World Forestry Congress

Nothofagus in Patagonia

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Immediately following the World Forestry Congress three New Zealand participants (Alan Reid, John Novis and myself) took the field trip to Southern Patagonia. This note reports on some of the management we were shown in Nothofagus forests. The three main beech species are \( N. pumilio \) (lenga), \( N. betuliodes \) and \( N. antarctica \) (ñire).

Fur trade

The Argentina area of Isla Grande de Tierra del Fuego lies between about 53 and 55°S and a third is covered in forest. About 41% of these forests are protected. In 1946 twenty five pairs of Canadian beavers were introduced to promote a fur industry. The industry never developed but the beaver enjoyed the conditions having no natural predators. They have effectively destroyed or severely modified about 3% of the native forest, mainly along the fertile river and stream bottoms (Photo1). Their activities have greatly modified the stream and nutrient cycling dynamics.

In 2005 beaver were found on the South American continent near Punta Arenas in Chile. Chile and Argentina have launched a beaver eradication programme.

When will others learn from New Zealand’s experience with introducing animals?

Logging and management of Nothofagus forest

Currently about 500 people work in 15 forest industries that utilize the primary lenga forests of Tierra del Fuego. We visited the Bronzovich sawmill of Lenga Patagonia S.A. (Photo 2). The company is in the process of getting FSC certification. The sawmill processes >30 000 m\(^3\) of logs each year, which is more than the indigenous logs being currently processed in the whole of New Zealand (Griffith 2009). Because of the high defect in the logs the conversion factor is 33% (Photo 3). The sawmill manufactures a range of higher value wood products such as tongue and groove panelling, furniture parts, mouldings and glue laminated products. All wood is kiln dried, but the kilns are gas fired rather than using waste because the gas is available a no cost. Stumpage is US$5-10 m\(^{-3}\); the cost delivered to the mill is $30 m\(^{-3}\) while tongue-and-groove panelling sells for $800 m\(^{-3}\).

Lenga Patagonia owns 76 000 ha of which about half are productive lenga forests. Some sawlogs are also sourced from State forests. Growth rates in Tierra del Fuego are about 4-5 m\(^3\) ha\(^{-1}\). Their current annual cut is 215 ha. The forest is managed as on a seed-tree/shelterwood system with
a final cut after 15 years and an estimated rotation of 120 years. The standing forest has 600-700 m$^3$ ha$^{-1}$ of which 180 m$^3$ ha$^{-1}$ is suitable for skidder extraction (Photo 4). There is a great deal of waste wood left behind (Photo 5). Windblow often results in a 25% loss of the trees before the over-wood is removed.

The overall impressions are that operations are similar to New Zealand’s Southland beech management of 30-plus years ago. It seemed a pity that these old-growth forests were being harvested with so little benefit and huge waste - after sawing about 10% of the standing volume ends up being used.

**Agroforestry in ñire forests**

This species has a rougher form than the other two species and so is not used for sawn timber although it is widely used for firewood. There are 752 000 ha of ñire in Patagonia and about 70% of these forests are used as extensive silvopastoral system with cattle and sheep (Photo 6). The major problem associated with the system is ensuring regeneration and research is also being undertaken on optimal tree cover. There is also some evidence that firewood production can result in over exploitation.

**Reference:**