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Professional conscience vs popular consciousness - Changing management of scenic rim forests in NSW

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ABSTRACT: A rising forest conscienceness is illustrated by the history of forest management along the Scenic Rim and the forests of the upper Richmond and upper Clarence catchments in northeastern New South Wales (NSW): phases of initial forest management to protect these forests from further agricultural selection, timber yield research, plantation establishment, intensive logging for wartime and post-war supplies, dedication of flora reserves, forest zoning, national park management and World Heritage designation. The reduced area of native forest remaining available for timber harvesting is managed to protect the range of forest values. Plantations are being established on cleared land to provide timber for the community into the future.
The highly biodiverse landscape is the combination of dynamic ecosystem processes and human influences. The more recent European history has seen a period of opening up these forests, clearing of valley floors for agriculture, the construction of roads and trails, logging and 'management' of fire within this landscape. Historical data has a role in informing management policies. So do scientific studies into forest structure and dynamics such as fires, pest plants and wildlife. The Forest Agreement for Upper North East NSW heralded changes in tenure and management. How well will biodiversity conservation objectives be met through 'ecologically sustainable forest management' and the conversion of areas of State forest to reserves?
While the largely urban population can look up from the coastal fringe to the distant blue mountain ridges conscious that much of these forests are now in reserves, the professional consciences know that we need long-term monitoring and analysis to assess the sustainability of forests under the new management systems.

1 FORESTS OF THE UPPER CLARENCE AND RICHMOND CATCHMENTS

1.1 *The scenic rim of the NSW-Queensland border*

In the 1970s, Queensland conservationists sought protection of a 'scenic rim' of natural, forested land from Mt Gipps to Cunninghams Gap including Mt Lindesay (Figure 1). Maintenance of a vegetative corridor in New South Wales was important because adjoining areas had been cleared to pasture (NPWS, 1977). The moist, elevated lands, rising to 1280 metres at Mt Ballow, form a significant boundary between the coastal areas and the drier, flatter inland Darling Downs. The topography and vegetation create an aesthetic appeal which, marketed as the 'scenic rim', has become an important part of south-east Queensland tourism promotion.

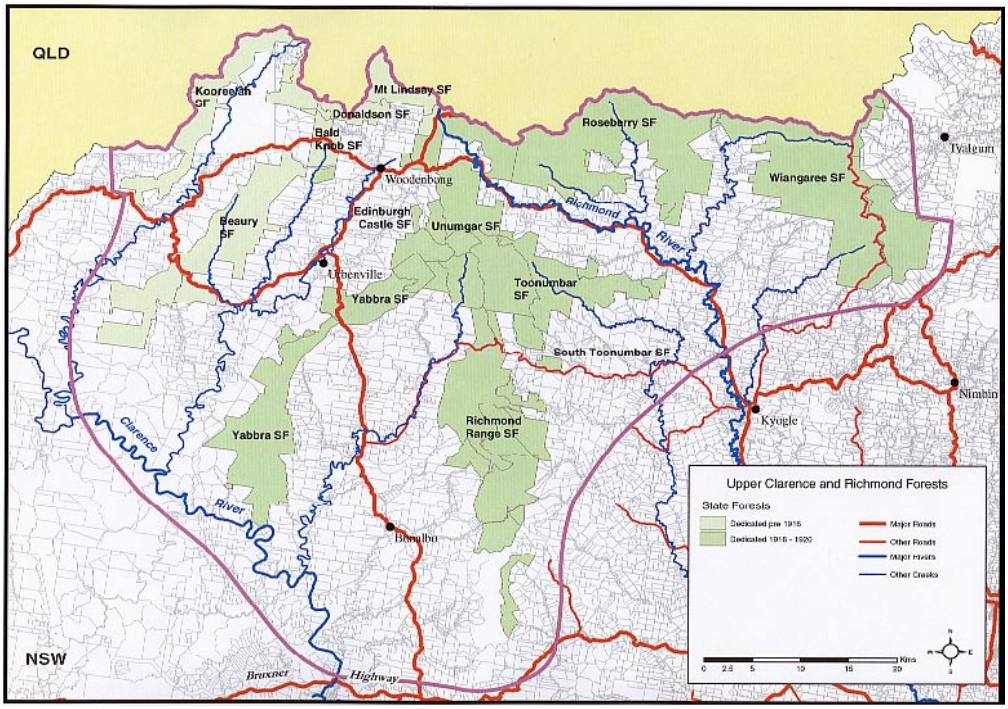

Figure 1. State Forest dedicated by 1920

This paper focuses on the management of forests in the upper Clarence and Richmond catchments between the McPherson Range (Queensland-NSW border), the Tweed Range on the eastern edge, the Great Dividing Range to the west and the Clarence River and Bruxner Highway in the south (Figure 1). Since settlement, the major valleys have been cleared for agriculture leaving forest cover along the McPherson Range, with projections southward along the Great Dividing Range, Koreelah, Tooloom, Richmond and Tweed ranges. Rainfall along the Tweed Range is 1750 mm but decreases to 875mm in the Clarence valley in the west of this area (Forestry Commission, 1986).

1.2 *Geology and topography*

The 'Border Ranges' is located above a Mesozoic basin of horizontally-bedded sandstone, conglomerate, shale and related sediments (NSW Government, 1977). During the Tertiary era, massive volcanic activity occurred. Mt Warning is a central plug-like remnant of the Tweed Shield volcano that erupted about 23 million years ago. A similar shield volcano was centred on Focal Peak, near Mt Barney in Queensland. Massive outpourings of lava from these volcanoes originally formed an uplifted basalt plateau, now eroded to a massive mountain complex. Subsidiary volcanic vents remain as domed or tiered rocky peaks rising abruptly above the surrounding country and contributing to the distinctive landscape.

The Nerang, Coomera, Albert, Logan and Condamine Rivers drain northward from the McPherson Range. Streams south of the NSW-Queensland border form the headwaters of the Clarence, and Richmond Rivers. The Tweed River, which is outside the area considered here, drains to the east.

1.3 *Climate, vegetation and habitat*

Parts of the area experience a subtropical climate with high rainfall and persistent humidity on the ranges. Substantial areas of subtropical, warm and cool temperate, and dry rainforest occur across the range of altitudes, volcanic soils and moisture. A 150 hectare stand of Antarctic beech on Mt Ballow is the largest single stand of cool temperate rainforest on the Border Ranges.

The Lindesay Creek catchment supports significant stands of subtropical rainforest, dominated by Yellow Carabeen and Flame Tree at higher altitudes, with Black Booyong - Giant Stinging Tree - Flame Tree associations at moderate altitudes. Dry rainforests occur on basalt soils and are dominated by Hoop Pine. On west facing ridges and slopes, at middle altitudes, rainforest is replaced by Sydney Blue Gum and Tallow wood, with Brushbox in the gullies. The hardwood forests include dry hardwood and moist hardwood forest types. Over forty species of endangered fauna have been recorded from rainforest areas in the Border Ranges area. These include the Rufous Scrub-bird, Southern Angle-headed Dragon, Steven's Banded Snake, Long-nosed Potoroo and Spotted-tailed Quoll.

2 INFLUENCES ON THE MANAGEMENT OF FORESTS

2.1 *Changing land use and management*

Lang (1973) observed that rapid changes in land policy and Crown lands legislation in New South Wales had been accompanied by frequent reversals due to social, economic and political considerations. The forests of the Upper Clarence and Richmond catchments have been subject to two centuries of land use decisions which resulted in extensive areas of forest remaining in public ownership providing a key resource, protected and utilised to meet community needs.

Land use decisions in the mid nineteenth century, such as the creation of pastoral runs, paved the way for settlement. Reservation of forests from sale ‘for the preservation and growth of timber’ protected some from clearing. These areas were reviewed in the 1900s and the most useful for forestry purposes formed the nucleus of areas dedicated as State Forest. Further dedications occurred with ‘extensions’ to enlarge the timber resource. From the mid 1970s, campaigns by conservation interests led to changes in tenure, with areas of State Forest being reserved as National Park. Following the National Forest Policy Statement (Commonwealth of Australia, 1992), a comprehensive regional assessment of forests in Upper North East NSW was undertaken in 1998. This led to further reservations and an Integrated Forestry Operations Approval (IFOA) was developed bringing together environmental regulation of forestry operations with the goal of building an ecologically sustainable, value added and secure native forest timber industry.

2.2 *Professional conscience and public conciousness as triggers for change*

The allocation and use of land is determined ultimately by the politics of the period. Legislation, policies and management processes serve society’s immediate and long-term ‘needs.’ Triggers for change will vary. Through the 1900s, forest managers learned better management through tertiary study, field experience and measurement, and knowledge gained through field investigation and research. Classification studies, aerial photographs and yield assessments showed the resource available. Silvicultural studies identified growth responses and regeneration potential under various harvesting intensities. Sharing of experience was encouraged and research undertaken to build a more thorough, scientific basis for management.

As staff gained an increased understanding of forest ecosystems and their biology, a ‘professional conscience’ emerged leading towards improved management. The Forestry Commission worked to build the forest estate necessary to provide for the timber needs of New South Wales establishing plantations to supply a softwood resource, initially the indigenous Hoop Pine. Later plantations of exotic Southern pines would be planted. The collective experience was documented in references such as ‘Silvicultural Notes’ prepared by George Baur. To be effective though, planners and politicians need to keep abreast of community demands and interests.

Professional conscience usually drives improvement and management changes, while public consciousness of forests reflects the level of community understanding of forest ecosystem management. However, history shows that community sentiment towards New South Wales forests management has varied over time.

The original Aboriginal inhabitants of the northeast, the Gidabal and Galibal people, dialectic sub-groups of the Bundjalung language group (Crowley, 1978), possessed a special connection to the land and its forests. Mountains such as Edinburgh Castle, Mt Clunie, Dome Mountain and Bald Knob were and remain significant to Aboriginal people. Byrne (1987) recorded Aboriginal use of rainforest citing examples of edible fruits and medicinal plants. Forest habitat, important for hunting pademelons, was aided by the use of fire to maintain a grassy understorey on the margin of rainforest.

Early settlers considered the forests a hindrance and huge volumes of splendid timber, including Hoop Pine, Teak and White Beech were destroyed to make way for agricultural development (Kessell, 1934). Forests became important workplaces for communities experiencing the depression of the 1930s, for supplying resources during the Second World War, and during the following period of high demand for timber for post-war reconstruction. Increasing interest in environmental matters developed in the 1960s. The National Parks and Wildlife Service was established in 1967. Soon after, environmental groups campaigned for rainforest areas to become national park. The Forestry Commission realized that rainforest logging could not continue at its present rate and decided to phase it out with minimum disruption to established industries. In 1982, the Government decided on a policy that involved inclusion of rainforest in national parks, maintenance of forest industry employment and identification of alternative timber sources.

Public sentiment has continued to shift toward conservation outcomes, although such views are not uniform in rural areas. From the 1970s, the conservation movement has raised public awareness and 'consciousness' of environmental issues. Forest campaigns have been instrumental in swaying public opinion, which in turn has led to political change. There is a tension between professional conscience and public consciousness. The community has become more educated on many environmental matters, more ready to question those charged with management responsibility as well as wanting to influence management or political processes.

There is also widening of disciplines and expertise that contribute to meaningful debate and improved outcomes for natural resource management. The 'professional conscience' needed today must be a synthesis of the views of botanists, zoologists, soil scientists, ecologists, anthropologists, owners of traditional knowledge, archaeologists, historians and even climatologists, in order to advance professional debate, formulate improved practice and provide advice to Government. Recent emphasis on monitoring and reporting provides a further check of management effectiveness in meeting objectives.

3 THE EARLY HISTORY LEADING TO FOREST MANAGEMENT

3.1 *Pioneering and settlement: 1840 -1906*

Byrne (1987) speculated that Aboriginal people made infrequent visits to mountainous areas such as the Richmond Range, while Collins (1991) argued for a more intensive pattern of use, with semi-permanent base camps along the valleys of the Clarence and Richmond Rivers and their major tributaries. Feary (1989) identified large open sites confirming long term rather than fleeting occupation. There was also evidence that Aboriginal movement through rugged country in these forests was along ridges and river valleys. Stone artefact scatters are widely distributed throughout forested uplands (Lennon, 2002:3). Aboriginal burning influenced rainforest distribution and created grassy understoreys and clearings, ideal for European stock grazing (Forestry Commission, 1977).

The early history of New South Wales shows a period of wasteful exploitation of its native forest cover (Forestry Commission, 1976). The earliest form of regulation imposed on timber cutting occurred on 3 July 1801, when Governor King declared timber in the Hunter Valley to be

the exclusive property of the Crown. Subsequent Government orders and decrees covered specific areas or aimed to control cutting of individual timber species such as Red Cedar.

European occupation of the upper Richmond catchment commenced in 1828 with the arrival from the north of Allen Cunningham, Captain Patrick Logan (a commandant of the Moreton Bay penal settlement) and botanist Charles Fraser. These men gave European names to the McPherson Range and Mt Lindesay. Pastoralists moving northward to the New England tablelands in the late 1830s became interested in the Clarence and Richmond valleys, while cedar cutters reached the lower Clarence by 1838 and the Richmond in 1842 (Lennon, 2001), when a bridle track or 'road' was opened around Mt Lindesay from New South Wales into the Moreton Bay District (now Queensland). Leases were issued from 1848, following the identification of Pastoral Runs within the area described under the Order in Council of 9 March 1847. The region was more favourable for cattle despite the problem of controlling cattle tick. Gold was discovered at Tooloom in 1858 attracting European, Chinese and American miners (Magee 1987). A road was constructed from Ipswich to the goldfield, which extended to the Clarence River (Forestry Commission, 1986).

The gradual dispossession of Aboriginal people from their land forced them to camp on the outskirts of European settlements (Smith, 1993). In 1900 Aboriginals were living at Grevillea, Moore Park, The Risk, Gradys Creek and Horseshoe Creek. The Aborigines Protection Board was established in 1883 and a 115 acre reserve established at Kyogle and one at Woodenbong in 1908 (Lennon, 2001:7). With this change, Aboriginal people curtailed burning of forests and settlers found that areas previously with a grassy understorey became covered in regenerating scrub.

Red Cedar and Rosewood were culled from forests before they were thrown open for selection, but millions of feet of timber were destroyed to make way for agricultural development. By the 1860s, the indiscriminate removal of forest on crown lands alienated to leasehold and freehold raised concerns that no land would remain for the permanent production of wood (Carron, 1985). Attempts to arrest unrestricted cutting were made in 1871 when the first Timber Reserves were gazetted, which included 'magnificent forests of brush and hardwood in the Clarence Pastoral Districts' (Forest Branch, 1883).

Squatters in the upper Richmond were keen to clear their land by 1875 selling the timber and soon an army of workers invaded forests around Roseberry and Kyogle. Long processions of bullock teams hauling logs made their way to Casino (Daley, 1966:130). Intensive clearing of rainforests occurred from about 1880 to 1900 (Grant, 1988:108). In the upper Richmond valley accessible Red Cedar and Hoop Pine along the river banks was exploited until the 1890s and hauled to Queensland or south to Casino for transshipment as there was no sawmilling industry in the area in the nineteenth century (Lennon, 2002:3).

Also in 1875, the same year that the first sawmill opened at Lismore, William Carron was made '*inspector of forests and forestry ranger for the Clarence River district*' (Carron, 1985). He reported on existing forest reserves and recommend further reserves. Cedar cutters came to the upper Clarence around 1880, some 40 years later than on the lower Clarence due to the difficulty in transporting logs to ports on the coastal rivers (Forestry Commission, 1986). Despite Lands Department regulations from the 1870s to control the cutting and use of timber, 40 years passed between establishing the first Forest Reserves and the creation of a government authority to implement a statutory policy of forest conservation.

3.2 *Creating a Forestry Act*

In July 1907, a Royal Commission was appointed to examine timber resources in New South Wales, the adequacy and value of existing forest reservations, to investigate afforestation and reforestation, the effectiveness of existing forest laws, administration and provision for education in the science of forestry. It reported that protection of the forest domain appeared always to be subordinate to settlement (NSW Government, 1908). A fledgling Forestry Department was created under the Forestry Act of 1909 to introduce a system of management for forests as no capacity had been developed to manage timber resources, other than reservation of land from sale as Forest Reserves. It was difficult; prevailing public sentiment favoured land settlement rather than

reforestation and regeneration of cutover lands. The timber industry was distrustful of any form of control (Kessell, 1934).

3.3 *Early dedications of State forest under the Forestry Act 1916: 1916 –1920*

The 1916 Forestry Act required the dedication of two million hectares of land as State forest within three years. By 1920, much of the valuable timber-producing areas in forest reserves and other large tracts of forest were dedicated as Edinburgh Castle, Mt Lindesay, Roseberry, Richmond Range, South Toonumbar Toonumbar, Wiangaree, Woodenbong and Yabbra State Forests (Figure 1). The Forestry Commission needed a strategic plan for provision of future wood production.

A start was made on mapping the forests, assessing the remaining timber resource and regenerating cutover areas. The Hoop Pine in the upper Clarence and upper Richmond forests gained importance as a valuable timber resource. Even then, it was clear that the native forests would not meet future timber demands and the only way to curtail the State's growing dependence on imported softwoods would be to establish a large-scale softwood plantation program.

3.4 *Timber harvesting and plantation establishment: 1920 – 1950*

3.4.1 *Early calls for a national park*

On the centenary of the European discovery of the Upper Richmond, 3 August 1928, the *Kyogle Examiner* reported on repeated unsuccessful attempts to have the upper Richmond area declared a national park. On the Queensland side of the border, Lamington National Park had been dedicated in the 1920s although it had been under protection since 1915 (Martin, 1988:53-4). Despite sentiment seeking the protection of aesthetic values, priority was directed to farming settlement. During this period, land within State Forest was reassessed and instances occurred where forest was revoked and leases issued under the Crown Lands Act, and later converted to freehold. Although there was concern at the potential loss of the 'arboreal wonderland' (Martin 1988:55), the voice of public consciousness was low amongst the push for settlement.

Hoop Pine continued to be harvested, supplemented by species such as White Beech, Pigeonberry Ash, Ironbark, Blue Gum and White Mahogany. Sawmills were established at White Swamp and Old Koreelah in the early 1900s and Terrace Creek in 1910, Grevillia in 1911 and Findon Creek in 1916. Milling commenced in the Urbenville area at this time and by 1930 there were 14 mills there (Lennon, 2002:3).

3.4.2 *Increased road access: early 1930s.*

Before 1930, sawmills depended on bullock teams or bush trams to extract sawlogs from the forests. The supply zone was restricted to the distance that timber could be economically transported. As supplies were depleted mills were forced to close. In 1930 a rail link to Brisbane was completed and the Mt Lindesay Road opened improving links outside the region. Later, road access was established using unemployment relief funds and enabling logging of new areas within Roseberry State Forest (Lennon, 2001:12-13).

Development of mechanised equipment in the 1930s increased accessibility. Tractors and truck transport gradually replaced bullock and tramlines. This transformed the sawmilling industry, enlarging the area of supply and the capacity to utilise lower grade logs previously uneconomic to transport. An exception was Munro & Lever's Long Creek timber tramway, which continued to operate until 1947.

3.4.3 *Recommendations for forest management practice: 1934*

In December 1933, the Minister for Forests instructed S.L. Kessell, Conservator of Forests in Western Australia, to examine the indigenous forest, plantations and forest industries of New South Wales. This formal review by an interstate professional could be regarded as an exercise involving a professional conscience, whereby the Forestry Commission of 18 years was open to close scrutiny. Kessell (1934) voiced strong support for the Forestry Act and the dedication of land as

State Forests and Timber Reserves observing that in 1916, the Commission faced the massive task of reversing past neglect.

Kessell called for a 10 year moratorium on releasing land from State Forest, that vacant crown lands be reviewed for suitable additions as State Forests and that an Act of Parliament be required to excise State Forest. He concluded that the future of forestry would depend on professionally trained foresters and that the Government should utilise unemployment relief labour to construct the forest roads needed for timber transport, forest management and fire control.

At the fringe of climax rainforest, brush forest included Hoop Pine and species such as Coachwood and Sassafras for which there was increased demand in the 1930s. Kessell suggested that the sale of these species should be fostered so that forests could be logged more systematically then areas closed for regeneration. Topographical surveys had been carried out from 1916 and attempts made to assess the stands of remaining Hoop Pine but the total volume remaining was insufficient to maintain the current harvesting rate. Kessell stressed the need to maintain seed trees and those under the minimum girth of 90 inches (73cm diameter) from being felled. He also raised questions regarding regeneration, having observed weed species dominating sites disturbed by logging.

Silvicultural treatment of rainforest was not active, on the grounds that forests would likely be revoked for settlement when the current crop of timber was removed. Profuse numbers of Hoop Pine seedlings had been observed in Mebbin State Forest on the McPherson Range. Kessell suggested that 'freeing' Hoop Pine seedlings should be tested. Scrub would be slashed and small openings created in the lower-level canopy of minor brush species. In Queensland, techniques for Hoop Pine establishment were well established and should be considered. Demand for timber declined during the 1930s Depression, which saw imports of high quality Douglas fir landed cheaply from the United States and Canada.

3.4.4 *Building a plantation resource: 1939 -1956*

Buoyed by the success of Hoop and Bunya Pine plantations in South East Queensland, staff prepared an ambitious 'Forest Development plan for the Urbenville District' which was launched by the Deputy Premier at Urbenville on 6 March 1939 (Baur, undated).

Table 1 Indigenous plantations of Hoop and Bunya pine, as at June 1981

Plantation	Species	Planting year	Area
Toonumbar	Hoop Pine	1941-1952	263ha
Beaury	Hoop Pine, Bunya Pine	1939 - 1949	168ha
Acacia Plateau	Hoop Pine	1939 - 1954	299ha
Tooloom	Hoop Pine, Bunya Pine	1948 - 1954	356ha
		Total	1086ha

Source: Forestry Commission, 1981

Seedling production nurseries were to be established at Urbenville, Roseberry and at Pikapene, south west of Casino. The site selected for the Roseberry nursery was adjacent to the Richmond River and dedicated in 1937 as an extension to Toonumbar State forest. From 1939 a high shade nursery (50% shade) was built using timber lathes and tubed stock beds, additional water reticulation, a tubing shed and store were constructed.

The late decision to implement planting on the Acacia Plateau in 1940 was considered necessary to resist strong local farmer agitation and political pressures to throw open much of the cut-over rainforest on the plateau for land settlement (Forestry Commission, 1981).Plantation establishment in the district continued until 1956, when planting ceased due to high nursery and escalating establishment and tending costs. Harvesting thinnings commenced in 1961 and the yield to 1981 was 103 000 $m.^{3.}$ Following a public inquiry into the management of the Border Ranges in 1978, the government decided that 3000ha of southern pines (Loblolly and Slash Pine) should be

established in the Kyogle and Urbenville forestry districts. It was envisaged that the existing Hoop and Bunya plantation resource would be harvested and returned to natural forest, with the new plantation replacing supply to the local industry. Land was purchased on the open market, commencing with lands added to Eden Creek State Forest. Through to early 2000, further land purchases were added to Yabbra and Beaury State Forests. Much of the planting during the 1990s has been with eucalypts, to create hardwood plantation.

3.4.5 *Production for wartime supplies and post-war construction: 1938 - 1960*

World War II brought a dramatic change to timber demand. National Security Regulations on 28 January 1942 restricted the use of high-quality coachwood to the manufacture of plywood for aircraft. Rainforest extraction increased greatly during the war years, with coachwood used in construction of Mosquito bombers and in rifle stocks. As Hoop Pine decreased in availability the utilisation of other rainforest species increased. This pressure continued as timber required for post-war reconstruction and housing needs was sought.

Stumpage appraisal was used, providing an efficient regulation of yield by volume and area. In the fifteen year period 1937 to 1952, sawlog output doubled from 815 000 m^3 to 1, 800,000 m^3 (Carron, 1985). Higher prices enabled demand to be met by extending the road network into places previously considered too distant or uneconomic, lower grade logs could be utilised and yields increased. From the 1940s, major roads were built by the Forestry Commission or its contractors. A review of resources in 1952 and estimates of future yield, prompted the Forestry Commission to accelerate the exotic softwood plantation program to provide the resource required to meet future needs. Ironically, this coincided with the decrease of native pine planting, which ceased by 1956.

3.5 *Working toward sustainability: 1930 - 1985*

3.5.1 *Protecting the forests and providing a future tree crop*

The history of logging shows gradually increasing control by the Forestry Commission, from a period when prime logs only were selected by the millers, the imposition of girth limits to retain immature stems, and the introduction of stumpage appraisal to encourage the use of less desirable species and defect logs. Amendments to the Forestry Act in the 1930s and 1940s showed early environmental concern. In 1935, section 25A provided for the setting aside of forest Flora Reserves and their management in Working Plans. The Tooloom Scrub Flora Reserve was dedicated in May 1937. Further flora reserves created were at Mt Lindesay in 1951, the Sheepstation Flora Reserve in Wiangaree State Forest in 1966, three in the 1970s and nine in the 1980s. (Each of these areas is now protected as National Park). Section 19A established the more secure category of National Forest, which required an Act of Parliament to enable revocation. Beaury, Koreelah and Yabbra State Forests were notified as National Forest on 14 June 1940 (NSW Government, 1940).

In rainforest areas where it was considered impractical to maintain timber production, the policy from the 1930s until the mid-1950s was to log as heavily as possible recovering all merchantable stems, clear away remaining growth and plant Hoop Pine or Bunya Pine. An important exception was dry rainforest, where it was believed that the Hoop Pine component could be maintained. Freeing treatments commenced in the mid-1930s and continued to the late 1950s. Selective logging in rainforests was introduced in 1962 with trees marked by Forests Commission staff (Baur, undated). Modification of the system followed but proved effective if fifty per cent canopy cover and the full species diversity were maintained. In 1953, allocations to sawmills were changed from area allocation to quotas based on mill intake in recent years. Unfortunately, the quotas were at unsustainable levels, and despite reducing quotas, the situation persisted until the early 1980s with forest capacity and quotas being incompatible (Carron, 1985).

In the 1960s, momentum increased around the world for the protection of tropical rainforest. There is no tropical rainforest in New South Wales, with the forms in the upper Clarence and Richmond being classified as subtropical, warm temperate, cool temperate and dry rainforest. Conservation interests criticised the Indigenous Forest Policy which applied different management objectives for the different rainforest leagues. Confusion was also increased by ecological gradients

and transition with wet sclerophyll forest, which some community groups had labelled as rainforest. Harvesting would be on a 'sustainable yield' basis, where the rate of extraction was no greater than the rate of growth, creating a regular series of age classes to provide for constant volume production. The Policy identified that native forest would continue to supply timber products but in addition, support recreation, education, wildlife conservation, catchment protection and scientific research. It sought industry rationalisation for sustained productive capacity, recognising that reduction in sawlog yield from indigenous forests would be supplemented by production from softwood plantations (Forestry Commission, 1976).

Seeking permission to construct a logging access road onto Lever's Plateau in 1976 exacerbated a continuing controversy over possible reservations, leading to a moratorium on construction pending development of a management policy for the Border Ranges. Five years later, in 1983, 30 130 hectares within Roseberry, Wiangaree and part of Mount Lindesay State Forests were revoked under the *Forestry Revocation and National Parks Reservation Act* 1983, to become the Border Ranges National Park (Figure 2).

Management plans were prepared in the 1970s and 1980s with classification of areas as Preferred Management Priority (PMP) zones. Following the decision to create the Border Ranges National Park, the Kyogle office was closed and the Kyogle Management Area incorporated with the Urbenville Management Area. A new plan for the enlarged Urbenville Management Area prepared in 1986 retained a pool of undisturbed forest, managing the balance under a regime that provided for a normal distribution of tree size and age and constrained timber harvesting to an intensity which allowed survival of a component of overmature and non-commercial stock for its contribution to non-timber values. A Grevillia Management Plan, approved in 1981, covered the management of pine plantations.

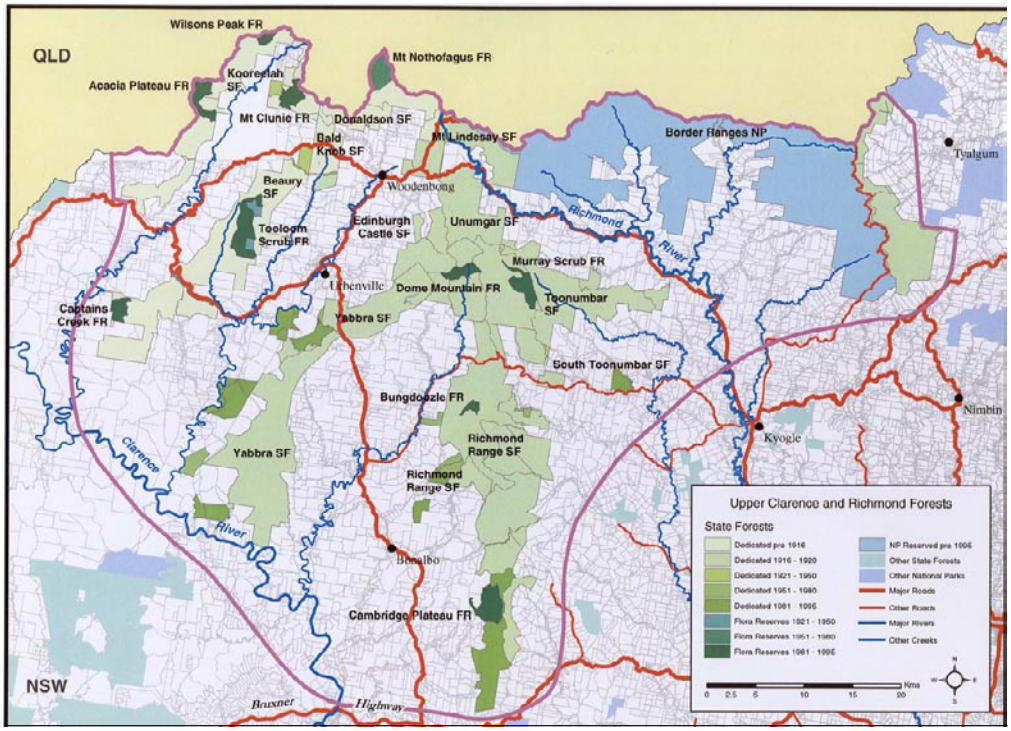

Figure 2. Tenure 1995, following Border Ranges National Park gazettal and Flora Reserve dedications

In 1986, a number of rainforest reserves on the Great Escarpment of eastern New South Wales were inscribed on the World Heritage list for their outstanding natural universal values (Environment Australia, 1999). The listing known as the Central Eastern Rainforest Reserves (Australia) contained reserves in Queensland and New South Wales selected as outstanding examples representing stages of the earth's evolutionary history, significance for ongoing geological processes and biological evolution and important for in situ conservation of biological diversity. The forests are particularly rich biologically, with the highest concentration of frog, snake, bird and mammal species in Australia. The World Heritage listing was extended in 1994, by the inclusion of State Forest within Flora Reserves and other reserves.

3.5.2 *Forest reforms of the 1990s*

In June 1990, the Forestry Commission released a strategy for the preparation of Environmental Impact Statements (EISs) prior to logging, which imposed a moratorium on areas that had never been logged such as the Duck Creek area in Richmond Range State Forest. In 1992, Commonwealth, State and Territory Governments agreed to the National Forest Policy Statement, which identified national goals within a regionally based framework. In 1995, the New South Wales Government announced forest reforms aimed at preserving high conservation value old growth and wilderness and establishing a viable, internationally competitive timber industry. Two proposed national parks were notified, one including the majority of the Duck Creek area and the other in Beaury State Forest. The reforms also temporarily excluded other areas of forest pending the completion of a comprehensive regional assessment.

The assessment undertaken for the Upper North East region of New South Wales involved community and stakeholder input working toward positions to take to Government. The *Forestry and National Parks Estate Act* 1998 (NSW) resulted in 36, 729 hectares of State forest being revoked and declared as either national park or nature reserves (Figure 3). This Act made provision for forestry to operate in harmony with the National Park estate and for making a Forest Agreement for the Upper North East region, which became the prerequisite for Integrated Forestry Operations Approval pursuant to sections 26 to 28 of the Act. The approval integrates regulatory requirements for environmental assessment, protection of the environment and conservation of threatened species. A Regional Forest Agreement for North East New South Wales was signed between the Commonwealth and the State of New South Wales on 31 March 2000.

The National Parks and Wildlife Service (now part of Department of Environment and Conservation) has an approved plan of management for the Tooloom National Park (NPWS, 1999). A draft plan covering the parks and reserves of the Tweed Caldera incorporates the Border Ranges and Mebbin National Parks ((NPWS, 2001). These plans emphasise conservation of natural and cultural heritage, and visitor use. The values to be managed include World Heritage, visual attributes, Aboriginal and historic heritage, wilderness and biodiversity. The challenges of management include visitor use, fire protection and the control of introduced animals and plants. The Border Ranges National Park contains three wilderness areas declared under the *Wilderness Act* 1987, covering nearly all of this National Park. These are Lost World Wilderness declared on 14 February 1994, the Warrazambil Wilderness declared 12 April 1996 and Levers Wilderness declared 19 February 2003. The notion of an area being wilderness with no cultural value does not sit well with Aboriginal people, who would seek to continue access to and use of wilderness areas (Lennon, 2001: 39). The statutory management principles of wilderness are to restore and protect the unmodified state of areas, to preserve its capacity to evolve in the absence of significant human interference and to permit opportunities for solitude and appropriate self-reliant recreation. Walking tracks which existed prior to wilderness declaration will be maintained for public safety and to minimise impacts but no track upgrading will occur.

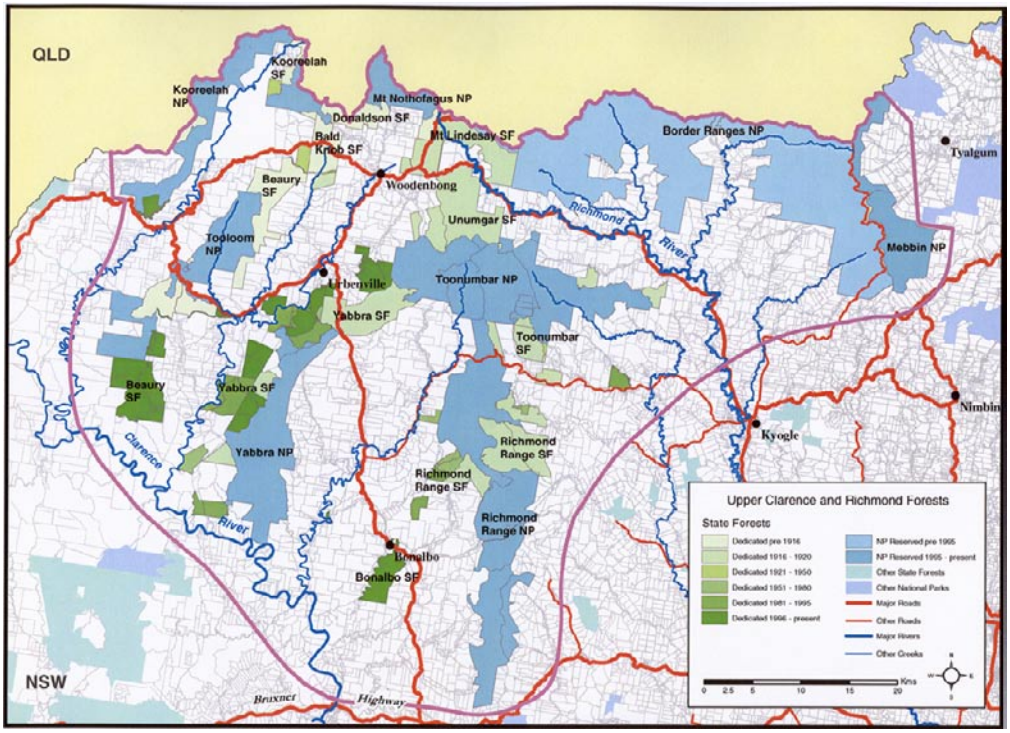

Figure 3. Tenure following Upper North East Forest Agreement (1998)

4 LOOKING BACK, LOOKING FORWARD

The history of forest management in the upper Clarence and Richmond catchments displays a rising forest conscienceness. Foresters, and more recently park rangers, are responsible for various parts of this landscape which has experienced intervention to protect forests from agricultural selection, forest classification and timber yield research, establishment of indigenous and exotic pine plantations, intensive logging for wartime and post-war supplies, dedication of flora reserves, forest management zoning to protect specific values, designation as World Heritage, the creation of national parks and work to maintain biological diversity and protect lands as wilderness.

The comprehensive regional assessment led to the dedication of new reserves and the integrated regulation of forestry operations. The changes in land tenure and management improvements evident over many years combines the input of 'professional consciences', those who have a working knowledge and professional experience to contribute, and the output of 'public conciousness'. Public sentiment about these forests has changed significantly since European occupation. For Aboriginal people, forests will continue to be important in the transfer of oral histories and cultural knowledge, and maintenance of their heritage, beliefs and legends.

The highly biodiverse landscape is the combination of dynamic ecosystem processes and human influences. The more recent European history has seen opening up these forests, clearing of valley floors for agriculture, the construction of roads and trails, logging and 'management' of fire within this landscape. Historical data has a role in informing management policies. So do scientific studies into forest structure and dynamics such as fires, pest plants and wildlife. The Forest Agreement for Upper North East New South Wales heralded changes in tenure and management. How well will biodiversity conservation objectives be met through 'ecologically sustainable forest management'

and the conversion of areas of State forest to reserves? Areas within and outside reserves present management challenges in terms of fire management, pest animal and pest plant control, plus numerable other challenges. Lantana, a woody weed has a major spread in areas below 700 metres elevation. Problems are being observed with dieback and tree death in areas where bell-miners are present, although this may be a symptom of reduced burning.

While the largely urban population can look up from the coastal fringe to the distant blue mountain ridges conscious that much of these forests are now in reserves, the professional consciences know that we need long-term monitoring to assess the sustainability of forests under the new management systems. Annual social, environmental and economic reporting commenced in Forests New South Wales in 2000/01 (State Forests, 2001). It is expected that these 'Seeing Reports' and the annual reporting of Forest Agreement implementation will enable trends to be identified. Whilst managers are aware that forests are dynamic with high levels of robustness and resilience, they will need to employ adaptive management to adjust programs and to intervene with strategies assessed more likely to achieve agreed short-term and long-term natural resource management objectives.

Decisions about the use of natural resources are not painless or without cost. Allocation of forests and their management require adequate social and political mechanisms to work through the issues. Governments and politicians judge how resources should be used in the interests of the community they are elected to represent. Professional consciences can bring scientific views to the debate and ensure accurate technical advice is available to decision-makers. As Governments move to be more responsive to the community, a public consciousness that is well informed and cognizant of long-term implications is important, as communities seek to influence the management of forests, into the future.

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