In our Contemporaries

NZ Journal of Forestry Science

 Successful control of fallow deer by recreational hunters in the Blue Mountains, Otago

Commercial hunting ceased after 1980 but the efforts of recreational hunters continued the decline in deer density. By 1985, most deer inhabited areas >1.5 km away from access points. In the 1984-85 year, 1284 hunters spent 3710 man-days hunting, but only 15.5% killed deer and just 3.5% accounted for over half the reported kills.

Family tests as a basis for the genetic improvement of Eucalyptus nitens in New Zealand

Multiple-trait index selection across sites was used to choose the best 20 Central Victorian half-sib families. Selection of these should give gains of 7.5% for diameter, which equates to a 19% volume gain, over unselected Victorian families. Half-sib family selection can be utilised for seed production gains and there are methods of advancing the population in open-pollinated families.

Genotype and location effects on internode length of Pinus radiata in New Zealand

Internode length is an important index of clearcutting yields. In a four-site study, a long-internode seedlot expressed mean internode lengths (MIL) of up to 0.91m - almost twice those for multinodal seedlots. MIL on a Woodhill site averaged 0.31m for all seedlots, indicating a need for careful matching of genotype with site and regime.

Reducing the frequency of seedling malformations in Pinus radiata nurseries by the application of insecticides

Fortnightly applications of an insecticide led to a reduction in the number of thrips on the seedlings, and a reduction in the number of seedlings becoming multi-leadered. The lowest incidence of malformation occurred in beds of seedlings which had been sprayed with 10g deltamethrin in water at a spray volume of 100 l/ha.

NEW PUBLICATION
MANAGEMENT OF NEW ZEALAND'S NATURAL ESTATE
edited by David A. Norton
Proceedings of a Symposium of the New Zealand Ecological Society held August 22-25, 1988

The symposium aimed to answer a number of key questions relating to the conservation management of New Zealand’s natural estate through integrating management and scientific viewpoints. It also identified areas in which further research is needed.

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viation on the grounds of improved growth alone. No significant differences in stability were recorded between cultivation treatments, but the 1.5/0 stock topped almost twice as often as the 1/0 stock.

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Packaging and cool-storage effects on growth of Cupressus macrocarpa seedlings
Root growth capacity, shoot height, and diameter growth of seedlings were reduced by 48 hours or more of cool-storage, regardless of type of packaging. However, seedlings packaged horizontally produced greater height growth in the year after planting than those packaged vertically in the conventional manner.

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Earthworm and enchytraeid populations in a 13-year-old agroforestry system
Quarterly sampling of the Tikitere trial in 1986-87 gave estimates of average earthworm populations which were lower than values for the same plots estimated two years after planting. The declining earthworm populations and soil pH indicate significant changes in soil biological activity which may influence post-harvest management.

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Volume, taper, and bark thickness in seedlings and cuttings from Mamaku Forest, New Zealand
Volume, taper, and bark thickness of seedlings were compared with cuttings (seven-year-old parents). Mean dbh and total stem volume under bark were lower in cuttings. There were significant differences in taper, giving 8% more total stem volume under bark in cuttings for trees of the same dbh and height. Bark thickness was less in cuttings.

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Chemistry of weathering and solubilisation of copper fungicide, and the effect of copper on germination, growth, metabolism, and reproduction of Dothistroma pini
Copper fungicide applied to Pinus radiata needles is solubilised by complexation and oxidation processes to potentially give >30 mg Cu(II)/l in aqueous solution. Bioassays using D. pini conidia showed that exposure to 20 mg Cu(II)/l in the presence of needle aqueous extracts for periods as short as 1.5h was sufficient to kill the spores. Lower concentrations on the needle surface reduced the spores' ability to infect.

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Sawing methods for Pinus radiata pruned logs – an indicative study
Three hundred pruned logs from Kaingaroa Forest were sawn in a preliminary study to examine the effects of different sawing strategies on conversion and grade recovery in an actual sawmill trial. The results showed that grade sawing can substantially increase the proportion of high-value timber grades over fixed-sawpattern breakdown methods.

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What's new in Forest Research
No. 178 Tackling the pohutukawa health problem
No. 179 New Zealand's logging workforce – a joint FRI/LIR study
No. 180 Durability of preservative-treated transmission poles
No. 181 Quality-control software for sawmills
No. 182 You choose the parents. (About tree breeding)
No. 183 The Standmaster – meeting the needs of forest managers
No. 184 Success with biological control of the eucalyptus tortoise beetle, Paropsis Charybdis

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FRI Bulletins
No. 146 Workshop on wind damage in New Zealand exotic forests
Somervile A., Wakelin S., Whitehouse L. (Ed.) (1989) $36.00 + GST
This workshop brought together forest owners, consultants, and Ministry of Forestry staff to assess the threat to plantation forests of wind (mainly cyclone) damage, and to discuss management options. The workshop focused on radiata pine plantations but also included comment on other species, e.g., other pines, eucalypts, and Douglas fir.

No. 148 Stand growth model with P fertiliser effects for radiata pine on clay soil
Shula R.G. (1989) $30.00 + GST
CLAYSFERT was developed to predict the growth and yield of radiata pine plantation forests in the Northland region. In this Bulletin the author describes the development of CLAYSFERT, evaluates the components and performance of the model, and explains important user aspects regarding its implementation.

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NZ Tree Grower
The Stapehill Leyland cypresses
In Dorset, England the parent trees of the Stapehill clones of Leyland cypress (X Cupressocyparis leylandii) were examined and assessed. An account is given of their origin and growth, along with notes on the attributes of their derivative clones (Staphell 20 and Staphell 21), including the performance of young trees under trial in New Zealand. It is considered that Staphell 20, which is straighter stemmed and better branched than other Leyland clones, may be under-exploited. A plea is made to preserve the original trees.

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NZ Journal of Botany
Ecology of Nothofagus menziesii in the Catlins Ecological Region, South-east Otago, New Zealand
(l) Seed production, viability, and dispersal
Seed production was greater at a low (150m) than a high (450m) altitude site, but seed soundness was higher at the latter. Sound seed had a germination rate of 80-95%, dropping to 50% after two years' storage. Seed was dispersed at least 250m from the nearest parent plant at both sites, and dispersal was more effective downslope than upslope. The distribution of isolated stands of N. menziesii in the Catlins Ecological Region suggests that seed can be dispersed,
probably by wind, up to 6 km from the parent plant.

II. Seedling establishment


Site physical characteristics, and density and cover of woody plants, had little effect on N. menziesii seedling establishment. Raised, bryophyte-covered microsites provide optimum moisture and light conditions for N. menziesii establishment in the wild. Nothofagus seedlings can form effective mycorrhizal associations within both Nothofagus and other forest types in the Catlins. Under experimental conditions, seedling growth was best on relatively fertile podocarp forest soil, intermediate on Nothofagus forest soil, and poor on Weinmannia-Metrosideros forest soil. Performance on the last soil was due at least in part to the failure of seedlings to form mycorrhizal associations.

Population dynamics of the emergent conifer Agathis australis (D. Don) Lindl. (kauri) in New Zealand

I. Population structures and tree growth rates in mature stands


The density of kauri stems ≥10 cm dbh ranged from 17 to 416 ha⁻¹, and the basal area from 23 to 127 m² ha⁻¹ in the 25 stands. Diameter distributions ranged from highly skewed and unimodal to flat and multi-modal, with all size classes represented in most plots. Combined frequency distributions suggest that two or three kauri generations (cohorts) may be present on many sites.

There is only a weak relationship between age and diameter; individuals in the same 10 cm diameter class may vary in age by 300 years, and the largest individual on the site is often not the parent plant. Site physical characteristics, and density and cover of woody plants, had little effect on N. menziesii seedling establishment. Raised, bryophyte-covered microsites provide optimum moisture and light conditions for N. menziesii establishment in the wild. Nothofagus seedlings can form effective mycorrhizal associations within both Nothofagus and other forest types in the Catlins. Under experimental conditions, seedling growth was best on relatively fertile podocarp forest soil, intermediate on Nothofagus forest soil, and poor on Weinmannia-Metrosideros forest soil. Performance on the last soil was due at least in part to the failure of seedlings to form mycorrhizal associations.

II. Seedling population sizes and gap-phase regeneration


Seedling and sapling populations ranging from c.200 to >2000 stems ha⁻¹ were recorded in 25 mature kauri stands throughout the species' range in the North Island. Higher densities were recorded in gap-phase and successional communities.

The data support a "cohort regeneration model" in which dense regeneration occurs in successional communities following large-scale disturbance.

Despite a low efficiency of gap capture, the great longevity of kauri (>600 years) implies that the species will survive on any site for 1500 to 2000 years, long enough for large-scale stochastic disturbance by landslip, storm, or fire to reinitiate the process.

The quantity and nature of the forest floor and topsoil under some indigenous forests and nearby areas converted to Pinus radiata plantations in South Island, New Zealand


Total mass of forest floors in native and radiata plantation stands ranged from 25 to 464 and 9 to 79 t/ha, respectively. Native forest stands apparently accumulated larger amounts than nearby radiata pine stands, especially in the West Coast forests.

Except in Nelson forests, forest floors in native stands had larger contents of carbon and nutrients than those of nearby radiata pine sites. No consistent differences were found in carbon and nutrient concentrations in topsilos of native and exotic forests except in nine-year-old radiata in Hochstetter forest, where they were lower than those under the native forest.

Fungal (Sporothrix) induced mortality of kamahi (Weinmannia racemosa) after attack by pinhole borer (Platypus spp.)


The fungus Sporothrix sp. was isolated from stained sapwood of recently dead or moribund kamahi which had been attacked by pinhole borer (Platypus gracilis and/or P. apicillus). All except one of 10 healthy kamahi inoculated with the isolation died within 16 months, and the remaining tree was debilitated. Control trees inoculated with sterile water remained healthy. The fungus was reisolated from the dead trees. The symptoms in inoculated trees were essentially the same as those in trees from which the inoculum was obtained. Trees less than 30 cm in diameter, with little or no heartwood, died more rapidly than the larger trees. Platypus beetles later attacked all the inoculated trees which showed signs of the moisture stress symptomatic of Sporothrix infection. When Platypus attack was induced on six healthy trees, all showed typical symptoms of debility, and five died within four years. Sporothrix was isolated from all the dead trees. Natural Platypus attack was most common in areas of partial or complete canopy collapse.

Forest recovery after logging in lowland dense rimu forest, Westland, New Zealand


Forest structure and composition were measured in three stands clear-felled 12, 31, and 54 years prior to the study. Most of the floristic changes occurred immediately after logging. Subsequent changes were largely structural. For the three dominant post-logging canopy species (Weinmannia racemosa, Quin tinia acutifolia, and Dacrydium cupressinum), 43% of stems examined had established prior to logging. Although the transition from mature closed forest to a disturbed site following logging is very rapid compared to that occurring during stand replacement in unlogged forest, it appears that the logged areas are likely to return to a condition similar to that before logging if left undisturbed.

NZ Geographer

(A Volume 43(2) is a Theme Issue on NZ National Parks.)

Antipodean Contrasts: National Parks in New Zealand and Europe


European national parks were established at a later date and have never attained the relative importance of those in New Zealand in terms of their size and number. Reasons for this include a much longer history of settlement and land use, greater population pressure and diffrent attitudes towards the conservation of nature.

Taking schools to the parks: Integrated studies and the educational role of New Zealand National Parks


New Zealand National Parks have a great deal to offer secondary schools and, conversely, secondary schools have a great deal to offer in support of the
parks’ conservation and recreation roles. The paper advances the view that National Parks should accord school activities in parks a status equivalent to that traditionally accorded to conservation and recreation. Secondary schooling would benefit by making far greater use of National Parks.

**Methods of economic evaluation of National Parks with reference to New Zealand**

Entwistle E. R. Vol. 43(2): 79-83

Regional economic impact analysis can be used to measure the spin-off to local communities, whereas cost-benefit analysis gives information on the economic efficiency of resource allocation at the national level. Five studies of existing or proposed national parks in New Zealand are discussed briefly, and some comments offered concerning the direction of future research.

**John Muir in New Zealand**

Hall C. M. Vol. 43(2): 99-103

John Muir was a founder of the Sierra Club and highly influential in the conservationist movement in the early part of this century, particularly in his impact on American thinking on national park policy and the concept of wilderness. In 1904 he undertook a world tour, which included a traverse through New Zealand. This paper examines what has been a largely unremarked episode in Muir’s life, and discusses his travels in New Zealand and their influences on his thinking and through this on later developments in America and New Zealand.

**The significance of karst in New Zealand National Parks**

Williams P. Vol. 43(2): 84-94 (1987)

The need to conserve karst landscapes is discussed, and the reasons for the special scientific value of karst are explained. The distribution of karst in relation to National and Forest Parks is reviewed. Karst sites of international significance are the Nettlebed Cave system, the Wai-koropupu Springs, Honeycomb Hill Cave with its unique subfossil fauna, and a number of glow-worm caves. The management problems associated with karst are simplified when park boundaries coincide with watersheds.

**New Zealand’s National Parks: Use and Users**


Use by domestic visitors is compared to that by international tourists, with short visits and passive or semi-active pursuits being common to both groups. The management implications of these patterns are also explored and it is suggested further research is now needed to consolidate and expand the work discussed.

**The public’s view of National Parks**


This paper reports the result of a survey conducted in Christchurch on both the levels of public awareness of the National Park system, and on attitudes to what functions the parks should provide. In general the research reveals a high congruence between policy priorities and expressed public expectations. However some significant gaps in public knowledge are revealed.

**Planning in the New Zealand National Park**

Davies E. Vol. 43(2): 73-78 (1987)

The central theme of this paper is the dichotomy between preservation and public use inherent in most attempts at planning for national parks. The history of legislation surrounding the New Zealand National Park system is reviewed. Problems in resolving the two planning priorities are outlined and an argument made for resources to be made available to allow more effective management planning, possibly within amended institutional structures.

**Perspectives on the impact of short-term climatic change in New Zealand**


In New Zealand, the implications of short-term climatic change for land-based production and certain resources could be profound. There is need for an alternative perspective to the traditional approaches to the study of climate-society interaction that assumes climatic conditions in the near future will resemble climatic conditions of the recent past. Sustained variations in climate will occur in many parts of the country. Where these changes are large, or where human activity is poorly adapted to the climatic opportunity or natural resource, significant impacts are likely.

**Natural hazards and visitor safety in New Zealand’s National Parks**


National parks in New Zealand are inherently hazardous places. Recent dramatic increases in park visitors have accentuated threats from hazardous events. While park managers have a moral responsibility for visitor safety, legal responsibility and liability for deaths and damage are hazy. This paper examines three hazard phenomena – snow avalanching, mass movement and volcanic eruptions. Management responses are assessed as being essentially adequate to meet current hazard threats. Gaps are identified, and suggestions are made for improving hazard evaluation and control.

**Planning for Recreation in National Parks**


Recreation is a land-using activity with an inherent relationship between people and environment and is a wealth-producing industry. This has significant implications for the way resources are perceived and used. It can be seen as a factor which influences individual behaviour, which in turn shapes the way land and resources are used. This paper discusses these relationships in terms of the role of recreation in national parks and ways of providing for them through planning at national, regional and local levels.