



APPENDIX I

Mission Special Character Zone Plan
Change, Ecological Significance and
Merit of Proposed Planting

20 July 2017
By E-mail

Mitchell Daysh
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Attn: Philip McKay



Forbes Ecology

Dr. Adam Forbes
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Dear Phil,

Re: Mission Special Character Zone Plan Change, Ecological Significance and Merit of Proposed Planting

Introduction and Background

Forbes Ecology was engaged by Mitchell Daysh to address two specific issues in relation to the proposed Mission Special Character Zone Plan Change.

The two items needing to be addressed were:

1. A request from Napier City Council (NCC) to provide an assessment from a suitably qualified and experienced ecologist to determine the extent to which Resource Management Act (RMA) Section 6(c) matters are applicable to the proposed plan change; and
2. To provide an ecologist's perspective as to whether there are likely to be ecological benefits because of the proposed residential development and associated open spaces and reserves in comparison to the existing pastoral farming environment.

The assessment has been undertaken by Dr. Adam Forbes, who holds a Doctor of Philosophy in Forestry (specialising in both Native and Exotic Forest Ecology, and Forest Restoration); A Master of Science in Environmental Science (Forest Ecology); Postgraduate Diploma (Ecology and Conservation), and a Degree in Applied Science (Natural Resource Management). Dr. Forbes has more than 13-years of experience in applied ecology and resource management in locations throughout New Zealand. He has substantial experience in undertaking ecological research, assessments, and inventories within the Hawke's Bay Region. Dr. Forbes is experienced in assessing ecological significance for the purposes of RMA Section 6(c), having been responsible for significance assessment for both resource consent applications and for Territorial Authority Significant Natural Area review.

Method

The assessment focused on those areas which would be most modified by the proposed plan change, and covering those land areas that would be vested with NCC. This resulted in the proposed Residential Precinct and Landscape and Visitor Precincts forming the area investigated (referred to as "the site" from hereon).

An office meeting followed by a site orientation was undertaken with Phil McKay of Mitchell Daysh, following which Dr. Forbes traversed representative portions of the proposed Residential and Landscape and Visitor Precincts (for approximately 3 hours; on 11/7/17).

The format of the ecological values summary and the rationale for the ecological significance assessment is based on the Environment Institute of Australia and New Zealand Ecological Impact Assessment Guidelines¹. In the absence of local (NCC or Hawke's Bay Regional Council (HBRC)) ecological significance assessment criteria, the ecological assessment criteria applied in this assessment are those endorsed by the Environmental Court as part of the Manawatu-Wanganui Region One Plan approval. The same ecological significance assessment criteria were subsequently published by Maseyk and Gerbeaux (2015)², and are considered to represent current best-practice criteria for the purposes of assessing ecological significance under RMA Section 6(c).

Summary of Ecological Values

Species values

Those indigenous species observed on site were regionally and nationally common. No species of conservation concern were observed. Indigenous species observed on site included:

Maidenhair fern (*Adiantum fulvum*) growing on the face of two adjacent, south facing, earth banks (Fig. 1 (A)), the face of each being approximately 2 m tall by 5 m wide. Maidenhair fern is not of conservation concern.

A small patch of raupo (*Typha orientalis*) surrounds a mai mai located in a farm dam in the northern most valley (Fig. 1 (B)). Raupo is a common, non-endemic, wetland monocotyledonous herb, and as such is not of conservation concern.

The ephemeral stream channel in the northern most valley hosts two species of common indigenous rush and sedge. Neither of these species are of conservation concern.

Several mature cabbage trees (*Cordyline australis*) were present on hill slopes (Fig. 1 (C)). Cabbage tree is a ubiquitous indigenous tree species, and as solitary trees, in this location, their ecological value is low.

In summary, the site contains a small number of indigenous species, none of which are regarded to be of conservation concern.

¹ EIANZ (2015). See: <https://www.eianz.org/resources/publications/ecological-impact-assessment-guidelines-for-new-zealand>

² See: <http://newzealandecology.org/nzje/3210.pdf>



Figure 1: (A) Maidenhair fern growth on steep earth banks, (B) isolated raupo growth in farm dam, (C) isolated cabbage tree (top right of photo) on hillslope, (D) typical character of ephemeral stream channel where no defined flow path exists, dominated by exotic pasture grass species.

Habitat values

The predominant land cover of the site is exotic pasture. The southern portion of the proposed Residential Precinct and the northern portion of the proposed Landscape and Visitor Precinct had previously supported plantation forest cover, as indicated by plantation stumps and slash remaining in these areas. A mix of pasture and other exotic herbs (e.g., variegated thistle, *Silybum marianum*; hemlock, *Conium maculatum*; blackberry, *Rubus fruticosus*), shrubs (e.g., tree lucerne, *Chamaecytisus palmensis*) and trees (e.g., radiata pine, *Pinus radiata*) have regenerated in areas of plantation clearfell.

Exotic forest (radiata pine) remains in the proposed Rural Residential Precinct and a mixed exotic forest stand exists in the proposed Landscape and Visitor Precinct. While, in contrast to the surrounding pastoral landscape, these exotic forests would serve some forest-related ecological functions, these exotic forest habitats are not of any specific conservation concern.

A number of farm dams are present within the valley floors of the proposed Residential Precinct. These habitats do not qualify as “wetlands” in terms of the HBRC Regional Resource Management Plan definition (as they are farm dams), and are habitats of very limited ecological value. The land immediately surrounding these dams tend to be grazed and have pasture grass species to the water’s edge (Fig. 1 (B)).

The farm dams are linked by ephemeral stream channels. These channels have either no defined flow path (instead the channel is an ephemeral seep) or in places the streams have a developed defined flow

channel. Where no defined channel exists, the ephemeral stream channel is characterised by a cover of pasture grass (Fig. 1 (D)), often pugged from stock access. There are almost no indigenous flora species associated with the ephemeral seep systems (see comments above regarding indigenous species). Following best-practice guidelines³, as the seeps are not dominated by indigenous vegetation species they cannot be considered an indigenous wetland. If the seeps were to be retired from grazing, then in time they might be naturally colonised and dominated (i.e., >50% cover) by indigenous wetland species and the seeps could then potentially be classed as indigenous wetland systems. However, at the current time, the exotic vegetation cover precludes the seeps being classed as indigenous wetlands.

There are no habitats present meeting the criteria of the Government’s Four National Priorities for Biodiversity Protection⁴. That is, there are no indigenous vegetation habitats to be possibly associated with land environments that have 20 percent or less remaining in indigenous cover; no sand dunes or wetlands, no originally rare ecosystems, and no habitats of acutely or chronically threatened indigenous species.

As such, there are no habitats of conservation concern within the site.

Ecological Significance Assessment

As no local (NCC or HBRC) ecological significance assessment criteria are available to facilitate the evaluation of ecological significance, the site has been evaluated against the Manawatu-Wanganui Region One Plan Policy 12-6 significance assessment criteria, in Table 1 below.

Table 1: RMA Section 6(c) Ecological Significance Assessment

Criteria	Criteria Description	Ecological Significance of the Site
Representativeness	Habitat that:	
	(A) Comprises indigenous habitat type that is underrepresented (20% or less of known or likely former cover), or (B) Is an area of indigenous vegetation that is typical of the habitat type in terms of species composition, structure and diversity, or large relative to other areas in the Ecological District or Ecological Region, or has functioning ecosystem processes.	Not ecologically significant— No underrepresented indigenous habitat types are present. Not ecologically significant— No typical indigenous vegetation habitats are present.
Rarity and Distinctiveness	Habitat that supports an indigenous species or community that:	
	(A) Is classed as threatened (as determined by the New Zealand Threat Classification System and Lists), or (B) Is distinctive to the region, or	Not ecologically significant— There are no habitats present which support threatened indigenous species or communities. Not ecologically significant— There are no habitats present that

³ Clarkson (2013). A vegetation tool for wetland delineation in New Zealand. https://www.landcareresearch.co.nz/_data/assets/pdf_file/0003/71949/vegetation_tool_wetland_delineation.pdf

⁴ See: <http://www.mfe.govt.nz/publications/biodiversity/protecting-our-places-information-about-national-priorities-protecting>

Criteria	Criteria Description	Ecological Significance of the Site
	(C) Is at a natural distributional limit, or	support regionally distinctive species or communities. Not ecologically significant— There are no habitats present that support species or communities at their natural distributional limit.
	(D) Has a naturally disjunct distribution that defines a floristic gap, or	Not ecologically significant— There are no habitats present that support species or communities of a naturally disjunct distribution that defines a floristic gap.
	(E) Was originally (i.e. prehuman) uncommon within New Zealand, and supports an indigenous species or community of indigenous species.	Not ecologically significant— There are no naturally uncommon ecosystems present.
Ecological Context	Habitat that provides:	
	(A) Connectivity (physical or process connections) between two or more areas of indigenous habitat, or	Not ecologically significant— The site does not contain habitats or features that supports connectivity between two or more areas of indigenous habitat.
	(B) An ecological buffer (provides protection) to an adjacent area of indigenous habitat (terrestrial or aquatic) that is ecologically significant, or	Not ecologically significant— The site does not buffer adjacent ecologically significant terrestrial or aquatic habitats.
	(C) Part of an indigenous ecological sequence or connectivity between different habitat types across a gradient (e.g. altitudinal or hydrological), or	Not ecologically significant— The site does not contain features that are part of an ecological sequence nor does the site serve a connectivity role between different habitat types across a gradient.
	(D) Important breeding areas, seasonal food sources, or an important component of a migration path for indigenous species, or	Not ecologically significant— The site does not contain important breeding areas, does not provide seasonal food sources, is not an important component of a migration path for indigenous species.
	(E) Habitat for indigenous species that are dependent on large and contiguous habitats.	Not ecologically significant— The site does not provide habitat for indigenous species that are dependent on a large and contiguous habitat.

The evaluation of the site against appropriate and robust ecological significance criteria concludes that the site does not contain ecological elements that could be regarded as significant under Section 6(c) of the RMA (1991).

Merits of The Revegetation Proposal

The Structure Area Plan diagram (dated 1/6/17) shows that relatively extensive areas of land within both the proposed Landscape and Visitor Precinct and the Residential Precinct are proposed to be

revegetated. I understand that this would comprise an expansion to the existing exotic forest cover located surrounding the Mission Complex, by planting along the dry east–south east faces overlooking Greenmeadows, and also, through planting of indigenous species on steeper slopes fringing proposed development areas in the Residential Precinct.

The exotic forest planting would extend the existing (exotic) forest cover of the site. In a pastoral landscape such as that which surrounds the site, planting of either exotic or native species can increase the diversity of habitats and ecological resources available⁵. The ecological value of any planted forest is to a large degree contingent on the species chosen, and the diversity of species planted. For example, planting a monoculture of exotic conifer species (e.g., radiata pine) will provide some limited habitat diversity and favourable habitat for a narrow range of flora and fauna. This would achieve an ecologically preferable habitat compared to pasture. The planted conifers would grow at a similar rate resulting in only little habitat heterogeneity in the forest structure (an even canopy made up of similar sized trees). Whereas in contrast, and preferably, planting a mixture of species which offer fruit and nectar resources would likely result in a more desirable level of forest structure complexity and the provision of food for birds. In comparison to the monoculture example given above, the ecological gain relative to pasture would be greater. Local examples where mixed exotic planted compositions have provided clear ecological benefit include Napier Hill and urban Havelock North. The habitat values of diverse exotic planted forests for bird life can be further optimised through inclusion of pest control.

The areas of native planting proposed for the Residential Precinct are highly desirable in this largely denuded landscape. The indigenous plantings would be complementary to the exotic planting discussed above (and vice versa). In addition to simply restoring a cover of indigenous species, the main opportunities of indigenous planting such as this are to achieve self-sustaining indigenous cover, and to reintroduce long-lived species that would otherwise be unable to establish themselves (e.g., large-seeded forest trees), and which provide important seasonal fruit and nectar sources to help support local bird life amongst the complex of surrounding urban and rural forests.

In summary, the proposed plantings (both exotic and indigenous) have considerable ecological merit at this location in the landscape. The ecological value of the plantings can be optimised through species choice, planting design, and subsequent management actions (e.g., plant and animal pest control).

Please feel free to contact me if you require any further advice.

Yours sincerely,



Dr. Adam Forbes

Principal Ecologist
Forbes Ecology

⁵ See: http://nzjf.org.nz/free_issues/NZJF46_1_2001/6ED63E2B-878C-4E49-84DB-F93ADE12361F.pdf