

## GUIDE TO COMPLETING THE CDU AEC PROJECT AND PERMIT APPLICATION

### General Information

All researchers must be compliant with the National Health and Medical Research Council (NHMRC) (2013) [Australian code for the care and use of animals for scientific purposes](#) (the Code) and the Northern Territory (NT) [Animal Welfare Act and Regulations](#) (and/or corresponding legislation in each State) which regulates using animals in research and teaching.

Under the NT *Animal Welfare Act*, approval by an Animal Ethics Committee (AEC) is required for the use of any vertebrate animals for research and teaching. Do not obtain any animals or commence animal based work of any kind without approval from an AEC.

The Code's governing principles are that decisions and actions involving the care and use of animals for scientific purposes are based on the respect for animals, demonstrated by:

- Using animals only when justified
- Supporting the wellbeing of the animals
- Avoiding or minimising harm, including pain and distress
- Applying high standards of scientific integrity
- Applying the 3Rs (Replacement, Reduction and Refinement) at all stages of animal care and use
- Knowing and accepting one's responsibilities

It is important to consider these principles when designing and carrying out projects.

In assessing applications, it is often difficult for the AEC to obtain a clear "picture" of what happens to individual animals from the beginning to the end of the project. The AEC must assess the impact of all procedures and the project as a whole on animals.

The application should therefore focus on what is happening to animals and what is being done to ensure their wellbeing. It is important that this information is presented in a way that makes it clear what is happening to individual animals from the beginning to the completion of the project. Flow charts or sequence of events tables and images are often of assistance.

It is important for applicants to remember the composition of the AEC. Avoid unnecessary scientific terminology and give a plain English description of scientific procedures. The AEC includes lay members from a range of different backgrounds. The use of specialist language is not helpful to the AEC and may delay processing of an application while explanations are sought.

### Application Forms

The CDU AEC Project and Permit Application forms are to be downloaded from the [CDU Animal Welfare and Ethics](#) website. This will ensure that you are using the current version of the form. The AEC will not accept applications on old versions of the form.

Be sure to use the correct application form as there are two:

**1) AEC Project and Permit Application Use of Animals for Scientific Purposes**

To be used by all Investigators undertaking work using animals other than wildlife including:

- *Researchers* applying for, or seeking renewal of, ethics approval in order to undertake research involving the use of animals other than wildlife; and
- *Coordinators* of units with teaching activities which involve the use or care of animals other than wildlife.

**2) AEC Project and Permit Application Use of Animals for Scientific Purposes WILDLIFE**

To be used by all Investigators undertaking work using wildlife including:

- *Researchers* applying for, or seeking renewal of, ethics approval in order to undertake research involving the use of wildlife;
- *Coordinators* of units with teaching activities which involve the use or care of wildlife.

You will also need to download the 'AEC Animal Usage Spreadsheet' from the website. This is required for Question 3.1 in both of the above application forms. This template must be used, alternate spreadsheets will not be accepted.

## Completing the Application Form

Firstly, read the most current version of the Code. This will aid you in completing the form, **and you are required to sign the application verifying that you have read and understood the Code.**

Then, see Table 1 below which provides a step by step guide to completing the CDU AEC Project and Permit Application. Questions 1.4 and 1.10 (see Table 1) may cause time delays so it is important you assess which external permits are required in the preliminary planning stages.

## Submission Procedures

The CDU AEC conducts 7-8 meetings per year (generally 4 to 8 weeks apart) and thus it is important to submit your new Project and Permit Application well in advance to prevent project commencement delays. The AEC meeting dates and submission deadlines are available at [the CDU Animal Welfare and Ethics](#) website. Late applications will not be accepted. New Project and Permit Applications cannot be approved between meetings.

Pre-submission review of your application by the CDU Animal Welfare Officer (AWO) is recommended and should be submitted at least 2 weeks prior to the submission deadline. Please make contact with the AWO (see below 'Contact' for details).

Once you have completed and signed your final version of the application, submit an electronic version, together with the AEC Animal Usage Spreadsheet and relevant attachments to [ethics@cdu.edu.au](mailto:ethics@cdu.edu.au). The AEC do not require a hard copy.

## AEC Review

The AEC will review your application at the next scheduled meeting, and the Principal Investigator will receive official correspondence via email within 7-10 working days.

It is not unusual for the AEC to request further information, clarifications or modifications after the first review of your application so do not be offended. You may be required to submit a response addressing these concerns for review by the AEC at the next meeting. It would be wise to account for this in relation to timing of your initial application submission and your proposed commencement date. At the discretion of the AEC, some responses may be deferred to the Executive Committee for review out-of-session (between scheduled meeting dates) which expedites the process.

**Please note:** in accordance with the Code, the AEC is not able to review a project application for the first time and approve it out-of-session; project applications must be viewed and considered by the full committee before the Executive Committee can consider responses.

You must not commence any work on the project until you have received the official approval correspondence letter and the project approval and animal research permit certificate.

## Contact

If you require any further information, please contact:

Animal Welfare Officer  
Office of Research and Innovation  
Charles Darwin University  
T. (08) 8946 6498  
E. [ethics@cdu.edu.au](mailto:ethics@cdu.edu.au)

**Table 1:** A step by step guide to completing the new CDU AEC Project and Permit Application

Questions	Aim of the Question	Reason Required (the Code references)
<b>SECTION 1: ADMINISTRATION</b>		
1.1 Title of Project	<p>To set the scene/summarise the project. As a project reference for administrative purposes.</p> <p><b>Your answer:</b> the title should be a short sentence describing the project and should be unique to your project.</p>	2.7.4 (xvii)
1.2 Investigators and Participants:	<p>To identify all the participants involved in the project and ensure they have the appropriate skills, qualifications and training in order to satisfy their roles, ensuring the project will proceed successfully.</p> <p><b>Your answer:</b> List every participant.</p> <p>The <b>Principal Investigator</b> should be the person in charge of the project (generally the most senior person) who will take ultimate responsibility for the project, supervise the other participants and who can make decisions regarding the project. It is the responsibility of the Principal Investigator to ensure that all facets of animal care and use meet with the requirements of the Code. This person should have authority by the Licensed Organisation to run the project and must submit a NT Animal Research Permit Application (i.e. Form A Declaration, see Q6.1). Postgraduate students cannot be the Principal Investigator, rather the supervisor must be the Principal Investigator.</p> <p><b>Co-Investigators</b> are involved in animal procedures, work unsupervised and may also supervise other participants. Similarly, all Co-Investigators must submit a NT Animal Research Permit Application (i.e. Form B Declaration, see Q6.2). For Postgraduate student projects, the Postgraduate student should be listed as a Co-Investigator.</p> <p>Others Participants listed here may not need an NT Animal Research Permit Application if they are ‘assisting’ or supervised at all times by a permit holder. If you feel this is the case, state the basis for them not requiring a permit in this section.</p> <p><b>AEC review:</b> The AEC considers whether there are adequate staff listed to ensure the effective conduct of the project as the number and type of participants will affect the logistics of the project. For example, a project involving animal surgery will need to have someone listed who has demonstrated abilities in performing the procedure described in the species listed. There will be references to individuals and their roles in further questions in Section 4.</p>	2.4 (2.4.5, 2.4.7), 2.7.4(xvi)-(xvii)

<p>1.3 Renewals, Resubmissions and Reapplications</p>	<p>A <b>new submission</b> is a project that has never been submitted before.</p> <p>A <b>renewal</b> is a project that has been approved by the CDU AEC before, is about to expire but is ongoing and effectively unchanged (same aims and methods) as the last time it was approved by the AEC.</p> <p>A <b>resubmission</b> is a project that was reviewed by the AEC, but not approved. In these cases, the AEC may request more information or recommend changes to the document or project and allow it to be resubmitted for re-review.</p> <p>New submissions and renewals of previously approved projects can only be approved at quorate meetings.</p> <p>Resubmitted/revised projects <b>may</b> be reviewed outside of meetings by the Executive Committee, at the discretion of the AEC.</p> <p><b>AEC review:</b> The AEC needs to know whether the project has ever been approved or submitted to another AEC and the outcome of that process. It may assist the AEC in the consideration and understanding of the project.</p>	<p>2.2.23, 2.3.6, 2.7.4(xxii)</p>
<p>1.4 Lead Institution's NT Animal Research Licence No/Expiry:</p>	<p>To ensure the organisation in charge of the project is licensed and the project can be undertaken legally.</p> <p><b>Your answer:</b> Select your organisation from the drop-down menu, and ensure your licence is valid.</p> <p>Applications without a valid/current Licence cannot be reviewed by the AEC and may lead to significant delays in the processing of your application.</p> <p>For non-CDU researchers with licensing enquiries visit the <a href="#">Animal Welfare Authority</a>, NT Department of Primary Industry and Fisheries (DPIF).</p>	<p>2.7.4 (xxii), legislative requirements</p>
<p>1.5 Type of Project; and 1.6 Research Category</p>	<p>These are used for classification and reporting purposes to governments and the organisation, and are required information.</p> <p><b>Your answer:</b> For explanatory notes see Appendix 1: Research Categories.</p>	<p>1.6</p>
<p>1.7 Project Duration</p>	<p>This provides the AEC with a timeline for your research which helps them understand the project, how it will take place and whether there is adequate funding. It's also required for administrative purposes.</p> <p><b>Your answer:</b> During the course of your project, time extensions may be granted by submitting a Project Amendment form (the maximum total time cannot exceed 4 years). If the project is to be renewed past 4 years, submission of a renewal Project and Permit Application is required.</p> <p><b>AEC review:</b> The AEC can grant approval for a maximum duration of 4 years.</p>	<p>2.3.16</p>

1.8 Funding of Project	<p>The AEC needs to know that there are adequate resources available to complete a project as described and approved in the project application. Funding may be from a grant, redeemed through course fees, self-funded or from recurrent organisational funding.</p> <p><b>Your answer:</b> Describe the funding source and duration of the funding arrangement.</p>	2.3.16
1.9 Are the results to be published?	<p>Dissemination of knowledge, research and findings is an important step as it minimises the chance of repetition of experiments by different groups and is an essential part of research.</p> <p><b>Your answer:</b> Withholding results, especially negative results, as part of a commercial agreement is discouraged by the AEC. In regards to research projects, when 'No' is provided as an answer here a satisfactory explanation as to why publication will not occur is required by the AEC.</p>	
1.10 Other Licenses and Permits	<p>The following lists provides contact details for common permits required in the NT.</p> <ul style="list-style-type: none"> <li>• Permit to Use NT Fauna for Research: <a href="#">Parks and Wildlife Commission NT</a> or federal regulator</li> <li>• Permit/Special Permit under the <i>Fisheries Act</i>: <a href="#">Fisheries, NT DPIF</a></li> <li>• Permit to Conduct Research on Indigenous Lands: Relevant Land Council of study area such as <a href="#">Northern Land Councils</a></li> <li>• Permit to Use and Possess Restricted Substances: <a href="#">NT Medicines and Poisons Control</a></li> <li>• Permits to Use Firearms: <a href="#">NT Police</a></li> <li>• Import Permits: <a href="#">Department of Agriculture &amp; Water Resources</a>, Australian Government</li> <li>• Genetic Technology or GMOs: <a href="#">Office of the Gene Technology Regulator, Department of Health</a>, Australian Government</li> </ul> <p><b>Interstate Licenses and Permits:</b> Licenses for lead organisations are required in each territory/state that work is conducted in (equivalent to Q1.4).</p>	2.2.16(iv), 2.7.4(xxii), legislative requirements

	<p>Further, the aforementioned Permits may also be required in the respective territory/states. Contact the interstate equivalent government regulators for more information. For CDU licensing information, contact the CDU Animal Welfare Officer (AWO).</p> <p><b>Note:</b> Licenses and permits may take <u>several weeks</u> with the respective government regulators. Investigate the permits required for your project as soon as possible to prevent project delays.</p> <p><b>You answer:</b> if the answer is ‘Yes’ to any of these permits state whether you have applied for a permit, have received a permit (include the number and attach it to your application) or if you don’t need a permit state why it is not needed. If you are unsure about the requirements in this area, contact the AWO.</p>	
<b>SECTION 2: JUSTIFICATION FOR ANIMAL USE AND THE APPLICATION OF THE 3Rs</b>		
	<p>This section provides the AEC with a brief overview of the project in terms of its aims, methods, hypotheses, justification (the ‘What?’, ‘How?’ and ‘Why?’ of your project). More specific details of the project are required in later questions and this section should make sense and be consistent with these later questions.</p> <p>After reading this section the AEC will have made a judgement on your project’s scientific merit and the <b>justification of animal use</b>. Justification of animal use is of upmost importance for project approval as per the governing principles of the Code. That is why it is important to provide enough information to reach this decision.</p>	
2.1 Glossary of terms	<p>All answers need to be in ‘lay’ language (avoid scientific jargon) so someone with no background in science, teaching or the field of the project can understand the application.</p> <p><b>Your Answer:</b> If the use of scientific jargon or abbreviations is essential, define the terms here. You may use these terms every day, but not everybody will understand them in the context of your research. When answering this section assume the AEC knows nothing about you, your project or your field of research.</p> <p><b>Note (for the remainder of the application):</b></p> <ul style="list-style-type: none"> <li>• If the AEC does not understand your answers they will not approve the project.</li> <li>• “Not Applicable” is not an acceptable answer. Complete all questions.</li> </ul>	2.4.12
2.2 What is the aim of the project?	<p>Defines the aims of the project or any experimental hypotheses you are trying to prove/disprove (this is the ‘What?’ question).</p> <p><b>Your answer:</b> Briefly explain what new knowledge or outcomes will result from carrying out the project that is different to what is already known/established. More details of the benefits can be provided in Q2.4, but provide a short statement here. Aims are often presented best when they are short and succinct points. If there is more than one aim, provide the primary aim and then list the secondary aims that may come from the work.</p>	1.1, 1.5-1.7, 2.74 (i)-(v)

	<p><b>AEC review:</b> The AEC looks to see that the project has clear aims and that they understand your goals. The aims set the scene for the rest of the project and help the AEC to understand what you plan to achieve, and leads into Q2.4 which is ‘why’ it is important that you do it.</p>	
2.3 Describe the project.	<p>This is a brief summary of the methods you’ll use to achieve the aims (the ‘How?’ question).</p> <p><b>Your answer:</b> Briefly explain what you are trying to demonstrate/the hypothesis that the project is testing, by including the use of the animals in this project. That is using ‘lay’ terms provide an overview of your research plan and how this plan will allow you to <b>meet the aims</b> described in Q2.2. This should be about two paragraphs in length but no more than about 300 words. If you have more than one aim, you can separate this section based on each aim or sub-aim.</p> <p><b>AEC review:</b> After reading this section the AEC should have a good understanding of your project and what will happen from start to finish. They will look to see that what you plan to do will lead to your result (in the time requested). They may not understand the details of what will happen (they get these later in the application in Section 4), but they look to see that you have a plan that is logical and makes sense in terms of your goals.</p>	1.1, 1.5-1.7, 2.74 (vi)
2.4 Comment on the significance of this project.	<p>In this question you are being asked to justify your need to carry out this research (the ‘Why?’ question).</p> <p><b>Your answer:</b> In this question you need to ‘sell’ your idea to the committee. Why is it important that they approve your project? How is the impact on the animals justified in relation to the outcomes the project has been designed to deliver? Outline the potential benefits it will have to animals, the environment, students, industry, pure knowledge etc.</p> <p><b>AEC review:</b> This is where the AEC makes an overall ‘ethical’ judgement on whether your project has merit and should be allowed to be approved. The AEC weighs up the benefits to be gained by the work with the impact it may have on the animals.</p>	1.1, 1.5-1.7, 2.74 (i)-(v)
2.5 The 3Rs: Replacement	<p>The 3Rs (Replacement, Reduction and Refinement) are guiding principles in the Code that aim to improve animal research and lessen the impact research has on animals over time. It is expected, even for ongoing projects, that investigators will review their projects and consider whether improvements may be made in relation to any of the 3Rs. Every licensed organisation must also show that their investigators are improving in regards to the 3Rs over time, and we are required to include in our institutional and government reports a list of improvements made in this area in order to retain our licenses.</p> <p><b>Replacement</b> means using non-animal alternatives to achieve the same result, if at all possible.</p> <p><b>Your answer:</b> Why is it necessary to use animals in your project to meet your aims? Is there an alternative to replace or partially replace the use of animals in this project? What have you done to seek out suitable</p>	1.1, 1.18-1.30, 2.7.4 (iii),(viii)-(x)

	<p>alternatives that would not involve the use of animals and, if such alternatives exist, why can they not be used in this project?</p> <p>Examples of Replacement:</p> <ul style="list-style-type: none"> <li>• Is there a new <i>in vitro</i> test available that replaces mice in this test?</li> <li>• Can computer modelling predict the same results as an <i>in vivo</i> epidemiological study?</li> <li>• Can we train students using a commercially prepared video or plastic mannequin instead of using animal dissections or vivisection?</li> </ul> <p>In many cases there are no alternatives to animals in the research of complex physiological or anatomical investigations, or where the research is to find out new information about the animals in question. In these circumstances you still need to provide an explanation of your findings.</p> <p><b>AEC review:</b> The AEC review your answer to make sure there is adequate reason provided to justify animal use, or for you not to use methods that replace animals.</p>	
2.6 The 3 Rs: Reduction	<p><b>Reduction</b> means using as few animals as you can to achieve the proposed aims whilst maintaining statistical significance.</p> <p><b>Your answer:</b> Am I using the minimum number of animals required to achieve my results? Too few animals may invalidate the experimental result and cause wastage of animal use. You need to justify, in terms of study design, educational outcome or survey requirements, why you need to use/capture the number and type(s) of animals that you have requested. Statistical justification (including experimental power) is required where applicable, particularly for animal use in research as opposed to survey work.</p> <p>Examples of Reduction:</p> <ul style="list-style-type: none"> <li>• From previous results or using a new more specific test, can we re-achieve the same statistical power using fewer animals than before?</li> <li>• Can we use other researchers' data or tissues to supply part of our results? Or allow us to eliminate one step in our research project development?</li> </ul> <p>The best way to answer it is to break it down into:</p> <p><b>a) Why have you chosen the types of animals you are requesting?</b> That is, 'Why the specific species, sex, colour, breed, strain (for rodents), taxa, group etc?'. The AEC may ask 'Why can't you use a more common species? or 'Why can't you use both male and female mice?' So, if you ask for specific animals in your application you should be able to explain the reason for your choice in this question.</p> <p><b>b) Why do you need the number of animals you are asking for?</b></p>	1.1, 1.18-1.30, 1.7.4 (viii)-(x)

	<p>Every animal used in research and teaching must only be used if justified. This is sometimes difficult to explain in the application, but it is essential that you do it well or the AEC may not approve your project or may approve the project with fewer animals than you need. In general, the AEC will approve the numbers if you provide a clear and logical calculation or basis for your request.</p> <p>The answer to this question may vary depending on the type of project:</p> <p><b>Experimental Research Projects:</b></p> <ol style="list-style-type: none"> <li>a) Animal types in these sorts for projects are generally standard across groups and the reason for choosing animal types is well defined.</li> <li>b) Most experimental projects base animal number requirements on group sizes (n=x) within an experimental plan. Group sizes are necessary for statistical comparisons to be made, and these are estimated when planning the project. Explain your choice for animal numbers based on number of animals per group and mention the statistical tests (power analysis) used to estimate these. Sometimes sizes are based on results from previous work, and in these cases provide a reference to this work in your answer. Often it helps to explain the experimental design, and for the AEC to understand it, if you present your design in a table.</li> </ol> <p><b>Field Surveys:</b></p> <p>(a-b) There are many different sorts of fauna surveys carried out in the NT, using varying methods (traps, cameras, aerial surveys etc). Some investigate one or a few well-defined species or animal groups, and others are more general. You may not know how many animals, or what types you will catch in an area or over the course of your project. In these cases, it is acceptable to provide large lists of species, groups, or types of animals in your answer BUT only if you can justify your request. For example, you could provide an answer such as 'Any terrestrial or aquatic animal found in the Northern Territory' but only if it was consistent with:</p> <ul style="list-style-type: none"> <li>• Your aims and methods (trap types, methods of detection, animal holding, support and care etc)</li> <li>• The experience and number of the staff listed on the project</li> <li>• The areas you list as locations on your project</li> <li>• Your equipment and the equipment available at the locations</li> </ul> <p>An example of how you come up with your animal numbers may be:</p> <ul style="list-style-type: none"> <li>• 20 Elliot traps and 10 pitfall traps per morning that catch any of a list of 50 species in the areas you are surveying.</li> <li>• Your surveys last 3 mornings.</li> <li>• You plan to survey a maximum of 10 areas over the next 2 years.</li> </ul>	
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- Therefore, if every trap catches an animal every morning you will catch  $(20 + 10) \times 3 = 90$  animals per survey and therefore want to ask for 900 animals for the next 2 years, covering the list of species provided in your application.

Include your calculations in the application so the AEC can see the basis for your request for animal numbers.

**Teaching Projects:**

- a) The types of animals requested in a teaching project are usually fairly well-defined and specific, so this is fairly easy to explain.
- b) The numbers of animals requested will be based on the following factors:
  - The number of animals used per student
  - The number of students per unit or activity
  - The number of activities per unit
  - The number of times a unit will be taught per year.

You can calculate a maximum number of animals you plan to use over the 2 years using a simple calculation and this calculation should be included in the answer to this question.

In assessing your request for animals in teaching projects the AEC looks carefully at whether or not animals are absolutely necessary to achieve your learning outcomes and whether you could reduce the numbers. They will ask questions such as ‘Can videos or plastic models replace animals?’ and ‘Can groups of students share animals in order to reduce the number required per class?’ Pre-empt these questions in your answer, or else your project may not be approved at the first review.

The biggest error made in answering this question is to provide numbers without any explanation of where you picked the number from. You may not know exactly but there must be some logical way you came up with your number. Provide this logic here.

**Note:** The AEC realises that not all research goes perfectly and in most cases there are errors made, animal deaths occur, or other reasons arise that animals must be excluded from the final results. If you can predict the number of potential exclusions or deaths then try to do that and provide the AEC with the numbers or percentages in this answer (you need to justify this however). You can ask for more animals, based on the fact that you are expecting a certain percentage of exclusions and if you do that in the application it will save you from asking for more animals at a later stage (make sure you have proof to back up your request). Examples include: in fauna surveys, some people report a 2% death rate of frogs in certain traps, and this is established in the literature and expected in your work. You would therefore like to request an additional 2% of frogs in your animal numbers.

	<p>This question also addresses the issue of repetition of research that results in the unnecessary use of animals. Failure to publish or disseminate information is one possible undesirable cause of repetition, but it's generally accepted that people do not repeat research unless they have a good reason. If you are repeating previous work, here is where you need to provide the reason. Sometimes repetition may reflect poor planning or conduct of the original research. Possible answers may be:</p> <ul style="list-style-type: none"> <li>• You are re-surveying a site for changes to fauna populations after time, or after fire, weed removal etc.</li> <li>• Repetitions of experimental results is necessary to publish your paper (provide evidence from the journal).</li> <li>• Unexpected events in the course of you research meant that you didn't reach statistical significance.</li> <li>• Your results showed a trend to statistical significance but you need to double the group size to reach significance.</li> </ul>	
2.7 The 3 Rs: Refinement	<p><b>Refinement</b> means ensuring that every procedure, husbandry practice and housing option is designed, maintained and/or conducted <b>to minimise the adverse impact on animals and to provide them with the best quality of life possible, in line with best practice principles for the species involved.</b></p> <p><b>Your answer:</b> Is there <u>anything</u> (in relation to the above definition) that can be done to further reduce the impact this project is having on the animals involved? Steps must be taken at all times to support and safeguard animal wellbeing.</p> <p>Examples of Refinement:</p> <ul style="list-style-type: none"> <li>• Is there a new technique for tissue collection that does not require surgery?</li> <li>• Will you use highly experienced/trained people who will reduce the duration and complications of the procedure?</li> <li>• Can we use GPS tracking in place of trapping in multiple areas?</li> <li>• Is there a new anaesthetic agent that improves the recovery times and survival for that surgical procedure?</li> <li>• Has a better analgesia been released for use in animals since the last time I submitted my application?</li> <li>• Is there a new test available that only requires a drop of blood instead of 5mL of blood?</li> <li>• Is there a new method for blood collection in that species that does not require general anaesthesia?</li> </ul> <p>For <b>wildlife surveys (only)</b>, this includes:</p> <ol style="list-style-type: none"> <li>a) What type of traps you will be using and how you will manage the likely adverse consequences to the animals associated with these sorts of devices?</li> <li>b) How many traps you will be using and what will be their distribution? Why is this number and distribution necessary for the survey?</li> </ol>	1.1, 1.18-1.30, 1.7.4 (viii)-(x)

	<p>c) What is the immediate and potential longer term impact of the trapping work on the targeted and non-targeted animal population(s)?</p> <p>Question (a) and (b) give the AEC an idea of the intensity of your activities in the area and allow the AEC to assess the impact it will have on the species in that area. The AEC will look at the number of participants and ensure there are enough staff available to check all the traps in the required time so that animals are not placed at risk. It also forms a basis for calculating your request for animal numbers; thus it is recommended to include an outline of the trapping period and predicted trapping success rate here also.</p> <p>While (c) mainly refers to local population of the target species in field locations, it may also apply to:</p> <ul style="list-style-type: none"> <li>• Native species caught for use in an animal facility or intensive breeding facility</li> <li>• Conservation status of the target species or other species in the area</li> </ul> <p>It is best to provide a reason for your answer for example ‘the species is plentiful in the local area and common throughout Australia’. The AEC is required to consider the effects of research and teaching on animal populations and the environment, and in most cases other legislation also applies.</p> <p>It is not within the AEC’s expertise to know whether your answer is correct, but they may check with the local national parks or experts in the field if they are not sure. Parks and Wildlife regulators will consider this in more depth before approving any permits.</p>	
<b>SECTION 3: NUMBER AND TYPE(S) OF ANIMALS</b>		
<p>3.1. What animal species and numbers are to be used/captured?</p>	<p>Use the <i>CDU AEC Animal Usage Spreadsheet</i> to provide the details of the animals to be used in your project and submit this together with your Project and Permit Application. This information is reported annually to the institution and government regulators and is essential to maintain licenses.</p> <p><b>Please note:</b> This template must be used; alternate spreadsheets will not be accepted.</p> <p><b>Your answer:</b> Complete all columns to the best of your ability. List each species separately by Procedure Code. Refer to Appendix 2: Procedure Code for more information. When answering animal numbers refer to Q2.6, as this provides the basis for your numbers. Answers in Q2.6 and Q3.1 need to be consistent.</p> <p>If you are carrying out <b>wildlife surveys</b>, you may not know exactly which species you will catch or you may be aiming to sample all species potentially found in the area. Your answer here should be consistent with your aims and answers provided previously. Consider listing a ‘likely encountered species list’ outlining the target species and potential by-catch species based on previous research. The AEC appreciate that this list cannot be exhaustive. Further for observational wildlife studies, the AEC understand that requested numbers are an ‘estimate’ only and depending on the project proposal, will not be restrictive on the project approval animal numbers.</p>	<p>2.7.4 (vii)(a), (ix)</p>

	<b>Note:</b> Investigator(s) must report accurately on animal use (i.e. both target and non-target species and numbers associated with each) annually in a Progress/Final Report. This includes observational studies.	
WILDLIFE FORM ONLY: Do any of the species listed have a conservation status of Critically Endangered, Endangered, Vulnerable or Near Threatened?	Refer to <a href="#">Classification of Wildlife in the NT- November 2017</a>  (or interstate equivalent) to complete the conservation status of any species used in the project and provide the details.	2.7.4(vii)
Will you be collecting any voucher specimens?	<b>Your answer:</b> If you are planning on collecting voucher specimens your responses need to detail how the impact on these individuals will be minimised and what the likely impact is on the animal population involved (i.e. Refinement). Voucher specimens involving the killing of animals should never be undertaken without prior justification. Provide a detailed justification here.  <b>Note:</b> Refer to Q4.5.4 for more details on acceptable euthanasia techniques. Another useful reference is the New South Wales Department of Primary Industries, Animal Ethics Infolink, Guidelines for <a href="#">Collection of voucher specimens</a>	3.3.42
Will you be collecting genetic samples?	The collecting of genetic samples leads to increased animal handling time and may lead to discomfort to the animal and increased stress. The need for genetic samples should be justified. Genetic samples should relate to the aim of the project, and not be taken 'just in case required'.  <b>Your answer:</b> If you are planning on collecting genetic samples, your responses need to justify their need. You should be specific on how many samples per species/animal group are likely, and the method of sample collection for each of these species. You should also detail your plan for these samples: the AEC will want to see that the samples are correctly stored to ensure their viability, and that there is a plan for sample analysis (that samples are not simply stored long term on a 'just in case required' manner).	
<b>SECTION 4: ANIMAL SOURCE, MAINTENANCE AND FATE</b>		
	After reading this section the AEC should know the details of what happens to the animals in every step from start to finish. This includes where they are coming from before you start the project and where they go, and who is involved in each step. The details will allow them to assess how each step, individually, will impact on the animals, what may go wrong, how you plan to monitor the animals and progress of the project, and what you plan to do if anything unexpected happens.  To use a food analogy, in Q2.3 you've provided the menu. In this section you need to provide the recipes.  <b>Note:</b> Questions in this section are written as a 'best fit' for a variety of project types. They may not make sense to you in terms of your project plan, however, <b>NA (not applicable) is rarely an acceptable answer.</b> Refer to the explanations below to determine what you are supposed to write for your project type and think twice before typing NA.	

4.1 EFFECTS OF PROJECT ON ANIMAL WELLBEING, PLANS TO MINIMISE DISTRESS AND MONITORING PROCEDURES		
4.1.1 Sequence of events	<p><b>Your answer:</b> Provide a sequential list of everything that happens to the animals from before arrival to the time they are no longer part of the project. This includes transport, any acclimation period (before starting on the project) and continues up to when they leave or undergo euthanasia. A series of chronological, point form answers is acceptable but a flow chart or table will assist the AEC in understanding what is going to happen.</p> <p><b>Note:</b> If you have a Standard Operating Procedure (SOP) for sections or all of the above events, consider referring to the relevant SOP here and submitting it together with the Project and Permit Application for approval by the AEC. Once approved by the AEC, you can refer to this SOP in future amendments/reports/applications.</p>	2.7.4 (xiv)(a), 3.3
4.1.2 Identify and describe each step or procedure in this proposal that may compromise the animal's well-being. State how these adverse effects will be minimised.	<p>Not all steps outlined in Q4.1.1 may have a negative impact or 'compromise the animal's wellbeing'.</p> <p><b>Your answer:</b> From the list/flow chart provided in Q4.1.1, choose only those factors or procedures that may have a negative impact on the animals. Examples may be containment, surgical procedures, separation from other animals, restraint, blood sampling etc.</p> <p>Complete the table provided. Include a separate row for each procedure you have identified. State what the likely adverse effects are (A) and the potential complications (B) (unexpected adverse effects but possible); state the likelihood/prevalence of these occurring (include references where possible); and state how you plan to minimise the negative impact each will have on the animals (Refinement to minimise A&amp;B). An example is provided within the application form to assist you; remember to delete this example row prior to submission.</p> <p>If applicable, also complete the treatment substances table provided. This allows the veterinary AEC members to assess whether the substances you are using are appropriate. For example (in order of table columns): Meloxicam, Metacam® Oral Suspension for dogs; 1.5mg/ml; 0.01mg/kg; orally via a 3ml syringe; once daily; post-operative pain relief and anti-inflammatory.</p>	2.7.4 (xiv)(c)
4.1.3 How will animal wellbeing be monitored at each stage of the project including: post-arrival, procedures, post-procedures?	<p>All animals participating in research projects need to be monitored to ensure their wellbeing and prompt detection of stress, disease or other adverse events. The type and frequency of this monitoring will depend on the project, species, age and other factors and may change at different stages of the project. Generally speaking, animals undergoing more invasive and high impact procedures need more detailed and higher frequency monitoring, as do animals held at animal holding facilities.</p> <p><b>Your answer:</b> Procedures may mean anything from invasive procedures such as surgery to handling for weight measurements or blood sampling etc. The aim of the question is to ensure that someone is assessing the animal's response to the procedure while it is happening. For example, a surgical procedure where an animal is under anaesthesia and requires constant monitoring.</p> <p>A description of and the ability to record the monitoring frequency, criteria used to assess wellbeing, criteria used to determine when action is needed, intervention points and treatments are all required. The easiest way to keep records of these is to use a clinical monitoring sheet with clearly defined criteria and tick boxes. The AEC</p>	<p>2.7.4(xv)</p> <p>3.1.20-3.1.28</p> <p>3.1.22</p>

	<p>will inspect and review your completed clinical monitoring sheets as a part of animal housing facility inspections, and you are required to submit a template with your application if your project involves a procedure that may impact the animals.</p> <p>Since some procedures will impact on the animals and there may be a recovery time before they can return to normal behaviour and function, animals should be monitored carefully post-procedures. Monitoring can return to normal levels once the animals' behaviour and clinical signs are normal, but there will need to be a way to assess this. Objective score sheets, or monitoring sheets are the easiest way to record this data. They should also record any treatments given including pain relief or antibiotics. These templates should also be provided to the AEC with the application.</p> <p>Refer to the NHMRC (2008) <a href="#">Guidelines to promote the wellbeing of animals used for scientific purposes: The assessment and alleviation of pain and distress in research animals</a> for further information (and in particular Section 4.7)</p>	
4.1.4 Who will be monitoring the animals at each stage of the project, including: post-arrival, procedures, post-procedures?	<p><b>Your answer:</b> Lists the person/s responsible for each stage of the project. Also include who will be responsible for monitoring on weekends, public holidays and during emergencies (e.g. cyclone warnings etc).</p> <p><b>AEC review:</b> The AEC need to be satisfied that there will be sufficient numbers of competent person/s, or person/s under the direct supervision of a competent person, to meet the methods for monitoring outlined in Q4.1.3.</p>	2.7.4(xv)-(xix), 3.1.20(i), 3.2.1
4.1.5 Who will perform the experiment or teaching procedures stated in this application and where will these procedures be performed?	<p><b>Your answer:</b> The 'procedures' in this question refers to are those described in Q4.1.1. Since many of the experimental procedures require specific skills or training, only certain people may be able to carry these out. List these people here and which procedures they will perform.</p> <p><b>Note:</b> all these people should also be listed in Q1.2, as either a principal or co-investigator and have a completed and signed Form A or Form B Declaration (Q6.1-6.2) attached to the Project and Permit Application.</p> <p>You also need to state where the procedures will take place. Since some procedures require special locations or conditions you need to provide details of the location to be used and that it is appropriate for the procedure/s. For example, surgical procedures should be carried out in a designated sterile surgical theatre otherwise post-operative infections may occur.</p>	2.7.4 (xvii)
<b>4.2 SOURCE</b>		
4.2.1 What will be the source of the animals used in the project?	<p>This question is asking where you plan to get the animals and the answer or interpretation will vary depending on the type of project.</p> <p><b>Your answer:</b> Generally speaking, animals will come from one of the following places:</p> <ul style="list-style-type: none"> <li>An external supplier (stock, commercial property, research animal supplier, private owner etc) – <i>provide the name and contact details of the supplier</i></li> </ul>	2.7.4 (vii)(b), 3.2.2-3.2.4

	<ul style="list-style-type: none"> <li>• A maintained on-site herd/colony– <i>provide details of this herd/colony</i></li> <li>• Nature – <i>give the location where the source animals will be found</i></li> </ul> <p>Since the source may or may not be the same as the project site, animals may require transport from their source to the main project site. While it is not explicitly stated in the question, the AEC needs to know how the animals will be transported, so you should provide this information here.</p>	3.2.5-3.2.8
Wildlife Application 4.2.2 For each site number above, outline what will happen to the animals at that site.	<b>Your answer:</b> Some surveys implement different or multiple survey methods in different locations. Make it clear to the AEC what is planned to occur to animals at each site. For example, Sites 1-3: cage trapping etc, Site 4: motion trigger cameras etc.	2.7.4(xii), 3.2.4
4.2.2 (Wildlife Application 4.2.3) If animals have been subjects/caught in previous experiments or studies, describe what was previously done to the animals.	<p>On occasion, an animal may be used in more than one project in its lifetime. For wild animals, you may not be able to predict this, but for intensively-housed animals, the investigator or facility manager may re-use animals over time.</p> <p><b>Your answer:</b> The AEC needs to know what has happened to the animals before they are used in this project, so if there is a likely chance the animals have been used before state this in the answer. Include the pertaining AEC project reference number.</p> <p><b>AEC review:</b> For low-stress use, re-use is not a major issue and will not affect your plan. For major high-impact research, it's not fair to subject animals continually to repeated stress so the AEC may have hesitations in allowing this to happen.</p>	2.7.4(v) (a)
<b>4.3 ANIMAL HOUSING OR HOLDING</b>		
4.3.1 List all sites/locations where research or teaching will take place?	<p>This is a location and there may be one site or facility, different sites for different stages, or the project may be repeated at many sites.</p> <p><b>Your answer:</b> List ALL the sites where the project will take place. If you do not know yet, then list the known sites, and let the AEC know that more sites may be added later.</p> <p>For observational studies, the animals may not be contained at all, so list the areas where they will be observed, photographed, sampled (foot prints, scat samples, fur samples) etc.</p>	1.8-1.9, 2.7.4(xi)- (xiii), 3.2.13-3.2.20
4.3.2 What is the maximum time the animals we be 'held' / participating in this project?	<b>Your answer:</b> In some projects, being 'held' may have different stages. For example, in trapping wild animals, they will be 'held' in the traps until found, then 'held' in a temporary container until processed and released. In this question, the total estimated maximum time is all that is required, but make sure that each stage is listed separately in later questions.	1.8-1.9, 2.7.4(xi)- (xiii)

	<p>For observational studies, animals will not be 'held' but instead of writing "NA", it would be better to make a short statement that animals will not be held and why.</p> <p>For animals held in facilities or on agricultural properties their participation time will be the time when they are moved or allocated for use in the project, to the time they are returned to their normal population or in some cases are euthanased.</p>	
<p>4.3.3 Describe the housing / type of container to be used (e.g. state dimensions of cage, bag etc):</p>	<p>A 'container' is a broad term that could mean many things in many situations including: pen, cage, paddock, box, bag, hands, vehicle, facility, site, room, enclosure, zoo. In terms of this document it refers to the immediate external physical environment of the animal while it is taking part in the project.</p> <p><b>Your answer:</b> Include the physical details of the containers as well as briefly any container furnishings and the environmental conditions (the latter is expanded on in Q4.3.6). There may be more than one container for example, 'a bag in a car' or 'a cage in a room in a facility' and you must describe each level of containment in detail.</p> <p>During the course of the project, an animal may be held in a number of types of 'containers' for varying times. You need to list all methods of containment and associated information including the time spent in each in your answer to this question.</p> <p>Refer to the NHMRC (2014) <a href="#">A guide to the care and use of Australian native mammals in research and teaching</a> and NHMRC (2008) <a href="#">Guidelines to promote the wellbeing of animals used for scientific purposes: The assessment and alleviation of pain and distress in research animals</a> (section 4.4.4) for further information.</p> <p><b>AEC review:</b> The AEC needs to assess the impact the containment will have on the animals. This means, the container size, type, temperature, humidity, light and in some cases, noise levels may affect the animals and cause stress. The AEC also needs to determine whether your containment methods are appropriate for the species and ages of the animals.</p>	<p>3.2.21-3.2.23</p>
<p>4.3.4 What will be the maximum and minimum number of animals per cage/container/yard?</p>	<p>Stocking rates can significantly impact the health and wellbeing of animals in relation to food availability, aggression and/or stress.</p> <p><b>Your answer:</b> This question is referring to your stocking rates which may or may not equate to the containers maximum and minimum holding capacity. For some species, there are guidelines or codes of practices available for maximum stocking rates and/or minimum floor surface area. Refer to the specific sections of these documents and attach them to your application, here applicable.</p> <p><b>AEC review:</b> This is used to assess whether appropriate stocking rates are being used for the species and to ensure animals are not overstocked or crowded in their 'container'.</p>	<p>3.2.21-3.2.23</p>

<p>4.3.5 If contained individually, justify why animals must be socially isolated including why alternative options are unsuitable in this proposed work.</p>	<p>This question refers to anywhere an animal may be housed for an extended period of time as part of a project (animal house, crocodile farm, cattle yard, tank, mouse cage) and is under observation. This question addresses the needs of those social species which should not be housed singularly (for extended periods) if avoidable. For these species isolation=stress.</p> <p><b>Your answer:</b> If you plan to house these species individually, provide a reason for doing this and explain what measures you will take to reduce the stress of isolation (e.g. the animal should be able to see, hear and smell animals of the same species, mirrors, heating pads, recorded noises etc).</p> <p><b>Note:</b> Alternatively, some animals should never be housed with other animals.</p>	<p>3.2.21-3.2.23</p>
<p>4.3.6 What measures will be taken to enrich the environment for animals during routine maintenance before and after experimental or teaching procedures?</p>	<p>‘Environmental enrichment’ (EE) means any furnishings, diet supplements, toys that are provided in their containers to make their lives more interesting. EE allows animals to express their natural behaviours in an artificial environment and so is supposed to reduce stress levels and reduce any abnormal behaviours from developing.</p> <p><b>Your answer:</b> During the course of a project animals will have periods where they are subject to procedures, and periods where they are allowed to be free in their ‘containers’ and undergoing routine husbandry (cleaning, feeding etc). This question is referring to the ‘routine husbandry’ periods and is trying to ask ‘When the animals are in their containers, and not undergoing handling or other procedures, what will be provided to them to make their lives more interesting?’.</p> <p>Examples of EE include: tunnels for mice and rats; tank hides and ornaments for fish; fresh tree branches, leaves and perches for caged birds; chew toys for dogs; sunflower seed supplements for rats; nest boxes with bedding for layer hens.</p>	<p>3.2.13, 3.2.17(i), 3.2.1(viii), 3.2.22,</p>
<p><b>4.4 FEEDING</b></p>		
<p>4.4.1 What and how often will animals be fed and watered?</p>	<p><b>Your answer:</b> Describe how, what, how much and how frequently the animals will be fed and watered while participating in the project. Include any supplements they may receive.</p> <p>In many cases there is no change to their feeding regimen once they join the project. In others, animals require additional feed or changes to their feed/water in order to cope with containment or the demands of participating in the project. In some cases, it may be the feed itself that is being researched. The AEC needs to know all the details, including the brand names of commercially prepared feed. If the site/facility where the animals are being housed has a written guideline or procedure for feeding you can supply this document to the AEC for approval and refer to it here rather than typing it out in the answer.</p> <p><b>AEC review:</b> The answers will be species-specific and the AEC uses their expertise or refers to guidelines to determine whether the feed/water plan is appropriate.</p>	<p>2.7.4 (vi), (xiii), 3.2.4</p>
<p><b>4.5 FATE OF ANIMALS</b></p>		

<p>4.5.1 What will be the fate of the animals at the end of their involvement in the project?</p>	<p>This question asks what happens to the animals at the end of their time on the project.</p> <p><b>You answer:</b> Examples include, rehoming, returned to their normal husbandry conditions or natural habitat (captive or wild), humane killing, or reuse. Also detail provisions for tissue sharing if applicable.</p>	<p>3.4.1-3.4.5</p>
<p>4.5.2 What course of action will you take if any animals are injured during the course of the project?</p>	<p><b>Your answer:</b> If animals are injured or sick during the course of the project, you need to have a plan in place to treat them or to euthanase them (i.e. a scaled intervention plan).</p> <p><b>AEC review:</b> The AEC needs to know that if things go wrong, you have a plan in place to minimise the impact it will have on the animals.</p>	<p>3.2.1</p>
<p>4.5.3 What criteria will be used to determine the end-point of the experiment (conclude an animal's involvement with the project):</p> <p>a) under normal circumstances?</p> <p>b) in the case of unexpected circumstances?</p>	<p>a) Most projects have a pre-determined endpoint where the animals are no longer part of the project. It may be a time-point or at the end of a procedure or teaching activity. It will be the same for most of the animals <u>when everything goes to plan</u>.</p> <p>b) This question is asking about the situations where things may not go to plan, and an animal needs to be removed from the project before the planned end-point is reached. There may be illness, injury, or other unexpected circumstances that means the animal must be withdrawn for its own welfare or because the results obtained may not be valid. This question is asking you to predict the criteria you will use to determine when these situations arise.</p>	<p>3.1.2, 3.1.24-3.1.27</p>
<p>4.5.4 If animals are to be euthanased as part of the project or because they are seriously injured:</p> <p>a) How will this be done?</p> <p>b) Where will the euthanasia take place?</p> <p>c) who will euthanise the animal &amp; what is their experience?</p> <p>d) How will the carcass/es be disposed of?</p> <p>e) Could animal tissue be shared with other researchers for</p>	<p><b>Please Note:</b> Not Applicable (NA) will not be accepted for any of these sections.</p> <p>There are guidelines available that outline acceptable methods of euthanasia in a variety of species. Refer to Appendix 3 for the CDU AEC summary of euthanasia techniques. For more detailed information refer to the ANZCCART (2001) <a href="#">Euthanasia of Animals Used for Scientific Purposes</a> and the AVMA (2013) <a href="#">Guidelines for the Euthanasia of Animals</a>.</p> <p>a)-c) Your chosen methods needs to be appropriate for the species and the situation, be carried out by someone skilled in the procedure, in a place that is quiet and does not result in additional stress for the animals or people involved or any nearby animals. If drugs are going to be used for sedation and/or euthanasia, the person carrying this out will also need other licenses to use these drugs unless they are a veterinarian (refer to 1.10 Medicines and Poisons Control NT). You need to provide evidence that the person listed has an appropriate scheduled substance licence in this question or the AEC will not approve the project. For Lethabarb use, ensure you provide a Lethabarb training certificate for investigators proposed to use Lethabarb.</p> <p>d) Details of how you will dispose of the carcass should be provided and this is particularly important when euthanasia is performed by an anaesthetic overdose. Scavenging animals will experience adverse impacts if they gain access to a carcass that was not disposed of properly.</p>	<p>2.4.21-2.4.24, 2.5.7-2.5.10, 3.4.1(v), 3.3.45-3.3.46</p>

another research project?	e) Sharing animal tissues is a way to reduce the total use of animals. If someone can source tissues from another person's project, then they may not have to euthanase an animal specifically for this purpose. This mainly refers to laboratory projects, but may be relevant to museum (voucher) specimens, population surveys requiring DNA for genetic studies, or where rare animals make multiple sampling difficult.	
<b>SECTION 5: TEACHING PROJECTS ONLY</b>		
	If your project is a teaching project, you need to complete this section as the AEC needs specific information about the teaching program.  If your project is not a teaching project, delete this section prior to submission.	Section 4
5.1 Course / Unit / Practical Class Name	<b>Your answer:</b> Provide the name of the course, or the class/practical session involved (in some cases it may be the same as the Title of the application (Q1.1)).  <b>AEC review:</b> The AEC needs to know that the details of the unit in which the animals are to be used and the role the animals play in meeting the learning outcomes of the unit. This will add to the justification for animal use.	2.7.4 (xxii)
5.2 What is the estimated number of students undertaking the unit / course:  a) per session? b) per semester?	The number of students who will benefit from the unit will help to justify the unit.  <b>AEC review:</b> The AEC looks at the answer to this question and Q5.6 to determine whether the animal numbers requested are justified.	2.7.4(ix) (b)
5.3 What is the student to instructor/supervisor ratio??	Students using animals need to be supervised appropriately to ensure animal wellbeing but also to ensure that the learning outcomes will be met.  <b>Your answer:</b> You must ensure that students are supervised by a person who is competent in the procedure being performed, and that the level of supervision of students takes into account the competency and responsibilities of each student.	2.7.4(ix) (b), 4.13
5.4 Please specify the minimum and maximum number of animals to be used in a relevant time-frame (e.g. number times per class or per week) by each student?	<b>Your answer:</b> The ratio of animals used to students is an important method of reducing the number of animals used and can be achieved from having students working in groups. However, learning outcomes for some activities is reduced with larger groups.  <b>AEC review:</b> The AEC seeks to find a balance between these two requirements. The AEC needs to know that investigators are considering these factors in planning the course.	2.7.4(ix)

5.5 Will the students be handling live animals?	<b>You answer:</b> This question is a general question, but for some units the answer may differ depending on the activity being taught. In these cases, you should break it down and provide answers for each activity. For example, for some activities the AEC may want to be sure that the students have been adequately trained in handling of animals before they are allowed to handle the animals.	2.7.4(xviii), (xix)
5.6 How would students be disadvantaged if animals were not used in this course, project, or procedure?	<b>AEC review:</b> The AEC uses this answer to assess whether the use of animals is essential to achieve the educational outcome and that suitable alternatives to replace the use of animals are not available.	2.7.4(ii)
5.7 What are the learning outcomes for the unit / course?	<b>You answer:</b> All teaching activities should have a set of learning objectives and a plan or method to assess the learning outcomes against these objectives. These can be summarised here or else provided as an attachment and referenced here. Information should have been provided earlier in Q2.3.	2.7.4(ii)
5.8 Detail what consideration has been given to each of the 3Rs in developing this teaching module: 5.8.1 Replacement	<b>You answer:</b> Why is it necessary to use animals in this teaching module? Have you considered whether there are parts of the teaching objective that could be achieved without the use of live animals? What have you done to seek out suitable alternatives that would not involve the use of animals and, if such alternatives exist, why can't they be used effectively to achieve the necessary knowledge and skills?	1.1, 1.18-1.30, 2.7.4 (iii),(viii)-(x)
5.8.2 Reduction	<b>You answer:</b> Justify, in terms of teaching design and/or educational outcome, why you need to use the number and type(s) of animals that you have requested in 5.4 above.  If the work involved repeats previous teaching, summarise the outcomes of that previous teaching (i.e. was the animal use effective at achieving the stated educational outcome) as this will assist the AEC in defining whether the number and types of animals involved is appropriate.	1.1, 1.18-1.30, 2.7.4 (iii),(viii)-(x)
5.8.3 Refinement	<b>You answer:</b> Detail what consideration has been given to the principle of Refinement in developing how this teaching work will be undertaken so as to minimise the adverse impact (severity and/or duration on animals involved). This should include reference to relevant competencies/instructions given to the students (Q5.7), the level of oversight provided by teaching staff and cut-off points for intervention during the animal contact components of the course.  <b>Note:</b> intervention points are to be fully described in context of an intervention plan under 5.12.  In addition, identify any aspects of the teaching environment that would provide 'rewards' (positive reinforcement) for the animals, such as feeding them on entry to the yards or immediately after the teaching has finished.	1.1, 1.18-1.30, 2.7.4 (iii),(viii)-(x)

5.9 What is the maximum number of times each animal will be used? Why is this considered appropriate in an animal welfare sense?	This relates to re-use of animals. By allowing animals to be used by more than one student you will reduce the number of animals used in total, but the impact and stress placed on each individual animal will increase.  <b>AEC review:</b> The AEC needs to consider this in relation to the procedures being carried out and the period of time over which they will be used.	2.7.4(ix) (b), 4.16
5.10 Describe how the attainment of the educational objectives will be assessed?	<b>You answer:</b> Should include, as applicable, national educational outcomes, required Vocational Education and Training package competency achievements, endorsed program outcomes and other curriculum-related outcomes. Also, refer to and attach a student assessment form or course feedback sheet.	2.7.4(ii)
5.11 Is animal use compulsory for students of the above unit?	<b>You answer:</b> If yes, detail how and when the students are made aware of animal use in this unit?  If no, you will need to explain why there is justification for any use of animals in the unit if the objectives can be met without the need for students to undertake direct animal use to develop and demonstrate knowledge and skills	2.7.4(ii)
5.12 Do the students receive instruction in the ethical and legal responsibilities involved in the use of animals for scientific purposes, as well as in the appropriate methods for animal care and use?	<b>You answer:</b> Provide details on how you provide students with the opportunity to discuss the ethical and social issues, and legal responsibilities, involved in the care and use of animals for scientific purposes at a level appropriate to their learning ability and comprehension. This must be before the use of animals commence.  Here you are also required to provide an intervention plan that includes veterinary back-up, is accessible and will be followed when an incident involving significant risk to animals occurs during a teaching session.	4.12, 2.7.4 (xv)
<b>SECTION 6: PARTICIPANT INFORMATION, DECLARATIONS AND DISCLOSURES</b>		
	The following information is used by the AEC to determine whether Animal Research Permit/s will be granted by the AEC under the NT <i>Animal Welfare Act</i> . You can only perform research under the Lead Organisation's Animal Research Licence (see Q1.4) once you have an Animal Research Permit. Lead Organisations must report to the NT Animal Welfare Authority annually on all the Animal Research Permit holders and their activity. <u>Completion is compulsory.</u>  In accordance with legislation, a permit takes effect on the date it is issued and continues in force for the period (not exceeding 2 years) specified in the permit, subject to its suspension, cancellation or surrender. To satisfy this legislative requirement, if your project duration is longer than 2 years you are required to re-submit Form A and B Declarations (Q6.1-6.2) with your annual Progress Report for Year 2.	
6.1 Form A – Principal Investigator	<ul style="list-style-type: none"> <li>Complete all sections to the best of your ability</li> </ul>	Legislative, 2.7.4(xvi)-(xvii), 2.4.5, 2.5.3

	<ul style="list-style-type: none"> <li>You are required to attend animal ethics training at least every 2 years. If you attended a non-CDU animal ethics training equivalent, provide details of the course and attach an attendance certificate.</li> <li>If you would like to delegate administrative duties for this project to someone other than yourself, do so here.</li> <li>Disclosure: remember to answer yes/no to (a)-(d)</li> <li>Declaration: insert you full name, read points (I) –(VII), and sign accordingly</li> </ul> <p><b>Note:</b> This is a legal declaration and all fields must be completed</p>	
6.2 Form B – Co-Investigator	<p>One Form B is required for each Co-Investigator/person performing animal work unsupervised listed in Q1.2</p> <p>See hints in Q6.1 above. In addition, remember to insert you full name, project title and the date the application is signed by the Principal Investigator in the declaration.</p> <p><b>Note:</b> This is a legal declaration and all fields must be completed</p>	Legislative, 2.7.4(xvii)-(xviii)
6.3 Form C – to be completed on behalf of the licensee by the Head of Department or Representative of the Lead Organisation	<p>This form is a component of your Animal Research Permit Application and must be completed in entirety and signed by the relevant person, prior to submission.</p>	Legislative

## Appendix 1: Research Categories

The main scientific or educational purpose of the project.

**1. The Understanding of Human or Animal Biology:** Using animals for activities that aim to increase the basic understanding of the structure, function and behaviour of animals and humans, and processes involved in physiology, biochemistry and pathology.

Examples:

- Molecular biology studies
- Studies of hormone levels for reproductive physiology

**2. The Maintenance and Improvement of Human or Animal Health and Welfare:** Activities that aim to produce improvements in the health and welfare of animals, including humans.

Examples:

- Animals used to develop a new diagnostic test for a disease
- Development of a painless method of spaying cattle
- Developing a new vaccine for animals or humans
- Production of biological products such as anti-sera, hormones and antibodies

**3. The Improvement of Animal Management or Production:** Activities that aim to produce improvements in domestic or captive animal management or production.

Examples:

- Developing an improved molasses/urea based supplement for cattle
- Determining optimum stocking rate for a pasture
- Evaluation of a calcium supplement for layer hens

**4. The Achievement of Educational Objectives:** Activities carried out for the achievement of educational objectives. The purpose of the activity is not to acquire new knowledge, rather to pass on established knowledge to others. This

would include interactive or demonstration classes in methods of animal husbandry, management, examination and treatment.

Examples:

- Animals used by veterinary schools to teach examination procedures such as pregnancy diagnosis or artificial insemination
- Sheep used in shearing demonstration classes for students; Dogs used to teach animal care to TAFE students;
- Animals used at pre-, primary or secondary schools or colleges; Rats and toads used in schools for dissection classes
- Animals used in agricultural colleges or schools to teach routine husbandry procedures

**5. Environmental Study:** Activities that aim to increase the understanding of the animal's environment or its role in it, or aim to manage wild or feral populations. These will include studies to determine population levels and diversity and may involve techniques such as collection of voucher specimens, radio tracking or capture and release.

Examples:

- Fauna surveys for environmental impact studies
- Research into methods to control feral animals

## Appendix 2: Procedure Categories

Much of the animal research and teaching that is carried out will be relatively easy to categorise. The procedure categories are intended to give some indication of the impact to which the animal is subjected. With this in mind, use the brief guide and the examples given to help categorise the procedure.

The guide is ONLY a guide and does not exclude otherwise unlisted procedures which you and your AEC judge to have a similar level of impact.

**1. Observational Studies Involving Minor Interference:** Animals are not interacted with or, where there is interaction, it would not be expected to compromise the animal's welfare any more than normal handling, feeding, etc. There is no pain or suffering involved.

Examples:

- Observational study only such as photographing whales at close quarters
- Pasture studies using grazing animals
- Breeding or reproductive study with no detriment to the animal
- Feeding trial, such as Digestible Energy determination of feed in a balanced diet
- Behavioural study with minor environmental manipulation
- Teaching of normal, non-invasive husbandry such as handling, grooming, etc
- Production of products, such as hormones or drugs, in milk or eggs from animals which are subject to normal husbandry procedures only

**2. Animal Unconscious without Recovery:** Animal is rendered unconscious or euthanased under controlled circumstances (ie not in a field situation) with as little pain or distress as possible. Capture methods are not required. Any pain is minor and brief and does not require analgesia. Procedures are carried out on the unconscious animal that is then killed without regaining consciousness.

Examples:

- No experimentation on living animals, eg animals killed painlessly for dissection, biochemical analysis, in vitro cell culture, tissue or organ studies

- Teaching surgical techniques on live, anaesthetised animals which are not allowed to recover following the procedure
- Live animals euthanased for later scientific use, eg rats and toads for dissection
- Collecting blood or plasma from anaesthetised dogs prior to euthanasia

**3. Minor Conscious Intervention without Anaesthesia:** Animal is subjected to minor procedures that would normally not require anaesthesia or analgesia. Any pain is minor and analgesia usually unnecessary, although some distress may occur as a result of trapping or handling.

Examples:

- Injections (not vaccination trials), blood sampling in conscious animal
- Minor dietary or environmental deprivation or manipulation, such as feeding nutrient-deficient diets for short periods
- Trapping and release as used in species impact studies, etc
- Trapping and humane euthanasia for collection of specimens
- Stomach tubing, branding, dehorning young animals, shearing, etc

**4. Minor Operative Procedures with Recovery:** Animal may be rendered unconscious with as little pain or distress as possible. A minor procedure such as cannulation or skin biopsy is carried out and the animal allowed to recover. Depending on the procedure, pain may be minor or moderate and post-operative analgesia may be appropriate. Field capture using chemical restraint methods is also included here.

Examples:

- Biopsies
- Cannulation
- Sedation/anaesthesia for relocation, examination or injections/blood sampling

**5. Surgery with Recovery:** Animal may be rendered unconscious with as little pain or distress as possible. A major procedure such as abdominal or orthopaedic surgery is carried out and the animal allowed to recover. Postoperative pain is usually considerable and at a level requiring analgesia.

Examples:

- Orthopaedic surgery
- Abdominal or thoracic surgery
- Transplant surgery
- Mulesing, castration without anaesthesia

**6. Minor Physiological Challenge:** Animal remains conscious for some or all of the procedure. There is interference with the animal's physiological or psychological processes. The challenge may cause only a small degree of pain/distress or any pain/distress is quickly and effectively alleviated.

Examples:

- Minor infection, minor or moderate phenotypic modification, early oncogenesis
- Arthritis studies with pain alleviation
- Prolonged deficient diets, induction of metabolic disease
- Polyclonal antibody production
- Antiserum production
- Vaccination trials

**7. Major Physiological Challenge:** Animal remains conscious for some or all of the procedure. There is interference with the animal's physiological or psychological processes. The challenge causes a moderate or large degree of pain/distress that is not quickly or effectively alleviated.

Examples:

- Major infection, major phenotypic modification, oncogenesis without pain alleviation
- Arthritis studies with no pain alleviation, uncontrolled metabolic disease
- Isolation or environmental deprivation for extended periods
- Monoclonal antibody raising in mice

**8. Death as an End-point (not euthanasia):** This category only applies in those rare cases where the death (rather than euthanasia) of the animal is a deliberate measure of the data collection phase of the activity. Where the investigator or

teacher will not intervene to kill the animal humanely before death occurs in the course of the scientific activity.

Death as an end-point **does** include:

- Lethality testing (LD50, LC50);
- Toxicity testing with death as a planned end-point without euthanasia;
- Dose rate studies for feral animal control; or
- Disease studies in which it is planned that animals will die.

Death as an end-point **does not** include:

- death by natural causes (incidental to the scientific use);
- animals which are euthanased on completion of the project;
- animals which are euthanased as a result of an unexpected adverse event;
- animals euthanased for dissection or for use as museum voucher specimens; or
- accidental deaths.

Where predictive signs of death have been determined and euthanasia is carried out before significant suffering occurs, they may be placed in category 6 or 7.

## Appendix 3: CDU AEC Summary of Recommended Euthanasia Techniques

**References:** Euthanasia of Animals Used for Scientific Purposes. Ed JS Reilly. 2nd ed. ANZCCART 2001.

The relief of pain in cold-blooded vertebrates. Arena, PC & Richardson, KC. ACCART News. Vol 3, No.1. Autumn 1990.

<b>Key:</b>	1	Training required
	2	Occupational health & safety issues
	3	Inhumane
	4	Unsure whether technique is inhumane
	5	Expensive
	6	Hazardous to health of operator
	7	Aesthetically unpleasant
	8	Requires specialised equipment

	RECOMMENDED/ ACCEPTABLE	KEY	ANIMAL TYPE
<b>1.</b>			<b>RATS AND MICE</b>
	RECOMMENDED	8	Carbon dioxide Pentobarbitone sodium i/p
	ACCEPTABLE WITH RESERVATIONS	2 1 7,1,8 7,1	Halothane Cervical dislocation, possibly inhumane in animals >150g Decapitation Stunning and exsanguination
<b>2.</b>			<b>GUINEA PIGS</b>
	RECOMMENDED	8	Carbon dioxide Pentobarbitone sodium i/p
	ACCEPTABLE WITH RESERVATIONS	2 2 7,1 1	Halothane Nitrous oxide (must be used with other inhalants) Stunning plus exsanguination Cervical dislocation <u>NO INTRAVENOUS AGENTS ARE ACCEPTABLE.</u>
<b>3.</b>			<b>RABBITS</b>
	RECOMMENDED		Pentobarbitone sodium i/v or i/p
	ACCEPTABLE WITH RESERVATIONS	2 2 7,1 1,8,7 1 1,8	Halothane Nitrous oxide (must be used with other inhalants) Ketamine (with a premedicant such as acetylpromazine or xylazine) Stunning and dislocation Captive bolt Neck dislocation <u>or</u> Decapitation (should only be used if anaesthetised first)
<b>4.</b>			<b>DOGS AND CATS</b>
	RECOMMENDED		Pentobarbitone sodium i/v or i/p
	ACCEPTABLE WITH RESERVATIONS	2 2,5	Halothane Methoxyflurane

		8,7 2,8 7 1,8,7 2,7,8	Carbon dioxide Carbon Monoxide Nitrogen Captive bolt Free bullet
<b>5.</b>			<b>HORSES</b>
	RECOMMENDED		None
	ACCEPTABLE WITH RESERVATIONS	1 1	Pentobarbitone with either xylazine or succinyl choline Chloral hydrate + magnesium sulphate + sodium pentobarbitone
<b>6.</b>			<b>CATTLE</b>
	RECOMMENDED		None
	ACCEPTABLE WITH RESERVATIONS	1 1,7,8 1,8,2,7	Pentobarbitone sodium Captive bolt Shooting
<b>7.</b>			<b>SHEEP AND GOATS</b>
	RECOMMENDED	1	Pentobarbitone sodium
	ACCEPTABLE WITH RESERVATIONS	1,7,8 8,1 1,8,2,7	Captive bolt Electrical stunning and exsanguination Shooting
<b>8.</b>			<b>PIGS</b>
	RECOMMENDED	1	Pentobarbitone sodium
	ACCEPTABLE WITH RESERVATIONS	1,7,8 8,1 1,8,2,7	Captive bolt Electrical stunning and exsanguination Shooting
<b>9.</b>			<b>NON-HUMAN PRIMATES</b>
	RECOMMENDED		None
	ACCEPTABLE WITH RESERVATIONS	8,2 1,2 1,2 1,2	Carbon dioxide (marmosets only) Pentobarbitone sodium Ketamine hydrochloride followed by pentobarbitone sodium Alphaxalone/alphadalone followed by pentobarbitone sodium (marmosets only)
<b>10.</b>			<b>BIRDS (Class Aves)</b>
	RECOMMENDED	1	Carbon dioxide (chicks) Pentobarbitone sodium (all birds)
	ACCEPTABLE WITH RESERVATIONS	7 2,5 1 1	Carbon dioxide (adult birds) Methoxyflurane, halothane, isoflurane (chicks and small/medium adult birds) Cervical dislocation (chicks, small/medium sized birds only) Shooting (large birds only)
<b>11.</b>			<b>REPTILES – TORTOISES, TURTLES, SNAKES, LIZARDS, CROCODILES AND ALLIGATORS (Class Reptilia)</b>
	RECOMMENDED	1	Pentobarbitone sodium (all reptiles, but small crocodiles only)
	ACCEPTABLE WITH RESERVATIONS	1,7 1,8,2	Stunning + destruction of the brain (snakes, lizards) Captive bolt (large crocodiles)
<b>12.</b>			<b>AMPHIBIANS - FROGS, TOADS, NEWTS AND SALAMANDERS (Class Amphibia)</b>
	RECOMMENDED	1	Pentobarbitone sodium MS-222, benzocaine, chloral hydrate (by skin absorption)
	ACCEPTABLE WITH RESERVATIONS	1,7 1,7 1	Stunning and decapitation Stunning followed by pithing Refrigeration followed by freezing

13.			<b>FISH</b>
	RECOMMENDED		Halothane, MS-222, benzocaine, eugenol, Aqui-S (by skin absorption)
	ACCEPTABLE WITH RESERVATIONS	1,7 1,7 1,7	Sodium pentobarbitone (stressful due to removal from water and handling) Stunning + brain destruction Cervical dislocation Decapitation/Spinal section (only in stunned or anaesthetised fish)
14.			<b>INVERTEBRATES – CRUSTACEANS, MOLLUSCS AND OTHER AQUATIC INVERTEBRATES</b>
	RECOMMENDED		Carbon dioxide bubbled into water (crustaceans and molluscs) MS-222 in water (crustaceans, cephalopods) followed by destruction of brain or ganglia to ensure death. Clove oil in water (crabs)
	ACCEPTABLE WITH RESERVATIONS	1 1,7 1,7	Injection with xylazine or pentobarbitone (crabs) followed by placing in boiling water Cooling followed by freezing or spinal section (crustaceans) Brain destruction or decapitation without prior anaesthesia (cephalopods)

	RECOMMENDED/ ACCEPTABLE	KEY	AUSTRALIAN MAMMALS
1.			<b>DINGO</b>
	RECOMMENDED		Pentobarbitone sodium i/v or i/p (may be necessary to restrain chemically, either with ketamine or Leptan before administering overdose of barbiturate)
	ACCEPTABLE WITH RESERVATIONS	2 2,5 8,7 2,8 7 1,8,7 2,7,8	Halothane Methoxyflurane Carbon dioxide Carbon Monoxide Nitrogen Captive bolt Free bullet
2.			<b>BATS</b>
	RECOMMENDED	8	Pentobarbitone sodium i/p (prior sedation with ketamine may be necessary) Carbon dioxide (in a chamber)
	ACCEPTABLE WITH RESERVATIONS		
3.			<b>MARSUPIALS – insectivores and carnivores</b>
	RECOMMENDED		Pentobarbitone sodium i/p (Brown marsupial mouse, Brown antechinus, Yellow-footed marsupial mouse, Yellow-footed antechinus, Crest-tailed marsupial rat, Mulgara, Byrne's marsupial rat, Kowari, Little northern native cat, Northern quoll, Eastern quoll, Fat-tailed dunnart, Stripe-faced dunnart)  Pentobarbitone sodium i/p or i/v (Tiger cat, Tiger quoll)
	ACCEPTABLE WITH RESERVATIONS	2	Halothane Isoflurane Methoxyflurane Carbon dioxide (Fat-tailed dunnart, Stripe-faced dunnart)
4.			<b>KANGAROOS AND WALLABIES (Family Macropodidae)</b>
	RECOMMENDED		Pentobarbitone sodium i/v or i/p (under 4 kg body weight) Pentobarbitone sodium i/v (medium and large animals, after sedation with ketamine + xylazine, or zolazepam + tiletamine)

	ACCEPTABLE WITH RESERVATIONS	8,7 1,8,2,7	Carbon dioxide or anaesthetic gases (small animals) Shooting (only animals over 10 kg body weight)
<b>5.</b>			<b>NUMBAT (Family Myrmecobiidae)</b>
	RECOMMENDED	8	Carbon dioxide Pentobarbitone sodium i/p Ethanol i/p
	ACCEPTABLE WITH RESERVATIONS	2 1 7,1,8 7,1	Halothane Cervical dislocation, possibly inhumane in animals >150g Decapitation Stunning and exsanguination
<b>6.</b>			<b>MARSUPIAL MOLE (Family Notoryctidae)</b>
	RECOMMENDED	8	Carbon dioxide Pentobarbitone sodium i/p Ethanol i/p
	ACCEPTABLE WITH RESERVATIONS	2 1 7,1,8 7,1	Halothane Cervical dislocation, possibly inhumane in animals >150g Decapitation Stunning and exsanguination
<b>7.</b>			<b>BANDICOOTS (Family Peramelidae)</b>
	RECOMMENDED	8	Carbon dioxide Pentobarbitone sodium i/p
	ACCEPTABLE WITH RESERVATIONS	2 2 7,1 1	Halothane Nitrous oxide (must be used with other inhalants) Stunning plus exsanguination Cervical dislocation <u>NO INTRAVENOUS AGENTS ARE ACCEPTABLE.</u>
<b>8.</b>			<b>PYGMY POSSUMS (Family Burramyidae)</b>
	RECOMMENDED	8	Carbon dioxide Pentobarbitone sodium i/p Ethanol i/p
	ACCEPTABLE WITH RESERVATIONS	2 1 7,1,8 7,1	Halothane Cervical dislocation, possibly inhumane in animals >150g Decapitation Stunning and exsanguination
<b>9.</b>			<b>RINGTAIL POSSUMS AND GLIDERS (Family Petauridae)</b>
	RECOMMENDED		Pentobarbitone sodium i/v or i/p (may be necessary to restrain chemically, using anaesthetic vapour or carbon dioxide before administering overdose of barbiturate)
	ACCEPTABLE WITH RESERVATIONS		
<b>10.</b>			<b>BRUSHTAIL POSSUM, CUSCUS (Family Phalangeridae)</b>
	RECOMMENDED		Pentobarbitone sodium i/p (preferably restrain chemically, using anaesthetic vapour or carbon dioxide before administering overdose of barbiturate)
	ACCEPTABLE WITH RESERVATIONS		
<b>11.</b>			<b>HONEY POSSUM (Family Tarsipedidae)</b>
	RECOMMENDED	8	Carbon dioxide Pentobarbitone sodium i/p Ethanol i/p
	ACCEPTABLE WITH RESERVATIONS	2 1 7,1,8	Halothane Cervical dislocation, possibly inhumane in animals >150g Decapitation

		7,1	Stunning and exsanguination
<b>12.</b>			<b>KOALA (Family Phascolarctidae)</b>
	RECOMMENDED		Restrain using hessian bag and/or sedation ketamine/xylazine i/m Pentobarbitone sodium i/p, i/v or i/c
	ACCEPTABLE WITH RESERVATIONS		
<b>13.</b>			<b>WOMBATS (Family Vombatidae)</b>
	RECOMMENDED		Restrain using hessian bag and sedation ketamine/xylazine i/m Pentobarbitone sodium i/v or i/c
	ACCEPTABLE WITH RESERVATIONS		
<b>14.</b>			<b>MONOTREMES – PLATYPUS, ECHIDNA</b>
	RECOMMENDED		Platypus - sedation using ketamine/xylazine i/m, if necessary Pentobarbitone sodium i/p  Echidna - anaesthetic chamber supplied with halothane, methoxyflurane or carbon dioxide or Pentobarbitone sodium i/p
	ACCEPTABLE WITH RESERVATIONS		
<b>15.</b>			<b>SEALS AND SEA-LIONS (Order Pinnipedia)</b>
	RECOMMENDED		Immobilise with ketamine and diazepam i/m first, then Pentobarbitone sodium i/v
	ACCEPTABLE WITH RESERVATIONS	1,2,7,8	Shooting
<b>16.</b>			<b>RODENTS (Order Rodentia) Bush rat, Cape York rat, Swamp rat, Sordid rat, Pale field rat, Long-haired or Plague rat</b>
	RECOMMENDED	8	Carbon dioxide Pentobarbitone sodium i/p
	ACCEPTABLE WITH RESERVATIONS	2 1 7,1,8 7,1	Halothane Cervical dislocation, possibly inhumane in animals >150g Decapitation Stunning and exsanguination