

related areas at Landcare Research. It is hoped that the study will reveal why staff left FRI or Landcare, whether or not replacement staff with similar skills were recruited, the overall impact of the losses on the New Zealand forestry research capability, and where the staff went to.

### Indigenous Forest Research

Research which relates to the management of indigenous forests for wood production remains heavily underfunded. The Ministry of Forestry (MOF) are providing about \$40,000 for small coupe research in South Island beech forests and this is being supplemented by an additional \$20,000 from West Coast Timberlands. It appears that no money is available for researching the development of new management approaches for podocarp forests or the impacts of current helicopter logging in Westland on long-term sustainability of the forest ecosystems, productivity and genetic resources. The lack of funding for indigenous forest management is a small part of a much larger problem: the funding (or lack of) of so-called "policy research". Policy research is research which supports the development or implementation of policy which is usually specific to a government department. For instance, the development of economic instruments to reduce net CO<sub>2</sub> emissions, development of new methodologies for calculating carbon credits, understanding the capability and enhancement of the carbon sinks provided by forests and forest soils, and forecasting the impacts of climate change are examples of other policy research that should receive attention if New Zealand is to meet its commitments under the Framework Convention on Climate Change. Generally, FRST is reluctant to fund policy research because it sees that this is a responsibility of departments and departments such as Ministry for the Environment (MfE), MOF and the Department of Conservation (DOC) do not have the funding to support operational policy research or have other higher priorities into which they allocate funding. Consequently, some important policy research, concerned with climate change and sustainable management of indigenous forests and other topics, appears to be slipping through the cracks under the present research funding arrangements.

In the case of indigenous forest research MOF should be providing more operational research funding for investigations concerned with the economics, ecological sustainability and environmental impacts of small coupe harvesting systems in beech and low-density selection logging in podocarp forests. After all, the Ministry has responsibility for ensuring

that the Forests Amendment Act (1993) is implemented correctly.

### Future Funding for Plantation Forestry Research

The Foundation for Research, Science and Technology's research strategy for "Plantation forestry wood and paper processing" (September 1993) indicates that plantation forestry research funding from the PGSF will decline from \$10.2 million in 1992/93 to \$9.2 million in 1997/98. There is some concern by FRI that the silviculture and management of radiata pine and of specialty timber species and mensuration and management research programmes may be forced to take the brunt of the reductions. However, not all the research funding news is bleak. There are rumours in the Wellington bazaar that this year's Budget may include an extra \$10 million for the science budget. NZIF intends to develop a paper for the Ministry of Research, Science and Technology and the Minister of R S & T presenting a case for additional funding for indigenous forest management and plantation forestry research.

### Overseas Research News

Graeme Caughley, who worked for FRI in the 1960s/1970s and then moved to Australia to work with Sydney University and CSIRO, died on February 16, 1994. Graeme Caughley became internationally

known for his work on large mammals (deer, thar, kangaroos, elephants) and was regarded as one of the world's foremost animal population dynamics experts. He was known in NZ for his book "The deer wars" and his "Kaikoura" theory for the early Polynesian colonisation of NZ.

The results of a long-term study of global forest carbon sources and sinks were recently published in *Science* (Dixon et al 1994. Carbon pools and flux of global forest ecosystems. *Science* Vol. 263, No. 5144; 185-190). The paper indicates that globally forests contain 1146 petagrams (10<sup>15</sup>g = 1 billion tonnes) of carbon, with approximately 37% of the carbon in low-latitude forests, 14% in mid-latitude forests and 49% in high-latitude forests. On average over two-thirds of the carbon in forest ecosystems is contained in soils. In 1990 deforestation in low latitudes emitted 1.6 petagrams of C per year, whereas forest expansion and growth in mid and high latitudes sequestered 0.7 petagrams of C, thus producing a net flux to the atmosphere of 0.9 petagrams of C. Future forest C cycling trends attributable to losses and regrowth associated with global-climate and land-use changes are uncertain and various modelling studies suggest that forests could be C sources or sinks in the future.

**Colin O'Loughlin**  
Convenor, NZIF Science Group

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## The phoenix which rose from the ashes

Anyone who might have thought that the Institute of Forestry was dead would have been in for a surprise if they had attended the 1994 AGM and Conference at Nelson in April. The attendance list recorded 196 names, members and non-members, and I doubt if anyone would have regretted giving up their precious time to attend. This is a far cry from the 40-odd who attended the Tongariro Conference, and the conference which had to be cancelled through lack of support. It follows on from the very successful Napier Conference last year. We were told by Council that membership continues to increase strongly.

The AGM itself was presented in an innovative way, with the President choosing to reallocate precious time from what used to be a banal session of local section reports to a time for raising issues for the Institute to address. It is now up to Council to act on the ideas presented.

The conference theme "NZ Plantation Forestry – a Sustainable Resource" was timely as we all grapple with the piecemeal introduction of the Resource Management Act. Speakers ranged from Greens to grassroots foresters, and from scientists to philosophers. Dennis Richardson took us on a delightful journey through Burma and the inadequacies of modern economic theory which places no value on an existing indigenous resource, nor on the cost of making 70-year-old elephants redundant due to the (unsustainable) introduction of mechanised harvesting machinery.

The field day was held in lovely fine weather, and it was a welcome change to spend more time seeing things and discussing issues at the six stops than spending hours on buses getting from A to B.

No conference is complete without is social interaction, and this was well pro-

vided in the form of two dinners (on successive nights, of course!), well lubricated by their preceding "happy hours". Awards were presented at the official conference dinner, and it was indeed a pleasure to see Geoff Chavasse presented with the Kirk Horn Flask plus a bottle of the vital ingredients with which to keep it well charged.

The organising committee excelled themselves in the efficient organisation of a memorable AGM and Conference, not only in the smooth running of every aspect of the event, but also in the very high level of sponsorship achieved which, for poor consultants like myself, helped to keep the registration costs down to a very reasonable level indeed. This will be a hard act to follow next year. And our thanks must go also to the sponsors for helping make the event both affordable and enjoyable.

#### **Dennys Guild**

## **Forest Valuation Working Party progress report**

The Working Party is in the process of developing guidelines for forest valuation. We have met eight times (to the end of April) and have prepared drafts on:

- the purpose for forest valuation;
- alternative approaches to forest valuation for each purpose;
- guidelines on the appropriate method for each purpose;
- standards for forest description.

Draft Standards for Forest description have been written for:

- Description of Land
- Forest Area
- Declaration of Land Value
- Description of Croptyping
- Recording Forest History
- Yield Estimation
- Describing Costs
- Specification of Prices
- Disclosure of Discount Rates.

The Working Party is currently in the process of reviewing these standards. It is anticipated that discussion drafts of the Standards for Forest Description together with other background material will be released for review in June. Comment will be sought from both members and the wide range of other interested parties.

**Bruce Manley  
Convenor**

# **The role of forestry in the MacKenzie Basin**

Institute President Peter Olsen and Councillors joined a group of members from the Canterbury Section in an inspection and general review of the role of forestry in MacKenzie Basin on March 5 and 6.

We enjoyed the enthusiastic and expert guidance of Nick Ledgard as we inspected established tree planting trials on a representative dry lowland site, earlier planted shelterbelts, and a comprehensive arboretum of various conifer species at the Rib-bonwood Station, Omarama. The group also viewed the impact of shelterbelt plantings, small established woodlots, and escaped wildings on the impressive tussock grassland landscapes dominating the foothill country around the basin itself.

The weather was beautifully fine and almost cloudless as we ascended the Mount John University Observatory site for luncheon. The panoramic scene lived up to its reputation as a countryside with special qualities that have made it a unique landscape. The shape of the surrounding mountains was more dramatic under a bare tussock mantle. And neither the "barbecue-breaker" daily on-shore gale, nor the more familiar nor'wester, which provide New Zealand records for peak windiness on this most exposed site, were thankfully present on this occasion.

Nick provided a well-balanced introduction to the opportunities and challenges facing land owners and others with an interest in landscape values. This has been a particularly damp season and those unfamiliar with the impact of successive seasons of drought might have gained a rather rosy picture of tree establishment and growth prospects.

To the much discussed and vexed question of tree wildings Nick stated his firm belief in the strategic importance of adopting a firm management policy to control outbreaks at the outset rather than stand by and let the countryside be checked with scattered and unevenly spread trees. The neglect in some districts has jeopardised the support of others in the community who have a less direct interest in sustainable and profitable use of the land.

The scale and special care taken in establishing new and comprehensive Landcare/FRI trials of several conifer species on a carefully selected representative lowland site took most of us by surprise. There were machine-planted rows

of small seedling trees and parallel open sown seed trials for comparison in the rabbit-proofed enclosures. Frost is seen to be a more serious controlling factor in survival than drought – and severe frost sufficient to kill young pine trees and Douglas fir may be absent for several years.

#### **Snowfalls**

For those who are unfamiliar with sustained frost risk in the inland South Island hill country I quote from the official meteorological report for July 1968:

"The snowfalls on the last four days of June on the high country of both islands and to low levels in the South Island persisted for the first four days of July, and there were further falls about July 10-12, and on the 25th. Frosty conditions, especially during the first half of the month, allowed little opportunity for the snow to melt over the greater part of the South Island. On the hills to the south-west of Mossburn at an altitude of about 650 metres the depth was reported as 70 cm and 350 cm in the drifts, and it remained frozen there for three weeks.

"Very severe conditions were experienced, even at quite low altitudes where a continuous snow cover persisted. For example, Tara Hills, Omarama (altitude 500 metres) had snow lying on the ground the whole month, never less than 14 cm in depth. The mean temperature was  $-5.0^{\circ}\text{C}$ , the lowest ever recorded in New Zealand for a month below the altitude of 1000 metres. On eight days the maximum temperature failed to reach zero C, the lowest maximum being  $-6.7^{\circ}\text{C}$  on the 14th. The air temperature fell just below  $-17.8^{\circ}\text{C}$  on the 6th, 7th, and 14th."

And we have been reminded of particularly cold months in recent years, notably July 1991 and June 1992 in both Central Otago and in the MacKenzie Basin when established radiata pine trees and eucalypts suffered severe damage and loss.

At all events the newly-planted tree seedlings looked most promising and the good depth of soils would enable the young trees to send roots down to a level that would render them more drought resistant. There was some evidence of the importance of mycorrhizal inoculation on this site. Nick commented that the MacKenzie Basin was, however, essen-