

David Bishop

From: [REDACTED]
Sent: Friday, 19 June 2015 1:53 p.m.
To: David Bishop
Cc: [REDACTED]
Subject: Te Taiao's Response to DOC ecological report
Attachments: Te Taiao Hawke's Bay Environment Forum_Response_to_Docs_ecological_reportJune2015.pdf

Dear David,

Please find attached Te Taiao Hawke's Bay Environment Forum's response to the Doc Ecological Report. Can you please confirm that you have received this email and the document.

Many thanks,
Amelia.

Response to the 'Assessment of proposed land exchange between Ruahine Forest Park revocation land and proposed Smedley Exchange Block in relation to Ruataniwha Water Storage Scheme' report

Te Taiao Hawke's Bay Environment Forum

Dr Amelia McQueen

June 2015

Introduction

Te Taiao Hawke's Bay Environment forum acknowledges that Department of Conservation has taken notice of concerns during the hearing and subsequently attempted to address the issues raised by completing additional survey work and providing a new ecological report – 'Assessment of proposed land exchange between Ruahine Forest Park revocation land and proposed Smedley Exchange Block in relation to Ruataniwha Water Storage Scheme'.

While new information has arisen from the Doc report (e.g. two fernbird present within the oxbow wetland, Identification of seepages within Donovan's gully on Smedley Exchange Block and a significant wetland identified within a Pan Pac forestry plantation) it has fail to address many of Te Taiao Hawke's Bay Environment forum concerns and has raised new issues. The concerns and issues identified in the Doc report are:

- Does not acknowledge that threatened plants have been found within the dam site and could be present. Surveys to date have been limited.
- Does not recognise that fernbirds present within the Dutch Creek oxbow wetland are part of a viable population
- Fails to address that Dutch Creek and the braided river are important habitats to the threatened Long-tailed bat and five fish species.
- Does not acknowledge the impact and extent of habitat loss for threatened fishes within Makaroro River, Dutch Creek and Smedley streams if inundated and the full implications.
- Over values the effectiveness of the trap and transfer for migratory fish larvae and small fish (e.g. torrent fish and bullies).
- Fails to survey and report on significant wetland areas within the Doc Exchange Area
- Does not recognize the importance and connectivity of forestry as a corridor for indigenous fauna (e.g. birds)
- Inappropriately dismisses the importance of Acutely Threatened environments
- Does not addressed Te Taiao Environment forum's previous concerns that 'when assessing conservation gains, the Department of Conservation has neglected to adequately recognize the 'Like for Like' principle'¹
- Gives an unbalanced approach to Significance of Ecological values and gives an bias weighting to Smedley Exchange Block values

The points raised above are discussed in more detail within the subsequent sections.

¹ McQueen, A. 2015. Submission on the proposed revocation and the conservation land – Smedley land exchange. Te Taiao Environment Forum

Threatened species

Flora

The Doc report dismisses the possibility of other threatened plants been present within the Doc Exchange Area. Dr Lloyd did find threatened and naturally uncommon species (*Scandia rosifolia* and *Vittadinia australis*) within cliff face vegetation in the dam footprint². He also suggests that it is likely that other species such as annual fern (*Anogramma leptophylla*; Threatened – Nationally Vulnerable) and blanket fern (*Pleurosorus rutifolius*; At Risk-Naturally Uncommon) are present². Both Dr Lloyd and Doc Staff emphasised that the survey times given to look for threatened species was limited. While threatened plants (other than mistletoe) were not found during these surveys in does not entirely rule out the possibility that other threatened plant are present within the Doc Exchange Area.

The report emphasizes that there is a population of mistletoe 10km south of Doc Exchange Area³ and Smedley Exchange Block and that mistletoe ‘can be translocated to black beech on Smedley Exchange Block by placing seed on small branches so their apparent absence from Smedley Block should not be of concern’³. The successful transplanting of mistletoe is highly variable⁴ and no references within the Doc report were given to support successful translocation of mistletoe. The presence of mistletoe elsewhere does not weaken the importance that red mistletoe is present within the Doc Exchange Area, making it a National Priority for Protection (Priority 4 - to protect habitats of acutely and chronically threatened indigenous species).

Fauna

Fernbird

It is heartening to see that two fernbird are present within the oxbow wetland in the Doc Exchange Area. However the comment that ‘that only a small number of birds were recorded at each site (i.e. not enough to be self-sustaining at that site), which means they have to be part of a larger population that can disperse between sites’⁵ is nonsensical. It is reasonable to suggest that the fernbirds present within the oxbow wetland are a breeding pair (i.e. fernbirds are territorial and monogamous⁶), that do contribute to a larger viable population and therefore are ‘self-staining’ over the wider area of Dutch Creek and adjoining Ruahine Forest Park. It also begs that question that how did the birds disperse to the oxbow wetland if they were not part of a self-sustaining population. The importance of the fernbird within the oxbow wetland and their contribution to a larger viable population needs to be acknowledged. The presence of a possible breeding pair of fernbird emphasises the fact that oxbow wetland as a National Priority for Protection (Priority Four).

Long-tailed bats

The Doc submission report indicated that ‘Long-tailed bats occur throughout the district; however loss of a maternity roost at the Dutch Creek confluence with Makaroro River could affect that colony.’⁷ While Kessels *et al.* reports that Long-tailed bats are present within Dutch Creek ‘multiple passes recorded along border of black beech forest near Dutch Creek, as well as near wetland area in

² Dr Kelvin Lloyd BOI supplementary evidence

³ Pg. 17 of Doc report

⁴ Dr Kelvin Lloyd EPA hearing evidence, pg. 46, pt151

⁵ Pg. 16 Doc report

⁶ Ecology and management of North Island fernbird (*Bowdleria punctatavealeae*) Kevin Alan, MSc thesis 2002

⁷ Doc Ruahine revocation land submission report DOCDM-1530150

parcel B' and very likely to be roosting in the immediate vicinity⁸. The question of whether there is indeed a maturity roost is yet to be addressed. The Doc reports indicates that there are suitable roost trees within the Dutch Creek (i.e. large mature beech trees) and suggests 'more work would be required to more clearly understand bat use of both blocks [Doc and Smedley Exchange areas]'⁹. It would appear that transmitter work is required to locate bat roost sites.

That aside, Kessels has indicated that the dam site and streams associated with it are very important habitat: 'Evidence for this is the high levels of activity within the reservoir area shortly after dusk, and before dawn. Activity levels are also higher within the reservoir when compared to the wider landscape demonstrating the importance of this habitat for the bats.'¹⁰ Therefore this indicates that areas such as Dutch Creek and the associated braided river habitat trigger the National Priority for Protection (Priority Four).

Freshwater Fishes

Survey work carried out by Young *et al.*¹¹ indicated that the threatened fish species: Long-finned eel, Torrent fish, two bully species (Red-fin bully, Blue-gilled bully) and Dwarf galaxias are found in Dutch Creek or near the confluence of Dutch Creek and the Makaroro River. Another threatened species Koaro is also mentioned as being 'predicted to occur in the head waters of the Ruahines'⁴ and if present will also be effected by the dam.

The inundation of Dutch Creek and Makaroro rivers will destroy the braided river habitat (e.g. torrents and gravel bed) and vegetated stream habitat essential to these fishes¹². The inundation is likely to also destroy spawning sites within Dutch Creek for Dwarf galaxias (pers. comm. Hans Rook). All threatened fish species (apart from Dwarf galaxias) rely on a free river passage either to move to spawning sites or larvae migrating to the sea. For example, long -finned eel ocean migration, Torrent fish females moving down stream to spawn with males found in lower reaches and Bully species larvae once hatched migrating to the sea¹³.

The effectiveness of the trap and transfer for migratory fish larvae and small fish such as Torrent fish is very questionable¹⁴ and over-valued in the Doc report's assessment. Furthermore, the removal of river habitat will lead overtime to the extinction of most of the threatened fish species¹⁵ within the dam site, upper Makaroro river, headwaters of the Ruahine ranges draining into the Makaroro, Dutch Creek and Smedley streams¹⁶. Landlocked populations of fish are considered to be uncommon¹⁷.

Further comments by Young *et al.* 'the loss of upper Makaroro River populations of the threatened species would not be expected to result in a significant increase to their extinction from elsewhere in

⁸ Kessel *et al.* Final TER report 2012, Kessel 2013 (HBRIC 00023 report) and EPA hearing, day 5 pg. 552 and 553

⁹ Pg. 53 of Doc report

¹⁰ Kessel *et al.* Final TER report 2012, pg. 38

¹¹ Young *et al.* Aquatic Ecology Assessment, Cawthron May 2013

¹² Dr Mike Joy BOI evidence, pt 27

¹³ New Zealand Freshwater Fishes. R.M. McDowall 2000.

¹⁴ Dr Mike Joy BOI evidence, pt 16, 33, 37

¹⁵ Dr Mike Joy BOI evidence, pt 24, 30, 31

¹⁶ It is noted that many of the lower and mid-reaches of Smedley streams will also be inundated by the dam.

¹⁷ Pg. 13 of Doc report

the catchment¹¹ disregards that fact that any loss of a threatened fish species' populations will increase the species' decline. Furthermore, if particular losses are consistently treated in this way (as unlikely in themselves to result in a significant increase in extinction), the cumulative effect of these incremental losses is ignored, and that does make the loss likely to increase the possible extinction of the fish species¹⁸. Threatened status of fish should be taken seriously and fish populations, their habitat and the free -passage to the sea should be protected (National Priority Four).

Wetlands

It is disappointing to see that only the oxbow wetland within the Doc Exchange Area was surveyed and discussed within the Doc report. As previously mentioned within Te Taiao's submission on the Doc land exchange¹ and highlighted within Dr Lloyds BOI evidence¹⁹, there is an area of riverine swampland found within the Makaroro Doc land parcel. Furthermore there is no mention of seepages along the bluff areas and banks of Dutch Creek or the riparian zone within the Doc report. Both of these areas would qualify under riverine wetland classification. Dr Gerbeaux does mention 'Carex sedgeland observed along flood plains'²⁰ in Dutch Creek and notes they qualify as wetland but does not fully address these sedgeland and other riparian vegetation within the Doc wetland assessment.

It is our opinion that the area of riverine wetland within the Doc Exchange Area has been under-represented within the Doc report. This is particularly concerning when as discussed by Dr Gerbeaux in the Doc report that "Many wetlands in New Zealand, including Hawke's Bay, have often disappeared through an insidious nibbling away process, giving way cumulatively to large loss of extent".

Forestry

The forestry block present between the Doc Makaroro land parcel and the Ruahine Forest Park is important and should not be used in a way that undervalues the Doc Makaroro land parcel in Doc assessments. The Doc report does not recognize the significance of the forestry block in an ecological context. Forestry plays an important role in connectivity where forestry acts as a corridor for indigenous fauna (e.g. birds) and also as a buffer for adjacent areas²¹.

The importance of forestry is indirectly highlighted within the Doc report where possible fernbird offspring at the oxbow wetland will have a means of dispersing through forestry to other suitable habitats and the fact that an intact significant wetland was identified within the nearby Pan Pac forestry plantation.

Threatened land environments

The Doc report stresses the need to follow up Acutely Threatened environment assessment with fieldwork survey. However the wetland assessment of the Doc Exchange Area was inadequate as previously discussed. Furthermore, the interpretation of Walker *et al.* 2007 discussion has been taken out of context. The idea that the Threatened environments are 'not enough in themselves'

¹⁸ Dr Mike Joy BOI evidence, pt 15

¹⁹ Dr Kelvin Lloyd BOI evidence

²⁰ Pg. 47 of Doc report

²¹ New Zealand exotic plantation forests as habitats for threatened indigenous species. Pawson *et al.* May 2010

does not mean that they do not provide important context, and in this case make the site a National Priority.

The report discusses that the Makaroro Doc exchange parcel does not 'rate highly when assessed against ecological significance criteria'²². It is acknowledged that the parcel was logged in the past and does have weeds associated with it which is a management issue for Doc. However, there are regenerating podocarp and beech trees within this area²³, it is part of an alluvial terrace next to a rare braided river, has wetland features (that were not surveyed) and is linked to the Ruahine Forest Park through a stream at the western side of the parcel and through the forestry block (see comments in forestry section). Therefore, the weeds associated with it, does not automatically mean the area is now not recognized as an Acutely Threatened environment and does not warrant protection. LENZ threatened classification system should be taken seriously.

Taking the tack of 'SEB represents a different and complementary component from a conservation perspective'²⁴ does not dilute that fact the Acutely Threatened environments found within the Doc Exchange Area triggers the National Priority for Protection (Priority 1).

Again comparisons of 'representativeness' of Acutely Threatened environments within the Doc Exchange Area with the wider area of Ruahine Forest Park or 'public conservation land elsewhere in the district'²⁵ does not lessen the importance of the Acutely Threatened environments within the Doc Exchange Area and therefore their need to be protected.

Like for Like principle

The Doc report does not address Te Taiao Hawke's Bay Environment forum's previous concerns discussed in its submission that 'when assessing conservation gains, the Department of Conservation has neglected to adequately recognize the 'Like for Like' principle'²⁶.

Land exchange and trade-offs are difficult to make if there is not a 'like for like principle' built into the assessment. For example, how do you compare the lowland riverine and forest environments that contain threatened species (e.g. mistletoe, fernbird and fishes) and their essential habitats, with an area of plant community diversity, higher altitude range presented in geographically different area with no mistletoe or fernbirds and lower diversity threatened fish²⁷?

Some like for like assessment can be attempted for the wetlands (Table 1, pg. 9) however not all wetlands were surveyed (see comments in wetland section) and wetland types technically differ, i.e. palustrine compared with riverine wetlands. The assessment (Table 1, pg. 9) indicates that the wetland types and their overall significance are greater within the Doc Exchange Area. The Doc Exchange Area wetlands are of better representativeness and distinctiveness than those wetlands on the Smedley Exchange block.

²² Pg. 27 of Doc report

²³ Refer to the Appendix 1 of Dr Kelvin Lloyds BOI evidence

²⁴ pg. 15 of Doc report

²⁵ pg. 20 & 27 of Doc report

²⁶ McQueen, A. 2015. Submission on the proposed revocation and the Conservation land – Smedley land Exchange. Te Taiao Environment Forum

²⁷ Dr. Gerbeaux and B.Woodward comments, pgs. 47, 13 of Doc report

Significance of Ecological Values and comparison of Doc land and Smedley Exchange block

The Significance of Ecological Values assessment fails to identify and discuss key points which are required to make a fair and accurate judgement. Therefore it is hard to determine the value of Table one in the Doc report²⁸. The key points that have been missed in the Doc report are discussed below.

Representativeness

- The Doc report does not mention the wetland area associated with the Makaroro land parcel and that fact that there is regenerating podocarp and beech trees on this land.
- 'Typical braided river' wording does not indicate that the braided river is recognized as a naturally rare ecosystem and is a National Priority for Protection (Priority 2).
- The seepage and riparian indigenous vegetation in Dutch Creek are not discussed.
- The significance of Podocarps further up Dutch Creek²⁹ (Is this part of the land parcel?) and 'virtually no emergent podocarps'³⁰ in Dutch Creek is not clearly defined.

Diversity and pattern

- Again significant wetland and riparian features on Makaroro land parcel are not mentioned.
- Dutch Creek is likely to have high to moderate plant species diversity. As this area contains indigenous vegetation of wetland, seepage, riparian, scrubland and forest plant communities.
- The Smedley Exchange block represents an altitude range but Smedley vegetation shrubland is not likely to be extraordinary in distinctness and representativeness.

Rarity and special features

- The Doc report does not discuss the Threatened Long-tailed bat habitat (e.g. braided river and wetland) within Makaroro land parcel.
- The Doc report does not acknowledge the Threatened fish populations habitat in the Braided River - Makaroro land parcel.
- The Braided River is a rare ecosystem.
- The Braided River - Makaroro land parcel is part of a wider braided river system that is significant to braided river birds and does contain threatened species e.g. Banded Dotterel – adult and chick found in Dam footprint³¹.
- The Doc report does not acknowledge the full impact of the dam on the braided river above the dam footprint for example: 'There is a small stretch of braided river typical of the Makaroro above the site'³² and 'This stretch of river appeared to be typical of the Makaroro River for several kilometers above the proposed reservoir, and into Ruahine Forest Park'³³.

²⁸ Pg. 26 of Doc report

²⁹ Pg. 3 of Doc Report

³⁰ Pg. 4 of Doc Report

³¹ Kessels, EPA hearing, day 5 pg. 537 and 538

³² Pg. 19 of Doc Report

³³ Pg. 20 of Doc Report

As discussed within the Threatened fish species section of this report, extinction of native fish within the catchment above the dam is very likely. Therefore the braided river above the end of the reservoir will become a 'defective' ecosystem with lack of connection to the sea and devoid of threatened fish species which would be part of the original ecosystem. Furthermore, any of the remaining fish populations will be under-pressure due to the lowering of the carry-capacity of the site (habitat loss and effects) and the limited means of dispersal to other rivers.

- The oxbow wetland found in Dutch Creek is not mentioned as a rarity (National Priority Two for protection).
- Threatened species and their habitats (i.e. mistletoe, Long-tailed bat, fernbird and fish populations) present within the Dutch Creek land parcel are not mentioned.
- The Doc report does not acknowledge that reservoir will affect the streams on Smedley Exchange Block i.e. lower to mid reaches will be inundated.
- Threatened fish species are discussed for the Smedley Exchange Block (SEB) but not for the Doc Exchange Area. Doc staff mentioned that less fish diversity likely in SEB due to fact that they are first order streams²⁶. Both Makaroro land parcel and Dutch Creek have important Threatened fish populations.
- Consistency of reporting on status of podocarps within the Smedley Exchange Block is required. For example 'beech forest with emergent podocarps'³⁴ and 'large podocarps have been logged from the beech forest but several were not logged and remain as emergent podocarps...'³² are contrasting statements.

Naturalness/intactness

- Significant wetland and riparian features on Makaroro land parcel are not mentioned.
- Indigenous vegetation regeneration within the Makaroro land parcel is not mentioned.
- There is an over-emphasis of the weed problem within the Makaroro land parcel.
- The Doc report does not acknowledge the riparian, seepage and cliff indigenous vegetation within Dutch Creek.
- Beech forest with an intact understory within the Dutch Creek land parcel is not mentioned.
- The large black beech trees within the Dutch Creek land parcel are not acknowledged.
- The Doc report needs to give time frame for recovery for the Smedley Exchange Block pasture grassland.

Size, shape and buffering

- The Doc report neglects to recognize the importance of forestry as corridor between the Makaroro land parcel and the Ruahine Forest Park.
- The connectivity between the oxbow wetland and Dutch Creek with the Ruahine Forest Park and the Makaroro River is not acknowledged.

Long term viability

- Unfairly dismissive of Makaroro land parcel long-term viability. Does not discuss indigenous vegetation present and regeneration of podocarp and beech trees.

³⁴ Pg. 25 of Doc Report

- Discusses 'over one hundred years before emergent podocarps are present' within the Dutch Creek land parcel. Does not discuss the fact that large beech trees with an intact understory are present. Fails to assess comparable timeframes for the Smedley Exchange Block succession from pasture grassland to emergent forest.
- The assessment fails to recognize that there is blackberry within Smedley Exchange block wetland seepage³⁵, there will be management issues associated with wilding pine and that grazing and farm weed management will give the artificial impression of 'no weeds'. Seed over time will come from adjacent weed sources and will become a management issue. Time frames for 'without planting' natural regeneration are needed.

Fragility, threat and management

- The Doc report does not acknowledge the regeneration of indigenous vegetation within Makaroro land parcel.
- The weed issues within the Smedley Exchange Block have been overlooked e.g. blackberry within the seepage and dispersal of weed seed.

A Significance of Ecological Values and comparisons based on Doc report discussion and the relevant key points above are summarized in Table 2 of this response (pg. 10 & 11). Conclusions based on the Summary Table 2 (pg. 10 & 11) indicate that the Significance Ecological values of the Doc Exchange sites in most aspects are indeed greater than that of the Smedley Exchange block. Therefore the landswap cannot be seen as 'a conservation gain' and clearly highlights the fact that the Doc Exchange land is of high significance and meets all of the National Priorities for Protection.

Conclusion

The Doc report unfairly assesses the ecological significance of the Smedley Exchange block compared with the Doc Exchange Areas due to:

- 1) a dismissal of the importance of Threatened Environments,
- 2) failure to clearly recognize the Doc Exchange Areas as habitats of threatened flora and fauna (i.e. Mistletoe, fernbird, five indigenous fish),
- 3) limited survey and reporting on wetland attributes of the Doc Exchange Areas,
- 4) using assessment where the 'like for like' principle is not included and,
- 5) relying on Significance of Ecological Values which are clearly and unfairly weighted in favour of the Smedley Exchange Block.

Assessment as indicated in Table 1 and 2 of in this response confirms that the Doc Exchange Area has high values and is a National Priority for Protection. This means the Doc Exchange Area does not 'qualify' to be revoked and is an important part of the Conservation estate. The land swap does not have clear 'conservation gains' and the Doc report gives an unbalanced view 'that the proposed exchange offers enhancement to conservation values'. This will ultimately see a loss of Acutely Threatened environments and a decline in the biodiversity of Threatened species and their habitats if the revocation and landswap goes ahead.

³⁵ Kessels *et al.* Smedley Exchange Ecological Survey pg. 10

Table 1. Summary of wetland significance, based on interpretation of Doc wetland discussion, Appendix A found within Dr. Gerbeaux section of the Doc report and wetland discussion found with this response.

Doc Exchange Area – Riverine wetlands	Representative	Rarity	Distinctiveness	Ecological context
Oxbow wetland	✓ Dominated by indigenous plant assemblages	✓ Fernbird present	✓ Distinct oxbow lake	✓ Well connected to surrounding vegetation, habitats including creek and riparian margins
Makaroro swampland – Not surveyed/discussed	✓ Indigenous plant assemblages	✓ Less than 30%	✓ Intact ecological sequences – adjoins the Makaroro braided river system	✓ Hydrological processes Makes an important contribution to ecological networks/connectivity
Stream and Braided habitats – Discussed but not surveyed	✓ Streams of higher value than streams in SEB, <i>Carex</i> sedgelands observed along flood plains – qualify as wetland	✓ Braided river systems nationally rare	✓ Intact ecological sequences	✓ Hydrological processes Important habitat critical for life history stages (spawning) Migration staging point Makes an important contribution to ecological networks/connectivity
Seepages – Not surveyed/discussed	✓ Indigenous plant assemblages	✓ Less than 20%	✓ Forms distinct plant communities found on mudstone faces	✓ Connected to creek/riparian margins
Riparian zones – Not surveyed/discussed	✓ Indigenous plant assemblages	✓ Indigenous fish present. Possible spawning sites.	✓ Intact ecological sequences	✓ Hydrological processes Important habitat critical for life history stages (spawning) Makes an important contribution to ecological networks/connectivity
Smedley Exchange Block (SEB) – riverine	Representative	Rarity	Distinctiveness	Ecological context
SEB seepage	✓ Dominated by indigenous plant assemblages	✓ Less than 20%	Less intact	✓
Donovan seepages	✓ some sections Not all dominated by indigenous plant assemblages	✓ Less than 20%	✓ possible for some sections	✓ Hydrological processes - headwaters/springs
Stream habitat	Lesser integrity/significance – degradation of habitat quality			✓ Hydrological processes First order stream – less fish diversity

Table 2: Significance of Ecological Values and Comparisons based on discussion points of Doc report and key points raised in this response.

	Doc Exchange Area -Makaroro land parcel	Doc Exchange Area -Dutch Creek land parcel	Smedley Exchange Block
Representativeness	<ul style="list-style-type: none"> -Acutely Threatened Environment -Alluvial plain rare in landscape -Braided river rare in landscape -Some indigenous vegetation (esp. Black beech) -Wetland swampland (Not surveyed) -Regeneration podocarps and beech (not mentioned) -Logged (in past) -Woody weeds <p>HIGH SIGNIFICANCE</p>	<ul style="list-style-type: none"> -Acutely Threatened Environment -Oxbow wetland rare in landscape -Broadleaf-small leaved monocot scrub/treeland (secondary sessional scrub) -Black beech forest with intact understory -Large mature Black Beech tree present³⁶ -Podocarps present further up Dutch Creek (in parcel?) -Riparian and seepage areas present (not mentioned in survey) -Second order stream <p>HIGH SIGNIFICANCE</p>	<ul style="list-style-type: none"> - Patches of indigenous vegetation within mosaic of pasture grassland -Some emergent podocarps -Grazed -Logged (in past) -Dry west facing slope dominated by small-leaved broadleaf scrub (Manuka) -Extends altitudinal range of Gwavas Conservation area -First order streams <p>MEDIUM/HIGH SIGNIFICANCE</p>
Diversity and pattern	<ul style="list-style-type: none"> -Alluvial plain with some variation in vegetation (includes wetland vegetation) -Braided river - Has some podocarps and broadleaf trees <p>MEDIUM SIGNIFICANCE</p>	<ul style="list-style-type: none"> - Oxbow wetland -Stream and riparian vegetation -Seepage and cliff areas -High to moderate plant species diversity <p>HIGH SIGNIFICANCE</p>	<ul style="list-style-type: none"> -Altitudinal range -Range of vegetation classes (though not likely to be extraordinary – manuka dominated) -Four first order streams and wetlands (seepages) <p>MEDIUM/HIGH SIGNIFICANCE</p>
Rarity and special features	<ul style="list-style-type: none"> -Acutely Threatened Environment -Alluvial plain rare in landscape -Braided river rare in landscape -Habitat to Threatened Long-tailed bat -Habitat to Threatened fish species -Part of a wider braided river system that is significant to braided river birds (Banded Dotterels) <p>HIGH SIGNIFICANCE</p>	<ul style="list-style-type: none"> -Acutely Threatened Environment -Oxbow wetland rare in landscape -Threatened plant –red Mistletoe present -Threatened Long-tail bats and fernbird present -Habitat to Threatened Long-tailed bat -Habitat to Threatened fernbird -Habitat to Threatened fish species Riparian, seepage and cliff areas well covered with indigenous vegetation <p>HIGH SIGNIFICANCE</p>	<ul style="list-style-type: none"> - No Acutely threatened environment identified -Threatened Long-tail bats recorded in margins of SEB -No Threatened Fernbird or Red mistletoe present -Possible habitat to Threatened fish species, though diversity likely to be less than Dutch Creek -Dry west facing broadleaf small-leaved scrub (Manuka) poorly represented on Wakarara Range. <p>MEDIUM/LOW SIGNIFICANCE</p>
Naturalness	<ul style="list-style-type: none"> -Logged (in past)/ old forestry hut site -Woody weed present -Wetland swampland - indigenous vegetation -Braided River including indigenous vegetation at margins -Indigenous vegetation (esp. Black beech) -Regenerating indigenous vegetation (podocarp and beech trees) <p>MEDIUM/LOW SIGNIFICANCE</p>	<ul style="list-style-type: none"> - Wetland indigenous vegetation intact and linked to riparian vegetation and Dutch Creek -Seepages and Cliff sides are intact with indigenous vegetation -Understory of Beech forest intact and large mature Black Beech tree present³⁷ -No emergent podocarps in forest surveyed (Has been logged in past), Podocarps present further up Dutch Creek (in parcel?) -Low weeds <p>HIGH/MEDIUM SIGNIFICANCE</p>	<ul style="list-style-type: none"> -Areas of pasture grassland -Will recover from grazing (>100yrs to forested with large indigenous tree) - Has been logged in past - Some emergent podocarps in Black beech remnants -No understory present (apart from 4.4ha area of fenced Black beech) -Some weeds present (blackberry in seepage) <p>MEDIUM/LOW SIGNIFICANCE</p>

³⁶ pg53 of Doc report

³⁷ pg53 of Doc report

Table 2 Continued: Significance of Ecological Values and Comparisons based on discussion points of Doc report and key points raised through this report.

	Doc Exchange Area -Makaroro land parcel	Doc Exchange Area –Dutch Creek land parcel	Smedley Exchange Block
Size and shape, buffering/ Surrounding landscape and boundaries	<p>-Strip of land beside the Marakoro River</p> <p>-Adjoins a braided river system</p> <p>-Has small stream (western side of parcel) running through to Marakoro River</p> <p>-Linked to Ruahine Forest Park through forestry</p> <p>MEDIUM/LOW SIGNIFICANCE</p> <ul style="list-style-type: none"> -Woody weed problem -Indigenous vegetation present (esp. Black beech) -Wetland swampland vegetation present -Regeneration of podocarp and beech trees present -With increased weed management could recover (>100yrs with large indigenous trees) <p>MEDIUM SIGNIFICANCE</p> <ul style="list-style-type: none"> -Buffered (Braided river /forestry) -Woody weeds could limit successional rebuilding of vegetation, though some regenerating beech trees and podocarps and indigenous wetland vegetation present -Increase management required/ assumed low on Doc priorities <p>MEDIUM</p>	<p>-Strip of land beside second order stream (Dutch Creek) and includes an oxbow wetland and seepages</p> <p>-Adjoins/ is a buffer to the Ruahine Forest Park</p> <p>-Connectivity with Ruahine Forest Park, Dutch Creek and Makaroro River</p> <p>HIGH/MEDIUM SIGNIFICANCE</p> <ul style="list-style-type: none"> -No major weed problem, possible wilding pine issue -Oxbow wetland in good condition -Understory of forest intact -Broadleaf small-leaved monocot scrub/freeland will regenerate -Podocarps will return to Black beech forest (in Dutch Creek area) (>100yrs for podocarps to be emergent within the intact Black beech forest) <p>HIGH SIGNIFICANCE</p> <ul style="list-style-type: none"> -Well buffered -Little active management required (though predator and browser control priority) -Possible wilding pine management required <p>LOW</p>	<p>-Large, mosaic of forest remnants and scrubland and pasture grassland (and seepages if Donovan Gully included)</p> <p>-Present proposed shape awkward to manage</p> <p>-Linked to Gwavas Conservation Area</p> <p>MEDIUM/LOW SIGNIFICANCE</p> <ul style="list-style-type: none"> -No major weed problem, possible wilding pine issue. Assessment does not address blackberry present in wetland seepage and potential weed invasion with lack of grazing and farm weed management -Will recover from grazing (>100yrs to become forested) <p>MEDIUM/LOW SIGNIFICANCE</p> <ul style="list-style-type: none"> -Well buffered -Exclusion of Grazing required -Little active management required (though predator and browser control priority) -Possible wilding pine management required -Other weed invasion in pasture and seepage areas once grazing excluded <p>MEDIUM</p>
Long-term ecological viability			
Fragility and threat and management			

