

NATIONAL KOALA CONSERVATION STRATEGY

JANUARY 1998

AUSTRALIAN AND NEW ZEALAND
ENVIRONMENT AND CONSERVATION COUNCIL

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SUMMARY

The koala is an important part of Australia's natural and cultural heritage. While it is still relatively abundant and widespread on a national basis and does not meet national criteria for listing as endangered or vulnerable at this time, the koala is clearly declining in parts of its range and because of its cultural significance there is much public and scientific concern about its conservation. The ANZECC National Koala Conservation Strategy has been prepared to deal with the many important management issues facing one of Australia's most high profile species and aims to provide a national framework for the conservation of the koala in all States and Territories in which it naturally occurs.

The conservation status of the koala varies across its range and so do the conservation issues. The Strategy outlines the range of management issues and sets out objectives and approaches for addressing them.

The main management issues for koalas in the wild are identified as clearing, fragmentation and degradation of habitat, disease, natural disasters, roads, dogs and over-browsing. The objectives of the Strategy address conservation of koalas in their existing habitat, restoration of degraded habitat, the need to better understand the conservation biology of the koala, education, management of captive, sick or injured koalas and management of over-browsing.

The conservation of the koala is a complex task requiring an integrated management approach including input from the community and from all levels of government.

It is envisaged that the Strategy will be a dynamic document which will be reviewed and updated regularly by ANZECC.

FOREWORD

The koala is an important national symbol and one that arouses considerable public support, being the definitive “cute and cuddly” mammal. It is something of an Australian icon, particularly among international visitors. The koala is also an important component of Australia’s biodiversity. Like many other native animals it has suffered declines due to the extensive habitat clearing and fragmentation which started with European settlement and which continues today. On a national basis the koala is not yet threatened with extinction, however, there is no doubt that it is declining and the time to act, to ensure that this does not happen, is now.

Concern for the conservation of the species is not new. The koala has been in trouble before. In the early part of this century it became extinct in South Australia and there were severe declines in Victoria, New South Wales and Queensland, as a result of clearing and in combination with hunting, disease, fire and drought. At that time, concerns resulted in protective legislation and establishment of island colonies, which were then used to repopulate habitat in Victoria and South Australia.

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Protecting and managing koalas today is a complex task. Much of their habitat occurs on private land where there are many competing landuses for the remaining forest areas and the range of management issues is as varied and wide as the distribution of the koala. The need for a strategic approach to the management of koalas has become urgent, to assist managers and to maximise the effectiveness of conservation efforts.

This Strategy has been developed jointly by the Commonwealth, States and Territories through the Australian and New Zealand Environment and Conservation Council (ANZECC). It aims to provide a national framework for the conservation of koalas. The success of the Strategy will hinge on the participation of the community, conservation groups, local government authorities and researchers, working cooperatively with State and Commonwealth authorities.

The issue of culling was considered in the development of the Strategy. Culling as a management tool was rejected by Ministers at the meeting of Council in May 1996. Similarly, the deliberate introduction of *Chlamydia* to populations free of *Chlamydia* is not supported by the National Koala Network as a management tool for population control.

Community ownership of this Strategy will be vital for its successful implementation. Accordingly, public comment was sought on the draft Strategy and submissions were considered by the National Koala Network in preparation of the final Strategy.

THE NEED FOR A NATIONAL STRATEGY

Koalas formerly occurred throughout the broad band of eucalypt forest and woodland communities extending from north eastern Queensland to the south eastern corner of South Australia. After European settlement, clearing of habitat for agriculture in combination with hunting, disease, fire and drought resulted in a severe population decline. By the late 1930's they were considered extinct in South Australia and severe declines had occurred in NSW, Victoria and Queensland. However in the late 1930's the fur trade ceased and State governments were introducing protective measures. Reintroduction programs, which moved koalas from colonies established on French Island and Phillip Island in Victoria, were used to re-establish koalas in their former range in Victoria and to a lesser extent in South Australia and the ACT. In South Australia koala populations were established outside the natural range at four sites, including Kangaroo Island.

Today the regional conservation status of the koala varies from secure in some areas to vulnerable or extinct in others. In Queensland, they occur throughout most of their range and there are regions where the population is stable, although the overall koala population is probably declining due to continued clearing and fragmentation of woodland and forest. In NSW koalas have disappeared from 50-75% of their range and they now occur mostly on the north coast and are uncommon, rare or extinct in other parts of the State. There are relatively low population densities in the ACT. Koalas in Victoria are widespread over much of the southern and eastern lowlands and population densities are high in many areas. Densities are lower in the dry forests and woodlands in northern parts of Victoria where the habitat is of lower quality. However much of the habitat remaining in the State is fragmented and many populations are isolated. In South Australia, because of introductions within the natural range and to areas where they did not occur naturally, the koala is now found over a greater range than at the time of European settlement.

The koala is protected by legislation in all States and Territories in which it occurs. In New South Wales it is listed as "Vulnerable" on Schedule 2 of the *Threatened Species Conservation Act 1995*; in South Australia it is listed as "Rare" under Schedule 9 of the *National Parks and Wildlife Act 1972*; and in Queensland it is listed as "common wildlife" under the *Nature Conservation (Wildlife) Regulation 1994*. However, along with the platypus and echidna, the Queensland Government is required to "have regard to their special cultural significance and the management requirements needed to conserve existing populations...".

In considering two public nominations to list the koala as nationally threatened, the Endangered Species Scientific Subcommittee advised that it should not be listed on Schedule 1 of the Commonwealth *Endangered Species Protection Act 1992*. The Subcommittee concluded however, that while the koala is still widespread on a national basis and does not meet national criteria for listing as endangered or vulnerable at this time, it is clearly declining in parts of its range and because of its cultural significance there is much public and scientific concern about its conservation.

Koala populations are subject to a number of threatening processes, particularly habitat loss through clearing of native vegetation, bushfires and urban development. In general, koala habitat is poorly protected and there is potential for substantial further habitat decline.

Management problems and issues vary regionally and require management solutions aimed specifically at the State, regional and local level. The major issues are:

- Habitat loss, fragmentation and degradation
- Over-browsing
- Natural disasters
- Disease
- Roads
- Predation by Dogs

Habitat loss, fragmentation and degradation
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Loss of habitat is the major threat to the koala and is the main factor responsible for declining populations. This continuing problem, which results mainly from clearing or fragmentation of forest and woodland, must be addressed.

Clearing is mainly associated with urban development in coastal areas and pastoral development in inland wooded areas. Unless offset by habitat restoration, clearing results not only in net loss of habitat but the fragmentation of that which remains, and contributes to permanent decreases in population size and reduced long term population viability.

Degradation of habitat results from some logging regimes, clearing or thinning of timber during property development, destruction of undergrowth and mid-storey shelter trees and other disturbances such as regular burning, excessive nutrient input or the introduction of weeds. Degraded habitats can support fewer Koalas than pristine ones.

Over-browsing

Where koalas occupy islands or isolated or severely disjunct habitats, they can reach high densities and over-browse their food trees. Severe reductions in available food resources can in turn lead to starvation and death. Over-browsing can also lead to ecosystem damage and jeopardise vegetation conservation in isolated patches of habitat. Over-browsing has been an important issue at some Victorian sites for over 70 years and continues to be a problem in Victoria and in parts of South Australia.

Natural disasters

Natural disasters such as fire and drought affect koala populations both directly and indirectly. Hot crown fires can cause high koala mortalities as well as destroy habitat or reduce it to remnant patches. Droughts can also cause large mortalities and may have a greater impact on young koalas living in sub-optimal habitat than koalas established in optimal habitat. If a disaster occurs over an extended time, for example a drought, the impact on the population will be even greater. The impact of natural disasters such as fire and drought is exacerbated by fragmentation of habitat.

Disease

The most significant diseases in wild koalas are associated with the organism *Chlamydia*. Many koalas appear to carry *Chlamydia* without showing clinical symptoms. Eye infections and urinary tract infections due to *Chlamydia* may become apparent as overt diseases when an animal is subject to additional stress such as nutritional deficiency following habitat loss or loss of territory. Infection of the reproductive tract by *Chlamydia* may lead to female infertility, which can reach sufficiently high levels to cause a marked depression of the reproductive rate in the population. This is an issue of particular concern in small isolated populations.

Because the frequency of severe cases of *Chlamydia* is usually low, the disease does not normally threaten the survival of koala populations. However, because of its possible relation to nutritional and environmental stress, expression of the disease may be an indication of other problems such as habitat loss or over population.

Roads

Injury and death of koalas on roads is a problem in a number of developed areas on the east coast where roads intersect koala habitat. The extent of the problem depends on the frequency with which koalas cross roads, and on the traffic usage, width and other attributes of the road. The problem is accentuated when koala populations occur close to roads that carry high volumes of traffic travelling at high speeds. In many cases road death and injury of koalas is a result of poor planning and road design, for example, placing new roads too close to koala habitat, having speed limits that are too high and poor lighting.

Predation by Dogs

Dog attacks mainly occur where koalas use habitat on rural properties and in semi-urban and rapidly urbanising areas along the east coast. The problem is exacerbated when dogs have the opportunity to form pairs or packs, when dogs can roam widely outside their home properties and where large and aggressive breeds are common. Dog attacks may result in stress, injury or death to koalas.

This Strategy has been prepared to deal with the important issues facing koalas. The conservation of koalas is a complex task requiring an integrated management approach including input from the community and from all levels of government. Community participation is particularly important because much koala habitat occurs on private land.

GOAL

Acknowledging that

- The koala is a national symbol of considerable cultural importance to all Australians.
- The koala is an important part of Australia's natural heritage.
- The conservation status of the koala varies across its range from secure in some regions to endangered or locally extinct in others.
- Koala populations have suffered significant declines at a regional level.
- There have been translocations of koalas in Australia, including introductions to areas outside their former known range.
- Koala habitat is poorly protected through much of its range.
- The community has a significant role to play in the conservation of koalas and their habitat.
- There are significant numbers of koalas in captivity in Australia.
- Koalas are susceptible to sickness and injury caused by dogs, roads and fires and as a result many come into captivity to be rehabilitated.

Recognising that

- Much koala habitat and many koalas occur on private land.
- There are many competing land uses for the remaining areas of forest and woodland which comprise koala habitat. These include urban and rural development, pastoral development, forestry and sand mining.
- Koalas are protected by legislation in Commonwealth areas and in all States and Territories in which they occur.
- The responsibility for management of wildlife, including koalas, rests primarily with the State and Territory Governments.
- The mechanisms available for management of koalas and koala habitat in each State and Territory differ. The need to develop Statewide management approaches to ensure the effective conservation of the koala has been recognised and is underway in most range States.
- Local government plays a key role in land use planning and zoning.
- The information base on which management must be based is imperfect. Although the general distribution of koalas is well known, there is little detailed information available on the ecology of koalas and the location of koala habitat, its quality and availability for conservation.
- There is a substantial tourist industry based on koalas in wildlife parks.

It is agreed that

- The conservation of koalas depends on the conservation of their habitat and the maintenance of ecosystem health and biological diversity.
- There is a need to better understand the conservation biology of koalas as effective koala conservation is fundamentally dependent on management of koalas in the wild.
- There is a need to monitor koala populations and habitats and the effectiveness of current and proposed planning and management approaches.
- The Commonwealth and all States and Territories will cooperate to conserve koalas.
- There is a need to incorporate koala conservation into land use planning at all levels of government, with particular emphasis on local government through its environmental protection and zoning powers.
- There is a need to ensure consistent and high standards of management of captive koalas and sick, injured and orphaned koalas in care.

Therefore

the primary aim of this national strategy for the conservation of the koala is:

To conserve koalas by retaining viable populations in the wild throughout their natural range.

IMPLEMENTATION, MONITORING AND REVIEW

Implementation of this strategy will have financial costs and benefits for governments, industry, business and the community:

- Increased costs resulting from enhanced measures to meet the objectives of this strategy.
- Lower costs over time because the future costs of koala conservation will be substantially reduced by timely investment in conservation measures.
- Benefits from the conservation of our natural and cultural heritage, sustainable land use practices and enhanced opportunities for ecotourism.

Whilst there are already resources directed to koala issues additional resources may be required to implement this strategy.

In implementing the strategy, there will be a need to ensure that attention is given to the most effective use of resources.

An ongoing role of the Network during the life of the Strategy will be to monitor its implementation with particular reference to exchange of information on actions across all jurisdictions.

It is important that this Strategy is reviewed in light of experience with its implementation and developing knowledge. A review including public consultation will be appropriate after the Strategy has been implemented for a period of five years.

GUIDING PRINCIPLES

The set of objectives and actions which form this Strategy were developed in the context of the following guiding principles consistent with the Inter-Governmental Agreement on the Environment:

- the conservation of koalas must be integrated with other measures to conserve Australia's biological diversity and to maintain ecological systems and processes.
- the principles of ecologically sustainable development, including "the precautionary principle", which in application means that decisions should be "guided by careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and by an assessment of the risk-weighted consequences of options";

and, in addition:

- recognition that community input and involvement is crucial to the conservation of koalas;
- there are many existing local approaches and the Strategy should build on these; and
- processes and decision-making at all levels of government should be efficient and transparent and provide for public participation.

OBJECTIVES

The objectives outlined below are not in order of priority, but the actions relating to conservation of koalas in the wild are the most urgent. Each jurisdiction should assess the efficacy of the actions listed under each objective according to their particular needs and situation. When developing management plans for the koala, each range State should liaise closely with the others to maximise cooperation and avoid duplication.

OBJECTIVE 1

To conserve koalas in their existing habitat.

To be achieved by:

1.1. Identification and conservation of habitat important for koala conservation and where appropriate legal protection of habitat of major significance to koala conservation.

Responsibility: State and Territory Governments (in particular, conservation agencies), local government, non-government organisations (NGOs), community groups and individuals.

1.2. Monitoring koala habitat and koalas at a national, regional and local level. This requires planned surveys and co-ordination and analysis of results and could also include collection of observations contributed by the public.

Responsibility: Commonwealth Government, State and Territory Government conservation agencies; local government, community groups and individuals.

1.3. Integration of koala conservation planning into local government planning processes. Local government has a major role in the conservation of natural areas through its control over the use and development of private land, as specified in planning schemes and strategic planning documents. Issues for consideration include:

- where important koala habitat is identified within the former known range of the koala, relevant local planning documents should state an intent to protect it; and
- appropriate siting of developments within and adjacent to important koala habitat. Options could include group title developments, bonus development rights where a benefit to koala conservation can be negotiated and designation of building location envelopes.

Responsibility: Local government and State and Territory Governments.

1.4. Development and implementation of incentive-based mechanisms for conservation of koala habitat on private land. Issues for consideration may include:

- covenanting of land
- rate relief
- conservation agreements
- sanctuaries
- voluntary schemes such as Land for Wildlife (Victoria), Land for Nature (Queensland).

Responsibility: Commonwealth, State and Territory Governments (in particular, conservation agencies), local government and individuals.

1.5. Implementation of strategies which minimise the impacts of dogs on koala populations in both urban and rural areas. Possible strategies may be to :

- undertake dog patrols
- impound roaming dogs
- restrict dogs in koala habitat
- restrict dog numbers
- restrain dogs at night
- prohibit dogs in koala habitat
- control feral dogs

Responsibility: Local government, State and Territory Governments, community groups and individuals.

1.6. Development of appropriate road design in koala habitat. Considerations may include:

- prevention of fragmentation of habitat;
- speed reduction along roads where koalas frequently cross;

- traffic calming strategies eg. speed bumps;
- street lighting to increase visibility of koalas;
- exclusion fencing along road edges where koala mortality is high; and
- koala warning signs.

Responsibility: Local government, State and Territory Governments, community groups and individuals.

1.7. Inclusion of threats such as fire, extractive industries, disease and drought in local and State and Territory strategies.

Responsibility: State and Territory Governments (in particular, conservation agencies), local government and community groups.

OBJECTIVE 2

To rehabilitate and restore koala habitat and populations.

To be achieved by:

2.1. Revegetation to re-create and supplement habitat, and/or link areas of habitat with corridors to facilitate natural dispersal. Sites must be carefully selected and tree species selection and composition carefully assessed to ensure that the result emulates the local species mix, including the understorey, and is eventually suitable habitat for koalas.

Responsibility: Commonwealth Government through existing National Bushcare and Landcare Programs, State and Territory Governments (in particular, conservation and land management agencies), local government, community groups and individual landholders.

2.2. Complying with the 1987 IUCN Translocation Guidelines for translocations of koalas for introductions, reintroductions and restocking. In particular, proposed translocations of koalas for reintroduction or restocking must assess whether the causes of the original local extinction have been removed or ameliorated. Translocations of koalas to habitats or locations where they have not been previously recorded in historical times should be undertaken only if there are exceptionally strong conservation reasons for doing so.

Responsibility: State and Territory Governments, Commonwealth Government and local government.

2.3. Provision of extension and advisory services to encourage retention and restoration of koala habitat and implement management practices on private land which are not harmful to koalas or koala habitat. Management practices which may assist koala conservation can be integrated into general land management including “whole farm planning”, revegetation to control soil erosion and salinity, and planning at the sub-division and rezoning stages of development.

Responsibility: Commonwealth Government through existing National Bushcare and Landcare Programs, State and Territory Government conservation and land management agencies; local government, NGOs and community groups and volunteers through programs such as Land for Wildlife (Victoria) and Land for Nature (Queensland) groups.

2.4. Integrate koala conservation objectives more effectively into existing Government revegetation programs. Programs already exist which are suitable to cover koala habitat conservation objectives. However, resources may need to be increased and the application of these programs appropriately broadened if they are to effectively assist in arresting the continuing decline in koala habitat.

Responsibility: Commonwealth, State and Territory Governments, local government and community groups.

OBJECTIVE 3

To develop a better understanding of the conservation biology of koalas.

To be achieved by:

3.1. Rigorous scientific research which is essential to guide effective koala management practices.

This research should involve local communities, including indigenous people, as well as research institutions. It should include a range of data gathering methods from community-based surveys to formal experimentation where appropriate. All research should conform with best practice and standards of ethics for the care and handling of wild koalas in field research (guidelines for koalas to be developed). Topics on which further research would be beneficial to conservation of koalas may include:

- Mapping and assessment of koala populations:
 - evaluation of recognised census techniques and development of a consistent and repeatable approach to assessment of koala populations;
 - improving data on koala occurrence and absence now and in the past; and
 - collection of reliable historical data on past numbers of koalas and causes of changes in numbers and distribution.
- Identification and ranking of koala habitat:
 - surveys and detailed studies of foraging habits and tree preferences to establish correlates of habitat quality at both broad geographic scales and the individual-tree scale within preferred habitats;
 - experimental studies to test hypotheses about the processes leading to habitat preferences and the management of those processes; and
- Assessment of koala population dynamics:
 - research on reproductive success and breeding structure in a wide range of koala populations;
 - research on the susceptibility of wild and captive koala populations to disease infection and factors affecting the expression of disease with particular interest given to *Chlamydia*.
 - detailed population studies to establish rates of increase of selected koala populations and to allow prediction of trends in population viability and identification of potential threatening processes; and
 - detailed studies of movements, home range sizes and interactions between threats such as vegetation clearance, vegetation fragmentation, roads, wildfire and dogs.
- Formulation and testing of approaches to re-establishing and/or recovering koala populations and habitat:
 - research on the effects on koala populations of fire, predators (especially dogs and foxes), motor vehicles, forest fragmentation and other processes which alter habitat characteristics, along with processes that exacerbate these effects;
 - research on approaches to mitigating these effects and the effectiveness of these approaches in both the short and long term;
 - research on approaches to re-introducing koalas to rehabilitated habitat and the effectiveness of these approaches in both the short and long term;
 - research on genetic variability in existing populations and implications for translocation programs; and
 - research on management of over-browsing by koalas, including approaches both to managing habitat and to managing koala populations in over-browsing situations. Fertility control of discrete populations requires further investigation.
 - research on the population dynamics of browse trees.
- Assessment of the economic and other non-biological values of koalas to local communities and Australia generally.

Responsibility: Research agencies, universities, commonwealth, state and territory governments (in particular, conservation agencies), local government, NGOs and community groups.

OBJECTIVE 4

To ensure that the community has access to factual information about the distribution, conservation and management of koalas at a national, State and local scale.

To be achieved by:

- 4.1. Development and distribution of educational material to provide accurate information about the distribution, conservation and management of the koala. Appropriate distribution points include State and Territory conservation agencies, local government, community conservation groups, schools and tourist operators.
Responsibility: Commonwealth State and Territory Governments, local government, community and conservation groups and tourist operators.
- 4.2. Involvement of the community in koala conservation. Ways in which the community can assist in conservation of the koala include: assisting in systematic surveys and reporting of incidental observations of koalas, participating in voluntary networks which contribute to koala conservation (eg Wildlife Care Networks, Greening Australia, Trees for Life), caring for sick and injured animals, and participation in planning processes (eg local management and development plans).
Responsibility: Commonwealth State and Territory Governments, local government, NGOs and community and conservation groups.

OBJECTIVE 5

To manage captive, sick or injured koalas and orphaned wild koalas to ensure consistent and high standards of care.

To be achieved by:

- 5.1. Development of national guidelines for all aspects of captive care and management. The following issues need to be addressed:
- Health. Matters to be covered include;
 - training requirements for keepers;
 - development of guidelines for care and health of koalas in institutions; and
 - establishment of a network of veterinary health experts to whom koala health issues may be referred.
 - Handling guidelines (both by keepers and the public). Policies on koala handling are an individual State matter and vary between States. The need to develop national guidelines for the handling of koalas by the public, in consultation with zoos/wildlife parks etc, was previously identified by ANZECC and remains an outstanding issue for consideration. In some States the responsibility for handling captive koalas lies with Departments who come under the umbrella of the Agriculture and Resources Ministerial Council of Australia and New Zealand (ARMCANZ), rather than ANZECC. National guidelines allowing for regional differences in interpretation therefore should be developed with close cooperation between ARMCANZ and ANZECC.
 - Housing and food sources.
 - Rehabilitation procedures. Much expertise in koala care and rehabilitation resides in voluntary care groups. Consultation with these groups, including the provision of scientific and veterinary support to individuals who are involved in koala rehabilitation, will be an important aspect of the development of national guidelines.
 - Sale, trade and taking from the wild.

Responsibility: Commonwealth; State and Territory Governments (in particular, both ANZECC and ARMCANZ agencies), Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA) and associations of wildlife exhibitors and voluntary koala care groups.

- 5.2. Further develop conditions and agreements under the Wildlife Protection (Regulation of Imports and Exports) Act 1982 for export of koalas. These may include:
- captive care and management;
 - transfer to third parties;
 - captive breeding programs; and
 - control over progeny.

Responsibility: Commonwealth Government and Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA).

OBJECTIVE 6

To manage over-browsing to effectively prevent both koala starvation and ecosystem damage in discrete patches of habitat.

To be achieved by:

- 6.1. Identification of potential problems at an early stage through regular assessment of koala abundance and the extent of crown defoliation of preferred food tree species. This could be incorporated into local plans for habitat management.

Responsibility: State and Territory Government conservation agencies, community groups and individual landholders.

- 6.2. Development of management programs to regulate koala density to a level below that which causes severe tree defoliation. Individual situations should be assessed with a view to employing the most appropriate management option or combinations of options. These may include:

- Translocation to other areas of suitable habitat with lower population densities of koalas. Translocations to islands or isolated patches of habitat where over-browsing could develop should be avoided. Translocations must be carefully planned and executed to minimise health and welfare risks to the koalas. Translocations should not be used without:
 - assessment of vegetation communities at the release site to determine its suitability as koala habitat;
 - assessment and consideration of the *Chlamydia* status of koalas in populations at the source and release sites;
 - assessment of genetic considerations in both the source and release site populations;
 - following standard procedures for capture and translocation;
 - adequate training of all personnel (staff and volunteers) involved in capture, translocation and release; and
 - post translocation surveys to determine outcomes.
- Fertility control. As suitable unoccupied habitat for translocation dwindles, the management option of controlling fertility in koalas, as a means of controlling populations in the long term, is being given serious consideration. There are both physical and chemical methods of reducing fertility in mammals. However effective systems for fertility control specifically for koalas have yet to be developed and should be pursued.
- Habitat manipulation. The protection of individual browse trees and groups of trees using exclusion fencing and tree guards should be considered where there is a need to protect trees as a seed source for revegetation programs or where tree survival is under immediate threat.

Responsibility: Commonwealth, State and Territory Governments (in particular, conservation agencies), local government and community groups.

ACKNOWLEDGMENTS

This strategy was prepared by the National Koala Network on behalf of ANZECC Standing Committee on Conservation. The National Koala Network members are:

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