Markets for radiata pine logs as seen from that other softwood region

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ABSTRACT
North Americans are increasingly concerned about growing competition in log markets from other Pacific Rim countries, especially New Zealand. Total Pacific Rim demand for small logs is expected to grow steadily through 1995, with supplies falling behind slightly through 1990 and then keeping abreast of demand through 1995. Prices of small logs are projected to rise about 11 percent by 1990 and hold steady thereafter. Pacific Rim prices are sensitive to New Zealand's small-log exports. In 1990, an export increase of 550,000 m³ would depress prices by about 6 percent.

As New Zealand's postwar-planted softwoods grow larger and those along the Pacific Coast of North America grow smaller in average size, our marketing interests may collide. We both hope for higher prices and greater overseas consumption of our roundwood. This paper deals with how Americans, at the northeast corner of the Pacific, perceive the outlook for log demand, the threat from New Zealand to our "rightful share" of the market, and some projections of the competition posed by other softwood suppliers.

This discussion is confined to small US logs, between 15 and 30 cm in small-end diameter, and to roundwood elsewhere that competes with that key American size class. Market experience shows, for example, that your large diameters and wide rings compete price-wise against our smaller material with its tighter rings. Too, your pruned logs enter markets that receive our small-but-old trees with four rings and more per cm but with a high incidence of age-related defects. In the same price class are several North American softwood species, radiata pine from Chile, and Soviet larch.

THE SUPPLYING COUNTRIES
From the northmost shore of the North Island, one might look seaward and visualize a myriad ships trekking westward from the Americas, bearing timber to Asia. Perhaps 1800 cargoes yearly, a ceaseless and ominous flow. However, the softwood supply outlook for North America is mixed.

Canada
In the coastal zone of British Columbia, timber harvest has been heavy relative to reforestation. A significant fraction of the remaining forest is small trees. British Columbia's Ministry of Forests puts the volume of residual small timber between 22 and 32 cm dbh at about one billion m³. Of this, Reed (1984) has estimated that about 3 million m³ could be harvested annually, subject to economic factors that currently make that timber unusable. In addition, stands of larger timber contribute to small-log exports.

Export restrictions in British Columbia have precluded log exports for many years. During the world timber recession of 1978-83, export restrictions were relaxed to provide an outlet for timber, primarily from coastal forests, that could not make its way economically into the North American market. In 1984, the export volume was about 3.3 million m³; in 1985 it was about 2.4 million m³. I have estimated that about 26 percent was small logs.

There is industrial pressure on the provincial Government to allow more log exports from British Columbia and a move to designate stands and tracks of timber expected to be subeconomic in domestic markets. The volume of small timber that will be generated for Pacific Rim trade has not been estimated in Canada. Based on conversations with Canadians and some recent publications (British Columbia Ministry of Forests 1984; Nilsson 1985), my guess is that it will average about 350,000 m³ annually for the next ten years.

Interior Canada, because of its proximity to US markets, has recently accounted for about 30 percent of US lumber consumption. Should that market falter, interior logs would no doubt make their way to the coast for export. That is already happening in the States. Volumes will depend, of course, on the new export predesignation rules now being implemented.

United States
Small roundwood presently comprises about 15 percent of US log exports and the share is growing. Large old-growth timber is nearly gone from private land in the United States and on public lands the harvest has steadily moved upward through the low-lying Douglas fir stands to upper-slope forests of true firs (Abies) and hemlocks (Tsuga), with the smaller stature that high elevation suggests. Our young growth forests, predominantly Douglas fir and mainly on private land, are reaching economic maturity and are being cut rapidly. Export statistics are not provided by log size, but I judge that about 2.3 million m³ of small logs entered the Pacific trade from the United States in 1985. I estimate the volume will be about 2.8 million m³ in 1990 and about 3.4 million m³ in 1995. This flow comes from a small-timber inventory of about 600 million m³ (in diameters between 28 and 48 cm). In contrast to small-timber stands in British Columbia and Alaska, young stands in the Douglas fir region account for about one-third of the harvest and an even larger proportion of the growth.

Timber harvests are expected to decline through the rest of the century from the Pacific coast of the United States outside Alaska (Haynes and Adams 1985). This expectation is widely shared, and there has been much discussion in the popular press about structural economic adjustment to the new realities. Investments to improve production efficiency and mill closures have led to significantly lower wood-products employment (20 percent in Oregon, for example) but little change in manufacturing capacity. In 1984 and 1985, we produced and sold near-record volumes of lumber from the western states. For the short run, then, the timber is here, reflecting a recession-caused backlog of unsold timber on public lands. Nonetheless the long-term inventory decline is...
real, so the question for Pacific trade is whether an increasing share of the harvest will be exported. My judgment is that it will, for reasons of economic geography. Competitive as we obviously still are in lumber, rising domestic transportation costs and a large supply in the southern states cannot be ignored. Too, the long-standing export of Canadian lumber to the United States has been accelerated by our strong dollar, a flow attracting much recrimination. Overall, the Pacific seems to be an increasingly attractive outlet to our timbermen. Alaska, with its extensive stands of sitka spruce (Picea sitchensis), hemlock, and inland white spruce (P. glauca), exports almost no small logs—despite the fact that virtually all of the interior Alaska inventory of 70 million m³ is in small timber (half is less than 28 cm dbh), and one-third of coastal Alaska’s inventory, about 300 million m³, are small trees. In 1985, about 1.3 million m³ of logs, virtually all larger than 30 cm, were exported from Alaska. The difficulty with smaller logs is purely economic; Alaska has some of the highest costs in the world. Without a much weaker dollar or higher overseas prices, the outlook does not look bright for Alaska logs in the Pacific Rim trade.

Chile

Chile’s radiata pine log exports (about 1.3 million m³) in 1985, up 50 percent from 1984, are over twice New Zealand’s and equivalent to about half the volume of small logs coming into the Pacific from the United States. With a million hectares already planted, Chile can be a formidable competitor. Already they have about 100 million m³ in plantations (Instituto Forestal 1984b). New Zealand’s foresters have long been interested in Chile’s forest management and probably have a clearer view of their potential than we do in North America (e.g., Fenton 1984). Indeed, the Chilean possibilities have been largely ignored here. Chile appears to have the benefit of a well-established marketing network for its products in both the Pacific and Atlantic regions, except for wood-pulp products.

A Chilean study (Instituto Forestal 1984a) has produced harvest estimates for radiata pine in the neighbourhood of 40 million m³ per year in the late 1990s and beyond. The trees are there; their impact on the Pacific Rim log market will depend on rotation-age decisions and the share of harvests dedicated to pulp and sawnwood. As in several Pacific Rim countries, concerns about international debt and domestic employment can be expected to guide industrial development strategies; the latter will affect the volume of logs available for export in round form. Chile intends major investments in processing facilities, amounting to almost NZ$38 billion (Anon. 1985). Whether those funds will be forthcoming, presumably from foreign investors and lenders, may be dubious considering Chile’s considerable debt and perceived instability. Failing those investments, Chile may be an even greater force in the small-log trade than my estimates of 3 million m³ in 1990 and 4 million m³ in 1995. The estimates embrace an assumption that 90 percent of Chilean radiata log exports will compete in the small-log market, declining to 88 percent in 1995.

The Soviet Union

Diagonally across the Pacific, the USSR has been exporting logs into the Pacific in sizes and grades that compete directly with radiata pine. Recent volumes have been about 6.4 million m³ annually. Soviet trade flows seem to be independent of prices, at least in the short run, with export volumes determined mainly by five-year plans. Official projections call for steady but modest increases. A new 3200 km railway from Lake Baikal to the sea passes through some of the best remaining timber in eastern USSR, although much is small-diameter larch (Blandon 1983; Maplesden 1985; Sutton 1975; Zhuravlev 1985).

Three decades ago we North Americans worried that USSR exports would swamp western Europe with wood products. Whatever their capacity to do so, they have not, although exports exceed imports in almost every category of wood products. One view in North America is that the new railroad will open vast stands of timber that will logically move eastward into the Pacific to increase badly-needed foreign exchange. An opposing view is that equipment, skilled workers and infrastructure are lacking for increased harvests in Siberia and the Soviet Far East. An intermediate view, little discussed here, is that even if the immense investment imbedded in the railroad is predicated on exploitation of other resources, timber in tributary areas is easily fetched and would offer occupations to a rural workforce. Rural development has long been a Soviet priority (e.g., Kogan 1985; Stalin 1972). A national initiative founded, say, on free land, subsistence farming and part-year employment might generate the sort of land rush that occurred in North America a century ago. A more incremental view of the possibilities is based on known increases in harvesting capacity and investment plans amounting to growth of about 1 percent per year (Flora and Vlovsky in press, US Department of Agriculture 1985).

Australia

Cross-oceanic wood products flows to Australia are well known here, with that country having been a market for North American timber for a century. The presumption among analysts here is that Australia’s forestry efforts will concentrate on meeting domestic needs for the next decade, with little participation in the log trade.

THE CONSUMING COUNTRIES

Japan

On the demand side, Japan looms largest with their annual consumption of small logs at about 4 million m³. North American analysts have modified downward the demand projections we made for Japan during the 1970s, for the same reasons that we have adjusted our thinking about American consumption. These include slower population growth, a lower level of affluence and a declining trend in the use of wood per residence. Housing starts there fell 20 percent between 1976 and 1985. And the number of housing starts per capita, at record levels in the latter half of the 1970s, probably reflected transient factors including government emphasis on replacing the older housing stock and a surge of family for-
motions following the postwar baby boom (US Department of Agriculture 1984).

Our thinking, though, may be flavoured by experience during the recent economic recession. The optimistic, although minority, view here is that rising economic growth and per capita economic wellbeing, rekindled after the recent recession and already outstanding growth rates in the United States, will lead to larger homes, more emphasis on wood as an element of conspicuous consumption, and rising industrial use of wood. Japan's gross national product (GNP), a fair measure of aggregate demand for wood, grew 4.2 percent in 1985 in real (inflation-adjusted) terms. That is half again the American rate.

Of the roughly 14 million m$^3$ of logs imported by Japan annually, about one-third appear to fall in grades that are competitive with radiata pine, in the small-log value class (Flora and Vlosky — in press). New Zealand's market share in Japan is about 7 percent, accounting for about 300,000 m$^3$ of such logs.

Japan's softwood plantations cover more than 10 million ha, over ten times New Zealand's area of exotic species. About half of Japan's plantations are between 16 and 35 years old and ready for commercial thinning that are not generally being applied. Japanese economists currently believe that domestic supplies will not materially reduce their demand for logs during the next decade, largely because cultural treatments have lagged and extraction costs are high (Nomura 1984). I have estimated Japan's imports of small logs from all sources at about 4.9 million m$^3$ in 1990 and 4.6 million m$^3$ in 1995.

### China

Exports to China have been a real boon to North America, amounting to about NZS 800 million in 1985 for logs alone. China now accounts for about one-third of all offshore log exports from Canada and the western United States. It has been very difficult for Americans to know where the China trade is headed. Countries intent on economic development usually concentrate on the most basic of capital goods and raw materials. China's purchases have covered a broad spectrum of producers' and consumers' goods as well as services. Known to be conservative in their approach to debt and overseas ownership in their country, the Chinese presumably will aim to live within the means created by their exports. In time they will no doubt ration their foreign exchange among most-needed items. China already faces a growing trade deficit that must be met, but it is not likely to be by a recent downward trend in the foreign value of Chinese currency.

Although wood plays a minor part in Chinese housing, the need for planks and industrial wood indicates a good market for radiata pine and other imported species. China will probably allocate a constant fraction of its spending on imports to softwood logs. In 1984 this was about 2 percent. Extrapolated forward for a decade, with GNP assumed to grow 6 percent per year, China's log imports would double by 1995. My estimates of their small-log imports in 1990 and 1995 are 4.8 and 6.3 million m$^3$ respectively.

### Korea

Korea is a customer of long standing for North American softwood logs. 1985 purchases were equivalent to about NZS 185 million. Americans have seen Korea as a principal outlet for lower-grade logs; "K-sort" has become part of the trade vernacular, alluding to the lower end of the size-quality spectrum.

There is concern here about the strength of Korea's economy. Much publicity has been given to Korea's foreign debt and difficulties in their heavy industries, especially shipbuilding. Certainly their debt is considerable, over 50 percent of GNP. On the other hand, Korea is moving out of the recent deep recession with a growth rate in real GNP of more than 7.5 percent per year, a 15 percent annual rate of growth in industrial production, and about a 10 percent per year rate of gain in labour productivity (US Department of Commerce 1985a). In the past, imports have been nearly proportional to Korea's gross national product. The World Bank estimates a GNP growth rate of 5 to 6 percent for Korea during the coming five years (World Bank 1985).

### Taiwan

In contrast to Korea, Taiwan has not been a significant importer of softwoods. Their softwood log purchases from North America totalled about NZS7.2 million in 1984, declining to NZS0.8 million in 1985. Taiwan's conifer production has moved downward in a near-linear trend since the early 1970s as the inventory of standing timber has diminished. Harvest quotas have been increased in recent years, presumably to offset declining log supplies from Southeast Asia. Nonetheless, softwood harvests continued their decline in 1985 because of the high costs of removing conifers from difficult terrain (US Department of Agriculture 1985a).

Americans see Taiwan as a promising potential market for softwood and hardwood roundwood as the Taiwanese seek logs to replace exports now banned by Indonesia. Exports have accounted for about half of Taiwan's GNP, and until 1984 Taiwan was that island's largest plywood exporter. Another reason for optimism about Taiwan is their six-fold increase in housing starts since 1971, economic growth running between 8 and 10 percent per year, labour productivity growing over 5 percent annually, and a habit of saving nearly one-fourth of GNP, the latter permitting strong investments in manufacturing capacity (US Department of Commerce 1985b). Overall, Taiwan is considered here to have one of Asia's strongest economies. My estimate of their small-log imports is about 400 and 700 thousand m$^3$ in 1990 and 1995.

### ADDING UP SUPPLY AND DEMAND

Among those in the trade, the consensus along the western shores of North America seems to be one of tempered optimism. There is that big potential but largely unknown market in China, possibly significant demand in Korea and Taiwan, and a steady if less than meteoric demand in Japan. On the other hand, Chile and New Zealand are clearly coming on line with significant softwood volumes. And the Soviet supply is conceivably as large 'as certainly as unclear' as is China's potential demand.

Model-based estimates of total Pacific Rim demand for small logs over the next decade (Flora and Vlosky 'in press'), give the following price and quantity projections. About 10 million m$^3$ of small logs traversed the Pacific in 1985, at an average unit value of about US$57. During the late 1980s, demand is expected to outpace supply, with small-log prices rising about 11 percent. After 1990, it appears that supply will keep pace with demand, and log prices will stabilize. Aggregate flows are estimated to be about 12.4 million m$^3$ in 1990 and 14 million m$^3$ in 1995. The estimated Pacific-wide average price from 1990 to 1995, at dockside in exporters' ports, is about US$63. This corresponds to about NZS110 at early-1986 exchange rates.

In the year ending with June, 1985, New Zealand export logs averaged NZS103 per m$^3$ (New Zealand Forest Service 1985). New Zealand's share of the 1985 small-log market will have been about 6 percent. By 1995 that share is projected to drop to 2 percent, moving from about 500,000 m$^3$ in 1985 to about 200,000 m$^3$ in 1995. A key assumption is that a growing portion of New Zealand's log exports will be accepted into higher grades, attracting prices appropriate to more valuable uses.

### SOME RELATED QUESTIONS

The seemingly small role projected for New Zealand in the small-log trade raises several technical and policy questions which this journal has often discussed.

- What are the prospects that New Zealand's exotic logs
will find acceptance in higher-valued uses than those in which they compete with small logs from several sources? I expect aggressive marketing and growing user satisfaction with radiata pine to make 25 percent of New Zealand’s log exports competitive by 1990 with, say, Soviet red pine and North American hemlock in the 30 to 45 cm dbh range, and 50 percent attaining that value level by 1995. This despite the current shift from prewar to postwar plantations. Improvement is predicated on attention to grading and uniformity, regular supply, and treatment of export markets as more than convenient outlets for unwanted material. North Americans have seen several species, including hemlock and larch, move from unwanted to fully-accepted status through competitive pricing and demonstrated capacity to meet performance specifications. Too, quality control and steadily rising prices of preferred species enhanced acceptance of the less-favoured woods.

If all New Zealand’s roundwood must compete in the small-log market, would the country’s future export increase in that category depress prices? The model used permits an estimate of the price effects. Assuming a harvest of radiata pine of 10.8 million m³ in 1990 and 16 million in 1995, if all of it were to be pressed into Pacific Rim markets in competition with small logs, total volumes in those markets would increase 50 percent in 1990 and almost double in 1995. Average prices of small logs around the Pacific would fall by more than 60 percent. More realistically, if New Zealand were to offer a million m³ in 1990 instead of the 450,000 estimated, pricing and demonstrated capacity to meet performance specifications. Assuming it were to be pressed into Pacific Rim markets in competition with small logs, total volumes in those markets would increase 50 percent in 1990 and almost double in 1995. Average prices of small logs around the Pacific would fall by more than 60 percent. More realistically, if New Zealand were to offer a million m³ in 1990 instead of the 450,000 estimated, the effect on prices would be downward by about 6 percent in 1990 and almost double in 1995. Average prices of small logs around the Pacific would fall by more than 60 percent. More realistically, if New Zealand were to offer a million m³ in 1990 instead of the 450,000 estimated, the effect on prices would be downward by about 6 percent again.

In deciding among log export and various processing options, what criteria will be applied? Conventional measures of capital efficiency have been applied to New Zealand’s options by several analysts (e.g., Barton and Horgan 1980; Fenton and Dick 1972). These imply that capital is the constraining factor in production and that net profit is the objective. Other approaches flow from considerations of value added, employment, or foreign exchange as objectives. From here, New Zealand resembles a corporation making decisions about what its primary business is and how much to rely on external financing. In the end, national decisions about pulp capacity, labour-intensive industry, and export earnings may derive more from basic philosophy than from detailed guesses about world demand and competitors’ activities. Economic studies are certainly necessary, though, and those done in New Zealand (e.g., Cavana and O’Dea 1979) are of great interest in this part of the Pacific region as we attempt to second guess New Zealand’s future role in the marketplace.

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