In our Contemporaries

N.Z. Journal of Forestry Science

STAND STRUCTURE IN TERRACE RIMU FOREST OF SOUTH WESTLAND, AND ITS IMPLICATIONS FOR MANAGEMENT

By H.G. Six Dijkstra, D.J. Mead, I.L. James. Vol. 15(1): (1985)

Parts of this terrace rimu forest were found to be naturally regenerating in an even-aged group pattern, the size of the groups varying from 0.2 to 20.0 ha. The results suggest that future silviculture could be based on a group regeneration system. Careful logging is required, but good silvicultural tending should ensure long-term productive management in this type of forest.

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SELECTIVE LOGGING OF DENSE PODOCARP FOREST AT WHIRINAKI: EARLY EFFECTS

By M.C. Smale, D.O. Bergin, A.D. Gordon, G.F. Pardy, G.A. Steward. Vol. 15(1):1986

Three years after a selective logging trial based on three selection criteria, mortality and net decrement were similar in control, individual tree removal, and group removal blocks, but lower where unstable trees were removed. Advanced natural regeneration of podocarps was non-existent but of tawa was plentiful.

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EFFECT OF WEED CONTROL AND FERTILIZER on early growth and survival of *Acacia melanoxylon*

By M.G. Messina, I.L. Barton, Vol. 15(1): (1985)

Height and diameter increment responded linearly to superphosphate up to the maximum rate applied (30 g P/tree) but were unaffected by urea (20 g N/tree). Both diameter and height growth responded positively to herbicide and spade cultivation (HSC). Survival was slightly increased by HSC but not by fertilizer.

LONG-TERM FOLIAR PHOSPHORUS RESPONSE OF *PINUS RADIATA* TO SUPERPHOSPHATE FERTILIZER

By I.R. Hunter, J.D. Graham, S.S. Gallagher, K.T. Calvert. Vol. 15(1): (1985)

Foliar-P concentrations have been monitored for up to 15 years. In unfertilized plots on the most deficient sites foliar-P concentrations have not altered greatly from 0.06% P, but at less deficient sites foliar-P has tended to decline. In fertilized plots there was an immediate increase in foliar-P proportional to the amount of fertilizer applied, followed by a slow decline over time.

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CHEMICAL ANALYSIS OF PINE LITTER: AN ALTERNATIVE TO FOLIAGE ANALYSIS?

By I.R. Hunter, G. Nicholson, A.J. Thorn. Vol. 15(1): (1985)

For most elements, needle litter is sufficiently well correlated to foliage and to tree growth to be used, with caution, as an aid to preliminary nutrient-deficiency diagnoses in very tall trees. With further calibration for areas in which regular foliage-sampling programmes operate, it should prove a useful alternative method.

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Soil and Water

SOUTH ISLAND HIGH COUNTRY EROSION — IS ANYONE TO BLAME?

By Ian Whitehouse. Issue No. 4 1985

In the last 10 years, a number of scientists have produced research results that challenge some of our conventional understandings about erosion in New Zealand mountain-lands. The author reviews recent work in this field and comments on its significance.

N.Z. Journal of Ecology

EFFECTS OF UNGULATES ON STRUCTURE AND SPECIES COMPOSITION IN THE UREWERA FORESTS AS SHOWN BY EXCLOSURES

By R. B. Allen, I. J. Payton and J. E. Knowlton. Volume 7 1984

Seventeen exclosures were built by the New Zealand Forest Service within the Urewera forests over the period 1961-68 to exclude ungulates. Forest structure and species composition inside and outside these exclosures were compared in 1980-81. Some relatively shade-tolerant species such as the fern *Asplenium bulbiferum*, the liane *Ripogonum scandens*, the sub-canopy shrubs *Geniostoma ligustrifolum* and *Coprosma australis* and the canopy species *Beilschmiedia tawa* were less abundant in certain tiers outside the exclosure. These included the unpalatable shrub *Pseudowintera colorata*, turf-forming *Uncinia* species and *Cardamine debilis*. Overall density and species richness for small diametered trees and for the sapling tier were lower outside the exclosures than inside. Despite the large reduction in ungulate numbers throughout Urewera forests these introduced browsing animals, particularly deer, still affect the structure and composition of most forest types. (Author's summary)

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OTHER TITLES NOTED

Volume 7 contains abstracts of the following papers delivered to the 1983 Conference of the NZ Ecological Society:

Some physiological explanations for the distribution of kauri. I. L. Barton.

Aspects of the pollination ecology of conifers. G. Sweet. G. S. Lill and W. M. McEwan.

Flowering phenology of temperate rainforest at Pureora. J. R. Leathwick. The regeneration of Beilschmiedia tawa in Pureora Forest. C. J. West.

A VARIABLE AREA PLOT METHOD OF ASSESSMENT OF FOREST CONDITION AND TREND

By C.L. Batcheler and D.G. Craib. Vol. 8. 1985

The properties of a variable area sampling technique, by which the observer varies the search-radius to obtain approximately a prescribed number of woody plants in each tier measured, were determined by (i) comparison of fixed area and variable area sampling of a computer-mapped shrub population; (ii) comparison of results from fixed area and variable area sampling of woody plants exceeding about 2m height in a rata-kamahi forest; (iii) two variable area surveys of woody plants exceeding 30cm height in a beech forest.

Variable area sampling gave unbiased estimates of crown area and plant density in the computer-mapped population. These were as precise as estimates obtained by fixed area sampling when sampling intensities were equal. Two surveys of beech forest, conducted 11 years apart, showed that with about 70-80 single-tier plots, differences in basal area of about 15% can be detected using the variable area plot method. Variable area sampling is robust and suitable for ecological surveys of New Zealand's indigenous forests. (From authors' summary)

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ECOLOGY OF HARD BEECH (*NOTHOFAGUS TRUNCATA*) IN SOUTHERN OUTLIER STANDS IN THE HAAST ECOLOGICAL DISTRICT, SOUTH WESTLAND, NEW ZEALAND

By A.F. Marsh and V.G. Lee. Vol. 8 1985

Vegetation and habitat descriptions are given for sites that span the very limited environmental range of southern outlier stands of hard beech (*Nothofagus truncata*). These are on well-drained, north to northwest aspect slopes at 44°S in South Westland, 260km south of the species' previously assumed southern limit. Size class distributions and diameter growth rates of hard beech stems indicate that it is competing effectively with podocarp and broadleaved species, including the two other beeches present. Of the three local species (mountain beech — *N. solandi* var. *cliffortioides* and silver beech — *N. menziesii*), only hard beech showed a significant relationship between stem diameter and age, though diameter growth rates were generally similar among the three species.

The erratic distribution of the three local beech species in the Haast and adjacent Paringa Ecological Districts is discussed in relation to possible glacial refugia.

The scientific and conservation values of the outlier stands are emphasised. (Authors' summary)

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OTHER TITLES NOTED

Volume 8 contains abstracts of the following papers delivered to the 1984 Conference of the N.Z. Ecological Society:

- Effects of beech management on bird populations. E.B. Spurr
- Wind damage and related ecological processes in mountain beech forests of Canterbury. G.T. Jane
- The Management of Ecological Areas and Scientific Reserves — a philosophy. J. Herbert
- Fungal pathogens influencing establishment of kauri and kahikatea. Ian. J. Horner

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FRI Bulletins

CHEMICAL AIDS TO PLANTING SITE PREPARATION

By D.S. Preest No. 100 1985

This manual discusses the use of herbicides for planting site preparation and outlines procedures for dealing with specific weed problems.

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A FIELD PROCEDURE FOR THE CROSS-SECTIONAL ANALYSIS OF A PRUNED RADIATA PINE LOG

By A. Somerville No. 101 1985

The cross-sectional analysis system can be applied in the field. It provides a detailed internal and external log description without uplifting the log to use a conventional sawing study approach. A study log is cross-cut at all nodes and some internodes and dimensions and locations of internal and external features are defined in coordinates about the central log axis.

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SPECIES OF *CORTADERIA* (PAMPAS GRASSES AND TOETOE) IN NEW ZEALAND

By B. Knowles, C. Ecroyd. No. 105 (1985)

Two pampas grasses from South America, *Cortaderia selloana* and *C. jubata*, are serious weeds in some exotic forests in northern New Zealand. Descriptions, tables, a key, and photographs are provided to assist with the identification of these species and the native species of *Cortaderia* — *C. fulvida*, *C. richardii*, *C. toetoe*, and *C. splendens*, all commonly known as toetoe.

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ASSESSMENTS OF WILD ANIMAL ABUNDANCE

By C.J. Baddeley (Compiler) No. 106 (1985)

Current techniques recommended by the Forest Research Institute for surveying distribution and abundance of introduced mammals in the forests and grasslands of New Zealand and for assessing the effectiveness of pest control operations are presented in this manual, with details on field procedures, analysis of data (including specimen computations), and interpretation of results.

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N.Z. Timber Today

TRANSPORT FUELS FROM WOOD

(Anonymous) Forest Research Institute. Vol. 11 No. 2 1986

FRI research shows that the dilute sulphuric acid hydrolysis process is a successful means of producing ethanol from wood. The addition of an anaerobic digestion process allows the energy contained in the stillage effluent to be recovered as methane, which makes the overall operation more economically attractive. It also solves the problem of effluent treatment, and thereby makes the operation more environmentally acceptable.

The production of ethanol and methane from wood has several attractions:

- Both fuels are made from a renewable resource.
- Ethanol can be mixed with petrol in any proportion and its use removes the need to add lead as an anti-knock agent. Engine modifications are necessary if CNG or a blend of more than 20% ethanol are used.
- Existing fuel-distribution networks can be used.

At present, the selling price of ethanol and methane produced from wood is higher than that of imported petroleum-based fuels. In the long term, however, the attractions outlined above may become more important, and lead to wood hydrolysis playing a significant part in the nation's economy. (Authors' conclusions)