Tāne's Tree Trust
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EDITORIAL

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The Kyoto Protocol – A push for planted indigenous forestry?

In 2002 New Zealand ratified the Kyoto Protocol, an international initiative aimed at reducing greenhouse gases emissions and thereby controlling or mitigating the adverse effects of anthropogenic (human) interference with the climate system. An aspect of the Protocol is the recognition of the ability of trees to remove carbon dioxide (a significant greenhouse gas) from the atmosphere. By ratifying the Protocol, New Zealand entered into binding international obligations to meet its Kyoto Protocol commitments. As part of a package of measures designed to assist New Zealand meet these commitments we have on the table at least 3 schemes, in varying stages of development and/or implementation, that are of interest to the production forestry sector; the Emissions Trading Scheme (ETS), the Permanent Forest Sinks Initiative (PFSI) and the Afforestation Grant Scheme (AGS). What follows are some brief high level comments on the three schemes and their relative attractiveness for advocates of planted indigenous forest.

The Emissions Trading Scheme in the context of the ETS Bill has, understandably, grabbed much of the headlines to date. Conceptually, it offers owners of land that was not in forest in 1989, the opportunity to enter the ETS scheme with an existing or to-be-established forest with the juicy carrot of accruing tradable New Zealand Units on the basis of their forest's ability to sequester CO2. In other words, a new source of pre-harvest income. The downside of having to account for deemed emissions by surrendering NZU's when a participant harvests their forest is, from the perspective of an owner of indigenous planted forest, less immediately relevant. However, at the time of writing the direction and shape or indeed the continuing existence of an ETS is very much in the hands of the politicians and at this point we leave it there.

Conversely, the PFSI is a scheme that is up and running and, I understand there is at least one application that is close to being finalised with MAF. The schemes constraints, around keeping PFSI land under the requisite level of "continuous forest cover" rather than being able to undertake a traditional clear felling operation at the end of each rotation and the continuance of these harvesting/land use restrictions for a period of 99 years, may be seen by indigenous foresters as more manageable and less onerous. Further, advocates of the PFSI see the right to receive directly Kyoto-compliant and internationally tradable units (AAUs - as opposed to NZU's under the ETS) and indeed the existence of the harvesting/land use controls as creating carbon sequestration units that may well be perceived by the international market as being highly desirable and therefore command a premium. However, I note that part of the deal is that a PFSI participant has to enter into a deed of covenant with the Crown and have that registered against their land title. The clear and unequivocal language of the covenant in terms of the participant having to accept "Sovereign Risk" (in other words, the Government changing its mind and/or the scheme) is something that may well give a would-be participant pause for thought.

Finally, there is the AGS. Again this scheme is up and running with the first tender round completed but yet to be announced. Recognising that the ETS and/or the PFSI may not be attractive to all owners of eligible land, the AGS represents an alternative mechanism. It is in the Government's interest to encourage afforestation on land that was not in forest as at 1989 in terms of its Kyoto obligations going forward. In return for an AGS grant, eligible land owners agree to enter into an afforestation grant agreement and establish a forest on their land. The AGS is not about granting carbon sequestration units to participating land owners. Rather the participant acknowledges that any such units will accrue to the Government – as will any liabilities. From a landowner perspective it is a straightforward assisted timber play. But wait there is more.

Fifty (50) % of the funding will be available to Regional Councils to help them meet their sustainable land management objectives and the balance via a public tender pool. Approximately 30% of the public pool funds will be reserved for species with low carbon sequestration rates to reflect the public interest in planting indigenous species. Would-be participants bid for AGS funds based on their estimates of the cost of establishment. Once the forest is established, the funds are paid over. A formal agreement has to be signed which runs for a period of 10 years. In my view Sovereign Risk for a participant in the AGS is minimised.

It seems to me that the impetus of climate change concerns - the ability - of trees to sequester a greenhouse gas and the objectives of the Trust could well be said to be moving into alignment. Each of these schemes could encourage the establishment of indigenous forests on a larger scale operational basis. This seems particularly so with the relatively straightforward AGS. I am confident that the work of the Trust to date has successfully laid the foundation for the Trust to accelerate realisation of the Trust's objectives by using the potential of these schemes to more squarely move to an operational focus – getting more indigenous trees in the ground.

Andrew Caddie (Simpson Grierson)

Planted Kauri forest, age 49, Glenbervie, Whangarei.

FORESTRY AND CARBON SEQUESTRATION: A REVIEW OF THE OPTIONS FOR PLANTED AND REGENERATING INDIGENOUS FOREST

(This issue assembled and written by Warwick Silvester, Ian Barton, Peter Berg and Ian Campbell)

INTRODUCTION

This Newsletter is designed to help you cope with the complex issues surrounding NZ's obligations under the Kyoto protocol, and how those of us who plant trees can help to mitigate our carbon emissions and benefit from the various government initiatives that have been developed. The Kyoto Protocol has binding commitments for signatory countries (such as New Zealand), to reduce greenhouse gas emissions to 1990 levels by 2012. It is estimated that New Zealand will require 45.5 million carbon credits by the end of 2012. An independent web site, developed by The Carbon Farming Group, will help with many of the issues including a carbon calculator to allow you to assess your personal carbon liability. (see Links –pg 9) The official site at MAF is also helpful (see Links pg 9)

The four initiatives discussed are the ETS (Emissions Trading Scheme), the AGS (Afforestation Grants Scheme) the PFSI (Permanent forests Sinks Initiative) and EBEX21 (Emissions-Biodiversity Exchange in the 21st century). The diagram on page 10 (adapted from a MAF flowchart) should enable you to decide which option is best for you. Finally we present for your interest a summary from Ian Campbell, one of our Trustees, as to how the Trimble Foundation have estimated their Credits.

A glossary is provided which should cover most queries; however few simple definitions to begin with may be helpful in understanding the mire of terms and conditions, especially as they relate to native species. In all cases the units are carbon credits or C units or NZ units and they refer to tonnes of Carbon dioxide (CO2). As a simple conversion a cubic metre (m3) of wood contains approximately a tonne of CO2. At least that is the case for our softwoods and covers species such as radiata, kauri, and totara. However work in this area is still in the early development stage.

The following is a short summary and status of each of the four programmes.

ETS Was passed into law on 10th September, essentially unmodified from the form reported to Parliament by the Select Committee. This is the most far reaching of all the schemes and is still being hotly debated both within parliament and without.

PFSI is operational and the first covenant was registered in August for a total of 362ha at, Wanganui. The forest comprises 320 hectares of eucalyptus and 42 hectares of radiata pine at Ararewa Station in the Waitotara Valley for tree planted in 2007. Expressions of interest for another 60,000ha have been received by MAF. This scheme enables the devolution of credits to owners who have planted forests on previously unforested land and is complementary to AFS.

MAF has, as of September 2008 received 13 tenders for the Public Pool Round of AFS. Nine of these will receive funding over the next two years with $927,000 allocated at an average of $1829 per ha for 447 ha. Applications are now being called for a second public pool tender closing on October 31st. Under AGS the crown owns the C credits and carries all Kyoto responsibility.

EBEX21 managed by Landcare Research, has been operating for some time and is open for trading in C credits at any time. Credits are managed on an exchange between C emitters who purchase credits from landowners who allow land to revert to natural vegetation.

NZ EMISSIONS TRADING SCHEME (ETS)

SUMMARY

The New Zealand Emissions Trading Scheme (ETS) is a carbon market that all New Zealanders will be affected by. The ETS will account for all Kyoto emissions and reductions within New Zealand. Those who absorb greenhouse gasses will be paid by those who emit greenhouse gasses. Each sector will be brought into the ETS in a staged manner, with forestry first and agriculture last.

Specific policy is… "to support and encourage global efforts to reduce emissions below business as usual levels and to comply with NZ's international obligations (including the Kyoto Protocol) while maintaining economic flexibility, equity and environmental integrity at least cost".

WHAT IS ETS FOR FORESTRY?

The forestry sector will be the first sector to be involved in the Emissions Trading Scheme (ETS).

Forestry plays a critical role in managing New Zealand's carbon footprint and helping the country adapt to climate change by reducing erosion and flooding. Trees soak up carbon dioxide while they grow - but much of that carbon is released when the trees are cut down. If the trees are not replanted or the land is converted to another use, this is called deforestation. Deforestation is a major source of greenhouse gas emissions globally and in New Zealand.

The ETS has been designed to encourage new planting and better management of our forest estate. All forest owners entering the ETS can receive emissions units which they will be able to sell through the ETS trading arrangements. They will also have obligations, depending on the type of forest - indigenous or exotic, and when it was planted.

A report to Government by Professor Bruce Manley of the School of Forestry, Canterbury University in 2005 projected that some 170,000 ha of the plantation estate could be deforested over the period 2005-2020. With the cut-off period for emissions trading for forests being I January 2008 a significant portion of that estate has already been deforested, most of it in the CNI (central North Is.) and Canterbury. While this sort of land-use change is "business as usual" for our rural sector, for the Government it creates additional liabilities.

WHO WILL OPERATE THE ETS?

The ETS will be administered by a government agency that is yet to be determined. It is probable that the agricultural and forestry components of the ETS will be administered by MAF under a memorandum of understanding with the administering agency.

WHICH LAND, WHICH FOREST TYPES AND WHICH OWNERS ARE ELIGIBLE?

Pre-1990 forest

All owners of pre-1990 forests will be automatically in the ETS, but some can apply to be exempted. Owners of pre-1990 forests of less than 50 hectares can apply not to take part in the ETS. These forests do not earn credits. However, if deforested after 1 January 2008, they incur the emissions liability on areas over 2 hectares unless replanted. The Government will assist owners of pre-1990 forest who are affected by these provisions by issuing them with free NZUs.

It has not yet been decided if indigenous (native) forests established before 1990 should be included in the ETS. If they do come in, owners will receive emission units, though at a lower rate than that for exotic forests

Post-1989 forest

Owners of land that became forest after the beginning of 1990 (post-1989 forest) can join the ETS if they wish, and will gain credits and incur liabilities if they do so. They will also need to report on carbon stock changes to the administering agency. Loss of forest by logging fire or storm represents an emission liability. Obligations for liabilities will rest with the landowner or, where a forestry right or registered lease is involved, with the holder of that right or lease. Changes of ownership will need to be clearly notified by the purchaser or transferee to the administering agency so that NZU allocations can be made. The Government recognises that, for a variety of reasons,

participation in the scheme may not be attractive to all post-1989 forest owners.

HOW WILL IT OPERATE?

The treatment of forestry in the ETS will depend on when the forest was planted. This reflects the rules for determining the Government's credits and liabilities under the Kyoto Protocol. Forests established after 31 December 1989 are 'Kyoto forests' and are referred to as 'post-1989 forests' Post-1989 forests can earn 'credits', which come with associated liabilities.

Forests that already existed as at 31 December 1989 are 'non-Kyoto forests' and are referred to as 'pre-1990 forests' Pre-1990 forests do not earn credits, but equally, if they are harvested and allowed to re-grow (whether through replanting or natural regeneration) they do not incur any liabilities.

KEY FEATURES OF THE ETS ARE:

- All participants will hold units equivalent to their emissions.
- Ultimately all energy sectors will participate, although entry is staged (Forestry 1 January 2008, liquid fuels and stationary energy 2010, agriculture 2013).
- Owners of forest planted after 31 December 1989 will get credit for carbon removed from the atmosphere (sequestered) and liability for carbon released once these same forests are harvested, but only up to the limit of any credits received. This policy assumes instant oxidation of the harvested forest, i.e. carbon is assumed to immediately be returned to the atmosphere when a tree is felled.
- Forests planted before 1 January 1990 will not get credit for carbon sequestered but will have liability for emissions charges if the forest is felled and not replanted – their deforestation liability.
    - Owners of pre-1990 forest will be required to report any deforestation
    - Deforestation of areas of less than 2.0ha of total pre 1990 forest holdings is exempt from this policy.
    - Forest owners with less than 50 ha of forest over their entire land holdings as at 1 September 2007 may apply for exemption from this policy/liability. This exemption will endure through subsequent changes of land ownership, etc – the fixed date is to avoid subsequent subdivision activity.
    - Removal of "weed" trees (e.g. wilding acacia, lodgepole pine, etc) is also exempt.
    - There may be an exception for areas of native forest established before 1990 however that decision has not yet been made.
- One emission unit is equal to one tonne of emissions, (i.e. one tonne of CO2, which is roughly equal to one m3 of most softwoods) and a New Zealand unit (NZU) will be created and will be the main unit of trade.
    - Methodologies for assessing carbon stock will be determined by MAF and will be paid for by the forest owner.
    - For the period 2008-12 the ETS will be linked to the international Kyoto Protocol market, in which NZUs will be interchangeable with KP Assigned Amount Units (AAUs). However the total amount of AAUs that can be transferred overseas is limited to 10% of NZ's assigned amount, net of purchases.
    - Forest areas will be determined by GPS or survey plans.
    - Carbon assessment will be determined via lookup tables (small areas) or by Registered Carbon Certifiers (generally registered forestry consultants).
- A modest free allocation of units is to be supplied to owners of forest planted before 1990 – around 10% of the potential deforestation liability and roughly equal to the long-term level of deforestation.
- Forest owners will have 18 months after the passing of the ETS legislation to decide whether to join or not, otherwise they must wait until after 2012.
- Risk associated with fire, disease, storm, etc remains with the forest owner permanently but liability is limited to the number of NZUs uplifted.
- Satellite and other aerial imagery will be used to determine if deforestation has occurred and penalties will exist for those not meeting their reporting obligations.
- Forest owners will have the option of using lookup tables (smaller forest owners) to determine their carbon sequestration rates, or employing a Registered Carbon Certifier to make the assessment. The look-up tables are very conservative particularly for indigenous species.

MONITORING, REPORTING AND VERIFICATION

Participants with post-1989 forest will be required to submit a carbon stock assessment at the end of the 2008–12 period, but may elect to report more frequently at intervals of not less than one year. In accordance with Kyoto rules for the first commitment period, liabilities for decreases in carbon stocks will be limited to the number of NZUs previously received for that forest.

The carbon stock changes will be assessed from 1 January 2008.

The options for carbon estimation methodologies will be provided by the administering agency. They will range from relatively simple to more accurate and sophisticated methods. The number of units issued will be representative of the sampling methodology chosen, that is, the more accurate and therefore expensive the methodology, the higher the potential allocation of units. The landowner will have a choice in the sampling approach, including the sample method and number of plots used, but these factors will determine the sampling error and hence the carbon units that can be claimed.

The amount of total carbon sequestered, as NZ Units (tonnes CO2) has been modeled for a number of species and management regimes. (see Links section page 9). These vary from 400 -1200 tonnes/ha at 30 years for exotic species with Eucalyptus fastigata at the top end and redwood at the lower. Two native species, kauri and totara, figure in the numbers and have a total of 200 tonnes at age 40 and 400 tonnes at age 70 giving a mean yield of c. 6 tonnes/ha/an (equals roughly 6m3ha/an). Compare this with the 17 m3/ha/an allowed for kauri and totara under AGS.

WHAT ARE THE GROWTH RATES / C SEQUESTRATION RATES OF NATIVE SPECIES?

For those of us interested in planting native species there are some glaring anomalies with the C accounting in the various documents. Some of these have been highlighted in a paper from the PCE see Seeding the Emissions Trading Scheme for Indigenous Forests (Links on page 7). The "Indicative Forest Sequestration Tables" paper produced by MAF (see Links on page 7) presents a series of graphs showing C increments for various species. From these graphs it can be calculated that kauri and totara would accumulate c. 6 t/ha/an and the mean for pine is around 26 t/ha/ann.

We then turn to the draft ETS regulations and the table used to define C sequestration (see Links page 7) where we find that while pine stays at around 26t/ha/an in this later document, indigenous species are all lumped to a very conservative 3t/ha/an. Compare this with the allowable growth rate for kauri and totara allowed under AGS of 17m3/ha/an. There needs to be a reality check on these numbers.

THE PERMANENT FOREST SINKS INITIATIVE

WHAT IS THE PFSI?

It is a proposal to establish new and highly productive forest on land which was not forested at 31 December 1989. The basic difference between this proposal and others being promulgated is that, while the forest will not be clearfelled, carbon credits can be accumulated and timber can be sustainably harvested in perpetuity.

It is the most environmentally positive of the carbon sequestration proposals except EBEX 21; although, unlike the latter, it also enables the production of high quality timber products.

WHO OPERATES THE PFSI?

The PFSI is a government initiative administered by the Indigenous Forestry Unit of MAF.

WHICH LAND AND FOREST TYPES ARE ELIGIBLE?

Eligible land must have had a land use change from non forest to managed forest since December 1989 and must be more than one hectare in area and wider than 30 metres. The table below illustrates the eligibility of different vegetation covers.

DEFINITION	ELIGIBILTY
Clean pasture	Eligible
Pasture with scattered indigenous regeneration less than 30% of the area	Eligible
Pasture with scattered indigenous regeneration more than 30% of the area	Ineligible
Pasture land carrying more than 30% cover of regenerating manuka / kanuka which is regularly cleared every few years	Eligible
Pasture containing scattered patches of indigenous or exotic forest, each less than one hectare in area and being less than 30% of the total cover.	Eligible
Pasture containing scattered patches of indigenous or exotic forest, each less than one hectare in area but being more than 30% of the total cover.	Ineligible
Pasture carrying more than 30% of poplar and willow, planted for erosion control since December 1989	Eligible
Regenerating kanuka / manuka, with or without other indigenous tree species, and with the potential to grow taller than 5 metres	Ineligible
Natural indigenous forest	Ineligible
Exotic forest planted before December 1989	Ineligible
Exotic forest planted after December 1989	Eligible
Naturally regenerating exotic forest established before December 1989	Ineligible
Riparian areas wider than 30 metres and planted or regenerated after December 1989	Eligible

CONTINUOUS COVER FORESTRY (CCF) AS THE MANAGEMENT METHOD

This is a forest management method which has been practiced under various names for some 200 years. It can be defined as the use of silvicultural systems to maintain the forest canopy at one of more levels without clearfelling. Essentially it enables the extraction of valuable timber from the forest without serious damage to the remaining plants and it functions by following basic ecological principles. Because there is minimal damage to the vegetation, fauna, forest soil and landscape it is the most sustainable of all forestry practices. Its requirement as the management method for PFSI means that many environmental gains, apart from carbon sequestration, are possible.

SPECIES ELIGIBILITY

Any species, both indigenous and exotic, and capable of being managed using CCF are eligible. However as a general rule species like Pinus radiata, which are not very shade tolerant, are not suitable. For information on the most suitable species refer to Barton, 2008.

APPLICATION PROCESS

After determining the eligibility of the land, make an application containing the following information: -

- Name of Landowner
- Consent of any others with a registered interest in the land (eg mortgagee)
- A unique identifier generated by the applicant.
- NZ Emission Unit Register account name and number
- Description of the land involved
- Evidence that the land is eligible
- A completed Forest Sink Covenant application
- A management plan (See Record keeping)
- A map of the area either in GIS shape file format or as a survey plan.

A Forest Sink Covenant (see Links, pg 9) forms the contract between the landowner and the Crown and sets out the rights and obligations of both parties. The covenant remains in force for at least 50 years but may be terminated earlier by any of the processes outlined in clause 11 of the Forest Sink Covenant Terms and conditions. The most important of these are the right to transfer to the Emissions Trading Scheme before 1 January 2010; NZ withdrawal from the Kyoto protocol or it ceasing to be in force; there is a material breach of covenant. The covenant must be registered by the landowner under the Land Transfer Act 1952 by submitting two copies to the Land Information New Zealand office in your district together with a lodgement fee of $50. Once registered the Programmes Directorate MAF Policy must be notified. Note that the rights and obligations of the covenant run with the title, if the land is sold.

Mapping, using a GIS shape file may, be undertaken by the landowner or otherwise competent person. A survey plan is also acceptable. Details of the requirements are on pages 7 – 9 of the PFSI Guidelines (see Links pg 9).

Fees and Charges by the IFU are not yet finalized for all aspects but fall into four categories: -

1. Application processing, checking, plan approval, covenant preparation and transference of data to the national carbon accounting system.	$500 fixed plus $115 / hr for every hour over 4 hrs.
2. Travelling to and from site plus accommodation and meals	$0.68 per km, plus $115 per hr for travel, plus meals & accommodation.
3. Processing of claims and associated audit	Not yet determined but similar to ETS costs
4. Ongoing monitoring and verification costs	These costs are usually part of the forest management programme

CARBON ASSESSMENT

This includes all carbon on the site – trunk, branches, leaves, roots, litter and soil carbon. At this time the assessment methodology has not been finalized. Once available it will be set out in regulations which will be updated as required. The proposal is that carbon may be assessed using either of two methods; standard look up tables or direct measurement. Lookup tables will be available from 1 January 2009 and exotic forest participants in the scheme will have the option of switching to the more accurate direct measurement once the methodology is determined and regulations prepared. This is expected to be available by 1 January 2010, at which time participants may claim any additional units for which they are eligible. Methodology for measuring indigenous forest is underway but will take longer than for the exotics. At the end of the first commitment period (2012) a mandatory assessment, using the measurement approach for areas greater than 50 hectares, must be submitted, (see Links, pg 9) for ETS draft regulations)

HARVESTING

CCF will result in the creation of an uneven aged forest and harvesting will be undertaken by felling small coupes or individual trees. While normal harvest regulation for continuous cover forests would be undertaken by harvesting the forest increment, at whatever period is appropriate, the regulations for PFSI stipulate that the harvest is to be regulated using the simpler method of not cutting more than 20% of the basal area on each hectare at any one

time; with the next harvest not permitted until the basal area per hectare has again reached the first pre-harvest basal area. If natural regeneration does not occur, planting will be required after each harvest to restore the size class balance. (see Barton, 2008 for detail)

RECORD KEEPING

CCF is not practicable without good record keeping and it is strongly recommended that each forest have a basic management plan, details of which can be found in Barton, 2008. In addition participants in the scheme are required to keep the following records which are specific to carbon.

- All carbon stock records
- Harvest area boundaries
- Change in ownership of the forest sink
- Any records required by the forest sink covenant

Further details of the requirements are included in the PFS Regulations (see Links, pg 9)

PENALTIES

If the harvesting limit of 20% basal area is deliberately breached the owner will be required to replace carbon units for the CO2 released plus a penalty payment of 10% (see clause 9 of the PFS regulations –Links, pg 9) No penalties are payable for carbon loss by such events as fire, windthrow and disease.

RISKS AND LIABILITIES

Poor management could result in a landowner cutting more than the 20% basal area allowed; in which case the penalties outlined above will apply. Other risks relate to destruction of the forest by natural destruction, eg fire end wind. If this occurs the land owner is required to replace any emission units released back into the atmosphere but without penalty (i.e., to purchase carbon units from elsewhere). To protect against this landowners should hold a portion of their carbon credits or insure against such an event

OWNER'S OBLIGATIONS

The Owner shall: -

- Allow the Crown and its servant's reasonable access to the forest sink area.
- At its own cost, provide assistance to the Crown with access to the land and monitoring of the Covenant.
- Provide accurate information relative to the Forest Sink to the Crown
- Pay any fees due to the Crown
- Measure and report carbon stock changes to the Crown.

CROWN'S OBLIGATIONS

The Crown shall: -

- Give 48 hours notice of intention to inspect the Forest Sink
- Transfer to the owner any carbon units due as prescribed by the regulations.

VARIATION, TERMINATION AND DISPUTES

Detailed provision is made in the covenant to cover these eventualities. Consult the draft covenant document. (see Links, pg 9)

UNITS OF CARBON RECEIVED; THEIR TRANSFER AND SALE

- After the first of January 2009 the owner of a covenanted forest may request the Programmes Directorate MAF to provide them with units up to the quantity generated by their forest since commencement of the scheme 1 January 2008. Further requests for units may be made annually.
- The landowner must nominate an account at New Zealand's Emission Unit Register [NZEUR] (see Links section page 9) to which the units due will be transferred.
- The units transferred are Assigned Amount Units (AAU's).
- Landowners may sell units to others wishing to reduce their carbon liabilities. However landowners should consider the retention of some units as insurance against carbon loss from their forest.

REFERENCES

Barton I, 2008, Continuous Cover Forestry: A handbook for the management of New Zealand forests. Tane's Tree Trust, Pukekohe. 103 p.

THE AFFORESTATION GRANTS SCHEME (AGS)

SUMMARY of AGS

Government grant to establish new forests.

Government retains responsibility for credits and liabilities.

No harvesting restrictions.

Forest must be maintained for at least 10 years.

Not eligible for East Coast Forestry Project, NZ ETS or PFSI on the same area of land.

Minimum area 5ha

WHAT IS AGS?

AGS is a scheme whereby foresters receive a Government grant for planting new forests on previously un-forested ('Kyoto compliant') land. Participants will own the new forests and earn income from the timber, while the Crown will retain the sink credits and take responsibility for meeting all harvesting and deforestation liabilities. Essentially it is an alternative to the ETS whereby Government gives an afforestation grant and retains all credits and liabilities.

WHO OPERATES AGS?

AGS is a government initiative and is operated by the Sustainable Land Management and Climate Change Group of MAF

WHICH LAND AND FOREST TYPES ARE ELIGIBLE?

AGS grants are only available for land that was not forest land on 31December 1989, or if it was forest land on 31 December 1989, it was deforested prior to 1 January 2008, or was deforested after 1 January 2008 and any liabilities in relation to such deforestation have been satisfied.

Under the AGS a participant will not be able to enter their forest, once established, into the ETS. In other words, the Government keeps the carbon credits grants with the trade-off being payment of the grant.

The forests have to be planted, or at least developed through assisted natural reversion. In other words, some form of active management will be required in establishing the forest.

The minimum application size is 5 hectares. It would seem that an owner will be able to group areas of 1 or more hectares to achieve the minimum size. Shelter belts or riparian strips less than 30 metres wide are not eligible.

Two categories of forest are eligible:

Category 1 – exotic forests;

Category 2 – planted indigenous forests and assisted indigenous reversion.

SPECIES ELIGIBILITY

Both exotic and indigenous species are eligible and there are incentives to plant native species. Approximately 15% of the total AGS fund will be reserved for planting of indigenous species (low carbon sequestration rates). Assuming the land to be planted in indigenous species is "post-1989 forest and", the indigenous species are to be "eco-sourced". In other words, they should be endemic to the locality. The explanatory blurb from MAF acknowledges that, for indigenous area proposals, in addition to the crop species other supporting species may be planted which are not intended to go through to final crop (eg manuka nurse).

FOREST MANAGEMENT

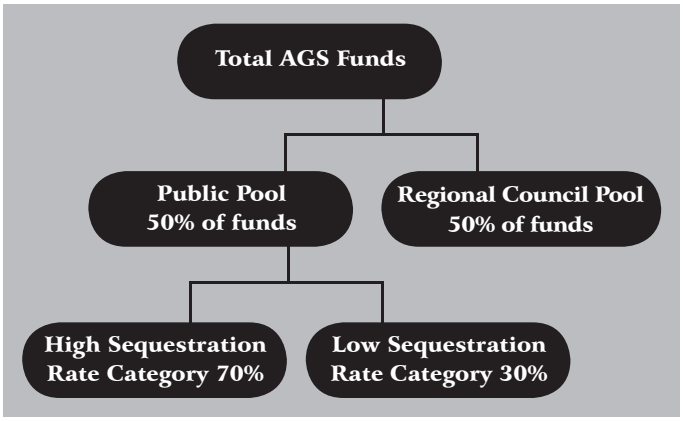
Some form of active management is required in establishing forest under an AGS grant. This will mean either planting or human induced promotion or natural seed sources. So the forest may be planted or developed through assisted natural reversion. (See Links, pg 9 for further details.) The forest may be established for wood production purposes, other environmental purposes or a combination of both. No standards are specified for any other silvicultural operations.

APPLICATION PROCESS

Half of the funding under this grant scheme will be available to Regional Councils to help them meet their sustainable land management objectives. The other half is available to the general public via a public tender pool or through your local Regional Council. Approximately 30% of the public pool funds will be

reserved for species with low carbon sequestration rates. This is to reflect the public interest in planting indigenous species.

Funding allocation is illustrated in the following diagram:



High sequestration rates are for species with MAI of 15m3/ha/an or more and include kauri, red beech and most exotic species. All other native species are deemed to have low sequestration rates; despite the fact that under ETS kauri and totara are shown to have similar sequestration rates of less than 6 m3/ha/annum. The grant money will be allocated by a tender process in which regional Councils will bid, and compete with other regional Councils for half of the fund, while individuals will bid for the remainder. Maximum grant rates will be determined for both grant categories. These will reflect sequestration rates and allow for the risks of carbon ownership, which remains with the Crown under the AGS. The Government is open to the possibility that, after a number of initial tender rounds, there could be a move from a tender-based system to a fixed grants system.

Two tender rounds are proposed for each category, each year. The tender rounds will close on 30 June and 31 December. Acceptance of tenders will be notified within three months of the closing dates. MAF is investigating the possibility of giving higher priority to applications that will assist with adaptation to the expected impacts of climate change, for example, by providing other environmental benefits such as reduction of soil erosion and flooding. Available funds will be allocated beginning with the lowest tender, but may be weighted to reflect these other factors.

THE PROCESS:

The tendering process is envisaged as follows:

1. Applicants submit tenders by the appropriate date (30 June and 31 December)
2. The administrator acknowledges receipt of tenders;
3. Desk top review of tenders for completeness, and as appropriate requests for further information from applicants;
4. Confirmation that species are suitable for the site;
5. Possible negotiation regarding species to be planted and an establishment plan;
5. Possible on site inspection and audit of information submitted.

RANKING OF TENDERS:

Each tender will be adjusted according to whether it contributes to three co-benefit criteria viz.

1. Soil conservation and flood control management.
2. Improved water quality.
3. Improved biodiversity.

If a tender contributes to all three of these the tender price will be multiplied by 0.7, for the purposes of ranking only, if by two then by 0.8 etc. The reduced tender will thus compare more favourably with low tenders without co-benefits, but successful applicants will still receive their full tendered rate. A high co-benefit score will give a low weighting factor which means that an adjusted tender will have a favourable advantage when ranked against other adjusted tenders.

LEGAL DOCUMENTATION:

The successful tenderer will enter into an Afforestation Grant Agreement. The agreement will contain the following terms:

1. The term of the agreement to be for 10 years;
2. Payment claims are made when the subject forest area is deemed to be successfully established;
3. If the grant land is deforested within the term of the agreement the grant plus interest is repayable;
4. Where land the subject of an agreement is transferred the incoming party is required to formally acknowledge and accept the terms of the arrangement;
5. The scheme administrator will have rights of access to the land for carbon measurement and other purposes.

Applications are made to:

Afforestation Grant Scheme Ministry of Agriculture and Forestry
PO Box 2526
Wellington
0800 CLIMATE (254 628)
Email: climatechange@maf.govt.nz

EBEX21® EMMISSIONS-BIODIVERSITY EXCHANGE

SUMMARY of EBEX

Landcare CRI managed scheme.

For landowners who allow land to naturally regenerate to native species.

Credits are managed by Landcare who on-sell these and pass the majority of funds to the landowner.

Minimum management required to maintain natural regeneration.

WHAT IS EBEX?

EBEX21 (Emissions-Biodiversity Exchange) is a service for New Zealand landowners that enables them to sell carbon credits from regenerating forests to third parties. The process is managed by Landcare CRI who assess sites for their potential to regenerate native forests, audit the carbon and biodiversity gains during the regeneration process and market the credits from a given site to businesses or individuals that want to offset their greenhouse gas emissions. EBEX21 carbon credits are a unique type of forest carbon credit, because it does not rely on the planting of trees instead, sites are carefully chosen that will naturally regenerate into forest. The sites are typically privately owned marginal farmland that have been retired from agricultural production, and generally cover large land areas (>100 ha). The majority of the emissions revenue is given to the landowner to replace the income lost from retiring the land out of production.

EBEX21 sites must satisfy key selection criteria to ensure they will successfully regenerate. Factors considered include rainfall, topography, and soil fertility. In addition, the land must meet the Kyoto Protocol afforestation definitions such as not being forested at 31st December 1989. EBEX21 carbon credits are expected to comply with the rules being established by Government on the PFSI. The PFSI will provide a mechanism for obtaining Kyoto Protocol.

Landowners sign a management agreement that ensures:

- Farm animals are removed and the site is fenced off to prevent grazing
- Weed and pest control
- No trees are harvested
- Native forest is the intended long-term use for the site and carbon credits therefore remain on-site forever
- The landowner does not sell more carbon credits than he/she has available

The amount of EBEX21 carbon credits available to sell are physically measured for each site. These site verification measurements will be done every 10 years.

WHO OPERATES EBEX?

EBEX is operated by Landcare Research which maintains an exchange of organisations who wish to off-set their C emissions

by purchasing C credits from eligible landowners who allow land to regenerate to native species.

WHICH LAND AND FOREST TYPES ARE ELIGIBLE?

Typically this will be on privately owned marginal land that is allowed to naturally regenerate back to native species. The land must not have been in forest prior to 1 January 1990.

The actual C gain is measured every 10 years and the majority of the credit is allocated to the landowner with a small proportion retained as insurance against fire, flood and other disaster.

The following criteria will need to be met.

- Is the patch of scrub at least 50 ha in area?
- Was the patch in pasture or in less than 30% tree cover (include only trees that can reach 5 m in height) at 31 December 1989? For example, pasture with the odd scrubby manuka bush or, gorse or broom with no native plants underneath.
- Are there now a significant number of plants present that can reach 5 m in height at maturity?
- Are there sources of native seed within a kilometer of the patch, e.g. forest remnants containing Coprosma or totara or manuka trees that are flowering/fruiting?
- Is the patch at a sufficiently low altitude that tall forest can actually grow there, i.e. it wouldn't 'naturally' be covered in tussock or subalpine species?
- Is the regenerating forest protected by a covenant (e.g. QEII) or are you prepared to seek a PFSI covenant in the future?

SPECIES ELIGIBILITY

Natural regeneration to native forest via a shrub nurse crop. Planting of tree species is encouraged if natural regeneration of these species is restricted.

FOREST MANAGEMENT AND HOW DOES IT WORK?

The land owner is required to commit to the long-term regeneration of the land and is required to obtain either a QE11 or PFSI covenant.

Carbon credits relating to the vegetation will be assessed and sold to purchasing organisations, (who apply through carboNZero website) for a fixed term, usually three years, through the EBEX exchange. Following that contact period, credits can be sold to other parties not related to EBEX. In return, EBEX21 agrees to verify the amount of CO2 removed from the atmosphere by your regeneration project, to maintain an inventory of carbon and biodiversity accumulation at your site and to seek future buyers of your credits if you choose. There are some key actions required by contracting landowners in the natural regeneration of pasture through scrubland to native forest.

Key Actions:

- Prevent fires
- Exclude domestic stock by fencing
- Retain gorse and broom as a nurse crop
- Control animal pests such as rabbits, goats etc.
- Control other weeds particularly round edges or in open patches
- Undertake restoration plantings if required.

Assessment of actual C accumulation is carried out every ten years. Average annual C units during early stages of regeneration appear to be assessed at 3 tonnes per hectare, giving a possible income of $60, less 10% per hectare at the present price of $20 per tonne.

See EBEX 21 site in Links for significant information and contacts.

APPLICATION PROCESS

Information and applications can be made through Landcare Research at: -

Landcare Research
PO Box 40
Lincoln 7640
Telephone: 03 321 9999
Email: ebex21@landcareresearch.co.nz

TRIMBLE FOUNDATION AND CARBON CREDITS

The Trimble Foundation owns two properties with a combined area of 460 ha. There is a mixture of land use on the properties including grazing, Pinus radiata forest and native bush. The table below shows the areas in forestry and the possible carbon credits that they could generate.

Land use	Hectares	Applicable scheme	Units / ha	Once only	Annual units
Pre 1990 Radiata forest purchased in 2004	130		39 NZU convertible to AAU	5070	$104,400
Natural regeneration around native bush	50	PFSI	3 NZU convertible to AAU		$3000
Exotic plantations 2006. 30% of the carbon generated does not attract carbon debits when trees are harvested. These numbers represent the free credits generated	25	ETS	0.5 NZUs 2.7 5.5 24.9 37.8 42.1 42.0 29.3 12.7 12.9 22.9 27.0	12 67 137 622 945 1052 1050 732 317 322 572 675	
Scrub and native trees	15	PFSI	3 NZU		$900
Sub Totals				6503	$130,060
Totals	220			11573	

An assumption is made that plantation trees will be thinned in year eight. The credits for the exotic plantations represent about 30% of the total generated and can be regarded as available for sale because on harvesting only two thirds of the carbon stored has to be accounted for.

Carbon credit policy

All units will be retained unless there is a need for cash or it is thought the carbon market has peaked.

The area in the PFSI will be converted to the ETS before the deadline in 2010 if conditions are favorable.

Measurement of units will be done by the most accurate way that developing techniques allow in order to learn more about the actual rates of sequestration. This may not be the most cost effective given the areas involved.

For the areas in the Emissions Trading Scheme sufficient credits will always be retained to cover the liability incurred when harvested.

Potential cash flow

At a price of $20.00 per unit the above carbon credits would result in

$101,400 being available in the near future.

$130,000 spread over twelve years

$3900 annually.

GLOSSARY OF TERMS

Assigned Amount Unit (AAU)

The emissions units allocated to Annex 1 countries (see http:/ unfccc.int) under the Kyoto Protocol on the basis of their quantified emission target for the first commitment period, 2008-2012. One AAU is equal to one tonne of carbon dioxide equivalent.

Basal area

The cross-sectional area (over the bark) at breast height (1.4 metres above the ground) measured in square metres (m^2).

Biodiversity

The relative abundance and variety of plant and animal species and ecosystems within particular habitats.

Carbon credit

A tradable unit representing the right to emit one tonne of carbon dioxide equivalent emissions.

Carbon dioxide (CO2)

A naturally occurring gas, which is also a by-product of burning and breakdown of fossil fuels and biomass, land use changes and other industrial processes. It is the principal human-induced greenhouse gas that contributes to global warming.

Carbon dioxide equivalent (CO2-e)

The quantity of a given greenhouse gas multiplied by its global warming potential, which equates its global warming impact relative to carbon dioxide. This is the standard unit for comparing the degree of warming that can be caused by emissions of different greenhouse gasses.

Carbon sequestration Unit

See Emission Units

Carbon stock assessment

The assessment of the total carbon in a forest including stemwood, bark, branches, leaves, litter, woody debris, stumps and roots.

Continuous cover forestry

Development of an uneven-aged forest through progressive harvesting of individual trees or small coupes – regulations require that harvesting shall retain a minimum 80% of the pre-harvest basal area on each hectare. (Note that this is the definition in the Regulations; it is not the forestry definition –for which see Barton, 2008)

Deforestation

The conversion of forested land to non-forested land (such as agriculture).

Deforestation Liability

The liability, in terms of released carbon, incurred by a forest owner who clears more than one hectare of forested land. (Emission Liability)

Ecosourcing

Collecting seed from the same area in which it is intended to plant the plants grown from them.

Eligible Forest

A minimum area of one hectare of land with tree crown cover (or equivalent stocking level) of more than 30 percent, with trees with the potential to reach a minimum height of five metres at maturity in situ. A forest may consist either of closed forest formations where trees of various strata and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 30 percent or tree height of five metres are included under this definition. So, too, are areas normally forming part of forest that are temporarily unstocked as a result of human interventions, such as harvesting or natural causes, but which are expected to revert to forest.

Eligible forest does not include shelterbelts which are less than 30 metres wide on average or forest which is less than 30 metres wide on average unless contiguous with other eligible forest or horticultural crops.

Emission unit or allowance

An instrument created under law that can be bought and sold, and used to meet an entity's obligations under an emissions trading scheme. In the New Zealand Emissions Trading Scheme, one emission unit corresponds to one metric tonne of carbon dioxide equivalent emissions. These are all treated as Kyoto Emission Units. Eg, AAU, NZU.

Endemic

Prevalent or peculiar to a particular area or region.

Exotic forest

A forest in which the dominant species does not occur naturally in New Zealand.

Forest Increment

Increase in volume or basal area of a forest area over a given period

Forest sink

Eligible forest that is growing or will be growing on Kyoto-compliant land as the result of active establishment.

Forest Sink Area

The land or parts of the land described in Schedule 2 of the Forest Sink Covenant.

Geographic information system (GIS)

A computer system designed to allow users to collect, manage and analyze large volumes of spatially referenced information and associated attribute data.

Geospatial

Term used to describe the combination of spatial software (that is GIS software) and analytical methods with geographic data sets (GIS data).

Indigenous Forest

A forest that comprises tree species known to be natural to New Zealand. Strict definitions may relate to the original method of forest establishment (and the direct involvement of people in the process), the mixture of flora and fauna, and the conditions believed to have been present prior to human intervention.

Kyoto Emission Unit

See Emission Unit

Kyoto Forest

A forest covering at least 1 ha with a tree canopy cover exceeding 30% of the land area, comprising trees able to grow to at least 5m. Young natural stands and all indigenous and exotic plantations, yet to reach a cover of 30%, are included as are areas that have been deforested by humans and expected to revert to forest. (see also eligible forest)

Kyoto Protocol

A protocol to the United Nations Framework Convention on Climate Change that includes emissions limitation or reduction commitments for ratifying countries listed in its Annex B (developed countries and Economies in Transition)

(see http://unfccc.int/resource/docs/convkp/kpeng.html for further information).

Kyoto-compliant land

Any land not covered by eligible forest as at 31 December 1989.

Landholding

For land subject to a forest sink covenant as defined in section 67X of the Forests Act 1949 means:

Freehold estate on the land; or

Leasehold estate in the land; or

Interest in that land that entitles a person to receive units or the value of units based on carbon sequestration by that forest sink; but does not include a registered interest by way of charge or security.

Landowner

Means the registered owner or owners from time to time of the freehold estate in the land.

New Zealand Emissions Unit Register (NZEUR)

See http://www.nzeur.govt.nz

New Zealand Unit (NZU)

A carbon unit specific to the New Zealand Emissions Trading Scheme.

Orthographically corrected aerial photograph

An aerial photograph that has had all the distortions due to camera tilt and surface relief removed. An orthophotograph has the advantages of a photograph in that all the visible features are displayed. It also has the constant scale and accuracy of a map.

Natural Regeneration

Natural forest regeneration relies on minimal labour input and allows nature to take its course by letting vegetation grow back naturally to mature indigenous forest.

Sequestration

The uptake and storage of carbon. Carbon can be sequestered by plants and soil and in underground/deep sea reservoirs. (Underground storage is also called geological sequestration.)

Shapefile

A digital file format particular to software products from the Environmental Research Systems Institute (ESRI) and used within a GIS to geographically describe points, lines and polygons, as well as associated attribute information.

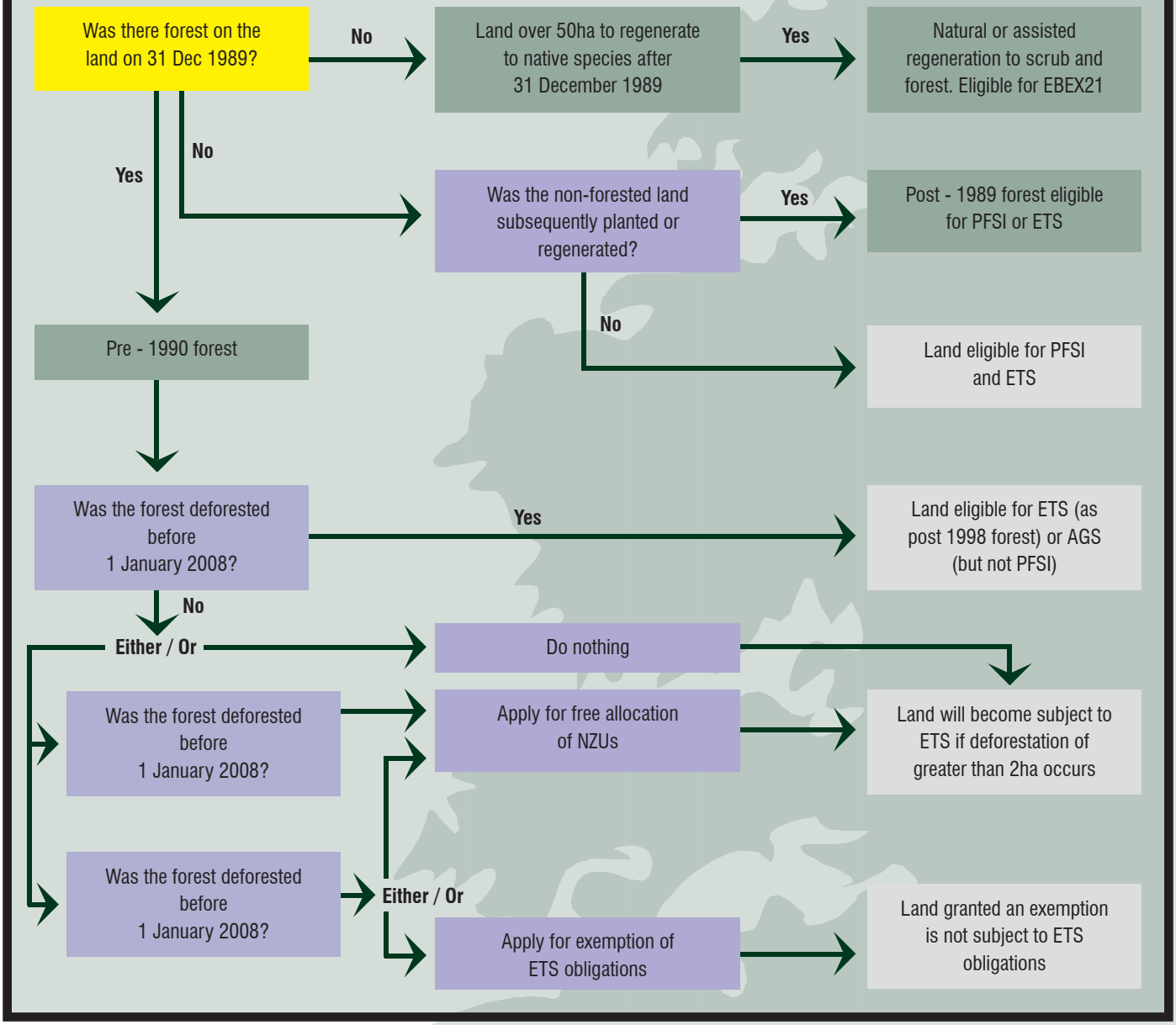
Sink credits

A sink credit is a unit derived from a forest sink activity that results in a net removal of greenhouse gases.

USEFUL LINKS

Afforestation Grants Scheme	http://www.maf.govt.nz/climatechange/forestry/initiatives/ags/page-02.htm
CarboN Zero - Tools and Resources to measure, manage & mitigate greenhouse gas emissions	http://www.carbonzero.co.nz/
Carbon Farming site	http://www.carbonfarming.org.nz/
EBEX 21	www.ebex21.co.nz
Emissions Trading Scheme	www.maf.govt.nz/climatechange/forestry/ets/
ETS relative to AGS	www.maf.govt.nz/climatechange/forestry/ets/engagement/page-08.htm
ETS Draft Regulations	www.maf.govt.nz/climatechange/legislation/regulations/Forestry-Sector-Regulations-2008.pdf
Forests (Permanent Forest Sink) Regulations 2007	www.legislation.govt.nz/regulation/public/2007/0354/latest/viewpdf.aspx
Glossary of terms relating to NZ Emission Unit Register	www.nzeur.govt.nz/templates/Page____21789.aspx
Indigeous Forestry Unit MAF	www.maf.govt.nz/forestry/indigenous-forestry/
MAF Climate change Main site	www.maf.govt.nz/climatechange/
NZ Emission Unit Register [NZEUR]	www.nzeur.govt.nz/
Parliamentary Commission For the Environment	www.pce.govt.nz/reports/allreports/Cstorage_in_indigenous_forests_%2026_06_2008.pdf
Permanent Forest Sink Covenant	www.maf.govt.nz/forestry/pfsi/forest-sink-covenant_0408.pdf
Permanent Forest Sink Guidelines	www.maf.govt.nz/forestry/pfsi/pfsi-guidelines/
Sequestration - Indicative Tables	www.maf.govt.nz/climatechange/forestry/ets/sequestration/page-03.htm

DECISION PATHWAYS FOR FORESTRY CARBON TRADING AND SEQUESTRATION



TRUST ACTIVITIES AND NOTICES

This issue of the newsletter is double the usual size and is aimed at giving members a concise and accurate summary of the complex situation regarding Kyoto, carbon credits and all those other aspects of the climate change scenario that surrounds us at present. Other issues which you should be aware at this time are:-

The Beech Bulletin: Work has begun on this and the next phase is to hold meetings with interested people. Some of these will consist of focus group meetings and one is tentatively programmed to be in Christchurch near the end of the year. Would all members who have an interest in beech, especially those who have planted trees, please e.mail ibtrees@wc.net.nz and advise your interest. You will be contacted when someone is planning to be in your area.

Survey of indigenous plantations for carbon accounting: This project, which is also to begin soon, requires advice from members with planted indigenous plantations that they are interested in having sample plots established in their forest. We would also like to hear about other indigenous plantings in your district –in any form of ownership. Again contact ibtrees@wc.net.nz with initial advice. Further information and fuller details will be in the January 2009 newsletter.

Renewal of Subscriptions: Subscription notices for the 2008/09 year were sent with the last newsletter in May. If you have not yet paid there will be a reminder subscription account with this newsletter. As chasing up unpaid subscriptions is very time consuming, it would be appreciated if you could e.mail ibtrees@wc.net.nz if you do not wish to continue with membership.

ACKNOWLEDGEMENT;

This newsletter, produced by Tane's Tree Trust, is intended to provide a summary of the impacts on indigenous forestry of the various climate change and carbon issues. Much of the information has been taken from various MAF and other government publications and web pages but should not be relied upon for legal purposes and specialist legal advise should be sought where required.