Management Plan for Witta Conservation Area

1. Background

The Wildlife Land Fund Limited and the Caloundra City Council have negotiated a Voluntary Conservation Agreement. This agreement relates to the statutory covenant (#705735334) registered on the title of Lot 7 on SP147222. The Conservation Agreement and this Management Plan cover the total area of the property. The covenant protects the native vegetation and associated habitats in perpetuity. This management plan has been developed co-operatively by the landowner and Council officers, and will outline agreed management parameters and objectives for the property. This management plan outlines the operational details that are not covered by the Conservation Agreement. The contract will in turn refer to the management plan. The contract outlines the legal framework and the obligations of both parties in accordance with the Conservation Covenant. The Council will provide financial and technical support for the term of the agreement, while the landowner will fulfil the obligations as outlined in the Conservation agreement.

2. Introduction

The Wildlife Land Fund Limited's property is located on the Maleny-Kenilworth Rd, Witta in Caloundra City, Southeast Queensland. The total property area is 7.333 hectares (18 acres) and consists of a mosaic of open pasture, remnant rainforest, rainforest regrowth areas and tall open forest. Nature conservation is the major land use and objective. In the landscape context the property lies on the northern edge of a larger 'core area' of privately owned natural habitats that extent south to Reesville these properties collectively form the headwaters of Elaman creek.

The property has been assessed by Council staff against the criteria outlined in the Caloundra City Council Voluntary Conservation Agreement policy and is eligible because of the high ecological values represented on the property, including :-

- Known habitat for threatened species of flora
- Known habitat for threatened species or fauna

A number of threatened species have been recorded within the rainforest area along the main water course. *Romnalda strobilacea* is listed as a vulnerable species under the Queensland Nature Conservation Act (1992) Nature Conservation (Wildlife) Regulations (1994) SLNo.36 of 1998, and the EPBC Act (1999). The Richmond Birdwing Butterfly host vine (*Pararistilochia praevenosa*) also occurs on the property and is scheduled as a rare plant under the above mentioned state legislation.

To date no intensive fauna surveys have been conducted, but the initial assessments suggest that suitable habitat exists for a number of threatened species of fauna. These include the Vulnerable Richmond Birdwing butterfly and the regionally vulnerable Koala. It is also considered likely that threatened species of amphibians may occur along the creek line including the Vulnerable Tusked frog (*Adelotus brevis*). The rare Grey goshawk has also been recorded on the property.

3. Geology and Landform

The geology of the property consists of two distinct base geologies. The majority of the property consists of Andesite flows and intrusives derived from North arm volcanics from the late Triassic period. The northern portion of the property at the head of the main gully below the Maleny-Kenilworth road is mapped as residual deposits and pediment slope wash, clay, scree soil derived from the Quaternary-Tertiary period.

The topography of the property is steep, with the main geographic feature being a drainage line that runs from north to south and descends via a steep rocky gully. A spur dissects the property from the northern boundary to the south-western corner, forming a second minor gully that exits the property across the south-western boundary. The elevation of the property varies from 375 metres asl on the northern boundary and falls to 250 metres asl where the main gully exits the property across the southern boundary (an average slope of 1 in 4.5m).

4. Land Use History

Prior to European settlement the property and surrounding areas would have been managed and utilised by the traditional owners. Various historical accounts mention the Bunya Pine feasts that were a meeting time for many geographical groups of Aboriginal people. These Bonyi festivals took place on or near the present location of Barron Pocket Dam, approximately 6 km to the east.

The property was logged prior to the land being opened for grazing and dairy farming. Due to the steep topography along the main gully, timber getting would have been extremely difficult along some sections of the creek.

The property was donated to the wildlife Land Trust by Mr Davies in 2002.
The property was registered as Land for Wildlife in May 2002.
The conservation covenant was registered over the property in July 2002.

5. Vegetation

Regional ecosystem (RE) mapping undertaken by the state government for the south-east Queensland bioregion at the scale of 1:100,000, classifies approximately two-thirds of the property as remnant vegetation. RE's 12.11.1 & 12.8.3 are identified as having a 50/50 percent co-dominance within the larger polygon that encompasses the property and adjoining forests. A description of each RE is provided below.

The Remnant Native Vegetation Mosaics of Lands within Caloundra City Council (*LAMR, 2000*) maps the vegetation in the larger polygon as being dominated by vegetation community V2 (40%), E3 (30%), vegetation communities V5 and V1 are also listed as occurring.

A list of plant taxa recorded on the subject land is provided in Appendix 1. To date two threatened species of flora as listed in the *Queensland Nature Conservation Act (1992) Nature Conservation (Wildlife) Regulation (1994) SL 36 of 1998*. One of these species is listed as vulnerable under the *Commonwealth Environment protection and Biodiversity Conservation Act (2000).*

There is a possibility that the following threatened plant species may also occur on the property. Ground truthing will include targeted searches for the following:-

Botanical Name	Common Name	NCA Status	EPBC Status	Vegetation community
Austromyrtus inophloia	Thready-barked myrtle	Rare	-	RF
Lepiderema pulchella	Fine-leaved tuckeroo	Rare	-	RF
Helicia ferruginea	Rusty oak	Rare	-	RF

Macadamia ternifolia	Maroochy nut	Vulnerable	Vulnerable	RF
Syzigium hodgkinsoniae	Red Lilly Pilly	Vulnerable	Vulnerable	RF
Pouteria eerwah	Shiny-leaved condoo	Endangered	Endangered	RF
Plectranthus torrebticola		Endangered	Endangered	OF

Vegetation Community Descriptions

Rainforest communities

The Remnant *Native Vegetation Mosaics of Lands within Caloundra City Council (LAMR, 2000)* maps the dominant vegetation on the property as Vine forests on basalt including *Eucalyptus grandis* (V2). It is described as one of the most floristically and structurally diverse and complex rainforest communities in the region. This community occurs in the upper reaches of the main gully below the Maleny-Kenilworth Rd. This community is analogous with RE 12.8.3.

Regional ecosystem 12.11.1 (analogous with V5) also occurs on the property further down slope along the main gully and associated slopes. This RE can be described as evergreen notophyll rainforest and/or *Lophostemon confertus* closed forest in gullies on Mesozoic to Proterozoic moderately to strongly deformed sediments and interbedded volcanics. Some regeneration is evident along the edges where the forest abuts pasture.

The conservation status of these two Regional ecosystems is summarised below (source Sattler & Williams 2000):-

Regional ecosystem 12.8.3
VMA status - no concern at present
Reserved extent – Low
In 2000 40% remained of the pre-clearing extent of 26,100 ha.

Regional ecosystem 12.11.1
VMA status – no concern at present
Reserved extent Medium
In 2000 61% remained of the pre-clearing extent of 18,600 ha.

Species composition and structure varies between these two vegetation communities according to such determining factors as geology, slope, elevation, aspect, sediment deposition, past disturbances and proximity to edges. However for the purposes of on-ground management the rainforest communities will be considered as one vegetation community and simply divided into remnant and non-remnant (regrowth) rainforest.

Open forest communities

The open forest growing along the main spur is not identified on the regional ecosystem mapping at the scale of 1:100,000. Ground-thruthing has identified this area as RE 12.11.3, which is described as tall open forest generally with *E.siderophloia, E.propinqua, E.microcorys, Lophostemon confertus, Corymbia intermedia*, rainforest species and *E.grandis* in gullies. Occurs predominantly on hills and ranges on Mesozoic to Proterozoic moderately to strongly deformed and metamorphosed sediments and interbedded volcanics but also on alluvium in headwaters of streams. Past land management practices including logging, grazing and frequent burning are likely to have resulted in the loss and alteration of much of the understorey species diversity and structure. On the subject land this vegetation community varies from the above description with the presence and relative abundance of *Eucalyptus tereticornis* in some areas.

The conservation status of this Regional ecosystem is summarised below (source Sattler & Williams 2000):-

Regional ecosystem 12.11.3
VMA status – no concern at present
Reserved extent - Low
In 2000 66% remained of the pre-clearing extent of 149,000 ha.

For the purposes of on-ground management this community can be divided into two units, the areas to the east of the spur which has a shrubby understorey with a medium to high level of diversity including rainforest species (tall open forest with a shrubby understorey).

The open forest west of the main spur track has been subjected to greater disturbance including a higher frequency of fire and grazing. This area has a sparser canopy with a grassy understorey and a higher abundance of weed species, especially groundsel.

Cleared/pasture areas

Approximately one third of the property consists of land previously managed as pasture and some grazing still occurs from the neighbours stock due to the lack of adequate fencing. The majority of this area lies below the main access track. This portion of the property presently contains limited nature conservation values, and consists primarily of introduced species of flora that will require ongoing management. Isolated individuals and patches of regrowth do exist and provide a opportunity for restoration efforts, especially along the drainage lines. The management objectives for this area and the closed and open forest communities are presented below.

6. Threatening Processes & their management.

A number of present threats jeopardise the regenerative capacity of the native vegetation associations within the conservation area. These threatening processes are identified and discussed below. Strategies aimed at managing these threats and providing for the restoration and sustainable regeneration of vegetation communities are also proposed.

Weeds

Past disturbances in combination with the high rainfall, relatively nutrient rich soils and sub-tropical climate mean that many exotic species proliferate in the area. Numerous sites within the conservation area that have been subjected to past disturbances are now threatened by weed invasion. These areas will require management to allow for natural regeneration of native species. Those exotic species that are considered to be the major threats to the regenerative capacity of the native vegetation communities are discussed separately below, as are the proposed management strategies to contain and reduce these infestations over time.

Some exotic species are not considered to be a major threat to the rainforest areas. A list of other 'non-priority' weed species is also presented below. If any of these species begin to invade the remnant forest areas and restrict natural regeneration they should be upgraded to priority status.

Declared weeds

Groundsel (*Baccharis halimifolia*) is abundant on the property and requires control as a matter of priority. This weed is classified as a class 2 weed and therefore the landholder must control infestations on their land.
Priority for control - high
Location of infestations – largely restricted to pasture areas and areas of regrowth where there has been a disturbance.
Control method – Cut stump by volunteers or engage contractor to foliar spray in pasture areas.

Disposal – Leave to break down on site, laying across contours on steep slopes.
Time frame – treat all existing plants prior to March 2005
Undertake follow up inspections and treatments annually prior to flowering in March.

Environmental Weeds

Lantana (*Lantana camara*) is abundant on the property in cleared areas and regrowth areas. Presently it is performing the beneficial function of restricting cattle access into the remnant forest and down the main water course. For this reason it is recommended to maintain an edge of lantana until such time that cattle are excluded from the property.
Location of infestations – priority areas for control are down slope of the track leading from the camp to the creek.
Control method – In open areas Lantana can be foliar sprayed or sprayed using the splatter method. Along forest edges under regrowth use the cut stump method.
Disposal – break up into short lengths <50cm and leave to decompose.
Time frame – pasture areas – when resources are available.
Forest edge after fencing is in installed & cattle excluded.

Pasture Legumes (*Macroptilium atropurpureum, Desmodium uncinatum, Neontonia wightii*) are present on the property, primarily in the pasture areas but the full extent is difficult to determine while cattle are still grazing the area. These vine weeds are especially problematic in areas that are going to revegetated. Glycine is a particularly aggressive vine that 'strangles' planted seedling. They have the potential to proliferate once cattle are excluded and will climb over regrowth and lantana infestations.
Priority for control – once cattle are excluded the priority is considered to be high. The small infestation at the top of the property on the road verge is worth controlling in the short term before it spreads further in to the difficult to access slopes at the top of the property catchment.
Control method – Hand pull individuals, chemical treatments also effective if required for larger infestations.
Disposal – leave on site to breakdown.
Time frame – once cattle are excluded monitoring should commence for infestations.

Blue morning glory (*Ipomoea indica*) a small infestation is growing on the adjoining road reserve in bushland below the Maleny-Kenilworth road.
Priority for control – High, due to the steep topography in this area it is critical that this infestation is treated as soon as possible.
Control method – cut scrape and paint where accessible. Difficult to access vines may need to be foliar sprayed.
Disposal – Leave to break down on site.
Time frame – As soon as possible. This area should be monitored on a regular basis for reinfestation and further garden waste dumping.

Other exotic vines including *Passiflora subpeltata and Araujia hortorum,*
Priority for control – Low to medium
Location of infestations – isolated individuals of white passion throughout disturbed areas and in open forest.
Control method – Hand pulling is effective for isolated plants or infestations, especially when soil is moist. Cut, scrape and paint technique is also effective for larger infestations.
Disposal – bag and dispose of fertile material.
Time frame – ongoing. White moth vine is problematic in revegetation areas. Any revegetation works will need to be monitored for its presence as it will climb and 'strangle' young trees.

Woody weeds including, *Cinnamomum camphora* and *Pinus elliottii* occur as scattered individuals throughout the open forest on the property. All of the camphors observed are not yet at a fertile age. One large slash pine is growing west of the track down the main spur.
Priority for control – Medium

Location of infestations – Scattered individuals through the open forest.
Control method – Small individuals can be hand pulled. Individuals to 10cm DBH can be cut and painted. Larger individuals can be left standing and poisoned utilising the frill technique.
Disposal – leave on site to break down.
Time frame – not urgent.

Other exotic species recorded in the Conservation area.

The majority of the species listed below are weeds of pasture that pose less of a threat to the core habitats within the conservation area. These species are largely concentrated on the edges of the conservation area and within the conservation area where past clearing has occurred. Edge management strategies and regeneration activities in disturbed patches should, in time, reduce the incidence of these species within the conservation area.

Common Name	***Botanical Name***
Cobblers pegs	*Biddens pillosa*
Blue top/Billy goat weed	*Ageratum houstanianum*
Sida	*Sida sp.*
Verbena	*Verbena sp.*
Rhodes grass	*Chloris gayana*
Kikuyu grass	*Pennisetum clandestinum*
Wild tobacco	*Solanum mauritianum*
Rats tail grass	*Sporobolus sp.*
Balloon Cotton	*Gomphocarpus physocarpus*
Mistflower	*Ageratina riparia*
Crofton weed	*Ageratina adenophora*
Yellow berry bramble	*Rubus ellipticus*
Devil's Fig	*Solanum torvum*
Giant Devil's fig	*Solanum hispidium*
Smooth senna	*Cassia floribunda*
Ink weed	*Phytolacca octandra*
Scotch thistle	*Cirsium vulgare*
Nasturtium	*Tropaeolum sp.*
Monsteria	*Monsteria deliciosa*
Coral tree	*Erythrina crista-galli*
Purple succulent	*Callisia fragrans*
Polygala	*Polygala virgata*

Garden Waste & rubbish dumping

Council to negotiate with main roads regarding the control of weeds on the adjoining road reserve above the property.
Regulatory sign to be installed in an effort to deter dumping from continuing.

Cattle grazing

Approximately one third of the total property area is presently grazed by cattle. The steep slopes and the thick nature of the edge vegetation (eg Lantana) is restricting cattle access into the main rainforest gully. In cleared areas the cattle are presently controlling pasture grasses and legumes through grazing.

An ultimate goal is to install exclusion fencing along the entire western property boundary. Discussions regarding this matter need to be instigated with the neighbour. Consideration needs to be given to the management implications once the fencing is installed. A transitional period of limited grazing and gradual exclusion using temporary electric fencing is recommended.

Existing fences are indicated on the property plan map and proposed exclusion/boundary fence is also shown.

Habitat Fragmentation

In the landscape context, habitats on the property form part of a larger core area of bushland. The majority of the adjoining bushland is privately owned. Good habitat connectivity still exists along the main water course to the south, linking the habitats to properties with bushland in the upper Elaman Creek catchment and the Reesville area. Unfortunately habitats to the north and east are largely fragmented. Resent clearing of regrowth by the southern neighbour has further reduced the level of connectivity and edge effects on the southern boundary.

Communication with neighbours, and other property owners both up and down stream is considered a crucial component in managing the remnant within the conservation area. It is recommended that Council work towards encouraging adjoining landholders, especially on the eastern side to participate in conservation programs in order to enhance the core area of protected habitat in this area.

Fire Management

An Individual property fire management planning kit which has been developed by the South East Queensland Fire & Biodiversity consortium has been supplied to the Wildlife Land Trust for development of fire management plan. It is recommended that the track running down the main spur be developed as a fire management break. This would require significant erosion control measures due its steep nature. Prescribed burns could then be conducted in the open forest with the grassy understorey. This would have the dual function of maintaining the diversity of fire dependant species in this area as well as reducing the fuel adjoining the rainforest. Fire frequency should be in accordance with the recommendations developed by the SEQ Fire & Biodiversity consortium for open forest with a grassy understorey (3-6 years).

7. Fauna

A list of taxa recorded or considered likely to occur on the property is provided in Appendix 2. The following species scheduled as rare, vulnerable or endangered under the *Queensland Nature Conservation Act (1992) Nature Conservation (Wildlife) Regulations (1994) SLNo.36 of 1998* have been recorded or it is considered that they may possibly utilise habitats within the conservation area.

Mammals	***Scientific Name***	**Status**	**Recorded (Y/N/L/P)**
Echidna	*Tachyglossus aculeatus*	Common*	L
Koala	*Phascolarctos cinereus*	Regionally vulnerable	Y
Long-nosed potoroo	*Potorous tridactylus*	Vulnerable	P
Spotted-tail quoll	*Dasyurus maculatus*	Vulnerable	P
Birds			
Grey Goshawk	*Accipiter novaehollandiae*	Rare	Y
Coxen's Fig Parrot	*Cyclopsitta diopthalma coxeni*	Endangered	P
Sooty owl	*Tyto tenebricosa*	Rare	P
Powerful owl	*Ninox strenua*	Vulnerable	P
Marbled frogmouth	*Podargus ocellatus*	Vulnerable	P
Reptiles			
Rose Skink	*Saproscincus rosei*	Rare	L
Stephens banded snake	*Hoplocephalus stephensii*	Vulnerable	P

Death adder	*Acanthophis antarcticus*	Rare	P
Amphibians			
Giant Barred Frog	*Mixophyes iteratus*	Endangered	P
Fleays Barred Frog	*Mixophyes fleayi*	Endangered	P
Cascade tree frog	*Litoria pearsoniana*	Endangered	P
Green-thighed frog	*Litoria brevipamlmata*	Rare	P
Invertebrates			
Pink-underwing moth	*Phyllodes imperailis*	Endagered (EPBC)	P
Richmond Birdwing Butterfly	*Ornithoptera richmondi*	Vulnerable	Y

*Under Schedule 5 of the Queensland Nature Conservation Act (1992) Nature Conservation (Wildlife) Regulation (1994) Sl No.474 of 1994, a number of species classified as special due to cultural significance.

Introduced fauna

A number of non-native species have been recorded on the subject land. These species pose a threat to the native populations both directly through predation and indirectly through competition for habitat resources. Council is currently working with rural landholders throughout the city undertaking control activities aimed at controlling wild dog numbers. Opportunities exist to include the property in future baiting programs that are also able to target foxes and cats at the management boards' discretion).

Threatened species specific management

Richmond Birdwing Butterfly
It is considered worthwhile mapping the extent of the host vine *Pararistilochia praevenosa*. These areas can then be actively managed free of weed incursions to allow for the spread and regeneration of this important host plant. It would be worth monitoring these vines to determine if Richmond Birdwing butterflies are actively breeding on the property.

Frogs
Surveys need to be undertaken to determine the presence of any threatened species of frogs. Runoff from the road at the top of the property is likely to be impacting on water quality. Discussions could be initiated with DMR to install a silt trap on the road verge that would capture polluting runoff, reducing the sedimentation and population of the creek.

Koala
Koala food trees should be included in future revegetation works. Species to include are Tallowood (*Eucalyptus microcorys*), Blue gum (*Eucalyptus tereticornis*) and Flooded gum (*Eucalyptus grandis*).

Coxen's Fig Parrot
While this species has not been recorded on the subject land a grant has been awarded to the Wildlife Land trust to undertake revegetation works including food trees for this critically endangered bird. The planting of locally native figs will have flow on benefits for a wider range of frugivorous fauna.

8. Monitoring of Habitat Management

Sites identified for restoration through weed control and/or revegetation should be monitored over time. Prior to work commencing in each site, photo-monitoring points should be established and marked. These points will then serve as a reference from which to take before, during and after and ongoing (ie pre and post maintenance) photos. Supplementing the photos, records could be kept in terms of the general floristic composition before and after the management works. Details

of the methods/strategies employed in terms of weed control could also be documented. In this way the relative success of methods utilised in habitat management can be gauged and improved upon over time. Annual review forms have been developed to assist with the documentation of on-ground works and to note covenant compliance.

Monitoring biodiversity

The fauna and flora lists attached as appendixes should be viewed as evolving lists that can be added to as new records are obtained. The 'Recorded' column should be altered to 'yes' when a species is observed for the first time on the property. Presently species considered 'likely' or 'possible' to utilise habitats on the property are listed. The Wildlife Land Trust has a unique opportunity to tap into a range of skills amongst its members and undertake targeted surveys for flora and fauna.

9. Priorities for Action

These depend largely on the amount of labour available and frequency of efforts.

1. Consult with neighbour regarding boundary fence construction, and opportunities for cost sharing.
2. Construct boundary fence with at least one gate & exclude cattle.
3. Purchase electric fence equipment?
4. Undertake Groundsel control by March 2005.
5. Organise control of Blue-morning glory and Glycine on road reserve land at top of property.
6. Undertake 'weed-sweep' through open forest targeting small infestations of priority weeds (eg Camphor laurel, *Pinus elliotti, Passiflora subpeltata,*).
7. Once cattle are excluded commence Lantana control along track leading from camp to creek.
8. Monitor pasture for legume infestations.
9. Control lantana from track upslope.
10. Control lantana from track down-slope.
11. Commence control efforts on lantana infestation southern portion of property.
12. Monitor natural regeneration results and commence planning for revegetation.
13. Ongoing – encourage adjoining landholders to participate in conservation programs.
14. Investigate opportunities for additional funding (eg MRCC CCCNRM NHT 2)
15. Install single garage with side door, insect screened with 10,000 litre tank, all colour bond, plus shower/toilet (these do not require planning approval).
16. Built off single garage a covered single carport to double as a covered outdoor meal/research area.
17. Establish a reserve management group.

10 Permitted uses of the designated conservation area

This property is zoned as Environment Protection under the Caloundra City Council superseded Planning scheme. Permitted uses comprise of the following (all impact assessable) Camping ground, Car park, caretakers residence, Educational establishment, Food outlet, Passenger terminal, Public purposes, Public utility and Restaurant.
Sustainable seed collection
Maintenance of vegetation along existing access tracks.
Field trips and research, including possible base for student.
Sustainable agricultural activities in the pastured areas of the south-eastern corner of the property, until such time that this area becomes the priority for restoration works
Camping in designated areas.
Maintain a mown fire break along the north-south spur.
Maintain a mown campsite under the trees below the main shed site.