

Appendix I Trench Clearing Procedure



Tanami Gas Pipeline: Trench Clearing Procedure

Prepared for
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Abbreviations

Abbreviation	Description
CEMP	Construction Environmental Management Plan
Cth	Commonwealth
NT	Northern Territory
RoW	Right of Way

Trench clearing procedure

1.1 Relevant legislation

- *Territory Parks & Wildlife Conservation Act (NT)*
- *Animal Welfare Act (NT)*
- *Environment Protection and Biodiversity Conservation Act (Cth)*

1.2 Personnel

1.2.1 Staff and visitors

During induction, all staff and visitors are to receive specific instructions for encountering fauna addressing:

- Fauna handler roles and contact information
- Information on significant species likely to occur in project area
- Considerations for driving
- Littering and waste management
- Feeding or approaching wildlife
- What to do if injured or dead wildlife is encountered
- Non-native fauna.

1.2.2 Fauna handlers

Fauna handling teams will generally consist of a minimum of two staff with appropriate experience and permits. They will be on site during the entire construction phase. Fauna handlers will conduct pre-trenching inspections for active burrows, and will inspect trenches daily for the presence of fauna.

Permits

All fauna handlers must hold or be listed on:

- A "Permit to Take or Interfere with Wildlife for Scientific Purposes" issued by the NT Parks and Wildlife Commission
- An approval letter from an approved animal ethics committee (associated with the above permit).

Experience

The senior fauna handler in any team should have demonstrated experience:

- Inspecting trenches for fauna
- Identifying fauna
- Handling/collecting fauna (including venomous snakes)
- Assessing fauna condition (for release, medical treatment or euthanasia)
- Providing care for injured animals
- Euthanizing animals as required.

1.3 Fauna observed within or adjacent to the RoW

Native animals encountered adjacent to the RoW or in other construction areas will not be interfered with unless there is a threat to personnel safety in which case construction staff will arrange translocation by licensed handlers.

Fauna observed within the RoW by vehicle drivers and construction staff will be translocated out of the RoW to pre-approved locations as listed on relevant permits by fauna handlers.

Procedural flow charts for construction staff and for trench inspections are provided in Sections 1.10 and 1.11 respectively.

1.4 Trench and pipe management

1.4.1 Exposure of fauna to open trench

Landscape profile

As the 25 m wide RoW is progressively cleared, a trench will be dug for installation of the pipeline in accordance with pre-defined depths of burial (typically 1.2m deep but varying according to conditions). Trench spoil will be stockpiled in the construction RoW, usually on the non-working side, and will be stockpiled separately to topsoil.

Length of open trench

Each team of two fauna handlers can manage 25 – 30 km of trench. The length of open trench will be kept to the minimum necessary to allow for the pipe to be efficiently installed. Under good trenching conditions, the length of open trench is likely to be 40 km while in more difficult trenching conditions, this is likely to extend to approximately 60 km. The length of open trench will not exceed lengths capable of being practically inspected and cleared by the available fauna teams at any time.

Duration of open trenches

The trench will be opened and closed as quickly as practical, and will not be open for any more than 15 days at a time.

1.4.2 Escape and removal of fauna from trench

Ramps

Trench plugs and fauna exit ramps will be provided at both ends of trenches at intervals not exceeding 1 km. Ramps allow larger, more mobile fauna to escape trenches.

Shelters

Shelters will be provided at 500 m spacing along all open sections of trench. Various shelter types and sizes are available; humid shelters comprising funnel traps with damp sawdust filled hessian sacks covering may be most useful for protecting and collecting small reptiles and mammals. PVC pipes either shaded, or covered with damp sawdust filled hessian sacks will provide retreats for larger reptiles or mammals. A combination of shelters will be provided to allow smaller fauna to avoid predation by larger animals.

Removal of water

Subject to site specific assessment, water will be removed from areas at the base of the trench in circumstances where it is considered that the pooled water may significantly attract wildlife into the trench or is likely to cause mortality.

1.4.3 Fauna entrapment within pipes

Pipe inspection

Pipes are to be inspected prior to welding and lowering-in to ensure no fauna are present. Fauna are to be removed by fauna handlers or encouraged to leave of their own accord prior to welding.

Pipe capping

Any open pipeline sections will be capped at the end of each shift to prevent fauna entry.

1.4.4 Trench inspections

Daily schedule

Daily inspections of the open trench by trained fauna handling teams will be conducted within five hours of dawn, and will precede commencement of construction works at that site. Inspections will comprise inspection of all shelters and of the trench base between shelters. Opportunistic observations may be made by other personnel while working around the trench, but only fauna handlers are to approach or handle fauna.

Works on a section of the trench will not commence until trench inspection has been completed for that section

Daily trench monitoring of any open sections will continue throughout any breaks in construction.

Activity based

In addition to daily trench inspections, activity based inspection of particular trench sections will be conducted prior to lowering in of pipes or backfilling.

Any other excavation or pit (for hydrotest water or any other purpose) that has the potential to trap fauna must be checked daily.

1.5 Equipment

Each fauna handling team will have access to the following:

- 4 wheel drive utility vehicle
- UHF or VHF radio to allow communication with construction team
- Leather gloves
- Long-handled dip nets and hooks
- Snake handling equipment (see Section 1.7.1)
- GPS, digital camera, datasheets
- Comprehensive selection of field guides
- Temporary holding/transporting containers suitable for a variety of vertebrate fauna (boxes, cages, cloth bags)
- Secure, labelled, holding/transport containers for venomous snakes
- Sufficient water for dehydrated animals

- Basic veterinary supplies including di-vetlac milk replacer and sodium pentobarbital for euthanasia
- Specimen fixing supplies – formalin, alcohol etc.

1.6 Entry to trench

Personnel entrance in the trench is prohibited. In the case entrance is required, ramps or bell holes (safe excavation where people can work) will be constructed and the trench inspected by qualified safety representatives before personnel are authorised into the trench or excavation.

1.7 Fauna removal protocol

Fauna is only to be removed from the trench or surrounds by the fauna handling teams. Large animals are to be herded to the nearest exit ramp. Shelters will be checked from the top of the trench (to avoid exposing staff to the confined space within the trench). Small animals within funnel traps will be retrieved by means of a rope attached to the trap. Other small fauna will be retrieved using long handled nets and hooks as required.

The condition of collected fauna will be assessed and they will be released, rehabilitated or euthanized as appropriate. Fauna fit for release will be relocated to suitable habitat as near as practicable to the site of capture. Fauna removed from the trench should generally be released immediately. Exceptions may occur for fauna that need care (e.g., rehydration), nocturnal burrowing species, or those that cannot be confidently identified. Nocturnal mammals should be released in a suitable location to ensure they are not exposed to predation or to the heat of the day.

A variety of fauna may be caught in trenches, including some Threatened burrowing species such as Brush-tailed Mulgara (*Dasyercus blythi*), Great Desert Skink (*Liopholis kintorei*), Greater Bilby (*Macrotis lagotis*), and Southern Marsupial Mole (*Notoryctes typhlops*). Descriptions of suitable habitat for these species, where capture in the trench is more likely, is contained in the CEMP.

1.7.1 Snakes

Snakes should be treated with extreme caution and assumed to be venomous, unless positive identification is made by fauna handlers.

Snakes should be captured using snake hooks and/or snake hoops; they should not be grasped by hand.

Capture bags should be held away from the body to avoid injury.

Snakes should be caught using the following equipment:

- Gloves
- Snake hook
- Snake hoop and secure bag
- Secure transport container.

1.7.2 Reptiles

Larger reptiles such as monitor lizards can be ushered to the closest ramp to encourage escape on their own. If this is not successful, grasp large reptiles by the base of their tail and the back of their head and place in catch bag head first.

Restrain small reptiles using a single hand, with thumb and index finger restraining the head. Two hands should be used for larger reptiles to support the body. Reptiles such as geckos and skinks should not be handled by their tail.

Capture bags should be held away from the body to avoid injury.

Reptiles should be caught using the following equipment:

- Gloves
- Secure capture bag
- Transport container.

1.7.3 Mammals

Handling of mammals should be avoided or minimised wherever possible to reduce stress on the animal.

Larger mammals such as macropods can be ushered to the closest ramp to encourage escape on their own. If this is not successful, grasp by the base of the tail and place into an appropriate capture bag. Caution should be taken to avoid spinal injury when using this technique.

Small mammals should be placed into catch bags either using long handled dip nets or by grasping mammals in a one or two-handed restraint (dependent on size).

Capture bags should be held away from the body to avoid injury.

Mammals should be caught using the following equipment:

- Gloves
- Long-handled dip net
- Secure capture bag
- Transport container.

1.8 Data collection

1.8.1 Reporting

As required under the “Permit to Take or Interfere with Wildlife for Scientific Purposes”, all fauna observed or removed from the trench will be identified to species, and their observed locality will be recorded. Data will be provided to the Department of Environmental and Natural Resources for inclusion in the NT Fauna Atlas and reported to regulators as per the CEMP.

Data regarding the time of collection, and the type of shelter being used by the individual will also be collected to optimise fauna collection strategies throughout the project.

1.8.2 Voucher specimens

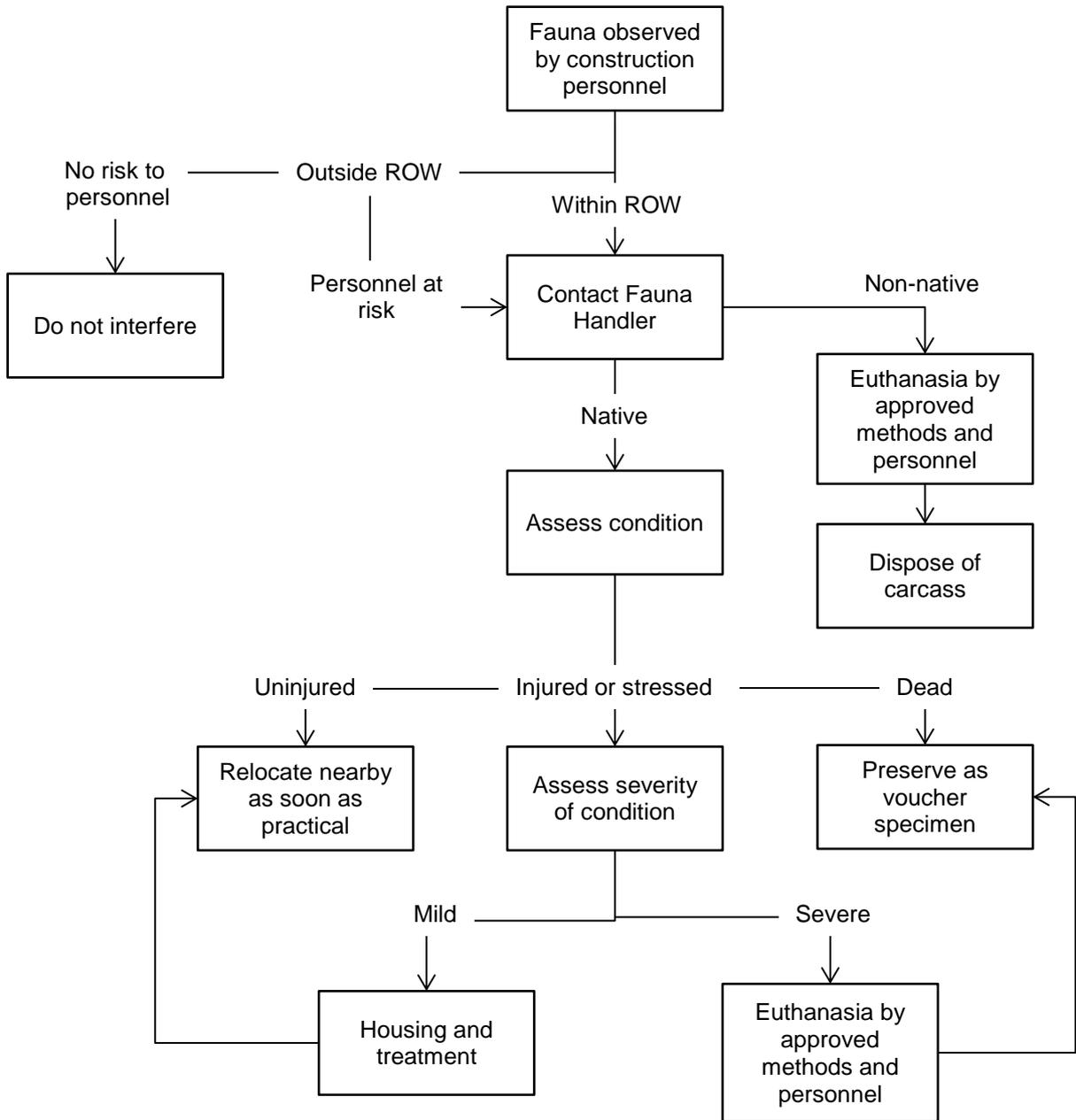
Any fauna found dead or euthanized will be appropriately preserved and lodged, with accompanying data in the collection of the Museum and Art Gallery of the NT.

1.9 Non-native fauna

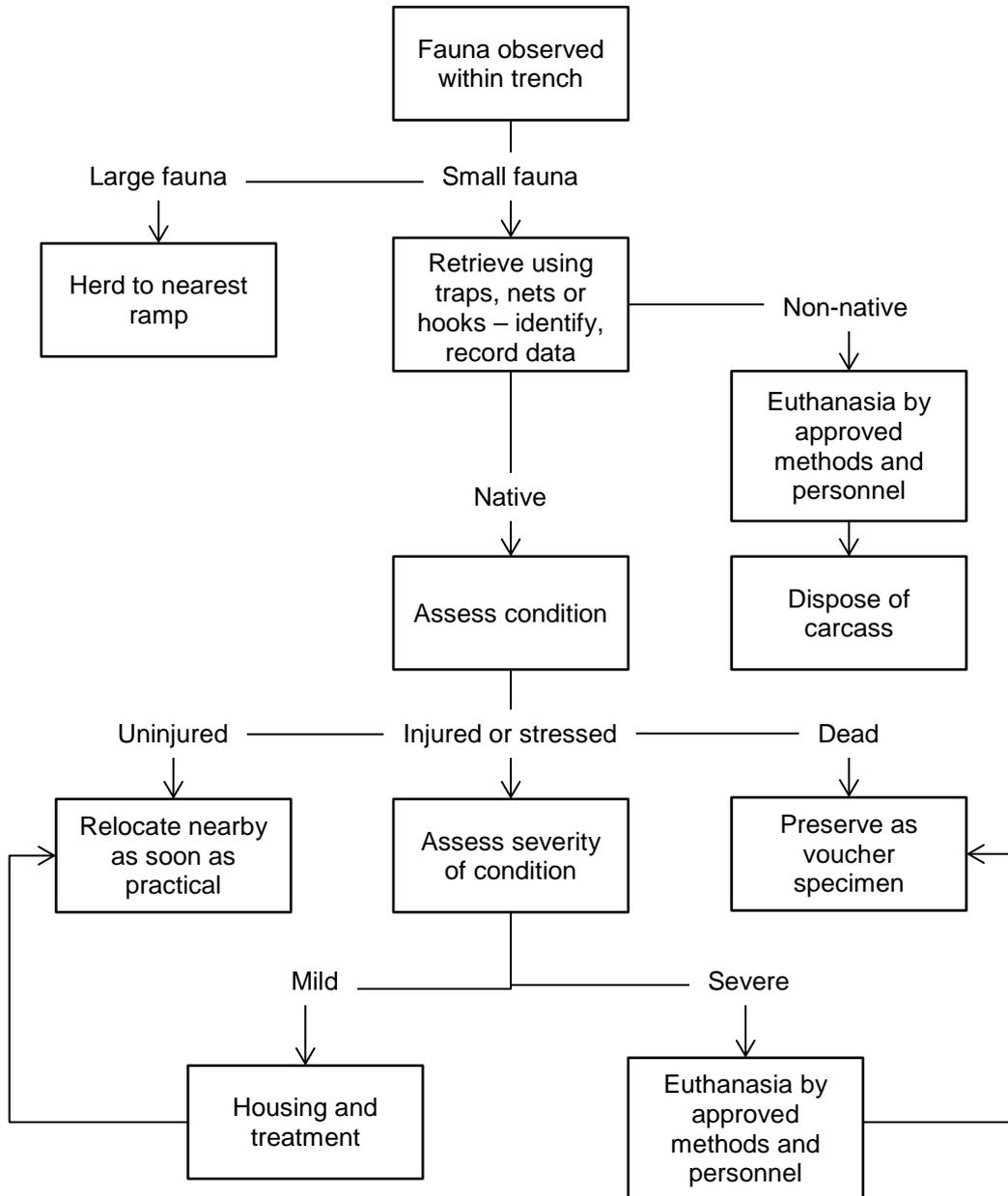
Subject to consideration of landholder views, non-native fauna removed from trenches will be euthanized using species-appropriate methods (as described in the animal care and ethics

committee approval letter) or relocated to a safe distance from the trench. Occurrence of non-native fauna will be included in data recording, but voucher specimens will not be collected.

1.10 Fauna handling procedure – observations by construction staff



1.11 Fauna handling procedure – trench and excavation inspection





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