End of broadscale clearing in Queensland

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INTRODUCTION

Midnight on 31 December 2006 marked a watershed for environmental law and nature conservation in Australia: the end of broadscale clearing of remnant vegetation for agriculture in Queensland. A brief explanation of the environmental significance of tree clearing, land clearing or "vegetation management" (as it is now termed under Queensland law) and an overview of its regulation in Queensland help explain the significance of this event. The social and economic impacts of the end of broadscale clearing are significant but beyond the intended scope of the discussion here.[1]

Technically, the end of "broadscale clearing" in Queensland is not limited to agriculture and some clearing of remnant vegetation for agricultural purposes, such as fodder harvesting, will still be allowed.[2] However, in practice, clearing of remnant vegetation to create pastures for agriculture is the principal activity that has been stopped and which previously accounted for the vast majority of land clearing. For this reason the discussion here will focus on "the end of broadscale clearing of remnant vegetation for agriculture" as the effective category of clearing that has been stopped.

Another key point to understand from the outset is that the end of broadscale clearing applies only to "remnant vegetation" and clearing of "non-remnant" or "regrowth" vegetation on previously cleared land will continue. A popular, evocative term for remnant vegetation in rainforests and other tall forests is "old growth forest" but it is given a more precise and widely applicable definition under Queensland law. "Remnant vegetation" is defined in the *Vegetation Management Act* 1999 (Qld) (VMA) as vegetation, part of which forms the predominant canopy of the vegetation:[3]

- covering more than 50% of the undisturbed predominant canopy;
- averaging more than 70% of the vegetation's undisturbed height; and
- composed of species characteristic of the vegetation's undisturbed predominant canopy.

Remnant vegetation has been extensively mapped in Queensland based on its definition in the VMA and for areas covered by a regional ecosystem (RE) map or remnant map its extent is defined by what is depicted on the map. The success and utility of RE mapping is another feature of the Queensland vegetation management system that will be discussed after

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[1] For an overview of the major laws regulating land clearing in Australia and their social and economic impacts, see the Productivity Commission, *Impacts of Native Vegetation and Biodiversity Regulations* (Report No 29, Productivity Commission, Melbourne, 2004), available at http://www.pc.gov.au/ (viewed 12 December 2006).

[2] "Broadscale clearing" is defined by default under the *Vegetation Management Act* 1999 (Qld) (VMA). "Broadscale application" is defined under the VMA as "vegetation clearing that … is not for a relevant purpose under s 22A". Relevant purposes under s 22A include clearing for: establishing a necessary fence, firebreak, road or other built infrastructure; fodder harvesting; thinning; clearing for encroachment; and for an extractive industry. No general category for "agriculture" is included as a "relevant purpose".

[3] See the Schedule (Dictionary) of the VMA. "Vegetation" is defined in s 8 of the VMA as a native tree or plant other than: grass or non-woody herbage; a plant within a grassland regional ecosystem prescribed under a regulation; or a mangrove.

considering the environmental significance of the end of broadscale clearing of remnant vegetation.

ENVIRONMENTAL SIGNIFICANCE

Major reduction in the rate of clearing

The end of broadscale clearing of remnant vegetation for agriculture on 31 December 2006 should lead to a major reduction in the rate of clearing of remnant vegetation in Queensland and Australia, although the precise amount of the reduction in clearing is difficult to estimate at this point in time. Clearing in Queensland has accounted for over 70% of clearing of remnant vegetation in Australia over the past decade.[4]

The latest available figures for land clearing in Queensland from the Statewide Landcover and Tree Study (SLATS) are that:[5]

> The Statewide average annual tree clearing rate for the 2003–2004 period was 482,000 ha/year. This is 36% lower than the peak measured clearing rate in 1999–2000 of 758,000 ha/year and 13% lower than the previous period (2002–2003) of 554,000 ha/year. … Clearing of remnant *woody* vegetation … for the period 2003–2004 was 267,000 ha/year. This remnant clearing rate is 47% lower than the peak remnant clearing rate of 1999–2000 of 505,000 ha/year.

The end of broadscale clearing of remnant vegetation for agriculture on 31 December 2006 may reduce the overall rate of clearing of remnant vegetation in Queensland by around 96%. This figure comes from the fact that clearing of remnant vegetation to establish agriculture pastures accounted for 96% of clearing in Queensland during 2003–2004.[6] Less than 3% of clearing during 2003-2004 was for urban development, infrastructure and mining.[7] As clearing of remnant vegetation to establish agricultural pastures ended on 31 December 2006, the rate of clearing of remnant vegetation may be reduced by around 96%. This assumes the figure for clearing to establish pasture shown in the SLATS report is accurate, noting the report itself places a caution on the accuracy of this figure as it is primarily based on visual interpretation of satellite imagery rather than information on the intended land use.[8]

Several factors may alter the reduction in the rate of clearing of remnant vegetation that occurs in practice when compared with past clearing of remnant vegetation for agricultural pastures. Two important factors are that the amount of illegal clearing and enforcement of the law that will occur is uncertain and will affect the reduction in clearing that occurs in practice. It is unrealistic to assume either complete compliance or perfect enforcement. However, the extent of remnant vegetation at 31 December 2006 can be verified with precision from satellite data and the State Government has both an enforcement program in place[9] and powers to require rehabilitation of illegally cleared land.[10] Ongoing monitoring

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[4] Based on average figures for clearing in all States and mainland Territories during 1990-2003 in the Australian Greenhouse Office (AGO), *Greenhouse gas emissions from land use change in Australia: Results of the National Carbon Accounting System 1988-2003* (National Carbon Accounting System Technical Report, AGO, Canberra, 2005), p 23, available at http://www.greenhouse.gov.au/ (viewed 12 December 2006). See also Productivity Commission, n 1, p 103.

[5] Department of Natural Resources and Mines (DNRM), *Land cover change in Queensland 2003-2004: a Statewide Landcover and Trees Study (SLATS) Report* (DNRM, Brisbane, 2004), p 1, available at http://www.nrw.qld.gov.au/slats/report.html (viewed 12 December 2006).

[6] DNRM, n 5, p 22.

[7] DNRM, n 5, p 22.

[8] DNRM, n 5, p 8.

[9] The enforcement program was outlined in Sullivan G, "Enforcing Queensland's Vegetation Clearing Laws: Legislation, Policy and Procedure" (Queensland Environmental Law Association seminar paper, Brisbane, 14 March 2004). However, resources for enforcement are an ongoing problem – see McGrath C, "Summary and

and enforcement is likely to occur and should both reduce the extent of illegal clearing and mean that it does not necessarily result in a permanent loss of vegetation.

Another factor that will alter the reduction in the rate of clearing of remnant vegetation is that some exempt clearing associated with establishing agricultural pastures will continue, such as clearing to establish necessary fences and firebreaks.

Taking these sorts of practical issues into account suggests that the full extent of the reduction in the rate of clearing will only become certain when satellite data is analysed in coming years in the biennial SLATS report. However, even if the figure of a 96% reduction in clearing of remnant vegetation overestimates the reduction that occurs in practice, there should at least be a major reduction in the rate of clearing of remnant vegetation as a result of the end of broadscale clearing.[11]

Nature conservation

The high rates of land clearing and habitat fragmentation over recent decades in Australia, particularly in Queensland, have consistently been identified in State of the Environment reports as the single most significant threat to terrestrial biodiversity in Australia and Queensland.[12] For example, the *State of the Environment Queensland 1999* reported:[13]

> The factor contributing most to the loss of biodiversity in Queensland has been and continues to be the destruction of native habitat by broadscale land clearing. Immediate effects on biodiversity include the removal or killing of species, the most obvious being plants, and the rapid reduction in habitat for other species. Habitat loss is a major factor in loss of woodland bird diversity in Australia: it has been estimated that 1000–2000 birds die for every 100 ha of native bushland cleared ... Broadscale land clearing not only reduces the extent and diversity of natural ecosystems but also fragments them into remnant patches that, in many cases, are too small and too isolated to maintain viable populations of species.

The major reduction in the rate of land clearing in Queensland due to the end of broadscale clearing will, therefore, have significant benefits for nature conservation in Australia.

Greenhouse emissions

Another important factor to consider for understanding the environmental significance of the end of broadscale clearing for agriculture in Queensland is its implications for Australia's greenhouse gas emissions. Regulating clearing of vegetation in a way that reduces greenhouse gas emissions is one of the objectives of the VMA.[14] One of the intended

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critical analysis of major vegetation management laws in Queensland" (2002/2003) 8(37) QEPR 86. An example of enforcement action against a vegetation clearing offence is found in the decisions in *Dore v State of Queensland* [2004] QDC 364 and *Dore v Penny* [2006] QSC 125.

[10] An administrative power to issue a compliance notice is provided in s 55 of the VMA and courts have wide powers to order rehabilitation after civil or criminal proceedings for development offences under ss 4.3.20 and 4.3.26 of the IPA.

[11] See DRNM, n 5.

[12] State of the Environment Advisory Council, *State of the Environment Australia 1996* (CSIRO Publishing, Melbourne, 1996), pp 4-7 – 4-8; Australian State of the Environment Committee, *Australia State of the Environment 2001* (CSIRO Publishing, Melbourne, 2001), pp 73-74; Environmental Protection Agency, *State of the Environment Queensland 2003* (EPA, Brisbane, 2003), pp 7.3-7.4; Beeton RJS, Buckley KI, Jones GJ, Morgan D, Reichelt RE, and Trewin D, *Australia State of the Environment 2006* (Department of the Environment and Heritage, Canberra, 2006), p 37.

[13] Environmental Protection Agency, *State of the Environment Queensland 1999* (EPA, Brisbane, 1999), p 7.11.

[14] Section 3(1)(g) of theVMA.

outcomes stated in the Queensland Government's *State Policy for Vegetation Management* is to:[15]

> Reduce greenhouse gas emissions caused by vegetation clearing by 20 to 25 megatonnes per year by 2008 through the cessation of broadscale clearing of remnant vegetation by 31 December 2006.

Land clearing in Queensland has previously been recognised as a significant contributor to Australia's total greenhouse gas emissions.[16] The increasing regulation of land clearing in Queensland has been a key factor in the Australian Government's claim that Australia will comply with its target under the Kyoto Protocol[17] of a 108% increase in 1990 emissions during the first commitment period under the Protocol from 2008 to 2012.

The *National Greenhouse Gas Inventory 2004*, prepared by the Australian Greenhouse Office (AGO), states that Australia has reduced emissions from Land Use, Land Use Change and Forestry (LULUCF) from 128.9 million tonnes of carbon dioxide equivalent (Mt CO_2-e) in 1990 to 35.5 Mt CO_2-e in 2004, a net reduction of 72.5%.[18] Some of this reduction is due to forestry plantings. The AGO explained the component involving land clearing as follows:[19]

> Land use change activities were a net source of greenhouse gas emissions from 1990 to 2004. Net emissions from land use change in 2004 were estimated to be 53.3 Mt CO_2-e, which represents a decline of 75.6 Mt (58.7%) since 1990. Annual rates of land use change have decreased substantially since 1990 with consequent reductions in estimated emissions from burning and decay of aboveground biomass and below ground carbon. There is also a diminishing effect of extensive past land use change on decay of aboveground biomass and below ground carbon.

In contrast, emissions from other sectors have increased significantly above the 108% target. Emissions from stationary energy have increased by 43% and emissions from transport have increased by 24.3% since 1990.[20] The substantial increases in emissions from these sectors were offset by the reductions in emissions from LULUCF. This allowed the AGO to conclude that in 2004 Australia's net greenhouse gas emissions across all sectors totalled 564.7 Mt CO_2-e, a net increase of 2.3% over 1990 levels.[21] In contrast, by excluding LULUCF the Secretariat to the *United Nations Framework Convention on Climate Change 1992* concludes that Australia's emissions have increased by 25.1% over 1990 levels.[22] These figures and conclusions highlight the importance of regulating land use change such as land clearing for greenhouse gas emissions.

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[15] Department of Natural Resources and Water (DNRW), *State Policy for Vegetation Management* (DNRW, Brisbane, 20 November 2006), p 5, available at http://www.nrw.qld.gov.au/vegetation/ (viewed 12 December 2006).

[16] Henry BK, Danaher TJ, McKeon GM and Burrows WH, "A review of the potential role of greenhouse gas abatement in native vegetation management in Queensland's rangelands" (2002) 24 (1) *Rangeland Journal* 112; Bredhauer J, "Tree clearing in Western Queensland – a cost benefit analysis of carbon sequestration" (2000) 17 EPLJ 383; and AGO, n 4, pp 21-23.

[17] *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, done at Kyoto, Japan in 1997. See generally, http://unfccc.int/ (viewed 12 December 2006).

[18] AGO, *National Greenhouse Gas Inventory 2004* (AGO, Canberra, 2004), available at http://www.greenhouse.gov.au/ (viewed 12 December 2006), p 1.

[19] AGO, n 18, p 13.

[20] AGO, n 18, p 4.

[21] AGO, n 18, pp 1 and 3-4.

[22] See http://unfccc.int/files/inc/graphics/image/gif/graph1_2006.gif (viewed 12 December 2006).

OVERVIEW OF QUEENSLAND'S VEGETATION MANAGEMENT LAWS

Historical lack of regulation

Despite the environmental significance of land clearing, prior to the 1990s there were few controls imposed on it in Queensland outside of the 6% of the State protected in National Parks and State Forests and to protect forestry resources.[23] Rather, the law and all levels of government promoted widespread clearing for development.[24] This reflected a widely adopted approach in Australia of not regulating the environmental impacts of agriculture. As Neil Gunningham and Peter Grabosky noted:[25]

> Traditionally, regulation of agriculture has been informal, based upon the provision of information and persuasion by government authorities, whose fundamental role has been not to police agricultural producers, but to assist them to do the right thing. For example, in the early days, regulation of agriculture focused on the promotion and development of the industry, and even when environmental concerns were raised this did little to change the basic model of agricultural support rather than regulatory control. … Only recently … has the sanctity of private property and the widely held view that a landholder is free to do whatever he or she wishes with their land begun to yield to concerns for a wider public interest. The result is a grudging recognition that even privately owned agricultural land is part of a larger ecosystem. This, in turn, has been accompanied by a partial (but only partial) erosion of the traditional model of agricultural support, and the introduction of a variety of formal and informal constraints on land use …

Changes in land clearing laws between 1997 and 2003

Regulation of land clearing began to gather pace in Queensland in the mid 1990s, a decade which saw an explosion of environmental laws in Queensland and Australia generally. In late 1997 a stronger Statewide system commenced under the *Land Act* 1994 (Qld) to control vegetation clearing on the 67% of Queensland held as leasehold and other State lands. For the first time this system recognised conservation principles, such as to maintain biodiversity, as legislative objectives.

In late 2000, using a new mapping and classification system, a separate Statewide regime commenced under the VMA and *Integrated Planning Act* 1997 (Qld) (IPA) to regulate vegetation management on the 26% of Queensland held as freehold land and freeholding leases.[26] The new laws were very controversial politically for numerous reasons, including the traditional sanctity of freehold land, a view that land clearing was a legal right on freehold land,[27] claims for compensation for restricting clearing rights, and the political strength of the agricultural sector.[28] Widespread, "panic"[29] clearing preceded and followed this policy

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[23] Some controls have existed for a considerable time though. For example, s 231 of the *Land Act* 1897 (Qld), then s 198 of the *Land Act* 1910 (Qld), and then s 250 of the *Land Act* 1962 (Qld) prohibited the ringbarking or destruction of timber on leasehold land without a permit.

[24] A useful overview of the social history and motivations for land clearing is provided in AGO, *Land Clearing: A Social History* (National Carbon Accounting System Technical Report No. 4, AGO, Canberra, 2000), available at http://www.greenhouse.gov.au/ (viewed 12 December 2006).

[25] Gunningham N and Grabosky P, *Smart Regulation: Designing Environmental Policy* (Oxford University Press, Melbourne, 1998), pp 278-279 (footnote omitted).

[26] See http://www.nrw.qld.gov.au/vegetation/ (viewed 12 December 2006); and McGrath, n 10.

[27] There have been numerous unsuccessful challenges to controls on vegetation clearing on freehold land in Queensland based on constitutional issues: *Bone v Mothershaw* [2002] QCA 120; [2003] 2 Qd R 600; (2002) 121 LGERA 75; *Dore v State of Queensland* [2004] QDC 364; *Burns v State of Queensland* [2004] QSC 434; *Dore v Penny* [2006] QSC 125; and *Burns v State of Queensland & Croton* [2006] QCA 235.

[28] See the criticisms and commentary of Bredhauer J, "Can't see the scrub for the trees" (2004) 21 EPLJ 44; Productivity Commission, n 1, pp 26-28; and Kehoe J, "Land clearing in Queensland" (2006) 23 EPLJ 148 at 156-157. For some of the numerous press reports on this topic, see Greber J, "Tree-felling laws aim to protect

change creating a peak clearing rate in 1999–2000 of 758,000 ha/year and of 554,000 ha/year in 2002–2003.[30] After considerable delay that fueled this situation and allowed it to continue for several years, the Queensland Government imposed a moratorium on tree clearing applications on 16 May 2003.[31]

Major reforms in 2004

Faced with ongoing controversy and high levels of tree clearing across the State, in early 2004 major reforms to the vegetation management regime in Queensland were introduced.[32] The reforms commenced on 21 May 2004. The reforms removed the system of vegetation clearing laws for State lands in the *Land Act*, and placed the control of vegetation management of most State lands in the VMA and IPA system. The main triggers for whether development approval is required for vegetation clearing are found in Schedule 8 of the IPA. Additional, important triggers for approval of a material change of use (MCU) or reconfiguration of a lot (RaL) potentially leading to vegetation clearing are found in Schedule 2 of the *Integrated Planning Regulations* 1998 (Qld). If development approval is required, the *State Policy for Vegetation Management* and an applicable Regional Vegetation Management Code guide the assessment of the application.[33] Vegetation management on approximately 94% of land[34] in Queensland is now regulated under this system, although there are exceptions in the clearing that is regulated and many other laws also regulate vegetation management in less comprehensive ways as set out in the Appendix to this article.[35] The Department of Natural Resources and Water administers the VMA.[36]

A major component of the 2004 reform package was a policy commitment to phase out broadscale land clearing of remnant vegetation by 31 December 2006. A transitional cap of 500,000 hectares of broadscale clearing was allocated by a ballot spread across 7 regions in the State (with the exception of Cape York). The ballot was held on 17 September 2004 and all approvals granted under it or otherwise[37] expired on 31 December 2006, thereby ending broadscale clearing in Queensland.

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freehold land", *Courier Mail*, 24/8/2000, p 2; Ryan S, "Agforce backflip on trees", *Courier Mail*, 14/11/2000, p 4; McKenna M and Greber J, "Tree-clearing funds hinge on permit cap", *Courier Mail*, 22/9/2000, p 2; Bartlett A, "Farmers must learn to value the bush", *Courier Mail*, 6/10/2000, p 17; Editorial, "Beattie can't see the forest for the trees", *The Australian*, 6/8/2001, p 12; O'Malley B, "More controls on tree clearing", *Courier Mail*, 3/8/2002, p 10; Editorial, "Governments finally agree on tree clearing", *Courier Mail*, 27/5/2003, p 10; Odgers R, "Liberals leave Nats to stand alone on land clearing laws", *Courier Mail*, 30/5/2003, p 8.

[29] To use the language of Queensland Premier Peter Beattie quoted in Emerson S, "Permits to clear land put on hold", *The Weekend Australian*, 17-18/5/2003, p 5.

[30] DNRM, n 5, p 1.

[31] Under the *Vegetation (Application for Clearing) Act* 2003 (Qld). The moratorium was subject to limited exceptions.

[32] Under the *Vegetation Management and Other Legislation Amendment Act* 2004 (Qld). See generally http://www.nrw.qld.gov.au/vegetation/ (viewed 12 December 2006); McGrath C, "Queensland's new vegetation management regime" (2004/2005) 10 (46) QEPR 26; Bredhauer, n 28; and Kehoe, n 28.

[33] See http://www.nrw.qld.gov.au/vegetation/ (viewed 12 December 2006).

[34] Vegetation management in National Parks and State Forests continues to be regulated under the *National Parks Act* 1992 (Qld) and the *Forestry Act* 1959 (Qld) respectively, which account for approximately 6% of the State.

[35] For example, the *Fisheries Act* 1994 (Qld) protects marine plants (e.g. mangroves) on all tenures. See generally, McGrath, n 32, or McGrath C, *Synopsis of the Queensland Environmental Legal System* (4th ed, Environmental Law Publishing, Brisbane, 2006), p 28, available at http://www.envlaw.com.au/ (viewed 12 December 2006).

[36] See http://www.nrw.qld.gov.au/vegetation/ (viewed 12 December 2006).

[37] Sections 76 and 77 of the VMA provided a transitional system for previous applications and permits and required these to expire by 31 December 2006.

Comprehensive mapping of remnant vegetation

One of the most outstanding features of Queensland's vegetation management laws since 2000 has been the incorporation of a comprehensive system for mapping different vegetation types, known as "regional ecosystems" (REs). Under this system, Queensland is divided into 13 bioregions based on broad landscape patterns that reflect the major underlying geology, climate patterns and broad groupings of plants and animals.[38]

The VMA defines a "regional ecosystem" to mean "a vegetation community in a bioregion that is consistently associated with a particular combination of geology, landform and soil." REs are each assigned a unique three part code reflecting bioregion, land zone and dominant vegetation. For example, Brigalow-belah shrubby open forest on clay plains in the Brigalow Belt Bioregion is classified as "RE 11.4.3". The formal description of this RE is "*Acacia harpophylla* and/or *Casuarina cristata* shrubby open forest on Cainozoic clay plains".

The conservation status of each RE is based on its current and pre-clearing extent in a bioregion. REs are classified as under the *Vegetation Management Regulation* 2000 (Qld) as:

> ***endangered regional ecosystem*** means a regional ecosystem that is prescribed under a regulation and has either—
> (a) less than 10% of its pre-clearing extent remaining; or
> (b) 10% to 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000ha.
>
> ***of concern regional ecosystem*** means a regional ecosystem that is prescribed under a regulation and has either—
> (a) 10% to 30% of its pre-clearing extent remaining; or
> (b) more than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000ha.
>
> ***not of concern regional ecosystem*** means a regional ecosystem that is prescribed under a regulation and has more than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is more than 10,000ha.

The *Vegetation Management Regulation* 2000 (Qld) prescribes *endangered*, *of concern*, and *not of concern* REs in Schedules 1-5. Full descriptions of REs are provided on the website of the Environmental Protection Agency.[39]

The RE system has recognised limitations but has been adopted as a robust surrogate for planning the conservation of both the known and unknown elements of biodiversity.[40] REs are not a good surrogate for all species, and do not necessarily address the conservation needs of many rare and threatened species and species with patchy distributions.[41] Other complementary strategies that address the specific requirements of species are required but the RE system at least provides a fairly comprehensive and systematic framework for conservation planning across large areas with extensive environmental variation and large gaps in knowledge.[42]

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[38] See Sattler P and Williams R, *The Conservation Status of Queensland's Bioregional Ecosystems* (Environmental Protection Agency, Brisbane, 1999), Ch 1; and Neldner VJ, Wilson BA, Thompson EJ, Dillewaard HA, *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland – Version 3.1* (Environmental Protection Agency, Brisbane, 2005).

[39] At http://www.epa.qld.gov.au/nature_conservation/biodiversity/regional_ecosystems (viewed 12 December 2006).

[40] Sattler and Williams, n 38, p 1/1.

[41] Sattler and Williams, n 38, p 1/1.

[42] Sattler and Williams, n 38, p 1/1.

It is worth emphasising that one of the greatest values of the RE system is it provides a robust framework for conservation planning based on environmental factors and not merely based on "beauty" to humans. Beauty to humans has traditionally been a major factor in protecting certain areas in National Parks and other types of public reserves. This is not necessarily wrong. The problem with this approach is it can result in coastal wetlands and other less "attractive" ecosystems, with possibly immense and unknown conservation values, being poorly protected. The RE system protects remnant vegetation communities regardless of their attractiveness to humans.

The Queensland Herbarium has carried out, with remarkable skill, the immense and complex task of mapping REs throughout the State to produce comprehensive RE maps. These can now be downloaded for individual properties, for free, from the internet.[43] The accuracy of RE maps is sometimes criticised by landholders[44] and the mapping doubtless has limitations. The RE maps are not a static product. They are updated regularly to assess the rate and location of remnant vegetation clearing and are subject to ongoing improvement in accuracy and scale. The mapping program allows landholders or any other interested parties to request re-assessment of mapping they believe to be inaccurate. Apart from accuracy, the most common concerns expressed about the RE maps relate to scale (particularly in urban areas) and to certainty, since ongoing improvements mean that maps for a given area may change over time.

Partly in response to landholders' concerns about the accuracy and lack of certainty of RE mapping, in the 2004 reform package the State Government provided landholders with a right to apply for a Property Map of Assessable Vegetation (PMAV).[45] A PMAV is a property scale map that replaces the Statewide RE map for an individual property. Once approved, it can only be changed or revoked by the State Government in limited circumstances.[46] PMAVs can, therefore, improve the accuracy and certainty of vegetation mapping for landholders. Looking at this system in operation, RE maps supplemented by PMAVs provide a very useful basis for a comprehensive and effective Statewide regime to regulate land clearing.

The great value of the RE system for the legal system, when implemented as it has been in Queensland with comprehensive mapping prepared by the State Government, is to provide a relatively simple and certain system for identifying what vegetation is protected and what is not.

Not all clearing is prohibited

The end of broadscale clearing of remnant vegetation does not stop all clearing of remnant vegetation in Queensland as there are a number of exemptions from approval requirements as well as ten "relevant purposes" for which clearing of remnant vegetation can be permitted.[47] For example, no approval is required for clearing of remnant vegetation that is "essential management" such as for establishing or maintaining a necessary fire break to protect infrastructure, or necessary to maintain existing infrastructure, gardens or orchards.

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[43] See generally, http://www.nrw.qld.gov.au/vegetation/ (viewed 12 December 2006) and follow links to the Environmental Protection Agency website to generate RE maps for particular properties. As an example of RE mapping and how it reflects the distribution of vegetation 'on the ground', see an extract of an RE map with aerial photographs showing the vegetation on a site available at http://www.envlaw.com.au/cassowary2.pdf (viewed 12 December 2006).

[44] See also the criticisms of Bredhauer, n 28, pp 49-50.

[45] Under s 20C of the VMA.

[46] Under ss 20D and 20E of the VMA.

[47] See Schedule 8, Part 1, Table 4, of the IPA and s 22A of the VMA.

Significantly, clearing of vegetation on freehold land for urban purposes, such as new housing estates, in urban areas is exempt development and therefore not regulated unless it involves remnant vegetation classified as an *endangered* RE.[48] Vegetation clearing for urban expansion is regulated indirectly under local government planning schemes[49] and, increasingly, regional planning.[50] Clearing for mining, electricity supply and most transport infrastructure is also not regulated under the IPA and VMA system.[51]

The end of broadscale clearing of remnant vegetation also does not stop all clearing for agriculture in Queensland. Vegetation on agricultural land that has been previously cleared and has regrown can normally still be re-cleared. This vegetation is termed "non-remnant" or "regrowth" vegetation until it reaches the threshold to be classified as "remnant vegetation" as defined in the VMA. The ability to clear non-remnant vegetation is not limited to agriculture. The practical effect of this is that, while the expansion of cleared areas for agriculture and other activities is now constrained, landholders can generally maintain previously cleared areas.

Landholders are also able to prevent regrowth vegetation returning to remnant status and "lock in" their ability to clear parts of their property without approval by lodging a PMAV under s 20C of the VMA.[52] This means that farmers and other landholders can continue to manage vegetation in existing paddocks, orchards and other previously cleared areas. PMAVs are a very practical tool for giving certainty and security to landholders over their ability to clear vegetation.

CONCLUSION

The end of broadscale clearing of remnant vegetation in Queensland is a very significant event for environmental law and nature conservation in Australia. It is very significant for reining in a principal cause of biodiversity loss in Australia: land clearing and habitat fragmentation. It should result in a major reduction in the rate of clearing of remnant vegetation in Queensland, possibly around a 96% reduction, although the amount of illegal clearing that will occur is uncertain and only time will tell the full extent of the reduction. It will significantly reduce Australia's greenhouse gas emissions and assist Australia in meeting its Kyoto target of not exceeding 108% of 1990 emissions during 2008-2012. It is also significant in political and legal terms for dramatically increasing the regulation of agricultural land-use.

Land clearing will continue in Queensland in the future but at far reduced levels than previously. Even if the laws are changed in the future to reintroduce broadscale clearing for agriculture, it can be expected that the system will never return to the unregulated, voluntary system prior to the 1990s. In this sense, 31 December 2006 marked an important watershed for environmental law and nature conservation in Queensland and Australia.

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[48] See Schedule 8, Part 1, Table 4, Item 1A(g), of the IPA. Note, however, that a material change of use or reconfiguration of a lot involving freehold land containing remnant vegetation in urban areas can trigger assessment under Schedule 2 of the *Integrated Planning Regulation* 1998 (Qld).

[49] For example, see *Caloundra City Council v Pelican Links Pty Ltd* [2005] QPEC 052, where a developer was restrained from clearing vegetation in breach of a condition of a town planning approval. Planning permission was later refused for a residential development on the land because of its environmentally sensitive nature: *Titanium Enterprises Pty Ltd v Caloundra City Council & Anor* [2006] QPEC 106.

[50] See, as an important example, the "urban footprint" identified in the *South-East Queensland Regional Plan 2005*, available at http://www.oum.qld.gov.au/?id=29 (viewed 12 December 2006).

[51] However, the conservation status of REs proposed to be cleared for mining is considered in the grant of an environmental authority under the *Environmental Protection Act* 1994 (Qld).

[52] See, generally, http://www.nrw.qld.gov.au/vegetation/pmavs.html (viewed 12 December 2006).

Appendix: Summary of vegetation management laws in Queensland

Subject area	Relevant legislation
1. Operational work that is clearing of native vegetation (other than on protected areas under the *Nature Conservation Act* 1992, State forests, forestry reserves, timber reserves or forest entitlement areas)	*Vegetation Management Act* 1999 (Qld) (VMA) and *Integrated Planning Act* 1997 (Qld) Sch 8, item 3A; s 4.3.1. Assessment codes provided under the VMA.
2. Material change of use (MCU) or reconfiguration of a lot (RaL) on lot sizes 2ha or greater containing remnant vegetation.	*Integrated Planning Regulations* 1998 (Qld), Sch 2, Table 2, item 4 and Table 3, item 11. Assessment codes provided under the VMA.
3. Vegetation protected through controls in a planning scheme (e.g. land designated as "open space") or a development approval (e.g. a "building location envelope" imposed as a condition of a development approval).	*Integrated Planning Act* 1997 (Qld) Sch 8, ss4.3.1-4.3.2, any relevant local government planning scheme, planning scheme policies, codes, State planning policies and other legislation integrated into IDAS
4. Vegetation subject to a local law	*Local Government Act* 1993 (Qld) ss25-26 & relevant local law passed by a local government
5. Protected areas such as National Parks (4% of Queensland) and protected wildlife	*Nature Conservation Act* 1992 (Qld) ss62, 88 & 89
6. Forestry practices and forest products on State land	*Forestry Act* 1959 (Qld) ss53 and 54
7. Riparian vegetation (in watercourse)	*Water Act* 2000 (Qld) s814
8. Clearing causing serious or material environmental harm, unless the clearing is otherwise lawful and all reasonable and practicable measures are taken to prevent or minimise the harm (e.g. by retaining a reasonable riparian buffer).	*Environmental Protection Act* 1994 (Qld) ss319, 436-438
9. Marine plants and fish habitat areas	*Fisheries Act* 1994 (Qld) ss122 and 123
10. Matter of national environmental significance; Commonwealth entity or area.	*Environment Protection and Biodiversity Conservation Act* 1999 (Cth) ss12-28
11. Marine parks	*Marine Parks Act* 1982 (Qld) s16 and *Marine Parks Regulation* 1990 (Qld) s19
12. Environmentally relevant activity (including mining) involving clearing of vegetation	*Environmental Protection Act* 1994 (Qld) ss18-20 and 73-310.
13. Petroleum exploration, leases and pipelines	*Petroleum Act* 1923 (Qld)
14. Vegetation management for roads, railway lines, ports and other transport infrastructure	*Transport Infrastructure Act* 1994 (Qld)
15. Vegetation management for electricity infrastructure (e.g. along power lines)	*Electricity Act* 1994 (Qld)
16. Wet tropics World Heritage Area	*Wet Tropics World Heritage Protection and Management Act* 1995 (Qld) s56
17. Operational works in a coastal management district or in State coastal land	*Coastal Protection and Management Act* 1995 (Qld) s61A
18. Fire hazard reduction (e.g. burning-off)	*Fire and Rescue Service Act* 1990 (Qld)
19. Soil erosion	*Soil Conservation Act* 1986 (Qld)
20. Weed / declared pest control	*Land Protection (Pest & Stock Route Management) Act* 2002 (Qld)