



TWEED BYRON
KOALA CONNECTIONS
TWEED AND BYRON SHIRE
COUNCILS

**BANKSIA
SUSTAINABILITY
AWARDS 2015**

**NATURAL
CAPITAL AWARD**



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Banksia Sustainability Awards 2015
Natural Capital Award

Tweed and Byron Shire Councils
Tweed Byron Koala Connections

Tweed Byron Koala Connections
is supported by Tweed and Byron Shire Councils,
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Tweed Byron Koala Connections
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CRITERIA 1 Overview and Background

As some of the most biodiverse local government areas in Australia, Tweed and Byron Shire Councils are leading the way with sustainability and integrated natural resource management. Sustainability is fundamental to the key objectives of all priority areas identified by the community in development of the Tweed and Byron Shire Community Strategic Plans. Tweed and Byron Council's natural resource management approach combines science, strategic thinking, innovation and community engagement (Figure 1) to deliver outcomes that make an integral contribution to protecting the unique diversity of north east NSW.

The Tweed Vegetation Management Strategy and the Byron Biodiversity Conservation Strategy provide the basis for

these strategic approaches that are applied to decision making throughout the organisations. These strategies guide planning, development assessment, asset management and investment.

In 2012, Tweed and Byron Shire Councils collaborated to develop and commence implementation of Australia's largest koala habitat restoration effort, the Tweed Byron Koala Connections Project. Koala Connections is a \$3.5 million program to protect koalas and their habitat, as well as many other species of threatened fauna and flora. The program is funded principally by a \$2 million grant from the Australian Government.

The Tweed Byron Koala Connections project is fundamentally successful due to innovative and effective

stakeholder engagement. The partnership between adjoining Council's is the key starting point for this - providing for efficiencies in process, increased outcomes resulting from a collaborative approach and facilitating a regional response to a critical conservation issue.

The establishment and engagement of a steering committee as a key governance measure ensures the oversight, involvement and contribution of key stakeholders (Figure 2). This includes community partners Friends of the Koala and Landcare. Also represented are relevant state agencies NSW National Parks and Wildlife Service (NPWS), Office of Environment and Heritage and Local Land Services. In addition to contributing to development of the project scope and funding application, the committee provides valuable input through regular meetings, site inspections and out of session communications that have contributed significantly to the success of the project.



Figure 1: Members of the Koala Bush Care Group celebrate planting the 50,000th Koala Connections tree. This group was initiated through a partnership between Council and Team Koala and have gone on to plant more than 1000 trees at priority sites.



Figure 2: Stakeholder representatives from Friends of Cudgen Nature Reserve, Council and NSW National Parks and Wildlife Service meet former Environment Minister Rob Stokes and local member Geoff Provest at a Cudgen Nature Reserve koala habitat planting.

Specific issues based partnerships were integrated into the project consistent with a strategic landscape scale approach. Figure 3 highlights some of the issues based partnerships essential to the project's success.

Figure 3: Issues based partnerships essential to the project's success.

Partners

- NSW Rural Fire Service
- Northern Rivers Fire and Biodiversity Consortium
- Nature Conservation Council
- NSW National Parks and Wildlife Service
- Brunswick Valley
- Landcare
- Council
- General Community

Fire
Planning,
Training
Implementation

Partners

- NSW Rural Fire Service
- NSW National Parks and Wildlife Service
- Friends of Cudgen Nature Reserve
- Council
- General community
- Local nurseries
- Local restoration contractors
- Mullumbimby Music Festival
- Mt St Patrick College
- Team Koala
- Koala Beach community
- Byron Youth Initiative

Habitat Restoration

64,000 trees
140 ha
100 landholders

Partners

- Roads and Maritime Services
- NSW National Parks and Wildlife Service
- Council
- General Community
- Local schools

Roads
Interactive signage
Road markings
School education

Science

Restoration trial
Habitat studies
Surveys and monitoring

Partners

- Southern Cross University
- University of Queensland
- NSW National Parks and Wildlife Service
- Brunswick Valley Landcare
- Dahl Trust for Eucalypt Conservation

CRITERIA 2 Objectives

Tweed and Byron Shire Councils are situated in sub-tropical north east NSW. This area is recognised as having extraordinary biological diversity with the highest frog, snake and marsupial diversity per unit area of land in Australia.

Unfortunately the Shires also boast the highest number of threatened species in NSW. Approximately 200 species of plants and animals are recognised as vulnerable or endangered.

Much of the Tweed and Byron coast continues to be in high demand for human industries and settlement. This demand has inevitably resulted in clearing of native vegetation for sand mining, agriculture, roads, residential and urban development. Over time changed fire regimes, weed encroachment, pest animals, including domestic pets have reduced the ability for native species to move throughout the landscape. This fragmentation of habitat and isolation led to inbreeding and disease in the remaining populations, reflected in the demise of Australia's most iconic species, the koala (Figure 4).

Following years of anecdotes indicating koala populations were in decline, both Tweed and Byron Councils undertook koala habitat studies between 2009 and 2012. These studies identified the need for increased habitat, more connections between existing habitat, major threats including fire, cars, dogs and disease, baseline data and the likelihood of

local extinction of koalas without intervention.

These studies, coupled with validation by the federal listing of the koala as a vulnerable species under Environment Protection and Biodiversity Conservation Act 1999, provided the Tweed and Byron Councils with science based evidence for strong action. In 2012 the Council's collaborated to develop and deliver Australia's largest koala habitat restoration effort, the Tweed Byron Koala Connections Project. The project involves an integrated approach to addressing the threats impacting

koalas and working throughout the landscape to increase the extent and quality of koala habitat. The primary measures for success of the project are number of trees planted, hectares of habitat under restoration and number of landholders involved. The project offers direct benefits to the threatened populations of koalas, many other species associated with the same ecosystems and as a unique model for other projects of this scale.

Figure 4: Tweed Coast koalas



The outcomes of the project and the framework for ongoing investment in koala conservation and recovery have been captured through the development of Comprehensive Koala Plans of

Management (Figure 5). These plans include development controls, strategic planning, habitat restoration, managing threats, community engagement and monitoring.

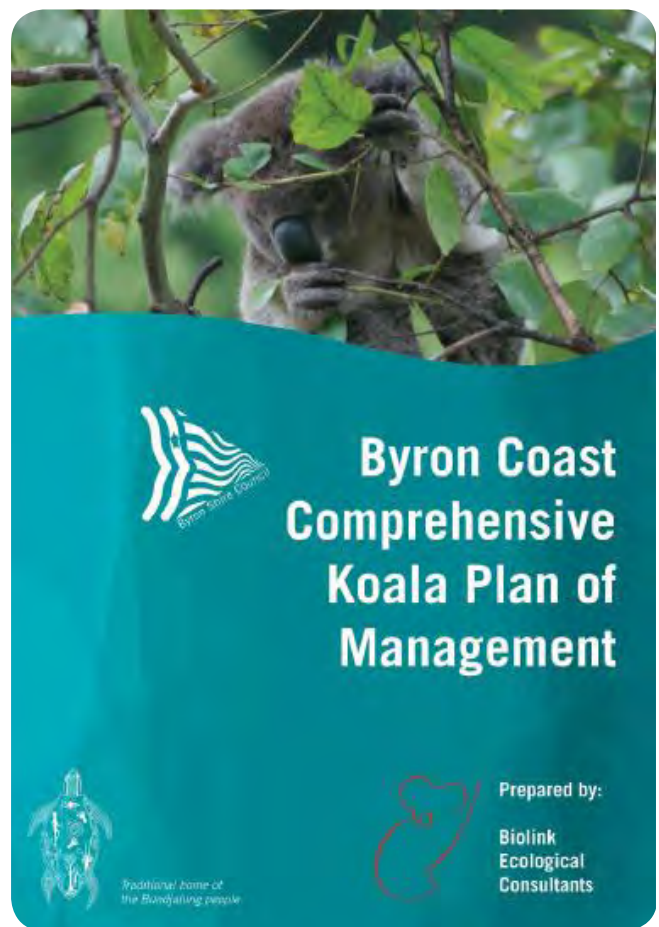
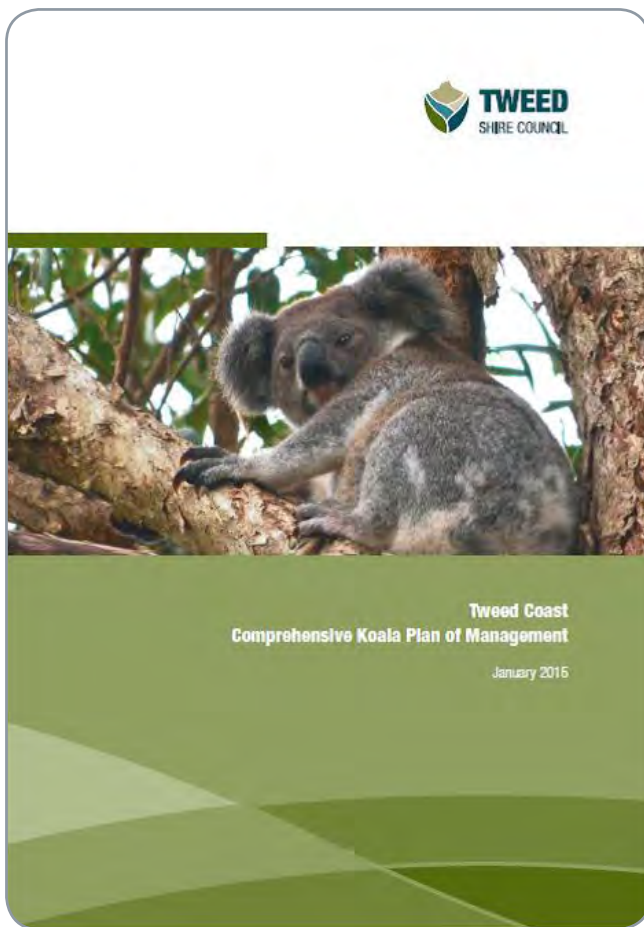


Figure 5: The Tweed and Byron Koala Plans of Management were developed with strong support from the community and both benefited from, and contributed to, community awareness and passion for the plight of koalas on the Tweed and Byron coasts.

CRITERIA 3 Outcomes

At August 2015, the project is over half way and significant ecological benefits to on ground habitats are already evident. 64,000 trees have been planted at locations identified as strategically important through the Tweed and Byron coast koala habitat studies. These planting sites increase the area of existing habitat to reconnect existing koala populations and create vegetated corridors at a landscape scale (Figure 6). All plantings feature a minimum of 60% koala food trees, supplemented with plant species representative of nearby native vegetation. This planting design has provided ecological benefits for many other species, and importantly addresses the known requirement of non-feed tree species to provide for shelter for koalas.

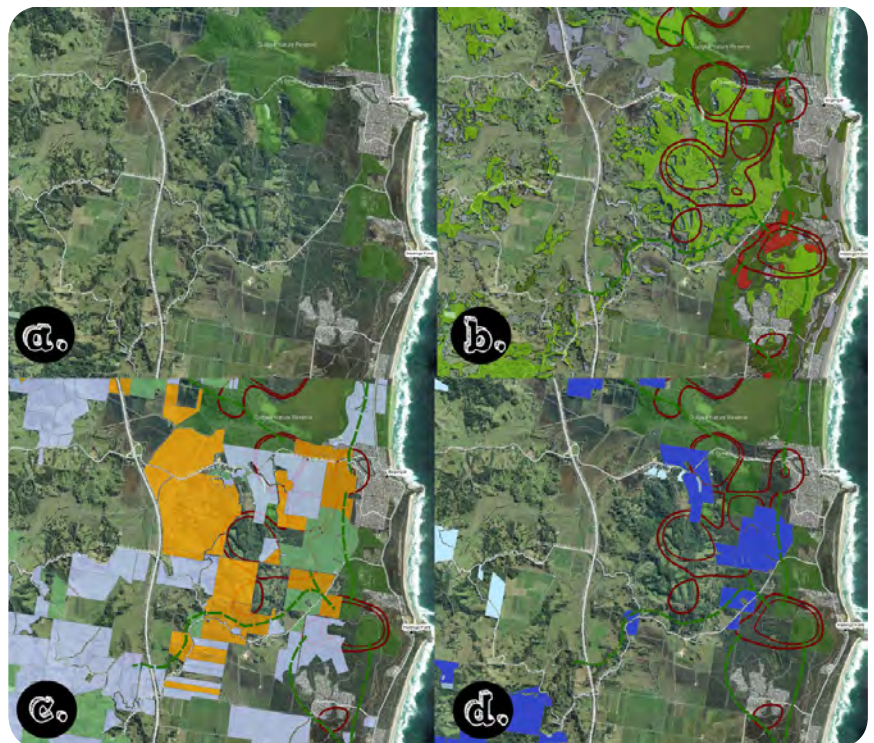
Figure 6:

The process for identifying planting sites involved (a) working within the focus areas of the Tweed and Byron coasts, (b) mapping preferred koala habitat and koala meta-populations, (c) inviting all landholders in the project area to participate and (d) implementing works at sites with landholder agreement (dark blue).

Regular monitoring of planting sites has revealed planting survival rates greater than 90% and some amazing growth rates of koala food trees. These growth rates have provided usable habitat for koalas in less than 18 months, something not considered possible before this project and an ideal independent validation of the project outcomes (Figure 7).

Figure 7:

Koalas using planted trees less than 18 months old provides the ultimate validation of project success. The koala and koala scats pictured were at two separate sites and confirm the significance of the project to this threatened population.



A koala tree competition run as part of the project found some trees had grown to 8m in one year, which is nearly 2cm per day (Figure 8). The competition also awarded prizes for the Best Maintained Planting and My Special Forest resulting in entries from throughout the project area including poetry, photography and short films.

Figure 8: Koala Connections Tallest Tree competition results. More than 20 entries were received across the three categories. The entries celebrated landholder's achievements through documenting amazing tree growth and the participant's strong personal connections and investment in contributing to koala recovery.

Over 140 hectares of existing but degraded habitats are under active regeneration (Figure 9). The removal of weed species that affect koala food tree growth and regeneration, or significantly hinder koala access to existing food trees, effectively increases the quality of the habitat for animal use. For example the removal of bamboo at one site allowed koalas to return to previously occupied habitat within two months of weed removal.

Tallest Tree

The tallest trees have grown nearly 2cm per day!!



Koala Connections progress 2012-2015

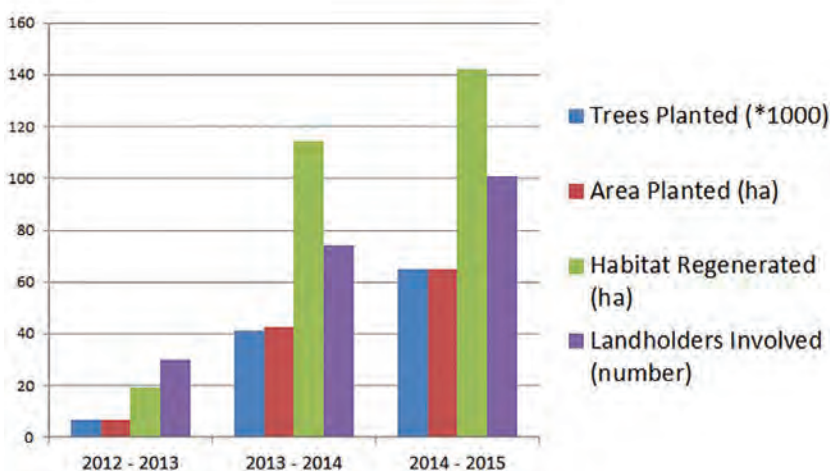


Figure 9: Trees planted, area planted, habitat regenerated and landholders involved in the project 2012 – 2015

Monitoring of pest animals using fifteen remote cameras has recorded some previously undocumented presence of koalas and provided critical information on wild dog and fox activity (Figure 10). This has significantly increased the knowledge of koala distribution and highlighted areas for prioritisation of pest management. This monitoring has also confirmed the first known use by a koala of a fauna overpass constructed over the Pacific Motorway. This is highly significant as the use of these connectivity measures is critical for ongoing management of the impacts of roads on koalas and their habitat.

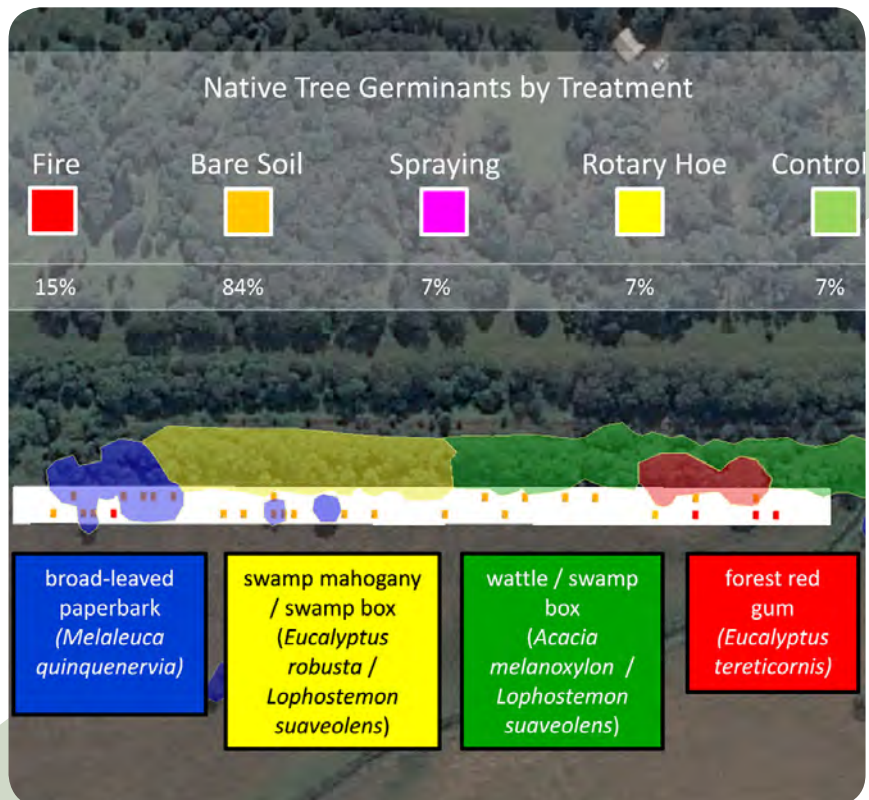
Figure 10:
Example of photos captured on remote cameras



Through a partnership between Koala Connections and Brunswick Valley Landcare a research project to provide cost effective techniques for habitat restoration has been undertaken. The results of the project have confirmed the value of specific management methods that achieved germination of koala habitat trees in 84% of the trial plots using natural regeneration from adjoining forest and the soil seed bank (Figure 11).

Figure 11:
Habitat restoration trial results demonstrate high native tree germination rates achieved using the bare soil site treatment as compared to other treatments.

Koala Connections has achieved many additional outcomes beyond the scope of this application. Examples of additional outcomes are included in Figure 12:





Fire

- Partnership with RFS, Council's, NCC, NPWS
- Double response to ensure wildfires are controlled immediately
- Council staff training in bush fire control
- Upgrading and installing fire trails to reduce threat from wildfire
- Community workshops - Living with Fire and Koalas



Roads

- Dedicated Koala Road including interactive signs
- Road markings to reduce driver speed and increase awareness
- Community education including school workshops
- Pacific Highway fauna crossing monitoring



Community Engagement and Capacity Building

- Partnership with National Parks Association, Great Eastern Ranges initiative and the general community
- Great Koala Count
- Community workshops on tree maintenance, bush regeneration, living with koalas, fire and koalas and roads
- Tweed Coast Koala Bushcare Group who have planted over 1000 trees
- Fact sheets and educational materials on critical issues relating to koalas



Planning

- Tweed and Byron Council's Comprehensive Koala Plans of Management
- Successful nomination listing local koalas as an endangered population under the Threatened Species Conservation Act (preliminary determination to date)
- Coordination and planning of a koala conservation management forum in early 2016

Figure 12: Examples of outcomes achieved beyond the original scope of the Koala Connections project

CRITERIA 4 Innovation & Influence

Tweed Byron Koala Connections is a multi-disciplinary project delivering a regional approach to koala recovery and conservation based on the latest scientific literature and practice. To operate at this landscape level, the project integrates involvement of land owners and managers on all tenures and from all relevant agencies. This reiterates the notion that genuine, effective outcomes in the natural environment rely on the community as a whole. Koala Connections is unique in successfully employing this model to achieve highly significant outcomes at a regional level.

The project was designed to address the priority actions identified through detailed habitat studies. By coupling the known threats and remaining koala populations we were able to spatially identify those areas of most importance for landscape scale connectivity and to focus on ground efforts on long term project outcomes (Figure 13). Site assessments were then undertaken to plan the most effective and relevant works at each site and a program of works implemented.

Innovative baseline and yearly monitoring using digital field

tablets integrated to a spatial database were undertaken on all sites (Figure 14). This has provided regular feedback to allow for adaptive management and reprioritisation and will provide for future evaluation of outcomes in accordance with a standardised method developed for the project.



Figure 13: Koala Connections landholders participated in numerous planting days and with such enthusiasm that trees were often in the ground before morning tea, leaving plenty of time for group photos!

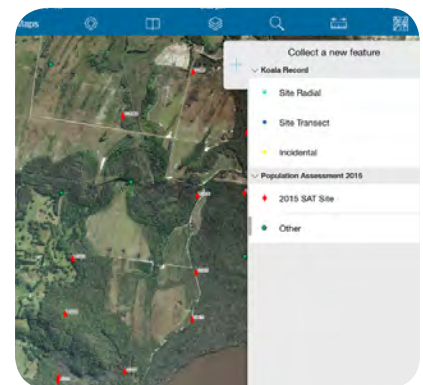


Figure 14: Development of an innovative monitoring approach using tablets has improved accuracy, efficiency and useability of monitoring data



Figure 15:
Tweed koala road variable message sign and pavement treatment

Tweed Shire Council's first 'koala road' combines on ground action including the use of variable message signing, pavement treatment and other relevant infrastructure. The project has included community engagement and education with key road users to change driver behaviour and reduce the impact of vehicles on koalas (Figure 15).

Pioneering community engagement methods built stronger communities and

increased the capacity of stakeholders to manage their land more sustainably. These have included a koala tree competition, workshops and education activities with landowners, contractors and school groups and photo exhibitions to increase community awareness regarding koalas and their habitat.

Through collaboration between RFS, NPWS and the project team, innovative solutions to reconciling fire management issues are being developed and implemented. The development of koala management guidelines for wildfire and hazard reduction will assist land managers in all locations to protect koalas and their habitat (Figure 16).

The project management model used has been developed to ensure maximum efficiency across the two local government areas to guarantee that on ground outcomes are maximised. This includes standardising assessments, plans and monitoring methods, together with governance arrangements including a joint project steering committee.



Figure 16:
Post fire native tree recruitment and wildfire in highly significant koala habitat at Pottsville in December 2014

CRITERIA 5 Future Prospects

The project aspires to significantly influence management of koala recovery and conservation. The team are already fielding enquiries on many aspects of the project from throughout eastern Australia. In addition, the following activities have been completed or are underway or planned:

Actions implemented to share project initiatives:

- A scientific research project that is trialling different approaches to assist regeneration of koala habitat without the need to plant trees (Figure 17). The results of this project will be published in a relevant scientific journal and the findings presented at relevant conferences.

Figure 17:

Monitoring for the restoration trial research project and some of the germinating native tree seedlings on site

- A koala conservation management forum in early 2016 will share the outcomes and lessons learnt through the project. Key topics will include multi-disciplinary regional conservation project development and implementation, fire and koalas, fire and regeneration, large scale revegetation for koala recovery, koala monitoring and landholder engagement and stewardship.
- Workshops that have and will continue to engage directly with rural and urban communities on the interface with koala habitat.
- Tweed Shire Council's 'koala road' with variable message signing, pavement treatment, community engagement and education (Figure 18) will be monitored, with results disseminated to the local community and other local government areas.

Replicable elements of the project:

- Comprehensive Koala Plans of Management to inform future decisions likely to affect koala habitat. These are available and have already been used by other local governments to improve management of koala habitat
- Improved fire management will ensure the protection of human life and property as well as the protection of koalas and their habitat. This innovative work is being compiled and published as a management plan to both guide fire management locally and for reference or application in other locations.
- Community engagement ideas including the koala tree competition (Figure 19), school education programs, koala photographic exhibitions, community plantings in collaboration with local festivals and site field days and workshops.



- The overall strategic and holistic management of the issues and project implementation has provided a model project which can be copied and implemented in any local government area.

The structure, methods and outcomes of the project meet the challenge of the imperative to deliver a truly holistic, whole of community response to koala conservation on the Tweed and Byron coasts. Through combining

and leveraging limited budgets and resources, the project has achieved significant economies of scale that deliver more successful and sustainable outcomes.



Figure 18: Local school students have played a key role in developing audience specific resources to influence driver behaviour to reduce the impacts of cars on koalas

Figure 19: Winners of the Koala Connections Tallest Tree competition Bruce and Melanie Manton celebrate with a furry local



