KOALA ACTION INC.
Postal Address: 52 Poole Road
GLASS HOUSE MOUNTAINS QLD 4518
ABN: 92 282 853 793
http://koalaactioninc.org

To: The Department of Infrastructure and Regional Development.
Australian Rail Track Corporation (ARTC)
Director – Transport Assessments, Planning and Assessment
Department of Planning and Environment
Locked Bag 5022, Parramatta NSW 2124

RE: Narromine to Narrabri (N2N) Preferred Infrastructure / Amendment Report Public Exhibition

I have been asked by members of Koala Action Inc. (KAI) and Queensland Koala Crusaders Inc. (QKC) to comment on the northern end of the proposal site which passes through about 70 kms of the Pilliga forests, various other patches of native vegetation and the riparian corridors. Members do not support the route through the Pilliga forests which the Inland Rail Proponent (ARTC) identified as preferable due to a combination of lower construction cost, avoidance of prime farming land, and reduced transit time during operation.

KAI and QKC are not for profit incorporated associations designated as charities, dedicated to protecting and conserving Queensland's koala population; as well as retaining, conserving, replanting and rehabilitating koala habitat. The combined membership of these groups is over 200 individuals. Both groups advocate on behalf of koalas and the habitat upon which they depend in a range of areas including local, state and federal governments as well as businesses and other non-governmental organisations (NGO's). Members are equally concerned about koalas and their habitat across all the eastern states of Australia and support all measures to retain and enhance existing koala habitat/wildlife habitat.

Volunteers undertake a variety of tasks including raising orphaned koala joeys from their homes; rescuing and/or caring for sick, injured adult and orphaned koalas; providing free koala education and awareness presentations; replanting koala food trees and other natives in parks, reserves and open spaces as well as rehabilitating secondary habitat to increase its carrying capacity for koalas and other native wildlife.

Every 86 seconds an MCG sized area of forest and bushland is destroyed in Australia. It is our belief that the loss of the Pilliga forests, native vegetation patches and vegetation along the riparian corridors is unacceptable. The impact on the native wildlife that call that location home would be devastating. Members believe alternative routes would result in a better outcome for native fauna and flora.

The reason we do so relates to the long/short-term negative impacts on native fauna/flora and the habitat upon which they depend for food, shelter and dispersal opportunities as well as the high biodiversity values of the Pilliga forests. The EIS reports confirm the importance of retaining native vegetation to support the many species of fauna classified as vulnerable, threatened and in some instances endangered. To ignore the information provided just to reduce costs to yourselves and avoid confrontation with land holders is short term thinking.

Your duty of care to the environment you intend to destroy must form a larger part in the decision-making process.

Another thing to consider is the impact of Climate Change on the ARTC's greenhouse gas emissions. Reaching net zero and limiting warming to 1.5 degrees Celsius requires significant emissions cuts as well as thriving ecosystems capable of drawing down carbon dioxide from the atmosphere. It is useful to address these in tandem because they're inextricably linked. There is an urgent need to restore the balance between sources of greenhouse gas emissions and natural systems that absorb emissions. Retaining all native vegetation along the Inland Rail route and enhancing what is already present using offset credits is just one way of doing this.

The koala's listing was upgraded from 'Vulnerable' to 'Endangered' in February this year. It is completely incomprehensible to our members that ARTC would think destruction and fragmentation of essential existing native habitat is acceptable.

In addition, many trees earmarked for removal contain hollows that support wildlife providing vital breeding and shelter habitat resources for species, such as the vulnerable listed Greater Glider and Barking Owl. These hollows take hundreds of years to develop and therefore are irreplaceable. Further, as a result of cumulative and ongoing deforestation, these hollow resources are also incredibly vulnerable.

The Business and Biodiversity Offset Programme (BBOP), which established the internationally recognised best practice standards for environmental offsets, provides that certain values that are irreplaceable and vulnerable are not capable of being offset[1]. Based on an earlier EIS, impacts to these trees were to be avoided (per the mitigation hierarchy) as they were identified to be some of the oldest and largest trees in that location. However, the footprint depicted in current plans no longer avoids impacts. It is therefore argued that the avoidance component of the mitigation hierarchy has not been implemented to the greatest extent practicable (as required by legislation).

The Inland Rail proposal located between the towns of Narromine and Narrabri in western NSW will pass through large sections of forested areas associated with the state forests of the Pilliga. Our concerns focus on the Baradine State Forest, the Cumbil State Forest, the Euligal State Forest and most importantly the Pilliga East State Forest.

The proposal passes through heavily vegetated areas of immense value to the native fauna and is associated with travelling stock reserves, such as at Bohena Creek near Narrabri and the Macquarie River at Narromine. Native vegetation cover represents about 52 percent of the proposal site. The proposal site includes about 1,120 hectares of native woodland and forest vegetation and 565 hectares of native and derived native grassland. Further reduction of these important sources of food, shelter and dispersal opportunities is incomprehensible.

The proposal crosses three rivers (Macquarie River, Castlereagh River and Namoi River) and up to 121 creeks, other intermittent unnamed water features constructed to convey irrigation waters, ephemeral creeks and streams. All of these water courses support an array of native vegetation crucial to the sustainability of the native fauna as well as to the survival of endemic flora and ecosystems in the region. Accordingly, these locations need to be protected from negative impacts associated with the development and ongoing use of the proposed rail (e.g., clearing, fragmentation, pollution, weed spread) (i.e., avoidance and mitigation). Further, the existing riparian vegetation will need to be enhanced and conserved to retain the ecological properties these watercourses provide now and into the future despite the proposed development.

[1] BBOP Resource Paper: Limits to What Can Be Offset.

The Pilliga forests comprise a significant area of connected vegetation and fauna habitat incorporating 3,000 square kilometres of semi-arid woodland. This is the largest continuous woodland remnant in NSW. Extensive areas of connected vegetation such as the Pilliga provide habitat for large fauna and flora assemblages as they provide a mosaic of habitat types, and large areas of habitat for species that occur in low densities. The importance of this location cannot be underestimated.

The Pilliga provides a regional corridor, linking with the Warrumbungles National Park, the vegetated riparian corridor associated with the Namoi River, and via these links to areas such as Mount Kaputar National Park. Good science using rational, informed decision making would not support the design of a railway route that would destroy this special area and bring about the decline of all the native fauna and flora that call this region home.

KAI and QKC take this position across the entire route of the Inland Rail. With native flora and fauna in escalating decline predominantly due to the clearing and fragmentation of essential ecosystems and habitats, more must be done to retain, conserve and enhance existing endemic flora/fauna species. Threatened wildlife rely on what remains of this for food, shelter and dispersal opportunities. That is their only hope of survival into the future. It is the ARTCs moral, ethical and legislative imperative to avoid any further destruction of habitat for threatened species and ecosystems.

Members are deeply disturbed by the mind set of decision makers prepared to destroy what is in place for short/long term expediency. Cost cutting measures are not a valid reason for such destruction nor is reducing the travelling time of trains.

The Pilliga forests provide an important area of habitat for a wide range of fauna and flora species. Surveys of the Pilliga forests in the 1990s suggested that the forests were carrying the largest population of koalas west of the Great Dividing Range in NSW, with the numbers estimated at approximately 15,000.

Since that time surveys for koalas within the Pilliga forests showed a decline of over 80 percent. Members acknowledge that decline is most likely related to a combination of prolonged droughts, heatwaves and wildfire. However, this may not always be the case due to the concept of *"if it is there, they will come";* meaning if climatic conditions and habitat suitability improve, koalas are likely to return to the habitat. In fact, increased rainfall predicted for that region may ensure the sustainability of what is 'in situ'. This habitat will therefore be important for species recovery through natural or human mediated reintroduction. In addition, it will continue to support other common and threatened native wildlife.

Although the focus of KAI and QKC is on koalas, we are equally concerned about all the native fauna and flora utilising the same ecosystem the koala inhabits. Birdlife International (2019) has identified the Pilliga (incorporating the Warrumbungles National Park) as an important bird and biodiversity area (IBA). IBAs are places of international significance for the conservation of birds and other biodiversity. Their loss must be avoided.

Over 200 bird species have been recorded in the Pilliga. In addition, at least 36 native mammal species (including 16 bat species), 50 reptile species and at least 15 amphibian species have been recorded, including at least 21 species listed as threatened in NSW. In particular, the area supports the largest population of Barking Owls in NSW and is identified as habitat critical to the survival of the Painted Honeyeater. To damage this in any way is unthinkable, not to mention it goes against international best practice standards.

The major peril facing all native wildlife particularly in eastern Australia which includes, Queensland, New South Wales, the ACT and Victoria is habitat loss and fragmentation which forces all arboreal species to the ground in search of food, shelter and dispersal opportunities. It is at this time they are at risk from being struck by trains and motor vehicles and attacked by domestic, feral/wild dogs.

Construction of the proposal will require the permanent removal of a woodland and forest habitat, shrubland and grassland areas. Clearing this forest and woodland vegetation would permanently remove foraging and breeding resources for native fauna. There is no doubt, that it will result in habitat fragmentation reducing dispersal opportunities, affect the reproductive success of all wildlife within that location and generate a decline in populations resulting from increased predation by introduced species or native species that do not normally occur in the community. Again, this is not acceptable.

The threats posed by fragmentation is increased for species such as the koala and squirrel glider as well as other species with large home ranges. They will be forced to disperse over longer distances which will be extremely challenging to those with specialised dietary or habitat requirements and those with poor dispersal ability. Members do not want to see the ARTC make matters worse for species already challenged by human interference.

Fragmentation impacts will be more significant in the Pilliga forests, where large expanses of connected vegetation occur. Around 30 kms of the alignment through the Pilliga forests is located adjacent to Pilliga Forest Way. The clearing proposed in these areas will exacerbate existing fragmentation and edge effects created by the existing road.

Scientific research confirms that the minimum corridor width should be 100 metres to effectively provide functional connectivity and opportunities for safe dispersal of wildlife. The current design proposes to retain a thin linear strip of vegetation between the rail corridor and the existing road. KAI and QKC posit this form of mitigation is pointless as it is of insufficient size to provide functional connectivity or opportunities for safe dispersal.

The Preliminary Fauna Connectivity Strategy states that in the Pilliga forests, the clearance of a gap ranging between 33 metres to 400 metres wide will be required (with about 29 percent in the 50-60 metres category, and averaging a width 89 metres). This would create a major barrier to movement of large terrestrial mammals such as the koala and black-stiped wallaby which is unacceptable.

KAI and QKC are also extremely concerned about rail strike as the likelihood of fauna using the railway as a movement route is high as there is no other connected habitat to use. With many of our members volunteering as wildlife rescuers, we have significant experience with the outcomes of inappropriately designed rail projects.

Accordingly, it is our expert opinion that the proposed design will result in direct mortality of native wildlife from collisions with trains, electrocution, wire strikes, and rail entrapment for other species. Having collected the bodies of koalas and other wildlife killed on rail tracks before, such an outcome is horrific in and of itself as well as reducing the population of wildlife as a whole.

The proposed design is likely to result in significant injury and mortality of wildlife from strike as:

- the high speed of trains utilising the Inland Railway will prevent train drivers from stopping quickly for wildlife;
- approaching trains flush animals such as microbats and birds from roost sites;
- train lights disorient nocturnal animals;
- owls and other birds of prey often utilise rail infrastructure as hunting grounds;
- scavenger species regularly frequent rails to feed on carcasses;
- animals can fly or glide into the train, noting that the risk of collision will increase depending on the size of the train; and
- frogs become more vulnerable to strike during rain events when individuals are more likely to be active.

Even one death in many of these threatened species is too high.

It is our position that most train-strike impacts are likely to occur in the Pilliga, given the extensive area of native vegetation surrounding the proposed route and limited fencing of the rail corridor. These include threatened species including Black-striped Wallaby, Koala, Squirrel Glider, Barking Owl, Glossy Black Cockatoo and Pale-headed Snake.

The Inland Rail Reports also highlights that, in addition to risk of population decline, railway mortality may cause shifts in the age structure of populations. When dealing with threatened species, the death of individuals and their potential offspring is significant. Taking that into account, it makes no sense at all to go ahead with the proposed design.

This is particularly true for long-lived, slow breeding species such as the Koala and Squirrel Glider. Another concern, is that species at most risk from a bioregional perspective in this location are those with limited distribution such as the Rufous Bettong and Black-striped Wallaby. Members believe the risks are too high and alternatives must be considered. Any mitigation strategies developed will not ameliorate this situation.

As this is a government supported infrastructure project, there is an expectation that the proposal not only meets minimum environmental standards but exceeds them by implementing best practice environmental standards. To retain any environmental credibility you may have, the route, proposed footprint, and mitigation measures must be redesigned to avoid these horrendous and irresponsible outcomes.

KAI and QKC are fully supportive of the goals of this Preliminary Fauna Connectivity Strategy are to:

1. provide for continued movement of fauna species within regional, local and riparian corridors;
2. minimise the risk of train-strike as far as practicable and
3. allow for adaptive management and response to improve connectivity and reduce mortality.

However, without monitoring movement patterns prior to any clearing or construction work being undertaken, the baseline movement patterns cannot be established, thus compromising the above goals. Pre and post development monitoring is essential to inform the above strategies.

Members do not believe sufficient attention has been given regarding connectivity outcomes and that the measures put in place will not minimise impact on threatened ecological communities; nor will it minimise impacts on key habitat areas, and it certainly won't minimise impacts on local and regional fauna movement corridors.

Connectivity via local corridors can include riparian and roadside vegetation as well as remnants. Local corridors provide connectivity between small fragments of native vegetation and may also provide living habitat for some species, with some fauna populations residing in corridor habitat. These must be retained.

Crown land (including travelling stock reserves) occur throughout the proposal site and provide a vegetative buffer as they often occur along road reserves, along property boundaries or in association with creeks and rivers. These continuous linear strips of vegetation, sometimes connected to larger patches of vegetation, provides habitat connectivity in the landscape. Preserving these are crucial to the sustainability of all wildlife populations in fragmented habitat from a dispersal perspective.

Woodland remnants in travelling stock reserves generally support more species of birds and arboreal mammals than those on private land. Species such as the koala and squirrel glider rely on these areas for foraging and dispersal in the Narrabri area.

It is also important to retain/enhance woodland patches in agricultural land as they comprise a canopy of eucalypts and cypress pine, often with a sparse understory and grassy ground layer which supports the movement of smaller reptile species. KAI and QKC also recommend encouraging the retention of stepping stones (paddock trees).

Research recognises that many fauna species use small patches of isolated vegetation and isolated paddock trees as stepping stones to move through predominantly cleared agricultural land. Such species include birds, bats, koalas and the squirrel glider (depending on distance between trees). For arboreal species like koalas, literature recommends providing stepping stone features between 30m - 200m apart in small clumps to provide versatility to meet their habitat needs and provide safe movement opportunities.

Riparian vegetated corridors in cleared areas form the majority of the remnant native vegetation and accordingly, must be considered as a critical landscape component. Many fauna species use riparian vegetation to move through predominantly cleared agricultural land.

Other fauna species also rely on these habitats for their survival because it is often the only remaining area of native vegetation. Riparian vegetation has been shown to be a key element for avian diversity. All efforts to retain these areas must be made as they are particularly significant as drought refuges (noting that this region has had severe impacts from drought in recent times).

Vegetated riparian corridors often form links with larger tracts of vegetation, including areas of state forest and linear roadside remnants. They also provide important habitat (including many hollow-bearing trees), and movement corridors for species like birds, possums and gliders, bats, reptiles, and frogs. Additionally, riparian vegetation minimises soil erosion and runoff, whilst providing flood resilience, nutrient retention, and carbon sequestration.

Dominant tree species in the Pilliga area must be preserved and comprise River Red Gum (*Eucalyptus camaldulensis* which is a koala food tree) in the south and Blakely's Red Gums (*Eucalyptus blakelyi* which is also a koala food tree) in the north.

Vegetation along the major water courses provides regional connectivity for species such as the koala, squirrel glider, woodland birds and the pale-headed snake. When making local foraging movements, superb parrots usually move along wooded corridors, rarely crossing large areas of open ground. Again, these important locations must be kept and if possible enhanced using offset credits.

We question the commitments made by ARTC regarding fauna connectivity for the proposal without good science being used to determine the mitigation strategy required to provide functional connectivity and safe movement opportunities for wildlife through the use of effective fauna sensitive design planning and implementation (i.e., a strategy that utilises a combination of design measures, such as overpasses, culverts, fauna furniture, exclusion fencing, etc., resulting in landscape permeability).

The installation and maintenance of fauna furniture is essential, particularly when flooding occurs. It has also been found that dogs and foxes utilise fauna culverts to predate upon wildlife, thus highlighting the importance of ongoing maintenance and threat mitigation post development to ensure the proposed measures continue to be effective.

Experience gained over many years indicates canopy bridges at rivers, roads, viaducts and rail bridges over key riparian corridors will only be used by possums. Koalas will definitely not use canopy bridges.

Members very much support the provision of dedicated fauna crossing infrastructure with the use of fauna culverts to encourage movement of species such as the Pilliga Mouse by increasing habitat cover at culverts. Ideally, in locations of significant habitat connectivity

value, land bridges should be prioritised as they will provide the most effective method of retaining functional connectivity that all species will utilise (noting that many species avoid culverts and rope bridges). Strategic fencing should also be incorporated to minimise injury and mortality from rail strike and direct fauna towards crossing structures that facilitate safe movement opportunities.

A great deal of research has been undertaken in Queensland in relation to culverts, underpass and connectivity by Queensland Rail as well as the Department of Transport and Main Roads. KAI and QKC recommend ARTC utilise that work and take on board some of those findings in your design process. Please check out the work undertaken by Queensland Rail in the construction of the Moreton Bay Rail Link for evidence-based design of these structures.

Doctor Jon Hanger from Endeavour Veterinary Ecology (EVE) who was involved with the Moreton Bay Rail Project from its conception is happy to speak with the relevant people regarding wildlife monitoring, crossing structures and egress devices for koalas based on their work in the Moreton Bay region and with the Coomera Connector work.

Members would like to reiterate that before any clearing is undertaken some serious monitoring of all threatened wildlife needs to be undertaken over time to inform management strategies. This is essential to the design of measures meant to ameliorate many of the perils ARTC has created.

KAI and QKC hope these concerns are addressed in a meaningful manner. Members would be happy to provide further information should you wish to seek additional clarification.

With thanks Vanda (aka Wanda) Grabowski
President/Secretary, Koala Action Inc.
Policy Coordinator, Queensland Koala Crusaders Inc.
Linda Barnes
President, Queensland Koala Crusaders Inc.
Date: 26th September 2022