

Standard Operating Procedure

SC22-11 TRANSPORT AND TEMPORARY HOLDING OF WILDLIFE

Animal welfare is the responsibility of all personnel involved in the care and use of animals for scientific purposes.

Personnel involved in an Animal Ethics Committee approved project should read and understand their obligations under the *Australian code for the care and use of animals for scientific purposes*.

Version 1.2

August 2022



Department of **Biodiversity,
Conservation and Attractions**

Department of Biodiversity, Conservation and Attractions
Locked Bag 104
Bentley Delivery Centre WA 6983
Phone: (08) 9219 9000
Fax: (08) 9334 0498

www.dbca.wa.gov.au

© Department of Biodiversity, Conservation and Attractions on behalf of the State of Western Australia 2022
August 2022

This work is copyright. You may download, display, print and reproduce this material in unaltered form (retaining this notice) for your personal, non-commercial use or use within your organisation. Apart from any use as permitted under the *Copyright Act 1968*, all other rights are reserved. Requests and enquiries concerning reproduction and rights should be addressed to the Department of Biodiversity, Conservation and Attractions.

This document was prepared by Species and Communities Program, Biodiversity and Conservation Science, Department of Biodiversity, Conservation and Attractions.

Questions regarding the use of this material should be directed to:
Species and Communities Program
Department of Biodiversity, Conservation and Attractions
Locked Bag 104
Bentley Delivery Centre WA 6983
Email: animaethics@dbca.wa.gov.au

The recommended reference for this publication is:
Department Biodiversity, Conservation and Attractions, 2022, *Standard Operating Procedure SC22-11 Transport and Temporary Holding of Wildlife*, Department of Biodiversity, Conservation and Attractions, Western Australia.

Disclaimer

The State of Western Australia and its employees do not guarantee that this publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence that may arise from you relying on any information in this publication.

This document is available in alternative formats on request.

Please note URLs in this document which conclude a sentence are followed by a full point. If copying the URL, please do not include the full point.

Revision History Log

Version	Date	Details	Author/Reviewer	Approved By	Approval
1.0	2009	Document created	C. Freegard and V. Richter	P. Orell and K. Morris	March 2009
1.1	16/05/2017	Minor revision, helicopter added as a transport method and statement about min and max temperatures added.	G. Yeatman and M. Page	M. Page	August 2017
1.2	30/07/2021	Revision of content & clarification of procedures	C. Sims, A. Robey and F. Carpenter	M. Dziminski	August 2022

Approvals: Version 1.2

Approved by the DBCA Animal Ethics Committee:

Dr Martin Dziminski
 Chair, Animal Ethics Committee
 Department of Biodiversity, Conservation and Attractions

Contents

1	Acknowledgements	5
2	Purpose	6
3	Scope	6
4	Animal Welfare Considerations	6
4.1	Injury and unexpected deaths	7
4.2	Level of impact	7
5	Approved methods.....	7
5.1	Temporary holding	7
5.2	Transport	10
6	Procedure Outline	12
6.1	Construction of temporary holding containers.....	12
6.2	Care during temporary containment	12
6.3	Cleaning and disinfecting temporary holding containers.....	13
6.4	Record keeping for transport of animals	13
7	Competencies.....	13
8	Approvals.....	15
9	Occupational Health and Safety	15
9.1	Driver fatigue	15
10	Further Reading	16
11	Glossary of Terms	16

1 Acknowledgements

This standard operating procedure was originally developed by Christine Freegard and Vanessa Richter, with contributions from Peter Orell, Peter Mawson, Claire Stevenson, Neil Thomas and Stephanie Hill.

2 Purpose

In most situations, animals that are trapped are released at their point of capture shortly after the required data is collected. In certain circumstances, such as translocation, relocation, or the collection of live voucher specimens, the temporary holding and/or transport of live animals is required. Animals may also need to be held temporarily for identification purposes prior to their release back at the point of capture within 24 hours.

This Standard Operating Procedure (SOP) provides advice on the temporary holding and transport of wildlife using hard and soft containment methods.

3 Scope

This SOP has been written specifically for scientific and education purposes, and endorsed by the Department of Biodiversity, Conservation and Attractions' (DBCA) Animal Ethics Committee (AEC). However, this SOP may also be appropriate for other situations.

This SOP applies to the transportation and temporary holding of wildlife that is undertaken across Western Australia by DBCA (hereafter department) personnel. It may also be used to guide fauna related activities undertaken by Natural Resource Management groups, consultants, researchers and any other individuals or organisations. All department personnel involved in fauna research and management should be familiar with the content of this document.

Projects involving wildlife may require a licence/authorisation under the *Biodiversity Conservation Act 2016*. Personnel should consult the department's Wildlife Licensing Section and AEC Executive Officer for further guidance. In Western Australia any person using animals for scientific purposes must also be covered by a licence issued under the *Animal Welfare Act 2002*, which is administered by the Department of Primary Industries and Regional Development. This SOP complements the *Australian code of practice for the care and use of animals for scientific purposes* (The Code). The Code contains an introduction to the ethical use of animals in wildlife studies and should be referred to for all AEC approved projects. A copy of the code may be viewed by visiting the National Health and Medical Research Council website (<http://www.nhmrc.gov.au>).

4 Animal Welfare Considerations

To reduce the level of impact of transport and temporary holding on the welfare of animals, personnel must consider, address and plan for the range of welfare impacts that may be encountered. Strategies to reduce impacts should be identified during the planning stage to ensure that they can be readily implemented during transport and temporary holding, and to ensure that contingencies for managing welfare issues have been identified. Ensure that all handlers and volunteers involved in the project are aware of the range of issues that they may encounter, the options that are available for reducing impact and improving animal welfare, and the process for managing adverse events.

Department projects involving transport and temporary holding of fauna will require approval from the department's Animal Ethics Committee.

The key animal welfare considerations that should be considered when transporting and temporarily holding fauna are listed below and are highlighted throughout the document.

4.1 Injury and unexpected deaths

If adverse events including injury, unexpected deaths or unplanned requirement for euthanasia occur then it is essential to consider the possible causes and take action to prevent further issues. Adhering to the guidance in this SOP will assist in minimising the likelihood of adverse events. For projects approved by the department's Animal Ethics Committee, adverse events must be reported in writing to the AEC Executive Officer as soon as possible after the event by completing an *Adverse Events Form*. Guidance on field euthanasia procedures is described in the department SOP for *Euthanasia of Animals Under Field Conditions*. Where disease may be suspected, refer to the department SOP for *Managing Disease Risk and Biosecurity in Wildlife Management* for further guidance.

4.2 Level of impact

The impact of transport and temporary holding of wildlife is potentially high given the animals are completely dependent on the conditions provided by the personnel responsible for their welfare.

Potential impacts include:

- Trauma (e.g., injuries inflicted due to inappropriate restraint / containment).
- Dehydration.
- Starvation.
- Hypothermia/hyperthermia.
- Distress (due to confinement, movement, noise, smells, changes in environment and personnel, or inability to exercise natural hiding/refuge behaviour).
- Capture myopathy.
- Death.
- Spread of diseases and parasites.

Field planning must involve risk mitigation of the above potential impacts to the fullest extent possible. Note that whilst these impacts are specifically associated with transport and temporary holding, an animal may also experience other impacts from associated procedures such as trapping and marking. Investigators must be aware that the effects of a series of stressors, such as capture, handling, transportation, sedation, anaesthesia and marking are cumulative.

5 Approved methods

5.1 Temporary holding

There are many methods used to temporarily hold live animals (Table 1). The most suitable method will depend on the species being held and the duration of containment. Various soft and hard containment options exist, and their suitability will depend on the species, transport method, duration and conditions.

Table 1 Methods approved for temporary holding and transport of wildlife.

Containment Type	Containment Method	Used For	Holding Time	Cautions and Notes
Soft	Calico bag	Small mammals (e.g., rodents, small dasyurids), birds, reptiles, and dry-skinned frogs (e.g., <i>Heleioporus</i> sp.)	Up to 24 hours	<p>Take care to check bags for holes, weak seams and loose threads.</p> <p>For larger frogs, material such as moist leaf litter or soil must be included in the bag and must remain damp to ensure animals cannot desiccate. Material dampness should be checked periodically throughout the duration of holding and bags should be kept in a cool environment and as dark as possible.</p> <p>Soil/sand, leaf litter or other substrate should be provided as shelter for burrowing reptiles.</p> <p>Some species, particularly blind snakes and small lizards can escape tied bags. The opening of the bag should be folded twice for these species.</p> <p>Bags with venomous snakes must be clearly labelled and preferably secured inside a solid container that is also clearly labelled. It is usual to attach flagging tape with a warning.</p> <p>Mammals, particularly rodents, may chew through bags and escape. It may be preferable to double bag rodents to minimise this risk.</p> <p>For transport, mammals, reptiles and frogs must be further secured within hard containment. Birds may have specialised requirements for transport. If personnel anticipate they will be transporting or holding birds with specialised requirements, specific containment procedures must be detailed in any AEC application. It is important to ensure that there is sufficient air, temperatures are not excessive, and there is no risk of animals being crushed or injured from one another inside a hard container. A note of caution is that small rodents in particular do not fare well in bags for extended durations.</p>
Soft	Heavy cotton denim or synthetic (e.g., polar fleece)	Medium-sized mammals (e.g., brushtail possums, bandicoots, bettongs, quolls)	Up to 24 hours	<p>Take care to check bags for holes, weak seams and loose threads.</p> <p>Darker bags can quickly calm animals but take care to ensure animals do not overheat.</p> <p>Material should be open weave and 'breathable'.</p> <p>Stretchy materials can reduce risks of injury and aggravating exertional/stress response to containment (especially in macropods).</p> <p>For transport, medium-sized mammals must be further secured within hard containment.</p>

SOP: Transport and Temporary Holding of Wildlife

Soft	Heavy cotton drill or denim	Larger macropods (e.g., rock-wallabies, kangaroos)	Up to 24 hours	Road transport: Animals are often suspended in bags to reduce the harshness of vehicle transport. A mattress / piece of foam should be placed beneath the animals for additional protection. Air transport: Animal kept within a heavy cotton drill/denim bag placed within a pet pack (one individual per pack).
Hard	Plastic container (ventilated)	Frogs, tadpoles and frog spawn	Up to 24 hours	Include water (tadpoles and most egg masses), damp leaf litter or other material as appropriate for individual species and life stages.
Hard	Elliott trap	Small mammals (e.g., rodents, small dasyurids)	Up to 24 hours	One individual to each trap. Include a layer of insulative material (e.g., native vegetation). Tape doors closed and secure Elliott traps within larger, ventilated hard containment (e.g., pet pack). Take particular care of temperature management.
Hard	Cage trap	Medium-sized mammals (e.g., brushtail possums, bandicoots, bettongs, quolls)	Up to 24 hours	Animals must first be contained within an appropriate soft containment bag that is secured to the side of the cage trap. Base of cage trap should be lined with a cushioning layer (e.g., towels, high density foam).
Hard	Pet pack	Medium-sized mammals (e.g., brushtail possums, bandicoots, bettongs, quolls) and medium to large-sized birds (e.g., cockatoos)	Up to 24 hours	For mammals: Must first be contained within an appropriate soft containment bag that is secured to the side of the pet pack. Base of pet pack should be lined with absorbent material (e.g., puppy liners) and a cushioning layer (e.g., towels, high density foam). For birds: Consider the biological and behavioural requirements of the bird. For perching species, a branch/pole or built-in stand should be provided.
Hard	Species-specific transportation box	Birds and small mammals	Up to 24 hours	A cushioning and absorbent substrate (e.g., shredded paper, leaf litter/vegetation) should be provided. For birds: Consider the biological and behavioural requirements of the bird. For perching species, a branch/pole or built-in stand should be provided.

ANIMAL WELFARE: Consider both the biological and behavioural requirements of animals when subjecting them to containment or confinement for extended periods of time such as that required for transport.

ANIMAL WELFARE: Extreme temperatures can lead to death. Frogs kept in plastic bags are extremely susceptible to high temperatures. Ensure that bags are not left in direct sunlight, are kept cool and keep holding time to a minimum. Under extreme conditions (e.g. >35°C) additional mitigation measures should be applied. For all other species kept in fabric bags, temperature management is also essential, as is keeping noise or other disturbance to a minimum.

In hot weather, or if animals are to be retained for extended periods, bags should be checked regularly, and animals kept hydrated (e.g. placing moist cotton wool inside the bag). Note: Calico bags can wick moisture away and rapidly desiccate animals (especially frogs and some species of reptile e.g. geckos), and if bags with damp sand in them are allowed to completely dry, the hardened sand can trap the animal causing harm and possibly death.

In cool or windy conditions an animal held in a damp bag (e.g. urine, water) can rapidly become hypothermic and should be transferred to a new handling bag and placed in a protected area if holding for any extended period.

In some cases, hard containment methods may be used to store multiple animals held in individual soft containment bags so that hard containers may be stacked for transport whilst maximising ventilation. However, containment bags must be restrained within the hard containment so that the bagged animals cannot roll and injure, suffocate each other or restrict air flow. In the case of pet packs, the containment bags can be tied to the diagonal corners of a pet pack.

5.2 Transport

Animals may be transported by land, by air (aeroplane / helicopter) or by boat depending on the circumstances and distance needing to be travelled (Table 2).

ANIMAL WELFARE: The journey must be planned to ensure prompt delivery of wildlife and undertaken to ensure appropriate timing of arrival consistent with natural activity patterns. As part of the planning for each journey, arrangements to manage any delay, breakdown or other emergency should be established to minimise risks to animal welfare during transport. This extends to conditions of transport (e.g., rough tracks/seas), and methods used to secure animals may need to be adapted as appropriate. Contingency arrangements may involve written arrangements, and journey plans, or arrangements that are in place for rest stops, particularly for long-distance journeys. Animals must be released within 24 hours of capture unless justification can be provided and is approved by the department's AEC.

Table 2 Modes of transport for movement of wildlife

Transport Method	Situation Used
Vehicle (by land)	Short and medium distances (less than 12 hours duration)
Aeroplane (pressurised compartment)	Long distance or remote
Helicopter	Short and medium distances
Boat	Island to mainland or vice versa. Up or down rivers where road transport is less efficient.

ANIMAL WELFARE: In general animals are better able to cope with stress at low temperatures and low humidity. Transport should not occur if temperature cannot be maintained below 25°C.

Regardless of the mode of transport, temperature must be managed and, if possible, monitored. As a general rule, the temperature range should not exceed 25°C or fall below 15°C, but this is dependent on the species. There are a number of other things to consider for each of these modes of transport and these are outlined in the following sections.

ANIMAL WELFARE: Wildlife must be assessed as fit for the intended journey unless being transported for the purpose of veterinary care or rehabilitation.

5.2.1 Ground transport by vehicle

- Animals must be in a covered space and well secured to prevent escape or movement about the vehicle during travel.
- The temperature where the animals are held must not exceed 25°C. A temperature thermometer with multiple sensors is recommended so that the temperature where the animal is held can be monitored by the driver.
- Some vehicles do not have floor insulation from the heat generated by the vehicle exhaust system, and this can lead to heat stress and potentially death. The temperature must be monitored, and a false bottom can be used to insulate the vehicle.
- Animals must not be placed in the boot or on the dash of a vehicle.
- Never leave collected animals where they may be exposed to direct sunlight, get wet or get too hot or cold.

5.2.2 Air transport by aeroplane or helicopter

- Animals must be in a covered space and well secured to prevent escape or movement about the aeroplane or helicopter during travel.
- Ensure that transportation by air is undertaken in accordance with International Air Transportation Association (IATA) *Live Animal Regulations*.
- When transporting live animals by jet turbine helicopter, animals are to be placed in the cabin or if this is not possible then in a well-ventilated boot (free of other cargo), away from the heat of the jet engine exhaust and checked regularly. Secure boxes should allay any fear that pilots may have about animals escaping.

- (d) Do not stow animals in close proximity to exhaust gases or subject to radiated heat generated by the engine/s.

5.2.3 Boat transport

- (a) Animals must be in a covered space and well secured to prevent escape or movement about the boat during travel.
- (b) Animals must be stowed in a dry, well-ventilated location. It is preferable to place the animals near the centre of the boat to provide for a smoother ride, particularly if experiencing rough sea conditions.

6 Procedure Outline

6.1 Construction of temporary holding containers

- (a) The containers must be designed, constructed and appropriately sized for the species and purpose that they are being used.
- (b) The containers must be secure and escape-proof.
- (c) The container must provide adequate ventilation.
- (d) There must be adequate nesting or bedding material available appropriate for the species being transported.
- (e) Materials used in the construction of crates / containers should be able to be cleaned effectively.

6.2 Care during temporary containment

- (a) Limit exposure of animals to sudden movements, temperature extremes, noise, visual disturbance, strong or unfamiliar smells and vibration.
- (b) For most species, the temperature should be kept to below 25°C and above 15°C and good ventilation provided.
- (c) Food and water/moisture must be provided when necessary. Generally wild animals being held or transported for <12-24 hrs are unlikely to be interested in eating and provision of free water is impractical during transport. However, a small amount of high-moisture-content, nutritious and tempting food (e.g., apple, berry, other fruit or vegetables for herbivores; moist petfood, mince, insects or mealworms for small insectivores and carnivores) can be included in the holding container. This may assist in reducing physiological stress and dehydration associated with transport and holding.
- (d) Ensure that animals are separated, except for pouch young.

ANIMAL WELFARE: Fixed partitions should be considered for use between individuals when travelling in hilly, bumpy or high-traffic areas, to prevent animals being thrown around or injured.

- (e) Animals should be monitored frequently for signs of distress, although this needs to be balanced against the desirability of limiting disturbance.
- (f) Avoid unnecessary handling.

- (g) Administer tranquilising agents by skilled personnel where appropriate.
- (h) Ensure animals are not left where they may be accidentally trampled or forgotten.
- (i) Mammals transported in pet packs and cage traps should be secured in species-appropriate soft containment prior to placement in container. To prevent potential injury, the container size should ensure that an animal cannot roll around in it or bags should be tied/secured to the side.

6.3 Cleaning and disinfecting temporary holding containers

Temporary holding containers must be cleaned and disinfected after each use. Advice on cleaning and disinfection is available in the Department SOP for *Managing Disease Risk and Biosecurity in Wildlife Management*.

6.4 Record keeping for transport of animals

- (a) Ensure that both suppliers and recipients of animals have satisfactory delivery procedures, with animals being received by a responsible person and appropriate paperwork is completed.
- (b) Label all temporary holding containers with the species, sex, date and capture site details upon containment of an animal. You may also need to further label containers with dangerous animals, e.g., "Caution Venomous Snake".
- (c) For translocations, ensure that a Translocation Proposal has been written in accordance with the department *Corporate Guideline No. 36* and approved.
- (d) If animals are being transported interstate, then an export permit is required to be issued under the *Biodiversity Conservation Act 2016*. Note that this permit will not be issued unless the State to which the fauna is being exported has approved the fauna entering that State. If animals are being received from interstate, then an import permit is required.
- (e) Animals being transported to the WA Museum must have accompanying specimen data. An animal without data is useless for nearly all purposes for which it may have been collected.

7 Competencies

A person who is competent has the knowledge, skills, and experiences that allow them to hold and transport animals successfully, and appropriately manage adverse events as required. Department personnel, and other external parties covered by the department's Animal Ethics Committee, undertaking fauna-related activities require approval from the committee and will need to satisfy the competency requirements detailed in Table 3. Other groups, organisations or individuals using this SOP to guide their fauna holding and transport activities are encouraged to also meet these competency requirements as well as their animal welfare legislative obligations.

It should be noted that the intensity and scope of the project being undertaken will determine the level of competency required and Table 3 provides general advice only.

Table 3 Competency requirements for Animal Handlers of projects involving transport and temporary holding of wildlife

Competency category	Competency requirement	Competency assessment
Knowledge	Broad understanding of the framework governing the use of animals in research and environmental studies in Western Australia	Training (e.g., DBCA Fauna Management Course or equivalent training). In applications, provide details on the course provider, course name and year.
	Understanding species biological and behavioural requirements	Personnel should understand the species' biological and behavioural requirements. This knowledge may be gained through sufficient field experience and consultation of field guides and other literature.
	Understanding environmental conditions	Personnel should be aware of the environmental and seasonal conditions that may be expected on the project and understand location-specific animal welfare considerations. In applications, provide details of time spent undertaking similar work in similar locations.
Fauna holding and transport skills/experience required	Experience holding and transporting fauna	Personnel should be familiar with the animal welfare principles for transport and temporary containment of wildlife and be familiar with the most appropriate containment methods for the species of interest to the project. This experience is best obtained under supervision of more experienced personnel. In applications, provide details on the longevity, frequency & recency of experience.
Animal handling and processing skills/experience required	Experience handling fauna	Personnel should be experienced at handling the species of interest to the project. This experience is best obtained under supervision of more experienced personnel. In applications, provide details on experience relating to the expected species or species groups.
	Experience managing disease risk in wildlife management	Personnel should be familiar with hygiene procedures. This knowledge may be gained through sufficient field experience and consultation of literature.

In conjunction with possessing the required understanding and knowledge of temporary holding and transport procedures and animal welfare requirements, a guide to the experience and skill requirements for an animal handler to be considered competent to hold and transport animals is as follows: (noting that some personnel with experience may still require initial supervision in unfamiliar locations or with species that they have not encountered previously):

- Total time in field: minimum 2 weeks undertaking fauna holding and transport.
- Recency of time in field: within the past 5-7 years.
- Minimum 20 individuals of similar species handled.
- Minimum 2 weeks undertaking similar activity in similar environments with similar species.

8 Approvals

A licence or authorisation may be required under the *Biodiversity Conservation Act 2016* (examples below). Contact the department's Wildlife Licensing Section for more information. It is your responsibility to ensure you comply with the requirements of all applicable legislation.

- Fauna taking (scientific or other purposes) licence (Reg 25)
- Fauna taking (biological assessment) licence (Reg 27)
- Fauna taking (relocation) licence (Reg 28)
- Section 40 Ministerial Authorisation to take or disturb threatened species.

Additional approvals may be required for the transport of wildlife (e.g., approved Translocation Proposal, export or import permit).

9 Occupational Health and Safety

The following departmental SOPs for wildlife survey and monitoring activities are relevant to occupational health and safety:

- *SOP Managing Disease Risk and Biosecurity in Wildlife Management*
- *SOP Hand Restraint of Wildlife*

Departmental personnel, contractors and volunteers have duties and responsibilities under the *Occupational Safety and Health Act 1984* and *Occupational Safety and Health Regulations 1996* to ensure the health and safety of all involved. Fieldwork is to be undertaken in line with the department's corporate guidelines, policies and standard operating procedures, including but not limited to, risk management and job safety analyses. Further information can be found at <https://dpaw.sharepoint.com/Divisions/corporate/people-services/HS/SitePages/SOPs.aspx>

If department personnel or volunteers are injured, please refer to the departmental Health, Safety and Wellbeing Section's 'Reporting Hazards, Near-misses and Incidents' intranet page, which can be found at <https://dpaw.sharepoint.com/Divisions/corporate/people-services/HS/SitePages/Reporting-Hazards,-Near-Misses-and-Incidents.aspx>

9.1 Driver fatigue

Driver fatigue is a concern when animals are being transported for translocation by road. Often drivers have been involved in trapping the animals and therefore may have worked long hours and had interrupted sleep. There are also long distances involved in some translocations which increase the risk of driver fatigue. Appropriate measures, such as regular rest stops or back-up drivers, should be utilised to minimise the risk of driver fatigue.

10 Further Reading

The following SOPs have been mentioned in this advice and it is recommended that they are consulted when proposing to temporarily hold and transport fauna:

- Department SOP *Animal Handling and Restraint using Soft Containment*
- Department SOP *First Aid for Animals*
- Department SOP *Managing Disease Risk and Biosecurity in Wildlife Management*
- Department SOP *Euthanasia of Animals Under Field Conditions*
- Department SOP *Hand Restraint of Wildlife*

For further advice refer also to:

National Health and Medical Research Council (2013) *Australian code for the care and use of animals for scientific purposes*, 8th edition. Canberra: National Health and Medical Research Council.

11 Glossary of Terms

Animal handler: A person listed on an application to the department's Animal Ethics Committee who will be responsible for handling animals during the project.

Hard containment: Use of hard materials to contain the movement of animals to assist handling and restraint.

Soft containment: Use of soft materials to contain the movement of animals to assist handling and restraint.