*Proceedings of the New Zealand Grassland Association, 47: 19-26 (1986)*

# DIMENSIONS AND MECHANISMS OF LAND USE CHANGE IN NORTHLAND

WARREN MORAN
Professor of Geography,
University of Auckland.

## INTRODUCTION

Land use change has been commonplace in Northland during the 1970s and early 1980s. The region illustrates better than any other both the adjustments to pastoral farming and the diversification of land use that are observable in many parts of New Zealand. Most of the changes in land use are well known. The expansion of exotic forestry is visible and controversial, horticultural diversification has received considerable publicity, and the commercial potential of goat farming has also attracted attention in the region. The emergence of specialised beef farms, often in conjunction with part-time farming, has received less attention.

Although the changes in land use are recognised, their extent and the processes by which they have come about are less well understood. This paper establishes the dimensions of the land use changes in Northland and identifies aspects of the decision making of the individuals and corporations involved in the changes. Much of the data on which this discussion is based are derived from a series of theses and research reports completedin the Department of Geography, University of Auckland, (Kearns 1982; Wheeler 1982; Anderson and Moran 1983; Kearns and Moran 1984; Hardy 1985; Revington 1984; Wheeler and Moran 1985; Maunier, Moran and Anderson 1985). The assistance of the Northland Agricultural Advisory Council, the Social Science Research Fund Committee, the New Zealand Forest Service and Ministry of Agriculture and Fisheries in funding this research is gratefully acknowledged.

## EXPANSION OF CORPORATE FORESTRY

The expansion of corporate exotic forestry, has attracted most attention in the region because it involves the largest areas of land, because it comes into direct competition with pastoral farming, and because it involves a different type of control over New Zealand's land resources. As a result, the buying and leasing of forest land by companies has become a matter of public debate in Northland and local authorities have attempted to control its expansion on some classes of land.

Despite the involvement of a wider variety of groups during the 1970s, the New Zealand Forest Service and large companies are still the dominant owners and occupiers of planted forest in Northland. In 1984 these two groups between them owned or occupied over 80 percent of the land planted in forests. Private individuals, with almost 10 percent of forests, are clearly the next important group (Table 1).

When the area of land leased or owned by forest corporations (rather than planted in forests) is compared they become much more dominant. By May 1983 the companies involved in forestry in Northland had themselves acquired more than 70,000 ha of land (Table 2). Their buying and leasing behaviour since that data, together with their announced plans, suggest that the figure will already be over 80,000 ha. Land owned by corporations alone is almost sufficient to fulfill the targets for Northland set by the 1981 Forestry Conference. New Zealand Forest Products is by far the largest land holder in the region (c 33,000 ha), having more than both Northern Pulp's land and that of the newly merged Carter Holt Harvey Company.

### Tenure of corporate forest land

The tenure under which companies hold forest land reflects both their corporate structure and the expansion strategies which they have adopted in Northland and is a powerful explanation of the locational patterns of several companies. For the region as a whole, freehold land predominates with 67 percent of the total in this category. Within the leasehold category, Maori land is overwhelmingly important accounting for almost three-quarters of all the leased land and about 25 percent of the total land which forest companies have acquired.

Freehold and leasehold land is distributed quite differently among the companies and the counties that are represented in Northland (Table 2). The main contrast is between companies such as New Zealand Forest Products and Henderson and Pollard that have purchased the freehold of almost all the forest land that they own and Northern Pulp that leases 95 percent of the land that it is planting in forests. The remaining companies (Alex Harvey Industries, Carter Holt and Whitecliffs) have about half their forestry holdings on leasehold land and about half on freehold land.

Well-established corporations, such as New Zealand Forest Products and Henderson and Pollard, have capital assets and access to lending institutions that enable them to purchase their land freehold. They are also in a position to take full advantage of the taxation advantages deriving from ownership of the land that they are developing for forestry. Moreover, in those localities where they chose to expand their holdings, they had little choice but to purchase the freehold. Most of their land was formerly owned by farmers, who did not wish, or were not in a position, to enter into long-term leases for their holdings. In contrast, a newly-established private company such as Northern Pulp is reluctant, or unable, to commit capital for the purchase of land when establishment costs for trees are high and the waiting period for some cash return is long. For companies in their position, leasing of large blocks of land from Maori or other owners is an economically desirable option.

### Physical quality of corporate forest land

Although it is often suggested that forestry will occupy good quality farmland if left to expand unchecked, reliable information on the type of land acquired by companies over the last decade has become available only recently (Wheeler and Moran 1985). The distribution of corporate forest land among capability classes is quite different from that for Northland's total land area (Table 3). Whereas 36percent of Northland's total land is in classes II, III, and IV, less than 14 percent of corporate forest land is in these classes. Almost 85 percent of forest land owned by companies is in classes VI and VII compared with 62 percent of the total land of Northland.

Corporations have acquired a very small proportion of Northland's class II and III land (Table 4.3). Less than one percent of the region's class III land is owned by corporate interests and almost 2.5 percent of Northland's class IV land, with most of this in Otamatea County and planted in the 1930s. Corporations are much more important owners of lower capability land, owning or leasing, almost 7 percent of class VI and VII respectively. These proportions would be higher if land that is not available for agriculture and foresty, such as parks and reserves, were removed from the calculations.

## CHANGES IN PASTORAL FARMING

The relative importance of different types of pastoral farming in Northland has changed substantially since 1960 and most notably since 1970. Whereas in 1950 56 percent of farms earned more than three-quarters of their income from dairying, by 1980 only 22 percent could be so classified. Between 1950 and 1960 the proportion of dairy farms dropped by 10 percent; in the decade of the 1970s it decreased by 25 percent (Anderson and Moran 1983, 21). This decrease in dairy farms has been

**TABLE 1: Ownership of planted exotic forests in Northland, 1984**

| Owner/Occupier | Area (ha) | % |
|---|---|---|
| NZFS | 32,571 | 45.0 |
| Large Companies' | 25,539 | 35.4 |
| Individuals and informal groups | 7,151 | 9.9 |
| Small private companies | 2,823 | 3.9 |
| Other government departments | 1,833 | 2.5 |
| Local authorities | 1,388 | 1.8 |
| Maori Incorporations | 834 | 1.2 |
| TOTAL | 72,089 | |

Source: Revington (1984, 49) From PRIFO, NZFS.
[1] Large companies have over 1000 ha in Forest.

**TABLE 2: Tenure of corporate forest land by company.**

| | Freehold | | Leased from Maori owners | | Leased from farmers | | Leased from Crown | | Leased from others | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ha | % | ha | % | ha | % | ha | % | ha | % | |
| AHI | 6556 | 59 | 4661 | 41 | | | | | | | 11,217 |
| Northern Pulp | 554 | 5 | 8507 | 70 | 148 | 1 | 98 | 1 | 2925 | 23 | 12,232 |
| NZFP | 30667 | 94 | 1382 | 4 | | | 699 | 2 | | | 32,748 |
| CH | 3708 | 48 | 1382 | 18 | | | 2498 | 34 | | | 7,588 |
| HP | 4384 | 100 | | | | | | | | | 4,384 |
| Whitecliffs | 1611 | 53 | 1433 | 47 | | | | | | | 3,044 |
| Total | 47480 | | 17365 | | 148 | | 3295 | | 2925 | | 71,213 |

Source: Valuation Department records; data for May 1983 (Wheeler and Moran, 1985)
Note: The Ngatihine lease of 4146 ha is here distributed equally among AHI, NZFP and CH

**TABLE 3: Northland land in capability class.**

| | All rural land | | Owned or leased by Corporations | |
|---|---|---|---|---|
| Class | ha | % | ha | % |
| II | 54,442 | 4 | 43 | 0.1 |
| III | 100,108 | 7 | 979 | 1.4 |
| IV | 371,700 | 25 | 8,927 | 12.5 |
| V | 2,531 | <1 | | |
| VI | 666,079 | 46 | 44,150 | 62.0 |
| VII | 234,611 | 16 | 16,134 | 22.6 |
| VII | 33,371 | 2 | 980 | 1.4 |
| TOTAL | 1,462,842 | 100 | 71,213 | 100 |

Source: Data supplied by Land Resource Liaison Unit, Wellington. Corporate land measured from LRI worksheets and cadastrals. (After Wheeler and Moran 1985).

almost directly paralleled, especially in recent years, by an increase in farms deriving more than 75 percent of their income from beef. In the decades of the 1960s and 1970s beef farms increased from less than 5 percent of total farms to more than 25 percent.

Many economic and social considerations have influenced the change. Two important causes — variation in the debt which families have to service and their increased involvement in off-farm work — are stressed here. A more comprehensive account of the changes is available in Maunier et al. (1985).

## The equity cycle

Lending institutions in New Zealand have a fixed maximum proportion of the value of the purchase price of a farm that they are prepared to lend. Depending on the buyer's capital at purchase, it can be suggested that farmers proceed through a sequence, that roughly parallels age, from having large interest and capital repayments to a time when these payments are much lower or cease entirely. Farmers who use their increasing equity to re-finance will upset the sequence as will those who purchase a farm with larger than normal amounts of capital. Periods of rapid inflation in property values will also affect the relationship.

Data from random samples of present dairy farms in Northland, and that of the farms that have ceased to supply, identify the variability of equity with age and suggest its importance for farm decisions. For the dairy farms sampled, the correlation coefficient between age of farmer and equity expressed as a proportion of the capital value of the property standardised to 1982 is 0.53, significant at the 99 percent level.

When the distribution of debt as a percentage of government valuation are compared for dairy farms and former dairy farms the differences are clear (Figure 1). More than 40 percent of the former dairy farms are debt free; with no need to service a loan they are in a position to adopt a system of farming which is less labour intensive and receive a similar income to many dairy farmers, or, for one member of the household to take an urban job and probably increase the houshold income compared with when the family was dairy farming.

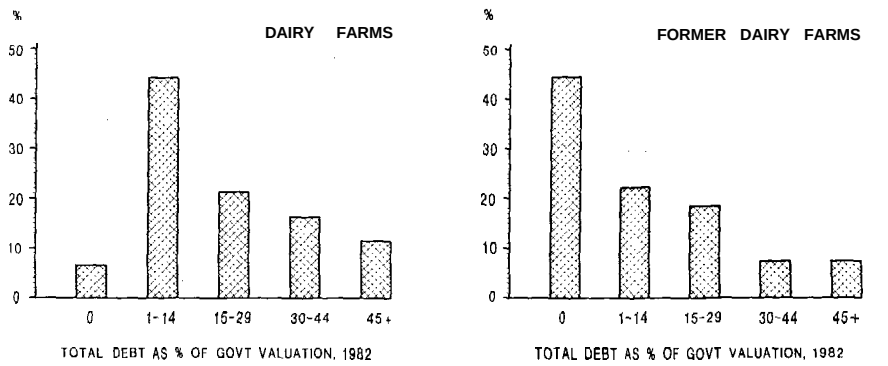


**FIGURE 1: Total debt as a percentage of *government* valuation for dairy farms and former dairy farms in Northland. Values are adjusted to 1982 using an index of farm prices. Source: Farm interviews and Valuation Department Records.**

## Non-farm income

Decisions about the farm enterprise are often tied up with the family's direct economic involvement in the wider rural and urban community. Off-farm employment, together with flows of investment income and government benefits, will influence the intensity and type of activity practised on the farm.

Our Northland research reveals a definite distinction between present and former dairy farms in their involvement in work off their farm. More than 60 percent of the households of current dairy farms rely entirely on income from the farm. Most of the remaining 40 percent of these households receive much less than 20 percent of their income from non-farm sources which emphasises the tendency for dairy farming to involve more than one member of the family.

Non-farm income is much more important to households of pastoral farms that were formerly dairying (Table 4). By 1982, almost 40 percent of them earned more than 75 percent of their household income from non-farm sources and only 25 percent earn no non-farm income. Moreover, the importance of non-farm income has increased during the study period and is undoubtedly related to their exit from dairy farming.

TABLE 4: Percent of former dairy farms receiving various proportions of non-farm income.

| | Percentage of Household Income | | | | |
|---|---|---|---|---|---|
| | 0% | 1-24% | 25-49% | 50-74% | 75-100% |
| 1975 | 74 | 16 | 5 | 2 | 2 |
| 1978 | 51 | 16 | 2 | 5 | 26 |
| 1982 | 25 | 13 | 5 | 17 | 39 |

Source: Farm interviews

## HORTICULTURAL DIVERSIFICATION

Compared with pastoral farming and forestry in Northland horticulture still occupies a much smaller area of land. In the early 1980s about 2,000 hectares were in horticulture (Kearns and Moran 1984, 3). Even with the rapid expansion of the last few years less than 3 percent of Class II and III land are in horticulture. The region, like most others in New Zealand, has a physical potential for much increased production. The realisation of this potential will depend upon the demand from external markets and the abilities of present and aspiring horticulturalists to meet the demand. The research summarised here stresses the nature of the people involved in horticulture in Northland and the process by which they have entered the industry (Kearns and Moran 1984; Hardy 1985).

Horticulturalists are distinctive from pastoral farmers and the population as a whole in several ways. They attain farm ownership when older than dairy farmers, their education levels are higher than pastoral farmers (and the New Zealand population as a whole), a substantial proportion of them come from non-farming backgrounds and many have migrated from outside the region in order to establish horticultural properties (Tables 5, 6 and 7).

TABLE 5: Highest level of education achieved.

| | Maungatapere | | Kerikeri | New Zealand |
|---|---|---|---|---|
| | Pastoral (n=22) | Hort. (n=26) | Landowners (n=178) | 15 years |
| | % | % | % | % |
| Teritary | 9 | 46 | 44 | 24 |
| Secondary | 59 | 54 | 50 | 51 |
| Primary only | 22 | - | 6 | 15 |

Sources: Kearns (1982), Hardy (1985); New Zealand Census of Population and Dwellings, 1981.

TABLE 6: Previous occupation of landowners (%).

| | Non-farmer | Pastoral farmer | Horticulturalist |
|---|---|---|---|
| Orchardists (Tauranga County)' | 48 | 39 | 13 |
| Kiwifruit growers (NZ)[2] | 45 | 40 | 15 |
| Orchardists (Auckland region)3 | 54 | 18 | 28 |
| Landowners (Kerikeri irrigation scheme)' | 56 | 35 | 9 |

Sources: [1] Torrie (1974); [2] Bollard (1981); [3] Garelja (1975); [4] Hardy (1985)

TABLE 7: Origin of land owners.

| | Within county % | Within LG Region % | Elsewhere % |
|---|---|---|---|
| Maungatapere (n=95) | 69 | 3 | 22 |
| Kerikeri (n=182) | 26 | 8 | 66 |

Sources: Kearns and Moran, 1984; Hardy 1985.

The implications for the parts of Northland, such as Kerikeri and Maungatapere, where horticulture has expanded rapidly, are considerable. These communities now include a much higher proportion of landowners with tertiary education and from urban backgrounds than is normal in rural New Zealand. Some of these entrants to the industry have originated from the nearby urban centres. Others have migrated from well outside the region, frequently bringing with them substantial capital resources. When these are combined with the additional income generated from the diversified rural production the result is much more wealth in these communities.

The service centres have also benefited. Population growth, similar to that experienced by Tauranga country and its rural service centres, is already apparent but will become even more evident when the results of the 1986 Census of Population are announced. The growth is not without its disadvantages. Greater disparaties in income between different social groups, and a large; part-time, partly-itinerant labour force during the picking season bring attendant problems of accommodation and social disjunction (Martin 1982; McDermott Associates 1984).

The later age of acquiring ownership of horticultural land compared with pastoral farming (averaging in the late 30s to early 40s for horticulturalists compared with the late 20s to early 30s for dairy farmers) is partly a result of the recent expansion of the industry. The high capital requirements to enter and the long lead-time to full production also delay the purchase of the first farm, especially when many entrants come from urban backgrounds.

## CONCLUSION

Although forestry, pastoral farming, and horticulture have been discussed separately here the distinction is partly artificial because they are all competing for land. More widespread adoption of agroforestry may reduce competition but its increase

has been slow. Dairy farming and horticulture are in direct competition for some of the best land in Northland. Because of the few large tracts of high quality land, active competition has been restricted mainly to three localities — Kerikeri, the Ruawai flats, and the vicinity of Whangarei, notably the area around Maungatapere. Horticulture has been able to outbid dairying for these areas of easy terrain and versatile soils especially when risk and uncertainty have been reduced by the provision of subsidised irrigation schemes. In the case of Maungatapere, the nearness of a substantial population in Whangarei, a proportion of whom have the knowledge and capital to engage in horticulture, has been an important stimulus to diversification. Most of the diversification has resulted from whole farms being subdivided with the new farmers benefiting from external economies of scale. By comparison, diversification into horticulture by existing farmers on dispersed individual units has been much less common.

Competition between corporate foresty and pastoral farming has been restricted mainly to land formerly used for semi-extension sheep and beef farming. Forestry companies have, in the main, paid prices at or close to government valuation for this land. It is dominantly of low capability although purchases since mid 1983 may have included a higher proportion of better quality land. Once the processing plants are established the situation will change. Forestry may well become a much stronger competitor for land in the vicinity of the mills, especially if the price of farm land continues to fall in real terms.

By comparing the organisation of the three systems of production and the social and institutional environments in which they operate, some interesting insights are gained. Pastoral farming and horticulture continue to be organised around family units, although since the 1982 amendment to the income tax legislation several corporate horticultural firms have emerged in Northland. The familial organisation of pastoral farming often constrains diversification into horticulture by existing owners. The labour demands of dairying in particular do not encourage diversification using existing resources. Moreover, families are often reluctant to employ extra labour.

Farm firms also vary considerably in the debt they must service, a theme revealed in this research and discussed by Philpott in a paper before this conference last year. The economic necessity to increase production varies widely and ensures that a proportion of land owners will favour options such as lower labour inputs and more leisure, or disintensification of production sometimes accompanied by off-farm work. The opportunity to adopt those options is much greater near the main towns of the region. On isolated pockets of high quality land innovative approaches to share farming and join ventures by which part of a holding can be developed by an aspiring horticulturalist using the land of the existing pastoral farmer as collateral offers considerable potential for stimulating horticulture.

Forestry in Northland is increasingly becoming dominated by corporations. Their motives and resources are quite different from family farms. Corporate imperatives of profit and survival and their diversified and integrated structure mean that production forestry is but one element in their organisation. Their decision to plant forests in Northland or elsewhere is subservient to their overall corporate strategy. Moreover, their access to capital and expertise make corporations powerful competitors in the land market. Their presence as land owners in the region, when they are controlled from outside it, adds a new dimension to land use change.

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