west from their original habitats in 2009. All new seedlings were growing well in the first year and 16 were left after extremely dry season in 2010. There are 100 seedlings are replanted in their original habitats in 2010. Based on the records, all replanted seedlings grow well. They grow 4.78 cm in height in average from them were replanted. The best one grows 11 cm. This critically endangered oak can be rescued with humans intervening. The project is supported by National Natural Science Foundation of China (3070056) and Yunnan provincial fund for applied basic researches and by the national fund for natural science (2008CD165).

P0034 – ePoster

Variation in plant communities and species composition along the microtopographic changes at the Lienhuachih Forest Dynamics Plot in Central Taiwan

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The variations of the forest composition are primarily governed by topographic and climatic factors. How microtopography and microclimate affect the forest communities and species composition at one stand-level need direct and quantitative analyses. In this study, we investigated how the plant communities and species composition varied across fine-scale environmental heterogeneity at the Lienhuachih broad-leaved forest dynamics plot. All free-standing woody plants with diameter at breast height >1 cm of a 25 ha Lienhuachih FDP were identified, measured, tagged and mapped at every 20*20m^2 subplot. Four plant communities were identified and represented with dominant and indicating species based on two-way indicator species analysis (TWINSPAN). The *Syzygium buxifolium – Pasania nantoensis* type locating on the ridge and the highest elevation was with the highest stem density. The *Schefflera octophylla – Cryptocarya chinensis* type locating on the upper slope was with the fewer stem density. The *Cinnamomum subavenium – Cryptocarya chinensis – Tricalysia dubia* type locating on the lower slope was with lower stem density but the highest species richness. And the *Machilus japonica* var. *kusanoi – Helicia formosana – Neolitsea konishii* type locating on the valley or creak bank was with the lowest stem density. Further studies using Canonical correspondence analysis (CCA) were used which confirmed the results of TWINSPAN. The first axis showed that convexity and elevation are the most important factors and the second axis showed that aspect is the important factor. Plant community and species at Lienhuachih FDP obviously differentiated in quantity and basal area relating to microtopography. It is possible that different microtopography influences the soil formation and so that affects the plant biomass and community types. It is also possible that, when disturbances occur, the reaction process and degrees from different microtopography are varied and result in the temporal variation in plant community and species distribution.

P0035 – ePoster

Regeneration of tropical *Acacia* species in response to fire

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Most acacias are well known to regenerate prolifically from the soil seed bank following fire; however, some species have been observed to resprout from the base. This study examines the germination and resprouting behaviour of 8 species – *A. cincinnata*, *A. crassicarpa*, *A. flavescens*, and *A. mangium* from tropical coastal woodlands and forests, and *A. elachantha*, *A. hyaloneura*, *A. platycarpa*, and *A. ramiflora* from the inland woodlands of White Mountains National Park in North Queensland. Seeds of each species were subjected to dry heat at 40, 60, 80, 100 and 120°C and in water at 60 and 80°C for 5 minutes, and then incubated at 28°C. Highest germination percentages were found for most species after treatment with 80 or 100°C dry heat or 80°C wet heat. Some 49% of seeds across treatments germinated over the first 140 days, whilst 10% of the remaining seeds germinated over a further 614 days, with one third of seeds remaining potentially viable after this time. In a pot study of resource allocation, eight individuals of *A. cincinnata*, *A. crassicarpa*, *A. flavescens*, *A. mangium*, *A. platycarpa* and *A. ramiflora*, 6 individuals of *A. hyaloneura*, and 3 *A. elachantha* were grown in 200 mm pots for 18 months. After harvesting the above-ground biomass, all of the wattles resprouted from the base, except *A. hyaloneura* and *A. mangium*. To further examine resprouting behaviour, nine 12 m x 12 m plots, separated by 4 m fire breaks, were established. Acacias were planted at a spacing of 1.5 m x 3 m. Three replicates were allocated randomly to the three treatments – control, burnt and clipped. Seedlings were planted between October and December 2003, most by the end of November. Ten individuals of *A. crassicarpa*, *A. flavescens*, *A. ramiflora* and 8 of *A. elachantha* were planted in each plot, alternating between species. Fewer individuals of *A. mangium* (10), *A. platycarpa* (9), *A. cincinnata* (10) and *A. hyaloneura* (2) were available, and these were planted in even numbers across plots. Three plots were burnt on August 2004. In 3 plots, the wattles were cut 3 cm from the base on September 2004. Surviving plants were measured in September 2004 and September 2005. Only one individual each of *A. crassicarpa* and *A. mangium* survived the fire treatment, while 3 individuals of *A. crassicarpa*, and one individual of *A. ramiflora*, *A. elachantha* and *A. mangium* survived the clipping treatment. Hence, survival was low, probably due to the competition from a high biomass of Guinea Grass (*Megathyrsus maximus*), and the intensity of the fire fuelled by the high fuel load. The results indicate that germination of most species is favoured by a heat shock at 80°C for 5 minutes. All species but *A. hyaloneura* showed some ability to resprout, but few resprouted following an intense fire. For management

purposes, low intensity fire may promote resprouting of many of these species, but high fuel loads, such as result from invasive grasses, will not favour resprouting.

P0036 – Poster

The real cost of carbon

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Carbon credits can be used to fund broad-scale restoration in the dry woodland landscapes of southern Australia, once a price is placed on carbon in Australia. The State Government of Tasmania (Climate Change Office), Greening Australia and the University of Tasmania have a $million project underway to demonstrate the practicality of this proposal. The ecological objective of the restoration project is to buffer and connect isolated remnants of native forest in the dry Midlands of Tasmania in a way that will improve landscape scale connectivity in the face of climate change. Restoration plantings are designed to be biodiverse plantings of local native species (trees understorey, shrubs and ground cover) that reflect the forest structure and species composition of the 'original' forest thus optimising the biodiversity benefits of the restoration. To achieve the project objective we had to:
1. Determine the potential carbon storage in the dry forests in Tasmania (this was approximately 200t/ha C or 730t/ha CO_2e)
2. Work with landholders and legal advisors to develop 130 year covenant agreements to secure our ownership of the Carbon in the trees while farmers owned the land
3. Choose land and agree on price with landholders
4. Adapt plantation forestry techniques to suit slow growing trees in a dry environment exposed to high levels of weed competition
5. At the three 30 ha sites chosen for the project, conduct replicated factorial experiments to identify: (1) the most suitable genotypes of the hardy local native eucalypts (provenance trials involving 450 families of *Eucalyptus pauciflora*); (2) the species mixture that would maximise productivity and carbon gain. Treatments were: single eucalypt species, mixed eucalypts, eucalypt and *Allocasuarina*, eucalypt and *Acacia*, eucalypt and *Callitris*, eucalypt and *Bursaria*, *Allocasuarina* monoculture, *Acacia* monoculture, grass and untreated control. Each of the species mixtures were planted with or without mixed species understorey. The real price of growing carbon that will also provide improvements in landscape scale biodiversity has to take into account of the pioneering work outlined in the points above. However, once this technology is streamlined and commercialised we consider that carbon sequestration could provide an additional income stream to farmers on the low quality grazing country (steeper slopes and slower soils) and provide a new industry and employment in the dry landscapes of Australia.

P0037 – ePoster

Genetic conservation of *Ficus bonijesulapensis* R.M.Castro (Moraceae): landscape approach

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Ficus bonijesulapensis is endemic to deciduous forests on rocky outcrops and are distributed in disjunct areas of Cerrado and Caatinga. Species of this genus are considered key resources in tropical forests providing food during the periods of scarcity of other resources and, additionally, help in restoration of plant communities. Therefore, conservation of these species in its natural range while maintaining the structure of communities, contributes to the maintenance of the viability of populations in the long term and their genetic diversity. This diversity is directly linked to the evolving capacities of the species response to environmental changes. The identification of genetic discontinuities between populations performed by Delaunay triangulation helps to detect barriers that limit the gene flow among populations and the existence or not of spatial patterns in order to delineate management units (MU) of genetic diversity. We used ISSR primers to analyze the diversity, structure, spatial patterns of genetic variability and discontinuity of 15 populations of *F. bonijesulapensis*. The genetic diversity (He) was 0.37 and the percentage of polymorphic loci was 100%.The AMOVA showed that most of the diversity is within populations (77.18%) as expected for outcrossing plants and perennials. This may reflect the low gene flow (1.0), which is probably limited due to the isolation of outcrops where *F. bonijesulapensis* occurs, added to the different surroundings landscapes. The genetic structure inferred by Bayesian analysis showed that the genotypes of all sampled individuals can be divided into six groups. However, there is a spatial pattern of genetic variability according to multivariate correlogram profile and that was confirmed by the Mantel test correlating the genetic distances (θ β) and geography (r=0.06, P=0.68). The analysis indicated that genetic disruption of the barriers among populations could be mainly mountain ranges and rivers. Six management units (MU) were proposed according to the location of genetic discontinuities, the values of diversity of populations and their geographical location. The aim was to enhance the MU's ability to maintain minimum viable populations and greater genetic variability.

P0038 – ePoster

Photoperiodic induction of synchrony in *Annona crassiflora* Mart. in the Cerrado southeast Brazil

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Phenological behaviour among tropical trees has been a long-standing question for ecologists. Plant phenology in Cerrado trees seems not be driver by single cue and appears to be lead by biotic and abiotic interaction over a