03 October 2016

Attention: To Whom it may Concern

SUBMISSION – PROTECTION OF VERSATILE LAND FROM DEVELOPMENT

The Submitter

The Land Monitoring Forum (LMF) is a Regional Sector Special Interest Group which was formed by Local Government New Zealand in 1999. The forum represents professional and technical experts from all regional councils and unitary authorities throughout New Zealand in roles relating to land and soil science, research, monitoring and input into policy development.

The Application

This submission is made by the LMF in respect of the Productivity Commission's 'Better Urban Planning' (BUP) draft report. We thank the Productivity Commission for the opportunity to provide feedback on the BUP draft report.

Reasons for Making this Submission

The BUP draft report makes a couple of references to '*high quality soils*' and we consider it important to clarify a few things that relate to the subject.

Firstly, it is astounding that the first reference to '*high quality soils*' is taken from an abstract used in a speech made almost 20 years ago by the then Minister for the Environment Simon Upton, a non-expert in the subject of soil resources. In his 1997 speech, an element of insignificance is alluded to by reference to what he considers to be "*so called high quality soils*".

If the Productivity Commission is to make such a finding in F12.1 that '*a number of historical influences have shaped the planning culture in New Zealand' including 'a belief that urban areas need to be contained to protect agricultural soils, and that this was important for NZ's national identify*', it would be far more appropriate that such a finding is based on sound, peer-reviewed, defensible and ideally up-to-date information, as opposed to a questionable source of information, such as an opinion.

The objective of this submission is to raise awareness on matters that pertain to '*high quality soils*' in New Zealand and the status of the resource based on sound, defensible evidence in contrast to items that the Productivity Commission choose to cite that relate to the subject.

Value of 'high quality soils'

A variety of interchangeable terminology gets used to describe '*high quality soils*'. Terminology might include reference to '*high class land/soils'*, '*versatile land/soils*', '*elite and prime land/soils*'. For the purposes of this submission, the Land Monitoring Forum considers the use of the term '*versatile land'*- a finite and ever-decreasing resource.

By most accounts, and using the Land Use Capability (LUC) Classification system[1], versatile land has been defined by some practitioners as LUC classes 1 and 2 [with negligible (class 1), or slight (class 2) physical limitations for arable use] (Andrew and Dymond, 2012, Rutledge et al., 2010). In New Zealand, class 1 and 2 land represents 5% of the total land area (Appendix 1a). Other practitioners consider LUC classes 1, 2 and 3 to be versatile land (with class 3 having moderate physical limitations for arable use), which represents 15% of New Zealand's total area (Appendix 1b). Versatility is implied in the LUC classification system (i.e. it encompasses the soil, climatic, erodibility and wetness limitations or advantages of the land and soil attributes for a parcel of land). It treats class 1 land as the most versatile LUC class with versatility decreasing down the scale towards LUC class 8 land (Lynn et al., 2009).

Versatile land is extremely important to New Zealand's economy, because, unlike urban development, certain rural land use activities, such as outdoor vegetable production, are limited to versatile land. Domestic retail sales of fresh and processed vegetables are estimated at NZ$1 billion each year, and export earnings range between $500 and $600 million (Ministry for Primary Industries, 2013). These operations are only suitable on multiple-use, highly versatile land. Where pastoral farming systems are concerned, greater farm profits (NZ$/ha) will be realised where farming occurs on versatile land. Using model simulations, the operating profits for simulated dairy farm systems were similar for pasture production or LUC classes 1 ($2898/ha) and 2 ($2858/ha) but declined for classes 3 ($1732/ha) and 4 ($825/ha). Similarly for simulated sheep and beef farming systems, greater operating profits were realised for classes 2 ($434/ha) and 3 ($315/ha) with profits declining on classes 4 to 6 ($236 to negative $20/ha) (Vogeler et al., 2014).

New Zealand's long-term economic future will continue to rely heavily on the availability of versatile land for the production, and export, of high quality, high value food products for consumers. Therefore, highly versatile land must be protected from urban development and rural fragmentation.

Development pressures confronting versatile land

Regionally, nationally, and globally there are increasing concerns about the competition between versatile land and urban development, with the latter disproportionately encroaching onto versatile land (Curran-Cournane et al., 2014, Rutledge et al., 2010, Tóth, 2012). Once versatile land is converted to development, it is effectively lost forever. 'Soil sealing' (the covering of the ground by an impermeable material) is said to be one of the main causes of soil degradation in the European Union and amongst other things often affects fertile agricultural land. "*According to the European Environment Agency, since the mid-1950s the total surface area of cities in the EU has increased by 78%, whereas the population has grown by only 33%*"[2].

Rutledge et al. (2010) reported that urbanisation disproportionately affects New Zealand's most versatile and productive soils which could have a negative impact on New Zealand's primary

[1] The Land Use Capability (LUC) classification and maps are one of the tools used by land management officers to help farmers and communities sustain land management on individual farms and within whole catchments. LUC maps are also one of the tools historically and currently used by researchers, rural industry, policy-makers and planners to formulate policy, prepare plans, and advise decision makers about the region's productive capability (Lynn et al., 2009).

[2] http://ec.europa.eu/environment/soil/sealing_guidelines.htm

production capacity in the future. These authors reported that urbanisation rates across New Zealand were highest for LUC class 1 (6% converted land) and class 2 (4%) compared with LUC classes 3 to 8 (these ranged from < 0.01-2.0%). On a regional basis, this can increase to >8% for LUC class 1 and >11% for LUC class 2 being converted to urban development, which was recorded for Auckland between years 1975-2012 (Curran-Cournane et al., 2014). While only representing <0.5% of New Zealand's versatile land, the Auckland region has been reported to contribute over 20% of the country's outdoor vegetable production (Aitken and Hewett, 2014). When future urban growth pressures up to 2040 in Auckland are considered, 21% of LUC class 1 and 29% LUC class 2 is expected to be converted to development (Appendix 2) (Curran-Cournane, 2014, Appendix 1).

Furthermore, non-productive rural lifestyle blocks currently cover 187,000 hectares of land and occupy 10% of New Zealand's versatile land (LUC 1 to 2) (Andrew and Dymond, 2012). While the expansion of lifestyle blocks are a separate land use pressure confronting versatile land, it is nonetheless a very important one. This raises concerns about the cumulative effect of various development pressures such as urban encroachment, the expansion of lifestyle blocks, plan changes and individual resource consent decisions occurring on versatile land. There is currently no dedicated national overview on the adverse cumulative effects of these development pressures occurring on this finite and ever-decreasing resource. Current figures estimate that a large percentage of LUC class 1 and 2 land could be converted to urban development over the next 50 to 100 years if such trends continue (Rutledge et al., 2010). This threatens the existence of certain rural land use activities in the near future, with ongoing effects for the next generation.

Implications of continuous development of versatile land

Food Production and Sustainability

Being and remaining a self-sufficient food producing nation makes absolute sense in a world where there are increasing uncertainties surrounding the state of natural resources such as the availability of versatile agricultural land, water scarcity and extreme weather events that can affect regional, national, and global food production.

Globally, it has been estimated that 70% more food is required to provide sustenance to the forecast 9.2 billion population by 2050 (FAO, 2010). As an example, in Melbourne, Australia's fastest growing city, it has been estimated that 60% more food is required to meet the increased populations' needs by 2050. Melbourne can currently produce 82% of the population's vegetable production needs which reduces to around 21% by 2050. This is reportedly due to the 16% of Melbourne's versatile food-bowl farmland that is vulnerable to housing and other commercial development (Sheridan et al., 2015).

Current and future food requirement needs for New Zealanders are not known and there is no-overarching policy that safeguards the country's food security for current and future generations. Therefore, land use decisions allowing the development of versatile land are being made without fully understanding the consequences of such decisions. This can create risks in food supply as over-reliance on inter-regional and overseas supplies of basic food staples can create vulnerabilities in a food system for society.

For example, in the United States the export prices for corn escalated to over 120% above the 20-year historical average as a result of drought-related crop damage in 2012 (Adonizio and Royales, 2012). The U.S. produces 40% of the world's corn and this example therefore demonstrates the risks associated with relying on imported goods. A little closer to home, Australia has always been subject to climate extremes such as droughts and flooding rains. As an indirect result of drought from September 2005 to September 2006, the price of fresh fruit and vegetables in the country increased by 43% and 33%, respectively (Quiggan, 2007). As urban encroachment onto versatile land continues in New Zealand, it will threaten the country's self-sufficiency as a food-producing nation. As reliance on international food imports increases it will also become increasingly exposed to fluctuating and volatile food prices.

A self-sufficient food-producing nation also has greater quality control over food production as well as employee and farm welfare. It also promotes the concept of sustainable food miles that, in the most basic of terms, is defined as the distance that food travels from farm to plate (consumption) i.e. the larger the distance the larger the impact on the environment (Passel, 2013). While the concept of food miles does require the consideration of a complex mix of interacting factors (e.g. life cycle analysis of energy use), reducing food transport is advisable once it does not have counterproductive sustainability impacts, such as employee welfare trade-offs (Passel, 2013). Reduced transport distances are also important for perishable goods with a short shelf life such as leafy green crops.

Rural Farming Livelihoods and Reverse Sensitivity

Understanding the potential impacts of land use change from the perspectives of those who farm the land, and who will be directly affected by the change, is also of paramount importance because how they respond to increased urban growth potentially could impact the resilience and self-sufficiency of a food producing nation.

Within a rural community new urban neighbours moving into rural environments can place high importance on the aesthetic values of open space (Howley, 2011, Lokocz et al., 2011). At the same time newcomers can consider the practice and operation of farming equipment such as noisy machinery and routine application of fertilisers and irrigation as an impediment to their quality of life (Berry and Plaut, 1978, Condon et al., 2010). The fact that farming is inseparable from the land on which it is carried out and from the place where farming families also live has quite different relevance, both economic and social, for those with farming connections compared to non-farming families (Hicks et al., 2012). While the needs of newcomers moving to rural settings will be met (e.g. utilities), it is their wishes or demands (e.g. desire for peace and quiet) that compete with the farming activities of the land's original occupants that create clear tensions between the two (Curran-Cournane et al., 2016).

Productivity Commission BUP Draft report

The Productivity Commission cite a caption from the Minister for the Environment Simon Upton's 1997 speech (page 100):

plans the size of several telephone directories. I am amazed that tiny settlements in provincial New Zealand continue to be constrained because of the threat that they may explode across the so called 'high quality' soils. The risk of this happening in places where the rate of population growth this century can be measured in single figures (and sometimes negative figures at that) must surely be infinitesimal. The risk to the availability of 'high quality' soils presented by the most likely scenario of a handful of new houses over the life of the plan is equally minimal. Yet many planners persist with such risk averse approaches.

While the piece-meal loss of versatile land at a local scale may appear insignifcant, the adverse cumulative effects can be significant as demonstrated in the examples provided above when both urban development and the fragmentation of versatile rural land beyond the urban edge are considered (Andrew and Dymond 2012, Rutledge et al., 2010). This matter was also discussed in more recent reports commissioned by the Ministry for Primary Industries (MPI) that look at '*Future requirements for soil management in New Zealand*' (Collins et al., 2014, Collins et al., 2015b, Collins et al., 2015a).

A key finding from these reports identified that while New Zealand ranks third out of OECD countries for land per capita, there is considerable pressure on the availability of land, particularly soils classified as "*versatile*". It was suggested that "*Greater attention is needed within our policy and planning framework to protect soil functional capacity, reduce the fragmentation of land and loss of versatile soils. This includes the development of regulatory and non-regulatory measures to ensure the full range of services provided by soils is sustained into the future*" (Mackay et al., 2016).

Such recommendations will be important to MPI who have adopted a goal to double primary industry exports in real terms between 2012 and 2025 (as part of the New Zealand Business Growth Agenda to increase exports as a percentage of GDP from 30 to 40% by 2025). Maintaining and managing versatile soils for optimum production must be a critical component to achieving this goal and realising additional export opportunities in the future.

The LMF recommends that the Productivity Commission considers the importance of this in the BUP draft report. Ideally, a National Policy Statement on manageing versatile land is establsihed to ensure that the adverse cumulative effects of an ever-decreasing finite resource, '*versatile land'*, is managed and meets the purpose of section 5(2)(a) of the Resource Management Act (RMA) i.e. sustaining the potential of natural and physical; resources to meet the reasonably forseeable needs of future generations. The country's remaining versatile land is of limited area and is a "*matter of national importance*" under section 6(b) of the RMA (i.e. the protection of outstanding natural featues and landcapes from inappropriate subdivision, use and development).

Decision Requested

The Land Monitoring Forum (LMF) requests that due recognition be given to the need to protect and sustain the availability of versatile land, a finite and steadily diminishing resource. This could take the form of a National Policy Statement on managing versatile land. Unlike urban development, certain rural food-producing activities are limited to versatile land which cannot be substituted elsewhere. This remaining finite resource is under critical threat, and will become ever more important as the population continues to grow.

Yours sincerely

Land Monitoring Forum

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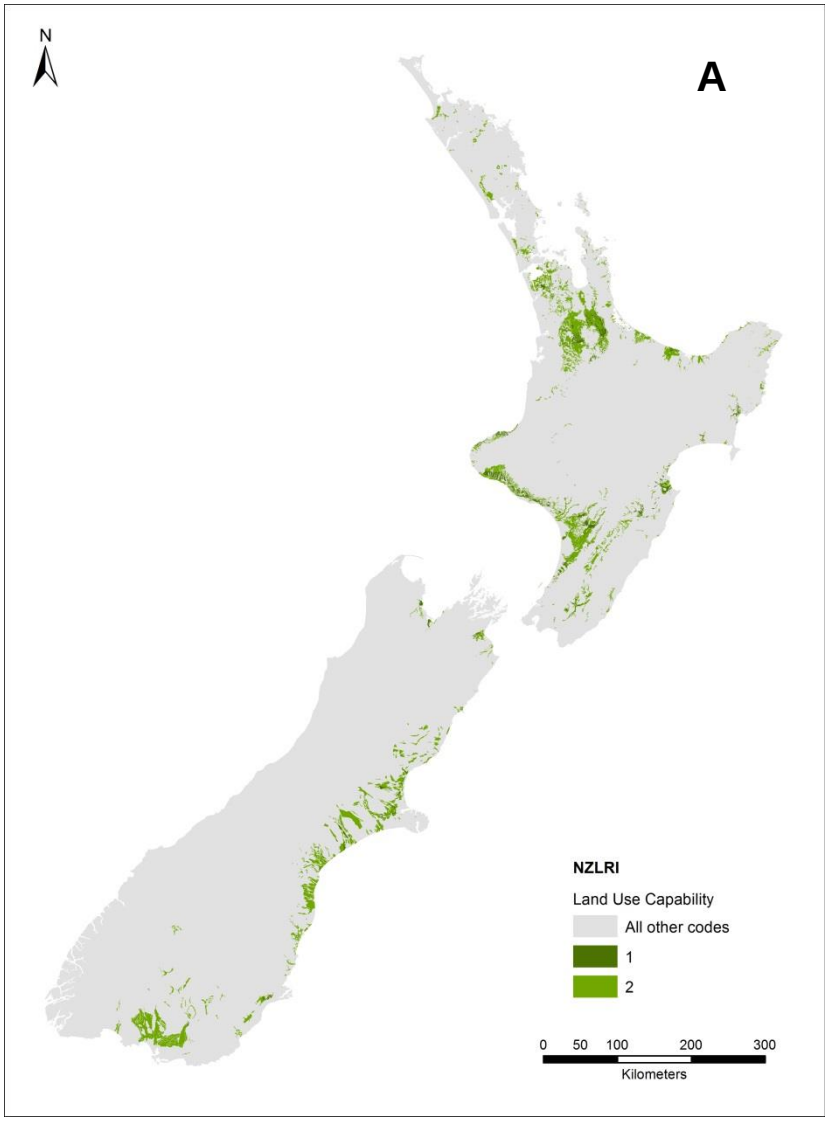
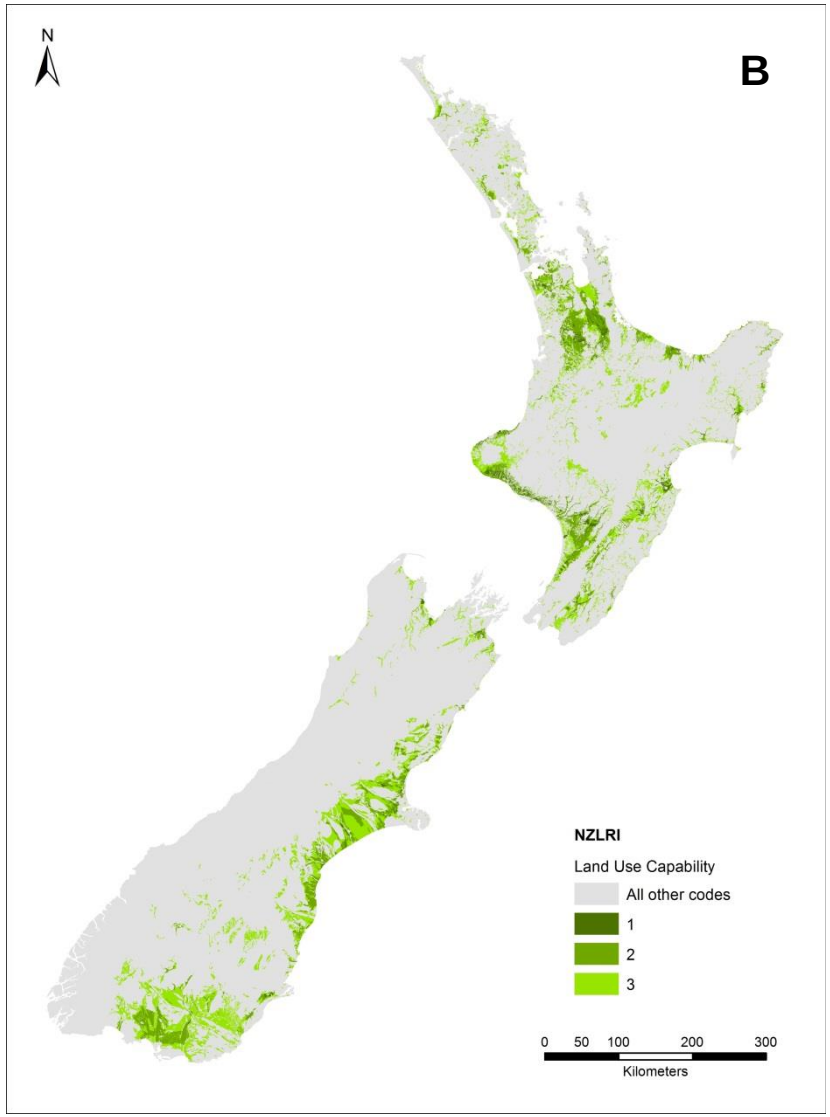
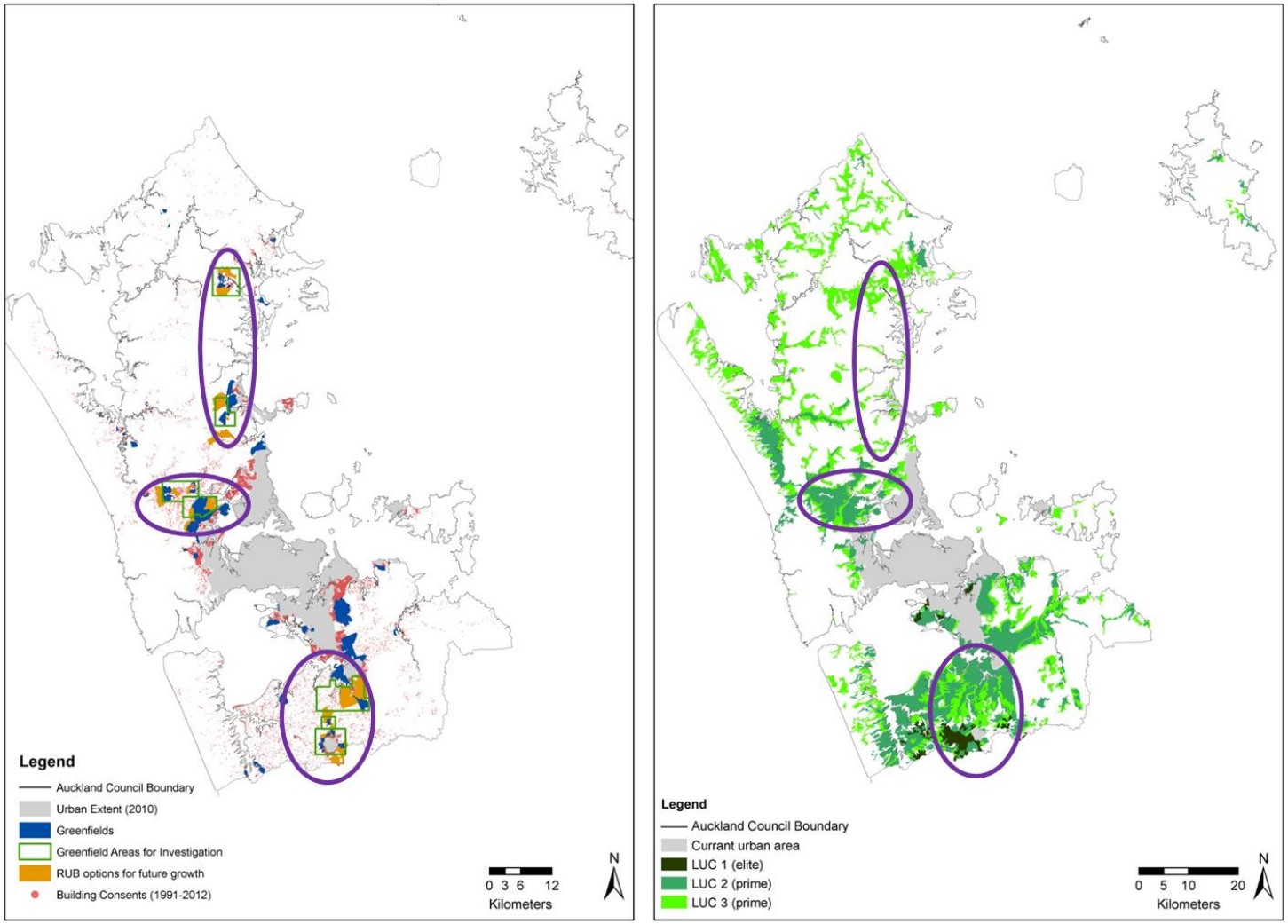




Appendix 1. Distribution of New Zealand's Land Use Capability classes (A) 1 - 2 and (B) 1 – 3 (New Zealand Land Resource Inventory).



Appendix 2. Location of growth patterns in relation to the distribution of versatile land in Auckland.