

**GUIDELINES AND CONDITIONS
FOR
KOALA CARE
IN NEW SOUTH WALES**

June 1997

Daniel Lunney and Alison Matthews
Environmental Survey and Research Division
NSW National Parks and Wildlife Service
PO Box 1967
Hurstville NSW 2220

TABLE OF CONTENTS

1. INTRODUCTION	3
1.1 STANDARDS FOR THE CARE OF KOALAS	3
1.2 LEGISLATION AND POLICY	3
2. REQUIREMENTS FOR CARERS	5
2.1 TRAINING	5
2.2 LICENSING	5
2.3 ACCREDITATION	5
2.4 FACILITIES	6
3. LIAISON WITH VETERINARIANS	6
4. RESCUE	7
4.1. CRITERIA TO RESCUE	7
4.2. CATCHING AND RETRIEVING INJURED ANIMALS	8
4.3. TRANSPORT	8
5. CRITERIA FOR ENTERING CARE OR FOR EUTHANASIA	9
6. CARE	9
6.1 ASSESSMENT	9
6.2. HOLDING /HOUSING	10
6.3. DIET	11
6.3.1. Fluid balance	11
6.3.2. Dietary supplements	11
6.3.3. Leaves	11
7. ORPHANED/HAND-REARED KOALAS	12
8. PUBLIC EXHIBITION	12
9. CRITERIA FOR RELEASE	13
10. PRE- RELEASE	13
10.1 REHABILITATION FOR KOALAS IN LONG-TERM CARE OR HAND-REARED	13
10.2 IDENTIFICATION	14
11. RELEASE / RELOCATION	14
12. OPTIONS FOR NON RELEASABLES	15
13. PROTOCOL FOR DEAD KOALAS	16
14. RECORD KEEPING	16
ACKNOWLEDGMENTS	17
FURTHER READING	18
STANDARDS FOR EXHIBITING KOALAS	APPENDIX 1

1. INTRODUCTION

1.1 Standards for the care of koalas

Many reasons have been identified for caring for koalas, including the need to maintain the health and integrity of local populations, the personal satisfaction of rehabilitating and returning a koala to the wild, a moral responsibility for care, an emotional involvement, a commitment to community quality of life and spirit, and the public expectation of government responsibility for both the welfare of individual koalas and for ensuring the long-term survival of koala populations in the wild.

Koalas may require assistance as a result of disorientation through loss or fragmentation of their habitat, disease, injury (often associated with traffic or dog attack), death of a mother with dependent young, bushfire, or the necessity to relocate a koala away from a highly dangerous location. Koala welfare incorporates issues such as rescue, care, hand raising, rehabilitation and release. It is desirable that every temporarily disadvantaged wild animal is given the best available care to maximise its chances of successful return to the wild. In the case of a high profile and vulnerable species like the koala, it is vital to set and maintain the highest standard of care. The koala is listed as a Vulnerable species in New South Wales under the *Threatened Species Conservation Act 1995*. These conditions and guidelines have been prepared to assist in the recovery of this species.

From a welfare viewpoint, the primary aim of wildlife rehabilitation is to return each individual to the wild population with maximum chances of survival. The length of time a koala is held, the means by which it is held and the place of release are crucial factors. Beyond these principles, there are many points that need to be addressed so that there is consistency among individuals and among groups. This document draws together the considerable experience of koala care that exists in the community and frames the conditions of care in the context of this skill and understanding.

1.2 Legislation and policy

The koala is a protected species under the *National Parks and Wildlife Act 1974* and it is an offence to harm a protected species and the definition of “harm” in the legislation (in addition to its normal meaning) includes hunt, shoot, poison, net, snare, spear, pursue, capture, trap, injure or kill. The legislation also imposes restrictions on holding protected fauna, including for the purpose of rehabilitating an animal which is incapable of fending for itself. When a person comes into possession of a sick, injured or orphaned protected species, such as a koala, but has not been licensed to rescue, hold and rehabilitate protected fauna by the National Parks and Wildlife Service, or a licensed wildlife rehabilitation organisation, they are legally required to notify the Director-General of the National Parks and Wildlife Service in writing within seven (7) days and to comply with any direction given. In the case of a koala, in every situation, directions will be given that it immediately be passed to a skilled licensed/authorised koala carer.

Since the mid-1980s the New South Wales National Parks and Wildlife Service has supported the establishment of specialist wildlife rehabilitation organisations. These train their members in the skills of animal care and wildlife rehabilitation, authorise appropriately trained and skilled members who have the necessary facilities and other resources to care for particular groups or species of animals and then supervise and monitor their activities. These groups also ensure that their members are kept up-to-date with advances in wildlife rehabilitation techniques and encourage peer liaison. There are now over 20 such organisations in NSW and some have regional branches. It is only in a very rare situation, and generally only in a region which does not have a licensed rehabilitation organisation, that the Service will licence an individual to care for sick, injured or orphaned native animals.

These conditions and guidelines refer to the care of koalas by carer groups for the purpose of rehabilitation to the wild, rather than for captive management in zoos or fauna parks. Also they were not written to be binding on researchers, who are subject to the *Animal Research Act 1985*, but where those aspects of research protocols require care and handling of koalas these guidelines may be utilised. to fulfil those requirements. This will particularly apply when a researcher and a carer group are working co-operatively.

These conditions and guidelines are consistent with the Australian and New Zealand Environment and Conservation Council (ANZECC) 1996 *Draft National Koala Conservation Strategy* and contribute to fulfilling Objective 5: 'To manage captive, sick or injured koalas and orphaned wild koalas to ensure consistent and high standards of care'. Thus, although parts of this document carry conditions that are binding in New South Wales, it has also been prepared to assist koala carers, other interested parties and the relevant authorities in other states. In doing so, it has provided a worked example of the welfare aspect of wildlife management, a need made explicit by Objective 5 of the *Draft National Koala Conservation Strategy*.

This document has been prepared in two parts: 1) guidelines, and 2) formal conditions for koala care in New South Wales. Both parts have been prepared in conjunction with carers, veterinarians, Service officers and other interested parties through an extended period of negotiation, including workshops, discussions and a wide circulation of drafts for critical comment. The acknowledgments section lists the participants in this process.

Part 1) The guidelines, which outline the concerns, points of interest and importance for koala care. They were prepared to assist carer groups in their detailed response to comply with the conditions when seeking accreditation.

Part 2) *The formal conditions for koala care in New South Wales are presented in italics at the end of each section.* Accreditation is a formal requirement under the *National Parks and Wildlife Act 1974* and is administered through the Field Services Division of the National Parks and Wildlife Service. These are the conditions that need to be met by carer groups prior to, or to preserve, accreditation.

Each of the following topics is dealt with in two parts. The first contains the guidelines, which are in a normal typeface; the other part, which is in italics, states

the condition that must be satisfied to obtain or maintain accreditation as a koala care group in New South Wales.

2. REQUIREMENTS FOR CARERS

Everyone who cares for koalas must be appropriately skilled and have appropriate facilities, access to reliable sources of a variety of recognised koala food tree species and an ability to collect it.

2.1 Training

- Training for new carers should cover all aspects of the care that they will be expected to undertake, and may consist of one or all of the following options:
 - a) Carers course/workshop;
 - b) Apprentice System (one-on-one training with an accredited carer or fauna park);
 - c) Experience in koala hospital situation in districts where this is possible;
 - d) Voluntary work in fauna parks or zoos where this is possible.
- Training should cover all aspects of handling, observation, restraint, treatment and tree identification and leaf collection.
- Training should include an assessment of competence and be appropriately recorded.

Conditions: New carers must be trained by an accredited carer or group.

2.2 Licensing

Carers and carer groups in NSW require licences from the NPWS (Wildlife Licensing Unit, NPWS, PO Box 1967, Hurstville NSW 2220) Phone (02) 9585-6481, FAX (02) 9585-6401.

Conditions: New carers must be registered in a licensed group. The group must provide a detailed training program and a list of all registered carers as requirements to gain or continue to hold a licence.

2.3 Accreditation

- An independent Accreditation Committee will be established by the National Parks and Wildlife Service to undertake the accreditation of organisations and in the case of appropriate groups, their regional branches. (Only in special cases will individuals, not part of a group, receive accreditation.) This Committee will comprise at least a Service officer, a carer and a veterinarian.
- Koalas will not be permitted to be held by groups or individuals who have not been accredited to care for koalas. An accreditation system will be established to ensure that each carer group and individual carers are accredited as having the expertise and facilities etc, to provide excellent care for koalas.
- An accredited group/branch will be required to establish its own Accreditation Committee to review the credentials of each of its own carers.

- Koalas will be permitted to be cared for only by accredited carers. Each accreditation committee will establish grievance procedures and undertake grievance resolution.
- Trained and accredited wildlife rescuers may rescue a koala and transport to a vet or accredited carer, or hold temporarily.

Conditions: An independent Accreditation Committee, established by the National Parks and Wildlife Service, and consisting of at least a carer, veterinarian and a Service officer, will undertake the accreditation of organisations applying for accreditation. A carer group is to set up an accreditation committee, keeping all appropriate records (such as minutes and correspondence). The formal procedures for accreditation need to be listed by each committee and this must be used in the accreditation of each carer or carer group.

2.4 Facilities

- Homecare specific requirements - facilities must be available for: intensive care, intermediate care and rehabilitation.
- Individual carers need not have all facilities, but all should be available within a care group.
- Facilities are to be checked for suitability by the co-ordinator in the accredited care group.
- If possible, a carer is to have no dogs or cats and the facilities must be in a quiet area. If they are owned by the carer, then they should never have contact with koalas which are in care.

Conditions: All facilities for each stage of care must be available within a group. A detailed list of facilities must be prepared as part of the accreditation process. Each carer must have their facilities checked for suitability by the group co-ordinator and a record kept.

3. LIAISON WITH VETERINARIANS

- Carers should advise vets that they are an accredited carer and offer assistance.
- Common experience and practice shows that an authorised or experienced person is often required to restrain and feed the koala while in veterinary care.
- Carers should be respected for their expertise, but should not tell vets what to do. Rather, they should advise on the best practice, including medication and restraining.
- When koalas are taken directly to the vet, by the public (including police, RTA and council workers), the vet should notify the carer group in the area.
- The carer group has a responsibility to disseminate current information on koala care and a list of experienced vets in koala care to all vets in the area.
- Vets should not hold koalas in care if there are appropriate care facilities available in the carer group.
- Within veterinary facilities, koalas should be in isolation and vets should not hold koalas in pet kennel areas.
- Carers must respect veterinary advice on euthanasia of koalas, but retain the right for a second opinion from another vet.

- Vets instructions relating to medication should be adhered to.
- No animal medication, human medication, ointment or herb should be administered to a koala in care unless it has been approved by a vet.

Conditions: Carers must advise the vets in the area of their existence, what information is available and the best procedures for koala care. Carers must respect the vet's professional rights and responsibilities.

4. RESCUE

- Members of the public who find a sick, injured, orphaned or otherwise distressed koala should note its location and condition and contact the local koala care group or the National Parks and Wildlife Service as soon as possible. Members of the public should not attempt to capture or transport the animal.
- The carer group should attend ASAP with proper catching gear, restraining and transport equipment.
- Carer groups should ensure that all vets, RTA, RSPCA, police and firefighting in the area have the contact numbers of the group.

4.1. Criteria to rescue

- Sick, injured and orphaned wild koalas which are unable to fend for themselves should be rescued.
- Extreme care should be taken when rescuing orphans that the mother is not nearby.
- Juvenile koalas with weights estimated in excess of 3 kg should not be rescued on the grounds of being orphaned.
- Wild koalas should not be handled or moved unless considered absolutely necessary. An example of a dangerous situation would be a koala on a median strip on a highway.
- If a koala is in an unusual place but appears healthy and in no immediate danger it should be left alone and its location reported to the carer group or the National Parks and Wildlife Service.
- Koalas in a research program are the responsibility of the researcher under the *Animal Research Act 1985*. Contact can be made with the researchers to discuss their project or liaise with the researcher via the NPWS District Manager. Research koalas may not be rescued unless by prior arrangement with the researcher. It is in the interests of the researcher to notify the local carers of the program and to discuss contacts and actions should an animal in the program be found sick or injured or in a dangerous situation. If a carer, or anyone, considers that the welfare of a koala in a research program is being neglected, they should contact the researcher and discuss options for change. If that proves unsatisfactory, the concerned person should then contact the chair or secretary of the Animal Care and Ethics Committee (ACEC) that gave the authority to the researcher.

Conditions: Only koalas which have a poor chance of survival from obvious signs of injury or disease, or that are orphaned, or that are in a dangerous location, may be

rescued. No koala known to be covered by an Animal Research Authority may be rescued without consent of the researcher.

4.2. Catching and retrieving injured animals

- Always assess the danger to the rescuer.
- Ask bystanders to stand back and remain quiet. Rescuers must be assertive but not aggressive to onlookers. Rescuers should explain what is happening with the animal.
- Use a blanket or cloth bag to wrap the animal - first place it over the head when catching so the risk of biting to the rescuer is minimised.
- Pick the koala up from behind. A koala can be picked up safely from behind by the lower forearms. Alternatively, bring the koala to the ground and hold it on the ground and ease into an appropriate catching bag. Do not pick up from the front by the ribcage or wrists.
- Put in a carrybox or similar properly-secured container.
- Prop animal up with towels into sitting position.
- Avoid unnecessary handling and avoid loud noise, dogs and unnecessary photos.
- Be conscious of possible injuries, such as fractures, when handling injured animals.
- If attending a road accident at night, rescuers should wear bright-coloured clothing to reduce the risk of being hit by other vehicles, or use a reflective sign.

Conditions: Procedures for catching and retrieving koalas must be specified by the carer groups in seeking accreditation. Procedures should include methods of catching, holding and securing for transportation. Koalas may only be handled by an authorised person.

4.3. Transport

- The koala must be restrained in containers for transport. Suitable containers include garbage bins with plenty of large holes for ventilation and air circulation; two clothes baskets tied together; or custom-made koala boxes.
- In emergency situations, hessian bags are suitable but not preferred- a light canvas bag or large pillowcase is adequate. Do not use hessian bags to contain koalas unless there is no alternative as they can damage claws and shed fibres that can be inhaled. Do not transport koalas suffering burns in canvas bags.
- Koalas are not to be transported on the body of carers.
- The koala should be kept dark, quiet, and warm (15-25 degrees Celsius).
- Do not transport the koala in the boot, or with dogs in the vehicle, or with the radio on.
- Be conscious of the time factor - act quickly and get the animal to a vet or carer by the most direct route.
- If possible, transport the koala with leaves picked from the area. The smell may relieve some stress.
- Do not leave koalas in any container for a long period.
- Ensure that the koala and container are out of direct sunlight when being transported.

- Koalas should not be moved from home care unless for treatment or to an external location within the home care premises or for the purposes of pre-release or release to the wild.

Conditions: Each koala care group is to establish detailed criteria under which koalas are to be transported.

5. CRITERIA FOR ENTERING CARE OR FOR EUTHANASIA

- The following questions should be asked:
 - a) Should the koala be released immediately?
 - b) Is it able to be rehabilitated?
 - c) Is euthanasia the best welfare option?
- The decision on the fate of the koala is to be made by the carer and a vet and/or koala coordinator.
- In deciding, a note is to be taken of the animal's past history if its identification is known (eg. by microchip or eartag).
- Reasons for euthanasia include:
 - a) No chance of a normal life, eg. loss of tongue, limb;
 - b) Signs of extreme pain and stress;
 - c) Serious and multiple wounds eg. from dog bites which usually become infected.
- Euthanasia to be performed by a vet.
- If a fire victim, burns on paws are not always evident for a couple of days, so the animal should be held for later assessment.

Conditions: The decision to take a koala into care or to euthanase is to be made by the carer and a veterinarian and/or group co-ordinator. The carer group must review each decision to assist in refining the decision making process. A record of the reasons for decision must be kept on a standard record form.

6. CARE

There are three stages in the care of koalas:

1. First 12 hours - may be temporary care following rescue;
2. Next 48 hours - koalas are considered wild in care;
3. Long-term care (greater than 48 hours) - koalas are considered captive;

The conditions for long-term care require a substantial commitment of resources, time and record keeping. The only reason for long-term care is that the koala is likely to improve in health and be rehabilitated to the wild.

Conditions: Detailed specifications, record sheets, inspection procedures and care protocol need to be formally established for koalas in long-term care as a requirement for accreditation.

6.1 Assessment

- The initial assessment of the koala needs to be thorough but should be performed with as little disturbance as possible.
- Check the pouch to see if a joey is attached to the teat. If so, do not anaesthetise the mother.
- Koalas should be assessed for wounds, fractures (including jaw area), ticks, swollen lymph glands, anaemia (check colour of gums) as well as more obvious signs such as wet bottom and conjunctivitis.
- Koalas should be weighed. Normal body weights vary across the koala's range. Carers should be aware of the normal body weights for different ages and sex of the koalas in their area.
- *Chlamydia* status can be checked by the clinical presence of conjunctivitis and wet bottom. Clearview test kits may help.
- Dehydration can be critical in sick animals. Hydration status can be assessed by changes in skin tone. In normal condition, the skin over the scapula (shoulder blade) area should slide freely and, when pinched, skin on the top of the head, between the ears, should snap quickly back to place. Dry rough skin on the paws and nose is a sign of dehydration.
- Body condition can be assessed by palpation over the scapula area. In poor condition, the edges and spine of the scapula become prominent.
- Body temperature can be checked. Normal body temperature is 35.5-36.5°C.
- In care having been assessed by a vet.
- There should be a monthly review of koalas in long-term care by the carer group co-ordinator and records to be kept of the decision to remain in care.
- Mature/aged koalas in excess of 8 years, particularly males, should not be held in captive conditions for more than 6 months.
- Koalas in care for more than 6 months should be re-evaluated.
- A check list for assessment should be prepared by the care group. An opportunity exists here for an exchange of information among care groups as to what should be on this list.

Conditions: The health status of the koala must be assessed to decide what treatment the koala requires. A decision must be made and recorded by the carer as to whether the koala is to be released within 48 hours or to go into long-term care.

6.2. Holding /Housing

- Minimum standards should be identified by the group and deal with all aspects of holding and housing. The Standards for Exhibiting Koalas set by NSW Agriculture (Appendix 1) may be used as a guide. Standards should be set for conditions under temporary holding, normal care, intensive care and long-term care.
- Many issues have been identified for consideration. These include:
 - a quiet environment;
 - not accessed by the public;
 - walls and floors should be constructed of materials which can be easily sterilised;
 - design to be such that temperature is controlled, with natural lighting and ventilation;
 - use of lawn lockers, garages and laundries are not suitable.

- Koalas in care for more than 12 hours should be contained in housing more structured than the conditions necessary for the rescue and holding in the first 12 hours.
- Depending on the state of the animal, a licensed carer is to decide how the animal is to be housed. Temporary housing may include baskets, cots or enclosures.
- Diseased koalas should be housed in isolation from other koalas.

Conditions: The minimum standards for enclosure design and management must be prepared by each carer group as a requirement for accreditation. This must include housing requirements for koalas under intensive care as well as non-intensive care, temporary holding and long-term care.

6.3. Diet

6.3.1. Fluid balance

- Dehydration can be critical in sick animals. The following are offered to rectify and maintain positive fluid balance.
- Drip under veterinary supervision.
- Subcutaneous fluids under veterinary supervision.
- Oral fluids can be administered, such as “Lectade” and “Portagen”. Dehydrated koalas which don’t recognise free water should accept fluids via a syringe.
- Koalas should be encouraged to lap fluid from a shallow container. Feeding by unnatural methods, such as syringes and eye droppers, should be restricted to animals which are incapable of lapping.
- Milk supplements should only be given to injured, sick, dehydrated or juvenile animals.
- Other ways to restore and maintain positive fluid balance are:
 - a) feed younger leaves;
 - b) spray leaves with water before offering;
 - c) ensure leaves are as fresh as possible and standing in water.

6.3.2. Dietary supplements

- Supplementary feeding with:
 - a) “Portagen”/ high protein baby cereal. If adding high protein baby cereal, changes in faeces should be closely monitored; excess use can cause diarrhoea.
 - b) “Wombaroo”
 - c) Glucose and water
 - d) “Divetelac”
 - e) “Prosobee”
 - f) Yoghurt in the milk mixtures.

6.3.3. Leaves

- Offer three to five species a minimum of twice daily in areas where this is possible. Wet the leaves with water spray, and stand leaves in container with water supply. Also offer a supply of clean bark, water and dirt, unless on a drip or immobile.

- Leaves are to be collected from trees in such a manner as not to destroy the bush. Leaves should not be collected from the roadside where they are likely to be contaminated with high levels of lead.
- A list should be prepared of preferred koala browse leaves available in the area of the carer group.
- Carers should demonstrate that they have guaranteed access to adequate supplies of fresh leaves.
- Koalas should be offered the leaf species found in the potential release area.

Conditions: The diet, method of feeding and source and species of leaves must be codified by the carer group as a requirement for accreditation.

7. ORPHANED/HAND-REARED KOALAS

- A hand-reared orphan is back or pouch young raised by a carer.
- Orphaned koalas present the problem of knowing the right age or weight for release. Koalas are normally independent at 18 months (2-3 kilograms; the range generally represents the geographical increase in weight from north to south. However, local population variation on weight is acknowledged and in establishing criteria for orphans, local background data are to be included in the submission for accreditation.) The age or weight at release should not be greater than the age or weight at which the koala would normally be independent of its mother. However, orphans from diseased and aged koalas, or mothers who have been sick or injured for some time before being found, are usually debilitated, dehydrated and hence small for their age and slow to grow. On the other hand, orphans from road kills are often well fed and developed and adapt well to hand rearing. Thus discretion must be taken when assessing the weight/age of orphans.
- The regular weighing of an orphan to ensure adequate weekly weight gains, observing progress, independence and activity should help indicate the time for release.
- The date of release and hence the length of time the koala is kept in care is an issue, especially if it coincides with the tick and breeding season. For males, this release time could cause extra stress. Alternatively, this is the normal time for dispersal and establishment for males.

Conditions: The age or weight at release of orphaned koalas must not be greater than the age or weight at which the koala would normally be independent of its mother. Carer groups must establish criteria for identifying, caring for and releasing an orphan, including a weight that is appropriate for the local area, as a requirement for accreditation.

8. PUBLIC EXHIBITION

At no time should koalas being rehabilitated for eventual release be placed on public exhibition or used for educational purposes. Contact with humans should be minimised at all times to ensure koalas maintain a healthy fear of human presence.

Conditions: Koalas in care undergoing rehabilitation must not be placed on public exhibition or be used for educational purposes.

9. CRITERIA FOR RELEASE

- At regular intervals the carer and vet must consult on the welfare and state of the animal. Communication must be maintained between carer, co-ordinator and vet to decide on release date.
- A set of criteria to assess ability to be released to be developed by each carer group.

For example:

Category	Criteria for release
Age	> weaning age (2 kg)
Teeth wear	not worn down to gums (Vet assessment required for old koalas)
Eyes	bright, clear, clean
Ability to climb	must be able to climb - check for healing of injuries
Ability to feed	independent feeding - check for healing of jaw injuries
Chlamydia status	absence of wet bottom/ conjunctivitis/ swollen lymph nodes
Body weight maintenance	consistent with age and history and holding body weight
Behaviour	appears alert, ears up, etc.
Signs of capture stress, need to be released immediately	pacing behaviour, vocalisations

- Release at the earliest opportunity. For koalas in long-term care, animals may be retained for one week after treatment has finished to monitor if symptoms return.

Conditions: Koalas must be released at the earliest opportunity, after having satisfied the criteria for release.

10. PRE- RELEASE

10.1 Rehabilitation for koalas in long-term care or hand-reared

- Exercise wherever possible. Koalas with fractures should be in an area where it is at least able to walk after 6-8 weeks.
- Appropriately sized tree forks and cross branches should be available to the koala to match its development and confidence. These should be renewed whenever possible so that the bark is fresh.
- Hand-reared koalas should be gradually weaned into different stage trees and away from contact with the carer.

- Koalas in long-term care or hand-reared are to be placed in a rehabilitation area for a period of tree climbing under normal weather conditions prior to release. They should have access to the ground so they become familiar with travelling on the dirt and grass. Koalas should display natural behaviour as much as possible.
- Capture at night when the koalas come down to the ground is a good option to reduce stress and injury.

Conditions: Koalas in long-term care or hand-reared must be placed in a rehabilitation area for a period of tree climbing under normal weather conditions prior to release.

10.2 Identification

- All koalas must be ear tagged. Ear tagging should be done, if possible, a couple of days before release. Koala ears are to be clipped and prepped with alcohol prior to tagging. Males are to be tagged in the left ear, females right ear. The tag should be placed with the point to the front of the ear so the tagger can check for veins and target the tag away from them.
- Ear tags must be numbered so that individual animals can be identified.
- Ear-tagging is to be applied only to koalas which are already in care and only by a trained person or under the supervision of a veterinary surgeon or a National Parks and Wildlife Service officer with appropriate experience, or a researcher holding a current Research Authority from an accredited Animal Care and Ethics Committee. A koala may not be captured for the sole purpose of tagging without both a Research Authority from the National Parks and Wildlife Service and an appropriate Research Authority from an Animal Care and Ethics Committee.
- Records must be kept of all tagged koalas.
- All koalas may be microchip, ie. a microchip inserted with a needle beneath the skin and read with an electronic microchip reader.
- Plucked hair for genetic studies of population is acceptable, and a convenient time to do this is while the koala is being marked, eg tagged and/or microchipped. The easiest way to pluck the hair is with tweezers or a pair of pliers to make sure that the bulb of tissue at the base of the hair is attached. It is this tissue that is analysed. Eight to ten hairs are sufficient, and on or around the ear can be a convenient site.

Conditions: Koalas must be ear tagged prior to release by an appropriately trained person and records kept. The record form needs to part of the submission for accreditation.

11. RELEASE / RELOCATION

- Koalas should be released as close to their original encounter location as possible so that the animal has a reasonable opportunity to resume life in its original home range.

- Relocation should only be considered as a last resort to remove a koala from immediate and imminent danger or threat and where the koala is considered to be independent and appears to be in a healthy condition. The decision to relocate must be made by two people.
- A potential relocation or release site should not be a site of known high danger or threat (eg. beside a busy road). The original capture site can create dilemma for release if it is deemed to cause recurring injury over the short-term (eg. in a killer dog area or near a black spot on the road).
- A potential relocation site should preferably have secure tenure and compatible land management.
- A potential relocation site should be one known to already support a population of koalas.
- Relocations should be part of an approved strategy or local koala management plan which should consider potential adverse effects associated with manipulation of gene pools, spread of disease, potential inability of a koala to cope with relocation, potential disruption of resident koalas at the relocation site and potential destabilisation of koalas at the encounter site due to removal of a key individual. Care groups should prepare a list of potential relocation and release areas (where site of origin unknown), if there is no local strategy, and gain approval of district office of the National Parks and Wildlife Service and relevant landholders.
- The district office of the National Parks and Wildlife Service should be notified of the proposed release of all koalas so they have the option to attend.
- Release of koalas within Service areas will generally not be approved unless it is consistent with a Plan of Management or the animal was originally recovered from the area.
- Knowledge of koala habitat and any previous release or relocation of the animal is essential for deciding on relocation.
- Koalas which are suffering from a communicable disease should not be relocated to an area outside its home range.

Conditions: The site of release of koalas must be as close to the initial encounter site as possible except for koalas being relocated out of immediate danger. The release of all koalas must be made in consultation with the district office of the National Parks and Wildlife Service.

12. OPTIONS FOR NON RELEASABLE KOALAS

- Option 1 - Euthanasia is acceptable for all suffering animals. If no possibility of reasonable care, euthanasia is the preferred option.
- Option 2 - Released into "safe" areas - eg rehabilitation or feral proof areas.
- Option 3 - Place into a licensed zoo or fauna park, which already holds a captive colony of koalas, with approval from the Director-General of NPWS.
- Option 4 - Used for teaching with approval from an Animal Care and Ethics Committee to be obtained by the recipient of the non-releasable koala.
- Option 5 - Used in research programs with approval from an Animal Care and Ethics Committee to be obtained by the recipient of the non-releasable koala.

Conditions: Koalas deemed to be non-releasable must be either euthanased or, following the recipient obtaining an appropriate authority or licence, be placed in a licensed zoo or fauna park, kept in a “safe area” and/or used for teaching and research.

13. PROTOCOL FOR DEAD KOALAS

- Often when a carer is contacted, the koala is already dead, usually killed by a car or a dog. The information on blackspots is valuable to record, and samples from these koalas can contribute to research. Collect all relevant information, where possible, such as location, cause of death, date, sex and aged of koala.
- Samples are to be made available for research, where possible.
- An autopsy protocol is to be established. All koalas should be autopsied where cause of death is not positively known. An option that can be utilised is the Wildlife Pathology Service (University of Sydney free service).

Conditions: Autopsies must be undertaken where possible, a protocol established, and animals or tissues made available to researchers.

14. RECORD KEEPING

- Each koala must be given a registration number, call number or identifying code at rescue.
- Each carer should keep records of all animals which come into their care and a database should be kept by one nominated person to register and regularly update all details within each group. Records should be kept in duplicate, eg. hardcopy and on disc. Copies should be provided to the district NPWS on a regular basis, who then send these at least annually to the licensing unit in Field Services Division in Head Office.
- Records should be kept on standard forms. The care group should develop a detailed standard record form(s) for individual carers.
- The following details should be recorded: time and date of rescue, location of rescue, name and phone numbers of initial contacts, rescuers and carers, circumstances for being taken into care, approximate age, weight, sex of the koala, condition of the koala, treatment undertaken, veterinary details, daily records of eating, urinating, defecating, observations and approximate volumes, treatments and dosages, type of leaf offered and eaten, identification tag number, fate including release or relocation details or autopsy results.
- Recording of the original location of koalas, including details of habitat, on Atlas of NSW Wildlife data cards is encouraged.

Conditions: A standard record sheet must be prepared for each rescued koala. Each koala rescued must be given an identifying code. The record sheet must accompany the koala and a copy kept in a central record system of the carer group. The care group must develop a detailed standard record form(s) for individual carers as a requirement for accreditation.

ACKNOWLEDGMENTS

These guidelines arose from workshops at Australian Koala Foundation conferences in 1991, 1995 and 1996 and an advanced koala care workshop in Port Stephens on 1-2 June 1996 organised by the Tilligerry Habitat Association and has been prepared in conjunction with carers, veterinarians, Service officers and other interested parties. Specifically we wish to acknowledge the following for their vital input: Ruth Barratt, Friends of the Koala; Rob Becher, Coffs Harbour Zoo; David Blyde, Western Plains Zoo; Debbie Breen, Native Animal Trust Fund and Wildlife Arc; David Burns, NPWS Grafton District; Anne Carey, Native Animal Trust Fund; Emilie Cooper, Koala Preservation Society of New South Wales; Greg Croft, NPWS Port Macquarie; Madeleine Crowley, Koala Preservation Society of NSW; Denise Friedman, WIRES Coordinator; Miriam Graham, Koala Preservation Society of NSW; Catherine Greenwood, NSW Agriculture; Jeff Hardy, NPWS Wildlife Licensing Unit; Anne Hogan; Matthew Jackson, Currumbin Sanctuary; Rhonda James, Tweed Valley Wildlife Carers and Koala Rescue Unit; Joanne Johnston, The Koala Preservation Society of Qld; Audrey Koosmen; Rebecca Larkin, NSW Agriculture; June Lepla; Julia McLean, Tweed Koala Rescue Unit; Heather Michelmores, Cleland Wildlife Park in SA; Chris Moon, Coffs Harbour WIRES; Alan Morris, NPWS Central Coast District; Greg Mulder, Wildlife Animal Rescue and Care Society; Marcia Nash; Dr Jean Olley; Rhonda Parkinson Native Animal Trust Fund; Giovanna Pawson, NSW Association of Fauna and Marine Parks; Robert Payne; Sue Phillips, NPWS Lismore District; Lynda Rochester, Native Animal Trust Fund; Robyn Roe Native Animal Trust Fund; Julie Rose, Northern Tablelands Wildlife Carers; John Single; Jean Starr; Glen and Lynda Stevenson; Deborah Tabart, Australian Koala Foundation; Jill Taylor, Native Animal Trust Fund; Dr Louise Trist, Maitland Veterinary Hospital; June Welsh; Michelle Whackett, Coffs Harbour WIRES; Patricia Whitworth; Steve Wilks, NPWS Port Macquarie; Pam Wilson, Wildlife Carers of Glen Innes; Barbara Witham, Koala Preservation Society of NSW. We also wish to thank the Foundation for National Parks and Wildlife and the Biodiversity Group, Environment Australia (formerly ANCA) for their funding support.

FURTHER READING

Bali, R. And Delany, R. 1996. *A review of radiocollaring koalas*. National Parks and Wildlife Service, Hurstville.

Blanshard, W. 1993. *Proceedings of Annual Conference Brisbane 28 February 1993*. Australian Veterinary Association Ltd Queensland Division.

Blanshard, W. 1994. *Wildlife proceedings Post Graduate Committee in Veterinary Science*. University of Sydney as presented at Advanced Koala Care Workshop Port Stephens 1996.

Blanshard, W. undated. *Emergency and critical care of koalas*. Lone Pine Koala Sanctuary, Jesmond Rd, Fig Tree Pocket Qld 4069.

Dubbo Zoo. 1995. *Wildlife Management - Vet Notes*. Available Syd University.
Fowler, M. (ed). 1986. *Zoo and wild animal medicine*. 2nd edition. Chapter 36, pp. 558-593. W.B. Saunders, Philadelphia.

Gordon, G. (ed), 1996. *Koalas - research for management*. Proceedings of the Brisbane Koala symposium, 22nd-23rd September 1990. World Koala Research Inc, Brisbane. (Available from World Koala Research Inc, 113 Hassall St, Corinda QLD 4075. Ph: (07) 3278 0788. Price: \$29.00).

Hand, S.J. (ed.) 1990. *Care and Handling of Australian Native Animals: Emergency Care and Captive Management*. pp. 83-90. Surrey Beatty and Sons, 43 Rickard Rd, Chipping Norton NSW 2170. (Cost \$32.95 plus \$4 postage. Phone 02 96023888. For update on drugs and care contact Koala Preservation Society of NSW Inc, PO Box 236, Port Macquarie NSW 2444. Phone 065 841522.)

Hunter, S. 1986. *The Official Koala Handbook*. Chatto and Windus.

Koala Preservation Society of NSW Inc. *Caring for koalas package*. PO Box 236, Port Macquarie NSW 2244. (Containing educational booklet and brochure. Information relating to how to process calls to rescue koalas, rescues, koala check list, care and treatments, holding without stress, rehabilitation and releases, rearing joeys and koala trees for NSW coast and tablelands. Cost \$5 plus stamped addressed envelope 30 x 25 cm. Phone 065 841522.)

Lee, A. and Martin, R. 1988. *The Koala. A Natural History*. UNSW Press.

Lee, A.K., Handasyde, K.A. and Sanson, G.D. (Eds). *Biology of the koala*. Surrey Beatty and Sons, Chipping Norton.

Lunney, D., Urquhart, C.A. and Reed, P. (Eds) 1990. *Koala Summit. Managing koalas in NSW*. Proceedings of a conference held at the Univ. of Sydney 7-8 November 1988. (NSW) National Parks and Wildlife Service, Hurstville. Pp 1-268. (\$19.95, Post free.)

NH&MRC. 1995. *A guide to the use of Australian native mammals in biomedical research. Section 4: Care of individual species. p21.* Australian Government Printing Office.

NSW Agriculture. 1997. Standards for Exhibiting Koalas (*Phascolarctos cinereus*) in New South Wales. Exhibited Animals Protection Act. Available from NSW Agriculture, Locked Bag 21, Orange NSW 2800.

O'Callaghan, P. and Blanshard, W. 1991. *Breeding Koalas in Captivity.* Australian Society of Zookeeping. Annual Conference, May 5-7 1991, Western Plains Zoo.

Phillips, B. 1990. *Koalas. The little Australians we'd all hate to lose.* AGPS, Canberra.

Post Graduate Committee in Veterinary Science. 1978. Fauna Proceedings of the JD Stewart Course for veterinarians. No. 36. Taronga Zoo, Mosman.

Post Graduate Committee in Veterinary Science. 1988. Australian Wildlife: Proceedings of John Keep Refresher Course for Veterinarians. No 104. University of Sydney.

Post Graduate Veterinary Science Committee, University of Queensland. 1985. Emergency treatment of native fauna. Proceedings of a one day course at the Veterinary School, St Lucia Qld.

Queensland Wildlife Parks Association and the Queensland Department of Environment and Heritage. 1994. Code of Practice Q.W.P.A. Recommended Minimum Standards for Exhibiting Fauna in Queensland, Part B Koalas *Phascolarctos cinereus*.

Reilly, J. (ed.) 1993. *The euthanasia of animals used for scientific purposes.* Chapter 12, ANZCCART, Glen Osmond, SA.

Smith, K.S. (ed). 1985. *Wildlife Rehabilitation Conference.* Murdoch University, Alcoa Australia Ltd. (was available from Otyaba Malunna Wild Bird Hospital, Sawyers Valley, WA 6074.)

Walraven, E. 1990. *Taronga Zoo's Guide to the Care of Urban Wildlife.* Allen and Unwin, Sydney.

APPENDIX 1

Standards for Exhibiting Koalas

(Phascolarctos cinereus)

in New South Wales

Exhibited Animals Protection Act, 1986

A publication of the Director-General, NSW Agriculture
pertaining to the conditions of display of koalas
(pursuant to Clause 8(2) of the Exhibited Animals Protection Regulations, 1995)

GENERAL REQUIREMENTS

1.1 Construction

- a) Enclosures shall be constructed of such materials and be maintained in sufficiently good repair to ensure that they will contain the animals at all times and are to be safe for the animals, for the staff attending them, and for the public.
- b) Enclosures, or the perimeter fence in the case of an establishment where koalas are permitted to free range, shall be designed in such a way as to prevent the entry of wild koalas. This requirement only applies to establishments located in areas where wild koalas are known to occur.
- c) Enclosures may be of open, semi-enclosed or totally enclosed design.
- d) Sufficient shelter must be provided to allow protection from wind, rain and extremes in temperature and allow sufficient access to shade during the hot periods of the day.
- e) The size and shape of enclosures for *P.cinereus* shall provide freedom of movement, both vertically and horizontally.
- f) The enclosure shall be well drained and have either a readily cleanable substrate or be of a material which can be replaced to avoid the accumulation of faeces and urine.

1.2 Isolation Facilities

Suitable isolation facilities shall be provided for quarantine of incoming or sick animals.

1.3 Protection from Noise, Harassment and Stress

Each operator exhibiting koalas to the public shall:

- a) Provide a sufficient number of experienced, identifiable staff in attendance at any session allowing visitors to handle koalas to protect the koalas from abuse and harassment where koala handling occurs and to ensure that stress on the koalas does not occur.
- b) Ensure koalas are not placed directly on any visitor or directly held by any visitor for any purpose. Handling koalas by members of the public shall be restricted to patting, stroking and cuddling to the extent of putting an arm around the koala while the animal remains on a fixed perch.
- c) Ensure that koalas are not repeatedly removed from objects to which they are clinging.

1.4 Enclosure Furniture

- a) There must be at least two tree forks per koala not less than 1.8 metres above ground and not closer than 0.9 metres to the next fork.
- b) All supports and branches shall provide sufficient traction for koalas to climb easily and safely.

Clause 2 Hygiene

Substrate of enclosures shall be cleaned daily. The supports and branches shall be replaced as necessary and be maintained in a clean and hygienic condition, free from the accumulation of faeces and urine.

Clause 3 Records

3.1 Identification

Each koala shall be individually identified by an approved method of identification.

3.2 Record-Keeping

- a) Establishments shall keep records of all koalas on an individual basis in a form which can be quickly and easily examined, analysed and compared with those kept by other establishments.
- b) All documents and other information pertaining to each animal, including records from previous locations, must be kept safely. Animals moving to new locations must be accompanied by copies of all records relevant to those animals.
- c) The records shall provide for each koala at least the following information:
 - i) the correct identification number, scientific name, any personal name and any distinctive markings;
 - ii) the origin (i.e. details of the wild population or of the parents and their origin, and of any previous location);
 - iii) the dates of acquisition and disposal, with details of circumstances and addresses;

- iv) the date or estimated date of birth, and the basis on which the date is estimated, or the date of the first emergence of the juvenile from the pouch;
 - v) weight on arrival, and thereafter monthly. The requirement for weighing animals monthly shall not apply to koalas which are either free-ranging within the perimeter barrier of the establishment, or are not dependent on hand-feeding for nourishment.
 - vi) clinical data, including results of physical examination by a qualified veterinarian and details of and date when any form of treatment was given, together with results of routine health examinations;
 - vii) breeding and details of any offspring;
 - viii) the date of death and the results of the post mortem reports which must be performed by a qualified veterinarian.
- d) The Director-General may require records of daily leaf collections to be maintained, including details of -
- i) leaf species,
 - ii) area of collection,
 - iii) weights of leaves before and after feeding,
 - iv) the identities of the koalas which fed on the leaves.

Records may be required to be submitted to the Director-General at three monthly intervals for a period of two years from the date of initial issue of a permit to exhibit koalas.

3.3 Transaction Records

- a) A written report, including records of any clinical observations, shall be submitted to the Director-General within 30 days, on every transport operation, in particular detailing any problems arising and with suggestions as to how these may be avoided.
- b) The Director-General must keep a current summary of transport advice, based on these reports and provide a copy to applicants for their information.

Clause 4 Diet and food collection

4.1 General

a) An establishment applying for a permit to exhibit koalas must satisfy the Director-General that it has guaranteed access to adequate fresh supplies of leaves from at least three suitable koala food tree species. This is important when particular species can be susceptible to insect attack at particular times of the year. Known food trees include the species listed below:

<i>E.botryoides</i>	Southern Mahogany
<i>E.camaldulensis</i>	River Red Gum
<i>E.camphora</i>	Broad-leafed Sally
<i>E.citriodora</i>	Lemon-scented Gum
<i>E.cypellocarpa</i>	Mountain Grey Gum
<i>E.goniocalyx</i>	Long-leafed Box
<i>E.grandis</i>	Flooded Gum
<i>E.haemastoma</i>	Scribbly Gum
<i>E.maculata</i>	Spotted Gum
<i>E.microcorys</i>	Tallowwood
<i>E.nicholii</i>	Small-leafed Peppermint
<i>E.obliqua</i>	Messmate
<i>E.ovata</i>	Swamp Gum
<i>E.paniculata</i>	Grey Ironbark
<i>E.pilularis</i>	Blackbutt
<i>E.propinqua</i>	Small-fruited Grey Gum
<i>E.punctata</i>	NSW Grey Gum
<i>E.radiata</i>	Narrow-leafed Peppermint
<i>E.robusta</i>	Small Mahogany
<i>E.rubida</i>	Candle Bark
<i>E.saligna</i>	Sydney Blue Gum
<i>E.scoparia</i>	Wallengarra White Gum
<i>E.sideroxyton</i>	Red Iron Bark
<i>E.tereticornis</i>	Forest Red Gum
<i>E.viminalis</i>	Manna Gum

- b) A sufficient quantity of eucalypt leaves shall be provided continuously and replaced at least once daily.
- c) Preferred species of eucalypt should be supplemented by a variety of different species of eucalypt as a precaution against local or seasonal differences in digestibility and palatability of dietary leaf matter. Both young and mature leaves should be provided.
- d) Feed must be presented as close and accessible to the koalas perch as possible and care taken to prevent wastage of feed placed out of reach.

- e) Fresh soil shall be provided, but not around the base of perches, to provide for supplementation of mineral intake or alternatively a mineral salt lick be provided.
- f) Clean accessible drinking water facilities shall be provided. Water shall be replaced at least once daily.

4.2 Quality of Food Leaves

Frequency of leaf cutting and the operation of leaf storage facilities shall ensure the koalas receive palatable, uncontaminated, nutritionally adequate food leaves.

Clause 5 Transport

5.1 Quarantine

- a) Koalas to be transferred between establishments must be subject to a period of 30 days quarantine at either the importing or exporting establishment unless an exemption from the quarantine period is advised and certified by a veterinarian following a complete veterinary examination.

The certificate must also establish that the koala is -

- i) not in a weakened or emaciated condition; and
- ii) is free from
 - keratoconjunctivitis,
 - pneumonia,
 - dermatitis, and
 - urogenital discharge,

before release from quarantine.

5.2 Transport Cage

Koalas must be transported individually in solid framed cages measuring at least 95cm x 75cm x 95cm high. The cages must have removable, leakproof metal drop trays fitted at the base. Sides and top must be of stout wire mesh and be fitted with light hessian or shade cloth covers. Each cage must be fitted with a resting branch providing at least two forks.

5.3 Feeding in Transit

- a) Koalas must each be accompanied by at least 3.6kg of the leaves on which they are normally fed; the leaves being left on the stem and the base of the stem remaining in water or sealed.
- b) One kilogram of these leaves must be placed in the cage with the koala before departure.

5.4 Stress Reduction

- a) Koalas must not be subjected to temperatures greater than 30 degrees or less than 10 degrees Centigrade during the trip.
- b) Koalas must be accompanied by a keeper familiar with the animals being transported at all times except during air transport.
- c) Noise must be minimised during transport.
- d) Time from caging to destination must be minimised.

References

Bergin, T.J. (ed) 1978. The Koala. Proceedings of the Taronga Symposium, Sydney 1978. Zoological Parks Board of New South Wales.

Brown, S. 1986. "Management of Captive Koalas" from Koala Management - Proceedings of the Australian Koala Foundation Inc. Conference on Koala Management, Australian Koala Foundation, Queensland.

Collins, L.R., 1973. Monotremes and Marsupials. A Reference for Zoological Institutions. Smithsonian Institution Press, City of Washington.

Drake, B., 1982. Koala, *Phascolarctus cinereus* : its husbandry at Royal Melbourne Zoological Gardens in D.D.Evans (ed.) Proceedings of the Scientific Meetings of the Australian Mammal Society, Healesville, Victoria. February 1979. The Zoological Board of Victoria.

Lee, A. & Martin, R. 1988 The Koala. A Natural History. University of New South Wales Press.

Anon. Policies for the Exhibition of Native Fauna in New South Wales. National Parks and Wildlife Service.

Anon. Conditions for the Export of Koalas. Australian National Parks and Wildlife Service.