

Green Kangaroo Wildlife Connectivity Corridor

Kangaroo Valley's tourism partnership plan with The Great Eastern Ranges

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Executive Summary

The Kangaroo Valley Tourist Association (KVTA) has introduced a Green Kangaroo responsible tourism program to assist member businesses reduce their negative environmental impacts and encourage responsible visitor actions.

As part of this program the KVTA wants to make a contribution to conservation, not as a carbon offset mechanism but a transparent policy to make a positive environmental impact.

Connectivity conservation has been introduced into Australia several years ago and aims to link protected areas through corridors or protect them through buffer zones. The Great Eastern Ranges project includes the region running through Kangaroo Valley as it attempts to link wilderness from the Alps in Victoria to Atherton in Queensland.

The authors recommend focusing the KVTA's conservation actions to enhance the Great Eastern Range's program by establishing a Green Kangaroo Wildlife Corridor. The benefits would be:

- Enable the KVTA to make a practical contribution to conserving the natural heritage, a key tourism asset, as we all face up to the challenges and responsibilities of Climate Change
- Provide a sanctuary for injured wildlife and link with the KVTA's commitments to WIRES
- Enable the KVTA to raise awareness amongst its membership and visitors for the need for conservation
- Enable the KVTA to encourage visitor participation through donations, volunteer tourism and to respect the WIRES message to "drive carefully at dawn and dusk"
- Encourage Local Distinctiveness both by developing new products and involving visitors through displays in the Visitors Information Centre (VIC) and through internet marketing
- Demonstrate a partnership plan which could be used by the Great Eastern Ranges NGO's to further their conservation connectivity program
- Demonstrate tourism leadership and earn our licence to operate nature tourism
- Demonstrate the community's environmental ethics which could be a future support to long term development challenges
- Undertaking regular monitoring to provide feedback to the Great Eastern ranges team, community, the KVTA membership, visitors and education

This plan outlines the management structure, roles and responsibilities, and Key Performance Indicators. It also recommends that the KVTA financially supports this project by:

- Paying 5% of annual income
- Donations from visitors
- Volunteer tourism
- In-kind KVTA members action

In addition the KVTA would maximise the potential marketing benefits as an additional expense.

Preface

Tourism is the key economic contributor to the Kangaroo Valley local economy. Visitors are attracted by the scenic quality of a natural landscape created by pristine bushland, natural rock cliffs, lush paddocks of grazing farmland and the quaintness of the historical village. Accordingly, the main recreational activities for tourists are related to the natural environment. This involves scenic car drives, walking, bike riding, visiting lookouts and waterfalls, bush walking, canoeing and horse riding. During these activities visitors have the opportunity to enjoy still abundant native wildlife such as parrots, cockatoos, magpies, wrens, ducks and many other birds as well as wombats, kangaroos, and platypus in their natural environment.

Many people who live in urban environments seek to reconnect with nature, during their leisure time, and consider this an important quest for their well being. For this reason the natural heritage of Kangaroo Valley represents a core tourism asset. However, if not protected and managed sensitively, the quality and diversity of the natural environment could decline with the increasing pressure for development, land clearing and the adverse impact of climate change on the local ecology.

Research undertaken by the Climate Change Research Centre of UNSW indicates that Australia is being affected by human influenced Climate Change. Perkins, S. (2010) confirms changes in climate are occurring due to temperature increases resulting in “an increase in warmer nights, longer and more severe heatwaves, heavier extreme rainfall events, less total annual rainfall and an increase in the frequency and intensity of droughts”. These kinds of changes have already been noticed by local residents in Kangaroo Valley over the last years and will have impacts on the health of the local natural environment and farming viability.

The Great Eastern Ranges project was originally devised by the NSW Department of Environment Climate Change & Water with strategic partners and Victorian and Queensland Governments to develop connectivity conservation from the Victorian Alps to Atherton in Queensland. The concept proposes to link protected natural biodiversity areas on public land by involving private lands and other managed resources to expand native vegetation and wildlife habitat. This would reduce the limitations of isolated reserves and allow wildlife to migrate and have a better chance of survival in non-reserve areas. This programme is now being led by a partnership between Non Government Organisations (NGO) such as Greening Australia, Oz Green, Nature Conservation Trust, National Parks Association and the NSW DECCW.

While the majority of the task has been identified as the responsibility of NGOs, the authors of this report propose that tourism can also play its part by providing resources for the establishment of nature corridors. Given that tourism in Kangaroo Valley and indeed in Australia benefits enormously from the beauty of the natural world, it would be a self-sustaining necessity that the tourism industry contributes to the preservation of local natural assets.

Tourism in Australia profits from the use of the natural environment and heritage, and when unmanaged tourism impacts can lead to its degradation and to the destruction of sensitive biodiversity areas. In NSW there are over 22 million visits to National Parks (1.4 million international visitors, 1.6 million overnight domestic, 1.7 million domestic day trips and 17.3 million local residents visits – New South Wales Taskforce 2008) plus visitation to the Commons (beaches and other wilderness areas). In fact nature tourism is considered by the UNWTO as the fastest growing area of tourism. Whale watching, the penguin parade at Flinders Island, the wildflowers in Westerns Australia and diving at the Great Barrier Reef are examples where nature generates millions of dollars for tourist operators. In Kangaroo Valley visitors enjoy watching the Gray Kangaroos, Common Wombat and the many different bird species while canoeing, horse riding, bush walking or visiting lookouts.

Figures based on National Visitor Survey and an audit of the accommodation in Kangaroo Valley suggest that overnight stays could be as high as 120,000 per annum (Kangaroo Valley Tourist Association 2010) and day trip visitation could be as much as 800,000 (Shoalhaven Tourism Board 2007). The majority of visitors to Kangaroo Valley arrive in private cars and use these to reach scenic nature destinations.

The UNEP 2008 report on Climate Change Adaptation and Mitigation estimated that tourism accounts for between 5-14% of the world's GHG emissions (variation due to scientific debate about the impact of aircraft pollution in the higher atmosphere). In Australia Monash University (2008) estimated tourism's footprint at 4.9% of the national GHG emissions using the Kyoto principles (adding in-direct emissions, aircraft and cruising would increase this share).

The KVTA has been mindful of its environmental footprint and adopted an environmental initiative, called the *"Green Kangaroo – Reducing Our Footprint"* to reduce the environmental impact of businesses operating in the Valley since 2007.

To tackle the negative impact from GHG Emissions created by tourism traffic and accommodation, almost one third of members participate in carbon reduction strategies such as energy savings, greening their supply chain and accreditation. This further supports commitments made in 2003 when the KVTA launched a campaign to reduce waste and replaced plastic bags with paper bags (becoming Australia's first mainland Plastic bag Free Town). In 2010 the KVTA plans to introduce refillable water bottles and direct visitors to water refill stations provided by Shoalhaven Water.

As part of the Green Kangaroo programme, the KVTA now wishes to participate in The Great Eastern Ranges connectivity conservation programme by revegetating private land to create the *"Green Kangaroo Green Corridor"* (GKWC) and make a positive contribution to balance local carbon emissions. This complies with the KVTA's Code of Ethics and is felt to offer marketing opportunities to help build its responsible credentials as a nature tourism destination.

Objectives for Green Kangaroo Wildlife Corridor (GKWC)

The objectives for the revegetation program are to:

1. To make a positive contribution to conserving the local natural vegetation and wildlife as a resource for the future for which we have an ethical obligation as stated in the Kangaroo Valley Code of Ethics,
2. To provide local opportunities for members to sustain the local environment by donating resources, contributing time to actively improve local natural assets and environmental conditions that allow them to benefit from nature based tourism,
3. To provide channels for visitors and tourists to donate and participate in volunteer tourism that helps to sustain and protects the natural environment
4. To create a pilot project combining management system and monitoring programme that documents the environmental benefits of the green corridors over time and provides information for refining the project so that a blue print can be developed and provided to the wider tourism sector and The Great Eastern Ranges Board
5. To extend the Green Kangaroo Green Corridor theme to promote the Local Distinctiveness
6. To raise awareness and provide for injured wildlife that are looked after WIRES

Project Plan

1. Strategies for the Green Kangaroo Wildlife Corridor (GKWC)

The establishment of green corridors across farmland in Kangaroo Valley will involve the following strategies:

- *Creation of a wildlife corridor as a pilot project from Barrengarry Mountain to Barrengarry Creek by re-establishing native vegetation that will link existing wildlife habitat across cleared farmland and increase biodiversity.*
- *Planting of native trees and understorey plants to take up carbon as a contribution to counter tourism's negative GHG emissions and improve the ecological diversity of the locality,*
- *Utilization of the corridor as a wildlife sanctuary for rehabilitated native animals that are released back into the wild by WIRES.*
- *To provide advice so that KVTA members can also introduce green corridors on their properties in addition to the GKWC*

The properties selected for the GKWC are located between Barrengarry Mountain and the floodplains of Barrengarry Creek. The proposed corridor would connect the remnant bushland on Barrengarry Mountain with remnant She-Oak forest on Barrengarry Creek through planting in two gullies and across the floodplain.

The proposed revegetation project would:

- a) re-establish local native vegetation, improve soil conditions, slow water runoff and provide trees to make a positive contribution to counter the pollution for visitor's transport.
- b) also be used for the release of native animals that have been in care from injury with the local volunteers of the Wildlife Rehabilitation and Information Service (WIRES).

The proposed land has been previously cleared for grazing, and 10 years ago only a few remnant trees remained. With new owners, grazing was reduced and regrowth from the remnant has been successfully encouraged.

There is still a variety of local wildlife living in the remnant bushland and gardens in the area. More than 80 species of birds, a mob of Eastern Grey Kangaroos, rarer Wallaroos, Wallabies, Possums and Wombats are regularly sighted.

The property *Turtle ridge* with the gullies is being developed as a wildlife sanctuary. This involves the planting of native trees, creation of dams for waterbirds and encouragement of natural regeneration from remnant trees. Over the last ten years, natural regeneration has produced a crop of young Blue Gums in the gully.

As nesting holes are becoming rare, with the loss of most of the older trees severe competition for nesting holes has been observed. To assist the birds with homes for their nest, the owners have installed nesting boxes in the trees.

The owners of property Kangaroo Valley Safaris have encouraged the natural regeneration of the now locally rare Cabbage Gum and Forest Red Gums on their land. And as a result a substantial number of young seedlings are now growing on their flood plain again.

The proposed land owners are:

Brigit Earl	Turtle Ridge
Glyn and Jenny Stones	Kangaroo Valley Safaris
Brian and Ester Barger	Moss Vale Road
Mr Cogran	Moss Vale Road
John Keats	Melross

A map of the proposed corridor and properties is attached.

As part of this project other members of the KVTA will be invited to establish Green Corridors on suitable areas of their properties and thus expand this project into a network of corridors in the Valley. The costs in such situations would be borne by the KVTA member themselves.

2. Re-establishment of Native Vegetation of the site

This proposal aims at planting a variety of indigenous plants that would have naturally occurred in the gully and floodplain before it has been cleared.

The original vegetation on farmed land in Kangaroo Valley has been extensively cleared and grazed since the establishment of dairy farms in the area. As a result of intense grazing and removal of vegetation for pasture, little regrowth or regeneration of indigenous species is evident on private farm land through the base of the Valley. Few of the remnant trees from the old growth forests remain and the only opportunities for regeneration have been along the road verges and on steep slopes and sandstone outcrops.

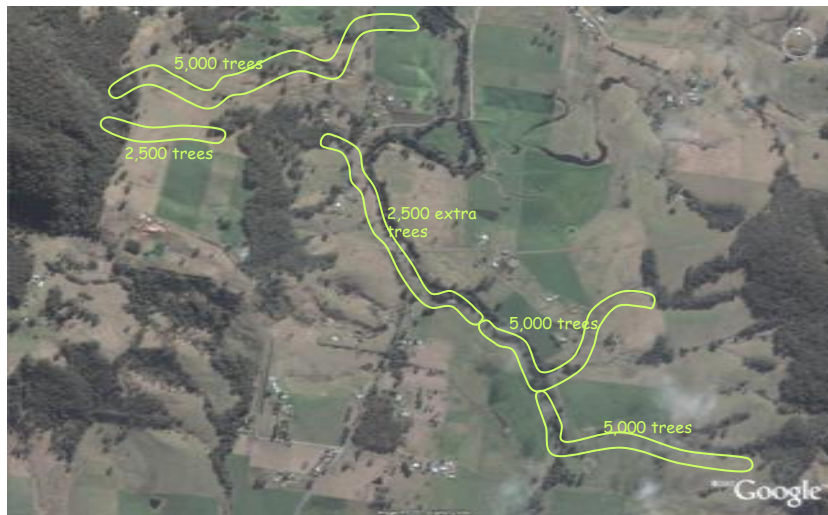
Most of the larger remnant trees are found in the road verges of Moss Vale Road and some are scattered in paddocks. These gigantic remnant trees are the last representatives and genetic resources of previously large majestic forests and therefore represent an important natural heritage. However, the remnant trees remaining in paddocks are often in a poor state of health caused by their isolation from other trees, grazing pressure, old age and severely altered soil conditions. Trees growing in the road verges are healthier and produce naturally regenerating seedlings.

Most successful regrowth of indigenous trees of the flood plains and lower slopes occurs on the roadside verges where no grazing takes place and the trees are allowed to self-seed and regenerate. The proposed corridor would expand the regeneration of road side vegetation into the gully and adjacent slopes to reach all the way up to the mountain. The aim would be the preservation of local gene pools of native vegetation and wildlife because they are best suited to the local soil, climate and ecology.

Other benefits would be the stabilization of local climate by reducing the impact of severe weather and temperature fluctuations.

The GKWC also fits with the earlier plan, proposed by Peter Stanton president of the Kangaroo Valley Environment Group, for the KVTA's carbon sink. Stanton had recommended the planting of trees in creeks and gullies in the region.

Rehabilitation of Creeks



Stanton, P. (2007) Ariel picture of part of Kangaroo Valley with creeks and gullies marked and potential carbon sink capacity indicated.

3. Trees and Carbon Offsets

Planted trees do take up and store carbon in their timber while growing. An environmental fact that has been used by some airlines and accommodation providers around the world as a Carbon Offsetting mechanism. However, the authors advise that promoting Carbon Offsets permits the travel and tourism sector to continue polluting behaviour patterns with the escape clause of negating negative environmental impacts through tree planting. Such actions would thus not reduce the travel and tourism's sectors overall GHG Emissions. Furthermore the full benefit of a tree's oxygen production would not be realised immediately as it may take up to 80 years to balance the targeted carbon emissions. Thus in preparing this report the authors have briefed the KVTA that travel and tourism activities generate immediate GHG emissions which cannot be immediately offset by tree planting. Responsible Climate Change mitigation is therefore to reduce carbon emissions rather than continue unsustainable use of fossil fuels for energy and then plant trees to take up the carbon.

The GKWC project supports the planting of native trees for environmental benefits and its positive contribution to counter the negative environmental impacts of travel and tourism but does not propose to promote this as an offset policy. It is not a mechanism to exonerate or modify existing GHG Emissions but a positive environmental legacy which tourism businesses and visitors can contribute to now.

The KVTA, its Green Kangaroo participants and other members who follow accreditation programs are committed to reducing their emissions through changed behaviour, energy reduction and the promotion of using less polluting and renewable energy sources.

4. Additional Benefits

Trees improve local climate

The increase of vegetation on cleared land in Kangaroo Valley might also improve the micro climate for grazing animals and wildlife. By providing shelter and shade tree cover assists in reducing stress due to exposure to heat and cold and as a result improving animal health and soil productivity.

It has long been established that vegetation cover stabilises the local climate and soil condition and protects the land and its inhabitants from the severe impact of sun, wind and rain. Plants, animals and human settlements are sheltered from severe weather conditions and fluctuations in temperature and exposure. Soil moisture and micro-organisms are more stable, wind and run off erosion is reduced, as the roots and leaf litter stabilise the soil and the trees provide shelter from sun and wind. This affects the productivity of the land for agriculture as well as natural resources and biodiversity.

Research by Pitman, A. (2006) and the LUCID Programme suggest that canopy cover compared to cleared land can influence localised climate and rainfall. It is also been established through research in the LUCID programme and general observation that forested land actually helps to reduce temperatures through evapotranspiration, shelter and shade. .

Trees and Water and Soil Conservation and Wind

Trees provide shade cover for riparian areas and help to maintain water flow and quality. Their roots bind the soil and prevent erosion and slow run-off, thus keeping soil moisture more stable and preventing moisture loss due to evaporation. Trees also help to provide wind breaks which also helps protect property.

5. Establishing Biodiversity

Local indigenous plants would be selected for the GKWC. The aim would be to re-establish the natural bushland that would have existed on the sites before clearing for agriculture. The plant range for the revegetation work would be selected based on the dominant tree species and their associated understorey plants found in the local bushland remnants at Barrengarry Mountain and on the flood plain. These are mainly Blue Gums (*Eucalyptus saligna* x *botryoides* intergrade), River Peppermint (*Eucalyptus elata*), Blackbutt (*Eucalyptus pilularis*), Forest Red Gums (*Eucalyptus tereticornis*), Cabbage Gums (*Eucalyptus amplifolia*) Stringybarks (*Eucalyptus eugenioides* and *globoidea*) Rough-barked Apple. In the deep gullies and on the protected slopes Blue Gums, Blackbutt, Blackwood, Brown Barrels and White-topped Box with rainforest understorey would have grown naturally.

On the flood plains, only a few remnant Forest Red Gums and Cabbage Gums occur on the creek flats with River She-oaks growing on the banks of Barrengarry Creek. Some small patches of remnant River-flat Forest can be found across the road on the Kangaroo Valley Safari property, where regeneration is encouraged by the owners.

River-flat Forest is listed as an endangered ecological community in NSW. It has become rare as a result of extensive clearing for agriculture. Along the corridor this now rare forest type would be replanted for conservation purposes.

Wildlife that may be attracted to the green corridors would be:

- a) Wide range of birds and mammals including species dependent on forests, bushy plants and water bodies that are presently in decline due to removal of their habitat could be attracted to the green corridor. These species include the smaller birds Fairy Wrens, Robins, Thornbills, Honey Eaters, Doves and water dependent birds such as Kingfisher, Grebes, and different species of ducks.
- b) Owl population could be brought back to assist in control of pest species such as mice and rats. This would include the Barking Owl, Boobook Owl, Masked Owl and Powerful Owl that all exist in the Valley and require shelter in dense vegetation during the day.
- c) Other birds that are not able to survive on cleared farmland and can be brought back with vegetation are ground dwelling birds such as Lyre birds, quails and the native Rail.
- d) Small Australian mammals also depend on forest-like vegetation for their shelter, food, nesting sites and safety from native and introduced predators. Native mammals that would hopefully expand their numbers into the vegetation corridors would be Wallabies, Bandicoots, Ringtail Possums, Brushtail Possums Sugar Gliders, and the Greater Glider.

6. Project Funding

The KVTA would provide funding for the project through:

- 5% of annual income estimated at \$1,000 per annum
- Profits from the sale of merchandise @\$7 per plastic reusable water bottle \$350
- Donations from visitors estimated at \$2,000 per annum
- Volunteer time
- Design and production of all promotional materials
- Provision for out of pocket expenses for monitoring

7. Management

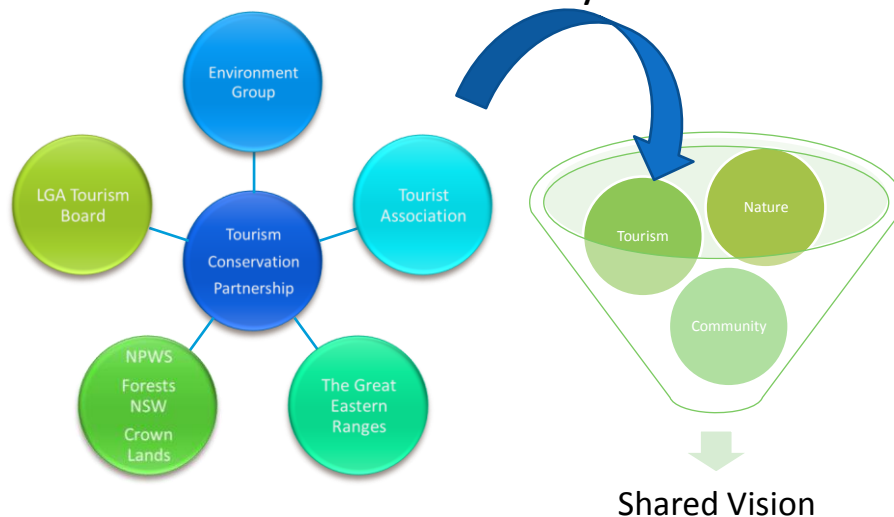
A partnership strategy

It is recommended that the project be managed as a partnership between: KVTA, the KV Environment Group, The Great Eastern Ranges – Southern Highlands Link, the Shoalhaven Tourism Board/ Shoalhaven City Council Environmental Officer, State agencies. This follows the principles learnt from the Jurassic Coast World Heritage Area working group and documented by Cochrane, J (2009).

Partnership Values

It is proposed that the partnership team share and agree on a common set of values and vision which covers community, tourism and nature. The aim is to achieve a balanced and more sustainable vision than the components pursued separately.

Responsible Tourism Partnership with Conservation Connectivity at local level



Warren, C. (2010) adapted from the Jurassic Coast World Heritage Site Steering Group – Cochrane, J.

8. Management of Project

Leadership

The project team will be:

- Brigit Earl – conservation project management
- Christopher Warren – responsible tourism management
- Southern Highlands Link/The Great Eastern Ranges

Strategic Blue Print team:

- Christopher Warren and Great Eastern Ranges

Site

Detailed geographic mapping and biodiversity audit

Community consultation and agreed MOU

Action Plan

Selection corridor by fauna species and planting schedule, manpower with the later involvement of volunteer tourism

5 year budget plan with phased tasks and costs approved

Green Kangaroo Wildlife Corridor communication plan

Team Training

Recruitment and training

KVTA membership and wider community engagement

Briefing Visitors Information Centre team and creation of Green Kangaroo Wildlife Corridor display and donation collection

Working parties schedule and inclusion of volunteer tourism

Implementing & Monitoring

Onsite monitoring

Team feedback and consultation

Monitor tasks, action achieved and costs

Monitor vegetation performance and wildlife sightings

Survey visitors, and KVTA members' awareness and donations

Marketing

KVTA to develop newsletter, website blog to update visitors and members

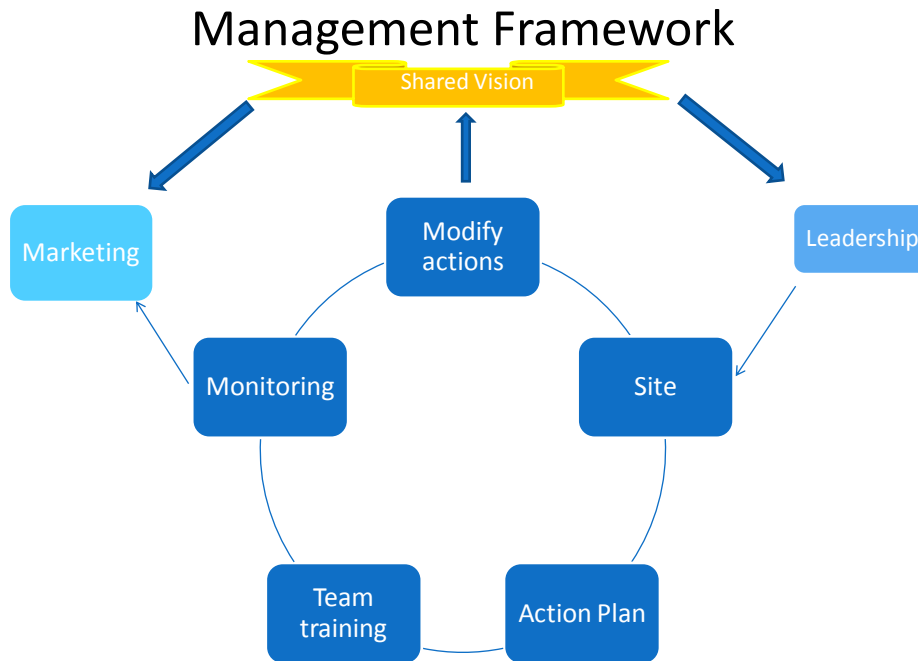
Conduct PR launch and follow up releases

KVTA members site visits and annual reports

The Great Eastern Ranges utilisation of the project

Modify Actions

Review, reflect and agree on project modifications



Warren, C. (2010) Continuous management framework integrating Responsible Marketing functions

9. Monitoring

An associated Monitoring Programme should involve the affects the new vegetation on biodiversity, soil quality, and modification of local climate. The monitoring program could provide an insight in to the speed and progress of species moving into the corridor taking up residence, breeding success or utilising it for shelter and moving from different core habitats

This would involve keeping records over several years and assessing the data based on the progress of the increasing size and diversity of the vegetation. Initially the larger tree species would have to reach a certain size before the other layers of understorey vegetation requiring the shelter of the tree canopies could be planted and regenerate naturally.

It is proposed that regular surveys would record sighted species of birds, mammals and reptiles as well as monitor plant diversity and growths. Associated with this survey work could be soil testing and temperature measurements to obtain a record of the micro climate on the site and how it changes with the increasing vegetation.

The association hopes to involve property owners, bird watching groups to keep regular records of wildlife sightings and regeneration of plant species. A more complex and scientific survey and measuring project could be established with university students undertaking a masters project or in association with research institutes which more geared and better equipped for scientific methods and record keeping and evaluation.

Of particular interest to WIRES members would be monitoring the success of released animals in establishing themselves in the new habitat. These rehabilitated animals could be tagged and monitored on the sites.

10. Blue Print

The Kangaroo Valley Green Kangaroo Wildlife Corridor program could be used as a stimulus for a wider contribution from tourism to the connectivity conservation program. This could involve key stakeholders as outlined in the table below.

Shared Responsibility	
Local Groups	Fund & In-kind , negotiate with landowners
Regional Conservation Area Team	Site selection, technical resources, monitor
Visitors	Donations, volunteer tourism
Local Government	Apply Agenda 21 principles
RTO	Domestic promotion
STO & National Parks	Facilitate
EcoTourism Australia	Included in certification, encourage local leaders, tool kit
Major tourism businesses	More than donations – integrated into their CSR
Tourism Australia	International Promotion

Warren, C. (2010) Integrated “whole of industry” involvement to maximise CSR participation from major stakeholders

Branding of the project



Warren, C. (2010) Concept design demonstrating bridging local projects with connectivity conservation program and national standard

11. Local Distinctiveness

The English group Common Ground developed the term Local Distinctiveness in 1983. The meaning is *Local* your neighbourhood local district and *Distinctiveness* meaning the plants, wildlife, the buildings and land forms that make your area distinctly different from another. In tourism destination managers often seek a competitive edge through human build environments when a deep analysis might not have been undertaken of the local natural environment.

The relevance here is that too few resources have been put to conservation and thus dramatic change of land use and Climate Change is said to be causing species extinction rates to be “1000 times greater than it would be under normal disturbances” Mackey et al 2010.

The GKWC is thus linking conservation connectivity with local flora and fauna and tourism to help emphasis when is Kangaroo Valley’s Local Distinctiveness. The programme thus becomes part of destination stewardship management and supports Kangaroo Valley’s responsible tourism destination competitive edge and provides leadership to the tourism industry.

The projects contribution to Local Distinctiveness would be:

- By offering KVTA members a focus on wildlife to link with their business themes
- By offering visitor interpretation through VIC displays, enewsletters, and supervised site visits
- By enabling KVTA members to offer volunteer tourism
- By linking native vegetation to new products and produce
<http://www.newforestnpa.gov.uk/new-forest-produce.htm>

12. Volunteer tourism

A growing market in Australia, where both i to i and Conservation Volunteers have recorded growth in both outbound and inbound volunteer tourists. Volunteer Tourism can be defined as tourists who are prepared to spend their holiday either full time or part time undertaking voluntary work for social or environmental causes. This has been a long standing tourism category in the UK with Voluntary Services Overseas.

Kangaroo Valley could further support the GKWC project by offering packages for volunteer tourists who would contribute.

13. Recommendations

- That the KVTA approve the plan and agree to a 5 year action plan with detailed budget plan
- That the Great Eastern Rangers team and the KV Environment Group work closely with the GKWC so that that project benefits from wider knowledge
- Visitor reactions are researched so that the KVTA can refine how the project can benefit its responsible marketing of the destination
- That the following KPIs are accepted

Green Kangaroo Goals and Key Performance Indicators

PEEST Matrix	Goal	KPI
Political	Local tourism action encourages Government Agencies and NGOs action to become involved in a wider plan of tourism involvement in connectivity conservation	Endorsement as a policy by EcoTourism Australia. Active participation by LGA.
Environmental	Plant out gullies	Planting achieved
	Regeneration of corridor	Seedlings and positive change in birdlife
	Monitoring	Quarterly report
Economic	KVTA supports costs	Clear project plans, actions and costs approved and met
Social	Land care agreement with property owners	Signed MOU
	Tourist participation	Donations and volunteer tourism
	KVTA members	Additional corridor projects
	Blue Print	Implementation of action plan and their evaluation, learning , modifications and match to goals
Technology	Keep momentum build awareness	Enewsletter and Blog site publicises progress

Warren, C. (2010)

14. Project Map

Seidlich-Earl, B. (2010)

