Manaaki Whenua
Landcare Research

8 October 2019

NPS-HPL Submission
Land and Water Policy Team
Ministry for Primary Industries
PO Box 2526
Wellington 6140

soils@mpi.govt.nz

SUBMISSION ON Proposed National Policy Statement for Highly Productive Land (NPS-HPL)

Contact details

Name:

Manaaki Whenua Landcare Research

Postal address:

P O Box 69040
Lincoln 7640

Phone number:

[redacted]

Email address:

[redacted]

Are you submitting on behalf of an organisation? Yes [X] No [ ]
If yes, which organisation are you submitting on behalf of?

Landcare Research New Zealand Limited (Manaaki Whenua Landcare Research)

Submissions are public information

All or part of any written submission (including names of submitters) may be published on the Ministry for Primary Industries' website, or the Ministry for the Environment's website. Unless you clearly specify otherwise in your submission, the ministries will consider that you have agreed to have your submission and your name posted on their websites.

Contents of submissions may be released to the public under the Official Information Act 1982, if requested. Tell us if you do not want some or all of your submission released, stating which part(s) you consider should be withheld and the reason(s) for withholding the information.
Under the Privacy Act 1993, people have access to information held by agencies about them. Any personal information you send with your submission will only be used in relation to matters covered by this document. In your submission, indicate if you prefer that we do not include your name in the published summary of submissions.

Submission Comments

We firstly provide some overview comments on the proposed NPS-HPL then responses to questions from the discussion document which are relevant to the mandate and expertise of Manaaki Whenua.

Overview Comments:

Manaaki Whenua - Landcare Research is the Crown Research Institute most closely connected with the issues raised in the proposed NPS-HPL. We are the primary research organisation responsible for soil and land mapping and the custodians of the Land Resource Inventory (NZLRI) and Land Use Capability Classification (LUC). We have carried out some of the underpinning research on land monitoring and land fragmentation cited in support of the NPS-HPL, and contribute expertise across the science-policy nexus in areas including ecosystem services, Māori cultural values, biodiversity management, integrated catchment management, water policy and landscape management.

1 Manaaki Whenua supports the proposal for the NPS-HPL and considers it overdue that action is taken to protect New Zealand's limited resource of highly productive and versatile land for primary production.

We note that the Town and Country Planning Act 1977, superseded in 1991 by the Resource Management Act (RMA), recognised these needs through its Matters of National Importance specified in section 3(1):
(d) The avoidance of encroachment of urban development on, and the protection of, land having a high actual or potential value for the production of food:
(e) The prevention of sporadic subdivision and urban development in rural areas:
(f) The avoidance of unnecessary expansion of urban areas into rural areas in or adjoining cities:

It would be useful to consider similar language where possible, as case law from the past will help in implementing the new NPS-HPL.

2 Manaaki Whenua also notes that apart from comment about Māori historical links with land (page 13 of the Discussion Document) and on whenua Māori (page 18), there is no reference in the proposed objectives or policies about soil as a taonga nor of Māori knowledge (mātauranga), values, opportunities or interests in highly productive land.

One option would be to include a further policy similar in format to section 3.3 of the proposed NPS Freshwater Management 'Tangata whenua roles and interests'. Or at a more specific level, include in Proposed Policy 1 a new subclause 1.3 like this:

1.3 Regional councils and territorial authorities will provide for the involvement of iwi, hapū and Māori land owners, when implementing policies 1.1 and 1.2

3 As custodian of the NZLRI and the Land Use Classification system, Manaaki Whenua also wishes to make these points about the applicability of the LUC in the proposed NPS-HPL (page 16 of the Discussion Document):

1. The LUC mapping and classification system is independent of scale (Lynn et al. 2009), and LUC can be mapped and classified at a range of scales fit for purpose for different issues e.g., 1:1000 to 1:250 000.
2. LUC mapping and classification is not soils mapping, and is multifactor. At slopes above 15 degrees LUC tends to use geology/rocktype and slope rather than soils.
3. At slopes below 15 degrees LUC relies heavily on soils mapping for delineation of land map unit boundaries Below strongly rolling land (< 15° slope), a good (accurate) soil map will lead to a good (accurate) LUC map.
4. LUC is a completely *complementary system to soils mapping* and they both have respective strengths and weaknesses for different applications.
5. The current national LUC layer was based on the New Zealand Land Resource Inventory (NZLRI) at 1:63360 scale across New Zealand to achieve national standards for soil conservation planning and policy between 1970 and mid-1980s. Second edition mapping then followed in some regions (e.g. Marlborough completed in 1996, Gisborne in 1999). However, in significant areas of New Zealand the soil component of the NZLRI was based on coarse national scale soil maps at scales of 1:100,000 to 1:250,000[1]. Consequently, the national LUC map is also based on areas with varying resolution of soil information. A prime objective of the NZLRI was to protect and manage our most erodible and vulnerable land and soils. With the RMA 1991, the NZLRI became a base layer for sustainable land management across the country because of its national consistency of method, standards, and complete national coverage.
6. The NZLRI was based on stereo pair photo analysis of landforms and slopes using mostly 1:25 000 aerial photography (or equivalent) for NZ;
7. The NZLRI LUC provides a good first cut of the most versatile land in the country but is not a soil map; it has been used to 'visualise the issue' and was never intended to have accurate soil mapping boundaries for many of the applications it is now used for, which clearly require improved resolution for quality planning and decision-making;
8. For the purposes of this NPS, improved soils mapping in the LUC 1, 2, and 3 areas will assist councils to establish accurate planning maps at a suitable scale (e.g., properties, cadastre).
9. We consider the NPS-HPL should lead to better mapping (with standards) for highly productive land, although this improved mapping does not necessarily need to be completed within the proposed timeframe of 3 years for all regional councils under proposed policies 1.1 and 2.
10. We suggest training in the methodology and application of the LUC system will be needed as part of the implementation of the NPS-HPL, as little training has been provided or sought in the past 10 years, many experienced LUC mappers are now retired, and there are a number of new geospatial datasets that require technical skill to use appropriately (e.g. LIDAR, S-map, LCDB, high resolution aerial imagery etc).

[1] Manderson A, Lilburne L, Hewitt A, Pollacco J, Carrick S 2015. Recommendations and interim soils data to support the development of a national freshwater reporting model. Landcare Research Contract Report LC2380 for Ministry for the Environment.

Section 2.3: Defining highly productive land [page 19]

What are the values and benefits associated with highly productive land?

Highly productive land enables sustained high yield or high value from a wide range of land uses ***with minimal effort / investment required to remove limitations*** (e.g. artificial drainage, irrigation, stone-picking, ripping, mounding). Highly productive land also provides a high level of ecosystem services and high Natural Capital Value. Relevant ecosystem services include stormwater peak flow attenuation, and nutrient, sediment and bacteria filtering.

Central to the value of highly productive land is its versatility of use, particularly for arable and horticultural crops. The highest value land requires the least built capital investment to sustain good crop yields for a range of crops. The most versatile land also generally has the greatest resilience to intensive land use, and better filtering and buffering of potential water contaminants relative to other land under similar land use pressure.

Such land is also able to support niche production of high value crops (e.g. grapes, cherries, stonefruit), or culturally important crops (e.g. kumara). Other forms of high yield and value niche production should be covered by the definition of HPL, for example commercial nurseries and glasshouses.

What are the values and benefits associated with existing food growing hubs and how can these be maximised?

The spatial extent of HPL areas is a significant issue because of the efficiency benefits from contiguous productive areas compared with fragmented areas. Protecting HPL recognises that being a self-sufficient food producing nation reduces our total impacts on the global environment, including the effects of GHG emissions. Ensuring national food security is seen as a national strategic issue for many countries[2], and HPL should not be underestimated for its importance to the New Zealand economy, both for high value exports but also high value and quality food crops to underpin the tourism industry.

Food growing hubs around core population areas help reduce transport costs and risks of bringing food in from elsewhere, including reducing GHG emissions. Losing high value land near cities increases the reliance on just in time delivery services which poses a future risk to food supplies in respect of natural hazards. While centralised hubs for food growing often exist away from population centres (e.g. Gisborne, Ohakune, etc.) these have evolved largely because of high land costs near cities, or unique soil / climate niches.

Centralised hubs for food growing provide economies of scale for key infrastructure (e.g. kiwifruit facilities in Bay of Plenty, grain facilities in Canterbury, cherries/stonefruit in Central Otago). Long-term cumulative infrastructure investment is at risk if food hubs get broken up. This is one driver behind the Melbourne Foodbowl initiative (page 14) and the HortNZ Pukekohe report.

[2] McBratney et al. 2014. The dimensions of soil security. Geoderma 213, 203-213.
Field et al. 2017. Global soil security. https://www.springer.com/gp/book/9783319433936
FAO. 2019. Global Soil partnership. http://www.fao.org/global-soil-partnership/about/why-the-partnership/en/

Food hubs also have an increasingly recognized community value and benefit exemplified by 'buy local' and farmers' markets: community cohesiveness is fostered through links to our local land and food supply. Knowing and understanding that safe healthy food is being grown in your community, or a neighbouring (NZ Inc) community is increasingly important to New Zealanders.

Section 3.1: Problem statement [page 23]

Does the RMA framework provide sufficient clarity and direction on how highly productive land should be managed? Why/why not?

The short answer is 'no'. The distinction between actual and potential high-value soils for food production was recognised in the Town and Country Planning Act 1977 but is not specifically in the RMA that replaced it, so we consider that NPS direction is needed.

The Discussion Document rehearses the rationale for statutory protection of HPL raised for more than the past 20 years. For example, in 1996 the NZ Soil Science Society, led by Manaaki Whenua's Dr Les Basher, recommended to the Minister for the Environment the need for protection of high class versatile soils from subdivision and housing. Similar suggestions were made to MPI by Dr Alison Collins, also from Manaaki Whenua, and colleagues in the report ***Future requirements for soil management in New Zealand*** (2014-15). In 2016, the Land Monitoring Forum, representing all regional and unitary authority soil scientists, submitted on the Productivity Commission inquiry into housing expansion, providing the rationale for protecting versatile land from development[3]. In 2018, Auckland analyst Curran-Cournane[4] and colleagues suggested NZ should "base an NPS not only on sound technical and scientific advice but one where the potential of land for food production capability is recognised as well as versatile land that is currently being used for soil-based food production."

The essential issue is that protection of HPL is a national-scale problem currently being dealt with through locally focussed planning which is not required to give weight to HPL as a national strategic asset priority. The proposed NPS-HPL would provide that direction. In addition, NZ needs to move to an evidence-based approach to policy, not one driven by politics and faith in the market. In our view, land use management is a balancing of multiple factors requiring evidence-based regulation and considerations of irreversibility, limitations of existing knowledge, and therefore a relevant level of precaution.

Does the RMA framework provide sufficient clarity on how highly productive land should be considered alongside competing uses? Why/why not?

No. Addressed above

How are values and wider benefits of highly productive land being considered in planning and consenting processes?

Court decisions, such as the Treadwell decision in Canterbury Regional Council v Selwyn District Council and Tucker[5], have influenced the willingness of councils to protect HPL, yet these decisions are very context dependent and should not be regarded as having any precedent effect. An NPS-

[3] https://www.productivity.govt.nz/assets/Submission-Documents/788376b12c/DR-065-Land-Monitoring-Forum.pdf

[4] Curran-Cournane 2018. The odds appear stacked against versatile land: can we change them. NZ Journal of Ag Research. https://doi.org/10.1080/00288233.2018.1430590

[5] http://www.nzlii.org/cgi-bin/sinodisp/nz/cases/NZEnvC/1996/33.html?query=title(canterbury%20regional%20council%20and%20selwyn%20district%20)

HPL would reduce the randomness of such outcomes by providing clearer national guidance on government expectations, as this is a national issue.

Section 3.2: Urban expansion on to highly productive land [page 24]

How is highly productive land currently considered when providing urban expansion? Can you provide examples?

We are aware of apparently ad hoc decision-making on this issue across NZ, as described in the Discussion Document. The rationale outlined on pages 21-23 is consistent with our experience in providing technical advice, expert evidence and policy support particularly for regional councils around the country. Examples include Hastings district, Auckland city, Selwyn district, Dunedin City and Tasman district.

Manaaki Whenua has provided research highlighting the cumulative effects of urban expansion on HPL, and tools for regional authorities to improve regional monitoring and regional planning. These are referenced in the reply to section 3.3 below.

How should highly productive land be considered when planning for future urban expansion?

Highly productive land is a strategic national resource that it is finite in supply and that needs to be sustained for this generation, and for generations to come. Sustaining food supply, enabling versatility in crops that can be grown, and minimizing impact on wider environmental values are core to NZ community wellbeing.

Manaaki Whenua supports the broad intent of the NPS-HPL as outlined in the Discussion Document.

Section 3.3: Fragmentation of highly productive land [page 25]

How is highly productive land currently considered when providing for rural-lifestyle development? Can you provide examples?

Manaaki Whenua has researched land fragmentation as a result of lifestyle block and urban expansion (Andrew & Dymond 2013)[6], including providing tools for regional authorities to improve regional monitoring and regional planning. Tools for estimating land fragmentation using nationally consistent guidelines and national datasets were developed in 2015 for regional authorities. These included 'National guidelines for monitoring and reporting effects of land fragmentation' (Rutledge et al. 2015)[7]. Rutledge et al. (2015) reported that monitoring of land fragmentation and its effects is very limited in New Zealand.

Rutledge et al. (2010)[8] provides examples through an analysis of urbanisation trends on the soil resource for regions. Results showed that urbanisation differentially affected the most versatile soils. Rutledge et al. (2010) concluded that if the trends continue, a large percentage of LUC Class 1 and 2 lands could be lost to agricultural production over the next 50-100 years. Our previous research indicates that fragmentation poses at least as big, or possibly a bigger threat to highly productive land than urbanisation does (Andrew & Dymond 2013)[15].

How should highly productive land be considered when providing for rural-lifestyle development?

In light of the research cited above, we support the intent of the proposed provisions affecting rural lifestyle development, while recognising that the productivity of lifestyle blocks and small land parcels on productive land can vary vastly. The policies need to allow local flexibility to encourage a diversity of land uses rather than a one-size-fits-all set of rules. Objective research is needed to evaluate the productive potential of the existing lifestyle block area in New Zealand, to identify the potential degree of impact for high value food production if rural-lifestyle block development continues in the current manner in the decades ahead.

Section 3.4: Reverse sensitivity [page 26]

How should the tensions between primary production activities and potentially incompatible activities best be managed?

[6] Andrew R and Dymond JR. (2013). Expansion of lifestyle blocks and urban areas onto high-class land: An update for planning and policy. Journal of the Royal Society of New Zealand, 43(3), 128–140.

[7] Rutledge D, Price R, Hart G 2015. National guidelines for monitoring and reporting effects of land fragmentation. Prepared for: Regional Council Land Monitoring Forum. 76 p.

[8] Rutledge DT, Price R, Ross C, Hewitt A, Webb T, Briggs C 2010. Thought for food: impacts of urbanisation trends on soil resource availability in New Zealand. Proceedings of the New Zealand Grasslands Association 72: 241-246.

We do not consider that reverse sensitivity needs a specific policy. It is difficult to generalise the need for it and measures to address it. A better option is for councils to decide themselves whether and how to address this. If the policy is retained, precedence should be given to protecting and supporting existing farming, subject to the environmental effects of the activity being acceptable.

How can reverse sensitivity issues at the rural-urban interface best be managed?

Addressed above.

Section 3.5: These issues are being seen throughout New Zealand [page 26]

Do you agree that there is a problem? Has it been accurately reflected in this document?

This is a serious problem as reflected in the Discussion Document and by our earlier responses. This NPS-HPL needs to be clear that this is a NZ Inc national and intergenerational issue. There is a risk to the integrated NZ food and primary export network if national direction is not provided.

Rutledge et al. (2010)[9] provides examples through an analysis of urbanization trends on the soil resource for all regions in the country, whilst significant fragmentation has also occurred through expansion of lifestyle blocks[10]. Hart et al. (2014)[11] summarised all the regional and unitary councils' policies, rules and monitoring of land fragmentation and concluded that six regions identified land fragmentation as a regionally important issue, while other regions identified land fragmentation of medium or low importance. However, most regions identified 'hotspots' as being an important for land fragmentation.

Are you aware of other problems facing highly productive land?

Some highly productive land may not be able to continue with current land uses in the long term because of water quality impacts of those farm systems. Soil loss or degradation (e.g. cadmium build-up) may also require land use change, though new land uses may also depend on that land being highly productive.

New Zealand has been moving to increasingly intensive use and pressure on the land, through our technology use and farm systems, but also through using progressively less land for food and fibre production (e.g. retirement of hill country land to reversion or DOC estate), whilst wanting to increase national output. Those managing productive land are responsible for ensuring farm activities do not degrade that land or the surrounding land.

We should also recognize the importance of HPL to sustain our largest export market – tourism. Should it not be a strategic goal of the NZ government for this industry to be fed with a diverse range of high quality and value NZ grown crops? Food supply is a key aspect of domestic and international tourism in the regions and we need to recognise the importance of HPL and food hubs to regional economies (e.g. Wairarapa, Marlborough, Hawkes Bay, Central Otago, Tasman, etc.).

Hart et al. (2014) also identify that some councils have a poor knowledge and understanding of land fragmentation and its associated issues. Hart et al. (2014) identified a lack of shared understanding, partly from a lack of consistent terminology or definitions to help characterise, measure, monitor, and report land fragmentation trends. They also reported that many councils

[99] Rutledge DT, Price R, Ross C, Hewitt A, Webb T, Briggs C 2010. Thought for food: impacts of urbanisation trends on soil resource availability in New Zealand. Proceedings of the New Zealand Grasslands Association 72: 241-246.

[10] R Andrew & JR Dymond (2013) Expansion of lifestyle blocks and urban areas onto high-class land: an update for planning and policy, Journal of the Royal Society of New Zealand, 43:3, 128-140, DOI: 10.1080/03036758.2012.736392

[11] Hart G, Rutledge D, Price R, Curran-Cournane F, Jones H, Burton A, Hill R 2014. A nationally consistent approach for monitoring land fragmentation in New Zealand. New Zealand Planning Institute Conference. Queenstown, New Zealand Planning Institute. Pp. 9.

indicated a desire to develop more consistent definitions for land fragmentation. The proposed NPS-HPL needs to address these deficiencies.

Section 4.5 Preferred option – a National Policy Statement [page 31]

Which option do you think would be the most effective to address the problems identified in Chapter Three? Why?

Manaaki Whenua agrees that the NPS option is the most appropriate of the three outlined. It allows devolution of detailed planning to councils, as local circumstances need consideration when making detailed policy and rules.

An NPS provides national directions that councils must address by developing relevant policy without further delay. Depending on the specificity of the NPS, it could also reduce submissions to the Environment Court on councils' individual plans.

Are there other pros and cons of a National Policy Statement that should be considered?

Implementation needs to ensure that regional councils (alongside Manaaki Whenua), who hold much of the soils and land use information, are required to work with their district councils to develop the planning responses in their district plans.

Policy and rules might be developed by the regional council in a specific regional plan, with the district plan needing to be consistent with that regional plan, rather than through the Regional Policy Statement.

In any case, the availability of both technical and policy guidance would help with consistent and timely implementation at regional and district levels.

Are there other options not identified in this chapter that could be more effective?

To lend weight to this issue, the Government could commit now to include reference to HPL as a matter of national importance in s6 of the RMA alongside the NPS-HPL, or at least direct their RMA Review Group to do so. Wording could be similar to that from section 3(1)(d), (e) and (f) of the former Town and Country Planning Act 1977 cited above in the Overview Comments section.

Section 5.2 Purpose of the proposed National Policy Statement [page 34]

Should the focus of the National Policy Statement be on versatile soils or highly productive land more broadly? Why/why not?

Manaaki Whenua considers there should be a focus on versatile land, including areas that are highly suited for production of a wide range of crops with minimal input. Versatility is the central tenet to previous classification systems for identifying high class land, both within New Zealand[12] and internationality[13].

Versatile land is land that with minimal inputs is highly suited to a wide range of land uses, not just highly productive for one high value land use, such as viticulture on stony soils. Versatile land should be given preferred protected status within the broader HPL identification. Any specific high value crop land (e.g. Gimblett gravels, or stony cherry land in Cromwell) should be an addition to the versatile land resource but should not be used to offset loss of versatile HPL.

Ideally, quantifying stocks and future monitoring should be done separately on these two aspects of the overall HPL status. Versatility gives the community the greatest number of options in the future and is the central tenet of the drive for this NPS.

Should the focus of the National Policy Statement be on primary production generally or on certain types of food production activities? Why/why not?

We suggest the NPS should be agnostic to uses; rather the aim is about preserving HPL for future primary production, which may be different to what we know today. It is difficult to generalise about food production, so land-based primary production is easier to manage (e.g. hydroponics in buildings is not relevant to the purpose of this NPS). We have queried later under Definitions whether plantation forestry (perhaps excluding niche high value timber crops) should be included, as it should probably not be encouraged on LUC classes 1-3.

---

[12]Leamy, M and Saunders, W 1967. Soils and Land use in the upper Clutha Valley, Otago. New Zealand Soil Bureau Bulletin 28.
Leamy, M 1974. Resources of highly productive land. New Zealand Agricultural Science, 9(3): 91 - 97
McIntosh, P 1993. High class soils of Otago. Landcare Research Contract Report: LC9293/85.
Raeside, J & Rennie, W. 1974. Soils of Christchurch region, New Zealand: The soil factor in regional planning. New Zealand Soil Bureau Soil Survey Report 16.
Webb T, Jessen M, McLeod M, Wilde R 1995. Identification of high class land. Broadsheet November 1995: 109 - 114.
Webb TH, Wilson AD 1995. A manual of land characteristics for evaluation of rural land. Science Series No.10, Lincoln, New Zealand, Landcare Research.
Lynn IH, Manderson AK, Page MJ, Harmsworth GR, Eyles GO, Douglas GB, Mackay AD, Newsome PJF. 2009. Land Use Capability Survey Handbook – a New Zealand handbook for classification of land. 3rd ed. Hamilton, AgResearch; Lincoln, Landcare Research; Lower Hutt, GNS Science. 163p.
[13] FAO. 1976. Framework for land evaluation. Rome.
Ministry of Agriculture, Fisheries and Food. 1988. Agricultural Land Classification of England and Wales. Ministry of Agriculture, Fisheries and Food Technical Report http://publications.naturalengland.org.uk/publication/6257050620264448
USDA. 2019. Land evaluation and site assessment: A guidebook for rating Agriculture Lands, second edition. https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/nri/?cid=stelprdb1043786

Section 5.3 The scope of the proposal [page 35]

Do you support the scope of the proposal to focus on land use planning issues affecting highly productive land? Why/why not?

We support this scope. We have a limited amount of versatile land and it is critical to global and national food security that this land remains available for food production. Other NPSs deal with aspects such as water quality and urban development. We recognise it is hard to regulate lifestyle block development compared with urban development as some lifestyle blocks can be productive and have their own niche industries and hence land needs.

What matters, if any, should be added to or excluded from the scope of the National Policy Statement? Why?

No comment made.

Should future urban zones and future urban areas be excluded from the scope of the National Policy Statement? What are the potential benefits and costs?

We agree the NPS-HPL should exclude land zoned for urban uses in a district plan or proposed district plan. However, it should not exclude future urban areas identified in non-statutory documents.

Evidence points to peri-urban areas as potentially at greatest risk to loss of HPL if not managed within the intent of the NPS. The greatest fragmentation risks are posed by <4 ha parcels.

Should the National Policy Statement apply nationally or target areas where the pressures on highly productive land are greater?

The NPS should apply nationally. A national generalised focus avoids the need for updating the NPS as pressures move. Also, as HPL is not evenly distributed across different regions, regional prioritisation may not meet the wider national interest. HPL is a nationally strategic asset, so its identification, protection and monitoring require a nationally co-ordinated approach.

Researchers from Manaaki Whenua, in conjunction with individuals or collectively with regional councils via the 'Land Monitoring Forum', have identified that national consistency in identifying and monitoring land fragmentation is important. Through the Land Monitoring Forum, regional councils expressed their desire for tools for estimating land fragmentation using nationally consistent guidelines and national datasets. Tools and guidelines were developed in 2015 for regional authorities. These included 'National guidelines for monitoring and reporting effects of land fragmentation' (Rutledge et al. 2015)[14].

[14] Rutledge D, Price R, Hart G 2015. National guidelines for monitoring and reporting effects of land fragmentation. Prepared for: Regional Council Land Monitoring Forum. 76 p.

Section 5.4 The proposed National Policy Statement [page 37]

What would an ideal outcome be for the management of highly productive land for current and future generations?

The ideal outcomes would be:

- Further loss of highly productive land has been avoided.
- NZ has identified its stocks of HPL and is clear in its recognition of HPL as a national strategically important asset.
- We have protected the high value land resource for continued or potential future food production, and we have sustained both the supply and quality (health) of this resource for future generations.
- Communities maintain a close link and appreciation for NZ produced food and fibre.

Policy 1: Identification of highly productive land [page 41]

If highly productive land is to be identified, how should this be done and by whom?

We support the proposed use of Land Use Capability mapping as the default method for identifying HPL, while recognising that more detailed mapping is possible, for example through detailed site-specific investigations by suitably accredited pedologists. In all cases, versatility must be maintained as a central concept to identification of HPL, with other regionally specific factors as an additionality.

In due course, the definition of HPL and methods to identify it could be refined to reference natural capital / soil ecosystem functions. So, for example, when councils determine exactly which land will be protected (beyond the default LUC 1-3) they might consider the level of soil functionality (e.g. nutrient filtering & cycling, water filtering/transport, carbon storage, biological habitat) as well as biomass production. It may in time also be possible to incorporate consideration of land use suitability, which accounts for downstream impacts (e.g. on water quality) of uses of HPL.

Regardless of the approach taken, a co-ordinated national approach is needed to ensure consistency across regional boundaries and future national monitoring / reporting of change in HPL stocks. HPL is a national strategic asset, but is not evenly distributed between regions. A risk exists that without national co-ordination and consistency, regional decisions may have a disproportionate effect on national stocks. We support some level of accreditation or quality assurance for the people doing identification (perhaps through NZARM or NZSSS), and clear, consistent classification rules for them to follow. Manaaki Whenua is starting to refine the LUC classification rules in relation to identifying HPL and provide consistency with other spatial land datasets such as S-map.

We recognise a key question is whether the default definition should comprise LUC classes 1-3, only classes 1 and 2, or some intermediate option, such as classes 1 and 2 plus certain class 3 land (e.g. class 3e from Pukekohe). Currently there is variation in how this definition is applied by regional and territorial authorities, particularly around which parts of class 3 land are included or

excluded. At present there is no clear, consistent and objective method by which partitioning of LUC class 3 may be applied across NZ, and no evaluation of the cumulative consequences. Regions relatively rich in LUC 1 & 2 may have a different view on the importance of including all LUC 3 land, compared to regions with a relatively small area of LUC 1 & 2, and/or where urbanisation and fragmentation have already significantly reduced HPL availability.

Pragmatically, we agree with the rationale of using the LUC classes 1-3 for the default definition in the NPS, recognising that more refined regional definition and mapping required under Policy 1 within 3 years of gazettal of the NPS-HPL may reduce the area of HPL. Consequentially some land may be temporarily subject to the default policies, then exempt following the refined definition and detailed mapping.

Are the proposed criteria all relevant and important considerations for identifying highly productive land? Why/why not?

Manaaki Whenua's view is that primacy should be given to versatile land in the definition of Highly Productive Land, i.e. land that with minimal inputs is highly suited to a wide range of land uses (not just highly productive for one high value land use such as viticulture on gravels). A soil good for only a niche crop is so dependent on market value, which may drop. Versatile soils have many more crop options and are therefore not so dependent on the market.

The criteria in Policy 1 are generally acceptable, with the proviso that versatility of land use should be the primary criterion, while other criteria are given less weight. This is to avoid the situation where other criteria (e.g. current lack of labour markets, or current lack of water) provide a reason to allow subdivision, land fragmentation or urban expansion on such land.

It should be recognised that some factors contributing to land being deemed HPL are able to be manipulated through management practices, such as irrigation and drainage schemes. These are recognised as potentially removal limitations in the LUC, but as noted in our reply to questions on Appendix A this will require further work to provide a clear a consistent method by which to apply factors such as removal limitations in the definition and mapping of HPL.

Other factors to be considered in defining HPL are (1) changes to HPL status brought about by climate change and sea level rise and (2) flood susceptibility, stormwater retention, etc. (which are themselves amenable to management). An example of (1) would be versatile soils in coastal margins ceasing to be classed as HPL with water table rise and inundation brought about by sea level rise.

Policy 2: Maintaining highly productive land for primary production [page 42]

What are the pros and cons associated with prioritising highly productive land for primary production?

No further comment made

Alignment with the Urban Growth Agenda [page 43]

Do you think there are potential areas of tension or confusion between this proposed National Policy Statement and other national direction (either proposed or existing)?

We support the need to align the NPS-HPL with the government's urban growth agenda including the NPS-Urban Development.

The proposed NPS Freshwater Management may also restrict high production land uses within some HPL zones, which contribute to water quality decline. However, for the reasons raised earlier in our points about versatility of land use taking primacy, we do not consider limitations under the NPS-FM should be a reason to exclude land from being defined as HPL – other compliant land uses will be possible on such land.

How can the proposed National Policy Statement for Highly Productive Land and the proposed National Policy Statement on Urban Development best work alongside each other to achieve housing objectives and better management of the highly productive land resource?

As an example, places like Hastings district, Central Hawke's Bay district, the districts in the Wairarapa, Manawatu district, Whanganui district, Tasman district, Canterbury region, Otago region and Southland region have alluvial plains containing versatile land (e.g. LUC Class 1 and 2 land) and terraces containing non versatile land. The NPS-HPL should direct housing towards the terraces with non-versatile land, not those HPL alluvial plains.

Policy 3: New urban development on highly productive land [page 45]

How should highly productive land be considered when identifying areas for urban expansion?

Policy 3 is a rational approach to this question. The presumption should be that versatile land is retained for the purposes of primary production (with limited loss to infrastructure such as packhouses or processing plants). It should be considered critical to global and national food security and critical in terms of providing a range of provisioning and regulating and maintenance services (e.g. stormwater peak flow attenuation, nutrient, sediment and bacteria filtering) that are equally critical to supporting our increasing population.

We do have some concerns that reference to cost-benefit analysis in Policy 3(b) may be interpreted as financial cost-benefit analysis, and that choice of a high discount rate in such analysis could be used to justify losses from the finite stock of HPL. Some recent research by resource economists in Manaaki Whenua has been looking at the use of discount rates for environmental benefits. This research suggests that discount rates, and the time horizon over which they are applied, do make marked differences in the outcome of analyses related to the environment.

Policy 4: Rural subdivision and fragmentation [page 46]

How should the National Policy Statement direct the management of rural subdivision and fragmentation on highly productive land?

Manaaki Whenua supports the intent of Policy 4 because our research and other evidence shows that land fragmentation is a major threat to HPL. The NPS-HPL needs to manage this to achieve its objectives.

In a study of regional and unitary councils' policies, rules and monitoring of land fragmentation, Hart et al. (2014)[15] concluded that six regions identified land fragmentation as a regionally important issue but that other regions identified land fragmentation of medium or low importance. However, most regions identified 'hotspots' as being an important for land fragmentation (Hart et al. 2014). The need for tools for estimating land fragmentation using nationally consistent guidelines was identified by regional councils through the Land Monitoring Forum' – this led to the development of the 'National guidelines for monitoring and reporting effects of land fragmentation' (Rutledge et al. 2015)[16].

Hart et al. (2014) identified that land fragmentation and its associated issues are sometimes not well known or understood by some councils. Hart et al. (2014) identified a lack of shared understanding, partly from a lack of consistent terminology or definitions to help characterise, measure, monitor, and report land fragmentation trends. They also reported that many councils indicated a desire to develop more consistent definitions for land fragmentation.

Therefore, we recommend that the National Policy Statement should provide direction in a nationally consistent manner.

[15] Hart G, Rutledge D, Price R, Curran-Cournane F, Jones H, Burton A, Hill R 2014. A nationally consistent approach for monitoring land fragmentation in New Zealand. New Zealand Planning Institute Conference. Queenstown, New Zealand Planning Institute. Pp. 9.

[16] Rutledge D, Price R, Hart G 2015. National guidelines for monitoring and reporting effects of land fragmentation. Prepared for: Regional Council Land Monitoring Forum. 76 p.

Policy 5: Reverse sensitivity [page 47]

How should the National Policy Statement direct the management of reverse sensitivity effects on and adjacent to highly productive land?

The types of impacts and incompatibilities between primary production on HPL and adjacent land uses are extraordinarily diverse. One option is for the NPS-HPL to remain silent on this (i.e. remove proposed Policy 5) and leave it to councils to consider reverse sensitivity in their planning processes. This would have the presumption that existing land uses on HPL have precedence.

See related earlier comments on section 3.4.

Policies 6 and 7: Consideration of private plan changes and resource consent applications on highly productive land [page 49]

How should the National Policy Statement guide decision-making on private plan changes to rezone highly productive land for urban or rural lifestyle use?

We support the intent of Policy 6. Subclause (b) refers to the 'benefits from continued use of that land for primary production' but could be broadened to consider wider ecosystem services and future drivers like climate change (and any such change needs to be consistent throughout the document – see related comments on section 2.3).

How should the National Policy Statement guide decision-making on resource consent applications for subdivision and urban expansion on highly productive land?

We support the intent of Policy 7 and make the same comment as above on subclause (b). We support the directive that consent applications include a site-specific Land Use Capability assessment by a suitably qualified expert, which would presumably be additional to evidence addressing criteria (a)-(e).

Section 5.6 Implementation [page 52]

What guidance would be useful to support the implementation of the National Policy Statement?

Manaaki Whenua is running a programme of research around the challenges of implementation and integration in land and water decision-making, led by Dr Melissa Robson-Williams. This work may be informative in considering this question. Key to this question is ensuring a clear pathway for implementation especially by regional and district councils, along with consideration of any transitional arrangements, timing of implementation steps (s5.7 in the discussion document) and resourcing capability, for example for mapping HPL.

We commented in relation to sections 3.3 and 5.3 about previous research on monitoring land fragmentation (Hart et al. 2014; Rutledge et al. 2015) and our research on rates of land fragmentation is also relevant to implementation (Andrew & Dymond 2013)[17].

Manaaki Whenua is available to assist with providing tools for implementation, which could include tailoring LUC mapping for identifying HPL, and applying land suitability mapping, ecosystem services, soil functionality, climate change and resource economics methodologies as more detailed HPL mapping protocols are developed. This can include updating standard method guidelines, or development of new method guidelines where required, both of which Manaaki Whenua has a long history in providing for New Zealand[18].

Specific / technical questions

The questions below are included in the outline of the proposed NPS-HPL (Chapter Five of the discussion document) and may assist technical experts when providing a submission.

Specific questions

Section 5.3: The scope of the proposal [page 35]

How should the National Policy Statement best influence plan preparation and decision-making on resource consents and private plan changes?

No further comments

Should the National Policy Statement include policies that must be inserted into policy statements and plans without going through the Schedule 1 process? What are the potential benefits and risks?

Making some restrictions effective immediate upon gazettal may be necessary to avoid perverse outcomes such as goldrush behaviour seen with other policy changes. We support doing this without the need for Schedule 1 hearing processes in every region.

What areas of land, if any, should be excluded from the scope of the proposed National Policy Statement? Why?

One area of relevance would be areas of indigenous biodiversity on otherwise highly productive land. However, given the critical state of lowland biodiversity such areas would need to be subject to some protection mechanism to avoid their loss to primary production.

Specific questions

[17] Andrew R and Dymond JR. (2013). Expansion of lifestyle blocks and urban areas onto high-class land: An update for planning and policy. Journal of the Royal Society of New Zealand, 43(3), 128–140.

[18] Grealish G 2017. New Zealand soil mapping protocols and guidelines. Envirolink Grant: C09X1606. Landcare Research, Palmerston North. 30 p.

Lynn IH, Manderson AK, Page MJ, Harmsworth GR, Eyles GO, Douglas GB, Mackay AD, Newsome PJF. 2009. Land Use Capability Survey Handbook – a New Zealand handbook for classification of land. 3rd ed. Hamilton, AgResearch; Lincoln, Landcare Research; Lower Hutt, GNS Science. 163p.

Section 5.4: The proposed National Policy Statement [page 37]

What level of direction versus flexibility should the objectives provide to maintain the availability of highly productive land for primary production?

No further comment made.

Should the objectives provide more or less guidance on what is "inappropriate subdivision, use and development" on highly productive land? Why/why not?

No further comment made.

Specific questions

Policy 1: Identification of highly productive land [page 41]

What are the pros and cons of requiring highly productive land to be spatially identified?

We consider that spatial mapping is essential, and that it can be done using the LUC classifications suitably modified over time to also account for the other criteria mentioned in Policy 1 Appendix A. LUC must be based on the best available data at the time, recognising that we need to have baseline data of acceptable quality and resolution, for example with LUC mapping upgraded using S-map and LIDAR datasets. This would require the current national LUC map to be upgraded in many areas. Acceptable baseline data already exists for this in significant areas of HPL, although some regions of potentially HPL still require S-map and LIDAR datasets to be completed.

Crucial to this mapping is a strong definition and clear set of assessment (classification) rules to ensure consistency and clarity when identifying HPL; otherwise the result will be regular Environment Court cases. Issues in the LUC methodology that require clarification include "removable limitations" that may result in a change of the LUC class for an area of land, brought about by investment in technology, community water schemes, drainage, etc. Climate change will affect LUC classifications in other instances.

It is important a strong definition is provided for Versatile Land and that the NPS ensures that site specific investigations are in accordance with the most recent version of the LUC Survey handbook and the New Zealand Soil Mapping Guidelines (Grealish 2017; Grealish et al, 2018)[19].

Is the identification of highly productive land best done at the regional or district level? Why?

Regional scale identification of highly productive land is best for these reasons:

[19] Grealish G 2017. New Zealand soil mapping protocols and guidelines. Envirolink Grant: C09X1606. Landcare Research, Palmerston North. 30 p.
Grealish G, Carrick S, Manderson A 2018. Farm-scale soil mapping protocols for New Zealand. In: Currie LD, Christensen CL ed. Farm environmental planning – Science, policy and practice. Palmerston North, Fertilizer and Lime Research Centre, Massey University. Pp. 7.

1. Regional councils have institutional knowledge and access to relevant professional networks of pedologists
2. This allows consistency of approach across larger contiguous areas delineated largely by catchment boundaries

What are the likely costs and effort involved in identifying highly productive land in your region?

Manaaki Whenua can provide information on this if required – some indicative information has been previously provided to MPI.

What guidance and technical assistance do you think will be beneficial to help councils identify highly productive land?

Appropriate and nationally consistent guidelines and definitions will be important. Identifying highly productive soils in a rigorous and consistent manner, such as application of good soil mapping practice, is also important. As referenced earlier, at the request of the regional and unitary councils, via the 'Land Monitoring Forum', a set of soil mapping protocols and guidelines were developed by Grealish (2017) to provide minimum standards in soil mapping.

Guidance to ensure consistency across regional boundaries when applying factors additional to LUC is also recommended. For example, how should a council accommodate current or potential availability of water, when mapping HPL? Versatility should be maintained as a central concept to identification, with other regionally specific factors as an additionality.

We suggest that development of national guidelines and definitions involves the technical expertise of Manaaki Whenua as the custodian of the LUC, working with the Regional Council Land Monitoring Forum SIG, the Land Use Capability Classification System Governance Group and its technical advisory group.

Specific questions

Appendix A: Criteria to identify highly productive land [page 41]

Should there be a default definition of highly productive land based on the LUC until councils identify this? Why/why not?

A default definition of HPL based on LUC should be used to provide clarity and consistency for everyone as this is a nationally strategic asset we are trying to sustain.

This question was addressed in detail above in s5.4.

What are the key considerations to consider when identifying highly productive land? What factors should be mandatory or optional to consider?

As noted above, versatility needs to be the central tenet, which use of LUC classes 1-2 or 1-3 does address as a default. Clarity needs to be provided around how to apply the additional criteria in Policy 1 Appendix A, and some acceptable bounds provided. The present definition and application of additional criteria are somewhat vague, and require clear, consistent and objective methodologies by which to apply these across NZ, with evaluation of the cumulative consequences. The same clarity is also needed on defining and applying the "removable limitations" in Lynn et al (2009) .

Some specific comments:

1. The land should be suitable for a wide range of land uses including both warm climate and cool climate crops (currently only warm climate crops are included in the LUC system under Lynn et al 2009)
2. "Removable limitations" as defined in Lynn et al (2009) should be able to be removed with minimal input/energy. You can engineer most land into being highly productive, but how big is the impact on the quadruple bottom line of sustainability? Irreversibly changing the soil in order to remove limitations to make land highly productive for a narrow range of high value land uses should be balanced against the critical range of provisioning and regulating and maintenance services that the land provides to our increasing local, national and global population.
3. As spatial continuity is important, large areas of contiguous HPL have an additional value compared to HPL that is highly sporadic or fragmented.

We recognise a key question is whether the default definition should comprise LUC classes 1-3, only classes 1 and 2 or some intermediate option such as classes 1, and 2 plus class certain class 3 land (e.g. class 3e from Pukekohe). Currently there is variation in how this definition is applied by regional and territorial authorities, particularly around which parts of class 3 land are included or excluded. At present there is no clear, consistent and objective method by which partitioning of LUC class 3 may be applied across NZ, and no evaluation of the cumulative consequences. Regions with large areas of LUC 1 & 2 may have a different view on the importance of including all LUC 3 land, compared to regions with a relatively small area of LUC 1 & 2, and/or where urbanisation and fragmentation have already significantly reduced HPL availability.

What are the benefits and risks associated with allowing councils to consider the current and future availability of water when identifying highly productive land? How should this be aligned with Essential Freshwater Programme?

Lack of water has been used by some councils to justify urban expansion on to HPLs when options including local storage dams and reservoirs, or expansion of reticulated networks mean lack of water need not be a problem in the long term. Therefore, water availability may be a factor but should not be a sole deciding factor.

Water availability should be considered in terms of both when water is available (and this should be judged by implementation of SMART farming best practice techniques), and when it is not available at key times for crop maturity. Timing and duration of water shortage are critical, as water supplies get low periodically and will do more so with climate change. Manaaki Whenua has expertise in water reliability/security assessment (e.g. Andrew Fenemor) should it be needed.

Should there be a tiered approach to identify and protect highly productive land based on the LUC class (e.g. higher levels of protection to LUC 1 and 2 land compared to LUC 3 land)? Why/why not?

If the default definition of HPL covers only LUC classes 1-2 then a tiered approach is not justified. If LUC classes 1-3 are retained as the default, then classes 1 and 2 could be given higher priority as 'elite HPL'.

Specific questions

Policy 3: New urban development on highly productive land [page 45]

How can this policy best encourage proactive and transparent consideration of highly productive land when identifying areas for new urban development and growth?

Consistency of definitions of HPL and of versatile land will be critical.

As mentioned in comments above on Policy 3 we have some concerns about financial cost-benefit analysis being used in a way which discounts long-term retention of HPL in favour of short-term financial returns.

How can the proposed National Policy Statement for Highly Productive Land best align and complement the requirements of the proposed National Policy Statement on Urban Development?

No further comments made.

Specific questions

Policy 4: Rural subdivision and fragmentation [page 46]

Should the National Policy Statement provide greater direction on how to manage subdivision on highly productive land (e.g. setting minimum lot size standards for subdivisions)? If so, how can this best be done?

No further comments made.

Should the proposed National Policy Statement encourage incentives and mechanisms to increase the productive capacity of highly productive land (e.g. amalgamation of small titles)? Why/why not?

The NPS-HPL could make a general statement in favour of improving productive capacity, but not at the cost of other values (environmental, economic, social and cultural). For example, in Tasman District, planning rules allow boundary relocations to create larger parcels of productive horticultural land.

Specific questions

Policy 5: Reverse sensitivity [page 47]

How can the National Policy Statement best manage reverse sensitivity effects within and adjacent to highly productive land?

We earlier suggested that Policy 5 was unnecessary. No further comments made.

Specific questions

Policy 6 and Policy 7: Consideration of private plan changes and resource consent applications on highly productive land [page 49]

Should these policies be directly inserted into plans without going through the Schedule 1 process (i.e. as a transitional policy until each council gives effect to the National Policy Statement)? What are the potential benefits and risks?

As suggested earlier, yes. No further comments made.

How can these policies best assist decision-makers consider trade-offs, benefits, costs and alternatives when urban development and subdivision is proposed on highly productive land?

No further comments made.

Should the policies extend beyond rural lifestyle subdivision and urban development to large scale rural industries operations on highly productive land? Why/why not?

As mentioned in comments on Policy 3, the presumption should be that versatile land is retained for the purposes of primary production (with limited loss to infrastructure such as packhouses or processing plants). We note the definition of primary production (page 50) includes land and buildings for initial processing of the primary production commodities although it is unclear whether and how this carries through to affecting the definition of HPL.

Specific questions

Section 5.5: Interpretation

Do any of the draft definitions in the National Policy Statement need further clarification? If so, how?

At present there isn't a consistent definition of what in LUC3 is HPL across NZ as some councils only identify some LUC3 sub classes or units. Also, as noted above there needs to be some clarity around how the 'removeable limitation' criteria of the LUC would be applied.

There is a variety of interchangeable terminology used to describe 'versatile land', including reference to 'high class land/soils', 'versatile land/soils', 'elite and prime land/soils' so clarity on this is important

Primary production includes forestry but as most plantation forestry isn't on LUC1-3, this could be excluded or limited to niche forestry in some way.

Definition of Productive Capacity is vague "... but does not include consideration of wider soil quality issues". What does that mean?

Definition of Sensitive activity is very narrow, as it might include, for example, an organic activity operating next to a conventional one.

Definition of Rural lifestyle development says 'typically in the range of 0.2-8 hectares'. Some blocks at the upper end of this range may be highly productive (e.g. market gardening, nurseries, seed production, nut orchards, etc.) so we suggest an upper limit of 4 hectares (10 acres).

When considering definitions, it is useful where possible to be consistent with the Town and Country Planning Act 1977 section 3(1) Matters of National Importance which included:
(d) The avoidance of encroachment of urban development on, and the protection of, land having a high actual or potential value for the production of food:
(e) The prevention of sporadic subdivision and urban development in rural areas:
(f) The avoidance of unnecessary expansion of urban areas into rural areas in or adjoining cities:

Are there other key terms in the National Policy Statement that should be defined and, if so, how?

If reference is made to new technical terms such as Ecosystems services, Natural Capital Value, Regulating and maintenance services, and Provisioning services these should be defined.

Should there be minimum threshold for highly productive land (i.e. as a percentage of site or minimum hectares)? Why/why not?

We do not support having this level of detail in the NPS-HPL as it is more a matter for councils to decide.

Specific questions

Section 5.6: Implementation [page 52]

Do you think a planning standard is needed to support the consistent implementation of some proposals in this document? No further comment
If yes, what specific provisions do you consider are effectively delivered via a planning standard tool? No further comment

Specific questions

Section 5.7: Timeframes [page 52]

What is the most appropriate and workable approach for highly productive land to be identified by council? Should this be sequenced as proposed? Using existing LUC data for the default identification, the 3 years for regional councils to refine and update with more recent data layers, followed by 2 more years for district and city councils seem workable. As noted earlier, it will be important to avoid perverse outcomes through goldrush behaviour by making some restrictions immediate.
What is an appropriate and workable timeframe to allow councils to identify highly productive land and amend their policy statements and plans to identify that land? No further comment

Note: Further Comments have been provided at the start of this submission under the heading Overview Comments.

This submission compiled by Andrew Fenemor with input from [redacted]