

# Balneaves Travel Award report

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From August 3 to October 9 last year I was lucky enough to circumnavigate the world while attending to forestry matters, with stops in Nepal, the UK, Austria and the US. A considerable slice of the funding needed for the travel was supplied by the NZIF's Balneaves Travel Award - hence my writing an account in our Journal.

The month in Nepal was to visit a forestry aid programme in Sagarmatha (Everest) National Park (SNP) which I have been managing for the Himalayan Trust and the Sir Edmund Hillary Foundation of Canada since 1989. I write a report annually, and try to get there at least once every 2 years - this was my 8th trip. In Innsbruck, Austria I presented a paper and a poster at a IUFRO conference marking the International Year of the Mountain. I was the only one present from the southern hemisphere, and presented a paper entitled "Integrating plantation forests into New Zealand's South Island high country", plus a poster (and written paper) on "Forestry in Sagarmatha (Everest) National Park, Nepal". Both these papers and the Nepal report can be obtained from myself on request.

In the United States I joined a study tour looking at forestry in the Pacific North West and the South East. This tour was organised by Jeff Tombleson of Forest Research on behalf of the Forest and Farm Plantation Management Co-operative. This article will focus on comments on the American portion of my travels.

The tour started in Seattle and headed south through western Washington state into Oregon, before we flew down to North Carolina, Georgia and Florida to inspect the huge forest areas of the South East. Major hosts were the universities of Oregon State, North Carolina State and Georgia, the US Forest Service, Weyerhaeuser, International Paper, Rayonier, Plum Creek, Longview Fibre Company, Cascade Timber Company, Starfire Timber Company, Starker Forests and Thompson Forests. Linking the whole programme were University extension personnel from Washington, Oregon, North Carolina and Georgia (namely Mike Bondi, Rick Fletcher, Steve Woodard (retired), Lee Allen and Larry Morris).

It was a full-on trip with much to be seen. No attempt will be made to cover it in depth here, as there is not room, and many readers will already be familiar with the North American forestry scene. However, a few comments must be made.

## Pacific North-West

For one with my background, seeing the home of Douglas-fir was of core interest. Much of the native resource is under conservation management, and it was initially thought by many that 'lock up and leave' would conserve traditional landscape and biodiversity values. Now there is growing realisation of the need to involve active management in order to achieve the best environmental outcomes. Such management is now allowed up to age 80. We saw this being done (in the form of production thinning) in Willamette National Forest.

Ironically, the management of public lands often represents a 'no-win' situation for scientists. They have long argued that management is needed for the likes of improving forest health and lowering fire risks, but public sentiment has been against such 'interference'. Now, where the forests are looking unhealthy due to fire and pest attacks, the public are saying "Why haven't the scientists done something about it?" And where active management is underway, the inevitable "What the hell is going on?" is being heard. This should serve as a wake-up call about the importance of good PR / extension.

With the limited availability of 'old growth' logs (few mills can handle logs of >90 cm SED), there is a growing market demand for smaller trees. The most profitable log size in the PNW was said to be 25-40 cm SED. At Starkers, we saw a 20-year-old Douglas-fir stand which had been profitably production thinned down to 500 stems/ha. SEDs were down to 8 cm, with thinnings returning NZ\$1600/ha. But, a word of caution for New

*Photo 1: Huge Douglas-fir logs used to be a feature of PNW milling - as pictured at the Starfire Timber mill in Oregon. Now, the resource is limited and few mills handle them. The emphasis is moving to small logs, down to as little as 8 cm SED.*



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Photo 2: Group members shelter in the shade of the tour bus, while being addressed on site preparation by Rayonier staff in N. Florida.



Zealand foresters - stems must be dead straight for such a thinning to be financially successful. Relative to old trees, we saw huge logs (mainly obtained from Indian Reservations at a mill-door price of around NZ\$1100/m<sup>3</sup>) being sawn for the Asian market. And of note for New Zealanders - some had resin pockets, which were of zero concern to the mill owner.

No visitor can inspect production conifer forests these days without listening to discussion on green certification. In the PNW, the Forest Stewardship Council (FSC) system is the most widely recognised, but it is also the most expensive, especially for small growers. Other systems, such as 'Green Tag' (aimed at the small grower, but considered light-weight), and particularly the industry-supported 'Sustainable Forestry Initiative' (SFI) are gaining support. We visited the huge DIY outlet, Home Depot (HD). We were told that the main reason why HD is committed to wood as a sustainable product (and therefore supports certification), is so that customers have no reason to feel uncomfortable or guilty about using wood. In this context, HD is not really concerned about which system gives that assurance. In fact, HD support for FSC is apparently declining, as news of its expense and 'unfriendliness' to small growers (now owning 60% of production forests) gets about - along with the potential to make customers feel uncomfortable.

A major consideration of State 'Best Management Practices' and forest certification, is water quality. We inspected impressive examples of riparian management by Ed Hendrix of Longview Fibre forests. Ed has won a prestigious Forest Stewardship Award for his riparian management. Present Oregon rules recognise nine classes of stream - large, medium and small (based on average water volume), under three primary use categories - fish, domestic and 'other'. There are differing setbacks for

each (30 m for 'large fish'), with some extraction of a certain percentage of timber down to 10 m from water. Ed had also witnessed an interesting evolution of attitude towards wood in streams. Initially none was tolerated - all had to be removed after harvest. Now, there is a requirement for logs to be deliberately placed across streams, but well 'anchored', so that they cannot be washed downstream. These create fish and invertebrate habitat, as well as keeping water temperatures down (an average of 17.5°C should not be exceeded over 7 days). The system seems to be working well, but it may not stay that way, as contention is looming relative to small, 'intermittent' streams. If riparian strips are demanded alongside these, then a whole new can of worms is opened up. For a start - how does one define an

intermittent stream?

Some environmental operations appeared almost over the top. Dead wood and standing dead stems or 'snags' comprise important feeding and nesting sites for insects, animals, and birds. In managed forests they are required to be left (so many per hectare in clear-felled areas), and if need be, created in thinned areas. This may require removing the top and foliage from a live tree. In Oregon we saw a thinned stand where tree stems had been trimmed at 5 m to create a dead snag, while in Willamette National Forest, the Forest Service had created more jagged ends by blowing tops off with explosives - at US\$50/tree.

### South-east

The South-east is the 'bread-basket' of US wood production, with 80 million ha of timber land, of which about 16 million ha is planted. Forest management philosophy is dominated by the demand for pulp-wood fibre. Average productivity is only around 10m<sup>3</sup>/ha/yr, and is dominated by loblolly pine (*Pinus taeda*) - the 'radiata' of the South-east. One of our hosts was Plum Creek, the largest US forest owner (3 million ha) - planting over 100 million seedlings annually. Plum Creek is a Real Estate Investment Trust, trading on the New York Stock Exchange, and managing its estate for the highest financial return. Their primary business is to grow, harvest and sell timber (they have no processing facilities), with additional value realised from real estate dealings and 'natural resource business opportunities'. They have made big investments in research, with huge advances in silviculture over the last 10 years - growth rate has tripled from 6 to 18 m<sup>3</sup>/ha/yr. The main advance has been in better stock and establishment practices (usually involving total weed control and machine

planting), and the use of fertilisers.

A feature of the South-east was the large areas, and vigour, of hardwoods (*Quercus*, *Liriodendron*, *Liquidambar* etc), which are perceived to be of little value. They were often described as 'weeds', even though they have good 'green tick' value. Hardwoods require longer rotations and, despite many stems of excellent form, receive lower prices than conifers. We were given the following comparative stumpage prices (in \$NZ): pine pulp - \$ 16/tonne; hardwood pulp - \$13, Chip and saw pine - \$66; mixed hardwood sawlog - \$44; selected oak sawlog - \$78; pine sawlog - \$108; poles - \$154. Many of us came away scratching our heads - if this is the value given to good-looking hardwoods, then what chance do we have in New Zealand for growing them profitably for export?

As in the PNW, water quality was a major issue - particularly considering a past involving wide-spread erosion. In Georgia it was alleged that as a result of large-scale past land clearances, mainly for cotton growing, an average of 15 cm of topsoil was lost from the whole State.

We saw some impressive riparian zone trials looking at overland interception of both sediments and chemicals below a harvested / site-prepared area. Results indicate that wide Streamside Management Zones (SMZs) are not much help on steep slopes, as water is readily channeled through them, often by way of 'by-pass' flows down old root channels. The conclusion was that SMZ width was not as important as management practices on logging sites; i.e. amount of soil exposed, placement of skid tracks, use of slash to filter sediment in potential runoff gullies (known as 'break-through' points).

As one who has had a long interest in non-wood and non-conifer forest products, I was fascinated to see the importance of Christmas tree production in the PNW and pine needles in the SE. The former is big business, particularly in Oregon, where trees were being transported into California and right over to the East Coast. Well-shaped Douglas-fir were worth US\$15 each (at age 5), with Noble fir fetching a premium of up to US\$30 (at age 8-9). We estimated these two species to be grossing \$US5,000 and \$7,000/ha/year respectively, compared to a 50-year timber regime (two thinnings before clearfelling), estimated to be grossing US\$1,200/ha/year. Pine needles are used in the SE for garden / horticulture mulching, and there is a high demand for the better species (*P. palustris* and *P. elliotii*). As one drives through urban areas, use of pine needles for mulching is often seen. Clean needles are baled, and can bring in US\$250-400/ha/year. Inquiries as to the advantages over bark

*Photo 3: In the swampy, flat land of N. Florida, site preparation is critical. Here, discs and an hour-glass roller are being used to form raised planting beds after vegetation clearance by shear-blading using an angled KG blade.*



were inconclusive.

Finally, the tour would have been impossible without the input of University Extension personnel. This use of universities for forestry extension is unique to the States. It was started in the early 1900s, when it was realised that universities were getting more and more disconnected with operational reality. One University in every State was then given an extension role, or a third 'mission' of Outreach, to be added to Teaching and Research. This is in addition to State extension activities, which are designed to pass on a message or policy, whereas the University's role is to go to end users and find out their problems and needs, and then to work on solving these by research, or through co-operative learning and knowledge dissemination programmes. They do this in a number of ways - publications, web sites, teacher workshops, a Master Woodland Manager programme which trains 'lay' extension officers, running outside education courses (around 50 a year), helping to manage demonstration areas - and, of course, showing tour groups around.

John Balneaves was a colleague of mine, working out of an adjacent office at our Rangiora base. I remember him as one of the few scientists about whose research results one often heard operational foresters talk in the field. I know he would have learnt heaps from this trip around the world. I certainly did. I am most grateful to the Institute for offering me the Balneaves Travel Award, and making such a learning opportunity available.