# *Waikato District Council*

## Significant Natural Areas
## Summary of Inputs
## from the
## Community Consultation Process

KesselsEcology
SURVEY, ASSESSMENT AND RESTORATION

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Version: Draft II - 22 December 2016 -

PWF Ref: WDC.00319

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# Executive Summary

As part of the Waikato Regional Council's (WRC) project to identify Waikato District's Significant Natural Areas (SNA), Waikato District Council (WDC) commissioned Kessels Ecology to incorporate community and landowner feedback into the draft SNA Database being prepared by Kessels Ecology under a separate contract to the WRC. The final complete SNA database will assist both WRC and WDC in their development of policies, incentives and rules in relation to their obligations of the Resource Management Act 1991 (RMA), primarily under section 6c, to protect significant habitats of indigenous fauna and flora. The Operative Waikato District Plan does not contain a schedule of SNAs but stipulates that sites should be evaluated using the criteria contained in Appendix 3 of the Waikato Regional Policy Statement (RPS). A summary of the existing policy pertaining to significant natural areas within the Waikato Regional Policy Statement and District Plan is presented in Appendix II.

This report summarises the results and analysis for the community consultation and SNA ground truthing process conducted in 2015 and 2016. In the first instance WDC send out letters to owners of SNAs inviting feedback. As a consequence of this mail out WDC arranged for a number of public workshops in Raglan, Ngaruawahia, and Tuakau on several occasions from October - December 2015 which staff from Kessels Ecology attended, along with WDC, and on occasion, WRC staff as well. Based on the feedback WDC received from the SNA workshops and other means, WDC selected 50 sites to be visited and provided Kessels Ecology with the received feedback forms (355 forms), amended maps from the SNA workshop meetings (152 amended maps), and feedback collected from phone calls (678 phone calls).

A total of 1023 changes were made to specific attribute cells in the database, of which most were changes made to pest animal, pest plant, and stock issue columns.

Amendments and additions were made to 61 SNA site descriptions based on landowner feedback, mostly to SNAs which are small or in remote places with little existing knowledge.

Overall, the confidence level of the SNA sites on which feedback was received increased, particularly when a visit was paid to a site, resulting to 222 changes in the level of confidence.

Based on the landowner feedback, 22 changes were made to the significance ranking and extent of the SNA, while a total of 31 amendments were made to the significance justification. The primary type of changes made included:

- adding information on animal pests, plant pests, fencing and grazing status;
- adding site specific information on flora and fauna species present; and
- adding information on other issues.

Numerous changes were made to the geometry of SNAs in the spatial layer, particularly in the urban and semiurban areas in Tamahere and Raglan. Changes were made based on feedback received from landowners (i.e. annotated maps received with feedback forms and maps annotated during workshop meetings), as well as amending the SNA spatial layer using the latest aerial and vegetation mapping spatial layers provided by WRC. Changes made included:

- exclusion of areas where no indigenous habitat was present;
- exclusion of areas where canopy cover was marginal (often due to grazing);
- exclusion of buildings and other structures; and
- amending geometry to better resemble the extent of the SNA.

The key limitation in this process of implementing landowner feedback to the 'Master Data Set' consisted of the fact that most SNAs cover land of multiple landowners, and landowners

were only able to provide feedback on SNAs on their property alone. An additional constraint was that the spatial data was created in such a way that many SNAs were grouped, often comprising natural features with different ecological features (i.e. grouping forest and wetland habitats in one SNA). Bearing this in mind, feedback on parts of a multipart SNA were incorporated as accurately as possible and changes to the SNA spatial data made accordingly.

It is evident form the consolation and review process that the main threats facing identified SNAs in the Waikato District are:

- ongoing vegetation clearance;
- stock intrusion into unfenced forest/shrubland/wetland areas;
- animal and plant pest degradation of many habitats; and
- degradation of the margins of estuarine wetlands and lakes by stock.

Essential components of the on-going protection and ecological restoration of biodiversity values of SNAs require ongoing weed and animal pest management, stock exclusion, and carrying out enhancement planting. By applying these restoration measures over a number of seemingly small and degraded natural fragments in a locality, in particular when involving wetland and riparian margins, ongoing conservation management will enhance and restore ecological processes at a landscape scale over time.

The overwhelming feedback from landowners on how WDC can help landowners in protecting and enhancing SNAs is that the majority of landowners are willing to undertake restoration. Indeed, a large proportion of landowners are already undertaking restoration and informal protection measures with or without any external support. The main constraint for landowners to fence, plant, and preform plant- and animal pest control generally is the lack of resources to implement these measures and knowledge on how to best carry out specific restoration measures.

The WDC contestable fund has $30,000 set aside annually for ecological restoration and enhancement. The criteria for funding are currently set out in Council's Conservation Strategy and are primarily focused on areas protected by covenant. Furthermore, landowners may be eligible for rates relief for natural areas which are protected under a covenant. Based on our understanding funds are generally granted to larger projects or to landowners who have already covenanted and legally protected SNAs. We are unsure of the net benefit of the outcomes of this fund. We suggest that a review of the fund amount and criteria used to allocate the fund is made given the relatively small monetary amount set aside. There are many ecological significant and large SNAs found in the District, with an obvious desire by most landowners to carry out some form of biodiversity restoration who would greatly appreciate support in their efforts to do so.

# 1 Introduction and Project Brief

## 1.1 Project Brief

As part of the Waikato Regional Council's (WRC) project to identify Waikato District's Significant Natural Areas (SNA), Waikato District Council (WDC) commissioned Kessels Ecology to incorporate community and landowner feedback into the draft SNA Database being prepared by Kessels Ecology under a separate contract to the WRC. The final complete SNA database will assist both WRC and WDC in their development of policies, incentives and rules in relation to their obligations of the Resource Management Act 1991 (RMA), primarily under section 6c, to protect significant habitats of indigenous fauna and flora. The Operative Waikato District Plan does not contain a schedule of SNAs but stipulates that sites should be evaluated using the criteria contained in Appendix 3 of the Waikato Regional Policy Statement (see Appendix I). A summary of the existing policy pertaining to significant natural areas within the Waikato Regional Policy Statement and District Plan is presented in Appendix II.

This report summarises the results and analysis for the community consultation and SNA ground truthing process conducted in 2015 and 2016. In the first instance WDC send out letters to owners of SNAs inviting feedback. As a consequence of this mail out WDC arranged for a number of public workshops in Raglan, Ngaruawahia, and Tuakau on several occasions from October - December 2015 which staff from Kessels Ecology attended, along with WDC, and on occasion WRC, staff.

Based on the feedback WDC received from the SNA workshops and other means, WDC selected 50 sites to be visited and provided Kessels Ecology with the received feedback forms (355 forms), amended maps from the SNA workshop meetings (152 amended maps), and feedback collected from phone calls (678 phone calls).

Furthermore, separate community meetings were attended organised by WDC and the Tamahere Community Group to discuss in more detail the potential implications of SNA for the landowners along the Tamahere gully systems. For these meetings, Kessels Ecology examined in more detail the mapping of the Tamahere gully systems.

WDC has also asked Kessels Ecology describe in more detail the SNAs in and around Raglan Township, in those areas where private gardens appear to merge into natural areas. No additional meetings were held for Raglan Township, but amendments were based on site visits, drive-by surveys, and a detailed GIS desktop assessment.

This report provides a brief summary of the ecological value and significance of indigenous habitats remaining in the Waikato District within a regional and national context. A summary of the results and key changes in the SNA database are outlined and any limitations and changes in level of confidence are provided. Based on these findings and the experiences gathered from the site visits, recommendations are made on methods to maintain and protect existing SNAs and indigenous biodiversity in various management zones.

## 1.2 The Ecological Context

The Waikato District is the largest District within the Waikato Region, comprising a total area of 434,000 ha.

Large areas of forest and wetland once covered the District. The dominant forest species were typically kauri in the north, podocarp in central areas and a combination of rimu and tawa in the south. Variations were seen between coastal and inland areas. The major wetland areas are northeast of Hamilton and around the lower Waikato River. Large areas of rimu and tawa forest remain on the hill country and most of it is in publicly owned and legally protected. Most of the internationally recognised Whangamarino Wetland is also legally protected. These areas and the lower Waikato lakes together form a semi-continuous band of indigenous habitats from the north-east (Miranda) to the south-west (Aotea Harbour). Outside of this band, indigenous vegetation and habitats have been significantly depleted

and in some cases only small remnants remain. Only few of these remnants are formally protected (WDC, 2004).

Waikato District lies across three Ecological Regions (ER) and ten Ecological Districts (EDs). Only Raglan and Meremere EDs are entirely contained within Waikato District. In the west, Tainui ER contains Raglan ED and Kawhia ED. In the north, Auckland ER contains Manukau ED, Hunua ED, and Awhitu ED. Waikato ER contains Hapuakohe ED, Meremere ED, Maungatautari ED, and Hamilton ED, and a very small part of Hauraki ED.

The estimated 1840 vegetation cover of Waikato District was c. 53.6% primary indigenous forest, c. 28.5% secondary forest and scrub, c. 0.2% duneland, and c. 15.8% wetlands. Franklin District, within Waikato Region, comprised an estimated 1840 vegetation of c. 84.8% primary indigenous forest, c. 7.2% secondary forest and scrub, c. 0.6% duneland, and c. 5.9% wetlands (Leathwick et al., 1995). Please note that the boundaries of the Districts may have changed and calculations are not exact, however changes do only marginally change the results.

Table 1 below presents a breakdown of the main vegetation units found in each Ecological District within Waikato District when the district was last mapped in detail in 1995 by Landcare Research (Leathwick et al., 1995). As not all EDs are entirely within Waikato District and District boundaries have changes over time, data used may not be accurate for all EDs (e.i. Awhitu, Hunua, Franklin, and Manukau).

The data shows that indigenous vegetation is highly under-represented within the Waikato District, with c. 10.72% of the Waikato District still containing primary forest and wetland habitat (Leathwick et al., 1995). This compares marginally with the other District Councils within New Zealand, ranking 24th across the 73 councils, highlighted by the fact that only 1.4% of New Zealand's Nationally Threatened Vegetation units are within Waikato District (Walker et al., 2005). Thus, the left most column of each ED in Table 1 shows that primary forest, and wetlands are very under-represented within the district.

**Table 1 Break down of areas (ha) and percentage composition of Vegetation Units per Ecological District within the Waikato District** (based on 1995 data collated by Leathwick et al., 1995). Red cells indicate where less than 20% of the vegetation present in 1840 remains, orange cell, where more >20 but less than the original vegetation remains, and green indication an increase in vegetation unit.

| | Raglan | | | Meremere | | | Hamilton | | | Kawhia | | | Maungatautari | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1840 | 1994 | Remnant | 1840 | 1994 | Remnant | 1840 | 1994 | Remnant | 1840 | 1994 | Remnant | 1840 | 1994 | Remnant |
| | ha | ha | % | ha | ha | % | ha | ha | % | ha | ha | % | ha | ha | % |
| Wetland | 199 | 106 | 53.27% | 24100 | 11977 | 49.70% | 51676 | 631 | 1.22% | | 319 | | | 29 | |
| Duneland | 222 | 0 | 0.00% | 508 | 0 | 0.00% | | | | 4425 | | 0.00% | | | |
| Primary forest | 132061 | 4305 | 3.26% | 32333 | 543 | 1.68% | 18559 | 368 | 1.98% | 122783 | 23516 | 19.15% | 49567 | 4339 | 8.75% |
| Logged forest | | 8378 | | | 1173 | | | 572 | | | 14451 | | | 3191 | |
| | | | | | | | | | | | | | | | |
| Primary and logged primary | 132061 | 12683 | 9.60% | 32333 | 1716 | 5.31% | 18559 | 940 | 5.06% | 122783 | 37967 | 30.92% | 49567 | 7530 | 15.19% |
| | | | | | | | | | | | | | | | |
| | Hapuakohe | | | Awhitu | | | Manukau | | | Hunua | | | Hauraki | | |
| | 1840 | 1994 | Remnant | 1840 | 1994 | Remnant | 1840 | 1994 | Remnant | 1840 | 1994 | Remnant | 1840 | 1994 | Remnant |
| | ha | ha | % | ha | ha | % | ha | ha | % | ha | ha | % | ha | ha | % |
| Wetland | 519 | 170 | 32.76% | | | | 26 | 191 | 734.62% | 46 | | 0.00% | 27766 | 11690 | 42.10% |
| Duneland | | | | 296 | | 0.00% | | | | | | | | | |
| Primary forest | 53922 | 2931 | 5.44% | 6793 | 10 | 0.15% | 18170 | | 0.00% | 14208 | 1119 | 7.88% | 29836 | 193 | 0.65% |
| Logged forest | | 3659 | | | 13 | | | 203 | | | 2192 | | | 200 | |
| | | | | | | | | | | | | | | | |
| Primary and logged primary | 53922 | 6590 | 12.22% | 6793 | 23 | 0.34% | 18170 | 203 | 1.12% | 14208 | 3311 | 23.30% | 29836 | 393 | 1.32% |

### 1.2.1 Threatened Environments within Waikato District

Land Environments of New Zealand (LENZ) is a national environment-based classification of ecosystems mapped across New Zealand's landscape. LENZ is a surrogate for the likely past (pre-human) pattern of terrestrial ecosystems and their associated biodiversity. Landcare Research have mapped from a national level, the most rare and threatened environments and ecosystems across the whole of New Zealand. This national level information is only part of the biodiversity picture that is needed to inform resource management decisions at the regional and local level (MfE, 2015). The Threatened Environment Category uses LENZ, the Land Cover Database (LCDB) and a national database of land protection status to identify what type of vegetation occurs in each land environment and the broad pattern of protection.

The aim of the Threatened Environment Category is to protect indigenous vegetation associated with land environments, (defined by Land Environments of New Zealand at Level lV), that have 20 percent or less remaining in indigenous cover.

The maps of Threatened Environment Category have been prepared at LENZ Level IV (i.e. 500 land environments) and show land environments with 20% or less remaining indigenous vegetation from a New Zealand wide perspective – red shading in Figure 1 below. It shows that the majority of Waikato District is categorised as Acutely Threatened (Table 2 and Figure 1).

**Table 2 Summary of Threatened Environment Categories within the Waikato District.**

| Threatened Environment Category | % |
|---|---|
| Acutely Threatened | 54.23% |
| Chronically Threatened | 15.18% |
| At Risk | 8.12% |
| Critically Underprotected | 0.09% |
| Underprotected | 0.10% |
| Less reduced and better protected | 21.94% |

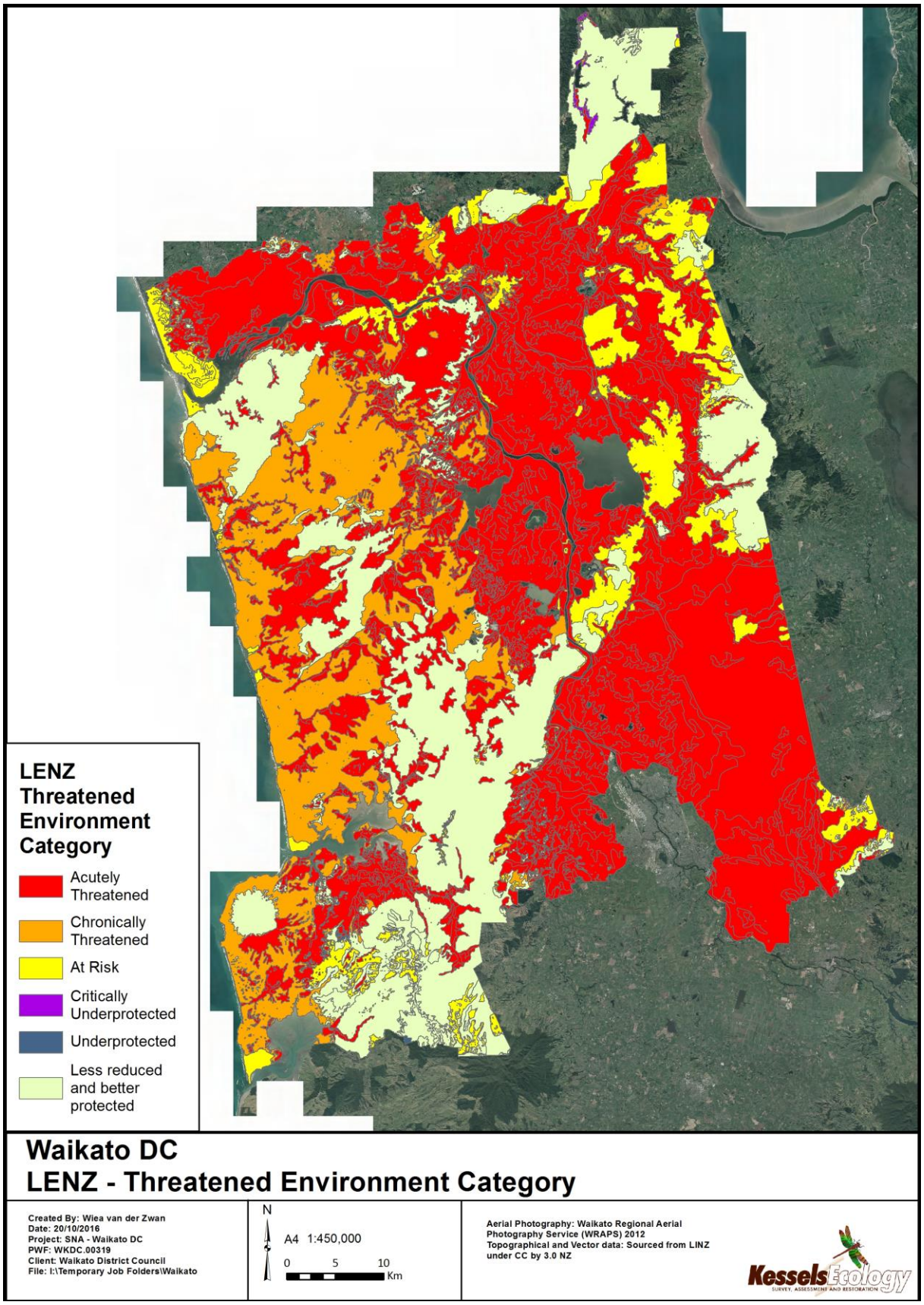


**Figure 1 Land Environments New Zealand, Threatened Environment Category within Waikato District.**

Walker et al. (2005) proposed a threat classification for remaining indigenous biodiversity in New Zealand's environments based on the two components of vulnerability (likelihood of loss): poor legal protection and risk of loss[1]. The past level of habitat loss (represented by percentage remaining indigenous cover) is used as the primary threat criterion. Based on the species–area relationships and fragmentation effect, remaining indigenous biodiversity within environments with <30% indigenous cover is considered 'threatened'. Remaining indigenous biodiversity is classified as 'At Risk' in environments where 20–30% of indigenous cover remains, and 'Chronically Threatened' in environments where 10–20% indigenous cover remains. When less than 10% of indigenous cover remains, remaining indigenous biodiversity is considered to be 'Acutely Threatened' (Table 3). A threat classification based on past habitat loss alone (and hence susceptibility to loss) is insufficient, since it fails to recognise poor legal protection as a key component of biodiversity vulnerability. Many environments with low (i.e. less than 20%) levels of legal protection are included in the 'At Risk', 'Chronically Threatened' and 'Acutely Threatened' categories. However, a number of environments that have more than 30% indigenous cover remaining are poorly protected (i.e. they have less than 20% of their area under legal protection). Remaining indigenous biodiversity in these environments is assigned to two further threat categories (Table 3): Critically Under-protected if <10% is protected, and Under-protected if 10–20% is protected.

**Table 3 Categories of threat to environments, and defining criteria** (Walker *et al.,* 2005)

| Category | Acutely Threatened | Chronically Threatened | At Risk | Critically Unprotected | Under protected |
|---|---|---|---|---|---|
| Criteria | <10% indigenous cover remaining | 10–20% indigenous cover remaining | 20–30% indigenous cover remaining | >30% indigenous cover remaining | |
| | | | | <10% legally protected | 10–20% legally protected |

Walker et al. (2005) have calculated that 302,315.86 ha of the Waikato District contains indigenous habitats which are presently acutely or chronically threatened habitat, and 433.96 ha of habitat within Waikato District is under-protected. The data highlights that large parts of Waikato District are threatened, but that large areas have some form of protection within Waikato District (Table 4).

**Table 4. Area of indigenous cover not protected (ha) in five threatened environments for Waikato District**

| Total Waikato District Area (ha) | Acutely Threatened | Chronically Threatened | At Risk | Critically Underprotected | Under-protected |
|---|---|---|---|---|---|
| 434,000 | 236,203.07 | 66,112.79 | 35,352.24 | 393.84 | 433.96 |

# 2 WRC SNA Identification Process

## 2.1 General Approach

The SNA site identification and significance assessments were carried out through a "desktop" exercise, with no detailed field work undertaken. The assessments were conducted using orthorectified[2] aerial photography, existing ecological information sourced from reports and databases, and the local knowledge of Kessels Ecology staff. The resulting data from this assessment is held and maintained by Waikato Regional Council and forms part of a database of SNA for the whole of the Waikato Region.

[1] The main tool for this analysis was Land Environments of New Zealand (LENZ) - a national classification of ecosystems mapped across New Zealand's landscape. For this analysis LENZ Level IV which maps 500 different environments nationally was used.

[2] Geometrically corrected so that the scale is uniform.

The desktop analysis project identified 1598 potential SNAs, covering an area of approximately 78,000 ha, which equates approximately 18% of the district land area (Figure 2).

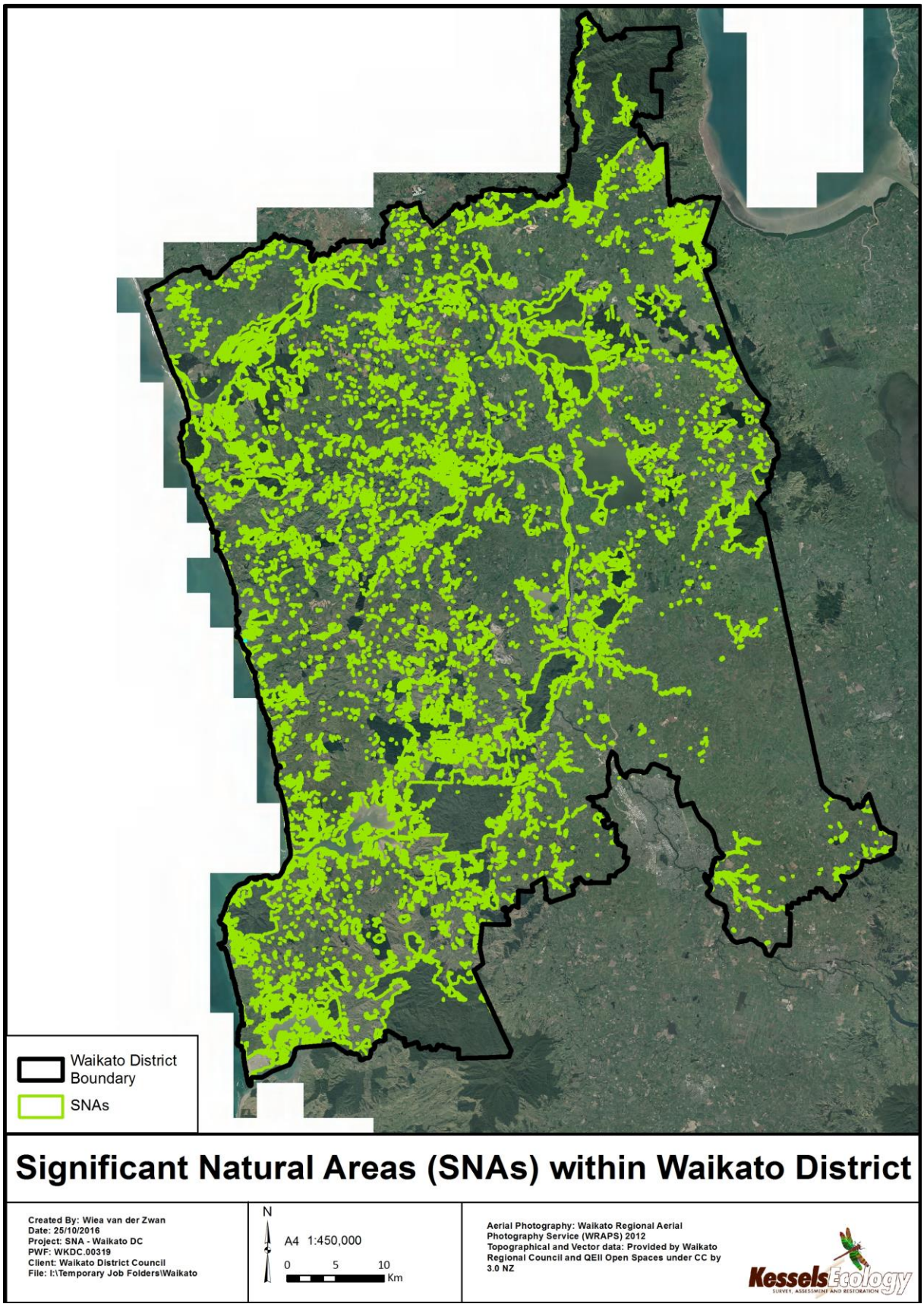


**Figure 2** **Identified Significant Natural Areas (SNAs) within Waikato District.**

The methodology for the desktop review process consisted of the following four stages:

### 2.1.1 Stage One - Literature Review

A review of available existing information was undertaken to determine the ecological characteristics of the Waikato District. All key documents, databases and maps were reviewed to enable a gap analysis to be undertaken of where further information was needed. This included searching both electronic and paper sources together with the personal observations of project staff and employees of other ecological organisations.

### 2.1.2 Stage Two - Delineating Site Extent (Spatial Data) & Data Set Formation

A GIS project was established with spatial data from the Council's BIOVEG database, which was utilised to establish preliminary site boundaries. Orthorectified aerial photography and Land Information New Zealand (LINZ) Topographic spatial data were used as the key tools for establishing vegetation coverage and site location.

Additional data sets were added to provide an ecological context and a basis for individual site assessments. Key data sets included: territorial boundaries, legal protection boundaries (e.g. DOC, QEII, and district council covenants), Ecological District boundaries, animal pest control zones, and point locations of recorded flora/fauna species observations recorded in the Freshwater Fish Database (NZFFDB) and BioWeb (administered by DOC).

A data set of threatened flora and fauna species was researched and prepared, and was used in the assessment of significance of sites. Databases used included the New Zealand Freshwater Fish Database (NZFFDB) and BioWeb (administered by DOC).

An Excel spreadsheet (hereafter Master Data) was completed to collate site description and significance assessment information.

Guidelines for delineating sites were formulated by Waikato Regional Council staff. These specifications formed the basis for the creation of the spatial data, the main elements of which are listed below:

#### 2.1.2.1 Base spatial data

The foundation for defining the spatial extent of sites was primarily generated from the Council's Biodiversity Vegetation (BIOVEG) data, and also included spatial data of land protected under statute or covenant (e.g. DOC Conservation Areas, WDC reserves, QEII Trust Open Space covenants, WDC Environmental Protection Lot covenants), and parcels under public administration, but not necessarily protected. Kessels Ecology reviewed and suggested revisions where applicable to the line work and classification of vegetation in the BIOVEG data using aerial photography.

#### 2.1.2.2 Design scale

The design scale of the SNA data is 1:10,000. For the purpose of producing this layer the data was not captured, edited or used at a scale greater than 1:5,000 (ie. half of the design scale).

#### 2.1.2.3 Minimum mapping unit (MMU)

For the purposes of this project the MMU was 0.5 ha, rounded to the nearest 0.1 ha. Areas of indigenous vegetation smaller than 0.5 ha were not mapped or assessed unless such areas were determined to have a significance level of at least "Regional" (see Section 3.1.4.2).

### 2.1.3 Stage Three - Ecological Significance Assessment (Attribute data)

The assessment of the significance of sites was undertaken, with relevant attributes completed in the Master Data spreadsheet. The site assessment also included a review of the site boundaries, with recommendations for changes made where appropriate.

Analysis of the indigenous vegetation and fauna characteristics of the Waikato District was undertaken with respect to the relevant provisions of the RMA and, in particular, the ecological significance assessment criteria of the Waikato RPS. The ecological significance of sites was initially assessed using Waikato Regional Council's guidelines for applying the 11 RPS criteria (Appendix I).

The assessment framework is based on quantitative and qualitative parameters, described below, that were established to make prioritisation systematic and explicit in the justification of a baseline for biodiversity monitoring with community outcomes in the Waikato Region.

#### 2.1.3.1 Descriptive attributes

A number of descriptive fields were completed to provide background information relevant to each site. These fields include: a site name, a brief site description, the administration (i.e. tenure) and legal protection status, the broad ecosystem type, the ecological district(s) and bioclimatic zone(s) the site overlaps, the historic and current vegetation types (based on underlying spatial data) the site overlaps, and details of any significant flora/fauna species recorded from the site or considered likely to be present.

#### 2.1.3.2 Significance assessments

To determine whether a site was significant, it was assessed against the 11 significance criteria defined in Appendix 3 of the operative RPS. For each criterion, each site was assessed as either:

- meeting the criterion ("Yes");
- being likely to meet the criterion ("Likely");
- being uncertain as to whether the criterion was met or likely to be met due to inadequate information ("Indeterminate"); or
- not meeting the criterion ("No").

In line with the project specifications, the assessment of each criterion followed Table 1 of the criteria assessment guidelines (WRC and Wildland Consultants 2002), with the exception of criterion 3 for threatened and/or endemic species (see below).

If a site was found to be significant, then it was further assessed to determine a level of significance, i.e. "International", "National", "Regional", or "Local", following Table 2 of the Council's guidelines (WRC and Wildland Consultants 2002). Sites that were not found to be significant were classified into one of the following categories:

- "Likely" to be significant where the information available indicated the site has a high likelihood of meeting one or more of the 11 criteria, but this needs to be verified with more information, such as from field surveys;
- "Not significant" where, based on the information available, it was certain that the site did not meet any of the 11 criteria; or
- "Indeterminate" where there was insufficient information to determine if the site could meet any of the 11 criteria, or be classified in the "Likely" or "Not significant" categories. More information is needed for these sites, preferably from a field survey if possible.

##### 2.1.3.2.1 RPS criterion 3 – "Threatened and/or endemic species"

Previous SNA assessments identified that changes to the significance assessment guidelines in relation to criterion 3 were required in order to provide a more robust and current assessment, particularly in light of recent changes in the national threat status classifications of some threatened species.

New threat status classifications were outlined in Townsend et al. (2008), and since that publication, revisions of the threat status of New Zealand taxa have adopted this new

system. Many taxa have now been reassessed using the new system and these new classification levels were adopted for this project. Assessment criteria were followed as described in the "Guidelines to apply Regional Criteria and Determine Level of Significance" report detailing further assessing threatened and/or endemic species.

A further interpretation was adopted for "Regional" significance to include habitat for fauna species in the threat categories "Nationally Critical", "Nationally Endangered", or "Nationally Vulnerable", where the association with the site is not considered sufficient to meet national significance. This interpretation brings non-regular habitat for these threatened fauna species in line with sites of lower significance for flora species of the same threat status that are incorporated in the requirements for "Regional" significance.

No current assessments are known to exist for regionally threatened, or regionally at risk species, within the Waikato Region. In the absence of these classifications, a precautionary approach was taken to attempt to capture data relating to species that could reasonably be considered as "regionally rare". The regional rarity of species was supported with literature references where available, and for species where such references were not available, the species was recorded in the data set as "regionally rare tbc" (tbc meaning "to be confirmed").

Where threatened species records are present in an SNA site, the polygon based nature of this project may give the impression that the threatened species may be present throughout the SNA. Some threatened species, however, may have limited home ranges or specific habitat requirements that may restrict them to certain areas of an SNA. For example, a skink may only use rocky outcrops. Physical barriers to movement may also restrict species to a partial use of an SNA.

### 2.1.4 Stage Four - Quality Control

Draft versions of the data set were internally reviewed by Kessels Ecology staff and further reviewed by Council staff, who provided feedback and recommended revisions.

### 2.1.5 Data Set Accuracy

#### 2.1.5.1 Positional Accuracy

The accuracy of the spatial boundaries of the sites in the data set is dependent on the data from which the boundaries are derived. In general, the positional ***accuracy can be considered to be within /- 30 m***, which is the level of accuracy of the BIOVEG data, the primary source from which the majority of site boundaries were derived. The following is a list of the spatial data sets used to derive the spatial boundaries of all sites assessed in this project:

- Aerial Photography – WRAPS 2012 – GIS spatial layer
- Biodiversity Vegetation (BIOVEG 2007 and 2012) – GIS spatial layer
- DOC Conservation Boundaries – GIS spatial layer
- QEII National Trust covenants – GIS spatial layer
- Waikato District Council Reserves - GIS spatial layer
- Waikato District Council Environmental Protection Lot covenants - GIS spatial layer

#### 2.1.5.2 Attribute Accuracy

The accuracy of some of the attributes is also dependent on the accuracy of the data sets they were derived from. For example, the protection status of an SNA depended upon the accuracy of the QEII, DOC conservation land, and WDC Reserves and Environmental Protection Lot Covenants data sets. Furthermore, presence of threatened species within a site, which were likely to contribute to overall significance levels, relied on the positional accuracy and correct identification in the original records.

The interpretation of vegetation types for this project was primarily based on the accuracy of the Council's BIOVEG data set and the WRAPS. However, further information was often available from existing literature and reports, together with the ecological knowledge of the area of Kessels Ecology staff. Since this was primarily a "desktop" exercise, the only confirmation of vegetation composition is from existing published data, existing knowledge, drive-by assessments, and interpretation of orthorectified aerial photography.

An attribute called "Confidence Level" was used to indicate the amount of confidence in the accuracy of the significance assessment of a site. This was dependent upon the accuracy and availability of information about the sites.

## 2.2 Review Stage

After identifying and ranking the SNAs within Waikato District, the Master Data spreadsheet was sent for review to WRC who reviewed it, and in turn sent out review requests to Department of Conservation and Waikato District Council to review the potential SNAs on their properties.

### 2.2.1 DOC review

Department of Conservation (DOC) received the draft SNA dataset and made comments where needed supplying additional information for sites administered by DOC.

As per the SNA standard peer review process for SNA data validation, DOC has peer reviewed the SNA Master Data and provided feedback to WRC. Recommended changes in the DOC peer review response for Waikato District SNA were then carried out by Kessels Ecology and finally reviewed by WRC/WDC.

DOC provided comments on a total of 558 SNAs within Waikato District which were reviewed by Kessels Ecology. These include:

- A detailed site by site review and response of 148 comments given by DOC, making changes in ranking, polygon adjustments if necessary.
- A further 390 DOC comments were reviewed and comments made as and when required.
- Geometry of the Waikato SNA spatial dataset was checked using the latest version of the BIOVEG 2012 spatial layer (as provided by WRC).

### 2.2.2 Geometry review using BIOVEG 2012

Sites on which no feedback was given, no site visit was performed, or where no additional information was available, were reviewed using the latest version of the BIOVEG spatial layer (provided by WRC). Methodology was followed as outlined by WRC:

> *"Geometry of the spatial dataset will be checked using the latest version of the BIOVEG spatial layer (as provided by WRC). The USE_BIOVEG attribute is to be populated with a value of 1 in situations where the BIOVEG polygon has a better boundary than the current SNA boundary (SNA_WAIKATO_DEAGG_199022016.gdb). For some polygons, the geometry may need to be manually edited. In these cases, if the geometry has been manually changed then put a 'Yes' in the GEOM_CHANGED column otherwise leave this attribute blank."*

# 3 Community & Landowner Consultation Process

## 3.1 Methodology

Waikato District Council sent out letters to all landowners who own land with potential SNAs on their property. Over 4500 letters were sent out inviting people to provide feedback and information on the potential SNAs on their property. Topics landowner could provide feedback on were:

- If the location of the natural area was identified correctly;
- What species or types of vegetation are present in the area identified;
- Information on current management; and
- How WDC could encourage the protection of SNAs.

Landowners were invited to provide feedback by phone, submitting the feedback form they were sent, or by attending one of the many workshops WDC held in District Council offices in Raglan, Ngaruawahia, and Tuakau. Kessels Ecology staff attended those workshops together with WRC land managers and WDC staff.

Combining all means of feedback, information from 678 phone calls, information was collated from 152 landowners collected at the workshop meetings, and 354 feedback forms. From this, approximately 50 sites were visited and a basic vegetation assessment undertaken, verifying the existing Master Data which mostly was based on a desktop assessment. For each (partial) SNA visited and ground truthed, a short report was produced indicating any changes to the spatial dataset, as well as to the Master Data spreadsheet, including potential changes in ranking and significance.

All feedback information provided by WDC was incorporated into the Master Data spreadsheet and to the SNA spatial layer and changes made as and when required.

Additional to the workshops organised by WDC, two additional meeting were held with the Tamahere community to discuss in more detail any potential implications for the landowners adjacent to the Tamahere gully system.

### 3.1.1 Tamahere Gully System and Raglan Township

During the review process it became clear that a more detailed review was required for the Tamahere gully system and Raglan Township as several SNAs are highly intertwined with private properties, gardens and other usually intensive, land uses associated with residential and rural-residential land uses. It was therefore decided that the SNAs in these areas should be checked in detail and redrawn excluding all buildings and other structures. Based on the feedback provided, repositioning of SNA boundaries were also made as required. Within the Tamahere gully system this included the gully floor as well as the riparian margins, including habitats sometimes dominated by exotic vegetation but which provided habitat or migration pathways for threatened or at risk indigenous species such as black mudfish, longfin eels, and long-tailed bats. In Raglan this included incorporating the estuary margins, streams and their riparian margins, and any bush/gully habitat. Figure 4 below depicts how the SNA around the Tamahere gully system was reviewed. A similar approach was taken for Raglan Township.

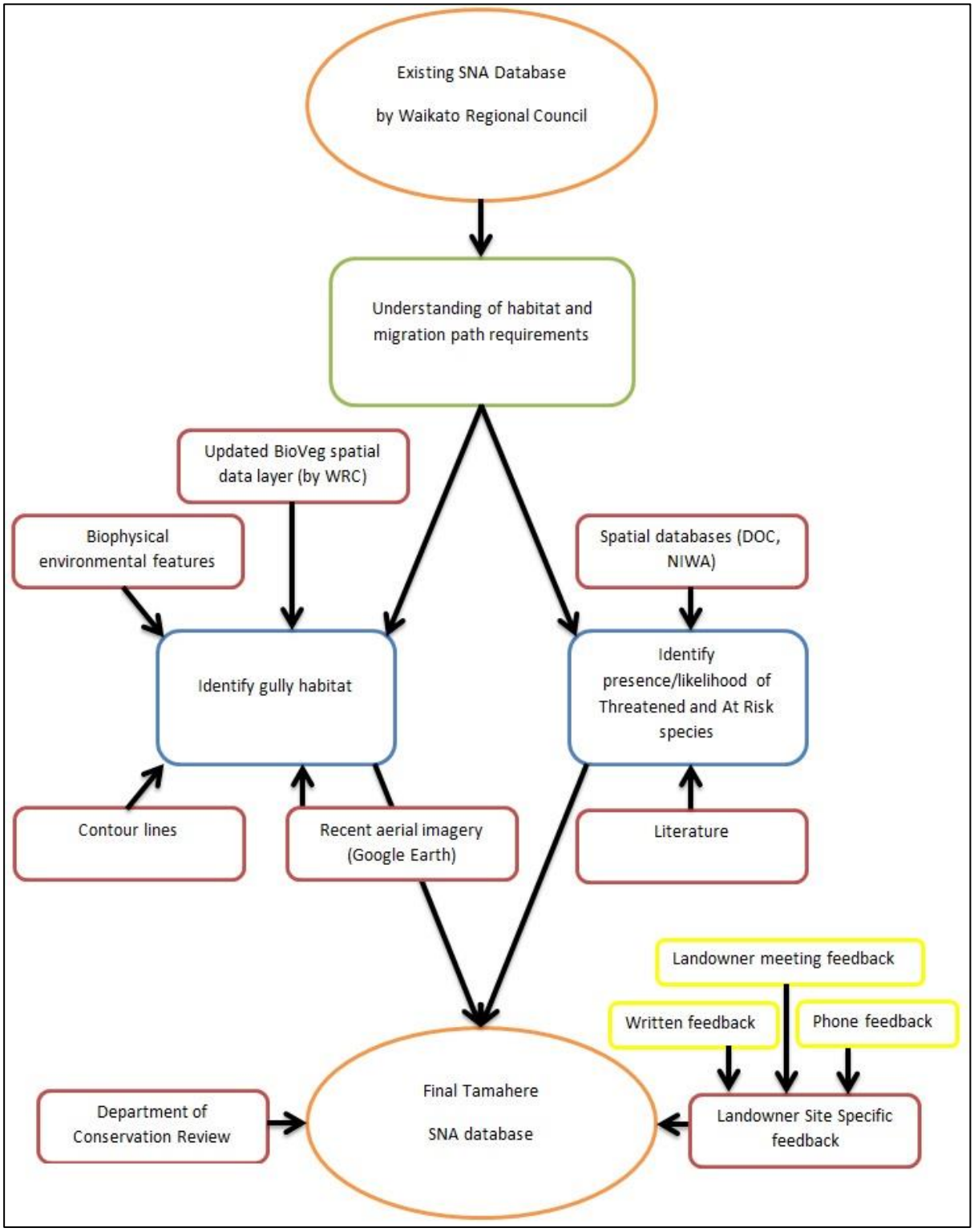


**Figure 4. Decision flowchart on how landowner feedback and other information led to the updated Tamahere gully SNA polygons.**

## 3.2 Key Results from Community Feedback

Information was collated from 678 phone calls. Further, information from 152 landowners collected at the workshop meetings, and 354 feedback forms was also incorporated in the review process. In addition, detailed information was taken from the 50 site visits.

Feedback provided by landowners focussed predominantly on pest animals, pest plants, status of grazing/fencing of the natural areas, as well as some information on surrounding

land use. This information was added to the Master Data Set and changes made where and when appropriate.

A summary of the type of changes included:

- adding information on animal pests, plant pests, fencing and grazing status;
- adding site specific information on flora and fauna species present; and
- adding information on other issues.

A total of 1023 changes were made to specific attributes cells in the spreadsheet Master Data Spreadsheet, of which most were changes made to pest animal, pest plant, and stock issue columns.

Amendments and additions were made to 61 SNA site descriptions based on landowner feedback, mostly to SNAs which are small or in remote places with little existing knowledge.

Overall, the confidence level of the SNA sites on which feedback was received increased, particularly when a visit was paid to a site, resulting to 222 changes in the level of confidence.

Generally, it was difficulty to make changes to the significance ranking based only on verbal feedback received. Generally changes were made when a site was visited and more detailed information was able to be gathered by the project ecologists. Based on the landowner feedback, 22 changes were made to the significance ranking, while a total of 31 amendments were made to the significance justification.

Combining the feedback provided by DOC and private landowners/local communities, a total of 84 changes were made to the level of significance (Table 5), and 1379 changes made to the level of confidence (Table 6).

**Table 5. Total number of SNA sites assessed for significance in the Waikato District before and after consultation with DOC and private landowners/local communities.**

| | Number of Sites | | |
|---|---|---|---|
| **Significance** | **Pre-consultation** | **Post-consultation** | **Difference** |
| **A. Significance level allocated** | | | |
| International | 2 | 2 | 0 |
| National | 20 | 20 | 0 |
| Regional | 84 | 87 | 3 |
| Local | 554 | 588 | +34 |
| **B. No Significance level allocated** | | | |
| Likely | 142 | 128 | -14 |
| Indeterminate | 387 | 359 | -28 |
| Not Significant | 409 | 414 | 5 |
| **Grand Total** | **1598** | **1598** | **84** |

**Table 6. Significance and confidence levels in the Waikato District before and after consultation with DOC and private landowners/local communities.**

| Significance level | High | | Medium | | Low | | Grand Total | |
|---|---|---|---|---|---|---|---|---|
| | Number of Sites | | Number of Sites | | Number of Sites | | Number of Sites | |
| | Pre | Post | Pre | Post | Pre | Post | Pre | Post |
| International | | | 2 | | | | 2 | 2 |
| National | 5 | | 13 | 2 | 2 | | 20 | 20 |
| Regional | 4 | 5 | 41 | 14 | 39 | 1 | 84 | 87 |
| Local | 17 | 6 | 128 | 57 | 409 | 24 | 554 | 588 |
| Likely | | 34 | 15 | 243 | 127 | 311 | 142 | 128 |
| Indeterminate | 1 | | 40 | 33 | 346 | 95 | 387 | 359 |
| Not Significant | 21 | 2 | 49 | 85 | 339 | 271 | 409 | 414 |
| **Grand Total** | **48** | **47** | **288** | **434** | **1262** | **702** | **1598** | **1598** |

## 3.3 Geometry

Numerous changes were made to the geometry of SNAs in the spatial layer. Changes were made based on feedback received from landowners (i.e. annotated maps received with feedback forms and maps annotated during workshop meetings), as well as amending the SNA spatial layer using the latest BIOVEG spatial layer (provided by WRC). Changes included:

- exclusion of areas where no indigenous habitat was present;
- exclusion of areas where canopy cover was marginal (often due to grazing);
- exclusion of buildings and other structures; and
- amending geometry to better resemble the extent of the SNA.

SNAs, for which no feedback was given, were reviewed in GIS and changes made where appropriate. As one SNA often encompassed several polygons (SNA parts), changes were counted as the number of individual SNA polygons amended. A total of 409 manual changes were made to the SNA spatial layer; 2730 SNA-parts will be updated using the latest BIOVEG layer (this will be done by WRC staff); and 3950 SNA-parts required no changes.

## 3.4 Other issues

Apart from feedback on SNAs WDC also asked landowners to provide feedback on how they think that WDC could assist landowners when it comes to protecting and enhancing SNAs.

The main feedback received was that WDC could help by:

- providing/assisting in purchasing plants for restoration;
- providing/assisting in fencing of SNAs;
- executing/assisting in animal pest control; and
- executing/assisting in plant pest control.

## 3.5 Key limitations

The key limitation in the process of implementing landowner feedback to the Master Data base is that most SNAs cover land of multiple landowners, and landowners were only able to provide feedback on SNAs on their property. An additional constraint was that the spatial data was created in such a way that many SNAs were grouped, often comprising natural features with different ecological features (i.e. grouping forest and wetland habitats in one SNA). Nevertheless, feedback on parts of a multipart SNA were incorporated as accurately as possible and changes to the SNA spatial data made accordingly.

# 4 Recommendations for the Management of SNAs

For the purposes of assessing the biodiversity management needs of the Waikato District it been divided into four broad management zones based on key geographical features, which also require different management strategies in terms of enhancing biodiversity values found within them (Figure 3). The management zones are:

- Waikato Floodplain Management Zone;
- Hill Country Management Zone;
- Western Hill Country and Coast Management Zone; and
- Hamilton Basin Management Zone.

The following sections outline restoration and management recommendations for the SNAs found in each management zone.

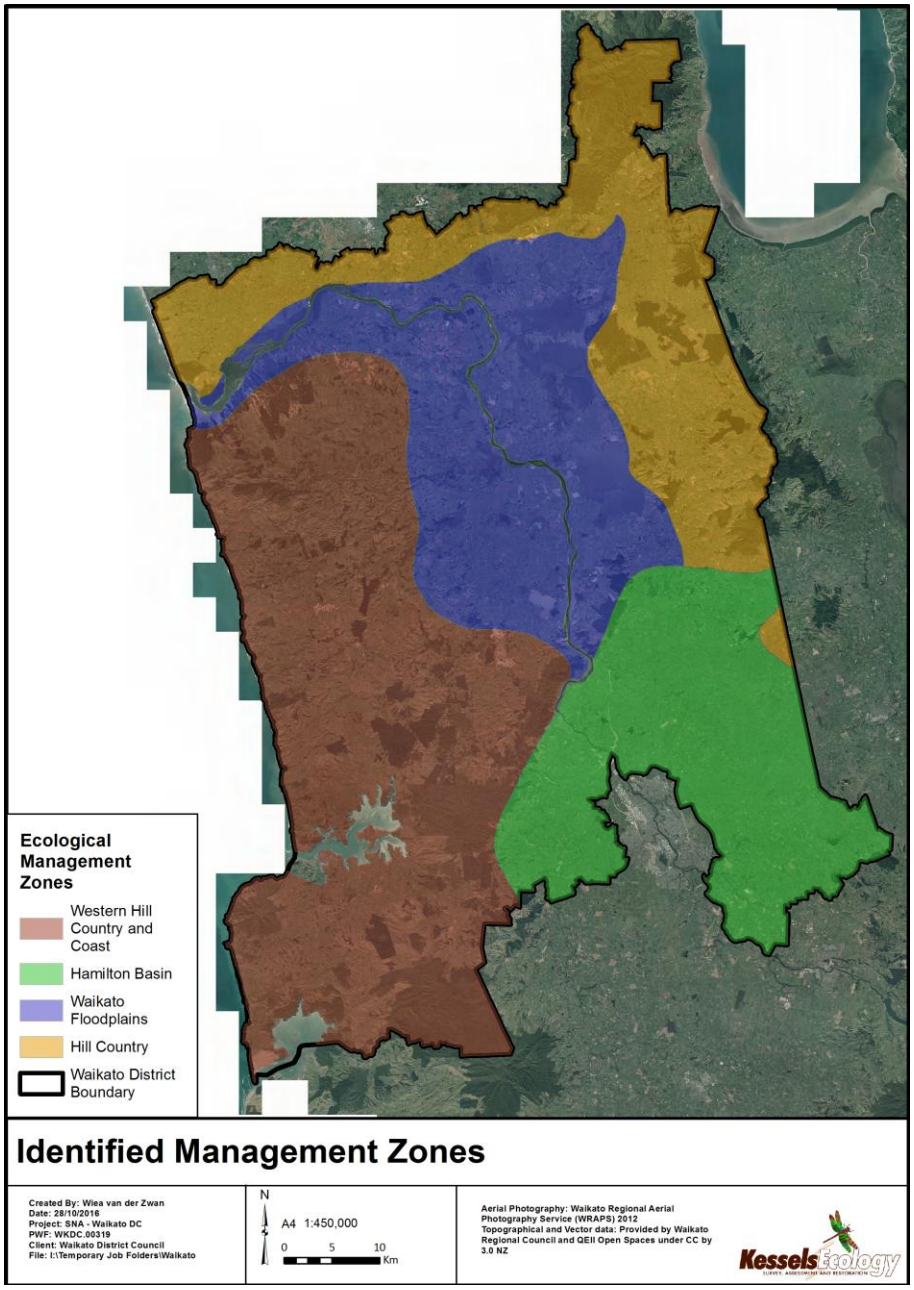


**Figure 3 Identified Ecological Management Zones within Waikato District.**

## 4.1 Waikato Floodplain Management Zone

The Waikato River is New Zealand's longest river and has its entire catchment in the Waikato Region starting at Lake Taupō, flowing 425 km before making its way out to sea at Port Waikato (Puuaha o Waikato). The Waikato River catchment is an extensive system covering many shallow lakes in the Waikato District, as well as many wetlands including the internationally recognised Whangamarino wetland. The Waikato River delta comprises an extensive complex of wetlands.

Many riparian margins have been lost from stream and river margins, and where present often comprise a mixture of indigenous and exotic vegetation. The river bank close to Hamilton city is often very steep, comprising a mixture of indigenous and exotic vegetation, whereas towards the downstream end of the Waikato River the banks are wide and willow- and alder comprise the main vegetation along the river. Among the riparian margins and wetlands however, many indigenous fauna exist, including threatened species.

The Waikato River catchment provides habitat for a range of indigenous species including as giant kokopu, shortjaw kokopu, longfin eels, lamprey, black mudfish, and long tailed bats. The catchment also provides spawning habitat for indigenous fish, which have diverse spawning requirements ranging from vegetated stream and river margins, to wetlands, to tidal reaches of rivers. Habitat is also provided in the catchment for trout, an introduced sports fish.

The Waikato River catchment contains several shallow lakes that lie within the Waikato District, such as lakes Waahi, Waikare, Whangape, Hakanoa and many more. The shallow lakes are often highly degraded and lack presence of macrophytes and many forms of indigenous life. Exotic fish and wind stir the bottom sediments, preventing the establishment of aquatic plants.

The main threat to the Waikato River Catchment including the extensive associated wetlands is drainage. More locally, threats to aquatic life is caused by the presence of exotic pest fish, surrounding landuse such as increased nutrient influx into water courses, as well as expanding living zones.

Ecological linkages along Waipa and Waikato River will need to be enhanced in order to maintain and enhance biodiversity values. Restoration can be achieved by promoting restoration of riparian margins through fencing, planting, and performing animal- and plant pest control.

Opportunities for WDC to encourage the protection and enhancement of the health and wellbeing of the Waikato River are to continue using the incentive rules that are currently in place; to provide opportunity for directed but limited levels of growth within rural areas such as is currently regulated in the Franklin Section of the District Plan. One way could be by identifying ecological corridors within the catchment and provide opportunities for these corridors to be restored and enhanced.

Furthermore, WDC can assist landowners in advising them and providing guidance to one of the many trusts that focus on restoring and enhancing the river catchment

## 4.2 Hill Country Management Zone

This zone comprises an extensive area of hill country bush between Miranda and Aotea Harbour including the extensive Hapuakohe, Taupiri, and Hakarimata ranges, and mounts Pirongia and Karioi. These ranges provide important habitat for many indigenous species and present a range of indigenous vegetation types such as rimu and tawa forest and podocarp forest.

The landscapes outside the significant areas of vegetation have been extensively modified by human activity. In the northern part of the district, there is little indigenous or riparian vegetation remaining. A number of areas of indigenous bush and wetland remnants have been protected in the past through incentive methods. However, these are limited in their ability to re-establish biodiversity and have contributed to an ad-hoc dispersal of countryside

living in the rural and coastal areas. Next to increased pressure from expanding living areas, the forest areas are threatened by pest animals, stock intrusions, and pest plants.

A number of areas of indigenous bush and wetland remnants have been protected by covenants through incentive methods. However, these are limited an ad-hoc way in their ability to re-establish biodiversity.

The large ranges are largely protected, and it is recommended that WDC to focus on the smaller bush and wetland remnants scattered throughout the landscape. The remnant bush and wetland habitats play an important/vital role in providing habitat for indigenous fauna as refugia amongst large areas of exotic vegetation, agricultural land, and residential areas. They serve as stepping stones between the different large hill ranges, but may also sustain a large variety of indigenous biodiversity by themselves.

From the landowner feedback it became clear that the main reason those remnants still exist in the otherwise farmed land is that these pockets of indigenous vegetation are often situated in areas that are impractical or economically unviable to farm. Many of those areas are currently unfenced and used as shade and shelter for stock. As a consequence unprotected fragments hold very little understorey species and are highly degraded by browsing of animal pests such/ as possums, goats, pigs and deer.

Key for these remnants is to minimise further degradation and clearance of indigenous vegetation and habitat identified as SNAs, and by encouraging the protection of these refugia and stepping stones.

Remnant wetland areas in this zone are equally important as refugia and stepping stones for indigenous fauna species, as well as serving as linkages and corridors between different waterbodies.

## 4.3 Western Hill Country and Coast Management Zone

The west coast of the District comprises an extensive area of rugged country with many limestone outcrops, steep cliffs, and often steep country with small pockets of indigenous forest remaining in otherwise farmed land. . The main issues in this country are the intrusion of goats and deer, browsing indigenous vegetation, as well as the difficulty of fencing natural areas.

This management zone includes several dune lakes such as lakes Otamatearoa, Parkinson, Puketi and Waitamoumou, which are small in size within small catchments (Dean Speirs and Neilson, 2014). Many of these lakes retain aquatic plant communities and have high restoration potential (Dean Speirs and Neilson, 2014).

As for the Waikato hill country, the West Coast remnant bush and wetland habitats play an important role in providing habitat for indigenous fauna as refugia amongst large areas of exotic vegetation, agricultural land, and residential areas. They serve as stepping stones between the different large hill ranges, as well as sustaining a large variety of indigenous biodiversity.

From the landowner feedback it is evident that, like the hill country areas, the main reason this remnants still exist in the otherwise farmed land is that they are often situated in areas that are impractical or economically unviable to farm. Although many of those areas are currently unfenced, they can hold a remarkable diverse range of understorey species and often are largely intact due to their location. Some of the bush remnants on flatter country are however highly degraded when unfenced and used for shade and shelter for stock. This part of the District is known to be a difficult area to manage ecologically, with the steep and erosion prone country making SNAs extremely difficult to fence off from stock. The remnants of indigenous vegetation comprise podocarp species mixed with broadleaf species

As the west coast country is so rugged and very difficult to fence, many landowners would appreciate the help of WDC and other means to assist in fencing, restoration planting and animal pest control.

Residential zones along the West Coast, such as Raglan, comprise several SNAs intertwined with residential properties and their gardens. These features have an amenity value as well as providing indigenous fauna and flora habitats. Furthermore, it was noted during site visits in Raglan that large areas of Council reserves (along the Kaitoke walkway for example) are largely overgrown by exotic weeds. Surrounding landowners often complained that they tried to keep their properties weed free, but weeds from Council land is encroaching onto their properties. Landowners have given feedback on the fact that they are willing to do weed control on Council land, provided that Council assists and possibly organises working bees.

## 4.4 Hamilton Basin Management Zone

Only small areas remain in forest and bush throughout the Hamilton Basin, many of which are remnant podocarp stands, often (historically) grazed extensively by stock. Although it the ecological significance of vegetation in these remnants is debateable in some cases, they do provide important stepping stones for indigenous fauna species such as many birds and threatened long-tailed bats.

Hamilton Basin contains several peat lakes, many of which are under threat from landuse, increased nutrient inputs, pest fish and drainage. Peat lakes are often shallow and have peat-stained water that is naturally acidic, conditions that support unique and ecologically significant species assemblages. Marginal wetlands surrounding peat lakes are also ecologically significant habitats that are often under threat from vegetation clearance and drainage. Examples include lakes Rotokauri, Areare and Kaituna.

The Tamahere gully system, south-east of Hamilton city, is a deeply cut gully system comprising the Mangaone, Mangaonua, and Mangaharakeke gullies. The gully vegetation comprises a mixture of indigenous and exotic vegetation. Despite the large portion of exotic vegetation, the gully systems provide important habitat for indigenous fauna species. Several threatened indigenous species are present, including black mudfish and longfin eels in the streams and wetlands, and long-tailed bats in the canopy of the riparian margins.

These gully systems are primarily threatened by the increasing pressure from surrounding landuse, such as road construction and expanding residential areas. Vegetation clearance, introduction of cats and other domestic animals pose a threat to the existing indigenous habitat.

Opportunities for WDC to encourage the protection and enhancement of the gully systems are to continue using the rules that are currently in place. In addition, extending the identification of gully systems as ecological significant to provide opportunities for subdivision would likely result in significant biodiversity benefits.

Furthermore, WDC can assist landowners in advising and providing guidance to community groups that are restoring and enhancing gully habitats. Restoration and enhancement of the gully system can be achieved by promoting restoration of riparian margins through fencing, planting, and performing animal- and plant pest control.

## 4.5 Key Recommendations

The main threats facing identified SNAs in the Waikato District are:

- vegetation clearance;
- stock intrusion into unfenced forest/shrubland/wetland areas;
- animal and plant pest degradation of all indigenous fauna and flora habitats; and
- degradation of the margins of estuarine wetlands and lakes by stock.

Essential components of the on-going protection and ecological restoration of biodiversity values of SNAs require enhancing indigenous populations of species through ongoing weed and animal pest management, stock exclusion, and carrying out enhancement planting. By applying these restoration objectives over a wide area, in particular when involving wetland

and riparian margins, ongoing biodiversity management will enhance and restore ecological processes at a landscape scale.

The overwhelming feedback from landowners on how WDC can help landowners in protecting and enhancing SNAs is that the majority of landowners are willing to undertake restoration. Many, if not most, landowners, are undertaking some form of management and informal already with or without out external support. The main constraint for landowners to fence, plant, and carry out plant and animal pest control the lack of resources to implement restoration measures and knowledge on how to best carry out specific restoration measures.

The WDC contestable fund has $30,000 set aside annually for ecological restoration and enhancement. The criteria for funding are currently set out in Council's Conservation Strategy and are primarily focused on areas protected by covenant. Furthermore, landowners may be eligible for rates relief for natural areas which are protected under a covenant. Based on our understanding funds are generally granted to larger projects or to landowners who have already covenanted and legally protected SNAs. We are unsure of the net benefit of the outcomes of this fund. We suggest that a review of the fund amount and criteria used to allocate the fund is made given the relatively small monetary amount set aside. There are many ecological significant and large SNAs found in the District, with an obvious desire by most landowners to carry out some form of biodiversity restoration who would greatly appreciate support in their efforts to do so.

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# 6 Glossary of Key Words

**Biodiversity:** The United Nations Conference on Environment and Development (UNCED), otherwise known as the Earth Summit, convened in Rio de Janeiro in June 1992, deliberated biodiversity conservation. One outcome was a definition of biodiversity in Article 2 of the 1992 Convention on Biodiversity, to which New Zealand (as well as 178 other countries) is a signatory, *viz.*:

*"*The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems". (UNCED, 1992)

In 1989 Greenpeace defined biodiversity as:

*"The wealth of life on earth, the millions of plants, animals and micro-organisms, the genes they contain, and the intricate ecosystems they help build into the living environment. Biological diversity is simply the end result of four billion years of evolution"* (McNeely, 1990: p23).

Lister (1998) proposes three general categories for biodiversity. The most common focus is on ecological structure; followed by a focus on function (ecological processes); and an implicitly value-oriented focus on wealth or richness (resources). The ecological hierarchy stipulates three general levels or scales: genes, species, and ecosystem or landscapes (Gunderson *et al.,* 1994). In short, the traditional and structural perspective is that biodiversity is "*the totality of genes, species and ecosystems in a region*" (World Resources Institute - WRI, *et al.*, 1992). These definitions tend to focus on the genetic diversity as such with little, if any, reference to the human factor (Blay & Piotrowicz, 1993). Such definitions tend to treat human activities and impacts as interventions into biophysical systems as opposed to being long-standing interactive elements or processes in ecosystems and as much an influence on biodiversity as "natural"

evolutionary characteristics. Lister therefore proposes the following heuristic definition of biodiversity in an attempt to expand the narrower views of biodiversity:
"*Biodiversity is the variety, distinctiveness and complexity of all life on Earth, including its structures, functions, cultures* [emphasis added], *and information at all scales (from genetic to global) and in all its contexts (from DNA to self-organization)*." (Lister, 1998: p16).

**Conservation Covenant:** Refer to Section 77 of the Reserves Act 177 (& amendments 1996): "The Minister, any local authority, or any other body approved by the Minister of Conservation, if satisfied that any private land or any Crown land held under Crown lease should be managed so as to preserve the natural environment, or landscape amenity, or wildlife or freshwater life or marine-life habitat, or historical value and that the particular purpose or purposes can be achieved without acquiring the ownership of the land ,or, as the case may be, of the leasee's interest in the land, for a reserve, may treat and agree with the owner or leasee for a covenant to provide for the management of that land that will achieve the particular purpose or purposes of conservation."

**Intrinsic Values** (as defined in section 2 of the Resource Management Act).

**Indigenous** means:
flora or fauna that has established in New Zealand without human assistance before or after the arrival of human beings, and includes species which are only found in New Zealand (endemic) as well as those found in New Zealand and also found elsewhere in the world.

**Ecosystem** means:
any interrelated and functioning assemblage of plants, animals, and substrates (including air, water, soil) on any scale, including the processes of energy flow and productivity.
"in relation to ecosystems, means those aspects of ecosystems and their constituent parts which have value in their own right, including:

a) The essential characteristics that determines an ecosystem's integrity, form, functioning, and resilience."
b) Their biological and genetic diversity.

# Appendix I
# Waikato Regional Policy Statement 2016 - 11A Criteria for determining significance of indigenous biodiversity

| | |
|---|---|
| **Previously assessed site** | |
| **1** | It is indigenous vegetation or habitat for indigenous fauna that is currently, or is recommended to be, set aside by statute or covenant or by the Nature Heritage Fund, or Nga Whenua Rahui committees, or the Queen Elizabeth the Second National Trust Board of Directors, specifically for the protection of biodiversity, and meets at least one of criteria 3-11. |
| **2** | *[Deleted]* |
| **Ecological values** | |
| **2A** | In the Coastal Marine Area, it is indigenous vegetation or habitat for indigenous fauna that has reduced in extent or degraded due to historic or present anthropogenic activity to a level where the ecological sustainability of the ecosystem is threatened. |
| **3** | It is vegetation or habitat that is currently habitat for indigenous species or associations of indigenous species that are:<br>• classed as threatened or at risk, or<br>• **endemic** to the Waikato region, or<br>• at the limit of their natural range. |
| **4** | It is indigenous vegetation, habitat or ecosystem type that is under-represented (20% or less of its known or likely original extent remaining) in an Ecological District, or Ecological Region, or nationally. |
| **5** | It is indigenous vegetation or habitat that is, and prior to human settlement was, nationally uncommon such as geothermal, chenier plain, or karst ecosystems, hydrothermal vents or cold seeps. |
| **6** | It is wetland habitat for indigenous plant communities and/or indigenous fauna communities (excluding exotic rush/pasture communities) that has not been created and subsequently maintained for or in connection with:<br>• waste treatment;<br>• wastewater renovation;<br>• hydro electric power lakes (excluding Lake Taupō);<br>• water storage for irrigation; or<br>• water supply storage;<br>unless in those instances they meet the criteria in Whaley et al. (1995). |
| **7** | It is an area of indigenous vegetation or naturally occurring habitat that is large relative to other examples in the Waikato region of similar habitat types, and which contains all or almost all indigenous species typical of that habitat type. Note this criterion is not intended to select the largest example only in the Waikato region of any habitat type. |
| **8** | It is aquatic habitat (excluding artificial water bodies, except for those created for the maintenance and enhancement of biodiversity or as mitigation as part of a consented activity) that is within a stream, river, lake, groundwater system, wetland, intertidal mudflat or estuary, or any other part of the coastal marine area and their margins, that is critical to the self sustainability of an indigenous species within a catchment of the Waikato region, or within the coastal marine area. In this context "critical" means essential for a specific component of the life cycle and includes breeding and spawning grounds, juvenile nursery areas, important feeding areas and migratory and dispersal pathways of an indigenous species. This includes areas that maintain connectivity between habitats. |
| **9** | It is an area of indigenous vegetation or habitat that is a healthy and representative example of its type because:<br>• its structure, composition, and ecological processes are largely intact; and<br>• if protected from the adverse effects of plant and animal pests and of adjacent land and water use (e.g. stock, discharges, erosion, sediment disturbance), can maintain its **ecological sustainability** over time. |
| **10** | It is an area of indigenous vegetation or habitat that forms part of an **ecological sequence**, that is either not common in the Waikato region or an ecological district, or is an exceptional, representative example of its type. |
| **Role in protecting ecologically significant area** | |
| **11** | It is an area of indigenous vegetation or habitat for indigenous species (which habitat is either naturally occurring or has been established as a mitigation measure) that forms, either on its own or in combination with other similar areas, an ecological buffer, linkage or corridor and which is necessary to protect any site identified as significant under criteria 1-10 from external adverse effects. |

# Appendix II
# Existing key WRC and WDC Policy pertaining to Significant natural Areas

The natural environment is protected under many policies and rules on National, Regional, and District level. The Resource Management Act (1991) is the nationally overarching act, under which the Waikato Resource Management Strategy by the Waikato Regional Council sits, and finally the Waikato District Plan holds many policies to safeguard natural features and areas of indigenous habitat in the district. Below is a brief summary of policies and provisions present on all levels.

## Resource Management Act & Council's Obligations

The overarching policy determining the responsibilities of the Regional and District Councils is the Resource Management Act 1991 (RMA). The RMA has an emphasis on sustainable management, which means that the Regional Councils have a responsibility to provide for the protection of areas of "significant indigenous vegetation and significant habitats of indigenous fauna" as a matter of national importance (section 6(c), Resource Management Act, 1991). The purpose of the RMA is stated in Section 5 (WRC, 2012):

1. *"The purpose of this Act is to promote the sustainable management of natural and physical resources.*
2. *In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while*
    a). *sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations;*
    b). *safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
    c). *avoiding, remedying, or mitigating any adverse effects of activities on the environment."*

Furthermore, the relevant provisions stated in Section 6 are:

*"In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:*

a) *the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development;*
b) *the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development; and*
c) *the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna"*

The decision-making functions of the RMA are undertaken by regional and district councils. District Councils must give primacy to the provisions of Part II of the Resource Management Act 1991, in particular Section 6(c).

*"The RMA requires every region to prepare a regional policy statement. The purpose of a regional policy statement is to achieve the purpose of the RMA by providing an overview of the resource management issues of the region, and policies and methods to achieve integrated management of the natural and physical resources"* (WRC, 2012).

## Regional Policy Statement

This Regional Policy Statement (RPS) is a statement of policy for the Waikato region as constituted by the Local Government (Waikato Region) Reorganisation Order 1989 and covers all Districts in the Waikato Region (WRC, 2012). The following policies are relevant for the SNA project:

- Policy 11.1 Maintain or enhance: *indigenous biodiversity*

*Promote positive indigenous biodiversity outcomes to maintain the full range of ecosystem types and maintain or enhance their spatial extent as necessary to achieve healthy ecological functioning of ecosystems, with a particular focus on:*

*aa). working towards achieving no net loss of indigenous biodiversity at a regional scale;*

*a). the continued functioning of ecological processes;*

*ab). the re-creation and restoration of habitats and connectivity between habitats;*

*b). supporting (buffering and/or linking) ecosystems, habitats and areas identified as significant indigenous vegetation and significant habitats of indigenous fauna;*

*c). providing ecosystem services;*

*d). the health and wellbeing of the Waikato River and its catchment;*

*e). contribution to natural character and amenity values;*

*f). tāngata whenua relationships with indigenous biodiversity including their holistic view of ecosystems and the environment;*

*g). managing the density, range and viability of indigenous flora and fauna; and*

*h). the consideration and application of biodiversity offsets.*

*Policy 11.1 of the RPS guides Waikato Regional Council and territorial authorities to maintain indigenous biodiversity wherever it occurs. An important component of the policy direction is to work towards no net loss for all indigenous biodiversity at a regional scale. The policy is also important where ecosystems have been depleted and fragmented, such as coastal and lowland ecosystems, and where maintaining indigenous biodiversity in the long term requires enhancement and restoration. The Policy will be implemented through a combination of both regulatory and non-regulatory mechanisms. This provides the flexibility to manage the varying local contexts and take into account the positive effects that some activities may have on indigenous biodiversity. Examples of this include positive effects from riparian planting.*

- Policy 11.2 Protect significant: *indigenous vegetation and significant habitats of indigenous fauna*.

*Significant indigenous vegetation and the significant habitats of indigenous fauna shall be protected by ensuring the characteristics that contribute to its significance are not adversely affected to the extent that the significance of the vegetation or habitat is reduced.*

*Policy 11.2 addresses the requirements of s6(c) of the Resource Management Act to protect areas of significant indigenous vegetation and significant habitat of indigenous fauna in terrestrial, freshwater, coastal and marine environments. The policy and methods recognise that protection of these areas requires that the areas and the characteristics that deem them to be significant are identified, that identification should be carried out in a consistent manner across the region, and that protection will be achieved through both regulatory and non-regulatory methods. Protection of significant sites need not prevent their use where activities will not materially compromise the characteristics or values which deemed the site significant. The enhancement of ecosystem types as identified in Policy 11.1 also applies to significant indigenous vegetation and significant habitats of indigenous fauna in Policy 11.2.*

To assess the significant indigenous vegetation and the significant habitats of indigenous fauna in an area, the criteria in section 11A of the RPS shall be used, refer to Appendix I of this report.

Within the RPS several areas and natural features within Waikato District get a special mention. These include:

- a Vision and Strategy is developed to manage the health and well-being of the Waikato River catchment and its tributaries;
- many provisions are set out to protect the coastal environments;
- Whangamarino wetland has been identified as being of international importance;
- several small waterbodies have been identified as being outstanding freshwater bodies (i.e. Lake Rotopiko (Serpentine), Lake Parangi, Lake Otamatearoa, and Lake Maratoto), but are highly vulnerable to a change in state from clear water and vegetated to one that is algal-dominated and devoid of submerged macrophytes; and
- Mount Karioi and Mount Pirongia have been identified as areas of outstanding natural features or landscapes (ONFL).

### Vision and Strategy for the Waikato River

The Waikato River Authority's Vision and Strategy for the Waikato River is a policy that sits above the RPS and sets out a number of objectives to be pursued to achieve the vision of "Tooku awa koiora me oona pikonga he kura tangihia o te maataamuri" ("the river of life, each curve more beautiful than the last"). This strategy applies to the entire Waikato River catchment, including the Waipa River and its catchment. One of the objectives contained in this document is "the recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities." A key implication of this Strategy for the WDC is the recognition that the Waikato River and its tributaries must not be degraded as a result of catchment development, and should be improved where possible.

### Waikato District Plan - Present Biodiversity Initiatives

As mentioned above, Regional and District Plans prepared must give effect to the Regional Policy Statement for the Waikato region.

*"In carrying out their resource management functions, local authorities shall maintain or enhance indigenous biodiversity. Territorial authorities shall be responsible for the control of the use of land to maintain indigenous biodiversity, excluding land in the coastal marine area and the beds of lakes and rivers, which shall be the responsibility of the Waikato Regional Council"* (WRC, 2012).

Currently, the Waikato District Plan comprised two separate sections after the merge of the Franklin District partly into the Waikato District resulting in a separate set of rules for the Waikato- and the Franklin section.

### Waikato Section

Conservation issues addressed in the District Plan (as part of sustainable management) follow the lead of the New Zealand Biodiversity Strategy, the Draft National Policy Statement on Biodiversity, and the Waikato District Conservation Strategy and relate to preserving:

- significant indigenous vegetation and significant habitats of indigenous fauna;
- existing ecological linkages along the Waipa and Waikato river catchments;
- hill country bush between Miranda and Aotea Harbour (including the Hapuakohe, Taupiri and Hakarimata ranges and mounts Pirongia and Karioi); and
- lakes and wetlands, including "Ramsar" wetlands. (The Ramsar Convention on Wetlands is an international treaty adopted by the New Zealand Government, to

ensure the conservation and wise use of wetlands. There are five Ramsar sites in New Zealand, including Whangamarino and Firth of Thames wetlands within the Waikato District).

Issues within the District Plan focusing on indigenous biodiversity and vegetation are:

- Issue 2: Indigenous vegetation and habitat
    - Objective 2.2.1 Indigenous biodiversity and the life-supporting capacity of indigenous ecosystems are maintained or enhanced.
- Issue 3: Natural features and landscapes
    - Objective 3.2.1 Outstanding natural features and landscapes are recognised and protected.
    - Objectives in 3.3A.1 follow the vision and strategy for the Waikato River which focuses on the selected items:
    - Objectives in 3.6.1 The natural character of the coastal environment, wetlands, and lakes and rivers and their margins is preserved.

Following the Issues, Objectives, and Policies, Rules are defined as a means of implementing the policies. Specific rules exist for activities permitted or prohibited and activities that require resource consent. Rules defined for explicit areas relating to the areas of indigenous vegetation and biodiversity include rules on:

- outstanding natural features and landscapes identified in the District Plan which are: Whangamarino Wetland, Hakarimata Range, Taupiri Range, Kokako Hills, Te Hoe, Mt Karioi, Papanui Point, Matakotako Area, Bridal Veil Falls, Mt Pirongia, Horea-Rangitoto Pt, Potaki Pt (Aotea Harbour north head), Waikato River, Lake Waikare, and Lake Whangape;
- indigenous vegetation Clearance. *"Ensuring protection of remaining habitat is the most important step to maintaining and enhancing biodiversity. Indigenous vegetation cover is also an important component of many outstanding landscapes. The rules within the Pa, Rural, Coastal, Country Living zones, and within the Landscape Policy Area of the Industrial Zone provide for a small area of clearance as a permitted activity. Clearing a larger area requires a consent to be obtained so that various matters can be considered. These include natural character, significant vegetation and habitat, amenity in terms of visual effects, and erosion and sedimentation. The rules provide for clearing former pasture lands that have recently reverted to indigenous vegetation. Where manuka, kanuka and treeferns dominate the canopy, the presence of other indigenous species in the canopy will not change the activity status of any clearance provided that those trees were present when the land was in previously in pasture"*; and
- gully protection. *"Gullies make an important contribution to ecological corridors, facilitating movement of wildlife between larger areas of conservation value. It is important to retain any indigenous vegetation that already exists in gullies for this reason. Gully restoration is desirable to enhance ecological, amenity and water and soil conservation values".*

(Waikato District Council Plan, 2013).

Planning maps in the District Plan will show the various policy areas and related rules specific for each area and zone.

Rules on indigenous vegetation clearance are described in Rules:

- 25.43 Indigenous vegetation clearance Landscape Policy Area Conservation Area; and
- 25.43A Indigenous vegetation clearance.

Gully habitats (which are identified on the Planning Maps) are currently protected under various rules:

- 27.40 Landscape and Conservation Policy Areas and gullies indigenous vegetation clearance;
- 27.40A Indigenous vegetation clearance;
- 27.54A Buildings near a gully; and
- 27.73 Gully protection and planting.

Protection of areas of significant indigenous vegetation or significant habitat of indigenous fauna can be achieved under Rule 25.73 (Conservation house allotment).

### 6.1.1 Franklin Section

The Franklin District Plan acknowledges there is a need to protect and enhance indigenous vegetation and habitat of indigenous fauna. These areas of indigenous vegetation and habitat of indigenous fauna are important in terms of biological diversity, life supporting capacity, landscape, open space, recreation and water quality. Two main Strategic Objectives are focused on the Sustainable Management of Natural and Physical Environment:

- to protect, restore and enhance the natural, physical and cultural resources of the district; while enabling the utilisation of such resources in an environmentally sustainable manner; and
- to provide for the sustainable use and management of highly valued land, including the life supporting capacity of soils, to ensure the productive potential, versatility and accessibility.

Part 5 of the Franklin Section of the District Plan focuses on the Conservation of Natural Features identifying the several issues and the main objectives of which the two below relate to preserving indigenous vegetation and biodiversity:

- indigenous ecosystems: avoid, remedy or mitigate the adverse effects of activities on the life supporting capacity of indigenous ecosystems; and
- water bodies: to preserve the features, elements and systems which contribute to and maintain the natural character of the west coast, Firth of Thames and Manukau Harbour coastal environments, and wetlands, lakes and rivers, and their margins, and to ensure that they are protected from inappropriate subdivision, use and development

Schedule 5A outlines identified features of special wildlife interest for which specific types of protection and adverse effects are listed. These features are protected under incentive methods and include the Hunua Ranges, Whangamarino Wetland, Waikato River and Wetlands, and several other areas (Franklin District Council, 2000).

Protection of areas of (potentially) significant indigenous biodiversity or areas that are part of an area identified as ecologically valuable (i.e. ecological corridors) within the Franklin District, Environmental Lot subdivision rules (Part 22B.11) provides opportunity for directed but limited levels of growth within rural areas and can only occur where:

- there is significant environmental benefit through environmental protection, enhancement, or restoration;
- subdivision is managed in an integrated manner;
- subdivision avoids, remedies or mitigates adverse effects;
- subdivision does not undermine the growth management strategy, including the role of the towns and villages; and
- it avoids the proliferation of countryside living lots across the district.

Rule 22b.11 makes a distinction between the Environmental Lots within the Environmental Enhancement Overlay Area (EEOA) and those outside the EEOA. The EEOA applies to an area where:

- *Significant removal or degradation of indigenous vegetation and freshwater wetlands has occurred;*
- *An extensive network of stream systems (some of which have been referred to as ecological corridors and illustrated on the planning maps) flow into the Manukau Harbour, which is a waterbody subject to considerable environmental pressure;*
- *There remain a number of small areas of remnant indigenous vegetation, small naturally occurring freshwater wetlands and ecological corridors that can be enhanced and restored to improve the overall terrestrial and aquatic biodiversity, catchment quality and natural environment of the area; and*
- *The greatest level of growth has occurred.*

*Within the EEOA, subdivision opportunity is available for the creation of Environmental Lots where there is protection and/or enhancement of identified significant natural features. Identified significant natural features are features that have a high conservation value. Subdivision opportunities provide for the protection and enhancement of these features, and where the feature is small in size, the rules require their restoration to create a larger more ecologically viable and resilient feature.*

*Additional subdivision opportunities are available within the EEOA for the protection, enhancement and/or restoration of a qualifying natural feature. These features typically are small and fragmented and do not have high ecological viability or conservation values. However, such features still have ecological values and merit and, where they exist on an eligible larger rural lot, the rules provide opportunities to protect, enhance and restore existing small or degraded habitats to what would have originally existed. This approach is intended to establish more ecological corridors and/or larger ecological stepping-stones to increase the viability of indigenous biodiversity in the EEOA. Restoration is expected to result in the expansion of the qualifying natural feature.*

*In the areas outside the EEOA, 'very limited' subdivision options are provided for. Subdivision opportunity is available for the creation of Environmental Lots where:*

- *there is protection, enhancement, and restoration of identified significant natural features; or*
- *there is protection and enhancement of a large area of qualifying natural feature comprising remnant indigenous vegetation and naturally functioning freshwater wetlands.*

(Franklin District Council. 2000)