

Trees for the Evelyn and Atherton Tablelands Inc The right tree in the right place for the right reason



Mabi Forest TREAT & Wildlife Resources **Projects**

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by Wally Coutts and Bryony Barnett

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TREAT News Storm Season October - December 2005

The Lower Peterson Creek Revegetation Project

Every Friday morning, when TREAT members are gathered at the nursery, preparing seeds and seedlings for next season's plantings, another small group of volunteers (mostly TREAT members) can be found busily working on the banks of Peterson Creek at Yungaburra.

Home

The Lower Peterson Creek Revegetation Project began in 1998 when a group of Yungaburra residents, under the leadership of David Leech, met to discuss concerns about the degraded state of Peterson Creek which skirts the township's western boundary. At the time, problems in the upper reaches of the creek were being addressed by TREAT, but the section bordering Yungaburra was in desperate need of attention. Some stretches of the creek were completely clogged with grasses and the banks were an impenetrable

A Place For Everyone

mass of lantana and other rampant weeds. There was concern for the creek's water quality, especially as the town's reticulated water supply was drawn from Lake Tinaroo at the mouth of the creek.

The TREAT programs, to replant a wildlife corridor linking remnant patches of endangered Mabi (Type 5b) forest, inspired the Yungaburra group to look at something similar, but on a smaller scale, aiming to improve water and habitat quality and increase the area's educational and recreational value. and the first stage of the program began in 1998, starting from the main road bridge and continuing downstream to link patches of

Under the sponsorship of The Eastern Tinaroo Catchment Landcare Group Inc, the project received Natural Heritage Trust (NHT) funding remnant rainforest, home to a small population of tree-kangaroos. Species selection was dictated by a range of soil types within the project boundaries. The main focus has been on restoring Mabi forest

(Complex Notophyll Vine Forest), which once covered the rich basalt soil areas of the Atherton Tableland north and west of Malanda. As less than 2 per cent of the original Mabi forest remains it has been classified as a 'critically endangered' plant community. Tree species were selected by the group's honorary advisor, former CSIRO botanist and author Geoff Tracey who, sadly, died in July

2004. In recognition of his passion, and the time and effort he devoted to the project, a section of the pathway has been called the 'Geoff Tracey Botanical Track' and the group has an on-going program to name and identify various species of rainforest trees along this section. Work has now been completed on eight separate stages, and despite occasional setbacks from frosts, flooding and drought, the new

A community affair The Lower Peterson Creek Revegetation Project is very much a community affair, which has involved other people in the project. Members of the local Aboriginal Dulguburra Yidinji clan have been involved at various stages, and a clan Elder provided information for

the interpretive display at Frawley's Pool. At times groups of up to 30 energetic American students from the nearby School for Field Studies (SFS) have toiled on the creek banks, planting thousands of seedlings grown by the school specifically for the project. Class assignments conducted by the students as part of

Life returns to the creek

plantings have thrived.

their studies of rainforest ecology and restoration, have contributed valuable information on wildlife observations and the improving water quality. SFS initiated the involvement of senior classes from the Yungaburra State Primary School in several of the plantings, and Yungaburra junior school students have since enjoyed class visits to the creek to learn about the project. Farmers and other landholders adjacent to the creek project have also supported the site restoration and cooperated in fencing and weed management activities.

Yungaburra. The planting and maintenance of thousands of native trees has created new habitat for wildlife, improved the health of the creek, and provided a park for locals and visitors to enjoy. The walking tracks, bridges, landscaped picnic areas, and interpretive signs, are now attracting locals and visitors, young and old walkers, bird-watchers and family groups. It has delighted senior residents of Yungaburra who recall childhood memories of playing on the banks of the creek and swimming in Frawley's pool, and who are now sharing their stories of early life in the village. Not just any old iron The creek restoration project has also revealed other stories from early days in Yungaburra, including that of a large iron boiler, recently

dragged from its watery grave at Allumbah Pocket. The boiler, now on display in its original position, is believed to be part of the first

Over seven years, the Lower Peterson Creek project has transformed a neglected stretch of the creek into valuable asset for the town of

coal-fired pump that carried water from the creek up to the railway water tank in the village almost a century ago.

The project's success can be attributed to the group's unwavering commitment to follow-up maintenance. Four to eight volunteers meet regularly each Friday morning to whip, snip and mow, and enjoy the rewards of 'tree-roo' and platypus sightings, increasing numbers of happy walkers, and the knowledge that Geoff Tracey's memory will live on. Inside this issue

Nursery News Visit to "Tolga Bat Hospital"

Report on AGM Field Day at Coomber's **Property Identification Request**

Kids Page Snakes and Tree-kangaroos

Nursery News

Nick Stevens has been appointed as Ranger in Charge of the nursery. Congratulations Nick!

Hi All, after 3 or 4 months of cool, wet weather, the last month seems to have put us well into the dry season and the nursery is now well stocked with growing seedlings. The increasing daylight hours and daytime temperatures are giving us improved germination rates in the

seed room and are promoting vigorous growth with nearly all species of potted stock in the nursery. The other side of this coin is an

increase in water consumption and some very speedy weed growth, so the next few months will be quite busy within the nursery with

QPWS staffing at the nursery remains unchanged since last newsletter, although by the time this newsletter is mailed out a Ranger in Charge of the nursery may have been appointed. If you are at the nursery and looking for a staff member you can ask for myself- Nick

Stevens or Peter Snodgrass. Casual staff; Darren Caulfield, Kevin Mackay and Daryl Sipos, and Trainees; Carla Holden or Gavin

Fruit Collection Diary

Workshop - 5th November

Jungle Farms Planting Update

be introduced to the bats.

conditions.

harm the bat.

plantings.

STOP PRESS:

plenty of outdoor tasks such as; weeding, sizing, pruning and sorting stock for various projects. If you are a regular volunteer and like working outdoors bring your hat and sunnies - the nursery has a good supply of sunscreen.

Kennedy may also be available to assist. Over the next couple of months nursery staff will participate in 2 QPWS restoration projects, aiming to plant around 2,000 trees at Mossman Gorge NP in November and 1,500 trees at Eubenangee Swamp NP in December. A planting schedule for TREAT and QPWS

projects in the new year is yet to be developed and will be published in the next newsletter. Major community plantings to be scheduled

will include Lake Barrine NP roadside planting of 1,000 trees, Wongabel SF roadside planting of 1,500 trees and TREAT's Peterson

Creek stage 11 project which will see an additional 7,000 trees planted. The Peterson Ck plantings will be staged over 2-3 planting days. Congratulations to all the re-elected and new TREAT Committee members and congratulations also to staff member Darren and wife Sharon on the birth of their daughter Lillian who arrived in the early hours of the 14th September.

Visit to "Tolga Bat Hospital"

standing up on the side of the bats is Jenny Maclean who runs the Tolga Bat Hospital at Carrington to look after the sick and injured. Jenny was kind enough to extend an invitation to TREAT members to visit her home cum hospital and see for ourselves how loveable bats are. I wasn't really sure what to expect. Even though I was already won over by the bats themselves, I was a bit apprehensive about getting up close. So when we arrived on the first sunny morning of Spring, I was happy to be greeted by a beautiful garden full of mature trees, honeyeaters singing their hearts out and two very friendly kelpies, not to mention a growing gathering of TREAT members all waiting to

After an introductory talk we made our way down to the largest of the enclosures in which Jenny keeps the bigger species, namely

various types of flying-fox. The enclosure was split up into three areas; a huge lofty area for them to live in with a couple of mulberry

bushes growing inside, and two smaller areas with low ceilings into which Jenny can coax them with food and get hold of them using a

towel. We gathered in one of these smaller areas to have a close look. Jenny pointed out four different species: Spectacled (with golden

There's no getting away from the fact - bats get bad press. Most people think of them as dirty, smelly, disease ridden, fruit stealers.

Whilst a little of this is true, most isn't and bats play a very important role in seed dispersal, especially in the rainforest. One person

and Grey-headed are from further south in Southern QLD, NSW and VIC. There were about 75 bats in all; 4 Black, 8 Grey-headed and the rest split about evenly between Spectacled and Little Reds. About 6 or so were in the other small area next to ours and Jenny opened the door to let a few of them through for a really close look.

They were lovely, curious, upside down creatures, checking us out clambering about just above our heads, looking straight into our eyes

shoulders and rings around the eyes), Little Reds, Blacks and Grey-headed. The first two are spread across the tablelands - Little Reds in large colonies, but Spectacled are listed federally as an endangered species. Black's are found on the coast throughout QLD and NT,

Jason Cummings, Amanda Freeman and Tim Curran

School for Field Studies, Yungaburra. (07) 4095 3656

Angela McCaffrey

by Nick Stevens

- extremely cute apart from being a bit tatty round the edges with holes in wings, and with claws and other bits of limbs missing. They all seemed to have adapted well to their injuries and moved around freely and enthusiastically. The main causes of injuries are paralysis ticks, barbed wire fences and powerlines. Tick deaths also give rise to large numbers of orphaned babies. The tick season starts now, September and lasts through to January. Many hundreds of bats are affected and many have to be euthanased as soon as found. The lucky ones are nursed back to health by Jenny and a team of up to 4 live-in trained helpers. There are many other local casual helpers although they cannot handle the bats because of a very rare disease caught from

bats called Lyssa virus. All bat handlers have to be immunised to prevent this life threatening condition similar to rabies. The work load

intensive job for 9 months of the year. September is also the month when barbed wire injuries increase, with Jenny receiving 13 injured

One of the adult Little Reds we looked at had a dummy radio collar attached to prepare it for wearing a real solar powered satellite radio

collar on its release. These collars cost \$5000 each plus the cost of satellite time so it's important to ensure it's not wasted and doesn't

continues after January as it takes a further 4 months or so before all the orphaned babies are ready to be released, so it's a very

bats in one week alone. She puts this down to the fact that Little Red young are learning to fly and don't cope well with the windier

We moved on from the large enclosure to a new one for smaller bats. At first it seemed empty but for a couple of folded towels hung up in the centre. Jenny lifted one layer of towel up and underneath were several tiny little bats all huddled together. These were of two species of microbats; Freetails and Broadnosed, with body lengths of no more than 50mm and with black shiny eyes. There was one other bat in this enclosure which we eventually noticed. It was an Eastern Tube-nosed bat, with strange long nostrils and yellow spots on her wings. She was about twice the size of the others - a small fruit eating Megabat. Once outside we looked at an area where a new enclosure is being built. It will be a short-term holding cage for orphaned babies and mums with babies and also a feeding station for the permanent care bats which live outside. Lastly we looked at the hospital area attached to Jenny's house which has approximately 30 small cages for intensive care.

It was a fascinating morning with many questions being fired at Jenny who answered everyone with great detail. I think we all came away

Jungle Farms Planting Update

with a deeper understanding and respect for bats after an extremely enjoyable time.

densities could be made to possibly identify species adapted to drier conditions.

Framework or Maximum Diversity plantings in terms of their overall performance.

occasional frosts and desiccation.

Species

(# sampled / # planted*)

Aleurites rockinghamensis (8/21)

Toona ciliata (177/273)

Acronychia acidula (55/72)

Terminalia sericocarpa (17/30)

Alectryon semicinereus (97/166)

Castanospora alphandii (52/103)

Ficus hispida (48/95)

Ficus obliqua (62/109)

Ficus septica (97/204)

Ficus watkinsiana (7/9)

Litsea leefeana (83/181)

Banksia!

looking like a double trunk.

Property Identification

identification.

W, C etc.

had taken. Thank you, Kay and Eric, for a wonderful afternoon!

A morning tea will be provided by TREAT at no cost. The workshop is free.

4095 3406) or with Barbara Lanskey (ph 4091 4468) as soon as possible.

Species

Acacia celsa

Cryptocarya hypospodia (5/7)

Pararchidendron pruinosum (47/105)

Diploglottis diphyllostegia (53/100)

F - Framework; M - Maximum Diversity

Firmiana papuana (177/280)

Dysoxylum muelleri (58/121)

Jungle Farms is a 14 ha property adjacent to Peterson Creek downstream of Yungaburra. While the property historically has been used for agricultural purposes, the present landholder was developing it as an ecotourism venture. Approximately 25% of the property retains native vegetation, the majority of it being re-growth Type 5b rainforest along Peterson Creek. The landholder's goals for the property were to develop it for ecotourism while enhancing its conservation value by protecting rainforest remnants and carrying out restoration

The School for Field Studies has been involved in establishing a rainforest restoration plot on this property since March 2002. We used a

combination of species recommended for Framework and Maximum Diversity planting techniques (from Group 7: Uplands Moist Basalt;

Goosem & Tucker 1995) as well as a smattering of additional Type 5b species. The planting site was an open pasture on basalt soils,

previously used for low intensity cattle grazing, abutting riparian vegetation. Before planting the site received several broad-acre herbicide applications whilst some rock piles and woody weed clumps were removed using plant equipment. Following planting, the site received combinations of physical and chemical weed control, to combat Mexican Poppy, Glycine, Tobacco Bush and pasture grasses. In total, more than 2000 people hours have been expended establishing the trees over the previous three years at the site. Initially, 1.2 ha were planted in March 2002 but seedlings suffered very high mortality likely due to subsequent drought and frost. The

northern half of the site, which is the focus of this report, comprises approximately 0.72 ha and was replanted in March 2003 with 3 290

species ability to tolerate drought. Wood cores and stem samples were taken from seedlings in June 2005 so that estimates of the wood

Many of the trees at Jungle Farms are now reaching heights in excess of 3 m (Plate 1). Grass cover remains problematic in areas where

survival has not been fantastic (Table 1), even with an irrigation system installed. We calculated a 'survival-growth' rank so that species

could be appraised for decisions regarding the planning of plantings at similar sites. The survival-growth rank is determined by ranking

the multiple of the species' survival and growth rates. Interestingly, there was no clear distinction between species recommended for

Acronychia acidula achieved the greatest survival rate (89%) but has maintained a relatively bushy growth habit. Aleurites moluccana

ensuring anything but a pole-like shape. However, for our purposes, the growth of *T. ciliata* and the shape they adopted was not a

demonstrated a link between wood density and drought tolerance and between wood density and survivorship (based on purported

We found little or no correlation between wood density and survivorship in both 2002 and 2005. Given that other studies have

regarding species performances, presented in Table 1, in the planning of future restoration activities.

87.5

79.7

89.1

70.6

74.0

72.2

72.4

59.6

39.6

53.2

36.1

60.0

38.3

42.9

35.8

21.7

F

M

M

F

(F)

(M)

F

F

(M)

M

(F)

(M)

M

M

F

*number present and alive after infill planting in March 2003

and Firmiana papuana, grew quickly and tall, adopting a traditional tree habit, their large leaves proving useful in helping to capture the site. Farm foresters shouldn't get too excited about the good performance of *Toona ciliata*, these were heavily infested by the Tip Moth,

problem. Another notable result is the relatively poor performance of the *Ficus* spp., perhaps attributable to the exposure of the site to

less growth has occurred, but in areas of greater success, grass cover is negligible. Given the relatively dry wet seasons recently, overall

seedlings. At this time, an irrigation system was installed to improve seedling survival. Another infill planting of 1 390 trees was

conducted in December 2003. Measurements of tree survival, height and diameter (at ground or breast height) were recorded in

December 2003, June 2004 and June 2005. We also measured wood density, a key plant functional trait that has been related to a

resistance to fungal infection or structural damage), the wood density of a species may well be a useful trait in determining the composition of a restoration planting, particularly if those plantings cannot be watered. However, planting high density species to increase survivorship will come at a cost - as such species usually have low growth rates. Additionally, knowledge of wood density is necessary to estimate the amount of carbon sequestered in individual trees and hence will be important for carbon accounting. Clearly there is a need for further studies to estimate the wood density of tropical rainforest trees and relate this to other traits such as drought tolerance and plant survival. The Jungle Farms site is now for sale, and therefore, the future of the planting is not guaranteed. Investing in restoration on private land always carries this risk. From our perspective the establishment of the Jungle Farms plot has been a fantastic teaching and research exercise, with many students looking back fondly on their experiences at this site. We hope that the community can use the information

Table 1. Species planting type, survival, growth rates, and measured wood densities (not sampled for all species) at the Jungle Farms site in March 2003. Species are ranked by the multiple of their mean survival and growth rates. Planting types have been predicted using the rainforest key (Hyland et al. 2002), where species were not described in Goosem & Tucker (1995).

 7.9 ± 1.9

 8.0 ± 0.4

 6.4 ± 0.3

 7.9 ± 0.8

 7.2 ± 0.2

 6.8 ± 0.3

 6.5 ± 0.6

Planting Type Survival (%) Mean Growth Rate (cm/month) Survival-Growth Rank Wood Density (kg/m³)

2

4

5

6

7

15

16

17

18

19

20

21

22

23

363

403

529

386

678

428

454

533

Barb Lanskey

8 Acmena smithii (218/347) Riparian 76.6 5.8 ± 0.2 599 9 M 48.4 8.2 ± 1.0 Flindersia brayleyana (31/57) F 4.5 ± 0.4 Syzigium cormiflorum (25/46) 72.0 10 4.2 ± 0.2 11 542 Castanospermum australe (178/301) (M) 74.2 Flindersia schottiana (5/10) M 60.0 4.9 ± 2.0 12 F *Ficus superba* (120/220) 52.5 4.6 ± 0.3 13 464 F 4.2 ± 0.5 14 459 Neolitsia dealbata (59/121) 54.2

 3.7 ± 0.5

 5.4 ± 0.5

 3.8 ± 0.5

 5.3 ± 0.4

 3.0 ± 0.9

 4.6 ± 0.7

 3.6 ± 0.1

 3.6 ± 0.6

 4.8 ± 0.6

Report on AGM

TREAT's Annual General Meeting held at Yungaburra on 19th August, was again well attended. Business matters were dealt with quite

quickly. This year, Nick Stevens presented the report from the nursery, being the temporary officer in charge. TREAT's management

committee welcomes 2 new members - Possum Rosser & Bryony Barnett. They replace Rosemarie Pilmer & Colin Hunt. Rosemarie

wished to step down from the committee but remains our newsletter editor, and Colin has moved to Canberra for a while.

Barbara Waterhouse was our guest speaker for the evening, talking about some invasive plant species not as yet widespread in Nth Qld. She had us all agog with photos of the potential problems of a range of plants and answered many questions at the end of her presentation. Supper concluded a very informative and sociable evening. Field Day at Coomber's Barb Lanskey On the afternoon of Saturday, 17th September, Kay & Eric Coomber hosted a TREAT field day at their property at Tarzali. The weather was very pleasant and about 35 people turned up for the event. Kay and Eric have owned the property (22 acres) for about 20 years but have been revegetating on it only since 1995. It was cleared for grazing in the past but retains a small patch of remnant rainforest. In 1994, they took up the offer of the Community Rainforest Reforestation Program (CRRP) and nearly 2,000 timber trees were planted in 1995 on the top 7 acres. Since then, they have been revegetating the remaining cleared areas bit by bit, and this is what we had come to see. Kay started the walk at the top of the property where she had planted a hedge of *Eupomatia laurina* (native guava) and had also put in a line of Banksia robur which were in various stages of fabulous flower. From there we walked to the patch of rainforest on the eastern side and proceeded downhill, skirting the forest. Kay fielded questions about various trees, including "Cooper's Puzzle", now named Cupaniopsis cooperorum. The rainforest is gradually meeting the plantation, and this tree on the edge of the forest fruited last year, probably due to the fact that it is now more sheltered. The hillside is quite steep and Kay pointed out the grass strips left between the rows of plantation trees to assist in combating erosion. We noticed a lot of understorey shrubs she had been planting, and seedlings coming up from seed dispersed by birds - and Kay. At a more open patch, there was a lot of vigorous lawyer cane climbing over the rainforest and Kay explained that she and Eric now find the base of the cane stems and cut there to kill the canes. This helps to keep the lawyer cane under control and allows rainforest seedlings and young trees to grow which otherwise are smothered. Eventually we came across Kay's "pods" as she calls them - discrete areas she plants and maintains one at a time. On the edge of one, a rotting tree had fallen, and we were most amused at Eric's sign of "construction site: owner / builder", complete with stick drawing of the brush turkey involved. Kay goes to great lengths when planting a new tree, to disguise it as much as possible to try to fool the wildlife it's not something new for them to investigate. On the edge of one of the pods, Kay has set up a germinating area for quandongs which are notoriously slow. She puts down leaf litter, buckets of the seed (up to 10cm deep), covers them with 6-8cm of sand, and then forgets about them. Her method has proven very successful and she was able to supply TREAT with welcome seedlings this year. At the bottom of the property is Gillies Ck. and down here Kay had planted more Banksias - they seem to grow equally well in either the red soil up the top or the very heavy clay loam at the creek area. Maybe it's all that rain at Tarzali - their common name is Swamp

The final part to see was up the western side where we walked alongside a spring-fed gully. Here Kay had planted bleeding hearts to get

quick canopy cover, and now after 6 years, there are ferns and other shade-loving plants everywhere. The Bleeding Hearts apparently had about 3 years of good growth and are now showing signs of dropping out of the system to be replaced by other trees. Across the

gully we arrived at the bottom of the timber plantation. The plantation has grown very successfully and is at a stage of needing some

lack of vegetative protection. Kay showed us a Cardwellia sublimus which was badly affected, now trying to repair the damage and

TREAT is requesting members who own a property on which they plant trees obtained from the nursery, to give us the property

This identification will be used to build up a picture of the destination of trees leaving the nursery.

thinning. An interesting fact noted was that in the early years, some of the trees got their trunks sunburnt by the western sun - through

Kay & Eric characteristically offered us all refreshments before we left, and nearly everyone took up the offer. We were treated to scones,

cake and biscuits with tea and coffee, and it was much appreciated. A handful of us who lingered in the congenial atmosphere were lucky

enough to be shown an interesting 10 min. video of the early days on the property, which Eric had developed from still photos he and Kay

Your assistance in this matter will be appreciated. Workshop - 5th November The annual tree identification and seed propagation workshop will be held this year on Saturday, 5th November from 9am to 12.30pm. This very popular workshop shows how trees can be identified by their leaves, noting features such as leaf structure, smell, oil dots, stipules etc.. It also demonstrates the different methods of germinating tree species, depending on their seed type.

Numbers for the workshop have to be limited, so those wishing to attend are asked to register their names with either the nursery (ph

Arytera pa Castanosp Chionanth Clerodend

Acronychia acidula	Lemon Aspen	RE 7.8.2
Alpinia caerulea	Native ginger	RE 7.8.2
Arytera pauciflora	Pink tamarind	RE 7.8.2
Castanospermum australe	Black Bean	RE 7.8.3
Chionanthus ramiflora	Northern Olive	RE 7.8.2, 7.8.1
Clerodendron longiflorum var glabrum	Witches tongues	RE 7.8.1
Cupaniopsis dallachyi		RE 7.8.2
Davidsonia pruriens	Davidson's Plum	RE 7.8.2
Dianella caerulea	Blue Flax Lily	RE 7.8.2
Elaeocarpus bancroftii	Kuranda quandong	RE 7.8.4
Endiandra sankeyana	Sankey's Walnut	RE 7.8.2
Ficus crassipes	Round Leaf Banana Fig	RE 7.8.2
Ficus pleurocarpa	Banana Fig	RE 7.8.2
Flindersia acuminata	Silver Silkwood	RE 7.8.2
Glochidion sumatranum	Button Wood	RE 7.12.1
Helicia lamingtoniana	Lamington's Silky Oak	RE 7.8.4
Homalanthus novo-guineensis	Bleeding Heart	RE 7.12.1
Litsea leefeana	Bollywood	RE 7.8.2
Melicope bonwickii	Yellow Evodia	RE 7.8.2
Melicope xanthoxyloides	Yellow Evodia	RE 7.12.1
Pouteria myrsinodendron	Yellow Boxwood	RE 7.8.3
Syzygium cormiflorum	Bumpy Satinash	RE 7.8.3
Syzygium gustavioides	Water Gum	RE 7.8.2
Syzygium kuranda	Kuranda Satinash	RE 7.8.2
Xanthostemon chrysanthus	Golden Penda	RE 7.8.2
	Thorny Yellowwood	RE 7.8.2

Davidsoni Dianella c Elaeocarp Endiandra

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More Newsletters TREAT Newsletter Storm Season October - December 2005 (this page)

TREAT Newsletter Wet Season April - June 2005

Previous TREAT Newsletters

TREAT Newsletter Dry Season July - September 2005

Please write the lot and plan no. on or near the address label of your newsletter wrapper and send it back to us in the envelope provided.

The identification needed is the lot and plan no. which appears on the rates notices. For example, L357/NR1285. NR may be SP, RP, N,

Fruit Collection July - September 2005 **Collection Provenance Common Name** Brown Salwood RE 7.8.2

Xanthoste Zanthoxyl

↑ Top of Page Updated 8 May 2015 | Web site developed by Simon Burchill and Jeff Hall

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