortune et al (2001)

Species	Agent	Description	Reference
Turtles	<u>Ketamine</u> <u>Ketamine/</u> <u>Medetomidine</u> <u>Isoflurane</u>	20-40 mg/kg (IM,S/C) 10-30mg/kg (IV) 0.1-0.3mg/kg (IV, IM) 4-5%	
Fish	MS222 Benzocaine	25-100mg/L (400-500mg/L for euthanasia) 25-100mg/L	Moon PF and Stabenau EK (1996)
	Ketamine	30-80mg/Kg (IV, IM)	Graham and Iwama (1990)
	AQUI-S (50% Clove oil)	15-20mg/ml	AQUI-S New Zealand Ltd (2004)
Snakes	Ketamine Tiletamine Pentobarbital	20-60mg/kg (IM) 15-30mg/kg (IM) 15-30mg/kg (IP)	
Lizards	Ketamine MS222	15-25mg/kg (IM) 40-88mg/kg (sterile soln)	
Birds	Ketamine Ketamine/ Xylazine	15-20mg/kg (IM) 20-25mg/kg & 1-5mg/kg (Give 10-30mg/kg ketamine and equal volume of 20mg/ml xylazine.	<u>Gleed R.R. and</u> <u>Ludders J.W</u> (2001)
Macropods	Zoletil	10 mg/kg (IM)	Vogelnest L (1999)
	<u>Ketamine/</u> <u>Medetomidine</u>	2-3 mg/kg and 40-80 µg/kg	Booth R (1994)
Bandicoots/ Bilbies	<u>Isoflurane</u>	4-5%	Young S (2002)

Restraint of any species is permitted only by trained personnel and the duration of restraint should always be kept to a minimum.

Identification

As a general principal, where it is necessary to permanently identify wildlife, the least painful method must be used. Bands, tags or collars must not interfere with the normal activities of an individual and must not disrupt normal interactions between species, particularly predator-prey relationships. Where the marking method involves tissue damage, pain management must be considered. For toe-clipping of lizards see SOP AHT 26:
http://www.uq.edu.au/research/rtrd/files/animal/sops/sop_aht_26.pdf.

Transport

Animals captured in the wild are particularly susceptible to the stress of transportation. The general principals outlined in the Guidelines for the Transport of Laboratory Animals: (http://www.uq.edu.au/research/rtrd/files/animal/guidelines/LabAnimal_Transport_Guidelines.pdf) should apply. The type and method of transportation must be appropriate for the

species. Exposure to extremes of temperature, noise, visual disturbance and vibration must be minimised and the provision of food and water should be considered.

Housing and Release of Wildlife.

The keeping of wildlife in captivity is strongly discouraged and animals bred in captivity should be used wherever possible.

Where animals are to be held, they should be kept for the minimum time required to achieve the research or teaching objectives. Researchers should strive to replicate the natural habitat of the captive species to ensure that the animals thrive. Where little is known of the habitat requirements of a species, the AEC will require strong justification for its capture and be satisfied that the husbandry requirements have been well researched. Accommodation facilities should be appropriate for each species and allow for normal activity and behaviours and permit interaction with others.

The return of animals to the wild must be given careful consideration. The effect of territorialism, genetic integrity, social group and disease transfer may indicate that euthanasia is the preferred option.

FURTHER READING

1. A Guide to the Use of Australian Native Mammals in Biomedical Research (1990) NHMRC Publication <http://www.nhmrc.gov.au/publications/index.htm>
2. Booth R. Medicine and husbandry: monotremes, wombats and bandicoots. In: Proceedings of the Post Graduate Society in Veterinary Science (233) 1994; 395-420.
3. Mellor. DJ., Beausoleil, NJ. And Stafford KJ. (2004) Marking amphibians, reptiles and marine mammals: animal welfare, practicalities and public perceptions in New Zealand. Dept Conservation, Wellington, NZ.
<http://www.doc.govt.nz/templates/defaultlanding.aspx?id=39149>
4. Chapman T *et al.*,(2005) Minimising Disease Risk in Wildlife Management. Dept Conservation and Land Management, WA Govt WA.
5. Animal Ethics Infolink <http://www.agric.nsw.gov.au/reader/wildlife-research>
6. Gleed R.R. and Ludders J.W (2001) Recent Advances in Veterinary Anesthesia and Analgesia: Companion Animals
http://www.ivis.org/advances/Anesthesia_Gleed/toc.asp
7. Lafortune, M., Mitchell, MA and. Smith, JA (2001). Evaluation of Medetomidine, Clove Oil and Propofol for Anesthesia of Leopard Frogs, *Rana pipiens*. J Herpe Med Surg 11[4]:13-18
8. Moon PF and Stabenau EK. Anesthetic and postanesthetic management of sea turtles. J Am Vet Med Assoc 1996; 208:720-726
9. Graham M and Iwama GK (1990). The physiological effects of the anaesthetic ketamine hydrochloride on two salmonid species. Aquaculture 90(3-4):323-331
10. Tribe A and Spielman D (1996) Restraint and Handling of Captive Wildlife. ANZCCART fact sheet
11. <http://www.adelaide.edu.au/ANZCCART/publications/facts.html>
12. Vogelnest L. Chemical restraint of Australian native fauna. In: Wildlife in Australia, Proceedings 327, Post Graduate Committee in Veterinary Science, University of Sydney, 1999; 149-187.
13. Young S (2002) Restraint and Anesthesia of Bandicoots and Bilbies (Peramelemorpha). In: Zoological Restraint and Anesthesia, D. Heard, Ed.
http://www.ivis.org/special_books/Heard/young/chapter_frm.asp?LA=1