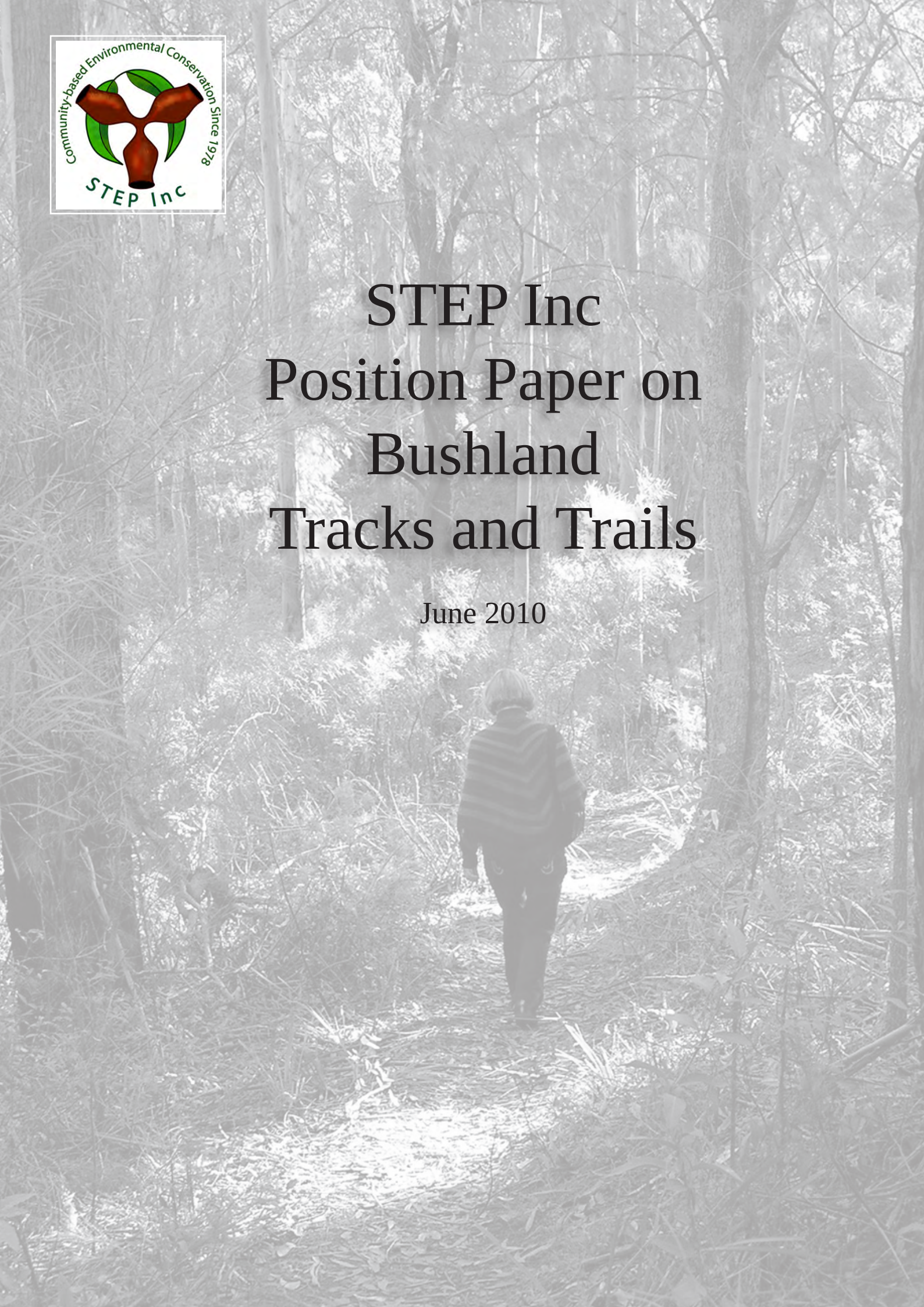
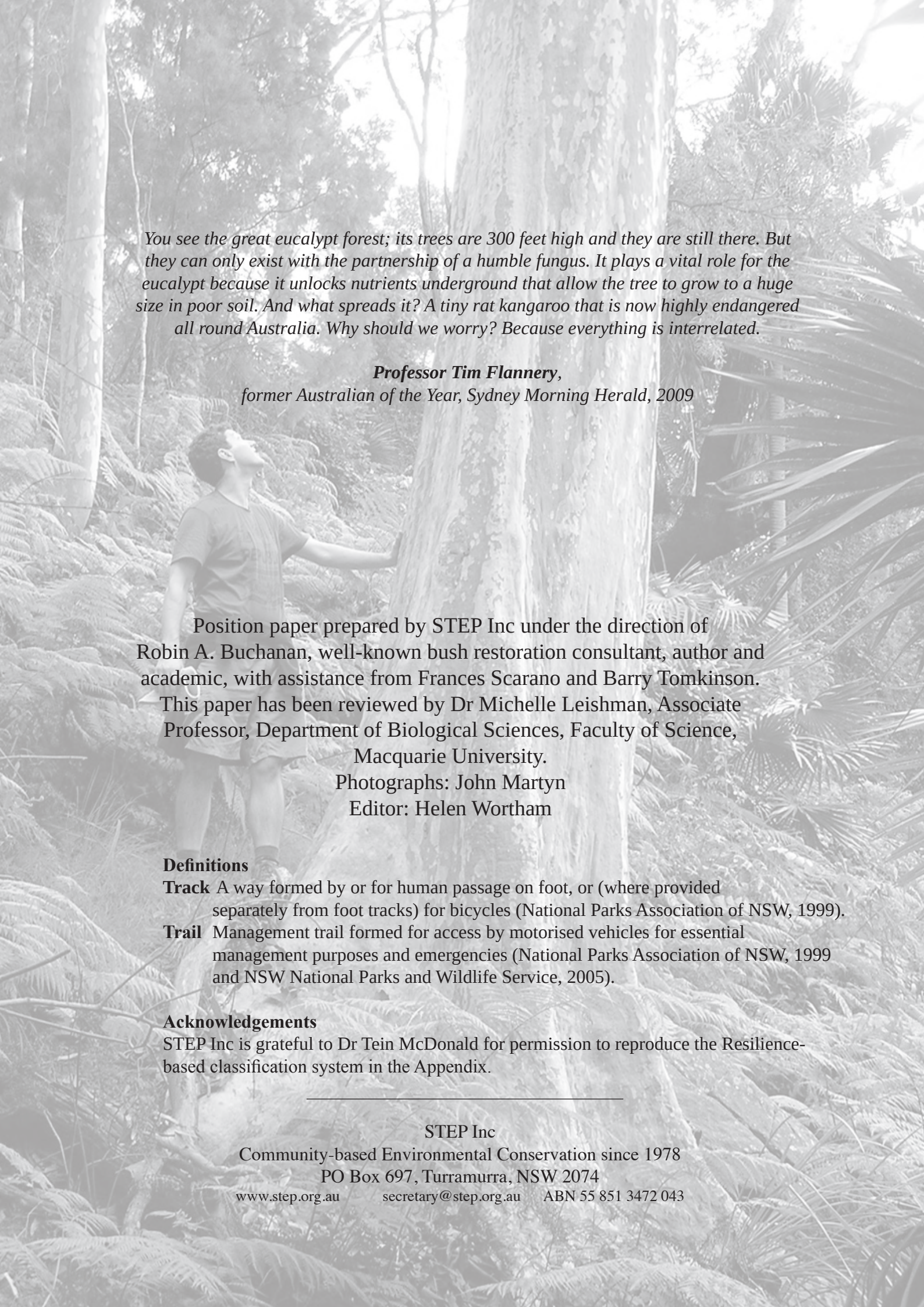


# STEP Inc Position Paper on Bushland Tracks and Trails

June 2010



*You see the great eucalypt forest; its trees are 300 feet high and they are still there. But they can only exist with the partnership of a humble fungus. It plays a vital role for the eucalypt because it unlocks nutrients underground that allow the tree to grow to a huge size in poor soil. And what spreads it? A tiny rat kangaroo that is now highly endangered all round Australia. Why should we worry? Because everything is interrelated.*

***Professor Tim Flannery**,*
*former Australian of the Year, Sydney Morning Herald, 2009*

Position paper prepared by STEP Inc under the direction of Robin A. Buchanan, well-known bush restoration consultant, author and academic, with assistance from Frances Scarano and Barry Tomkinson.
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**Definitions**

**Track** A way formed by or for human passage on foot, or (where provided separately from foot tracks) for bicycles (National Parks Association of NSW, 1999).

**Trail** Management trail formed for access by motorised vehicles for essential management purposes and emergencies (National Parks Association of NSW, 1999 and NSW National Parks and Wildlife Service, 2005).

**Acknowledgements**
STEP Inc is grateful to Dr Tein McDonald for permission to reproduce the Resilience-based classification system in the Appendix.

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## Contents

## 1. Overview

*We didn't inherit the earth from our parents, we are borrowing it from our children.*
David Brower

STEP is the largest environmental community group on Sydney's North Shore, with over 400 members. Our aim is to protect biodiversity and to preserve natural bushland for the enjoyment of future generations. Basic to our approach is the need to put the required planning to achieve these aims into a long-term time frame.

This position paper is framed with these objectives in mind. It applies to land in the northern suburbs of Sydney owned or managed by Hornsby Shire Council; Ku-ring-gai Council; NSW Department of Environment, Climate Change and Water; NSW National Parks and Wildlife Service; Scouting Australia; public utilities such as Sydney Water and Energy Australia; and other private land managers.

STEP is of the view that there are many positive aspects to a system of well-planned and well-maintained tracks and trails in urban bushland. When combined with good signage they open up the wonders of the bush and promote conservation education. The region is fortunate to be well served with many hundreds of kilometres of official tracks and trails for the use of both walkers and cyclists. Tracks and trails should be part of a system which protects the bushland, should be appropriately managed and should enhance the enjoyment of bushland by locals and visitors.

It is clear that the construction of tracks and trails through areas of natural habitat, even if authorised and well planned, cause some degree of damage to bushland. Nearly every single threat to our biodiversity identified in Hornsby Shire Council's *Biodiversity Conservation Strategy* and Ku-ring-gai Council's *Biodiversity Strategy* is exacerbated by trail or track construction and their subsequent usage.

This position paper encourages the construction of tracks and trails for recreational and management purposes in areas that are degraded and severely degraded. Space should be provided for creative track building to encourage team skills, creativity and physical skills of young people. This needs to be associated with a remedial plan and no loss of neighbourhood amenity.

Track and trail construction is not recommended in:

- areas with threatened populations, ecological communities or species;
- areas which contain aboriginal, cultural or geological heritage;
- riparian areas; or
- core bushland (bushland that has not been substantially modified).

Bushwalking is generally an acceptable activity on all tracks and trails, except those specifically designed for some other purpose such as bike riding. Cycling is an appropriate activity if confined to authorised sections of management trails and to separate authorised cycling tracks in degraded areas. Recreational motorised vehicles and horses are generally not acceptable on any track.

## 2. The Importance of Biodiversity and the Role of Bushland Conservation

*Conservation of biodiversity is a fundamental principle of ecologically sustainable development – its loss was recognised as the most important environmental problem in Australia's first State of the Environment Report*
Hornsby Shire Council (2006) *Biodiversity Conservation Strategy*

### 2.1 Biodiversity is Critical to our Survival

The Convention on Biological Diversity (United Nations, 1992) defines biodiversity as the 'variability among living organisms'. This biodiversity is an increasingly scarce resource, and is becoming much more so as we continue to destroy, at ever increasing rates, our remaining natural habitat. As life forms disappear, they individually and collectively alter the earth's ecosystems and reduce its biodiversity. With each disappearance, services provided by nature such as seed dispersal, pollination, clean water, clean air, soil production and protection, salinity and pest control are diminished.

We have only relatively recently begun to recognise the real importance of our biodiversity. We are entirely dependent for our sustenance, health, well-being and enjoyment of life on our fundamental biological systems and processes. We derive all of our food and many medicines and industrial products from the remaining wild and domesticated components of our biological diversity, quite apart from the recreational, social and cultural services which it provides (Department of the Environment, Water, Heritage and the Arts, 1993).

### 2.2 We Face a Crisis Today

Our biodiversity is in crisis and this means that our future is in crisis too. Around the world species of all kinds are threatened by habitat destruction, including those in bushland of the Sydney region. As human population increases, the number of species with which we share the planet shrinks. There is no way that we can separate our fate from that of all life on earth. According to the research of the IUCN Species Survival Commission (2000) 'the more the rich biodiversity of life on our planet is impoverished, the more we are all threatened'.

This is an Australian issue as well as a global issue. The former Australian of the Year, Professor Tim Flannery, has recently said that the Australian continent is in the grip of a 'biodiversity crisis' (*The Sydney Morning Herald*, 9 October 2009). Flannery is backed up by University of Queensland researchers who report that Australia has suffered a higher rate of mammal extinctions than any other continent in the past 200 years.

### 2.3 Population Growth is a Key Driver

A prime cause of the crisis is the stress that population growth is imposing on the natural environment. The Australian Conservation Foundation has recently nominated human population growth as a 'threatening process' under the Federal Environmental Protection and Biodiversity Conservation Act (*The Sydney Morning Herald*, 23 March 2010). This has highlighted the pressures that the natural environment faces from the expansion of urban, industrial and rural development.

### 2.4 The Cessation of Habitat Destruction must become a Priority

Australia is an unfortunate leader in environmental degradation (Lindenmayer, 2007). Along with the introduction and spread of non-indigenous species such as weeds, pests and pathogens, habitat destruction has been reported by the Australian Conservation Foundation and others as the major cause of biodiversity loss in Australia. The *Australian Natural Resources Atlas*, published by the Australian Government, reports that by 1997 many

vegetation groups had already been significantly cleared, with the most affected groups having as little as 50% of their pre-European settlement coverage remaining. Such habitat destruction is a threat to the bushland in Ku-ring-gai and Hornsby, driven as it is by swift population growth and ever-increasing demands by recreational users for unrestricted access to the bushland for a variety of purposes, many of which are known to have highly damaging effects on the natural environment.

### 2.5 Local Councils have a Responsibility to Act

Local councils are specifically required and empowered to protect their local natural habitat. Under *State Environmental Planning Policy No 19 Bushland in Urban Areas*, councils are required by law to protect and preserve bushland within urban areas. Specifically, councils are required:

- to protect the remnants of plant communities which were once characteristic of the area;
- to retain bushland in parcels of a size and configuration which will enable the existing plant and animal communities to survive in the long term;
- to protect wildlife corridors and vegetation links with other nearby bushland; and
- to protect bushland as a natural stabiliser of the soil surface.

In 2006, Hornsby Shire Council adopted a *Biodiversity Conservation Strategy* to provide direction to Council and the community to conserve and to manage biodiversity at the local level. It includes the following key points:

- We depend on biodiversity for our survival as it is the basis of quality of life.
- Frameworks which underpin biodiversity conservation emphasise the need to arrest the rapid declines in the integrity and abundance of biodiversity across the globe.
- Conservation of biodiversity is a fundamental principle of ecologically sustainable development. Its loss is recognised as the most important environmental problem in Australia.

The following were identified as key threats to biodiversity:

- clearing of native vegetation;
- spread of exotic weeds and pests; and
- continued degradation of freshwater aquatic ecosystems.

Hornsby Shire Council has therefore committed itself to the following objectives:

- to conserve species, populations and communities of native plants and animals, and allow for their continued evolution and survival in the region;
- to achieve an improvement in the quality and extent of existing indigenous vegetation;
- to collect and update biodiversity conservation information;
- to ensure environmental planning instruments and processes provide a strategic approach to achieving biodiversity conservation outcomes;
- to mitigate threats to conserving biodiversity;
- to conserve and recreate connectivity across fragmented landscapes; and
- to develop and implement effective systems to fund and manage biodiversity conservation actions.

Ku-ring-gai Council has a similar biodiversity strategy (Ku-ring-gai Council, 2006), the purpose of which ‘is to provide a strategic framework for the management and conservation of local biodiversity in natural and urbanised landscapes at the local level and where relevant in the regional context’.

The *Biodiversity Strategy* states that the majority of threats to biodiversity 'are directly or indirectly caused by human activities associated with urbanisation'**.** Some of the key threats identified include:

- encroachment and illegal clearing;
- unauthorised activities such as bike track building;
- loss of remnant street trees and habitat linkages;
- exotic plants and weed infestation;
- feral animals and predation by domestic pets;
- accelerated erosion from urban storm water;
- changes to natural hydrology;
- fragmentation of ecosystems and loss of habitat;
- removal of bush rock, logs and plants from bushland; and
- increased recreation pressures.

Ku-ring-gai Council has therefore committed itself to the following objectives:

- to prevent loss of local native biodiversity on public and private lands by eliminating or ameliorating threatening processes;
- to protect, enhance and where appropriate increase local biodiversity on public and private lands;
- to protect and enhance aquatic and terrestrial ecosystems and habitats and connectivity between reserves;
- to increase awareness of biodiversity and its values;
- to encourage and maintain active and effective community, government and other stakeholder partnerships with Council to better manage biodiversity; and
- to extend and seek further opportunities and partnerships with other statutory authorities and non-government organisations to help maintain or enhance regional biodiversity.

## 3. STEP's Position

Tracks and trails should be part of a system which protects the bushland, should be appropriately managed and should enhance the enjoyment of bushland by locals and visitors. Well-maintained tracks with good signage are helpful for conservation, education and management.

### 3.1 Appropriate Recreational Activities on Tracks and Trails

Adapted from National Parks Association of NSW (1999a and 1999b):

- **Motor vehicles** and **horse riding** are not acceptable.
- **Bushwalking** is appropriate to all tracks and trails, except those specifically designed for cycle use.
- **Cycling**, including mountain biking, is an appropriate activity if confined to authorised tracks and trails. Note that:
  - separate cycling tracks should be short and near the bushland boundaries in degraded areas;
  - cycling should not be permitted on tracks designed specifically for walking; and
  - competitive cycling, non-competitive rallies, races and endurance events are not appropriate.

  Note: For mountain bike trail difficulty grades see International Mountain Cycling Association *Trail Difficult* and for different types of trail see *World Trail*.

### 3.2 Construction and Maintenance of Tracks and Trails

(a) No tracks or trails should be constructed without a full environmental survey, assessment of impact and consultation with the community (see also clause 3.4).
(b) Track and trail heads should not reduce neighbourhood amenity.
(c) Track and trail location and quality should be periodically reviewed (and actioned) to ensure bushland protection, appropriate management and public enjoyment.
(d) Tracks and trails that are unplanned, damaging or serve no useful purpose should be closed.
(e) New tracks and trails on soil landscapes with 'general occurrence of water erosion hazard' (Chapman and Murphy, 1989) should only be considered for essential management purposes as they are costly to construct and maintain.
(f) Tracks and trails should be designed to reduce speed for the safety of other users and ground-dwelling animals.
(g) Tracks and trails must be adequately maintained to reduce the risks of deleterious impacts listed in clause 3.5.
(h) There should be minimal use of foreign material during construction as these often alter soil pH, introduce nutrients and weeds and increase the velocity of runoff.
(i) Where track markers are provided, tracks should comply with AS 2156.1 (2001), Arias (2007) and NSW Department of Environment and Climate Change (2008a).

### 3.3 Monitoring

(a) In national parks all recreational activities should be monitored (National Parks Association of NSW, 1999a) to ensure that:
- best practice is being followed;
- numbers of people are not exceeding carrying capacity;
- environmental and social impacts are being minimised;
- the activity does not spoil the enjoyment of other users; and
- native fauna are not unduly disturbed or disadvantaged, or vegetation damaged or removed.

(b) A practical code of conduct should be developed to promote responsible use of bushland. Effective action should be able to be taken against those who abuse the code.

### 3.4 Tracks and Trails in Different Bushland Categories

See the Appendix (page 11) for our definitions of bushland categories (which are partly based on resilience) namely areas with threatened populations, ecological communities or species; special areas; core bushland; riparian areas; degraded areas; and severely degraded areas. Assessment of bushland categories (particularly resilience) is to be made by an expert ecologist with at least five years experience of bushland management and assessment of resilience in the Sydney region. This is to be done in consultation with community groups.

When an area of bushland falls into several categories, for example riparian, core bushland with a threatened species present, protection should be given to the most sensitive category.

#### 3.4.1 Areas with Threatened Populations, Ecological Communities or Species

Threatened species searches, in the field and on the internet, may need to include adjoining urban areas. For example mobile species such as the Sooty Owl and Masked Owl may only be recorded in areas adjoining bushland.

(a) Endangered or threatened populations and ecological communities
- Existing tracks and trails – review and close when they are causing damage.
- New tracks and trails – no new tracks or trails except for essential conservation management purposes.

(b) Areas with endangered or threatened species

- Existing tracks and trails – review and close when they are causing damage and are inappropriate.
- New tracks and trails
  - Animal species – tracks and trails to be designed to protect and enhance habitat, including resting, sheltering, feeding and breeding sites.
  - Plants, fungi and algae – tracks and trails to be designed to protect and enhance habitat to ensure survival of existing individuals and the successful establishment of ensuing generations.

#### 3.4.2 Special Areas

(a) Areas containing Aboriginal Sites

- Existing tracks and trails – review and close when they are causing damage.
- New tracks and trails – no new tracks or trails except for interpretative purposes and only after consultation with the Metropolitan Local Aboriginal Land Council or its equivalent.

(b) Culturally significant sites

- Existing tracks and trails – review and close when they are causing damage.
- New tracks and trails – no new tracks or trails except for interpretative purposes and only after consultation with local historical societies.

(c) Areas containing geoheritage

- Existing tracks and trails – review and close when they are causing damage or are inappropriate.
- New tracks and trails – no new tracks or trails except for interpretative purposes and only after consultation with geological experts.

#### 3.4.3 Core Bushland

- Existing tracks and trails – review and close when they are causing damage or are inappropriate.
- New tracks and trails – no new tracks or trails except for essential management purposes.

#### 3.4.4 Riparian Areas

- Existing tracks and trails – review and close when they are causing damage.
- New tracks and trails – no new tracks or trails along riparian zones except for essential management purposes.

#### 3.4.5 Degraded Areas

- Existing tracks and trails – review and close when they are causing damage.
- New tracks and trails – new tracks and trails could be constructed but only when they do not cause further degradation of the bushland or the surroundings. There should be a remediation plan associated with construction to improve environmental quality. Space for creative track building should be provided to encourage team skills, creativity and physical skills of young people. No loss of neighbourhood amenity should result.

#### 3.4.6 Severely Degraded Areas

- Existing tracks and trails – review and close when they are causing damage.
- New tracks and trails – new tracks and trails are encouraged but only when they do not cause further degradation of the bushland or the surroundings. There should be a remediation plan associated with construction to improve environmental quality. Space should be provided for creative track building to encourage team skills, creativity and physical skills of young people. No loss of neighbourhood amenity should result.

### 3.5 Consequences of Tracks and Trails

Tracks and trails allow a wide range of people to enjoy the bush safely for educational, scientific, artistic and recreational pursuits. They also assist management, particularly fire management. However, neighbourhood amenity may be reduced by a loss of privacy, increased noise, increased traffic and parking problems.

Damage to bushland and a loss of biodiversity may be caused by:

- Loss of bushland. A ten kilometre track one metre wide results in the loss of one hectare of bushland.
- Loss of ground and shrub layer. Orchids, grasses, sedges and other small native species are removed, even when a track winds through the trees. Some of these plants may not be visible at the time of survey.
- Reduction and fragmentation of bushland; the wider the track the greater the fragmentation for small invertebrates, frogs, reptiles, birds and mammals. Such animals are also at risk from high-speed recreational activities.
- Accelerated erosion and a decline in the soil structure both on, and downhill, of the track.
- Alteration of soil pH, added nutrients, introduced weeds and an increase in the velocity of runoff as a result of the use of material such as rocks, bitumen and concrete used to help reduce erosion.
- Sedimentation of the track surface, gutters, down-slope and waterways.
- Increased ease of access for illegal activities such as rubbish and weed dumping; theft of bush rock; lighting of illegal fires; damage to threatened populations, ecological communities and species; disfigurement of Aboriginal sites, cultural heritage or geodiversity; growing of illegal drug crops; general vandalism; and construction of new unplanned tracks.
- Damage to track edges and surrounding bushland during construction and later on by people who take shortcuts, go around obstacles, widen tracks around wet areas and damage vegetation.
- Weed entry along tracks from dumping of garden rubbish, dispersal (via shoe treads, tyres, hooves, fur and clothes), introduction of foreign material for track stabilisation, and animal faeces. Tracks provide ideal sites for the establishment of weeds along their edges due to altered soil, hydrological and light conditions.
- An increase in the risk of key threatening processes listed by the *Environment Protection and Biodiversity Conservation Act 1999* and *NSW Threatened Species Conservation Act 1995*. These include:
  - dieback caused by the root-rot fungus (*Phytophthora cinnamomi*);
  - loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants;
  - predation by European red fox;
  - invasion and establishment of exotic vines and scramblers;
  - invasion of native plant communities by exotic perennial grasses;
  - invasion, establishment and spread of *Lantana camara*;
  - removal of bushrock;
  - ecological consequences of high frequency fires;
  - removal of dead wood and dead trees; and
  - dieback of forest eucalypt associated with over-abundant psyllids and Bell Miners.

## 4. Conclusion

It is clear that the construction of tracks and trails through areas of natural habitat, even if authorised and well planned, carries with it the certainty of causing some damage to that bushland. Nearly every threat to biodiversity identified in Hornsby Shire Council's *Biodiversity Conservation Strategy* and Ku-ring-gai Council's *Biodiversity Strategy* is exacerbated by track or trail construction and their usage.

Any thoughtlessly constructed track or trail will cause significant damage. In particular, tracks and trails allow humans and feral and domestic animals to penetrate deep into the core of the bushland. Tracks and trails carry higher infestations of weeds and pathogens, and promote higher levels of soil erosion than surrounding bush. The longer term impacts include the reduction or elimination of native fauna and flora, and a consequent reduction in biodiversity.

Both Hornsby Shire Council and Ku-ring-gai Council recognise and value biodiversity. This is evidenced by their well-researched strategies and plans to protect and enhance biodiversity. However, implementation is the key to any successful strategy and it is not clear that either council has consistently had regard to the threats and objectives laid out in their biodiversity strategies.

It is recognised that all councils routinely come up against vocal and well-organised pressure groups who pursue objectives that place biodiversity at risk. It is easy to give in to such pressure, but in the long term the inevitable result is a loss of natural habitat and biodiversity.

Valuable natural and social resources are often alienated tiny-bit by tiny-bit; the tyranny of small decisions. When managers compromise on bushland use, for example a scout hall here, a picnic area and bike track there, bushland is lost forever. As Sydney rushes towards six million people there will continue to be a never-ending list of small compromises being demanded. Unless we halt these compromises, we will lose our natural heritage for ever.

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## Appendix. Definitions of Bushland Categories

Table 1 defines the bushland categories used in this position paper. The bushland categories are partly based on resilience (see Table 2) – the ability of an ecosystem to recover from damage (Buchanan, 2009).

Table 1. Definitions of bushland categories (adapted from Buchanan, 2009)

| **Bushland categories** | **Descriptions** | **Resilience classes (see Table 2)** |
|---|---|---|
| Areas with threatened populations, ecological communities or species | Include but are not exclusive to:<br>• endangered or threatened populations and ecological communities listed under the *NSW Threatened Species Conservation Act 1995* and the *Environment Protection and Biodiversity Conservation Act 1999*;<br>• areas with endangered or threatened species listed under the *NSW Threatened Species Conservation Act 1995* and the *Environment Protection and Biodiversity Conservation Act 1999.* | 1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b |
| Special areas | Include but are not exclusive to:<br>• areas containing Aboriginal sites, particularly those registered with the Aboriginal Sites Register NSW;<br>• culturally significant sites – sites of aesthetic, historic, scientific or social value for past, present or future generations (Australian National Committee of the International Council on Monuments and Sites, 1988);<br>• areas containing geoheritage – places containing those components of natural geodiversity which are of significant value to humans for purposes which do not decrease their intrinsic or ecological value: such purposes may include scientific research, education, aesthetics and inspiration, cultural development and contribution to a sense of place experienced by human communities (Osborne et al., 1998). | 1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b |
| Core bushland | Consists of natural areas of land that, together with its plant and animal communities, is in a state that has not been substantially modified by humans and their works or is capable of being restored to such a state (NSW Department of Environment and Climate Change, 2008a).<br>Damage may be evident but resilience is generally high or responsive to assisted natural regeneration.<br>Often characterised by frequent opportunities for solitude and appropriate self-reliant recreation; no, or only distant, views of built development; generally few weeds; high resilience. | 1a, 1b, 2a, 2b, and sometimes 3a |
| Riparian areas | Occur along the banks of rivers and creeks and along the edges of wetlands. Separated from other categories as they form an important part of a healthy functioning ecosystem and have many important ecological benefits (Primary Industries Fishing and Aquaculture, 2005).<br>Often characterised by frequent flooding as indicated by flood debris; native and weed species characteristic of the banks of rivers, creeks and wetlands. | 1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b |
| Degraded areas | Areas degraded by impacts such as altered hydrology and nutrient cycling, soil disturbance and long-term clearing. It excludes the riparian zone as defined above but may include other highly disturbed zones, for example asset protection zones. | 3b, 4a and sometimes 4b |
| Severely degraded areas | Include areas that have had severe soil alteration and no longer function as bushland. It excludes the riparian zone as defined above. | 4b |

Table 2. Resilience-based classification system (adapted from McDonald, 2010)

| Bushland | Resilience | Resilience class | Description | Vegetation cover |
|---|---|---|---|---|
| **1** Unmodified | Resilience very high; requires maintenance inputs only | 1a | Nil symptoms | **Within** areas of native vegetation cover‡ |
| | | 1b | Very low symptoms – readily reversible | |
| **2** Modified | Resilience modified but generally responsive to assisted natural regeneration inputs | 2a | Visible symptoms but no substantial change to structure* or function | |
| | | 2b | Serious symptoms (>50% 'impact') but a variety of natives still present; sensitive resprouters and obligate seeders may be absent but soil seed banks of obligate seeders likely to be present | |
| **3** Highly modified | Resilience reduced but still at least somewhat responsive to assisted natural regeneration inputs (of higher intensity and/or longer duration) | 3a | Only a very small number of long-lived native species persist above ground (other resprouters usually absent) but soil seed banks of at least some important obligate seeders may still be present | |
| | | 3b | Only widely spaced long-lived native species persist from pre-existing community; no significant soil seed banks likely | |
| **4** Extremely modified | Reduced to migratory resilience only, or nil resilience; requires full recolonisation, reconstruction or type conversion | 4a | High level impacts have reduced pre-existing native vegetation to common colonisers† – but substrate conditions are generally similar or can be reinstated | **Outside** areas of native vegetation cover* |
| | | 4b | Pre-existing native vegetation no longer viable as conditions irreversibly and highly altered | |

* Changes in structure due to natural disturbances or succession are not considered degradation (unless they prejudice the function/persistence of the species) – and light impacts similar to those changes can be considered insubstantial in ecological terms.

† This class of degradation would only result from repeated clearing (including high frequency burning and long-grazing) or gradual decline of cover caused by weed competition. It is not to be confused with recent clearing of good condition vegetation, which would result in diverse regrowth.

‡ Native vegetation without trees or shrubs and recently cleared (recovering) areas would still be considered 'within' areas of native vegetation cover