

Forest Links Re-Forest.net



Case Studies from two Farm Forestry projects in sub-tropical Australia



Subtropical Farm Forestry Association

:: Bringing the forest back to the farm ::



CARING
FOR
OUR
COUNTRY





ForestLinks Project

The aim of the ForestLinks project 2010-2013 was to establish 250 ha of best practice farm forest cover by planting endemic tree species or undertaking on- ground weed management works that would help link up key habitat, wildlife corridors and connect fragmented forests. The project sought to increase conservation practice on farms that would help link up an additional 5000 hectares of fragmented forests. To achieve this, 50 farmers were to be selected from the northern rivers region of NSW and provided with the option of a grant, matched in kind to help fund the activities of the individual projects.

Increasing forest area and improving diversity on farms was achieved by methods of direct planting or forest enhancement activities. Trees were purchased from local nursery suppliers or collected and grown by the landholders. Several project sites found tackling weeds more beneficial than direct planting as they were located in areas where reduction of exotic completion showed positive results due to high incidence of natural regeneration and near abundant seed sources. Various farm management activities of our landholders include; grazing stock such as cattle, horse or poultry, organic egg production; crops such as macadamia, custard apples, rice and sustainable agriculture. A small number of farms had farm forestry ventures such as cabinet or hardwood timbers, carbon and/or biodiversity plantations. Many farms predominantly those known as “hobby farms” were ex banana, dairy cattle or grazing properties that were challenging to the current landholders in terms of landslips, soil erosion and exotic weeds.

The benefits to farmers receiving ForestLinks grants were provision of support through a grant and farm forestry plan, improving landholder knowledge by means of our field days and workshops, positive reinforcement and motivation to do the projects with support and advice, providing new works to be done also helping create local employment and networking opportunities.

Demographics of the shires also contributed towards variability of projects; however they all had a common theme. Improve diversity, protect the soil and improve water quality, and create wildlife habitat or corridors.

Project Outcomes

A total of 45 farmers participated in the project across 6 shires within the northern rivers, and an additional 188 hectares of additional land is now managed for conservation and protection of biodiversity. We have helped link up an additional 22000 hectares of forest within the northern rivers of NSW and helped to prevent spread of weeds from our project sites. An additional 10 km of riparian land is now had improvements due to changes in landuse as a result of removal of stock, fencing and tree planting activities.



Re-forest.net is a partnership between The Australian Government and Private Forestry Service Queensland to support landholders in south-east Queensland and northern New South Wales to establish and manage successful native hardwood plantations on their farms. From 2011 to 2013, the Re-forest.net project provided over 500 land managers with free adult education and training in best practice farm forestry planning, establishment and management. Over 184 hectares of best practice farm forestry was planted and managed by participating landholders on properties from Harvey Bay in the north through to Kyogle in the south. 192 hectares of existing farm forestry was thinned and over 60 landholders participated in on-ground works.

\$184,100 (\$1 per tree for 184,100 trees planted) of project funds was invested in either paying directly for seedlings or reimbursing landholders (at \$1 per tree) once their forests were planted. Landholders directly invested a total of over \$839,000 of their own funds on site preparation, planting and management of their forests. That is a public private investment ratio of 1 to 4.7.

The process of integrating productive native forest systems into the landscape involved:

1. Extension and demonstration of best practice farm forestry systems,
2. Support and incentives for farmers to carry out property management planning, forest establishment and management activities,
3. On-going advice and assistance with long-term management practices, and
4. Regular monitoring of project forests via growth plots, plantation audits and biodiversity assessments.



Ringtail Ck - Tewantin National Park

Compartment 5D - GYMG99702

Gympie messmate (GMS) area:

12.3 Ha

Planted: December 1961

Previous land use: Banana cropping

Harvested under the SEQ Forests Agreement. Following harvest, the plantations are to be left to revert to native forest to become part of the reserve system.



“Biggest issue was probably limbs and unsound knots which lead to a lot of poles being cut back to logs but that is a pretty standard GMS issue. Overall it was good GMS with good form and most of the limbs cut ok.” – Daniel Hall – Forest Ranger in Charge (QLD DAFF)

There are approximately 300 Ha of pre-1996, state-owned eucalypt plantations in south east Queensland. Compartment 5D within the Tewantin National Park (formerly Ringtail State Forest) is being harvested by the Queensland Department of Agriculture, Fisheries and Forestry before the plantation sites are transferred to the national park reserve.

A 2.8 hectare area of Gympie messmate plantation was harvested over a 3 month period at the end of 2007. The plantation was 48 years old at harvest and only 50% of the trees were harvested to allow retained stems to revert to native forest. The following products were harvested (2007 value):

- 180 m³ of sawlog with a total value of \$13,500
- 3881 lineal metres of electricity poles with a total value of \$126,500
- 218 lineal metres of girders with a value of \$22,000

Total value = \$161,000 from 2.8 Ha, so \$57,500 per Ha

Lessons

- ❖ Gympie messmate can be grown commercially in a plantation
- ❖ Plantation-grown Gympie messmate electricity poles can be accepted in the market
- ❖ Management activities that restrict branch size will potentially increase the value of your plantation.
- ❖ So, it can be done!

The Bluff - Andurambah

Landholder: Susan Lee

Property area: 455.38 ha

Land-use: Grazing and timber production.

Planted forest area: 3.2 ha

Planted: March 2011

Previous land use: Grazing

Species planted: *Eucalyptus pilularis*, *E.longirostrata*, *E.cloeziانا*, *E.siderophloia*, *Corymbia citriodora subsp.variegata*.



Photo on the left shows the newly planted forest and retained native blackbutt (*E.pilularis*) trees in June 2011. Photo on the right is taken from approximately the same position in March 2013 (note the remnant native blackbutt on the right).

“Thanks for your complimentary remarks - we haven't always done as asked as promptly as you might have liked but we do try! My biggest battle is to stop Alan trying to do everything himself, instead of asking for help when we clearly (to me) lack time, energy and appropriate equipment.” - Susan Lee

“It is a lovely plantation, I am longing for the day when we can reduce cattle work .. so that I can do more over there. I think the appearance of the plantation is a great advertisement for the project, which has impressed everyone that passes it as they come down Bluff Rd.” – Susan Lee

Moy Pocket – Mary Valley

Landholders: Ian and Margaret Bunce

Property area: 92.22 Ha

Land-use: Grazing and timber production.

Planted forest area: 3.25 Ha Gympie

messmate and spotted gum, 1 Ha hoop pine, 1.05 Ha rainforest revegetation.

Planted: October 2011

Previous land use: Dairy and beef.

Features: Integration of retained native vegetation with plantation.



Photo on the left shows the Re-forest.net project site in relation to past plantings, native forest and the Mary River (bottom right corner). Photo on the right shows the landholder's past plantings and forest management work that include mixed eucalypt plantation, rainforest revegetation and native forest management.

The Bunce family have owned and managed their property on the Mary River since 2002. This landscape consists of river flats, dry mid slopes, native dry sclerophyll forest country and patches of remnant australian notophyll vine forest. The owners embarked on a mission to re-forest all of the mid slopes, using a combination of commercial eucalypt plantation and revegetation to link remnant scrub patches. Cattle are crash grazed through the plantation units as they are moved from the native forest down to the river flats.

Incentives provided by the Re-forest.net project have enabled the owners to complete the re-forestation of their mid slopes. This final planting site was the most marginal site on the property, with dense lantana and camphor laurel infestations, steep slopes, surface rock, land slips and access issues. The re-forestation of this site involved the construction of access infrastructure (red lines on map), re-fencing, removing and treating weeds (see photos next page), and carefully site-prepping around retained native trees. A combination of eucalypts and hoop pine were established on the site. In addition to the marginal site, the owners also established another plot of rainforest revegetation, linking past rainforest plantings with remnant scrub.



Corndale – Wilsons River Catchment

Landholder: Robyn and Peter Stansky

Property area: 45 Ha

Land-use: Macadamia production, cattle grazing.

Local Government Area: Lismore

Tenure: 12 years

The aim of the ForestLinks project was to assist Robyn towards weed control and forest enhancement works on the southern remnant, and help towards cost of trees for Koala and native faunal habitat.

The south riparian remnant and regrowth

There is high bird activity here, high diversity of flora and a creek running through with cascading waterfalls and a small cliff face. Birds can be seen and heard and there are many hollows and rocky areas valuable for wildlife. Mosses and fungi are also abundant.

Priority weeds such as lantana, privet, and some larger native vines were controlled to free up native trees and to encourage native regeneration. Native raspberry was deliberately left alone to provide habitat for birds as compensation for loss of lantana habitat.



Figure 1 Farm View



Figure 2 Riparian forest

Results

Improvements to the canopy can be seen in areas where large vines were controlled to free up the native trees. Regeneration of natives has increased from minimal natural occurrence to excellent regeneration particularly in areas frequently worked on (see Figure 2).

As a result of works many native species are coming up with species such as brown kurrajongs, black bean, native peach, sandpaper figs, bleeding hearts and macaranga plus many more.

Improving soil and water

The project area covers 500 m of riparian land that has been fenced to prevent cattle access. Robyn took care of weed control methods on areas that were more open due to less vegetative cover. These areas were weeded by hand to protect the soil particularly due to its close proximity to the water course. Additional planting works was also achieved to protect the quality of water to help soak seepage up higher above the remnant. This planting site was done on a small open area within the remnant. Across this property there is more than 3 km of creeks and drainage lines.

Habitat enhancement

The property forms part of an important koala movement corridor which links key habitats and corridors for koalas from Dunoon to Rosebank. Koalas have been regularly sited on the property.

Approximately 200 additional trees have been planted as a result of the project. A mix of koala preferred eucalypts were planted with a selection of suitable natives adjoining the main remnant in a laneway/corridor design which is fully fenced from stock. Robyn has also planted in other areas across the property and made fencing to keep stock out (see Figure 3)

Results

Increases of wildlife habitat, specifically Koala usage of the newly planted trees is not yet evident yet as it is too early to monitor any changes to use over time from this project. However, a koala was sighted next door within a one year old Forest Red gum seedling that was planted by the owner for habitat use. This shows positive results and provides inspiration to plant for Koalas in this area.



Figure 3 Koala pocket planting & laneway planting

Anderleigh – Gympie Region

Landholder: TNP Partners

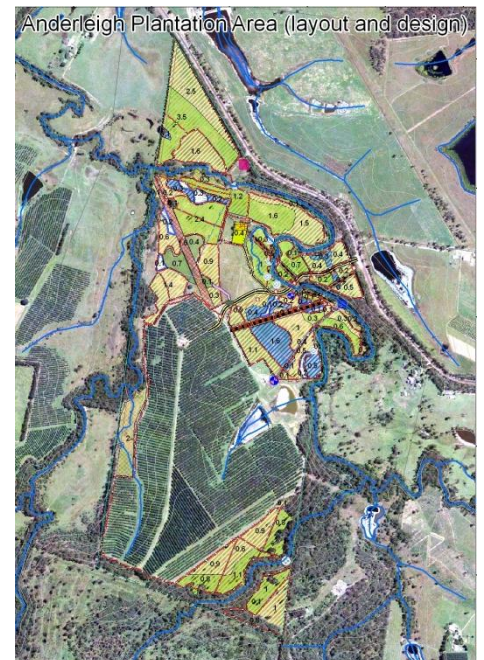
Property area: 130.16 ha

Land-use: Macadamia's on the well-drained, fertile soils. Remaining land is low-lying and has been used for marginal grazing.

Planted forest area: 21 ha

Planted: June 2013

Dominant species planted: spotted gum and Gympie messmate.



“Assistance from the Re-forest.net project has enabled us to establish endemic plantation in the more marginal areas. Without the incentives, we could not have justified the cost of establishing forest in these non-commercial zones.” – Tim Salmon, Manager TNP Partners

Stage 1 of the plantation establishment consists of four different forest types.

Forest Type 1 – 8.5 ha located on the skeletal upper slopes and on the lower sites with poorer drainage characteristics. 80% spotted gum (*Corymbia citriodora subsp. variegata*) and 20% mix of grey Ironbark (*Eucalyptus siderophloia*), grey gum (*E.propinqua*), Gympie messmate (*E.cloeiziana*), and white mahogany (*E.acmenoides*).

Forest Type 2 - 10.9 ha located on deeper soils with good drainage and high nutrients. 80% Gympie messmate (*E.cloeiziana*) and 20% mix of spotted gum (*C.citriodora subsp. variegata*) grey Ironbark (*E.siderophloia*), grey gum (*E.propinqua*), and tallowwood (*E.microcorys*).

Forest Type 3 – 1 ha located in areas with impeded drainage. Mix of swamp mahogany (*E.robusta*), red mahogany (*E.resinifera*), forest red gum (*E.tereticornis*), grey gum (*E.propinqua*), flooded gum (*E.grandis*), grey ironbark (*E.siderophloia*), pink bloodwood (*C.intermedia*), spotted gum (*C.citriodora subsp. variegata*), *Melaleuca quinquenervia*, *Melaleuca leucadendra*, *Casuarina glauca*, *Casuarina cunninghamiana*.

Forest Type 4 – 0.4 ha located in riparian flood zone. Enrichment plantings of forest red gum (*E.tereticornis*), *Melaleuca viminalis* and *Syzigium floribunda*.

Aim: to create a mix of endemic commercial and non-commercial forest across a site that is marginal for agriculture and that will supplement the primary agricultural enterprise and link riparian vegetation with remnant vegetation in the adjacent Gympie National Park.

Sealeys Road - Harrisville

Landholder: Peta Shera and Gerard Salmon

Property area: 20.85 Ha

Planted forest area: 9.67 Ha

Species planted: grey gum (*Eucalyptus longirostrata*), spotted gum (*Corymbia citriodora* subsp. *variegata*) and *Casuarina glauca* in wet sites.

Planted: 2011

Previous land use: Grazing for beef production.

Features: Landholder capacity building and education.



“What we are really happy to see is that the grass and weed growth is already significantly reduced under the grey gums – so there is an end to the spraying in sight.” – Peta Shera

Peta Shera and Gerard Salmon both had a life-long dream to grow a forest. When they found the right block of land on the Cunningham Highway at Harrisville, they began researching and seeking advice about species, site preparation and silviculture.

Peta and Gerard attended field days and workshops, building their knowledge, capacity and experience. Peta decided that she could grow her own planting stock for the project and set up a professional nursery space in which to carry out their plans. They acquired the appropriate seed sourced from seed orchards and grew high quality stock for their planting. Peta and Gerard used single-tree site preparation and engaged contractors and family members to assist with the planting. They have undertaken all plantation maintenance to date, and the results are impressive. The site has been used to demonstrate farm forestry systems, and permanent growth plots have been established in the *E.longirostrata* areas. The soils on this site are marginal at best, with heavy clays and impeded drainage. The success of the plantation on such a marginal site is due to the landholder’s commitment to best practice and the consistency of their management.

Vital attributes of a farm forester:

- ❖ Attention to detail.
- ❖ Long-term commitment to the vision.
- ❖ Innovation, consistency, dedication and determination.

Symonds Road– Nimbin, NSW



Landholder: Van Der Kallen and Morgan.

Property Location: Blue Knob

Project Area: 5 ha

Planted: December 2011

Previous land use: Banana dairy farming, grazing, forestry.

Current Land use: hardwood plantations, biodiversity refuge.

Forest type Planted: Wet Eucalypt forest (wet sclerophyll) and dry rainforest species planted on cleared and degraded ex-grazing land.

Features: Located adjacent to World Heritage listed rainforests of Nightcap National Park.

Challenges: Very difficult site- steep and rocky slopes.

The dry rainforests of Eastern Australia have been largely cleared for agriculture, and this reforestation project has provided a refuge for key flora and fauna to flourish on the edge of one of most complex and rare biodiversity refuges in Australia.

The subtropical rainforests of Eastern Australia represent one of the world's best examples of ancient and rare rainforest communities. These forests have been recognised by the UNESCO World Heritage Listing as an area of global biological significance. The Forestlinks Project has been involved in restoring forest cover on private land on the edges of this important biodiversity refuge, adjoining the Nightcap National Park. At the edge of this National Park, local landowners and the SFFA have been working hard to restore forest cover and integrate land management practices to enhance the protection of these World Heritage Areas.

The Forestlinks Project at this site, owned by the Van Der Kallen and Morgan family, focussed on restoring forest cover on a very challenging part of their land.

Both the landholder and the Forestlinks Project have joined forces to plant a broad range forest seedlings on over 5 hectares of steep and very rock slopes. The project also provided guards to protect the young trees to ensure that the trees get the best start. The Forestlinks project has also integrated the planting program into the broader objectives for the site by linking remnant vegetation on the property boundary with riparian areas, in the upper Richmond catchment. So this planting has been designed to enhance the biodiversity values of the property and to also improve water quality in this key catchment.

Lessons across case study sites

- ❖ An excellent example of using low intensity site preparation techniques to establish tree cover on difficult sites.
- ❖ Planting design that aims at integrating biodiversity and water quality improvements into land management.
- ❖ Incorporation of a broad range of species to enhance the nectar and fruiting resources available to native fauna and insects.
- ❖ So, it can be done!



ForestLinks Field Days

Davis Road - Jiggi

Landholder: Morris

Property Location: Jiggi

Project area: 5 Ha

Planted: 2010-12

Previous land use: Bananas, cropping, dairy, beef.

Current Land use: Plantation forestry, bush foods plantation, renewable energy.

Forest type planted: Sub-tropical rainforest, dry rainforest and wet eucalypt forest (Sclerophyll), including: Spotted gum and a mixture of endemic rainforest species.

Features: Elevated site with beautiful rocky creek and some isolated remnant vegetation .

Challenges: Very Rocky site, steep slopes and lots of browsing of trees



The owners of this site, the Morris family, have been planting trees on their 40 hectare property over the last seven years with an eye to integrating biodiversity into other agricultural activities. The Project funding and support has enabled them to plant additional trees and link a series of biodiversity forest corridors across their land.

The Forestlinks Project has been involved in restoring forest cover on the edges of prime agricultural land in the valleys surrounding Lismore, in northern NSW. This extremely productive part of the country has been supporting a range of industries since settlement. Firstly, valuable timber such as red cedar was cut from these coastal and hinterland catchments. Then once the forests were cleared, a vibrant dairy industry was established. On the steeper slopes often bananas were grown. Then as the markets changed the dairy industry made way to beef production and bananas were abandoned. On these often degraded agricultural lands local landowners and the SFFA have been working hard to restore forest cover and integrate land management practices that restore biodiversity. The Forestlinks Project at this site, owned by the Morris family, focussed on supporting their efforts at restoring forest cover on over 5 hectares of previously cleared land. The Forestlinks project has helped to link remnant vegetation on this property with that of two adjoining landowners, to make a real difference to the biodiversity values of the upper Jiggi Valley.

DALWOOD – Northern NSW

Landholder: Phil and Patti Stacey

Tenure: 33 years

Property Location: Dalwood

Project area: 1 Ha

Planted: 2012-13

Current land use: Custard apple production

Forest type planted: Sub-tropical rainforest.

Features: The property is adjacent to the Victoria Park Nature Reserve which is one of the last surviving remnants of the original “Big Scrub” rainforest and forms part of an important corridor between Tuckean Nature Reserve to the south and Uralba Nature Reserve to the east

Challenges: Very Rocky site, with difficult access and browsing of trees from resident wallabies.



The 23 hectare property has been owned by Phil and Patti Stacey for 33 years and is currently managed primarily for custard apple. Stock consists of horses and a goat within fenced areas. Both Phil and Patti have a keen interest in biodiversity and have been collecting their own native seed for a number of years and they have planted more than 30 different rainforest species across the property over this time.

The ForestLinks Project provided assistance towards planting a one hectare site with rainforest species to improve the diversity of the site. Vegetation existing in this section of the property is riparian rainforest to the east and camphor dominated forest to the west. One section of the camphor forest is showing higher diversity of rainforest regeneration due to stock exclusion for over 30 years.

The Planting Site

1000 rainforest trees have been planted by the Patti and Phil in two stages.

The planting was done at 2 metre spacing to quicken the time for site capture and reduce the maintenance schedule over time. The site can be difficult to maintain due to its rocky nature and is in an area that is not readily accessed. Stage 1 planting of the first 500 trees occurred during August 2012 just prior to a dry hot period resulting in trees having to be watered. This planting had a 10 % loss due to some species not suited to the site, minor wallaby browsing and most likely the drier conditions at time of planting. Trees lost were in filled with black bean seedlings collected and propagated on site for planting on the property.

Stage 2 of the planting with an additional 500 trees was completed in March 2013. These trees are doing well. All works were done by Phil and Patti and they contributed well over the required in kind commitments with site preparation, establishment, maintenance, machinery and equipment.



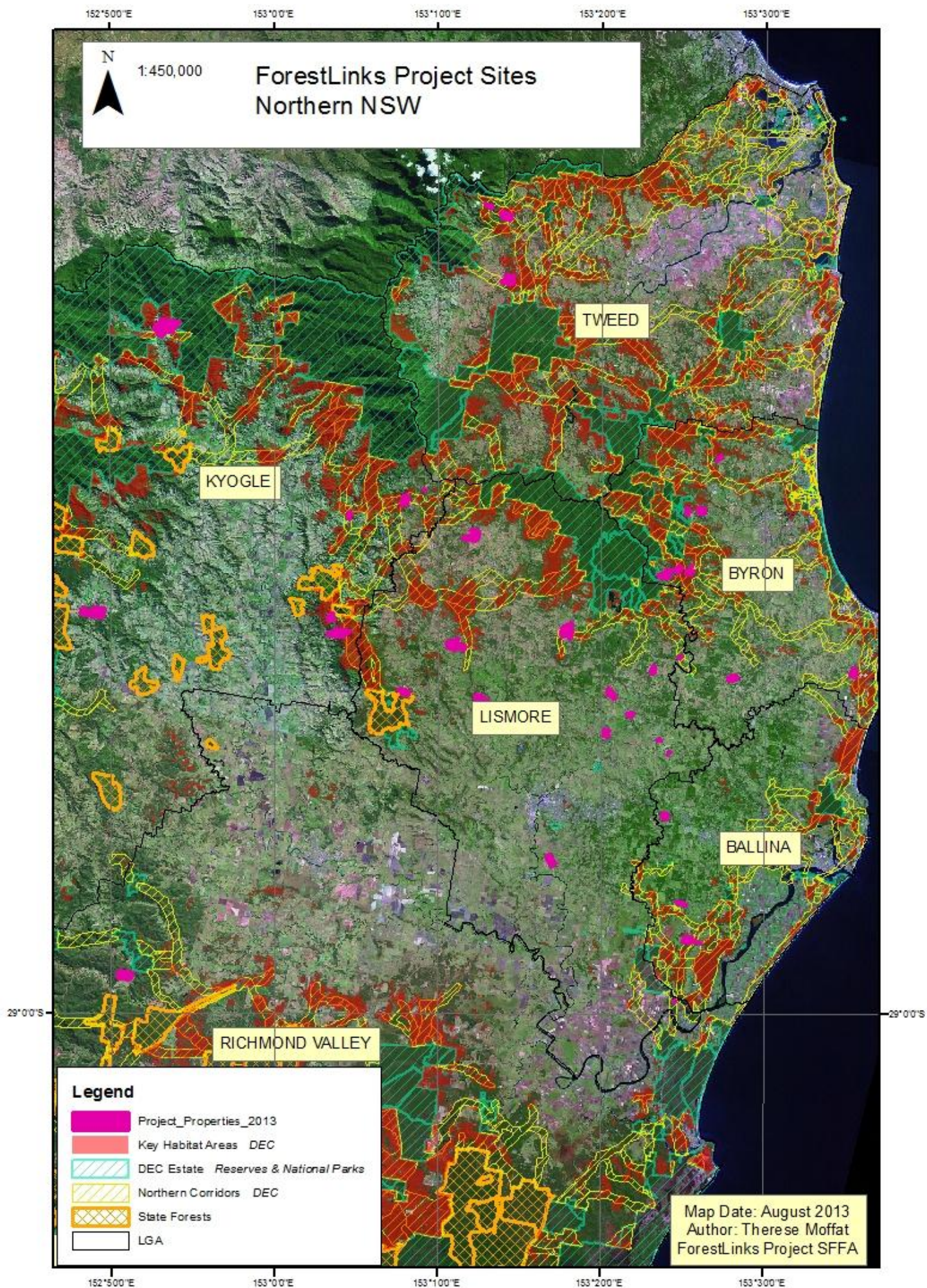
Figure 4 Stage 2 planting. March 2013



Figure 3. Planting site next to forest

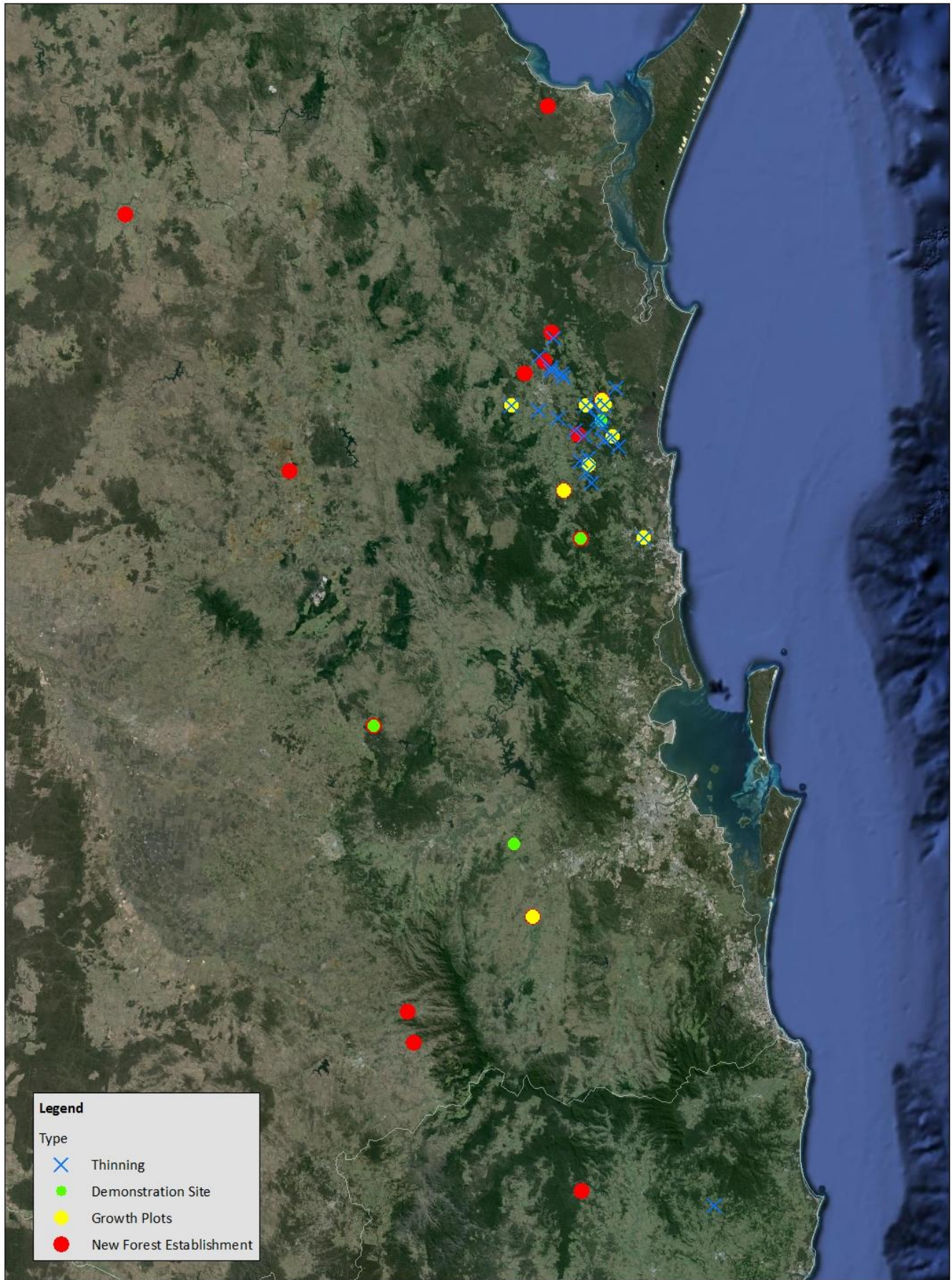
Lessons

The site is difficult to maintain and the grass grows quickly. The plastic wallaby guards seem to be posing a problem with some collapsing in onto the trees from the rain water. This has impacted some trees. The Stacey's are motivated to keep planting and help restore the bottom paddock area. This help to reduce the landslip risk in an area that has slipped previously. They would also like to regenerate the camphor dominated forest back to rainforest.



Project Sites





Farm Forestry Integration Project Sites

25,000 12,500 0 25,000 50,000 75,000 100,000 meters

Scale 1:118,000 centimeter = 11,800 meters (original size A3)



CARING
FOR
OUR
COUNTRY



Version: 1.0
 Date: 23/08/2013
 Author: [Name]
 Project: [Name]

Top Forestry Road - Ridgewood

Landholders: David Black and Kitty Kinivan

Property area: 6.84 Ha

Planted forest area: 2.5 Ha

Species planted: Gympie messmate (*E.cloeiziana*), Spotted gum (*Corymbia citriodora* subsp. *variegata*) and a mixture of endemic rainforest species.

Planted: 2001

Previous land use: Cropping, dairy, beef, subdivided for real estate.

Features: endemic understory has established beneath the timber plantation.

Gympie messmate has very



"I am a jeweller, and all my life I had been working with tiny objects under a magnifying glass. Establishing a forest was completely alien to me and required a whole new perspective." – David Black

David and Kitty bought their property in the Noosa hinterland in 1996. Like many rural subdivisions, the land had been sorely neglected following the cessation of agricultural production. The existing vegetation consisted of senescent black wattle interspersed with large woody weeds and an understory of lantana. Topsoil had long since washed away and the majority of the site was inaccessible.

With no previous experience in dealing with these issues, David sought advice from a local farm forestry extension officer and undertook a steep learning curve; attending field days, workshops and bus trips to build his understanding. With assistance from a local farm forestry incentive program, David cleared the weeds, built access infrastructure and planted a forest on all of their available land.

The property is a mosaic of very productive commercial timber species (mainly Gympie messmate), patches of revegetation with endemic rainforest species, adjoining regenerated native forest, and intensive soil stabilisation with lomandras and shrubs. The commercial plantings reached 'canopy closure' within 18 months and soon after, endemic understory species began recruiting beneath the plantation. On-going management includes lantana control, thinning the plantation and maintaining access infrastructure.

Lessons

- ❖ Canopy closure, resulting from effective forest management, increases small bird activity which, in turn results in recruitment of endemic understory species.
- ❖ So, a productive forest creates a more biodiverse forest.